

Incorporating SWP into NMSs, NMPs, NASM Plans

Consultant's Information Day
April 23, 2018

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Key Points

- The Nutrient Management Regulation minimum requirements are accepted as being generally protective of the environment.
- However, the SWP process has identified areas based on extensive modeling and research where greater assurance that public drinking water sources are protected is needed.
- Vulnerable areas across the province cover a relatively small amount of land
 - Some consultants may never have to deal with SWP

Different Prescribed Instruments

- Approved Nutrient Management Strategy
 - Activities: generation and storage of ASM, Outdoor confinement areas, livestock yards
 - Conformity: OMAFRA
- Registered NMS
 - Conformity: preparer
- Approved NASM Plan
 - Activities: Land application, storage of NASM
 - Conformity: OMAFRA
- Registered NASM plans
 - Conformity: preparer
- Nutrient Management Plans
 - Activities: Land application of ASM, fertilizer
 - Conformity: preparer

Prescribed Instruments cont'd

- Under the requirements of the CWA and/or to obtain a section 61 exemption from a Risk Management Plan, the Director has to ensure that the Prescribed Instrument contains measures that mitigate threats to drinking water
- For PIs that the Director does not approve (NMPs, registered NMS/NASM plan), that responsibility falls to the preparer of the instrument
- Purpose of this presentation is to provide information on how to ensure a PI contains what the 'Director' will be looking for when reviewing an existing PI in a vulnerable area
 - Same process can be applied when it is the Preparer ensuring conformity

Incorporating SWP

General steps:

1. Determining site-specific considerations
 - i. Vulnerable area (and main concern)
 - ii. Prescribed threat activities
2. Identifying actual risks associated with prescribed threat activities
3. Determining potential appropriate management measures to incorporate into NMS/NMP/NASM plan to mitigate and prevent risk
 - Dependent on policy text – prohibition versus management

1. Site Specific Details

- Potential measures to address SWP will be dependent on the vulnerable area and the activities occurring on site
- Measures for surface water vulnerable areas may be different than measures for groundwater vulnerable areas
 - Addressing runoff versus infiltration
 - Addressing phosphorus, nitrogen, pathogens
- List of prescribed drinking water threats under the Clean Water Act dictates what activities need to be considered in terms of SWP

Prescribed drinking water threats

1.1 (1) The following activities are prescribed as drinking water threats for the purpose of the definition of "drinking water threat" in subsection 2 (1) of the Act:

1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the *Environmental Protection Act*.

2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.

3. The application of agricultural source material to land. NMP

4. The storage of agricultural source material. NMS

5. The management of agricultural source material. NMS

6. The application of non-agricultural source material to land. NASM Plan

7. The handling and storage of non-agricultural source material. NASM Plan

8. The application of commercial fertilizer to land. NMP

9. The handling and storage of commercial fertilizer.

10. The application of pesticide to land.

11. The handling and storage of pesticide.

12. The application of road salt.

13. The handling and storage of road salt.

14. The storage of snow.

15. The handling and storage of fuel.

16. The handling and storage of a dense non-aqueous phase liquid.

17. The handling and storage of an organic solvent.

18. The management of runoff that contains chemicals used in the de-icing of aircraft.

19. An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.

20. An activity that reduces the recharge of an aquifer. NMS

21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard. O. Reg. 385/08, s. 3.

Existing Storages

NOTE: The Nutrient Management Act and Regulation are silent on existing storages built prior to the Regulation, meaning construction standards, siting, etc. do not typically apply in an NMS.

HOWEVER, the Clean Water Act does not differentiate between existing storages and new storages when determining if an activity is significant or not.

Therefore, if the storage of ASM is a significant drinking water threat, then all storages must be considered, regardless of if they are existing or new.

2. Identifying risks associated with activities

- Need to identify the possible areas of risk for activities/things before the risk can be managed
 - Could already be occurring or could be a future ‘worst case scenario’
- Any potential management measures should ensure that the risk stops occurring or does not occur in the future
- The activities and things that need to be considered to identify risks may extend beyond the scope of the Nutrient Management Act and Regulation (example: existing manure storages)
 - CWA does not specify existing or new storages, just storage of ASM in general, therefore required to ensure existing storages are not and do not become a threat to drinking water

2. Identifying risks associated with activities

Potential considerations:

- Proposed storage location
- Proposed/expanding storage integrity
- Existing storage location
- Existing storage integrity
- Days of storage
- Runoff management
- Field characteristics

3. Determining appropriate SWP measures

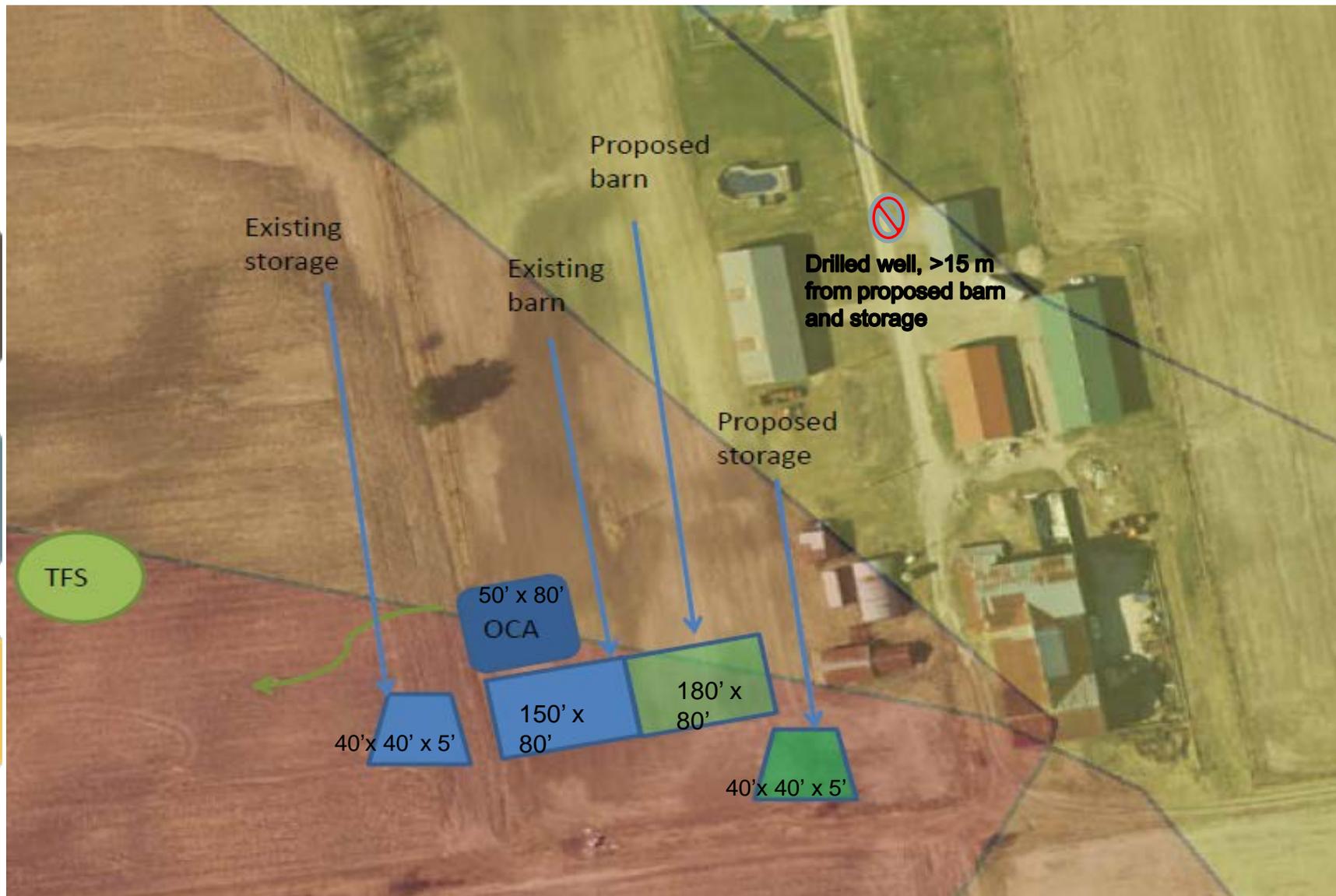
- SWP program has identified vulnerable areas where certain activities require a more detailed look and consideration of additional measures is needed
 - Above and beyond the NM Regulation
 - SWP is meant to address local concerns on a site-specific scale
- SWP is not like the Nutrient Management Reg – NO SET REQUIREMENTS TO FOLLOW
- There are resources available to base measures on, but need to use best professional judgement
 - Your knowledge and expertise extends beyond just following the minimum regulatory requirements
- Resources include:
 - Best Management Practices
 - Risk Management Official (!!!)
 - OFEC workbook
 - MOECC Catalogue of Risk Management Measures

3. Determining appropriate SWP measures

- SWP is all about the management of risk
 - Risk may already be occurring, or could be a possibility in the future
 - Measures need to address the areas of risk so they stop being a threat to drinking water, or never become a threat in the future
 - Measures need to be reasonable to address the threat (not all threats equal)
- At the end of the day, it comes down to DUE DILIGENCE
 - If there is a specific risk, just following the NM Reg may not be enough to ensure that everyone has done what they can to prevent a threat to drinking water (farmer, consultant, OMAFRA, RMO)
- SWP ensures potential risks that may not have been able to be addressed through the current processes to be considered and mitigated
 - Example – 20 year old lagoon 13 m from IPZ2 creek, NM Reg is silent on existing storages.
- Also need to align measures with SPP policies
 - Measures don't apply if policy is prohibition
 - Some SPP policies may dictate what measures need to be incorporated

Scenario

- Client is planning to expand their existing beef barn operation to have 320 NU on the farm (**NMS and NMP**)
- Proposing a new covered storage and expansion of the existing in-barn pack, with the possibility of using a temporary field storage (TFS)
- Has an existing outdoor confinement area (OCA) and existing covered manure storage
- The in-barn pack and both covered storages (existing and proposed) provide 330 days of storage
- The in-barn pack and proposed covered storage require engineering under the Nutrient Management Regulation
 - Existing and proposed pack will be continuous, therefore entire pack requires engineering



Previously...

- Used mapping tool(s) to determine:
 - if farm unit falls within a vulnerable area,
 - What kind of vulnerable area(s) are on the property
 - The different vulnerability scores
WHPA, vulnerability scores of 8 and 10
- Used the threats assessment tool to determine:
 - If a vulnerability score results in a significant drinking water threat
Vulnerability score 10 – ASM storage, application, OCA
- Used the local Source Protection Plan to determine:
 - What policies apply the activities (management versus prohibition)
New storage prohibited, existing storage & application managed

Scenario – Site Specific Details

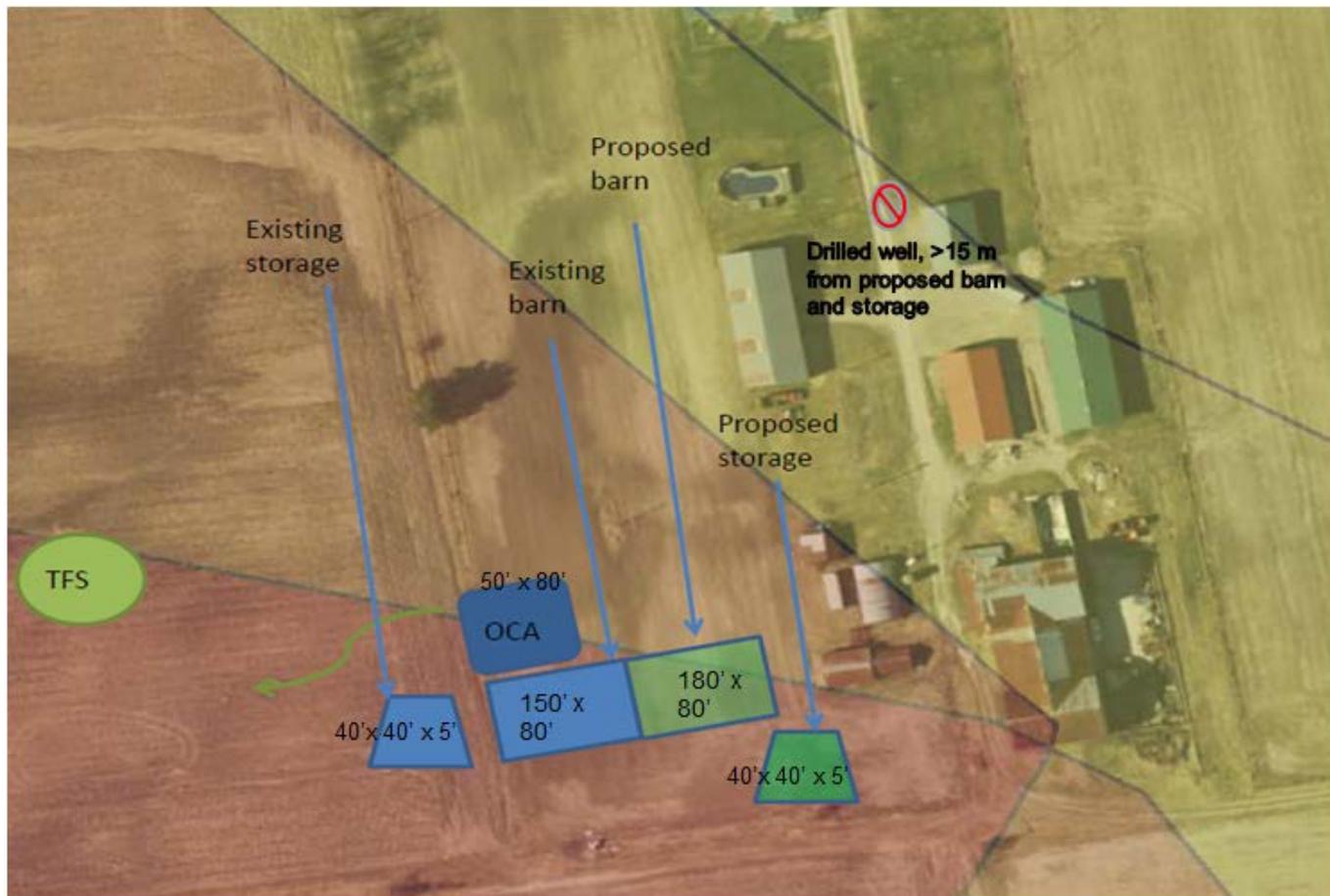
Based on the mapping exercise, the vulnerable area is a Wellhead Protection Area B and C

- A. What are the concerns/considerations with this type of vulnerable area?
- B. Where could there be significant threats?



Scenario – Site Specific Details

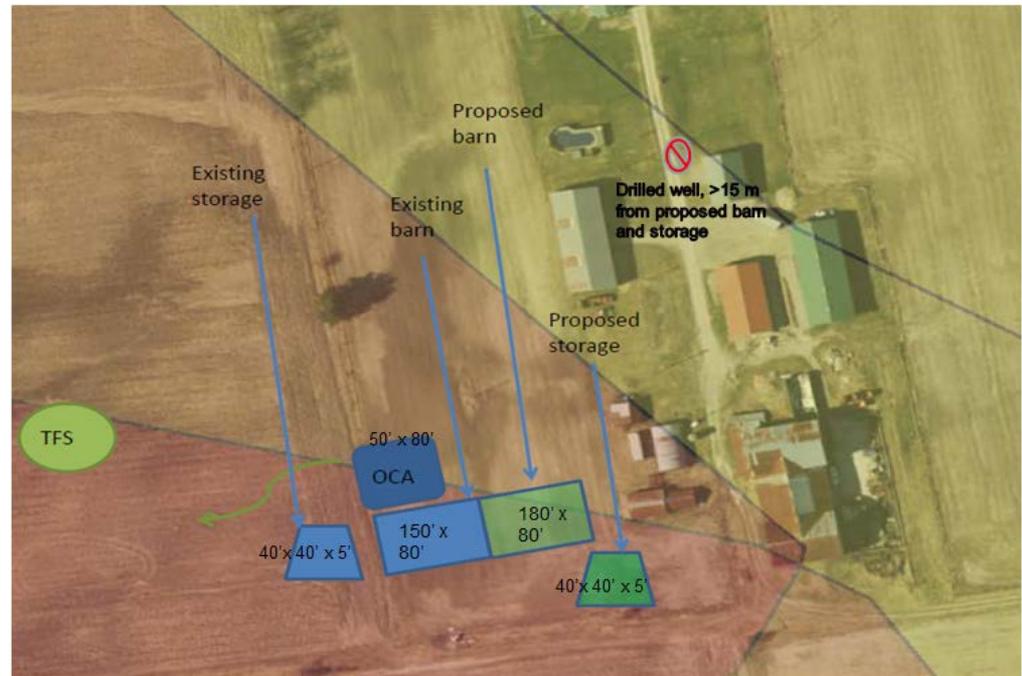
- B. What are the activities and 'things' on the property that would be a prescribed threat under the CWA and managed in a NMS/NMP?



Scenario – Site Specific Details

B. What are the 'things' on the property that would be a prescribed threat under the CWA and managed in a NMS/NMP?

- Existing OCA with runoff
- Existing covered storage
- Proposed covered storage
- Expanding in-barn pack
- Proposed TFS
- Application of ASM



Scenario - Risks associated with activities

A. What are risks or considerations around the 'things' on this operation:

Activities/things:

- Expanding in-barn pack
- Proposed covered storage
- Existing covered storage
- Existing OCA with PVA as runoff management
- Proposed TFS
- Application of ASM



Potential considerations:

- Proposed storage location
- Proposed/expanding storage integrity
- Existing storage location
- Existing storage integrity
- Days of storage
- Runoff management
- Field characteristics

Scenario - Risks associated with activities

- Proposed storage location
 - New storages (permanent and TFS prohibited in VS 10)
- Proposed/expanding storage integrity
 - Engineered
- Existing storage location
 - Located in area with vulnerability score of 10 (highest vulnerability score)
- Existing storage integrity
 - How old is the storage?
 - What are the floors made of?
 - Was it engineered? Engineering assessment? Secondary containment?
- Days of storage
 - Greater than required days of storage, more than enough to get through winter and inclement weather
- Runoff management
 - Runoff flows through PVA directly through highest vulnerability score
- Field characteristics
 - soil type? Depth to groundwater? Application rate/timing? Nutrient loading? Bedrock?

Scenario - Risks associated with activities

Potential considerations:

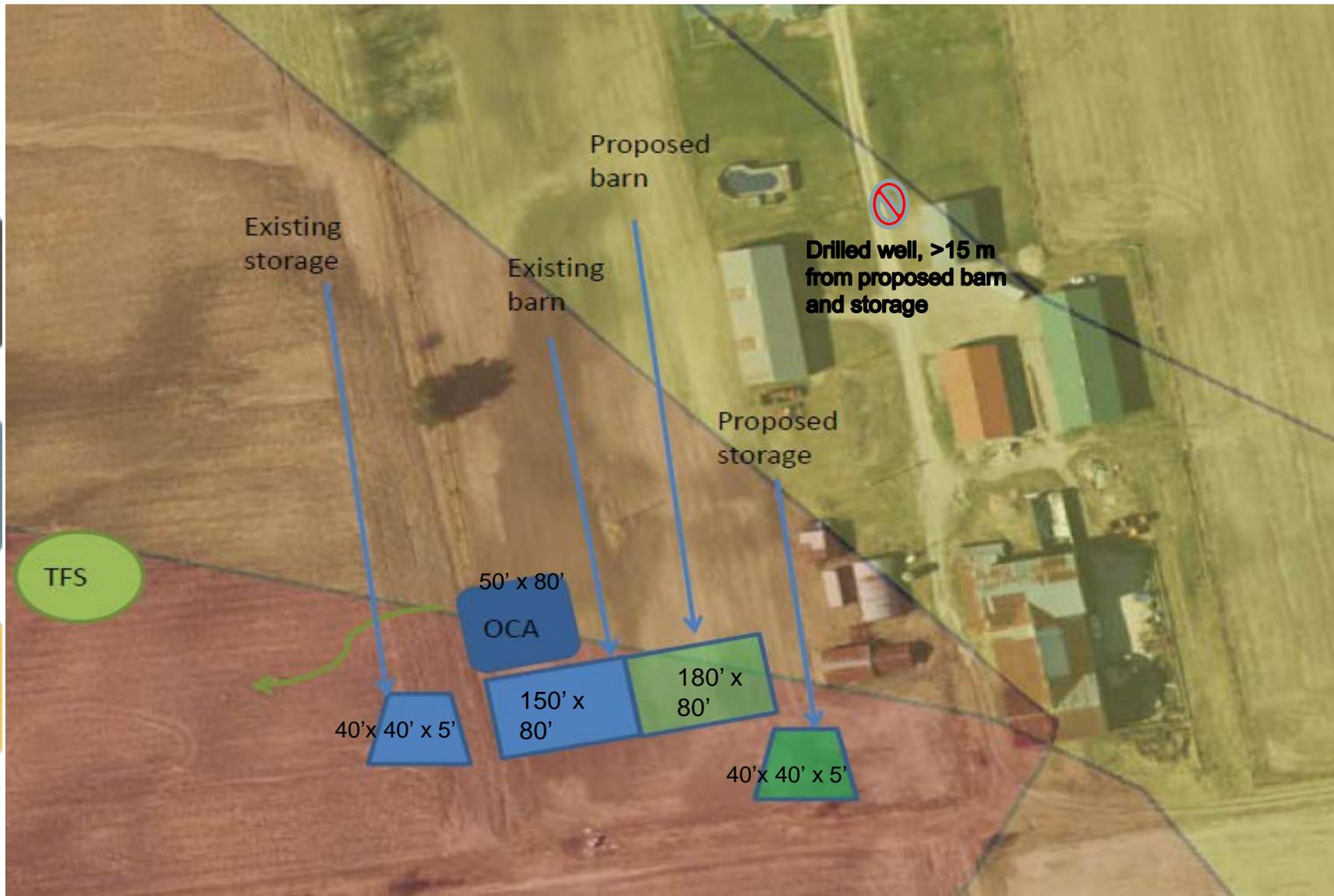
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Scenario - Determining measures

- Need to align measures with requirements of the Source Protection Plan policies
 - No management measures needed if policy is prohibition
- Measures need to address the areas of risk so they stop being a threat to drinking water, or never become a threat in the future
- Potential measures?
 - Proposed covered storage
 - Proposed TFS
 - Existing OCA with runoff
 - Existing covered storage
 - Expanding in-barn pack
 - Application of ASM

Scenario - Determining measures

- Proposed covered storage and proposed TFS
 - Prohibition policy – need to move out of VS 10
 - No longer significant threat
- Existing OCA with runoff
 - Berm around OCA so runoff does not go into vulnerable area
 - Scrape manure regularly/before rain so less runoff
- Existing covered storage
 - Engineering assessment
 - Not use if enough storage elsewhere
- Expanding in-barn pack
 - Will be covered, engineered so no measures
- Application of ASM
 - Pre-till prior to application to break up channels
 - Only apply to living crop or in spring prior to planting



Existing storage
will have
engineering
assessment

Proposed
barn

Existing
storage

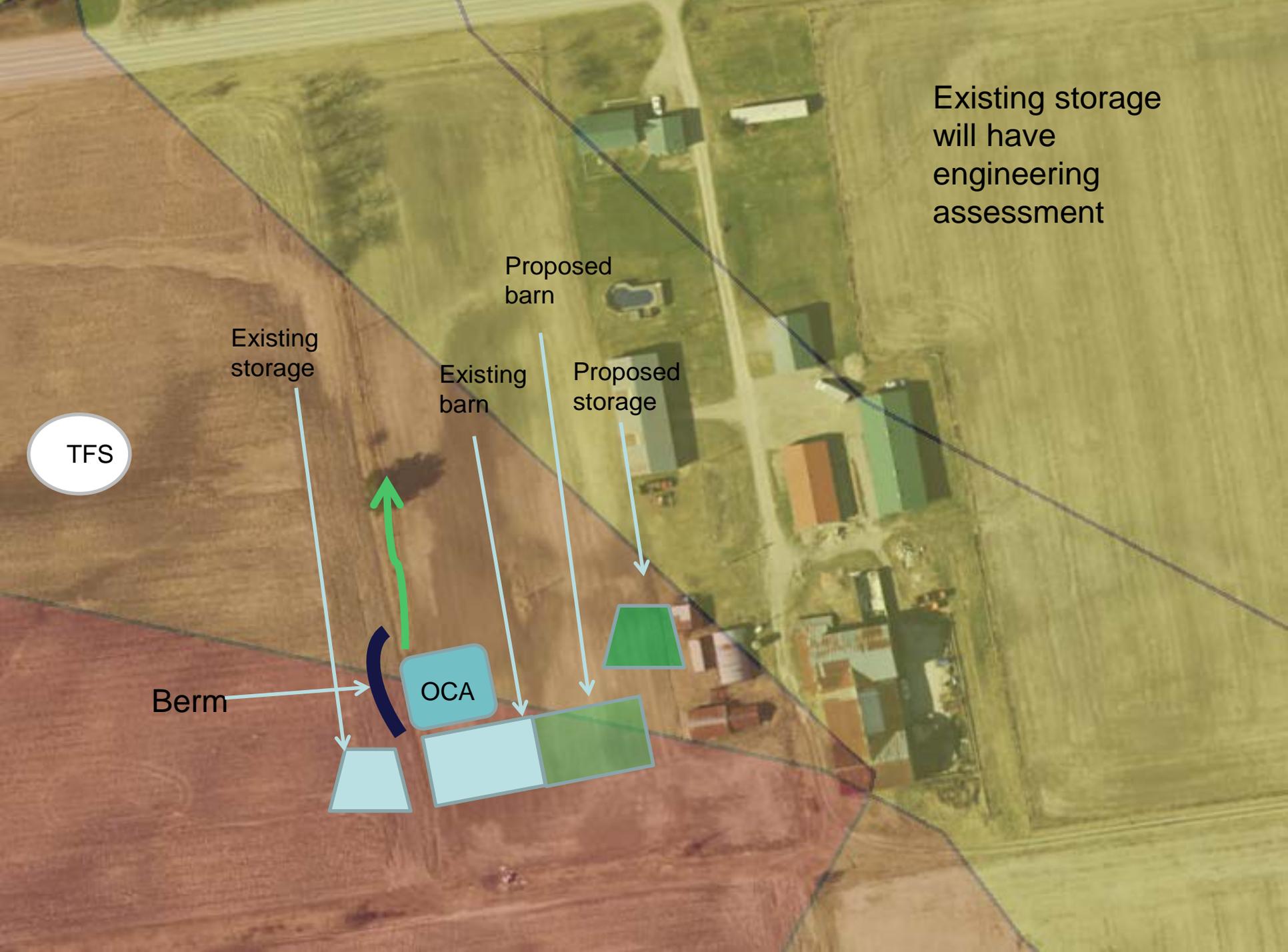
Existing
barn

Proposed
storage

TFS

Berm

OCA



Summary

1. SWP program requires assessment and management of threats beyond minimum processes
2. No prescriptive list of management measures
 - Case by case basis
 - What worked for one farm may not work for their neighbour
3. NM standards can be used as a starting point but professional judgement and expertise should be relied upon
4. Fundamentally about proving due diligence and that all reasonable steps were taken to mitigate and prevent threats

Summary

5. General process applies to NASM plans, NMS that have been registered, NMPs
 - Director has to be assured that reasonable steps and measures are taken to prevent or mitigate a threat to drinking water
 - For non-approved PI, that assurance falls to the Preparer
 - Responsibility of Preparer to ensure measures address SWP risks.
 - Work with the farmer and the Risk Management Official to ensure everyone is comfortable with measures (RMO is SWP expert)
6. Once the Director (or Preparer) is satisfied that threats are mitigated, can issue a statement of conformity if needed