



# Standards Oversight Council (SOC)

Developing effective technical standards that protect Wisconsin's natural resources

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## 01 Verification of Land Features in Silurian Bedrock/Karst Areas Standard Team

### MEETING NOTES

Thursday, October 24, 2019 ▲ 9:30am – 3:00pm ▲

UW Division of Extension - 625 E. County Road Y, Meeting Room D, Oshkosh, WI

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#### 9:30 Welcome, Introduction, Notes Approval (Kate, Team)

Goal: Welcome, review meeting objective, and review and approve 9/26/19 draft meeting notes.

A draft of the 9/26 Meeting Notes was emailed around to the team. No edits were suggested by the team. Kate will wait a week before finalizing and posting publicly on our team website; get in touch with her soon if you note any changes.

Previous action items that we are not addressing today:

- Example for standard – We were initially thinking of including a sample in the standard, though with so many field-specific variables we struggled with what the exercise should really demonstrate. Right now, it seems this may be unnecessary and we'll defer to the qualified professional who will be helping with data interpretation—this professional should know how to evaluate a site. We can reconsider this when we are looking at the full text.
- Initial Review – team was asked to think of who they'd suggest as a possible Initial Reviewer. If anyone has a name or two now, please let me know and I'll keep track but we won't be discussing today since we have a full agenda and this review is still several months away. Later today we'll figure out if this fits for the December team meeting agenda.

#### Sample Density for Intrusive Methods (Kate, Team)

Goal: Decide on sample density for 20' boundary dispute.

Recap from previous meeting discussions and decisions:

- Team prefers to change sampling density with depth. We don't expect to also change sampling density by methodology, as was previously considered.
- Team agreed to **1 sample per ¼ acre (approx. 100-foot spacing)** intrusive sampling when less than 5' (i.e., disputing the 2' and 3' boundary). This is consistent with manure storage borings.
- When disputing 5' boundary, team agrees to **1 sample per 1 acre (approx. 200-foot spacing)** for intrusive sampling.
- When disputing 20' boundary, team previously agreed to less dense sampling than the 5' boundary, but we hadn't yet reached a decision. We had appeared to narrow it down

## MEETING NOTES

Thursday, October 24, 2019

Page 2

though there was no decision, in part because other complicating factors remained (like, minimum # per field, use of geophysics in combination).

Team acknowledges that 20' depth would likely also involve geophysics but we will first come up with baseline for intrusive sampling only. Team will need to make a decision on % reduction in intrusive samples when combined with geophysics based on in-field testing, which is tentatively planned in the next month.

Team discusses whether there should be a minimum number of samples per field:

- Team discusses variations in field shape and size and how a minimum could work. "Field" can be small (like 2 acres) and alternating contour strips can have different crops with different nutrient needs.
- Team decides that NO, we will not have a minimum number of samples per field.
- However, we WILL use the sampling density as a **minimum spacing distance** relative to areas with depth to bedrock boundary disputes. The minimum spacing can cross field boundaries and will match the overall sampling density specific to the depth dispute in that field.
- We will discuss later if other existing data sources (like well logs or other boring logs) could be used when establishing spacing distance. Initial discussion is that not all well logs or boring are precise in depth or location so this would be inconsistent quality in source.

From team discussion on sample density when disputing the 20' boundary:

- Keep in mind that we are only verifying what current mapped depth to bedrock is being disputed. On a given field, verification may be only part of the area. There may be undisputed rock depths where no verification is necessary.
- Team thinks that the 20' boundary is not as likely to be disputed compared with shallower rock. However, if cost sharing is used, the farmer may be more likely to verify all boundaries since it's a one-time cost-share.
- The difference between 1 per 5 acres (467' spacing) and 1 per 10 acres (660' spacing) is 200 feet. Across a field with 20-foot depth to bedrock, 200' difference in spacing isn't substantial from a data standpoint. The more dense approach is significantly more sampling per field and the cost could prohibit verification because the benefit in manure spreading difference may not be worth it. Any new data is significantly better than the density used on the current maps.
- For a typical 40-acre field, 4 verification samples (i.e., 1 sample per 10 acres) is adequate if we are only disputing the 20' boundary. Shallower bedrock would still require more dense sampling points.
- Team members decide by majority that standard will include intrusive sampling of **1 per 10 acres (every 660')** to dispute the 20-acre boundary.
- Possible percent reduction of this density when combined with geophysics will be discussed at a later meeting.

From team discussion on other sampling criteria:

- Verification samples should be taken where there's cropland (e.g., not in the wooded area next to field).

- Before sampling, uneven ground surface should be smoothed out to a uniform grade (for instance, where there are tillage variations).
- The standard will specify sampling density with distance but will also mention that sample locations should be evenly spaced across disputed area.
- Sample locations need to be established by a qualified professional. WHAT this professional is certifying will be discussed later in meeting.
- Verifying in frozen soil will not be prohibited, but team discusses this should be consideration. We may leave this issue up to professional since complication of frozen ground varies depending on method.

Team revisits topic of **excavation** (i.e. **test pits**) for bedrock verification:

- Test pits are very disruptive to soil health and create large conduit to rock/groundwater in an already vulnerable resource. Team feels we can't exempt them from the standard but could add consideration recommending against it.
- Test pits for manure storage are only in area of future manure pit, so in an area that will be dug up in the future. This isn't really comparable to test pits in cropland.
- Standard should include backfilling requirements, placing soil in 2' lifts and tamping it down. Team suggests checking with an engineer (Matt W?) for recommendations like what might be in standard 313.
- Farmer could operate the excavation equipment but team thinks that test pit excavation should be monitored by the qualified professional. This professional would confirm depth (what is "ground surface", what is depth to rock, what is total depth (esp. important if rock not encountered), and to confirm appropriate backfilling procedures.
- Standard should not use term "backhoe" or "excavator" but a more generic term like "excavation equipment".

### **Qualifications for Interpretation (Rachel)**

Goal: Review language for qualifications for interpretation. Discuss and decide on criteria.

Team reviews some initial **qualifications for interpretation** prepared in part from existing language from other sources (like ATCP 50 and NR 712). We refine the details together on-screen during the meeting in separate file which will be incorporated into the standard.

Qualifications will include combination of people with certifications (like CPCC, CCAs, CPSS), and people with experience in training in certain sciences. We also include a category for someone who completed a DATCP-approved training course; this doesn't exist but could in the future so we include as an option.

We do not yet address WHAT exactly the qualified professional is responsible for, though some things have come up in other discussions today. This will be reviewed as a more comprehensive a topic in later discussions.

**MEETING NOTES**

Thursday, October 24, 2019

Page 4

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**Site Assessment (Amy)**

Goal: Review preliminary list of site assessment steps. Refine to establish language for the standard.

Team reviews a list of items that comprise a site assessment. This was prepared a couple months back as homework with some subsequent updates from our discussions. We refine the details together on-screen during the meeting in separate file, which will be incorporated into the standard.

The pre-investigation site assessment will include discussions with land owner to gain their knowledge of the property (like shallow bedrock, sinkholes, tile drainage lines) and understand their manure spreading needs. It also includes document review—maps from various sources, photos, NMP, existing boring/well logs etc.

**Field Documentation (Rachel)**

Goal: Review preliminary list of field observation documentation. Team to discuss and refine to establish language for the standard.

Team reviews a list of items that would be part of in-field documentation. This was prepared a couple months back as homework with some subsequent updates from our discussions. We refine the details together on-screen during the meeting in separate file, which will be incorporated into the standard.

Some categories are field-specific and some are for each boring or geophysical survey pass. We strive for language that has some consistency with other uses (like the coord. system used in NRCS documents). Team agrees that elevation (ground surface or bedrock) will not be included, only depth.

Field data collection for geophysical methods is specific to the type of instrument. This would be as recommended by the manufacturer and up to the qualified professional who is operating the instrument

**Submittals (Amy)**

Goal: Review preliminary list of Plans and Specifications language. Team to discuss and refine to establish language for the standard.

Team has discussed possible requirements for submittal though we decide to postpone any detailed discussion. As we start to discuss this, it appears that some component of the verification will need to be update of the Nutrient Management Plan and we don't need to re-print those requirements. Also, some of the submittal and approval process is more appropriate to DATCP rule and not standard. DATCP will consider this outside of a team meeting.

**GPS Accuracy (Rachel)**

Goal: Review appropriate GPS accuracy and develop language for the standard.

Team reviews a summary document with language informed by other DATCP programs and Brian Luck's earlier presentation to the team. The language is refined together on-screen and some key points are below:

- Team agrees that a cellular phone with a GPS application or handheld GPS device would be fine.
- We would want to confirm accuracy better than 15 feet, which should be available with these devices. Phones and handheld devices often have a correction service to achieve greater accuracy.
- Team discusses what deliverable will look like—field sketch, spreadsheet, or digital shape file are all options discussed. We may want to be consistent with requirements for 590 field mapping since this new field verification will likely be used to update Nutrient Management Plans (NMPs).
- Field documentation and submittal requirements are separate discussions so we park the topic of deliverables.

**Next Meeting Topics and Plan of Action (Kate, Team)**

Goal: Identify the topics and timeline for next meetings. Review Action Items and agenda items for next meeting.

**What should be on the December meeting agenda? Some possible topics from previously parked conversations were discussed, though some may be worked into document review**

**Comparison of In-Field Results (Jason, Dave, Francisco)**

Review depth to bedrock results of in-field geophysics on same field.

**Decisions for Percent Reduction**

Make team decision on percent reduction of intrusive sample density when combined with geophysics.

**Initial Reviews**

Discuss who would be good for the initial expert review of the tech standard.

**Qualifications**

Some areas the qualified professional would be responsible for have been discussed. Team may want to discuss what parts the qualified person needs to be involved in (could be incorporated into draft text review, not full discussion or homework).

**Use of Other Sources of Depth to Bedrock**

Team discussed idea of using existing data sources—there are different degrees of accuracy. Is there further discussion—could be revisited as team works through draft text.

**MEETING NOTES**

Thursday, October 24, 2019

Page 6

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Timeline: next meeting (Dec. 17), then team review of draft text which will be discussed and finalized at several subsequent meetings, and then Initial Review by select experts before full public review.

December 17 is the LAST SCHEDULED MEETING. We expect to need several more! **Rachel and Kate** will get Doodle poll out next week to confirm dates of additional meetings.

**Action Items:**

1. **Rachel and Kate** will get Doodle poll out next week to confirm dates of additional meetings.
2. Carry-over of action Item from 9/26/19 meeting: **Full team** should come to the next meeting prepared with names of possible Initial Reviewers. Previous goal was to have the text out for Initial Review would be early next year (possibly as soon as Feb?). Can we review and finalize a draft by then?
3. Carry-over of action Item from 9/26/19 meeting: **Dave, Jason and Francisco** will return to the Kewaunee County field (or another nearby site, to be determined with assistance from Travis) for a more thorough evaluation of a variety of geophysical methods. They should be able to report back at our next meeting on 12/17.
4. **Rachel** will input the text from today into standard format. If the cohesive document is in good shape, this may be sent to the team to review in advance of Dec. 17 meeting.

3:00 *End*