

Project Justification and Assurances Form

IMPROVED MANURE STORAGE AND HANDLING MODIFICATIONS TO EXISTING FACILITIES

**This form should be used only to document changes to existing storage facilities.
For all new construction use Form A**

Category 0101

- Eligible pumps and transfer system
- Sump pits and modifications
- Safety features (fences)

Category 0102

- Features to prevent leaks and spills
- Liners & other protective features

Category 0103

- Roof over existing liquid pits/tanks

Category 0104

- Permanent covers over existing solid manure storages

* Project construction must be after April 1 2008.

**If expansion has occurred since April 1, 2008 then capacities based on the old facilities and livestock numbers as of April 1, 2008 should be used for calculation purposes.

Item	Yes	No	N/A
1 A sketch of the proposed project is being forwarded to OSCIA with size dimensions and precise location. (For building projects only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 The applicant has obtained all the necessary written approvals and permits for the project from the appropriate agencies prior to construction (e.g. building permits, etc.) (For building projects only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 All liquid, semi-solid, and runoff storage facilities will have adequate safety fences.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Item	Yes	No	May 2011 N/A
4 All reasonable measures will be taken during construction to prevent the release of contaminants that could present risk to surface and groundwater resources.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 The applicant has thoroughly read, understood, and agrees to abide by the Construction Guidelines for Manure Projects (Part II of "Background Information: Improved Manure Storage and Handling") supplied with this form	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you answered "No" to any of the above questions, please explain why.
Item number: _____

A: To be completed by APPLICANT:
To the best of my knowledge, the information related to the farm and its operation, contained in this form, is true and accurate. It is my intent to use the above facilities for the exclusive use of manure and waste washwater /runoff storage purposes. Further, I intend to properly maintain these facilities after construction is completed.

Name of Applicant (please print)

Signature of Applicant _____ **Date** _____

B: To be completed by Company Representative, Salesperson or Professional Engineer:
The structure described in this project has been designed to comply with the Ontario Building Code in accordance with the Nutrient Management Act.

Company Name (please print) _____ **Company Address** (please print) _____

Signature of the Company Representative or Professional Engineer who designed the facilities for which grant to be received or the Salesperson of the pre-fabricated structure. _____ **Date** _____

Please return with original signatures to:
Ontario Soil and Crop Improvement Association
1 Stone Road West
Guelph ON N1G 4Y2

Background Information

IMPROVED MANURE STORAGE, HANDLING and TREATMENT

I. BACKGROUND FOR MANURE STORAGE AND HANDLING SYSTEMS

- Project Justification and Assurance Forms on sizing and safety features must be completed. In response to receiving a Project Proposal Application from the producer, the applicable Project Justification and Assurances Forms will be forwarded by OSCIA directly to the producer with the letter granting 'Conditional Approval' for the proposed project.
- To encourage environmentally responsible manure storage, handling and incorporation practices, incentives are provided for the construction of manure storage and handling facilities.
- Safety requirements for open liquid, semi-solid and run-off storage: a permanent barrier with a minimum height of at least five feet (1.5 metre) above ground level is required.
- Sizing requirements: there are no minimum size requirements for the program. To be compliant, a livestock operation requires the equivalent of a minimum of 240-days storage capacity for all manure and liquid wastes unless otherwise specified in the applicant's approved NMP.
- Eligible costs include fees for professional assessment of surface and ground water properties.
- Storages must comply with local by-laws and the Canadian Farm Building Code.
- Canada-Ontario Farm Stewardship Program (COFSP) funding will be used to support eligible projects sized to livestock numbers present on the farm as of April 1, 2008. Financial requests to support expansion in herd/flock size since April 1, 2008 will not be honoured.

Purpose

1. To eliminate the need to spread manure on frozen or water-saturated soils thus reducing the danger of runoff causing water pollution.
2. To confine storage and yard runoff to prevent water pollution.
3. To store manure, liquid fractions of manure and contaminated precipitation safely.
4. To encourage environmentally responsible manure storage, handling and incorporation practices.

Manure storages must meet the requirements of section 69 of Ontario Regulation 267/03 as amended and designed according to the Nutrient Storage Technical Standards (NSTS) outlined in the Construction and Siting Protocol.

The cost-share will generally apply to the portion of the storage required to handle 240 days volume of manure, up to barn capacity and based on livestock numbers as of April 1, 2008. If conditions dictate larger storage, and it is justified through the approved NMP, the cost-share may be applied to eligible storages to a maximum of 400 days. For all manure storage projects, applicants will be required to provide assurances to OSCIA prior to the project receiving final approval for completion. Assurances will include a sign-off from the professional engineer or company representative who planned the facilities or approved the design.

Pro-Rating of Incentives for Manure Storages

Cost-share funding on a pro-rated basis may be provided for those applicants wishing to improve manure storage capacities beyond 240 days. There is no minimum project size for an improved manure storage provided it meets NMP approvals.

Where pro-rating is applied, it will be determined as follows:

- For those with no existing storage, cost share funds may be available based on the total eligible cost for a 240 day storage project with similar design specifications to the larger storage proposed.
- For those with some existing storage, cost share may be available based on the total eligible cost for a storage project with similar design specifications that would bring the applicant's improved total storage capacity to 240 days.

Note: An applicant who plans to build a manure storage in an instance where the pro-rated cost-share formula would apply, will be required to submit authorized estimates to OSCIA before final approval is provided to complete the project. Copies of two cost estimates, signed by the professional engineer, will be requested. They are:

- The proposed project design and cost estimate; and,
- The cost estimate of an equivalent project that would bring the total storage capacity to 240 days.

The following examples explain pro-rating procedures:

Example A: No Storage

A broiler producer with no storage for solid manure, wishes to construct a 360 day roofed storage for solid manure.

- The applicant hires a professional engineer to estimate construction costs for two storage options—one to store the desired 360 days, and the other for a 240 days roofed storage with similar features (e.g. location, base, access ramps, concrete specifications and roof design). The estimated costs are submitted as \$92,000 for the 360 day design, and \$70,000 for the 240 day design.
- The cost estimate of 70,000 for the 240 days of storage would be used in the cost-share application.
- Building a solid manure storage to 240 days is eligible in Category 01: Improved Manure Storage and Handling, Practice Code 0101, increasing storage under COFSP.
- The pro-rated costs would allow for 30% of \$70,000 = \$21,000 of eligible cost-share. This is below the category cap of \$30,000 and also below the COFSP program funding cap of \$30,000.

Example B: Existing Storage

A farrowing operation has a liquid manure storage (concrete tank) that can handle 180 days of volume. Sixty additional days of volume are required to meet the minimum standard of 240 days; however, after investigating options and prices, the producer learns that the most cost-effective choice for a capital improvement of this nature is to build an additional concrete storage to contain at least 100 days. This option is chosen.

- The applicant hires a professional engineer to estimate construction costs for two concrete storage tank options – one to store 100 days, and the other for 60 days of manure volume and washwaters with similar features (e.g. location, base, transfer systems, concrete and footing specifications, and safety features). The estimated costs are submitted as \$60,000 for the 100 day storage, and \$48,000 for the 60 day storage.
- The pro-rated cost-share under COFSP would be 30% of the total eligible project costs of the 60day proposal (30% of \$48,000 = \$14,400).

Eligible Costs

1. Professional services:
 - Professional engineering services - Site investigation and consultative work- assessing, designing and supervising construction
 - Professional assessment of the surface and groundwater properties of the site and soil materials for the purpose of verifying that the project meets prescribed structural and environmental criteria.
 - Contractor labour and management services – e.g. excavation and supervising
2. Approved construction materials – liner materials, fill, concrete and re-bar (meeting NSTS codes)
3. Project approval and permit fees
4. Farmer's in-kind labour costs for construction/establishment, and equipment costs –both valued at standardized program rates- will be considered eligible as matching contributions. Full details are included in the Beneficial Management Practices Project Eligibility Guidelines.
5. Liquid Manure Storage Systems- concrete or steel circular; concrete rectangular – including in-barn (below-barn); earthen; separate runoff storages; combination liquid manure and runoff storages; storage component of manure treatment system
6. Solid Manure Storage Systems – including permanent covers, walls, roofs and floors. Also with separate liquid storage, and 3-walled pad with runoff management
7. Storage liners and Storage covers
8. Secondary containment
9. Downstream protection devices- e.g. tile drain removal within 15 m of manure storage
10. Permanent transfer piping from the barn gutters or sumps to long term storage (not satellite storages on separately deeded properties). Gas traps should be incorporated to prevent gases from entering the barn.
11. Barn eavestroughs are eligible if they control rainfall from roofs that would otherwise add to the contaminated volume
12. Safety fencing around the manure storage.
13. Monitoring devices – piezometers and tile observation wells
14. Manure transfer systems – for moving manure from edge of the barn or livestock holding area to the manure storage facility. Manure transfer systems between storages are also eligible. Primary and secondary valves or reconstruction of the transfer system to prevent back-siphoning is also eligible
15. Improvements to existing storages (providing other program standards are met).
 - costs to increase the capacity of existing storage system up to 240 days – unless otherwise specified in the affiliated NMP
 - curbing around yards to direct contaminated precipitation onto a runoff storage -

regardless of its height, only an equivalent 1 ft. (0.3 metre) high wall and the footing will be funded.

- tops and supporting structure on outdoor storages when structure is for manure storage exclusively.
- runoff storages.
- covering an existing storage and fencing

Ineligible Costs

1. Manure storage systems that do not meet the NSTS standards
2. BMPs not related to improved storage systems
3. In-field temporary storage systems
4. Transfer systems to or between storages on separately deed properties
5. Transfer systems to fields
6. Repair and maintenance of existing storage systems and equipment
7. Feed & feed rations to reduce manure nutrient levels or to improve feed efficiencies
8. Manure storage additives
9. Legal fees and land purchase
10. Transportation costs of exported manure or local haulage of manure
11. On-going maintenance or opportunity costs associated with compliance, spreading or manure handling equipment.
12. Decommissioning of existing manure storages, unless part of a larger project involving a new manure storage.

Types of Eligible Storage Systems

1. Complete containment in one unit.

This type of storage unit must be designed to contain all identified solids and liquids entering the tank for the period of time it is designed for -as specified in the approved NMS.

Description of Several Single Unit Storage Systems

Example Types of Manure	Expected Moisture Content of Manure	Types of Storage	Types of Manure Handling Equipment Required
Swine Liquid System. Dairy-Minimal Bedding High Dilution including Milk House Wastes	>92%	Concrete or Steel Tank Earthen Storage* (Normally No Tractor Access)	Liquid Tanker Liquid Irrigation or Liquid Hose Injection Unit
Dairy-Moderate Bedding Medium Dilution	88% - 92%	Concrete or Steel Tank (Optional Tractor Access)	Liquid Tankers Semi-Solid Handling Equipment Combination of above
Dairy-High Bedding No dilution	<=82%	Roofed Concrete Storage (With Tractor Access)	Solid Handling Equipment

2. Separate Solid and Liquid Storage Units

This storage combination consists of a solid containment unit as well as runoff storage to hold

liquids that drain from the solid storage. Other liquids (e.g. milkhouse washwater) can run directly into the runoff unit. The moisture level of the manure in the solid unit is expected to be around 80% allowing the use of conventional solid handling equipment. Producers are responsible to have appropriate tests done periodically on the liquid to ensure they are in compliance if high trajectory irrigation guns are the chosen method for application (i.e. less than 1% solids).

NSTS Guidelines

All designs must meet the criteria set in the Nutrient Storage Technical Standards (NSTS Guidelines)

See Ontario Regulation 267/03 with Construction and Siting Protocols as follows:

NSTS-01	Engineering and Inspection
NSTS-02	Spatial Separation
NSTS-03	Site Characterization and Assessment
NSTS-04	Concrete, Steel or Equivalent Storage Facilities
NSTS-05	Storage Facilities for Solid Nutrients
NSTS-06	Earthen Nutrient Storage Facilities
NSTS-07a	Synthetic Liners
NSTS-07b	Compacted Soil Liners

II. CONSTRUCTION GUIDELINES FOR MANURE STORAGE AND TREATMENT PROJECTS

Agriculture and Agri-Food Canada has consulted with other federal departments to develop a list of mitigation measures which are to be exercised appropriately by participants in the Canada-Ontario Farm Stewardship Program (COFSP). These Construction Guidelines apply to the following COFSP categories:

- **BMP Category Practice Code 0101, 0102, 0104: Construction Guidelines for Improved Manure Storage and Handling including impermeable pads**
- **BMP Category Practice Code 0201: Construction Guidelines for Manure Treatment – Dewatering Systems, Nutrient Recovery Systems**
- **BMP Category Practice Code 0202: Construction Guidelines for Manure Treatment – Composting of Manure and Deadstock**

*Please note the mitigation stated below applies to most, **but not necessarily all** projects. Program participants are responsible for applying appropriate mitigation.*

Project Design and Planning

- Program participants are responsible for obtaining licenses, permits, approvals or authorizations and complying with all applicable municipal, provincial and federal legislation.
- Regardless of the farm size, all new manure storage facilities must be sited, constructed and operated in compliance with the Nutrient Management Act 2002 and the Siting and

Construction Protocols (December 10, 2003) of the NMA 2002, Ontario Regulation 294/04 as amended. Nutrient Management Plan and Strategies are **not** required to be in compliance with the AAFC Construction Guidelines; but may be required to comply with the Nutrient Management regulation or municipal bylaws.

- Participants must refer to the following worksheets in the Canada-Ontario Environmental Farm Plan Program, Third Edition Workbook, 2004 (or earlier version) for the activity being undertaken. EFP rating of 3 is the minimum acceptable level with 4 being preferred:
 - Worksheet #8, On-Farm Storage of Livestock Manure and Other Prescribed Materials
 - Worksheet #6, Disposal of Farm Wastes
 - Worksheet #12, Nuisance under the Farming and Food Production Protection Act, 1998
- Participants should follow the appropriate Best Management Practice (BMP) guidelines for the activity.
- Manure storages and handling facilities must be inspected and maintained by the producer on a regular basis to ensure facilities are operating properly.

Additional Guidance for construction, expansion or modification of berms, catch basins, retention structures/ponds, channels/piping, and constructed wetlands to collect excess manure:

- Berms, catch basins, retention ponds, channels/piping, constructed wetlands and other runoff controls to collect excess manure may require properly engineered designs. Contact your local Conservation Authority or OMAF office for assistance.

Additional guidance for Composting of Manure and Deadstock:

- Must comply with the siting and management criteria set out in the OMAF Factsheet "Temporary Field Storage of Solid Manure or Prescribed Materials" Order No. 03-105.
- Must comply with the Ontario Dead Animal Disposal Act, 1976 which provides the legal requirements to dispose of horse, goat, sheep, swine and cattle carcasses that have died on the farm.
- Participants must refer to the Worksheet #6, Disposal of Farm Wastes in the Canada-Ontario Environmental Farm Plan, Third Edition Workbook, 2004 (or earlier version) for the activity being undertaken. EFP rating of 3 is the minimum acceptable level with 4 being preferred:
- Incineration of deadstock is not permitted in Ontario at this time.
- Composting systems must meet the Ontario Ministry of the Environment (MOE) guidelines entitled, "Interim Guidelines for the Production and Use of Aerobic Compost in Ontario", dated November 1991.

Wildlife and Species at Risk

- Minimize disturbance to fish and wildlife by scheduling work to avoid sensitive periods (i.e., spawning, nesting, migration, staging, breeding, hibernation or nursing) and areas (i.e., residence, wildlife movement corridors). Comply with any applicable 'no construction' timing windows.
- May need to consult COSEWIC (Committee on the Status of Endangered Wildlife in Canada) species list (federal) and the provincial list on rare and endangered species.
 - Federal: <http://www.cosewic.gc.ca>;
 - Provincial: <http://www.rom.on.ca/ontario/risk.php>
 - (Please contact Steve Bowcott at the Ministry of Natural Resources (705) 755-1754 for assistance.)
- Survey the area for active nests, burrows or dens prior to clearing, and avoid disturbing them.

- If migratory birds are breeding in the project area, contact Environment Canada regarding appropriate measures to protect them. (Please contact Andrew Taylor at Environment Canada (905) 336-4464.
- If any aquatic species at risk are known or expected to be present at any time within or adjacent to the project area, consult with Fisheries and Oceans Canada specialists or the relevant provincial authority regarding measures to avoid harmful disturbance. Contact your local Conservation Authority.
- Use existing roads and trails for site access where possible.

Soil Erosion and Sediment Control During Construction

- Effective short term erosion and sediment controls should be installed prior to work and maintained until the site has been stabilized.
- Phase work to minimize duration of exposure of disturbed areas.
- Divert surface runoff away from working areas and areas of exposed or susceptible soils, where feasible.
- Ensure earthworks do not intensify flood hazards or create undesired obstructions to drainage into natural water bodies.
- Ensure that any sediment laden water is discharged onto land or into a settling pond prior to re-entry into a water body (during construction, etc).
- Postpone clearing of slopes (as required) until immediately prior to construction.
- If prolonged period of exposure is expected, stabilize stored and stockpiled soils against wind and water erosion by using temporary cover.
- Remove accumulated sediments prior to removal of controls, where feasible.
- Avoid dewatering in sensitive groundwater areas or near wells, where feasible

Construction Equipment and Operation

- Clean all machinery and equipment prior to transport to new construction areas.
- Construction equipment must be properly maintained to prevent leaks and spills of fuels, lubricants, hydraulic fluids, or coolants.
- Participant should have spill clean up materials on site. In the event of any reportable petroleum product or hazardous material spills, appropriate provincial authorities must be notified. Ensure emergency contact numbers are available on site.

Waste Materials

- Storage, handling and disposal of wastes and hazardous waste materials will be done properly and in accordance with all relevant municipal, provincial and federal legislation.

Site Preparation

- Prepare the site according to the project plan including the erosion and sediment controls.
- Keep site clearing to a minimum and minimize disturbance to ground surface and vegetation, especially those that affect infiltration and runoff characteristics.
- All topsoil stripped and disturbed during the project should be salvaged and replaced as quickly as possible to encourage revegetation.
- Stabilize slopes as appropriate for local site conditions.

Construction

- Avoid work activities during excessively wet site conditions.
- Reduce vehicle emissions from heavy equipment by reducing/eliminating idling and also by properly maintaining/servicing the heavy equipment.
- Fuelling and/or servicing of mobile construction equipment and the storage of fuel and hazardous materials are not to occur within 100m of a surface water body.

- In the event that any cultural or heritage resources (bones, pottery) are discovered, construction must cease and the Ministry of Culture should be notified immediately. (Please contact Neil Chisholm at the Ministry of Culture at (416) 314-7148 who will direct you to the responsible Heritage Planner for the area.) If this occurs, construction will commence as directed by the Ministry of Culture.

Post Construction

- Restore or re-vegetate all disturbed areas, including riparian areas, to pre-construction conditions, as soon as possible and to the fullest extent possible. All re-vegetation should be done with species that existed prior to construction or suitable species as planned (preferably native).
- Remove and dispose of wastes and hazardous waste materials from site properly and in accordance with all relevant municipal, provincial, and federal legislation as planned.

Nutrient Storage and Management

Project Component	Description of Effect Mitigation
<i>Groundwater Quality and Quantity</i>	<p>Contamination of groundwater during management and operation of facility.</p> <ul style="list-style-type: none"> • Comply with all pertinent regulations, standards and guidelines regarding the siting, construction and operation of nutrient management facilities. • Ensure that the construction site is clear of all drainage tile to a distance of 3 m. • Ensure that the floor of the facility is above the normal water table and at least 1 m above bedrock. • If the natural clay content of the soil is less than 15%, include an impermeable membrane below and around the containment structure, configured to enable collection and monitoring of any effluent leakage. • Locate the storage facility at least 30 m (horizontal distance) from any water well or other groundwater source, taking into consideration any applicable regulatory requirements. • Where applicable, ensure that facility is sited and constructed in accordance with designs prepared by a qualified professional engineer.
<i>Humans</i>	<p>Discomfort to individuals exposed to odours from nutrient storage and application.</p> <ul style="list-style-type: none"> • Consult with provincial ministries responsible for nutrient management activity regulation. • Ensure that facilities are located within areas that are zoned appropriately for agricultural nutrient storage. <p>Effects on human health due to exposure to bacteria.</p> <ul style="list-style-type: none"> • Identify all farm nutrient storage facilities with signs. • Ensure that all open structures have barriers that extend at least 1.5 m above ground, and are in accordance with any regulated height requirement.

<i>Surface Water Quality</i>	<p>Reduced water quality and clarity due to inputs of contaminants from surface runoff during construction and operation.</p> <ul style="list-style-type: none">• Comply with all pertinent regulations, standards and guidelines regarding the siting, construction and operation of nutrient management facilities.• Avoid siting concrete facilities in floodplains (100 yr flood) and ensure earthen facilities are appropriately designed for hydrostatic pressure and ice damage, if sited in a floodplain.• Ensure that open structures have sufficient capacity to contain the targeted quantities of nutrients to prevent overflow during extreme rain events.• Ensure that structures have sufficient capacity to avoid storage of uncontained excess on-site in open piles. Structures should have a minimum 200 day storage capacity if they will be emptied twice per year, and a minimum 400 day capacity if emptied once per year. Moreover, all structures must comply with any applicable regulations.• Ensure that land application complies with all applicable regulations that prohibit nutrient spreading within a specified distance from a water body.• Maintain a vegetated buffer strip to protect water bodies adjacent to areas of land application. These buffers must, at a minimum, comply with applicable regulations governing the application of agricultural source nutrients.• Site facilities in areas where runoff is directed away from the facility. If necessary, construct berms or drainage swales to direct runoff away from open structures.• Where applicable, ensure that facility is sited and constructed in accordance with designs prepared by a qualified professional engineer.
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