Contaminated Site Management Plan

Proposed Huntly Managed Fill – Fill Area 3

Prepared For: Paua Planning Limited

Date: 1 September 2021

Attention: Kate Madsen
Paua Planning Limited

EHS Support Job No.: J000103

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1 Introduction

EHS Support New Zealand Ltd (EHS Support) was engaged by Paua Planning Limited (Paua Planning) on behalf of Gleeson Quarries Limited to prepare this Contaminated Site Management Plan (CSMP) for Fill Area 3 (FA3, referred to as the site and shown in **Figure 1**) of the proposed Huntly Managed Fill at 310 River View Road, Huntly. The site is currently part of the Huntly Quarry operation.

Previous investigation (EHS Support, 2021) carried out by EHS Support concluded that the site has more likely than not been subjected to an activity on the Ministry for the Environment's (MfE) Hazardous Activities and Industry List (HAIL) (category E7 – storage of hazardous waste dumps or dam tailings), due to coal mine tailings and overburden material that were deposited at the site. Accordingly, the site constitutes a 'piece of land' under Regulation 5(7) of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS).

The CSMP has been prepared in accordance with EHS Support's scope of work set out in our proposal dated 1 April 2021.

1.1 Objectives of this CSMP

The objectives of this CSMP are to:

- Provide procedures to manage potential ground contamination effects on human health and the environment during ground disturbance activities associated with proposed earthworks.
- Support the resource consent application for ground disturbance works under the NES-CS.

The CSMP has been prepared in accordance with the Ministry for the Environment's (MfE) Contaminated Land Management Guidelines (CLMG) No. 1 (MfE, 2021).

2 Roles and Responsibilities

A summary of the organisations involved in the proposed development and the roles and responsibilities of key generic project personnel are presented in **Table 2.**

Table 2 – Roles and Responsibilities

Company/Organisation	Role and Responsibility	Name and Contact Details
Gleeson Quarries Limited	Site owner, project owner and Project Manager	TBC
Gleeson Quarries Limited	Civil contractor responsible for site establishment and set up relevant control measures; supply of machineries and undertake civil works.	TBC
EHS Support	Contaminated Site Specialist and Suitably Qualified and Experienced Practitioner (SQEP)	Andrew Rumsby EHS Support Phone 021 295 2284
Waikato District Council (WDC); Waikato Regional Council (WRC)	Local regulator responsible for administering the NES-CS, regional plan and applicable resource consents for the proposed development	TBC

The civil contractor / project manager shall be responsible for the distribution of this CSMP to key stakeholders and distribution of any subsequent revisions. Revisions to the CSMP must be initially approved by the SQEP and project manager and submitted to the WDC representative for final approval. Changes to the CSMP shall be implemented by the SQEP and forwarded to the civil contractor for distribution.

3 Background

3.1 Site Identification

The site is adjacent to the existing operating Huntly Quarry at 310 Riverview Road, approximately 4.5 km to the south of the Huntly township on the western side of the Waikato River – see **Figure 1**. Access will be through the quarry entrance and along existing quarry roads before linking to a new/upgraded road that will lead to FA3. The site description is presented in **Table 1**.

Table 1: Site Description

Address	Legal Description	Area (m^2)	Site Coordinates
310 Riverview Road, Huntly	Lot 1 DP 25272, Part Lot 9 DP 1278	~42,000	-37.585600, 175.145567

Source: Waikato District Council Maps Online

3.2 Development Proposal

Works to prepare the site for filling will be required before active filling can commence. The preparatory works will involve the installation of the required runoff and sediment control measures followed by the geotechnical establishment works.

The required erosion and sediment control measures will include runoff diversion channels and bunds, and the construction of a sediment retention pond along with a supplementary chemical treatment system. A silt fence will be installed at the bottom end of the work area for sediment control while the pond for the fill site is constructed.

The estimated soil disturbance volume for the proposed development is at least 7,500 m^3.

3.3 Geology and Hydrogeology

Published geological maps (1:250,000) indicate the site is underlain by Waikato Coal Measures of the Lower Te Kuiti Group (GNS Sciense, 2021). These deposits are described as carbonaceous mudstone with muddy quartzose sandstone, carbonaceous shale, coal seams and rare conglomerates, siderite concretion.

The regional groundwater flow is expected to be in an easterly direction towards the Waikato River. As there are no known users around the site, groundwater is not considered as a sensitive receptor as part of this investigation (EHS Support, 2021).

The nearest surface water is the Waikato River located some 850 m to the east of the site.

3.4 Contamination Status

EHS Support undertook a Preliminary and Detailed Site Investigation (PSI / DSI) (EHS Support, 2021) for the site in August 2021. The purpose of the investigation was to characterise potential contaminants in the site soils as a result of historical deposition of coal mine tailings and overburden material at the site.

During the EHS Support soil sampling programme, coal fragments/pieces were noted in some of the recovered soil. Soil sample analysis from the EHS Support investigation reported selected heavy metals (arsenic, boron, cadmium, cobalt, chromium, copper, lead, mercury, nickel, thallium, and zinc) at levels above the published background concentrations but well below the applicable NES-CS Soil Contaminant Standards (SCSs) for commercial/industrial end use. Additionally, future site workers will be mostly within earthmoving equipment – little potential for direct contact with impact soils. In this regard the proposed soil disturbance works and/or the operation of a managed fill facility at the site are highly unlikely to pose a risk to human health or the environment.

4 Regulatory Context

Based on the results from the PSI/DSI (EHS Support, 2021), and given the proposed development, a summary of contaminated land regulatory requirements is presented below:

1. The PSI / DSI (EHS Support, 2021) concluded that the site has been subjected to HAIL activity E7 – storage of hazardous waste dumps or dam tailings. Therefore, since it is more likely than not that a HAIL activity had occurred on the site and soil disturbance is likely to be longer than 2 months then the NES-CS applies to the piece of land under Regulation 5(4) and 5(7). The activity is not a permitted activity under Regulation 8 of the NES-CS.

2. Soil sample analysis from the EHS Support investigation reported heavy metals at levels above the published background concentrations (meaning that Regulation 5(9) does not apply), but well below the applicable NES-CS SCSs for commercial/industrial end use. Accordingly, a

controlled activity consent is required under Regulation 9 of the NES-CS for the proposed soil disturbance activity.

3. It is considered that the proposed development can comply with the permitted activity rule 5.3.4.6 of the Waikato Regional Plans (WRC, 2020).

5 Site Management Procedures

The procedures presented in this CSMP are based on the contamination levels described in **Section 3.4.** The procedures shall be implemented and followed during earthworks activity at the site.

5.1 Site Establishment

The following work shall be undertaken prior to the commencement of earthworks.

5.1.1 Work Notification

The civil contractor shall notify WDC and EHS Support in writing at least 10 working days prior to the commencement of the earthworks unless otherwise specified by the issued resource consent.

5.1.2 Induction and Training

Personnel involved in undertaking earthwork activities at the site are required to undergo a site safety induction before commencing work. Specific training must be given on risks associated with potentially contaminated materials, minimum requirements for personal protection equipment (PPE) and its use, and on good hygiene practices. The purpose of the safety induction is to make workers aware of site hazards, safe working procedures, safety equipment and requirements and the action plan in case of an emergency.

5.1.3 Site Set Up

Prior to commencing earthworks, the civil contractor shall ensure that the earthwork area/s are set up to aid in the management aspects of health, safety and environmental compliance. These requirements include the following:

- Signage, including work information, and health and safety requirements.
- Erosion and sediment control measures as described in **Section 5.2.1**.
- Equipment decontamination facilities as described in **Section 5.2.6**.
- Establishment of health and safety facilities as described in **Section 5.1.4** and **5.2.6**.

5.1.4 Health and Safety Facilities

Details on health and safety requirements relating to contamination hazards are addressed below in **Section 5.2.6**.

The civil contractor will ensure that the necessary PPE (e.g., disposable coveralls (Type 5/6, Category 3) and nitrile gloves) as well as respiratory protective equipment (RPE) (e.g., P2 dust masks and/or P3 respirators) are available onsite in the event that unexpected contamination (i.e. asbestos containing material) is found. The site workers should be familiar with the PPE and RPE application and use prior to work commencing.

Personnel decontamination facilities shall be available for staff handling low-level contaminated soil during the earthworks. Facilities shall be established on site and include (as a minimum) the following:

- Hand and face washing facilities.
- Drums or plastic bags for the disposal of used PPE.
- Boot washing facilities.

More detailed information is presented in **Section 5.2.6**.

5.2 Earthwork Procedures

This section presents the procedures to be followed during excavation and off-site disposal of the impacted soils at the site during the earthworks. The procedures shall apply to ground disturbance activities unless otherwise stated, or otherwise approved by the SQEP.

These procedures are not intended to relieve the civil contractor (as the person conducting a business or undertaking) of either their responsibility for the health and safety of their workers, contractors and the public, or their responsibility for protection of the environment. Routine monitoring of the work area shall be undertaken by the site manager. Evidence of this monitoring shall be recorded. In addition to the hazard specific monitoring requirements described in this section, regular inspections of work areas shall be carried out for:

- Sediment control and compliance.
- Dust generation.

The frequency of these inspections shall be dependent on the nature of the tasks being undertaken and area of work at the time. The frequency shall be determined in consultation with the civil contractor / project manager and SQEP.

The civil contractor shall carry out all maintenance requirements to ensure the effectiveness of the control measures if the inspections show that this is required.

5.2.1 Erosion and Sediment Control

The civil contractor shall construct the erosion and sediment controls for the site in accordance with the Erosion and Sediment Control Guidelines for Soil Disturbing Activities (Waikato Regional Council, 2009).

As a minimum, erosion and sediment control measures shall include:

- Erosion and sediment controls shall be installed prior to any ground disturbing activities being carried out.
- No earthwork shall be carried out during heavy rain (including short duration, high intensity events, and longer duration, large volume events).
- Stockpiling shall be carried out in accordance with the procedures detailed in **Section 5.2.4** and runoff from stockpiles managed using silt fences, bunds and covering as appropriate.
- The site areas shall be kept in a tidy condition.
- A stabilised entry / exit point shall be established and maintained so that sediment is not tracked out of the work area and / or site. The area beneath the stabilising material should either be cleared (by the SQEP) prior to stabilisation or a geotextile marker layer placed prior to the stabilisation material to enable clearance after removal of the stabilisation material.
- Bunding should be used to control surface runoff, including silt fences and runoff diversion bunds where appropriate, to capture sediment in surface water runoff within earthwork areas, and divert clean water away.
- Stormwater which falls within the excavation areas shall be discharged to soakage.

Erosion and sediment controls shall be checked daily to make sure that they are in good working condition. To ensure good practice, regular maintenance shall be carried out including:

- Excessive sediment shall be removed, as required, and additional aggregate shall be reapplied to the entry / exit points if sediment build up occurs to ensure that erosion and sediment controls remain effective, and to reduce the trafficking of sediment along accessways.
- Erosion and sediment control measures shall be upgraded / modified where necessary. Sediment fences shall be replaced if the fabric is ripped or otherwise damaged. They shall be retrenched if needed; and
- If adverse weather conditions are forecast, sediment controls will be inspected prior to and following weather events. Deficiencies in the erosion and sediment control measures will be repaired prior to and following storm events.

Erosion and sediment control measures shall remain in place until the earthwork is completed and an erosion-resistant surface cover is established. On completion of the earthwork, silt fences and/or bunds shall be removed and disposed of as landfill waste.

5.2.2 Excavation and Transport

Excavation and transportation of excavated materials during the development work shall be carried out in accordance with the following procedures:

- Smoking, eating, and / or drinking is prohibited within the earthwork zone and can only be undertaken in dedicated smoking and eating / drinking areas.
- All contaminated soil excavation work shall be undertaken during dry weather conditions.
- Should it prove necessary for workers to handle or come into contact with the contaminated soil, disposable gloves and safety glasses will be worn. In addition, a decontamination facility will be available for site workers for good hygiene and boot washing.

- Excavated / stripped soils must be directly loaded into trucks or bins for transportation and disposal and must not be stockpiled onsite. Trucks shall be loaded within the work area where runoff and possible spills during loading can be controlled and contained. Only if this is not possible may stockpiling be carried out in accordance with the procedures described in **Section 5.2.3**.
- Trucks removing excavated soil from the site should be covered and the wheels washed if they have had contact with site soils (or similar) before leaving site to avoid tracking soil debris on to neighbouring roadways. Should the roadway be impacted by site soil, the civil contractor will be responsible for immediate clean up, including street sweeping if necessary.
- Should an unexpected discovery of potentially contaminated material be encountered during the site work, cordon off the area immediately and contact EHS Support for further guidance.
- Waste disposal dockets must be supplied to EHS Support on completion of the work.

5.2.3 Stockpiling

Stockpiling of excavated material shall be kept to a minimum, and ideally soil materials excavated shall be loaded directly into trucks for off-site disposal in accordance with **Section 5.2.2**. Should it prove necessary to stockpile materials, the following procedures shall be implemented at minimum:

- Stockpiles shall be located away from active work areas, located outside of overland flow paths and away from site boundaries.
- Bunding or silt fences shall be used to control runoff from stockpiles.
- Stockpiles which are proposed to remain for more than a day shall be covered or vegetated to achieve an erosion resistant state.
- Stockpile batter slopes shall be no steeper than 1:1 and shall be no higher than 4 m unless otherwise approved by the SQEP.
- Regular inspection of stockpiles shall be carried out, particularly after heavy rainfall events (including short duration, high intensity events, and longer duration, large volume events).
- Bunding and silt fencing shall be maintained in good order until an erosion resistant state is achieved.

5.2.4 Soil Disposal

The results of the PSI/DSI (EHS Support, 2021) show that the sub-soils from beneath the site are likely to meet the proposed waste acceptance criteria for the proposed Huntly Managed Fill. However, additional soil testing (for Arsenic, Boron, Copper, Lead, Nickel, Thallium and Zinc) and SPLP testing for boron may need to be undertaken at a rate of one sample per 500 m^3 (as per the proposed consent requirement (AUTH141283.03.01)), as the number of tests required will depend on where and how much material is to be excavated. Some of the results from the PSI/DSI (EHS Support, 2021) can be used to verify compliance with the consent requirements if the samples have been collected in the material being excavated. Gleeson Managed Fill Limited will then need to calculate if additional sampling will be required to meet the consent conditions.

Should off-site disposal be required, the civil contractor must confirm that the receiving disposal facility(ies) are consented to accept the excavated soils prior to commencement of the excavation work.

The civil contractor shall retain copies of all weighbridge and disposal dockets for all materials disposed of off-site and provide copies on completion of the work (requirements for the Works Completion Report (WCR) are described in **Section 7**).

5.2.5 Dust Controls

To avoid off-site dust discharge during remediation work, the following control and monitoring systems shall be put in place by the civil contractor:

- The upper surface of accessways to the site shall at a minimum be formed from washed aggregate to reduce dust generation during trafficking. Washed aggregate shall be topped up as required to reduce dust emissions.
- Water spray systems shall be installed to allow for frequent spraying of water over excavation areas, stockpiling and truck loading to ensure the working surfaces remain damp.
- When loading excavated materials during dry conditions, the excavated materials shall be dampened with the water spray system to ensure soil is moist.
- Ceasing work if the SQEP or Site Supervisor deem wind conditions to be too strong to continue in a safe manner.

The civil contractor shall ensure that dust generation is kept to a minimum during soil disturbance activities. Potential airborne dust deposits shall be monitored visually regularly by walkovers within and around the work areas. If wind-blown dust is observed, dust control measures shall be reviewed, and if necessary, work will cease until weather conditions become more favourable or adequate controls can be put in place.

5.2.6 Plant, Equipment and Personnel Decontamination

The following decontamination procedures shall be implemented to minimise tracking contaminants off site:

- A wheel wash shall be established at the exit point and truck wheels shall be washed to remove soil / debris before exiting the site.
- The washdown area/s may comprise gravelled hardstanding underlain with a non-woven geotextile and shall be graded to capture the wash water, with the wash water discharging to soakage below the geotextile. The geotextile shall also be of sufficient thickness to remain intact during equipment / plant movement. On completion of the excavation works the geotextile, captured sediment and gravel hardstand shall be disposed of to landfill.
- All excavation equipment utilised during excavation work shall be decontaminated by washing down before being transported off-site / leaving the site on completion of the earthwork activity.

All personnel operating within any earthwork area during the ground disturbance activities are required to undergo personal decontamination. The decontamination procedures must be undertaken whenever they stop work, i.e. for meal breaks, toilet breaks etc., and when leaving the work area. Decontamination shall be undertaken immediately in the event of any direct skin contact with soil.

Personnel decontamination facilities shall meet the requirements detailed in **Section 5.1.4**. Facilities shall be located at the entrance / exit from the site. The decontamination procedures include:

- Rinsing and/or scrubbing of boots, gloves, and other PPE to remove dirt and dust residues.
- Disposal of disposable items such as gloves, disposable coveralls, and dust masks in plastic bag or drum for waste collection.
- Thorough washing of hands and face with soap and water.

6 Contingency Measures

The following measures shall be adopted in the event that unexpected conditions are encountered during earthworks, discharges occur and/or complaints are received in relation to the development work. Mitigation measures should be applied in accordance with the hierarchy of control described in the Health and Safety at Work Act, 2015 – eliminate, isolate, and minimise.

6.1 Contamination Emergency Response Procedure

Should an incident occur on site which may result in any unauthorised discharges (odour, water, soil, etc.), the site supervisor will take control of the situation and coordinate the efforts of all on site to minimise the impact. After the immediate response, the following steps shall be taken:

- Stop work in the vicinity of the affected area.
- Evacuate workers and adjacent site users from the affected area.
- Notify the SQEP, Project Manager and WRC if appropriate.

Work shall not recommence within the affected area until the unauthorised discharge has been controlled and controls are put in place to minimise the risk of a similar event recurring.

These procedures may be adapted by the civil contractor with the approval of the SQEP in their site-specific health and safety plan as appropriate, depending on the nature of work occurring at the time.

6.2 Dust Contingency Measures

If dust is observed, the standard dust control measures shall be reviewed and, if necessary, work shall cease until weather conditions become more favourable or adequate controls can be put in place. The following hierarchy of actions is proposed in the event that dust discharges occur from the work:

- The wearing of dust masks outside of enclosed, ventilated vehicles shall be implemented in the event that visible dust is being generated.
- Increase wetting of the exposed materials until discharges are mitigated.
- Cover or temporarily backfill excavations to address discharges while alternative mitigation measures are implemented.

6.3 Unexpected Contamination Conditions

In the event that any of the following signs of unexpected contamination are observed, the first response is to stop work and notify the SQEP who will instruct the civil contractor on the next course of action. Possible contamination that could be encountered, includes:

- Buried - containing material (ACM).
- Buried refuse.
- Black staining and / or organic odours (may indicate heavy oil / hydrocarbon contamination).
- Blackened soil / evidence of fire pits and refuse burning.
- Black / grey fine gravel, sand, and silt (may be ash materials that could be high in metals and polycyclic aromatic hydrocarbons).

6.4 Contamination Complaints Procedure

A written record of contamination complaints received shall be maintained. As far as possible, the following information shall be gathered regarding each complaint:

- Complaint received by
- Complainant name, address and contact details
- Date and time of incident and date and time of complaint
- Nature of complaint
- Wind direction at time of incident and other relevant meteorological conditions
- Cause of the incident
- Mitigation and/or remedial actions taken by the civil contractor
- Details of communication back to complainant following resolution of the incident

The civil contractor's site supervisor shall initiate an investigation as soon as practicable on receipt of a contamination complaint.

6.5 Contingency notification requirements

The project manager and the SQEP shall be notified in the event that any contingency measures are required to be implemented.

7 Works Completion Report

The WCR shall be prepared and submitted to WDC within three months of the completion of soil disturbance works. The WCR shall be prepared by a SQEP in accordance with the CLMG No. 1: Reporting on Contaminated Sites in New Zealand (MfE, 2021)and contain sufficient detail to address the following matters:

- A summary of any remediation and other earthworks undertaken, including the location and dimensions of the excavations carried out and the volume of soil excavated;

- Details and results of any testing, including validation testing (if required), undertaken and interpretation of the results in the context of the NES:CS for the site;
- Records/evidence of the appropriate disposal for any material removed from the site (if any);
- Records of any unexpected contamination encountered during the work and response actions, if applicable;
- Conditions of the final site ground surface and details of any validation sampling undertaken on materials re-used on site or imported to site;
- Reports of any complaints, health and safety incidents related to contamination, and/or contingency events during the earthworks;
- A statement certifying that all works have been carried out in accordance with the requirements of approved plans and consent conditions, otherwise providing details of relevant breaches, if applicable; and
- Assessment of the requirement for any ongoing mitigation or monitoring measures to protect human health and/or the environment, if required, a long-term management plan.

References

EHS Support. (2021, August). Preliminary Site Investigation and Detailed Site Investigation, Proposed Huntly Managed Fill - Fill Area 3. Auckland.

GNS Sciense. (2021, August 16). *GNS Science Qmap 1:250,000*. Retrieved from GNS Science: https://data.gns.cri.nz/geology/

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NES:CS. (2011). *Resource Management (National Environmental Standard for Assessing and Managing Contminants in Soil to Protect Human Health) Regulations 2011.* Wellington: New Zealand Government.

Waikato Regional Council. (2009, January). Erosion and Sediment Control Guidelines for Soil Disturbing Activities.

WRC. (2020). *Waikato Regional Plans.* Waikato: Waikato Regional Council.

Statement of Limitations

EHS Support New Zealand Limited ("EHS Support") has prepared this document in accordance with the usual care and thoroughness of the consulting profession for the use of Paua Planning Limited and only those third parties who have been authorised in writing by EHS Support to rely on this document. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this document. It is prepared in accordance with the scope of work and our proposal dated 1 April 2021.

The methodology adopted and sources of information used by EHS Support are outlined in this document. EHS Support has made no independent verification of this information beyond the agreed scope of work and EHS Support assumes no responsibility for any inaccuracies or omissions. No indications were found during the preparation of this document that information contained in this document as provided to EHS Support was false.

This document was prepared on the issue date and is based on the information available at the time of preparation. EHS Support disclaims responsibility for any changes that may have occurred after this time.

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Where conditions encountered at the site are subsequently found to differ significantly from those anticipated in this document, EHS Support must be notified of any such findings and be provided with an opportunity to review the recommendations of this document.

Whilst to the best of our knowledge information contained in this document is accurate at the date of issue, subsurface conditions, including groundwater levels can change in a limited time. Therefore, this document and the information contained herein should only be regarded as valid at the time of writing, unless otherwise explicitly stated in this document.

Figures

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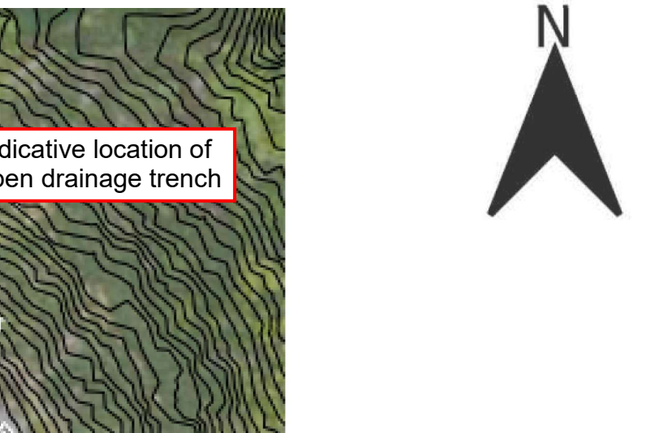
Indicative location of open drainage trench

HQHA5
HQHA4
HQHA2
HQHA1
HQHA3

TP301
BH302
TP302
TP303
TP313
TP304
BH301
TP308
TP305
TP306
TP307
TP310
TP309
TP311
TP312

0 50m

Original drawing prepared by GAIA Engineers for Gleeson Quarries.
Drawing Title: Exisiting Contours with Investigation Plan (2325-25-SK01 Rev A)



Legend

HQHA1 — Sample locations (EHS SUPPORT)

EHS Support	**Project** Huntly Managed Fill - Fill Area 3	**Client** PAUA PLANNING	Figure 1
	Title Sample Location Plan		Drawn: JH / Checked: AR
			Date: Sep 2021 / For Information Only