United States Department of Agriculture

Natural Resources Conservation Service

Instructions for Digitizing and Transmitting Easement Boundaries to the Geospatial Enterprise Operations Branch (GEO), Fort Worth, TX

November 2023 – Any updates to these instructions will be included with the easement checkout email notifications.

Geospatial Enterprise Operations Branch
(Fort Worth, TX)

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Background

The National Easements Geodatabase (NEG) contains the digitized boundaries of all NRCS easement lands in a seamless national layer. The National Easement Staging Tool (NEST), ProTracts, and Conservation Desktop Application Agreement (CDAA) are the official agency databases for easement programs. They contain the attributes of the easement parcel, and its associated program, stored in the tabular database as a point record. Most NEG polygon attributes are adopted from their corresponding NEST, ProTracts, and CDAA points through a spatial join process. The few remaining attributes must be entered by the State Geographic Information System (GIS) user.

The attributes are extracted from the database, created into points, and provided as READ ONLY. No changes made to the NEST, ProTracts, and CDAA attributes will post back to the database. Changes needed to the NEST, ProTracts, and CDAA portions of the records must be made in the database system by the approved State contact.

Transmitting the digitized boundaries of stewardship easements involves a matching process between the newly submitted NEG spatial boundaries and their associated NEST, ProTracts, and CDAA points. The tools that were previously used to complete the spatial join and Quality Assurance (QA) process are no longer supported at FPAC-GEO. The QA check is being conducted by NPAD after check-in of boundary data.

For more information, please see Title 440 Conservation Programs Manual, Part 528, "Agricultural Conservation Easement Program (ACEP)."

To use this process, you must use ArcGIS 10.2 or greater, but editing in ArcGIS Pro is also allowed.

NEST Checkout Data Generation Process

The checkouts are generated quarterly based upon the fiscal year. The annual schedule is as follows:

Quarter	Date Range	Checkouts Available	Check-in Due
1	October 1 thru December 31	November 1	January 1
2	January 1 thru March 31	February 1	April 1
3	April 1 thru June 30	May 1	July 1
4	July 1 thru September 26	August 1	September 26

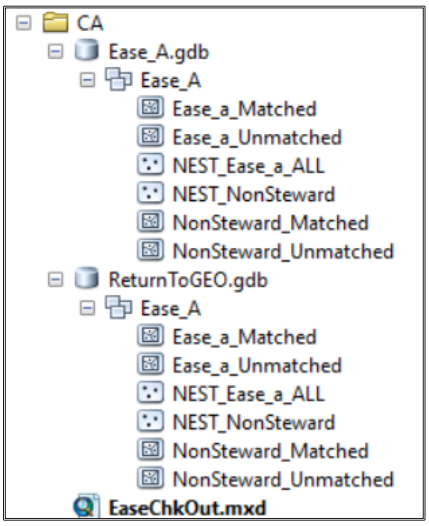
Early in each quarter, NEST matching, ProTracts Agricultural Conservation Easement Program – Agricultural Land Easement (ACEP-ALE), and CDAA (for Regional Conservation Partnership Program (RCPP)) geodatabase checkouts for each State will become available. The geodatabase MUST be returned at the close of the quarter if updates have been made. The data sets expire at the end of the quarter as shown in the checkout due date field of the *Ease_a_Matched* feature class. Only the boundaries that have an existing matched NEST point can be submitted for those easements with NEST records. ProTracts ACEP-ALE and CDAA easements will be submitted to the NonSteward_Matched feature class.

The checkouts are generated by state using the "Admin_Area" field of the easements and the "NEST_STATE" field of the NEST points. The points are extracted along with the easements for that State and other base layers utilized in the checkout process into a file geodatabase. ProTracts ACEP-ALE and CDAA easements also use the "Admin_Area" field.

Check Out Data Structure

Each State will receive a new checkout from the Fort Worth Geospatial Enterprise Operations Branch (FPAC-GEO) for the current quarter.

The checkout contains a directory by state abbreviation ***([ST])***, two file geodatabases (***Ease_A.gdb*** and ***ReturnToGEO.gdb***), an ArcMap document file (***EaseChkOut.mxd***), and an instruction document ***(Instructions for Digitizing and Transmitting Easement Boundaries to the Geospatial Enterprise Operations Branch (GEO), Fort Worth, TX).***



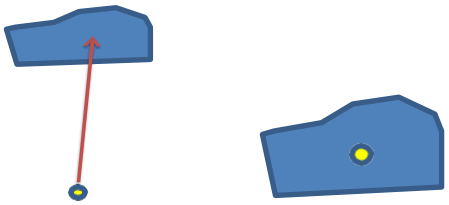
The checkout geodatabase (*Ease_A.gdb)* contains one feature dataset (FDS)*, also called Ease_A*. The *Ease_A* FDS contains only matched polygons as the *Ease_a_Matched and NonSteward_Matched* layers. These layers represent the production version of the NEST, ProTracts, and CDAA data.

Remember that only the boundaries that match the NEST, ProTracts, and CDAA points can be submitted.

Below are the **Ease_A FDS data layer descriptions** (the ***ReturnToGEO.gdb*** Ease_A FDS also contains these same layers, but they are empty layers so that you can add only the new/updated/changed polygons or moved points for return to the Fort Worth GEO office).

Ease_A		
	Ease_a_Matched	Stewardship layer that you digitize, copy, or paste easements into (NEST matched only).
	Ease_a_Unmatched	Stewardship layer that you digitize, copy, or paste easements into (no NEST point exists to date, but must have a NEST Closing Date).
	NonSteward_Matched	Non-Stewardship layer that you digitize, copy, or paste easements into (NEST matched only).
	NonSteward_Unmatched	Non-Stewardship layer that you digitize, copy, or paste easements into (no NEST point exists to date). These will also consist of ACEP-ALE easements closed in ProTracts.
	NEST_Ease_a_ALL	Stewardship NEST points.
	NEST_NonSteward	Non-Stewardship NEST points.

The *Nest_Ease_a_ALL* file contains all of the NEST points in your state. If your NEST Point is outside of the boundary that it matches, and you are certain the boundary is accurate, simply use your ArcMap editing tools to move the point to the polygon center.



All polygons need to be matched to a single NEST point. A polygon may be a single or multipart polygon. A multipart polygon is always defined by a single data row and/or a single NEST, ProTracts, or CDAA record. If you have 2 component parts, please merge them into a single multipart polygon before matching. If you have two records for an easement due to a contract conversion, please match the newest record and move the old record outside of the boundary. You are not re-matching already matched records. Add your new polygons to the *Ease_A_Matched* layer and drag your points within the corresponding polygons where needed until you have all polygons loaded and containing a single point. Add new ProTracts ACEP-ALE or CDAA easement polygons to the layer.

Process

1. Copy the Checkout directory ***[ST]*** to any location on your local drive.

2. In ArcMap, open the *.mxd* provided with your checkout.

3. Start an edit session by clicking **Editor>Start Editing** on the Editor toolbar.

4. Add the easement boundary to the *Ease_a_Matched* layer by importing, appending, copy/pasting.
   Notes:
   - Make sure you handle any necessary coordinate system reprojections before adding the boundary to this table. You should resolve the datum and coordinate system to the Datum: D_WGS_1984; Geographic Coordinate System: GCS_WGS_1984.
   - The boundary must contain the NEST point it represents (unless it closed in ProTracts or DCAA), adjust the NEST point to fall within the boundary. You must have a one-point-to-one-polygon relationship in order to match.

5. **Stop** the edit session and **Save** your edits.

Attribute the Easement

1. Open the *Ease_a_Matched* and the *NEST_Ease_a_All* attribute tables. Tile the tables so both are viewable.

2. Start an edit session to edit the *Ease_a_Matched* attribute table.

3. Use the **Select features** tool located on the Tools toolbar and select the NEST point and easement boundary simultaneously.

4. Scroll to the new easement located at the bottom of the table.

5. Enter the attributes in the format of the attributes. Use the attributes of existing boundaries as a guide.

Admin_Area	Enter the state abbreviation.
New_Agree_Num	The *NEST_Agreement* number from the *Nest_Ease_a_ALL* file.

NEW SURVEYS and RE-ESTABLISHMENT SURVEYS

2021 Methods	Definition	Supporting Information
Legal Survey[1] - Survey Grade GPS or State Plane Coordinates	The parcel's boundary has been constructed from coordinate geometry sourced from a modern Legal Survey plat which uses survey-grade GPS as its basis of bearing and geographic positioning.	For new and re-established easement surveys from a Licensed Professional Surveyor. A reference in the comments section should be made as to the type of GPS observations taken (e.g., type of survey grade GPS and datum).

EASEMENT BOUNDARY CORRECTIONS

2021 Methods	Definition	Supporting Information
Legal Survey - Georeferenced/COGO	The parcel's boundary has been constructed from coordinate geometry (COGO) sourced from a Legal Survey plat using the associated Geographic Position (GP)[1] data or a known published station to position the parcel.	For older surveys that have known coordinates. The vintage or currency of the survey and the associated GP or published station should be provided in the comments section.
Legal Survey - Georeferenced/COGO from Shared Data/Alternate Source[2]	The parcel's boundary has been constructed from coordinate geometry sourced from a Legal Survey plat and positioned using GP data from adjacent or related surveys. Shared data may include City, County, State, Federal and Alternate Commercial sources.	A reference in the comments section should be made to the adjacent or related surveys used in positioning.

[1] Geographic Position (GP) is a geographical/geospatial point represented by latitude, longitude, and Datum.

[2] Shared Data/Alternate Source are data or information originating from a source other than NRCS. These shared data can originate from other federal government agencies, state government agencies, county government.

2021 Methods	Definition	Supporting Information
Legal Survey – Natural or ROW Feature Georeferenced/COGO	The parcel's boundary has been constructed from coordinate geometry using a legal survey. Georeferencing and rotation of the easement boundary is based on natural features from imagery. (navigable water body, roadway, mountain ridge, ROW, canal, etc.)	The vintage or currency of the imagery should be provided in the comments section.
Recorded WED - Georeferenced/COGO	The parcel's boundary is constructed from information sourced from recorded easement deed and geographically positioned using GP data and information sourced from the same record.	The vintage or currency of the geographic position should be provided in the comments section.
Recorded WED – Natural or ROW Feature Georeferenced/COGO	The parcel's boundary has been constructed from information sourced from a recorded easement deed. Georeferencing and rotation COGO from aliquot description or metes and bounds of the easement boundary is based on natural features from imagery. (navigable water body, roadway, mountain ridge, ROW, canal, etc.)	The vintage or currency of the imagery should be provided in the comments section.
Recorded WED - Non-Survey Grade GPS	The parcel's boundary has been constructed from coordinate geometry sourced from the recorded easement deed based on GPS coordinates that do not fit within survey grade tolerances. (Non-Survey Grade GPS, Plugger Survey, Handheld GPS coordinates, etc.)	A reference in the comments section should be made as to the type of GPS used for data capture.

BOUNDARY DATA from ENTITIES

2021 Methods	Definition	Supporting Information
GIS Parcel Data – City, County, State, or Federal	This method is typically used for boundary data from Entities for Non-stewardship easements. The parcel's boundary was downloaded by an Entity from GIS digital data taken from a City, County, State, or Federal GIS Department.	Add the name of the source and/or website in the comments.
GIS Parcel Data – Other	This method is typically used for boundary data from Entities for Non-stewardship easements. This parcel's boundary was provided by the Entity from a non-government source, not from a Licensed Professional Surveyor.	Add the name of the source and/or website in the comments.

Please note for new 2021 Methods: All newly closed easements and re-establishment surveys with surveys conducted by a professional licensed land surveyor will have a new 2021 Method of "Legal Survey - Survey Grade GPS or State Plane Coordinates." All easement boundary corrections and easement boundaries from an Entity will have the 2021 Method provided.

HEADS UP DIGITIZED (Non-COGO)

2021 Methods	Definition	Supporting Information
Imagery - DOQQ	The parcel's boundary has been digitized by hand using 1:24,000 scale imagery.	The vintage or currency of the imagery should be provided in the comments section.

Imagery - NAIP	The parcel's boundary has been digitized by hand using the best available NAIP imagery.	The vintage or currency of the imagery should be provided in the comments section.
Imagery – Other Hi RES	The parcel's boundary has been digitized by hand using another imagery source.	The vintage or currency of the imagery should be provided in the comments section.
Scale	No longer required	
Comment	Add notes.	
Data Entry User	Enter your name.	
Data Entry Date	Fill in this Date	

A re-established survey/boundary is one that has been conducted to delineate and/or correct an existing survey or that has been conducted to establish a legal survey when a prior survey has not been conducted.

The Process and Attribution of ProTracts ACEP-ALE and CDAA easements will follow the similar upload process as NEST recorded easements with the exception of the NEST point match. The edit session will be conducted in the NonSteward_Matched feature class. Attribution will be manually entered as follows:

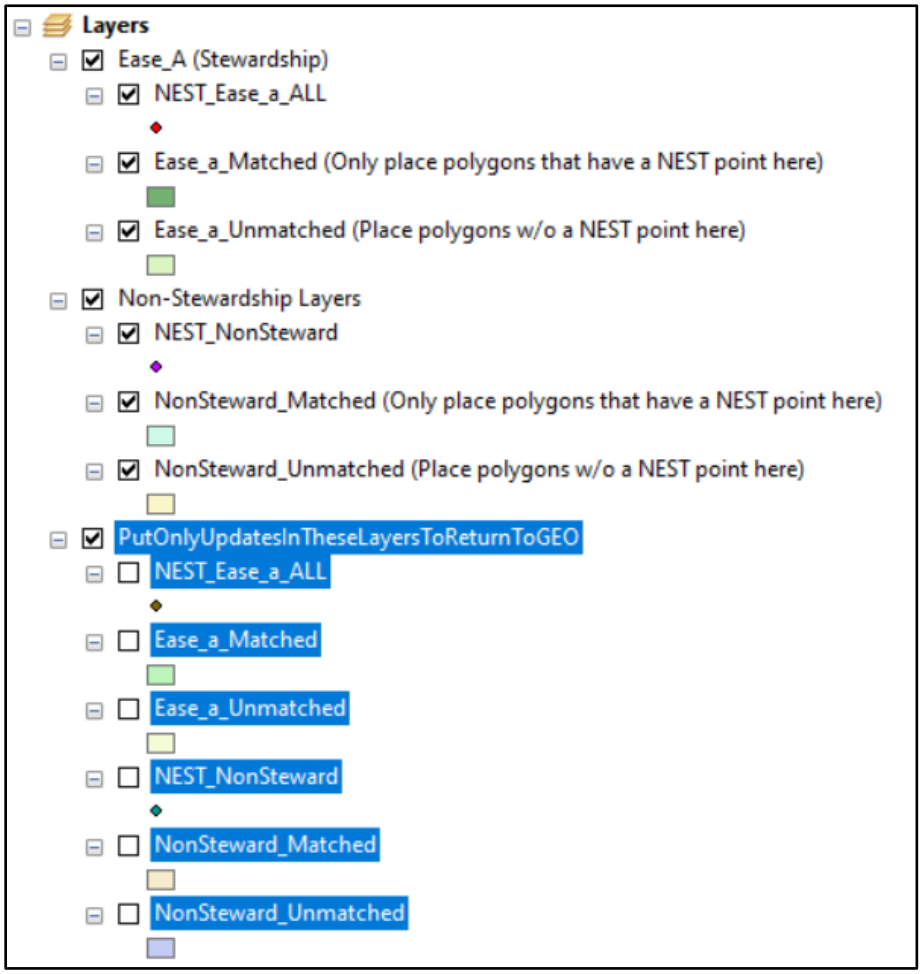
For Protracts and CDAA Easements Only:
Admin_Area
New_Agree_Number (Please use the Protracts_ProgramAgreeNum or the CD_Agreement_Nbr)
2021 Method
Comment (Please enter: PROTRACTS or CDAA – Not NEST Matched)
DataEntryUser (name of the person creating/modifying the easement that gets sent to GEO, Fort Worth)
DataEntryDate (date the spatial boundary is entered into the easement database)
Protracts_ProgramAgreeNum (ProTracts easements only)
Protracts_ParcelContractNum (ProTracts easements only)
Protracts_Acres (ProTracts easements only)
CDAA_Program_Agreement_Nbr (CDAA easements only)
CDAA_Agreement_Nbr (CDAA easements only)
CDAA_Acres (CDAA easements only, use easement closed acres)
State
County
Program
Closing Date

Please ensure the correct number of parcels listed under the Program Agreement Number are correctly recorded with the correct Parcel Contract Number or CD Agreement Number. For instance, there may be five Parcel Contract Numbers or CD Agreement Numbers under one Program Agreement Number. The Parcel Contract Number or CD Agreement Number is similar to the NEST parcel ID, it is the ID number that easement specific information, such as boundaries, funds and acres, are listed under.

Topology Check

Please perform Topology checks prior to each check-in. The Topology rules are set to check for "No Polygon Overlaps." To avoid the possibility of corrupting correct easement boundary data, if overlaps are found between new boundaries being submitted and existing NEG boundaries, please do not attempt to move vertices to correct overlaps. EPD ended the need to make corrections based on "No Overlap" topology rule. Correcting overlaps will require further investigation and proper due diligence of land records to correct overlaps. Any corrections/updates required for NEG boundaries will need a Program Activity Management System (PAMS) ticket request submitted for "Geospatial Boundary Modification Assistance." Boundaries updated/corrected through a PAMS ticket and submitted to the NEG will require the easement ID number, PAMS# and Completed Status emailed to Laura Davenport for acceptance into the NEG with the check-in data. Conservation planning in CD can continue with overlapping easement boundaries in the NEG.

MOST Importantly when updating your checkout, any new or modified/updated polygons (geometry and/or attributes) must be copied in to the **"ReturnToGEO.gdb"** layers (see those highlighted in Blue in the graphic below), which is the only file geodatabase that you need to return to the Fort Worth GEO office.



You have now completed the process and can submit your checkout "ReturnToGEO.gdb" to GEO, Fort Worth, for aggregation into the main database. Please be sure to return your checkout for processing before the due date. Checkouts expire at the close of the quarter and must be submitted before the expiration date.

Additional Training Materials

ESRI Virtual Campus

The ESRI Virtual Campus training provides a high-quality learning experience using online-interactive exercises, examples, and instructional resources to create a rich learning environment.

These courses are available at no cost. The courses teach a variety of topics related to ESRI software, the theory underlying GIS technology, and the application of GIS tools in particular fields. Some Web courses include downloadable trial editions of ESRI software. View the list of courses (http://training.esri.com/gateway/index.cfm?fa=aul.premiumCourses).

For ordering information please go to the ESRI Virtual Campus Training web page, or https://usdagcc.sharepoint.com/sites/FPAC-NRCS-GIS/SitePages/NRCS-Training.aspx .