



March 7, 2005

City of Cape Coral
Public Works Department
P.O. Box 150027
Cape Coral, FL 33915-0027

Attn: Mr. Alberto del Valle

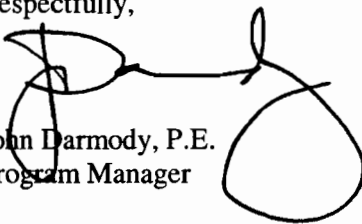
Dear Alberto,

**RE: Work Authorization for
Southwest Area 4 Utilities Extension Design**

Attached is our proposal for the Work Authorization covering the design services for the Southwest Area 4 of the Utility Extension Program. This proposal details the services to be provided under this Work Authorization and the cost of those services for a Lump Sum Price of \$3,690,561.00

The design will subdivide the SW4 area into six construction packages, similar to the approach taken with previous utility extension design work authorizations. The design process, which includes construction bid support, is anticipated to take 12 months from issuance of the Notice to Proceed.

Respectfully,


John Darmody, P.E.
Program Manager

CC: Wayne Wolfarth, City Project Manager
Larry Laws, Deputy Program Manager

Attachments:

1. Proposal for Engineering Services
2. Proposal for Preconstruction Services
3. Work Authorization Southwest Area 4 Utility Extension.

WORK AUTHORIZATION for SOUTHWEST 4 AREA DESIGN

This Work Authorization is hereby issued pursuant to the Agreement for Program Management At Risk Services For Water, Wastewater & Irrigation Facilities ("Agreement"), dated September 10, 2004 between the City of Cape Coral, Florida ("City") and MWH Americas, Inc. ("Program Manager or PM").

All terms used herein shall have the same meaning as defined in the Agreement unless otherwise noted herein. In consideration of the mutual covenants and agreements set forth below, City and Program Manager agree as follows:

1. **Contract Document:** The Contract Documents consist of the Agreement, including executed Work Authorizations with attachments, Change Orders, Supplemental Task Change Directives, Agreement Amendments all as referenced herein, hereinafter defined or otherwise identified in customary usage and trade. All of the foregoing Contract Documents are incorporated by reference and made a part of the Agreement.
2. **Work Description:** Provide engineering and pre-construction services for the design, construction bidding and permitting of water, irrigation, wastewater collection and transmission systems to serve the area described by the City as Southwest 4. A more detailed description of these services is contained in the MWH Proposal for Engineering Services for the Southwest 4 Utility Extension Area and MWH Proposal for Preconstruction Services as attached.
3. **Compensation of Services:** This Work Authorization shall be compensated on a lump sum basis. Monthly payments will be made based on the agreed percent complete of the work authorization. The agreed Total Lump Sum Fee is \$3,690,561.00.
5. **Project Schedule:** This work authorization shall be for a period of 365 calendar days extending from the date signed by the City of Cape Coral. Signature by the City shall be authorization to proceed with the work.
6. **Attachments included in this Work Authorization:**
 - A. Proposal for Engineering and Pre-construction Services including a map indicating limits for the scope of services

IN WITNESS WHEREOF, the parties have executed this Work Authorization on the date(s) indicated below:

CITY

The City of Cape Coral, Florida

By: *Trance Stewart*

Title: ~~4500~~ City manager

Date: 4-5-05

PROGRAM MANAGER

MWH Americas, Inc.

By: *[Signature]*

Title: VCE PRESIDENT

Date: 3/29/05

(SEAL)
ATTEST:

[Signature]

City Clerk

LEGAL REVIEW:

Marilyn W. Miller

ASST. City Attorney

ATTACHMENT A

WORK AUTHORIZATION No.

Proposal for Engineering and Pre-construction Services including a map indicating limits for the scope of services

MWH AMERICAS, INC

SOUTHWEST 4 UTILITY EXTENSION AREA

PROPOSAL FOR ENGINEERING SERVICES

SCOPE OF WORK

1. INTRODUCTION

The City of Cape Coral has retained the services of MWH to provide engineering and construction for extending potable water, wastewater, and irrigation service to the Southwest 4 Area as indicated in **Figure 1 Project Area**.

The Southwest 4 area extends generally from Mohawk Pkwy north to Veterans Pkwy and from Skyline Blvd west to Chiquita Blvd. The area extends to the west of Chiquita bordered by Perch and Progress canals and the Gulf Middle School. There is a smaller area west along SW 32nd St bordered by Killer Canal.

The Southwest 4 area requires potable water, wastewater and irrigation utilities.

2. PROJECT DESCRIPTION

The project area has been delineated into six preliminary contract areas as shown in **Figure 2 Contract Areas**. The six contract areas and a summary of the key features are listed in **Table 1**.

Table 1 Contract Areas

Subcontract Area	Length of Roadway (ft)	Utilities Required	Estimated Cost /LF	Preliminary Opinion of Cost
Contract A	38,543	All	200	\$7,708,600
Contract B	39,117	All	200	\$7,823,400
Contract C	49,038	All	200	\$9,807,600
Contract D	48,719	All	200	\$9,743,800
Contract E	34,445	All	200	\$6,889,000
Contract F	33,868	All	200	\$6,773,600
Totals	243,730			\$48,746,000

3. SCOPE OF SERVICES

MWH will provide engineering services for the design of the water and irrigation distribution and wastewater collection and transmission systems as described above to serve the SW4 area. The design will be divided into a maximum of six geographic packages to allow for separate construction contracts to be prepared.

The following tasks will be performed:

3.1 Field Surveys

MWH will provide design survey services as required for the development of a comprehensive set of construction plans. These services include:

- Locate with GPS existing permanent reference monuments along the pipeline alignments and section corners within the project area sufficient to establish control for the total project.
- Set centerlines of rights-of-way.
- Establish traverse along the project baseline, setting benchmarks at 1,000-foot intervals to provide control for construction layout and as-built locations.
- Conduct site surveys of the proposed locations for new pumping stations as required.
- Collect topographic information along streets and at street intersections and driveways. Elevations along streets will generally be provided at 100 foot intervals, or more frequently where the topography requires.
- Survey profiles across existing canals and collect topographic information for directional drilling as required.
- Locate existing visible utility features, such as manholes, valve covers, etc., power poles, trees and storm drainage structures. Identify invert elevations of storm drainage structures and size, direction and invert levels of storm drainage pipe. Identify invert levels of manholes and size, direction and invert levels of sewer pipes.
- Identify existing houses, locate existing septic cleanouts and water treatment equipment, locate and specify type of driveway, locate existing service connections (water and irrigation meter boxes).
- Prepare a base map showing existing topographic features in a format suitable for preparation of plan and profile sheets and site plans.
- Prepare up to 20 legal descriptions for required easements and property acquisitions.
- The horizontal survey datum will be NAD 1983 (1990 Adjustment) and vertical datum will be NGVD 1929.

3.2 Soil Borings

MWH will contract with a geotechnical firm to provide soil borings along the routes of the transmission mains as required for the development of a geotechnical survey of the project area. Soil borings will include:

- Standard Penetration Test (SPT) borings to a depth of 15 feet on approximately 500-foot centers along the route of the proposed utility lines.
- Power Auger borings to a depth of 15 feet on approximately 500-foot centers off-set between the SPT borings along the route of the proposed utility lines.

- Perform one SPT borings to a depth of 30 feet at each of 10 proposed lift station sites and 2 SPT borings at the canal crossings to a depth of 30 feet.
- Review each soil sample obtained in the field exploration program in our laboratory for further identification and assignment of laboratory tests, as required.
- Perform appropriate laboratory tests on selected samples, as required. Tests may include classification tests consisting of sieve analysis, Atterberg limits and/or organic content to aid in soil classification;
- Analyze the existing soil conditions with respect to geotechnical aspects of design and construction.
- Prepare a report on the results of field investigations and; laboratory testing programs and present conclusions and recommendations. Subsoil conditions will be presented on typed soil boring logs. Boring locations will be shown on 11" x 17" drawings of the project area in the final drawing set.

3.3 Preliminary Engineering/30% Level of Completion

Prepare for and attend a project kick-off meeting with City staff to discuss project goals, project team organization, communication protocols, and schedule.

- Review record drawings of existing utilities including potable water and irrigation distribution and transmission mains, gravity sewer, pump stations, and stormwater systems.
- Prepare a preliminary layout of the water, wastewater, and irrigation facilities needed to serve the properties in the area that will indicate approximate locations for pumping stations. The development of this layout will be an interactive process with City staff to incorporate operational, traffic and real estate considerations into the design.
- Prepare a hydraulic model of potable water, irrigation water and sewer forcemain systems to be used to determine pipe sizing and lift station pump design criteria.
- Prepare aerial photo-map based plan sheets indicating the preliminary alignment of the proposed utility lines.
- Coordinate electrical service to pump stations with LCEC.
- Determine preliminary locations of proposed pumping stations and preliminary design conditions for the pumps. Coordinate with LCEC on power supply issues.
- Prepare a table of contents of the technical specifications.
- Prepare for and attend design review meetings with City staff and prepare meeting notes.
- Identify project permit requirements and information needed for submittals.
- Submit seven sets of 30% completion photo-maps for review and comment.
- Prepare a bond report for the project.

3.4 Design - 50% Level of Completion

MWH will prepare a 50% level of completion submission for the proposed utilities. The basis will be aerial photo-maps. Preparation of the 50% plans will include:

- Complete final alignment for proposed utility mains. Prepare aerial photo-map based plan sheets indicating the preliminary alignment of the proposed utility lines. The scale of the maps will provide more detail than the 30% design level maps.
- The aerial photo-map based plan sheets will indicate the final alignment in plan, and will include the location of pumping stations, manholes, valves, fittings, fire hydrants, and other appurtenances, as well as connections to existing City utilities. Identify plan view conflicts and any necessary easements that can be identified at this stage.
- Gravity sewer design includes preliminary manhole numbering, rim elevations, invert levels, pipeline lengths, grades and depth range.
- Prepare a preliminary design for the new pumping stations and prepare 50% completion drawings (including force main size and route, pump duty point).
- Discuss resolution of review comments, utility relocation issues, and final alignment for the proposed pipelines.
- Where storm water pipes interfere with the new utilities, these may be designed to be replaced and possibly upsized.
- Submit seven sets of 50% completion aerial photos for review and comment.
- Prepare a preliminary opinion of probable construction cost.
- Prepare for and attend design review meetings with City staff and prepare meeting notes.

3.5 Design - 75% Level of Completion

MWH will prepare 75% level of completion drawings for the proposed utilities. Preparation of the 75% plans will include:

- Develop detail plan and profile sheets. Revise plans as required to reflect comments.
- Complete final alignment for proposed utility mains and design for the new pumping stations and any modifications required of existing pump stations. Prepare 75% completion drawings. The drawings will indicate the final pipe alignment in plan, including permanent and temporary easements required. They will include the location of valves, fittings, fire hydrants, air release valves, restrained joint pipe, manholes, services, and other appurtenances. Profile drawings will be provided showing storm drainage improvements and with resolution of pipe conflicts. The pump station plans will include civil, structural, electrical, mechanical and landscape details and design conditions for pumps.
- Prepare draft project specifications, schedule of quantities and opinion of probable construction cost.
- Submit fifteen sets of 75% completion drawings and specifications for review and comment.

- Prepare for and attend design review meetings with City staff and prepare meeting notes.

3.6 Design - 90% Level of Completion

MWH will prepare 90% level of completion drawings for the proposed utilities. Preparation of the 90% plans will include:

- Revise plan and profile drawings as required to reflect 75% comments.
- Complete final plans for pipelines and pumping stations.
- Prepare project specifications, schedule of quantities and submit fifteen copies for review as part of the 90% completion submittal.
- Prepare 90% level schedule of quantities and opinion of probable construction cost.
- Submit fifteen sets of 90% completion drawings for review and comment.
- Prepare permit applications for internal review as part of the 90% submittal. Schedule and attend pre-application meetings with the agencies as required.
- Prepare for and attend design review meetings with City staff and prepare meeting notes.
- Provide the appropriate number of copies of permit applications with required attachments including signed and sealed documents for submittal to agencies. After the permit applications are submitted to the agencies, MWH will respond to requests for additional information or clarification.

3.7 Design - Final Submittal

The final design submittal will include the following deliverables:

- One set of original reproducible drawings and technical specifications.
- Twenty five copies of final drawings and specifications.
- Seven sets of aerial photo-map based plans for each contract area showing all utilities and major project features;
- One set of final design drawings in electronic format (AutoCad 2000).
- Final schedule of quantities and opinion of probable construction cost.
- Information necessary for permit applications

Additional Services – Included

- Bond report
- Hydraulic Modeling of the proposed potable water, wastewater forcemains and irrigation system
- Design of additional stormwater pipes in the vicinity of the work up to a capital cost of \$500,000. A short (approx. 10 page) report will be prepared to provide guidance on pipe sizing for the project area. Pipe sizing will be determined for catchments of less than 10

acres. For more complex piping systems, pipe sizing will be based on upsizing of the existing pipelines.

Additional Services – Not Included

Additional services not included in the above scope of work that may be required for the project include:

- Design of stormwater systems beyond a limit of \$500,000 in capital cost.
- Inclusion of additional utility service areas beyond those shown in the diagrams accompanying this submission.
- Design of roadways and swales. It is assumed that roadways and swales will be replaced at the existing elevations.

Information to be Made Available to the Designer by Others

- GIS information from City’s database.
- Maps and construction drawings showing information on existing utilities within the Project Area (location, size, material etc) will be made available at the commencement of the project.
- A map or list of properties within the Project Area showing properties currently served with one or more utilities. Determination of properties to be assessed (Assessment Maps) will be prepared by the City.

4. SCHEDULE

The total design schedule has been estimated at 12 months. A summary breakdown by major activity is provided below.

Activity	Duration (wks)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
SURVEY	12	■	■	■	■								
GEOTECH.	16	■	■	■	■	■							
30% DESIGN	8	■	■	■	■	■	■						
50% DESIGN	8			■	■	■	■	■					
75% DESIGN	12				■	■	■	■	■				
90% DESIGN	6							■	■				
100% DESIGN	6									■	■		
BID ASSISTANCE	8										■	■	■

ATTACHMENT A

**Cost Proposal to City of Cape Coral
for the
Cape Coral Utility Extension Program**

**LUMP SUM FEE DEVELOPMENT FOR
MWH ENGINEERING, PRE-CONSTRUCTION
SUBCONSULTANTS AND ODCs
SOUTHWEST 4**

ENGINEERING DESIGN

<u>Classification</u>	Total Estimated Hours	Hourly Rate (\$)		Labor Cost (\$)
Program Manager	0	199.95		0
Program Technical Manager	305	186.00	1%	\$56,730
Principal Professional	400	178.47	2%	\$71,388
Supervising Professional	1,500	153.64	7%	\$230,460
Senior Professional	1,650	119.72	8%	\$197,538
Professional	2,240	98.77	11%	\$221,245
Associate Professional	2,330	79.21	11%	\$184,559
Senior Designer	2,560	113.58	12%	\$290,765
Drafter	9,100	70.71	44%	\$643,461
Clerk	480	60.36	2%	\$28,973
Subtotal	<u>20,565</u>			
TOTAL - ENGINEERING LABOR				\$1,925,119

SUBCONSULTANTS

Avalon Engineering Inc	894,306		
Survey Consultants	450,901		
Ardaman & Associates	198,790		
S.U.E. Investigations	20,000		
Subcontract Administration (6%)	93,840		
TOTAL - SUBCONSULTANT			\$1,657,836

PRECONSTRUCTION SERVICES

Attachment B		\$67,833
TOTAL - PRECONSTRUCTION SERVICES		\$67,833

OTHER PROJECT COSTS

Other Direct Costs	10% on engineering design labor	\$192,512
Commercial Printing	(891 dwgs + specs, 3 submissions + permits)	\$18,333
TOTAL - OTHER PROJECT COSTS		\$210,845

Less Work Performed on SW 2b2	\$171,071	
LUMP SUM FEE		\$3,690,561

Attachment B

Proposal Estimate - WA SW4 Construction Support During Design Design through GMP Development <i>MWH ENGINEERING</i>	Rates see page 2&3	Hours Management Supervision Admin	Inspection	Laboratory	Construction	Totals
Program Manager						
Program Design Manager						
Principal Engineer						
Senior Estimator						
Supervising Professional						
Estimator						
Senior Professional						
Senior Designer						
Professional						
Associate Professional						
Drafter						
Secretary						
<i>MWH CONSTRUCTION</i>						
Construction Manager		292				292
Deputy Construction Manager						
General Superintendent						
Senior Superintendent						
Project Engineer		168				168
Operations/Start-up Engineer						
Health and Safety Officer						
Scheduler						
Subcontract Administration		24				24
Superintendent/Foreman Inspector						
Inspector						
Secretary/Administrator		36				36
Subtotal Labor Hours		520				520
Billable Labor Cost (see pg 2)		\$ 61,666	\$ -	\$ -	\$ -	\$ 61,666
Other Direct Costs Reimbursable @ 10% of Direct Labor	10.00%	\$ 6,167			\$ -	\$ 6,167
Estimated Cost		\$ 67,833	\$ -	\$ -	\$ -	\$ 67,833
Contingency @ 0%		\$ -	\$ -	\$ -	\$ -	\$ -
Estimated Cost + Contingency		\$ 67,833	\$ -	\$ -	\$ -	\$ 67,833
Lump Sum						\$ 67,833

Attachment B

Labor Estimate by Year						
Proposal Estimate - WA SW4 Construction Support During Design Year 1 October 2004 - December 2005	Unit Rates	Management Supervision Admin	Inspection	Laboratory	Construction	Totals
	Year 1					
<i>MWH ENGINEERING</i>						
Program Manager	\$199.95					
Program Design Manager	\$186.00					
Principal Engineer	\$178.47					
Senior Estimator	\$164.30					
Supervising Professional	\$153.64					
Estimator	\$139.50					
Senior Professional	\$119.72					
Senior Designer	\$113.58					
Professional	\$98.77					
Associate Professional	\$79.21					
Drafter	\$70.71					
Secretary	\$60.36					
<i>MWH CONSTRUCTION</i>						
Construction Manager	\$127.20	112				\$14,246
Deputy Construction Manager	\$121.90					
General Superintendent	\$116.60					
Senior Superintendent	\$111.50					
Project Engineer	\$111.50	24				\$2,676
Operations/Start-up Engineer	\$111.50					
Health and Safety Officer	\$108.65					
Scheduler	\$92.75					
Subcontract Administration	\$82.15					
Superintendent/Foreman Inspector	\$76.85					
Inspector	\$66.25					
Secretary/Administrator	\$58.30					
Subtotal		136				\$16,922
Billable Labor Cost @ Unit Rates		\$16,922				\$16,922

Attachment B

Labor Estimate by Year						
Proposal Estimate - WA SW4 Construction Support During Design Year 2 January 2006 through May 2006	Unit Rates Year 2	Management Supervision Admin	Inspection	Laboratory	Construction	Totals
<i>MWH ENGINEERING</i>						
Program Manager	\$207.95					
Program Design Manager	\$193.44					
Principal Engineer	\$185.61					
Senior Estimator	\$170.87					
Supervising Professional	\$159.79					
Estimator	\$145.08					
Senior Professional	\$124.51					
Senior Designer	\$118.12					
Professional	\$102.72					
Associate Professional	\$82.38					
Drafter	\$73.54					
Secretary	\$62.77					
<i>MWH CONSTRUCTION</i>						
Construction Manager	\$132.29	180				\$23,812
Deputy Construction Manager	\$126.78					
General Superintendent	\$121.26					
Senior Superintendent	\$115.96					
Project Engineer	\$115.96	144				\$16,698
Operations/Start-up Engineer	\$115.96					
Health and Safety Officer	\$113.00					
Scheduler	\$96.46					
Subcontract Administration	\$85.44	24				\$2,051
Superintendent/Foreman Inspector	\$79.92					
Inspector	\$68.90					
Secretary/Administrator	\$60.63	36				\$2,183
Subtotal		384				\$44,744
Billable Labor Cost @ Unit Rates		\$44,744				\$44,744
Billable Labor Cost Years 1 + 2:		\$61,666				\$61,666