United States Department of Agriculture

Determining Feasibility of Engineering Practices for Conservation Activity Plans (CAPs)

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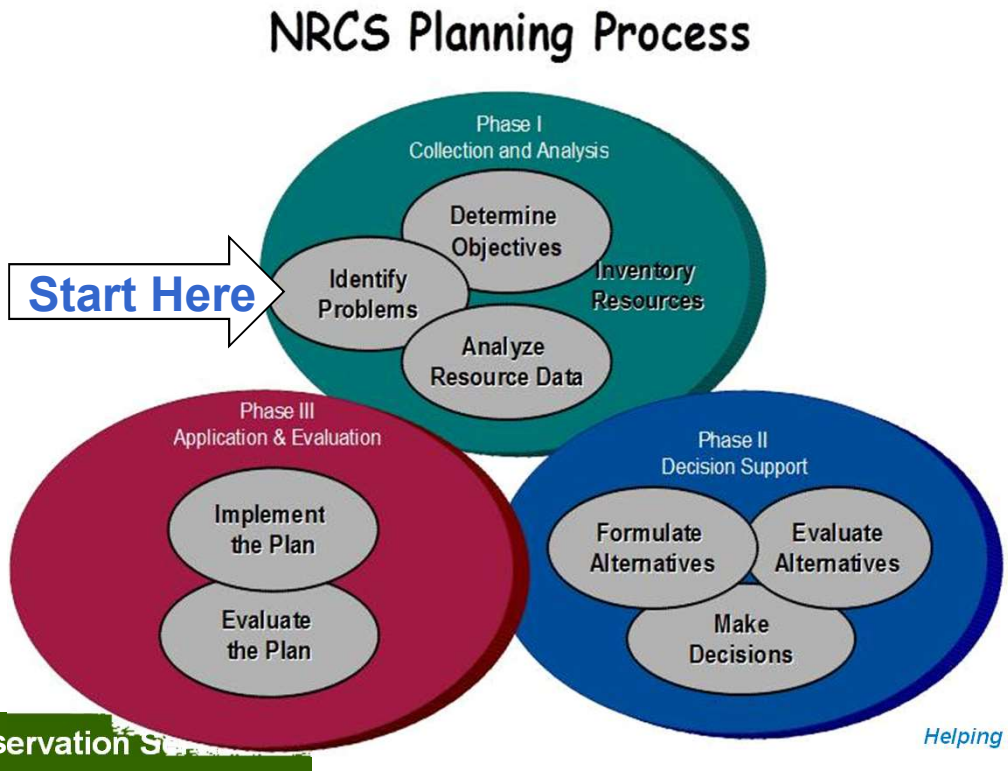
Review – What are CAP Plans?

Conservation Activity Plans (CAPs) that involve Engineering practices:

- CAP 102 – CNMP – Comprehensive Nutrient Management Plan
- CAP 110 – Grazing Plan
- CAP 118 – IWM – Irrigation Water Management Plan
- CAP 128 – AgEMP – Ag Energy Management Plan
- CAP 130 – DWM – Drainage Water Management Plan

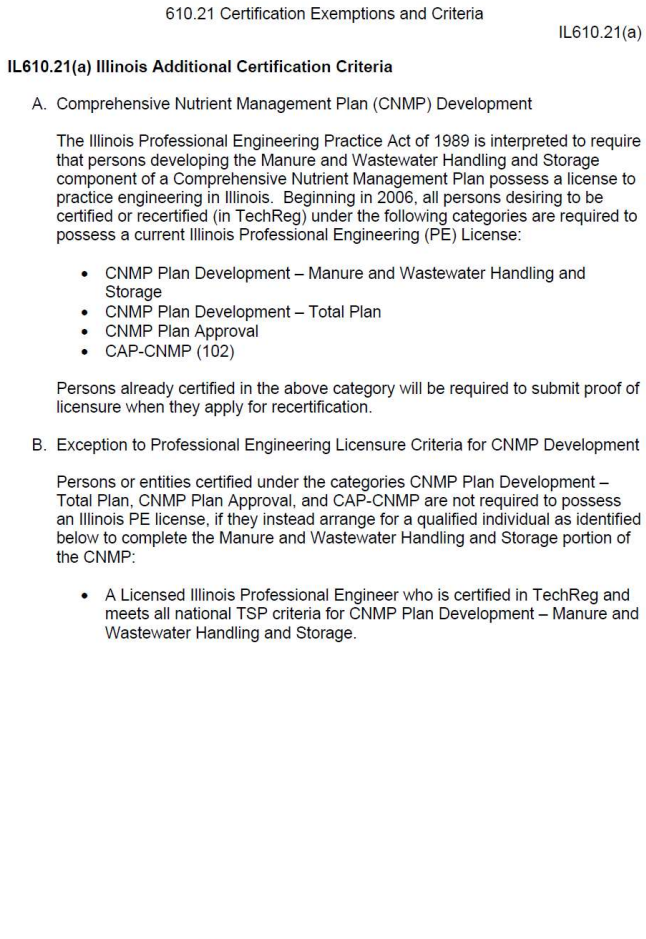
Review – What are in CAP Plans?

- Identify conservation practices needed to address a specific natural resource need.
- Provides site specific information on how to address the resource concern.



Engineering Practices Requirement

- Practice of Engineering
  - IL610.21 – TSP Handbook sets requirements for who can do Engineering Practices.



610.21 Certification Exemptions and Criteria

IL610.21(a)

IL610.21(a) Illinois Additional Certification Criteria

A. Comprehensive Nutrient Management Plan (CNMP) Development

The Illinois Professional Engineering Practice Act of 1989 is interpreted to require that persons developing the Manure and Wastewater Handling and Storage component of a Comprehensive Nutrient Management Plan possess a license to practice engineering in Illinois. Beginning in 2006, all persons desiring to be certified or recertified (in TechReg) under the following categories are required to possess a current Illinois Professional Engineering (PE) License:

- CNMP Plan Development – Manure and Wastewater Handling and Storage
- CNMP Plan Development – Total Plan
- CNMP Plan Approval
- CAP-CNMP (102)

Persons already certified in the above category will be required to submit proof of licensure when they apply for recertification.

B. Exception to Professional Engineering Licensure Criteria for CNMP Development

Persons or entities certified under the categories CNMP Plan Development – Total Plan, CNMP Plan Approval, and CAP-CNMP are not required to possess an Illinois PE license, if they instead arrange for a qualified individual as identified below to complete the Manure and Wastewater Handling and Storage portion of the CNMP:

- A Licensed Illinois Professional Engineer who is certified in TechReg and meets all national TSP criteria for CNMP Plan Development – Manure and Wastewater Handling and Storage.

(180-vi-TSPH, Amendment 5, January 2011)

IL610.21(1)

What are Engineering Practices?

- FOTG Section IV
- Index of Conservation Practices

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Index of Conservation Practices (Alphabetical)
Section IV Standards and Specifications
Applicable in Illinois

Practice Name and Unit	Code	Responsible Discipline	Current Standard	Practice Lifespan
Access Control (ac)	472	GRAZING SPCLST		
Access Road (ft)	560	ENG		
Agrichemical Handling Facility (no)	309	ENG		
Air Filtration and Scrubbing (no)	371	ENG	11/11	10
Alley Cropping (ac)	311	FOR	3/18	15
Amending Soil Properties with Gypsum Products (ac)	333	AGRONOMIST	10/16	1
Amendments for Treatment of Agricultural Waste (au)	591	ENG	10/14	1
Anaerobic Digester (no)	366	ENG	2/18	25
Animal Mortality Facility (no)	316	ENG	5/16	15
Aquatic Organism Passage (mi)	396	BIO	5/12	5
Brush Management (ac)	314	GRAZING SPCLST	1/12	10
Building Envelope Improvement (no)	672	ENG	4/17	10
Channel Bed Stabilization (ft)	584	ENG	10/11	10
Clearing and Snagging (ft)	326	ENG	7/13	5
Composting Facility (no)	317	ENG	9/17	15
Conservation Cover (ac)	327	AGRON	8/18	5
Conservation Crop Rotation (ac)	328	AGRON	9/16	1
Constructed Wetland (ac)	656	ENG	9/10	15
Contour Buffer Strips (ac)	332	AGRON	9/16	5
Contour Farming (ac)	330	AGRON	3/15	5
Contour Orchard and Other Fruit Area (ac)	331	AGRON	5/15	10
Cover Crop (ac)	340	AGRON	3/15	1
Critical Area Planting (ac)	342	AGRON	3/15	10
Denitrifying Bioreactor (no)	605	ENG	12/17	10
Dike (ft)	356	ENG	9/04	20
Diversion (ft)	362	ENG	9/13	10
Drainage Water Management (ac)	554	ENG	3/10	1
Dry Hydrant (no)	432	ENG	9/13	15
Early Successional Habitat Development/Management (ac)	647	BIO	4/11	1
Emergency Animal Mortality Management (no)	368	ENG	2/16	1
Farmstead Energy Improvement (no)	374	ENG	11/11	10
Fence (ft)	382	GRAZING SPCLST	7/10	20
Field Border (ac)	386	AGRON	3/15	10
Filter Strip (ac)	393	AGRON	12/17	10
Firebreak (ft)	394	FOR	11/15	5
Fishpond Management (no)	399	BIO	5/12	1
Forage and Biomass Planting (ac)	512	GRAZING SPCLST	4/15	5
Forage Harvest Management (ac)	511	GRAZING SPCLST	02/14	1
Forest Stand Improvement (ac)	666	FOR	3/18	10

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Inventory & Evaluation

- I&E (or *Feasibility*) is required for each proposed practice.
- Amount of information needed for I&E varies:
  - Complexity and size of practice
  - Topography
  - Soils
  - Groundwater
  - Number of practices associated with proposed system.

Inventory & Evaluation

Does it solve a resource concern?

- Resource Concern: Water quality degradation: excess nutrients in surface and ground waters
- Solution: Nutrient Management, with Waste Storage Facility

The producer has only 6 months of manure storage on site and requires a minimum of 12 months of storage for proper nutrient management on application fields. The proposed waste storage will increase the storage for the site to approximately 13 months. This will allow the producer to have additional storage for when manure applications are delayed because of weather.

Inventory & Evaluation

- Is it feasible? Will it work with other proposed and existing practices? *(If site conditions are limiting, may need to find a different solution)*
- Estimated quantities *(enough for producer to make informed decision)*

CPS 313 – Waste Storage Facility

- Soils – Is a perimeter drain needed? (CPS 606)
- What size?
- Location
- Works with the management of the site

CPS 316 – Mortality Composting Facility

- Soils
- Capacity Needed
- Location
- Works with the management of the site
- Are all decisionmakers on board with the idea?

CPS 360 – Waste Facility Closure

- Clean up of site
- Proper disposal of waste
- No longer confinement

CPS 362 – Diversion

- Diverting clean water
- Sized properly
- Adequate slope

CPS 367 – Roofs & Covers

- Soils and foundation
- Roof support
- Type
- Span

CPS 533 - Pumps

- Sizing
- Capacity
- Pipeline parameters
- What is being pumped?

CPS 556 – Roof Runoff Structure

- What is the purpose?
- Sizing and type
- Downspout locations
- Adequate water removal

CPS 560 – Access Road

- Purpose
- Culverts/stream Xing
- Impediments

CPS 561 – Heavy Use Area Protection

- Purpose
- Stable cover
- Location

CPS 632 – Waste Separation Facility

- Purpose
- Works within the system
- Adequate bypass

CPS 634 – Waste Transfer

- Purpose
- Works within the system
- Can an agitator work
- Reception pit sizing

CPS 374 – Farmstead Energy Improvement

- Energy savings
- For IL, usually improving grain drying/storage
- Works with existing grain storage system
- Support for new system

CPS 670 – Lighting System Improvement

- Energy savings
- Bulb or Fixture Replacement?
- Quality of Light

LED

CPS 672 – Building Envelope Improvement

- Energy savings
- Additional Insulation
- Sealing
- Air Quality Effects?

CPS 554 – Drainage Water Management

- CAP 130 is the plan; CPS 587 is the structure
- How many acres will each structure affect
- Don’t flood out the neighbors

CPS 449 – Irrigation Water Management

- Conservation of water
- Analyze the system for uniformity
- Irrigation scheduling

CPS 441 – Irrigation System Microirrigation

- IWM Plan
- Water Source
- Pump
- Crop
- Adequate water to crop

CPS 442 – Sprinkler System

- IWM Plan
- Water source & pump
- Distribution uniformity

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CPS 443 – Irrigation System, Surface & Subsurface

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