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SECTION 02000

MOBILIZATION AND DEMOBILIZATION

PART 1 GENERAL

1.1 MOBILIZATION AND DEMOBILIZATION

Mobilization and Demobilization shall include transporting the dredge and all items of attendant plant to the site of the work, setting up the dredge and other equipment, and laying of pipelines and otherwise placing the entire plant in condition for effective dredging. Upon completion of the work, the dredge and all attendant plant shall be removed from the site.

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## SECTION 02020

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## SECTION 02020

## DREDGING

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## CORPS OF ENGINEERS (COE)

EM 1110-1-1003 (August 1996) Navstar Global Positioning System Survey

EM 1110-2-1003 (October 1994) Hydrographic Surveying

## 1.2 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-01, Data

Dredge Sample Data Form; FIO

SD-08, Statements

Dredge and Disposal Plan; GA

Hydrographic Surveyor; GA

SD-09, Reports

Daily Report of Operations; FIO

SD-14, Samples

Sediment Samples; FIO

## 1.3 REQUIRED WORK

In the area to be dredged, all materials shall be removed and disposed of as indicated. Should material which cannot be removed without unreasonable methods be encountered, the Contractor shall remove from there all

overlying material which in the judgment of the Contracting Officer, can be removed. Nothing in this paragraph shall be construed as prohibiting the removal of excepted material by special means at prices agreed upon and approved in accordance with the CONTRACT CLAUSE: DIFFERING SITE CONDITIONS.

The dredging area shall be dredged to the indicated depths below mean lower low water (MLLW). Debris shall become the property of the Contractor and shall be removed from the site.

#### 1.3.1 Hard Material

The removal of hard material is not included. Should the Government direct in writing that hard material be removed, the work shall be performed and an adjustment in the contract price or time for completion, or both, will be made in accordance with "FAR 52.236-2, Differing Site Conditions." If hard material is to be removed, blasting will not be permitted.

#### 1.4 AVOIDANCE OF EXISTING CONSTRUCTION

The Contractor shall conduct dredging operations in this area in such a manner as to prevent undermining of the jetties, revetments, and dock facilities. Excessive or unnecessary dredging may result in an unstable condition at the toe of the structures. The Contractor will be required to strictly adhere to the indicated dredging template when working near any structures, and shall be responsible for repairing any damage which may result from failure to comply with the requirements of these specifications.

#### 1.5 CHARACTER OF MATERIALS

The materials to be removed will consist of, but not be limited to: fine to coarse sand, silty sand, silt, sandy silt, clay, gravels, and the following types of debris which were encountered in previous dredging jobs: tires, plastic sheeting, tree stumps and branches, lumber, and other debris. The geotechnical boring logs shown in the drawings are indicative of the types of materials expected to be dredged. Any questions regarding the nature of expected dredge materials shall be directed to the U.S. Army Corps of Engineers, Los Angeles District, Geotechnical branch, 911 Wilshire Blvd., Los Angeles, CA 90017.

#### PART 2 PRODUCTS (NOT APPLICABLE)

#### PART 3 EXECUTION

##### 3.1 DREDGE AND DISPOSAL PLAN

The Contractor shall submit a Dredge and Disposal Plan indicating the methods and equipment he proposes to use to conduct all construction-related operations. The plan shall be submitted to the

Contracting Officer for approval at least 10 days prior to start of dredging operations and shall also include, as a minimum, the following information:

- Order of dredging operations and all proposed time lines.
- Operation/use of the work/storage area.
- Layout of all buoys, anchors, pipelines, and ancillary equipment.
- Methods and equipment for positioning at the dredge and disposal site(s).
- Methods for beach fill operations.
- Layout of the dredge and major auxiliary floating plant. This shall include locations of engines and fuel storage, engine types, horsepower ratings, electrical rooms, transformer rooms, emergency generating equipment, and vertical and horizontal access.

### 3.2 DISPOSAL OF DREDGED MATERIAL

#### 3.2.1 General

Dredged material shall be transported and deposited within the disposal limits of the area indicated on the drawings. Any dredged material that is deposited other than in the area indicated on the drawings, or approved by the Contracting Officer, will not be included in the measurement for payment, and the Contractor may be required to remove such misplaced material and deposit it where directed at his own expense. Debris and other unsuitable materials encountered shall become the property of the Contractor and shall be removed from the site.

#### 3.2.2 Offshore Disposal

Dredge material, other than trash and debris, shall be transported and deposited in open water uniformly within the offshore disposal area, LA-2. The center coordinates of the site are indicated on the plans. The site is defined by a circle with a 914-meter radius. When dredge material is disposed, no portion of the disposal vessel shall be outside the 914 meter radius defining the LA-2 site. Water and/or dredge material shall not overflow the disposal vessel during dredging or disposal operations. Depth of disposal shall be determined by the Contractor's sounding equipment and the depth and location of each disposal shall be recorded. It is the responsibility of the Contractor to provide, operate, and maintain recording navigation equipment for the entire duration of the tow and discharge operation. Material placed outside the disposal area is subject to fines by the Regulatory agencies.

#### 3.2.3 Beach Disposal

Dredged material shall be transported and deposited within the disposal limits of the areas indicated and as specified hereinafter. The dredged material shall be deposited in a uniform manner progressing from the shoreward side to the seaward side of the fill. The beach fill shall begin in the fill area closest to the Anaheim Bay Harbor east jetty and proceed

in a southeasterly direction along the fill area. The Contractor shall provide the necessary equipment to shape, groom, and dress the beach during fill operations. The seaward slope shall be no steeper than as indicated on the drawings. Any material that is deposited other than in the areas indicated on the drawings, or approved by the Contracting Officer, will not be included in measurement for payment and the Contractor may be required to remove such misplaced material and deposit it where directed at his own expense. Debris and other unsuitable materials encountered shall become the property of the Contractor and shall be removed from the site. Disposal of material above the elevations indicated on the drawings will not be permitted.

### 3.3 ELECTRONIC POSITIONING SYSTEM

The Contractor shall obtain, operate, and maintain a short range Electronic Positioning System (EPS) or Differential Global Positioning System (DGPS) for disposal operations. This EPS or DGPS shall be established, operated, and maintained by the Contractor when disposal is actively underway. The EPS or DGPS shall be capable of displaying and recording the disposal vessel's location in the State Plane Coordinate System based on the California Lambert Conformal Projection System for Zone 5 and/or Zone 6 as appropriate (SPCS 83 Meters) at 30 second time intervals while traveling to or from the disposal site.

#### 3.3.1 EPS/DGPS Configuration

The EPS or DGPS shall be similar, or equal, in design, performance, accuracy, operation characteristics, and frequency to equipment specified in the following technical materials:

USACE EM 1110-1-1003 Navstar Global Positioning System Surveying  
and USACE EM 1110-2-1003 Hydrographic Surveying

Information on the above mentioned manuals may be obtained from: U.S. Army Corps of Engineers, Los Angeles District. It is emphasized that Differential GPS positioning techniques shall be used for GPS surveying and further emphasized that an EPS system with a low and medium frequency (long-range navigation system) will not comply with the above specifications. The complete system shall be subject to the approval of the Contracting Officer. The Contractor shall provide access for the Contracting Officer to the EPS or DGPS equipment as part of the Government's quality assurance responsibility.

#### 3.3.2 Shore-Based Control

The Contractor shall establish horizontal control necessary to locate active and/or passive short range EPS or DGPS transmitter/receiver devices.

Survey control shall meet third order, class I, accuracy standards in accordance with USACE EM 1110-2-1003 "Hydrographic Surveying".

The Contractor shall obtain all necessary permits, rights-of-entry, or leases required for operating and maintaining shore-based electronic equipment on public/private property. The actual number of shore-based

control points shall be determined by the Contractor and shall be determined by the operating characteristics of the approved system (i.e., circular, hyperbolic, elliptical, etc., for EPS or Differential GPS). As a minimum, the EPS shall provide at least three redundant lines-of-position from the shore-based network, and for DGPS, ranges from 4 (minimum) or more satellites will be needed for 3-dimensional positioning. The shore-based control points shall be located such that the generated lines-of-position shall intersect at the final vessel location at not less than 40 degrees.

### 3.3.3 Disposal Vessel Location

Except as specified hereinafter, electronic positioning data shall be received, displayed, and recorded on board the disposal vessel. Positional data may be received, displayed, and recorded on a towing or other adjacent vessel provided the eccentric distance between the vessels is less than 30 meters and that the eccentric distance and bearings remain essentially constant for each successive disposal operation. Eccentric distance measurements shall be computed by means of an electronic data transmitter/telemetry system. Gyro-radar distance/bearing measurements will not be permitted for eccentric distance measurements. Eccentric coordinates, if any, shall be clearly identified and computed on the hard copy positional record required under paragraph: Electronic Positioning System.

The EPS or DGPS shall be activated continuously at least 1,500 meters from the disposal site when transiting, and shall not be deactivated until at least 1,500 meters from the site on the return trip. Positional data shall be annotated for the time when actual dumping begins and ends. A record of each dump's positional data, automatically correlated with time, and annotated with date and eccentric distance measurement, if any, shall be submitted to the Contracting Officer as a part of the Daily Report of Operations. The hard copy shall plot the continuous course of each disposal trip once inside the 914 meter radius of the LA-2 disposal site. The plot shall show: the continuous course of the disposal vehicle, the center point and 914 meter radius boundary of the LA-2 site, and the time and position of the disposal vehicle when disposal commenced and ceased. The Contractor shall provide the Contracting Officer at the completion of dredging operations on an electronic media (IBM compatible, ASCII format) in delimited files of dump number, date, time, disposal area, easting and northing of dump, depth of water in which dump is made (meters), quantity of dump (cubic meters), cumulative quantity, and area from which the load was dredged (station number).

Dump # / Date / Time / Disposal Area / Easting / Northing / Depth /  
Quantity / Quantity (cumulative) / Location (Station)

### 3.3.4 Calibration

EPS calibration techniques shall conform to standard hydrographic surveying practice in accordance with Chapter 6 of USACE EM 1110-2-1003, "Hydrographic Surveying". The Contractor shall be responsible for maintaining effective, accurate, and reliable EPS calibration, including

periodic survey checks throughout the duration of the contract. Calibration records shall be submitted as part of the daily Quality Control records. Degradation in offshore positional accuracy during the course of this contract may cause a suspension of disposal operations.

### 3.3.5 Backup Equipment

The Contractor shall provide and maintain the following backup equipment:

For EPS System:

- One shore control transmitter/receiving device.
- One line printer and/or plotter.
- One offshore guidance controller.
- One power supply.
- Spare parts kit for the receiver.

For GPS System:

- One Complete Differential GPS (DGPS) equipment and accessories.

In the event of a failure of the EPS or DGPS, the Contractor shall immediately notify the Contracting Officer.

## 3.4 ADDITIONAL MONITORING

### 3.4.1 Hopper and Hydraulic Dredges

The Contractor shall provide:

- a. continuous printed records of measurement of bulk density and mass flow rate.
- b. records of continuous loading of hoppers, barges, or scows based on hull displacement (load charts).

These records shall be submitted to the Contracting Officer with the Daily Report of Operations.

### 3.4.2 Barges and Scows

The Contractor shall provide a record of the measurements of the draft of the hull and freeboard of bins of each barge or scow when empty, before each trip to the LA-2 disposal site, and five (5) minutes prior to disposal at the LA-2 site. Measurement for displacement shall be taken at each corner, on the outside of the barge or scow. The two sets of draft measurements shall be compared to determine the amount, if any, of dredged material or water lost during transit to the LA-2 site. Any barge or scow vessel that leaks shall not be used for disposal operations. These records shall be submitted to the Contracting Officer with the Daily Report of Operations.

3.5 DREDGE QUANTITIES

Quantity of material available within the dredge prism as of the condition survey of July 1998 is listed below. The estimated quantity specified in the Bid Schedule is based upon these numbers.

Description	Standard Dredging	Overdepth	Disposal Location
	Quantity (cm)	Quantity (cm)	
Inner Harbor, Area 1	18,900	6,400	LA-2
Outer Harbor, Area 2	48,200	29,300	LA-2
Approach Channel, Area 3	82,800	50,400	Surfside (beach)

Overdepth dredging will be allowed to the limits specified in paragraphs: Overdepth and Excessive Dredging.

3.6 OVERDEPTH AND SIDE SLOPES

3.6.1 Overdepth

To cover inaccuracies of the dredging process, material actually removed from the areas to be dredged to a depth of not more than 0.3 meters below the required depth(s) in Area 1 and Area 2, and to a depth of not more than 0.6 meters below the required depth in Area 3 will be estimated and included in the measurement of work. Dredging in excess of the overdepth tolerance shown on the drawings will be excluded from the measurement of work.

3.6.2 Side Slopes

Material actually removed within limits approved by the Contracting Officer, shall provide for final side slopes not flatter than those indicated on the drawings and will be estimated and paid for. The Contractor may dredge material in original position or may dredge below the pay slope plane at the bottom of the slope to allow for sloughing of upslope material capable of falling into the cut (box dredge). However, material removed below any pay slope plane will not be estimated for payment. In computing the limiting amount of side slope dredging, the overdepth indicated on the drawings, measured vertically, will be used. The quantity of material to be paid for shall not be in excess of that originally lying above this limiting slope. Side slopes are given for pay purposes only and are not necessarily the angle of repose of the soil. Sloughing side slopes shall not be the basis for claims against the Government. End slopes, where indicated on the drawings, shall be treated in the same manner as side slopes.

Box cutting of side slopes will not be allowed near the jetties, revetment, and dock facilities.

3.6.3 Excessive Dredging

Material taken from beyond the allowable overdepth limits may be deducted from the total amount dredged as excessive overdepth dredging, or excessive side-slopes dredging. Materials dredged from below the depth limit which result in extra costs shall be the responsibility of the Contractor. Nothing here shall be construed to prevent the inclusion in the measurement of material dredged for the removal of shoals performed in accordance with the applicable provisions of the paragraphs: FINAL EXAMINATION AND ACCEPTANCE or SHOALING.

3.7 SAMPLING OF MATERIAL

The Contractor shall obtain representative sediment samples at the pipeline discharge point as material is being discharged, or in the case of a hopper dredge or scow, as material is placed into the hopper or scow. The number of required samples shall be as follows:

Area	Number of Samples Required
Inner Harbor, Area 1	3
Outer Harbor, Area 2	3
Approach Channel, Area 3	3

The samples shall be taken at evenly spaced intervals of material volume in each dredge area as the areas are dredged. Each sample (water extracted) shall not be less than one (1) liter and shall be obtained in clear plastic bottles. Immediately after collection the samples shall be delivered to the address specified herein below. The bottle lids shall be suitably secured to preclude opening or leaking during shipment. The sample number shall be placed on the lid using indelible ink. Sufficient cushioning material shall be placed around the samples to prevent excessive movement and damage during shipment.

A Dredge Sample Data Form shall accompany each sample in a clear, sealed plastic bag and shall include the description of the dredge cut location by coordinates and stationing, dredge cut elevation, disposal location, date, time, sample number, and the name of the person who collected the sample. A copy of the sample form is provided at the end of this section. The Contractor shall notify the Contracting Officer's Representative 48 hours in advance of sample collection. Samples shall be delivered to:

U.S. Army Corps of Engineers  
 ATTN: Materials Lab  
 645 North Durfee Avenue  
 South El Monte, CA 91733-4399

3.8 CONTRACTOR'S SURVEYS

### 3.8.1 Survey Data

Reference is made to SECTION 00800: SPECIAL CONTRACT REQUIREMENTS, QUANTITY SURVEYS, FAR 52.236-16, which requires payment based on Government surveys.

Progress payments or evidence (condition surveys) supporting extreme weather (storm) related shoaling, will be based upon Contractor's hydrographic surveys. The Contractor's survey shall provide full coverage of an entire area, as defined in paragraph DREDGE QUANTITIES, for which progress payment or evidence of storm-related shoaling is being submitted.

It is further emphasized that only condition surveys supporting extreme weather (storm) - related shoaling will be considered for payment in addition to the government surveys, provided that the Contractor's surveys clearly show the condition before and after each shoaling event and the condition after removal of material from the shoaled area. Survey data which does not meet all applicable requirements and quality assurance verifications will not constitute a valid request for payment of shoaling.

Contractor's hydrographic surveys shall be performed electronically (automated) and the data shall be provided and submitted to the Government on an electronic media (IBM compatible, ASCII format) in delimited files of easting, northing, and depth (x,y,z), where the depth is indicated as negative if recorded below MLLW. The first lines of the data file will list the information as follows:

- \* Project Name (Anaheim Bay Harbor Maintenance Dredging)
- \* Surveyor's Name
- \* Area Surveyed
- \* Date of Survey
- \* Vertical Datum
- \* Horizontal Datum

These first 6 lines will be preceded by an asterisk (\*), which indicates a comment line.

A plot of soundings will accompany the x,y,z data and all data shall be collected and plotted in metric units (meters).

### 3.8.2 Sounding Data Standards

The Contractor's hydrographic surveys for progress payment or evidence supporting extreme(storm) weather-related shoaling shall meet or exceed the survey standards listed in EM-1110-2-1003 (Hydrographic Surveying) for Class I surveys. Surveys shall be in the State Plane Coordinate System of 1983 - meters (SPCS 83), Zone 6, State of California, and be performed by an independent hydrographic survey contractor with at least three (3) years of experience in hydrographic surveying of navigable channels and have either a current Land Surveyor's or a Professional Engineer's license, authorized to certify surveys in the State of California. The hydrographic surveyor firm selected by the Contractor must be approved by the Contracting Officer prior to performing surveys for this contract.

### 3.8.3 Positioning System

It is required that hydrographic surveys shall be conducted using an Automated Range-Azimuth Positioning System or Differential Global Positioning System (DGPS) with positional accuracy of +/- 3 meters (1 DRMS) or better that is linked to an automated (digital) depth recording device capable of continuous logging of x,y,z positional data with depth measurement resolution to the nearest five-hundredths (5/100) of a meter. Digital depths shall be supplemented by analog depth records if survey is performed by single beam echosounder. Sounding lines shall be verified by crosslines at least 10 percent of the principal lines and along the centerline of channel. Distance between successive soundings (sounding interval) shall be no more than 2 meters. Soundings shall be reduced to sounding datum (Mean Lower Low Water) by using actual tides and other appropriate corrections resulting in an accuracy of +/- 0.2 meters from actual depth.

### 3.8.4 Survey Firm Acceptance

For the Contracting Officer to approve the selected survey firm, the Contractor must provide documentation indicating that modern electronic horizontal positioning and sounding system equipment will be used for the surveys to be performed as well as documentation verifying the experience of the operators using the equipment. Typical information that will be required, as a minimum, includes the name, model, and year of manufacture of the electronic equipment, the electronic frequencies of the horizontal positioning equipment and sounding equipment, and the manufacturer's stated positioning and sounding accuracies, and capability of the equipment proposed for usage. In addition, the Contractor must provide information that a safe and suitable vessel meeting U.S. Coast Guard requirements is available and will be used for operation in the waters where the surveys are to be performed. The Contractor shall submit credentials/qualifications as evidence that qualified, experienced staff are available and will be used for the operation of the vessel as well as for the electronic positioning and sounding equipment.

### 3.8.5 Data Processing

The Contractor shall use a Data Processing System to map the sounding data and calculate quantities. Reduced sounding data shall then be imported into the Data Processing System where cross-sections are compared to dredge templates and volume quantities are calculated. The software shall be capable of digital terrain modeling and shall produce, as a minimum, sounding sheets, cross section profiles, 3-dimensional area profiles, and quantity volume calculations using the Triangulated Irregular Network (TIN) method.

## 3.9 PRE-DREDGE AND FINAL SURVEYS

The Government will perform one pre-dredge survey after the award of contract and as close to commencement of dredging as possible, but not more

than 14 calendar days prior to commencement of work. For the post-dredge survey, the Contractor shall notify the Contracting Officer not less than ten (10) working days prior to completion of the entire work. The Government will perform the final survey as soon as possible after completion of the entire work, generally within 5 (five) calendar days. All areas found to be in compliance with the contract requirements will be accepted and measured for payment in accordance with SECTION 01270: MEASUREMENT AND PAYMENT.

If the Government is unable to perform the final survey(s) due to the failure of the Contractor to complete the work in accordance with his prior notification, the Contracting Officer will charge the cost of the survey plant and standby labor, at \$3,000.00 per day, to the Contractor. Preliminary data from the final Government survey will be available within ten (10) calendar days. If the preliminary survey data indicates that the dredged area is not at the required depth, the Contractor will be directed to resume dredging and to complete the work to project depth. Adjustment in cost for additional Government post-dredge surveys shall be as specified in paragraph: FINAL EXAMINATION AND ACCEPTANCE.

### 3.10 SHOALING

If, before the contract is completed, additional shoaling occurs in any section (area) including shoaling in the finished channel, because of the natural lowering of the side slopes or from sediments transported inside the project area, re-dredging at contract price, within the limit of available funds, may be done if agreeable to both the Contractor and the Contracting Officer.

### 3.11 REPORTING REQUIREMENT

The Contractor will be required to prepare and maintain a Daily Report of Operations and furnish copies thereof to the Contracting Officer's representative. The daily reports shall document dredging operations for all shifts in a 24-hour period. Further instruction on the preparation of the report will be furnished at a preconstruction conference. Copies of sample submittals are provided at the end of the Contractor's Quality Control section.

### 3.12 MEASUREMENT

The Government will take soundings before and after dredging.

#### 3.12.1 Method of Measurement

The material removed will be measured by cubic meter in place, by means of soundings taken before and after dredging. The drawings represent existing conditions based on current available information, but will be verified and corrected, if necessary, by soundings taken before dredging in each area. Soundings will be taken by lead line, 200 kHz single-beam acoustic methods, acoustic multi-beam swath methods, or in combination, as determined by the

Government; results of soundings by some or all methods will be the basis for payment. Areas sounded more than 30 days prior to dredging will be re-sounded when requested by the Contractor. The Contractor has the option of being present when such soundings are made.

### 3.12.2 Surveys During Progress of Work

Contract depth will be determined by soundings or sweepings taken behind the dredge as work progresses. The Contractor shall take progress soundings or sweepings.

### 3.12.3 Monthly Estimates

Monthly estimates of work completed will be based on the result of soundings taken during the progress of the work or, at the option of the Contracting Officer, on 85 percent of the scow or barge measurement. Deductions will be made for dredging and disposal not in accordance with the specifications.

## 3.13 FINAL EXAMINATION AND ACCEPTANCE

As soon as practicable after the completion of the entire work, a final examination of the work will be conducted by the Contracting Officer. Should any shoals, lumps, or other lack of contract depth be disclosed by this examination, the Contractor will be required to remove same dredging at the contract rate for dredging. However, if the bottom is soft and the shoal areas are small and form no material obstruction to navigation, the removal of such shoal may be waived by the discretion of the Contracting Officer. The Contractor or his authorized representative will be notified when soundings are to be made, and will be permitted to accompany the survey party. When the area is found to be in a satisfactory condition, it will be accepted finally. Should more than two sounding operations by the Government over an area be necessary by reason of work for the removal of shoals disclosed at a prior sounding, the cost of such third and any subsequent sounding operations will be charged against the Contractor at the rate of \$3,000.00 per day for each day in which the Government plant is engaged in sounding and/or is en route to or from the site or held at or near the said site for such operations.

Final acceptance of the whole or a part of the work and the deductions or corrections of deductions made thereon will not be reopened after having once been made, except on evidence of collusion, fraud, or obvious error, and the acceptance of a completed section shall not change the time of payment of the retained percentages of the whole or any part of the work.

Dredge Sample Data Form

ANAHEIM BAY HARBOR MAINTENANCE DREDGING

Contract No.: \_\_\_\_\_ Sample No.: \_\_\_\_\_  
 Contractor Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 Name of Dredge: \_\_\_\_\_ Time: \_\_\_\_\_  
 Type of Dredge: \_\_\_\_\_ clamshell \_\_\_\_\_ hopper \_\_\_\_\_ hydraulic  
 \_\_\_\_\_ cutterhead \_\_\_\_\_ other  
 If other, please specify:  
 \_\_\_\_\_

Cut Location  
 easting: \_\_\_\_\_  
 northing: \_\_\_\_\_  
 elevation: \_\_\_\_\_  
 station: \_\_\_\_\_  
 range: \_\_\_\_\_  
 area: \_\_\_\_\_

Placement Location  
 easting: \_\_\_\_\_  
 northing: \_\_\_\_\_  
 elevation: \_\_\_\_\_  
 station: \_\_\_\_\_  
 range: \_\_\_\_\_  
 area: \_\_\_\_\_

Sample Obtained By: \_\_\_\_\_

Sample Obtained From: \_\_\_\_\_

Remarks:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

-- End of Section --