

Statement of Work (SOW)

DRAFT for Discussion: 09-29-2025

Tribe: Iowa Tribe of Kansas and Nebraska
Project Title: KS Iowa Water Treatment Facilities Phase 2 – 90% Plans & Specifications
EPA Region: 7
PWSID#: 070000008
IHS Project Number: KS07999-0Q01
IHS Area Office: Oklahoma City
IHS Project Manager: LCDR Ted Schlueter, P.E. / Engineer Consultant / Holton OEHE

Background / Need for the Service:

The Iowa Tribe of Kansas and Nebraska (Tribe) requested assistance from the Indian Health Service (IHS) Division of Sanitation Facilities Construction (DSFC) to address high nitrate levels in its wells which included exceedances of the nitrate MCL of 10 ppm beginning in 2023. The high nitrate levels are a public health concern as levels exceeding the MCL are known to cause methemoglobinemia (blue baby syndrome). As a result, the IHS developed SDS Project No. KS07999-0Q01 to evaluate water treatment and source options.

The Iowa Tribe of Kansas and Nebraska Reservation is located in extreme NE Kansas and SE Nebraska and includes portions of Brown County and Doniphan County in Kansas and Richardson County, Nebraska. The Tribe owns and operates the Iowa Tribe Public Water System which is a groundwater system served by two wells. Additionally, the water system includes a 125,000-gallon elevated storage tank funded by USDA Rural Development in 2016. A back-up water connection was jointly funded by EPA and IHS in 2018 and is currently under construction. The back-up connection will include a connection to Brown County Rural Water District No. 2 and a duplex booster pump station that will pump 25 gpm. The water system was originally constructed in the 1980s and serves approximately 75 homes, businesses and tribal buildings for a total of 117 equivalent dwelling units. The original wells included the north well and the south well. The south well was decommissioned and officially plugged in 2019 due to high nitrate levels exceeding the MCL up to 11 ppm. To address nitrate concerns, a new well was drilled and brought online in 2019. Since that time, nitrate levels have continued to climb in the south well and new well and have tested near or above the MCL.

In 2024, the project was selected for EPA Technical Assistance services (Phase I) to develop a Preliminary Engineering Report (PER) to evaluate water treatment and source options. EPA selected the Cadmus/Jacobs consultants to provide professional services to develop the PER. The consultants evaluated three alternatives based on cost and other factors. The alternatives evaluated included (1) construction of a nitrate water treatment facility, (2) construction of a new wellfield and distribution improvements to tie into the existing distribution system, and (3) utilization of the back-up connection

on a full-time basis. The selected alternate was the construction of a water treatment facility that would utilize ion-exchange treatment for nitrate removal.

1. Summary of the Work:

Engineering services are required to provide a 90% design for an ion-exchange water treatment plant for the purpose of removing the nitrate from the wells to a safe drinking water level, as outlined in the PER by Cadmus/Jacobs (2025). Overall tasks include field assessment of conditions, surveying of site, documentation of design calculations and decisions in a Basis of Design document, production of a construction cost estimate, and development of 90% technical plans and specifications including equipment and material selection. IHS will provide overall professional engineering oversight, final advancement of the plans and specifications to 100% and prepare EJCDC front end documents for contracting with Tribe's specific requirements.

2. Requirements for the Work:

The consultant shall:

- Assign a Project Manager (PM) for the duration of the work. The PM shall have the requisite, demonstrable experience to successfully lead this project and shall be identified in the Consultant's Work Plan. Change of PM shall occur only due to exceptional events such as employees resigning, and in those cases another equally or more qualified PM shall be assigned.
- Assemble a multidisciplinary team of professional engineers and technicians to support the project. Team members shall have proficiency in water treatment plant design and operation, electrical engineering and controls, mechanical processes, piping and pumps.
- Assemble and submit a baseline schedule at the kick-off meeting and provide updates to the schedule when necessary.
- Anticipate bi-weekly virtual meetings and periodic in-person site visits to collaborate with the Tribe and IHS and report on progress of tasks.
- Perform field investigations to confirm and understand site conditions and review existing documentation.
- Develop concept-design and 90% drawings and specifications package in close collaboration with IHS and the Tribe.

The design shall meet the following technical requirements:

- Material selection for the ion-exchange treatment process including ion-exchange units, water softener, brine tank, and spent regeneration waste tanks,
 - Selection should consider costs, durability, useful life, and constructability.
 - Redundancy of units is to be considered and included where feasible for flexibility of operation.
- Disposal of brine waste,
 - Evaluate feasibility of trucking brine waste to casino lagoon.
 - Specify truck for hauling brine waste.
- Water treatment facility electrical controls system,
 - Include process indicators (e.g., Nitrate, Iron, Manganese), associated telemetry, and alarms, to enable efficient operation of WTP. Considerations

shall include cost and O&M burden/complexity. Integrate with existing control system.

- Building to house all treatment units and electrical control system,
 - Include new chlorine room and chlorine treatment equipment.
 - Include connection to existing well house including any demolition, overall site work, electrical, and piping.
- Additional items,
 - Provide specifications for backup well pump.
 - Evaluate whether intermediate pumping is needed and include in design, as necessary.
- A recommended work sequencing plan to allow the treatment facility to continue to operate during construction and/or utilization of the back-up connection.

Governing codes, guidelines and authorities:

- Recommended Standards for Waterworks (a.k.a. 10-State Standards), Great Lakes Upper Mississippi River Board of State and Provincial Public Health Managers, latest edition.
- United States Environmental Protection Agency (US EPA)
- Kansas Department of Health and Environment (KDHE)
- NFPA 70, National Electric Code (NEC)
- National Electrical Manufacturers Association (NEMA)
- Occupational Safety and Health Administration (OSHA)
- [IHS Architect/Engineer \(A/E\) Design Guide 2022](#)

In accordance with the IHS A/E design guideline, a Basis of Design (BOD) report shall be produced to document fundamental design premises and decision-making processes, which form the essential design choices made to meet the Project Requirements. This document should capture the fundamental methods, calculations, narratives, and deliberations that are required to achieve a satisfactory design.

The technical specification package shall utilize the standard 50 division format as defined by the Construction Specification Institute (CSI).

The final cost estimate shall meet the requirements of a Class 2 estimate as defined by the Association for the Advancement of Cost Engineering. (AACE)

3. Deliverables:

35% Design Drawings (Concept Drawings), 65% Design Drawings, 90% Design Drawings
Format: Drawings: AutoCAD Civil 3D and PDF

Basis of Design (BOD) report following the requirements of the A/E IHS Guidelines
Format: MS Word and PDF

Technical Specifications, 65% and 90%
Format: MS Word and PDF

Construction cost estimate, 65% and 90%
Format: Excel, and PDF

4. Specific Services / Tasks:

Meetings: The Consultant shall provide for and conduct a kickoff meeting to be held virtually. Provide for and conduct bi-weekly progress meetings to be held virtually up to the acceptance of the final deliverable; the purpose of the progress meetings shall be to inform the tribe and IHS on all aspects of the design, collect feedback, and discuss questions and resolve issues. Prepare and submit meeting minutes within one (1) week of each meeting. The meeting minutes shall document the attendees, discussion points, and all action items. Assume a duration of about one hour for each meeting. A blended meeting with key personnel on-site and others attending virtually is to be provided for the 35% Submission (Concept Design) and 90% Submission to discuss with the tribe and allow for tribal input.

Field Investigation: The Consultant shall visit the project site with a multidisciplinary team to evaluate existing deficiencies, determine existing and planned future conditions affecting the project design and other data required for the system; obtain all necessary dimensional, utility, physical, functional data, and operating schemes; existing utilities and other elements as necessary, verify all applicable as-built drawings and determine any relevant existing conditions not available on existing as-built drawings; interview the WTP operators and the tribe to obtain detailed functional requirements and historical operational problems and obtain any special job conditions such as but not limited to security, working hours, hauling routes, disposal areas, staging areas, and utility interruptions.

35% Submission (Concept Design): The 35% submission shall consist of preliminary concept design drawings, outline of the 50 Division CSI specifications, draft Division 1 specifications general requirements, a preliminary document outlining all design calculation and decisions. The preliminary drawings, outline specifications, and BOD shall each be delivered in electronic PDF format.

65% Submission: The 65% submission shall consist of updated drawings, updated design calculations and designs, preliminary construction cost estimate, and preliminary set of specifications (Division 1 through 50). The drawings, specifications, and BOD shall each be delivered in electronic PDF format.

90% Submission (final). The 90% Design submission shall consist of proposed final versions of the drawings, design calculations and decisions, construction cost estimate, and technical specifications (Division 1 through 50). The drawings, specifications, and BOD shall each be delivered in electronic PDF format.

5. Place of Performance:

Iowa Tribe of Kansas and Nebraska Reservation near White Cloud, KS. Data analysis, report writing and any other work not needing in-person presence at the site may be performed remotely.

6. Period of Performance / Schedule:

The following schedule reflects a desire to expedite the work; however, if this is not feasible, other schedules may be proposed by the Consultant. Complete all work within 12 months of task order award.

Table 1 Proposed Schedule

Contractor Deliverable	Date of Deliverable	Follow-on IHS/Tribe Deliverable
Kick off meeting	Within one month of award	
Field Investigation	Within six weeks of award	
35% Submission	4 months after award	2-week review and comment period
65% Submission	7 months after award	2-week review and comment period
90% Submission	10 months after award	Final Acceptance

7. Attachments:

- 1.) Preliminary Engineering Report by Cadmus/Jacobs (July 2025)
- 2.) OK-18-V16 KS Iowa/New Well Construction
- 3.) Iowa Tribal Sanitary Survey by Lyle Setwyn (2023)
- 4.) EPANET hydraulic model of Iowa Tribe Public Water System

Other information may be available upon request.