DREDGING OF CAÑO MARTÍN PEÑA
PUERTO RICO
FINAL
PROJECT DESIGN REPORT AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX C
BRIDGE REPLACEMENT REQUIREMENTS

BRIDGES ON THE CAÑO MARTÍN PEÑA
SAN JUAN, PUERTO RICO

A RECONNAISSANCE LEVEL CONCEPTUAL STUDY AND COST ESTIMATE

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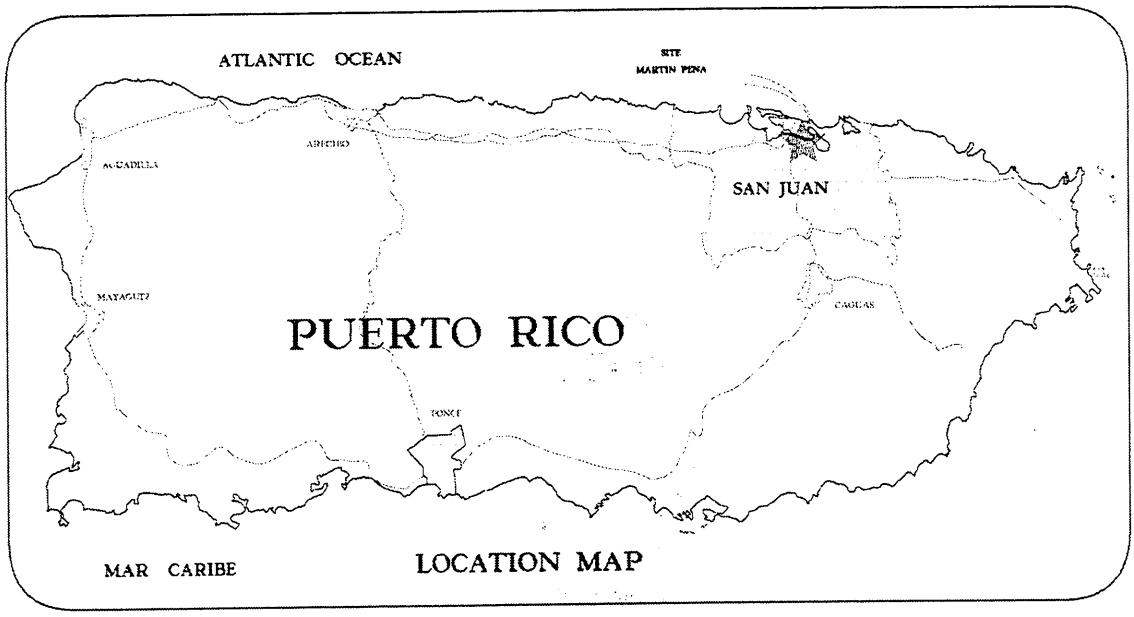

Prepared by HDR Engineering, Inc.
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1.0 Executive Summary

The Caño Martín Peña connects San Juan Bay with San José Lagoon to the East. The existing canal is shallow, with a typical depth of less than 1.0 meter (3 ft), and the tidal induced flow is insufficient to prevent deposition of large amounts of organic materials from sewer, industries, and low cost housing near the banks of the canals. As a result, water quality in the canal does not meet Federal or Puerto Rico water quality standards, creating a major health hazard.

The U.S. Army Corps of Engineers, for the Puerto Rico Department of Natural and Environmental Resources, is currently studying the proposed widening and deepening of the easterly portion of the Caño Martín Peña in order to improve the hydraulic capacity of the system, and as a result, the water quality of the region. The proposed plan provides for a sheet pile wall system along each bank, for the length of the project, with a channel width ranging from 45.7 meters (150 ft) to 70.1 meters (230 ft) as measured from face to face of walls. Similar improvements have already been made to the westerly portion of the Caño Martín Peña.

In addition to the improvements to the hydraulic capacity of Caño Martín Peña, the project sponsor is entertaining the idea of providing for ferry traffic between San Juan Bay and San Jose Lagoon. Ferry traffic has been in operation along the westerly portion of the Caño Martín Peña. In order to provide for navigation of the ferry traffic as well as dredging equipment, three bridges, the Luis Muñoz Rivera, Ponce de Leon, and the Dr. Barbosa Avenue Bridge, will have to be raised to provide a minimum of 6.1 meters (20 ft) vertical clearance. During previous investigations, the U.S. Army Corps of Engineers determined that the Luis Muñoz Rivera and the Dr. Barbosa Avenue bridges would require replacement to obtain the channel conveyance associated with the 3.0 meters (10 ft) deepening. The Ponce De Leon Avenue Bridge has adequate foundation clearance but would require replacement to obtain 6.1 meters (20 ft) vertical clearance to accommodate ferry traffic.

The Luis Muñoz Rivera Avenue Bridge and the Ponce De Leon Avenue Bridge for all practical purposes are parallel structures separated by the multi-story Mercantil Plaza to the south and a proposed bus to light rail (Tren Urbano) transfer station to the north. The Luis Muñoz Rivera Avenue Bridge carries traffic from Luis Muñoz Rivera Avenue and Fernandez Juncos Avenue in a southbound direction, with a dedicated northbound bus lane. The Ponce De Leon Avenue Bridge carries traffic in the northbound direction, with a dedicated southbound bus lane. The Tren Urbano elevated bridge structure approaches from the west, crosses over the Luis Muñoz Rivera bridge at a skew on the south side, crosses the Caño Martín Peña between the bridges, and curves away from Ponce de Leon to the north (See Figure 3, Appendix A). Jointly, these bridges form a three way interchange that is significantly impacted by the change in elevation of the two bridges. Due to insufficient vertical clearance under the Tren Urbano structure, a left turn from Ponce de Leon Avenue currently under construction will have to be replaced by a right exit ramp that loops under the elevated Ponce de Leon Avenue bridge. This ramp will provide access to the south of the proposed bus to light rail transfer station and cross over Fernandez Juncos Avenue adjacent to the overpass currently under construction (See Figure 38, Appendix B).

The Dr. Barbosa Avenue Bridge is located significantly to the east and has only a minor impact on the adjacent major intersections. The replacement structure will be located to the west of the existing structure in order to facilitate maintenance of traffic and provide an access road for properties to the east (See Figure 57, Appendix C).

Total estimated cost for raising and increasing the main span lengths of these three bridges, the approach roadway, and the necessary right of way is estimated at $17.5 million US dollars, which includes 5% for mobilization and 10% for contingencies (See Appendix D). Temporary detours are included in this cost-estimate with the exception of one temporary bridge required for maintenance of traffic during the construction of the Luis Muñoz Rivera Avenue and the Ponce de Leon Avenue bridges. This temporary bridge will be provided by the Authoridad de Carreteras y Transportacion (ACT) and is not included in this estimate.

2.0 Project Description

This project consists of raising three bridges and the necessary roadway modifications for the Luis Muñoz Rivera Avenue Bridge, the Ponce De Leon Avenue Bridge, and the Dr. Barbosa Avenue Bridge (listed from west to east). These bridges cross the easterly portion of the Caño Martín Peña (Martin Pena Canal) and have to be raised in order to provide for navigation of the proposed ferry traffic as well as dredging equipment required for channel excavation. Span lengths will be increased for compatibility with the new channel width. The westerly portion of this canal has already been dredged and provides access from San Juan Bay.

The preferred method for raising the bridges, roadway configurations, and right-of-way issues will be addressed in conjunction with the construction phasing requirements. A conceptual cost estimate will be developed using traditional unit costs based on plan area for the replacement structures and approach roadways. The cost of additional right-of-way, retaining walls, maintenance of traffic, and utility relocations will be quantified separately based on conceptual quantities and estimated unit cost.

3.0 Design Constraints and Assumptions

It is beyond the scope of this work to develop a detailed structural system for the replacement bridges. Unit costs are adjusted to reflect span lengths, foundation type, construction phasing, and level of architectural/historical requirements envisioned for the replacement bridges. Geometric considerations in this densely populated area, constructability and roadway compatibility outweigh the variability of unit costs and is of greater consequence to the validity of this report.

No geotechnical data was available for this report. The existing channel bottom will likely consist of a silty, highly organic material, interspersed with debris. However, the in-situ layers below this silty material should provide adequate bearing or frictional capacity to support the anticipated loading conditions.

This report was prepared without the benefit of traffic data. The design speed is assumed to be the same as the existing. Approach grades are increased from 0.02 to 0.03 where necessary to facilitate tie-in with the surrounding infrastructure. The proposed ramp to PR-1 from Ponce de Leon Avenue requires a grade of 0.045 in order to provide vertical clearance at Fernandez Juncos Avenue.

For purposes of developing this report, Luis Muñoz Rivera Avenue and Ponce de Leon Avenue are categorized as Avenues, road class U-6. Dr. Barbosa Avenue is classified as a principal street, road class code U-8. Design loading conditions are assumed as AASHTO HS20 live load.

3.1 Proposed Structural System

AASHTO girders and prestressed concrete piles were selected as the preferred structural element for the proposed bridges, since they are readily available in Puerto Rico and will likely provide for the lowest cost alternative. Steel girders and/or piling were considered but abandoned due to

higher initial cost and additional maintenance requirements. Type III AASHTO girders at a spacing of 2.1 to 3.0 meters (7 to 10 ft) will be adequate for the anticipated span lengths of 20 to 24 meters (66 to 79 ft). Bridge suspended utilities can easily be accommodated between the girders of the replacement structures. A wall type pier supported on a pile footing and a pile supported abutment appears to be in line with local standard practice and is therefore recommended for the replacement structures. It is envisioned that an architectural facia as well as an architectural treatment for the railings and abutments will be required for the Ponce De Leon Bridge due to the historical nature of this bridge.

3.2 Right of Way

Limited right-of-way information was available at the time of this study. Construction plans for the Tren Urbano project reveal some information about the existing right-of-way near the Luis Muñoz Rivera Avenue and the Ponce de Leon Avenue bridges (See Figure 74 thru Figure 81, Appendix E). Approximate boundaries of adjacent properties are used to approximate right-of-way locations in other locations and to estimate additional right-of-way requirements.

Vertical structural walls are used where possible to limit the amount of additional right-of-way required on this project. However, sloped fill is proposed where property values would be reduced significantly due to the roadway improvements. For example, a gas station that depends exclusively on access from an adjacent roadway cannot function when the road is raised by 3.0 meters (10 ft).

Therefor, additional permanent right-of-way is proposed for the Luis Muñoz Rivera and Ponce de Leon Avenue bridges as follows;

- To the north, for the proposed loop ramp and roadway tie-in (See Figure 65, Appendix D).
- To the south, for access to the Mercantil Plaza building to the west and a residential neighborhood to the east (See Figure 66, Appendix D).

A shift in roadway alignment for the Dr. Barbosa Avenue bridge requires permanent right-of-way to the west but reduces impact to properties to the east by maintaining part of the original roadway as an access road (See Figure 67, Appendix D). The availability of excess right-of-way also reduces the amount of vertical structural walls required for this bridge.

In addition to the permanent right-of-way requirements, some temporary right-of-way will be required to the west and to the south of the Luis Muñoz Rivera Avenue Bridge. This right-of-way will be used for access to a temporary bridge, which will be required for maintenance of traffic during construction of the Luis Muñoz Rivera and Ponce de Leon Avenue bridges. No temporary right-of-way is required at the Dr. Barbosa Avenue Bridge since the replacement bridge is offset from the existing alignment.

3.3 Utility Relocation

This report was prepared without the benefit of specific utility data. The existing bridge plans show no utilities suspended from the Luis Muñoz Rivera Avenue Bridge, a large number of utilities suspended from the Ponce De Leon Avenue Bridge, and only one 12" diameter pipe suspended from the Dr. Barbosa Avenue Bridge. These utilities vary in size from less than 0.1 meter in diameter (4 inches) to 0.5 meters (20 inches). The larger pipes are assumed to be potable water and sanitary sewer lines, where as the smaller utilities are located in two major duct banks (12 – 16 ducts each), and are assumed to be electrical and communications lines. All utilities will require relocation to the replacement bridges. In some instances, the utilities may need to be

suspended from temporary supports during construction of the replacement structure, the cost of which is included in this estimate.

3.4 Cost Estimates

This cost estimate is prepared based on a conceptual bridge replacement without the benefit of design or an itemized list of quantities. Bridge costs are approximated with a historical unit cost for bridges of similar types of construction, and are based on the plan area of the bridge deck. This unit cost includes piers, foundations, and piling. Conceptual unit costs shown in this report represent a present day cost and has been adjusted to account for project location and anticipated level of architectural treatment for each bridge. The following is a listing of approximate unit costs used:

- Bridge costs (including foundation) are estimated at $650 per square meter ($60 per square foot) for the Luis Muñoz Rivera and the Dr. Barbosa Avenue Bridges, and $750 per square meter ($70 per square foot) for the Ponce de Leon Avenue Bridge for architectural treatment.
- Permanent roadway costs are estimated at $100 per square meter ($9 per square foot).
- Retaining walls are estimated at $250 per square meter ($23 per square foot).
- Permanent Right of Way is based on $200 per square meter ($19 per square foot).
- Temporary Right of Way is based on $20 per square meter ($2 per square foot).
- Roadway fill is estimated at $10 per cubic meter ($7 per cubic yard).
- Relocation of Utilities is estimated as a $500,000 lump sum for the Ponce De Leon Avenue Bridge and $100,000 lump sum for the Dr. Barbosa Avenue Bridge. No utility relocation is required for the Luis Muñoz Rivera Avenue Bridge.
- Temporary roadway costs based on $40 per square meter ($4 per square foot).
- Temporary bridge, as required for maintenance of traffic, will be provided by the Authoridad de Carreteras Y Transportacion (ACT) and is not included in this estimate.
- Maintenance of traffic is estimated as a lump sum, approximately equal to approximately 10 percent of the bridge cost.
- 5% Mobilization and 10% for contingencies is added to the total cost.

This estimate does not include the costs of relocating residential and commercial structures that will be effected by the bridge replacements.

4.0 Luis Muñoz Rivera Avenue Bridge, Highway 1

Currently, the Luis Muñoz Rivera Avenue Bridge carries two lanes of traffic from Luis Muñoz Rivera Avenue and three lanes of traffic from Fernandez Juncos Avenue in the southbound direction, as well as a dedicated northbound bus lane (See Figure 68, Appendix E). The Tren Urbano Bridge structure crosses over the Luis Muñoz Rivera Avenue Bridge to the south. Curb and gutter with sidewalks exist on both sides of the south approach and along Fernandez Juncos Avenue to the north. No sidewalks are currently provided on the bridge.

4.1 Existing Bridge

The existing bridge carries five 3.1 meter (10.3 foot) southbound lanes separated by a median barrier from a 6.4 meter (21.0 feet) width dedicated as a northbound bus lane that is currently closed for construction of Tren Urbano. The total bridge deck width is 24.42 meters (80.1 feet), which is approximately twice as wide as the original structure prior to a major widening. The widened portion of the structure consists of concrete deck and AASHTO type prestressed concrete girders with span lengths of 23.3 to 30.0 meters (76.5 to 98.4 feet). The older structure consists of concrete deck and steel girders with main spans of 23.3 to 30.0 meters (76.5 to 98.4

feet) and 10 meter (32.8 feet) trestle type approach spans. The total bridge length is 246.9 meters (810 feet), as measured between face of abutments. Existing vertical clearance measures approximately 3.2 meters (10.5 feet).

4.2 Proposed Bridge Replacements

The proposed structure will be located on a slight skew, with piers and abutments aligned with the Martin Peña canal. The bridge will consist of four 24 meter (79 foot) spans for a total bridge length of 96 meters (315 feet). The bridge width is 29.2 meters (96 feet) and consists of five southbound lanes, one northbound bus lane, and two sidewalks (see Figure 2, Appendix A). The west sidewalk is protected from adjacent traffic by a traffic railing barrier due to the assumed design speed. However, a raised sidewalk is used on the east side due to reduced design speeds for the dedicated bus lane. The bridge will be approximately 3 meters (10 feet) higher, 4.8 meters (15.7 ft) wider, and 151 meters (495 ft) shorter than the existing bridge, and will provide a minimum water vertical clearance of 6.1 meters (20 feet) and a minimum Tren Urbano vertical clearance of 6.8 meters (22.3 ft).

4.3 Proposed Roadway Improvements

In order to accommodate the raised bridge, the approach roadway must be raised and tied back into the existing roadway. A design speed of 90 km/hour (56 miles per hour) is assumed at the bridge due to southbound traffic coming from Highway 1, even though there are traffic lights to the south and to the north on Fernandez Juncos. A 2.9% grade is used to the south of the bridge with a -0.3% grade to the north for Luis Muñoz Rivera leading up to a -4.8% grade for Fernandez Juncos near the bus station (See Figure 71, Appendix E). Approximate roadway tie-in occurs 200 meters (660 feet) to the south, 140 meters (460 feet) to the north on Luis Muñoz Rivera Avenue, and 195 meters (640 feet) for Fernandez Juncos Avenue. Retaining walls are used on both sides for the length of the south approach while fill slopes are used on the north approach due to available right-of-way.

4.4 Maintenance of Traffic Considerations

The following maintenance of traffic scheme is assumed: Shift two southbound Luis Muñoz Rivera Avenue lanes onto a temporary bridge west of the existing Luis Muñoz Rivera Avenue bridge. Shift three southbound Fernandez Juncos lanes to the left and remove bus lane barrier. This leaves room for three more lanes of traffic on the Luis Muñoz Rivera Avenue bridge.

In order to maximize the use of the temporary detour, the Ponce de Leon Avenue bridge can be constructed prior to the Luis Muñoz Rivera Avenue bridge as follows: Shift the northbound Ponce de Leon traffic onto the Luis Muñoz Rivera Avenue bridge. Remove the existing Ponce De Leon Avenue Bridge and construct the replacement structure, the approaches, and the loop ramp (Figure 6 and Figure 9, Appendix A). Relocate Ponce de Leon Avenue traffic to the final configuration and remove and re-construct the right side of the Luis Muñoz Rivera Avenue bridge and approach roadway (See Figure 7, Appendix A). Shift southbound Fernandez Juncos lanes to the newly constructed structure and remove and re-construct the left portion of the bridge (See Figure 8, Appendix A). Shift traffic into the final configuration and remove the temporary bridge.

5.0 Ponce de Leon Avenue Bridge, Highway 25

At present, the Ponce De Leon Avenue Bridge carries Highway 25 traffic in the northbound direction, with a dedicated southbound bus lane. Due to insufficient vertical clearance under the Tren Urbano structure, a left turn to Highway 1 from Ponce de Leon Avenue (currently under construction) will have to be replaced by a right exit ramp that loops under the elevated Ponce de Leon Avenue bridge (See Figure 69, Appendix B).

5.1 Existing Bridge

The Ponce de Leon Avenue Bridge was built in 1939 and has many distinctive features for this older structure. This 16.9 meter (55.4 feet) wide bridge carries four 3.0 meter (9.8 feet) northbound lanes with a 2.0 meter (6.6 feet) raised sidewalk and a pedestal and decorative rail type barrier on both sides (See Figure 69, Appendix E). The pedestals encroach into the sidewalk by 0.7 meters (2.2 feet) and originally housed lighting fixtures that have been removed due to vandalism. The bridge deck consists of concrete deck and steel girders with a concrete facia girder. Utilities are generally located between the main girders, but a multitude of smaller pipes are concealed but mounted on the west facia girder. The structure is comprised of five spans ranging from 12.8 to 16.0 meters (42.0 to 52.5 feet) for a total bridge length of 73.5 meters (241.0 feet), as measured between face of abutments. Existing vertical clearance measures approximately 3.1 meters (10.2 feet).

5.2 Proposed Bridge Replacements

Just like the Luis Muñoz Rivera Avenue bridge, the proposed structure will be located on a slight skew, with piers and abutments aligned with the Martin Peña canal. The bridge will consist of four 24 meter (79 foot) spans for a total bridge length of 96 meters (315 feet). The proposed bridge width is 27.6 meters (91 feet) and consists of four northbound lanes, one southbound bus lane, and two sidewalks (see Figure 38, Appendix B). Raised sidewalks are used on both sides of the bridge without traffic railing barriers between adjacent traffic lanes. This is possible due to the reduced design speeds for this bridge The bridge will be approximately 3 meters (10 feet) higher, 10.7 meters (35 ft) wider, and 22.5 meters (74 ft) longer than the existing bridge, and will provide a minimum vertical clearance of 6.1 meters (20 feet). An architectural fascia as well as an architectural treatment for the railings and abutments may be required for the Ponce de Leon bridge.

A secondary bridge, offset from the bridge currently under construction, is required for the loop ramp as it crosses over Fernandez Juncos Avenue (ramp PR-1). This bridge will be of similar construction as the existing, with precast box beams and pile supported piers and abutments. Some retaining walls will be required at the abutments and on the south-east side of the bridge (see Figure 3, Appendix A). The existing ramp bridge will be removed after completion of the new ramp.

5.3 Proposed Roadway Improvements

In order to accommodate the raised bridge, the approach roadway is raised and tied back into the existing roadway. A design speed of 70 km/hour (45 miles per hour) is assumed at the bridge due to traffic lights before and after the bridge and a reduced speed loop ramp to the north. A 2 percent grade is used leading up to the bridge and a –2 percent grade past the end of the bridge (See Figure 72, Appendix E). Approximate roadway tie-in occurs 180 meters (590 feet) to the south and 160 meters (525 feet) to the north. A loop ramp is required to replace a left-off ramp to

Highway 1. This ramp will loop back under the Ponce De Leon Avenue Bridge, and cross over the Fernandez Juncos Avenue approach to the Luis Muñoz Rivera Bridge. Retaining walls are used along the length of the approaches and the loop ramp, except on the south-west side of the bridge and the inside of the loop ramp where fill slopes are used. Access roads are required to the south of the Ponce De Leon Bridge to provide access to the Mercantil Plaza building to the west and the adjacent neighborhood to the east. Additional permanent right-of-way required for the loop ramp and access roads is conservatively estimated as 20,500 square meters.

5.4 Maintenance of Traffic Considerations

Construction of the Ponce De Leon Avenue Bridge is phased with the Luis Muñoz Rivera Avenue Bridge (See section 4.4).

6.0 Dr. Barbosa Avenue Bridge, Highway 27

The Dr. Barbosa Avenue Bridge is located significantly to the east of Luis Muñoz Rivera Avenue and Ponce de Leon Avenue. It is the most easterly bridge crossing over the Martin Peña Canal and carries northbound and southbound traffic. The replacement structure will be located to the west of the existing structure in order to facilitate maintenance of traffic and to provide an access road for properties to the east (See Figure 57, Appendix C).

6.1 Existing Bridge

The existing 15.9 meter (52.2 feet) wide bridge carries two northbound and two southbound 2.7 meter (8.9 feet) lanes with a 2.1 meter (6.9 feet) raised sidewalk and a pedestal and decorative rail type barrier on both sides (See Figure 70, Appendix E). The bridge deck consists of cast-in-place deck with longitudinal ribs at 1.22 meter (4.0 feet) spacing. The structure is comprised of six spans ranging from 9.7 to 10.1 meters (31.8 to 33.1 feet) for a total bridge length of 59.7 meters (195.9 feet), as measured between face of abutments. The bridge has high fencing on both sides in an attempt to prevent dumping. However, dumping does occur, and there are signs of major spalling under the southern end span, apparently as a result of fire. Existing vertical clearance measures approximately 3.1 meters (10.2 feet).

6.2 Proposed Bridge Replacements

The proposed structure will be offset to the west of the existing bridge, and will be on a slight skew, with piers and abutments aligned with the Martin Peña canal. The bridge will consist of two 20 meter (66 foot) end spans and two 24 meter (79 foot) main spans for a total bridge length of 88 meters (289 feet). The proposed bridge width is 19.2 meters (63 feet) and consists of two southbound lanes, two northbound lanes, and two sidewalks (see Figure 55 and Figure 56, Appendix C). The bridge will be approximately 3 meters (10 feet) higher, 3.3 meters (10.8 ft) wider, and 28.3 meters (92.8 ft) longer than the existing bridge, and will provide a minimum water vertical clearance of 6.1 meters (20 feet). High fencing will be required on the replacement bridge to reduce dumping.

6.3 Proposed Roadway Improvements

In order to accommodate the raised bridge, the approach roadway is raised and tied back into the existing roadway. A design speed of 70 km/hour (45 miles per hour) is assumed at the bridge due to traffic lights before and after the bridge. A 3.2 percent grade is used leading up to the bridge and a –3.2 percent grade past the end of the bridge (See Figure 73, Appendix E). Approximate roadway tie-in occurs 110 meters (360 feet) to the south and 110 meters (360 feet) to the north. Retaining walls are used along the west side of the approach roadway and around the abutments. Fill slopes are used along most of the east side. Raised sidewalks are used on both sides of the

bridge without traffic railing barriers between adjacent traffic lanes. This is possible due to the reduced design speeds for this bridge. The existing roadway will be converted to access roads for access to the adjacent neighborhood to the east (See Figure 55, Appendix C).

6.4 Maintenance of Traffic Considerations

The following maintenance of traffic scheme is assumed: Construct replacement bridge to the west of the existing bridge, and construct southbound approach roadway (See Figure 58, phase I). Shift southbound traffic onto newly constructed bridge and complete northbound roadway (See Figure 58, Phase II). Shift traffic into final configuration, remove existing bridge, and complete the access roads.

7.0 Conceptual Cost Estimate

Total estimated cost for raising and increasing the main span lengths of these three bridges, the approach roadway, and the necessary right of way is estimated at $20.5 million US dollars, which includes 5% for mobilization and 10% for contingencies (See Appendix D). A cost breakdown for each of the bridges is provided as follows:

- $ 6.0 million Luis Muñoz Rivera Avenue bridge
- $10.8 million Ponce de Leon Avenue bridge (including ramp PR-1 bridge)
- $ 3.6 million Dr. Barbosa Avenue bridge

Relocation of existing utilities is included in the estimated costs for each bridge. The temporary bridge required for maintenance of traffic during the construction of the Luis Muñoz Rivera Avenue and the Ponce de Leon Avenue bridges will be provided by the Authoridad de Carreteras y Transportacion (ACT) and is not included in this estimate. The costs for relocation of residential and commercial structures have not been included in this estimate.

Appendix A
Luis Muñoz Rivera Avenue Bridge
Geometric Layout and Photographs

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PROJECT _____ CALCULATION SHEET

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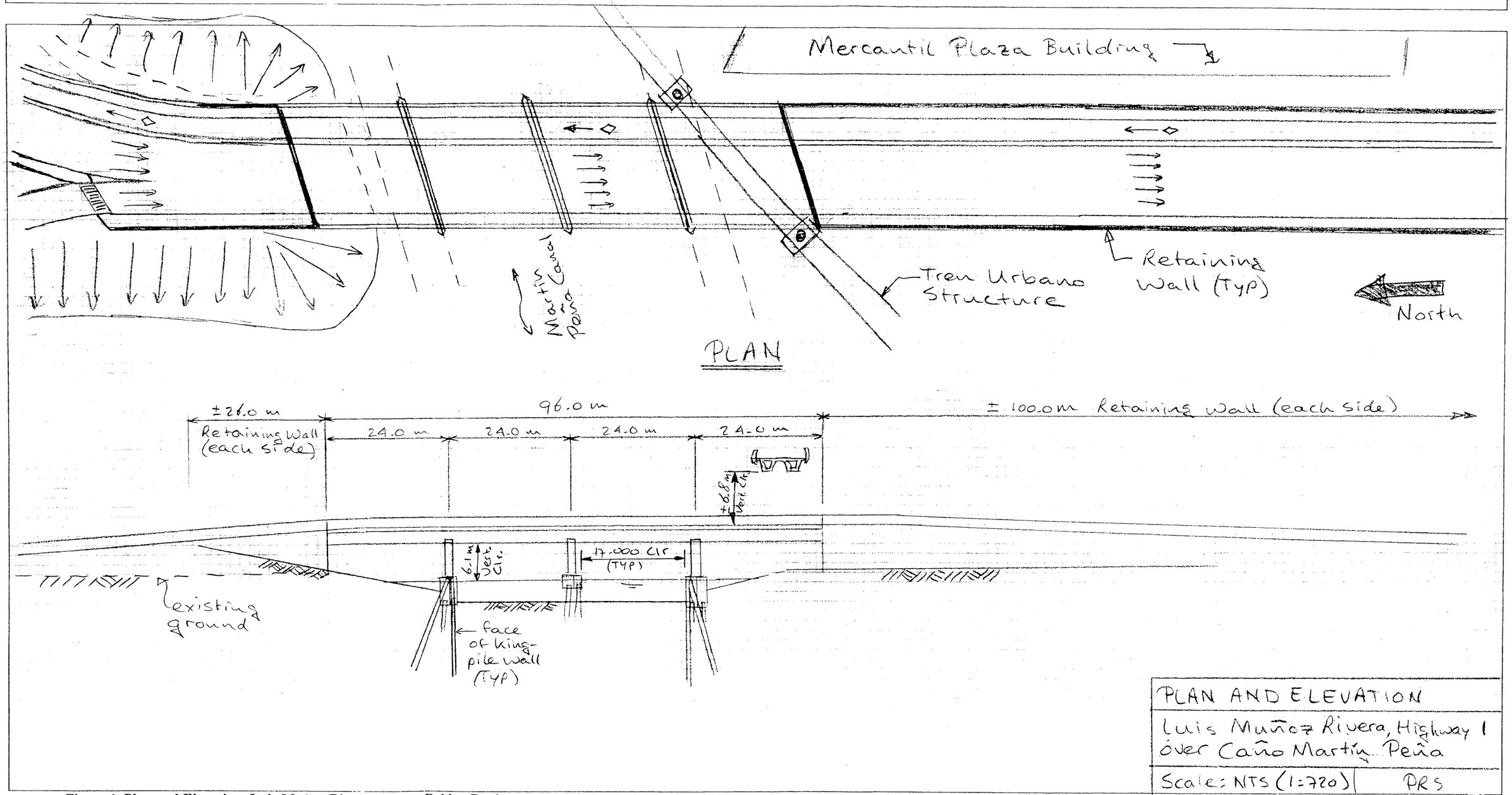
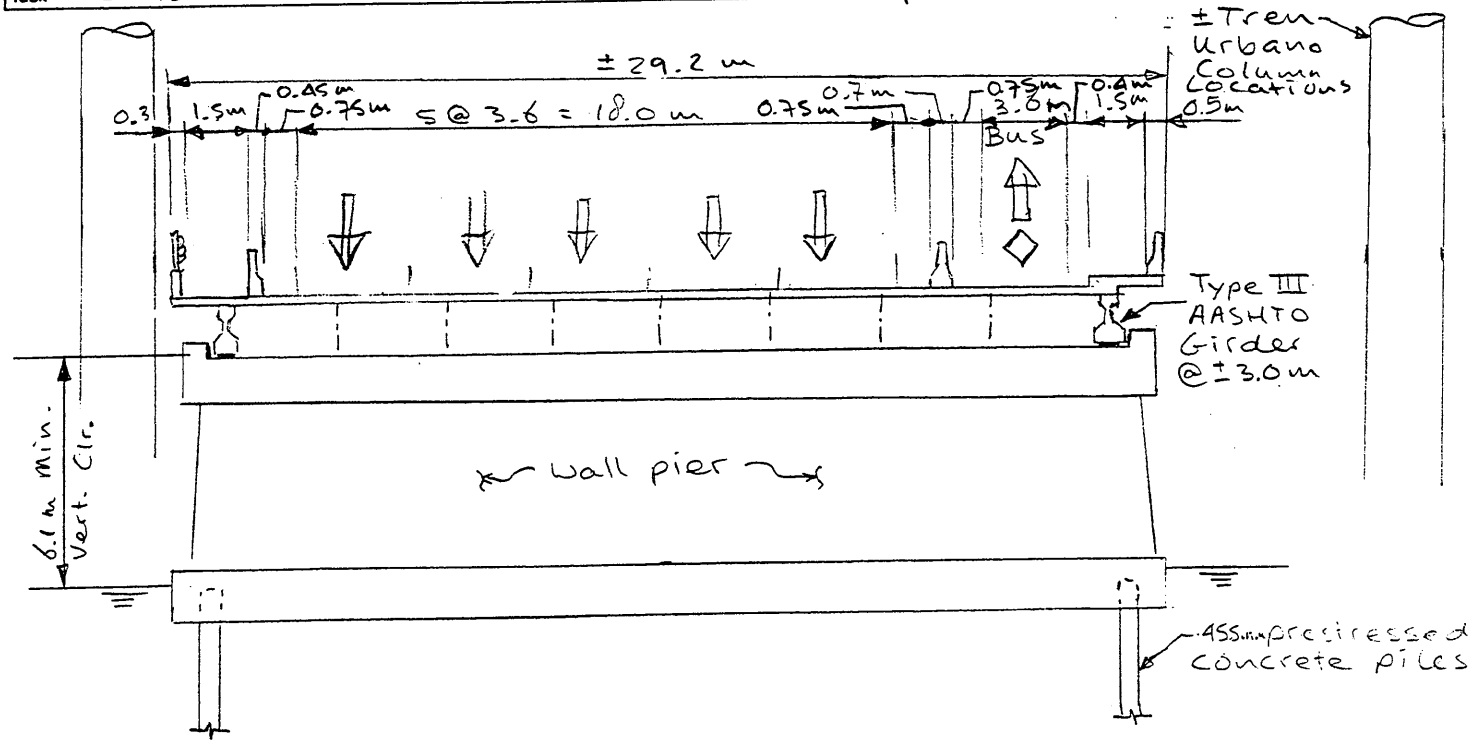


Figure 1 Plan and Elevation, Luis Muñoz Rivera Avenue Bridge Replacement

HDR Computation

Project	Caño Martín Peña Bridges	Computed PRS	Date
Subject	Bridge Typical Sections	Checked	Date
Task	Luis Muñoz Rivera Avenue Bridge	Sheet	Of



TYPICAL SECTION
(Scale 1:200)

Figure 2 Typical Section, Luis Muñoz Rivera Avenue Bridge Replacement

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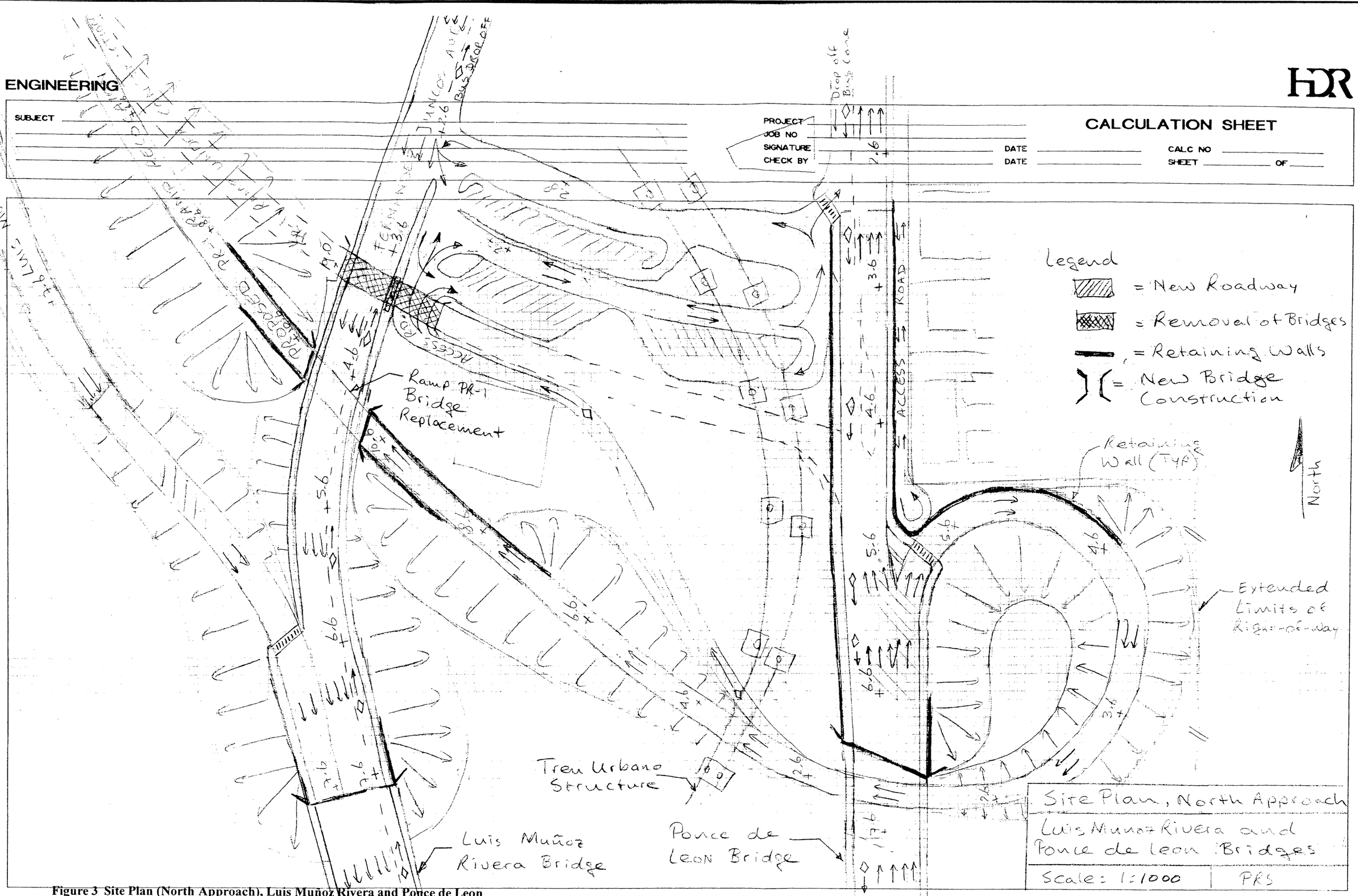

Figure 3 Site Plan (North Approach), Luis Muñoz Rivera and Ponce de Leon

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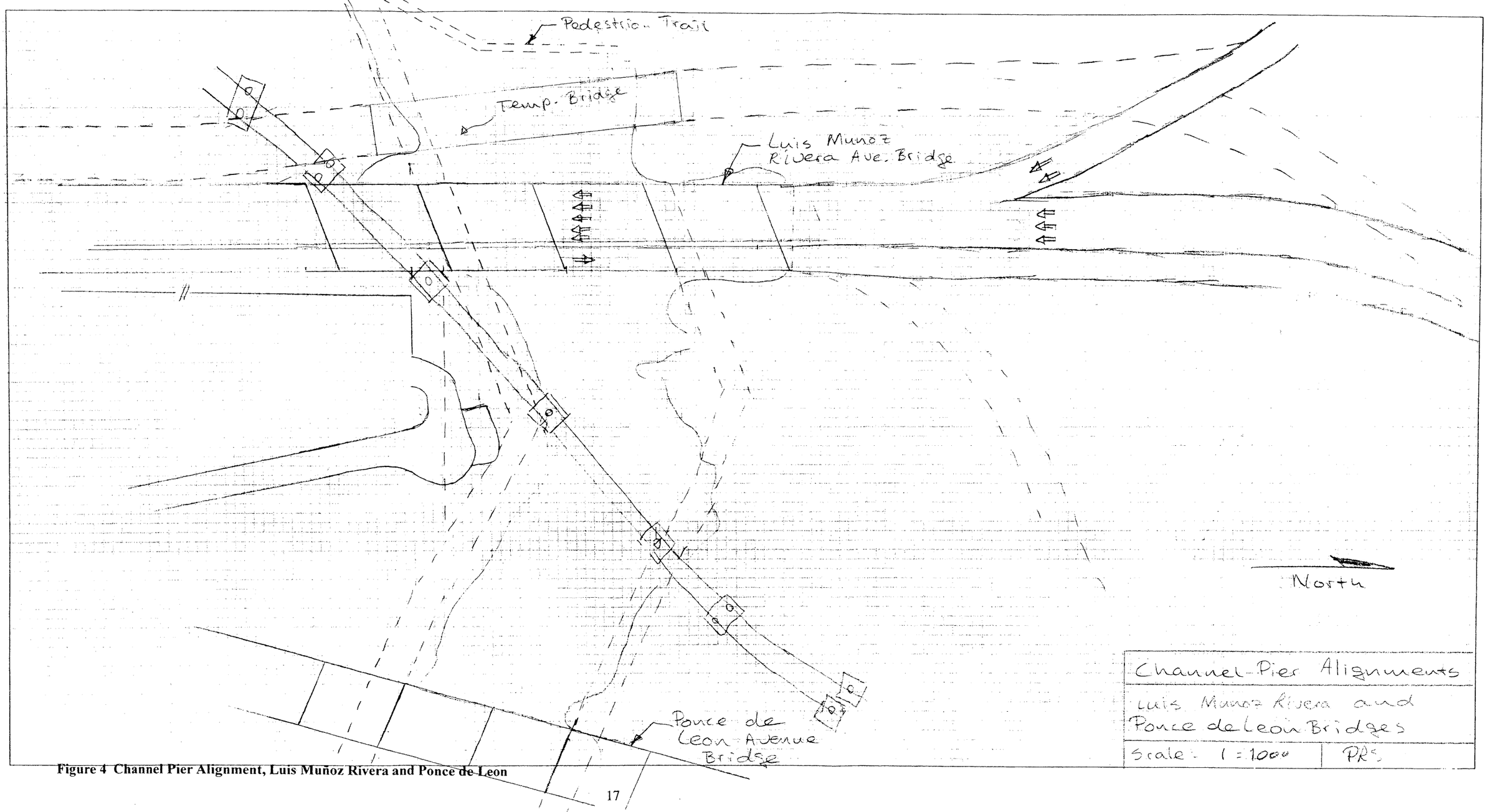

Figure 4 Channel Pier Alignment, Luis Muñoz Rivera and Ponce de Leon

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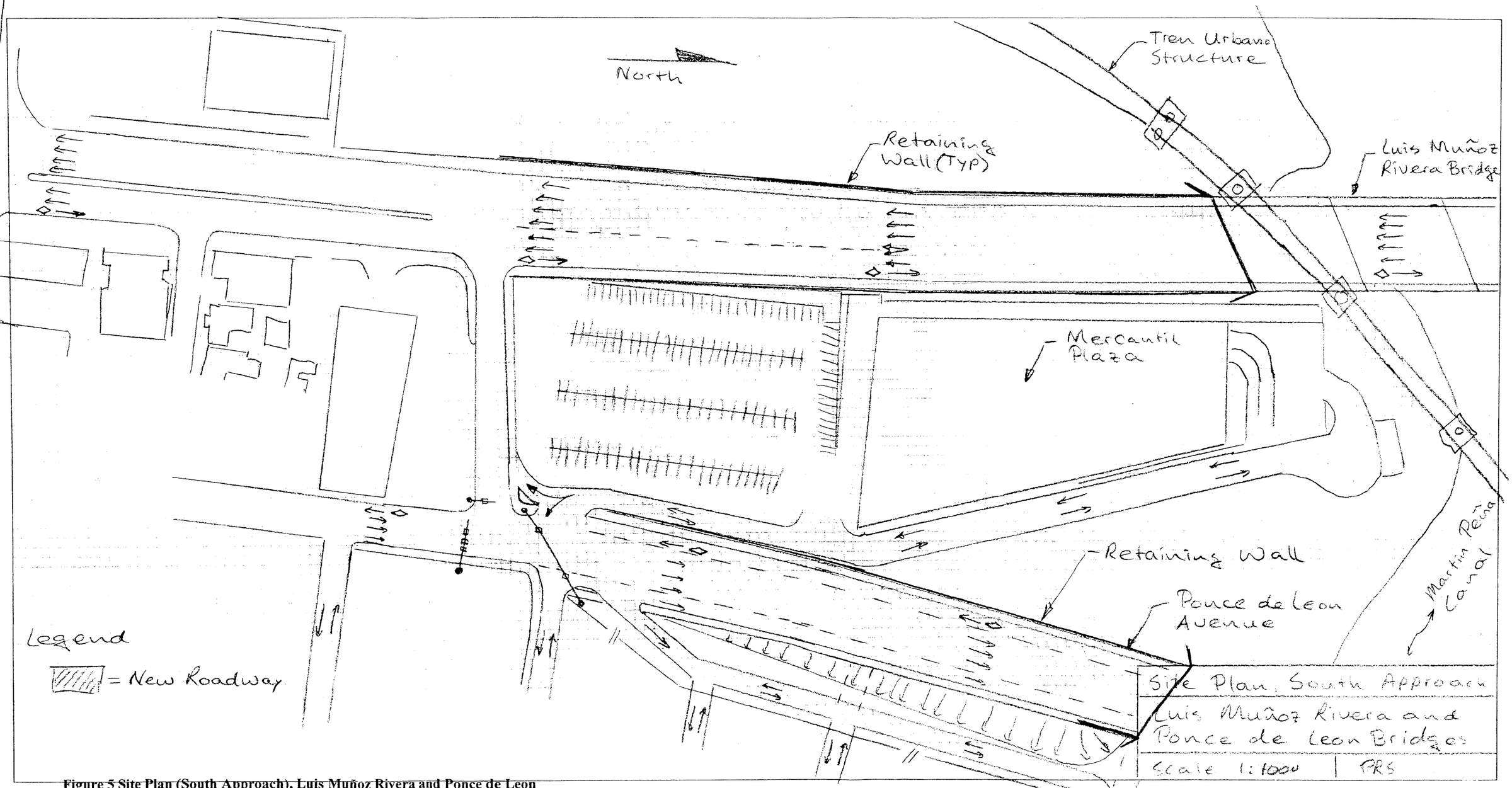

Figure 5 Site Plan (South Approach), Luis Muñoz Rivera and Ponce de Leon

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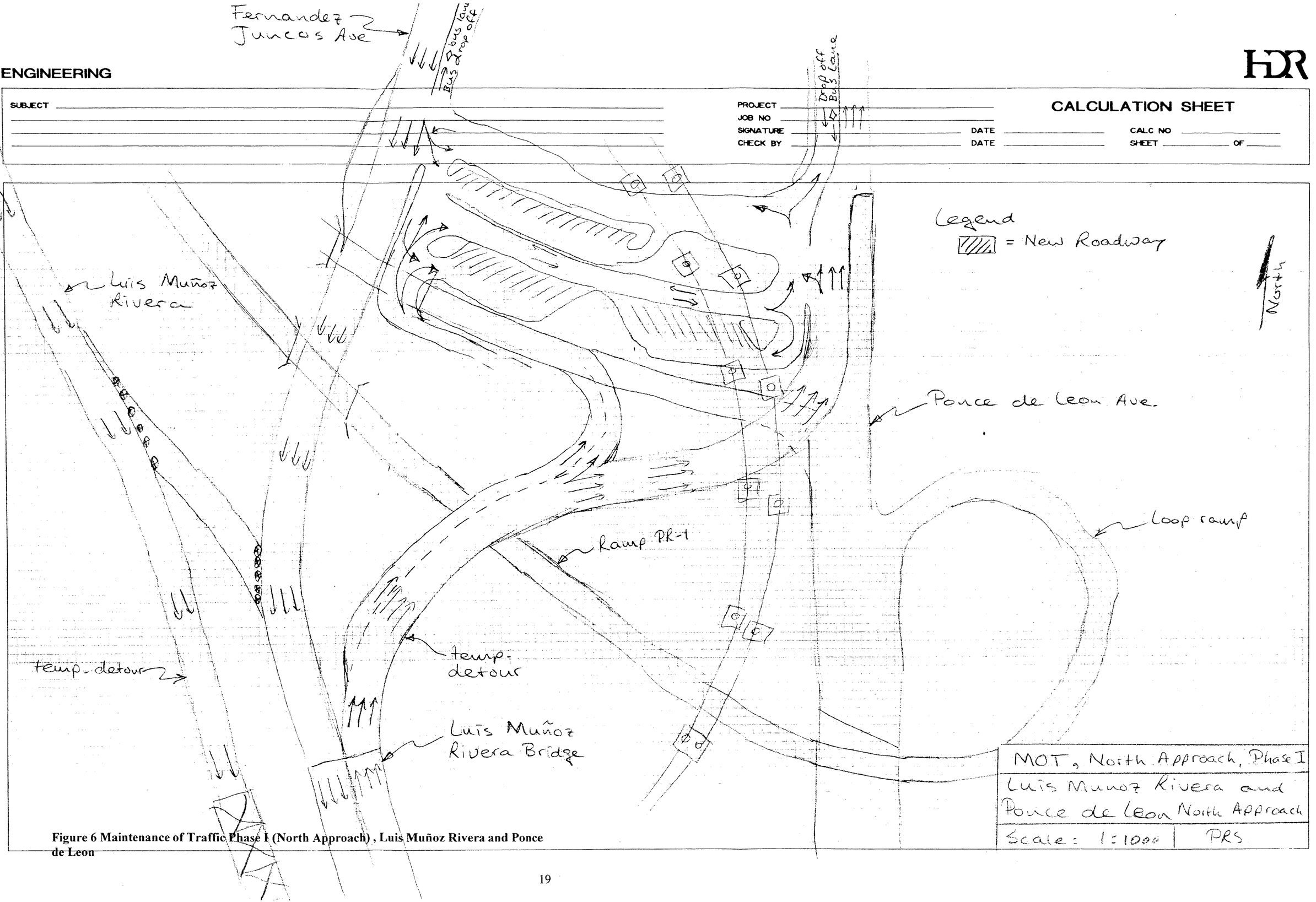

Figure 6 Maintenance of Traffic Phase I (North Approach) , Luis Muñoz Rivera and Ponce de Leon

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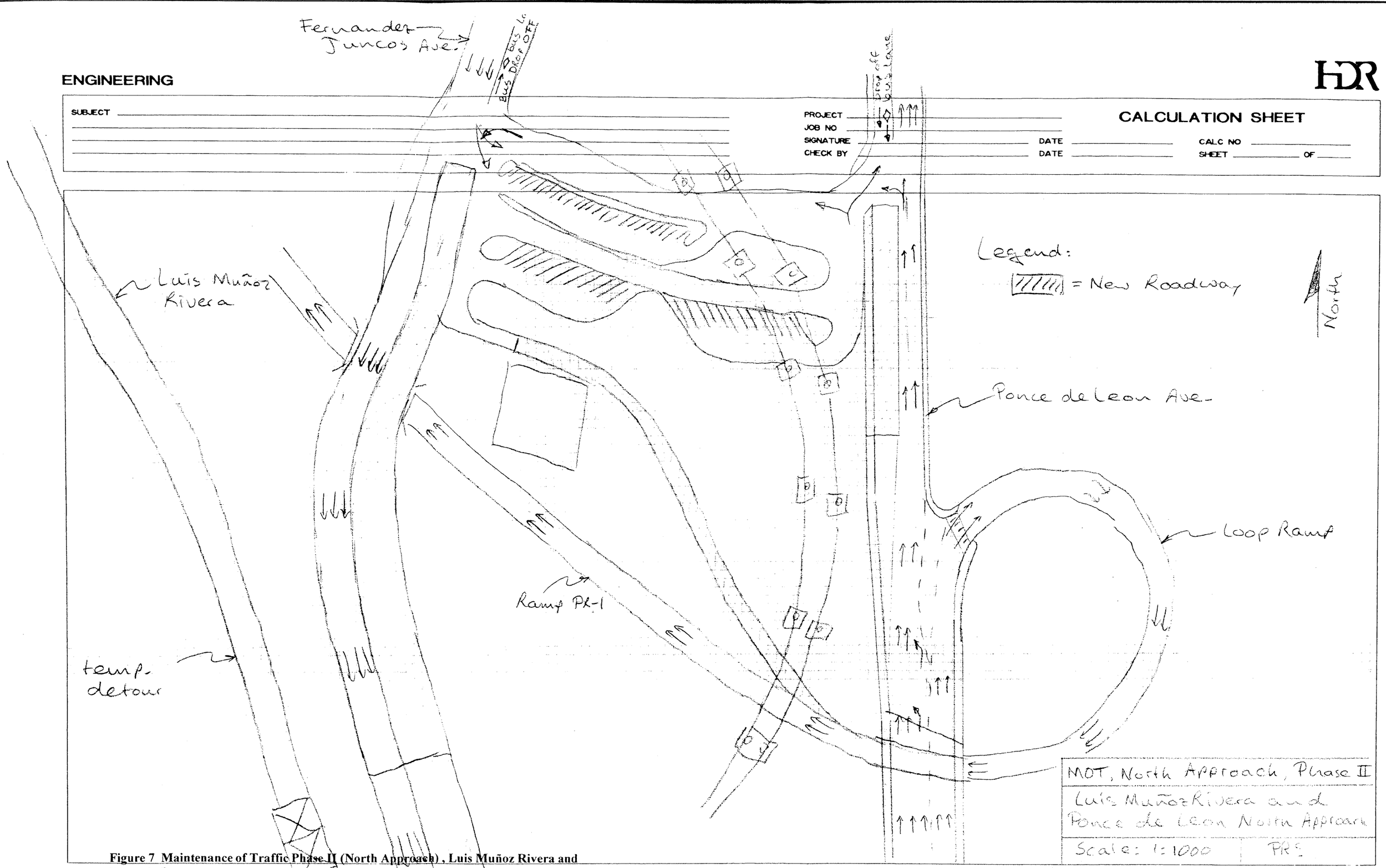

Figure 7 Maintenance of Traffic Phase II (North Approach) , Luis Muñoz Rivera and Ponce de Leon

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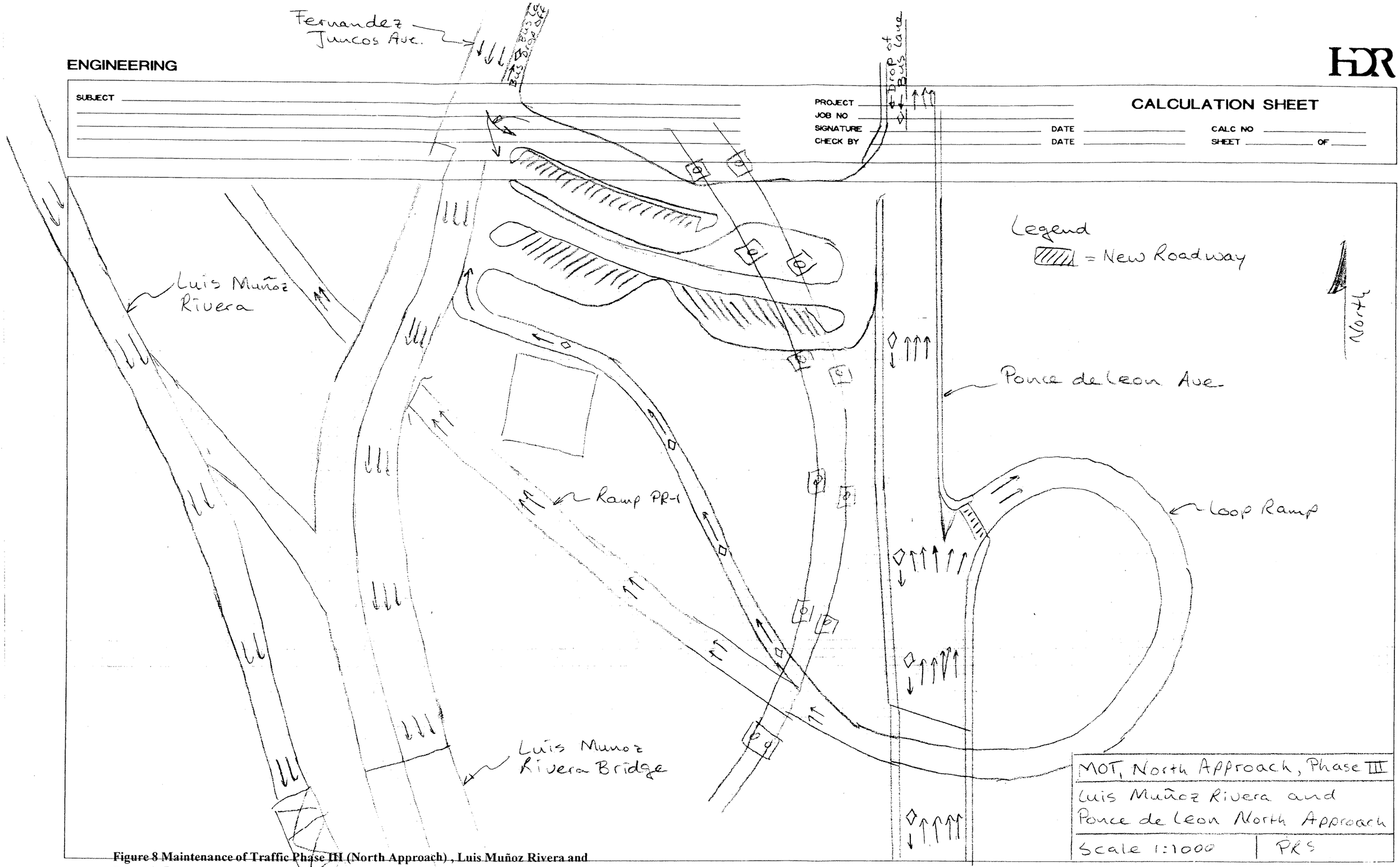

Figure 8 Maintenance of Traffic Phase III (North Approach) , Luis Muñoz Rivera and Ponce de Leon

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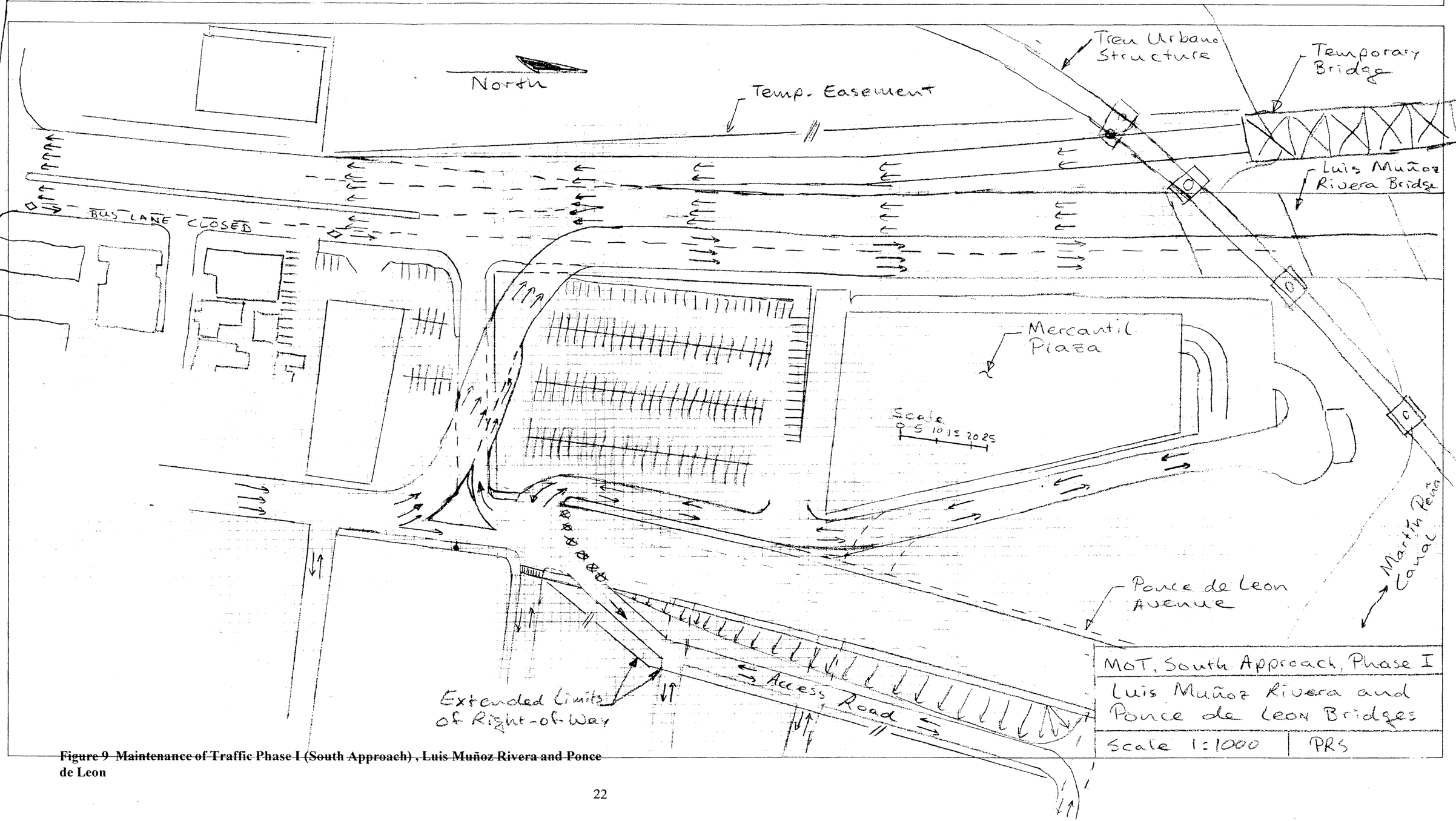

Figure 9 Maintenance of Traffic Phase I (South Approach) , Luis Muñoz Rivera and Ponce de Leon

Figure 10 Looking North at Central Water Pier of the Luiz Muñoz Rivera Bridge

Figure 11 Looking Between LMR Bridge and adjacent building

Figure 12 Looking West at King Pile Wall South Side near LMR bridge

Figure 13 Looking South from under LMR bridge from water pier

Figure 14 King Pile Wall close up at Southwest water pier of LMR bridge

Figure 15 King Pile Wall at Southwest side of LMR Bridge

Figure 16 Looking South from Northeast end of LMR Bridge

Figure 17 Looking North from North end of LMR Bridge

Figure 18 Looking South from North end of LMR Bridge

Figure 19 Looking South at Northwest end of LMR Bridge

Figure 20 Looking East at Southwest end of LMR Bridge

Figure 21 Looking Northeast at Southwest end of LMR Bridge (Tren Urbano adjacent foundation excavation)

Figure 22 Looking East at Southbound interior bent for LMR Bridge

Figure 23 Looking East at Northbound LMR Structure bearing

Figure 24 Looking East at South approach span of LMR Bridge

Figure 25 Looking Southeast at Southwest end of LMR Bridge

Figure 26 Looking East at South end of LMR Bridge

Figure 27 Looking at LMR Bridge

Figure 28 Looking Northeast of Tren Urbano at West side of LMR Bridge

Figure 29 Looking Northeast at Tren Urbano from LMR Bridge

Figure 30 Looking Southwest at Tren Urbano from LMR Bridge

Figure 31 Looking West at pedestrian walkway from LMR Bridge

Figure 32 Looking Northwest from Mercantil Plaza (LMR)

Figure 33 View of East right-of-way (LMR)

Figure 34 Looking Northwest from Mercantil Plaza (LMR)

Figure 35 Looking Northwest from Mercantil Plaza (LMR)

Figure 36 Looking Northwest from Mercantil Plaza 3 (LMR)

Figure 37 North off-ramp under construction (Caño Martín Peña – PDL)

Appendix B
Ponce de Leon Avenue Bridge
Geometric Layout and Photographs

ENGINEERING

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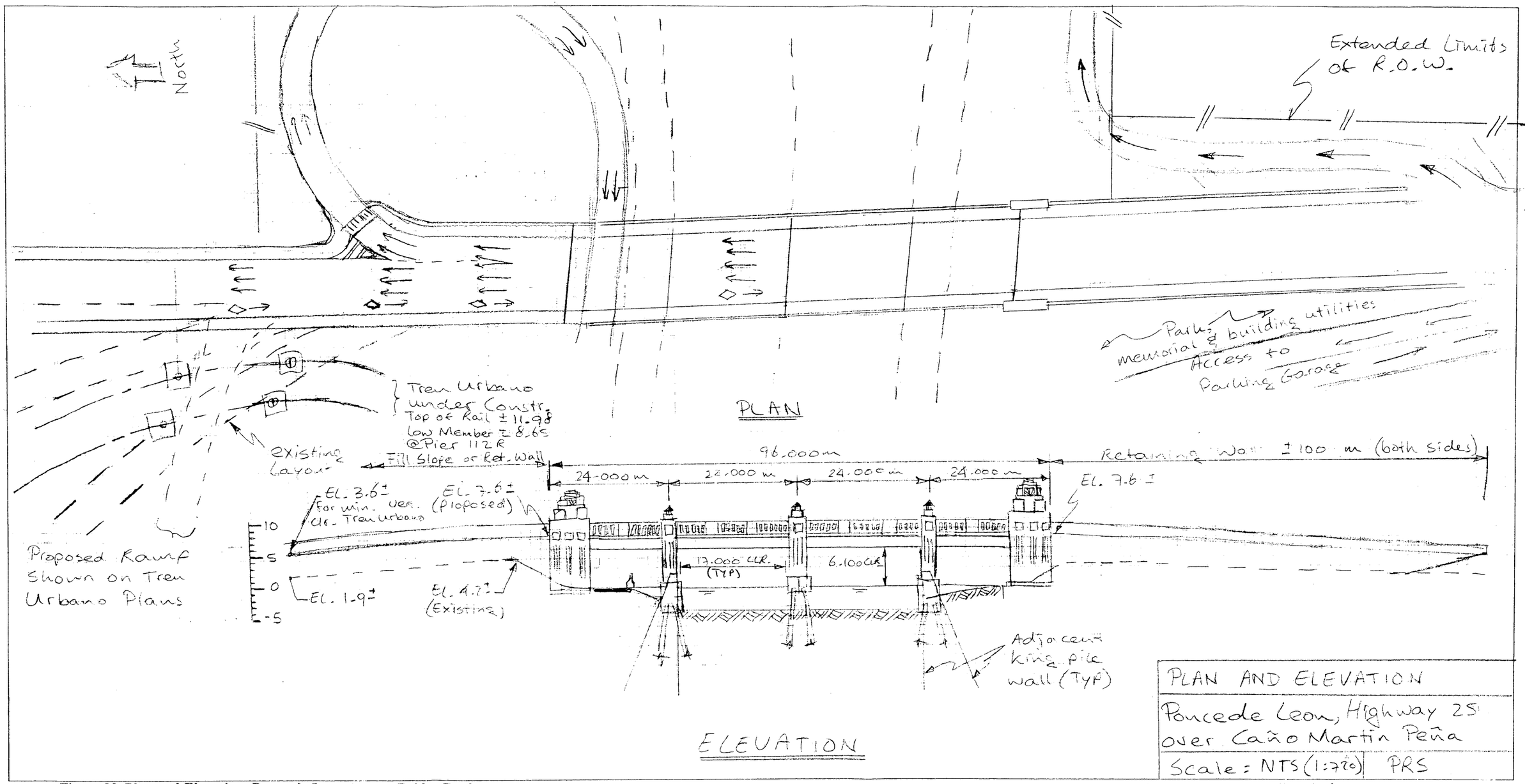

Figure 38 Plan and Elevation, Ponce de Leon Avenue Bridge Replacement

Job No. | No.

HDR Computation

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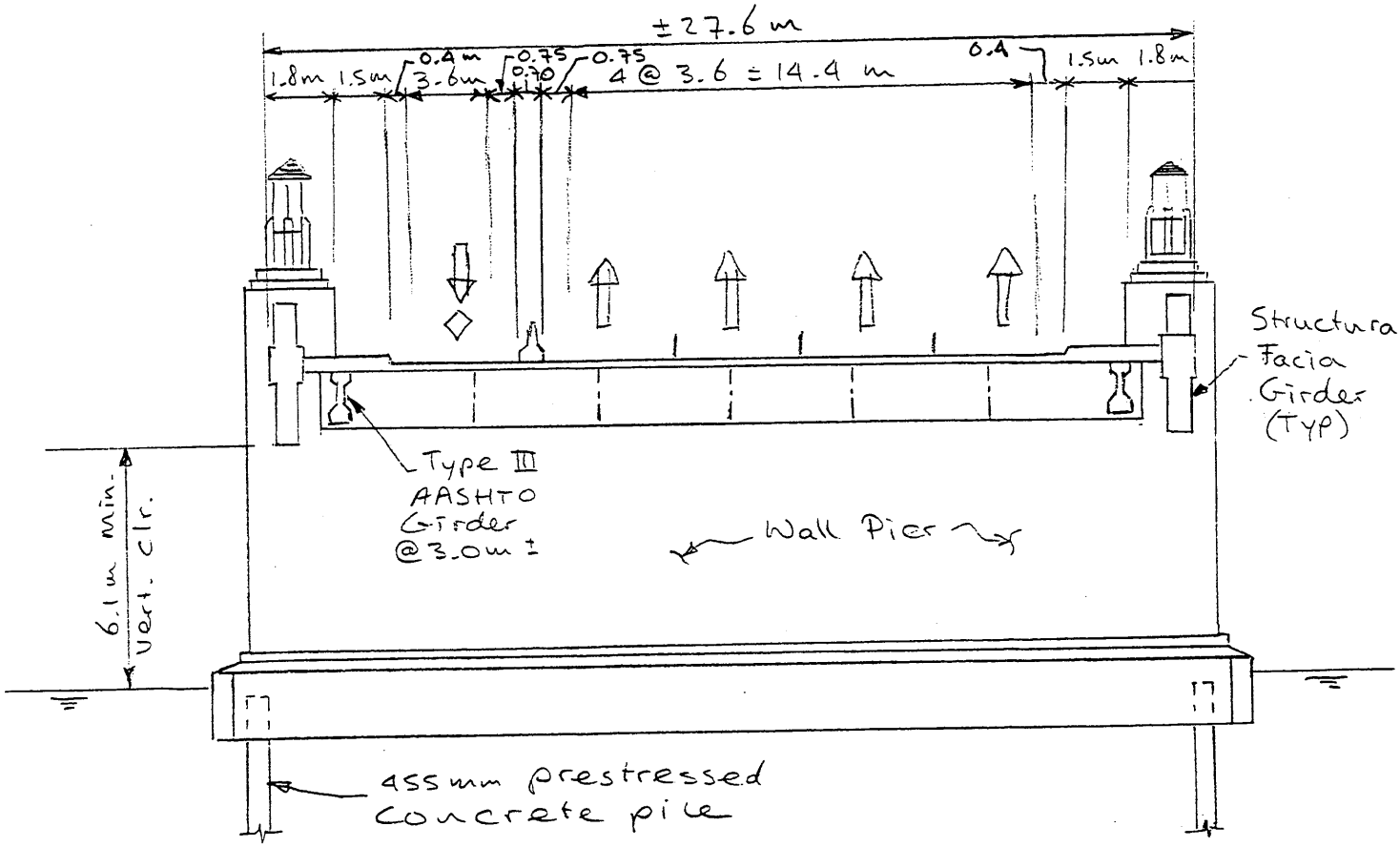
Project Caño Martín Peña Bridges	Computed PRS	Date	
Subject Bridge Typical Sections	Checked	Date	
Task Ponce de Leon Avenue Bridge	Sheet	Of	



Typical Section
(Scale 1:200)

Figure 39 Typical Section, Ponce de Leon Avenue Bridge Replacement

Figure 40 Looking East at Southwest side of Ponce de Leon Bridge

Figure 41 Looking East from LMR Bridge at PDL Bridge

Figure 42 Park at Southwest side of PDL Bridge with monument and utilities

Figure 43 Looking East at PDL Bridge from LMR Bridge

Figure 44 Looking Northwest from Southeast end of PDL Bridge

Figure 45 Looking at Southeast side of W. Arch. Feature on PDL Bridge

Figure 46 Looking under Southeast side of PDL Bridge

Figure 47 Looking North at left exit (PDL Bridge)

Figure 48 Looking South from North end of PDL Bridge showing utilities

Figure 49 Tren Urbano pier at Northwest end of PDL Bridge

Figure 50 Looking Northeast from Southeast side of LMR Bridge showing Tren Urbano (outline of footing in foreground)

Figure 51 Looking Northeast from Mercantil Place (PDL)

Figure 52 Southwest access to Mercantil Place (PDL)

Figure 53 Southeast right-of-way #1 (PDL)

Figure 54 Southeast right-of-way #2 (PDL)

Appendix C
Dr. Barbosa Avenue Bridge
Geometric Layout and Photographs

ENGINEERING

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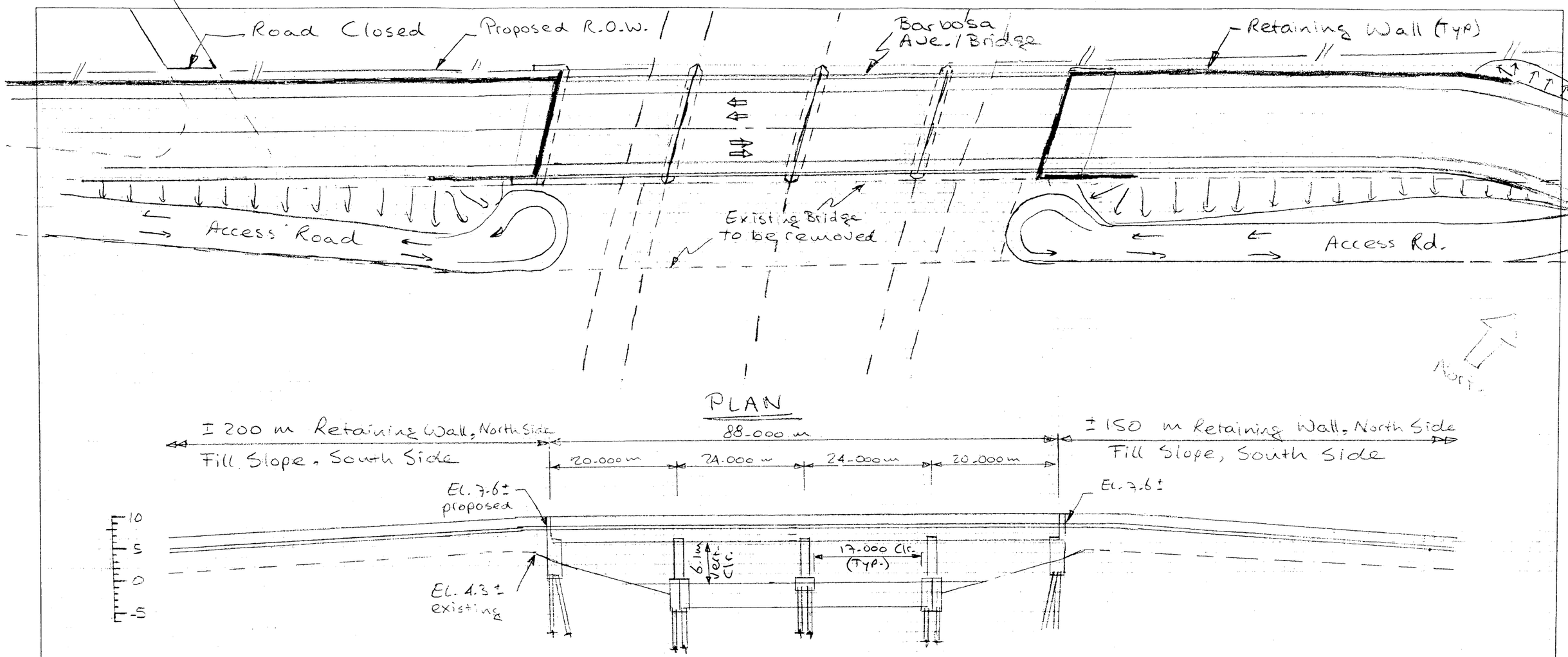


PLAN AND ELEVATION

Dr. Barbosa, Road No. 27 over Caño Martín Peña

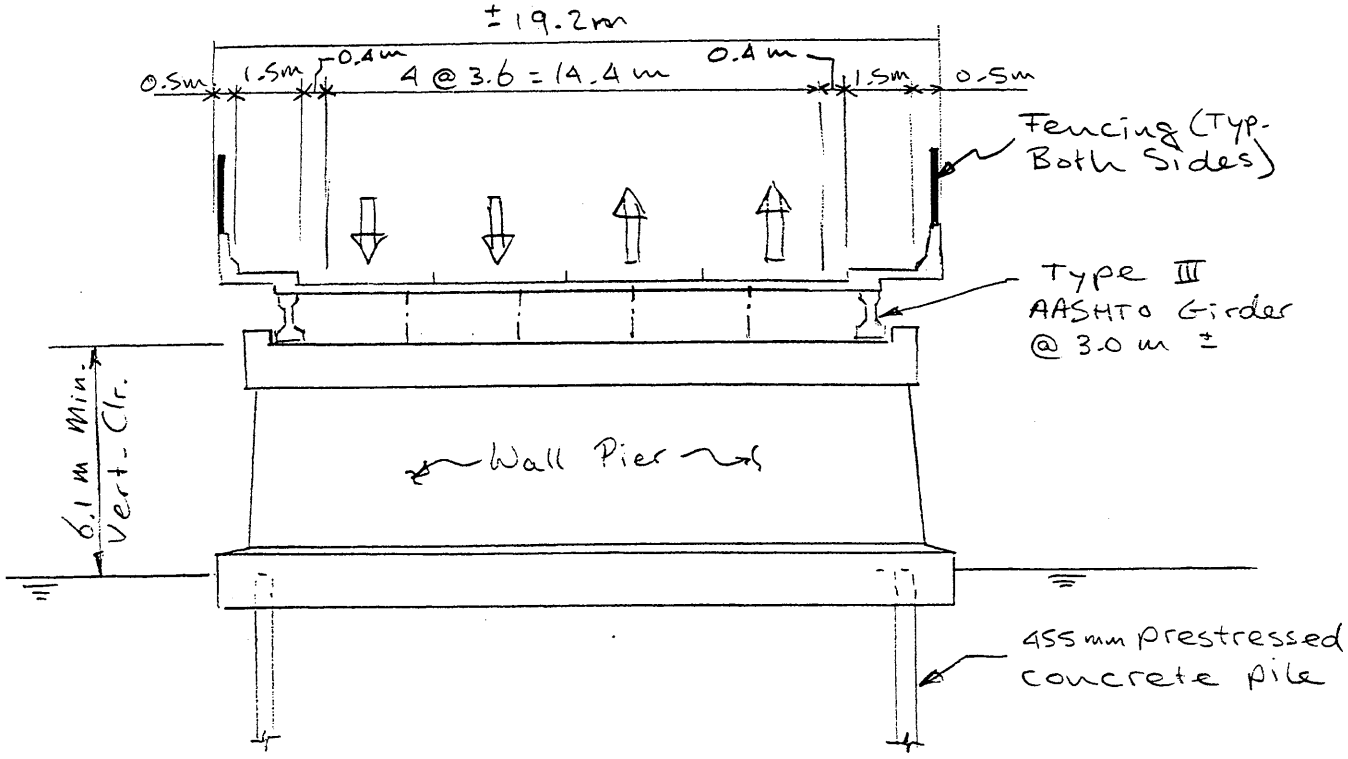
Scale: NTS (1:720) PAS

≈ 1" = 60'

Figure 55 Plan and Elevation, Dr. Barbosa Avenue Bridge Replacement

HDR Computation

Project Caño Martín Peña Bridges	Computed PRS	Date	
Subject Bridge Typical Sections	Checked	Date	
Task Dr. Barbosa Avenue Bridge	Sheet	Of	



Typical Section
(Scale 1:200)

Figure 56 Typical Section, Dr. Barbosa Avenue Bridge Replacement

ENGINEERING

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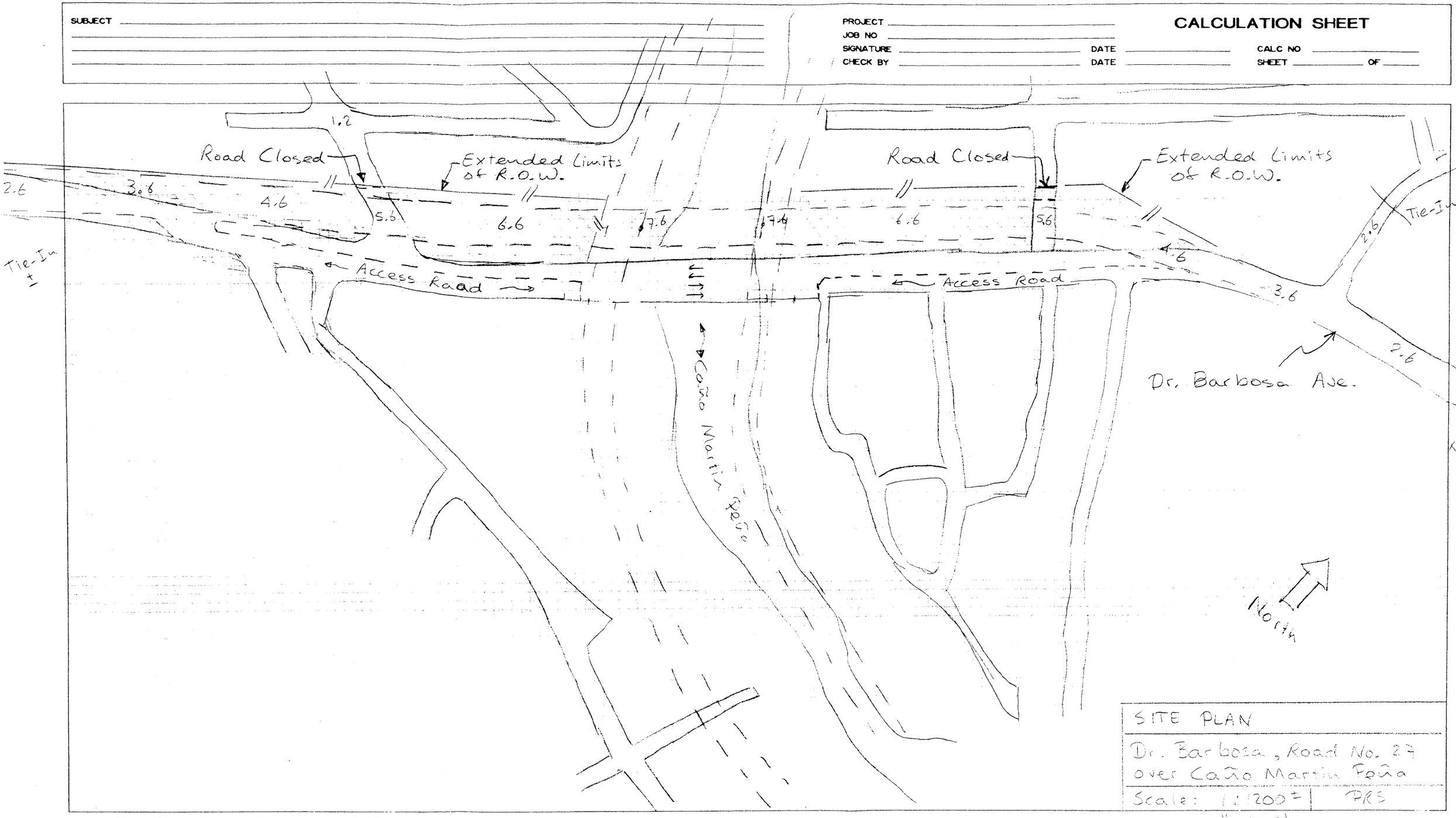

Figure 57 Site Plan, Dr. Barbosa Avenue Bridge

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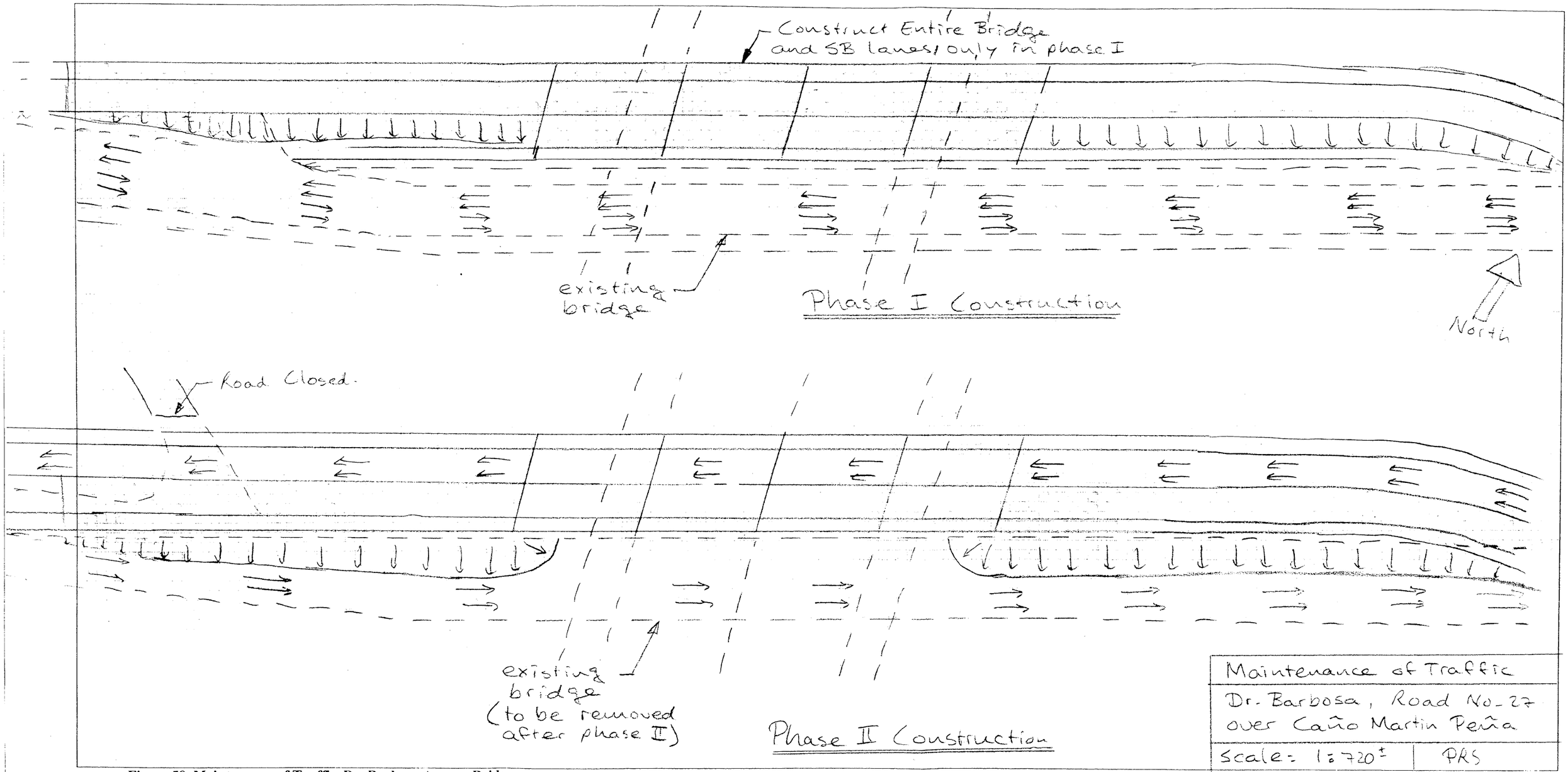

Figure 58 Maintenance of Traffic, Dr. Barbosa Avenue Bridge

Figure 59 Looking Northeast at Southwest side of Dr. Barbosa Avenue Bridge

Figure 60 Looking at fire site under South end of Dr. Barbosa Avenue Bridge

Figure 61 Looking under Southeast end of Dr. Barbosa Avenue Bridge (Garbage)

Figure 62 Looking under Southwest end of Dr. Barbosa Avenue Bridge (fire damage)

Figure 63 Looking North at Southeast end of Dr. Barbosa Avenue Bridge

Figure 64 Looking North from Southwest end of Dr. Barbosa Avenue Bridge

Appendix D
Conceptual Quantities and Reconnaissance Level Cost Estimate

Job No. | No.

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HDR Computation

Project	Cano Martin Pena Study	Computed JMG	Date 12/7/99
Subject	Quantities estimate	Checked PRS	Date 12/7/99
Task		Sheet	Of

Area of Bridges (sq. meters)

BRIDGE **Luiz Munoz Rivera Avenue Bridge**

Length (L) = 96.00 meters
Width (w) = 29.20 meters
Area (L x w) = 2803.20 sq. meters

BRIDGE **Dr. Barbosa Avenue Bridge**

Length (L) = 88.00 meters
Width (w) = 19.20 meters
Area (L x w) = 1689.60 sq. meters

BRIDGE **Ponce de Leon Avenue Bridge**

Length (L) = 96.00 meters
Width (w) = 27.60 meters
Area (L x w) = 2649.60 sq. meters

BRIDGE **Proposed Ramp PR-1 Bridge**

Length (L) = 25.00 meters
Width (w) = 11.40 meters
Area (L x w) = 285.00 sq. meters

Total area of all bridges = 7,427 sq. meters
79,948 sq. ft.

Area of Permanent Roads (sq. meters)

Type	Area #	Description of location	Roadway Fill (cu. meters)
New roadway	1	LMR Ave. to Luis Munoz Rivera bridge (2 lanes)	Avg. Ht. Fill (h) = 2.44 meters Length (L) = 140.00 meters Width (w) = 9.30 meters Area (L x w x h) = 3176.88 cu. meters
		Length (L) = 140.00 meters Width (w) = 9.30 meters Area (L x w) = 1302.00 sq. meters	
New Roadway	2	Fernandez Juncos Ave. to Luis Munoz Rivera bridge (3 lanes + 1 bus lane)	Avg. Ht. Fill (h) = 2.44 meters Length (L) = 195.00 meters Width (w) = 23.90 meters Area (L x w x h) = 11371.62 cu. meters
		Length (L) = 195.00 meters Width (w) = 23.90 meters Area (L x w) = 4660.50 sq. meters	
New Roadway	3	Proposed PR-1 Ramp Relocation (2 lanes)	Avg. Ht. Fill (h) = 1.83 meters Length (L) = 600.00 meters Width (w) = 11.40 meters Area (L x w x h) = 12517.20 cu. meters
		Length (L) = 600.00 meters Width (w) = 11.40 meters Area (L x w) = 6840.00 sq. meters	
New Roadway	4	Access Road (1 lane)	Avg. Ht. Fill (h) = 0.91 meters Length (L) = 170.00 meters Width (w) = 6.60 meters Area (L x w x h) = 1021.02 cu. meters
		Length (L) = 170.00 meters Width (w) = 6.60 meters Area (L x w) = 1122.00 sq. meters	

Job No. | No.

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HDR Computation

HDR

Project	Cano Martin Pena Study	Computed	JMG	Date	12/7/99
Subject	Quantities estimate	Checked	PRS	Date	12/
Task		Sheet		Of	

Area of Permanent Roads (sq. meters) cont.

Type	Area #	Description of location	Roadway Fill (cu. meters)
New roadway	5	North Approach to Ponde de Leon Bridge (3 lanes + 1 bus lane)	Avg. Ht. Fill (h) = 1.83 meters Length (L) = 160.00 meters Width (w) = 23.90 meters Area (L x w x h) = 6997.92 cu. meters
		Length (L) = 160.00 meters Width (w) = 23.90 meters Area (L x w) = 3824.00 sq. meters	
New Roadway	6a	South Approach to Ponde de Leon Bridge (4 lanes + 1 bus lane)	Avg. Ht. Fill (h) = 1.83 meters Length (L) = 160.00 meters Width (w) = 24.00 meters Area (L x w x h) = 7027.20 cu. meters
		Length (L) = 180.00 meters Width (w) = 24.00 meters Area (L x w) = 4320.00 sq. meters	
New Roadway	6b	Side road off of Ponce de Leon Ave.	Avg. Ht. Fill (h) = 0.305 meters Length (L) = 160.00 meters Width (w) = 7.20 meters Area (L x w x h) = 351.36 cu. meters
		Length (L) = 160.00 meters Width (w) = 7.20 meters Area (L x w) = 1152.00 sq. meters	
New Roadway	6c	Side road off of Ponce de Leon Ave.	Avg. Ht. Fill (h) = 0.305 meters Length (L) = 90.00 meters Width (w) = 7.20 meters Area (L x w x h) = 197.64 cu. meters
		Length (L) = 90.00 meters Width (w) = 7.20 meters Area (L x w) = 648.00 sq. meters	
New Roadway	7a	South Approach to Luis Munoz Rivera Bridge (5 lanes + 1 bus lane)	Avg. Ht. Fill (h) = 2.44 meters Length (L) = 90.00 meters Width (w) = 28.45 meters Area (L x w x h) = 6247.62 cu. meters
		Length (L) = 90.00 meters Width (w) = 28.45 meters Area (L x w) = 2560.50 sq. meters	
New Roadway	7b	South Approach to Luis Munoz Rivera Bridge (6 lanes + 1 bus lane)	Avg. Ht. Fill (h) = 0.914 meters Length (L) = 110.00 meters Width (w) = 32.05 meters Area (L x w x h) = 3222.31 cu. meters
		Length (L) = 110.00 meters Width (w) = 32.05 meters Area (L x w) = 3525.50 sq. meters	
New Roadway	9a	North Approach to Dr. Barbosa Ave. Bridge (4 lanes)	Avg. Ht. Fill (h) = 4.572 meters Length (L) = 110.00 meters Width (w) = 18.20 meters Area (L x w x h) = 9153.14 cu. meters
		Length (L) = 110.00 meters Width (w) = 18.20 meters Area (L x w) = 2002.00 sq. meters	
New Roadway	9b	South Approach to Dr. Barbosa Ave. Bridge (4 lanes)	Avg. Ht. Fill (h) = 4.572 meters Length (L) = 110.00 meters Width (w) = 18.20 meters Area (L x w x h) = 9153.14 cu. meters
		Length (L) = 110.00 meters Width (w) = 18.20 meters Area (L x w) = 2002.00 sq. meters	

Total area of all permanent roads = 33,959 sq. meters
365,526 sq. ft.

Roadway Fill = 70,437 cu. meters
2,487,461 cu. ft.

Job No. | No.

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HDR Computation

Project	Cano Martin Pena Study	Computed JMG	Date 12/7/99
Subject	Quantities estimate	Checked PRS	Date 12/7/99
Task		Sheet	Of

Area of Temporary Roads (sq. meters)

Type	Area #	Description of location	
Temp. Road	8a	LMR Bridge Temporary Road (Assume 2 lanes)	Length (L) = 150.00 meters; Width (w) = 7.20 meters; Area (L x w) = 1080.00 sq. meters
Temp. Road	8b	LMR Bridge Temporary Road (Assume 2 lanes)	Length (L) = 80.00 meters; Width (w) = 7.20 meters; Area (L x w) = 576.00 sq. meters

Total area of all temporary roads = 1,656 sq. meters
17,825 sq. ft.

Remarks:
Temp. roadway fill = 0.00 ft. Assuming the use of the existing terrain

Area of Retaining Walls (sq. meters)

Description of location		
LMR Ave. Bridge (North approach)	Length (L) = 78.30 meters; Height (d) = 0.00 meters; Area (L x d) = 0.00 sq. meters	No retaining wall, slope fill used
LMR Ave. Bridge (South approach)	Length (L) = 420.00 meters; Height (d) = 1.83 meters; Area (L x d) = 768.60 sq. meters	
PDL Ave. Bridge (North approach)	Length (L) = 380.00 meters; Height (d) = 3.05 meters; Area (L x d) = 1158.24 sq. meters	
PDL Ave. Bridge (South approach)	Length (L) = 200.00 meters; Height (d) = 3.66 meters; Area (L x d) = 731.52 sq. meters	
PDL Bridge (Proposed ramp relocation)	Length (L) = 140.00 meters; Height (d) = 4.88 meters; Area (L x d) = 682.75 sq. meters	
Dr. Barbosa (Both approaches)	Length (L) = 425.00 meters; Height (d) = 4.88 meters; Area (L x d) = 2072.64 sq. meters	

Total area of all retaining walls = 5,414 sq. meters
58,273 sq. ft.

Remarks:
All heights of retaining walls are averages for the entire length of wall.

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HDR Computation

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Project	Cano Martin Pena Study	Computed JMG	Date 12/7/99
Subject	Quantities estimate	Checked PRS	Date 12/
Task		Sheet	Of

Permanent Right of Way (cu. meters)

Ponce de Leon Bridge

Description of location	Area #			
Area east of Ponde de Leon Ave. south to Cano Martin Pena	20	Length (L) =	95.00	meters
		Width (w) =	67.00	meters
		Area (L x w) =	6365.00	sq. meters
Area between Fernado Juncos Ave and Ponce de Leon Ave south of existing road to Cano Martin Pena	21a	Length (L) =	100.00	meters
		Width (w) =	105.00	meters
		Area (L x w) =	10500.00	sq. meters
Area South of Ponce de Leon Bridge, East of PDL Ave	21b	Length (L) =	125.00	meters
		Width (w) =	22.00	meters
		Area (L x w) =	2750.00	sq. meters
Area South of Ponce de Leon Bridge, west of PDL Ave	21c	Length (L) =	70.00	meters
		Width (w) =	12.00	meters
		Area (L x w) =	840.00	sq. meters

Luiz Munoz Rivera Bridge

Area between Luiz Munoz Rivera Ave. and Ramp under construction	22a	Length (L) =	33.00	meters
		Width (w) =	75.00	meters
		Area (L x w) =	2475.00	sq. meters
Area west Luiz Munoz Rivera	22b	Length (L) =	185.00	meters
		Width (w) =	15.00	meters
		Area (L x w) =	2775.00	sq. meters
Area south of Luiz Munoz Rivera Ave. Bridge (West of LMR)	22c	Length (L) =	210.00	meters
		Width (w) =	9.00	meters
		Area (L x w) =	1890.00	sq. meters

Dr. Barbosa Ave Bridge

Area west of Dr. Barbosa Ave. West of Cano Martin Pena	23a	Length (L) =	95.00	meters
		Width (w) =	13.00	meters
		Area (L x w) =	1235.00	sq. meters
Area west of Dr. Barbosa Ave. East of Cano Martin Pena	23b	Length (L) =	120.00	meters
		Width (w) =	15.00	meters
		Area (L x w) =	1800.00	sq. meters

Total area of Permanant Right-of-way = 30,630 sq. meters
329,699 sq. ft.

Temporary Right of Way (cu. meters)

Luiz Munoz Rivera Bridge

Luiz Munoz Rivera Ave south of bridge (West Side)	6b	Length (L) =	180.00	meters
		Width (w) =	14.00	meters
		Area (L x w) =	2520.00	sq. meters
Area between Luiz Munoz Rivera and Ponce de Leon south of bridges	6c	Length (L) =	25.00	meters
		Width (w) =	6.00	meters
		Area (L x w) =	150.00	sq. meters

Total area of Temporary Right-of-way = 2,670 sq. meters
28,740 sq. ft.

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HDR Computation

Project	Cano Martin Pena Study	Computed	JMG	Date	12/7/99
Subject	Quantities estimate	Checked	PRS	Date	12/7/99
Task		Sheet		Of	

Temporary Bridges (sq. meters)

Description of location
West of Luis Munoz Rivera Bridge

Length (L) =	70.00	meters
Width (w) =	7.20	meters
Area (L x w) =	504.00	sq. meters

Total area of Temporary Bridge = 504 sq. meters
5,425 sq. ft.

Job No. | No.

W:\ACOE\bridges\Study\[quantities.XLS]Sheet1

HDR Computation

HDR

Project	Cano Martin Pena Study	Computed	JMG	Date	12/7/99
Subject	Quantities estimate	Checked	PRS	Date	12/
Task		Sheet		Of	

SUMMARY OF QUANTITIES FOR LUIZ MUNOZ RIVERA AVE. BRIDGE

	QUANTITY	UNIT	UNIT PRICE	TOTAL	REMARKS:
Bridges	2803	Sq. meter	$650	$1,822,080	
Permanent Roads	12049	Sq. meter	$100	$1,204,850	
Retaining Walls	769	Sq. meter	$250	$192,150	MSE Walls
Permanent Right of way	7140	Sq. meter	$200	$1,428,000	Assumed quantities
Temporary Right of way	2670	Sq. meter	$20	$53,400	
Roadway Fill	24018	Cu. Meter	$10	$240,184	
Relocation of utilities	1	Lump sum	$0	$0	
Temporary roads	1656	Sq. meter	$40	$66,240	
Temporary bridge	0	Sq. meter	$0	$0	To be provided by ACT
Maintenance of traffic	1	Lump sum	$200,000	$200,000	
			SUBTOTAL	$5,206,904	
Contingencies	10%	Percent		$520,690	
Mobilization	5%	Percent		$260,345	
			TOTAL COST	$5,987,940	

SUMMARY OF QUANTITIES FOR Dr. BARBOSA AVE. BRIDGE

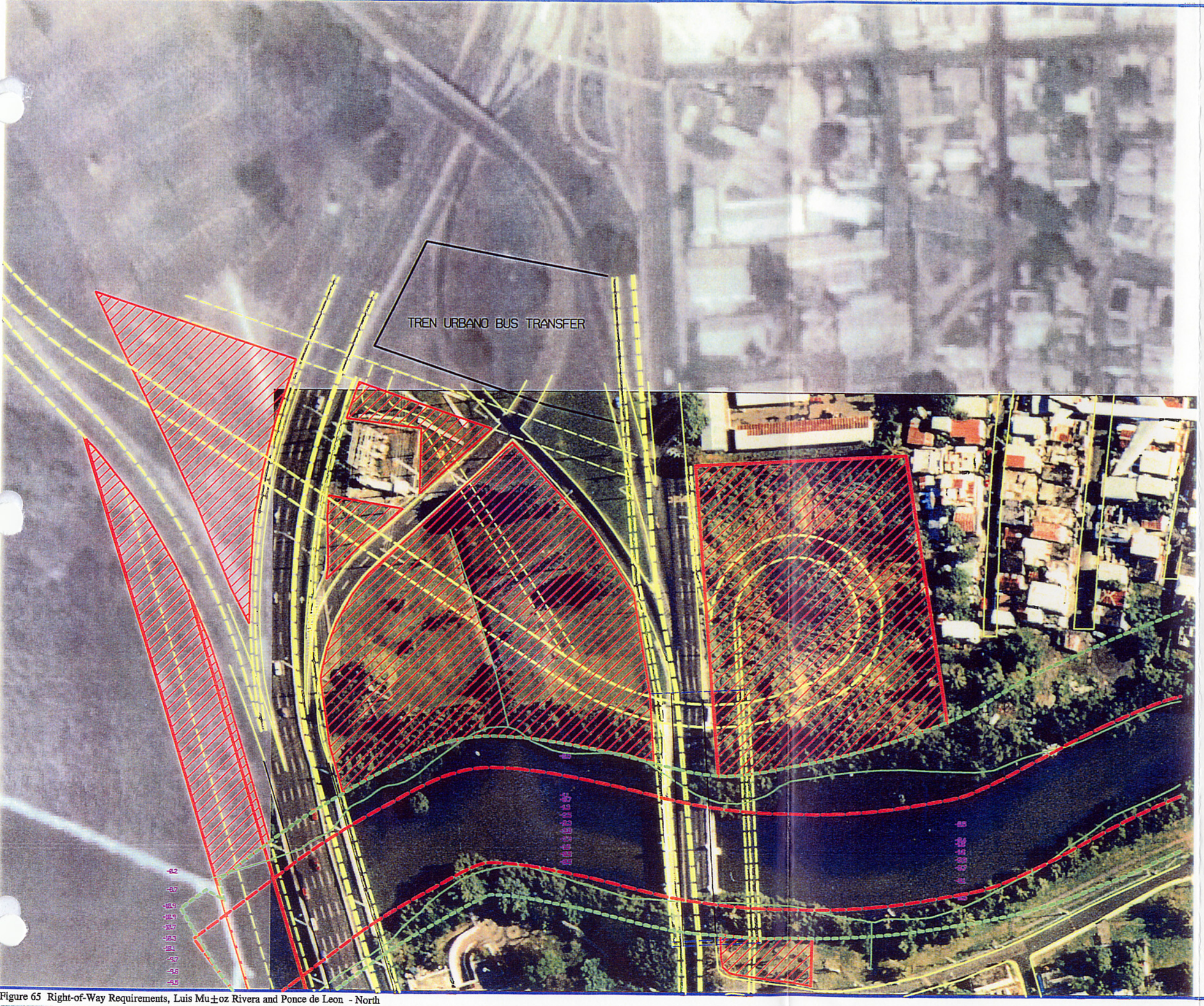
	QUANTITY	UNIT	UNIT PRICE	TOTAL	REMARKS:
Bridges	1690	Sq. meter	$750	$1,267,200	
Permanent Roads	4004	Sq. meter	$100	$400,400	
Retaining Walls	2073	Sq. meter	$250	$518,160	MSE Walls
Permanent Right of way	3035	Sq. meter	$200	$607,000	Assumed quantities
Temporary Right of way	0	Sq. meter	$20	$0	
Roadway Fill	18306	Cu. Meter	$10	$183,063	
Relocation of utilities	1	Lump sum	$100,000	$100,000	
Temporary roads	0	Sq. meter	$40	$0	
Temporary bridge	0	Sq. meter	$0	$0	To be provided by ACT
Maintenance of traffic	1	Lump sum	$100,000	$100,000	
			SUBTOTAL	$3,175,823	
Contingencies	10%	Percent		$317,582	
Mobilization	5%	Percent		$158,791	
			TOTAL COST	$3,652,196	

SUMMARY OF QUANTITIES FOR PONCE DE LEON AVE. BRIDGE (INCLUDING PR-1 BRIDGE)

	QUANTITY	UNIT	UNIT PRICE	TOTAL	REMARKS:
Bridges	2935	Sq. meter	$650	$1,907,490	
Permanent Roads	17906	Sq. meter	$100	$1,790,600	
Retaining Walls	2573	Sq. meter	$250	$643,128	MSE Walls
Permanent Right of way	20455	Sq. meter	$200	$4,091,000	Assumed quantities
Temporary Right of way	0	Sq. meter	$20	$0	
Roadway Fill	28112	Cu. Meter	$10	$281,123	
Relocation of utilities	1	Lump sum	$500,000	$500,000	
Temporary roads	0	Sq. meter	$40	$0	
Temporary bridge	0	Sq. meter	$0	$0	To be provided by ACT
Maintenance of traffic	1	Lump sum	$200,000	$200,000	
			SUBTOTAL	$9,413,341	
Contingencies	10%	Percent		$941,334	
Mobilization	5%	Percent		$470,667	
			TOTAL COST	$10,825,343	

SUMMARY OF COSTS FOR CANO MARTIN PENA STUDY

LUIZ MUNOZ RIVERA AVE. BRIDGE	$5,987,940
Dr. BARBOSA AVE. BRIDGE	$3,652,196
PONCE DE LEON AVE BRIDGE (INCLUDING PR-1 BRIDGE)	$10,825,343
TOTAL	$20,465,479



LEGEND

PERMANENT RIGHT-OF-WAY REQUIRED

TEMPORARY RIGHT-OF-WAY REQUIRED

N

SCALE: 1" = 100'

100 0 100

RIGHT-OF-WAY REQUIREMENTS

LUIS MUNOZ RIVERA AND PONCE DE LEON OVER CANO MARTIN PENA

Figure 65 Right-of-Way Requirements, Luis Mu±oz Rivera and Ponce de Leon - North

LEGEND

- PERMANENT RIGHT-OF-WAY REQUIRED
- TEMPORARY RIGHT-OF-WAY REQUIRED

N

SCALE: 1" = 100'

100 0 100

RIGHT-OF-WAY REQUIREMENTS

LUIS MUNOZ RIVERA AND PONCE DE LEON OVER CANO MARTIN PENA

Figure 66 Right-of-Way Requirements, Luis Mu±oz Rivera and Ponce de Leon - South

LEGEND

PERMANENT RIGHT-OF-WAY REQUIRED

TEMPORARY RIGHT-OF-WAY REQUIRED

N

SCALE: 1" = 100'

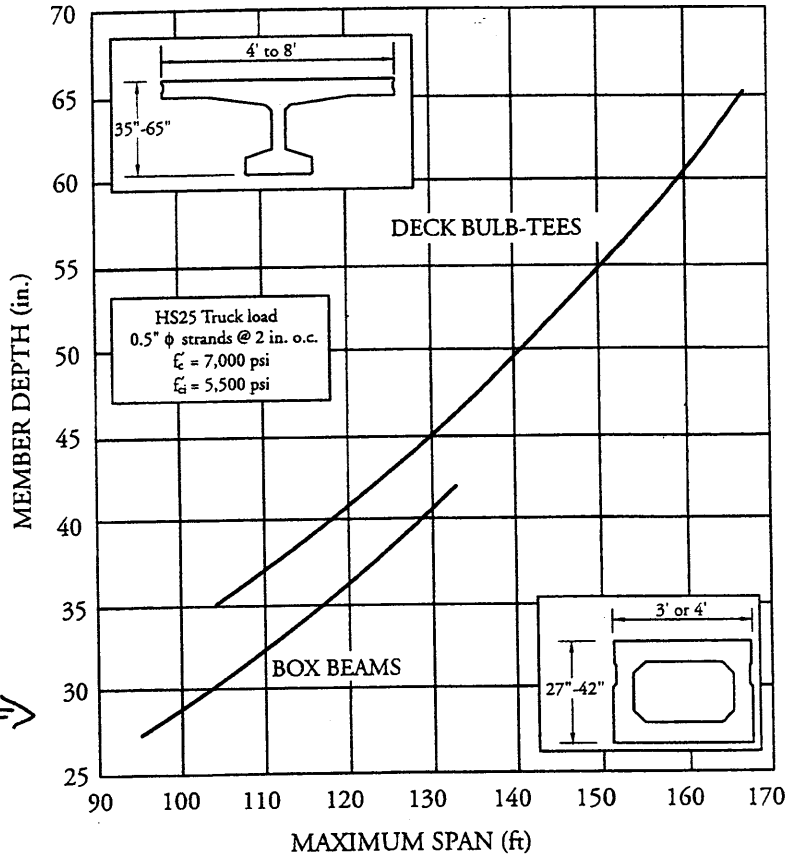
100 0 100

RIGHT-OF-WAY REQUIREMENTS

DR. BARBOSA, ROAD NO. 27
OVER CANO MARTIN PENA

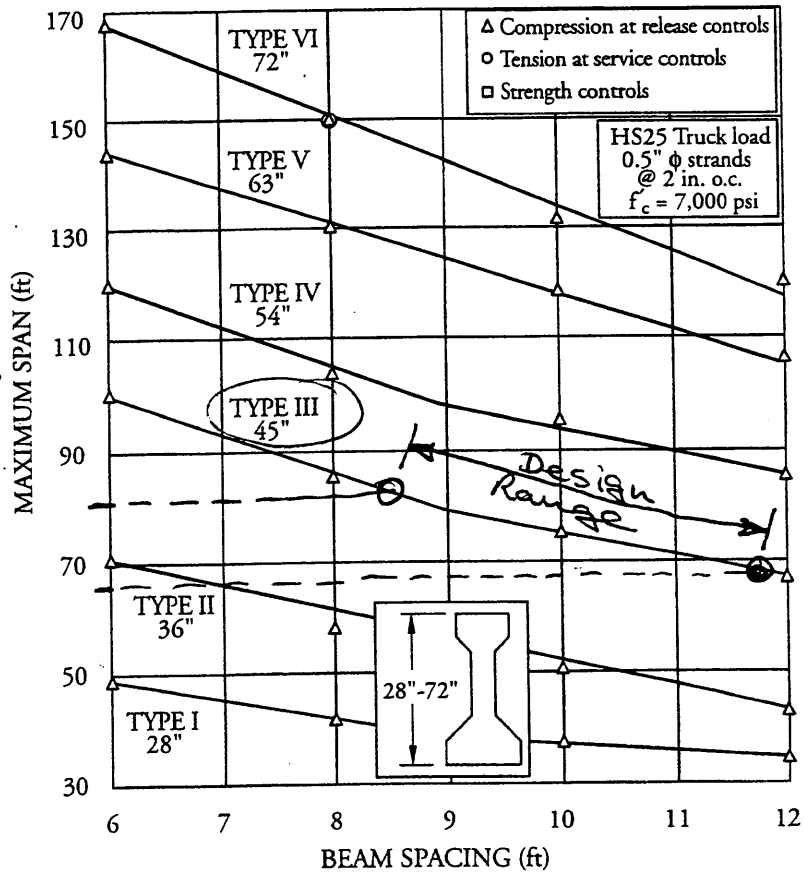
Figure 67 Right-of-Way Requirements, Dr. Barbosa Avenue Bridge

Chart DBT-5
Depth vs. Maximum Span



Box Beams for PR-1 ramp ⇒

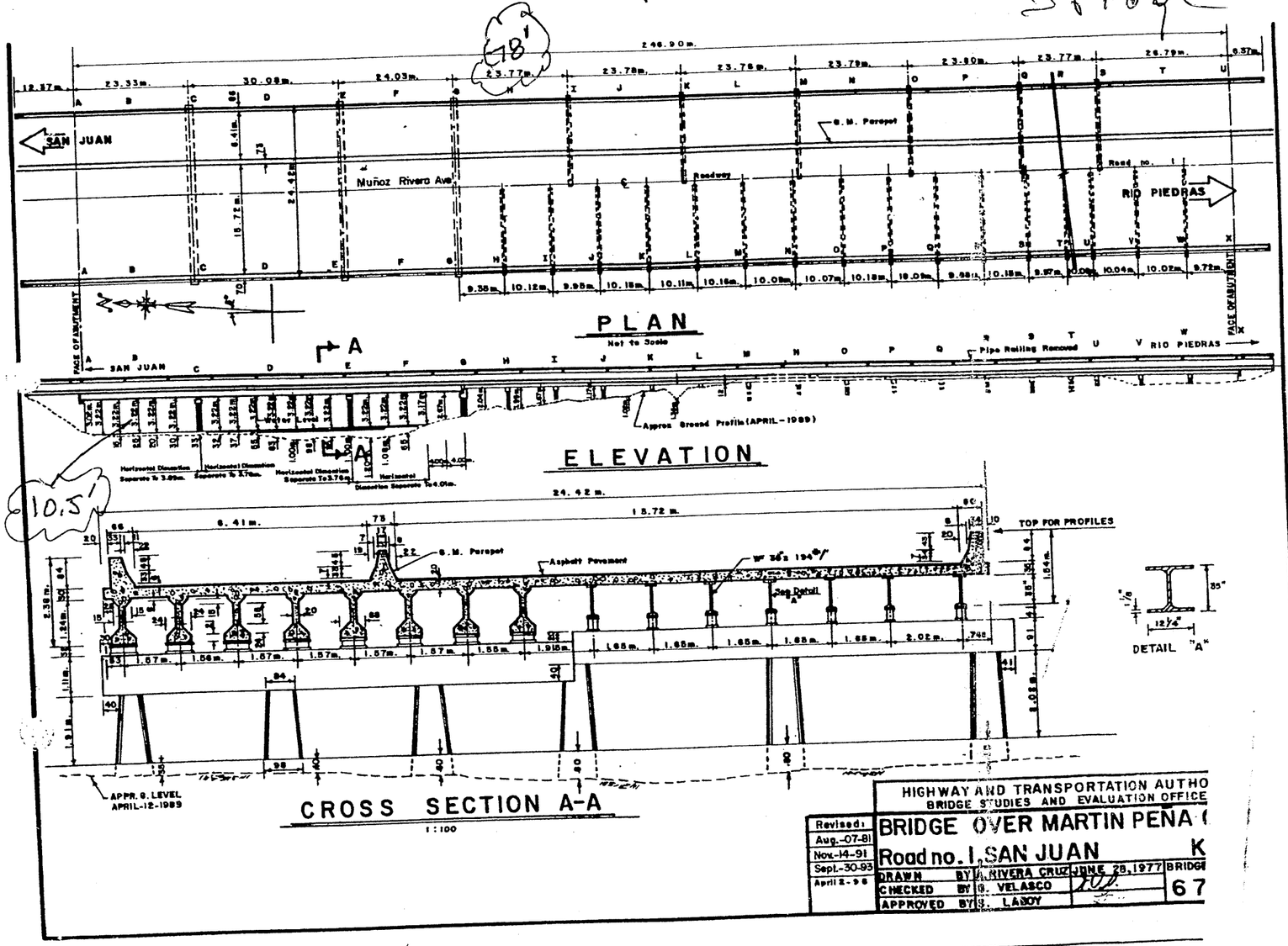
Chart IB-1
AASHTO I-Beams



Type III girder for all bridges except PR-1 Ramp ⇒

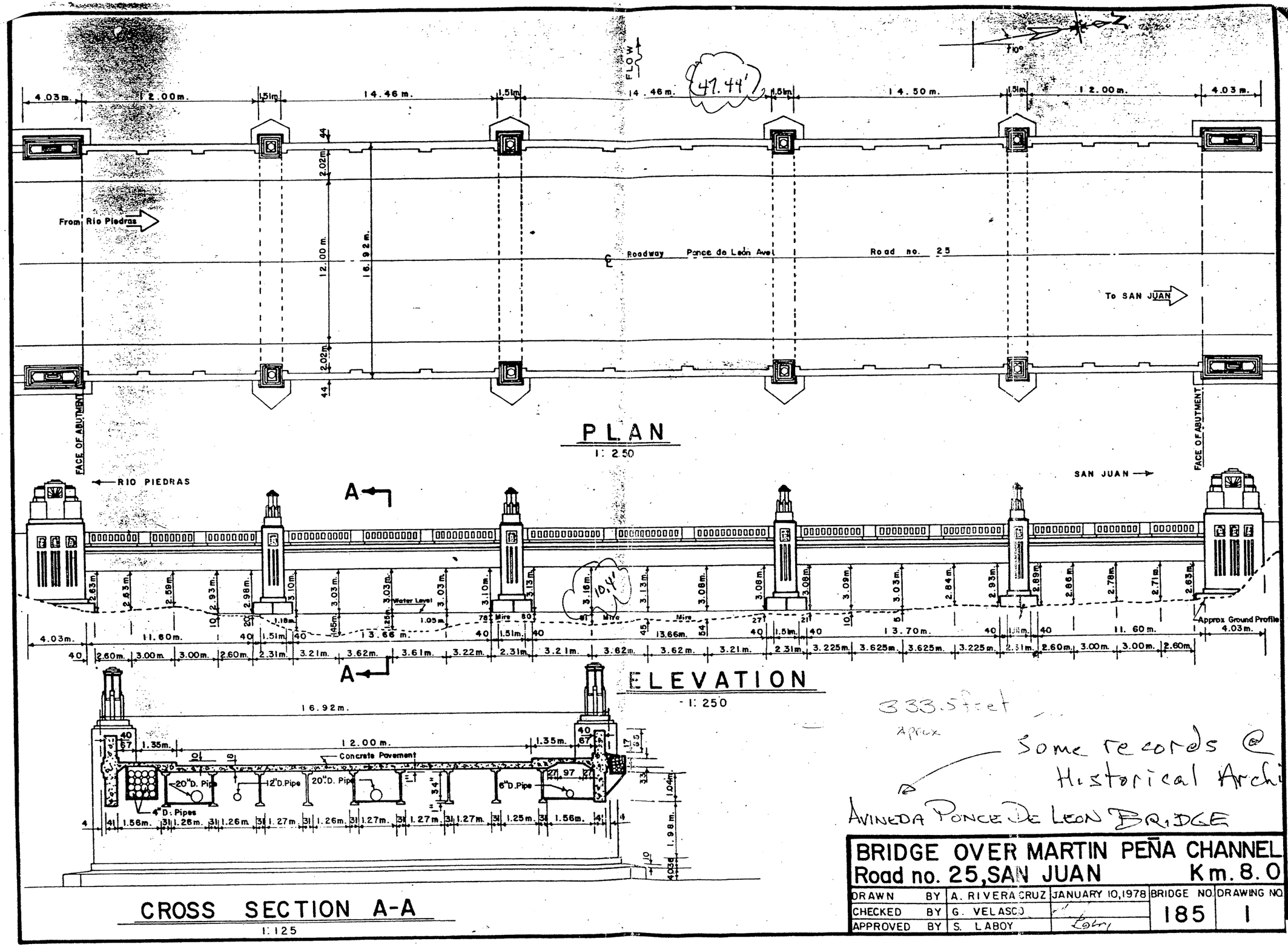
Appendix E
Miscellaneous Site Data and Communications

Avenida Luis Muñoz Rivera ← We have drawin
Bridge of road widening
in 1957.



ATTachment 6

Figure 68 Existing Bridge Plans, Luis Muñoz Rivera Avenue Bridge



333.5 feet
Approx.

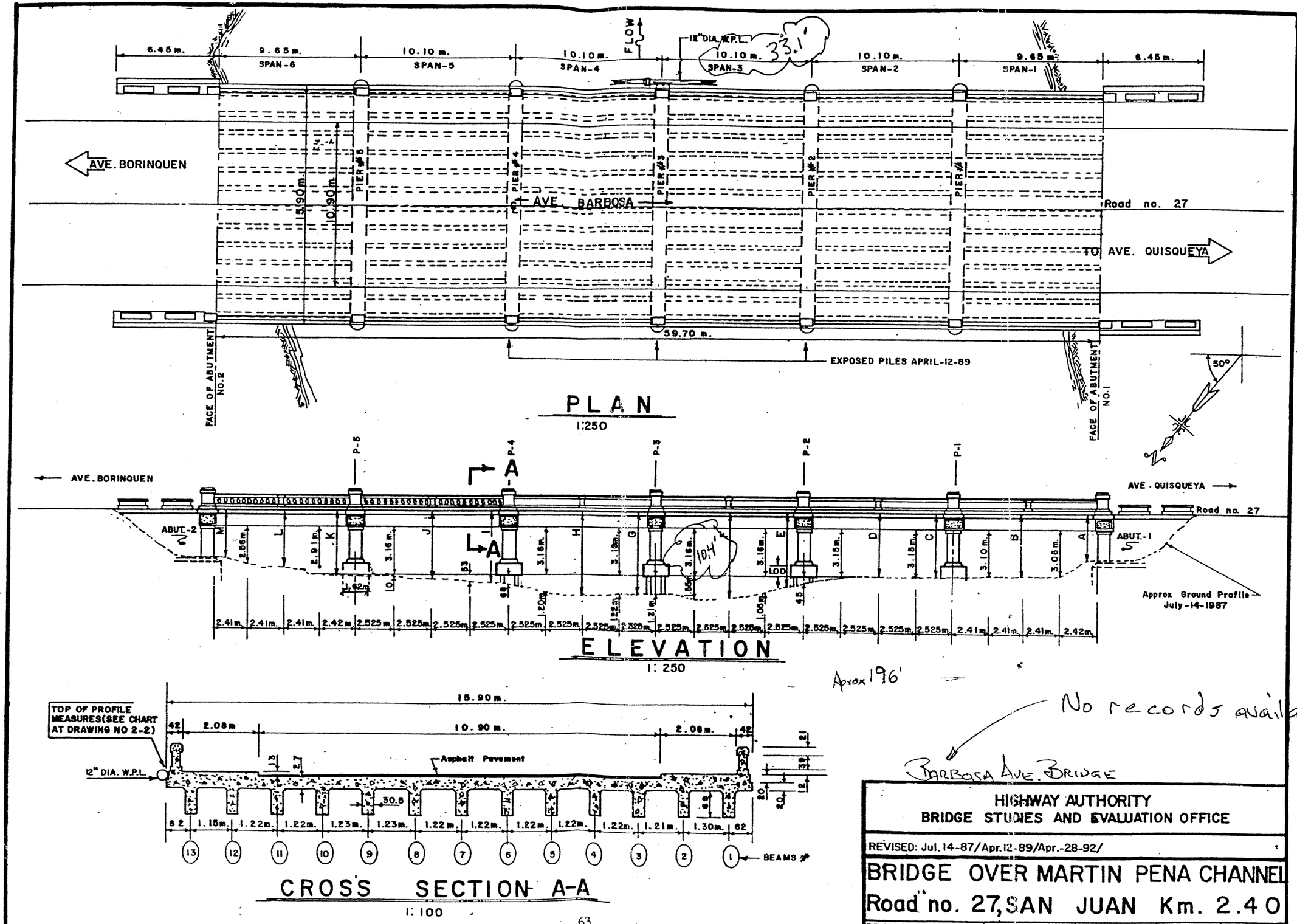
Some records & Historical Archives

AVENIDA PONCE DE LEON BRIDGE

BRIDGE OVER MARTIN PEÑA CHANNEL Road no. 25, SAN JUAN Km. 8.0					
DRAWN	BY	A. RIVERA CRUZ	JANUARY 10, 1978	BRIDGE NO.	DRAWING NO.
CHECKED	BY	G. VELASCO		185	1
APPROVED	BY	S. LABOY			

Figure 69 Existing Bridge Plans, Ponce de Leon Avenue Bridge

Built 1939



HIGHWAY AUTHORITY
BRIDGE STUDIES AND EVALUATION OFFICE

REVISED: Jul. 14-87/Apr. 12-89/Apr.-28-92/

BRIDGE OVER MARTIN PEÑA CHANNEL
Road no. 27, SAN JUAN Km. 2.40

DRAWN	BY	A. RIVERA CRUZ	DIC. 29, 1975	BRIDGE NO.	DRAWING NO.
CHECKED	BY	G. VELASCO		87	1-3
APPROVED	BY				

Figure 70 Existing Bridge Plans, Dr. Barbosa Avenue Bridge

Job No. | No.

HDR Computation

HDR

Project | Computed DRH | Date 9/15/99

Subject | Checked | Date

Task | Sheet | Of

Lane Widths Table 2.1.1

Arterial Urban 3.6m

Ramp Widths Table 2.1.3

One lane ramps 4.5m
Two lane ramps 9.2m

Shoulder Widths
Arterials

	width without shoulder Gutter				width with shoulder gutter			
	FULL WIDTH		PAVED WIDTH		FULL WIDTH		PAVED WIDTH	
	outside	median/left	outside	median/left	outside	median/left	outside	median/left
4 Lane	3.6	3.6	1.5	1.2	4.65	4.65	2.4	2.4
3 Lane	3.6	3.6	1.5	0.0	4.65	4.65	2.4	2.4
2 Lane	3.6	2.4	1.5	0.0	4.65	4.65	2.4	1.8
1 Lane Ramp	1.8	1.8	1.5	0.6	3.45	3.45	1.2	1.2
2 Lane Ramp	3.0	1.8	1.5	0.6	4.65	4.05	2.4	1.8

Table 2.6.1 Maximum Grades in Percent
Table 2.6.1

Arterials 90 km/h = 56mph Urban - 5
50 km/h = 31mph Urban - 8

Table 2.6.2
Max Grade without Vertical curves/per

50 km/h = 1.00
90 km/h = 150

Minimum Grade % = 0.3%
Table 2.6.4

Minimum stopping sight distance Table 2.2.1
50 km/h = 60m
90 km/h = 145m

Job No. | No.

HDR Computation

HDR

Project	Computed DRH	Date 9/15/09
Subject	Checked	Date
Task	Sheet	Of

Minimum radius Table 2.8.3

50 km/h 90m

90 km/h 376m

Maximum horizontal Curvature Table 2.8.4 0.02 cross slope

50 km/h = 1200m R

90 km/h = 3100m R

Vertical Curves Crest Table 2.8.5

50 km/h ⇒ K = 9 min length = .6 * 50 = 30m

90 km/h ⇒ K = 52 min length = 100m

Vertical Curves Sag Table 2.8.6

<50 km/h ⇒ K = 12 min length = .6 * 50 = 30m

90 km/h ⇒ K = 35 min length = 95m

Vertical Clearances for Bridges

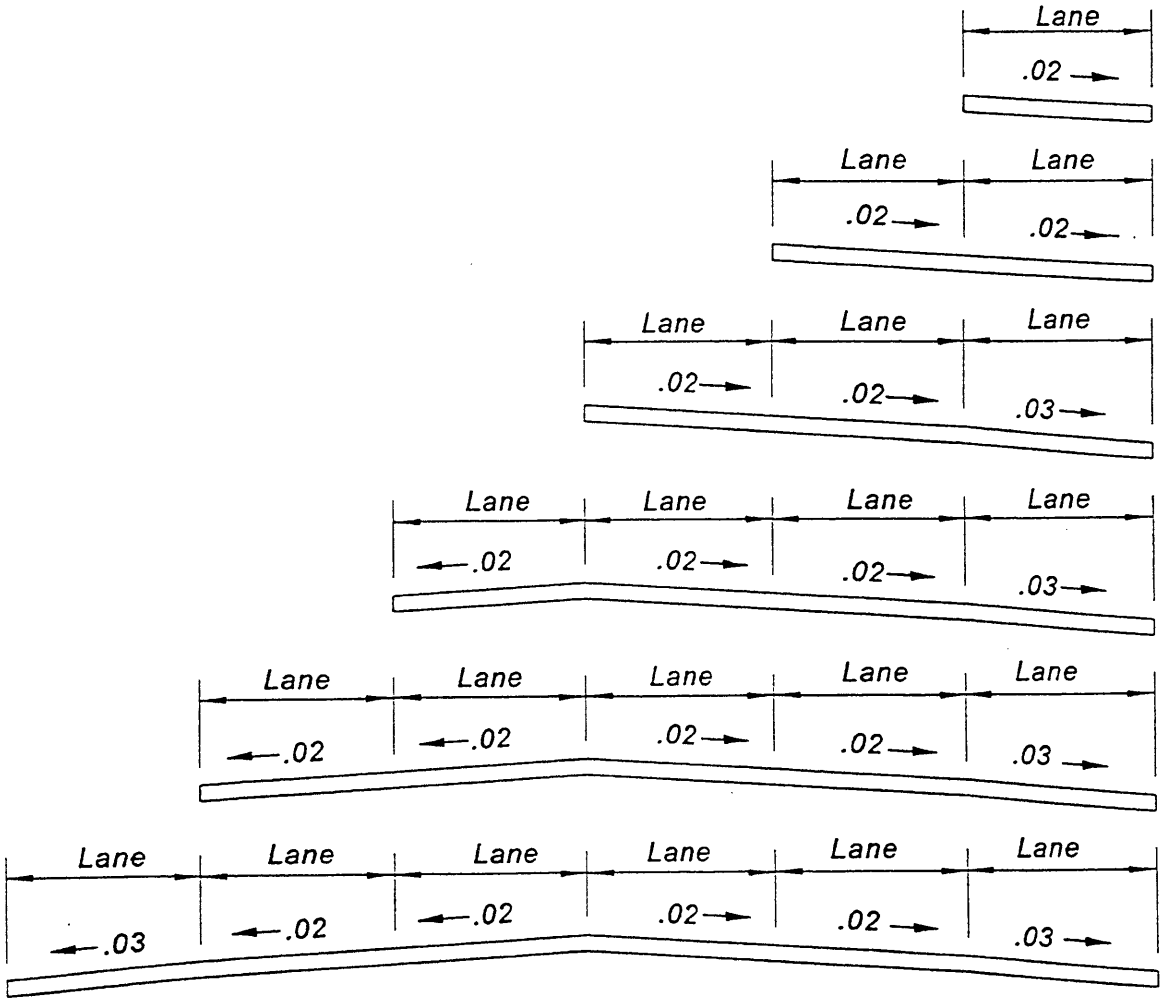
Roadway over Roadway 5.05

Table 4.3.1 Minimum Offset of Barriers

Barrier Wall 0.0

2.1 Lanes

Figure 2.1.1 Standard Pavement Cross Slopes

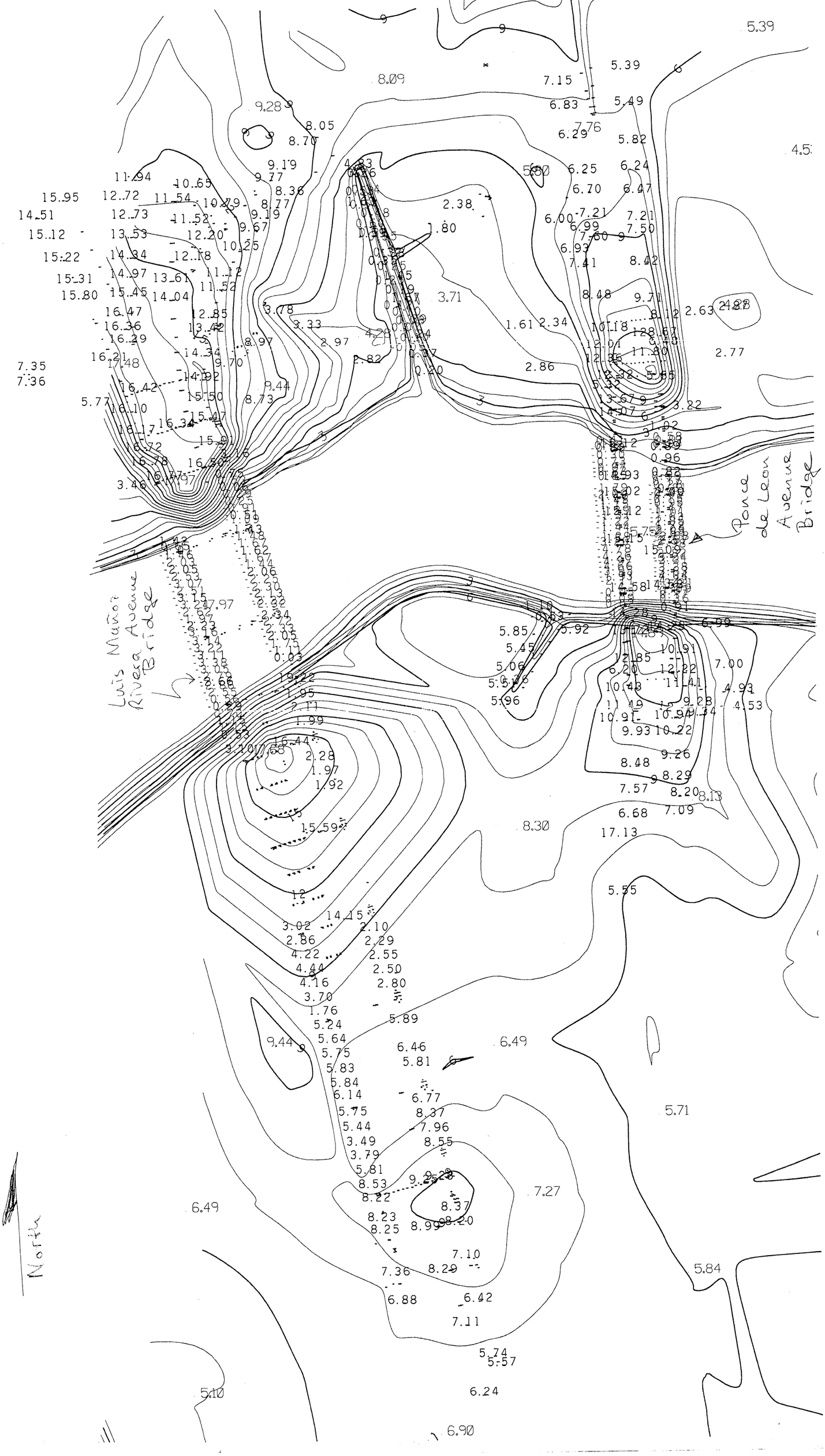


All Lanes One Direction

These sections show only the standard slopes for adjoining travel lanes; they do not prescribe needed lanes, lane usage or typical section requirements other than lane slope. These slopes are not applicable to parabolic crowns.

Maximum pavement cross slopes on tangent sections are:
- 0.04 for design speeds of 80 km/h or less.
- 0.03 for design speeds greater than 80 km/h.

The change in cross slope between adjacent through lanes shall not exceed 0.04.


Luis Muñoz Rivera Avenue Bridge
Ponce de Leon Avenue Bridge
North

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==========
G E O P A K

Project:
Subject:
Job No. 001 Operator: DH
Date: Friday September 17, 1999 5:54 pm
SYSTEM FIX 3 ASEC 0 BEAR PRI 0 RED NE STA 2 FILE: 'LUN'

* 1 PRI PRO LUN

Profile: LUN

		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	10+100.00	2.600				
VPC		10+137.50	2.600	0.000	K = 43.1		
VPI	2	10+200.00	2.600		125.000	62.500	62.500
VPT		10+262.50	4.413	2.900			
VPC		10+315.00	5.935	2.900	K = 53.1	SSD = 146.5	
VPI	3	10+400.00	8.400		170.000	85.000	85.000
High Point		10+469.06	8.169				
VPT		10+485.00	8.145	-0.300			
VPI	4	10+656.00	7.632	-0.300			

Luis Muñoz Rivera Ave &
Fernadez Juncos Ave

Bridge Length ≈ 96 m

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==========
G E O P A K

Project:
Subject:
Job No. 001 Operator: DH
Date: Thursday September 23, 1999 11:14 am
SYSTEM FIX 3 ASEC 0 BEAR PRI 0 RED NE STA 2 FILE: 'FER'

* 1 pri pro fer

Profile: FER

		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	10+486.00	8.140				
VPC		10+487.50	8.132	-0.500	K = 52.9	SSD = 146.1	
VPI	2	10+580.00	7.670		185.000	92.500	92.500
VPT		10+672.50	3.970	-4.000			
VPC		10+677.36	3.776	-4.000	K = 36.3		
VPI	3	10+750.00	0.870		145.278	72.639	72.639
Low Point		10+822.64	0.870				
VPT		10+822.64	0.870	0.000			
VPI	4	10+850.00	0.870	0.000			

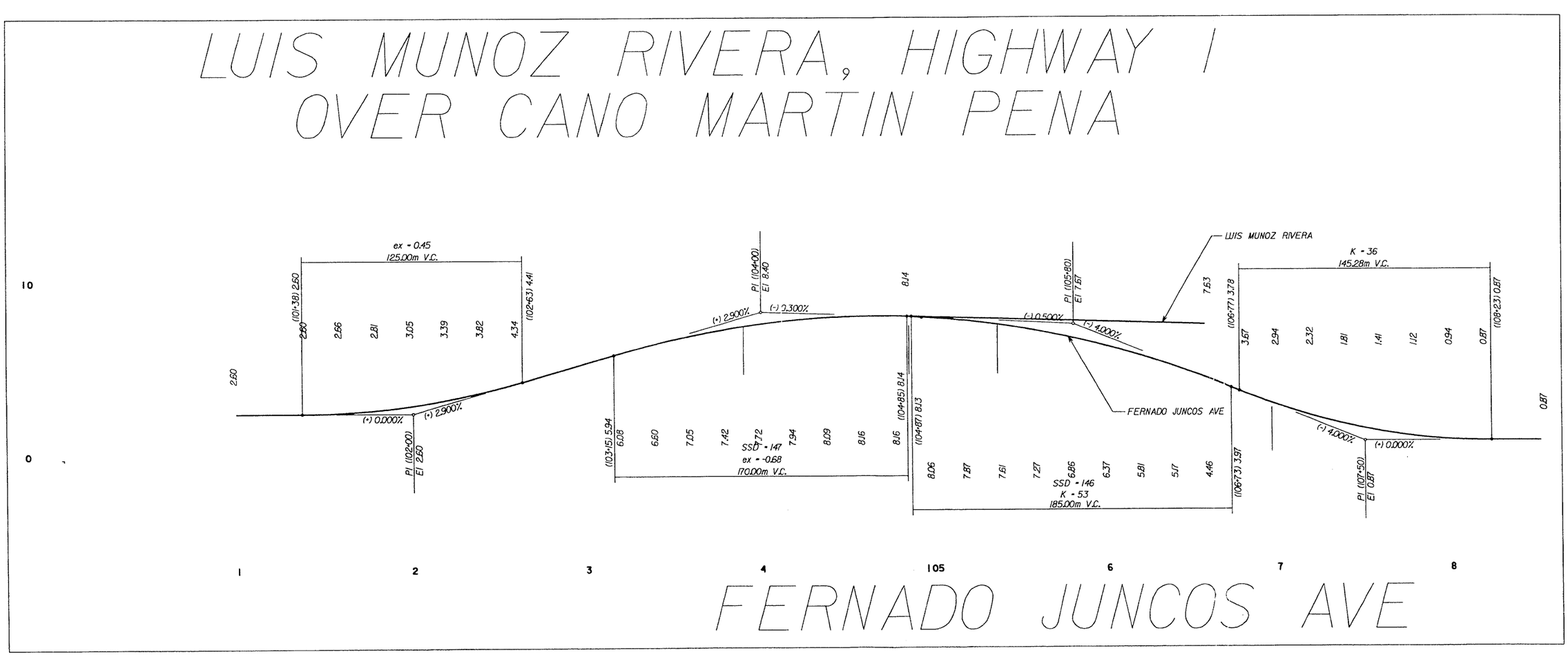

Figure 71 Proposed Roadway Profile, Luis Muñoz Rivera Avenue Bridge

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==========
G E O P A K

Project:
Subject:
Job No. 001 Operator: DH
Date: Friday September 17, 1999 4:46 pm
SYSTEM FIX 3 ASEC 0 BEAR PRI 0 RED NE STA 2 FILE: 'PON'

* 1 PRI PRO PON

Profile: PON

		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	10+000.00	2.600				
VPC		10+050.00	2.600	0.000	K = 50.0		
VPI	2	10+100.00	2.600		100.000	50.000	50.000
VPT		10+150.00	3.600	2.000			
VPC		10+303.00	6.660	2.000	K = 62.5	SSD = 158.9	
High Point		10+428.00	7.910				
VPI	3	10+428.00	9.160		250.000	125.000	125.000
VPT		10+553.00	6.660	-2.000			
VPC		10+706.00	3.600	-2.000	K = 50.0		
VPI	4	10+756.00	2.600		100.000	50.000	50.000
VPT		10+806.00	2.600	0.000			
VPI	5	10+856.00	2.600	0.000			

Ponce de Leon, Highway 25
over Caño Martin Peña
Bridge Length ≈ 96m

PONCE DE LEON, HIGHWAY 25
OVER CANO MARTIN PENA

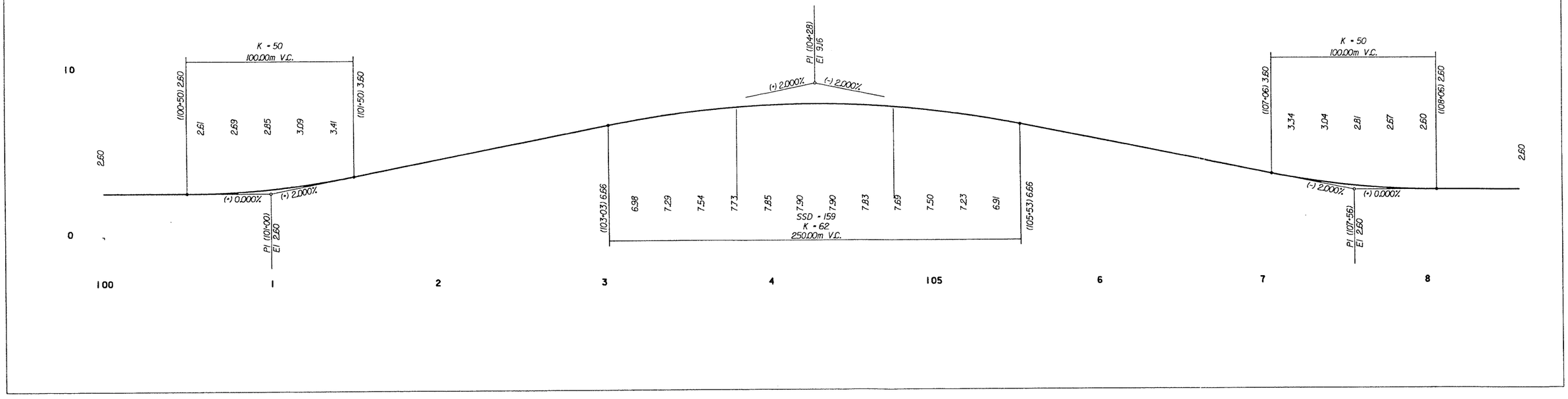

Figure 72 Proposed Roadway Profile, Ponce de Leon Avenue Bridge

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==========
G E O P A K

Project:
Subject:
Job No. 001 Operator: DH
Date: Friday September 17, 1999 3:15 pm
SYSTEM FIX 3 ASEC 0 BEAR PRI 0 RED NE STA 2 FILE: 'PRI'

* 1 PRI PRO PR1

Profile: PR1

		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	12+500.00	5.600				
VPC		13+937.50	1.287	-0.300	K = 125.0		
Low Point		13+975.00	1.231				
VPI	2	13+975.00	1.175		75.000	37.500	37.500
VPT		14+012.50	1.287	0.300			
VPC		14+427.50	2.532	0.300	K = 375.0		
VPI	3	14+465.00	2.645		75.000	37.500	37.500
VPT		14+502.50	2.832	0.500			
VPC		16+055.00	10.595	0.500	K = 500.0	SSD = 1060.0	
VPI	4	16+105.00	10.845		100.000	50.000	50.000
VPT		16+155.00	10.995	0.300			
VPC		16+450.00	11.880	0.300	K = 111.1	SSD = 274.4	
High Point		16+483.33	11.930				
VPI	5	16+500.00	12.030		100.000	50.000	50.000
VPT		16+550.00	11.730	-0.600			
VPI	6	17+350.00	6.930	-0.600			

PR1 Ramp off of Ponce de Leon, Highway 75

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==========
G E O P A K

Project:
Subject:
Job No. 001 Operator: DH
Date: Friday September 17, 1999 2:33 pm
SYSTEM FIX 3 ASEC 0 BEAR PRI 0 RED NE STA 2 FILE: 'BAR'

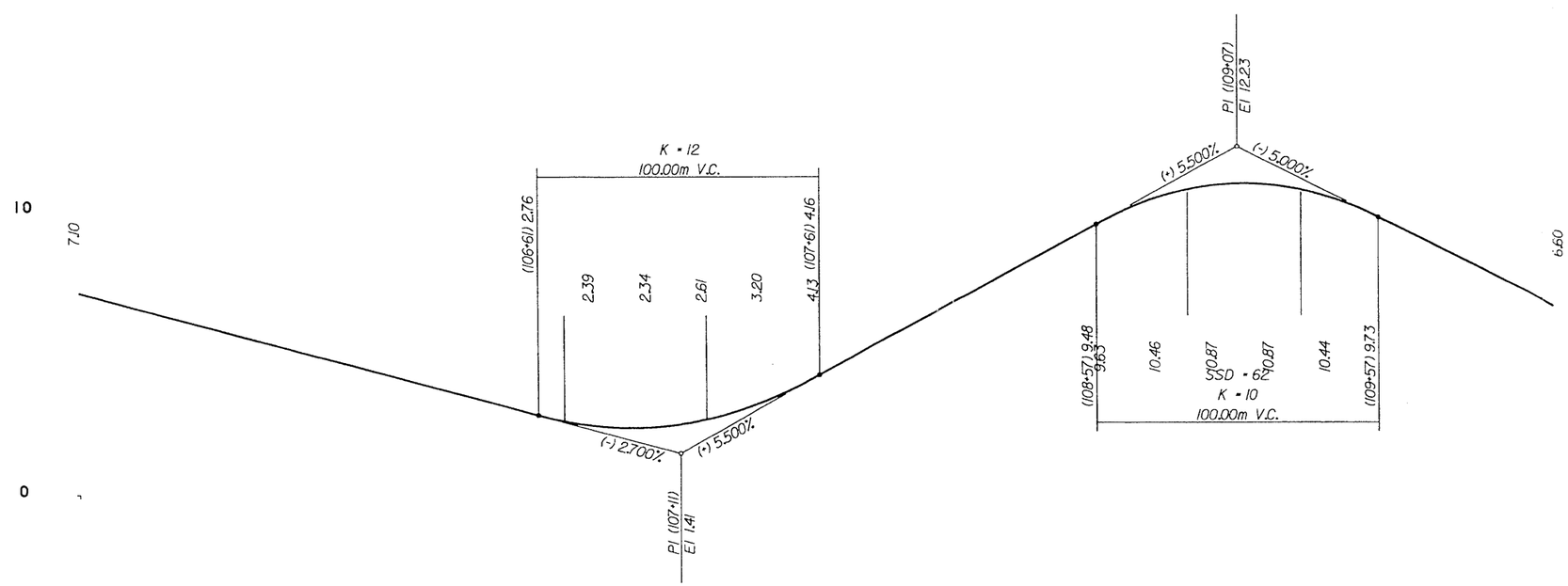
* 1 PRI PRO BAR

Profile: BAR

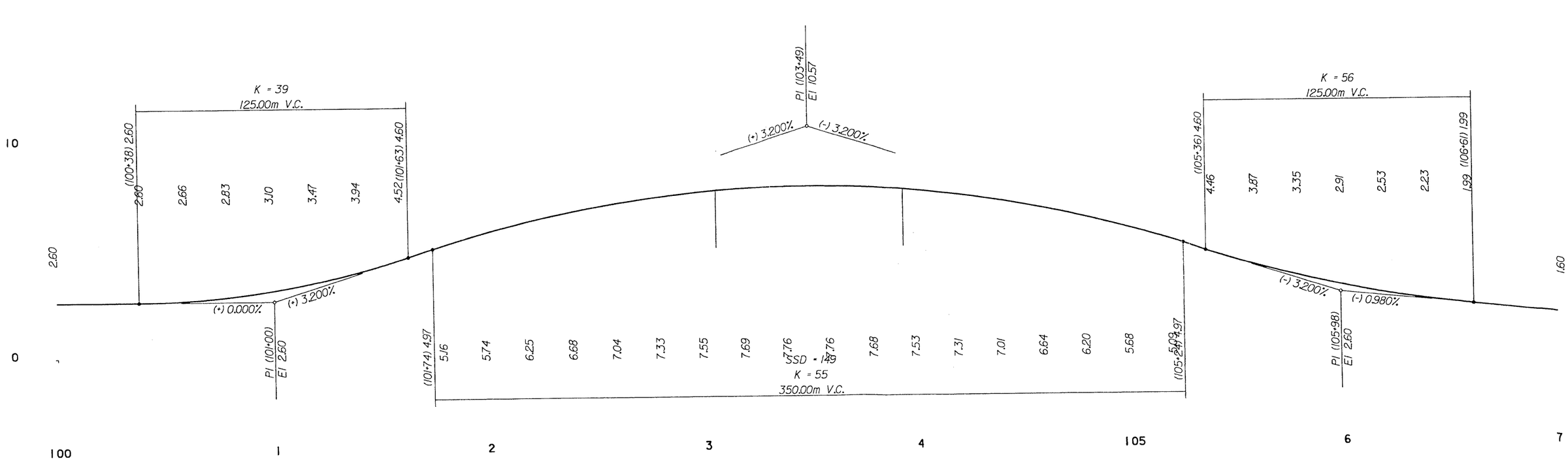
		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	10+000.00	2.600				
VPC		10+037.50	2.600	0.000	K = 39.1		
VPI	2	10+100.00	2.600		125.000	62.500	62.500
VPT		10+162.50	4.600	3.200			
VPC		10+174.00	4.968	3.200	K = 54.7	SSD = 148.6	
High Point		10+349.00	7.768	-			
VPI	3	10+349.00	10.568		350.000	175.000	175.000
VPT		10+524.00	4.968	-3.200			
VPC		10+535.50	4.600	-3.200	K = 56.3		
VPI	4	10+598.00	2.600		125.000	62.500	62.500
VPT		10+660.50	1.987	-0.980			
VPI	5	10+700.00	1.600	-0.980			

Dr. Barbosa, Road No 27
over Caño Martin Peña
Bridge Length ≈ 88m
PGL Elevation over Bridge = +2.6m

PRI RAMP OFF OF PONCE DE LEON, HIGHWAY 25



DR. BARBOSA, ROAD NO. 27 OVER CANO MARTIN PENA

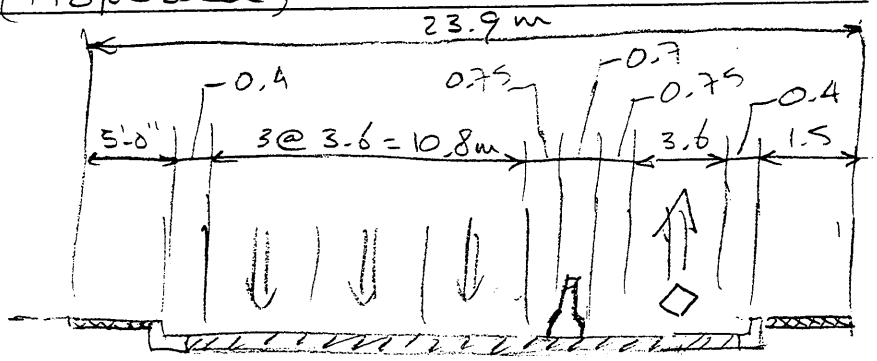


Job No. | No.

HDR Computation

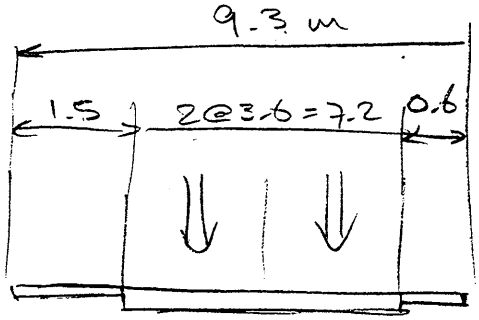
HDR

Project Caño Martin Peña Study	Computed PRS	Date 9-20-99
Subject Roadway Typical Sections	Checked	Date
Task (Proposed)	Sheet 1	Of



Area #2 Fernandez Juncos Ave, North of LMR bridge

Area #5 Ponce de Leon, North of bridge



(2 lane ramp w/o shoulder Gutter)

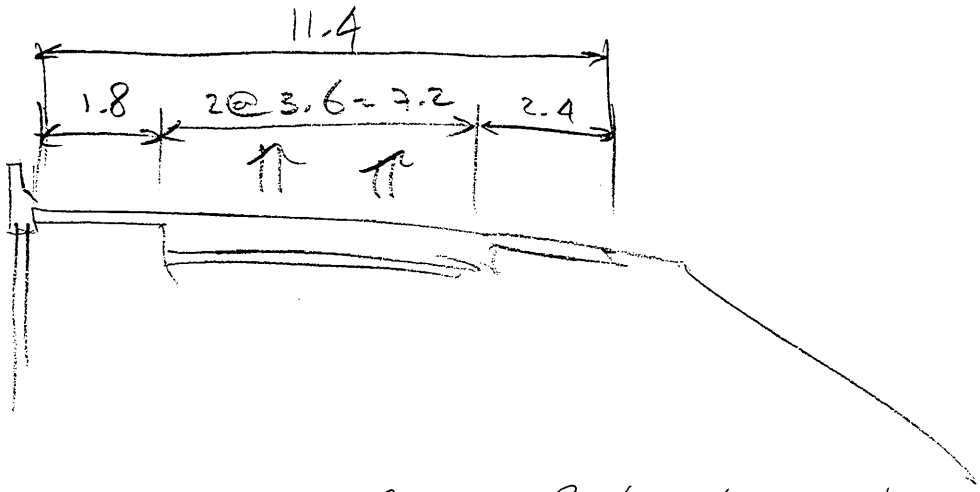
Area #1 Luis Muñoz Rivera, North of bridge

Job No. | No.

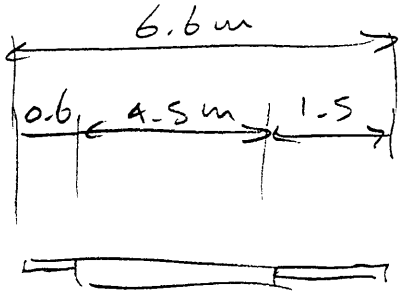
HDR Computation

HDR

Project Caño Martin Peña Study	Computed PRS	Date 9-20-
Subject Roadway Typical Sections	Checked	Date
Task (Proposed)	Sheet 2	Of



Area #3 Proposed PR-1 Ramp Relocation, North of ~~BD~~ (bri



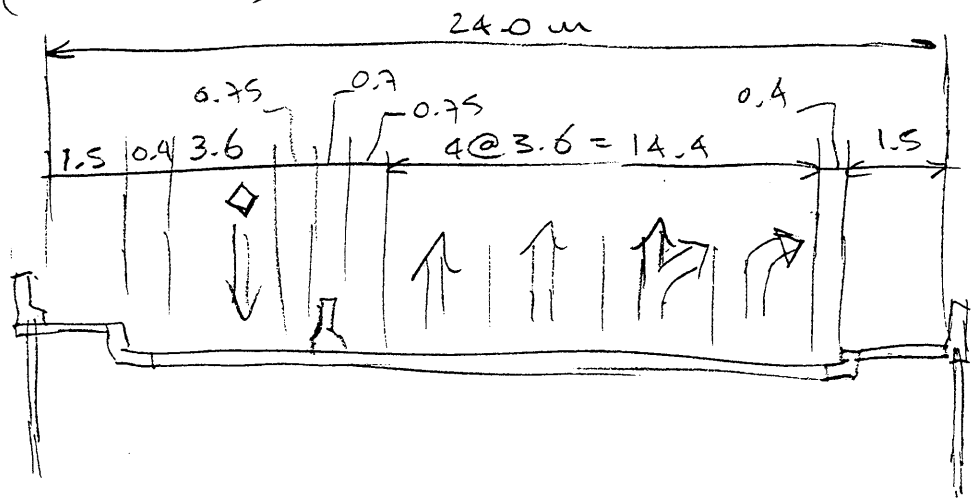
(1 Lane ramp)

Area #4 Access Ramp to bus station

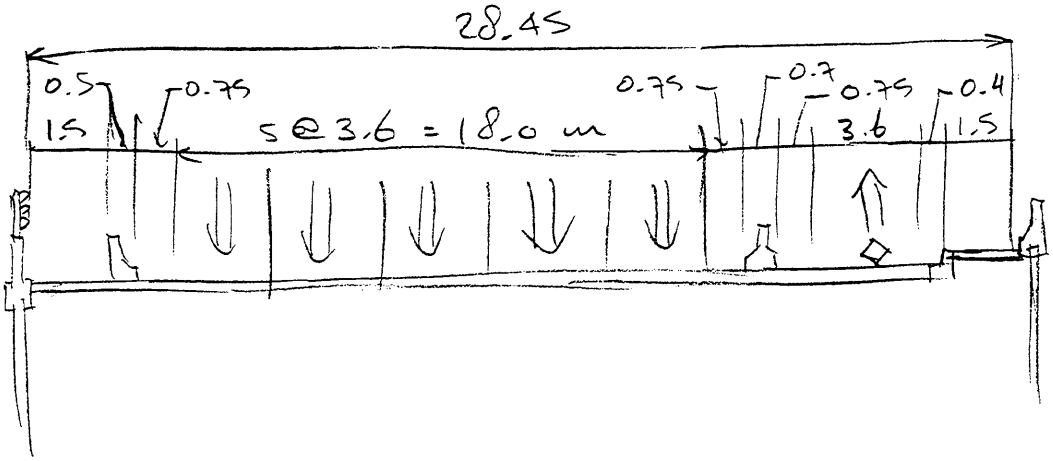
Job No. | No.

HDR Computation

Project Caño Martin Peña Study	Computed PRS	Date 9-20-99
Subject Roadway Typical Sections.	Checked	Date
Task (Proposed)	Sheet 3	Of



Area Ponce de Leon, South of bridge.
#6a

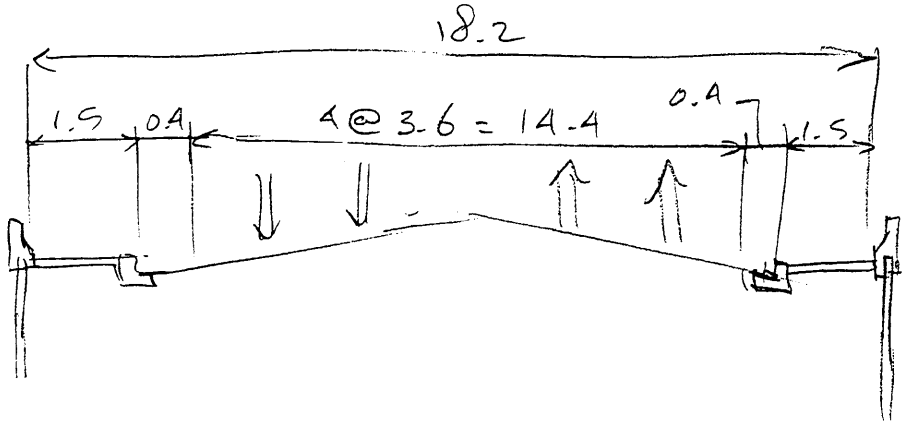


Area Luis Muñoz Rivera, South of bridge.
#7a

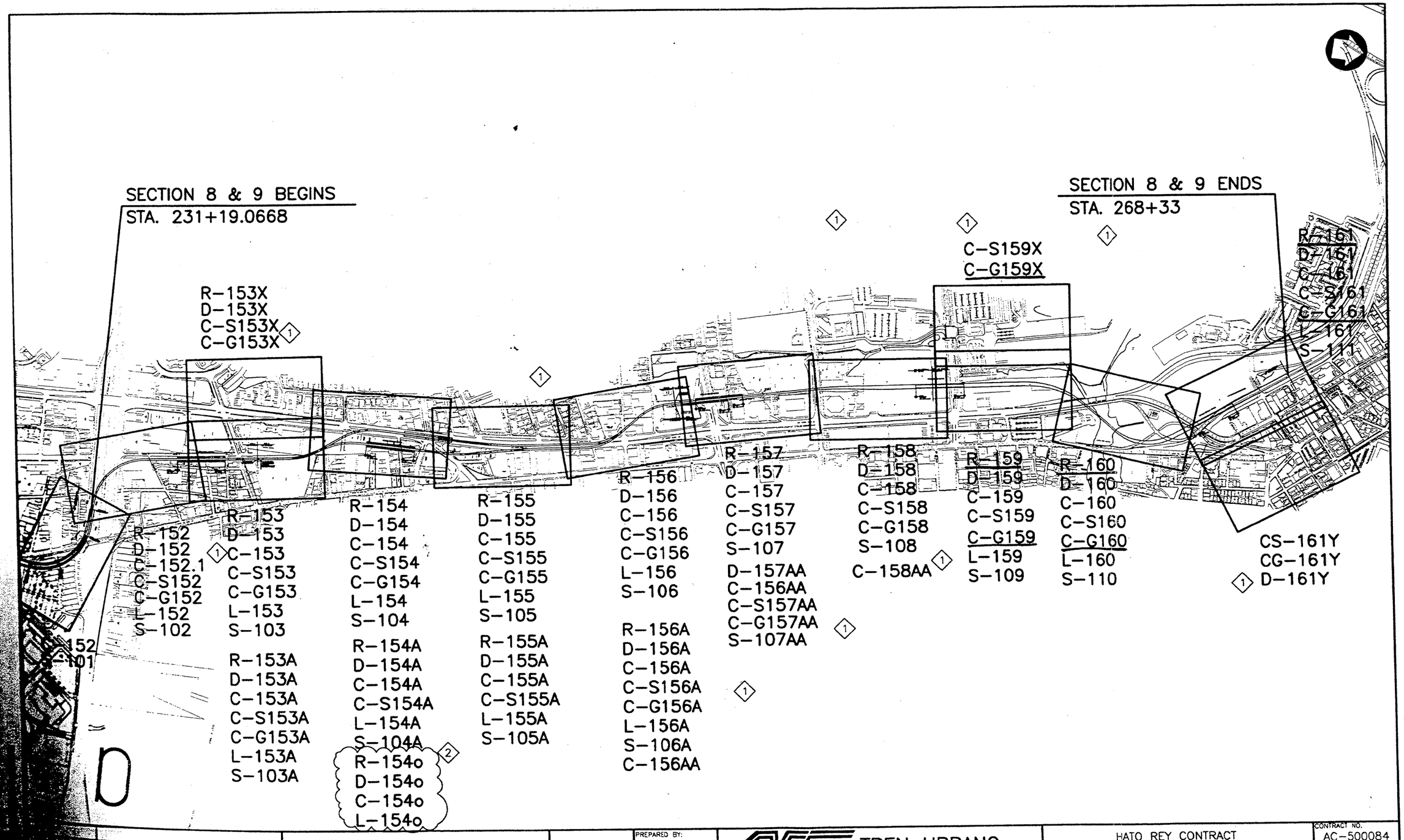
Job No.	No.

HDR Computation

Project Caño Martin Peña Study	Computed PRS	Date 9-20	9
Subject Roadway Typical Sections	Checked	Date	
Task Proposed	Sheet 4	Of	



Area #9a & #9b Dr. Barbosa Avenue bridge, North & South Appr



ADDENDUM 6: REVISED AS SHOWN ADDENDUM 5: REVISED AS SHOWN DESCRIPTION	**Contract Issue**		PREPARED BY: DRAWN BY: CHECKED BY: DATE: 03-SEP-96	TREN URBANO Tren Urbano CM-EC Daniel, Mann, Johnson & Mendenhall Frederic R. Harris, Inc. Eduardo Molinari y Asociados Barrett & Hale SUBMITTED	HATO REY CONTRACT **ALIGMENT SECTION 8 & 9** **KEY PLAN**

CONTRACT NO.	AC-500084
DRAWING NO.	G-102
REV.	2
SCALE:	N.T.S
SHEET NO.	6

MATCH LINE
SEE DRAWING INSERT
FOR CONTINUATION

DRAWING INSERT

MATCH LINE

LOS PUERTOS
"AGUA EXPRESO"
GATE

PARQUE LINEAL

STA 257+50
R-160

258+00
259+00
260+00
261+00

N 66,567.9105
E 191,750.5533

N 66,565.8452
E 191,756.7430

PHASE I
STA 260+97

STA 261+25
R-160

MATCH LINE
SEE DWG.

ARTERIAL B AVENUE

LUIS MUÑOZ RIVERA AVE.

RT186
ELV 3.335

GRAPHIC SCALE
5 0 5 10 15 20 25

MERCANTIL PLAZA
BUILDING

REV.	DATE	DESCRIPTION
1	28-FEB-97	ADDENDUM 5: REVISED AS SHOWN

Contract Issue

PREPARED BY:
DRAWN BY:
CHECKED BY:
DATE: 03-SEP-96

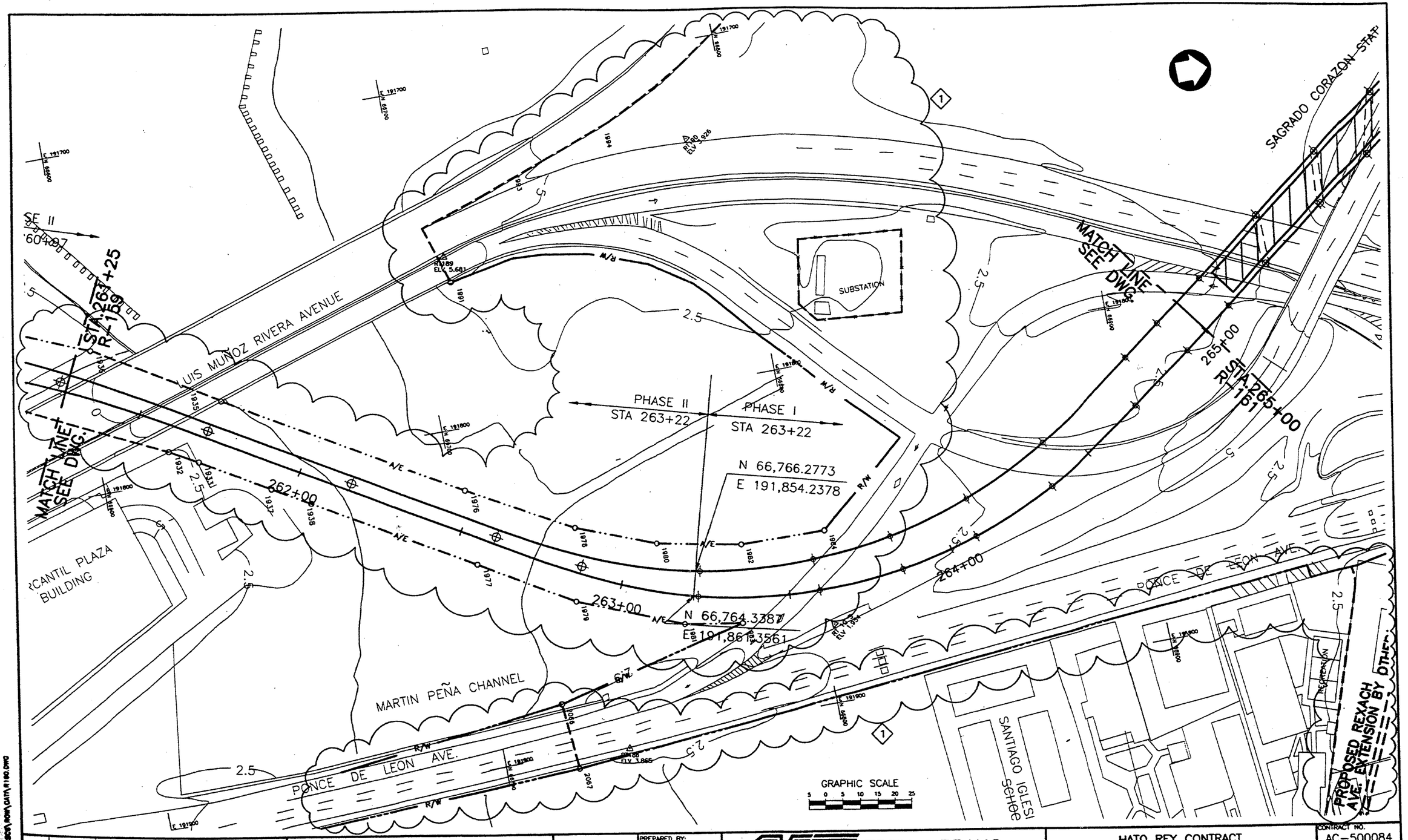
TREN URBANO
Tren Urbano GVAEC
Daniel, Mann, Johnson & Mendenhall
Frederic R. Harris, Inc.
Eduardo Molinari y Asociados
Barrett & Hale

SUBMITTED

HATO REY CONTRACT
CATEGORY I CONTRACT DRAWING
RIGHT-OF-WAY PLAN
STA. 257+50 TO STA. 261+25

CONTRACT NO. AC-500084
DRAWING NO. R-159
REV. 1
SCALE: 1:500
SHEET NO. 17

Figure 75 Tren Urbano Contract Issue Plan Sheets, Hato Rey Contract - 2



REV.	DATE	DESCRIPTION
2	28-FEB-97	ADDENDUM 5: REVISED AS SHOWN

Contract Issue

PREPARED BY:
DRAWN BY:
CHECKED BY:
DATE: 7-SEP-96

TREN URBANO

Tren Urbano
Daniel, Mann, Johnson & Mendenhall
Frederic R. Harris, Inc.
Eduardo Mañanari y Asociados
Barrett & Hale

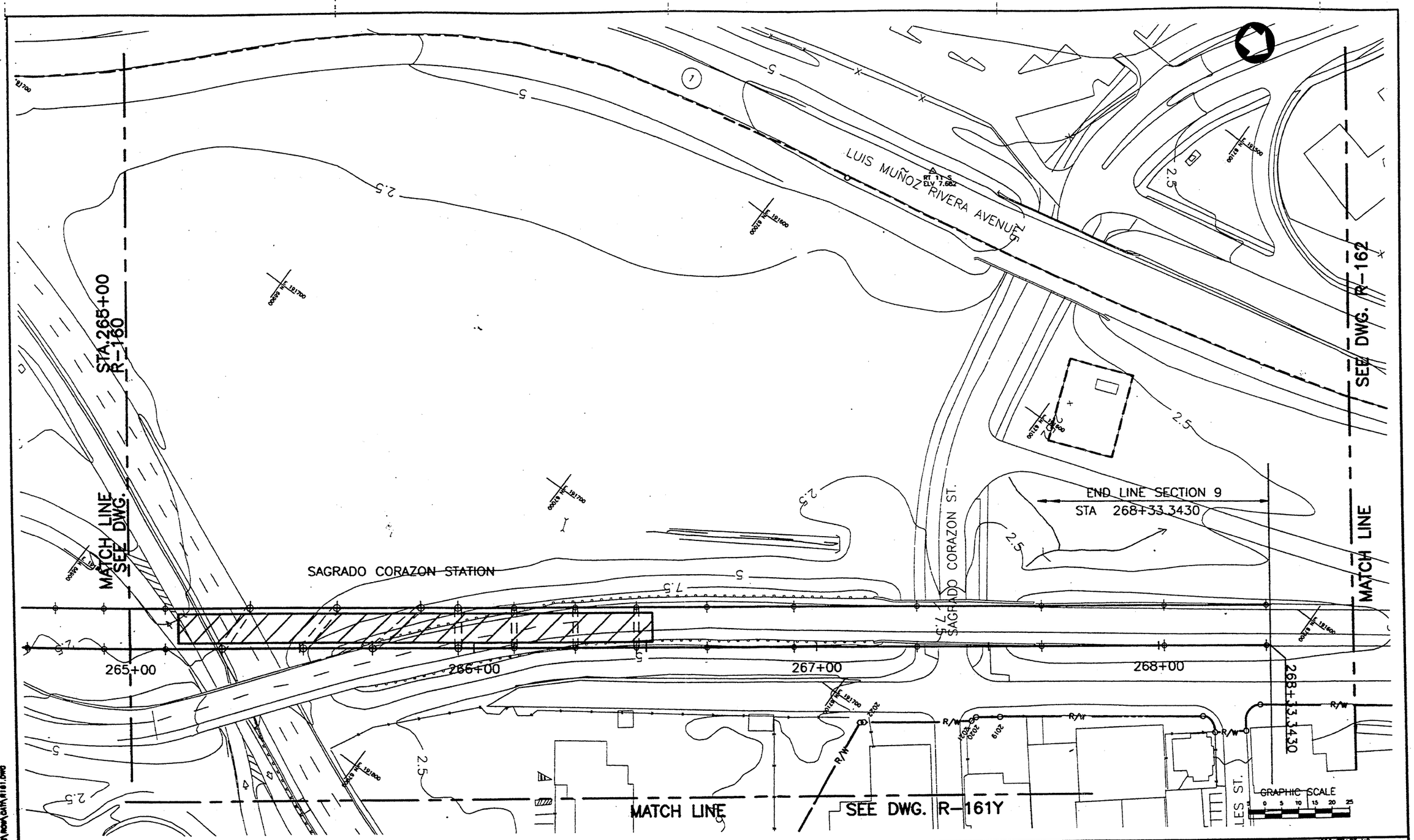
SUBMITTED

HATO REY CONTRACT
CATEGORY I CONTRACT DRAWING

RIGHT-OF-WAY PLAN
STA. 261+25 TO STA. 265+00

CONTRACT NO. AC-500084
DRAWING NO. R-160 REV. 1
SCALE: 1:500
SHEET NO. 18

Figure 76 Tren Urbano Contract Issue Plan Sheets, Hato Rey Contract - 3



REV.	DATE	DESCRIPTION
2	28-FEB-97	ADDENDUM 5: COMPLETE DRAWING REVISED

Contract Issue

PREPARED BY:
DRAWN BY:
CHECKED BY:
DATE: 03-SEP-96

TREN URBANO

Tren Urbano GMAEC
Daniel, Mann, Johnson & Mendenhall
Frederic R. Harris, Inc.
Eduardo Mañanori y Asociados
Barnett & Hale

SUBMITTED

HATO REY CONTRACT
CATEGORY I CONTRACT DRAWING

RIGHT-OF-WAY PLAN
STA. 265+00 TO STA. 268+33.3430
SHEET 1 OF 2

CONTRACT NO. AC-500084
DRAWING NO. R-161
REV. 1
SCALE: 1:500
SHEET NO. 19

Figure 77 Tren Urbano Contract Issue Plan Sheets, Hato Rey Contract - 4

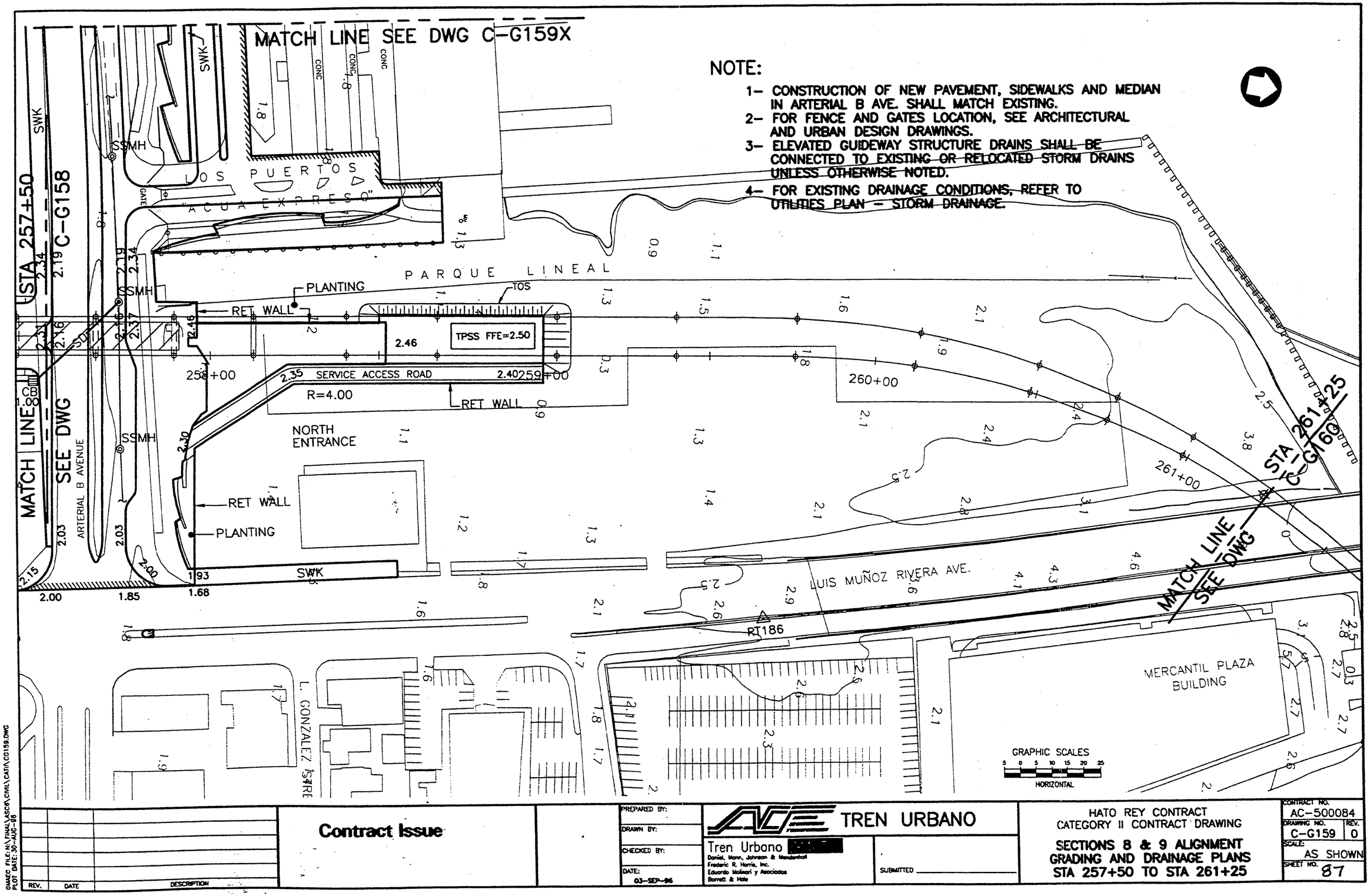


Figure 78 Tren Urbano Contract Issue Plan Sheets, Hato Rey Contract - 5

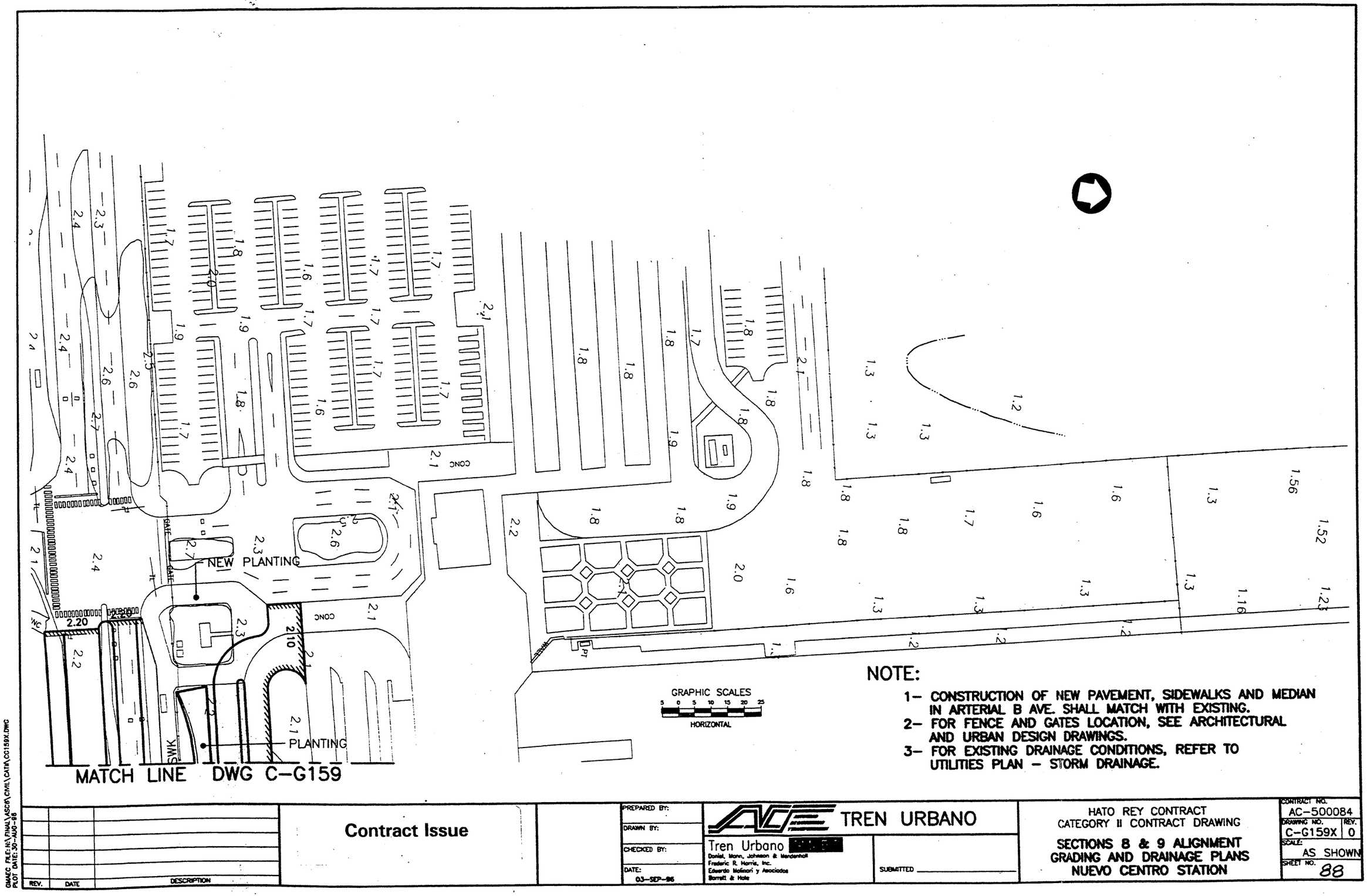
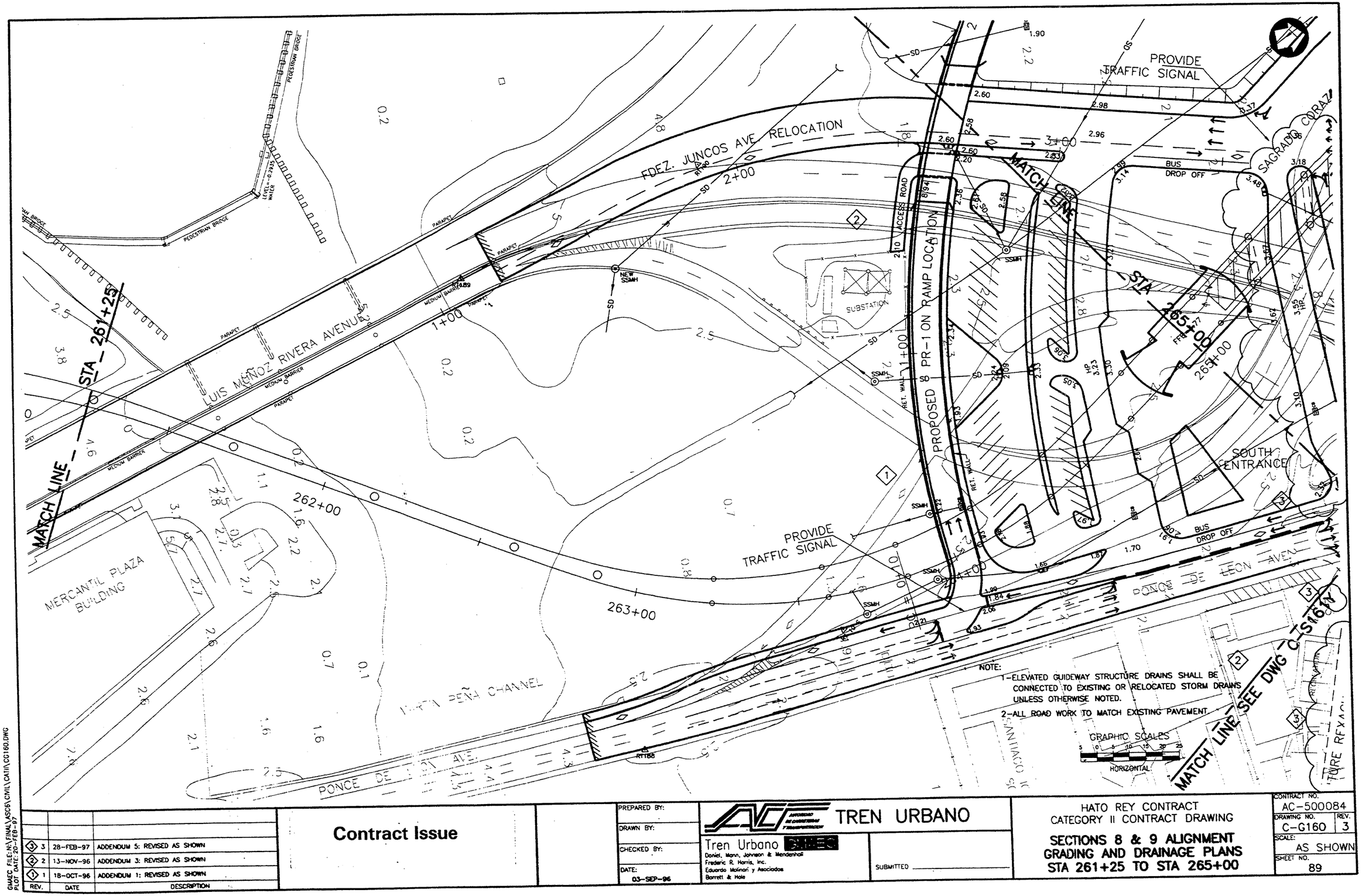


Figure 79 Tren Urbano Contract Issue Plan Sheets, Hato Rey Contract - 6



REV.	DATE	DESCRIPTION
3	28-FEB-97	ADDENDUM 5: REVISED AS SHOWN
2	13-NOV-96	ADDENDUM 3: REVISED AS SHOWN
1	18-OCT-96	ADDENDUM 1: REVISED AS SHOWN

Contract Issue

PREPARED BY:
DRAWN BY:
CHECKED BY:
DATE: 03-SEP-96

TREN URBANO

Tren Urbano
Daniel, Mann, Johnson & Mendenhall
Frederic R. Harris, Inc.
Eduardo Molinari y Asociados
Barrett & Hale

SUBMITTED

HATO REY CONTRACT
CATEGORY II CONTRACT DRAWING

SECTIONS 8 & 9 ALIGNMENT GRADING AND DRAINAGE PLANS STA 261+25 TO STA 265+00

CONTRACT NO. AC-500084
DRAWING NO. C-G160 REV. 3
SCALE: AS SHOWN
SHEET NO. 89

GMAEC FILE: N:\FINAL\ASC6\CIVIL\CATII\CG160.DWG
PLOT DATE: 20-FEB-97

Figure 80 Tren Urbano Contract Issue Plan Sheets, Hato Rey Contract - 7

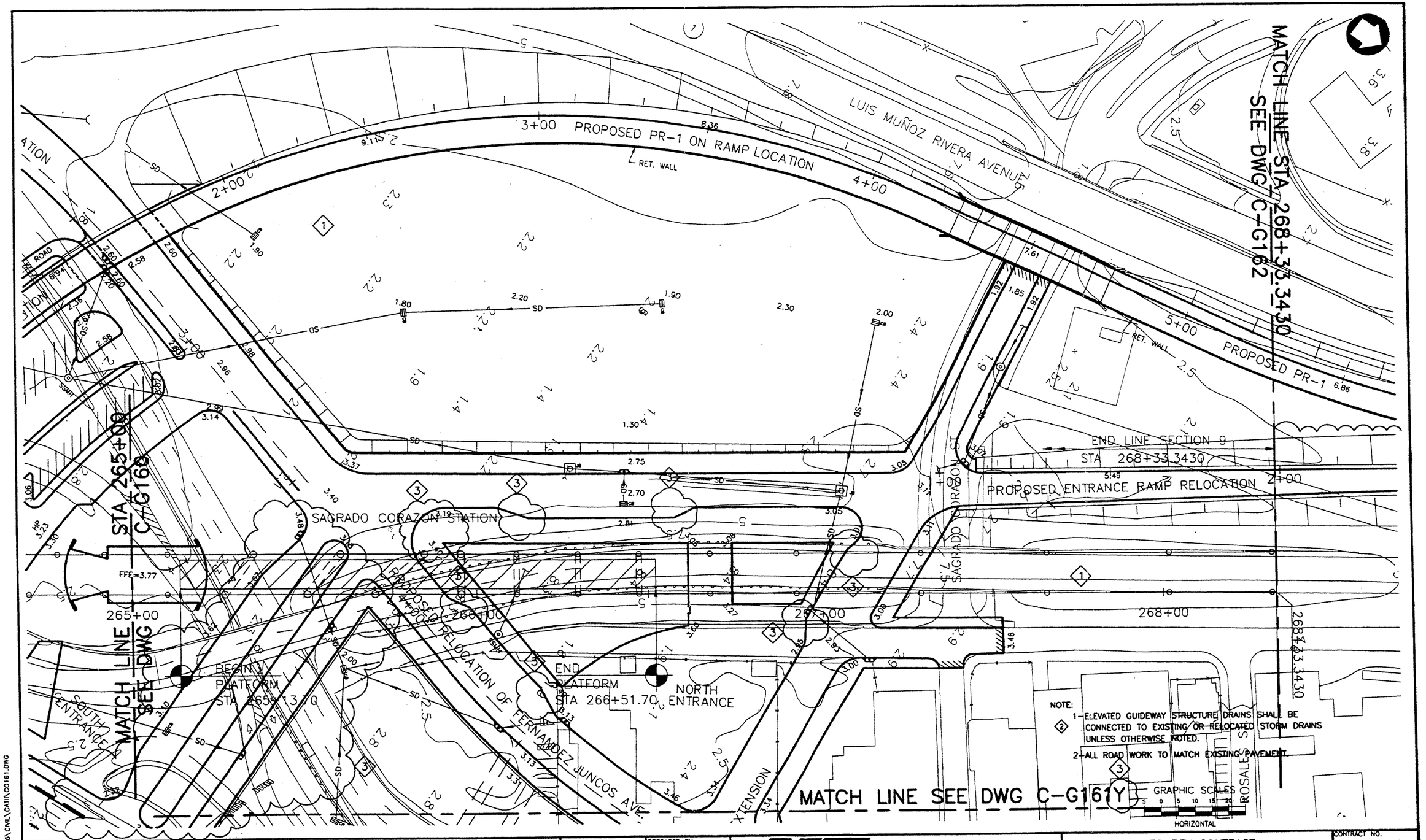


Figure 81 Tren Urbano Contract Issue Plan Sheets, Hato Rey Contract - 8

Telephone Conversation Record

HDR

Project: Bridges on the Caño Martin Peña | Project No.

Time: 9:00 AM | Date: 8/25/99

Call to: Jorge Tous (787) 729-6893 Corps of Engineers Phone No. | Call from: Paul Steijlen (HDR) (813) 282-2425 Phone No.

Discussion, Agreement and/or Action

Discussed the proposed bridge replacements on the Martin Peña Canal.

Jorge mentioned that the existing vertical clearances are low. He also mentioned that Tren Urbano cannot be modified in any major way. He suggested that I talk to Tren Urbano and that it would be OK. to talk to Jesus Rivas if I needed additional Information.

I mentioned that it appeared that we could shorten the bridge at Luis Muñoz Rivera. He said that he wasn't sure about existing soil conditions, but that it was OK to proceed with a shortened bridge.

No action Required.

cc: File

Telephone Conversation Record

HDR

Project: Bridges on the Caño Martin Peña | Project No.

Time: 11:40 | Date: 8/26/99

Call to: Jesus Rivas (787) 721-8787 (ACT) Phone No. | Call from: Paul Steijlen (HDR) (813) 282-2424 Phone No.

Discussion, Agreement and/or Action

Called Jesus to find some additional information about this project. He said that he was not really the right person to talk to. He mentioned the following individuals as possible points of contact

Irma Garcia, Environmental Affairs (787) 721-8787 ext. # 1529

Joser Nandez, Director of Design (787) 721-8787 ext. # 1401

Since I had a contact with Tren Urbano that was able to provide me with design plans for the immediate area of Luis Muñoz Rivera and Ponce de leon, I decided that there was no need to continue beyond this point.

No Action Required.

cc:

Figure 82 New overpass at North end of LMR Box Beams

Figure 83 New overpass at North end of LMR Retaining Wall

Figure 84 Agua Expreso Bus to water station

Figure 85 View of landing at Hato Rey

Figure 86 Prestressed piles for Tren Urbano, with King Pile Wall and pedestrian trail in background

Figure 87 Cast-in-place pier segment form and column steel (Tren Urbano)

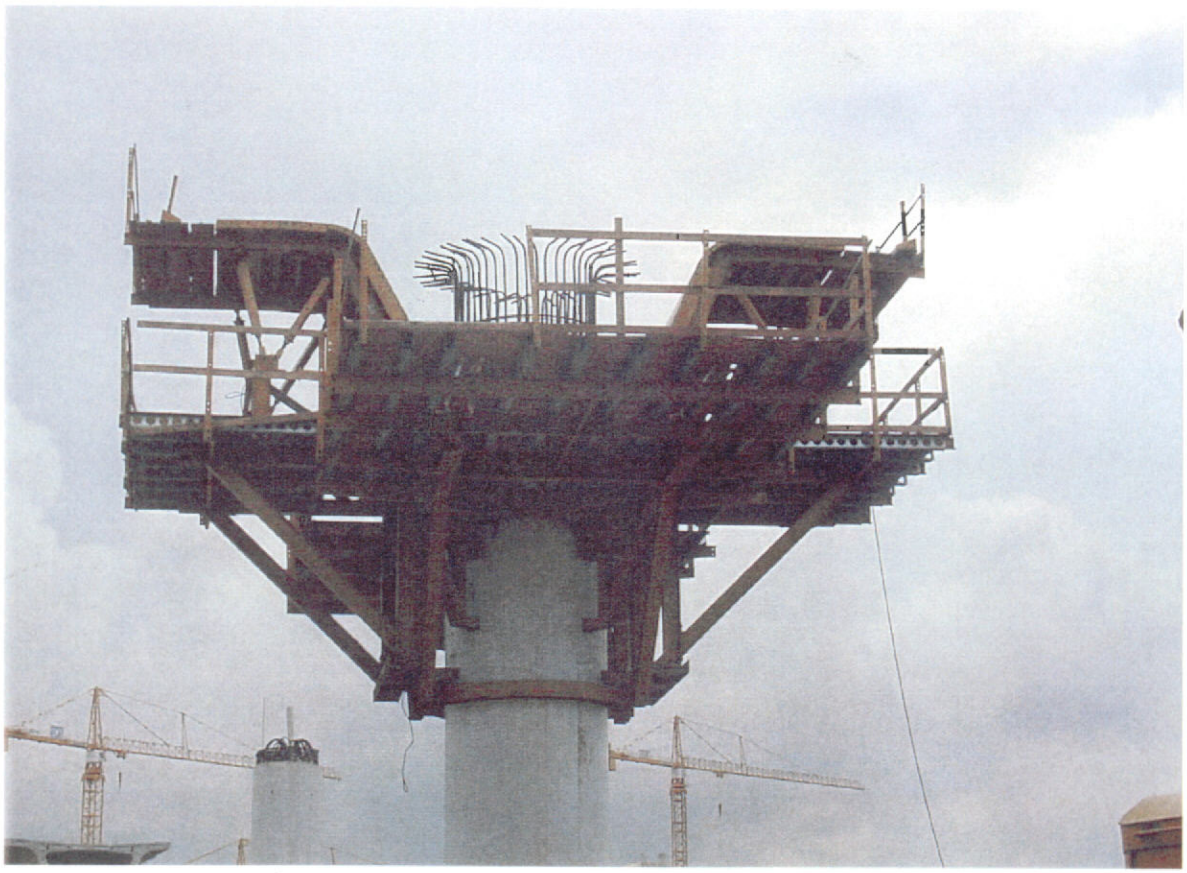


Figure 88 Cast-in-place pier segment form details (Tren Urbano)

Figure 89 Column attachment of pier segment forms (Tren Urbano)

Figure 90 Cast-in-place pier segment side forms and appr. segment support (Tren Urbano)

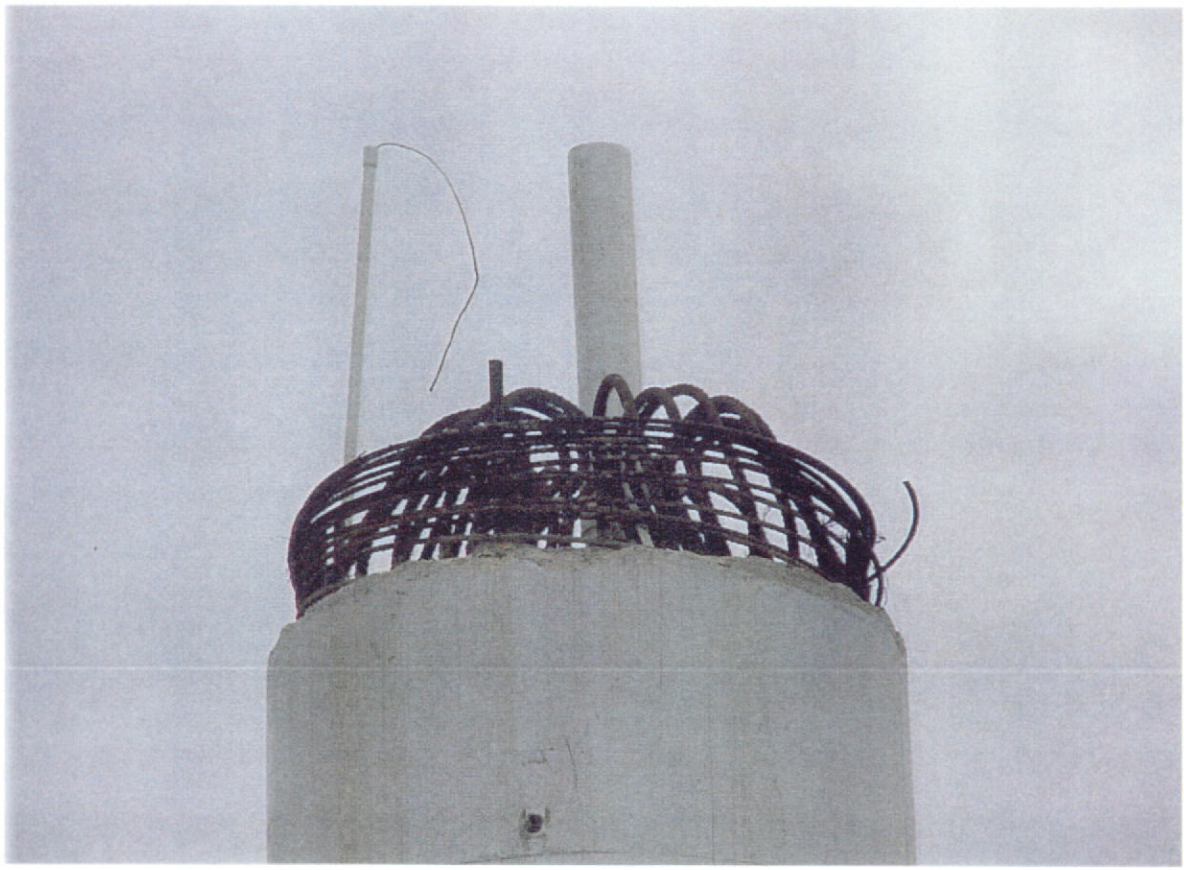


Figure 91 Expansion joint pier cap reinforcement from column (Tren Urbano)

Figure 92 Diaphragm form for cast-in-place pier segment (Tren Urbano)

Figure 93 Retractable side forms (Tren Urbano)

Figure 94 Adjacent pier segment supports (Tren Urbano)

Figure 95 Tren Urbano Pier Table

Figure 96 Close up of pier segment (Tren Urbano)

Figure 97 Tren Urbano fixed pier and adjacent exp. pier

Figure 98 Tren Urbano leaving Hato Rey

Figure 99 18" piles for Tren Urbano footing (+ or – 60 ft. long??)

Figure 100 Tren Urbano transverse post-tensioning at pier segment

Figure 101 Tren Urbano pier segment forms

Figure 102 Heavy construction in Hato Rey

DREDGING OF CAÑO MARTÍN PEÑA
PUERTO RICO
FINAL
PROJECT DESIGN REPORT AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX D
REAL ESTATE REQUIREMENTS

CAÑO MARTIN PEÑA, PUERTO RICO
SUPPORT FOR OTHERS WORK
PROJECT DESIGN REPORT AND
ENVIRONMENTAL IMPACT STATEMENT

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PLATE RE-1

REAL ESTATE APPENDIX
FOR RECOMMENDED PLAN

1. STATEMENT OF PURPOSE.

a. This Real Estate Plan is tentative in nature for planning purposes only and both the final real property acquisition lines and the real estate cost estimates provided are subject to change even after approval of this report.

b. The purpose of this study report is to recommend to the Puerto Rico Department of Natural and Environmental Resources (DNER) a channel improvement alternative for the restoration of the Caño Martin Peña.

2. PROJECT AUTHORIZATION.

DNER has requested technical assistance for the environmental restoration and channel improvement work of the Caño Martin Peña. The Caño Martin Peña Project is a Support for Others Work and is authorized under a Memorandum of Agreement between DNER and the Department of the Army dated 3 March 1996, thereafter amended 24 May 1999.

3. PROJECT DESCRIPTION.

The Caño Martin Peña is a waterway approximately 3.75 miles long and extends in an East-West direction from the terminus of the Aqua Express at the Hato Rey intermodal passenger terminal through the urban center of the San Juan Metropolitan Area to the San Jose Lagoon. The canal connects an entire system of interior coastal lagoons. It is highly contaminated with solid wastes and the water quality is far below minimum acceptable standards. There are a large number of low income families living within its banks on houses not suitable for human habitat. Most of the environmental problems are a direct result of unsewered development discharges, untreated direct sewer and industrial discharges, surface runoff and subsurface seepage over areas littered with household waste. The canal violates all Federal and Puerto Rico water quality standards, creating a major health hazard.

The proposed channel improvement consists of widening and deepening the existing Caño Martin Peña channel about 11,200 feet from the Aqua Express terminus to the San Jose Lagoon. This involves construction of a king pile wall, channel dredging, bridge replacements, and structure acquisitions.

The required lands consist of approximately 42 acres of permanent channel improvement easement with an estimated land value of $2,058,000.

There are two staging areas identified in the southeast and south central part of the Caño Martin Pena and three parking areas outside of the channel right-of-way. The southeastern staging area consists of approximately 1.5 acres of which .50 acre is for parking and the 1 acre is the baseball field. The south central staging area consists of 5.0 acres with 2 parking areas each half an acre. All except the parking areas would be for temporary use only and would be returned to its original owner(s) upon completion of the work. The 5 acres of temporary area has an estimated land value of $73,500.00 if used for a period of three years. The three parking areas are 1.5 acres and are estimated at $98,000 in fee. There may be additional requirements for staging, however, that has not been identified.

A 30-acre area is required for the disposal of the excavated material from the Caño Martin Peña. The disposal site is located within 5 miles of Caño Martin Peña east of the Roberto Clemente Sports Center. This land has an estimated fee value of $15,000 and is classified as wetlands.

A field survey completed by the Antilles Planning Office revealed a total of 438 residential/commercial structures within the Israel/Buena Vista Sectors and the Barrio Obrero/Hato Rey Sectors. These structures have an estimated average cost of $21,900,000.00. However, it is unknown how many of these structures will be relocated since no replacement housing survey has been conducted. If a survey is required, it will be performed during the acquisition phase.

4. SPONSOR OWNED LANDS

a. Federal - There are no federally owned lands within the project limits.

b. Non-Federal - Various parcels within the required lands are owned by some Commonwealth agencies such as the Municipality of San Juan, the Rural Housing Administration, and the Department of Transportation and Public Works.

5. ESTATES.

a. The following standard estates are provided for guidance purposes only.

Fee (Approved Chapter 5, Feb 79) - The fee simple title to (the land described in Schedule A) (Tracts Nos. ___, ___, and ___), subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

Channel Improvement Easement *(Approved Chapter 5, dtd 8 Feb 79)* - A perpetual and assignable right and easement to construct, operate, and maintain channel improvement works on, over and across (the land described in Schedule A) (Tracts Nos. ___, ___ and ___) for the purposes as authorized by the Act of Congress approved _____, including the right to clear, cut, fell, remove and dispose of any and all timber, trees, underbrush, buildings, improvements and/or other obstructions therefrom; to excavate, dredge, cut away, and remove any or all of said land and to place thereon dredge or spoil material; and for such other purposes as may be required in connection with said work of improvement; reserving, however, to the owners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

b. Due to the lengthy process required to segregate public lands and record legal documents to secure temporary work area easements, lands to be transferred between the Government of Puerto Rico agencies or Municipalities is usually accomplished by first executing a Right-of-Entry For Construction with Intent to Acquire or a letter permit whereby each entity agrees on the conditions of the transfer, estates and acreage to be transferred and timeframe for completion of transfer. These documents vary in format but are always perpetual, irrevocable and assignable. In Puerto Rico, they are considered legal, binding documents.

6. NAVIGATION SERVITUDE.

If Federal funds are used, no interests need to be acquired in areas subject to the Government's right of navigational servitude. The Government of Puerto Rico owns and controls the riverbed comprised within this project's right-of-way.

7. PROJECT MAP.

Refer to Plate RE-1 and/or the Plates contained within the Project Design Report and Environmental Impact Statement.

8. INDUCED FLOODING.

It is unknown if there will be any induced flooding directly associated with this project.

9. REAL ESTATE BASELINE COST ESTIMATE

Lands and Damages	
Fee(30 acs disposal area @ $500/ac)	$ 15,000
(2 acs parking area @ 49,000/ac)	$ 98,000
Easements:	
Temporary Work Area (5 acres)	$ 73,500
Channel Improvement (42 acres)	$ 2,058,000
Sub-Total	$ 2,244,500
Improvements (438 structures)	$21,900,000
Severance Damages (Unknown)	
Minerals	0
Total Lands and Damages (Rounded)	$24,144,500
Acquisition/Administrative Costs	
Non-Federal	
Acquisitions	$1,314,000
Appraisals	$ 657,000
Condemnations	$1,500,000
Total Non-Federal Acquisition/ Administrative Costs	$3,471,000
Total Real Estate Cost Excluding Contingency	27,616,000
Contingencies (25%) (Rounded)	$ 6,904,000
Total Estimated Non-Federal Costs	$34,520,000

*Contingencies of 25% are estimated to cover uncertainties associated with such elements as valuation variance, negotiation latitude, condemnation awards and interest, and refinement of boundary lines during ownership verification.

10. RELOCATION ASSISTANCE BENEFITS.

If Federal funds are used for this project, the P.L. 91-646 requirements will apply to the acquisition of real property and the estimated cost for relocation payments is $10,293,000.00. This amount is not included in the real estate costs and is based on all 438 residences/ businesses being displaced as a result of the project. However, it is unknown how many of these structures will be relocated since no replacement housing survey has been conducted to date. This information will be determined at a later date during the acquisition phase.

11. MINERALS.

No known minerals exist in the project area.

12. REAL ESTATE MILESTONES.

This type of project normally takes approximately three (3) years to accomplish all the relocations and acquisitions.

13. RELOCATIONS OF ROADS, BRIDGES, UTILITIES, TOWNS AND CEMETERIES.

a. Bridges and Roads. Replacement of Luis Muñoz Rivera, Ponce De Leon, and Barbosa Avenue Bridges are required to allow for passage of water taxis. Existing new bridge features will be removed and new bridges will be constructed over the existing footprint. Existing approaches will be used but will require an increase in grade to accommodate the higher elevation of the new bridge deck. Reinforced earth retaining walls will be utilized with approaches to minimize real estate acquisition and impact to congested areas.

The three main highways with bridge crossings are Muñoz Rivera Avenue (Highway 1), Ponce de Leon Avenue (Highway 25), and the Jose C. Barbosa Avenue (Highway 27). During construction, traffic will be detoured from the Muñoz Rivera Ave. to the adjacent Ponce de Leon Avenue Bridge; from the Ponce de Leon Ave. to the adjacent Luis Muñoz Rivera Avenue Bridge; and from the Jose C. Barbosa Avenue to a temporary

bridge, constructed immediately adjacent to the existing structure.

b. Utilities. Several affected utilities consisting of electrical lines, water and sewer lines, telephone lines, and cable TV lines will have to be relocated as a result of the project.

c. Towns and Cemeteries. No towns or cemeteries to be relocated as a result of this project.

14. PRESENCE OF CONTAMINANTS (HAZARDOUS, TOXIC AND RADIOACTIVE WASTES).

There are no known hazardous, toxic, and radiological waste (HTRW) sites within the proposed project area as concluded in the site characterization study completed on August 1997 and the environmental site assessment completed June 1998.

15. ATTITUDE OF LANDOWNERS.

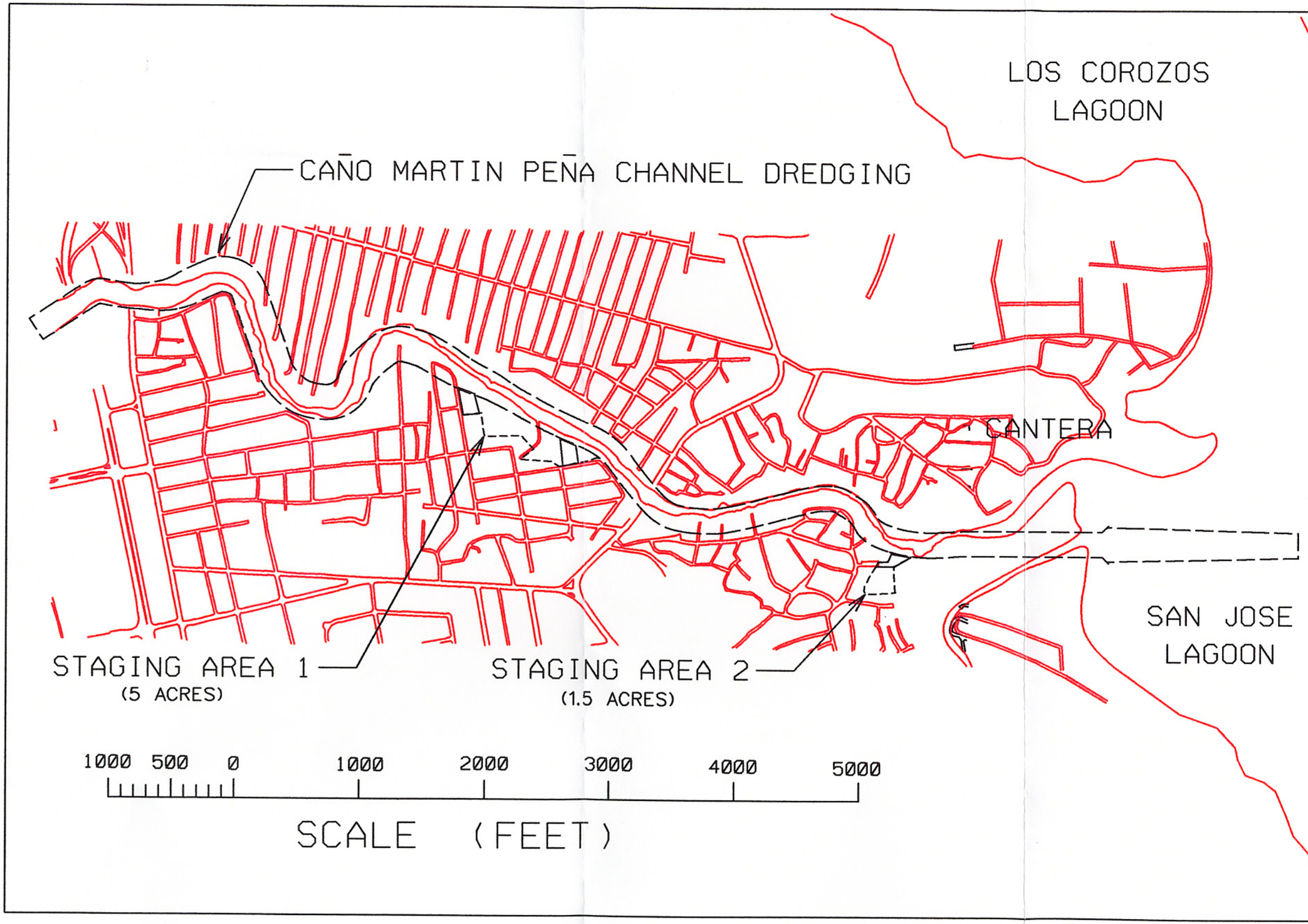
Many residents affected by the present conditions of the Caño Martin Peña support the proposed channel restoration of the Caño Martin Peña since it represents an improved quality of urban life. Various meetings have been held with the local citizens to gather data necessary for the investigation, assessment, and evaluation of alternatives that impact the detailed study area. A "no action" alternative would not be acceptable to many residents of the study area, the environmental community, and to the government of Puerto Rico.

16. M-CACES CHART OF ACCOUNT.

PROJECT: CAÑO MARTIN PEÑA, PR
SUPPORT FOR OTHERS WORK
PROJECT DESIGN REPORT
DATE: 30 JULY 1999

01	LANDS AND DAMAGES	
01AA	PROJECT PLANNING	$ 0
01B--	ACQUISITION	
01B20	BY LOCAL SPONSOR (LS)	$1,314,000
01B40	REVIEW OF LS	$ 0
01C--	CONDEMNATIONS	
01C20	BY LS	$1,500,000
01C40	REVIEW OF LS	$ 0
01E--	APPRAISALS	
01E30	BY LS	$ 657,000
01E50	REVIEW OF LS	$ 0
01M00	PROJECTED RELATED ADMINISTRATION	
	REAL ESTATE REVIEW OF PCA	$ 0
01R--	REAL ESTATE PAYMENTS	
01R1	LAND PAYMENTS	
01R1B	BY LS	$24,145,000

TOTAL REAL ESTATE COST EXCLUDING CONTINGENCY (RD)	**$27,616,000**
REAL ESTATE CONTINGENCY COST (25%) (RD)	**$ 6,904,000**
TOTAL PROJECT REAL ESTATE COST (RD)	**$34,520,000**



US Army Corps of Engineers
Jacksonville District

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Designed by: REH
Dwn by: JBT
Ckd by:
Scale: AS SHOWN
Plot date:
Plot scale:
Date:
D.O.FILE NO.

File name: plate1.dgn
Reference files: x230plan.dgn mpeacdwg.dgn chsd09.dgn dwfm17.dgn staging.dgn

CANO MARTIN PENA, PUERTO RICO
PROJECT DESIGN REPORT
RECOMMENDED PROJECT
PROJECT RIGHT-OF-WAY
DECEMBER 1999

PLATE
RE-1

PLATE RE-2

CANO MARTIN PENA, PUERTO RICO
PROJECT DESIGN REPORT
RECOMMENDED PROJECT
ALTERNATE DISPOSAL AREA
DECEMBER 1999

File name: plate1.dgn	Designed by: REH	Scale: AS SHOWN	
Reference files: x230plan.dgn mpsncdwg.dgn chan99.dgn dm1tx17.dgn staging.dgn	Dwn by: JMT / Ckd by:	Plot date: Plot scale:	
	Dated: D.O.FILE NO.		

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

US Army Corps of Engineers
Jacksonville District

DREDGING OF CAÑO MARTÍN PEÑA
PUERTO RICO
FINAL
PROJECT DESIGN REPORT AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX E
DETAILED COST ESTIMATES

Martin Pena Channel Improvements
and Environmental Restoration
San Juan, P. R.

Designed By: USACE Jacksonville District
Estimated By: G.T.

Prepared By: G.T.

Preparation Date: 11/17/99
Effective Date of Pricing: 11/17/99

Sales Tax: 0.00%

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The work consists of widening and deepening approximately 1.8 miles (from the Luis Munoz Rivera Ave bridge to the San Jose Lagoon) of the eastern portion of the existing Cano Martin Pena channel with the purpose of increasing the conveyance of the flow. Channel width will vary from 150 feet to 230 feet and the invert elevation will be set at elevation minus 10 feet NGVD. A transition from channel elevation minus 10 feet to lagoon elevation minus 6 feet will be provided where the channel reaches San Jose Lagoon. Approximately 750,000 cubic yards of mixed materials with a high concentration of solid wastes, organic dediments, some sands and clays, construction debris, and fill material will be excavated.

A bulkhead system consisting of a cantilevered steel sheet pile wall with a concrete cap will be constructed at both sides of the channel. The pile cap will be five and a half feet wide at the top to match the existing pile cap in the already constructed portion of the channel (western side). The pile cap will provide a walkway along the channel for recreation purposes. The new bulkhead will be gapped every 50 feet, except on the north side between stations 62+00 and 87+00. Each gap will be 8 feet wide and 2.83 feet high with a bottom elev. 0.0 and a top elevation of 2.83. The ground behind the the bulkhead will be degradedto elevation 0.0 for 10-25 feet horizontally and then transition to existing grade using a 1 on 3 slope. Mangroves will be planted behind the bulkhead. On the north side of the canal between stations 62+00 and 87+00, the bulkhead will not be gapped. If the ground behind the bulkhead is greater than elevation 3.0, then it will be degraded to el. 3.0, otherwise it will be dressed.

Some recreation features will be incorporated on this project. Three fishing platforms located on the south bank, each 50 feet in length by 5.5 feet wide with handrails will be constructed. Access will be from ramps which will be a maximum of 25 feet long by 5.5 feet wide. In addition 3 parking areas will also be constructed.

Replacement of existing bridges at Luis Munoz Rivera Avenue, Ponce de Leon Avenue, and Barbosa Avenue will be required to increase vertical clearance to a minimum of 20 feet and increase the horizontal clearance of bridge spans to 100 feet. A conceptual study and cost estimate for replacement of the three bridges has been prepared by an AE, but the cost will not be included on this estimate.

Cost estimate was developed using the P.R. labor and equipment data base, recent material quotes, cost estimating manuals, historical costs, etc. Contingency used is 20% for the entire project with the exception of the Real Estate cost which is 25 percent. E&D is a 6% of the total construction cost and S&A is a 7%

SUMMARY REPORTS SUMMARY PAGE

PROJECT OWNER SUMMARY - Sub Item.....1
PROJECT OWNER SUMMARY - Level 6.....2

No Detailed Estimate...

No Backup Reports...

* * * END TABLE OF CONTENTS * * *

** PROJECT OWNER SUMMARY - Sub Item **

	QUANTITY	UOM	CONTRACT	CONTINGN	TOTAL COST	UNIT COST
I Martin Pena Channel Improvements						
I- 01 Construction Cost						
I- 01/ 02 Relocations	1.00	EA	6,259,342	1,251,868	7,511,210	7511210
I- 01/ 09 Channels and Canals	1.00	EA	41,649,022	8,329,804	49,978,827	49978827
I- 01/ 14 Recreation Facilities	1.00	EA	1,562,812	312,562	1,875,374	1875374
TOTAL Construction Cost	1.00	JOB	49,471,176	9,894,235	59,365,411	59365411
I- 02 Non Construction Cost						
I- 02/ 03 Lands and Damages	1.00	EA	27,615,500	6,903,875	34,519,375	34519375
I- 02/ 30 Planning, Engineering and Design	1.00	EA	2,970,000	594,000	3,564,000	3564000
I- 02/ 31 Construction Management	1.00	EA	3,460,000	692,000	4,152,000	4152000
TOTAL Non Construction Cost	1.00	JOB	34,045,500	8,189,875	42,235,375	42235375
TOTAL Martin Pena Channel Improvements	1.00	JOB	83,516,676	18,084,110	101,600,786	101600786
TOTAL Martin Pena Channel Improvements	1.00	JOB	83,516,676	18,084,110	101,600,786	101600786

** PROJECT OWNER SUMMARY - Level 6 **

	QUANTITY UOM	CONTRACT	CONTINGN	TOTAL COST	UNIT COST
I Martin Pena Channel Improvements					
I- 01 Construction Cost					
I- 01/ 02 Relocations					
I- 01/ 02.03 Utilities					
I- 01/ 02.03.01 Mob, Demob & Preparatory Work					
I- 01/ 02.03.01/01 Mob, Demob & Preparatory Work	1.00 JOB	569,031	113,806	682,837	682837.31
TOTAL Mob, Demob & Preparatory Work		569,031	113,806	682,837	
I- 01/ 02.03.02 Electrical	1.00 JOB	1,048,215	209,643	1,257,858	1257858
I- 01/ 02.03.03 Water and Sewer					
I- 01/ 02.03.03/01 66" Rexach Sewer	1.00 JOB	2,857,634	571,527	3,429,161	3429161
I- 01/ 02.03.03/02 Water Line	1.00 JOB	935,906	187,181	1,123,088	1123088
I- 01/ 02.03.03/03 Street Sewers	1.00 JOB	424,278	84,856	509,133	509133.08
I- 01/ 02.03.03/04 Sewers St. 8,9,10,11,12.13,14,15	1.00 JOB	424,278	84,856	509,133	509133.08
TOTAL Water and Sewer	1.00 JOB	4,642,096	928,419	5,570,515	5570515
TOTAL Utilities	1.00 JOB	6,259,342	1,251,868	7,511,210	7511210
TOTAL Relocations	1.00 EA	6,259,342	1,251,868	7,511,210	7511210
I- 01/ 09 Channels and Canals					
I- 01/ 09.01 Canals					
I- 01/ 09.01.01 Mob, Demob & Preparatory Work					
I- 01/ 09.01.01/01 Mob, Demob & Preparatory Work	1.00 JOB	3,082,252	616,450	3,698,702	3698702
TOTAL Mob, Demob & Preparatory Work		3,082,252	616,450	3,698,702	
I- 01/ 09.01.15 Mechanical Dredging					
I- 01/ 09.01.15/01 Channel Excavation	750000.00 CY	11,143,869	2,228,774	13,372,643	17.83
I- 01/ 09.01.15/02 Turbidity Curtain 6' Deep	8000.00 LF	150,051	30,010	180,061	22.51
TOTAL Mechanical Dredging	750000.00 CY	11,293,920	2,258,784	13,552,704	18.07
I- 01/ 09.01.99 Associated General Items					

** PROJECT OWNER SUMMARY - Level 6 **

	QUANTITY UOM	CONTRACT	CONTINGN	TOTAL COST	UNIT COST
I- 01/ 09.01.99/01 Channel Walls-SSP PZ-27	605250.00 SF	20,700,734	4,140,147	24,840,880	41.04
I- 01/ 09.01.99/02 Channel Walls-Concrete Pile Cap	8962.00 CY	4,789,343	957,869	5,747,212	641.29
I- 01/ 09.01.99/03 Fill	122700.00 CY	1,408,411	281,682	1,690,093	13.77
I- 01/ 09.01.99/04 Mitigation	12.00 AC	374,363	74,873	449,235	37436.26
TOTAL Associated General Items		27,272,850	5,454,570	32,727,420	
TOTAL Canals		41,649,022	8,329,804	49,978,827	
TOTAL Channels and Canals	1.00 EA	41,649,022	8,329,804	49,978,827	49978827
I- 01/ 14 Recreation Facilities					
I- 01/ 14.01 Recreation Facilities					
I- 01/ 14.01.01 Mob, Demob & Preparatory Work					
I- 01/ 14.01.01/01 Mob, Demob & Preparatory Work	1.00 JOB	142,071	28,414	170,485	170484.71
TOTAL Mob, Demob & Preparatory Work		142,071	28,414	170,485	
I- 01/ 14.01.99 Associated General Items					
I- 01/ 14.01.99/01 Fishing Platforms South Side	3.00 EA	68,733	13,747	82,480	27493.19
I- 01/ 14.01.99/02 Walkway 5.5' Wide North Side	1345.00 CY	718,771	143,754	862,526	641.28
I- 01/ 14.01.99/03 Handrail North Side	19800.00 LF	494,159	98,832	592,990	29.95
I- 01/ 14.01.99/04 Parking Areas	6556.00 SY	139,078	27,816	166,894	25.46
TOTAL Associated General Items		1,420,741	284,148	1,704,889	
TOTAL Recreation Facilities		1,562,812	312,562	1,875,374	
TOTAL Recreation Facilities	1.00 EA	1,562,812	312,562	1,875,374	1875374
TOTAL Construction Cost	1.00 JOB	49,471,176	9,894,235	59,365,411	59365411
I- 02 Non Construction Cost					
I- 02/ 03 Lands and Damages					
I- 02/ 03.01 Lands and Damages					
I- 02/ 03.01.01 Fee	30.00 AC	113,000	28,250	141,250	4708.33
I- 02/ 03.01.02 Easements	30.00 AC	2,131,500	532,875	2,664,375	88812.50
I- 02/ 03.01.03 Improvements	30.00 AC	21,900,000	5,475,000	27,375,000	912500.00
I- 02/ 03.01.05 Minerals					
TOTAL Lands and Damages	1.00 EA	24,144,500	6,036,125	30,180,625	30180625

** PROJECT OWNER SUMMARY - Level 6 **

	QUANTITY	UOM	CONTRACT	CONTINGN	TOTAL COST	UNIT COST
I- 02/ 03.02 Acquisitions/Administrative Cost						
I- 02/ 03.02.01 Non Federal	1.00	EA	3,471,000	867,750	4,338,750	4338750
TOTAL Acquisitions/Administrative Cost	1.00	EA	3,471,000	867,750	4,338,750	4338750
TOTAL Lands and Damages	1.00	EA	27,615,500	6,903,875	34,519,375	34519375
I- 02/ 30 Planning, Engineering and Design						
I- 02/ 30.01 Planning, Engineering and Design						
I- 02/ 30.01.01 Planning, Engineering and Design						
I- 02/ 30.01.01/01 Planning, Engineering and Design	1.00	JOB	2,970,000	594,000	3,564,000	3564000
TOTAL Planning, Engineering and Design	1.00	JOB	2,970,000	594,000	3,564,000	3564000
TOTAL Planning, Engineering and Design	1.00	JOB	2,970,000	594,000	3,564,000	3564000
TOTAL Planning, Engineering and Design	1.00	EA	2,970,000	594,000	3,564,000	3564000
I- 02/ 31 Construction Management						
I- 02/ 31.01 Construction Management						
I- 02/ 31.01.01 Construction Management						
I- 02/ 31.01.01/01 Construction Management	1.00	JOB	3,460,000	692,000	4,152,000	4152000
TOTAL Construction Management	1.00	JOB	3,460,000	692,000	4,152,000	4152000
TOTAL Construction Management	1.00	JOB	3,460,000	692,000	4,152,000	4152000
TOTAL Construction Management	1.00	EA	3,460,000	692,000	4,152,000	4152000
TOTAL Non Construction Cost	1.00	JOB	34,045,500	8,189,875	42,235,375	42235375
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DREDGING OF CAÑO MARTÍN PEÑA
PUERTO RICO
FINAL
PROJECT DESIGN REPORT AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX F
RECREATION RESOURCE

MARTIN PENA CHANNEL
RECREATION RESOURCE APPENDIX

1.0 INTRODUCTION

1.01 STUDY AUTHORITY The Puerto Rico Department of Natural and Environmental Resources (DNER) requested technical assistance from the Jacksonville District, U.S. Army Corps of Engineers (USACE) under the Support for Others Program for the planning, engineering, design, and environmental assessment of channel improvements for the dredging of Caño Martín Peña located in the San Juan Metropolitan Area.

1.02 PROJECT DESCRIPTION This project consists of a sheet pile wall with major channel widening and deepening improvements. This project is located within the San Juan Metropolitan Area.

1.03 LOCAL COOPERATION The Puerto Rico Department of Natural and Environmental Resources (DNER) has agreed to be the local sponsor for the cost shared recreation development at this project. The DNER has also agreed, in principle, to share in the recreation development at this project.

1.04 ENVIRONMENTAL IMPACT While the sheet pile wall construction will have some impacts on the environment in the immediate project area, the addition of recreation facilities to the sheet pile wall itself will not cause additional impacts. Impacts will include the planting of mangroves along the channel in areas where mangroves do not currently grow due to human encroachment.

2.0 RECREATION

2.01 RECREATIONAL DEVELOPMENT AUTHORITY Recreation development is authorized and permitted at local flood control projects under Section 4 of the 1944 Flood Control Act, as amended and is further affected by the Federal Water Project Recreation Act (P.L. 89-65) and the Water Resources Development Act of 1986.

2.02 PROJECT-RELATED RECREATION RESOURCES Outdoor recreation opportunities have been identified in the 1990-1992 Puerto Rico State Comprehensive Outdoor Recreation Plan (SCORP) as a high priority need. Public education of and access to facilities at natural resources are especially needed in the Commonwealth, where organized sports have dominated recreation activities in the past. Outdoor recreation lands and facilities are currently undersupplied. Recreation facilities found in the San Juan Municipio, according to the 1990-1992 State Comprehensive Outdoor Recreation Plan (SCORP) for Puerto Rico, can be found in Table 1.

2.03 PROPOSED RECREATION FACILITIES The sheet pile wall to be constructed by this project will extend almost 4 miles along both sides of the channel. Located on top of the sheet pile wall will be a concrete platform approximately 5.5 feet wide which will become the path for use by joggers, pedestrians and cyclists. On the south side of the channel will be located 4 fishing platforms, similar in width to the platform on the north side of the channel. The platforms will be connected to the bank via elevated ramps. Parking will be provided at all fishing platform locations.

2.04 DESIGN CONSIDERATIONS Three surface streets cross the Martin Pena Channel, all of which are major thoroughfares. The bicycle/jogging trail will be located on the north side of the channel and will pass under these 3 bridges. The fishing platforms with parking access will be located on the south side of the channel.

2.05 LAND REQUIREMENTS The recreational component of this project will be located within the confines of the lands acquired for the project with the exception of parking and access. The areas needed for parking and access are noted on the drawings.

2.06 COST ESTIMATES The estimate for construction of the recreation facilities, including Engineering and Design, as well as contingencies, is $???.

2.07 RECREATION DEMAND The 1990-1992 State Comprehensive Outdoor Recreation Plan for Puerto Rico (SCORP) lists the facilities available in the municipio of San Juan, but is silent on the subject of the need for additional amenities. Walking, jogging and cycling activities are engaged in by many people even without "designated" areas. Even though the SCORP fails to mention the need for additional amenities, use of available facilities is high enough to indicate that if more facilities were constructed, they would be well received.

Plate 1
Detail of Recreation Trail Area

2.08 BENEFIT ESTIMATE

TABLE 1

MARTIN PENA FEASIBILITY STUDY
RESOURCES APPENDIX

RECREATIONAL FACILITIES AVAILABLE
IN THE MUNICIPIO OF SAN JUAN

FACILITY	NUMBER
Basketball courts	239
Tennis courts	46
Community Centers	32
Passive recreation parks	114
Baseball parks	68
Biddy (children) courts	10
Misc. play areas	28
Cultural centers	16
Volleyball courts	5
Skating tracks	4
Football parks	11
Handball courts	8

In addition to the above, the following facilities are also available:
Roberto Clemente Stadium
Hiram Bithorn Coliseum
San Juan Parque Central
Luis Munoz Rivera Park
Luis Munoz Marin Park
Laguna del Condado Recreation Park
Plasza Las Nereidas Park
Julio E. Managas Recreation Park
Borinquen Park

TABLE 2

MARTIN PENA FEASIBILITY STUDY
RESOURCES APPENDIX
POPULATION PROJECTIONS FOR THE SAN JUAN REGION

Year	1995	2000	2005	2010
Population	??	??	??	??

Source: - Puerto Rico Planning Board - 1999

TABLE 3

MARTIN PENA FEASIBILITY STUDY
RESOURCES APPENDIX

RECREATION POINT VALUES
WITH AND WITHOUT PROJECT

CRITERIA/JUDGEMENT FACTORS	POINT VALUES with project	POINT VALUES without
a. Recreation experience: General recreation activities can be conducted with the planned facilities.	3	1
b. Availability of opportunity: Other recreation facilities exist within the near project area.	3	1
c. Carrying capacity: Constructed facilities will optimize the potential of the site.	5	1
d. Accessibility: Access roads are good to and within the project area.	10	10
e. Environmental quality: The wetlands, river and historic character of the area provide above average aesthetic quality for residents and visitors.	5	2
Martin Pena TOTAL POINTS	26	15

TABLE 4

MARTIN PENA FEASIBILITY STUDY
RESOURCES APPENDIX

USER PARTICIPATION
DESIGN DAY CAPACITY METHOD

ACTIVITY	# of UNITS	DAILY TURNOVER	INSTANTANEOUS CAPACITY/UNIT	DESIGN DAY LOAD
Playground	1	6.0	10	60
Jogging/walking trail	1	6.0	15\mi.	360

TOTAL:				420

420/1.5* = 280 (total user days/design day)
*adjustment for multiple use

TABLE 5

MARTIN PENA FEASIBILITY STUDY
RESOURCES APPENDIX

RECREATION VALUE
WITHOUT PROJECT

ACTIVITY ACTIVITY	TOTAL USER DAYS	UNIT DAY VALUE	ANNUAL VALUE
General Recreation	2,180	$3.33	$ 7,259
Total Recreation Value Without Project			$ 7,300 (figures rounded)

(12)(109)/.6 = 2,180 (Total Annual User Days)
(Use of the area without the project is estimated to be one-tenth of use with the project.

TABLE 6

MARTIN PENA FEASIBILITY STUDY
RESOURCES APPENDIX

RECREATION BENEFITS

ACTIVITY	ANNUAL USER DAYS	UNIT DAY VALUE	ANNUAL ACTIVITY VALUE
General Recreation Total With *Project Value:	50,867	$3.80	$193,300
Less Recreation Value: (Without Project)	2,180	$3.33	$ 7,300
Annual Recreation Benefits:			$186,000 (figures rounded)

*(280)(109)/.6 = 50,867 (Total Annual User Days)
Assumed 12 Month Period.

*Methodology for arriving at the ANNUAL USER DAYS. 280 TOTAL USER DESIGN DAYS (see Table 4) is multiplied by the number of the weekend days (109) and holidays that occur during the season. The number is divided by the percentage of weekend users (.6), expected during the season. 50,867 is the ANNUAL USER DAYS for the General Recreation Total With Project Benefits. A Unit Day Value of $3.80, assigned from Point Values (with project totals), derived from Table 3 is then multiplied by 50,867 for the weighted average ANNUAL ACTIVITY VALUE ($193,295). The Annual Recreation Benefits are derived when the Without Project Figure ($7,300) is subtracted from the With Project Figure ($193,295) to equal the Annual Recreation Benefits ($185,995).

TABLE 7
MARTIN PENA FEASIBILITY STUDY
RESOURCES APPENDIX

ECONOMICS OF RECREATION PLAN

First Costs		
Construction Features		$0
Construction Management		$0
Planning, Engineering and Design		$0
Interest During Construction		$0
Total Construction Costs		$0
Annual Costs		
Interest and Amortization		$0
Operations and Maintenance		$0
Total		$0
		(rounded)
Annual Benefits		$ 0
Net Benefits		$0
Benefit:Cost Ratio	?:1	

2.09 RECOMMENDATION It is recommended that recreation facilities be incorporated into this project.

3.0 EXISTING AESTHETICS The existing aesthetic resources of the area of the Martin Pena are poor. The main reason for this is the collection of household wastes, abandoned vehicles, construction debris, and other discards scattered along both banks of the canal. Both canal banks do have a very narrow mangrove and vegetative fringe. Along the highly developed urban stretch of the channel, few trees and underbrush enclose the channel behind concrete block, wood and tin houses. No outstanding viewsheds or visual aesthetic resources are associated with the stretch of the channel proposed for flood protection.

3.1 AESTHETICS WITH THE PROJECT Once the construction of the king pile wall and channel dredging is completed, and vegetation is re-established within the 25 feet right-of-way behind the king pile wall, aesthetics will improve through a broader canal system with bird life and cleaner water in motion through tidal flows.

Trail on Sheet Pile

Trail on Sheet Pile

Tie in to Existing King Pile Walkway

FISHING ACCESS

FISHING ACCESS

Fishing access points will be approx. 100 ft. segments on top of sheet pile with ramps at each end to permit access. These will be located adjacent to road ends to accommodate access without crossing private property.

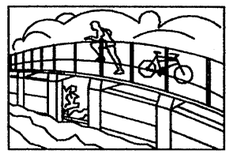
In areas where trail is on the Right of Way, it should be 6 ft. wide. Where it is split into one way traffic, each lane should be 4ft. wide.

Trail on ROW Fill

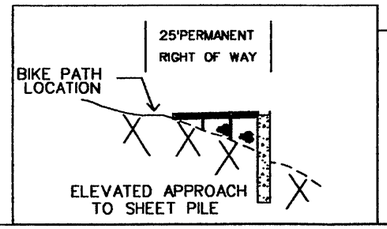
LEAVE CHANNEL R.O.W. IN THIS AREA. Tie to Cantera Development

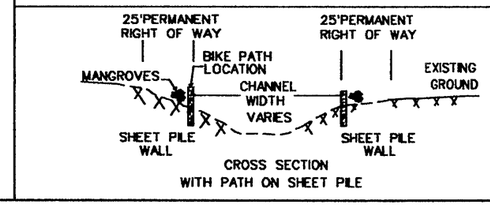
FISHING ACCESS

Mangroves



CONCEPTUAL DETAIL





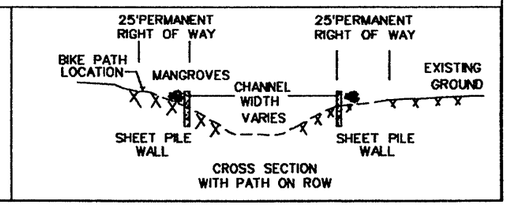


PLATE F-1

DREDGING OF CAÑO MARTÍN PEÑA
PUERTO RICO
FINAL
PROJECT DESIGN REPORT AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX G
ANALYTICAL CHEMICAL TESTING REPORT

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
708-534-5200 • Fax 708-534-5211

March 13, 1997

Mr. Dewayne Smith
Roy F. Weston, Inc.
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Work Order No. 03886-136-005-9999

RE: USACE-Jacksonville
Analytical Report & EDD
RFW Lot 9702G063

Dear Mr. Smith:

Enclosed is the Analytical Report for the Project and RFW Lot listed above. If you have any questions, please contact me at 708-534-5200.

Very truly yours,

Weston Environmental Metrics, Inc.

Jane D. Huber
Project Manager

km

Enclosures

Approved By:

Michael J. Healy
Vice President/Laboratory Manager

The results presented in this report relate only to the analytical testing and conditions of sample at receipt. This report pertains to only those samples actually tested. All 73 pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

GLOSSARY OF DATA QUALIFIERS AND ABBREVIATIONS

Data Qualifiers

B	Compound was found in the blank and the sample
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D
E	Concentration exceeds the instrument calibration range and was subsequently diluted
I	Appears on the "results spreadsheet" to indicate an interference
J	Result is an estimated value below the reporting limit or a tentatively identified compound (TIC)
M	Summary Compound
[illegible]	Manually integrated compound
N	Positive ID of a TIC that is not quantitated against a standard and must be accompanied by a CAS No.
T	Compound was found in the TCLP extraction blank and the sample
u	Analyte was not detected at or above the reporting limit
X	Result obtained indirectly through calculation based on results from other analyses

Abbreviations

Batch	Designation given to identify a specific extraction, digestion or preparation set (equivalent to prep batch)
BS	Blank spike analysis was conducted on reagent grade water or a matrix free from the analyte of interest
BSD	Blank spike duplicate
BRL	Below reporting limit
CAP	Capillary Column
CD	Calculation factor used by the Laboratory's Information Management System (LIMS)
Contract	Contract laboratory identification code
DF	Dilution factor
DL	Appears in the sample ID to indicate a secondary dilution was performed
LCS/LC	Denotes laboratory control standard
LAB ID	The full 12 character Weston laboratory identification number (equivalent to RFW#)
MB	Method blank or (PB) preparation blank
MS	Matrix spike
MSD	Matrix spike duplicate
NA	Not applicable
NC	Non-calculable precision due to insufficient concentration of analyte present in the sample
NR	Not required
NS	Not spiked
PACK	Packed Column
RE	Appears in the sample ID to indicate a re-analysis
REP	Replicate analysis
Reprep	Sample was reprepared and then reanalyzed
RFW#	The full 12 character WESTON laboratory identification number (equivalent to LAB ID)
RFW Lot	The first 8 characters of the RFW#
RPD	Relative percent difference of duplicate (unrounded) analyses
RRF	Relative response factor
RT	Retention time
RTW	Retention time window
SP	Blank spike, blank spike duplicate, matrix spike or matrix spike duplicate
WO#	Work order no. WESTON code used to define a specific client, job, phase and task

NOTES:

- One or a combination of these data qualifiers and abbreviations may appear in the analytical report.
- Soil, sediment and sludge results are reported on a dry weight basis except when analyzed for landfill disposal or incineration parameters. All other results on a solid matrix are reported on an "as received" basis unless noted differently.
- Reporting limits are adjusted for preparation sample size, sample dilutions and sample moisture content if analyzed on a dry weight basis.

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G063

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
CB MPUC C10							
OIL & GREASE BY GRAV	001	W	97GGR012	02/11/97	02/13/97	02/17/97	02/17/97
SULFIDE	001	W	97GSF011	02/11/97	02/13/97	02/18/97	02/19/97
SULFIDE	001 REP	W	97GSF011	02/11/97	02/13/97	02/18/97	02/19/97
SULFIDE	001 MS	W	97GSF011	02/11/97	02/13/97	02/18/97	02/19/97
TOTAL SOLIDS	001	W	97GSD035	02/11/97	02/13/97	02/18/97	02/18/97
TOTAL SOLIDS	001 MS	W	97GSD035	02/11/97	02/13/97	02/18/97	02/18/97
CB MPUC C10 01							
TOTAL ORGANIC CARBON	002	S	97GMC026	02/11/97	02/13/97	02/19/97	02/19/97
OIL & GREASE BY GRAV	002	S	97GGR016	02/11/97	02/13/97	02/27/97	02/27/97
OIL & GREASE BY GRAV	002 REP	S	97GGR016	02/11/97	02/13/97	02/27/97	02/27/97
OIL & GREASE BY GRAV	002 MS	S	97GGR016	02/11/97	02/13/97	02/27/97	02/27/97
SULFIDE	002	S	97GSF013	02/11/97	02/13/97	02/21/97	02/21/97
CB MPUC C10 02							
TOTAL ORGANIC CARBON	003	S	97GMC026	02/11/97	02/13/97	02/19/97	02/19/97
OIL & GREASE BY GRAV	003	S	97GGR016	02/11/97	02/13/97	02/27/97	02/27/97
SULFIDE	003	S	97GSF013	02/11/97	02/13/97	02/21/97	02/21/97
CB MPUC C10 03							
TOTAL ORGANIC CARBON	004	S	97GMC026	02/11/97	02/13/97	02/19/97	02/19/97
OIL & GREASE BY GRAV	004	S	97GGR016	02/11/97	02/13/97	02/27/97	02/27/97
SULFIDE	004	S	97GSF013	02/11/97	02/13/97	02/21/97	02/21/97
CB MPUC C10R							
OIL & GREASE BY GRAV	005	W	97GGR012	02/11/97	02/13/97	02/17/97	02/17/97
SULFIDE	005	W	97GSF011	02/11/97	02/13/97	02/18/97	02/19/97
TOTAL SOLIDS	005	W	97GSD032	02/11/97	02/13/97	02/17/97	02/17/97
CB MPUC C10R 01							
TOTAL ORGANIC CARBON	006	S	97GMC026	02/11/97	02/13/97	02/19/97	02/19/97
OIL & GREASE BY GRAV	006	S	97GGR016	02/11/97	02/13/97	02/27/97	02/27/97

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G063

CLIENT ID / ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
SULFIDE	006	S	97GSF013	02/11/97	02/13/97	02/21/97	02/21/97
CB MPUC C10R 02							
TOTAL ORGANIC CARBON	007	S	97GMC026	02/11/97	02/13/97	02/19/97	02/19/97
OIL & GREASE BY GRAV	007	S	97GGR016	02/11/97	02/13/97	02/27/97	02/27/97
SULFIDE	007	S	97GSF013	02/11/97	02/13/97	02/21/97	02/21/97
SULFIDE	007 REP	S	97GSF013	02/11/97	02/13/97	02/19/97	02/21/97
SULFIDE	007 MS	S	97GSF013	02/11/97	02/13/97	02/19/97	02/21/97
SULFIDE	007 MSD	S	97GSF013	02/11/97	02/13/97	02/19/97	02/21/97
CB MPUC C10R 03							
TOTAL ORGANIC CARBON	008	S	97GMC026	02/11/97	02/13/97	02/19/97	02/19/97
OIL & GREASE BY GRAV	008	S	97GGR016	02/11/97	02/13/97	02/27/97	02/27/97
SULFIDE	008	S	97GSF013	02/11/97	02/13/97	02/21/97	02/21/97

QAR QC:

OIL & GREASE BY GRAV	LCS BS	W	97GGR012	N/A	N/A	02/17/97	02/17/97
OIL & GREASE BY GRAV	LCS BSD	W	97GGR012	N/A	N/A	02/17/97	02/17/97
OIL & GREASE BY GRAV	MB1	W	97GGR012	N/A	N/A	02/17/97	02/17/97
SULFIDE	LCS BS	W	97GSF011	N/A	N/A	02/18/97	02/19/97
SULFIDE	LCS BSD	W	97GSF011	N/A	N/A	02/18/97	02/19/97
SULFIDE	MB1	W	97GSF011	N/A	N/A	02/18/97	02/19/97
TOTAL SOLIDS	LCS BS	W	97GSD035	N/A	N/A	02/18/97	02/18/97
TOTAL SOLIDS	LCS BSD	W	97GSD035	N/A	N/A	02/18/97	02/18/97
TOTAL SOLIDS	MB1	W	97GSD035	N/A	N/A	02/18/97	02/18/97
TOTAL ORGANIC CARBON	LCS BS	W	97GMC026	N/A	N/A	02/19/97	02/19/97
TOTAL ORGANIC CARBON	LCS BSD	W	97GMC026	N/A	N/A	02/19/97	02/19/97
TOTAL ORGANIC CARBON	MB1	W	97GMC026	N/A	N/A	02/19/97	02/19/97
OIL & GREASE BY GRAV	LCS BS	W	97GGR016	N/A	N/A	02/27/97	02/27/97
OIL & GREASE BY GRAV	LCS BSD	W	97GGR016	N/A	N/A	02/27/97	02/27/97
OIL & GREASE BY GRAV	MB1	W	97GGR016	N/A	N/A	02/27/97	02/27/97
SULFIDE	LCS BS	W	97GSF013	N/A	N/A	02/21/97	02/21/97
SULFIDE	LCS BSD	W	97GSF013	N/A	N/A	02/21/97	02/21/97
SULFIDE	MB1	W	97GSF013	N/A	N/A	02/21/97	02/21/97

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G063

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC EXT/PREP	ANALYSIS
TOTAL SOLIDS	LCS BS	W	97GSD032	N/A	N/A	02/17/97 02/17/97
TOTAL SOLIDS	LCS BSD	W	97GSD032	N/A	N/A	02/17/97 02/17/97
TOTAL SOLIDS	MB1	W	97GSD032	N/A	N/A	02/17/97 02/17/97

SIGNATURE Daniel Harper DATE 3/7/97

NY CERTIFICATION # 11006

Environmental Metrics, Inc.
WET CHEMISTRY METHOD REFERENCE

The following methods are used as reference for the analysis of samples contained with RFW Lot: 9702G-063

PARAMETER	EPA 600	STANDARD METHODS	SW846	OTHER
%Water Karl Fisher				__ASTM D4377
%Water Dean Stark				__ASTM D95
Acidity	__ 305.1	__ 2310B		
Alkalinity,Total,Carbonate, Bicarbonate	__ 310.1	__ 2320B		
Ammonia (Dist/Nesslers)	__ 350.2	__ 4500NH_3C		
Biochemical Oxygen Demand	__ 405.1	__ 5210B		
Bottom Sediment & Water				__ASTM D4007
BTU				__ASTM D240
Bromide	__ 300.0	__ 4110B	__ 9056	
Bromine	__ 300.0 Detection		__ 5050 Prep	
Chemical Oxygen Demand				__HACH 8000
Chloride	__ 325.2	__ 4500C1E	__ 9251	
	__ 300.0	__ 4110B	__ 9056	
Chlorine (O_2Bomb)	__ 300.0 Detection		__ 5050 Prep	__ISE Detection
Chlorine, Residual	__ 330.4	__ 4500C1F		
Chromium VI		__ 3500CrD	__ 3060 Digestion	
			__ 7196A	
Color	__ 110.2	__ 2120B		
Corrosivity, pH	__ 150.1		__ 9045C	
			__ 9040A	
Corrosivity, Langlier		__ 2330A+B		
Cyanide, Amenable	__ 335.1	__ 4500CNG	__ 9010A	
Cyanide, Weak, Dissociable		__ 4500CNI		
Cyanide, Reactive			__ 7.3.3.2	
Cyanide, Total	__ 335.2	__ 4500CNC	__ 9010A	__ILM03.0
Density/Specific Gravity		__ 2710F		__ASTM D1298
				__ASTM D5057
Ext. Organic Halogens				__Dohrmann
Flashpoint			__ 1010	__ASTM D93
				__ASTM D92
Fluoride __ Distilled	__ 340.2	__ 4500 FC	__ 9056	
__ Undistilled	__ 300.0			
Fluorine	__ 340.2 Detection		__ 5050 Prep	
	__ 300.0 Detection			
Hardness	__ 130.2	__ 2340C		
		__ 2340B		
Heavy Metals				__USP 231
Ignitability			__ Sec. 7	__ASTM D-4982A
MBAS (Surfactants)	__ 425.1	__ 5540 C		
Nitrate/Nitrite	__ 353.2	__ 4500NO_3F		
Nitrate	__ 353.2 -354.1	__ 4110B	__ 9056	
	__ 300.0			
Nitrite	__ 354.1	__ 4500NO_2B	__ 9056	
	__ 300.0	__ 4110B		
Odor	__ 140.1	__ 2150B		
Oil & Grease	__ 413.1	__ 5520B	__ 9070	
Oil & Grease, IR	__ 413.2	__ 5520C		

Environmental Metrics, Inc.
WET CHEMISTRY METHOD REFERENCE

The following methods are used as reference for the analysis of samples contained with RFW Lot: 47026-03

PARAMETER	EPA 600	STANDARD METHODS	SW846	OTHER
Oil & Grease, Soxhlet		__ 5520D __ 5520E	__ 9071A	
Oxygen, Dissolved	__ 360.1 Electrode __ 360.2 Winkler	__ 4500OG __ 4500OC		
Paint Filters (Free Liquid)			__ 9095	
Petroleum Hydrocarbons	__ 418.1	__ 5520F	__ 9071A Extract.	
pH, Water	__ 150.1	__ 4500H⁺B	__ 9040B	
pH, Soil			__ 9045C	
			__ 9041A Paper	
Phenolics	__ 420.2		__ 9066	
Orthophosphate as P	__ 365.2	__ 4500PE	__ 9056	
	__ 300.0	__ 4110B		
Phosphorus as P	__ 365.2	__ 4500PE		
	__ 365.4			
Residue on Evaporation 180C	__ 160.1 Modified	__ 2540C Modified		
Solids, Settleable	__ 160.5	__ 2540F		
Solids, Total	✓ 160.3	__ 2540B		
Solids, Total Dissolved	__ 160.1	__ 2540C		
Solids, Total Suspended	__ 160.2	__ 2540D		
Solids, Total Volatile	__ 160.4	__ 2540E		
Solids, Dissolved Volatile	__ 160.4	__ 2540E		
Solids, Suspended Volatile	__ 160.4	__ 2540E		
Soluble Organic Carbon	__ 415.1	__ 5310C		
Specific Conductance	__ 120.1	__ 2510B		
Sulfate	__ 375.4	__ $4500SO_4^{2-}E$	__ 9038	
	__ 300.0	__ 4110B	__ 9056	
Sulfide	__ 376.1	__ $4500S^{2-}E$	✓ 9030A Mod	
Sulfide, Reactive			__ 7.3.4.2	
Sulfur	__ 375.4 Detection		__ 5050Prep	
	__ 300.0 Detection			
Total Kjeldahl Nitrogen	__ 351.3	__ $4500N_{ORG}C$		
Total Inorganic Carbon	__ 415.1	__ 5310C		
Total Organic Carbon	__ 415.1	__ 5310C	__ 9060 Quads	✓ Walkley-Black
Total Organic Halogens		__ 5320B	__ 9020B	
Total Org Halogens on Waste	__ 325.2 Detection		__ 5050prep	__ ISE Detection
	__ 300.0 Detection			
Turbidity	__ 180.1	__ 2130B		
Viscosity, Brookfield				__ ASTM D2196
Viscosity, Kinematic				__ ASTM D445
Coliform, Fecal		__ 9222D		
Coliform, Total		__ 9222A,B,C(MF)		
		__ 9223B Colilert		
Heterotrophic Plate Count		__ 9215B		
MPN		__ 9221E		

Comments:

Weston Environmental Metrics, Inc.
2417 Bond Street
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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

RE: **CB MPUC C10**
Project # 03886-136-005-9999
Lab ID: **9702G063-001**
Sample Date: 02/11/97
Date Received: 02/13/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Oil & Grease, Grav.	5.1	u	mg/L	5.1
Sulfide	1.0	u	mg/L	1.0
Total Solids	8220		mg/L	10.0

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

RE: CB MPUC C10 01
Project # 03886-136-005-9999
Lab ID: 9702G063-002
Sample Date: 02/11/97
Date Received: 02/13/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	5.4	%	0.66
Oil & Grease, Grav.	5460	mg/kg	2170
Sulfide	1100	mg/kg	53.1

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

RE: **CB MPUC C10 02**
Project # 03886-136-005-9999
Lab ID: **9702G063-003**
Sample Date: 02/11/97
Date Received: 02/13/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Total Organic Carbon	5.4		%	0.48
Oil & Grease, Grav.	2370	u	mg/kg	2370
Sulfide	582		mg/kg	68.5

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

RE: CB MPUC C10 03
Project # 03886-136-005-9999
Lab ID: 9702G063-004
Sample Date: 02/11/97
Date Received: 02/13/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Total Organic Carbon	10.2		%	0.94
Oil & Grease, Grav.	2670	u	mg/kg	2670
Sulfide	87.9	u	mg/kg	87.9

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To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

RE: CB MPUC C10R
Project # 03886-136-005-9999
Lab ID: 9702G063-005
Sample Date: 02/11/97
Date Received: 02/13/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Oil & Grease, Grav.	5.3	u	mg/L	5.3
Sulfide	1.0	u	mg/L	1.0
Total Solids	6820		mg/L	10.0

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

RE: CB MPUC C10R 01
Project # 03886-136-005-9999
Lab ID: 9702G063-006
Sample Date: 02/11/97
Date Received: 02/13/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	5.3	%	0.44
Oil & Grease, Grav.	18100	mg/kg	2180
Sulfide	1720	mg/kg	56.6

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To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
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Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

RE: CB MPUC C10R 02
Project # 03886-136-005-9999
Lab ID: 9702G063-007
Sample Date: 02/11/97
Date Received: 02/13/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	5.9	%	0.35
Oil & Grease, Grav.	9030	mg/kg	1700
Sulfide	2410	mg/kg	61.8

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ANALYTICAL REPORT

To: **USACE-Jacksonville**
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

RE: **CB MPUC C10R 03**
Project # 03886-136-005-9999
Lab ID: **9702G063-008**
Sample Date: 02/11/97
Date Received: 02/13/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Total Organic Carbon	8.3		%	0.75
Oil & Grease, Grav.	3620		mg/kg	2480
Sulfide	64.5	u	mg/kg	64.5

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: **9702G063**

Inorganic Method Blank Data Report

Sample	Lab ID	Parameter	Result		Units	Reporting Limit
Blank 1	97GGR012-MB1	Oil & Grease, Grav.	5.0	u	mg/L	5.0
Blank 1	97GSF011-MB1	Sulfide	1.0	u	mg/L	1.0
Blank 1	97GSD035-MB1	Total Solids	10.0	u	mg/L	10.0
Blank 1	97GMC026-MB1	Total Organic Carbon	0.050	u	%	0.050
Blank 1	97GGR016-MB1	Oil & Grease, Grav.	50.0	u	mg/L	50.0
Blank 1	97GSF013-MB1	Sulfide	1.0	u	mg/L	1.0
Blank 1	97GSD032-MB1	Total Solids	10.0	u	mg/L	10.0

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MANAGERS DESIGNERS CONSULTANTS

ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G063

Inorganic Precision Data Report

Sample	Site ID	Parameter	Initial Result		Replicate	RPD
-001REP	CB MPUC C10	Sulfide	1.0	u	4.1	NC
-002REP	CB MPUC C10 01	Oil/Grease Grav. Rep	5460		3250	50.7
-007REP	CB MPUC C10R 02	Sulfide	2410		2210	8.5

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G063

Inorganic Accuracy Data Report

Sample	Site ID	Parameter	Spiked Sample	Initial Result		Spiked Amount	% Recov
-001	CB MPUC C10	Sulfide	4.3	1.0	u	4.0	107
		Total Solids	8520	8220		250	NA
-002	CB MPUC C10 01	Oil/Grease Grav Spk	88400	5460		92200	90.0
-007	CB MPUC C10R 02	Sulfide	2220	2410		222	NA
		Sulfide MSD	2210	2410		234	NA

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: **9702G063**

Inorganic Duplicate Spike Report

Sample	Site ID	Parameter	Spike #1 % Recov	Spike #2 % Recov	RPD
-007	CB MPUC C10R 02	Sulfide	NA	NA	NC

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G063

Inorganic Laboratory Control Standards Report

Lab ID	Parameter	Spiked Amount	Units	Spike #1 % Recov.	Spike #2 % Recov.	RPD
97GGR012-LCS	Oil/Grease Grav Spk	104	mg/L	96.6	100	3.5
97GSF011-LCS	Sulfide	4.0	mg/L	91.2	87.2	4.4
97GSD035-LCS	Total Solids	250	mg/L	94.4	91.2	3.4
97GMC026-LCS	TOC	47.0	%	92.6	90.6	2.1
97GGR016-LCS	Oil/Grease Grav Spk	1040	mg/L	95.4	90.6	5.2
97GSF013-LCS	Sulfide	4.0	mg/L	105	127	18.9
97GSD032-LCS	Total Solids	250	mg/L	100	99.2	0.80

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G063

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
CB MPUC C10							
MERCURY, TOTAL	001	W	97HG112	02/11/97	02/13/97	02/24/97	02/25/97
LEAD, TOTAL	001	W	97GF513	02/11/97	02/13/97	02/21/97	02/24/97
CB MPUC C10 01							
% SOLIDS	002	S	97GTS748	02/11/97	02/13/97	02/17/97	02/17/97
MERCURY, TOTAL	002	S	97HG751	02/11/97	02/13/97	02/26/97	02/27/97
MERCURY, TOTAL	002 REP	S	97HG751	02/11/97	02/13/97	02/26/97	02/27/97
MERCURY, TOTAL	002 MS	S	97HG751	02/11/97	02/13/97	02/26/97	02/27/97
LEAD, TOTAL	002	S	97GI869	02/11/97	02/13/97	02/14/97	02/17/97
CB MPUC C10 02							
% SOLIDS	003	S	97GTS748	02/11/97	02/13/97	02/17/97	02/17/97
MERCURY, TOTAL	003	S	97HG751	02/11/97	02/13/97	02/26/97	02/27/97
LEAD, TOTAL	003	S	97GI869	02/11/97	02/13/97	02/14/97	02/17/97
CB MPUC C10 03							
% SOLIDS	004	S	97GTS748	02/11/97	02/13/97	02/17/97	02/17/97
MERCURY, TOTAL	004	S	97HG751	02/11/97	02/13/97	02/26/97	02/27/97
LEAD, TOTAL	004	S	97GI869	02/11/97	02/13/97	02/14/97	02/17/97
CB MPUC C10R							
MERCURY, TOTAL	005	W	97HG112	02/11/97	02/13/97	02/24/97	02/25/97
LEAD, TOTAL	005	W	97GF513	02/11/97	02/13/97	02/21/97	02/22/97
CB MPUC C10R 01							
% SOLIDS	006	S	97GTS748	02/11/97	02/13/97	02/17/97	02/17/97
MERCURY, TOTAL	006	S	97HG751	02/11/97	02/13/97	02/26/97	02/27/97
LEAD, TOTAL	006	S	97GI869	02/11/97	02/13/97	02/14/97	02/17/97
CB MPUC C10R 02							
% SOLIDS	007	S	97GTS748	02/11/97	02/13/97	02/17/97	02/17/97

WESTON

Weston Environmental Metrics. Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G063

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
MERCURY. TOTAL	007	S	97HG751	02/11/97	02/13/97	02/26/97	02/27/97
LEAD. TOTAL	007	S	97GI869	02/11/97	02/13/97	02/14/97	02/17/97
CB MPUC C10R 03							
% SOLIDS	008	S	97GTS748	02/11/97	02/13/97	02/17/97	02/17/97
MERCURY. TOTAL	008	S	97HG751	02/11/97	02/13/97	02/26/97	02/27/97
LEAD. TOTAL	008	S	97GI869	02/11/97	02/13/97	02/14/97	02/17/97

LAB QC:

MERCURY LABORATORY	LC1 BS	W	97HG112	N/A	N/A	02/24/97	02/25/97
MERCURY LABORATORY	LC2 BS	W	97HG112	N/A	N/A	02/24/97	02/25/97
MERCURY. TOTAL	MB1	W	97HG112	N/A	N/A	02/24/97	02/25/97
LEAD LABORATORY	LC1 BS	W	97GF513	N/A	N/A	02/21/97	02/22/97
LEAD LABORATORY	LC2 BS	W	97GF513	N/A	N/A	02/21/97	02/22/97
LEAD. TOTAL	MB1	W	97GF513	N/A	N/A	02/21/97	02/22/97
MERCURY LABORATORY	LC1 BS	S	97HG751	N/A	N/A	02/26/97	02/27/97
MERCURY LABORATORY	LC2 BS	S	97HG751	N/A	N/A	02/26/97	02/27/97
MERCURY. TOTAL	MB1	S	97HG751	N/A	N/A	02/26/97	02/27/97
LEAD LABORATORY	LC1 BS	S	97GI869	N/A	N/A	02/14/97	02/17/97
LEAD LABORATORY	LC2 BS	S	97GI869	N/A	N/A	02/14/97	02/17/97
LEAD. TOTAL	MB1	S	97GI869	N/A	N/A	02/14/97	02/17/97

SIGNATURE _____ DATE 3/3/97

NY CERTIFICATION # 11006

WESTON

Environmental Metrics, Inc.

METALS METHOD REFERENCE

* Water + Soil

The following methods are used as reference for the analysis of samples contained with this RFW Lot: 4702C063

SW846	**6010A** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P ✓Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn __Ag7761 __As7060A __Cd7131A __Cr7191 __Cu7211 ✓Hg7470A ✓Hg7471A ✓Pb7421 __Sb7041 __Se7740 __Tl7841
EPA	**200.7** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P __Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn __Ag272.2 __As206.2 __Cd213.2 __Cr218.2 __Cu220.2 __Hg245.1 __Hg245.5 __Pb239.2 __Sb204.2 __Se270.2 __Tl279.2 **200.9** __As __Cd __Pb __Sb __Se __Tl
CLP **ILM03.0** **ILM04.0**	**200.7 CLP-M** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P __Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn __As206.2 __Cd213.2 __Hg245.1 __Hg245.5 __Pb239.2 __Sb204.2 __Se270.2 __Tl279.2 __Cn335.2
Digestion Method	**SW846** __3005A __3010A __3020A ✓3020A(+H2O2) ✓3050A __7060A/7740 __7470A __7471A **EPA** __200.7 __200.0(+H2O2) __200.9(-HCL;+H2O2) **USEPA/CLP** __ILM03.0 Exhibit D, Section III __ILM04.0 Exhibit D, Section III
Extraction Method	**SW846** __1311TCLP __1312SPLP __1320MEP Using TCLP **ASTM** __D3987 Neutral Leach **CAM Title 22** __W.E.T.
%Solids	__SM 2540G __ASTM D2216 __Exhibit D Part F

RFW 21-21G-1301/H-1/97

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10**
Project # 03886-136-005-9999
Lab ID: **9702G063-001**
Sample Date: 02/11/97
Date Received: 02/13/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
Mercury, Total	0.00020 u	mg/L	0.00020
Lead, Total	0.0040 u	mg/L	0.0040

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Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd. 1997

RE: **CB MPUC C10 01**
Project # 03886-136-005-9999
Lab ID: **9702G063-002**
Sample Date: 02/11/97
Date Received: 02/13/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	41.2	%	0.10
Mercury, Total	1.0	mg/kg	0.10
Lead, Total	140	mg/kg	10.1

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Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10 02**
Project # 03886-136-005-9999
Lab ID: **9702G063-003**
Sample Date: 02/11/97
Date Received: 02/13/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	35.1	%	0.10
Mercury, Total	1.7	mg/kg	0.10
Lead, Total	127	mg/kg	11.4

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10 03**
Project # 03886-136-005-9999
Lab ID: **9702G063-004**
Sample Date: 02/11/97
Date Received: 02/13/97

Metals Data Report

Parameters	Result		Units	Reporting Limit
% Solids	28.4		%	0.10
Mercury, Total	0.39		mg/kg	0.14
Lead, Total	14.0	u	mg/kg	14.0

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1635 Pumphrey Avenue
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Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10R**
Project # 03886-136-005-9999
Lab ID: **9702G063-005**
Sample Date: 02/11/97
Date Received: 02/13/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
Mercury, Total	0.00020 u	mg/L	0.00020
Lead, Total	0.0020 u	mg/L	0.0020

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1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10R 01**
Project # 03886-136-005-9999
Lab ID: **9702G063-006**
Sample Date: 02/11/97
Date Received: 02/13/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	40.9	%	0.10
Mercury, Total	1.2	mg/kg	0.09
Lead, Total	520	mg/kg	10.1

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1635 Pumphrey Avenue
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Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10R 02**
Project # 03886-136-005-9999
Lab ID: **9702G063-007**
Sample Date: 02/11/97
Date Received: 02/13/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	39.8	%	0.10
Mercury, Total	1.4	mg/kg	0.09
Lead, Total	123	mg/kg	10

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1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10R 03**
Project # 03886-136-005-9999
Lab ID: **9702G063-008**
Sample Date: 02/11/97
Date Received: 02/13/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	36.0	%	0.10
Mercury, Total	0.63	mg/kg	0.1
Lead, Total	41.5	mg/kg	11.4

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1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

Project # 03886-136-005-9999
Lab Batch: **9702G063**

Inorganic Method Blank Data Report

Sample	Lab ID	Parameter	Result		Units	Reporting Limit
Blank 1	97HG112-MB1	Mercury, Total	0.00020	u	mg/L	0.00020
Blank 1	97GF513-MB1	Lead, Total	0.0020	u	mg/L	0.0020
Blank 1	97GTS748-MB1	% Solids	0.10	u	%	0.10
Blank 1	97HG751-MB1	Mercury, Total	0.04	u	mg/kg	0.04
Blank 1	97GI869-MB1	Lead, Total	5.0	u	mg/kg	5.0

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Attn: Mr. Dewayne Smith

Date: Monday March 3rd, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G063

Inorganic Precision Data Report

Sample	Site ID	Parameter	Initial Result	Replicate	RPD
-002REP	CB MPUC C10 01	Mercury, Total	1.0	1.0	0.30

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1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Monday March 3rd, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G063

Inorganic Accuracy Data Report

Sample	Site ID	Parameter	Spiked Sample	Initial Result	Spiked Amount	% Recov
-002	CB MPUC C10 01	Mercury, Total	1.6	1.0	0.54	110

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1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Monday March 3rd, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G063

Inorganic Laboratory Control Standards Report

Lab ID	Parameter	Spiked Amount	Units	Spike #1 % Recov.	Spike #2 % Recov.	RPD
97HG112-LC1	Mercury, LCS	0.0020	mg/L	102	99.9	2.1
97GF513-LC1	Lead, LCS	0.020	mg/L	104	101	3.5
97HG751-LC1	Mercury, LCS	0.40	mg/kg	102	102	0.44
97GI869-LC1	Lead, LCS	50.0	mg/kg	92.8	93.1	0.28

Weston Environmental Metrics, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G063

CLIENT ID	RFW #	MTX	PREP #	COLLECTN DATE	REC DATE	EXT PREP	ANALYSIS
CB MPUC C10	001	W	97GP0134	02/11/97	02/13/97	02/17/97	02/21/97
CB MPUC C10 01	002	S	97GP0125	02/11/97	02/13/97	02/13/97	02/22/97
CB MPUC C10 02	003	S	97GP0125	02/11/97	02/13/97	02/13/97	02/22/97
CB MPUC C10 03	004	S	97GP0125	02/11/97	02/13/97	02/13/97	02/22/97
CB MPUC C10R	005	W	97GP0134	02/11/97	02/13/97	02/17/97	02/21/97
CB MPUC C10R 01	006	S	97GP0125	02/11/97	02/13/97	02/13/97	02/22/97
CB MPUC C10R 02	007	S	97GP0125	02/11/97	02/13/97	02/13/97	02/22/97
CB MPUC C10R 03	008	S	97GP0125	02/11/97	02/13/97	02/13/97	02/22/97
LAB QC:							
PBLKAJ	MB1	W	97GP0134	N/A	N/A	02/17/97	02/21/97
PBLKAJ	MB1 BS	W	97GP0134	N/A	N/A	02/17/97	02/21/97
PBLKAJ	MB1 BSD	W	97GP0134	N/A	N/A	02/17/97	02/21/97
PBLKAZ	MB1	S	97GP0125	N/A	N/A	02/13/97	02/21/97
PBLKAZ	MB1 BS	S	97GP0125	N/A	N/A	02/13/97	02/21/97
PBLKAZ	MB1 BSD	S	97GP0125	N/A	N/A	02/13/97	02/21/97

SIGNATURE Patti Anderson for JM DATE 3/4/97

NY CERTIFICATION # 11006

WESTON

WESTON ENVIRONMENTAL METRICS, INC.
PESTICIDE/PCB CASE NARRATIVE

USACE-Jacksonville
RFW# 9702G063-001\008
Pesticides/PCBs

1. Weston - EMI used the following Gas Chromatographic systems for the analysis of these pesticides and PCBs:

ID#	INSTRUMENT	COLUMN TYPE	DETECTOR
29	HP5890 II+	DB-5	Electron Capture
30	HP5890 II+	RTX-35	Electron Capture

2. These samples were extracted based on SW846 method 3550 and 3520. The extracts were analyzed for pesticides and PCBs **based on SW846 method 8080.**

3. **All required holding times were met for the extraction and** analysis.

4. The method blanks were below the reporting limit for all target compounds.

5. The surrogate compounds used for this analysis were Decachlorobiphenyl (DCB) and Tetrachloro-m-xylene (TCX). All surrogate recoveries were within control limits.

6. All single response pesticides, with the exception of alpha and gamma-Chlordane, were used for spiking. A number of blank spike recoveries were biased high and above statistical control limits. However, these analytes were not detected in any of the associated samples.

7. There was no designated matrix spike and matrix spike duplicate associated with this SDG.

8. All initial and continuing standard calibrations were within control limits.

9. The soil samples were analyzed at 1/10 dilutions due to matrix interferences. Reporting limits have been adjusted in order to reflect the necessary dilutions.

10. A number of analytes detected in these samples calculate to be below our reporting limits; however, are within the calibration range of the instrument and are not estimated values. Any target compounds present below the calibration range of the instrument have been flagged with a "J".

Linda S Mackley
Linda S. Mackley
Organics Section Manager

3-3-97
Date

WESTON Environmental Metrics, Inc. Method Reference

The following methods are used as reference for the analysis of samples contained within this RFW Lot :

GC/HPLC METHODS

Pesticides/PCBs	X **SW-846 8080A**
	____ **SW-846 8081**
	____ **40 CFR Part 136, Method 608**
	____ **OLM01.8/1.9**
	____ **OLM03.0**
Organophosphorus Pesticides	____ **SW-846 8141A**
Herbicides	____ **SW-846 8150B**
Cresols	____ **SW-846 8040A**
Cresols/Pyridine	____ **SW-846 8040A Mod**
Explosives	____ **SW-846 8330**
Polynuclear Aromatics	____ **SW-846 8310**
	____ **40 CFR Part 136, Method 610**
Petroleum Hydrocarbons	____ **SW-846 8015A Mod**
	____ **California LUFT**
	____ **Other** _____
EDB & DBCP	____ **EPA Method 504.1**

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University Park, Illinois 60466-3182
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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10**
Project # 03886-136-005-9999
Lab ID: **9702G063-001**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	0.051	U
beta-BHC	BRL	0.051	U
delta-BHC	BRL	0.051	U
gamma-BHC (Lindane)	BRL	0.051	U
Heptachlor	BRL	0.051	U
Aldrin	BRL	0.051	U
Heptachlor epoxide	BRL	0.051	U
Endosulfan I	BRL	0.051	U
Dieldrin	BRL	0.10	U
4,4'-DDE	BRL	0.10	U
Endrin	BRL	0.10	U
Endosulfan II	BRL	0.10	U
4,4'-DDD	BRL	0.10	U
Endosulfan sulfate	BRL	0.10	U
4,4'-DDT	BRL	0.10	U
Methoxychlor	BRL	0.51	U
Endrin ketone	BRL	0.10	U

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Project # 03886-136-005-9999
Lab ID: **9702G063-001**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	0.51	U
gamma-Chlordane	BRL	0.51	U
Toxaphene	BRL	1.0	U
Endrin aldehyde	BRL	0.10	U
Aroclor-1016	BRL	0.51	U
Aroclor-1221	BRL	0.51	U
Aroclor-1232	BRL	0.51	U
Aroclor-1242	BRL	0.51	U
Aroclor-1248	BRL	0.51	U
Aroclor-1254	BRL	1.0	U
Aroclor-1260	BRL	1.0	U

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Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10 01**
Project # 03886-136-005-9999
Lab ID: **9702G063-002**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	94	U
beta-BHC	BRL	94	U
delta-BHC	BRL	94	U
gamma-BHC (Lindane)	BRL	94	U
Heptachlor	BRL	94	U
Aldrin	BRL	94	U
Heptachlor epoxide	BRL	94	U
Endosulfan I	BRL	94	U
Dieldrin	BRL	190	U
4,4'-DDE	31	190	J
Endrin	BRL	190	U
Endosulfan II	BRL	190	U
4,4'-DDD	BRL	190	U
Endosulfan sulfate	BRL	190	U
4,4'-DDT	50	190	J
Methoxychlor	BRL	940	U
Endrin ketone	BRL	190	U

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Date: Monday March 3rd, 1997

RE: **CB MPUC C10 01**
Project # 03886-136-005-9999
Lab ID: **9702G063-002**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	940	U
gamma-Chlordane	BRL	940	U
Toxaphene	BRL	1900	U
Endrin aldehyde	BRL	190	U
Aroclor-1016	BRL	940	U
Aroclor-1221	BRL	940	U
Aroclor-1232	BRL	940	U
Aroclor-1242	BRL	940	U
Aroclor-1248	BRL	940	U
Aroclor-1254	BRL	1900	U
Aroclor-1260	BRL	1900	U

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Attn: Mr. Dewayne Smith

Date: Monday March 3rd. 1997

RE: CB MPUC C10 02
Project # 03886-136-005-9999
Lab ID: 9702G063-003
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	110	U
beta-BHC	BRL	110	U
delta-BHC	BRL	110	U
gamma-BHC (Lindane)	BRL	110	U
Heptachlor	BRL	110	U
Aldrin	BRL	110	U
Heptachlor epoxide	BRL	110	U
Endosulfan I	BRL	110	U
Dieldrin	BRL	220	U
4,4'-DDE	54	220	
Endrin	BRL	220	U
Endosulfan II	BRL	220	U
4,4'-DDD	BRL	220	U
Endosulfan sulfate	BRL	220	U
4,4'-DDT	30	220	J
Methoxychlor	BRL	1100	U
Endrin ketone	BRL	220	U

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Date: Monday March 3rd, 1997

RE: **CB MPUC C10 02**
Project # 03886-136-005-9999
Lab ID: **9702G063-003**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	1100	U
gamma-Chlordane	BRL	1100	U
Toxaphene	BRL	2200	U
Endrin aldehyde	BRL	220	U
Aroclor-1016	BRL	1100	U
Aroclor-1221	BRL	1100	U
Aroclor-1232	BRL	1100	U
Aroclor-1242	BRL	1100	U
Aroclor-1248	BRL	1100	U
Aroclor-1254	BRL	2200	U
Aroclor-1260	BRL	2200	U

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Date: Monday March 3rd, 1997

RE: **CB MPUC C10 03**
Project # 03886-136-005-9999
Lab ID: **9702G063-004**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	140	U
beta-BHC	BRL	140	U
delta-BHC	BRL	140	U
gamma-BHC (Lindane)	BRL	140	U
Heptachlor	BRL	140	U
Aldrin	BRL	140	U
Heptachlor epoxide	BRL	140	U
Endosulfan I	BRL	140	U
Dieldrin	BRL	280	U
4,4'-DDE	BRL	280	U
Endrin	BRL	280	U
Endosulfan II	BRL	280	U
4,4'-DDD	BRL	280	U
Endosulfan sulfate	BRL	280	U
4,4'-DDT	BRL	280	U
Methoxychlor	BRL	1400	U
Endrin ketone	BRL	280	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10 03**
Project # 03886-136-005-9999
Lab ID: **9702G063-004**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	1400	U
gamma-Chlordane	BRL	1400	U
Toxaphene	BRL	2800	U
Endrin aldehyde	BRL	280	U
Aroclor-1016	BRL	1400	U
Aroclor-1221	BRL	1400	U
Aroclor-1232	BRL	1400	U
Aroclor-1242	BRL	1400	U
Aroclor-1248	BRL	1400	U
Aroclor-1254	BRL	2800	U
Aroclor-1260	BRL	2800	U

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10R**
Project # 03886-136-005-9999
Lab ID: **9702G063-005**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	0.054	U
beta-BHC	BRL	0.054	U
delta-BHC	BRL	0.054	U
gamma-BHC (Lindane)	BRL	0.054	U
Heptachlor	BRL	0.054	U
Aldrin	BRL	0.054	U
Heptachlor epoxide	BRL	0.054	U
Endosulfan I	BRL	0.054	U
Dieldrin	BRL	0.11	U
4,4'-DDE	BRL	0.11	U
Endrin	BRL	0.11	U
Endosulfan II	BRL	0.11	U
4,4'-DDD	0.043	0.11	J
Endosulfan sulfate	BRL	0.11	U
4,4'-DDT	BRL	0.11	U
Methoxychlor	BRL	0.54	U
Endrin ketone	BRL	0.11	U

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10R**
Project # 03886-136-005-9999
Lab ID: **9702G063-005**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	0.54	U
gamma-Chlordane	BRL	0.54	U
Toxaphene	BRL	1.1	U
Endrin aldehyde	BRL	0.11	U
Aroclor-1016	BRL	0.54	U
Aroclor-1221	BRL	0.54	U
Aroclor-1232	BRL	0.54	U
Aroclor-1242	BRL	0.54	U
Aroclor-1248	BRL	0.54	U
Aroclor-1254	BRL	1.1	U
Aroclor-1260	BRL	1.1	U

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10R 01**
Project # 03886-136-005-9999
Lab ID: **9702G063-006**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	95	U
beta-BHC	BRL	95	U
delta-BHC	BRL	95	U
gamma-BHC (Lindane)	BRL	95	U
Heptachlor	BRL	95	U
Aldrin	BRL	95	U
Heptachlor epoxide	BRL	95	U
Endosulfan I	BRL	95	U
Dieldrin	BRL	190	U
4,4'-DDE	36	190	J
Endrin	BRL	190	U
Endosulfan II	BRL	190	U
4,4'-DDD	BRL	190	U
Endosulfan sulfate	BRL	190	U
4,4'-DDT	48	190	
Methoxychlor	BRL	950	U
Endrin ketone	BRL	190	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10R 01**
Project # 03886-136-005-9999
Lab ID: **9702G063-006**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	950	U
gamma-Chlordane	BRL	950	U
Toxaphene	BRL	1900	U
Endrin aldehyde	BRL	190	U
Aroclor-1016	BRL	950	U
Aroclor-1221	BRL	950	U
Aroclor-1232	BRL	950	U
Aroclor-1242	BRL	950	U
Aroclor-1248	BRL	950	U
Aroclor-1254	BRL	1900	U
Aroclor-1260	BRL	1900	U

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To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10R 02**
Project # 03886-136-005-9999
Lab ID: **9702G063-007**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	98	U
beta-BHC	BRL	98	U
delta-BHC	BRL	98	U
gamma-BHC (Lindane)	BRL	98	U
Heptachlor	BRL	98	U
Aldrin	BRL	98	U
Heptachlor epoxide	BRL	98	U
Endosulfan I	BRL	98	U
Dieldrin	BRL	200	U
4,4'-DDE	BRL	200	U
Endrin	BRL	200	U
Endosulfan II	BRL	200	U
4,4'-DDD	BRL	200	U
Endosulfan sulfate	BRL	200	U
4,4'-DDT	BRL	200	U
Methoxychlor	BRL	980	U
Endrin ketone	BRL	200	U

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10R 02**
Project # 03886-136-005-9999
Lab ID: **9702G063-007**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	980	U
gamma-Chlordane	BRL	980	U
Toxaphene	BRL	2000	U
Endrin aldehyde	BRL	200	U
Aroclor-1016	BRL	980	U
Aroclor-1221	BRL	980	U
Aroclor-1232	BRL	980	U
Aroclor-1242	BRL	980	U
Aroclor-1248	BRL	980	U
Aroclor-1254	BRL	2000	U
Aroclor-1260	BRL	2000	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **CB MPUC C10R 03**
Project # 03886-136-005-9999
Lab ID: **9702G063-008**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	110	U
beta-BHC	BRL	110	U
delta-BHC	BRL	110	U
gamma-BHC (Lindane)	BRL	110	U
Heptachlor	BRL	110	U
Aldrin	BRL	110	U
Heptachlor epoxide	BRL	110	U
Endosulfan I	BRL	110	U
Dieldrin	BRL	220	U
4,4'-DDE	BRL	220	U
Endrin	BRL	220	U
Endosulfan II	BRL	220	U
4,4'-DDD	BRL	220	U
Endosulfan sulfate	BRL	220	U
4,4'-DDT	BRL	220	U
Methoxychlor	BRL	1100	U
Endrin ketone	BRL	220	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Monday March 3rd, 1997

RE: CB MPUC C10R 03
Project # 03886-136-005-9999
Lab ID: 9702G063-008
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	1100	U
gamma-Chlordane	BRL	1100	U
Toxaphene	BRL	2200	U
Endrin aldehyde	BRL	220	U
Aroclor-1016	BRL	1100	U
Aroclor-1221	BRL	1100	U
Aroclor-1232	BRL	1100	U
Aroclor-1242	BRL	1100	U
Aroclor-1248	BRL	1100	U
Aroclor-1254	BRL	2200	U
Aroclor-1260	BRL	2200	U

Weston Environmental Metrics, Inc. (Gulf Coast)
PESTICIDE/PCBs BY GC, CLP LIST

RFW Batch Number: 9702G063 Client: USACE-Jacksonville Work Order: 03886-136-005-9 Report Date: 02/25/97 19:24 Page: 1

Sample Information	Cust ID:	CB MPUC C10	CB MPUC C10 01	CB MPUC C10 02	CB MPUC C10 03	CB MPUC C10R	CB MPUC C10R 01
	RFW#:	001	002	003	004	005	006
	Matrix:	WATER	SOIL	SOIL	SOIL	WATER	SOIL
	D.F.:	1.0	5.0	5.0	5.0	1.0	5.0
	Units:	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg
Surrogate: Tetrachloro-m-xylene		80 %	95 %	90 %	80 %	90 %	80 %
Decachlorobiphenyl		90 %	110 %	105 %	105 %	85 %	105 %
alpha-BHC		0.051 U	94 U	110 U	140 U	0.054 U	95 U
beta-BHC		0.051 U	94 U	110 U	140 U	0.054 U	95 U
delta-BHC		0.051 U	94 U	110 U	140 U	0.054 U	95 U
gamma-BHC (Lindane)		0.051 U	94 U	110 U	140 U	0.054 U	95 U
Heptachlor		0.051 U	94 U	110 U	140 U	0.054 U	95 U
Aldrin		0.051 U	94 U	110 U	140 U	0.054 U	95 U
Heptachlor epoxide		0.051 U	94 U	110 U	140 U	0.054 U	95 U
Endosulfan I		0.051 U	94 U	110 U	140 U	0.054 U	95 U
Dieldrin		0.10 U	190 U	220 U	280 U	0.11 U	190 U
4,4'-DDE		0.10 U	31 J	54	280 U	0.11 U	36 J
Endrin		0.10 U	190 U	220 U	280 U	0.11 U	190 U
Endosulfan II		0.10 U	190 U	220 U	280 U	0.11 U	190 U
4,4'-DDD		0.10 U	190 U	220 U	280 U	0.043 J	190 U
Endosulfan sulfate		0.10 U	190 U	220 U	280 U	0.11 U	190 U
4,4'-DDT		0.10 U	50 J	30 J	280 U	0.11 U	48
Methoxychlor		0.51 U	940 U	1100 U	1400 U	0.54 U	950 U
Endrin ketone		0.10 U	190 U	220 U	280 U	0.11 U	190 U
alpha-Chlordane		0.51 U	940 U	1100 U	1400 U	0.54 U	950 U
gamma-Chlordane		0.51 U	940 U	1100 U	1400 U	0.54 U	950 U
Toxaphene		1.0 U	1900 U	2200 U	2800 U	1.1 U	1900 U
Endrin aldehyde		0.10 U	190 U	220 U	280 U	0.11 U	190 U
Aroclor-1016		0.51 U	940 U	1100 U	1400 U	0.54 U	950 U
Aroclor-1221		0.51 U	940 U	1100 U	1400 U	0.54 U	950 U
Aroclor-1232		0.51 U	940 U	1100 U	1400 U	0.54 U	950 U
Aroclor-1242		0.51 U	940 U	1100 U	1400 U	0.54 U	950 U
Aroclor-1248		0.51 U	940 U	1100 U	1400 U	0.54 U	950 U
Aroclor-1254		1.0 U	1900 U	2200 U	2800 U	1.1 U	1900 U
Aroclor-1260		1.0 U	1900 U	2200 U	2800 U	1.1 U	1900 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

55

Sample Information	Cust ID:	CB MPUC C10R 02	CB MPUC C10R 03	PBLKAJ	PBLKAJ BS	PBLKAJ BSD	PBLKAZ
	RFW#:	007	008	97GP0134-MB1	97GP0134-MB1	97GP0134-MB1	97GP0125-MB1
	Matrix:	SOIL	SOIL	WATER	WATER	WATER	SOIL
	D.F.:	5.0	5.0	1.0	1.0	1.0	0.50
	Units:	ug/Kg	ug/Kg	ug/l	ug/L	ug/L	ug/Kg
Surrogate: Tetrachloro-m-xylene		75 %	90 %	110 %	110 %	105 %	95 %
Decachlorobiphenyl		100 %	105 %	105 %	105 %	105 %	85 %
alpha-BHC		98 U	110 U	0.050 U	110 %	115 %	4.0 U
beta-BHC		98 U	110 U	0.050 U	115 %	120 %	4.0 U
delta BHC		98 U	110 U	0.050 U	120 * %	125 * %	4.0 U
gamma-BHC (Lindane)		98 U	110 U	0.050 U	115 %	115 %	4.0 U
Heptachlor		98 U	110 U	0.050 U	125 %	130 * %	4.0 U
Aldrin		98 U	110 U	0.050 U	100 %	120 %	4.0 U
Heptachlor epoxide		98 U	110 U	0.050 U	115 %	120 %	4.0 U
Endosulfan I		98 U	110 U	0.050 U	100 %	105 %	4.0 U
Dieldrin		200 U	220 U	0.10 U	105 %	105 %	8.0 U
4,4'-DDE		200 U	220 U	0.10 U	110 %	110 %	8.0 U
Endrin		200 U	220 U	0.10 U	125 %	125 %	8.0 U
Endosulfan II		200 U	220 U	0.10 U	110 %	115 %	8.0 U
4,4'-DDD		200 U	220 U	0.10 U	110 %	115 %	8.0 U
Endosulfan sulfate		200 U	220 U	0.10 U	115 %	115 %	8.0 U
4,4'-DDT		200 U	220 U	0.10 U	105 %	105 %	8.0 U
Methoxychlor		980 U	1100 U	0.50 U	140 %	140 %	40 U
Endrin ketone		200 U	220 U	0.10 U	115 %	120 %	8.0 U
alpha-Chlordane		980 U	1100 U	0.50 U	0.50 U	0.50 U	40 U
gamma-Chlordane		980 U	1100 U	0.50 U	0.50 U	0.50 U	40 U
Toxaphene		2000 U	2200 U	1.0 U	1.0 U	1.0 U	80 U
Endrin aldehyde		200 U	220 U	0.10 U	145 %	150 * %	8.0 U
Aroclor-1016		980 U	1100 U	0.50 U	0.50 U	0.50 U	40 U
Aroclor-1221		980 U	1100 U	0.50 U	0.50 U	0.50 U	40 U
Aroclor 1232		980 U	1100 U	0.50 U	0.50 U	0.50 U	40 U
Aroclor 1242		980 U	1100 U	0.50 U	0.50 U	0.50 U	40 U
Aroclor 1248		980 U	1100 U	0.50 U	0.50 U	0.50 U	40 U
Aroclor 1254		2000 U	2200 U	1.0 U	1.0 U	1.0 U	80 U
Aroclor 1260		2000 U	2200 U	1.0 U	1.0 U	1.0 U	80 U

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%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

56

	Cust ID:	PBLKAZ BS	PBLKAZ BSD
Sample Information	RFW#:	97GP0125-MB1	97GP0125-MB1
	Matrix:	SOIL	SOIL
	D.F.:	0.50	0.50
	Units:	ug/Kg	ug/Kg

Surrogate:	Tetrachloro-m-xylene	95	%	100	%	
	Decachlorobiphenyl	85	%	90	%	
alpha-BHC		100	%	105	%	
beta-BHC		105	%	110	%	
delta-BHC		105	%	110	%	
gamma-BHC (Lindane)		105	%	110	%	
Heptachlor		120	%	125 *	%	
Aldrin		105	%	105	%	
Heptachlor epoxide		105	%	110 *	%	
Endosulfan I		90	%	95	%	
Dieldrin		95	%	95	%	
4,4'-DDE		95	%	100	%	
Endrin		120	%	120	%	
Endosulfan II		100	%	105	%	
4,4'-DDD		100	%	100	%	
Endosulfan sulfate		105	%	105	%	
4,4'-DDT		95	%	105	%	
Methoxychlor		135 *	%	140 *	%	
Endrin ketone		105	%	110	%	
alpha-Chlordane		40	U	40	U	
gamma-Chlordane		40	U	40	U	
Toxaphene		80	U	80	U	
Endrin aldehyde		100	%	120	%	
Aroclor 1016		40	U	40	U	
Aroclor 1221		40	U	40	U	
Aroclor 1232		40	U	40	U	
Aroclor 1242		40	U	40	U	
Aroclor 1248		40	U	40	U	
Aroclor 1254		80	U	80	U	
Aroclor 1260		80	U	80	U	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

WESTON

Weston Environmental Metrics, Inc.
HPAH ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G063

CLIENT ID	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
CB MPUC C10	001	W	97GP0135	02/11/97	02/13/97	02/17/97	03/08/97
CB MPUC C10 01	002	S	97GP0124	02/11/97	02/13/97	02/13/97	02/28/97
CB MPUC C10 02	003	S	97GP0124	02/11/97	02/13/97	02/13/97	02/28/97
CB MPUC C10 03	004	S	97GP0124	02/11/97	02/13/97	02/13/97	02/28/97
CB MPUC C10R	005	W	97GP0135	02/11/97	02/13/97	02/17/97	03/08/97
CB MPUC C10R 01	006	S	97GP0124	02/11/97	02/13/97	02/13/97	02/28/97
CB MPUC C10R 02	007	S	97GP0124	02/11/97	02/13/97	02/13/97	02/28/97
CB MPUC C10R 03	008	S	97GP0124	02/11/97	02/13/97	02/13/97	02/28/97
LAB QC:							
BLK	MB1	W	97GP0135	N/A	N/A	02/17/97	03/08/97
BLK	MB1 BS	W	97GP0135	N/A	N/A	02/17/97	03/08/97
BLK	MB1 BSD	W	97GP0135	N/A	N/A	02/17/97	03/08/97
BLK	MB1	S	97GP0124	N/A	N/A	02/13/97	02/28/97
BLK	MB1 BS	S	97GP0124	N/A	N/A	02/13/97	02/28/97
BLK	MB1 BSD	S	97GP0124	N/A	N/A	02/13/97	02/28/97

SIGNATURE Linda S Mackey DATE 3-12-97

NY CERTIFICATION # 11006

WESTON

WESTON ENVIRONMENTAL METRICS, INC.
PAH CASE NARRATIVE

USACE-Jacksonville
RFW# 9702G063-001\008
PAHs

1. Weston EMI used the following High Performance Liquid Chromatographic system for the analysis of polynuclear aromatic hydrocarbons:

ID#	INSTRUMENT	COLUMN TYPE	DETECTOR
39	HP 1100	C-18 PAH	UV - 254nm
40	HP 1100	C-18 PAH	Fluorescence

2. These samples were extracted based on SW846 method 3550 and 3510. The extracts were analyzed for PAHs (i.e. PNAs) based on SW846 method 8310 protocols.

3. All required holding times were met for the extraction and analysis.

4. The method blanks were below the reporting limit for all target compounds.

5. The surrogate compounds used for this analysis were Decafluorobiphenyl and Benzo(e)pyrene. All surrogate recoveries were within control limits, with the exception of those which were diluted out and the Benzo(e)pyrene associated with sample 9702G063-001 (CB MPUC C10) which had 58% recovery.

6. A blank spike and blank spike duplicate analysis were performed for both the soils and the water. All blank spike and blank spike duplicate recoveries were within control limits.

7. There was no designated matrix spike and matrix spike duplicate associated with this SDG.

8. All initial and continuing standard calibrations associated with these samples were within control limits.

9. These samples were analyzed at various dilutions due to matrix interferences. Reporting limits have been adjusted in order to reflect the necessary dilutions.

Linda S. Mackley
Organics Section Manager

3-11-97
Date

WESTON Environmental Metrics, Inc. Method Reference

The following methods are used as reference for the analysis of samples contained within this RFW Lot :

GC/HPLC METHODS

Pesticides/PCBs	____ SW-846 8080A ____ SW-846 8081 ____ 40 CFR Part 136, Method 608 ____ OLM01.8/1.9 ____ OLM03.0
Organophosphorus Pesticides	____ SW-846 8141A
Herbicides	____ SW-846 8150B
Cresols	____ SW-846 8040A
Cresols/Pyridine	____ SW-846 8040A Mod
Explosives	____ SW-846 8330
Polynuclear Aromatics	__X__ SW-846 8310 ____ 40 CFR Part 136, Method 610
Petroleum Hydrocarbons	____ SW-846 8015A Mod ____ California LUFT ____ Other _____
EDB & DBCP	____ EPA Method 504.1

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
® 708-534-5200 • Fax 708-534-5211

ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Wednesday March 12th, 1997

RE: **CB MPUC C10**
Project # 03886-136-005-9999
Lab ID: **9702G063-001**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/L

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	0.52	U
Acenaphthylene	BRL	0.52	U
Acenaphthene	BRL	1.0	U
Fluorene	BRL	0.13	U
Phenanthrene	BRL	0.52	U
Anthracene	BRL	0.026	U
Fluoranthene	BRL	0.26	U
Pyrene	BRL	0.52	U
Benzo(a)anthracene	BRL	0.10	U
Chrysene	BRL	0.52	U
Benzo(b)fluoranthene	BRL	0.13	U
Benzo(k)fluoranthene	BRL	0.052	U
Benzo(a)pyrene	BRL	0.052	U
Dibenzo(a,h)anthracene	BRL	0.26	U
Benzo(g,h,i)perylene	BRL	0.26	U
Indeno(1,2,3-cd)pyrene	BRL	0.12	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Wednesday March 12th, 1997

RE: CB MPUC C10 01
Project # 03886-136-005-9999
Lab ID: 9702G063-002
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	2000	U
Acenaphthylene	BRL	2000	U
Acenaphthene	BRL	3900	U
Fluorene	BRL	490	U
Phenanthrene	BRL	2000	U
Anthracene	BRL	98	U
Fluoranthene	1300	980	
Pyrene	BRL	2000	U
Benzo(a)anthracene	BRL	390	U
Chrysene	BRL	2000	U
Benzo(b)fluoranthene	430	490	J
Benzo(k)fluoranthene	BRL	200	U
Benzo(a)pyrene	260	200	
Dibenzo(a,h)anthracene	BRL	980	U
Benzo(g,h,i)perylene	BRL	980	U
Indeno(1,2,3-cd)pyrene	BRL	470	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Wednesday March 12th, 1997

RE: CB MPUC C10 02
Project # 03886-136-005-9999
Lab ID: 9702G063-003
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	2400	U
Acenaphthylene	BRL	2400	U
Acenaphthene	BRL	4700	U
Fluorene	BRL	590	U
Phenanthrene	BRL	2400	U
Anthracene	BRL	120	U
Fluoranthene	BRL	1200	U
Pyrene	BRL	2400	U
Benzo(a)anthracene	BRL	470	U
Chrysene	BRL	2400	U
Benzo(b)fluoranthene	BRL	590	U
Benzo(k)fluoranthene	BRL	240	U
Benzo(a)pyrene	BRL	240	U
Dibenzo(a,h)anthracene	BRL	1200	U
Benzo(g,h,i)perylene	BRL	1200	U
Indeno(1,2,3-cd)pyrene	BRL	560	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Wednesday March 12th, 1997

RE: CB MPUC C10 03
Project # 03886-136-005-9999
Lab ID: 9702G063-004
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	140	U
Acenaphthylene	BRL	140	U
Acenaphthene	BRL	280	U
Fluorene	BRL	35	U
Phenanthrene	BRL	140	U
Anthracene	BRL	7.1	U
Fluoranthene	BRL	71	U
Pyrene	BRL	140	U
Benzo(a)anthracene	BRL	28	U
Chrysene	BRL	140	U
Benzo(b)fluoranthene	58	35	
Benzo(k)fluoranthene	BRL	14	U
Benzo(a)pyrene	BRL	14	U
Dibenzo(a,h)anthracene	350	71	
Benzo(g,h,i)perylene	BRL	71	U
Indeno(1,2,3-cd)pyrene	BRL	34	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Wednesday March 12th, 1997

RE: CB MPUC C10R
Project # 03886-136-005-9999
Lab ID: 9702G063-005
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/L

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	0.51	U
Acenaphthylene	BRL	0.51	U
Acenaphthene	BRL	1.0	U
Fluorene	BRL	0.13	U
Phenanthrene	BRL	0.51	U
Anthracene	BRL	0.026	U
Fluoranthene	BRL	0.26	U
Pyrene	BRL	0.51	U
Benzo(a)anthracene	BRL	0.10	U
Chrysene	BRL	0.51	U
Benzo(b)fluoranthene	BRL	0.13	U
Benzo(k)fluoranthene	BRL	0.051	U
Benzo(a)pyrene	BRL	0.051	U
Dibenzo(a,h)anthracene	BRL	0.26	U
Benzo(g,h,i)perylene	BRL	0.26	U
Indeno(1,2,3-cd)pyrene	BRL	0.12	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Wednesday March 12th, 1997

RE: **CB MPUC C10R 01**
Project # 03886-136-005-9999
Lab ID: **9702G063-006**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	2000	U
Acenaphthylene	BRL	2000	U
Acenaphthene	BRL	4100	U
Fluorene	BRL	510	U
Phenanthrene	BRL	2000	U
Anthracene	BRL	100	U
Fluoranthene	1400	1000	
Pyrene	BRL	2000	U
Benzo(a)anthracene	BRL	410	U
Chrysene	BRL	2000	U
Benzo(b)fluoranthene	490	510	J
Benzo(k)fluoranthene	BRL	200	U
Benzo(a)pyrene	400	200	
Dibenzo(a,h)anthracene	BRL	1000	U
Benzo(g,h,i)perylene	BRL	1000	U
Indeno(1,2,3-cd)pyrene	BRL	490	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Wednesday March 12th, 1997

RE: **CB MPUC C10R 02**
Project # 03886-136-005-9999
Lab ID: **9702G063-007**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	420	U
Acenaphthylene	BRL	420	U
Acenaphthene	BRL	830	U
Fluorene	BRL	100	U
Phenanthrene	BRL	420	U
Anthracene	14	21	J
Fluoranthene	180	210	J
Pyrene	BRL	420	U
Benzo(a)anthracene	BRL	83	U
Chrysene	BRL	420	U
Benzo(b)fluoranthene	290	100	
Benzo(k)fluoranthene	32	42	J
Benzo(a)pyrene	110	42	
Dibenzo(a,h)anthracene	BRL	210	U
Benzo(g,h,i)perylene	140	210	J
Indeno(1,2,3-cd)pyrene	BRL	100	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Wednesday March 12th, 1997

RE: **CB MPUC C10R 03**
Project # 03886-136-005-9999
Lab ID: **9702G063-008**
Sample Date: 02/11/97
Date Received: 02/13/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	460	U
Acenaphthylene	BRL	460	U
Acenaphthene	BRL	920	U
Fluorene	BRL	120	U
Phenanthrene	BRL	460	U
Anthracene	22	23	J
Fluoranthene	310	230	
Pyrene	220	460	J
Benzo(a)anthracene	140	92	
Chrysene	BRL	460	U
Benzo(b)fluoranthene	250	120	
Benzo(k)fluoranthene	57	46	
Benzo(a)pyrene	170	46	
Dibenzo(a,h)anthracene	430	230	
Benzo(g,h,i)perylene	BRL	230	U
Indeno(1,2,3-cd)pyrene	BRL	110	U

Weston Environmental Metrics, Inc. (Gulf Coast)
PAHs BY HPLC

RFW Batch Number: 9702G063 Client: USACE-Jacksonville Work Order: 03886-136-005-9 Report Date: 03/11/97 11:06 Page: 1

Sample Information	Cust ID:	CB MPUC C10	CB MPUC C10 01	CB MPUC C10 02	CB MPUC C10 03	CB MPUC C10R	CB MPUC C10R 01
	RFW#:	001	002	003	004	005	006
	Matrix:	WATER	SOIL	SOIL	SOIL	WATER	SOIL
	D.F.:	1.0	100	100	5.0	1.0	100
	Units:	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg
Surrogate	Decafluorobiphenyl	86 %	D %	D %	53 %	92 %	D %
	Benzo(e)pyrene	58 * %	D %	D %	70 %	68 %	D %
Naphthalene		0.52 U	2000 U	2400 U	140 U	0.51 U	2000 U
Acenaphthylene		0.52 U	2000 U	2400 U	140 U	0.51 U	2000 U
Acenaphthene		1.0 U	3900 U	4700 U	280 U	1.0 U	4100 U
Fluorene		0.13 U	490 U	590 U	35 U	0.13 U	510 U
Phenanthrene		0.52 U	2000 U	2400 U	140 U	0.51 U	2000 U
Anthracene		0.026 U	98 U	120 U	7.1 U	0.026 U	100 U
Fluoranthene		0.26 U	1300	1200 U	71 U	0.26 U	1400
Pyrene		0.52 U	2000 U	2400 U	140 U	0.51 U	2000 U
Benzo(a)anthracene		0.10 U	390 U	470 U	28 U	0.10 U	410 U
Chrysene		0.52 U	2000 U	2400 U	140 U	0.51 U	2000 U
Benzo(b)fluoranthene		0.13 U	430 J	590 U	58	0.13 U	490 J
Benzo(k)fluoranthene		0.052 U	200 U	240 U	14 U	0.051 U	200 U
Benzo(a)pyrene		0.052 U	260	240 U	14 U	0.051 U	400
Dibenzo(a,h)anthracene		0.26 U	980 U	1200 U	350	0.26 U	1000 U
Benzo(g,h,i)perylene		0.26 U	980 U	1200 U	71 U	0.26 U	1000 U
Indeno(1,2,3-cd)pyrene		0.12 U	470 U	560 U	34 U	0.12 U	490 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Weston Environmental trics, Inc. (Gulf Coast)

PAHs BY HPLC

RFW Batch Number: 9702G063 Client: USACE-Jacksonville Work Order: 03886-136-005-9 Report Date: 03/11/97 11:06 Page: 2

Sample Information	Cust ID:	CB MPUC C10R 02		CB MPUC C10R 03		BLK		BLK BS		BLK BSD		BLK	
	RFW#:	007		008		97GP0135-MB1		97GP0135-MB1		97GP0135-MB1		97GP0124-MB1	
	Matrix:	SOIL		SOIL		WATER		WATER		WATER		SOIL	
	D.F.:	20		20		1.0		1.0		1.0		1.0	
	Units:	ug/Kg		ug/Kg		ug/L		ug/L		ug/L		ug/Kg	
Surrogate	Decafluorobiphenyl	59	%	56	%	95	%	87	%	89	%	82	%
	Benzo(e)pyrene	120	%	D	%	104	%	100	%	102	%	88	%
			fl		fl		fl		fl		fl		fl
Naphthalene		420	U	460	U	0.50	U	96	%	99	%	8.3	U
Acenaphthylene		420	U	460	U	0.50	U	95	%	97	%	8.3	U
Acenaphthene		830	U	920	U	1.0	U	95	%	98	%	17	U
Fluorene		100	U	120	U	0.12	U	97	%	99	%	2.1	U
Phenanthrene		420	U	460	U	0.50	U	99	%	102	%	8.3	U
Anthracene		14	J	22	J	0.025	U	96	%	100	%	0.42	U
Fluoranthene		180	J	310		0.25	U	98	%	101	%	4.2	U
Pyrene		420	U	220	J	0.50	U	98	%	100	%	8.3	U
Benzo(a)anthracene		83	U	140		0.10	U	88	%	91	%	1.7	U
Chrysene		420	U	460	U	0.50	U	84	%	87	%	8.3	U
Benzo(b)fluoranthene		290		250		0.12	U	116	%	118	%	2.1	U
Benzo(k)fluoranthene		32	J	57		0.050	U	100	%	96	%	0.83	U
Benzo(a)pyrene		110		170		0.050	U	104	%	108	%	0.83	U
Dibenzo(a,h)anthracene		210	U	430		0.25	U	96	%	99	%	4.2	U
Benzo(g,h,i)perylene		140	J	230	U	0.25	U	98	%	102	%	4.2	U
Indeno(1,2,3-cd)pyrene		100	U	110	U	0.12	U	111	%	108	%	2.0	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

3/12/97
PMB

Weston Environmental Metrics, Inc. (Gulf Coast)
PAHs BY HPLC

RFW Batch Number: 9702G063 Client: USACE-Jacksonville Work Order: 03886-136-005-9 Report Date: 03/11/97 11.06 Page: 3 70

	Cust ID:	BLK BS	BLK BSD
Sample Information	RFW#:	97GP0124-MB1	97GP0124-MB1
	Matrix:	SOIL	SOIL
	D.F.:	1.0	1.0
	Units:	ug/Kg	ug/Kg
Surrogate	Decafluorobiphenyl	76 %	83 %
	Benzo(e)pyrene	81 %	89 %
Naphthalene		84 %	91 %
Acenaphthylene		78 %	89 %
Acenaphthene		80 %	87 %
Fluorene		97 %	87 %
Phenanthrene		81 %	89 %
Anthracene		80 %	88 %
Fluoranthene		78 %	90 %
Pyrene		79 %	88 %
Benzo(a)anthracene		73 %	81 %
Chrysene		70 %	76 %
Benzo(b)fluoranthene		95 %	110 %
Benzo(k)fluoranthene		80 %	88 %
Benzo(a)pyrene		90 %	106 %
Dibenzo(a,h)anthracene		83 %	95 %
Benzo(g,h,i)perylene		91 %	92 %
Indeno(1,2,3-cd)pyrene		90 %	101 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Weston Environmental Metrics, Inc.

Sample Discrepancy Report (SDR)

RFW#: 9702G063

Client: USACE Jacksonville
Contact: Dewayne Smith
Project: M. Pena Canal
Phone #: 5666
FAX #:

Analyses:

Matrix: Water Soil Other
Deliverable Type: (circle)
CLP STD SPEC

1.a. Type of Sample Discrepancy COC received: Yes No Quote from PM: Yes No

COC / Sample				LOG-IN		Client		Unit	
	ID Discrepancy		Rec'd past hold time		Log-in past hold time		Changed Analyses		Analyzed past hold time
	Date Discrepancy		Improper Preserv.		Log-in Error		Improper bottle type		Missing sample/extract
	Incomplete		Missing sample/extract				Label unreadable		Insufficient sample
	Unreadable	X	Container broken				Insufficient sample		
	Cooler temp. ____ C		- sample lost						
	Quote Discrepancy		- suspect contamination						
			Bubbles in VOA vials						
									EDD

1.b. Lab ID (COC/Client ID) [illegible]

001	CB MPUC C10	Rec'd 1 of 4 liter jars with cracked lid
005	CB MPUC C10R	Rec'd 1 liter metals no ID or date Time 12:00
001-005		Rec'd 1 liter preserved bottle for TS - also rec'd 3-1 liter jars-organics for each sample

Use organics volume for TS
Make organics limited volume

Initiator sign: L. Hume Date: 2-13-97

2.a. PM Establish Action Plan:

	Cancel		Bottle/jar replaced		Change Test Code from ____ to ____
	Add		Lid replaced		Change Due Date from ____ to ____
	Place on hold		Analyze samples		Include in Case Narrative
	Log-in		Analyze Past Hold		Amend EDD
	Subcontract		Preserve then Analyze		

2.b. Special Action:

Name:		Action Initiator Initial & Date:		Action Completion Initial & Date:	
Log-In	Replaced lid on IOGOR jar for 001	L.H	2-13-97	L.H	2-13-97
	Time of 12:00 matches water sample 005	L.H	2-13-97	PB	2/14/97

3. Receipt of Copies: (INITIAL AND DATE)

1. GC	4. W.C.
2. GC/MS	5. Digest.
3. Metals	6. Extract.

Distribution and Copy to QA: PB

4. PM Final Approval of All Actions Taken:

X Send copy to Client

Signature: [signature] Date: 2-14-97

5. QA For Quality Measurement Only:

[redacted]

Final Distribution - Attach original to worksheet and send a copy to QA

C:\MSOFFICE\EXCEL\MDRRZEMDR.XLS

Revision Date: 8/29/95

RFW 21-21G-0001/8/95

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

Page ____ of ____ 12

Client: USACOE
Est. Final Proj. Sampling Date:
Work Order #: 3886 136 005
Project Contact/Phone #: DEWAYNE SMITH
AD Project Manager: 334-826-6100
QC: ____ Del: ____ TAT: STD
Date Rec'd: ____ Date Due: ____
Account #:

Refrigerator #

#/Type Container	Liquid	1 =
	Solid	1 =
Volume	Liquid	1L
	Solid	40z
Preservatives		HNO3

ANALYSES REQUESTED →

ORGANIC: VOA | BNA | Pest/PCB | Herb
INORG: Metal | CN
TCC | TOX | TOC | Sulfide | TPH | Lead | Hg | 0+G

WESTON Analytics Use Only

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected
001	CB MW5 C10			W	11/16/92	0730
002	CB MW5 C10 01			S	11/16/92	0930
003	CB MW5 C10 02			S	11/16/92	0945
004	CB MW5 C10 03			S	11/16/92	1010

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill #
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Sample Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# Cooler# 101-598a

WESTON Analytics Use Only

97-26003

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

Client: USACOE
Est. Final Proj. Sampling Date:
Work Order #: 3886 136 005
Project Contact/Phone #: DEWAYNE SMITH
AD Project Manager: 334 826 6100
QC ____ Del ____ TAT: STD.
Date Rec'd ____ Date Due ____
Account #

Refrigerator #																	
#/Type Container	Liquid			1			1				1						
	Solid			1			1										
Volume	Liquid			1l			1	1l				1l	1l	1l			DH
	Solid			4oz			4	oz			8oz						
Preservatives				[illegible]			[illegible]				0	H_2SO_4	NaOH	H_2SO_4			
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb	[illegible]	LEAD	Hg	Metal	CN	TOC	O+G	SULFIDE	TOTAL SOLIDS			

WESTON Analytics Use Only

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	[illegible]	LEAD	Hg	Metal	CN	TOC	O+G	SULFIDE	TOTAL SOLIDS		
	CB MPUC C10R			W	11FEB97	12:00			X		X	X	X				X	X	X		
	CB MPUC C10R 01			S	11FEB97	12:00			X		X	X	X			X	X	X			
	CB MPUC C10R 02			S	11FEB97	12:15			X		X	X	X			X	X	X			
	CB MPUC C10R 03			S	11FEB97	12:35			X		X	X	X			X	X	X			

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	12.[illegible]	[illegible]

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # [illegible]
2) Ambient or Chilled
3) Received In Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____

1-596a

73

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
708-534-5200 • Fax 708-534-5211

March 10, 1997

Mr. Dewayne Smith
Roy F. Weston, Inc.
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Work Order No. 03886-136-005-9999

RE: USACE-Jacksonville
Analytical Report & EDD
RFW Lot 9702G980

Dear Mr. Smith:

Enclosed is the Analytical Report for the Project and RFW Lot listed above. If you have any questions, please contact me at 708-534-5200.

Very truly yours,

Weston Environmental Metrics, Inc.

Jane D. Huber
Project Manager

km

Enclosures

Approved By:

Michael J. Healy
Vice President/Laboratory Manager

The results presented in this report relate only to the analytical testing and conditions of sample at receipt. This report pertains to only those samples actually tested. All 48 pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

GLOSSARY OF DATA QUALIFIERS AND ABBREVIATION

Data Qualifiers

B	Compound was found in the blank and the sample
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D
E	Concentration exceeds the instrument calibration range and was subsequently diluted
I	Appears on the "results spreadsheet" to indicate an interference
J	Result is an estimated value below the reporting limit or a tentatively identified compound (TIC)
M	Summary Compound
(M)	Manually integrated compound
N	Positive ID of a TIC that is not quantitated against a standard and must be accompanied by a CAS No.
T	Compound was found in the TCLP extraction blank and the sample
u	Analyte was not detected at or above the reporting limit
X	Result obtained indirectly through calculation based on results from other analyses

Abbreviations

Batch	Designation given to identify a specific extraction, digestion or preparation set (equivalent to prep batch)
BS	Blank spike analysis was conducted on reagent grade water or a matrix free from the analyte of interest
BSD	Blank spike duplicate
BRL	Below reporting limit
CAP	Capillary Column
CD	Calculation factor used by the Laboratory's Information Management System (LIMS)
Contract	Contract laboratory identification code
DF	Dilution factor
DL	Appears in the sample ID to indicate a secondary dilution was performed
LCS/LC	Denotes laboratory control standard
LAB ID	The full 12 character Weston laboratory identification number (equivalent to RFW#)
MB	Method blank or (PB) preparation blank
MS	Matrix spike
MSD	Matrix spike duplicate
NA	Not applicable
NC	Non-calculable precision due to insufficient concentration of analyte present in the sample
NR	Not required
NS	Not spiked
PACK	Packed Column
RE	Appears in the sample ID to indicate a re-analysis
REP	Replicate analysis
Reprep	Sample was reprepared and then reanalyzed
RFW#	The full 12 character WESTON laboratory identification number (equivalent to LAB ID)
RFW Lot	The first 8 characters of the RFW#
RPD	Relative percent difference of duplicate (unrounded) analyses
RRF	Relative response factor
RT	Retention time
RTW	Retention time window
SP	Blank spike, blank spike duplicate, matrix spike or matrix spike duplicate
WO#	Work order no. WESTON code used to define a specific client, job, phase and task

NOTES:

- One or a combination of these data qualifiers and abbreviations may appear in the analytical report.
- Soil, sediment and sludge results are reported on a dry weight basis except when analyzed for landfill disposal or incineration parameters. All other results on a solid matrix are reported on an "as received" basis unless noted differently.
- Reporting limits are adjusted for preparation sample size, sample dilutions and sample moisture content if analyzed on a dry weight basis.

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G980

CLIENT ID / ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
CB MPUC C6							
OIL & GREASE BY GRAV	001	W	97GGR011	02/06/97	02/11/97	02/13/97	02/13/97
SULFIDE	001	W	97GSF009	02/06/97	02/11/97	02/11/97	02/11/97
TOTAL SOLIDS	001	W	97GSD030	02/06/97	02/11/97	02/12/97	02/12/97
TOTAL SOLIDS	001 REP	W	97GSD030	02/06/97	02/11/97	02/12/97	02/12/97
TOTAL SOLIDS	001 MS	W	97GSD030	02/06/97	02/11/97	02/12/97	02/12/97
CB MPUC C6 01							
TOTAL ORGANIC CARBON	002	S	97GMC026	02/06/97	02/11/97	02/19/97	02/19/97
OIL & GREASE BY GRAV	002	S	97GGR014	02/06/97	02/11/97	02/20/97	02/21/97
SULFIDE	002	S	97GSF008	02/06/97	02/11/97	02/11/97	02/11/97
CB MPUC C6 02							
TOTAL ORGANIC CARBON	003	S	97GMC026	02/06/97	02/11/97	02/19/97	02/19/97
OIL & GREASE BY GRAV	003	S	97GGR014	02/06/97	02/11/97	02/20/97	02/21/97
SULFIDE	003	S	97GSF008	02/06/97	02/11/97	02/11/97	02/11/97
CB MPUC C6 03							
TOTAL ORGANIC CARBON	004	S	97GMC026	02/06/97	02/11/97	02/19/97	02/19/97
TOTAL ORGANIC CARBON	004 MS	S	97GMC026	02/06/97	02/11/97	02/19/97	02/19/97
OIL & GREASE BY GRAV	004	S	97GGR016	02/06/97	02/11/97	02/27/97	02/27/97
SULFIDE	004	S	97GSF008	02/06/97	02/11/97	02/11/97	02/11/97
LAB QC:							
OIL & GREASE BY GRAV	LCS BS	W	97GGR011	N/A	N/A	02/13/97	02/13/97
OIL & GREASE BY GRAV	LCS BSD	W	97GGR011	N/A	N/A	02/13/97	02/13/97
OIL & GREASE BY GRAV	MB1	W	97GGR011	N/A	N/A	02/13/97	02/13/97
SULFIDE	LCS BS	W	97GSF009	N/A	N/A	02/11/97	02/11/97
SULFIDE	LCS BSD	W	97GSF009	N/A	N/A	02/11/97	02/11/97
SULFIDE	MB1	W	97GSF009	N/A	N/A	02/11/97	02/11/97
TOTAL SOLIDS	LCS BS	W	97GSD030	N/A	N/A	02/12/97	02/12/97

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G980

CLIENT ID / ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
TOTAL SOLIDS	LCS BSD	W	97GSD030	N/A	N/A	02/12/97	02/12/97
TOTAL SOLIDS	MB1	W	97GSD030	N/A	N/A	02/12/97	02/12/97
TOTAL ORGANIC CARBON	LCS BS	W	97GMC026	N/A	N/A	02/19/97	02/19/97
TOTAL ORGANIC CARBON	LCS BSD	W	97GMC026	N/A	N/A	02/19/97	02/19/97
TOTAL ORGANIC CARBON	MB1	W	97GMC026	N/A	N/A	02/19/97	02/19/97
OIL & GREASE BY GRAV	LCS BS	W	97GGR014	N/A	N/A	02/20/97	02/21/97
OIL & GREASE BY GRAV	LCS BSD	W	97GGR014	N/A	N/A	02/20/97	02/21/97
OIL & GREASE BY GRAV	MB1	W	97GGR014	N/A	N/A	02/20/97	02/21/97
SULFIDE	LCS BS	W	97GSF008	N/A	N/A	02/11/97	02/11/97
SULFIDE	LCS BSD	W	97GSF008	N/A	N/A	02/11/97	02/11/97
SULFIDE	MB1	W	97GSF008	N/A	N/A	02/11/97	02/11/97
OIL & GREASE BY GRAV	LCS BS	W	97GGR016	N/A	N/A	02/27/97	02/27/97
OIL & GREASE BY GRAV	LCS BSD	W	97GGR016	N/A	N/A	02/27/97	02/27/97
OIL & GREASE BY GRAV	MB1	W	97GGR016	N/A	N/A	02/27/97	02/27/97

SIGNATURE David L Harp DATE 3/7/97

NY CERTIFICATION # 11006

Environmental Metrics, Inc.
WET CHEMISTRY METHOD REFERENCE

The following methods are used as reference for the analysis of samples contained with RFW Lot: 9702 6983

PARAMETER	EPA 600	STANDARD METHODS	SW846	OTHER
%Water Karl Fisher				__ASTM D4377
%Water Dean Stark				__ASTM D95
Acidity	__ 305.1	__ 2310B		
Alkalinity,Total,Carbonate, Bicarbonate	__ 310.1	__ 2320B		
Ammonia (Dist/Nesslers)	__ 350.2	__ 4500NH_3C		
Biochemical Oxygen Demand	__ 405.1	__ 5210B		
Bottom Sediment & Water				__ASTM D4007
BTU				__ASTM D240
Bromide	__ **300.0**	__ **4110B**	__ **9056**	
Bromine	__ **300.0 Detection**		__ 5050 Prep	
Chemical Oxygen Demand				__HACH 8000
Chloride	__ 325.2	__ 4500C1E	__ 9251	
	__ 300.0	__ 4110B	__ 9056	
Chlorine (O_2Bomb)	__ 300.0 Detection		__ 5050 Prep	__ISE Detection
Chlorine, Residual	__ 330.4	__ 4500C1F		
Chromium VI		__ 3500CrD	__ 3060 Digestion	
			__ 7196A	
Color	__ 110.2	__ 2120B		
Corrosivity, pH	__ 150.1		__ 9045C	
			__ 9040A	
Corrosivity, Langlier		__ 2330A+B		
Cyanide, Amenable	__ 335.1	__ 4500CNG	__ 9010A	
Cyanide, Weak, Dissociable		__ 4500CNI		
Cyanide, Reactive			__ 7.3.3.2	
Cyanide, Total	__ 335.2	__ 4500CNC	__ 9010A	__ILM03.0
Density/Specific Gravity		__ 2710F		__ASTM D1298
				__ASTM D5057
Ext. Organic Halogens				__Dohrmann
Flashpoint			__ 1010	__ASTM D93
				__ASTM D92
Fluoride __ Distilled	__ 340.2	__ 4500 FC	__ 9056	
__ Undistilled	__ 300.0			
Fluorine	__ 340.2 Detection		__ 5050 Prep	
	__ 300.0 Detection			
Hardness	__ 130.2	__ 2340C		
		__ 2340B		
Heavy Metals				__USP 231
Ignitability			__ Sec. 7	__ASTM D-4982A
MBAS (Surfactants)	__ 425.1	__ 5540 C		
Nitrate/Nitrite	__ 353.2	__ 4500NO_3F		
Nitrate	__ 353.2 -354.1	__ 4110B	__ 9056	
	__ 300.0			
Nitrite	__ 354.1	__ 4500NO_2B	__ 9056	
	__ 300.0	__ 4110B		
Odor	__ 140.1	__ 2150B		
Oil & Grease	__✓413.1	__5520B	__✓9070	
Oil & Grease, IR	__413.2	__5520C		

Environmental Metrics, Inc.
WET CHEMISTRY METHOD REFERENCE

The following methods are used as reference for the analysis of samples contained with RFW Lot: 97020-980

PARAMETER	EPA 600	STANDARD METHODS	SW846	OTHER
Oil & Grease, Soxhlet		__ 5520D	__ 9071A	
		__ 5520E		
Oxygen, Dissolved	__ 360.1 Electrode	__ 4500OG		
	__ 360.2 Winkler	__ 4500OC		
Paint Filters (Free Liquid)			__ 9095	
Petroleum Hydrocarbons	__ 418.1	__ 5520F	__ 9071A Extract.	
pH, Water	__ 150.1	__ 4500H⁺B	__ 9040B	
pH, Soil			__ 9045C	
			__ 9041A Paper	
Phenolics	__ 420.2		__ 9066	
Orthophosphate as P	__ 365.2	__ 4500PE	__ 9056	
	__ 300.0	__ 4110B		
Phosphorus as P	__ 365.2	__ 4500PE		
	__ 365.4			
Residue on Evaporation 180C	__ 160.1 Modified	__ 2540C Modified		
Solids, Settleable	__ 160.5	__ 2540F		
Solids Total	✓ 160.3	__ 2540B		
Solids, Total Dissolved	__ 160.1	__ 2540C		
Solids, Total Suspended	__ 160.2	__ 2540D		
Solids, Total Volatile	__ 160.4	__ 2540E		
Solids, Dissolved Volatile	__ 160.4	__ 2540E		
Solids, Suspended Volatile	__ 160.4	__ 2540E		
Soluble Organic Carbon	__ 415.1	__ 5310C		
Specific Conductance	__ 120.1	__ 2510B		
Sulfate	__ 375.4	__ 4500SO_4^{2-}E	__ 9038	
	__ 300.0	__ 4110B	__ 9056	
Sulfide	__ 376.1	__ 4500S^{2-}E	✓ 9030A Mod	
Sulfide, Reactive			__ 7.3.4.2	
Sulfur	__ 375.4 Detection		__ 5050Prep	
	__ 300.0 Detection			
Total Kjeldahl Nitrogen	__ 351.3	__ 4500N_{ORG}C		
Total Inorganic Carbon	__ 415.1	__ 5310C		
Total Organic Carbon	__ 415.1	__ 5310C	__ 9060 Quads	✓ Walkley-Black
Total Organic Halogens		__ 5320B	__ 9020B	
Total Org Halogens on Waste	__ 325.2 Detection		__ 5050prep	__ ISE Detection
	__ 300.0 Detection			
Turbidity	__ 180.1	__ 2130B		
Viscosity, Brookfield				__ ASTM D2196
Viscosity, Kinematic				__ ASTM D445
Coliform, Fecal		__ 9222D		
Coliform, Total		__ 9222A,B,C(MF)		
		__ 9223B Colilert		
Heterotrophic Plate Count		__ 9215B		
MPN		__ 9221E		

Comments:

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
© 708-534-5200 • Fax 708-534-5211

ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

RE: **CB MPUC C6**
Project # 03886-136-005-9999
Lab ID: **9702G980-001**
Sample Date: 02/06/97
Date Received: 02/11/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Oil & Grease, Grav.	5.2	u	mg/L	5.2
Sulfide	3.7		mg/L	1.0
Total Solids	9320		mg/L	10.0

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

RE: **CB MPUC C6 01**
Project # 03886-136-005-9999
Lab ID: **9702G980-002**
Sample Date: 02/06/97
Date Received: 02/11/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	11.7	%	1.0
Oil & Grease, Grav.	6550	mg/kg	3560
Sulfide	2460	mg/kg	89.0

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

RE: **CB MPUC C6 02**
Project # 03886-136-005-9999
Lab ID: **9702G980-003**
Sample Date: 02/06/97
Date Received: 02/11/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Total Organic Carbon	0.97		%	0.35
Oil & Grease, Grav.	2610	u	mg/kg	2610
Sulfide	1320		mg/kg	61.0

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

RE: CB MPUC C6 03
Project # 03886-136-005-9999
Lab ID: 9702G980-004
Sample Date: 02/06/97
Date Received: 02/11/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Total Organic Carbon	0.29	u	%	0.29
Oil & Grease, Grav.	5310		mg/kg	874
Sulfide	32.4	u	mg/kg	32.4

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G980

Inorganic Method Blank Data Report

Sample	Lab ID	Parameter	Result		Units	Reporting Limit
Blank 1	97GGR011-MB1	Oil & Grease, Grav.	5.0	u	mg/L	5.0
Blank 1	97GSF009-MB1	Sulfide	1.0	u	mg/L	1.0
Blank 1	97GSD030-MB1	Total Solids	10.0	u	mg/L	10.0
Blank 1	97GMC026-MB1	Total Organic Carbon	0.050	u	%	0.050
Blank 1	97GGR014-MB1	Oil & Grease, Grav.	50.0	u	mg/L	50.0
Blank 1	97GSF008-MB1	Sulfide	1.0	u	mg/L	1.0
Blank 1	97GGR016-MB1	Oil & Grease, Grav.	50.0	u	mg/L	50.0

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G980

Inorganic Precision Data Report

Sample	Site ID	Parameter	Initial Result	Replicate	RPD
-001REP	CB MPUC C6	Total Solids	9320	9340	0.20

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: **9702G980**

Inorganic Accuracy Data Report

Sample	Site ID	Parameter	Spiked Sample	Initial Result		Spiked Amount	% Recov
-001	CB MPUC C6	Total Solids	9560	9320		250	NA
-004	CB MPUC C6 03	TOC	2.0	0.29	u	1.7	120

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G980

Inorganic Laboratory Control Standards Report

Lab ID	Parameter	Spiked Amount	Units	Spike #1 % Recov.	Spike #2 % Recov.	RPD
97GGR011-LCS	Oil/Grease Grav Spk	104	mg/L	96.2	93.6	2.7
97GSF009-LCS	Sulfide	4.0	mg/L	91.8	87.8	4.4
97GSD030-LCS	Total Solids	250	mg/L	95.2	97.6	2.5
97GMC026-LCS	TOC	47.0	%	92.6	90.6	2.1
97GGR014-LCS	Oil/Grease Grav Spk	1040	mg/L	95.7	87.9	8.5
97GSF008-LCS	Sulfide	4.0	mg/L	120	81.8	37.5
97GGR016-LCS	Oil/Grease Grav Spk	1040	mg/L	95.4	90.6	5.2

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G980

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC EXT/PREP	ANALYSIS
CB MPUC C6						
MERCURY, TOTAL	001	W	97HG737	02/06/97	02/11/97	02/12/97 02/13/97
LEAD, TOTAL	001	W	97GF501	02/06/97	02/11/97	02/13/97 02/14/97
CB MPUC C6 01						
% SOLIDS	002	S	97GTS737	02/06/97	02/11/97	02/13/97 02/13/97
MERCURY, TOTAL	002	S	97HG095	02/06/97	02/11/97	02/13/97 02/14/97
LEAD, TOTAL	002	S	97GI858	02/06/97	02/11/97	02/12/97 02/14/97
CB MPUC C6 02						
% SOLIDS	003	S	97GTS737	02/06/97	02/11/97	02/13/97 02/13/97
MERCURY, TOTAL	003	S	97HG095	02/06/97	02/11/97	02/13/97 02/14/97
LEAD, TOTAL	003	S	97GI858	02/06/97	02/11/97	02/12/97 02/14/97
CB MPUC C6 03						
% SOLIDS	004	S	97GTS737	02/06/97	02/11/97	02/13/97 02/13/97
MERCURY, TOTAL	004	S	97HG095	02/06/97	02/11/97	02/13/97 02/14/97
LEAD, TOTAL	004	S	97GI858	02/06/97	02/11/97	02/12/97 02/14/97
LAB QC:						
MERCURY LABORATORY	LC1 BS	W	97HG737	N/A	N/A	02/12/97 02/13/97
MERCURY LABORATORY	LC2 BS	W	97HG737	N/A	N/A	02/12/97 02/13/97
MERCURY, TOTAL	MB1	W	97HG737	N/A	N/A	02/12/97 02/13/97
LEAD LABORATORY	LC1 BS	W	97GF501	N/A	N/A	02/13/97 02/14/97
LEAD LABORATORY	LC2 BS	W	97GF501	N/A	N/A	02/13/97 02/14/97
LEAD, TOTAL	MB1	W	97GF501	N/A	N/A	02/13/97 02/14/97
MERCURY LABORATORY	LC1 BS	S	97HG095	N/A	N/A	02/13/97 02/14/97
MERCURY LABORATORY	LC2 BS	S	97HG095	N/A	N/A	02/13/97 02/14/97
MERCURY, TOTAL	MB1	S	97HG095	N/A	N/A	02/13/97 02/14/97
LEAD LABORATORY	LC1 BS	S	97GI858	N/A	N/A	02/12/97 02/14/97
LEAD LABORATORY	LC2 BS	S	97GI858	N/A	N/A	02/12/97 02/14/97

NY CERTIFICATION # 11006

WESTON

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G980

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
LEAD. TOTAL	MB1	S	97GI858	N/A	N/A	02/12/97	02/14/97

SIGNATURE _____ DATE 3/10/97

NY CERTIFICATION # 11006

WESTON

Environmental Metrics, Inc.

METALS METHOD REFERENCE

The following methods are used as reference for the analysis of samples contained with this RFW Lot: 9702G980

SW846	**6010A** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P ✓Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn __Ag7761 __As7060A __Cd7131A __Cr7191 __Cu7211 ✓Hg7470A ✓Hg7471A ✓Pb7421 __Sb7041 __Se7740 __Tl7841
EPA	**200.7** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P __Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn __Ag272.2 __As206.2 __Cd213.2 __Cr218.2 __Cu220.2 __Hg245.1 __Hg245.5 __Pb239.2 __Sb204.2 __Se270.2 __Tl279.2 **200.9** __As __Cd __Pb __Sb __Se __Tl
CLP **ILM03.0** **ILM04.0**	**200.7 CLP-M** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P __Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn __As206.2 __Cd213.2 __Hg245.1 __Hg245.5 __Pb239.2 __Sb204.2 __Se270.2 __Tl279.2 __Cn335.2
Digestion Method	**SW846** __3005A __3010A __3020A ✓3020A(+H2O2) ✓3050A __7060A/7740 __7470A __7471A **EPA** __200.7 __200.0(+H2O2) __200.9(-HCL;+H2O2) **USEPA/CLP** __ILM03.0 Exhibit D, Section III __ILM04.0 Exhibit D, Section III
Extraction Method	**SW846** __1311TCLP __1312SPLP __1320MEP Using TCLP **ASTM** __D3987 Neutral Leach **CAM Title 22** __W.E.T.
%Solids	✓SM 2540G __ASTM D2216 __Exhibit D Part F

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
Phone: (708) 534-5200 Fax: (708) 534-5211

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Wednesday February 19th, 1997

RE: CB MPUC C6
Project # 03886-136-005-9999
Lab ID: 9702G980-001
Sample Date: 02/06/97
Date Received: 02/11/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
Mercury, Total	0.00020 u	mg/L	0.00020
Lead, Total	0.0020 u	mg/L	0.0020

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1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Wednesday February 19th, 1997

RE: **CB MPUC C6 01**
Project # 03886-136-005-9999
Lab ID: **9702G980-002**
Sample Date: 02/06/97
Date Received: 02/11/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	26.5	%	0.10
Mercury, Total	3.4	mg/kg	0.26
Lead, Total	253	mg/kg	14.6

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1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Wednesday February 19th. 1997

RE: **CB MPUC C6 02**
Project # 03886-136-005-9999
Lab ID: **9702G980-003**
Sample Date: 02/06/97
Date Received: 02/11/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	38.3	%	0.10
Mercury, Total	0.23	mg/kg	0.10
Lead, Total	48.4	mg/kg	10.3

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Attn: Mr. Dewayne Smith

Date: Wednesday February 19th, 1997

RE: CB MPUC C6 03
Project # 03886-136-005-9999
Lab ID: 9702G980-004
Sample Date: 02/06/97
Date Received: 02/11/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	76.3	%	0.10
Mercury, Total	0.18	mg/kg	0.04
Lead, Total	21.3	mg/kg	5.2

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Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Wednesday February 19th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G980

Inorganic Method Blank Data Report

Sample	Lab ID	Parameter	Result		Units	Reporting Limit
Blank 1	97HG737-MB1	Mercury, Total	0.00020	u	mg/L	0.00020
Blank 1	97GF501-MB1	Lead, Total	0.0020	u	mg/L	0.0020
Blank 1	97GTS737-MB1	% Solids	0.10	u	%	0.10
Blank 1	97HG095-MB1	Mercury, Total	0.02	u	mg/kg	0.02
Blank 1	97GI858-MB1	Lead, Total	5.0	u	mg/kg	5.0

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Attn: Mr. Dewayne Smith

Date: Wednesday February 19th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G980

Inorganic Laboratory Control Standards Report

Lab ID	Parameter	Spiked Amount	Units	Spike #1 % Recov.	Spike #2 % Recov.	RPD
97HG737-LC1	Mercury, LCS	0.0020	mg/L	98.4	96.4	2.0
97GF501-LC1	Lead, LCS	0.020	mg/L	101	98.6	2.7
97HG095-LC1	Mercury, LCS	1.0	mg/kg	105	103	1.1
97GI858-LC1	Lead, LCS	50.0	mg/kg	89.1	87.1	2.3

Weston Environmental Metrics. Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G980

CLIENT ID	RFW #		MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
CB MPUC C6	001		W	97GP0121	02/06/97	02/11/97	02/12/97	02/20/97
CB MPUC C6 01	002		S	97GP0115	02/06/97	02/11/97	02/12/97	02/19/97
CB MPUC C6 02	003		S	97GP0115	02/06/97	02/11/97	02/12/97	02/19/97
CB MPUC C6 03	004		S	97GP0115	02/06/97	02/11/97	02/12/97	02/19/97
CB MPUC C6 03	004	A1	S	97GP0115	02/06/97	02/11/97	02/12/97	02/19/97
LAB QC:								
PBLKZW	MB1		W	97GP0121	N/A	N/A	02/12/97	02/19/97
PBLKZW	MB1	BS	W	97GP0121	N/A	N/A	02/12/97	02/19/97
PBLKZW	MB1	BSD	W	97GP0121	N/A	N/A	02/12/97	02/19/97
PBLKZY	MB1		S	97GP0115	N/A	N/A	02/12/97	02/14/97
PBLKZY	MB1	BS	S	97GP0115	N/A	N/A	02/12/97	02/14/97
PBLKZY	MB1	BSD	S	97GP0115	N/A	N/A	02/12/97	02/14/97

SIGNATURE Linda S Mackley DATE 2-28-97

NY CERTIFICATION # 11006

WESTON

WESTON ENVIRONMENTAL METRICS, INC.
PESTICIDE/PCB CASE NARRATIVE

USACE-Jacksonville
RFW# 9702G980-001\004
Pesticides/PCBs

1. Weston - EMI used the following Gas Chromatographic systems for the analysis of these pesticides and PCBs:

ID#	INSTRUMENT	COLUMN TYPE	DETECTOR
03	HP 6890	DB-5	Electron Capture
04	HP 6890	RTX-35	Electron Capture

2. These samples were extracted based on SW846 method 3550 and 3510. The extracts were analyzed for pesticides and PCBs based on SW846 method 8080. All extracts received mercury cleanups in an attempt to reduce matrix interferences.

3. All required holding times were met for the extraction and analysis.

4. The method blanks were below the reporting limit for all target compounds.

5. The surrogate compounds used for this analysis were Decachlorobiphenyl (DCB) and Tetrachloro-m-xylene (TCX). All surrogate recoveries were within control limits, with the exception of sample 9702G980-004 (CB MPUC C6 02) in which both surrogates were below control limits. The extract was re-injected with similar results. Results for both analyses have been reported.

6. All single response pesticides, with the exception of alpha and gamma-Chlordane were used for spiking. All blank spike and blank spike duplicate recoveries were within control limits.

7. There was no designated matrix spike and matrix spike duplicate associated with this SDG.

8. These samples were analyzed at various dilutions due to matrix interferences. Reporting limits have been adjusted in order to reflect the necessary dilutions.

9. The concentration of 4,4'-DDT detected in sample 9702G980-002 (CB MPUC C6 01) calculates to be below our routine reporting limit. However, this concentration is within the calibration range of the instrument and is not an estimated value. Concentrations below the calibration range of the instrument have been flagged with a "J".

Linda S. Mackley
Linda S. Mackley
Organics Section Manager

2-28-97
Date

WESTON Environmental Metrics, Inc. Method Reference

The following methods are used as reference for the analysis of samples contained within this RFW Lot :

GC/HPLC METHODS

Pesticides/PCBs	_X_ SW-846 8080A
	_____ SW-846 8081
	_____ 40 CFR Part 136, Method 608
	_____ OLM01.8/1.9
	_____ OLM03.0
Organophosphorus Pesticides	_____ **SW-846 8141A**
Herbicides	_____ SW-846 8150B
Cresols	_____ SW-846 8040A
Cresols/Pyridine	_____ SW-846 8040A Mod
Explosives	_____ SW-846 8330
Polynuclear Aromatics	_____ SW-846 8310
	_____ 40 CFR Part 136, Method 610
Petroleum Hydrocarbons	_____ SW-846 8015A Mod
	_____ California LUFT
	_____ Other _____
EDB & DBCP	_____ EPA Method 504.1

Weston Environmental Metrics, Inc.
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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday February 28th, 1997

RE: CB MPUC C6
Project # 03886-136-005-9999
Lab ID: 9702G980-001
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	0.10	U
beta-BHC	BRL	0.10	U
delta-BHC	BRL	0.10	U
gamma-BHC (Lindane)	BRL	0.10	U
Heptachlor	BRL	0.10	U
Aldrin	BRL	0.10	U
Heptachlor epoxide	BRL	0.10	U
Endosulfan I	BRL	0.10	U
Dieldrin	BRL	0.20	U
4,4'-DDE	BRL	0.20	U
Endrin	BRL	0.20	U
Endosulfan II	BRL	0.20	U
4,4'-DDD	BRL	0.20	U
Endosulfan sulfate	BRL	0.20	U
4,4'-DDT	BRL	0.20	U
Methoxychlor	BRL	1.0	U
Endrin ketone	BRL	0.20	U

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Project # 03886-136-005-9999
Lab ID: 9702G980-001
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	1.0	U
gamma-Chlordane	BRL	1.0	U
Toxaphene	BRL	2.0	U
Endrin aldehyde	BRL	0.20	U
Aroclor-1016	BRL	1.0	U
Aroclor-1221	BRL	1.0	U
Aroclor-1232	BRL	1.0	U
Aroclor-1242	BRL	1.0	U
Aroclor-1248	BRL	1.0	U
Aroclor-1254	BRL	2.0	U
Aroclor-1260	BRL	2.0	U

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Attn: **Mr. Dewayne Smith**

Date: Friday February 28th, 1997

RE: **CB MPUC C6 01**
Project # 03886-136-005-9999
Lab ID: **9702G980-002**
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	150	U
beta-BHC	BRL	150	U
delta-BHC	BRL	150	U
gamma-BHC (Lindane)	BRL	150	U
Heptachlor	BRL	150	U
Aldrin	BRL	150	U
Heptachlor epoxide	BRL	150	U
Endosulfan I	BRL	150	U
Dieldrin	BRL	300	U
4,4'-DDE	27	300	J
Endrin	BRL	300	U
Endosulfan II	BRL	300	U
4,4'-DDD	BRL	300	U
Endosulfan sulfate	BRL	300	U
4,4'-DDT	110	300	
Methoxychlor	BRL	1500	U
Endrin ketone	BRL	300	U

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Attn: Mr. Dewayne Smith

Date: Friday February 28th, 1997

RE: CB MPUC C6 01
Project # 03886-136-005-9999
Lab ID: 9702G980-002
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	1500	U
gamma-Chlordane	BRL	1500	U
Toxaphene	BRL	3000	U
Endrin aldehyde	BRL	300	U
Aroclor-1016	BRL	1500	U
Aroclor-1221	BRL	1500	U
Aroclor-1232	BRL	1500	U
Aroclor-1242	BRL	1500	U
Aroclor-1248	BRL	1500	U
Aroclor-1254	BRL	3000	U
Aroclor-1260	BRL	3000	U

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Attn: **Mr. Dewayne Smith**

Date: Friday February 28th, 1997

RE: **CB MPUC C6 02**
Project # 03886-136-005-9999
Lab ID: **9702G980-003**
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	100	U
beta-BHC	BRL	100	U
delta-BHC	BRL	100	U
gamma-BHC (Lindane)	BRL	100	U
Heptachlor	BRL	100	U
Aldrin	BRL	100	U
Heptachlor epoxide	BRL	100	U
Endosulfan I	BRL	100	U
Dieldrin	BRL	200	U
4,4'-DDE	BRL	200	U
Endrin	BRL	200	U
Endosulfan II	BRL	200	U
4,4'-DDD	BRL	200	U
Endosulfan sulfate	BRL	200	U
4,4'-DDT	BRL	200	U
Methoxychlor	BRL	1000	U
Endrin ketone	BRL	200	U

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Date: Friday February 28th, 1997

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Project # 03886-136-005-9999
Lab ID: **9702G980-003**
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	1000	U
gamma-Chlordane	BRL	1000	U
Toxaphene	BRL	2000	U
Endrin aldehyde	BRL	200	U
Aroclor-1016	BRL	1000	U
Aroclor-1221	BRL	1000	U
Aroclor-1232	BRL	1000	U
Aroclor-1242	BRL	1000	U
Aroclor-1248	BRL	1000	U
Aroclor-1254	BRL	2000	U
Aroclor-1260	BRL	2000	U

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Attn: **Mr. Dewayne Smith**

Date: Friday February 28th, 1997

RE: **CB MPUC C6 03**
Project # 03886-136-005-9999
Lab ID: **9702G980-004**
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	5.1	U
beta-BHC	BRL	5.1	U
delta-BHC	BRL	5.1	U
gamma-BHC (Lindane)	BRL	5.1	U
Heptachlor	BRL	5.1	U
Aldrin	BRL	5.1	U
Heptachlor epoxide	BRL	5.1	U
Endosulfan I	BRL	5.1	U
Dieldrin	BRL	10	U
4,4'-DDE	BRL	10	U
Endrin	BRL	10	U
Endosulfan II	BRL	10	U
4,4'-DDD	BRL	10	U
Endosulfan sulfate	BRL	10	U
4,4'-DDT	BRL	10	U
Methoxychlor	BRL	51	U
Endrin ketone	BRL	10	U

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Attn: **Mr. Dewayne Smith**

Date: Friday February 28th, 1997

RE: **CB MPUC C6 03**
Project # 03886-136-005-9999
Lab ID: **9702G980-004**
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	51	U
gamma-Chlordane	BRL	51	U
Toxaphene	BRL	100	U
Endrin aldehyde	BRL	10	U
Aroclor-1016	BRL	51	U
Aroclor-1221	BRL	51	U
Aroclor-1232	BRL	51	U
Aroclor-1242	BRL	51	U
Aroclor-1248	BRL	51	U
Aroclor-1254	BRL	100	U
Aroclor-1260	BRL	100	U

Weston Environmental Metrics, Inc.
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Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday February 28th, 1997

RE: CB MPUC C6 03
Project # 03886-136-005-9999
Lab ID: 9702G980-004 RE
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	5.1	U
beta-BHC	BRL	5.1	U
delta-BHC	BRL	5.1	U
gamma-BHC (Lindane)	BRL	5.1	U
Heptachlor	BRL	5.1	U
Aldrin	BRL	5.1	U
Heptachlor epoxide	BRL	5.1	U
Endosulfan I	BRL	5.1	U
Dieldrin	BRL	10	U
4,4'-DDE	BRL	10	U
Endrin	BRL	10	U
Endosulfan II	BRL	10	U
4,4'-DDD	BRL	10	U
Endosulfan sulfate	BRL	10	U
4,4'-DDT	BRL	10	U
Methoxychlor	BRL	51	U
Endrin ketone	BRL	10	U

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Attn: Mr. Dewayne Smith

Date: Friday February 28th, 1997

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Project # 03886-136-005-9999
Lab ID: 9702G980-004 RE
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	51	U
gamma-Chlordane	BRL	51	U
Toxaphene	BRL	100	U
Endrin aldehyde	BRL	10	U
Aroclor-1016	BRL	51	U
Aroclor-1221	BRL	51	U
Aroclor-1232	BRL	51	U
Aroclor-1242	BRL	51	U
Aroclor-1248	BRL	51	U
Aroclor-1254	BRL	100	U
Aroclor-1260	BRL	100	U

Sample Information	Cust ID:	CB MPUC C6	CB MPUC C6 01	CB MPUC C6 02	CB MPUC C6 03	CB MPUC C6 03	PBLKZW
	RFW#:	001	002	003	004	004 RE	97GP0121-MB1
	Matrix:	WATER	SOIL	SOIL	SOIL	SOIL	WATER
	D.F.:	2.0	5.0	5.0	0.50	0.50	1.0
	Units:	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L
Surrogate:	Tetrachloro-m-xylene	95 %	75 %	95 %	15 * %	15 * %	85 %
	Decachlorobiphenyl	75 %	115 %	85 %	20 * %	20 * %	95 %
alpha-BHC		0.10 U	150 U	100 U	5.1 U	5.1 U	0.050 U
beta-BHC		0.10 U	150 U	100 U	5.1 U	5.1 U	0.050 U
delta-BHC		0.10 U	150 U	100 U	5.1 U	5.1 U	0.050 U
gamma-BHC (Lindane)		0.10 U	150 U	100 U	5.1 U	5.1 U	0.050 U
Heptachlor		0.10 U	150 U	100 U	5.1 U	5.1 U	0.050 U
Aldrin		0.10 U	150 U	100 U	5.1 U	5.1 U	0.050 U
Heptachlor epoxide		0.10 U	150 U	100 U	5.1 U	5.1 U	0.050 U
Endosulfan I		0.10 U	150 U	100 U	5.1 U	5.1 U	0.050 U
Dieldrin		0.20 U	300 U	200 U	10 U	10 U	0.10 U
4,4'-DDE		0.20 U	27 J	200 U	10 U	10 U	0.10 U
Endrin		0.20 U	300 U	200 U	10 U	10 U	0.10 U
Endosulfan II		0.20 U	300 U	200 U	10 U	10 U	0.10 U
4,4'-DDD		0.20 U	300 U	200 U	10 U	10 U	0.10 U
Endosulfan sulfate		0.20 U	300 U	200 U	10 U	10 U	0.10 U
4,4'-DDT		0.20 U	110	200 U	10 U	10 U	0.10 U
Methoxychlor		1.0 U	1500 U	1000 U	51 U	51 U	0.50 U
Endrin ketone		0.20 U	300 U	200 U	10 U	10 U	0.10 U
alpha-Chlordane		1.0 U	1500 U	1000 U	51 U	51 U	0.50 U
gamma-Chlordane		1.0 U	1500 U	1000 U	51 U	51 U	0.50 U
Toxaphene		2.0 U	3000 U	2000 U	100 U	100 U	1.0 U
Endrin aldehyde		0.20 U	300 U	200 U	10 U	10 U	0.10 U
Aroclor-1016		1.0 U	1500 U	1000 U	51 U	51 U	0.50 U
Aroclor-1221		1.0 U	1500 U	1000 U	51 U	51 U	0.50 U
Aroclor 1232		1.0 U	1500 U	1000 U	51 U	51 U	0.50 U
Aroclor 1242		1.0 U	1500 U	1000 U	51 U	51 U	0.50 U
Aroclor-1248		1.0 U	1500 U	1000 U	51 U	51 U	0.50 U
Aroclor-1254		2.0 U	3000 U	2000 U	100 U	100 U	1.0 U
Aroclor-1260		2.0 U	3000 U	2000 U	100 U	100 U	1.0 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Sample Information	Cust ID:	PBLKZW BS	PBLKZW BSD	PBLKZY	PBLKZY BS	PBLKZY BSD
	RFW#:	97GP0121-MB1	97GP0121-MB1	97GP0115-MB1	97GP0115-MB1	97GP0115-MB1
	Matrix:	WATER	WATER	SOIL	SOIL	SOIL
	D.F.:	1.0	1.0	0.50	0.50	0.50
	Units:	ug/L	ug/L	ug/Kg	ug/Kg	ug/Kg
Surrogate: Tetrachloro-m-xylene		85 %	85 %	90 %	80 %	85 %
Decachlorobiphenyl		85 %	95 %	100 %	95 %	100 %
alpha-BHC		100 %	105 %	4.0 U	80 %	85 %
beta-BHC		110 %	115 %	4.0 U	95 %	100 %
delta-BHC		115 %	115 %	4.0 U	100 %	105 %
gamma-BHC (Lindane)		105 %	110 %	4.0 U	85 %	90 %
Heptachlor		100 %	95 %	4.0 U	90 %	95 %
Aldrin		85 %	85 %	4.0 U	85 %	90 %
Heptachlor epoxide		105 %	105 %	4.0 U	85 %	85 %
Endosulfan I		100 %	100 %	4.0 U	80 %	85 %
Dieldrin		90 %	95 %	8.0 U	70 %	75 %
4,4'-DDE		80 %	90 %	8.0 U	70 %	70 %
Endrin		105 %	105 %	8.0 U	85 %	90 %
Endosulfan II		100 %	105 %	8.0 U	85 %	90 %
4,4'-DDD		105 %	110 %	8.0 U	80 %	85 %
Endosulfan sulfate		100 %	105 %	8.0 U	80 %	85 %
4,4'-DDT		55 %	60 %	8.0 U	80 %	85 %
Methoxychlor		75 %	80 %	40 U	105 %	110 %
Endrin ketone		95 %	100 %	8.0 U	90 %	95 %
alpha-Chlordane		0.50 U	0.50 U	40 U	40 U	40 U
gamma-Chlordane		0.50 U	0.50 U	40 U	40 U	40 U
Toxaphene		1.0 U	1.0 U	80 U	80 U	80 U
Endrin aldehyde		120 %	120 %	8.0 U	75 %	95 %
Aroclor-1016		0.50 U	0.50 U	40 U	40 U	40 U
Aroclor-1221		0.50 U	0.50 U	40 U	40 U	40 U
Aroclor-1232		0.50 U	0.50 U	40 U	40 U	40 U
Aroclor-1242		0.50 U	0.50 U	40 U	40 U	40 U
Aroclor-1248		0.50 U	0.50 U	40 U	40 U	40 U
Aroclor-1254		1.0 U	1.0 U	80 U	80 U	80 U
Aroclor-1260		1.0 U	1.0 U	80 U	80 U	80 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Weston Environmental Metrics. Inc.
HPAH ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G980

CLIENT ID	RFW #	MTX	PREP #	COLLECTN DATE	REC EXT/PREP	ANALYSIS
CB MPUC C6	001	W	97GP0120	02/06/97	02/11/97	02/12/97	02/24/97
CB MPUC C6 01	002	S	97GP0116	02/06/97	02/11/97	02/12/97	02/24/97
CB MPUC C6 02	003	S	97GP0116	02/06/97	02/11/97	02/12/97	02/24/97
CB MPUC C6 03	004	S	97GP0116	02/06/97	02/11/97	02/12/97	02/24/97
LAB QC:							
BLK	MB1	W	97GP0120	N/A	N/A	02/12/97	02/24/97
BLK	MB1 BS	W	97GP0120	N/A	N/A	02/12/97	02/24/97
BLK	MB1 BSD	W	97GP0120	N/A	N/A	02/12/97	02/24/97
BLK	MB1	S	97GP0116	N/A	N/A	02/12/97	02/24/97
BLK	MB1 BS	S	97GP0116	N/A	N/A	02/12/97	02/24/97
BLK	MB1 BSD	S	97GP0116	N/A	N/A	02/12/97	02/24/97

SIGNATURE Linda S Mackley DATE 2-28-97

NY CERTIFICATION # 11006

WESTON

WESTON ENVIRONMENTAL METRICS, INC.
PAH CASE NARRATIVE

USACE-Jacksonville
RFW# 9702G980-001\004
PAHs

1. Weston EMI uses the following High Performance Liquid Chromatographic system for analysis of polynuclear aromatic hydrocarbons:

ID#	INSTRUMENT	COLUMN TYPE	DETECTOR
39	HP 1100	C-18 PAH	UV - 254nm
40	HP 1100	C-18 PAH	Fluorescence

2. These samples were extracted based on SW846 method 3550 and 3510. The extracts were analyzed for PAHs (i.e. PNAs) based on SW846 method 8310 protocols.

3. All required holding times were met for the extraction and analysis.

4. The method blanks were below the reporting limit for all target compounds.

5. The surrogate compounds used for this analysis were Decafluorobiphenyl and Benzo(e)pyrene. All surrogate recoveries were within control limits, with the exception of those which were diluted out.

6. A blank spike and blank spike duplicate analysis were performed for both the soils and the water. All blank spike and blank spike duplicate recoveries associated with the water were within control limits, with the exception of Dibenzo(a,h)anthracene which had recoveries of 111% and 110%. All blank spike and blank spike duplicate recoveries associated with the soils were within control limits, with the exception of Acenaphthylene in the blank spike duplicate which had 69% recovery.

7. There was no designated matrix spike and matrix spike duplicate associated with this SDG.

8. All initial and continuing standard calibrations associated with these samples were within control limits.

Linda S Mackley
Linda S. Mackley
Organics Section Manager

2-28-97
Date

WESTON Environmental Metrics, Inc. Method Reference

The following methods are used as reference for the analysis of samples contained within this RFW Lot :

GC/HPLC METHODS

Pesticides/PCBs	____ SW-846 8080A ____ SW-846 8081 ____ 40 CFR Part 136, Method 608 ____ OLM01.8/1.9 ____ OLM03.0
Organophosphorus Pesticides	____ SW-846 8141A
Herbicides	____ SW-846 8150B
Cresols	____ SW-846 8040A
Cresols/Pyridine	____ SW-846 8040A Mod
Explosives	____ SW-846 8330
Polynuclear Aromatics	_X_ SW-846 8310 ____ 40 CFR Part 136, Method 610
Petroleum Hydrocarbons	____ SW-846 8015A Mod ____ California LUFT ____ Other _____
EDB & DBCP	____ EPA Method 504.1

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
® 708-534-5200 • Fax 708-534-5211

ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday February 28th, 1997

RE: **CB MPUC C6**
Project # 03886-136-005-9999
Lab ID: **9702G980-001**
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/L

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	0.50	U
Acenaphthylene	BRL	0.50	U
Acenaphthene	BRL	1.0	U
Fluorene	BRL	0.13	U
Phenanthrene	BRL	0.50	U
Anthracene	0.020	0.025	J
Fluoranthene	BRL	0.25	U
Pyrene	BRL	0.50	U
Benzo(a)anthracene	BRL	0.10	U
Chrysene	BRL	0.50	U
Benzo(b)fluoranthene	BRL	0.13	U
Benzo(k)fluoranthene	BRL	0.050	U
Benzo(a)pyrene	BRL	0.050	U
Dibenzo(a,h)anthracene	BRL	0.25	U
Benzo(g,h,i)perylene	BRL	0.25	U
Indeno(1,2,3-cd)pyrene	BRL	0.12	U

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University Park, Illinois 60466-3182
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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday February 28th, 1997

RE: **CB MPUC C6 01**
Project # 03886-136-005-9999
Lab ID: **9702G980-002**
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	8900	3100	
Acenaphthylene	BRL	3100	U
Acenaphthene	BRL	6200	U
Fluorene	BRL	770	U
Phenanthrene	BRL	3100	U
Anthracene	BRL	150	U
Fluoranthene	2400	1500	
Pyrene	BRL	3100	U
Benzo(a)anthracene	BRL	620	U
Chrysene	BRL	3100	U
Benzo(b)fluoranthene	2500	770	
Benzo(k)fluoranthene	200	310	J
Benzo(a)pyrene	710	310	
Dibenzo(a,h)anthracene	BRL	1500	U
Benzo(g,h,i)perylene	BRL	1500	U
Indeno(1,2,3-cd)pyrene	BRL	740	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday February 28th, 1997

RE: **CB MPUC C6 02**
Project # 03886-136-005-9999
Lab ID: **9702G980-003**
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	70	100	J
Acenaphthylene	BRL	100	U
Acenaphthene	BRL	210	U
Fluorene	66	26	
Phenanthrene	BRL	100	U
Anthracene	5.9	5.3	
Fluoranthene	220	53	
Pyrene	BRL	100	U
Benzo(a)anthracene	BRL	21	U
Chrysene	BRL	100	U
Benzo(b)fluoranthene	85	26	
Benzo(k)fluoranthene	12	10	
Benzo(a)pyrene	49	10	
Dibenzo(a,h)anthracene	130	53	
Benzo(g,h,i)perylene	BRL	53	U
Indeno(1,2,3-cd)pyrene	40	25	

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday February 28th, 1997

RE: **CB MPUC C6 03**
Project # 03886-136-005-9999
Lab ID: **9702G980-004**
Sample Date: 02/06/97
Date Received: 02/11/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	11	U
Acenaphthylene	BRL	11	U
Acenaphthene	BRL	22	U
Fluorene	BRL	2.7	U
Phenanthrene	BRL	11	U
Anthracene	0.43	0.54	J
Fluoranthene	7.6	5.4	
Pyrene	BRL	11	U
Benzo(a)anthracene	2.8	2.2	
Chrysene	BRL	11	U
Benzo(b)fluoranthene	6.7	2.7	
Benzo(k)fluoranthene	1.3	1.1	
Benzo(a)pyrene	2.6	1.1	
Dibenzo(a,h)anthracene	12	5.4	
Benzo(g,h,i)perylene	BRL	5.4	U
Indeno(1,2,3-cd)pyrene	BRL	2.6	U

Weston Environmental Metrics, Inc. (Gulf Coast)
PAHs BY HPLC

RFW Batch Number: 9/02G980 Client: USACE-Jacksonville Work Order: 03886-136-005-9 Report Date: 02/25/97 10:49 Page: 1

45

	Cust ID:	CB MPUC C6		CB MPUC C6 01		CB MPUC C6 02		CB MPUC C6 03		BLK		BLK BS	
Sample Information	RFW#:	001		002		003		004		97GP0120-MB1		97GP0120-MB1	
	Matrix:	WATER		SOIL		SOIL		SOIL		WATER		WATER	
	D.F.:	1.0		100		5.0		1.0		1.0		1.0	
	Units:	ug/L		ug/Kg		ug/Kg		ug/Kg		ug/L		ug/L	
Surrogate	Decafluorobiphenyl	76	%	D	%	83	%	56	%	38	%	80	%
	Benzo(e)pyrene	88	%	D	%	147	%	90	%	94	%	97	%
Naphthalene		0.50	U	8900		70	J	11	U	0.50	U	92	%
Acenaphthylene		0.50	U	3100	U	100	U	11	U	0.50	U	90	%
Acenaphthene		1.0	U	6200	U	210	U	22	U	1.0	U	90	%
Fluorene		0.13	U	770	U	66		2.7	U	0.12	U	100	%
Phenanthrene		0.50	U	3100	U	100	U	11	U	0.50	U	100	%
Anthracene		0.020	J	150	U	5.9		0.43	J	0.025	U	88	%
Fluoranthene		0.25	U	2400		220		7.6		0.25	U	100	%
Pyrene		0.50	U	3100	U	100	U	11	U	0.50	U	97	%
Benzo(a)anthracene		0.10	U	620	U	21	U	2.8		0.10	U	88	%
Chrysene		0.50	U	3100	U	100	U	11	U	0.50	U	85	%
Benzo(b)fluoranthene		0.13	U	2500		85		6.7		0.12	U	120	%
Benzo(k)fluoranthene		0.050	U	200	J	12		1.3		0.050	U	102	%
Benzo(a)pyrene		0.050	U	710		49		2.6		0.050	U	98	%
Dibenzo(a,h)anthracene		0.25	U	1500	U	130		12		0.25	U	111	* %
Benzo(g,h,i)perylene		0.25	U	1500	U	53	U	5.4	U	0.25	U	103	%
Indeno(1,2,3-cd)pyrene		0.12	U	740	U	40		2.6	U	0.12	U	88	%

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

LSM 2-28-97

Sample Information	Cust ID:	BLK BSD	BLK	BLK BS	BLK BSD
	RFW#:	97GP0120-MB1	97GP0116-MB1	97GP0116-MB1	97GP0116-MB1
	Matrix:	WATER	SOIL	SOIL	SOIL
	D.F.:	1.0	1.0	1.0	1.0
	Units:	ug/L	ug/Kg	ug/Kg	ug/Kg
Surrogate	Decafluorobiphenyl	80 %	83 %	71 %	66 %
	Benzo(e)pyrene	102 %	92 %	92 %	94 %
Naphthalene		91 %	8.3 U	80 %	76 %
Acenaphthylene		92 %	8.3 U	75 %	69 * %
Acenaphthene		94 %	17 U	73 %	70 %
Fluorene		96 %	2.1 U	88 %	77 %
Phenanthrene		100 %	8.3 U	79 %	75 %
Anthracene		92 %	0.42 U	72 %	72 %
Fluoranthene		101 %	4.2 U	85 %	85 %
Pyrene		101 %	8.3 U	85 %	85 %
Benzo(a)anthracene		92 %	1.7 U	81 %	84 %
Chrysene		88 %	8.3 U	78 %	78 %
Benzo(b)fluoranthene		123 %	2.1 U	112 %	113 %
Benzo(k)fluoranthene		104 %	0.83 U	88 %	92 %
Benzo(a)pyrene		104 %	0.83 U	84 %	92 %
Dibenzo(a,h)anthracene		110 * %	4.2 U	96 %	96 %
Benzo(g,h,i)perylene		104 %	4.2 U	91 %	97 %
Indeno(1,2,3-cd)pyrene		90 %	2.0 U	82 %	84 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Weston Environmental Metrics, Inc.

RFW#: 9702G980

Sample Discrepancy Report (SDR)

Client: USACE - Jacksonville
Contact: Tim Frinall
Project: —
Phone #: 334 826-6100
FAX #: -8232

Analyses: 0608H

Matrix: Water (Soil) Other

Deliverable Type: (circle)
CLP (STD) SPEC

COC received: Yes No

Quote from PM: Yes No

1.a. Type of Sample Discrepancy

COC / Sample		LOG-IN	Client	Unit
ID Discrepancy	Rec'd past hold time	Log-in past hold time	Changed Analyses	Analyzed past hold time
Date Discrepancy	Improper Preserv.	Log-in Error	Improper bottle type	Missing sample/extract
Incomplete	Missing sample/extract		Label unreadable	Insufficient sample
Unreadable	Container broken		Insufficient sample	
Cooler temp. _____ C	- sample lost			
Quote Discrepancy	- suspect contamination			
	Bubbles in VOA vials			
				EDD

1.b. Lab ID (COC/Client ID) Deficiency/Discrepancy

[illegible]

Re-Run with similar results
Blanks spike & dup all in Control

Sample collected 2-6-97, HT up 2-20-97

Initiator sign: P. Anderson Date: 2/21/97

2.a. PM Establish Action Plan:

Cancel	Bottle/jar replaced	Change Test Code from _____ to _____
Add	Lid replaced	Change Due Date from _____ to _____
Place on hold	Analyze samples	Include in Case Narrative
Log-in	Analyze Past Hold	Amend EDD
Subcontract	Preserve then Analyze	

2.b. Special Action:

Name:		Action Initiator Initial & Date:		Action Completion Initial & Date:	
GC	Report both results and narrate	LSM	2-21-97	LSM	2-28-97

3. Receipt of Copies: (INITIAL AND DATE)

1. GC	4. W.C.
2. GC/MS	5. Digest.
3. Metals	6. Extract.

Distribution and Copy to QA: 3/5/97 TMB

4. PM Final Approval of All Actions Taken:

X Send copy to Client

Signature: [signature] Date: 2-28-97

QA For Quality Measurement Only:

Final Distribution - Attach original to worksheet and send a copy to QA

Revision Date: 8/29/95
RFW 21-21G-0007/B-8/95

C:\MSOFFICE\EXCEL\SDRSDR\SDR.XLS

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

45

Client: USACOE Jacksonville
Est. Final Proj. Sampling Date:
Work Order #: 3886 136 005
Project Contact/Phone #: Dewayne Smith 334 826 6105
AD Project Manager:
QC: Del: TAT: STD
Date Rec'd: Date Due:
Account #:

Refrigerator #

#/Type Container	Liquid	1
	Solid	1
Volume	Liquid	1L
	Solid	4oz
Preservatives		HCl

ANALYSES REQUESTED →

ORGANIC: VOA | BNA | Pest/PCB | [redacted] | [redacted] | LEAD | Hg

INORG: Metal | CN | TOC | O+G | SULF | TOTAL SOLIDS

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only
001	CB MPUC C6			W	2/6/92	13:00	X X X X X X
002	CB MPUC C6 01			S	2/6/92	13:30	X X X X X X
003	CB MPUC C6 02			S	2/6/92	15:00	X X X X X X
004	CB MPUC C6 03			S	2/6/92	15:35	X X X X X X

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Lead confirm 1
Hg 7471/7470
1 L
Bill
Tox
Cyanide 9010/9012
Sulfide 9030/376.1
SEE TAMS WORK QUOTE

DATE/REVISIONS:
1.
2.
3.
4. 1.3°C
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped FedEx
Hand Delivered
Airbill #
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
#3316
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Relinquished by	Received by	Date	Time
[redacted]	FEDEX	10-[illegible]-92	12:[illegible]
		[illegible]-[illegible]-92	[illegible]

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
708-534-5200 • Fax 708-534-5211

March 10, 1997

Mr. Dewayne Smith
Roy F. Weston, Inc.
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Work Order No. 03886-136-005-9999

RE: USACE-Jacksonville
Analytical Report & EDD
RFW Lot 9702G935

Dear Mr. Smith:

Enclosed is the Analytical Report for the Project and RFW Lot listed above. If you have any questions, please contact me at 708-534-5200.

Very truly yours,

Weston Environmental Metrics, Inc.

for Jane D. Huber
Project Manager

km

Enclosures

Approved By:

Michael J. Healy
Vice President/Laboratory Manager

The results presented in this report relate only to the analytical testing and conditions of sample at receipt. This report pertains to only those samples actually tested. All 51 pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

GLOSSARY OF DATA QUALIFIERS AND ABBREVIATIC

Data Qualifiers

B	Compound was found in the blank and the sample
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis. also compounds analyzed at a dilution will be flagged with a D
E	Concentration exceeds the instrument calibration range and was subsequently diluted
I	Appears on the "results spreadsheet" to indicate an interference
J	Result is an estimated value below the reporting limit or a tentatively identified compound (TIC)
M	Summary Compound
(M)	Manually integrated compound
N	Positive ID of a TIC that is not quantitated against a standard and must be accompanied by a CAS No.
T	Compound was found in the TCLP extraction blank and the sample
u	Analyte was not detected at or above the reporting limit
X	Result obtained indirectly through calculation based on results from other analyses

Abbreviations

Batch	Designation given to identify a specific extraction. digestion or preparation set (equivalent to prep batch)
BS	Blank spike analysis was conducted on reagent grade water or a matrix free from the analyte of interest
BSD	Blank spike duplicate
BRL	Below reporting limit
CAP	Capillary Column
CD	Calculation factor used by the Laboratory's Information Management System (LIMS)
Contract	Contract laboratory identification code
DF	Dilution factor
DL	Appears in the sample ID to indicate a secondary dilution was performed
LCS/LC	Denotes laboratory control standard
LAB ID	The full 12 character Weston laboratory identification number (equivalent to RFW#)
MB	Method blank or (PB) preparation blank
MS	Matrix spike
MSD	Matrix spike duplicate
NA	Not applicable
NC	Non-calculable precision due to insufficient concentration of analyte present in the sample
NR	Not required
NS	Not spiked
PACK	Packed Column
RE	Appears in the sample ID to indicate a re-analysis
REP	Replicate analysis
Reprep	Sample was reprepared and then reanalyzed
RFW#	The full 12 character WESTON laboratory identification number (equivalent to LAB ID)
RFW Lot	The first 8 characters of the RFW#
RPD	Relative percent difference of duplicate (unrounded) analyses
RRF	Relative response factor
RT	Retention time
RTW	Retention time window
SP	Blank spike, blank spike duplicate, matrix spike or matrix spike duplicate
WO#	Work order no. WESTON code used to define a specific client, job, phase and task

NOTES:

- One or a combination of these data qualifiers and abbreviations may appear in the analytical report.
- Soil. sediment and sludge results are reported on a dry weight basis except when analyzed for landfill disposal or incineration parameters. All other results on a solid matrix are reported on an "as received" basis unless noted differently.
- Reporting limits are adjusted for preparation sample size, sample dilutions and sample moisture content if analyzed on a dry weight basis.

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G935

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
CB MPUC C101							
TOTAL ORGANIC CARBON	001	S	97GMC031	02/05/97	02/07/97	02/10/97	02/10/97
TOTAL ORGANIC CARBON	001 REP	S	97GMC031	02/05/97	02/07/97	02/10/97	02/10/97
TOTAL ORGANIC CARBON	001 MS	S	97GMC031	02/05/97	02/07/97	02/10/97	02/10/97
OIL & GREASE BY GRAV	001	S	97GGR014	02/05/97	02/07/97	02/20/97	02/21/97
OIL & GREASE BY GRAV	001 REP	S	97GGR014	02/05/97	02/07/97	02/20/97	02/21/97
OIL & GREASE BY GRAV	001 MS	S	97GGR014	02/05/97	02/07/97	02/20/97	02/21/97
SULFIDE	001	S	97GSF008	02/05/97	02/07/97	02/11/97	02/11/97
SULFIDE	001 REP	S	97GSF008	02/05/97	02/07/97	02/11/97	02/11/97
SULFIDE	001 MS	S	97GSF008	02/05/97	02/07/97	02/11/97	02/11/97
SULFIDE	001 MSD	S	97GSF008	02/05/97	02/07/97	02/11/97	02/11/97
CB MPUC C102							
TOTAL ORGANIC CARBON	002	S	97GMC031	02/05/97	02/07/97	02/10/97	02/10/97
OIL & GREASE BY GRAV	002	S	97GGR014	02/05/97	02/07/97	02/20/97	02/21/97
SULFIDE	002	S	97GSF008	02/05/97	02/07/97	02/11/97	02/11/97
CB MPUC C103							
TOTAL ORGANIC CARBON	003	S	97GMC031	02/05/97	02/07/97	02/10/97	02/10/97
OIL & GREASE BY GRAV	003	S	97GGR014	02/05/97	02/07/97	02/20/97	02/21/97
SULFIDE	003	S	97GSF008	02/05/97	02/07/97	02/11/97	02/11/97
CB MPUC C1							
OIL & GREASE BY GRAV	004	W	97GGR010	02/05/97	02/07/97	02/10/97	02/10/97
SULFIDE	004	W	97GSF009	02/05/97	02/07/97	02/11/97	02/11/97
SULFIDE	004 REP	W	97GSF009	02/05/97	02/07/97	02/11/97	02/11/97
SULFIDE	004 MS	W	97GSF009	02/05/97	02/07/97	02/11/97	02/11/97
TOTAL SOLIDS	004	W	97GSD030	02/05/97	02/07/97	02/12/97	02/12/97
TOTAL SOLIDS	004 REP	W	97GSD030	02/05/97	02/07/97	02/12/97	02/12/97

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G935

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC EXT/PREP	ANALYSIS
TOTAL ORGANIC CARBON	LCS BS	W	97GMC031	N/A	N/A	02/10/97 02/10/97
TOTAL ORGANIC CARBON	LCS BSD	W	97GMC031	N/A	N/A	02/10/97 02/10/97
TOTAL ORGANIC CARBON	MB1	W	97GMC031	N/A	N/A	02/10/97 02/10/97
OIL & GREASE BY GRAV	LCS BS	W	97GGR014	N/A	N/A	02/20/97 02/21/97
OIL & GREASE BY GRAV	LCS BSD	W	97GGR014	N/A	N/A	02/20/97 02/21/97
OIL & GREASE BY GRAV	MB1	W	97GGR014	N/A	N/A	02/20/97 02/21/97
SULFIDE	LCS BS	W	97GSF008	N/A	N/A	02/11/97 02/11/97
SULFIDE	LCS BSD	W	97GSF008	N/A	N/A	02/11/97 02/11/97
SULFIDE	MB1	W	97GSF008	N/A	N/A	02/11/97 02/11/97
OIL & GREASE BY GRAV	LCS BS	W	97GGR010	N/A	N/A	02/10/97 02/10/97
OIL & GREASE BY GRAV	LCS BSD	W	97GGR010	N/A	N/A	02/10/97 02/10/97
OIL & GREASE BY GRAV	MB1	W	97GGR010	N/A	N/A	02/10/97 02/10/97
SULFIDE	LCS BS	W	97GSF009	N/A	N/A	02/11/97 02/11/97
SULFIDE	LCS BSD	W	97GSF009	N/A	N/A	02/11/97 02/11/97
SULFIDE	MB1	W	97GSF009	N/A	N/A	02/11/97 02/11/97
TOTAL SOLIDS	LCS BS	W	97GSD030	N/A	N/A	02/12/97 02/12/97
TOTAL SOLIDS	LCS BSD	W	97GSD030	N/A	N/A	02/12/97 02/12/97
TOTAL SOLIDS	MB1	W	97GSD030	N/A	N/A	02/12/97 02/12/97

SIGNATURE Diane L Harper DATE 3/7/97

NY CERTIFICATION # 11006

Environmental Metrics, Inc.
WET CHEMISTRY METHOD REFERENCE

The following methods are used as reference for the analysis of samples contained with RFW Lot: 97026-935

PARAMETER	EPA 600	STANDARD METHODS	SW846	OTHER
%Water Karl Fisher				__ASTM D4377
%Water Dean Stark				__ASTM D95
Acidity	__ 305.1	__ 2310B		
Alkalinity,Total,Carbonate, Bicarbonate	__ 310.1	__ 2320B		
Ammonia (Dist/Nesslers)	__ 350.2	__ 4500NH_3C		
Biochemical Oxygen Demand	__ 405.1	__ 5210B		
Bottom Sediment & Water				__ASTM D4007
BTU				__ASTM D240
Bromide	__ 300.0	__ 4110B	__ 9056	
Bromine	__ 300.0 Detection		__ 5050 Prep	
Chemical Oxygen Demand				__HACH 8000
Chloride	__ 325.2	__ 4500C1E	__ 9251	
	__ 300.0	__ 4110B	__ 9056	
Chlorine (O_2Bomb)	__ 300.0 Detection		__ 5050 Prep	__ISE Detection
Chlorine, Residual	__ 330.4	__ 4500C1F		
Chromium VI		__ 3500CrD	__ 3060 Digestion	
			__ 7196A	
Color	__ 110.2	__ 2120B		
Corrosivity, pH	__ 150.1		__ 9045C	
			__ 9040A	
Corrosivity, Langlier		__ 2330A+B		
Cyanide, Amenable	__ 335.1	__ 4500CNG	__ 9010A	
Cyanide, Weak, Dissociable		__ 4500CNI		
Cyanide, Reactive			__ 7.3.3.2	
Cyanide, Total	__ 335.2	__ 4500CNC	__ 9010A	__ILM03.0
Density/Specific Gravity		__ 2710F		__ASTM D1298
				__ASTM D5057
Ext. Organic Halogens				__Dohrmann
Flashpoint			__ 1010	__ASTM D93
				__ASTM D92
Fluoride __ Distilled	__ 340.2	__ 4500 FC	__ 9056	
__ Undistilled	__ 300.0			
Fluorine	__ 340.2 Detection		__ 5050 Prep	
	__ 300.0 Detection			
Hardness	__ 130.2	__ 2340C		
		__ 2340B		
Heavy Metals				__USP 231
Ignitability			__ Sec. 7	__ASTM D-4982A
MBAS (Surfactants)	__ 425.1	__ 5540 C		
Nitrate/Nitrite	__ 353.2	__ 4500NO_3F		
Nitrate	__ 353.2 -354.1	__ 4110B	__ 9056	
	__ 300.0			
Nitrite	__ 354.1	__ 4500NO_2B	__ 9056	
	__ 300.0	__ 4110B		
Odor	__ 140.1	__ 2150B		
Oil & Grease	✓413.1	__5520B	✓9070	
Oil & Grease, IR	__413.2	__5520C		

Environmental Metrics, Inc.
WET CHEMISTRY METHOD REFERENCE

The following methods are used as reference for the analysis of samples contained with RFW Lot: 4702G-935

PARAMETER	EPA 600	STANDARD METHODS	SW846	OTHER
Oil & Grease, Soxhlet		__ 5520D	__ 9071A	
		__ 5520E		
Oxygen, Dissolved	__ 360.1 Electrode	__ 4500OG		
	__ 360.2 Winkler	__ 4500OC		
Paint Filters (Free Liquid)			__ 9095	
Petroleum Hydrocarbons	__ 418.1	__ 5520F	__ 9071A Extract.	
pH, Water	__ 150.1	__ 4500H^+B	__ 9040B	
pH, Soil			__ 9045C	
			__ 9041A Paper	
Phenolics	__ 420.2		__ 9066	
Orthophosphate as P	__ 365.2	__ 4500PE	__ 9056	
	__ 300.0	__ 4110B		
Phosphorus as P	__ 365.2	__ 4500PE		
	__ 365.4			
Residue on Evaporation 180C	__ 160.1 Modified	__ 2540C Modified		
Solids, Settleable	__ 160.5	__ 2540F		
Solids, Total	✓ 160.3	__ 2540B		
Solids, Total Dissolved	__ 160.1	__ 2540C		
Solids, Total Suspended	__ 160.2	__ 2540D		
Solids, Total Volatile	__ 160.4	__ 2540E		
Solids, Dissolved Volatile	__ 160.4	__ 2540E		
Solids, Suspended Volatile	__ 160.4	__ 2540E		
Soluble Organic Carbon	__ 415.1	__ 5310C		
Specific Conductance	__ 120.1	__ 2510B		
Sulfate	__ 375.4	__ 4500SO_4^{2-}E	__ 9038	
	__ 300.0	__ 4110B	__ 9056	
Sulfide	__ 376.1	__ 4500S^{2-}E	✓ 9030A Mod	
Sulfide, Reactive			__ 7.3.4.2	
Sulfur	__ 375.4 Detection		__ 5050Prep	
	__ 300.0 Detection			
Total Kjeldahl Nitrogen	__ 351.3	__ 4500N_{ORG}C		
Total Inorganic Carbon	__ 415.1	__ 5310C		
Total Organic Carbon	__ 415.1	__ 5310C	__ 9060 Quads	✓ Walkley-Black
Total Organic Halogens		__ 5320B	__ 9020B	
Total Org Halogens on Waste	__ 325.2 Detection		__ 5050prep	__ ISE Detection
	__ 300.0 Detection			
Turbidity	__ 180.1	__ 2130B		
Viscosity, Brookfield				__ ASTM D2196
Viscosity, Kinematic				__ ASTM D445
Coliform, Fecal		__ 9222D		
Coliform, Total		__ 9222A,B,C(MF)		
		__ 9223B Colilert		
Heterotrophic Plate Count		__ 9215B		
MPN		__ 9221E		

Comments:

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

RE: **CB MPUC C101**
Project # 03886-136-005-9999
Lab ID: **9702G935-001**
Sample Date: 02/05/97
Date Received: 02/07/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	10.4	%	2.9
Oil & Grease, Grav.	10800	mg/kg	2970
Sulfide	2440	mg/kg	75.8

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

RE: **CB MPUC C102**
Project # 03886-136-005-9999
Lab ID: **9702G935-002**
Sample Date: 02/05/97
Date Received: 02/07/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	11.7	%	3.4
Oil & Grease, Grav.	6910	mg/kg	2830
Sulfide	1020	mg/kg	70.2

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

RE: CB MPUC C103
Project # 03886-136-005-9999
Lab ID: **9702G935-003**
Sample Date: 02/05/97
Date Received: 02/07/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	10.2	%	4.1
Oil & Grease, Grav.	8200	mg/kg	3200
Sulfide	2670	mg/kg	72.3

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

RE: CB MPUC C1
Project # 03886-136-005-9999
Lab ID: 9702G935-004
Sample Date: 02/05/97
Date Received: 02/07/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Oil & Grease, Grav.	5.5	u	mg/L	5.5
Sulfide	1.0	u	mg/L	1.0
Total Solids	28400		mg/L	10.0

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: **9702G935**

Inorganic Method Blank Data Report

Sample	Lab ID	Parameter	Result		Units	Reporting Limit
Blank 1	97GMC031-MB1	Total Organic Carbon	0.050	u	%	0.050
Blank 1	97GGR014-MB1	Oil & Grease, Grav.	50.0	u	mg/L	50.0
Blank 1	97GSF008-MB1	Sulfide	1.0	u	mg/L	1.0
Blank 1	97GGR010-MB1	Oil & Grease, Grav.	5.0	u	mg/L	5.0
Blank 1	97GSF009-MB1	Sulfide	1.0	u	mg/L	1.0
Blank 1	97GSD030-MB1	Total Solids	10.0	u	mg/L	10.0

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G935

Inorganic Precision Data Report

Sample	Site ID	Parameter	Initial Result		Replicate		RPD
-001REP	CB MPUC C101	TOC	10.4		12.2		16.2
		Oil/Grease Grav. Rep	10800		7340		37.7
		Sulfide	2440		2250		8.1
-004REP	CB MPUC C1	Sulfide	1.0	u	1.0	u	NC
		Total Solids	28400		28200		0.8

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G935

Inorganic Accuracy Data Report

Sample	Site ID	Parameter	Spiked Sample	Initial Result		Spiked Amount	% Recov
-001	CB MPUC C101	TOC	45.8	10.4		31.2	114
		Oil/Grease Grav Spk	135000	10800		24000	100
		Sulfide	2930	2440		289	NA
		Sulfide MSD	3510	2440		291	NA
-004	CB MPUC C1	Sulfide	4.4	1.0	u	4.0	110

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G935

Inorganic Duplicate Spike Report

Sample	Site ID	Parameter	Spike #1 % Recov	Spike #2 % Recov	RPD
-001	CB MPUC C101	Sulfide	NA	NA	NC

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G935

Inorganic Laboratory Control Standards Report

Lab ID	Parameter	Spiked Amount	Units	Spike #1 % Recov.	Spike #2 % Recov.	RPD
97GMC031-LCS	TOC	47.0	%	93.9	92.4	1.6
97GGR014-LCS	Oil/Grease Grav Spk	1040	mg/L	95.7	87.9	8.5
97GSF008-LCS	Sulfide	4.0	mg/L	120	81.8	37.5
97GGR010-LCS	Oil/Grease Grav Spk	104	mg/L	97.9	100	2.1
97GSF009-LCS	Sulfide	4.0	mg/L	91.8	87.8	4.4
97GSD030-LCS	Total Solids	250	mg/L	95.2	97.6	2.5

Weston Environmental Metrics. Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G935

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
CB MPUC C101							
% SOLIDS	001	S	97GTS730	02/05/97	02/07/97	02/10/97	02/10/97
% SOLIDS	001 REP	S	97GTS730	02/05/97	02/07/97	02/10/97	02/10/97
MERCURY, TOTAL	001	S	97HG094	02/05/97	02/07/97	02/12/97	02/13/97
MERCURY, TOTAL	001 REP	S	97HG094	02/05/97	02/07/97	02/12/97	02/13/97
MERCURY, TOTAL	001 MS	S	97HG094	02/05/97	02/07/97	02/12/97	02/13/97
LEAD, TOTAL	001	S	97GI847	02/05/97	02/07/97	02/10/97	02/13/97
LEAD, TOTAL	001 REP	S	97GI847	02/05/97	02/07/97	02/10/97	02/13/97
LEAD, TOTAL	001 MS	S	97GI847	02/05/97	02/07/97	02/10/97	02/13/97
CB MPUC C102							
% SOLIDS	002	S	97GTS730	02/05/97	02/07/97	02/10/97	02/10/97
MERCURY, TOTAL	002	S	97HG094	02/05/97	02/07/97	02/12/97	02/13/97
LEAD, TOTAL	002	S	97GI847	02/05/97	02/07/97	02/10/97	02/13/97
CB MPUC C103							
% SOLIDS	003	S	97GTS730	02/05/97	02/07/97	02/10/97	02/10/97
MERCURY, TOTAL	003	S	97HG094	02/05/97	02/07/97	02/12/97	02/13/97
LEAD, TOTAL	003	S	97GI847	02/05/97	02/07/97	02/10/97	02/13/97
CB MPUC C1							
MERCURY, TOTAL	004	W	97HG737	02/05/97	02/07/97	02/12/97	02/13/97
MERCURY, TOTAL	004 REP	W	97HG737	02/05/97	02/07/97	02/12/97	02/13/97
MERCURY, TOTAL	004 MS	W	97HG737	02/05/97	02/07/97	02/12/97	02/13/97
LEAD, TOTAL	004	W	97GF493	02/05/97	02/07/97	02/10/97	02/14/97
LAB QC:							
MERCURY LABORATORY	LC1 BS	S	97HG094	N/A	N/A	02/12/97	02/13/97
MERCURY LABORATORY	LC2 BS	S	97HG094	N/A	N/A	02/12/97	02/13/97
MERCURY, TOTAL	MB1	S	97HG094	N/A	N/A	02/12/97	02/13/97
LEAD LABORATORY	LC1 BS	S	97GI847	N/A	N/A	02/10/97	02/13/97

NY CERTIFICATION # 11006

WESTON

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G935

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC EXT/PREP	ANALYSIS
LEAD LABORATORY	LC2 BS	S	97GI847	N/A	N/A	02/10/97 02/13/97
LEAD, TOTAL	MB1	S	97GI847	N/A	N/A	02/10/97 02/13/97
MERCURY LABORATORY	LC1 BS	W	97HG737	N/A	N/A	02/12/97 02/13/97
MERCURY LABORATORY	LC2 BS	W	97HG737	N/A	N/A	02/12/97 02/13/97
MERCURY, TOTAL	MB1	W	97HG737	N/A	N/A	02/12/97 02/13/97
LEAD LABORATORY	LC1 BS	W	97GF493	N/A	N/A	02/10/97 02/13/97
LEAD LABORATORY	LC2 BS	W	97GF493	N/A	N/A	02/10/97 02/13/97
LEAD, TOTAL	MB1	W	97GF493	N/A	N/A	02/10/97 02/13/97

SIGNATURE Mathew S. Gr DATE 2/20/97

NY CERTIFICATION # 11006

WESTON

Weston Environmental Metrics, Inc.
METALS CASE NARRATIVE

Client: USACE-Jacksonville
RFW#: 9702G935

WO#: 03886-136-005-9999
Date Rec'd: 02/07/97

1. This narrative covers the analysis of 3 soil and 1 water samples for the following metals:

   ICP ..... Pb (soil samples)
   GFAA ..... Pb (water sample)
   CVAA ..... HG

   Method Ref: USEPA, SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods"

2. **All analyses were performed within the required holding times.**

3. All Initial and Continuing Calibration Verification (ICV/CCV's) were within control limits.

4. All Initial and Continuing Calibration Blanks (ICB/CCB's) were within control limits.

5. All Preparation/Method Blanks were below reporting limits.

6. All ICP Interference Check Samples (ICSA and ICSAB) were within control limits.

7. All Laboratory Control Samples (LCS) were within the 80-120% control limits.

8. All Matrix Spike recoveries were greater than 75-125% control limits (exception allowed when the sample concentration exceeds the spike added concentration by a factor of 4 or more).

9. All Duplicate results were within the 20% Relative Percent Difference control limits for sample results greater than 5X the reporting limits or +\- the reporting limits for sample results less than 4X the reporting limits.except for:

   9702G935-001 Pb 43.2%

Mani S.Iyer
Metals Section Manager

2/20/97
Date

WESTON

Environmental Metrics, Inc.

METALS METHOD REFERENCE

The following methods are used as reference for the analysis of samples contained with this RFW Lot: 9702G935

SW846	**6010A** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P ✓Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn __Ag7761 __As7060A __Cd7131A __Cr7191 __Cu7211 ✓Hg7470A ✓Hg7471A ✓Pb7421 __Sb7041 __Se7740 __Tl7841
EPA	**200.7** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P __Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn **__Ag272.2 __As206.2 __Cd213.2 __Cr218.2 __Cu220.2 __Hg245.1 __Hg245.5 __Pb239.2** **__Sb204.2 __Se270.2 __Tl279.2** **200.9** __As __Cd __Pb __Sb __Se __Tl
CLP **ILM03.0** **ILM04.0**	**200.7 CLP-M** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P __Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn __As206.2 __Cd213.2 __Hg245.1 __Hg245.5 __Pb239.2 __Sb204.2 __Se270.2 __Tl279.2 __Cn335.2
Digestion Method	**SW846** __3005A ✓3010A __3020A ✓3020A(+H2O2) __3050A __7060A/7740 __7470A __7471A **EPA** __200.7 __200.0(+H2O2) __200.9(-HCL;+H2O2) **USEPA/CLP** __ILM03.0 Exhibit D, Section III __ILM04.0 Exhibit D, Section III
Extraction Method	**SW846** __1311TCLP __1312SPLP __1320MEP Using TCLP **ASTM** __D3987 Neutral Leach **CAM Title 22** __W.E.T.
%Solids	__SM 2540G __ASTM D2216 __Exhibit D Part F

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
Phone: (708) 534-5200 Fax: (708) 534-5211

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Tuesday February 18th, 1997

RE: CB MPUC C101
Project # 03886-136-005-9999
Lab ID: 9702G935-001
Sample Date: 02/05/97
Date Received: 02/07/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	33.0	%	0.10
Mercury, Total	4.1	mg/kg	0.25
Lead, Total	531	mg/kg	12.5

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Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Tuesday February 18th, 1997

RE: CB MPUC C102
Project # 03886-136-005-9999
Lab ID: 9702G935-002
Sample Date: 02/05/97
Date Received: 02/07/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	34.6	%	0.10
Mercury, Total	4.3	mg/kg	0.20
Lead, Total	396	mg/kg	12.0

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Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Tuesday February 18th, 1997

RE: CB MPUC C103
Project # 03886-136-005-9999
Lab ID: 9702G935-003
Sample Date: 02/05/97
Date Received: 02/07/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	30.6	%	0.10
Mercury, Total	3.4	mg/kg	0.15
Lead, Total	492	mg/kg	13.2

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Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Tuesday February 18th, 1997

RE: CB MPUC C1
Project # 03886-136-005-9999
Lab ID: 9702G935-004
Sample Date: 02/05/97
Date Received: 02/07/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
Mercury, Total	0.00020 u	mg/L	0.00020
Lead, Total	0.0020 u	mg/L	0.0020

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Attn: Mr. Dewayne Smith

Date: Tuesday February 18th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G935

Inorganic Method Blank Data Report

Sample	Lab ID	Parameter	Result		Units	Reporting Limit
Blank 1	97GTS730-MB1	% Solids	0.10	u	%	0.10
Blank 1	97HG094-MB1	Mercury, Total	0.04	u	mg/kg	0.04
Blank 1	97GI847-MB1	Lead, Total	5.0	u	mg/kg	5.0
Blank 1	97HG737-MB1	Mercury, Total	0.00020	u	mg/L	0.00020
Blank 1	97GF493-MB1	Lead, Total	0.0020	u	mg/L	0.0020

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Attn: Mr. Dewayne Smith

Date: Tuesday February 18th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G935

Inorganic Precision Data Report

Sample	Site ID	Parameter	Initial Result	Replicate	RPD
-001REP	CB MPUC C101	% Solids	33.0	33.0	0.1(
		Mercury, Total	4.1	3.9	4.5
		Lead, Total	531	823	43.2
-004REP	CB MPUC C1	Mercury, Total	0.00020 u	0.00020 u	NC

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Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Tuesday February 18th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G935

Inorganic Accuracy Data Report

Sample	Site ID	Parameter	Spiked Sample	Initial Result	Spiked Amount	% Reco
-001	CB MPUC C101	Mercury, Total	4.2	4.1	0.53	NA
		Lead, Total	669	531	122	NA
-004	CB MPUC C1	Mercury, Total	0.00096	0.00020 u	0.0010	96.5

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1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Tuesday February 18th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G935

Inorganic Laboratory Control Standards Report

Lab ID	Parameter	Spiked Amount	Units	Spike #1 % Recov.	Spike #2 % Recov.	RPD
97HG094-LC1	Mercury, LCS	1.0	mg/kg	105	104	1.2
97GI847-LC1	Lead, LCS	50.0	mg/kg	92.5	91.4	1.1
97HG737-LC1	Mercury, LCS	0.0020	mg/L	98.4	96.4	2.0
97GF493-LC1	Lead, LCS	0.020	mg/L	102	94.8	7.0

Weston Environmental Metrics. Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT = 9702G935

CLIENT ID	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT PREP	ANALYSIS
CB MPUC C101	001	S	97GP0109	02/05/97	02/07/97	02/10/97	02/20/97
CB MPUC C101	001 MS	S	97GP0109	02/05/97	02/07/97	02/10/97	02/20/97
CB MPUC C101	001 MS 01	S	97GP0109	02/05/97	02/07/97	02/10/97	02/20/97
CB MPUC C101	001 MSD	S	97GP0109	02/05/97	02/07/97	02/10/97	02/20/97
CB MPUC C101	001 MSD 01	S	97GP0109	02/05/97	02/07/97	02/10/97	02/20/97
CB MPUC C102	002	S	97GP0109	02/05/97	02/07/97	02/10/97	02/20/97
CB MPUC C103	003	S	97GP0109	02/05/97	02/07/97	02/10/97	02/20/97
CB MPUC C1	004	W	97GP0107	02/05/97	02/07/97	02/10/97	02/20/97
LAB QC:							
PBLKZS	MB1	S	97GP0109	N/A	N/A	02/10/97	02/20/97
PBLKZS	MB1 BS	S	97GP0109	N/A	N/A	02/10/97	02/20/97
PBLKZS	MB1 BS 01	S	97GP0109	N/A	N/A	02/10/97	02/20/97
PBLKZR	MB1	W	97GP0107	N/A	N/A	02/10/97	02/19/97
PBLKZR	MB1 BS	W	97GP0107	N/A	N/A	02/10/97	02/19/97
PBLKZR	MB1 BSD	W	97GP0107	N/A	N/A	02/10/97	02/19/97

SIGNATURE Linda S Mackley DATE 2-28-97

NY CERTIFICATION # 11006

WESTON ENVIRONMENTAL METRICS, INC.
PESTICIDE/PCB CASE NARRATIVE

USACE-Jacksonville
RFW# 9702G935-011\004
Pesticides/PCBs

1. Weston - EMI used the following Gas Chromatographic systems for the analysis of these pesticides and PCBs:

ID#	INSTRUMENT	COLUMN TYPE	DETECTOR
03	HP 6890	DB-5	Electron Capture
04	HP 6890	RTX-35	Electron Capture
29	HP5890 II+	DB-5	Electron Capture
30	HP5890 II+	RTX-35	Electron Capture

2. These samples were extracted based on SW846 method 3550 and 3520. The extracts were analyzed for pesticides and PCBs based on SW846 method 8080.

3. All required holding times were met for the extraction and analysis.

4. The method blank was below the reporting limit for all target compounds.

5. The surrogate compounds used for this analysis were Decachlorobiphenyl (DCB) and Tetrachloro-m-xylene (TCX). All surrogate recoveries were within control limits, with the exception of those which were diluted out.

6. All single response pesticides, with the exception of alpha and gamma-Chlordane, were used for spiking. The soil blank spike and matrix spikes were inadvertently spiked with the parent solution, which is 100 times higher than what should have been used. Therefore, the soil blank spike was analyzed undiluted in order to report surrogate recoveries, and at a 1/100 dilution in order to report spike recoveries. The matrix spikes were analyzed at a 1/5 dilution in order to report the surrogate recoveries and at a 1/100 dilution in order to report the spike recoveries.

7. All blank spike recoveries were within statistical control limits, with the exception of Methoxychlor associated with the soils which was biased high with 128% recovery. Methoxychlor was not detected in any associated samples.

8. A matrix spike and matrix spike duplicate were performed on sample 9702G935-001 (CB MPUC C101). A total of 5 recoveries were below control limits. The low recoveries may be attributed to the sample matrix.

9. All initial and continuing standard calibrations were within control limits.

WESTON

10. The soil samples were analyzed at 1/5 dilutions due to matrix interferences. Reporting limits have been adjusted in order to reflect the necessary dilutions.

Linda S. Mackley
Linda S. Mackley
Organics Section Manager

2-27-97
Date

Environmental Metrics, Inc. Method Reference

The following methods are used as reference for the analysis of samples contained within this RFW Lot :

GC/HPLC METHODS

Pesticides/PCBs	_X_	SW-846 8080A
	____	SW-846 8081
	____	40 CFR Part 136, Method 608
	____	OLM01.8/1.9
	____	OLM03.0
Organophosphorus Pesticides	____	SW-846 8141A
Herbicides	____	SW-846 8150B
Cresols	____	SW-846 8040A
Cresols/Pyridine	____	SW-846 8040A Mod
Explosives	____	SW-846 8330
Polynuclear Aromatics	____	SW-846 8310
	____	40 CFR Part 136, Method 610
Petroleum Hydrocarbons	____	SW-846 8015A Mod
	____	California LUFT
	____	Other _____
EDB & DBCP	____	EPA Method 504.1

RFW 21-21G-1302/E-2/97

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Thursday February 27th, 1997

RE: **CB MPUC C101**
Project # 03886-136-005-9999
Lab ID: **9702G935-001**
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	120	U
beta-BHC	BRL	120	U
delta-BHC	BRL	120	U
gamma-BHC (Lindane)	BRL	120	U
Heptachlor	BRL	120	U
Aldrin	BRL	120	U
Heptachlor epoxide	BRL	120	U
Endosulfan I	BRL	120	U
Dieldrin	BRL	240	U
4,4'-DDE	BRL	240	U
Endrin	BRL	240	U
Endosulfan II	BRL	240	U
4,4'-DDD	BRL	240	U
Endosulfan sulfate	BRL	240	U
4,4'-DDT	BRL	240	U
Methoxychlor	BRL	1200	U
Endrin ketone	BRL	240	U

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Date: Thursday February 27th, 1997

RE: **CB MPUC C101**
Project # 03886-136-005-9999
Lab ID: **9702G935-001**
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	1200	U
gamma-Chlordane	BRL	1200	U
Toxaphene	BRL	2400	U
Endrin aldehyde	BRL	240	U
Aroclor-1016	BRL	1200	U
Aroclor-1221	BRL	1200	U
Aroclor-1232	BRL	1200	U
Aroclor-1242	BRL	1200	U
Aroclor-1248	BRL	1200	U
Aroclor-1254	BRL	2400	U
Aroclor-1260	BRL	2400	U

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Attn: **Mr. Dewayne Smith**

Date: Thursday February 27th, 1997

RE: **CB MPUC C102**
Project # 03886-136-005-9999
Lab ID: **9702G935-002**
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	110	U
beta-BHC	BRL	110	U
delta-BHC	BRL	110	U
gamma-BHC (Lindane)	BRL	110	U
Heptachlor	BRL	110	U
Aldrin	BRL	110	U
Heptachlor epoxide	BRL	110	U
Endosulfan I	BRL	110	U
Dieldrin	BRL	230	U
4,4'-DDE	28	230	J
Endrin	BRL	230	U
Endosulfan II	BRL	230	U
4,4'-DDD	BRL	230	U
Endosulfan sulfate	BRL	230	U
4,4'-DDT	BRL	230	U
Methoxychlor	BRL	1100	U
Endrin ketone	BRL	230	U

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Date: Thursday February 27th, 1997

RE: CB MPUC C102
Project # 03886-136-005-9999
Lab ID: 9702G935-002
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	1100	U
gamma-Chlordane	BRL	1100	U
Toxaphene	BRL	2300	U
Endrin aldehyde	BRL	230	U
Aroclor-1016	BRL	1100	U
Aroclor-1221	BRL	1100	U
Aroclor-1232	BRL	1100	U
Aroclor-1242	BRL	1100	U
Aroclor-1248	BRL	1100	U
Aroclor-1254	BRL	2300	U
Aroclor-1260	BRL	2300	U

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Attn: **Mr. Dewayne Smith**

Date: Thursday February 27th, 1997

RE: **CB MPUC C103**
Project # 03886-136-005-9999
Lab ID: **9702G935-003**
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	130	U
beta-BHC	BRL	130	U
delta-BHC	BRL	130	U
gamma-BHC (Lindane)	BRL	130	U
Heptachlor	BRL	130	U
Aldrin	BRL	130	U
Heptachlor epoxide	BRL	130	U
Endosulfan I	BRL	130	U
Dieldrin	BRL	260	U
4,4'-DDE	35	260	J
Endrin	BRL	260	U
Endosulfan II	BRL	260	U
4,4'-DDD	BRL	260	U
Endosulfan sulfate	BRL	260	U
4,4'-DDT	BRL	260	U
Methoxychlor	BRL	1300	U
Endrin ketone	BRL	260	U

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Date: Thursday February 27th, 1997

RE: CB MPUC C103
Project # 03886-136-005-9999
Lab ID: 9702G935-003
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	1300	U
gamma-Chlordane	BRL	1300	U
Toxaphene	BRL	2600	U
Endrin aldehyde	BRL	260	U
Aroclor-1016	BRL	1300	U
Aroclor-1221	BRL	1300	U
Aroclor-1232	BRL	1300	U
Aroclor-1242	BRL	1300	U
Aroclor-1248	BRL	1300	U
Aroclor-1254	BRL	2600	U
Aroclor-1260	BRL	2600	U

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Attn: **Mr. Dewayne Smith**

Date: Thursday February 27th, 1997

RE: **CB MPUC C1**
Project # 03886-136-005-9999
Lab ID: **9702G935-004**
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	0.056	U
beta-BHC	BRL	0.056	U
delta-BHC	BRL	0.056	U
gamma-BHC (Lindane)	BRL	0.056	U
Heptachlor	BRL	0.056	U
Aldrin	BRL	0.056	U
Heptachlor epoxide	BRL	0.056	U
Endosulfan I	BRL	0.056	U
Dieldrin	BRL	0.11	U
4,4'-DDE	BRL	0.11	U
Endrin	BRL	0.11	U
Endosulfan II	BRL	0.11	U
4,4'-DDD	BRL	0.11	U
Endosulfan sulfate	BRL	0.11	U
4,4'-DDT	BRL	0.11	U
Methoxychlor	BRL	0.56	U
Endrin ketone	BRL	0.11	U

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
® 708-534-5200 • Fax 708-534-5211

ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Thursday February 27th, 1997

RE: CB MPUC C1
Project # 03886-136-005-9999
Lab ID: 9702G935-004
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	0.56	U
gamma-Chlordane	BRL	0.56	U
Toxaphene	BRL	1.1	U
Endrin aldehyde	BRL	0.11	U
Aroclor-1016	BRL	0.56	U
Aroclor-1221	BRL	0.56	U
Aroclor-1232	BRL	0.56	U
Aroclor-1242	BRL	0.56	U
Aroclor-1248	BRL	0.56	U
Aroclor-1254	BRL	1.1	U
Aroclor-1260	BRL	1.1	U

Weston Environmental Metrics, Inc. (Gulf Coast)
PESTICIDE/PCBs BY GC, CLP LIST

RFW Batch Number: 9702G935 Client: USACE-Jacksonville Work Order: 03886-136-005-9 Report Date: 02/26/97 10:31 Page: 1

Cust ID: CB MPUC C101 | CB MPUC C101 | CB MPUC C101 | CB MPUC C101 | CB MPUC C101 | CB MPUC C102

Sample Information	RFW#:	001	001 MS	001 MS	001 MSD	001 MSD	002
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	5.0	5.0	50	5.0	50	5.0
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate: Tetrachloro-m-xylene		90 %	100 %	D %	90 %	D %	90 %
Decachlorobiphenyl		110 %	110 %	D %	95 %	D %	105 %
alpha-BHC		120 U	E%	89 %	E%	86 %	110 U
beta-BHC		120 U	E%	81 %	E%	82 %	110 U
delta-BHC		120 U	E%	90 %	E%	88 %	110 U
gamma-BHC (Lindane)		120 U	E%	91 %	E%	87 %	110 U
Heptachlor		120 U	E%	102 %	E%	98 %	110 U
Aldrin		120 U	E%	87 %	E%	84 %	110 U
Heptachlor epoxide		120 U	E%	85 %	E%	85 %	110 U
Endosulfan I		120 U	E%	78 %	E%	78 %	110 U
Dieldrin		240 U	E%	72 %	E%	70 %	230 U
4,4'-DDE		240 U	E%	72 %	E%	68 %	28 J
Endrin		240 U	E%	82 %	E%	78 %	230 U
Endosulfan II		240 U	E%	79 %	E%	78 %	230 U
4,4'-DDD		240 U	E%	89 %	E%	91 %	230 U
Endosulfan sulfate		240 U	E%	81 %	E%	78 %	230 U
4,4'-DDT		240 U	E%	27 * %	E%	14 * %	230 U
Methoxychlor		1200 U	E%	44 * %	E%	29 * %	1100 U
Endrin ketone		240 U	E%	75 %	E%	70 * %	230 U
alpha-Chlordane		1200 U	1200 U	NA	1200 U	NA	1100 U
gamma-Chlordane		1200 U	1200 U	NA	1200 U	NA	1100 U
Toxaphene		2400 U	2400 U	NA	2400 U	NA	2300 U
Endrin aldehyde		240 U	E%	81 %	E%	85 %	230 U
Aroclor-1016		1200 U	1200 U	NA	1200 U	NA	1100 U
Aroclor-1221		1200 U	1200 U	NA	1200 U	NA	1100 U
Aroclor-1232		1200 U	1200 U	NA	1200 U	NA	1100 U
Aroclor-1242		1200 U	1200 U	NA	1200 U	NA	1100 U
Aroclor 1248		1200 U	1200 U	NA	1200 U	NA	1100 U
Aroclor-1254		2400 U	2400 U	NA	2400 U	NA	2300 U
Aroclor-1260		2400 U	2400 U	NA	2400 U	NA	2300 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

40

	Cust ID:	CB MPUC C103		CB MPUC C1		PBLKZS		PBLKZS BS		PBLKZS BS		PBLKZR	
Sample Information	RFW#:	003		004		97GP0109-MB1		97GP0109-MB1		97GP0109-MB1		97GP0107-MB1	
	Matrix:	SOIL		WATER		SOIL		SOIL		SOIL		WATER	
	D.F.:	5.0		1.0		0.50		0.50		50		1.0	
	Units:	ug/Kg		ug/L		ug/Kg		ug/Kg		ug/Kg		ug/L	
Surrogate: Tetrachloro-m-xylene		95	%	85	%	95	%	95	%	D	%	90	%
Decachlorobiphenyl		100	%	85	%	110	%	105	%	D	%	90	%
alpha-BHC		130	U	0.056	U	4.0	U		E%	109	%	0.050	U
beta-BHC		130	U	0.056	U	4.0	U		E%	116	%	0.050	U
delta-BHC		130	U	0.056	U	4.0	U		E%	122	%	0.050	U
gamma-BHC (Lindane)		130	U	0.056	U	4.0	U		E%	111	%	0.050	U
Heptachlor		130	U	0.056	U	4.0	U		E%	113	%	0.050	U
Aldrin		130	U	0.056	U	4.0	U		E%	112	%	0.050	U
Heptachlor epoxide		130	U	0.056	U	4.0	U		E%	107	%	0.050	U
Endosulfan I		130	U	0.056	U	4.0	U		E%	104	%	0.050	U
Dieldrin		260	U	0.11	U	8.0	U		E%	94	%	0.10	U
4,4'-DDE		35	J	0.11	U	8.0	U		E%	90	%	0.10	U
Endrin		260	U	0.11	U	8.0	U		E%	105	%	0.10	U
Endosulfan II		260	U	0.11	U	8.0	U		E%	105	%	0.10	U
4,4'-DDD		260	U	0.11	U	8.0	U		E%	100	%	0.10	U
Endosulfan sulfate		260	U	0.11	U	8.0	U		E%	93	%	0.10	U
4,4'-DDT		260	U	0.11	U	8.0	U		E%	99	%	0.10	U
Methoxychlor		1300	U	0.56	U	40	U		E%	128 *	%	0.50	U
Endrin ketone		260	U	0.11	U	8.0	U		E%	108	%	0.10	U
alpha-Chlordane		1300	U	0.56	U	40	U	40	U	NA		0.50	U
gamma-Chlordane		1300	U	0.56	U	40	U	40	U	NA		0.50	U
Toxaphene		2600	U	1.1	U	80	U	80	U	NA		1.0	U
Endrin aldehyde		260	U	0.11	U	8.0	U		E%	115	%	0.10	U
Aroclor-1016		1300	U	0.56	U	40	U	40	U	NA		0.50	U
Aroclor-1221		1300	U	0.56	U	40	U	40	U	NA		0.50	U
Aroclor-1232		1300	U	0.56	U	40	U	40	U	NA		0.50	U
Aroclor-1242		1300	U	0.56	U	40	U	40	U	NA		0.50	U
Aroclor-1248		1300	U	0.56	U	40	U	40	U	NA		0.50	U
Aroclor-1254		2600	U	1.1	U	80	U	80	U	NA		1.0	U
Aroclor-1260		2600	U	1.1	U	80	U	80	U	NA		1.0	U

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%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

	Cust ID:	PBLKZR BS	PBLKZR BSD
Sample Information	RFW#:	97GP0107-MB1	97GP0107-MB1
	Matrix:	WATER	WATER
	D.F.:	1.0	1.0
	Units:	ug/L	ug/L
Surrogate: Tetrachloro-m-xylene		95 %	80 %
Decachlorobiphenyl		90 %	85 %
alpha-BHC		100 %	90 %
beta-BHC		105 %	95 %
delta-BHC		110 %	95 %
gamma-BHC (Lindane)		100 %	90 %
Heptachlor		105 %	90 %
Aldrin		85 %	95 %
Heptachlor epoxide		105 %	95 %
Endosulfan I		95 %	90 %
Dieldrin		90 %	85 %
4,4'-DDE		95 %	90 %
Endrin		115 %	105 %
Endosulfan II		100 %	95 %
4,4'-DDD		100 %	90 %
Endosulfan sulfate		105 %	100 %
4,4'-DDT		85 %	75 %
Methoxychlor		115 %	105 %
Endrin ketone		105 %	100 %
alpha-Chlordane		0.50 U	0.50 U
gamma-Chlordane		0.50 U	0.50 U
Toxaphene		1.0 U	1.0 U
Endrin aldehyde		90 %	100 %
Aroclor-1016		0.50 U	0.50 U
Aroclor-1221		0.50 U	0.50 U
Aroclor-1232		0.50 U	0.50 U
Aroclor-1242		0.50 U	0.50 U
Aroclor-1248		0.50 U	0.50 U
Aroclor-1254		1.0 U	1.0 U
Aroclor-1260		1.0 U	1.0 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

WESTON

Weston Environmental Metrics, Inc.
HPAH ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # 97G2G935

CLIENT ID	RFW #	MTX	PREP #	COLLECTN DATE	REC DATE	EXT/PREP	ANALYSIS
CB MPUC C101	001	S	97GP0110	02/05/97	02/07/97	02/11/97	02/21/97
CB MPUC C101	001 MS	S	97GP0110	02/05/97	02/07/97	02/11/97	02/21/97
CB MPUC C101	001 MSD	S	97GP0110	02/05/97	02/07/97	02/11/97	02/21/97
CB MPUC C102	002	S	97GP0110	02/05/97	02/07/97	02/11/97	02/21/97
CB MPUC C103	003	S	97GP0110	02/05/97	02/07/97	02/11/97	02/21/97
CB MPUC C1	004	W	97GP0113	02/05/97	02/07/97	02/11/97	02/24/97
LAB QC:							
BLK	**MB1**	**S**	**97GP0110**	**N/A**	**N/A**	**02/11/97**	**02/21/97**
BLK	**MB1 BS**	**S**	**97GP0110**	**N/A**	**N/A**	**02/11/97**	**02/21/97**
BLK	MB1 BSD	S	97GP0110	N/A	N/A	02/11/97	02/21/97
BLK	MB1	W	97GP0113	N/A	N/A	02/11/97	02/21/97
BLK	MB1 BS	W	97GP0113	N/A	N/A	02/11/97	02/21/97
BLK	MB1 BSD	W	97GP0113	N/A	N/A	02/11/97	02/21/97

SIGNATURE Linda S Markley DATE 2-26-97

NY CERTIFICATION # 11006

WESTON Environmental Metrics, Inc. Method Reference

The following methods are used as reference for the analysis of samples contained within this RFW Lot :

GC/HPLC METHODS

Pesticides/PCBs	____ SW-846 8080A ____ SW-846 8081 ____ 40 CFR Part 136, Method 608 ____ OLM01.8/1.9 ____ OLM03.0
Organophosphorus Pesticides	____ SW-846 8141A
Herbicides	____ SW-846 8150B
Cresols	____ SW-846 8040A
Cresols/Pyridine	____ SW-846 8040A Mod
Explosives	____ SW-846 8330
Polynuclear Aromatics	_X_ SW-846 8310 ____ 40 CFR Part 136, Method 610
Petroleum Hydrocarbons	____ SW-846 8015A Mod ____ California LUFT ____ Other _____
EDB & DBCP	____ EPA Method 504.1

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Wednesday February 26th, 1997

RE: CB MPUC C101
Project # 03886-136-005-9999
Lab ID: 9702G935-001
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	5000	U
Acenaphthylene	BRL	5000	U
Acenaphthene	BRL	10000	U
Fluorene	840	1200	J
Phenanthrene	BRL	5000	U
Anthracene	270	250	
Fluoranthene	5600	2500	
Pyrene	BRL	5000	U
Benzo(a)anthracene	BRL	1000	U
Chrysene	BRL	5000	U
Benzo(b)fluoranthene	6000	1200	
Benzo(k)fluoranthene	490	500	J
Benzo(a)pyrene	4600	500	
Dibenzo(a,h)anthracene	BRL	2500	U
Benzo(g,h,i)perylene	BRL	2500	U
Indeno(1,2,3-cd)pyrene	BRL	1200	U

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Wednesday February 26th, 1997

RE: CB MPUC C102
Project # 03886-136-005-9999
Lab ID: 9702G935-002
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	4800	U
Acenaphthylene	BRL	4800	U
Acenaphthene	BRL	9600	U
Fluorene	1300	1200	
Phenanthrene	BRL	4800	U
Anthracene	280	240	
Fluoranthene	5700	2400	
Pyrene	BRL	4800	U
Benzo(a)anthracene	BRL	960	U
Chrysene	BRL	4800	U
Benzo(b)fluoranthene	6100	1200	
Benzo(k)fluoranthene	560	480	
Benzo(a)pyrene	2500	480	
Dibenzo(a,h)anthracene	BRL	2400	U
Benzo(g,h,i)perylene	BRL	2400	U
Indeno(1,2,3-cd)pyrene	BRL	1200	U

Weston Environmental Metrics, Inc.
2417 Burns Street
University Park, Illinois 60466-3182
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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Wednesday February 26th, 1997

RE: **CB MPUC C103**
Project # 03886-136-005-9999
Lab ID: **9702G935-003**
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	5300	U
Acenaphthylene	BRL	5300	U
Acenaphthene	BRL	11000	U
Fluorene	940	1300	J
Phenanthrene	BRL	5300	U
Anthracene	260	260	
Fluoranthene	6500	2600	
Pyrene	BRL	5300	U
Benzo(a)anthracene	BRL	1100	U
Chrysene	BRL	5300	U
Benzo(b)fluoranthene	4700	1300	
Benzo(k)fluoranthene	620	530	
Benzo(a)pyrene	2200	530	
Dibenzo(a,h)anthracene	BRL	2600	U
Benzo(g,h,i)perylene	BRL	2600	U
Indeno(1,2,3-cd)pyrene	BRL	1300	U

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Wednesday February 26th, 1997

RE: CB MPUC C1
Project # 03886-136-005-9999
Lab ID: 9702G935-004
Sample Date: 02/05/97
Date Received: 02/07/97
Units: UG/L

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	0.58	U
Acenaphthylene	BRL	0.58	U
Acenaphthene	BRL	1.2	U
Fluorene	BRL	0.14	U
Phenanthrene	BRL	0.58	U
Anthracene	BRL	0.029	U
Fluoranthene	BRL	0.29	U
Pyrene	BRL	0.58	U
Benzo(a)anthracene	BRL	0.12	U
Chrysene	BRL	0.58	U
Benzo(b)fluoranthene	BRL	0.14	U
Benzo(k)fluoranthene	BRL	0.058	U
Benzo(a)pyrene	BRL	0.058	U
Dibenzo(a,h)anthracene	BRL	0.29	U
Benzo(g,h,i)perylene	BRL	0.29	U
Indeno(1,2,3-cd)pyrene	BRL	0.14	U

Weston Environmental Metrics, Inc. (Gulf Coast)
PAHs BY HPLC

RFW Batch Number: 9702G935 Client: USACE-Jacksonville Work Order: 03886-136-005-9 Report Date: 02/25/97 10:46 Page: 1

	Cust ID:	CB MPUC C101	CB MPUC C101	CB MPUC C101	CB MPUC C102	CB MPUC C103	CB MPUC C1
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	WATER
	D.F.:	100	100	100	100	100	1.0
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L

Surrogate													
Decafluorobiphenyl	D	%	D	%	D	%	D	%	D	%	84	%
Benzo(e)pyrene	D	%	D	%	D	%	D	%	D	%	72	%
		fl		fl		fl		fl		fl		fl
Naphthalene	5000	U	D	%	D	%	4800	U	5300	U	0.58	U
Acenaphthylene	5000	U	D	%	D	%	4800	U	5300	U	0.58	U
Acenaphthene	10000	U	D	%	D	%	9600	U	11000	U	1.2	U
Fluorene	840	J	D	%	D	%	1300		940	J	0.14	U
Phenanthrene	5000	U	D	%	D	%	4800	U	5300	U	0.58	U
Anthracene	270		D	%	D	%	280		260		0.029	U
Fluoranthene	5600		D	%	D	%	5700		6500		0.29	U
Pyrene	5000	U	D	%	D	%	4800	U	5300	U	0.58	U
Benzo(a)anthracene	1000	U	D	%	D	%	960	U	1100	U	0.12	U
Chrysene	5000	U	D	%	D	%	4800	U	5300	U	0.58	U
Benzo(b)fluoranthene	6000		D	%	D	%	6100		4700		0.14	U
Benzo(k)fluoranthene	490	J	D	%	D	%	560		620		0.058	U
Benzo(a)pyrene	4600		D	%	D	%	2500		2200		0.058	U
Dibenzo(a,h)anthracene	2500	U	D	%	D	%	2400	U	2600	U	0.29	U
Benzo(g,h,i)perylene	2500	U	D	%	D	%	2400	U	2600	U	0.29	U
Indeno(1,2,3-cd)pyrene	1200	U	D	%	D	%	1200	U	1300	U	0.14	U

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%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Sample Information	Cust ID:	BLK	BLK BS	BLK BSD	BLK	BLK BS	BLK BSD
	RFW#:	97GP0110-MB1	97GP0110-MB1	97GP0110-MB1	97GP0113-MB1	97GP0113-MB1	97GP0113-MB1
	Matrix:	SOIL	SOIL	SOIL	WATER	WATER	WATER
	D.F.:	1.0	1.0	1.0	1.0	1.0	1.0
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/L	ug/L
Surrogate	Decafluorobiphenyl	77 %	86 %	80 %	87 %	83 %	81 %
	Benzo(e)pyrene	92 %	90 %	92 %	94 %	94 %	91 %
Naphthalene		17 U	93 %	90 %	0.50 U	97 %	95 %
Acenaphthylene		17 U	81 %	79 %	0.50 U	92 %	92 %
Acenaphthene		33 U	85 %	84 %	1.0 U	93 %	95 %
Fluorene		4.2 U	89 %	91 %	0.12 U	99 %	100 %
Phenanthrene		17 U	90 %	89 %	0.50 U	97 %	94 %
Anthracene		0.83 U	84 %	80 %	0.025 U	92 %	88 %
Fluoranthene		8.3 U	90 %	91 %	0.25 U	101 %	96 %
Pyrene		17 U	89 %	90 %	0.50 U	99 %	98 %
Benzo(a)anthracene		3.3 U	82 %	82 %	0.10 U	93 %	83 %
Chrysene		17 U	77 %	79 %	0.50 U	82 %	77 %
Benzo(b)fluoranthene		4.2 U	109 %	113 %	0.12 U	114 %	109 %
Benzo(k)fluoranthene		1.7 U	102 %	104 %	0.050 U	108 %	102 %
Benzo(a)pyrene		1.7 U	96 %	96 %	0.050 U	110 %	106 %
Dibenzo(a,h)anthracene		8.3 U	87 %	100 %	0.25 U	98 %	97 %
Benzo(g,h,i)perylene		8.3 U	91 %	99 %	0.25 U	101 %	95 %
Indeno(1,2,3-cd)pyrene		4.0 U	82 %	84 %	0.12 U	88 %	84 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Weston Environmental Metrics, Inc.

RFW#: 97026935

Sample Discrepancy Report (SDR)

Client: USACE
Contact: Dewayne Smith / Tim Frinak
Project: Jacksonville
Phone #: 334/826-6100 334/887-6100
FAX #:

Analyses: Wet Chem/Met
Matrix: Water Soil Other
Deliverable Type: (circle)
CLP STD SPEC

COC received: Yes No
Quote from PM: Yes No

1.a. Type of Sample Discrepancy

COC / Sample				LOG-IN		Client		Unit	
	ID Discrepancy		Rec'd past hold time		Log-in past hold time		Changed Analyses		Analyzed past hold time
	Date Discrepancy		Improper Preserv.		Log-in Error		Improper bottle type		Missing sample/extract
	Incomplete		Missing sample/extract				Label unreadable		Insufficient sample
	Unreadable		Container broken				Insufficient sample		
	Cooler temp. _____ C		- sample lost						
	Quote Discrepancy		- suspect contamination						
			Bubbles in VOA vials						
		X	preservative						EDD

1.b. Lab ID (COC/Client ID) Deficiency/Discrepancy

1 -004 CBMPVC C1 Coc marked samples unpreserved - should we preserve in log-in?

also: rec'd 1 cooler 2/7/97 w/multiple Package shipment sticker. should we expect another?

No RW 2/7/97

Initiator sign: [signature] Date: 2/7/97

2.a. PM Establish Action Plan:

	Cancel		Bottle/jar replaced		Change Test Code from _____ to _____
	Add		Lid replaced		Change Due Date from _____ to _____
	Place on hold		Analyze samples		Include in Case Narrative
	Log-in		Analyze Past Hold		Amend EDD
	Subcontract		Preserve then Analyze		

2.b. Special Action:

Name:		Action Initiator Initial & Date:		Action Completion Initial & Date:	
LOG-IN	No other coolers per Fed-ex - per D. Smith, ok	JDH	2-7-97	2/7/97	[initials]
1 Log	Preserve in Log-in	RW	2/7	[initials]	2/7/97

3. Receipt of Copies: (INITIAL AND DATE)

1. GC	4. W.C.
2. GC/MS	5. Digest.
3. Metals	6. Extract.

Distribution and Copy to QA: LH 2-7-97

4. PM Final Approval of All Actions Taken:

X Send copy to Client

Signature: [signature] for JDH Date: 2/7/97

5. QA For Quality Measurement Only:

Final Distribution - Attach original to worksheet and send a copy to QA

Revision Date: 8/29/95
RFW 21-21G-0007/B-8/95

50

C:\MSOFFICE\EXCEL\SDRRDR\SDR.XLS

WES[illegible] Analytics Use Only
9702G935

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

51

Client USACOE JACKSONVILLE
Est. Final Proj. Sampling Date
Work Order # [illegible]
Project Contact/Phone # BRIAN R. SMITH
AD Project Manager 354 826 6100
QC ____ Del ____ TAT STD.
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #

#/Type Container	Liquid	
	Solid	
Volume	Liquid	
	Solid	
Preservatives		

ANALYSES REQUESTED

ORGANIC: VOA | BNA | Pest/PCB | Herb | PAH | LEAD | Hg
INORG: Metal | CN
TCC | OIL & GREASE | SULFIDE | TOTAL [illegible]

WESTON Analytics Use Only

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
001	CB MPUC C101			S	5FEB97	0830			X		X	X	X			X	X	X		
002	CB MPUC C102			S	5FEB97	0915			X		X	X	X			X	X	X		
003	CB MPUC C103			S	5FEB97	0945			X		X	X	X			X	X	X		
004	CB MPUC C1			W	5FEB97	0740			X		X	X	X				X	X	X	X
																			+00	
																			500	
																			250	
																			100	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____ 20°C
5. ____
6. ____

WESTON Analytics Use Only

Samples were: FX
1) Shipped ___ or Hand Delivered ___ Airbill # ____
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
5) Received Within Holding Times (Y) or N

COC Tape was:
1) Present on Outer Package Y or (N)
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or (N)
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't (Y) or N

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	2/7/97	1345

Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91

____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____

381-596a

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
708-534-5200 • Fax 708-534-5211

March 14, 1997

Mr. Dewayne Smith
Roy F. Weston, Inc.
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Work Order No. 03886-136-005-9999

RE: USACE-Jacksonville
Analytical Report & EDD
RFW Lot 9702G091

Dear Mr. Smith:

Enclosed is the Analytical Report for the Project and RFW Lot listed above. If you have any questions, please contact me at 708-534-5200.

Very truly yours,

Weston Environmental Metrics, Inc.

pp Jane D. Huber
Project Manager

km

Enclosures

Approved By:

Michael J. Healy
Vice President/Laboratory Manager

The results presented in this report relate only to the analytical testing and conditions of sample at receipt. This report pertains to only those samples actually tested. All 46 pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

GLOSSARY OF DATA QUALIFIERS AND ABBREVIATIONS

Data Qualifiers

B	Compound was found in the blank and the sample
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis. also compounds analyzed at a dilution will be flagged with a D
E	Concentration exceeds the instrument calibration range and was subsequently diluted
I	Appears on the "results spreadsheet" to indicate an interference
J	Result is an estimated value below the reporting limit or a tentatively identified compound (TIC)
M	Summary Compound
(M)	Manually integrated compound
N	Positive ID of a TIC that is not quantitated against a standard and must be accompanied by a CAS No.
T	Compound was found in the TCLP extraction blank and the sample
u	Analyte was not detected at or above the reporting limit
X	Result obtained indirectly through calculation based on results from other analyses

Abbreviations

Batch	Designation given to identify a specific extraction, digestion or preparation set (equivalent to prep batch)
BS	Blank spike analysis was conducted on reagent grade water or a matrix free from the analyte of interest
BSD	Blank spike duplicate
BRL	Below reporting limit
CAP	Capillary Column
CD	Calculation factor used by the Laboratory's Information Management System (LIMS)
Contract	Contract laboratory identification code
DF	Dilution factor
DL	Appears in the sample ID to indicate a secondary dilution was performed
LCS/LC	Denotes laboratory control standard
LAB ID	The full 12 character Weston laboratory identification number (equivalent to RFW#)
MB	Method blank or (PB) preparation blank
MS	Matrix spike
MSD	Matrix spike duplicate
NA	Not applicable
NC	Non-calculable precision due to insufficient concentration of analyte present in the sample
NR	Not required
NS	Not spiked
PACK	Packed Column
RE	Appears in the sample ID to indicate a re-analysis
REP	Replicate analysis
Reprep	Sample was reprepared and then reanalyzed
RFW#	The full 12 character WESTON laboratory identification number (equivalent to LAB ID)
RFW Lot	The first 8 characters of the RFW#
RPD	Relative percent difference of duplicate (unrounded) analyses
RRF	Relative response factor
RT	Retention time
RTW	Retention time window
SP	Blank spike, blank spike duplicate, matrix spike or matrix spike duplicate
WO#	Work order no. WESTON code used to define a specific client, job, phase and task

NOTES:

- One or a combination of these data qualifiers and abbreviations may appear in the analytical report.
- Soil, sediment and sludge results are reported on a dry weight basis except when analyzed for landfill disposal or incineration parameters. All other results on a solid matrix are reported on an "as received" basis unless noted differently.
- Reporting limits are adjusted for preparation sample size, sample dilutions and sample moisture content if analyzed on a dry weight basis.

Weston Environmental Metrics. Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G091

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
ES-MPUC-1							
TOTAL ORGANIC CARBON	001	W	97GTC032	02/14/97	02/15/97	02/17/97	02/17/97
TOTAL ORGANIC CARBON	001	W	97GTC034	02/14/97	02/15/97	02/25/97	02/25/97
OIL & GREASE BY GRAV	001	W	97GGR013	02/14/97	02/15/97	02/20/97	02/20/97
SULFIDE	001	W	97GSF011	02/14/97	02/15/97	02/18/97	02/19/97
TOTAL SOLIDS	001	W	97GSD035	02/14/97	02/15/97	02/18/97	02/18/97
TOTAL SOLIDS	001 REP	W	97GSD035	02/14/97	02/15/97	02/18/97	02/18/97
TOTAL ORGANIC CARBON	002	S	97GMC026	02/14/97	02/15/97	02/19/97	02/19/97
OIL & GREASE BY GRAV	002	S	97GGR016	02/14/97	02/15/97	02/27/97	02/27/97
SULFIDE	002	S	97GSF013	02/14/97	02/15/97	02/21/97	02/21/97
ES-MPUC-2							
TOTAL ORGANIC CARBON	003	W	97GTC032	02/14/97	02/15/97	02/17/97	02/17/97
TOTAL ORGANIC CARBON	003	W	97GTC032	02/14/97	02/15/97	02/17/97	02/17/97
OIL & GREASE BY GRAV	003	W	97GGR013	02/14/97	02/15/97	02/20/97	02/20/97
SULFIDE	003	W	97GSF011	02/14/97	02/15/97	02/18/97	02/19/97
TOTAL ORGANIC CARBON	004	S	97GMC026	02/14/97	02/15/97	02/19/97	02/19/97
TOTAL ORGANIC CARBON	004 REP	S	97GMC026	02/14/97	02/15/97	02/19/97	02/19/97
OIL & GREASE BY GRAV	004	S	97GGR016	02/14/97	02/15/97	02/27/97	02/27/97
SULFIDE	004	S	97GSF013	02/14/97	02/15/97	02/21/97	02/21/97
LAB QC:							
TOTAL ORGANIC CARBON	LCS BS	W	97GTC032	N/A	N/A	02/17/97	02/17/97
TOTAL ORGANIC CARBON	LCS BSD	W	97GTC032	N/A	N/A	02/17/97	02/17/97
TOTAL ORGANIC CARBON	MB1	W	97GTC032	N/A	N/A	02/17/97	02/17/97
TOTAL ORGANIC CARBON	LCS BS	W	97GTC034	N/A	N/A	02/25/97	02/25/97
TOTAL ORGANIC CARBON	LCS BSD	W	97GTC034	N/A	N/A	02/25/97	02/25/97
TOTAL ORGANIC CARBON	MB1	W	97GTC034	N/A	N/A	02/25/97	02/25/97
OIL & GREASE BY GRAV	LCS BS	W	97GGR013	N/A	N/A	02/20/97	02/20/97
OIL & GREASE BY GRAV	LCS BSD	W	97GGR013	N/A	N/A	02/20/97	02/20/97
OIL & GREASE BY GRAV	MB	W	97GGR013	N/A	N/A	02/20/97	02/20/97
SULFIDE	LCS BS	W	97GSF011	N/A	N/A	02/18/97	02/19/97
SULFIDE	LCS BSD	W	97GSF011	N/A	N/A	02/18/97	02/19/97

NJ CERTIFICATION # 11006

Weston Environmental Metrics, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G091

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC EXT/PREP	ANALYSIS
SULFIDE	MB1	W	97GSF011	N/A	N/A	02/18/97 02/19/97
TOTAL SOLIDS	LCS BS	W	97GSD035	N/A	N/A	02/18/97 02/18/97
TOTAL SOLIDS	LCS BSD	W	97GSD035	N/A	N/A	02/18/97 02/18/97
TOTAL SOLIDS	MB1	W	97GSD035	N/A	N/A	02/18/97 02/18/97
TOTAL ORGANIC CARBON	LCS BS	W	97GMC026	N/A	N/A	02/19/97 02/19/97
TOTAL ORGANIC CARBON	LCS BSD	W	97GMC026	N/A	N/A	02/19/97 02/19/97
TOTAL ORGANIC CARBON	MB1	W	97GMC026	N/A	N/A	02/19/97 02/19/97
OIL & GREASE BY GRAV	LCS BS	W	97GGR016	N/A	N/A	02/27/97 02/27/97
OIL & GREASE BY GRAV	LCS BSD	W	97GGR016	N/A	N/A	02/27/97 02/27/97
OIL & GREASE BY GRAV	MB1	W	97GGR016	N/A	N/A	02/27/97 02/27/97
SULFIDE	LCS BS	W	97GSF013	N/A	N/A	02/21/97 02/21/97
SULFIDE	LCS BSD	W	97GSF013	N/A	N/A	02/21/97 02/21/97
SULFIDE	MB1	W	97GSF013	N/A	N/A	02/21/97 02/21/97

SIGNATURE Deana L Harper DATE 3/7/97

NY CERTIFICATION # 11006

Environmental Metrics, Inc.
WET CHEMISTRY METHOD REFERENCE

The following methods are used as reference for the analysis of samples contained with RFW Lot: 6702 6091

PARAMETER	EPA 600	STANDARD METHODS	SW846	OTHER
%Water Karl Fisher				__ASTM D4377
%Water Dean Stark				__ASTM D95
Acidity	__ 305.1	__ 2310B		
Alkalinity,Total,Carbonate, Bicarbonate	__ 310.1	__ 2320B		
Ammonia (Dist/Nesslers)	__ 350.2	__ 4500NH_3C		
Biochemical Oxygen Demand	__ 405.1	__ 5210B		
Bottom Sediment & Water				__ASTM D4007
BTU				__ASTM D240
Bromide	__ 300.0	__ 4110B	__ 9056	
Bromine	__ 300.0 Detection		__ 5050 Prep	
Chemical Oxygen Demand				__HACH 8000
Chloride	__ 325.2	__ 4500C1E	__ 9251	
	__ 300.0	__ 4110B	__ 9056	
	__ 300.0 Detection		__ 5050 Prep	__ISE Detection
Chlorine (O_2Bomb)		__ 4500C1F		
Chlorine, Residual	__ 330.4	__ 3500CrD		
Chromium VI			__ 3060 Digestion	
			__ 7196A	
Color	__ 110.2	__ 2120B		
Corrosivity, pH	__ 150.1		__ 9045C	
			__ 9040A	
Corrosivity, Langlier		__ 2330A+B		
Cyanide, Amenable	__ 335.1	__ 4500CNG	__ 9010A	
Cyanide, Weak, Dissociable		__ 4500CNI		
Cyanide, Reactive			__ 7.3.3.2	
Cyanide, Total	__ 335.2	__ 4500CNC	__ 9010A	__ILM03.0
Density/Specific Gravity		__ 2710F		__ASTM D1298
				__ASTM D5057
Ext. Organic Halogens				__Dohrmann
Flashpoint			__ 1010	__ASTM D93
				__ASTM D92
Fluoride __ Distilled	__ 340.2	__ 4500 FC	__ 9056	
__ Undistilled	__ 300.0			
Fluorine	__ 340.2 Detection		__ 5050 Prep	
	__ 300.0 Detection			
Hardness	__ 130.2	__ 2340C		
		__ 2340B		
Heavy Metals				__USP 231
Ignitability			__ Sec. 7	__ASTM D-4982A
MBAS (Surfactants)	__ 425.1	__ 5540 C		
Nitrate/Nitrite	__ 353.2	__ 4500NO_3F		
Nitrate	__ 353.2 -354.1	__ 4110B	__ 9056	
	__ 300.0			
Nitrite	__ 354.1	__ 4500NO_2B	__ 9056	
	__ 300.0	__ 4110B		
		__ 2150B		
Odor	__ 140.1			
Oil & Grease	✓ 413.1	__ 5520B	✓ 9070	
Oil & Grease, IR	__ 413.2	__ 5520C		

Environmental Metrics, Inc.
WET CHEMISTRY METHOD REFERENCE

The following methods are used as reference for the analysis of samples contained with RFW Lot: 47026-051

PARAMETER	EPA 600	STANDARD METHODS	SW846	OTHER
Oil & Grease, Soxhlet		__ 5520D __ 5520E	__ 9071A	
Oxygen, Dissolved	__ 360.1 Electrode __ 360.2 Winkler	__ 4500OG __ 4500OC		
Paint Filters (Free Liquid)			__ 9095	
Petroleum Hydrocarbons	__ 418.1	__ 5520F	__ 9071A Extract.	
pH, Water	__ 150.1	__ 4500H⁺B	__ 9040B	
pH, Soil			__ 9045C	
			__ 9041A Paper	
Phenolics	__ 420.2		__ 9066	
Orthophosphate as P	__ 365.2	__ 4500PE	__ 9056	
	__ 300.0	__ 4110B		
Phosphorus as P	__ 365.2	__ 4500PE		
	__ 365.4			
Residue on Evaporation 180C	__ 160.1 Modified	__ 2540C Modified		
Solids, Settleable	__ 160.5	__ 2540F		
Solids, Total	✓ 160.3	__ 2540B		
Solids, Total Dissolved	__ 160.1	__ 2540C		
Solids, Total Suspended	__ 160.2	__ 2540D		
Solids, Total Volatile	__ 160.4	__ 2540E		
Solids, Dissolved Volatile	__ 160.4	__ 2540E		
Solids, Suspended Volatile	__ 160.4	__ 2540E		
Soluble Organic Carbon	__ 415.1	__ 5310C		
Specific Conductance	__ 120.1	__ 2510B		
Sulfate	__ 375.4	__ 4500SO_4^{2-}E	__ 9038	
	__ 300.0	__ 4110B	__ 9056	
Sulfide	__ 376.1	__ 4500S^{2-}E	✓ 9030A Mod	
Sulfide, Reactive			__ 7.3.4.2	
Sulfur	__ 375.4 Detection		__ 5050Prep	
	__ 300.0 Detection			
Total Kjeldahl Nitrogen	__ 351.3	__ 4500N_{ORG}C		
Total Inorganic Carbon	__ 415.1	__ 5310C		
Total Organic Carbon	__ 415.1	__ 5310C	__ 9060 Quads	✓ Walkley-Black
Total Organic Halogens		__ 5320B	__ 9020B	
Total Org Halogens on Waste	__ 325.2 Detection		__ 5050prep	__ ISE Detection
	__ 300.0 Detection			
Turbidity	__ 180.1	__ 2130B		
Viscosity, Brookfield				__ ASTM D2196
Viscosity, Kinematic				__ ASTM D445
Coliform, Fecal		__ 9222D		
Coliform, Total		__ 9222A,B,C(MF)		
		__ 9223B Colilert		
Heterotrophic Plate Count		__ 9215B		
MPN		__ 9221E		

Comments:

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
® 708-534-5200 • Fax 708-534-5211

ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

RE: ES-MPUC-1
Project # 03886-136-005-9999
Lab ID: **9702G091-001**
Sample Date: 02/14/97
Date Received: 02/15/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Total Organic Carbon	11.1		mg/L	1.0
TOC Test 2	11.8		mg/L	1.0
Oil & Grease, Grav.	12.2		mg/L	5.2
Sulfide	1.0	u	mg/L	1.0
Total Solids	11200		mg/L	10.0

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

RE: **ES-MPUC-1**
Project # 03886-136-005-9999
Lab ID: **9702G091-002**
Sample Date: 02/14/97
Date Received: 02/15/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	4.0	%	0.57
Oil & Grease, Grav.	15400	mg/kg	3690
Sulfide	4120	mg/kg	95.7

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

RE: ES-MPUC-2
Project # 03886-136-005-9999
Lab ID: 9702G091-003
Sample Date: 02/14/97
Date Received: 02/15/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Total Organic Carbon	6.2		mg/L	1.0
TOC Test 2	6.5		mg/L	1.0
Oil & Grease, Grav.	6.4		mg/L	5.0
Sulfide	1.0	u	mg/L	1.0

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MANAGERS DESIGNERS CONSULTANTS

ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

RE: ES-MPUC-2
Project # 03886-136-005-9999
Lab ID: 9702G091-004
Sample Date: 02/14/97
Date Received: 02/15/97

Inorganic Data Report

Parameters	Result		Units	Reporting Limit
Total Organic Carbon	13.1		%	1.7
Oil & Grease, Grav.	9880	u	mg/kg	9880
Sulfide	2540		mg/kg	372

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G091

Inorganic Method Blank Data Report

Sample	Lab ID	Parameter	Result		Units	Reporting Limit
Blank 1	97GTC032-MB1	Total Organic Carbon	1.0	u	mg/L	1.0
Blank 1	97GTC034-MB1	Total Organic Carbon	1.0	u	mg/L	1.0
Blank	97GGR013-MB	Oil & Grease, Grav.	5.0	u	mg/L	5.0
Blank 1	97GSF011-MB1	Sulfide	1.0	u	mg/L	1.0
Blank 1	97GSD035-MB1	Total Solids	10.0	u	mg/L	10.0
Blank 1	97GMC026-MB1	Total Organic Carbon	0.050	u	%	0.050
Blank 1	97GGR016-MB1	Oil & Grease, Grav.	50.0	u	mg/L	50.0
Blank 1	97GSF013-MB1	Sulfide	1.0	u	mg/L	1.0

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: **9702G091**

Inorganic Precision Data Report

Sample	Site ID	Parameter	Initial Result	Replicate	RPD
-001REP	ES-MPUC-1	Total Solids	11200	11300	0.60
-004REP	ES-MPUC-2	TOC	13.1	13.2	1.4

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 7th, 1997

Project # 03886-136-005-9999
Lab Batch: **9702G091**

Inorganic Laboratory Control Standards Report

Lab ID	Parameter	Spiked Amount	Units	Spike #1 % Recov.	Spike #2 % Recov.	RPD
97GTC032-LCS	TOC	5.0	mg/L	93.5	100	7.0
97GTC034-LCS	TOC	5.0	mg/L	106	107	0.70
97GGR013-LCS	Oil/Grease Grav Spk	104	mg/L	101	94.8	6.3
97GSF011-LCS	Sulfide	4.0	mg/L	91.2	87.2	4.4
97GSD035-LCS	Total Solids	250	mg/L	94.4	91.2	3.4
97GMC026-LCS	TOC	47.0	%	92.6	90.6	2.1
97GGR016-LCS	Oil/Grease Grav Spk	1040	mg/L	95.4	90.6	5.2
97GSF013-LCS	Sulfide	4.0	mg/L	105	127	18.9

WESTON

Weston Environmental Metrics. Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # 9702G091

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
ES-MPUC-1							
MERCURY. TOTAL	001	W	97HG112	02/14/97	02/15/97	02/24/97	02/25/97
LEAD. TOTAL	001	W	97GF514	02/14/97	02/15/97	02/21/97	02/24/97
LEAD. TOTAL	001 REP	W	97GF514	02/14/97	02/15/97	02/21/97	02/24/97
LEAD. TOTAL	001 MS	W	97GF514	02/14/97	02/15/97	02/21/97	02/24/97
% SOLIDS	002	S	97GTS759	02/14/97	02/15/97	02/20/97	02/20/97
MERCURY. TOTAL	**002**	**S**	**97HG751**	**02/14/97**	**02/15/97**	**02/26/97**	**02/27/97**
LEAD. TOTAL	**002**	**S**	**97GI919**	**02/14/97**	**02/15/97**	**02/27/97**	**03/04/97**
ES-MPUC-2							
MERCURY. TOTAL	003	W	97HG112	02/14/97	02/15/97	02/24/97	02/25/97
LEAD. TOTAL	003	W	97GF514	02/14/97	02/15/97	02/21/97	02/24/97
% SOLIDS	004	S	97GTS759	02/14/97	02/15/97	02/20/97	02/20/97
MERCURY. TOTAL	004	S	97HG751	02/14/97	02/15/97	02/26/97	02/27/97
LEAD. TOTAL	004	S	97GI919	02/14/97	02/15/97	02/27/97	03/04/97
LAB QC:							
MERCURY LABORATORY	LC1 BS	W	97HG112	N/A	N/A	02/24/97	02/25/97
MERCURY LABORATORY	LC2 BS	W	97HG112	N/A	N/A	02/24/97	02/25/97
MERCURY. TOTAL	MB1	W	97HG112	N/A	N/A	02/24/97	02/25/97
LEAD LABORATORY	LC1 BS	W	97GF514	N/A	N/A	02/21/97	02/24/97
LEAD LABORATORY	LC2 BS	W	97GF514	N/A	N/A	02/21/97	02/24/97
LEAD. TOTAL	MB1	W	97GF514	N/A	N/A	02/21/97	02/24/97
MERCURY LABORATORY	LC1 BS	S	97HG751	N/A	N/A	02/26/97	02/27/97
MERCURY LABORATORY	LC2 BS	S	97HG751	N/A	N/A	02/26/97	02/27/97
MERCURY. TOTAL	MB1	S	97HG751	N/A	N/A	02/26/97	02/27/97
LEAD LABORATORY	LC1 BS	S	97GI919	N/A	N/A	02/27/97	03/04/97
LEAD LABORATORY	LC2 BS	S	97GI919	N/A	N/A	02/27/97	03/04/97
LEAD. TOTAL	MB1	S	97GI919	N/A	N/A	02/27/97	03/04/97

SIGNATURE _____ DATE 3/6/97

NY CERTIFICATION # 11006

WESTON

Environmental Metrics, Inc.

METALS METHOD REFERENCE

(Water & Soil)

The following methods are used as reference for the analysis of samples contained with this RFW Lot: 21G1301

SW846	**6010A** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P ✓Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn __Ag7761 __As7060A __Cd7131A __Cr7191 __Cu7211 ✓Hg7470A ✓Hg7471A ✓Pb7421 __Sb7041 __Se7740 __Tl7841
EPA	**200.7** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P __Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn __Ag272.2 __As206.2 __Cd213.2 __Cr218.2 __Cu220.2 __Hg245.1 __Hg245.5 __Pb239.2 __**Sb204.2** __**Se270.2** __**Tl279.2** **200.9** __As __Cd __Pb __Sb __Se __Tl
CLP **ILM03.0** **ILM04.0**	**200.7 CLP-M** __Ag __Al __As __B __Ba __Be __Ca __Cd __Co __Cr __Cu __Fe __K __Li __Mg __Mn __Mo __Na __Ni __P __Pb __Sb __Se __Si __Sn __Sr __Ti __Tl __V __Zn __As206.2 __Cd213.2 __Hg245.1 __Hg245.5 __Pb239.2 __Sb204.2 __Se270.2 __Tl279.2 __Cn335.2
Digestion Method	**SW846** __3005A __3010A __3020A __3020A(+H2O2) __3050A __7060A/7740 __7470A __7471A **EPA** __200.7 __200.0(+H2O2) __200.9(-HCL;+H2O2) **USEPA/CLP** __ILM03.0 Exhibit D, Section III __ILM04.0 Exhibit D, Section III
Extraction Method	**SW846** __1311TCLP __1312SPLP __1320MEP Using TCLP **ASTM** __D3987 Neutral Leach **CAM Title 22** __W.E.T.
%Solids	✓SM 2540G __ASTM D2216 __Exhibit D Part F

Weston Environmental Metrics, Inc.
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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Thursday March 6th, 1997

RE: ES-MPUC-1
Project # 03886-136-005-9999
Lab ID: 9702G091-001
Sample Date: 02/14/97
Date Received: 02/15/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
Mercury, Total	0.00020 u	mg/L	0.00020
Lead, Total	0.0020 u	mg/L	0.0020

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Thursday March 6th, 1997

RE: **ES-MPUC-1**
Project # 03886-136-005-9999
Lab ID: **9702G091-002**
Sample Date: 02/14/97
Date Received: 02/15/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	24.2	%	0.10
Mercury, Total	0.26	mg/kg	0.14
Lead, Total	52.7	mg/kg	13.8

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1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Thursday March 6th, 1997

RE: ES-MPUC-2
Project # 03886-136-005-9999
Lab ID: 9702G091-003
Sample Date: 02/14/97
Date Received: 02/15/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
Mercury, Total	0.00020 u	mg/L	0.00020
Lead, Total	0.0020 u	mg/L	0.0020

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To: **USACE-Jacksonville**
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Thursday March 6th, 1997

RE: **ES-MPUC-2**
Project # 03886-136-005-9999
Lab ID: **9702G091-004**
Sample Date: 02/14/97
Date Received: 02/15/97

Metals Data Report

Parameters	Result	Units	Reporting Limit
% Solids	9.2	%	0.10
Mercury, Total	1.1	mg/kg	0.36
Lead, Total	229	mg/kg	35.3

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Thursday March 6th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G091

Inorganic Method Blank Data Report

Sample	Lab ID	Parameter	Result		Units	Reporting Limit
Blank 1	97HG112-MB1	Mercury, Total	0.00020	u	mg/L	0.00020
Blank 1	97GF514-MB1	Lead, Total	0.0020	u	mg/L	0.0020
Blank 1	97GTS759-MB1	% Solids	0.10	u	%	0.10
Blank 1	97HG751-MB1	Mercury, Total	0.04	u	mg/kg	0.04
Blank 1	97GI919-MB1	Lead, Total	5.0	u	mg/kg	5.0

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Thursday March 6th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G091

Inorganic Precision Data Report

Sample	Site ID	Parameter	Initial Result	Replicate	RPD
-001REP	ES-MPUC-1	Lead, Total	0.0020 u	0.0020 u	NC

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To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Thursday March 6th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G091

Inorganic Accuracy Data Report

Sample	Site ID	Parameter	Spiked Sample	Initial Result	Spiked Amount	% Recov
-001	ES-MPUC-1	Lead, Total	0.013	0.0020 u	0.020	66.4

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To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Thursday March 6th, 1997

Project # 03886-136-005-9999
Lab Batch: 9702G091

Inorganic Laboratory Control Standards Report

Lab ID	Parameter	Spiked Amount	Units	Spike #1 % Recov.	Spike #2 % Recov.	RPD
97HG112-LC1	Mercury, LCS	0.0020	mg/L	102	99.9	2.1
97GF514-LC1	Lead, LCS	0.020	mg/L	102	101	0.84
97HG751-LC1	Mercury, LCS	0.40	mg/kg	102	102	0.44
97GI919-LC1	Lead, LCS	50.0	mg/kg	93.7	96.9	3.4

WESTON

Weston Environmental Metrics. Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G091

CLIENT ID	RFW #	MTX	PREP #	COLLECTN DATE	REC EXT/PREP	ANALYSIS
ES-MPUC-1	001	W	97GP0139	02/14/97	02/15/97 02/18/97	02/23/97
ES-MPUC-1	002	S	97GP0137	02/14/97	02/15/97 02/18/97	02/22/97
ES-MPUC-1	002 MS	S	97GP0137	02/14/97	02/15/97 02/18/97	02/22/97
ES-MPUC-1	002 MSD	S	97GP0137	02/14/97	02/15/97 02/18/97	02/22/97
ES-MPUC-2	003	W	97GP0139	02/14/97	02/15/97 02/18/97	02/24/97
ES-MPUC-2	004	S	97GP0137	02/14/97	02/15/97 02/18/97	02/22/97
LAB QC:						
PBLKAV	MB1	W	97GP0139	N/A	N/A 02/18/97	02/24/97
PBLKAV	MB1 BS	W	97GP0139	N/A	N/A 02/18/97	02/24/97
PBLKAW	MB1	S	97GP0137	N/A	N/A 02/18/97	02/24/97
PBLKAW	MB1 BS	S	97GP0137	N/A	N/A 02/18/97	02/24/97

SIGNATURE Patti Anderson for LSM DATE 3/4/97

NY CERTIFICATION # 11006

WESTON

WESTON ENVIRONMENTAL METRICS, INC.
PESTICIDE/PCB CASE NARRATIVE

USACE-Jacksonville
RFW# 9702G091-001\004
Pesticides/PCBs

1. Weston - EMI used the following Gas Chromatographic systems for the analysis of these pesticides and PCBs:

ID#	INSTRUMENT	COLUMN TYPE	DETECTOR
05	Varian 3400	DB-5	Electron Capture
06	Varian 3400	RTX-35	Electron Capture
23	Varian 3400	DB-5	Electron Capture
24	Varian 3400	RTX-35	Electron Capture

2. **These samples were extracted based on SW846 method 3550 and 3520. The extracts were analyzed for pesticides and PCBs based on SW846 method 8080.**

3. All required holding times were met for the extraction and analysis.

4. The method blanks were below the reporting limit for all target compounds.

5. The surrogate compounds used for this analysis were Decachlorobiphenyl (DCB) and Tetrachloro-m-xylene (TCX). All surrogate recoveries were within control limits.

6. All single response pesticides, with the exception of alpha and gamma-Chlordane, were used for spiking.

7. All blank spike recoveries associated with the soils were within control limits. All blank spike recoveries associated with the waters were within control limits, with the exception of alpha-BHC and Endosulfan I, which both had recoveries of 85%.

8. A matrix spike and matrix spike duplicate were performed on sample 9702G091-002 (ES-MPUC-1). A number of recoveries were biased high. There were no target compounds detected in the unspiked sample.

9. The soil samples were analyzed at 1/10 dilutions due to matrix interferences. Reporting limits have been adjusted in order to reflect the necessary dilutions.

Linda S. Mackley
Linda S. Mackley
Organics Section Manager

3-3-97
Date

WESTON Environmental Metrics, Inc. Method Reference

The following methods are used as reference for the analysis of samples contained within this RFW Lot :

GC/HPLC METHODS

Pesticides/PCBs	_X_ **SW-846 8080A**
	_____ **SW-846 8081**
	_____ **40 CFR Part 136, Method 608**
	_____ **OLM01.8/1.9**
	_____ **OLM03.0**
Organophosphorus Pesticides	_____ **SW-846 8141A**
Herbicides	_____ **SW-846 8150B**
Cresols	_____ **SW-846 8040A**
Cresols/Pyridine	_____ **SW-846 8040A Mod**
Explosives	_____ **SW-846 8330**
Polynuclear Aromatics	_____ **SW-846 8310**
	_____ **40 CFR Part 136, Method 610**
Petroleum Hydrocarbons	_____ **SW-846 8015A Mod**
	_____ **California LUFT**
	_____ **Other** _____
EDB & DBCP	_____ **EPA Method 504.1**

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **ES-MPUC-1**
Project # 03886-136-005-9999
Lab ID: **9702G091-001**
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	0.052	U
beta-BHC	BRL	0.052	U
delta-BHC	BRL	0.052	U
gamma-BHC (Lindane)	BRL	0.052	U
Heptachlor	BRL	0.052	U
Aldrin	BRL	0.052	U
Heptachlor epoxide	BRL	0.052	U
Endosulfan I	BRL	0.052	U
Dieldrin	BRL	0.10	U
4,4'-DDE	BRL	0.10	U
Endrin	BRL	0.10	U
Endosulfan II	BRL	0.10	U
4,4'-DDD	BRL	0.10	U
Endosulfan sulfate	BRL	0.10	U
4,4'-DDT	BRL	0.10	U
Methoxychlor	BRL	0.52	U
Endrin ketone	BRL	0.10	U

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Attn: Mr. Dewayne Smith

Date: Monday March 3rd, 1997

RE: ES-MPUC-1
Project # 03886-136-005-9999
Lab ID: 9702G091-001
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	0.52	U
gamma-Chlordane	BRL	0.52	U
Toxaphene	BRL	1.0	U
Endrin aldehyde	BRL	0.10	U
Aroclor-1016	BRL	0.52	U
Aroclor-1221	BRL	0.52	U
Aroclor-1232	BRL	0.52	U
Aroclor-1242	BRL	0.52	U
Aroclor-1248	BRL	0.52	U
Aroclor-1254	BRL	1.0	U
Aroclor-1260	BRL	1.0	U

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **ES-MPUC-1**
Project # 03886-136-005-9999
Lab ID: **9702G091-002**
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	160	U
beta-BHC	BRL	160	U
delta-BHC	BRL	160	U
gamma-BHC (Lindane)	BRL	160	U
Heptachlor	BRL	160	U
Aldrin	BRL	160	U
Heptachlor epoxide	BRL	160	U
Endosulfan I	BRL	160	U
Dieldrin	BRL	330	U
4,4'-DDE	BRL	330	U
Endrin	BRL	330	U
Endosulfan II	BRL	330	U
4,4'-DDD	BRL	330	U
Endosulfan sulfate	BRL	330	U
4,4'-DDT	BRL	330	U
Methoxychlor	BRL	1600	U
Endrin ketone	BRL	330	U

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Auburn, AL 36830-4303

Attn: Mr. Dewayne Smith

Date: Monday March 3rd, 1997

RE: ES-MPUC-1
Project # 03886-136-005-9999
Lab ID: 9702G091-002
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	1600	U
gamma-Chlordane	BRL	1600	U
Toxaphene	BRL	3300	U
Endrin aldehyde	BRL	330	U
Aroclor-1016	BRL	1600	U
Aroclor-1221	BRL	1600	U
Aroclor-1232	BRL	1600	U
Aroclor-1242	BRL	1600	U
Aroclor-1248	BRL	1600	U
Aroclor-1254	BRL	3300	U
Aroclor-1260	BRL	3300	U

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1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **ES-MPUC-2**
Project # 03886-136-005-9999
Lab ID: **9702G091-003**
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	0.052	U
beta-BHC	BRL	0.052	U
delta-BHC	BRL	0.052	U
gamma-BHC (Lindane)	BRL	0.052	U
Heptachlor	BRL	0.052	U
Aldrin	BRL	0.052	U
Heptachlor epoxide	BRL	0.052	U
Endosulfan I	BRL	0.052	U
Dieldrin	BRL	0.10	U
4,4'-DDE	BRL	0.10	U
Endrin	BRL	0.10	U
Endosulfan II	BRL	0.10	U
4,4'-DDD	BRL	0.10	U
Endosulfan sulfate	BRL	0.10	U
4,4'-DDT	BRL	0.10	U
Methoxychlor	BRL	0.52	U
Endrin ketone	BRL	0.10	U

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Attn: Mr. Dewayne Smith

Date: Monday March 3rd, 1997

RE: ES-MPUC-2
Project # 03886-136-005-9999
Lab ID: 9702G091-003
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/L

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	0.52	U
gamma-Chlordane	BRL	0.52	U
Toxaphene	BRL	1.0	U
Endrin aldehyde	BRL	0.10	U
Aroclor-1016	BRL	0.52	U
Aroclor-1221	BRL	0.52	U
Aroclor-1232	BRL	0.52	U
Aroclor-1242	BRL	0.52	U
Aroclor-1248	BRL	0.52	U
Aroclor-1254	BRL	1.0	U
Aroclor-1260	BRL	1.0	U

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1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **ES-MPUC-2**
Project # 03886-136-005-9999
Lab ID: **9702G091-004**
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-BHC	BRL	430	U
beta-BHC	BRL	430	U
delta-BHC	BRL	430	U
gamma-BHC (Lindane)	BRL	430	U
Heptachlor	BRL	430	U
Aldrin	BRL	430	U
Heptachlor epoxide	BRL	430	U
Endosulfan I	BRL	430	U
Dieldrin	BRL	860	U
4,4'-DDE	BRL	860	U
Endrin	BRL	860	U
Endosulfan II	BRL	860	U
4,4'-DDD	BRL	860	U
Endosulfan sulfate	BRL	860	U
4,4'-DDT	BRL	860	U
Methoxychlor	BRL	4300	U
Endrin ketone	BRL	860	U

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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Monday March 3rd, 1997

RE: **ES-MPUC-2**
Project # 03886-136-005-9999
Lab ID: **9702G091-004**
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/KG

PESTICIDE/PCBs BY GC, CLP LIST

Compound	Result	Reporting Limit	Flag
alpha-Chlordane	BRL	4300	U
gamma-Chlordane	BRL	4300	U
Toxaphene	BRL	8600	U
Endrin aldehyde	BRL	860	U
Aroclor-1016	BRL	4300	U
Aroclor-1221	BRL	4300	U
Aroclor-1232	BRL	4300	U
Aroclor-1242	BRL	4300	U
Aroclor-1248	BRL	4300	U
Aroclor-1254	BRL	8600	U
Aroclor-1260	BRL	8600	U

Weston Environmental Metrics, Inc. (Gulf Coast)
PESTICIDE/PCBs BY GC, CLP LIST

RFW Batch Number: 9702G091 Client: USACE-Jacksonville Work Order: 03886-136-005-9 Report Date: 02/28/97 12:23 Page: 1

	Cust ID:	ES-MPUC-1	ES-MPUC-1	ES-MPUC-1	ES-MPUC-1	ES-MPUC-2	ES-MPUC-2
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	004
	Matrix:	WATER	SOIL	SOIL	SOIL	WATER	SOIL
	D.F.:	1.0	5.0	5.0	5.0	1.0	5.0
	Units:	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg
Surrogate: Tetrachloro-m-xylene		100 %	120 %	110 %	105 %	95 %	105 %
Decachlorobiphenyl		100 %	105 %	100 %	115 %	100 %	135 %
alpha-BHC		0.052 U	160 U	95 %	95 %	0.052 U	430 U
beta-BHC		0.052 U	160 U	90 %	85 %	0.052 U	430 U
delta-BHC		0.052 U	160 U	110 %	105 %	0.052 U	430 U
gamma-BHC (Lindane)		0.052 U	160 U	105 %	105 %	0.052 U	430 U
Heptachlor		0.052 U	160 U	105 %	100 %	0.052 U	430 U
Aldrin		0.052 U	160 U	125 * %	120 %	0.052 U	430 U
Heptachlor epoxide		0.052 U	160 U	105 %	110 * %	0.052 U	430 U
Endosulfan I		0.052 U	160 U	110 %	115 * %	0.052 U	430 U
Dieldrin		0.10 U	330 U	110 %	110 %	0.10 U	860 U
4,4'-DDE		0.10 U	330 U	125 * %	125 * %	0.10 U	860 U
Endrin		0.10 U	330 U	130 %	125 %	0.10 U	860 U
Endosulfan II		0.10 U	330 U	110 %	115 %	0.10 U	860 U
4,4'-DDD		0.10 U	330 U	120 %	125 %	0.10 U	860 U
Endosulfan sulfate		0.10 U	330 U	95 %	100 %	0.10 U	860 U
4,4'-DDT		0.10 U	330 U	85 %	120 %	0.10 U	860 U
Methoxychlor		0.52 U	1600 U	115 %	140 * %	0.52 U	4300 U
Endrin ketone		0.10 U	330 U	120 * %	120 * %	0.10 U	860 U
alpha-Chlordane		0.52 U	1600 U	1600 U	1600 U	0.52 U	4300 U
gamma-Chlordane		0.52 U	1600 U	1600 U	1600 U	0.52 U	4300 U
Toxaphene		1.0 U	3300 U	3300 U	3200 U	1.0 U	8600 U
Endrin aldehyde		0.10 U	330 U	135 * %	140 * %	0.10 U	860 U
Aroclor-1016		0.52 U	1600 U	1600 U	1600 U	0.52 U	4300 U
Aroclor-1221		0.52 U	1600 U	1600 U	1600 U	0.52 U	4300 U
Aroclor-1232		0.52 U	1600 U	1600 U	1600 U	0.52 U	4300 U
Aroclor-1242		0.52 U	1600 U	1600 U	1600 U	0.52 U	4300 U
Aroclor-1248		0.52 U	1600 U	1600 U	1600 U	0.52 U	4300 U
Aroclor-1254		1.0 U	3300 U	3300 U	3200 U	1.0 U	8600 U
Aroclor-1260		1.0 U	3300 U	3300 U	3200 U	1.0 U	8600 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Sample Information	Cust ID:	PBLKAV	PBLKAV BS	PBLKAW	PBLKAW BS
	RFW#:	97GP0139-MB1	97GP0139-MB1	97GP0137-MB1	97GP0137-MB1
	Matrix:	WATER	WATER	SOIL	SOIL
	D.F.:	1.0	1.0	0.50	0.50
	Units:	ug/L	ug/L	ug/Kg	ug/Kg
Surrogate:	Tetrachloro-m-xylene	70 %	90 %	95 %	100 %
	Decachlorobiphenyl	100 %	95 %	90 %	90 %
alpha-BHC		0.050 U	85 * %	4.0 U	95 %
beta-BHC		0.050 U	85 %	4.0 U	100 %
delta-BHC		0.050 U	90 %	4.0 U	100 %
gamma-BHC (Lindane)		0.050 U	85 %	4.0 U	95 %
Heptachlor		0.050 U	85 %	4.0 U	100 %
Aldrin		0.050 U	90 %	4.0 U	100 %
Heptachlor epoxide		0.050 U	90 %	4.0 U	100 %
Endosulfan I		0.050 U	85 * %	4.0 U	90 %
Dieldrin		0.10 U	80 %	8.0 U	90 %
4,4'-DDE		0.10 U	100 %	8.0 U	100 %
Endrin		0.10 U	90 %	8.0 U	105 %
Endosulfan II		0.10 U	85 %	8.0 U	100 %
4,4'-DDD		0.10 U	90 %	8.0 U	95 %
Endosulfan sulfate		0.10 U	90 %	8.0 U	105 %
4,4'-DDT		0.10 U	95 %	8.0 U	85 %
Methoxychlor		0.50 U	95 %	40 U	100 %
Endrin ketone		0.10 U	90 %	8.0 U	100 %
alpha-Chlordane		0.50 U	0.50 U	40 U	40 U
gamma-Chlordane		0.50 U	0.50 U	40 U	40 U
Toxaphene		1.0 U	1.0 U	80 U	80 U
Endrin aldehyde		0.10 U	75 %	8.0 U	95 %
Aroclor-1016		0.50 U	0.50 U	40 U	40 U
Aroclor-1221		0.50 U	0.50 U	40 U	40 U
Aroclor 1232		0.50 U	0.50 U	40 U	40 U
Aroclor 1242		0.50 U	0.50 U	40 U	40 U
Aroclor 1248		0.50 U	0.50 U	40 U	40 U
Aroclor 1254		1.0 U	1.0 U	80 U	80 U
Aroclor-1260		1.0 U	1.0 U	80 U	80 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

WESTON

Weston Environmental Metrics, Inc.
HPAH ANALYTICAL DATA PACKAGE FOR
USACE-Jacksonville

LABORATORY CHRONICLE

RFW LOT # :9702G091

CLIENT ID	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
ES-MPUC-1	001	W	97GP0148	02/14/97	02/15/97	02/19/97	03/08/97
ES-MPUC-1	002	S	97GP0138	02/14/97	02/15/97	02/18/97	02/26/97
ES-MPUC-2	003	W	97GP0148	02/14/97	02/15/97	02/19/97	03/08/97
ES-MPUC-2	004	S	97GP0138	02/14/97	02/15/97	02/18/97	02/26/97
ES-MPUC-2	004 MS	S	97GP0138	02/14/97	02/15/97	02/18/97	02/26/97
ES-MPUC-2	004 MSD	S	97GP0138	02/14/97	02/15/97	02/18/97	02/26/97
LAB QC:							
BLK	MB1	W	97GP0148	N/A	N/A	02/19/97	03/07/97
BLK	MB1 BS	W	97GP0148	N/A	N/A	02/19/97	03/08/97
BLK	MB1 BSD	W	97GP0148	N/A	N/A	02/19/97	03/08/97
BLK	MB1	S	97GP0138	N/A	N/A	02/18/97	02/26/97
BLK	MB1 BS	S	97GP0138	N/A	N/A	02/18/97	02/26/97
BLK	MB1 BSD	S	97GP0138	N/A	N/A	02/18/97	02/26/97

SIGNATURE Linda J. Mackley DATE 3-14-97

NY CERTIFICATION # 11006

WESTON

WESTON ENVIRONMENTAL METRICS, INC.
PAH CASE NARRATIVE

USACE-Jacksonville
RFW# 9702G091-001\004
PAHs

1. Weston EMI uses the following High Performance Liquid Chromatographic system for analysis of polynuclear aromatic hydrocarbons:

ID#	INSTRUMENT	COLUMN TYPE	DETECTOR
25	Spectra-Physics	C-18 PAH	UV - 254nm
26	Spectra-Physics	C-18 PAH	Fluorescence

2. These samples were extracted based on SW846 method 3550 and 3510. The extracts were analyzed for PAHs (i.e. PNAs) based on SW846 method 8310 protocols.

3. All required holding times were met for the extraction and analysis.

4. The water method blank was below the reporting limit for all target compounds. The soil method blank which was below the reporting limit for all target compounds, with the exception of Fluorene which was present at a level of 3.7 ug/Kg. Fluorene was not detected in the associated samples.

5. The surrogate compounds used for this analysis were Decafluorobiphenyl and Benzo(e)pyrene. All surrogate recoveries were within control limits, with the exception of those which were diluted out and the Benzo(e)pyrene associated with samples 9702G091-001 (ES-MPUC-1) and 9702G091-003 (ES-MPUC-2) which were below statistical control limits.

6. A blank spike and blank spike duplicate analysis were performed for both the soils and the water. All blank spike and blank spike duplicate recoveries associated with the water were within control limits. All blank spike and blank spike duplicate recoveries associated with the soils were within control limits, with the exception of Fluorene, which had recoveries of 61% and 63%.

7. A matrix spike and matrix spike duplicate were performed on sample 9702G091-004 (ES-MPUC-2). All recoveries were diluted out.

8. All initial and continuing standard calibrations associated with these samples were within control limits.

9. The soil samples were analyzed at a 1/50 dilution due to matrix interferences. Reporting limits have been adjusted in order to reflect the necessary dilution.

Linda S. Mackley
Linda S. Mackley
Organics Section Manager

3-13-97
Date

WESTON Environmental Metrics, Inc. Method Reference

The following methods are used as reference for the analysis of samples contained within this RFW Lot :

GC/HPLC METHODS

Pesticides/PCBs	____ SW-846 8080A ____ SW-846 8081 ____ 40 CFR Part 136, Method 608 ____ OLM01.8/1.9 ____ OLM03.0
Organophosphorus Pesticides	____ SW-846 8141A
Herbicides	____ SW-846 8150B
Cresols	____ SW-846 8040A
Cresols/Pyridine	____ SW-846 8040A Mod
Explosives	____ SW-846 8330
Polynuclear Aromatics	__X__ SW-846 8310 ____ 40 CFR Part 136, Method 610
Petroleum Hydrocarbons	____ SW-846 8015A Mod ____ California LUFT ____ Other _____
EDB & DBCP	____ EPA Method 504.1

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
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ANALYTICAL REPORT

To: USACE-Jacksonville
Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 14th, 1997

RE: **ES-MPUC-1**
Project # 03886-136-005-9999
Lab ID: **9702G091-001**
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/L

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	0.52	U
Acenaphthylene	BRL	0.52	U
Acenaphthene	BRL	1.0	U
Fluorene	BRL	0.13	U
Phenanthrene	BRL	0.52	U
Anthracene	BRL	0.026	U
Fluoranthene	BRL	0.26	U
Pyrene	BRL	0.52	U
Benzo(a)anthracene	BRL	0.10	U
Chrysene	BRL	0.52	U
Benzo(b)fluoranthene	BRL	0.13	U
Benzo(k)fluoranthene	BRL	0.052	U
Benzo(a)pyrene	BRL	0.052	U
Dibenzo(a,h)anthracene	BRL	0.26	U
Benzo(g,h,i)perylene	BRL	0.26	U
Indeno(1,2,3-cd)pyrene	BRL	0.12	U

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 14th, 1997

RE: **ES-MPUC-1**
Project # 03886-136-005-9999
Lab ID: **9702G091-002**
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	1700	U
Acenaphthylene	BRL	1700	U
Acenaphthene	BRL	3400	U
Fluorene	BRL	430	U
Phenanthrene	BRL	1700	U
Anthracene	BRL	86	U
Fluoranthene	BRL	860	U
Pyrene	BRL	1700	U
Benzo(a)anthracene	BRL	340	U
Chrysene	BRL	1700	U
Benzo(b)fluoranthene	BRL	430	U
Benzo(k)fluoranthene	BRL	170	U
Benzo(a)pyrene	BRL	170	U
Dibenzo(a,h)anthracene	BRL	860	U
Benzo(g,h,i)perylene	BRL	860	U
Indeno(1,2,3-cd)pyrene	BRL	410	U

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 14th, 1997

RE: **ES-MPUC-2**
Project # 03886-136-005-9999
Lab ID: **9702G091-003**
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/L

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	0.50	U
Acenaphthylene	BRL	0.50	U
Acenaphthene	BRL	1.0	U
Fluorene	BRL	0.12	U
Phenanthrene	BRL	0.50	U
Anthracene	BRL	0.025	U
Fluoranthene	BRL	0.25	U
Pyrene	BRL	0.50	U
Benzo(a)anthracene	BRL	0.10	U
Chrysene	BRL	0.50	U
Benzo(b)fluoranthene	BRL	0.12	U
Benzo(k)fluoranthene	BRL	0.050	U
Benzo(a)pyrene	BRL	0.050	U
Dibenzo(a,h)anthracene	BRL	0.25	U
Benzo(g,h,i)perylene	BRL	0.25	U
Indeno(1,2,3-cd)pyrene	BRL	0.12	U

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Roy F. Weston, Incorporated
1635 Pumphrey Avenue
Auburn, AL 36830-4303

Attn: **Mr. Dewayne Smith**

Date: Friday March 14th, 1997

RE: **ES-MPUC-2**
Project # 03886-136-005-9999
Lab ID: **9702G091-004**
Sample Date: 02/14/97
Date Received: 02/15/97
Units: UG/KG

PAHs BY HPLC

Compound	Result	Reporting Limit	Flag
Naphthalene	BRL	4400	U
Acenaphthylene	BRL	4400	U
Acenaphthene	BRL	8900	U
Fluorene	BRL	1100	U
Phenanthrene	BRL	4400	U
Anthracene	BRL	220	U
Fluoranthene	BRL	2200	U
Pyrene	BRL	4400	U
Benzo(a)anthracene	BRL	890	U
Chrysene	BRL	4400	U
Benzo(b)fluoranthene	BRL	1100	U
Benzo(k)fluoranthene	BRL	440	U
Benzo(a)pyrene	BRL	440	U
Dibenzo(a,h)anthracene	BRL	2200	U
Benzo(g,h,i)perylene	BRL	2200	U
Indeno(1,2,3-cd)pyrene	BRL	1100	U

Weston Environmental Metrics, Inc. (Gulf Coast)
PAHs BY HPLC

RFW Batch Number: 9702G091 Client: USACE-Jacksonville Work Order: 03886-136-005-9 Report Date: 03/12/97 16:39 Page: 1

	Cust ID:	ES-MPUC-1	ES-MPUC-1	ES-MPUC-2	ES-MPUC-2	ES-MPUC-2	ES-MPUC-2
Sample Information	RFW#:	001	002	003	004	004 MS	004 MSD
	Matrix:	WATER	SOIL	WATER	SOIL	SOIL	SOIL
	D.F.:	1.0	50	1.0	50	50	50
	Units:	ug/L	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/Kg
Surrogate	Decafluorobiphenyl	76 %	72 %	75 %	53 %	D %	D %
	Benzo(e)pyrene	48 * %	D %	46 * %	D %	D %	D %
		fl	fl	fl	fl	fl	fl
Naphthalene		0.52 U	1700 U	0.50 U	4400 U	D %	D %
Acenaphthylene		0.52 U	1700 U	0.50 U	4400 U	D %	D %
Acenaphthene		1.0 U	3400 U	1.0 U	8900 U	D %	D %
Fluorene		0.13 U	430 U	0.12 U	1100 U	D %	D %
Phenanthrene		0.52 U	1700 U	0.50 U	4400 U	D %	D %
Anthracene		0.026 U	86 U	0.025 U	220 U	D %	D %
Fluoranthene		0.26 U	860 U	0.25 U	2200 U	D %	D %
Pyrene		0.52 U	1700 U	0.50 U	4400 U	D %	D %
Benzo(a)anthracene		0.10 U	340 U	0.10 U	890 U	D %	D %
Chrysene		0.52 U	1700 U	0.50 U	4400 U	D %	D %
Benzo(b)fluoranthene		0.13 U	430 U	0.12 U	1100 U	D %	D %
Benzo(k)fluoranthene		0.052 U	170 U	0.050 U	440 U	D %	D %
Benzo(a)pyrene		0.052 U	170 U	0.050 U	440 U	D %	D %
Dibenzo(a,h)anthracene		0.26 U	860 U	0.25 U	2200 U	D %	D %
Benzo(g,h,i)perylene		0.26 U	860 U	0.25 U	2200 U	D %	D %
Indeno(1,2,3-cd)pyrene		0.12 U	410 U	0.12 U	1100 U	D %	D %

U= Analyzed, not detected. J= Present below detection limit, B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Weston Environmental Metrics, Inc. (Gulf Coast)

PAHS BY HPLC

RFW Batch Number: 9702G091 Client: USACE-Jacksonville Work Order: 03886-136-005-9 Report Date: 03/12/97 16:39 Page: 2

Sample Information	Cust ID:	BLK	BLK BS	BLK BSD	BLK	BLK BS	BLK BSD
	RFW#:	97GP0148-MB1	97GP0148-MB1	97GP0148-MB1	97GP0138-MB1	97GP0138-MB1	97GP0138-MB1
	Matrix:	WATER	WATER	WATER	SOIL	SOIL	SOIL
	D.F.:	1.0	1.0	1.0	1.0	1.0	1.0
	Units:	ug/L	ug/L	ug/L	ug/Kg	ug/Kg	ug/Kg
Surrogate	Decafluorobiphenyl	88 %	94 %	92 %	84 %	79 %	82 %
	Benzo(e)pyrene	87 %	96 %	94 %	88 %	86 %	86 %
Naphthalene		0.50 U	102 %	99 %	8.3 U	90 %	84 %
Acenaphthylene		0.50 U	90 %	90 %	8.3 U	78 %	85 %
Acenaphthene		1.0 U	90 %	90 %	17 U	79 %	83 %
Fluorene		0.12 U	93 %	91 %	3.7	61 * %	63 * %
Phenanthrene		0.50 U	96 %	96 %	8.3 U	84 %	86 %
Anthracene		0.025 U	96 %	96 %	0.42 U	72 %	80 %
Fluoranthene		0.25 U	93 %	92 %	4.2 U	83 %	85 %
Pyrene		0.50 U	93 %	92 %	8.3 U	84 %	86 %
Benzo(a)anthracene		0.10 U	86 %	85 %	1.7 U	73 %	77 %
Chrysene		0.50 U	82 %	81 %	8.3 U	73 %	75 %
Benzo(b)fluoranthene		0.12 U	115 %	112 %	2.1 U	102 %	104 %
Benzo(k)fluoranthene		0.050 U	100 %	98 %	0.83 U	88 %	92 %
Benzo(a)pyrene		0.050 U	100 %	98 %	0.83 U	78 %	88 %
Dibenzo(a,h)anthracene		0.25 U	94 %	94 %	4.2 U	75 %	78 %
Benzo(g,h,i)perylene		0.25 U	97 %	94 %	4.2 U	87 %	93 %
Indeno(1,2,3-cd)pyrene		0.12 U	98 %	98 %	2.0 U	84 %	86 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Weston Environmental Metrics, Inc.

RFW#: 97026091

Sample Discrepancy Report (SDR)

Client: USACE
Contact: Dewayne Smith
Project: Jacksonville
Phone #: 334/826 6100
FAX #: 334 826 8232

Analyses: TS

Matrix: Water Soil Other

Deliverable Type: (circle)
CLP STD SPEC

COC received: Yes No

Quote from PM: Yes No

1.a. Type of Sample Discrepancy

COC / Sample				LOG-IN		Client		Unit	
	ID Discrepancy		Rec'd past hold time		Log-in past hold time		Changed Analyses		Analyzed past hold time
	Date Discrepancy		Improper Preserv.		Log-in Error		Improper bottle type		Missing sample/extract
	Incomplete		Missing sample/extract				Label unreadable		Insufficient sample
	Unreadable		Container broken				Insufficient sample		
	Cooler temp. _____ C		- sample lost						
	Quote Discrepancy		- suspect contamination						
			Bubbles in VOA vials						
		X	parameter						EDD

1.b. Lab ID (COC/Client ID) Deficiency/Discrepancy

-001 ES-MPUC-1 COC: TS did not rec bottle marked TS
all plastic rec'd are preserved
did rec' 2, 1-l amber for organics (P/PCB, PAH)

samples rec'd 2/15/97

Initiator sign: [signature] Date: 2/17/97

2.a. PM Establish Action Plan:

	Cancel		Bottle/jar replaced		Change Test Code from _____ to _____
	Add		Lid replaced		Change Due Date from _____ to _____
	Place on hold		Analyze samples		Include in Case Narrative
	Log-in		Analyze Past Hold		Amend EDD
	Subcontract		Preserve then Analyze		

2.b. Special Action:

Name:		Action Initiator Initial & Date:		Action Completion Initial & Date:	
LOGIN	use extra 1 liter amber for TS	JDH	2/17/97	[initials]	2/17/97

3. Receipt of Copies: (INITIAL AND DATE)

1. GC	4. W.C.
2. GC/MS	5. Digest
3. Metals	6. Extract

Distribution and Copy to QA: 2/17/97 [initials]

4. PM Final Approval of All Actions Taken:

X Send copy to Client

Signature: [signature] Date: 2-17-97

5. QA For Quality Measurement Only:

Final Distribution - Attach original to worksheet and send a copy to QA

Revision Date: 8/29/95
RFW 21-21G-0007/B-[illegible]

WESTON Analytics Use Only

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Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

46

Client: USACOE
Est. Final Proj. Sampling Date: ____
Work Order #: 03886-136-005
Project Contact/Phone #: DEWAYNE SMITH
AD Project Manager: 334-826 6100
QC ____ Del ____ TAT: STD
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #																	
#/Type Container	Liquid			1			1				1						
	Solid			1			1					1	1	1			
Volume	Liquid			1l			1l					1l	1l	1l			
	Solid			4oz			4oz				8oz						
Preservatives												[illegible]	[illegible]	[illegible]			
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb	PAH	LEAD	Hg	Metal	CN	TOC	O+G	SULFILE	TOTAL SOLIDS			

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MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	PAH	LEAD	Hg	Metal	CN	TOC	O+G	SULFILE	TOTAL SOLIDS
001	ES-MPUC-1			W	14 FEB 97	10:00			X		X	X	X				X	X	X
002	ES MPUC-1			S	14 FEB 97	10:45			X		X	X	X			X	X	X	
003	ES MPUC-2			W	14 FEB 97	11:25			X		X	X	X			X	X	X	
004	ES MPUC-2			S	14 FEB 97	12:[illegible]			X		X	X	X			X	X	X	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

[illegible]

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____ 2.4 .02°C
5. ____
6. ____

WESTON Analytics Use Only

Samples were: TC
1) Shipped ✓ or Hand Delivered ____ Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N +45327 +4532
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

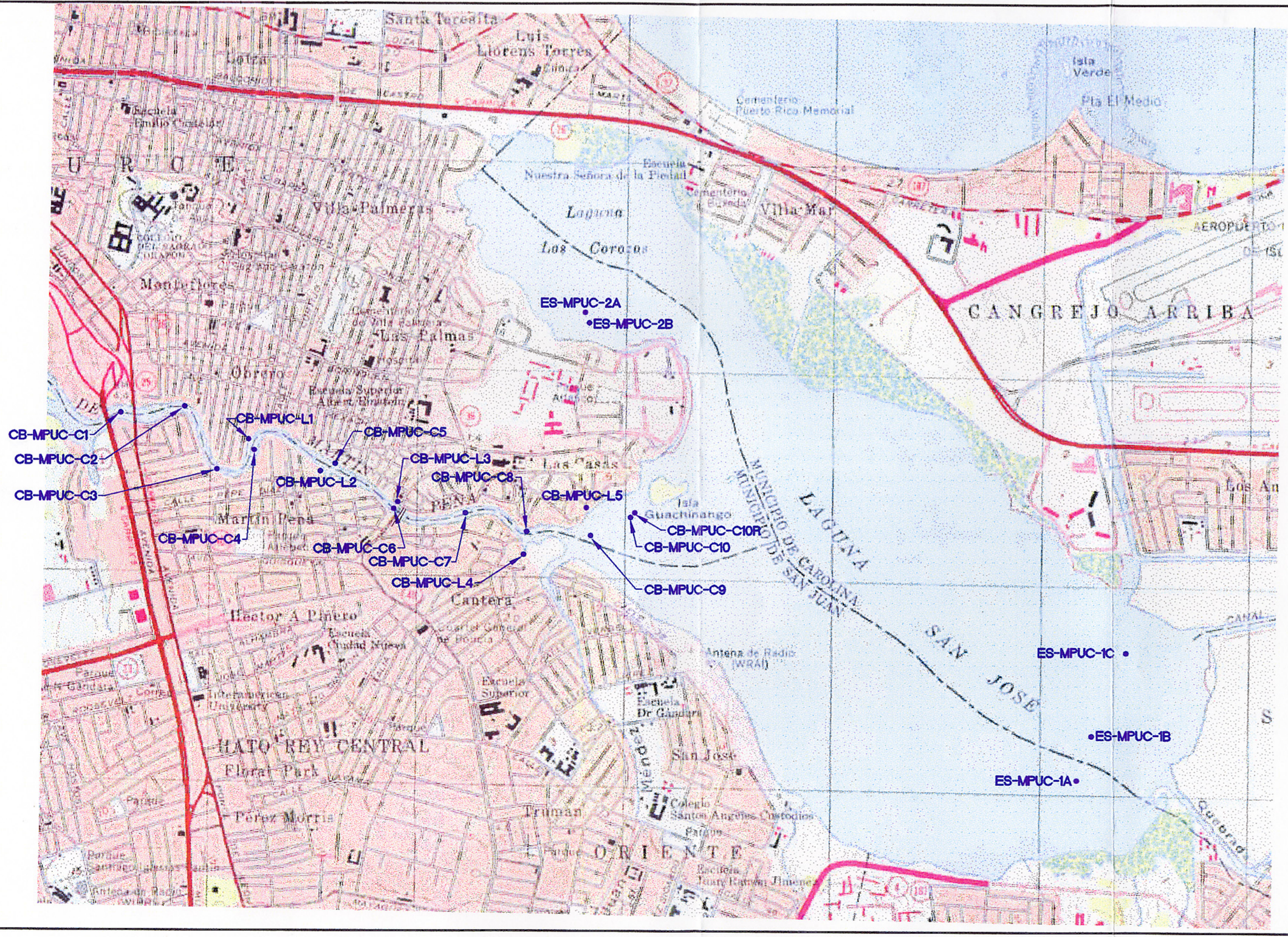
Relinquished by	Received by	Date	Time
[illegible]	FedEx	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____

381-596a



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MANAGERS DESIGNERS/CONSULTANTS
AUBURN ALABAMA

CHECKED	DATE
DES. ENG.	T. FRINAK
CHK. APPR.	
PROJ. MGR.	D. SMITH
DRAWN BY	T. TOLBERT

CLIENT: U. S. ARMY CORPS OF ENGINEERS
JACKONSVILLE DISTRICT
JACKONSVILLE, FLORIDA

PROJECT TITLE: PRELIMINARY SITE CHARACTERIZATION
MARTIN PENA CANAL
SAN JUAN, PUERTO RICO

DRAWING TITLE: INVESTIGATION SITE SHOWING SAMPLE LOCATIONS

REV. NUMBER: 03886-136-005
DWG. NUMBER: FIGURE 1
SHEET 1 OF 1

DREDGING OF CAÑO MARTÍN PEÑA
PUERTO RICO
FINAL
PROJECT DESIGN REPORT AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX H
ENVIRONMENTAL SITE ASSESSMENT REPORT

ENVIRONMENTAL SITE ASSESSMENT

MARTIN PENA CANAL
SAN JUAN, PUERTO RICO

US ARMY CORPS OF ENGINEERS
JACKSONVILLE DISTRICT

Prepared by:
ECG, Inc.
1317 Wilmer Street, Suite 102
Anniston, Alabama 36201

EXECUTIVE SUMMARY

The Martin Pena Canal is located on the north side of the island of Puerto Rico in an urban area of San Juan between the San Juan Bay and the San Jose Lagoon. The Corps of Engineers, Jacksonville District has proposed activities to rehabilitate the canal by reopening the channel to its original width through dredging and channelization. The purpose of this investigation was to determine the negative impact, if any, developments along the canal have had on the environmental integrity of the canal and surrounding area and the determine any special requirements for disposal of the dredged material that will be generated during rehabilitation activities. Work conducted during this investigation was awarded under contract DACW17-96-D-0009, delivery order 0009.

Task 1 of this project consisted of development and preparation of a Site Safety and Health Plan (SSHP) addressing specific site conditions. In addition to preparing the SSHP, ECG provided on-site monitoring of site conditions during the assessment portion of this project. Task 2 consisted of the assessment for potential environmental impact from waste disposal practices along the canal in the past. Samples of the soil and groundwater adjacent to the canal were retrieved and analyzed for contaminants according to EPA method 1311, Full Battery Toxicity Characteristic Leachate Procedure (TCLP) analysis. A total of ten (10) soil and ten (10) groundwater samples were taken from the canal area. Three (3) soil and one (1) water sample were retrieved from a proposed disposal site to establish background.

Fieldwork conducted 27 April through 14 May 1998, at this site included test pit excavations, core borings, soil and groundwater sampling, and area reconnaissance.

I. SITE HYDROGEOLOGY CAN BE DESCRIBED AS FOLLOWS:

1. The geology along the canal consists of primarily clay and silty clay with some sand, deposited in thin layers. Locally the Aymamon Limestone was encountered at depth of forty (40) to fifty (50) below the surface. Shallow subsurface geology includes a fill material cap placed on the waste terraces, the waste material contained in a layer of organic rich clay, and a peat layer of partially decomposed material below the organic clay.

2. Groundwater is within a few feet of the surface and near the eastern end of the study area occurs on the surface below a mat of plants and refuse. Locally, the groundwater was noted to have significant oily sheen on it.

3. The proposed disposal site is underlain by a series of clay and silty clay layers, which appear to form a relatively impermeable layer. The surface of much of the disposal site is covered by water approximately two (2) feet deep.

II. WATER QUALITY PROBLEMS ARE ATTRIBUTABLE TO THE FOLLOWING:

1. There are more than 3,000 structures without sewer connections adjacent to or in close proximity to the canal;

2. The canal is choked due to recent urban development encroaching on its original width;

3. There is insufficient hydraulic capacity of the canal to flush or dilute pollutants;

4. Human activities in the developments near the canal generate solid waste. This solid waste is improperly managed. Dumped in the canal, this solid waste generates a terrace. These terraces have been capped and used as sites for additional development. This encroachment reduces the hydraulic capacity of the canal.

5. Waste material includes significant amounts of household waste, solid waste, and construction debris. The waste is confined primarily to the layer of organic rich clay between the fill material cap and the peat layer and varies from three (3) to eleven (11) feet thick.

III. AN ASSESSMENT OF SOIL AND GROUNDWATER QUALITY REVEALED THE FOLLOWING:

1. Analysis of ten (10) soil and ten (10) water samples from the canal area for Full Battery TCLP, method 1311 revealed no leachable contaminants. Although unsightly, this material is not hazardous.

2. Analysis of three (3) soil samples and one (1) surface water sample from the proposed disposal area for Full Battery TCLP, method 1311 revealed no leachable contaminants.

Although unsightly and likely unsanitary, solid waste material contained within the organic rich clay layer is non-hazardous. Upland disposal should not pose a threat to environmental integrity or human health and safety. ECG does not disagree with the idea of using the proposed site for disposal of dredged waste with the following considerations:

1. Most of the material consists of household waste and construction debris. The wood making up the bulk of the construction debris can be placed in the proposed disposal site. The household waste should be segregated to the extent practicable and taken to the municipal landfill for disposal.

2. Tires and metal debris should not be placed in the proposed disposal area. As the fill settles, these waste items could be exposed at the surface, presenting further hazards. These types of items should be disposed of in a different location.

Based on thorough soil and groundwater sampling and analysis, the waste layer and surrounding area have been determined to be non-hazardous. However, the following issues should be considered during excavation and disposal of this material.

1. During excavation and widening of the channel, site workers should be cautious of their surroundings. Although the trash layer as a whole is non-hazardous, individual items within the trash may require special consideration, i.e. needles from local drug use.

2. During excavation, it will be important to monitor and maintain adequate ventilation due to the presence of hydrogen sulfide gas. This gas is heavier than air and will collect in low places. In most cases, action of the wind should be in most cases adequate to prevent collection.

3. Although there were no leachable contaminants reported present in the soil and groundwater samples, consideration should be given to long term stability of this material. By changing soil chemistry, ie from a reducing environment to an oxidizing environment, it may be possible to mobilize compounds originally reported as being non-leachable. Additionally, it may be possible to remobilize contaminants due to the long term actions of humic, fulvic, and similar organic acids present in a buried environment. However, the geology of the disposal site would suggest that any remobilized contaminants would be unable to migrate significant distances. Although more costly, and involving a weir and collection system to manage the leachate, an impermeable liner placed below and above the dredge waste would insure containment.

4. As an alternative to upland disposal, the waste material could be disposed in the deeper areas of the lagoons or the open ocean. The waste material could be encapsulated in impermeable bags called

Geo-Sacs, and sunk in the water. These bags consist of High Density Polyethylene (HDPE) and would effectively isolate the waste material from the surrounding environment and stabilize the chemistry of the waste. This option would obviate the need for a collection and management system and would eliminate the concern over long term stability.

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1.0 INTRODUCTION

The Martin Pena Canal is located on the north side of the island of Puerto Rico in an urban area of San Juan between the San Juan Bay and the San Jose Lagoon. Development along the canal has resulted in restriction of the channel. Most of the environmental problems of the canal are a direct result of 3,000 structures with no sewer connections and the fact that the canal has insufficient hydraulic capacity to assimilate and flush pollutants. Consequently, the Corps of Engineers, Jacksonville District has proposed activities to rehabilitate the canal by reopening the channel to its original width through dredging and channelization. The purpose of this investigation was to determine the negative impact, if any, these developments have had on the environmental integrity of the canal and surrounding area and the determine the optimum and appropriate method for disposal of the dredged material that will be generated during rehabilitation activities.

1.1 SCOPE OF WORK

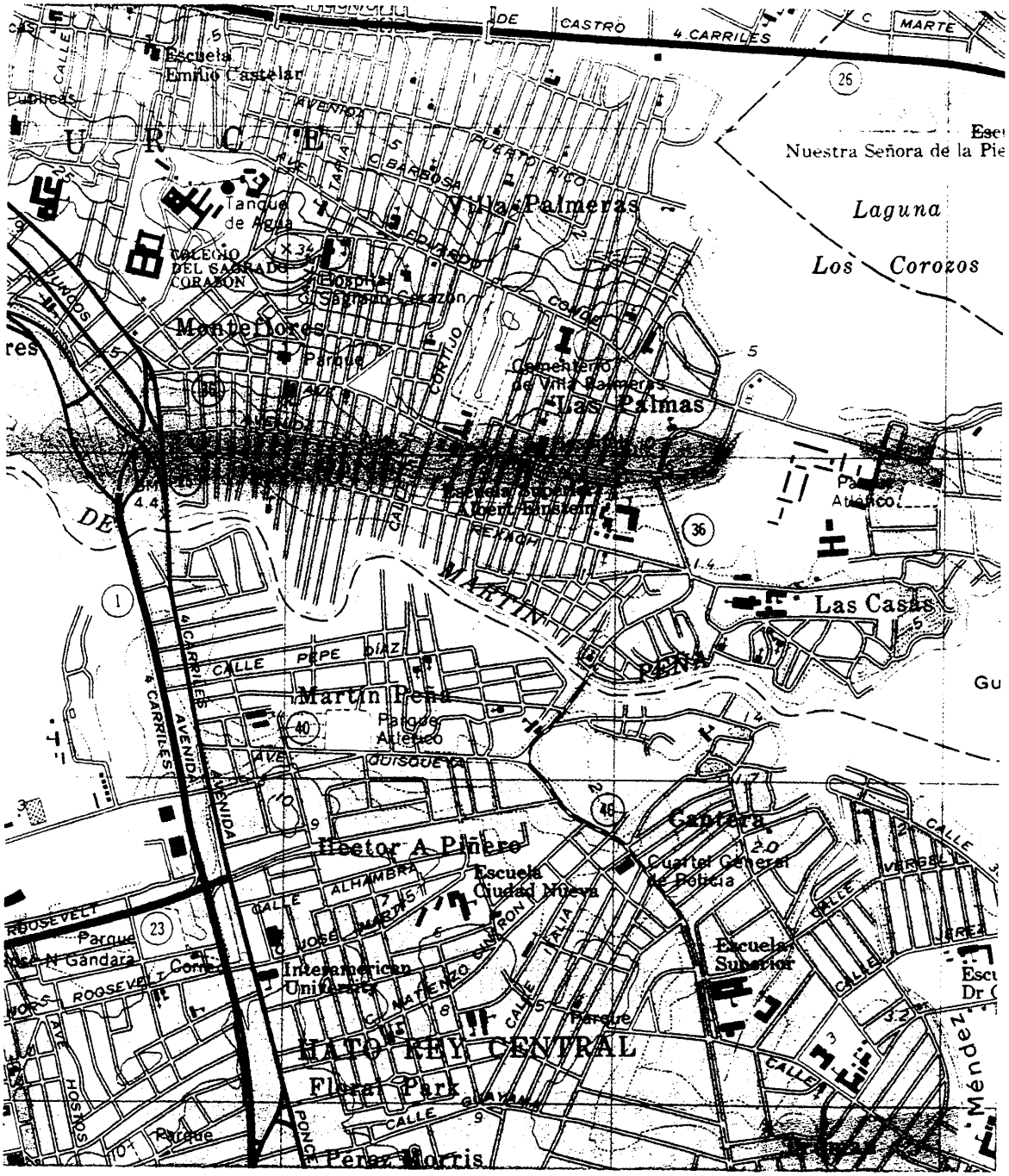
This project involved two (2) tasks. Task 1 consisted of development and preparation of a Site Safety and Health Plan (SSHP) specific to site conditions. In addition to preparing a SSHP, ECG was to provide on-site monitoring of site conditions during the assessment portion of this project.

Task 2 consisted of the assessment for potential environmental impact from waste disposal practices along the canal in the past. Samples of the soil and groundwater adjacent to the canal were retrieved and analyzed for contaminants according to EPA method 1311, Full Battery Toxicity Characteristic Leachate Procedure (TCLP) analysis. A total of ten (10) soil and ten (10) groundwater samples were taken from the canal area. Three (3) soil and one (1) water sample were retrieved from a proposed disposal site to establish background.

Work conducted during this investigation was awarded under contract DACW17-96-D-0009, delivery order 0009.

2.0 SITE DESCRIPTION

The study area consists of the Martin Pena Canal from the *Termina Acua-Expresa Hato Rey* at the western end to the mouth of the canal at San Jose Lagoon at the eastern end (figure 1). The surrounding



Environmental Site Assessment – Martin Pena Canal
San Juan, Puerto Rico

Figure 1 Scale 1:24000

Canal Area

Source: USGS 7.5 Minute Quadrangle Series; San Juan, Puerto Rico

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(205) 235-2110

area on both sides of the canal is thickly developed and inhabited. In addition to the canal area, the assessment included a proposed disposal site. This disposal site is east of the canal area, across the San Jose Lagoon (figure 2).

2.1 MARTIN PENA CANAL

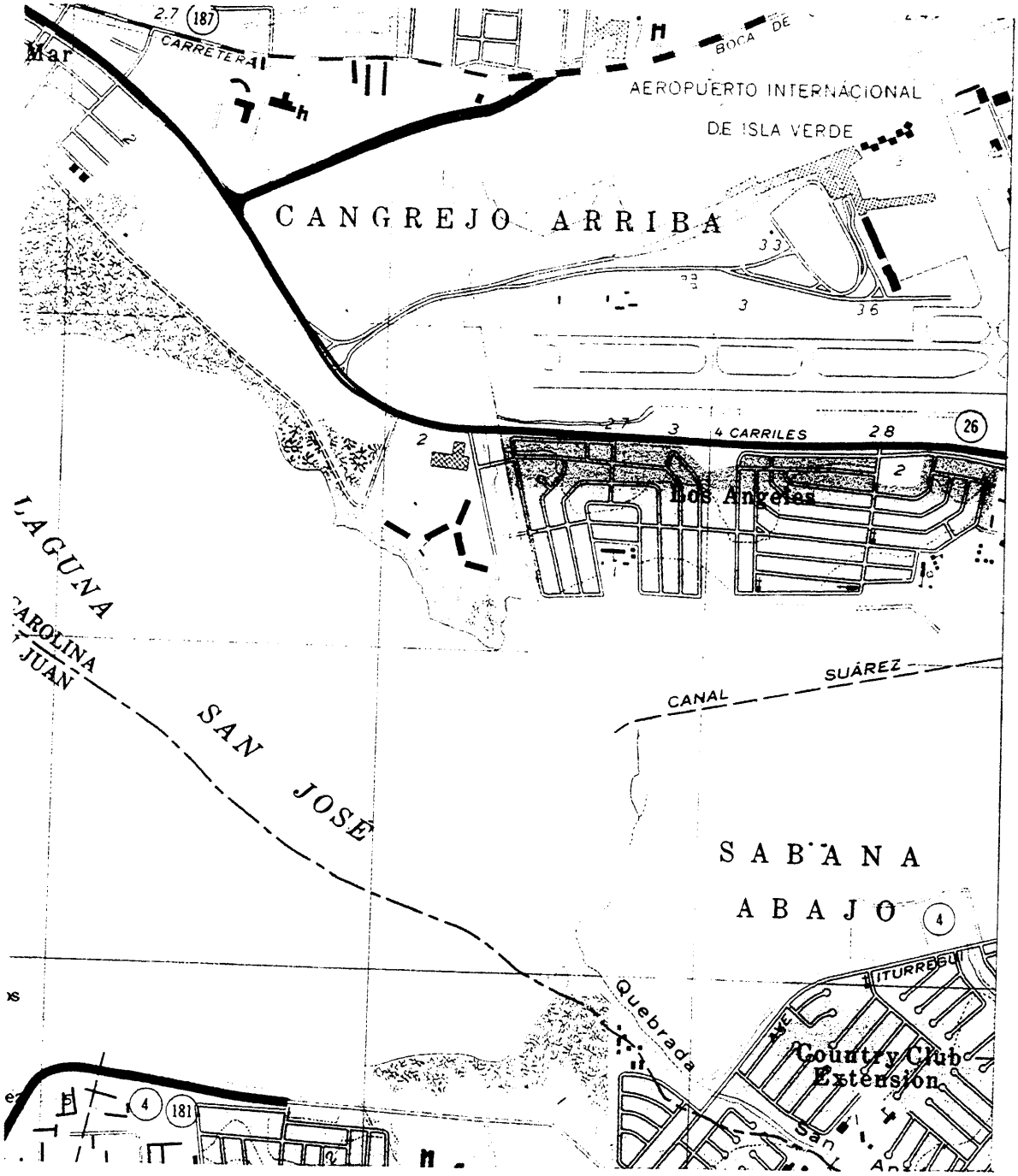
The Martin Pena Canal is one of several natural canals in the San Juan area that make up the intracoastal drainage system. The canal extends from San Juan Bay eastward to the San Jose Lagoon. The western portion of the canal has been developed to serve as a waterway for ships and small craft. The eastern portion has been significantly impacted by the encroachment of local development and is the subject of this investigation.

The study area is approximately 1.8 miles long and 0.3 miles wide and consists of the canal itself and all property 100 feet on either side of the centerline of the canal. The western end of the site is located at coordinates 18 25.96N, 66 03.58W. The canal has an average width of 100 feet and is lined with thick mangrove stands.

The area is very congested and thickly inhabited. Solid and household waste is disposed on the curbsides, in vacant lots, and along and in the canal. Wastes include general household refuse, concrete and construction debris, automobile parts, furniture, and white goods. These solid waste disposal practices by local residents have choked many areas along the canal. The accumulation of these wastes has resulted in terraces, which once established, are capped with dirt. Additional homes have been constructed on the terraces. The result of this practice has been a significant restriction of the original channel reducing the ability of the canal to recirculate intracoastal waters or direct storm water discharge. The canal has also been subjected to unmanaged domestic wastewater discharge as a result of this development.

2.2 DISPOSAL AREA

The proposed disposal area consists of approximately 115 acres in the northeastern end of *Cuidad Deportiva Roberto Clemente*, located approximately 1.6 miles from the subject site, across San Jose Lagoon. The area is currently covered by pine trees and wetland grasses and bounded on the north and west by marshlands associated with the lagoon. The disposal site is located at coordinates 18 25.20N, 66 00.09W.



Environmental Site Assessment – Martin Pena Canal
San Juan, Puerto Rico

Figure 2 Scale 1:24000

Disposal Area

Source: USGS 7.5 Minute Quadrangle Series; San Juan, Puerto Rico

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The surface soil consists of medium to coarse-grained quartz and terrigenous sand, locally very pure. The proposed disposal site is relatively flat and open. The site has been used for disposal of hydraulic fill from dredging operations in the past. Locally, water approximately two (2) feet deep is standing at the site.

2.3 CANAL AREA GEOLOGY

Geologic data collected during the soil borings and test pit excavations indicate that shallow sediments underlying the canal and its banks are dominated by organic silts and clay, peat, and clayey to sandy silt. Deeper soils encountered in the soil borings appear to transition into brecciated carbonate units of the Aymamon limestone.

FILL MATERIAL

The surface layer encountered along the canal is artificial fill material. This fill material consists of brown to brown-red clayey silt covering the trash and refuse layer. Locally this layer contains gravel. This layer is low in organic content and varies from 1.5 to three (3) feet thick.

ORGANIC SILTY CLAY

The organic silty clay layer was encountered next in depth. This layer consists of black to very dark gray organic mucky clay to silt. Abundant plant debris and the majority of the household waste items encountered were common within this horizon which locally emits a strong sulfur odor. This layer varies from three (3) to eleven (11) feet thick. This layer was noted to be much thicker toward the eastern end of the canal area.

PEAT

Below the organic clay that contains the household waste and construction debris is a peat layer. This material is very dark brown, coarse grained with varying amounts of clay and silt. Locally, shell debris was noted in this layer. Core borings have shown this layer to be as thick as sixteen (16) feet in the eastern end of the study area.

CLAY, SILTY CLAY, AND CLAYEY SILT

The strata underlying the organic sediments are dominated by sequences of clay, silty clay, and clayey silt. These strata are encountered as very thin beds or laminae. Colors of these sediments range from gray to yellowish brown to olive. Locally these sediments are darker due to the presence of organic matter.

SAND

Layers of sand, silty sand, and clayey sand were encountered as interbeds within the clay sequences. Thickness range from four (4) feet to eleven (11) feet. The layers consist of medium grained to coarse grained rounded to sub-angular quartz sand with occasional zones of carbonate sand. Locally, terrigenous sand was noted. These layers commonly contain thin interbeds of clay and silt.

AYMAMON LIMESTONE

Below the sands and clays of recent deposition, the residuum is a gravel to sandy gravel mix consisting of highly angular and disoriented carbonate gravel clasts in a clay, sand, and silt matrix. Although never encountered in the test pit excavations, these soils were interpreted to represent the brecciated carbonate units of the Aymamon Limestone. Chips and cuttings of the limestone were observed in three (3) of the core borings. As a result of local karst deformation, the Aymamon Limestone locally crops out to the surface.

2.4 DISPOSAL SITE GEOLOGY

The surface of the proposed disposal site is covered by hydraulic fill from past dredging of the various lagoons in the San Juan area. This material consists primarily of terriginous sand with minor amounts of quartz sand. Locally, clay was noted in the sediments. Standing water approximately two (2) feet deep covers the area. A thriving wetland ecology consisting of reeds, rushes, woody vines, and algal population was noted in the area.

The proposed disposal site is underlain by sediments similar to those found at the canal consisting of silty clays and clayey silts with variable amounts of sand. Organic clays and a peat layer were noted in borings at the site at a depth of fifteen (15) feet and extending to a depth of approximately thirty (30) feet. Below

the peat layer, clay with variable amounts of sand was encountered. This clay was noted to be stiff to hard in strength. Figure 3 illustrates the generalized geology of the canal and the proposed disposal site.

3.0 ON-SITE SAFETY PROTOCOLS

During site activities, drilling, excavation, and sampling, the ambient atmosphere was continuously monitored to detect the presence of the hazardous gases methane and hydrogen sulfide. Oxygen concentration in the work area, particularly behind the drill rig, was also monitored. A Neotronic model N50 Multi-Gas Detector was used to monitor the ambient atmosphere.

Oxygen concentrations, even behind the drill rig, never dropped below 19%. Methane was often present, but in very dilute quantities. Hydrogen Sulfide (H_2S), however, presented the most concern. While present in small quantities in all the test pits, it was most prevalent in the test pits along the southern side of the canal near the middle of the study area. Locally, H_2S was present in concentrations as high as 65 ppm. These concentrations are classified as "Immediately Dangerous to Life and Health (IDLH)." However, adequate ventilation provided by the wind minimized the threat.

All site safety protocols are outlined in the Site Safety and Health Plan attached in appendix 1. The on-site safety supervisor relaxed or tightened the protocols as site conditions warranted.

3.1 ENVIRONMENTAL SAMPLING QUALITY CONTROL PROCEDURES

In order to assure quality in sampling and analysis, certain quality control procedures were conducted as part of this project. Duplicate soil and groundwater samples from the canal area were collected and analyzed along with the assessment samples. Trip blanks for both soil and water samples were provided by the laboratory to accompany all sets of samples during collection, preparation, shipping, and logging at the lab. A duplicate soil sample and a trip blank were also provided for the disposal site.

4.0 SITE ASSESSMENT

In order to determine what impact, if any, the waste disposal practices of local inhabitants have had on the canal and surrounding areas, both soil and groundwater were sampled and analyzed for contaminants

according to EPA Method 1311, Full Battery TCLP. Table 1 below identifies essential elements of the solid waste and construction debris found and indicates which type of sample were taken at each test pit.

TABLE 1. TEST PITS, CANO MARTIN PENA ASSESSMENT

TEST PIT	THICKNESS OF DEBRIS LAYER (FEET)	MAJOR CONSTITUENTS OF DEBRIS LAYER	SAMPLE TAKEN
TPMP98-01	3 feet	Mostly concrete and construction debris, minor metal debris	soil, water
TPMP98-02	7 feet	Concrete and construction debris in top layer Wood debris and minor household trash in clay layer.	soil
TPMP98-03	4 feet	Wood debris	Not sampled
TPMP98-04	4 feet	Construction debris	Water (cbmp98-3)
TPMP98-05	4feet	Construction debris and household waste, locally used needles	Not sampled
TPMP98-06	5 feet	Wood refuse and construction debris	soil
TPMP98-07	5 feet	Mostly household waste, locally used needles	water
TPMP98-08	7 feet	Construction debris, concrete and wood on top, then household waste	Soil Duplicate soil
TPMP98-09	5-6 feet	Concrete and metal debris	water
TPMP98-10	6 feet	Wood debris	soil
TPMP98-11	3 feet	Household waste and minor demolition debris	Not sampled
TPMP98-12	3 feet	Construction and demolition debris	water
TPMP98-13	3 feet	Concrete and brick rubble near surface, Household trash below	Not sampled
TPMP98-14	6 feet	Wood debris and household waste	water
TPMP98-15	3 feet	Wood debris and household waste, local greenish staining	Not sampled
TPMP98-16	4 feet	Mostly wood and concrete debris, minor household waste	soil
TPMP98-17	6 feet	Wood debris, household waste, lots of tires	Not sampled
TPMP98-18	7 feet	Wood and concrete construction debris	Water
TPMP98-19	>5 feet	Wood debris and household waste	Soil
TPMP98-20	6 feet	Construction debris consisting of wood and concrete, some tires	Not sampled
TPMP98-21	3 feet	Minor construction debris, household waste	water
TPMP98-22	3 feet	Mostly household waste, partial refrigerator Some wood debris	soil
TPMP98-23	Eliminated due to lack of access		
TPMP98-24	>7 feet	Household waste and wood debris	Water Duplicate water
TPMP98-25	>7 feet	Concrete, wood, construction and demolition debris, metal siding and metal debris	Soil
TPMP98-26	Eliminated due to lack of access		
TPMP98-27	Eliminated due to lack of access		
TPMP98-28	Eliminated due to lack of access		
TPMP98-29	>7 feet	House foundation, wood and concrete construction debris, old tires	water
TPMP98-30	7 feet	Household waste, minor construction debris	soil
TPMP98-31	9 feet	Household waste, minor construction debris	Not sampled
TPMP98-32	11	Household waste, minor construction debris	Soil

Appendix 2 contains description of each test pit.

4.1 SOIL ASSESSMENT

Samples of the subsurface soils were retrieved during excavation of test pits. The strata likely to be the most highly contaminated were selected for analysis to assess a worst case scenario. Samples were

collected according to EPA protocols and transported to Specialized Assays Environmental, Nashville, Tennessee for analysis.

Strata in the each of the test pits were observed, measured, and described. Waste materials were identified and quantified where possible. Photographs were taken for future documentation. A total of 28 test pits were completed along both the north and south sides of the canal.

4.1.1 EXCAVATION

Test pits were excavated to observe and quantify the shallow strata and the amount and kinds of waste that have been disposed of along the banks of the canal. The location of each test pit was selected in order to provide the broadest range of sampling locales.

Excavation was completed using a rubber tired excavator-loader. The test pit location was selected, equipment setup, and the area secured against pedestrian traffic. The fill material cap and the subsurface waste material were segregated and staged adjacent to the pit to minimize the potential for leachate contamination. The dimensions of the excavator bucket, approximately four (4) feet wide and eight (8) feet long determined the size of the test pit. The test pit was extended to the full reach of the excavator, typically twelve (12) feet deep. In the event of poor pit integrity, rapid water inflow, or limited site access, the dimensions of the excavation was adjusted accordingly.

4.1.2 SAMPLING METHODS

Samples of subsurface soil were collected from selected test pits to provide a representative sampling of the entire study area. Using clean disposable nitrile gloves, soil samples were collected from the excavation spoil by hand. At least three (3) distinct locations on the spoil pile were sampled and composited in the laboratory prepared glass jars. Enough sample was collected to fill the jar completely, eliminating headspace. Once collected, the samples were immediately chilled to 4°C and stored on ice until they could be transported to the laboratory for analysis.

4.1.3 CLOSURE OF TEST PITS

To minimize the potential for falls into the excavation and potential exposure to the subsurface waste, once sampling and description was complete the test pits were closed. The spoil was returned to the excavation and the fill material cap replaced and the test pit closed.

4.2 GROUNDWATER ASSESSMENT

Samples of the groundwater present were retrieved during excavation of test pits. Full depth sampling of the water column was conducted. Samples were collected according to EPA protocols and transported to Specialized Assays Environmental, Nashville, Tennessee for analysis.

4.2.1 EXCAVATION

Excavation was conducted as described in section 4.1.1.

Water levels in each of the pits was measured and recorded. Those pits further away from the centerline of the canal made little to no water. In the majority of the pits, the water was level with that in the canal. In the eastern end of the study area water was encountered at the surface.

4.2.2 SAMPLING METHODS

Samples of groundwater were collected from selected test pits to provide a representative sampling of the entire study area. Using a clean disposable polyethylene bailer, groundwater samples were collected from the excavation and placed in laboratory prepared glass jars. Enough sample was collected to fill the jar completely, eliminating headspace. Once collected, the samples were immediately chilled to 4°C and stored on ice until they could be transported to the laboratory for analysis.

4.3 DISPOSAL AREA

In order to establish the baseline for the disposal area, three (3) surface soil samples and one (1) surface water sample were collected. Samples were collected according to EPA protocols and transported to Specialized Assays Environmental, Nashville, Tennessee for analysis.

4.3.1 SAMPLING METHODS

Samples of the native soil at the surface of the proposed disposal area were collected by hand. Using a clean, manual posthole digger, soil to a depth of one (1) foot was collected was excavated. Using clean disposable nitrile gloves, each laboratory prepared glass sample jar was filled by hand, leaving no headspace, and immediately chilled to 4°C and stored on ice until transport to the laboratory for analysis. Surface water at the proposed disposal site was collected in a similar manner. Water was allowed to collect in the depression resulting from soil sampling. A clean laboratory prepared bottle was lowered into the hole and allowed to fill with water. The sample was immediately chilled to 4°C and stored on ice until it could be transported to the laboratory for analysis.

4.4 CHEMICAL ANALYSIS

In order to determine the impact, if any, waste disposal practices have had on the canal and the surrounding area, soil and groundwater samples were collected and analyzed for contaminants according to EPA method 1311, Full Battery Toxicity Characteristic, Leachate Procedure (TCLP).

Once collected, soils and groundwater samples, including duplicates and blanks, were stored on ice at 4°C in a temperature-controlled container until they could be shipped to the laboratory for analysis. Temperature controlled containers were shipped via overnight service to Specialized Assays Environmental, Nashville, Tennessee for analyses.

The TCLP analysis uses a weak acid, typically acetic; to mimic landfill leachate conditions, thereby mobilizing any contaminants that may be present in the sample. This extracted fluid is then analyzed using a mass spectrograph or gas chromatograph to identify any contaminants.

Table 2 below illustrates the results of the laboratory analysis for the canal area samples. Table 3 below illustrates the laboratory analysis results of the proposed disposal area sampling. Appendix 3 contains the original laboratory reports.

TABLE 2. LABORATORY RESULTS, TEST PITS, CANO MARTIN PENA ASSESSMENT

Analyte	Test Pit Number	MP98-01	MP98-02	MP98-03	MP98-04	MP98-05	MP98-06	MP98-07	MP98-08	MP98-09	MP98-10
Arsenic		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Barium		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Lead		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Mercury		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Selenium		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silver		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon tetrachloride		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichlrorethene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylethylketone		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl Chloride		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cresols		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4-Dinitrotoluene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Hexachlorobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Hexchlor-1,3-butadien		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Hexachloroethane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nitrobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Pentachlorophenol		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Pyridine		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5-Trichlorophenol		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,6-Trichlorophenol		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlordane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4-D		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Endrin		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Heptachlor		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Lindane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methoxychlor		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toxaphene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silvex		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Heptachlor epoxide		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 2. LABORATORY RESULTS, TEST PITS, CANO MARTIN PENA ASSESSMENT

Analyte	Test Pit Number	MP98-10	MP98-11	MP98-12	MP98-13	MP98-14	MP98-15	MP98-16	MP98-17	MP98-18	MP98-19
Arsenic		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Barium		BDL	BDL	BDL	BDL	1.70 ppm	BDL	BDL	BDL	BDL	BDL
Cadmium		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Lead		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Mercury		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Selenium		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silver		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon tetrachloride		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichlrorethene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylethylketone		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl Chloride		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cresols		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4-Dinitrotoluene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Hexachlorobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Hexchlor-1,3-butadien		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Hexachloroethane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nitrobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Pentachlorophenol		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Pyridine		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5-Trichlorophenol		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,6-Trichlorophenol		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlordane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4-D		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Endrin		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Heptachlor		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Lindane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methoxychlor		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toxaphene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silvex		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Heptachlor epoxide		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 2. LABORATORY RESULTS, TEST PITS, CANO MARTIN PENA ASSESSMENT

Analyte	Test Pit Number	MP98-20	MP98-21	MP98-22	MP98-24	MP98-25	MP98-26	MP98-27	MP98-30	MP98-31	MP98-32
Arsenic		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Barium		BDL	BDL	BDL	1.8 ppm	1.6 ppm	BDL	2.10	BDL	BDL	BDL
Cadmium		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Lead		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Mercury		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Selenium		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silver		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon tetrachloride		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichlrorethene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylethylketone		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl Chloride		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cresols		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4-Dinitrotoluene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Hexachlorobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Hexchlor-1,3-butadien		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Hexachloroethane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nitrobenzene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Pentachlorophenol		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Pyridine		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5-Trichlorophenol		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,6-Trichlorophenol		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlordane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4-D		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Endrin		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Heptachlor		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Lindane		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methoxychlor		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toxaphene		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silvex		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Heptachlor epoxide		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 3. LABORATORY RESULTS, DISPOSAL SITE, CANO MARTIN PENA ASSESSMENT

Analyte	Sample Number	Soil #1	Soil #4	Soil #2	Soil #3	Water
Arsenic		BDL	BDL	BDL	BDL	BDL
Barium		BDL	1.10 ppm	BDL	BDL	BDL
Cadmium		BDL	BDL	BDL	BDL	BDL
Lead		BDL	BDL	BDL	BDL	BDL
Mercury		BDL	BDL	BDL	BDL	BDL
Selenium		BDL	BDL	BDL	BDL	BDL
Silver		BDL	BDL	BDL	BDL	BDL
Benzene		BDL	BDL	BDL	BDL	BDL
Carbon tetrachloride		BDL	BDL	BDL	BDL	BDL
Chlorobenzene		BDL	BDL	BDL	BDL	BDL
Chloroform		BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane		BDL	BDL	BDL	BDL	BDL
1,1-Dichlrorethene		BDL	BDL	BDL	BDL	BDL
Methylethylketone		BDL	BDL	BDL	BDL	BDL
Tetrachloroethene		BDL	BDL	BDL	BDL	BDL
Trichloroethene		BDL	BDL	BDL	BDL	BDL
Vinyl Chloride		BDL	BDL	BDL	BDL	BDL
Cresols		BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene		BDL	BDL	BDL	BDL	BDL
2,4-Dinitrotoluene		BDL	BDL	BDL	BDL	BDL
Hexachlorobenzene		BDL	BDL	BDL	BDL	BDL
Hexchlor-1,3-butadien		BDL	BDL	BDL	BDL	BDL
Hexachloroethane		BDL	BDL	BDL	BDL	BDL
Nitrobenzene		BDL	BDL	BDL	BDL	BDL
Pentachlorophenol		BDL	BDL	BDL	BDL	BDL
Pyridine		BDL	BDL	BDL	BDL	BDL
2,4,5-Trichlorophenol		BDL	BDL	BDL	BDL	BDL
2,4,6-Trichlorophenol		BDL	BDL	BDL	BDL	BDL
Chlordane		BDL	BDL	BDL	BDL	BDL
2,4-D		BDL	BDL	BDL	BDL	BDL
Endrin		BDL	BDL	BDL	BDL	BDL
Heptachlor		BDL	BDL	BDL	BDL	BDL
Lindane		BDL	BDL	BDL	BDL	BDL
Methoxychlor		BDL	BDL	BDL	BDL	BDL
Toxaphene		BDL	BDL	BDL	BDL	BDL
Silvex		BDL	BDL	BDL	BDL	BDL
Heptachlor epoxide		BDL	BDL	BDL	BDL	BDL

As can be seen from the tables above, except for small quantities of barium, the samples were below detection limits. The concentrations of barium are well below the EPA established exposure limits.

5.0 CONCLUSIONS

In accordance with contract number DACW17-96-D-0009, delivery order 0009, ECG conducted an environmental assessment to evaluate the impact, if any, improper waste disposal practices may have had on the integrity of the Martin Pena Canal and surrounding area. Fieldwork conducted 27 April through 14 May 1998 at this site included test pit excavations, core borings, soil and groundwater sampling, and area reconnaissance. Based on this fieldwork ECG concludes the following:

I. Site hydrogeology can be described as follows:

1. The geology along the canal consists of primarily clay and silty clay with some sand, deposited in thin layers. Locally the Aymamon Limestone was encountered at depth of forty (40) to fifty (50) below the surface. Shallow subsurface geology includes a fill material cap placed on the waste terraces, the waste material contained in a layer of organic rich clay, and a peat layer of partially decomposed material below the organic clay.

2. Groundwater is within a few feet of the surface and near the eastern end of the study area occurs on the surface below a mat of plants and refuse. Locally, the groundwater was noted to have significant oily sheen on it.

3. The proposed disposal site is underlain by a series of clay and silty clay layers, which appear to form a relatively impermeable layer. The surface of much of the disposal site is covered by water approximately two (2) feet deep.

II. Water quality problems are attributable to the following:

1. There are more than 3,000 structures without sewer connections adjacent to or in close proximity to the canal;

2. The canal is choked due to recent urban development encroaching on its original width;

3. There is insufficient hydraulic capacity of the canal to flush or dilute pollutants;

4. Human activities in the developments near the canal generate solid waste. This solid waste is improperly managed. Dumped in the canal, this solid waste generates a terrace. These terraces have been capped and used as sites for additional development. This encroachment reduces the hydraulic capacity of the canal.

5. Waste material includes significant amounts of household waste, solid waste, and construction debris. The waste is confined primarily to the layer of organic rich clay between the fill material cap and the peat layer and varies from three (3) to eleven (11) feet thick.

III. An assessment of soil and groundwater quality revealed the following:

1. Analysis of ten (10) soil and ten (10) water samples from the canal area for Full Battery TCLP, method 1311 revealed no leachable contaminants. Although unsightly, this material is not hazardous.

2. Analysis of three (3) soil samples and one (1) surface water sample from the proposed disposal area for Full Battery TCLP, method 1311 revealed no leachable contaminants.

6.0 RECOMMENDATIONS AND CONSIDERATIONS

Although unsightly and likely unsanitary, solid waste material contained within the organic rich clay layer is non-hazardous. Upland disposal should not pose a threat to environmental integrity or human health and safety. ECG does not disagree with the idea of using the proposed site for disposal of dredged waste with the following considerations:

- Most of the material consists of household waste and construction debris. The wood making up the bulk of the construction debris can be placed in the proposed disposal site. The household waste should be segregated to the extent practicable and taken to the municipal landfill for disposal.

- Tires and metal debris should not be placed in the proposed disposal area. As the fill settles, these waste items could be exposed at the surface, presenting further hazards. These types of items should be disposed of in a different location.

Based on thorough soil and groundwater sampling and analysis, the waste layer and surrounding area have been determined to be non-hazardous. However, the following issues should be considered during excavation and disposal of this material.

- During excavation and widening of the channel, site workers should be cautious of their surroundings. Although the trash layer as a whole is non-hazardous, individual items within the trash may require special consideration, i.e. needles from local drug use.

- During excavation, it will be important to monitor and maintain adequate ventilation due to the presence of hydrogen sulfide gas. This gas is heavier than air and will collect in low places. In most cases, action of the wind should be in most cases adequate to prevent collection.

- Although there were no leachable contaminants reported present in the soil and groundwater samples, consideration should be given to long term stability of this material. By changing soil chemistry, ie from a reducing environment to an oxidizing environment, it may be possible to mobilize compounds originally reported as being non-leachable. Additionally, it may be possible to remobilize contaminants due to the long term actions of humic, fulvic, and similar organic acids present in a buried environment. However, the geology of the disposal site would suggest that any remobilized

contaminants would be unable to migrate significant distances. Although more costly, and involving a weir and collection system to manage the leachate, an impermeable liner placed below and above the dredge waste would insure containment.

- As an alternative to upland disposal, the waste material could be disposed in the deeper areas of the lagoons or the open ocean. Past dredging operations have resulted in several large depressions on the floors of the various lagoons in the San Juan area. Using large bags made from High Density Polyethylene (HDPE) called Geo-Sacs the waste material generated during dredging could be encapsulated and sunk in a lagoon. The Geo-Sacs would effectively isolate the waste material from the surrounding environment and stabilize the chemistry of the waste. This option would obviate the need for a collection and management system and would eliminate the concern over long term stability.

7.0 QUALIFICATIONS

Our professional services have been performed and our recommendations prepared in accordance with generally accepted and customary principles and practices in the fields of environmental science and engineering. ECG is not responsible for the independent conclusions, opinions, or recommendations made by others based on the data, field explorations, and laboratory test data presented in the report.

The present study included a limited number of test borings and pits across the entire project site. While the conclusions drawn from this investigation are considered reliable, there may exist localized variations in subsurface conditions that have not been completely defined at this time.

The findings in this report depict subsurface and soil conditions only at these specific locations and the particular time designated on any logs. Additionally, time may result in a change in the environmental characteristics at this site and surrounding properties.

In the event, any information is revealed which may impact one of more of the conclusions or recommendations, ECG reserves the right to re-interpret the data in light of any changes.

This report has been prepared for the sole use of the US Army Corps of Engineers, Jacksonville District. ECG is not responsible for interpretations or conclusions drawn by parties other than those noted above

APPENDIX 1
SITE SAFETY AND HEALTH PLAN

SITE SAFETY PLAN

SITE SAFETY PLAN

Cano Martin Pena; San Juan, Puerto Rico

Important: Please forward one copy of completed document to the Director of Health and Safety prior to project start up.

A. GENERAL INFORMATION

Project Name: Cano Martin Pena Assessment ECG Project Number 2717-09
Location: Cano Martin Pena; San Juan, Puerto Rico
Client: US Army Corps of Engineers, Jacksonville, District; 400 West Bay Street, Jacksonville, FL

Plan Prepared By: William R. Graham Date: 04/13/98
Plan Approved By: Harry G. Summers, PE Date: 04/13/98

Plan Reviewed by:

Supervisor (COE): Date: 20 Apr 98
Safety and Occupational Health Officer (COE): Date: 20 APR 98

B. SITE DESCRIPTION

Site History: The environmental problems of the Cano Martin Pena are a direct result of 3,000 structures with no sewer connections and the insufficient hydraulic capacity of the canal to assimilate or flush pollutants.

SITE TYPE:

(X) Active	( ) Landfill	(X) Residential	( ) Recreational
( ) Inactive	( ) Industrial	( ) Agriculture	( ) Natural Area
( ) Secured	( ) Commercial	( ) Military	( ) Unknown
(X) Unsecured	(X) Other (specify)	Household Waste and Construction Debris	

SURROUNDING POPULATION

(X) Residential	( ) Industrial	(X) Urban
( ) Rural	( ) other (specify)	

General Site Description: Urban area, through San Juan, Puerto Rico along the banks of the Cano Martin Pena.

C. PROJECT OBJECTIVES (Description of work area activities planned)

SCOPE OF WORK

In order to assess the impact from the increased residential habitation that has significantly reduced the capacity of the Cano Martin Pena, drilling and excavation activities will be conducted prior to dredging the canal. A total of 21 core borings will be advanced and 32 test pits will be excavated to assess the subsurface material on the banks of the Cano. All boring will be advanced to a depth of 50 feet and water levels recorded. Each test pit will be excavated to the full reach of the backhoe, or approximately 12 feet and water levels taken. ECG will provide on-site supervision of the Safety and Health Plan and all ambient monitoring for explosive gases and hazardous atmospheres during drilling and excavation activities. ECG will collect ten (10) soil samples and ten (10) water samples from the borings and the test pits. Additionally, samples will be collected in an upland area designated for disposal of the dredge material for a total of thirty (30) samples including duplicates and trip blanks.

TASK 1 – CORE DRILLING

Advance core drilling to a depth of fifty (50) feet and sample soils. Conduct ambient monitoring of gases and site conditions during drilling and excavation activities by another contractor. Collect soil and water samples from the borings for laboratory analysis.

TASK 2 – TEST PIT EXCAVATION

Excavate test pits to the full reach of the backhoe. Conduct ambient monitoring of gases and site conditions during drilling and excavation activities by another contractor. Collect a total of 10 soil and 10 water samples

D. PROJECT ORGANIZATION

TEAM MEMBER	RESPONSIBILITY
William R. Graham - ECG	On-Site Safety and Health Supervisor
	Sample Collection
Ivan Acosta - COE	Environmental Engineer, Technical Manager
Jorge Tous - COE	Study Manager
Robert Newman - COE	Project Manager
Luis O. Garcia - GEOCIM	Provide drilling and excavation services

E. HAZARD ANALYSIS

SUSPECTED CHEMICAL HAZARDS

Principal Contaminant(s)	PEL/TLV (ppm)	Ceiling (ppm)	IDLH (ppm)	LEL/UEL (percent)
Raw Sewage	NA			
Hydrogen Sulfide (H_2S)	20/10/15			4.0/46.0%
Methane	asphyxiant	no other limits established		
CO_2/Low Oxygen	NA			
RCRA metals	NA			

Is presence of organic lead suspected? XXX yes ____ no

Waste Type(s): **Liquid** XX **Solid** XX **Sludge** __ **Vapor** XX

Waste Characteristics

Corrosive? NO If yes, what is pH?____ Flammable? possible What is flash pt.? ____°F

Reactive? NO With what substances?____ Is it an oxidizer? No Toxic? Potentially

What is LD_{50}?____mg/kg

Suspected Route(s) of Exposure:
- minor Skin Absorption
- XXX Inhalation
- minor Ingestion

Is there potential for direct contact or splash? XX yes __ no

Material Safety Data Sheets Attached for: Methane, Methane in Air, Hydrogen Sulfide, and Hydrogen Sulfide, technical grade

OTHER HAZARDS

Heat Stress: XX yes ____ no. If yes, please specify precautions to be taken: Take frequent breaks and drink plenty of fluids. In the event of severe heat stress, medical attention should be sought.

Cold Stress: ____ yes XX no. If yes, please specify precautions to taken:____

Excessive Noise: XX yes ____ no. If yes, please specify precautions to be taken: Wear hearing protection around loud equipment.

Confined Space Entry: __ yes XX no.

Open Excavations: XX yes __no. If yes, is entry into excavation required? No, samples will be collected using the excavation equipment

Welding and/or Cutting: __yes XX no. If yes, please specify precautions to be taken: _____

Heavy Equipment Operations: XX yes__no. If yes, specify type of equipment and precautions taken: Be aware of location of machinery, watch swing area on hydraulic excavators, remain clear of machinery in operation, be alert around power drill rig, do not place hands and feet in the path of the auger bit.

Slip, trip, or fall hazards: XX yes__no. If yes, specify type, location, and precautions taken: Be aware of surroundings, watch out for hoses lying on ground. Be aware of the slippery nature of drill cuttings.

Presence of underground utilities: XX gas XX electric XX water
specify exact location and precautions taken: Location of underground utilities is the responsibility of the excavation contractor. After review of this plan, please attach a copy of the Utilities location form

Presence of overhead utilities: XX electric XX phone____cable TV
specify exact location and precaution taken: Location of all utilities is the responsibility of the excavation contractor. After review of this plan, please attach a copy of the Utilities location form

Other Hazards:(specify)

Vermin (rats, mice, and Insects). Avoid areas where there is possible vermin or insect infestation. If required, wear heavy gloves and leg protection prior to entering area. Observe carefully where hands and feet are placed. Use repellant to minimize insects. Netting may be required in areas of heavy insect infestation.

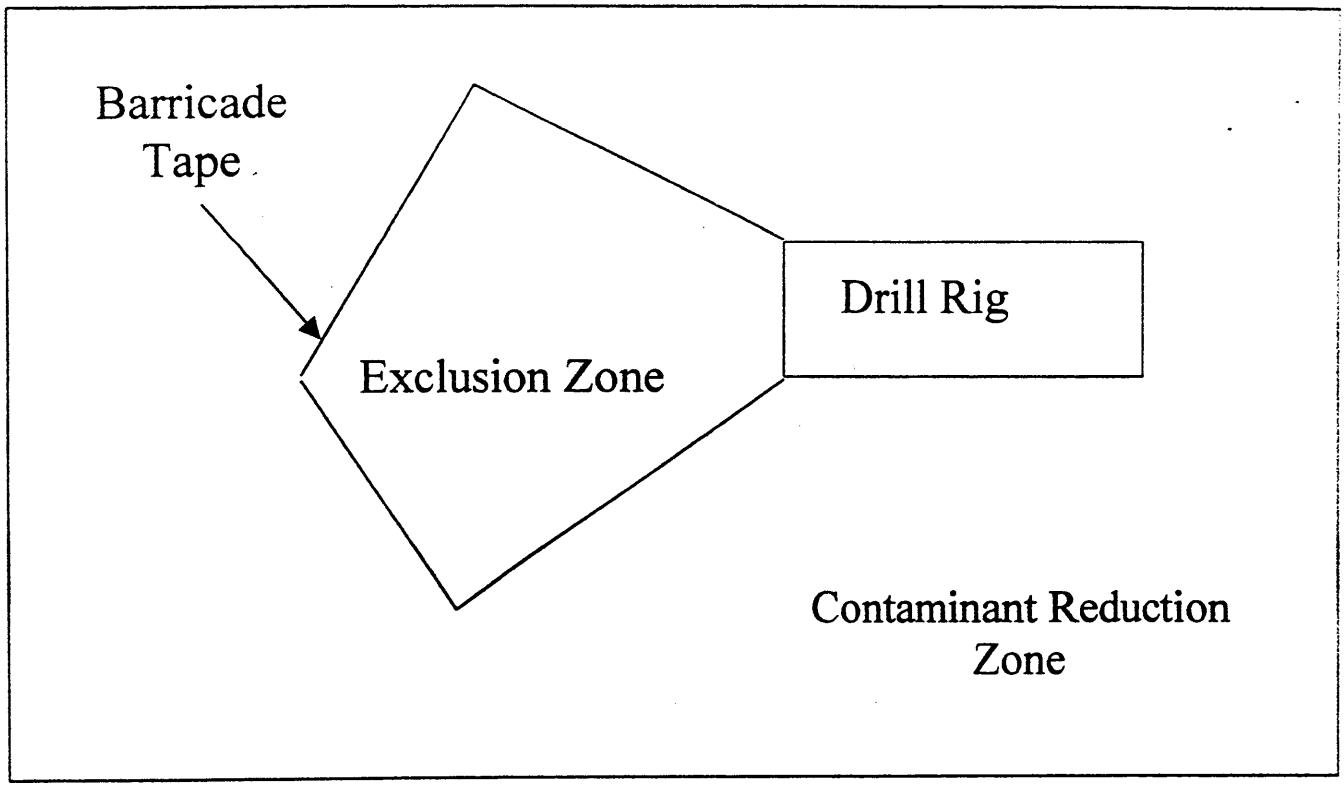
Raw Sewage: Avoid direct contact with raw sewage. Hand protection should include heavy leather outer gloves and latex inner gloves when working in areas with a potential for contact. Foot protection should include work boots and rubber overshoes in areas where there is a potential for contact

Dust Control: Wind blown dust can be inhaled which might carry potentially harmful components. During times of high dust generation, wear a dust mask respirator to minimize dust inhalation. Water may be required as a dust pallative.

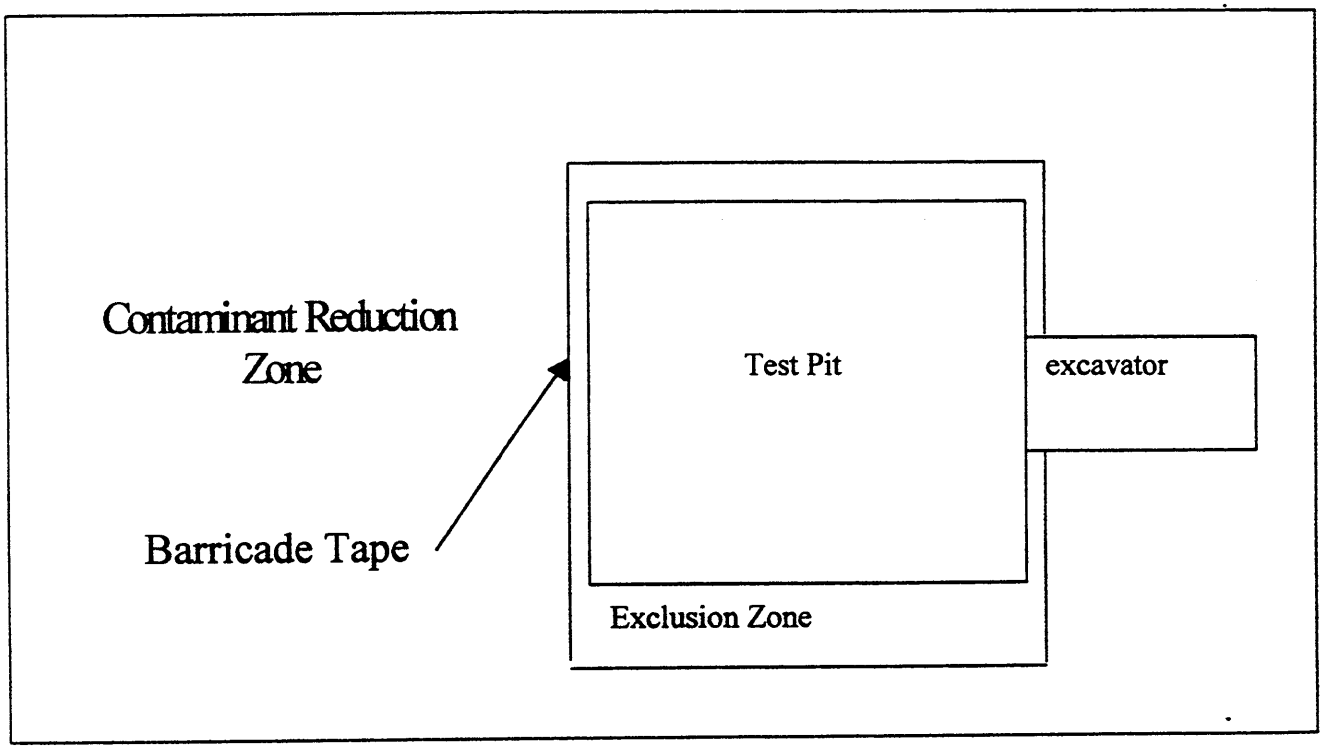
F. SITE CONTROL

Work zones have been established as shown on the attached diagram.
Site Security: Security on site will be maintained by:

- XXX Temporary Barricades and/or warning tape
- _____ Security Fence
- _____ 24 Hour Security Guard
- _____ other (specify)



Typical Work Area Layout for Drilling



Typical Work Area Layout for Excavation

G. PERSONAL PROTECTIVE EQUIPMENT

Based on the evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work zones:

Work Zone	Level of protection	Required Protective Equipment
1.0 Exclusion Zone	Level D	Respirator as required filters/cartridges standard dust mask (organic gases) Boots ANSI Steel Toe Inner Gloves Latex (as required) Outer Gloves Leather Suit work Coveralls Hard Hat ANSI Standard Eye Protection goggles Other
2.0 Contamination Reduction Zone	NA	Respirator filters/cartridges Boots ANSI Steel Toe Inner Gloves Latex Outer Gloves Leather Suit work Coveralls Hard Hat ANSI Standard Eye Protection goggles Other

Exceptions and modifications: As warranted by site conditions. Modified safety equipment may become necessary, depending on site conditions.

H. DECONTAMINATION

1.0 Personnel Decontamination Procedures

All personnel entering the exclusion zone will undergo decontamination prior to leaving the site. Personnel will proceed through the following levels of decontamination.

Decontamination Solution: Laboratory grade detergent and antibacterial soap

Station 1: Work Clothing removal Equipment required: brush to remove gross dirt from clothes and boots. Hand and face washing basin to remove wind blow or splash borne dust and debris. Receptacles to containerize coveralls that have been exposed to contamination.

Additional decontamination stations will be added as warranted by site conditions.

2.0 Equipment Decontamination Procedures

Gross removal by:

Hand Scrubbing	using wire brush
Cold high pressure wash	as required
Hot high pressure wash	
Steam Cleaning	
Other (specify)	
Clean Rinse	
Decon Solution	laboratory grade detergent

Decontamination Waste Water

Collection (specify how) All gray water used in personnel decontamination will be collected in basins and containerized pending proper disposal. All gray water from equipment decontamination will be containerized pending proper disposal

Disposal (specify how and where) all project gray water will be collected and containerized pending proper disposal according to local regulations and guidelines

I. AMBIENT AIR MONITORING

Activity	Instruments	Action level	Frequency
Explosive Gases	Combustible Gas Meter	LEL >20%	every 15 minutes
H_2S	Gas Meter	> PEL	every 15 minutes
CO_2	Gas Meter	> 2%	as required
Low Oxygen	Gas meter	<19½%	as required
		>22%	

Comments: ambient gases will be monitored at the top of the borehole during drilling. Ambient gases will be monitored around the work area in general during excavation activities. In the event entry into a test pit is required, oxygen content and the presence of toxic gases will be evaluated prior to entry. Frequency of monitoring will be evaluated based on site conditions. Action level will be adjusted as warranted.

J. PERSONNEL AIR MONITORING

Activity/location	Contaminant	Method (Indicate NIOSH/OSHA Protocol
_____	_____	_____
	_____	_____
	_____	_____
	_____	_____

Personnel monitoring is not required at this time.

K. Contingency Plan

Emergency Communication Signals (specify): OSHA hand signals and standard HAZCOM signals.

Emergency Escape Route (specify and indicate on site diagram): get off site.
If on north side of project area: Travel north to Borinquen Avenue (Highway 36), west on Hwy 36 to Luis Munoz Rivera Avenue (Highway1), south on Hwy 1 to FD Roosevelt Avenue (Highway 23), then west on Hwy 23 to America Expressway. South on American Expressway to the Central Medical Facility.

If on the south side of the project area: travel south to Quisqueya Avenue (highway 40) or Barbosa Drive (Highway 27). Travel west to FD Roosevelt Avenue (Highway 23), then west on Hwy 23 to America Expressway. South on American Expressway to the Central Medical Facility.

See attached map

Emergency Equipment on site (specify location):
First Aid Kit; on site
Telephone: _____
Other (specify): _____
Fire extinguisher: on site
Eye Wash/Safety Shower: in first aid kit

Re-entry into the exclusion zone following an on-site emergency will not be permitted until the following conditions are satisfied:

(1) The conditions resulting in the emergency have been corrected.
(2) The hazards have been re-evaluated.
(3) The site safety plan has been reviewed and determined to be adequate for the hazards encountered.
(4) All site personnel have been instructed in any new hazards and changes to the site safety plan.

EMERGENCY PHONE NUMBERS

ECG Director of Safety and Health (office)	(256) 235-2110
ECG Director of Safety and Health (home)	(256) 238-9019
ECG Director of Safety and Health (digital pager)	(888) 756-7185
U.S. EPA Region II Emergency Response Center, Chemtrec	(800) 424-9300
Bureau of Explosives	(202) 293-4048
Communicative Disease Center (Biological Agents)	(404) 633-5213
National Response Center (oil/hazardous substances)	(800) 424-8802
DOT Office of Hazardous Operations	(202) 426-0656
U.S. Coast Guard	(800) 424-8802
National Agricultural Chemical Association	(513) 961-4300

Hospital:

Name: Central Medical Facility (Centro Medico)
Address: Highway 18, America Expressway, San Juan, Puerto Rico
Phone: 754-3535
Travel Time: approximately twenty (20) minutes
Directions: West on FDR avenue, south on America Expressway
Map Attached: yes

Paramedics: Name: Emergencia Medica Local
Phone: 911 or 343-2222

Fire Dept: Name: Bomberos
Phone: 911 or 343-2330

Local Police Name: Policia de Puerto Rico
Phone: 911 or 343-2020

Other emergency numbers are attached

STANDARD OPERATING SAFETY PROCEDURES ENGINEERING CONTROLS, AND WORK PRACTICES

Briefly describe each element not elsewhere addressed in this plan which is applicable to this site. Attach additional pages as necessary to describe site-specific procedures.

(1) Site rules/prohibitions:	At any sign of hazardous conditions beyond the scope of this safety plan, stop tasks, evacuate area, and notify the HSO.
(2) Material handling procedures:	handle according to safe work habits and manufacturers recommendations
(3) Drum handling procedures:	handle according to safe work habits and use proper equipment
(4) Confined space entry:	Do **not enter without proper training and authorization.** Use buddy system in Confined Space Entry
(5) Ignition source:	**NO SMOKING** within exclusion zone.
(6) Excavation safety:	Do not enter trenches without proper shoring, proper training and proper authorization. Use buddy system when entering open excavation.
(7) Illumination:	N/A
(8) Sanitation:	N/A
(9) Engineering controls:	N/A
(10) Ordnance:	Notify site HSO if OEW is discovered. Call HND-SO
(11) Other:	(Site-specific characteristics previously not mentioned).

All personnel have read the above plan and are familiar with its provisions. All personnel have received medical surveillance and training in compliance with the **ECG** Health and Safety Plan and 40 CFR 1910.120 regulations.

NAME	SIGNATURE
William R. Graham	[illegible]
David W. Anding	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
Roque Cardona	Roque Cardona
Manuel Calderón	[illegible]
Juan Reyes	[illegible]
Orlando Santiago	Orlando Santiago [illegible]
[illegible]	[illegible]
Alexander Matos	
[illegible]	
EFRAIN GAUTHIER	Efrain Gauthier
Jorge R Parra	[illegible]
ROLANDO DAVILA	[illegible]
CARLOS GARCIA	Carlos [illegible]
[illegible]	[illegible]
[illegible]	IVAN ACOSTA
Jorge Lous	[illegible]

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APPENDIX A: MSDSs
HYDROGEN SULFIDE
METHANE

NORLAB -- HYDROGEN SULFIDE
MATERIAL SAFETY DATA SHEET
NSN: 683000N052507
Manufacturer's CAGE: 0HB80
Part No. Indicator: A
Part Number/Trade Name: HYDROGEN SULFIDE

General Information

Company's Name: NORLAB
Company's P. O. Box: 380
Company's City: AMHERST
Company's State: OH
Company's Country: US
Company's Zip Code: 44001
Company's Emerg Ph #: 800-247-9422
Company's Info Ph #: 800-247-9422
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SMJ
Date MSDS Prepared: 01DEC91
Safety Data Review Date: 15SEP94
MSDS Serial Number: BVPBC
Hazard Characteristic Code: NK

Ingredients/Identity Information

Proprietary: NO
Ingredient: HYDROGEN SULFIDE (SARA III)
Ingredient Sequence Number: 01
Percent: 100
NIOSH (RTECS) Number: MX1225000
CAS Number: 7783-06-4
OSHA PEL: 20 PPM, C
ACGIH TLV: 10 PPM;15 PPM STEL

Proprietary: NO
Ingredient: SUPDAT:AREA W/OUT RISK. ALLOW FIRE TO BURN OUT. FIRE BRIGADES MUST COMPLY W/OSHA.
Ingredient Sequence Number: 02
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: CNDTNS (STAB):PRIOR TO USE.
Ingredient Sequence Number: 03
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: EXPLO HAZ:REIGNIT. TOX, FLAMM, CORR VAPS MAY SPREAD FROM SPILL. TOX, EXPLO ATM MAY LINGER. BEFORE ENTERING AREA, (ING 5)
Ingredient Sequence Number: 04
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 4:ESP CONFINED AREAS, CHECK ATM W/APPROP DEVICE. VAPS ARE IRRIT. CONT MAY CAUSE BURNS TO SKIN & EYES. NO PART(ING 6)

Ingredient Sequence Number: 05
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 5:OF CNTNR SHOULD BE SUBJECTED TO TEMP >52C (125F). PROD DEADENS SENSE OF SMELL. SOME MEANS OF DETECTING (ING 7)
Ingredient Sequence Number: 06
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 6:PRESENCE OTHER THAN SMELL SHOULD BE READILY AVAIL. MOST CNTNRS PROVIDED W/PRESS RELIEF DEVICE DESIGNED TO (ING 8)
Ingredient Sequence Number: 07
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 7:VENT CONTENTS WHEN EXPOS TO ELEVATED TEMP. NOTE:REVERSE FLOW INTO CYL MAY CAUSE RUPT.
Ingredient Sequence Number: 08
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: MATLS TO AVOID:NITROGEN, ORG CMPDS, OXIDIZING AGENTS, RUBBER & WATER. FOR COMPLETE LIST, CONTACT NEHC (FP N).
Ingredient Sequence Number: 09
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: EFTS OF OVEREXP:PHOTOPHOBIA & HALOS AROUND LIGHTS. SEV OVEREXP CAN LEAD TO CONJ & CORNEAL INJURY. CHRONIC:RPTD (ING 11)
Ingredient Sequence Number: 10
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 10:OVEREXP MAY CAUSE NAUS, VOMIT, WT LOSS, PERSISTENT LOW BLOOD PRESS, LOSS OF SENSE OF SMELL. SURVIVORS OF (ING 12)
Ingredient Sequence Number: 11
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 11:OVEREXP SOMETIMES EXHIBIT EFTS SUCH AS AMNESIA, NEUROASTHENIA, DISTURB OF EQUILIBRIUM/MORE SERIOUS BRAIN (ING 13)
Ingredient Sequence Number: 12
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 12:STEM & CORTICAL DAMAGE.

Ingredient Sequence Number: 13
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: FIRST AID PROCS:PLENTY OF WATER FOR AT LST 15 MINS. SEE MD, PREF OPTHALMOLOGIST, IMMED. NOTE TO MD:OBSERVE (ING 15)
Ingredient Sequence Number: 14
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 14:FOR DELAYED ONSET OF PULM EDEMA. NO SPEC ANTIDOTE. TREATMENT OF OVEREXP SHOULD BE DIRECTED AT CONTROL OF (ING 16)
Ingredient Sequence Number: 15
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 15:SYMPTOMS & THE CLINICAL CONDITION.
Ingredient Sequence Number: 16
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: SPILL PROC:W/OUT RISK. VENT AREA OF LEAK/MOVE LEAKING CNTNR TO WELL VENT AREA. PVNT RUNOFF FROM CONTAM SURROUND ENVIRON.
Ingredient Sequence Number: 17
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: HNDLG/STOR PROCS:FROM HEAT/SPKS/OPEN FLAME. GROUND ALL EQUIP. ONLY USE SPK PROOF TOOLS & EXPLO PROOF EQUIP. KEEP(ING 19)
Ingredient Sequence Number: 18
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 18:AWAY FROM OXIDIZING AGENTS. STORE & USE W/ADEQ VENT AT ALL TIMES. USE ONLY IN CLSD SYS OF CORR RESIST (ING 20)
Ingredient Sequence Number: 19
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
REVERSE FLOW INTO CYL MAY CAUSE RUPTURE. USE CHECK (ING 21)
Ingredient Sequence Number: 20
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 20:VALVE/OTHER PROT APPAR IN ANY LINE/PIPING FROM CYL TO PVNT REVERSE FLOW. WHEN TWO/MORE GASES/LIQ GASES (ING 22)
Ingredient Sequence Number: 21

NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 21:ARE MIXED, HAZ PROPERTIES MAY COMBINE TO CREATE ADDTN UNEXPECTED HAZ. OBTAIN & EVAL SFTY INFO FOR EACH (ING 23)
Ingredient Sequence Number: 22
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 22:BEFORE PRDCG MIXT. CONSULT INDUS HYGIENIST/OTHER TRAINED PERS WHEN SFTY EVAL OF MIXT IS MADE. GASES & (ING 24)
Ingredient Sequence Number: 23
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 23:LIQS HAVE PROPS WHICH CAN CAUSE SERIOUS INJURY/DEATH. READ & UNDERSTAND ALL LBLS & INSTRUCTIONS SUPPLIED (ING 25)
Ingredient Sequence Number: 24
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 24:W/ALL CONTAINERS.
Ingredient Sequence Number: 25
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Physical/Chemical Characteristics

Appearance And Odor: COLORLESS GAS AT NORM TEMP & PRESS. ODOR OF ROTTEN EGGS. DEADENS SENSE OF SMELL.
Boiling Point: -77F,-60C
Melting Point: -122F,-86C
Vapor Pressure (MM Hg/70 F): 252 PSIG
Vapor Density (Air=1): 1.189 @15C
Specific Gravity: 0.8 (H*2O=1)
Evaporation Rate And Ref: HIGH (BUTYL ACETATE=1)
Solubility In Water: SLIGHT.
Percent Volatiles By Volume: 100

Fire and Explosion Hazard Data

Flash Point: FLAMMABLE GAS
Lower Explosive Limit: 4.0%
Upper Explosive Limit: 46%
Extinguishing Media: CO2, DRY CHEMICAL, WATER SPRAY OR FOG.
Special Fire Fighting Proc: USE NIOSH/MSHA APPRVD SCBA & FULL PROT EQUIP (FP N). EVAC ALL PERS FROM DANGER AREA. IMMED COOL CNTNRS W/WATER SPRAY FROM MAX DIST, TAKE CARE NOT TO (SUPDAT)
Unusual Fire And Expl Hazrds: FLAMM, TOX, CORR GAS. FORMS EXPLO MIXT W/AIR & OXIDIZING AGENTS. CNTNR MAY RUPTURE DUE TO HEAT OF FIRE. DO NOT EXTING FLAMES DUE TO POSS OF EXPLO (ING 4)

Reactivity Data

Stability: YES
Cond To Avoid (Stability): MAY FORM EXPLO MIXT W/AIR. KEEP AWAY FROM HEAT, SPKS & OPEN FLAME. COMPATABILITY W/PLASTICS SHOULD BE CONFIRMED (ING 3)
Materials To Avoid: CONT W/AMMONIA, BASES, COPPER & AIR, FLUORINE, LEAD, LEAD OXIDE, MERCURY, NITRIC ACID, NITROGEN TRIFLUORIDE, (ING 9)
Hazardous Decomp Products: THERMAL DECOMPOSITION OR BURNING MAY PRODUCE SULFUR OXIDES, SULFUR HYDROGEN.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT

Health Hazard Data

LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: ACUTE:INGEST:HIGHLY UNLIKELY. PROD IS A GAS AT NORM TEMP & PRESS BUT FROSTBITE OF LIPS & MOUTH MAY OCCUR FROM CONT W/ LIQ. INHAL:MAY BE FATAL. CAUSES RESP PARALYSIS BY DEPRESS OF CNS ACTIVITY. EFTS INCL HDCH, DIZZ, VERTIGO, GIDD, CONFUSN, CHEST PAINS, OLFACTORY FATG, UNCON & DEATH. RHINITIS, PHARYNGITIS(EFTS OF OVEREXP)
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NOT RELEVANT
Signs/Symptoms Of Overexp: HLTH HAZ:BRONCH, PNEUM, PULM EDEMA & CYANITIS MAY OCCUR. LACK OF OXYGEN CAN CAUSE DEATH. SKIN:CAUSES IRRIT SEEN AS LOC REDNESS & SWELL. LIQ MAY BE CORR & CAUSE FROSTBITE. EYE:CAUSES IRRIT, EXCESS REDNESS OF CONJUNCTIVA. PRLNG EXPOS TO VAP TO LOW CONCS MAY CAUSE PAINFUL CONJ, BLURRED VISION, EXCESSIVE TEARING, (ING 11)
Med Cond Aggravated By Exp: BREATHING OF VAPOR AND/OR MIST MAY AGGRAVATE ASTHMA AND INFLAMMATORY OR FIBROTIC PULMONARY DISEASE.
Emergency/First Aid Proc: INGEST:NOT APPLIC:PROD IS A GAS AT NORM TEMP & PRESS. SKIN:REMOVE CONTAM CLTHG & FLUSH SKIN W/PLENTY OF WATER. IMMED WARM FROSTBITE AREA W/WARM WATER (NOT TO EXCEED 105F). IN CASE OF MASSIVE EXPOS, REMOVE CLTHG WHILE SHOWERING W/WARM WATER. CALL MD. WASH CLTHG BEFORE REUSE. INHAL:REMOVE TO FRESH AIR. GIVE ARTF RESP IF NOT BRTHG. GIVE OXYGEN IF BRTHG DFCLT. CALL MD IMMED. EYE:IMMED FLUSH W/(ING 14)

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: IMMED EVACUATE ALL PERS FROM DANGER AREA. TOX, CORR, FLAMM GAS. FORMS EXPLO MIXT W/AIR. USE NIOSH/MSHA APPRVD SCBA & PROT CLTHG WHERE NEEDED. REMOVE ALL SOURCES OF IGNIT IF W/OUT RISK. REDUCE VAPS W/FOG/FINE WATER SPRAY. SHUT OFF LEAK IF (ING 17)
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Method: PREVENT WASTE FROM CONTAMINATING SURROUNDING ENVIRONMENT. KEEP PERSONNEL AWAY. DISCARD ANY PRODUCT, RESIDUE, DISPOSABLE CONTAINER OR LINER IN AN ENVIRONMENTALLY ACCEPTABLE MANNER IN FULL COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
Precautions-Handling/Storing: DO NOT BREATHE GAS. DO NOT GET LIQ/VAPS INTO EYES, ON SKIN/CLTHG. USE PIPING & EQUIP ADEQ DESIGNED TO W/STAND PRESS TO BE ENCOUNTERED. KEEP (ING 18)
Other Precautions: NEVER WORK ON PRESS SYS. IF LEAK, CLOSE CYL VALVE, BLOW DOWN SYS BY VENTING TO SAFE PLACE, THEN REPAIR LEAK. HYDROGEN SULFIDE DEADENS SENSE OF SMELL. SOME MEANS OF DETECTING PRESENCE OTHER THAN SMELL SHOULD BE READILY AVAILABLE.

Control Measures

Respiratory Protection: SELECT IN ACCORDANCE W/OSHA 29 CFR 1910.134. RESPIRATORS SHALL BE ACCEPTABLE TO MSHA AND NIOSH.
Ventilation: LOCAL:EXPLO PROOF,CORR RESIST.SPECIAL:USE ONLY IN CLOSED SYS.

EXPLO PROOF,CORR RESIST,FORCED DRAFT FUME HOOD PREFERRED.
Protective Gloves: NEOPRENE, BUTYL RUBBER, PVC.
Eye Protection: ANSI APPRVD CHEM WORKERS GOGGLES (FP N).
Other Protective Equipment: METATARSAL SHOES FOR CYL HNDLG. PROT CLTHG WHERE NEEDED. SELECT I/A/W OSHA 29 CFR 1910.132 & 1910.133.
Work Hygienic Practices: SAFETY SHOWERS & EYE WASH FOUNTAINS SHOULD BE IMMEDIATELY AVAILABLE.
Suppl. Safety & Health Data: FIRE FIGHT PROC:EXTING FLAMES. REMOVE IGNIT SOURCES IF W/OUT RISK. IF FLAMES ACCIDENTALLY EXTING, EXPLO RE-IGNIT MAY OCCUR, TAKE APPROP MEASURES, EG. TOTAL EVAC. REAPPROACH W/EXTREME CAUT. REDUCE CORR VAPS W/WATER SPRAY/FOG. STOP FLOW OF GAS IF W/OUT RISK WHILE CONTINUING WATER SPRAY. REMOVE ALL CNTNRS FROM FIRE(ING 2)

Transportation Data

Disposal Data

Label Data

Label Required: YES
Technical Review Date: 15SEP94
Label Status: G
Common Name: HYDROGEN SULFIDE
Chronic Hazard: YES
Signal Word: DANGER!
Acute Health Hazard-Severe: X
Contact Hazard-Moderate: X
Fire Hazard-Severe: X
Reactivity Hazard-Moderate: X
Special Hazard Precautions: FLAMM GAS. FORMS EXPLO MIXT W/AIR & OXIDIZING AGENTS. ACUTE:INHAL:MAY BE FATAL. RESP PARALYSIS BY DEPRESS OF CNS, HDCH, DIZZ, GIDD, CONFUSN, CHEST PAINS, UNCON & DEATH. RHINITIS, BRONCH, PNEUM, PULM EDEMA & CYANITIS MAY OCCUR. SKIN:CAUSES IRRIT, LOC REDNESS & SWELL. LIQ MAY BE CORR & CAUSE FROSTBITE. EYE:CAUSES IRRIT, EXCESS REDNESS. VAP MAY CAUSE PAINFUL CONJ, BLURRED VISION, EXCESS TEARING, PHOTOPHOBIA & HALOS AROUND LIGHTS. SEV OVEREXP CAN LEAD TO CONJ & CORNEAL INJURY. SURVIVORS OF OVEREXP SOMETIMES EXHIBIT AMNESIA, BRAIN STEM & CORTICAL DMG. CHRONIC:NAUS, VOMIT, WT LOSS, LOW BLOOD PRESS, LOSS OF SENSE OF SMELL.
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: NORLAB
Label P.O. Box: 380
Label City: AMHERST
Label State: OH
Label Zip Code: 44001
Label Country: US
Label Emergency Number: 800-247-9422

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DYNAMATION -- METHANE (2.5% VOLUME OR LESS IN AIR MIXTURE)
MATERIAL SAFETY DATA SHEET
NSN: 683000D020195
Manufacturer's CAGE: 58746
Part No. Indicator: A
Part Number/Trade Name: METHANE (2.5% VOLUME OR LESS IN AIR MIXTURE)

General Information

Company's Name: DYNAMATION INC
Company's Street: 3784 PLAZA DR
Company's City: ANN ARBOR
Company's State: MI
Company's Country: US
Company's Zip Code: 48108-7354
Company's Emerg Ph #: 313-769-0573/800-255-3924
Company's Info Ph #: 313-769-0573
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SE
Date MSDS Prepared: 01DEC92
Safety Data Review Date: 21JUN94
MSDS Preparer's Name: UNKNOWN
MSDS Serial Number: BTLCJ
Specification Number: UNKNOWN
Spec Type, Grade, Class: UNKNOWN
Hazard Characteristic Code: G3
Unit Of Issue Container Qty: UNKNOWN
Type Of Container: UNKNOWN
Net Unit Weight: UNKNOWN

Ingredients/Identity Information

Proprietary: NO
Ingredient: METHANE
Ingredient Sequence Number: 01
Percent: 2.5
NIOSH (RTECS) Number: PA1490000
CAS Number: 74-82-8
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: ASPHYXIANT; 9394
Other Recommended Limit: NONE RECOMMENDED

Physical/Chemical Characteristics

Appearance And Odor: COLORLESS, ODORLESS GAS.
Boiling Point: -258F,-161C
Evaporation Rate And Ref: UNKNOWN
Solubility In Water: UNKNOWN
Percent Volatiles By Volume: N/A

Fire and Explosion Hazard Data

Flash Point: NONFLAMMABLE
Lower Explosive Limit: N/A
Upper Explosive Limit: N/A
Extinguishing Media: NONE SPECIFIED BY MANUFACTURER.
Special Fire Fighting Proc: MOVE CONTAINER FROM FIRE.
Unusual Fire And Expl Hazrds: NONE SPECIFIED BY MANUFACTURER.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): KEEP AWAY FROM HEAT AND FLAME. STORE IN LESS THAN 130F TEMPERATURE.
Materials To Avoid: OXIDIZERS
Hazardous Decomp Products: NONE.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT

Health Hazard Data

LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: NO
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: MFG. STATE THAT THIS PRODUCT IS 2 1/2% VOLUME METHANE OR LESS IN AIR MIXTURE AND HEALTH HAZARD IS NOT APPLICIABLE.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NOT RELEVANT
Signs/Symptoms Of Overexp: SEE HEALTH HAZARDS.
Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.
Emergency/First Aid Proc: NONE SPECIFIED BY MANUFACTURER.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: NOT APPLICIABLE
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Method: ENSURE COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. RETURN DEFECTIVE CYLINDER TO SUPPLIER.
Precautions-Handling/Storing: PROTECT AGAINST PHYSICAL DAMAGE AND STORE IN LESS THAN 130F TEMPERATURE.
Other Precautions: USE WITH ADEQUATE VENTILATION. AVOID BREATHING GAS. KEEP CONTAINERS CLOSED.

Control Measures

Respiratory Protection: USE NIOSH/MSHA APPROVED SCBA IN CASE OF EMERGENCY OR NON-ROUTINE USE.
Ventilation: PROVIDE ADEQUATE GENERAL AND LOCAL EXHAUST VENTILATION.
Protective Gloves: NONE SPECIFIED BY MANUFACTURER.
Eye Protection: CHEMICAL WORKERS GOGGLES
Other Protective Equipment: NONE SPECIFIED BY MANUFACTURER.
Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER.
Suppl. Safety & Health Data: NONE

Transportation Data

Trans Data Review Date: 94172
DOT PSN Code: DQQ
DOT Proper Shipping Name: COMPRESSED GASES, N.O.S.
DOT Class: 2.2
DOT ID Number: UN1956
DOT Label: NONFLAMMABLE GAS
IMO PSN Code: EQH
IMO Proper Shipping Name: COMPRESSED GAS, N.O.S. o *
IMO Regulations Page Number: 2124 *
IMO UN Number: 1956
IMO UN Class: 2(2.2)
IMO Subsidiary Risk Label: -
IATA PSN Code: HDO
IATA UN ID Number: 1956
IATA Proper Shipping Name: COMPRESSED GAS, N.O.S. *

IATA UN Class: 2.2
IATA Label: NON-FLAMMABLE GAS
AFI PSN Code: HDO
AFI Prop. Shipping Name: COMPRESSED GAS, N.O.S.
AFI Class: 2.2
AFI ID Number: UN1956
AFI Basic Pac Ref: 6-6,6-8,6-10
N.O.S. Shipping Name: METHANE (2.5% VOLUME METHANE OR LESS IN AIR.)
Additional Trans Data: MFG. STATE THIS GAS IS NON-FLAMMABLE.

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Disposal Data

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Label Data

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Label Required: YES
Technical Review Date: 21JUN94
MFR Label Number: NONE
Label Status: F
Common Name: METHANE (2.5% VOLUME OR LESS IN AIR MIXTURE)
Chronic Hazard: NO
Signal Word: CAUTION!
Acute Health Hazard-Slight: X
Contact Hazard-None: X
Fire Hazard-None: X
Reactivity Hazard-None: X
Special Hazard Precautions: MFG. STATE THAT THIS PRODUCT IS 2 1/2% VOLUME METHANE OR LESS IN AIR MIXTURE AND HEALTH HAZARD IS NOT APPLICIABLE. PROTECT AGAINST PHYSICAL DAMAGE AND STORE IN LESS THAN 130F TEMPERATURE. FIRST AID: NONE SPECIFIED BY MANUFACTURER. TARGET ORGAN: NONE.
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: DYNAMATION INC
Label Street: 3784 PLAZA DR
Label City: ANN ARBOR
Label State: MI
Label Zip Code: 48108
Label Country: US
Label Emergency Number: 313-769-0573/800-255-3924

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APPENDIX B: EMERGENCY ROUTES
EMERGENCY NUMBERS

El Centro de Contestación de Llamadas de Emergencia que utiliza el código 9-1-1 se inauguró en febrero de 1994. Este servicio se ofrece a toda persona que se encuentre en una situación o suceso que sea de -- o tenga el potencial de convertirse en-- riesgo de daño inmediato o destrucción que requiera contestación inmediata de **EMERGENCIA MEDICA, BOMBEROS, DEFENSA CIVIL** o la **POLICIA.**

Alguna otra situación en que no peligre la vida y requiera de estos departamentos, refiérase a los siguientes números de Emergencia:

OTROS TELEFONOS DE EMERGENCIA

POLICIA DE PUERTO RICO
343-2020

BOMBEROS
343-2330

VICTIMAS DE VIOLACION
765-2285

MALTRATO DE MENORES
749-1333

CRUZ ROJA AMERICANA BANCO DE SANGRE
759-7979
(Cruz Roja/Servicios Sociales **725-0121**)

CONEXION FONDOS UNIDOS
268-5353
(Se aceptan llamadas con cargos)

EMERGENCIA MEDICA ESTATAL
343-2550
754-2550

EMERGENCIA MEDICA LOCAL
343-2222

CENTRO MEDICO
754-3535

HOSPITAL MUNICIPAL
766-2222

HOSPITAL INDUSTRIAL
754-2525

DEFENSA CIVIL
724-0124

ENVENENAMIENTO
754-8536

ALGUACIL FEDERAL
766-6000

F.B.I.
754-6000

SERVICIO SECRETO FEDERAL
277-1515

GUARDACOSTAS
729-6770
NAC derrame tóxico, químicos y petróleo
1-800-424-8802

"BORDER PATROL"
882-3560

SAN JUAN PARK
BARRIO OBRERO
LAS PALMAS
EXTENSION LAS CASAS
LAS CASAS
RES. LAS MARGARITAS
RES. EL MIRADOR
CHATEAU SAN JUAN
JARDINES DE CUENCA
INDUSTRIAL TRES MONJITAS
MARTIN PEÑA
HECTOR A. VINERO
CANTERA
ISRAEL
PLAZA LAS AMERICAS
MARTIN MARTELL
RESIDENCIAL NEMESIO CANALES
HUYKE
ELEANOR ROOSEVELT
DAVILA Y LLENZA
SAN JOSE
PEREZ MORRIS
QUINTANA
TRUMAN
BALDRICH
RAEZ
GONZALEZ
VALENCIA
LAS AMERICAS
UNIVERSITY GARDENS
UNIVERSIDAD DE PUERTO RICO
DOS PINOS
LOPEZ RICARDO
VILLA GRANADA
DEL CARMEN
SANTA ANA
MEDICAL FACILITY
REPARTO METROPOLITANO
Centro Medico
ESTACION EXPERIMENTAL AGRICOLA DE PUERTO RICO
RIO PIEDRAS
VILLA NEVAREZ
VENEZUELA
BASILIO DAVILA
BREK CONSEJO
SAN ANTONIO
REPARTO UNIVERSITARIO
PARK GARDENS
MONTERREY
ANTONSANTI
EL CINCO
BELISA
EL PARAISO
JARDINES DE SAN FRANCISCO
LAS AMAPOLAS
SAN FRANCISCO
EXT. SAN GERARDO
INDUSTRIAL VICTOR FERNANDEZ
VENUS

APPENDIX 2
DESCRIPTION OF TEST PITS

TPMP98-01

NORTH SIDE OF CANAL, EAST END OF PROJECT AREA

- Surface layer is black loamy fill, containing large concrete blocks, approximately three (3) feet thick.
- Strong hydrogen sulfide odor from this layer
- Below concrete rubble is an orange clay layer approximately one (1) foot thick.
- Below orange clay is native gray clayey sand.
- Total pit depth is 12.5 feet; water inflow is very slow.

TPMP98-02

SOUTH SIDE OF CANAL, MERCANTILE PLAZA PARKING LOT

- Fill material cap is brown silty soil. This layer contains primarily concrete rubble and similar construction debris.
- Below fill cap is gray plastic clay, approximately six (6) feet bgs. This layer contains wood debris and household waste.
- Below this layer, at a depth of approximately nine (9) feet bgs, is the organic rich clay layer. Did not reach the bottom of the trash layer in this pit.
- Total pit depth is twelve (12) feet.
- The ground in this pit runs and sloughs, no water inflow.

TPMP98-03

NORTH SIDE OF CANAL NEAR BRIDGE AT PONCE DELEON AVE.

- Water was very shallow, approximately three (3) feet bgs.
- Approximately three (3) feet of brown loamy fill then organic rich clay.
- The organic rich clay layer is approximately four (4) feet thick and contains mostly wood debris and household waste, little construction debris or concrete. A slight hydrogen sulfide odor was noted in this layer.
- The organic clay has a lot of sand and silt.
- Below the trashy layer, clean beach sand was encountered.
- Total pit depth was twelve (12) feet

TPMP98-04

SOUTH SIDE OF CANAL, NEAR PONCE DELEON AVE.

- Approximately three (3) feet of fill, then organic rich clay trash layer
- Debris consists mostly of construction debris, concrete, and brick, very little wood debris.
- Below four (4) feet of trash, a saturated gleyed clay soil was encountered.
- Water was encountered at a depth of three (3) feet.

TPMP98-05

NORTH SIDE OF CANAL

- Surface consists of chat rock and debris approximately six (6) inches thick, then 2.5 feet of brown clay fill
- House foundation at approximately two (2) feet deep
- Good water inflow, but a heavy sheen was noted on the water.
- Four (4) feet of organic rich clay with construction debris and household waste. Locally medical waste were noted
- Two (2) feet of peat to full depth
- strong odor of H_2S and raw sewage
- Total depth is nine (9) feet

TPMP98-06

SOUTH SIDE OF CANAL, APPROXIMATELY 375 FEET FROM TPMP98-04.

- The lithology of this pit is similar to 98-04 above.

- Approximately three (3) feet of fill.
- One (1) foot of Orange Clay
- A layer of clay stained green, no obvious hydrocarbon odor, likely raw sewage.
- Then trashy organic rich clay layer, approximately four (4) feet thick. Trash consists of mostly wood debris and minor concrete.
- Water inflow at six (6) feet bgs.
- Strong H_2S odor from the pit, 16 ppm
- Below trash layer is red brown to brown peat layer, locally silty
- Total pit depth is 12.5 feet

TPMP98-07

NORTH SIDE OF CANAL

- 1.5 feet of brown loamy fill, then thin layer of gray green stained clay
- Four (4) feet of organic rich clay and trash, mostly household waste. Little construction debris
- six (6) feet of organic peat to depth
- slow water recharge, heavy sheen on water
- strong H_2S odor, strong odor of raw sewage
- total depth of pit is twelve (12) feet

TPMP98-08

NORTH SIDE OF CANAL

- Pit located approximately ten (10) feet south of original location in the middle of the street.
- Three (3) feet of the brown silty clay fill, then two (2) feet of construction debris
- Five (5) feet of trash and organic rich clay
- Two (2) feet of clay at bottom of pit
- Rapid water inflow along the trash layer
- Heavy sheen on water
- Full depth of pit is ten (10) feet

TPMP98-09

SOUTH SIDE OF CANAL, 1000 FEET SOUTH OF TPMP98-06

- Water noted very shallow, approximately three (3) feet of surface

- Fill material, brown silty clay, three (3) feet thick
- Organic rich clay layer at a depth of 3.5 feet. Mostly concrete and construction rubble, little wood debris
- Some metal debris, parts of a car and refrigerator
- Full depth of pit is approximately twelve (12) feet

TPMP98-10

SOUTH SIDE OF CANAL, APPROXIMATELY 500 FEET SOUTH OF TPMP98-09

- Fill material, two (2) feet, brown silty clay
- Gray green stained layer approximately six (6) inches thick, then trash
- Organic rich clay layer, mostly wood debris, little concrete.
- Debris not substantial until a depth of six (6) feet bgs.
- No water inflow
- Total pit depth is twelve (12) feet.

TPMP98-11

SOUTH SIDE OF CANAL

- Three (3) feet of silty loam brown fill
- Two (2) feet of organic rich clay with trash and debris, wood and household waste, cleaner than usual, but very strong hydrogen Sulfide odor. Concentration in pit is >65 ppm, IDLH!
- Clean pale buff sand to depth
- Rapid water inflow, locally boiling up through sand
- Total depth is twelve (12) feet

TPMP98-12

SOUTH SIDE OF CANAL, IN OPEN AREA NEAR CANAL

- Two (2) feet of brown silty clay fill.
- Two (2) feet of trash and construction debris then organic clay
- This hole was dry. Move fifteen (15) feet to north, water at three (3) feet bgs.
- Total depth twelve (12) feet

TPMP98-13

NORTH SDIE OF CANAL

- 1.5 feet of brown loamy fill with some gravel
- one (1) foot of sand and gravel
- three (3) feet of trash and organic clay, consisting mostly of concrete block and brick rubble, some tires
- peat layer approximately five (5) feet bgs and five (5) feet thick
- Gray plastic native clay to depth
- Total depth of twelve (12) feet
- Water very shallow, three (3) feet bgs with very rapid inflow

TPMP98-14

NORTH SIDE OF CANAL, TRASH HEAP AT SURFACE

- Two (2) feet of brown to orange loamy fill
- Six (6) feet of debris and trash layer, mostly wood and household waste.
- Peat to total depth
- Total depth is twelve (12) feet
- Good water inflow at three (3) feet bgs
- Sweet sour odor was noted

TPMP98-15

SOUTH SIDE OF CANAL MUST MOVE PILES OF TRASH TO EXCAVATE

- Surface layer is gray green stained clay, similar to hydrocarbons with strong characteristic odor.
- One (1) foot of brown silty clay fill
- Two (2) feet of gray green clayey sand, some yellow clay
- Three (3) feet of organic rich clay with debris and trash. Mostly wood and household waste
- Below six (6) feet, brown silty peat to depth, water flows in along the trash layer.
- Total pit depth is twelve (12)

TPMP98-16

SOUTH SIDE OF CANAL, IN VACANT LOT

- Two (2) feet of brown silty clay fill
- Four (4) feet of construction debris and trash in organic rich clay matrix
- Peat layer at six (6) feet bgs, locally shell fragments were noted
- Water encountered at four (4) feet.
- Total depth is approximately twelve (12) feet.

TPMP98-17

NORTH SIDE OF CANAL, TRASH HEAP AT SURFACE

- Strong odor of raw sewage
- Fill material, brown clayey loam, two (2) feet thick
- Gray green stained layer, strong odor of raw sewage
- Six (6) feet of black organic rich clay with trash, mostly wood debris and household waste, lots of tires
- Peat layer to depth
- Total depth is ten (10) feet
- Good water inflow

TPMP98-18

SOUTH SIDE OF CANAL, IN VACANT LOT, INSIDE TREE LINE.

- 1.5 feet of brown loamy fill
- water inflow at 1.5 feet
- From 1.5 to a depth of eight (8) feet is trash and debris in organic rich clay matrix, mostly wood and construction rubble.
- Peat layer at eight (8) feet bgs to depth
- Total pit depth is ten (10) feet

TPMP98-19

NORTH SIDE OF CANAL

- Rapid water inflow
- Three (3) feet of brown clayey fill
- Trash and organic clay layer to depth
- Total depth is 8.5 feet

TPMP98-20

SOUTH SIDE OF CANAL, NEAR BARBOSA AVE BRIDGE

- Water encountered at two (2) feet
- Three (3) feet of brown loamy fill
- Nine (9) feet of Organic rich clay layer with construction debris consisting of wood and concrete rubble
- Peat layer from nine (9) feet to total depth
- Total depth is twelve (12) feet

TPMP98-21

NORTH SIDE OF CANAL NEAR BARBOSA AVE.

- Three (3) feet of fill, brown clay some sand and gravel, locally stratified
- Three (3) feet of trash and organic clay, mostly wood debris and household waste, some construction debris
- Peat layer to total depth of twelve (12) feet
- Strong H_2S odor in pit
- Rapid water inflow at three (3) feet bgs

TPMP98-22

SOUTH SIDE OF CANAL NEAR BARBOSA AVE. BRIDGE. FIRST LOCATION ABANDONED DUE TO HOUSE FOUNDATION

- Two (2) feet of brown loamy fill, bottom of fill is orange clay
- Thin gray green stained clay layer then trash
- Three (3) feet of black organic rich clay with trash, mostly wood and organic debris
- Rapid water inflow at trash layer
- Total pit depth is twelve (12) feet

TPMP98-24

SOUTH SIDE OF CANAL, IN RESIDENCE BACKYARD

- Surface consists of construction debris
- Water is very shallow, approximately two (2) feet bgs.
- Three (3) feet of fill material, then trash
- Trash and organic clay to depth, mostly wood and household waste

TPMP98-25

NORTH SIDE OF CANAL

- Three (3) feet of good brown fill
- Organic rich clay and trash layer to depth
- Debris consists of tires and construction debris, rubble and rotted wood, some household waste and metal debris including metal siding
- Very rapid water inflow
- Total depth ten (10) feet

TPMP98-29

NORTH SIDE OF CANAL, VERY DIFFICULT ACCESS, MUST TAKE DOWN FENCE ON BOTH SIDES

- Three (3) feet of brown clayey fill
- Trash layer and organic clay to depth
- Trash consists of an old house foundation, construction rubble including wood and concrete and old tires
- Very rapid water inflow, water near the surface
- Total depth approximately ten 910) feet

TPMP98-30

SOUTH SIDE OF CANAL, MUST MOVE GUARDRAIL FOR ACCESS

- Water and trash at surface, not stable
- Five (5) feet of trash and organic clay, mostly household waste
- Peat layer at seven (7) feet bgs
- Total depth approximately eight (8) feet

TPMP98-31

NORTH SIDE OF CANAL, 250 FEET EAST OF 98-32

- Water at surface, no fill
- Trash layer, consisting of household waste and minor construction debris to a depth of nine (9) feet
- Peat layer encountered at ten 910) feet bgs
- Strong H_2S odor

TPMP98-32

North side of canal at eastern end of project area

Water at surface, no fill material
Trash and construction debris at surface, household waste.
Trash layer from surface to eleven (11) feet
Peat layer at eleven (11) feet bgs
No H_2S noted

APPENDIX 3
LABORATORY RESULTS

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A48377
Sample ID: DISPOSAL SITE #1
Sample Type: Solid waste
Site ID:

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

Date Collected: 4/30/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	110	5/ 6/98	7:15	R. Street	6010B
Barium	< 1.00	mg/l	100	90	5/ 6/98	7:15	R. Street	6010B
Cadmium	< 0.10	mg/l	1.0	99	5/ 6/98	7:15	R. Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R. Street	6010B
Lead	< 0.50	mg/l	5.0	102	5/ 6/98	7:15	R. Street	6010B
Mercury	< 0.010	mg/l	0.20	93	5/ 6/98	7:21	R. Street	7470A
Selenium	< 0.10	mg/l	1.0	114	5/ 6/98	7:15	R. Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R. Street	6010B
Benzene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	90	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	102	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	106	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	114	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	82	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.1	mg/l	200	75	5/ 8/98	8:58	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	75	5/ 8/98	8:58	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	75	5/ 8/98	8:58	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	35	5/ 8/98	8:58	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	65	5/ 8/98	8:58	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	70	5/ 8/98	8:58	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	55	5/ 8/98	8:58	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	75	5/ 8/98	8:58	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	20	5/ 8/98	8:58	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	70	5/ 8/98	8:58	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	70	5/ 8/98	8:58	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	70	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	87	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	71	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	67	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	66	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	45	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	102	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	65	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48377
Sample ID: DISPOSAL SITE #1

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	70	5/ 8/98	15:29	W. Klepper	8081A
TCLP Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	79.	70. - 131.
VOA Surrogate, Toluene d8	92.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	85.	77. - 118.
surr-Nitrobenzene-d5	55.	35. - 115.
surr-2-Fluorobiphenyl	70.	43. - 116.
surr-Terpheayl d14	85.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	45.	20. - 110.
surr-2,4,6-Tribromophenol	75.	10. - 123.
surr-TCMX	39.	22. - 135.
surr-Dibutylchloreadate	38.	22. - 135.
surr-Dichlorophenylacetic acid	94.	11. - 135.

Report Approved By: _____ Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A48378
Sample ID: DISPOSAL SITE #2
Sample Type: Solid waste
Site ID:

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

Date Collected: 4/30/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	110	5/ 6/98	7:15	R.Street	6010B
Barium	< 1.00	mg/l	100	90	5/ 6/98	7:15	R.Street	6010B
Cadmium	< 0.10	mg/l	1.0	99	5/ 6/98	7:15	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R.Street	6010B
Lead	< 0.50	mg/l	5.0	102	5/ 6/98	7:15	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	93	5/ 6/98	7:21	R.Street	7470A
Selenium	< 0.10	mg/l	1.0	114	5/ 6/98	7:15	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	90	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	102	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	106	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	114	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	82	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.1	mg/l	200	70	5/ 8/98	8:58	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	70	5/ 8/98	8:58	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	70	5/ 8/98	8:58	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	30	5/ 8/98	8:58	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	65	5/ 8/98	8:58	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	65	5/ 8/98	8:58	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	55	5/ 8/98	8:58	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	70	5/ 8/98	8:58	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	20	5/ 8/98	8:58	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	65	5/ 8/98	8:58	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	65	5/ 8/98	8:58	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	70	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	89	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	77	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	69	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	67	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	72	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	93	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	85	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48378
Sample ID: DISPOSAL SITE #2

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	74	5/ 8/98	15:29	W. Klepper	8081A
TCLP Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	77.	70. - 131.
VOA Surrogate, Toluene d8	92.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	84.	77. - 118.
surr-Nitrobenzene-d5	55.	35. - 115.
surr-2-Fluorobiphenyl	65.	43. - 116.
surr-Terphenyl d14	85.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	40.	20. - 110.
surr-2,4,6-Tribromophenol	75.	10. - 123.
surr-TCMX	36.	22. - 135.
surr-Dibutylchloreadate	36.	22. - 135.
surr-Dichlorophenylacetic acid	80.	11. - 135.

Report Approved By: _____ Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A48379
Sample ID: DISPOSAL SITE #3
Sample Type: Solid waste
Site ID:

Date Collected: 4/30/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	110	5/ 6/98	7:15	R.Street	6010B
Barium	< 1.00	mg/l	100	90	5/ 6/98	7:15	R.Street	6010B
Cadmium	< 0.10	mg/l	1.0	99	5/ 6/98	7:15	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R.Street	6010B
Lead	< 0.50	mg/l	5.0	102	5/ 6/98	7:15	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	93	5/ 6/98	7:21	R.Street	7470A
Selenium	< 0.10	mg/l	1.0	114	5/ 6/98	7:15	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	102	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	106	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	114	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	82	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	94	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	108	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.1	mg/l	200	50	5/ 8/98	8:58	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	50	5/ 8/98	8:58	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	50	5/ 8/98	8:58	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	30	5/ 8/98	8:58	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	45	5/ 8/98	8:58	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	45	5/ 8/98	8:58	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	45	5/ 8/98	8:58	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	70	5/ 8/98	8:58	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	20	5/ 8/98	8:58	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	50	5/ 8/98	8:58	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	50	5/ 8/98	8:58	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	62	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	64	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	67	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	64	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	61	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	39	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	75	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	30	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48379
Sample ID: DISPOSAL SITE #3

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	66	5/ 8/98	15:29	W. Klepper	8081A
TCLP Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	76.	70. - 131.
VOA Surrogate, Toluene d8	91.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	87.	77. - 118.
surr-Nitrobenzene-d5	45.	35. - 115.
surr-2-Fluorobiphenyl	55.	43. - 116.
surr-Terphenyl d14	85.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	70.	10. - 123.
surr-TCMX	39.	22. - 135.
surr-Dibutylchlorendate	38.	22. - 135.
surr-Dichlorophenylacetic acid	120.	11. - 135.

Report Approved By: _____ Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A48380
Sample ID: DISPOSAL SITE WATER
Sample Type: Liquid Waste
Site ID:

Date Collected: 4/30/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	107	5/ 6/98	7:15	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/ 6/98	7:15	R.Street	6010B
Cadmium	< 0.10	mg/l	1.0	96	5/ 6/98	7:15	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R.Street	6010B
Lead	< 0.50	mg/l	5.0	99	5/ 6/98	7:15	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/ 6/98	7:21	R.Street	7470A
Selenium	< 0.10	mg/l	1.0	108	5/ 6/98	7:15	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	90	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	102	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	106	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	114	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	82	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	114	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.1	mg/l	200	70	5/ 8/98	8:58	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	70	5/ 8/98	8:58	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	70	5/ 8/98	8:58	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	30	5/ 8/98	8:58	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	65	5/ 8/98	8:58	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	70	5/ 8/98	8:58	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	60	5/ 8/98	8:58	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	70	5/ 8/98	8:58	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	25	5/ 8/98	8:58	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	65	5/ 8/98	8:58	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	65	5/ 8/98	8:58	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	67	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	82	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	76	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	67	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	66	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	39	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	84	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	50	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48380
Sample ID: DISPOSAL SITE WATER

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	73	5/ 8/98	15:29	W. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	76.	70. - 131.
VOA Surrogate, Toluene d8	91.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	87.	77. - 118.
surr-Nitrobenzene-d5	55.	35. - 115.
surr-2-Fluorobiphenyl	80.	43. - 116.
surr-Terphenyl d14	70.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	45.	20. - 110.
surr-2,4,6-Tribromophenol	80.	10. - 123.
surr-TCMX	37.	22. - 135.
surr-Dibutylchlorendate	37.	22. - 135.
surr-Dichlorophenylacetic acid	93.	11. - 135.

Report Approved By: _____ Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

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ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A48381
Sample ID: TPMP98-22
Sample Type: Solid waste
Site ID:

Date Collected: 4/30/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	107	5/ 6/98	7:15	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/ 6/98	7:15	R.Street	6010B
Cadmium	< 0.10	mg/l	1.0	96	5/ 6/98	7:15	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R.Street	6010B
Lead	< 0.50	mg/l	5.0	99	5/ 6/98	7:15	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/ 6/98	7:21	R.Street	7470A
Selenium	< 0.10	mg/l	1.0	108	5/ 6/98	7:15	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	90	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	102	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	106	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	114	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	82	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.1	mg/l	200	70	5/ 8/98	8:58	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	65	5/ 8/98	8:58	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	75	5/ 8/98	8:58	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	35	5/ 8/98	8:58	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	60	5/ 8/98	8:58	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	60	5/ 8/98	8:58	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	55	5/ 8/98	8:58	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	75	5/ 8/98	8:58	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	25	5/ 8/98	8:58	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	70	5/ 8/98	8:58	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	65	5/ 8/98	8:58	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	64	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	94	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	73	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	67	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	66	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	40	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	79	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	92	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48381
Sample ID: TPMP98-22

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	70	5/ 8/98	15:29	W. Klepper	8081A
TCLP Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	83.	70. - 131.
VOA Surrogate, Toluene d8	92.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	86.	77. - 118.
surr-Nitrobenzene-d5	50.	35. - 115.
surr-2-Fluorobiphenyl	60.	43. - 116.
surr-Terphenyl d14	75.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	70.	10. - 123.
surr-TCMX	47.	22. - 135.
surr-Dibutylchlorendate	47.	22. - 135.
surr-Dichlorophenylacetic acid	99.	11. - 135.

Report Approved By: _____ Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A48382
Sample ID: TPMP98-1
Sample Type: Liquid Waste
Site ID:

Date Collected: 4/29/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	107	5/ 6/98	7:15	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/ 6/98	7:15	R.Street	6010B
Cadmium	< 0.10	mg/l	1.0	96	5/ 6/98	7:15	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R.Street	6010B
Lead	< 0.50	mg/l	5.0	99	5/ 6/98	7:15	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/ 6/98	7:21	R.Street	7470A
Selenium	< 0.10	mg/l	1.0	108	5/ 6/98	7:15	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	90	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	102	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	106	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	114	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	82	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.1	mg/l	200	80	5/ 8/98	8:58	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	75	5/ 8/98	8:58	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	80	5/ 8/98	8:58	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	35	5/ 8/98	8:58	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	70	5/ 8/98	8:58	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	75	5/ 8/98	8:58	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	65	5/ 8/98	8:58	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	85	5/ 8/98	8:58	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	30	5/ 8/98	8:58	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	75	5/ 8/98	8:58	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	75	5/ 8/98	8:58	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	78	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	91	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	87	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	80	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	77	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	72	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	102	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	81	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48383
Sample ID: TPMP98-9

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	74	5/ 8/98	15:29	M. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	85.	70. - 131.
VOA Surrogate, Toluene d8	90.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	90.	77. - 118.
surr-Nitrobenzene-d5	45.	35. - 115.
surr-2-Fluorobiphenyl	60.	43. - 116.
surr-Terphenyl d14	80.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	40.	20. - 110.
surr-2,4,6-Tribromophenol	75.	10. - 123.
surr-TCMX	47.	22. - 135.
surr-Dibutylchlorendate	48.	22. - 135.
surr-Dichlorophenylacetic acid	90.	11. - 135.

Report Approved By: _____ Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

Lab Number: 98-A48383
Sample ID: TPMP98-9
Sample Type: Liquid Waste
Site ID:

Date Collected: 4/28/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	107	5/ 6/98	7:15	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/ 6/98	7:15	R.Street	6010B
Cadmium	< 0.10	mg/l	1.0	96	5/ 6/98	7:15	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R.Street	6010B
Lead	< 0.50	mg/l	5.0	99	5/ 6/98	7:15	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/ 6/98	7:21	R.Street	7470A
Selenium	< 0.10	mg/l	1.0	108	5/ 6/98	7:15	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	90	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	102	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	106	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	114	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	82	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.2	mg/l	200	65	5/ 8/98	8:58	Carmichael	8270
1,4-Dichlorobenzene	< 0.2	mg/l	7.5	65	5/ 8/98	8:58	Carmichael	8270
2,4-Dinitrotoluene	< 0.20	mg/l	0.13	70	5/ 8/98	8:58	Carmichael	8270
Hexachlorobenzene	< 0.20	mg/l	0.13	30	5/ 8/98	8:58	Carmichael	8270
Hexchlor-1,3-butadien	< 0.2	mg/l	0.5	60	5/ 8/98	8:58	Carmichael	8270
Hexachloroethane	< 0.2	mg/l	3.0	60	5/ 8/98	8:58	Carmichael	8270
Nitrobenzene	< 0.2	mg/l	2.0	55	5/ 8/98	8:58	Carmichael	8270
Pentachlorophenol	< 0.2	mg/l	100	75	5/ 8/98	8:58	Carmichael	8270
Pyridine	< 0.2	mg/l	5.0	20	5/ 8/98	8:58	Carmichael	8270
2,4,5-Trichlorophenol	< 0.2	mg/l	400	60	5/ 8/98	8:58	Carmichael	8270
2,4,6-Trichlorophenol	< 0.2	mg/l	2.0	60	5/ 8/98	8:58	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	70	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	107	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	77	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	72	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	67	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	72	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	95	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	110	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48382
Sample ID: TPMP98-1

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	83	5/ 8/98	15:29	W. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	84.	70. - 131.
VOA Surrogate, Toluene d8	93.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	87.	77. - 118.
surr-Nitrobenzene-d5	65.	35. - 115.
surr-2-Fluorobiphenyl	80.	43. - 116.
surr-Terphenyl d14	60.	20. - 130.
surr-Phenol d5	35.	10. - 110.
surr-2-Fluorophenol	50.	20. - 110.
surr-2,4,6-Tribromophenol	90.	10. - 123.
surr-TCMX	40.	22. - 135.
surr-Dibutylchlorendate	40.	22. - 135.
surr-Dichlorophenylacetic acid	100.	11. - 135.

Report Approved By: _____ Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726 0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A48384
Sample ID: CBMP98-3
Sample Type: Liquid Waste
Site ID:

Date Collected: 4/28/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	107	5/ 6/98	7:15	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/ 6/98	7:15	R.Street	6010B
Cadmium	< 0.10	mg/l	1.0	96	5/ 6/98	7:15	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R.Street	6010B
Lead	< 0.50	mg/l	5.0	99	5/ 6/98	7:15	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/ 6/98	7:21	R.Street	7470A
Selenium	< 0.10	mg/l	1.0	108	5/ 6/98	7:15	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	90	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	102	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	106	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	114	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	82	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.1	mg/l	200	75	5/ 8/98	8:58	Carnichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	75	5/ 8/98	8:58	Carnichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	75	5/ 8/98	8:58	Carnichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	30	5/ 8/98	8:58	Carnichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	70	5/ 8/98	8:58	Carnichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	70	5/ 8/98	8:58	Carnichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	60	5/ 8/98	8:58	Carnichael	8270
Pentachlorophenol	< 0.1	mg/l	100	75	5/ 8/98	8:58	Carnichael	8270
Pyridine	< 0.1	mg/l	5.0	5	5/ 8/98	8:58	Carnichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	70	5/ 8/98	8:58	Carnichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	70	5/ 8/98	8:58	Carnichael	8270
Chlordane	< 0.015	mg/l	0.030	62	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	94	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	76	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	65	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	70	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	85	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	86	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	77	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48384
Sample ID: CBMP98-3

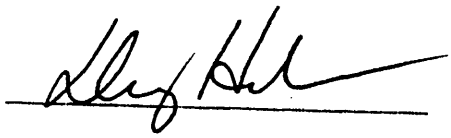
TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	73	5/ 8/98	15:29	W. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	80.	70. - 131.
VOA Surrogate, Toluene d8	93.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	87.	77. - 118.
surr-Nitrobenzene-d5	55.	35. - 115.
surr-2-Fluorobiphenyl	70.	43. - 116.
surr-Terphenyl d14	70.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	40.	20. - 110.
surr-2,4,6-Tribromophenol	85.	10. - 123.
surr-TCMX	45.	22. - 135.
surr-Dibutylchlorendate	45.	22. - 135.
surr-Dichlorophenylacetic acid	94.	11. - 135.

Report Approved By: 

Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

Lab Number: 98-A48385
Sample ID: TPMP98-10
Sample Type: Solid waste
Site ID:

Date Collected: 4/28/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recoverg (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	107	5/ 6/98	7:15	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/ 6/98	7:15	R.Street	6010B
Cadmium	< 0.10	mg/l	1.0	96	5/ 6/98	7:15	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R.Street	6010B
Lead	< 0.50	mg/l	5.0	99	5/ 6/98	7:15	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/ 6/98	7:21	R.Street	7470A
Selenium	< 0.10	mg/l	1.0	108	5/ 6/98	7:15	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	90	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	102	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	106	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	114	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	82	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.1	mg/l	200	70	5/ 8/98	8:58	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	65	5/ 8/98	8:58	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	75	5/ 8/98	8:58	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	30	5/ 8/98	8:58	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	60	5/ 8/98	8:58	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	65	5/ 8/98	8:58	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	55	5/ 8/98	8:58	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	80	5/ 8/98	8:58	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	25	5/ 8/98	8:58	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	65	5/ 8/98	8:58	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	65	5/ 8/98	8:58	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	75	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	86	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	84	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	81	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	76	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	92	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	101	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	55	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48385
Sample ID: TPMP98-10

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	81	5/ 8/98	15:29	W. Klepper	8081A
TCLP Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	87.	70. - 131.
VOA Surrogate, Toluene d8	91.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	88.	77. - 118.
surr-Nitrobenzene-d5	60.	35. - 115.
surr-2-Fluorobipheayl	75.	43. - 116.
surr-Terphenyl d14	80.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	45.	20. - 110.
surr-2,4,6-Tribromophenol	85.	10. - 123.
surr-TCMX	45.	22. - 135.
surr-Dibutylchlorendate	45.	22. - 135.
surr-Dichlorophenylacetic acid	75.	11. - 135.

Report Approved By: _____ Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A48386
Sample ID: TPMP98-6
Sample Type: Solid waste
Site ID:

Date Collected: 4/28/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	107	5/ 6/98	7:15	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/ 6/98	7:15	R.Street	6010B
Cadmium	< 0.10	mg/l	1.0	96	5/ 6/98	7:15	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R.Street	6010B
Lead	< 0.50	mg/l	5.0	99	5/ 6/98	7:15	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/ 6/98	7:21	R.Street	7470A
Selenium	< 0.10	mg/l	1.0	108	5/ 6/98	7:15	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	90	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	102	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	106	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	114	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	82	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.1	mg/l	200	66	5/ 8/98	8:58	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	66	5/ 8/98	8:58	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	76	5/ 8/98	8:58	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	35	5/ 8/98	8:58	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	65	5/ 8/98	8:58	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	60	5/ 8/98	8:58	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	58	5/ 8/98	8:58	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	91	5/ 8/98	8:58	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	39	5/ 8/98	8:58	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	72	5/ 8/98	8:58	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	71	5/ 8/98	8:58	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	85	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	89	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	93	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	81	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	74	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	93	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	104	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	65	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48386
Sample ID: TPMP98-6

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	83	5/ 8/98	15:29	W. Klepper	8081A
TCLP Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	82.	70. - 131.
VOA Surrogate, Toluene d8	93.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	85.	77. - 118.
surr-Nitrobenzene-d5	55.	35. - 115.
surr-2-Fluorobiphenyl	70.	43. - 116.
surr-Terphenyl d14	85.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	40.	20. - 110.
surr-2,4,6-Tribromophenol	80.	10. - 123.
surr-TCMX	36.	22. - 135.
surr-Dibutylchloreadate	37.	22. - 135.
surr-Dichlorophenylacetic acid	84.	11. - 135.

Report Approved By: _____ Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny R. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A48387
Sample ID: TPMP98-1
Sample Type: Solid waste
Site ID:

Date Collected: 4/28/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	107	5/ 6/98	7:15	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/ 6/98	7:15	R.Street	6010B
Cadmium	< 0.10	mg/l	1.0	96	5/ 6/98	7:15	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R.Street	6010B
Lead	< 0.50	mg/l	5.0	99	5/ 6/98	7:15	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/ 6/98	7:21	R.Street	7470A
Selenium	< 0.10	mg/l	1.0	108	5/ 6/98	7:15	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	90	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	102	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	106	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	114	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	82	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.1	mg/l	200	70	5/ 8/98	8:58	Carnichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	65	5/ 8/98	8:58	Carnichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	75	5/ 8/98	8:58	Carnichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	35	5/ 8/98	8:58	Carnichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	60	5/ 8/98	8:58	Carnichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	65	5/ 8/98	8:58	Carnichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	55	5/ 8/98	8:58	Carnichael	8270
Pentachlorophenol	< 0.1	mg/l	100	65	5/ 8/98	8:58	Carnichael	8270
Pyridine	< 0.1	mg/l	5.0	30	5/ 8/98	8:58	Carnichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	65	5/ 8/98	8:58	Carnichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	70	5/ 8/98	8:58	Carnichael	8270
Chlordane	< 0.015	mg/l	0.030	75	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	65	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	86	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	82	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	78	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	81	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	102	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	32	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48387
Sample ID: TPMP98-1

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	82	5/ 8/98	15:29	W. Klepper	8081A
TCLP Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	78.	70. - 131.
VOA Surrogate, Toluene d8	92.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	86.	77. - 118.
surr-Nitrobenzene-d5	55.	35. - 115.
surr-2-Fluorobiphenyl	70.	43. - 116.
surr-Terpheayl d14	90.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	45.	20. - 110.
surr-2,4,6-Tribromophenol	90.	10. - 123.
surr-TCMX	44.	22. - 135.
surr-Dibutylchlorendate	44.	22. - 135.
surr-Dichlorophenylacetic acid	72.	11. - 135.

Report Approved By: _____ Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
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ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Project:
Project Name: MARTIN PINA CANAL ASSESS
Sampler:

Lab Number: 98-A48388
Sample ID: TPMP98-2
Sample Type: Solid waste
Site ID:

Date Collected: 4/28/98
Time Collected:
Date Received: 5/ 2/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	107	5/ 6/98	7:15	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/ 6/98	7:15	R.Street	6010B
Cadmium	< 0.10	mg/l	1.0	96	5/ 6/98	7:15	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/ 6/98	7:15	R.Street	6010B
Lead	< 0.50	mg/l	5.0	99	5/ 6/98	7:15	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/ 6/98	7:21	R.Street	7470A
Selenium	< 0.10	mg/l	1.0	108	5/ 6/98	7:15	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/ 6/98	7:15	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/13/98	16:47	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	90	5/13/98	16:47	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	102	5/13/98	16:47	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	106	5/13/98	16:47	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/13/98	16:47	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	114	5/13/98	16:47	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	82	5/13/98	16:47	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	94	5/13/98	16:47	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	108	5/13/98	16:47	S. Wani	8260
Cresols	< 0.1	mg/l	200	70	5/ 8/98	8:58	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	80	5/ 8/98	8:58	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	85	5/ 8/98	8:58	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	35	5/ 8/98	8:58	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	75	5/ 8/98	8:58	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	80	5/ 8/98	8:58	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	65	5/ 8/98	8:58	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	85	5/ 8/98	8:58	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	25	5/ 8/98	8:58	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	75	5/ 8/98	8:58	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	75	5/ 8/98	8:58	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	79	5/ 8/98	15:29	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	74	5/ 8/98	12:43	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	93	5/ 8/98	15:29	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	85	5/ 8/98	15:29	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	84	5/ 8/98	15:29	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	86	5/ 8/98	15:29	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	108	5/ 8/98	15:29	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	30	5/ 8/98	12:43	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A48388
Sample ID: TPMP98-2

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	87	5/ 8/98	15:29	W. Klepper	8081A
TCLP Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 2/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	79.	70. - 131.
VOA Surrogate, Toluene d8	92.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	85.	77. - 118.
surr-Nitrobenzene-d5	55.	35. - 115.
surr-2-Fluorobiphenyl	75.	43. - 116.
surr-Terphenyl d14	90.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	45.	20. - 110.
surr-2,4,6-Tribromophenol	95.	10. - 123.
surr-TCMX	41.	22. - 135.
surr-Dibutylchlorendate	42.	22. - 135.
surr-Dichlorophenylacetic acid	64.	11. - 135.

Report Approved By: _____ Report Date: 5/13/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50693
Sample ID: TPMP98-21(WATER)
Sample Type: Liquid waste
Site ID:

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

Date Collected: 5/ 6/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	87	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	88	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	85	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	99	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	99	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	100	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	104	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	104	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	92	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	106	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	30	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	35	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	25	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	15	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	30	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	35	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	30	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	20	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	40	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	30	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	35	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	106	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	92	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	118	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	78	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	125	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	43	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	118	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	121	5/15/98	9:36	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50693
Sample ID: TPMP98-21(WATER)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	110	5/18/98	15:58	W. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	102.	70. - 131.
VOA Surrogate, Toluene d8	110.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	90.	77. - 118.
surr-Nitrobenzene-d5	20. #	35. - 115.
surr-2-Fluorobiphenyl	25. #	43. - 116.
surr-Terphenyl d14	45.	20. - 130.
surr-Phenol d5	20.	10. - 110.
surr-2-Fluorophenol	15. #	20. - 110.
surr-2,4,6-Tribromophenol	55.	10. - 123.
surr-TCMX	106.	22. - 135.
surr-Dibutylchlorendate	42.	22. - 135.
surr-Dichlorophenylacetic acid	121.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50694
Sample ID: TPMP98-14(WATER)
Sample Type: Liquid waste
Site ID:

Date Collected: 5/ 6/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R. Street	6010B
Barium	1.70	mg/l	100	87	5/12/98	7:50	R. Street	6010B
Cadmium	< 0.100	mg/l	1.0	88	5/12/98	7:50	R. Street	6010B
Chromium	< 0.50	mg/l	5.0	85	5/12/98	7:50	R. Street	6010B
Lead	< 0.50	mg/l	5.0	88	5/12/98	7:50	R. Street	6010B
Mercury	< 0.010	mg/l	0.20	99	5/12/98	6:42	R. Street	7470A
Selenium	< 0.100	mg/l	1.0	99	5/12/98	7:50	R. Street	6010B
Silver	< 0.10	mg/l	5.0	88	5/12/98	7:50	R. Street	6010B
Benzene	< 0.10	mg/l	0.5	114	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	102	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	108	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	110	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	114	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	110	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	96	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	112	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	118	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	40	5/19/98	9:52	M. Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	45	5/19/98	9:52	M. Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	45	5/19/98	9:52	M. Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	20	5/19/98	9:52	M. Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	45	5/19/98	9:52	M. Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	50	5/19/98	9:52	M. Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	40	5/19/98	9:52	M. Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	35	5/19/98	9:52	M. Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	35	5/19/98	9:52	M. Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	45	5/19/98	9:52	M. Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	50	5/19/98	9:52	M. Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	103	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	93	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	113	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	74	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	114	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	42	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	107	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	111	5/15/98	9:36	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50694
Sample ID: TPMP98-14(WATER)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	104	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	99.	70. - 131.
VOA Surrogate, Toluene d8	114.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	86.	77. - 118.
surr-Nitrobenzene-d5	20. #	35. - 115.
surr-2-Fluorobiphenyl	20. #	43. - 116.
surr-Terphenyl d14	35.	20. - 130.
surr-Phenol d5	20.	10. - 110.
surr-2-Fluorophenol	10. #	20. - 110.
surr-2,4,6-Tribromophenol	50.	10. - 123.
surr-TCMX	87.	22. - 135.
surr-Dibutylchlorendate	38.	22. - 135.
surr-Dichlorophenylacetic acid	96.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50695
Sample ID: TPMP98-12(WATER)
Sample Type: Liquid waste
Site ID:

Date Collected: 5/ 1/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	87	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	88	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	85	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	99	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	99	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	100	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	104	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	92	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	106	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	40	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	45	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	45	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	20	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	45	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	50	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	40	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	30	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	45	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	40	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	45	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	91	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	68	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	108	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	60	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	100	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	41	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	96	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	83	5/15/98	9:36	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
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ANALYTICAL REPORT

Laboratory Number: 98-A50695
Sample ID: TPMP98-12(WATER)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	97	5/18/98	15:58	W. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	106.	70. - 131.
VOA Surrogate, Toluene d8	110.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	87.	77. - 118.
surr-Nitrobenzene-d5	20. #	35. - 115.
surr-2-Fluorobiphenyl	25. #	43. - 116.
surr-Terphenyl d14	30.	20. - 130.
surr-Phenol d5	20.	10. - 110.
surr-2-Fluorophenol	10. #	20. - 110.
surr-2,4,6-Tribromophenol	50.	10. - 123.
surr-TCMX	136. #	22. - 135.
surr-Dibutylchlorendate	36.	22. - 135.
surr-Dichlorophenylacetic acid	87.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

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ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50696
Sample ID: TPMP98-18(WATER)
Sample Type: Liquid waste
Site ID:

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

Date Collected: 5/ 1/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	87	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	88	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	85	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	99	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	99	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	114	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	102	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	108	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	110	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	114	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	110	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	96	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	112	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	118	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	70	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	65	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	75	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	30	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	60	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	65	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	55	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	75	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	30	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	70	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	70	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	110	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	78	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	116	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	70	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	105	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	44	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	117	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	98	5/15/98	9:36	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50696
Sample ID: TPMP98-18(WATER)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	ng/l	0.008	104	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	101.	70. - 131.
VOA Surrogate, Toluene d8	112.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	90.	77. - 118.
surr-Nitrobenzene-d5	25. #	35. - 115.
surr-2-Fluorobiphenyl	25. #	43. - 116.
surr-Terphenyl d14	30.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	75.	10. - 123.
surr-TCMX	78.	22. - 135.
surr-Dibutylchlorendate	42.	22. - 135.
surr-Dichlorophenylacetic acid	86.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

Lab Number: 98-A50697
Sample ID: TPMP98-7(WATER)
Sample Type: Liquid waste
Site ID:

Date Collected: 5/ 5/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	87	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	88	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	85	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	99	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	99	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	100	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	104	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	92	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	106	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	50	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	45	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	50	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	20	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	45	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	50	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	45	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	50	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	35	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	50	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	50	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.150	mg/l	0.030	Empty	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	72	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.1000	mg/l	0.02	Empty	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0500	mg/l	0.008	Empty	5/18/98	15:58	W. Klepper	8081A
Lindane	< 2.00	mg/l	0.4	Empty	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 10.0	mg/l	10.0	Empty	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 2.50	mg/l	0.50	Empty	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	93	5/15/98	9:36	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50697
Sample ID: TPMP98-7(WATER)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0500	mg/l	0.008	Empty	5/18/98	15:58	W. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	107.	70. - 131.
VOA Surrogate, Toluene d8	110.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	89.	77. - 118.
surr-Nitrobenzene-d5	25. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	25.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	70.	10. - 123.
surr-Dichlorophenylacetic acid	98.	11. - 135.

TCLP PESTICIDES SPIKES AND SURROGATES NOT REPORTED DUE TO ORGANIC MATRIX.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50698
Sample ID: TPMP98-8(SOIL)
Sample Type: Solid waste
Site ID:

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

Date Collected: 5/ 6/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	88	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	86	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	84	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	87	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	100	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	89	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	114	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	102	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	108	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	114	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	110	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	96	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	112	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	118	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	118	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	40	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	55	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	55	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	20	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	50	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	55	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	40	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	45	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	10	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	55	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	60	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	91	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	65	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	100	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	59	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	95	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	36	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	115	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	83	5/15/98	9:36	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50698
Sample ID: TPMP98-8(SOIL)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	9	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	107.	70. - 131.
VOA Surrogate, Toluene d8	109.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	91.	77. - 118.
surr-Nitrobenzene-d5	30. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	35.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	75.	10. - 123.
surr-TCMX	81.	22. - 135.
surr-Dibutylchlorendate	36.	22. - 135.
surr-Dichlorophenylacetic acid	87.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

Lab Number: 98-A50699
Sample ID: TPMP98-8(DUP)(SOIL)
Sample Type: Solid waste
Site ID:

Date Collected: 5/ 6/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R. Street	6010B
Barium	< 1.00	mg/l	100	88	5/12/98	7:50	R. Street	6010B
Cadmium	< 0.100	mg/l	1.0	86	5/12/98	7:50	R. Street	6010B
Chromium	< 0.50	mg/l	5.0	84	5/12/98	7:50	R. Street	6010B
Lead	< 0.50	mg/l	5.0	87	5/12/98	7:50	R. Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/12/98	6:42	R. Street	7470A
Selenium	< 0.100	mg/l	1.0	100	5/12/98	7:50	R. Street	6010B
Silver	< 0.10	mg/l	5.0	89	5/12/98	7:50	R. Street	6010B
Benzene	< 0.10	mg/l	0.5	104	5/27/98	20:17	C. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	100	5/27/98	20:17	C. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:17	C. Wani	8260
Chloroform	< 0.100	mg/l	6.0	104	5/27/98	20:17	C. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/27/98	20:17	C. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/27/98	20:17	C. Wani	8260
Methylethylketone	< 1.0	mg/l	200	92	5/27/98	20:17	C. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	102	5/27/98	20:17	C. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	106	5/27/98	20:17	C. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/27/98	20:17	C. Wani	8260
Cresols	< 0.1	mg/l	200	55	5/19/98	9:52	M. Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	65	5/19/98	9:52	M. Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	60	5/19/98	9:52	M. Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	25	5/19/98	9:52	M. Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	65	5/19/98	9:52	M. Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	65	5/19/98	9:52	M. Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	50	5/19/98	9:52	M. Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	50	5/19/98	9:52	M. Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	35	5/19/98	9:52	M. Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	65	5/19/98	9:52	M. Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	65	5/19/98	9:52	M. Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	85	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	88	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	89	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	55	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	79	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	33	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	95	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	107	5/15/98	9:36	W. Klepper	8151A

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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50699
Sample ID: TPMP98-8(DUP)(SOIL)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	80	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	117.	70. - 131.
A Surrogate, Toluene d8	93.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	97.	77. - 118.
surr-Nitrobenzene-d5	20. #	35. - 115.
surr-2-Fluorobiphenyl	25. #	43. - 116.
surr-Terphenyl d14	30.	20. - 130.
surr-Phenol d5	20.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	65.	10. - 123.
surr-TCMX	82.	22. - 135.
surr-Dibutylchlorendate	73.	22. - 135.
surr-Dichlorophenylacetic acid	86.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

Lab Number: 98-A50700
Sample ID: TPMP98-16(SOIL)
Sample Type: Solid waste
Site ID:

Date Collected: 5/ 1/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	88	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	86	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	84	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	87	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	100	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	89	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	114	5/27/98	20:17	C. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	102	5/27/98	20:17	C. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:17	C. Wani	8260
Chloroform	< 0.100	mg/l	6.0	108	5/27/98	20:17	C. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	110	5/27/98	20:17	C. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	114	5/27/98	20:17	C. Wani	8260
Methylethylketone	< 1.0	mg/l	200	110	5/27/98	20:17	C. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	96	5/27/98	20:17	C. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	112	5/27/98	20:17	C. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	118	5/27/98	20:17	C. Wani	8260
Cresols	< 0.1	mg/l	200	55	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	65	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	60	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	25	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	65	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	65	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	50	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	50	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	15	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	65	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	65	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	78	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	116	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	83	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	47	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	69	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	33	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	76	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	152	5/15/98	9:36	W. Klepper	8151A

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ANALYTICAL REPORT

Laboratory Number: 98-A50700
Sample ID: TPMP98-16(SOIL)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	73	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	106.	70. - 131.
Surrogate, Toluene d8	92.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	93.	77. - 118.
surr-Nitrobenzene-d5	25. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	35.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	30.	20. - 110.
surr-2,4,6-Tribromophenol	70.	10. - 123.
surr-TCMX	65.	22. - 135.
surr-Dibutylchlorendate	36.	22. - 135.
surr-Dichlorophenylacetic acid	123.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50701
Sample ID: TPMP98-19(SOIL)
Sample Type: Solid waste
Site ID:

Date Collected: 5/ 6/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	88	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	86	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	84	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	87	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	100	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	89	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	100	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	104	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	92	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	106	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	45	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	55	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	50	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	20	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	55	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	55	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	40	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	45	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	15	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	55	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	55	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	84	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	101	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	91	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	53	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	80	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	35	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	101	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	125	5/15/98	9:36	W. Klepper	8151A

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50701
Sample ID: TPMP98-19(SOIL)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	81	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	111.	70. - 131.
VOA Surrogate, Toluene d8	107.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	97.	77. - 118.
surr-Nitrobenzene-d5	25. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	30.	20. - 130.
surr-Phenol d5	20.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	70.	10. - 123.
surr-TCMX	65.	22. - 135.
surr-Dibutylchlorendate	34.	22. - 135.
surr-Dichlorophenylacetic acid	108.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53180
Sample ID: TPMP98-32
Sample Type: Solid waste
Site ID:

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	96	5/17/98	6:46	R.Street	6010B
Barium	< 1.00	mg/l	100	89	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	89	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	84	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	90	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	96	5/16/98	13:52	C.Holmes	7470A
Selenium	< 0.100	mg/l	1.0	102	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	92	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	100	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	94	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	108	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	100	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	98	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	100	5/29/98	14:08	R.Ward	8260
Cresols	< 0.1	mg/l	200	65	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	65	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	60	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	25	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	55	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	65	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	60	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	65	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	30	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	60	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	70	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	66	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	96	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	90	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	26	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	44	5/21/98	13:33	W. Klepper	8081A

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
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ANALYTICAL REPORT

Laboratory Number: 98-A53180
Sample ID: TPMP98-32

TCLP Results

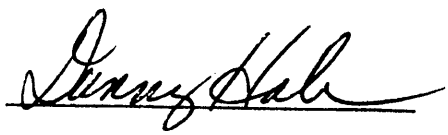
Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 1.0	ug/l	10.0	101	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.250	ug/l	0.50	87	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	ug/l	1.0	132	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0050	ug/l	0.008	50	5/21/98	13:33	W. Klepper	8081A
TCLP Extraction	Completed				5/14/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/14/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	100.	70. - 131.
VOA Surrogate, Toluene d8	93.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	107.	77. - 118.
surr-Nitrobenzene-d5	30. #	35. - 115.
surr-2-Fluorobiphenyl	35. #	43. - 116.
surr-Terphenyl d14	50.	20. - 130.
surr-Phenol d5	5. #	10. - 110.
surr-2-Fluorophenol	40.	20. - 110.
surr-2,4,6-Tribromophenol	30.	10. - 123.
surr-TCMX	62.	22. - 135.
surr-Dichlorophenylacetic acid	126.	11. - 135.

BNA surrogate outside QC range confirmed by repeat analysis.

Report Approved By:  Report Date: 5/29/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
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Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53181
Sample ID: TPMP98-30
Sample Type: Solid waste
Site ID:

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	96	5/17/98	6:46	R.Street	6010B
Barium	< 1.00	mg/l	100	89	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	89	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	84	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	90	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	96	5/16/98	13:52	C.Holmes	7470A
Selenium	< 0.100	mg/l	1.0	102	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	92	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	100	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	114	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	114	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	114	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	124	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/29/98	14:08	R.Ward	8260
Cresols	< 0.1	mg/l	200	60	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	60	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	55	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	25	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	50	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	60	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	55	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	60	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	25	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	55	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	60	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	79	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	11	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	97	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	49	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	84	5/21/98	13:33	W. Klepper	8081A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A53181
Sample ID: TPMP98-30

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 1.0	mg/l	10.0	103	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	97	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	87	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0050	mg/l	0.008	75	5/21/98	13:33	W. Klepper	8081A
TCLP Extraction	Completed				5/14/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/14/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	97.	70. - 131.
VOA Surrogate, Toluene d8	90.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	101.	77. - 118.
surr-Nitrobenzene-d5	40.	35. - 115.
surr-2-Fluorobiphenyl	45.	43. - 116.
surr-Terphenyl d14	50.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	45.	20. - 110.
surr-2,4,6-Tribromophenol	75.	10. - 123.
surr-TCMX	51.	22. - 135.
surr-Dichlorophenylacetic acid	126.	11. - 135.

Report Approved By: _____ Report Date: 5/29/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50694
Sample ID: TPMP98-14(WATER)
Sample Type: Liquid waste
Site ID:

Date Collected: 5/ 6/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	1.70	mg/l	100	87	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	88	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	85	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	99	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	99	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	114	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	102	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	108	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	110	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	114	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	110	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	96	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	112	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	118	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	40	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	45	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	45	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	20	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	45	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	50	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	40	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	35	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	35	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	45	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	50	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	103	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	93	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	113	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	74	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	114	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	42	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	107	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	111	5/15/98	9:36	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50694
Sample ID: TPMP98-14(WATER)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	104	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	99.	70. - 131.
VOA Surrogate, Toluene d8	114.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	86.	77. - 118.
surr-Nitrobenzene-d5	20. #	35. - 115.
surr-2-Fluorobiphenyl	20. #	43. - 116.
surr-Terphenyl d14	35.	20. - 130.
surr-Phenol d5	20.	10. - 110.
surr-2-Fluorophenol	10. #	20. - 110.
surr-2,4,6-Tribromophenol	50.	10. - 123.
surr-TCMX	87.	22. - 135.
surr-Dibutylchlorendate	38.	22. - 135.
surr-Dichlorophenylacetic acid	96.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50695
Sample ID: TPMP98-12(WATER)
Sample Type: Liquid waste
Site ID:

Date Collected: 5/ 1/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R. Street	6010B
Barium	< 1.00	mg/l	100	87	5/12/98	7:50	R. Street	6010B
Cadmium	< 0.100	mg/l	1.0	88	5/12/98	7:50	R. Street	6010B
Chromium	< 0.50	mg/l	5.0	85	5/12/98	7:50	R. Street	6010B
Lead	< 0.50	mg/l	5.0	88	5/12/98	7:50	R. Street	6010B
Mercury	< 0.010	mg/l	0.20	99	5/12/98	6:42	R. Street	7470A
Selenium	< 0.100	mg/l	1.0	99	5/12/98	7:50	R. Street	6010B
Silver	< 0.10	mg/l	5.0	88	5/12/98	7:50	R. Street	6010B
Benzene	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	100	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	104	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	92	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	106	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	40	5/19/98	9:52	M. Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	45	5/19/98	9:52	M. Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	45	5/19/98	9:52	M. Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	20	5/19/98	9:52	M. Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	45	5/19/98	9:52	M. Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	50	5/19/98	9:52	M. Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	40	5/19/98	9:52	M. Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	30	5/19/98	9:52	M. Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	45	5/19/98	9:52	M. Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	40	5/19/98	9:52	M. Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	45	5/19/98	9:52	M. Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	91	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	68	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	108	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	60	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	100	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	41	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	96	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	83	5/15/98	9:36	W. Klepper	8151A

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ANALYTICAL REPORT

Laboratory Number: 98-A50695
Sample ID: TPMP98-12(WATER)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	97	5/18/98	15:58	W. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	106.	70. - 131.
VOA Surrogate, Toluene d8	110.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	87.	77. - 118.
surr-Nitrobenzene-d5	20. #	35. - 115.
surr-2-Fluorobiphenyl	25. #	43. - 116.
surr-Terphenyl d14	30.	20. - 130.
surr-Phenol d5	20.	10. - 110.
surr-2-Fluorophenol	10. #	20. - 110.
surr-2,4,6-Tribromophenol	50.	10. - 123.
surr-TCMX	136. #	22. - 135.
surr-Dibutylchlorendate	36.	22. - 135.
surr-Dichlorophenylacetic acid	87.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
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Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50696
Sample ID: TPMP98-18(WATER)
Sample Type: Liquid waste
Site ID:

Date Collected: 5/ 1/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	87	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	88	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	85	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	99	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	99	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	114	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	102	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	108	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	110	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	114	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	110	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	96	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	112	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	118	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	70	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	65	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	75	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	30	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	60	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	65	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	55	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	75	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	30	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	70	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	70	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	110	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	78	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	116	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	70	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	105	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	44	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	117	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	98	5/15/98	9:36	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50696
Sample ID: TPMP98-18(WATER)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	ug/l	0.008	104	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	101.	70. - 131.
VOA Surrogate, Toluene d8	112.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	90.	77. - 118.
surr-Nitrobenzene-d5	25. #	35. - 115.
surr-2-Fluorobipheayl	25. #	43. - 116.
surr-Terpheayl d14	30.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	75.	10. - 123.
surr-TCMX	78.	22. - 135.
surr-Dibutylchlorendate	42.	22. - 135.
surr-Dichlorophenylacetic acid	86.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

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Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50697
Sample ID: TPMP98-7(WATER)
Sample Type: Liquid waste
Site ID:

Date Collected: 5/ 5/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	87	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	88	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	85	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	99	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	99	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	88	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	100	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	104	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	92	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	106	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	50	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	45	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	50	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	20	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	45	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	50	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	45	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	50	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	35	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	50	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	50	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.150	mg/l	0.030	Empty	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	72	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.1000	mg/l	0.02	Empty	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0500	mg/l	0.008	Empty	5/18/98	15:58	W. Klepper	8081A
Lindane	< 2.00	mg/l	0.4	Empty	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 10.0	mg/l	10.0	Empty	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 2.50	mg/l	0.50	Empty	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	93	5/15/98	9:36	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50697
Sample ID: TPMP98-7(WATER)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0500	mg/l	0.008	Empty	5/18/98	15:58	W. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	107.	70. - 131.
VOA Surrogate, Toluene d8	110.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	89.	77. - 118.
surr-Nitrobenzene-d5	25. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	25.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	70.	10. - 123.
surr-Dichlorophenylacetic acid	98.	11. - 135.

TCLP PESTICIDES SPIKES AND SURROGATES NOT REPORTED DUE TO ORGANIC MATRIX.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

Lab Number: 98-A50698
Sample ID: TPMP98-8(SOIL)
Sample Type: Solid waste
Site ID:

Date Collected: 5/ 6/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	88	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	86	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	84	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	87	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	100	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	89	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	114	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	102	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	108	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	114	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	110	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	96	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	112	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	118	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	118	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	40	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	55	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	55	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	20	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	50	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	55	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	40	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	45	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	10	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	55	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	60	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	91	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	65	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	100	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	59	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	95	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	36	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	115	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	83	5/15/98	9:36	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50698
Sample ID: TPMP98-8(SOIL)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	9	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	107.	70. - 131.
VOA Surrogate, Toluene d8	109.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	91.	77. - 118.
surr-Nitrobenzene-d5	30. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	35.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	75.	10. - 123.
surr-TCMX	81.	22. - 135.
surr-Dibutylchlorendate	36.	22. - 135.
surr-Dichlorophenylacetic acid	87.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50699
Sample ID: TPMP98-8(DUP)(SOIL)
Sample Type: Solid waste
Site ID:

Date Collected: 5/ 6/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010C
Barium	< 1.00	mg/l	100	88	5/12/98	7:50	R.Street	6010C
Cadmium	< 0.100	mg/l	1.0	86	5/12/98	7:50	R.Street	6010C
Chromium	< 0.50	mg/l	5.0	84	5/12/98	7:50	R.Street	6010C
Lead	< 0.50	mg/l	5.0	87	5/12/98	7:50	R.Street	6010C
Mercury	< 0.010	mg/l	0.20	100	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	100	5/12/98	7:50	R.Street	6010C
Silver	< 0.10	mg/l	5.0	89	5/12/98	7:50	R.Street	6010C
Benzene	< 0.10	mg/l	0.5	104	5/27/98	20:17	C. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	100	5/27/98	20:17	C. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:17	C. Wani	8260
Chloroform	< 0.100	mg/l	6.0	104	5/27/98	20:17	C. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/27/98	20:17	C. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/27/98	20:17	C. Wani	8260
Methylethylketone	< 1.0	mg/l	200	92	5/27/98	20:17	C. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	102	5/27/98	20:17	C. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	106	5/27/98	20:17	C. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/27/98	20:17	C. Wani	8260
Cresols	< 0.1	mg/l	200	55	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	65	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	60	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	25	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	65	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	65	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	50	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	50	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	35	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	65	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	65	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	85	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	88	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	89	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	55	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	79	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	33	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	95	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	107	5/15/98	9:36	W. Klepper	8151A

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50699
Sample ID: TPMP98-8(DUP)(SOIL)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	80	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	117.	70. - 131.
A Surrogate, Toluene d8	93.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	97.	77. - 118.
surr-Nitrobenzene-d5	20. #	35. - 115.
surr-2-Fluorobiphenyl	25. #	43. - 116.
surr-Terphenyl d14	30.	20. - 130.
surr-Phenol d5	20.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	65.	10. - 123.
surr-TCMX	82.	22. - 135.
surr-Dibutylchlorendate	73.	22. - 135.
surr-Dichlorophenylacetic acid	86.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
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Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50700
Sample ID: TPMP98-16(SOIL)
Sample Type: Solid waste
Site ID:

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

Date Collected: 5/ 1/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	88	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	86	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	84	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	87	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	100	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	89	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	114	5/27/98	20:17	C. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	102	5/27/98	20:17	C. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:17	C. Wani	8260
Chloroform	< 0.100	mg/l	6.0	108	5/27/98	20:17	C. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	110	5/27/98	20:17	C. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	114	5/27/98	20:17	C. Wani	8260
Methylethylketone	< 1.0	mg/l	200	110	5/27/98	20:17	C. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	96	5/27/98	20:17	C. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	112	5/27/98	20:17	C. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	118	5/27/98	20:17	C. Wani	8260
Cresols	< 0.1	mg/l	200	55	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	65	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	60	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	25	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	65	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	65	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	50	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	50	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	15	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	65	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	65	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	78	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	116	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	83	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	47	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	69	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	33	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	76	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	152	5/15/98	9:36	W. Klepper	8151A

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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A50700
Sample ID: TPMP98-16(SOIL)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	73	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	106.	70. - 131.
Surrogate, Toluene d8	92.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	93.	77. - 118.
surr-Nitrobenzene-d5	25. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	35.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	30.	20. - 110.
surr-2,4,6-Tribromophenol	70.	10. - 123.
surr-TCMX	65.	22. - 135.
surr-Dibutylchlorendate	36.	22. - 135.
surr-Dichlorophenylacetic acid	123.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A50701
Sample ID: TPMP98-19(SOIL)
Sample Type: Solid waste
Site ID:

Date Collected: 5/ 6/98
Time Collected:
Date Received: 5/ 8/98
Time Received: 9:00

Project: 2777-09
Project Name: CANO MARTIN PENA ASSESSM
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	94	5/12/98	7:50	R.Street	6010B
Barium	< 1.00	mg/l	100	88	5/12/98	7:50	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	86	5/12/98	7:50	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	84	5/12/98	7:50	R.Street	6010B
Lead	< 0.50	mg/l	5.0	87	5/12/98	7:50	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	100	5/12/98	6:42	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	100	5/12/98	7:50	R.Street	6010B
Silver	< 0.10	mg/l	5.0	89	5/12/98	7:50	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	100	5/27/98	20:19	S. Wani	8260
Chlorobenzene	< 0.10	mg/l	100	100	5/27/98	20:19	S. Wani	8260
Chloroform	< 0.100	mg/l	6.0	104	5/27/98	20:19	S. Wani	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/27/98	20:19	S. Wani	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Methylethylketone	< 1.0	mg/l	200	92	5/27/98	20:19	S. Wani	8260
Tetrachloroethene	< 0.1	mg/l	0.7	102	5/27/98	20:19	S. Wani	8260
Trichloroethene	< 0.10	mg/l	0.5	106	5/27/98	20:19	S. Wani	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/27/98	20:19	S. Wani	8260
Cresols	< 0.1	mg/l	200	45	5/19/98	9:52	M.Goodrich	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	55	5/19/98	9:52	M.Goodrich	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	50	5/19/98	9:52	M.Goodrich	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	20	5/19/98	9:52	M.Goodrich	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	55	5/19/98	9:52	M.Goodrich	8270
Hexachloroethane	< 0.1	mg/l	3.0	55	5/19/98	9:52	M.Goodrich	8270
Nitrobenzene	< 0.1	mg/l	2.0	40	5/19/98	9:52	M.Goodrich	8270
Pentachlorophenol	< 0.1	mg/l	100	45	5/19/98	9:52	M.Goodrich	8270
Pyridine	< 0.1	mg/l	5.0	15	5/19/98	9:52	M.Goodrich	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	55	5/19/98	9:52	M.Goodrich	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	55	5/19/98	9:52	M.Goodrich	8270
Chlordane	< 0.015	mg/l	0.030	84	5/18/98	15:58	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	101	5/15/98	9:36	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	91	5/18/98	15:58	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	53	5/18/98	15:58	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	80	5/18/98	15:58	W. Klepper	8081A
Methoxychlor	< 1.0	mg/l	10.0	35	5/18/98	15:58	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	101	5/18/98	15:58	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	125	5/15/98	9:36	W. Klepper	8151A

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ANALYTICAL REPORT

Laboratory Number: 98-A50701
Sample ID: TPMP98-19(SOIL)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Heptachlor epoxide	< 0.0050	mg/l	0.008	81	5/18/98	15:58	W. Klepper	8081A
TCLP Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/ 8/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	111.	70. - 131.
VOA Surrogate, Toluene d8	107.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	97.	77. - 118.
surr-Nitrobenzene-d5	25. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	30.	20. - 130.
surr-Phenol d5	20.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	70.	10. - 123.
surr-TCMX	65.	22. - 135.
surr-Dibutylchlorendate	34.	22. - 135.
surr-Dichlorophenylacetic acid	108.	11. - 135.

Report Approved By: Theodore J. Duello Report Date: 5/28/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53180
Sample ID: TPMP98-32
Sample Type: Solid waste
Site ID:

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	96	5/17/98	6:46	R.Street	6010B
Barium	< 1.00	mg/l	100	89	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	89	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	84	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	90	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	96	5/16/98	13:52	C.Holmes	7470A
Selenium	< 0.100	mg/l	1.0	102	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	92	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	100	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	94	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	108	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	100	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	98	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	100	5/29/98	14:08	R.Ward	8260
Cresols	< 0.1	mg/l	200	65	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	65	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	60	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	25	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	55	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	65	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	60	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	65	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	30	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	60	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	70	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	66	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	96	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	90	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	26	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	44	5/21/98	13:33	W. Klepper	8081A

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ANALYTICAL REPORT

Laboratory Number: 98-A53180
Sample ID: TPMP98-32

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 1.0	mg/l	10.0	101	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	87	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	132	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0050	mg/l	0.008	50	5/21/98	13:33	W. Klepper	8081A
TCLP Extraction	Completed				5/14/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/14/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	100.	70. - 131.
VOA Surrogate, Toluene d8	93.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	107.	77. - 118.
surr-Nitrobenzene-d5	30. #	35. - 115.
surr-2-Fluorobiphenyl	35. #	43. - 116.
surr-Terphenyl d14	50.	20. - 130.
surr-Phenol d5	5. #	10. - 110.
surr-2-Fluorophenol	40.	20. - 110.
surr-2,4,6-Tribromophenol	30.	10. - 123.
surr-TCMX	62.	22. - 135.
surr-Dichlorophenylacetic acid	126.	11. - 135.

BNA surrogate outside QC range confirmed by repeat analysis.

Report Approved By: Danny Hale Report Date: 5/29/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53181
Sample ID: TPMP98-30
Sample Type: Solid waste
Site ID:

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	96	5/17/98	6:46	R.Street	6010B
Barium	< 1.00	mg/l	100	89	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	89	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	84	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	90	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	96	5/16/98	13:52	C.Holmes	7470A
Selenium	< 0.100	mg/l	1.0	102	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	92	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	100	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	114	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	114	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	114	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	124	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/29/98	14:08	R.Ward	8260
Cresols	< 0.1	mg/l	200	60	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	60	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	55	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	25	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	50	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	60	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	55	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	60	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	25	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	55	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	60	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	79	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	11	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	97	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	49	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	84	5/21/98	13:33	W. Klepper	8081A

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ANALYTICAL REPORT

Laboratory Number: 98-A53181
Sample ID: TPMP98-30

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 1.0	mg/l	10.0	103	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	97	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	87	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0050	mg/l	0.008	75	5/21/98	13:33	W. Klepper	8081A
TCLP Extraction	Completed				5/14/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/14/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	97.	70. - 131.
VOA Surrogate, Toluene d8	90.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	101.	77. - 118.
surr-Nitrobenzene-d5	40.	35. - 115.
surr-2-Fluorobiphenyl	45.	43. - 116.
surr-Terphenyl d14	50.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	45.	20. - 110.
surr-2,4,6-Tribromophenol	75.	10. - 123.
surr-TCMX	51.	22. - 135.
surr-Dichlorophenylacetic acid	126.	11. - 135.

Report Approved By: _____ Report Date: 5/29/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53182
Sample ID: TPMP98-24
Sample Type: Liquid waste
Site ID:

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	98	5/17/98	6:46	R.Street	6010B
Barium	1.80	mg/l	100	91	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	93	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	94	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	88	5/16/98	13:52	C.Holmes	7470A
Selenium	< 0.100	mg/l	1.0	104	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	100	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	94	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	108	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	100	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	98	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	100	5/29/98	14:08	R.Ward	8260
Cresols	< 0.2	mg/l	200	80	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.2	mg/l	7.5	75	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.20	mg/l	0.13	654	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.20	mg/l	0.13	25	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.2	mg/l	0.5	60	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.2	mg/l	3.0	75	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.2	mg/l	2.0	65	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.2	mg/l	100	70	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.2	mg/l	5.0	35	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.2	mg/l	400	75	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.2	mg/l	2.0	75	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.030	mg/l	0.030	78	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	118	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0200	mg/l	0.02	94	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0100	mg/l	0.008	44	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.400	mg/l	0.4	74	5/21/98	13:33	W. Klepper	8081A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A53182
Sample ID: TPMP98-24

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 2.0	mg/l	10.0	100	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.500	mg/l	0.50	94	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	89	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0100	mg/l	0.008	78	5/21/98	13:33	W. Klepper	8081A
TCLP Extraction	Completed				5/14/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/14/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	95.	70. - 131.
VOA Surrogate, Toluene d8	89.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	103.	77. - 118.
surr-Nitrobenzene-d5	35.	35. - 115.
surr-2-Fluorobiphenyl	45.	43. - 116.
surr-Terphenyl d14	45.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	65.	10. - 123.
surr-TCMX	48.	22. - 135.
surr-Dichlorophenylacetic acid	50.	11. - 135.

Report Approved By: _____ Report Date: 5/29/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53183
Sample ID: TPMP98-24(DUP)
Sample Type: Liquid waste
Site ID:

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	98	5/17/98	6:46	R.Street	6010B
Barium	1.60	mg/l	100	91	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	93	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	94	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	88	5/16/98	13:52	C.Holmes	7470A
Selenium	< 0.100	mg/l	1.0	104	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	100	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	114	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	114	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	114	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	124	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/29/98	14:08	R.Ward	8260
Cresols	< 0.2	mg/l	200	60	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.2	mg/l	7.5	60	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.20	mg/l	0.13	55	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.20	mg/l	0.13	20	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.2	mg/l	0.5	45	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.2	mg/l	3.0	55	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.2	mg/l	2.0	50	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.2	mg/l	100	60	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.2	mg/l	5.0	25	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.2	mg/l	400	60	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.2	mg/l	2.0	65	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	73	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	96	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	101	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	44	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	77	5/21/98	13:33	W. Klepper	8081A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A53183
Sample ID: TPMP98-24(DUP)

TCLP Results

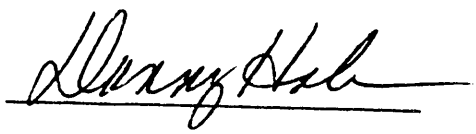
Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 1.0	mg/l	10.0	113	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	93	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	119	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0050	mg/l	0.008	67	5/21/98	13:33	W. Klepper	8081A
TCLP Extraction	Completed				5/14/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/14/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	108.	70. - 131.
VOA Surrogate, Toluene d8	92.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	108.	77. - 118.
surr-Nitrobenzene-d5	25. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	45.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	35.	20. - 110.
surr-2,4,6-Tribromophenol	55.	10. - 123.
surr-TCMX	59.	22. - 135.
surr-Dichlorophenylacetic acid	75.	11. - 135.

BNA surrogate outside QC range confirmed by repeat analysis.

Report Approved By:  Report Date: 5/29/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53184
Sample ID: TPMP98-29
Sample Type: Liquid waste
Site ID:

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	98	5/17/98	6:46	R.Street	6010B
Barium	2.10	mg/l	100	91	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	93	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	94	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	88	5/16/98	13:52	C.Holmes	7470A
Selenium	< 0.100	mg/l	1.0	104	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	10	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	94	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	108	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	100	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	98	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	100	5/29/98	14:08	R.Ward	8260
Cresols	< 0.2	mg/l	200	75	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.2	mg/l	7.5	75	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.20	mg/l	0.13	65	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.20	mg/l	0.13	25	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.2	mg/l	0.5	60	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.2	mg/l	3.0	75	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.2	mg/l	2.0	65	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.2	mg/l	100	65	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.2	mg/l	5.0	20	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.2	mg/l	400	70	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.2	mg/l	2.0	75	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	71	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	88	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	93	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	43	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	80	5/21/98	13:33	W. Klepper	8081A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A53184
Sample ID: TPMP98-29

TCLP Results

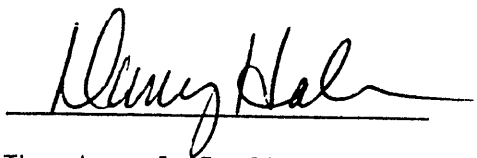
Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 1.0	mg/l	10.0	112	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	97	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	100	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0050	mg/l	0.008	78	5/21/98	13:33	W. Klepper	8081A
TCLP Extraction	Completed				5/14/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/14/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	104.	70. - 131.
VOA Surrogate, Toluene d8	91.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	105.	77. - 118.
surr-Nitrobenzene-d5	25. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	45.	20. - 130.
surr-Phenol d5	25.	10. - 110.
surr-2-Fluorophenol	30.	20. - 110.
surr-2,4,6-Tribromophenol	50.	10. - 123.
surr-TCMX	59.	22. - 135.
surr-Dichlorophenylacetic acid	73.	11. - 135.

BNA surrogate outside QC range confirmed by repeat analysis.

Report Approved By:  Report Date: 5/29/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

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Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53185
Sample ID: TPMP-25
Sample Type: Solid waste
Site ID:

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	98	5/17/98	6:46	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	93	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	94	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	88	5/16/98	13:52	C.Holmes	7470A
Selenium	< 0.100	mg/l	1.0	104	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	100	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	114	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	114	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	114	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	124	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/29/98	14:08	R.Ward	8260
Cresols	< 0.1	mg/l	200	65	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	55	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	55	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	15	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	30	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	55	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	55	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	45	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	35	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	55	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	55	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	67	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	102	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	83	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	40	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	65	5/21/98	13:33	W. Klepper	8081A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A53185
Sample ID: TPMP-25

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 1.0	mg/l	10.0	89	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	82	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	127	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0050	mg/l	0.008	67	5/21/98	13:33	W. Klepper	8081A
TCLP Extraction	Completed				5/14/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/14/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	103.	70. - 131.
VOA Surrogate, Toluene d8	100.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	96.	77. - 118.
surr-Nitrobenzene-d5	30. #	35. - 115.
surr-2-Fluorobiphenyl	25. #	43. - 116.
surr-Terphenyl d14	45.	20. - 130.
surr-Phenol d5	35.	10. - 110.
surr-2-Fluorophenol	55.	20. - 110.
surr-2,4,6-Tribromophenol	45.	10. - 123.
surr-TCMX	46.	22. - 135.
surr-Dichlorophenylacetic acid	50.	11. - 135.

BNA surrogate outside QC range confirmed by repeat analysis.

Report Approved By: _____ Report Date: 5/29/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53186
Sample ID: DISPOSAL SITE #1(DUP)
Sample Type: Solid waste
Site ID:

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	98	5/17/98	6:46	R.Street	6010B
Barium	1.10	mg/l	100	91	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	93	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	94	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	88	5/16/98	13:52	C.Holmes	7470A
Selenium	< 0.100	mg/l	1.0	104	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	100	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	94	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	108	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	100	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	98	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	100	5/29/98	14:08	R.Ward	8260
Cresols	< 0.1	mg/l	200	65	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	55	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	55	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	15	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	30	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	50	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	60	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	45	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	25	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	60	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	60	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	78	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	101	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	87	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	44	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	67	5/21/98	13:33	W. Klepper	8081A

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A53186
Sample ID: DISPOSAL SITE #1(DUP)

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 1.0	mg/l	10.0	96	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	88	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	151	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0050	mg/l	0.008	69	5/21/98	13:33	W. Klepper	8081A
TCLP Extraction	Completed				5/14/98	16:00	E. Mabry	1311
Zero Headspace Extraction	Completed				5/14/98	16:00	E. Mabry	1311

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	104.	70. - 131.
VOA Surrogate, Toluene d8	100.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	92.	77. - 118.
surr-Nitrobenzene-d5	25. #	35. - 115.
surr-2-Fluorobiphenyl	25. #	43. - 116.
surr-Terphenyl d14	40.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	45.	20. - 110.
surr-2,4,6-Tribromophenol	40.	10. - 123.
surr-TCMX	55.	22. - 135.
surr-Dichlorophenylacetic acid	67.	11. - 135.

BNA surrogate outside QC range confirmed by repeat analysis.

Report Approved By: _____ Report Date: 5/29/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53187
Sample ID: NORTH CANAL TB
Sample Type: Liquid waste
Site ID:

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	98	5/17/98	6:46	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	93	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	94	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	88	5/16/98	13:52	C.Holmes	7470A
Selenium	< 0.100	mg/l	1.0	104	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	100	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	114	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	114	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	114	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	124	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/29/98	14:08	R.Ward	8260
Cresols	< 0.1	mg/l	200	60	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	55	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	55	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	15	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	30	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	50	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	50	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	40	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	35	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	55	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	55	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	79	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	96	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	95	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	48	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	80	5/21/98	13:33	W. Klepper	8081A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A53187
Sample ID: NORTH CANAL TB

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 1.0	mg/l	10.0	107	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	93	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	127	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0050	mg/l	0.008	80	5/21/98	13:33	W. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	107.	70. - 131.
VOA Surrogate, Toluene d8	87.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	98.	77. - 118.
surr-Nitrobenzene-d5	35.	35. - 115.
surr-2-Fluorobiphenyl	45.	43. - 116.
surr-Terphenyl d14	45.	20. - 130.
surr-Phenol d5	35.	10. - 110.
surr-2-Fluorophenol	55.	20. - 110.
surr-2,4,6-Tribromophenol	45.	10. - 123.
surr-TCMX	48.	22. - 135.
surr-Dichlorophenylacetic acid	108.	11. - 135.

Report Approved By: _____ Report Date: 5/29/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53188
Sample ID: SOUTH CANAL TB
Sample Type: Liquid waste
Site ID:

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	98	5/17/98	6:46	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	93	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	94	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	104	5/19/98	8:13	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	104	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	100	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	94	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	108	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	100	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	104	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	90	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	98	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	100	5/29/98	14:08	R.Ward	8260
Cresols	< 0.1	mg/l	200	65	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	60	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	60	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	15	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	30	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	60	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	60	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	40	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	20	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	55	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	60	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	68	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	97	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	81	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	36	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	54	5/21/98	13:33	W. Klepper	8081A

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 98-A53188
Sample ID: SOUTH CANAL TB

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 1.0	mg/l	10.0	93	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	83	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	144	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0050	mg/l	0.008	65	5/21/98	13:33	W. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	105.	70. - 131.
VOA Surrogate, Toluene d8	101.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	102.	77. - 118.
surr-Nitrobenzene-d5	30. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	40.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	45.	20. - 110.
surr-2,4,6-Tribromophenol	40.	10. - 123.
surr-TCMX	54.	22. - 135.
surr-Dichlorophenylacetic acid	77.	11. - 135.

BNA surrogate outside QC range confirmed by repeat analysis.

Report Approved By: _____ Report Date: 5/29/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

Lab Number: 98-A53189
Sample ID: DISPOSAL SITE TB
Sample Type: Liquid waste
Site ID:

Date Collected:
Time Collected:
Date Received: 5/14/98
Time Received: 9:00

Project: 2717-09
Project Name: CANO MARTIN PENA ASSMNT
Sampler: WILLIAM GRAHAM

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Arsenic	< 0.10	mg/l	5.0	98	5/17/98	6:46	R.Street	6010B
Barium	< 1.00	mg/l	100	91	5/17/98	6:46	R.Street	6010B
Cadmium	< 0.100	mg/l	1.0	93	5/17/98	6:46	R.Street	6010B
Chromium	< 0.50	mg/l	5.0	88	5/17/98	6:46	R.Street	6010B
Lead	< 0.50	mg/l	5.0	94	5/17/98	6:46	R.Street	6010B
Mercury	< 0.010	mg/l	0.20	104	5/19/98	8:13	R.Street	7470A
Selenium	< 0.100	mg/l	1.0	104	5/17/98	6:46	R.Street	6010B
Silver	< 0.10	mg/l	5.0	93	5/17/98	6:46	R.Street	6010B
Benzene	< 0.10	mg/l	0.5	100	5/29/98	14:08	R.Ward	8260
Carbon tetrachloride	< 0.1	mg/l	0.5	90	5/29/98	14:08	R.Ward	8260
Chlorobenzene	< 0.10	mg/l	100	114	5/29/98	14:08	R.Ward	8260
Chloroform	< 0.100	mg/l	6.0	114	5/29/98	14:08	R.Ward	8260
1,2-Dichloroethane	< 0.10	mg/l	0.5	114	5/29/98	14:08	R.Ward	8260
1,1-Dichloroethene	< 0.10	mg/l	0.7	102	5/29/98	14:08	R.Ward	8260
Methylethylketone	< 1.0	mg/l	200	136	5/29/98	14:08	R.Ward	8260
Tetrachloroethene	< 0.1	mg/l	0.7	98	5/29/98	14:08	R.Ward	8260
Trichloroethene	< 0.10	mg/l	0.5	124	5/29/98	14:08	R.Ward	8260
Vinyl Chloride	< 0.1	mg/l	0.2	120	5/29/98	14:08	R.Ward	8260
Cresols	< 0.1	mg/l	200	60	5/21/98	14:27	Carmichael	8270
1,4-Dichlorobenzene	< 0.1	mg/l	7.5	55	5/21/98	14:27	Carmichael	8270
2,4-Dinitrotoluene	< 0.10	mg/l	0.13	60	5/21/98	14:27	Carmichael	8270
Hexachlorobenzene	< 0.10	mg/l	0.13	15	5/21/98	14:27	Carmichael	8270
Hexchlor-1,3-butadien	< 0.1	mg/l	0.5	30	5/21/98	14:27	Carmichael	8270
Hexachloroethane	< 0.1	mg/l	3.0	55	5/21/98	14:27	Carmichael	8270
Nitrobenzene	< 0.1	mg/l	2.0	55	5/21/98	14:27	Carmichael	8270
Pentachlorophenol	< 0.1	mg/l	100	40	5/21/98	14:27	Carmichael	8270
Pyridine	< 0.1	mg/l	5.0	45	5/21/98	14:27	Carmichael	8270
2,4,5-Trichlorophenol	< 0.1	mg/l	400	50	5/21/98	14:27	Carmichael	8270
2,4,6-Trichlorophenol	< 0.1	mg/l	2.0	55	5/21/98	14:27	Carmichael	8270
Chlordane	< 0.015	mg/l	0.030	66	5/21/98	13:33	W. Klepper	8081A
2,4-D	< 5.0	mg/l	10.0	95	5/19/98	12:59	W. Klepper	8151A
Endrin	< 0.0100	mg/l	0.02	79	5/21/98	13:33	W. Klepper	8081A
Heptachlor	< 0.0050	mg/l	0.008	38	5/21/98	13:33	W. Klepper	8081A
Lindane	< 0.200	mg/l	0.4	59	5/21/98	13:33	W. Klepper	8081A

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ANALYTICAL REPORT

Laboratory Number: 98-A53189
Sample ID: DISPOSAL SITE TB

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Time	Analyst	Method
Methoxychlor	< 1.0	mg/l	10.0	91	5/21/98	13:33	W. Klepper	8081A
Toxaphene	< 0.250	mg/l	0.50	72	5/21/98	13:33	W. Klepper	8081A
Silvex	< 0.50	mg/l	1.0	139	5/19/98	12:59	W. Klepper	8151A
Heptachlor epoxide	< 0.0050	mg/l	0.008	65	5/21/98	13:33	W. Klepper	8081A

ND = Not detected at the report limit.

TCLP prepartion follows method 1311, SW-846 Revision 3.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	110.	70. - 131.
VOA Surrogate, Toluene d8	100.	78. - 122.
VOA Surrogate, 4-Bromofluorobenzene	100.	77. - 118.
surr-Nitrobenzene-d5	30. #	35. - 115.
surr-2-Fluorobiphenyl	30. #	43. - 116.
surr-Terphenyl d14	40.	20. - 130.
surr-Phenol d5	30.	10. - 110.
surr-2-Fluorophenol	50.	20. - 110.
surr-2,4,6-Tribromophenol	45.	10. - 123.
surr-TCMX	51.	22. - 135.
surr-Dichlorophenylacetic acid	75.	11. - 135.

BNA surrogate outside QC range confirmed by repeat analysis.

Report Approved By: _____ Report Date: 5/29/98

Theodore V. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

- I will FAX IN CofC FORM ON MONDAY -

99274 4034

CHAIN OF CUSTODY

4/30/98	DISPOSAL SITE #1	Soil	98-A48377	FULL TCLP (13
4/30/98	DISPOSAL SITE #2	Soil	98-A48378	FULL TCLP (13
4/30/98	DISPOSAL SITE #3	Soil	98-A48379	FULL TCLP (13
4/30/98	DISPOSAL SITE WATER	WTR	98-A48380	FULL TCLP (1311
4/30/98	TPMP98-22	Soil	98-A48381	FULL TCLP (1311)
4/29/98	TPMP98-1	WATER	98-A48382	FULL TCLP (1311)
4/28/98	TPMP98-9	WATER	98-A48383	FULL TCLP (1311)
4/28/98	CBMP98-4	WATER	98-A48384	FULL TCLP (1311)
4/28/98	TPMP98-10	Soil	98-A48385	FULL TCLP (1311)
4/28/98	TPMP98-6	Soil	98-A48386	FULL TCLP (1311)
4/28/98	TPMP98-1	Soil	98-A48387	FULL TCLP (1311)
4/28/98	TPMP98-2	Soil	98-A48388	FULL TCLP (1311)

TRIP BLANK (DISPOSAL AREA) WTR 1 FULL TCLP (1311)

MARTIN PENA CANAL ASSESSMENT
SAN JUAN, PUERTO RICO

WILLIAM R. GRAHAM

J Jacobs 5/2/98 900

SPECIALIZED ASSAYS ENVIRONMENTAL

7A- 022833

2960 Foster Creighton Drive
Nashville, TN 37204
615-726-0177, 800-765-0980
FAX 615/726-3404

Specialized Assays: (800) 765-0980

REFERRING CLIENT

Account: 6792
E.C.G.,Inc.
Russ Graham
1317 Wilmer Street Suite 102
Anniston, AL 36201
Ph: 205-235-2110 Fax: 205-235-2178

BILLING CONTROL NUMBER (FOR LAB USE ONLY): 99804

PROJECT #: 2777-09

P.O. #: —

SAMPLERS (Signature Please Print): William R. Graham

PROJECT NAME: Cano Martin Pena Assessment

FOR LAB USE ONLY ACC#	SAMPLE DESCRIPTION	DATE	TIME	COMP	GRAB	# OF CONT	ANALYSIS REQUESTED
98-A50693	TPMP98-21 (wtr)	5/6			X	1	Full TCLP (1311)
98-A50694	TPMP98-19 (wtr)	5/6			X	1	
98-A50695	TPMP98-12 (wtr)	5/1			X	1	
98-A50696	TPMP98-18 (wtr)	5/1			X	1	
98-A50697	TPMP98-7 (wtr)	5/5			X	1	
98-A50698	TPMP98-8 (soil)	5/6			X	1	
98-A50699	TPMP98-8 (DUP) (soil)	5/6			X	1	
	TPMP98-12 (soil)	5/1			X	1	
98-A50700	TPMP98-16 (soil)	5/1			X	1	
98-A50701	TPMP98-19 (soil)	5/6			X	1	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Received for Laboratory by:	Date / Time
[signature]	5/7		[signature]	5/8/98 90
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Remarks: STD TURNAROUND	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Packed on ice	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	SAI Project #:	

For further assistance in completing the chain of custody form please refer to the instructions found on the opposite si

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2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

CHAIN OF CUSTODY

Project Number: 2717-09
Sampler: William R Graham
Project Name: CANO MARTIN PENA ASSMNT
SAE Quote:

Analysis Requested

Lab No.	Field Number	Date	Time	Matrix	Grab	Comp	Bottles	TCLP (1311)						
53180	TPMP98-32			Soil	X	X	1	X						
181	TPMP98-30			Soil	X	X	1	X						
182	TPMP98-24			WTR	X	X	1	X						
183	TPMP98-24 (DUP)			WTR	X		1	X						
184	TPMP98-29			WTR	X		1	X						
185	TPMP-25			Soil	X		1	X						
53186	DISPOSAL SITE #1 (DUP)			Soil	X		1	X						

Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by:	D/T
[signature]	5/13	[signature]	5/14/98 900				
Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by:	D/T

Cooler Temperature When Recevied: 4°
Laboratory Project Number: 100325
Cooler Seals Intact?
Fed-X Air Bill Number:

SPECIAL INSTRUCTIONS:
ON ICE
STD TURN AROUND

COPY 1

SPECIALIZED ASSAYS, INC.

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ECG INC. 6792
RUSS GRAHAM
1317 WILMER STREET, STE. 102
ANNISTON, AL 36201

CHAIN OF CUSTODY

Project Number: 2717-09

Sampler: [signature]

Project Name: CANO MARTIN PENA ASSMNT

SAE Quote:

Analysis Requested

Lab No.	Field Number	Date	Time	Matrix	Grab	Comp	Bottles	FULLTLLP (1311)							
53187	NORTH CANAL TRIP BLANK			WTR			1	X							
53188	SOUTH CANAL TRIP BLANK			WTR			1	X							
53189	DISPOSAL SITE TRIP BLANK			WTR			1	X							

Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by:	D
[signature]	5/13	[signature]	5/14/98 900				
Relinquished by:	D/T	Received by:	D/T	Relinquished by:	D/T	Received by:	D

Cooler Temperature When Recevied: 4°

Laboratory Project Number: 100325

Cooler Seals Intact?

Fed-X Air Bill Number:

SPECIAL INSTRUCTIONS:

ON ICE

STD TURNAROUND

COPY 1

APPENDIX 4
PHOTOGRAPHIC DOCUMENTATION

Figure 1. View of Martin Pena Canal, western end looking south

Figure 2. Typical residential development along the canal

Figure 3. Typical Residential Developments along the canal

Figure 4. Mangrove stands near center of project area

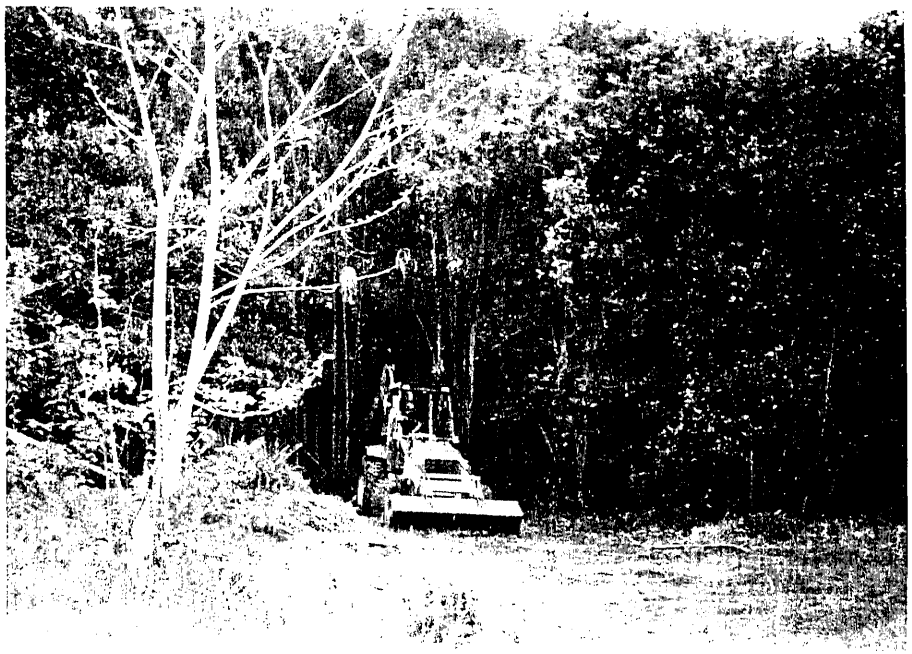

Figure 5. Typical Test Pit near western end of canal

Figure 6. Typical Test Pit near center of project area, south side of canal

Figure 7. Typical Test pit near center of project area, north side of canal

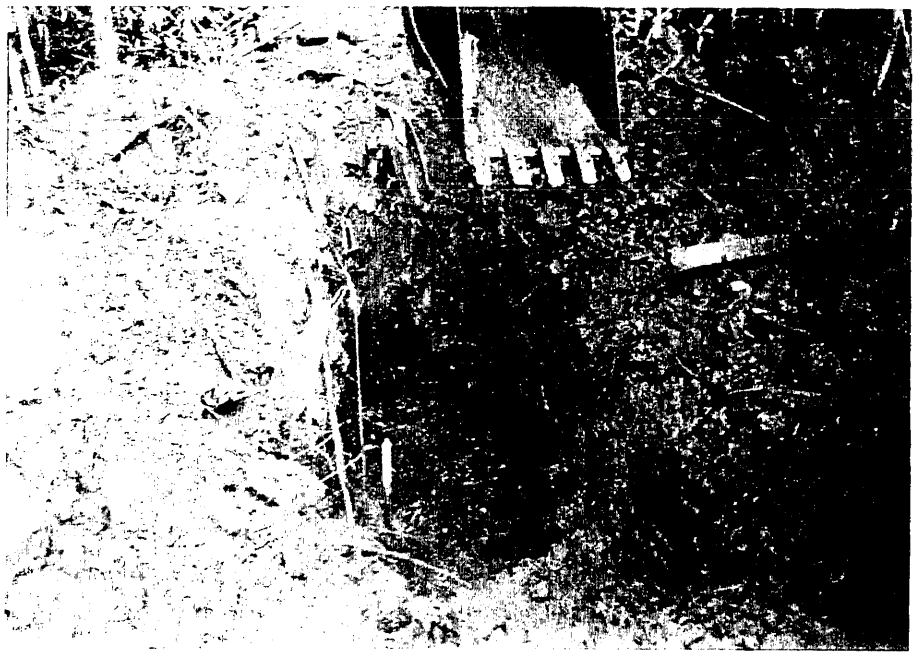

Figure 8. Typical Test pit near eastern end of project area

Figure 9. Typical Test Pit, note brown clayey fill material cap.

Figure 10. Typical Test Pit, note green staining from raw sewage

Figure 11. Typical Test Pit, note black organic rich clay

Figure 12. Typical Test Pit, note brown peat layer.

Figure 13. Typical Test Pit, note construction debris and tires.

Figure 14. Typical Test Pit, note construction debris

Figure 15. Typical Test Pit, note metal debris

Figure 16. Typical Test Pit, note debris, wastes, and oil sheen on groundwater

APPENDIX 5
REFERENCES

REFERENCES

Geotechnical Engineering Report; Subsoil Exploration for Proposed Baseball Field No.1 Illumination System, Ciudad Deportiva Roberto Clemente; Carolina, Puerto Rico. GMTS; 1997

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