REQUEST FOR PROPOSAL (RFP)

CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION
DEPARTMENT OF NATURAL RESOURCES – FISHERIES PROGRAM

Upper Walla Walla River Watershed Assessment and Action Plan

RFP No. 2019/08-408
Date Issued: October 30, 2019

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Critical Dates:
Pre-proposal Information Meeting: November 14, 2019 – 1:00pm PST
Request for Clarification Deadline: November 21, 2019 – COB
Response to Clarification Deadline: November 26, 2019 – COB
Proposal Submission Deadline: December 13 – 2:00 pm PST
Tentative Award Selection (est.): December 19, 2019
Contract Award (est.): January 6, 2020
Project Initiation: April 1, 2020
Project Completion: March 31, 2021
Request for Proposal (RFP)

Part I – General Information and RFP Process

Upper Walla Walla River Geomorphic Assessment and Action Plan

1.1 Project Purpose and Location

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Natural Resources Fisheries Program is requesting proposals from Contractors, qualified as environmental consultants, to develop in collaboration with state co-managers, Federal and local agencies, and other stakeholders a scientifically defensible aquatic based and strategic habitat restoration plan founded on a watershed-scale geomorphic, hydrologic and biological assessment of historical, current and desired conditions in the upper Walla Walla River.

This project is to support the most scientifically robust, efficient, and effective approach to protect, enhance and restore functional floodplains that support and sustain healthy aquatic habitat conditions and fish populations. The focal fish species of the assessment and action plan include:

1. Middle Columbia River summer steelhead (ESA-listed Threatened)
2. Columbia River bull trout (ESA-listed Threatened)
3. Spring Chinook salmon
4. Pacific lamprey

This project will identify (1) the current and historical functioning of natural geomorphic and hydrologic processes that are linked to focal species habitat, as organized by the CTUIR River Vision (Jones et al. 2008) and Upland Vision Touchstones (Endress et al. 2019); (2) the effect of current land use on the function on those natural processes and their influence on the production of focal species; (3) quantitative prioritization of geographic areas according to the potential for restoration and conservation of watershed/floodplain processes that support focal species habitat; and (4) itemized restorative actions that may be applied to each geographic area to restore watershed processes and achieve multi-species uplift.

The final document will establish a 20-year strategic Tribal and State co-manager, Federal, and stakeholder approach (e.g. BOR 2012, CTUIR 2014, CTUIR 2016, CTUIR 2017) to process-based floodplain restoration based upon watershed-specific data and its analysis with input from interested stakeholders in the watershed. A defensible approach will require the assessment of land use, land cover, vegetation, aquatic biotic communities, geomorphic and hydrologic processes and conditions to prioritize geographic areas and potential restoration actions. This will be a collaborative process with the CTUIR and several other stakeholders, so frequent and open communications will be key to project success.
The project will be primarily focused on the alluvial channel and floodplain of the Walla Walla River from the confluence with Dry Creek near Lowden, Washington, to the headwaters of the North and South Forks of the Walla Walla River in northeast Oregon. The primary study area includes approximately 70 miles of stream and the associated floodplain of those stream segments (Attachment A). Secondarily, a reconnaissance-level assessment of the upland conditions of the study area is also desired. The secondary study area includes the catchment area of the primary study area for analysis of upland and tributary processes that influence the primary study area. The secondary study area is approximately 885 square miles.

1.2 **Scope of the RFP**

This Request for Proposals ("RFP") provides the specific services to be contracted as well as due dates, information concerning the preparation and submittal of Proposals, an explanation of how Proposals will be evaluated, and terms and conditions of the contract that may be awarded as a result of the RFP.

1.3 **Project Timeline:**

The Project is planned to begin **April 1, 2020** and conclude on **March 31, 2021**.

1.4 **Closing Date for Submissions**

The closing date for submissions will be on **December 13 at 2:00 pm, Pacific Standard Time (PST)**. Proposals received after the specified time will not be considered. Contractors must submit three (3) hard copies and a digital copy (via USB drive) of their bid to:

Confederated Tribes of the Umatilla Indian Reservation  
DNR FISHERIES PROGRAM  
Attn: Julie Burke  
46411 Timíne Way  
Pendleton, OR 97801

The outer envelope should be clearly marked "**UPPER WALLA WALLA ASSESSMENT– DO NOT OPEN.**"

1.5 **In Writing**

Bids must be prepared by computer or typewriter. No oral, handwritten, telephone, e-mail, or facsimile Proposals will be accepted.

1.6 **Necessary Information**

Proposals must contain all information requested in the RFP. The CTUIR will not consider additional information submitted after the Closing Date and may reject incomplete proposals.
1.7 **Cost of Proposals**

The CTUIR shall not be liable for any expenses incurred by Contractors in either preparing or submitting Proposals, evaluation/selection, or contract negotiation process, if any.

1.8 **Request for Clarification**

Contractors may submit a written request for clarification via email by **November 21, 2019**. The CTUIR will not consider any requests submitted after the time period specified above. Questions regarding the RFP or request for clarification shall be sent to the RFP contact listed in Part 1.4.

1.9 **Response to Requests for Clarification**

Responses to questions will be provided no later than **November 26, 2019**.

1.10 **Proposals Constitute Firm Offers**

Submission of a Proposal constitutes Contractor’s affirmation that all terms and conditions of the Proposal constitute a binding offer that shall remain firm for a period of ninety (90) days from the Closing Date.

1.11 **Signature Required; Proposer Affirmations**

An authorized representative of the Contractor must sign the original Proposal in ink. Contractor’s signature and submission of a signed Proposal in response to the RFP constitute Contractor’s affirmation that the Contractor agrees to be bound by the terms and conditions of the RFP and by all terms and conditions of the Contract awarded.

1.12 **Type of Contract**

The CTUIR shall execute a Subcontract for Technical Services.

1.13 **Confidential Information**

Proposals are confidential until the evaluation and selection process has been completed and the CTUIR has issued a notice of tentative award. Any information a Contractor submits in response to the RFP that the Contractor considers a trade secret or confidential proprietary information, and Contractor wishes to protect from public disclosure, must be clearly labeled with the following:

“This information constitutes a trade secret or confidential proprietary information and is not to be disclosed except in accordance with applicable public disclosure laws.”
1.14 **Requests for Further Clarification of Proposals**

The CTUIR may request additional clarification from Contractors on any portion of the Proposal prior to awarding the contract.

1.15 **Cancellation of RFP**

The CTUIR may cancel this RFP at any time upon finding that it is in the CTUIR's best interest to do so.

1.16 **Rejection of Proposals**

The CTUIR may reject a particular Proposal or all Proposals upon finding that it is in the CTUIR’s best interest to do so.

1.17 **Tentative Award and Contract Negotiations**

The CTUIR will provide a written tentative award notice to the responsible Contractor whose proposal is deemed to be most advantageous and of best value towards meeting the project objectives. The CTUIR will enter into negotiations with the Contractor on the following contract terms: (a) Contract tasks; (b) Staffing; (c) Performance Schedule; and (d) A maximum, not to exceed Contract price, which is consistent with the Proposal and fair and reasonable to the CTUIR, taking into account the estimated value, scope, complexity, and nature of the services to be provided. The CTUIR may also negotiate the statement of work and, at its discretion, add to the scope of services based on a Contractor's recommendations (but still within the scope of this RFP) or reduce the scope of services.

Final award will be contingent upon successful negotiation of a contract within 7 days after the tentative award.

The CTUIR may terminate negotiations with the Contractor if they fail to result in a contract within a reasonable time. The CTUIR will then enter into negotiations with the second responsible Contractor, and if necessary the third responsible Contractor. If the second or third round of negotiations fails to result in a contract, the CTUIR may formally terminate the solicitation.

1.18 **Protest of Tentative Award Selection**

A notification of tentative award to the responsible Contractor will be sent to all Contractors that submitted a Proposal in response to this RFP. A Contractor who claims to have been adversely affected by the selection of a competing Contractor shall have seven (7) calendar days after receiving the notice of selection to submit a written protest of the selection to the RFP contact listed in Part 1.4. The CTUIR will not consider protests submitted after the date established in this Part. The protest must specify the grounds upon which the Protest is based.
1.19 Award

After expiration of the seven (7)-calendar day selection protest period and resolution of all protests, the CTUIR will proceed with final award.

1.20 Investigation of References

The CTUIR reserves the right to investigate the references and past performance of any Contractor with respect to its successful performance of similar services, compliance with RFP and contractual obligations, and its lawful payment of suppliers, sub-contractors, and employees. The CTUIR may postpone award or execution of the contract after the announcement of the apparent successful Contractor in order to complete its investigation. The CTUIR reserves the right to reject any proposal at any time prior to the execution of any resulting contract.

1.21 Amendments

The CTUIR reserves the right to amend the resulting Contract from this RFP. Amendments could include but are not limited to, changes in the statement of work, extension of time and consideration changes for the Contractor. All amendments shall be in writing and signed by all approving parties before becoming effective. Only the CTUIR has the final authority to execute changes, notices or amendments to Contract.

1.22 Pre-proposal informational meeting

A pre-proposal information meeting open to all prospective contractors will be held on **November 14, 2019** at 1:00pm PST at the Walla Walla Community College Water and Environmental Center in Walla Walla, Washington. Attendees should RSVP for the pre-proposal information meeting to the RFP technical and administrative contacts listed on the cover page. Attendees should RSVP at least 5 calendar days prior to the meeting date to receive a conference call number, if necessary. Questions regarding project should be directed toward the technical contact before the request for clarification date listed in Section 1.8 and questions will be answered during the clarification response described in Section 1.9.
PART II – SERVICES TO BE PROVIDED

2.1 Scope of Work

This project is to support the most efficient, effective, and scientifically supported restoration of watershed processes in the upper Walla Walla River by developing a spatially explicit physical and biological assessment and prioritization of restoration and conservation activities to provide a scientifically robust action plan for stakeholders to implement over a 20-year period to assist in the recovery of the focal species. This will be a collaborative process with the CTUIR and several other stakeholders, so frequent and open communications will be key to project success.

The project will be primarily focused on the channel and floodplain of the Walla Walla River from the confluence with Dry Creek near Lowden, Washington, to the headwaters of the North and South Forks of the Walla Walla River in northeast Oregon. The primary study area includes approximately 70 miles of stream and the associated floodplains (Attachment A). Secondarily, a reconnaissance-level assessment of the upland conditions of the study area is also desired. The secondary study area includes the catchment area of the primary study area for analysis of upland and tributary processes that influence the primary study area. The secondary study area is approximately 885 square miles.

The physical and biological assessment of the study area will be process-focused (generally following guidance of Booth et al. 2016, Beechie et al. 2008, Beechie et al. 2013, Devries et al. 2015, Palmer et al. 2005, Roni et al. 2017, Wohl et al. 2005), with the data collected and analyses conducted to informing restoration priorities to restore watershed processes that support multi-species benefit for the four focal species of the assessment and action plan:

1. Middle Columbia River summer steelhead (ESA-listed Threatened)
2. Columbia River bull trout (ESA-listed Threatened)
3. Spring Chinook salmon
4. Pacific lamprey

This project will identify (1) the current and historical functioning of natural geomorphic and hydrologic processes that are linked to focal species habitat, as organized by the CTUIR River Vision (Jones et al. 2008) and Upland Vision Touchstones (Endress et al. 2019); (2) the effect of current land use on the function on those natural processes and their influence on the production of focal species; (3) quantitative prioritization of geographic areas according to the potential for restoration and conservation of watershed processes that support focal species habitat; and (4) itemized restorative actions that may be applied to each geographic area to aid in restoration of watershed processes and achieve multi-species uplift.

The final document will establish a strategic approach to watershed process restoration based upon watershed-specific data and its analysis with input from interested stakeholders for the watershed. A defensible approach will require the assessment of land use, land cover, vegetation, aquatic biotic communities, geomorphic and hydrologic processes and conditions to prioritize geographic areas and potential restoration actions.
The collaborative process will include the CTUIR, Oregon and Washington state agencies, federal agencies, local non-governmental organizations, and private landowners. Frequent and open communication will be critical to project success. The selected contractor will be required to detail progress in their efforts at regular meetings and accept guidance from the CTUIR and stakeholders. The selected contractor will be required to address comments and concerns raised by stakeholders and effectively communicate outcomes. The selected contractor will collaboratively develop a communications plan with the CTUIR prior commencing project work to ensure efficient and effective communication with stakeholders.

2.1.1 Mission Statements

The directives of relevant watershed co-manager's mission statements are presented below for reference and consistency in the work of the contractor:

Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources Program

To protect, restore, and enhance the first foods - water, salmon, deer, cous, and huckleberry - for the perpetual cultural, economic, and sovereign benefit of the CTUIR. We will accomplish this utilizing traditional ecological and cultural knowledge and science to inform:

1) population and habitat management goals and actions; and
2) natural resource policies and regulatory mechanisms.

In support of the CTUIR Department of Natural Resources mission statement, the Fisheries Habitat Program goal and objectives:

1) To protect, enhance, and restore functional floodplain, channel, and watershed processes to provide sustainable and healthy habitat for aquatic species of the First Foods order.
2) Develop comprehensive and scientifically defensible restoration strategies based on the most recent and best available scientific information (Includes prioritizing actions and geographic areas).
3) Maintain and apply an updated knowledge of floodplain, channel and watershed function as it relates to healthy aquatic conditions and fish populations.
4) Build and maintain cooperative and coordinated relationships with other key agencies and stakeholders in order to maximize project efficiency, effectiveness and success.

Oregon Department of Fish and Wildlife

To protect and enhance Oregon’s fish and wildlife and their habitats for use and enjoyment by present and future generations.

Washington Department of Fish and Wildlife

To preserve, protect, and perpetuate fish, wildlife, and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities.
2.1.2 Project Purpose

Limiting factors and treatments have been generally defined in the Walla Walla Subbasin Plan (NPCC 2004), the Middle Columbia Steelhead Recovery Plan (NOAA 2009), the Recovery Plan for the Coterminous United States Population of Bull Trout (Salvelinus confluentus; USFWS 2015), and several other local planning documents (Attachment B).

These planning documents have typically focused on remediating specific limiting factors through identified often isolated restoration measures with anticipation of fish habitat uplift without an understanding of larger scale watershed processes across time and space and at multiple scales. A comprehensive inventory and assessment of the hydrologic, geomorphic, aquatic, and riparian conditions of the watershed including historic, present and future conditions is needed to inform and develop a process-based restoration approach that addresses root causes of limiting factors (ecological concerns) and results in long-term improvements to watershed and fluvial processes and sustainable ecological processes.

This information will be consolidated into a single document that details our strategic approach to address root causes of degradation within a watershed context, specifically beneficial to focal fish species and their aquatic habitat. The watershed assessment, provided data resources, prioritization strategy and adaptive management plan generated from this effort will be beneficial to stakeholders engaging in implementation, both in communicating with private landowners but also aligning restoration approach and actions with the watershed co-manager’s missions (see item 2.1.1), recovery plans, and conservation funding agencies.

Project objectives include:

1. Build consensus among co-managers, conservation implementation teams, and stakeholders regarding identification of impaired watershed processes, focal species limiting factors, and restoration strategy.
2. Review and provide summaries of the analyses and results that are found in existing planning documents related to watershed processes, hydrologic function, and limiting factors (physical habitat, water quality, climatic factors, etc.) influencing focal species habitats within the Study Area (Attachment B).
3. Review and provide summaries and analyses of historical and existing contemporary datasets as they relate to watershed processes, hydrologic function, and focal species limiting factors and identify critical data gaps.
4. Compile and summarize previous restoration activities in the Study Area.
5. Determine how geomorphic function, hydrologic function, and biotic function of the study area influences focal species.
6. Partition the Study Area into logical reaches based on physical and biological function for planning and prioritization.
7. Develop methods for using quantitative metrics to link existing functionality of watershed processes to appropriate restoration activities in each geographic area.
8. Develop a strategic action plan to effectively and efficiently increase function of watershed processes and achieve multi-species uplift of focal species that can be implemented cooperatively by stakeholders over a 20-year period.
9. Justify actions and funding priorities for support of funders and permitting agencies.
10. Provide awareness and information to local communities and stakeholders related to watershed processes, hydrologic function, and focal species needs in the context of agricultural development and flood risk mitigation.

### 2.1.3 Watershed Assessment

The watershed-scale geomorphic and hydrologic assessment will include compiling and reviewing summaries of existing planning documents, reports, and data to provide a detailed review of the historic and existing functionality of the watershed processes that influence focal species habitat. The analysis area for this assessment will include the entire catchment area of the Walla Walla River upstream of the confluence with Dry Creek, near Lowden, Washington. The components of the watershed-scale assessment include (1) a general description of the Study Area’s geographic, geologic, and climatic setting; (2) an overview of the ecological conditions of the uplands of the Study Area, organized by Upland Vision Touchstones, and how it influences the Study Area’s hydrologic network and watershed processes; (3) a watershed-scale description of the conditions and functionality of geomorphic and hydrologic processes and focal species status and utilization of the Study Area organized by River Vision Touchstones; (4) reach-scale descriptions of the conditions and functionality of geomorphic and hydrologic processes and identification of factors limiting focal species production organized by River Vision Touchstones and (5) develop repeatable assessment techniques (e.g. terrain model, hydraulic model, floodplain/riparian habitat measures, etc.) using remote sensing or ground based monitoring methodologies to track restoration response and utilized for adaptive management purpose.

The watershed assessment will generally achieve the following objectives:

1. Describe the regional geographical, geological, and climatic setting of the Study Area
   1. Apply how climate trends will have a direct influence on the hydrologic conditions and focal species limiting factors
2. Describe the historical conditions of the Study Area including upland, floodplain, and channel watershed processes and historic and prehistoric human influence on watershed processes
3. Describe the current watershed-scale function of upland watershed processes and their influence on the hydrologic network, organized by Upland Vision Touchstones
   1. Soil stability
      1. Describe sediment contribution to the hydrologic network from the Study Area uplands
   2. Hydrologic function
      1. Describe the impact of upland vegetative and land use conditions on the capture, storage, and release of precipitation to the hydrologic network
   3. Landscape pattern
      1. Describe land use and land cover across the Study Area
4. Describe the current status and trends of native biotic communities
4. Describe the current watershed-scale function of floodplain and channel watershed processes, organized by River Vision Touchstones.
   1. Describe water quality impairments in the Study Area
2. Describe the hydrologic regime of the Study Area including anthropogenic alterations
3. Describe watershed-scale determinants of geomorphologic function
4. Identify and enumerate natural and anthropogenic barriers to focal species migration in the Study Area
5. Describe focal species utilization of the study area by life stage across the Study Area
6. Describe general status and trends of focal species populations in the Study Area
7. Describe the influence of beaver extirpation on watershed processes in the Study Area
8. Describe watershed-scale conditions of riparian habitats and the influence on larger watershed processes

5. Partition the primary Study Area into logical reaches based on geomorphic, hydrologic, and biological factors.
6. Describe the current reach-scale function of floodplain and channel watershed processes, organized by River Vision Touchstones.
   1. Describe water quality impairments in each reach
   2. Describe the hydrologic conditions of each reach
   3. Describe the physical geomorphic conditions of each reach
   4. Identify natural and anthropogenic barriers to focal species migration in each reach
   5. Identify natural and anthropogenic barriers to floodplain connectivity in each reach
   6. Describe focal species use of each reach and suitability of current habitat for focal species spawning and rearing
   7. Estimate focal species production in the context of estimated historical productivity for each reach
   8. Describe condition of riparian vegetation in each reach and its influence on other reach and watershed processes

2.1.4 Action Plan

The action plan will incorporate the data compiled in the watershed assessment as a result of this contract, data from previous monitoring and planning exercises, and extensive stakeholder coordination to develop a method to quantitatively rank the reaches identified in the watershed assessment by the potential for increased watershed process functionality and, ultimately, increased productivity of focal species in a restored condition. In addition to ranking the reaches by restoration and conservation priority, the selected contractor will also develop a list of restorative actions that may be applied to each reach to address impaired watershed processes and limiting factors identified in the watershed assessment. The ultimate goal is to develop a spatially explicit strategic action plan to effectively and efficiently increase function of watershed processes and achieve multi-species uplift of focal species that can be implemented cooperatively by stakeholders over a 20-year period.

The strategic action plan should demonstrate ability to implement and connect networks of protected or restored floodplain and riparian environments at a reach scale with comprehensive quantitative metrics to demonstrate project success and physical and biological response at appropriate watershed/reach scale, especially towards focal fish species.
The action plan will generally achieve the following objectives:

A. Develop a methodology to quantitatively rank the reaches identified in the watershed assessment by their restoration and conservation potential using the data compiled and limiting factors identified in the watershed assessment.

B. Strategically identify, categorize, and clearly present restoration actions to address the impaired watershed processes and limiting factors identified in the watershed assessment.

C. Evaluate the potential impacts of restoration actions on watershed processes and focal species production at the reach and watershed scale and compare the functionality to a no-action alternative.

   a. Incorporate a fish management and fish use sections that outline fish co-managers’ comprehensive goals and objectives in the Walla Wall Subbasin in relationship to support of Tribal and local fisheries, sustainable habitats, meeting spring Chinook and Pacific Lamprey reintroduction management goals, and steelhead and bull trout recovery planning objectives relative to viable salmon populations (VSP) targets including key components abundance, productivity, spatial structure, and diversity throughout the Columbia River Basin (McElhany et al. 2000).

Evaluation of impacts should also include some measure of how restoration actions buffer climate influence in recovery of physical and ecological processes, and directly benefit ESA-listed steelhead and bull trout.

2.1.5 Documentation

The final watershed assessment and action plan documentation will incorporate all information developed or gathered for the assessment, including methodologies, and clearly detail an effective approach to restoration over the following 20 years in a written document as outlined in Attachment C.

Additional documentation of the project will include an ArcGIS geodatabase and map document that compiles all spatial information collected or produced as a result of this project.

2.2 Regulations and Permits

The contractor shall, without additional expense to the CTUIR, be responsible for complying with any Federal and State Laws, Codes, and Regulations applicable to the performance of the work.
2.3 **Team Competencies**
The following are expected minimum consultant team competencies. One person might fill more than one role, and it is expected that proposals will include additional competencies as required.

- Project Manager
- Geomorphologist
- Hydrologist
- Fish Biologist
- Riparian Ecologist
- GIS Analyst

2.4 **Project Tasks**

2.4.1 **Task 1 – Project management and communication**

This Project will be a collaborative process with the CTUIR and several other stakeholders, so frequent and open communications will be key to project success. The selected contractor will be expected to maintain close coordination with the CTUIR, assist in development of a shared vision for the study area and refinement of goals and objectives of the assessment process, assist in development and coordination of technical teams, assist in coordination with stakeholders, and facilitate discussions necessary to inform assessment and action planning. The selected contractor will collaboratively develop a communications plan with the CTUIR prior commencing project work to ensure efficient and effective communication with stakeholders.

The CTUIR and others will develop a public outreach strategy and will organize public meetings and consolidate public comments. The selected contractor will be expected to be present for and facilitate discussions with the general public and landowners at public meetings to inform the assessment. The selected contractor will record and address all comments received from stakeholders throughout the process and include the record in the final report (Task 6).

The selected contractor will be responsible for prompt, accurate invoicing, maintaining agreed-upon schedules and deliverables, and be willing to accept direction from the CTUIR and address stakeholder comments.

2.4.2 **Task 2 – Review literature and existing data**

The Walla Walla subbasin is fairly data rich (see attachment B for a partial list of available data). The selected contractor will review previously completed assessments, literature, and Federal, Tribal, state, and local planning documents to incorporate into the assessment and action planning effort and develop the context of this assessment and action plan. The selected contractor will also review existing data from agencies and publically available databases to determine what will be necessary to complete the assessment and identify any critical data gaps. Historical data should also be summarized and reviewed to develop a historical context for the conditions of the study area and to use as a reference relative to contemporary conditions.
2.4.3 Task 3 – Collect data

The CTUIR does not anticipate that any data collection will be necessary under this contract to satisfactorily complete the assessment and action plan as described. However, if critical data gaps are identified in the review of existing datasets, it may be necessary or advantageous to collect additional data to support the development of the assessment and action plan. The Walla Walla Basin Watershed Council (WWBWC) will be conducting a physical habitat data collection in the Study Area in parallel with this assessment and action planning process. Any physical data gaps identified as a result of this project may be able to be integrated into the WWBWC data collection effort.

2.4.4 Task 4 – Analyze data

The selected contractor will collaborate with the technical teams to partition the study area into logical reaches that share geomorphic and biological characteristics.

The selected contractor will summarize and analyze existing data and newly collected data collected in Tasks 2 and 3 to develop an understanding of the condition of watershed processes at the watershed and reach scales. Data and watershed processes should be organized by River Vision and Upland Vision touchstones, as appropriate.

Focal species use and production under current and potential future conditions will also be evaluated in this task. The selected contractor will develop a model to estimate production of focal species at the reach scale under current conditions, under potential future conditions, and determine the factors limiting production for each focal species in each reach.

Using publicly available data, an analysis of potential effects of climate change at the watershed scale is also desired. The selected contractor will analyze the anticipated changes in water quality (i.e. temperature) and hydrology (i.e. quantity and timing of water) under a range of likely climate change scenarios to inform prioritization and action planning.

All data will be cataloged and provided to CTUIR in an ArcGIS database, including all data layers from collected data and analyses performed. No proprietary software will be used for analysis as part of the assessment unless approved by CTUIR.

2.4.5 Task 5 – Develop restoration prioritization framework

The selected contractor will work collaboratively with the CTUIR and stakeholders to develop an objective reach prioritization framework to prioritize reaches for restoration as well as conservation. The reach prioritization framework is expected to incorporate quantitative data and analyses completed in Task 4 to rank reaches by the magnitude of uplift to focal species possible with restoration or conservation. Additionally, the selected contractor will identify restorative actions that may be applied to each reach to address the limiting factors identified in Task 4.

2.4.6 Task 6 – Draft Upper Walla Walla River Assessment and Action Plan

The selected contractor will draft a document detailing the background, goals, and objectives of the project from Tasks 1 and 2; methodology from Task 3 and 4; quantitative and
qualitative descriptions of watershed processes, description of focal species utilization, influence of climate change on water quality and quantity and focal species habitat, and summarized results of the assessment across the study area from Task 4; quantitative and qualitative descriptions of watershed processes, description of focal species utilization, influence of climate change on water quality and quantity and focal species habitat, and summarized results of the assessment at the reach scale from Task 4; prioritization and action planning methodology from Task 5; presentation of priority restoration and conservation reaches from Task 5; and presentation of priority actions to address limiting factors from Tasks 4 and 5.

Additional documentation of the project will include an ArcGIS geodatabase and map document that include all spatial information collected or produced as a result of this project.

These components are generally described in Sections 2.1.4 and 2.1.5 of this RFP. A draft outline has been prepared and is the basis of this proposal (Attachment C).

2.5 Deliverables and Timeline

The following are expected minimum deliverables and a proposed partial timeline. Final deliverables and timeline will be negotiated in the contracting process, and proposals that present creativity, efficiency, and/or novel approaches are strongly encouraged. Communication is highly encouraged throughout the Project.

A. The scheduled date for completion of the Project is March 31, 2021. The Contractor must complete all aspects of the work on, or before the completion date, unless completion is delayed due to conditions mutually agreed upon and designated in writing by the Contractor and the CTUIR.

B. Task 1 – Project management and communication
   a. Communications plan outlining communications responsibilities with the CTUIR and stakeholders
   b. Detailed Project Vision, goals, and objectives developed collaboratively with CTUIR and stakeholders
   c. Attend a minimum of five (5) technical team meetings to inform the Project
   d. Attend a minimum of three (3) public meetings to inform the Project
   e. Records of comments provided by CTUIR and stakeholders and how comments were addressed
   f. Accurate and timely invoicing

C. Task 2 – Review literature and existing data
   a. Annotated list of existing assessments, planning documents, and datasets and how each informs the assessment
   b. Presentation of review conclusions and any critical data gaps identified to the technical team

D. Task 3 – Collect data
   a. Collect any data to fill gaps identified in Task 2

E. Task 4 – Analyze data
   a. Reach partitions
   b. Methods, summaries, and analysis of data describing geomorphic and hydrologic function at the watershed and reach scale
   c. Methodology and summary of reach-scale focal species production model including productivity estimates for each focal species at each reach, limiting
factors identification, and estimates of increase in productivity of focal species in a restored condition

d. Methods and summary of watershed-scale climate change analyses including anticipated changes in water quality and quantity

F. Task 5 – Develop restoration prioritization framework
   a. Methodology and prioritized list of reaches for restoration and conservation
   b. Itemized list of restoration actions to address limiting factors in each reach

G. Task 6 – Draft Upper Walla Walla Assessment and Action Plan
   a. 30% draft Upper Walla Walla Assessment and Action Plan
   b. 60% draft Upper Walla Walla Assessment and Action Plan
   c. 90% draft Upper Walla Walla Assessment and Action Plan
   d. Final Upper Walla Walla Assessment and Action Plan

A draft Project timeline is provided in table 1 below. This schedule is subject to change.
Table 1. Gantt chart describing timeline of contract tasks and contract deliverables.

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<tr>
<td>Task 5 - Develop restoration prioritization framework</td>
<td>8/24</td>
<td>9/7</td>
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<tr>
<td>Task 6 - Draft Upper Walla Walla River Assessment and Action Plan</td>
<td>9/21</td>
<td>10/5</td>
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<tr>
<td>Related uncontracted items</td>
<td>10/19</td>
<td>11/2</td>
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<tr>
<td>Walla Walla Basin Watershed Council Physical Habitat Survey</td>
<td>11/16</td>
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- **Contract activity taking place**
- **Contract deliverable due**
- **Uncontracted activity taking place**
- **Uncontracted deliverable due**
PART III – PROPOSAL REQUIREMENTS

For the purpose of this RFP, each interested Contractor will submit a proposal package consisting of a maximum of 50 pages to the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Natural Resources, Fisheries Program that includes the following sections and tabbed with the following headings.

1. COVER LETTER

A cover letter must express the Contractor’s interest in the project and commitment to the obligations expressed in the RFP. This letter should include the original signature of an authorized representative of the Contractor and indicate that the Contractor accepts all of the terms and conditions contained in the RFP.

2. FIRM SUMMARY

The Contractor will provide general information regarding their particular firm. This should include information about the company size, location, contracting experience within the region, areas of expertise and types of services, staff longevity, staff capabilities and training, and experience with natural resource restoration work and associated construction.

3. ORGANIZATION STRUCTURE

Identify the individuals responsible for managing the project, conducting specific project tasks, and their experience conducting those tasks for your firm. The Contractor should also include an organizational chart showing lines of communication and decision-making hierarchy as well as any sub-contractors. If a team of individuals from multiple contracting firms are assembled, adequately describe the role of each team member.

4. FIRM QUALIFICATIONS AND EXPERIENCE

The proposal will list the qualifications and relevant project development experience of the Contractor and each team member in relationship to completing projects of similar nature and size.

Please identify a minimum of three assessment projects that are similar to the proposed projects which have been successfully completed within the last five years. Provide a brief description of each project, including the complexity of the project, size and dollar amount of project, completion date of project, and references for each of the projects. Reference information shall include the name and phone number of owner’s representatives for the particular projects.

5. PROPOSED APPROACH OF SCOPE OF WORK

Describe the approach the Contractor proposes to complete the project as defined in the RFP and specifications. The contractor should provide enough detail in the proposed approach to fully articulate the Contractors understanding of the scope and complexities of the project. Describe the method and approach the consultant proposes in order to complete the tasks outlined below from conception through final design. This section should include a description of the steps used to collect
and synthesize necessary data and information and the analysis and summary that will be completed.
If analyses in addition to the minimum deliverables are proposed, describe the methodology, approach, and need for the proposed analyses.

6. PROJECT SCHEDULE AND ITEMIZED COST

Provide a detailed schedule describing all significant work tasks, how the individual tasks will be completed, the sequence in which they are to be performed, and the workers and equipment to be assigned, as well as a schedule for the overall project. Provide evidence that adequate management effort, support staff, technical compliance, and resources will be committed to the timely completion of the project. We will assess the realism of proposed completion dates, given the resources to be devoted to the work.

Your proposals should specifically address the following:

- Proposed starting and completion dates;
- Type and size of all equipment to be used, including any electronic data collection devices, and any other equipment to be used on site;
- Project managers, operators and workers and their duties on site;
- Describe the order you plan on completing the work outlined in the contract, and,
- A contingency plan if the contract time runs short.

Provide a lump sum line-item cost for each element of this proposal. Provide a cost per hour for proposed equipment and personnel. Provide a lump sum line-item cost for materials and administrative expenses. The total price and the unit prices for this work will be considered as part of the evaluation factors. The CTUIR project staff welcomes cost-effective alternatives to expedite the proposed implementation schedule; these alternatives must be provided as an additional line listed below the original cost of the completed proposal.

7. REFERENCES and PAST PERFORMANCE

References are required from at least three (3) projects similar to the proposed project. Include project name, contact name, address, and telephone number, a description of the project (i.e. type of work, location, size of the project and key personnel), project completion date, and the relationship of the contact person to the project referenced.

Past Performance. List all contracts for the past three years. To assess the past performance selection criteria, the CTUIR will assess such attributes as your history of cooperation with clients, and your history of performing quality and timely work. If the offeror has no history of past performance, a neutral rating will be given
PART IV – SELECTION CRITERIA

Proposal selection will be completed through a quality-based selection process (QBS) by a review team. Factors listed in descending order of importance. The following selection criteria will be used to evaluate the content of the written proposals based on a weighted scoring method:

I. **Adequacy of Technical Proposal**: 150 points
   a. Proposal content and applicability of the approach for addressing and completing tasks in section 2.6 (35);
   b. Adequacy of survey, modeling, and analyses in the proposals (30)
   c. Understanding of the scope of work (25)
   d. Approach explicitly connected to project goal/objectives (20)
   e. Creative, efficient, and/or novel approaches presented (15)
   f. Providing a description for a proposed prioritization framework (15)
   g. Adequacy of project schedule (10)

II. **Firm Qualifications**: 65 points
    a. Project management team experience with similar projects (15)
    b. Demonstration of resources and expertise available for the project (including specific expertise, computer modelling software, data processing software, GIS capabilities, specialized field equipment; 15)
    c. Technical expertise of principal project staff related to the project performance (10)
    d. Project management organization and plan (10)
    e. Public/stakeholder/agency involvement methods (10)
    f. Educational qualifications related to the project performance (5)

III. **Cost**: 50 points
    a. Lowest price will be considered for addressing all questions and completion of all tasks (25); and,
    b. A cost-benefit matrix will be applied for the remaining half of these points (25).

IV. **Indian Preference**: 10 points
    Must meet these factors in order to secure Indian Preference status;
    1. Membership in a Federally recognized Tribe;
    2. Indian Ownership of 51% or more;
    3. Indian Control;
    4. Indian Management;
    5. Financing obtained by Indian person; and,
    6. Equipment obtained by Indian person.

The RFP process is designed to result in the selection of a contractor who demonstrates the capability to complete the work at the best value. Upon completion of the review and selection process, the CTUIR will negotiate with the most responsive/responsible Contractor, as determined by the CTUIR, for the contract scope and price. The negotiated contract will be based on fair and reasonable compensation for the services required.
PART V – Attachments

Attached Documents

The following items are attached and incorporated into the RFP:

Attachment A: Project Site Vicinity Map
Attachment B: Partial List of Available Data and Resources
Attachment C: Draft Upper Walla Walla Assessment and Action Plan Outline
Attachment D: Literature Cited
Attachment E: GIS Standards and Requirements
Attachment A: Project Site Vicinity Map
Attachment B: Partial List of Available Data and Resources

- Historical
  - Archival air photos (Variable, NASA, USDA, USGS)
  - PLSS surveyor notes (Counties)
  - Archival fisheries reports and data (WDFW, ODFW)
  - LANDFIRE historic vegetation cover (USDA/DOI)

- Upland
  - Web Soil Survey (NRCS)
  - 10-arc second DEMs (USGS)
  - LANDFIRE current vegetation datasets (USDA/DOI)
  - Land Cover Database (USDA)
  - Land ownership (Counties)
  - Mass wasting inventory (USDA-FS)

- Floodplain/Channel
  - 303d listings (EPA)
  - Water quality data (ODEQ/WADOE/CTUIR)
  - 2003 Mainstem Walla Walla River FLIR (USFWS)
  - Discharge (USGS/DOE/OWRD/WWBWC)
  - Temperature (WADOE/ODEQ/WDFW/ODFW/WWBWC/CTUIR)
  - Irrigation withdrawals (OWRD/WADOE)
  - Topobathymetric LiDAR (CTUIR – to be collected in Fall/Winter 2019)
  - 2020 physical habitat data collection (WWBWC – to be collected in Summer 2020)

- Fisheries
  - Estimated run sizes and smolt production (ODFW/WDFW/CTUIR)
  - Redd densities and spawning locations (ODFW/WDFW/CTUIR)
  - Run timing and life history data (ODFW/WDFW/CTUIR)
  - Fish barrier lists (ODFW/WDFW)

- Previously completed assessments and planning documents
  - Walla Walla River Water Rights Assessment (CTUIR-The Freshwater Trust 2009)
  - Walla Walla River ecological flows – recommended stream flows to support fisheries habitat and floodplain function (CTUIR-Stillwater Sciences 2013)
  - Lower Mill Creek Final Habitat and Passage Assessment and Strategic Action Plan (CTUIR-Tetra Tech 2017)
  - Declaration of cooperation – Milton-Freewater Levee Project (Oregon Solutions 2010)
  - Walla Walla River Milton-Freewater, Oregon, Levee System Sediment Impact Assessment Stage 1 (USACE 2010)
  - Walla Walla Watershed WRIA 32 Level 1 Assessment (Economic and Engineering Services, Inc. 2002)
  - Lower Walla Walla River Geomorphic Assessment and Action Plan (CTUIR-Tetra Tech 2014)
  - Geomorphic assessment and alternatives development – Bolen-Kelly reach, Walla Walla River, Umatilla County, Oregon (WWBWC-GeoEngineers 2013)
  - Walla Walla Subbasin Plan (Walla Walla Watershed Planning Unit-WWBWC 2004)
  - Middle Columbia River steelhead distinct population segment ESA recovery plan (NMFS 2009)
  - Recovery plan for the coterminous United States population of bull trout (USFWS 2015)
  - South Fork Walla Walla Hatchery and Genetic Management Plan (CTUIR 2009)
- Walla Walla subbasin stream temperature total maximum daily load and water quality management plan (ODEQ 2005)
I. Introduction and Overview

A. Background of the project
   1. Purpose of the Assessment and Action Plan
   2. Spatial Extent
      a) The Mainstem Walla Walla River and North and South Forks from the confluence with Dry Creek to the headwaters in order to complete geomorphic and biological assessment of the mainstem Walla Walla River in conjunction with the Lower Walla Walla River Assessment (CTUIR 2015).
   3. Stakeholders involved
      a) CTUIR
      b) ODFW
      c) WDFW
      d) WA DOE
      e) ODEQ
      f) WWBWC
      g) USACE
      h) MFWCD
      i) USFS
      j) BLM
      k) WWCCD
      l) UCSWCD
      m) TSS
      n) Landowners/general public
   4. Introduction to CTUIR First Foods, River Vision, and Upland Vision

B. Focal species use and population status in the subbasin
   1. Focal species to be determined collaboratively by stakeholders, but is expected to minimally include Mid-C steelhead, bull trout, spring Chinook salmon and Pacific lamprey. Other native aquatic species may be included as indicator species or species of concern to consider as the technical team deems appropriate.

C. Context of this planning document with existing Federal, Tribal, State, and Local planning documents

D. Goals and objectives/vision statement
   1. To be determined collectively among stakeholders
   2. Both short-term and long-term goals

E. Plan organization
   1. Major sections of the plan
II. Study Area Setting and Conditions

A. General overview of regional geological and geographical setting

B. Overview of regional climatic setting

1. Discussion of potential climate change impacts to water quality, quantity, and timing should be included.

C. Historical context

1. Historical ecological context
   a) Pre-settlement upland conditions
   b) Pre-settlement floodplain conditions
   c) Pre-settlement biotic conditions (i.e. historically present species, estimated run sizes, etc)

2. Historic and prehistoric human influence

D. General overview of the ecological conditions of the uplands in the study area and how it influences the hydrologic network, organized by Upland Vision touchstones

1. Soil stability
   a) Soil types across the study area watershed
   b) General sediment input conditions from upland areas across the study area
      (1) A reconnaissance level sediment model (Reid and Dunne 1996) by subwatershed (ex. Mill Creek) to show where upland sediment contribution might be an issue
   c) Vegetation types across the study area and how it impacts soils and inputs into the hydrologic network

2. Hydrologic function
   a) Evaluate impact of upland vegetative and land use conditions on the capture, storage, and release of precipitation to the stream network
   b) Potential effects on filtration of sediment inputs and other aquatic pollutants

3. Landscape pattern
   a) Land use across the upland areas in the study area
   b) Ownership
   c) General patterns in the landscape across the study area watershed

4. Biotic integrity
   a) Status and general trends of native biotic communities
   b) Focus on vegetative communities, conversion of uplands to urban and agricultural areas
c) Invasive species concerns

E. General overview of the environmental and biological conditions in the study area organized by River Vision Touchstones

1. Water Quality and Quantity
   a) EPA 303d listings
   b) Hydrology of the subbasin
      (1) Discharge analyses
          (a) Mean monthly
          (b) Peak discharge analyses, flow recurrence
          (c) Low flow analyses
          (d) Potential impacts of climate change on water supply
   c) Generalized water withdrawal conditions

2. Geomorphology
   a) Valley forms across the study area
   b) Channel and slope conditions longitudinally through the study area
   c) General large wood conditions
   d) Summary channel statistics

3. Connectivity
   a) Identification and enumeration of natural and anthropogenic barriers to fish migration in the study area
      (1) Including thermal, velocity, and dewatering, if any
   b) General floodplain connectivity, confinement, and entrenchment conditions as a proxy for lateral and vertical (hyporheic) connectivity
      (1) Use LiDAR analyses to help this process

4. Aquatic biota
   a) General status and trends of the focal species populations in the study area
      (1) Identification of top limiting factors across the study area
   b) Focal species use by life stage across the study area
   c) Focal species periodicity and life history diversity expressed in the subbasin
   d) Include Beaver Restoration Assessment Tool run for the study area?
   e) Invasive species concerns

5. Riparian vegetation
   a) General riparian conditions through the study area
b) Invasive species concerns

c) Impacts on shade conditions

d) Impacts on large wood recruitment

III. Reach Assessments

A. Methodology

1. Overview of methods used to break the study area into logical reaches based on geomorphic and biological factors from the Study Area setting discussion above

2. Overview of methods used in reach assessments

   a) Should be enough information to make results interpretable and understand where information is coming from, but more intensive discussion of methods should be kept to the appendices.

B. Reach assessments for each identified reach in the study area organized by River Vision Touchstone

1. Water quality and quantity

   a) Pollutant conditions in the reach

   b) Temperature conditions in the reach

   c) Flow conditions in the reach

   (1) Peak and low flow statistics

   d) Any identified spring or tributary inputs

   e) Any flow discontinuities identified

2. Geomorphology

   a) Channel statistics

   (1) Habitat units

   (a) Diversity and number of pool/riffle/glide units

   (2) Gradient and profile

   (3) Bankfull widths, flood prone widths

   (4) Entrenchment and confinement ratios

   (5) Sediment conditions

   (a) Median grain size, embeddedness

   b) Large wood conditions

   (1) Densities or pieces and jams

3. Connectivity

   a) Identification of natural and anthropogenic barriers to longitudinal fish migration in the reach

   b) Identification of natural and anthropogenic barriers to lateral connectivity of the channel to its floodplain

4. Aquatic biota
a) Reach specific use by focal species organized by life stage  

b) Estimates of current productivity in context of historical productivity  

c) Identification of factors limiting focal species production  

d) Habitat suitability modelling for each reach?  

5. Riparian vegetation  
a) Shade percentage  
b) Buffer width, where applicable  
c) Dominant plant communities and invasive species concerns  
d) Potential for LiDAR analyses of highest hits layer  

IV. Restoration Strategy  
A. To be developed collaboratively with stakeholders. An objective system by which reaches are ranked by their potential for increased productivity of focal species in a restored condition and identification of potential restorative actions that may be applied situationally to address the limiting factors identified in the reach.  
B. Focus on multi-species benefit  
C. Identifying priority areas for long-term conservation and protection should be a part of the strategy as well.  

V. References  
A. Citations of all literature cited in the assessment and action plan  

VI. Appendices  
A. Full methodologies, data summaries, technical analyses, etc.
Annex D: Literature Cited


CTUIR. 2016. Birch Creek watershed action plan. Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources. Pendleton, Oregon.

CTUIR. 2017. Desolation Creek geomorphic assessment and action plan. Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources. Pendleton, Oregon.


The CONTRACTOR shall provide the TRIBES with a digital copy of all finished products that include geographic information. All geographic information shall be delivered in a digital, georeferenced format. Metadata shall be included with all deliverables. The TRIBES use ESRI ArcGIS software as its standard GIS platform, SQL server as its primary database software. This schedule provides a minimum set of requirements for the delivery of GIS files being created for CTUIR. Further requirements may be included in the project implementation plan. All geographic data shall be expected to meet these minimum levels of standards.

If attribute information are collected in addition to geographic positions the CONTRACTOR shall provide a digital data dictionary file that has been approved by the persons responsible for the contract for CTUIR in terms of expected content and format. The data dictionary file must describe all the associated attribute information. Included in the data dictionary must be a definition of each table and each column within the table. The table definition must include the purpose, structure, and a list of any associated features. The column definition must include the data type, data precision, and a brief description of each of the values that may be included in the column (including an explanation of any abbreviations or codes that are utilized). If an extensive number of abbreviations or codes will be utilized to populate a column, a separate domain list shall be provided. All domain list values must be accompanied by a description especially in the case of abbreviations. The preferred delivery format for all GIS attribute tables is a comma delimited, ASCII text file format with all column headings specified.

1. Data Collection Standards.

1.1. Survey Data Standards. CONTRACTOR shall:

1.1.1. use known Tribal survey monuments if working within the reservation boundary,
1.1.2. meet a minimum level or accuracy for all survey work (1/100th of a foot),
   and
1.1.3. submit a digital file of all survey points and a digital file of their associated attribute descriptions.

1.2. GPS Data Standards. CONTRACTOR shall ensure:

1.2.1. all geographic features collected have a unique identification which links it with its attribute information in an associated table,
1.2.2. all attribute tables have a digital data dictionary file,
1.2.3. horizontal coordinates are documented and meet a minimum level of accuracy as is appropriate for the scope of work. To determine appropriateness, the following guidelines shall be used:
   1.2.3.1. Survey Grade are the most accurate and most commonly used in situations where accuracy is essential (engineering applications, property boundary determinations, etc.), as such they are the preferred method. They typically provide true positional accuracy within a centimeter in the horizontal direction and elevation accuracies within 10 centimeters.
   1.2.3.2. Mapping Grade receivers must be differentially corrected GPS to reduce positional errors. Differential correction is the process of improving fixed positions utilizing data from a base station. With differential correction, horizontal accuracies from one to two meters can be achieved, while vertical accuracy is around 3 meters. These receivers are most
commonly used by GIS professionals for gathering data for inventories, resource mapping, environmental management and infrastructure management. This method is permissible if Survey Grade cannot be provided.

1.2.3.3. Recreational Grade are the least accurate units, and are not permitted without express authorization from the TRIBES’ Office of Information Technology. This is typically used for outdoor recreational activities, these receivers can have up to 20 meters in positional error.

1.3. Georeferencing.

1.3.1. Survey grade information must be georeferenced to the approved coordinate system as adopted by the Oregon Legislature in the Oregon Revised Statute 93.330:

   Oregon State Plane North
   Projection: Lambert_Conformal_Conic
   False_Easting: 8202099.737533
   False_Northing: 0.000000
   Central_Meridian: -120.500000
   StandardParallel_1: 44.333333
   StandardParallel_2: 46.000000
   LatitudeOfOrigin: 43.666667
   Linear Unit: Foot (0.304800)

   Geographic Coordinate System: GCS_North_American_1983
   Angular Unit: Degree (0.017453292519943299)
   Prime Meridian: Greenwich (0.00000000000000000000000000000000) Datum:
   D_North_American_1983
   Spheroid: GRS_1980
   Semimajor Axis: 6378137.000000000000000000000000
   Semiminor Axis: 6356752.314140356100000000000000
   Inverse Flattening: 298.25722210000020000

1.3.2. Geographic data including data other than survey grade information, such as CAD, GIS, Aerial Imagery, and Photography must be georeferenced using the following coordinate system:

   NAD83 UTM Zone 11 North Projection:
   Transverse_Mercator False_Easting:
   500000.000000
   False_Northing: 0.000000
   Central_Meridian: -117.000000
   Scale_Factor: 0.999600
   LatitudeOfOrigin: 0.000000
   Linear Unit: Meter (1.000000)
Geographic Coordinate System: GCS_North_American_1983
Angular Unit: Degree (0.017453292519943299)
Prime Meridian: Greenwich (0.0000000000000000000)
Datum: D_North_American_1983
Spheroid: GRS_1980

1.3.3. All aerial photography and satellite imagery must be georeferenced and orthographically rectified unless otherwise authorized by the TRIBES’ Office of Information Technology.

2. **Data Development Requirements.**

2.1. ArcGIS data.
   2.1.1. All intersecting lines shall be processed to remove overshoots and undershoots.
   2.1.2. Lines, polygons, points and annotation must not be duplicated.
   2.1.3. Polygons must have only one label per feature.
   2.1.4. Polygons must edge match without slivers.
   2.1.5. Polygons must not overlap.
   2.1.6. Polygons must close without overshoots or undershoots

2.2. CAD data.
   2.2.1. Zero length segments shall be removed.
   2.2.2. Different feature types shall not share a common line segment.
   2.2.3. Snapping shall be set such that lines intersect.
   2.2.4. All block definitions shall be provided.
   2.2.5. A detailed layer list shall be provided.

2.3. LiDAR data. CTUIR follows the Oregon Airborne LiDAR Data Standard

2.4. A project report describing the processing steps shall be provided.

3. **Data Delivery Requirements:**

3.1 Vector Data. Points, polygons and lines (parcels, roads, streams, buildings, etc.) shall be delivered in the following formats: ESRI Shape file format, ESRI File Geodatabase format,

3.2 CAD data. Electronic files of all developed CAD data as DWG shall be provided including a PDF of survey or as-built.

3.3 Raster Data. (aerial photos and other remote sensing imagery) shall be in the following formats: TIFF, JPEG, ERDAS IMAGINE, GRID, GEOJPG.

3.4 LiDAR Data. CTUIR follows the Oregon Airborne LiDAR Data Standard. All LiDAR data collections must meet those standards. Unless otherwise stated in the project implementation plan CONTRACTOR shall provide:

   3.4.1 LAS files, containing classification values.
   3.4.2 Intensity grid.
3.4.3 Highest hits grid.
3.4.4 Bare earth digital terrain model as a DEM

3.5 Metadata. A metadata file shall be submitted for each digital file delivered to CTUIR. Metadata must provide sufficient information to allow a reasonable understanding of the source, accuracy, modifications to, and applicability of the data provided. All submitted metadata shall follow Federal Geographic Data Committee (FGDC) Standards specified in *Content Standard for Digital GeoSpatial Metadata (FGDC-STD-001-1998)* (FGDC 1998). All metadata should be submitted in text (*.txt), Microsoft Word (*.doc), or the ESRI compatible XML format.).

3.5.1 Minimum metadata standards for geographic information. The CONTRACTOR shall:
3.5.1.1 Provide a purpose statement identifying the project for which the data was created,
3.5.1.2 Identify the original source of the data,
3.5.1.3 Identify the creator of the data,
3.5.1.4 Indicate the date that the data was input into a GIS system,
3.5.1.5 Provide confidence of attribution data,
3.5.1.6 Identify hardware used to collect and process the data,
3.5.1.7 Identify software used to collect and process the data,
3.5.1.8 Identify the attributes associated with the data.