

National Soil Survey Center
Kellogg Soil Survey Laboratory

May 2026

Soil Sample Submission Protocol for the Kellogg Soil Survey Laboratory



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United States Department of Agriculture
Natural Resources Conservation Service
National Soil Survey Center
Kellogg Soil Survey Laboratory

May 2026

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Cover: Kellogg Soil Survey sampling supplies next to a sample site.

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Part 1: National Soil Survey Center Policy for Submitting Soil Samples to the Kellogg Soil Survey Laboratory

Requesting assistance from the National Soil Survey Center's (NSSC) Kellogg Soil Survey Laboratory (KSSL), such as requesting sampling supplies and laboratory analysis, begins with submitting an annual request for assistance (RFA). The RFA outlines the support needed, including forecasting sample workload for the fiscal year, budgeting for laboratory consumables, and prioritizing analyses and customer service.

The call for RFAs is announced annually by a national bulletin published in eDirectives and includes a link to the RFA form. The call remains open for 4 to 6 weeks.

Please feel free to contact your KSSL regional liaison for guidance on completing the RFA. The KSSL regional liaisons are listed in the [NSSC Employee Directory](#).

Shipping Protocols and Prior Authorization

The procedures in this document are required by the Animal and Plant Health Inspection Service (APHIS), the Nebraska Department of Agriculture (NDA), or both. If you have questions about the instructions, contact the KSSL shipping liaison, Andrea.Williams@usda.gov, in writing (via email) before packaging or shipping.

All sample submissions and shipments to the KSSL require prior authorization from an approved RFA and must be initiated by the KSSL.

The KSSL will provide all packaging supplies, including bags, clod boxes, trunks, and shipping boxes. All samples must be collected in a primary bag and contained in a secondary bag. Samples shipped to the KSSL must be packaged in the supplies provided by the KSSL. Packing tape and void fill material is not supplied by KSSL and should be obtained locally.

Note: Do not ship or transport soil samples to the KSSL without project-specific written prior authorization.

Authorization Is Mandatory

You must have project-specific written prior authorization from the KSSL shipping liaison before shipping any samples to the KSSL.

- A verbal exchange is not sufficient documentation.
- Do not ship or transport samples without this written approval. Shipments of unauthorized regulated samples may be destroyed by APHIS.

Definitions:

- Regulated soil sample—a sample collected from an area quarantined by APHIS, the NDA, or both
- Unregulated soil sample—a sample collected from an area not quarantined by either APHIS or NDA

Additional Restrictions on Sample Shipment

Consult the [APHIS website](#) for an up-to-date map of domestic soil quarantines (U.S. Department of Agriculture, Animal and Plant Health Inspection Service). This list changes frequently with the movement and infestation of various pests.

Samples from the following areas require special permits and adherence to special packaging and shipping instructions provided by the KSSL. Do not ship without written approval by Andrea.Williams@usda.gov or Rich.Ferguson@usda.gov.

- Foreign countries
- Hawaii, Puerto Rico, Guam, and U.S. territories

Samples collected in the Pale Cyst nematode quarantines may not be shipped to the KSSL under any condition.

Samples collected in European Cherry, Mexican, or Oriental fruit fly quarantines must include an APHIS site inspection prior to shipment to the KSSL; APHIS-authorized samples are shipped under certificate. KSSL will provide guidance.

Conventions for Identification of Site and Pedon

Assign a unique label to point data records to identify the geographic location, or site, and soil profile, or pedon. The terms used for the labels are “site ID” and “pedon ID.” Record these in NASIS in the User Site ID and User Pedon ID fields.

Record the pedon ID on the KSSL sample submission documentation and on associated samples' tags.

Pedon ID

The pedon ID must follow national standards. Chapter 23 of the [“National Soils Information System \(NASIS\) User Guide”](#) (Soil Survey Staff, 2015) provides guidance on the national standard.

Requirements:

- The site ID and the pedon ID must always match unless more than one pedon is associated with a site.
- The pedon ID must begin with the letter “S” to indicate a sampled pedon.
- Use uppercase letters only.
- Never use spaces, dashes, or hyphens.

Example: S2026WA027009

- “S” indicates a sampled pedon.
- “2026” indicates the calendar year sampled. Use 4-digit format.
- “WA” indicates the 2-character (alphabetic) United States Postal Service State postal abbreviation for the State where sampled. For non-U.S. sites, use ISO-3166-1 (International Organization for Standards, 2020a).
- “027” indicates the three-digit (numeric) Federal Information Processing Standards, or FIPS, code for county where sampled. For APHIS compliance, this must be the actual county where samples were collected. For non-U.S. sites, use the appropriate two- or three-letter administrative subdivision code from ISO 3166-2 (International Organization for Standards, 2020b) preceded by a 0 (zero) for two-letter codes (e.g., 0SK for Saskatchewan).
- “009” indicates the consecutive pedon number for the calendar year for the county. This should be a 3-digit number. Use 0s (zeros) as placeholders where necessary (e.g., 9 becomes 009).
- If needed, a one-character satellite code can be used to indicate a relationship between primary pedon and satellite pedon sampling (e.g., S2026WA027009A).

Bulk Samples

The primary container for each bulk soil sample is a KSSL-provided plastic bag. Bulk samples should contain approximately 2 kilograms

(kg) of less than 2-mm soil, which is sufficient for the standard suite of KSSL characterization analyses. Samples with high coarse-fragment content or substantial organic material may require more than 2 kg. For questions, contact your KSSL regional liaison.

Do not send larger bulk samples than necessary. Remove coarse fragments greater than 75 millimeters (mm), as further described in the next section.

Do not include standing water. Allow saturated soil samples to air dry before sealing bulk sample bags.

Note: If samples were collected in areas containing poison ivy, asbestiform minerals, or other potentially hazardous materials, inform KSSL and include this information in the Notes section of the KSSL Pedon Field Sheet.

Instructions for Collecting Fragment Data

Collect fragment data while in the field. Refer to Section 618.32, "Fragments in the Soil," in the "[National Soil Survey Handbook](#)" (Soil Survey Staff, 2024) for guidance on collecting fragment data.

Record the following data on the KSSL Pedon Field Sheet while in the field collecting the samples. Refer to Part 2 of this document under the heading "KSSL Sample Submission Workbook" for details on the KSSL Pedon Field Sheet.

1. Sieve and weigh coarse fragments 20 to 75 mm in diameter in the field.
2. Record the weight and unit of measure on the KSSL Pedon Field Sheet.
3. Visually estimate the volume percentage separately for fragments greater than 75 mm to 250 mm in diameter and for fragments greater than 250 mm.
4. Record the volume estimates on the KSSL Pedon Field Sheet.

Labeling Sample Tag and Primary Bag

Use an indelible marker to label the sample tag (fig. 1) and the bottom half of the KSSL-provided plastic bulk sample bag (fig. 2) with the following information.

- Soil series or taxon name
- Horizon designation

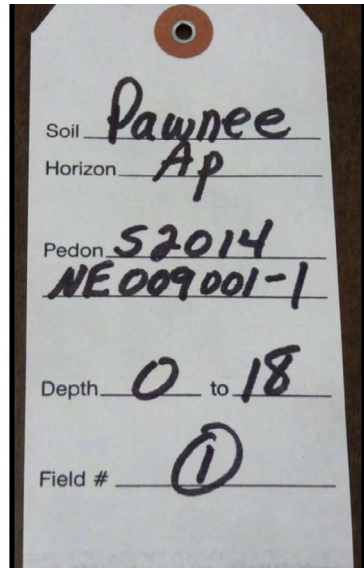


Figure 1.—A correctly labeled sample tag for bulk samples.

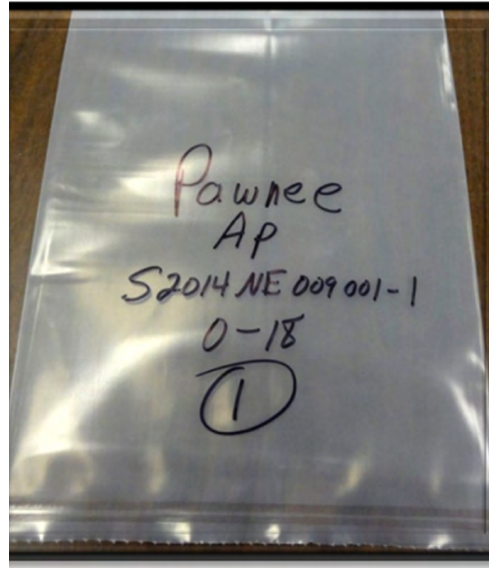


Figure 2.—A correctly labeled sample bag for bulk samples.

- User pedon ID followed by the layer sequence number (e.g., -1, -2, -3, etc., where 1 indicates the top-most layer of the pedon sampled)
- Top depth and bottom depth of layer, in centimeters (cm)
- Field number identifier, which is a running total of all the layers sampled in the project submission

Note: The KSSL uses the term layer when referring to a soil horizon. In this document, the terms layer and horizon are used interchangeably.

Note: Use the same field number for multiple types of samples from the same layer (e.g., bulk sample and clod sample receive the same field number).

Example: If submission includes four pedons, each with seven layers sampled, the field numbers of the samples should begin at 1 and end at 28.

Sealing the Sample Bag

Specific packaging requirements are set by APHIS. These KSSL-provided supplies are required for sample submission. All samples, secondary containment bags, and shipping boxes must be packaged following the guidance in this document. Failure to correctly package samples can lead to the loss of KSSL's permit.

Complete the following steps to correctly and securely close and label bulk sample bags.

1. Fold the top two inches of the sample bag toward the information written on the bag.
2. Fold the top inch of the first fold again toward the information on the bag.
3. Insert the sample tag into the center of the second fold with the tag information facing outward.
4. The information from both the tag and bag should be easily readable on the same side of the bag.
5. Staple the tag between the two folds using a heavy-duty stapler. Do not use a desk stapler.
6. Staple the left and right sides of the double fold.
7. Verify that information on the tag and bag match (fig. 3).



Figure 3.—Correctly folded and stapled bulk sample bag and tag.

Clod and Other Bulk Density Samples

High quality soils data begins with submitting representative, intact samples. It is important to collect the correct type of sample for the requested analysis. Before collecting samples in the field, review the video [“How to Sample Bulk Density in the Field.”](#)

The preferred bulk density method uses the clod sample. Review the “Kellogg Soil Survey Methods Manual” (SSIR 42) for the appropriate sample type to obtain bulk density. Below are a few sample types and the soil analyses which can be performed.

- Clod samples are necessary to measure bulk density, 33 kilopascal (kPa) water retention, and coefficient of linear extensibility, or COLE.
- Soil cores are collected in cylinders, or cores, of a known volume and capped on both ends when in the field. These samples are used to measure bulk density and 33 kPa water retention.
- Field cores are samples collected in a cylinder, or core, of a known volume and are used to measure the bulk density of a field-moist soil. Cores, frame or ring excavations, and the compliant cavity method are used if clods are not appropriate.

Good Clod Sample Characteristics

Clods must be large enough for laboratory technicians to make a cut face during analysis. No data is reported on clod samples that are nonviable, of questionable quality, or that fail during analysis.

The following are good characteristics of clod samples:

- The optimal size and shape of a clod is about 300 grams, or about the size of a fist or russet potato, and roughly equidimensional rather than long and thin. The clod must fit into one cell within the clod box.
- The clod should have a smooth, rounded to subangular blocky shape with no acute angles, flat edges, or pyramidal points.
- Use caution to avoid smearing or compacting clod samples.
- Take clod samples along natural breaks in the soil’s structure.
- Clod samples must not have cracks or breaks in the clod.
- Use scissors or a cutting tool to trim protruding roots. Do not pull roots from the clod.
- Quickly dip each clod one time in saran coating, ensuring an even and complete coating. If a second coat is applied for some reason, record that data on the KSSL Pedon Field Sheet at the time of sampling.

Clod Box and Labeling

Clod, core, and compliant cavity samples must be packaged separately from bulk samples using KSSL-provided supplies. In this document, the box used for shipping these samples is referred to as a “clod box.” It contains dividers to organize and package up to 45 samples.

Samples from more than one pedon may be packaged in the same clod box. For large projects (more than 60 layers), refer to Part 2 of this document under the heading “Large Project Submission” for guidance on creating smaller subproject groups.

Outside of Lid

Use an indelible marker to label the outside of the box with the information below.

- Sample type, or types, (bulk density clod, natural fabric clod, core, compliant cavity, etc.)
- User pedon IDs
- Sample field numbers (fig. 4)
- Subproject name for large projects more than 60 layers (refer to Part 2 of this document for details)

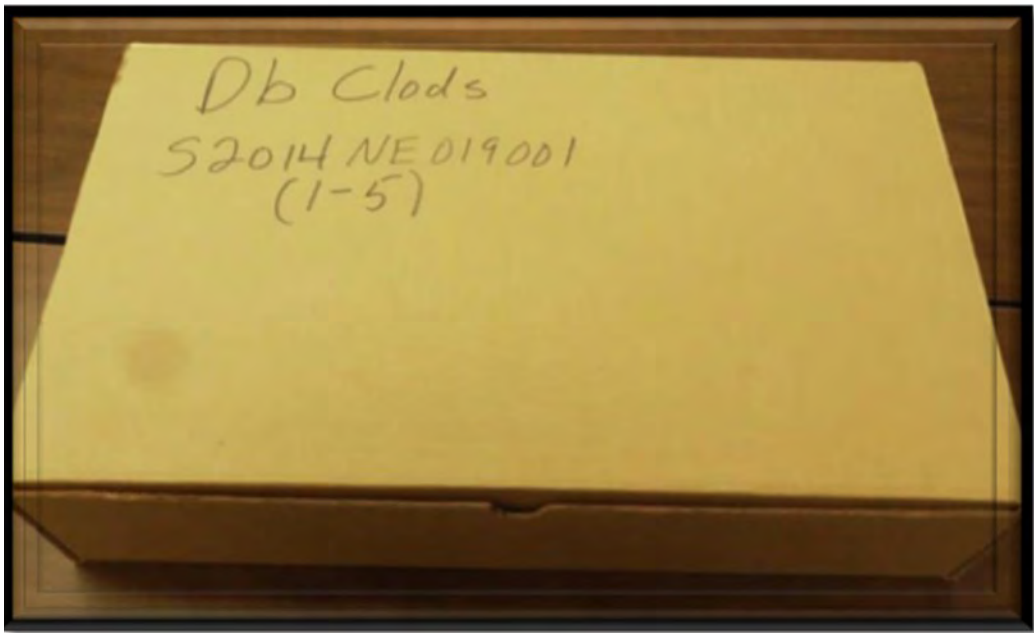


Figure 4.—Outside lid of correctly labeled clod sample box.

Inside of Lid (For Each Cell)

Use an indelible marker to label the inside of the box. Match the grid number on the lid to the corresponding cell number for each sample and include the following information (fig. 5).

- Horizon designation
- Top depth and bottom depth of layer, in cm
- Field number

Labeling and Sealing Primary Bag

The primary container for each clod, core, or compliant cavity soil sample is a KSSL-provided plastic bag. Use an indelible marker to label the primary sample bag.

1. Label the sample bag with the sample's field number.
2. For clod samples, ensure the single coat of saran on each clod has fully dried.



Figure 5.—Inside lid of correctly labeled clod box. Each cell is labeled.



Figure 6.—Correctly sealed clod samples in sample bags.

3. Place the sample in the KSSL-provided bag.
4. Seal each bag with a twist tie (fig. 6).

Clod Box Stabilization

Samples inside clod boxes can easily shift during shipment. To prevent damage or displacement, it is critical that every cell in the box is completely filled. Proper packing ensures samples remain in place and intact throughout transit.

1. Place each bagged clod, core, or compliant cavity sample in a single cell within a clod box.
2. Fill any empty cells completely with packing material, such as crumpled paper or bubble wrap, to increase stability (fig. 7).

Packaging Samples Pre-Shipment

Packaging Supplies

The KSSL will provide all packaging supplies (bags, clod boxes, trunks, and shipping boxes). These KSSL supplies are required for sample submission. Your office must provide packing tape and packing materials (such as newspaper or bubble wrap to fill the box).

Do not tape the boxes closed until the KSSL shipping liaison has provided shipping labels. After authorization to ship the packages has been given in writing, use packing tape to seal the box, taping every edge of the box to completely seal it closed.



Figure 7.—A clod box with empty cells filled with packing material to increase stability.

Note: Do not use packing peanuts, loose shredded paper, or any other packing materials that cannot be easily contained.

Packaging Bulk Samples

Primary bagged bulk samples require secondary containment prior to shipping. Follow the steps below for proper packaging.

1. Group pedon bulk samples together.
2. Place samples in the KSSL-provided secondary plastic bag (24 by 30 inches or 24 by 20 inches).
3. Do not include samples from different pedons within the same secondary bag.
4. Remove excess air in the bag, then seal the secondary plastic bag by double-folding and stapling it with a heavy-duty stapler (fig. 8).
5. Place the sealed secondary bag, or bags, in a KSSL-provided shipping box (18 by 18 by 12 inches or 15 by 15 by 10 inches) (fig 9). **Note:** More than one secondary bag may be placed in the same shipping box. For large projects (more than 60 layers),

ensure the enclosed pedons are assigned to the same subproject (refer to Part 2 of this document).

6. Ensure the box and contents together weigh less than 50 pounds.

7. Add packing material such as packing paper, newspaper, or bubble wrap to completely fill voids and minimize shifting (fig.10).

Note: Do not use packing peanuts or loose shredded paper.



Figure 8.—Correctly folded and stapled secondary plastic bag for bulk samples.



Figure 9.—The secondary plastic bag in a 15 by 15 by 10 inches cardboard box provided by the KSSL for bulk samples.



Figure 10.—Packing material used to stabilize the bulk sample in the cardboard box.

Outside of Box

- Write the pedon ID, or IDs, and field numbers of the included samples.
- Each fully packaged box containing bulk samples must weigh 50 pounds or less. The KSSL will provide additional shipping boxes if needed.

Inside of Box

On top of the packing material, include printed hard copies of the following documents.

- KSSL Project Sheet (one needed per project or subproject submission)
- KSSL Pedon Field Sheet for each pedon
- Request for Analysis sheet for each pedon (print on 8.5 by 14 inches, or larger, paper)
- Pedon descriptions for each pedon, generated from a NASIS report

Do not tape boxes closed until the KSSL shipping liaison has provided the shipping labels.

Packing Clod Boxes

As with bulk samples, samples packaged inside a clod box require secondary containment prior to shipping. Follow the steps below for proper packaging.

1. Place each clod box in its own plastic clod box bag provided by the KSSL.
2. Squeeze out excess air and tightly knot each clod box bag closed (fig. 11).
3. Place the clod boxes in a clod trunk provided by the KSSL. Filled clod boxes must always be placed at the bottom of the trunk.
4. The clod trunk is designed to hold six clod boxes. If fewer than six clod boxes contain samples, place any empty clod boxes on top of the filled boxes (instead of packing material) to fill any void space and to stabilize the load (fig. 12).

Inside of Trunk

On top of the clod boxes, include printed copies of the following documents (refer to Part 2 of this document).

- KSSL Project Sheet
- KSSL Pedon Field Sheet
- Request for Analysis (print on 8.5 by 14 inches paper)



Figure 11.—A clod box in its own plastic clod box bag. The bag is tied shut.



Figure 12.—Clod boxes in a clod trunk, which is provided by the KSSL.

Pre-Shipment Information

To arrange shipment, the KSSL shipping liaison will contact the point of contact (POC) listed on the RFA. Please have the following information available.

- NASIS project name and NASIS project ID from the RFA
- Sample submission documents, in electronic file format with correct file names (refer to Part 2 of this document)
- Weight (in pounds and ounces) and dimensions (in inches for the length, width, and height) of each box or trunk
- Name of the project's POC and sample submitter, office address, email address, and phone number
- Written statement confirming all samples were packaged according to directions provided in this document

Note: This confirmation will be requested by email from the KSSL shipping liaison and must be submitted in your reply before shipping labels can be issued.

Do not tape the boxes closed until the KSSL shipping liaison has issued the official shipping labels. Boxes and clod trunks must not be transported or shipped by any other means.

Final Shipping

1. Write the pedon ID, or IDs, and sample field numbers on the exterior of the shipping box. For large projects (more than 60 layers), include the subproject name (refer to Part 2 of this document for details).
2. After the shipping labels are generated by the KSSL, fully and securely tape each bulk sample box closed using high-quality packing tape (fig 13).
 - a. Fully tape every open seam of the box for complete containment.
 - b. Boxes that open during transit are discarded by the carrier.



Figure 13.—A bulk sample box securely closed with high-quality packing tape.

Part 2: Required Documentation for Sample Submission

This section covers the documents required for submitting soil samples to the Kellogg Soil Survey Laboratory (KSSL). KSSL cannot accept samples until the site and pedon records are complete in NASIS and the required submission documents have been reviewed and approved. Refer to Chapter 23, “Pedon Data Entry Guide” in the “[NASIS User Guide](#)” for guidance on NASIS data entry (Soil Survey Staff, 2015). The required sample submission documents can be found under the “Soil Sample Submission” heading of the [Kellogg Soil Survey Laboratory Guidance](#) web page.

Note: The information in the KSSL submission documents must match the information recorded in NASIS. Before submission, review both for consistency and update documents as needed.

The point of contact (POC) named in the request for assistance (RFA) is responsible for ensuring all submitted information is complete and accurate. After the KSSL shipping liaison contacts you with approval to proceed (and before you ship anything to KSSL), email the electronic versions of the required documents to the KSSL shipping liaison (Andrea.Williams@usda.gov). Copy your KSSL regional liaison (listed in the [NSSC Employee Directory](#)) and KSSL project coordinator (Jarai.Mon@usda.gov). Include hard copies of each of these same documents inside the sample boxes as described in Part 1.

1. KSSL Project Sheet (one per project or subproject)
2. KSSL Sample Submission Workbook (one per pedon), which contains two required sheets:
 - a. KSSL Pedon Field Sheet
 - b. Request for Analysis
3. NASIS Pedon Description Report (one per pedon)

Large Project Submission

For KSSL to give balanced attention to all customers, we request that submitters of large projects parse such projects into groups, or subprojects, of approximately 60 layers or fewer. This is not intended to restrict the sampling plan for projects. The purpose of parsing projects

into smaller groups is to expedite sample login, processing, analysis, and reporting by KSSL and to provide project submitters with an opportunity to prioritize pedons for analysis.

Project Group Assignment

For projects with more than 60 layers, the POC must divide the samples into groups, or subprojects, of approximately 60 layers or fewer. Layers from the same pedon should not be split into different groups to meet the guideline of 60 layers or fewer. All samples pertaining to a given pedon must be included in the shipping box, or boxes, for a specific subproject.

You are also welcome to specify your preferred order for subproject analysis. If subproject prioritization is not a concern, you still must indicate which box, or boxes, correspond to subproject 1, subproject 2, and so on. The overall project, including all subprojects, may be shipped to the KSSL at the same time.

Example: Your RFA project titled “My Backyard 2026” contains samples collected from 15 pedons and 90 layers. You might parse this project into two project groups like the following.

- My Backyard 2026 Part 1 (e.g., 9 pedons, 54 layers)
- My Backyard 2026 Part 2 (e.g., 6 pedons, 36 layers)

Large Project Labeling

Indicate the project group the pedon belongs to in the Notes section of the KSSL Pedon Field Sheet. This is located on the first tab of the KSSL Sample Submission Workbook.

Samples for a large project should be shipped in the portioned groups. On the outside of each shipping and clod box, write the project name and group number, or subproject name (e.g., My Backyard 2026 Part 1), user pedon ID, and field numbers of the samples.

KSSL assigns a unique project number to each subproject after review.

Example: KSSL assigns a unique project number and names it according to your project name.

- C2026USNM156: My Backyard 2026 Part 1
- C2026USNM157: My Backyard 2026 Part 2

KSSL Project Sheet

The KSSL Project Sheet includes key project details and lists staff who should be notified about the sample analysis and results.

- Complete one KSSL Project Sheet for each project or subproject you are submitting.
- For projects with multiple subprojects, create a separate folder and complete one project sheet per grouping.
- The project name entered on the project sheet becomes the official project name in the KSSL's Laboratory Information Management System (LIMS).
- Limit the project name to 60 characters or fewer (including spaces and dashes).
- Save and name the file using the project name.

KSSL Sample Submission Workbook

The KSSL Sample Submission Workbook is a multisheet Excel file used to document each sampled layer, identify the number and types of samples collected, and select the analytical tests needed for each layer.

- Complete one KSSL Sample Submission Workbook for each pedon. For dynamic soil property (DSP) projects, use the DSP version provided on the [KSSL Guidance](#) web page.
- Save and name the file using the user pedon ID (example: S2026WA027009.xlsx).

Data entered for user pedon ID, field number, horizon designation, and depths on the KSSL Pedon Field Sheet will auto-populate the same fields on the Request for Analysis sheet.

Ensure the following two sheets within the workbook are fully populated.

- KSSL Pedon Field Sheet
 - Hover your mouse over the cells with red triangles for imbedded explanations.
 - Please give attention to the following:
 - The NASIS pedon record ID, or Rec ID, must be provided. These data are typically positioned in the last column of the pedon row in the Pedon table in NASIS.
 - Enter a zero (0) for a measurement or observation when the result equals zero.
 - Enter a dash (-) for a measurement or observation that was not completed.

- Complete the Reason for Sampling section regarding project objectives.
- Include pertinent site or sample-related information in the Notes section, if applicable.
- For larger projects divided into subprojects, write the project name in the Notes section. Include the subproject or group assignment (e.g., C2026USNM156: My Backyard 2026 Part 1).
- Request for Analysis

Analyses Subject to Screening Criteria

Some analyses require preliminary screening. Refer to the Analysis Applicability Guide sheet in the sample submission workbook for criteria and recommendations.

Examples:

- Saturated paste and soluble salts analyses are performed only when the electrical conductivity exceeds 0.25 decisiemens per meter (by ratio of 1 part soil to 2 parts water).
- For soils with greater than 35 percent clay, x-ray diffraction is typically more appropriate than optical mineralogy.

For questions about analysis preliminary screening criteria, analysis applicability, or laboratory analyses performed by KSSL, contact your regional KSSL liaison listed in the [NSSC Employee Directory](#).

NASIS Pedon Description Report

Submit a complete NASIS pedon description for each sample submitted to KSSL for analysis.

In NASIS, generate a pedon description using one of the NASIS reports under the NSSC Pangea group titled Pedon – Pedon and Site Description (fig. 14). Print the output and include the hard copies in the box with the related samples. Each report generates the same output but uses different parameters to query the NASIS database.

The NASIS report titled Pedon – Pedon and Site Description is queried by:

- Current taxon name
- Taxonomic class name
- User pedon ID
- User site ID
- Local database



Figure 14.—List of NASIS reports for printing pedon descriptions.

The first four reports have parameters that allow them to run against the national NASIS database. The fifth report can only be run against the currently selected set in your local database. Some of the same reports can also be run from the [Soil and Plant Science Division \(SPSD\) NASIS Web Reports](#) web page.

On Future NASIS Record Updates

Edits and updates to electronic records relating to the sampled site and pedon will be managed through NASIS (formerly done through the SOI-8 process). This is common after laboratory analysis is complete. Site and pedon information in NASIS are linked with corresponding information in LIMS. Regional offices have control of those site and pedon records and are able to edit them in NASIS as needed. Refer to “Part 3: NASIS Procedures for Sample Submission” of this document for additional information.

Summary of Documentation Requirements

Submit Electronically

- KSSL Project Sheet (one per project or subproject), named using the submitted project name
- KSSL Sample Submission Workbook (one per pedon), named using the pedon ID
- NASIS Pedon Description Report (one per pedon), named used the pedon ID

Include Printed Copies Inside Each Sample Box

The workbook and pedon descriptions included should be specific to the samples in each box.

- KSSL Project Sheet (one per project or subproject submission)
- Both sheets of each pedon's KSSL Sample Submission Workbook: the KSSL Pedon Field Sheet and the Request for Analysis
Note: Larger-sized paper (8.5 by 14 inches or 11 by 17 inches) must be used for the Request for Analysis sheet.
- Printed Pedon Description reports for each pedon from NASIS

After the shipping liaison requests the documents, email electronic copies of the required documents to the KSSL shipping liaison (Andrea.Williams@usda.gov), carbon copying the KSSL regional liaison and the KSSL project coordinator (Jarai.Mon@usda.gov). KSSL regional liaisons are listed in the [NSSC Employee Directory](#).

Part 3: NASIS Procedures for Sample Submission

KSSL requires edit access to some NASIS database records and therefore accepts sample submissions only after the NASIS records are fully populated. Refer to Chapter 23, “Pedon Data Entry Guide” in the [“NASIS User Guide”](#) for guidance on NASIS data entry (Soil Survey Staff, 2015).

The following information provides guidance for the POC to manage the NASIS records associated with the samples being submitted.

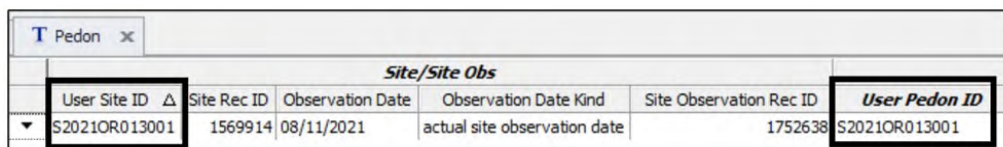
Management of Pedon and Site Records for Sampled Pedon

Before submitting samples:

1. Confirm the user site ID and user pedon ID meet national standards.
2. Verify that the user pedon ID and user site ID match and both begin with the letter “S” to indicate a sampled pedon (fig. 15).
3. Ensure all Site, Pedon, and Vegetation Plot tables for the sampled pedon are fully populated in NASIS.
4. Transfer ownership of the sampled site and pedon records in NASIS after the KSSL shipping liaison reviews your electronic documents (submitted in Part 2) and instructs you to do so.

Transfer Site Record Ownership

KSSL will request that you transfer ownership of the sampled site record, or records, in NASIS.



Pedon						
Site/Site Obs						
User Site ID	Site Rec ID	Observation Date	Observation Date Kind	Site Observation Rec ID	User Pedon ID	
S2021OR013001	1569914	08/11/2021	actual site observation date	1752638	S2021OR013001	

Figure 15.—NASIS table showing proper user site ID and user pedon ID conventions.

1. Identify the NASIS group associated with the soil survey regional office (SSRO), which begins with the prefix "KSSL_Sites." NASIS groups can be viewed by opening the NASIS Site table. Each SSRO has a designated group that manages the site records for sampled pedons (fig. 16).
2. Open the Site table in NASIS and select the site record, or records, to update.
3. From the menu bar, select the Table Editor menu and select Change Owner of Selected Rows (fig. 17).
4. In the Change Owner window, select the appropriate NASIS site and NASIS group corresponding to the SSRO responsible for the major land resource area (MLRA) where the samples were collected (fig. 18).
5. These groups restrict edit permission to authorized SSRO staff. Membership is controlled by each regional office.

Transfer Pedon Record Ownership

The KSSL maintains a NASIS site and associated SSRO-specific groups to manage records for sampled pedons submitted for laboratory analysis. When you transfer a pedon to the KSSL NASIS site and group:

- ownership moves to KSSL staff,
- a static archival version of the pedon (as sampled) is created,
- the POC and SSRO can no longer edit that pedon, and
- KSSL gains access to populate laboratory identifiers.

KSSL will request you transfer ownership of the Pedon record, or records, in NASIS.

1. Identify the NASIS group for the SSRO responsible for the MLRA where the pedon was described and sampled. The group is under the KSSL NASIS Site and has the prefix "KSSL_Pedons" (fig. 19).
2. Open the Pedon table in NASIS and select the pedon record, or records, to update.
3. From the menu bar, select the Table Editor menu and select Change Owner of Selected Rows.
4. In the Change Owner window, select KSSL as the NASIS site and the appropriate NASIS group corresponding to the SSRO responsible for the MLRA where the samples were collected (fig. 20).

Figure 20 presents an example pedon created by staff in a Northwest MRLA SSO, which is initially assigned to the user's default NASIS group (e.g., "NW-RED Point Data"). Prior to sample submission, ownership of the fully populated pedon record is transferred to the NASIS group KSSL_Pedons_Northwest, which belongs to the KSSL NASIS site.

T NASIS Group x			
		Lineage	
		NASIS Site Name	<i>NASIS Group Name</i>
	[+]	SSRO_Alaska	KSSL_Sites_Alaska
	[+]	SSRO_Northeast	KSSL_Sites_Northeast
	[+]	SSRO_Northwest	KSSL_Sites_Northwest
	[+]	SSRO_North_Central	KSSL_Sites_North_Central
	[+]	SSRO_Southeast	KSSL_Sites_Southeast
	[+]	SSRO_Southwest	KSSL_Sites_Southwest
	[+]	SSRO_South_Central	KSSL_Sites_South_Central
	[+]	SSRO_Special_Projects	KSSL_Sites_Special_Projects

Figure 16.—NASIS Group table, which lists eight regional NASIS groups for KSSL sites. Each group belongs to the NASIS site named by SSRO.

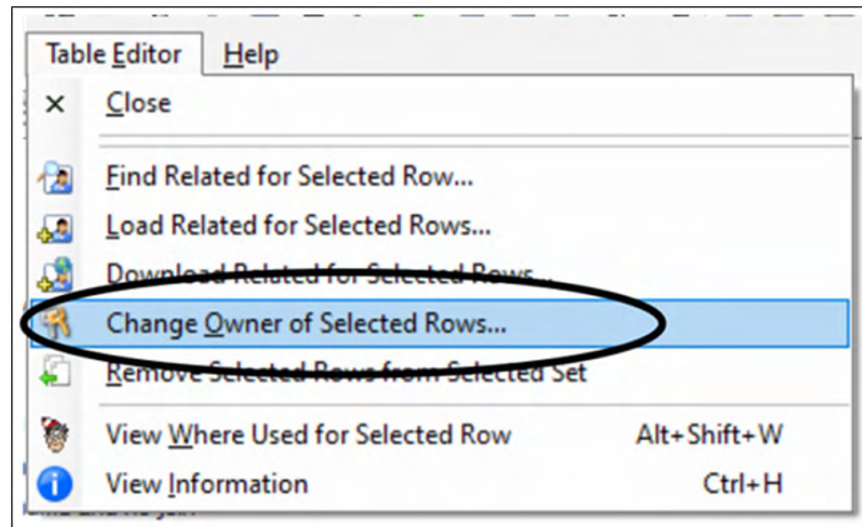


Figure 17.—Screenshot showing the Change Owner of Selected Rows option in the NASIS Table Editor menu.

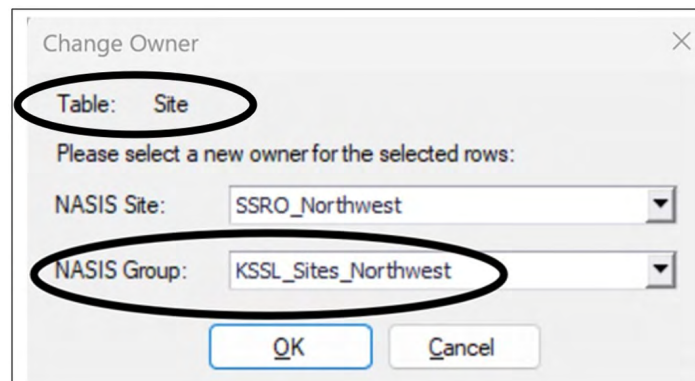
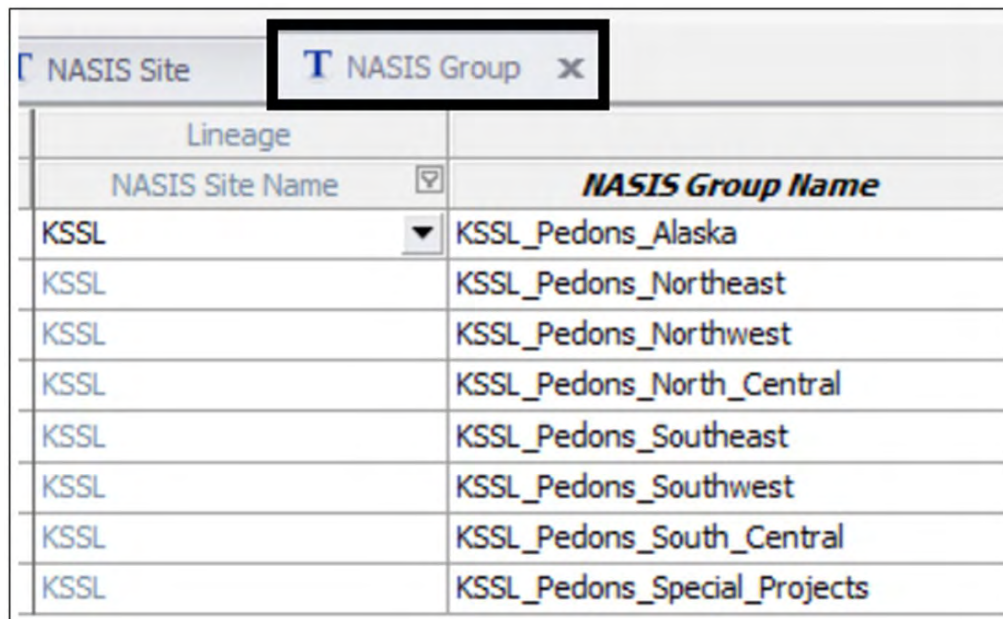
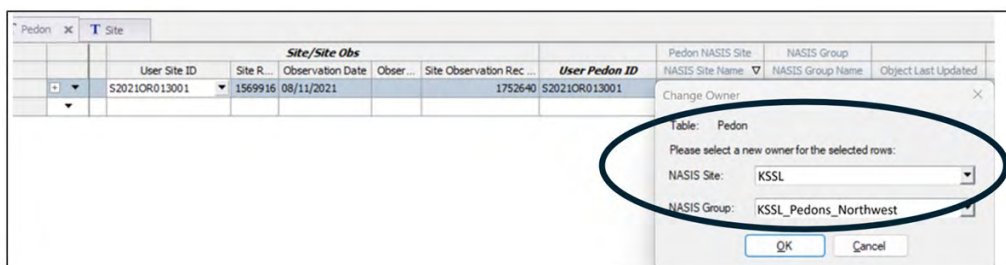


Figure 18.—NASIS example showing a site record from the Northwest SSRO being transferred to the appropriate KSSL NASIS group.



NASIS Site	NASIS Group
KSSL	KSSL_Pedons_Alaska
KSSL	KSSL_Pedons_Northeast
KSSL	KSSL_Pedons_Northwest
KSSL	KSSL_Pedons_North_Central
KSSL	KSSL_Pedons_Southeast
KSSL	KSSL_Pedons_Southwest
KSSL	KSSL_Pedons_South_Central
KSSL	KSSL_Pedons_Special_Projects

Figure 19.— NASIS Group table listing the groups used for transferring pedon records to KSSL.



User Site ID	Site R...	Observation Date	Observed...	Site Observation Rec...	User Pedon ID
S2021OR013001	1569916	08/11/2021	1752640	S2021OR013001	

Change Owner

Table: Pedon

Please select a new owner for the selected rows:

NASIS Site: KSSL

NASIS Group: KSSL_Pedons_Northwest

OK Cancel

Figure 20.—NASIS example showing the transfer of a pedon record to the appropriate NASIS group.

NASIS Linkage of Sampled Pedons to KSSL Lab Data

Once samples arrive at the KSSL, staff log them into LIMS, which generates unique laboratory identifiers for the samples. KSSL then populates NASIS with the lab source ID and lab pedon numbers in the Pedon table and the lab sample number in the Pedon Horizon Sample table. These identifiers link the NASIS pedon description to the KSSL data.

Copying a KSSL-Owned Pedon Record

After KSSL staff populate the laboratory identifiers in NASIS, SSRO staff may copy the pedon record into their ownership group for future updates

(i.e., updating taxonomy or correlation after reviewing laboratory analytical data). The SSRO-owned pedon record becomes the official public-facing pedon description for the [National Cooperative Soil Survey \(NCSS\) Lab Data Mart](#).

Note: Do **not** copy the pedon record until KSSL staff have entered the laboratory identifiers on both the Pedon and Pedon Horizon Sample tables. Without this linkage, the updated pedon description will not be distributed with the laboratory data on the NCSS Lab Data Mart webpage. For cases in which pedon records are copied prior to the KSSL staff populating these critical identifiers, the SSRO must populate these fields.

To create a copy of the pedon record in NASIS for editing:

1. Select the KSSL-owned record in the Pedon table.
2. In the menu bar, select the Table Editor menu and select Copy Selected Trees (fig. 21).
3. To paste the new record, select the Table Editor menu and select Paste Rows/Trees (Inserting New Rows) (fig. 22).
4. Verify the new pedon record is assigned to the correct SSRO group for sampled pedons (fig. 23). Change ownership if needed.
5. Review the site record IDs to confirm that both pedon records are linked to the same site record.

Updating KSSL Sampled Pedon Records in NASIS

After submitting samples to the KSSL, any future updates to the NASIS pedon records must be made to the SSRO-owned pedon record.

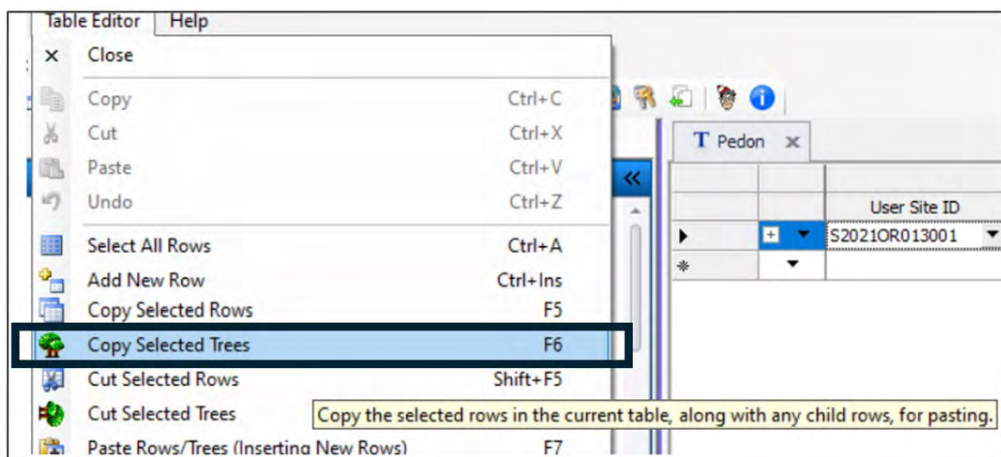


Figure 21.—NASIS Table Editor menu selection to copy a selected pedon.

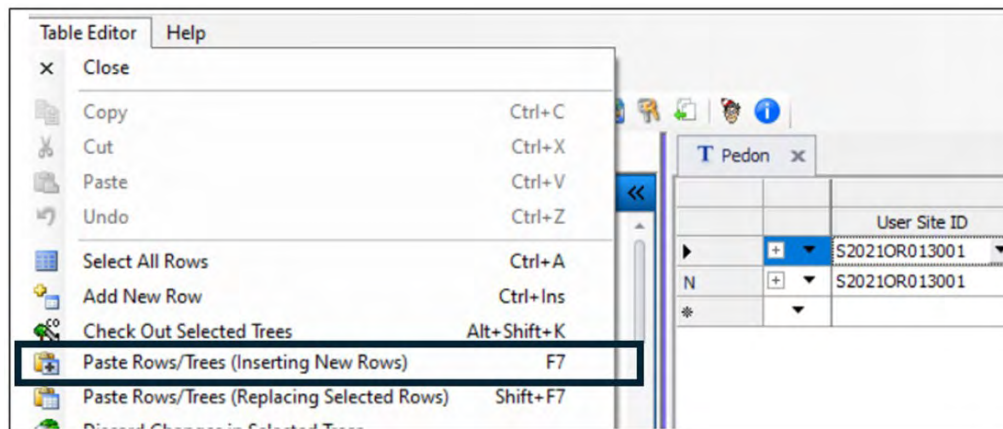


Figure 22.—NASIS Table Editor menu selection to paste rows or trees as new rows.

The screenshot shows the 'Pedon' table in the NASIS database. The table has columns: User Site ID, Site Rec ID, Observation Date, Site Observation Rec ID, User Pedon ID, Pedon NASIS Site, and NASIS Group. There are two rows of data, both linked to Site Rec ID 1569916. The first row is owned by KSSL and the second by SSRO. The 'Pedon NASIS Site' and 'NASIS Group' columns are also highlighted with black boxes.

User Site ID	Site Rec ID	Observation Date	Site Observation Rec ID	User Pedon ID	Pedon NASIS Site	NASIS Group
S2021OR013001	1569916	08/11/2021	1752640	S2021OR013001	KSSL	KSSL_Pedons_Northwest
S2021OR013001	1569916	08/11/2021	1752640	S2021OR013001	SSRO_Northwest	NW-RED Point Data

Figure 23.—NASIS Pedon table showing duplicate pedon records owned by different NASIS sites and groups while linked to the same site record ID (Site Rec ID 1569916).

Historical NASIS records may contain duplicate site and pedon records created under a previous workflow in which KSSL generated separate KSSL-owned records for both the site and pedon records. For a sampled pedon, there were then two site records and two pedon records. One pair owned in NASIS by KSSL and the other owned by the SSRO. Numerous instances of this scenario exist in the NASIS database.

When this scenario of two site records and two pedons records for a sampled pedon is encountered, users should update NASIS records to follow the current guideline of one site record and two pedon records.

For questions or assistance to update site or pedon records in NASIS, email the following (carbon copy each for clear communication):

- Your direct supervisor
- The regional soil data quality specialist (SDQS)
- The NASIS site administrator, or members with edit privileges, of the record's NASIS site or group
- KSSL NASIS site administrator, or members with edit privileges.

Figures 24 and 25 illustrate this historical scenario in NASIS. Duplicate records, having matching site and pedon IDs, exist in both the site table and pedon table. In the example below, one site and one pedon record are assigned to the KSSL group, and the other pair of records are assigned to the SSRO group (figs. 24 and 25). These examples illustrate the following:

- Two pedon records are assigned to different site records, as highlighted by the differing site record ID circled in red (fig. 25).
- Two site records exist where there should only be one site record.

Review Site Records

In NASIS, complete the following steps to link the related two pedons to one site record. First, review the site records.

1. Query and load duplicate site and pedon records and add them to your selected set.
2. Open the Site table.
3. Review NASIS site and NASIS group ownership of each site record (fig. 26).
4. Identify the official KSSL site record.
 - a. When there are multiple site records, determine which record is the most up-to-date and shall serve as the official KSSL-sampled site record.
 - b. Look for differences in data that indicate that one record was updated. In the example below, the records show variation in flooding frequency class (fig. 27).

User Site ID		Site NASIS Site	NASIS Group	Site Rec ID
		NASIS Site Name	NASIS Group Name	
+	S2021OR013001	SSRO_Northwest	KSSL_Sites_Northwest	1569916
+	S2021OR013001	SSRO_Northwest	NW-RED Point Data	1966191

Figure 24.— NASIS Site table showing duplicate site records assigned to different ownership groups.

User Site ID		Site Rec ID	Observation Date	Site Observation Rec ID	User Pedon ID	Pedon NASIS Site	NASIS Group
						NASIS Site Name	NASIS Group Name
+	S2021OR013001	1569916	8/11/2021	1752640	S2021OR013001	KSSL	KSSL_Pedons_Northwest
+	S2021OR013001	1966191	08/11/2021	2495750	S2021OR013001	SSRO_Northwest	NW-RED Point Data

Figure 25.—NASIS Pedon table with duplicate pedon records linked to different site record IDs.

	User Site ID	Site NASIS Site	NASIS Site Name	NASIS Group	Site Rec ID
+	S2021OR013001	SSRO_Northwest	SSRO_Northwest	KSSL_Sites_Northwest	1569916
+	S2021OR013001	SSRO_Northwest	SSRO_Northwest	NW-RED Point Data	1966191

Figure 26.— NASIS Site table showing duplicate site records assigned to different ownership groups.

	User Site ID	Flooding Frequency Class	Site NASIS Site	NASIS Site Name	NASIS Group	NASIS Group Name
▼	S2021OR013001	very rare	SSRO_Northwest	SSRO_Northwest	KSSL_Sites_Northwest	KSSL_Sites_Northwest
▼	S2021OR013001	occasional	SSRO_Northwest	SSRO_Northwest	NW-RED Point Data	NW-RED Point Data

Figure 27.— NASIS Site table showing duplicate site records. In a case where records present different data, the most up-to-date record should be selected.

5. In a case where the site record assigned to the non-KSSL NASIS group has been extensively updated, it is more efficient to assign that site record (extensively updated) as the official KSSL site instead.

Update Site Records

The following steps outline the process for updating and correctly assigning ownership of the official KSSL site record within NASIS.

Note: For records assigned to NASIS sites or groups for which you do not have edit permissions, request assistance from a NASIS site administrator for the NASIS site to which the record is assigned.

1. Update the official KSSL site record by reconciling differences between the non-KSSL record and the official KSSL site record.
 - a. Compare all fields in the Site table and child tables to identify discrepancies.
 - b. Update the official record with any needed additions or corrections.
 - c. For example, if fields such as flooding frequency differ (such as in the example in figure 27), ensure the official record reflects the most up-to-date information.
2. Change ownership of the updated site record (the record that will serve as the official KSSL site record) to the appropriate KSSL_Sites Region group.

3. Manage the extra site record as follows:
 - a. Work directly with your supervisor, the SSRO, and the SDQS.
 - b. Determine whether any other pedon record or records are linked to the non-KSSL (extra) site record.
 - c. If pedons are linked, do not delete the record. Ensure the site record is assigned to the correct ownership group.
 - d. If no pedons are linked, request that the SSRO and SDQS reassign ownership of the original KSSL site record (the one with outdated or incorrect data) to the KSSL_sites_and_pedons_to_delete group under the KSSL NASIS site.
4. Ensure the new official KSSL site record is ultimately assigned to the SSRO's NASIS group for KSSL-sampled sites.

In figure 28, the example shows two duplicate site records. After review, it is decided the record assigned to the KSSL_Sites_Northwest group, site record ID 1569916 outlined in red, shall serve as the official KSSL sampled site record. The alternative site record, site record ID 1966191, will be reassigned to the KSSL_sites_and_pedons_to_delete group.

Review Pedon Records

After updating duplicate site records, proceed with the following steps to review and correct pedon records as needed.

1. Open the Pedon table. You should see two pedon records with the same pedon ID.
2. Review the NASIS site and NASIS group ownership for each pedon record.
3. Confirm that both pedon records are assigned to the correct ownership—NASIS site and group.
 - a. One record will be KSSL-owned and protected. The other will be SSRO-owned and editable.
 - b. If ownership is incorrect, contact the appropriate SSRO or KSSL NASIS site administrator for assistance.
4. In the Pedon table, review all data under the Site/Site Obs band.
 - a. Verify that both records point to the same site record ID.



	User Site ID	Site NASIS Site	NASIS Group	Site Rec ID
		NASIS Site Name	NASIS Group Name	
+	S2021OR013001	SSRO_Northwest	KSSL_Sites_Northwest	1569916
+	S2021OR013001	SSRO_Northwest	NW-RED Point Data	1966191

Figure 28.—A NASIS Site table showing duplicate site records assigned to different ownership groups. A red box identifies the official KSSL-sampled site record assigned to the correct NASIS group.

- b. If the site record IDs differ, the pedon records are incorrectly linked to the official KSSL-sampled site record and must be corrected.

For example, figure 29 shows two pedon records incorrectly linked because they reference different site records—1569916 and 1966191.

Update Pedon Records

Complete the following steps to update the pedon records. When finished, there should be two pedon records assigned correctly to a single site record. Without proper linkage, the SSRO-owned pedon (the updated record) will not appear on the NCSS Lab Data Mart web page with official data.

1. Check out the SSRO-owned pedon record in the Pedon table.
2. Ensure the lab pedon number (Lab Pedon # in NASIS) is populated in the SSRO-owned pedon record. In figure 30, a red box highlights missing data.
 - a. Copy the lab pedon number from the official KSSL-owned pedon record and paste it into the SSRO-owned record.
 - b. Without this field, the updated pedon description will not be distributed with laboratory data on the NCSS Lab Data Mart web page (fig. 30).
3. If needed, update the SSRO-owned pedon record (e.g., lab pedon number, correlated soil name, taxonomic classification, or horizon designation) based on laboratory results.
4. Link the SSRO-owned pedon record to the official KSSL-sampled site.
 - a. In the checked out, SSRO-owned pedon record, select the cell under the User Site ID column in the Site/Site Observation band.
 - b. Use the drop-down list to select the correct site records.

		User Site ID	Site Rec ID	Observation Date	Site Observation Rec ID	Observation Date Kind	User Pedon ID	Pedon NASIS Site	NASIS Group
P	+	S2021OR013001	1569916	08/11/2021	1752640		S2021OR013001	KSSL	KSSL_Pedons_Northwest
M	+	S2021OR013001	1966191	08/11/2021	2495750		S2021OR013001	SSRO_Northwest	NW-RED Point Data

Figure 29.—Two pedon records linked incorrectly to two different site records.

		User Site ID	Site Rec ID	Observation Date	Site Observation Rec ID	Lab Source ID	Lab Pedon #	Pedon NASIS Site
		S2011MN075012	551520	08/11/2011	540378			SSRO_North_Central
		S2011MN075012	551520	08/11/2011	540378	SSL	12N7626	KSSL

Figure 30.—Screenshot showing a critical issue of missing data between two pedon records.

- c. The site record ID must match the site record ID used by the KSSL-owned pedon record. **Note:** Pedon records link to the site observation record and not directly to the site record. If multiple site observation records exist, you must choose the right one.
 - 1) Select the cell under the site record ID and open the drop-down list to display all site observation records linked to that site.
 - 2) Review the observation date and the site observation record ID, then select the correct site observation record.
5. Confirm that the SSRO-owned pedon is now linked to the same site record and site observation record as the KSSL-owned pedon. Both pedon records must share identical site record ID and site observation record ID.

Transfer Duplicate Site Records

After all site and pedon records have been assigned to the correct NASIS site and group and the SSRO-owned pedon is linked to the site record assigned to the SSRO KSSL group, complete the following steps to manage the non-KSSL duplicate site record.

1. Open the Site table.
2. Review the duplicate site records again and confirm that all necessary edits have been captured on the official KSSL site record.
3. Work directly with your supervisor, the SSRO, and the SDQS for the following steps:
 - a. Determine whether any pedon records are linked to the non-KSSL site record.
 - b. If pedons are linked, assign the site record to the correct ownership group. Do not delete it.
 - c. If no pedons are linked, obtain written approval from the SSRO and SDQS to transfer ownership of the site record to the KSSL NASIS site and KSSL_sites_and_pedons_to_delete group.

Upload Changes to NASIS Database

Save your changes in NASIS by uploading all changes to the national database. Lastly, check in all records.

Conclusion

If you have any questions about the guidance in this document or about submitting samples to the KSSL, contact your KSSL regional liaison listed in the [NSSC Employee Directory](#).

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