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NL201175

17 May 2021

Mark Jackson
Jackson Environment and Planning Pty Ltd
Suite 102, Level 1, 25-29 Berry St
North Sydney NSW 2060

Dear Mark,

Re: Tomago Resource Recovery Facility and Truck Parking Depot – 21D and 21F School Drive Tomago
Soil and Water Management Plan – Addendum

Background

Northrop Consulting Engineers have been engaged by Jackson Environment and Planning Pty Ltd to prepare a concept Soil and Water Management Plan (Revision E, dated 12.11.20), to support the redevelopment of a resource recovery facility and truck parking depot located at 21D (Lot 11 DP270328) and 21F (lot 8 DP 270328) School Drive, Tomago.

Following the submission of the Environmental Impact Statement (EIS) prepared by Jackson Environment and Planning, a number of additional comments were raised by the various agencies tasked with reviewing and approving the proposed Soil and Water Management Plan as part of the EIS.

This addendum letter is intended to address each of the comments raised by each individual agency in relation to the Soil and Water Management Plan. The information presented within this document is to supersede that of the relevant sections in the of the Soil and Water Management Plan (Revision E).

Department of Planning, Industry and Environment (DPIE) – Biodiversity and Conservation Division (BCD)

Comment 1

> *"It is proposed to store and process hazardous materials on flood prone land. The EIS and the proposed Emergency Plan have not assessed the risk of flood waters transporting hazardous materials and contaminating nearby communities, and natural areas. While the EIS notes that all hazardous substances will be stored in a bunded area is not clear if the bund is designed to protect against all floods, up to and including the probable maximum flood (PMF). The EIS does not state if trucks, containing hazardous materials, will park in the uncovered overnight parking area and if so, how these risks would be managed.*
>
> *BCD recommends that all hazardous materials stored on site are protected from all floods up to and including the PMF. Also, the Emergency Plan should be updated to include safeguards to prevent the release of hazardous materials from the sites during a large flood event."*

The Probable Maximum Flood (PMF) level identified for the site is at RL6.30m AHD. It is noted that this level is approximately 700mm above the floor level of the existing buildings.

The revised Emergency Management Plan prepared by Jackson Environment and Planning (JEP) provides additional details for the handling and storage of hazardous materials to provide protection during a flood event.

In summary, the plan outlines that all hazardous materials will be stored in locations with bunding provided up to the PMF level of RL6.30m, or otherwise on raised platforms above the flood level.

In addition, the management plan specifies that no hazardous materials are to be stored within trucks parked within the uncovered depot.

Comment 2

> *"It is proposed to use the existing proprietary water treatment devices; Humeceptor STC-5 and the Hume Jellyfish HF-1800. These devices have been designed to treat the pollution from a wire and cable manufacturing facility. The new use of the site as a resource recovery facility may change the pollutant loads and the existing stormwater treatment devices may not continue to be appropriate.*
>
> *BCD recommends that the proponent reviews the continued use of existing stormwater treatment devices to ensure they remain appropriate under the proposed change in land use to use in a recycling facility."*

The handling and processing of waste materials are to be performed entirely within the enclosed buildings as outlined in the Waste Management Plan prepared by JEP. Pollutants or hazardous materials will be unable to enter the stormwater system and as such, it is anticipated that there will be no significant change in pollution generation as part of the change of use.

The treatment devices provided as part of the previous development were suitable for treatment of typical stormwater pollutants generated from industrial developments (i.e. suspended solids, phosphorus, nitrogen and gross pollutants) and thus, it is deemed that these existing devices will remain appropriate for the intended use of the new facility.

Comment 3

> *"Runoff from the existing development enters infiltration on-site detention before it is treated with the Humeceptor STC-5 and the Hume Jellyfish HF-1800 devices. This creates a risk that untreated stormwater runoff will be discharged to groundwater through the detention basins. The potential for groundwater contamination and impacts on groundwater dependent ecosystems was assessed for the previous development (GHD 2012). However, this assessment cannot be used for this development as it has different pollution risks.*
>
> *The proponent should consider the potential for groundwater contamination through infiltration of untreated stormwater."*

The Waste Management Plan outlines the storage, handling, and processing of hazardous or pollutant materials, all of which is to occur within the enclosed spaces of the existing buildings. As such, the pollution risk for the site has not changed significantly from that of a typical industrial development.

No additional pollutants, other than that present in typical stormwater runoff is anticipated to enter the ground water via the infiltration systems.

Hunter Water Corporation (HWC)

Comment 1

> *"The Soil and Water Management Plan has stated that the volume of water required from Hunter Water's supply to be used as process water is negligible. The EIS also appears to understate the volume of process wastewater to be generated from the development. The process water system is stated to be a "closed loop" where it is captured and reused until it is lost through evaporation. It is expected that wastewater would be generated through site activities (for example, hosing internal floor areas and washing down trucks).*
>
> *Hunter Water recommends that a more detailed assessment be provided to justify the "closed loop" statement. Expected volumes of process wastewater, and the likely concentrations and types of contaminants contained within it, should be clearly identified and reported."*

The Soil and Water Management Plan previously indicated that a closed loop system was required as part of the material processing. Subsequent investigation into the specifics of the processing indicate that the system does not require water demand and, and that wastewater is generated from the extraction of the drill muds. This wastewater is then exported off-site for treatment and disposal as trade waste as per the updated Waste Management Plan prepared by JEP.

Additional details regarding the expected volumes and concentrations of contaminates as well as the management of the waste material to be exported are provided in the Waste Management Plan. In summary, the facility is expected to process up to 5,000 tonnes per annum.

Comment 2

> *"Measures to maintain and monitor the effectiveness of the existing or proposed stormwater controls have not been included within the EIS or Soil and Water Management Plan.*
>
> *Hunter Water recommends that methods to sample and monitor stormwater quality on the site and discharging away from the site be considered and addressed in the Environmental Management Plan."*

The Waste Management Plan prepared by JEP outlines that all waste handling, storage, and processing will occur internally to the existing buildings. As such, no additional pollutants or contaminates generated by the waste are anticipated within the stormwater runoff.

The proposed stormwater controls have been designed to reduce the standard pollutants found within stormwater runoff including suspended solids, total nitrogen, total phosphorus and gross pollutants. Council's DCP requirements and current industry practice is to achieve a percentage reduction in pollutant generated loads.

To monitor the effectiveness of the upstream controls, sampling of the runoff generated by the development would need to be taken at locations prior to treatment and at the discharge outlet at regular intervals. As the proposed development utilises at-source controls including use of infiltration to treat stormwater, no runoff is expected for frequent storm events. As such, monitoring of stormwater quality on a day-to-day basis is not practical.

Monitoring in extreme rainfall events could be undertaken, however in this infrequent event concentrations of pollutants will be minimal due to the volume of runoff generated and therefore the effectiveness of the monitoring would be negated and may not achieve a practical outcome for the intended purpose.

An operation and maintenance plan (to be provided during the detailed design process) will provide a regular schedule to inspect and maintain the stormwater system including treatment devices to ensure they are operating as intended.

Groundwater monitoring as part of the Environmental Management Plan will assess and monitor concentrations of significant pollutants and contaminants of concern.

Port Stephens Council (PSC)

Comment 1

> *"The proposed stormwater design does not appear to be supported by any water quantity modelling. A Drains model should be provided to demonstrate the Infiltration system is designed to cater for all 1% AEP post development flows. The natural catchment has high infiltration and it is believed that the subject site won't produce any significant runoff even for the major storm events.*
>
> *Accordingly the Drains model should use the assumption that the pre-development flows, for up to and including 1% AEP event are zero."*

The Soil and Water Management Plan Section 2.1 outlined detailed water quantity modelling undertaken for the existing development and greenfield site (21D and 21F respectively).

The report outlined the assumptions there were made from the initial drains modelling, however the comments provided were considered in addition.

Infiltration rates were obtained from ground water well monitoring which is outlined in Section 10.4.2 of the Groundwater Contamination Assessment Report prepared by JM Environments (JME) dated 28/04/21. The report outlined the measured infiltration rates from the monitoring well to be approximately 266-342mm/hr. For the purposes of this assessment a natural infiltration rate of 300mm/hr was adopted for both sites. It is noted that this was the infiltration rate for the alluvial sands and not representative of the topsoil or fill layers present on the site.

A new ILSAX hydrological model for the site was developed with revised conditions, to better represent the site soil profile. The previous hydrological model assumed a soil type of 1.5 and an antecedent moisture condition of 3. The new hydrological model adopted a soil type of 1.0 and antecedent moisture condition of 1, which is the maximum allowable with the ILSAX model.

Table 1 presents a comparison of the peak flow rates in the pre-developed and post developed scenarios with the revised hydrological assumptions and infiltration rates. Original flows noted below are from Northrop's current Soil and Water management Report.

Table 1 – Comparison of Peak Flow Rates – 21D School Drive

AEP	Original Pre-Developed Peak Flow (m^3/s)	Revised Pre-Developed Peak Flow (m^3/s)	Post-Developed Peak Flow without OSD (m^3/s)	Post-Developed Peak Flow with 300mm/hr Infiltration (m^3/s)
1%	1.37	0.043	2.07	0.524
2%	1.07	0.0	1.81	0.396
5%	0.746	0.0	1.47	0.213
10%	0.489	0.0	1.18	0.105
0.2EY	0.223	0.0	0.942	0.049

As shown in Table 1, there is a noticeable increase in the post-developed discharge when compared to the pre-developed scenario adopting an infiltration rate of 300mm/hr. This is primarily due to the fact that no runoff leaves the site in a pre-developed state until the 1% AEP event. It is noted that this previously designed and approved stormwater system on 21D was not designed for this criteria.

To achieve the new design criteria being proposed, no runoff in the post developed situation would be allowable, which would require a full redesign of the existing stormwater system on site including reconstructing large areas of pavement.

These changes to Lot 21D are considered unfeasible and excessive considering the change of use and small amount of works being proposed to the site. Furthermore, it is noted that these works do not affect the stormwater runoff volumes or the original design intent for the stormwater system.

It is noted however that the existing system provides considerable benefit in reducing flows from the non-mitigated developed site, thus demonstrating the effectiveness of the existing stormwater detention strategy.

It is also noted, as per our understanding, that no issues have been encountered or identified for the receiving stormwater system downstream of the site or that runoff from the site generated unacceptable impacts to neighbouring or adjoining properties. As the existing site in its current state has been in commission for several years since its completion, this indicates that the existing detention system is achieving the intended design objectives.

For the new development on 21F, on-site detention and infiltration will be provided to limit the post-developed run-off from the additional impervious area. Table 2 provides the comparison of the peak flow rates for the pre-developed and post-developed cases.

Table 2 – Comparison of Peak Flow Rates (21F School Drive)

AEP	Original Pre-Developed Peak Flow (m^3/s)	Revised Pre-Developed Peak Flow (m^3/s)	Post-Developed Peak Flow with 300mm/hr Infiltration (m^3/s)
1%	1.45	0.044	0.044
2%	1.15	0.0	0.0
5%	0.824	0.0	0.0
10%	0.586	0.0	0.0
0.2EY	0.327	0.0	0.0

The below ground infiltration system has been modified from the initial design to increase the size to achieve the required detention outcomes. The proposed detention sizing is proposed to be $180m^3$ as presented in the revised engineering plans (refer attached).

Comment 2

> *"Council's comments on the SEARs requested a Waste Management Report be provided to demonstrate that the existing on-site sewer management and trade waste systems are appropriate for the proposed development. This report has not been provided. The site is mapped as being very high hazard, indicating the site contains or is located in proximity to sensitive environmental constraints. The EIS notes that the existing system would be sufficient for the new development however, little justification has been given to support this claim.*

To confirm the adequacy of the existing system, or otherwise, it is recommended that a Waste Management Report, prepared by a suitably qualified person, be provided by the applicant."

As previously outlined in Section 5 of the Soil and Water Management Plan, the site is currently serviced by an Envirocycle M23 on-site sewer treatment system. The existing system has a treatment capacity of 4.5-5kL/day with a 1L/s peak treatment rate.

The existing system originally provided on-site effluent treatment and disposal for the previous development use, which employed a total of 119 employees. The proposed development will employ a total of 76 employees over several different shifts.

The expected daily inflow rate can be estimated using the usage rates outlined in Table H4 of AS1547-2012 *On-site domestic wastewater management*. For a rural factory including toilets, and kitchen areas, the daily inflow can be calculated by:

Daily inflow = 50L/person/day x 76 persons (total per day)

= 3.8kL/day < 4.5-5kL/day treatment capacity

As such it is anticipated that the existing sewer system will have adequate treatment capacity to manage the sewer demand generated from the use of the site. Treated sewer will be stored in a separate holding tank and periodically taken offsite via a pump-out truck under the current tankering agreement for the site.

In addition, a vehicle washdown bay is proposed to be installed within the heavy vehicle workshop. The vehicle wash bay will be bunded internally within the building with proposed screens to be installed to ensure full water capture. Run-off from the truck wash will be collected by existing floor sumps that will drain the water to a pit in the shed on the northern side of the maintenance workshop. Water will be treated in an oil/water separator and pumped to a 10kL holding tank also located in the shed. The tank will be periodically pumped out, with treated water sent for off-site recycling in accordance with Remondis' existing tankering agreement with Hunter Water. Figure 1 illustrates the indicative bunding and wash bay within the workshop.

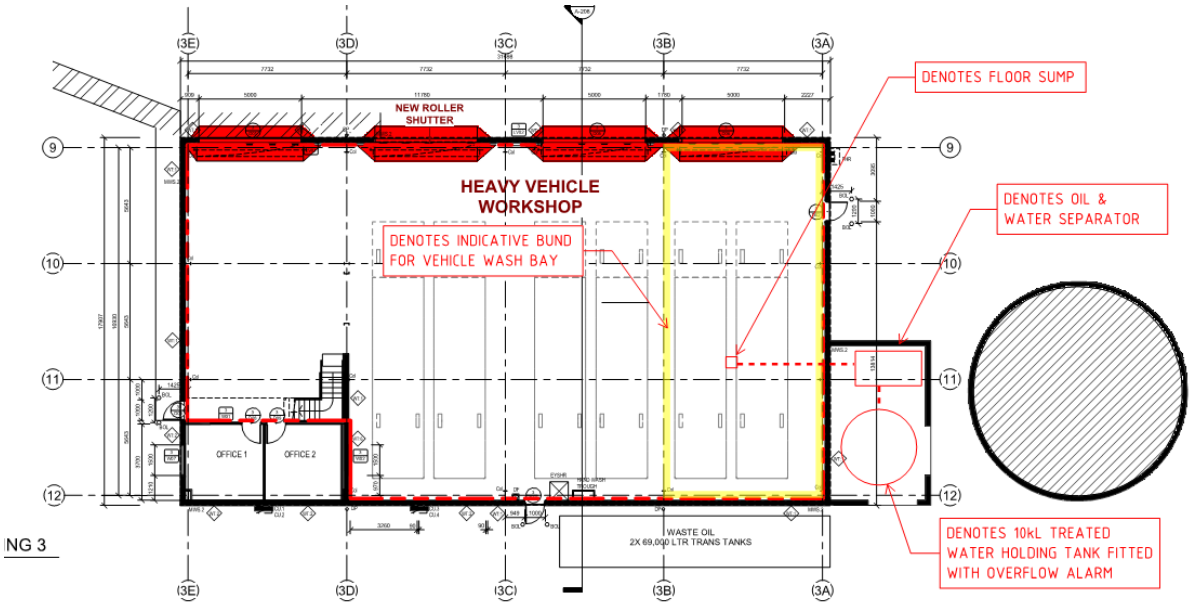

Figure 1 – Wash Bay located in Proposed Heavy Vehicle Workshop (21D School Drive)

The wastewater, which may contain small amounts pollutants from the waste material handled by the trucks will be stored and transported off-site as trade waste to be treated and disposed at a licenced facility.

NSW Environmental Protection Agency (EPA)

Comment 1

> *"Consideration of additional and alternative measures for managing water pollution risks associated with construction in contaminated areas. Mitigation measures considered should include but not be limited to:*
>
> - *at-source controls (e.g. removal of highly contaminated material for off-site disposal, bunding, flow diversions);*
> - *options to avoid contaminated stormwater discharges (e.g. full capture and reuse or tankering offsite); and*
> - *additional or alternative treatment measures (e.g. increased sediment basin capacity)."*

As outlined in the previous item regarding on-site detention, the existing soil profile for the site is that of sand, which has very high infiltration rates and low sediment runoff potential. No run-off is expected for the pre-developed site for all storm events up to the 1% AEP event.

As such, the pollution risk of contaminated runoff leaving the site during construction is very low.

Additional bunding will be provided along the site boundary, to ensure in the extremely unlikely occurrence of a 1% AEP storm event (or greater) that runoff will be prevented from leaving the site and will infiltrate into the soil profile, mimicking existing site conditions.

Comment 2

> *"Demonstration that the proposed cap over 21F School Drive would be appropriately designed and constructed to prevent percolation of rainwater through the underlying contaminated soils. The Applicant should provide details of the proposed cap, including its:*
>
> - *composition;*
> - *thickness (mm); and*
> - *in situ saturated hydraulic conductivity (m/sec)."*

The Groundwater Contamination Assessment Report prepared by JME concluded that the site does not require additional mitigation to protect groundwater from the presences of arsenic, cadmium, copper and lead. The zinc impacted soils with the highest concentrations are associated with the lead impacted soils that are planned to be removed in accordance with the Remediation Action Plan prepared by JME.

Despite the subsequent findings in the groundwater assessment, a capping has been proposed for the extent of the new parking depot to achieve two primary objectives. The first is to maintain consistency with the outcomes of the Remediation Action Plan, and the second, is to prevent ingress of additional pollutants that may occur from the truck parking depot (for example small oil leaks or spills).

Figure 2 presents the proposed pavement design extracted from the revised engineering plans prepared by Northrop for the parking area, composed of 200mm bound road base material with an impermeable geotextile layer.

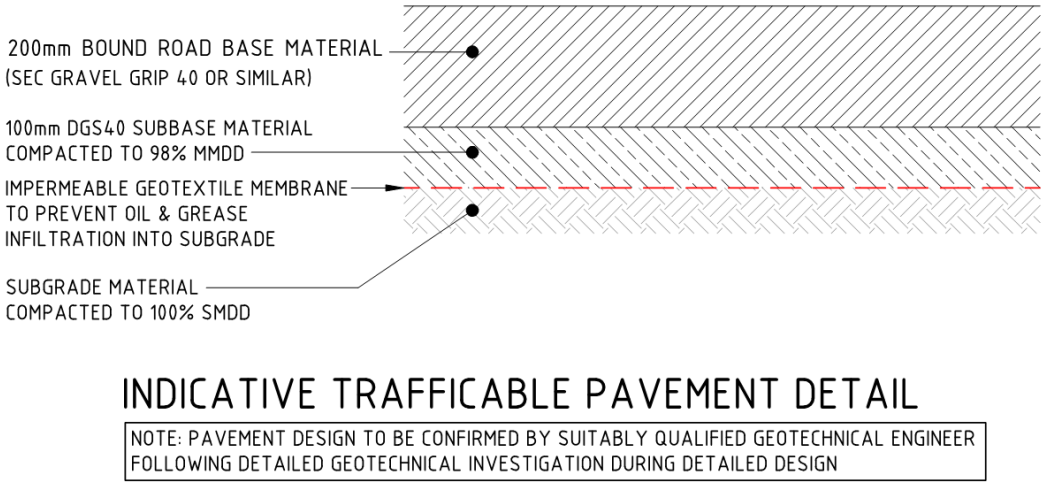

Figure 2 – Indicative Pavement Detail – Extracted from NL201175 C5.1 Rev B

The pavement will fall towards stormwater pits where water will be captured, treated, and directed to the infiltration system. The hydraulic conductivity of the road pavement layer is not critical due to the presence for the impermeable geotextile layer. Any surface runoff not captured by the pavement layer will flow as surface runoff and be collected via the stormwater pits installed within the pavement extents. The runoff generated from surface overland flow and the stormwater collected by the subsoil drainage system are directed to the same discharge location after processing through the treatment train.

Comment 3

"A revised water balance to include all water usage requirements, storages, reuse and discharges (including frequency and volumes of any discharges to the infiltration pit and managed overflows from the infiltration pit); and

A site drainage plan for the proposed development that identifies:

- *surface water flow paths for 'clean' roof runoff, 'dirty' stormwater and contaminated runoff from waste processing, stockpiles and external areas;*
- *sub catchments (e.g. roof catchments draining to tanks, waste operations areas draining to collection pits/treatment devices, externals areas draining to each proposed discharge point);*
- *water infrastructure (e.g. bunds, collection pits, pipes, drains, storage tanks);*
- *treatment measures, including the infiltration pit; and*
- *discharge points and flow paths to receiving waterways."*

The site drainage for the proposed truck depot and existing site have been provided as part of the concept engineering (refer attached). The plans identify stormwater infrastructure including treatment measures, infiltration pits, discharge locations and overland flow paths.

As previously identified, all waste handling and processing is to occur entirely within the enclosed space of the existing buildings, and as such additional water infrastructure such as bunds, collection pits, storage tanks, and stockpiles are not required as part of the stormwater system. This infrastructure will be provided within the new facilities of the existing buildings as required for each specific waste operation proposed to be undertaken.

The site will only contain ‘clean’ runoff as there will not be any ‘dirty’ stormwater containing contaminated runoff from waste processing, stockpiles or external waste handling or processing areas.

As there is no ‘dirty’ stormwater and all sewer and process wastewater is to be exported from site no potentially contaminated water will be directed to the infiltration pit.

The infiltration pit is intended to manage the on-site detention to limit the peak flow rates discharging from the site.

As such, there is no practical benefit to providing a revised water balance including water usage requirements, storages, reuse and discharges. The expected water and sewer demands have been previously provided, and expected waste processing and export rates have been provided in the Waste Management Plan.

Comment 4

> *“Clarification of whether controlled discharges are proposed for the construction or operation stage of the proposed development; and*
>
> *If controlled discharges are proposed, for each discharge point, the EPA requires a water pollution impact assessment. The level of assessment and consideration of practical and reasonable mitigation measures should be commensurate with the potential water pollution risk/s. This assessment must:*
>
> - *predict the expected frequency and volume of discharges;*
> - *characterise the expected discharge quality under typical and worst-case conditions, in terms of the concentrations of all pollutants of concern present at levels that pose a risk of non-trivial harm to human health or the environment;*
> - *assess the potential impacts of the proposed discharges on the environmental values of the receiving waterways consistent with the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018) for slightly to moderately disturbed ecosystems; and*
> - *demonstrate that all practical and reasonable measures to avoid or minimise water pollution and protect human health and the environment from harm are investigated and implemented.”*

The Waste Management Plan prepared by JEP outlines that that no controlled discharges of waste contaminated water are proposed for the construction or operation of the proposed development. All waste materials will be suitably exported and disposed at an appropriate license facility.

The only discharges proposed to leave the site are that generated by stormwater runoff during storm events. Appropriate measures to minimise the impacts and pollutant risks have been previously addressed in the response to previous comments or otherwise demonstrated in the Soil and Water Management Plan.

Comment 5

> *“Additional detailed information on changes to the hydraulic properties of groundwaters as a result of increased point source recharge from the proposed upgrades to the projects stormwater collection system, demonstrating an increase to the protection of receiving groundwaters.”*

The groundwater contour and flow direction has been investigated and is outlined in the Groundwater Contamination Assessment Report prepared by JME. It identifies the groundwater contours flowing in a south, south-east direction towards the river.

The report outlines that previous groundwater monitoring was undertaken during the operation of the sites previous use as well as an assessment of the current groundwater contamination and risks to groundwater from contaminates located onsite within the soils.

The assessment determined that whilst some contamination was identified within the groundwater and soils, the risk of pollutants or contaminates migrating through the groundwater or to receiving groundwaters was negligible. Areas of significant concern, containing high concentrations of zinc and lead are proposed to be removed as part of the Remediation Action Plan.

Comment 6

> *"Adequate justification for the differences in water quality treatment devices employed and proposed across Premises."*

There are a number of proprietary stormwater treatment devices available to achieve the desired treatment outcomes for stormwater runoff. The devices vary between manufacturers and the preferred device for a specific site can change depending on the site constraints, desired treatment levels, cost, availability and/or stormwater arrangement.

MUSIC modelling has been undertaken as outlined in Section 2.2.1 and 2.2.2 in the Soil and Water Management Plan that demonstrates the treatment targets have been achieved for both the existing site and the proposed development.

A different device was proposed for the new development as the Humes Jellyfish has since been discontinued and is no longer commercially available. As such an alternative treatment train, utilising pit filter inserts and proprietary filter cartridges has been proposed to provide the most cost-effective solution to achieve the required reduction targets.

We trust that this meets your requirements, however if you have any additional comments or concerns, please feel free to contact the undersigned.

Prepared:

Robert Suckling
Civil Engineer
BE Civil (Hons 1), MIE Aust

Reviewed:

Ben Clark
Principal | Civil Engineer
BEng (Civil), MIE Aust, CPEng, NER, RPEQ

TRANSMITTAL

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Job No:	Job Name:	Pages:
NL201175	21D & 21F School Drive, Tomago	1 of 1

From	Ben Clark

Description	Date														
INTERNAL CIVIL WORKS	Day	07	28	10	12	17									
REMONDIS RESOURCE RECOVERY FACILITY & TRUCK DEPOT	Month	08	08	11	05	05									
21D & 21F SCHOOL DRIVE, TOMAGO	Year	20	20	20	21	21									

Doc No.	Document Title	Current Revision	Revision													
C1.1	COVER SHEET	A	1	A	A											
C1.3	SITE PLAN	B		A	B											
C2.1	CONCEPT SEDIMENT & EROSION CONTROL PLAN	B	1	A	B											
C2.2	CONCEPT SEDIMENT & EROSION CONTROL DETAILS	A	1	A	A											
C2.3	CONCEPT BULK EARTHWORKS PLAN	A		A	A											
C2.4	CONCEPT LONG SECTIONS	A		A	A											
C3.1	CONCEPT STORMWATER MANAGEMENT & LEVELS PLAN – SHEET 1	B	1	A	B											
C3.2	CONCEPT STORMWATER MANAGEMENT & LEVELS PLAN – SHEET 2	C		A	B		C									
C3.3	CONCEPT STORMWATER MANAGEMENT & LEVELS PLAN – SHEET 3	C		A	B	C										
C5.1	CONCEPT CIVIL DETAILS – SHEET 1	B	1	A	A	B										

Distribution	Number of copies													
Jackson Environmental and Planning	1	1	1	1	1									

PURPOSE	I = Information A = Approval T = Tender C = Construction M = Amendment	I	A	A	A	A									
FORMAT	P = Print D = Disc E = Electronic	E	E	E	E	E									
SIZE	A0/A1/A2/A3/A4 etc	A1	A1	A1	A1	A1									
METHOD	C = Courier H = Hand E = Email F = Facsimile P = Post	E	E	E	E	E									
SENT BY		BC	BC	BC	BC	RS									

REMONDIS RESOURCE RECOVERY FACILITY & TRUCK PARKING DEPOT

LOT 8 & 11 DP270328, 21D & 21F SCHOOL DRIVE TOMAGO
INTERNAL CIVIL WORKS

LOCALITY PLAN

NORTHROP

DRAWING SCHEDULE

DWG No.	DRAWING TITLE
C1.1	COVER SHEET
C1.3	SITE PLAN
C2.1	CONCEPT SEDIMENT & EROSION CONTROL PLAN
C2.2	CONCEPT SEDIMENT & EROSION CONTROL DETAILS
C2.3	CONCEPT BULK EARTHWORKS PLAN
C2.4	CONCEPT LONG SECTIONS
C3.1	CONCEPT STORMWATER MANAGEMENT & LEVELS PLAN - SHEET 1
C3.2	CONCEPT STORMWATER MANAGEMENT & LEVELS PLAN - SHEET 2
C3.3	CONCEPT STORMWATER MANAGEMENT & LEVELS PLAN - SHEET 3
C5.1	CONCEPT CIVIL DETAILS - SHEET 1

DRAWN KATHLEEN TURTON DESIGNED ROBERT SUCKLING JOB MANAGER BEN CLARK VERIFIER

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	PRELIMINARY	KT			07.08.20
A	DEVELOPMENT APPLICATION	KT			28.08.20

CLIENT: REMONDIS WORKING FOR THE FUTURE

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ARCHITECT: EJE architecture

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PROJECT: REMONDIS RESOURCE RECOVERY FACILITY & TRUCK PARKING DEPOT 21D & 21F SCHOOL DRIVE, TOMAGO

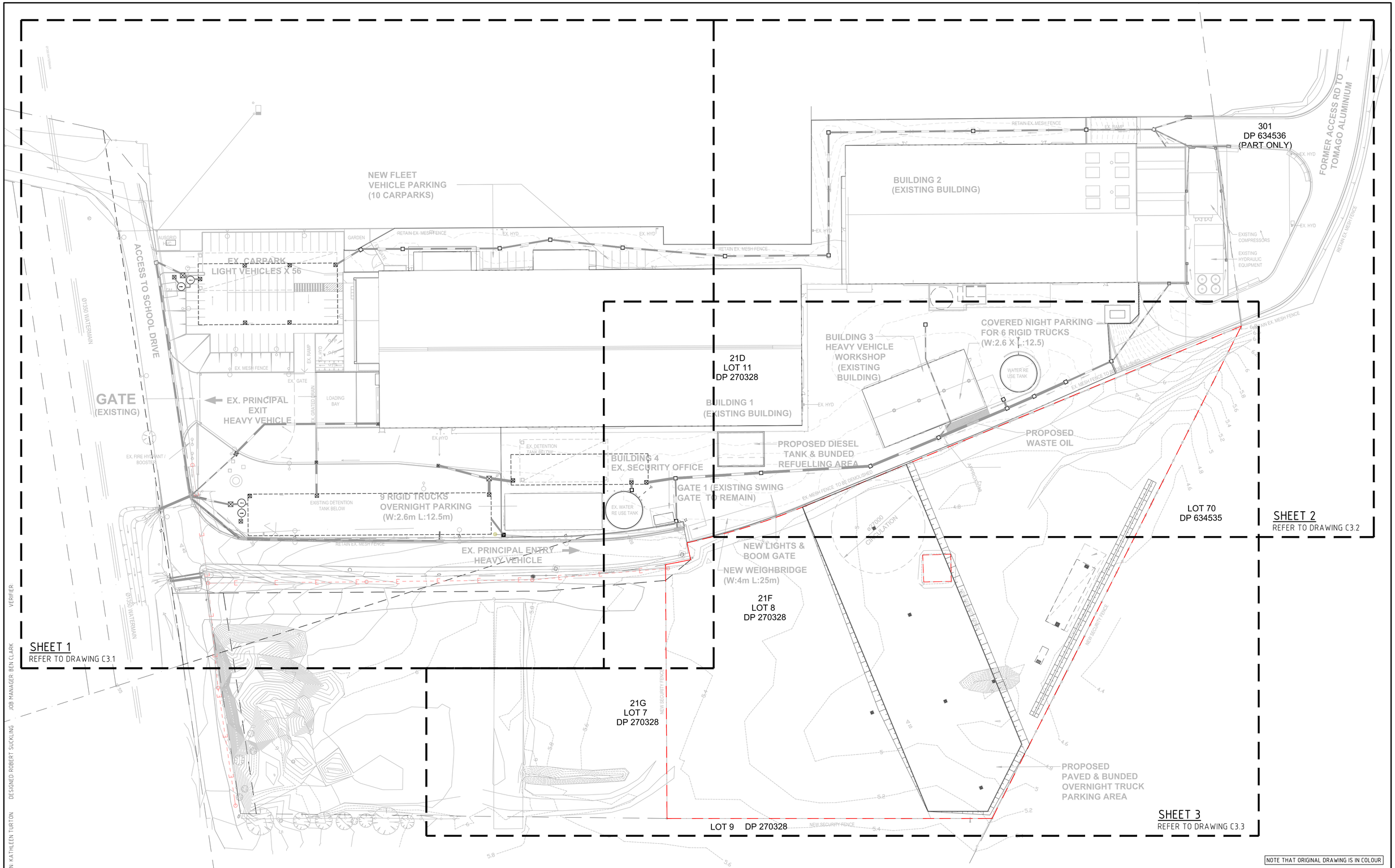
DRAWING TITLE: INTERNAL CIVIL WORKS COVER SHEET

JOB NUMBER: NL201175

DRAWING NUMBER: C1.1

REVISION: A

DRAWING SHEET SIZE = A1



VERIFIER
JOB MANAGER BEN CLARK
DESIGNED ROBERT SUCKLING
DRAWN KATHLEEN TURTON

NOTE THAT ORIGINAL DRAWING IS IN COLOUR

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	DEVELOPMENT APPLICATION	KT			28.08.20
B	DEVELOPMENT APPLICATION	KT			10.11.20

CLIENT
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PLANS 1:500@A1 0 5 10 15 20 25m

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PROJECT
REMONDIS RESOURCE RECOVERY FACILITY & TRUCK PARKING DEPOT
21D & 21F SCHOOL DRIVE, TOMAGO

DRAWING TITLE
INTERNAL CIVIL WORKS CONCEPT SITE PLAN

JOB NUMBER NL201175
DRAWING NUMBER C1.3
REVISION B
DRAWING SHEET SIZE = A1

LEGEND

- DENOTES SITE BOUNDARY LINE
- DENOTES EXISTING TO BE DEMOLISHED
- DENOTES COMBINED SITE/SILT FENCE 'SILTMASTER' OR SIMILAR, INSTALLED IN ACCORDANCE WITH DETAIL SD6-8 OF THE BLUEBOOK.
- DENOTES TEMPORARY CONTRACTORS VEHICULAR ACCESS POINT. CONSTRUCT A STABILISED SITE ACCESS IN ACCORDANCE WITH DETAIL SD6-14 OF THE BLUE BOOK OR PROVIDE A SHAKEDOWN CATTLE GRID AT ENTRANCE POINT TO REDUCE LIKELIHOOD OF SEDIMENT BEING TRAFFICKED OFF-SITE
- DENOTES GEOTEXTILE INLET FILTER INSTALLED IN ACCORDANCE WITH DETAIL SD6-12 OF THE BLUE BOOK
- INDICATES MESH & GRAVEL INLET FILTER INSTALLED IN ACCORDANCE WITH DETAILS SD6-11 OF THE BLUE BOOK
- DENOTES INDICATIVE LOCATION OF STOCKPILE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH DETAIL SD4-1 OF THE BLUE BOOK

SEDIMENT & EROSION CONTROL NOTES

1. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS; NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION' (THE 'BLUE BOOK').
2. INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
3. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
4. INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
5. ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
6. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION. REFER ARCHITECTS PLANS FOR TREES TO BE KEPT.
7. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ONSITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
8. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
9. CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
10. ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
11. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
12. ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ ALL MAINTENANCE, CLEANING & BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.

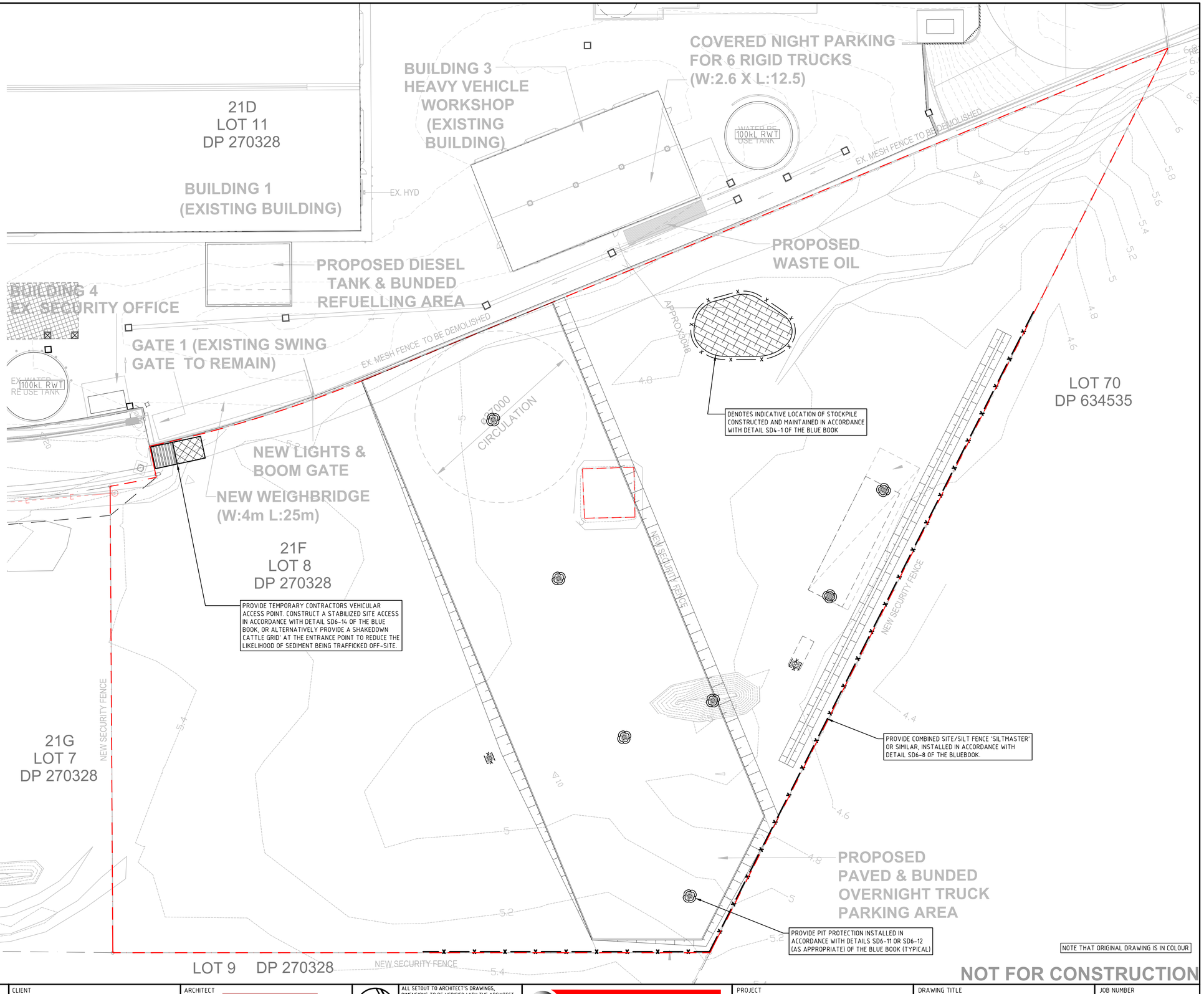
THE CONTRACTOR SHALL ENSURE COUNCIL ASSETS AND THE UTILITIES ARE PROTECTED AT ALL TIMES. ANY AND ALL DAMAGES TO COUNCIL ASSETS AND/OR UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR TO THE SPECIFICATION OF COUNCIL AND THE UTILITIES AUTHORITY AND AT NO COST TO THE PRINCIPAL OR NORTHROP CONSULTING ENGINEERS.

SEDIMENT BASIN SIZING CALCULATION

THE SITE IS LOCATED WITHIN THE TEA GARDENS SOIL LANDSCAPE AND PRIMARILY CONSISTS OF SILTY SANDS AND SANDS, WHICH HAS THE FOLLOWING PROPERTIES (IN ACCORDANCE WITH TABLE C13 OF THE 'BLUE BOOK'.

SITE PARAMETERS

CONSTRAINT	VALUE
SEDIMENT TYPE	C
SOIL HYDROLOGY GROUP	A
K = SOIL ERODIBILITY (K-FACTOR)	0.016
R = RAINFALL EROSIVITY (R-FACTOR)	2411
S = 2 YEAR, 6 HOUR STORM INTENSITY	10.5mm/hr (TOMAGO)
LS = SLOPE LENGTH/GRADIENT	0.19 (80m SLOPE @ 1% GRADE)
P = EROSION CONTROL PRACTICE (P-FACTOR)	1.3 (TYPICAL)
C = GROUND COVER (C-FACTOR)	1.0 (TYPICAL FOR STRIPPED SITES)
SOIL LOSS (RUSLE METHOD) (tonnes/ha/yr)	9.5m^3/Ha/Yr
EROSION HAZARD (TABLE 4.2 BLUE BOOK)	VERY LOW SOIL CLASS 1
TOTAL SITE RUN-OFF IS LESS THAN 150m^3/Yr. BASIN/TANKS NOT REQUIRED.	



NOTE THAT ORIGINAL DRAWING IS IN COLOUR

NOT FOR CONSTRUCTION

DESIGNED ROBERT SUCKLING
DRAWN KATHLEEN TURTON
JOB MANAGER BEN CLARK
VERIFIER

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	PRELIMINARY	KT			07.08.20
A	DEVELOPMENT APPLICATION	KT			28.08.20
B	DEVELOPMENT APPLICATION	KT			10.11.20

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ARCHITECT
EJE architecture
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PLANS 1:300@A1 0 3 6 9 12 15m

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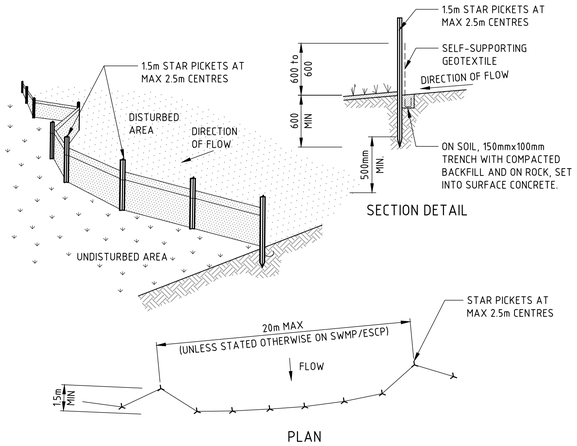
PROJECT
REMONDIS RESOURCE RECOVERY FACILITY & TRUCK PARKING DEPOT
21D & 21F SCHOOL DRIVE, TOMAGO

DRAWING TITLE
INTERNAL CIVIL WORKS CONCEPT SEDIMENT & EROSION CONTROL PLAN

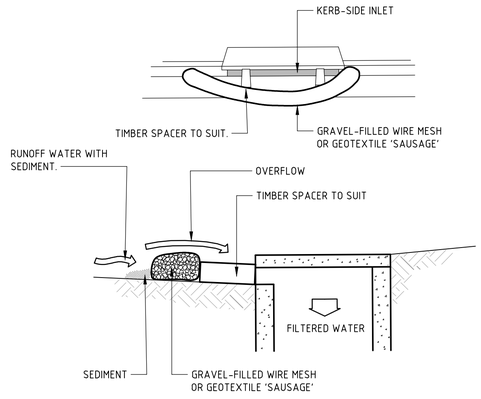
JOB NUMBER NL201175
DRAWING NUMBER C2.1
REVISION B
DRAWING SHEET SIZE = A1



CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE (SD 6-8)

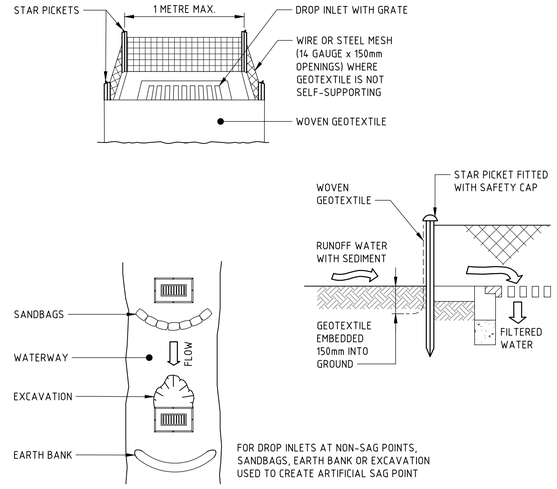


NOTE:THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN APPROVED SWMP/ESCP.

CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH AND GRAVEL INLET FILTER (SD 6-11)

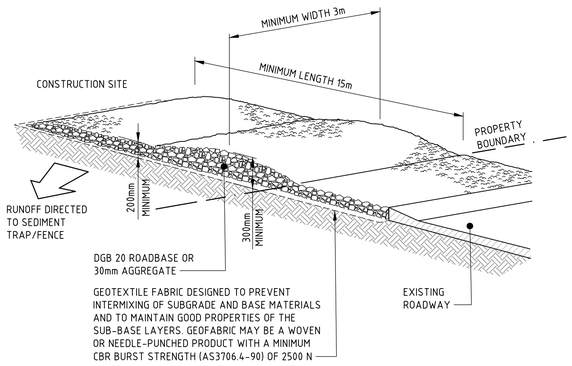


FOR DROP INLETS AT NON-SAG POINTS, SANDBAGS, EARTH BANK OR EXCAVATION USED TO CREATE ARTIFICIAL SAG POINT

CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

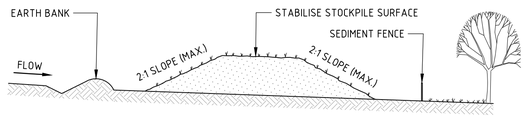
GEOTEXTILE INLET FILTER (SD 6-12)



CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS (SD 6-14)



CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

STOCKPILES (SD 4-1)

DRAWN KATHLEEN TURTON DESIGNED ROBERT SUCKLING JOB MANAGER BEN CLARK VERIFIER

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	PRELIMINARY	KT			07.08.20
A	DEVELOPMENT APPLICATION	KT			28.08.20

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ARCHITECT: E/E architecture

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PROJECT: REMONDIS RESOURCE RECOVERY FACILITY & TRUCK PARKING DEPOT 21D & 21F SCHOOL DRIVE, TOMAGO

DRAWING TITLE: INTERNAL CIVIL WORKS CONCEPT SEDIMENT & EROSION CONTROL DETAILS

JOB NUMBER: NL201175

DRAWING NUMBER: C2.2

REVISION: A

DRAWING SHEET SIZE = A1

BULK EARTHWORKS PLAN

LEGEND

24.8 — DENOTES EXISTING CONTOUR LINES

24.8 — DENOTES BULK EARTHWORKS CONTOUR LINES

4.29 — DENOTES DEPTH OF PROPOSED CUT (-VE) OR FILL (+VE)

BULK EARTHWORKS NOTES

1. WHERE NOT NOMINATED ON PLAN, BULK EARTHWORKS LEVELS HAVE BEEN DETERMINED BY LOWERING THE FINISHED SURFACE LEVELS BASED ON THE FOLLOWING THICKNESSES AND ALLOWANCES
   - TRAFFICABLE CONCRETE PAVEMENT 300mm
   - LANDSCAPE & MISC. AREAS 150mm
2. THE EXISTING GROUND SURFACE WAS LOWERED BY 150mm UNIFORMLY TO ACCOUNT FOR THE REMOVAL OF VEGETATION, AND TOP SOILS.
   - THIS VOLUME IS ESTIMATED (BASED ON THE DEVELOPMENT AREA OF 3790m²) TO BE APPROXIMATELY 568m³ (TOPSOIL - CUT).
3. BULKING FACTORS OF 1.0 WAS USED FOR BOTH CUT AND FILL MATERIAL.
4. THE APPROXIMATE SITE EARTHWORKS VOLUMES BASED ON THE NOTED PAVEMENT THICKNESSES ARE OUTLINED BELOW:
   - CUT: 321 m³
   - FILL: 553 m³
   - NET: 232m³ (FILL) + 568m³ (TOPSOIL - CUT)
5. THE ABOVE VOLUMES ARE TO BE ASSESS NOTING THE FOLLOWING:
   - NO ALLOWANCE HAS BEEN MADE FOR THE REMOVAL OR OVER EXCAVATION OF UNSUITABLE OR CONTAMINATED MATERIAL.
   - NO ALLOWANCE HAS BEEN MADE FOR DETAILED EXCAVATIONS SUCH AS, SERVICES TRENCHING, SEDIMENT BASIN ETC.
   - NO ALLOWANCE HAS BEEN MADE FOR TEMPORARY CONSTRUCTION PLATFORMS.
6. THIS PLAN HAS BEEN PREPARED FOR INFORMATION PURPOSES ONLY AND IS INDICATIVE IN NATURE. THE EARTHWORKS CONTRACTOR IS TO VERIFY ALL LEVELS AND QUANTITIES AND PERFORM THEIR OWN BULK EARTHWORKS ASSESSMENT.

Surface Analysis: Elevation Ranges				
Number	Color	Minimum Elevation (m)	Maximum Elevation (m)	Volume (m3)
1		-2.000	-1.500	7
2		-1.500	-1.000	74
3		-1.000	-0.500	94
4		-0.500	0.000	146
5		0.000	0.500	552
6		0.500	1.000	2

21D
LOT 11
DP 270328

BUILDING 1
(EXISTING BUILDING)

EX. HYD

BUILDING 3
HEAVY VEHICLE
WORKSHOP
(EXISTING
BUILDING)

COVERED NIGHT PARKING
FOR 6 RIGID TRUCKS
(W:2.6 X L:12.5)

WATER RE
USE TANK

EX. MESH FENCE TO BE DEMOLISHED

PROPOSED
WASTE OIL

PROPOSED DIESEL
TANK & BUNDED
REFUELLING AREA

BUILDING 4
EX. SECURITY OFFICE

GATE 1 (EXISTING SWING
GATE TO REMAIN)

EX. WATER
RE USE TANK

NEW LIGHTS &
BOOM GATE

NEW WEIGHBRIDGE
(W:4m L:25m)

21F
LOT 8
DP 270328

LOT 70
DP 634535

DENOTES TEMPORARY BATTER TO
GEOTECHNICAL ENGINEERS SPECIFICATION
TO ALLOW FOR EXCAVATION

ALIGNMENT 3

ALIGNMENT 2

ALIGNMENT 1

DENOTES 1V:4H PERMANENT
LANDSCAPED BATTER TO EXISTING

21G
LOT 7
DP 270328

NEW SECURITY FENCE

PROPOSED
PAVED & BUNDED
OVERNIGHT TRUCK
PARKING AREA

LOT 9 DP 270328

NEW SECURITY FENCE

VERIFIER:
JOB MANAGER: BEN CLARK
DESIGNED: ROBERT SUCKLING
DRAWN: KATHLEEN TURTON

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ARCHITECT
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PROJECT
REMONDIS RESOURCE RECOVERY FACILITY & TRUCK PARKING DEPOT 21D & 21F SCHOOL DRIVE, TOMAGO

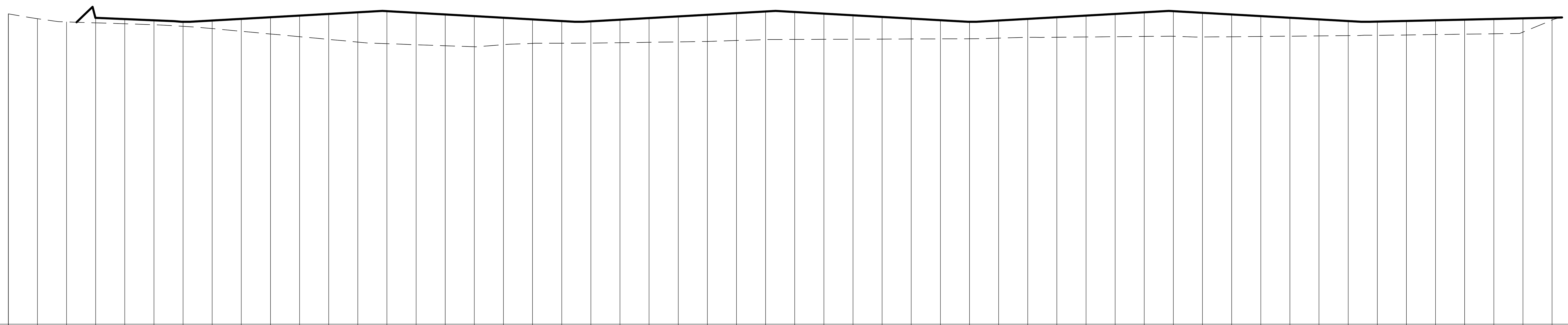
DRAWING TITLE
INTERNAL CIVIL WORKS CONCEPT BULK EARTHWORKS PLAN

JOB NUMBER NL201175

DRAWING NUMBER C2.3

REVISION A

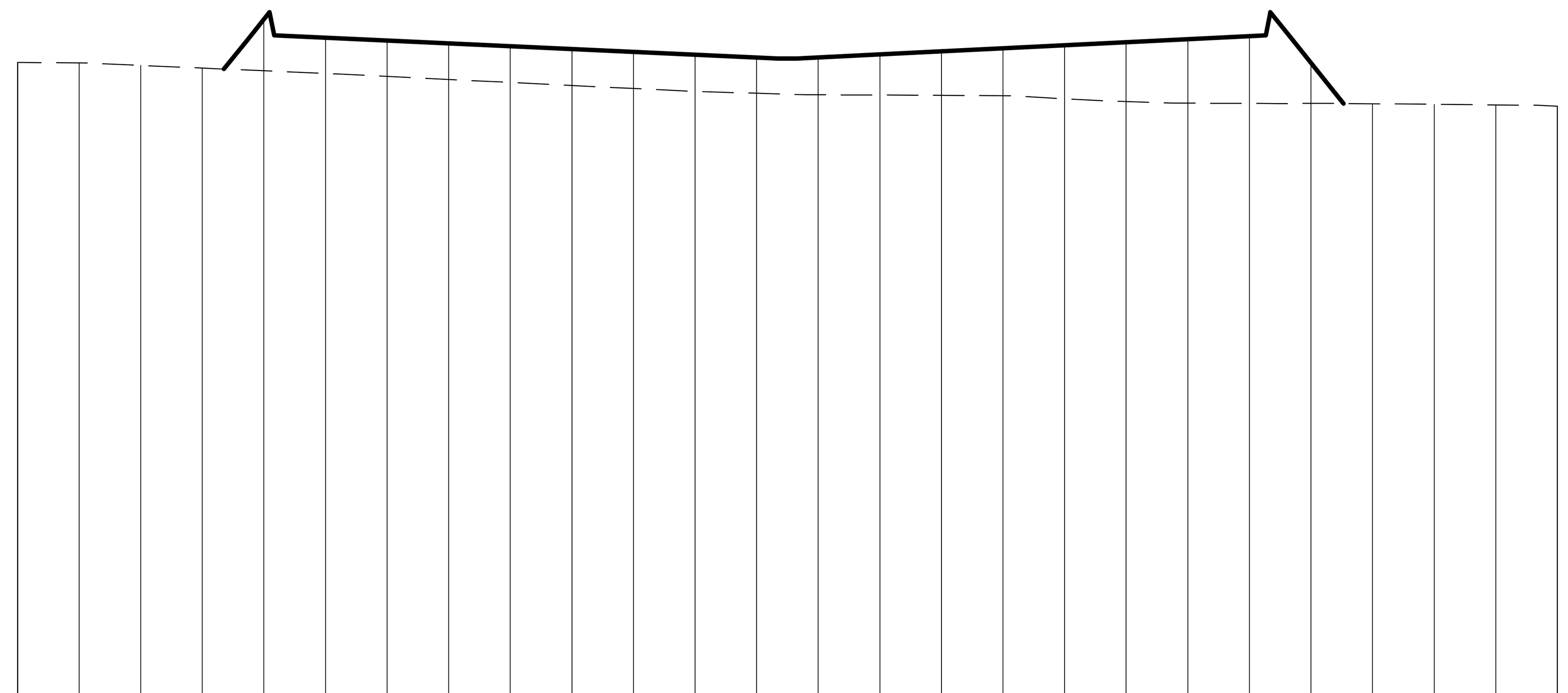
DRAWING SHEET SIZE = A1



VERTICAL 1:40
HORIZONTAL 1:200
Datum 1.000

CHAINAGE	DESIGN SURFACE	EXISTING SURFACE	DEPTH
0.000		5.258	
2.000		5.192	
4.000		5.149	
6.000	5.205	5.136	0.069
8.000	5.188	5.123	0.065
10.000	5.170	5.110	0.060
12.000	5.150	5.088	0.062
14.000	5.167	5.057	0.110
16.000	5.190	5.020	0.170
18.000	5.213	4.983	0.230
20.000	5.235	4.946	0.290
22.000	5.258	4.909	0.350
24.000	5.281	4.872	0.409
26.000	5.296	4.849	0.447
28.000	5.274	4.835	0.438
30.000	5.251	4.822	0.429
32.000	5.228	4.808	0.420
34.000	5.206	4.836	0.369
36.000	5.183	4.854	0.329
38.000	5.160	4.856	0.304
40.000	5.156	4.858	0.298
42.000	5.179	4.863	0.315
44.000	5.201	4.869	0.333
46.000	5.224	4.874	0.350
48.000	5.247	4.880	0.367
50.000	5.269	4.893	0.377
52.000	5.292	4.906	0.386
54.000	5.285	4.908	0.377
56.000	5.262	4.909	0.353
58.000	5.240	4.911	0.329
60.000	5.217	4.912	0.305
62.000	5.194	4.914	0.280
64.000	5.171	4.916	0.256
66.000	5.150	4.917	0.233
68.000	5.167	4.926	0.242
70.000	5.190	4.937	0.252
72.000	5.213	4.938	0.275
74.000	5.235	4.941	0.294
76.000	5.258	4.945	0.313
78.000	5.281	4.949	0.332
80.000	5.296	4.951	0.345
82.000	5.274	4.941	0.333
84.000	5.251	4.945	0.306
86.000	5.228	4.949	0.280
88.000	5.206	4.952	0.253
90.000	5.183	4.956	0.227
92.000	5.160	4.960	0.200
94.000	5.152	4.963	0.189
96.000	5.161	4.969	0.192
98.000	5.171	4.975	0.196
100.000	5.180	4.980	0.200
102.000	5.189	4.985	0.203
104.000	5.198	5.008	0.189
106.000	5.207	5.174	0.033
108.000			
110.000			

ALIGNMENT 1 LONG SECTION



VERTICAL 1:40
HORIZONTAL 1:200
Datum 1.000

CHAINAGE	DESIGN SURFACE	EXISTING SURFACE	DEPTH
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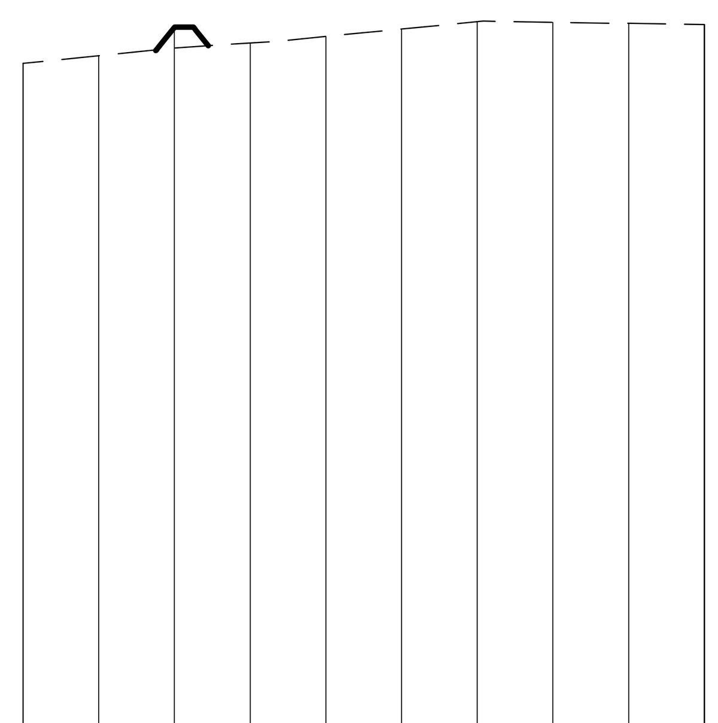
2.000		5.121	
4.000		5.105	
6.000		5.087	
8.000	5.405	5.070	0.335
10.000	5.285	5.052	0.233
12.000	5.266	5.033	0.234
14.000	5.248	5.013	0.235
16.000	5.230	4.994	0.236
18.000	5.211	4.974	0.237
20.000	5.193	4.954	0.239
22.000	5.175	4.936	0.239
24.000	5.156	4.924	0.233
26.000	5.157	4.914	0.243
28.000	5.177	4.912	0.265
30.000	5.196	4.910	0.287
32.000	5.216	4.908	0.308
34.000	5.236	4.888	0.348
36.000	5.255	4.870	0.386
38.000	5.275	4.859	0.416
40.000	5.295	4.857	0.437
42.000	5.120	4.858	0.263
44.000		4.855	
46.000		4.852	
48.000		4.848	
50.000		4.839	

ALIGNMENT 2 LONG SECTION



VERTICAL 1:40
HORIZONTAL 1:200
Datum 1.000

CHAINAGE	DESIGN SURFACE	EXISTING SURFACE	DEPTH
0.000		4.509	
2.000		4.550	
4.000	4.699	4.590	0.109
6.000		4.616	
8.000		4.651	
10.000		4.690	
12.000		4.729	
14.000		4.726	
16.000		4.720	
18.000		4.713	

ALIGNMENT 3 LONG SECTION

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DRAWN KATHLEEN TURTON
DESIGNED ROBERT SUCKLING
JOB MANAGER BEN CLARK
VERIFIER

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	DEVELOPMENT APPLICATION	RS			28.08.20

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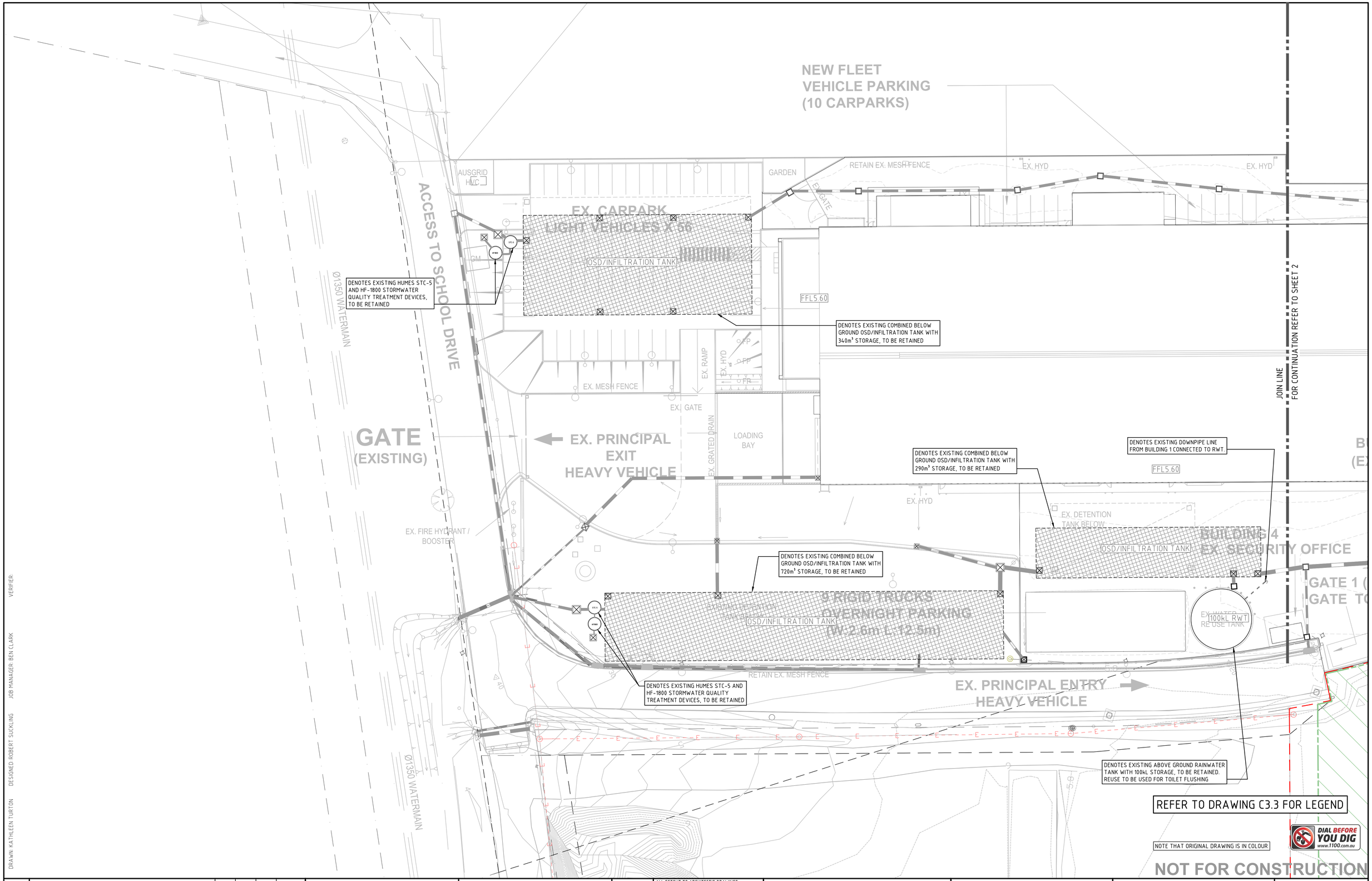
PROJECT
REMONDIS RESOURCE RECOVERY FACILITY & TRUCK PARKING DEPOT
21D & 21F SCHOOL DRIVE, TOMAGO

DRAWING TITLE
INTERNAL CIVIL WORKS
CONCEPT LONG SECTIONS

JOB NUMBER NL201175
DRAWING NUMBER C2.4
REVISION A
DRAWING SHEET SIZE = A1



DRAWN: KATHLEEN TURTON DESIGNED: ROBERT SUCKLING JOB MANAGER: BEN CLARK VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	PRELIMINARY	KT			07.08.20
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B	DEVELOPMENT APPLICATION	KT			10.11.20

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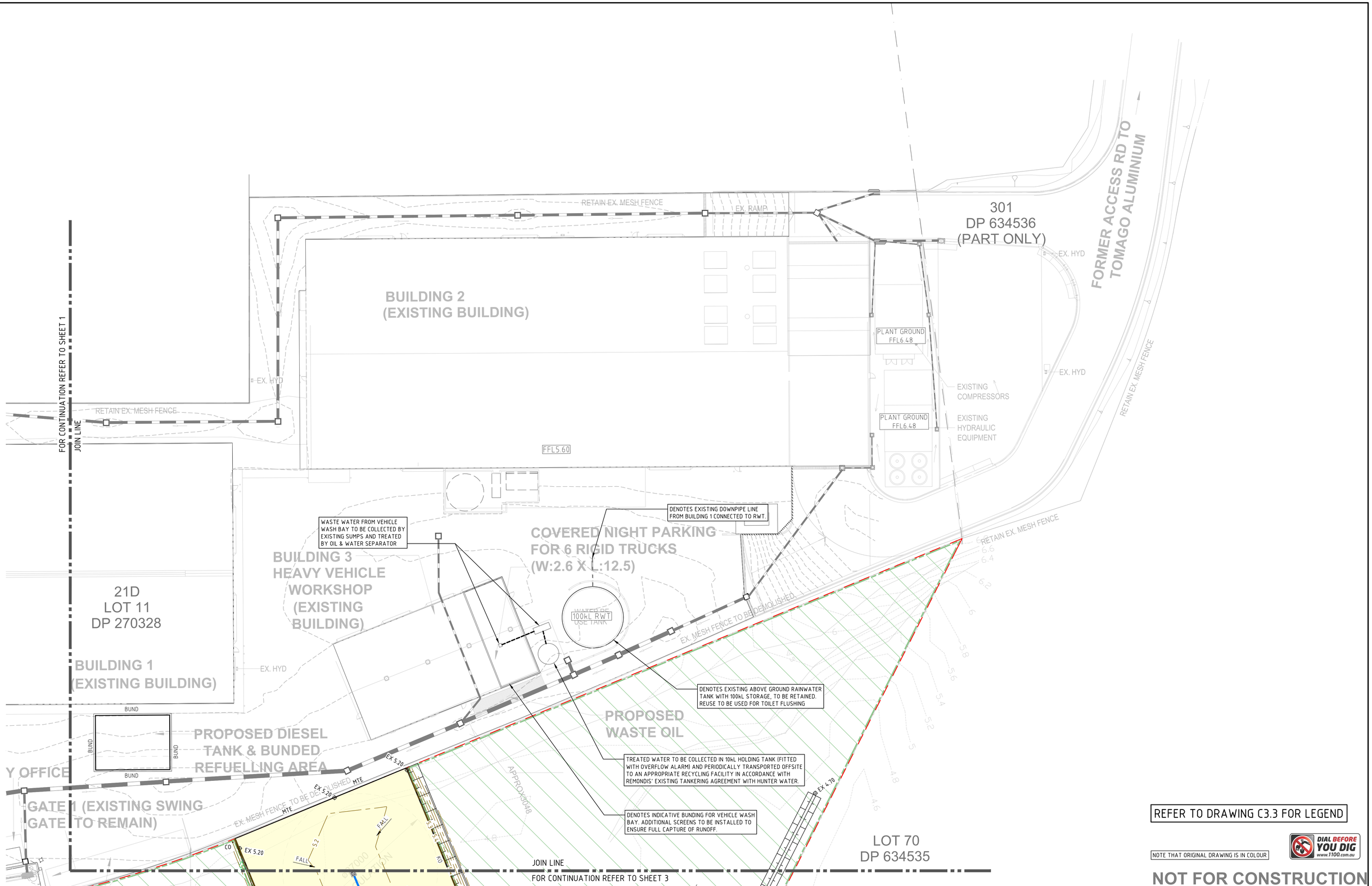
PROJECT
REMONDIS RESOURCE RECOVERY FACILITY & TRUCK PARKING DEPOT 21D & 21F SCHOOL DRIVE, TOMAGO

DRAWING TITLE
INTERNAL CIVIL WORKS CONCEPT STORMWATER MANAGEMENT & LEVELS PLAN SHEET 1

JOB NUMBER **NL201175**

DRAWING NUMBER **C3.1** REVISION **B**

DRAWING SHEET SIZE = A1



REFER TO DRAWING C3.3 FOR LEGEND

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VERIFIER:
JOB MANAGER: BEN CLARK
DESIGNED: ROBERT SUCKLING
DRAWN: KATHLEEN TURTON

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	DEVELOPMENT APPLICATION	KT			28.08.20
B	DEVELOPMENT APPLICATION	KT			10.11.20
C	REVISED FOR DEVELOPMENT APPLICATION	RS			17.05.21

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PROJECT
REMONDIS RESOURCE RECOVERY FACILITY & TRUCK PARKING DEPOT 21D & 21F SCHOOL DRIVE, TOMAGO

DRAWING TITLE
INTERNAL CIVIL WORKS CONCEPT STORMWATER MANAGEMENT & LEVELS PLAN SHEET 2

JOB NUMBER **NL201175**

DRAWING NUMBER **C3.2**

REVISION **C**

DRAWING SHEET SIZE = A1

LEGEND

- DENOTES SITE BOUNDARY LINE
- DENOTES EXISTING TO BE DEMOLISHED
- DENOTES TRAFFICABLE PAVEMENT, REFER TO DETAIL
- DENOTES EXTENTS OF FUTURE HARDSTAND PAVEMENT (DEVELOPMENT SCENARIO 2)
- BUND — DENOTES PROPOSED BUND AROUND PERIMETER OF DIESEL TANK & REFUELLING AREA
- KO — DENOTES KERB ONLY
- PL 5.30 — DENOTES PROPOSED FINISHED SURFACE LEVEL
- EX 4.60 — DENOTES EXISTING SURFACE LEVEL
- MTE — DENOTES MATCH TO EXISTING LEVELS
- 4.4 — DENOTES EXISTING CONTOURS
- DENOTES APPROXIMATE BATTER EXTENT
- FALL — DIRECTION OF FALL IN FINISHED SURFACE
- DENOTES STORMWATER PIT (NEW / EXISTING)
- # — DENOTES STORMWATER PIT TO BE FITTED WITH 200um OCEAN PROTECT PIT FILTER INSERT WITH HYDROCARBON ABSORBENT PILLOW/OIL SOCK
- OSD — DENOTES BELOW GROUND ON-SITE DETENTION AND INFILTRATION SYSTEM
- Ø225 — DENOTES STORMWATER LINE & SIZE
- DENOTES EXISTING STORMWATER LINE
- SSD — DENOTES Ø100 SUBSOIL DRAINAGE LINE WITH NON-WOVEN GEOTEXTILE FILTER SOCK SURROUND LAID AT MIN 1% LONGITUDINAL GRADE & CONNECTED TO NEAREST STORMWATER PIT
- CO — DENOTES SUBSOIL DRAINAGE CLEAROUT
- DENOTES OVERLAND FLOW PATH
- E — DENOTES APPROXIMATE LOCATION OF EXISTING ELECTRICITY LINE

LOCATIONS OF EXISTING SERVICES ARE APPROXIMATE ONLY & MAY NOT BE COMPLETE. THE BUILDER IS RESPONSIBLE FOR LOCATING EXISTING INFRASTRUCTURE (CULVERTS, PITS, PIPES, SERVICES, INVERT & COVER LEVELS ETC) PRIOR TO COMMENCING CONSTRUCTION.

THE BUILDER SHALL ALLOW TO MODIFY ALL EXISTING SERVICE COVERS TO MATCH THE NEW PAVEMENTS, IN ACCORDANCE WITH THE RELEVANT AUTHORITIES REQUIREMENTS.

PROVIDE TEMPORARY TRAFFIC CONTROL IN ACCORDANCE WITH STATE & FEDERAL STATUTORY REQUIREMENTS AND LOCAL COUNCIL SPECIFICATIONS/REQUIREMENTS

NOTE: EXISTING STORMWATER DRAINAGE, RAINWATER TANKS AND INFILTRATION/DETENTION TANKS FOR 21D LOT11 TO BE RETAINED

NOTE: DRAWINGS TO BE READ IN CONJUNCTION WITH SOIL & WATER MANAGEMENT REPORT

STORMWATER MANAGEMENT SUMMARY

	DEVELOPMENT SCENARIO 1	DEVELOPMENT SCENARIO 2
DETENTION VOLUME	180m³	770m³
	200m² INFILTRATION AREA	900m² INFILTRATION AREA
WATER QUALITY	(x5) PIT FILTER INSERTS	(x20) PIT FILTER INSERTS
	(x6) FILTER CARTRIDGES	(x24) FILTER CARTRIDGES

FOR CONTINUATION REFER TO SHEET 2

JOIN LINE

FOR CONTINUATION REFER TO SHEET 1

JOIN LINE

21D
LOT 11
DP 270328

BUILDING 1
(EXISTING BUILDING)

BUILDING 3
HEAVY VEHICLE
WORKSHOP
(EXISTING
BUILDING)

COVERED NIGHT PARKING
FOR 6 RIGID TRUCKS
(W:2.6 X L:12.5)

DENOTES EXISTING DOWNPIPE LINE FROM BUILDING 1 CONNECTED TO RWT

DENOTES BUND AROUND PERIMETER OF DIESEL TANK

BUND

PROPOSED DIESEL TANK & BUNDED REFUELLING AREA

DENOTES EXISTING DOWNPIPE LINE FROM BUILDING 1 CONNECTED TO RWT

BUILDING 4
EX. SECURITY OFFICE

GATE 1 (EXISTING SWING GATE TO REMAIN)

EX. MESH FENCE TO BE DEMOLISHED

WATER PD 100kL RWT USE TANK

DENOTES EXISTING ABOVE GROUND RAINWATER TANK WITH 100kL STORAGE, TO BE RETAINED. REUSE TO BE USED FOR TOILET FLUSHING.

DENOTES EXISTING ABOVE GROUND RAINWATER TANK WITH 100kL STORAGE, TO BE RETAINED. REUSE TO BE USED FOR TOILET FLUSHING.

PROPOSED WASTE OIL

PROVIDE SUBSOIL DRAINAGE LINE AROUND STORMWATER PITS WITHIN PAVEMENT. IMPERMEABLE GEOTEXTILE MEMBRANE TO EXTEND BELOW SUBSOIL DRAINAGE LINE (TYPICAL). REFER TO DETAIL

DENOTES 1V:4H BATTER IN EXISTING

EXISTING CONCRETE SLAB TO BE DEMOLISHED & DISPOSED OFF SITE

#PIT
CL5.15
IL4.50

NEW LIGHTS & BOOM GATE

NEW WEIGHBRIDGE
(W:4m L:25m)

21F
LOT 8
DP 270328

DENOTES 1V:4H BATTER IN EXISTING

#PIT
CL5.15
IL4.21

LOCALLY GRADE SURROUNDING LANDSCAPE TO FALL TOWARDS STORMWATER PIT. STORMWATER LINE TO BYPASS TREATMENT DEVICE

PIT
CL4.95
IL3.47

#PIT
CL5.15
IL3.92

#PIT
CL5.15
IL4.50

21G
LOT 7
DP 270328

NEW SECURITY FENCE

LOT 70
DP 634535

DENOTES LEVEL SPREADER MOUND 500mm WIDE TO DISPERSE OVERFLOW AS SHEET FLOW TO MIMIC NATURAL FLOW REGIME ON SITE

DENOTES BELOW GROUND COMBINED OSD (180m³ STORAGE) AND INFILTRATION SYSTEM (200m²AREA).

IL3.17

IL3.48

IL3.37

DENOTES (x6) 460PSORB OCEAN PROTECT FILTER CARTRIDGES IN PRECAST PROPRIETARY HOUSING

EXISTING MATERIAL STOCKPILE TO BE RELOCATED ON SITE

#PIT
CL5.30
IL3.75
NOTE: INSTALL SHUT-OFF VALVE IN PIT TO OUTLET IN THE EVENT OF SPILLAGE OCCURRING. INSTALL LOW-FLOW DIVERSION WEIR

PROPOSED PAVED & BUNDED OVERNIGHT TRUCK PARKING AREA

LOT 9 DP 270328

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DESIGNED ROBERT SUCKLING
DRAWN KATHLEEN TURTON

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A	DEVELOPMENT APPLICATION	KT			28.08.20
B	DEVELOPMENT APPLICATION	KT			10.11.20
C	REVISED FOR DEVELOPMENT APPLICATION	KT			12.05.21

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PROJECT
REMONDIS RESOURCE RECOVERY FACILITY & TRUCK PARKING DEPOT 21D & 21F SCHOOL DRIVE, TOMAGO

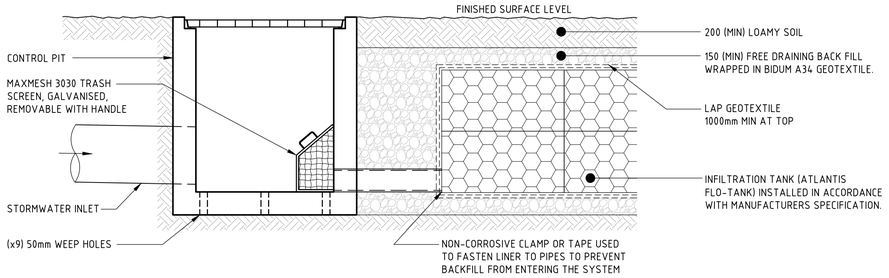
DRAWING TITLE
INTERNAL CIVIL WORKS CONCEPT STORMWATER MANAGEMENT & LEVELS PLAN SHEET 3

JOB NUMBER: **NL201175**

DRAWING NUMBER: **C3.3**

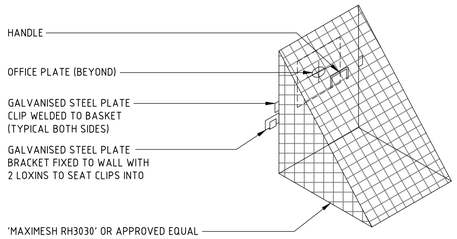
REVISION: **C**

DRAWING SHEET SIZE = A1

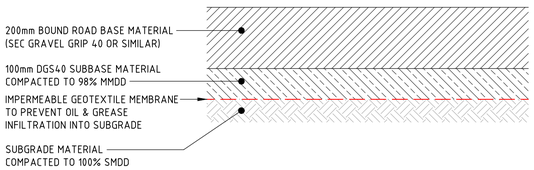


TYPICAL SECTION OSD / INFILTRATION SYSTEM

NOTE: INFILTRATION RATE OF 300mm/hr ADOPTED BASED ON TESTING UNDERTAKEN BY JM ENVIRONMENT AND OUTLINED IN GROUNDWATER CONTAMINATION ASSESSMENT REPORT No.JME20005-5 DATED 28.04.21.

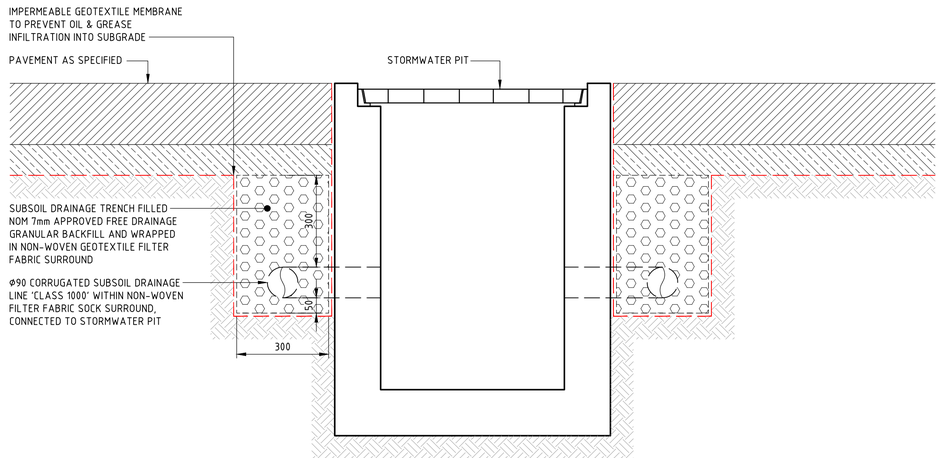


TRASH SCREEN DETAIL



INDICATIVE TRAFFICABLE PAVEMENT DETAIL

NOTE: PAVEMENT DESIGN TO BE CONFIRMED BY SUITABLY QUALIFIED GEOTECHNICAL ENGINEER FOLLOWING DETAILED GEOTECHNICAL INVESTIGATION DURING DETAILED DESIGN



PAVEMENT SUBSOIL DETAIL AT STORMWATER PITS

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VERIFIER:

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DETAILS 1:10@A1 0 100 200 300 400 500

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DRAWING TITLE
INTERNAL CIVIL WORKS CONCEPT CIVIL DETAILS SHEET 1

JOB NUMBER **NL201175**
DRAWING NUMBER **C5.1**
REVISION **B**
DRAWING SHEET SIZE = A1