

UNDERGROUND FEASIBILITY STUDY PHASE I

Town of South Padre Island, Texas

January 2006



R. W. BECK SOUTH PADRE ISLAND UNDERGROUND FEASIBILITY PHASE I

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This report has been prepared for the use of the client for the specific purposes identified in the report. The conclusions, observations and recommendations contained herein attributed to R. W. Beck, Inc. (R. W. Beck) constitute the opinions of R. W. Beck. To the extent that statements, information and opinions provided by the client or others have been used in the preparation of this report, R. W. Beck has relied upon the same to be accurate, and for which no assurances are intended and no representations or warranties are made. R. W. Beck makes no certification and gives no assurances except as explicitly set forth in this report.

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Introduction

South Padre Island, Texas (SPI) retained R. W. Beck, Inc. (R. W. Beck) to evaluate the cost and feasibility of installing the electric utilities on Padre Boulevard from Harbor Street to the alley between Swordfish Street and Whiting Street underground. This approximately one mile section of Texas State highway is being redesigned to incorporate medians and sidewalks and improve the safety and aesthetics of the entryway to the island. SPI is interested in removing the overhead power lines and poles on both sides of the highway to complete the desired effect. SPI requested the cost estimate and feasibility report by January 2006 so that underground electric utility designs can be incorporated with the highway design before construction commences next fall.

The existing overhead power lines are owned and operated by American Electric Power (AEP) and are located on public Right-Of-Way (ROW). AEP provided a map of the existing facilities dated October 9, 2002. The cost estimates provided in this report are based on the data provided in the 2002 map.

On May 3, 2005, AEP provided a cost estimate of \$1,025,278 to relocate the overhead power lines and poles on the east side of Padre Boulevard to Gulf Boulevard. The proposed relocation would result in overhead power lines and poles on both sides of Gulf Boulevard from Harbor Street to the alley between Swordfish Street and Whiting Street. The cost estimate does not include the cost to install new street lights and flood lights to replace the ones removed; the cost to cut, trim or relocate any trees or plants; the cost to remove, install or relocate any power pole attachments (telephone, cable, etc.); or the cost to relocate the transmission lines, poles or overhead equipment on the west side of Padre Boulevard. The AEP cost estimate and related drawings are included in Exhibit 1.

In 1988, Central Power & Light Company provided an estimate to convert overhead distribution on SPI to underground based on representative sections of S. Padre Blvd. and Gulf Blvd. The estimate of \$1.2 million/mile for the main feeder circuits and \$0.8 million/mile for branch feeder circuits is included in Exhibit 2. The R. W. Beck cost estimate in Exhibit 3 includes a comparison to the 1988 estimate inflated to today's dollars.

Underground vs. Overhead

In addition to improving aesthetics, SPI is interested in placing the power lines underground to reduce the number of power outages due to wind and storms. A 2004 study performed by the Edison Electric Institute (EEI) on the costs and benefits of undergrounding overhead power lines titled "Out of Sight, Out of Mind?" summarizes that "underground power lines do result in fewer overall power outages, but the

duration of power outages on underground systems tends to be **longer** than for overhead systems.”¹

“Data [from electric systems around the world] show that the **frequency** of power outages on underground systems is only about **one-third** of that of overhead systems.”² UK utilities report that “over the 10-year period, the duration of outages for underground systems was about half of what it was for overhead systems”³, although in some years underground system outage durations were higher than overhead system outages.

The Maryland Public Service Commission concluded in a 2000 Maryland Overhead vs. Underground Feeder Reliability Comparison “that the impact of undergrounding on reliability was ‘unclear’”⁴ and Baltimore Gas & Electric Co. reported over 100 underground cable faults during Hurricane Isabel; however, over half of the 1.7 million Isabel outages were tree-related. “The final report did note that undergrounding facilities reduces their exposure to outages caused by storms, except when there is widespread flooding on underground conduits.”⁵

The North Carolina Utilities Commission produced “The Feasibility of Placing Electric Distribution Facilities Underground” in 2003 which indicated “an underground system suffers only about half the number of outages of an overhead system, but those outages take almost 1.6 times longer to repair. Based on this data, Duke Power has concluded, ‘underground distribution lines will improve the potential for reduced outage interruption during normal weather and limit the extent of damage to the electrical distribution system from severe weather-related storms. However, once an interruption has occurred, underground outages normally take significantly longer to repair than a similar overhead outage.’”⁶

The EEI report summarizes additional concerns about underground distribution, such as:

- “Water and moisture infiltration can cause significant failures in underground systems when the facilities are flooded, as often happens in hurricanes.
- Due to cost or technical considerations, it is unlikely that 100% of the circuit from the substation to the customer can be placed entirely underground. This leaves the circuit vulnerable to the same types of events that impact other overhead lines, e.g. high winds and ice storms.”⁷

The EEI report also points out the benefits of undergrounding, such as:

- “Reduced motor-vehicle accidents caused by collisions with poles

¹ “Out of Sight, Out of Mind?” Edison Electric Institute, January 2004; page 5.

² “Out of Sight, Out of Mind?” Edison Electric Institute, January 2004; page 6.

³ “Out of Sight, Out of Mind?” Edison Electric Institute, January 2004; page 7.

⁴ “Out of Sight, Out of Mind?” Edison Electric Institute, January 2004; page 8.

⁵ “A Review of Electric Utility Undergrounding Policies and Practices” Navigant Consulting, March 8, 2005: page 26.

⁶ “Out of Sight, Out of Mind?” Edison Electric Institute, January 2004; page 9.

⁷ “Out of Sight, Out of Mind?” Edison Electric Institute, January 2004; page 10.

- Reduced losses caused by electricity outages
- Reduced network maintenance costs
- Reduced tree-pruning costs
- Increased property values”⁸

The reliability effects of underground outage durations can be somewhat addressed by the design of the underground system. Loop feeds with proper sectionalization and fault indicators can reduce the time required to locate a fault or problem and limit the number of customers affected. AEP requires underground cable to be installed in concrete-encased conduits as opposed to direct-buried, which should allow for faster replacement of damaged cable. While these design features add to the underground costs, they will improve reliability standards.

Conclusion

The conclusion reached by most utilities and communities is that conversion of overhead electric facilities to underground cannot be justified economically or by reliability improvements but is motivated by aesthetic improvements. Frequency of outages is typically reduced, but duration may increase. Underground systems fare better under windy conditions but are more susceptible during flooding conditions. It is up to each utility and community to weigh these pros and cons and determine what is best for their service area.

Underground Alternatives

After meetings and discussions with SPI and AEP staff, as well as representatives from TDOT, it was determined that placing the electric utilities underground on the section of Padre Boulevard from Harbor Street to the alley between Swordfish Street and Whiting Street is not a viable option. TDOT was reluctant to allow facilities in the median, and AEP would require SPI to acquire private easements along the highway, which would be difficult if not impossible to obtain.

Alternate underground routes were discussed to locate the overhead facilities on this section of Padre Boulevard to an underground route on either Gulf Boulevard or Laguna Drive. Most of the services on this section of the Padre Boulevard overhead distribution circuit are on the east side of the street; therefore relocating the distribution line east to Gulf Boulevard eliminates the need for branch circuits across Padre Blvd. or the transfer of load from the Padre Boulevard to the Gulf. As the distribution circuit on Padre Boulevard is relocated to Gulf Boulevard, the new underground facilities can be built to accommodate the existing Gulf Boulevard distribution circuit as well. Both AEP and R. W. Beck agreed to provide a cost estimate for relocating the overhead lines including a conduit system that would

⁸ “Out of Sight, Out of Mind?” Edison Electric Institute, January 2004; page 11.

accommodate eventual undergrounding of the existing overhead lines already on Gulf Boulevard.

The transmission line on the west side of Padre Boulevard can be relocated west to Laguna Boulevard, again avoiding crossings of Padre Boulevard. As the distribution circuit on Padre Boulevard is relocated to Laguna Drive, the new underground facilities can be built to accommodate the existing Laguna drive distribution circuit as well. The estimates in this report are based on typical industry standards since details of AEP construction standards have not been provided.

The cost estimates are based on the following:

- Main feeder circuits will be designed for 600 Amp capacity.
- 2-1000 MCM Aluminum conductors per phase
- Main feeder route will consist of concrete encased duct banks.
- Sectionalizing cabinets with junction points will be utilized at tap points.
- PMH style switchgear will be used at potential switching points.
- Branch circuits will be based on 200 Amp capacity.
- Branch circuits will be installed in conduits but not encased in concrete.
- The existing overhead line along Gulf Boulevard will be relocated to the new underground duct bank.
- Due to the nature of the island environment, the main feeder may require additional reinforcing to satisfy AEP requirements; however, AEP will need to approve a design study to identify the extent of the reinforcement. An allowance will be identified to capture the cost impact on the work.
- Due to the level of detail needed to accurately identify the cost of the work needed to convert the electrical services to each customer to underground, the cost will be separated but will only be based on a high level estimate of the number of services involved.
- All single phase transformers were estimated at 50 KVA.
- All three phase transformers were estimated at 150 KVA.
- Additional cost will be allocated for the lighting requirements of the Padre Boulevard and customer requested lighting.
- Costs include conduits for telecommunication cables, but do not include relocation labor or other equipment needed to underground the cable and telephone facilities.
- Based on AEP's recent estimate, a 27.49% income tax is added to the installation costs. It is assumed this is a pass-through cost of taxes assessed to AEP based on addition of plant.
- Removal of overhead lines is based on the AEP 2005 estimate.
- Cost estimates do not include ROW or construction easement costs.
- The location of the switchgear along Gulf Boulevard is assumed to be along the western edge of the ROW; however, the location could be along the eastern if desired. The cost estimate assumes the double circuit will be located along the same route to allow for a common duct bank.

Summary

The 1988 AEP distribution underground conversion cost estimate inflated to present dollars (54.3%) and applied to the applicable distance of this project is \$4,364,400. It does not include two-phase and single-phase service laterals, customer meter loops or individual services. The results of R. W. Beck's distribution underground conversion cost estimates, which does include allowances for these items, is **\$4,548,900**.

Neither estimate includes customer costs for accommodating underground meter entry or Cable/Telephone company costs. Exhibit 3 includes the detailed cost estimate and a comparison to the 1988 AEP estimate.

For the transmission portion of the work, we offer a typical estimate for this voltage range of \$4.45 million/mile, since the location and the specifics of the requirements are not known at this time. The distance between the subs is approximately 3.2 miles for a total of **\$14.26 million**. The details of the \$18 million cost provided by AEP were not provided with their estimate. Factors such as cable type (submarine cable might be required due to the environment) would influence the cost.

Conceptual sketches of the proposed configuration are shown in Exhibit 4.

Funding Underground Projects

In some states, Public Utilities Commissions have identified underground utility districts or special assessment areas for undergrounding, and customers in those districts pay extra on their monthly electric bills to fund the underground project. In some cases, the electric utility funds a portion of the project. AEP does not have a policy to allow the utility to collect funds for undergrounding through rates or through additional assessments on electric bills.

Cities and government jurisdictions have more flexibility than utilities in funding undergrounding. "For example:

- Charging a flat fee to all property owners within the jurisdiction;
- Create special districts within communities which could be added to monthly utility bills or tax bills;
- Community-financing through their operating budgets and General Obligation Bonds;
- Pooling monies from residents to pay for their own lines, or at least the portion that runs from the pole to their home meters;
- Implementing a small local tax on rooms, meals, liquor and/or retail sales;
- Using economic development, housing and community development, and other creative grant funding from resources such as the State Highway administration, FEMA, and the State General Assemblies; and

- Coordinate the timing and location with State and local infrastructure projects such as road, water, or gas line replacement to save on overall costs.”⁹

SPI initiated a hotel tax several years ago to fund the Padre Boulevard improvements, including relocating the electric utilities. That combined with one or more of the tactics listed above, can continue to be used for funding undergrounding within the city limits.

Recommendations

Total costs for this Phase I (Swordfish to Haas) of undergrounding the electric facilities on South Padre Island are estimated at \$7,923,700 including the transmission line. AEP has agreed to provide its own in-house estimate some time in January. Significant differences in price should be questioned to determine the basis, such as different construction standards, financial or overhead assumptions, etc. R. W. Beck is available to participate in ongoing discussions and negotiations with AEP to explore options and resolve any differences and concerns.

⁹ “A Review of Electric Utility Undergrounding Policies and Practices” Navigant Consulting, March 8, 2005: page 29.

Exhibit 1
AEP 2005 Overhead Estimate

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May 3, 2005

J. David Whitehead, P.E., R.P.S.
Director of Public Work
P.O. Box 3410
4501 Padre Boulevard
South Padre Island, TX 78597

Subject: AEP Overhead Power Line Relocation On Padre Blvd To Gulf Blvd

Dear Mr. Whitehead:

I have completed the estimate for the Town of South Padre Island for the overhead line relocation on Padre Blvd to Gulf Blvd. This estimate is based on the cost to remove the existing 795 AAC 12.5KV overhead line, the street lights, and flood lights on Padre Blvd from Harbor Street to the Alley between Swordfish Street and Whiting Street and the cost to install a new 795 AAC 12.5KV overhead line on Gulf Blvd from Harbor Street to the Alley between Swordfish Street using concrete poles. Attached is copy of our construction sketches to relocate our 12.5kv overhead distribution power line.

This estimate does not include the cost to install new street lights and flood lights to replace the ones removed or the cost to cut, trim, relocate or pay for any other trees or plants. It also does not include the cost to remove, install or relocate any pole attachers (Telephone, Cable, etc.) or any transmission lines.

Please, keep in mind that this is only an estimate and that the Town of South Padre Island will pay the actual cost of the relocation. AEP will collect the estimated cost up front and if the amount collected is over the actual cost we will refund the difference and if the amount collected is under the actual we will collect the additional cost.

Below is the estimated cost:

INSTALLATION COST:

Material Cost	\$ 194,000.00
Labor Cost	\$ 150,000.00
Overhead Cost	\$ 370,000.00
Installation Cost.....	\$ 714,000.00

INCOME TAX

Installation Cost X 27.49 %	\$ 196,278.00
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REMOVAL COST

Labor Cost \$ 35,000.00
Overhead Cost \$ 80,000.00
Removal Cost \$ 115,000.00

TOTAL RELOCATION COST \$ 1,025,278.00

The following requirements must be met before construct can start:

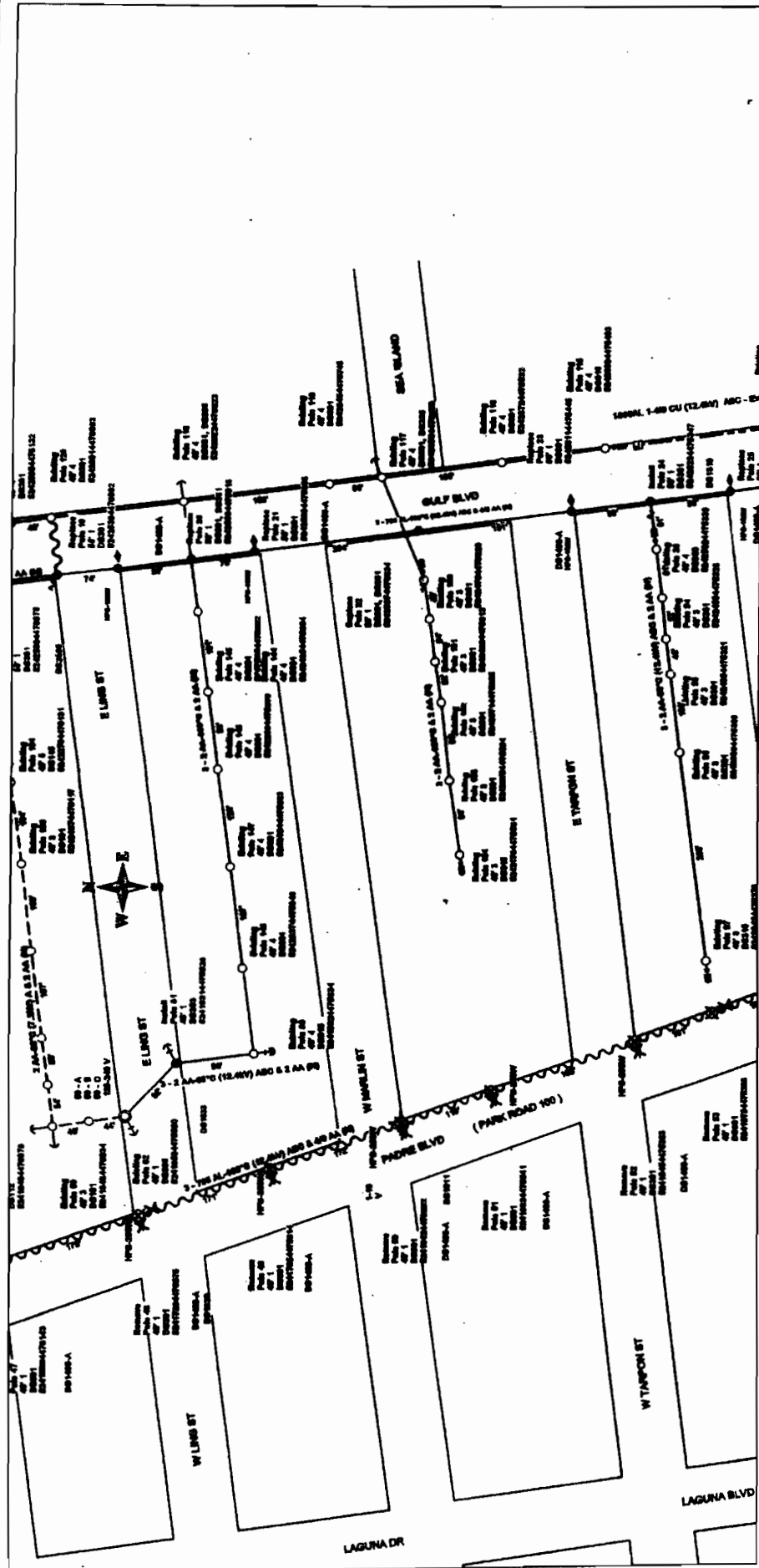
1. The Town of South Padre Island grants or obtains for AEP all necessary easements and right of ways at no cost to AEP.
2. The Town of South Padre Island clears all trees and plants along the entire route of the power line at no cost to AEP.
3. The Town of South Padre Island pays the estimated cost to AEP.
4. Town of South Padre Island notifies all property owners of the relocation before construction starts.

If you have any questions please call me at 361-8815417 or e-mail me at jgamez@aep.com.

Sincerely,

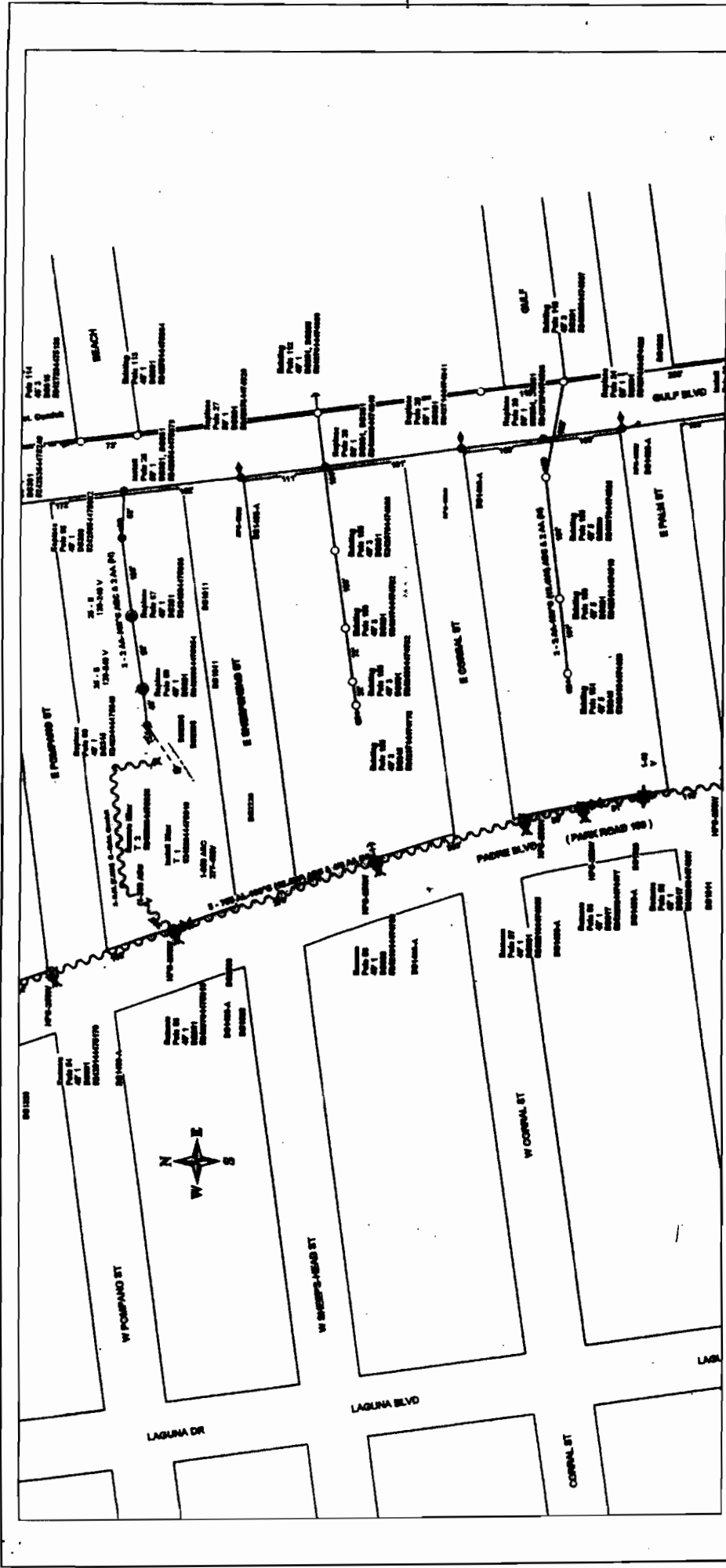

Joe Gamez
Sr. Tech Specialist

American Electric Power
P.O. Box 2121
Corpus Christi, Tx. 78403-2121



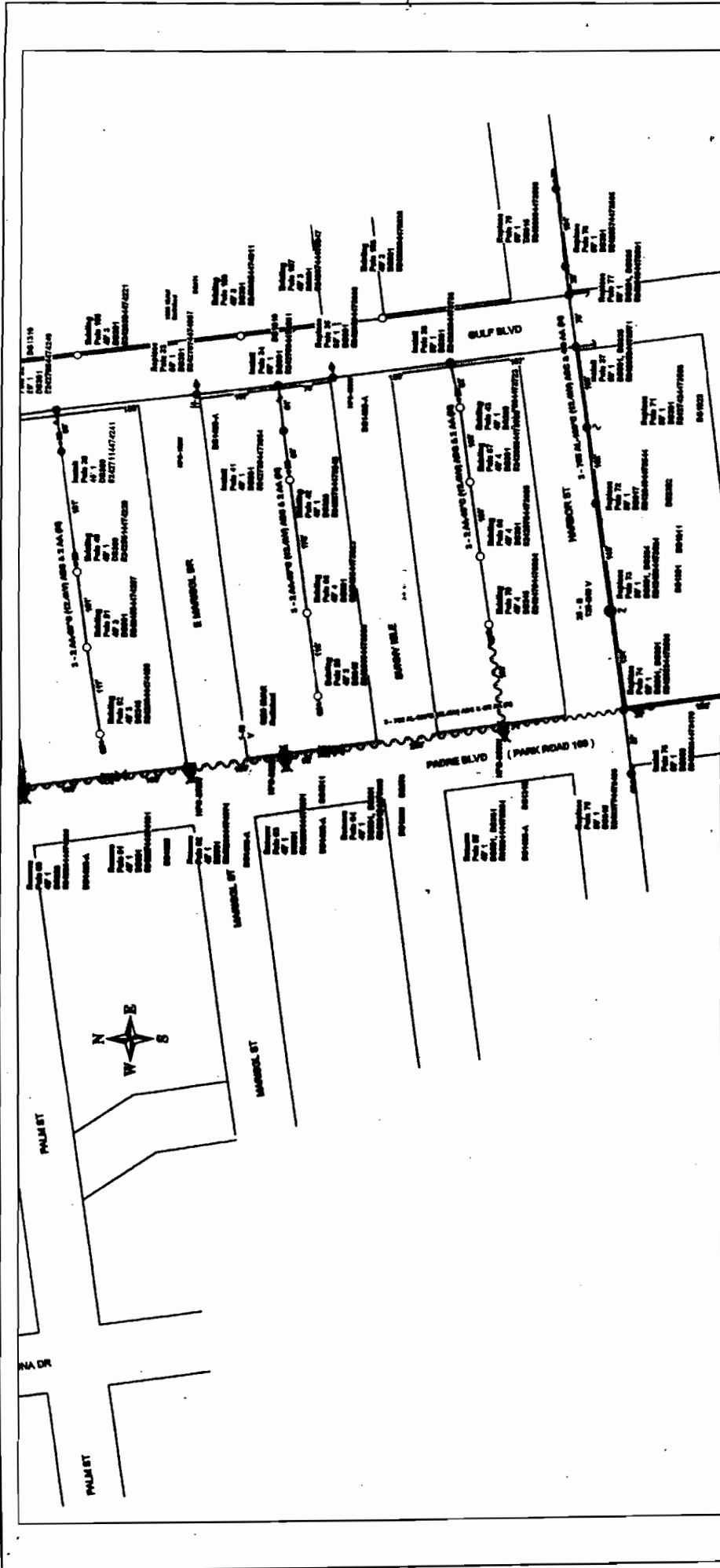
An LD-Pro® Worksketch

Job Name: CITY OF SOUTH PADRE ISLAND		Main Project: 0001/2005	
Location: RELOCATION ON 12" W/F FEEDER ON PADRE BLVD TO GULF ST		Date Required: 12/01/2005	
Client: CP	District: Post Island	City: CAMERON	County: CAMERON
WWR: 700000	MOE: 0001/0013	Station No.:	
Prepared by:		Scale: 1" = 120'	
Checked by:		Drawn by: JOE GARIBAY	
Project No.:		Sheet No.:	
		Map: see page 4 of 4	
		Scale: 1" = 120'	
		Page: 2 of 4	



An LD-Pro® Worksketch

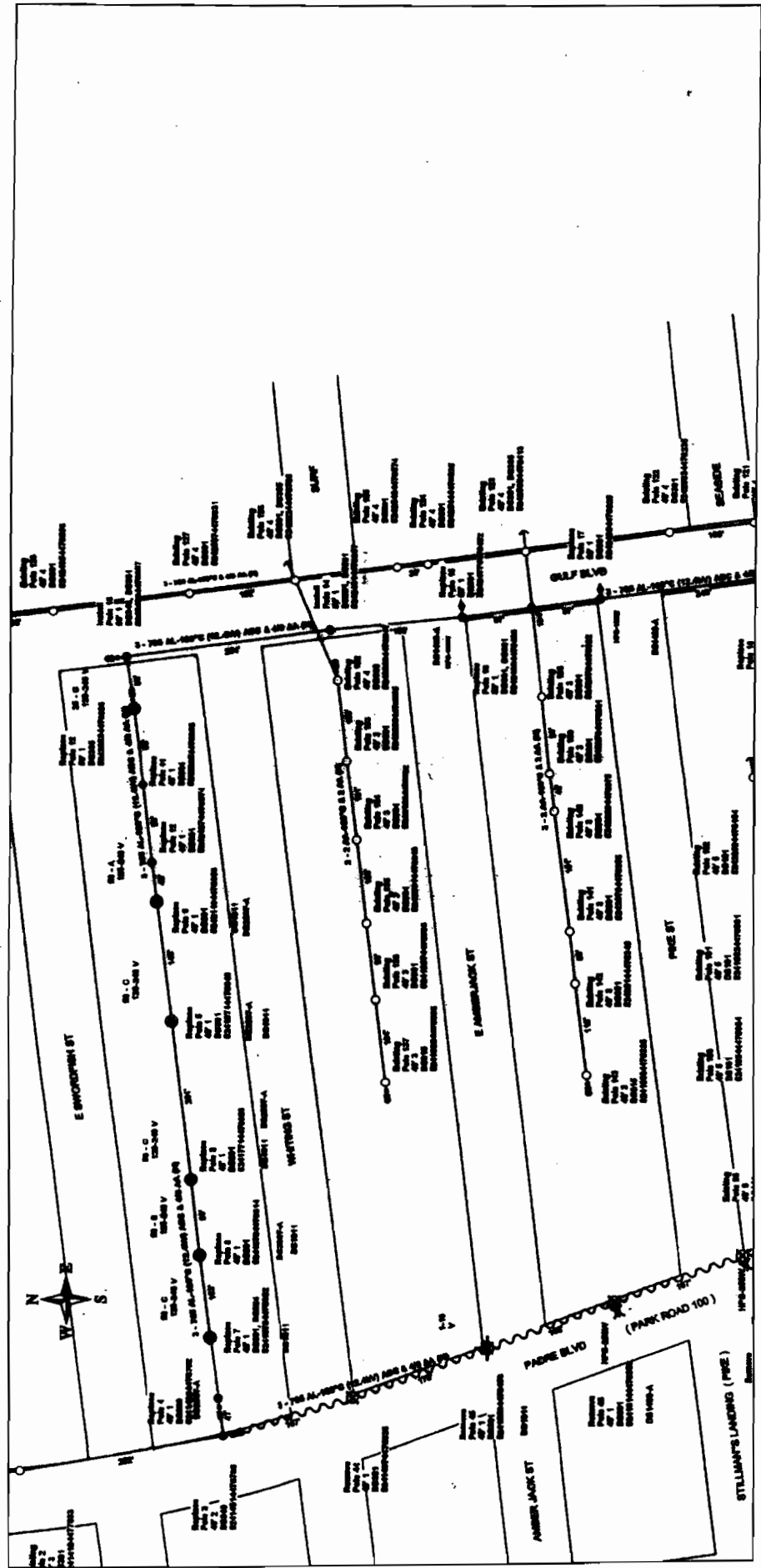
Job Name: CITY OF SOUTH PADRE ISLAND		Scale: Vertical: Y
Location: RELOCATE ON 12.0KV FEEDER ON PADRE BLVD TO GULF ST		Scale: Horizontal: Y
Elevation: CP		County: CAMARON
WWS: 788888	WWS: 808888813	Client No.:
JJ Proprietary:	WWS: 808888813	Scale: 1" = 120'
DATE: 7/2/2009	WWS: 808888813	Page: 3 of 4
Drawn By: JOSE GOMEZ	WWS: 808888813	



An LD-Pro® Worksketch

Job Name: CITY OF SOUTH PADRE ISLAND		Date Requested: 08/04/2008	Sheet Title: Y
Location: RELOCATION ON 12.8KV FIBER ON PADRE BLVD TO GULF ST		Sheet Requested: 12/04/2008	Sheet to Start: Y
Designer: CP	Sheet: Part 1 of 4	4/10/07: N	County: CAMERON
WWS#: 7020000	Sheet: Part 1 of 4		Sheet No.:
AS Preparation:	Sheet: Part 1 of 4		Sheet No.:
PNW:	Sheet: Part 1 of 4		Map: cam_junk1.gif
3,371.78 Min 1st	Sheet: Part 1 of 4		Scale:
	Sheet: Part 1 of 4		Scale: 1" = 120'
	Sheet: Part 1 of 4		Drawn By: SCHEIDT, JOE

#8



An LD-Pro® Worksketch

Job Name: CITY OF SOUTH PALM BEACH
 Location: RELOCATION ON 12.8KV FEEDER ON PALM BLVD TO GULF ST

Division: CP
 District: Port Inland

WOF: DC19070313
 Crew HQ: Hartigan Over 2

WARR: 768309
 JI Preparation(s):

DATE: 7/24/2008
 Scale: 1" = 120'

DATE REVISION: 03/04/2005
 TWEAK TO: 03/04/2005
 4 W07: N
 COUNTY: CAMERON
 SHEET NO.:
 SHEET NO.:

DATE: 03/04/2005
 DRAWN BY: SUMMERS, JOE GARREZ
 CHECKED BY: JAMES J. GARREZ
 SCALE: 1" = 120'
 SHEET NO.: 1 OF 4

Exhibit 2
AEP 1988 Underground Estimate

**ESTIMATE OF SOUTH PADRE ISLAND CONVERSION
FROM OVERHEAD TO UNDERGROUND DISTRIBUTION**

4/7/88

CONTENTS

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Section 3 - Gulf Blvd. Section Detail

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NOTE:

The costs indicated herein are estimates only, and do not constitute an agreement or contract with Central Power & Light Company to provide any of the referred to facilities or services for the costs estimated. Due to the anticipated complexity of this project and the lack of similar projects which might serve as a basis for comparison, no attempt has been made to determine the time period of construction or the variable costs associated with it, such as inflation. No estimate has been made of legal or other expenses to be incurred by the City of South Padre Island in association with the procurement of easements for facilities which must be located on private property. Other factors, such as the difficulty of trenching and constructing concrete encasements in the soil conditions existing on Padre Island, will probably result in costs which exceed those estimated. Actual costs to the City of South Padre Island are to be determined by negotiation with Central Power & Light Company.

SECTION 1

COST SUMMARIES

SOUTH PADRE ISLAND UNDERGROUND CONVERSION

Entire Island Based on Section Estimates

U.G. POLICY APPLIED

MAIN FEEDER CIRCUITS (Based on S.H. 100 Section Estimate)*

6.93 Circuit Miles @ \$ 1,194,570/mile = \$ 8,278,370

BRANCH FEEDER CIRCUITS (Based on Gulf Blvd. Section Estimate)*

4.72 Circuit Miles @ \$ 779,500/mile = \$ 3,679,240

TOTAL CONVERSION COST TO CITY = \$ 11,957,610
=====

* Estimates are based on the cost of converting a representative section of three-phased CPL distribution feeders and do not include the cost of converting two-phase and single-phase service laterals, customer meter loops, or individual customer services. Also not included in these estimates is the cost of obtaining easements for CPL equipment, such as switchgear, which must be placed on private property. City will be responsible for obtaining all easements.

SOUTH PADRE ISLAND UNDERGROUND CONVERSION

S.H. 100 Section

U.G. POLICY APPLIED

INSTALLATION COSTS (Excluding trenching, conduit, & backfill)

Material	\$	189,000
Stores, Freight, & Handling		34,030
Labor		67,420
Labor Loading		31,820
Auto		20,210
Supervision		16,300

	\$	341,950
Cost of Equivalent Overhead (U.G. Policy)		(36,530)

	\$	305,420

REMOVAL COSTS

Cost of Existing Overhead	\$	12,620
Less Depreciation		(4,720)
Labor to Remove		10,820
Salvage Credit		(4,200)

	\$	14,520

TOTAL OF INSTALLATION & REMOVAL COSTS	\$	319,940

COST PER MILE =	\$	982,140

TRENCHING, CONDUIT, BACKFILL, & OTHER COSTS

PVC Conduit	\$	13,500
Trenching (2900' @ \$6/ft)		17,400
Concrete Pads for Switchgear		32,500
Concrete Encasement (@ \$40/yd)		5,800

TOTAL OF OTHER COSTS	\$	69,200

TOTAL ESTIMATED COST	\$	389,140

TOTAL ESTIMATED COST PER MILE =	\$	1,194,570
		=====

SOUTH PADRE ISLAND UNDERGROUND CONVERSION

S.H. 100 Section

U.G. POLICY APPLIED

INSTALLATION COSTS (Excluding trenching, conduit, & backfill)

Material	\$	189,000
Stores, Freight, & Handling		34,030
Labor		67,420
Labor Loading		31,820
Auto		20,210
Supervision		16,300

	\$	341,950
Cost of Equivalent Overhead (U.G. Policy)		(36,530)

	\$	305,420

REMOVAL COSTS

Cost of Existing Overhead	\$	12,620
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Labor to Remove		10,820
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Concrete Encasement (@ \$40/yd)		5,800

TOTAL OF OTHER COSTS	\$	69,200
TOTAL ESTIMATED COST	\$	389,140

TOTAL ESTIMATED COST PER MILE =	\$	1,194,570
		=====

SECTION 2

S.H. 100 SECTION DETAIL

SPI UG CONVERSION MATERIAL LIST
(S.H. 100 Section)

Riser Pole #1

Description	Qty	Cost
Rod, Ground	1	\$ 15
Insulator, large 15 kv	3	80
Bracket, Arresters	1	136
Insulator, pin	3	21
Arresters	3	639
Bracket, pole-top	1	9
Bracket, terminator	1	131
Bracket, MIF	2	48
Terminators, 15 kv 1000 MCM	3	300
Kit, terminator 1000 MCM	3	286
Bracket, gooseneck	1	2
Lug, aerial	3	111
Insulator, pin	3	13
Wire, bare CU 500 MCM	40#	48
Rack, single AL	1	7
Lug, terminal	3	21
Bolt 5/8x12 ss	12	86
Conduit, PVC 6"	30'	45
Washer ss	12	3
Coupling, PVC 6"	4	57
Washer, spring ss	12	12
Strap, pipe 6"	3	9
Nut, hex	12	8
Terminal, 477 MCM 2-hole	3	83
Washer, lock ss	12	4
Bracket, Disconnect	1	100
Disconnects, solid	3	320
Support, cable 6"	1	376
		\$ 2970

Riser Pole #2

Description	Qty	Cost
Rod, ground	1	\$ 15
Insulator, large 15 kv	3	80
Bracket, arresters	1	136
Insulator, pin	3	21
Arresters	3	639

Riser Pole #2 Con't

Description	Qty	Cost
Bracket, pole-top	1	\$ 9
Bracket, terminator	1	131
Bracket, MIF	2	48
Terminators, 15 kv 1000 MCM	3	300
Kit, terminator 1000 MCM	3	286
Bracket, gooseneck	1	2
Lug, aerial	3	111
Insulator, pin	3	13
Wire, bare CU 500 MCM	40#	48
Rack, single AL	1	7
Lug, terminal	3	21
Bolt, 5/8x12 ss	15	107
Conduit, PVC 6"	30'	45
Washer, ss	15	4
Coupling, PVC 6"	4	57
Washer, spring ss	15	15
Strap, pipe 6"	3	9
Nut, hex	15	8
Terminal, 477 MCM 2-hole	3	83
Washer, lock ss	12	4
Bracket, disconnect	1	100
Anchor, single-helix	1	53
Disconnects, solid	3	320
Pole, 40' class 3	1	150
Support, cable 6"	1	376
Anchor, double-helix	1	74
Grip, guy 3/8" ss	12	851
Guys, down 3/8" ss	3	360
Insulator, suspension	15	208
Attachment, guy	3	8
Clamp, strain bolted AL	3	67
Bolt, DA 5/8x20 ss	3	25
X-arm, heavy duty	2	155
Insulator, pin AL 7x5/8	3	48
Screw, lag ss	6	14
Brace, x-arm HD	2	18

		\$ 5026

Underground Cable

Description	Qty	Cost
Conductor, 1000 MCM AL	2100'	\$ 36540
Conductor, 1/0 AL	300'	264
Conductor, 4/0 AL	2490'	2358
Conductor, #2 AL (3 parallel)	250'	138

Underground Cable Con't

Description	Qty	Cost
Conductor, #2 AL (single)	250'	\$ 145
Cableduct, 2c-4	740'	533

		\$ 39978

Switchgear Location #1

Description	Qty	Cost
Switchgear, PMH-10 ss	1	\$ 8010
Rod, ground	4	61
Wire, bare CU #4	4#	6
Terminator, URD 15 kv 1000 MCM	6	293
Lug, terminal 1000 MCM	6	99
Terminator, URD 15 kv 1/0 AL	3	103
Rod, connector 1/0 AL	3	42
Support, cable 6"	2	752
Support, cable 4"	2	225
Fuseholder	3	647
Fuse SM4	3	156

		\$ 10394

Switchgear Location #2

Description	Qty	Cost
Switchgear, PMH-11 ss	1	\$ 8672
Rod, ground	4	61
Wire, bare CU #4	4#	6
Lug, terminal 1000 MCM AL	6	99
Terminator, UG 15 kv 1000 MCM	6	293
Support, cable 6"	2	752
Support, cable 4"	2	225
Terminator, UG 15 kv #2 AL	3	112
Rod, connector #2 AL	3	26
Fuseholder	3	647
Fuse, SM4	3	156

		\$ 11049

Switchgear Location #3

Description	Qty	Cost
Switchgear, PMH-10 ss	1	\$ 8010
Rod, ground	4	61
Wire, bare CU #4	4#	6
Terminator, UG 15 kv 1000 MCM	6	293
Lug, terminal 1000 MCM	6	99
Terminator, UG 15 kv 1/0 AL	3	209
Rod, connector 1/0 AL	3	42
Support, cable 6"	2	752
Support, cable 4"	2	225

		\$ 9697

Switchgear Location #4

Description	Qty	Cost
Switchgear, PMH-11 ss	1	\$ 8672
Rod, ground	4	61
Wire, bare CU #4	4#	6
Terminator, UG 15 kv 1000 MCM	6	293
Lug, terminal 1000 MCM	6	99
Terminator, UG 15 kv #2 AL	1	37
Rod, connector #2 AL	1	9
Fuseholder	3	647
Support, cable 6"	2	752
Support, cable 4"	2	225
Fuse, SM4	1	52

		\$ 10853

Switchgear Location #5

Description	Qty	Cost
Switchgear, PMH-11 ss	1	\$ 8672
Rod, ground	4	61
Wire, bare CU #4	4#	6
Terminator, 15 kv UG 1000 MCM	6	293
Lug, terminal 1000 MCM	6	99
Terminator, 15 kv UG 1/0 AL	3	105
Rod, connector 1/0 AL	3	27
Fuseholder	3	647
Fuse SM4	3	156
Support, cable 6"	2	752

Switchgear Location #5 Con't

Description	Qty	Cost
Support, cable 4"	2	\$ 225

		\$ 11198

Switchgear Location #6

Description	Qty	Cost
Switchgear, PMH-11 ss	1	\$ 8672
Rod, ground	4	61
Wire, bare CU #4	4#	6
Terminator, 15 kv 1/0 AL	6	210
Rod, connector 1/0 AL	6	84
Terminator, 15 kv #2 AL	2	19
Fuseholder	3	647
Fuse, SM4	2	104
Support, cable 4"	4	450

		\$ 10328

Switchgear Location #7

Description	Qty	Cost
Switchgear, PMH-11 ss	1	\$ 8672
Rod, ground	4	61
Wire, bare CU #4	4#	6
Terminator, 15 kv UG 1000 MCM	6	293
Lug, terminal 1000 MCM	6	99
Terminator 1/0 AL	3	105
Rod, connector 1/0 AL	3	42
Support, cable 6"	2	752
Support, cable 4"	2	225
Fuseholder	3	647
Fuse, SM4	3	156

		\$ 11058

Switchgear Location #8

Description	Qty	Cost
Switchgear, PMH-11 ss	1	\$ 8672
Rod, ground	4	61

Switchgear Location #8 Con't

Description	Qty	Cost
Wire, bare CU #4	4#	\$ 6
Terminator, 15 KV 1000 MCM	6	293
Lug, terminal 1000 MCM	6	99
Terminator, 15 kv #2 AL	1	37
Rod, connector #2 AL	1	9
Fuseholder	3	647
Fuse, SM4	1	52
Support, cable 6"	2	752
Support, cable 4"	2	225

		\$ 10853

Switchgear Location #9

Description	Qty	Cost
Switchgear, PMH-10 ss	1	\$ 8010
Rod, ground	4	61
Wire, bare CU #4	4#	6
Terminator, 15 kv, 1000 MCM	6	293
Lug, terminal 1000 MCM	6	99
Support, cable 6"	2	752
Support, cable 4"	2	225

		\$ 9446

Switchgear Location #10

Description	Qty	Cost
Switchgear, PMH-10 ss	1	\$ 8010
Rod, ground	4	61
Wire, bare CU #4	4#	6
Terminator, 15 kv 1000 MCM	6	293
Lug, terminal 1000 MCM	6	99
Terminator, 15 kv 4/0 AL	6	209
Rod, connector 4/0 AL	6	148
Support, cable 6"	2	752
Support, cable 4"	2	225

		\$ 9803

Switchgear Location #11

Description	Qty	Cost
Switchgear, PHM-11 ss	1	\$ 8672
Rod, ground	4	61
Wire, bare CU #4	4#	6
Terminator, 15 kv 4/0 al	9	313
Rod, connector 4/0 al	9	221
Terminator, 15 kv #2 al	3	112
Rod, connector #2 al	3	26
Fuseholder	3	647
Fuse, SM4	3	156
Support, cable 4"	4	450

		\$ 10664

Switchgear Location #12

Description	Qty	Cost
Switchgear, PMH-9 ss	1	\$ 9107
Rod, ground	4	61
Wire, bare CU #4	4	6
Terminator, 15 kv	6	209
Rod, connector 4/0 al	6	148
Terminator, 15 kv #2 al	4	150
Rod, connector #2 al	4	34
Fuseholder	6	1294
Fuse SM4 (3E)	1	64
Fuse SM4 (25E)	3	156
Support, cable 4"	4	450

		\$ 11679

Transformer Location #1

Description	Qty	Cost
Transformer, 50 KVA ss	3	\$ 2205
Rod, ground	2	31
Enclosure, fiberglass	1	1321
Terminator, URD 15 kv	3	203
Wire, WP CU #1/0	14#	27
Wire, bare CU #4	2#	3
Arrester, xfmr mounted	3	97
Lock	1	5

		\$ 3892

Transformer Location #2

Description	Qty	Cost
Transformer, pad 25 KVA ss	2	\$ 2084
Pad, xfmr	2	132
Lock	2	11
Connector, xfmr stud terminal	8	227
Insert, bushing plug	4	85
Elbow, #2 al	4	93
Rod, ground	4	61

		\$ 2693

Transformer Location #3

Description	Qty	Cost
Transformer, pad 25 KVA ss	1	\$ 1042
Pad, xfmr	1	66
Lock	1	5
Plug, bushing	1	21
Elbow, #2 al	1	24
Connector, xfmr stud terminal	3	85
Rod, ground	2	31

		\$ 1274

Transformer Location #4

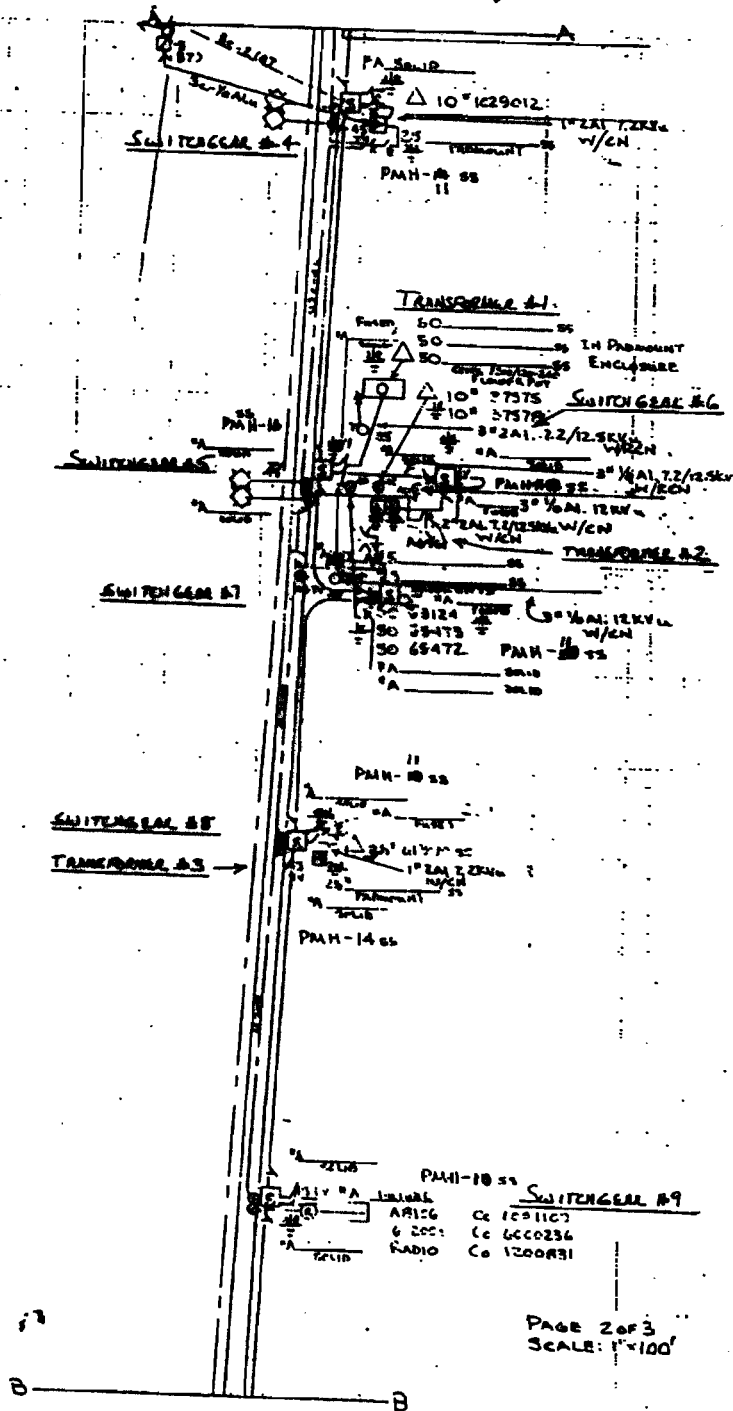
Description	Qty	Cost
Transformer, pad 25 KVA ss	1	\$ 755
Connector, xfmr stud	2	51
Pad, xfmr	1	66
Insert, bushing	1	21
Elbow, #2 al	1	24
Lock	1	5
Rod, ground	2	30
Wire, CU #6	4#	6

		\$ 958

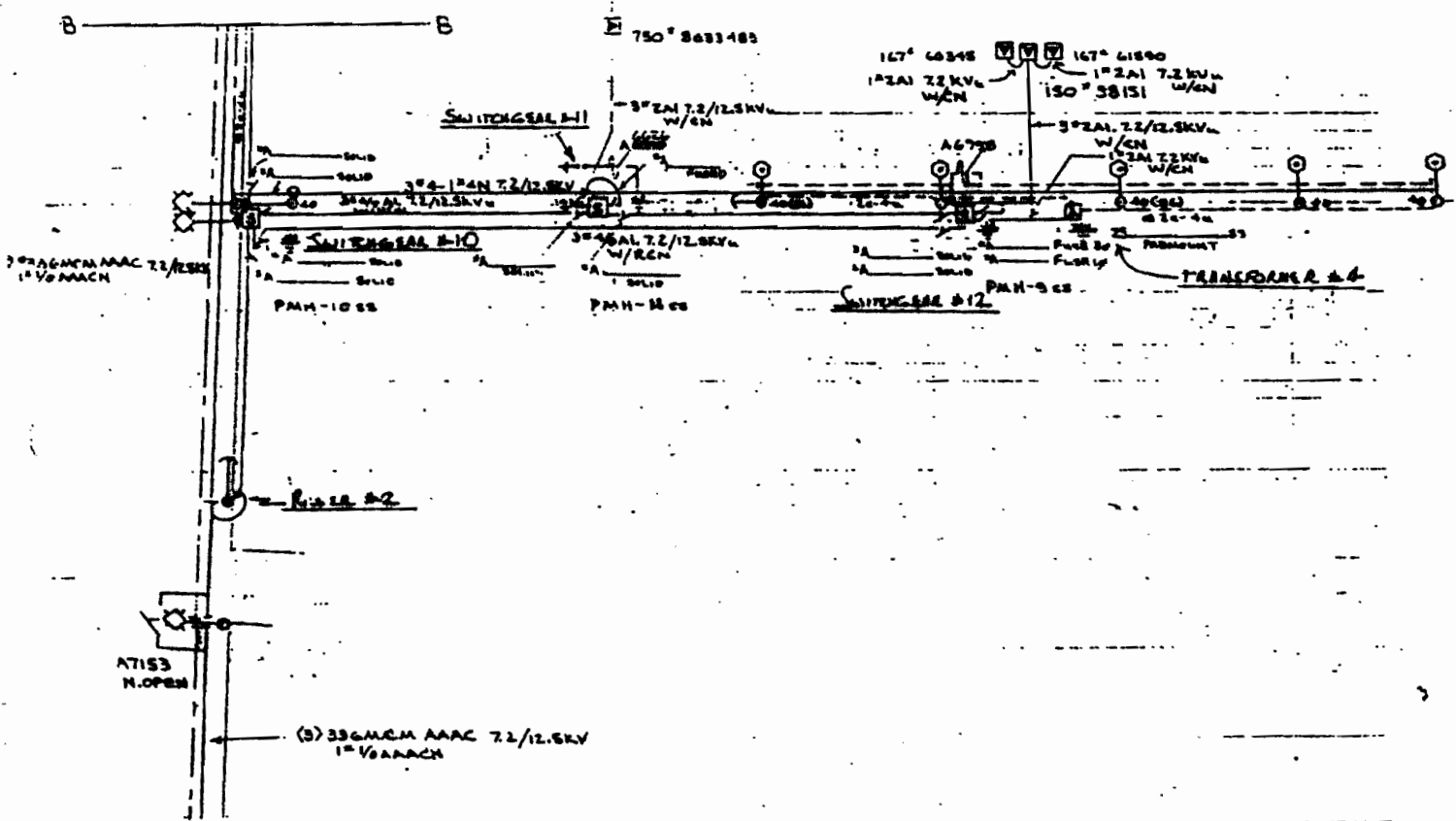
Street Lights

Description	Qty	Cost
Standard, single al 30'	6	\$ 3186
Arm, standard al	6	178
Rod, ground	6	91
Base, concrete	6	758
Lamp, 250 W 27500L	6	94
Base section 2"	6	84
Wire, #10 THW 600 V blk	275'	168
Wire, #10 THW 600 V wht	275'	168
Cableduct, 2c-12 al	1400'	336
Relay, 30 A	1	94
Pedestal, secondary	2	69

		\$ 5226



PAGE 2 OF 3
SCALE: 1"=100'



PAGE 3 OF 3
SCALE: 1" = 100'

SECTION 3

GULF BLVD. SECTION DETAIL

SOUTH PADRE ISLAND UNDERGROUND CONVERSION

Gulf Blvd. Section

U.G. POLICY APPLIED

INSTALLATION COSTS (Excluding trenching, conduit, & backfill)

Material	\$	147,450
Stores, Freight, & Handling		26,540
Labor		53,080
Labor Loading		24,900
Auto		15,820
Supervision		12,730

	\$	280,520
Cost of Equivalent Overhead (U.G. Policy)		(30,060)

	\$	250,460

REMOVAL COSTS

Cost of Existing Overhead	\$	5,800
Less Depreciation		(3,960)
Labor to Remove		9,600
Salvage Credit		(1,720)

	\$	9,720

TOTAL OF INSTALLATION & REMOVAL COSTS \$ 260,180

COST PER MILE = \$ 630,000

TRENCHING, CONDUIT, BACKFILL & OTHER COSTS

PVC Conduit	\$	12,400
Trenching (4435' @ \$6/ft)		26,610
Concrete Pads for Switchgear		15,000
Concrete Encasement (@ \$40/yd)		7,750

TOTAL OF OTHER COSTS	\$	61,760

TOTAL ESTIMATED COST \$ 321,940

TOTAL ESTIMATED COST PER MILE = \$ 779,500

SPI UG CONVERSION MATERIAL LIST
(Gulf Blvd. Section)

Conductor

Description	Qty	Cost
Conductor, #2 al 3-phase	285'	\$ 164
Conductor, #2 al single	3087'	1790
Conductor, 1000 MCM al (quad)	2425'	42090
Cable, 3c-300 MCM al	175'	241
Cable, 3c-1/0 al	130'	119
Cable, 2c-4 al	300'	217
Cable, 3/c-2 al	120'	68
Cable, 3/c-1/0 al (OH)	75'	74
		\$ 44763

Single-Phase Riser Poles

Description	Qty	Cost
Poles, 40' class 3	3	\$ 861
Bolt, 5/8x12 ss	21	150
Washer, ss	21	21
Washer, spring ss	21	21
Bracket, pole-top	3	42
Pin, pole-top	3	33
Rack, single al	3	22
Bracket, MIF	3	133
Cutouts, 15 kv 100 A	3	325
Bracket, MIF clover	3	65
Insulator, large	3	80
Arrester	3	90
Terminator	3	150
Kit, terminator #2 al	3	129
Conduit, PVC 3"	90'	65
Clamp, pipe 3"	9	9
Support, conductor 3"	3	188
Wire, bare Cu #4	3	9
Rod, ground	3	46
		\$ 2439

Two-Phase Riser Poles

Description	Qty	Cost
Pole, 40' class 3	4	\$ 1148
Bolt, 5/8x12 ss	44	314
Washer, ss	44	44
Washer, spring ss	44	42
Bracket, MIF clover	16	349
Insulator, pin large	8	212
Rack, single al	4	30
Cutouts, 15 kv 100 A	8	866
Arrester	8	184
Terminator	8	400
Kit, terminator #2 al	8	344
Conduit, PVC 3"	120'	86
Clamp, pipe 3"	12	10
Support, conductor 3"	4	290
Rod, ground	4	61
Wire, bare CU #4	8#	26
		\$ 4406

Three-Phase Riser Poles

Description	Qty	Cost
Pole, 40' class 3	2	\$ 574
Kit, terminator 1000 MCM al	6	822
Terminator	6	596
Conduit, PVC 6"	60	140
Cutout, 15 kv, 100 A	6	650
Arrester, special	6	138
Bracket, VW al	2	235
Rack, single al	2	15
X-arm, Heavy Duty	2	155
Insulator, pin al 7x5/8	6	95
Insulator, large 15 kv	6	159
Washer, ss	10	3
Bolt, 5/8x14 ss	4	28
Screw, lag ss	2	5
Brace, x-arm HD	4	37
Washer, lock ss	10	3
Washer, spring ss	4	4
Lug, aerial	6	222
Support, cable 6"	2	752
Bracket, VW al	2	123
		\$ 4756

Switchgear Location #1

Description	Qty	Cost
Switchgear, PMH-11 ss	1	\$ 8672
Terminator, 15 kv 1000 MCM	6	293
Terminator, 15 kv #2 al	3	89
Lug, terminal 1000 MCM	6	99
Rod, connector #2 al	3	26
Fuseholder	3	647
Fuse, SM4	3	150
Rod, ground	4	61
Wire, bare CU #4	4#	6
Support, cable 6"	2	752
Support, cable 3"	1	66

		\$ 10861

Switchgear Location #2

Description	Qty	Cost
Switchgear, PMH-9 ss	1	9107
Terminator, 1000 MCM	6	293
Terminator, #2 al	6	179
Lug, terminal 1000 MCM	6	99
Rod, connector #2 al	6	52
Fuseholder	6	1294
Fuse, SM4	6	300
Rod, ground	4	61
Wire, bare CU #4	4#	6
Support, cable 6"	2	752
Support, cable 3"	3	198

		\$ 12341

Switchgear Location #3

Description	Qty	Cost
Switchgear, PMH-11 ss	1	\$ 8672
Terminator, 1000 MCM	6	293
Terminator, #2 al	5	149
Lug, terminal 1000 MCM	6	99
Rod, connector #2 al	5	43
Fuseholder	2	431
Fuse, SM4	2	100
Rod, ground	4	61

Switchgear Location #3 Con't

Description	Qty	Cost
Wire, bare CU #4	4#	\$ 6
Support, cable 6"	2	752
Support, cable 4"	1	112
Support, cable 3"	2	145

		\$ 10863

Switchgear Location #4

Description	Qty	Cost
Switchgear, PMH-11 ss	1	\$ 8672
Terminator, 1000 MCM	6	293
Terminator, #2 al	6	179
Lug, terminal 1000 MCM	6	99
Rod, connector #2 al	6	52
Fuseholder	3	647
Fuse, SM4	3	150
Rod, ground	4	61
Wire, bare CU #4	4#	6
Support, cable 6"	2	752
Support, cable 3" (3-hole)	1	73
Support, cable 4"	1	112
Support, cable 3" (1-hole)	1	63

		\$ 11159

Switchgear Location #5

Description	Qty	Cost
Switchgear, PMH-11 ss	1	\$ 8672
Terminator, 1000 MCM	6	293
Terminator, #2 al	2	60
Lug, terminal 1000 MCM	6	99
Rod, connector #2 al	2	17
Fuseholder	2	331
Fuse, SM4	2	100
Rod, ground	4	61
Wire, bare CU #4	4#	6
Support, cable 6"	2	752
Support, cable 3"	1	73

		\$ 10464

Switchgear Location #6

Description	Qty	Cost
Switchgear, PMH-9 ss	1	\$ 9107
Terminator, 1000 MCM	6	293
Terminator, #2 al	3	89
Lug, terminal 1000 MCM	6	99
Rod, connector #2 al	3	26
Fuseholder	3	647
Fuse, SM4	3	150
Rod, ground	4	61
Wire, bare CU #4	4#	6
Support, cable 6"	2	752
Support, cable 3" (3-hole)	1	73
Support, cable 3" (1-hole)	1	63

		\$ 11366

Transformer Location #1

Description	Qty	Cost
Transformer, pad 75 KVA ss	1	\$ 1461
Connector, xfmr stud terminal	3	85
Pad, xfmr	1	66
Lock	1	5
Insert, bushing plug	1	21
Elbow, #2 al	1	23
Rod, ground	2	30

		\$ 1691

Transformer Location #2

Description	Qty	Cost
Transformer, pad 75 KVA ss	1	\$ 1461
Connector, xfmr stud terminal	3	85
Pad, xfmr	1	66
Lock	1	5
Insert, bushing plug	1	21
Elbow, #2 al	1	23
Rod, ground	2	30

		\$ 1711

Transformer Location #3

Description	Qty	Cost
Transformer, pad 50 KVA ss	1	\$ 1252
Connector, xfmr stud terminal	3	85
Pad, xfmr	1	66
Lock	1	5
Insert, bushing plug	1	21
Elbow, #2 al	4	93
Insert, bushing feed-thru	2	198
Rod, ground	2	30

		\$ 1760

Overhead Transformers

Description	Qty	Cost
Transformer, 75 KVA ss	1	\$ 1381
Transformer, 50 KVA ss	1	878
Transformer, 25 KVA ss	2	1292
Rod, ground	4	116
Wire, bare CU #4	4#	13

		\$ 3680

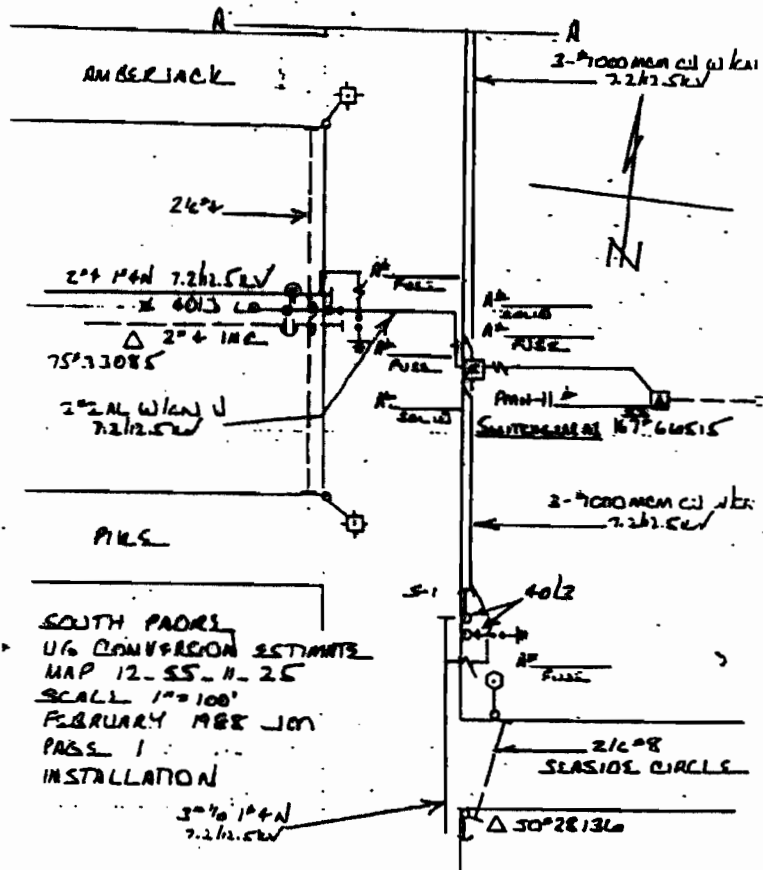
Miscellaneous Material

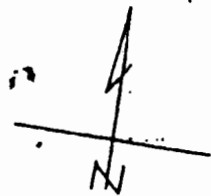
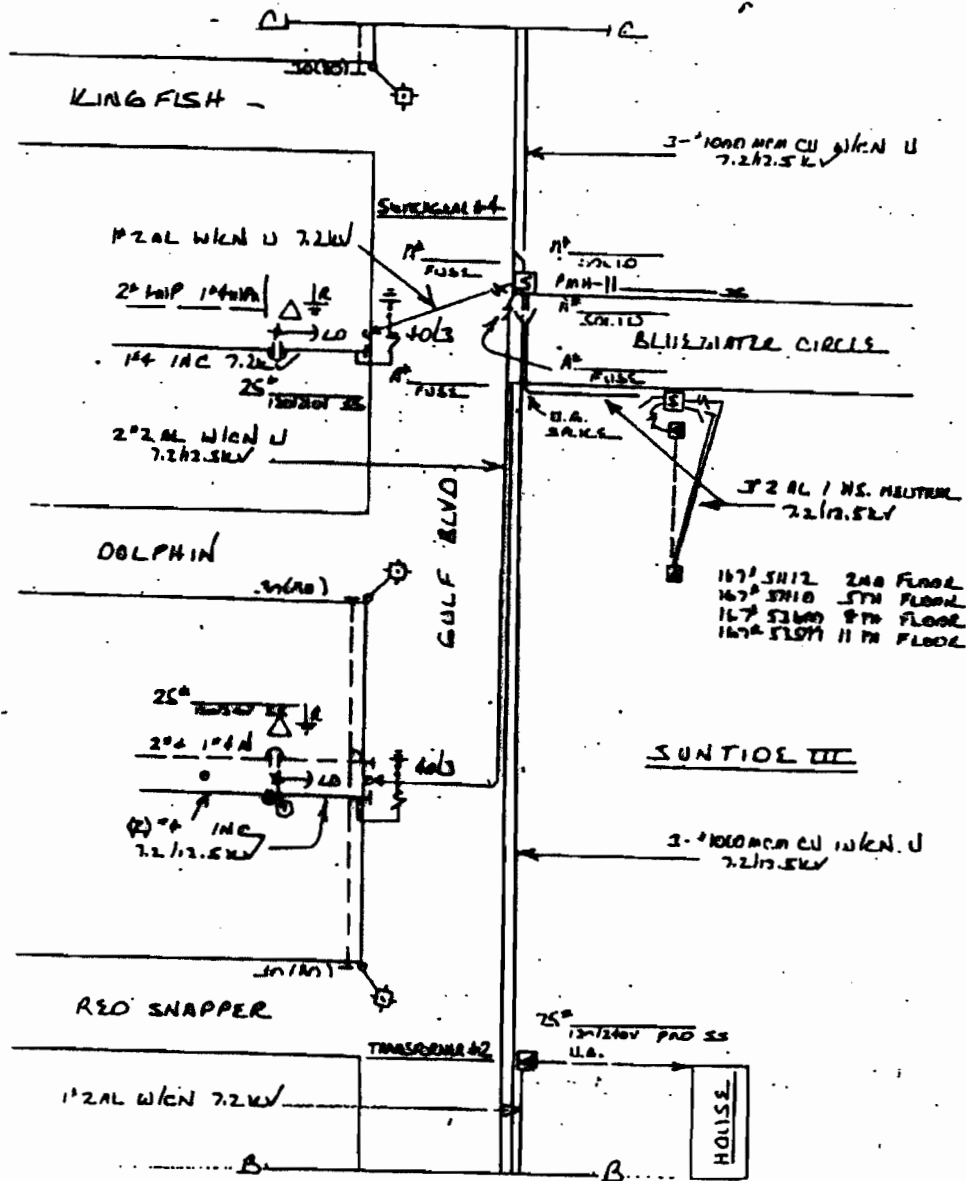
Description	Qty	Cost
Splice, straight #2 al	8	\$ 303
Anchor, single-helix	11	1114
Guys, down 3/8" ss	20	2400
Attachment, guy al	20	56
Grip, guy 3/8" ss	80	5674
X-arm heavy duty	12	1188
Brace, x-arm HD	24	219
Bolt, DA 5/8x20 ss	36	303
Bolt, eye 5/8x14 ss	12	295
Screw, lag ss	32	76
Insulator, suspension	90	1248
Nut, ovaleye ss	18	419
Clamp, strain bolted al	18	357

Miscellaneous Material Con't

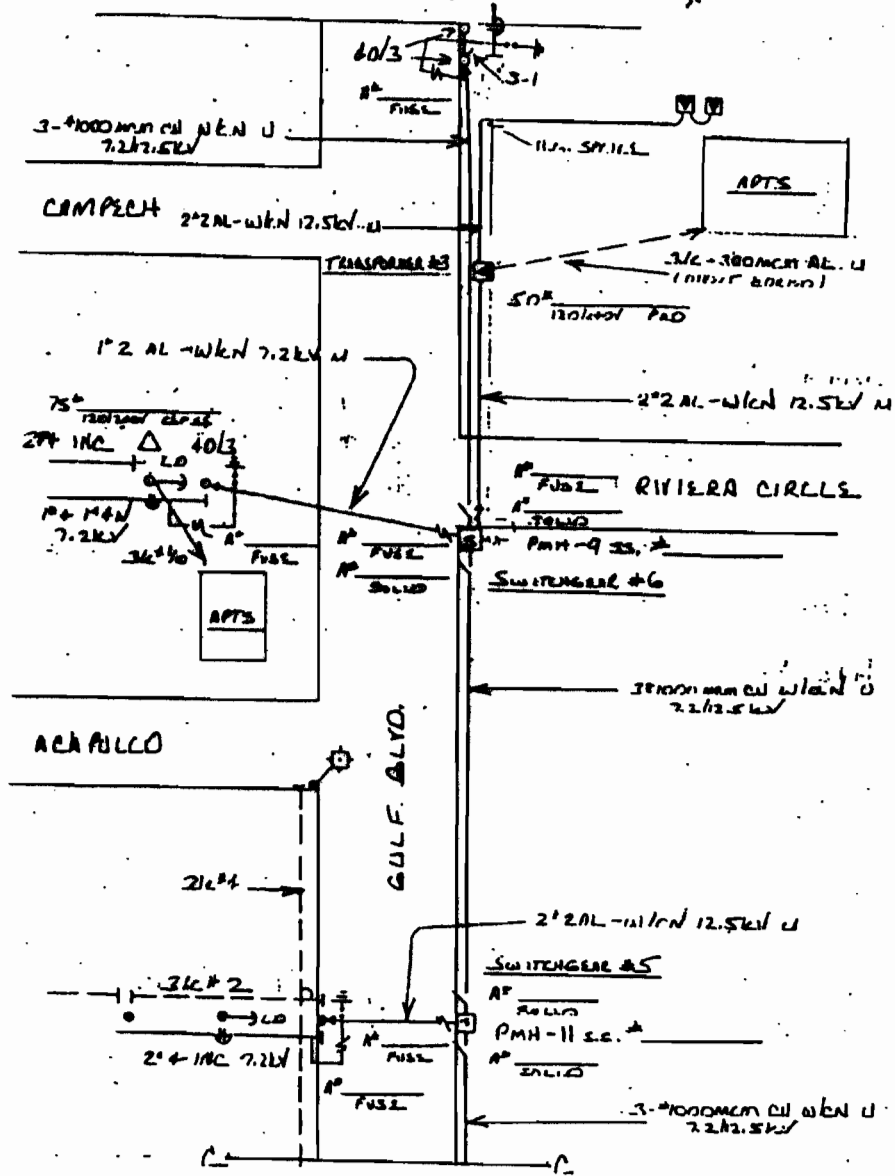
Description	Qty	Cost
Rack, single al	10	\$ 118
Bolt, 5/8x12 ss	40	285
Washer, ss	200	202
Washer, lock ss	50	14
Washer, round ss	24	3
Washer, spring ss	22	21
Pin, pole-top	3	33
Bracket, pole-top	3	43
Pin, insulator al 7x5/8	15	238
Insulator, pin large	18	477
Nut, hex	200	108

		\$ 15194





SMITH POORE
 CONVERSION ESTIMATE
 MAP 12-55-11-16
 SCALE 1" = 100'
 FEBRUARY 1985 J.M.
 PAGE 2
 INSTALLATION



SOUTH MOORS
 CONVERSION ESTIMATE
 MAP 12-55-11-16
 SCALE 1"=100'
 FEBRUARY 1985 JAM
 PAGE 4
 INSTALLATION

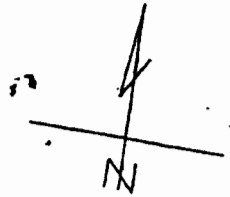


Exhibit 3
R. W. Beck 2006 Underground Estimate

SOUTH PADRE ISLAND - ESTIMATE

Padre Blvd Circuit

ASSUMPTIONS FOR UNDERGROUND CONSTRUCTION:
Final

BID UNIT DESCRIPTION	# OF UNITS	UNIT	LABOR	MAT'L	UNIT PRICE	EXT. PRICE	COST PER FT
4360 3 PHASE - FEEDER LENGTH 2670 1 PHASE - FEEDER LENGTH 12600 SECONDARY CABLE 50 TRANSFORMERS (1 PER 4 LOTS)							
			1. CABLE IS IN CONDUIT 2. SERVICES ARE ESTIMATED AT TWO PER TRANSFORMER @ 100 FEET LENGTH 3. RESTORATION COSTS ARE PART OF TRENCHING OR BORING UNIT 4. NO COST HAS BEEN INCLUDED FOR ROW CLEARING (This should be minimal).				
MAIN FEEDER - 3 PHASE PRIMARY							
3 PH RISER ASSEMBLY	2	EA	\$ 2,210.00	\$ 1,400.00	\$ 3,610.00	\$ 7,220.00	
CABLE 2-1000MCM. AL. EPR or XLP	4360	FEET	\$ 10.00	\$ 25.00	\$ 35.00	\$ 152,600.00	
DIRECTIONAL BORING (POWER) 10% Avg.		FEET			\$ 49.50	\$	
DIRECTIONAL BORING (COMMUNICATIONS) 10% Avg		FEET			\$ 40.50	\$	
DUCTBANK-6-6" & 3-4" concrete Encased	4360	FEET	\$ 75.00	\$ 75.00	\$ 150.00	\$ 654,000.00	
TRENCHING (Includes Backfill, & Restoration)	4360	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ 43,600.00	
PILINGS(One per 100 feet)	44	FEET	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ 43,600.00	
MANHOLES (Includes Excav., Backfill, 1 every 1000 feet)		EA	\$ 5,000.00	\$ 15,000.00	\$ 20,000.00	\$	
MISCELLANEOUS (Traffic, Vault Racks, Splices)	0	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$	
TOTAL PRIMARY COST (Three Phase):						\$ 901,020.00	\$ 206.66
PRIMARY - THREE PHASE 200 Amp							
CABLE 1/0. AL URD. EPR or XLP	2670	FEET	\$ 3.00	\$ 7.50	\$ 10.50	\$ 28,035.00	
DIRECTIONAL BORING (POWER)	0	FEET			\$	\$	
DIRECTIONAL BORING (COMMUNICATIONS)	0	FEET			\$	\$	
TRENCHING (Includes Conduits and Restoration)	2670	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ 26,700.00	
MISCELLANEOUS (Traffic, Elbows, Vault Racks, Splices)	0	FEET	\$ 2.50	\$ 2.50	\$ 5.00	\$	
TOTAL PRIMARY COST (Single Phase):						\$ 54,735.00	\$ 12.55
PRIMARY - SINGLE PHASE 200 Amp							
CABLE 1/0. AL URD. EPR or XLP	2920	FEET	\$ 3.00	\$ 2.50	\$ 5.50	\$ 16,060.00	
DIRECTIONAL BORING (POWER)	0	FEET			\$	\$	
DIRECTIONAL BORING (COMMUNICATIONS)	0	FEET			\$	\$	
TRENCHING (Includes Conduits and Restoration)	2920	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ 29,200.00	
MISCELLANEOUS (Traffic, Elbows, Vault Racks, Splices)	0	FEET	\$ 2.50	\$ 2.50	\$ 5.00	\$	
TOTAL PRIMARY COST (Single Phase):						\$ 16,060.00	\$ 3.68
SECONDARY							
600V SECONDARY CABLE (4/0 AL)		FEET	\$ 4.00	\$ 2.00	\$ 6.00	\$	
DIRECTIONAL BORING (POWER)	0	FEET			\$	\$	
DIRECTIONAL BORING (COMMUNICATIONS)	0	FEET			\$	\$	
TRENCHING (Includes Conduits and Restoration)	0	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$	
TOTAL SECONDARY COST:						\$	\$
TRANSFORMERS							
50 KVA, 1 PH. LF. 120/240	53	EA	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$ 106,000.00	
150 KVA, 3 PH. LF. 120/208	10	EA	\$ 500.00	\$ 6,000.00	\$ 6,500.00	\$ 65,000.00	
CONCRETE PAD, 1PH TRANSFORMER	63	EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ 63,000.00	
CABLE WELL UNDER PADS	0	EA	\$ 500.00	\$ 1,000.00	\$ 1,500.00	\$	
GROUNDING, RODS & CABLE, 1 PH	63	EA	\$ 85.00	\$ 30.00	\$ 115.00	\$ 7,245.00	
LOAD BREAK ELBOWS	166	EA	\$ 235.00	\$ 135.00	\$ 370.00	\$ 61,420.00	
TOTAL TRANSFORMER COST:						\$ 302,665.00	\$ 69.42
JUNCTIONS & SWITCHES							
SECTIONALIZING JUNCTION (Three phase)	15	EA	\$ 1,500.00	\$ 3,000.00	\$ 4,500.00	\$ 67,500.00	
SECTIONALIZING JUNCTION (single Phase)	0	EA	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$	
PMH 600X600, MANUAL (Tie Switch)	2	EA	\$ 2,000.00	\$ 20,000.00	\$ 22,000.00	\$ 44,000.00	
PADS FOR ABOVE EQUIPMENT	17	EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ 17,000.00	
CABLE WELL UNDER PADS	17	EA	\$ 500.00	\$ 1,000.00	\$ 1,500.00	\$ 25,500.00	
Piling for Junction points	17	EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ 17,000.00	
DEAD FRONT ELBOWS	135	EA	\$ 235.00	\$ 135.00	\$ 370.00	\$ 49,950.00	
LIVE FRONT PRIMARY TERMINATION three phase	24	EA	\$ 235.00	\$ 160.00	\$ 395.00	\$ 9,480.00	
LIVE FRONT PRIMARY TERMINATION Single phase	0	EA	\$ 235.00	\$ 160.00	\$ 395.00	\$	
TOTAL JUNCTION & SWITCH COST:						\$ 230,430.00	\$ 52.85
SUBTOTAL EQUIPMENT						\$ 1,504,910.00	\$ 345.16
REMOVAL COST							
THREE PHASE LINES	0	FEET			\$ 4.75	\$	
SINGLE PHASE LINES	0	FEET			\$ 3.25	\$	
EQUIPMENT (Transformers, etc)	0	EA			\$ 150.00	\$	
CONDUCTOR SALVAGE (Scrap)	0	FEET			\$ (0.10)	\$	
EQUIPMENT SALVAGE	0	EA			\$ (300.00)	\$	
NET REMOVAL COST						\$	\$
SERVICE ENTRANCE COSTS:							
TYPE 1 (Single Phase)		EA			\$ 1,000.00	\$	
TYPE 2 (Three Phase)		EA			\$ 3,000.00	\$	
TOTAL SERVICE ENTRANCE COSTS						\$	
LIGHTING							
600V SECONDARY CABLE (4/0 MCM TPX AL)		FEET	\$ 4.00	\$ 2.00	\$ 6.00	\$	
LIGHTING STANDARDS		FEET	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$	
DIRECTIONAL BORING (COMMUNICATIONS)	0	FEET			\$	\$	
TRENCHING (Includes Conduits and Restoration)	0	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$	
TOTAL LIGHTING COST:						\$	\$
SUBTOTAL:						\$ 1,504,910.00	\$ 345.16
CONTRACTOR MOBILIZATION					1%	\$ 15,049.10	
SUBTOTAL						\$ 1,519,959.10	\$ 348.61
CONTINGENCY					15%	\$ 227,993.87	
SUBTOTAL						\$ 1,747,952.97	\$ 400.91
ENGINEERING & DESIGN					7%	\$ 122,356.71	
CONSTRUCTION ADMINISTRATION					6%	\$ 104,877.18	
OWNER'S OVERHEAD EXPENSE					3%	\$ 52,438.59	
SUBTOTAL						\$ 2,027,625.44	
ENVIRONMENTAL					0%	\$	
SUBTOTAL						\$ 2,027,625.44	
TOTAL FOR UNDERGROUND				4360	Footage	\$ 2,027,625.44	
TOTAL / FT							\$ 465.05

SOUTH PADRE ISLAND - ESTIMATE

Padre Blvd Circuit

ASSUMPTIONS FOR UNDERGROUND CONSTRUCTION:							Final	
4360	3 PHASE - FEEDER LENGTH					1. CABLE IS IN CONDUIT		
2670	1 PHASE - FEEDER LENGTH					2. SERVICES ARE ESTIMATED AT TWO PER TRANSFORMER @ 100FEET LENGTH		
12600	SECONDARY CABLE					3. RESTORATION COSTS ARE PART OF TRENCHING OR BORING UNIT		
50	TRANSFORMERS (1 PER 4 LOTS)					4. NO COST HAS BEEN INCLUDED FOR ROW CLEARING (This should be minimal)		
BID UNIT DESCRIPTION	# OF UNITS	UNIT	LABOR	MATL	UNIT PRICE	EXT. PRICE	COST PER FT	
MAIN FEEDER - 3 PHASE PRIMARY								
3 PH RISER ASSEMBLY								
		EA	\$ 2,210.00	\$ 1,400.00	\$ 3,610.00	\$ -		
		FEET	\$ 10.00	\$ 25.00	\$ 35.00	\$ -		
		FEET			\$ 49.50	\$ -		
		FEET			\$ 40.50	\$ -		
		FEET	\$ 75.00	\$ 75.00	\$ 150.00	\$ -		
		FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ -		
		FEET	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ -		
		EA	\$ 5,000.00	\$ 15,000.00	\$ 20,000.00	\$ -		
		FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ -		
TOTAL PRIMARY COST (Three Phase):							\$ -	\$ -
PRIMARY - THREE PHASE 200 Amp								
		FEET	\$ 3.00	\$ 7.50	\$ 10.50	\$ -		
		FEET			\$ -	\$ -		
		FEET			\$ -	\$ -		
		FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ -		
		FEET	\$ 2.50	\$ 2.50	\$ 5.00	\$ -		
TOTAL PRIMARY COST (Single Phase):							\$ -	\$ -
PRIMARY - SINGLE PHASE-200 Amp								
		FEET	\$ 3.00	\$ 2.50	\$ 5.50	\$ -		
		FEET			\$ -	\$ -		
		FEET			\$ -	\$ -		
		FEET			\$ -	\$ -		
		FEET	\$ 2.50	\$ 2.50	\$ 5.00	\$ -		
TOTAL PRIMARY COST (Single Phase):							\$ -	\$ -
SECONDARY								
		0	FEET	\$ 4.00	\$ 2.00	\$ 6.00		
		0	FEET		\$ -	\$ -		
		0	FEET		\$ -	\$ -		
		0	FEET	\$ 5.00	\$ 5.00	\$ 10.00		
TOTAL SECONDARY COST:							\$ -	\$ -
TRANSFORMERS								
		EA	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$ -		
		EA	\$ 500.00	\$ 6,000.00	\$ 6,500.00	\$ -		
		EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ -		
		EA	\$ 500.00	\$ 1,000.00	\$ 1,500.00	\$ -		
		EA	\$ 85.00	\$ 30.00	\$ 115.00	\$ -		
		EA	\$ 235.00	\$ 135.00	\$ 370.00	\$ -		
TOTAL TRANSFORMER COST:							\$ -	\$ -
JUNCTIONS & SWITCHES								
		EA	\$ 1,500.00	\$ 3,000.00	\$ 4,500.00	\$ -		
		EA	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$ -		
		EA	\$ 2,000.00	\$ 20,000.00	\$ 22,000.00	\$ -		
		EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ -		
		EA	\$ 500.00	\$ 1,000.00	\$ 1,500.00	\$ -		
		EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ -		
		EA	\$ 235.00	\$ 135.00	\$ 370.00	\$ -		
		EA	\$ 235.00	\$ 160.00	\$ 395.00	\$ -		
		EA	\$ 235.00	\$ 160.00	\$ 395.00	\$ -		
TOTAL JUNCTION & SWITCH COST:							\$ -	\$ -
SUBTOTAL EQUIPMENT						\$ -	\$ -	
REMOVAL COST								
		FEET			\$ 4.75	\$ -		
		FEET			\$ 3.25	\$ -		
		EA			\$ 150.00	\$ -		
		FEET			\$ (0.10)	\$ -		
		EA			\$ (300.00)	\$ -		
NET REMOVAL COST							\$ -	\$ -
SERVICE ENTRANCE COSTS:								
		60	EA		\$ 1,000.00	\$ 60,000.00		
		20	EA		\$ 3,000.00	\$ 60,000.00		
TOTAL SERVICE ENTRANCE COSTS							\$ 120,000.00	
LIGHTING								
		FEET	\$ 4.00	\$ 2.00	\$ 6.00	\$ -		
		FEET	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$ -		
		FEET			\$ -	\$ -		
		FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ -		
TOTAL LIGHTING COST:							\$ -	\$ -
SUBTOTAL:						\$ 120,000.00	\$ 27.52	
CONTRACTOR MOBILIZATION						\$ 1,200.00		
SUBTOTAL						\$ 121,200.00	\$ 27.80	
CONTINGENCY						\$ 18,180.00		
SUBTOTAL						\$ 139,380.00	\$ 31.97	
ENGINEERING & DESIGN						\$ 9,756.60		
CONSTRUCTION ADMINISTRATION						\$ 8,362.80		
OWNER'S OVERHEAD EXPENSE						\$ 4,181.40		
SUBTOTAL						\$ 161,680.80		
ENVIRONMENTAL						\$ -		
SUBTOTAL						\$ 161,680.80		
TOTAL FOR UNDERGROUND				4360	Footage	\$ 161,680.80		
TOTAL / FT							\$ 37.08	

SOUTH PADRE ISLAND - ESTIMATE

Padre Blvd Circuit

ASSUMPTIONS FOR UNDERGROUND CONSTRUCTION:
Final

3 PHASE - FEEDER LENGTH	1. CABLE IS IN CONDUIT
1 PHASE - FEEDER LENGTH	2. SERVICES ARE ESTIMATED AT TWO PER TRANSFORMER @ 100 FEET LENGTH
SECONDARY CABLE	3. RESTORATION COSTS ARE PART OF TRENCHING OR BORING UNIT
TRANSFORMERS (1 PER 4 LOTS)	4. NO COST HAS BEEN INCLUDED FOR ROW CLEARING (This should be minimal)

BID UNIT DESCRIPTION	# OF UNITS	UNIT	LABOR	MAT'L	UNIT PRICE	EXT. PRICE	COST PER FT
MAIN FEEDER - 3 PHASE PRIMARY							
3 PH RISER ASSEMBLY							
CABLE 2-1000MCM AL, EPR or XLP		EA	\$ 2,210.00	\$ 1,400.00	\$ 3,610.00	\$ -	
DIRECTIONAL BORING (POWER) 10% Avg.		FEET	\$ 10.00	\$ 25.00	\$ 35.00	\$ -	
DIRECTIONAL BORING (COMMUNICATIONS) 10% Avg.		FEET		\$ 49.50	\$ -	\$ -	
DUCTBANK- 6-6" & 3-4" concrete Encased		FEET	\$ 75.00	\$ 75.00	\$ 150.00	\$ -	
TRENCHING (Includes Backfill, & Restoration)		FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ -	
PILINGS(One per 100 feet)		FEET	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ -	
MANHOLES (Includes Excav., Backfill, 1 every 1000 feet)		EA	\$ 5,000.00	\$ 15,000.00	\$ 20,000.00	\$ -	
MISCELLANEOUS (Traffic, Vault Racks, Splices)		FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ -	
TOTAL PRIMARY COST (Three Phase):						\$ -	#DIV/0!
PRIMARY - THREE PHASE 200 Amp							
CABLE 1/0, AL URD, EPR or XLP		FEET	\$ 3.00	\$ 7.50	\$ 10.50	\$ -	
DIRECTIONAL BORING (POWER)		FEET		\$ -	\$ -	\$ -	
DIRECTIONAL BORING (COMMUNICATIONS)		FEET		\$ -	\$ -	\$ -	
TRENCHING (Includes Conduits and Restoration)		FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ -	
MISCELLANEOUS (Traffic, Elbows, Vault Racks, Splices)		FEET	\$ 2.50	\$ 2.50	\$ 5.00	\$ -	
TOTAL PRIMARY COST (Single Phase):						\$ -	#DIV/0!
PRIMARY - SINGLE PHASE 200 Amp							
CABLE 1/0, AL URD, EPR or XLP		FEET	\$ 3.00	\$ 2.50	\$ 5.50	\$ -	
DIRECTIONAL BORING (POWER)		FEET		\$ -	\$ -	\$ -	
DIRECTIONAL BORING (COMMUNICATIONS)		FEET		\$ -	\$ -	\$ -	
TRENCHING (Includes Conduits and Restoration)		FEET	\$ 2.50	\$ 2.50	\$ 5.00	\$ -	
MISCELLANEOUS (Traffic, Elbows, Vault Racks, Splices)		FEET	\$ 2.50	\$ 2.50	\$ 5.00	\$ -	
TOTAL PRIMARY COST (Single Phase):						\$ -	#DIV/0!
SECONDARY							
600V SECONDARY CABLE (4/0 AL)		FEET	\$ 4.00	\$ 2.00	\$ 6.00	\$ -	
DIRECTIONAL BORING (POWER)		FEET		\$ -	\$ -	\$ -	
DIRECTIONAL BORING (COMMUNICATIONS)		FEET		\$ -	\$ -	\$ -	
TRENCHING (Includes Conduits and Restoration)		FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ -	
TOTAL SECONDARY COST:						\$ -	#DIV/0!
TRANSFORMERS							
50 KVA, 1 PH, LF, 120/240		EA	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$ -	
150 KVA, 3 PH, LF, 120/208		EA	\$ 500.00	\$ 6,000.00	\$ 6,500.00	\$ -	
CONCRETE PAD, 1PH TRANSFORMER		EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ -	
CABLE WELL UNDER PADS		EA	\$ 500.00	\$ 1,000.00	\$ 1,500.00	\$ -	
GROUNDING, RODS & CABLE, 1 PH		EA	\$ 85.00	\$ 30.00	\$ 115.00	\$ -	
LOAD BREAK ELBOWS		EA	\$ 235.00	\$ 135.00	\$ 370.00	\$ -	
TOTAL TRANSFORMER COST:						\$ -	#DIV/0!
JUNCTIONS & SWITCHES							
SECTIONALIZING JUNCTION (Three phase)		EA	\$ 1,500.00	\$ 3,000.00	\$ 4,500.00	\$ -	
SECTIONALIZING JUNCTION (single Phase)		EA	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$ -	
PMH 600X600, MANUAL (Tie Switch)		EA	\$ 2,000.00	\$ 20,000.00	\$ 22,000.00	\$ -	
PADS FOR ABOVE EQUIPMENT		EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ -	
CABLE WELL UNDER PADS		EA	\$ 500.00	\$ 1,000.00	\$ 1,500.00	\$ -	
Piling for Junction points		EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ -	
DEAD FRONT ELBOWS		EA	\$ 235.00	\$ 135.00	\$ 370.00	\$ -	
LIVE FRONT PRIMARY TERMINATION three phase		EA	\$ 235.00	\$ 160.00	\$ 395.00	\$ -	
LIVE FRONT PRIMARY TERMINATION Single phase		EA	\$ 235.00	\$ 160.00	\$ 395.00	\$ -	
TOTAL JUNCTION & SWITCH COST:						\$ -	#DIV/0!
SUBTOTAL EQUIPMENT						\$ -	#DIV/0!
REMOVAL COST							
THREE PHASE LINES	0	FEET			\$ 4.75	\$ -	
SINGLE PHASE LINES	0	FEET			\$ 3.25	\$ -	
EQUIPMENT (Transformers, etc)	0	EA			\$ 150.00	\$ -	
CONDUCTOR SALVAGE (Scrap)	0	FEET			\$ (0.10)	\$ -	
EQUIPMENT SALVAGE	0	EA			\$ (300.00)	\$ -	
NET REMOVAL COST						\$ -	#DIV/0!
SERVICE ENTRANCE COSTS:							
TYPE 1 (Single Phase)		EA			\$ 1,000.00	\$ -	
TYPE 2 (Three Phase)		EA			\$ 3,000.00	\$ -	
TOTAL SERVICE ENTRANCE COSTS						\$ -	
LIGHTING							
600V SECONDARY CABLE (4/0 MCM TPX AL)	3000	FEET	\$ 4.00	\$ 2.00	\$ 6.00	\$ 18,000.00	
LIGHTING STANDARDS	30	FEET	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$ 60,000.00	
DIRECTIONAL BORING (COMMUNICATIONS)	0	FEET			\$ -	\$ -	
TRENCHING (Includes Conduits and Restoration)	3000	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ 30,000.00	
TOTAL LIGHTING COST:						\$ 108,000.00	#DIV/0!
SUBTOTAL:						\$ 108,000.00	#DIV/0!
CONTRACTOR MOBILIZATION						1 st	\$ 1,080.00
SUBTOTAL						\$ 109,080.00	#DIV/0!
CONTINGENCY						1 st	\$ 16,362.00
SUBTOTAL						\$ 125,442.00	#DIV/0!
ENGINEERING & DESIGN						7 th	\$ 8,780.94
CONSTRUCTION ADMINISTRATION						6 th	\$ 7,526.52
OWNER'S OVERHEAD EXPENSE						3 rd	\$ 3,763.26
SUBTOTAL						\$ 145,512.72	
ENVIRONMENTAL						1 st	\$ -
SUBTOTAL						\$ 145,512.72	
TOTAL FOR UNDERGROUND						0	Footage
TOTAL / FT						\$ 145,512.72	#DIV/0!

SOUTH PADRE ISLAND - ESTIMATE

Padre Blvd Circuit

ASSUMPTIONS FOR UNDERGROUND CONSTRUCTION:

Final

BID UNIT DESCRIPTION	# OF UNITS	UNIT	LABOR	MAT'L	UNIT PRICE	EXT. PRICE	COST PER FT
3600 3 PHASE - FEEDER LENGTH							
1275 1 PHASE - FEEDER LENGTH							
4000 SECONDARY CABLE							
20 TRANSFORMERS (1 PER 4 LOTS)							
			1. CABLE IS IN CONDUIT				
			2. SERVICES ARE ESTIMATED AT TWO PER TRANSFORMER @ 100 FEET LENGTH				
			3. RESTORATION COSTS ARE PART OF TRENCHING OR BORING UNIT				
			4. NO COST HAS BEEN INCLUDED FOR ROW CLEARING (This should be minimal).				
MAIN FEEDER - 3 PHASE PRIMARY							
3 PH RISER ASSEMBLY	2	EA	\$ 2,210.00	\$ 1,400.00	\$ 3,610.00	\$ 7,220.00	
CABLE 2-1000MCM AL EPR or XLP	3600	FEET	\$ 10.00	\$ 25.00	\$ 35.00	\$ 126,000.00	
DIRECTIONAL BORING (POWER) 10% Avg		FEET			\$ 49.50	\$ -	
DIRECTIONAL BORING (COMMUNICATIONS) 10% Avg		FEET			\$ 40.50	\$ -	
DUCTBANK - 6-6" & 3-4" concrete Encased	0	FEET	\$ 75.00	\$ 75.00	\$ 150.00	\$ -	
TRENCHING (Includes Backfill, & Restoration)	0	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ -	
PILINGS (One per 100 feet)	0	FEET	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ -	
MANHOLES (Includes Excav, Backfill, 1 every 1000 feet)		EA	\$ 5,000.00	\$ 15,000.00	\$ 20,000.00	\$ -	
MISCELLANEOUS (Traffic, Vault Racks, Splices)	0	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ -	
TOTAL PRIMARY COST (Three Phase):						\$ 133,220.00	\$ 37.01
PRIMARY - THREE PHASE 200 Amp							
CABLE 1/0 AL URD EPR or XLP	525	FEET	\$ 3.00	\$ 7.50	\$ 10.50	\$ 5,512.50	
DIRECTIONAL BORING (POWER)	0	FEET			\$ -	\$ -	
DIRECTIONAL BORING (COMMUNICATIONS)	0	FEET			\$ -	\$ -	
TRENCHING (Includes Conduits and Restoration)	525	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ 5,250.00	
MISCELLANEOUS (Traffic, Elbows, Vault Racks, Splices)	0	FEET	\$ 2.50	\$ 2.50	\$ 5.00	\$ -	
TOTAL PRIMARY COST (Single Phase):						\$ 10,762.50	\$ 2.99
PRIMARY - SINGLE PHASE 200 Amp							
CABLE 1/0 AL URD EPR or XLP	750	FEET	\$ 3.00	\$ 2.50	\$ 5.50	\$ 4,125.00	
DIRECTIONAL BORING (POWER)	0	FEET			\$ -	\$ -	
DIRECTIONAL BORING (COMMUNICATIONS)	0	FEET			\$ -	\$ -	
TRENCHING (Includes Conduits and Restoration)	750	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ 7,500.00	
MISCELLANEOUS (Traffic, Elbows, Vault Racks, Splices)	0	FEET	\$ 2.50	\$ 2.50	\$ 5.00	\$ -	
TOTAL PRIMARY COST (Single Phase):						\$ 4,125.00	\$ 1.15
SECONDARY							
600V SECONDARY CABLE (4/0 AL)	4000	FEET	\$ 4.00	\$ 2.00	\$ 6.00	\$ 24,000.00	
DIRECTIONAL BORING (POWER)	0	FEET			\$ -	\$ -	
DIRECTIONAL BORING (COMMUNICATIONS)	0	FEET			\$ -	\$ -	
TRENCHING (Includes Conduits and Restoration)	4000	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ 40,000.00	
TOTAL SECONDARY COST:						\$ 64,000.00	\$ 17.78
TRANSFORMERS							
50 KVA, 1 PH, LF, 120/240	13	EA	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$ 26,000.00	
150 KVA, 3 PH, LF, 120/208	7	EA	\$ 500.00	\$ 6,000.00	\$ 6,500.00	\$ 45,500.00	
CONCRETE PAD, 1PH TRANSFORMER	20	EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ 20,000.00	
CABLE WELL UNDER PADS	0	EA	\$ 500.00	\$ 1,000.00	\$ 1,500.00	\$ -	
GROUNDING RODS & CABLE, 1 PH	20	EA	\$ 85.00	\$ 30.00	\$ 115.00	\$ 2,300.00	
LOAD BREAK ELBOWS	68	EA	\$ 235.00	\$ 135.00	\$ 370.00	\$ 25,160.00	
TOTAL TRANSFORMER COST:						\$ 118,960.00	\$ 33.04
JUNCTIONS & SWITCHES							
SECTIONALIZING JUNCTION (Three phase)	12	EA	\$ 1,500.00	\$ 3,000.00	\$ 4,500.00	\$ 54,000.00	
SECTIONALIZING JUNCTION (single Phase)	0	EA	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$ -	
PMH 600X600, MANUAL (Tie Switch)	2	EA	\$ 2,000.00	\$ 20,000.00	\$ 22,000.00	\$ 44,000.00	
PADS FOR ABOVE EQUIPMENT	14	EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ 14,000.00	
CABLE WELL UNDER PADS	14	EA	\$ 500.00	\$ 1,000.00	\$ 1,500.00	\$ 21,000.00	
Piling for Juncton points	14	EA	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ 14,000.00	
DEAD FRONT ELBOWS	108	EA	\$ 235.00	\$ 135.00	\$ 370.00	\$ 39,960.00	
LIVE FRONT PRIMARY TERMINATION three phase	24	EA	\$ 235.00	\$ 160.00	\$ 395.00	\$ 9,480.00	
LIVE FRONT PRIMARY TERMINATION Single phase	0	EA	\$ 235.00	\$ 160.00	\$ 395.00	\$ -	
TOTAL JUNCTION & SWITCH COST:						\$ 196,440.00	\$ 54.57
SUBTOTAL: EQUIPMENT						\$ 527,507.50	\$ 146.53
REMOVAL COST							
THREE PHASE LINES	0	FEET			\$ 4.75	\$ -	
SINGLE PHASE LINES	0	FEET			\$ 3.25	\$ -	
EQUIPMENT (Transformers, etc)	0	EA			\$ 150.00	\$ -	
CONDUCTOR SALVAGE (Scrap)	0	FEET			\$ (0.10)	\$ -	
EQUIPMENT SALVAGE	0	EA			\$ (300.00)	\$ -	
NET REMOVAL COST:						\$ -	\$ -
SERVICE ENTRANCE COSTS:							
TYPE 1 (Single Phase)	60	EA			\$ 1,000.00	\$ 60,000.00	
TYPE 2 (Three Phase)	20	EA			\$ 3,000.00	\$ 60,000.00	
TOTAL SERVICE ENTRANCE COSTS:						\$ 120,000.00	
LIGHTING							
600V SECONDARY CABLE (4/0 MCM TPX AL)	2000	FEET	\$ 4.00	\$ 2.00	\$ 6.00	\$ 12,000.00	
LIGHTING STANDARDS	25	FEET	\$ 500.00	\$ 1,500.00	\$ 2,000.00	\$ 50,000.00	
DIRECTIONAL BORING (COMMUNICATIONS)	0	FEET			\$ -	\$ -	
TRENCHING (Includes Conduits and Restoration)	2000	FEET	\$ 5.00	\$ 5.00	\$ 10.00	\$ 20,000.00	
TOTAL LIGHTING COST:						\$ 82,000.00	\$ 22.78
SUBTOTAL:						\$ 647,507.50	\$ 179.86
CONTRACTOR MOBILIZATION						1%	\$ 6,475.08
SUBTOTAL						\$ 653,982.58	\$ 181.66
CONTINGENCY						15%	\$ 98,097.39
SUBTOTAL						\$ 752,079.96	\$ 208.91
ENGINEERING & DESIGN						7%	\$ 52,645.60
CONSTRUCTION ADMINISTRATION						6%	\$ 45,124.80
OWNER'S OVERHEAD EXPENSE						3%	\$ 22,562.40
SUBTOTAL						\$ 872,412.76	
ENVIRONMENTAL						0%	\$ -
SUBTOTAL						\$ 872,412.76	
TOTAL FOR UNDERGROUND					3600 Footage	\$ 872,412.76	
TOTAL / FT							\$ 242.34

ASSUMPTIONS FOR 138 KV UNDERGROUND CONSTRUCTION:

5280	FEET
3	PHASE
15840	PRIMARY CABLE
0	SECONDARY CABLE
0	TRANSFORMERS (1 PER 4 LOTS)
1	NUMBER OF ROAD BORES

NO	(YES/NO) ROW CLEARING IS INCLUDED
YES	(YES/NO) ROW RESTORATION/LANDSCAPING
NO	(YES/NO) P & P - AERIAL SLRVEY

NO	(YES/NO) EASEMENTS SURVEYS (7/mi)
NO	(YES/NO) PURCHASE ROW (10 FT WIDE)
NO	(YES/NO) ROW ACQ. TIME (3 mos. MIN)
NO	(YES/NO) CONST EASEMENTS (2/mi)

BID UNIT DESCRIPTION	# OF UNITS	UNIT	LABOR	MATL	UNIT PRICE	EXT. PRICE
TRANSMISSION						
3 PH RISER ASSEMBLY	0	EA	\$ 50,000.00	\$ 50,000.00	\$ 100,000.00	\$ -
138 kV CABLE, 1000 MCM, CU, EPR W/ CASE	15840	FEET	\$ 20.00	\$ 50.00	\$ 70.00	\$ 1,108,800.00
PRIMARY DUCT (4-6") IN TRENCH (1 cable/duct+spare)	5280	FEET	\$ 50.00	\$ 50.00	\$ 100.00	\$ 528,000.00
138 kV TERMINATIONS, PORCELAIN (project ends only)	3	EA	\$ 3,000.00	\$ 4,000.00	\$ 7,000.00	\$ 21,000.00
138 kV SPLICES, STRAIGHT LINE	10	EA	\$ 750.00	\$ 1,500.00	\$ 2,250.00	\$ 22,500.00
CONCRETE ENCASEMENT (0.12 CY per LIN-FT)	5280	FEET	\$ 20.00	\$ 30.00	\$ 50.00	\$ 264,000.00
TRENCH (24 X 50)	5280	FEET	\$ 25.00	\$ 13.00	\$ 38.00	\$ 200,640.00
PILINGS(one per 100 foot)	53	FEET	\$ 500.00	\$ 500.00	\$ 1,000.00	\$ 53,000.00
MANHOLES (10' X 6' X 8')	0	EA	\$ 5,000.00	\$ 15,000.00	\$ 20,000.00	\$ -
CABLE RACK AND TIES (2 PER M.H.)	20	EA	\$ 325.00	\$ 190.00	\$ 515.00	\$ 10,300.00
TRAFFIC MANHOLES (10' X 6' X 8')	10	EA	\$ 5,000.00	\$ 20,000.00	\$ 25,000.00	\$ 250,000.00
ROW RESTORATION/LANDSCAPING	5280	LIN-FT	\$ 7.50	\$ 6.50	\$ 14.00	\$ 73,920.00
TOTAL 69 Kv COST:						\$ 2,532,160.00
Per Foot Cost						\$ 479.6
SECONDARY						
SEC. CONDUIT, 1-3" PVC (TREE LAWN)	0	EA	\$ -	\$ -	\$ -	\$ -
SEC. TRENCH (TREE LAWN & ROAD)	0	EA	\$ -	\$ -	\$ -	\$ -
600V SECONDARY CABLE	0	EA	\$ -	\$ -	\$ -	\$ -
TOTAL SECONDARY COST:						\$ -
TRANSFORMERS						
50 KVA, 1 PH, LF, 120/240	0	EA	\$ -	\$ -	\$ -	\$ -
CONCRETE PAD, 1PH TRANSFORMER	0	EA	\$ -	\$ -	\$ -	\$ -
GROUNDING, RODS & WIRE, 1 PH	0	EA	\$ -	\$ -	\$ -	\$ -
TOTAL TRANSFORMER COST:						\$ -
JUNCTIONS & SWITCHES						
SECTIONALIZING JUNCTION	0	EA	\$ -	\$ -	\$ -	\$ -
PMH 600X600, MANUAL (1 PER MILE)	0	EA	\$ -	\$ -	\$ -	\$ -
PAD FOR PMH (1 PER PMH)	0	EA	\$ -	\$ -	\$ -	\$ -
CABLE WELL UNDER PMH (1 PER PMH)	0	EA	\$ -	\$ -	\$ -	\$ -
TOTAL JUNCTION & SWITCH COST:						\$ -
SUBTOTAL EQUIPMENT						\$ 2,532,160.00
YES/NO						
RIGHT-OF-WAY CLEARING - STM-12	0	LIN-FT	\$ 1.90	\$ 0.20	\$ 2.10	\$ -
P&P PRODUCTION - AERIAL	0	MILES	\$ -	\$ 3,500.00	\$ 3,500.00	\$ -
EASEMENT SURVEYS (7 per mile)	0	PARCEL	\$ -	\$ 700.00	\$ 700.00	\$ -
RIGHT-OF-WAY COST (10 ft Wide)	0	ACRE	\$ -	\$ 3,500.00	\$ 3,500.00	\$ -
RIGHT-OF-WAY ACQUISITION TIME (3 mos. Min.)	0	MONTH	\$ -	\$ 7,500.00	\$ 7,500.00	\$ -
CONSTRUCTION/OFF R/W EASEMENTS (2 per mile)	2	PARCEL	\$ -	\$ 700.00	\$ 700.00	\$ 1,400.00
ROAD BORE	60	FT	\$ 100.00	\$ 50.00	\$ 150.00	\$ 9,000.00
SUBTOTAL : EXTRA COSTS						\$ 10,400.00
SUBTOTAL:						\$ 2,542,560.00
MISCELLANEOUS UNITS						\$ 50,851.20
SUBTOTAL:						\$ 2,593,411.20
CONTRACTOR MOBILIZATION						1% \$ 25,934.11
SUBTOTAL						\$ 2,619,345.31
CONTINGENCY						15% \$ 392,901.80
SUBTOTAL						\$ 3,012,247.11
ENGINEERING & DESIGN						7% \$ 210,857.30
CONSTRUCTION ADMINISTRATION						6% \$ 180,734.83
OWNER'S OVERHEAD EXPENSE						3% \$ 90,367.41
SUBTOTAL						\$ 3,494,206.65
ENVIRONMENTAL						0% \$ -
SUBTOTAL						\$ 3,494,206.65
INTEREST DURING DESIGN/CONSTRUCTION:						0% \$ -
TOTAL PER MILE FOR 138 kV UNDERGROUND						\$ 3,494,206.65

SOUTH PADRE ISLAND - ESTIMATE SUMMARY

AEP 1988 Estimate

		Inflation index			
		54.3%	Total	Miles	
AEP Main circuit 1988 estimate Padre Blvd	\$ 1,194,570.00	\$ 648,651.51	\$ 1,843,221.51	0.83	\$ 1,522,054.13
AEP Branch circuit 1988 estimate Padre Blvd	\$ 779,500.00	\$ 423,268.50	\$ 1,202,768.50	1.06	\$ 1,273,385.59
AEP Main circuit 1988 estimate Gulf Blvd				0.68	\$ 1,256,741.94
AEP Branch circuit 1988 estimate Gulf Blvd				0.26042	\$ 313,220.96
Total AEP UG Estimate Dble Circuit 1988					\$ 4,365,402.62

R W Beck Estimate

Padre Blvd Circuit

SPI Primary 2005 Estimate					\$ 2,027,625.44
SPI secondary estimate					\$ 161,680.80
SPI Lighting Estimate					\$ 145,512.72
SPI Cable Telephone Estimate					\$ -
Total SPI Estimate Subtotal					\$ 2,334,818.96
Income Tax(27.49%)					\$ 641,841.73
Total					\$ 2,976,660.69
OVH Removal					\$ 230,000.00
Total SPI Estimate Total					\$ 3,206,660.69

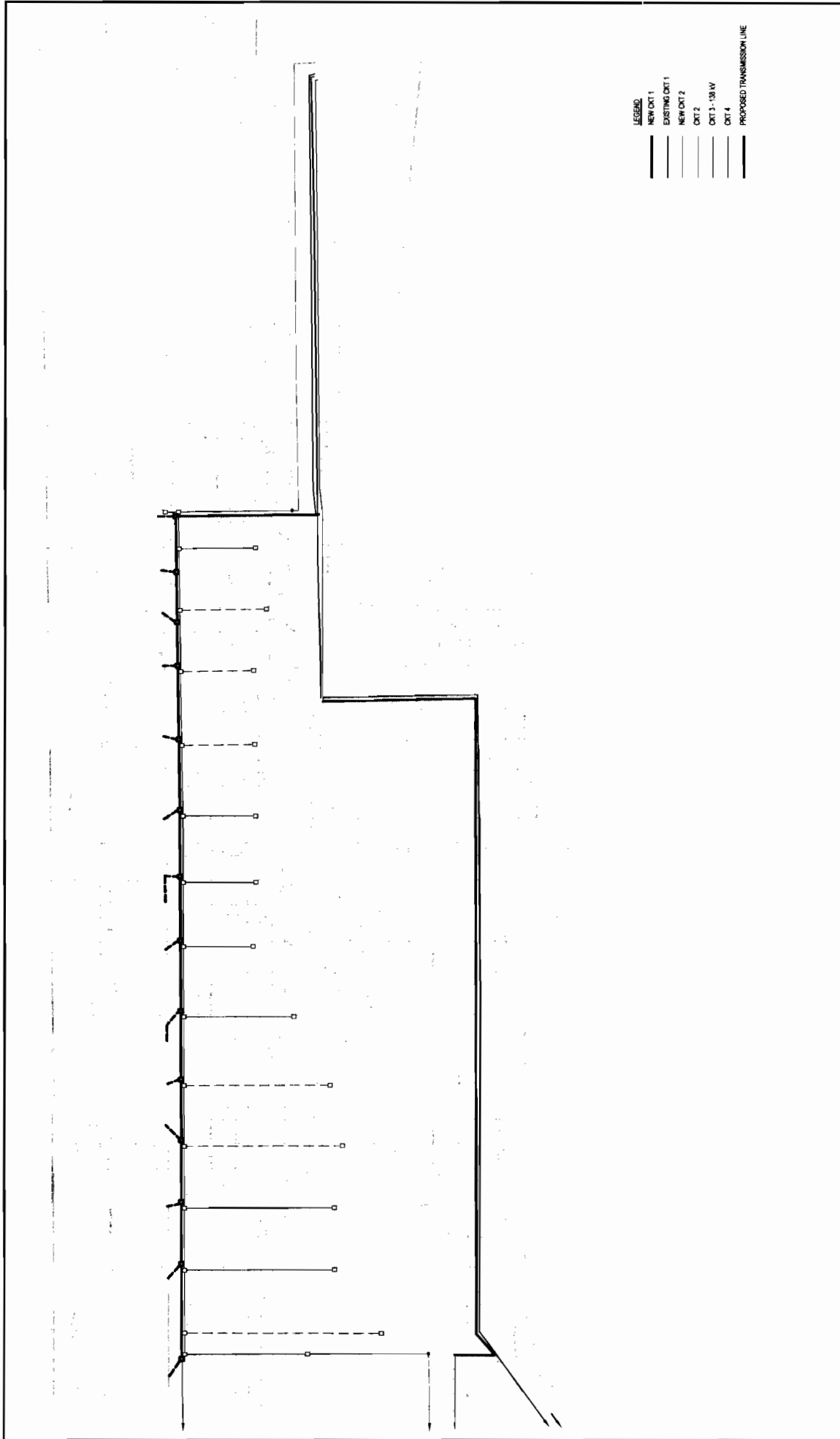
Gulf BLVD Circuit

SPI Primary 2005 Estimate					\$ 872,412.76
Total SPI Estimate Subtotal					\$ 872,412.76
Income Tax(27.49%)					\$ 239,826.27
Total					\$ 1,112,239.02
OVH Removal					\$ 230,000.00
Total SPI Estimate Total					\$ 1,342,239.02

Total Double circuit UG

Total Double circuit UG					\$ 4,548,899.71
Transmission Line Estimate(4000 feet) subtotal		0.758 Miles			\$ 2,647,126.25
Income Tax(27.49%)					\$ 727,695.01
transmission line Total(Swordfish ot Haas)					\$ 3,374,821.25
Total Relocation Cost -(swordfish to Haas)					\$ 7,923,720.97

Exhibit 4
Conceptual Sketches



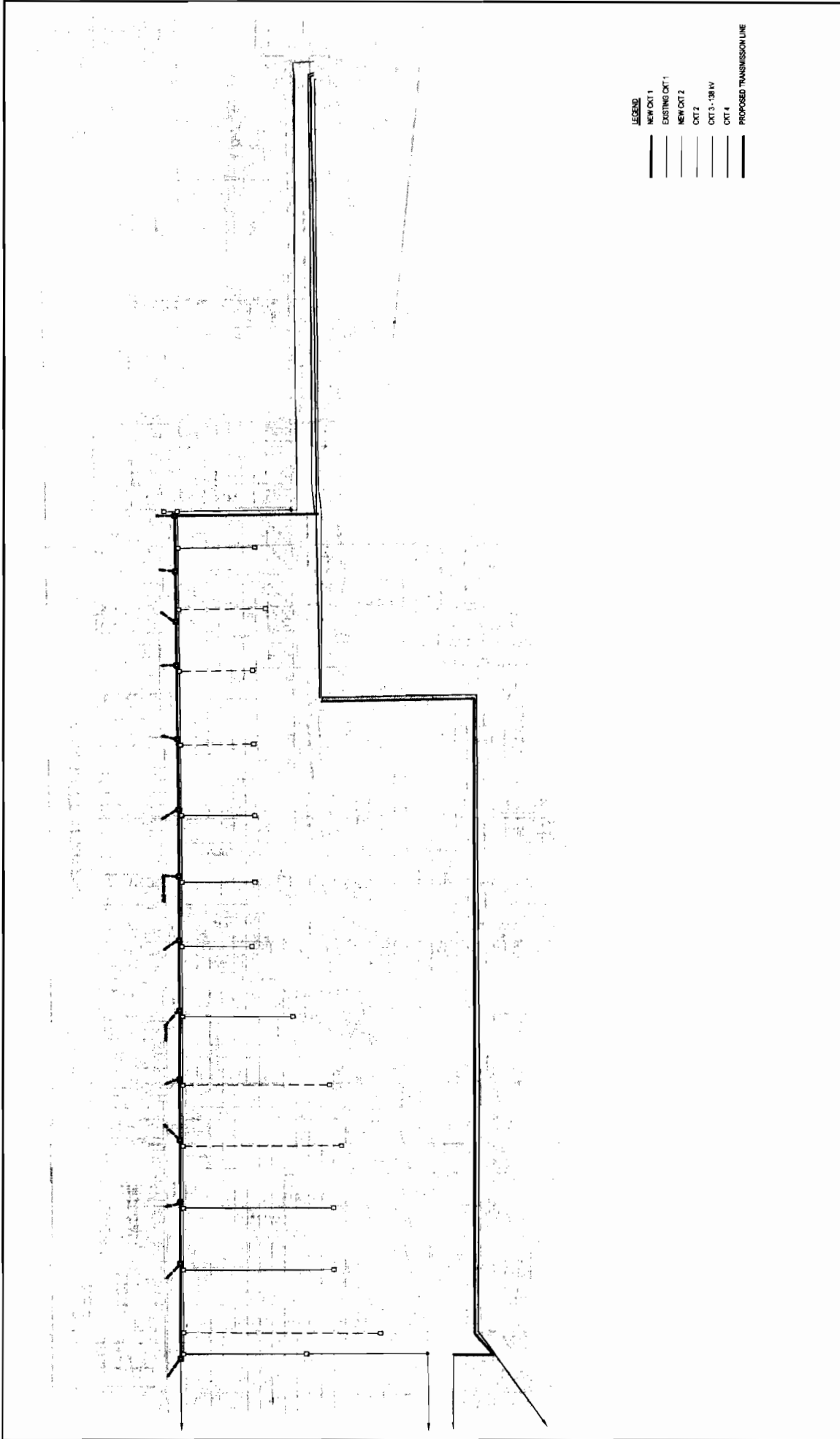
- LEGEND**
- NEW OLT 1
 - - - EXISTING OLT 1
 - NEW OLT 2
 - - - OLT 2
 - OLT 3 - 138 KV
 - - - OLT 4
 - PROPOSED TRANSMISSION LINE

DESIGNED		PAH		PROJECT NUMBER	
DRAWN		CMC		0770071-0006-1000	
ISSUED FOR REVIEW:		REVISION DESCRIPTION		SOUTH PADRE ISLAND TEXAS	
REV	DATE	CHRD	APPD	PROJECT NUMBER	
A				0770071-0006-1000	
				SHEET 1 OF 2	
				DRAWING NUMBER	



R.W. Beck, Inc.
400 Professional Park Dr.
Goodlettsville, TN 37072-2100
(615) 659-3900

ISSUED FOR REVIEW

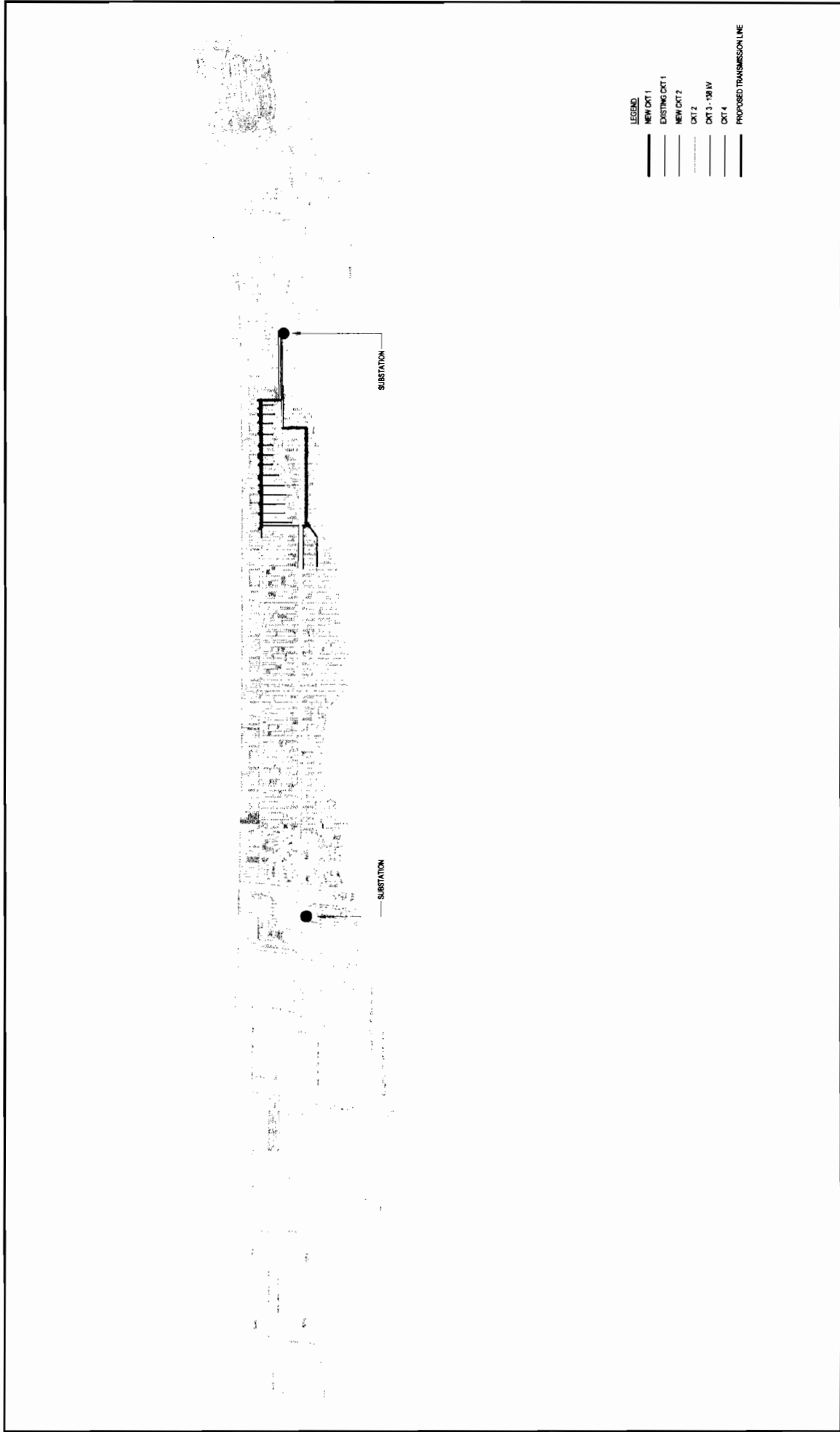


- LEGEND
- NEW CKT 1
 - EXISTING CKT 1
 - NEW CKT 2
 - CKT 2
 - CKT 3 - 138 KV
 - CKT 4
 - PROPOSED TRANSMISSION LINE


DESIGNED		PAH		PROJECT NUMBER: 07 70071-0086-1000	
DRAWN		CMC		SOUTH PADRE ISLAND TEXAS	
ISSUED FOR REVIEW		REVISION DESCRIPTION		R.W. Beck, Inc. 400 Professional Park Dr. Goodlettsville, TN 37072-2100 (615) 859-3900	
REV	DATE	CHKD	APPR	PROJECT NUMBER: 07 70071-0086-1000	
A				SHEET OF: 2 2	
				DRAWING NUMBER	



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- LEGEND**
- NEW DKT 1
 - - - EXISTING DKT 1
 - · · NEW DKT 2
 - · - DKT 2
 - DKT 3 - 100 kV
 - - - DKT 4
 - PROPOSED TRANSMISSION LINE

DESIGNED		PAH	
DRAWN		CMC	
REV	DATE	CHKD	APPD
A			
		ISSUED FOR REVIEW	
		REVISION DESCRIPTION	
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SOUTH PAURE ISLAND TEXAS		 R.W. Beck, Inc. 400 Professional Park Dr. Goodlettsville, TN 37072-2100 (615) 858-3900	
PROJECT NUMBER 07-7007-0086-1000		SHEET OF	
DRAWING NUMBER			

ISSUED FOR REVIEW