WILLIAMSON
WATER & LAND ADVISORY

Milldale Stage 10-13

Hydric Soil & Hydrology Tool Assessments

FULTON HOGAN LAND DEVELOPMENT LIMITED

WWLA1338 | Rev. 1

25 February 2025

Hydric Soil & Hydrology Tool Assessments

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Author(s):	Rosa Hollister, Benji Williamson, Mya Mobberley and Raffe Mahon
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Williamson Water & Land Advisory

P.O. Box 314
Kumeu
New Zealand
www.wwla.kiwi

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1	25 February 2025	Issue for consent	Rosa Hollister Benji Williamson Mya Mobberley Raffe Mahon	Jon Williamson	Jon Williamson 

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Executive Summary

Williamson Water & Land Advisory (WWLA) were commissioned by Fulton Hogan Land Development Ltd in September 2023 to undertake Hydric Soil and Wetland Hydrology Tool Assessments in the Milldale Stage 10-11 development area. In November 2024, WWLA were commissioned to increase the coverage and to include Stages 12-13.

The following summarises the key findings:

Project Objectives	The specific objective of the assessment was to: • Confirm the presence or absence of hydric soil and hydrology indicators of natural inland wetlands; and • Map possible wetland extents (if any) based on the findings of the field assessment.
Methods	All investigations were undertaken in accordance with the Landcare Research (2018) and MfE (2021) guidelines for hydric soil and hydrology assessment for natural inland wetlands. The key focus of this methodology is the presence of hydric soils within the top 300 mm of soil, and/or the presence of a distinct soil horizon showing saturation or severe drainage limitation within the top 450 mm of soil. The 2023 work was undertaken at the start of the growing season, following a period of consistent fine weather after a fairly wet winter, hence ground conditions were very moist, but not saturated. During the 2024 investigation, the weather conditions were sunny and the ground conditions were drying after perhaps drier than normal spring conditions. A total of 149 test pits were investigated to achieve a spread of results that represented both inside and outside of sixteen areas (A-P) that were considered potential wet land based on plan identification by the project ecologists. Test pits were dug to 300 mm and hand-augured further to 1,000 mm, with key lithological and morphological characteristics logged as the depth of investigation progressed. Each was measured, photographed and backfilled following investigation.
Summary of Results	In summary soils were fairly consistent across the site, comprising: • between 200-300 mm of topsoil underlain by clayey silt of Tauranga Group alluvium and/or completely weathered limestone; and • generally poorly drained. Out of the 149 sites investigated - all located in areas with the greatest potential for wetlands to occur (as identified by the project ecologists) - 86 displayed either hydric soil or wetland “hydrology tool” assessment conditions. 32 or 21% sites displayed properties indicative of hydric soils, whilst 54 (36%) displayed primary indicators of wetland hydrology (using the wetland hydrology assessment tool). 26 sites (17%) had both hydric soils and primary wetland hydrology tool indicators, which are confirmed as wetland according to the overall hydrology assessment tool.
Key Conclusions	The soils examined within the proposed Milldale Stage 10-13 development were highly leached, acidic, low in nutrients, with dispersible surface horizons and clayey subsoils with slow permeability. A long history of kauri and podocarp forest successions has led to the leached and low permeability soils, which has been exacerbated in more recent times by grazing cattle. The assessment of potential wetland areas within the proposed Milldale Stage 10-13 development using the hydric soil and hydrology delineation tools confirmed the presence of 26 sites (17%) had both hydric soils and primary wetland hydrology tool indicators, which are confirmed as wetland according to the overall hydrology assessment tool as indicated on **Figure 9.** The majority of the area is not wetland in our opinion. The investigation found some anomalies, where hydric soils were identified in areas that lacked hydrology tool indicators. We are of the opinion that these areas are not wetlands, rather isolated areas of marginal hydric soils, that may become waterlogged at times during winter but are typically bone dry for much of summer and as indicated previously lack hydrology indicators. Examples of these sites are D-3 and D-4. Hydrological indicators are often not present where wetland vegetation is in many areas. This is a function of the low permeability of the soils, which means that for much of winter months the moisture content of the soils is high, however, in summer the soils become bone dry. This demonstrates the versatility of some of the "wetland" listed plants to adapt to both wet and dry conditions.

	Most sites displaying hydric soils and/or hydrology tool indicators were located at landscape features such as the base of hills, sides of gullies, or at depressions in low lying areas. These landscape features prevent water from draining freely, which explains the presence of hydric soils/hydrology indicators. During summer, Auckland's rainfall is far lower than evaporation causing dry soils and low groundwater for at least five months of the year, with the exception of the landscape features mentioned above. This factor, combined with the presence of poorly draining soils such as clay, explain why wetlands within the proposed Milldale Stage 10-13 development are localised rather than widespread.

Contents

Appendices:

1. Introduction

Williamson Water & Land Advisory (WWLA) were commissioned by Fulton Hogan Land Development Ltd to undertake Hydric Soil and Wetland Hydrology Tool Assessments in accordance with the guidance in Landcare Research (2018)[1] and MfE (2021)[2] in September 2023 (first round) and November 2024 (second round).

The work was required to establish a baseline understanding of locations displaying hydric soil or wetland hydrology properties, prior to initiation of site development design and consent planning work.

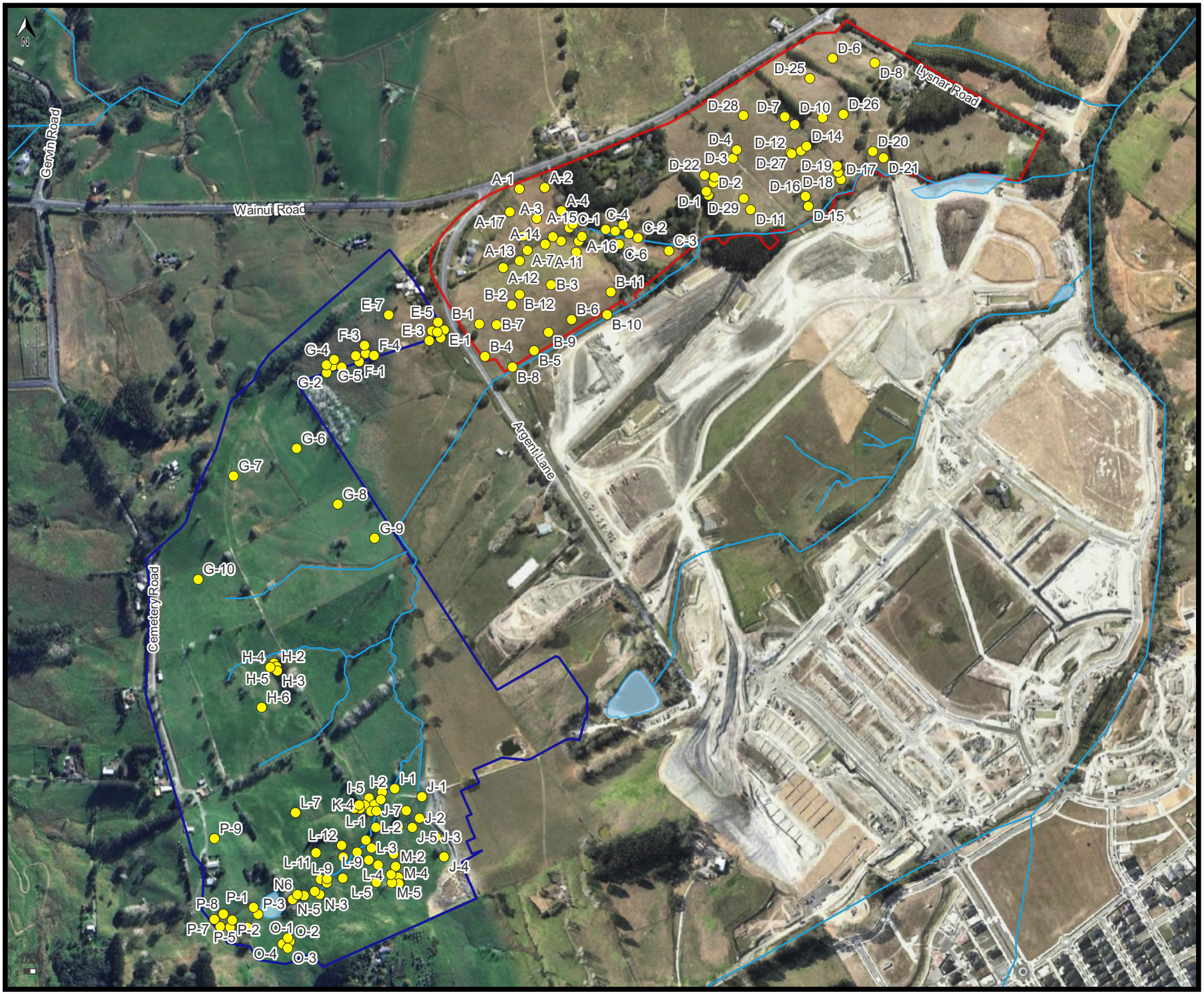
A previous hydrophytic vegetation survey focussing on the identification of species representative or potentially representative of wetland was undertaken by Viridis Consultants Limited. This work identified some areas of potential wetland, which is shown in **Figure 1** along with the soil testing locations.

The report structure is as summarised in **Table 1**.

Table 1. Report structure.

Section	Heading	Description
1	Introduction	Project overview and background.
2	Field Investigation Methodology	Description of the field investigation site and procedures undertaken, as well as an overview of the wetland assessment tools.
3	Environmental Setting	Description of climate, topography and drainage, soils and geology, and previous Investigations.
4	Hydric Soil Tool Assessment	Tool methodology, site specific considerations implementation.
5	Hydrology Tool Assessment	Tool methodology, site specific considerations and implementation.
6	Conclusions	Results of study.

[1] Landcare Research, 2018. Hydric soils – field identification guide. Consultancy report prepared for Tasman District Council under Envirolink Grant: C09X1702. June 2018.
[2] MfE, 2021. Wetland delineation hydrology tool for Aotearoa New Zealand. Published in July 2021 by the Ministry for the Environment. ISBN: 978-1-99-003362-9. Publication number: ME 1575.



Map Title:

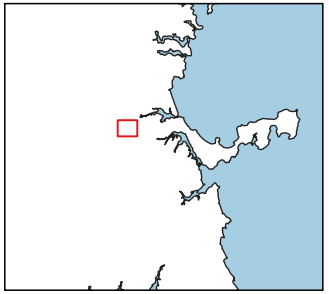
Investigation Locations

Project:

Milldale Stages 10-13 - Hydric Soil & Hydrology Tool Assessment

Client:

Fulton Hogan Land Development Ltd



Legend

- Stage 12_13 Boundary
- Stage 10_11 Boundary
- Lakes
- Existing Stream
- Test pit locations

Data Provenance
Google Satellite (2022)

Drawn by: Mya Mobberley
05/02/2025

Layout Name
Stages 10-13 investigations G:\Shared drives\Projects\Fulton Hogan Land Development Ltd\WWLA1338_Milldale Stages 10-13 Gw Assessment\Technical\GIS\QGIS Project Files\Stage 10 to 13 v2.qgz

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Figure 1.

1.1 Statement of Qualifications and Experience

WWLA a niche employee-owned consultancy with core expertise in the fields of water resources and contaminated land. As part of our broader water resource service offering, we conduct hydrology and hydric soils assessments and provide associated advice to a wide range of clients.

The reviewer of this report, Jonathan (Jon) Williamson, holds a Bachelor of Science in Earth Science, and a Master of Science and Technology first class honours in Hydrology and Geology from the University of Waikato.

Jon is the Managing Director of WWLA, a firm he founded in January 2015. Jon has 28 years of professional experience in New Zealand, Australia and the Pacific regions. For the 15 years prior to starting WWLA he held various technical and managerial roles in the water resource management and irrigation sectors within the Auckland office of Sinclair Knight Merz (now Jacobs). Prior to that, Jon was employed in a global multidisciplinary consulting firm in Sydney and undertook a range of hydrogeological work in the mining and municipal water supply sectors.

Jon has specialist technical expertise in hydrogeology, hydrology and irrigation engineering in a wide spectrum of services including data collection and analysis; field investigations and testing; modelling; engineering design; construction contract management; technical report writing, community and stakeholder consultation; resource consent hearings; and technical working panels. Examples of Jon's previous work experience includes:

- Assisting with a wide range of surface water take consent applications for primary sector, municipal, and industrial/trade use.
- Providing specialist surface water take consent application peer review services to Hawke's Bay Regional Council.
- Undertaking a conceptual hydrogeology and Lake Water Balance Assessment of Lake Kereta, South Head, Kaipara peninsula.
- Undertaking a Lake Okaihau Water Balance Assessment to assist my client in designing a marquee class golf course and associated infrastructure that borders the lake near Muriwai, Auckland.
- Undertaking a groundwater and stream depletion effects assessment from dewatering associated with turbine foundation construction of the Wavery Wind Farm on similar west coast recent sand dune deposits for Trustpower Limited (now Tilt Renewables).

Jon confirms that, in his capacity as reviewer of this report, he has read and will abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

2. Field Investigation Methodology

2.1 Overview

The initial investigation was conducted on 13-14 September 2023 by two WWLA environmental scientists. An expanded investigation including additional testing in Stages 10-11 and new testing in Stages 12-13 was undertaken on November 20, 26 and 27 by four WWLA environmental scientists.

The weather conditions at the time of the 2023 survey were fine with patchy cloud. The ground conditions were moist due to recent rain, but not saturated, except in some low lying areas where beef cattle pugging (which currently graze the property) had retained surface water.

During the 2024 investigation, the weather conditions were sunny and the ground conditions were drying after perhaps drier than normal spring conditions, which are typically wetter and cooler than summer.

Soil investigation and hydrological inspection was undertaken at 149 assessment locations (sites), which were grouped into areas A to P based on the areas of interest, as shown in **Figure 1** and summarised in **Table 2**.

Table 2. Schedule of investigation hole at each location.

Location	Number of Investigations
A	17
B	13
C	7
D	28
E	7
F	5
G	10
H	6
I	6
J	7
K	4
L	13
M	6
N	7
O	4
P	9
TOTAL	**149**

2.2 Methodology

The field investigation methodology undertaken at each site involved:

- Hand excavation of a 400 x 400 mm hole to a depth of 400 mm, followed by hand auger of a 60 mm core to a depth of 1,000 mm;
- Describing the soil in accordance with the NZ Geotechnical Society guidelines for soil and rock description, and the requirements for hydric soil identification provided in Section 5 of the Hydric Soils Identification Guide[1], which included:

- Munsell Soil Colour Book 2009;
- New Zealand Hydric Soils – Field Identification Guide Sheet; and
- copies of the wetland soil data form.

- Recording the hydrological indicators of the site.

2.3 Overview of the Wetland Assessment Tools

The key objective of wetland hydric soil and hydrology tools is to aid in identifying and delineating wetlands, and are two of the three component suite of tools for conducting this type of wetland assessment, including:

1) Hydrophytic vegetation;
2) Hydric soils; and
3) Hydrology.

These tools are based on the US Army Corps of Engineers Wetlands Delineation manual for the USA originally developed in 1987 and refined through the 1990's. Since 1991, this document has been a mandatory requirement for permitting activities that potentially impact on wetlands (amongst other things) under Section 404 of the USA Clean Water Act (CWA). The use of this document is a legislative requirement of the National Policy Statement for Freshwater Management 2022 update.

The wetland hydrology tool outlines assessment procedures for primary and secondary hydrology indicators. To confirm the presence of wetland hydrology, positive identification of the following are required:

- One primary indicator, or
- Two secondary indicators.

There is an overlap in the guidelines between the hydric soil and hydrology tools, hence the guideline suggests the hydrology tool should be concurrently with the hydric soils tool. For this reason, this assignment completes both tasks in both the wetland hydric soil and hydrology tools.

3. Environmental Setting

3.1 Climate

Historic climate data was obtained from a combination of NIWA's Virtual Climate Station Network (VCSN), and climate station sites. The following data were used:

- VCSN Point #21795 (Rainfall and evaporation);
- Auckland Council's Orewa at Treatment Ponds Rainfall data (1995 to present).
- Albany Northshore Aero EWS Evaporation data (Dec 2009 to present).

The VCSN data was applied for the early years, while the rain gauge and evaporation data were used where available. The resulting dataset provided a daily rainfall and evaporation dataset covering the period 1972 to present. Average annual rainfall and evaporation over this period was 1,240 mm and 891 mm, respectively.

Mean monthly rainfall and evaporation is displayed in **Figure 2**.

This shows on average that monthly evaporation exceeds monthly rainfall (i.e., a moisture deficit) during the months November to February. Conversely, outside of these months' rainfall typically exceeds evaporation. This pattern follows the typical dry summer and wet winter trend observed across the northern North Island.

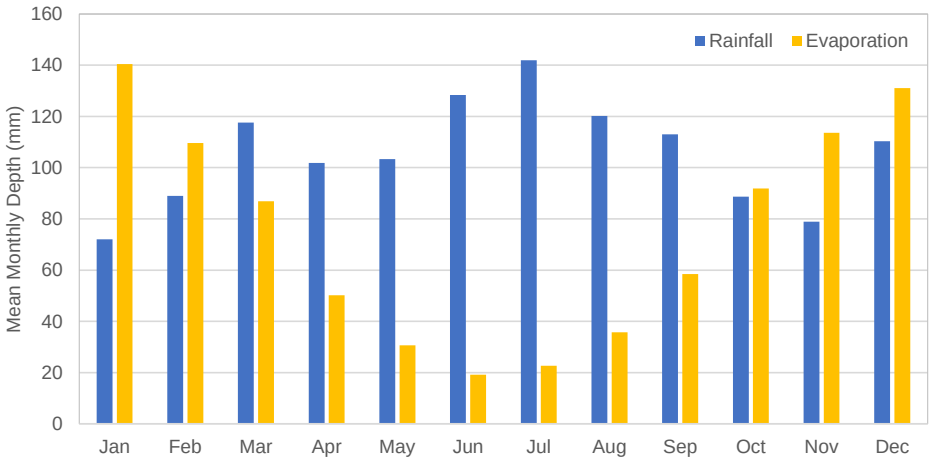


Figure 2. Mean monthly rainfall and evaporation.

A 3-month moving average residual mass rainfall analysis was undertaken over the last 10 years to provide an indication as to rainfall conditions leading up to this assessment (**Figure 3**). This shows while early 2023 summer was abnormally wet, it trended closer to average by May, before increasing again, and then subsequently approximately average by September 2023.

The fact that the investigation was undertaken at the start of the growing season after a year of wetter than normal conditions means the assessment is conversative (i.e., any uncertainty in finding wetland conditions would be diminished, compared to performing the testing after drier than normal conditions).

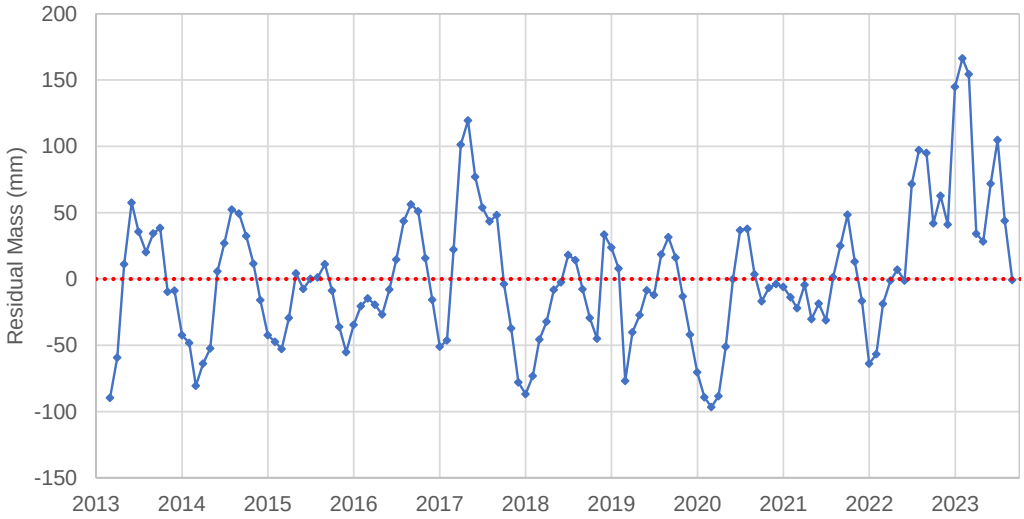


Figure 3. Three-month moving average rainfall residual mass plot.

3.2 Topography and Drainage

Topography and drainage patterns within the Milldale Stage 10-13 development area interpolated from high-resolution local radar are indicated in **Figure 4**. The northern boundary of the site aligns with a ridge and the southern boundary is defined by a tributary of Waterloo Creek. The topography is moderately sloping to the south-southeast at an average gradient of approximately 10% (1 in 10 m).

3.3 Soils

The New Zealand Soil Classification (NZSC) system classifies the soils as Albic Ultic (UE), which are described as strongly weathered soils that have a clay enriched subsoil horizon. An E horizon[3] frequently occurs immediately beneath the topsoil, however this was perhaps only observed in a few sites during our investigation. Ultic soils are highly leached, acidic, low in nutrients, and have dispersible surface horizons and clayey subsoils with slow permeability. The surface horizons are susceptible to livestock treading damage and are prone to erosion.

Stocking with cattle has resulted in considerable structural damage and low productivity, which means high producing pastures will not survive and from a typical farming perspective, there would be reluctance to invest in pasture renewal due to poor productivity.

The earlier soil mapping by C.F. Sutherland[4] undertaken in the late 1950s-1960's described on the soils as a complex of Okaka, Waikare and Hukeranui series silt loam, derived from parent material of deeply weathered claystones.

A key aspect of the earlier soil descriptions of relevance is prior history of native vegetation residing on these soils, which was described as formerly kauri forest or a kauri forest with and admixture of podocarp. In some area of this soil type, the only remains of the kauri are a few roots. The age of the kauri forest ranged from 400 – 600 years, and previous to the kauri forest there may have been a podocarp forest that the kauri gradually took over. There is a long term of forest succession, now reflecting their effect on the soil type i.e. highly leached and low nutrient status.

The soils and sub-soils observed during this investigation was fairly consistent across the investigation area of between 200-350 mm of brown or pale brown topsoil, underlain by very pale brown, light grey, or light brownish grey, highly plastic clay (refer **Table 2, Appendix B**). Where the deeper topsoil prevails (>300 mm), it is

[3] E (eluviated) horizon: Leached of clay, minerals, and organic matter, leaving a concentration of sand and silt particles of quartz or other resistant materials – missing in some soils but often found in older soils and forest soils.
[4] A range of soil survey sheets for North Auckland and Whangarei area mostly prepared by C.F. Sutherland.

probably representative of an A/E horizon, which is a composite of both topsoil and E horizon. The colours in the surface horizons (typically 10YR 5/3) are not definitive of hydric soils, but the poor drainage observed is mainly due to structural damage from cattle grazing and the prior leaching from a succession of native forests.

3.4 Geology

The QMap geology for the area is presented in
Figure 5, indicating the site is primarily underlain by Hukerenui Mudstone in the north and Tauranga Group Alluvium (TGA) in the lower lying southern portion of the site.

Map Title:

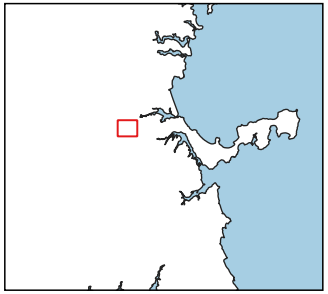
Stages 10-13 Soil Assesment locations (wetlands A- P)

Project:

Milldale Stages 10-13 - Hydric Soil Test Pits

Client:

Fulton Hogan Land Development Ltd



Legend

- **Stage 12_13 Boundary**
- **Stage 10_11 Boundary**
- **Lakes**
- **Existing Stream**
- **Test pit locations**

Data Provenance
Google Satellite (2022)

Drawn by: Mya Mobberley
05/02/2025

Layout Name
Figure 4. Topography and Drainage G:\Shared drives\Projects\Fulton Hogan Land Development Ltd\WWLA1338_Milldale Stages 10-13 Gw Assessment\Technical\GIS\QGIS Project Files\Stage 10 to 13 v2.qgz

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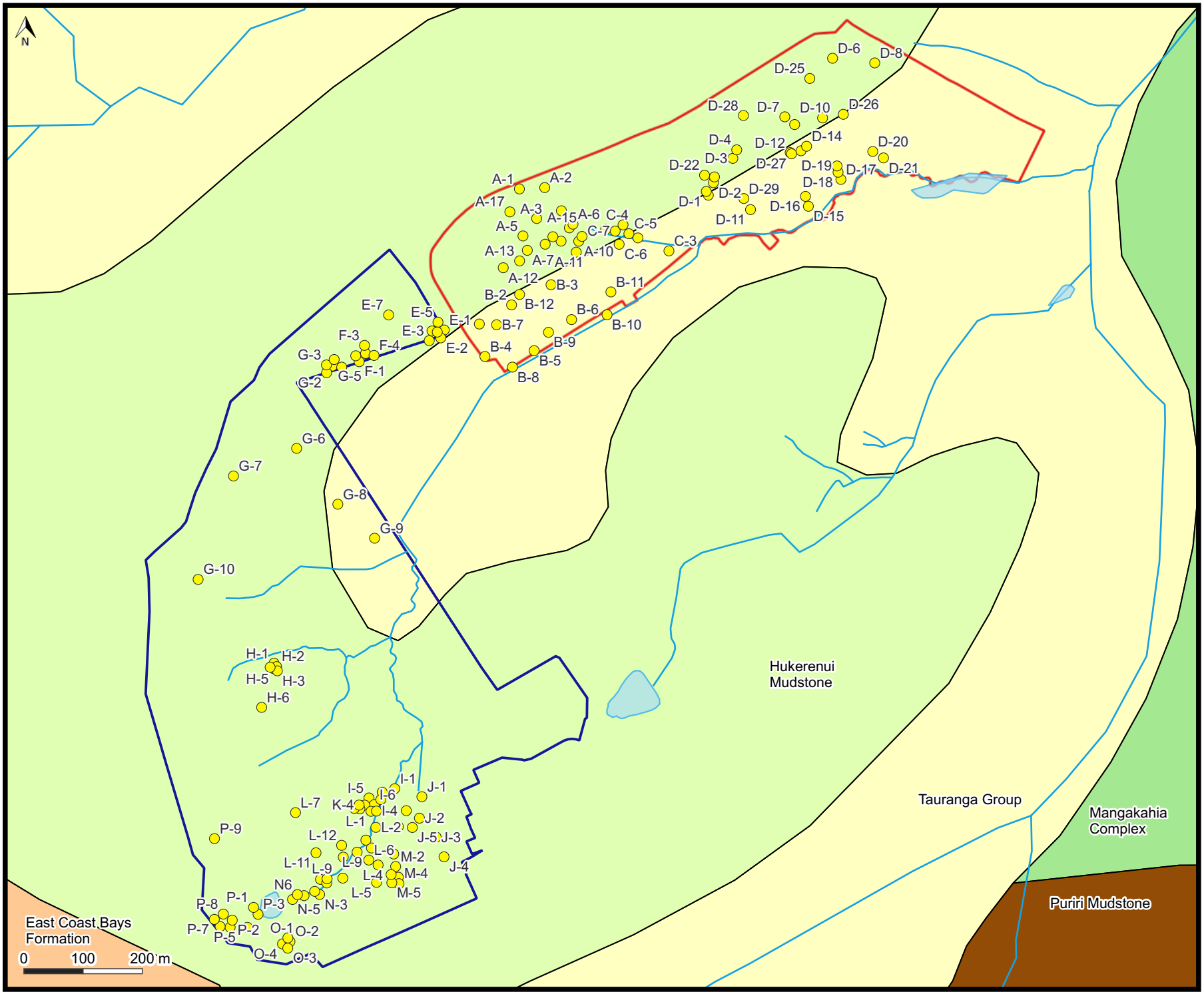
Figure 4.



Map Title:

Stages 10-13 Soil Assesment locations (wetlands A- P)

Project:

Milldale Stages 10-13 - Hydric Soil Test Pits

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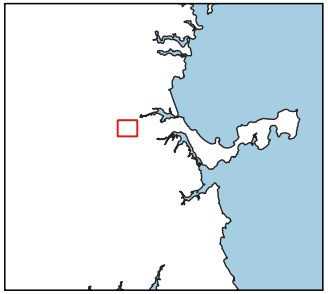

Legend

- Stage 12_13 Boundary
- Stage 10_11 Boundary
- Existing Stream
- Test pit locations

Data Provenance

Aerial imagery and land parcels from Land Information New Zealand

Drawn by: Mya Mobberley

05/02/2025

Layout Name

10-13 Geology G:\Shared drives\Projects\Fulton Hogan Land Development Ltd\WWLA1338_Milldale Stages 10-13 Gw Assessment\Technical\GIS\QGIS Project Files\Stage 10 to 13 v2.qgz

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Figure 5.

4. Hydric Soil Tool Assessment

As discussed in **Section 1**, the hydric soil assessment undertaken in this report was undertaken using the Landcare Research (2018) field guide.

'Hydric soils' is a general term for soils that are poorly or very poorly drained and have a water table above, at, or near the surface long enough during the growing season to develop anaerobic conditions in the upper layers. Gley and Organic soils are the two main orders of hydric soils.

- Gley soils have pale subsoils often with reddish mottles. These colours are indicators of saturated low oxygen conditions.
- Organic soils are also formed in saturated conditions and have at least 300 mm of peaty material.

Generally hydric soils are peaty or humic or have pale light grey subsoil colours caused by saturation and a lack of oxygen. Blotches (mottles) of redder colour can occur in the topsoil or subsoil where air can get into the soil and oxidises iron minerals to form redder colours.

4.1 Indicators

The procedure for hydric soil testing involved examining various soil characteristics indicative of hydric soils including the following:

- ***Field observations and soil colour***: This provided valuable information about soil characteristics that can indicate wetland conditions, including the presence of gleyed colours (grey or bluish-grey), and presence of mottling (speckled, low chroma colours).
- ***Soil morphology***: Morphological features seen in the soil profile can provide details about potentially hydric conditions such as mottling, oxidised root channels, accumulation of organic matter, and presence of iron or manganese concretions can indicate perennial or prolonged wet conditions in the growing season.
- ***Soil structure and texture****:* Proportions of sand, silt, and clay influence water-holding capacity, drainage, and aeration potential. Hydric soils are often characterised by finer textures such as silty or clayey soils with poor drainage.
- ***Soil moisture***: Hydric soils typically exhibit saturated or ponded conditions for a significant portion of the year, resulting in anaerobic conditions that do not require oxygen for growth.
- ***Soil chemistry***: Chemical indicators such as iron and manganese reduction, accumulation of organic matter, and low redox potential, can suggest hydric soil conditions.

Soil colour[5] is one of the key defining feature for identification of hydric soils because the presence of water within the soil profile will affect the colour of soils, depending on the duration of anaerobic conditions. Soils that are subject to prolonged anaerobic conditions with the matrix iron reduced tend to have matrix with low chroma colours. The low chroma colour are typical of hydric soils, as shown in **Figure 6**. Note that dark topsoil colour values of 3 or less are not good indicators of hydric soils as many topsoils have colours in this range.

[5] Describing a colour requires three components: hue, value, and chroma. Hue refers to the colour (e.g. red, orange, yellow), value describes how light or dark the colour is, and chroma rates how bright or vibrant the colour is.

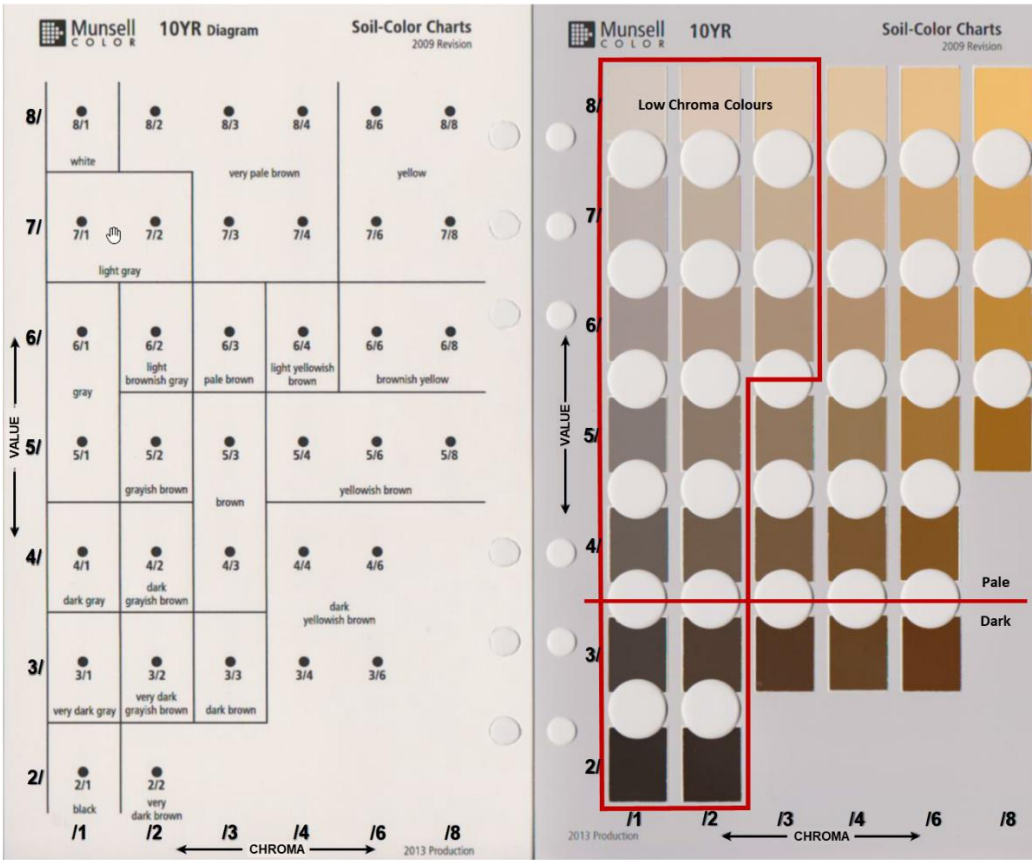


Figure 6. 10YR hue page from a soil colour chart.

A simple indicator for hydric soils is provided in Landcare Research (2018), which is reproduced in **Figure 7**.

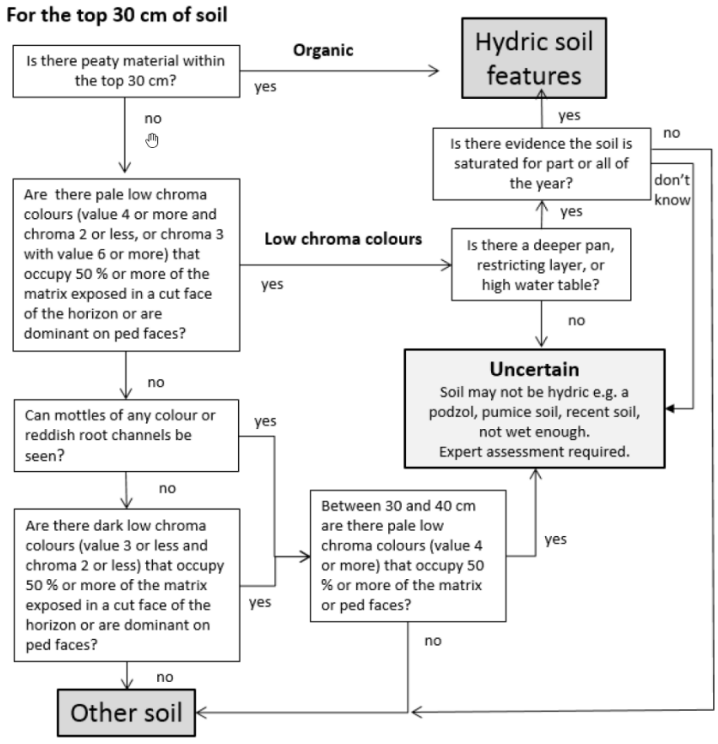


Figure 7. Simple key to identifying hydric soils.

4.2 Results

Details of the observations made at each site are summarised in **Table 2** and provided in full in **Appendix B.**

Table 3. Summary of hydric soil tests.

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
A-1	0 - 300 mm. Clayey SILT: Brown/orange. High plasticity (Tauranga Group Alluvium)	Drainage - Poorly drained. Matrix Colour (10YR - Value/Chroma): • Topsoil – 5/4	N
	300-1,000 mm. Clayey SILT: Brown/orange. High plasticity (Tauranga Group Alluvium)	• Clay – 8/4	
A-2	0-300 mm. Clayey SILT: Brown. High plasticity, moist. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/4	N
	300-1,000 mm. Clayey SILT: Brown/orange. High plasticity (Tauranga Group Alluvium)	• Clay – 8/6	
A-3	0-300 mm. Clayey SILT: Medium to Dark Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	300-1,000 mm. Clayey SILT: Light Grey. Moderate plasticity. (Tauranga Group Alluvium)	• Clay – 8/4 & 6/2	
A-4	0-300 mm. Clayey SILT: Light Grey. Moderate plasticity. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 6/4	N
	300-1000 mm. Clayey SILT: Light Grey. Moderate plasticity. (Tauranga Group Alluvium)	• Clay – 7/1	
A-5	0-300 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 6/3	N
	300-1,000 mm. Clayey SILT: Orange/Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 8/4	
A-6	0-300 mm. Clayey SILT: Light Brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3	N
	300-1,000 mm. Clayey SILT: Grey/Brown. Low plasticity. (Tauranga Group Alluvium)	• Clay – 8/4	
A-7	0-300 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	300-1,000 mm. Clayey SILT: Medium to Light Grey. High plasticity. (Tauranga Group Alluvium)	• Clay – 8/6 Mottle colour (Percentage) 10YR • 8/1 (5%)	
A-8	0-300 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma)	N

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
		• Topsoil – 3/3	
	300-1,000 mm. Clayey SILT: Orange\Brown. High plasticity. (Tauranga Group Alluvium)	• Clay – 7/4	
A-9	0-400 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3 • Subsoil – 4/4	N
	400-1,000 mm. Clayey SILT: Orange/Grey. High plasticity. (Tauranga Group Alluvium)	• Clay – 7/4	
A-10	0-200 mm. Clayey SILT: Medium to Dark Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	200-1,000 mm. Clayey SILT: Yellow/Brown. High plasticity. (Tauranga Group Alluvium)	• Clay – 7/4	
A-11	0-200 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 3/4	N
	200-1,000 mm. Clayey SILT: Yellow/Brown. High plasticity. (Tauranga Group Alluvium)	• Clay – 7/5	
A-12	0-400 mm. Silty TOPSOIL. Brown. Firm and loose. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 4/3	N
	400-1,000 mm. CLAY. Very pale brown. Soft with moderate plasticity. Rootlets present.	• Clay – 7/4	
A-13	0-400 mm. Silty TOPSOIL. Traces of sand. Brown. Dry and loose. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Silty Topsoil – 4/3	N
	400-700 mm. Silty CLAY. Brown with yellow mottles. Moderate plasticity.	Matrix Colour (10YR – Value/Chroma) • Silty clay – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 8/1 (10%)	
	700-1,000 mm. CLAY. Pale brown with yellow mottles. Firm with high plasticity.	• Clay – 4/3 • Mottles – 7/8 (5-10%)	
A-14	0-300 mm. CLAY. Dark brown. Soft. sticky, and saturated. Traces of organic matter. Minor organic odour. Water pooling at a distance of 1 m from A14.	Matrix Colour (10YR – Value/Chroma) • Clay – 3/3	Y
	300-600 mm. CLAY. Black. Soft and saturated.	• Clay – 2/1	
	600-1000 mm. Silty CLAY. Dark brown. Soft.	• Silty clay – 3/3	
A-15	0-300 mm. CLAY. Dark brown. Organic soil material. Saturated, sticky and fluid. Roots and rootlets present. Water table at 300 mm.	Matrix Colour (10YR – Value/Chroma) • Clay – 3/3	Y

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
A-16	0-300 mm. CLAY. Dark brown with brownish yellow mottles. Moist. Minor organic matter, rootlets, and rhizospheres present. Surface water and drainage path nearby.	Matrix Colour (10YR – Value/Chroma) • Clay – 3/3 Mottle colour (10YR – Chroma/Value) • Mottles – 6/6 (10%)	N
	300-500 mm. CLAY. Dark brown. Minor organic/charcoal deposits. Very soft.	• Clay – 3/3	
	500-800 mm. CLAY. Dark brown with minor light brownish grey mottles. Very soft.	• Clay – 3/3 • Mottles –3/2 (5%)	
	800-1000 mm. Silty CLAY. Black with minor organic soil. Very soft and saturated.	• Silty clay –2/1	
A17	0-1000 mm. CLAY with minor silt. Dark greyish brown. Soft. Minor organic particles present. Note - Soil tilled approximately one month prior to hydric soils testing.	Matrix Colour (10YR – Value/Chroma) • Clay – 4/3	N
B-1	0-300 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage – Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3	N
	300-1,000 mm. Clayey SILT: Orange/Brown. High plasticity. (Tauranga Group Alluvium)	• Clay – 8/4	
B-2	0-200 mm. Clayey SILT: Light yellowish brown. High plasticity. Minor rootlets. (Topsoil)	Drainage – Moderately to poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 6/4	N
	200-1000 Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium)	• Weathered silt – 8/8	
B-3	0-200 mm. Clayey SILT: Light yellowish brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Moderate to poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 6/4	N
	200-1,000 mm. Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 7/4	
B-4	0-600 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage –Poorly drained Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	600-1,000 mm. Clayey SILT: Grey. High plasticity. (Tauranga Group Alluvium)	• Weathered natural – 8/2	
B-5	0-400 mm. Clayey SILT: Very pale brown. High plasticity. Minor rootlets. (Topsoil)	Drainage –Moderate to poorly drained Matrix Colour (10YR – Value/Chroma) • Topsoil – 7/3	Y
	400-1,000 mm. Clayey SILT: Grey. High plasticity. (Tauranga Group Alluvium)	• Clay – 7/3	
B-6	0-400 mm. Clayey SILT: Pale brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Moderate to poorly drained. Matrix Colour (10YR – Value/Chroma)	Y

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
		• Topsoil – 6/3	
	400-1,000 mm. Clayey SILT: Orange/Grey. High plasticity. (Tauranga Group Alluvium)	• Clay –7/6	
B-7	0-400 mm. Clayey SILT. Pale brown with light grey mottles. Dry and loose. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey Silt – 6/3 Mottle colour (10YR – Chroma/Value) • Mottles – 6/6 (10%)	Y
	400-1,000 mm. CLAY. Pale brown with yellow mottles. Firm with high plasticity.	• Clay –6/3 • Mottles – 7/8 (20%)	
B-8	0-300 mm. Clayey SILT. Brown. Soft and loose. Rootlets and rhizospheres present.	Mottle colour (10YR – Chroma/Value) • Clayey silt – 4/3	N
	300-500 mm. Silty CLAY. Grey with minor yellow mottles. Firm. Minor black organic matter/charcoal present.	• Silty clay – 4/3 • Mottles – 8/8 (5%)	
	500-1,000 mm. Silty CLAY. Light grey with minor yellow mottles. Soft with high plasticity.	• Silty clay – 7/2 • Mottles – 8/8 (5%)	
B-9	0-300 mm. CLAY. Brown with greyish brown and yellow mottles. Moist. Rootlets and rhizospheres present.	Matrix Colour (10YR – Chroma/Value) • Clay - 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (5%), 5/2 (5%)	N
	300-700 mm. CLAY. Light grey with yellow mottles. Firm with moderate plasticity.	• Clay – 7/2 • Mottles – 7/8 (10%)	
	700-1,000 mm. CLAY. Light grey with minor yellow mottles. Firm with high plasticity.	• Clay – 7/2 • Mottles – 7/8 (5%)	
B-10	0-300 mm. CLAY. Dark brown. Firm. Rootlets and very minor rhizospheres present.	Mottle colour (10YR – Chroma/Value) • Clay – 3/3	N
	300-600 mm. CLAY. Light brownish grey with pale brown mottles. Firm with high plasticity.	• Clay – 6/2 • Mottles - 7/4 (10%)	
	600-1,000 mm. CLAY. Light brownish grey with yellow mottles. Soft with high plasticity.	• Clay – 6/2 • Mottles – 7/6 (10%)	
B-11	0-400 mm. Clayey SILT. Brown with minor yellow mottles. Dry and loose. Rootlets and rhizospheres present.	Matrix Colour (10YR – Chroma/Value) • Clayey Silt - 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/6 (5%)	N
	400-700 mm. CLAY. Minor silt. Yellow with greyish brown mottles. high plasticity.	• Clay – 7/6 • Mottles – 5/2 (10%)	
	700-1,000 mm. CLAY. Yellow with greyish brown mottles. Soft with high plasticity.	• Clay – 7/6 • Mottles – 5/2 (30%)	
B-12	0-300 mm. SILT. Brown with minor brownish yellow mottles. Dry and loose. Minor rootlets, rhizospheres, and organic matter present.	Matrix Colour (10YR – Chroma/Value) • Silt - 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 6/6 (5%)	N

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	300-600 mm. Silty CLAY. Light yellowish brown with brownish yellow mottles. Hard.	• Silty clay – 6/4 • Mottles – 6/6 (10%)	
	600-1,000 mm. CLAY. Light yellowish brown with brownish yellow mottles. Hard. Minor deposits of organic material/wood	• Clay – 6/4 • Mottles – 6/6 (10%)	
C-1	0-400 mm. Clayey SILT: Dark brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 3/3	N
	400-1,000 mm. Clayey SILT: Yellow/Brown. High plasticity. (Tauranga Group Alluvium)	• Clay – 7/4	
C-2	0-300 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage – Moderately well drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	300-1,000 mm. Clayey SILT: Grey. High plasticity. (Tauranga Group Alluvium)	• Clay – 8/2	
C-3	0-150 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage – Moderately well drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	150-1,000 mm. Clayey SILT: Grey. Moderate plasticity. (Tauranga Group Alluvium).	• Clay – 8/2	
C-4	0-300 mm. CLAY. Brown. Soft with high plasticity. Rootlets and rhizospheres present.	Matrix Colour (10YR – Chroma/Value) • Clay – 4/3	N
	300-500 mm. Silty CLAY. Very pale brown. Soft.	• Silty clay – 7/4	
	500-1,000 mm. Silty CLAY. Brown with minor very pale brown mottles. Soft	• Silty clay – 4/3 • Mottles – 7/4 (5%)	
C-5	0-400 mm. Silty CLAY. Brown. Dry and loose. Rootlets and rhizospheres present.	Matrix Colour (10YR – Chroma/Value) • Silty clay – 4/3	N
	400-800 mm. Silty CLAY. Brown with minor light brownish grey mottles. Firm and loose.	• Silty clay – 5/3 • Mottles – 6/2 (5%)	
	800-1,000 mm. Silty CLAY. Brown. Soft with high plasticity.	• Silty clay – 4/3	
C-6	0-100 mm. Silty CLAY. Brown. Soft and loose. Rootlets and minor rhizospheres present.	Matrix Colour (10YR – Chroma/Value) • Silty clay – 4/3	N
	400-1,000 mm. Silty CLAY. Light grey. Loose.	• Silty clay – 7/2	
C-7	0-400 mm. CLAY. Pale brown with brown mottles. Firm. Rootlets and rhizospheres present.	Matrix Colour (10YR – Chroma/Value) • Clay – 6/3 Mottle colour (10YR – Chroma/Value) • Mottles – 5/3 (10%)	Y
	400-800 mm. CLAY. Pale brown with yellow mottles. Firm with high plasticity	• Clay – 6/3 • Mottles – 7/8 (10%)	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	800-1,000 mm. Silty CLAY. Pale brown with minor yellow mottles. Soft and loose.	• Silty Clay – 6/3 • Mottles – 7/8 (3%)	
D-1	0-150 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage – Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	150-1,000 mm. Clayey SILT: Yellow/Grey. High plasticity. (Tauranga Group Alluvium).	• Clay – 8/4	
D-2	0-150 mm. Clayey SILT: Greyish Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Very poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/2	Y
	150-1,000 mm. Clayey SILT: Grey/Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 7/4 Mottle colour (Percentage) 10YR 7/4 (5%)	
D-3	0-400 mm. Clayey SILT: Light brownish grey. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 6/2 • Subsoil – 5/1	Y
	400-1,000 mm. Clayey SILT: Yellow/Grey. High plasticity. (Tauranga Group Alluvium)	• Clay – 8/4	
D-3 (retest 3/01/25)	0-300 mm. Silty TOPSOIL. Brown. Very hard and friable, bone dry. Rootlets present. Traces of dark organic material, possibly charcoal from past forest fires.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	Y
	300-500 mm. Clayey SILT. Brown with light brownish grey and yellowish-brown mottle. Dry and friable.	• Clayey silt – 5/3 Mottle colour (Percentage) 10YR 6/2 and 5/6 (5%)	
	500-800 mm. Silty CLAY. Very pale brown with yellow mottle. Dry and firm. Slightly plastic	• Silty clay – 7/4 • Mottle – 7/8	
	800-1000 mm. Silty CLAY. Very pale brown with yellow mottle. Hard with moderate plasticity	• Silty clay – 7/4 • Mottle – 7/8	
D-4	0-300 mm. Clayey SILT: Greyish brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/2 • Subsoil – 4/2	Y
	300-1,000 mm. Clayey SILT: Yellow/Grey. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/1 Mottle colour (Percentage) 10YR 8/2 (5%)	
D-4 (retest 3/1/25)	0-200 mm. Silty TOPSOIL. Brown. Bone dry, hard and friable. Fine particles, minor rootlets present. Minor Kauri gum pieces up to 30 mm wide present. Surface cracks present.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	Y

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	200-400 mm. Clayey SILT. Light brownish grey with yellow mottles. Very hard, bone dry and friable. Rootlets and minor rhizospheres present.	• Clayey silt – 5/2 Mottle colour (10YR – Chroma/Value) • Mottle – 7/8 (5%)	
	400-500 mm. Clayey SILT. Light brownish grey with yellow mottles. Slightly moist and slightly cohesive.	• Clayey silt – 5/2 • Mottle – 7/8 (5%)	
	500-800 mm. Silty CLAY. Brownish yellow with grey mottles. Moist with moderate plasticity.	• Silty clay – 6/8 • Mottle – 6/1 (5%)	
	800-1000 mm. CLAY. Brownish yellow with very pale brown mottles. Moist, soft, and highly plastic.	• Clay – 6/8 • Mottle – 7/4 (20%)	
D-5	0-500 mm. Clayey SILT: Greyish Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/2 • Subsoil 4/2	Y
	500-1,000 mm. Clayey SILT: Grey/Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/1	
D-6	0-550 mm. Clayey SILT: Dark Brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage – Moderately well drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3 • Subsoil – 3/1	N
	550-1,000 mm. Clayey SILT: Dark Grey/Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/4	
D-7	0-200 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage – Moderately well drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 6/4	N
	200-1,000 mm. Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 7/5	
D-8	0-500 mm. Clayey SILT: Light to medium brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage – Moderately well drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3	N
	500-1,000 mm. Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/4	
D-9	0-400 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3 • Subsoil 6/3	N

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	400-1,000 mm. Clayey SILT: Grey/Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 7/5	
D-10	0-200 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	200-1,000 mm. Clayey SILT: Orange/Brown. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/4	
D-11	0-200 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	200-1,000 mm. Clayey SILT: Orange/Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/5	
D-12	0-200 mm. Clayey SILT: Dark Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	200-1,000 mm. Clayey SILT: Yellow/Orange. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/5	
D-13	0-200 mm. Clayey SILT: Brown. Moderate plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	200-1,000 mm. Clayey SILT: Light Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/5	
D-14	0-200 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	200-1,000 mm. Clayey SILT: Yellow/Orange. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/5	
D-15	0-300 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil). Light grey subsoil at base of topsoil (hydric condition).	Drainage - Very poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3 • Subsoil – 7/1	Y
	300-1,000 mm. Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 8/2 Mottle colour (Percentage) 10YR 8/2 (5%)	
D-16	0-400 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil). Light grey subsoil at base of topsoil at 400 mm (not hydric condition in topsoil).	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3 • Subsoil 7/1	N
	400-1,000 mm. Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium)	• Clay – 8/2	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
D-17	0-200 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	200-1,000 mm. Clayey SILT: Light Grey to Yellow. Moderate plasticity. (Tauranga Group Alluvium)	• Clay – 8/1	
D-18	0-300 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	300-1,000 mm. Clayey SILT: Light yellowish brown. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/4 Mottle colour (Percentage) 10YR 8/3 (5%)	
D-19	0-300 mm. Clayey SILT: Brown. Moderate plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	300-1,000 mm. Clayey SILT: Light yellowish brown. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/4	
D-20	0-500 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	500-1,000 mm. Clayey SILT: Light yellowish brown. High plasticity. (Tauranga Group Alluvium)	• Clay – 6/4 Mottle colour (Percentage) 10YR 8/3 (10%)	
D-21	0-400 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. Very pale brown subsoil horizon at 300 mm. (Topsoil)	Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3 • Subsoil – 8/4	N
	400-1,000 mm. Clayey SILT: Pale brown clay, with yellowish grey blotches. High plasticity. (Tauranga Group Alluvium)	• Clay – 7/4 Mottle colour (Percentage) 10YR • 7/1 (10%) 6/2 (10%)	
D-22	0-400mm. CLAY. Very dark brown. Some organic material present. Saturated	Matrix Colour (10YR – Value/Chroma) • Clay – 2/2	Y
	400-500mm. CLAY. Light grey Saturated. Water table at 400mm.	• Clay – 2/2	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
D-23	0-300 mm. Clayey organic TOPSOIL: Black with deposits of charcoal and organic matter. Saturated and soft. Surface water pooling nearby.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 2/1	Y
D-24	0-400 mm. Silty TOPSOIL. Brown. Dry	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 4/3	N
	400-600 mm. Silty CLAY. Light brownish grey. Soft	• Silty clay – 6/2	
	600-1,000 mm. CLAY. Light brownish grey. Minor yellow mottles. Firm with moderate plasticity.	• Clay – 6/2 • Mottles – 7/8 (5-10%)	
D-25	0-300 mm. Silty TOPSOIL. Light yellowish brown with very pale brown mottles. Loose. Rootlets and very minor rhizospheres present. Dry.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 6/4 Mottle colour (10YR – Chroma/Value) • Mottles– 7/4 (20%)	N
	300-700 mm. Silty CLAY. Very pale brown. Minor yellow mottles. Hard and dry.	• Silty clay – 7/4 • Mottles– 7/8 (5%)	
	700-1,000 m. CLAY. Light grey. Minor yellow mottles. Firm with high plasticity.	• Clay – 7/1 • Mottles – 7/4 (5%)	
D-26 & D-27	0-300 mm. Clayey topsoil. Light yellowish brown with very pale brown mottles. Rootlets and very minor rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 6/4 Mottle colour (10YR – Chroma/Value) • Mottles – 7/4 (20%)	N
	300-500 mm. Clayey SILT. Brown. Slightly moist. Rootlets and very minor rhizospheres present.	• Clayey silt – 5/4	
	500-1,000 mm. Clayey SILT. Yellowish brown with light yellowish-brown mottles. Slightly moist.	• Clayey silt – 6/8 • Mottles – 6/4	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
D-28	0-300 mm. Silty TOPSOIL. Light yellowish brown with very pale brown mottles. Loose. Rootlets and very minor rhizospheres present. Dry.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 6/4 Mottle colour (10YR – Chroma/Value) • Mottles – 7/4 (20%)	N
	300-700 mm. Silty CLAY. Very pale brown. Minor yellow mottles. Hard and dry.	• Silty clay – 7/4 • Mottles– 7/8 (5%)	
	700-1,000 m. CLAY. Light grey. Minor yellow mottles. Firm with high plasticity.	• Clay – 7/1 • Mottles – 7/4 (5%)	
D-29	0-300 mm. Silty topsoil. Very pale brown. Very dry. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 7/4	N
	300-500mm. CLAY. Brownish yellow with light yellowish-brown mottles. Firm with moderate plasticity.	• Clay – 6/8 • Mottles – 6/4 (20%)	
	500-1000 mm. CLAY. Light grey with minor light yellowish brown mottles. Firm with high plasticity.	• Clay – 7/1 • Mottles – 7/4 (5%)	
E-1	0-300 mm. Clayey TOPSOIL. Yellowish brown with yellow mottles. Minor rootlets and rhizospheres present. Moderate plasticity	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 5/8 Mottle colour (10YR – Chroma/Value) • Mottles – 8/8 (15%)	N
	300-1,000 mm. CLAY. Grey. Firm with moderate plasticity. Orange iron pan present at 400 mm.	• Clay – 6/1	
E-2	0-300 mm. Silty CLAY. Brown with rootlets present. Moderate plasticity.	Matrix Colour (10YR – Value/Chroma) • Silty clay– 4/3	N
	300-500 mm. Silty CLAY. Greyish brown with minor orange iron deposits. high plasticity.	• Silty clay– 5/2	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	500-1,000 mm. Silty CLAY. Very pale brown with minor orange iron deposits. High plasticity	• Silty clay – 7/4	
E-3	0-300 mm. Clayey TOPSOIL. Brown. Soft. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3	N
	300-600 mm. Silty CLAY. Light grey. Soft with high plasticity.	• Silty clay – 7/2	
	600-1,000 mm. Silty CLAY. Light grey. Firm with high plasticity.	• Silty clay – 7/2	
E-4	0-300 mm. TOPSOIL Brown. Dry and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3	N
	300-500 mm. Clayey SILT. Very pale brown with minor yellow mottles. Minor rootlets present.	• Clayey silt – 7/4 • Mottles – 7/8 (5%)	
	500-800 mm. Silty CLAY. Pale brown with brownish yellow mottles. High plasticity.	• Silty clay – 8/4 • Mottles – 6/6 (10%)	
	800-1000 mm. CLAY. Light grey with minor very pale-yellow mottles. High plasticity. Note: E4 is surrounded by wetland-like vegetation, and some flow patterns were observed.	• Clay – 8/1 • Mottles – 8/3 (5%)	
E-5	0-300 mm. TOPSOIL Brown with minor brownish yellow mottles. Dry and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 6/8 (5%)	N
	300-400 mm. Clayey SILT. Brown with minor brownish yellow mottles.	• Clayey silt – 5/3 • Mottles – 6/8 (5%)	
	400-600 mm. CLAY. Light yellowish brown with brownish yellow mottles. Firm with medium plasticity.	• Clay – 6/4 • Mottles – 6/8 (30%)	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	600-1,000 mm. CLAY. Very pale brown with brownish yellow mottles. Soft with high plasticity.	• Clay – 7/4 • Mottles – 6/8 (30%)	
E-6	0-200 mm. Clayey TOPSOIL. Brown. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3	N
	200-500 mm. CLAY. Light brownish grey. Rootlets and minor rhizospheres present.	• Clay– 6/2	
	500-1,000 mm. CLAY. Light brownish grey with brownish yellow mottles. High plasticity.	• Clay – 6/2 • Mottles – 6/8 (5%)	
E-7	0-400 mm. SILT. Pale brown with minor very pale brown mottles. Dry and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silt – 6/3 Mottle colour (10YR – Chroma/Value) • Mottles – 8/4 (5%)	N
	400-600 mm. Silty CLAY. Brown with brownish yellow mottles.	• Silty clay – 5/3 • Mottles – 6/8 (10%)	
	600-1,000 mm. CLAY. Very pale brown with minor brownish yellow mottles. Clay pans present.	• Clay – 7/4 • Mottles – 6/8 (3%)	
F-1	0-150 mm. TOPSOIL. Brown with yellow mottles. Sticky with moderate plasticity.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (10%)	Y
	150-1,000 mm. Silty CLAY. Yellow. Sticky with high plasticity.	• Silty clay – 8/8	
F-2	0-300 mm. Clayey TOPSOIL with traces of silt. Dark yellowish brown with dark yellowish-brown mottles. Dry.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 5/3 Mottle colour (10YR – Chroma/Value) • Mottles – 4/6 (5%)	N

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	300-1,000 mm. Silty CLAY. Light yellowish brown.	• Silty clay – 6/4	
F-3	0-200 mm. TOPSOIL. Dark yellowish brown with yellow mottles. Dry with moderate plasticity.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3 Mottle colour (10YR – Chroma/Value) • Mottles– 7/8 (10%)	N
	200-1000 mm. Silty CLAY. Yellow. Dry.	• Silty clay – 7/8	
F-4	0-150 mm. TOPSOIL. Dark yellowish brown with brownish yellow mottles. Dry with moderate plasticity.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 3/4 Mottle colour (10YR – Chroma/Value) • Mottles– 6/8 (10%)	N
	150-1000 mm. Silty CLAY. Yellow with brownish yellow mottles.	• Silty clay – 7/8 • Mottles – 6/8 (40%)	
F-5	0-250 mm. TOPSOIL. Brown with yellow mottles. Some peaty topsoil and organic soil material. Moderate plasticity. Pugged. Surface soil cracks and oxidised rhizospheres present.	Poorly drained. Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (30%)	Y
	250-300 mm. Silty CLAY. Yellow with brownish yellow mottles. High plasticity. Note – soil log not continued due to saturated soils.	• Silty clay – 7/8 • Mottles – 6/8 (30%)	
G-1	0-200 mm. Clayey TOPSOIL. Some organic soil material present. Brown. Moderate plasticity.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3	N
	200-400 mm. CLAY. Grey. Sticky. Pugged.	• Clay – 5/1	
	400-1,000 mm. CLAY. Yellow. Sticky with high plasticity.	• Clay – 8/8	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
G-2	0-300 mm. Clayey TOPSOIL. Brown with minor yellowish-brown mottles. Minor rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 5/8 (2%)	N
	300-500 mm. CLAY. Minor deposits of brown topsoil. Light yellowish brown. High plasticity.	• Clay – 6/4	
	500-1000 mm. CLAY. Light yellowish brown with very pale brown mottles. Firm with high plasticity.	• Clay – 6/4 • Mottles – 8/4	
G-3	0-200 mm. Clayey TOPSOIL. Brown. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3	N
	200-500 mm. Silty CLAY. Yellowish brown with brownish yellow mottles. Rootlets and rhizospheres present. High plasticity.	• Silty clay – 5/4 • Mottles – 6/8 (30%)	
	500-1000 mm. CLAY with traces of organic matter. Very pale brown with yellow mottles. High plasticity	• Clay – 7/4 • Mottles – 7/6 (20%)	
G-4	0-300 mm. Silty TOPSOIL. Brown. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 4/3	N
	300-600 mm. Silty CLAY. Very pale brown with yellow mottles. Minor rootlets present.	• Silty clay – 7/4 • Mottles – 7/8 (30%)	
	600-1,000 mm. CLAY. Light grey with yellow mottles. High plasticity	• Clay – 7/2 • Mottles – 7/8 (40%)	
G-5	0-200 mm. Clayey TOPSOIL. Brown. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3	Y
	200-300 mm. CLAY. Light grey with yellow mottles. Minor rootlets and rhizospheres present. Moderate plasticity	• Clay – 7/2 • Mottles – 7/8 (10%)	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	300-600 mm. CLAY with deposits of organic matter. Light grey with yellow mottles.	• Clay – 7/2 • Mottles – 7/8 (10%)	
	600-1,000 mm. CLAY with traces of organic matter. Brown. Sticky and soft.	• Clay – 5/3	
G-6	0-300 mm. Clayey TOPSOIL. Dark brown with minor very pale-yellow mottles. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 3/3 Mottle colour (10YR – Chroma/Value) • Mottles – 8/4 (3%)	N
	300-1,000 mm. CLAY. Light yellowish brown with minor dark brown mottles. Soft and sticky with some plasticity.	• Clay – 6/4 • Mottles – 3/3 (3%)	
G-7	0-400 mm. Silty TOPSOIL. Dark brown. Hard and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 3/3	N
	400-600 mm. Silty CLAY. Yellowish brown with minor light yellowish brown mottles. Hard.	• Silty clay – 5/4 • Mottles – 4/6 (3%)	
	600-1,000 mm. CLAY. Light yellowish brown with minor brownish yellow mottles. Very hard.	• Clay – 6/4 • Mottles – 6/6 (3%)	
G-8	0-300 mm. Silty TOPSOIL. Dark brown with minor brownish yellow mottles.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 3/3 Mottle colour (10YR – Chroma/Value) • Mottles – 6/4 (2%)	N
	300-400 mm. Silty GRAVEL with traces of dark organic soils. Very dark brown with minor brownish yellow mottles.	• Silty gravel – 2/2 • Mottles – 6/8 (3%)	
	400-500 mm. CLAY. Pale brown. Soft.	• Clay – 6/3	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	500-600 mm. Clay with gravelly deposits. Dark brown with brownish yellow mottles.	• Clay – 3/3 • Mottles – 6/8 (10%)	
	600-1000 mm. CLAY. Very pale brown. Very soft with high plasticity.	• Clay – 7/4	
G-9	0-300mm. Silty TOPSOIL. Brown. Loose.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 5/3	N
	300-400 mm. Silty CLAY. Yellowish brown with brownish yellow mottles. Hard and loose.	• Silty clay – 5/4 • Mottles – 6/6 (15%)	
	400-700 mm. CLAY. Yellowish brown with brown mottles. Hard.	• Clay – 5/6 • Mottles – 5/3 (20%)	
	700-1,000 mm. CLAY. Brownish yellow with yellow brown mottles. Soft with high plasticity.	• Clay – 6/8 • Mottles – 5/6 (20%)	
G-10	0-300 mm. Clayey TOPSOIL. Brown with yellowish brown mottles. Dry and loose.	Matrix Colour (10YR – Value/Chroma) • Clayeyt topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 5/8 (40%)	N
	300-400 mm. Clayey SILT. Yellow with minor yellowish-brown mottles. Dry and loose.	• Clayey silt – 7/8 • Mottles colour – 5/6 (5%)	
	400-600 mm. Silty CLAY. Yellow with very pale brown mottles. Hard. Minor rootlets and traces of organic material present.	• Silty clay – 7/8 • Mottles – 7/4 (10%)	
	600-1,000 mm. Silty CLAY. Yellow with very pale brown mottles. Traces of iron and rhizospheres present. Moderate plasticity.	• Silty clay – 7/8 • Mottles – 7/4 (40%)	
H-1	0-300 mm. Silty TOPSOIL. Brown with yellow mottles. Dry.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 4/3 Mottle colour (10YR – Chroma/Value)	N

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
		• Mottles – 7/8 (20%)	
	300-700 mm. Silty CLAY. Brownish yellow with yellow mottles. Dry.	• Silty clay – 6/8 • Mottles – 7/8 (20%)	
	700-1000 mm. Silty CLAY. Yellowish brown with minor yellow mottles. Dry. Note – Wetland plants, iron on surface water, pugging, and ponding were all present near the H area.	• Silty clay – 5/6 • Mottles – 7/8 (5%)	
H-2	0-300 mm. Silty TOPSOIL. Brown with brownish yellow mottles. Dry. Rootlets and minor rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 5/8 (20%)	N
	300-1,000 mm. Silty CLAY. Brownish yellow.	• Silty clay – 5/8	
H-3	0-300 mm. Clayey TOPSOIL. Brown with brownish yellow mottles. Dry. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 6/8 (30%)	N
	300-1,000 mm. Silty CLAY. Yellowish brown. Dry	• Silty clay – 5/6	
H-4	0-300 mm. Clayey TOPSOIL. Brown with yellow mottles. Dry. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles– 7/8 (10%)	N
	300-1,000 mm. Silty CLAY. Brownish yellow with yellow mottles.	• Silty clay – 6/8 • Mottles – 7/8 (10%)	
H-5	0-250 mm. Clayey TOPSOIL. Dark brown with brownish yellow mottles. Moist. Sticky with moderate plasticity.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 3/3 Mottle colour (10YR – Chroma/Value) • Mottles – 5/8 (30%)	Y

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	250-700 mm. Silty CLAY. Yellowish brown. Moist.	• Silty clay – 5/6	
	700-1,000 mm. Silty CLAY. Brownish yellow. Dry.	• Silty clay – 6/8	
H-6	0-300 mm. TOPSOIL. Brown with yellow mottles. Dry.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (20%)	N
	300-1,000 mm. Clayey SILT. Brownish yellow with minor yellow mottles. Dry and loose.	• Clayey silt – 7/4 • Mottles – 7/8 (5%)	
I-1	0-200 mm. Silty TOPSOIL. Brown. Dry and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 5/3	N
	200-400 mm. SILT. Dark brown with minor grey mottles. Dry and loose. Rootlets present.	• Silt – 3/3 • Mottles – 6/1 (5%)	
	400-800 mm. SILT. Light grey with brownish yellow mottles. Dry and loose.	• Silt – 7/1 • Mottles – 5/8 (30%)	
	800-1,000mm. Clayey SILT. Light brownish grey with brownish yellow mottles.	• Clayey silt – 6/2 • Mottles – 6/8 (10%)	
I-2	0-400 mm. Silty TOPSOIL. Light yellowish brown with very pale brown mottles. Dry and loose.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 6/4 Mottle colour (10YR – Chroma/Value) • Mottles – 8/4 (20%)	N
	400-1,000 mm. Clayey SILT. Very pale brown.	• Clayey silt – 7/4	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
I-3	0-400 mm. Silty TOPSOIL. Brown. Dry and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 4/3	N
	400-1,000 mm. Clayey SILT. Very pale brown with yellow mottles. Dry and soft.	• Clayey silt – 7/4 • Mottles – 7/6 (20%)	
I-4	0-300 mm. Silty CLAY. Dark brown. Moist. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silty clay – 3/3	N
	300-500 mm. Clayey SILT. Grey. Moist and soft.	• Clayey silt – 6/1	
	500-1,000 mm. Silty CLAY. Yellow with greyish brown mottles.	• Silty clay – 7/6 • Mottles – 5/2 (10%)	
I-5	0-400 mm. Peaty CLAY. Dark grey. Soft and moist. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Peaty clay – 4/1	Y
	400-600 mm. CLAY. Dark grey with light grey mottles. Soft with high plasticity. Minor rootlets present.	• Clay – 4/1 • Mottles – 7/1 (10%)	
	600-900 mm. CLAY. Light grey with minor yellow mottles. Very soft.	• Clay – 7/1 • Mottles– 7/8 (5%)	
	900-1,000 mm. Silty CLAY. Light grey with minor yellow mottles. Soft.	• Silty clay – 7/1 • Mottles – 7/8 (5%)	
I-6	0-300 mm. Organic peaty TOPSOIL. Very dark brown. Very moist. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Peaty topsoil – 2/2	Y
	300-400 mm. Clayey SILT. Light brownish grey. Water table reached.	• Clayey silt – 6/2	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
J-1	0-400 mm. Clayey TOPSOIL. Dark brown. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 3/3	N
	400-500 mm. Silty CLAY. Very dark brown. Soft. Rootlets and rhizospheres present.	• Silty clay – 2/2	
	500-700 mm. Silty CLAY. Pale brown with minor light yellowish brown. Soft.	• Silty clay – 6/3 • Mottles – 6/4 (5%)	
	700-1,000 mm. CLAY. Brownish yellow with minor pale brown mottles. Very soft.	• Clay – 6/8 • Mottles – 6/3 (5%)	
J-2	0-400 mm. Clayey TOPSOIL. Very dark greyish brown. Soft and moist. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 3/2	Y
	400-800 mm. CLAY. Yellowish brown with brown mottles. Soft with high plasticity.	• Clay – 5/8 • Mottles – 4/3 (10%)	
	800-1,000 mm. CLAY. Yellowish brown with brownish yellow mottles.	• Clay – 5/8 • Mottles – 4/3 (10%)	
J-3	0-400 mm. Silty TOPSOIL. Dark brown. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 3/3	N
	400-500 mm. Silty CLAY with traces of sand. Very pale brown with yellow mottles. Dry.	• Silty clay – 7/3 • Mottles - 7/8 (10%)	
	500-800 mm. Clayey SILT. Light grey.	• Clayey silt – 7/1	
	800-1,000 mm. Silty CLAY. Light grey with minor yellow mottles. Moist and sticky with high plasticity.	• Silty clay – 7/1 • Mottles – 7/8 (3%)	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
J-4	0-400 mm. TOPSOIL. Dark brown. Dry and loose with minor rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 3/3	N
	400-600 mm. Silty CLAY. Light grey with minor yellow mottles. Dry.	• Silty clay – 7/2 • Mottles – 7/8 (5%)	
	600-700 mm. Clayey SILT. Brown.	• Clayey silt – 5/3	
	700-1,000 mm. CLAY with traces of sand. Brownish yellow with yellowish brown mottles. Soft with high plasticity.	• Clay – 6/8 • Mottles – 5/8 (10%)	
J-5	0-300 mm. Clayey TOPSOIL. Dark brown with minor yellowish-brown mottles. Minor rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 3/3 Mottle colour (10YR – Chroma/Value) • Mottles – 5/8 (3%)	N
	300-500 mm. Silty CLAY. Pale brown with minor yellow mottles. Dry and firm.	• Silty clay – 6/3 • Mottles – 7/8 (5%)	
	500-1,000 mm. CLAY with minor organic deposits. Light brownish grey with brownish yellow mottles. Soft with high plasticity.	• Clay – 6/2 • Mottles – 6/6 (15%)	
J-6	0-300 mm. Clayey TOPSOIL. Light yellowish brown with minor yellow mottles. Dry and loose.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 6/4 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (5%)	N
	300-500 mm. Clayey SILT. Yellow with light yellowish-brown mottles. Dry.	• Clayey silt – 8/8 • Mottles – 6/4 (10%)	
	500-600 mm. Silty CLAY. Very dark greyish brown. Very soft and loose.	• Silty clay – 3/2	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	600-1,000 mm. Silty CLAY. Light brownish grey with minor yellow mottles. Soft with moderate plasticity.	• Silty clay – 6/2 • Mottles – 8/8 (5%)	
J-7	0-300 mm. TOPSOIL. Brown with minor brownish yellow mottles. Dry and loose with rootlets present.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 6/8 (3%)	N
	300-500 mm. Clayey SILT. Brownish yellow with dark brownish yellow mottles. Dry and loose with rootlets present.	• Clayey silt – 6/8 • Mottles– 4/6 (20%)	
	500-600 mm. Silty CLAY. Brown with minor brownish yellow mottles. Soft.	• Silty clay – 4/3 • Mottles – 6/8 (5%)	
	600-1,000 mm. CLAY. Yellowish brown with yellow mottles.	• Clay – 5/4 • Mottles – 7/8 (20%)	
K-1	0-400 mm. Peaty TOPSOIL with organic deposits. Very dark brown. Roots and rootlets present.	Matrix Colour (10YR – Value/Chroma) • Peaty topsoil – 2/2	Y
	400-700 mm. CLAY with minor organic matter. Brown with yellow mottles. Firm with high plasticity. Rootlets present.	• Clay – 4/3 • Mottles – 5/8 (20%)	
	700-1,000 mm. CLAY. Light yellowish brown with yellow mottles. High plasticity.	• Clay – 6/4 • Mottles – 5/8 (20%)	
K-2	0-300 mm. Clayey TOPSOIL. Brown with light grey mottles. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/2 (20%)	Y
	300-400 mm. Silty CLAY. Dark grey with minor yellow mottles. Soft and saturated.	• Silty clay – 4/1 • Mottles – 7/8 (5%)	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	400-600 mm. CLAY. Light yellowish brown with yellow mottles. Firm with moderate plasticity.	• Clay – 6/4 • Mottles – 7/8 (10%)	
	600-1,000 mm. CLAY. Light yellowish brown with minor yellow mottles. Soft with high plasticity.	• Clay – 6/4 • Mottles – 7/8 (5%)	
K-3	0-400 mm. Silty TOPSOIL. Brown. Dry with rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 4/3	N
	400-600 mm. Clayey SILT. Light yellowish brown with yellow mottles. Dry.	• Clayey silt – 7/8 • Mottles – 6/4 (10%)	
	600-1,000 mm. Silty CLAY with traces of sand. Very pale brown with pale yellow mottles. Soft.	• Silty clay – 8/2 • Mottles – 8/8 (20%)	
K-4	0-300 mm. Clayey TOPSOIL with traces of charcoal. Brown. Dry with rootlets present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3	N
	300-500 mm. Silty CLAY. Very pale brown with brownish yellow mottles. Dry.	• Silty clay – 7/4 • Mottles– 6/8 (10%)	
	500-800 mm. Silty CLAY. Yellowish brown with brownish yellow mottles. Firm with moderate plasticity.	• Silty clay – 5/4 • Mottles – 6/8 (20%)	
	800-1,000 mm. CLAY. Very pale brown with brownish yellow mottles. Soft with high plasticity	• Clay – 7/4 • Mottles – 6/8 (20%)	
L-1	0-300 mm. Clayey TOPSOIL. Very dark brown. Soft and saturated.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 2/2	Y
	300-700 mm. CLAY. Very dark grey. Very soft with high plasticity.	• Clay – 3/1	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	700-1,000 mm. CLAY. Very dark grey. Soft, sticky and moist. Water table at 700mm. Slight sulfuric odour.	• Clay – 3/1	
L-2	0-300 mm. Clayey TOPSOIL. Brown with grey mottles. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 6/1 (10%)	Y
	300-500 mm. Silty CLAY. Dark grey with minor yellowish-brown mottles. Soft and moist. Rootlets and rhizospheres present.	• Silty clay – 4/1 • Mottles – 5/8 (5%)	
	500-1,000 mm. CLAY. Very pale brown with minor yellow mottles. Very soft with high plasticity.	• Clay – 7/3 • Mottles - 7/8 (5%)	
L-3	0-300 mm. Silty TOPSOIL. Brown. Dry and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 4/3	N
	300-500 mm. Clayey SILT. Yellowish brown with brownish yellow mottles. Dry and loose.	• Clayey silt – 5/4 • Mottles – 6/8 (20%)	
	500-600 mm. Silty CLAY. Yellowish brown with brownish yellow mottles. Loose.	• Silty clay – 5/4 • Mottles – 6/8 (10%)	
	600-1,000 mm. CLAY. Yellowish brown with pale brown mottles. Soft with high plasticity.	• Clay – 5/8 • Mottles – 6/3 (10%)	
L-4	0-400 mm. Clayey TOPSOIL. Brown.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 5/3	N
	400-800 mm. CLAY. Light grey with minor very pale brown mottles. Firm.	• Clay – 7/2 • Mottles – 7/4 (5%)	
	800-1,000 mm. CLAY. Light grey with very pale brown mottles. Soft with high plasticity.	• Clay – 7/2 • Mottles – 7/4 (10%)	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
L-5	0-300 mm. TOPSOIL. Brown. Loose. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	300-500 mm. Silty CLAY. Brown with minor brownish yellow mottles. Hard and loose.	• Silty clay – 5/3 • Mottles – 6/6 (5%)	
	500-800 mm. CLAY. Yellowish brown with brown mottles. Firm with moderate plasticity.	• Clay – 5/8 • Mottles – 5/3 (20%)	
	800-1,000 mm. CLAY. Very pale brown with minor brownish yellow mottles.	• Clay – 7/3 • Mottles – 6/6	
L-6	0-300 mm. Clayey topsoil. Brown with yellowish brown and very pale brown mottles. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 5/3 Mottle colour (10YR – Chroma/Value) • Mottles – 6/4 (10%), 8/4 (30%)	Y
	300-700 mm. CLAY. Brown with yellowish brown mottles. Firm with moderate plasticity.	• Clay – 5/3 • Mottles – 6/4 (30%)	
	800-1,000 mm. CLAY. Yellow with brown mottles. Soft with high plasticity.	• Clay – 7/6 • Mottles – 5/4 (30%)	
L-7	0-300 mm. Clayey TOPSOIL. Brown. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 5/3	N
	300-500 mm. CLAY. Brown. Moderate plasticity. Rootlets and rhizospheres present.	• Clay – 4/3	
	500-800 mm. CLAY. Greyish brown with very pale brown mottles. Soft with high plasticity.	• Clay – 5/2 • Mottles – 7/4 (40%)	
	800-1,000 mm. CLAY. Very pale brown with greyish brown mottles. Soft and sticky.	• Clay – 7/4 • Mottles – 8/2 (30%)	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
L-8	0-200 mm. TOPSOIL. Dark brown with minor dark yellowish-brown mottles. Soft and loose.	Matrix Colour (10YR – Value/Chroma) • Topsoil– 3/3 Mottle colour (10YR – Chroma/Value) • Mottles – 3/6 (5%)	Y
	200-600 mm. CLAY. Light grey with yellow mottles. Firm with moderate plasticity. Rootlets and rhizospheres present.	• Clay – 7/1 • Mottles – 8/6 (15%)	
	600-1,000 mm. Silty CLAY. Light grey with yellow mottles. Loose with moderate plasticity.	• Silty clay – 7/1 • Mottles – 8/6 (20%)	
L-9	0-300 mm. TOPSOIL. Dark brown. Loose with rootlets present.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 3/3	N
	300-500 mm. Clayey TOPSOIL. Dark brown.	• Clayey topsoil – 3/3	
	500-800 mm. CLAY. Dark brown with minor dark yellowish-brown mottles.	• Clay – 3/3 • Mottles – 4/6 (5%)	
	800-1,000 mm. CLAY with traces of silt. Very dark grey. Very soft with moderate plasticity.	• Clay – 3/1	
L-10	0-300 mm. TOPSOIL. Brown. Dry, soft and loose.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N
	300-600 mm. Silty CLAY. Yellowish brown with yellow mottles. Soft.	• Silty clay – 5/4 • Mottles – 7/8 (10%)	
	600-1,000 mm. Silty CLAY with traces of sand. Yellowish brown. Very soft and saturated. Water table at 600 mm.	• Silty clay -5/4	
L-11	0-300 mm. TOPSOIL. Brown. Dry and loose.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 5/3	N

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	300-500 mm. Silty CLAY. Very pale brown with yellow mottles. Dry and loose.	• Silty clay – 7/4 • Mottles – 7/8 (10%)	
	500-1,000 mm. Silty CLAY. Very pale brown with yellow mottles. Moderate plasticity.	• Silty clay – 7/4 • Mottles – 7/8 (15%)	
L-12	0-300 mm. Clayey TOPSOIL. Brown. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 5/3	N
	300-400 mm. CLAY. Brown with yellowish brown. Mottles. Firm. Rootlets and rhizospheres present.	• Clay – 5/3 • Mottles – 5/8 (10%)	
	400-600 mm. CLAY. Light brownish grey with yellowish brown mottles. Firm with moderate plasticity.	• Clay – 6/2 • Mottles – 5/8 (20%)	
	600-1,000 mm. CLAY with traces of silt. Light brownish grey with yellowish brown mottles. Soft with high plasticity.	• Clay – 6/2 • Mottles – 5/8 (30%)	
L-13	0-300 mm. Silty TOPSOIL. Light yellowish brown with yellow mottles Dry and loose. Minor rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil– 6/4 Mottle colour (10YR – Chroma/Value) • Mottles – 7/6 (10%)	N
	300-500 mm. Clayey SILT. Light yellowish brown with yellow mottles. Loose.	• Clayey silt – 6/4 • Mottles – 7/6 (30%)	
	500-1,000 mm. Clayey SILT. Light grey with very pale brown mottles. Soft and loose.	• Clayey silt – 7/2 • Mottles – 7/4 (10%)	
M-1	0-300 mm. SILT. Dark brown. Dry, stiff, and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silt – 3/3	N
	300-600 mm. Clayey SILT. Brown with brownish yellow mottles. Dry and loose.	• Clayey silt – 5/3 • Mottles – 6/8 (20%)	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	600-800 mm. Clayey SILT. Light brown with yellow mottles. Dry and firm with moderate plasticity.	• Clayey silt – 6/2 • Mottles – 7/8 (10%)	
	800-1,000 mm. Clayey SILT. Light grey with yellow mottles. Dry and semi soft with high plasticity.	• Clayey silt – 7/2 • Mottles – 7/8 (20%)	
M-2	0-300 mm. SILT. Very dark greyish brown. Very dry, stiff and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silt – 3/2	N
	300-800 mm. Clayey SILT. Brown with yellow mottles. Dry and firm.	• Clayey silt – 4/3 • Mottles – 7/8 (30%)	
	800-1,000 mm. Clayey SILT. Brown with light yellowish-brown mottles. Dry and firm with moderate plasticity.	• Clayey silt – 5/3 • Mottles – 6/4 (30%)	
M-3	0-400 mm. Silty CLAY. Brown. Moist and soft. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silty clay – 3/2	Y
	400-800 mm. Organic PEAT with minor gravels. Black with very pale brown mottles. Dry and loose, poorly sorted.	• Peat – 2/1 • Mottles – 7/4 (30%)	
	800-1,000 mm. CLAY. Yellow with dark brown mottles. Soft and sticky, slightly moist.	• Clay – 7/8 • Mottles – 3/3 (10%)	
M-4	0-400 mm. Silty TOPSOIL with traces of gravels. Dark brown with traces of yellow mottles. Dry and loose.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 3/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (1%)	N
	400-600 mm. Silty CLAY. Light yellowish brown with grey mottles.	• Silty clay – 6/4 • Mottles – 6/1 (10%)	
	600-700 mm. Silty PEAT. Very dark brown.	• Silty peat – 2/2	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	700-1,000 mm. Silty CLAY. Light yellowish brown with yellowish brown mottles.	• Silty clay – 6/4 • Mottles – 5/8 (15%)	
M-5	0-300 mm. Silty TOPSOIL. Brown. Dry and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silty topsoil – 4/3	N
	300-1,000 mm. CLAY. Brownish yellow with grey mottles. Moist with moderate plasticity.	• Clay – 6/8 • Mottles – 5/1 (10%)	
M-6	0-300 mm. SILT. Brown. Very dry and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silt – 4/3	N
	300-400 mm. SILT. Very dark brown. Very dry and loose.	• Silt – 2/2	
	400-600 mm. Clayey SILT. Dark yellowish brown with pale brown mottles. Dry and firm.	• Clayey silt – 4/4 • Mottles – 6/3 (50%)	
	600-1,000 mm. Silty CLAY. Very pale brown with yellow mottles. Dry and firm with moderate plasticity.	• Silty clay – 7/3 • Mottles – 7/6 (20%)	
N-1	0-300 mm. Silty CLAY. Dark greyish brown with brownish yellow mottles. Iron pan present. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Silty clay – 4/2 Mottle colour (10YR – Chroma/Value) • Mottles – 6/5 (20%)	N
	300-1,000 mm. CLAY. Pale brown with brownish yellow mottles. Hard with high plasticity.	• Clay – 6/3 • Mottles – 6/5 (20%)	
N-2	0-300 mm. Clayey TOPSOIL. Dark brown with traces of yellowish-brown mottles. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 5/3 Mottle colour (10YR – Chroma/Value) • Mottles – 5/8 (3%)	N

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	300-500 mm. CLAY. Brown with yellow mottles. Soft with high plasticity.	• Clay – 5/3 • Mottles– 7/6 (30%)	
	500-800 mm. CLAY. Brown with yellow mottles. Hard with moderate plasticity. Rootlets present.	• Clay – 5/3 • Mottles – 7/6 (30%)	
	800-1,000 mm. CLAY. Light grey with yellow mottles. Hard with high plasticity.	• Clay – 7/2 • Mottles – 7/8 (10%)	
N-3	0-300 mm. Clayey TOPSOIL. Brown with yellowish brown mottles. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 5/8 (10%)	N
	300-500 mm. Silty CLAY. Yellowish brown with dark yellowish-brown mottles. Loose.	• Silty clay – 5/8 • Mottles – 3/6 (20%)	
	500-1,000 mm. Silty CLAY. Very pale brown with yellowish brown mottles. Loose	• Silty clay – 7/4 • Mottles – 5/8 (30%)	
N-4	0-100 mm. TOPSOIL. Dark brown. Moist. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 3/3	N
	100-300 mm. Silty CLAY. Brown with yellow mottles. Dry. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silty clay – 5/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (30%)	
	300-500 mm. CLAY. Very pale brown with yellow mottles. Firm with moderate plasticity.	• Clay – 7/3 • Mottles – 7/8 (20%)	
	500-1,000 mm. CLAY. Very pale brown with yellow mottles. Soft with high plasticity.	• Clay – 7/3 • Mottles – 7/8 (20%)	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
N-5	0-300 mm. TOPSOIL. Dark brown. Loose. Rootlets and rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 3/3	N
	300-400 mm. Silty CLAY. Dark yellowish brown with grey mottles. Rootlets and rhizospheres present.	• Silty clay – 4/6 • Mottles – 5/1	
	400-500 mm. Clayey SILT. Light grey with brownish yellow mottles.	• Clayey silt – 7/2 • Mottles – 6/8 (20%)	
	500-1,000 mm. Silty CLAY. Light grey with brownish yellow mottles. Hard and loose.	• Silty clay – 7/2 • Mottles – 6/8	
N-6	0-300 mm. Organic TOPSOIL. Dark brown. Loose. Roots and rootlets present.	Matrix Colour (10YR – Value/Chroma) • Organic topsoil – 3/3	N
	300-500 mm. Silty CLAY. Brown with yellow mottles. Pockets of brown organic soil. Firm.	• Silty clay – 5/3 • Mottles – 7/8 (40%)	
	500-700 mm. CLAY with traces of topsoil. Brown with yellow mottles. Firm.	• Clay – 5/3 • Mottles – 7/8 (40%)	
	700-1,000 mm. CLAY with traces of silt. Yellowish brown with minor brown mottles. High plasticity.	• Clay – 5/8 • Mottles – 5/3 (5%)	
N-7	0-100 mm. TOPSOIL. Brown.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3	N
	100-400 mm. Silty CLAY. Brown with brownish yellow mottles. Rootlets and minor rhizospheres present.	• Silty clay – 7/3 • Mottles – 6/6 (20%)	
	400-800 mm. CLAY with traces of dark organic matter. Very pale brown with brownish yellow mottles. Hard and loose.	• Clay – 7/3 • Mottles – 6/6 (20%)	

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	800-1,000 mm. CLAY. Very pale brown with brownish yellow mottles. Moderate plasticity.	• Clay – 7/3 • Mottles – 6/6 (10%)	
O-1	0-300 mm. Clayey SILT. Greyish brown with minor brownish yellow mottles. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Clayey silt – 5/3 Mottle colour (10YR – Chroma/Value) • Mottles – 6/8 (5%)	N
	300-500 mm. Clayey SILT with some sand. Dark yellowish brown with grey and yellow mottles.	• Clayey silt – 7/2 • Mottles – 6/1 (15%), 7/8 (15%)	
	500-1,000 mm. Silty CLAY. Dark yellowish brown with black and yellow mottles.	• Silty clay – 7/2 • Mottles – 2/1 (5%), 7/8 (10%)	
O-2	0-400 mm. Clayey SILT. Dark yellowish brown with grey mottles. Pocket of reddish-purple silt observed at 300 mm. Dry and loose. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Clayey silt – 4/4 Mottle colour (10YR – Chroma/Value) • Mottles – 6/1 (20%)	N
	400-700 mm. SILT with some clay. Dark yellowish brown with grey mottles. Dry and loose.	• Silt – 3/6 • Mottles – 6/1 (15%)	
	700-1,000 mm. SILT with some clay. Dark yellowish brown. Dry.	• Silt – 3/6	
O-3	0-400 mm. SILT. Brown with yellow mottles. Stiff. Rootlets present.	Matrix Colour (10YR – Value/Chroma) • Silt – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (30%)	N
	400-1,000 mm. CLAY. Yellowish brown with brownish yellow mottles. Dry and stiff. Rootlets present.	• Clay – 5/2 • Mottles – 6/8 (30%)	
O-4	0-200 mm. SILT. Dark yellowish brown with yellow mottles. Dry and firm. Rootlets present. Iron concretions.	Matrix Colour (10YR – Value/Chroma) • Silt – 4/4 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (10%)	Y

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	200-500 mm. SILT with minor clay. Very dark brown with yellow mottles. Dry and soft.	• Silt – 2/2 • Mottles – 7/9 (10%)	
	500-700 mm. SILT with minor clay. Brown with yellow mottles. Dry, soft and loose.	• Silt – 5/3 • Mottles – 7/8 (20%)	
	700-1,000 mm. SILT. Grey with very pale brown mottles. Very dry and loose.	• Silt – 6/1 • Mottles – 7/4 (10%)	
P-1	0-300 mm. TOPSOIL. Dark yellowish brown with yellowish brown mottles.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 3/6 Mottle colour (10YR – Chroma/Value) • Mottles – 5/8 (30%)	N
	300-500 mm. Silty CLAY. Dark yellowish brown with brownish yellow mottles. Dry	• Silty clay – 4/6 • Mottles – 5/8 (30%)	
	500-1,000 mm. Silty CLAY. Brownish yellow with yellow mottles. Dry.	• Silty clay – 6/8 • Mottles – 7/8 (5%)	
P-2	0-300 mm. TOPSOIL. Brown with yellow mottles. Dry.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (20%)	N
	300-1,000 mm. Silty CLAY. Brownish yellow.	• Silty clay – 6/8	
P-3	0-300 mm. Silty CLAY. Yellow with brownish yellow mottles. Log discontinued at 300 mm due to soil saturation.	Matrix Colour (10YR – Value/Chroma) • Silty clay – 7/8 Mottle colour (10YR – Chroma/Value) • Mottles – 6/8 (10%)	Y
P-4	0-300 mm. Organic CLAY. Very dark grey. Saturated. Log discontinued at 300 mm due to soil saturation.	Matrix Colour (10YR – Value/Chroma) • Organic clay – 3/1	Y

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
P-5	0-200 mm. Peaty CLAY. Very Dark Brown. Saturated. Water table at 200 mm. Log discontinued at 200 mm due to water table.	Matrix Colour (10YR – Value/Chroma) • Peaty clay – 2/2	Y
P-6	0-400 mm. Clayey TOPSOIL. Dark brown with minor yellowish-brown mottles. Loose. Rootlets and minor rhizospheres present.	Matrix Colour (10YR – Value/Chroma) • Clayey topsoil – 3/3 Mottle colour (10YR – Chroma/Value) • Mottles – 5/8 (5%)	N
	400-500 mm. Silty CLAY. Brown with dark yellowish-brown mottles. High plasticity.	• Silty clay – 4/3 • Mottles – 4/6 (10%)	
	500-800 mm. CLAY. Brown with dark yellowish-brown mottles. Soft with high plasticity.	• Clay – 5/3 • Mottles – 4/4 (10%)	
	800-1,000 mm. CLAY with traces of silt. Light grey. Very soft with moderate plasticity.	• Clay – 7/2	
P-7	0-300 mm. TOPSOIL. Brown with yellow mottles. Dry.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (30%)	N
	300-1,000 mm. Silty CLAY. Brownish yellow.	• Silty clay – 6/8	
P-8	0-300 mm. TOPSOIL. Brown with yellow mottles. Dry.	Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (30%)	N
	300-1,000 mm. Silty CLAY. Dark grey with yellow mottles.	• Silty clay – 7/8 (10%)	
P-9	0-300 mm. TOPSOIL. Brown with minor yellow mottles. Dry	Matrix Colour (10YR – Value/Chroma) • Topsoil – 4/3 Mottle colour (10YR – Chroma/Value) • Mottles – 7/8 (5%)	N

Site #	Soil Description Summary		Hydric Soil? (Yes/No)
	Lithology	**Hydric Soil Indicators**	
	300-1,000 mm. Clayey SILT. Brownish yellow. Stiff and dry.	• Clayey silt – 6/8	

Of the 149 total tests pits, the hydric soil tool assessment found 32 pits that displayed hydric soil conditions within the top 450 mm.

5. Hydrology Tool Assessment

Wetland hydrology can be defined as encompassing all hydrological characteristics of areas that are periodically inundated or have soils saturated to, or near, the surface during a portion of the growing season (based on US Army Corp of Engineers - Environmental Laboratory, 1987). To meet the standard for wetland hydrology, an area must be:

- Inundated for at least seven consecutive days during the growing season in most years (50 per cent probability of recurrence); or
- Saturated at or near the surface for at least 14 consecutive days during the growing season in most years (50 per cent probability of recurrence, for example, 5 years in 10).

Soils may be considered saturated if the water table is within:

- 150 mm of the surface for sands; and
- 300 mm of the surface for all other soils.

5.1 Indicators

Hydrology indicators are one-off observations that identify the presence or absence of a wetland in areas where hydrophytic vegetation and hydric soils are present or uncertain. Wetland delineation using the hydrology tool should be undertaken during periods of 'normal rainfall'. Because hydrology indicators can be highly transient, a follow-up visit may be required during normal and wetter periods of the growing season.

There are four indicator groups identified in the guidelines:

- Observation of flooding or groundwater;
- Evidence of flooding or ponding;
- Soil saturation; and
- Landscape, vegetation and soil observations (which may overlap with the vegetation and hydric soil tools).

Group 1 are primary indicators and Groups 2 to 4 have a mix of primary and secondary indicators. The presence of one primary indicator, or two secondary indicators, confirms the presence of a wetland. The full suite of 26 hydrology indicators are summarised in **Table 4**.

Table 4. Summary of wetlands hydrology indicators.

Indicator	Primary	2ndary	Observation Description ("observed in the area of interest during the growing season")
Group 1: Observation of flooding or groundwater			
1A: Surface water	✓		Surface water can be observed in the form of either flooding or ponding.
1B: Groundwater	✓		A high water table is observed within 30 centimeters of the soil surface as determined by soil pit, auger hole or shallow monitoring well.
1C: Soil saturation	✓		Soil saturation is observed in the top 30 centimeters of the soil profile. Indicated by 'water glistening on the surfaces and broken interior faces of the soil samples removed from a pit or auger hole'. Pg 19.
Group 2: Evidence of flooding or ponding			
2A: Water marks	✓		Water marks (discoloration or staining) are seen on trees, rocks, fences or other fixed objects. Lichen may also be absent below the flooding level.
2B: Sediment deposits	✓		Thin layers or coatings of fine mineral material (e.g., silt or clay) or organic matter (e.g., pollen) are seen on trees, rocks or other fixed objects.

Indicator	Primary	2ndary	Observation Description ("observed in the area of interest during the growing season")
2C: Drift deposits	✓		Debris (e.g., branches, leaves, plastic fragments) are seen deposited on the ground surface or entangled in vegetation or other fixed objects.
2D: Agal mat or crust	✓		An algal mat or crust is seen on or near the soil surface after the water has drained away.
2E: Iron deposits	✓		A thin orange or yellow crust or gel or oxidised iron is seen on or near the soil surface or as a sheen on standing water.
2F: Surface soil cracks	✓		Surface soil cracks are seen where mineral or organic sediment dry and shrink to form a network of cracks or polygons.
2G: Inundation visible on aerial imagery	✓		Inundation is seen on one or more recent aerial or satellite images.
2H: Sparsely vegetated concave surface	✓		A lack of vegetation (less than 5 per cent coverage) is seen on concave land surfaces resulting from prolonged ponding.
2I: Salt crust	✓		Hard or brittle deposits of salts are seen on the ground surface, usually in depressions, seeps or lake fringes, after evaporation of saline surface water.
2J: Aquatic invertebrates	✓		Numerous live or dead aquatic invertebrates, including diapausing eggs, remains of aquatic invertebrates, such as aquatic snails or crustaceans, are seen on the soil surface or plants or other emergent objects.
2K: Water-stained leaves	✓	✓	Water-stained grey or black leaves are visible due to long periods of saturation during the growing season
2L: Drainage patterns		✓	Areas that have recently experienced overland water flow may show soil erosion, low vegetation bent in the direction of water flow, or absence of leaf litter or small woody debris.
Group 3: Evidence of current or recent soil saturation			
3A: Hydrogen sulphide odour	✓		Hydrogen sulphide odour, similar to rotten eggs, is detected from the top 30 centimeters of the soil profile. Hydrogen sulphide is produced in soils only when saturation has been prolonged.
3B: Oxidised rhizospheres along living roots	✓		A soil horizon with greater than or equal to 2 per cent iron-oxide (orange coating) can be seen on the surfaces of living roots or soil pores immediately surrounding the roots within the top 30 centimeters of the soil profile.
3C: Reduced iron	✓		A soil layer containing reduced iron in the top 30 centimeters of the soil profile can be seen where the soil changes colour upon air exposure.
3D: Recent iron reduction in tilled soils	✓		A soil layer containing greater than or equal to 2 per cent redox concentrations (mottles) is visible in pore linings of masses in a soil that has been tilled less than two years ago within the tillage zone or the top 30 centimeters of the soil profile, whichever one is shallower.
3E: Dry-season water table		✓	A water-table depth between 30 centimeters and 60 centimeters of the soil profile can be seen during the normal dry season or a drier-than-normal period of the year.
3F: Saturation visible on aerial imagery		✓	Visual assessment of one or more aerial or satellite images can identify sites where soil saturation corresponds to depressions, drainage patterns, crop management, field verified hydric soils or other evidence of a seasonally high water table during the growing season
Group 4: Evidence from other site conditions or data			
4A: Stunted or stressed plants	✓		It can be seen that most plants in cultivated or planted wetland areas are smaller, less vigorous or appear more stressed compared with neighbouring non-wetland areas
4B: Geomorphic position		✓	The possible wetland may be seen in a localised depression, swale, drainage system, concave position in a floodplain, at the toe of a slope, on extensive flatland, the low-elevation fringe of a pond or waterbody, or groundwater discharge zone.
4C: Shallow aquitard		✓	A semi-permeable–impermeable layer is confirmed within 60 centimeters of the soil surface, which decreases movement of groundwater and causes a perched water table

Indicator	Primary	2ndary	Observation Description ("observed in the area of interest during the growing season")
			within 30 centimeters of the soil surface. This semi-permeable–impermeable layer can be composed of clay or non-porous rock.
4D: Facultative-neutral test		✓	Plant test – normally done by ecologists.
4E: Frost-heave hummocks		✓	Frost-heave hummocks are produced as water-logged soils undergo freeze–thaw processes. Exclude livestock pugging hummocks.

5.2 Results

Full test data sheets and a table summarising the findings are provided in **Appendix A**.

With respect to the aforementioned assessment parameters, the presence of one primary indicator, or two secondary indicators confirms the presence of a wetland.

In summary, the key findings are as follows:

- ***Primary Indicators*** – 56 sites displayed primary indicators
- ***Secondary Indicators*** – No sites displayed any secondary indicators.

Hydrology indicator 3F requires analysis of recent aerial imagery to ascertain soil saturation. It is best to view the imagery during prolonged dry times or drought because true wetlands will remain wetter than surrounding land and therefore maintain a deeper/darker hue of green representative of wetland vegetation. In comparison, vegetation on adjacent land that has significant soil moisture deficits will display progressively lighter hues of green to yellow to yellow-tan, reflecting moisture stressed vegetation.

Figure 8 provides an aerial photograph taken in February 2019. During the three months prior to that date, the 3-month rainfall total was approximately 70 mm below average, hence a dry time prevailed. The key features observed in **Figure 8** photograph are:

- Highly dried areas in open paddocks used for grazing;
- Lusher grass on the central parts of gullies and hedgerows; and
- No clear observation of vegetation supported by wet land during this drought period is the conclusion from this analysis.

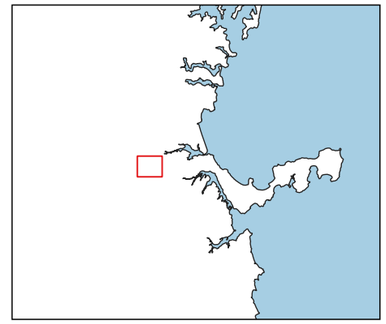
Overall, the hydrology tool assessment indicates a presence of 54 locations displaying primary indicators for wetland hydrology, however no secondary wetland indicators were found (refer **Appendix A**).

Of the total 149 test sites, 32 confirmed hydric soils, and 54 confirmed primary hydrology indicators of wetlands. Of these, 26 sites had both hydric soils and primary hydrology indicators of wetlands, hence are considered confirmed wetlands, according to the Hydrology Tool Assessment. In some cases (e.g. D-3 and D-4), hydric soils were identified however we are of the opinion that these areas are not wetlands, rather isolated areas of hydric soils that lack hydrology tool inidcators, and the key fact being they are dry for at least five months of the year being located on elevated slopes.

Map Title:
Historic Aerial Photograph During Drought (Feb 2019)

Project:
Milldale Stages 10-13 Hydric Soils & Hydrology Assesment

Client:
Fulton Hogan Land Development Ltd



Legend

- **Stage 10_11 Boundary**
- **Stage 12_13 Boundary**
- **Road**

Data Provenance
Google Earth Pro (2019)

Drawn by: Rosa Hollister
05/02/2025

Layout & Project File
G:\Shared drives\Projects\Fulton Hogan Land Development Ltd\WWLA1338_Milldale Stages 10-13 Gw Assessment\Technical\GIS\QGIS Project Files\Stages 10- 13 Rosa

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Figure 8.

6. Conclusions

The soils examined within the proposed Milldale Stage 10-13 development were highly leached, acidic, low in nutrients, with dispersible surface horizons and clayey subsoils with slow permeability. A long history of kauri and podocarp forest successions has led to the leached and low permeability soils, which has been exacerbated in more recent times by grazing cattle.

The assessment of potential wetland areas within the proposed Milldale Stage 10-13 development using the hydric soil and hydrology delineation tools confirmed the presence of 26 sites (17%) had both hydric soils and primary wetland hydrology tool indicators, which are confirmed as wetland according to the overall hydrology assessment tool as indicated on Figure 9. The majority of the area is not wetland in our opinion.

The investigation found some anomalies, where hydric soils were identified in areas that lacked hydrology tool indicators. We are of the opinion that these areas are not wetlands, rather isolated areas of marginal hydric soils, that may become waterlogged at times during winter but are typically bone dry for much of summer and as indicated previously lack hydrology indicators. Examples of these sites are D-3 and D-4.

Hydrological indicators are often not present where wetland vegetation is in many areas. This is a function of the low permeability of the soils, which means that for much of winter months the moisture content of the soils is high, however, in summer the soils become bone dry. This demonstrates the versatility of some of the "wetland" listed plants to adapt to both wet and dry conditions.

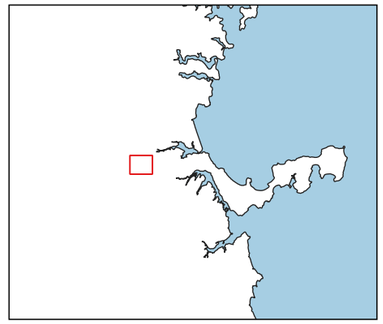
Most sites displaying hydric soils and/or hydrology tool indicators were located at landscape features such as the base of hills, sides of gullies, or at depressions in low lying areas. These landscape features prevent water from draining freely, which explains the presence of hydric soils/hydrology indicators.

During summer, Auckland’s rainfall is far lower than evaporation causing dry soils and low groundwater for at least five months of the year, with the exception of the landscape features mentioned above. This factor, combined with the presence of poorly draining soils such as clay, explain why wetlands within the proposed Milldale Stage 10-13 development are localised rather than widespread.

Map Title:
Investigation findings

Project:
Milldale Stages 10-13 Hydric Soils & Hydrology Assesment

Client:
Fulton Hogan Land Development LTD



Legend

- Stage 10-11 Boundary
- Stage 12-13 Boundary
- Indicative of hydric soils
- Not indicative of hydric soils
- Confirmed wetland (hydrological assesment)
- Lakes
- Streams

Data Provenance
Google satellite (2022)

Drawn by: Rosa Hollister
29/01/2025

Layout & Project File
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Figure 9.

7. References

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Appendix A. Hydric Soil and Hydrology Tool Test Sheets

WWLA

Table A1. Summary of hydrology tool site findings.

Indicator		Group 1: Observation of flooding or groundwater			Group 2: Evidence of flooding or ponding												Group 3: Evidence of current or recent soil saturation						Group 4: Evidence from other site conditions or data				
		1A: Surface water	1B: Ground-water	1C: Soil saturation	2A: Water marks	2B: Sediment deposits	2C: Drift deposits	2D: Agal mat or crust	2E: Iron deposits	2F: Surface soil cracks	2G: Inundation visible on aerial imagery	2H: Sparsely vegetated concave surface	2I: Salt crust	2J: Aquatic invert-ebrates	2K: Water-stained leaves	2L: Drainage patterns	3A: Hydrogen sulphide odour	3B: Oxidised rhizo-spheres along living roots	3C: Red-uced iron	3D: Recent iron reduction in tilled soils	3E: Dry-season water table	3F: Saturation visible on aerial imagery	4A: Stunted or stressed plants	4B: Geo-morphic position	4C: Shallow aquitard	4D: Facul-tative-neutral test	4E: Frost-heave humm-ocks
	Prim.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓			✓				
Site	Sec.														✓	✓					✓	✓		✓	✓	✓	✓
A-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-7		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-8		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-9		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-10		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-11		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-12		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-13		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
A-14		×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-15		×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A-16		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
A-17		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
B-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
B-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
B-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
B-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
B-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
B-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
B-7		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
B-8		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
B-9		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
B-10		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
B-11		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
B-12		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
C-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
C-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
C-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
C-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
C-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
C-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
C-7		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×

Indicator		Group 1: Observation of flooding or groundwater			Group 2: Evidence of flooding or ponding												Group 3: Evidence of current or recent soil saturation						Group 4: Evidence from other site conditions or data				
		1A: Surface water	1B: Ground-water	1C: Soil saturation	2A: Water marks	2B: Sediment deposits	2C: Drift deposits	2D: Agal mat or crust	2E: Iron deposits	2F: Surface soil cracks	2G: Inundation visible on aerial imagery	2H: Sparsely vegetated concave surface	2I: Salt crust	2J: Aquatic invert-ebrates	2K: Water-stained leaves	2L: Drainage patterns	3A: Hydrogen sulphide odour	3B: Oxidised rhizo-spheres along living roots	3C: Red-uced iron	3D: Recent iron reduction in tilled soils	3E: Dry-season water table	3F: Saturation visible on aerial imagery	4A: Stunted or stressed plants	4B: Geo-morphic position	4C: Shallow aquitard	4D: Facul-tative-neutral test	4E: Frost-heave humm-ocks
D-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
D-2		×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
D-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
D-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
D-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
D-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
D-7		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
D-8		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
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E-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
E-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
E-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
E-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
E-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
E-7		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
F-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
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F-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×

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F-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
F-5		×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
G-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
G-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
G-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
G-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
G-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
G-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
G-7		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
G-8		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
G-9		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
G-10		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
H-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
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H-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
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I-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
I-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
I-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
I-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
I-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
I-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
J-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
J-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
J-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
J-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
J-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
J-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
J-7		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
K-1		×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
K-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
K-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
K-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
L-1		×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
L-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×
L-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
L-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×

Indicator		Group 1: Observation of flooding or groundwater			Group 2: Evidence of flooding or ponding												Group 3: Evidence of current or recent soil saturation						Group 4: Evidence from other site conditions or data				
		1A: Surface water	1B: Ground-water	1C: Soil saturation	2A: Water marks	2B: Sediment deposits	2C: Drift deposits	2D: Agal mat or crust	2E: Iron deposits	2F: Surface soil cracks	2G: Inundation visible on aerial imagery	2H: Sparsely vegetated concave surface	2I: Salt crust	2J: Aquatic invert-ebrates	2K: Water-stained leaves	2L: Drainage patterns	3A: Hydrogen sulphide odour	3B: Oxidised rhizo-spheres along living roots	3C: Red-uced iron	3D: Recent iron reduction in tilled soils	3E: Dry-season water table	3F: Saturation visible on aerial imagery	4A: Stunted or stressed plants	4B: Geo-morphic position	4C: Shallow aquitard	4D: Facul-tative-neutral test	4E: Frost-heave humm-ocks
L-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
L-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
L-7		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
L-8		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
L-9		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
L-10		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
L-11		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
L-12		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
L-13		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
M-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
M-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
M-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
M-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
M-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
M-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
N-1		×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
N-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
N-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
N-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
N-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
N-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
N-7		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
O-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
O-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
O-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
O-4		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
P-1		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
P-2		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
P-3		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
P-4		×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
P-5		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
P-6		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
P-7		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
P-8		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
P-9		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×

Appendix B. Soil Logs and Photos

Site # and Soil Description	Soil Photo
A-1 0-300 mm. Clayey SILT: Brown/orange. High plasticity Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR - Value/Chroma): Topsoil – 5/4	
300-1,000 mm. Clayey SILT: Brown/orange. High plasticity (Tauranga Group Alluvium) Clay – 8/4	

Site # and Soil Description	Soil Photo
A-2 0-300 mm. Clayey SILT: Brown. High plasticity, moist. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/4	
300-1,000 mm. Clayey SILT: Brown/orange. High plasticity (Tauranga Group Alluvium) Clay – 8/6	

Site # and Soil Description	Soil Photo
A-3 0-300 mm. Clayey SILT: Medium to Dark Brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	
300-1,000 mm. Clayey SILT: Light Grey. Moderate plasticity. (Tauranga Group Alluvium) Clay – 8/4 & 6/2	

Site # and Soil Description	Soil Photo
A-4 0-300 mm. Clayey SILT: Light Grey. Moderate plasticity. (Tauranga Group Alluvium) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 6/4	
300-1,000 mm. Clayey SILT: Light Grey. Moderate plasticity. (Tauranga Group Alluvium) Clay – 7/1	

Site # and Soil Description	Soil Photo
A-5 0-300 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 6/3	
300-1,000 mm. Clayey SILT: Orange/Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 8/4	

Site # and Soil Description	Soil Photo
A-6 0-300 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 4/3	
300-1,000 mm. Clayey SILT: Grey/Brown. Low plasticity. (Tauranga Group Alluvium) Clay – 8/4	

Site # and Soil Description	Soil Photo
A-7 0-300 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	
300-1,000 mm. Clayey SILT: Medium to Light Grey. High plasticity. (Tauranga Group Alluvium) Clay – 8/6 Mottle Colour (Percentage) 10YR 8/1 (5%)	

Site # and Soil Description	Soil Photo
A-8 0-300 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 3/3	
300-1,000 mm. Clayey SILT: Orange\Brown. High plasticity. (Tauranga Group Alluvium) Clay – 7/4	

Site # and Soil Description	Soil Photo
A-9 0-400 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 4/3 Subsoil – 4/4	
400-1,000 mm. Clayey SILT: Orange/Grey. High plasticity. (Tauranga Group Alluvium) Clay – 7/4	

Site # and Soil Description	Soil Photo
A-10 0-200 mm. Clayey SILT: Medium to Dark Brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	
200-1,000 mm. Clayey SILT: Yellow/Brown. High plasticity. (Tauranga Group Alluvium) Clay – 7/4	

Site # and Soil Description	Soil Photo
A-11 0-200 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 3/4	
200-1,000 mm. Clayey SILT: Yellow/Brown. High plasticity. (Tauranga Group Alluvium) Clay – 7/5	

Site # and Soil Description	Soil Photo
A12 **0-400 mm.** Silty TOPSOIL. Brown. Firm and loose. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3	
400-1000 mm. CLAY. Very pale brown. Soft with moderate plasticity. Rootlets present. Matrix colour (10YR Value/Chroma) – 7/4	

Site # and Soil Description	Soil Photo
A13 **0-400 mm.** Silty TOPSOIL. Traces of sand. Brown. Dry and loose. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3	
400-700 mm. Silty CLAY. Brown with yellow mottle. Moderate plasticity. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (10%) **700-1000 mm.** CLAY. Pale brown with yellow mottle. Firm with high plasticity. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (5-10%)	

Site # and Soil Description	Soil Photo
A14 **0-300 mm.** CLAY. Dark brown. Soft and saturated. Traces of organic matter. Minor organic odour. Matrix colour (10YR Value/Chroma) – 3/3	
300-600 mm. CLAY. Black. Soft and saturated. Matrix colour (10YR Value/Chroma) – 2/1 **600-1000 mm.** Silty CLAY. Dark brown. Soft. Matrix colour (10YR Value/Chroma) – 3/3 NOTE: water pooling next to A14	

Site # and Soil Description	Soil Photo
A15 **0-300 mm.** CLAY. Dark brown. Organic soil material. Saturated and sticky. Roots and rootlets present. Matrix colour (10YR Value/Chroma) – 3/3 Water table at 300 mm. Surface water pooling nearby.	
A16 **0-300 mm.** CLAY. Dark brown with brownish yellow mottle. Moist. Minor organic matter, rootlets, and rhizospheres present. Matrix colour (10YR Value/Chroma) – 3/3 Mottle colour (Percentage) – 6/6 (10%)	

Site # and Soil Description	Soil Photo
A17 **0-1000 mm.** CLAY with minor silt. Dark greyish brown. Soft. Minor organic particles present. Matrix colour (10YR Value/Chroma) – 4/2	 

Site # and Soil Description	Soil Photo
B-1 0-300 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil) Drainage – Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 4/3	
300-1,000 mm. Clayey SILT: Orange/Brown. High plasticity. (Tauranga Group Alluvium) Clay – 8/4	

Site # and Soil Description	Soil Photo
B-2 0-200 mm. Clayey SILT: Light yellowish brown. High plasticity. Minor rootlets. (Topsoil) Drainage – Moderately to poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 6/4	
200-1,000 mm. Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium) Silt – 8/8	

Site # and Soil Description	Soil Photo
B-3 0-200 mm. Clayey SILT: Light yellowish brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Moderate to poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 6/4	
200-1,000 mm. Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 7/4	

Site # and Soil Description	Soil Photo
B-4 0-600 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil) Drainage –Poorly drained Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	
600-1,000 mm. Clayey SILT: Very pale brown. High plasticity. (Tauranga Group Alluvium) Clay – 8/2	

Site # and Soil Description	Soil Photo
B-5 0-400 mm. Clayey SILT: Very pale brown. High plasticity. Minor rootlets. (Topsoil) Drainage –Moderate to poorly drained Matrix Colour (10YR – Value/Chroma) Topsoil – 7/3	
400-1,000 mm. Clayey SILT: Grey. High plasticity. (Tauranga Group Alluvium) Clay – 7/3	

Site # and Soil Description	Soil Photo
B-6 0-400 mm. Clayey SILT: Pale brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Moderate to poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 6/3	
400-1,000 mm. Clayey SILT: Orange/Grey. High plasticity. (Tauranga Group Alluvium) Clay –7/6	

Site # and Soil Description	Soil Photo
B-7 **0-400 mm.** Clayey SILT. Pale brown with light grey mottle. Dry and loose. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 6/3 Mottle colour (Percentage) – 7/2 (5-10%)	
400-1000 mm. CLAY. Pale brown with yellow mottle. Firm with high plasticity. Matrix colour (10YR Value/Chroma) – 6/3 Mottle colour (Percentage) – 7/8 (20%)	

Site # and Soil Description	Soil Photo
B-8 **0-300 mm.** Clayey SILT. Brown. Soft and loose. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3	
300-500 mm. Silty CLAY. Grey with minor yellow mottle. Firm. Minor black organic matter/charcoal present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 8/8 (5%) **500-1000 mm.** Silty CLAY. Light grey with minor yellow mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 8/8 (5%)	

Site # and Soil Description	Soil Photo
B-9 **0-300 mm.** CLAY. Brown with greyish brown and yellow mottle. Moist. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (5%), 5/2 (5%)	
300-700 mm. CLAY. Light grey with yellow mottle. Firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 7/8 (10%) **700-1000 mm.** CLAY. Light grey with minor yellow mottle. Firm with high plasticity. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 7/8 (5%)	

Site # and Soil Description	Soil Photo
B-10 **0-300 mm.** CLAY. Dark brown. Firm. Rootlets and very minor rhizospheres present. Matrix colour (10YR Value/Chroma) – 3/3	
300-600 mm. CLAY. Light brownish grey with pale brown mottle. Firm with high plasticity. Matrix colour (10YR Value/Chroma)– 6/2 Mottle colour (Percentage) – 7/4 (10%) **600-1000 mm.** CLAY. Light brownish grey with yellow mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 6/2 Mottle colour (Percentage) – 7/6 (10%)	

Site # and Soil Description	Soil Photo
B-11 **0-400 mm.** Clayey SILT. Brown with minor yellow mottle. Dry and loose. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma)– 4/3 Mottle colour (Percentage) – 7/6 (5%)	
400-700 mm. CLAY. Minor silt. Yellow with greyish brown mottle. high plasticity. Matrix colour (10YR Value/Chroma) – 7/6 Mottle colour (Percentage) – 5/2 (10%) **700-1000 mm.** CLAY. Yellow with greyish brown mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma)– 7/6 Mottle colour (Percentage) – 5/2 (30%)	

Site # and Soil Description	Soil Photo
B-12 **0-300 mm.** SILT. Brown with minor brownish yellow mottle. Dry and loose. Minor rootlets, rhizospheres, and organic matter present. Matrix colour (10YR Value/Chroma)– 4/3 Mottle colour (Percentage) – 6/6 (5%)	
300-600 mm. Silty CLAY. Light yellowish brown with brownish yellow mottle. Hard. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 6/6 (10%) **600-1000 mm.** CLAY. Light yellowish brown with brownish yellow mottle. Hard. Minor deposits of organic material/wood. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 6/6 (10%)	

Site # and Soil Description	Soil Photo
C-1 0-400 mm. Clayey SILT: Dark Brown. Low plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 3/3	
400-1,000 mm. Clayey SILT: Yellow/Brown. High plasticity. (Tauranga Group Alluvium) Clay – 7/4	

Site # and Soil Description	Soil Photo
C-2 0-300 mm. Clayey SILT: Dark greyish brown. Low plasticity. Minor rootlets. (Topsoil) Drainage – Moderately well drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 4/2	
300-1,000 mm. Clayey SILT: Grey. High plasticity. (Tauranga Group Alluvium) Clay – 8/2	

Site # and Soil Description	Soil Photo
C-3 0-150 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil) Drainage – Moderately well drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	
150-1,000 mm. Clayey SILT: Grey. Moderate plasticity. (Tauranga Group Alluvium) Clay – 8/2	

Site # and Soil Description	Soil Photo
C4 **0-300 mm.** CLAY. Brown. Soft with high plasticity. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3	
300-500 mm. Silty CLAY. Very pale brown. Soft. Matrix colour (10YR Value/Chroma) – 7/4 **500-1000 mm.** Silty CLAY. Brown with minor very pale brown mottle. Soft Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/4 (5%)	

Site # and Soil Description	Soil Photo
C5 **0-400 mm.** Silty CLAY. Brown. Dry and loose. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3	
400-800 mm. Silty CLAY. Brown with minor light brownish grey mottle. Firm and loose. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 6/2 (5%) **800-1000 mm.** Silty CLAY. Brown. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 4/3	

Site # and Soil Description	Soil Photo
C6 **0-100 mm.** Silty CLAY. Brown. Soft and loose. Rootlets and minor rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3	
400-1000 mm. Silty CLAY. Light grey. Loose. Matrix colour (10YR Value/Chroma) – 7/2	

Site # and Soil Description	Soil Photo
C7 **0-400 mm.** CLAY. Pale brown with brown mottle. Firm. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 6/3 Mottle colour (Percentage) – 5/3 (10%)	
400-800 mm. CLAY. Pale brown with yellow mottle. Firm with high plasticity Matrix colour (10YR Value/Chroma) – 6/3 Mottle colour (Percentage) – 7/8 (10%) **800-1000 mm.** Silty CLAY. Pale brown with minor yellow mottle. Soft and loose. Matrix colour (10YR Value/Chroma) – 6/3 Mottle colour (Percentage) – 7/8 (3%)	

Site # and Soil Description	Soil Photo
D-1 0-150 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil) Drainage – Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	
150-1,000 mm. Clayey SILT: Yellow/Grey. High plasticity. (Tauranga Group Alluvium) Clay – 8/4	

Site # and Soil Description	Soil Photo
D-2 0-150 mm. Clayey SILT: greyish brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Very poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/2	
150-1,000 mm. Clayey SILT: Grey/Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 7/4 Mottle Colour (Percentage) 10YR 7/4 (5%)	

Site # and Soil Description	Soil Photo
D-3 (Tested on 13/14 September 2023) 0-400 mm. Clayey SILT: Light brownish grey. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 6/2 Subsoil – 5/1	
400-1,000 mm. Clayey SILT: Yellow/Grey. High plasticity. (Tauranga Group Alluvium) Clay – 8/4	

Site # and Soil Description	Soil Photo
D-3 (tested on 3 February 2025) 0-300 mm. Silty TOPSOIL. Brown. Very hard and friable, bone dry. Rootlets present. Traces of dark organic material, possibly charcoal from past forest fires. Matrix Colour (10YR - Value/Chroma) – 5/3	
300-500 mm. Clayey SILT. Brown with light brownish grey and yellowish-brown mottle. Dry and friable. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 6/2 and 5/6 (5%) 500-800 mm. Silty CLAY. Very pale brown with yellow mottle. Dry and firm. Slightly plastic Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 7/8 (10%) 800-1000 mm. Silty CLAY. Very pale brown with yellow mottle. Hard with moderate plasticity. Matrix colour (10YR Value/Chroma) – 7/4	

Site # and Soil Description	Soil Photo
Mottle colour (Percentage) – 7/8 (5%)	
D-4 (Tested on 13/14 September 2023) 0-300 mm. Clayey SILT: Greyish brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/2 Subsoil – 4/2	
300-1,000 mm. Clayey SILT: Yellow/Grey. High plasticity. (Tauranga Group Alluvium) Clay – 6/1 Mottle Colour (Percentage) 10YR 8/2 (5%)	

Site # and Soil Description	Soil Photo
D4 (tested on 3 February 2025) 0-200 mm. Silty TOPSOIL. Brown. Bone dry, hard and friable. Fine particles, minor rootlets present. Minor Kauri gum pieces up to 30 mm present. Surface cracks present. Matrix colour (10YR Value/Chroma) – 5/3	 
200-400 mm. Clayey SILT. Light brownish grey with yellow mottles. Very hard, bone dry and friable. Rootlets and minor rhizospheres present. Matrix colour (10YR Value/Chroma) – 5/2 Mottle colour (Percentage) – 7/8 (5%) 400-500 mm. Clayey SILT. Light brownish grey with yellow mottles. Slightly moist and slightly cohesive. Matrix colour (10YR Value/Chroma) – 5/2 Mottle colour (Percentage) – 7/8 (5%) 500-800 mm. Silty CLAY. Brownish yellow with grey mottles. Moist with moderate plasticity. Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 6/1 (5%) 800-1000 mm. CLAY. Brownish yellow with very pale	

Site # and Soil Description	Soil Photo
brown mottles. Moist, soft, and highly plastic. Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 7/4 (20%)	
D-5 0-500 mm. Clayey SILT: Graysih Brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/2 Subsoil 4/2	

Site # and Soil Description	Soil Photo
500-1,000 mm. Clayey SILT: Grey/Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 6/1	
D-6 0-550 mm. Clayey SILT: Dark Brown. Low plasticity. Minor rootlets. (Topsoil) Drainage – Moderately well drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 4/3 Subsoil – 3/1	

Site # and Soil Description	Soil Photo
550-1,000 mm. Clayey SILT: Dark Grey/Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 6/4	
D-7 0-200 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil) Drainage – Moderately well drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 6/4	

Site # and Soil Description	Soil Photo
200-1,000 mm. Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 7/5	
D-8 0-500 mm. Clayey SILT: Light to medium brown. Low plasticity. Minor rootlets. (Topsoil) Drainage – Moderately well drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 4/3	

Site # and Soil Description	Soil Photo
500-1,000 mm. Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 6/4	
D-9 0-400 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3 Subsoil 6/3	

Site # and Soil Description	Soil Photo
400-1,000 mm. Clayey SILT: Grey/Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 7/5	
D-10 0-200 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	

Site # and Soil Description	Soil Photo
200-1,000 mm. Clayey SILT: Orange/Brown. High plasticity. (Tauranga Group Alluvium) Clay – 6/4	
D-11 0-200 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	

Site # and Soil Description	Soil Photo
200-1,000 mm. Clayey SILT: Orange/Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 6/5	
D-12 0-200 mm. Clayey SILT: Dark Brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	

Site # and Soil Description	Soil Photo
200-1,000 mm. Clayey SILT: Yellow/Orange. High plasticity. (Tauranga Group Alluvium) Clay – 6/5	
D-13 0-200 mm. Clayey SILT: Brown. Moderate plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	

Site # and Soil Description	Soil Photo
200-1,000 mm. Clayey SILT: Light Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 6/5	
D-14 0-200 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	

Site # and Soil Description	Soil Photo
200-1,000 mm. Clayey SILT: Yellow/Orange. High plasticity. (Tauranga Group Alluvium) Clay – 6/5	
D-15 0-300 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil). Light grey subsoil at base of topsoil (hydric condition). Drainage - Very poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3 Subsoil – 7/1	

Site # and Soil Description	Soil Photo
300-1,000 mm. Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 8/2 Mottle Colour (Percentage) 10YR 8/2 (5%)	
D-16 0-400 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil). Light grey subsoil at base of topsoil (and shallow groundwater). Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3 Subsoil 7/1	

Site # and Soil Description	Soil Photo
400-1,000 mm. Clayey SILT: Yellow. High plasticity. (Tauranga Group Alluvium) Clay – 8/2	
D-17 0-200 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	

Site # and Soil Description	Soil Photo
200-1,000 mm. Clayey SILT: Light Grey to Yellow. Moderate plasticity. (Tauranga Group Alluvium) Clay – 8/1	
D-18 0-300 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	

Site # and Soil Description	Soil Photo
300-1,000 mm. Clayey SILT: Light yellowish brown. High plasticity. (Tauranga Group Alluvium) Clay – 6/4 Mottle Colour (Percentage) 10YR 8/3 (5%)	
D-19 0-300 mm. Clayey SILT: Brown. Moderate plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	

Site # and Soil Description	Soil Photo
300-1,000 mm Clayey SILT: Light yellowish brown. High plasticity. (Tauranga Group Alluvium) Clay – 6/4	
D-20 0-500 mm. Clayey SILT: Brown. Low plasticity. Minor rootlets. (Topsoil) Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3	

Site # and Soil Description	Soil Photo
500-1,000 mm. Clayey SILT: Light yellowish brown. High plasticity. (Tauranga Group Alluvium) Clay –6/4 Mottle Colour (Percentage) 10YR 8/3 (10%)	
D-21 0-400 mm. Clayey SILT: Brown. High plasticity. Minor rootlets. (Topsoil). Very pale brown subsoil horizon at 300 mm. Drainage - Poorly drained. Matrix Colour (10YR – Value/Chroma) Topsoil – 5/3 Subsoil – 8/4	

Site # and Soil Description	Soil Photo
400-1,000 mm. Clayey SILT: Pale brown clay, with yellowish grey blotches. High plasticity. (Tauranga Group Alluvium) Clay – 7/4 Mottle Colour (Percentage) 10YR 7/1 (10%) 6/2 (10%)	
D-22 **0-400mm** CLAY. Very dark brown. Some organic material present. Saturated Matrix colour (10YR Value/Chroma) – 2/2 very dark brown	

Site # and Soil Description	Soil Photo
400-500mm. CLAY. Light grey Saturated. Water table at 400mm. Matrix colour (10YR Value/Chroma) – 7/1 light grey	
D-23 **0-300 mm** Clayey organic TOPSOIL: Black with deposits of charcoal and organic matter. Saturated and soft. Matrix colour (10YR Value/Chroma) – 2/1	

Site # and Soil Description	Soil Photo
D-24 **0-400 mm**. Silty TOPSOIL. Brown. Dry Matrix colour (10YR Value/Chroma) – 4/3	
400-600 mm. Silty CLAY. Light brownish grey. Soft Matrix colour (10YR Value/Chroma) – 6/2 **600-1000 mm**. CLAY. Light brownish grey. Minor yellow mottle. Firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 6/2 light brownish grey Mottle colour (Percentage) – 7/8 (5-10%)	

Site # and Soil Description	Soil Photo
D25 **0-300 mm.** Silty TOPSOIL. Light yellowish brown with very pale brown mottle. Loose. Rootlets and very minor rhizospheres present. Dry. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 7/4 (20%)	
300-700 mm. Silty CLAY. Very pale brown. Minor yellow mottle. Hard and dry. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 7/8 (5%) **700-1000 m.** CLAY. Light grey. Minor yellow mottle. Firm with high plasticity. Matrix colour (10YR Value/Chroma) – 7/1 Mottle colour (Percentage) – 7/4 (5%)	

Site # and Soil Description	Soil Photo
D26 and D27 **0-300 mm.** Clayey topsoil. Light yellowish brown with very pale brown mottle. Rootlets and very minor rhizospheres present. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 7/4 (20%)	
300-500 mm. Clayey SILT. Brown. Slightly moist. Rootlets and very minor rhizospheres present Matrix colour (10YR Value/Chroma) – 5/4 **500-1000 mm.** Clayey SILT. Yellowish brown with light yellowish-brown mottle. Slightly moist. Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 6/4 (10%)	

Site # and Soil Description	Soil Photo
D28 **0-300 mm.** Silty TOPSOIL Light yellowish brown with very pale brown mottle. Dry and loose. Rootlets and very minor rhizospheres present. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 7/4 (20%)	
300-700 mm. Silty CLAY. Very pale brown. Minor yellow mottle. Hard and dry. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 7/8 (5%) **700-1000 m.** CLAY. Light grey. Minor yellow mottle. Firm with high plasticity Matrix colour (10YR Value/Chroma) – 7/1 Mottle colour (Percentage) – 7/4 (5%)	

Site # and Soil Description	Soil Photo
D29 **0-300 mm.** Very dry silty topsoil. Very pale brown. Rootlets present. Matrix colour (10YR Value/Chroma) – 7/4	
300-500mm. CLAY. Brownish yellow with light yellowish-brown mottle. Firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 6/4 (20%) **500-1000 mm.** CLAY. Light grey with minor light yellowish brown mottle. Firm with high plasticity. Matrix colour (10YR Value/Chroma) – 7/1 Mottle colour (Percentage) – 7/4 (5%)	

Site # and Soil Description	Soil Photo
E1 **0-300 mm.** Clayey TOPSOIL. Yellowish brown with yellow mottle. Minor rootlets and rhizospheres present. Moderate plasticity Matrix colour (10YR Value/Chroma) – 5/8 Mottle colour (Percentage) – 8/8 (15%)	
300-1000 mm. CLAY. Grey. Firm with moderate plasticity. Orange iron pan present at 400 mm. Matrix colour (10YR Value/Chroma) – 6/1	

Site # and Soil Description	Soil Photo
E2 **0-300 mm.** Silty CLAY. Brown with rootlets present. Moderate plasticity. Matrix colour (10YR Value/Chroma) – 4/3	
300-500 mm. Silty CLAY. Greyish brown with minor orange iron deposits. high plasticity. Matrix colour (10YR Value/Chroma) – 5/2 **500-1000 mm.** Silty CLAY. Very pale brown with minor orange iron deposits. High plasticity Matrix colour (10YR Value/Chroma) – 7/4	

Site # and Soil Description	Soil Photo
E3 **0-300 mm.** Clayey TOPSOIL. Brown. Soft. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3	
300-600 mm. Silty CLAY. Light grey. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 7/2 **600-1000 mm.** Silty CLAY. Light grey. Firm with high plasticity. Matrix colour (10YR Value/Chroma) – 7/2	

Site # and Soil Description	Soil Photo
E4 **0-300 mm.** TOPSOIL Brown. Dry and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3	
300-500 mm. Clayey SILT. Very pale brown with minor yellow mottle. Minor rootlets present. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 7/8 (2-5%) **500-800 mm.** Silty CLAY. Pale brown with brownish yellow mottle. High plasticity. Matrix colour (10YR Value/Chroma) – 8/4 Mottle colour (Percentage) – 6/6 (10%) **800-1000 mm.**	

Site # and Soil Description	Soil Photo
CLAY. Light grey with minor very pale yellow mottle. High plasticity. Matrix colour (10YR Value/Chroma) – 8/1 Mottle colour (Percentage) – 8/3 (5%)	
E5 **0-300 mm.** TOPSOIL Brown with minor brownish yellow mottle. Dry and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 6/8 (5%)	

Site # and Soil Description	Soil Photo
300-400 mm. Clayey SILT. Brown with minor brownish yellow mottle. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 6/8 (5%) **400-600 mm.** CLAY. Light yellowish brown with brownish yellow mottle. Firm with medium plasticity. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 6/8 (30%) **600-1000 mm.** CLAY. Very pale brown with brownish yellow mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 6/8 (30%)	

Site # and Soil Description	Soil Photo
E6 **0-200 mm.** Clayey TOPSOIL. Brown. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3	
200-500 mm. CLAY. Light greyish brown. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 6/2 **500-1000 mm.** CLAY. Light brownish grey with brownish yellow mottle. High plasticity. Matrix colour (10YR Value/Chroma) – 6/2 Mottle colour (Percentage) – 6/8 (5-10%)	

Site # and Soil Description	Soil Photo
E7 **0-400 mm.** SILT. Pale brown with minor very pale brown mottle. Dry and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 6/3 Mottle colour (Percentage) – 8/4 (5%)	
400-600 mm. Silty CLAY. Brown with brownish yellow mottle. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 6/8 (10%) **600-1000 mm.** CLAY. Very pale brown with minor brownish yellow mottle. Clay pan present. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 6/8 (3%)	

Site # and Soil Description	Soil Photo
F1 **0-150 mm.** TOPSOIL. Brown with yellow mottle. Sticky with moderate plasticity. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 7/8 (10%)	
150-1000 mm. Silty CLAY. Yellow. Dry with high plasticity. Matrix colour (10YR Value/Chroma) – 8/8	

Site # and Soil Description	Soil Photo
F2 **0-300 mm.** Clayey TOPSOIL with traces of silt. Dark yellowish brown with dark yellowish-brown mottle. Dry. Matrix colour (10YR Value/Chroma) – 3/4 Mottle colour (Percentage) – 4/6 (5%)	
300-1000 mm. Silty CLAY. Light yellowish brown. Matrix colour (10YR Value/Chroma) – 6/4	

Site # and Soil Description	Soil Photo
F3 **0-200 mm.** TOPSOIL. Dark yellowish brown with yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 7/8 (10%)	
200-1000 mm. Silty CLAY. Yellow. Dry with moderate plasticity. Matrix colour (10YR Value/Chroma) – 7/8	

Site # and Soil Description	Soil Photo
F4 **0-150 mm.** TOPSOIL. Dark yellowish brown with brownish yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 3/4 Mottle colour (Percentage) – 6/8 (10%) **150-1000 mm.** Silty CLAY. Yellow with brownish yellow mottles. Matrix colour (10YR Value/Chroma) – 7/8 Mottle colour (Percentage) – 6/8 (40%)	
F5 **0-250 mm.** TOPSOIL. Brown with yellow mottles. Some peaty topsoil and organic soil material. Moderate plasticity. Pugged. Surface soil cracks and oxidised rhizospheres present. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 7/8 (30%) **250-300 mm.** Silty CLAY. Yellow with brownish yellow mottle. High plasticity. Matrix colour (10YR Value/Chroma) – 7/8 Mottle colour (Percentage) – 6/8 (30%) Silty	

Site # and Soil Description	Soil Photo
Note: Soil log not continued due to saturated soils.	
G1 **0-200 mm.** Clayey TOPSOIL. Some organic soil material present. Brown. Moderate plasticity. Matrix colour (10YR Value/Chroma) – 4/3	
200-400 mm. CLAY. Grey. Sticky. Pugged. Matrix colour (10YR Value/Chroma) – 5/1 **400-1000 mm.** CLAY. Yellow. Sticky with high plasticity. Matrix colour (10YR Value/Chroma) – 8/8	

Site # and Soil Description	Soil Photo
G2 **0-300 mm.** Clayey TOPSOIL. Brown with minor yellowish-brown mottle. Minor rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 5/8 (2%)	
300-500 mm. CLAY. Minor deposits of brown topsoil. Light yellowish brown. High plasticity. Matrix colour (10YR Value/Chroma) – 6/4 **500-1000 mm.** CLAY. Light yellowish brown with very pale brown mottle. Firm with high plasticity. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 8/4 (10%)	

Site # and Soil Description	Soil Photo
G3 **0-200 mm.** Clayey TOPSOIL. Brown. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3	
200-500 mm. Silty CLAY. Yellowish brown with brownish yellow mottle. Rootlets and rhizospheres present. High plasticity. Matrix colour (10YR Value/Chroma) – 5/4 Mottle colour (Percentage) – 6/8 (30%) **500-1000 mm.** CLAY with traces of organic matter. Very pale brown with yellow mottle. High plasticity Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 7/6 (20%)	

Site # and Soil Description	Soil Photo
G4 **0-300 mm.** Silty TOPSOIL. Brown. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3	
300-600 mm. Silty CLAY. Very pale brown with yellow mottle. Minor rootlets present. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 7/8 (30%) **600-1000 mm.** CLAY. Light grey with yellow mottle. High plasticity Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 7/8 (40%)	

Site # and Soil Description	Soil Photo
G5 **0-200 mm.** Clayey TOPSOIL. Brown. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3	
200-300 mm. CLAY. Light grey with yellow mottle. Minor rootlets and rhizospheres present. Moderate plasticity Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 7/8 (10%) **300-600 mm.** CLAY with deposits of organic matter. Light grey with yellow mottle. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 7/8 (10%) **600-1000 mm.**	

Site # and Soil Description	Soil Photo
CLAY with traces of organic matter. Brown. Sticky and soft. Matrix colour (10YR Value/Chroma) – 5/3	
G6 **0-300 mm.** Clayey TOPSOIL. Dark brown with minor very pale-yellow mottle. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 3/3 Mottle colour (Percentage) – 8/4 (3%)	

Site # and Soil Description	Soil Photo
300-1000 mm. CLAY. Light yellowish brown with minor dark brown mottle. Soft and sticky with some plasticity. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 3/3 (3%)	
G7 **0-400 mm.** Silty TOPSOIL. Dark brown. Hard and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 3/3	

Site # and Soil Description	Soil Photo
400-600 mm. Silty CLAY. Yellowish brown with minor light yellowish brown mottle. Hard. Matrix colour (10YR Value/Chroma) – 5/4 Mottle colour (Percentage) – 4/6 (3%) **600-1000 mm.** CLAY. Light yellowish brown with minor brownish yellow mottle. Very hard. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 6/6 (3%)	
G8 **0-300 mm.** Silty TOPSOIL. Dark brown with minor brownish yellow mottle. Matrix colour (10YR Value/Chroma) – 3/3 Mottle colour (Percentage) – 6/8 (2%)	

Site # and Soil Description	Soil Photo
300-400 mm. Silty GRAVEL with traces of dark organic soils. Very dark brown with minor brownish yellow mottle. Matrix colour (10YR Value/Chroma) – 2/2 Mottle colour (Percentage) – 6/8 (3%) **400-500 mm.** CLAY. Pale brown. Soft. Matrix colour (10YR Value/Chroma) – 6/3 **500-600 mm.** Clay with gravelly deposits. Dark brown with brownish yellow mottle. Matrix colour (10YR Value/Chroma) – 3/3 Mottle colour (Percentage) – 6/8 (10%) **600-1000 mm.** CLAY. Very pale brown. Very soft with high plasticity. Matrix colour (10YR Value/Chroma) – 7/4	

Site # and Soil Description	Soil Photo
G9 **0-300mm.** Silty TOPSOIL. Brown. Loose. Matrix colour (10YR Value/Chroma) – 5/3	
300-400 mm. Silty CLAY. Yellowish brown with brownish yellow mottle. Hard and loose. Matrix colour (10YR Value/Chroma) – 5/4 Mottle colour (Percentage) – 6/6 (15%) **400-700 mm.** CLAY. Yellowish brown with brown mottle. Hard. Matrix colour (10YR Value/Chroma) – 5/6 Mottle colour (Percentage) – 5/3 (20%) **700-1000 mm.** CLAY. Brownish yellow with yellow	

Site # and Soil Description	Soil Photo
brown mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 5/6 (20%)	
G10 **0-300 mm.** Clayey TOPSOIL. Brown with yellowish brown mottle. Dry and loose. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 5/8 (40%)	

Site # and Soil Description	Soil Photo
300-400 mm. Clayey SILT. Yellow with minor yellowish-brown mottle. Dry and loose. Matrix colour (10YR Value/Chroma) – 7/8 Mottle colour (Percentage) – 5/6 (5%) **400-600 mm.** Silty CLAY. Yellow with very pale brown mottle. Hard. Minor rootlets and traces of organic material present. Matrix colour (10YR Value/Chroma) – 7/8 Mottle colour (Percentage) – 7/4 (10%) **600-1000 mm.** Silty CLAY. Yellow with very pale brown mottle. Traces of iron and rhizospheres present. Moderate plasticity. Matrix colour (10YR Value/Chroma) – 7/8 Mottle colour (Percentage) – 7/4 (40%)	

Site # and Soil Description	Soil Photo
H1 **0-300 mm.** Silty TOPSOIL. Brown with yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (20%)	
300-700 mm. Silty CLAY. Brownish yellow with yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 7/8 (20%) **700-1000 mm.** Silty CLAY. Yellowish brown with minor yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 5/6 Mottle colour (Percentage) – 7/8 (5%)	

Site # and Soil Description	Soil Photo
H2 **0-300 mm.** Silty TOPSOIL. Brown with brownish yellow mottle. Dry. Rootlets and minor rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 5/8 (20%)	
300-1000 mm. Silty CLAY. Brownish yellow. Matrix colour (10YR Value/Chroma) – 5/8	

Site # and Soil Description	Soil Photo
H3 **0-300 mm.** Clayey TOPSOIL. Brown with brownish yellow mottle. Dry. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 6/8 (30%)	
300-1000 mm. Silty CLAY. Yellowish brown. Dry Matrix colour (10YR Value/Chroma) – 5/6	
H4 **0-300 mm.** Clayey TOPSOIL. Brown with yellow	

Site # and Soil Description	Soil Photo
mottle. Dry. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (10%)	
300-1000 mm. Silty CLAY. Brownish yellow with yellow mottle. Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 7/8 (10%)	

Site # and Soil Description	Soil Photo
H5 **0-250 mm.** Clayey TOPSOIL. Dark brown with brownish yellow mottle. Moist. Matrix colour (10YR Value/Chroma) – 3/3 Mottle colour (Percentage) – 5/8 (30%)	
250-700 mm. Silty CLAY. Yellowish brown. Moist. Matrix colour (10YR Value/Chroma) – 5/6 **700-1000 mm.** Silty CLAY. Brownish yellow. Dry. Matrix colour (10YR Value/Chroma) – 6/8	

Site # and Soil Description	Soil Photo
H6 **0-300 mm.** TOPSOIL. Brown with yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (20%)	
300-1000 mm. Clayey SILT. Brownish yellow with minor yellow mottle. Dry and loose. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 7/8 (5%)	

Site # and Soil Description	Soil Photo
I1 **0-200 mm.** Silty TOPSOIL. Brown. Dry and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 5/3	
200-400 mm. SILT. Dark brown with minor grey mottle. Dry and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 3/3 Mottle colour (Percentage) – 6/1 (5%) **400-800 mm.** SILT. Light grey with brownish yellow mottle. Dry and loose. Matrix colour (10YR Value/Chroma) – 7/1 Mottle colour (Percentage) – 5/8 (30%) **800-1000mm.** Clayey SILT. Light brownish grey with brownish yellow mottle.	

Site # and Soil Description	Soil Photo
Matrix colour (10YR Value/Chroma) – 6/2 Mottle colour (Percentage) – 6/8 (10%)	
I2 **0-400 mm.** Silty TOPSOIL. Light yellowish brown with very pale brown mottle. Dry and loose. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 8/4 (20%)	

Site # and Soil Description	Soil Photo
400-1000 mm. Clayey SILT. Very pale brown. Matrix colour (10YR Value/Chroma) –7/4	
I3 **0-400 mm.** Silty TOPSOIL. Brown. Dry and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3	

Site # and Soil Description	Soil Photo
400-1000 mm. Clayey SILT. Very pale brown with yellow mottle. Dry and soft. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 7/6 (20%)	
I4 **0-300 mm.** Silty CLAY. Dark brown. Moist. Rootlets present. Matrix colour (10YR Value/Chroma) – 3/3	

Site # and Soil Description	Soil Photo
300-500 mm. Clayey SILT. Grey. Moist and soft. Matrix colour (10YR Value/Chroma) – 6/1 **500-1000 mm.** Silty CLAY. Yellow with greyish brown mottle. Matrix colour (10YR Value/Chroma) – 7/6 Mottle colour (Percentage) – 5/2 (10%)	
I5 **0-400 mm.** Peaty CLAY. Dark grey. Soft and moist. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/1	

Site # and Soil Description	Soil Photo
400-600 mm. CLAY. Dark grey with light grey mottle. Soft with high plasticity. Minor rootlets present. Matrix colour (10YR Value/Chroma) – 4/1 Mottle colour (Percentage) – 7/1 (10%) **600-900 mm.** CLAY. Light grey with minor yellow mottle. Very soft. Matrix colour (10YR Value/Chroma) – 7/1 Mottle colour (Percentage) – 7/8 (5%) **900-1000 mm.** Silty CLAY. Light grey with minor yellow mottle. Soft. Matrix colour (10YR Value/Chroma) – 7/1 Mottle colour (Percentage) – 7/8 (5%)	

Site # and Soil Description	Soil Photo
I6 **0-300 mm.** Organic peaty TOPSOIL. Very dark brown. Very moist. Rootlets present. Matrix colour (10YR Value/Chroma) – 2/2	
300-400 mm. Clayey SILT. Light brownish grey. Water table reached. Matrix colour (10YR Value/Chroma) – 6/2	

Site # and Soil Description	Soil Photo
J1 **0-400 mm.** Clayey TOPSOIL. Dark brown. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 3/3	
400-500 mm. Silty CLAY. Very dark brown. Soft. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 2/2 **500-700 mm.** Silty CLAY. Pale brown with minor light yellowish brown. Soft. Matrix colour (10YR Value/Chroma) – 6/3 Mottle colour (Percentage) – 6/4 (5%) **700-1000 mm.** CLAY. Brownish yellow with minor pale brown mottle. Very soft.	

Site # and Soil Description	Soil Photo
Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 6/3 (5%)	
J2 **0-400 mm.** Clayey TOPSOIL. Very dark greyish brown. Soft and moist. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 3/2	
400-800 mm. CLAY. Yellowish brown with brown mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 5/8 Mottle colour (Percentage) – 4/3 (10%) **800-1000 mm.** CLAY. Yellowish brown with brownish yellow mottle. Matrix colour (10YR Value/Chroma) – 5/8 Mottle colour (Percentage) – 4/3 (10%)	

Site # and Soil Description	Soil Photo
J3 **0-400 mm.** Silty TOPSOIL. Dark brown. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 3/3	
400-500 mm. Silty CLAY with traces of sand. Very pale brown with yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 7/3 Mottle colour (Percentage) – 7/8 (10%) **500-800 mm.** Clayey SILT. Light grey. Matrix colour (10YR Value/Chroma) – 7/1 **800-1000 mm.** Silty CLAY. Light grey with minor yellow mottle. Moist and sticky with high plasticity.	

Site # and Soil Description	Soil Photo
Matrix colour (10YR Value/Chroma) – 7/1 Mottle colour (Percentage) – 7/8 (3%)	
J4 **0-400 mm.** TOPSOIL. Dark brown. Dry and loose with minor rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 3/3	

Site # and Soil Description	Soil Photo
400-600 mm. Silty CLAY. Light grey with minor yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 7/8 (5%) **600-700 mm.** Clayey SILT. Brown. Matrix colour (10YR Value/Chroma) – 5/3 **700-1000 mm.** CLAY with traces of sand. Brownish yellow with yellowish brown mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 5/8 (10%)	

Site # and Soil Description	Soil Photo
J5 **0-300 mm.** Clayey TOPSOIL. Dark brown with minor yellowish-brown mottle. Minor rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 3/3 Mottle colour (Percentage) – 5/8 (3%)	
300-500 mm. Silty CLAY. Pale brown with minor yellow mottle. Dry and firm. Matrix colour (10YR Value/Chroma) – 6/3 Mottle colour (Percentage) – 7/8 (5%) **500-1000 mm.** CLAY with minor organic deposits. Light brownish grey with brownish yellow mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 6/2 Mottle colour (Percentage) – 6/6 (15%)	

Site # and Soil Description	Soil Photo
J6 **0-300 mm.** Clayey TOPSOIL. Light yellowish brown with minor yellow mottle. Dry and loose. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 7/8 (5%)	
300-500 mm. Clayey SILT. Yellow with light yellowish-brown mottle. Dry. Matrix colour (10YR Value/Chroma) – 8/8 Mottle colour (Percentage) – 6/4 (10%) **500-600 mm.** Silty CLAY. Very dark greyish brown. Very soft and loose. Matrix colour (10YR Value/Chroma) – 3/2 **600-1000 mm.** Silty CLAY. Light brownish grey with minor yellow mottle. Soft with moderate plasticity. Matrix colour (10YR Value/Chroma) – 6/2	

Site # and Soil Description	Soil Photo
Mottle colour (Percentage) – 8/8 (5%)	
J7 **0-300 mm.** TOPSOIL. Brown with minor brownish yellow mottle. Dry and loose with rootlets present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 6/8 (5%)	
300-500 mm. Clayey SILT. Brownish yellow with dark brownish yellow mottle. Dry and loose with rootlets present. Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 4/6 (20%) **500-600 mm.** Silty CLAY. Brown with minor brownish yellow mottle. Soft. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 6/8 (5%)	

Site # and Soil Description	Soil Photo
600-1000 mm. CLAY. Yellowish brown with yellow mottle. Matrix colour (10YR Value/Chroma) – 5/4 Mottle colour (Percentage) – 7/8 (20%)	
K1 **0-400 mm.** Peaty TOPSOIL with organic deposits. Very dark brown. Roots and rootlets present. Matrix colour (10YR Value/Chroma) –2/2	

Site # and Soil Description	Soil Photo
400-700 mm. CLAY with minor organic matter. Brown with yellow mottle. Firm with high plasticity. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 5/8 (20%) **700-1000 mm.** CLAY. Light yellowish brown with yellow mottle. High plasticity. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 5/8 (20%)	
K2 **0-300 mm.** Clayey TOPSOIL. Brown with light grey mottle. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/2 (20%)	

Site # and Soil Description	Soil Photo
300-400 mm. Silty CLAY. Dark grey with minor yellow mottle. Soft and saturated. Matrix colour (10YR Value/Chroma) – 4/1 Mottle colour (Percentage) – 7/8 (5%) **400-600 mm.** CLAY. Light yellowish brown with yellow mottle. Firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 7/8 (10%) **600-1000 mm.** CLAY. Light yellowish brown with minor yellow mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 7/8 (5%)	

Site # and Soil Description	Soil Photo
K3 **0-400 mm.** Silty TOPSOIL. Brown. Dry with rootlets present. Matrix colour (10YR Value/Chroma) – 4/3	
400-600 mm. Clayey SILT. Light yellowish brown with yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 7/8 Mottle colour (Percentage) – 6/4 (10%) **600-1000 mm.** Silty CLAY with traces of sand. Very pale brown with pale yellow mottle. Soft. Matrix colour (10YR Value/Chroma) – 8/2 Mottle colour (Percentage) – 8/8 (20%)	

Site # and Soil Description	Soil Photo
K4 **0-300 mm.** Clayey TOPSOIL with traces of charcoal. Brown. Dry with rootlets present. Matrix colour (10YR Value/Chroma) – 4/3	
300-500 mm. Silty CLAY. Very pale brown with brownish yellow mottles. Dry. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 6/8 (10%) **500-800 mm.** Silty CLAY. Yellowish brown with brownish yellow mottle. Firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 5/4 Mottle colour (Percentage) – 6/8 (20%) **800-1000 mm.** CLAY. Very pale brown with brownish	

Site # and Soil Description	Soil Photo
yellow mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 6/8 (20%)	
L1 **0-300 mm.** Clayey TOPSOIL. Very dark brown. Soft and saturated. Matrix colour (10YR Value/Chroma) – 2/2	

Site # and Soil Description	Soil Photo
300-700 mm. CLAY. Very dark grey. Very soft with high plasticity. Matrix colour (10YR Value/Chroma) – 3/1 **700-1000 mm.** CLAY. Very dark grey. Soft, sticky and moist. Water table at 700mm. Slight sulfuric odour. Matrix colour (10YR Value/Chroma) – 3/1	
L2 **0-300 mm.** Clayey TOPSOIL. Brown with grey mottle. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 6/1 (10%)	

Site # and Soil Description	Soil Photo
300-500 mm. Silty CLAY. Dark grey with minor yellowish-brown mottle. Soft and moist. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/1 Mottle colour (Percentage) – 5/8 (5%) **500-1000 mm.** CLAY. Very pale brown with minor yellow mottle. Very soft with high plasticity. Matrix colour (10YR Value/Chroma) – 7/3 Mottle colour (Percentage) – 7/8 (5%)	
L3 **0-300 mm.** Silty TOPSOIL. Brown. Dry and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3	

Site # and Soil Description	Soil Photo
300-500 mm. Clayey SILT. Yellowish brown with brownish yellow mottle. Dry and loose. Matrix colour (10YR Value/Chroma) – 5/4 Mottle colour (Percentage) – 6/8 (20%) **500-600 mm.** Silty CLAY. Yellowish brown with brownish yellow mottle. Loose. Matrix colour (10YR Value/Chroma) – 5/4 Mottle colour (Percentage) – 6/8 (10%) **600-1000 mm.** CLAY. Yellowish brown with pale brown mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 5/8 Mottle colour (Percentage) – 6/3 (10%)	

Site # and Soil Description	Soil Photo
L4 **0-400 mm.** Clayey TOPSOIL. Brown. Matrix colour (10YR Value/Chroma) – 5/3	
400-800 mm. CLAY. Light grey with minor very pale brown mottle. Firm. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 7/4 (5%) **800-1000 mm.** CLAY. Light grey with very pale brown mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 7/4 (10%)	

Site # and Soil Description	Soil Photo
L5 **0-300 mm.** TOPSOIL. Brown. Loose. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 5/3	
300-500 mm. Silty CLAY. Brown with minor brownish yellow mottle. Hard and loose. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 6/6 (5%) **500-800 mm.** CLAY. Yellowish brown with brown mottle. Firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 5/8 Mottle colour (Percentage) – 5/3 (20%) **800-1000 mm.** CLAY. Very pale brown with minor	

Site # and Soil Description	Soil Photo
brownish yellow mottle. Matrix colour (10YR Value/Chroma) – 7/3 Mottle colour (Percentage) – 6/6 (5%)	

Site # and Soil Description	Soil Photo
L6 **0-300 mm.** Clayey topsoil. Brown with yellowish brown mottle and very pale brown mottle. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 6/4 (10%), 8/4 (30%)	 

Site # and Soil Description	Soil Photo
300-700 mm CLAY. Brown with yellowish brown mottle. Firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 6/4 (30%) **800-1000 mm.** CLAY. Yellow with brown mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 7/6 Mottle colour (Percentage) – 5/3 (30%)	

Site # and Soil Description	Soil Photo
L7 **0-300 mm.** Clayey TOPSOIL. Brown. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3	 

Site # and Soil Description	Soil Photo
300-500 mm. CLAY. Brown. Moderate plasticity. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/3 **500-800 mm.** CLAY. Greyish brown with very pale brown mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 5/2 Mottle colour (Percentage) – 7/4 (40%) **800-1000 mm.** CLAY. Very pale brown with greyish brown mottle. Soft and sticky. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 8/2 (30%)	

Site # and Soil Description	Soil Photo
L8 **0-200 mm.** TOPSOIL. Dark brown with minor dark yellowish-brown mottle. Soft and loose. Matrix colour (10YR Value/Chroma) – 3/3 Mottle colour (Percentage) – 3/6 (5%)	
200-600 mm. CLAY. Light grey with yellow mottle. Firm with moderate plasticity. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 7/1 Mottle colour (Percentage) – 8/6 (15%) **600-1000 mm.** Silty CLAY. Light grey with yellow mottle. Loose with moderate plasticity. Matrix colour (10YR Value/Chroma) – 7/1 Mottle colour (Percentage) – 8/6 (20%)	

Site # and Soil Description	Soil Photo
L9 **0-300 mm.** TOPSOIL. Dark brown. Loose with rootlets present. Matrix colour (10YR Value/Chroma) – 3/3	
300-500 mm. Clayey TOPSOIL. Dark brown. Matrix colour (10YR Value/Chroma) – 3/3 **500-800 mm.** CLAY. Dark brown with minor dark yellowish-brown mottle. Matrix colour (10YR Value/Chroma) – 3/3 Mottle colour (Percentage) – 4/6 (5%) **800-1000 mm.** CLAY with traces of silt. Very dark grey. Very soft with moderate plasticity. Matrix colour (10YR Value/Chroma) – 3/1	

Site # and Soil Description	Soil Photo
L10 **0-300 mm.** TOPSOIL. Brown. Dry, soft and loose. Matrix colour (10YR Value/Chroma) – 5/3	
300-600 mm. Silty CLAY. Yellowish brown with yellow mottle. Soft. Matrix colour (10YR Value/Chroma) – 5/4 Mottle colour (Percentage) – 7/8 (10%) **600-1000 mm.** Silty CLAY with traces of sand. Yellowish brown. Very soft and saturated. Water table at 600 mm. Matrix colour (10YR Value/Chroma) – 5/4	

Site # and Soil Description	Soil Photo
L11 **0-300 mm.** TOPSOIL. Brown. Dry and loose. Matrix colour (10YR Value/Chroma) – 5/3	
300-500 mm. Silty CLAY. Very pale brown with yellow mottle. Dry and loose. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 7/8 (10%) **500-1000 mm.** Silty CLAY. Very pale brown with yellow mottle. Moderate plasticity. Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 7/8 (15%)	

Site # and Soil Description	Soil Photo
L12 **0-300 mm.** Clayey TOPSOIL. Brown. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 5/3	
300-400 mm. CLAY. Brown with yellowish brown. Mottle. Firm. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 5/8 (10%) **400-600 mm.** CLAY. Light brownish grey with yellowish brown mottle. Firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 6/2 Mottle colour (Percentage) – 5/8 (20%) **600-1000 mm.**	

Site # and Soil Description	Soil Photo
CLAY with traces of silt. Light brownish grey with yellowish brown mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 6/2 Mottle colour (Percentage) – 5/8 (30%)	
L13 **0-300 mm.** Silty TOPSOIL. Light yellowish brown with yellow mottle Dry and loose. Minor rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 7/6 (10%)	

Site # and Soil Description	Soil Photo
300-500 mm. Clayey SILT. Light yellowish brown with yellow mottle. Loose. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 7/6 (30%) **500-1000 mm.** Clayey SILT. Light grey with very pale brown mottle. Soft and loose. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 7/4 (10%)	
M1 **0-300 mm.** SILT. Dark brown. Dry, stiff, and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 3/3	

Site # and Soil Description	Soil Photo
300-600 mm. Clayey SILT. Brown with brownish yellow mottle. Dry and loose. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 6/8 (20%) **600-800 mm.** Clayey SILT. Light brown with yellow mottle. Dry and firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 6/2 Mottle colour (Percentage) – 7/8 (10%) **800-1000 mm.** Clayey SILT. Light grey with yellow mottle. Dry and semi soft with high plasticity. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 7/8 (20%)	

Site # and Soil Description	Soil Photo
M2 **0-300 mm.** SILT. Very dark greyish brown. Very dry, stiff and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 3/2	
300-800 mm. Clayey SILT. Brown with yellow mottle. Dry and firm. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (30%) **800-1000 mm.** Clayey SILT. Brown with light yellowish-brown mottle. Dry and firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 6/4 (30%)	
M3 **0-400 mm.** Silty CLAY. Brown. Moist and soft. Rootlets present.	

Site # and Soil Description	Soil Photo
Matrix colour (10YR Value/Chroma) – 4/3	
400-800 mm. Organic PEAT with minor gravels. Back with very pale brown mottle. Dry and loose, poorly sorted. Matrix colour (10YR Value/Chroma) – 2/1 Mottle colour (Percentage) – 7/4 (30%) **800-1000 mm.** CLAY. Yellow with dark brown mottle. Soft and sticky, slightly moist. Matrix colour (10YR Value/Chroma) – 7/8 Mottle colour (Percentage) – 3/3 (10%)	
M4 **0-400 mm.** Silty TOPSOIL with traces of gravels. Dark brown with traces of yellow mottle. Dry and loose. Matrix colour (10YR Value/Chroma) – 3/3 Mottle colour (Percentage) – 7/8 (1%)	

Site # and Soil Description	Soil Photo
400-600 mm. Silty CLAY. Light yellowish brown with grey mottle. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 6/1 (10%) **600-700 mm.** Silty PEAT. Very dark brown. Matrix colour (10YR Value/Chroma) – 2/2 **700-1000 mm.** Silty CLAY. Light yellowish brown with yellowish brown mottle. Matrix colour (10YR Value/Chroma) – 6/4 Mottle colour (Percentage) – 5/8 (15%)	

Site # and Soil Description	Soil Photo
M5 **0-300 mm.** Silty TOPSOIL. Brown. Dry and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3	
300-1000 mm CLAY. Brownish yellow with grey mottle. Moist with moderate plasticity. Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 5/1 (10%)	

Site # and Soil Description	Soil Photo
M6 **0-300 mm.** SILT. Brown. Very dry and loose. Rootlets present. Matrix colour (10YR Value/Chroma) –4/3	
300-400 mm. SILT. Very dark brown. Very dry and loose. Matrix colour (10YR Value/Chroma) – 2/2 **400-600 mm.** Clayey SILT. Dark yellowish brown with pale brown mottle. Dry and firm. Matrix colour (10YR Value/Chroma) – 4/4 Mottle colour (Percentage) – 6/3 (50%) **600-1000 mm.** Silty CLAY. Very pale brown with yellow mottle. Dry and firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 7/3	

Site # and Soil Description	Soil Photo
Mottle colour (Percentage) – 7/6 (20%)	
N1 **0-300 mm.** Silty CLAY. Dark greyish brown with brownish yellow mottle. Iron pan present. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/2 Mottle colour (Percentage) – 6/5 (20%)	
300-1000 mm. CLAY. Pale brown with brownish yellow mottle. Hard with high plasticity. Matrix colour (10YR Value/Chroma) – 6/3 Mottle colour (Percentage) – 6/5 (20%)	

Site # and Soil Description	Soil Photo
N2 **0-300 mm.** Clayey TOPSOIL. Dark brown with traces of yellowish-brown mottle. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 5/8 (3%)	
300-500 mm. CLAY. Brown with yellow mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 7/6 (30%) **500-800 mm.** CLAY. Brown with yellow mottle. Hard with moderate plasticity. Rootlets present. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 7/6 (30%) **800-1000 mm.** CLAY. Light grey with yellow mottle. Hard with high plasticity.	

Site # and Soil Description	Soil Photo
Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 7/8 (10%)	
N3 **0-300 mm.** Clayey TOPSOIL. Brown with yellowish brown mottle. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 5/8 (10%)	

Site # and Soil Description	Soil Photo
300-500 mm. Silty CLAY. Yellowish brown with dark yellowish-brown mottle. Loose. Matrix colour (10YR Value/Chroma) – 5/8 Mottle colour (Percentage) – 3/6 (20%) **500-1000 mm.** Silty CLAY. Very pale brown with yellowish brown mottle. Loose Matrix colour (10YR Value/Chroma) – 7/4 Mottle colour (Percentage) – 5/8 (30%)	
N4 **0-100 mm.** TOPSOIL. Dark brown. Moist. Rootlets present. Matrix colour (10YR Value/Chroma) – 3/3 **100-300 mm.** Silty CLAY. Brown with yellow mottle. Dry. Rootlets present. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 7/8 (30%)	

Site # and Soil Description	Soil Photo
300-500 mm. CLAY. Very pale brown with yellow mottle. Firm with moderate plasticity. Matrix colour (10YR Value/Chroma) – 7/3 Mottle colour (Percentage) – 7/8 (20%) **500-1000 mm.** CLAY. Very pale brown with yellow mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 7/3 Mottle colour (Percentage) – 7/8 (20%)	
N5 **0-300 mm.** TOPSOIL. Dark brown. Loose. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 3/3	

Site # and Soil Description	Soil Photo
300-400 mm. Silty CLAY. Dark yellowish brown with grey mottle. Rootlets and rhizospheres present. Matrix colour (10YR Value/Chroma) – 4/6 Mottle colour (Percentage) – 5/1 (30%) **400-500 mm.** Clayey SILT. Light grey with brownish yellow mottle. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 6/8 (20%) **500-1000 mm.** Silty CLAY. Light grey with brownish yellow mottle. Hard and loose. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 6/8 (20%)	

Site # and Soil Description	Soil Photo
N6 **0-300 mm.** Organic TOPSOIL. Dark brown. Loose. Roots and rootlets present. Matrix colour (10YR Value/Chroma) – 3/3	
300-500 mm. Silty CLAY. Brown with yellow mottle. Pockets of brown organic soil. Firm. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 7/8 (40%) **500-700 mm.** CLAY with traces of topsoil. Brown with yellow mottle. Firm. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 7/8 (40%) **700-1000 mm.** CLAY with traces of silt. Yellowish brown with minor brown mottle. High plasticity.	

Site # and Soil Description	Soil Photo
Matrix colour (10YR Value/Chroma) – 5/8 Mottle colour (Percentage) – 5/3 (5%)	
N7 **0-100 mm.** TOPSOIL. Brown. Matrix colour (10YR Value/Chroma) – 4/3 **100-400 mm.** Silty CLAY. Brown with brownish yellow mottle. Rootlets and minor rhizospheres present. Matrix colour (10YR Value/Chroma) – 7/3 Mottle colour (Percentage) – 6/6 (20%)	

Site # and Soil Description	Soil Photo
400-800 mm. CLAY with traces of dark organic matter. Very pale brown with brownish yellow mottle. Hard and loose. Matrix colour (10YR Value/Chroma) – 7/3 Mottle colour (Percentage) – 6/6 (20%) **800-1000 mm.** CLAY. Very pale brown with brownish yellow mottle. Moderate plasticity. Matrix colour (10YR Value/Chroma) – 7/3 Mottle colour (Percentage) – 6/6 (10%)	
O1 **0-300 mm.** Clayey SILT. Greyish brown with minor brownish yellow mottle. Rootlets present. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 6/8 (5%)	

Site # and Soil Description	Soil Photo
300-500 mm. Clayey SILT with some sand. Dark yellowish brown with grey and yellow mottle. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 6/1 (15%), 7/8 (15%) **500-1000 mm.** Silty CLAY. Dark yellowish brown with black and yellow mottle. Matrix colour (10YR Value/Chroma) – 7/2 Mottle colour (Percentage) – 2/1 (5%), 7/8 (10%)	
O2 **0-400 mm.** Clayey SILT. Dark yellowish brown with grey mottles. Pocket of reddish-purple silt observed at 300 mm. Dry and loose. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/4 Mottle colour (Percentage) – 6/1 (20%)	

Site # and Soil Description	Soil Photo
400-700 mm. SILT with some clay. Dark yellowish brown with grey mottle. Dry and loose. Matrix colour (10YR Value/Chroma) – 3/6 Mottle colour (Percentage) – 6/1 (15%) **700-1000 mm.** SILT with some clay. Dark yellowish brown. Dry. Matrix colour (10YR Value/Chroma) – 3/6	
O3 **0-400 mm.** SILT. Brown with yellow mottle. Stiff. Rootlets present. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (30%)	

Site # and Soil Description	Soil Photo
400-1000 mm. CLAY. Yellowish brown with brownish yellow mottle. Dry and stiff. Rootlets present. Matrix colour (10YR Value/Chroma) – 5/2 Mottle colour (Percentage) – 6/8 (30%)	
O4 **0-200 mm.** SILT. Dark yellowish brown with yellow mottle. Dry and firm. Rootlets present. Iron concretions. Matrix colour (10YR Value/Chroma) – 4/4 Mottle colour (Percentage) – 7/8 (10%)	

Site # and Soil Description	Soil Photo
200-500 mm. SILT with minor clay. Very dark brown with yellow mottle. Dry and soft. Matrix colour (10YR Value/Chroma) – 2/2 Mottle colour (Percentage) – 7/8 (10%) **500-700 mm.** SILT with minor clay. Brown with yellow mottle. Dry, soft and loose. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 7/8 (20%) **700-1000 mm.** SILT. Grey with very pale brown mottle. Very dry and loose. Matrix colour (10YR Value/Chroma) – 6/1 Mottle colour (Percentage) – 7/4 (10%)	

Site # and Soil Description	Soil Photo
P1 **0-300 mm.** TOPSOIL. Dark yellowish brown with yellowish brown mottle. Matrix colour (10YR Value/Chroma) – 3/6 Mottle colour (Percentage) – 5/8 (30%)	
300-500 mm. Silty CLAY. Dark yellowish brown with brownish yellow mottle. Dry Matrix colour (10YR Value/Chroma) – 4/6 Mottle colour (Percentage) – 5/8 (30%) **500-1000 mm.** Silty CLAY. Brownish yellow with yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 6/8 Mottle colour (Percentage) – 7/8 (5%)	

Site # and Soil Description	Soil Photo
P2 **0-300 mm.** TOPSOIL. Brown with yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (20%)	
300-1000 mm. Silty CLAY. Brownish yellow. Matrix colour (10YR Value/Chroma) – 6/8	

Site # and Soil Description	Soil Photo
P3 **0-300 mm.** Silty CLAY. Yellow with brownish yellow mottle. Matrix colour (10YR Value/Chroma) – 7/8 Mottle colour (Percentage) – 6/8 (10%) Further logs not taken due to soil saturation.	
P4 **0-300 mm.** Organic CLAY. Very dark grey. Saturated. Matrix colour (10YR Value/Chroma) – 3/1 Further logs not taken due to soil saturation.	

Site # and Soil Description	Soil Photo
P5 **0-200 mm.** CLAY. Very Dark Brown. Saturated. Water table at 200 mm. Matrix colour (10YR Value/Chroma) – 2/2	
P6 **0-400 mm.** Clayey TOPSOIL. Dark brown with minor yellowish-brown mottle. Loose. Rootlets and minor rhizospheres present. Matrix colour (10YR Value/Chroma) – 3/3 Mottle colour (Percentage) – 5/8 (5%)	

Site # and Soil Description	Soil Photo
400-500 mm. Silty CLAY. Brown with dark yellowish-brown mottle. High plasticity. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 4/6 (10%) **500-800 mm.** CLAY. Brown with dark yellowish-brown mottle. Soft with high plasticity. Matrix colour (10YR Value/Chroma) – 5/3 Mottle colour (Percentage) – 4/4 (10%) **800-1000 mm.** CLAY with traces of silt. Light grey. Very soft with moderate plasticity. Matrix colour (10YR Value/Chroma) – 7/2	

Site # and Soil Description	Soil Photo
P7 **0-300 mm.** TOPSOIL. Brown with yellow mottles. Dry. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (30%)	
300-1000 mm. Silty CLAY. Brownish yellow. Matrix colour (10YR Value/Chroma) – 6/8	

Site # and Soil Description	Soil Photo
P8 **0-300 mm.** TOPSOIL. Brown with yellow mottle. Dry. Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (30%)	
300-1000 mm. Silty CLAY. Dark grey with yellow mottle. Matrix colour (10YR Value/Chroma) – 4/1 Mottle colour (Percentage) – 7/8 (10%)	

Site # and Soil Description	Soil Photo
P9 **0-300 mm.** TOPSOIL. Brown with minor yellow mottle. Dry Matrix colour (10YR Value/Chroma) – 4/3 Mottle colour (Percentage) – 7/8 (5%)	
300-1000 mm. Clayey SILT. Brownish yellow. Stiff and dry. Matrix colour (10YR Value/Chroma) – 6/8