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**S.C.R.I.D. LIBRARY**

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SECTION I

S.C.R.T.D. LIBRARY

**Procon** International Inc.  
Los Angeles Operations  
9650 Fair Drive  
El Monte, California 91731  
Telephone: (213) 350-0000 Telex: 18-2971

March 4, 1983  
Reg. No. C-83-65  
Procon Ref: 5-4376

Southern California Rapid Transit District  
Purchasing Agent  
124 West Fourth Street  
Los Angeles, California 90013

Gentlemen:

We are pleased to respond to your request for Letters of Interest and Statements of Qualifications for furnishing professional engineering and architectural services to perform continuing preliminary engineering work on the Metro Rail Project.

#### Identification of Team Members

Our company's project team comprises the Los Angeles Operations of Procon International and our associate Swindell Rust of Pittsburgh; both are divisions of Kellogg Rust Inc. an organization that is part of the engineering and construction company arm of the Signal Co., La Jolla, California. Our Minority Business Enterprise team member is Mr. William Yang and Associates of Burbank, California. Our Women's Business Enterprise team member is Margo Heybald-Heymann Inc. of Santa Monica, California.

#### Experience of the Firm

Procon is an international engineering company founded thirty years ago and has performed more than 3,000 projects in 70 countries on 6 continents. This work has covered a full range including feasibility studies, preliminary engineering design, detailed engineering design, procurement and construction. Contract values have been from the tens of thousands to \$500,000,000 and over. The past five years aggregate project value was greater than 2 billion dollars placing Procon in the top 10 percent of industrial constructors. Procon has performed many engineering and construction contracts in Southern California and these were on schedule and within budget.

Swindell Rust (formerly Pullman Swindell) has many years of transit experience and has participated in the following projects, Pittsburgh Light Rail Transit Project, Greater Cleveland Regional Transit Authority, Washington Metropolitan Area Transit Authority and the Metropolitan Dade County office of Transportation. All told over 14 transit projects have been completed in the past 5 years. This extensive background on transit work including construction of a subway station and tunnel project will be fully utilized in this project organization.

#### Project Organization and Management Plan

We will organize our project team as a task force physically located in one area. The Los Angeles Operations office of Procon will be the location for all engineering, including our M.B.E. firm. The architect, our W.B.E., will be in her offices in Santa Monica. Procon will perform over 40% of the engineering.

Qualifications of the Proposed Staff

Our project engineer's experience includes the Dade County, MARTA, and Washington Metro systems. Our structural, and civil lead engineers include BART and/or MARTA experience with over 20 years experience in structural design. Our project manager has over 30 years experience in a full range of engineering, procurement and construction and has worked extensively on governmental contracts. Members of our Advisory Panel have a wealth of transit experience. Our full service staff can provide all the other disciplines and skills necessary to execute this project. Our key team members are expected to be assigned full time when needed. All of the key team members currently located in California are licensed engineers in their specialty in California.

Expressions of Priority Interest

Due to the experience and capability of our project team members and our staff size, we have indicated a number of stations or stations and tunnels where we could provide design excellence.

MBE/WBE Commitment Data

Our MBE/WBE are full team members occupying key lead engineer responsibilities for mechanical and architectural design. These key team members would join in our weekly project meeting with the other lead engineers and project management. We estimate that about 6% of the project work would be performed by the WBE and about 21% by the MBE. Our M.B.E., Mr. William Yang & Associates have previously been an M.B.E. subcontractor on an SCRDT project.

Subcontract Comments

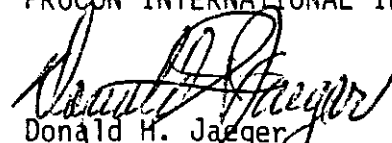
Procon has taken some exceptions to the subcontract in Addendum 1 and these are described in Section 8.

Summary

In summary, we are presenting a Los Angeles team with station and tunnel design and construction experience in a well managed, correctly integrated project team.

Your truly,

PROCON INTERNATIONAL INC.

  
Donald H. Jaeger  
Project Manager

DHJ:rw

**SECTION II**

## Identification of Team Members

The team offered in this proposal will be comprised of the following organizations - Procon International Inc., Swindell Rust, Inc.; Margo Hebold-Heymann, AIA Associates Architects; and William J. Yang and Associates. Procon and Swindell Rust are divisions of Kellogg Rust, Inc. which is one of the Signal Companies. Procon/Swindell Rust will function as the prime contractor. Margo Hebold-Heymann, AIA Associates Architects, a Woman's Business Enterprise, and William J. Yang and Associates, a Minority Business Enterprise, will function as subcontractor to Procon/Swindell Rust. A description of the backgrounds for each of the organizations is described in this section.

## PROCON BACKGROUND AND ORGANIZATION

Procon, an operating unit of Kellogg Rust Inc., one of the Signal Companies, is an international engineering and construction corporation which executes projects for the energy-producing and process industries throughout the world. Its scope of operations extends from primary services in process and conceptual designs, detailed engineering, procurement, and construction to supplemental services involving plant start-up and operations assistance, feasibility studies, and financing assistance.

Founded in 1950, the Procon organization has experienced stable corporate growth and development and has earned client confidence and recognition. In more than three decades of expansion, Procon has been a contractor for governments and private enterprise, completing more than 1,500 major project assignments, many in remote and logistically difficult areas of the world. This work has varied from feasibility studies to complete multi-million dollar turnkey projects. Contract values have ranged to \$400 million and, during the past five years, aggregate project value was greater than 2 billion dollars. Value of contracts has placed Procon among the top 10 percent of international process plant constructors.

A significant part of its work has involved industrial plant engineering, plant modernization, revamp work, plant expansion, and upgrading projects. It is, therefore, thoroughly conversant with the engineering, procurement, and construction of such facilities and is able to demonstrate proven experience in the management, planning, and safety aspects in construction work.

Procon maintains a worldwide network of 10 offices. Five are full service operating centers providing full scale engineering, procurement and construction services. Procon, which is headquartered in Des Plaines, Illinois, a suburb of Chicago, maintains full service engineering/construction offices in Houston, Los Angeles, London and Paris.

Technical assistance is easily transferred within the Procon group of companies. This allows virtual immediate access to any specialized skills which may be required to effect expeditious project performance. All Procon offices are linked via computer and word processing terminals to the U.S. offices of Procon International Inc.

These offices employ a worldwide staff of approximately 1,400, 75% of which are technical personnel. This figure excludes field supervisory and labor personnel.

The organization of Procon's Operations Centers allows for cooperation between offices to effect expeditious completion of projects under programmed project management. Present home office staff for each of our operation centers is as follows:

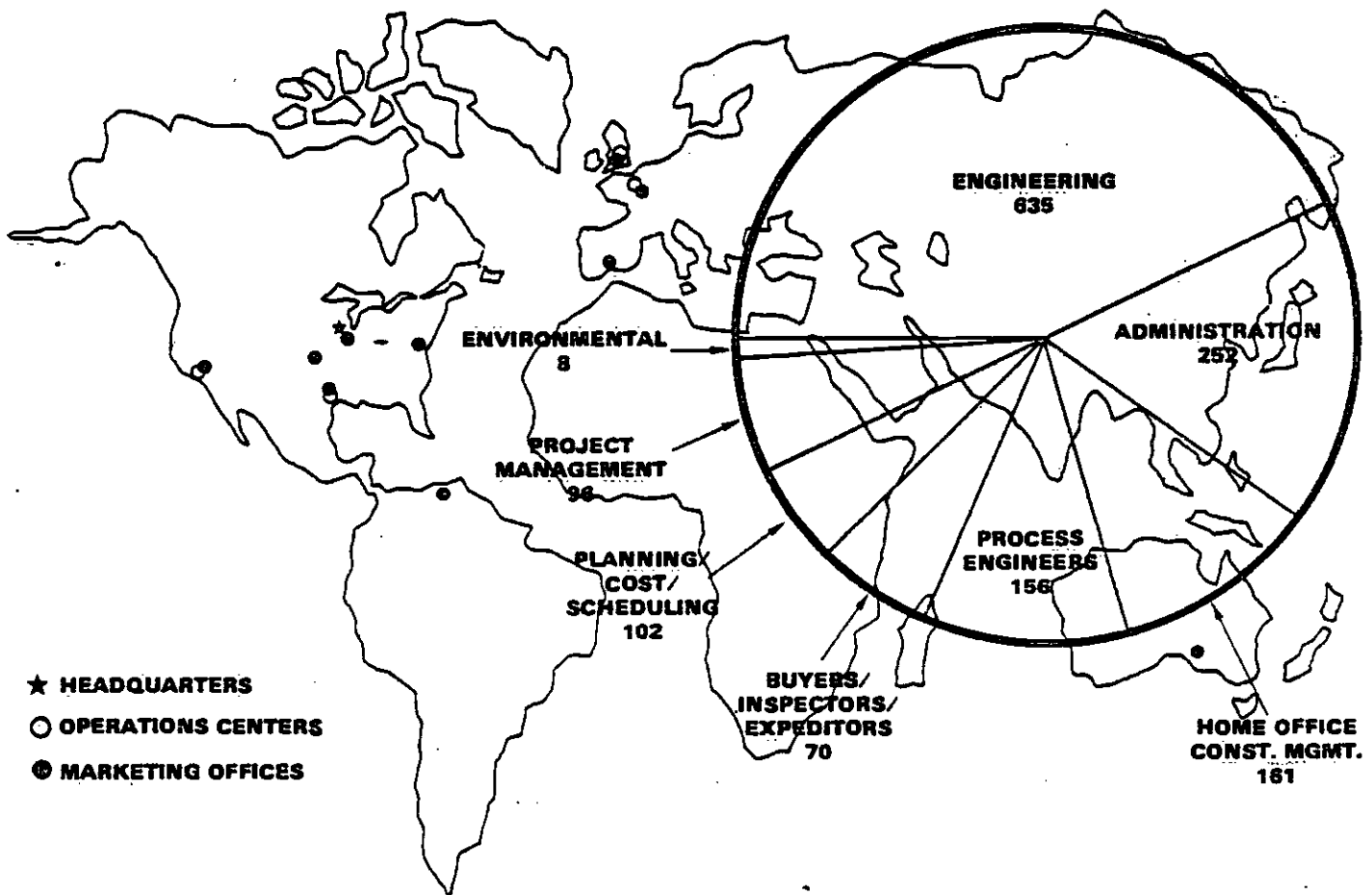


OPERATIONS CENTER

Des Plaines Operations  
Houston Operations  
Los Angeles Operations  
Procofrance  
Procon GB

HOME OFFICE STAFF

645  
174  
136  
208  
230



## PROFILE OF SERVICES

### PROJECT MANAGEMENT

The planning and successful execution of complex engineering and construction projects depends on efficient management of resources, both human and material. Procon has proven its management expertise on: its own total-responsibility contracts; as managing partner of multi-national consortia of contractors; and when acting for clients in supervising extremely large projects executed by other major contractors.

Examples of assignments demonstrating Procon's expertise in managing large and complex projects include the following:

#### Total Responsibility Project

- o Engineering, procurement and construction of a \$190 million expansion of the Amoco (UK) Ltd. refinery (originally built by Procon in 1973), at Milford Haven, Wales. The project involved nine process units including the world's first Ultra-orthoflow FCC unit, a 32,500 BPD unit plus 2-stage turbo-expander power recovery, offsites and utilities. 600,000 home office and 3 million field manhours were expended on this project.

#### Joint Venture Project

- o Managing partner of a joint venture for the 80,000 BPD SAMIR refinery expansion at Mohammedia, Morocco. In addition to eight major process units, the project included 4.3 million barrels of storage, a 12-million liter seawater cooling system, a 100 meter sand-settling basin, three 80 ton/hr boilers, and two 8,000 KW turbo-generators. The project, employing 3,000 workers, was completed within budget and a 29 month schedule.

#### Management and Monitoring Projects

- o Consultant to PERTAMINA (Indonesian State Oil Company) monitoring the design and construction of other contractors on two 200,000 BPD refinery expansions at Balikpapan and Cilicap, incorporating 17 major process units at a Total Installed Cost (TIC) of approximately \$2 billion. Procon provided hands-on advisory services in all project disciplines at contractor's offices in Indonesia, the U.K., U.S.A., and at the construction jobsites on Java and Kalimantan.
- o Technical support and monitoring services to the U.S. Department of Energy (DOE), on domestic coal conversion projects sponsored by the U.S. Government. These have ranged from research projects to full-scale demonstration plants valued in excess of \$1 billion.

Procon prepared management plans, cost estimates and schedules; plus monitoring overall technical, cost and schedule performance.



# Rust

International Corporation

March 8, 1983

Southern California Rapid Transit District  
Purchasing Agent  
Fourth Floor  
1221 West Fourth Street  
Los Angeles, California 90017

Re: Response to the RFIQ for the  
Metro Rail Project

Gentlemen:

Swindell Rust has extensive experience in transit projects having completed 14 in the past five years. This experience and background is summarized in the response to the RFIQ.

If our project team is selected for a subcontract, the engineering will be performed in the Los Angeles operations office of Procon. Key members of the project team will be from the Pittsburgh office of Swinell Rust. The Procon and Swindell Rust organizations are members of the engineering arm of the Signal Company and provide professional services of the highest quality to a broad spectrum of clients.

Mr. Mike Lemesh, Swindell Rust's Project Manager for the Light Rail Project in Pittsburgh, and I will be members of the advisory panel for our project team, together with Mr. E. E. Shaffer, Director of Projects of Procon.

Our project team will have the full support of our organization and we look forward to the opportunity to participate in your transit project.

Very truly yours,

Gray S. Rind  
General Manager

GSR/no

## SWINDELL RUST

Swindell-Rust, formerly Pullman Swindell is an engineering and construction organization of Kellogg Rust Inc., a part of the Signal Co. serving the civil works, metallurgical, mining, minerals, industrial furnace and ceramic fields. Projects designed and constructed by Swindell Rust are located throughout the world. The Company provides a full range of services including project management, engineering, procurement, construction or construction management, and plant commissioning. The Swindell Rust staff has the expertise and depth to provide turnkey or any part of project implementation. The Company's activities have provided numerous successful projects in both industrial and civil works.

The information in this section will introduce the Swindell Rust organization, particularly as it relates to mass transit systems engineering services.

### ORGANIZATION

Engineering services for mass transit systems are offered by Swindell Rust. Swindell Rust is a multi-disciplined engineering organization that can provide a full range of technical and management services for civil works projects anywhere in the world.

### PERSONNEL

The Swindell Rust staff of approximately 250 includes civil, mechanical, electrical, metallurgical, and chemical engineers, together with architects, geologists, surveyors, designers, draftspersons, computer programmers and analysts, and mathematicians. The staff maintains current competence on all relevant codes, specifications, environmental standards and regulations.

### FACILITIES

The principal facilities of Swindell Rust are in the 170,000 square feet main offices in Pittsburgh, Pennsylvania. Other domestic offices are located in Michigan, Utah, and West Virginia. Internationally, representatives and branch offices are located in Canada, Australia, Egypt, France, Iran, Mexico, Poland, Iraq, Russia and Saudi Arabia. Swindell Rust can establish project office facilities anywhere in the world for on-site service to clients.

### SCOPE OF SERVICES

Mass transit systems may be bus or rail, in mixed traffic or exclusive right-of-way, short or long distance, publicly or privately owned. Swindell Rust may be called upon to engineer a complete new system, extend

or upgrade an existing system, or design one component such as a maintenance shop, structures, roadbed, etc. The following paragraphs describe some of the services provided by Swindell Rust.

### Tunnels

Swindell Rust engineers are active in the design of new tunnels and the rehabilitation of existing tunnels. Design and construction of new tunnels is based upon exhaustive geotechnical investigations. The information collected is used to develop a geologic column and a generalized geologic profile for the tunnel. Design follows subject to considerations such as strength parameters of rock strata, rock loads, tensile strength, moisture and pore pressure effects, elasticity, tectonic stresses, and construction techniques.

### Stations and Storage

Mass transit systems require many supporting services to attract riders and to maintain operations. Swindell Rust has designed a variety of facilities to implement mass transit service, with architects and engineers working as a team.

Two major facilities are transit stations and vehicle storage and maintenance facilities. Station configurations vary from street-side bus stop shelters, to elaborate subway stations with grade separated access, mezzanine levels and fare collection. Most vehicle storage and maintenance facilities consist of a central workshop or garage and several satellite storage yards. The storage yards are sized and located to minimize deadhead mileage. Whether it be bus or rail or combined, the yard usually contains routine service and cleaning facilities, as well as basic staff needs.

### Subsurface Exploration and Testing

Subsurface conditions influence transit design concepts. An integral element of the Company is the Soils and Geological Engineering Section. Site evaluations, foundations, investigations, laboratory testing, and engineering analyses are services available to Swindell Rust design/inspection engineers.

Data from the field and laboratory tests are carefully analyzed and interpreted by soils engineers. A report is prepared indicating the information and data collected, its evaluation, and recommendations pertaining to allowable loads, sideslope geometry and construction methods and materials.

### Track Design

Track design is an integral part of all rail transit projects. In many cases Swindell Rust engineers are also called upon to develop the necessary criteria. General design criteria are established consistent with the operational and performance characteristics envisioned for the track. Noise control is an important factor throughout the track design process. Items considered include the following:

- o rail section; welded or bolted.
- o concrete or timber ties.
- o fastening and anchoring patterns.
- o depth and width of sub-ballast layer.
- o depth of ballast layer under the ties and side shoulder widths.
- o type and gradation of ballast and sub-ballast material.
- o track alignment and gage tolerances.
- o superelevation requirements corresponding to operating speeds.
- o spiral lengths.

#### Rehabilitation of Existing Track and Roadbed

Rehabilitation projects begin with field inspections by Swindell Rust personnel to identify the type and location of the improvements required to bring the facility up to an appropriate condition for operation such as that specified by the FRA Track Safety Standards.

#### Plans, Specifications, and Estimates

Preparation of plans, specifications, and estimates is an integral part of Swindell Rust engineering program. Contract drawings are prepared as required to fully describe the required procurement and construction. Following construction, contract drawings are revised to reflect modifications made during construction to compensate for changing field conditions. The revised drawings, particularly structure drawings, provide information important to future maintenance and repairs.

#### Aerial Structures

Swindell Rust has provided a full range of bridge engineering services to government and industry for over twenty-five years. Nearly three hundred bridges have been designed by the Swindell Rust Bridge Staff throughout the world with a construction value in the hundreds of millions of dollars.

Designs include structures for guideways and viaducts, as well as major interchanges and river crossings for both steel and rubber tire vehicles.

The Swindell Rust Bridge Staff is supported by an IBM System 370-158 electronic data processing system. This combination can provide the latest in structural design technology and has been used in the design of numerous complex curved, trussed and segmentally constructed steel and concrete structures.

#### Construction

As part of its well-rounded services, Swindell Rust offers a complete construction capability, characterized by a high degree of organizational effectiveness. With construction costs accounting for an appreciable portion of transit investment, Swindell Rust's experience construction personnel and efficient construction management methods can result in time and cost savings.

WILLIAM J. YANG & ASSOCIATES, CONSULTING ENGINEERS

MECHANICAL AND FIRE PROTECTION  
DESIGN, ENGINEERING, CONSULTATION

William J. Yang & Association, Consulting Engineers established in June, 1966, specializes in the design and preparation of Construction Documents, Cost Estimates and Economic Feasibility Studies for Industrial Exhaust, Air and Water Pollution Control, Industrial Waste Treatment, Heating, Ventilating, Air Conditioning, Cooling and Heating Central Plant, Cogeneration Plant, Plumbing, Process Piping, Fire Protection and Smoke Evacuation. We also perform Energy Conservation Analysis, Computerized Building Energy Analysis and Management and Solar Energy Systems for all types of structures including Pressure Control, Underground Facilities and Construction Consultation. In addition, William J. Yang & Associates have been used by clients for the services of expert testimony, cost reduction programs and on-site direction for installation of major equipment.

William J. Yang & Associates was founded by William J. Yang, a professional engineer registered in thirteen states to practice Mechanical, Fire Protection and Control System Engineering. William J. Yang & Associates has been actively involved in Energy Management and Conservation Audits as well as the design and engineering of energy efficient projects since the firm's founding. Key personnel have field experience besides technical training to insure trouble free design within the clients' construction budget.

Since its founding, William J. Yang & Associates has successfully completed over 1200 projects. Including those recently completed is the development of an energy conservation program at the various facilities of Southern California Rapid Transit District in Los Angeles, California; the San Fernando Road Consolidated Facility in Los Angeles, California; the Greyhound Terminal Main Station in Reno, Nevada and the LAX Parking Structures 3I and 3II in Los Angeles, California.

1320a Santa Monica Mall  
Santa Monica, California 90401  
Suite 201  
213/394 7836

**Margo Hebal-Heymann, AIA & Associates, Architects**



Architecture  
Planning  
Interiors

The firm of Margo Hebal-Heymann, AIA & Associates was founded in 1976 and was incorporated in 1981. Our philosophy of architecture is our approach to providing services for our clients, whether they have small or large projects.

Architecture is for people. For people to function in, and to enjoy.

Architecture is the development of spaces into volumes. The spaces must relate in a functional way and create an environment which enhances people's working and living conditions.

Architecture incorporates the natural elements, the natural movement of people and their needs, their budget, and the available construction resources to create spaces for people. Each set of conditions, climate, people, budget, and material resources, dictates a different architecture. There is no one set "style" for all people, in all places, and all functions.

Because we have worked primarily with large, public projects such as medical facilities and Terminal One at Los Angeles International Airport our firm's philosophy is particularly applicable. And because the spaces are so important in any building, but particularly in large public projects, our firm believes in being involved in both the interior architecture/design and the exterior architecture/design. The exterior becomes the interior; the interiors create the exteriors when natural movements and functions are met.

The variety of spatial proportions, textures and colors; related in a way to permit us to follow our natural living and working processes without hinderance but providing a stimulating environment is what we set our goal to provide in the architecture of this firm.



SECTION III

PROCON

In three decades of expansion, Procon has been a contractor for governments and private enterprise, completing more than 3,500 project assignments in 72 countries, many in remote and logistically difficult areas. This work has varied from techno-economic feasibility studies to complete multi-million dollar turnkey projects. Contract values have ranged to \$350 million and, over the past five years, aggregate project value was greater than one billion dollars. Value of contracts has placed Procon among the top ten percent of international process plant constructors.

Partial Listing of Recent Projects

<u>Type of Project</u>	<u>Location/Client</u>	<u>Client Contact</u>	<u>Year of Award/ Duration in Months</u>	<u>Approx. Cost and Value of Project MM \$</u>
255 T/D Sulfur Recovery Unit and Tail Gas Treating Unit	Port Arthur, Texas Gulf Oil Company	Mr. Robert Blankenship Project Manager P.O. Box 701 Port Arthur, TX 77640 (713) 985-1455	1980/30	30
1,120 T/Day CO <sub>2</sub> Recovery Unit	Lubbock, Texas Carbon Dioxide Technology Corp.	Mr. W. R. Wiggins, Jr. 1211 Katy Freeway Houston, TX 77079 (713) 932-0266	1980/24	22
300MM T/Yr Coke Calciner Plant	Wilmington, California M C Carbon Co.	Mr. G. L. Arbogast Project Manager (213) 432-4379	1980/28	72
Chemical Plant Expansion	Carrollton, Kentucky Dow Corning	Mr. J. P. Shepardson Project Manager - Carrollton Plant U.S. Hwy 42 - P. O. Box 310 Carrollton, Kentucky 41008 (502) 732-4371	1980/24	10
Energy Conservation Project on Visbreaker, Powerformer/Reformer, Boiler Plant, Crude Units	Milford Haven, South Wales Esso Petroleum Company	Mr. Dick Russell Refinery Operations Mgr. Milford Haven, S. Wales Milford 3601	1980/24	20

<u>Type of Project</u>	<u>Location/Client</u>	<u>Client Contact</u>	<u>Year of Award/ Duration in Award</u>	<u>Approx. Cost and Value of Project MM \$</u>
20MM GPY Ethanol Production Facility	Newark, Ohio Agra Fuels Group	N/A	1980/30	40
230M BPSD Atmospheric and Vacuum Unit, Kerosene and LPG Merox Units, Gas Fractionation and Stabilization, and LPG Amine Treatment.	Donges, France ELF France	Mr. Nesse Director of Projects 7 rue Nelatron Paris 75007	1980/36	100
Project Management Support Services for 2 Refinery Expansions	Balikpapan and Cilacap, Indonesia Pertamina	Mr. I. Tabrini Ismail Divisional Operations	1980/30	20
Gas Gathering Station	Ras Baker, Egypt Dealim Engineering Co.	Mr. H. K. Park Project Manager 14 Osman Abdel Hafiz St. Nasr City, Cairo, Egypt	1981/24	17
Copper-Clad Laminating Manufacturing Facility	Chandler, Arizona Norplex Division of UOP		1981/24	16
60M BPSD Visbreaker Debottlenecking, Improved Vacuum Pipestill Fractionation, and Utilities Upgrade	Aruba, Netherlands Antilles Lago Oil & Transport Co., Ltd.	Mr. M. Angela Project Director Aruba, Netherlands Antilles (599) 892202	1981/30	75
22M BPSD FCC Unit, 4,500 BPSD LPG Merox Unit and Fractionation Gas Concentration Units, Amine Treating Unit, 50 MT/Day Sulfur Recovery Unit, and Sour Water Treatment	Szazhalombatta, Hungary Chemokomplex	Mr. Estvan Aranyi Deputy Managing Director Budapest Nepkoztarsasag Utja 60 H. 1062	1981/30	69
Multi-Product Chemical Plant	Anaco, Venezuela Nalco Chemical	Mr. Peter Ramanauskas Project Manager 2901 Butterfield Road Oakbrook, IL 60521 (312) 887-7500	1981/24	11

<u>Type of Project</u>	<u>Location/Client</u>	<u>Client Contact</u>	<u>Year of Award/ Duration in Award</u>	<u>Approx. Cost and Value of Project MM \$</u>
160MM lb/yr Polybutene Unit	Whiting, Indiana Amoco Chemicals Corp.	Mr. V. Harris Manager, Engineering P.O. Box 7516 Chicago, IL 60680 (312) 856-6951	1981/24	40
Refinery Energy Conservation Project	Sines, Portugal Petrogal	Mr. Amiral Almeida Administrator Rua DaFlores 7 Lisboa, Portugal	1982/26	22
Platformer/Hydrotreater Complex	Stanlow, United Kingdom Shell Oil Company	N/A	1982/30	90
35M BPSD Reformer Revamp	Guayama, Puerto Rico Phillips P.R. CORE, Inc.	Mr. W. A. Massey Refinery Representative Guayama, Puerto Rico (809) 864-1515	1982/30	22
55M BPSD Grassroots Refinery Expansion (TORC III)	SriRacha, Thailand Thailand Oil Refining Co.	Mr. K. Y. Chow Managing Director Sarasin Building 14 Surasak Road Bangkok, Thailand	1982/36	850
Heavy Oil Processing and Waste Water Treatment Facility	Port Allen, Louisiana Placid Oil	Mr. Phillip Clarke Vice President 3900 Thanksgiving Tower Dallas, TX 85201	1982/24	23

## Swindell Rust

The professional competence of the Rail Transportation Systems Engineering Staff has been demonstrated in all phases of project development. Services available either singularly or in combination on a turnkey basis or in consultation include: planning; civil structural, mechanical, and electrical engineering; preparation of specifications and contract documents; construction cost estimating; procurement; project management, construction management, scheduling, and cost control; construction.

Swindell Rust has over 50 years of experience in design and construction of transportation systems. Over the past five years, Swindell Rust has participated in over 14 separate railroad or transit related projects. Major projects are summarized on the following table:

<u>Project Description</u>	<u>Client and Location</u>	<u>Comple- tion</u>	<u>Project Cost/ Value</u>
Construction of D-2 Subway station and terminal of Washington Metropolitan Area Transit Authority subway system.	WMATA 600 5th St., N.W. Washington, D.C. 20001 Mr. Ed Waddell (202) 637-1402	1977	<u>\$20 MM</u> \$20 MM
Engineering design-section of rapid transit line (steel wheel) and one station-Dade County, Fla. (UMTA Grant No. F1-03-0036)	Metropolitan Dade County, Office of Transp. Adm. 44 W. Flagler St. Miami, Fla. 33030 Dr. John A. Dyer Transportation Coordinator (305) 579-5675	1980	<u>\$4 MM</u> \$20 MM
Engineering design for central bus maintenance facility, including site preparation, geotechnical, piping (exclusive of HVAC), foundations and electrical systems (UMTA Grant No. OH-03-0054)	Greater Cleveland Regional Transit Auth. 1404 E. Ninth St. Cleveland, Ohio 44014 Mr. William C. Pistler, Jr., AIA Director-Const. Mgt. & Engineering Dept. (216) 781-5100	1980	<u>\$7 MM</u> \$14 MM
Design services for North-east Corridor Improvement Project (bridges and rail trackage) Fulton to River, Maryland	FRA-DeLeuw, Cather/ Parsons 1201 Connecticut Ave. Wash., D.C. 20036 Mr. Allan Sams Director of Design (202) 452-5200	1980	<u>\$14.5 MM</u> \$14.5 MM
Pittsburgh Light Rail Transit Project-Engineering for alignment, trackage, utility relocations, aerial mapping and surveying, Allegheny County, Penna.	PB-GH, Port Authority of Allegheny County, Beaver & Island Aves. Pittsburgh, PA 15233 Mr. Herbert M. Mandel Vice President (412) 263-4004	1981	<u>\$40 MM</u> \$230 MM



**PORT AUTHORITY OF ALLEGHENY COUNTY**

**PITTSBURGH LIGHT RAIL TRANSIT PROJECT**

**Client:** Port Authority of Allegheny County

**Cost:** \$340,000,000

**Completion Date:** Ongoing

**Description:**

Swindell, as an associate to the Joint Venture of Parsons, Brinckerhoff, Quade & Douglas and Gibbs & Hill retained by the Port Authority for rehabilitation of Pittsburgh's Light Rail Transit System (LRT), is responsible for the following scope of work:

- o establishing the horizontal and vertical alignment for the entire 10.5 miles system which includes subsurface, at-grade, and aerial segments.
- o designing approximately 30 miles of trackwork for the mainline and a car storage and maintenance area.
- o identifying right-of-way requirements.
- o establishing the requirements for relocating existing utilities to accommodate construction of the rehabilitated LRT system.
- o analyzing vehicular traffic movement at major stations to establish the scope of street system modifications needed to accommodate station patronage.
- o liaison with affected agencies.

**LRT in Pittsburgh**

## STAGE I - RAPID TRANSIT SYSTEM - DADE COUNTY, FLORIDA

**Client:** Metropolitan Dade County Office of Transportation Administration

**Cost:** \$14,000,000

**Completion Date:** Ongoing

### Description:

Stage I of the Metropolitan Dade County Rapid Transit System consists of a 22 mile grade-separated, double-track guideway (rail system) with associated stations and electrically powered rail vehicles. The entire system, stations and guideway is elevated.

The Kaiser Transit Group (KTG) serves Dade County OTA as the General Architectural and Engineering Consultant (GAEC). The 22 mile system has been divided into 8 sections for design purposes, with Section N315 (3.7 miles) contracted to the joint venture of Metric Engineering, Inc. and Clough Associates, both Miami area firms, handling the civil and structural design for the guideway. Swindell serves as consultant to the joint venture for the design of the unique structural elements. These consist of two horizontally curved, three-span continuous structures with approximately 15 unique piers to support the guideway and approximately 16 piers to support the guideways and stations.

KTG has provided standardized elements where possible to reduce costs. The alignment, curvature and spans were set to permit as much standardization as possible, where it is not possible, unique structures must be designed.

The N315 design section includes a transit guideway with approximately 19,200 feet of route track entirely on aerial structures, plus aerial pocket track, foundations, piers, deck system and acoustical barriers, excluding trackwork, cableway, system equipment and landscaping.



# Metropolitan Dade County

## NORTHEAST CORRIDOR IMPROVEMENT PROJECT

**Client:** DeLeuw Cather/Parsons & Associates

**Cost:** \$15,000,000

**Completion Date:** On going

### **Description:**

DeLeuw Cather/Parsons & Associates, general A-E Consultant to the Federal Railroad Administration, retained Swindell to provide engineering services in conjunction with the FRA's \$1.9 billion program to rehabilitate the Northeast Rail Corridor. The work includes an evaluation of existing conditions and the preparation of plans, specifications, estimates, and contract documents for rail section improvements that will enable railroad operating speeds to increase to 120 miles per hour. The ensuing construction will correct deteriorated conditions along 8.25 route miles of electrified multiple main line tracks. Approximately 60 miles of trackage will be affected.

Elements of the scope of work for this project include:

- o field survey to locate and monument all main line tracks and associated appurtenances.
- o computation of horizontal and vertical track alignments for all existing and relocated main line tracks.
- o inspection of six railroad bridges.
- o establishing new configurations for three interlocking plants.
- o rehabilitation of six railroad bridges.
- o increase vertical clearances under two overhead highway bridges.
- o establish security fencing requirements.
- o access road studies.
- o establish construction scheduling and sequencing.
- o field reconnaissance to identify and develop solutions to eliminate drainage problems.
- o utilities investigations.





# WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

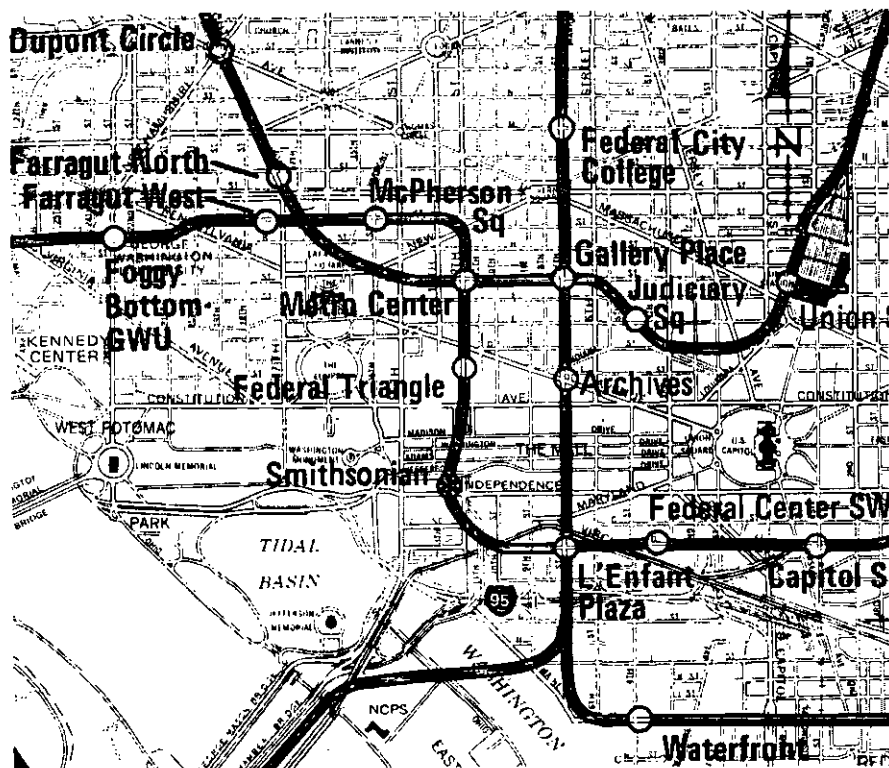
**Client:** Washington Metropolitan Area Transit Authority

**Cost:** \$20,000,000

**Completion Date:** 1977

In the 1970's Swindell constructed in its entirety the D-2 section of the Washington Metropolitan Area Transit Authority subway system. This section is 2020 feet in length, includes the Smithsonian Station, and lies generally under the Capitol Mall at 12th Street from Constitution Avenue to a point well south of Independence. The method used was "cut-and-cover", and traffic was maintained during construction on all streets by temporary use of structural steel framing and timber decking. At 12th Street SW and Independence a complex framing system was installed to support all utilities while the concrete tunnel was built. Both tunnel and station arch concrete were placed with the use of traveling forms.

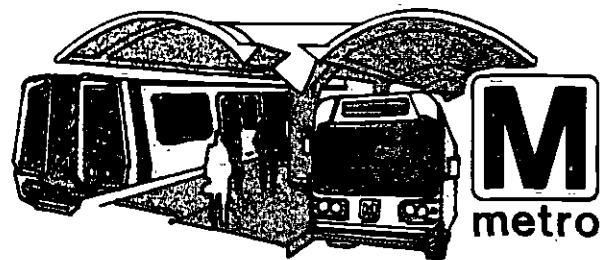
The Contract was performed under a joint venture arrangement with the Paul R. Jackson Construction Company, Inc., a minority firm. Swindell was in the sponsor and control position.





WASHINGTON'S SMITHSONIAN STATION UNDER CONSTRUCTION.

SWINDELL BUILT A 2200' SECTION OF SUBWAY, INCLUDING THE STATION.



William J. Yang & Associates

Representative projects in which William J. Yang & Associates have participated during the past five years include the following assignments:

<u>Project Name and Location</u>	<u>Client</u>	<u>Project Cost/Value</u>	<u>Year of Completion</u>
Energy Conservation Study Program at the Various RTD Facilities	Rapid Transit District Los Angeles, CA	<u>Study</u> <u>Study</u>	1982
LAX Parking Structures 3I & 3II Los Angeles, CA	LAX Los Angeles, CA	<u>\$2 MM</u> <u>\$19 MM</u>	1983
Tenneco Oil Office Building Bakersfield, CA	Tenneco West Inc. Bakersfield, CA	<u>\$3 MM</u> <u>\$12 MM</u>	1983
San Fernando Road Consolidated Facilities Los Angeles, CA	Los Angeles City Los Angeles, CA	<u>N/A</u> <u>\$4-2 MM</u>	1979
Pacific Missile Test Center Modifications to A/C Systems for Energy Conservation Point Mugu, CA	Naval Facilities Engineering Command San Bruno, CA	<u>N/A</u> <u>\$3.0 MM</u>	1981
TRW General Purpose Building El Segundo, CA	TRW El Segundo, CA	<u>N/A</u>	1980

Margo Hebald-Heymann, AIA & Associates

Margo Hebald-Heymann, AIA & Associates have participated on over 15 architectural assignments during the past five years. Representative projects include:

<u>Project Name and Location</u>	<u>Client</u>	<u>Project Cost/ Value</u>	<u>Year of Completion</u>
Terminal One, Lax Los Angeles Int'l Airport Los Angeles, California	Los Angeles Department of Airports	\$5.4 MM \$46 MM	1984
Olive View Medical Center 1445 Olive View Drive Sylmar, California	Los Angeles County	N/A \$120 MM	1985
S.E. Rykoff & Company 761 Terminal Street Los Angeles, California	S.E. Rykoff & Company 761 Terminal Street Los Angeles, California	N/A \$3 MM	1982
Oxnard Children's Dental Group 1350 West Gonzales Road Oxnard, California	Drs. Cantor and Lisagor 1350 West Gonzales Rd. Oxnard, California	\$0.35 MM \$0.35 MM	1982
Improta Medical Suite 3901 Las Posas Road Camarillo, California	Robert S. Improta, MD 3901 Las Posas Road Camarillo, California	\$0.325 MM \$0.325 MM	1982
Orthopedic Surgery Medical Group Los Angeles, California	Orthopedic Surgery Medical Group 8635 W. Third St. Los Angeles, California	\$0.55 MM \$0.55 MM	1981

**SECTION IV**

## QUALIFICATIONS OF THE PROPOSED STAFF

It is a pleasure to submit to the RTD the project team we have proposed for the Metro Rail Project. The key team members have been selected based on their transit experience and/or their proven capability to perform their assignments. We have prepared a very senior staff in terms of education, experience in their technical field and previous experience in performing similar work and the resumes that follow show their accomplishments in the narrative and in the previous projects that they have undertaken.

Many of our staff hold advanced degrees in the work that they are assigned or have taken graduate courses.

Since the project is at the 30% point of preliminary engineering the key project staff will be assigned at project start since they can be effective immediately in all of the disciplines. They will be dedicated full time until their work has been completed. Other staff members will be assigned upon receipt of the 30% engineering documentation.

**NAME:** DONALD H. JAEGER

**PROJECT POSITION:** Project Manager

**EDUCATION:**

- o B.S. in Mechanical Engineering, University of Minnesota
- o Master of Business Administration  
Pepperdine University, California
- o UCLA Graduate Engineering Courses
- o Cost & Scheduling Engineering  
Fluor E & C California

**SPECIFIC QUALIFICATIONS:**

Mr. Jaeger has over 30 years of experience in project management and engineering of foreign and domestic projects. As Project Manager he has had complete direction of projects including conceptual design studies, preliminary engineering, detailed engineering, all project specifications, definitive and detailed cost estimates, project scheduling, procurement, the construction plan and construction. As part of the Project Manager's assignment he has been responsible for the profit and loss on a project and insuring the project was on schedule and within budget.

He has managed projects that required large underground installations of reinforced concrete and full utility services.

His work has been responsible for project analysis and economic evaluation and engineering design for a variety of complex projects both by private industry and government agencies including the Department of Energy and the Department of Defense.

He has worked on many different types of job assignments as the Project Manager and has demonstrated his skills and flexibility. In addition, he has managed high technology equipment programs from the development to the industrial production phase.

The cost of these projects have ranged up to \$380 million in 1981 dollars.

**Partial Listing of Experience**

- o High BTU Pipeline Gas Demonstration Plant for ICGG in, Perry County, Illinois
- o Heavy Oil Refinery for Petro Canada in Edmonton, Alberta
- o Polypropylene Plant for Imperial Chemical Industries, Botany Bay, Australia
- o Ammonia Plant for Trinidad Tobago Nitrogen Co., Trinidad
- o Alar Disc Facility for Ampex in, Redwood City, California
- o High BTU Pipeline Gas Demonstration Plant for, Conoco in Stamford, Connecticut
- o Solvent Refined Coal Synthetic Fuel Plant for the, Department of Energy in Newman, Kentucky
- o LNG Regasification Terminal for Southern California, Gas Company
- o LNG Liquefaction Plant with Storage and Loading, Facility for Western LNG Co., Kenai, Alaska

**Registration:** Professional Mechanical Engineer, State of California #9524

**NAME:** GERALD J. PITZER

**PROJECT POSITION:** Project Engineer

**EDUCATION:**

- o B.S. Civil Engineering, Carnegie-Mellon University
- o M.S. Civil Engineering, West Virginia University
- o MBA, University of Pittsburgh

**SPECIFIC QUALIFICATIONS:**

Mr. Pitzer has over 17 years experience and has worked extensively on rail transit facilities. In addition, he has worked on a variety of projects requiring structural design including highway bridges and heavy industrial facilities. His responsibilities have included scheduling for structural design, determining structure type and location, detailed design of foundations, writing contract specifications and documents and preparing construction cost estimates. He is especially experienced with analysis and design of steel reinforced structures and prestressed concrete structures, developing subsurface design recommendations and writing engineering related computer programs. He has been responsible as a Project Manager including administration of contracts, coordinating work of project engineers, staff engineers and designers and monitoring and controlling expenditures.

**Partial Listing of Experience**

- o Atlanta Rapid Transit Authority (MARTA) in Atlanta, Georgia
- o Washington Metropolitan Area Transit Authority in Washington, D.C.
- o Dade County Transit System in Miami, Florida
- o Port Authority of Allegheny County in Pittsburgh, Pennsylvania
- o Pennsylvania Department of Transportation in Erie, Pennsylvania

**Registration:** Professional Structural Engineer  
Commonwealth of Pennsylvania



**NAME:** RAMON C. MORALES

**PROJECT POSITION:** Lead Structural Engineer

**EDUCATION:**

- o B.S. Civil Engineering, Loyola University, Los Angeles
- o Advanced Engineering Studies, University of California at Los Angeles

**SPECIFIC QUALIFICATIONS:**

Mr. Morales has over 30 years structural engineering experience in all types of heavy industrial and commercial structures. He had managed and directed structural engineering on many diverse structures such as a \$500 million brewery plant, a \$75 million coke calciner plant, \$300 million communication facilities throughout the world, \$100 million copper mining facilities, and other structures such as past facilities, hardened missile silos, aircraft hangers, high-rise buildings, educational and correctional facilities, and commercial and industrial buildings.

Mr. Morales has some extensive confidential and secret work for U.S. Government Agencies. For the last 8 years, Mr. Morales has been a department manager with a staff of about 25. Due to the high structural engineering content of this project he will be assigned full time to the structural engineering.

**Partial Listing of Experience**

- o Coke Calciner Facility for M.C. Carbon Co. in Wilmington, California
- o Copper-Clad Laminating Facility for Norplex Division of UOP, Inc., in Chandler, Arizona
- o Anheuser-Busch Brewery in Los Angeles, California
- o MX Test Facilities for the U.S. Corp of Engineers
- o Airfield Facilities Expansion for the U.S. Department of Defense
- o Nuclear Test Facilities for the Department of Energy
- o Worldwide Omega Navigation Facilities for the U.S. Navy
- o Very Low Frequency Communications Facilities in Australia, Hawaii, Trinidad, Ponom, and Maryland, U.S.A., for the U.S. Navy
- o Construction Camps in Saudi Arabia, for Aramco

**Registration:** Registered Structural Engineer, California  
Registered Civil Engineer, California

**Professional Affiliations:** American Society of Civil Engineers,  
Structural Engineers Association of Southern California;  
American Concrete Institute

**NAME:** RAMESH M. SHAH

**PROJECT POSITION:** Lead Structural Construction Engineer

**EDUCATION:**

- o B.S. Civil Engineering  
S.V. Vidyapeeth (University), India
- o M.S. Civil Engineering  
Yale University

**SPECIFIC QUALIFICATIONS**

Mr. Shah has over 23 years of broad experience with the majority concentrated on structural design. He has been responsible for the administrative and technical management of a civil/structural department which includes preparation of studies, conceptual planning detailed engineering design, and construction specifications.

He was responsible for preparation of basic engineering design review and approval of design drawings for BART in the analysis and design of the tunneling work on the kickoff structure, ventilation and pumping shaft at a station. He has performed work for interstate highway and designed bridges over highways and railroads. He was a structural engineer on a 645 foot high concrete arch dome, power plant, penstocks and switchyard structures.

**Partial Listing of Experience**

- o Bay Area Rapid Transit in San Francisco
- o Interstate Highway US35 for the State of Ohio, State of Indiana
- o Yuba River Development Project for the Yuba River Development Agency, Marysville, California
- o Lakeshore Project for the Heila Mining Co., Heila, Arizona
- o Solid Waste Recovery Plant for the San Diego Municipality, San Diego, Calif.
- o Desalination Plant for the Ministry of Water and Power, Jeddah, Saudi Arabia
- o Sulfur Plants for the Union Oil Co. at Wilmington, California, San Francisco and Beaumont, California
- o Refinery Modernization for the Newhall Refining Co. in Newhall, California
- o Refinery Expansion for the Beacon Oil Company at Newhall, California
- o Crude and Vacuum Unit for Continental Oil Co., Paramount, California

**PROFESSIONAL LICENSE:** Registered Professional Civil and Structural Engineer in California

**PROFESSIONAL AFFILIATIONS:** American Society of Civil Engineers

**PROFESSIONAL PUBLICATIONS & PATENTS:**

Cash Award from James F. Lincoln Arc Welding Foundation. Paper submitted in open competition- "Welded Steel Structure For a Mole's 800 Ton Kick", 1970

**NAME:** KDLADI M. KRIPANARAYANAN

**PROJECT POSITION:** Lead Civil Engineer

**EDUCATION:**

- o Ph.D., Structures, University of Iowa, 1970
- o M.S., Structural Engineering, University of Iowa, 1967
- o Bachelor of Technology, Civil Engineering, Madras, India, 1965

**SPECIFIC QUALIFICATIONS:**

Dr. Kripa has over fifteen years experience in Structural and Civil Engineering that has included structural analysis and design, management of a structural engineering department, teaching, research and development, and publication of over thirty technical articles and reports.

He published a report of the design of the tunnel segments for the Metropolitan Atlanta Rapid Transit (MARTA) by the Joint Venture firm of J.W. Robinson & Assoc., Inc., Keck & Wood Inc., and Dalton, Dalton Little, Newport. He performed a study and published a report on the effects of the Chicago Metropolitan Sanitary District's deep tunnel project.

Recently he was lead structural and civil engineer on a \$75 million coke calciner facility involving large underground storage facilities, heavy above ground concrete and steel structures, and a 1.5 mile railroad spur.

**Partial Listing of Experience**

- o MARTA System - Tunnel studies, Atlanta, Georgia
- o Deep Tunnel/Dil Storage Facility, Stickney Terminal Corp., Stickney, Illinois
- o Desalination and Power Plant, Umm Lujj, Saudi Arabia
- o Coke Calciner Facility and Railroad Spur for M.C. Carbon Corp., Wilmington, California
- o Coal Gasification Project Studies, Department of Energy, Washington, D.C.
- o Chemical Plant, Dow Corning, Cattlesburg, Kentucky

**Registration:** Registered Civil Engineer, California  
Registered Structural Engineer, Illinois  
Registered Professional Engineer, Illinois and Ohio

**Professional Affiliations:** Member, American Society of Civil Engineers, American Concrete Institute, Associate Member, Structural Engineers Association of Southern California

**Honors & Awards:** Departmental Medal for Academic Distinction, Madras, India  
Outstanding New Citizens of 1980-1981, City of Chicago

**NAME:** MARGO HEBALD-HEYMANN

**PROJECT POSITION:** Architect

**EDUCATION:**

- o Degree in Architecture, Cornell University, 1963
- o University di Roma (Italy) 1961-1962
- o Overseas School of Rome, Italy, 1955-1958
- o The Dalton School, New York City

**SPECIFIC QUALIFICATIONS:**

Margo Hebald-Heymann is Principal and Founder, 1977, of Margo Hebald-Heymann, AIA & Associates, a California Professional Corporation since 1981. Principal services are architectural planning and design for commercial and health care facilities.

Ms. Hebald-Heymann has over 20 years of experience in the practice of architecture. She has held positions as a Project Designer, Senior Project Designer, and Director of Interior Systems, for leading architectural firms in Southern California prior to founding her own firm.

As Director of Interior Systems, she was involved in over forty projects in a span of eight years in planning, architectural design, contract documents, specifications, construction observation and interior design in medical related facilities, with constructed values of up to \$46 million.

In addition to her architectural practice she is, by appointment, Commissioner for the California State Board of Architectural Examiners.

**Partial Listing of Experience**

- o Terminal One at Los Angeles International Airport, as Associate Architect for Welton Becket Associates.
- o Interior Architecture and Design for the Olive View Medical Center, Sylmar, California, as consultant to an A/E joint venture - \$200 million facility.
- o Space planning, architectural and interior design for a pediatric dental suite for Cantes Dental Suite in Simi Valley, California.
- o Consultant architect for S.E. Rykoff offices in Los Angeles, in the conversion of a 48,000 square foot warehouse into executive offices.
- o Architecture redesign of a 1927 mall building into an office building with various tenants in Santa Monica, California.
- o Complete architectural work of a medical office suite for Orthopedic Surgery Medical Group, in Los Angeles, California.

**Registration:** Registered Architect, California

**Professional Affiliations:** Member; The American Institute of Architects; the AIA, Los Angeles; California Council of America Institute of Architects; Association of Women in Architecture; International Union of Women Architects; Town Hall of California; Santa Monica Chamber of Commerce - Member of various committees for the American Institute of Architect, and the Santa Monica Chamber of Commerce.

**NAME:** WILLIAM J. YANG

**PROJECT POSITION:** Mechanical Engineer for Heating, Ventilating and Air Conditioning, Fire Protection, and Plumbing

**EDUCATION:**

- o B.S. Mechanical Engineering, California State University Los Angeles, California
- o Graduate Study, Mechanical Engineering, University of California, Los Angeles, California

**SPECIFIC QUALIFICATIONS:**

Mr. Yang is principal and founder of William A. Yang and Associates, Burbank, California, 1966. He, and his firm, provide consulting Mechanical Engineering services to architectural and engineering firms, industrial concerns, and to governmental agencies, in the field of heating, ventilating and air conditioning, fire protection, plumbing and process piping.

He has over 18 years professional experience in mechanical engineering. During this period he has participated, and directed the work in his specialty, over 1200 projects. These projects consist of military facilities, commercial and high-rise buildings, educational and religious institutions, medical facilities, and industrial facilities.

He is past president of the Mechanical Engineers Association of Southern California. He lectures in Mechanical Engineering at Pierce College in Woodland Hills, and at East Los Angeles College in East Los Angeles.

He has served as Special Technical Consultant for the Royal Commissioner of Jabail and Yanbu-Kingdom of Saudi Arabia.

**Partial Listing of Experience**

- o Energy Conservation Program for Southern California Rapid Transit District at various facilities.
- o TRW General Purpose Building, in El Segundo, California.
- o Military Barracks in St. Nicholas Island for U.S. Naval Station, Pacific Missile Range, Point Mugu, California.
- o Riverchase Shopping Center in Hoover, Alabama, for E.T.S. Development Co., Los Angeles, California.
- o TWA Dining and Commissary Facility Expansion at Los Angeles International Airport, for Trans World Airlines.
- o Modifications to A/C Systems for Energy Conservation in Point Mugu, California, for the Naval Facilities Engineering Command.
- o The Rancho Mirage Racquet Club, California, for Gregg Gange Development

**Registration:** Registered Mechanical, Fire Protection, and Control Systems Engineer, California  
Registered Professional Engineer in 13 states.

**Professional Affiliations:** Consulting Engineers Association of Southern California, American Consulting Engineers Council, American Society of Heating, Refrigerating and Air Conditioning Engineers (Board Member)

**NAME:** RICHARD E. BROWN

**PROJECT POSITION:** Lead Electrical Engineer

**EDUCATION:** o B.S. Electrical Engineering  
Illinois Institute of Technology

**SPECIFIC QUALIFICATIONS:**

Mr. Brown has over thirty-two years experience as an electrical engineer. He performed the utility substation design for Commonwealth Edison for system distribution voltages ranging from 66 KV down to 24 KV. Effort involved analysis of system load flow studies, preparing transformer capacity calculations, configuration layouts, and protective relay setting calculations. Preparation of all engineering electrical drawings, short circuit calculations for Fletcher Oil Company plant power distribution system. Prepared all necessary specifications for bidding and purchase of medium voltage (5 to 15 KV) switchgear, unit substation, feeder cables and their installation and erection. Monitored field construction progress to assure system installation was performed in accordance with contractual agreements and witnessed mechanical/electrical completion acceptance tests and commissioning of the entire system.

He was responsible for system component selection and design of surveillance monitoring of TV antenna station. System was designed to protect against both above and below surface penetration of the station complex. Components integrated together included infrared, ground pressure, microwave and fence vibration monitors. He designed the emergency power systems for FAA Air Traffic Control centers of five major centers in the Continental U.S. The systems each required to be developed and function in strict accordance with FAA scope of work and design criteria. Uninterruptable Power Supplies, batteries, chargers, and Diesel Generators. Sequencing controls were designed to provide a bumpless power change over whenever main source fails.

He prepared field work schedules, made field markups, system commissioning tests and gen. superv. for on-site construction, engineering/design efforts of 23 men at the Cherry Point Refinery.

**Partial Listing of Experience**

- o Electrical Lighting, Railroad Switchyard for the Port of Long Beach, Long Beach, California
- o FAA Traffic Center Rehabilitation for the FAA in Albuquerque, Salt Lake City, Memphis, Denver, and Atlanta
- o Titan II Missile Launch Facility for the U.S. Air Force Vandenberg AFB, California, Davis Mothan AFB, Arizona and McConnell AFB in Kansas
- o Electrical Power Distribution of Cable T.V. Facility for Communicom in Culver City, California

**PROFESSIONAL**

**AFFILIATIONS:** Licensed Electrical Engineer, California  
Member Institute of Electrical Engineers

**NAME:** MAX J. RITTER  
**PROJECT POSITION:** Project Estimator  
**EDUCATION:** o University of Pittsburgh, Engineering

**SPECIFIC QUALIFICATIONS:**

Mr. Ritter has over 20 years of estimating experience in his 30 years in the engineering and construction industry. He has had the responsibility for complete estimates on heavy industrial and governmental projects. He has been responsible for information required for estimates from engineering and project management; determination of the schedule for information needed by the estimating department; review of information for completeness and quality to ensure accuracy of the estimate; assembled and reviewed all direct cost estimates from other estimators; indirect engineering; and developed contingency and escalation to determine total installed costs for the projects. Upon completion of the estimate he has developed the basis-of-estimate to document all pricing and quality information, all assumptions made and any exclusions and/or exceptions.

He has been responsible for establishing the estimate format, obtained pricing data from subcontractors and visited jobsites to determine estimate requirements and obtain prevailing labor rates.

**Partial Listing of Experience**

- o Washington Metropolitan Transit Authority in Washington, D.C.
- o National Supply Company, Armco Tubular Division, Ambridge, PA.
- o U.S. Steel Corporation, Fairfield, Alabama
- o USS Chemical, Pittsburgh, Pennsylvania
- o Taylor Forge and Pipe, Pittsburgh, Pennsylvania
- o R&S Construction, Corapolis, Pennsylvania

**NAME:** GEORGE L. ULMER  
**PROJECT POSITION:** Manager, Cost Control  
**EDUCATION:** o B.S. Mechanical Engineering  
University of Toledo

**SPECIFIC QUALIFICATIONS:**

Mr. Ulmer has thirty-seven years of experience in petrochemical and industrial facilities. As Senior Cost Engineer, Mr. Ulmer has been responsible for setting up and operating sophisticated, computerized cost control systems. Tailored to specific project reporting requirements. He is responsible for transforming project estimates into meaningful project budgets according to Procon's universal cost coding system.

Mr. Ulmer, along with his staff, provide up-to-date reports on the project's status and red flag areas of concern for management. Forecasting costs to complete various elements of an ongoing project are an essential part of Mr. Ulmer's job as are budget revisions and control of project extras.

His background includes service on a variety of project types. Prior to becoming the Principal Cost Engineer for Procon, Mr. Ulmer held positions of responsibility including Project Manager, Operations Manager and Project Engineer.

**Partial Listing of Experience**

- o Refinery Expansion at Beacon Oil Company, Hanford, California
- o Refinery Modernization at Newhall Refinery, Newhall, California
- o Coke Calciner Project at Union Chemicals, Lemont, Illinois
- o Jeddah Seawater Conversion Unit for Fluid Systems Division of UOP Inc., Jeddah, Saudi Arabia
- o Fertilizer Plant for Planters Products, Inc., Manila, Philippines
- o Goodyear Tire Plant, Akron and Kansas City
- o Union Electric Co., Crystal City, Missouri, Fossil Fuel Power Plant
- o Mead Paper Co., Macon, Georgia
- o U.S. Steel Plant, Pittsburgh, Pennsylvania
- o Allied Chemical & Dye Co., Danville, Illinois
- o Campbell Soup Co., Napoleon, Ohio

**PROFESSIONAL AFFILIATIONS:** Registered Mechanical Engineer, California  
Contractors License, Class A, California



**NAME:** MARK A. SPANGRUD

**PROJECT POSITION:** Senior Project Scheduler

**EDUCATION:**

- o A.A. Architecture, Fullerton College
- o B.S. Construction Management, California State University

**SPECIFIC QUALIFICATIONS:**

Mr. Spangrud has more than six years of varied planning and scheduling experience in a wide variety of major facilities. His specific duties and responsibilities have included master planning, critical path scheduling (CPM) manpower forecasting, progress reporting and financial studies.

He has an extensive working knowledge of Procon's computerized scheduling and resource allocation program, PROJACS. He has experience in modifying this program to meet specific client requirements.

Mr. Spangrud has been assigned to numerous Procon projects as Senior Project Scheduler heading Information Systems plans. These assignments have included the responsibility of analyzing projects and breaking them down to manageably scheduled units, consistent with the requirements of the client and acceptable construction practices. In nearly every case, the scheduling sequences have had to take into account the ongoing activities of adjacent industries and public business.

**Partial Listing of Experience**

- o Copper-Clad Laminating Facility, Norplex Division, of UOP in Chandler, Arizona
- o Coke Calciner Project, M.C. Carbon in Wilmington, California
- o Refinery Expansion for Beacon Oil Company in Hanford, California
- o Refinery Modernization, Exxon Inc. in Benicia, California
- o Gas Compression and NGL Facilities Oil Service Company of Iran in Ahwaz, Iran
- o Refinery Modernization for Newhall Refining Company in Newhall, California
- o Desalination Plant for Saline Water Commission, Umm Lujj, Saudi Arabia

SECTION V

## PROJECT ORGANIZATION AND MANAGEMENT PLAN

The successful completion of a subcontract will depend on project organization, management and staffing. Our approach to these key elements is described in this section.

### Project Organization

To ensure effective project communication and coordination we propose a project team that will operate as a task force. Our team will be physically located in one area in our offices in El Monte. The offices are in the seven-story Procon building alongside the San Bernardino Freeway about one mile west of the SCR TD El Monte yard.

By having the project team together including the mechanical staff of our Minority Business Enterprise the most efficient transfer of information plans and drawings will be assured.

Our operational strengths are based on time proven standard procedures to ensure efficient management of projects. The successful results of our dedication to budgets and schedules is a matter of record and a verification of our past performance with our former clients is most welcome. Our clients have frequently requested our engineering services again in expansion of their facilities or in new facilities design and/or construction indicating to us our previous performance.

Our proposed team consists of engineers experienced in project management, cost control, scheduling, estimating; cut and cover structural subway design and analysis; tunnel structural design and analysis; heating, ventilating and air conditioning; plumbing and electrical design. Our architect has experience in industrial design for airport terminals and other facilities where a mass of people move through a structure in a fractional time period.

Although we have not shown a construction adviser his services are available as needed from our current staff.

To insure that our project team is organized to fulfill all requirements of the subcontract in an exemplary manner we have an advisory panel of three men with extensive experience in transit design and/or project management as members. Mr. Gray S. Rind is General Manager of Swindell Rust. Mr. Michael Lemesh is the project manager of the Light Rail Transit Project in Pittsburgh that is in the finishing contract stage and Mr. Ernest E. Shaffer is Director of Projects at Procon and has an outstanding grasp of progress, efficiency and costs on a project.

The technical responsibility for each discipline is assigned to a lead engineer. These engineers or architect were chosen with great care so that the experience and project technical requirements are a firm match. The project organization chart is shown on an accompanying page.

**SCRTD**  

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**GAEC**

**PROJECT  
MANAGER**  

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**DON JAEGER**

**ADVISORY  
PANEL**  

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**GRAY S. RIND**  
**ERNEST SHAFFER**  
**MIKE LEMESH**

**PROJECT CONTROL  
&  
REPORTING**  

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**COST**  

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**GEORGE ULMER**  

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**SCHEDULING**  

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**MARK SPANGRUO**

**PROJECT  
ENGINEER**  

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**GERALD PITZER**

**STRUCTURAL  
ENGINEER**  

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**RAMON MORALES**

**CIVIL  
ENGINEER**  

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**K. KRIPANARAYANAN**

**ARCHITECT**  

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**MARGO HEYMANN-WBE**

**MECHANICAL  
ENGINEER**  

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**WILLIAM YANG-MBE**

**ELECTRICAL  
ENGINEER**  

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**RICHARD BROWN**

**ESTIMATING**  

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**MAX RITTER**

**STRUCTURAL  
CONSTRUCTION  
ENGINEER**  

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**RAMESH SHAH**

**SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT  
ORGANIZATION CHART  
for  
METRO RAIL CONTINUING PRELIMINARY ENGINEERING**

**PROCON/SWINOELL  
MARCH 1983**

## Project Management

The project team will have as Project Manager Mr. Don Jaeger and as Project Engineer Mr. Gerald Pitzer, Mr. Jaeger will have primary responsibility for this project and will direct and control all project activities. He will maintain full-time supervision over the entire project and will exercise overall responsibility for its cost, schedule and technical quality. The clear cut lines of responsibility and authority will provide the means for quick and direct action to accommodate the project needs.

Mr. Pitzer as Project Engineer is primarily concerned with the technical quality and progress of the project and will be fully cognizant of all the daily progress of the lead engineers' work and that of the team staff members.

Direct communication between the project manager, project engineer, lead engineers and the team members will cross technical discipline boundaries and provide a project team functioning as a well integrated unit.

The Advisory Panel will conduct in depth periodic reviews of the project status and planned progress with the Project Manager and his team.

On all projects, Procon's top management carries out monthly project meetings. At this time the Project Manager reports on his progress, milestones, costs, any problems, key forthcoming items and staffing.

As Chairman of the Advisory Panel, Mr. Shaffer will also be the Executive Sponsor for the RTD project. He will be available as the member of top management that can be contacted by the RTD or the GAEC.

## Project Staff

The technical capability and team spirit of our lead engineers are very important to the project and therefore are chosen so that the engineer's experience and project technical requirements are a firm match. With this in mind we selected the mechanical lead engineer and architect. After several personal interviews a Minority Business Enterprise firm's principal was chosen as the mechanical lead engineer and the Women's Business Enterprise requirement was fulfilled by our architect.

Our associate organization Swindell Rust has placed four members in key positions, two members of the three on the Advisory Panel, the Project Engineer and the Estimator. Several additional experienced engineers with transit experience from Swindell Rust have been planned for the technical team members.

The project work will be performed in the Los Angeles Operations office located in El Monte alongside the San Bernardino Freeway about 20 minutes from the SCRTD office on Fourth Street. The M.B.E. staff members will be located in these offices for coherence and ease of flow of information which will save many project manhours.

Since the architectural design is to the 30% point, a portion of the architect's work may be carried out in her office in Santa Monica about 35 minutes from the Los Angeles Operations office, however, an architect from her firm will be in this office.

All of the lead engineers in each of the technical disciplines are professional registered engineers in the State of California including the MBE mechanical lead engineer and the WBE architect, an A.I.A. member.

The staff required for the execution of the project will be from 20% to 30% of the current Los Angeles staff of 130. In addition there are experienced engineers and designers on leave of absence if the current staff requirements increased beyond the predicted range.

#### Qualifications of the Proposed Team

The key team members will be dedicated to the project and will be on the assignment full time from the initiation of their work until completion.

The key members are the Project Manager, Project Engineer, Lead Structural Engineer, Lead Structural Construction Engineer, Lead Civil Engineer, Lead Mechanical Engineer, Lead Architect, and Lead Electrical Engineer. In any project the staffing follows a project workload therefore a skewed manpower load curve is planned as the work is at the 30% preliminary engineering point and a rapid buildup is planned. Our current staff availability will meet this buildup rate if we are selected for a subcontract. We do take pride in being in a highly competitive posture and frequently bid fixed price; therefore the manpower assigned to a project must be productive.

The members of the Project Reporting and Control Group that includes the Cost Engineer and the Scheduler will be parttime since they can accomplish their work in a portion of the work week.

The Estimator and his staff will base his costs on station and tunnel work previously constructed by our associate for the Washington Metro. He will be full time on the project for about the last few months so that the  $\pm 10\%$  estimate will be ready upon 85% completion of the design.

#### Functions and Responsibilities of Lead Engineers

Lead Discipline Engineers. Lead discipline engineers will have the following general functions and responsibilities.

- a. Be a key technical engineer for his discipline.
- b. Develop the basis of design and discuss with the Discipline Manager.
- c. Prepare drawings and specifications list.
- d. Review and check calculations prepared by engineers.
- e. Monitor drawing production.
- f. Write specifications.
- g. Work with Project Manager in maintaining schedules and in participating in discussions with GAEC.
- h. Report to Project Manager and Discipline Manager on personnel needs and on personnel performance.
- i. Insure that all drawings are properly checked.

Specific responsibilities of Lead Engineers are as follows:

1. Lead Structural Engineer. This person will be a registered Structural Engineer who will be responsible for all structural design of tunnels, stations, and traction power substations. He will coordinate structural systems with proposed construction systems and will develop criteria that will be used on the basis of structural design for all permanent construction
2. Lead Structural Construction Engineer. The person selected for this position will be a registered Structural Engineer who has had experience in structural design of construction shafts for deep excavations, tie-back systems, and kick devices for boring moles. He will report to the lead structural engineer. He will also perform, or cause to be performed, structural design of construction shafts, tie-back systems, and kick devices for boring moles in sufficient detail to permit a controlling cost estimate to be made.
3. Lead Civil Engineer. This person will be a registered Civil Engineer who will identify and obtain all data of existing underground construction and utilities in the path of construction. This will include building foundations, telephone and power ducts or tunnels, water and gas lines, sewer and storm drains, water table and soils data. He will be responsible for identifying all these obstructions, and necessary permanent or temporary routing, on construction drawings. He will also be responsible for grading and surface drainage, tunnel alignments (horizontal and vertical), and curves.
4. Lead Mechanical Engineer. This work is being subcontracted to an MBE registered Mechanical Engineer. This person will be responsible for all Heating, Ventilation and Air Conditioning, plumbing and underground drainage systems and fire protection system, for stations, substations and tunnels.
5. Lead Architect. This work is being subcontracted to a WBE registered Architect. This person will be responsible for finalizing all architectural and landscaping design from the 30% to the 100% stage of completion.
6. Lead Electrical Engineer. This person will be a registered Electrical Engineer who will be responsible for all lighting and power requirements for mechanical and track equipment at stations and tunnels. Any instrumentation required for mechanical systems or subsystems will also be under his jurisdiction.
7. Estimator. He will be responsible for developing the cost estimate at the 85% design completion point to an accuracy of +10%. His estimation will be based on the previous construction at Washington Metro station and tunnel constructed by Swindell Rust. Of particular significance to the construction cost is the estimation of the preparation for the cut and cover work that includes piling, tie backs, excavation and the cover installation. These costs will be included in the estimate.

## Submittals

Milestone submittals will contain the following, as a minimum and would vary as requested by this GAEC. These submittals are shown and would depend on the subcontract award.

- A. 50% Submittal. This submittal will include the basis of design, design approach, construction materials and methods, equipment selection, finishes, progress drawings, and a narrative description of Procon's reasons for selection of materials and construction system alternatives.
- B. 85% Submittal. Drawings will be complete enough for developing a controlling cost estimate within +10%. Calculations and specifications will be at the 100% stage of completion. Support structures and foundations for all track and traction power equipment will be complete. Definitive designs of temporary construction shafts, tie-backs and rigging devices will have been completed in sufficient detail to develop a construction cost estimate. Details of interfaces amongst architectural, structural, mechanical and electrical equipment and materials will be completed after this submittal.

## Approach to the Project

Upon receipt from the GAEC of the detailed statement of work we will prepare a technical and cost proposal, including an engineering schedule and will submit it to the GAEC. This proposal will include a detailed, step by step, technical approach to the project.

All key team members identified in this response to the RFIQ will be part of this proposal.

We expect that contract negotiations could be satisfactorily concluded in a brief time frame.

## Project Control & Reporting

For performance measurement purposes, data elements are generated for use by the Project Manager. A number of these would be contained in the monthly progress reports to the subcontract manager of the GAEC and to the SCRTD.

## Scheduling

At the beginning of the project scheduling, a front end schedule is generated. This insures control over the timing of critical, early activities while a detailed engineering schedule is being prepared.

In support of the detailed engineering schedules a computerized Engineering Project Index will be generated for each product line. The Engineering Project Index is a document list identifying, by engineering discipline, the drawings, specifications and support activities required to execute the project. Each document is identified by its respective drawing/specification number, description, weighted value and planned start and finish



dates. The time frames for the drawings and specifications listed in the Engineering Project Index are in support of the schedule requirements indicated in the detailed Engineering Schedule. The responsible lead engineer evaluates the progress of each item on the document list on a two week cycle and reports this information to the project scheduler who updates the report. The computer calculates an earned value for each drawing based upon the weighted values and the percentage of physical completion and summarized progress to the following levels:

- Engineering Discipline at the Unit Level
- Engineering Discipline at the Project Level
- Unit
- Project

### Cost Control

The cost engineering reports can be extensive and thorough. The cost of a project is continually monitored with the actual costs. These are compared with the schedule using the cost estimate and a continual update is maintained. Examples of the cost reporting that can be and have been used on projects are:

1. Summary cost by unit and class for all cost codes.
2. Project manhour report summary.
3. Contract cost control.

The engineering cost reporting portion of the Procon Projacs system will be used for this project. The extent of the cost reporting required for the project will be coordinated with the subcontract manager of the GAEC at project award and only those segments of the computer program requested will be used. The Projacs system can provide any cost reporting that has been requested by any of our many clients. The cost reporting system can track direct cost for the activities then summarize these costs by directional subdivisions of the project and spread them over appropriate time periods. These include:

- o PROJECT COST REPORT - Shows the direct costs for the total project with respect to time.
- o ORGANIZATION COST REPORT - Shows the direct, overhead, and total costs as well as budgets with respect to time for various criteria such as technical discipline, type of work, etc.
- o ACTIVITY COST REPORT - Shows the activity direct costs and their subtotals and totals.

### Monthly Report

A monthly activity report for the project showing the progress during the past month will be prepared. This report will describe past milestone event and forthcoming events and contain the schedule and cost control reporting that our standard as well as any additional data requested by the GAEC.

Manhours spent to date for each engineering activity are automatically extracted from the manhour reporting system and merged into the Engineering Project Index for easy comparison against weighted values.

To facilitate the information to the GAEC management about a project on a quick look basis, but very fundamental in the conveying of progress is the Progress Curve. The curve shows the planned progress plotted against time and percent complete. The actual progress is the second plot showing at a glance the project status.

Resources usage plot are produced in the same manner as the progress curves, indicating the staffing requirements necessary to meet the schedule and maintain planned progress. Actual manpower levels are overlayed on these plots and future manpower levels forecasted to meet schedule requirements based upon productivity to date.

Also to illustrate the currency maintained on a project is the Monday Morning Report. This report is issued weekly and covers the preceding week time charges. This Monday Morning Report is provided on all projects to the project engineer and would be provided to the GAEC.

Procon's Project Analysis and Controls System (PROJACS) will be used for the SCRTD project. The PROJACS System provides complete schedule, progress reporting, and manhour control for engineering and procurement. The extent of cost reporting required for the project will be coordinated with at project award. A brochure on the Projacs system is shown at the end of this section.

### Project Procedures

A Project Procedure Book will be prepared at the outset of the project. This will contain sections of each area required to execute a project. The main headings are:

#### Project Management

- General Information Policy & Objectives
- Key Personnel and Office Locations
- Project Communications
- Project Controls
- Project Organization Charts and Directory
- Project Distribution Charts

#### Engineering

- Design Basis
- Preparation of Drawings
- Numbering of Drawings & Sketches
- Number of Equipment and Instruments
- Model Work
- Vendor Data Identification & Procedures

#### Financial and Accounting

- Procedures
- Billing Procedures

Cost Recording and Reporting  
Code of Accounts

Subcontracting  
Cost and Scheduling

The Project Procedure Book will be coordinated with the GAEC. In the event the GAEC has prepared a portion of the procedures to manage the 14 subcontractors their procedures will be used.

ENGINEERING SUPPORT SERVICES

Graphics Services

The graphics services group provides full support to all projects. Technicians work on the conceptual design and preparation of sketches, layouts, engineering design drawings, and perspectives.

The staff includes specialists who are educated and trained in graphic design, commercial art, photography, and printing.

Engineering Models

Procon has a complete engineering model shop in the Los Angeles Operations Office. Physical models have features that yield proven benefits to our clients. Some of the features and benefits are:

- o Improved design conceptualization and coordination among piping, planning, architectural, construction management, structural, equipment, electrical, and HVAC considerations. This reduces the time required for the initial conceptual phase and allows more efficient allocation of space.
- o Improved communication between the client and engineer during design and review phases. This allows fewer interferences among disciplines, fewer design errors, and fewer change orders.
- o Better construction management through recognition of potential conflicts before they occur. This will reduce costly delays in construction and improve ability to meet schedules.

Standard Specifications Services

To assist project design teams in preparing contract documents for construction, the specifications group provides a computerized library of bidding requirements and technical specifications that conform to the standards of the Construction Specifications Institute.

All updating and editing of the specifications library is conducted under the management of the specifications services director. Also, to ensure that the client's needs are met, the specifications coordinator provides consultation and performs prebid review of contract documents.

## Project Computer Resources

The Procon computer operates as a Remote Batch Job Entry Terminal linked to the computer hardware at the UOP Corporate Data Center. The UOP Data Center supports both the remote batch job entry terminal and the remote access TSO Display Stations.

The hardware system consists of an IBM System/370 Model 3033 processor sharing 12 megabytes of real storage and a collection of peripheral devices, including IBM 3330 Model 11 and 3350 disk units and IBM 3420 magnetic tape drives. Basic system control programming is the MVS (Multiple Virtual Storage) operating system OS/VS2 MVS/SPI (Release SPI) with JES2 (Job Entry Subsystem 2) as the job entry and scheduling program.

Procon has a current library of more than 100 engineering/scientific programs; the large majority were developed by Procon/UOP.

## Document and Technical Library

Procon has an extensive in-house facility where its technical documents, pertinent industry standards, reference directories, and general reference materials are located.

Procon maintains the updated standards of all US professional societies and many other domestic and foreign organizations. All of its general reference materials are categorized in accordance with the international UDS system. Procon also keeps up-to-date fire and building codes applicable to the Los Angeles area.

Procon has easy access to the Research Technical Information Center which provides books, journals, literature searches, microfilm equipment, government and association publications, contacts with the country's leading libraries, and encyclopedias.

## Search Questions

More than 40 different commercial data bases are available for on-line computer searching through the Lockheed's data base and NTIS.

**SECTION VI**

ENCLOSURE 16  
CONTRACT PREFERENCE LIST

<u>PHASE I</u>	<u>CONTRACT</u>	Phase I Numerical Preference
A-140	Tunnel segment between Union Station & 7th/ Flower Station, including Civic Center & 5th/Hill Stations	4
A-165	7th/Flower Station	2
A-170	Tunnel segment from 7th/Flower to Wilshire/Vermont, including the Station at Wilshire/Alvarado	1
A-195	Wilshire/Vermont Station	3
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<u>PHASE II</u>	<u>CONTRACT</u>	Phase II Numerical Preference
A-220	Tunnel segment between Wilshire/Vermont & Wilshire/La Brea, including the Wilshire/ Normandie & Wilshire/Western Stations.	2
A-245	Wilshire/La Brea Station and Pocket Track	4
A-250	Tunnel segment from Wilshire/La Brea to Fairfax/Beverly, including the Wilshire/ Fairfax Station	3
A-275	Fairfax/Beverly Station	7
A-310	Tunnel segment from Fairfax/Beverly to Hollywood/Cahuenga, including the Fairfax/ Santa Monica & La Brea/Sunset Stations	1
A-350	Hollywood/Cahuenga Station and Pocket Track	5
A-410	Tunnel segment from Hollywood/Cahuenga to Universal City Station	
A-425	Universal City Station	6
A-430	Tunnel segment between Universal City Station & North Hollywood Station	
A-445	North Hollywood Station & End Line Storage Track	8

NOTE: Contract A-100, Central Yards and Shops is to be awarded to DMJM/PBQ&D and Contract A-135, Union Station is to be awarded to Harry Weese & Associates.



## MBE & WBE COMMITMENT DATA

The MBE and WBE participation in our planned project team is a meaningful effort, is necessary, and serves a commercially useful effort. As shown on the organization chart the MBE and WBE have full responsibility for design of two important areas and are full members of the project team as lead engineers and therefore are an integral part of the effort. The MBE is responsible for the mechanical engineering that includes HVAC, plumbing and fire protection. Since the MBE is very important in the design effort, the MBE will be located in our offices in El Monte rather than their usual offices in Burbank. This joining of offices will enhance communications, avoid time delays and save a considerable number of manhours over the project schedule.

We consider the heating ventilating and air conditioning together with the plumbing and fire protection to be major areas and more than fulfill the minimum requirements of 17% of the work assigned to the MBE. Depending on the design unit assigned by the RTD to our company, and if selected, we anticipate this mechanical area to be about 21% of the work.

As in the case of the MBE we are equally pleased to have a WBE as the architect on the project. She will have full responsibility for the architectural design and any landscaping. We estimate that she will perform about 6% of the work, again it is a function of the design unit that is assigned.

With the MBE and as part of the team she will attend our weekly project meetings. An architect from her staff will work in El Monte with a portion of the work performed in Santa Monica.

We selected these two business enterprises some weeks ago and have verified their professional credentials and qualifications with former clients. Both have received excellent references. Both have participated in the preparation of this RFIQ.

Both the MBE and WBE have sufficient skilled staff to perform the work that is planned. Mr. William Yang has a staff of about 15 and Margo Hebal-Heymann has a staff of about 4. We are looking forward to their participation on this project.

Their letters of acceptance as members of the project team follow.





WILLIAM J. YANG & ASSOCIATES  
Consulting Engineers

847 NORTH HOLLYWOOD WAY • SUITE 201 • BURBANK, CALIFORNIA 91505 • (213) 849-5514

March 8th, 1983

Procon International Inc.  
Los Angeles Operations  
9650 Flair Drive  
El Monte, CA 91731

Attn: H.K. Schoedl  
Vice President and General Manager

RE: SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT  
METRO RAIL CONTINUING  
PRELIMINARY ENGINEERING  
PROCON PROPOSAL NO. 5-4376

Dear Sirs:

We are proud and pleased that you have chosen our firm to become a part of your team in providing engineering consulting services for the above referenced project for the Southern California Rapid Transit District. Our professional services include those of heating, ventilating, air conditioning, plumbing and fire protection.

Our firm is certified as an M.B.E. We are eagerly looking forward to working with you and your company on this project if we are selected by the Southern California Rapid Transit District.

Very truly yours,

WILLIAM J. YANG & ASSOCIATES

William J. Yang, P.E.

WJY:iv

1320a Santa Monica Mall  
Santa Monica, California 90401  
Suite 201  
213/394 7836

**Margo Hebald-Heymann, AIA & Associates, Architects**



Architecture  
Planning  
Interiors

7 MARCH 83

Mr. Don Jaeger  
Project Manager  
PROCON International, Inc.  
9650 Flair Drive  
El Monte, CA 91731

Dear Mr. Jaeger:

This letter is to confirm our agreement that the firm of Margo Hebald-Heymann, AIA & Associates will be responsible for all Architectural services, including landscape architecture as may be required, for all Metro Rail work awarded to our team by the RTD. Terms of this agreement are to be negotiated.

Sincerely,

Margo Hebald-Heymann, AIA  
President

MHH:sc  
Enclosure



ACCEPTANCE OF THE TERMS OF THE SUBCONTRACT

As requested in the February 28 meeting by Dr. Dyer, Procon has reviewed the subcontract and has provided the comments contained in the following paragraphs.

We consider that these relatively minor suggestions are for clarification and that we can agree to the subcontract terms with a minimum of discussion.

- o Referring to Article 5. of the draft contract entitled "Term, Schedule, Design Approvals, Work Authorizations and Excusable Delays", sub-Article 5.3.2, Article 4 and the last sentence will require clarification.
- o We would suggest that the following clauses be added to the contract:
  - No consequential damages
  - Disclaimer of implied warranties