

SECTION 02772

LAGOON ABANDONMENT

PART 1 – GENERAL

1.01 SUMMARY

A. Work Included:

1. The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to provide for the handling, removal, and disposal of biosolids and other materials and debris in the lagoons and for lagoon abandonment as required in these specifications and on the drawings. "Sewage sludge" or "sludge" or "biosolids" means the solid, semi-solid or liquid residue generated during the treatment of sewage in the lagoon system and includes algae. "Debris" means material other than biosolids and earth such as wood and plastic items.
2. All lagoon abandonment activities shall be in accordance with Wisconsin Administrative Code Chapter NR 204, NR 213, and the DNR-approved Lagoon Abandonment Plan for this project included in the Appendix to these Specifications.

B. Related Sections and Divisions: Applicable provisions of Division 1 shall govern work in this section.

C. Allowances:

1. CONTRACTOR SHALL INCLUDE in the Bid the cost of collecting three representative biosolids (sludge) samples from each lagoon for analysis for the following parameters:

| Sample Parameter | Report Sample Results As: | |
|--------------------------|---------------------------|--------------|
| Arsenic, Total | mg/kg | DWB |
| Cadmium, Total | mg/kg | DWB |
| Copper, Total | mg/kg | DWB |
| Fecal Coliform | MPN per gTS | |
| Lead, Total | mg/kg | DWB |
| Mercury, Total | mg/kg | DWB |
| Metals Digestion | Yes | |
| Molybdenum, Total | mg/kg | DWB |
| Nickel, Total | mg/kg | DWB |
| Nitrogen, Ammonia | mg/kg | DWB or % DWB |
| Nitrogen, Total Kjeldahl | mg/kg | DWB or % DWB |
| Phosphorus, Total | mg/kg | DWB or % DWB |
| Selenium, Total | mg/kg | DWB |
| Solids, Total | % | DWB |
| Zinc, Total | mg/kg | DWB |

Notes: DWB = Dry weight basis

2. Samples shall be collected and analyzed prior to hauling and disposing of lagoon sludge. Sampling shall be conducted in accordance with the approved Lagoon Abandonment Plan in the Appendix. Analysis shall be by a Wisconsin-Certified laboratory and shall be paid for by CONTRACTOR. Sample holding times and other sampling protocol shall be in accordance with DNR Administrative Code and guidelines. Payment for sampling and analysis of lagoon sludge shall be adjusted, add or deduct, based on the actual number of samples collected and analyzed (more or less than six) and on the Supplemental Unit Price for Sampling and Analysis of Lagoon Biosolids.
3. CONTRACTOR shall INCLUDE in the bid the cost for handling, removal, and disposal of 6 dry tons of biosolids from Lagoons 1 and 2. The unit price bid for removal and disposal of biosolids shall include all costs for this work. Payment to CONTRACTOR for removal and disposal of biosolids from Lagoons No. 1 and 2 will be adjusted, add or deduct, based on the measured dry tons of biosolids disposed of, more or less than 6 dry tons, and the Supplemental unit price for Lagoon Biosolids Disposal.
 - a. Dry tons of solids shall be calculated based on the volume of biosolids disposed of and the average percent dry solids in the biosolids at the time the biosolids are removed. Volume shall be determined as follows: if the biosolids are pumped, volume shall be based on totalizer readings from a flow meter provided by CONTRACTOR. Meter calibration shall be verified by a certifying independent party in the presence of ENGINEER. If the biosolids are partially dry and are hauled by dump truck, the volume shall be calculated based on the volume of the trucks, percent full, and number of loads.
 - b. CONTRACTOR shall provide totalizer readings or load tickets and volume calculations to ENGINEER at the end of each day that biosolids are disposed of.
 - c. Percent dry solids shall be determined based on representative biosolids samples. Pumped biosolids samples for dry solids analyses shall be collected by CONTRACTOR in the presence of ENGINEER. Sufficient representative samples shall be collected to determine the average solids concentration pumped for each disposal day.
 - d. Samples for partially dry, dump truck-hauled biosolids disposal shall be collected by combining a minimum of six equal volume subsamples from each lagoon. Subsamples shall be collected, combined, and the percent dry solids determined for each day biosolids are disposed of. Samples shall be analyzed by Standard Methods for the Examination of Water and Wastewater Method 2540G by a Wisconsin-certified laboratory.
 - e. OWNER may split samples with CONTRACTOR; if split sample results are greater than 20% different, then the average of the split samples shall be used or a new sample collected.
4. CONTRACTOR shall INCLUDE in the bid the cost for handling, removal, and disposal at a licensed sanitary landfill of 0.5 tons of debris from Lagoons Nos. 1 and 2. The unit price bid for removal and disposal of debris shall include all costs for this work. Payment to CONTRACTOR for removal and disposal of debris from Lagoons Nos. 1 and 2 will be adjusted, add or deduct, based on the measured tons of debris disposed of, more or less than 0.5 tons, and the Supplemental unit price for Lagoon Debris Disposal.
 - a. Tons of debris shall be calculated based on the weight of debris disposed of. Weight of debris disposed of will be found as loaded truck weight minus truck tare weight. Weight shall be measured on a scale verified by a certifying independent party.
 - b. CONTRACTOR shall provide load tickets to ENGINEER at the end of each day that debris is disposed of.

1.02 SUBMITTALS

- A. CONTRACTOR shall submit to OWNER and ENGINEER all testing results and permits required for biosolids disposal prior to commencing such disposal.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Suitable soil material from project excavation activity with an acceptable moisture content may be used in the grading of Lagoons No. 1 and 2.

PART 3 – EXECUTION

3.01 LAGOON BIOSOLIDS SAMPLING

- A. Lagoon biosolids shall be sampled from a boat or by other suitable means such that representative samples from the deepest part of the lagoon are collected. Sampling and analysis shall be completed prior to biosolids disposal site permitting/approvals, such that appropriate nutrient- or metals-based loading rates can be determined for the application sites. Sampling and analysis shall be in accordance with the DNR-approved Lagoon Abandonment Plan included in the Appendix to these Specifications.

3.02 DEBRIS AND BIOSOLIDS REMOVAL AND DISPOSAL

- A. It is CONTRACTOR's responsibility to provide all means, methods, procedures, and safety precautions for the removal of all debris and biosolids from existing Lagoons No. 1 and No. 2. However, should CONTRACTOR choose to utilize a low ground pressure (LGP) dozer to push biosolids toward a loading pump or backhoe, the lagoon earth/clay bottom scrapings which may accumulate shall not be applied to the agricultural land. Such material shall be allowed to dry as necessary and mixed with topsoil or shallow subsoils for use on site restoration.
- B. The biosolids in the lagoons shall be removed by CONTRACTOR and disposed of in an acceptable manner. CONTRACTOR shall be responsible for securing all permits required for land disposal of the material. CONTRACTOR shall provide OWNER and ENGINEER with copies of all permits and approvals prior to land disposal. CONTRACTOR shall be responsible for obtaining approved disposal site(s).
- C. Any debris or excess material shall be disposed of off-site in accordance with local, state, and federal regulations. Debris shall be drained of free water and shall be disposed of at a licensed sanitary landfill.

3.03 FINAL GRADING

- A. CONTRACTOR shall grade the site to the finished grade indicated on the Drawings. Refer to Section 02222 and other applicable sections of these Specifications.

END OF SECTION