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# Assessment of Acid Sulfate Soil Materials in the Lock 1 to Lock 5 Region of the Murray-Darling Basin.

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Report to the Murray-Darling Basin Authority

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**Cover Photograph:**

Description: Lyrup Forest wetland, Riverland, South Australia
Photographer: Paul Shand

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# EXECUTIVE SUMMARY

This work was commissioned by the Murray-Darling Basin Authority to obtain necessary data on the nature and extent of acid sulfate soil materials in selected priority wetlands between Lock 1 and Lock 5 of the River Murray. Assessment of acid sulfate soil materials was required to identify wetlands and areas within the wetlands that may contribute to the risk associated with acidification, de-oxygenation and metal mobilisation that would negatively impact on the surrounding water quality and environmental conditions of the wetland and river corridor.

This work consisted of extensive field investigations of selected priority wetlands, including visual descriptions of the soil and site, field testing and collection of soil and water samples for laboratory analysis. CSIRO Land and Water carried out detailed assessments at 56 wetlands, which included a total of 317 sites, with 1334 soil samples and 96 water samples collected for laboratory analysis. Field work was conducted between 26 March and 5 May 2010. A large database of field, laboratory, and photographic data was compiled during the project. The database was interpreted to determine hazard priority ratings for each sample, site and wetland. The wetland assessment and findings from the study are presented in this report.

This report presents the data and findings for Phase 1 of a two-phased, detailed assessment process to determine the hazards posed by acid sulfate soil materials in selected priority wetlands along the River Murray between Lock 1 near the town of Blanchetown, and Lock 5 near the town of Renmark. The report identifies whether or not acid sulfate soil materials are present, and indicates their general location and distribution within the assessed wetland. The soil samples are rated according to the established criteria for inclusion in Phase 2 of the detailed assessment process (MDBA 2010) and a hazard assessment is made for each wetland.

Assessment of the soil samples against the criteria for inclusion in Phase 2 (MDBA 2010) identified that 86% (1140 of the 1334 samples) meet the criteria for a high priority. However, over a third of these samples were triggered solely by the water soluble sulfate criteria. Samples of significant concern were the soil materials identified as sulfuric (1 sample), hypersulfidic by incubation (48 samples) and monosulfidic (41 samples). These materials occurred throughout the study area and were found in 28 of the 56 wetlands.

The potential hazard rating at the wetland scale was based on expert judgement that took into account the soil sample material assessment and the location of the sampled sites within the wetland. Wetlands with hazard ratings of concern were distributed throughout the study area.

The findings for the hazard assessment are:

- Acidification: The results identified that the wetlands were fairly evenly distributed among all levels of concern and that 8 wetlands ranked as high, 10 as medium to high, 13 as medium, 14 as low to medium, and 11 as low.
- De-oxygenation: The results identified that 29 wetlands were of concern with a high, medium to high or medium priority ranking.
- Metal mobilisation: The results identified that 30 wetlands were of concern with a high, medium to high or medium priority ranking.

# 1. INTRODUCTION

This work was commissioned by the Murray-Darling Basin Authority to obtain necessary data on the nature and extent of acid sulfate soil materials in selected priority wetlands in the region between Lock 1 and Lock 5 of the River Murray. Assessments of acid sulfate soil materials were required to identify wetlands, and areas within the wetlands, that may contribute to the risks associated with acidification, de-oxygenation and metal mobilisation that would be expected to impact negatively on the water quality and environmental conditions of the wetlands and their surrounding areas.

This work consisted of extensive field investigation of selected priority wetlands, which included visual descriptions of the soil and site, field measurements and collection of soil and water samples for laboratory analysis. CSIRO Land and Water carried out detailed assessments at 56 wetlands, which included a total of 317 sites, with 1334 soil samples and 96 water samples collected for laboratory analysis. Field work was conducted between 26 March and 5 May 2010. A large database of field, laboratory, and photographic data was compiled during the project and interpreted to determine the hazard priority ranking for each sample, site and wetland. The wetland assessment and findings from the study are presented in this report.

## 1.1. Region overview

This report describes the Phase 1 acid sulfate soil assessment activities (MDBA, 2010) and presents the results for the region between Lock 1 to Lock 5 of the River Murray in South Australia. Lock 1 is located near the town of Blanchetown and Lock 5 occurs at Paringa near the town of Renmark (Figure 1-1). Other locks along this stretch of river include Lock 2 near Waikerie, Lock 3 near Overland Corner and Lock 4 near Bookpurnong (Loxton). Land use in the general area includes irrigated agriculture, animal grazing and recreation in National Parks.

An earlier rapid assessment survey of acid sulfate soils in inland wetland areas was conducted as part of the Murray-Darling Basin Acid Sulfate Soil Risk Assessment Project, during August to November 2008. The rapid assessment survey followed standard operating protocols to determine soil material, pH, electrical conductivity, water quality and observations of the soil and vegetation.

Based on this earlier rapid assessment survey, wetlands were selected for further detailed assessment where parameters exceeded trigger values. Also taken into consideration were the location of the wetland, the environmental significance of the wetland, and the potential risk posed to river water quality and the surrounding environment. The 56 wetlands selected for survey and reported in this assessment report are listed in Table 3-1. The location of the wetlands is presented in Figure 1-1 for the entire survey area and more detailed maps are presented for Locks 1 to 3 in Figure 3-1 and for Locks 3 to 5 in Figure 3-2.

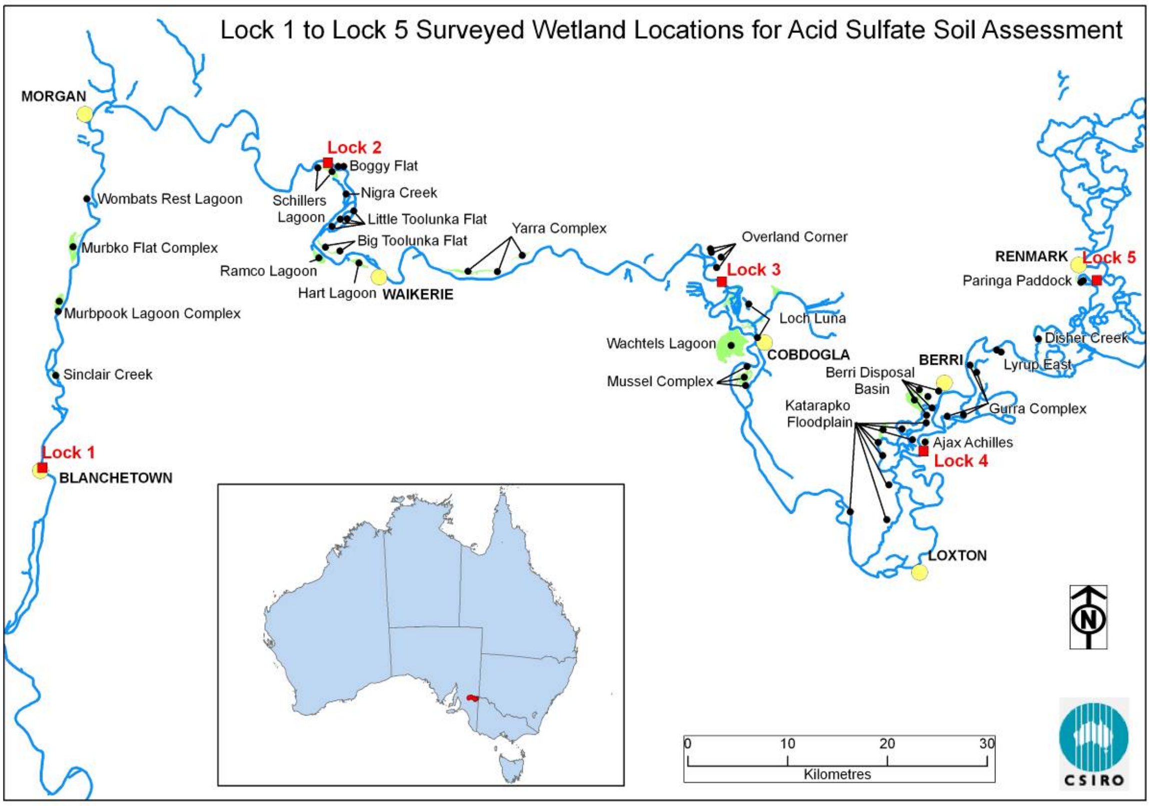



**Figure 1-1. Map showing the location of Lock 1 to Lock 5 survey area and wetlands surveyed.**

## 1.2. Acid sulfate soils in the Murray-Darling Basin

Acid sulfate soil is the term commonly given to soil and sediment that contains iron sulfides, or the products of sulfide oxidation. Pyrite ($FeS_2$) is the dominant sulfide in acid sulfate soil, although other sulfides including the iron disulfide marcasite (Sullivan and Bush 1997; Bush and Sullivan 2000) and iron monosulfides (Bush and Sullivan 1997; Bush *et al.* 2000) can also be found.

Sulfidic sediments accumulate under anaerobic waterlogged (reducing) conditions where there is a supply of sulfate, the presence of metabolisable organic matter and iron containing minerals (Dent 1986). Under reducing conditions, sulfate ($SO_4^{2-}$)is bacterially reduced to sulfide ($S^{2-}$), which reacts with reduced iron ($Fe^{2+}$) to form iron sulfide minerals. These sulfide minerals are generally stable under reducing conditions; however, on exposure to the atmosphere, sulfuric acid is generated due to oxidation of the sulfide minerals, which can be detrimental to water quality and plant production, and can corrode concrete and steel structures (Dent 1986). In addition to the acidification of both ground and surface waters, a decrease in water quality may result from low dissolved oxygen concentrations (Sammut *et al.* 1993; Sullivan *et al.* 2002a; Burton *et al.* 2006), high concentrations of aluminium and iron (Ferguson and Eyre 1999; Ward *et al.* 2002), and the release of other potentially toxic metals (Preda and Cox 2001; Sundström *et al.* 2002; Burton *et al.* 2008a; Sullivan *et al.* 2008a).

Acid sulfate soils containing sulfide form naturally in wetlands where reducing conditions exist and iron and sulfate are present. Changes to the hydrology in regulated sections of the Murray-Darling Basin system (due to higher weir pool levels), and the chemistry of rivers and wetlands have caused significant accumulation of sulfidic material in subaqueous and wetland margin soils. If left undisturbed and covered with water, sulfidic materials pose little threat of acidification. However, when sulfidic material is exposed to the air, the sulfides react with oxygen to form sulfuric acid. Without adequate buffering capacity, the soils may become sulfuric, i.e., the soils attain a pH less than 4. When these sulfuric materials are subsequently covered with water, significant amounts of acidity can be released into the water.

Other hazards associated with acid sulfate soil include: (i) mobilisation of metals, metalloids and non-metals, (ii) decrease in oxygen in the water column when monosulfidic materials are mobilised into the water column, and (iii) production of noxious or malodorous gases. In severe cases, these risks can potentially lead to damage to the environment, and have impacts on water supplies, and human and livestock health.

Record low inflows and river levels, as well as evaporative water loss from disconnected water bodies, in recent years have led to the drying of many wetlands in the Murray-Darling Basin, resulting in the exposure to oxygen of sulfidic material in acid sulfate soil, and soil acidification in a number of wetlands. The extent and potential threat posed by acid sulfate soil requires urgent assessment.

Despite decades of scientific investigation of the ecological (e.g., Living Murray Icon Site Environmental Management Plan: MDBC 2006a,b,c), hydrological, water quality (salinity) and geological features of wetlands in the MDB, we have only recently advanced far enough to appreciate the wide spectrum of acid sulfate soil subtypes and processes that are operating in these contemporary environmental settings - especially from continued lowering of water levels (e.g. Lamontagne *et al.* 2004; Fitzpatrick *et al.* 2008a,b; Shand *et al.* 2008a,b; Simpson *et al*. 2008; Sullivan *et al*. 2008a). Still less is known about the impacts of metal mobilisation (Simpson *et al*. 2010; Shand *et al*. 2010). Hence, the Murray-Darling Basin Ministerial Council, at its meeting in March 2008 directed the then Murray-Darling Basin Commission (MDBC) to undertake an assessment of acid sulfate soil risk at key wetlands in the Murray-Darling Basin.

The MDBC (now the Murray-Darling Basin Authority – MDBA), in partnership with its Partner Governments and scientists, designed the MDB ASS Risk Assessment Project, which aims to assess the spatial extent of, and risks posed by acid sulfate soil in the Murray-Darling Basin. The project also aims to identify and assess broad management options.

Wetlands were identified for assessment based on their environmental significance as well as those that may pose a risk to surrounding waters. Through consultation with jurisdictions more than 19,000 wetlands within the MDB were identified. Due to their ecological significance, the decision was made to prioritise Ramsar-listed wetland complexes of the Murray-Darling Basin for immediate detailed acid sulfate soil assessment. In addition, due to the risk profile, wetlands along the Murray River between Blanchetown (Lock 1) and Wellington were also selected for immediate detailed acid sulfate soil assessment. For all other wetlands, a three tiered assessment process was developed, commencing with a desktop assessment, followed by on-ground rapid assessment and then detailed on-ground assessment at sites identified as high priority or having a risk profile. A total of 100 wetlands were identified and selected for further detailed assessment (shown in Figure 1-2). These wetlands were divided for logistical reasons into the following seven regions:

• Murray River, Lock 1 to Lock 3, SA (25 wetlands).

• Murray River, Lock 3 to Lock 5, SA (31 wetlands).

• Mildura region, NSW and Vic (8 wetlands).

• Edward and Wakool Rivers, NSW (12 wetlands).

• Murray River, Hume to Yarrawonga, NSW and Vic (6 wetlands).

• Talwood-Mungindi, Queensland (1 wetland).

• Victorian Northern Flowing Rivers (17 wetlands).

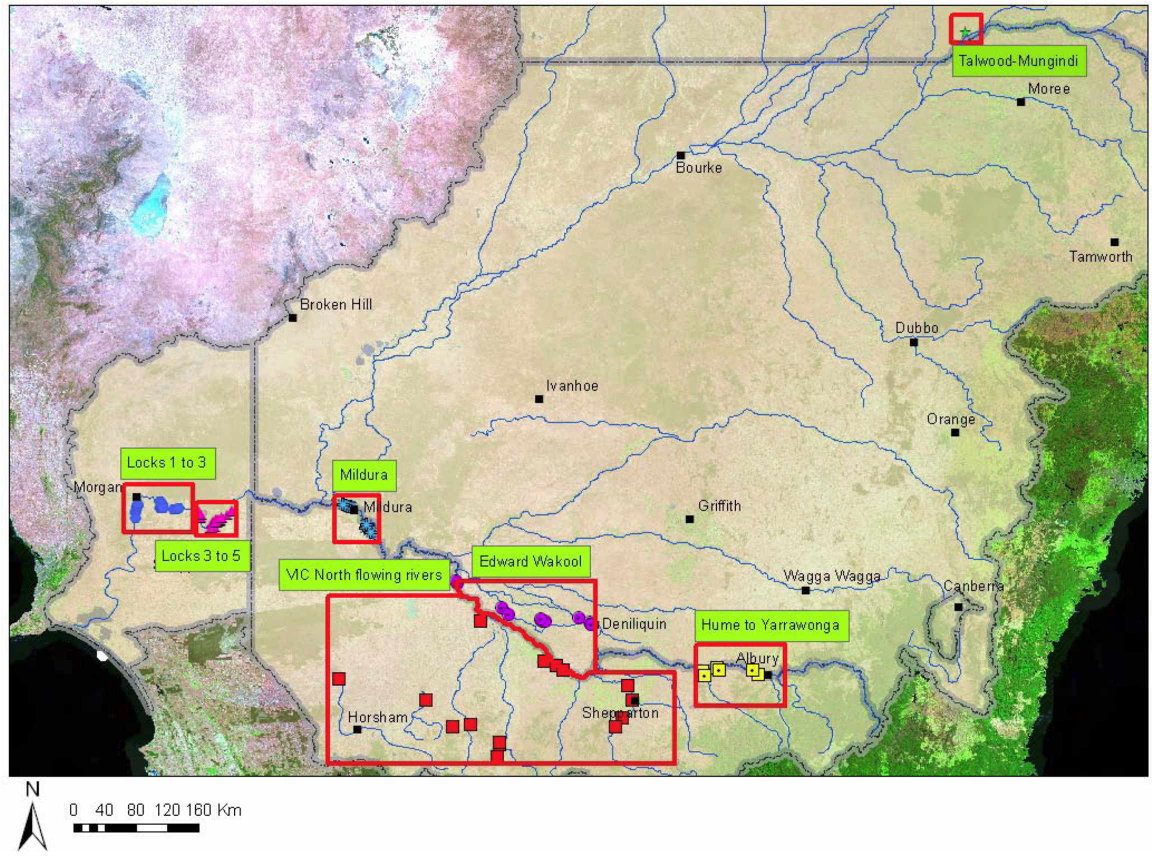



**Figure 1-2. Map showing priority wetlands surveyed in the Murray-Darling Basin (source: MDBA, 2010).**

## 1.3. Detailed acid sulfate soil assessments using two phases

The detailed assessment stage of the Murray-Darling Basin Acid Sulfate Soil Risk Assessment Project involves comprehensive analyses using a set of established and tested field and laboratory methods to determine the presence and extent of acid sulfate soil and associated hazards, including potential for acidification, metal mobilisation and deoxygenation.

In summary, the protocol developed by the Scientific Reference Panel of the Murray-Darling Basin Acid Sulfate Soil Risk Assessment Project requires a two-phase procedure.

**Phase 1 investigations** determine whether or not acid sulfate soil materials are present (or absent) for the study area, and provide characterisation of the properties and types of acid sulfate soil materials.

Phase 1 activities include:

- site selection
- site and profile description
- sample collection and storage
- laboratory analysis (of soil and water)
- identification of acid sulfate soil materials
- prioritisation and selection of Phase 2 samples
- interpretation and reporting.

**Phase 2 investigations** will only be conducted if the acid sulfate soil materials from Phase 1 are determined to be a priority concern for the study area and, based on Phase 1 recommendations, samples will undergo further investigations to determine their nature and severity and the specific risks associated with the acid sulfate soil materials.

Phase 2 activities include:

- laboratory analysis (of soil)
- risk assessment
- interpretation and reporting, including discussion on broad acid sulfate soil management options.

The soil samples to be analysed for Phase 2 will have been collected as part of the Phase 1 field assessment and then put into storage. Based on the Phase 1 report recommendations the client will identify samples and the analyses to be conducted on each of the samples for Phase 2.

Following a request from the Murray-Darling Basin Authority (MDBA), CSIRO Land and Water were engaged to conduct a Phase 1 assessment of acid sulfate soils at selected wetlands between Lock 1 and Lock 5.

## 1.4. Methodologies used to assess acid generation potential

As detailed previously, sulfide minerals are generally stable under reducing conditions, however, on exposure to the atmosphere the acidity produced from sulfide oxidation can detrimental to water quality and plant production, and can corrode concrete and steel structures (Dent 1986). In addition to the acidification of both ground and surface waters, a reduction in water quality may result from low dissolved oxygen levels (Sammut *et al.* 1993; Sullivan *et al.* 2002a; Burton et al. 2006), high concentrations of aluminium and iron (Ferguson and Eyre 1999; Ward et al. 2002), and the release of other potentially toxic metals (Preda and Cox 2001; Sundström et al. 2002; Burton et al. 2008a; Sullivan et al. 2008a).

In nature, a number of oxidation reactions of sulfide minerals (principally pyrite: $FeS_2$) may occur which produce acidity, by the following chemical reactions:

$$2FeS_2 + 7O_2 + 2H_2O \dashrightarrow 2Fe^{2+} + 4SO_4^{2-} + 4H^+$$

$$4FeS_2 + 15O_2 + 10H_2O \dashrightarrow 4FeOOH + 8H_2SO_4$$

A range of secondary minerals, such as jarosite, sideronatrite and schwertmannite may also form, which act as stores of acidity, i.e., they may produce acidity upon dissolution (rewetting). The methodologies used here aim to characterise the potential for, and actual production of soil acidity, along with related effects on water quality and oxygenation.

### 1.4.1. Acid-base accounting

Acid-base accounting is used to assess both the potential of a soil material to produce acidity from sulfide oxidation and also its ability to neutralise any acid formed (e.g. Sullivan *et al*. 2001, Sullivan *et al*. 2002b).

The standard acid based accounting applicable to acid sulfate soils is described in Ahern *et al*. (2004) and summarised here. The following equation shows the components considered in calculation of Net Acidity (NA).

Net Acidity (NA) = Potential Sulfidic Acidity + Titratable Actual Acidity + Retained Acidity – Acid Neutralising Capacity / Fineness Factor

The components in this acid base accounting are further discussed below and by Ahern *et al*. (2004).

- Potential Sulfidic Acidity (PSA) also known as the 'acid generation potential' (AGP) is most easily and accurately determined by assessing the chromium reducible sulfur ($S_{CR}$ or CRS) and then converting this to Potential Sulfidic Acidity (Acid Generating Potential) as described in Ahern *et al*. 2004.
- Titratable Actual Acidity (TAA) is a measure of the actual acidity in acid sulfate soil materials that have already undergone some oxidation. It measures the sum of both soluble and exchangeable acidity.
- Retained Acidity (RA) is the acidity 'stored' in minerals such as jarosite, schwertmannite and other hydroxysulfate minerals. Although these minerals may be stable under dry, acidic conditions, they can release acidity to the environment when moist conditions are encountered.
- Acid Neutralising Capacity (ANC) is measured in soils with $pH_{KCl}$ values > 6.5. These soils may potentially have Acid Neutralising Capacity in the form of (usually) carbonate minerals, principally of calcium, magnesium and sodium. The alkalinity in carbonate minerals present are estimated by titration, and is expressed in $CaCO_3$ equivalents. By accepted definition (Ahern *et al*. 2004), any acid sulfate soil material with a $pH_{KCl}$ < 6.5 has a zero Acid Neutralising Capacity.
- Fineness Factor (FF) is defined by Ahern *et al*. (2004) as 'A factor applied to the acid neutralising capacity result in the acid base account to allow for the poor reactivity of coarser carbonate or other acid neutralising material. The minimum factor is 1.5 for finely divided pure agricultural lime, but may be as high as 3.0 for coarser shell material'. Fine grinding of soil materials may lead to an overestimate of Acid Neutralising Capacity when carbonates are present in the form of hard nodules or shells. In the soil environment, they may provide little effective Acid Neutralising Capacity as exposure to acid may result in the formation of surface crusts (iron oxides or gypsum), preventing or slowing further neutralisation reactions. For reasons including those above, the use of the Fineness Factor also applies to those naturally occurring alkalinity sources in soil materials as measured by the Acid Neutralising Capacity methods.

The following Net Acidity thresholds are used when discussing the data:

- low net acidity (<19 mole $H^+$/tonne)
- moderate net acidity (19 – 100 mole $H^+$/tonne)
- high net acidity (>100 mole $H^+$/tonne)

## 1.5. Classification of soil materials

Recently, the Acid Sulfate Soils Working Group of the International Union of Soil Sciences agreed to adopt in principle the following five descriptive terminology and classification definitions of acid sulfate soil materials proposed by Prof. Leigh Sullivan and co-authors in a plenary lecture and Acid Sulfate Soils Working Group meeting at the 6th International Acid Sulfate Soil and Acid Rock Drainage Conference in September 2008 in Guangzhou, China (Sullivan *et al*. 2008). This new classification system for acid sulfate soil materials (Sullivan *et al*. 2009) has also been recently (October 2008) adopted by the Scientific Reference Panel of the Murray–Darling Basin Acid Sulfate Soil Risk Assessment Project for use in the detailed assessment of acid sulfate soils in the Murray–Darling Basin.

The criteria to define the soil materials are as follows:

1. **Sulfuric materials** – soil materials currently defined as sulfuric by the Australian Soil Classification (Isbell 2002). Essentially, these are soil materials with a $pH_W < 4$ as a result of sulfide oxidation.

2. **Sulfidic materials*** – soil materials containing detectable sulfide minerals (defined as containing greater than or equal to 0.01% sulfidic S). The intent is for this term to be used in a descriptive context (e.g. sulfidic soil material or sulfidic sediment) and to align with general definitions applied by other scientific disciplines such as geology and ecology (e.g. sulfidic sediment). The method with the lowest detection limit is the Cr-reducible sulfide method, which currently has a detection limit of 0.01%; other methods (e.g. X-ray diffraction, visual identification, Raman spectroscopy or infra red spectroscopy) can also be used to identify sulfidic materials.

   **This term differs from previously published definitions in various soil classifications (e.g. Isbell, 2002).*

3. **Hypersulfidic material** – Hypersulfidic material is a sulfidic material that has a field pH of 4 or more and is identified by experiencing a substantial* drop in pH to 4 or less (1:1 by weight in water, or in a minimum of water to permit measurement) when a 2–10 mm thick layer is incubated aerobically at field capacity. The duration of the incubation is either:

   1. until the soil pH changes by at least 0.5 pH unit to below 4; or
   2. until a stable** pH is reached after at least 8 weeks of incubation.

   **A substantial drop in pH arising from incubation is regarded as an overall decrease of at least 0.5 pH unit.*

   ***A stable pH is assumed to have been reached after at least 8 weeks of incubation when either the decrease in pH is < 0.1 pH unit over at least a 14 day period, or the pH begins to increase.*

4. **Hyposulfidic material** – Hyposulfidic material is a sulfidic material that (i) has a field pH of 4 or more and (ii) does not experience a substantial* drop in pH to 4 or less (1:1 by weight in water, or in a minimum of water to permit measurement) when a 2–10 mm thick layer is incubated aerobically at field capacity. The duration of the incubation is until a stable** pH is reached after at least 8 weeks of incubation

   **A substantial drop in pH arising from incubation is regarded as an overall decrease of at least 0.5 pH unit.*

   ***A stable pH is assumed to have been reached after at least 8 weeks of incubation when either the decrease in pH is < 0.1 pH unit over at least a 14 day period, or the pH begins to increase.*

5. **Monosulfidic materials** – soil materials with an acid volatile sulfur content of 0.01%S or more.

**Non-Acid Sulfate Soil materials -** In addition the Scientific Reference Panel of the Murray–Darling Basin Acid Sulfate Soil Risk Assessment Project agreed to identify the other acidic soil materials arising from the detailed assessment of wetland soils in the Murray–Darling Basin, even though these materials may not be the result of acid sulfate soil processes (e.g. the acidity developed during ageing may be the result of $Fe^{2+}$ hydrolysis, which may or may not be associated with acid sulfate soil processes). Also the acidity present in field soils may be due to the accumulation of acidic organic matter and/or the leaching of bases. Of course, these acidic soil materials may also pose a risk to the environment and would be identified during the present course of the Phase 1 detailed assessment. The definition of these other acidic soil materials for the detailed assessment of acid sulfate soils in the Murray–Darling Basin is as follows:

1. Other acidic soil materials – either:
   a. non-sulfidic soil materials that acidify by at least a 0.5 $pH_w$ unit to a $pH_w$ of < 5.5 during moist aerobic incubation.
   b. soil materials with a $pH_W \geq 4$ but < 5.5 in the field.
2. Other soil materials – soils that do not have acid sulfate soil (or other acidic) characteristics.

# 2. METHODS AND MATERIALS

The approach followed is consistent with the guidelines provided in the report prepared by the Murray-Darling Basin Acid Sulfate Soils Scientific Reference Panel "Detailed Assessment of Acid Sulfate Soils in the Murray-Darling Basin: Protocols for sampling, field characterisation, laboratory analysis and data presentation" (MDBA, 2010). This report should be referred to for information on the rationale and protocols for conducting this work. Readers are referred to this 'Protocol' report to obtain details regarding methods and procedures and the following sections here provide a summary of key relevant features for this study.

## 2.1. Field sampling of soils and waters

The sample site location and number of sample sites placed within a wetland was determined by the experience of the field soil surveyor. A number of factors were taken into consideration, including, but not limited to, the following: safe access and working area, ease of access (farm tracks, gates, proximity from public roads and permission from landholders), observed variability at the wetland (vegetation habitat changes, soil surface condition changes, water on the surface, topography changes, shape of wetland, proximity to the river), variability on the remotely sensed image maps, and information and knowledge about the wetland supplied by the landholders and Natural Resource Management staff.

The number of sites placed in each wetland was determined by the wetland area, and ranged from 2 sites per wetland for areas less than 5 hectares, to 20 sites per wetland for areas greater than 500 hectares. In general, sites for sampling were located to represent a low, mid and high part of the wetland topography, and where possible these sites formed a topographic transect within the wetland which covered the wetland centre (low), edge of the wetland (high), and a point in between (mid). Additional sites could be placed near the wetland outlet to the river, or where salts were observed on the surface, or surface water was present. Mapping of the soil distribution within the wetland was not considered, given the few observation sites that were made at each of the wetlands.

Sample site location coordinates were obtained using a Global Positioning System (GPS), for WGS 84 Datum: UTM Zone 54 South. At dry sites, soil sampling was conducted from soil pits dug to approximately 0.6 m deep, and then with a gouge auger below the base of the pit down to about 1 m or to auger refusal. Where soils were below water (i.e. subaqueous soils), samples were obtained by wading and using a gouge auger, to approximately 0.9 m depth or to auger refusal.

Irrespective of the sampling method to extract soil material, soil profiles were sampled in defined depth intervals of 0-5 cm, 5-10 cm, 10-20 cm, 20-40 cm, and 40-90 cm. However, where there existed within these sample depth ranges an obvious and visually distinct or textually distinct layer change, or an identifiable redox boundary, then the layer was not mixed across the change but sampled separately.

The samples were described according to standard methodology (NCST, 2009; Schoeneberger *et al*. 2002). Layer depth ranges were recorded, and for each layer the morphology and physical properties described, including colour (matrix and mottles), texture, structure, consistency, and occasional other identifiable features such as stickiness, plant material, odour and concentrations.

The following soil sampling procedure was followed: firstly, bulk soil samples (typically > 500 g) for each layer taken were placed in pre-labelled plastic bags and mixed. Next, from the bag, sub-samples were taken and placed in two 70 ml screw-top plastic jars, with care taken in wet samples to exclude air by filling the jars to the maximum level to limit sulfur oxidation during transit and storage. Sub-samples from the layers were also placed in two chip-trays, with the first used to display morphologically representative aggregates for each of the sampled layers for later visual reference (e.g. during report writing) and placed in the CSIRO archival soil storage system), while the second chip-tray was used for acid sulfate soil incubation in the laboratory. Physical limitations to sampling caused by the soil materials, e.g. unconsolidated coarse (sandy layers) or extremely hard dry layers or deep water, made recovery of profile samples difficult in some places. However, the samples obtained during this study should be adequate to characterise materials likely to be exposed as water levels decrease.

Water samples were collected for each transect where surface water occurred and were taken at the site from which the deepest subaqueous soil sample was collected. Additionally, if a site along the transect occurred on dry land and water occurred in the soil pit, then a water sample was also taken from the pit.

Water pH, specific electrical conductance (SEC), dissolved oxygen (DO) and redox potential (Eh) were determined in the field using calibrated electrodes linked to a YSI 556 Multiparameter System. Turbidity was measured using a calibrated TPS WP88 Turbidity meter. Alkalinity was also determined in the field by acid titration using a HACH kit.

Surface water samples were collected in 125 ml polypropylene containers. Filtered (through 0.45 µm membrane filters) and unfiltered surface water samples were collected at each location. All filtered samples were acidified to pH < 2 with ultrapure concentrated nitric acid ($HNO_3$).

## 2.2. Laboratory analysis of soil samples

Soil and water samples were stored and transported to two laboratories.

- The Environmental Analysis Laboratory, Southern Cross University conducted the acid-base accounting analysis on soil samples.
- The CSIRO Land and Water Laboratories, Waite Institute conducted $pH_W$, $pH_{OX}$, $pH_{INC}$ water soluble sulfate analysis on soil samples, and all water sample analysis.

The protocol report (MDBA 2010) identifies the analyses to be conducted. A summary of the soil analyses and methods are presented in Table 2-1.

## 2.3. Laboratory analysis of water samples

A summary of the analysis conducted on the water samples (if present) and the analyses methods are presented in Table 2-1. The water quality parameters measured included (i) pH, SEC, alkalinity, (ii) dissolved organic carbon, (iii) major anions/nutrients (Cl, Br, F, $NO_2$, $NO_3$, $PO_4$, $SO_4$, $NH_4$, total N & P, B), (iv) major cations (Na, K, Ca, Mg), and (v) trace metals (Al, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Se, Zn). Dissolved metals were analysed on filtered samples.

**Table 2-1. Laboratory analysis conducted on soil and water samples.**

| Parameter | Units | Method or Method Code | Method Reference |
|---|---|---|---|
| **Soil Samples** | | | |
| Soil $pH_W$ | pH unit | pH meter;<br>1:1 soil:water | Rayment and Higginson 1992 |
| Soil $pH_{OX}$ | pH unit | pH meter;<br>Method 4E1 | Rayment and Higginson 1992 |
| Soil $pH_{INC}$ | pH unit | See Appendix 4 of MDBA 2010 | Sullivan 2009<br>Fitzpatrick *et al*. 2008 |
| Moisture content (of soil sample) | Weight% | $80^oC$ drying | Ahern *et al.* 2004 |
| Chromium reducible sulfur ($S_{CR}$) | sulfide %S | Method 22B | Ahern *et al.* 2004 |
| $pH_{KCl}$ | pH unit | Method 23A | Ahern *et al.* 2004 |
| Titratable actual acidity | mole $H^+$/tonne | Method 23F | Ahern *et al.* 2004 |
| Retained acidity | mole $H^+$/tonne | Method 20J | Ahern *et al.* 2004 |
| Acid neutralising capacity (where $pH_{KCl}$ >6.5) | $\%CaCO_3$ | Method 19A2 | Ahern *et al.* 2004 |
| Water extractable sulfate (1:5 soil:water extract) | mg $SO_4^{2-}$/kg | Method 14F<br>Conducted on surface soil sample | Rayment and Higginson 1992 |
| Acid volatile sulphur | sulfide $\%S_{AV}$ | See Appendix 5<br>Conducted on surface samples | Hsieh et al. (2002) |
| **Water Samples (if present)** | | | |
| Major cations (Na, K, Ca, Mg) and Si | mg $l^{-1}$ | APHA3120 ICPOES | APHA 21st ed., USEPA SW846 – 6010 |
| Dissolved bromide and chloride (Cl, Br) | mg $l^{-1}$ $Cl^-$, $Br^-$ | APHA 4500 Cl-<br>APHA 4500 Br- | APHA 21st ed. |
| Dissolved nitrate ($NO_3$) | mg $l^{-1}$ $NO_3^-$ | APHA 4500 $NO_3$- | APHA 21st ed. |
| Dissolved ammonia ($NH_4$) | mg $l^{-1}$ $NH_4^+$ | APHA 4500 NH3-H | APHA 21st ed. |
| Dissolved phosphate ($PO_4$) | mg $l^{-1}$ $PO4^{3-}$ | APHA 4500 P-E | APHA 21st ed. |
| Dissolved sulfate ($SO_4$) | mg $l^{-1}$ $SO4^{2-}$ | APHA 3120 ICPOES | APHA 21st ed. |
| Trace metals or metalloids including Ag, Al, As, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Zn | | | APHA 21st ed. |
| Dissolved organic carbon | | | APHA 21st ed. |

## 2.4. Quality Assurance / Quality Control (QA/QC)

### 2.4.1. Site selection and sample collection

The senior soil surveyor for the project was Mr Grealish who determined site locations and conducted the collection of soil samples. Throughout the field survey, the work activities were constantly under review by accompanying senior CSIRO staff members Dr Shand or Dr Fitzpatrick, who ensured work was conducted according to the ‘protocol’ methods.

There were no major issues of concern identified.

Minor issues requiring alternative actions to the protocols included:

- Deep water (>80 cm deep) preventing access and retrieval of soil samples from the central location in the wetland that would represent the low point in the sample transect. Action taken – included wading out into the water to as deep as safely possible, using that location as the maximum extent for the transect. The deep water and the method of sampling using hand tools made extracting the deep sample layer (40-90 cm) often impossible and, therefore, only the upper layers were sampled.
- Thin (about 1 to 3cm) layer at the surface, usually a gel, peat or salt crust that differed significantly from the rest of the defined upper layer that would normally be sampled in the depth range 0 to 5 cm. Action taken – included sampling of the thin layer and upper soil layer separately and not mixing as part of an overall 0 to 5cm sample layer.

### 2.4.2. Laboratory analysis

For all tests and analyses conducted at the Southern Cross University Laboratories, the Quality Assurance and Quality Control Procedures were equivalent to those endorsed by NATA (National Association of Testing Authorities). The standard procedures followed included the monitoring of blanks, duplicate analysis of at least 1 in 10 samples, and the inclusion of standards in each batch.

As a member of ASPAC (Australasian Soil and Plant Analysis Council), regular inter-laboratory trials in regard to acid sulfate soils are conducted and provide external confirmation of analytical accuracy and precision. Pure pyrite is used as a standard reference material for pyrite (Chromium Reducible Sulfur) analyses.

Reagent blanks and method blanks were prepared and analysed for each method. All blanks examined here were below the limits of detection. On average, the frequencies of quality control samples processed were 12% blanks, 10% laboratory duplicates, and 5% laboratory controls. The analytical precision was ±5% for all analyses.

### 2.4.3. Data management

To ensure that the data was correct, the following were conducted: i) data checked for internal consistency by comparisons of similar data fields to others to ensure a satisfactory match, ii) data checked to ensure data values were within range, iii) data checked to ensure that outlier values in comparison to the population as a whole were correct, iv) checked that within wetlands and soil profiles the data trends were acceptable and unusual trends were investigated more closely to ensure they were correct.

All inconsistencies were checked and data values updated where required. No major issues of concern were identified, and no data was removed from the data set.

### 2.4.4. Data interpretation and reporting

Reporting of information was conducted by a team of people, who as part of the on-going process provided internal review of work as it was prepared. Senior staff (and external reviewers) conducted an overall evaluation of the work. Review comments were evaluated and the report updated where necessary.

## 2.5. Criteria for ranking soil materials for inclusion in Phase 2 of the detailed assessment process

The Scientific Reference Panel of the Murray-Darling Basin Acid Sulfate Soil Risk Assessment Project agreed to recommend that soil materials be assigned the following priorities to undertake the Phase 2 detailed assessment (MDBA 2010):

**High Priority**

1. All sulfuric materials.
2. All hypersulfidic materials (as recognised by either i) incubation of sulfidic materials or ii) a positive net acidity result with a Fineness Factor of 1.5 being used).
3. All hyposulfidic materials with $S_{CR}$ contents ≥ 0.10% S.
4. All surface soil materials (i.e. within 0-20 cm) with water soluble sulfate (1:5 soil:water) contents >100 mg/kg $SO_4$.
5. All monosulfidic materials.

**Moderate Priority**

All hyposulfidic materials with $S_{CR}$ contents < 0.10% S.

**No Further Assessment**

1. Other acidic soil materials.
2. All other soil materials.

It is important to note, while the criteria identifying samples for Phase 2 analysis is clearly defined, samples only go through to Phase 2 when consideration is given to the wetland as a whole.

# 3. RESULTS

CSIRO Land and Water carried out a detailed assessment at 56 wetlands between Lock 1 and Lock 5 (Table 3-1), which were selected based on both the results of the rapid assessment and the risk associated with a wetland if it were to become affected by acid sulfate soils. Field work was conducted between 26 March and 5 May 2010. A total of 317 sites were sampled, that included 1334 soil samples described and collected for laboratory analysis, and 102 water samples from either surface or pit water collected for laboratory analyses. Work was conducted to determine whether acid sulfate soils were present. The location of the wetlands is presented in Figure 1-1 for the entire survey area and more detailed maps are presented for Locks 1 to 3 in Figure 3-1 and for Locks 3 to 5 in Figure 3-2.

Samples obtained in this survey provided a baseline for the wide range of soil conditions present in the wetlands. Recorded locations and long-term archival storage of the samples in CSIRO will allow for future re-sampling and analysis, if required.

The site locations, morphological descriptions and laboratory measurements for all the soil and waters sampled at the wetlands are provided in a separate accompanying file as the project database. A comprehensive set of digital photographs for each site and chip-tray sample was catalogued and provided separately as a photographic library.

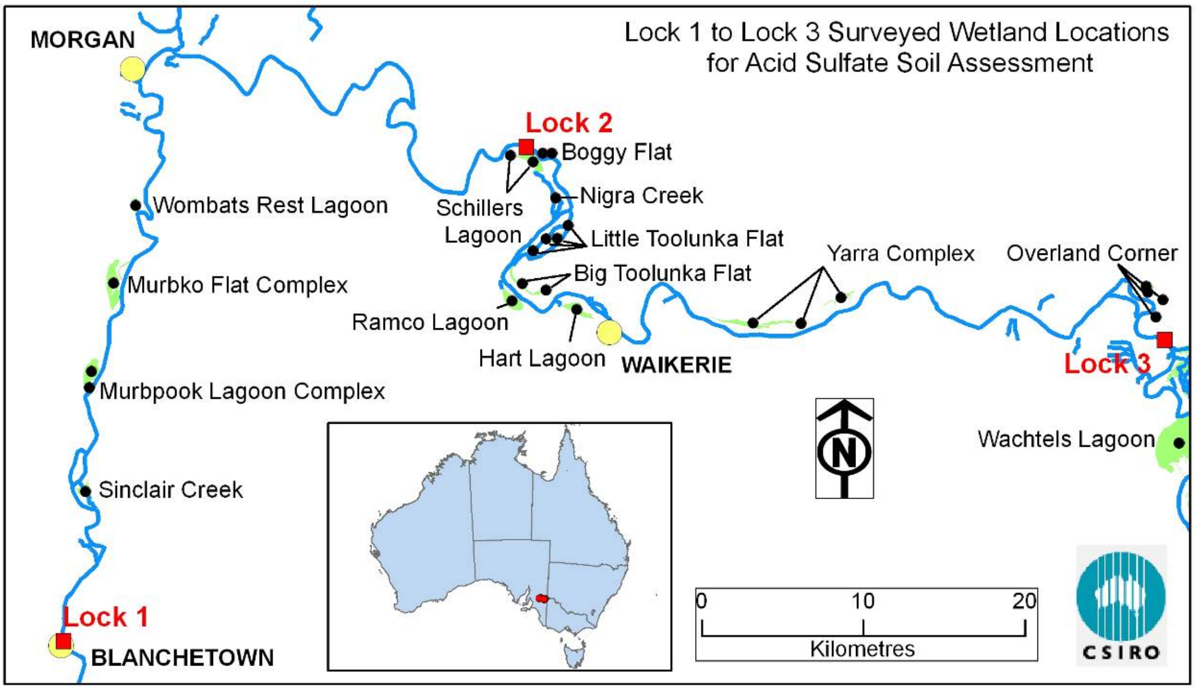



**Figure 3-1. Location of wetlands between Lock 1 and Lock 3.**

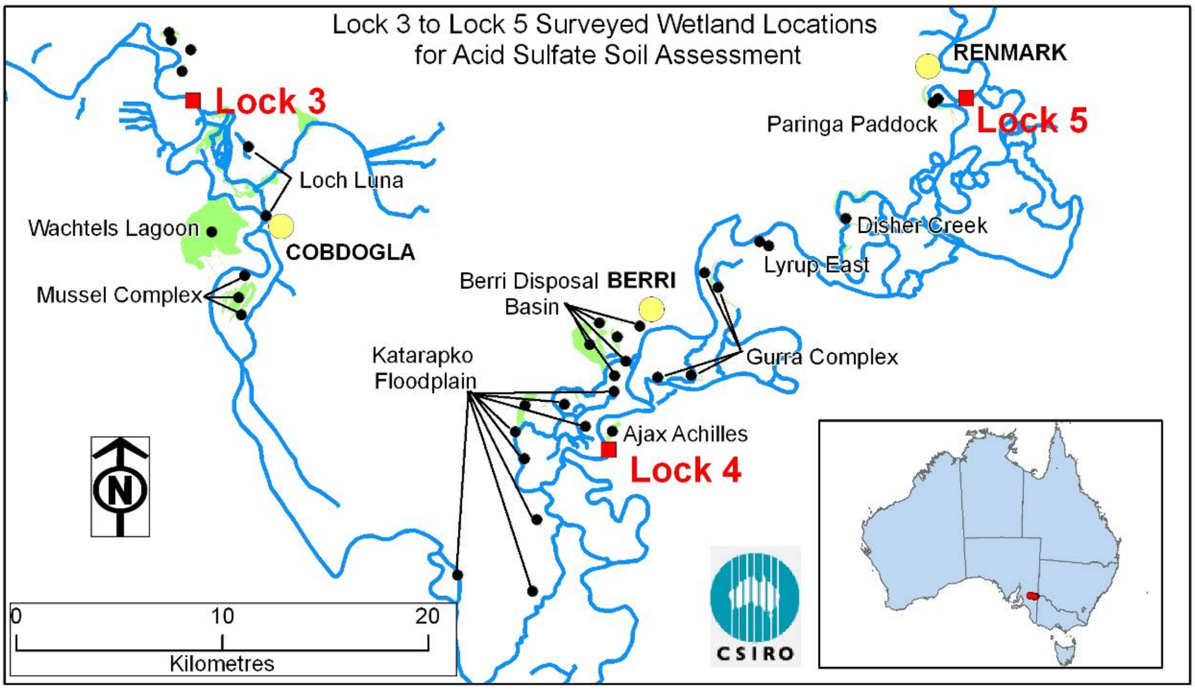



**Figure 3-2. Location of wetlands between Lock 3 and Lock 5.**

**Table 3-1. List of wetlands, survey dates and samples collected.**

This table is sorted in order of the Wetland ID number.

| Wetland ID number | Main Name | Location | Area ha | Date Surveyed | Sites (count) | Soil Samples (count) | Water Samples (count) | Mono-sulfide Samples (count) |
|---|---|---|---|---|---|---|---|---|
| 12006 | Hart Lagoon | Hart Lagoon | 73 | 25/03/2010 | 8 | 38 | 1 | 0 |
| 12032 | Wombats Rest Lagoon | Lock 1 to Morgan | 29 | 2/05/2010 | 8 | 35 | 2 | 0 |
| 12046 | Ramco Lagoon | Ramco Lagoon | 93 | 23/03/2010 | 8 | 40 | 2 | 0 |
| 12063 | Big Toolunka Flat | Toolunka Complex | 4 | 26/03/2010 | 2 | 7 | 1 | 0 |
| 12064 | Big Toolunka Flat | Toolunka Complex | 37 | 26/03/2010 | 8 | 30 | 4 | 0 |
| 12075 | Wachtels Lagoon | Wachtels Lagoon | 685 | 18/04/2010 19/04/2010 21/04/2010 | 22 | 85 | 8 | 0 |
| 12086 | Paringa Paddock | Goat Island and Paringa Paddock | 25 | 14/04/2010 | 8 | 31 | 1 | 0 |
| 12087 | Paringa Paddock | Goat island and Paringa Paddock | 26 | 14/04/2010 | 8 | 38 | 2 | 7 |
| 12092 | Berri Disposal Basin | Berri Disposal Basin Complex | 2 | 30/03/2010 | 2 | 7 | 0 | 0 |
| 12095 | Berri Disposal Basin | Berri Disposal Basin Complex | 1 | 30/03/2010 | 2 | 7 | 1 | 0 |
| 12101 | Berri Disposal Basin | Berri Disposal Basin Complex | 1 | 30/03/2010 | 2 | 8 | 0 | 0 |
| 12102 | Berri Disposal Basin | Berri Disposal Basin Complex | 211 | 29/03/2010 | 12 | 54 | 6 | 5 |
| 12103 | Berri Disposal Basin | Berri Disposal Basin Complex | 23 | 30/03/2010 | 8 | 37 | 0 | 0 |
| 12104 | Berri Disposal Basin | Berri Disposal Basin Complex | 15 | 30/03/2010 | 4 | 18 | 0 | 0 |

| Wetland ID number | Main Name | Location | Area ha | Date Surveyed | Sites (count) | Soil Samples (count) | Water Samples (count) | Mono-sulfide Samples (count) |
|---|---|---|---|---|---|---|---|---|
| 12132 | Overland Corner | Overland Corner Complex | 1 | 4/05/2010 | 2 | 9 | 0 | 0 |
| 12133 | Overland Corner | Overland Corner Complex | 13 | 4/05/2010 | 3 | 12 | 0 | 0 |
| 12153 | Mussel Complex | Mussell Lagoon / Loveday Complex | 6 | 12/04/2010 | 5 | 23 | 0 | 0 |
| 12155 | Mussel Complex | Mussell Lagoon / Loveday Complex | 2 | 12/04/2010 | 2 | 8 | 1 | 0 |
| 12156 | Mussel Complex | Mussell Lagoon / Loveday Complex | 131 | 12/04/2010 | 12 | 49 | 3 | 0 |
| 12158 | Murbpook Lagoon Complex | Lock 1 to Morgan | 102 | 22/03/2010 23/03/2010 | 13 | 25 | 6 | 2 |
| 12161 | Murbpook Lagoon Complex | Lock 1 to Morgan | 4 | 22/03/2010 | 2 | 7 | 1 | 0 |
| 12209 | Little Toolunka Flat | Toolunka Complex | 2 | 27/03/2010 | 3 | 15 | 1 | 2 |
| 12211 | Little Toolunka Flat | Toolunka Complex | 15 | 27/03/2010 | 3 | 13 | 2 | 3 |
| 12212 | Little Toolunka Flat | Toolunka Complex | 38 | 27/03/2010 | 8 | 34 | 2 | 0 |
| 12214 | Little Toolunka Flat | Toolunka Complex | 8 | 26/03/2010 | 5 | 22 | 2 | 3 |
| 12254 | Disher Creek | Disher Creek | 110 | 15/04/2010 | 12 | 58 | 4 | 5 |
| 12259 | Schillers Lagoon | Schillers / Nigra Creek | 78 | 25/03/2010 | 8 | 33 | 2 | 0 |
| 12265 | Overland Corner | Overland Corner Complex | 11 | 4/05/2010 | 3 | 11 | 0 | 0 |
| 12266 | Schillers Lagoon | Schillers / Nigra Creek | 4 | 25/03/2010 | 2 | 8 | 1 | 0 |
| 12272 | Overland Corner | Overland Corner Complex | 19 | 4/05/2010 | 4 | 17 | 1 | 1 |
| 12291 | Boggy Flat | Boggy flat complex | 6 | 4/05/2010 | 4 | 18 | 1 | 0 |
| 12292 | Boggy Flat | Boggy flat complex | 1 | 4/05/2010 | 2 | 10 | 1 | 0 |
| 12294 | Nigra Creek | Schillers / Nigra Creek | 7 | 24/03/2010 | 4 | 17 | 2 | 0 |
| 12298 | Ajax Achilles | Ajax Achilles Complex | 22 | 13/04/2010 | 9 | 27 | 2 | 0 |
| 12301 | Sinclair Creek | Lock 1 to Morgan | 56 | 22/03/2010 | 8 | 33 | 4 | 0 |
| 12323 | Murbko Flat Complex | Lock 1 to Morgan | 173 | 24/03/2010 | 8 | 30 | 4 | 0 |
| 12338 | Gurra Complex | Causeway Lagoon/Gurra Lakes Wetland Complex | 4 | 20/04/2010 | 2 | 10 | 1 | 0 |
| 12343 | Gurra Complex | Winding Creek/Gurra Lakes Wetland Complex | 11 | 20/04/2010 | 4 | 17 | 1 | 0 |
| 12363 | Gurra Complex | Lyrup Forest/ Gurra Lakes Wetland Complex | 3 | 5/05/2010 | 2 | 10 | 0 | 0 |
| 12364 | Gurra Complex | Lyrup Forest / Gurra Lakes Wetland Complex | 19 | 15/04/2010 20/04/2010 | 2 | 7 | 1 | 1 |
| 12471 | Katarapko Floodplain | Eckert Creek and the Splash | 3 | 16/04/2010 | 2 | 7 | 0 | 0 |
| 12474 | Katarapko Floodplain | Eckert Creek and the Splash | 18 | 16/04/2010 | 4 | 16 | 2 | 0 |

| Wetland ID number | Main Name | Location | Area ha | Date Surveyed | Sites (count) | Soil Samples (count) | Water Samples (count) | Mono-sulfide Samples (count) |
|---|---|---|---|---|---|---|---|---|
| 12485 | Katarapko Floodplain | Eckert Creek and the Splash | 70 | 16/04/2010 17/04/2010 | 8 | 31 | 0 | 0 |
| 12486 | Katarapko Floodplain | Eckert Creek and the Splash | 5 | 17/04/2010 | 2 | 8 | 1 | 0 |
| 12488 | Katarapko Floodplain | Eckert Creek and the Splash | 59 | 16/04/2010 | 8 | 33 | 3 | 0 |
| 12492 | Loch Luna | Loch Luna Wetland Complex | 6 | 21/04/2010 22/04/2010 | 5 | 19 | 1 | 0 |
| 12514 | Katarapko Floodplain | Katarapko Creek and Katarapko Island | 4 | 3/05/2010 | 2 | 8 | 0 | 0 |
| 12526 | Katarapko Floodplain | Katarapko Creek and Katarapko Island | 106 | 3/05/2010 | 12 | 48 | 5 | 0 |
| 12531 | Loch Luna | Loch Luna Wetland Complex | 453 | 21/04/2010 | 12 | 51 | 3 | 0 |
| 12565 | Lyrup East | Lyrup east complex | 5 | 5/05/2010 | 2 | 10 | 1 | 0 |
| 12566 | Lyrup East | Lyrup east complex | 5 | 5/05/2010 | 2 | 9 | 1 | 0 |
| 12605 | Yarra Complex | Yarra Complex | 86 | 28/03/2010 31/03/2010 | 10 | 40 | 4 | 0 |
| 12606 | Yarra Complex | Yarra Complex | 12 | 28/03/2010 | 4 | 19 | 2 | 3 |
| 12608 | Yarra Complex | Yarra Complex | 18 | 31/03/2010 | 4 | 18 | 0 | 0 |
| 15002 | Katarapko Floodplain | Gerard Swamp | 9 | 3/05/2010 | 4 | 19 | 1 | 1 |
| 15004 | Katarapko Floodplain | Ngak Indau | 5 | 17/04/2010 | 2 | 9 | 1 | 0 |

## 3.1. Summary of field results

The wetland descriptions and assessment for acid sulfate soil materials and potential hazards have been compiled in such a way that these can be used as stand-alone short wetland description reports for each wetland. Assessment of the data was conducted on a wetland by wetland basis and this is reported in Appendix B.

## 3.2. Summary of soil laboratory results

Summary data are shown for the laboratory analyses of soils in Figure 3-3 to Figure 3-15 as cumulative frequency plots. Such plots display the ranges of data in soil chemistry for pH testing, acid-base accounting and water soluble sulfate and can be used to assess different data populations. Tables are provided to highlight the statistical distributions of data.

### 3.2.1. pH testing ($pH_W$, $pH_{OX}$, $pH_{KCl}$ and $pH_{INC}$)

A total of 1327 samples were analysed for pH and pH testing. The data are summarised in Table 3-2 and shown as cumulative frequency plots in Figure 3-3. There is a large range in $pH_W$: from pH 4.16 to pH 9.53, with a median pH of 7.24.

**Table 3-2. Statistical summary of pH and pH testing in soils.**

| | units | minimum | median | mean | maximum | n |
|---|---|---|---|---|---|---|
| $pH_W$ | activity | 4.16 | 7.24 | 7.15 | 9.53 | 1327 |
| $pH_{OX}$ | activity | 1.25 | 5.32 | 5.09 | 9.13 | 1327 |
| $pH_{INC\ t0\ weeks}$ | activity | 3.93 | 6.80 | 6.77 | 8.87 | 1327 |
| $pH_{INC\ t8\ weeks}$ | activity | 2.45 | 6.47 | 6.36 | 9.15 | 1324 |
| $pH_{KCl}$ | activity | 3.88 | 6.65 | 6.78 | 9.54 | 1327 |

The $pH_{KCl}$ values were slightly lower than $pH_W$ with a median of pH 6.65, similar to differences typically encountered using this measurement caused by different soil to solution ratios and ionic strengths of the suspending solutions. The pH changes during peroxide testing were significant, with pH varying from pH 1.25 to 9.13, with a median of pH 5.32. A total of 18% of samples decreased to pH < 2.5, the threshold value normally used to indicate a high likelihood of sulfuric materials potentially forming.

The range and average pH values measured initially in chip trays in the field were relatively similar to the $pH_{KCl}$ values (Table 3-2). During incubation testing over the 8 week period, the range of pH increased, although average values decreased slightly and the minimum was significantly lower (from pH 3.93 to pH 2.45). For the higher pH values, this may be related to equilibration with the atmosphere and/or to mineral buffering, whilst for the lower pH values, this is most likely related to oxidation reactions from sulfide or other reduced species in the soil. Nearly 4% (51 samples) of the samples became sulfuric during the incubation experiments in the 8 week period of incubation. However, 27% (363 samples) had an incubation pH of less than pH 5.5, where trace elements such as aluminium can be mobilised to concentrations of concern.

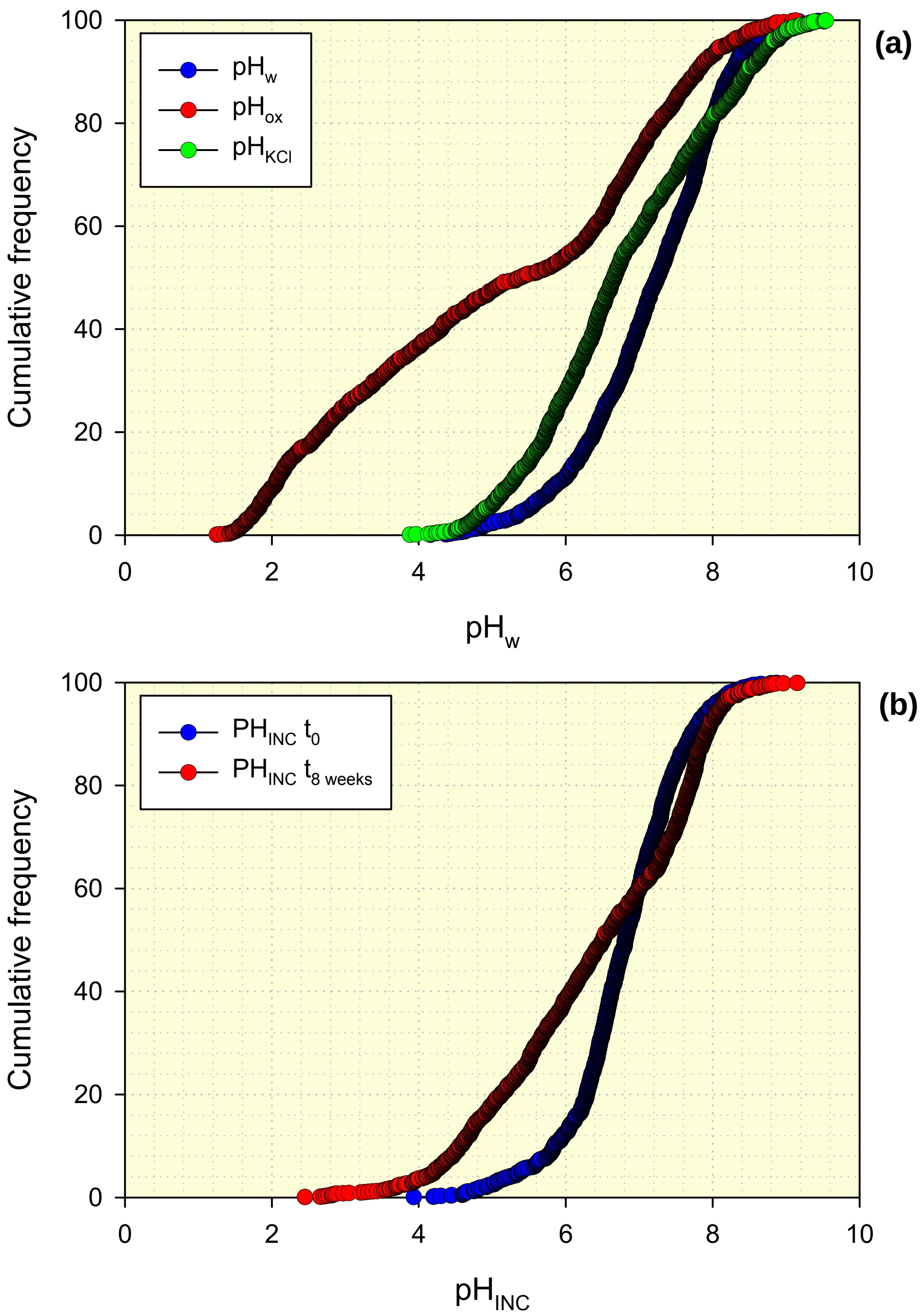



**Figure 3-3. Cumulative frequency plots for pH data: (a) $pH_W$, $pH_{OX}$ and $pH_{KCl}$; (b) $pH_{INC}$.**

### 3.2.2. Chromium reducible sulfur

There was a large range in chromium reducible sulfur ($S_{CR}$) concentrations from less than detection limit (<0.01 weight %) to a maximum of 1.92 weight % (Table 3-3 and Figure 3-4). Nearly 23% of the samples had $S_{CR}$ below the limit of detection.

**Table 3-3. Statistical summary of $S_{CR}$ analyses for soils.**

| | units | minimum | median | mean | maximum | n |
|---|---|---|---|---|---|---|
| **RIS ($S_{CR}$)** | weight % | <0.01 | 0.027 | 0.099 | 1.920 | 1327 |
| **RIS ($S_{CR}$)** | mole $H^+$/tonne | <6 | 17 | 61 | 1198 | 1327 |

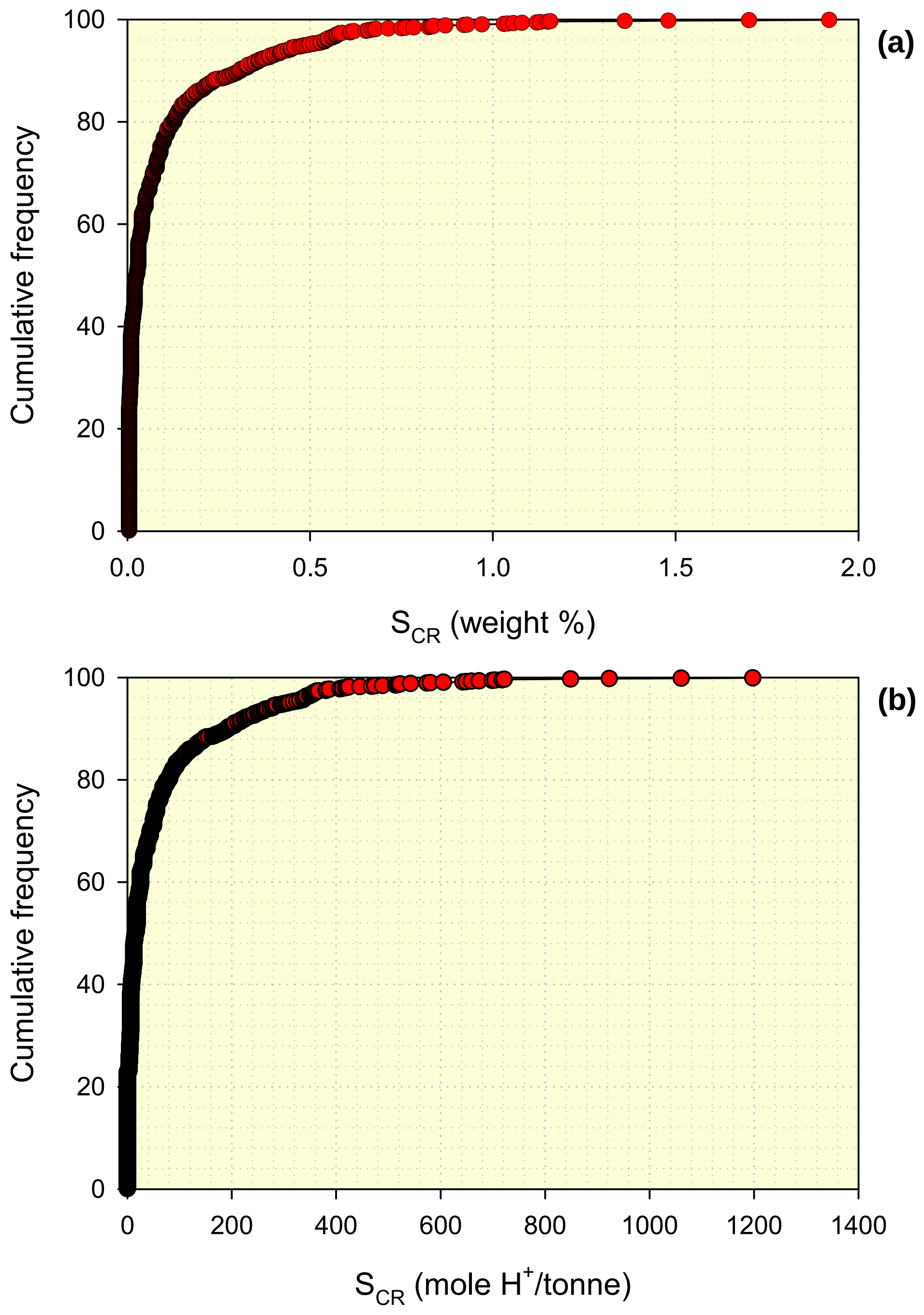



**Figure 3-4. Cumulative frequency plots for $S_{CR}$ data: (a) $S_{CR}$ (weight %); (b) $S_{CR}$ (mole $H^+$/tonne).**

### 3.2.3. Acid neutralising capacity

The amount of acid neutralising capacity (largely controlled by the amount of carbonate materials) varied over several orders of magnitude, from 0 to 66 weight %. A statistical summary is shown in Table 3-4 and shown on cumulative frequency plots on Figure 3-5.

**Table 3-4. Statistical summary of ANC analyses for soils.**

| | units | minimum | median | mean | maximum | n |
|---|---|---|---|---|---|---|
| **ANC** | weight % | 0.000 | 0.370 | 2.058 | 66 | 1327 |
| **ANC** | mole $H^+$/tonne | 0.00 | -74 | -411 | -13119 | 1327 |

The range of net acidities from 0 to more than -13,000 mole $H^+$/tonne, highlights that in some soils there is the ability to neutralise significant amounts of acidity. Nevertheless, more than 31 % of the samples had zero ANC.

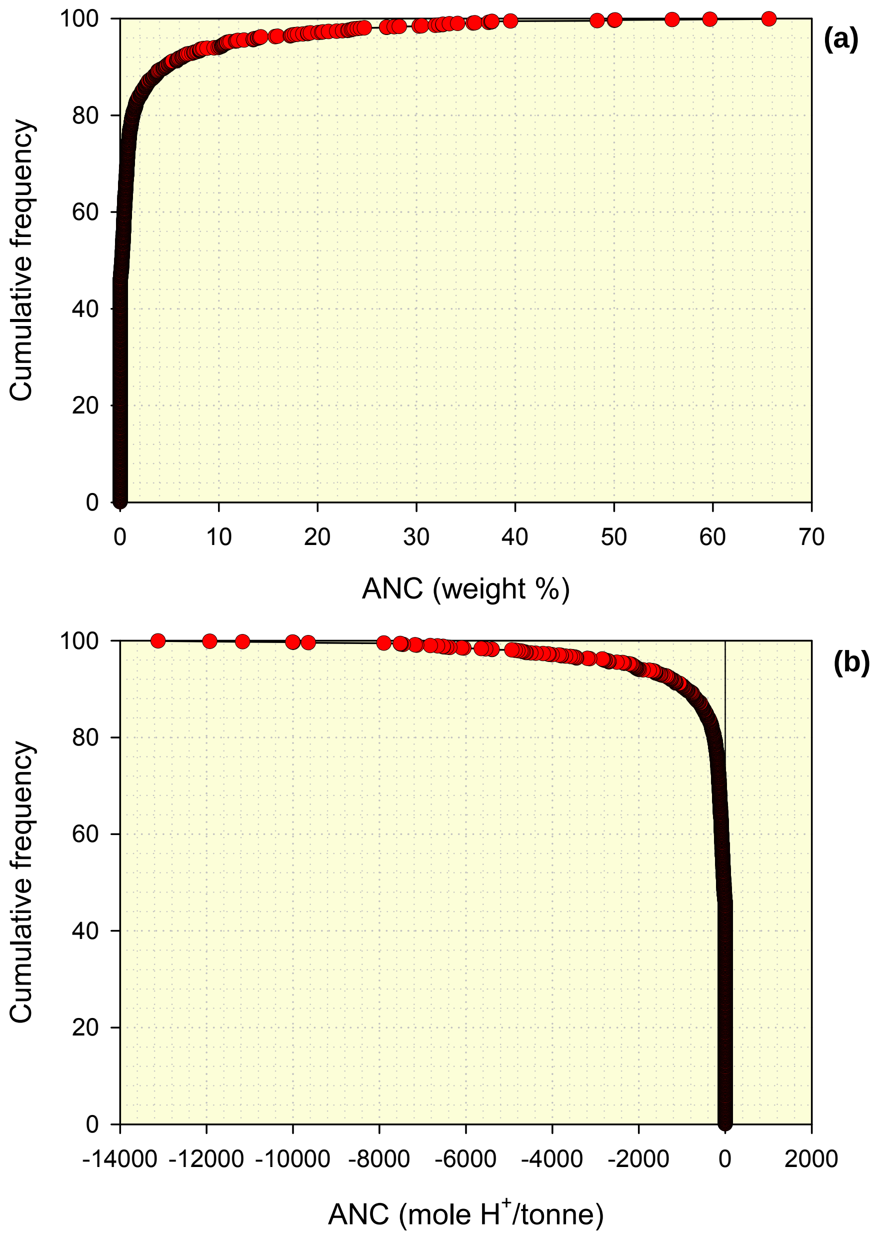



**Figure 3-5. Cumulative frequency plots for ANC data: (a) ANC (weight %); (b) ANC (mole $H^+$/tonne).**

### 3.2.4. Titratable actual acidity

Titratable actual acidity (TAA) varied significantly in the soils from zero up to a maximum of 116 mole $H^+$/tonne (Table 3-5 and Figure 3-6).

**Table 3-5. Statistical summary of Titratable Actual Acidity.**

| | units | minimum | median | mean | maximum | n |
|---|---|---|---|---|---|---|
| **Titratable actual acidity** | mole $H^+$/tonne | 0.00 | 0.00 | 5.97 | 116 | 1327 |

TAA values were generally low with a median of zero but a few had very high concentrations.

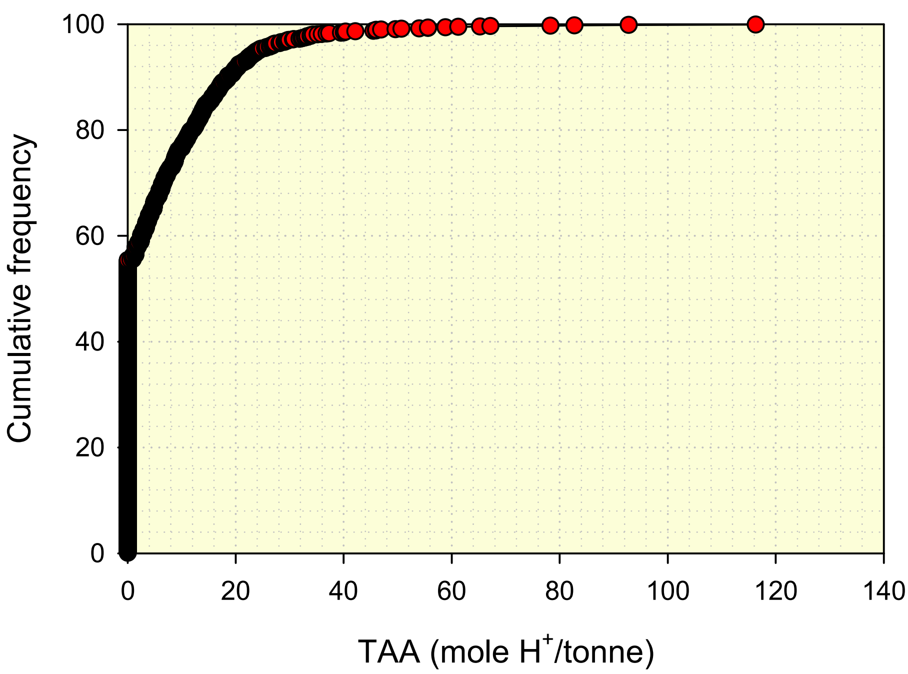



**Figure 3-6. Cumulative frequency plot for TAA in soils.**

### 3.2.5. Retained acidity

Only ten samples contained retained acidity, with concentrations ranging from 0.00 to 68.39 mole $H^+$/tonne).

### 3.2.6. Net acidity

The range of net acidities was very large, varying from -8540 to 842 mole $H^+$/tonne, and a median of -15 mole $H^+$/tonne (Table 3-6).

**Table 3-6. Statistical summary of net acidities.**

| | units | minimum | median | mean | maximum | n |
|---|---|---|---|---|---|---|
| **Net acidity** | mole $H^+$/tonne | -8540 | -15 | -207 | 842 | 1327 |

The full range of data is shown on a cumulative frequency plot in Figure 3-7. Some samples contained very high ANC (up to 66%), giving rise to extremely low (minimum of -8540 mole $H^+$/tonne) net acidities. A total of 55% of samples had negative net acidities, hence are defined as 0 hazard for acidification. Note, however, that other hazards may be present (e.g. metalloid release) even if the soils are well buffered with high contents of carbonate. Those samples with a hazard risk (i.e. net acidity >0) have been plotted on Figure 3-7(b). Note that the x-axis is a log scale. Lines defining hazard categories have been plotted for reference. The proportions of samples in each category are 12% of samples are classed as low hazard, 25% as moderate hazard, and 8% as high hazard.

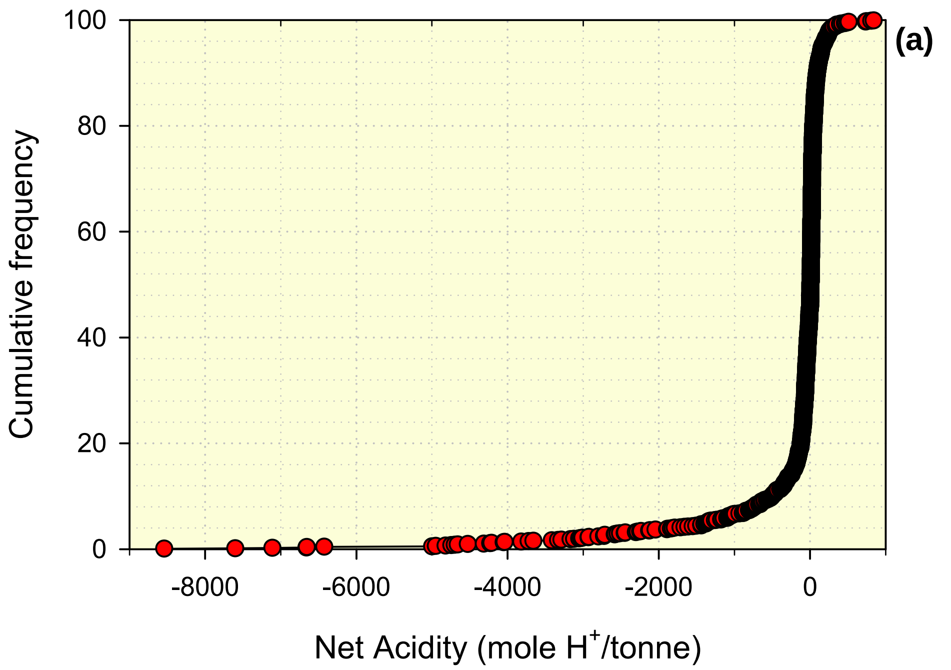



**Figure 3-7. Cumulative frequency plots for net acidity showing (a) all data, and (b) positive data only, plotted on a log scale (note that only 45 percent of data had positive net acidity). The vertical lines on (b) separate defined concentrations representing low hazard (<19 mole $H^+$/tonne), moderate hazard (19-100 mole $H^+$/tonne), and high hazard (> 100 mole $H^+$/tonne).**

### 3.2.7. Water soluble sulfate ($SO_4$)

Water soluble sulfate concentrations extracted from the soils varied by four orders of magnitude (Table 3-7 and Figure 3-8).

Concentrations of sulfate varied from 16 mg $kg^{-1}$ to 98736 mg $kg^{-1}$ with a median concentration of 544 mg kg $l^{-1}$. The highest concentrations were found in the hypersaline wetlands, and the lowest concentrations generally in samples with a good connection to the river.

**Table 3-7. Statistical summary of water soluble sulfate data.**

| | units | minimum | median | mean | maximum | n |
|---|---|---|---|---|---|---|
| **Water soluble sulfate** | mg $kg^{-1}$ $SO_4^{2-}$ | 16.5 | 544 | 3489 | 98736 | 1326 |

Nearly 90% of the samples breached the trigger value of 100 mg $l^{-1}$ for water soluble sulfate defined in the MDBA protocol.

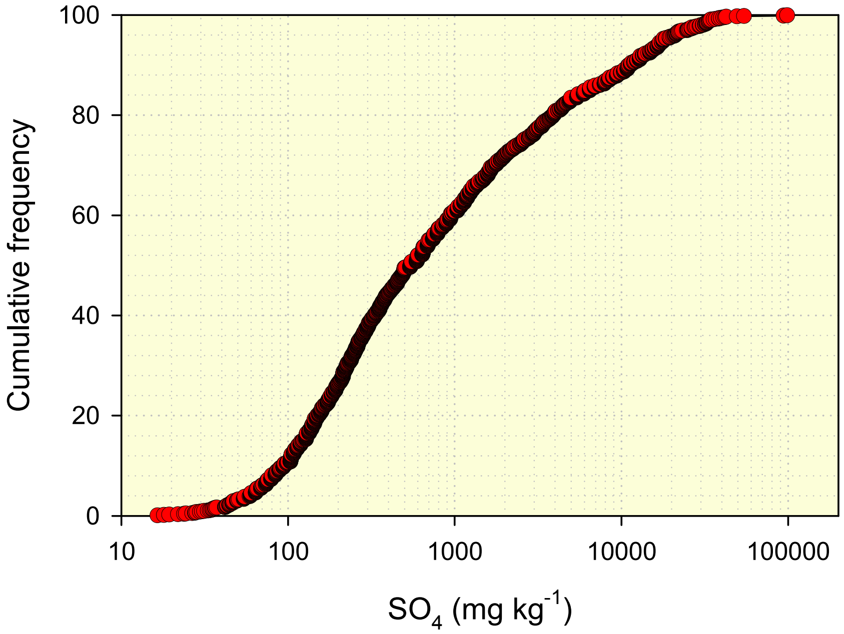



**Figure 3-8. Cumulative frequency plots for water soluble $SO_4$ data (note log scale for $SO_4$ concentration).**

## 3.3. Acid volatile sulfur

Samples identified in the field as potentially containing monosulfidic materials where submitted for acid volatile sulfur analysis. A total of 39 samples were analysed and values ranged from 0.01 to 0.30 %S, with a median of 0.11 %S.

**Table 3-8. Statistical summary of water soluble $SO_4$ data.**

| | units | minimum | median | mean | maximum | n |
|---|---|---|---|---|---|---|
| **Acid volatile sulfur** | %S | 0.01 | 0.11 | 0.12 | 0.30 | 39 |

## 3.4. Summary of hydrochemistry results

A total of 82 surface water samples and 20 soil pit waters were sampled from the wetlands. Surface waters were sampled where permanent water was present in the wetland, although in some instances these formed isolated pools. In many wetlands, soil pits were dry, even in wetlands where pits were dug close to surface water, indicating poor connectivity between surface water and groundwater. Soil pit waters were more common in dried wetlands which were more saline, suggesting an important contribution from groundwater. A summary of the data is presented and these are discussed in more detail in individual wetland sections.

The salinity of both surface waters and pit waters varied over two orders of magnitude (Figure 3-9). The SEC showed that the surface waters varied from fresh (197 µS $cm^{-1}$) to hypersaline (field maximum of 207,300 µS $cm^{-1}$), the latter associated with wetlands where thick deposits of salt (halite) were present (Figure 3-10). The laboratory maximum was approximately 170,000 and is probably more realistic as the high values are most likely too high for the field calibration. A major break in the surface water distribution is apparent at a SEC of approximately 1400 µS $cm^{-1}$, with higher values most likely be mainly due to evaporation in groundwater dominated wetlands. Pit waters also showed a wide variation from relatively fresh (1454 µS $cm^{-1}$) to hypersaline (field maximum of 206,000 and laboratory maximum of 179,000 µS $cm^{-1}$). The median was much higher in soil pit waters than surface waters (113,000 and 813 µS $cm^{-1}$ respectively), but reflects a bias towards shallow saline groundwaters as mentioned above.

The pH of the waters sampled also displayed a significant range (Figure 3-11). The surface waters were slightly acidic to alkaline (pH 6.50 to 9.44) with a median of 7.59. The pit waters showed a similar range but were more acidic (pH 5.12 to 8.09) with a median pH of 6.51. This most likely reflects a number of factors including the more oxidised nature of the overlying soils and the typically higher partial pressure of $CO_2$ ($pCO_{2)}$ of soil water due to organic matter degradation and root respiration.

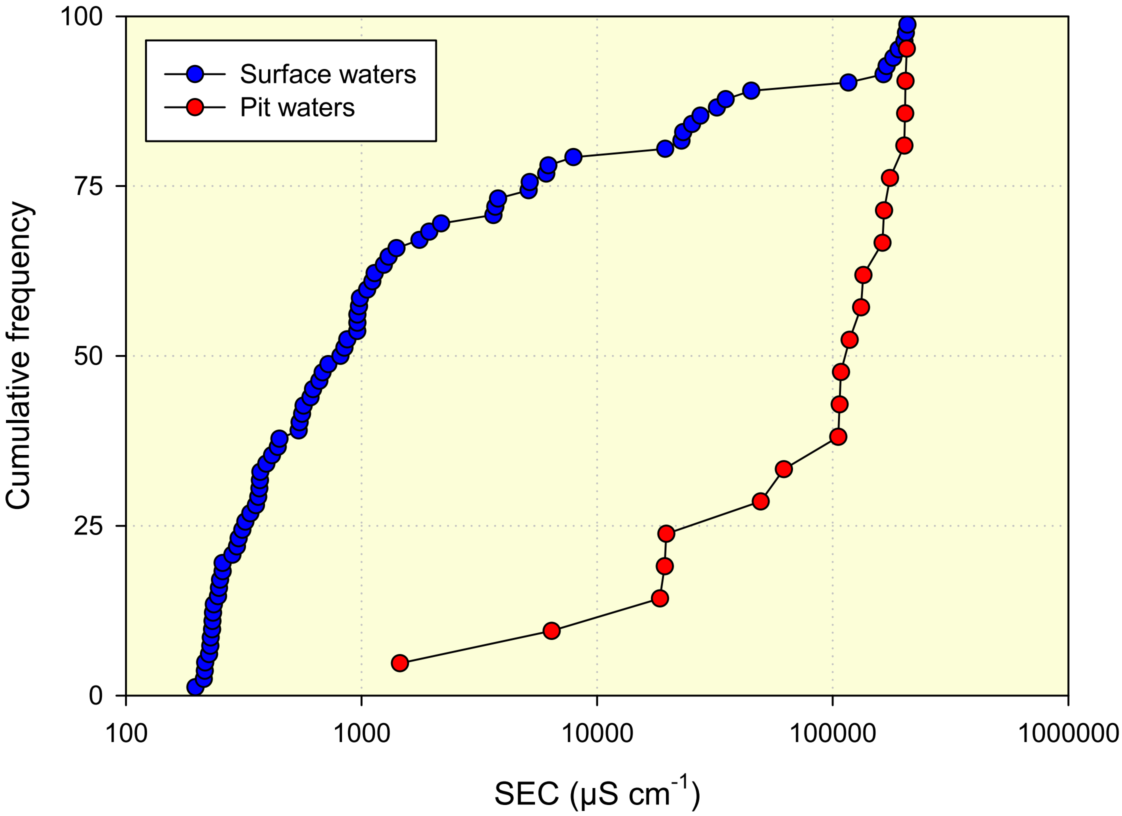



**Figure 3-9. Summary of data for field specific electrical conductance (SEC) in surface waters and pit waters in the wetlands between Lock 1 and Lock 5.**

**Figure 3-10. Surface water overlying thick salt crust in wetland 12209 (Little Toolunka Flat).**

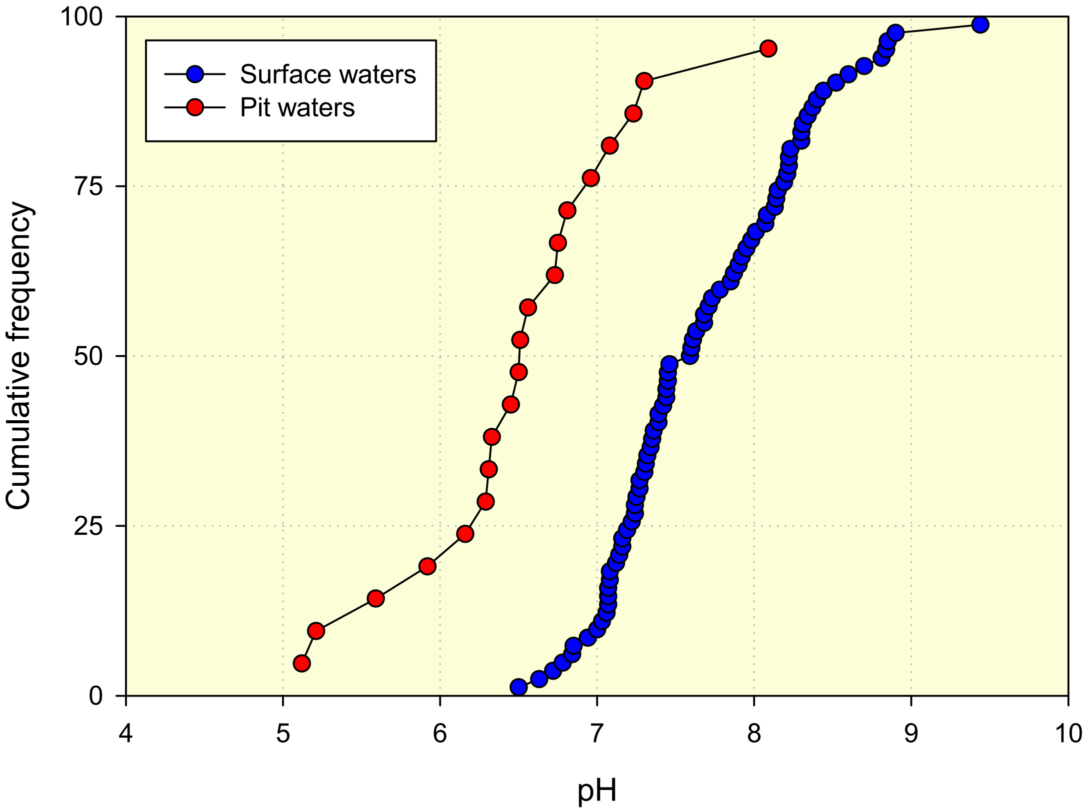



**Figure 3-11. Summary of data for field pH in surface waters and pit waters in the wetlands between Lock 1 and Lock 5.**

The large variations in SEC are reflected in the large ranges for most major elements (Figure 3-12). The surface waters are dominated by Na and Cl. Alkalinity (plotted as $HCO_3$) varied from less than detection limit (ca. 0.5 mg $l^{-1}$) to 591 mg $l^{-1}$. Parallel trends are apparent for Na, Cl, Ca, Mg and $SO_4$, although $SO_4$ is dissimilar at higher $SO_4$ concentrations. The concentrations in the pit waters are generally higher, reflecting the higher SEC, and patterns for the pit waters are more positively skewed (see also SEC plot Figure 3-9). Four of the samples (low pH waters) had very low alkalinity (Figure 3-11). There is also a tendency for flattening of the major element profiles for Ca and $HCO_3$, and to a lesser degree $SO_4$, probably reflecting saturation with respect to calcite and gypsum with increasing salinity.

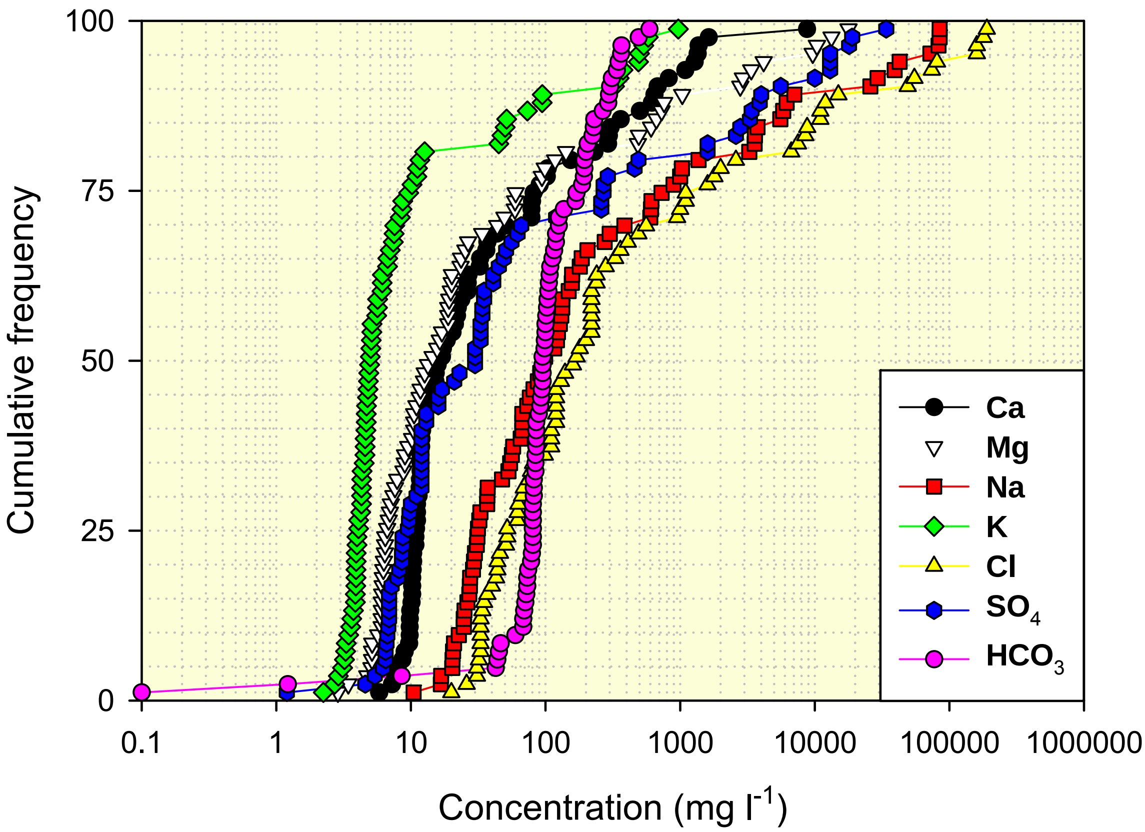
The data are shown on a Piper plot in Figure 3-13, which shows the relative proportions of major elements. Water types are mainly Na-Cl-$HCO_3$ to mixed cation-$HCO_3$ types, with a tendency towards Na-$HCO_3$ or Na-Ca-$SO_4$ types.

Selected nutrients are shown on Figure 3-14 for surface waters and pit waters. Total dissolved nitrogen (TN) was very variable, being higher in pit waters (median of 59 mg $l^{-1}$ N) than surface waters (median of 9 mg $l^{-1}$), but concentrations in some of the surface waters were very high (up to 241 mg $l^{-1}$). The dominant N species appears to be organic-N, although $NH_4$-N concentrations were high, especially in the pit waters (Figure 3-14). Nitrate and nitrite were typically low. The dissolved organic carbon concentrations displayed a similar pattern, with some waters having very high concentrations (up to 646 and 241 mg $l^{-1}$ in surface waters and pit waters respectively). Phosphate concentrations were high in some surface waters (up to 0.86 mg P $l^{-1}$) and groundwaters (up to 1.80 mg P $l^{-1}$).

Cumulative frequency plots are shown on Figure 3-15 for selected trace elements. For the purposes of plotting, samples below the detection limit for analysis have been given a value equal to half the detection limit. The very high salinities in a number of the waters meant that samples required dilution prior to analysis, and as a consequence detection limits are very high. Where detection limits were high (for Ni, As), the saline samples are not shown and this is reflected on the plots as a truncation at low concentrations (Figure 3-15).

Median concentrations tended to be higher in the pit waters than surface waters. For the surface waters, manganese showed a very wide range in concentration, varying more than 5 orders of magnitude, but more than 70 % of samples had concentrations less than 50 µg $l^{-1}$, whilst all pit waters exceeded this concentration. Barium showed a relatively narrow range, as solubility is probably limited by barite saturation in the more saline waters. Nevertheless concentrations reached to more than 1000 µg $l^{-1}$. Of the transition metals Zn was typically most abundant, reaching a few hundred µg $l^{-1}$. Cobalt and Ni displayed similar concentrations in the surface waters, being typically up to a few µg $l^{-1}$, but reaching several tens µg $l^{-1}$ in surface waters and several hundred µg $l^{-1}$ in pit waters. Arsenic was variable with highest concentrations in the surface waters (a number of the more saline waters had As less than detection limit, which varied from < 5 to < 30 µg $l^{-1}$).

A number of other trace elements were present at elevated concentration in some samples and will be discussed in more detail in individual wetland reports. This included Fe (up to 70 mg $l^{-1}$), Al (up to 2.4 mg $l^{-1}$), Cu (up to 100 µg $l^{-1}$), Cd (up to 1.5 µg $l^{-1}$), Sn (up to 20 µg $l^{-1}$), Pb (up to 995 µg $l^{-1}$) and U (up to 17 µg $l^{-1}$).



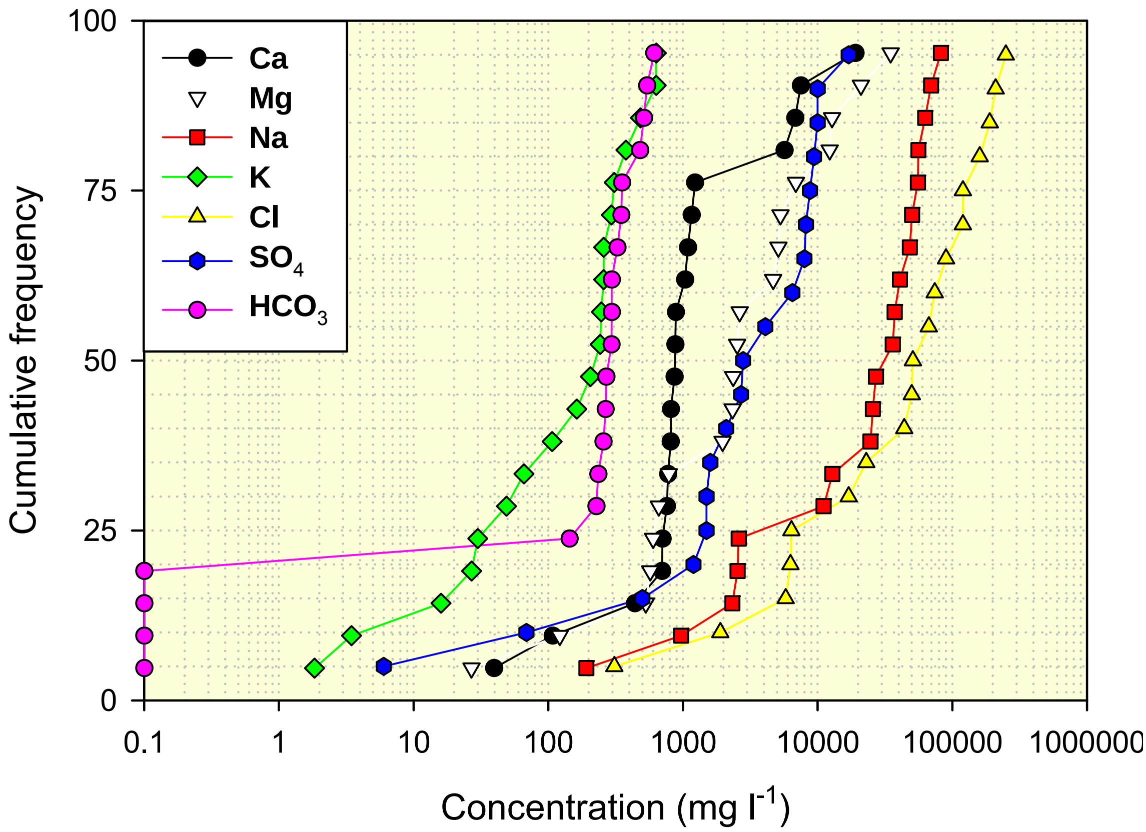




**Figure 3-12. Summary of data for major elements in surface waters (top) and pit waters (bottom) in the wetlands between Lock 1 and Lock 5.**

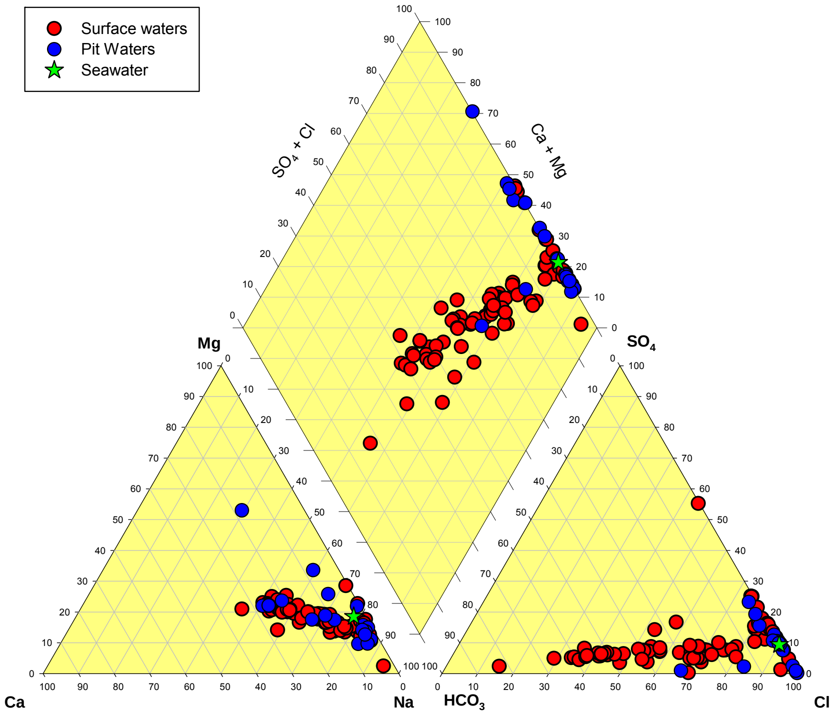



**Figure 3-13. Piper plot showing relative proportions of major elements in surface waters and pit waters.**

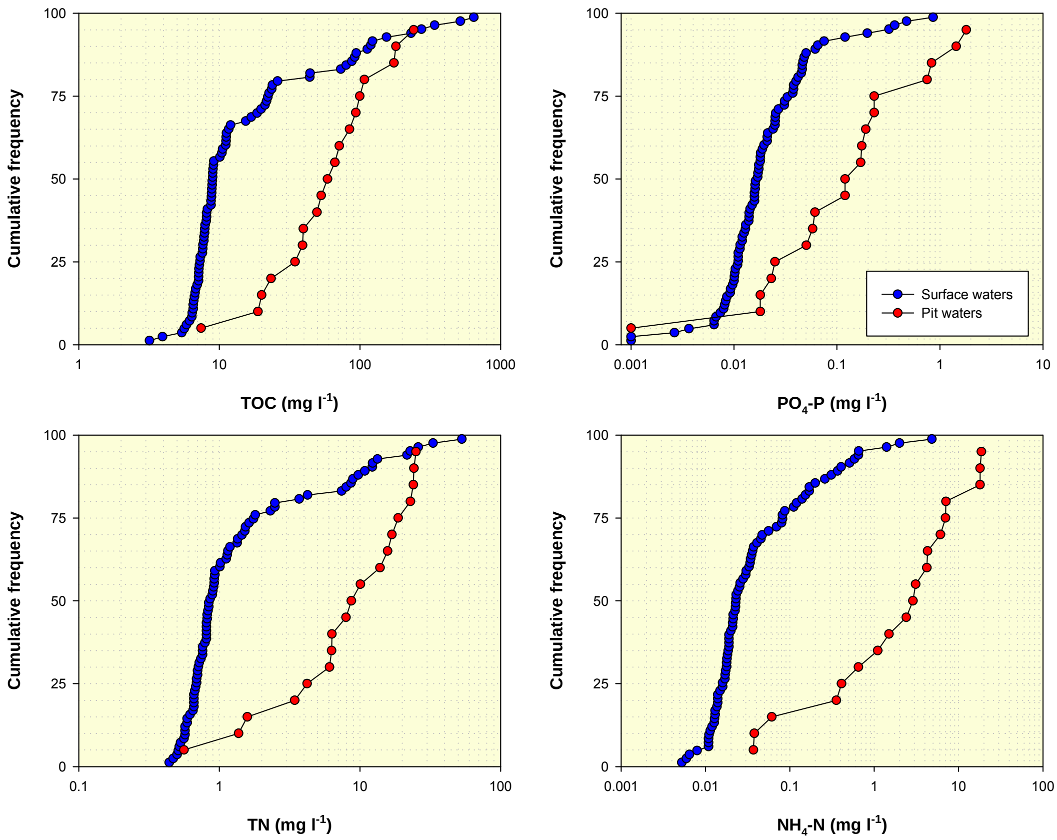



**Figure 3-14. Selected nutrient concentrations for surface waters and pit waters in sampled wetlands.**

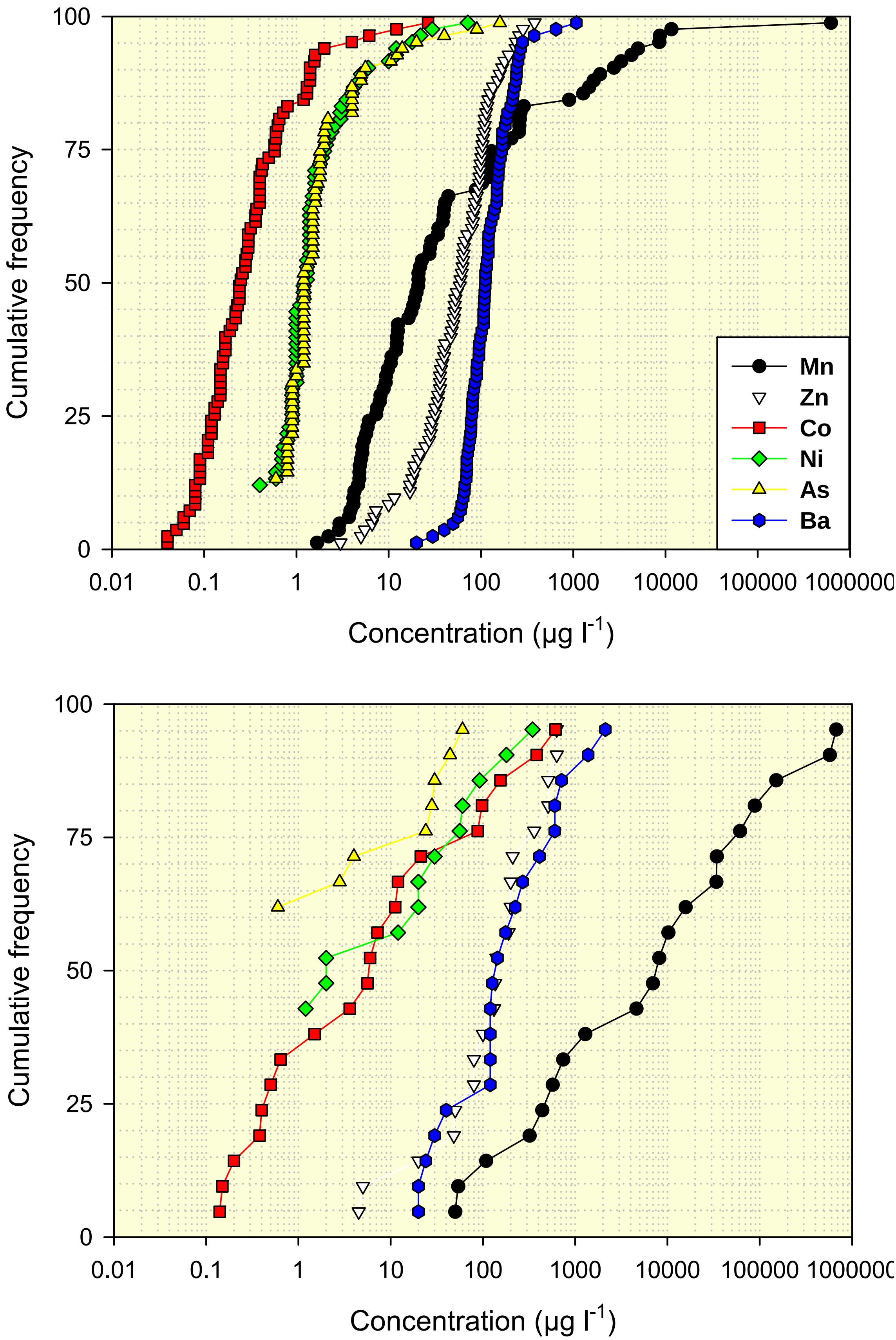



**Figure 3-15. Summary of data for trace elements in surface waters (top) and pit waters (bottom) in the wetlands between Lock 1 and Lock 5.**

# 4. DISCUSSION

The field and laboratory data highlight a large degree of heterogeneity in the soil and water characteristics of wetlands between Locks 1 and 5. Although the study covers a large area, it provides a synoptic picture and changes in wetlands are likely to occur over intermediate (seasonal) and longer term cycles. The data are representative of a very dry period, where record low inflows have occurred over a number of years and water levels have been relatively low. Nevertheless, although the system has been under sustained stress due to drought, the River Murray is a highly managed system and a large number of the wetlands above Lock 1 have continued to hold significant water. Studies monitoring changes in acid sulfate soil characteristics (Shand *et al*. 2009; Baker *et al*. 2010) have shown that although temporal variations do occur, the main hazards associated with such soils can still be identified, as S and metal cycling are dominant process.

The soil measurements for pH and acid base accounting showed a wide range of values and hazards. Although each of the methods (net acidity, peroxide pH and incubation pH) produced data that show similar trends, there is considerable scatter e.g. some samples with very high positive net acidity (e.g. around 300 mole $H^+$/tonne) showed little decrease during incubation remaining circumneutral, whilst some samples with a large negative net acidity (e.g. around -400 mole $H^+$/tonne) incubated to pH < 4. Although there are a number of reasons for this inconsistency, it is likely that armouring of either pyrite or carbonate may occur during incubation. In addition, it may be that the incubations have not gone to completion over the 8 week period. This does not necessarily change the hazard potential as under specific geochemical environments armoured coatings may be subsequently removed. Other factors may include soil heterogeneity or other geochemical reactions that may modify oxygen concentration or reaction kinetics.

Although peroxide pH ($pH_{OX}$) and incubation pH ($pH_{INC}$) correlate, there is a considerable degree of scatter (Figure 4-1). The vast majority of samples with a $pH_{INC}$ of less than pH 4 (i.e. sulfuric materials) had a $pH_{OX}$ < 2.5, but a considerable number of peroxide tested samples with $pH_{OX}$<2.5 did not incubate to sulfuric materials.

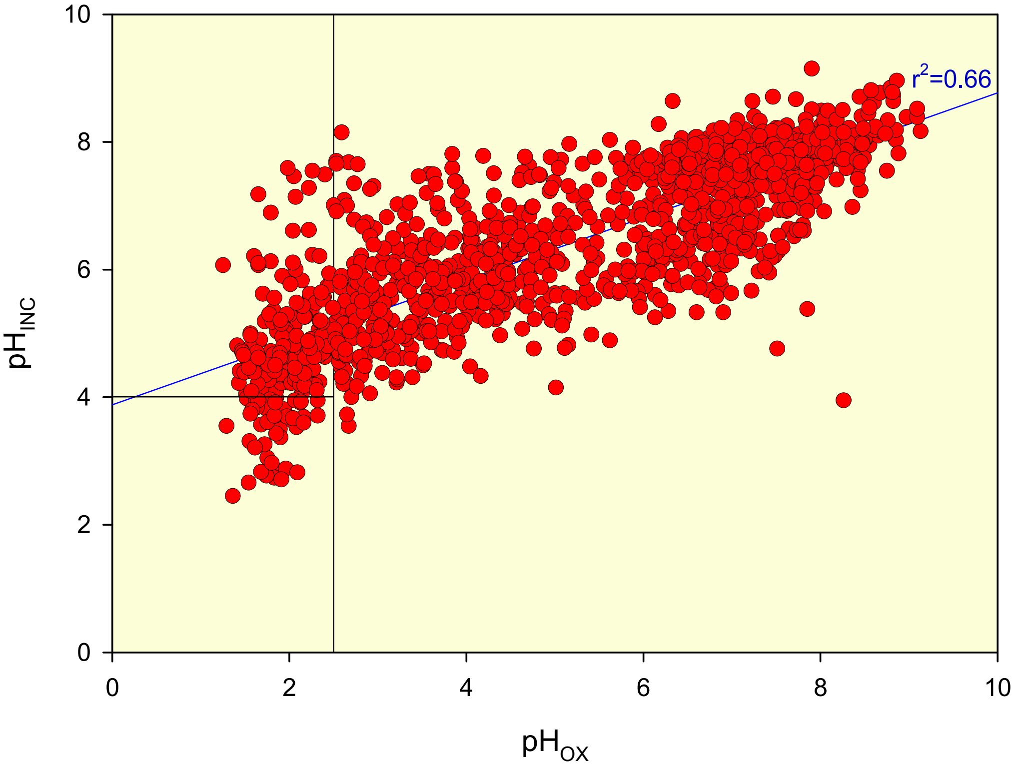
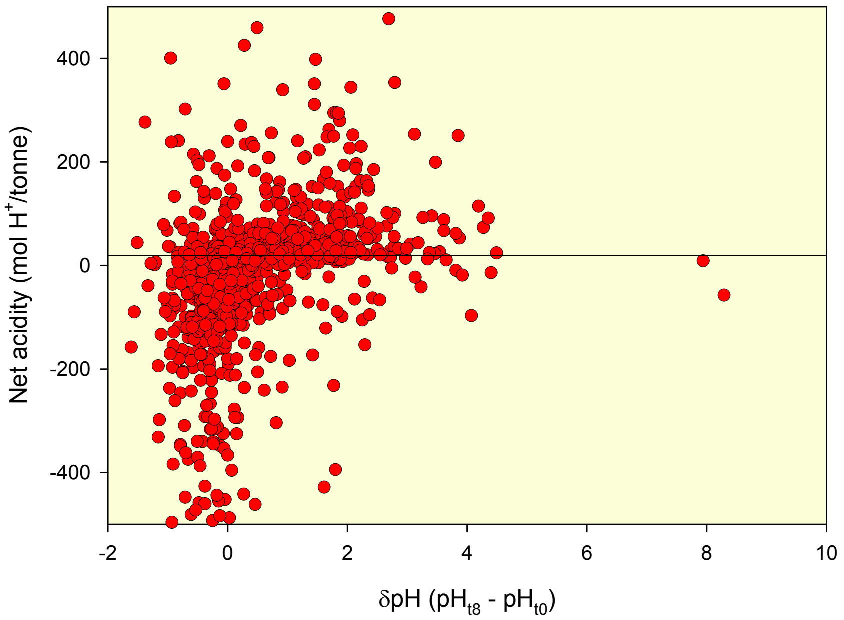



**Figure 4-1. Plot of $pH_{OX}$ vs. $pH_{INC}$ for all soil samples.**

Plots of net acidity vs. change in pH during incubation ($\delta pH = pH_{INC\ t8\ weeks} - pH_{INC\ t0\ weeks}$) and $pH_{INC}$ are shown on Figure 4-2. Although there is a general correlation between net acidity and these values, it is clear that some samples with negative net acidities incubated to low pH, and vice versa: some samples with high net acidities showed little change in incubation pH. Although there are a number of reasons for this inconsistency, it is likely that armouring of either pyrite or carbonate may occur during incubation as discussed above.

Further work is required to assess in detail the weaknesses of the various methods, but the general correlations mean that the hazard rating system developed in the protocol is effective for most samples, and where trigger values have been breached, the samples should be considered as potential hazards.



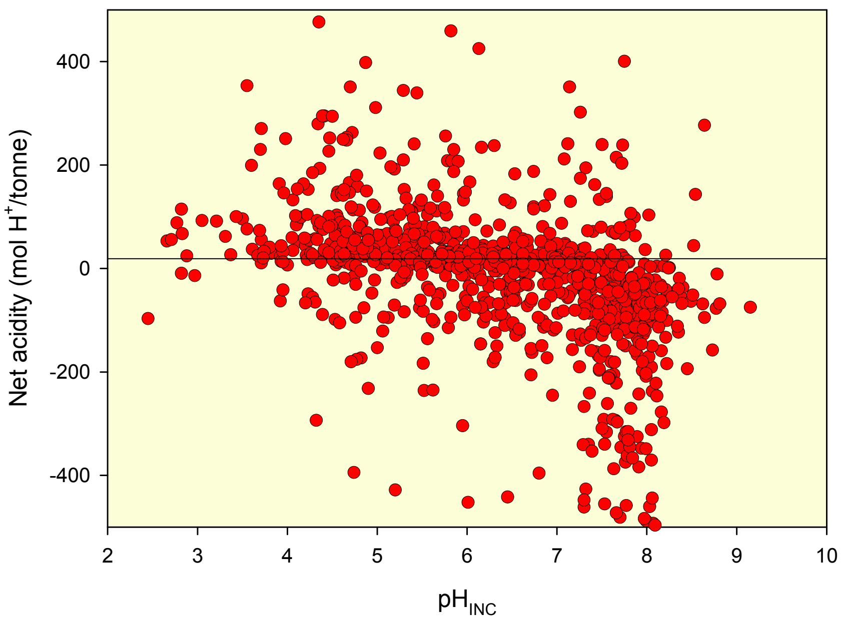




**Figure 4-2. Plots of net acidity vs. $\delta pH$ during incubation (top) and $pH_{INC}$ (bottom) for samples with net acidities between +500 and -500 (range plotted for clarity). Horizontal line is for net acidity of +19 mole $H^+$/tonne.**

Water quality was very variable in the wetlands and the majority contained waters where the trigger value for sulfate was breached. Concentrations of nutrients, metals and other water quality guidelines were found to be above ANZECC Guideline values and can be used to provide additional evidence of hazard. A plot of $SO_4$/Cl ratios is shown on Figure 4-3. This ratio can be used to determine excess of $SO_4$ above typical wetland values which are largely controlled by rainfall inputs, (typically similar to the seawater ratio of 0.142 and most groundwaters in the Basin). High ratios may indicate additional $SO_4$ from acid sulfate soils, but other sources of $SO_4$ are available e.g. pollution or dissolution of gypsum or other non-ASS related sulfate minerals. Therefore, the data should be used in conjunction with other chemical parameters to determine likely sources. Concentrations significantly less than the seawater ratio are indicative of loss of sulfate, principally through sulfate reduction processes, which may be an indicator of ASS formation. In strongly evaporated environments, some loss may also be due to the precipitation of gypsum.

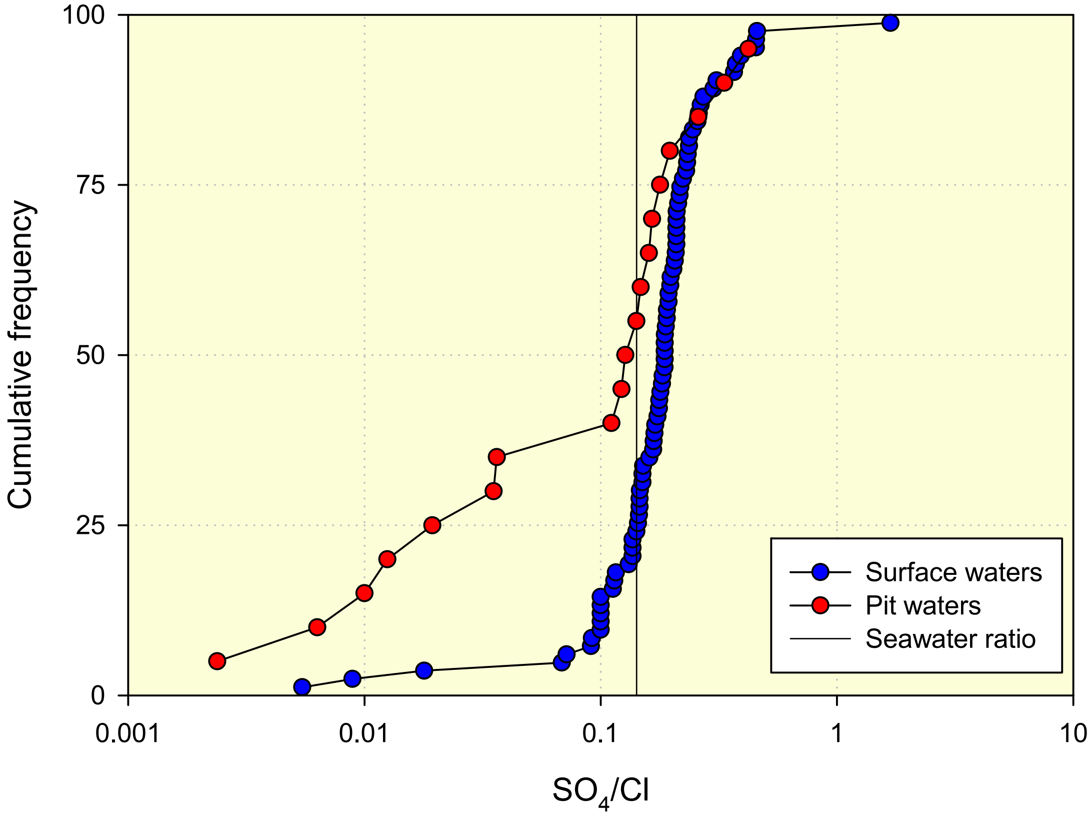



**Figure 4-3. Cumulative frequency plot of $SO_4$/Cl ratio in surface waters and pit waters. The seawater ratio (0.142) is shown as a vertical black line.**

# 5. HAZARD ASSESSMENT

## 5.1. Assessment of samples according to Phase 2 selection criteria

The field and laboratory data for each soil sample was assessed against the criteria presented in Section 2.5 that ranks soil materials for inclusion in Phase 2 of the detailed assessment process. The soil materials were assessed against each of the criteria and then a rating of high, medium or low was given for the sample. The results of this assessment for each sample against the criteria are listed in Appendix A.

The total number of samples that met each of the criteria are summarised in Table 5-1, and each sample has been allocated to a high, moderate, or no further assessment category.

Note the following when interpreting the table, as the criteria are not mutually exclusive and, therefore, samples can trigger multiple criteria:

- The number against the criteria shows the actual total number of samples that meet that criterion.
- Where a sample triggers more than one criterion in a different priority category then only the highest category has been counted. This may occur in some cases e.g. when a sample triggered both a high and a moderate priority, e.g. where the sample is hyposulfidic $S_{CR}$<0.10% (moderate priority) and has positive net acidity (high priority) or is a monosulfidic material (high priority).
- Where a sample triggers more than one criterion in the same priority category, then only one count has been included for the category. This may occur, e.g. when in some cases a sample may trigger a positive net acidity and is hyposulfidic $S_{CR}$>0.10% and/or water soluble sulfate > 100 mg $kg^{-1}$ $SO_4$ (within 0-20cm)

The summary Table 5-1 shows that 86% of samples meet the high priority criteria. A high proportion of the samples that were triggered was due to high priority criteria 4 (water soluble sulfate) and generally samples here triggered for this criterion only and not any of the other high priority criteria. Samples with high priority criteria 1 (sulfuric material) or criteria 2 (hypersulfidic material) tended to trigger for these criteria and also for a number of other high priority criteria including criteria 4 (water soluble sulfate).

## 5.2. Assessment of Wetlands

The previous section describes identification of samples of concern based on the assessment criteria to select samples for Phase 2 analysis. The next step in the hazard assessment is to place this level of concern in context with:

- the position of the sample in the soil profile, that is, if it is a surface sample it is more likely to be at the soil water interface and, therefore, to have an impact on surface water in the wetland than a sample deeper in the profile.
- the extent and distribution of the sample, that is, based on information available, e.g. whether the sample is representative of a widespread area of the wetland and therefore more likely to have an impact on the wetland water than an isolated local occurrence.

Three potential hazards were considered: acidification, de-oxygenation, and metal mobilisation. A discussion of the assessment is provided for each wetland in Appendix B and the findings are summarised in Table 5-2 where they have been rated as low, low to medium, medium, medium to high or high level of concern. It should be noted that this assessment is based on the field and analytical data that was obtained during the March to May 2010 assessment survey.

For acidification hazard, a high rating generally indicates that sulfuric or hypersulfidic acid sulfate soil material was found. A medium rating generally indicates that hypersulfidic or hyposulfidic acid sulfate soil material was found. A low rating generally indicates that no acid sulfate soil material or occasionally other acidic soil material was identified, and a low to medium rating indicates that hyposulfidic acid sulfate soil material was identified. The results show the numbers of wetlands were fairly evenly distributed across all levels of concern and that 8 wetlands rated as high, 10 as medium to high, 13 as medium, 14 as low to medium, and 11 as low.

For de-oxygenation hazard, a high rating generally indicated that all surface sample concentrations for water soluble sulfate were above the trigger value of 100 mg/kg $SO_4$ or if monosulfidic material was observed. A medium rating generally indicated that some of the surface samples were above the trigger value. A low rating generally indicated that samples were below the trigger value and monosulfidic material was not observed. The results show that 29 wetlands were of concern with a high, medium to high or medium priority rating.

For metal mobilisation hazard ratings, there were no data from Phase 1 analysis, and therefore, the hazard rating was inferred from the acidification hazard rating and the pH data, if the pH was sufficiently low to suggest metal mobilisation could occur. The results show that 30 wetlands were of concern with a high, medium to high or medium priority rating.

To assist in the future evaluation of the wetlands, Table 5-2 also includes information on the count of samples and those that met the criteria for Phase 2 high priority category and other information about the wetland size, surface water and connection with the river.

**Table 5-1. Sample count for samples that meet the different Phase 2 categories.**

| | Criteria | Number of samples | Percentage of total |
|---|---|---|---|
| **High Priority** | | **1140** | **86** |
| 1 | Sulfuric material | 1 | |
| 2a | Hypersulfidic material – by incubation | 48 | |
| 2b | Hypersulfidic material – by positive net acidity | 720 | |
| 3 | Hyposulfidic material – $S_{CR} \geq 0.10\%S$ | 284 | |
| 4 | Water soluble sulfate > 100mg/kg $SO_4$ (within 0-20cm) | 855 | |
| 5 | Monosulfidic material | 41 | |
| **Moderate Priority** | | **86** | **6** |
| | Hyposulfidic material – $S_{CR} < 0.10\%S$ | 590 | |
| **No further assessment** | | **108** | **8** |
| | Other acidic – drops 0.5 unit to $pH_W < 5.5$ during incubation | 20 | |
| | Other acidic – $pH_W > 4$ and $< 5.5$ | 43 | |
| | Other soil material | 348 | |
| **Total** | | **1334** | **100** |

**Table 5-2. Summary table showing for the wetlands the hazard assessment rating for acidification, de-oxygenation and metal mobilisation.**

Also shown is the count of samples and those that met the criteria for Phase 2 high priority category and other information about the wetland size, surface water and connection with the river. Data used in the evaluation is from field survey and samples analysed from the March to May 2010 assessment survey. Wetlands are ordered according to their Wetland Identification Number.

| Wetland Identification Number | Wetland Name | Location | Acidification | De-oxygenation | Metal mobilisation | Surface water | Connected to river | Area (ha) | Sites (count) | Soil Samples (count) | High Priority Category Samples (count) | High Priority Category Samples (% of total) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12006 | Hart Lagoon | Hart Lagoon | low | high | low | no | temporary | 73 | 8 | 38 | 27 | 71 |
| 12032 | Wombats Rest Lagoon | Lock 1 to Morgan | medium | low to medium | medium | yes | yes | 29 | 8 | 35 | 33 | 94 |
| 12046 | Ramco Lagoon | Ramco Lagoon | low | medium to high | low | no | temporary | 93 | 8 | 40 | 25 | 63 |
| 12063 | Big Toolunka Flat | Toolunka Complex | medium | low | medium | yes | yes | 4 | 2 | 7 | 7 | 100 |
| 12064 | Big Toolunka Flat | Toolunka Complex | medium to high | low to medium | medium | yes | yes | 37 | 8 | 29 (+1 salt) | 25 | 64 |
| 12075 | Wachtels Lagoon | Wachtels Lagoon | Medium | low | medium | yes | yes | 685 | 22 | 85 (+3 salt) | 66 | 85 |
| 12086 | Paringa Paddock | Goat island and Paringa Paddock | medium to high | low | medium | yes | yes | 25 | 8 | 30 (+1salt) | 30 | 100 |
| 12087 | Paringa Paddock | Goat island and Paringa Paddock | medium to high | high | medium | yes | yes | 26 | 8 | 36 (+2 salt) | 35 | 97 |
| 12092 | Berri Disposal Basin | Berri Disposal Basin Complex | low to medium | low to medium | low | yes | yes | 2 | 2 | 7 | 7 | 100 |
| 12095 | Berri Disposal Basin | Berri Disposal Basin Complex | high | low | medium | yes | yes | 1 | 2 | 7 | 7 | 100 |
| 12101 | Berri Disposal Basin | Berri Disposal Basin Complex | low to medium | low to medium | low | no | no | 1 | 2 | 8 | 7 | 88 |
| 12102 | Berri Disposal Basin | Berri Disposal Basin Complex | low | high | low | no | no | 211 | 12 | 53 (+1 salt) | 47 | 89 |
| 12103 | Berri Disposal Basin | Berri Disposal Basin Complex | low | medium | low | no | no | 23 | 8 | 37 | 24 | 65 |
| 12104 | Berri Disposal Basin | Berri Disposal Basin Complex | low | medium | low | no | no | 15 | 4 | 18 | 12 | 67 |
| 12132 | Overland Corner | Overland Corner Complex | low | low | low | no | no | 1 | 2 | 9 | 6 | 67 |
| 12133 | Overland Corner | Overland Corner Complex | low to medium | low | low | no | no | 13 | 3 | 12 | 12 | 100 |
| 12153 | Mussel Complex | Mussel Lagoon / Loveday Complex | low to medium | medium | low | no | no | 6 | 5 | 23 | 20 | 87 |

| Wetland Identification Number | Wetland Name | Location | Acidification | De-oxygenation | Metal mobilisation | Surface water | Connected to river | Area (ha) | Sites (count) | Soil Samples (count) | High Priority Category Samples (count) | High Priority Category Samples (% of total) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12155 | Mussel Complex | Mussell Lagoon / Loveday Complex | high | low | high | yes | temporary | 2 | 2 | 8 | 8 | 100 |
| 12156 | Mussel Complex | Mussell Lagoon / Loveday Complex | medium | medium | medium | yes | yes | 131 | 12 | 48 (+1 salt) | 46 | 96 |
| 12158 | Murbpook Lagoon Complex | Lock 1 to Morgan | low to medium | medium to high | low to medium | yes | temporary | 102 | 13 | 56 | 41 | 73 |
| 12161 | Murbpook Lagoon Complex | Lock 1 to Morgan | high | medium | high | yes | yes | 4 | 2 | 7 | 7 | 100 |
| 12209 | Little Toolunka Flat | Toolunka Complex | high | high | medium | isolated | no | 2 | 3 | 15 | 13 | 87 |
| 12211 | Little Toolunka Flat | Toolunka Complex | medium | high | medium | no | no | 15 | 3 | 13 | 12 | 92 |
| 12212 | Little Toolunka Flat | Toolunka Complex | medium | medium | medium | yes | yes | 38 | 8 | 33 (+1 salt) | 24 | 73 |
| 12214 | Little Toolunka Flat | Toolunka Complex | low | high | low | no | no | 8 | 5 | 22 | 16 | 73 |
| 12254 | Disher Creek | Disher Creek | medium | high | medium | yes | temporary | 110 | 12 | 57 (+1 salt) | 50 | 88 |
| 12259 | Schillers Lagoon | Schillers / Nigra Creek | low | medium | low | yes | yes | 78 | 8 | 32 (+1 salt) | 26 | 81 |
| 12265 | Overland Corner | Overland Corner Complex | low to medium | low | low | no | no | 11 | 3 | 11 | 11 | 100 |
| 12266 | Schillers Lagoon | Schillers / Nigra Creek | low to medium | low | low | Yes | yes | 4 | 2 | 8 | 7 | 88 |
| 12272 | Overland Corner | Overland Corner Complex | low to medium | medium | low | no | temporary | 19 | 4 | 17 | 15 | 88 |
| 12291 | Boggy Flat | Boggy Flat Complex | medium to high | medium | medium | yes | yes | | 4 | 18 | 18 | 100 |
| 12292 | Boggy Flat | Boggy Flat Complex | low to medium | low to medium | low | yes | temporary | | 2 | 10 | 10 | 100 |
| 12294 | Nigra Creek | Schillers / Nigra Creek | high | low | high | yes | yes | 7 | 4 | 17 | 17 | 100 |
| 12298 | Ajax Achilles | Ajax Achilles Complex | high | low to medium | high | yes | yes | 22 | 9 | 27 | 26 | 96 |
| 12301 | Sinclair Creek | Lock 1 to Morgan | medium | medium | low to medium | yes | yes | 56 | 8 | 33 | 31 | 94 |
| 12323 | Murbko Flat Complex | Lock 1 to Morgan | medium | low to medium | medium | yes | yes | 173 | 8 | 30 | 25 | 83 |
| 12338 | Gurra Complex | Causeway Lagoon/Gurra Lakes Wetland Complex | low to medium | high | low | yes | yes | 4 | 2 | 10 (+2 salt) | 7 | 70 |
| 12343 | Gurra Complex | Winding Creek/Gurra Lakes Wetland | medium | medium | medium | yes | yes | 11 | 4 | 17 | 16 | 94 |

| Wetland Identification Number | Wetland Name | Location | Acidification | De-oxygenation | Metal mobilisation | Surface water | Connected to river | Area (ha) | Sites (count) | Soil Samples (count) | High Priority Category Samples (count) | High Priority Category Samples (% of total) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Complex | | | | | | | | | | |
| 12363 | Gurra Complex | Lyrup Forest/ Gurra Lakes Wetland Complex | low | low to medium | low | no | no | 3 | 2 | 10 | 7 | 70 |
| 12364 | Gurra Complex | Lyrup Forest / Gurra Lakes Wetland Complex | medium | high | medium | isolated | temporary | 19 | 2 | 16 | 15 | 94 |
| 12471 | Katarapko Floodplain | Eckert Creek and the Splash | low to medium | low | low | no | no | 3 | 2 | 7 | 7 | 100 |
| 12474 | Katarapko Floodplain | Eckert Creek and the Splash | medium | low | medium | yes | yes | 18 | 4 | 16 | 16 | 100 |
| 12485 | Katarapko Floodplain | Eckert Creek and the Splash | low | medium | low | no | no | 70 | 8 | 31 | 25 | 81 |
| 12486 | Katarapko Floodplain | Eckert Creek and the Splash | medium to high | low | medium | yes | yes | 5 | 2 | 8 | 7 | 88 |
| 12488 | Katarapko Floodplain | Eckert Creek and the Splash | medium to high | low | medium | yes | yes | 59 | 8 | 33 | 32 | 97 |
| 12492 | Loch Luna | Loch Luna Wetland Complex | medium to high | medium | medium | yes | yes | 6 | 5 | 19 | 18 | 95 |
| 12514 | Katarapko Floodplain | Katarapko Creek and Katarapko Island | low | low | low | no | no | 4 | 2 | 8 | 8 | 100 |
| 12526 | Katarapko Floodplain | Katarapko Creek and Katarapko Island | high | low | high | yes | yes | 106 | 12 | 48 | 42 | 88 |
| 12531 | Loch Luna | Loch Luna Wetland Complex | high | low | High | yes | yes | 453 | 12 | 51 | 44 | 86 |
| 12565 | Lyrup East | Lyrup east complex | high | medium | high | yes | temporary | | 2 | 10 | 9 | 90 |
| 12566 | Lyrup East | Lyrup east complex | medium to high | low | medium | yes | yes | | 2 | 9 | 8 | 89 |
| 12605 | Yarra Complex | Yarra Complex | medium to high | medium | medium | yes | yes | 86 | 10 | 39 | 31 | 79 |
| 12606 | Yarra Complex | Yarra Complex | low to medium | medium | low | no | no | 12 | 4 | 18 | 13 | 72 |
| 12608 | Yarra Complex | Yarra Complex | medium | high | medium | isolated | no | 18 | 4 | 19 | 18 | 95 |
| 15002 | Katarapko Floodplain | Gerard Swamp | low to medium | medium to high | low | no | no | 9 | 4 | 19 | 16 | 84 |
| 15004 | Katarapko Floodplain | Ngak Indu | low to medium | low | low | yes | no | 5 | 2 | 9 | 7 | 78 |

# 6. CONCLUSIONS AND RECOMMENDATIONS

This report presents the data and findings for Phase 1 (the first part of a two-phased, detailed assessment process) of a study to determine the hazards posed by acid sulfate soil materials in selected, priority wetlands along the River Murray between Lock 1 near the town of Blanchetown and Lock 5 near the town of Renmark. The report identifies whether or not acid sulfate soil materials are present and indicates their general location and distribution within the assessed wetland. The soil samples are given a rating according to the criteria for inclusion in Phase 2 of the detailed assessment process (MDBA 2010) and a hazard assessment judgement is made for each wetland.

Assessment of the samples against the criteria for inclusion in Phase 2 identified that 79% (1140 of the 1334 samples) met the criteria as a high priority. However, over a third of these samples were solely triggered by the water soluble sulfate criteria. Samples of significant concern were the soil materials identified as sulfuric (1 sample), hypersulfidic by incubation (48 samples) and monosulfidic (41 samples). These materials occurred throughout the study area and were found in 28 of the 56 wetlands.

The potential hazard assessment at the wetland scale took into account the soil sample material assessment and the location of the sites within the wetland, and furthermore was based on expert judgement taking into account the quantitative data available. The distribution of wetlands with hazard ratings of concern was large with a range of classes distributed throughout the study area.

The findings and conclusions for hazard assessment are:

- Acidification: The results identified that the numbers of wetlands were fairly evenly distributed across all levels of concern and that 8 wetlands were rated as high, 10 as medium to high, 13 as medium, 14 as low to medium, and 11 as low.
- De-oxygenation: The results identified that 29 wetlands were of concern with a high, medium to high or medium priority rating.
- Metal mobilisation: The results identified that 30 wetlands were of concern with a high, medium to high or medium priority rating.

The findings and conclusions of the report provide a basis for a more detailed hazard rating which can be integrated with other factors including management strategies, and wetland and community assets for prioritisation in Phase 2 of the study.

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# APPENDIX A – HAZARD ASSESSMENT FOR COLLECTED SOIL SAMPLES

The following table shows the priority rating for each sample based on the criteria presented in Section 2.5.

- High priority summary column is an aggregate of the 6 criteria that could be used to identify a high priority sample.
    - A value of ‘0’ indicates a sample is not a high priority.
    - A value of “1, 2, 3, 4, 5, or 6” indicates the number of criteria that have triggered a high priority.
- Moderate priority column is based on one criterion. Therefore a value of ‘0’ equates to not a priority or ‘1’ a moderate priority.
- No further assessment columns identify samples that are acid (but not acid sulfate soil materials) or other soil materials.

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1 -** sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3 -** hyposulfidic - $S_{CR} \geq$ 0.10%S | **4 -** water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5 -** monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12006_1.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12006_1.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12006_1.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12006_1.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12006_1.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12006_2.1 | 0-2 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12006_2.2 | 2-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12006_2.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12006_2.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12006_2.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12006_3.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12006_3.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12006_3.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12006_3.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12006_3.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12006_4.1 | 0-3 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12006_4.2 | 3-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12006_4.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12006_4.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12006_4.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12006_5.1 | 0-0.5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12006_5.2 | 0.5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12006_5.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12006_5.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12006_5.5 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12006_5.6 | 70-100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12006_6.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12006_6.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12006_6.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12006_6.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12006_7.1 | 0-0.5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12006_7.2 | 0.5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12006_7.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12006_7.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12006_8.1 | 0-0.5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12006_8.2 | 0.5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12006_8.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12006_8.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12032_1.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12032_1.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_1.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_1.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12032_1.5 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12032_2.1 | 0-3 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_2.2 | 3-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_2.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12032_2.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12032_3.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_3.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_3.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12032_3.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12032_4.1 | 0-7 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_4.2 | 7-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12032_4.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12032_4.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12032_4.5 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12032_5.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_5.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12032_5.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_5.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12032_5.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12032_6.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_6.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_6.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_6.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12032_7.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_7.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_7.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_7.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12032_8.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12032_8.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_8.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12032_8.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12046_1.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12046_1.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12046_1.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12046_1.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12046_1.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12046_2.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_2.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12046_2.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12046_2.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12046_2.5 | 40-60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12046_3.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12046_3.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_3.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_3.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12046_3.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12046_4.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_4.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_4.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_4.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12046_4.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12046_5.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12046_5.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12046_5.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12046_5.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12046_5.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12046_6.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_6.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_6.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12046_6.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12046_6.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12046_7.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_7.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_7.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12046_7.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12046_7.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12046_8.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_8.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_8.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12046_8.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12046_8.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12063_7.1 | 0-2 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12063_7.2 | 2-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12063_7.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12063_7.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12063_8.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12063_8.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12063_8.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_1.1 | 0-2 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_1.2 | 2-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_1.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_1.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12064_10.1 | 0-3 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12064_10.2 | 3-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12064_10.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_10.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12064_10.5 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12064_2.1 | 0-4 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12064_2.2 | 4-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12064_2.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_2.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12064_3.1 | 0-3 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_3.2 | 3-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12064_3.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_3.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12064_4.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_4.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_4.3 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_5.1 | 0-5 | **2** | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12064_5.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_5.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12064_6.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_6.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_9.1 | 0-2 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12064_9.2 | 2-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_9.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12064_9.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_1.0 | 0-0.2 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12075_1.1 | 0-3 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12075_1.2 | 3-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12075_1.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_1.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12075_1.5 | 40-60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_10.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_10.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_10.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_10.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12075_11.1 | 0-3 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_11.2 | 3-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_11.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_11.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_12.1 | 0-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_12.2 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_12.3 | 20-40 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_13.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_13.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_13.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_13.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_14.1 | 0-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_14.2 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_14.3 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_15.1 | 0-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_15.2 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_15.3 | 20-40 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_16.1 | 0-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_16.2 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_16.3 | 20-30 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_16.4 | 30-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_16.5 | 40-50 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12075_16.5DUP | 40-50 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_17.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_17.2 | 5-10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_17.3 | 10-40 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_18.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_18.2 | 5-25 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_19.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12075_19.2 | 5-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12075_19.3 | 15-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12075_2.1 | 0-3 | **3** | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 12075_2.2 | 3-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_2.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_2.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12075_20.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_20.2 | 5-10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12075_20.2DUP | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_20.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12075_20.4 | 20-50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12075_3.1 | 0-3 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_3.2 | 3-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_3.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_3.4 | 20-50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12075_4.1 | 0-2 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_4.2 | 2-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_4.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_4.4 | 20-30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_5.1 | 0-6 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12075_5.2 | 6-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_5.3 | 10-15 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12075_5.4 | 15-30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_6.1 | 0-4 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12075_6.2 | 4-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_6.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_6.4 | 20-30 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12075_7.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_7.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_7.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_7.4 | 20-35 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12075_8.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_8.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12075_8.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_8.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_9.1 | 0-3 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_9.2 | 3-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12075_9.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12075_9.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12086_1.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_1.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12086_1.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12086_1.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12086_1.5 | 40-90 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12086_2.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12086_2.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_2.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_2.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12086_3.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12086_3.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12086_3.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_3.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12086_3.5 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12086_4.1 | 5-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12086_4.2 | 20-40 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR}$≥ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W$ ≥ 4 but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12086_4.3 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12086_5.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_5.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_5.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12086_5.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12086_6.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_6.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_6.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_7.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_7.3 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12086_8.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_8.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_8.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12086_8.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12087_10.1 | 0-5 | **4** | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12087_10.2 | 5-10 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12087_10.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12087_10.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12087_10.4 | 20-60 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12087_11.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12087_11.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12087_11.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12087_11.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12087_12.1 | 0-2 | **2** | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 12087_12.2 | 2-10 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12087_12.3 | 10-20 | **4** | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12087_12.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12087_12.5 | 40-90 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12087_13.1 | 0-5 | **4** | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12087_13.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12087_13.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12087_14.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12087_14.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12087_14.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12087_14.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12087_14.5 | 40-90 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12087_15.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12087_15.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12087_15.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12087_15.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12087_15.5 | 40-90 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12087_16.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12087_16.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12087_16.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12087_16.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12087_9.1 | 0-5 | **4** | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12087_9.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12087_9.3 | 10-20 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12087_9.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12087_9.5 | 40-90 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12092_27.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12092_27.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12092_27.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12092_27.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12092_28.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12092_28.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12092_28.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12095_29.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12095_29.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12095_29.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12095_29.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12095_30.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12095_30.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12095_30.3 | 10-20 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12101_25.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12101_25.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12101_25.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12101_25.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12101_26.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12101_26.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12101_26.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12101_26.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12102_1.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12102_1.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12102_1.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12102_1.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102_1.5 | 40-75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12102_10.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_10.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12102_10.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12102_10.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12102_11.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_11.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_11.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_11.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102_12.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_12.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_12.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_12.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102_2.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_2.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_2.3 | 10-20 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12102_2.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102_2.5 | 40-70 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102_3.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12102_3.1DUP | 0-5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12102_3.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12102_3.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12102_3.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12102_3.5 | 40-65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12102_4.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_4.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_4.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_4.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102_5.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12102_5.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10% S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12102_5.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12102_5.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102_5.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12102_6.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12102_6.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_6.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_6.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102_6.5 | 40-65 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102_7.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_7.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_7.3 | 10-20 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12102_7.4 | 20-40 | **2** | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 12102_8.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12102_8.2 | 5-10 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12102_8.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102_9.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12102_9.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12102_9.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12102_9.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12103_17.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_17.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12103_17.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12103_17.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12103_18.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_18.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_18.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12103_18.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12103_18.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12103_19.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_19.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_19.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12103_19.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12103_19.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12103_20.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_20.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12103_20.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_20.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12103_21.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_21.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_21.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12103_21.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12103_22.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_22.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_22.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_22.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12103_22.5 | 40-65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12103_23.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_23.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12103_23.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12103_23.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12103_23.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12103_24.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12103_24.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12103_24.2DUP | 5-10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12103_24.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12103_24.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12104_13.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12104_13.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12104_13.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12104_13.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12104_14.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12104_14.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12104_14.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12104_14.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12104_14.5 | 40-75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12104_15.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12104_15.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12104_15.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12104_15.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12104_15.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12104_16.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12104_16.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12104_16.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12104_16.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12132_8.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12132_8.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12132_8.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12132_8.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12132_9.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12132_9.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12132_9.3 | 10-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12132_9.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12132_9.5 | 40-80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12133_10.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12133_10.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12133_10.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12133_11.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12133_11.1DUP | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12133_11.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12133_11.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12133_11.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12133_12.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12133_12.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12133_12.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12133_12.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12153_1.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12153_1.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12153_1.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12153_1.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12153_1.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12153_2.1 | 0-2 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12153_2.2 | 2-4 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12153_2.3 | 4-8 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12153_2.4 | 8-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12153_2.5 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12153_2.6 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12153_3.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12153_3.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12153_3.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12153_3.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12153_4.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12153_4.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12153_4.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12153_4.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12153_5.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12153_5.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12153_5.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12153_5.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12155_10.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12155_10.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12155_10.3 | 10-20 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12155_10.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12155_9.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12155_9.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12155_9.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12155_9.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12156_08.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12156_11.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12156_11.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12156_11.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12156_11.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12156_12.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12156_12.1DUP | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12156_12.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12156_12.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12156_12.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12156_13.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12156_13.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12156_13.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12156_13.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12156_14.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12156_14.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12156_14.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12156_14.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12156_16.1 | 0-3 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12156_16.2 | 3-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12156_16.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12156_16.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12156_16.5 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12156_17.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12156_17.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12156_17.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12156_17.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12156_18.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12156_18.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12156_18.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12156_18.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12156_18.5 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12156_19.1 | 0-3 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12156_19.2 | 3-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12156_19.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12156_19.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12156_6.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12156_6.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12156_6.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12156_6.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12156_7.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12156_7.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12156_7.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12156_7.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12156_7.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12156_8.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12156_8.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12156_8.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 12158_10.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_10.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_10.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_10.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_10.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_11.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_11.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_11.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12158_11.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_12.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_12.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_12.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_12.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_12.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_13.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_13.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_13.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_13.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_13.5 | 40-90 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_14.1 | 0-3 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12158_14.2 | 3-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_14.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_14.3DUP | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12158_14.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_15.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_15.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_15.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_15.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_3.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_3.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_3.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_3.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_3.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_4.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_4.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_4.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_4.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_4.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10% S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W < 5.5$ during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12158_5.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_5.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_5.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_5.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_5.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_7.1 | 0-3 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12158_7.2 | 3-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12158_7.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 12158_7.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12158_8.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_8.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_8.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_8.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_9.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12158_9.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12158_9.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12158_9.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12158_9.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12161_1.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12161_1.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 12161_1.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12161_2.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12161_2.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12161_2.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 12161_2.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 12209_6.1 | 0-1 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12209_6.2 | 1-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12209_6.3 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12209_6.4 | 10-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12209_6.5 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12209_7.1 | 0-1 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12209_7.2 | 1-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12209_7.3 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12209_7.4 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12209_7.5 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12209_8.1 | 0-1 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12209_8.2 | 1-5 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12209_8.3 | 5-10 | **4** | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12209_8.4 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12209_8.5 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12211_10.1 | 0-1 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12211_10.2 | 1-7 | **4** | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12211_10.3 | 7-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12211_10.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12211_11.1 | 0-1 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12211_11.2 | 1-5 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12211_11.3 | 5-20 | **2** | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 12211_11.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12211_9.1 | 0-1 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12211_9.2 | 1-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12211_9.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12211_9.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12211_9.5 | 40-80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12212_12.1 | 0-2 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12212_12.2 | 2-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12212_12.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12212_12.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12212_12.4DUP | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12212_12.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12212_13.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_13.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_13.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12212_13.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12212_14.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_14.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_14.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_14.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12212_15.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_15.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_15.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12212_15.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12212_16.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_16.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_16.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_16.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12212_17.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_17.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_17.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_17.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12212_18.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12212_18.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12212_18.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12212_18.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12212_19.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12212_19.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12212_19.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12214_1.1 | 0-0.5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12214_1.2 | 0.5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12214_1.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12214_1.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12214_1.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12214_2.1 | 0-1 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12214_2.2 | 1-4 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12214_2.3 | 4-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12214_2.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12214_2.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12214_3.1 | 0-1 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12214_3.2 | 1-10 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12214_3.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12214_3.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12214_3.5 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12214_4.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 12214_4.2 | 5-10 | **4** | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12214_5.1 | 0-1 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12214_5.2 | 1-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12214_5.3 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12214_5.4 | 10-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12214_5.5 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12254_1.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12254_1.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12254_1.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12254_1.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12254_1.5 | 40-90 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12254_10.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12254_10.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12254_10.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12254_10.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12254_11.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12254_11.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_11.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_11.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12254_12.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_12.1DUP | 0-5 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12254_12.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12254_12.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_12.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12254_2.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_2.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_2.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_2.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12254_2.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12254_3.1 | 0-5 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12254_3.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_3.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_3.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12254_3.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12254_4.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_4.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_4.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_4.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12254_4.5 | 40-90 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12254_5.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12254_5.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12254_5.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12254_5.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12254_6.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_6.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_6.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_6.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12254_6.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12254_7.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12254_7.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12254_7.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_7.4 | 20-30 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12254_7.5 | 30-50 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12254_7.6 | 50-80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12254_8.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_8.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12254_8.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W < 5.5$ during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12254_8.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12254_9.1 | 0-5 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12254_9.2 | 5-10 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12254_9.3 | 10-20 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12254_9.4 | 20-40 | **2** | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 12254_9.5 | 40-90 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12259_1.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12259_1.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12259_1.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_1.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12259_2.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12259_2.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_2.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_2.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12259_3.2 | 1-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_3.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_3.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12259_3.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12259_4.1 | 0-4 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12259_4.2 | 4-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_4.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_4.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12259_5.1 | 0-2 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12259_5.2 | 2-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_5.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_5.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12259_6.1 | 0-1 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_6.2 | 1-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_6.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_6.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12259_6.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12259_7.1 | 0-2 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12259_7.2 | 2-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_7.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12259_7.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12259_8.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_8.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12259_8.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12265_5.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 12265_5.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12265_5.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12265_6.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12265_6.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12265_6.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 12265_6.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12265_7.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 12265_7.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12265_7.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12265_7.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 12266_10.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12266_10.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12266_10.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12266_10.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12266_9.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12266_9.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12266_9.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12266_9.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12272_1.1 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12272_1.2 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12272_1.3 | 20-30 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12272_2.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12272_2.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12272_2.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12272_2.4 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12272_2.5 | 40-90 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12272_3.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12272_3.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12272_3.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12272_4.1 | 0-5 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12272_4.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12272_4.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12272_4.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12272_4.5 | 40-80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12291_1.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12291_1.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12291_1.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12291_1.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12291_1.5 | 40-80 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12291_2.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12291_2.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12291_2.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12291_2.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12291_3.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12291_3.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12291_3.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12291_3.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12291_3.5 | 40-80 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12291_4.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12291_4.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12291_4.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12291_4.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12292_5.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12292_5.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12292_5.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 12292_5.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12292_5.5 | 40-90 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 12292_6.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12292_6.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12292_6.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12292_6.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12292_6.5 | 40-80 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 12294_1.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12294_1.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12294_1.3 | 10-20 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12294_1.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12294_2.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12294_2.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12294_2.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12294_2.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12294_3.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12294_3.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12294_3.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12294_3.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12294_4.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12294_4.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12294_4.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12294_4.3DUP | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12294_4.4 | 20-40 | **2** | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12298_1.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_1.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12298_1.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12298_2.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_2.2 | 5-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12298_3.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_3.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_3.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12298_3.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12298_4.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_4.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_4.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_5.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_5.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12298_5.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12298_6.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_6.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_6.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12298_6.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12298_8.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_8.2 | 5-20 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_8.3 | 20-40 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_8.4 | 40-65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12298_9.1 | 0-3 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12298_9.2 | 3-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12298_9.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12298_9.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12301_1.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_1.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_1.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12301_1.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12301_2.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_2.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12301_2.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12301_2.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12301_3.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_3.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12301_3.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12301_3.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12301_4.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_4.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10% S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12301_4.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_4.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12301_5.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_5.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12301_5.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12301_5.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 12301_6.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_6.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_6.3 | 10-20 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_6.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12301_7.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12301_7.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12301_7.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12301_7.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 12301_8.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_8.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_8.3 | 10-20 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12301_8.4 | 20-40 | **2** | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12301_8.5 | 40-90 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12323_1.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_1.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_1.3 | 10-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12323_2.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_2.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12323_2.3 | 10-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12323_3.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_3.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_3.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_3.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12323_4.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12323_4.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_4.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_4.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12323_5.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12323_5.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12323_5.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_5.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12323_6.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12323_6.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_6.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_6.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12323_7.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12323_7.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_7.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_7.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12323_8.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_8.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_8.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12323_8.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12338_1.1 | 0-3 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12338_1.2 | 3-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12338_1.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12338_1.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12338_1.5 | 40-60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12338_2.1 | 0-3 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12338_2.2 | 3-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12338_2.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12338_2.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12338_2.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12343_1.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12343_1.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12343_1.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12343_1.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12343_2.1 | 0-1 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12343_2.2 | 1-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12343_2.3 | 10-25 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12343_2.4 | 25-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12343_2.5 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12343_3.1 | 0-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12343_3.2 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12343_3.3 | 20-40 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12343_3.4 | 40-80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12343_4.1 | 0-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12343_4.2 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12343_4.3 | 20-40 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12343_4.4 | 40-90 | **2** | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12363_3.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12363_3.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12363_3.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12363_3.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12363_3.5 | 40-60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12363_4.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12363_4.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12363_4.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12363_4.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12363_4.5 | 40-60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12364_1.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12364_1.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12364_1.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12364_1.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12364_2.1 | 0-5 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12364_2.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12364_2.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12364_3.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12364_3.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12364_3.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12364_3.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12364_3.5 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12364_4.1 | 0-15 | **2** | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 12364_4.2 | 15-30 | **2** | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 12364_4.3 | 30-40 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12364_4.4 | 40-65 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12471_10.1 | 0-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12471_10.2 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12471_10.3 | 20-40 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12471_10.4 | 40-80 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq 0.10\%S$ | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W < 5.5$ during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12471_9.1 | 0-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12471_9.2 | 10-30 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12471_9.3 | 30-70 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12474_11.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12474_11.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12474_11.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12474_11.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12474_12.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12474_12.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12474_12.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12474_12.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12474_13.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12474_13.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12474_13.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12474_13.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12474_14.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12474_14.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12474_14.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12474_14.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12485_15.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12485_15.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12485_15.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12485_15.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12485_16.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_16.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_16.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_17.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12485_17.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_17.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_17.4 | 20-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12485_18.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_18.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12485_18.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12485_18.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12485_19.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12485_19.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_19.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_19.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12485_20.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12485_20.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_20.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_20.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12485_21.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_21.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_21.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_21.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_22.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_22.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_22.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12485_22.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12486_25.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12486_25.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12486_25.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12486_25.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12486_26.1 | 0-3 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12486_26.2 | 3-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12486_26.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12486_26.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12488_1.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12488_1.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12488_1.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12488_1.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12488_2.1 | 0-3 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_2.2 | 3-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_2.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_2.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12488_3.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12488_3.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12488_3.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12488_3.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12488_4.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_4.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_4.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12488_4.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12488_4.5 | 40-90 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12488_5.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12488_5.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_5.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_5.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12488_6.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12488_6.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_6.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12488_6.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12488_7.1 | 0-3 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_7.2 | 3-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_7.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_7.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12488_8.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12488_8.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12488_8.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12488_8.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12492_1.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12492_1.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12492_1.3 | 10-20 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12492_1.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12492_1.5 | 40-80 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12492_1.6 | 80-100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12492_2.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12492_2.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12492_2.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12492_2.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12492_2.5 | 40-60 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12492_3.1 | 0-5 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12492_3.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12492_3.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12492_3.4 | 20-50 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W < 5.5$ during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12492_4.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12492_4.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12492_4.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12492_4.4 | 20-50 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12514_11.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12514_11.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12514_11.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12514_11.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12514_11.5 | 40-80 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12514_12.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12514_12.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12514_12.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12526_1.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12526_1.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12526_1.2DUP | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12526_1.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12526_1.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12526_10.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_10.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_10.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 12526_13.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12526_13.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12526_13.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_13.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 12526_14.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_14.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12526_14.3 | 10-20 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12526_14.4 | 20-40 | **2** | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12526_2.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_2.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_2.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_2.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12526_2.5 | 40-80 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 12526_3.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 12526_3.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 12526_3.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_3.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12526_4.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_4.2 | 5-10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12526_4.3 | 10-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12526_4.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12526_5.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12526_5.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_5.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_5.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12526_6.1 | 0-3 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_6.2 | 3-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12526_6.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_7.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_7.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_7.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_7.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12526_8.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W < 5.5$ during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12526_8.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_8.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_8.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12526_9.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12526_9.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12526_9.3 | 10-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12526_9.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12531_1.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12531_1.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12531_1.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12531_1.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12531_1.5 | 40-70 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_10.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_10.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_10.3 | 10-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_10.4 | 20-50 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_11.1 | 0-5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_11.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_11.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_11.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_11.5 | 40-60 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_11.6 | 60-80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_12.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_12.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12531_12.3 | 10-20 | **2** | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12531_12.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12531_12.5 | 40-60 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12531_2.1 | 0-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_2.2 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_2.3 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_3.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12531_3.2 | 5-20 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12531_3.3 | 20-40 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_4.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12531_4.2 | 5-15 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12531_4.3 | 15-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_4.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_5.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_5.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_5.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_5.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_6.1 | 0-5 | **2** | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12531_6.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_6.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_6.4 | 20-45 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_7.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12531_7.2 | 5-10 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12531_7.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12531_7.4 | 20-35 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12531_7.5 | 35-65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_8.1 | 0-5 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_8.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_8.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12531_8.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12531_9.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_9.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_9.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12531_9.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12565_5.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12565_5.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 12565_5.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12565_5.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12565_5.5 | 40-80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12565_6.1 | 0-2 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12565_6.2 | 2-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12565_6.3 | 10-20 | **3** | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12565_6.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12565_6.5 | 40-75 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12566_7.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12566_7.2 | 5-8 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12566_7.3 | 8-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12566_7.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12566_7.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12566_8.1 | 0-5 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12566_8.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12566_8.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12566_8.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12605_10.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_10.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_10.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_10.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12605_11.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_11.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_11.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_16.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_16.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_16.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_16.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12605_17.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_17.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_17.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_17.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12605_17.5 | 40-65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12605_18.1 | 0-5 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_18.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_18.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_18.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12605_5.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_5.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_5.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_6.1 | 0-5 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_6.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_6.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_7.1 | 0-5 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_7.2 | 5-10 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_7.3 | 10-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12605_7.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12605_7.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12605_8.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_8.2 | 5-10 | **3** | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_8.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_8.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12605_9.1 | 0-1 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_9.2 | 1-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12605_9.3 | 10-20 | **3** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12605_9.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12606_12.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12606_12.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12606_12.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12606_12.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12606_12.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12606_13.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12606_13.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12606_13.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12606_13.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12606_13.5 | 40-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12606_14.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12606_14.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12606_14.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12606_14.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12606_15.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12606_15.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 12606_15.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12606_15.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12608_1.1 | 0-1 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12608_1.2 | 1-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12608_1.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 12608_1.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12608_1.5 | 40-90 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12608_2.1 | 0-5 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12608_2.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12608_2.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12608_2.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12608_2.5 | 40-100 | **2** | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12608_3.1 | 0-1 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12608_3.2 | 1-7 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12608_3.3 | 7-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12608_3.4 | 20-40 | **1** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12608_3.5 | 40-100 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12608_4.1 | 0-5 | **3** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 12608_4.2 | 5-10 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12608_4.3 | 10-20 | **2** | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12608_4.4 | 20-40 | **2** | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15002_1.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 15002_1.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 15002_1.3 | 10-20 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 15002_1.4 | 20-45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 15002_1.5 | 45-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 15002_2.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| **Wetland, Site and Sample ID** (number) | **Depth range** | **High Priority Summary** | **1** - sulfuric material | **2a** - hypersulfidic - incubation | **2b** - hypersulfidic - positive net acidity | **3** - hyposulfidic - $S_{CR} \geq$ 0.10%S | **4** - water soluble sulfate>100mg/kg SO4 (within 0-20cm) | **5** - monosulfidic material | **Moderate Priority** hyposulfidic - SCR< 0.10% S | **No Further Assessment** Other acidic - drops 0.5 unit to $pH_W$ < 5.5 during incubation | Other acidic - $pH_W \geq 4$ but < 5.5 | Other soil materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15002_2.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 15002_2.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 15002_2.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 15002_2.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 15002_3.1 | 1-5 | **2** | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 15002_3.2 | 5-10 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 15002_3.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 15002_3.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 15002_4.1 | 0-5 | **1** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 15002_4.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 15002_4.3 | 10-20 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 15002_4.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 15002_4.5 | 40-80 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 15004_23.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 15004_23.2 | 5-10 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 15004_23.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 15004_23.4 | 20-40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 15004_23.5 | 40-70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 15004_24.1 | 0-5 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 15004_24.2 | 5-10 | **2** | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 15004_24.3 | 10-20 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 15004_24.4 | 20-40 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

# APPENDIX B – WETLAND DESCRIPTIONS FOR ACID SULFATE SOIL ASSESSMENT

This appendix because of its large file size has been separated and is provided in 4 accompanying files:

Appendix B1 – Descriptions for assessed wetlands between Lock 1 and Lock 2

Appendix B2 – Descriptions for assessed wetlands between Lock 2 and Lock 3

Appendix B3 – Descriptions for assessed wetlands between Lock 3 and Lock 4

Appendix B4 – Descriptions for assessed wetlands between Lock 4 and Lock 5

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