### <u>AGENDA</u>

#### **ENGINEERING COMMITTEE MEETING LEUCADIA WASTEWATER DISTRICT** Wednesday, August 2, 2017 – 8:30 a.m.

1960 La Costa Avenue, Carlsbad, CA 92009

- 1. Call to Order
- 2. Roll Call
- 3. Public Comment

#### 4. New Business

- A. Authorize the General Manager to execute a three-year professional services agreement with ADS Corporation (ADS) for equipment maintenance and analysis of data for ten (10) ECHO depth meters in an amount not to exceed \$42,840. (Pages 2 6)
- B. Authorize the General Manager to execute an Engineering Services contract to update the District's Asset Management Plan with Dexter Wilson Engineering, Inc. in an amount not to exceed \$99,100. (Pages 7 17)

#### 5. Information Items

- A. Update of the Leucadia (L1) Force Main West Section Replacement Project. (verbal)
- B. 2017 Gravity Pipeline Rehabilitation and La Costa Gravity Sewer Alteration Project status. (verbal)

#### 6. Directors' Comments

#### 7. General Manager's Comments

8. Adjournment

#### MEMORANDUM

DATE: July 27, 2017

TO: Engineering Committee

FROM: Paul J. Bushee, General Manager

SUBJECT: ADS Corporation Agreement to tease ECHO SSO/Depth Meters for Monitoring, Data Analysis and Presentation, and Maintenance for Ten (10) Flow Meters

#### **RECOMMENDATION:**

Staff requests that the Engineering Committee recommend that the Board of Directors:

- 1. Authorize the General Manager to execute a three-year professional services agreement with ADS Corporation (ADS) for equipment maintenance and analysis of data for ten (10) ECHO depth meters in an amount not to exceed \$42,840.
- 2. Discuss and take other action as appropriate.

#### DISCUSSION:

For the past ten years, the District has utilized the Smart Cover system to monitor manhole areas of concern in the collection system. The Smart Covers are essentially a sensor that is mounted on the inside cover of the manhole that alerts LWD staff if the flow begins to surcharge and potentially spill. LWD maintains ten Smart Covers in the collection system and the existing meters are aging and will soon be obsolete.

As you may recall, LWD currently utilizes an ADS Corporation (ADS) flow monitoring system that monitors flows at seven pipeline locations throughout the service area. The system also provides an early alert alarm system that sends a text message to the operators in case of a surcharge and utilizes a unique computer software system that allows easy graphical viewing of the flow data.

Staff has recently learned that ADS offers a similar manhole sensor called the ECHO Meter. Staff pilot tested an ECHO Meter this past year and was impressed by its performance. One of the benefits of the ECHO Meter is that it integrates into the ADS software system so that staff can access both the flow meter information and the manhole level information under one system. The Smart Cover utilizes a separate software system that is not as user friendly.

At staff's request, ADS has submitted a proposal to replace the existing ten Smart Covers with ten new ECHO Meters. The proposal includes the installation, maintenance, and repair of the ten meters under a three-year lease program. Additionally, the contract will include flow data collection, analysis, and reporting. The cost of the lease would be fixed at \$14,280 per year for a total three-year cost of \$42,840. By comparison, the cost to replace ten Smart Covers is approximately \$38,690 with an additional maintenance fee of approximately \$12,830 per year.

The current equipment has been operating for over ten years. Therefore, staff used a ten-year period to compare the overall cost of the ADS proposal in the chart below.

| Smartcovers owned and maintained                          | Costs       | Annual<br>Costs | ADS Meters Leased                                   | Costs       | Annual<br>Costs |
|---|-------------|-----------------|---|-------------|-----------------|
| Active Site Management Yearly Cost<br>including all parts | \$1,283.00  | 3               | ADS annual Lease Costs per meter                    | \$1,428.00  |                 |
| Number of Meters  | 10          |                 | Number of Meters                                    | 10          |                 |
| Total Annual Maintenance Costs                            | \$12,830.00 | \$12,830.00     | Total Annual Lease Costs                            | \$14,280.00 | \$14,280.00     |
|   |             |                 |   |             |                 |
| Depreciation  |             |                 |   |             |                 |
| Costs per meter   | \$3,869.00  |                 |   |             |                 |
| Number of Meters  | 10          |                 |   |             |                 |
| Total Costs   | \$38,690.00 |                 |   |             |                 |
| Useful Life 10 years                                      | 10          |                 |   |             |                 |
| Annual Depreciation                                       | \$3,869.00  | \$3,869.00      |   |             |                 |
|   |             |                 |   |             |                 |
| Total Annual Costs  |             | \$16,699.00     | Cost per year to lease 10 meters (3 yr.<br>program) | lease       | \$14,280.00     |

As presented in the chart, the District will save \$2,419 annually or a total of \$24,190 over a ten-year period for maintenance and monitoring under the proposed ADS services agreement.

Therefore, based on the cost and system integration with the existing ADS monitoring system, staff recommends executing a three-year lease agreement with ADS for manhole level sensor monitoring services. The attached scope of work is provided for your review.

#### FISCAL IMPACT:

Sufficient funds have been appropriated in the fiscal year 2018 Operating Budget to cover the annualized cost of \$14,280 under this agreement.

js:PJB

Attachment

# ATTACHMENT A

### SCOPE OF WORK

CONSULTANT will operate a level monitoring network of ten (10) ECHO SSO/depth monitors for DISTRICT in the Cities of Carlsbad and Encinitas, California. The work will be performed as set forth below:

### Phase I – Mobilization

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 Equipment. CONSULTANT will supply new ADS ECHO depth meter technology which is CONSULTANT's newest monitor. It offers a longer battery life and fewer parts for a more reliable system. The ECHO will be equipped with wireless communication which will allow for remote collection, review and alarming of all data. The ECHO equipment will stay the property of CONSULTANT.

ECHO meters are certified under IECEx (International Electrotechnical Commission Explosion Proof) Intrinsic Safety standards for use in Zone 0/Class I, Div. 1, Groups C&D rated hazardous areas.

CONSULTANT will be responsible for all parts replacements and warranty items for the duration of the contract.

2) <u>Installation</u>. Certified CONSULTANT technicians will install the ECHO monitors using a 2-person certified confined space entry crew.

**Phase II – Comprehensive Service** - CONSULTANT will provide services to maintain and operate the depth monitoring equipment during the Agreement period (July 1, 2017 through June 30, 2020).

- 1) <u>**Diagnostics:**</u> Remote diagnostic inspection of all equipment using the most current procedures and programs from its facilities in San Diego, CA or other service locations.
- 2) <u>Repair:</u> Repair and preventative maintenance services, including battery replacement (assuming a 15-minute sample rate), necessary to keep the equipment operating in accordance with the manufacturer's design specifications. CONSULTANT will respond to a malfunction within two (2) business days and perform repairs or temporary repairs within (2) business days thereafter. The types of conditions to be repaired and repair services to be performed under this Agreement include but are not limited to the following:
  - Communication link failure including control boards, modem, and modem interface;
  - Hardware replacement sensor malfunction;
  - Low battery voltages Battery voltages shall be considered as being low when the voltage is less than 5.5V.
- Depth Confirmations: CONSULTANT will perform annual field confirmations according to CONSULTANT's current internal quality procedures for all of the ADS ECHO depth monitors including:
  - Verification of the depth of flow within manhole channel, topside only
  - Statement of confirmation

- 4) **Service Schedule:** The field service shall occur during the normal operating hours of 8:00 a.m. to 12:00 noon and 1:00 p.m. to 5:00 p.m. Monday through Friday (excluding holidays).
- 5) <u>Service Statement</u>: CONSULTANT shall prepare a statement of repair service whenever service or diagnostic functions are performed. These forms shall be submitted to DISTRICT upon request.
- 6) <u>Primary Contact</u>: CONSULTANT shall designate a field service representative who shall be the primary contact with DISTRICT for the resolution of field problems.

**Phase III - Data Collection, Data Review, and Alarming Services** (July 1, 2017 through June 30, 2020). Data services will be conducted from CONSULTANT's National Data Center where trained Data Analysts utilize Flowview software, as well as Six Sigma quality assurance procedures to maximize data usability and ensure data up-time.

- <u>Data Collection and Diagnosis</u>: Data will be uploaded from the depth meters every twenty-four (24) hours to the Flowview Operations web hosted system. CONSULTANT's data analysts will review the data (e.g. bi-weekly) to verify that equipment is in working order and will dispatch CONSULTANT field crews to perform equipment repair as needed.
- 2) <u>Data Alarming:</u> The Flowview web hosting system will send out real-time alarms (via the web, pagers, cell phones, emails) if any set triggers are reached at the individual depth meters. Alarm triggers can be set for Loss of Depth, Pipe Height, Overflow, and Three Levels of High.

### Exclusions:

The types of services excluded under this comprehensive service agreement include the following:

- Civil Engineer's Stamp on any plans for submitted for permitting;
- Work conducted outside of Service Schedule;
- Communication line work external to depth monitoring equipment;
- · Changes or alterations in specifications;
- Painting or refinishing or furnishing materials therefore except as damaged by CONSULTANT during service work;
- Installation, moving, or removing of equipment unless required as part of the repair process;
- Repairs made necessary due to the negligence of DISTRICT, its employees, agents, invitees, or contractors;
- Repairs made necessary due to attempts by DISTRICT to repair or maintain the equipment unless authorized by CONSULTANT;
- Maintenance and repair necessary to put equipment not under the comprehensive scheduled service contract in good repair;
- Equipment repair or replacement outside manufacturer's design specifications when knowingly directed by DISTRICT; and
- Repairs made necessary due to events beyond CONSULTANT's control (force majeure).

### DISTRICT Responsibilities:

- Access to the site of work with sufficient area for placement of personnel and equipment, including all right-of-way and ramps, if required. This includes, but is not limited to, exposing manholes, clearing easements and/or constructing roads or ramps suitable for truck/van, if necessary.
- 2) Pay all local licenses and permits fees, if required;

- 3) Assist in obtaining and complying with any special permits;
- 4) Ensure that selected sites have been jet cleaned to minimize hydraulic deficiencies; and
- 5) Provide any information concerning bypasses, overflows, base flows, critical surcharge areas, and maintenance habits.

### Pricing:

### Three-Year Service Period July 1, 2017 - June 30, 2020\*

| Item  | No of<br>Depth<br>Monitors | Monthly<br>amount<br>per monitor | Total No. of<br>Monitor-<br>Months<br>per year | Annual<br>Amount** |
|---|----------------------------|----------------------------------|--|--------------------|
| Installation, Service and Data<br>Review, Flowview Operations | 10                         | \$ 119.00                        | 120  | \$ 14,284.00       |
| Move Monitor @ \$350 per/move                                 |                            |                                  |  | N/A                |
| Confined Space @ \$250 per/entry                              |                            |                                  |  | N/A                |
| 2017-2018 Total Annual Fee:                                   |                            |                                  |  | \$ 14,280.00       |
| 2018-2019 Total Annual Fee:                                   |                            |                                  |  | \$ 14,280.00       |
| 2019-2020 Total Annual Fee:                                   |                            |                                  |  | \$ 14,280.00       |
| Total 3-Year, Contract Amendment Amount:                      |                            |                                  |  | \$ 42,840.00       |

- \* Pricing is valid for the three-year contract period. CONSULTANT reserves the right to request reasonable pricing increases for contract extensions for periods after June 30, 2020.
- \*\* Payment due within 30 days of receipt of quarterly invoice.
- \*\*\* The DISTRICT can add ECHO Depth Monitors as needed for the duration of this contract.

### MEMORANDUM

Ref: 18-5518

| DATE:    | July 27, 2017                       |
|----------|-------------------------------------|
| TO:      | Engineering Committee               |
| FROM:    | Paul J. Bushee, General Manager     |
| SUBJECT: | Update of the Asset Management Plan |

#### **RECOMMENDATION:**

Staff requests that the Engineering Committee recommend that the Board of Directors:

- 1. Authorize the General Manager to execute an Engineering Services contract to update the District's Asset Management Plan with Dexter Wilson Engineering, Inc. in an amount not to exceed \$99,100.
- 2. Discuss and take other action as appropriate.

#### DISCUSSION:

In January 2013 the Board of Directors adopted the updated District's Asset Management Plan (AMP) developed by Dexter Wilson Engineering (DWE). As you may recall, a unique aspect of the AMP is that it developed a methodical approach to analyze and potentially replace District's assets prior to failure. As a result of implementing the 2013 AMP, Infrastructure Engineering Corporation (IEC) completed an assessment of the District's pump stations in 2014. The results of this assessment were used to identify and define the scope of pump station projects. Additionally, a gravity pipeline trial lining project, including lateral connections to the District's main line, was completed in 2014. Subsequently, the continued implementation of the AMP resulted in the completion of the following capital improvement projects:

- > 2015 Gravity Pipeline Rehabilitation
- > 2016 Gravity Pipeline Rehabilitation
- Batiquitos B1/B2 Force Main Replacement
- > Recycled Water Valve & Creek Crossing Repair
- > La Costa Pump Station Rehabilitation
- > Scott's Valley Pipeline Repair
- > Saxony Pump Station Rehabilitation
- Gafner AWT Condition Assessment
- > Village Park No.5 Pump Station Replacement
- > Leucadia (L1) Force Main West Section Replacement

As capital projects are completed, Staff believes it is prudent to update the District's AMP to document the general condition of District assets, recommend capital improvements and provide an estimated cost for the recommended future projects. Typically the AMP is updated on a 5 year cycle. DWE was asked to provide a proposal to complete the update. The Scope of Services in DWE's proposal, attached for your review, includes:

- 1. Update of background information, historic flow data and Equivalent Dwelling Units.
- 2. Update all asset category chapters (for example gravity lines, pump stations, etc.).
- 3. Utilize the predictive failure model to forecast gravity line estimated future expenditures.
- 4. Revise pump station and force main expenditures and replacement reports to incorporate completion of recent projects.
- 5. Review the implementation of the Island Area Master Plan.
- 6. Prepare a 5-year CIP and 20-year summary of capital expenditures.

DWE was requested to submit a proposal because: 1) DWE worked closely with staff to develop the initial and 2013 AMP update; 2) DWE developed the predictive failure model used for assessing gravity lines and manholes; 3) DWE has in depth knowledge of the District's operations from their work on developing and auditing the District's Sewer System Management Plan (SSMP); 4) it provides continuity in the AMP process; and 5) it is the most efficient way to update the AMP. Based on these reasons, the procurement of this engineering service with DWE satisfies the criteria for sole sourcing allowed under Section 10.1, Sole Source Procurement, and Section 11.4, Continuing Services, of the District's Procurement Policy.

The AMP is a District cornerstone document. It was developed as a "living" document which requires updating as part of its implementation. Therefore, staff requests authorization for the General Manager to execute an Engineering Services contract to update the District's AMP with Dexter Wilson Engineering, Inc.

rym:PJB

Attachment

DEXTER S. WILSON, P.E. ANDREW M. OVEN, P.E. STEPHEN M. NIELSEN, P.E. NATALIE J. FRASCHETTI, P.E.

July 24, 2017

103-017

Leucadia Wastewater District 1960 La Costa Avenue Carlsbad, CA 92009

Attention: Robin Morshita, Technical Services Manager

Subject: 2017 Leucadia Wastewater District Asset Management Plan

Leucadia Wastewater District's previous Asset Management Plan was developed in 2012 and finalized in January 2013. A key recommendation in the Asset Management Plan was to build upon the District's enhanced CCTV efforts, which begin in the 2011-2012 timeframe, to develop a process by which structural and operational issues within the gravity sewers were identified and addressed.

The District has established a methodology, has an ongoing list of prioritized repairs, and has replaced or repaired numerous gravity sewer segments as a result. It takes approximately three years to CCTV the District gravity sewers. Because the District now has a robust system in place to identify and prioritize for replacement, use of the predictive failure model for its original intention (to identify potential areas of concern) is no longer relevant. As such, this Asset Management Plan will utilize the 2013 predictive failure model, and subsequent CCTV evaluations, to assist in projecting the estimated timing of expenditures into the future.

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In addition to the gravity sewers, the update to the Asset Management Plan will focus on identifying long-term capital expenditures expected for the District's manholes, pump stations, and force main assets in addition to the Gafner Water Reclamation Plant and ownership at Encina Wastewater Authority.

The detailed Scope of Services anticipated for the Asset Management Plan is provided below. Exhibit "A" presents a summary of hours for each task within the Scope of Services. Exhibit "B presents a summary of costs for each task.

#### SCOPE OF SERVICES

To revise the Asset Management Plan (AMP), we propose to complete the following tasks. The corresponding chapters from the 2013 AMP are shown in parentheses.

- 1. Review and incorporation of District background documents
  - a. SSMP and Subsequent Audits
  - b. IEC Pump Station Inspection
  - c. Financial Plan
- 2. Update background information
  - a. Update weather and rainfall section (Chapter 1) discuss drought over last few years, wet winter flows, and provide annual rainfall since 2007.
  - b. Note any changes to drainage basins and other existing system components (Chapter 2).
- 3. Update historic flow data and EDUs (Chapter 3) through June 2017. Confirm that Chapter 3 flow and EDU conclusions are still relevant.
  - a. Incorporate historic flow data through June 2017.
  - b. Update EDU percent of buildout by drainage basin.
  - c. Review LWD sub-basin monitoring data for trends.

- 4. Revise Ultimate EDU projections for the District (new Chapter). This requires review of SANDAG land use information from Cities of Carlsbad and Encinitas to evaluate buildout land uses and EDUs within the District.
- 5. Work with IEC to model those drainage basins that either (1) have an Ultimate EDU projection significantly greater than prior projection or (2) projected buildout flows exceed what was modeled previously. This task assumes modeling of 50 percent of the District. DWEI would direct IEC's modeling efforts. IEC cost to be provided separately.
- 6. Evaluate average sewage factors of 215 gpd/EDU, 250 mg/l BOD, and 250 mg/L TSS using available data from Encina Wastewater Authority quarterly sampling.
- 7. Update Gravity Sewer Pipeline Recommendations (Chapter 4)
  - a. Based on SSMP work, update status of SMA evaluation and VCP pipe cradle inspection (and other areas as directed by the District to develop 5 year CIP).
  - b. Document and evaluate CCTV progress. Specifically, review pipeline and manhole repair priority lists, CIP projects and miscellaneous line repair projects since 2012 AMP. Review CCTV inspection status. Provide CIP and process recommendations.
  - c. Compare CCTV status to 2012 AMP predictive failure model results. Identify areas recommended for focused inspection.
  - d. Identify CIP projects.
- 8. Update Gravity Sewer Manhole Recommendations (Chapter 5.) Provide discussion/evaluation of manhole rehabilitation methods based on District experience.
- 9. Build on CIP projects and SSMP work to update pump station replacement reports, revise pump station expenditures, and incorporate into 5-year CIP and 20-year Capital Expenditures (Chapter 6).
- 10. Regarding Pump Stations, Chapter 6 presently provides pump nameplate capacity information. Add estimates of actual pumping rates, flow rates to the station based

on EDUs and LWD sub-meters, the design wet well setpoints, actual operating set points, and wet well operational volumes to evaluate pump starts.

- 11. Update forcemain chapter based on CIP projects since 2012 (Chapter 7). Identify 5year CIP and 20-year Capital Expenditures.
- 12. Update jointly-owned facility chapter based on CIP projects since 2012 (Chapter 8). Identify 5-year CIP and 20-year Capital Expenditures.
- 13. Update recycled water facilities chapter based on CIP projects since 2012 (Chapter9). Identify 5-year CIP and 20-year Capital Expenditures.
- 14. Update Encina capital project tables (Chapter 10) and incorporate into 5-year CIP and 20-Year Capital Expenditures.
- 15. Prepare 5-year CIP and 20-year summary of Capital Expenditures (Chapter 11). Compare rate of gravity sewer pipeline replacement recommendations in 2012 AMP to actual CIP projects. Update Predictive Failure Model summaries of total length and cost to replace based on remaining Useful Life (2012 AMP Tables E-3 and E-4). Compare to CIP spending since 2012 AMP.
- 16. Island Area Master Plan (new chapter) Document portions of the IAMP which have been constructed. Provide discussion on connection policy approach (e.g., connect in easiest manner rather than strict adherence to IAMP).
- 17. Develop first draft of AMP (5 copies) for District review.
- 18. Incorporate revisions for final AMP. Produce 10 copies of final AMP.
- 19. Attend meetings with District staff as necessary.
- 20. Prepare presentation for Engineering Committee and Board Meeting after completion of final AMP.

#### Assumptions:

- 1. Work will build upon the 2013 Predictive Failure Model.
- 2. Update of the District's financial model and 50 year CIP are outside this scope of work.

#### COMPENSATION

Work completed under this contract will be billed on a monthly basis. Fees will be calculated on an hourly rate basis by multiplying the actual hours worked on the job in each classification by the rates in the schedule attached as Exhibit "C". These rates are subject to change in January of each year.

All direct costs will be billed outside the proposed cost ceiling at cost plus 10 percent.

#### TIME OF PERFORMANCE

All tasks will be performed in a timely manner. We anticipate the minimum time to complete all tasks is four months from execution of this contract.

#### QUALIFICATIONS

Dexter S. Wilson will supervise the services described above. Mr. Wilson is a Registered Civil Engineer in California and graduated from Stanford University with a Bachelor of Science in Chemistry, and from the University of Arizona with a Master of Science in Civil Engineering.

Natalie J. Fraschetti will provide the services described above. Ms. Fraschetti is a Registered Civil Engineer in California and graduated from the University of Florida with a Bachelor of Science degree in Environmental Engineering Sciences.

Thank you for the opportunity to provide a proposal on this project. If this proposal meets your approval, please prepare a contract in your format for our signature.

Respectfully submitted,

Dexter Wilson Engineering, Inc.

Fusit Matat-

Natalie J. Fraschetti, P.E.

NF:ps

Attachments

# Exhibit "A"

# Summary of Hours by Task

| Task  | Professional | Technical | Clerical | Total |
|-------|--------------|-----------|----------|-------|
| 1     | 24           | 0         | 0        | 24    |
| 2     | 12           | 4         | 0        | 16    |
| 3     | 40           | 8         | 0        | 48    |
| 4     | 40           | 70        | 0        | 110   |
| 5     | 32           | 16        | 0        | 48    |
| 6     | 40           | 0         | 0        | 40    |
| 7     | 60           | 24        | 0        | 84    |
| 8     | 16           | 0         | 0        | 16    |
| 9     | 16           | 0         | 8        | 24    |
| 10    | 40           | 0         | 8        | 48    |
| 11    | 8            | 0         | 0        | 8     |
| 12    | 8            | 0         | 0        | 8     |
| 13    | 8            | 0         | 0        | 8     |
| 14    | 8            | 0         | 0        | 8     |
| 15    | 40           | 8         | 16       | 64    |
| 16    | 24           | 16        | 0        | 40    |
| 17    | 24           | 8         | 40       | 72    |
| 18    | 16           | 8         | 40       | 64    |
| 19    | 24           | 0         | 0        | 24    |
| 20    | 8            | 0         | 0        | 8     |
| TOTAL | 488          | 162       | 112      | 798   |

# Exhibit "B"

# Summary of Costs by Task

| Task    | Cost, \$ |
|---------|----------|
| 1       | 3,600    |
| 2       | 2,320    |
| 3       | 7,040    |
| 4       | 13,300   |
| 5 – DWE | 6,240    |
| 5 - IEC | TBD      |
| 6       | 6,000    |
| 7       | 12,120   |
| 8       | 2,400    |
| 9       | 2,920    |
| 10      | 6,520    |
| 11      | 1,200    |
| 12      | 1,200    |
| 13      | 1,200    |
| 14      | 1,200    |
| 15      | 8,080    |
| 16      | 5,680    |
| 17      | 7,240    |
| 18      | 6,040    |
| 19      | 3,600    |
| 20      | 1,200    |
| TOTAL   | \$99,100 |

### Exhibit "C"

# DEXTER WILSON ENGINEERING, INC.

# Rate Schedule Effective January 1, 2017

# CLASSIFICATION

# HOURLY RATE

### **Office Personnel:**

# Planning/Design

| Principal Engineer (RCE) | \$210.00 |
|--------------------------|----------|
| Managing Engineer (RCE)  | \$200.00 |
| Project Engineer (RCE)   | \$180.00 |
| Senior Engineer (RCE)    | \$140.00 |
| Design Engineer (RCE)    | \$130.00 |
| Associate Engineer II    | \$120.00 |
| Associate Engineer I     | \$110.00 |
| Engineering Aide II      | \$110.00 |
| Engineering Aide I       | \$ 95.00 |
| Drafting/Design          |          |
| Senior Designer          | \$115.00 |
| Senior Drafter           | \$105.00 |
| Drafter II               | \$ 90.00 |
| Drafter I                | \$ 80.00 |
|                          |          |
| Clerical                 | \$ 65.00 |