

SECTION C DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK

C.1. INTRODUCTION, OVERVIEW, AND BACKGROUND

Introduction: The Bureau of Reclamation's (Reclamation) Pacific Northwest Regional Office (PN Region) has an on-going need for surveying services to support a variety of Reclamation programs. These programs include:

Habitat Improvement for Anadromous Fisheries: Many salmon and steelhead populations in the Columbia River Basin will be extirpated or nearly so by the end of this century, if not much sooner, unless the region makes major changes to improve the chances for their survival. The National Oceanographic and Atmospheric Administration Fisheries (NOAA Fisheries – formerly National Marine Fisheries Service (NMFS)) issued the Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp) on December 21, 2000, and has since released revised/updated versions of the BiOp. Among the many Reasonable and Prudent Alternative (RPA) Actions mandated in the BiOps is the requirement for off-site habitat work to mitigate for the effects of the FCRPS operation and configuration (action item #149 in the original BiOp) to improve migration and spawning and rearing habitat in priority subbasins. Reclamation, as an action agency, has been assigned 16 subbasins of the Columbia River drainage where anadromous fish currently have access.

Surveys are needed for the following types of Habitat Improvement actions: correcting passage barriers; correcting stream flow deficiencies; and correcting screen deficiencies.

Facility Management and Other Reclamation Programs: In addition, Reclamation has other ongoing programs and activities (planning, construction, facility operation and maintenance, safety of dams, lands management) that require similar levels of surveying requirements.

Geographic Areas: The PN Region includes Washington, Oregon, Idaho (including small portions of Montana and Wyoming).

Scope of Awards: It is Reclamation's intent that one ID/IQ contract for surveys are awarded for each geographic area with the three primary geographic areas being: State of Washington; State of Oregon, and the State of Idaho (including the portions of Montana and Wyoming that are part of the PN Region). Each contract will specify the geographic area covered by that contract in its Section B. Each contract will be issued as a 1-year contract with four 1-year extension options (potential contract duration of 5 years). Contractors for each area will be issued non-competitive Task Orders for work in their geographic areas.

Definitions: For the purpose of this contract, the terms "geographic area(s) and "subbasin(s)" will be used to refer to the project area assigned through a TO agreement. The term "Government" or "Reclamation" refers to the Bureau of Reclamation and vice versa.

C.2. GENERAL WORK REQUIREMENTS

a. *General* - All work will be performed in accordance with applicable Federal, state, and local standards. The Contractor will develop and/or collect any necessary data beyond that provided by Reclamation. Reclamation will review and approve all work prior to acceptance in accordance with the clauses in Section E and I of this contract.

b. *Release of Deliverables* - Prior to Reclamation approval of final products, no portion of the studies, findings, materials, conclusions, or recommendations shall be released to an outside party or otherwise publicized without prior consent of the Contracting Officer.

C.3. ANTICIPATED TASKS TO BE PERFORMED

a. *Data Collection* - Collect and process survey data that will be used by Reclamation and others for appraisal, feasibility, or final designs and cost estimates (including appropriate field engineering, surveying, geologic mapping of potential structure sites and potential construction materials sources, location of utilities and similar work) and the preparation of suitable data, maps, drawings, and documentation.

b. *Applicable Standards* - All work to be performed hereunder shall be in accordance with applicable Reclamation surveying standards, applicable Federal, state, and local codes, and sound surveying practice. Applicable standards include, but are not restricted to:

(1) Information Management Handbook, Volume III, Drawings Management & Drafting Standards, U.S. Bureau of Reclamation (IMH Volume III).

(2) Reclamation Safety and Health Standards, U.S. Bureau of Reclamation, 1993 (Reprinted 2000), paragraph 14.11.6, etc. This document may be accessed electronically at <http://www.usbr.gov/ssle/safety/RSHS/rshs.html>.

(3) Certified Federal Surveyors Program (CFedS): <http://www.cfed.org>.

c. *Drafting* - The Contractor may be called upon to prepare maps, drawings, and charts depicting information specified by Reclamation. All materials will be furnished by the Contractor except as otherwise provided in the TOs. See subsection C.7. below for Reclamation Drawing Requirements.

d. *Meetings and Consultations* - At any time after notice of award and until all services are completed, meetings with the Contractor's representative or representatives may be requested by the Contracting Officer. The Contractor may also request a meeting at any time. Meeting requests shall be coordinated between the Contractor Project Lead for this contract and the Contracting Officer. The Contractor representatives attending meetings shall be familiar with the aspect of the services being performed. The labor hours for the meetings shall be included and priced in the applicable Task Order. Meetings will generally occur in Boise, Idaho or by conference call; but may occur at other locations approved by the Contracting Officer.

C.4. PROFESSIONAL REQUIREMENTS

This section summarizes general technical requirements. The Statement of Work for each TOs will identify additional specific requirements.

a. *Requirement for Licensed Surveyors:* Any surveying performed by the Contractor shall be performed by or under the direct technical supervision of a Registered Licensed Surveyor currently registered in the State of Interest (Idaho, Oregon, Washington, Wyoming, or Montana) and in accordance with applicable sections of the Bureau of Land Management's (BLM) "Manual of Instructions for the Survey of Public Lands of the United States," 1973. Portions of the manual can be accessed over the Internet at <http://www.blmsurveymanual.org/>.

In addition, in the State of Oregon, the survey lead must be a water rights examiner certified by the Oregon State Board of Engineering Examiners (OSBEE). Oregon State Administrative Rules (OARs) OAR Chapter 690, Division 014 and portions of Divisions 011, 015, 020, and 051 apply. In addition to these rules, OSBEE rules found in OAR Chapter 820 also apply. Oregon Administrative Rules can be accessed on the Internet at http://arcweb.sos.state.or.us/rules/OARS_600/OAR_690/690_tofc.html.

C.5. CONTRACTOR RESPONSIBILITIES

The Contractor shall complete the work specified herein and shall be responsible for all necessary services, labor, materials and equipment. Services shall be performed to the standards, quantities, and schedules described in the following sections and in each individual TO.

Costs for printing and distribution of DVDs, CD-ROMS, Flash Drives, External Hard Disk Drives, etc., (electronic media) surveys, field notes, maps, drawings, manuscripts, progress reports, etc. will be borne by the Contractor. Receivers of such publications are limited to Reclamation and, in the case of boundary surveys, county recorder's offices. One reproducible copy of each type of applicable publication will be required.

The Contractor shall be responsible for all costs of copying deliverables and those costs are presumed to be included as a general administrative expense in the loaded hourly rates in Section B.

General Requirements -

The Contractor shall become familiar with the following:

- a. The study area within the relevant subbasin/geographic areas;
- b. Pertinent control data related to the study area, and;
- c. Pertinent physical data related to the study area.

The Contractor shall work with Reclamation staff, and others as needed, to:

- a. Clarify project requirements; and
- b. Finalize the project schedule.

In addition, the Contractor shall;

- a. Take special measures to avoid conflicts with existing land uses; and
- b. Avoid important wildlife/fish habitat areas.

Professional Responsibility and Services

The Contractor is responsible for the professional quality and the validity of surveys; for the accuracy and completeness of site information; and for the timely completion of all services in accordance with the TOs. Such services are to be provided in accordance with applicable standards of practice for professional surveyors providing similar services of a similar scale in a similar location. See the clause in Section I entitled "Responsibility of the Architect-engineer Contractor".

The Contractor shall furnish all or a combination of the following expertise. This listing of personnel is not all inclusive.

- a. Business Manager
- b. Project Manager
- c. Task Manager
- d. Engineer
- e. Land Surveyor PLS
- f. Land Surveyor
- g. Surveying Technician
- h. GIS Analyst
- i. Draftsman
- j. CAD Technician
- k. GPS Technician
- l. Survey Crews - comprised of one or more of the following;

Party Chief

Instrument Person

Rod Person

GPS Operator

m. Clerical/Support Staff

n. Others as needed

Qualified personnel being made responsible for multiple roles will be acceptable.

C.6. GOVERNMENT RESPONSIBILITIES

Consultation, Coordination, and Communication

Reclamation will appoint Contracting Officer's Representatives (CORs) for the contract. The CORs' appointment memorandums will detail their responsibilities.

The CORs will be the primary contact for the surveying work, although the Contracting Officer may direct the Contractor to coordinate directly with design and/or Area Office personnel or others on certain technical requirements. See the clause in Section I entitled "Authorities and Limitations."

In order to assure to the greatest extent possible that there is clear understanding between the Contractor and Reclamation regarding the requirements relative to each TO, the Contractor may be required to participate in post award conferences for TO's pursuant to the clause in Section I entitled "Post Award Conference - Bureau of Reclamation" and may be required to participate in regularly scheduled meetings or telephone consultations with the CORs until completion of the respective TO. The Contractor shall maintain frequent telephone/E-mail communication with the CORs to highlight any information gaps and problem areas the Contractor identifies. In addition, any delay in meeting the negotiated schedule for any TO shall be immediately reported to the Contracting Officer.

Government Review Responsibilities

The Government will review and comment on survey results, notes, drawings, and other deliverables as specified in the Reporting Requirements and Deliverables section. The Government will review all information and materials planned for design use. Unless otherwise stated in an individual TO or schedule, Reclamation will require 10 calendar days for review of any submittals. If the Government uses time in excess of the specified number of calendar days for review of any submittal or re-submittal, additional time, not to exceed the excess time, will be added to the time allowed the Contractor for completion of the work affected by such excess time, to the extent it is demonstrated that the excess time caused delay. If the Government's review of two or more separate submittals or re-submittals is late and results in concurrent days of excess time, such days will be counted only once in computing an extension of the completion date. Further, if the Contractor fails to make complete approval submittals in the sequence and within the time periods specified in this contract, and thus precludes the

Government from approving or considering for approval such submittals within the specified calendar day period, then the Contractor shall not be entitled to reimbursement for any extension of time for completion of the work.

Government Furnished Materials and Services

The Government shall provide access to reports, memoranda, photographs, drawings, maps, GIS databases, and any other materials owned by the Government that are pertinent to this contract and which are not otherwise prohibited from release by law, regulation or policy. A list of Government furnished materials will be provided in each TO. Originals of photographs, drawings, and maps shall be lent to the Contractor for the purpose of making reproductions required. The Contractor shall be responsible for all costs of copying Government furnished materials and for the safe return of the materials.

The Government shall also provide, as part of each TO, specific issues and/or information concerning the subject study area and schedule.

The Government shall provide its most recent edition of the Autodesk Civil3D drawing template, necessary to produce properly formatted drawings. The Contractor is responsible to ensure they have the most current drawing template available from the Government before production of any drawing files.

C.7. TECHNICAL REQUIREMENTS FOR PERFORMANCE OF SURVEYS

Basic Horizontal and Vertical Control

a. *Existing Control* - The Contractor shall secure from the National Geodetic Survey, Reclamation, the Corps of Engineers, and the Geological Survey, locations and descriptions of any horizontal and vertical control points of third-order accuracy or higher in the vicinity of the study area(s) to be surveyed as applicable. The data shall be submitted to the COR prior to beginning compilation for maps, cross sections, or profiles.

b. *Supplemental Basic Control* - The Contractor shall establish any such supplemental basic horizontal and vertical control points as needed to perform the services specified under this Contract/TO. Such supplemental basic accuracy as defined in "Classification and Standard of Accuracy of Geodetic Control Survey", dated June 1980, by the Federal Geodetic Control Committee - United States Department of Commerce. Supplemental basic horizontal and vertical control established by the Contractor shall be tied appropriately into the existing horizontal control networks, traverses, and level circuits. If the supplemental basic horizontal control surveys are performed by trilateration, they shall meet the same accuracy standards in regard to position closure as for triangulation and traverse surveys. Economical and efficient use of the Department of Defense Global Positioning System (GPS) to assist in establishing control points may be required.

c. *Locations* - The Contractor shall select locations for supplemental basic control points to meet the Government's control requirements for final accuracy specified under this Contract/TO. Control points shall be established to the extent practicable within study areas where they will not be disturbed.

Ground control points of a semi-permanent nature such as reinforcing steel or pipe shall be driven to a distance of approximately 18 inches, sufficient to insure firmness. All rebars or pipes used to establish these points shall be level with the original ground surface.

d. *Assigned Numbers* - The Contractor shall assign a number and designate only by that number in field books, computations, tabulations, etc., each supplemental basic horizontal or vertical control point established by the Contractor. Where previously established control points are used, the Contractor shall use the original designation of the point rather than assign a new number.

e. *Computations and Adjustments* - The Contractor shall perform necessary computation and adjustments for supplemental basic horizontal and vertical control surveys. All adjustments shall be made using the data from the National Geodetic Survey control points to which the surveys are tied. Adjustments shall be made by standard surveying textbook or National Geodetic Survey Manual methods. The computations shall clearly show all triangle closures, junction closures, and circuit closures, and the basic control point(s) shall be computed and tabulated in descriptions in State rectangular plane coordinates, in feet, to a precision of 0.01 foot. Adjusted elevations for each basic vertical control point shall also be given in feet to the nearest 0.01 foot.

f. *Notes and Computations* - The Contractor shall furnish to the Government all original field notes and computation sheets and files.

g. *Descriptions* - Route and detail descriptions shall be furnished to the Government for each basic horizontal and vertical control point established or used by the Contractor, unless such route and detail descriptions have been previously prepared and established by others. Adjusted plane coordinates, grid azimuths, and distances to all points observed shall be shown for each horizontal control point. Adjusted elevations shall also be shown for each supplemental basic vertical control point.

h. *Schematic Control Diagrams* - Schematic diagrams shall be prepared by the Contractor to show the location of all basic horizontal and vertical control nets and points used under the TO. The schematic diagrams shall be generated as reproducibles on standard drafting weight paper which is an archival quality drafting media. Trim lines shall be 22 inches high by 34 inches long and the border inside the trim shall be margins of 1-1/2 inches on the left and 3/4 inch on the other three sides. State plane rectangular coordinate grid and enough planimetric detail is required to orient the diagrams. The diagram is for reference and index purposes and a suitable scale to serve these purposes shall be used.

If all control points used cannot be shown in usable form on one sheet, additional sheets shall be used, repeating points from sheet to sheet if necessary for clarity. The diagrams shall show by appropriate symbol all level lines, bench marks, horizontal control nets, and horizontal control points in the study area used under this solicitation, including those of the National Geodetic Survey and those established by the Contractor. Lines observed for the horizontal control nets shall be shown on the diagrams. All control points shall be identified by name or number, as appropriate. A table sheet shall be included on each sheet listing all stations or points shown on the sheet and, as appropriate, adjusted State plane coordinates, adjusted grid azimuths, adjusted grid lengths of all lines observed, and adjusted elevations. The note on each manuscript sheet shall read as follows:

Note: Control by National Geodetic Survey and
United States Geological Survey and
United States Bureau of Reclamation

(Name of Contractor)
Date _____
Task Order No. _____

Field Surveys

a. *Survey Notes* - The Contractor shall furnish survey notes, legible and in a format acceptable by the surveying profession to the COR. Notes not in accordance with acceptable formats will be rejected. Illegible notes or erasures on any pages of notes in any field book will be sufficient cause for rejection by the Contracting Officer of a part or all of the field book. Copied notes will not be accepted; therefore, rejection of field notebook(s) may necessitate re-surveying the rejected portions. Corrections made by ruling or lining out error will be acceptable.

Unless otherwise specified by a specific task order, the Contractor shall produce Field Book Data Files and Digital Terrain Models representing true elevations and survey control compatible with Autodesk AutoCAD Civil 3D 2012, configured with the Pacific Northwest Region’s (PN) standards and using PN’s standard operating procedures as provided by the Contracting Officer.

All field notes and data submitted shall bear the certification of a licensed land surveyor authorized to practice in the State where the work is done showing that the work was performed by him/her or under his/her supervision, and shall be stamped or impressed with his/her seal.

b. *Qualified Personnel* - The Contractor shall furnish all personnel for the work. Each person so employed shall be fully qualified for the work to be performed. The supervisor of the day-to-day field work shall be a licensed land surveyor in the State where the work is being performed.

c. *Environmental Protection Measures* - The Contractor shall comply with all applicable County, State, and Federal regulations pertaining to protection and preservation of the environment and ecology. Survey lines shall be located to avoid cutting large trees. Clearing of brush and branches for sight lines shall be held to the minimum practicable limits. No tree with a trunk diameter of more than 3 inches shall be cut down.

d. *Permanent Control Points* - The Contractor shall locate and monument the requested quantity of permanent control points within the study areas to be surveyed as specified by the TO. The precise locations may be determined by the Contractor in the field to accommodate survey procedures; Provided, that the monuments are located near high points of ground in the vicinity and a clear sight distance is maintained to other control points. The control points selected for permanent monumentation must be approved by the COR or his/her representative.

The permanent control points shall consist of standard Bureau of Reclamation “brass_caps” survey markers set in concrete. The concrete in which markers are embedded shall be cast-in-place,

round or square, 8 inches in the top dimension and about 36 inches in length tapered about 1 inch to the foot to minimize frost heave. The length of 36 inches may vary if solid rock is encountered. The monument shall extend approximately 3 inches above the ground. In the event a monument is set in a location where solid rock is exposed at the surface, a hole or depression shall be excavated into the rock a minimum of 6 inches to receive the concrete. The “brass_cap” survey markers shall be furnished by the Contractor.

Legal boundary survey lines shall be marked with carsonite posts furnished by the Government unless otherwise specified in the TOs. These markers shall be used at distances not to exceed 50 feet along the Reclamation boundary unless otherwise specified in the Task Orders or after consultation with the COR. In addition, 5/8-inch rebar shall be driven into ground at distances not to exceed 200 feet along the boundary.

The Contractor shall recover existing cadastral surveys such as section corners and tie them to new permanent control points as specified in TOs.

Boundary Surveys –

In addition to hard copy records of survey, boundary surveys are to be delivered in both Autodesk AutoCAD Civil 3D 2012 format and ESRI shapefile or file geodatabase (9.3.1 or later) format. If the survey involved resurveying a boundary, a line feature class shall be provided showing the resurveyed boundary line. If the survey required placement of a boundary marker, the Contractor shall provide a point feature class showing the location of the marker. All control points, cadastral corners and property corner locations shall be provided in a separate point feature class.

All geospatial data shall be delivered with a defined spatial reference as shown in the Attachment in Section J, entitled “Projections for Idaho, Oregon and Washington”. All geospatial data shall be delivered with appurtenant Federal Geographic Data Committee (FGDC)-compliant metadata records in XML format.

The Contractor shall record all boundary surveys with the proper entity and shall provide record drawings and all related documentation to the Contracting Officer.

Map Requirements

The Contractor shall prepare topographic maps and manuscripts as specified in the TO and as described in the following paragraphs. Unless specifically stated, the requirements in the following paragraphs shall apply to all topographic maps and manuscripts.

a. *General* - Topographic maps shall be prepared on standard drafting weight paper which is an archival quality drafting media.

The manuscripts shall be assigned the numbers, sheet Nos. 1, 2, 3, 4, etc. A sheet index shall be prepared showing the locations of the manuscript in the mapped area. The map detail shall be neatly and accurately placed on the manuscript. All manuscripts shall be free from stains and blemishes.

Three sets of manuscripts shall be submitted to the COR as soon as the manuscript is completed and within the time frame specified in the TO. The length of time required for Government review will be specified in the TO.

b. *Sheet Layout* - The Contractor shall prepare all topography maps on sheets with title blocks and trim lines 22 inches by 34 inches as in the format shown on figure 1 in IMH Volume III. The name of the Contractor shall be placed above the title block. The COR will assign the drawing numbers and a block of numbers for use on the individual map sheets for identification purposes. These numbers shall be tabulated and included on the sheet index and the index map.

c. *Map Index* - The Contractor shall prepare a map index showing the proposed layout of the map sheets and the location of each map sheet in the mapped area if required in the TO. The Contractor shall submit the map index including the proposed map numbers for approval of the COR prior to preparation of map sheets. The individual map sheets shall also contain a sheet index showing the location of the sheet in the mapped area. The map and sheet indices shall show approximate locations of county, township, and range lines, and primary features such as principal drainage ways towns and cities, numbered roads, water bodies, etc. The scale of the map index shall be 1:100,000.

d. *Contours* - The 25-foot, 10-foot, and 5-foot contours shall be considered as index contours for the 5-foot, 2-foot, and 1-foot contours, respectively. Basic contours at final map scale shall be shown by lines 0.005 inch wide. Index contours shall be accentuated at final map scale by lines 0.010 inch wide. If the 25-foot, 10-foot, and 5-foot index contours are closer together than 3/8 inch at final map scale, the 5-foot contours, 2-foot contours, or the 1-foot contours shall be omitted except as necessary to indicate absence of uniform cross slope. The index contours shall be numbered at frequent intervals with the frequency depending on contour spacing and complexity. Contours shall be blocked out sufficiently to show contour numbers and spot elevations but, in general, numbers and other notations shall be located insofar as possible without interference with contour lines and oriented so as to be read from the base of the sheet, with sheets progressing left to right. The objective is to make the map easily readable and usable.

e. *Coordinates* - State rectangular plane grid coordinates shall be shown at intervals of 5 inches of map scale by solid-line ticks immediately outside the match lines or coordinate lines to the outside of the map area and by solid-line cross ticks throughout the map area. Ticks and cross ticks shall be approximately 0.25 inch in length. The coordinates shall be given and shown on all sides of the map sheet encroaching on the map area if necessary.

f. *Control Points* - All basic horizontal and vertical control points located within or near the map area, shall be shown and identified in this map manuscript by appropriate symbol, number and elevation where applicable. Only such control identified by the COR shall be shown on the finished map sheets. This control shall be shown in the following manner: Basic horizontal control points shall be denoted by a small dot at the exact position of the control point, enclosed by an equilateral triangle with sides 0.15 inch long; basic vertical control points shall be denoted by cross ticks of 0.25 inch in length oriented at 45 degrees to the State grid.

g. *Point Elevation Data* - Elevations of all saddles, tops, principal road intersections, and low points in depressions shall be recorded and the elevation shown in the nearest 0.1 foot. The locations of the above points shall be shown by cross ticks 0.1 inch in length oriented 45 degrees to the State grid.

h. *Miscellaneous Data* - All features with the map areas shall be designated in general accordance with current map practices for comparable scales. Figure 21 in IMH Volume III shall be used as a guide. For topography maps, outlines of all timber areas in excess of 1 acre shall be shown and labeled. Any information such as geological information, section corners, or other details, identified by the COR and supplied to the Contractor for compilation of the corresponding map manuscript sheet shall be accurately placed and labeled in the appropriate manner.

i. *Planimetric Details* - The maps shall show the location of township and range lines, name of principal streams, diversions, canals, towns, numbers or names of highways, roads, and railroads, cross-country transmission lines, etc. A bar scale and a north arrow shall be provided in the margin.

j. *Lettering and Numbering* - All lettering and numbering on topography maps shall be of high-quality draftsmanship and of a size which will be easy to read after the maps are printed to the required scale and shall not interfere with the principal topographic and land use features. A sample of drafting, lettering, and numbering style shall be submitted to the COR for approval prior to final map preparation.

k. *Map Accuracy* - Topographic maps (both hard copy and electronic) shall meet the following standards for accuracy.

(1) *Contours* - Ninety percent of all contours shall be within one-half the basic contour interval of true elevation and no contour shall be more than one full contour interval from true elevation, except that in areas where the ground is completely obscured by dense brush or timber. For areas obscured by dense brush and timber 90 percent of all contours shall be within one full contour interval of true elevation and no contours shall be more than two contour intervals from true elevation. Obscured areas shall be indicated by dashing the index contours where they pass through such areas. Any contour which can be brought within the specified tolerances by shifting its plotted position a distance of 0.025 inch will be accepted as accurately plotted.

(2) *Coordinate Gridlines* - Position inscription of each plane coordinate gridline on each map shall not vary more than 0.01 inch from true grid value.

(3) *Horizontal Control* - Each horizontal control point (inscribed point) within the coordinate grid shall not differ from its true coordinate position on the ground by more than 0.01 inch as expressed by the plane coordinates computed for the point.

(4) *Vertical Control* - All basic vertical control points shall be within 0.025 inch of true position as measured from the nearest projection grid and basic horizontal control points.

(5) *Cultural and Drainage Features* - Ninety-five percent of all well-defined cultural and drainage features shall be within 0.025 inch of true position as measured from the nearest projection grid and horizontal control points.

(6) *Saddles, Tops, Etc.* - Elevation of 90 percent of all saddles, tops, etc., shall be within 0.25 foot of true elevation on the 1-foot contour interval maps, within 0.5 foot of true elevation on the 2-foot contour interval maps, and within 1.25 feet of true elevation on 5-foot contour interval maps and no spot elevation shall be more than 0.5 foot from true elevation on the 1-foot contour interval maps, more than 1 foot from true elevation on the 2-foot contour interval maps, and 2.5 foot from true elevation on the 5-foot contour interval maps.

(7) *Adjoining Map Sheets* - All cultural, hydrographic, and topographic features appearing on adjoining map sheets shall match along the common projection within 0.01 inch, including features along match lines of maps of adjacent areas furnished by the Government.

Cross Sections

a. *General* - The Contractor shall read basic individual elevation shots as necessary to accurately depict the profile of the cross section lines. The Contractor shall measure by ground survey, cross sections consisting of elevations and corresponding distances along the entire length of each line. Elevations shall be read and recorded to the nearest 0.1 foot. Cross section data shall be delivered on CD-ROM in the form specified in this Section C or in the Task Order SOW. The original survey notes of cross section data shall be furnished to the Government.

b. *Equipment* - Equipment used to obtain cross sections must be able to locate the centerline or end points of the cross section by coordinates and determine the direction of the section.

c. *Spacing and Length* - Average spacing of shots along each cross section line and the length of each cross section will be specified on each TO and agreed to during negotiations. The Contractor must use his/her own judgment and read and record all break points on the lines as necessary to accurately depict the profile along the cross section lines. Elevations shall be read and recorded to the nearest 0.1 foot.

d. *Horizontal Accuracy* - Horizontal distances shall not exceed 1.0 foot from true locations.

e. *Vertical Accuracy* -

(1) *Digital Data* - For one foot contours, ninety percent of all points shown on each cross section line shall be within plus or minus 0.25 foot of true elevation and no point shall be more than 0.5 foot from true elevation. For two foot contours, ninety percent of all points shown on each cross section line shall be with plus or minus 0.50 foot of true elevation and no point shall be more than 1.0 foot from true elevation. For five foot contours, ninety percent of all points shown on each cross section line shall be within plus or minus 1.25 feet of true elevation and no point shall be more than 2.5 feet from true elevation. Any additional requirements will be specified in the TO.

(2) *Field Data* - Vertical distances shall not exceed 0.1 foot from true elevations.

Specialized Survey Work - Digital and Scanned Data

If digital or scanned data is required the following requirements shall be met unless otherwise specified by a TO.

a. *Digitizing* - Digitizing or scanning may be required from stereomodels. Data shall be translated to the standard coordinates for the particular state in which the work is to be performed (Example: Idaho State Plane Coordinates). The X-axis of the digitizing system shall be exactly parallel with a line connecting points of equal northing.

b. *3D Laser Scanning Coordinate Requirements* - If 3D laser scanning services are required, the Contractor must have the ability to provide all coordinate data (x, y, z) to an accuracy of 0.02 feet in 500 feet. The Contractor shall deliver raw 3D point cloud data that is geometrically tied to surveyed control points, a digital terrain model, 2D topographic maps of project site(s) with 6 inch contours or larger.

c. *3D Laser Scanning, Other Requirements* - In general, 3D scanning services shall consist of:

(1) Project survey control

(2) Initial site scanning - Set up of 8 to 10 permanent and surveyed targets as well as 10 to 15 temporary target, a 3D laser scan of a specified area and/or facility consisting of 25 to 30 scans, one CD based archive of all point clouds acquired, and digital (CD) and paper copies of 2D topographic map(s)

(3) Subsequent set(s) of site monitoring scans using the permanent targets as specified in the task order. Deliverables as specified above in paragraph C.6.5.f(2).

d. *Accuracy of Polygon Files* - The accuracy of polygon files, when plotted, shall conform to the standards described in the "Reference Guide Outline", Specifications for Aerial Surveys and Mapping by Photogrammetric Method for Highways, 1968, United States Department of Transportation.

Plan and Profile Drawings

These drawings consist of two main parts: (1) the Plan View and (2) the Profile View. Other items that may be added to the plan and profile drawing(s) are typical sections, tables, and notes. (*See figure 19 in IMH Volume III for an example of a typical plan and profile*).

a. *Plan View* - The Plan View is comprised of the following four items: (1) topographic map features, (2) alignment of feature(s); (3) location(s) of proposed and existing structures; and (4) right-of way data. The Contractor will be required to include part or all of these items when preparing plan and profile drawing(s). Each TO will define the items the Contractor shall use in preparing plan(s) and profile(s). These four items are further defined as follows:

(1) *Topographic map features* - These features will be obtained from either topographic orthophoto maps or from topography manuscripts and shall be a reproducible part of the Plan View. The topographic map features shall have all the detail required for standard topographic maps. The scale and width of the topographic map features will be requested with each TO. The plan grid, north arrow, and scale shall be included as a part of topographic map features.

(2) *Alignment of features* - The alignment of feature(s) being designed may be furnished to the Contractor as a traverse. The Contractor shall then plot the alignment of the feature(s) on the topographic map feature portion of the plan view. The following details of the alignment shall be shown on the plan view(s):

- (a) Depending upon map scale, stations shall be marked at every minor station and shall be labeled at every major station.
- (b) All P.I., P.C., and P.T. shall be marked and labeled.
- (c) Delta angle shall be adjusted to the nearest second and the deflection shall be labeled.
- (d) The radius and degree of curve shall be labeled.
- (e) Tangent distance shall be labeled.
- (f) Length of curve shall be labeled.

(3) *Location of Proposed and Existing Features* - The Contractor may be furnished with a list of stationing, type of structure(s), and symbol for each structure or be given a marked print showing the same data. The Contractor shall draft this data on the plan view.

(4) *Right-of-way Data* - The Contractor may be furnished with a marked print or written description of right-of-way data. This data will include property boundaries, land ownership(s), and width of right-of-way required for the feature. The right-of-way shall be drafted and labeled on the plan view.

b. *Profile View* - A profile view is comprised of the following four items: (1) grid; (2) ground profile; (3) grade of feature(s); and (4) location of proposed and existing structures. The Contractor shall include part or all of these items when preparing plan and profile drawing(s). Each TO will specify which items the Contractor shall include in preparing profile view(s).

(1) *Grid* - The grid shall either be prepared by the Contractor or shall be available on commercial reproducible plan and profile sheets. The scale of the elevations will be specified by TO. The scale of the stations shall be the same as the topographic map features in the plan view. The maximum number of stations per plan and profile drawing shall be 30 for 100 feet to the inch, 60 for 200 feet to the inch, 120 for 400 feet to the inch. All breaks in the plan and profile shall be at an even 100 foot station.

(2) *Ground Profile* - The ground profile shall be plotted on the profile grid. The ground profile will be obtained by (1) Contractor using field survey methods or (2) Contractor using photogrammetric methods. The methods of obtaining ground profile will be specified by TO.

(3) *Grade of features* - The grade(s) of features shall be plotted on the profile grid. The data needed to plot the grade may be furnished to the Contractor in table form on a computer printout. The method of obtaining the grade of feature(s) will be specified by TO.

(4) *Location of Proposed and Existing Structures* - The Contractor may be furnished with a list of stationing, type of structure(s), and symbol for each structure or the Contractor may be given a marked print showing the same data. The Contractor shall draft this data onto the profile view.

c. *Miscellaneous Items* - Typical sections, tables, and notes will be furnished to the Contractor as required. The Contractor shall draft them on the plan and profile drawings. These items will be requested by each TO as required and will meet the requirements set forth in Reclamation's IMH Volume III.

C.8. REPORTING REQUIREMENTS, DELIVERABLES & ELECTRONIC FORMATS

General - Deliverables for each Task Order will typically include the following:

- a. Surveying Plan:
 - (1) Describe work layout and surveying methods.
 - (2) Include surveying schedule.
 - (3) Identity of Lead Surveyor.
- b. Accuracy check results.
- c. Survey notes.
- d. Field data files.
- e. Digital terrain models.
- f. Quantity survey notes and computations.
- g. Work day survey notes when requested by the Reclamation.
- h. ESRI geodatabase format GIS files
- i. Conform copy of recorded record of survey for boundary surveys
- j. Title reports or abstract of title
- k. AutoCAD drawings
- l. Copies of CP&Fs filed with county recorders

- m. ASCII file of all points used in the boundary survey.

Submittals and Electronic Formats

The Contractor shall submit whatever necessary interim review copies of reports, tables, drawings, maps, notes, and illustrations needed to communicate the progress and direction of the work to Reclamation.

Progress reports shall be submitted on electronic media formatted in Windows based Microsoft Word 2007 or later. The Contractor shall provide Reclamation one hard copy of documents in addition to the digital copy.

Unless specified in the TO, any drawings or output data files produced on a Computer Aided Design and Drafting (CADD) system and furnished to Reclamation shall be compatible with AutoCAD Civil 3D 2012, *.DWG file format, manufactured by Autodesk, Inc., Sausalito Ca, as used by Reclamation. Topographical drawings must contain proper point files, point groups, and intelligent Civil 3D object entities such as surfaces, alignments, profiles, cross-sections, as required. ASCII point files must be included, with a point descriptor glossary. All *.DWG deliverables must be created using Reclamation's standard drawing template file (*.DWT) and standard support files (to be provided by Reclamation). Deliverables shall be "eTransmitted" from within the Civil 3D application, to package *.DWG files with all resource files and dependencies including fonts, external references, and images. Before submission for final acceptance, all designs and drawings by the A&E shall be signed and dated by the registered professional responsible for the project. The stamp and signature of the registered professional engineer shall appear on all design drawings. Final maps shall also be submitted in electronic format; ArcGIS 9.3.1 or later, as specified in the TO and as appropriate per the information being delivered, and compatible with Reclamation's format capabilities. The Contractor shall use a form of electronic media to record cross section data and other data as requested unless otherwise specified in the TO.

Electronic submittals shall be provided in the following formats as appropriate:

- a. *Word processing* - Microsoft Word 2007 or later.

- b. *Spreadsheets* - Microsoft Excel 2007.

- c. *Drawings and Surveys* - AutoCAD Civil 3D 2012 or later, or as specified in the TO. The Contractor must demonstrate that the data contains proper point files, point groups, and intelligent Civil 3D object entities such as surfaces, alignments, profiles, cross-sections, as required. ASCII point files must be included, with a point descriptor glossary. All *.DWG deliverables must be created using Reclamation's standard drawing template file (*.DWT) and standard support files (to be provided by Reclamation). Deliverables shall be "eTransmitted" from within the Civil 3D application, to package *.DWG files with all resource files and dependencies including fonts, external references, and images.

- d. *Schedules* - Microsoft Project 2007 or Primavera P6 or as directed in specific TOs.

e. *Acrobat Reader (PDF)* - Adobe Acrobat 9.0.

f. *Mapping* - ArcGIS 9.3.1 or later.

A form of electronic media shall be submitted that includes the completed work. File names and final content to be included on the electronic media shall be approved by the COR. The cover shall have the appropriate document titles and indicate that the documents were done for the United States Department of the Interior, Bureau of Reclamation, Pacific Northwest Region, and appropriate Area Office, and date including month and year. Reclamation may furnish templates for specific typefaces, fonts, and colors for the Contractor to apply to certain deliverables.

These standards may be revised by the Contracting Officer during the term of this contract to reflect software upgrades. The Contracting Officer will notify the Contractor in writing prior to any planned software upgrade.

Reports

a. *Work Plans* - The Contractor shall submit a work plan and schedule to the COR for approval prior to proceeding with any portion of the work if specified in the TOs.

b. *Progress Reports* - Brief progress reports shall be submitted to the COR in letter form if specified in the TOs. They shall be submitted on a regular basis (as negotiated per each TO) and will document the Contractor's performance under each TO, outlining the accomplishments of the Contractor during that period. They shall also include information on current or foreseen problems or concerns that will impact performance. The Contractor shall also supply estimates of current and future earnings (accruals) when requested by the CO or COR.

c. *Editorial Policy* - The Contractor shall foster an editorial policy of brevity and clarity. The Contractor shall use active phrasing whenever possible.

Review Procedures

For documents or sections of documents and drawings/maps subject to agency review, one (1) copy of documents shall be submitted to Reclamation unless otherwise specified in the TOs. Upon receipt of Reclamation's comments, the Contractor shall address and/or incorporate them into the final document and submit documents to Reclamation within 15 calendar days unless otherwise noted in the schedules included with the TO. Review conferences may be held at appropriate stages during the review process to discuss comments and necessary changes. Review of interim review copies will be worked out between the COR and the Contractor on an informal, but timely basis, so as not to impede the progress of the TO.

Typography

Reports and plans shall be in Times New Roman 12 point font, or other agreed upon font, and produced using Microsoft Word 2007 or later. Documents shall be printed using a laser printer. Reports and

documents shall comply with Reclamation's Visual Identity Program (see <http://intra.usbr.gov/vip/> which requires a password that the Contracting Officer will supply).

Photographs, Graphics

Photographs, if required, shall be submitted as separate files in .jpg format. Use of color graphics shall be reviewed with the COR to determine appropriateness and need, in relation to cost of reproduction. Appropriate black and white and color reproducible graphics shall be prepared for documents.

Maps and Drawings

Maps and drawings shall be provided in hard copy as well as in electronic format; Autodesk AutoCAD Civil 3D 2012 or later, ArcGIS 9.2 or later as specified in the TO. Maps will be prepared to fit both a full size (22 inches by 34 inches) and a half-size format (11 inches by 17 inches) which is foldable to 8½-inch x 11-inch size. Three hard copy half-size maps and drawings will be required as well as an electronic set(s) on electronic media or as specified in the TO.

The Contractor shall provide actual data from GIS databases which were used to produce maps, drawings, and any scripts used to produce the composition, giving Reclamation the ability to reproduce them in order to defend their composition, if challenged.

All maps and drawings shall be drawn to scale in electronic format, in US Customary Units, and in accordance with Reclamation's IMH Volume III.

The Contracting Officer will supply Reclamation assigned drawing numbers. In addition to the Contractor's title block, the drawing shall include a Reclamation title block, laid out in accordance with Figure 2 of Reclamation's IMH Volume III. The Contractor shall develop a computer-driven plot-generated drawing, plotted on standard drafting weight paper which is an archival quality drafting media. The plot shall be a full-size representation (original D size plot) of the final drawings and shall be developed in black ink. Each plot shall be signed by a registered professional in a discipline directly related to the drawing content. The signature lines on the Reclamation title block shall be left blank. The TO will specify the number of drawings and electronic copies to be submitted.

Packaging

No special packaging requirements of any item beyond normal, commercial methods are anticipated.

Checklist

The Contractor shall establish a checklist for use by both the Contractor and the COR, to insure that the items are delivered, are the correct items, at the correct scales, sizes, and materials, and are suitable for the intended purpose.

C.9. TASK ORDER PROPOSAL INSTRUCTIONS

When the contractor is issued a request for a technical/cost proposal for a Task Order by a Contracting Officer, the Contractor shall submit:

a. *Technical Proposal*: A narrative proposal that is of sufficient detail to allow the Contracting Officer to evaluate the proposed approach to completing the work. The narrative proposal's descriptive detail shall be in direct proportion to the complexity of the task. More complex tasks requiring multiple disciplines and schedules will require more lengthy discussion/descriptions. The proposal shall: define methods to be applied to accomplish the Task Order goals; contain a proposed milestone schedule identifying all significant activities and their proposed completion dates; identify key personnel and activities they are responsible for; and, provide a detailed breakdown showing the number of hours per discipline (Surveyor, Survey Technician, Draftsman, etc.) for activities related to the administration, field work, and deliverable preparation.

b. *Cost Proposal*: The Cost Proposal shall contain a breakdown of the number of labor hours per person per task/activity proposed in the Technical Proposal, using the applicable loaded hourly rates from Section B of the Contract, any estimated travel costs, and the proposed profit/fee. If any identified person will be performing work in more than one discipline/service, show the number of hours for which they will perform each discipline/service. A person may perform any work for which they are qualified, and approved for by the Contracting Officer, but they may only work under one loaded hourly rate. Proposed travel costs shall be estimated pursuant to the General Service Administration's (GSA's) Federal Travel Regulation (FTR).

C.10. PRICING OF TASK ORDERS, AVAILABILITY OF KEY PERSONNEL, AND SUBCONTRACTORS

Supplies/Services and Prices/Costs

Section B contains a listing of potential work categories that may be utilized during performance of the TOs. The Contractor shall provide unit rates (hourly, daily, crew rates for various crew sizes) for each work category. After negotiation and execution of the contract, the Loaded Hourly Rates shall be applicable for all work accomplished under the contract of each applicable period.

Availability of Staff

By execution of this contract, the Contractor certifies that the personnel to be furnished for performance of any TO issued, shall substantially meet the same education, training, and work experience qualifications as were met by those specialists who were listed in the Contractor's Technical Proposal which was one of the bases for award of the contract. Provisions of the Key Personnel paragraph of Section H shall apply in the designation of replacement staff. If, in Reclamation's opinion, the Contractor fails to provide specialists substantially meeting the qualifications set forth in the applicable Technical Proposal, then, notwithstanding any other remedies at law available to Reclamation relating to the Contractor's Certification above, Reclamation may terminate this contract in whole or in part, for default.

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Pacific Northwest Regional Office, Boise ID

Experts, Consultants, Specialists

In addition to permanent staff members, the Contractor may, when authorized in a TO, secure and provide the services of experts, consultants, or specialists to assist in performing a TO. The cost thereof shall be negotiated in each such TO.