September 7, 2016

IOWA INSTRUCTION 190-396 – TECHNICAL AND FINANCIAL ASSISTANCE FOR MANURE MANAGEMENT FOR AN ANIMAL FEEDING OPERATION AND THE ASSOCIATED LAND APPLICATION OF MANURE THROUGH A COMPREHENSIVE NUTRIENT MANAGEMENT PLAN (CNMP)

IA396.0 PURPOSE

This Iowa Instruction provides guidance on technical and financial assistance for manure management for an Animal Feeding Operation (AFO) and the associated land application of manure through a Comprehensive Nutrient Management Plan (CNMP). The guidance provides specific procedures, roles and responsibilities, and administrative and technical checklists to be used when Technical Service Providers are brought into the conservation planning process using the *CAP (102) Comprehensive Nutrient Management Plan* or *CAP (104) Nutrient Management Plan* Conservation Activity Plan.

IA396.1 SCOPE

This Iowa Instruction provides procedures, tools, and programmatic guidance for the conservation planning process for a farmstead site involving an animal feeding operation and the associated crop and other land receiving manure and other livestock nutrients in which a Comprehensive Nutrient Management Plan (CNMP) is required to address the resource concerns.

IA396.2 FILING INSTRUCTIONS

This Iowa Instruction will be posted on the Iowa NRCS Employee Website, which can be accessed under the Topics/People/NRCS Employees/Iowa NRCS eDirective, or at this link Iowa NRCS eDirectives website.

IA396.3 EXHIBITS

See attachment.

/s/
Kurt Simon
State Conservationist

Attachment

E

Natural Resources Conservation Service
210 Walnut Street, Room 693
Des Moines, IA 50309-2180
Voice (515) 284-4370 – FAX (855) 261-3544
An Equal Opportunity Provider and Employer

Part 396 – Technical and Financial Assistance for Manure Management for an Animal Feeding Operation and the Associated Land Application of Manure through a Comprehensive Nutrient Management Plan (CNMP)

Table of Contents

Subpart A – Purpose

IA396.0 Purpose

Subpart B – Exhibits

IA396.10 Instructions for Planning Animal Waste Management Systems

IA396.11 Process Step Table for a Conservation Plan which includes a CAP 102 Comprehensive Nutrient Management Plan Component

IA396.12 Process Step Table for a Conservation Plan which includes a Comprehensive Nutrient Management Plan Component and involving a CAP 104 Nutrient Management Plan

IA396.13 Roles Responsibilities & Agendas for CNMP using CAP 102

IA396.14 Roles Responsibilities & Agendas for CNMP using CAP 104

IA396.15 CAP 102 Comprehensive Nutrient Management Plan Administrative Checklist

IA396.16 CAP 104 Nutrient Management Plan Administrative Checklist

IA396.17 Statement of Work Comprehensive Nutrient Management Plan Iowa (Use for the CAP 102 Technical Review)

IA396.18 Statement of Work Nutrient Management Plan Iowa (Use for the CAP 104 Technical Review)

IA396.19 IA-ENG-48 Data Inventory for Planning Livestock Waste Management Systems

IA396.20 Exhibit K - Comprehensive Nutrient Management Plan Criteria Practice Activity Code

IA396.21 Exhibit L - Nutrient Management Conservation Activity Plan Criteria - Practice/Activity Code

Part 396 – Technical and Financial Assistance for Manure Management for an Animal Feeding Operation and the Associated Land Application of Manure through a Comprehensive Nutrient Management Plan (CNMP)

Subpart A - Purpose

IA396.0 Purpose

This Iowa Instruction provides guidance on technical and financial assistance for manure management for an Animal Feeding Operation (AFO) and the associated land application of manure through a Comprehensive Nutrient Management Plan (CNMP). The guidance provides specific procedures, roles and responsibilities, and administrative and technical checklists to be used when Technical Service Providers are brought into the conservation planning process using the *CAP (102) Comprehensive Nutrient Management Plan* or *CAP (104) Nutrient Management Plan* Conservation Activity Plan.

Part 396 – Technical and Financial Assistance for Manure Management for an Animal Feeding Operation and the Associated Land Application of Manure through a Comprehensive Nutrient Management Plan (CNMP)

Subpart B – Exhibits

IA396.10 Exhibit A - Instructions for Planning Animal Waste Management Systems

IA396.11 Exhibit B - Process Step Table for a Conservation Plan which includes a CAP 102 Comprehensive Nutrient Management Plan Component

IA396.12 Exhibit C - Process Step Table for a Conservation Plan which includes a Comprehensive Nutrient Management Plan Component and involving a CAP 104 Nutrient Management Plan

IA396.14 Exhibit D - Roles Responsibilities & Agendas for CNMP using CAP 102

- Roles and Responsibilities for Technical Assistance to USDA Program Participants for Conservation Activity Plan (CAP) 102
- CNMP Pre-Planning Meeting Agenda for a CAP 102
- CNMP Mid-Planning Meeting Agenda for a CAP 102

IA396.15 Exhibit E - Roles Responsibilities & Agendas for CNMP using CAP 104

- Roles and Responsibilities for Technical Assistance to USDA Program Participants for CAP 104 Nutrient Management Plan (Element of a CNMP)
- CNMP Pre-Planning Meeting Agenda for CAP 104 Nutrient Management Plan (Element of a CNMP)
- CNMP Mid-Planning Meeting Agenda for CAP 104 Nutrient Management Plan (Element of a CNMP)

IA396.15 Exhibit F - CAP 102 Comprehensive Nutrient Management Plan Administrative Checklist

IA396.16 Exhibit G - CAP 104 Nutrient Management Plan Administrative Checklist

IA396.17 Exhibit H - Statement of Work Comprehensive Nutrient Management Plan Iowa (Use for the CAP 102 Technical Review)

IA396.18 Exhibit I - Statement of Work Nutrient Management Plan Iowa (Use for the CAP 104 Technical Review)

IA396.19 Exhibit J - IA-ENG-48 Data Inventory for Planning Livestock Waste Management Systems

These exhibits will be updated periodically in response to field testing and suggestions, when the new national CNMP format is released, and to reflect

changes in the Conservation Activity Plan criteria. Please contact the State Nutrient Management Specialist, State Environmental Engineer, and/or the State EQIP Coordinator with concerns and suggestions. The current version will be located on the Iowa NRCS Manure Management website (http://www.nrcs.usda.gov/wps/portal/nrcs/site/ia/home/ > Topics > Technical Resources > Ecological Sciences > Manure Management).

IA396.20 Exhibit K - Comprehensive Nutrient Management Plan Criteria Practice Activity Code (102)

IA396.21 Exhibit L - Nutrient Management Conservation Activity Plan Criteria - Practice/Activity Code (104)

Instructions for Planning Animal Waste Management Systems

This instruction covers the planning for animal waste management systems from initial contact with producer, development of comprehensive nutrient management plans (CNMP or CAP 102) or nutrient management plans (NMP or CAP 104), and through implementation of animal waste management practice(s).

General Planning

Planning for animal waste management systems starts when a producer makes the initial contact with the field office with an expressed interest in an animal waste management system. The field office shall, at this time and beyond, keep a record of the producer's planning for animal waste management on the Data Inventory for Planning Livestock Waste Management Systems (ENG – 48) form and in any other appropriate place in the producer's file (i.e. conservation planning assistance notes).

As part of the planning process, a determination of the animal capacity (herd or animal unit (AU) quantity) of the site will need to be made. Using conversations with the producer, available production records, sizes of lots or buildings, etc. determine the typical or average herd or animal unit capacity of the animal feeding operation. If a producer intermittently stocks animal feeding operation, determine the typical or average herd or animal unit capacity based on the capacity when the facility is stocked.

For existing animal feeding operations, manure sampling results shall be used to provide information regarding manure nutrient quantities and manure production records be used to determine manure production quantities, if available. For new facilities, data from facilities that have the same characteristics of the new facility (management, feed, structural, etc.) can be used. If this information is not available then the Animal Waste Management Field Handbook (AWMFH) Chapter 4 – Agricultural Waste Characteristics, most current version, shall be used to calculate animal waste and nutrient generation quantities. Other references will not be used unless values are not available from the AWMFH Chapter 4 reference. Contact the NRCS Area Engineer for guidance when dealing with situations not described in AWMFH Chapter 4.

Comprehensive Nutrient Management Planning

Recent releases of policy have provided the following guidance concerning when a CNMP is required. The two policies from the General Manual and EQIP are noted below:

EQIP Manual (440-515, First Ed., Amend. 92, Feb. 2015) 515.80(C)(4)

(4) If an EQIP schedule of operations includes animal waste storage or treatment facility on an animal feeding operation (AFO), the participant must develop and provide a copy of a NRCS approved comprehensive nutrient management plan (CNMP) prior to implementation of any waste storage and handling facility or nutrient management activities. This includes any conservation practice planned for an AFO associated with storing, treating, application, or handling (transfer) of animal waste or organic byproducts, such as animal carcasses.

> *(i) The requirement for development of a CNMP only applies to an AFO operation where animals are kept and raised in confined situations. As defined in EQIP regulations, AFOs congregate animals, feed, manure, dead animals, and production operations on a small land area. Feed is brought to the animals rather than the animals grazing or otherwise seeking feed in pastures,*

field, or on rangeland. An AFO is a lot or facility (other than an aquatic animal production facility) where both of the following conditions are met:

- *Animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period.*
- *Crops, vegetation, forage growth, or postharvest residues are not sustained in the normal growing season over any portion of the lot or facility.*

(ii) Implementation of all practices cited in the CNMP is required by the end of the contract period, regardless of financial assistance provided. This requirement is established in program statute, regulation and may not be waived.

GM (190-405-GM, 1st Ed., Amend. 31, Oct 2015) 405.10.B

B. Prepare a CNMP when NRCS or NRCS-designated agents are providing technical or financial assistance to an AFO/CAFO to address manure or wastewater handling and storage, treatment, and nutrient management that involves the application of manure and wastewater associated with the AFO/CAFO. Note: A CNMP is not required for an operation that applies manure or wastewater as a nutrient source and has no livestock or manure storage facilities (permanent or short-term). Once developed, the producer must sign the CNMP before the installation of any waste storage handling facilities and initiation of any nutrient management activities identified in the CNMP.

The purpose of this section is to further clarify the situations where a CNMP or NMP is required.

A CNMP is required before the implementation of the following practices without any exceptions:

313 – Waste Storage Facility
317 – Composting Facility
359 – Waste Treatment Lagoon
366 – Anaerobic Digester
629 – Waste Treatment
632 – Waste Separation Facility
634 – Waste Transfer
635 – Vegetated Treatment Area
591 – Amendments for the Treatment of Agricultural Waste
520/522 - Pond Sealing or Lining, Compacted Soil Treatment/Concrete

A CNMP is required for the following practices only if one or more of the practices previously listed are being implemented concurrently:

367 – Roofs and Covers
533 – Pumping Plant
561 – Heavy Use Area Protection
558 – Roof Runoff Management

A CNMP or nutrient management plan is required for the following practices (on a standalone basis) when sufficient quantities of agricultural waste is generated.

360 – Waste Storage Closure – An engineering plan meeting the statement of work requirements for 360 is required along with a nutrient management plan accounting for all of the waste materials in the facility to be closed.

367 – Roofs and Covers – A CNMP is required when the practice is used to close open feedlots for conversion to confinement (building).

561 – Heavy Use Area Protection – A Nutrient Management Plan (NMP) is required for all winter feeding stations along with a grazing management plan. A CNMP is required for situations where sufficient quantities of manure, etc. would accumulate on the heavy use area and require disposal. Determination of these situations will be completed by the Area Engineer/Area Resource Conservationist with consultation of state office staff, as appropriate.

316 – Animal Mortality Facility - CNMP is required for situations where windrow composting is utilized or for a site servicing more than 1,000 live animal units. A nutrient management plan detailing how the animal mortality waste is to be disposed of is required in all other cases.

The facility has a CNMP from a previous practice implementation and practices not included in original CNMP are proposed to be implemented – what to do.

The producer/operator is required to update or create a new CNMP to account for the new practice(s) and /or change(s) to the operation that have occurred since the implementation of the original CNMP. The exception to this guidance are practices/situations such as 360 – Waste Storage Closure and 316 – Animal Mortality Facility that fall into the "*A CNMP or nutrient management plan is required for the following practices (on a standalone basis) when sufficient quantities of agricultural waste is generated.*" section.

Operations proposing expansion or new facilities – what to do.

If a producer is proposing an expansion of an existing facility with a CNMP or a new facility then only technical assistance can be provided for addressing potential resource concerns. Financial assistance will not be provided in these cases. A facility that is proposing expansion and has not ever had a CNMP completed may receive technical and financial assistance to complete a CNMP to address resource concerns.

How does one determine the number of CNMP's that can be written for a producer – see following guidance:

A CNMP shall be developed to include all portions of the operation the producer controls and are included in their conservation plan. This includes all noncontiguous locations regardless of distance(s) between the fields or farmsteads. Exception to this would be a producer who controls several

noncontiguous locations (fields or farmsteads) which have different conservation plans, resource concerns, and operated in a matter that is substantially different for each or groupings within the noncontiguous locations.

Financial Assistance for the completion of a CNMP:

Where Financial Assistance is being provided to the applicant for the completion of a CNMP. Applications for the associated practices that are part of the CNMP will remain in "**Pending**" status in ProTracts until the CNMP is completed. Once the CNMP is completed applications for Financial Assistance for the associated agricultural waste management practice (e.g. 313 – Waste Storage Facility) and other supporting practices, when all other eligibility criteria are met, may be moved to "**Eligible**" in ProTracts to consider for funding.

Animal Waste Management Practice Planning

If the identified Resource Concern from conservation planning is runoff from an open feedlot. **Prior to payment of Financial Assistance for a 313 Waste Storage Facility and/or 367 – Roofs and Covers, elimination of the open feedlot which shall be closed, except for pens needed for handling facilities or pen(s) for sick animals, for the life span of the practice is required.** This includes removal of feedlot fences, feeding facilities and watering facilities and the area(s) shall be vegetated. This is the final part of treating the identified Resource Concern.

Open lot (pens) for handling or for sick animals shall be less than 10% of the 313 - Waste Storage Facility or 367 – Roofs and Covers area, whichever is larger. The remaining open lot areas, including sick pens, etc., shall also be treated to prevent runoff prior to payment of financial assistance for 313 Waste Storage Facility.

Operations utilizing open lots in conjunction with pasture (i.e. cow/calf operations) are not eligible for unless lots are closed according to the guidance in the previous two paragraphs and the animals must be confined year around. If the operation wants to continue to use pasture as part of the livestock operation then a grazing management plan and applicable grazing practices are to be applied.

The Heavy Use Area Protection practice is intended to be applied to areas that need to be protected from animal traffic and to facilitate the collection and removal of manure. For areas with resource concerns derived from vehicular traffic, for example a road to access a winter feeding station, use other practice(s), such as Access Road to remedy the resource concern(s). Lanes for feed alleys outside of livestock pens and/or livestock housing are not eligible for assistance.

Process Step Table for a Conservation Plan which includes a CAP 102 Comprehensive Nutrient Management Plan Component

Purpose: Provide technical assistance so clients can manage their manure resources, soil fertility, water quality, and air quality.
Scope: Where animal feeding operation manure storage facilities are being planned.

Step	Responsibility	Inputs	Control	Output/Deliverables
Action	Possible responsible position (s)	Items needed to complete the step (forms, tools, people, etc)	Practice Standard, Policy, Regulations	Completed object, form, reviewable product, or demonstrated policy
Initial contact leading to conservation planning, gathering of personal information, and determination of others to include on the Planning Team.	• Client • Field Office Certified Conservation Planner (CCP)	• Address, phone, e-mail, fax, cell phone, and contact times • SCIMS database	• General Manual (GM) 180 and the Iowa Amendments • National Planning Procedures Handbook (NPPH) 600.13 • GM 130, IA Amend. 4	• Appointment made to begin conservation planning process • Client identity and record in database in Toolkit
Review of complexity of resources in the planning area and expected enterprise type. Assemble resource data pertaining to planning area.	• CCP	• Files, Toolkit, GIS, Soil Data Mart, Field Office Technical Guide (FOTG) • <surface water bodies input source> • <impaired water body source> • <ground water susceptibility>	• GM 180 and the Iowa Amendments • NPPH 600.6 • Nutrient Management (590)Conservation Planning Standard (CPS)	• Aerial site photographs and/or planning map • Property/field boundaries • FSA track & field numbers • Soil map with features and legend • Nearby surface water bodies, impaired water bodies, public wells, private wells, etc. • Initiated or updated Conservation Assistance Notes IA-CPA-15
PHASE 1. Collection and Analysis				
1. Identify Problems and Opportunities – Identify existing resource problems and concerns and potential opportunities in the planning area during an in-field visit and client interview.	• Client • CCP	• IA-CPA-15 • Planning map • Soil map with legend, data, and information layers • Vehicle • Biosecurity Kit • IA-ENG-48 Data Inventory for Planning Livestock Waste Management Systems • Crop Management Inventory Worksheets	• GM 180 • NPPH 600.21; 600.6 • GM 190 Parts 310 and 420 • Field Office Technical Guide (FOTG) Sections I-V • Discipline manuals and handbooks • IDNR <find citation> • EPA 404(B)(1) 230.3 • Utility companies • Client information	• Initial identification of resource problems and concerns

2. Determine client objectives at livestock site and field with client.	• Client • CCP • Technical Specialist	• List of identified resource concerns from Step 1	• GM 180 • NPPH 600.22	• Client's objectives clearly stated for inclusion in plan. • Copy objectives to Toolkit and IA-CPA-15
3. Inventory resources at farmstead. Optionally, inventory cropland and pasture where manure is applied. (This can also be done	• Client • CCP • Technical Specialists (Agronomist; nutrient management specialist; engineer; archeologist; forester; other specialists, and tools/models as needed)	• FOTG Section III, Screening and Assessment Tools • IA-ENG-48 Data Inventory for Planning Livestock Waste Management Systems • Crop Management Inventory Worksheets • Data Collection Worksheet for RUSLE2 and Iowa Phosphorous Index (ISU Extension, 11/2006) • Measurements and model runs • Planning Team	• GM 180 • NPPH 600.23 • <additional nutrient specific?>	• Benchmarks determined for each resource concern. • Notes on IA-CPA-15 • Completed Crop Management Inventory, IA-ENG-48 Data Inventory, RUSLE2 and P-Index Inventory and additional screening and assessment tool inventories as required.
4. Analyze resource data.	• CCP • Technical Specialists	• Client's objectives • identified problems • opportunities and concerns • Completed Crop Management Inventory, IA-ENG-48 Data Inventory, RUSLE2 and P-Index Inventory and additional screening and assessment tool inventories as required • RUSLE2 outputs • Wind Erosion Prediction System (WEPS) outputs (if required) • WinPST outputs (optional) • Iowa Phosphorus Index outputs (optional?) • Local and/or state regulations and policies	• GM 180 • NPPH 600.24 • FOTG Section III, Planning Criteria	• Completed analysis of all resources inventoried • RUSLE2 and/or WEPS report. • Iowa Phosphorus Index Report • Leaching Index (under consideration) • A clear statement of the benchmark condition • Environmental evaluation data • Cultural resources evaluation data • Notes on IA-CPA-52 and any additional worksheets/forms
PHASE 2. Decision Support				
5. Formulate conservation practice alternatives.	• Client • CCP	• Client's objectives; physical, cultural, social, economic and ecological resource information	• GM 180 • NPPH 600.25	• Alternatives available to client. At least one alternative must meet Resource Management System criteria

	• Technical Specialist	• List of resource problems, opportunities and concerns; FOTG III Conservation System Guide(s) (CSGs) and Conservation System(s) • FOTG IV • Conservation Practice Physical Effects (CPPE) • Economic tools	• Resource Management System planning tool • Statements of Work (SOWs) • 590 Nutrient Management (CPS) • Other CPS	• CPPE and analysis to determine impacts on resource concerns and potential unintended impacts
6. Evaluate conservation practice alternatives.	• Client • CCP • Technical Specialist	• Alternatives available to client: • CPPE data, environmental and cultural resource evaluation; • Program information and requirements; • Benchmark data; • Phosphorus Index alternatives • Field and farm production data • Technical Notes, and • Program Manuals • NRCS-CPA-52	• GM 180; NPPH 600.26 • FOTG Section IV SOWs • FOTG I, II, III, CSGs, and Conservation Systems • Conservation Practice Physical Effects, System Effects Diagrams •	• Discussion with client alternatives compatible with client and NRCS objectives • Effects and impact evaluation for client of alternatives; notes to document discussion and decision and/or lack of decision – documented on IA-CPA-15 • Completed NRCS-CPA-52 and any additional worksheets/forms
7. Client makes decisions.	• Client • CCP • Technical Specialist	• Resource Inventory data; Evaluated alternatives; CSG(s); Conservation System(s); conservation effects and impacts information; SOWs • RMS alternatives compatible with client and NRCS objectives; effects and impact evaluation for client of alternatives; notes to document discussion and decision and/or lack of decision - follow-up data • GM 190 • FOTG V • Planning Team • Planners Time	• GM 180 • NPPH 600.27 • GM 190 Toolkit • Performance Results System (PRS)	• IA-CPA-15 - documents client's decision • **Decision to build an animal feeding operation** • **Decision to develop Comprehensive Nutrient Management Plan** • Signed NRCS-CPA-52 • Signed Record of Decisions • Toolkit documentation • PRS populated

		• Iowa State University Technical Guides.		
Comprehensive Nutrient Management Plan Component Plan Development				
CNMP Pre-Planning Meeting	• Client • CCP • TSP (this is the first point the TSP becomes involved) • Technical Specialist	• Client objectives including size of AFO agreed upon • Plan period of CNMP • Completed Crop Management Inventory, IA-ENG-48 Data Inventory, RUSLE2 and P-Index Inventory and additional screening and assessment tool inventories as required • Resource concerns identified • Farmstead conservation plan • Cropland conservation plan • Practice O&M requirements (as required) • RUSLE2 and Iowa P-Index reports (if completed) • Critical elements of CNMP • CNMP references • CNMP Roles and Responsibilities • CNMP quality expectations	• GM 180 • NPPH 600.25 • CNMP policy • Nutrient Management (590) standard • Waste Storage Facility (313) or other appropriate standard • Other appropriate conservation practice standards	• Clear understanding of the CNMP planning process and expectations of each participant
CNMP 1-4. Phase I Collection and Analysis review	• Client • TSP	• All of the above • FOTG Section III, Screening and Assessment Tools • <need to add more>	• All of the above	• Water quality sensitive areas inventory field inventory • Manure nutrient inventory • Farmstead water quality inventory • Farmstead air quality inventory
CNMP 5. Formulate Alternatives to address water, soil, and air resource concerns	• Client • TSP	• All of the above	• All of the above	• Farmstead conservation plan • Cropland nutrient management plan
CNMP 6. Evaluate Alternatives Comprehensive Nutrient Management Plan Mid-Planning Meeting	• Client • TSP • CCP • Technical Specialist	• Alternatives available to client • CPPE data, environmental and cultural resource evaluation;	• All of the above	• Completed CNMP Mid-planning Meeting Agenda

		• Program information and requirements; • Benchmark data; • Phosphorus Index alternatives • Field and farm production data • Technical Notes, and • Program Manuals • NRCS-CPA-52		• Completed environmental evaluation of the conservation alternatives documented on the NRCS-CPA-52
CNMP 7. Make decision on CNMP	• Client • TSP (last step TSP is likely involved) • CCP • Technical Specialist	• All of the above	• All of the above	• Signed NRCS-CPA-52 (if revision is required) • Comprehensive Nutrient Management Plan signed by Planner/SWCD/Operator • Signed Record of Decisions (if revision is required) • Toolkit documentation • PRS populated
Can end here or owner may decide to install the animal feeding operation and move to implementation				
PHASE 3. Application and Evaluation				
8. Plan Implementation.	• Client • Contractor • TSP (rarely) • CCP • Technical Specialist	• Conservation Plan; Toolkit, Agronomic and Engineering Practice Process Step Tables; Landowner decisions; Technical Notes; CPS Criteria, Plans and Specifications, and Operation and Maintenance; SOW's; Job Sheets; and Standard Drawings and Specifications.	• GM 180 • GM 190 • NPPH 600.28 • FOTG IV - Standard, SOWs	• Plan implemented and documentation completed as required by the Agronomic and Engineering Practice Process Step Tables • Conservation practices installed to NRCS standards and specifications. Operations and maintenance including records are current. • PRS populated
9. Plan Evaluation.	• Client • TSP • CCP • Technical Specialist • District Conservationist • Area Resource Conservationist	• Conservation Plan, PRS, Case File, Agronomic and Engineering Practice Process Step Tables, and in-field • Check out notes and other background/design information • FOTG Section IV	• GM 180 • GM 190 • NPPH 600.29 • NEH • NEM	• Documentation on IA-CPA-15 that the plan met the objectives of NRCS and the client • If plan revision needed return to appropriate conservation planning step • Spot check form(s) filled out

Unfinished:

- Need to recheck the controls. Make as specific as possible (chapters cited, not entire manuals)
- Check if the proper NMP controls are in and priorities set and provide links
- I may be able to pull from or cite some of the process step tables others in the section are working on, especially for NEPA, cultural resources.
- Need to look at the checklists far more in depth to make sure haven't missed something. Review Michigan's checklist for ideas.
- Look into using this or a derivation of this as the Statement of Work and the checklist in place of the SOW Deliverables
- Think about how to use the CPPE (it was not specifically cited in the original and is often underutilized)
- Re-think process, think how a person will be doing this step-wise in the field. Make it useful as a roadmap to do this work.
- Create a subset of this for a nutrient management plan.

Process Step Table for a Conservation Plan which includes a Comprehensive Nutrient Management Plan Component

and involving a CAP 104 Nutrient Management Plan

Purpose: Provide technical assistance so clients can manage their manure resources, soil fertility, water quality, and air quality.
Scope: Where animal feeding operation manure storage facilities are planned.

Step	Responsibility	Inputs	Control	Output/Deliverables
Action	Possible responsible position (s)	Items needed to complete the step (forms, tools, people, etc)	Practice Standard, Policy, Regulations	Completed object, form, reviewable product, or demonstrated policy
Initial contact leading to conservation planning, gathering of personal information, and determination of others to include on the Planning Team.	• Client • Field Office Certified Conservation Planner (CCP)	• Address, phone, e-mail, fax, cell phone, and contact times • SCIMS database	• General Manual (GM) 180 and the Iowa Amendments • National Planning Procedures Handbook (NPPH) 600.13 • GM 130, IA Amend. 4	• Appointment made to begin conservation planning process • Client identity and record in database in Toolkit
Review of complexity of resources in the planning area and expected enterprise type. Assemble resource data pertaining to planning area.	• CCP	• Files, Toolkit, GIS, Soil Data Mart, Field Office Technical Guide (FOTG) • <surface water bodies input source> • <impaired water body source> • <ground water susceptibility>	• GM 180 and the Iowa Amendments • NPPH 600.6 • Nutrient Management (590)Conservation Planning Standard (CPS)	• Aerial site photographs and/or planning map • Property/field boundaries • FSA track & field numbers • Soil map with features and legend • Nearby surface water bodies, impaired water bodies, public wells, private wells, etc. • Initiated or updated Conservation Assistance Notes IA-CPA-15
PHASE 1. Collection and Analysis				
1. Identify Problems and Opportunities – Identify existing resource problems and concerns and potential opportunities in the planning area during an in-field visit and client interview.	• Client • CCP	• IA-CPA-15 • Planning map • Soil map with legend, data, and information layers • Vehicle • Biosecurity Kit	• GM 180 • NPPH 600.21; 600.6 • GM 190 Parts 310 and 420 • Field Office Technical Guide (FOTG) Sections I-V • Discipline manuals and handbooks • IDNR <find citation> • EPA 404(B)(1) 230.3 • Utility companies • Client information	• Initial identification of resource problems and concerns

2. Determine client objectives at livestock site and field with client.	• Client • CCP • Technical Specialist	• List of identified resource concerns from Step 1	• GM 180 • NPPH 600.22	• Client's objectives clearly stated for inclusion in plan. • Copy objectives to Toolkit and IA-CPA-15
3. Inventory resources at farmstead and cropland and pasture where manure is applied.	• Client • CCP • Technical Specialists (Agronomist; nutrient management specialist; engineer; archeologist; forester; other specialists, and tools/models as needed)	• FOTG Section III, Screening and Assessment Tools • IA-ENG-48 Data Inventory for Planning Livestock Waste Management Systems • Crop Management Inventory Worksheets • Data Collection Worksheet for RUSLE2 and Iowa Phosphorous Index (ISU Extension, 11/2006) • Measurements and model runs • Planning Team	• GM 180 • NPPH 600.23 • <additional nutrient specific?>	• Benchmarks determined for each resource concern. • Notes on IA-CPA-15 • Completed Crop Management Inventory, IA-ENG-48 Data Inventory, RUSLE2 and P-Index Inventory and additional screening and assessment tool inventories as required.
4. Analyze resource data.	• CCP • Technical Specialists	• Client's objectives • identified problems • opportunities and concerns • Completed Crop Management Inventory, IA-ENG-48 Data Inventory, RUSLE2 and P-Index Inventory and additional screening and assessment tool inventories as required • RUSLE2 outputs • Wind Erosion Prediction System (WEPS) outputs (if required) • WinPST outputs (optional) • Iowa Phosphorus Index outputs (optional?) • Local and/or state regulations and policies	• GM 180 • NPPH 600.24 • FOTG Section III, Planning Criteria	• Completed analysis of all resources inventoried • RUSLE2 and/or WEPS report. • Iowa Phosphorus Index Report • Leaching Index (under consideration) • A clear statement of the benchmark condition • Environmental evaluation data • Cultural resources evaluation data • Notes on IA-CPA-52 and any additional worksheets/forms
PHASE 2. Decision Support				

5. Formulate conservation practice alternatives.	• Client • CCP • Technical Specialist	• Client's objectives; physical, cultural, social, economic and ecological resource information • List of resource problems, opportunities and concerns; FOTG III Conservation System Guide(s) (CSGs) and Conservation System(s) • FOTG IV • Conservation Practice Physical Effects (CPPE) • Economic tools	• GM 180 • NPPH 600.25 • Resource Management System planning tool • Statements of Work (SOWs) • 590 Nutrient Management (CPS) • Other CPS	• Alternatives available to client. At least one alternative must meet Resource Management System criteria • CPPE and analysis to determine impacts on resource concerns and potential unintended impacts
6. Evaluate conservation practice alternatives.	• Client • CCP • Technical Specialist	• Alternatives available to client: • CPPE data, environmental and cultural resource evaluation; • Program information and requirements; • Benchmark data; • Phosphorus Index alternatives • Field and farm production data • Technical Notes, and • Program Manuals • NRCS-CPA-52	• GM 180; NPPH 600.26 • FOTG Section IV SOWs • FOTG I, II, III, CSGs, and Conservation Systems • Conservation Practice Physical Effects, System Effects Diagrams •	• Discussion with client alternatives compatible with client and NRCS objectives • Effects and impact evaluation for client of alternatives; notes to document discussion and decision and/or lack of decision – documented on IA-CPA-15 • Completed NRCS-CPA-52 and any additional worksheets/forms
7. Client makes decisions.	• Client • CCP • Technical Specialist	• Resource Inventory data; Evaluated alternatives; CSG(s); Conservation System(s); conservation effects and impacts information; SOWs • RMS alternatives compatible with client and NRCS objectives; effects and impact evaluation for client of alternatives; notes to document discussion and decision and/or lack of decision - follow-up data	• GM 180 • NPPH 600.27 • GM 190 Toolkit • Performance Results System (PRS)	• IA-CPA-15 - documents client's decision • **Decision to build an animal feeding operation** • **Decision to develop Comprehensive Nutrient Management Plan** • Signed NRCS-CPA-52 • Signed Record of Decisions • Toolkit documentation • PRS populated

		• GM 190 • FOTG V • Planning Team • Planners Time • Iowa State University Technical Guides.		
Comprehensive Nutrient Management Plan Component Plan Development				
CNMP Pre-Planning Meeting	• Client • NRCS Certified CNMP Planner (CCNMP) • TSP (this is the first point the TSP becomes involved) • Technical Specialist	• Client objectives including size of AFO agreed upon • Plan period of CNMP • Completed Crop Management Inventory, IA-ENG-48 Data Inventory, RUSLE2 and P-Index Inventory and additional screening and assessment tool inventories as required • Resource concerns identified • Farmstead conservation plan • Cropland conservation plan • Practice O&M requirements (as required) • RUSLE2 and Iowa P-Index reports (if completed) • Critical elements of CNMP • CNMP references • CNMP Roles and Responsibilities • CNMP quality expectations	• GM 180 • NPPH 600.25 • CNMP policy • Nutrient Management (590) standard • Waste Storage Facility (313) or other appropriate standard • Other appropriate conservation practice standards	• Clear understanding of the CNMP planning process and expectations of each participant
CNMP 1-4. Phase I Collection and Analysis review	• Client • CCNMP • TSP	• All of the above • FOTG Section III, Screening and Assessment Tools • <need to add more>	• All of the above	• Manure nutrient inventory and analysis • Farmstead water quality inventory and analysis • Farmstead air quality inventory and analysis • Water quality sensitive areas inventory

				• Update cropland agronomic inventory and analysis
CNMP 5. Formulate Alternatives to address water, soil, and air resource concerns	• Client • CCNMP • Technical Specialist • TSP	• All of the above • Inventories	• All of the above	• Farmstead conservation plan alternatives • Cropland conservation plan alternatives • Cropland nutrient management plan
CNMP 6. Evaluate Alternatives Comprehensive Nutrient Management Plan Mid-Planning Meeting	• Client • CCNMP • CCP • Technical Specialist • TSP	• Alternatives available to client • CPPE data, environmental and cultural resource evaluation; • Program information and requirements; • Benchmark data; • Phosphorus Index alternatives • Field and farm production data • Technical Notes, and • Program Manuals • NRCS-CPA-52	• All of the above	• Completed CNMP Mid-planning Meeting Agenda • Completed environmental evaluation of the conservation alternatives documented on the NRCS-CPA-52
CNMP 7. Make decision on CNMP	• Client • CCNMP • CCP • Technical Specialist • TSP (last step TSP is likely involved)	• All of the above	• All of the above	• Signed NRCS-CPA-52 (if revision is required) • Comprehensive Nutrient Management Plan signed by CCNMP/SWCD/Operator • Signed Record of Decisions (if revision is required) • Signed Nutrient Management Plan by TSP/Operator • Toolkit documentation • PRS populated
Can end here or owner may decide to install the animal feeding operation and move to implementation				
PHASE 3. Application and Evaluation				
8. Plan Implementation.	• Client • Contractor • TSP (rarely) • CCP • Technical Specialist	• Conservation Plan; Toolkit, Agronomic and Engineering Practice Process Step Tables; Landowner decisions; Technical Notes; CPS Criteria, Plans and	• GM 180 • GM 190 • NPPH 600.28 • FOTG IV - Standard, SOWs	• Plan implemented and documentation completed as required by the Agronomic and Engineering Practice Process Step Tables

		Specifications, and Operation and Maintenance; SOW's; Job Sheets; and Standard Drawings and Specifications.		• Conservation practices installed to NRCS standards and specifications. Operations and maintenance including records are current. • PRS populated
9. Plan Evaluation.	• Client • TSP • CCP • Technical Specialist • District Conservationist • Area Resource Conservationist	• Conservation Plan, PRS, Case File, Agronomic and Engineering Practice Process Step Tables, and in-field • Check out notes and other background/design information • FOTG Section IV	• GM 180 • GM 190 • NPPH 600.29 • NEH • NEM	• Documentation on IA-CPA-15 that the plan met the objectives of NRCS and the client • If plan revision needed return to appropriate conservation planning step • Spot check form(s) filled out

Unfinished:

- This was derived from the existing 9 steps to conservation planning. I'm not sure how dated the controls are, so they will need to be checked. They also need to be more specific in some cases (chapters cited, not entire manuals)
- Check if the proper NMP controls are in and priorities set and provide links
- I may be able to pull from or cite some of the process step tables others in the section are working on, especially for NEPA, cultural resources.
- Need to look at the checklists far more in depth to make sure haven't missed something. Review Michigan's checklist for ideas.
- Look into using this or a derivation of this as the Statement of Work and the checklist in place of the SOW Deliverables
- Think about how to use the CPPE (it was not specifically cited in the original and is often underutilized)
- Re-think process, think how a person will be doing this step-wise in the field. Make it useful as a roadmap to do this work.
- Create a subset of this for a nutrient management plan.

Comprehensive Nutrient Management Plan
ROLES AND RESPONSIBILITIES FOR TECHNICAL ASSISTANCE TO USDA PROGRAM PARTICIPANTS
for Conservation Activity Plan (CAP) 102

Use this document when the primary responsibility for developing a Comprehensive Nutrient Management Plan (CNMP) is taken on by a Technical Service Provider hired by the Program Participant using the Conservation Activity Plan (CAP) 102 CNMP program.

The Technical Service Provider (TSP) must be certified through TechReg (USDA Technical Service Provider Registry) in the CNMP Plan Approval or Conservation Activity Plan (CAP) 102 Category. *The USDA program participant hires a certified TSP and pays the TSP using EQIP funds at the Technical Service Payment Rate (TSPR) as determined in their USDA program contract (also known as Participant Selection Process).*

102 CNMP CONSERVATION ACTIVITY PLAN (CAP) – This practice is a one-time payment to the producer to hire a TSP to develop a Comprehensive Nutrient Management Plan (CNMP). The CNMP will provide practices to address the following:

1. Must include the following three components:
    a. Farmstead/animal feeding operation (production area), including the animal confinement, feed, and other raw materials storage areas, animal mortality facilities, and the manure handling containment or storage areas.
    b. The crop or other land receiving manure (land treatment area), including any land under control of the AFO owner or operator, whether it is owned, rented, or leased, and to which manure or process wastewater is, or might be, applied for crop, hay, pasture production, or other uses.
    c. Nutrient management plan
2. Meets Natural Resources Conservation Service (NRCS) planning criteria for soil, water, and air quality.
3. Complies with Federal, State, Tribal, and local laws, regulations, and permit requirements.
4. Satisfies the owner/operator's production objectives.

USDA PROGRAM PARTICIPANT - ROLES AND RESPONSIBILITIES

1. Notify the local NRCS office that a TSP will be used prior to employing their services.
2. Select a TSP from the certified list found at the following Web site: http://techreg.usda.gov/.
3. **Sign the NRCS-CPA-70 form authorizing the TSP access to case file information for planning or implementing the conservation practice.**
4. Provide a copy of the TSP roles and responsibilities to the selected TSP.
5. **Participate in the CNMP Pre-Planning Meeting, the CNMP Mid-Planning Meeting, and any other needed meetings with the NRCS representative and/or TSP to determine the program participant's goals and resource concerns, formulate conservation alternative, and make a decision on how to proceed.**
6. Allow Natural Resources Conservation Service (NRCS) employees/partners and TSP access to the planned farmstead and land receiving the manure.
7. Provide complete and accurate information to the TSP for development of the CNMP to NRCS standards and specifications. This includes, but is not limited to current soil nutrient tests, manure nutrient tests, planned crop rotations, livestock numbers, etc.
8. Ensure that the CNMP satisfies the participant's land treatment, production, and nutrient management objectives.
9. Accept full responsibility to negotiate and reach agreement on cost and terms of assistance with the TSP, including:
    a. Full responsibility for timely payment to the TSP and

   b. Full responsibility for any TSP costs, including costs for any plan revisions, which exceed the Technical Service Payment Rate (TSPR) in the USDA program contract.
10. Be prepared to obtain and comply with all permits required for CNMP implementation.
11. Provide, or have the TSP provide the servicing NRCS office, a hard copy and electronic copies of the applicable documentation required in the CNMP template.
12. Provide the servicing NRCS office copies of invoices received from TSP (including their TechReg Identification Number) for their services as requested.
13. Ensure corrective measures are taken if deficiencies are noted during quality reviews performed by NRCS.
14. Provide records as requested by NRCS to document the implementation of the CNMP.
15. **Assure that the CNMP is technically correct and accurately reflects the information provided to the TSP.**
16. **Understand the CNMP, how to implement it, how to operate and maintain (O&M) the plan, and the implementation schedule.**
17. **Understand that if he or she chooses to implement the CNMP, all parts of the plan will need to be completed by the end of the contract.**
18. Note: If the producer implements the CNMP, he or she is under no obligation to contract with the TSP retained for CNMP CAP.

TECHNICAL SERVICE PROVIDER - ROLES AND RESPONSIBILITIES

1. **Understand NRCS policies and procedures to complete a CNMP.**
2. **Participate in the pre-planning meeting with the program participant and the NRCS representative to determine the resource concerns and the program participant's goals**.
3. **With the program participant, organize and participate in the CNMP Mid-Planning Meeting with the NRCS representative**.
4. Sign the NRCS-CPA-70 form authorizing the TSP access to case file information for planning or implementing the conservation practice.
5. Conduct inventory and analysis necessary to develop the CNMP according to the National Planning Procedures Handbook or accept NRCS inventory and analysis information provided.
6. Prepare the CNMP in accordance with NRCS criteria along with any required standards and specifications.
7. Develop a list of practices needed to implement the CNMP, including the practice unit(s) and extent.
8. Provide information on necessary permits that may be required by the USDA program participant to meet all local, state or federal regulations.
9. Provide electronic and paper copies of approved project documentation to the servicing NRCS office and paper copies to the program participant.
10. The TSP planner will educate the USDA Participant how to use and implement the CNMP, to apply manure correctly, to understand key operations and maintenance such as sampling manure, interpretation of soil and manure analysis, and calibration and adjusting application equipment.
11. All information provided in the documents are as accurate as provided to the TSP from the USDA Participant.

NRCS FIELD OFFICE - ROLES AND RESPONSIBILITIES

1. Participate in the pre-planning meeting with the TSP and program participant.
2. **Sign the NRCS-CPA-70 form authorizing the TSP access to case file information for planning or implementing the conservation practice.**
3. Provide the pre-planning packet of information to the participant and the TSP or if they complete the pre-planning themselves, explain the expectations.
4. Provide and review the Role and Responsibilities documents with the program participant and TSP.

5. Complete the environmental evaluation and document on the Environmental Evaluation Worksheet (NRCS-CPA-52). The responsible Federal official (RFO) will be review and sign.
6. Maintain the Conservation Assistance Notes (NRCS-CPA-15) through process.
7. Maintain the program participant's case file, include technical service documentation provided by the TSP.
8. Provide the program participant copies of any existing case file records relevant to the technical assistance being provided by the TSP.
9. NRCS will bring any concerns regarding the CNMP development to the attention of the program participant and TSP.
10. NRCS has a contractual relationship with the program participant. **NRCS will not direct the work of the TSP.**
11. Report progress in the Performance Results System and indicate TSP assistance was utilized.
12. **Participate in the mid-planning meeting with the program participant and the TSP to determine the finalized resource concerns, alternatives and the program participant's goals. Complete and sign revised CPA-52 based on the completed process.**
13. Provide the USDA program participant and/or TSP access to copies of the NRCS standards, specifications, standard drawings, software, and other design aids used by the NRCS.
14. The Field Office or Area Office will complete the administrative review of the CNMP on the appropriate administrative review form and record the name of the TSP associated with the contract.
15. Conduct technical review, as appropriate, of the CNMP and documentation received from the USDA program participant.
    a. The Area Office or State Office will conduct technical spot-check quality reviews of a minimum of the first two plans by a new TSP and 5% of a TSP's CNMPs annually.

I have read and understand the responsibilities indicated above. Initial and date.

_____ _____
Program Participant Date

_____ _____
TSP Date

_____ _____
Designated Conservationist Date

Comprehensive Nutrient Management Plan
PRE-PLANNING MEETING AGENDA
for a Conservation Activity Plan (CAP) 102

Purpose: Establish the roles and responsibilities of the NRCS, TSP, the participant, and others in the CNMP planning process. Document the pre-planning meeting on the CPA-15 and keep this checklist in the participant case file.

Who Organizes: NRCS staff after participant informs them of the TSP they have hired

Who: The following individuals should attend the pre-planning meeting (checked are required):

Should Attend	Title	Person	Attended or Not Available
☒	Participant	_____	☐ Attended ☐Not Available
☒	CNMP Developer	_____	☐Attended ☐Not Available
☐	Engineer	_____	☐Attended ☐Not Available
☒	NRCS Staff	_____	☐Attended ☐Not Available
☐	Other	_____	☐Attended ☐Not Available

Meeting Date/Time: _____ Meeting Location: _____

Agenda:

1. Participant signs the NRCS-CPA-70 to authorize the disclosure of their NRCS records to specific TSP's.

2. Review Roles and Responsibilities**.**

3. NRCS distributes and presents the preplanning packet:
   a. Inventory for Planning Livestock Waste Management Systems (IA-ENG-48) documenting the inventory of the farmstead. Includes all livestock in the operation.
   b. Field inventory information (including conservation, agronomic (e.g. field operations), current nutrient management, etc.)
   c. Size of AFO agreed upon
   d. Plan period for the CNMP
   e. Resource concerns identified (attach report)
   f. Farmstead (livestock production area/AFO) area conservation practices identified (attached sheet)
   g. Conservation plan maps with all known conservation practices
   h. Conservation Plan Record of Decisions
   i. Conservation practice O&M requirements if NRCS is required to fill them out (i.e. cover crop job sheet)
   j. RUSLE2 reports from the initial inventory and analysis
   k. Any other relevant inventories and analysis (e.g. P-Index if done)

4. Review critical elements of the CNMP and quality expectations
   a. Discuss *Critical elements to meet the Nutrient Management (590) Conservation Practice Standard* and *CNMP Technical Rubric* [not yet available. Will contain quality expectations]
   b. Discuss critical elements of the Animal Feeding Operation plan, including
      i. Type of manure to be stored
      ii. Quantity of manure to be stored
      iii. Nutrients available and timing
      iv. Months of storage provided
      v. Proposed basic design of the facility
      vi. Preliminary geologic site investigation demonstrating site is appropriate (e.g. location relative to flood plain, soils, and expected depth to bedrock [what do we need for this?]
      vii. Proposed location of facility on the farmstead [how detailed do we need? Travel lanes for equipment, people, and livestock? Service access considering biosecurity? Etc.?]
      viii. Clean water diversions (as appropriate)
   c. References the TSP should be using (e.g. from 590).

5. Review CNMP Deliverables
   a. Review deliverables specified in the Conservation Activity Plan *Comprehensive Nutrient Management Plan Criteria: Practice Activity Code (102) (No.)* document or *Nutrient Management Conservation Activity Plan Criteria - Practice/Activity Code (104)*
   b. Review the *Field Office and TSP Certification Plan Review Checklist: Conservation Activity Plan – Comprehensive Nutrient Management Plan: Practice Activity Code (102)*
   c. Hard copy of the CNMP for the participant
   d. Hard copy of the CNMP for NRCS (optional, NRCS decides)
   e. Electronic copy of the CNMP for NRCS
      i. CNMP - .nat-cnmp.doc
      ii. PAD - .nat-prd.doc
      iii. Nutrient Management Planning tool plan file - .mmp

6. Discuss Permit Responsibilities
   a. Participant is responsible for obtaining necessary permits, e.g. contact IDNR for placement.

7. SPECIAL NOTES
   a. Since CNMP's are required prior to contracting a structure, for implementation elements of the CNMP may need to be updated or modified based on decisions made for the structure. The participant is responsible for making sure any needed updates or modifications including any costs involved.
   b. Note: If the structure is built using NRCS financial assistance, all conservation practices listed within the plan are required to be implemented to meet the soil, water, and air quality resource concerns.

8. Discuss the Mid-Planning Meeting, its purpose and how it will be set up.

9. What questions do you have?

Comprehensive Nutrient Management Plan
MID-PLANNING MEETING AGENDA
for a Conservation Activity Plan (CAP) 102

Purpose: During the CNMP planning process the TSP and the Participant may make changes to the plan which will impact the Environmental Evaluation of the conservation plan. At this meeting step 6 of the planning process (Evaluate Alternatives) will be completed and the Environmental Evaluation Worksheet (NRCS-CPA-52) will be updated and signed as needed. The meeting provides an opportunity to address questions and update NRCS staff about progress.

Who Organizes: TSP and Participant after completing step 5 (Formulate Alternatives) of the conservation planning process. Consider providing a draft of the plan to all participants prior to the meeting.

Who: The following individuals should attend the mid-planning meeting (checked are required):

Should Attend	Title	Person	Attended or Not Available
☒	Participant	_____	☐ Attended ☐Not Available
☒	CNMP Developer	_____	☐Attended ☐Not Available
☐	Engineer	_____	☐Attended ☐Not Available
☒	NRCS Staff	_____	☐Attended ☐Not Available
☐	Other	_____	☐Attended ☐Not Available

Meeting Date/Time: _____ Meeting Location: _____

Agenda:

1. Changes or additions to the resource concerns on the:
   a. Farmstead/animal feeding operation site (production area)
   b. Crop or other land receiving the manure (land treatment areas)

2. Changes to the farmstead/animal feeding operation
   a. Numbers or types of livestock
   b. Additional conservation practices needed

3. Changes to the crop or other land receiving the manure
   a. Fields removed from the CNMP due to RUSLE2 or P-Index issues
   b. Fields requiring additional conservation practices and which practices will be applied.

4. Report of any issues with Special Environmental Concerns noted during the inventory (e.g. cultural resources, endangered species, etc.)

5. Permits obtained (if applicable)

6. General discussion with the TSP, Participant, and NRCS on the process that should be documented in the CPA-15 notes.

7. Determine if it is necessary to revise the CPA-52. Revise it or, if not feasible, provide a timeline when this will be done.

8. Discuss expectations and responsibilities for the implementation of the plan including schedules and responsibilities.
   a. For the farmstead/animal feeding operation
   b. For the cropland

9. Set timeline and responsibilities to complete the plan. (Note: it may be possible to complete and sign the plan at this meeting)

10. What questions do you have?

Please send revision suggestions to Eric G. Hurley at eric.hurley@ia.usda.gov

Comprehensive Nutrient Management Plan
ROLES AND RESPONSIBILITIES FOR TECHNICAL ASSISTANCE TO USDA PROGRAM PARTICIPANTS
for CAP 104 Nutrient Management Plan (Element of a CNMP)

Use this document when the primary responsibility for developing a Comprehensive Nutrient Management Plan (CNMP) is taken on by Natural Resources Conservation Service and a Technical Service Provider is hired by the Program Participant using the Conservation Activity Plan (CAP) 104 (Element of a CNMP) program to write the nutrient management element of the CNMP.

The Technical Service Provider (TSP) must be certified through TechReg (USDA Technical Service Provider Registry) in the NMP Plan Approval or Conservation Activity Plan (CAP) Nutrient Management Plan (104) Category. *The USDA program participant hires a certified TSP and pays the TSP using EQIP funds at the Technical Service Payment Rate (TSPR) as determined in their USDA program contract (also known as Participant Selection Process).*

104 CNMP CONSERVATION ACTIVITY PLAN (CAP) – This practice is a one-time payment to the producer to hire a TSP to develop a Nutrient Management Plan (NMP). The NMP will provide practices to address the following on the cropland:

1. Degraded Plant Condition: Undesirable Plant Productivity and Health through a 4R Nutrient management plan.
2. Water Quality Degradation: Excess Nutrients in Surface Water and Groundwater.
3. Properly utilize manure, municipal and industrial biosolids, and other organic by-products as plant nutrient sources. Account for the land application of the manure generated by the animal feeding operation in terms of the 4Rs.
4. Incorporate any client decisions involving cropland to address Air Quality Impacts into the plan.
5. Meet the criteria in the Nutrient Management (590) conservation practice standard for the above four purposes.
6. Comply with Federal, State, Tribal, and local laws, regulations, and permit requirements.
7. Meet the owner/operator's production objectives.

USDA PROGRAM PARTICIPANT - ROLES AND RESPONSIBILITIES

1. Notify the local NRCS office that a TSP will be used prior to employing their services.
2. Select a TSP from the certified list found at the following Web site: http://techreg.usda.gov/.
3. **Sign the NRCS-CPA-70 form authorizing the TSP access to case file information for planning or implementing the conservation practice.**
4. Provide a copy of the TSP roles and responsibilities to the selected TSP.
5. **Participate in the CNMP Pre-Planning Meeting, the CNMP Mid-Planning Meeting, and any other needed meetings with the NRCS representative and/or TSP to determine the program participant's goals and resource concerns, formulate conservation alternative, and make a decision on how to proceed.**
6. Allow Natural Resources Conservation Service (NRCS) employees/partners and TSP access to the planned farmstead and land receiving the manure.
7. Provide complete and accurate information to NRCS and the TSP for development of the CNMP and NMP to NRCS standards and specifications. This includes, but is not limited to current soil nutrient tests, manure nutrient tests, planned crop rotations, livestock numbers, etc.
8. Ensure that the CNMP satisfies the participant's land treatment, production, and nutrient management objectives.
9. Accept full responsibility to negotiate and reach agreement on cost and terms of assistance with the TSP, including:
    a. Full responsibility for timely payment to the TSP and
    b. Full responsibility for any TSP costs, including costs for any plan revisions, which exceed the Technical Service Payment Rate (TSPR) in the USDA program contract.

10. Be prepared to obtain and comply with all permits required for CNMP implementation.
11. Provide, or have the TSP provide the servicing NRCS office, a hard copy and electronic copies of the applicable documentation required in the CNMP template.
12. Provide the servicing NRCS office copies of invoices received from TSP (including their TechReg Identification Number) for their services as requested.
13. Ensure corrective measures are taken if deficiencies are noted during quality reviews performed by NRCS.
14. Provide records as requested by NRCS to document the implementation of the CNMP.
15. **Assure that the CNMP is technically correct and accurately reflects the information provided to NRCS and the TSP.**
16. **Understand the CNMP, how to implement it, how to operate and maintain (O&M) the plan, and the implementation schedule.**
17. **Understand that if he or she chooses to implement the CNMP, all parts of the plan will need to be completed by the end of the contract.**
18. Note: If the producer implements the CNMP, he or she is under no obligation to contract with the TSP retained for the NMP CAP.

TECHNICAL SERVICE PROVIDER - ROLES AND RESPONSIBILITIES

1. **Understand NRCS policies and procedures to complete a NMP.**
2. **Participate in the CNMP Pre-Planning Meeting and the CNMP Mid-Planning Meeting, and any other nneded meetins with the program participant and the NRCS representative to complete the conservation planning process**.
3. Sign the NRCS-CPA-70 form authorizing the TSP access to case file information for planning or implementing the conservation practice.
4. Conduct inventory and analysis necessary to develop the NMP according to the National Planning Procedures Handbook. Utilized NRCS inventory and analysis information provided, especially the manure inventory and analysis.
5. Prepare the NMP in accordance with NRCS criteria along with any required standards and specifications, especially the Nutrient Management (590) conservation practice standard.
6. If additional conservation practices are required to address the water quality resource concerns as assessed with the Iowa Phosphorus Index, report issue to NRCS for additional conservation planning.
7. Provide information on necessary permits that may be required by the USDA program participant to meet all local, state or federal regulations.
8. Provide electronic and paper copies of approved project documentation to the servicing NRCS office and paper copies to the program participant.
9. The TSP planner will educate the USDA Participant how to use and implement the CNMP, to apply manure correctly, to understand key operations and maintenance such as sampling manure, interpretation of soil and manure analysis, and calibration and adjusting application equipment.
10. All information provided in the documents are as accurate as provided to the TSP from the USDA Participant.
11. **Participate in the mid-planning meeting with the program participant and the NRCS representative to determine the finalized resource concerns, alternatives and the program participant's goals**.

NRCS FIELD OFFICE - ROLES AND RESPONSIBILITIES

1. Complete the Comprehensive Nutrient Management Plan by a certified CNMP Planner including the:
    a. Plan for the farmstead/animal feeding operation (production area), including the animal confinement, feed, and other raw materials storage areas, animal mortality facilities, and the manure handling containment or storage areas

   b. Plan for crop or other land receiving manure (land treatment area), including any land under control of the AFO owner or operator, whether it is owned, rented, or leased, and to which manure or process wastewater is, or might be, applied for crop, hay, pasture production, or other uses.
   c. Incorporate the Nutrient Management Plan into the CNMP
2. Participate in the pre-planning meeting with the TSP and program participant.
3. **Sign the NRCS-CPA-70 form authorizing the TSP access to case file information for planning or implementing the conservation practice.**
4. Provide the pre-planning packet of information to the participant and the TSP or if they complete the pre-planning themselves, explain the expectations.
5. Provide and review the Role and Responsibilities documents with the program participant and TSP.
6. Complete the environmental evaluation and document on the Environmental Evaluation Worksheet (NRCS-CPA-52). The responsible Federal official (RFO) will be review and sign.
7. Maintain the Conservation Assistance Notes (NRCS-CPA-15) through process.
8. Maintain the program participant's case file, include technical service documentation provided by the TSP.
9. Develop a list of conservation practices needed to implement the NMP, including the practice unit(s) and extent.
10. If additional conservation practices are required to address the water quality resource concerns as assessed with the Iowa Phosphorus Index, provide updates to the TSP to address these concerns.
11. Provide the program participant copies of any existing case file records relevant to the technical assistance being provided by the TSP.
12. NRCS will bring any concerns regarding the CNMP development to the attention of the program participant and TSP.
13. NRCS has a contractual relationship with the program participant. **NRCS will not direct the work of the TSP.**
14. Report progress in the Performance Results System and indicate TSP assistance was utilized.
15. **Participate in the mid-planning meeting with the program participant and the TSP to determine the finalized resource concerns, alternatives and the program participant's goals. Complete and sign revised CPA-52 based on the completed process.**
16. Provide the USDA program participant and/or TSP access to copies of the NRCS standards, specifications, standard drawings, software, and other design aids used by the NRCS.
17. The Field Office or Area Office will complete the administrative review of the NMP on the appropriate administrative review form and record the name of the TSP associated with the contract.
18. Conduct technical review, as appropriate, of the NMP and documentation received from the USDA program participant.
    a. The Area Office or State Office will conduct technical spot-check quality reviews of a minimum of the first two plans by a new TSP and 5% of a TSP's CNMPs annually.

I have read and understand the responsibilities indicated above. Initial and date.

_____ _____
Program Participant Date

_____ _____
TSP Date

_____ _____
Designated Conservationist Date.

Comprehensive Nutrient Management Plan
PRE-PLANNING MEETING AGENDA
for CAP 104 Nutrient Management Plan (Element of a CNMP)

Purpose: Establish the roles and responsibilities of NRCS, the TSP, the participant, and others in the CNMP planning process when NRCS is developing the CNMP and a TSP is developing the NMP. Document the pre-planning meeting on the CPA-15 and keep this checklist in the participant case file.

Who Organizes: NRCS staff after participant informs them of the TSP they have hired

Who: The following individuals should attend the pre-planning meeting (checked are required):

Should Attend	Title	Person	Attended or Not Available
☒	Participant	_____	☐ Attended ☐Not Available
☒	NMP Planner	_____	☐Attended ☐Not Available
☐	Engineer	_____	☐Attended ☐Not Available
☒	NRCS Planner	_____	☐Attended ☐Not Available
☐	Other	_____	☐Attended ☐Not Available

Meeting Date/Time: _____ Meeting Location: _____

Agenda:

1. Participant signs the NRCS-CPA-70 to authorize the disclosure of their NRCS records to specific TSP's.

2. Review Roles and Responsibilities**.**

3. NRCS distributes and presents the preplanning packet:
   a. Inventory for Planning Livestock Waste Management Systems (IA-ENG-48) documenting the inventory of the farmstead. Includes all livestock in the operation.
   b. Field inventory information (including conservation, agronomic (e.g. field operations), current nutrient management, etc.)
   c. RUSLE2 reports for the conservation plan
   d. Conservation plan for the cropland or other land receiving manure with resource concerns identified and addressed.
   e. Size of AFO agreed upon: manure forms, quantities, estimated analysis, and when they need to be applied.
   f. Plan period for the CNMP/NMP
   g. Any other relevant inventories and analysis (e.g. P-Index if done)

4. Review critical elements of the NMP and quality expectations
   a. Discuss *Critical elements to meet the Nutrient Management (590) Conservation Practice Standard* and *NMP Technical Rubric* [not yet available. Will contain quality expectations]

b. Discuss critical related elements of the Animal Feeding Operation plan, including
   i. **Type of manure to be stored**
   ii. **Quantity of manure to be stored**
   iii. **Nutrients available and timing**
   iv. Months of storage provided
   v. Proposed basic design of the facility
   vi. Proposed location of facility
c. References the TSP should be using (e.g. from 590.

5. Review NMP Deliverables
   a. Review deliverables specified in the *Nutrient Management Conservation Activity Plan Criteria - Practice/Activity Code (104)*
   b. Review the *Field Office and TSP Certification Plan Review Checklist: Conservation Activity Plan – Nutrient Management Plan: Practice Activity Code (104)*
   c. Hard copy of the NMP for the participant
   d. Hard copy of the NMP for NRCS (optional, NRCS decides)
   e. Electronic copy of the NMP for NRCS
      i. (Purdue) Nutrient Management Planning tool plan file - .mmp

6. Discuss Permit Responsibilities
   a. Participant is responsible for obtaining necessary permits, e.g. contact IDNR for placement.

7. SPECIAL NOTES
   a. Since NMP's are required prior to contracting a structure, for implementation elements of the NMP may need to be updated or modified based on decisions made for the structure. The participant is responsible for making sure any needed updates or modifications including any costs involved.
   b. Note: If the structure is built using NRCS financial assistance, all conservation practices listed within the plan are required to be implemented to meet the soil, water, and air quality resource concerns.

8. Discuss the Mid-Planning Meeting, its purpose and how it will be set up.

9. What questions do you have?

Comprehensive Nutrient Management Plan
MID-PLANNING MEETING AGENDA
for CAP 104 Nutrient Management Plan (Element of a CNMP)

Purpose: During the CNMP/NMP planning process NRCS, the TSP, and the Participant may make changes to the plan which will impact the Environmental Evaluation of the conservation plan. At this meeting step 6 of the planning process (Evaluate Alternatives) will be completed and the Environmental Evaluation Worksheet (NRCS-CPA-52) will be updated and signed as needed. The meeting provides an opportunity to address questions and update all participants about progress.

Who Organizes: TSP and Participant after completing step 5 (Formulate Alternatives) of the conservation planning process. Consider providing a draft of the plan to all participants prior to the meeting.

Who: The following individuals should attend the mid-planning meeting (checked are required):

Should Attend	Title	Person	Attended or Not Available
☒	Participant	_____	☐ Attended ☐Not Available
☒	CNMP Developer	_____	☐Attended ☐Not Available
☐	Engineer	_____	☐Attended ☐Not Available
☒	NRCS Staff	_____	☐Attended ☐Not Available
☐	Other	_____	☐Attended ☐Not Available

Meeting Date/Time: _____ Meeting Location: _____

Agenda:

1. Changes or additions to the resource concerns on the:
   a. Farmstead/animal feeding operation site (production area)
   b. Crop or other land receiving the manure (land treatment areas)

2. Changes to the farmstead/animal feeding operation
   a. Numbers or types of livestock
   b. Additional conservation practices needed

3. Changes to the crop or other land receiving the manure
   a. Fields removed from the CNMP due to RUSLE2 or P-Index issues
   b. Fields requiring additional conservation practices and which practices will be applied.

4. Report of any issues with Special Environmental Concerns noted during the inventory (e.g. cultural resources, endangered species, etc.)

5. Permits obtained (if applicable)

6. General discussion with the TSP, Participant, and NRCS on the process that should be documented in the CPA-15 notes.

7. Determine if it is necessary to revise the CPA-52. Revise it or, if not feasible, provide a timeline when this will be done.

8. Discuss expectations and responsibilities for the implementation of the plan including schedules and responsibilities.
   a. For the farmstead/animal feeding operation
   b. For the cropland

9. Set timeline and responsibilities to complete the plan. (Note: it may be possible to complete and sign the plan at this meeting)

10. What questions do you have?

Please send revision suggestions to Eric G. Hurley at eric.hurley@ia.usda.gov

CAP 102 Comprehensive Nutrient Management Plan Administrative Checklist	
State/County:	**Date Plan Submitted:**
Producer/Owner:	**Technical Service Provider:**

A Comprehensive Nutrient Management Plan (CNMP) A CNMP is a component plan of a conservation plan that includes structural practices, management activities, and land management practices for an Animal Feeding Operation (AFO) and the associated farmstead land as well as cropland or other land receiving the manure that ensures that the livestock and crop production practices address soil erosion, water quality, and air quality resource concerns.

CNMP policy, technical guidance, criteria, and content is found at the eDirectives: http://directives.sc.egov.usda.gov/. Navigate to: General Manual, Title 190, Part 405 – Comprehensive Nutrient Management Plans. The Conservation Activity Plan (CAP) 102 statement of work, *Comprehensive Nutrient Management Plan Criteria Practice Activity Code (102) (No.)*, is available in the eFOTG, Section III, under "Conservation Activity Plans Technical Criteria".

Minimum components of a CNMP include:

1.	**Cover and Signature Page:**
☐	1. Client name, mailing address, physical location of the AFO (if different from address) 2. Planning period; 3. Dated signatures for certified CNMP Planner and Client.
2.	**Record of Decisions for Farmstead (Production/Manure Handling Areas)** Description of planned and existing practices and schedule of implementation
☐	1. General description of the existing and proposed AFO 2. Detailed description of the existing and proposed AFO, including: a. type(s) of animal, numbers, average weight, and days confined; b. type of manure storage, volumes/sizes and maximum length of storage time; c. imports, exports, and on-farm transfers of manure, if applicable; d. Document whether existing structures are functioning satisfactorily; 3. Plan map(s) showing existing and planned structures (See NPPH Title 180, part 600.31 subpart A for map requirements); 4. Soils Map(s) for the headquarters with the appropriate soil interpretations (as needed); 5. Record of Decisions of conservation practices to be applied for the AFO and associated farmstead conservation practices. Include order of implementation and planned dates; 6. Estimated manure forms, quantities, analysis, and total nutrients to be land applied and, if applicable, exported. 7. Guidance for implementation, operation and maintenance, and record keeping. May include sampling and inspections schedule for manure storages with record keeping forms. Provide rainfall records as necessary.
3.	**Record of Decisions for Nutrient Application Areas (e.g. cropland, pasture)** Description of planned and existing practices and schedule of implementation
☐	1. Plan map(s) showing: a. Aerial site photograph(s)/imagery or site map(s) with field boundaries identified; b. Location of designated Sensitive Areas with manure/nutrient application setback areas shown in relation to field boundaries; c. Total field area and manure-spreadable area for each field; d. Soils Map(s) for the crop or pasture with the appropriate soils interpretations (See NPPH Title 180, Part 600.31 subpart A for map requirements);

	2. Include the Implementation Requirements for agronomic practices associated with the nutrient application areas (e.g., Conservation Crop Rotation, Tillage and Residue Management); 3. Identify structural practices important to nutrient application and evaluate whether they are functioning satisfactorily. Include implementation requirements for structural practices required to meet the resource concerns; 4. Results of approved risk assessment tools for phosphorus and erosion losses. These include RUSLE2, ephemeral gully inventory and estimates, and the Iowa P-Index.
4.	**Nutrient Management Plan** Meet the first three criteria of the Iowa Nutrient Management (590), i.e. • To budget, supply, and conserve nutrients for plant production. • To minimize agricultural nonpoint source pollution of surface and groundwater resources. • To properly utilize manure, municipal and industrial biosolids, and other organic by-products as plant nutrient sources.
☐	*Items critical to developing the nutrient management plan:* 1. Current and/or planned plant production sequence or crop rotation; 2. Realistic yield potential for the crops; 3. Recurring items such as soil, water, compost, manure, organic by-product, and plant tissue sample analyses applicable to the plan; 4. Quantification of nitrogen, phosphorus, and potassium supply from all applicable sources and their form; 5. Determination of crop nutrient requirements; 6. A comprehensive nutrient accounting for phosphorus, and potassium for the plant production sequence or crop rotation showing nutrients applied, utilized by the crop, and residual in soil; 7. Planned crops and fertilizer recommendations by the 4Rs of nutrient management – apply the Right nutrient source at the Right rate at the Right time in the Right place, manure application planning calendar, field nutrient balance, manure inventory and annual summary, fertilizer material annual summary, and farm nutrient balance;
☐	*Items relating to risk assessments:* 8. Documentation establishing that the application site presents a medium to very low risk for phosphorus transport to local water if (when) phosphorus is applied in excess of crop requirement using the Iowa Phosphorus Index; 9. When soil phosphorus levels are increasing, include a discussion of the risk associated with phosphorus accumulation and a proposed phosphorus draw-down strategy; 10. In accordance with the nitrogen and phosphorus risk assessment tools, specify the recommended nutrient application source, timing, amount, and placement of plant nutrients for each field or management unit;
☐	*Items to be addressed if the plan includes grid soil samples (variable-rate fertilizer application, site-specific management, precision fertilizer application):* 11. Geo-referenced maps showing spatially variable application areas (site-specific recommendation or as-recommended map(s)). 12. Provide description of the basis on which site-specific fertilizer recommendations are made (must follow Iowa State University guidance); 13. Geo-referenced map(s) showing the actual fertilizer applications (as-applied map(s)); document the rate, time, nutrient source, and method of site-specific fertilizer applications;
☐	*Items related to implementation, operation and maintenance, and recordkeeping:* 14. Intervals for updates to recurring tests such as soil and manure tests; 15. Guidance for manure and fertilizer applicators;

	16. Provide forms necessary to document dates and method(s) of nutrient applications, weather conditions (as applicable), and soil moisture at the time of application, and show lapsed time to manure incorporation, rainfall, or irrigation event; 17. Provide forms necessary to document crops planted, planting and harvest dates, yields, and crop residues removed.

5.	**TSP Deliverables**
☐	Provide the following records to the NRCS office to be retained in the Client case file (some files already be part of the case file in which case copies are not required): 1. Client Information (name, address, email, phone, or any information that would be helpful for future reference by NRCS); 2. Client objectives narrative; 3. Printed and electronic copy of the CNMP document; 4. Maps used in the CNMP process (electronic); 5. Nutrient Management planning tool plan electronic file (If using MMP, include the ".mmp" file); 6. Revised Universal Soil Loss Equation (RUSLE2) database electronic file (".gdb" extension) and, when wind erosion is a concern, the Wind Erosion Prediction System (WEPS) files if different from NRCS files completed during Phase I of the planning process; 7. If requested, the Geographic Information Systems (GIS) electronic shapefiles created for the operation; 8. Inventory and analysis information, (this would include all resource concern assessments e.g., erosion, Leaching Index, Phosphorus Index, water quality assessments, air quality site assessment, livestock inventory, manure/waste estimated production, manure imports/exports, and manure storage); 9. If applicable, photographs, audio and video files, or digital files of these type of documents; 10. Other appropriate supporting documents and local or state required documentation; 11. Record keeping forms as appropriate; 12. All electronic files or hard copy printouts (if electronic files are not available) used for design and nutrient management planning.

Yes	**No**	**Checklist Approval**
		I have administratively reviewed this Comprehensive Nutrient Management Plan (CNMP) and it includes the components above and therefore meets the CNMP Criteria and the TSP Deliverables as stated in the *Comprehensive Nutrient Management Plan Criteria Practice Activity Code (102) (No)* statement of work document.

NRCS Representative Name and Title (print or type):		
NRCS Representative Signature		Date:

Notes (If “No” is checked, include reasons for denial, comments, missing items that need to be added, etc.):

CAP 104 Nutrient Management Plan Administrative Checklist	
State/County:	**Date Plan Submitted:**
Producer/Owner:	**Technical Service Provider:**

A Nutrient Management Plan (NMP) Nutrient Management Plan is a document of record establishing how nutrients will be managed for plant production while addressing identified resource concerns in including the offsite movement of nutrients. The plans are prepared in collaboration with producer and/or landowner and are designed to help the producer implement and maintain an effective plan for the application of nutrients from available sources. The plan will help to ensure that both production and natural resource protection goals are achieved.

The NRCS 590 Nutrient Management Standard minimum requirements must be met.

Minimum components of a NMP include:

	Part 1 - Cover Page and Signature Page:
☐	1. Name of owner(s) and operator(s) and contact information 2. Farm Legal Location 3. Description of Farm Operation 4. Total acres covered by the CAP 5. Signature Block for all parties

	Part 2 - Background and Site Information
☐	1. Objective of Operator and/or Owner
☐	2. Conservation Plan Map a. Title "Plan Map," Client's name, Prepared by, County, State, Date prepared b. Tract and Field Boundaries c. Scale of Map, North Arrow d. Information needed to locate the planning area e. Location of all planned practices
☐	3. Soil Map 4. Soil Descriptions 5. Notes/maps from inventorying farm when walking the land, etc. 6. Notes/map from interviewing producers on cropping system and past and current nutrient program to develop a baseline. 7. ID sensitive area *(sinkholes, streams, wells, water sources, occupied dwellings, etc.)* 8. Note all resource concerns identified *(i.e. erosion, water quality, and air quality)*

	Part 3 - Nutrient Management
☐	1. Soil test results *(includes: P, K, pH, buffer pH, OM)* 2. Map of soil sampling areas 3. Description of soil sampling procedures used *(grid, smart sampling, depth of sample, # of cores, etc.)* 4. Lab and lab specific test used *(e.g. Bray 1)*

Part 4 - Nutrient Recommendations ***(Must meet technical criteria for NRCS 590 Nutrient Management Standard)***	
☐	1. Recommendations for all nutrients *[include 4Rs of nutrient mgmt.. – Source, Rate, Time, and Place (Application Method)]* 2. Document rationale behind recommendations *(credits given, realistic yield goal potential by crop and rotation, manure analysis if used, etc.)* 3. Maps to show setbacks, buffers, conservation practices planned, etc.

Part 5 - Inventory Tools / Evaluation of Tools	
☐	1. RUSLE2 runs for each dominant critical soil with the same cropping system before *(recommended)* and after. 2. P-Index results before *(recommended)* and after 3. Others

Part 6 - Other Practices to be Utilizes on the Tract ***(when practices are planned include associated job sheets in the plan)***

√	**Practices to Control & Trap Phosphorus**	√	**Practices to Trap Nitrogen**
	Constructed Wetland (656)		Constructed Wetland (656)
	Contour Farming (330)		Contour Buffer Strips (332)
	Cover Crops (340)		Cover Crops (340)
	Filter Strip (393)		Drainage Water Management (554)
	Grass Waterway (412)		Denitrifying Bioreactors (605)
	Residue and Tillage Management, No-Till (329)		Filter Strip (393)
	Residue and Tillage Management, Reduced Till (345)		Saturated Buffer (604) / Vegetated Subsurface Drain Outlet (739)
	Riparian Forest Buffer (391)		**for planned conservation practices recommend to include job sheets, design specifications, etc. as appropriate.*
	Terrace (600)		
	Water & Sediment Control Basin (638)		

Deliverables	
☐	1. Client should receive a hardcopy of the plan that includes the above components. 2. Field Office should receive a hard & electronic copy of clients plan. 3. Field Office should receive a completed checklist

Yes	No	Checklist Approval
☐	☐	I have completed an administrative review of this Nutrient Management Plan and it meets all the FY16 Plan Development Criteria for Conservation Activity Plan 104.

NRCS Representative Name and Title		
NRCS Representative Signature		Date:

Notes (If "No" is checked, include reasons for denial, comments, missing items that need to be added, etc.):

Natural Resources Conservation Service

STATEMENT OF WORK
Comprehensive Nutrient Management Plan
IOWA

Client: _____ TSP/Reviewer: _____

Field Office/County: _____ Date: _____

CNMP PLANNING

A Comprehensive Nutrient Management Plan (CNMP) is a component conservation plan for an animal feeding operation (AFO) and for associated crop, pasture, and other land that receives manure from that AFO. It addresses soil erosion, water quality, and air quality resource concerns. *The CNMP fulfills the unique roll to ensure that when water quality resource concerns related to nutrients in the AFO are addressed on the farmstead, the nutrients are properly managed on the receiving land to also address water quality.*

To develop the CNMP follow the guidance and processes in the NRCS General Manual – Title 190, Part 405 – Comprehensive Nutrient Management Plans. Additional information is available in the Conservation Activity Plan's (CAP) *Comprehensive Nutrient Management Plan Criteria Practice Activity Code (102) (No.)* document which is potentially updated annually.

Use the NRCS National Planning Procedures Handbook (NPPH) as guidance for conservation planning including the nine steps of the conservation planning process. The planner, e.g. Technical Service Provider (TSP), is to complete the first seven steps of the NPPH planning process;

1) Identify problems and opportunities;
2) Determine objectives;
3) Inventory resources;
4) Analyze resource data;
5) Formulate alternatives;
6) Evaluate alternatives; and
7) Make decisions.

For TSPs, NRCS will assist to evaluate alternatives and document compliance with the Special Environmental Concerns.

The CNMP documents the planning decisions and operation, maintenance, and record keeping for the operation. The CNMP includes a signature page to verify that the Certified CNMP planner vouches for the technical accuracy of the plan and that the client understands and concurs with the plan. The plan will include the following sections:

1) **Record of Decisions (planned and applied conservation practices) for the farmstead(s)/AFO** (livestock production and manure handling areas),
2) **Record of Decisions (planned and applied conservation practices) for the crop, pasture, and other lands where the nutrients will be applied**, and
3) **The Nutrient Management (590) Plan for the land receiving the manure** following the criteria, plans and specifications, operation and maintenance, and recordkeeping in the conservation practice standard.

These sections are not independent. The CNMP planner will need to coordinate the parts.

As a minimum the CNMP addresses on the Farmstead's AFO site (the animal feeding operation, feed and other raw materials storage areas, animal mortality facilities, manure import and export, and the manure handling containment or storage areas) the following resource concerns to the planning criteria level (National and State Resource Concerns and Planning Criteria, Field Office Technical Guide, Section III):

- *WATER QUALITY DEGRADATION – Excess nutrients in surface and ground water*
- *WATER QUALITY DEGRADATION – Excess pathogens and chemicals from manure, bio-solids, or compost applications*

The plan will specify manure/nutrient management including general storage specifications, forms produced, and quantify the manure and nutrients produced by this operation that will be land applied or exported.

As a minimum the CNMP addresses on land that receives manure (e.g. cropland and pasture) from the AFO the following resource concerns to the planning criteria level:

- *SOIL EROSION – sheet, rill, & wind erosion*;
- *SOIL EROSION – concentrated flow erosion*;
- *WATER QUALITY DEGRADATION – Excess nutrients in surface and ground water*;
- *WATER QUALITY DEGRADATION – Excess pathogens and chemicals from manure, bio-solids, or compost applications*;
- WATER QUALITY DEGRADATION – *Excessive sediment in surface water*

Specify in the plan the manure application rate, timing, and placement and the conservation practices necessary to address the resource concerns. *To assure that the resource concerns are addressed, the land application of nutrients from the AFO should be planned for as much of the nutrients generated as is possible.* As a minimum, plan for manure applied to land owned, rented/leased, contracted, or otherwise part of the business enterprise within a reasonable distance. Environmental Quality Incentive Program (EQIP) contract requirements and state laws may drive some land application requirements. Business structures may make it programmatically possible to export some or all the AFO nutrients even if the land is part of a larger business operation, e.g. a son or daughter's livestock enterprise within a family operation. If manure is exported within a larger operation, consider adding Nutrient Management (590) to that operation's conservation plan. If manure is exported to another, unrelated operation consider working with the operation receiving the manure to apply a Nutrient Management (590) Plan and coordinate it with this CNMP (i.e. manure type and amounts, analysis, and timing).

As a minimum the CNMP addresses air quality impacts for all for the farmstead and land receiving the manure including the following resource concerns to the planning criteria level (i.e. currently "managed to meet client objectives"):

- *AIR QUALITY IMPACTS – Emissions of Particulate Matter - PM - and PM Precursors*;
- *AIR QUALITY IMPACTS – Emissions of Greenhouse Gases – GHGs*;
- *AIR QUALITY IMPACTS – Emissions of Ozone Precursors*; and
- *AIR QUALITY IMPACTS – Objectionable odors*

Use the *National Air Quality Site Assessment Tool* (NAQSAT) to analyze these resource concerns. Use the NAQSAT results to discuss air quality impacts and options to address those impacts with the client. The current Basic Assessment Level is based on the client's concerns and objectives, so the client has discretion to choose or not choose appropriate conservation practices to address air quality impacts. Note the client's air quality concerns and objectives in the CNMP. Even if the client chooses to not put air quality practices in the CNMP, consider putting practices they are or may be interested in into their conservation plan Record of Decisions and/or note their interest in the assistance notes in the case file.

COMPREHENSIVE NUTRIENT MANAGEMENT PLAN DELIVERABLES

Self-certify completion of deliverables using this SOW as a checklist. If a box is left unchecked, provide an explanation why information was not applicable or completed. Submit the deliverables in an organized format including a table of contents. When a template for Purdue Manure Management Planner has been finalized, this document will be updated to align with that format.

Though NRCS strongly suggests following the format used in Purdue Manure Management Planner, the CNMP is written for the client. The planner is encouraged to provide additional guidance or to design additional tables or maps to present the information in the CNMP in ways that the client can better understand the plan and can successfully implement it.

Provide copies/verification/documentation for each deliverable to NRCS. Include an electronic copy of the deliverables in addition to the hard copy.

STATEMENT OF WORK
Comprehensive Nutrient Management Plan
IOWA

Though the conservation planning is divided into three sections by landuse and nutrient management planning, these sections are not independent. Be aware of the linkages. Data and maps from one section may be referenced for use in another section (e.g. one soil map could cover all three section). If multiple planners are involved, maintain communication.

0. Cover & Signature Page:

a. ☐ Name of owner/operator
b. ☐ Facility location (physical address) and mailing address,
c. ☐ Latitude and longitude of the farmstead/AFO site entrance
d. ☐ Planned type of livestock/poultry and animal units
e. ☐ Plan period
f. ☐ Signature of Certified CNMP Planner period
g. ☐ Signature of Owner/Operator

1. Record of Decisions for Farmstead/AFO site (Livestock Production, Manure Storage, and Handling Areas):

a. ☐ Plan map or sketch of the farmstead/animal feeding operation site (accurate scaled drawing or aerial photo), that **documents existing & planned structures**. Follow map requirements in NPPH Title 180, part 600.31 subpart A. Include the following, if applicable, but not limited to:

i. Manure transfer, storage structures, treatment lagoons and associated piping,
ii. Confinement areas and pens,
iii. Livestock production buildings, livestock processing areas, and sick pens,
iv. Manure stockpile areas,
v. Silage and other feed storage and/or mixing areas,
vi. Drainage flow patterns,
vii. Pumping plants,
viii. Clean water diversions,
ix. Basins,
x. Animal mortality storage and/or composting sites,
xi. Livestock and equipment travel lanes including access for supply and service vehicles
xii. Well and other water quality sensitive area locations, and
xiii. Other manure handling measures.
xiv. Relevant other structures that impact the decision (e.g. house, yard)

Include in the plan map(s):
1) Title block with the title, client name, "*Prepared with assistance from USDA-NRCS*", *ASSISTED by [planners name]",* and date prepared*"';*
2) *Scale of map;*
3) *Geographic coordinates;*
4) *North arrow; and*
5) *Applicable map symbols and map legend.*

b. ☐ Soils map of farmstead/AFO site with soils interpretations and geological survey (as needed).

c. ☐ Topographic map of farmstead/AFO site.

d. ☐ Brief Description of the AFO, *both existing (as applicable) and proposed*, including:

i. Statement of the client's objectives. Should answer why this plan is needed.
ii. Type of animal, number of animals, weight (start, end, average), animal units, and number of days confined
iii. Summary of the type of manure, wastewater, bedding, or other storage storage volumes/sizes, and number of months of storage. For open lots, provide acres of open lots and contributing draining areas.
iv. General summary of planned imports, exports, on-farm transfers, and land application of manure.
v. State any assumptions made or special considerations for this plan.

e. ☐ Reports of resource concern assessments using Resource Concern Measure and Assessment Tools. Document that the Planning Criteria is met. *Use the current tool and Basic Assessment Level.* (National and State Resource Concerns **(RC)** and Planning Criteria **(PC)**, FOTG, Sec. III). Note: a water quality resource concern for the farmstead/AFO will already be identified.

Resource Concern (RC)	Tool	RC Identified	PC Met
• WATER QUALITY DEGRADATION – Excess nutrients in surface and ground water	Client input/planner observation	☐	☐
• WATER QUALITY DEGRADATION – Excess pathogens and chemicals from manure, bio-solids, or compost applications	Client input/planner observation	☐	☐
• AIR QUALITY IMPACTS – Emissions of Particulate Matter - PM - and PM Precursors	NAQSAT	☐	☐
• AIR QUALITY IMPACTS – Emissions of Greenhouse Gases – GHGs	NAQSAT	☐	☐
• AIR QUALITY IMPACTS – Emissions of Ozone Precursors	NAQSAT	☐	☐
• AIR QUALITY IMPACTS – Objectionable odors	NAQSAT	☐	☐
• Other (specify) _____		☐	☐

f. ☐ Record of Decisions – Provide a list, estimated volumes, and narratives for the conservation practices. Check the box(s) to indicate supporting practices needed for the CNMP to meet the resource concerns identified (if practice is planned, provide estimated volumes in the conservation plan).

- ☐ Amendments for Treatment of Agricultural Waste (591) AU
- ☐ Anaerobic Digester (366) No.
- ☐ Animal Mortality Facility (316) No.
- ☐ Composting Facility (317) No.
- ☐ Critical Planting Area (342) Ac.
- ☐ Diversion (362) Ft.
- ☐ Feed Management (592) AU
- ☐ Heavy Use Area Protection (561) Ac.
- ☐ Pond Sealing or Lining Compacted Clay Treatment (521) No.
- ☐ Roof and Covers (367) No.
- ☐ Roof Runoff Structures (558) No.
- ☐ Sediment Basin (350) No
- ☐ Solid/Liquid Waste Separation Facility (632) No.
- ☐ Underground Outlets (620) Ft.
- ☐ Vegetated Treatment Area (635) Ac.
- ☐ Waste Facility Closure (360) No.
- ☐ Waste Recycling (633) Ac.
- ☐ Waste Separation Facility (632) No.
- ☐ Waste Storage Facility (313) No.
- ☐ Waste Transfer (634) No.
- ☐ Waste Treatment (629) No.
- ☐ Waste Treatment Lagoon (359) No.
- ☐ Water & Sediment Control Basin (638) No.
- ☐ Wellhead Protection (Agricultural Drainage Well Cisterns) (981) No.
- ☐ Windbreak/Shelterbelt Establishment (380) Ft.
- ☐ Other (specify) ____
- ☐ Other (specify) ____

g. ☐ Existing manure storage structures:

i. Provide dimensions, storage capacities, number of months of storage, and management for each type of manure storage structures and clean water diversions (including basins, pits, holding ponds, lagoons, etc.).

ii. For practices that will be maintained for this CNMP to function:

1. Verify and document that the practices are functioning including any past testing or inspection reports.
2. Reference or include the Implementation Requirements/Job Sheets or Plans, Specifications, Operations, and Maintenance (e.g. state that, “Engineering plans and Operations and Maintenance requirement for [specified practice] are located in [client’s] case file at the NRCS/SWCD [specific location] Field Office].

3. For practices installed without NRCS assistance include on the plan map and note in the Record of Decisions that the structure was installed without NRCS technical or financial assistance.
4. As appropriate to ensure the client understands and can successfully implement the plan include practice Operation and Maintenance information in the CNMP (i.e. required freeboard, maximum sludge depth, start pump level, recordkeeping, sludge and sediment removal plan, etc.).

iii. If available, provide documentation of any previous geological investigation and site conditions.

h. ☐ Planned manure storage structures:

i. Provide approximate location, dimensions and capacity for all planned storage and clean water diversion structures.

ii. The implementation requirements will be completed at the time of implementation. However, for the client to understand the full implications of the CNMP to their operation, consider providing Implementation Requirements/Job Sheets or Plans, Specifications, Operations, and Maintenance for relevant new practices in this plan (e.g. Waste Storage Facility (313), Composting Facility (317), etc.) as needed and feasible, e.g.

1. Operating levels of storage structure, i.e. freeboard, 25 year/24 hour storm, maximum sludge depth, start pump level, winter time pump down.
2. Recordkeeping.
3. Sludge and sediment removal plan.
4. Closure plan for the manure storage facilities.

iii. Include any available completed Implemented Requirements, Job Sheets, or preliminary Engineering Plans for planned practices that have not been implemented.

i. ☐ Manure Transfers, as applicable:

i. Exports – dates & amounts, recipient name/address, estimate of manure analysis provided.

ii. Imports – dates, amounts, manure type, originating operation/address, estimate of manure analyses provided.

iii. Internal transfers – dates, amounts, manure storage ID, and destination.

j. ☐ National Air Quality Site Assessment Tool (NAQSAT) report statement of client's air quality concerns and objectives. Even if the client chooses to not put air quality practices in the CNMP, consider putting practices they are or may be interested into their conservation plan Record of Decisions separate from the CNMP and/or in the assistance notes in the case file.

2. Record of Decisions for Land Treatment Areas (Cropland, Pasture, or other land receiving manure application)

a. ☐ Plan map or sketch for each land application sites (GIS-developed map is preferred). Follow map requirements in NPPH Title 180, part 600.31 subpart A. Include the following, if applicable, but not limited to:

i. fields delineated with ID and acres,

ii. Location of existing and planned conservation practices necessary for the CNMP to function

b. ☐ Soils map and interpretations

i. Identification of soil representing the dominant critical area (Choosing the Planning Area of a Field by "Dominant Critical Area")

c. ☐ Topographic map

Include in the plan map:

1) Title block with the title, client name, "*Prepared with assistance from USDA-NRCS*", *ASSISTED by [planners name]",* and date prepared;
2) *Scale of map;*
3) *Geographic coordinates;*
4) *North arrow; and*
5) *Applicable map symbols and map legend.*

d. ☐ Reports of resource concern assessments using Resource Concern Measure and Assessment Tools. Document that the Planning Criteria is met. *Use the current tool and Basic Assessment Level.* (National and State Resource Concerns **(RC)** and Planning Criteria **(PC)**, FOTG, Sec. III).

Resource Concern (RC)	Tool	Identified	Addressed
• SOIL EROSION – sheet, rill, & wind erosion	RUSLE2, Integrated Erosion Tool	☐	☐
• SOIL EROSION – concentrated flow erosion	field measurement & observation	☐	☐
• Other (specify) _____		☐	☐

e. ☐ Record of Decisions for the crop/pasture land - Provide list the conservation practices for the land receiving the manure, including tract, land unit type, and planned amount/date.

i. Check the box(s) to indicate supporting practices needed for the CNMP to function.

- ☐ Conservation Crop Rotation (328) Ac.
- ☐ Constructed Wetland (656) Ac.
- ☐ Contour Farming (330) Ac.
- ☐ Cover Crops (340) Ac.
- ☐ Critical Planting Area (342) Ac.
- ☐ Denitrifying Bioreactors (605) Ac.
- ☐ Diversion (362) Ft.
- ☐ Drainage Water Management (554) Ac.
- ☐ Field Border (386) Ft.
- ☐ Filter Strip (393) Ac.
- ☐ Grade Stabilization Structure (410) No.
- ☐ Grass Waterway (412) Ac.
- ☐ Heavy Use Production Area (561) Sq. Ft.
- ☒ Nutrient Management (590) Ac. **(see sec. 4)**
- ☐ Residue and Tillage Management, No-Till (329) Ac.
- ☐ Residue and Tillage Management, Reduced Till (345) Ac.
- ☐ Riparian Forest Buffer (391) Ac.
- ☐ Saturated Buffer (604) / Vegetated Subsurface Drain Outlet (739) Ft.
- ☐ Terrace (600) Ft.
- ☐ Underground Outlets (620) Ft.
- ☐ Water & Sediment Control Basin (638) No.
- ☐ Other (specify) ____
- ☐ Other (specify) ____

f. ☐ **For practices installed prior to this plan** verify and document that the practices are functioning. Reference or include the Implementation Requirements/Job Sheets or Plans and Specifications, Operations, and Maintenance (e.g. state that, "Engineering plans and Operations and Maintenance requirement for [specified practice] are located in [client's] case file at the NRCS/SWCD [specific location] Field Office"). For practices installed without NRCS assistance note in the Record of Decisions that the structure was installed without NRCS technical or financial assistance. To ensure the client understands and can successfully implement the plan include practice Operation and Maintenance information as needed.

g. ☐ **For newly planned agronomic conservation practices** (e.g. No-Till (329); Cover Crop (340), etc.) include the completed Implementation Requirements/Job Sheets or Plans, Specifications, Operations, and Maintenance. The implementation requirements for Nutrient Management (590) will be documented in section 4, Nutrient Management, of the CNMP.

h. ☐ **For newly planned engineering practices** the implementation requirements will be completed at the time of implementation. However, for the client to understand the full implications of the CNMP to their operation, consider providing implementation requirements for relevant new engineering practices in this plan as needed and feasible.

3. Nutrient Management

a. ☐ **Client's nutrient management objectives**.

b. ☐ **Statement of local, state, and/or federal standards** and/or requirements the plan is designed to meet; tools and data sources used; and assumptions made.

i. Assessment of the adequacy of the acres for land application of manure from this animal feeding operation.

c. ☐ **Include or reference the Manure and Wastewater Production Inventory** from Section 1 – Provide calculations or copies of spreadsheets, e.g. Purdue Manure Management Planner (MMP), or equivalent spreadsheets. See section 1.
   i. Estimated annual manure, bedding and wastewater/runoff produced for all livestock
   ii. When the product is available for application,
   iii. Total annual available nutrients (N-P-K)) from manure & wastewater,
   iv. Total annual available nutrients (N-P-K) available after losses from storage and application. (use ISU interpretations)
   v. Estimated land requirements for N and P based on clients cropping practices and yields (optional until report is available in MMP).

d. ☐ **Plan map** or sketch for each land application sites (GIS-developed map is preferred). May be part of the conservation plan map for section 3. Follow map requirements in NPPH Title 180, part 600.31 subpart A. Include the following, if applicable, but not limited to:
   i. Fields delineated with ID, total acres, and spreadable acres (if different). Make sure the field IDs make sense to the client and are consistent among maps and tables.
   ii. Location of water quality sensitive areas including lakes, ponds, streams, other perennial water bodies, Iowa Designated Wetlands, High Quality Water Resources (DNR 117), sinkholes, drainage wells, wells, classic gullies, drainage ditches, *tile line surface and blind inlets for tile lines which run unmitigated to surface or groundwater,* or other direct conduits to surface or groundwater.
   iii. Setbacks or Filter Strip (393) to protect the sensitive area, if required. Or for tile inlets specify alternative practice(s) from the Nutrient Management (590) standard.
   iv. Identify areas which flood more than once every 10 years.
   v. Other site information features which may influence manure application, such as property boundaries, nearby residences, or other locations where humans may be present on a regular basis (parks, schools, churches, etc.), and any identified meteorological (e.g., prevailing winds at different times of the year), or topographical influences that may affect the transport of odors to those locations.

> Include in the plan map:
> 6) Title block with the title, client name, "*Prepared with assistance from USDA-NRCS*", *ASSISTED by [planners name]",* and date prepared;
> 7) *Scale of map;*
> 8) *Geographic coordinates;*
> 9) *North arrow; and*
> 10) *Applicable map symbols and map legend.*

e. ☐ **Soils map and interpretations** (may use from Section 2)
   i. Identify soil representing the dominant critical area (Choosing the Planning Area of a Field by "Dominant Critical Area")

f. ☐ **Topographic map** (may use from Section 2)

g. ☐ **Reports of resource concern assessments** using Resource Concern Measure and Assessment Tools. Document that the Planning Criteria is met. *Use the current tool and Basic Assessment Level.* (National and State Resource Concerns **(RC)** and Planning Criteria **(PC)**, FOTG, Sec. III).

Resource Concern (RC)	Tool	RC Identified	PC Met
• WATER QUALITY DEGRADATION – Excessive sediment in surface water	Iowa P-Index	☐	☐
• WATER QUALITY DEGRADATION – Excess nutrients in surface and ground water	Iowa P-Index	☐	☐

• WATER QUALITY DEGRADATION – Excess pathogens and chemicals from manure, bio-solids, or compost applications	Iowa P-Index	☐	☐
• AIR QUALITY IMPACTS – Emissions of Particulate Matter - PM - and PM Precursors	NAQSAT*	☐	☐
• AIR QUALITY IMPACTS – Emissions of Greenhouse Gases – GHGs	NAQSAT*	☐	☐
• AIR QUALITY IMPACTS – Emissions of Ozone Precursors	NAQSAT*	☐	☐
• AIR QUALITY IMPACTS – Objectionable odors	NAQSAT*	☐	☐
• Other (specify) _____		☐	☐

*Use the NAQSAT tool results from Section 1 assessments for transport and application of manure.

h. ☐ **Soil Test Result Data**.
   i. Specify type of sampling based on ISU guidelines
      1. Sample represents no more than 10 acres, random zigzag pattern from each sampling area OR
      2. If using grid-point sampling, sample represents no more than 2.5 acres
      3. Number of cores/sample.
   ii. Map of soil sampling areas with site name/number – e.g. client's name for the field – georeferenced to correlate with Tract and Field.
   iii. Sampling date (Soil samples no older than 2 years)
   iv. Specify sample depths,
   v. Specify P and K lab method (e.g. Bray P_1, Mehlich 3 K, Field-moist, etc.)
   vi. Test, at a minimum, for pH, BpH (if applicable), P, K, and organic matter.
   vii. Use ISU interpretations and recommendations of the soil test (may vary from lab interpretations and recommendations)

i. ☐ **Summary of existing manure, wastewater, biosolid, compost, etc. sample analyses,** include:
   i. Total Ammonium-N, Total Organic-N and Total N Values.
   ii. Total P and K values.
   iii. Percent moisture / dry content.
   iv. Use ISU interpretations of plant available nutrients depending on management (may vary from lab interpretations).

j. ☐ **Land application sites –** Summary table that includes:
   i. Site number or site name & legal description.
   ii. Land owner name, address and contact number.
   iii. Land operator, address and contact number.
   iv. Spreadable acres (subtract setback acres), separate irrigated and non-irrigated acres.
   v. Setbacks required or narrative setback statement.
   vi. Crop type & yield.

k. ☐ **Soil & Risk Assessments**
   i. Develop summary table(s) representing risk assessments results for P to include the following:
      1. Site number/name,
      2. P-Index risk value (numeric).
         a. Include estimate of ephemeral gully erosion.
         b. Include interpretation and verify that the site vulnerability ratings criteria are met for each field in the plan,
         c. All conservation practices used for the risk assessment are included in the Section 2 conservation plan.
         d. Soil phosphorus test values are same as in the soil test reports,

3. RUSLE2 or Purdue Manure Management Planner erosion estimate for soil loss (T/ac). May reference section 2.
   a. Verify that all fields are at or below "T", Tolerable soil loss (Alternative Conservation Systems are not adequate).
   b. Verify that all relevant manure and fertilizer passes are included
   c. Verify if residues are removed by bedding or biofuels, that this was included
4. Leaching Index value (Optional. No interpretation is required)

ii. If any phosphorus risk assessments result in a high or very high rating, provide a narrative statement on nutrient application plans (P-based or no manure) and if any plans are being made to incorporate land treatment or additional management practices for that land site.

l. ☐ **Complete nutrient management plan** for nitrogen, phosphorus, and potassium for five years or the length of one crop rotation – whichever is longer – for all planned nutrient applications (manure, wastewater, biosolids, commercial fertilizer, etc.) showing:

i. Crop nutrient requirements based on planned crop and realistic yield potential using Iowa State agronomic recommendations.
   1. State how the realistic yields were determined (i.e. field data, use of values in the eFOTG, etc.).

ii. Nutrient Credits (if applicable)

iii. Planned nutrient recommendations and applications from all sources (i.e. manure, commercial fertilizer, etc.). For each source, provide:
   1. Nutrient source including any Enhanced Efficiency Fertilizer formulations (e.g. nitrification or urease inhibitors),
   2. Estimated application rates/amounts per acre,
   3. Application placement,
   4. Application timing (fall (soil temp >50º or <50º), spring, sidedress (specify), or summer).

iv. Manure Application
   1. Description of application method and equipment
   2. Estimated loads and/or hours of application per season based on annual manure/wastewater production (optional)
   3. Account for manure applications prior to plan years if they will impact the plan
      a. Recommend starting rotation one year prior in MMP as results are more consistent
   4. Specify timing, e.g.
      a. for fall applied ammonia N such as anhydrous ammonia, manure in which > 20 lbs/acre NH_4^+-N is applied, or MAP/DAP plan to apply late in the fall when the mid-day soil temperature, at 4" soil depth, is below 50^0F and trending colder.

v. Verify and document.
   1. Using the Corn Nitrogen Rate Calculator (Maximum Return to Nitrogen), CROP 3073: Nitrogen Use in Iowa Corn Production, or PM 1714: Nitrogen Fertilizer Recommendations for Corn in Iowa for the N-rate.
      a. For recommendations that are a range, specify why a specific part of the range is used.
      b. If IDNR documents are used and different N-rates are used, provide guidance to client on how to use this conflicting data.
      c. Account the N in MAP and DAP
      d. Optional – Include Rescue N guidance
   2. Using PM 1688: A General Guide for Crop Nutrient and Limestone Recommendations in Iowa for the P, K, and, optionally, lime applications.
   3. The N, P, and K units are as consistent as is feasible in the document and well labelled to avoid confusion.

m. ☐ **If P applications are in excess of crop removal** (possible for manure applications when the P-Index is very low, low, or medium and soil test P is optimum or higher),

i. State the rationale for the excess application (e.g. disposing of the manure)

ii. If the soil test phosphorus levels are high or very high and/or increasing,

1. include a discussion of the risk associated with phosphorus accumulation,
2. estimate using the P-Index when P should no longer be applied,
3. propose a P stabilization or draw-down strategy to optimum soil test P, and
4. formulate alternative manure management strategies to reduce application rates (i.e. use it to fertilize more land to better optimize the use of the resource),

n. ☐ **If plan includes precision/variable-rate application**:

i. Include geo-referenced maps showing spatially variable application areas (site-specific recommendation or as-recommended maps).

ii. Document the nutrient recommendation guidance and recommendation equations used to convert the GIS base data layer or layers to a nutrient source material recommendation GIS layer or layers.

1. Follow Iowa State University recommendations

iii. Document if a variable rate nutrient or soil amendment application was made.

iv. Provide application records per management zone or as applied map within individual field boundaries (or electronic records) documenting source, timing, method, and rate of all applications that resulted from use of the precision agriculture process for nutrient or soil amendment applications.

v. Maintain the electronic records of the GIS data layers and nutrient applications for at least 5 years.

o. ☐ **Operation and Maintenance**. Provide guidance in the plan to:

i. Specify the soil test cycle

1. Monitor fields receiving animal manures and/or municipal or industrial biosolids for the accumulation of phosphorus.

ii. Specify the manure test cycle. If feed management, animal numbers or type, manure handling strategy, storage time, etc., change significantly, re-inventory the manure resource and re-analyze the manure.

iii. Conduct periodic plan reviews to determine if adjustments or modifications to the plan are needed. At a minimum, plans must be reviewed, evaluated, and, if needed, revised, with

1. Each soil test cycle,
2. Changes in manure volume or analysis, or
3. Changes in crops or crop management.

iv. Specify calibration of manure and fertilizer application equipment at least annually to ensure proper placement or material at planned rates. Provide clear guidance on how to calibrate, i.e.

1. Use ISU PM-1941 “Calibration and Uniformity of solid Manure Spreaders” or PM-1948 “Calibrating Liquid Tank Manure Applicators.”
2. For custom applicators or rented equipment, verify that the operator or owner has calibrated applicators.
3. For anhydrous ammonia traditional calibration is dangerous. Rather, verify that the applicator is properly plumbed. See PM-1875 “Improving the Uniformity of Anhydrous Ammonia Application” for guidance. Note that other effective manifolds are now available. Verify that anhydrous ammonia is injected to the proper depth and good soil coverage is provided.

p. ☐ **Record Keeping**

i. Maintain records for at least 5 years – longer if required by other Federal, state or local ordinances, or program or contract requirements – to document plan implementation and maintenance. As applicable, include:

1. Soil, plant tissue, water, manure, biosolid, and organic by-product analyses resulting in recommendations for nutrient application.
2. Nutrient sources and analyses, rates as applied, placement, timing (dates) of nutrients applied, and a summary of actual pounds of nutrients applied per acre.
3. weather conditions and soil moisture at the time of application; lapsed time to incorporation; and rainfall or irrigation event,
4. Record of equipment calibration.
5. Crops planted, planting and harvest dates, yields, nutrient analyses of harvested biomass (if applicable), and crop residues removed, and

6. Identify variations from the nutrient management plan, evaluate why the variation occurred, and determine if a plan needs to be updated. Document decision.
7. Dates of plan review, name of reviewer, and recommended changes resulting from the review.
8. Manure exports, imports or internal transfers (if applicable), including:
   a. Name and address of recipient (if exporting) or originating operation (if importing), or facility ID (if internal transfer),
   b. Manure type, amount, transfer date and copy of manure analysis (if exported or imported).

4. ☐ **Case File Information for NRCS CNMP Client File** (In addition to requirements outlined above (190 GM-405 CNMP, October 2015)). **Note: This is a list of what should be in the case file. For a list of specific TSP deliverables, see Exhibit F – CAP 102 CNMP Administrative Checklist.**

a. ☐ Printed and electronic copy of the CNMP document or reference where these are located

b. ☐ Client Information;

c. ☐ Client's Objectives and Resource Concerns;

d. ☐ Environmental Documentation – Form NRCS-CPA-52 "Environmental Evaluation Worksheet" and any other documentation needed to meet the requirements of NEQP or other applicable environmental requirements, such as ESA. (Completed by NRCS only);

e. ☐ CNMP and record of decisions (practice schedule), with planner, decision maker, and local conservation district (if required signature);

f. ☐ Assistance Notes
   i. Include information about conservation practices (e.g. to address air quality) that the client had interest, but chose not to put in the CNMP.

g. ☐ Data Inventory for Planning Livestock Waste Management Systems (IA-ENG-48):
   i. Livestock Inventory;
   ii. Manure and Waste Water storage, handling and transfer;
   iii. Land Application Sites;
   iv. Nutrient Management:
      1. Cropping and Yield History,
      2. Tillage Information,
      3. Soil Test Results (no older than three years),
      4. Manure Analyses (all reports up to 5 years);

h. ☐ Geospatial layers (if available) for planned land units, practices, resource inventory, and other map features;

i. ☐ Maps used in CNMP development process – conservation plan, soils, CNMP map of headquarters with livestock support facilities and features, land treatment maps, and any other maps needed to communicate the existing and planned practices;

j. ☐ Forms and worksheets used in developing and evaluating alternatives;

k. ☐ Local conservation district information related to the plan;

l. ☐ Inventory Analysis and Resource Risk Assessments data;

i. Estimated Manure and Wastewater production; nutrient losses due to storage, handling and application; nutrient (nitrogen, phosphorus, and potassium) available for crop uptake,
ii. RUSLE2 runs P-Index erosion estimator values for each land treatment site,
iii. Phosphorus Index Summary Reports for each land application site, soil test run or management unit. Reports should be labeled properly to correspond with land unit site number and/or name,
iv. Nitrogen Risk Assessments for each land application site or management unit if not already including Phosphorus Index Summary Reports.
v. Air quality site assessments (as applicable):
   1. NAQSAT Baseline Report and
   2. NAQSAT Updated Report for planned changes.

m. ☐ Photographs, audio and video files (Properly labels with dates, location and responsible party);

n. ☐ Determinations (i.e. HEL, wetland);

o. ☐ Other supporting documents and local or State-required documentation;

p. ☐ Engineering notes;

q. ☐ All electronic files or printed documents (if electronic files are not available (used for design and nutrient management planning.

COMMENTS: Use this space for installation notes or explanation of unchecked items (attach additional pages as needed):

SUPPORT REFERENCES

- 190 – General Manual, Part 405 – Comprehensive Nutrient Management Plans.
- Iowa NRCS Electrical Field Office Technical Guide (eFOTG). Access at http://efotg.nrcs.usda.gov.
    - Iowa eFOTG, Section IV - Conservation Practices (include titles and dates. Copies are not required)
        - Nutrient Management Standard (590) (Required)
        - Other practices as cited in the plan

SUPPORT FORMS

- Purdue Manure Management Planner or equivalent. http://www.purdue.edu/agsoftware/mmp/

STATE CONTACT

NRCS State Resource Conservationist
210 Walnut Street, Room 693
Des Moines IA 50309-2180
515/284-4370
http://www.ia.nrcs.usda.gov/

Natural Resources Conservation Service

STATEMENT OF WORK
Nutrient Management (590) Plan
IOWA

Client: _____ TSP/Reviewer: _____

Field Office/County: _____ Date: _____

NMP PLANNING

To develop the NMP follow the guidance and processes in the NRCS General Manual – Title 190, Part 402 – Nutrient Management. Additional information is available in the current Iowa Nutrient Management (590) Conservation Practice Standard and the Conservation Activity Plan's (CAP) *Nutrient Management Plan Criteria Practice Activity Code (104) (No.)* document which is potentially updated annually.

A Nutrient Management Plan (NMP) addresses, as a minimum, the following resource concerns to the planning criteria level:

- *DEGRADED PLANT CONDITION – Undesirable Plant Productivity and Health,*
- *WATER QUALITY DEGRADATION – Excess nutrients in surface and ground water*;

Optionally, the NMP addresses the following resource concerns:

- AIR QUALITY IMPACTS – Emissions of Particulate Matter - PM - and PM Precursors
- AIR QUALITY IMPACTS – Emissions of Greenhouse Gases – GHGs
- AIR QUALITY IMPACTS – Emissions of Ozone Precursors
- AIR QUALITY IMPACTS – Objectionable odors
- SOIL QUALITY DEGRADATION – Compaction

Additionally, the plan will address, if they are used, the proper utilization of manure, municipal and industrial biosolids, and other organic by-products as plant nutrient sources.

If this Nutrient Management Plan is part of a Comprehensive Nutrient Management Plan (CNMP), be aware of the linkages with the CNMP (e.g. amounts of manure and nutrients generated; estimated manure analysis, sheet, rill, and ephemeral gully estimates; acres needed to apply manure; etc.) and maintain communication with the other planners. Section 1, below, the *Record of Decisions for Land Treatment Areas* may have been completed by the CNMP Planner along with the National Air Quality Site Assessment Tool resource concern analysis. Some Case File items may be provided by the CNMP planner.

NUTRIENT MANAGEMENT PLAN DELIVERABLES

Self-certify completion of deliverables using this SOW as a checklist. If a box is left unchecked, provide an explanation why information was not applicable or completed. Submit the deliverables in an organized format including a table of contents. When a template for Purdue Manure Management Planner has been finalized as the Job Sheet/Implementation Requirements, this document will be updated to align with that format.

Though NRCS suggests using Purdue Manure Management Planner, the NMP is written for the client. The planner is encouraged to provide additional guidance or to design additional tables or maps to present the information in the NMP in ways that the client can better understand the plan and can successfully implement it.

Provide copies/verification/documentation for each deliverable to NRCS. Include an electronic copy of the deliverables in addition to the hard copy.

STATEMENT OF WORK
Nutrient Management (590) Plan
IOWA

1. **Record of Decisions for Land Treatment Areas (Cropland, Pasture, or other land receiving manure application).**

a. ☐ Plan map or sketch for each land application sites (GIS-developed map is preferred). Follow map requirements in NPPH Title 180, part 600.31 subpart A. Include the following, if applicable, but not limited to:
   i. fields delineated with ID and acres,
   ii. Location of existing and planned conservation practices necessary for the NMP to function

b. ☐ Soils map and interpretations
   i. Identification of soil representing the dominant critical area (Choosing the Planning Area of a Field by "Dominant Critical Area")

Include in the plan map:
1) Title block with the title, client name, "*Prepared with assistance from USDA-NRCS*", *ASSISTED by [planners name]",* and date prepared;
2) *Scale of map;*
3) *Geographic coordinates;*
4) *North arrow; and*
5) *Applicable map symbols and map legend.*

c. ☐ Topographic map

d. ☐ Reports of resource concern assessments using Resource Concern Measure and Assessment Tools. Document that the Planning Criteria is met. *Use the current tool and Basic Assessment Level.* (National and State Resource Concerns **(RC)** and Planning Criteria **(PC)**, FOTG, Sec. III).

Resource Concern (RC)	Tool	RC Identified	Addressed
• SOIL EROSION – sheet, rill, & wind erosion	RUSLE2, Integrated Erosion Tool	☐	☐*
• SOIL EROSION – concentrated flow erosion	field measurement & observation	☐	☐*
• Other (specify) _____		☐	☐

*Meeting the Planning Criteria for sheet, rill, and wind erosion ("T") or for concentrated flow erosion is not required for a NMP, though it is highly recommended. If plan is part of a CNMP, meeting "T" is required. However, the resource concern analysis will be used in the Iowa P-Index below and the PC will be met there.

e. ☐ Record of Decisions for the crop/pasture land - Provide list the conservation practices for the land receiving the manure, including tract, land unit type, and planned amount/date.
   i. Check the box(s) to indicate supporting practices needed for the NMP to function.

☐ Conservation Crop Rotation (328) Ac.
☐ Constructed Wetland (656) Ac.
☐ Contour Farming (330) Ac.
☐ Cover Crops (340) Ac.
☐ Critical Planting Area (342) Ac.
☐ Denitrifying Bioreactors (605) Ac.
☐ Diversion (362) Ft.
☐ Drainage Water Management (554) Ac.
☐ Field Border (386) Ft.
☐ Filter Strip (393) Ac.
☐ Grade Stabilization Structure (410) No.
☐ Grass Waterway (412) Ac.
☐ Heavy Use Production Area (561) Sq. Ft.
☒ Nutrient Management (590) Ac. **(see sec. 2)**
☐ Residue and Tillage Management, No-Till (329) Ac.
☐ Residue and Tillage Management, Reduced Till (345) Ac.
☐ Riparian Forest Buffer (391) Ac.
☐ Saturated Buffer (604) / Vegetated Subsurface Drain Outlet (739) Ft.
☐ Terrace (600) Ft.
☐ Underground Outlets (620) Ft.
☐ Water & Sediment Control Basin (638) No.
☐ Other (specify) ____
☐ Other (specify) ____

f. ☐ **For practices installed prior to this plan** verify and document that the practices are functioning. Reference or include the Implementation Requirements/Job Sheets or Plans and Specifications, Operations, and Maintenance (e.g. state that, "Engineering plans and Operations and Maintenance requirement for [specified practice] are located in [client's] case file at the NRCS/SWCD [specific location] Field Office"). For practices installed without NRCS assistance note in the Record of Decisions that the

structure was installed without NRCS technical or financial assistance. To ensure the client understands and can successfully implement the plan include practice Operation and Maintenance information as needed.

g. ☐ **For newly planned agronomic conservation practices** (e.g. No-Till (329); Cover Crop (340), etc.) include the completed Implementation Requirements/Job Sheets or Plans, Specifications, Operations, and Maintenance. The implementation requirements for Nutrient Management (590) will be documented in section 2, Nutrient Management.

h. ☐ **For newly planned engineering practices** the implementation requirements will be completed at the time of implementation. However, for the client to understand the full implications of the NMP to their operation, consider providing implementation requirements for relevant new engineering practices in this plan as needed and feasible.

2. Nutrient Management

a. ☐ **Client's nutrient management objectives**.

b. ☐ **Statement of local, state, and/or federal standards** and/or requirements the plan is designed to meet; tools and data sources used; and assumptions made.
   i. Assessment of the adequacy of the acres for land application of manure from this animal feeding operation.

c. ☐ **If manure, biosolids, or other organic by-products are applied, include:**
   i. Estimated annual amounts of manure, biosolids, or other organic by-product (if appropriate)
   ii. When the product is available for application,
   iii. Total annual available nutrients (N-P-K)) from the products,
   iv. Total annual available nutrients (N-P-K) available after losses from storage and application. (use ISU interpretations)
   v. Estimated land requirements for N and P based on clients cropping practices and yields (optional until report is available in MMP).
      1. Alternatively, the plan could report how much total product could be applied and when.

d. ☐ **Plan map** or sketch for each land application sites (GIS-developed map is preferred). May be part of the conservation plan map for section 3. Follow map requirements in NPPH Title 180, part 600.31 subpart A. Include the following, if applicable, but not limited to:
   i. Fields delineated with ID, total acres, and spreadable acres (if different). Make sure the field IDs make sense to the client and are consistent among maps and tables.
   ii. Location of water quality sensitive areas including lakes, ponds, streams, other perennial water bodies, Iowa Designated Wetlands, High Quality Water Resources (DNR 117), sinkholes, drainage wells, wells, classic gullies, drainage ditches, *tile line surface and blind inlets for tile lines which run unmitigated to surface or groundwater,* or other direct conduits to surface or groundwater.
   iii. Setbacks or Filter Strip (393) to protect the sensitive area, if required. Or for tile inlets specify alternative practice(s) from the Nutrient Management (590) standard.
   iv. Identify areas which flood more than once every 10 years.
   v. Other site information features which may influence manure application, such as property boundaries, nearby residences, or other locations where humans may be present on a regular basis (parks,

> Include in the plan map:
> 6) Title block with the title, client name, "*Prepared with assistance from USDA-NRCS*", *ASSISTED by [planners name]",* and date prepared;
> 7) *Scale of map;*
> 8) *Geographic coordinates;*
> 9) *North arrow; and*
> 10) *Applicable map symbols and map legend.*

schools, churches, etc.), and any identified meteorological (e.g., prevailing winds at different times of the year), or topographical influences that may affect the transport of odors to those locations.

e. ☐ **Soils map and interpretations** (may use from Section 2)
   i. Identify soil representing the dominant critical area (Choosing the Planning Area of a Field by "Dominant Critical Area")

f. ☐ **Topographic map** (may use from Section 2)

g. ☐ **Reports of resource concern assessments** using Resource Concern Measure and Assessment Tools. Document that the Planning Criteria is met. *Use the current tool and Basic Assessment Level.* (National and State Resource Concerns **(RC)** and Planning Criteria **(PC)**, FOTG, Sec. III).

Resource Concern (RC)	Tool	RC Identified	PC Met
• DEGRADED PLANT CONDITION – Undesirable Plant Productivity and Health **(REQUIRED)**	Client Input/Planner Observation, Nutrient Management 4Rs	☐	☐
• WATER QUALITY DEGRADATION – Excessive sediment in surface water	Iowa P-Index	☐	☐
• WATER QUALITY DEGRADATION – Excess nutrients in surface and ground water **(REQUIRED)**	Iowa P-Index	☐	☐
• WATER QUALITY DEGRADATION – Excess pathogens and chemicals from manure, bio-solids, or compost applications	Iowa P-Index	☐	☐
• AIR QUALITY IMPACTS – Emissions of Particulate Matter - PM - and PM Precursors	NAQSAT*	☐	☐
• AIR QUALITY IMPACTS – Emissions of Greenhouse Gases – GHGs	NAQSAT*	☐	☐
• AIR QUALITY IMPACTS – Emissions of Ozone Precursors	NAQSAT*	☐	☐
• AIR QUALITY IMPACTS – Objectionable odors	NAQSAT*	☐	☐
• Other (specify) _____		☐	☐

*Use the NAQSAT tool results from Section 1 assessments for transport and application of manure.

h. ☐ **Soil Test Result Data**.
   i. Specify type of sampling based on ISU guidelines
      1. Sample represents no more than 10 acres, random zigzag pattern from each sampling area OR
      2. If using grid-point sampling, sample represents no more than 2.5 acres
      3. Number of cores/sample.
   ii. Map of soil sampling areas with site name/number -- e.g. client's name for the field – georeferenced to correlate with Tract and Field.
   iii. Sampling date (Soil samples no older than 2 years)
   iv. Specify sample depths,
   v. Specify P and K lab method (e.g. Bray P_1, Mehlich 3 K, Field-moist, etc.)
   vi. Test, at a minimum, for pH, BpH (if applicable), P, K, and organic matter.

vii. Use ISU interpretations and recommendations of the soil test (may vary from lab interpretations and recommendations)

i. ☐ **Summary of existing manure, wastewater, biosolid, compost, etc. sample analyses (if applicable),** include:
   i. Total Ammonium-N, Total Organic-N and Total N Values.
   ii. Total P and K values.
   iii. Percent moisture / dry content.
   iv. Use ISU interpretations of plant available nutrients depending on management (may vary from lab interpretations).

j. ☐ **Land application sites –** Summary table that includes:
   i. Site number or site name & legal description.
   ii. Land owner name, address and contact number.
   iii. Land operator, address and contact number.
   iv. Spreadable acres (subtract setback acres), separate irrigated and non-irrigated acres.
   v. Setbacks required or narrative setback statement.
   vi. Crop type & yield.

k. ☐ **Soil & Risk Assessments**
   i. Develop summary table(s) representing risk assessments results for P to include the following:
      1. Site number/name,
      2. P-Index risk value (numeric).
         a. Include estimate of ephemeral gully erosion.
         b. Include interpretation and verify that the site vulnerability ratings criteria are met for each field in the plan,
         c. All conservation practices used for the risk assessment are included in the Section 2 conservation plan.
         d. Soil phosphorus test values are same as in the soil test reports,
      3. RUSLE2 or Purdue Manure Management Planner erosion estimate for soil loss (T/ac). May reference section 2.
         a. Verify that all fields are at or below “T”, Tolerable soil loss (Alternative Conservation Systems are not adequate).
         b. Verify that all relevant manure and fertilizer passes are included
         c. Verify if residues are removed by bedding or biofuels, that this was included
      4. Leaching Index value (Optional. No interpretation is required)
   ii. If any phosphorus risk assessments result in a high or very high rating, provide a narrative statement on nutrient application plans (P-based or no manure) and if any plans are being made to incorporate land treatment or additional management practices for that land site.

l. ☐ **Complete nutrient management plan** for nitrogen, phosphorus, and potassium for five years or the length of one crop rotation – whichever is longer – for all planned nutrient applications (manure, wastewater, biosolids, commercial fertilizer, etc.) showing:
   i. Crop nutrient requirements based on planned crop and realistic yield potential using Iowa State agronomic recommendations.
      1. State how the realistic yields were determined (i.e. field data, use of values in the eFOTG, etc.).
   ii. Nutrient Credits (if applicable)
   iii. Planned nutrient recommendations and applications from all sources (i.e. manure, commercial fertilizer, etc.). For each source, provide:
      1. Nutrient source including any Enhanced Efficiency Fertilizer formulations (e.g. nitrification or urease inhibitors),
      2. Estimated application rates/amounts per acre,
      3. Application placement,

4. Application timing (fall (soil temp >50º or <50º), spring, sidedress (specify), or summer).

iv. Manure Application
1. Description of application method and equipment
2. Estimated loads and/or hours of application per season based on annual manure/wastewater production (optional)
3. Account for manure applications prior to plan years if they will impact the plan
   a. Recommend starting rotation one year prior in MMP as results are more consistent
4. Specify timing, e.g.
   a. for fall applied ammonia N such as anhydrous ammonia, manure in which > 20 lbs/acre NH_4^+-N is applied, or MAP/DAP plan to apply late in the fall when the mid-day soil temperature, at 4" soil depth, is below 50^0F and trending colder.

v. Verify and document.
1. Using the Corn Nitrogen Rate Calculator (Maximum Return to Nitrogen), CROP 3073: Nitrogen Use in Iowa Corn Production, or PM 1714: Nitrogen Fertilizer Recommendations for Corn in Iowa for the N-rate.
   a. For recommendations that are a range, specify why a specific part of the range is used.
   b. If IDNR documents are used and different N-rates are used, provide guidance to client on how to use this conflicting data.
   c. Account the N in MAP and DAP
   d. Optional – Include Rescue N guidance
2. Using PM 1688: A General Guide for Crop Nutrient and Limestone Recommendations in Iowa for the P, K, and, optionally, lime applications.
3. The N, P, and K units are as consistent as is feasible in the document and well labelled to avoid confusion.

m. ☐ **If P applications are in excess of crop removal** (possible for manure applications when the P-Index is very low, low, or medium and soil test P is optimum or higher),
i. State the rationale for the excess application (e.g. disposing of the manure)
ii. If the soil test phosphorus levels are high or very high and/or increasing,
1. include a discussion of the risk associated with phosphorus accumulation,
2. estimate using the P-Index when P should no longer be applied,
3. propose a P stabilization or draw-down strategy to optimum soil test P, and
4. formulate alternative manure management strategies to reduce application rates (i.e. use it to fertilize more land to better optimize the use of the resource),

n. ☐ **If plan includes precision/variable-rate application**:
i. Include geo-referenced maps showing spatially variable application areas (site-specific recommendation or as-recommended maps).
ii. Document the nutrient recommendation guidance and recommendation equations used to convert the GIS base data layer or layers to a nutrient source material recommendation GIS layer or layers.
   1. Follow Iowa State University recommendations
iii. Document if a variable rate nutrient or soil amendment application was made.
iv. Provide application records per management zone or as applied map within individual field boundaries (or electronic records) documenting source, timing, method, and rate of all applications that resulted from use of the precision agriculture process for nutrient or soil amendment applications.
v. Maintain the electronic records of the GIS data layers and nutrient applications for at least 5 years.

o. ☐ **Operation and Maintenance**. Provide guidance in the plan to:
i. Specify the soil test cycle
   1. Monitor fields receiving animal manures and/or municipal or industrial biosolids for the accumulation of phosphorus.

ii. Specify the manure test cycle, if applicable. If feed management, animal numbers or type, manure handling strategy, storage time, etc., change significantly, re-inventory the manure resource and re-analyze the manure.
iii. Conduct periodic plan reviews to determine if adjustments or modifications to the plan are needed. At a minimum, plans must be reviewed, evaluated, and, if needed, revised, with
   1. Each soil test cycle,
   2. Changes in manure volume or analysis, or
   3. Changes in crops or crop management.
iv. Specify calibration of manure and fertilizer application equipment at least annually to ensure proper placement or material at planned rates. Provide clear guidance on how to calibrate, i.e.
   1. Use ISU PM-1941 "Calibration and Uniformity of solid Manure Spreaders" or PM-1948 "Calibrating Liquid Tank Manure Applicators."
   2. For custom applicators or rented equipment, verify that the operator or owner has calibrated applicators.
   3. For anhydrous ammonia traditional calibration is dangerous. Rather, verify that the applicator is properly plumbed. See PM-1875 "Improving the Uniformity of Anhydrous Ammonia Application" for guidance. Note that other effective manifolds are now available. Verify that anhydrous ammonia is injected to the proper depth and good soil coverage is provided.

p. ☐ **Record Keeping**
i. Maintain records for at least 5 years – longer if required by other Federal, state or local ordinances, or program or contract requirements – to document plan implementation and maintenance. As applicable, include:
   1. Soil, plant tissue, water, manure, biosolid, and organic by-product analyses resulting in recommendations for nutrient application.
   2. Nutrient sources and analyses, rates as applied, placement, timing (dates) of nutrients applied, and a summary of actual pounds of nutrients applied per acre.
   3. weather conditions and soil moisture at the time of application; lapsed time to incorporation; and rainfall or irrigation event,
   4. Record of equipment calibration.
   5. Crops planted, planting and harvest dates, yields, nutrient analyses of harvested biomass (if applicable), and crop residues removed, and
   6. Identify variations from the nutrient management plan, evaluate why the variation occurred, and determine if a plan needs to be updated. Document decision.
   7. Dates of plan review, name of reviewer, and recommended changes resulting from the review.

3. ☐ **Case File Information for NRCS NMP Client File** (In addition to requirements outlined above (190 GM-402 NMP)). **Note: This is a list of what should be in the case file. For a list of specific TSP deliverables, see Exhibit F – CAP 104 NMP Administrative Checklist.**

a. ☐ Printed and electronic copy of the NMP document or reference where these are located

b. ☐ Client Information;

c. ☐ Client's Objectives and Resource Concerns;

d. ☐ Environmental Documentation – Form NRCS-CPA-52 "Environmental Evaluation Worksheet" and any other documentation needed to meet the requirements of NEQP or other applicable environmental requirements, such as ESA. (Completed by NRCS only);

e. ☐ NMP and record of decisions (practice schedule), with planner, decision maker, and local conservation district (if required signature);

f. ☐ Assistance Notes
   i. Include information about conservation practices (e.g. to address air quality) that the client had interest, but chose not to put in the NMP.

g. ☐ Inventory
   1. Cropping and Yield History,
   2. Tillage Information,
   3. Soil Test Results (no older than three years),
   4. Manure Analyses (all reports up to 5 years);

h. ☐ Geospatial layers (if available) for planned land units, practices, resource inventory, and other map features;

i. ☐ Maps used in NMP development process – conservation plan, soils, NMP map of headquarters with livestock support facilities and features, land treatment maps, and any other maps needed to communicate the existing and planned practices;

j. ☐ Forms and worksheets used in developing and evaluating alternatives;

k. ☐ Local conservation district information related to the plan;

l. ☐ Inventory Analysis and Resource Risk Assessments data;
   i. RUSLE2 runs P-Index erosion estimator values for each land treatment site,
   ii. Phosphorus Index Summary Reports for each land application site, soil test run or management unit. Reports should be labeled properly to correspond with land unit site number and/or name,
   iii. Air quality site assessments (as applicable):
      1. NAQSAT Baseline Report and
      2. NAQSAT Updated Report for planned changes.

m. ☐ Photographs, audio and video files (Properly labels with dates, location and responsible party);

n. ☐ Determinations (i.e. HEL, wetland);

o. ☐ Other supporting documents and local or State-required documentation;

p. ☐ Engineering notes, if applicable;

q. ☐ All electronic files or printed documents (if electronic files are not available (used for design and nutrient management planning.

COMMENTS: Use this space for installation notes or explanation of unchecked items (attach additional pages as needed):

SUPPORT REFERENCES

- 190 – General Manual, Part 402 – Nutrient Management.
- Iowa NRCS Electrical Field Office Technical Guide (eFOTG). Access at http://efotg.nrcs.usda.gov.
  - Iowa eFOTG, Section IV - Conservation Practices (include titles and dates. Copies are not required)
    - Nutrient Management Standard (590) (Required)
    - Other practices as cited in the plan

SUPPORT FORMS

- Purdue Manure Management Planner or equivalent. http://www.purdue.edu/agsoftware/mmp/

STATE CONTACT

NRCS State Resource Conservationist
210 Walnut Street, Room 693
Des Moines IA 50309-2180
515/284-4370
http://www.ia.nrcs.usda.gov/

DATA INVENTORY FOR PLANNING LIVESTOCK WASTE MANAGEMENT SYSTEMS

prepared by: _____ *date:* _____

I. BASIC DATA

(See AWMFH Chpt. 2)

A. Contacts

Name of Operation……..: _____

Name of Owner/Operator...: _____ *Name of Facility……:* _____

Principal Contact……..: _____ *Twnshp-Range-Section…..:* _____

Address (RR, PO Box, etc.): _____ *Address (RR, PO Box, etc.):* _____

City, State, Zip……..: _____ *City, State, Zip……..:* _____

Telephone No……..: _____ *Telephone No……:* _____

B. Facility Description *(give a brief description of the facilities, any special problems & management objectives)*

C. Waste Management Data

How many times per year is manure/waste collected ? _____ Is waste stored on site before disposal/use? yes no

If yes, describe how, where and how long ? _____

Existing Handling Method(s): ___ *Liquid* ___ *Slurry* ___ *Solid* Describe existing waste handling equipment:

Describe the frequency for cleaning lots, lanes, feed bunk areas, etc., or frequency & volume of flushing holding pits, gutters, parlor & equipment, etc. _____

How is storm runoff currently handled? _____

Are dead animals currently disposed of on site? yes no If yes, how? _____

Are there local zoning or other regulations that will affect waste management at this facility? yes no

If yes, explain: _____

II. WASTE PRODUCTION DATA

(see AWMFH Chpt.4)

A. Animal Inventory

(a) Animal Type(s)	(b) Existing Capacity (# head)	(c) Maximum Capacity (# head)	(d) Working Capacity (# head)	(e) Average Weight (lb.)	(f) Animal Units (no.)	(g) Confinement Period(s) (from __ to __)
Confinement						
Open Lot						
		Total AU's in Confinement[h]				
		Total AU's in Open Lot[i]				
		Total AU's for Animal Type 1:				
		Total AU's for Animal Type 2:				
		Total AU's (of same species) [h + i]				

(a) Describe all animals confined by species, age class (cow vs. calf), management group (lactating vs. dry cow), etc.
(b) Number of animals on site when inventory was made.
(c) Estimate the maximum number of animals that could occupy the facility.
(d) Annual average working capacity to be used for planning and design - include proposed expansion.
(e) Estimate the average weight of this type of animal during its confinement period.
(f) Use IDNR Animal Unit definitions: Slaughter and Feeder cattle, 1.0; Immature Dairy Cattle, 1.0; Mature Dairy Cattle, 1.4; Butcher or Breeding Swine Weighing more than 55 lbs, 0.4; Swine weighing more than 15 lbs but not more than 55 lbs, 0.1; Sheep or Lambs, 0.1; Horses, 2.0; Turkeys, 0.018; Broiler or Layer Chickens, 0.010. Otherwise use the following for animal species not listed previously, multiply the working capacity (b) by the average weight (d) and divide by 1,000 lb.
(g) Show the usual time period(s) this type of animal is confined in the facility (e.g. January to April, October to December, etc.).
(h) Construction permits and manure management plans are not required for operations less than 500 AU's.
(i) Construction/NPDES permits are not required for operations with less than 1,000 AU's. NPDES permit may be required if operation traverses water of the state or discharges directly via a man-made conveyance.

General Note: Current Iowa regulations determine permit requirements based on housing used (confinement or open lot) and on the total animal units of each species on site, regardless of housing situation.

B. Other Solid Waste Generation

Source	Current Volume	Units	Proposed Volume	Units	Notes/Explanation
Bedding ..... :		cu.ft./day		cu.ft./day	
Waste Feed ..... :		cu.ft./day		cu.ft./day	
Dead Animal Carcasses:		# head/yr		# head/yr	
Other ..... :					

C. Process Wastewater Generation

Source	Existing Use		Proposed Use		Notes/Explanation
Milking Parlor ..... :		gal/day		gal/day	
Milkhouse related .....:		gal/day		gal/day	
Silage Pit Seepage ..... :		gal/day		gal/day	
Flush tanks/gutters/etc. :		gal/day		gal/day	
Leaking watering facilities:		gal/day		gal/day	
Other ..... :		gal/day		gal/day	

D. Storm Runoff Producing Areas

Source	Existing Area	Units (circle one)	Proposed Area	Units (circle one)	Notes/Explanation
Roofs or Covered Lots ..... :	_____	Sq. Ft. or Ac.	_____	Sq. Ft. or Ac.	_____
Paved open lots ..... :	_____	Sq. Ft. or Ac.	_____	Sq. Ft. or Ac.	_____
Unpaved open lots ..... :	_____	Sq. Ft. or Ac.	_____	Sq. Ft. or Ac.	_____
Contributing Drainage Area :	_____	Sq. Ft. or Ac.	_____	Sq. Ft. or Ac.	_____
Drainage Area to be diverted:	_____	Sq. Ft. or Ac.	_____	Sq. Ft. or Ac.	_____

E. Dust and Odors

Describe any current or anticipated problems resulting from dust or odors produced at the site. _____

_____

_____

III. SITE INVENTORY

(See AWMFH Chpt. 2 & 8)

A. Legal Description

Section ____, Township _____, Range _____, ____ P.M., _____ County

Site is shown on USGS Quadrangle Sheets(s): _____
(attach copy when available)

This site is approximately _____ from _____ .
(distance & direction) (nearest town)

The following table can be used in conjunction with the map on the next page to determine if separation distances are adequate for existing and planned structures (For more details and exceptions to rules see: IDNR website).

DISTANCES TO BUILDINGS AND PUBLIC USE AREAS (FACILITIES less than 1,000 AU'S)			
Type of Structure	Residences, Businesses, Churches, Schools		Public Use Areas
Uncovered earthen manure storage	1,875 feet	1,875 feet	1,875 feet
Covered earthen manure storage	1,250 feet	1,875 feet	1,875 feet
Uncovered formed manure storage structures	1,500 feet	1,875 feet	1,875 feet
Confinement buildings and covered formed manure storage structures	1,250 feet	1,875 feet	1,875 feet
Egg wash water storage structures	1,000 feet	1,875 feet	1,875 feet

DISTANCES TO WELLS				
	Public Well		Private Well	
Type of Structure	Shallow	Deep	Shallow	Deep
Aerobic structure, anaerobic lagoon, earthen manure storage basin, egg wash water storage structure and open feedlot runoff control basin.	1,000 feet	400 feet	400 feet	400 feet
Formed manure storage structure, confinement building, open feedlot solids settling facility and open feedlot	200 feet	100 feet	200 feet	100 feet

OTHER DISTANCES FOR ANIMAL FEEDING OPERATION STRUCTURES (regardless of animal unit capacity)	
Surface intake of an agricultural drainage well or water source other than major (excludes farm ponds, privately owned lakes, or when a secondary containment barrier is provided.)	500 feet
Wellhead, cistern of agricultural drainage well, known sinkholes or major water source (excludes farm ponds, privately owned lakes, or when a secondary containment barrier is provided.)	1,000 feet
Right-of-way of a thoroughfare maintained by a political subdivision (excluding animal feeding operations with 500 or fewer animal unit capacity).	100 feet
Designated wetlands pursuant to subrule 65.11(4) and Iowa Code section 459.310	2,500 feet

The following table can be used in conjunction with the map on the next page to determine if separation distances are adequate for existing and planned stockpiles from open feedlot operations, stockpiles from dry manure confinements, and stockpiles from dry bedded confinement operations. (For more details and exceptions to rules see: IDNR website).

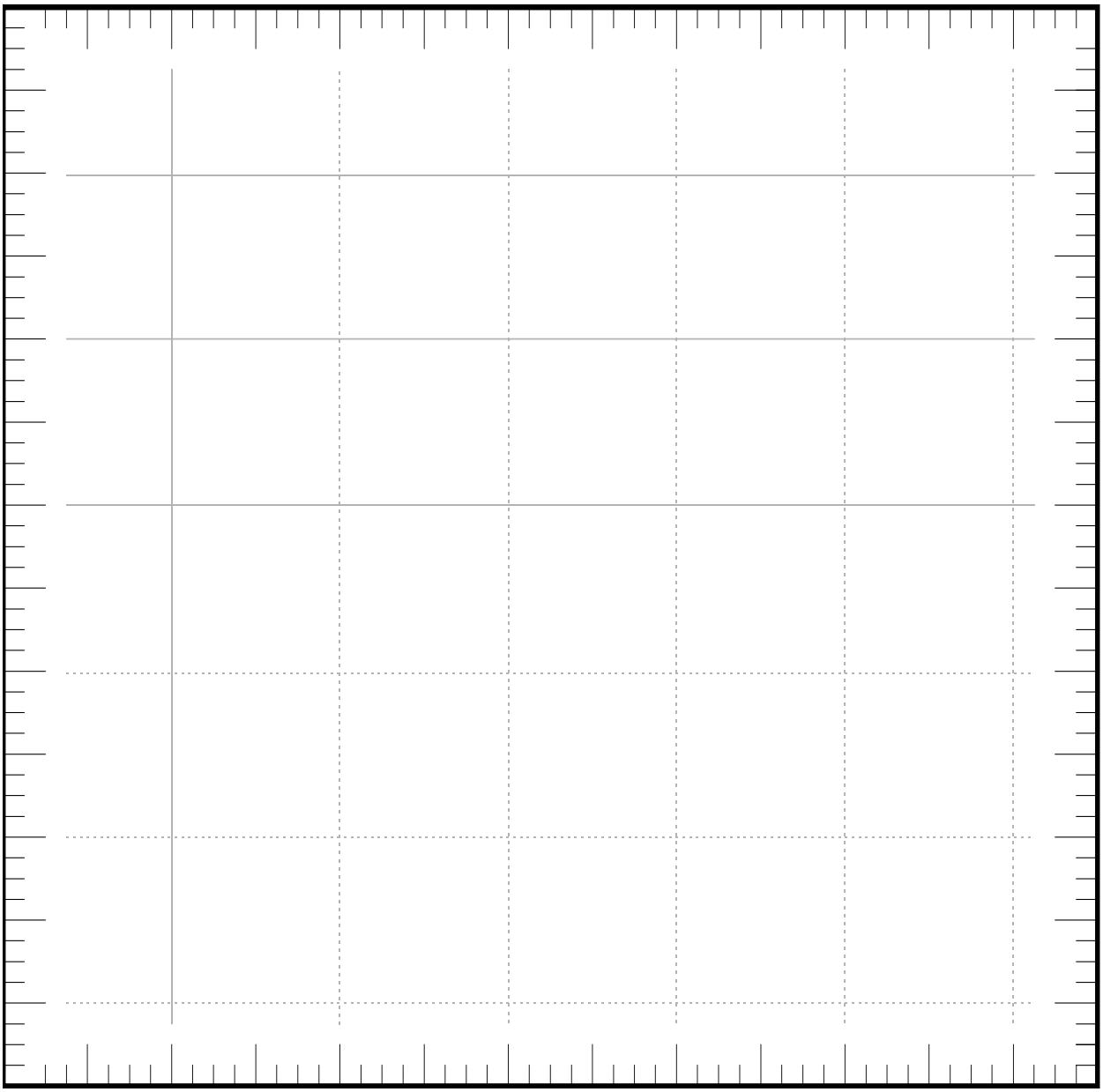
DISTANCES TO RESIDENCES AND SPECIAL AREAS FOR MANURE STOCKPILES[1,2]	
Residence, commercial enterprise, bona fide religious institution, educational instititution, or public use area (does not apply to stockpiles from SAFO sized confinements and open feedlots)	1,250 feet
Designated area other than a high-quality water resource	400 feet[3]
High-quality water resource	800 feet
Terrace tile intake or surface tile intake – unless methods, structures or practices are implemented to contain the stockpiled manure.	200 feet

[1]Manure stockpiles are prohibited on grassed waterways or where water pools on the surface. Manure stockpiles are also prohibited on land with slopes greater than 3% unless methods, structures, or practices are implemented to contain the stockpiled manure to prevent or diminish precipitation-induced runoff from the stockpiled manure.
[2]See subparagraph 65.2(3)"d"(4) and paragraph 65.11(8)"c" for exemptions pertaining to dry manure stockpiles.
[3]For stockpiles from dry manure confinement operations, the separation distance is 800 feet to agricultural drainage wells and known sinkholes.

B. Location Map

Show all of the following within a two mile radius of the facility (note separation distances if possible):

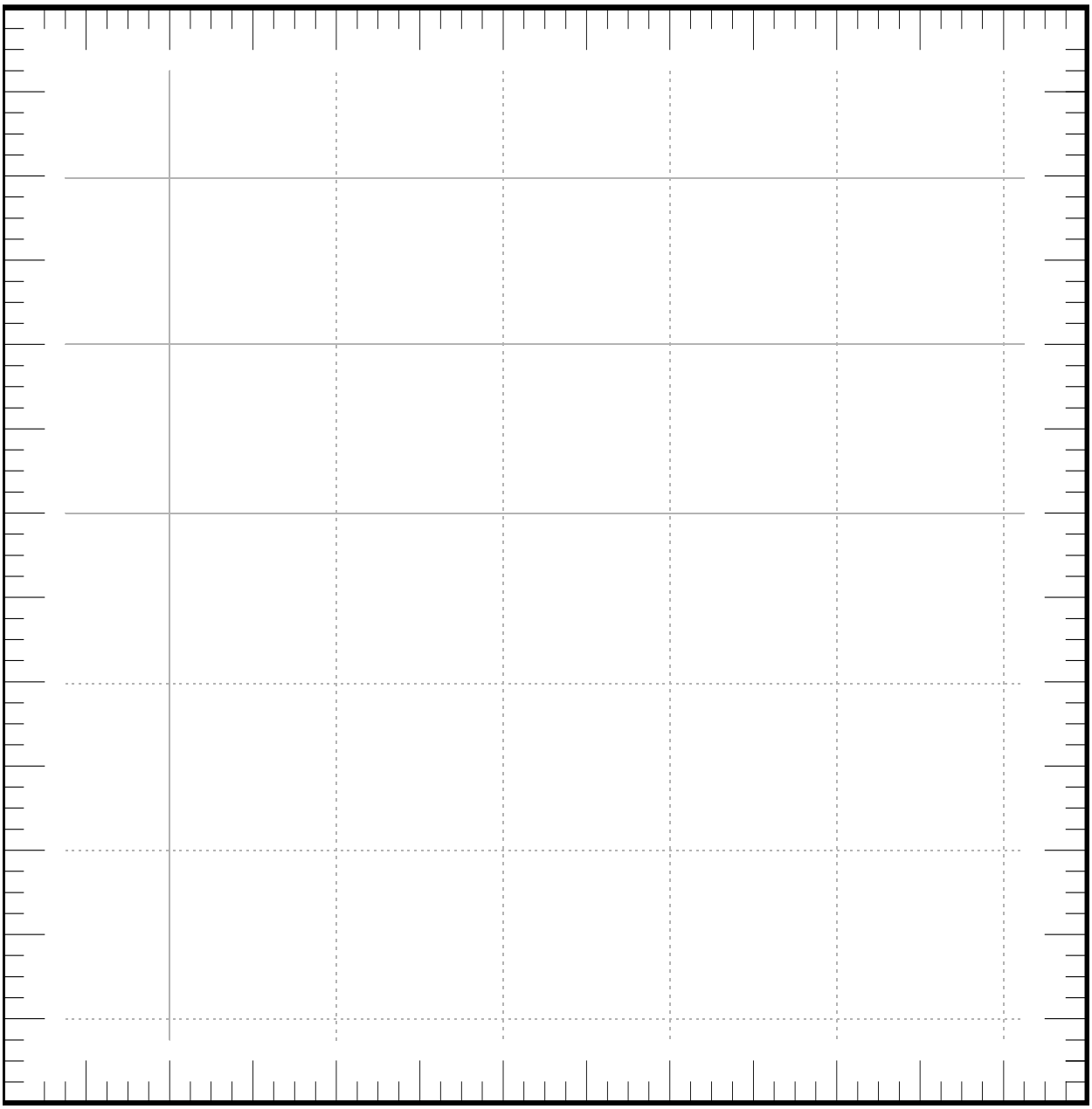
- *Location of the facility, public roads and fields receiving waste from the facility;*
- *Location of public, commercial & residential developments;*
- *Wells, streams, canals, lakes, wetlands, general direction of land slopes, and drainage areas affecting the facility, and the general direction of prevailing winds.*



C. Facility Map

Show pertinent on site features, such as:

- *Location and dimensions of existing or proposed lots, alleys, buildings, ponds, etc.;*
- *Location of all utilities, dwellings, wells & surface water courses at the site; and*
- *Location of soil boring/sampling sites.*



IV. SOILS DATA

(see AWMFH Chpt. 5 , 7, & Appendix 10D)

A. Soil Survey Information

Survey Name: Date: Map Sheet #:

Dominant Soil Series'	% Slope	Texture/Classification USDA	Texture/Classification USCS	% of Site	Depth to Water, (ft)	Describe any limitations or restrictions

B. Well Logs

Attach completion reports, logs, & any other information available for wells at or adjacent to the site. Information may also be available at the Iowa Geologic Survey well database located at: http://gsbdata.igsb.uiowa.edu/geosam/

C. General Remarks & Interpretations

(describe in general any concerns or restrictions that should be considered in the facility plan)

The following table can be used in conjunction with the field map on page 8 of 8 to determine if separation distances are adequate for field application (For more details and exceptions to rules see: IDNR website).

REQUIRED SEPARATION DISTANCES					
	Dry Manure- Surface Application		Liquid Manure - (except irrigated)		
Buildings or Public Use Areas	Incorporated within 24 hrs	Incorporated after 24 hrs or not at all	Direct Injection	Incorporated within 24 hrs	Incorporated after 24 hrs or not at all
Residence, business, church, school, public use area	0 feet	0 feet	0 feet	0 feet	750 feet
	Dry Manure - Surface Application		Liquid Manure - (except irrigated)		
Designated Areas	Incorporated on same date	Not Incorporated	Direct Injection	Incorporated on same date	Not Incorporated
Sinkhole, abandon well, cistern, drinking water well, designated wetland, water source (1)	0	200 feet (50 feet w/buffer)	0	0	200 feet (50 feet w/buffer)
High quality water resource (2)	0	800 feet (50 feet w/buffer)	0	0	800 feet (50 feet w/buffer)
Unplugged ag drainage well, ag drainage well surface inlet (3)	0	200 feet	0	0	200 feet

	Irrigated Liquid Manure	
Protected Areas	Low Pressure (≤ 25 psi)	High Pressure (> 25 psi)
Property Boundary Line	100 feet	100 feet
Buildings or Public Use Areas	250 feet	750 feet
Designated Areas – (1)	200 ft (50 ft w/buffer)	200 ft (50 ft w/buffer)
Designated Areas – (2)	800 feet	800 feet
Designated Areas – (3)	Not Allowed	Not Allowed

V. WASTE UTILIZATION/DISPOSAL DATA

(see AWMFH Chpt. 6 & 11)

Is waste applied on cropland managed by the operation? *yes* *no*

If no, describe disposal methods for manure and other organic by-products of the operation. _____

_____

_____

If yes: (a) Describe methods used for waste transport and application: _____

_____

_____

_____

(b) When is waste spread on the fields? *spring* *summer* *fall* *winter*

(c) Estimate the average annual application rate per field ____ *(tons/acre)* *(1000gal/acre)* *(acre-in.)*

(d) Is the waste sampled and tested for nutrient content before/during application ? *yes* *no*
If yes, list typical test results for:

Total N	_____	NH_4^+	_____
NO_3^-	_____	Total P	_____
Total K	_____	Total Salts	_____

(e) Are the nutrients in the waste used to replace some or all of the commercial fertilizer that would otherwise be applied to the crop ? *yes* *no*

Available Utilization/Disposal Areas

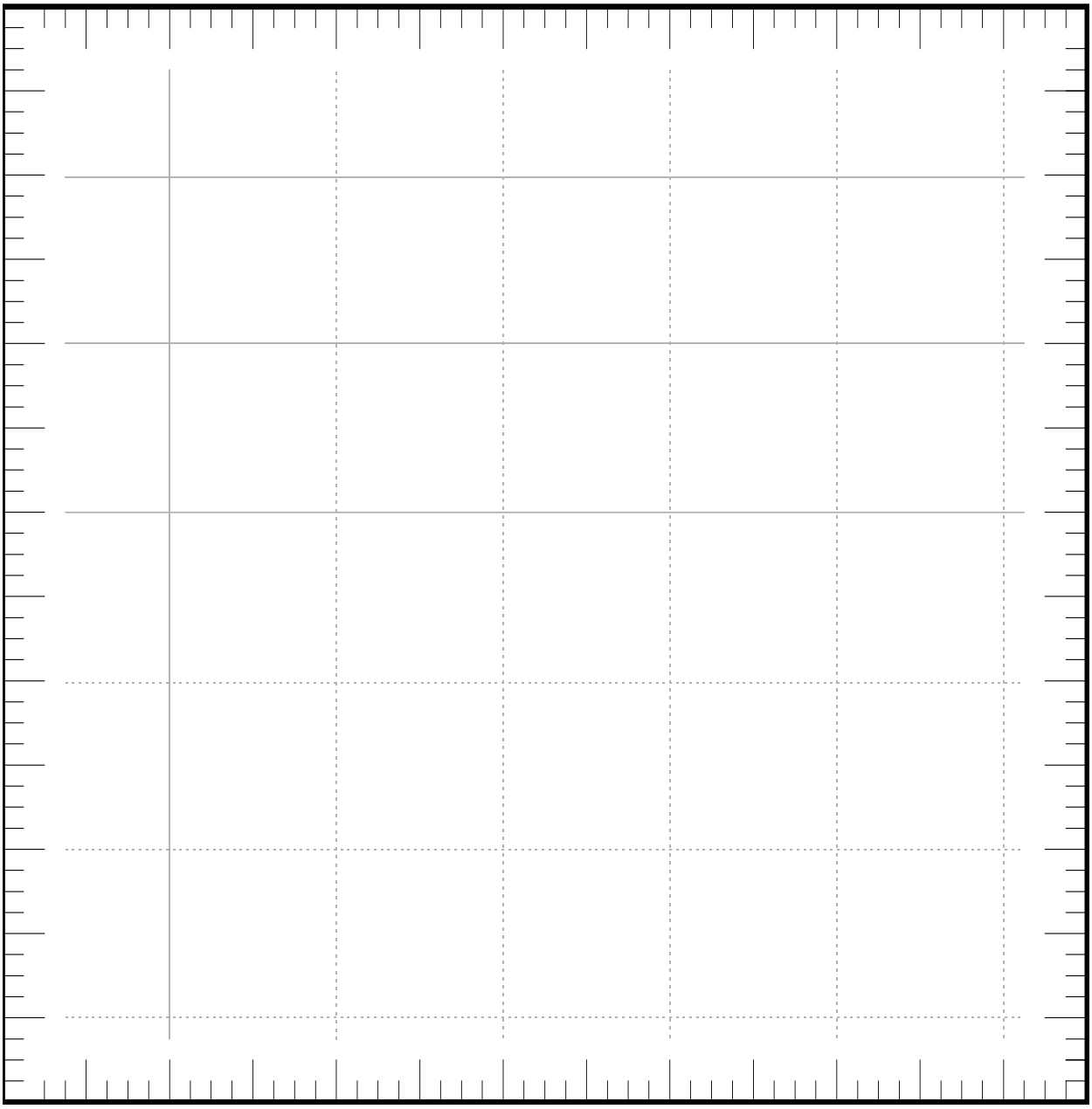
Field No.	Area (acres)	Transport Distance	Soil Type(s)	Slope (%)	Rotation Year	Crop	Yield	List any restrictions on land use

Field Map

Are there soil test available for this field? *yes* *no*
Attach soil tests if available.

Show pertinent on site features and separation distances for:

- *Location of sensitive areas such as water courses, sinkholes, ponds, etc.;*
- *Location of all residences, businesses, public use areas, etc; and*
- *Location of all terraces, waterways, filter/buffer strips, etc.*



Comprehensive Nutrient Management Plan Criteria

Practice Activity Code (102) (No.)

1. **Definitions**

A. A Comprehensive Nutrient Management Plan (CNMP) is a conservation plan that includes a combination of structural practices, management activities, and/or land management practices for an Animal Feeding Operation (AFO) associated with crop or livestock production that collectively ensures that the purposes of crop or livestock production and preservation of natural resources (especially the conservation of air quality, soil erosion, and water quality as related to nutrient related impacts) are compatible. A CNMP consists of the following components:

(1) Signature page with signatures by the Certified CNMP Planner and the client. The signature page must also include farm contact information and the dates of the plan period. See Exhibit A of this Conservation Activity Plan (CAP) 102.

(2) Record of Decisions (planned and applied conservation practices) for the farmstead(s)/AFO (production/manure handling areas). Details will be provided in the CNMP Criteria Section of this CAP 102 and Exhibit A.

(3) Record of Decisions (planned and applied conservation practices) for the crop, pasture, range, and other lands where the nutrients will be applied.

(4) The Conservation Practice Standard (590) Nutrient Management Plan following the established criteria, plans and specifications, operation and maintenance, and recordkeeping.

2. CNMP Criteria

This section establishes the minimum criteria the planner must address in the development and implementation of CNMPs.

A. General Criteria

(1) The CNMP shall meet the Natural Resources Conservation Service (NRCS) planning criteria for water quality (nutrients, organics, and sediments in surface and groundwater), soil erosion (sheet and rill, wind, ephemeral gully, classic gully, and irrigation induced natural resource concerns on the production area and the land treatment area), and air quality (Emissions of Particulate Matter - PM - and PM Precursors and Objectionable Odors)**.**

(2) A CNMP must **c**omply with Federal, Tribal, State, and local laws, regulations, and permit requirements and meet the producer's objectives.

(3) A CNMP must be designed to assist owners/operators in taking voluntary actions to minimize potential pollutants from animal confinement facilities and land application of manure and organic by-products.

(4) Information in the CNMP must document the landowner(s) decisions.

(5) The CNMP must require evaluation and documentation of compliance with the National Environmental Policy Act, the Endangered Species Act, the National Historic Preservation Act, and other effects on the environment. This evaluation and documentation process WILL BE COMPLETED BY NRCS.

(6) A CNMP must be developed by persons who meet NRCS certification requirements. The specific criteria for certification of NRCS employees and conservation partners can be found in NRCS General Manual 180 Part 409. The specific criteria for certification for Technical Service Providers (TSP) is available via the TSP website http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/tsp

(7) All CNMPs must be developed and documented per the general CNMP format shown in Exhibit A of the CAP 102. (**Part 1** – Signature Page; **Part 2** – Record of Decisions for the Farmstead/Production Area(s); **Part 3** – Record of Decision for the Land Treatment Area (cropland, pasture, range land); **Part 4** – Nutrient Management Plan

(8) The nutrient management portion of the CNMP must be developed in accordance with the State nutrient management conservation practice standard (code 590).

(9) In most situations, addressing the CNMP Criteria will require a combination of conservation practices and management activities to meet the production needs of the AFO owner/operator, and resource concerns associated with the farmstead and land treatment areas. The Field Office Technical Guide (FOTG) Section III and National Planning Procedures Handbook contain additional information and guidance.

B. Content and format for the CNMP – See Exhibit A of this CAP 102 for the general format and content.

(1) Signature page with signatures by the Certified CNMP Planner and the client. The signature page must also include farm contact information and the dates of the plan period.

(2) Record of Decisions (planned and applied conservation practices) for the farmstead(s)/AFO (production/manure handling areas). This includes the documentation for all currently applied practices that will be maintained as well as all the planned practices with schedule of implementation to include: month/year of planned application and amount. For practices previously planned and applied with NRCS technical assistance those plans will be in the client case folder in the local NRCS field office (engineering plans, job sheets, or implementation requirements). The engineering plans, job sheets, or implementation requirements for future planned practices are not requirements during this CNMP planning phase, but will be developed by the appropriate entity per the planned schedule of implementation. However, below is an example of how the record of decisions can be documented:

Composting Facility (Code 317) - A composting facility is a structure or device that uses controlled aerobic decomposition to transform waste organic material into a biologically stable product that can be used as a soil amendment.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
(None)	Farmstead			1	2009

Waste Storage Facility (Code 313) - A waste storage facility is an agricultural waste storage impoundment/containment made by constructing an embankment and/or excavating a pit or dugout, or fabricating a structure.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
(None)	Farmstead	1	4/2017		

a. Plan map(s) showing existing and planned structures (See NPPH Title 180, part 600.31 subpart A for map requirements);

b. Soils Map(s) for the headquarters with the appropriate soil interpretations (as needed);

c. A brief description of the AFO (both existing and proposed), including the type of animal, number of animals, average weight, number of days confined, type of manure storage, existing storage volumes/sizes (when applicable) and maximum length of storage available (These are generally tables printed from animal waste planning software.) If applicable, planned imports, exports, and on-farm transfers of manure;

d. Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the case file.) For structures installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structures were installed without NRCS technical or financial assistance. Document whether existing structures are satisfactory (visually appear to be structurally sound and are adequately maintained).

(3) Record of Decisions (planned and applied conservation practices) for the crop, pasture, range, and other lands where the nutrients will be applied. This includes the documentation for all currently applied practices that will be maintained as well as all the planned practices with schedule of implementation to include: month/year of planned application and amount. For practices previously planned and applied with NRCS technical assistance those plans will be in the client case folder in the local NRCS field office (engineering plans, job sheets, or implementation requirements). The engineering plans, job sheets, or implementation requirements for future planned practices are not requirements during this CNMP planning phase, but will be developed by the appropriate entity per the planned schedule of implementation. **However, the Implementation Requirements for practices that were necessary for completing the risk assessments shall be included with the CNMP when developed.** These practices generally include: (328) Conservation Crop Rotation, Tillage Residue Management practices (329 and/or 345), (330) Contour Farming, (585) Strip Cropping, (393) Filter Strip, and (386) Field Border. The Nutrient Management Plan, due to its size and complexity, will be placed in a separate section. Since this is a new format for fiscal year 2016, not all of the CNMP planning software used by the states may look the same. However, below is an example of how the record of decisions can be documented:

Conservation Crop Rotation (Code 328) - Conservation crop rotation is growing a planned sequence of various crops on the same piece of land for a variety of conservation purposes. Implementation Requirements Attached.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

Residue and Tillage Management, No Till (Code 329) - The residue and tillage management no-till/strip till/direct seed practice addresses the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round. Crops are planted and grown in narrow slots or tilled strips established in the untilled seedbed of the previous crop. Implementation Requirements Attached.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

Nutrient Management (590) - Nutrient management involves managing the amount, placement, and timing of plant nutrients to obtain optimum yields and minimize the risk of surface and groundwater pollution.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

a. Plan map(s) showing existing and planned practices and land application setbacks (See NPPH Title 180, Part 600.31 subpart A for map requirements);
b. Soils Map(s) for the crop, pasture, and range with the appropriate soils interpretations (as needed);
c. Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the case file.) For practices installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structure was installed without NRCS technical or financial assistance.
d. Completed Implementation Requirements (as needed).

(4) Nutrient Management

Nutrient Management plans must comply with technical criteria contained in the state approved Nutrient Management Conservation Practice Standard (CPS 590), and address the use and management of all nutrient sources applied on agricultural lands (animal manure, wastewater, commercial fertilizers, crop residues, legume credits, irrigation water, organic by-products, etc.). All nutrient rates (except for precision rate applications), sources, placement, and timing are to be specific for the crop, field, and year. The narrative method may be used for the precision rate calculations as it is impractical to describe actual rates for every unique grid cell/management units and display it in a table.

3. TSP Deliverables:

a. Signature page with signatures by the Certified CNMP Planner and the client. The signature page must also include farm contact information and the dates of the plan period. See Exhibit A.

b. Record of Decisions for the **farmstead(s)**/AFO (production/manure handling areas): Record of decisions and schedule of implementation with a description of the planned and existing practices;
   - Plan map(s) showing existing and planned structures (See NPPH Title 180, part 600.31 subpart A for map requirements);
   - Soils Map(s) for the headquarters with the appropriate soil interpretations (as needed);
   - A brief description of the AFO (both existing and proposed), including the type of animal, number of animals, average weight, number of days confined, type of manure storage, existing storage volumes/sizes (when applicable) and maximum length of storage available (These are generally tables printed from animal waste planning software.) If applicable, planned imports, exports, and on-farm transfers of manure;
   - Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the case file.) For structures installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structures were installed without NRCS technical or financial assistance. Document whether existing structures are satisfactory (visually appear to be structurally sound and are adequately maintained).

c. Record of Decisions (planned and applied conservation practices) for the **crop, pasture, range, and other lands where the nutrients will be applied**. Record of decisions and schedule of implementation with a description of the planned and existing practices;
   - Plan map(s) showing existing and planned practices and land application setbacks (See NPPH Title 180, Part 600.31 subpart A for map requirements);
   - Soils Map(s) for the crop, pasture, and range with the appropriate soils interpretations (as needed);
   - Include the Implementation Requirements for practices that are necessary for completing the risk assessments. These practices generally include: (328) Conservation Crop Rotation, Tillage Residue Management practices (329 and/or 345), (330) Contour Farming, (585) Strip Cropping, (393) Filter Strip, and (386) Field Border. The Nutrient Management Plan, due to its size and complexity, will be placed in a separate section.
   - Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the NRCS office case file.) For practices installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structure was installed without NRCS technical or financial assistance. This includes the documentation for all currently applied practices that will be maintained as well as all the planned practices with schedule of implementation to include: month/year of planned application and amount. For practices previously planned and applied with NRCS technical assistance those plans will be in the client case folder in the local NRCS field office (engineering plans, job sheets, or implementation requirements). The engineering plans, job sheets, or implementation requirements for future planned practices are not requirements during this CNMP planning phase, but will be developed by the appropriate entity per the planned schedule of implementation.

d. The Nutrient Management Plan - The following components must be included in the nutrient management plan:

   - Aerial site photograph(s)/imagery or site map(s), and a soil survey map of the site, (The plan map may be used for this purpose).

- Soil information including: soil type surface texture, pH, drainage class, permeability, available water capacity, depth to water table, restrictive features, and flooding and/or ponding frequency,
- Location of designated sensitive areas and the associated nutrient application restrictions and setbacks,
- For manure applications, location of nearby residences, or other locations where humans may be present on a regular basis, and any identified meteorological (e.g., prevailing winds at different times of the year), or topographical influences that may affect the transport of odors to those locations,
- Results of approved risk assessment tools for nitrogen, phosphorus, and erosion losses,
- Documentation establishing that the application site presents low risk for phosphorus transport to local water when phosphorus is applied in excess of crop requirement.
- Current and/or planned plant production sequence or crop rotation,
- Soil, water, compost, manure, organic by-product, and plant tissue sample analyses applicable to the plan,
- When soil phosphorus levels are increasing, include a discussion of the risk associated with phosphorus accumulation and a proposed phosphorus draw-down strategy,
- Realistic yield goals for the crops,
- Complete nutrient budget for nitrogen, phosphorus, and potassium for the plant production sequence or crop rotation,
- Listing and quantification of all nutrient sources and form,
- All enhanced efficiency fertilizer products that are planned for use,
- In accordance with the nitrogen and phosphorus risk assessment tool(s), specify the recommended nutrient application source, timing, amount (except for precision/variable rate applications specify method used to determine rate), and placement of plant nutrients for each field or management unit, and
- Guidance for implementation, operation and maintenance, and recordkeeping.

In addition, the following components must be included in a precision/variable rate nutrient management plan:

- Document the geo-referenced field boundary and data collected that was processed and analyzed as a GIS layer or layers to generate nutrient or soil amendment recommendations.
- Document the nutrient recommendation guidance and recommendation equations (compatible with land grant university recommendations) used to convert the GIS base data layer or layers to a nutrient source material recommendation GIS layer or layers.
- Document if a variable rate nutrient or soil amendment application was made.
- Provide application records per management zone or “as-applied” map(s) within individual field boundaries (or electronic records) documenting source, timing, method, and rate of all applications that resulted from use of the precision agriculture process for nutrient or soil amendment applications.
- Maintain the electronic records of the GIS data layers and nutrient applications for at least 5 years.

If increases in soil phosphorus levels are expected (i.e., when N-based rates are used), the nutrient management plan must document:

- The soil phosphorus levels at which it is desirable to convert to phosphorus based planning,
- The potential plan for soil test phosphorus drawdown from the production and harvesting of crops, and
- Management activities or techniques used to reduce the potential for phosphorus transport and loss,
- For AFOs, a quantification of manure produced in excess of crop nutrient requirements, and
- A long-term strategy and proposed implementation timeline for reducing soil P to levels that protect water quality,

OPERATION AND MAINTENANCE for 590 Nutrient Management

- Conduct periodic plan reviews to determine if adjustments or modifications to the plan are needed. At a minimum, plans must be reviewed and revised, as needed with each soil test cycle, changes in manure volume or analysis, crops, or crop management.
- Fields receiving animal manures and/or biosolids must be monitored for the accumulation of heavy metals and phosphorus in accordance with land- grant university guidance and State law.
- Significant changes in animal numbers, management, and feed management will necessitate additional manure analyses to establish a revised average nutrient content.
- Calibrate application equipment to ensure accurate distribution of material at planned rates.
- Document the nutrient application rate. When the applied rate differs from the planned rate, provide appropriate documentation for the change.
- Records must be maintained for at least 5 years to document plan implementation and maintenance. As applicable, records include:
    - Soil, plant tissue, water, manure, and organic by-product analyses resulting in recommendations for nutrient application,
    - Quantities, analyses and sources of nutrients applied,
    - Dates, and method(s) of nutrient applications, source of nutrients, and rates of application,
    - Weather conditions and soil moisture at the time of application; lapsed time to manure incorporation; rainfall or irrigation event,
    - Crops planted, planting and harvest dates, yields, nutrient analyses of harvested biomass, and crop residues removed,
    - Dates of plan review, name of reviewer, and recommended changes resulting from the review, and
    - All enhanced efficiency fertilizer products used.
    - Additional records for precision/variable rate sites must include:
    - Maps identifying the variable application source, timing, amount, and placement of all plant nutrients applied, and
    - GPS-based yield maps for crops where yields can be digitally collected.

e. The TSP shall provide the following records to the NRCS office to be retained in the Client case file:

a. Printed and electronic copy of the CNMP document;

b. CNMP electronic document file (If using MMP, include the ".nat-cnmp.doc" file);
c. Nutrient Management planning tool plan electronic file (If using MMP, include the ".mmp" file);
d. Revised Universal Soil Loss Equation (RUSLE2) database electronic file (.gdb extension) and, when wind erosion is a concern, the Wind Erosion Prediction System (WEPS) files.
e. Conservation plan electronic xml file from Customer Service Toolkit (.consplan.xml extension); or your own template for displaying the record of decision for conservation practices already applied or planned.
f. If requested, the Geographic Information Systems (GIS) electronic shapefiles created for the operation.
g. Client information (name, address, email, phone, and any information that would be helpful for future reference by NRCS).
h. Client's objectives for the AFO and farm operation.
i. Geospatial layers (if available) for Planning Land Unit (PLU), practices, resource inventory, and other map features
j. Maps used in CNMP development process – conservation plan, soils, CNMP Map of Farmstead with livestock support facilities and features, land treatment maps, and any other maps needed to communicate the existing and planned practices
k. Forms and worksheets used in developing and evaluating alternatives
l. Inventory and analysis information, (this would include all resource concern assessments e.g., erosion, N leaching index, P Index, water quality assessments, air quality site assessment, livestock inventory, manure/waste estimated production, manure imports/exports, manure storage, irrigation assessments, evaluation of existing waste handling/storage structures for integrity and capacity, site feasibility data if needed (such as topographic survey, soil boring or flood zone information.) **Where the assistance of a licensed engineer was required for inventory, assessments, plans, etc. shall be signed by the respective licensed engineer.**
m. If, applicable, photographs, audio and video files or digital files of these type of documents
n. Other appropriate supporting documents and local or state required documentation
o. Engineering Notes if applicable
p. Operation and maintenance agreements and plans for practices that are already existing or for practices where the implementation requirements/job sheets/engineering plans have been developed (unless already in the NRCS case file).
q. Record Keeping as appropriate
r. Notes and computations to support all practice design documentation – for computations requiring an engineer's license, the computations are to be signed by the respective engineer.
s. All completed Implementation Requirements/ Engineering plans
t. If applicable, documentation to support the certification of applied practices.
u. All electronic files or PDF files (if electronic files are not available) used for design and nutrient management planning

Exhibit A – Example CNMP Signature Page, CNMP Format and Content

Part 1. CNMP Format

United States Department of Agriculture

Natural Resources Conservation Service

Comprehensive Nutrient Management Plan (CNMP)

The Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system for your Animal Feeding Operation (AFO). This CNMP documents the planning decisions and operation, maintenance, and record keeping for the animal feeding operation.

Farm/Facility: Sample Dairy Farm
c/o
123 Cow Drive
Holstein, TN 30000
555-555-5555

Client Name(s): John Doe

Plan Period: Sep 2015 - Aug 2018

Comprehensive Nutrient Management Planner

As a Certified CNMP Planner, I certify that I have reviewed both the *Comprehensive Nutrient Management Plan* and supporting documentation for technical adequacy and that the elements of the documents are technically compatible, reasonable and can be implemented.

Signature: _____ Date: _____

Name:

Title: Certification Credentials:

Client

As the decision maker for the animal feeding operation covered by this CNMP, I, have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed and will accomplish my management and conservation objectives. I understand that I am responsible for keeping all the necessary records associated with the implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: _____ Date: _____

Name:

Part 2. CNMP Format – Record of Decisions for the Farmstead/Production Area

Plan map(s) showing existing and planned structures (See NPPH Title 180, part 600.31 subpart A for map requirements);

Soils Map(s) for the headquarters with the appropriate soil interpretations (as needed);

A brief description of the AFO (both existing and proposed), including the type of animal, number of animals, average weight, number of days confined, type of manure storage, existing storage volumes/sizes (when applicable) and maximum length of storage available (These are generally tables printed from animal waste planning software);If applicable, planned imports, exports, and on-farm transfers of manure;

Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the case file.) For structures installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structures were installed without NRCS technical or financial assistance.

Example Conservation Practices that constitute the Record of Decisions for the Farmstead Area:

Composting Facility (Code 317) - A composting facility is a structure or device that uses controlled aerobic decomposition to transform waste organic material into a biologically stable product that can be used as a soil amendment.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
(None)	Farmstead			1	2009

Waste Storage Facility (Code 313) - A waste storage facility is an agricultural waste storage impoundment/containment made by constructing an embankment and/or excavating a pit or dugout, or fabricating a structure.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
(None)	Farmstead	1	4/2017		

Attach any completed Implementation Requirement, Jobsheets, or Engineering Plans

Part 3. CNMP Format – Record of Decisions for the Crop, Pasture, or Range Land (Land Treatment Areas Receiving Manure Applications)

Example Conservation Practices that constitute the Record of Decisions for the crop, pasture, or range land:

Conservation Crop Rotation (Code 328) - Conservation crop rotation is growing a planned sequence of various crops on the same piece of land for a variety of conservation purposes. Implementation Requirements Attached.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

Residue and Tillage Management, No Till (Code 329) - The residue and tillage management no-till/strip till/direct seed practice addresses the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round. Crops are planted and grown in narrow slots or tilled strips established in the untilled seedbed of the previous crop. Implementation Requirements Attached.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

Nutrient Management (590) - Nutrient management involves managing the amount, placement, and timing of plant nutrients to obtain optimum yields and minimize the risk of surface and groundwater pollution.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

Plan map(s) showing existing and planned practices and land application setbacks (See NPPH Title 180, Part 600.31 subpart A for map requirements);

Soils Map(s) for the crop, pasture, and range with the appropriate soils interpretations (as needed);

Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the case file.) For practices installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structure was installed without NRCS technical or financial assistance.

Implementation Requirements for the Planned Practices that were involved in the nitrogen, phosphorus, and erosion assessments. These practices generally include: (328) Conservation Crop Rotation, Tillage Residue Management practices (329 and/or 345), (330) Contour Farming, (585) Strip Cropping, (393) Filter Strip, and (386) Field Border.

Part 4. CNMP Format – Nutrient Management Plan

PLANS AND SPECIFICATIONS for 590 Nutrient Management

Use the respective state Conservation Practice Standard (590) Nutrient Management to provide the needed documentation and planning criteria.

Nutrient Management Conservation Activity Plan
Criteria - Practice/Activity Code (104)(No.)

1. **Definition**

   Nutrient management plans are documents of record establishing how nutrients will be managed for plant production while addressing identified resource concerns including the offsite movement of nutrients. These plans are prepared in collaboration with producer and/or landowner and are designed to help the producer implement and maintain an effective plan for the application of nutrients from available sources.

2. Nutrient Management Plan Technical Criteria

This section establishes the minimum criteria to be addressed in the development of Nutrient Management Plans.

A. General Criteria

The "Nutrient Management Plan" must be developed by certified Technical Service Providers (TSPs). In accordance with Section 1240 (A), the Environmental Quality Incentive Program (EQIP) program provides funding support through contracts with eligible producers to obtain services of certified TSPs for development of Nutrient Management Plans. The specific TSP criteria required for Nutrient Management Plan development is located on the TSP website http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/tsp.

The Nutrient Management Conservation Activity Plan must:

a. Be compatible with the producer's conservation plan that addresses site identified resource concerns, the crops grown, crop rotation(s), times and types of tillage, and other supporting conservation practices that are implemented to improve or protect air, soil and water quality. **Planners should consult with the producer and the NRCS Field Service Center for details of the conservation plan.**
b. Be developed in accordance with technical requirements of the NRCS Field Office Technical Guide (FOTG) and policy requirements of General Manual, Title 190, Part 402, Nutrient Management; and guidance contained in the National Agronomy Manual, Subpart 503C.
c. Comply with federal, state, tribal, and local laws, regulations and permit requirements; and
d. Satisfy the operator's objectives.

B. Nutrient Management Specific Element Criteria

The Nutrient Management Plan must include, but not be limited to, the following components:

1. **Background and Site Information**
   - Name of owner/operator; farm location and mailing address;
   - Brief description of the operation (e.g., operation type, number of animals, crops grown, acreage available and how utilized);
   - All items specified in the current State Conservation Practice Standard 590 – Nutrient Management – **Plans and Specifications**.

2. **Nutrient Management**

   Nutrient Management plans must comply with technical criteria contained in the state approved Nutrient Management Conservation Practice Standard (CPS 590), and address the use and management of all nutrients applied on agricultural lands from any available nutrient source (animal manure, wastewater, commercial fertilizers, crop residues, legume credits, irrigation water, organic by-products, etc.). All nutrient rates (except for precision rate applications), sources, placement, and timing are to be specific (linear) for the crop, field, and year. The narrative method may be used is for the precision rate calculations as it is impractical to describe actual rates for every unique grid cell/management units and display it in a table.

C. References

- USDA Natural Resource Conservation Service National Agronomy Manual, Parts 507 and 503C.
- General Manual, Title 190, Part 402, Nutrient Management
- Current State Conservation Practice Standard 590 – Nutrient Management

D. Deliverables for the Client – a hardcopy of the plan that includes:

- Cover page – name, address, phone of client and TSP; Total Acres of the Plan, signature blocks for the TSP, producer, and a signature block for the NRCS acceptance.
- Digital conservation plan map, soil maps, and other information needed to make the plan understandable. Implementation and maintenance requirements must be clearly stated.
- Complete hardcopy of the client's Nutrient Management Plan developed in accordance with the current state approved CPS 590 Nutrient Management.

E. Deliverables for NRCS Field Office:

- Complete "signed" Hardcopy and an Electronic copy of the client's Nutrient Management Plan per the state approved CPS 590 Nutrient Management with digital maps.