

From: "Sarah Jones" <sjones@milfordplanning.com.au>
Sent: Wed, 8 Jul 2026 11:39:23 +1000
To: "Development Assessment" <developmentassessment@townsville.qld.gov.au>
Cc: "Jayne Carter" <jayne.carter@townsville.qld.gov.au>
Subject: M2301 - MCU25/0072 - Response to SARA's Information Request
Attachments: OM2301 - Final Response to Information Request (SARA) July 2026.pdf

Hi Jayne,

Pursuant to Section 13.4 of the Development Assessment Rules, please find attached the response to SARA's Information Request associated with the abovementioned development application.

Kind regards,

Sarah Jones | SENIOR TOWN PLANNER



(07) 4724 0095 | www.milfordplanning.com.au

283, Flinders Street, Townsville Q 4810

Caution: This email contains information that may be confidential or privileged. The information is intended to be for the use of the intended recipient. If you have received this email in error, please notify us by telephone (07) 4724 0095 or by email to info@milfordplanning.com.au. Milford Planning does not accept liability for any loss or damage incurred as a result of this email transmission or any attachments to it, whatsoever. Thank you.

MP ref: M2301
DA ref: MCU25/0072
QA: sj.mm

7 July 2026

State Assessment and Referral Agency
PO Box 5666
TOWNSVILLE QLD 4810
Via: *MyDAS2*

Attention: Magnus Kuttainen– SARA

Dear Magnus,

Re: Response to Information Request
Development Application seeking a Change Application (Other) to Development Permit M33/03 for a Material Change of Use (Waste Disposal and Recycling Facility) and Environmental Authority P-EA-100698838 (ERA60 only) on land described as Lot 1 on RP735647 and Lot 140 on SP112726 and located at 42386 Bruce Highway, Bluewater

On behalf of the Applicant, Milford Planning refer to the abovementioned development application and to correspondence dated 25 November 2025, being the formal Information Request issued by the State Assessment and Referral Agency (SARA) (refer Attachment 1).

To address the abovementioned Information Request and the Information Request received from the Department of Environment, Tourism, Science and Innovation (DETSI), the proposed cell/staging configuration within the landfill footprint has been amended. The amendments are illustrated on the plans prepared by Langtree Consulting Engineers that form part of the updated Stormwater Management Plan (refer Attachment 2).

In response to SARA's Information Request, and in accordance with Section 13.2 of the Development Assessment Rules, we hereby provide a response to all of the information requested as detailed in Table 1 overleaf.



Table 1 – Response to Information Request

Item	Response
Item 1 Pavement Impact Assessment	This item requested the Applicant to provide a Pavement Impact Assessment (PIA) prepared by a RPEQ, to demonstrate that the development which involves haulage exceeding 10,000 tonnes per year does not damage the pavement of a state-controlled road. In response to this item, Langtree Consulting Engineers have prepared a PIA (refer to Attachment 3), which demonstrates the proposed development complies with PO5 of State Code 6: Protection of State Transport Networks. In response to dot point one of this item, the vehicles will consist of 3 2-axle rigid body trucks that operate under standard mass limits. The vehicles are used for transport of materials with approximately 50,000 tonnes total per annum for delivery and servicing associated with construction activities. The loaded and unloaded Standard Axle Repetition (SAR)'s for the proposed fleet vehicle is shown in Table 1 of the PIA. In response to dot point two of this item, the assessment focused on the Bruce Highway (State controlled road 10 m). The assessed corridor extends from Chainage 26.64 km, located at the junction of the Ring Road (Bruce Highway 10 m) and North Townsville Road, to Chainage 120.5 km at the intersection of the Townsville Road (Bruce Highway 10 m) and Lannercost Street in Ingham. The analysis identified that the worse-case pavement loading impact occurs between Chainage (118.18 km to 120.5 km), where development-generated SARs were assessed against gazetted traffic volumes on an equivalent volume. The highest estimated contribution of SARs is approximately 4.9% in the worse-case section of the Bruce Highway. As this contribution remains below the threshold, the development is not expected to significantly reduce the pavement life of the affected road sections. In response to dot point four of this item, the development does not generate SARs in excess of the 5% threshold, so pavement impact mitigation measures are required. The assessment concludes that there is no need for additional pavement width, changes to pavement surfacing type or thickness, sealing of unsealed pavements, increased maintenance, unscheduled pavement rehabilitation, or construction of new pavement. Furthermore, because the development does not significantly impact the state-controlled road network, no monetary contribution is required to offset pavement impacts over the life of the development's operations. It is considered that the above response and PIA satisfactorily address this item and demonstrate compliance with PO5 of State Code 6: Protection of State Transport Networks.
Item 2 ERA – Receiving Waters Environmental Values – Landfill Cell Liners	This item requested the Applicant provide additional information in relation to the liner systems for the cells and whether any changes are proposed because of the increased waste disposal rate to ensure further protection of water and groundwater environmental values. In response to this item, the Stormwater Management Plan (SMP) prepared by Langtree Consulting Engineers has been updated and Terra Solutions have prepared a Groundwater Monitoring Network Assessment (GMNA) (refer to Attachment 2 and 4 respectively). The current cell liner was designed by GHD and is clay. Soil Engineering Services conducted compaction and permeability tests, which informed the design of the existing cell liner. The results of these test are included in GMNA (refer Attachment 4). The current Environmental Authority Permit



Table 1 – Response to Information Request

Item	Response
	includes conditions that require the liner system and the leachate management system to be designed by an appropriately qualified person. In terms of the existing facility, part of existing Cell 1 has been constructed (referred to as Stage 1 on the amended plans), no changes are proposed to the existing liner. The remainder of the landfill area will be filled over 9 stages (referred to as Stages 2 to 10 (refer Attachment 2). Stages 2 to 10 will each be 1 ha in area. As outlined in Section 8 of the SMP prepared by Langtree Consulting Engineers, an assessment of the existing cell liner and drainage system has been undertaken to determine its appropriateness. The existing cell liner and drainage layer has been assessed to determine if the existing cell liner (300 mm clay liner with a hydraulic conductivity of 1.0×10^{-9} m/ s) and leachate collection layer (300mm free draining material, permeability of 3×10^{-3} m/ s adopted) are suitable for continued use and capable of meeting the current design and environmental performance requirements for effective leachate management. As outlined in the Groundwater Monitoring Network Assessment (GMNA) the layout of infrastructure (including cells, slotted PVC leachate collection pipes, and ponds) is shown in Appendix C of the GMNA. The cell liner composition and thicknesses are shown in Appendix D of the GMNA and illustrate a (minimum) 300 mm layer of clay, compacted to 97 % MDD, with permeability (K) of 10^{-9} m/ s. Permeability tests conducted in 2002 by MSM Engineering produced permeability values in the order of those dictated in the design documents (Appendix E of the GMNA). These results are summarised below in Table 2.1 of the GMNA. The liner is understood to extend from beneath the bunds at the edges of the cells, and beneath the entire cell. It has a 300 mm layer of rubble like material overlying it, to facilitate leachate drainage toward the 150/ 300 mm slotted PVC leachate collection pipes. Slopes of this rubble layer and the underlying liner are documented as being around 18.44 degrees around the edges of the cells, followed by a 2 % fall (1.15 degrees) towards the slotted PVC leachate collection pipes. Appendix C of the GMNA illustrates that POND 2 and POND 3 receive leachate, while POND 1 receives the drainage swale discharge and overflow from POND 2. The updated SMP confirms that Hydrologic Evaluation of Landfill Performance (HELP) modelling was undertaken using 30 years of data from 1996 to 2025. The average annual totals are summarised in Table 4. The results indicate that 72.44 % of rainfall becomes leachate, 24.19 % is lost to evaporation, and 2.68 % percolates through the cell liner. Long-term percolation is expected to be minor and within acceptable limits. The HELP modelling results are contained in Appendix E of the updated SMP. Where bentonite or low permeability clay with a hydraulic conductivity less 1×10^{-9} m/ s cannot be sourced, the clay liner must be reassessed to determine minimum thickness based on liner material properties and/or determine if a geosynthetic clay liner (GSL) is required. It is considered that the above response and attached technical reports satisfactorily address this item and demonstrate compliance with PO4 of State Code 22 – Environmentally Relevant Activities.
Item 3	This item requested the Applicant provide additional information in relation to stormwater management and how the leachate is directed to the



Table 1 – Response to Information Request

Item	Response
ERA – Receiving Waters Environmental Values – Stormwater Management	'detention area' and how the leachate within the leachate pond is managed to ensure leachate is not released to the environment. Further, the application material has not determined whether there will be an increase in leachate generated onsite because of the increase in the waste disposal rate and how any increase will be managed. In response to this item and to address other Information Request items, Langtree Consulting Engineers have updated the SMP (refer Attachment 2). As mentioned above, amendments had to be made to the cell/ stage arrangement and configuration, to ensure the stormwater management regime functions appropriately. The updated SMP has been designed to minimise the disturbance area outside of the active working area, divert clean water around the site and dirty water to sediment basins. Sediment laden water from the operational area will be treated by sediment traps in the form of sediment basins before being discharged from the site. Leachate produced within the active working area will be collected in a leachate sump before pumping to the leachate pond. Refer to Section 7.0 of the SMP for sediment control details and Section 8.0 for leachate management. Four ponds currently exist on the site as shown in Figure 7. Two ponds are in the north-western area of the site (Pond 1 & 2) and captures runoff from the landfill area which has not come into contact with waste material (i.e. from capped fill and road areas). Pond 3 acts as a leachate pond, whilst Pond 4 collects runoff from the road and battery storage area near the site access. The battery storage area is roofed so stormwater does not come into contact with any waste in the area. Stormwater run-off at the site will be managed by: 1. retaining existing release points from the site, with catchments to the discharge locations remaining similar to pre-development conditions. No additional or relocated discharge points are proposed; 2. stormwater management systems so that little to no run-off from outside the working areas enters the areas and no run-off is released from the area prior to treatment; 3. maintaining a stormwater management system that is suited to the ongoing development of the site; 4. constructing and maintenance of all the required structures to capture and treat the onsite stormwater (e.g. diversion channels, catch drains, sediment basins and spillways); 5. minimising disturbed areas that contain materials prone to erosion; 6. installing sediment and erosion structures that will control the movement of sediment in areas prone to erosion; 7. regular maintenance inspections of all the associated structures; 8. using the stormwater captured in the sediment basins for dust suppression; 9. recycling the water from the sediment basins in the composting process; and 10. retaining spill kits on site and training of all staff in the use of the kits. Leachate will be managed through a primary leachate collection and removal system constructed at the base of the landfill cell. The cell floor will be graded to achieve a minimum 1.5 % crossfall to the collection sump positioned at the low point of the cell (generally from southwest to north-



Table 1 – Response to Information Request

Item	Response
	eastern corner of the stage). The sump will comprise a localised excavation integrated into the cell floor and fitted with a vertical riser to facilitate leachate extraction. The leachate sump will contain a DN1050 concrete riser pipe. A submersible pneumatic pump will be utilised to extract leachate via the rise pipe to the leachate pond. Evaporation of leachate from the active area, leachate pond and spray system are the primary mechanism of loss from the system. Pond evaporation is based on the pond area and evaporation data from Bureau of Meteorology (BoM) form Townsville Aero Weather Station 032040. The adopted evaporation rate is the mean evaporation rate multiplied by a pan coefficient of 0.7. The existing leachate pond has an approximate area of 3,375 m² and an operating capacity of 7,016 m³. The leachate pond is designed to have 0.5 m of freeboard before overtopping into the adjacent sediment basins. The landfill will be used for construction and demolition waste, as such it is expected to have very low organic content, minimal biodegradation and limited long-term leachate generation. Leachate is predominantly from initial wetting, rainfall infiltration and short-term drainage. Nevertheless, as a worst case to quantify leachate generation, a numerical modelling approach was adopted using the Hydrologic Evaluation of Landfill Performance (HELP) framework developed by the United States Environmental Protection Agency (USEPA), version 4.0.1. HELP modelling was completed as part of the SMP, which represents a quasi-two-dimensional simulation of water movement through layered landfill systems under variably saturated conditions. The average annual totals are summarised in Table 4. The results indicate that 72.44 % of rainfall becomes leachate, 24.19 % is lost to evaporation, and 2.68 % percolates through the cell liner. Long-term percolation is expected to be minor and within acceptable limits.

Table 4. Average annual totals for Years 1 to 30

	Average Annual Totals for Years 1 - 30*			
	(millimetres)**	(std dev)	(cubic meters)	(percent)
Precipitation	1,469.00	(629.03)	14,690.0	100.00
Runoff	0.000	[0]	0.0000	0.00
Evapotranspiration	355.417	(111.258)	3,554.2	24.19
Subprofile1				
Lateral drainage collected from Layer 2	1,064.0763	(547.9712)	10,640.8	72.44
Percolation/leakage through Layer 3	39.427138	(24.616432)	394.3	2.68
Average Head on Top of Layer 3	18.8443	(22.9434)		
Water storage				
Change in water storage	10.0766	(112.0203)	100.8	0.69

**Note: head on liners expressed in cm

Where bentonite or low permeability clay with a hydraulic conductivity less 1×10^{-9} m/ s cannot be sourced, the clay liner must be reassessed to determine minimum thickness based on liner material properties and/ or determine if a geosynthetic clay liner (GSL) is required.

It should be noted that the landfill will be used for construction material, which will not produce leachate in the same manner or concentrations as a traditional Council landfill would. The risk of leachate overflow is not considered high risk, and overflow has been designed to discharge neighbouring existing Pond 2 (sediment basin/emergency overflow) then into Sediment Basin 1 before subsequent discharging to an order 1 stream



Table 1 – Response to Information Request

Item	Response
	which ultimately discharges into Christmas Creek should an overflow occur. It is considered that the above response and attached technical reports satisfactorily address this item and demonstrate compliance with PO4 of State Code 22 – Environmentally Relevant Activities.
Item 4 ERA – Receiving Waters Environmental Values – Ground Water	This item requested the Applicant provide additional information in relation to the ground water matters. In response to this item, Terra Solutions Pty Ltd (Terra Solutions) have prepared a Groundwater Monitoring Network Assessment (GMNA) (refer to Attachment 4), which includes the results from the quarterly groundwater monitoring for the site. The previous owner has advised the Applicant that the ground water monitoring network is understood to have been in place since 2006. The key observations from the water level data are: ▪ All groundwater monitoring bores have broadly similar trends until late 2023. ▪ There are no clear relationships between water level and rainfall; however, this is potentially due to differences in data density over time. ▪ After 2023 groundwater levels in BL-BH4 are relatively flat, whereas oscillating trends are apparent in the other bores. - o Previous reports have noted that responses to rainfall often take much longer to be observed at this location due to the low permeability clay substrates at this location (Wulguru Technical Services Pty Ltd 2023). Groundwater contours generated from the post-dry (August) and post-wet (February) season water level measured in 2025 show a general seasonal variation/ increase of around one meter, which is consistent with past assessments (Wulguru Technical Services Pty Ltd 2023). Based on the outcomes of the assessment, GMNA includes the following recommendations: Groundwater monitoring network: ▪ <i>Bore BL-BH2 should remain in the network as a compliance bore. However, it should no longer be referred to as “up-gradient”, following the revised hydrogeological conceptualisation presented in the GMNA.</i> ▪ <i>An interpretation bore should be installed in a location to the southwest of the main sources of impacts, to aid in the future refinements/validation of the source-receptor pathway model and to monitor for potential contaminants (e.g. PFAS and hydrocarbons) originating offsite.</i> ▪ <i>Bore specific trigger derivation should be undertaken for compliance bores BL-BH1 through BL-BH4 to establish statistically robust monitoring for a site with a potentially altered baseline. The derivation should consider the potential effects of a coastal saline wedge within the groundwater aquifer, and tidal influences from nearby creeks.</i> Surface water monitoring network: <i>Surface water monitoring locations SW4 and SW5 should be revised (and potentially lumped into a single downstream point within Christmas Creek).</i>



Table 1 – Response to Information Request

Item	Response
	Monitoring parameters: ▪ <i>PFAS and petroleum hydrocarbons should be monitored at every sampling event.</i> ▪ <i>Major cations and anions should be monitored every sampling round for groundwater, surface water, and leachate monitoring locations.</i> ▪ <i>Dissolved fractions of metals should be analysed for derivation of and assessment against groundwater triggers, while total fractions of the same metals should continue to be monitored for interpretational purposes.</i> ▪ <i>Manganese (total and dissolved fractions) should be monitored in groundwater, surface water and leachate each round.</i> Following these recommendations will support the Applicant's fulfillment of all aspects of condition 1-WT7 of the EA. In addition, SDAP State code 22 requires development to be suitably located and designed to avoid or mitigate environmental harm to the receiving waters environment (PO4), with AO4.1 referring to the management intent, water quality guidelines and objectives of the <i>Environmental Protection (Water and Wetland Biodiversity) Policy 2019</i>. Available design information indicates that the site incorporates containment and drainage measures intended to protect groundwater and receiving waters. Furthermore, following the original assessment presented in this report, QRR updated the site management plans It is considered that the above response and attached technical reports satisfactorily address this item and demonstrate compliance with PO4 of State Code 22 – Environmentally Relevant Activities.
Item 5 Air Environmental Values	This item requested the Applicant provide additional information in relation to the potential increase in impacts to air environmental values because of the increase in waste volume received and disposed at the facility. In response to this item, Simpson Engineering Group (SEG) have prepared an Air Assessment (AA) (refer Attachment 5). The emissions for the Project have been based upon the National Pollution Inventory (NPI) Emission Estimation Technique Manual for Mining Version 3.1 (Department of Sustainability, Environment, Water, Population and Communities, 2012). This manual has the most relevant emission factors for the operations occurring on site. SEG have based their reporting on the following: ▪ Up to 50,000 tonnes per year; ▪ Up to 70 trucks per day; and ▪ Operating 6:30 am to 7.00 pm Monday to Saturday. <u>Dust</u> The Applicant is and will continue using dust controls measures on site with water spray on road and active stockpiles, as well as dust control on the crusher. SEG has developed an emissions database based upon a maximum or peak site operation model. This model was then applied to all operational hours of the site to determine a maximum exposure from the site. For this the following assumptions have been made: ▪ 43 tonnes per hour of inbound material;



Table 1 – Response to Information Request

Item	Response
	8.6 trucks per hour driving across the site with inbound material; 9 tonnes per hour of export material; 0.3 trucks per hour of export material; - Crusher is operating at 133 tonnes per hour of material with a loader in support; - Dozer/ compaction is occurring; and - Loader is also covering and loading material for export. Based on the above, emission factors for the operations on the site have been determined using the NPI manual and the estimated maximum site emission factors for both uncontrolled and controlled emission has been determined, refer to Table 3 of the SEG AA. <u>Odour</u> SEG state in the AA that the potential for odour generation at the site is very low and below a level that can be readily modelled. Additionally, with the large separation distances, there is very little change of odour from the site being impacted at any sensitive receptor. This is due to several factors associated with the design and operation of the site. Most importantly, the site does not accept putrefiable waste, i.e. liquid or sludge from grease traps, septic or piggery. Additionally, the site does not accept liquid or semi liquid wastes. It is estimated that 95% of waste is construction and demolition waste, with the remaining estimated 5% from inert commercial and industrial waste sources. These waste streams are very low odour generating, especially when compared to a municipal landfill. Additionally, the facility covers material soon after emplacement, reducing possible odour generation. <u>Air Pollution Model</u> The model Calpuff was used to model the dispersion of pollutants from the Project. The modelling was carried out at modelling heights of 1.5 m. Contours have been presented for each pollutant, odour and dusts. Calculations at each of the receptor locations have also been carried out. The specific receptor locations modelled are included in Table 8 and Figure 4 of the AA. The AA confirms the modelling of dust demonstrates all sensitive receptors readily comply with all pollutants for all averaging period times. SEG recommend that the existing dust control measures continue to be implemented and these include: <i>watering internal roads;</i> <i>covering completed stockpile areas;</i> <i>revegetation where possible on complete stockpiles; and</i> <i>dust controls on crusher.</i> It is considered that the above response and attached technical report satisfactorily address this item and demonstrate compliance with PO2 of State Code 22 – Environmentally Relevant Activities.
Item 6 Acoustic Environmental Values	This item requested the Applicant provide additional information in relation to the potential increase in impacts to noise environmental values, because of the increase in waste volume received and disposed at the facility. In response to this item, Simpson Engineering Group (SEG) have prepared an Environmental Noise Assessment (ENA) (refer Attachment 6). SEG developed a single modelling noise case for the proposed development,



Table 1 – Response to Information Request

Item	Response
	which involved the simultaneously crushing, compacting and loading of trucks. The ENA concludes that R1 and R2 are the sensitive receptors that are likely to experience the highest noise levels. <u>Operational Noise</u> As outlined in the ENA, the modelled noise levels comply with all the proposed noise level limits during the day at all sensitive receptors, provided two acoustic screens are installed. Fence 1 needs to be installed adjacent to the crusher (4m high and nominally 20 m long) and the second fence needs to be installed adjacent to the water pump (3 m high and 5 m long), refer to Figure 5, Figure 6, Figure 7 and Figure 8 of the ENA. The noise levels for a fully operation plant is likely to exceed the Acoustic Quality objectives at R1 during the early morning shoulder period prior to 7 am. These indoor objectives are based on open windows at R1 and with façade of the building generally facing towards the site. It is noted that this façade also faces towards the Bruce Highway and this is also a source of high noise levels from road and railway traffic. It is normal that during the first 30 minutes, the site would carry out start-of-day toolbox meetings, progress to any daily maintenance tasks and pre-start checks of plant and equipment. Therefore, it is most likely the first works would be truck deliveries or truck loading with crushing and compacting occurring later in the day. If the works are limited to truck deliveries and truck loading using the front-end loader, then the noise levels during the period 6:30 am to 7 am comply with all noise level goals. Thus, it is recommended that operation of the crusher and use of the compactors take place after 7:00 am, which can be managed via a reasonable and relevant condition. <u>Summary and Conclusion</u> The likely noise levels from operating equipment have been robustly established based on measurements on site and similar elsewhere. It should be noted that the frequency spectra for the process plant are heavily biased towards the low frequency noise components. This implies that barrier screening effects and air absorption will be low compared with noise sources having relatively more high frequency components. The digital terrain model has been based on Lidar data from the public domain. The adoption of these contour levels would provide the major features without over emphasising possible noise screening effects of smaller landforms. A noise survey was undertaken on site. It is likely the measure Day RBL would be representative of the entire year. It is understood the site commences operations at 6:30 am. This is during the night period and it was determined that the RBL during this period was higher than the day RBL. To account for seasonal variability, it is proposed to adopt the day RBL for the period 6.30 am to 7.00 am, i.e. for the entire opening hours it is proposed to adopt an RBL of 42 dB(A) at all nearby sensitive receptors. The noise level goals applicable to the site have been reviewed. Noise level goals are to ensure that the noise levels do not lead to a deterioration of the noise environment at noise sensitive receptors. Additionally, the preservation of sleep and avoiding low-frequency impacts are important considerations. Since traffic from the site will not pass any sensitive receptors prior to combining with existing traffic on the Bruce Highway, road traffic noise was not assessed.



Table 1 – Response to Information Request

Item	Response
	It was determined that noise from the operation of the proposed expanded landfill and building and construction waste processing is expected to comply with all noise level goals during all time periods subject to: ▪ limiting operation of the crusher and the compactor to the period 7:00 am to 5:00 pm; and ▪ providing two acoustic screens, one near the crusher and the other near a water pump. It is considered that the above response and attached technical report satisfactorily address this item and demonstrate compliance with PO1 of State Code 22 – Environmentally Relevant Activities.

Proceeding

We trust the above and attached information is sufficient to allow SARA to assess the development application. If SARA is of the view that the response does not appropriately address the Information Request, we request the opportunity to meet to discuss further.

If you have any questions regarding this correspondence, please contact the undersigned on TEL: (07) 4724 0095.

Yours sincerely,

MILFORD PLANNING

Sarah Jones

SENIOR TOWN PLANNER

Encl: Attachment 1: SARA Information Request
Attachment 2: Updated SMP prepared by Langtree Consulting Engineers
Attachment 3: PIA prepared by Langtree Consulting Engineers
Attachment 4: GMNA prepared by Terra Solutions
Attachment 5: AA prepared by SEG
Attachment 6: ENA prepared by SEG

Attachment 1

SARA reference: 2511-49169 SRA
Applicant reference: M2301
Council reference: MCU25/0072

25 November 2025

Queensland Resource and Recovery Pty Ltd
C/- Milford Planning
PO Box 5463
TOWNSVILLE CITY QLD 4810
info@milfordplanning.com.au

Attention: Sarah Jones

Dear Jones

SARA information request - 42386 Bruce Highway, Bluewater

(Given under section 12 of the Development Assessment Rules)

This notice has been issued because the State Assessment and Referral Agency (SARA) has identified that information necessary to assess your application against the relevant provisions of the State Development Assessment Provisions has not been provided.

State transport infrastructure	
1.	Pavement Impact Assessment <u>Issue:</u> A Pavement Impact Assessment is required to be submitted to demonstrate compliance with PO5 of the State Development Assessment Provisions (SDAP) - State Code 6: Protection of State transport networks. The proposed development, which will effectively increase heavy vehicle movements generated by the development compared to the existing approval by a factor of 5, has the potential to worsen the pavement condition of the state-controlled road. A Pavement Impact Assessment is required in accordance with Section 13 (Pavement) of the Guide to Traffic Impact Assessment and to demonstrate that the development which involves haulage exceeding 10,000 tonnes per year does not damage the pavement of a state-controlled road <u>Action:</u> A Pavement Impact Assessment should be prepared and certified by a RPEQ in

	accordance with the Guide to Traffic Impact Assessment. This should include: a) identifying the number of types of vehicles that will be generated by the development during both construction and operational phases b) identifying the sections of the state-controlled road network where pavement assessment is required based on the standard axle repetitions (SAR) thresholds c) identifying the expected pavement life of each impacted section of the state-controlled road d) mitigating pavement impacts through provision of: - o extra pavement width (for example, to prevent edge degradation) - o a change in surfacing type of pavement thickness - o sealing an unsealed pavement o increasing maintenance, and/or the need for unscheduled pavement rehabilitation or construction of new pavement - o provision of monetary contributions required to offset pavement impacts throughout the life of the operations. Existing and proposed development traffic demands should be considered on a like-for-like basis (i.e. the only changes should be the tonnes per annum and potentially the design vehicles). Further guidance on preparing a pavement impact assessment is available in the Guide to Traffic Impact Assessment and via the Pavement Impact Assessment Practice Note online at: https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guide-to-Traffic-Impact-Assessment.
Environmentally Relevant Activity	
3.	Receiving waters environmental values – landfill cell liners <u>Issue:</u> The 'Change Application Report' states that the waste cells included in the landfill area include clay liners that ensure there is minimal percolation of leachate into groundwater and stormwater networks. No further information has been included on the liner systems and whether any changes to the liners are proposed as a result of the increased waste disposal rate to ensure further protection of water and groundwater environmental values. It cannot be determined that the proposed increase to the activity thresholds can sufficiently achieved PO4 of the SDAP State code 22 – Environmentally Relevant Activities, ensuring that the development is suitably located and designed to avoid or mitigate environmental harm to the receiving waters environment. <u>Action:</u> a) Describe how the current cell liner is appropriate and ensures that leachate is prevented from being released to land and waters and the subsurface migration of landfill gas is also prevented from the landfill unit. b) As part of the proposal, describe if any additional landfill lining is proposed to ensure that environmental values are protected from the disposal of waste within the landfill cells.
4.	Receiving waters environmental values – Stormwater management

	<u>Issue:</u> The 'Change Application Report' Page 18, states that stormwater that filters through the waste cells of the landfill is collected in a 'detention area' adjacent to the landfill sites, where it is then pumped to a designated leachate pond. The 'Stormwater Management Plan' prepared by Langtree Consulting Engineers provides information on the catchment areas onsite and mitigation and management measures for the sediment basins onsite. No information has been provided on how the leachate (that has filtered through the waste within the landfill cell) is directed to the 'detention area' and how the leachate within the leachate pond is managed to ensure leachate is not released to the environment. The application material has not determined whether there will be an increase in leachate generated onsite as a result of the increase in the waste disposal rate and how any increase will be managed. It cannot be determined that the proposed increase to the activity thresholds can sufficiently achieved PO4 of the SDAP State code 22 – Environmentally Relevant Activities, ensuring that the development is suitably located and designed to avoid or mitigate environmental harm to the receiving waters environment. <u>Action:</u> - Describe the leachate collection system within the landfill cells which directs leachate to the 'detention area' to ensure leachate is not percolating through the cell capping. - Describe the 'detention area' including the size of the area, where it is located onsite and how it is designed and lined. Describe how the site ensures that leachate is contained in this area and not released to the environment. - Explain how often leachate is pumped to the leachate ponds and if the pumping is a manual operation. - Describe how the leachate pond and collection system is managed, and any mitigation measures in place, to ensure there is always sufficient capacity within the pond and that leachate is not released to the environment. - Describe how stormwater runoff from catchment area 1 (that has not come into contact with waste) is directed away from the leachate pond to ensure capacity is maintained. - Determine the increase in leachate generated within the landfill cells as a result of the increase in the waste disposal rate at the site and provide information on whether the site has capacity to manage the increase in leachate generated onsite.
5.	Receiving waters environmental values – Ground water <u>Issue</u> The 'Change Application Report' page 24, states that a report was prepared addressing groundwater matters as part of the development approval assessment (D33/03). The report from the previous development approval determined that the high chloride and low sulphate content of the groundwater sampled at the site and the fact that the landfill leachate typically has elevated sulfate content, chloride sulfate ratios could be a useful indicator for leachate impact at the site. No further information has been provided on the current groundwater monitoring program in place at the site. Information including the current groundwater monitoring results and bore monitoring network has not been provided. The application has not explained if the current groundwater monitoring program is sufficient to monitor for the increased risk of potential impacts to groundwater as a result of the increase in activities and waste disposal at the site.

	It cannot be determined that the proposed increase to the activity thresholds can sufficiently achieved PO4 of the SDAP State code 22 – Environmentally Relevant Activities, ensuring that the development is suitably located and designed to avoid or mitigate environmental harm to the receiving waters environment. <u>Action:</u> a) Provide an interpretation of the most recent groundwater monitoring results (for at least the last 2 years of monitoring) from each of the groundwater bores at the site, including graphical representation, by an appropriately qualified person. b) Provide information on the current groundwater monitoring program and how all aspects of condition 1-WT7 of the environmental authority have been considered and included within the program. Include a description of the current groundwater monitoring network including a map of all upgradient and downgradient monitoring bores in relation to the site. c) Provide a determination by an appropriately qualified person, as to whether the current groundwater monitoring program is sufficient to monitor for and identify the increase of potential impacts and risks to groundwater as a result of the increase in waste disposal activities at the site.
6.	Air environmental values <u>Issue:</u> The 'Change Application Report' states that the hours of operation will remain Monday to Saturday 6:30am-7pm and that the number of truck movements to and from the facility will be between 30 to 50 per day (with a worse case of 60-70), where historically it has been 36 trucks per day. The report also states that dust emissions from the waste management and recycling activities are expected to be minimal but may occur as a result of screening and crushing activities of concrete, concrete stockpiling activities, and waste particles from the landfill. The application material has not considered the potential increase in impacts to air environmental values as a result of the increase in not only these screening and crushing activities, but also the increase in other activities associated with the operation of the landfill and resource recovery facility as a result of the proposal. It cannot be determined that the proposed increase to the activity thresholds can sufficiently achieved PO2 of the SDAP State code 22 – Environmentally Relevant Activities, ensuring that the development is suitably located and designed to avoid or mitigate environmental harm to the air environment. <u>Action:</u> a) Identify all the potential risks and impacts to air environmental values (dust and odour) from the site, as a result of the increase in proposed activities e.g. increase in waste deliveries, vehicle movements, machinery operating on tipping face and compacting waste, mechanically reprocessing waste and waste storage areas onsite etc. b) Conduct an air impact assessment to determine if the predicted air emissions from the proposed increase in activity at the site, will impact nearby sensitive receptors (residential and commercial) and whether the predicted air emissions will comply with the air quality objectives within the Environmental Protection Policy Air 2019 (EPP Air) at sensitive receptors. The assessment must take into consideration an increase in activities and potential impacts described in (a). c) Identify specific mitigation measures that will be put in place to manage and minimise

	any adverse impacts to environmental values and sensitive receptors to ensure the air quality objective of the EPP Air are met.
7.	Acoustic environmental values <u>Issue:</u> The 'Change Application Report' states that the activities undertaken at the facility do not generate significant amounts of noise and that the main noise generating activities are from the operation of machinery onsite. The report comments that these activities are undertaken infrequently and as required. However, with the significant increase in the operations at the site, and waste disposed to the landfill onsite, it is likely there will be a significant increase in noise generated onsite. The application material does not quantify the potential increase in noise generated from the site as a result of the proposal or describe how this could potentially impact nearby sensitive receptors. It cannot be determined that the proposed increase to the activity thresholds can sufficiently achieved PO1 of the SDAP State code 22 – Environmentally Relevant Activities, ensuring that the development is suitably located and designed to avoid or mitigate environmental harm to the acoustic environment. <u>Action:</u> a) Identify all the potential risks and impacts to noise environmental values as a result of the increase in proposed activities e.g. vehicle movements, deliveries, compaction of waste in landfill cell, waste sorting and other machinery operations and mechanical waste reprocessing within the RRA etc. b) Conduct a noise impact assessment to determine if noise from the activity at the site, taking into consideration the proposed increase in activities, will impact nearby sensitive receptors. Determine whether the acoustic quality objectives of the Environmental Protection Policy Noise 2019 (EPP Noise) will be met at sensitive receptors as a result of the increase in activities. c) The assessment must take into consideration and evaluate the increase in all the activities with the potential to increase impacts to noise environmental values identified in point (a). d) Identify specific noise mitigation strategies that will be implemented to avoid, minimise or manage the impact of noise from the proposal to ensure the acoustic quality objective of the EPP Noise are met.

Further advice

SARA advises that your development application has not adequately demonstrated compliance with the State Development Assessment Provisions.

SARA has reviewed your application material the following issue(s) with the proposed development have been identified:

State transport infrastructure	
1.	Dust concerns and state controlled road safety <u>Issue:</u>

	The site access road is sealed for approximately 19m from the edge of the Bruce Highway, however, it appears that dust/gravel is still being tracked onto the Bruce Highway from the unsealed portion of the site access road. This could present a traffic safety hazard and could compromise PO1 of SDAP Sate code 6, as disturbed dust may reduce visibility, and gravel on the pavement surface may reduce the available friction. <u>Action:</u> Provide a dust management plan for the operational component of the development. Ideally, a wheel wash/shaker grid should be provided within the site along with sealing of the site access road across the rail corridor and up to the existing seal.
Environmentally Relevant Activity	
2.	Waste disposal <u>Issue:</u> The 'Change Application Report', prepared by Milford Planning, dated October 2025, states that you are proposing to increase the threshold of waste that the facility can receive, sort and dispose of from 10,000 tonnes per annum to up to 50,000 tonnes of waste per annum. The application report states that the existing footprint of the facility will remain the same. However no further information has been provided on why you are seeking an increase in the waste disposal threshold and where the additional waste is sourced from. Information on the landfill design, including how much space is available within the current cells to support the proposed disposal rate has also not been provided. <u>Action:</u> a) Provide information on the landfill space available for the disposal of waste within the landfill cells. b) Explain why the increase in the waste disposed to the landfill onsite is required and where the waste is sourced from. c) Provide information and an updated site plan identifying the progressive landfill cell stages and explain how staged rehabilitation will be undertaken within the cells. d) Provide details on if the final landform design or rehabilitation plans for the site are proposed to change as a result of the increase in disposal activities.
3.	Resource recovery activities <u>Issue</u> The 'Change Application Report' states that the applicant is proposing to increase the threshold of waste that the facility can receive, sort and dispose of from 10,000 tonnes per annum to up to 50,000 tonnes of waste per annum. However, no information has been provided on the potential increase in resource recovery activities, or how much additional waste will likely be mechanically reprocessed and stored onsite as a result of the increased waste receipt. Further information is required to be provided on the increase of waste recovered and or mechanically reprocessed at the site and the potential impacts to environmental values as a result. <u>Action:</u> a) Describe the increase in the amount of waste that will be received in total at the site. b) Explain the proposed increase in the scale of mechanical waste reprocessing that will be conducted onsite in the RRA, including how much additional waste is proposed to be received, sorted and stored or mechanically reprocessed per year in tonnes.

	c) Provide information on any increase in stockpile sizes at the site and include the maximum proposed dimensions of all stockpiles onsite or proposed maximum amount in tonnes of waste that will be stored within the RRA at any one time. d) Describe the purpose of the laydown area identified in Appendix 5 of the 'Change Application Report' and describe if any wastes are stockpiled in this area. If so, which waste types and how much of each waste type is stored onsite at any one time

How to respond

You have three months to respond to this request and the due date to SARA is 25 February 2026. You may respond by providing either: (a) all of the information requested; (b) part of the information requested; or (c) a notice that none of the information will be provided. Further guidance on responding to an information request is provided in section 13 of the [Development Assessment Rules](#) (DA Rules).

It is recommended that you provide all the information requested above. If you decide not to provide all the information requested, your application will be assessed and decided based on the information provided to date.

You are requested to upload your response and complete the relevant tasks in [MyDAS2](#).

As SARA is a referral agency for this application, a copy of this information request will be provided to the assessment manager in accordance with section 12.4 of the DA Rules.

If you require further information or have any questions about the above, please contact Kirsty Geaney, Principal Planning Officer, on 47583414 or via email NQSARA@dsdilgp.qld.gov.au who will be pleased to assist.

Yours sincerely



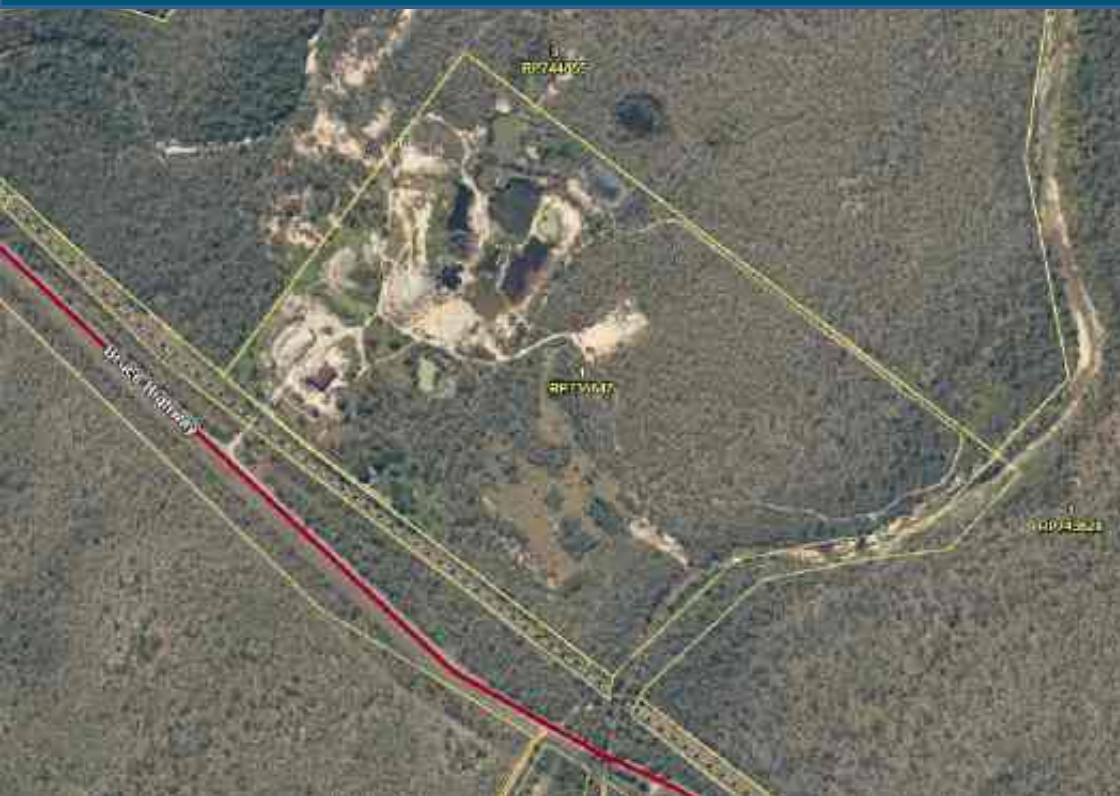
Carl Porter
A/ Manager Planning

cc Townsville City Council, developmentassessment@townsville.qld.gov.au

Development details	
Description:	Development permit Material change of use for Change Application (Other) to Development Approval M33/03 for a Waste Disposal and Recycling Facility
SARA role:	referral agency
SARA trigger:	- Schedule 10, Part 5, Division 4, Table 2, Item 1 (10.5.4.2.1) - Environmentally relevant activity - Schedule 10, Part 9, Division 4, Subdivision 1, Table 1, Item 1 (10.9.4.1.1.1)- Development impacting on state transport infrastructure - Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1 (10.9.4.2.4.1) - Material change of use of premises near a state transport corridor or that is a future state transport corridor.
SARA reference:	2511-49169 SRA
Assessment criteria:	State Development Assessment Provisions (SDAP): - State code 6: Protection of State transport networks - State code 2: Development in a railway environment - Sate code 22: Environmentally Relevant Activities

Attachment 2

42386 BRUCE HIGHWAY, BLUEWATER



STORMWATER MANAGEMENT PLAN

Absolute Waste Pty Ltd

LANGTREE CONSULTING

Project No.: 1343

Reference No.: R-NP0340

Date: 29/06/2026

Controlled Copy No.: 1

Revisions: D

Revision Record:

Rev	Review Date	Description	Prepared	Checked	Approved
A	31/07/2025	Issued for Client Comment	Natalie Pham	Brett Langtree	Brett Langtree
B	22/08/2025	Minor Amendments	Natalie Pham	Brett Langtree	Brett Langtree
C	18/06/2026	Addition of Leachate Management	Natalie Pham	Brett Langtree	Brett Langtree
D	29/06/2026	Amendment to Section 8.0	Natalie Pham	Brett Langtree	Brett Langtree

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	BACKGROUND	2
3.0	STORMWATER MANAGEMENT STRATEGY	3
3.1	Types of Stormwater Generation	3
3.2	Stormwater Management and collection	3
4.0	EXISTING STORMWATER REGIME	4
4.1	Surrounding Watercourses	4
4.2	Topography	7
4.3	Existing stormwater ponds	8
4.4	Existing Catchments	9
4.5	Flooding	11
5.0	PROPOSED FINAL LANDFORM	12
6.0	SITE STORMWATER MANAGEMENT	12
7.0	SEDIMENT CONTROL	13
7.1	Proposed site drainage and Sediment Basin catchments	13
7.2	development stormwater Quantity	14
7.3	Stormwater management System Design	15
7.4	Water Quality testing	17
7.5	Soil Erosion and sediment control measures	18
7.5.1	Water Reuse	18
7.5.2	Monitoring and maintenance	18
7.6	Sediment basins operating procedures	19
7.6.1	De-watering procedures	19
7.6.2	Decant water quality objectives	20
7.6.3	Sediment Basin Performance assessment procedures	20
7.6.4	Corrective measures: coagulants and flocculants	22
7.6.5	De-silting procedures	24
7.6.6	Sediment basin maintenance	25
8.0	LEACHATE MANAGEMENT	26
8.1	Leachate collection system	26
8.2	Leachate Extraction	27
8.3	Leachate Ponds	27
8.3.1	Forced evaporation via pond sprinklers	27
8.4	Leachate Generation	27
8.4.1	HELP model inputs	28
8.4.2	HELP Results	29
8.5	Leachate Pond Water Balance	30
8.5.1	Water balance Assumptions	30
8.5.2	Water balance results	32
8.5.3	Mitigation	35
8.5.4	Contingency	35
9.0	SUMMARY	36

APPENDICES

APPENDIX A - STORMWATER PLANS

APPENDIX B - STORMWATER ASSESSMENT

APPENDIX C - SITE INSPECTION CHECKLIST

**APPENDIX D - SOIL/WATER SOLUTION PROCEDURE, JAR TEST PROCEDURE, FLOC PERFORMANCE REPORT,
SEDIMENT BASIN PERFORMANCE REPORT**

APPENDIX E - HELP MODELLING RESULTS

APPENDIX F – POND VOLUME WATER BALANCE

1.0 INTRODUCTION

Langtree Consulting has been engaged by Absolute Waste Pty Ltd to prepare this Stormwater Management Plan in support of a Material Change of Use (MCU) application at 42386 Bruce Highway, Bluewater on land described as Lot 1 on RP735647.

The site is currently an existing waste management facility with a ERA75(a)(iii) permit (Waste disposal – operating a facility for disposing of only general waste or limited regulated waste, if the facility is designed to received waste at a rate of 5,000t or more, but less than 10,000t per year). The development proposes to increase the existing volume of waste received and processed at the facility up to 50,000t per annum.

This report addresses the following objectives:

- Identify site stormwater catchments and assess in stormwater discharge from the site;
- Evaluate potential impact on downstream properties or Council's stormwater drainage system with regards to stormwater quantity and quality in terms of soil erosion and sediment control;
- Outline the proposed leachate management onsite; and
- Determine if any mitigation measures may be required to manage or offset those impacts with regards.

2.0 BACKGROUND

The proposed development is located approximately 35km from the township of Townsville at 42386 Bruce Highway, Bluewater on land described as Lot 1 on RP735647 (hereon in referred to as the subject site). The subject site is 54.44ha in area and bound by undeveloped land to the north and west, Sleeper Log Creek to the east and the Bruce Highway and Northern Coast Rail Line to the south. Refer to **Figure 1** for site locality.



Figure 1. Site Locality (Source: Queensland Globe)

3.0 STORMWATER MANAGEMENT STRATEGY

3.1 TYPES OF STORMWATER GENERATION

Stormwater at the site is categorised as follows:

- Clean stormwater – Stormwater runoff from undisturbed or rehabilitated areas are considered to produce clean stormwater runoff which is safe to discharge to the environment.
- Sediment laden stormwater – Stormwater runoff from non-rehabilitated areas of the site typically has poor ground cover which results in transportation of sediments during rainfall events.
- Leachate – Rainfall that has come into contact with the active face of the land fill or green waste stockpiles are considered as leachate and is managed in accordance with the Leachate Management Plan and EA Permit.

Management of onsite stormwater is based on the following principles:

- Diversion of clean water from entering working areas to minimise volume of stormwater required to be treated.
- Capture of stormwater from operating areas for storage and treatment in leachate ponds or sediment ponds as required.

3.2 STORMWATER MANAGEMENT AND COLLECTION

Landfill area management will typically involve the following practices:

- Revegetation of any permanent surface (with final capping).
- Revegetation or mulching of any surfaces to be left unused for more than one month.
- Trapping of sediments in sediment basins.
- Re-use of the water from sediment basins for on-site purposes such as dust suppression.
- Stormwater that has come into contact with waste is considered leachate and shall not be sent to sediment ponds.

4.0 EXISTING STORMWATER REGIME

4.1 SURROUNDING WATERCOURSES

Four watercourses exist near the subject site as follows:

- Christmas Creek (Stream order 3) to the northwest;
- Unnamed watercourse (Stream order 1) to the north;
- Unnamed watercourse (Stream order 1) to the northeast; and
- Sleeper Log Creek (Stream order 4) to the east.

Contours indicate that stormwater from the site either discharges as overland sheet flow, via natural streams to Christmas Creek or Sleeper Log Creek. Refer to **Figure 2** for watercourses.



Figure 2. Existing watercourses near the subject site

Christmas Creek and Sleeper Log Creek are part of the Black River Basin and is considered lowland fresh water. Water Quality Objectives (WQO) for the site have been derived from the Queensland Government Black River Basin. Refer to **Figure 3** for surface water mapping and **Table 1** for water quality objectives.

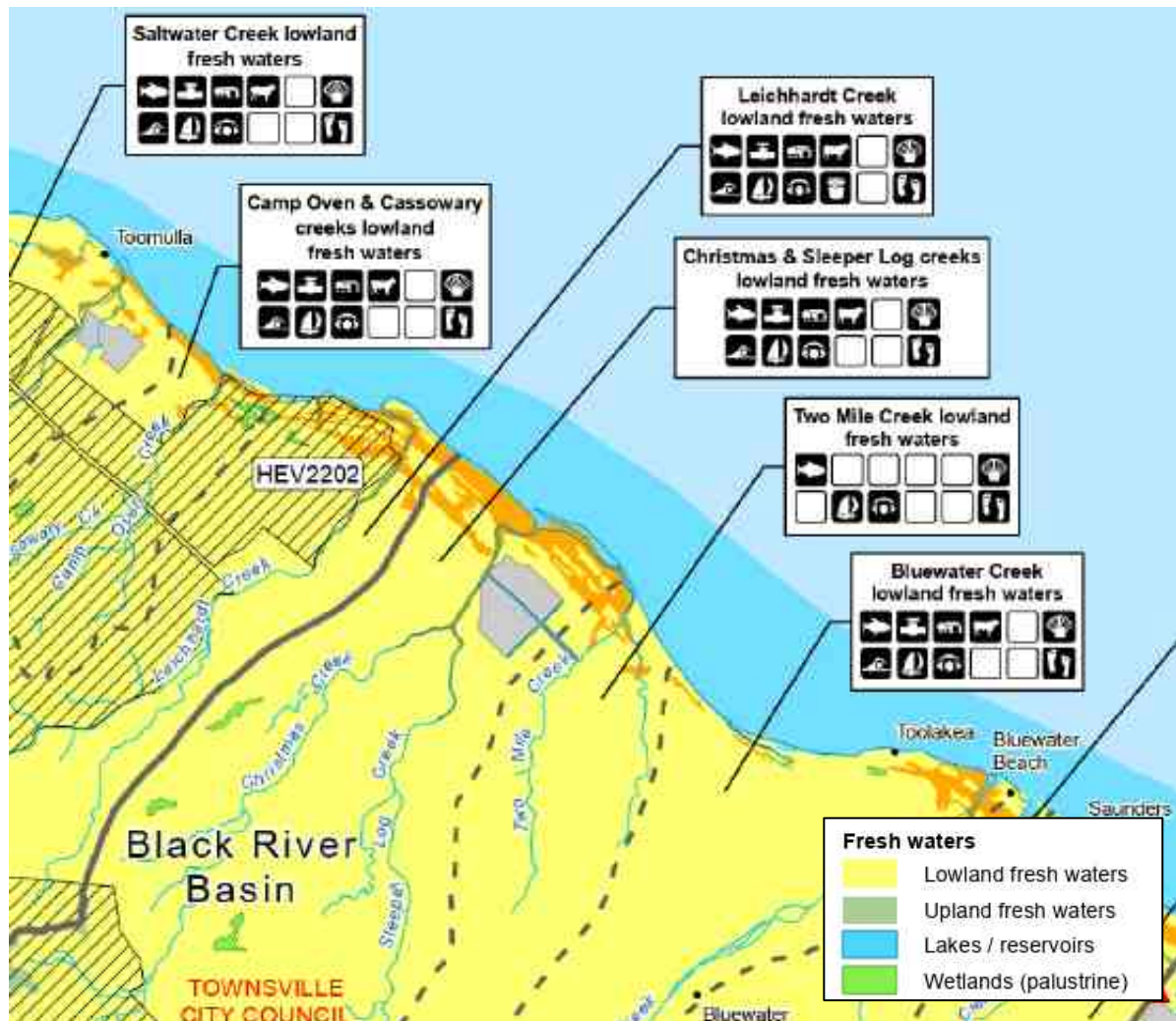


Figure 3. Christmas Creek and Sleeper Log Creek Surface water Schedule 1 Plan (Source: Queensland Government, Environmental Protection (Water) Policy 2009, WQ1171 – Black River Basin (Basin 117))

Table 1. Water Quality Objectives for Black River Catchment - other lowland fresh waters (Source: Queensland Government, (2013), Environmental Protection (Water) Policy 2009, Black River Basin Environmental Values and Water Quality Objectives, Basin No. 117, Table 2 excerpt)

Black River catchment - other lowland fresh waters	Aquatic ecosystem—moderately disturbed (MD)	• ammonia N: <20 µg/L^{b, c, k} • oxidised N: <60 µg/L^{b, c, d, k} • dissolved inorganic N (DIN): <80 µg/L^{b, c, k, l} • organic N: <420 µg/L^{b, c, k} • total N: <500 µg/L^{b, c, k} • filterable reactive phosphorus (FRP): <20 µg/L^{b, k} • total P: <50 µg/L^{b, k} • chlorophyll a: <5 µg/L^k • dissolved oxygen: 85%–110% saturation^{a, k} • turbidity: <50 NTU^k • suspended solids: <10 mg/L^k • pH: 6.5–8.0^{f, k} • temperature: nd^{h, l} • macroinvertebrates: nd^l • fish: nd^l • toxicants: refer to toxicants row later in this table • sodium (Na): <11 mg/L^f • calcium (Ca): <5 mg/L^f • magnesium (Mg): <4 mg/L^f • bicarbonate (HCO₃): <40 mg/L^f • chloride (Cl): <14 mg/L^f • sulfate (SO₄): <2 mg/L^f • electrical conductivity (EC): <98µS/cm (75th percentile)^{g, f} • hardness: <29 mg/L^f • alkalinity: <33 mg/L^f • silica (SiO₂): <21.1mg/L^f • fluoride (F): <0.110 mg/L^f • sodium adsorption ratio (SAR): 0.60–0.95^f

4.2 TOPOGRAPHY

Site contours have been obtained from Elvis Spatial in addition to site commissioned LiDAR. Overland flow for the site and surrounding area is shown in and **Figure 4**.

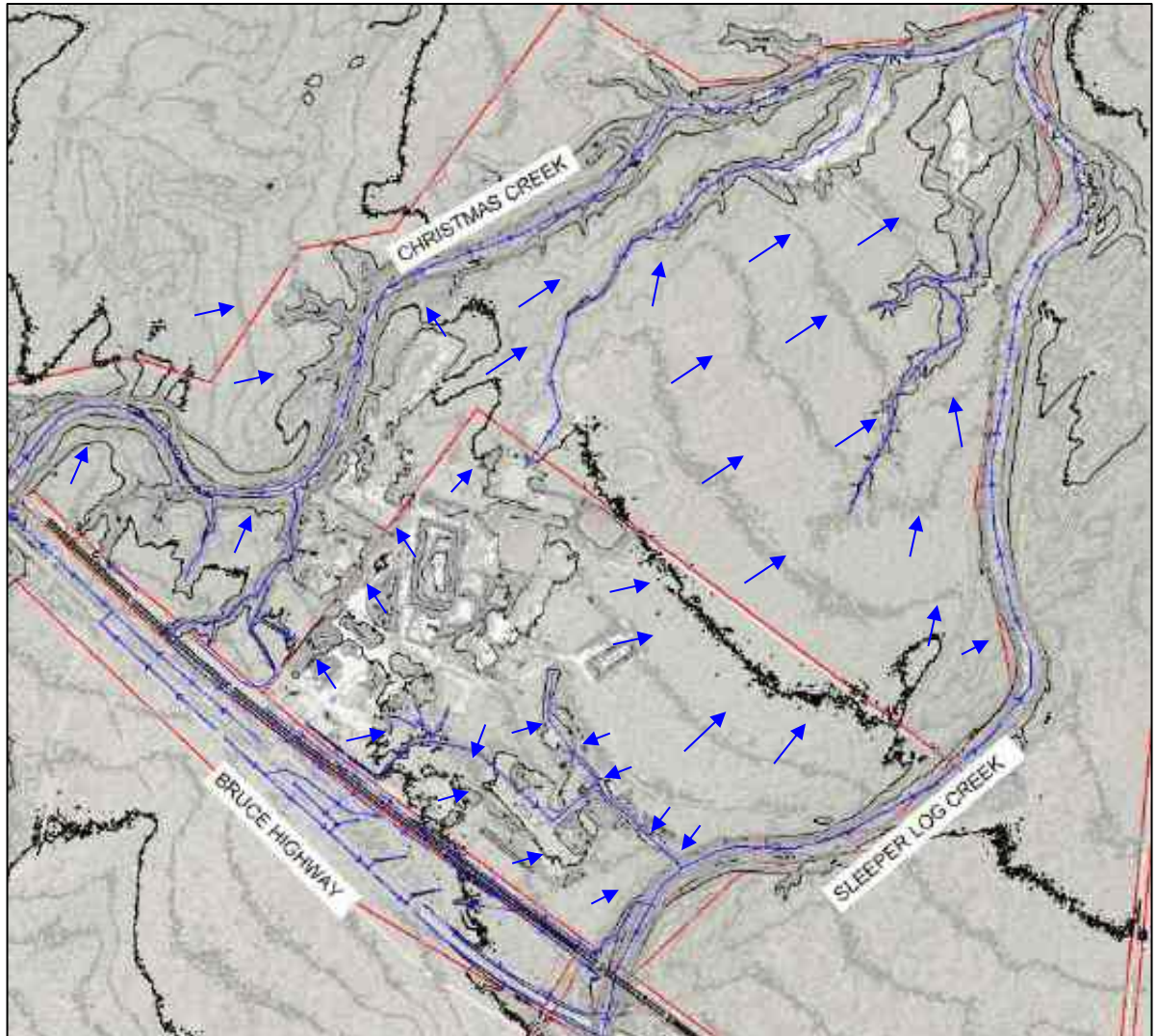


Figure 4. Existing overland flow directions

4.3 EXISTING STORMWATER PONDS

From previous Development Application reporting documents, stormwater catchments areas and ponds are as show in **Figure 5**. Ponds 1, 2 and 4 are freshwater ponds whilst Pond 3 is a leachate pond. Ponds indicated on the plans are still located on site and generally as shown. Stormwater is collected into ponds via drains which discharge into the ponds. Refer to **Figure 6** for existing swale drain locations.

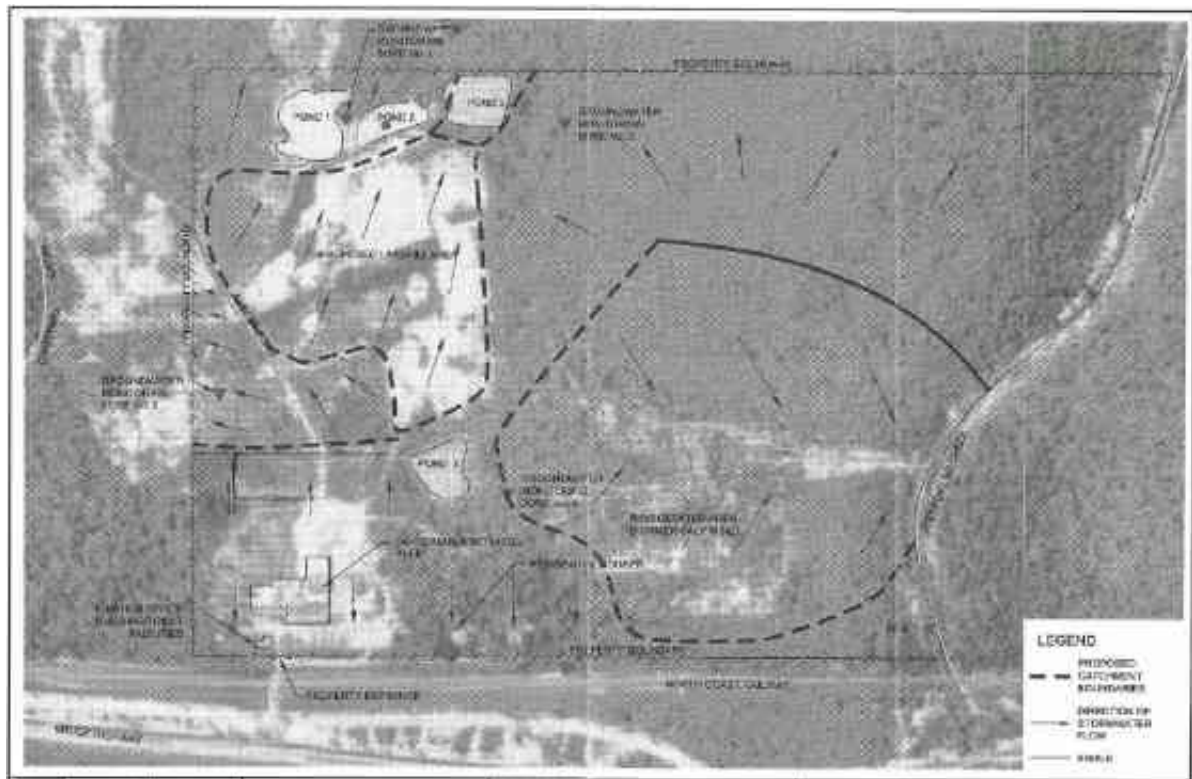


Figure 5. Existing stormwater catchments (Source: GHD Development Application Report (2003), Figure B4)

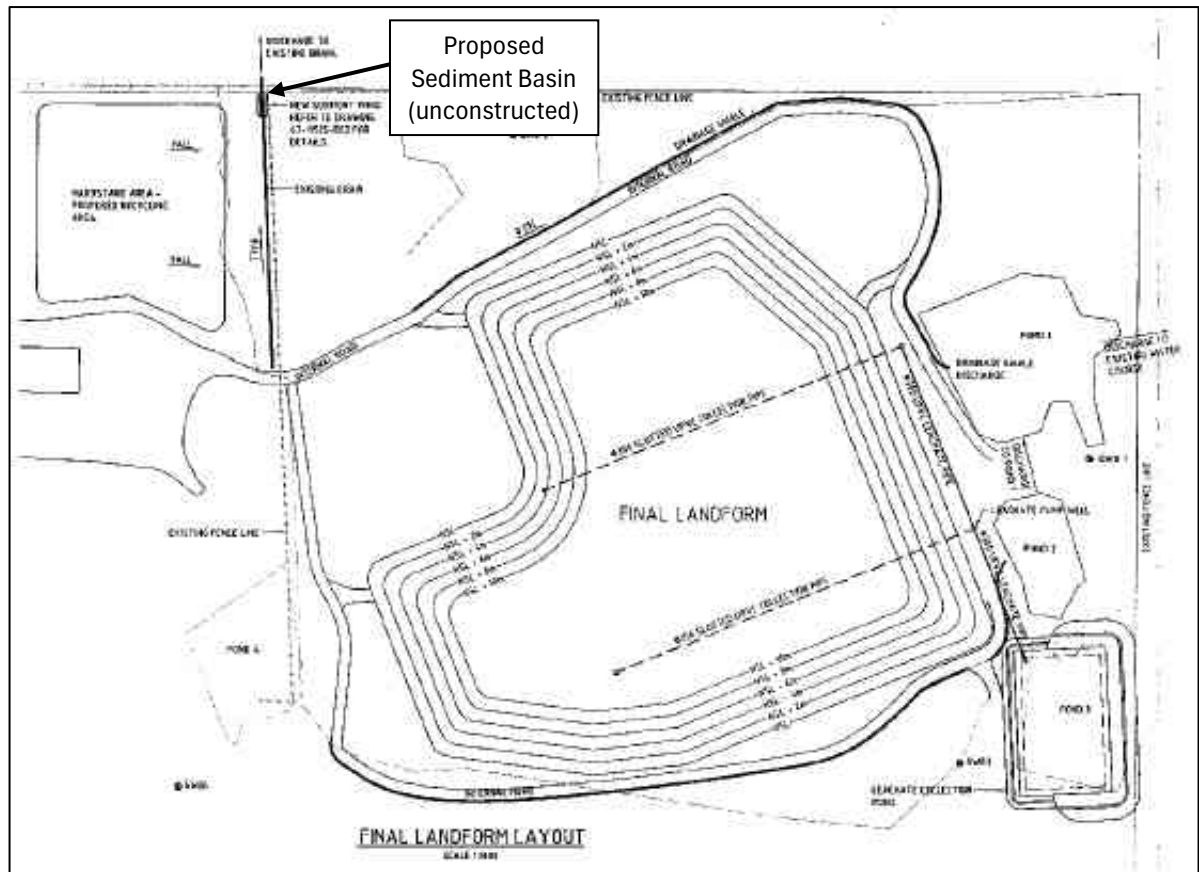


Figure 6. Final Landform layout (Source: GHD Development Application Report (2003), DRG 42-11525-D03)

From the final landform layout it is noted that a sediment basin was proposed along the northwestern site boundary. It is noted from aerial imaging and information provided by the applicant the proposed the sediment basin along the northwestern boundary has not been constructed.

4.4 EXISTING CATCHMENTS

From available Lidar of the site, concentrated stormwater from the working areas of the site discharge from the site at three different locations as follows:

- Pond 1 & 2 (88,953m²)– Northern boundary to Christmas Creek via unnamed order 1 Stream
- Pond 3 (157,116 m²) – Eastern boundary to Sleeper Log Creek

Refer to **Figure 7** or **Appendix A** for catchment areas and for larger view of watercourses.

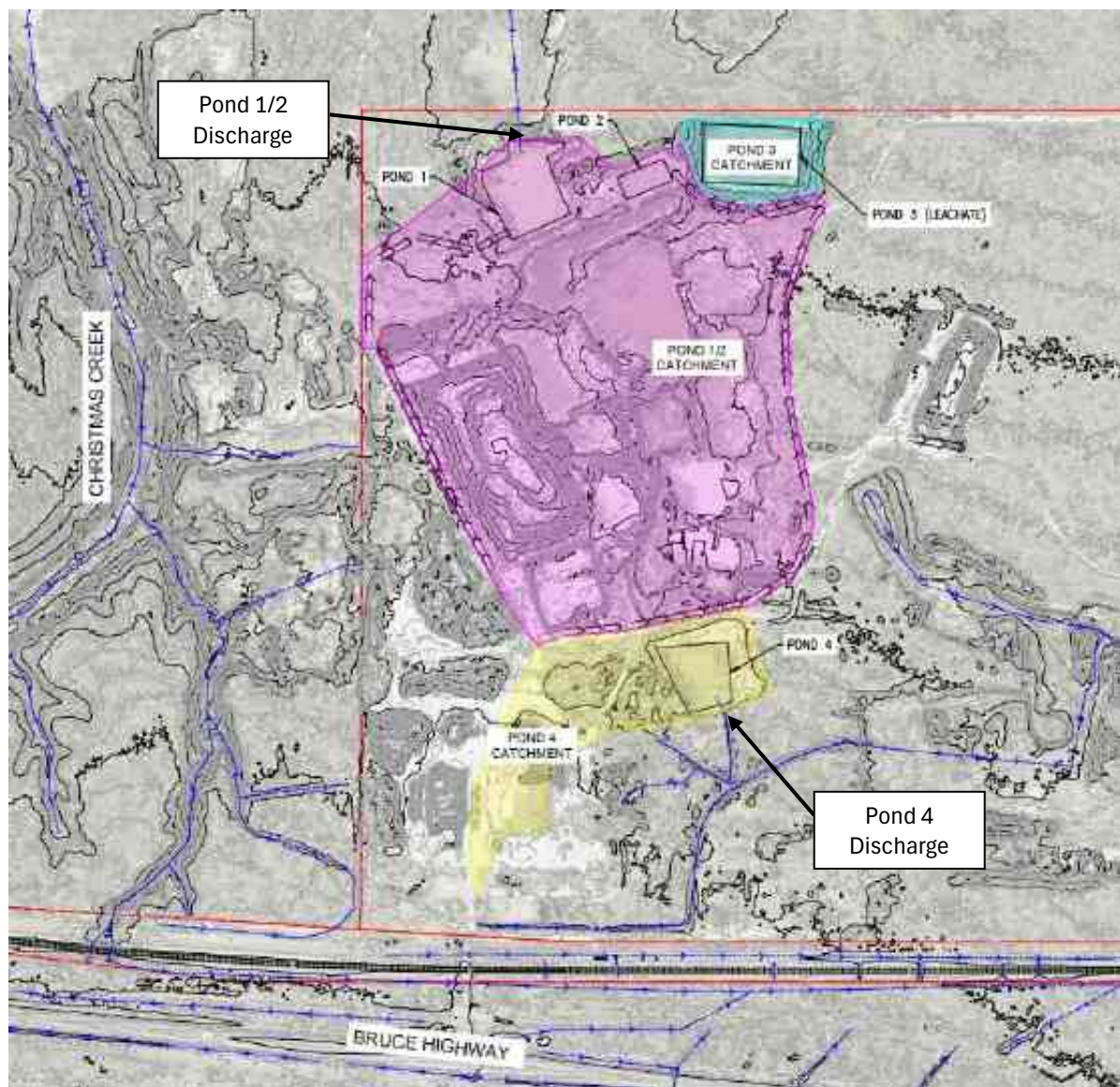


Figure 7. Existing stormwater catchments

Four ponds currently exist on the site as shown in **Figure 7**. Two ponds are located in the northwestern area of the site (Pond 1 & 2) and captures runoff from the landfill area which has not come into contact with waste material (i.e. from capped fill and road areas). Pond 3 acts as a leachate pond, whilst Pond 4 collects runoff from the road and battery storage area near the site access. The battery storage area is roofed and stormwater does not come into contact with any waste in the area.

4.5 FLOODING

From the Townsville Flood Information Map the site is affected by the 1% AEP. The flooding is primarily contained within existing ponds and watercourses /flood plains. Refer to **Figure 8** for flood depths.

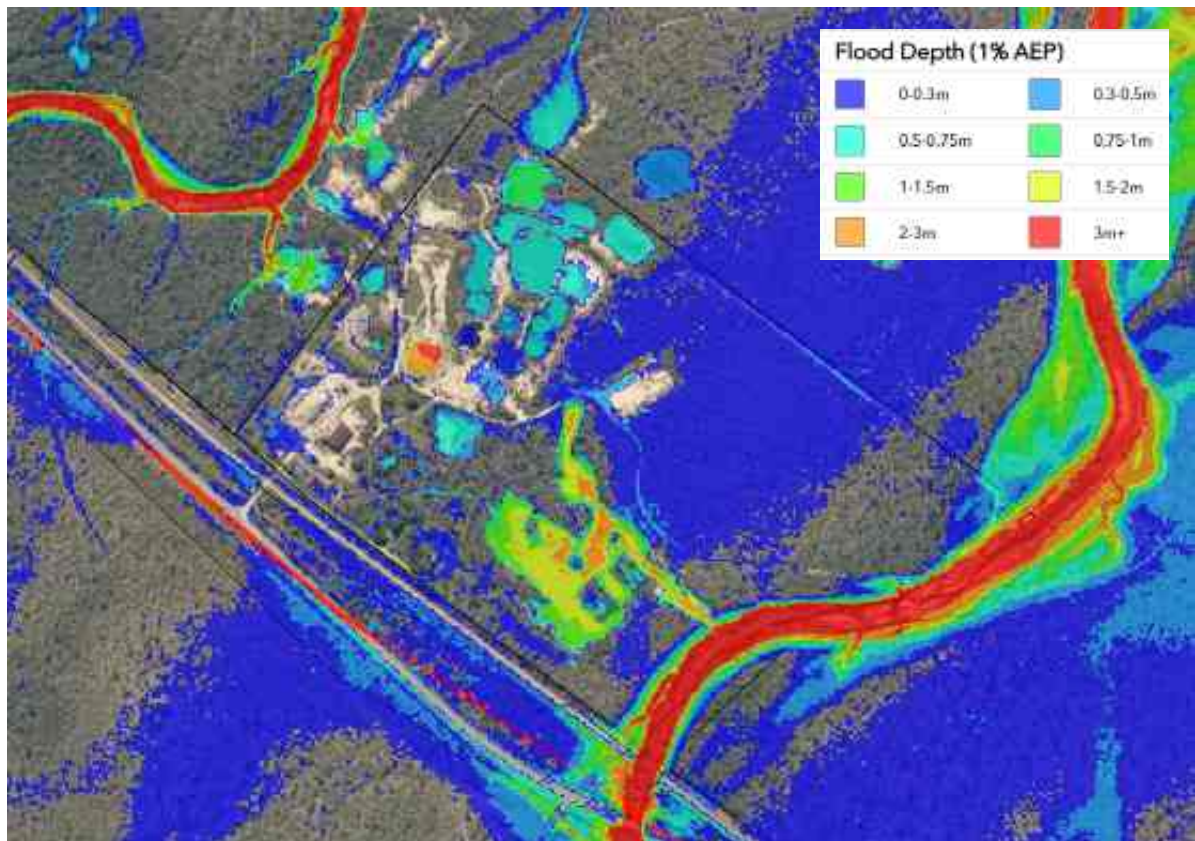


Figure 8. 1% AEP Flood depth (Source: Townsville Flood Information Portal)

5.0 PROPOSED FINAL LANDFORM

The proposed final landform is proposed to be similar to the current approved, however, the working area in the southwest corner is proposed to be filled. From LiDAR of the site this area has already been built up and fill. Refer to **Appendix A** for amended proposed final form.

6.0 SITE STORMWATER MANAGEMENT

The subject site is a landfill. The subject site has ongoing risk of contamination of stormwater with sediment from capped unvegetated landfill area, earth stockpiling and unsealed roads. This stormwater management plan has been designed to minimise the disturbance area outside of the active working area, divert clean water around the site and dirty water to sediment basins. Sediment laden water from the operational area will be treated by sediment traps in the form of sediment basins before being discharged from the site. Leachate produced within the active working area will be collected in a leachate sump before pumping to the leachate pond. Refer to **Section 7.0** of this report for sediment control details and **Section 8.0** of this report for leachate management.

Stormwater run-off at the site will be managed by:

1. Retain existing release points from the site, with catchments to the discharge locations remaining similar to pre-development conditions. No additional or relocated discharge points are proposed;
2. Stormwater management systems so that little to no run-off from outside the working areas enters the areas and no run-off is released from the area prior to treatment;
3. Maintaining a stormwater management system that is suited to the ongoing development of the site;
4. Constructing and maintenance of all the required structures to capture and treat the onsite stormwater (e.g. diversion channels, catch drains, sediment basins and spillways);
5. Minimising disturbed areas that contain materials prone to erosion;
6. Installing sediment and erosion structures that will control the movement of sediment in areas prone to erosion;
7. Regular maintenance inspections of all the associated structures;
8. Using the stormwater captured in the sediment basins for dust suppression;
9. Recycling the water from the sediment basins in the composting process; and
10. Retaining spill kits on site and training of all staff in the use of the kits.

7.0 SEDIMENT CONTROL

7.1 PROPOSED SITE DRAINAGE AND SEDIMENT BASIN CATCHMENTS

The working area of the subject site is proposed with remain relatively the same. Proposed sediment basin catchment areas are shown in **Figure 7**. Sediment basins will be designed to be able to accommodate the catchments areas shown, to ensure the site does not discharge excessive sediment loads from unvegetated areas (e.g. unsealed roads and capped areas before revegetation).

Existing Pond 1 will become Sediment Basin 1 to treat the landfill area. Sediment basin 1 is capable of treating the entire catchment area and existing Pond 2 is not required. Pond 2 will be operated as a sediment basin, however, will also capture emergency overflow from the Leachate Pond. A new sediment basin (Sediment Basin 2) will be constructed to treat the processing area located in the southwestern region of the subject site and Pond 4 will become Sediment Basin 3. The location of sediment basin 2 is proposed to change to accommodate the size of the basin required and take advantage of a natural depression area on the site. All release points shall be monitoring points to ensure any stormwater release complies with water quality objectives.

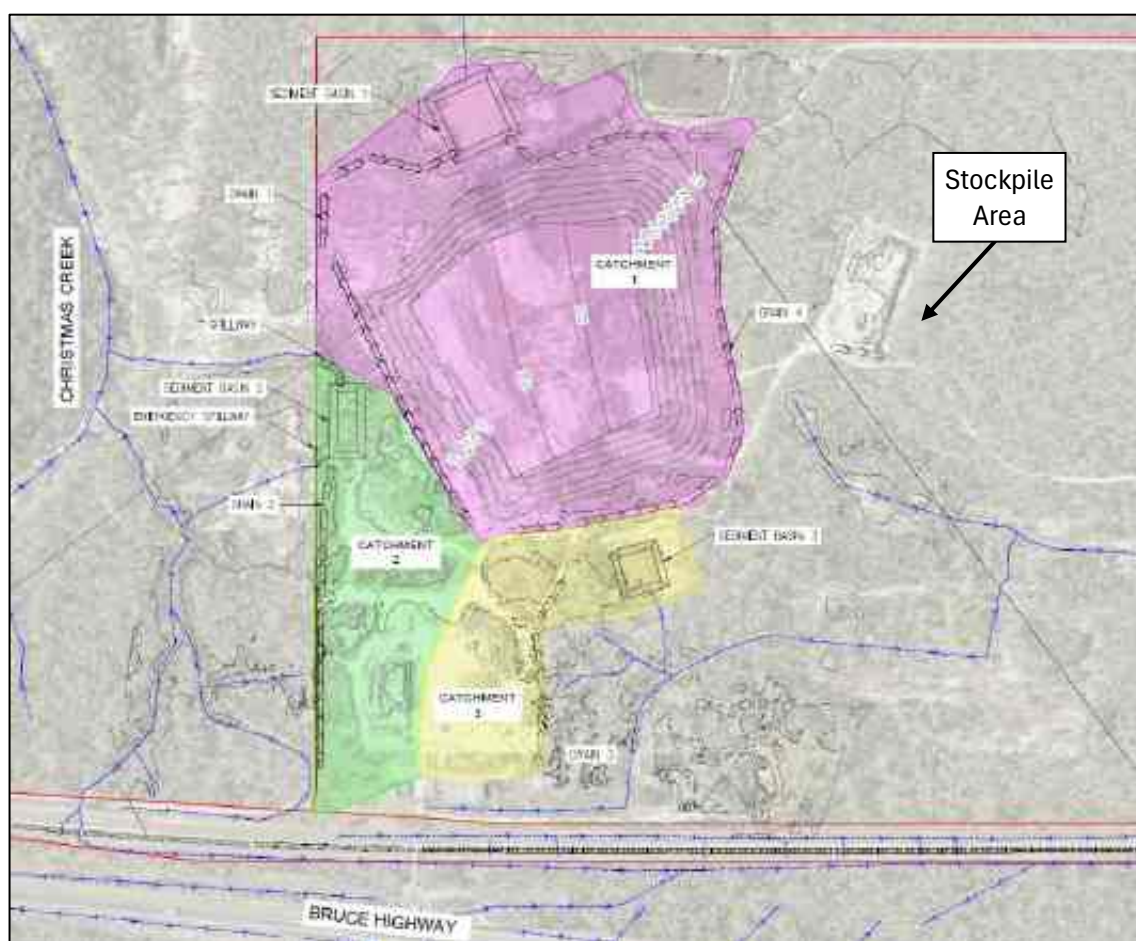


Figure 9. Proposed site plan

Sediment Basin calculations are provided in **Appendix B**. Indicative sediment basin sizes required to meet storage volume requirements is shown in **Figure 9** and is available in **Appendix A**. Existing ponds which are to become Sediment Basin 1 and 3 will likely require little to no amendment with regards to volume capacity. Basin volumes shall be verified to confirm. All basins shall be provided with a 1:6 vehicle access for clean out and a rock lined spillway for discharge. Due to shape of existing basins it is recommended that internal baffles are utilised to increase the effective length to width ratio. Refer to **Figure 10** for example of flow length extension with the use of baffles.

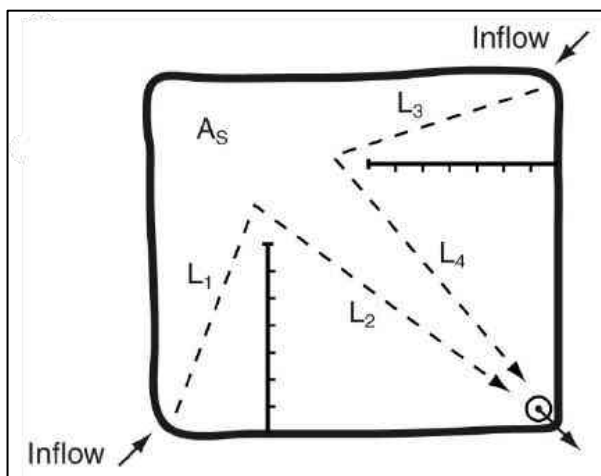


Figure 10. Example of use of baffles to extend effective sediment basin length to width ratio (Source: IECA, Best Practice Erosion and Sediment Control, Appendix A, Figure B12 except)

A stockpile area exists to the east of the landfill area. Stormwater from the area generally travels north as overland flow for 150m before departing the site property boundary and does not enter a watercourse for over 400m. Clean water is diverted around the stockpile area. Dirty water from the stockpile area is primarily treated through woven sediment fence and or mulch bund.

7.2 DEVELOPMENT STORMWATER QUANTITY

The working area of the site is proposed to remain relatively the same as previously shown in the existing development application. As such, the site does not proposed increase in stormwater run-off from the subject site. The site discharges to Christmas Creek and Sleeper Log Creek via existing streams and no changes are proposed to discharge locations.

7.3 STORMWATER MANAGEMENT SYSTEM DESIGN

Any upstream stormwater from disturbed areas will be directed to the proposed sediment basins via diversions channels and bunds. The sediment basins will act as a sediment trap for all runoff and will be allowed to settle before releasing the treated water through the spillways and into the downstream **Christmas Creek**. Sediment will be allowed to settle in the sediment basins before being removed and de-watered.

The design of the stormwater management system includes one sediment basin to capture the runoff from a 24 hour, ARI 5 rainfall event. The sediment basin will discharge via spillway which is designed for an ARI 50 rainfall event.

Design of the spillway, catch drains and diversion channels on the site have been analysed using the Rational Method. The guideline utilised for the calculation of the rational method is as per the Queensland Urban Drainage Manual (QUDM) 2017.

$$Q_y = (C_y \cdot t_{ly} \cdot A) / 360$$

Where:

- Q_y = peak flow rate (m³/s) for average recurrence interval (ARI) of “y” years
- C_y = coefficient of discharge (dimensionless) for ARI of ‘y’ years
- A = area of catchment (Hectares)
- t_{ly} = average rainfall intensity (mm/h) for a design duration of ‘t’ hours and an ARI of ‘y’ years
- t = the nominal design storm duration as defined by the time of concentration

The design ARI rainfall event for the spillway is an ARI 50 and ARI 5 for diversion channels.

The following steps have been undertaken for calculation of peak flow rates:

- a) Analysis of possible flow paths based on available contours;
- b) Determination of the time of concentration of each flow path;
- c) Adoption of the flow path with the longest time of concentration (t_c) for design;
- d) Determination of the runoff coefficients; and
- e) Calculation of peak flow rate for structure.

For rural creek catchments, the t_c for the flow path has been estimated using Bransby-Williams' equation as given in QUDM 2017 equation 4.9, as follows:

$$t_c = 58 L / (A^{0.1} \cdot S_e^{0.2})$$

Where: t_c = the time of concentration (min)
 L = Length (km) of flow path from catchment divide to outlet
 A = Catchment Area (ha)
 S_e = equal-area slope of stream flow path (%)

The soil erosion and sediment control design has been based on the following constraints:

1. All runoff will be captured and diverted into a system of drains and banks;
2. All runoff from outside the disturbed areas will be diverted around the site where practicable;
3. Runoff from areas where soil and weathered rock are exposed, will pass through sediment basins prior to entering the stormwater management system;
4. Disturbed soil or extremely weathered rock surfaces will be minimised within the catchment area for the stormwater management system;
5. All sediment basins will be **Type D** sediment basins;
6. The stormwater storage capacity on site will be greater than a 24 hour, ARI 10-year event in alignment with Queensland Government, Stormwater Guidelines for Environmentally relevant activities (ESR/2015/1653);
7. Settling zone has been calculated from the following formula:

$$V_s = A \cdot C_v \cdot R_{(1 \text{ in } 10 \text{ year ARI})}$$

8. The sediment storage zone is equal to 50% of the upper settling volume;
9. The release from the catchment basin will be through its respective spillway into the existing table drain;
10. The emergency spillway structure has been designed with a capacity to control an ARI 50 peak flow rate;
11. The subject site has been assumed to be impervious as a worst-case due to the site being heavily trafficked/compacted; and
12. The water level in the basins will be controlled so that at the end of the dry season, the available capacity of the basins is greater than the runoff calculated for a 24 hour, ARI 5 rainfall event.

7.4 WATER QUALITY TESTING

As the use of chemicals, outside of hydrocarbons is limited, exposed soils are the main source of pollutant and as such, water quality testing of release will be restricted to:

1. Total Suspended Solids (TSS) and/or Turbidity; and
2. pH.

All sampling will be conducted in accordance with the Department of Environment and Science's "Monitoring and Sampling Manual" (2018). Sampling will be conducted at the nominated release point/s.

Refer to **Section 7.6.2** below for Water Quality Objectives (WQO) for the site.

7.5 SOIL EROSION AND SEDIMENT CONTROL MEASURES

All sediment basins, catch drains, diversion channels and diversion bunds are to be constructed and maintained as outlined in Soil Erosion and Sediment Plan drawing attached in **Appendix A**. The measures outlined within the plans are consider the minimum requirements for the site and are subject to on-going maintenance and performance criteria's (i.e. WQO).

7.5.1 *Water Reuse*

Water from the sediment basins storage area may be used for dust suppression etc. within the extraction area, however, must be operated as per the maintenance requirements.

7.5.2 *Monitoring and maintenance*

Regular monitoring and maintenance of the sediment basin and associated systems (which prevent clean water entry into the catchment and deliver soil laden water to the sediment basins) are required to ensure compliance with the Environmental Authority, Development Approval. Compliance assessments are the responsibility of the Site Environmental Officer or delegate.

Appendix C contains a "Site Inspection checklist" that requires completion at the following times:

- Monthly during operational periods;
- After each weather event where the rainfall registered at the office exceeds **60 millimetres** (30-minute ARI 1 rainfall event);
- At the cessation of activities at the beginning of each wet season; and
- At the commence of work after the wet season.

7.6 SEDIMENT BASINS OPERATING PROCEDURES

In general, all basins onsite have been designed as **Type D** basins and must be operated with the following parameters:

- The water level in the basins will be controlled so that at the end of the dry season, the available capacity of the basins is greater than the runoff calculated for a 24 hour, ARI 5 rainfall event;
- Within **120 hours** of the most recent rainfall event the **upper settling volume** of all sediment basins must be made available to capture and store stormwater runoff from the next rainfall event;
- Prior to a rainfall event the sediment basin should be fully drained; and
- In between storm events the basin may retain but must be de-watered prior to any storm that is likely to produce runoff.

The following sections outline procedures for review the basin performances and appropriate actions to improve the basins performance should they be necessary. This includes:

- De-watering procedures;
- Decant water quality objectives;
- Sediment basin performance assessment procedures;
- Corrective measures: coagulants and flocculants;
- Sediment basin de-silting procedure; and
- Sediment basin maintenance.

7.6.1 *De-watering procedures*

Type D basins are able to retain water within the basins for use on site, but the basins must be drained prior to any storm that is likely to produce significant (i.e. measurable) basin inflows.

All the primary sediment basins require cleaning out so that their capacity is at the design level, prior to the wet season. Drains that are overgrown with vegetation or silted up require maintenance so that their design capacity is realised. Eroded areas require treatments or the construction of control devices that will prevent that level of erosion occurring again.

7.6.2 Decant water quality objectives

Before water can be discharged from the basin, the water quality being released must comply with all regulatory WQO and requirements. Total Suspended Solids (TSS), water pH, and turbidity have been outlined below in **Table 2**. For details on all other objectives refer to **Table 1** of this report.

Table 2. Water Quality Objectives

	Water Quality Objective	Source
Total suspended solids (TSS)	50mg/L	Queensland Government Guideline: Stormwater and Environmentally Relevant Activities
pH	6.5 - 8.0	Queensland Government, Black River Basin Environmental Values and Water Quality Objectives, Fresh waters (WQ1171).
Turbidity	50 NTU	Queensland Government, Black River Basin Environmental Values and Water Quality Objectives, Fresh waters (WQ1171).

7.6.3 Sediment Basin Performance assessment procedures

A performance review should be carried out on all basins. Although it is desirable for sediment basins to achieve the desired water quality standard during every storm, circumstances can exist that will cause uncontrolled discharges to exceed these standards.

Sediment basin is not designed to achieve specific water quality; rather, designed to either capture and treat a specific volume of runoff, or to treat discharges up to a specified peak flow.

Sediment basin shall be monitored by the Site Environmental Officer or a suitably trained site personnel member. The operator shall regularly inspect the critical design features of the basin and review the basin's performance against its design expectations. If a water quality failure is observed, then the operator should endeavour to take multiple samples during these releases to document the durations of such exceedances. Adjustments to the basin, and the basins operations, should occur after each observed failure. The use of such adaptive management practices is critical

to achieving the optimum performance of any sediment basin. **Figure 11** below outlines the sediment basin performance assessment process.

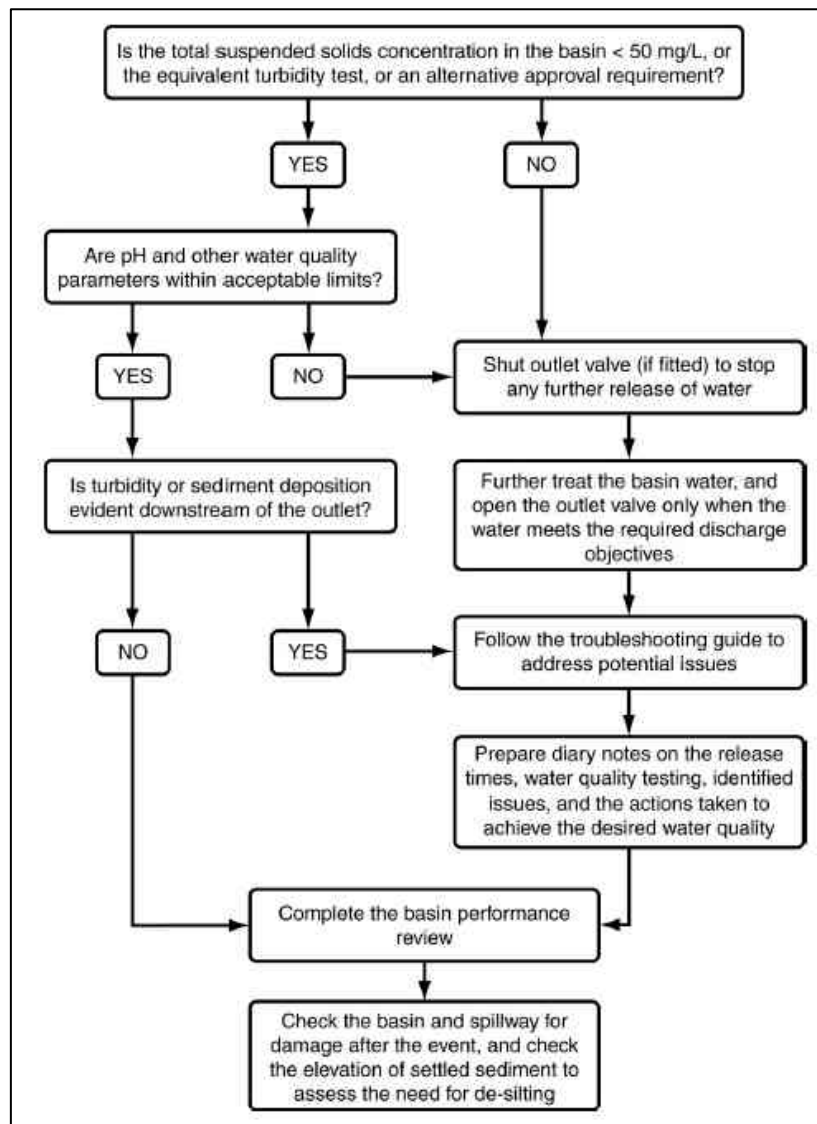


Figure 11. Basin performance assessment process

7.6.4 *Corrective measures: coagulants and flocculants*

If the water being discharged does not satisfy the specified water quality objectives, chemical treatments may be used as a means of promoting settling within the sediment basin.

7.6.4.1 *Coagulation*

Clay is the predominant particle type found in suspension within runoff captured by sediment basin. Clay particles are extremely small (less than 0.002 mm in size) and will not settle readily, if at all, even in still water.

When negatively charged clay articles and other colloids are suspended in water, they tend to repulse each other. The cumulative effects of the repulsion of a vast number of small particles prevents their aggregation into larger, heavier particles that would settle more readily.

A coagulant is utilised to neutralise or destabilise the charge on clay or colloidal particles. Most clay particles in water are negatively charged and therefore a positive ion (cation) can be used as a coagulant.

Charge neutralisation in water can occur very rapidly; therefore, mixing is important for effective treatment of turbid water. After a short time, the ions form hydroxide gels which trap particles, or bridge between particles, to create a floc that may settle.

There is possibility of overdosing with coagulants and building up excess positive charge, hence complying within the optimum dosage range is critical. When a cationic coagulant is overdosed, the clay and colloidal particles will take on positive charge and repel each other and limit any settling.

The dosage range of a coagulant will vary depending on the site water chemistry. Different coagulants also have an optimum pH range over which they are effective and pH buffering may be required depending on the coagulant and water chemistry.

The flocs generated by coagulation are generally small and compact. They can also be broken down under high velocity or high shear conditions.

7.6.4.2 Flocculation

Flocculation is a process of contact and adhesion whereby the particles of a dispersion form larger-size clusters. Flocculation can occur through the use of coagulant, flocculant, or both. Coagulants achieve flocculation through charge neutralization whereas flocculants physically bind clay and colloidal particles together.

The use of natural and synthetic polymeric flocculants can be used to generate larger more stable flocs and may reduce treatment times. This is achieved by brining dispersed particles together increasing the effective particle size. Flocculants can be used alone, or in combination with coagulants.

It is also noted that, at lower pH, the toxicity increases with an effect of possible major concern being the coagulation of mucus on the gills of fish. Please note, from the Australian and New Zealand Environmental and Conservation council (ANZECC) guideline to protect 99% of species which applies to HEV waters, aluminium must be less than **2.1µg/m**.

7.6.4.3 Selection of coagulants and/or flocculants - Jar testing

The purpose of jar testing is to select appropriate coagulants and/or flocculants along with determining their optimum dose rates. The recommended testing procedure is described below.

Jar tests are conducted on a four or six-place gang stirrer. Jars (beakers) with different treatment programs or the same product at different dosages are run side by side, and the results compared to an untreated beaker. Where access to a laboratory is not practicable, field test can be undertaken following a similar process to that described in the procedure with stirring and settling timeframes in different beakers. Testing should be undertaken by a suitably qualified person in the use of coagulants and flocculants.

Preference is given to the use of raw water collected on site which is representative of runoff (including water temperature, which affects settlement characteristics) during the life cycle of the sediment basin. Where raw water is not available, representative soil from the site can be mixed with water to create indicative runoff water chemistry. To create a water sample from soil, a water/soil solution procedure is provided in **Appendix D**.

Sometimes both a coagulant and flocculant are required to achieve the desired treatment efficiencies. In these situations, the coagulant should be tested first, followed by the flocculant.

For the sediment basin, a Floc Performance Report should be prepared to determine a suitable chemical and dose rate for the sediment basin. A Floc Performance Report template is provided in **Appendix D**. A single floc report for multiple sediment basin on a site should only be undertaken when soil properties are uniform for all basins.

7.6.4.4 Application of coagulants and flocculants

Mixing of coagulants and flocculants is critical to the successful treatment of turbid water. Guidance from chemical suppliers or a suitably qualified sediment basin operator shall be sought for appropriate application methods including safety precautions.

7.6.5 De-silting procedures

An appropriately marked (e.g. painted) **de-silting marker post must be installed in the basin to indicate the top of the sediment storage zone.**

The basin must be de-silted if:

- the next storm is likely to cause the settled sediment to rise above this marker point; or
- settled sediment has exceeded 90% of the total nominated sediment storage volume; or
- the settled sediment is already above this marker point.

7.6.6 *Sediment basin maintenance*

Sediment basin maintenance shall be carried out as follows:

1. Inspect the sediment basin during the following periods:
 - i. During construction to determine whether machinery, falling trees, or construction activity has damaged any components of the sediment basin. If damage has occurred, damaged is to be repaired;
 - ii. After each runoff event. Inspect the erosion damage at flow entry and exit points. If damage has occurred, make the necessary repairs;
 - iii. At least weekly during the wet season (**January to March**) otherwise at least fortnightly; and
 - iv. Prior to, and immediately after, periods of 'stop work' or site 'shut down'.
 2. Clean out accumulated sediment when it reaches the marker board/post and resort the original storage volume. Place sediment in a disposal area or, if appropriate, mix with dry soil on the site.
 3. Do not dispose of sediment in a manner that will create an erosion or pollution hazard;
 4. Check all visible pipe connections for leaks and repair as necessary;
 5. Check fill material in the dam for excess settlement, slumping of the slopes or piping between the conduit and the embankment; make all necessary repairs;
 6. Remove all trash and other debris from the basin and rise; and
- Submerged in flow pipes must be inspected and de-silted (as required) after each inflow event.

8.0 LEACHATE MANAGEMENT

Leachate is generated as a result of fluid migration through the landfill waste mass, primarily driven by infiltration processes. As water percolates through the waste, it interacts with solid phases and undergoes physicochemical transformations, resulting in the mobilisation and dissolution of organic and inorganic constituents. This produces a contaminated liquid phase referred to as leachate.

The quality and composition of leachate are highly variable and controlled by a range of factors, including waste composition, degree of decomposition, moisture content, and the prevailing biochemical environment within the landfill. Temporal variation is also significant, with leachate typically evolving from high-strength, biodegradable compositions in early stages to more stabilised, refractory compositions with increasing waste age.

- Leachate generation is influenced by multiple hydrological inputs, which may include:
- direct precipitation infiltrating the landfill surface
- moisture released during waste degradation processes (including biochemical and consolidation-related mechanisms)
- surface water ingress resulting from inadequate runoff control or stormwater diversion
- groundwater intrusion where hydraulic gradients permit

Assessment of the existing cell liner and drainage system has been undertaken to determine its appropriateness. The existing cell liner and drainage layer has been assessed to determine if the existing cell liner (300mm clay liner with a hydraulic conductivity of 1.0×10^{-9} m/s) and leachate collection layer (300mm free draining material, permeability of 3×10^{-3} m/s adopted) are suitable for continued use and capable of meeting the current design and environmental performance requirements for effective leachate management.

The site is existing with part of existing Cell 1 constructed (referred to as Stage 1 on plans). The remainder of the landfill area will be staged in 9 stages (referred to as Stages 2 to 10 in **Appendix A**). Each of the remaining stages is proposed to be 1ha in area.

8.1 LEACHATE COLLECTION SYSTEM

Leachate will be managed through a primary leachate collection and removal system constructed at the base of the landfill cell. The cell floor will be graded to achieve a minimum 1.5% crossfall to the collection sump positioned at the low point of the cell (generally from southwest to northeastern

corner of the stage). The sump will comprise a localised excavation integrated into the cell floor and fitted with a vertical riser to facilitate leachate extraction.

The leachate collection layer consists of a minimum 300mm thick, high-permeability granular drainage medium. A geotextile separation layer will be installed above the drainage layer to prevent migration of fines from the overlying waste and to maintain the long-term hydraulic performance of the system.

8.2 LEACHATE EXTRACTION

The leachate sump will contain a DN1050 concrete riser pipe. A submersible pneumatic pump will be utilised to extract leachate via the rise pipe to the leachate pond.

8.3 LEACHATE PONDS

Evaporation of leachate from the active area, leachate pond and spray system is the primary mechanism of loss from the system. Pond evaporation is based on the pond area and evaporation data from Bureau of Meteorology (BoM) from Townsville Aero Weather Station 032040. The adopted evaporation rate is the mean evaporation rate multiplied by a pan coefficient of 0.7.

The existing leachate pond has an approximate area of 3,375m² and an operating capacity of 7,016m³. The leachate pond is designed to have 0.5m of freeboard before overtopping into the adjacent sediment basins.

8.3.1 *Forced evaporation via pond sprinklers*

Sprinklers have historically been employed at the site to assist leachate pond evaporation. Sprinklers spray leachate back over the pond.

8.4 LEACHATE GENERATION

The landfill will be used for construction and demolition waste, as such it is expected to have very low organic content, minimal biodegradation and limited long-term leachate generation. Leachate is predominantly from initial wetting, rainfall infiltration and short-term drainage.

Nevertheless, as a worst case to quantify leachate generation, a numerical modelling approach was adopted using the Hydrologic Evaluation of Landfill Performance (HELP) framework developed by the United States Environmental Protection Agency (USEPA), version 4.0.1.

The HELP model represents a quasi-two-dimensional simulation of water movement through layered landfill systems under variably saturated conditions. It incorporates climatic inputs (precipitation, temperature, solar radiation, humidity, wind speed etc.), material properties (hydraulic conductivity, porosity), and landfill configuration to simulate key hydrological processes. These include vertical percolation, lateral drainage within collection layers, temporary storage within landfill components, and leachate discharge from the system.

The model is commonly applied at the conceptual and preliminary design stages to evaluate drainage performance and to compare alternative landfill configurations. However, it is important to recognise that HELP is inherently a probabilistic tool and does not explicitly incorporate all site-specific mechanisms affecting leachate generation. In particular, predictions are largely governed by assumed material properties and infiltration processes (including cover system performance), and do not directly account for preferential flow paths, operational practices, or long-term degradation variability unless specifically calibrated. Consequently, the outputs of the HELP model should be interpreted as indicative estimates rather than precise predictions.

8.4.1 *HELP model inputs*

The rainfall data used in the modelling was derived from the SILO Yabulu QLD Nickel Weather Station 032050, which is approximately 7 km from the site and has been in operation since 1919. Climate data (wind speed and humidity) not available at Yabulu QLD Nickel Station data has been substituted with Townsville Aero (Station 032040) located approximately 30km from the site. As worst-case scenario it is assumed that no rainfall runs off the area. To account for long term variability (extended wet/dry years) and waste saturation behaviour, the model has been run for a continuous 30 year period from 1 January 1996 to 31 December 2025. The accounts for cumulative antecedent moisture conditions, structural waste field capacity, and hydraulic lag within the cell matrix, ensuring peak predictive leachate generation is captured after steady-state saturation is achieved.

Table 3. Landfill profile

Layer	Thickness	Comments
Waste	10m	MSW with channelling (HELP Default)
Drainage layer	300mm	Gravel (HELP Default) Hydraulic conductivity = 3.00×10^{-3} m/s
Low permeability compacted clay	300mm	Liner soil (HELP Default) Hydraulic conductivity = 1.0×10^{-9} m/s

8.4.2 HELP Results

HELP modelling was undertaken using 30 years of data from 1996 to 2025. The average annual totals are summarised in **Table 5**. The results indicate that 72.44% of rainfall becomes leachate, 24.19% is lost to evaporation, and 2.68% percolates through the cell liner. Long-term percolation is expected to be minor and within acceptable limits. Refer to **Appendix E** for the HELP modelling results.

Table 4. Average annual totals for Years 1 to 30

	Average Annual Totals for Years 1 - 30*			
	(millimetres)**	[std dev]	(cubic meters)	(percent)
Precipitation	1,469.00	[629.03]	14,690.0	100.00
Runoff	0.000	[0]	0.0000	0.00
Evapotranspiration	355.417	[111.258]	3,554.2	24.19
Subprofile1				
Lateral drainage collected from Layer 2	1,064.0763	[547.9712]	10,640.8	72.44
Percolation/leakage through Layer 3	39.427138	[24.616432]	394.3	2.68
Average Head on Top of Layer 3	18.8443	[22.9434]	---	---
Water storage				
Change in water storage	10.0766	[112.0203]	100.8	0.69

**Note: head on liners expressed in cm

Where bentonite or low permeability clay with a hydraulic conductivity less $1 \times 10^{-9} \text{m/s}$ cannot be sourced, the clay liner must be reassessed to determine minimum thickness based on liner material properties and/or determine if a geosynthetic clay liner (GSL) is required.

8.5 LECHATE POND WATER BALANCE

A deterministic mass balance equation is utilised to model the hydraulic performance of the leachate pond. The adopted equation for the change in storage volume over a specified design period is expressed as follows:

$$\Delta V_S = V_L + V_R - V_E - V_D$$

Where:

- **ΔV_S** - Change in Storage Volume (m^3): The net volumetric accumulation or depletion of liquid within the containment facility over the evaluation period. For conservative design sizing, this represents the minimum required active storage capacity.
- **V_L** - Leachate Inflow (m^3): The total volume of primary leachate generated within the landfill containment cells and transferred to the storage pond, derived directly from predictive hydrological modelling (e.g., HELP model outputs).
- **V_R** - Direct Precipitation (m^3): The volumetric contribution of rainfall landing directly onto the open surface area of leachate pond footprint, calculated as the product of the design storm depth (m) and the operational pond surface area (m^2).
- **V_E** - Evaporative Losses (m^3): The volume of liquid lost to the atmosphere via pan evaporation across the exposed surface area of the storage facility, adjusted by the appropriate local pan coefficient.
- **V_D** - Disposal and Treatment Volume (m^3): The total volume of leachate actively abstracted from the pond. The site only proposed to utilise forced evaporation through spraying to enhance the evaporation rate of the pond.

8.5.1 Water balance Assumptions

A water balance has been undertaken to determine if any modification to the existing pond or additionally leachate storage is required onsite. The following assumptions have been made with regards to the water balance:

- No leachate is lost from the system other than through evaporation. As part of the storage balance, any leachate that cannot be transferred to the leachate ponds remains in the landfill cells.
- A monthly timestep has been selected to accurately model the seasonal variation Townsville's tropical wet-dry cycle.
- In accordance with the Queensland Government Guideline for landfill siting, design, operation and rehabilitation, the leachate collection and removal system will be operated to ensure that the leachate head above the base liner does not exceed 300 mm, thereby

limiting hydraulic loading on the liner and maintaining system performance. In the water balance it is assumed all leachate goes to the pond and there is no storage capacity in the drainage layer even after a net zero month.

- All leachate generated within the landfill is collected and can be transferred to the ponds.
- No run-on from areas that are not landfilled enters the leachate collection system and no groundwater flows into the leachate collection system.
- Longterm leachate production from HELP modelling over a 30 year period based on the previous 30 whole calendar years (1996 to 2025).
- Waste has been modelled as the topmost layer for a worse-case scenario.
- It has been assumed that a negative net volume is not possible (i.e. pond cannot have less than no water) and any negatives values have been zeroed.
- The total depth of the pond including freeboard is 3m. The adopted top dimensions of the pond are 48m wide by 78m long with a batter of 1 in 3. Freeboard has been taken as 0.5m. At the spillway crest, the pond area has been taken to be 45m wide and 75m long.
- Total volume before overflow in the leachate pond is 7016m³.
- Landfill working area in each stage is no greater than 1ha. Previous stages are assumed to have a final cap applied and not contribute additional leachate due nature of waste (construction and demolition waste).
- Pan evaporation coefficient of 0.7.
- Scenario 1:
 - Forced evaporation via sprinklers over the pond is assumed to have an effectiveness of 1.3 times the pan evaporation rate.
- Scenario 2:
 - Generally, sprinklers are not used to spray over the landfill area, however, to assist in attenuating high intensity or extended durations of rainfall a scenario has been assessed to determine the effects.
 - Adopted additional spray trigger levels were set at a pond level of 2.15m for moderate spray over the landfill area to evaporate 700m³ per month which was increased to high level spraying to release 900m³ per month if the leachate levels in the leachate levels reached 2.4m in the leachate pond.

Monthly climate statistics for Yabulu is not available from BoM, as such Townsville Aero (Weather Station 032040) has been adopted for the water balance. Climate data obtained from the BoM is provided in **Table 5**.

Table 5. Townsville Aero monthly rainfall statistics (1940 to 2026)

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Rainfall													
Mean rainfall (mm)	274.4	312.4	188.5	67.4	34.1	28.3	18.6	15.8	8.8	23.2	80.7	130.3	1162.3
Highest rainfall (mm)	1141.7	1198.0	1004.0	549.2	180.8	111.4	173.7	258.2	84.4	202.8	345.3	487.2	2050.8
Date	1951	2025	2631	2600	1877	2007	1862	1998	2015	1876	2005	2034	2024
Lowest rainfall (mm)	8.8	4.2	2.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	387.0
Date	1947	1989	2009	1947	2021	1948	2002	2025	2024	2002	1950	2001	2015
Decile 1 rainfall (mm)	48.2	64.7	16.4	3.0	1.0	0.4	0.2	0.0	0.0	1.3	4.0	16.7	
Decile 5 (median) rainfall (mm)	219.2	246.0	141.2	30.4	18.3	9.8	3.8	3.8	2.2	12.0	30.9	79.2	
Decile 9 rainfall (mm)	577.3	643.8	428.3	173.1	88.1	57.8	44.0	44.8	30.8	81.4	144.4	252.3	
Highest daily rainfall (mm)	548.8	317.0	300.5	271.0	120.8	69.0	89.8	154.2	64.0	39.4	132.8	205.8	548.8
Date	11 Jan 1985	01 Feb 1977	03 Mar 1948	04 Apr 2000	10 May 2017	06 Jun 1985	10 Jul 2012	30 Aug 1998	20 Sep 2018	14 Oct 1878	21 Nov 1950	31 Dec 2009	11 Jan 1988
Mean number of days of rain	14.8	15.5	12.8	7.9	5.9	4.3	3.2	2.6	3.4	4.7	7.2	9.8	91.0
Mean number of days of rain > 1 mm	11.7	12.7	9.7	5.3	3.9	2.4	2.0	1.4	1.2	2.8	4.0	7.4	65.1
Mean number of days of rain > 10 mm	5.9	8.8	4.1	1.9	0.9	0.5	0.4	0.4	0.3	0.8	1.8	3.1	26.0
Mean number of days of rain > 25 mm	3.3	3.5	2.3	0.9	0.3	0.2	0.1	0.2	0.1	0.2	0.7	1.5	13.0

It should be noted that 2025 had the highest February, March and annual rainfall on record at the Townsville Aero station which has records between 1940 to 2026. Rainfall statistics are not available for Yabulu. Rainfall statistics for Townsville Aero are shown in **Table 5**. It is noted that the 2025 wet period was longer in duration than typical.

8.5.2 Water balance results

The water balance is shown in **Figure 12** with values presented in **Appendix F**, where the orange represents site operations without leachate management utilising spray over the pond and the purple In represents if additionally spraying back over the landfill area was employed. The total pond volume including contingency is 7,016m³ (green). The adopted storage zone is 2.15m deep or 5,240m³ (maroon).

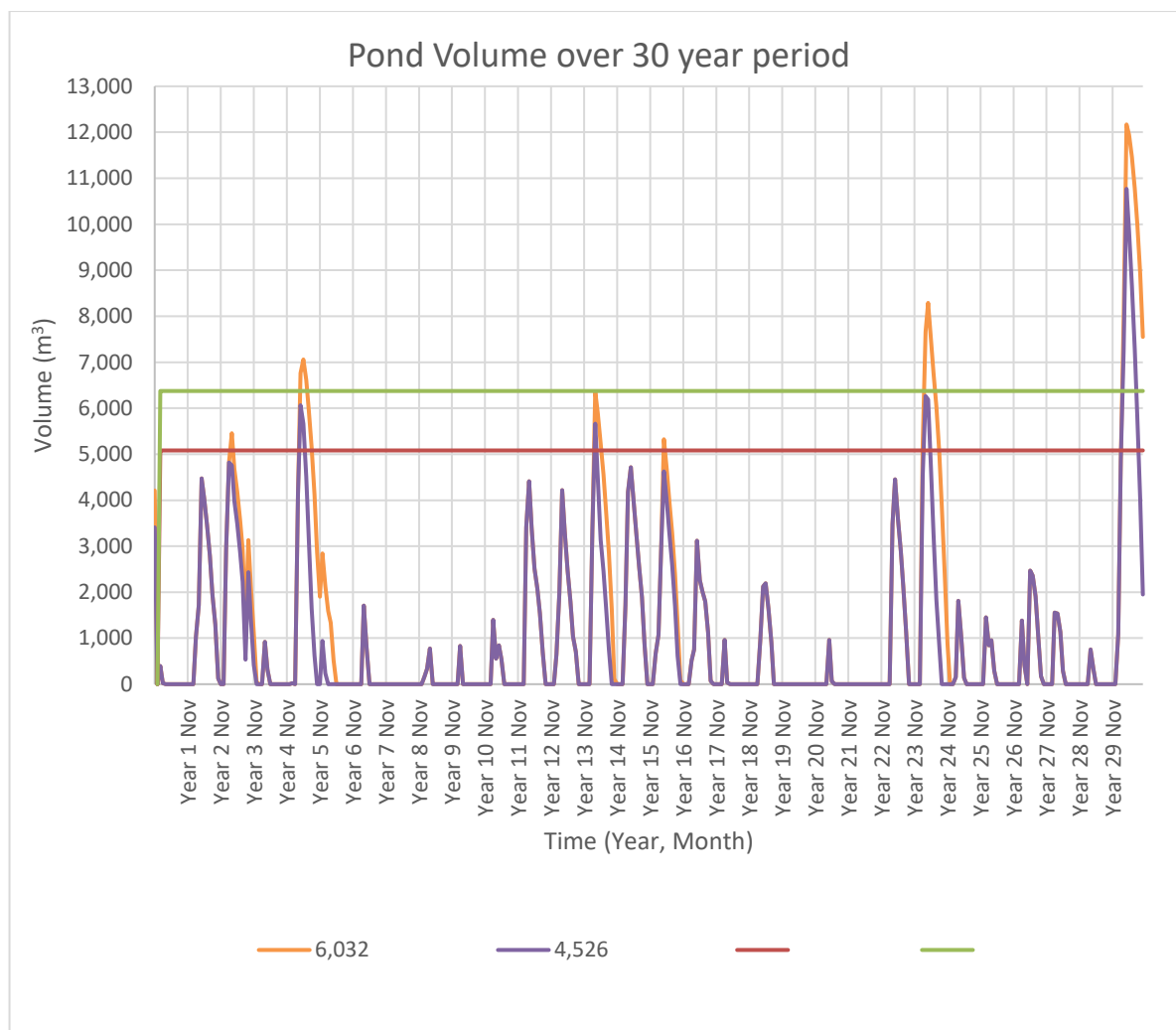


Figure 12. Water balance (1996 to 2025 data)

In scenario 2, the peak is in the order of twice the magnitude of other peaks. It would not be practical to design to accommodate this peak. Based on the monthly water balance modelling, the 90th and 95th percentile storage volumes (excluding periods with no net positive balance) were estimated as follows:

- **Scenario 1 (pond spraying only):**
 - o P90 = 4,213 m³
 - o P95 = 6,031 m³
- **Scenario 2 (pond spraying + landfill spraying):**
 - o P90 = 3,3622 m³
 - o P95 = 4,622 m³

The total available leachate pond capacity, excluding freeboard, is approximately **7,016 m³**. The results indicate that under both scenarios, the leachate pond has sufficient capacity to contain the

95th percentile volume. As shown in Figure 12, Scenario 1 demonstrates that the existing leachate pond, in combination with forced evaporation via pond-based spraying, is capable of managing the majority of wet weather conditions.

Scenario 2, which incorporates additional spray irrigation across the landfill surface, provides enhanced system performance by:

- Reducing peak storage volumes during prolonged wet periods
- Limiting accumulation during consecutive high rainfall months
- Promoting more rapid recovery of storage levels following wet seasons

Under extreme conditions (e.g. the Year 30 sequence in the modelling dataset, 2025 rainfall data), implementation of trigger-based landfill spraying reduced peak storage volumes by approximately 1,400 m³. In addition, the inclusion of landfill spraying allows the pond to return to empty prior to the onset of subsequent wet seasons, reducing the likelihood of cumulative storage carryover.

The modelling indicates that:

- Under typical climatic conditions, the system operates within available storage capacity
- Exceedance of total capacity is limited to rare events associated with extreme rainfall sequences or events
- The implementation of operational controls (trigger-based spraying) significantly reduces both the **magnitude** of exceedance and the **duration** of elevated storage such that there is capacity for the next wet season.

It should be noted that the landfill will be used for construction material and will not produce leachate in the same manner or concentrations as a traditional Council landfill would. The risk of leachate overflow is not considered high risk, and overflow has been designed to discharge to neighbouring existing Pond 2 (sediment basin/emergency overflow) then into Sediment Basin 1 before subsequent discharging to an order 1 stream which ultimately discharges into Christmas Creek should an overflow occur.

8.5.3 Mitigation

It is noted from previous reporting that the existing pond design storage depth is 2m with a 1m freeboard. Based on more recent data for a longer duration water balance, to allow for more contingency to cater for extreme event, the storage depth to the spillway crest is to be 2.5m above the base and a minimum 0.5m freeboard should be allowed. The available storage will be able to cater to the 90th percentile month. The buffer is equivalent to a 24hr 1 in 25year storm event over the pond area and will be able to cater to the 95th percentile. It is recommended a pond level marker post is installed to monitor pond levels and trigger additional spray events as discussed above. Leachate pond depth and corresponding volumes are provided in **Figure 13**.

Top of pond bank	Freeboard /air gap	(3.0m 8,154m ³)
Spillway Crest		(2.5m, 7,016m ³)
Trigger 2	Buffer	(2.4m, 6,040 m ³)
Trigger 1		(2.1m, 5,080 m ³)
Pond Base	Storage zone	(0.0m, 0m ³)

Figure 13. Leachate pond depths and capacity

8.5.4 Contingency

The water balance should be validated or updated from time to time by using site operational data. The existing leachate pond capacity shall be verified onsite and spillway crest lifted before Stage 2. This is to test the accuracy of the assumptions in the original modelling and to assess whether the leachate management infrastructure will be adequate to continue to meet the requirements of any relevant approvals and Environmental Protection Act. Should the effectiveness of spray operations be less than assumed consideration should be given to changing from traditional sprinklers to a finer atomisation sprayer to enhance evaporation.

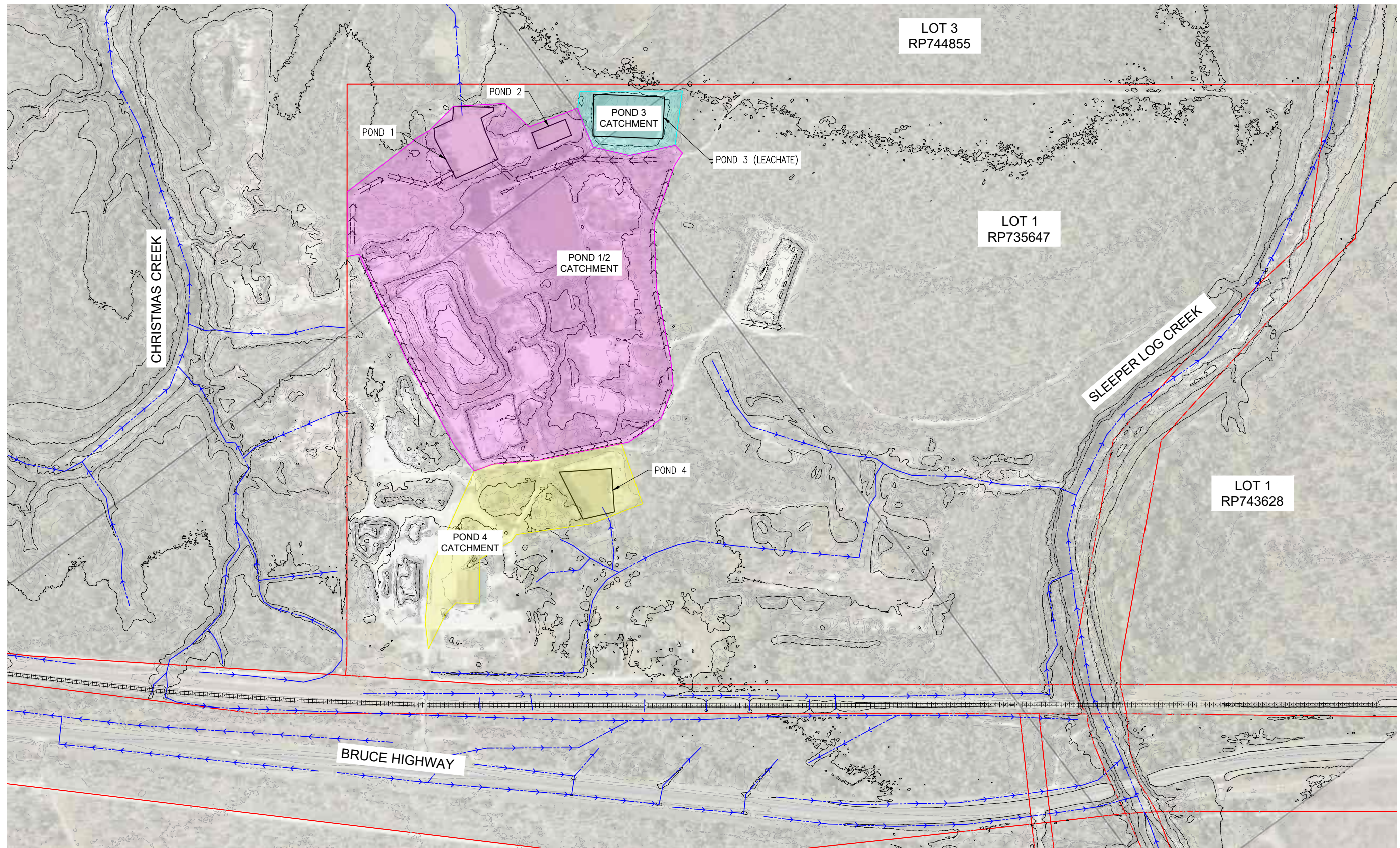
9.0 SUMMARY

The subject site has been assessed for stormwater impacts and has found the following:

- The working area of the site is proposed to remain relatively the same as previously shown in the existing development application.
- Subject site does not propose to significantly increase stormwater run-off from the site.
- Stormwater discharges to Christmas Creek and Sleeper Log Creek via existing streams and no changes are proposed to discharge locations.
- Sediment basins:
 - o Three sediment basins are required to treat run-off for sediment prior to discharge from the subject site.
 - o Existing Ponds 1 and 4 shall be modified and utilised as the sediment basins (Sediment Basin 1 and 3) for catchments 1 and 3.
 - o Sediment basin 1 is capable of treating the entire catchment area and existing Pond 2 is not required. Pond 2 will be operated as a sediment basin, however, will also capture emergency overflow from the Leachate Pond.
 - o A new sediment basin (Sediment Basin 2), previously approved under the original Development Application but not yet built, shall be constructed for treatment the southwestern area of the subject site.
- Leachate management:
 - o The existing leachate pond (Pond 4) has a capacity of **7,016m³**, provided the spillway crest level is lifted 0.5m. All pond dimension provided are to be verified onsite.
 - o Pond 3 will contain any emergency overflows.
 - o Assessment demonstrates that the existing leachate pond is capable of is adequate to manage leachate volumes generated but under frequent and extreme events.
 - o The system accommodates the **95th percentile storage volume** under long-term climatic conditions.
 - o Forced evaporation via pond spraying is sufficient for routine conditions.
 - o Trigger-based landfill spraying provides an effective operational control to manage extreme events.
 - o Exceedances are infrequent, short-duration, and manageable within the site's infrastructure.
 - o No increase in storage capacity is required provided stages are not more than 1ha in area.

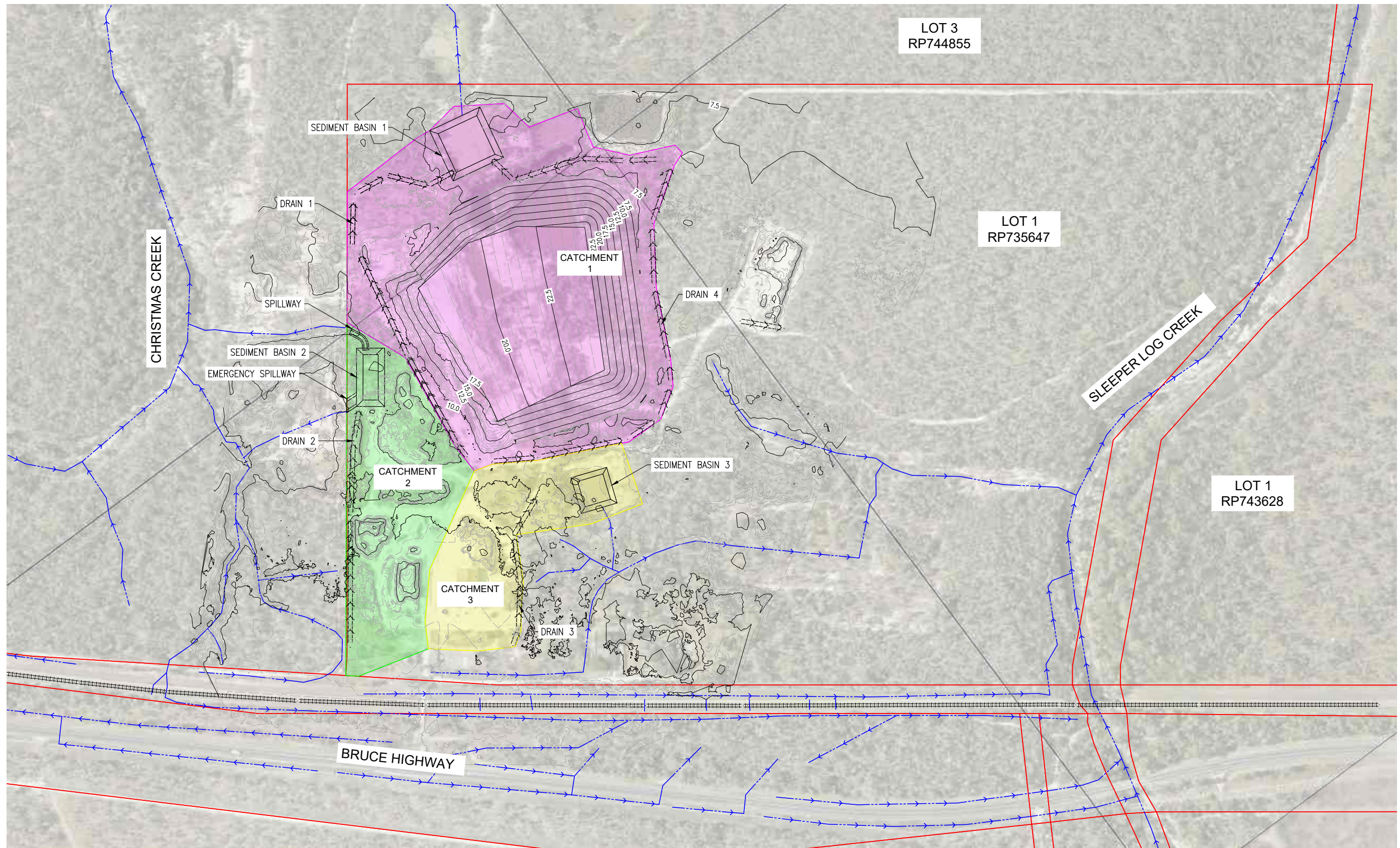
APPENDIX A

STORMWATER PLANS

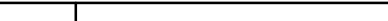


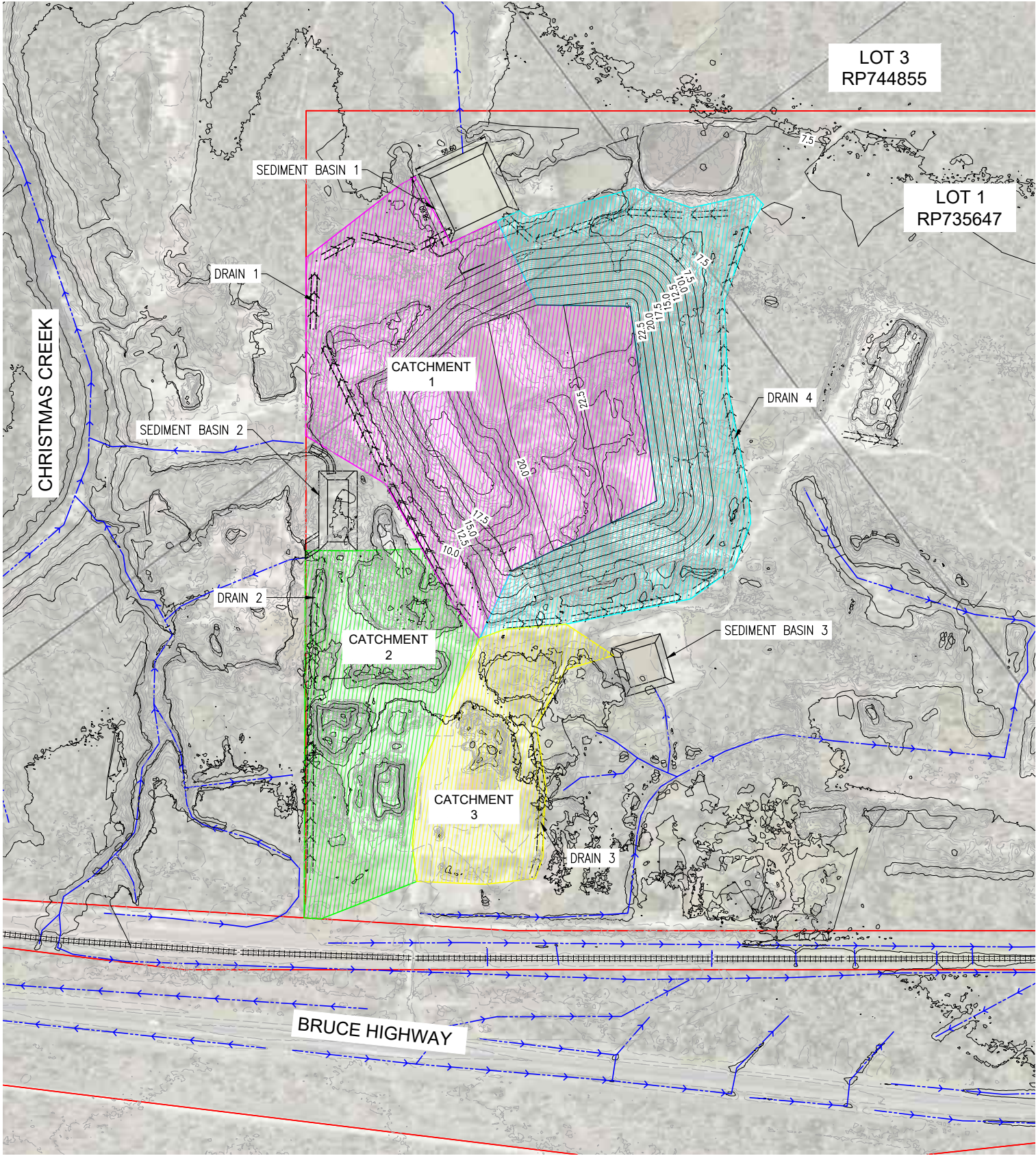
EXISTING STORMWATER CATCHMENT PLAN
SCALE 1:2000

REVISIONS					HORIZ. DATUM		CERTIFICATION		ABSOLUTE WASTE PTY LTD		SCALE	AS SHOWN
					VERT. DATUM		BRETT LANGTREE MIEAust, NER, RPEQ 11932		42386 BRUCE HIGHWAY, BLUEWATER		SHEET	SHEET 1 OF 17
					DRG. FILE		COPYRIGHT ©		LOT 1 on RP735647		REVISION	B
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26	These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.	EXISTING STORMWATER CATCHMENT PLAN		DRG No.	1343-SMP-001
B	N.P	18/06/26	TITLE BLOCK AMENDMENTS					 m 0400 699 979 e brett@langtreeconsulting.com.au				
A	N.P	31/07/25	ISSUED FOR SMP REPORT		DESIGN	N.P	18/06/26					

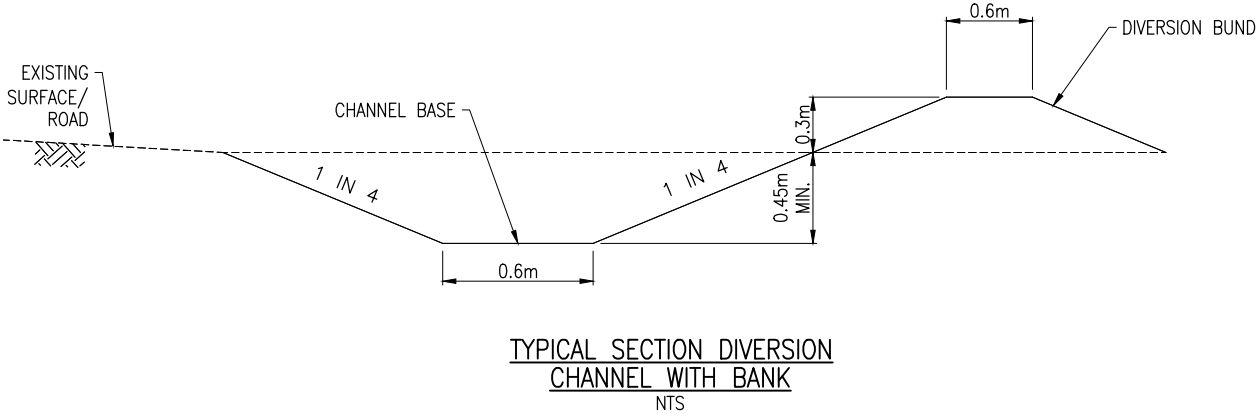


PROPOSED STORMWATER CATCHMENT PLAN
SCALE 1:2000

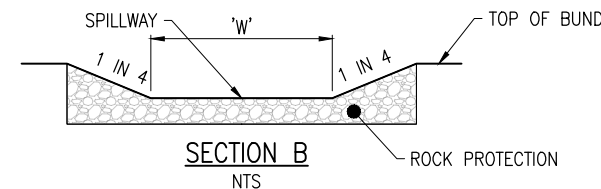
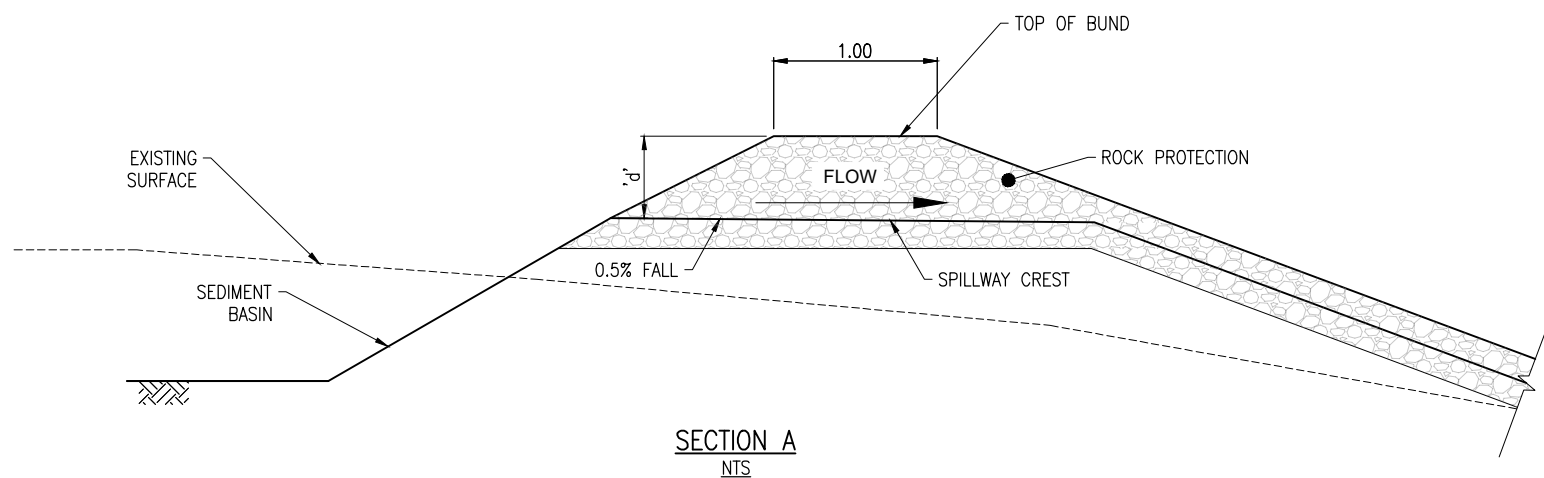
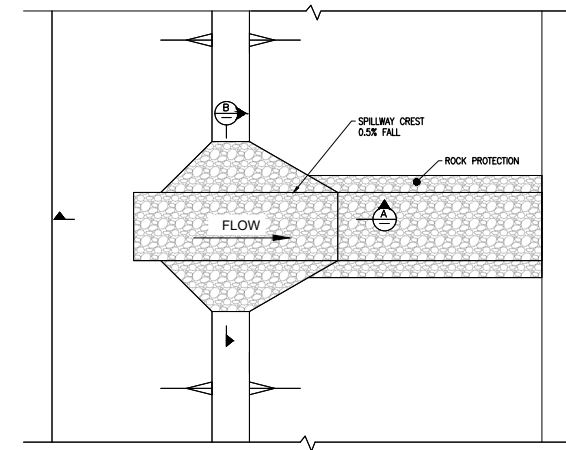
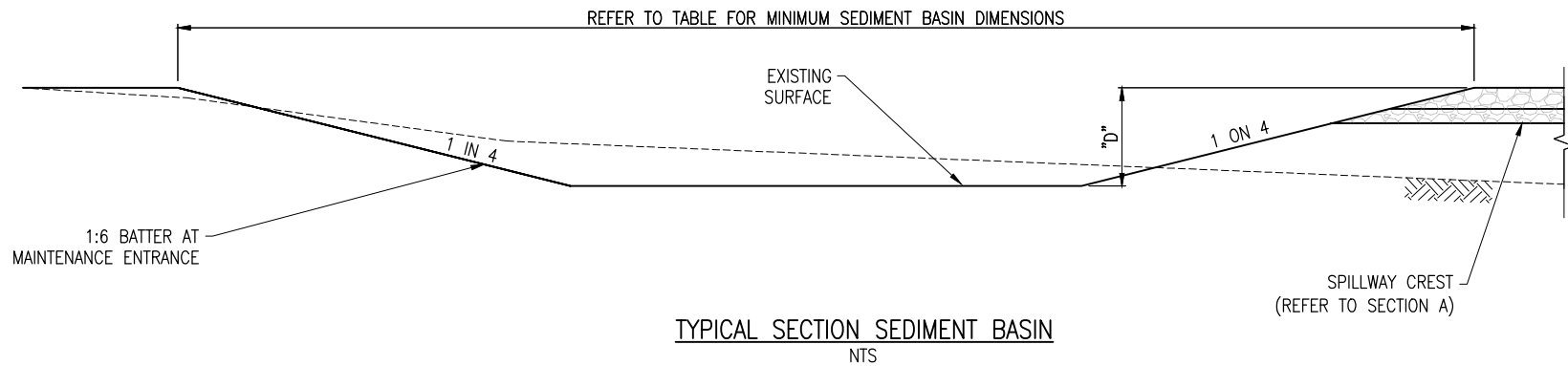
REVISIONS					HORIZ. DATUM		CERTIFICATION 		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD		SCALE	AS SHOWN
					VERT. DATUM							BRETT LANGTREE MIEAust, NER, RPEQ 11932	
	B	N.P	18/06/26	UPDATE FINAL LANDFORM	DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.		42386 BRUCE HIGHWAY, BLUEWATER		REVISION	B
	A	N.P	31/07/25	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			LOT 1 on RP735647			
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26			PROPOSED STORMWATER CATCHMENT PLAN		DRG No.	1343-SMP-002



DRAIN CATCHMENT AREA PLAN
SCALE 1:2000



REVISIONS					HORIZ. DATUM		GDA2020 ZONE 55		CERTIFICATION 		 LANGTREE CONSULTING ENGINEERS m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD				SCALE	AS SHOWN
					VERT. DATUM		AHD		BRETT LANGTREE MIEAust, NER, RPEQ 11932			42386 BRUCE HIGHWAY, BLUEWATER				SHEET	SHEET 3 OF 17
	B	N.P	18/06/26	DRAIN CATCHMENT FOR SIZING REVISED		DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.			LOT 1 on RP735647				REVISION	B
	A	N.P	31/07/25	ISSUED FOR SMP REPORT		DESIGN	N.P	18/06/26				DRAIN CATCHMENTS				DRG No.	1343-SMP-003
	No.	BY	DATE	DESCRIPTION		DRAWN	N.P	18/06/26									



SEDIMENT BASIN NOTES:

1. DETAILS SHOWN ON THESE REPRESENT PROPOSED MINIMUM REQUIREMENTS FOR ONE POSSIBLE METHOD TO ACHIEVE COMPLIANCE WITH LEGISLATION TO PREVENT ENVIRONMENTAL HARM FROM EROSION AND SEDIMENT TRANSFER OFF THE SITE.
2. DRAWINGS ARE INDICATIVE ONLY. DRAWINGS ARE NOT TO BE SCALED.
3. EARTH EMBANKMENTS GREATER THAN 1m TO BE BE CERTIFIED BY GEOTECHNICAL ENGINEER.
4. MINIMUM EMBANKMENT CREST WIDTH TO BE 2.5m UNLESS JUSTIFIED BY GEOTECHNICAL ENGINEER.
5. EARTH FILL FOR EMBANKMENTS SHALL BE CLEAN SOIL NON-DISPERSIVE SOIL AND FREE OF ROOTS, WOODY VEGETATION, ROCKS AND OTHER UNSUITABLE MATERIAL. FILL MATERIAL TO FROM EMBANKMENT TO BE CERTIFIED BY GEOTECHNICAL ENGINEER.
6. SPILLWAY ROCK SHALL BE HARD, ANGULAR, DURABLE WEATHER RESISTANT AND EVENLY GRADED ROCK WITH 50% BY WEIGHT LARGER THAN THE SPECIFIED NOMINAL d_{50} ROCK SIZE. THE DIAMETER OF THE LARGEST ROCK SIZE SHOULD BE NO GREATER THAN 1.5 TIMES THE NOMINAL ROCK SIZE. SPECIFIC GRAVITY SHALL BE AT LEAST 2.5.
7. SEDIMENT BASIN DETAILS AND DIMENSIONS SHOWN PROVIDE ONE POSSIBLE METHOD OF ACHIEVE MINIMUM REQUIRED SEDIMENT BASIN VOLUMES.
8. NOMINAL ROCK SIZING, d_{50} , SHOWN IN SPILLWAY TABLE ARE RECOMMENDED ROCK SIZING BASED ON ARI 50 FLOW VELOCITY

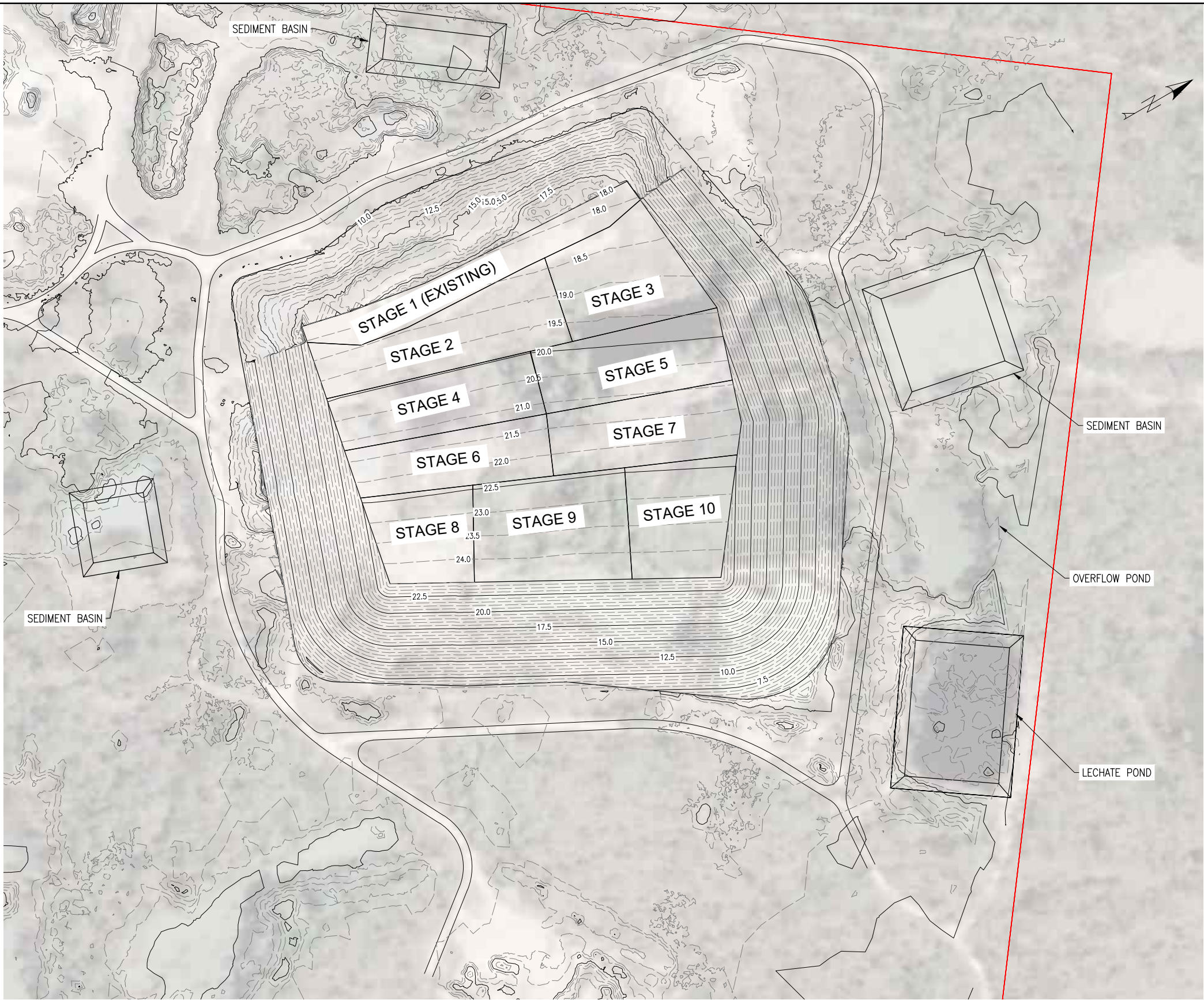
SEDIMENT BASIN MINIMUM DIMENSIONS

PARAMETER	BASIN 1	BASIN 2	BASIN 3
CATCHMENT (ha)	10.12	3.27	3.56
BATTER SLOPE (1 in x)	4	4	4
TOP WIDTH (m)	57.9	30.6	28.8
TOP LENGTH (m)	57.9	51.6	60.8
SETTLING ZONE DEPTH (m)	0.90	0.70	0.65
SEDIMENT STORAGE DEPTH (m)	0.6	0.70	0.65
BASIN DESIGN DEPTH (m)	1.5	1.4	1.3
FREEBOARD (m)	0.30	0.30	0.30
TOTAL DEPTH "D" (m)	1.80	1.70	1.60
BASIN VOLUME (m ³)	3,336	1,182	1,262

NOMINAL DIMENSIONS FOR SPILLWAY AND ROCK PROTECTION (Q50)

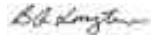
PARAMETER	BASIN 1	BASIN 2	BASIN 3
MIN. SPILLWAY BASE WIDTH (m) 'W'	3.50	2.50	2.50
MIN. SPILLWAY DEPTH (m) 'd'	0.30	0.30	0.30
NOMINAL ROCK SIZE (mm) ' d_{50} '	400	300	300

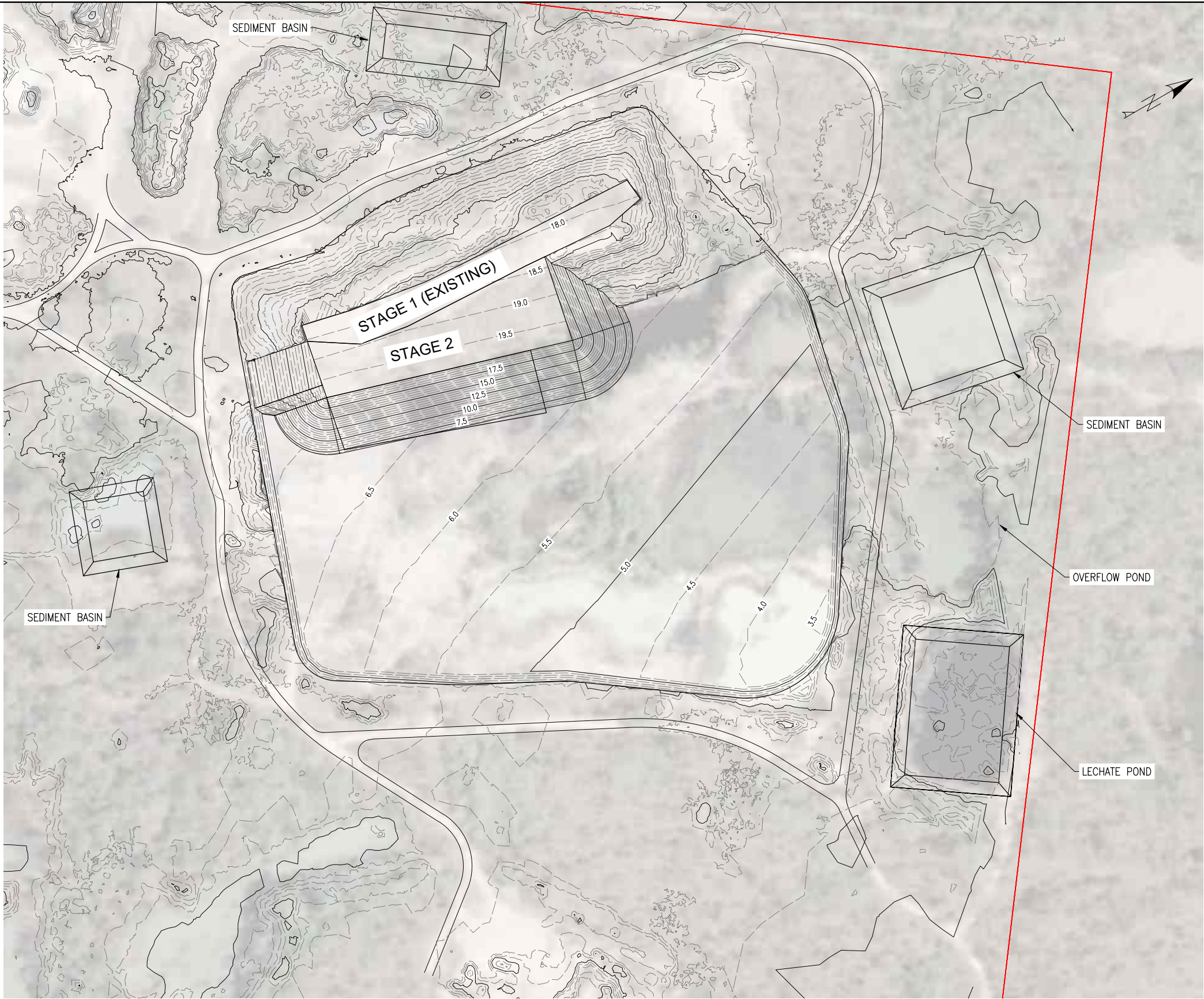
REVISIONS					HORIZ. DATUM	GDA2020 ZONE 55	CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932	 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD	SCALE	AS SHOWN
					VERT. DATUM	AHD				SHEET	SHEET 4 OF 17
	B	N.P	18/06/26	TITLE BLOCK AMENDMENTS	DRG. FILE		DATE			REVISION	B
	A	N.P	31/07/25	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			DRG No.	1343-SMP-004
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26		42386 BRUCE HIGHWAY, BLUEWATER LOT 1 on RP735647 SEDIMENT BASIN DETAILS		



- NOTES:**
1. STAGES BASE IS TO BE PROGRESSIVELY EXCAVATED AND/OR BUNDED AS REQUIRED TO PREVENT CLEAN WATER COMING INTO CONTACT WITH WASTE DISPOSAL AREA.
 2. FINAL EXTERNAL BATTERS TO BE 1:3.
 3. INTERNAL BATTERS BETWEEN STAGES TO BE 1:2.
 4. STAGES TO NOT BE GREATER THAN 1HA IN WORKING AREA BEFORE FINAL OR INTER-CELL CAPPING.

FINAL LAND FORMATION - STAGE 10
SCALE 1:500 (A1)

REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD				SCALE	1:500 (A1)
					VERT. DATUM					42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FINAL FORMATION - STAGE 10				SHEET	SHEET 5 OF 17
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DRG. FILE		DATE	REVISION						A	
	No.	BY	DATE	DESCRIPTION	DESIGN	N.P	18/06/26	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.				DRG No.	1343-SMP-005		
					DRAWN	N.P	18/06/26								



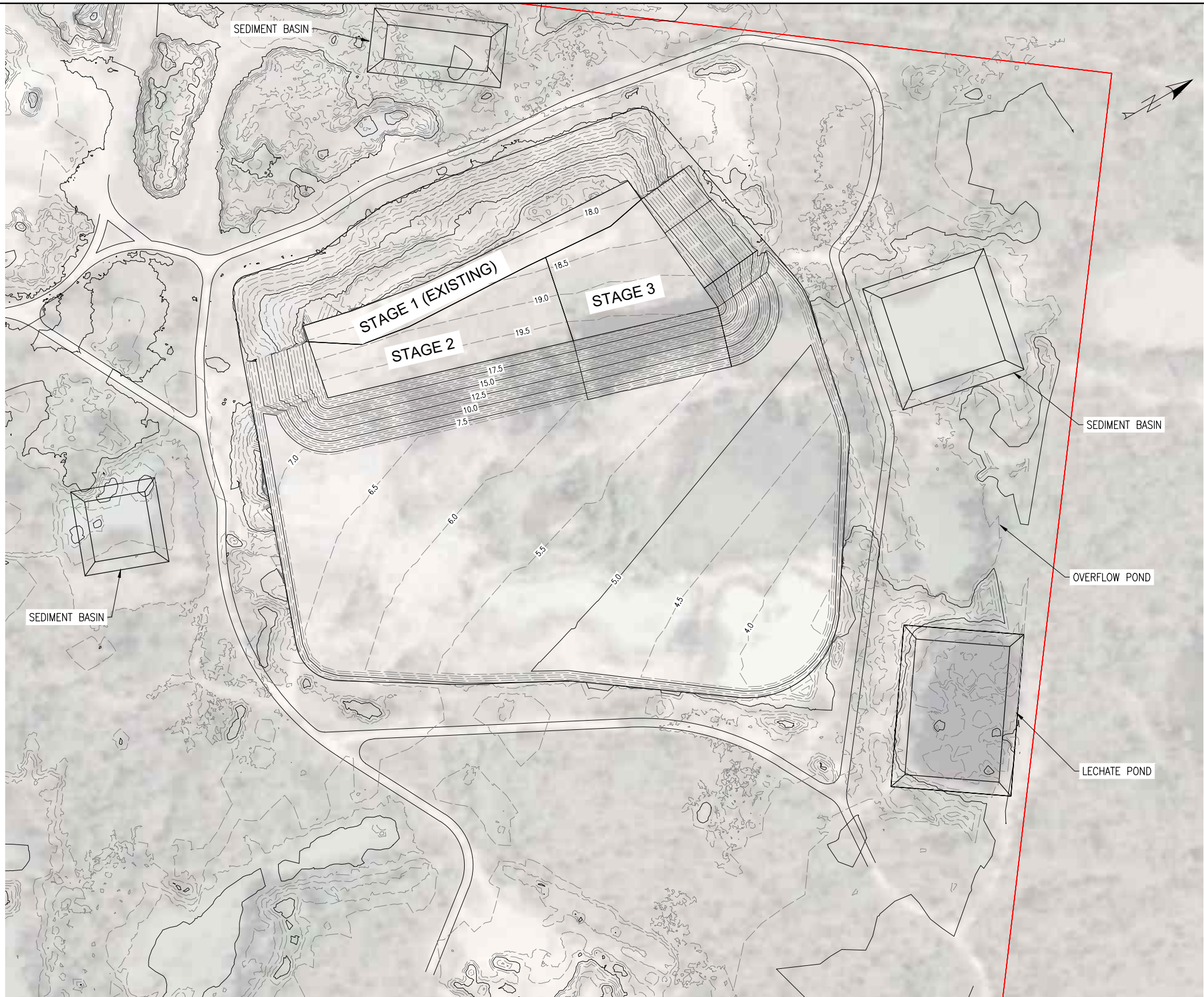
NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 2
SCALE 1:500 (A1)

REVISIONS					HORIZ. DATUM		CERTIFICATION		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD			SCALE	1:500 (A1)
					VERT. DATUM		BRETT LANGTREE MIEAust, NER, RPEQ 11932			42386 BRUCE HIGHWAY, BLUEWATER			SHEET	SHEET 6 OF 17
					DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.		LOT 1 ON RP735647			REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			PROPOSED FORMATION - STAGE 2			DRG No.	1343-SMP-006
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26							



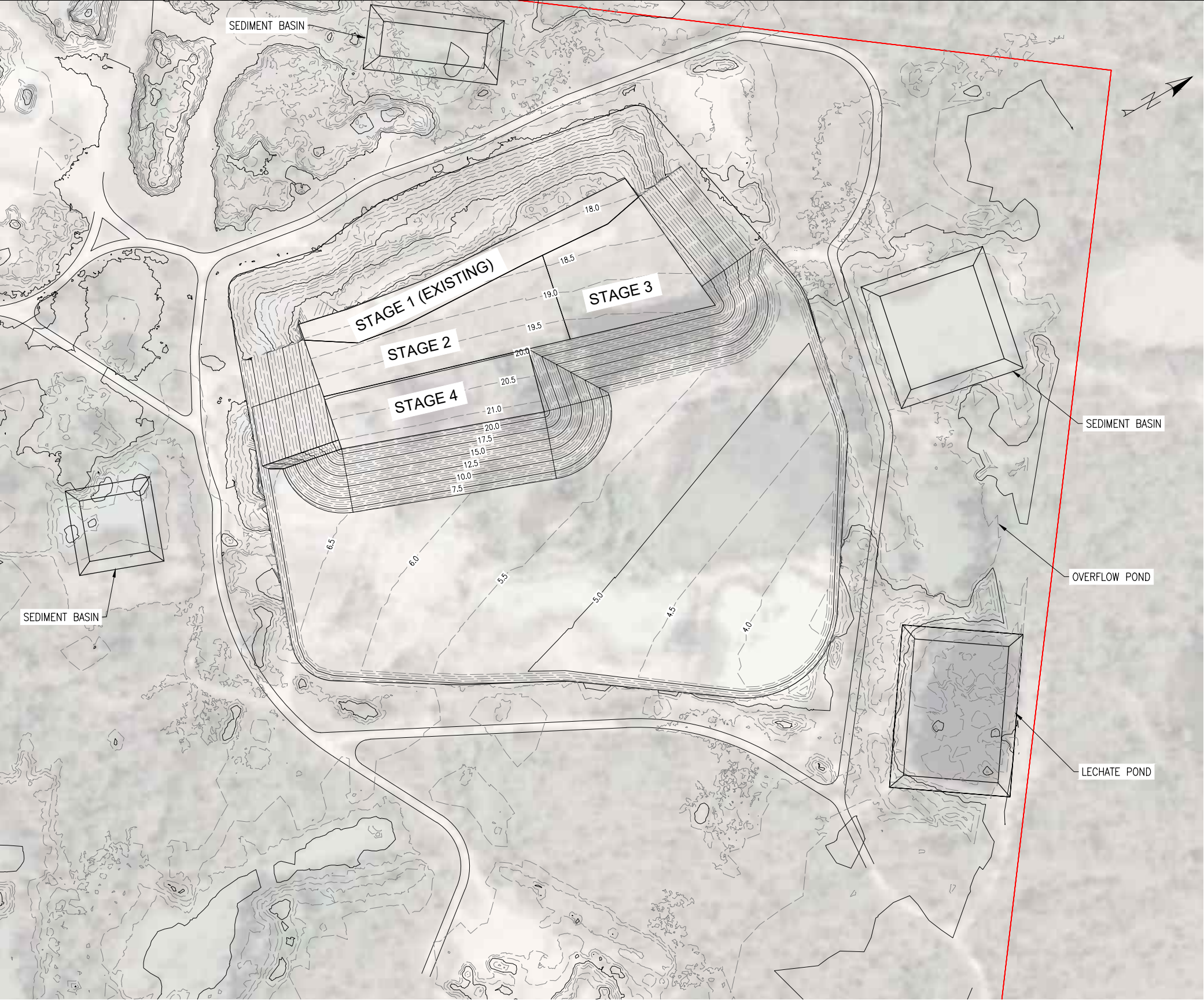
m 0400 699 979
e brett@langtreeconsulting.com.au



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 3
SCALE 1:500 (A1)

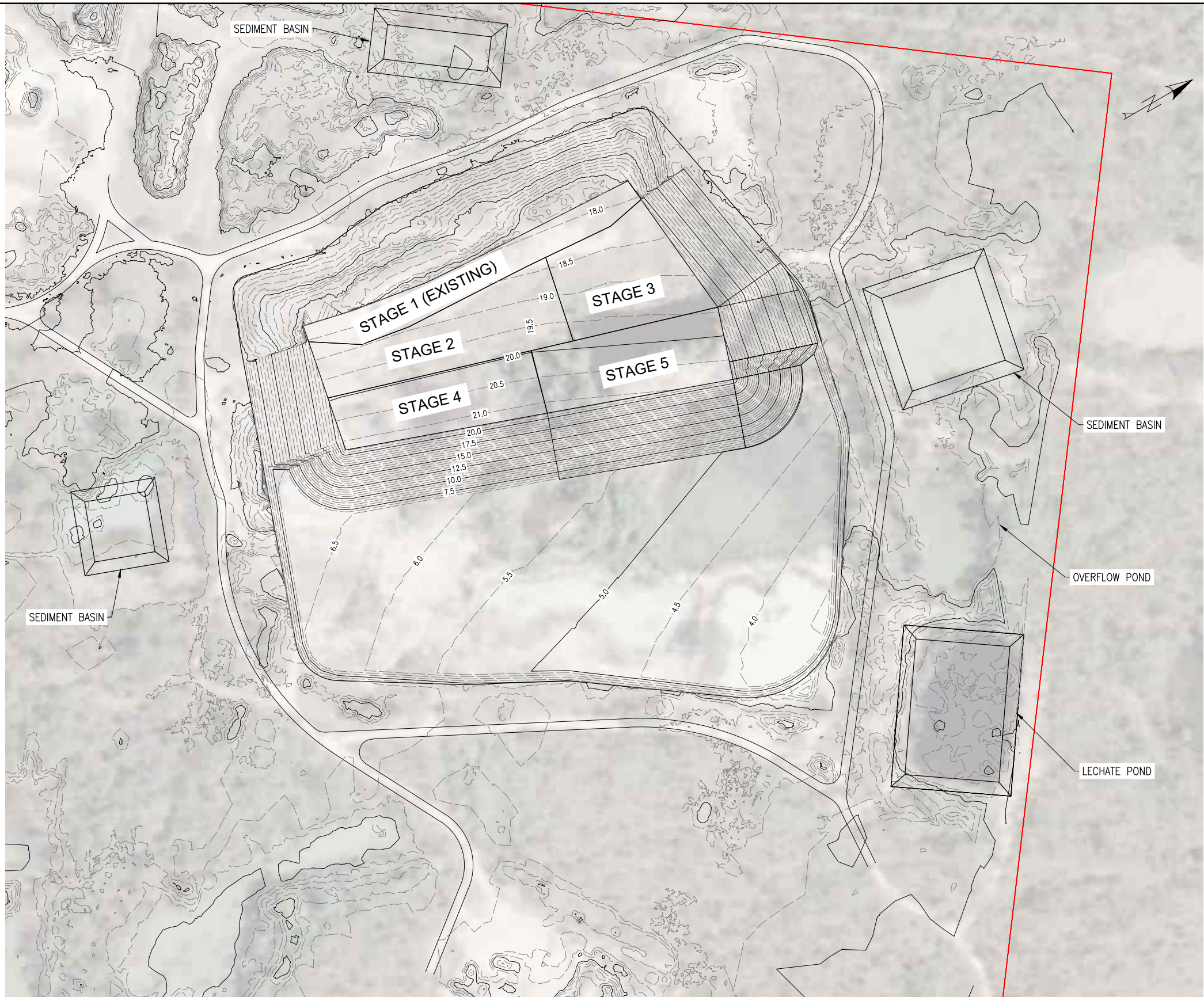
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932	 LANGTREE CONSULTING ENGINEERS m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD 42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FORMATION - STAGE 3	SCALE	1:500 (A1)
					VERT. DATUM					SHEET	SHEET 7 OF 17
					DRG. FILE					REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			DRG No.	1343-SMP-007
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26				



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 4
SCALE 1:500 (A1)

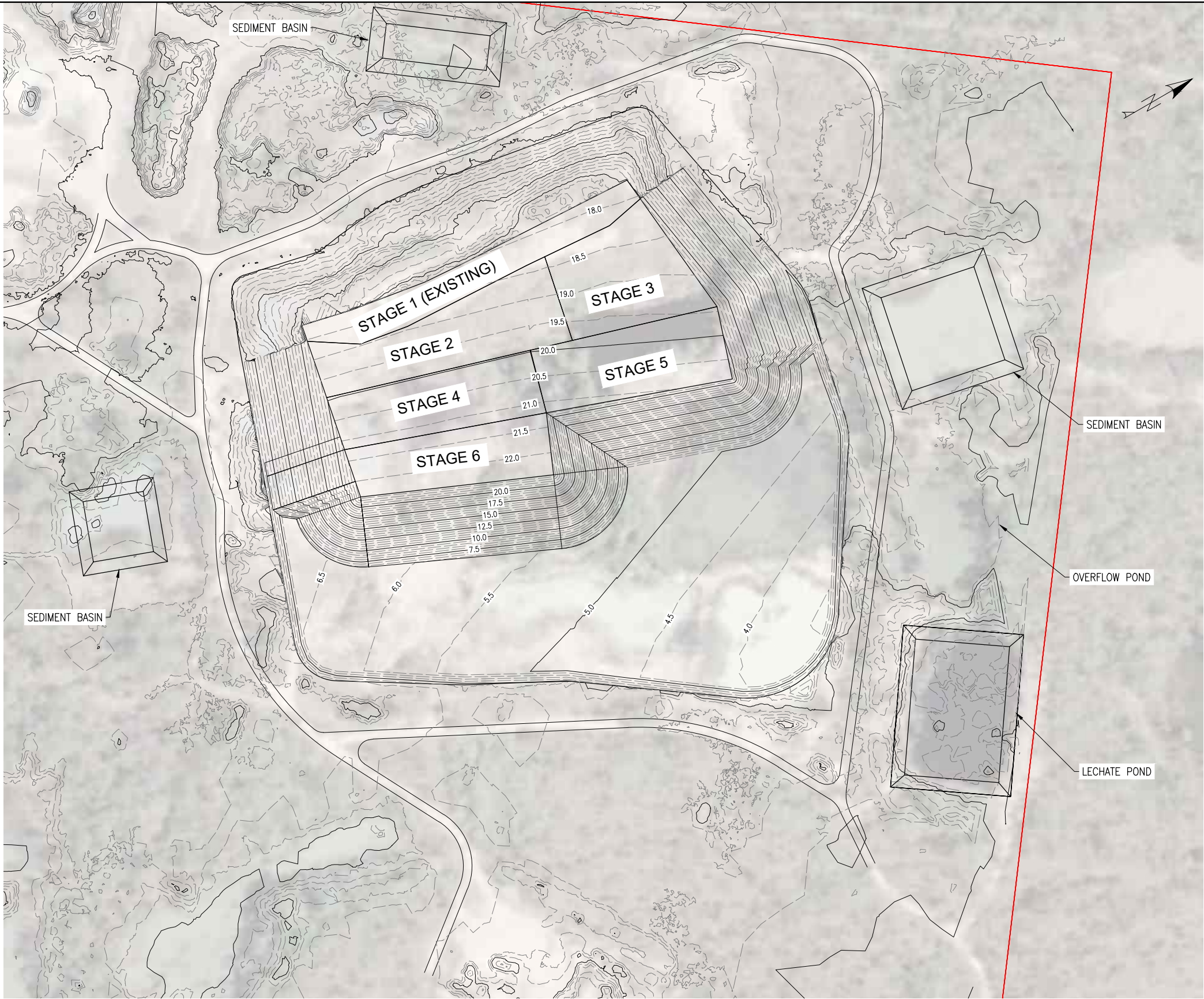
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932	 LANGTREE CONSULTING ENGINEERS m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD	SCALE	1:500 (A1)
					VERT. DATUM					SHEET	SHEET 8 OF 17
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DRG. FILE	DATE				REVISION	A
	No.	BY	DATE	DESCRIPTION	DESIGN	N.P	18/06/26		42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FORMATION -STAGE 4	DRG No.	1343-SMP-008
					DRAWN	N.P	18/06/26				



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 5
SCALE 1:500 (A1)

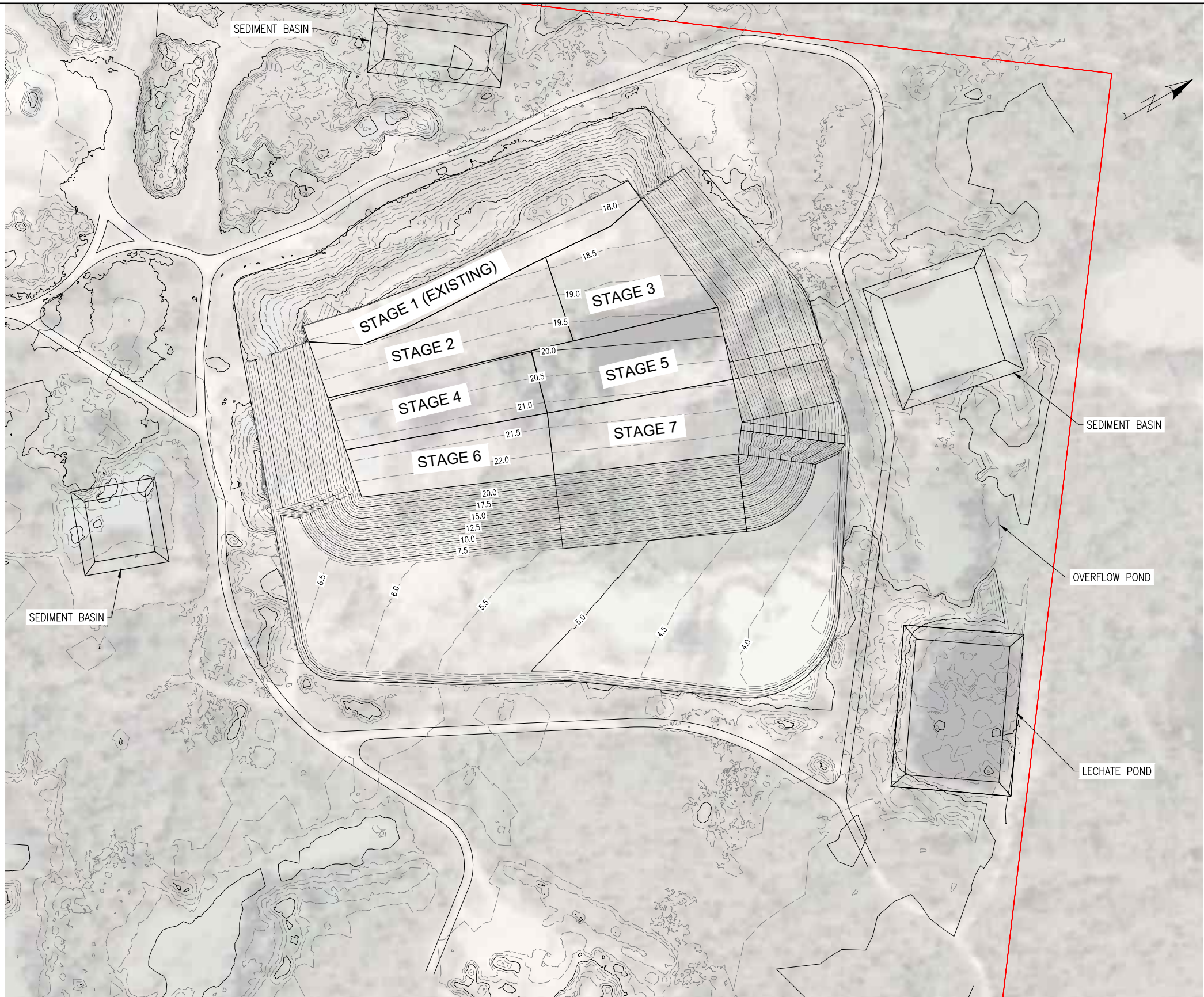
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD			SCALE	1:500 (A1)
					VERT. DATUM					42386 BRUCE HIGHWAY, BLUEWATER			SHEET	SHEET 9 OF 17
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DRG. FILE		DATE	LOT 1 ON RP735647			REVISION	A		
	No.	BY	DATE	DESCRIPTION	DESIGN	N.P	18/06/26	PROPOSED FORMATION - STAGE 5			DRG No.	1343-SMP-009		
					DRAWN	N.P	18/06/26							



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 6
SCALE 1:500 (A1)

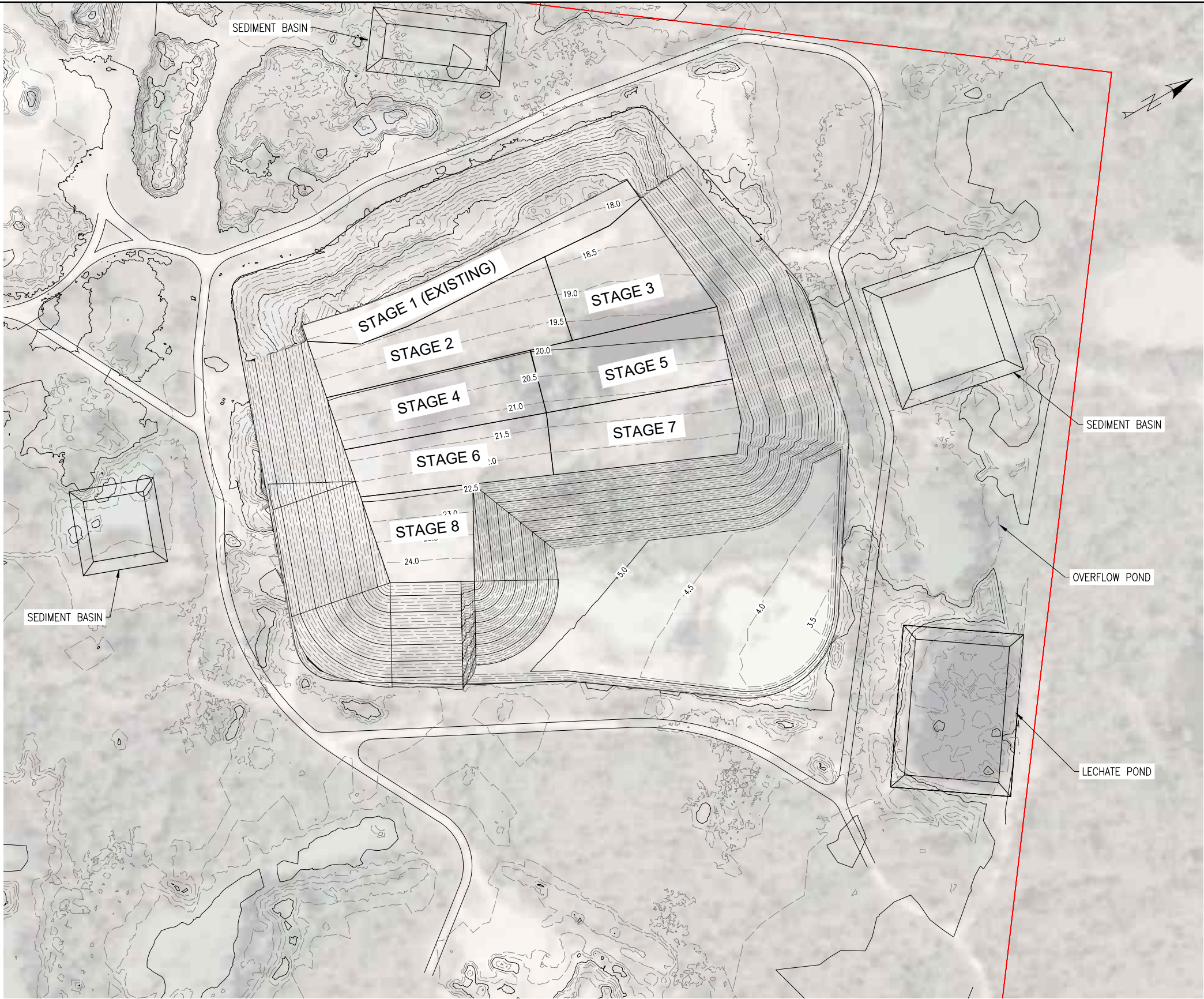
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932	 LANGTREE CONSULTING ENGINEERS m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD	SCALE	1:500 (A1)
					VERT. DATUM					SHEET	SHEET 10 OF 17
					DRG. FILE					REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26		42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FORMATION -STAGE 6	DRG No.	1343-SMP-010
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26				



NOTES:
1. REFER TO SK05 FOR NOTES.

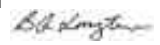
STAGE 7
SCALE 1:500 (A1)

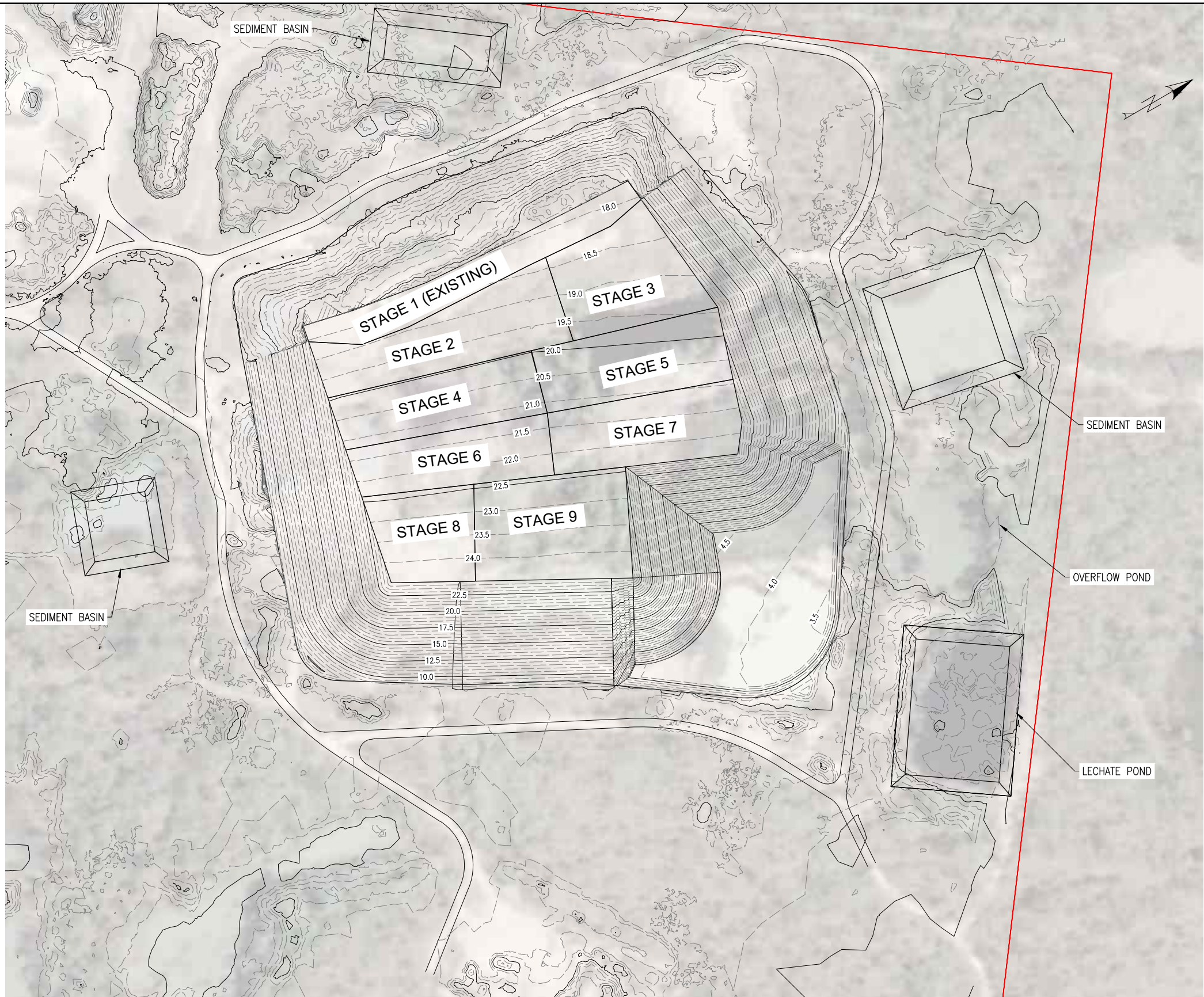
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD				SCALE	1:500 (A1)
					VERT. DATUM					42386 BRUCE HIGHWAY, BLUEWATER				SHEET	SHEET 11 OF 17
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DRG. FILE		DATE	LOT 1 ON RP735647				REVISION	A		
	No.	BY	DATE	DESCRIPTION	DESIGN	N.P	18/06/26	PROPOSED FORMATION - STAGE 7				DRG No.	1343-SMP-011		
					DRAWN	N.P	18/06/26								



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 8
SCALE 1:500 (A1)

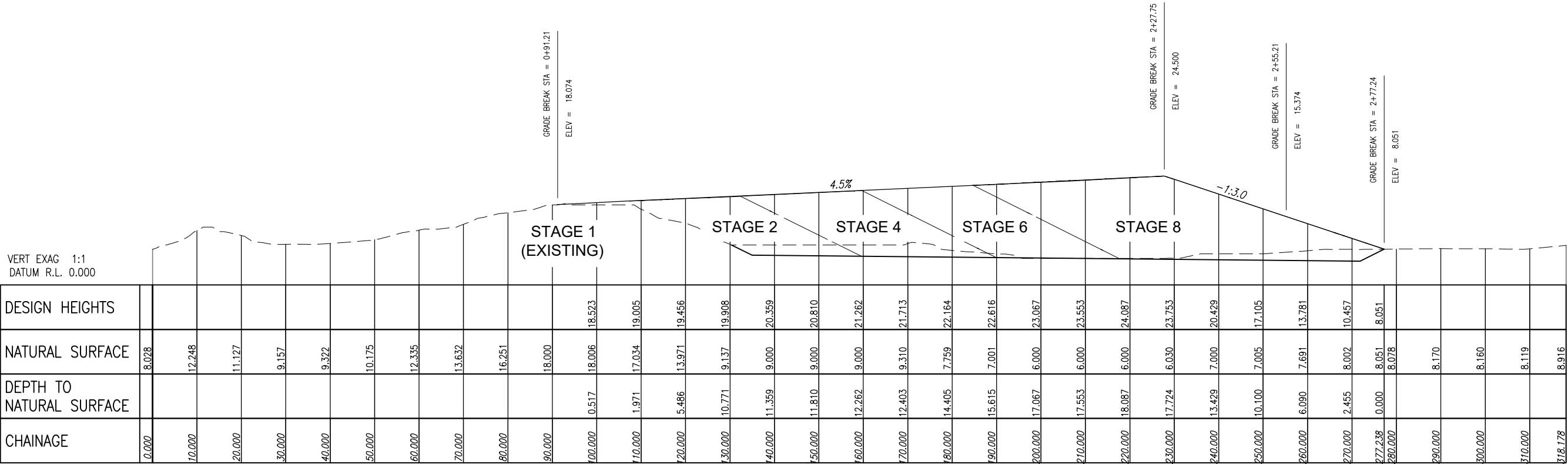
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD			SCALE	1:500 (A1)				
					VERT. DATUM								SHEET		SHEET 12 OF 17			
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.		42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FORMATION - STAGE 8			REVISION	A				
	No.	BY	DATE	DESCRIPTION	DESIGN	N.P	18/06/26						DRG No.			1343-SMP-012		
					DRAWN	N.P	18/06/26											

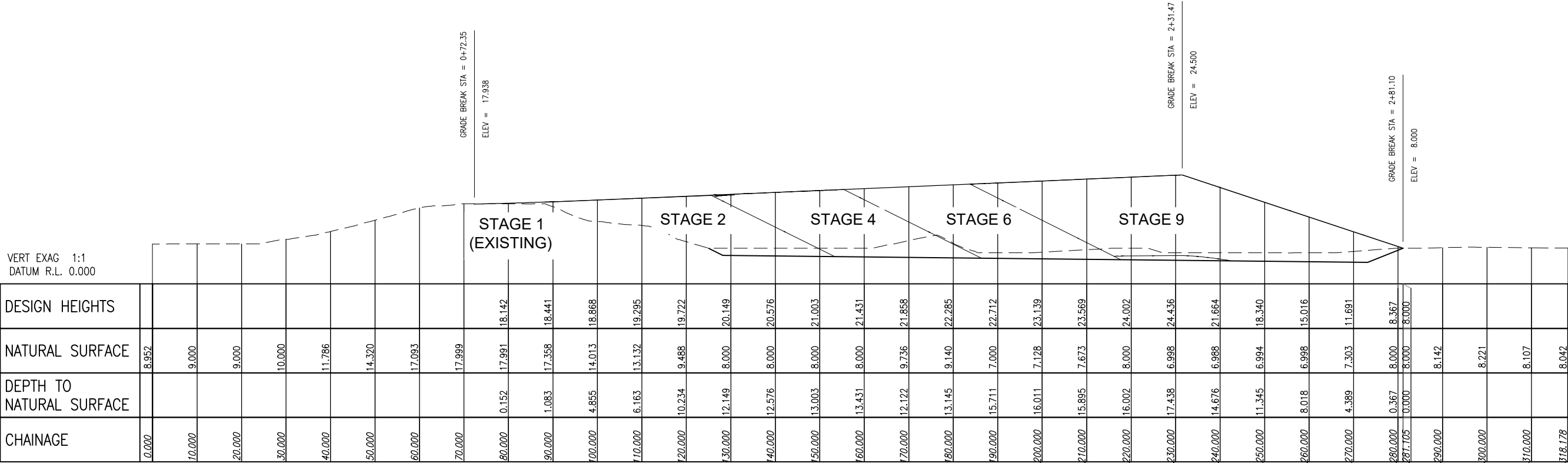


NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 9
SCALE 1:500 (A1)

REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932	 LANGTREE CONSULTING ENGINEERS	ABSOLUTE WASTE PTY LTD 42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FORMATION - STAGE 9	SCALE	1:500 (A1)
					VERT. DATUM					SHEET	SHEET 13 OF 17
					DRG. FILE					REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			DRG No.	1343-SMP-013
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26				

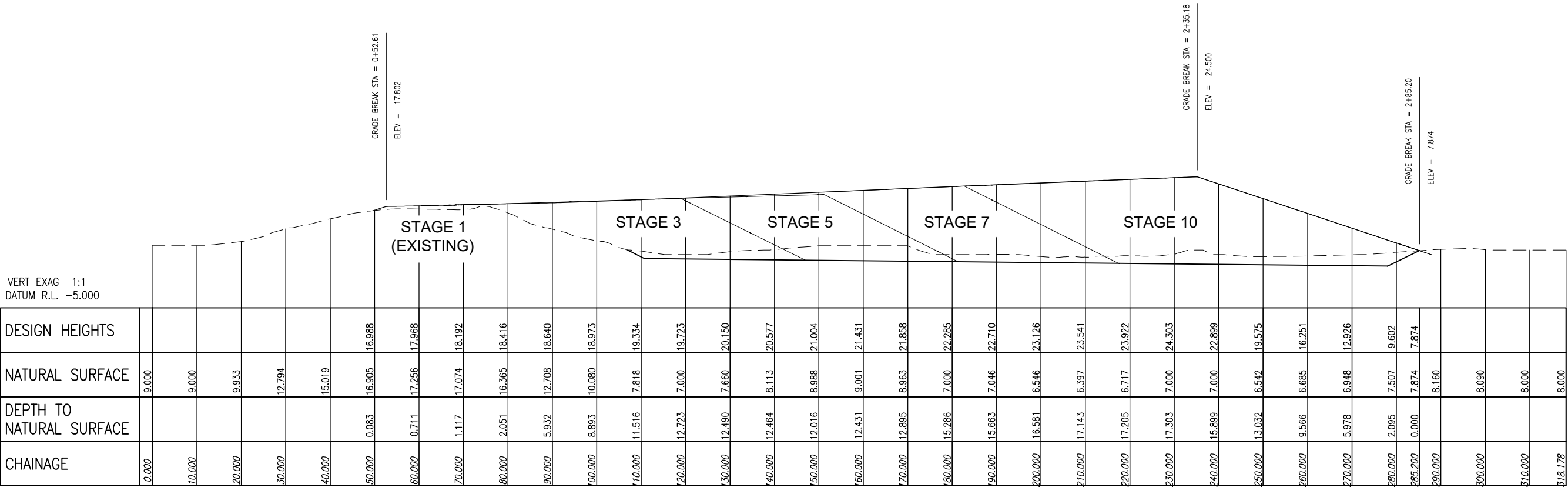




ALIGNMENT - (2) LONG SECTION

SECTION B
SCALE 1:500 (A1)

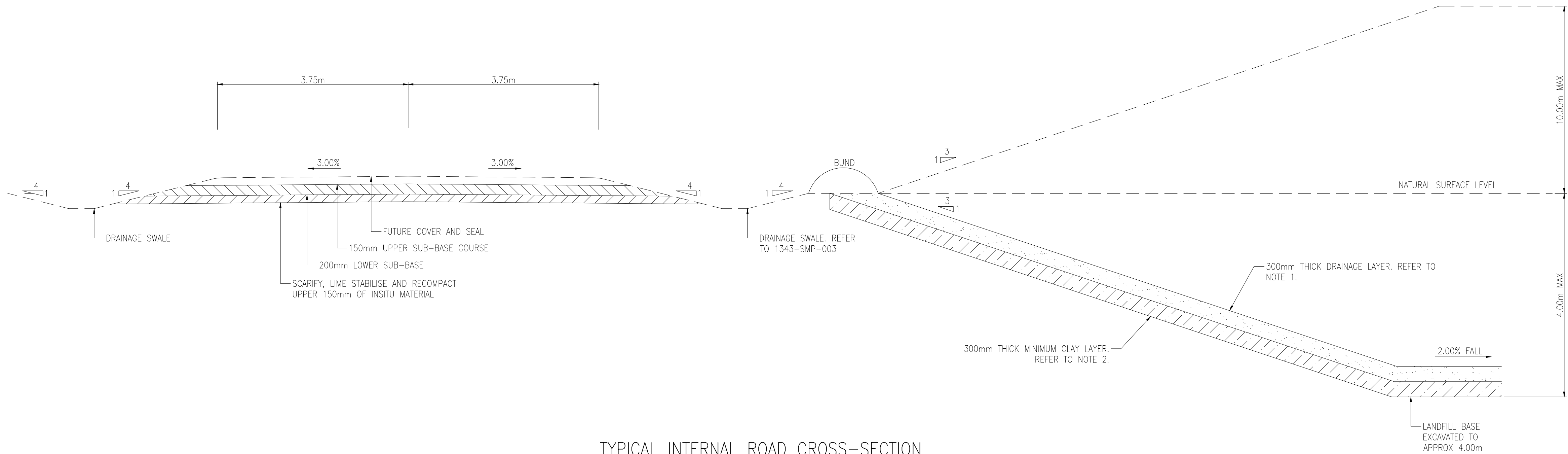
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932	 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD 42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FINAL FORMATION - SECTION B	SCALE	1:500 (A1)
					VERT. DATUM					SHEET	SHEET 15 OF 17
					DRG. FILE					REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			DRG No.	1343-SMP-015
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26				



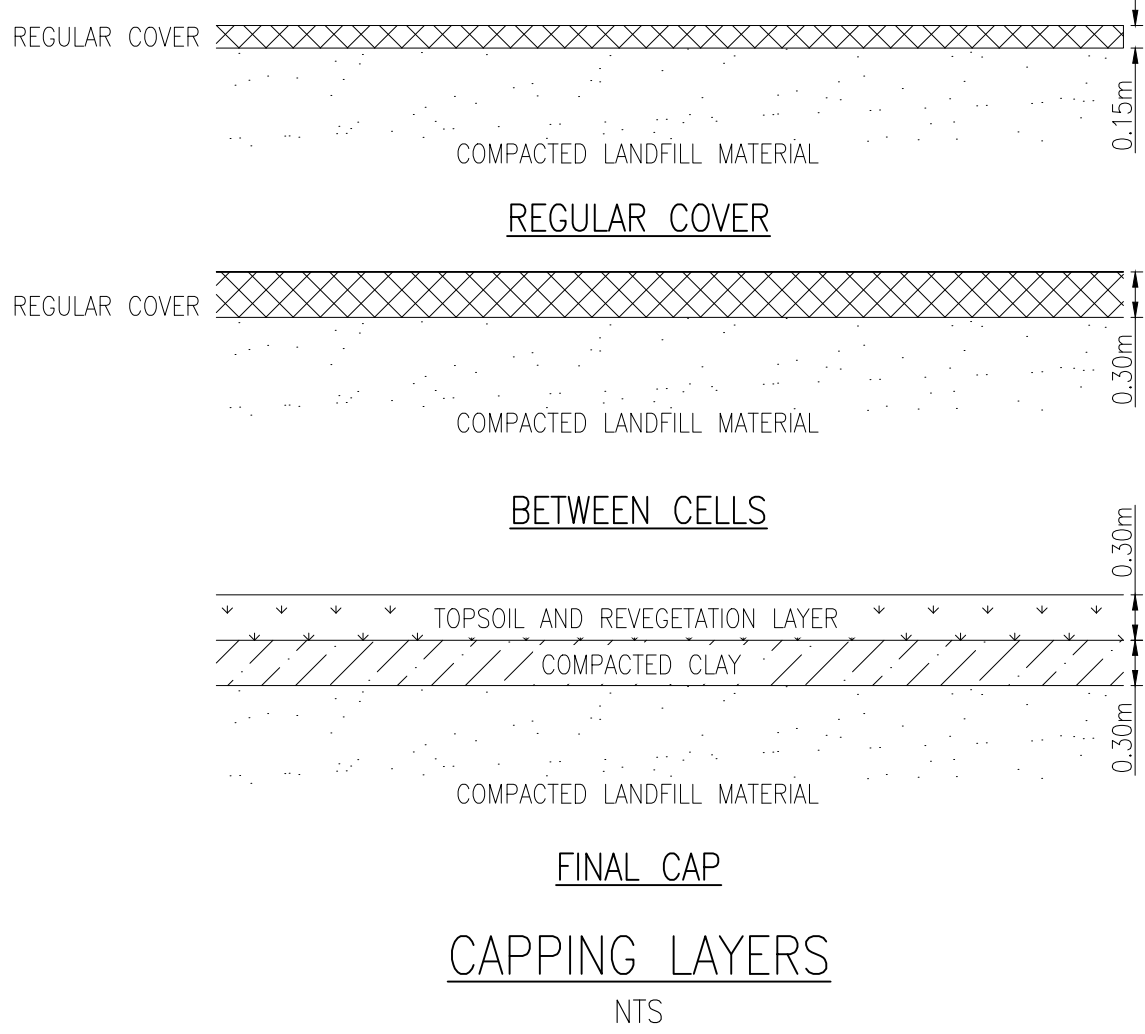
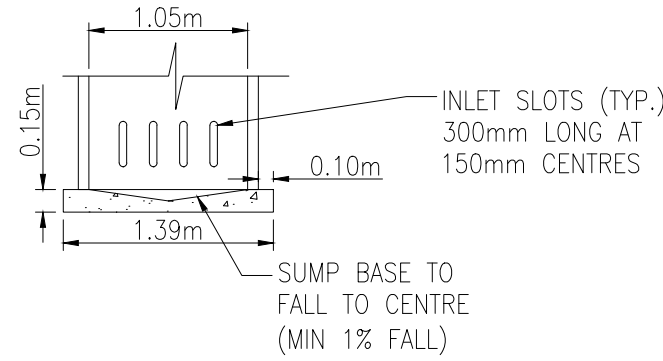
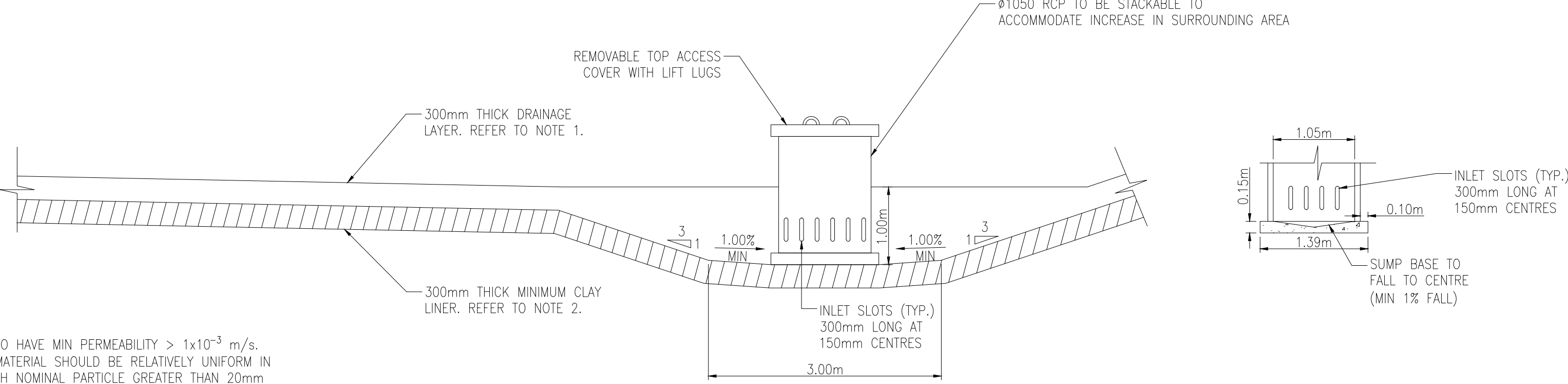
ALIGNMENT - (3) LONG SECTION

SECTION C
SCALE 1:500 (A1)

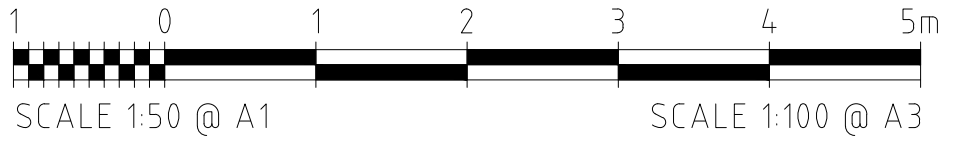
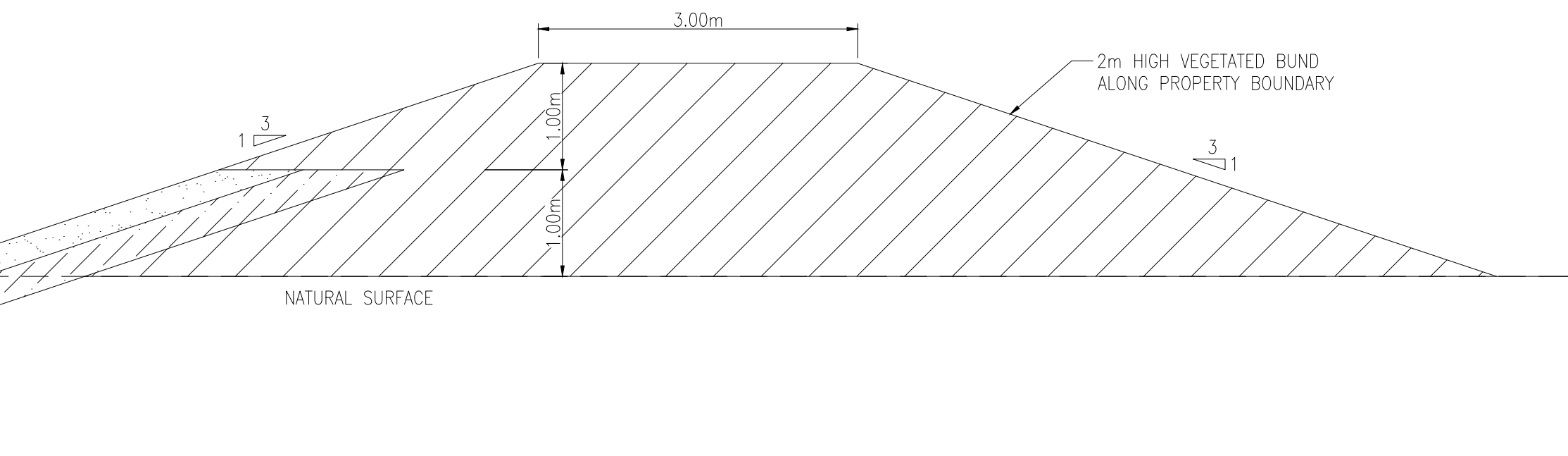
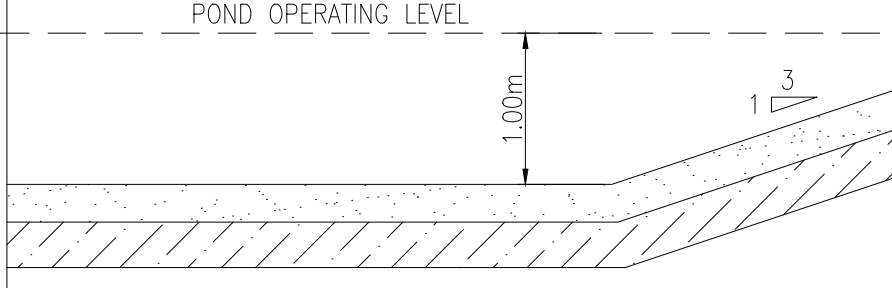
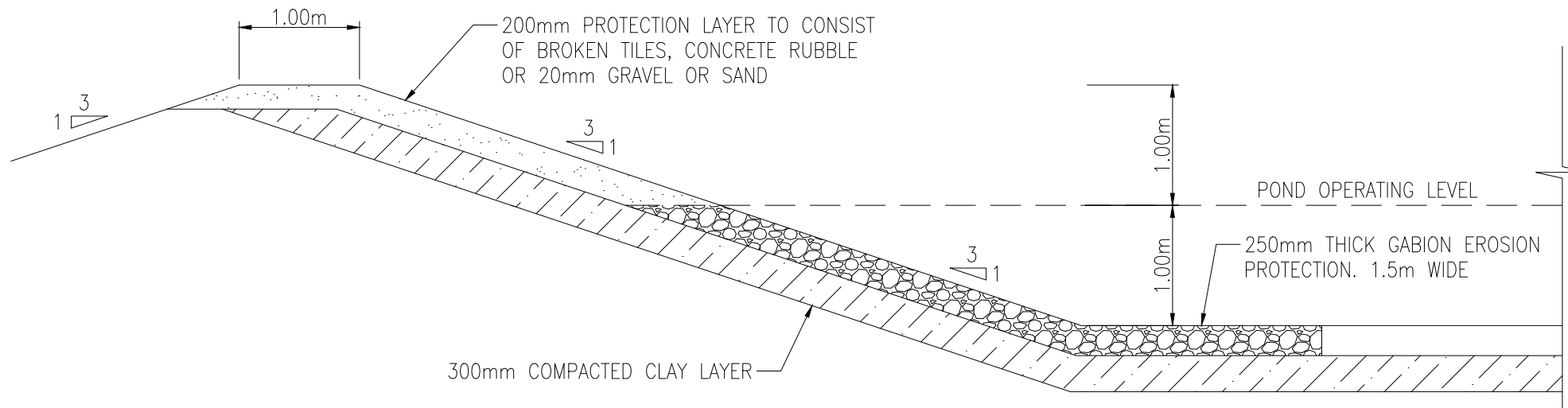
REVISIONS					HORIZ. DATUM		CERTIFICATION		 m e 0400 699 979 brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD		SCALE	1:500 (A1)
					VERT. DATUM		BRETT LANGTREE MIEAust, NER, RPEQ 11932			42386 BRUCE HIGHWAY, BLUEWATER		SHEET	SHEET 16 OF 17
					DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.		LOT 1 ON RP735647		REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			PROPOSED FINAL FORMATION - SECTION C		DRG No.	1343-SMP-016
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26						

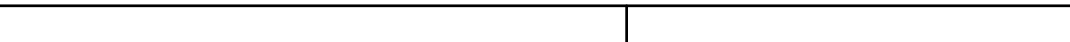


TYPICAL INTERNAL ROAD CROSS-SECTION
AND CELL WALL & LINING
SCALE 1:50



- NOTES:
1. DRAINAGE LAYER TO HAVE MIN PERMEABILITY $> 1 \times 10^{-3}$ m/s. DRAINAGE LAYER MATERIAL SHOULD BE RELATIVELY UNIFORM IN PARTICLE SIZE WITH NOMINAL PARTICLE GREATER THAN 20mm AND MAX 40mm. NOT MORE THAN 10% OF PARTICLES SMALLER THAN 20mm IN DIAMETER AND NOT MORE THAN 3% SMALLER THAN 0.075mm.
 2. CLAY LINER TO BE COMPACTED TO 97% MDD. PERMEABILITY TO BE $K=1 \times 10^{-9}$ m/s OR LESS.



REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932		 m e 0400 699 979 brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD		SCALE	1:500 (A1)
					VERT. DATUM							SHEET	SHEET 17 OF 17
					DRG. FILE		DATE	COPYRIGHT (C)		42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FINAL FORMATION - STAGE 10	REVISION	A	
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26	These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purposes for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.			DRG No.	1343-SMP-017	
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26						

APPENDIX B

STORMWATER ASSESMENT

42386 Bruce Highway, Bluewater

Hydrologic & Hydraulic Assessment

Hydrology Assessment - Time of Concentration, t_c

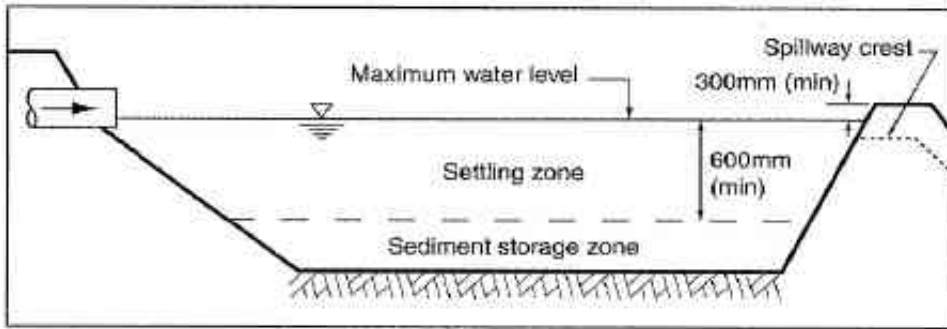
Structure Type	Location ID	Catchment Area	Time of Concentration		
			Bransby Williams Eqt.		
			Flow Path	Slope	t_c
		(ha)	km	(%)	(min)
Spillway SB1	SB1	10.12	0.680	0.05	57.0
Spillway SB2	SB2	3.28	0.537	0.05	50.4
Spillway SB3	SB3	3.56	0.250	0.05	23.3
Diversion Channel 1	DC1	5.70	0.680	0.05	60.3
Diversion Channel 2	DC2	2.78	0.323	0.05	30.8
Diversion Channel 3	DC3	1.69	0.217	0.05	21.7
Diversion Channel 4	DC4	3.68	0.560	0.05	51.9

Hydrology Assessment - Design Flow, Q

Structure Type	Location ID	Design Flow								
		Design ARI	t_c	Rainfall	I_{10}	Fraction	Frequency	C_{10}	C_y	Flow Rate
		y	(min)	(mm/hr)	(mm/hr)					(m ³ /s)
Spillway SB1	SB	50	57.0	110.0	78.86	1	1.15	0.90	1.00	3.096
Spillway SB2	SB	50	50.4	110.0	78.86	1	1.15	0.90	1.00	1.003
Spillway SB3	SB	50	23.3	110.0	78.86	1	1.15	0.90	1.00	1.089
Diversion Channel 1	DC1	5	60.3	76.6	78.86	1	0.95	0.70	0.67	0.807
Diversion Channel 2	DC2	5	30.8	111.0	78.86	1	0.95	0.70	0.67	0.571
Diversion Channel 3	DC3	5	21.7	69.4	78.86	1	0.95	0.70	0.67	0.217
Diversion Channel 4	DC4	5	51.9	97.8	78.86	0	0.95	0.70	0.67	0.666

42386 Bruce Highway, Bluewater

Sediment Basin Design



INPUT

Catchment (SB1)

1) Proposed Sediment Basin Dimensions

Parameter	Value	Comments
Basin Type	D	To be confirmed upon receive of geotechnical results
Catchment (ha)	10.12	
Batter Slope (1 on x)	4	Assumed batter slope
Top Length (m)	57.9	IECA Min. desirable length to width ratio 3:1 or install baffles
Bottom Width (m)	43.5	Assumed dimension
Bottom Length (m)	43.5	
Design Water Depth (m)	1.50	
Freeboard (m)	0.3	IECA minimum freeboard;
Total Basin Depth (m)	1.80	Overall depth including freeboard

2) Settling Zone & Sediment Storage Zone

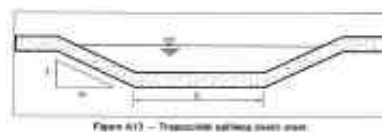
Parameter	Units	Value	Comments
Batter slope	m/m	0.250	
Volumetric runoff coefficient, C_v	-	1.00	Assumed worse case compacted clay
Catchment area, A	ha	10.12	
Constant, K_1	-	17	IECA Appendix B - Table B4 (2008)
Constant, K_2	-	11.2	$y\% = 80\%$ - Basins with a design life >6 months
Average rainfall intensity, $I_{(10yr,24hr)}$	mm/hr	12.05	Refer IFD
Rainfall depth, $R_{(y\%,1-day)}$	-	216.0	$R = K_1 \cdot I_{(10yr,24hr)} + K_2$
Settling volume, V_s	m ³	2186	DETSI Stormwater and environmentally relevant activities $V_s = R \cdot C_v \cdot A$
Sediment storage volume	m ³	1093	DETSI Stormwater and environmentally relevant activities, IECA Table B8 - 50% of settling volume
Total Sediment Basin Volume required	m ³	3279	

3) Proposed Sediment Basin Dimension Checks

Parameter	Units	Value	Comments
Basin Design Depth	m	1.50	
Top Width	m	55.5	
Top Length	m	55.5	
Bottom Width	m	43.5	
Bottom Length	m	43.5	
Proposed Sediment Basin Volume	m ³	3336	OK: Equal or greater than total volume required

4) Proposed Settling Zone volume and depth

Parameter	Units	Value	Comments
Proposed Settling Depth	m	0.9	Iterate
Top Width	m	55.5	
Top Length	m	55.5	
Bottom Width	m	48.3	
Bottom Length	m	48.3	
Proposed Settling Volume	m ³	2291	OK: Equal or greater than Settling Volume required



5) Trapezoidal Spillway Wier Crest

Parameter	Units	Value	Comments
ARI 50 Flow	m ³ /s	3.10	
Water Depth	m	0.19	Water depth at ARI 50 flow
Spillway Slope (1 on x)	m	4	
Spillway Base Width	m	3.5	
Flow (Q)	m ³ /s	2.10	WARNING: Lesser than ARI 50 Flow

6) Minimum Sediment Basin Sizing

Batter Slope (1 on x)	4	
Basin Top of Bank Width	57.90	m
Basin Top of Bank Length	57.90	m
Settling Zone Depth	0.90	m
Sediment Storage Depth	0.60	m
Basin Design Depth	1.50	m
Freeboard	0.30	m
Overall Basin Depth incl. freeboard	1.80	m
Sediment Basin Storage Capacity	3336	m³

7) Rock Size

SF	1.50	
k ₁	1	
k ₂	1.05	
S _O	0.263	m/m
q	0.885	m ³ /s/m
Sr	2.600	
d ₅₀	0.486	m
Adopted d ₅₀	400	mm
Minimum thickness	0.777	m

Safety Factor (high risk)
 Correction factor for rock grading (angular)
 Correction factor for rock grading (well graded)
 Bed slope
 flow per unit width
 Specific gravity of rock (granite)
 Mean Rock size of which 50% are smaller
 Adopted d₅₀
 Size distribution d50/d90 = 0.8

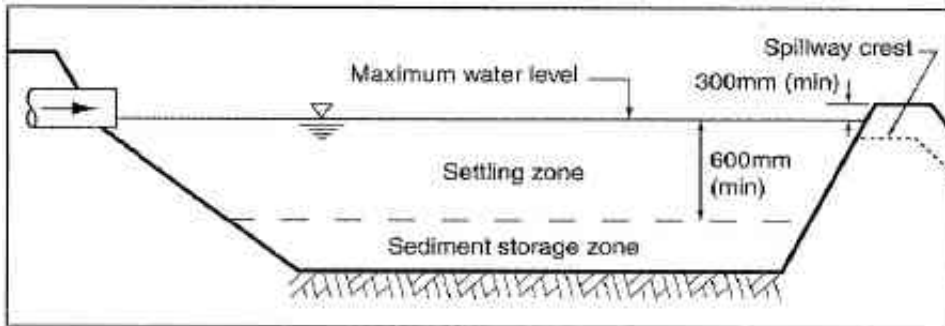
8) Dissapator Length

Min. length of dissipator	3.86	m
Recess depth	0.414	m

Catchment and Creeks, Energy Dissipators, Table 1 - Energy Dissipators
 Catchment and Creeks, Energy Dissipators, Table 2

42386 Bruce Highway, Bluewater

Sediment Basin Design



INPUT

Catchment (SB1)

1) Proposed Sediment Basin Dimensions

Parameter	Value	Comments
Basin Type	D	To be confirmed upon receive of geotechnical results
Catchment (ha)	3.28	
Batter Slope (1 on x)	4	Assumed batter slope
Top Length (m)	51.6	IECA Min. desirable length to width ratio 3:1 or install baffles
Bottom Width (m)	17	Assumed dimension
Bottom Length (m)	38	
Design Water Depth (m)	1.40	
Freeboard (m)	0.3	IECA minimum freeboard;
Total Basin Depth (m)	1.70	Overall depth including freeboard

2) Settling Zone & Sediment Storage Zone

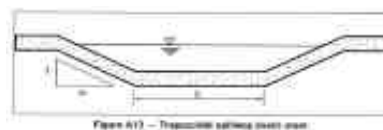
Parameter	Units	Value	Comments
Batter slope	m/m	0.250	
Volumetric runoff coefficient, C_v	-	1.00	Assumed worse case compacted clay
Catchment area, A	ha	3.28	
Constant, K_1	-	17	IECA Appendix B - Table B4 (2008)
Constant, K_2	-	11.2	$y\% = 80\%$ - Basins with a design life >6 months
Average rainfall intensity, $I_{(10yr,24hr)}$	mm/hr	12.05	Refer IFD
Rainfall depth, $R_{(y\%,1-day)}$	-	216.0	$R = K_1 \cdot I_{(10yr,24hr)} + K_2$
Settling volume, V_s	m ³	708	DETSI Stormwater and environmentally relevant activities $V_s = R \cdot C_v \cdot A$
Sediment storage volume	m ³	354	DETSI Stormwater and environmentally relevant activities, IECA Table B8 - 50% of settling volume
Total Sediment Basin Volume required	m ³	1063	

3) Proposed Sediment Basin Dimension Checks

Parameter	Units	Value	Comments
Basin Design Depth	m	1.40	
Top Width	m	28.2	
Top Length	m	49.2	
Bottom Width	m	17	
Bottom Length	m	38	
Proposed Sediment Basin Volume	m ³	1182	OK: Equal or greater than total volume required

4) Proposed Settling Zone volume and depth

Parameter	Units	Value	Comments
Proposed Settling Depth	m	0.7	Iterate
Top Width	m	28.2	
Top Length	m	49.2	
Bottom Width	m	22.6	
Bottom Length	m	43.6	
Proposed Settling Volume	m ³	767	OK: Equal or greater than Settling Volume required



5) Trapezoidal Spillway Wier Crest

Parameter	Units	Value	Comments
ARI 50 Flow	m ³ /s	1.00	
Water Depth	m	0.15	Water depth at ARI 50 flow
Spillway Slope (1 on x)	m	4	
Spillway Base Width	m	2.5	
Flow (Q)	m ³ /s	1.01	OK: Equal or greater than ARI 50 Flow

6) Minimum Sediment Basin Sizing

Batter Slope (1 on x)	4	
Basin Top of Bank Width	30.60	m
Basin Top of Bank Length	51.60	m
Settling Zone Depth	0.70	m
Sediment Storage Depth	0.70	m
Basin Design Depth	1.40	m
Freeboard	0.30	m
Overall Basin Depth incl. freeboard	1.70	m
Sediment Basin Storage Capacity	1182	m ³

7) Rock Size

SF	1.50	
k ₁	1	
k ₂	1.05	
S _O	0.263	m/m
q	0.401	m ³ /s/m
Sr	2.600	
d ₅₀	0.293	m
Adopted d ₅₀	300	mm
Minimum thickness	0.469	m

Safety Factor (high risk)
 Correction factor for rock grading (angular)
 Correction factor for rock grading (well graded)
 Bed slope
 flow per unit width
 Specific gravity of rock (granite)
 Mean Rock size of which 50% are smaller
 Adopted d₅₀
 Size distribution d50/d90 = 0.8

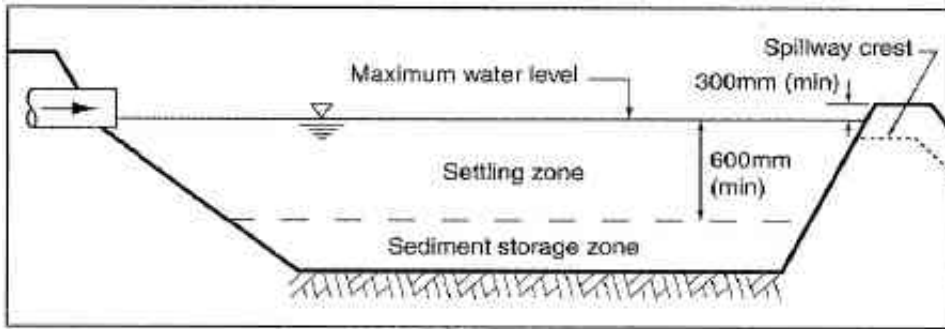
8) Dissapator Length

Min. length of dissipator	3.86	m
Recess depth	0.414	m

Catchment and Creeks, Energy Dissipators, Table 1 - Energy Dissipators
 Catchment and Creeks, Energy Dissipators, Table 2

42386 Bruce Highway, Bluewater

Sediment Basin Design



INPUT

Catchment (SB1)

1) Proposed Sediment Basin Dimensions

Parameter	Value	Comments
Basin Type	D	To be confirmed upon receive of geotechnical results
Catchment (ha)	3.56	
Batter Slope (1 on x)	4	Assumed batter slope
Top Length (m)	60.8	IECA Min. desirable length to width ratio 3:1 or install baffles
Bottom Width (m)	16	Assumed dimension
Bottom Length (m)	48	
Design Water Depth (m)	1.30	
Freeboard (m)	0.3	IECA minimum freeboard;
Total Basin Depth (m)	1.60	Overall depth including freeboard

2) Settling Zone & Sediment Storage Zone

Parameter	Units	Value	Comments
Batter slope	m/m	0.250	
Volumetric runoff coefficient, C_v	-	1.00	Assumed worse case compacted clay
Catchment area, A	ha	3.56	
Constant, K_1	-	17	IECA Appendix B - Table B4 (2008)
Constant, K_2	-	11.2	$y\% = 80\%$ - Basins with a design life >6 months
Average rainfall intensity, $I_{(10yr,24hr)}$	mm/hr	12.05	Refer IFD
Rainfall depth, $R_{(y\%,1-day)}$	-	216.0	$R = K_1 \cdot I_{(10yr,24hr)} + K_2$
Settling volume, V_s	m ³	769	DETSI Stormwater and environmentally relevant activities $V_s = R \cdot C_v \cdot A$
Sediment storage volume	m ³	384	DETSI Stormwater and environmentally relevant activities, IECA Table B8 - 50% of settling volume
Total Sediment Basin Volume required	m ³	1153	

3) Proposed Sediment Basin Dimension Checks

Parameter	Units	Value	Comments
Basin Design Depth	m	1.30	
Top Width	m	26.4	
Top Length	m	58.4	
Bottom Width	m	16	
Bottom Length	m	48	
Proposed Sediment Basin Volume	m ³	1262	OK: Equal or greater than total volume required

4) Proposed Settling Zone volume and depth

Parameter	Units	Value	Comments
Proposed Settling Depth	m	0.65	Iterate
Top Width	m	26.4	
Top Length	m	58.4	
Bottom Width	m	21.2	
Bottom Length	m	53.2	
Proposed Settling Volume	m ³	805	OK: Equal or greater than Settling Volume required



5) Trapezoidal Spillway Wier Crest

Parameter	Units	Value	Comments
ARI 50 Flow	m ³ /s	1.09	
Water Depth	m	0.16	Water depth at ARI 50 flow
Spillway Slope (1 on m)	m	4	
Spillway Base Width	m	2.5	
Flow (Q)	m ³ /s	1.14	OK: Equal or greater than ARI 50 Flow

6) Minimum Sediment Basin Sizing

Batter Slope (1 on x)	4	
Basin Top of Bank Width	28.80	m
Basin Top of Bank Length	60.80	m
Settling Zone Depth	0.65	m
Sediment Storage Depth	0.65	m
Basin Design Depth	1.30	m
Freeboard	0.30	m
Overall Basin Depth incl. freeboard	1.60	m
Sediment Basin Storage Capacity	1262	m ³

7) Rock Size

SF	1.50	
k ₁	1	
k ₂	1.05	
S _O	0.263	m/m
q	0.436	m ³ /s/m
Sr	2.600	
d ₅₀	0.309	m
Adopted d ₅₀	300	mm
Minimum thickness	0.494	m

Safety Factor (high risk)
 Correction factor for rock grading (angular)
 Correction factor for rock grading (well graded)
 Bed slope
 flow per unit width
 Specific gravity of rock (granite)
 Mean Rock size of which 50% are smaller
 Adopted d₅₀
 Size distribution d50/d90 = 0.8

8) Dissapator Length

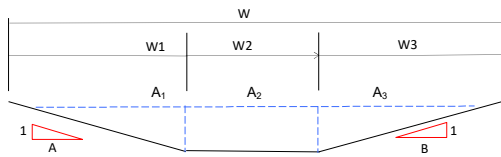
Min. length of dissipator	3.86	m
Recess depth	0.414	m

Catchment and Creeks, Energy Dissipators, Table 1 - Energy Dissipators
 Catchment and Creeks, Energy Dissipators, Table 2

42386 Bruce Highway, Bluewater

Open drain - Trapezoidal Shaped

Mannings



Location ID	Channel Flow Properties								Flow Properties						Overall Drain Dimensions					
	Design flow rate Q_{des} (m ³ /s)	LHS Slope A (m)	RHS Slope B (m)	Base width (m)	Material	Manning's n	Channel Slope S (m/m)	Flow depth H (m)	Flow Area A (m ²)	Wetted perimeter P (m)	Hydraulic Radius R (m)	Capacity Q (m ³ /s)	Velocity V (m/s)	$D_{50} \times V_{ave}$	Freeboard (m)	Drain Depth D (m)	LHS Batter width W1 (m)	Base width W2 (m)	RHS Batter width W3 (m)	Total width W (m)
DC1	0.81	4.0	4.0	0.6	Excavated earth channel	0.025	0.050	0.26	0.420	2.725	0.100	0.810	1.927	0.497	0.150	0.408	1.631	0.600	1.631	3.862
DC2	0.57	4.0	4.0	0.6	Excavated earth channel	0.025	0.050	0.21	0.302	2.332	0.100	0.583	1.927	0.405	0.150	0.360	1.440	0.600	1.440	3.480
DC3	0.22	4.0	4.0	0.6	Excavated earth channel	0.025	0.050	0.20	0.280	2.249	0.100	0.540	1.927	0.385	0.150	0.350	1.400	0.600	1.400	3.400
DC4	0.67	4.0	4.0	0.6	Excavated earth channel	0.025	0.050	0.23	0.350	2.497	0.100	0.674	1.927	0.443	0.150	0.380	1.520	0.600	1.520	3.640

Note: All channels are to have min 0.15 freeboard. Overall dimensions does not include any required earth bunds

Input
Output

APPENDIX C

INSPECTION CHECK LIST

Site Inspection Checklist

Inspection Date:	Inspection by:		Location: Absolute Waste Bluewater	
Structure	Status W – Working R – Requires repairs M – Requires maintenance D – Requires redesign N – Not applicable	Urgency U – Urgent M – Maintenance Y – Yearly shutdown	Action required	Action completion date/ details
Drain 1 (D1) Catchment				
Diversion bank and channel around the perimeter				
Diversion bank around the stockpile area/processing area				
Clean water diversion drain at bottom of haul road				
Internal road				
Rubbish/waste around the site				

Structure	Status	Urgency	Action required	Action completion date/ details
Drain 2 (D2) Catchment				
Diversion bank and channel around the perimeter				
Diversion bank around the stockpile area/processing area				
Internal Road				
Rubbish/waste around the site				
Drain 3 (D3) Catchment				
Diversion bank and channel around the perimeter				
Diversion bank around the stockpile area/processing area				
Clean water diversion at top of catchment				
Internal Road				
Rubbish/waste around the site				

Structure	Status	Urgency	Action required	Action completion date/ details
Stockpile Area				
Diversion channel/bank for clean water diversion around stockpile area				
Sediment fence and/or mulch row down stream of stockpile area				
Stockpile cover				
Rubbish/waste around the site				

Structure	Status	Urgency	Action required	Action completion date/ details
Sediment Basin (SB1)				
Sediment basin				
Release structures (Spillway, emergency spillway, outlet dissipation)				
Visual quality of water in pond: a. Other comments b. Colour c. Smell d. Volume (%) e. Flora Present f. Fauna Present				
Perimeter bank				
Clean water diversion around basin				
Rubbish/waste around the site				
Maintenance track				

Structure	Status	Urgency	Action required	Action completion date/ details
Sediment Basin (SB2)				
Sediment basin				
Release structures (Spillway, emergency spillway, outlet dissipation)				
Visual quality of water in pond: a. Other comments b. Colour c. Smell d. Volume (%) e. Flora Present f. Fauna Present				
Perimeter bank				
Clean water diversion around basin				
Rubbish/waste around the site				
Maintenance track				

Structure	Status	Urgency	Action required	Action completion date/ details
Sediment Basin (SB3)				
Sediment basin				
Release structures (Spillway, emergency spillway, outlet dissipation)				
Visual quality of water in pond: a. Other comments b. Colour c. Smell d. Volume (%) e. Flora Present f. Fauna Present				
Perimeter bank				
Clean water diversion around basin				
Rubbish/waste around the site				
Maintenance track				

Structure	Status	Urgency	Action required	Action completion date/ details
General				
Weeds infestations or unidentified plants				
Waste volumes on site: a. used oil b. used tyres c. steel d. general waste				
Evidence of unauthorised entry onto site				
Signage at entrance				
Other Comments				

APPENDIX D

SOIL/WATER SOLUTION PROCEDURE, JAR TEST
PROCEDURE, FLOC PERFORMANCE REPORT,
SEDIMENT BASIN PERFORMANCE REPORT

Soil / water solution procedure

1. Obtain a soil sample from representative soils to be exposed during the life cycle of the sediment basin. Where multiple soil types are likely to be encountered within the life cycle of the basin, jar test should be undertaken for the range of soil types.
2. Crush the soil (id dry) and shake through a 2mm sieve to remove any excess coarse material.
3. Place approximately 100 grams of soil into 10 litres of water. Ensure the water has the same temperature as the expected water temperature within the sediment basin during the settling phase.
4. Stir rapidly until soil particles are suspended.
5. Leave solution for 10 minutes.
6. Stir rapidly to resuspend any settled material.
7. Decant into beaker.

Jar testing procedure

1. Fill the appropriate number of (matched) 1000mL transparent beakers with well mixed test water, using a 1000mL graduate. Adjust the water temperature to an appropriate value representative of the expected sediment basin water temperature. Record starting pH, temperature and turbidity.
2. Place the filled beaker on the gang stirrer, with the paddles positioned identically in each beaker.
3. Mix the beakers at 40-50 rpm for 30 seconds. Discontinue mixing until coagulant or flocculant addition is completed.
4. Leave the first beaker as a control and add increasing dosages of the first coagulant/ flocculant to subsequent beakers. Inject coagulant/ flocculant solution as quickly as possible, below the liquid level and about halfway between the stirrer shaft and the beaker wall.
5. Increase the mixing speed to 100-125 rpm for 15-30 seconds (rapid mix).
6. Reduce the mixing to 40 rpm and continue the slow mix for up to 5 minutes.
7. Turn the mixer off and allow settling to occur.
8. After settling for a period of time, note clarity and record on Floc Performance Report. Record pH and turbidity.
9. Remove the jars from the gang stirrer, empty the contents and thoroughly clean the beakers.
10. Repeat the procedure as required for different chemicals, dose rates or soil/water mixtures.

Floc Performance Report

BASIN IDENTIFICATION CODE/NUMBER:

SITE / PROJECT:

PREPARED BY: DATE:

Chemical name:		Soil description:				
Dose rate:	0.00 Control					
Starting pH						
Starting turbidity						
Clarity ^[1] after 5 mins (mm)						
Clarity ^[1] after 15 mins (mm)						
Clarity ^[1] after 30 mins (mm)						
Clarity ^[1] after 60 mins (mm)						
Final pH						
Final turbidity						

Chemical name:		Soil description:				
Dose rate:	0.00 Control					
Starting pH						
Starting turbidity						
Clarity ^[1] after 5 mins (mm)						
Clarity ^[1] after 15 mins (mm)						
Clarity ^[1] after 30 mins (mm)						
Clarity ^[1] after 60 mins (mm)						
Final pH						
Final turbidity						

Note:

[1] For the purposes of a floc report, 'clarity' is defined as a level of turbidity that is likely to meet discharge requirements at a depth from the water level surface in the beaker. Clarity can be estimated visually or with the use of a turbidity meter.

BASIN PERFORMANCE REPORT

Site / basin identification: _____

Inspector: _____

Date / time: _____

Recent rainfall: _____

Water quality in basin: NTU: _____ pH: _____

Water level in basin: _____

Issue Item		Potential Issue / Action Required (Y/N)	Comments/Action Undertaken
Inflow channel	Channel/pipe overtopped		
	Scour in channel		
	Chemical not mixing with inflow runoff		
	Catchment bypassing channel		
	Lateral inflow to main basin cell		
	Other		
Chemical & dosing	Chemical not working		
	No dosing		
	Incorrect dose rate		
	Other		
Fore bay	Sediment re-suspension		
	Other		
Level spreader	Concentrated flow over level spreader		
	Scour on backside of level spreader		
	Other		

Issue Item		Potential Issue / Action Required (Y/N)	Comments/Action Undertaken
Setting pond	Flow short circuiting in main basin		
	Erosion on side of basin batters		
	Other		
In-line baffles	Flow concentrating to one side of baffle		
	Flow conveyed over the top of the baffle		
	Flow restricted through baffle too much		
	Flow passes through baffle too quickly		
	Other		
Decant system	Decant sinks below surface		
	Decant raised above water level		
	Decant dropped on one side		
	Decant blocked		
	Decants concentrating flow in basin		
	Other		
Emergency spillway	Concentrated flow on spillway		
	Spillway too low		
	Spillway too high		
	Other		
Other General Comments			

Refer to troubleshooting guide (Table B43) for details on potential remediation for issue items.

APPENDIX E

HELP MODELLING RESULTS

HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE
HELP MODEL VERSION 4.0 BETA (2018)
DEVELOPED BY USEPA NATIONAL RISK MANAGEMENT RESEARCH LABORATORY

Title: Bluewater **Simulated On:** 26/05/2026 10:06

Layer 1

Type 1 - Vertical Percolation Layer (Cover Soil)

MSW with Channeling

Material Texture Number 19

Thickness	=	1000 centimeters
Porosity	=	0.168 vol/vol
Field Capacity	=	0.073 vol/vol
Wilting Point	=	0.019 vol/vol
Initial Soil Water Content	=	0.0714 vol/vol
Effective Sat. Hyd. Conductivity	=	1.00E-03 cm/sec

Layer 2

Type 2 - Lateral Drainage Layer

G - Gravel

Material Texture Number 21

Thickness	=	30 centimeters
Porosity	=	0.397 vol/vol
Field Capacity	=	0.032 vol/vol
Wilting Point	=	0.013 vol/vol
Initial Soil Water Content	=	0.0596 vol/vol
Effective Sat. Hyd. Conductivity	=	3.00E-01 cm/sec
Slope	=	2 %
Drainage Length	=	200 meters

Layer 3

Type 3 - Barrier Soil Liner

Liner Soil (High)

Material Texture Number 16

Thickness	=	30 centimeters
Porosity	=	0.427 vol/vol
Field Capacity	=	0.418 vol/vol
Wilting Point	=	0.367 vol/vol
Initial Soil Water Content	=	0.427 vol/vol
Effective Sat. Hyd. Conductivity	=	1.00E-07 cm/sec

Note: Initial moisture content of the layers and snow water were computed as nearly steady-state values by HELP.

General Design and Evaporative Zone Data

SCS Runoff Curve Number	=	78.5
Fraction of Area Allowing Runoff	=	0 %
Area projected on a horizontal plane	=	1 Hectares
Evaporative Zone Depth	=	30 cm
Initial Water in Evaporative Zone	=	0.57 cm
Upper Limit of Evaporative Storage	=	5.04 cm
Lower Limit of Evaporative Storage	=	0.57 cm
Initial Snow Water	=	0 cm
Initial Water in Layer Materials	=	85.98 cm
Total Initial Water	=	85.98 cm
Total Subsurface Inflow	=	0 mm/year

Note: SCS Runoff Curve Number was calculated by HELP.

Evapotranspiration and Weather Data

Station Latitude	=	25.78 Degrees
Maximum Leaf Area Index	=	0
Start of Growing Season (Julian Date)	=	0 days
End of Growing Season (Julian Date)	=	365 days
Average Wind Speed	=	16.05 kph
Average 1st Quarter Relative Humidity	=	69 %
Average 2nd Quarter Relative Humidity	=	61 %
Average 3rd Quarter Relative Humidity	=	57 %
Average 4th Quarter Relative Humidity	=	60 %

Note: Evapotranspiration data was obtained for ,

Normal Mean Monthly Precipitation (mm)

<u>Jan/Jul</u>	<u>Feb/Aug</u>	<u>Mar/Sep</u>	<u>Apr/Oct</u>	<u>May/Nov</u>	<u>Jun/Dec</u>
335.7967	430.8067	237.5533	90.37	33.01333	21.41333
21.75	22.55667	14.86333	28.08333	75.03667	157.7533

Note: Precipitation was simulated using NOAA data for the following weather stations:
2.1, 2.1, 2.1

Normal Mean Monthly Temperature (Degrees Celsius)

<u>Jan/Jul</u>	<u>Feb/Aug</u>	<u>Mar/Sep</u>	<u>Apr/Oct</u>	<u>May/Nov</u>	<u>Jun/Dec</u>
28.2	28.1	27.4	25.6	22.9	20.7
19.9	20.7	23.2	25.7	27.1	28.2

Note: Temperature was simulated using NOAA data for the following weather stations:
 2.1, 2.1, 2.1
 Solar radiation was simulated based on HELP V4 weather simulation for:
 Lat/Long: 25.78/-80.2

Daily Output for Year 1

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			2.10	0.000	0.688	0.0237		2.1432	1.1105	9.26E-02
2			1.00	0.000	0.581	0.0251		1.8308	0.9486	9.17E-02
3			1.20	0.000	0.631	0.0270		1.5607	0.8087	9.09E-02
4			0.20	0.000	0.744	0.0252		1.3271	0.6876	9.02E-02
5			21.00	0.000	0.844	0.0924		1.1251	0.5830	8.96E-02
6	*Note: head c		182.00	0.000	3.036	0.1407		1.0803	0.5598	8.95E-02
7			71.00	0.000	4.789	0.0947		0.9520	0.4933	8.91E-02
8			69.60	0.000	5.345	0.0986		1.4121	0.7317	9.05E-02
9			10.40	0.000	7.044	0.0684		3.2800	1.6995	9.58E-02
10			0.00	0.000	6.320	0.0370		15.1909	7.8713	1.30E-01
11			0.00	0.000	5.408	0.0190		25.1961	13.0556	1.59E-01
12			0.00	0.000	0.000	0.0190		40.3404	15.5043	2.03E-01
13			0.00	0.000	0.000	0.0190		52.9968	15.5845	2.39E-01
14			0.00	0.000	0.000	0.0190		58.6464	15.5943	2.55E-01
15			0.00	0.000	0.000	0.0190		89.6799	16.0257	3.45E-01
16			0.00	0.000	0.000	0.0190		59.2368	15.5953	2.57E-01
17			0.00	0.000	0.000	0.0190		56.5093	15.5906	2.49E-01
18			0.20	0.000	0.178	0.0191		52.1833	15.5831	2.37E-01
19			0.00	0.000	0.012	0.0190		46.5799	15.5734	2.21E-01
20			0.00	0.000	0.007	0.0190		39.9367	15.5619	2.01E-01
21			0.20	0.000	0.150	0.0192		31.8720	15.3771	1.78E-01

22	0.00	0.000	0.029	0.0191	27.8953	14.4542	1.67E-01
23	0.00	0.000	0.017	0.0190	26.0474	13.4967	1.61E-01
24	0.60	0.000	0.142	0.0206	24.3080	12.5954	1.56E-01
25	0.00	0.000	0.301	0.0195	22.6801	11.7519	1.52E-01
26	9.50	0.000	0.573	0.0493	21.1635	10.9661	1.47E-01
27	38.00	0.000	0.788	0.1081	19.7717	10.2449	1.43E-01
28	0.00	0.000	6.226	0.0369	17.8310	9.2393	1.38E-01
29	0.00	0.000	5.368	0.0190	16.4907	8.5448	1.34E-01
30	0.00	0.000	0.000	0.0190	16.0699	8.3267	1.33E-01
31	0.00	0.000	0.000	0.0190	15.5953	8.0808	1.31E-01
32	0.00	0.000	0.000	0.0190	15.0714	7.8094	1.30E-01
33	0.00	0.000	0.000	0.0190	14.5179	7.5226	1.28E-01
34	0.00	0.000	0.000	0.0190	13.7297	7.1142	1.26E-01
35	0.30	0.000	0.199	0.0193	11.9451	6.1895	1.21E-01
36	25.20	0.000	1.223	0.0993	10.3066	5.3405	1.16E-01
37	17.20	0.000	6.623	0.0771	8.9241	4.6241	1.12E-01
38	0.00	0.000	5.214	0.0457	8.0036	4.1472	1.09E-01
39	0.00	0.000	5.165	0.0285	7.4287	3.8493	1.08E-01
40	0.00	0.000	2.858	0.0190	7.9025	4.0947	1.09E-01
41	0.00	0.000	0.000	0.0190	8.3413	4.3221	1.10E-01
42	0.00	0.000	0.000	0.0190	8.5697	4.4404	1.11E-01
43	0.00	0.000	0.000	0.0190	7.6642	3.9713	1.08E-01
44	0.00	0.000	0.000	0.0190	6.6049	3.4224	1.05E-01
45	0.00	0.000	0.000	0.0190	5.6889	2.9477	1.03E-01
46	0.00	0.000	0.000	0.0190	4.8968	2.5373	1.01E-01
47	0.00	0.000	0.000	0.0190	4.2119	2.1824	9.85E-02
48	0.00	0.000	0.000	0.0190	3.6196	1.8755	9.68E-02
49	0.00	0.000	0.000	0.0190	3.1075	1.6102	9.53E-02
50	0.00	0.000	0.000	0.0190	2.6646	1.3807	9.41E-02

51	0.00	0.000	0.000	0.0190	2.2817	1.1823	9.30E-02
52	0.00	0.000	0.000	0.0190	1.9506	1.0107	9.20E-02
53	0.00	0.000	0.000	0.0190	1.6643	0.8624	9.12E-02
54	0.00	0.000	0.000	0.0190	1.4167	0.7341	9.05E-02
55	2.60	0.000	0.348	0.0265	1.2026	0.6231	8.99E-02
56	2.40	0.000	0.338	0.0334	1.0175	0.5272	8.93E-02
57	0.00	0.000	0.435	0.0319	0.8574	0.4443	8.89E-02
58	0.00	0.000	0.516	0.0302	0.7189	0.3725	8.85E-02
59	0.00	0.000	0.501	0.0285	0.5992	0.3105	8.81E-02
60	0.00	0.000	0.487	0.0269	0.4957	0.2569	8.78E-02
61	0.00	0.000	0.454	0.0254	0.4062	0.2105	8.76E-02
62	0.20	0.000	0.550	0.0242	0.3288	0.1704	8.73E-02
63	1.40	0.000	0.563	0.0270	0.2619	0.1357	8.72E-02
64	17.30	0.000	0.552	0.0829	0.2041	0.1057	8.70E-02
65	0.20	0.000	0.581	0.0485	0.1564	0.0810	8.68E-02
66	0.00	0.000	0.515	0.0452	0.4554	0.2360	8.77E-02
67	0.00	0.000	0.505	0.0429	1.3087	0.6781	9.02E-02
68	0.00	0.000	0.495	0.0397	2.4195	1.2537	9.34E-02
69	0.00	0.000	0.480	0.0381	2.3451	1.2151	9.32E-02
70	0.00	0.000	0.477	0.0365	2.0054	1.0391	9.22E-02
71	0.40	0.000	0.529	0.0361	1.7116	0.8869	9.13E-02
72	13.80	0.000	0.521	0.0804	1.4576	0.7553	9.06E-02
73	8.60	0.000	4.537	0.0647	1.3465	0.6977	9.03E-02
74	0.50	0.000	4.900	0.0462	1.2617	0.6538	9.00E-02
75	0.20	0.000	5.670	0.0279	1.9220	0.9959	9.19E-02
76	0.00	0.000	2.346	0.0191	2.9658	1.5368	9.49E-02
77	0.00	0.000	0.017	0.0190	2.7909	1.4461	9.44E-02
78	0.00	0.000	0.004	0.0190	2.3909	1.2389	9.33E-02
79	0.00	0.000	0.001	0.0190	2.0450	1.0596	9.23E-02

80	0.00	0.000	0.000	0.0190	1.7459	0.9046	9.14E-02
81	0.00	0.000	0.000	0.0190	1.4873	0.7706	9.07E-02
82	0.00	0.000	0.000	0.0190	1.2636	0.6548	9.00E-02
83	0.50	0.000	0.138	0.0202	1.0702	0.5545	8.95E-02
84	0.00	0.000	0.189	0.0196	0.9030	0.4679	8.90E-02
85	0.00	0.000	0.137	0.0191	0.7584	0.3930	8.86E-02
86	0.00	0.000	0.029	0.0190	0.6334	0.3282	8.82E-02
87	0.00	0.000	0.006	0.0190	0.5252	0.2722	8.79E-02
88	0.00	0.000	0.001	0.0190	0.4318	0.2237	8.76E-02
89	0.00	0.000	0.000	0.0190	0.3509	0.1818	8.74E-02
90	0.00	0.000	0.000	0.0190	0.2810	0.1456	8.72E-02
91	0.00	0.000	0.000	0.0190	0.2205	0.1143	8.70E-02
92	0.00	0.000	0.000	0.0190	0.1683	0.0872	8.69E-02
93	0.00	0.000	0.000	0.0190	0.1231	0.0638	8.68E-02
94	0.00	0.000	0.000	0.0190	0.0840	0.0435	8.66E-02
95	0.00	0.000	0.000	0.0190	0.0502	0.0260	8.65E-02
96	0.00	0.000	0.000	0.0190	0.0210	0.0109	8.65E-02
97	0.00	0.000	0.000	0.0190	0.0012	0.0005	1.64E-02
98	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
99	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
100	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
101	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
102	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
103	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
104	10.20	0.000	0.381	0.0517	0.0000	0.0000	0.00E+00
105	0.00	0.000	0.435	0.0503	0.0000	0.0000	0.00E+00
106	0.00	0.000	0.469	0.0486	0.0022	0.0011	2.16E-02
107	0.00	0.000	0.461	0.0467	0.0113	0.0057	5.19E-02
108	0.00	0.000	0.454	0.0452	0.0096	0.0049	6.53E-02

109	0.00	0.000	0.447	0.0437	0.0000	0.0000	0.00E+00
110	1.50	0.000	0.494	0.0470	0.0000	0.0000	0.00E+00
111	1.20	0.000	0.488	0.0494	0.0000	0.0000	0.00E+00
112	0.40	0.000	0.481	0.0490	0.0032	0.0015	3.35E-02
113	0.00	0.000	0.422	0.0474	0.0018	0.0009	2.16E-02
114	0.00	0.000	0.416	0.0457	0.0069	0.0035	6.21E-02
115	0.00	0.000	0.411	0.0439	0.0215	0.0111	8.65E-02
116	8.00	0.000	0.458	0.0689	0.0214	0.0111	8.65E-02
117	0.00	0.000	0.400	0.0585	0.0861	0.0446	8.66E-02
118	0.00	0.000	0.396	0.0537	0.6813	0.3530	8.84E-02
119	0.00	0.000	0.391	0.0508	0.8844	0.4583	8.89E-02
120	0.90	0.000	0.438	0.0523	0.8133	0.4214	8.87E-02
121	4.00	0.000	0.433	0.0639	0.6990	0.3622	8.84E-02
122	1.50	0.000	0.429	0.0627	0.7025	0.3640	8.84E-02
123	0.00	0.000	0.374	0.0575	0.9600	0.4974	8.92E-02
124	0.00	0.000	0.370	0.0541	1.0603	0.5494	8.95E-02
125	0.00	0.000	0.366	0.0512	1.0561	0.5472	8.94E-02
126	0.00	0.000	0.362	0.0484	1.0179	0.5275	8.93E-02
127	7.70	0.000	0.409	0.0682	0.9358	0.4849	8.91E-02
128	0.00	0.000	0.355	0.0581	1.0594	0.5489	8.94E-02
129	0.00	0.000	0.352	0.0530	1.6347	0.8470	9.11E-02
130	0.00	0.000	0.348	0.0503	1.7725	0.9184	9.15E-02
131	0.00	0.000	0.345	0.0488	1.6032	0.8307	9.10E-02
132	1.20	0.000	0.392	0.0515	1.3711	0.7104	9.03E-02
133	0.00	0.000	0.339	0.0498	1.1689	0.6057	8.98E-02
134	0.00	0.000	0.336	0.0476	1.0584	0.5484	8.94E-02
135	0.00	0.000	0.333	0.0456	0.9706	0.5029	8.92E-02
136	0.00	0.000	0.330	0.0438	0.8810	0.4565	8.89E-02
137	0.00	0.000	0.328	0.0423	0.7859	0.4072	8.87E-02

138	0.00	0.000	0.325	0.0408	0.6898	0.3574	8.84E-02
139	0.00	0.000	0.315	0.0398	0.5898	0.3056	8.81E-02
140	0.00	0.000	0.320	0.0387	0.4876	0.2526	8.78E-02
141	0.00	0.000	0.317	0.0377	0.3992	0.2068	8.75E-02
142	0.00	0.000	0.315	0.0366	0.3227	0.1672	8.73E-02
143	0.00	0.000	0.312	0.0356	0.2566	0.1330	8.71E-02
144	0.00	0.000	0.310	0.0345	0.1995	0.1034	8.70E-02
145	0.00	0.000	0.308	0.0335	0.1501	0.0778	8.68E-02
146	0.10	0.000	0.350	0.0327	0.1073	0.0556	8.67E-02
147	0.00	0.000	0.295	0.0317	0.0704	0.0365	8.66E-02
148	0.00	0.000	0.298	0.0307	0.0384	0.0199	8.65E-02
149	0.00	0.000	0.298	0.0297	0.0108	0.0055	6.95E-02
150	0.00	0.000	0.297	0.0287	0.0000	0.0000	0.00E+00
151	0.00	0.000	0.295	0.0277	0.0000	0.0000	0.00E+00
152	0.00	0.000	0.293	0.0268	0.0000	0.0000	0.00E+00
153	0.00	0.000	0.291	0.0258	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.289	0.0248	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.288	0.0239	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.286	0.0229	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.284	0.0220	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.282	0.0210	0.0000	0.0000	0.00E+00
159	0.00	0.000	0.281	0.0201	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.279	0.0192	0.0000	0.0000	0.00E+00
161	4.90	0.000	0.216	0.0348	0.0000	0.0000	0.00E+00
162	2.20	0.000	0.240	0.0413	0.0000	0.0000	0.00E+00
163	2.10	0.000	0.305	0.0473	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.248	0.0465	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.262	0.0456	0.0000	0.0000	0.00E+00
166	3.70	0.000	0.317	0.0569	0.0000	0.0000	0.00E+00

167	4.40	0.000	0.324	0.0630	0.0000	0.0000	0.00E+00
168	0.00	0.000	0.266	0.0588	0.2685	0.1391	6.56E-02
169	0.00	0.000	0.265	0.0532	0.9450	0.4896	8.91E-02
170	0.00	0.000	0.264	0.0507	1.0433	0.5406	8.94E-02
171	0.00	0.000	0.262	0.0484	1.0012	0.5188	8.93E-02
172	0.00	0.000	0.261	0.0464	0.9435	0.4889	8.91E-02
173	0.00	0.000	0.259	0.0446	0.8742	0.4530	8.89E-02
174	0.00	0.000	0.258	0.0430	0.7992	0.4141	8.87E-02
175	0.00	0.000	0.257	0.0415	0.7232	0.3747	8.85E-02
176	0.00	0.000	0.253	0.0407	0.6323	0.3276	8.82E-02
177	0.00	0.000	0.254	0.0399	0.5243	0.2717	8.79E-02
178	0.20	0.000	0.311	0.0395	0.4309	0.2233	8.76E-02
179	0.00	0.000	0.252	0.0386	0.3502	0.1815	8.74E-02
180	0.00	0.000	0.250	0.0378	0.2804	0.1453	8.72E-02
181	0.00	0.000	0.248	0.0370	0.2200	0.1140	8.70E-02
182	0.00	0.000	0.248	0.0362	0.1678	0.0870	8.69E-02
183	0.00	0.000	0.247	0.0353	0.1227	0.0636	8.68E-02
184	0.00	0.000	0.246	0.0345	0.0837	0.0433	8.66E-02
185	0.00	0.000	0.245	0.0337	0.0499	0.0259	8.65E-02
186	0.00	0.000	0.244	0.0329	0.0207	0.0107	8.65E-02
187	0.00	0.000	0.242	0.0321	0.0011	0.0004	1.56E-02
188	0.00	0.000	0.241	0.0313	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.240	0.0305	0.0000	0.0000	0.00E+00
190	0.40	0.000	0.302	0.0308	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.238	0.0300	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.237	0.0292	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.223	0.0285	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.235	0.0277	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.227	0.0269	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.232	0.0262	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.232	0.0254	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.231	0.0246	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.230	0.0239	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.229	0.0231	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.228	0.0221	0.0099	0.0052	6.48E-02
202	0.00	0.000	0.227	0.0213	0.0002	0.0000	2.32E-03
203	0.00	0.000	0.227	0.0206	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.226	0.0198	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.225	0.0191	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.021	0.0190	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
241	0.90	0.000	0.087	0.0217	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.083	0.0214	0.0000	0.0000	0.00E+00
243	4.30	0.000	0.168	0.0352	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.162	0.0347	0.0000	0.0000	3.06E-07
245	0.00	0.000	0.179	0.0341	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.185	0.0335	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.180	0.0329	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.177	0.0323	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.177	0.0317	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.176	0.0311	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.176	0.0305	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.176	0.0299	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.175	0.0293	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.174	0.0287	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.174	0.0282	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.173	0.0276	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.173	0.0270	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.178	0.0264	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.183	0.0258	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.182	0.0252	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.182	0.0246	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.181	0.0240	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.181	0.0234	0.0000	0.0000	0.00E+00
264	1.50	0.000	0.263	0.0275	0.0000	0.0000	0.00E+00
265	1.00	0.000	0.263	0.0300	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.179	0.0294	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.179	0.0288	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.178	0.0282	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.180	0.0276	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.183	0.0270	0.0001	0.0000	2.26E-03
271	0.00	0.000	0.177	0.0264	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.176	0.0258	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.176	0.0252	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.176	0.0246	0.0000	0.0000	0.00E+00
275	1.70	0.000	0.266	0.0294	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.175	0.0288	0.0000	0.0000	0.00E+00
277	0.20	0.000	0.261	0.0286	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.180	0.0280	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.179	0.0274	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.176	0.0268	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.173	0.0263	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.172	0.0257	0.0000	0.0000	0.00E+00

283	56.00	0.000	0.272	0.1106	0.0449	0.0233	2.17E-02
284	31.40	0.000	5.322	0.0869	0.1498	0.0776	8.68E-02
285	5.20	0.000	5.000	0.0589	0.2630	0.1363	8.72E-02
286	0.80	0.000	5.901	0.0413	1.2976	0.6724	9.01E-02
287	0.00	0.000	6.401	0.0199	3.4912	1.8090	9.65E-02
288	0.00	0.000	0.243	0.0191	5.4046	2.8005	1.02E-01
289	0.00	0.000	0.025	0.0190	6.8532	3.5511	1.06E-01
290	0.60	0.000	0.606	0.0190	7.9300	4.1090	1.09E-01
291	0.00	0.000	0.002	0.0190	8.7093	4.5128	1.11E-01
292	0.10	0.000	0.100	0.0190	9.2511	4.7936	1.13E-01
293	1.00	0.000	0.275	0.0214	9.6037	4.9762	1.14E-01
294	0.00	0.000	0.521	0.0197	9.8060	5.0811	1.15E-01
295	2.40	0.000	0.802	0.0250	9.7843	5.0698	1.15E-01
296	0.00	0.000	0.536	0.0232	8.6517	4.4830	1.11E-01
297	0.00	0.000	0.739	0.0208	7.4588	3.8648	1.08E-01
298	0.00	0.000	0.312	0.0197	6.4273	3.3303	1.05E-01
299	0.00	0.000	0.161	0.0192	5.5353	2.8682	1.02E-01
300	0.00	0.000	0.040	0.0190	4.7640	2.4685	1.00E-01
301	0.00	0.000	0.010	0.0190	4.0970	2.1229	9.82E-02
302	0.00	0.000	0.003	0.0190	3.5203	1.8241	9.65E-02
303	0.00	0.000	0.000	0.0190	3.0216	1.5657	9.51E-02
304	0.00	0.000	0.000	0.0190	2.5904	1.3422	9.39E-02
305	0.00	0.000	0.000	0.0190	2.2175	1.1490	9.28E-02
306	0.00	0.000	0.000	0.0190	1.8951	0.9820	9.19E-02
307	0.00	0.000	0.000	0.0190	1.6163	0.8375	9.11E-02
308	0.00	0.000	0.000	0.0190	1.3752	0.7126	9.04E-02
309	0.00	0.000	0.000	0.0190	1.1667	0.6045	8.98E-02
310	0.00	0.000	0.000	0.0190	0.9864	0.5111	8.92E-02
311	1.60	0.000	0.249	0.0235	0.8305	0.4303	8.88E-02

312	0.00	0.000	0.235	0.0227	0.6957	0.3605	8.84E-02
313	0.00	0.000	0.369	0.0215	0.5792	0.3001	8.81E-02
314	0.00	0.000	0.361	0.0203	0.4784	0.2479	8.78E-02
315	0.00	0.000	0.300	0.0193	0.3912	0.2027	8.75E-02
316	0.00	0.000	0.064	0.0191	0.3159	0.1637	8.73E-02
317	0.00	0.000	0.016	0.0190	0.2507	0.1299	8.71E-02
318	0.00	0.000	0.004	0.0190	0.1944	0.1007	8.70E-02
319	0.00	0.000	0.001	0.0190	0.1456	0.0755	8.68E-02
320	0.00	0.000	0.000	0.0190	0.1035	0.0536	8.67E-02
321	0.00	0.000	0.000	0.0190	0.0671	0.0347	8.66E-02
322	0.00	0.000	0.000	0.0190	0.0355	0.0184	8.65E-02
323	18.60	0.000	0.475	0.0794	0.0086	0.0043	6.10E-02
324	1.20	0.000	0.534	0.0516	0.0000	0.0000	0.00E+00
325	0.00	0.000	0.440	0.0445	0.0241	0.0125	2.17E-02
326	0.60	0.000	0.536	0.0447	0.8496	0.4402	8.88E-02
327	0.00	0.000	0.428	0.0432	2.1437	1.1108	9.26E-02
328	12.80	0.000	0.525	0.0768	2.3147	1.1994	9.31E-02
329	0.00	0.000	6.545	0.0423	1.9791	1.0255	9.21E-02
330	0.00	0.000	0.416	0.0404	2.1820	1.1306	9.27E-02
331	0.00	0.000	0.411	0.0390	2.8853	1.4950	9.47E-02
332	0.00	0.000	0.405	0.0376	2.5619	1.3275	9.38E-02
333	0.00	0.000	0.400	0.0363	2.1929	1.1363	9.27E-02
334	0.00	0.000	0.396	0.0350	1.8738	0.9709	9.18E-02
335	0.00	0.000	0.391	0.0337	1.5978	0.8279	9.10E-02
336	0.00	0.000	0.386	0.0321	1.3714	0.7106	9.03E-02
337	0.00	0.000	0.382	0.0308	1.1770	0.6099	8.98E-02
338	0.00	0.000	0.378	0.0295	0.9953	0.5157	8.93E-02
339	0.00	0.000	0.374	0.0283	0.8382	0.4343	8.88E-02
340	0.00	0.000	0.370	0.0271	0.7024	0.3640	8.84E-02

341	0.00	0.000	0.366	0.0258	0.5849	0.3031	8.81E-02
342	0.00	0.000	0.362	0.0246	0.4834	0.2505	8.78E-02
343	0.00	0.000	0.359	0.0234	0.3955	0.2050	8.75E-02
344	5.70	0.000	0.468	0.0406	0.3346	0.1734	8.74E-02
345	2.70	0.000	0.465	0.0481	0.2715	0.1407	8.72E-02
346	8.80	0.000	0.462	0.0635	0.2534	0.1313	8.71E-02
347	0.00	0.000	5.311	0.0433	0.3715	0.1925	8.75E-02
348	0.00	0.000	0.345	0.0422	1.0241	0.5306	8.93E-02
349	8.10	0.000	0.458	0.0676	1.0787	0.5589	8.95E-02
350	0.50	0.000	4.926	0.0449	0.9960	0.5161	8.93E-02
351	1.20	0.000	6.170	0.0283	1.3179	0.6829	9.02E-02
352	0.00	0.000	2.296	0.0194	1.2536	0.6496	9.00E-02
353	0.60	0.000	0.374	0.0201	1.0860	0.5627	8.95E-02
354	0.00	0.000	0.176	0.0195	0.9166	0.4750	8.90E-02
355	1.00	0.000	0.387	0.0216	0.7702	0.3991	8.86E-02
356	0.00	0.000	0.539	0.0198	0.6436	0.3335	8.83E-02
357	0.00	0.000	0.166	0.0192	0.5341	0.2767	8.79E-02
358	5.00	0.000	0.575	0.0340	0.4394	0.2277	8.77E-02
359	8.90	0.000	0.757	0.0611	0.3576	0.1853	8.74E-02
360	13.00	0.000	0.965	0.0767	0.2868	0.1486	8.72E-02
361	0.00	0.000	6.062	0.0416	0.2255	0.1169	8.70E-02
362	0.00	0.000	5.939	0.0210	0.6596	0.3418	8.83E-02
363	0.00	0.000	0.596	0.0190	1.8560	0.9617	9.17E-02
364	0.00	0.000	0.000	0.0190	2.8129	1.4576	9.45E-02
365	0.00	0.000	0.000	0.0190	2.5180	1.3047	9.37E-02

* = Frozen (air or soil)

Annual Totals for Year 1			
	mm*	cubic meters	percent
Precipitation	749.80	7,498.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	217.980	2,179.8	29.07
Drainage Collected from Layer 2	508.0888	5,080.9	67.76
Percolation/Leakage through Layer 3	23.685667	236.9	3.16
Average Head on Top of Layer 3	3.3082 (cm)	---	---
Change in Water Storage	0.0451	0.4507	0.01
Soil Water at Start of Year	859.7870	8,597.9	114.67
Soil Water at End of Year	859.8321	8,598.3	114.67
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 2

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1				0.00	0.000	0.000	0.0190	2.1549	1.1166	9.26E-02
2				0.00	0.000	0.000	0.0190	1.8409	0.9539	9.17E-02
3				2.80	0.000	0.536	0.0265	1.5694	0.8132	9.09E-02
4				8.40	0.000	0.753	0.0520	1.3347	0.6916	9.02E-02
5				0.40	0.000	0.930	0.0503	1.1317	0.5864	8.97E-02
6	*Note: head c			0.00	0.000	0.874	0.0474	0.9561	0.4954	8.92E-02
7				0.00	0.000	0.827	0.0446	0.8043	0.4168	8.87E-02
8				0.00	0.000	0.787	0.0419	0.6750	0.3498	8.83E-02
9				0.00	0.000	0.752	0.0392	0.5686	0.2946	8.80E-02
10				0.00	0.000	0.721	0.0368	0.4787	0.2481	8.78E-02
11				2.90	0.000	0.772	0.0439	0.3915	0.2029	8.75E-02
12				2.30	0.000	0.747	0.0491	0.3161	0.1638	8.73E-02
13				0.00	0.000	0.647	0.0469	0.2509	0.1300	8.71E-02
14				0.00	0.000	0.627	0.0448	0.1945	0.1008	8.70E-02
15				4.80	0.000	0.684	0.0586	0.1458	0.0755	8.68E-02
16			0.00	0.000	0.593	0.0560	0.1129	0.0585	8.67E-02	
17			0.00	0.000	0.577	0.0519	0.1822	0.0944	8.69E-02	
18			16.00	0.000	0.635	0.0895	0.2652	0.1374	8.72E-02	
19			9.40	0.000	5.047	0.0671	0.3137	0.1625	8.73E-02	
20			1.60	0.000	5.376	0.0507	0.3680	0.1907	8.75E-02	
21			2.20	0.000	5.656	0.0374	1.2498	0.6476	9.00E-02	

22	0.00	0.000	3.265	0.0265	2.3999	1.2435	9.33E-02
23	0.00	0.000	2.225	0.0191	3.4818	1.8041	9.64E-02
24	0.00	0.000	0.029	0.0190	3.3764	1.7495	9.61E-02
25	0.00	0.000	0.007	0.0190	2.8972	1.5012	9.47E-02
26	0.00	0.000	0.002	0.0190	2.4828	1.2865	9.35E-02
27	0.00	0.000	0.001	0.0190	2.1245	1.1008	9.25E-02
28	0.00	0.000	0.000	0.0190	1.8146	0.9403	9.16E-02
29	0.00	0.000	0.000	0.0190	1.5467	0.8014	9.09E-02
30	56.50	0.000	1.062	0.1011	1.3599	0.7046	9.03E-02
31	55.80	0.000	5.973	0.0899	1.2787	0.6626	9.01E-02
32	25.60	0.000	6.674	0.0942	1.1718	0.6072	8.98E-02
33	11.40	0.000	4.576	0.0684	1.7846	0.9247	9.15E-02
34	33.80	0.000	3.739	0.1014	2.3733	1.2297	9.32E-02
35	92.40	0.000	3.405	0.1099	2.7409	1.4202	9.43E-02
36	112.20	0.000	5.050	0.1139	2.6194	1.3573	9.39E-02
37	1.70	0.000	5.559	0.0454	4.6006	2.3839	9.96E-02
38	0.40	0.000	6.792	0.0241	18.6325	9.6546	1.40E-01
39	0.00	0.000	1.490	0.0191	35.4572	14.8698	1.89E-01
40	0.00	0.000	0.032	0.0190	99.7249	16.4041	3.74E-01
41	0.40	0.000	0.408	0.0190	221.6987	18.4988	7.25E-01
42	6.90	0.000	2.118	0.0349	201.7026	17.9578	6.67E-01
43	3.80	0.000	3.022	0.0375	122.6472	16.5370	4.40E-01
44	13.80	0.000	5.321	0.0658	59.8783	15.5964	2.59E-01
45	32.00	0.000	3.497	0.1000	56.3547	15.5903	2.49E-01
46	1.80	0.000	6.288	0.0437	43.1527	15.5675	2.11E-01
47	0.00	0.000	6.572	0.0207	39.4985	15.5612	2.00E-01
48	17.60	0.000	6.024	0.0593	37.6299	15.5580	1.95E-01
49	0.00	0.000	5.609	0.0406	32.5775	15.5026	1.80E-01
50	0.00	0.000	5.869	0.0207	28.9412	14.9962	1.70E-01

51	4.20	0.000	3.492	0.0230	27.6655	14.3351	1.66E-01
52	0.30	0.000	1.268	0.0198	26.3350	13.6457	1.62E-01
53	0.00	0.000	0.186	0.0192	24.9744	12.9407	1.58E-01
54	0.00	0.000	0.046	0.0190	23.6189	12.2383	1.54E-01
55	0.00	0.000	0.011	0.0190	22.2924	11.5510	1.51E-01
56	0.00	0.000	0.002	0.0190	21.0112	10.8871	1.47E-01
57	25.00	0.000	1.385	0.0977	19.7856	10.2521	1.43E-01
58	3.80	0.000	5.112	0.0505	18.5942	9.6348	1.40E-01
59	0.00	0.000	3.832	0.0377	16.6410	8.6227	1.34E-01
60	65.40	0.000	4.910	0.1081	15.5996	8.0831	1.31E-01
61	35.20	0.000	4.887	0.0918	14.1239	7.3184	1.27E-01
62	152.00	0.000	5.103	0.1290	12.1907	6.3167	1.22E-01
63	0.00	0.000	5.281	0.0385	10.7864	5.5891	1.17E-01
64	9.40	0.000	5.581	0.0512	16.4951	8.5471	1.34E-01
65	35.00	0.000	5.910	0.0972	23.3488	12.0984	1.54E-01
66	0.30	0.000	5.797	0.0364	24.6410	12.7680	1.57E-01
67	0.00	0.000	4.416	0.0217	26.1982	13.5748	1.62E-01
68	0.00	0.000	0.807	0.0190	29.0932	15.0749	1.70E-01
69	0.00	0.000	0.000	0.0190	36.3472	15.5557	1.91E-01
70	0.00	0.000	0.000	0.0190	37.3863	15.5575	1.94E-01
71	0.00	0.000	0.000	0.0190	35.9995	15.5551	1.90E-01
72	0.00	0.000	0.000	0.0190	30.7096	15.3675	1.75E-01
73	0.00	0.000	0.000	0.0190	28.6095	14.8243	1.69E-01
74	0.00	0.000	0.000	0.0190	27.4058	14.2006	1.65E-01
75	0.00	0.000	0.000	0.0190	26.1149	13.5317	1.62E-01
76	0.00	0.000	0.000	0.0190	24.7879	12.8441	1.58E-01
77	0.00	0.000	0.000	0.0190	23.4608	12.1564	1.54E-01
78	0.00	0.000	0.000	0.0190	22.1585	11.4816	1.50E-01
79	0.00	0.000	0.000	0.0190	20.8979	10.8284	1.47E-01

80	0.40	0.000	0.127	0.0199	19.6898	10.2024	1.43E-01
81	21.60	0.000	0.768	0.0894	18.5409	9.6071	1.40E-01
82	38.00	0.000	2.538	0.0881	17.4058	9.0190	1.37E-01
83	453.00	0.000	5.056	0.1680	15.3209	7.9387	1.31E-01
84	1.00	0.000	3.812	0.0427	133.4028	13.3254	4.71E-01
85	1.00	0.000	6.608	0.0240	463.8084	26.0174	1.42E+00
86	0.00	0.000	1.205	0.0200	435.3284	25.0866	1.34E+00
87	1.20	0.000	0.786	0.0213	407.8961	24.1989	1.26E+00
88	0.00	0.000	0.557	0.0195	381.4637	23.3527	1.18E+00
89	0.00	0.000	0.102	0.0191	355.9918	22.4972	1.11E+00
90	0.60	0.000	0.505	0.0194	331.5022	21.6965	1.04E+00
91	0.00	0.000	0.078	0.0192	307.8783	20.9857	9.73E-01
92	0.00	0.000	0.041	0.0191	285.0599	20.3090	9.07E-01
93	0.00	0.000	0.013	0.0190	263.0087	19.6659	8.44E-01
94	0.00	0.000	0.003	0.0190	241.6873	19.0564	7.82E-01
95	0.00	0.000	0.001	0.0190	221.0578	18.4812	7.23E-01
96	0.40	0.000	0.133	0.0199	201.0818	17.9413	6.66E-01
97	0.00	0.000	0.078	0.0196	122.3340	16.5296	4.39E-01
98	0.00	0.000	0.140	0.0192	59.8090	15.5963	2.59E-01
99	0.00	0.000	0.037	0.0190	57.7260	15.5927	2.53E-01
100	0.00	0.000	0.009	0.0190	53.9080	15.5861	2.42E-01
101	0.00	0.000	0.002	0.0190	48.7132	15.5771	2.27E-01
102	0.00	0.000	0.001	0.0190	42.4044	15.5662	2.09E-01
103	0.00	0.000	0.000	0.0190	34.5499	15.5236	1.86E-01
104	0.00	0.000	0.000	0.0190	28.5736	14.8057	1.69E-01
105	0.00	0.000	0.000	0.0190	26.6884	13.8288	1.63E-01
106	0.00	0.000	0.000	0.0190	24.9087	12.9067	1.58E-01
107	0.00	0.000	0.000	0.0190	23.2403	12.0422	1.53E-01
108	0.00	0.000	0.000	0.0190	21.6839	11.2357	1.49E-01

109	0.00	0.000	0.000	0.0190	20.2373	10.4862	1.45E-01
110	0.00	0.000	0.000	0.0190	18.6922	9.6855	1.40E-01
111	0.00	0.000	0.000	0.0190	16.2434	8.4166	1.33E-01
112	0.00	0.000	0.000	0.0190	14.0234	7.2663	1.27E-01
113	0.00	0.000	0.000	0.0190	12.1037	6.2717	1.21E-01
114	1.00	0.000	0.092	0.0220	10.4438	5.4116	1.16E-01
115	0.00	0.000	0.211	0.0213	9.0084	4.6678	1.12E-01
116	3.40	0.000	0.357	0.0315	7.7673	4.0247	1.09E-01
117	0.00	0.000	0.352	0.0303	6.6940	3.4686	1.06E-01
118	0.00	0.000	0.392	0.0290	5.7659	2.9877	1.03E-01
119	0.00	0.000	0.386	0.0277	4.9634	2.5719	1.01E-01
120	0.00	0.000	0.379	0.0264	4.2695	2.2123	9.87E-02
121	0.00	0.000	0.373	0.0252	3.6695	1.9014	9.70E-02
122	0.00	0.000	0.404	0.0238	3.1506	1.6325	9.55E-02
123	0.00	0.000	0.402	0.0225	2.7019	1.4000	9.42E-02
124	0.00	0.000	0.396	0.0212	2.3139	1.1990	9.31E-02
125	0.00	0.000	0.390	0.0199	1.9785	1.0252	9.21E-02
126	0.00	0.000	0.207	0.0192	1.6884	0.8748	9.13E-02
127	0.00	0.000	0.046	0.0190	1.4375	0.7449	9.05E-02
128	0.00	0.000	0.014	0.0190	1.2206	0.6325	8.99E-02
129	0.00	0.000	0.000	0.0190	1.0330	0.5353	8.94E-02
130	0.00	0.000	0.000	0.0190	0.8708	0.4512	8.89E-02
131	1.60	0.000	0.219	0.0236	0.7306	0.3786	8.85E-02
132	0.00	0.000	0.163	0.0231	0.6093	0.3157	8.82E-02
133	0.00	0.000	0.260	0.0222	0.5044	0.2614	8.79E-02
134	2.00	0.000	0.311	0.0278	0.4138	0.2144	8.76E-02
135	8.00	0.000	0.365	0.0533	0.3354	0.1738	8.74E-02
136	35.00	0.000	0.429	0.1035	0.2825	0.1464	8.72E-02
137	6.20	0.000	3.439	0.0639	0.2688	0.1393	8.72E-02

138	0.50	0.000	5.133	0.0451	1.0715	0.5552	8.95E-02
139	0.00	0.000	5.427	0.0270	2.5072	1.2991	9.36E-02
140	0.00	0.000	2.403	0.0190	3.8751	2.0079	9.76E-02
141	0.00	0.000	0.000	0.0190	4.9665	2.5734	1.01E-01
142	0.00	0.000	0.000	0.0190	5.8065	3.0087	1.03E-01
143	0.00	0.000	0.000	0.0190	6.3986	3.3155	1.05E-01
144	0.00	0.000	0.000	0.0190	5.8089	3.0099	1.03E-01
145	0.00	0.000	0.000	0.0190	5.0005	2.5911	1.01E-01
146	0.00	0.000	0.000	0.0190	4.3016	2.2289	9.88E-02
147	0.00	0.000	0.000	0.0190	3.6972	1.9157	9.70E-02
148	0.00	0.000	0.000	0.0190	3.1746	1.6449	9.55E-02
149	0.00	0.000	0.000	0.0190	2.7227	1.4108	9.42E-02
150	0.00	0.000	0.000	0.0190	2.3319	1.2083	9.31E-02
151	0.00	0.000	0.000	0.0190	1.9940	1.0332	9.21E-02
152	0.00	0.000	0.000	0.0190	1.7018	0.8818	9.13E-02
153	0.00	0.000	0.000	0.0190	1.4491	0.7509	9.06E-02
154	2.40	0.000	0.357	0.0258	1.2306	0.6377	8.99E-02
155	3.20	0.000	0.345	0.0353	1.0417	0.5398	8.94E-02
156	0.00	0.000	0.550	0.0335	0.8783	0.4551	8.89E-02
157	0.00	0.000	0.532	0.0317	0.7371	0.3819	8.85E-02
158	0.00	0.000	0.516	0.0300	0.6149	0.3186	8.82E-02
159	0.00	0.000	0.556	0.0281	0.5093	0.2639	8.79E-02
160	0.00	0.000	0.533	0.0264	0.4180	0.2166	8.76E-02
161	0.00	0.000	0.526	0.0246	0.3390	0.1756	8.74E-02
162	0.00	0.000	0.513	0.0229	0.2707	0.1403	8.72E-02
163	0.00	0.000	0.501	0.0212	0.2116	0.1097	8.70E-02
164	0.00	0.000	0.515	0.0195	0.1606	0.0832	8.69E-02
165	0.40	0.000	0.233	0.0201	0.1164	0.0603	8.67E-02
166	9.20	0.000	0.431	0.0493	0.0782	0.0405	8.66E-02

167	0.00	0.000	0.460	0.0478	0.0452	0.0234	8.65E-02
168	0.00	0.000	0.479	0.0462	0.0167	0.0086	8.64E-02
169	0.00	0.000	0.475	0.0446	0.0002	0.0000	2.46E-03
170	0.00	0.000	0.477	0.0430	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.469	0.0414	0.0000	0.0000	0.00E+00
172	2.00	0.000	0.523	0.0464	0.0001	0.0000	2.07E-03
173	0.00	0.000	0.454	0.0448	0.0000	0.0000	0.00E+00
174	0.40	0.000	0.509	0.0445	0.0001	0.0000	1.28E-03
175	0.00	0.000	0.440	0.0430	0.0003	0.0000	3.79E-03
176	0.00	0.000	0.434	0.0415	0.0003	0.0000	5.24E-03
177	0.00	0.000	0.428	0.0401	0.0000	0.0000	9.30E-06
178	0.50	0.000	0.484	0.0401	0.0002	0.0000	2.52E-03
179	0.00	0.000	0.416	0.0388	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.411	0.0374	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.391	0.0361	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.399	0.0348	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.396	0.0334	0.0003	0.0000	4.56E-03
184	0.00	0.000	0.391	0.0321	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.386	0.0308	0.0003	0.0000	4.29E-03
186	0.00	0.000	0.382	0.0295	0.0002	0.0000	3.19E-03
187	5.30	0.000	0.442	0.0457	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.374	0.0445	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.370	0.0433	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.366	0.0420	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.362	0.0408	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.359	0.0396	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.355	0.0384	0.0005	0.0000	6.71E-03
194	0.00	0.000	0.352	0.0372	0.0000	0.0000	0.00E+00
195	0.10	0.000	0.400	0.0362	0.0004	0.0000	6.37E-03

196	0.00	0.000	0.345	0.0351	0.0002	0.0000	3.36E-03
197	0.00	0.000	0.342	0.0339	0.0002	0.0000	3.18E-03
198	0.00	0.000	0.339	0.0328	0.0001	0.0000	1.92E-03
199	0.00	0.000	0.336	0.0317	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.333	0.0306	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.330	0.0295	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.328	0.0284	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.325	0.0273	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.322	0.0262	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.320	0.0251	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.317	0.0241	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.315	0.0230	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.312	0.0220	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.310	0.0210	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.308	0.0199	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.278	0.0190	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
218	0.40	0.000	0.095	0.0200	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.043	0.0199	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.120	0.0195	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.064	0.0193	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.057	0.0191	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.014	0.0190	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.004	0.0190	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.001	0.0190	0.0000	0.0000	1.05E-04
226	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
243	23.80	0.000	0.280	0.0974	0.0000	0.0000	3.42E-07
244	14.40	0.000	0.324	0.0816	0.0000	0.0000	0.00E+00
245	28.80	0.000	6.016	0.0915	0.0046	0.0024	4.31E-02
246	2.20	0.000	5.973	0.0522	0.0000	0.0000	0.00E+00
247	0.00	0.000	6.024	0.0312	0.5305	0.2749	8.79E-02
248	0.00	0.000	3.654	0.0190	2.3314	1.2080	9.31E-02
249	0.00	0.000	0.010	0.0190	3.9737	2.0590	9.78E-02
250	0.00	0.000	0.003	0.0190	5.2485	2.7195	1.02E-01
251	0.00	0.000	0.001	0.0190	6.2237	3.2248	1.04E-01
252	0.00	0.000	0.000	0.0190	6.9551	3.6038	1.06E-01
253	0.00	0.000	0.000	0.0190	7.4884	3.8802	1.08E-01

254	0.00	0.000	0.000	0.0190	7.5326	3.9031	1.08E-01
255	0.00	0.000	0.000	0.0190	6.5318	3.3845	1.05E-01
256	1.00	0.000	0.164	0.0218	5.6257	2.9150	1.03E-01
257	0.00	0.000	0.418	0.0204	4.8422	2.5090	1.00E-01
258	0.00	0.000	0.325	0.0193	4.1646	2.1579	9.84E-02
259	0.00	0.000	0.069	0.0191	3.5788	1.8544	9.67E-02
260	0.00	0.000	0.017	0.0190	3.0722	1.5919	9.52E-02
261	0.00	0.000	0.004	0.0190	2.6341	1.3649	9.40E-02
262	0.00	0.000	0.001	0.0190	2.2553	1.1686	9.29E-02
263	0.00	0.000	0.000	0.0190	1.9278	0.9989	9.20E-02
264	0.00	0.000	0.000	0.0190	1.6445	0.8521	9.11E-02
265	0.00	0.000	0.000	0.0190	1.3996	0.7252	9.04E-02
266	0.00	0.000	0.000	0.0190	1.1878	0.6155	8.98E-02
267	0.00	0.000	0.000	0.0190	1.0047	0.5206	8.93E-02
268	0.00	0.000	0.000	0.0190	0.8463	0.4385	8.88E-02
269	0.00	0.000	0.000	0.0190	0.7094	0.3676	8.84E-02
270	0.00	0.000	0.000	0.0190	0.5910	0.3062	8.81E-02
271	0.00	0.000	0.000	0.0190	0.4886	0.2532	8.78E-02
272	0.00	0.000	0.000	0.0190	0.4001	0.2073	8.76E-02
273	0.00	0.000	0.000	0.0190	0.3235	0.1676	8.73E-02
274	0.00	0.000	0.000	0.0190	0.2573	0.1333	8.71E-02
275	0.40	0.000	0.117	0.0199	0.2001	0.1037	8.70E-02
276	0.00	0.000	0.043	0.0198	0.1506	0.0780	8.68E-02
277	0.00	0.000	0.148	0.0193	0.1078	0.0558	8.67E-02
278	0.00	0.000	0.063	0.0191	0.0707	0.0367	8.66E-02
279	0.00	0.000	0.022	0.0190	0.0387	0.0201	8.65E-02
280	0.00	0.000	0.006	0.0190	0.0111	0.0056	7.04E-02
281	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	3.43E-07
284	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
298	1.00	0.000	0.105	0.0220	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.153	0.0215	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.212	0.0208	0.0000	0.0000	0.00E+00
301	0.00	0.000	0.241	0.0200	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.201	0.0193	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.077	0.0190	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.008	0.0190	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
314	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
318	2.00	0.000	0.206	0.0250	0.0000	0.0000	0.00E+00
319	0.90	0.000	0.205	0.0273	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.205	0.0266	0.0000	0.0000	0.00E+00
321	0.00	0.000	0.204	0.0259	0.0000	0.0000	0.00E+00
322	0.00	0.000	0.203	0.0253	0.0000	0.0000	0.00E+00
323	0.00	0.000	0.208	0.0246	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.219	0.0238	0.0000	0.0000	0.00E+00
325	0.00	0.000	0.221	0.0231	0.0000	0.0000	0.00E+00
326	0.00	0.000	0.201	0.0224	0.0000	0.0000	0.00E+00
327	0.00	0.000	0.237	0.0216	0.0000	0.0000	0.00E+00
328	0.00	0.000	0.238	0.0208	0.0000	0.0000	0.00E+00
329	1.20	0.000	0.328	0.0237	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.261	0.0229	0.0000	0.0000	0.00E+00
331	0.00	0.000	0.262	0.0220	0.0000	0.0000	0.00E+00
332	0.00	0.000	0.264	0.0211	0.0000	0.0000	0.00E+00
333	0.00	0.000	0.219	0.0204	0.0000	0.0000	0.00E+00
334	0.00	0.000	0.190	0.0198	0.0001	0.0000	1.00E-03
335	0.00	0.000	0.154	0.0192	0.0000	0.0000	0.00E+00
336	0.00	0.000	0.064	0.0190	0.0000	0.0000	0.00E+00
337	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
338	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
339	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
340	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

341	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
342	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
343	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
344	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
345	0.30	0.000	0.105	0.0196	0.0000	0.0000	0.00E+00
346	0.00	0.000	0.022	0.0196	0.0000	0.0000	0.00E+00
347	65.00	0.000	0.345	0.1145	0.0288	0.0149	2.17E-02
348	10.60	0.000	4.701	0.0646	0.2914	0.1510	8.72E-02
349	13.60	0.000	5.353	0.0674	1.0305	0.5340	8.94E-02
350	68.40	0.000	6.498	0.1041	1.9652	1.0183	9.21E-02
351	0.00	0.000	6.141	0.0471	1.7249	0.8938	9.14E-02
352	1.20	0.000	6.650	0.0277	3.7615	1.9490	9.72E-02
353	2.00	0.000	3.154	0.0220	6.9255	3.5885	1.06E-01
354	0.00	0.000	0.728	0.0195	9.3079	4.8230	1.13E-01
355	20.00	0.000	5.041	0.0694	11.0673	5.7346	1.18E-01
356	75.20	0.000	4.381	0.0967	12.2114	6.3275	1.22E-01
357	82.20	0.000	4.663	0.1042	11.8337	6.1317	1.20E-01
358	0.00	0.000	5.042	0.0489	10.4305	5.4046	1.16E-01
359	0.00	0.000	6.056	0.0287	14.2185	7.3674	1.27E-01
360	0.00	0.000	2.219	0.0190	19.4526	10.0795	1.42E-01
361	15.00	0.000	3.375	0.0577	22.5400	11.6793	1.51E-01
362	78.70	0.000	4.483	0.1066	24.1649	12.5212	1.56E-01
363	0.50	0.000	2.948	0.0486	22.5806	11.7004	1.51E-01
364	35.60	0.000	5.085	0.0912	23.6135	12.2355	1.54E-01
365	10.20	0.000	4.829	0.0647	24.0873	12.4811	1.56E-01

* = Frozen (air or soil)

Annual Totals for Year 2			
	mm*	cubic meters	percent
Precipitation	2,000.50	20,005.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	359.780	3,597.8	17.98
Drainage Collected from Layer 2	1,330.2261	13,302.3	66.49
Percolation/Leakage through Layer 3	38.996464	390.0	1.95
Average Head on Top of Layer 3	18.9197 (cm)	---	---
Change in Water Storage	271.4978	2,715.0	13.57
Soil Water at Start of Year	859.8321	8,598.3	42.98
Soil Water at End of Year	1,131.3300	11,313.3	56.55
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 3

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			0.40	0.000	4.143	0.0508		24.4449	12.6663	1.57E-01
2			0.00	0.000	3.594	0.0388		27.5533	14.2770	1.66E-01
3			18.20	0.000	5.043	0.0821		29.1081	15.0826	1.70E-01
4			0.00	0.000	5.548	0.0439		29.4671	15.2687	1.71E-01
5			0.00	0.000	4.817	0.0278		28.2713	14.6490	1.68E-01
6	*Note: head c		2.00	0.000	3.755	0.0220		28.0578	14.5384	1.67E-01
7			0.00	0.000	0.722	0.0196		27.5402	14.2702	1.66E-01
8			21.00	0.000	3.638	0.0774		26.7358	13.8534	1.63E-01
9			8.40	0.000	2.484	0.0697		25.7691	13.3525	1.61E-01
10			71.00	0.000	2.542	0.1070		23.8036	12.3341	1.55E-01
11			450.00	0.000	3.923	0.1680		20.8175	10.7868	1.46E-01
12			118.00	0.000	3.122	0.1132		322.6591	20.7475	1.02E+00
13			123.00	0.000	4.965	0.1194		691.3924	33.7876	2.08E+00
14			35.40	0.000	3.579	0.0931		754.4712	36.1724	2.26E+00
15			3.00	0.000	6.471	0.0489		746.2811	35.8779	2.24E+00
16			0.00	0.000	4.106	0.0321		716.5231	34.6630	2.15E+00
17			26.90	0.000	3.857	0.0975		679.6480	33.3232	2.04E+00
18			20.20	0.000	4.658	0.0875		651.1366	32.3351	1.96E+00
19			5.80	0.000	5.249	0.0545		630.4235	31.6216	1.90E+00
20			0.00	0.000	5.591	0.0343		606.3197	30.7959	1.83E+00
21			0.00	0.000	3.248	0.0190		573.7021	29.6859	1.74E+00

22	0.00	0.000	0.000	0.0190	541.6274	28.6035	1.65E+00
23	0.00	0.000	0.000	0.0190	510.2402	27.5533	1.56E+00
24	0.00	0.000	0.000	0.0190	480.0329	26.5516	1.47E+00
25	0.00	0.000	0.000	0.0190	450.9519	25.5961	1.39E+00
26	0.00	0.000	0.000	0.0190	422.9460	24.6848	1.30E+00
27	20.20	0.000	1.371	0.0818	395.9662	23.8159	1.23E+00
28	11.90	0.000	6.239	0.0687	371.3663	23.0319	1.16E+00
29	1.00	0.000	6.699	0.0443	354.6833	22.4295	1.11E+00
30	0.00	0.000	6.860	0.0215	332.0660	21.7136	1.04E+00
31	0.00	0.000	0.546	0.0191	308.5443	21.0056	9.75E-01
32	0.00	0.000	0.025	0.0190	285.7430	20.3291	9.09E-01
33	0.00	0.000	0.006	0.0190	263.6691	19.6849	8.46E-01
34	0.00	0.000	0.002	0.0190	242.3260	19.0745	7.84E-01
35	0.00	0.000	0.000	0.0190	221.6760	18.4982	7.25E-01
36	0.00	0.000	0.000	0.0190	201.6807	17.9572	6.67E-01
37	0.00	0.000	0.000	0.0190	122.6361	16.5367	4.40E-01
38	11.40	0.000	0.711	0.0546	59.8759	15.5964	2.59E-01
39	0.80	0.000	0.888	0.0541	57.8569	15.5929	2.53E-01
40	0.00	0.000	0.874	0.0497	53.8447	15.5860	2.41E-01
41	3.20	0.000	0.867	0.0575	48.5093	15.5767	2.26E-01
42	0.00	0.000	0.787	0.0548	42.3279	15.5661	2.08E-01
43	0.00	0.000	0.752	0.0509	34.4691	15.5192	1.86E-01
44	9.00	0.000	0.760	0.0710	28.5009	14.7680	1.68E-01
45	5.20	0.000	5.730	0.0597	26.4743	13.7179	1.63E-01
46	0.00	0.000	0.694	0.0559	24.0686	12.4714	1.56E-01
47	27.40	0.000	0.707	0.0874	22.5781	11.6991	1.51E-01
48	4.70	0.000	5.905	0.0476	20.1021	10.4161	1.44E-01
49	0.00	0.000	5.347	0.0298	18.0901	9.3736	1.38E-01
50	0.00	0.000	2.813	0.0204	17.7471	9.1958	1.38E-01

51	14.20	0.000	4.985	0.0511	17.3927	9.0122	1.36E-01
52	0.00	0.000	5.455	0.0329	16.9291	8.7720	1.35E-01
53	0.00	0.000	3.767	0.0203	16.3888	8.4920	1.34E-01
54	0.00	0.000	0.336	0.0190	15.7995	8.1866	1.32E-01
55	2.00	0.000	0.989	0.0224	15.1802	7.8657	1.30E-01
56	49.20	0.000	3.661	0.0951	14.5779	7.5537	1.28E-01
57	37.20	0.000	4.092	0.0841	13.2376	6.8592	1.25E-01
58	52.20	0.000	4.418	0.0871	11.4243	5.9196	1.19E-01
59	0.00	0.000	4.942	0.0488	10.0652	5.2154	1.15E-01
60	7.20	0.000	4.298	0.0585	10.5709	5.4774	1.17E-01
61	10.00	0.000	3.724	0.0647	12.5686	6.5125	1.23E-01
62	17.80	0.000	3.864	0.0855	13.5279	7.0096	1.25E-01
63	31.80	0.000	3.362	0.0855	13.1474	6.8124	1.24E-01
64	6.60	0.000	4.231	0.0631	12.1099	6.2749	1.21E-01
65	6.40	0.000	5.875	0.0640	12.2731	6.3594	1.22E-01
66	1.20	0.000	5.883	0.0446	14.1932	7.3543	1.27E-01
67	0.00	0.000	6.926	0.0215	15.6925	8.1312	1.32E-01
68	0.00	0.000	0.720	0.0191	16.7746	8.6919	1.35E-01
69	0.00	0.000	0.031	0.0190	17.3723	9.0016	1.36E-01
70	0.00	0.000	0.008	0.0190	17.6056	9.1225	1.37E-01
71	0.60	0.000	0.551	0.0192	17.5706	9.1044	1.37E-01
72	0.00	0.000	0.028	0.0191	17.3402	8.9850	1.36E-01
73	0.00	0.000	0.016	0.0190	16.9698	8.7931	1.35E-01
74	0.00	0.000	0.005	0.0190	16.5015	8.5504	1.34E-01
75	0.00	0.000	0.001	0.0190	15.9676	8.2737	1.32E-01
76	0.00	0.000	0.000	0.0190	15.3924	7.9757	1.31E-01
77	0.30	0.000	0.127	0.0196	14.7947	7.6660	1.29E-01
78	0.00	0.000	0.084	0.0193	13.9606	7.2338	1.27E-01
79	0.30	0.000	0.167	0.0197	12.1410	6.2910	1.21E-01

80	0.00	0.000	0.090	0.0194	10.4761	5.4283	1.17E-01
81	0.00	0.000	0.097	0.0191	9.0363	4.6823	1.12E-01
82	0.30	0.000	0.128	0.0197	7.7914	4.0372	1.09E-01
83	0.00	0.000	0.070	0.0195	6.7149	3.4794	1.06E-01
84	0.00	0.000	0.113	0.0191	5.7840	2.9970	1.03E-01
85	0.00	0.000	0.018	0.0190	4.9791	2.5799	1.01E-01
86	0.00	0.000	0.005	0.0190	4.2830	2.2193	9.87E-02
87	0.00	0.000	0.001	0.0190	3.6811	1.9074	9.70E-02
88	0.00	0.000	0.000	0.0190	3.1607	1.6377	9.55E-02
89	0.00	0.000	0.000	0.0190	2.7106	1.4045	9.42E-02
90	0.00	0.000	0.000	0.0190	2.3215	1.2029	9.31E-02
91	0.00	0.000	0.000	0.0190	1.9850	1.0285	9.21E-02
92	31.40	0.000	0.550	0.0928	1.6940	0.8778	9.13E-02
93	0.10	0.000	3.219	0.0400	1.4424	0.7474	9.06E-02
94	0.00	0.000	0.550	0.0382	1.4730	0.7633	9.06E-02
95	0.00	0.000	0.537	0.0364	2.5442	1.3183	9.37E-02
96	0.00	0.000	0.526	0.0346	3.7556	1.9460	9.72E-02
97	0.00	0.000	0.515	0.0329	4.7113	2.4412	1.00E-01
98	0.30	0.000	0.542	0.0321	5.0101	2.5960	1.01E-01
99	0.00	0.000	0.495	0.0305	4.3098	2.2332	9.88E-02
100	0.00	0.000	0.486	0.0288	3.7043	1.9194	9.71E-02
101	0.00	0.000	0.463	0.0273	3.1807	1.6481	9.56E-02
102	0.00	0.000	0.466	0.0257	2.7280	1.4135	9.43E-02
103	0.10	0.000	0.496	0.0244	2.3365	1.2107	9.31E-02
104	1.60	0.000	0.493	0.0281	1.9980	1.0353	9.22E-02
105	0.50	0.000	0.486	0.0282	1.7052	0.8836	9.13E-02
106	5.20	0.000	0.479	0.0438	1.4521	0.7524	9.06E-02
107	0.00	0.000	0.434	0.0423	1.2439	0.6445	9.00E-02
108	2.60	0.000	0.467	0.0494	1.0532	0.5457	8.94E-02

109	1.60	0.000	6.419	0.0329	0.9131	0.4731	8.90E-02
110	0.00	0.000	0.422	0.0315	0.7749	0.4015	8.86E-02
111	0.00	0.000	0.410	0.0302	0.6476	0.3356	8.83E-02
112	6.80	0.000	0.452	0.0513	0.5376	0.2785	8.79E-02
113	14.60	0.000	5.509	0.0727	0.4873	0.2525	8.78E-02
114	0.00	0.000	5.417	0.0483	0.5810	0.3011	8.81E-02
115	0.00	0.000	6.013	0.0282	1.1957	0.6195	8.98E-02
116	9.40	0.000	5.139	0.0424	1.2616	0.6537	9.00E-02
117	1.30	0.000	5.425	0.0280	1.1062	0.5732	8.96E-02
118	0.80	0.000	1.778	0.0248	0.9457	0.4900	8.91E-02
119	0.00	0.000	1.272	0.0205	0.7954	0.4121	8.87E-02
120	0.00	0.000	0.344	0.0194	0.6653	0.3447	8.83E-02
121	0.00	0.000	0.099	0.0191	0.5529	0.2865	8.80E-02
122	1.20	0.000	0.149	0.0226	0.4556	0.2361	8.77E-02
123	1.40	0.000	0.466	0.0257	0.3716	0.1925	8.75E-02
124	0.00	0.000	0.390	0.0244	0.2989	0.1549	8.73E-02
125	26.90	0.000	0.842	0.0949	0.2360	0.1223	8.71E-02
126	0.00	0.000	5.461	0.0436	0.1816	0.0941	8.69E-02
127	0.00	0.000	5.163	0.0264	0.3974	0.2059	8.75E-02
128	5.10	0.000	4.372	0.0288	1.5721	0.8146	9.09E-02
129	0.00	0.000	1.967	0.0223	2.8194	1.4609	9.45E-02
130	0.00	0.000	0.809	0.0196	3.2693	1.6940	9.58E-02
131	0.00	0.000	0.136	0.0191	2.8045	1.4532	9.45E-02
132	0.00	0.000	0.027	0.0190	2.4027	1.2450	9.33E-02
133	0.00	0.000	0.009	0.0190	2.0552	1.0649	9.23E-02
134	4.40	0.000	0.617	0.0316	1.7547	0.9092	9.15E-02
135	58.00	0.000	1.249	0.1150	1.5546	0.8055	9.09E-02
136	5.40	0.000	5.946	0.0571	1.3774	0.7137	9.04E-02
137	0.00	0.000	5.154	0.0399	2.3792	1.2328	9.33E-02

138	3.20	0.000	5.034	0.0338	4.1256	2.1377	9.83E-02
139	0.00	0.000	3.602	0.0201	5.4393	2.8184	1.02E-01
140	0.00	0.000	0.267	0.0192	6.4112	3.3220	1.05E-01
141	0.00	0.000	0.048	0.0191	7.2135	3.7377	1.07E-01
142	0.00	0.000	0.012	0.0190	7.7979	4.0406	1.09E-01
143	0.00	0.000	0.003	0.0190	8.2067	4.2524	1.10E-01
144	0.00	0.000	0.001	0.0190	8.0127	4.1518	1.09E-01
145	0.00	0.000	0.000	0.0190	6.9062	3.5785	1.06E-01
146	0.00	0.000	0.000	0.0190	5.9494	3.0828	1.04E-01
147	0.00	0.000	0.000	0.0190	5.1221	2.6541	1.01E-01
148	0.00	0.000	0.000	0.0190	4.4067	2.2834	9.91E-02
149	0.00	0.000	0.000	0.0190	3.7881	1.9628	9.73E-02
150	0.00	0.000	0.000	0.0190	3.2532	1.6857	9.58E-02
151	2.40	0.000	0.436	0.0255	2.7906	1.4460	9.44E-02
152	2.80	0.000	0.413	0.0335	2.3907	1.2387	9.33E-02
153	6.50	0.000	0.603	0.0532	2.0448	1.0595	9.23E-02
154	0.10	0.000	0.797	0.0508	1.7457	0.9046	9.14E-02
155	0.00	0.000	0.752	0.0483	1.4871	0.7706	9.07E-02
156	0.00	0.000	0.721	0.0459	1.2635	0.6547	9.00E-02
157	0.00	0.000	0.694	0.0436	1.0726	0.5558	8.95E-02
158	0.00	0.000	0.669	0.0412	0.9114	0.4722	8.90E-02
159	0.00	0.000	0.647	0.0390	0.7737	0.4009	8.86E-02
160	0.00	0.000	0.627	0.0369	0.6466	0.3350	8.83E-02
161	0.00	0.000	0.609	0.0349	0.5367	0.2781	8.79E-02
162	0.00	0.000	0.593	0.0329	0.4416	0.2288	8.77E-02
163	0.00	0.000	0.577	0.0310	0.3594	0.1862	8.74E-02
164	0.00	0.000	0.563	0.0291	0.2884	0.1494	8.72E-02
165	0.00	0.000	0.550	0.0273	0.2269	0.1176	8.71E-02
166	0.00	0.000	0.537	0.0255	0.1738	0.0901	8.69E-02

167	0.00	0.000	0.526	0.0237	0.1278	0.0662	8.68E-02
168	0.00	0.000	0.515	0.0220	0.0881	0.0457	8.67E-02
169	0.00	0.000	0.505	0.0203	0.0538	0.0279	8.66E-02
170	0.00	0.000	0.402	0.0190	0.0241	0.0125	8.65E-02
171	0.00	0.000	0.000	0.0190	0.0022	0.0010	2.61E-02
172	4.20	0.000	0.254	0.0322	0.0000	0.0000	0.00E+00
173	2.80	0.000	0.369	0.0403	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.379	0.0390	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.414	0.0376	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.408	0.0363	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.402	0.0349	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.420	0.0335	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.396	0.0322	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.408	0.0308	0.0000	0.0000	0.00E+00
181	1.80	0.000	0.460	0.0353	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.398	0.0340	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.393	0.0327	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.388	0.0314	0.0000	0.0000	0.00E+00
185	0.40	0.000	0.442	0.0312	0.0000	0.0000	0.00E+00
186	1.20	0.000	0.438	0.0338	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.374	0.0325	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.370	0.0313	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.366	0.0301	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.368	0.0288	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.370	0.0276	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.323	0.0265	0.0000	0.0000	0.00E+00
193	9.40	0.000	0.424	0.0565	0.0000	0.0000	0.00E+00
194	0.20	0.000	0.418	0.0557	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.355	0.0545	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.352	0.0534	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.348	0.0522	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.345	0.0511	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.342	0.0499	0.0000	0.0000	0.00E+00
200	4.20	0.000	0.404	0.0619	0.0353	0.0183	6.49E-02
201	0.50	0.000	0.401	0.0578	0.0692	0.0359	8.66E-02
202	0.00	0.000	0.333	0.0542	0.3838	0.1989	8.75E-02
203	0.00	0.000	0.330	0.0516	0.5025	0.2604	8.78E-02
204	0.00	0.000	0.328	0.0490	0.5293	0.2743	8.79E-02
205	0.00	0.000	0.325	0.0467	0.5454	0.2826	8.80E-02
206	0.40	0.000	0.389	0.0467	0.5073	0.2629	8.79E-02
207	0.00	0.000	0.320	0.0449	0.4319	0.2238	8.76E-02
208	0.00	0.000	0.317	0.0430	0.4182	0.2167	8.76E-02
209	0.00	0.000	0.315	0.0413	0.3994	0.2069	8.75E-02
210	0.00	0.000	0.271	0.0401	0.3674	0.1904	8.75E-02
211	0.00	0.000	0.310	0.0391	0.3032	0.1571	8.73E-02
212	0.00	0.000	0.308	0.0380	0.2398	0.1242	8.71E-02
213	0.00	0.000	0.306	0.0370	0.1849	0.0958	8.69E-02
214	0.00	0.000	0.304	0.0360	0.1374	0.0712	8.68E-02
215	0.00	0.000	0.301	0.0350	0.0964	0.0500	8.67E-02
216	0.00	0.000	0.299	0.0340	0.0609	0.0316	8.66E-02
217	2.30	0.000	0.368	0.0405	0.0303	0.0157	8.65E-02
218	0.00	0.000	0.295	0.0395	0.0051	0.0026	4.52E-02
219	0.00	0.000	0.293	0.0385	0.0000	0.0000	0.00E+00
220	2.60	0.000	0.364	0.0459	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.289	0.0450	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.288	0.0440	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.286	0.0431	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.284	0.0420	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.282	0.0409	0.0080	0.0042	8.64E-02
226	0.00	0.000	0.281	0.0399	0.0003	0.0000	3.90E-03
227	0.00	0.000	0.279	0.0390	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.265	0.0379	0.0033	0.0015	5.62E-02
229	0.00	0.000	0.275	0.0368	0.0019	0.0010	2.16E-02
230	0.00	0.000	0.274	0.0358	0.0054	0.0027	6.37E-02
231	0.00	0.000	0.272	0.0349	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.271	0.0340	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.269	0.0331	0.0000	0.0000	0.00E+00
234	0.20	0.000	0.341	0.0326	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.266	0.0317	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.265	0.0308	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.256	0.0300	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.262	0.0291	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.261	0.0283	0.0000	0.0000	0.00E+00
240	0.90	0.000	0.341	0.0301	0.0000	0.0000	0.00E+00
241	20.40	0.000	0.341	0.0967	0.0000	0.0000	0.00E+00
242	36.40	0.000	3.397	0.0967	0.0957	0.0496	8.67E-02
243	227.70	0.000	3.453	0.1559	0.0871	0.0451	8.66E-02
244	57.40	0.000	5.705	0.0906	0.0977	0.0506	8.67E-02
245	0.00	0.000	4.955	0.0463	4.8793	2.5283	1.00E-01
246	0.00	0.000	6.343	0.0251	16.6318	8.6179	1.34E-01
247	1.80	0.000	2.267	0.0219	26.1031	13.5255	1.62E-01
248	0.00	0.000	0.688	0.0196	39.9449	15.5363	2.01E-01
249	0.00	0.000	0.142	0.0192	51.1149	15.5812	2.34E-01
250	0.00	0.000	0.036	0.0190	55.7415	15.5892	2.47E-01
251	0.30	0.000	0.309	0.0190	56.9875	15.5914	2.51E-01
252	3.40	0.000	0.970	0.0271	55.7343	15.5892	2.47E-01
253	3.20	0.000	0.763	0.0352	52.5678	15.5838	2.38E-01

254	0.00	0.000	0.918	0.0322	47.8964	15.5757	2.24E-01
255	0.00	0.000	0.989	0.0289	42.0160	15.5655	2.07E-01
256	0.60	0.000	1.035	0.0274	34.4963	15.5238	1.86E-01
257	0.00	0.000	0.914	0.0244	28.6168	14.8280	1.69E-01
258	0.00	0.000	0.802	0.0217	26.7902	13.8816	1.64E-01
259	0.00	0.000	0.667	0.0195	25.0530	12.9814	1.59E-01
260	0.00	0.000	0.117	0.0191	23.4143	12.1323	1.54E-01
261	0.00	0.000	0.028	0.0190	21.8776	11.3361	1.49E-01
262	0.00	0.000	0.000	0.0190	20.4433	10.5929	1.45E-01
263	0.00	0.000	0.000	0.0190	19.1065	9.9002	1.41E-01
264	0.00	0.000	0.000	0.0190	16.9511	8.7834	1.35E-01
265	0.50	0.000	0.145	0.0202	14.6354	7.5835	1.29E-01
266	0.00	0.000	0.148	0.0197	12.6329	6.5459	1.23E-01
267	0.00	0.000	0.162	0.0191	10.9014	5.6487	1.18E-01
268	0.00	0.000	0.038	0.0190	9.4041	4.8728	1.13E-01
269	0.00	0.000	0.005	0.0190	8.1094	4.2020	1.10E-01
270	0.00	0.000	0.001	0.0190	6.9899	3.6219	1.07E-01
271	0.00	0.000	0.000	0.0190	6.0218	3.1202	1.04E-01
272	0.50	0.000	0.136	0.0202	5.1847	2.6865	1.01E-01
273	0.60	0.000	0.252	0.0214	4.4608	2.3114	9.92E-02
274	0.00	0.000	0.246	0.0206	3.8349	1.9871	9.74E-02
275	0.00	0.000	0.313	0.0195	3.2936	1.7066	9.59E-02
276	0.00	0.000	0.123	0.0191	2.8256	1.4641	9.45E-02
277	0.00	0.000	0.026	0.0190	2.4209	1.2544	9.34E-02
278	0.00	0.000	0.003	0.0190	2.0709	1.0731	9.24E-02
279	0.00	0.000	0.001	0.0190	1.7683	0.9163	9.15E-02
280	0.00	0.000	0.000	0.0190	1.5067	0.7807	9.07E-02
281	0.90	0.000	0.130	0.0216	1.2804	0.6634	9.01E-02
282	0.90	0.000	0.281	0.0236	1.0847	0.5621	8.95E-02

283	0.80	0.000	0.278	0.0254	0.9156	0.4744	8.90E-02
284	0.00	0.000	0.296	0.0244	0.7693	0.3986	8.86E-02
285	0.00	0.000	0.292	0.0234	0.6427	0.3330	8.82E-02
286	1.20	0.000	0.379	0.0261	0.5334	0.2764	8.79E-02
287	23.50	0.000	0.477	0.1018	0.4388	0.2274	8.77E-02
288	0.00	0.000	0.416	0.0543	0.5942	0.3079	8.81E-02
289	0.00	0.000	0.411	0.0529	1.0896	0.5646	8.95E-02
290	1.70	0.000	0.499	0.0538	2.0008	1.0368	9.22E-02
291	0.00	0.000	0.400	0.0524	2.9971	1.5530	9.50E-02
292	0.00	0.000	0.396	0.0508	3.3020	1.7109	9.59E-02
293	0.00	0.000	0.391	0.0490	2.8649	1.4845	9.46E-02
294	0.00	0.000	0.386	0.0469	2.4931	1.2918	9.36E-02
295	0.00	0.000	0.382	0.0447	2.2038	1.1419	9.27E-02
296	6.00	0.000	0.475	0.0631	1.9292	0.9996	9.20E-02
297	0.80	0.000	6.693	0.0434	1.6458	0.8528	9.11E-02
298	0.00	0.000	0.374	0.0404	1.4707	0.7621	9.06E-02
299	0.00	0.000	0.370	0.0383	1.3483	0.6986	9.03E-02
300	13.40	0.000	0.466	0.0814	1.1825	0.6127	8.98E-02
301	0.00	0.000	6.262	0.0432	1.0439	0.5409	8.94E-02
302	15.80	0.000	6.279	0.0749	1.3195	0.6837	9.02E-02
303	0.00	0.000	5.924	0.0450	2.0121	1.0426	9.22E-02
304	19.00	0.000	5.136	0.0859	2.3127	1.1983	9.31E-02
305	0.00	0.000	3.617	0.0514	2.4019	1.2446	9.33E-02
306	11.40	0.000	5.773	0.0661	2.3640	1.2249	9.32E-02
307	0.00	0.000	5.154	0.0467	3.1381	1.6260	9.54E-02
308	0.00	0.000	6.019	0.0266	3.5539	1.8415	9.66E-02
309	0.00	0.000	2.279	0.0190	3.1631	1.6390	9.55E-02
310	0.40	0.000	0.400	0.0190	2.7127	1.4056	9.42E-02
311	0.00	0.000	0.000	0.0190	2.3233	1.2038	9.31E-02

312	0.00	0.000	0.000	0.0190	1.9865	1.0293	9.21E-02
313	0.00	0.000	0.000	0.0190	1.6953	0.8784	9.13E-02
314	5.00	0.000	0.676	0.0334	1.4435	0.7480	9.06E-02
315	0.00	0.000	0.809	0.0307	1.2258	0.6352	8.99E-02
316	0.90	0.000	1.000	0.0304	1.0375	0.5376	8.94E-02
317	6.60	0.000	0.972	0.0491	0.8747	0.4533	8.89E-02
318	2.00	0.000	0.966	0.0526	0.7340	0.3803	8.85E-02
319	0.00	0.000	0.874	0.0497	0.6122	0.3172	8.82E-02
320	0.00	0.000	0.827	0.0469	0.5070	0.2627	8.79E-02
321	0.00	0.000	0.787	0.0443	0.4159	0.2155	8.76E-02
322	0.40	0.000	0.858	0.0426	0.3397	0.1760	8.74E-02
323	2.90	0.000	0.830	0.0494	0.2867	0.1486	8.72E-02
324	22.00	0.000	0.804	0.0896	0.2540	0.1316	8.71E-02
325	17.60	0.000	5.013	0.0810	0.4193	0.2173	8.76E-02
326	0.40	0.000	5.090	0.0377	0.3436	0.1780	8.74E-02
327	0.20	0.000	5.813	0.0190	0.5364	0.2779	8.79E-02
328	0.50	0.000	0.500	0.0190	1.9074	0.9883	9.19E-02
329	0.30	0.000	0.300	0.0190	3.3698	1.7461	9.61E-02
330	10.00	0.000	3.885	0.0394	4.5213	2.3428	9.94E-02
331	6.50	0.000	3.655	0.0489	5.4142	2.8054	1.02E-01
332	0.60	0.000	5.201	0.0335	6.0071	3.1126	1.04E-01
333	0.00	0.000	4.058	0.0200	5.4105	2.8035	1.02E-01
334	0.20	0.000	0.425	0.0190	4.6709	2.4203	9.99E-02
335	0.00	0.000	0.000	0.0190	4.0212	2.0836	9.80E-02
336	0.00	0.000	0.000	0.0190	3.4547	1.7901	9.63E-02
337	0.00	0.000	0.000	0.0190	2.9649	1.5363	9.49E-02
338	0.00	0.000	0.000	0.0190	2.5414	1.3168	9.37E-02
339	0.00	0.000	0.000	0.0190	2.1751	1.1271	9.27E-02
340	0.00	0.000	0.000	0.0190	1.8584	0.9629	9.18E-02

341	0.00	0.000	0.000	0.0190	1.5845	0.8210	9.10E-02
342	0.00	0.000	0.000	0.0190	1.3477	0.6983	9.03E-02
343	0.60	0.000	0.188	0.0204	1.1430	0.5922	8.97E-02
344	5.40	0.000	0.460	0.0368	0.9659	0.5005	8.92E-02
345	0.70	0.000	0.761	0.0366	0.8128	0.4212	8.87E-02
346	27.50	0.000	0.800	0.0838	0.6804	0.3526	8.84E-02
347	0.00	0.000	5.958	0.0420	0.8600	0.4456	8.89E-02
348	0.00	0.000	5.966	0.0221	1.4366	0.7444	9.05E-02
349	1.20	0.000	1.344	0.0209	2.5861	1.3400	9.38E-02
350	0.00	0.000	0.459	0.0193	3.6684	1.9008	9.70E-02
351	0.00	0.000	0.076	0.0191	4.2810	2.2182	9.87E-02
352	0.00	0.000	0.019	0.0190	3.7448	1.9404	9.72E-02
353	0.00	0.000	0.005	0.0190	3.2157	1.6663	9.57E-02
354	0.00	0.000	0.001	0.0190	2.7582	1.4292	9.43E-02
355	17.20	0.000	1.012	0.0730	2.3626	1.2242	9.32E-02
356	3.80	0.000	5.489	0.0535	2.0206	1.0470	9.22E-02
357	9.40	0.000	1.118	0.0657	1.9745	1.0231	9.21E-02
358	0.00	0.000	6.179	0.0416	2.4541	1.2716	9.35E-02
359	0.00	0.000	6.403	0.0202	2.8879	1.4964	9.47E-02
360	0.00	0.000	0.374	0.0190	3.2191	1.6680	9.57E-02
361	0.00	0.000	0.000	0.0190	2.7612	1.4307	9.44E-02
362	0.00	0.000	0.000	0.0190	2.3652	1.2255	9.32E-02
363	0.90	0.000	0.235	0.0212	2.0228	1.0481	9.22E-02
364	25.30	0.000	1.217	0.1015	1.7267	0.8947	9.14E-02
365	0.40	0.000	3.820	0.0413	1.6342	0.8468	9.11E-02

* = Frozen (air or soil)

Annual Totals for Year 3			
	mm*	cubic meters	percent
Precipitation	2,077.30	20,773.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	515.578	5,155.8	24.82
Drainage Collected from Layer 2	1,747.2495	17,472.5	84.11
Percolation/Leakage through Layer 3	68.215492	682.2	3.28
Average Head on Top of Layer 3	38.9824 (cm)	---	---
Change in Water Storage	-253.7429	-2,537.4	-12.22
Soil Water at Start of Year	1,131.3300	11,313.3	54.46
Soil Water at End of Year	877.5871	8,775.9	42.25
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 4

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			20.40	0.000	4.479	0.0871		1.9788	1.0253	9.21E-02
2			14.80	0.000	4.142	0.0822		2.5654	1.3293	9.38E-02
3			14.20	0.000	5.164	0.0713		2.5498	1.3212	9.37E-02
4			0.60	0.000	5.167	0.0469		2.2768	1.1797	9.30E-02
5			0.00	0.000	3.825	0.0342		2.6650	1.3809	9.41E-02
6	*Note: head c		87.60	0.000	4.643	0.1140		4.0574	2.1024	9.81E-02
7			8.60	0.000	6.206	0.0570		4.0765	2.1123	9.81E-02
8			0.00	0.000	6.270	0.0361		4.8119	2.4933	1.00E-01
9			6.80	0.000	6.236	0.0379		7.5531	3.9137	1.08E-01
10			0.00	0.000	4.843	0.0218		9.6002	4.9745	1.14E-01
11			0.00	0.000	0.629	0.0197		11.0516	5.7265	1.18E-01
12			0.70	0.000	0.764	0.0195		12.0428	6.2401	1.21E-01
13			3.60	0.000	1.802	0.0255		12.6785	6.5695	1.23E-01
14			66.60	0.000	6.239	0.1160		13.0505	6.7622	1.24E-01
15			55.40	0.000	3.104	0.0968		12.6962	6.5787	1.23E-01
16			10.90	0.000	4.464	0.0617		11.1232	5.7636	1.18E-01
17			2.40	0.000	5.401	0.0503		10.5781	5.4811	1.17E-01
18			2.60	0.000	4.825	0.0425		13.3035	6.8933	1.25E-01
19			1.40	0.000	5.954	0.0273		15.6000	8.0833	1.31E-01
20			5.90	0.000	4.141	0.0332		17.0803	8.8503	1.36E-01
21			0.00	0.000	3.291	0.0222		17.9447	9.2982	1.38E-01

22	0.00	0.000	0.751	0.0197	18.3541	9.5103	1.39E-01
23	0.00	0.000	0.185	0.0191	18.4296	9.5495	1.39E-01
24	0.00	0.000	0.034	0.0190	18.2622	9.4627	1.39E-01
25	0.00	0.000	0.000	0.0190	17.9204	9.2856	1.38E-01
26	0.00	0.000	0.000	0.0190	17.4561	9.0450	1.37E-01
27	0.00	0.000	0.000	0.0190	16.9087	8.7614	1.35E-01
28	1.70	0.000	0.415	0.0233	16.3079	8.4501	1.33E-01
29	0.00	0.000	0.503	0.0216	15.6764	8.1229	1.32E-01
30	0.00	0.000	0.582	0.0197	15.0311	7.7885	1.30E-01
31	0.00	0.000	0.167	0.0191	14.0678	7.2894	1.27E-01
32	0.20	0.000	0.157	0.0193	12.1890	6.3158	1.22E-01
33	1.20	0.000	0.135	0.0228	10.5175	5.4498	1.17E-01
34	2.50	0.000	0.404	0.0298	9.0722	4.7008	1.13E-01
35	31.60	0.000	0.817	0.0819	7.8224	4.0532	1.09E-01
36	11.40	0.000	2.852	0.0695	7.0331	3.6443	1.07E-01
37	7.90	0.000	6.028	0.0608	6.7253	3.4848	1.06E-01
38	0.00	0.000	5.604	0.0389	6.4105	3.3217	1.05E-01
39	0.00	0.000	5.630	0.0201	6.9477	3.6000	1.06E-01
40	1.20	0.000	0.943	0.0210	7.6616	3.9699	1.08E-01
41	1.00	0.000	0.582	0.0224	8.1758	4.2364	1.10E-01
42	20.40	0.000	2.751	0.0812	8.5378	4.4240	1.11E-01
43	2.40	0.000	2.884	0.0491	8.1528	4.2244	1.10E-01
44	2.10	0.000	3.127	0.0415	7.0505	3.6533	1.07E-01
45	8.00	0.000	2.992	0.0582	6.9227	3.5871	1.06E-01
46	76.90	0.000	5.360	0.1089	7.3398	3.8032	1.08E-01
47	0.20	0.000	4.333	0.0480	6.6369	3.4390	1.06E-01
48	0.60	0.000	7.033	0.0266	7.0846	3.6710	1.07E-01
49	0.00	0.000	2.279	0.0190	8.6310	4.4722	1.11E-01
50	0.40	0.000	0.400	0.0190	9.8132	5.0848	1.15E-01

51	0.00	0.000	0.000	0.0190	10.6349	5.5106	1.17E-01
52	0.20	0.000	0.200	0.0190	11.1739	5.7899	1.19E-01
53	0.00	0.000	0.000	0.0190	11.4917	5.9545	1.19E-01
54	0.20	0.000	0.200	0.0190	11.6372	6.0299	1.20E-01
55	0.00	0.000	0.000	0.0190	11.6494	6.0362	1.20E-01
56	4.60	0.000	0.619	0.0323	11.5594	5.9896	1.20E-01
57	5.60	0.000	0.857	0.0481	11.1771	5.7915	1.19E-01
58	47.00	0.000	1.136	0.1087	9.7404	5.0471	1.14E-01
59	102.50	0.000	3.196	0.1155	8.4002	4.3527	1.11E-01
60	52.80	0.000	6.169	0.0945	7.2687	3.7663	1.07E-01
61	0.00	0.000	6.656	0.0461	6.6825	3.4626	1.06E-01
62	0.00	0.000	7.008	0.0228	10.3363	5.3559	1.16E-01
63	0.00	0.000	0.847	0.0190	15.1395	7.8447	1.30E-01
64	10.00	0.000	3.905	0.0393	18.1184	9.3882	1.39E-01
65	11.20	0.000	5.127	0.0596	19.9730	10.3492	1.44E-01
66	0.00	0.000	5.733	0.0405	21.0057	10.8843	1.47E-01
67	0.60	0.000	5.173	0.0252	21.4521	11.1156	1.48E-01
68	38.40	0.000	4.420	0.0832	21.4807	11.1304	1.48E-01
69	0.60	0.000	4.862	0.0411	20.7197	10.7361	1.46E-01
70	0.40	0.000	5.325	0.0246	19.2498	9.9745	1.42E-01
71	4.30	0.000	3.464	0.0261	19.2853	9.9929	1.42E-01
72	1.00	0.000	2.068	0.0225	19.3015	10.0012	1.42E-01
73	1.60	0.000	1.556	0.0227	19.1165	9.9054	1.41E-01
74	0.00	0.000	0.812	0.0200	18.7444	9.7126	1.40E-01
75	0.00	0.000	0.221	0.0192	18.2419	9.4522	1.39E-01
76	0.00	0.000	0.058	0.0191	17.6517	9.1464	1.37E-01
77	0.00	0.000	0.012	0.0190	17.0060	8.8118	1.35E-01
78	0.00	0.000	0.003	0.0190	16.3291	8.4611	1.33E-01
79	0.00	0.000	0.001	0.0190	15.6389	8.1035	1.31E-01

80	0.00	0.000	0.000	0.0190	14.9325	7.7374	1.29E-01
81	2.40	0.000	0.549	0.0252	13.2641	6.8729	1.25E-01
82	0.00	0.000	0.455	0.0237	11.4472	5.9315	1.19E-01
83	1.20	0.000	0.718	0.0253	9.8761	5.1174	1.15E-01
84	2.20	0.000	0.551	0.0308	8.5175	4.4134	1.11E-01
85	0.00	0.000	0.611	0.0287	7.3428	3.8047	1.08E-01
86	0.00	0.000	0.601	0.0267	6.3269	3.2784	1.05E-01
87	0.00	0.000	0.649	0.0245	5.4485	2.8232	1.02E-01
88	0.00	0.000	0.610	0.0225	4.6890	2.4296	9.99E-02
89	0.80	0.000	0.642	0.0230	4.0322	2.0893	9.80E-02
90	1.20	0.000	0.682	0.0248	3.4642	1.7950	9.64E-02
91	6.10	0.000	0.509	0.0434	2.9731	1.5406	9.50E-02
92	0.20	0.000	0.667	0.0418	2.5485	1.3205	9.37E-02
93	33.10	0.000	0.658	0.0948	2.1813	1.1302	9.27E-02
94	0.00	0.000	6.072	0.0395	1.8637	0.9657	9.18E-02
95	0.00	0.000	6.154	0.0190	2.1210	1.0990	9.25E-02
96	0.20	0.000	0.200	0.0190	3.4101	1.7670	9.62E-02
97	26.80	0.000	5.600	0.0897	4.5655	2.3656	9.95E-02
98	0.00	0.000	5.097	0.0459	5.4186	2.8077	1.02E-01
99	0.40	0.000	5.022	0.0270	5.2460	2.7182	1.02E-01
100	0.00	0.000	2.411	0.0190	5.6487	2.9269	1.03E-01
101	2.30	0.000	1.446	0.0218	6.3335	3.2818	1.05E-01
102	0.00	0.000	0.633	0.0197	6.3862	3.3091	1.05E-01
103	0.00	0.000	0.167	0.0192	5.4998	2.8498	1.02E-01
104	0.20	0.000	0.240	0.0190	4.7333	2.4526	1.00E-01
105	0.00	0.000	0.010	0.0190	4.0705	2.1092	9.81E-02
106	0.00	0.000	0.003	0.0190	3.4974	1.8122	9.65E-02
107	0.00	0.000	0.001	0.0190	3.0018	1.5554	9.50E-02
108	0.40	0.000	0.144	0.0199	2.5732	1.3333	9.38E-02

109	0.20	0.000	0.135	0.0201	2.2027	1.1413	9.27E-02
110	0.00	0.000	0.180	0.0195	1.8822	0.9753	9.18E-02
111	0.00	0.000	0.108	0.0191	1.6052	0.8317	9.10E-02
112	0.00	0.000	0.026	0.0190	1.3656	0.7076	9.03E-02
113	0.00	0.000	0.005	0.0190	1.1584	0.6002	8.97E-02
114	7.80	0.000	0.368	0.0438	0.9792	0.5074	8.92E-02
115	0.00	0.000	0.593	0.0418	0.8243	0.4271	8.88E-02
116	2.20	0.000	0.724	0.0467	0.6904	0.3577	8.84E-02
117	10.90	0.000	0.701	0.0696	0.5745	0.2977	8.81E-02
118	0.10	0.000	0.692	0.0569	0.5066	0.2625	8.79E-02
119	0.00	0.000	0.627	0.0525	1.0022	0.5193	8.93E-02
120	0.40	0.000	0.663	0.0498	1.9481	1.0094	9.20E-02
121	0.80	0.000	0.647	0.0497	1.9941	1.0332	9.21E-02
122	0.20	0.000	0.630	0.0480	1.7163	0.8893	9.13E-02
123	0.00	0.000	0.563	0.0451	1.5182	0.7867	9.08E-02
124	0.00	0.000	0.550	0.0425	1.3600	0.7047	9.03E-02
125	0.00	0.000	0.477	0.0407	1.1992	0.6214	8.99E-02
126	0.00	0.000	0.526	0.0389	1.0219	0.5295	8.93E-02
127	0.00	0.000	0.515	0.0372	0.8612	0.4462	8.89E-02
128	0.00	0.000	0.505	0.0355	0.7223	0.3742	8.85E-02
129	0.90	0.000	0.550	0.0367	0.6021	0.3120	8.81E-02
130	6.80	0.000	0.541	0.0576	0.4982	0.2582	8.78E-02
131	0.20	0.000	0.531	0.0559	0.4084	0.2116	8.76E-02
132	0.00	0.000	0.469	0.0529	0.4169	0.2160	8.76E-02
133	0.00	0.000	0.461	0.0513	0.4102	0.2125	8.76E-02
134	0.00	0.000	0.454	0.0498	0.3322	0.1722	8.74E-02
135	0.00	0.000	0.447	0.0483	0.2649	0.1372	8.72E-02
136	0.00	0.000	0.440	0.0469	0.2066	0.1070	8.70E-02
137	0.00	0.000	0.434	0.0454	0.1562	0.0809	8.68E-02

138	0.00	0.000	0.428	0.0440	0.1126	0.0584	8.67E-02
139	0.00	0.000	0.422	0.0426	0.0750	0.0388	8.66E-02
140	0.00	0.000	0.416	0.0412	0.0424	0.0220	8.65E-02
141	0.00	0.000	0.411	0.0398	0.0142	0.0072	8.09E-02
142	0.00	0.000	0.405	0.0385	0.0000	0.0000	0.00E+00
143	1.00	0.000	0.458	0.0403	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.396	0.0390	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.391	0.0377	0.0000	0.0000	0.00E+00
146	5.20	0.000	0.444	0.0535	0.0000	0.0000	0.00E+00
147	0.30	0.000	0.440	0.0528	0.0103	0.0054	4.32E-02
148	0.00	0.000	0.378	0.0512	0.0135	0.0070	8.64E-02
149	0.10	0.000	0.422	0.0494	0.0261	0.0135	8.65E-02
150	0.00	0.000	0.370	0.0478	0.0401	0.0208	8.65E-02
151	0.00	0.000	0.366	0.0466	0.0284	0.0147	8.65E-02
152	0.00	0.000	0.362	0.0454	0.0041	0.0020	3.97E-02
153	0.00	0.000	0.359	0.0442	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.355	0.0430	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.352	0.0419	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.348	0.0407	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.345	0.0396	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.342	0.0384	0.0000	0.0000	0.00E+00
159	0.00	0.000	0.339	0.0373	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.336	0.0362	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.333	0.0351	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.330	0.0339	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.328	0.0329	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.325	0.0318	0.0000	0.0000	0.00E+00
165	0.40	0.000	0.385	0.0318	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.320	0.0308	0.0000	0.0000	0.00E+00

167	0.00	0.000	0.308	0.0297	0.0000	0.0000	0.00E+00
168	0.00	0.000	0.301	0.0287	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.302	0.0277	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.307	0.0267	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.307	0.0257	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.306	0.0247	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.304	0.0236	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.301	0.0226	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.299	0.0216	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.297	0.0206	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.295	0.0197	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.199	0.0190	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
185	1.00	0.000	0.091	0.0220	0.0000	0.0000	0.00E+00
186	3.50	0.000	0.184	0.0331	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.186	0.0325	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.227	0.0317	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.225	0.0310	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.224	0.0302	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.243	0.0294	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.246	0.0286	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.244	0.0278	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.222	0.0270	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.242	0.0262	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.240	0.0254	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.239	0.0246	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.238	0.0238	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.237	0.0230	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.235	0.0223	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.234	0.0215	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.245	0.0207	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.246	0.0198	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.214	0.0191	0.0000	0.0000	0.00E+00
205	7.40	0.000	0.219	0.0431	0.0000	0.0000	0.00E+00
206	1.20	0.000	0.281	0.0461	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.241	0.0453	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.240	0.0445	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.245	0.0437	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.246	0.0429	0.0001	0.0000	9.63E-04
211	0.00	0.000	0.245	0.0421	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.244	0.0413	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.242	0.0404	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.241	0.0396	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.240	0.0388	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.239	0.0380	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.238	0.0373	0.0000	0.0000	0.00E+00
218	4.40	0.000	0.318	0.0509	0.0002	0.0000	2.35E-03
219	0.00	0.000	0.236	0.0501	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.235	0.0492	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.234	0.0483	0.0030	0.0015	4.01E-02
222	0.00	0.000	0.233	0.0472	0.0035	0.0018	8.64E-02
223	0.00	0.000	0.232	0.0464	0.0008	0.0004	2.05E-02
224	0.00	0.000	0.231	0.0457	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.230	0.0449	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.229	0.0441	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.228	0.0434	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.227	0.0426	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.227	0.0419	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.226	0.0411	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.225	0.0404	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.224	0.0396	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.223	0.0389	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.222	0.0381	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.221	0.0374	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.221	0.0367	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.220	0.0359	0.0000	0.0000	0.00E+00
238	1.00	0.000	0.308	0.0382	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.218	0.0373	0.0041	0.0021	4.32E-02
240	0.00	0.000	0.217	0.0365	0.0048	0.0023	5.15E-02
241	0.00	0.000	0.217	0.0357	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.216	0.0350	0.0000	0.0000	0.00E+00
243	0.80	0.000	0.306	0.0367	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.214	0.0358	0.0032	0.0017	4.35E-02
245	0.00	0.000	0.213	0.0351	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.213	0.0344	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.212	0.0337	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.211	0.0330	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.211	0.0323	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.208	0.0316	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.209	0.0309	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.208	0.0302	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.208	0.0295	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.207	0.0288	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.206	0.0281	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.206	0.0274	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.205	0.0267	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.204	0.0261	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.204	0.0254	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.203	0.0247	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.202	0.0240	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.202	0.0234	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.201	0.0227	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.201	0.0220	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.200	0.0213	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.199	0.0207	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.199	0.0200	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.198	0.0194	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.108	0.0190	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
272	2.80	0.000	0.190	0.0277	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.082	0.0274	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.131	0.0270	0.0000	0.0000	0.00E+00
275	1.10	0.000	0.239	0.0299	0.0000	0.0000	0.00E+00
276	0.60	0.000	0.267	0.0310	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.173	0.0304	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.164	0.0299	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.160	0.0293	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.157	0.0288	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.157	0.0283	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.156	0.0278	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.156	0.0272	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.156	0.0267	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.172	0.0261	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.172	0.0256	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.171	0.0250	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.171	0.0244	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.170	0.0239	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.170	0.0233	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.169	0.0227	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.169	0.0222	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.168	0.0216	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.168	0.0210	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.171	0.0205	0.0000	0.0000	0.00E+00
296	1.00	0.000	0.289	0.0228	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.175	0.0223	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.176	0.0217	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.176	0.0211	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.167	0.0205	0.0000	0.0000	0.00E+00
301	0.00	0.000	0.134	0.0201	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.121	0.0197	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.121	0.0193	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.065	0.0191	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.016	0.0190	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
307	0.10	0.000	0.085	0.0191	0.0000	0.0000	0.00E+00
308	9.30	0.000	0.246	0.0492	0.0000	0.0000	0.00E+00
309	7.80	0.000	0.289	0.0622	0.0436	0.0226	2.17E-02
310	35.00	0.000	4.724	0.0985	0.1452	0.0753	8.68E-02
311	2.80	0.000	6.504	0.0406	0.1032	0.0535	8.67E-02

312	0.00	0.000	5.895	0.0209	0.6548	0.3393	8.83E-02
313	44.40	0.000	5.972	0.0849	2.3345	1.2096	9.31E-02
314	0.00	0.000	5.798	0.0393	3.4123	1.7681	9.62E-02
315	0.00	0.000	4.744	0.0224	3.6256	1.8786	9.68E-02
316	0.20	0.000	1.235	0.0190	4.9611	2.5707	1.01E-01
317	0.00	0.000	0.000	0.0190	6.2784	3.2532	1.04E-01
318	0.00	0.000	0.000	0.0190	7.2682	3.7661	1.07E-01
319	0.00	0.000	0.000	0.0190	7.9936	4.1420	1.09E-01
320	0.00	0.000	0.000	0.0190	8.5063	4.4076	1.11E-01
321	0.80	0.000	0.308	0.0206	8.8482	4.5848	1.12E-01
322	47.80	0.000	1.750	0.0939	8.9408	4.6328	1.12E-01
323	23.80	0.000	5.243	0.0978	7.9715	4.1305	1.09E-01
324	37.10	0.000	3.719	0.0983	7.4313	3.8506	1.08E-01
325	9.20	0.000	4.471	0.0647	6.7200	3.4820	1.06E-01
326	0.40	0.000	4.107	0.0449	6.7131	3.4785	1.06E-01
327	36.40	0.000	4.990	0.0934	7.5180	3.8955	1.08E-01
328	0.00	0.000	5.156	0.0483	8.4434	4.3750	1.11E-01
329	0.10	0.000	5.352	0.0308	8.3546	4.3290	1.10E-01
330	1.60	0.000	3.414	0.0226	10.3052	5.3397	1.16E-01
331	39.00	0.000	3.198	0.0828	11.7779	6.1028	1.20E-01
332	5.60	0.000	3.552	0.0600	12.2813	6.3637	1.22E-01
333	8.20	0.000	4.644	0.0650	11.8323	6.1310	1.20E-01
334	3.00	0.000	4.116	0.0586	12.5381	6.4968	1.23E-01
335	0.00	0.000	4.733	0.0405	13.3304	6.9073	1.25E-01
336	0.70	0.000	5.201	0.0255	14.0159	7.2625	1.27E-01
337	0.00	0.000	1.489	0.0192	14.4598	7.4925	1.28E-01
338	0.00	0.000	0.044	0.0191	14.6377	7.5847	1.29E-01
339	0.00	0.000	0.014	0.0190	14.6750	7.6040	1.29E-01
340	0.00	0.000	0.003	0.0190	14.5538	7.5412	1.28E-01

341	0.00	0.000	0.001	0.0190	14.3153	7.4176	1.28E-01
342	0.00	0.000	0.000	0.0190	13.9920	7.2501	1.27E-01
343	0.00	0.000	0.000	0.0190	13.6087	7.0515	1.26E-01
344	0.00	0.000	0.000	0.0190	13.1289	6.8029	1.24E-01
345	0.00	0.000	0.000	0.0190	11.6119	6.0168	1.20E-01
346	0.00	0.000	0.000	0.0190	10.0185	5.1912	1.15E-01
347	0.00	0.000	0.000	0.0190	8.6407	4.4772	1.11E-01
348	0.40	0.000	0.208	0.0196	7.4492	3.8599	1.08E-01
349	1.40	0.000	0.266	0.0234	6.4190	3.3261	1.05E-01
350	0.00	0.000	0.346	0.0223	5.5282	2.8645	1.02E-01
351	0.00	0.000	0.529	0.0205	4.7578	2.4653	1.00E-01
352	0.00	0.000	0.341	0.0194	4.0917	2.1202	9.82E-02
353	9.00	0.000	0.730	0.0469	3.5157	1.8217	9.65E-02
354	8.40	0.000	0.742	0.0620	3.0176	1.5636	9.51E-02
355	0.00	0.000	0.669	0.0581	2.7147	1.4067	9.42E-02
356	0.00	0.000	0.647	0.0542	3.1101	1.6115	9.54E-02
357	0.00	0.000	0.627	0.0521	2.8377	1.4704	9.46E-02
358	1.00	0.000	0.749	0.0529	2.4314	1.2599	9.34E-02
359	5.50	0.000	0.733	0.0676	2.0896	1.0827	9.24E-02
360	52.40	0.000	0.717	0.1023	1.8688	0.9683	9.18E-02
361	40.60	0.000	5.203	0.1009	1.5935	0.8257	9.10E-02
362	0.00	0.000	6.011	0.0474	1.3611	0.7053	9.03E-02
363	0.00	0.000	6.215	0.0266	2.6854	1.3915	9.41E-02
364	0.00	0.000	1.950	0.0190	5.2580	2.7245	1.02E-01
365	0.00	0.000	0.000	0.0190	7.1956	3.7285	1.07E-01

* = Frozen (air or soil)

Annual Totals for Year 4			
	mm*	cubic meters	percent
Precipitation	1,325.00	13,250.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	439.444	4,394.4	33.17
Drainage Collected from Layer 2	810.1076	8,101.1	61.14
Percolation/Leakage through Layer 3	22.342564	223.4	1.69
Average Head on Top of Layer 3	4.2717 (cm)	---	---
Change in Water Storage	53.1055	531.1	4.01
Soil Water at Start of Year	877.5871	8,775.9	66.23
Soil Water at End of Year	930.6925	9,306.9	70.24
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 5

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone				
	Air	Soil				Water (cm/cm)	Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)	
1				0.00	0.000	0.000	0.0190	9.7155	5.0342	1.14E-01
2				0.00	0.000	0.000	0.0190	10.4442	5.4117	1.16E-01
3				0.00	0.000	0.000	0.0190	10.9173	5.6569	1.18E-01
4				1.20	0.000	0.272	0.0221	11.1901	5.7982	1.19E-01
5				0.00	0.000	0.589	0.0201	11.3064	5.8585	1.19E-01
6	*Note: head c			0.00	0.000	0.253	0.0193	11.3015	5.8560	1.19E-01
7				0.00	0.000	0.064	0.0191	11.1993	5.8030	1.19E-01
8				0.00	0.000	0.016	0.0190	10.1049	5.2360	1.16E-01
9				0.00	0.000	0.004	0.0190	8.7154	4.5160	1.11E-01
10				0.80	0.000	0.175	0.0211	7.5139	3.8934	1.08E-01
11				32.00	0.000	0.893	0.0890	6.4749	3.3550	1.05E-01
12			120.90	0.000	3.500	0.1203	5.7466	2.9776	1.03E-01	
13			1.80	0.000	3.983	0.0502	4.9467	2.5632	1.01E-01	
14			0.00	0.000	5.826	0.0285	7.2004	3.7310	1.07E-01	
15			0.00	0.000	2.775	0.0193	10.4886	5.4347	1.17E-01	
16			1.60	0.000	0.787	0.0220	12.8919	6.6801	1.24E-01	
17			0.00	0.000	0.629	0.0199	14.5211	7.5242	1.28E-01	
18			0.00	0.000	0.194	0.0192	15.5549	8.0599	1.31E-01	
19			0.00	0.000	0.049	0.0191	16.1425	8.3644	1.33E-01	
20			0.00	0.000	0.012	0.0190	16.3963	8.4959	1.34E-01	
21			0.00	0.000	0.003	0.0190	16.4020	8.4988	1.34E-01	

22	0.00	0.000	0.001	0.0190	16.2247	8.4070	1.33E-01
23	0.00	0.000	0.000	0.0190	15.9146	8.2463	1.32E-01
24	2.80	0.000	0.542	0.0265	15.5102	8.0367	1.31E-01
25	0.00	0.000	0.418	0.0251	15.0411	7.7937	1.30E-01
26	13.80	0.000	0.713	0.0688	14.5301	7.5289	1.28E-01
27	0.60	0.000	5.202	0.0477	14.0010	7.2548	1.27E-01
28	0.00	0.000	0.874	0.0448	12.8871	6.6776	1.24E-01
29	29.80	0.000	0.916	0.0878	11.1826	5.7944	1.19E-01
30	0.00	0.000	5.469	0.0438	9.6886	5.0202	1.14E-01
31	0.00	0.000	6.772	0.0212	8.6614	4.4880	1.11E-01
32	0.00	0.000	0.497	0.0190	8.8450	4.5831	1.12E-01
33	0.00	0.000	0.000	0.0190	9.2070	4.7707	1.13E-01
34	0.00	0.000	0.000	0.0190	9.4522	4.8977	1.14E-01
35	0.00	0.000	0.000	0.0190	9.4090	4.8754	1.13E-01
36	11.30	0.000	1.169	0.0528	8.2391	4.2691	1.10E-01
37	50.60	0.000	2.696	0.1052	7.1020	3.6800	1.07E-01
38	28.50	0.000	2.494	0.1011	6.1483	3.1858	1.04E-01
39	51.00	0.000	5.495	0.1003	5.6927	2.9497	1.03E-01
40	1.00	0.000	5.144	0.0449	4.9293	2.5542	1.01E-01
41	0.00	0.000	4.422	0.0301	5.9839	3.1006	1.04E-01
42	0.60	0.000	3.835	0.0193	8.9334	4.6289	1.12E-01
43	0.00	0.000	0.062	0.0191	11.0869	5.7448	1.18E-01
44	0.00	0.000	0.027	0.0190	12.5766	6.5167	1.23E-01
45	0.60	0.000	0.583	0.0191	13.5599	7.0262	1.25E-01
46	1.70	0.000	0.594	0.0228	14.1571	7.3356	1.27E-01
47	146.20	0.000	2.181	0.1348	14.4125	7.4680	1.28E-01
48	59.80	0.000	2.968	0.0930	13.1701	6.8242	1.24E-01
49	153.50	0.000	3.626	0.1320	12.1354	6.2881	1.21E-01
50	53.30	0.000	6.059	0.0948	12.7355	6.5990	1.23E-01

51	21.00	0.000	5.403	0.0903	32.5561	13.5326	1.80E-01
52	8.60	0.000	5.497	0.0641	378.7145	23.2650	1.18E+00
53	38.80	0.000	4.671	0.1027	365.5075	22.8465	1.14E+00
54	7.20	0.000	3.724	0.0653	292.8833	21.1644	9.30E-01
55	84.80	0.000	3.926	0.1076	282.6633	20.8203	9.00E-01
56	120.60	0.000	3.397	0.1194	140.2393	17.6242	4.90E-01
57	16.00	0.000	5.031	0.0711	508.6427	27.5001	1.55E+00
58	12.40	0.000	4.699	0.0680	497.8807	27.1422	1.52E+00
59	52.00	0.000	4.145	0.1008	481.1514	26.5882	1.47E+00
60	10.90	0.000	6.291	0.0665	491.8159	26.9409	1.50E+00
61	0.00	0.000	5.807	0.0403	474.5523	26.3707	1.45E+00
62	1.00	0.000	6.416	0.0223	447.0089	25.4672	1.37E+00
63	0.00	0.000	0.726	0.0194	419.2606	24.5655	1.29E+00
64	0.00	0.000	0.086	0.0191	392.4520	23.7034	1.22E+00
65	0.00	0.000	0.021	0.0190	366.5781	22.8543	1.14E+00
66	0.00	0.000	0.005	0.0190	341.6975	22.0060	1.07E+00
67	0.00	0.000	0.001	0.0190	317.7230	21.2808	1.00E+00
68	0.00	0.000	0.000	0.0190	294.5701	20.5898	9.35E-01
69	0.30	0.000	0.190	0.0194	272.2006	19.9325	8.70E-01
70	21.60	0.000	1.176	0.0874	250.5766	19.3089	8.08E-01
71	0.00	0.000	4.964	0.0420	189.0134	18.0006	6.31E-01
72	3.80	0.000	1.257	0.0488	137.3132	16.9755	4.82E-01
73	0.20	0.000	5.553	0.0305	201.6576	17.9566	6.67E-01
74	0.00	0.000	0.977	0.0273	120.6581	16.4874	4.34E-01
75	0.00	0.000	1.000	0.0240	59.7240	15.5961	2.58E-01
76	0.00	0.000	0.931	0.0209	57.7466	15.5927	2.53E-01
77	190.00	0.000	0.927	0.1466	51.3261	15.5816	2.34E-01
78	19.60	0.000	6.723	0.0801	42.8314	15.5669	2.10E-01
79	0.00	0.000	4.972	0.0428	232.0947	19.2474	7.55E-01

80	0.00	0.000	5.754	0.0237	276.0720	20.0454	8.81E-01
81	0.90	0.000	1.932	0.0202	254.4275	19.4190	8.19E-01
82	0.00	0.000	0.279	0.0193	233.3863	18.8231	7.59E-01
83	0.00	0.000	0.075	0.0190	213.0218	18.2617	7.00E-01
84	0.00	0.000	0.009	0.0190	161.9056	17.2360	5.53E-01
85	0.00	0.000	0.002	0.0190	90.6330	16.0476	3.47E-01
86	0.00	0.000	0.001	0.0190	59.3501	15.5955	2.57E-01
87	0.00	0.000	0.000	0.0190	56.5366	15.5906	2.49E-01
88	0.00	0.000	0.000	0.0190	52.1424	15.5830	2.37E-01
89	0.00	0.000	0.000	0.0190	46.4837	15.5732	2.20E-01
90	0.00	0.000	0.000	0.0190	39.7949	15.5617	2.01E-01
91	0.00	0.000	0.000	0.0190	31.7652	15.3660	1.78E-01
92	0.00	0.000	0.000	0.0190	27.8484	14.4299	1.67E-01
93	4.40	0.000	0.415	0.0323	25.9997	13.4720	1.61E-01
94	174.20	0.000	0.877	0.1422	24.2261	12.5530	1.56E-01
95	299.70	0.000	6.628	0.1680	21.3178	11.0460	1.48E-01
96	0.00	0.000	4.005	0.0404	137.8645	15.2680	4.83E-01
97	0.00	0.000	5.903	0.0207	466.7814	26.1150	1.43E+00
98	14.00	0.000	3.155	0.0564	438.2902	25.1829	1.35E+00
99	19.50	0.000	4.555	0.0899	410.8924	24.2954	1.27E+00
100	0.00	0.000	5.362	0.0432	389.9586	23.6234	1.21E+00
101	4.60	0.000	6.626	0.0355	372.5155	23.0685	1.16E+00
102	6.60	0.000	6.029	0.0374	347.6852	22.1885	1.09E+00
103	0.80	0.000	4.348	0.0256	323.5041	21.4548	1.02E+00
104	0.00	0.000	1.657	0.0201	300.1540	20.7555	9.51E-01
105	0.00	0.000	0.257	0.0192	277.5966	20.0900	8.86E-01
106	0.00	0.000	0.064	0.0190	255.7939	19.4581	8.23E-01
107	1.60	0.000	0.635	0.0222	234.7082	18.8601	7.62E-01
108	0.00	0.000	0.689	0.0199	214.3017	18.2965	7.04E-01

109	0.00	0.000	0.213	0.0192	194.5391	17.7439	6.47E-01
110	0.00	0.000	0.053	0.0191	89.6937	16.0260	3.45E-01
111	2.20	0.000	0.566	0.0245	59.2446	15.5953	2.57E-01
112	3.40	0.000	0.508	0.0341	56.5226	15.5906	2.49E-01
113	0.00	0.000	0.673	0.0319	52.2011	15.5831	2.37E-01
114	1.20	0.000	0.816	0.0332	46.6012	15.5734	2.21E-01
115	1.80	0.000	0.808	0.0365	39.9609	15.5620	2.01E-01
116	3.60	0.000	0.805	0.0458	31.8882	15.3788	1.78E-01
117	4.00	0.000	0.812	0.0564	27.9018	14.4576	1.67E-01
118	16.80	0.000	3.494	0.0837	26.0479	13.4969	1.61E-01
119	7.20	0.000	4.602	0.0624	23.7574	12.3101	1.55E-01
120	0.40	0.000	5.209	0.0464	20.7888	10.7719	1.46E-01
121	0.00	0.000	5.904	0.0267	19.5327	10.1210	1.43E-01
122	0.00	0.000	1.969	0.0190	18.6832	9.6809	1.40E-01
123	0.00	0.000	0.000	0.0190	17.8035	9.2250	1.38E-01
124	0.00	0.000	0.000	0.0190	16.9883	8.8027	1.35E-01
125	26.20	0.000	1.528	0.1012	16.1828	8.3853	1.33E-01
126	0.00	0.000	6.252	0.0435	15.2980	7.9268	1.30E-01
127	0.00	0.000	6.340	0.0224	14.1817	7.3484	1.27E-01
128	0.00	0.000	1.017	0.0190	13.6298	7.0624	1.26E-01
129	0.00	0.000	0.000	0.0190	12.3496	6.3991	1.22E-01
130	0.00	0.000	0.000	0.0190	10.6564	5.5217	1.17E-01
131	0.00	0.000	0.000	0.0190	9.1923	4.7631	1.13E-01
132	0.00	0.000	0.000	0.0190	7.9263	4.1071	1.09E-01
133	0.00	0.000	0.000	0.0190	6.8315	3.5398	1.06E-01
134	1.50	0.000	0.192	0.0234	5.8848	3.0493	1.03E-01
135	0.00	0.000	0.418	0.0220	5.0662	2.6251	1.01E-01
136	0.00	0.000	0.626	0.0199	4.3584	2.2583	9.90E-02
137	0.00	0.000	0.207	0.0192	3.7463	1.9412	9.72E-02

138	0.00	0.000	0.049	0.0190	3.2171	1.6669	9.57E-02
139	0.00	0.000	0.007	0.0190	2.7594	1.4298	9.43E-02
140	1.30	0.000	0.117	0.0230	2.3636	1.2247	9.32E-02
141	0.00	0.000	0.302	0.0219	2.0214	1.0474	9.22E-02
142	0.00	0.000	0.466	0.0204	1.7255	0.8941	9.14E-02
143	0.00	0.000	0.344	0.0192	1.4696	0.7615	9.06E-02
144	0.00	0.000	0.055	0.0191	1.2484	0.6469	9.00E-02
145	0.00	0.000	0.014	0.0190	1.0571	0.5477	8.94E-02
146	0.00	0.000	0.003	0.0190	0.8916	0.4620	8.90E-02
147	0.00	0.000	0.001	0.0190	0.7486	0.3879	8.86E-02
148	0.00	0.000	0.000	0.0190	0.6249	0.3238	8.82E-02
149	0.00	0.000	0.000	0.0190	0.5179	0.2683	8.79E-02
150	0.00	0.000	0.000	0.0190	0.4254	0.2204	8.76E-02
151	0.00	0.000	0.000	0.0190	0.3454	0.1790	8.74E-02
152	0.00	0.000	0.000	0.0190	0.2762	0.1431	8.72E-02
153	0.00	0.000	0.000	0.0190	0.2164	0.1121	8.70E-02
154	0.00	0.000	0.000	0.0190	0.1647	0.0854	8.69E-02
155	0.00	0.000	0.000	0.0190	0.1200	0.0622	8.67E-02
156	0.00	0.000	0.000	0.0190	0.0813	0.0421	8.66E-02
157	0.00	0.000	0.000	0.0190	0.0479	0.0248	8.65E-02
158	0.00	0.000	0.000	0.0190	0.0190	0.0098	8.65E-02
159	0.00	0.000	0.000	0.0190	0.0007	0.0002	1.00E-02
160	3.40	0.000	0.242	0.0295	0.0000	0.0000	0.00E+00
161	6.40	0.000	0.353	0.0497	0.0000	0.0000	0.00E+00
162	27.00	0.000	0.478	0.0939	0.0000	0.0000	0.00E+00
163	1.80	0.000	4.888	0.0466	0.0000	0.0000	0.00E+00
164	0.00	0.000	4.335	0.0321	0.4908	0.2543	8.78E-02
165	0.00	0.000	2.970	0.0193	1.9227	0.9962	9.19E-02
166	0.80	0.000	0.488	0.0203	3.0445	1.5775	9.52E-02

167	0.00	0.000	0.295	0.0193	4.1139	2.1317	9.82E-02
168	0.00	0.000	0.086	0.0191	4.9011	2.5395	1.01E-01
169	0.00	0.000	0.014	0.0190	4.4766	2.3196	9.93E-02
170	0.00	0.000	0.003	0.0190	3.8485	1.9941	9.75E-02
171	0.00	0.000	0.001	0.0190	3.3054	1.7127	9.59E-02
172	0.00	0.000	0.000	0.0190	2.8358	1.4694	9.46E-02
173	0.00	0.000	0.000	0.0190	2.4297	1.2590	9.34E-02
174	0.00	0.000	0.000	0.0190	2.0786	1.0770	9.24E-02
175	0.00	0.000	0.000	0.0190	1.7749	0.9197	9.15E-02
176	0.00	0.000	0.000	0.0190	1.5124	0.7836	9.08E-02
177	0.00	0.000	0.000	0.0190	1.2853	0.6660	9.01E-02
178	0.00	0.000	0.000	0.0190	1.0890	0.5643	8.95E-02
179	0.00	0.000	0.000	0.0190	0.9192	0.4763	8.90E-02
180	0.00	0.000	0.000	0.0190	0.7724	0.4002	8.86E-02
181	0.00	0.000	0.000	0.0190	0.6455	0.3345	8.83E-02
182	0.00	0.000	0.000	0.0190	0.5357	0.2776	8.79E-02
183	0.00	0.000	0.000	0.0190	0.4408	0.2284	8.77E-02
184	0.00	0.000	0.000	0.0190	0.3588	0.1859	8.74E-02
185	0.00	0.000	0.000	0.0190	0.2878	0.1491	8.72E-02
186	0.00	0.000	0.000	0.0190	0.2264	0.1173	8.71E-02
187	0.00	0.000	0.000	0.0190	0.1734	0.0898	8.69E-02
188	0.00	0.000	0.000	0.0190	0.1275	0.0660	8.68E-02
189	0.00	0.000	0.000	0.0190	0.0878	0.0455	8.67E-02
190	0.00	0.000	0.000	0.0190	0.0535	0.0277	8.66E-02
191	0.00	0.000	0.000	0.0190	0.0238	0.0123	8.65E-02
192	0.00	0.000	0.000	0.0190	0.0021	0.0010	2.53E-02
193	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
216	0.30	0.000	0.083	0.0197	0.0000	0.0000	0.00E+00
217	0.50	0.000	0.083	0.0211	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.147	0.0206	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.187	0.0200	0.0000	0.0000	0.00E+00
220	0.20	0.000	0.280	0.0197	0.0000	0.0000	6.51E-08
221	0.00	0.000	0.051	0.0196	0.0000	0.0000	5.43E-07
222	0.00	0.000	0.083	0.0193	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.058	0.0191	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.018	0.0190	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.000	0.0190	0.0000	0.0000	3.43E-07
229	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

283	0.80	0.000	0.074	0.0214	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.098	0.0211	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.122	0.0207	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.151	0.0202	0.0000	0.0000	0.00E+00
287	1.80	0.000	0.195	0.0255	0.0000	0.0000	0.00E+00
288	6.80	0.000	0.225	0.0475	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.209	0.0468	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.221	0.0460	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.220	0.0453	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.227	0.0445	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.226	0.0438	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.225	0.0430	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.224	0.0423	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.223	0.0415	0.0000	0.0000	0.00E+00
297	19.40	0.000	0.282	0.0941	0.0000	0.0000	0.00E+00
298	17.90	0.000	0.281	0.0874	0.0302	0.0157	2.17E-02
299	2.80	0.000	0.280	0.0621	0.0963	0.0499	8.67E-02
300	0.00	0.000	0.220	0.0571	0.3282	0.1701	8.73E-02
301	1.00	0.000	0.278	0.0553	1.6104	0.8344	9.10E-02
302	0.00	0.000	0.218	0.0535	2.8939	1.4995	9.47E-02
303	1.70	0.000	0.277	0.0572	4.0886	2.1186	9.82E-02
304	14.40	0.000	0.277	0.0813	5.0765	2.6304	1.01E-01
305	0.00	0.000	6.285	0.0444	5.1482	2.6676	1.01E-01
306	0.00	0.000	0.216	0.0433	4.9035	2.5408	1.01E-01
307	0.00	0.000	0.215	0.0426	5.6113	2.9076	1.03E-01
308	0.30	0.000	0.274	0.0426	6.3712	3.3013	1.05E-01
309	0.00	0.000	0.213	0.0419	6.9298	3.5907	1.06E-01
310	0.00	0.000	0.209	0.0400	6.4426	3.3383	1.05E-01
311	5.00	0.000	0.273	0.0558	5.5922	2.8977	1.03E-01

312	48.80	0.000	6.105	0.1049	4.8132	2.4940	1.00E-01
313	1.00	0.000	6.458	0.0446	4.1444	2.1475	9.83E-02
314	17.20	0.000	5.247	0.0835	4.6543	2.4117	9.98E-02
315	28.00	0.000	4.540	0.0930	5.8726	3.0429	1.03E-01
316	15.40	0.000	5.070	0.0791	5.4941	2.8468	1.02E-01
317	38.00	0.000	5.415	0.0934	4.7284	2.4501	1.00E-01
318	0.00	0.000	3.944	0.0498	4.0825	2.1154	9.82E-02
319	21.00	0.000	3.990	0.0939	5.0162	2.5992	1.01E-01
320	7.20	0.000	4.523	0.0641	7.1526	3.7062	1.07E-01
321	3.80	0.000	4.676	0.0585	7.4878	3.8799	1.08E-01
322	3.20	0.000	5.774	0.0495	9.3756	4.8581	1.13E-01
323	0.20	0.000	4.819	0.0340	11.1071	5.7552	1.18E-01
324	20.40	0.000	6.318	0.0809	12.3275	6.3876	1.22E-01
325	0.00	0.000	5.909	0.0433	13.1666	6.8224	1.24E-01
326	0.00	0.000	6.278	0.0224	12.7495	6.6063	1.23E-01
327	6.40	0.000	3.144	0.0324	12.9814	6.7264	1.24E-01
328	13.40	0.000	4.114	0.0633	13.2823	6.8824	1.25E-01
329	0.00	0.000	4.114	0.0496	13.4179	6.9526	1.25E-01
330	88.00	0.000	4.891	0.1155	13.3584	6.9218	1.25E-01
331	66.00	0.000	3.330	0.0964	11.9239	6.1785	1.21E-01
332	27.30	0.000	5.505	0.0909	10.2883	5.3310	1.16E-01
333	0.00	0.000	5.835	0.0461	10.0904	5.2284	1.15E-01
334	0.00	0.000	5.690	0.0271	13.1787	6.8287	1.24E-01
335	0.00	0.000	1.863	0.0190	17.2887	8.9583	1.36E-01
336	0.00	0.000	0.000	0.0190	19.7799	10.2491	1.43E-01
337	0.00	0.000	0.000	0.0190	21.2996	11.0366	1.48E-01
338	0.10	0.000	0.100	0.0190	22.0712	11.4364	1.50E-01
339	0.00	0.000	0.000	0.0190	22.3087	11.5594	1.51E-01
340	0.00	0.000	0.000	0.0190	22.1670	11.4860	1.50E-01

341	0.00	0.000	0.000	0.0190	21.7593	11.2748	1.49E-01
342	0.00	0.000	0.000	0.0190	21.1688	10.9688	1.47E-01
343	0.00	0.000	0.000	0.0190	20.4572	10.6001	1.45E-01
344	0.00	0.000	0.000	0.0190	19.6698	10.1921	1.43E-01
345	0.60	0.000	0.152	0.0205	18.8403	9.7623	1.41E-01
346	1.40	0.000	0.457	0.0236	17.9935	9.3235	1.38E-01
347	0.00	0.000	0.366	0.0224	17.1475	8.8851	1.36E-01
348	0.60	0.000	0.623	0.0223	16.3151	8.4538	1.33E-01
349	6.50	0.000	0.529	0.0422	15.3062	7.9311	1.30E-01
350	4.40	0.000	0.708	0.0546	13.3171	6.9004	1.25E-01
351	6.80	0.000	0.766	0.0649	11.4930	5.9552	1.19E-01
352	48.80	0.000	0.762	0.1016	10.0832	5.2247	1.15E-01
353	16.00	0.000	4.547	0.0804	8.8157	4.5679	1.12E-01
354	0.40	0.000	4.748	0.0475	8.0478	4.1700	1.10E-01
355	0.00	0.000	6.139	0.0270	7.6800	3.9794	1.09E-01
356	1.10	0.000	2.110	0.0212	8.8425	4.5818	1.12E-01
357	3.00	0.000	2.349	0.0234	9.7498	5.0519	1.14E-01
358	1.50	0.000	1.936	0.0219	10.4706	5.4254	1.17E-01
359	0.80	0.000	1.224	0.0205	10.9375	5.6674	1.18E-01
360	0.00	0.000	0.302	0.0195	11.2053	5.8061	1.19E-01
361	0.00	0.000	0.108	0.0191	11.3175	5.8643	1.19E-01
362	0.00	0.000	0.031	0.0190	11.3094	5.8600	1.19E-01
363	4.90	0.000	0.755	0.0328	11.2006	5.8037	1.19E-01
364	2.40	0.000	0.991	0.0375	10.0848	5.2255	1.15E-01
365	25.50	0.000	1.169	0.0886	8.6980	4.5069	1.11E-01

* = Frozen (air or soil)

Annual Totals for Year 5			
	mm*	cubic meters	percent
Precipitation	2,610.50	26,105.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	450.945	4,509.4	17.27
Drainage Collected from Layer 2	2,111.5698	21,115.7	80.89
Percolation/Leakage through Layer 3	68.371724	683.7	2.62
Average Head on Top of Layer 3	44.1940 (cm)	---	---
Change in Water Storage	-20.3865	-203.9	-0.78
Soil Water at Start of Year	930.6925	9,306.9	35.65
Soil Water at End of Year	910.3060	9,103.1	34.87
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 6

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			4.80	0.000	4.569	0.0538	7.4988	3.8856	1.08E-01	
2			0.90	0.000	5.221	0.0393	6.7229	3.4835	1.06E-01	
3			0.20	0.000	5.551	0.0215	7.0901	3.6738	1.07E-01	
4			0.00	0.000	0.694	0.0192	7.6569	3.9675	1.08E-01	
5			0.00	0.000	0.043	0.0190	8.0719	4.1825	1.10E-01	
6	*Note: head c		0.00	0.000	0.011	0.0190	7.4908	3.8814	1.08E-01	
7			0.00	0.000	0.003	0.0190	6.4549	3.3447	1.05E-01	
8			0.10	0.000	0.101	0.0190	5.5592	2.8806	1.02E-01	
9			0.00	0.000	0.000	0.0190	4.7847	2.4792	1.00E-01	
10			0.00	0.000	0.000	0.0190	4.1149	2.1322	9.82E-02	
11			0.00	0.000	0.000	0.0190	3.5358	1.8321	9.66E-02	
12			0.00	0.000	0.000	0.0190	3.0350	1.5726	9.51E-02	
13			0.30	0.000	0.125	0.0196	2.6020	1.3482	9.39E-02	
14			0.00	0.000	0.074	0.0193	2.2275	1.1542	9.28E-02	
15			0.00	0.000	0.064	0.0191	1.9037	0.9864	9.19E-02	
16			0.00	0.000	0.028	0.0190	1.6237	0.8414	9.11E-02	
17			0.00	0.000	0.007	0.0190	1.3816	0.7159	9.04E-02	
18			0.20	0.000	0.109	0.0193	1.1723	0.6074	8.98E-02	
19			0.00	0.000	0.050	0.0191	0.9912	0.5136	8.93E-02	
20			18.40	0.000	0.597	0.0785	0.8347	0.4325	8.88E-02	
21			0.00	0.000	0.627	0.0469	0.6993	0.3624	8.84E-02	

22	0.00	0.000	0.627	0.0386	0.6390	0.3311	8.82E-02
23	0.00	0.000	0.609	0.0366	1.3647	0.7071	9.03E-02
24	1.20	0.000	0.640	0.0384	2.5806	1.3372	9.38E-02
25	3.80	0.000	0.624	0.0490	2.6767	1.3869	9.41E-02
26	0.00	0.000	0.563	0.0471	2.2921	1.1877	9.30E-02
27	0.00	0.000	0.550	0.0453	1.9596	1.0154	9.20E-02
28	0.00	0.000	0.537	0.0435	1.6720	0.8664	9.12E-02
29	0.00	0.000	0.526	0.0418	1.4234	0.7375	9.05E-02
30	0.00	0.000	0.508	0.0401	1.2084	0.6261	8.99E-02
31	0.70	0.000	0.547	0.0406	1.0225	0.5298	8.93E-02
32	1.00	0.000	0.537	0.0421	0.8617	0.4465	8.89E-02
33	0.00	0.000	0.486	0.0405	0.7227	0.3745	8.85E-02
34	69.20	0.000	0.518	0.1096	0.6906	0.3579	8.84E-02
35	4.20	0.000	3.864	0.0591	0.6785	0.3516	8.84E-02
36	49.00	0.000	5.924	0.1019	1.7433	0.9033	9.14E-02
37	0.40	0.000	5.102	0.0436	2.5788	1.3362	9.38E-02
38	1.80	0.000	5.932	0.0298	4.1233	2.1365	9.83E-02
39	0.00	0.000	2.705	0.0196	6.7417	3.4933	1.06E-01
40	0.00	0.000	0.136	0.0192	8.6737	4.4943	1.11E-01
41	0.00	0.000	0.034	0.0190	10.1010	5.2339	1.15E-01
42	0.00	0.000	0.009	0.0190	11.0958	5.7494	1.18E-01
43	0.00	0.000	0.002	0.0190	11.7537	6.0903	1.20E-01
44	0.00	0.000	0.001	0.0190	12.1496	6.2954	1.21E-01
45	12.50	0.000	1.126	0.0569	12.3426	6.3954	1.22E-01
46	4.80	0.000	5.320	0.0552	12.3793	6.4145	1.22E-01
47	26.00	0.000	4.263	0.0897	12.2967	6.3717	1.22E-01
48	76.60	0.000	3.135	0.1009	11.6643	6.0440	1.20E-01
49	8.80	0.000	3.437	0.0670	10.0936	5.2301	1.15E-01
50	0.40	0.000	5.600	0.0455	9.4349	4.8888	1.14E-01

51	0.00	0.000	6.107	0.0251	11.1411	5.7729	1.18E-01
52	0.00	0.000	1.840	0.0190	12.8798	6.6738	1.23E-01
53	0.00	0.000	0.000	0.0190	14.0375	7.2737	1.27E-01
54	0.50	0.000	0.406	0.0193	14.7494	7.6425	1.29E-01
55	4.40	0.000	1.858	0.0278	15.1239	7.8366	1.30E-01
56	19.80	0.000	3.172	0.0832	15.2441	7.8989	1.30E-01
57	23.00	0.000	3.777	0.0878	15.2121	7.8823	1.30E-01
58	3.20	0.000	5.034	0.0530	14.2573	7.3875	1.27E-01
59	6.00	0.000	5.478	0.0540	13.0826	6.7788	1.24E-01
60	0.00	0.000	6.617	0.0315	13.1645	6.8213	1.24E-01
61	0.00	0.000	3.716	0.0192	13.4406	6.9644	1.25E-01
62	0.00	0.000	0.034	0.0190	13.5423	7.0170	1.25E-01
63	33.60	0.000	5.247	0.0980	13.4897	6.9898	1.25E-01
64	17.20	0.000	4.899	0.0789	13.1304	6.8036	1.24E-01
65	0.00	0.000	6.186	0.0440	12.1299	6.2852	1.21E-01
66	0.00	0.000	6.377	0.0228	11.3098	5.8603	1.19E-01
67	0.00	0.000	0.847	0.0190	11.5879	6.0044	1.20E-01
68	0.00	0.000	0.000	0.0190	11.7763	6.1020	1.20E-01
69	0.00	0.000	0.000	0.0190	11.8616	6.1462	1.21E-01
70	0.00	0.000	0.000	0.0190	11.8248	6.1271	1.20E-01
71	14.80	0.000	1.456	0.0635	11.6944	6.0596	1.20E-01
72	0.00	0.000	6.356	0.0423	11.1180	5.7609	1.18E-01
73	0.20	0.000	1.657	0.0374	9.6072	4.9781	1.14E-01
74	0.00	0.000	1.354	0.0329	8.2850	4.2930	1.10E-01
75	1.30	0.000	1.241	0.0331	7.1417	3.7005	1.07E-01
76	2.00	0.000	1.126	0.0360	6.1531	3.1883	1.04E-01
77	0.00	0.000	1.000	0.0327	5.2982	2.7453	1.02E-01
78	0.00	0.000	0.931	0.0296	4.5590	2.3623	9.95E-02
79	0.00	0.000	0.836	0.0268	3.9198	2.0311	9.77E-02

80	0.00	0.000	0.751	0.0243	3.3670	1.7447	9.61E-02
81	0.00	0.000	0.724	0.0219	2.8891	1.4970	9.47E-02
82	0.00	0.000	0.743	0.0194	2.4758	1.2828	9.35E-02
83	0.00	0.000	0.123	0.0190	2.1184	1.0977	9.25E-02
84	7.40	0.000	0.330	0.0426	1.8094	0.9375	9.16E-02
85	0.10	0.000	0.587	0.0409	1.5422	0.7991	9.08E-02
86	0.00	0.000	0.627	0.0389	1.3111	0.6793	9.02E-02
87	10.50	0.000	0.648	0.0717	1.1113	0.5758	8.96E-02
88	17.00	0.000	5.825	0.0781	0.9960	0.5161	8.93E-02
89	2.80	0.000	5.179	0.0541	0.8788	0.4553	8.89E-02
90	0.10	0.000	4.550	0.0380	1.2313	0.6380	8.99E-02
91	1.00	0.000	4.395	0.0266	2.3190	1.2016	9.31E-02
92	0.00	0.000	2.192	0.0193	3.4219	1.7731	9.63E-02
93	0.00	0.000	0.087	0.0190	3.3861	1.7545	9.62E-02
94	0.00	0.000	0.010	0.0190	2.9056	1.5055	9.48E-02
95	0.00	0.000	0.002	0.0190	2.4900	1.2902	9.36E-02
96	0.20	0.000	0.157	0.0191	2.1307	1.1041	9.25E-02
97	0.00	0.000	0.024	0.0191	1.8200	0.9431	9.16E-02
98	0.00	0.000	0.014	0.0190	1.5514	0.8039	9.09E-02
99	0.00	0.000	0.004	0.0190	1.3190	0.6835	9.02E-02
100	0.00	0.000	0.001	0.0190	1.1182	0.5794	8.96E-02
101	0.00	0.000	0.000	0.0190	0.9445	0.4894	8.91E-02
102	0.90	0.000	0.111	0.0216	0.7942	0.4115	8.87E-02
103	0.20	0.000	0.370	0.0211	0.6644	0.3442	8.83E-02
104	0.00	0.000	0.433	0.0196	0.5520	0.2860	8.80E-02
105	0.00	0.000	0.137	0.0192	0.4549	0.2357	8.77E-02
106	0.00	0.000	0.035	0.0190	0.3709	0.1922	8.75E-02
107	0.00	0.000	0.010	0.0190	0.2983	0.1546	8.73E-02
108	0.00	0.000	0.003	0.0190	0.2355	0.1220	8.71E-02

109	0.00	0.000	0.000	0.0190	0.1812	0.0939	8.69E-02
110	0.00	0.000	0.000	0.0190	0.1343	0.0696	8.68E-02
111	0.00	0.000	0.000	0.0190	0.0937	0.0485	8.67E-02
112	0.10	0.000	0.087	0.0190	0.0586	0.0304	8.66E-02
113	0.00	0.000	0.007	0.0190	0.0282	0.0146	8.65E-02
114	0.00	0.000	0.004	0.0190	0.0040	0.0020	3.90E-02
115	13.40	0.000	0.404	0.0623	0.0000	0.0000	0.00E+00
116	0.60	0.000	0.522	0.0577	0.0321	0.0166	2.17E-02
117	3.00	0.000	0.558	0.0577	0.3713	0.1924	8.75E-02
118	0.70	0.000	0.548	0.0574	0.5694	0.2951	8.80E-02
119	0.00	0.000	0.495	0.0543	0.9325	0.4832	8.91E-02
120	0.00	0.000	0.486	0.0525	0.8631	0.4472	8.89E-02
121	0.00	0.000	0.477	0.0509	0.7285	0.3775	8.85E-02
122	0.00	0.000	0.469	0.0493	0.6075	0.3148	8.81E-02
123	0.00	0.000	0.461	0.0478	0.5029	0.2606	8.78E-02
124	0.00	0.000	0.454	0.0463	0.4124	0.2137	8.76E-02
125	0.00	0.000	0.447	0.0448	0.3342	0.1732	8.74E-02
126	0.00	0.000	0.440	0.0433	0.2666	0.1381	8.72E-02
127	0.00	0.000	0.434	0.0419	0.2081	0.1078	8.70E-02
128	0.00	0.000	0.428	0.0404	0.1575	0.0816	8.69E-02
129	0.00	0.000	0.363	0.0392	0.1137	0.0589	8.67E-02
130	0.00	0.000	0.416	0.0378	0.0759	0.0393	8.66E-02
131	0.00	0.000	0.411	0.0365	0.0432	0.0224	8.65E-02
132	0.00	0.000	0.405	0.0351	0.0149	0.0076	8.33E-02
133	0.00	0.000	0.400	0.0338	0.0000	0.0000	0.00E+00
134	0.00	0.000	0.396	0.0325	0.0000	0.0000	0.00E+00
135	0.00	0.000	0.391	0.0312	0.0000	0.0000	0.00E+00
136	0.00	0.000	0.386	0.0299	0.0000	0.0000	0.00E+00
137	0.00	0.000	0.382	0.0286	0.0000	0.0000	0.00E+00

138	0.00	0.000	0.378	0.0273	0.0000	0.0000	0.00E+00
139	0.00	0.000	0.374	0.0261	0.0000	0.0000	0.00E+00
140	0.00	0.000	0.370	0.0249	0.0000	0.0000	0.00E+00
141	0.00	0.000	0.366	0.0236	0.0000	0.0000	0.00E+00
142	0.00	0.000	0.362	0.0224	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.359	0.0212	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.355	0.0201	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.316	0.0190	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
147	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
148	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
149	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
150	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
151	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
152	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
153	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
155	0.20	0.000	0.081	0.0194	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.027	0.0193	0.0000	0.0000	0.00E+00
157	0.30	0.000	0.111	0.0199	0.0000	0.0000	0.00E+00
158	1.70	0.000	0.193	0.0250	0.0000	0.0000	0.00E+00
159	11.80	0.000	0.267	0.0634	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.300	0.0596	0.0436	0.0226	2.17E-02
161	0.00	0.000	0.308	0.0546	0.3471	0.1799	8.74E-02
162	0.00	0.000	0.306	0.0514	0.5078	0.2631	8.79E-02
163	0.00	0.000	0.304	0.0487	0.5711	0.2959	8.80E-02
164	0.00	0.000	0.301	0.0465	0.5855	0.3034	8.81E-02
165	0.00	0.000	0.299	0.0445	0.5713	0.2960	8.80E-02
166	0.00	0.000	0.297	0.0428	0.5410	0.2803	8.80E-02

167	0.00	0.000	0.257	0.0416	0.4990	0.2586	8.78E-02
168	0.00	0.000	0.293	0.0406	0.4183	0.2168	8.76E-02
169	0.00	0.000	0.291	0.0396	0.3393	0.1758	8.74E-02
170	0.00	0.000	0.289	0.0386	0.2710	0.1404	8.72E-02
171	0.00	0.000	0.288	0.0377	0.2119	0.1098	8.70E-02
172	0.00	0.000	0.286	0.0367	0.1608	0.0833	8.69E-02
173	0.00	0.000	0.284	0.0358	0.1166	0.0604	8.67E-02
174	0.00	0.000	0.282	0.0348	0.0784	0.0406	8.66E-02
175	0.00	0.000	0.281	0.0339	0.0454	0.0235	8.65E-02
176	0.00	0.000	0.279	0.0330	0.0168	0.0087	8.64E-02
177	0.00	0.000	0.277	0.0321	0.0002	0.0000	2.86E-03
178	0.00	0.000	0.276	0.0311	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.274	0.0302	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.272	0.0293	0.0000	0.0000	0.00E+00
181	0.80	0.000	0.333	0.0309	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.269	0.0300	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.268	0.0291	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.266	0.0282	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.265	0.0273	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.224	0.0266	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.252	0.0257	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.261	0.0249	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.259	0.0240	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.258	0.0231	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.257	0.0223	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.255	0.0214	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.254	0.0206	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.253	0.0197	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.219	0.0190	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
206	0.80	0.000	0.090	0.0214	0.0000	0.0000	0.00E+00
207	7.90	0.000	0.230	0.0469	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.216	0.0462	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.229	0.0455	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.228	0.0447	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.234	0.0439	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.233	0.0431	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.232	0.0424	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.231	0.0416	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.230	0.0408	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.229	0.0401	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.228	0.0393	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.227	0.0385	0.0001	0.0000	1.76E-03
219	0.00	0.000	0.227	0.0378	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.226	0.0370	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.225	0.0363	0.0004	0.0000	5.35E-03
222	0.00	0.000	0.224	0.0355	0.0002	0.0000	3.19E-03
223	0.00	0.000	0.223	0.0347	0.0002	0.0000	3.33E-03
224	0.00	0.000	0.222	0.0340	0.0005	0.0000	7.44E-03

225	0.00	0.000	0.221	0.0332	0.0002	0.0000	3.37E-03
226	0.00	0.000	0.221	0.0325	0.0001	0.0000	1.76E-03
227	0.00	0.000	0.220	0.0318	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.219	0.0310	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.218	0.0303	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.217	0.0296	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.217	0.0289	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.216	0.0281	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.215	0.0274	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.214	0.0267	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.213	0.0260	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.213	0.0253	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.212	0.0246	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.211	0.0239	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.211	0.0232	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.210	0.0225	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.209	0.0218	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.208	0.0211	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.208	0.0204	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.207	0.0197	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.206	0.0190	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.004	0.0190	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
263	1.00	0.000	0.107	0.0220	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.081	0.0217	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.102	0.0214	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.130	0.0209	0.0000	0.0000	0.00E+00
267	0.60	0.000	0.221	0.0222	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.131	0.0218	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.096	0.0214	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.131	0.0210	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.129	0.0206	0.0000	0.0000	0.00E+00
272	1.00	0.000	0.222	0.0232	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.117	0.0228	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.132	0.0223	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.128	0.0219	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.127	0.0215	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.126	0.0211	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.126	0.0206	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.125	0.0202	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.125	0.0198	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.102	0.0195	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.116	0.0191	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.021	0.0190	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.004	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
287	1.30	0.000	0.115	0.0230	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.076	0.0227	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.122	0.0223	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.122	0.0219	0.0000	0.0000	0.00E+00
291	7.00	0.000	0.222	0.0445	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.148	0.0440	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.164	0.0434	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.174	0.0429	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.173	0.0423	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.177	0.0417	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.178	0.0411	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.178	0.0405	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.177	0.0399	0.0000	0.0000	0.00E+00
300	8.20	0.000	0.282	0.0663	0.0000	0.0000	0.00E+00
301	0.00	0.000	0.176	0.0583	0.1381	0.0716	6.52E-02
302	0.00	0.000	0.176	0.0543	0.6520	0.3378	8.83E-02
303	0.00	0.000	0.176	0.0525	0.7260	0.3762	8.85E-02
304	0.00	0.000	0.175	0.0512	0.6947	0.3600	8.84E-02
305	0.00	0.000	0.175	0.0506	0.5996	0.3107	8.81E-02
306	0.00	0.000	0.174	0.0501	0.4961	0.2570	8.78E-02
307	0.00	0.000	0.174	0.0495	0.4065	0.2106	8.76E-02
308	0.00	0.000	0.174	0.0489	0.3291	0.1705	8.73E-02
309	0.00	0.000	0.173	0.0483	0.2621	0.1358	8.72E-02
310	0.00	0.000	0.173	0.0478	0.2042	0.1058	8.70E-02
311	0.00	0.000	0.172	0.0472	0.1542	0.0799	8.68E-02

312	0.00	0.000	0.172	0.0466	0.1109	0.0575	8.67E-02
313	0.00	0.000	0.172	0.0460	0.0734	0.0381	8.66E-02
314	0.00	0.000	0.171	0.0455	0.0411	0.0213	8.65E-02
315	0.40	0.000	0.282	0.0459	0.0131	0.0066	7.72E-02
316	0.00	0.000	0.170	0.0448	0.0054	0.0028	2.16E-02
317	0.00	0.000	0.170	0.0434	0.0483	0.0251	8.65E-02
318	0.00	0.000	0.170	0.0421	0.0817	0.0423	8.66E-02
319	0.50	0.000	0.284	0.0428	0.0810	0.0420	8.66E-02
320	1.40	0.000	0.286	0.0466	0.0476	0.0247	8.65E-02
321	0.00	0.000	0.169	0.0460	0.0188	0.0097	8.65E-02
322	0.00	0.000	0.168	0.0453	0.0006	0.0001	9.31E-03
323	0.00	0.000	0.168	0.0442	0.0193	0.0100	8.65E-02
324	2.20	0.000	0.287	0.0505	0.0207	0.0107	8.65E-02
325	0.00	0.000	0.167	0.0499	0.0039	0.0019	3.84E-02
326	0.00	0.000	0.167	0.0494	0.0000	0.0000	0.00E+00
327	0.00	0.000	0.166	0.0486	0.0047	0.0024	4.32E-02
328	0.00	0.000	0.166	0.0478	0.0071	0.0037	6.47E-02
329	0.00	0.000	0.166	0.0471	0.0036	0.0018	6.22E-02
330	0.00	0.000	0.165	0.0461	0.0030	0.0016	8.64E-02
331	0.00	0.000	0.165	0.0449	0.0216	0.0112	8.65E-02
332	1.60	0.000	0.288	0.0493	0.0266	0.0138	8.65E-02
333	21.00	0.000	0.288	0.0821	0.0213	0.0108	5.58E-02
334	3.00	0.000	5.650	0.0498	0.0723	0.0375	8.66E-02
335	0.00	0.000	6.172	0.0272	0.3332	0.1727	8.74E-02
336	0.00	0.000	2.323	0.0194	1.5266	0.7910	9.08E-02
337	0.00	0.000	0.096	0.0191	2.7501	1.4250	9.43E-02
338	0.00	0.000	0.024	0.0190	3.7647	1.9507	9.72E-02
339	0.00	0.000	0.006	0.0190	3.5397	1.8341	9.66E-02
340	0.00	0.000	0.002	0.0190	3.0384	1.5744	9.51E-02

341	0.00	0.000	0.000	0.0190	2.6049	1.3497	9.39E-02
342	0.00	0.000	0.000	0.0190	2.2300	1.1555	9.28E-02
343	0.00	0.000	0.000	0.0190	1.9059	0.9876	9.19E-02
344	0.10	0.000	0.100	0.0190	1.6256	0.8423	9.11E-02
345	0.00	0.000	0.000	0.0190	1.3833	0.7168	9.04E-02
346	0.00	0.000	0.000	0.0190	1.1737	0.6082	8.98E-02
347	18.80	0.000	0.745	0.0792	0.9925	0.5143	8.93E-02
348	0.20	0.000	0.799	0.0473	0.8358	0.4331	8.88E-02
349	0.00	0.000	0.694	0.0392	0.7253	0.3758	8.85E-02
350	0.00	0.000	0.669	0.0369	1.4415	0.7469	9.05E-02
351	0.00	0.000	0.647	0.0348	2.6555	1.3760	9.40E-02
352	0.00	0.000	0.627	0.0327	2.7633	1.4318	9.44E-02
353	0.90	0.000	0.738	0.0332	2.3670	1.2265	9.32E-02
354	5.20	0.000	0.722	0.0481	2.0244	1.0489	9.22E-02
355	0.00	0.000	0.577	0.0462	1.7281	0.8954	9.14E-02
356	0.00	0.000	0.563	0.0443	1.4718	0.7626	9.06E-02
357	0.00	0.000	0.550	0.0425	1.2503	0.6478	9.00E-02
358	0.00	0.000	0.537	0.0407	1.0587	0.5486	8.94E-02
359	0.00	0.000	0.526	0.0390	0.8930	0.4627	8.90E-02
360	0.00	0.000	0.509	0.0373	0.7498	0.3885	8.86E-02
361	0.00	0.000	0.505	0.0356	0.6259	0.3243	8.82E-02
362	0.00	0.000	0.495	0.0339	0.5188	0.2688	8.79E-02
363	0.00	0.000	0.486	0.0323	0.4262	0.2208	8.76E-02
364	0.00	0.000	0.477	0.0307	0.3461	0.1793	8.74E-02
365	0.00	0.000	0.469	0.0292	0.2768	0.1434	8.72E-02

* = Frozen (air or soil)

Annual Totals for Year 6			
	mm*	cubic meters	percent
Precipitation	567.20	5,672.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	246.749	2,467.5	43.50
Drainage Collected from Layer 2	355.5393	3,555.4	62.68
Percolation/Leakage through Layer 3	19.800962	198.0	3.49
Average Head on Top of Layer 3	1.8799 (cm)	---	---
Change in Water Storage	-54.8890	-548.9	-9.68
Soil Water at Start of Year	910.3060	9,103.1	160.49
Soil Water at End of Year	855.4170	8,554.2	150.81
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 7

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			0.00	0.000	0.461	0.0276		0.2169	0.1124	8.70E-02
2			0.00	0.000	0.404	0.0247		0.2605	0.1350	8.71E-02
3			0.00	0.000	0.447	0.0232		0.2323	0.1204	8.71E-02
4			0.00	0.000	0.440	0.0217		0.1785	0.0925	8.69E-02
5			8.20	0.000	0.512	0.0473		0.1319	0.0683	8.68E-02
6	*Note: head c		20.20	0.000	0.504	0.0922		0.1289	0.0668	8.68E-02
7			1.20	0.000	6.425	0.0432		0.1929	0.1000	8.70E-02
8			0.00	0.000	6.104	0.0228		0.4116	0.2133	8.76E-02
9			0.00	0.000	0.852	0.0191		1.5958	0.8269	9.10E-02
10			0.00	0.000	0.028	0.0190		2.7952	1.4483	9.44E-02
11			0.00	0.000	0.007	0.0190		3.4204	1.7723	9.62E-02
12			0.00	0.000	0.002	0.0190		2.9504	1.5288	9.49E-02
13			3.40	0.000	0.748	0.0278		2.5288	1.3103	9.37E-02
14			49.00	0.000	1.436	0.1019		2.2091	1.1447	9.28E-02
15			0.40	0.000	6.072	0.0366		2.0131	1.0431	9.22E-02
16			0.00	0.000	5.270	0.0190		2.3252	1.2048	9.31E-02
17			0.00	0.000	0.000	0.0190		3.8369	1.9881	9.74E-02
18			0.00	0.000	0.000	0.0190		5.1169	2.6514	1.01E-01
19			6.20	0.000	2.129	0.0326		6.0985	3.1600	1.04E-01
20			1.40	0.000	4.100	0.0236		6.8367	3.5425	1.06E-01
21			0.10	0.000	1.172	0.0200		7.3771	3.8225	1.08E-01

22	0.00	0.000	0.219	0.0193	7.3373	3.8019	1.08E-01
23	0.00	0.000	0.060	0.0191	6.3222	3.2759	1.05E-01
24	1.20	0.000	0.221	0.0223	5.4444	2.8211	1.02E-01
25	0.00	0.000	0.573	0.0204	4.6854	2.4278	9.99E-02
26	29.00	0.000	1.165	0.0970	4.0291	2.0877	9.80E-02
27	0.00	0.000	5.912	0.0443	3.4616	1.7937	9.64E-02
28	0.00	0.000	6.533	0.0207	3.1789	1.6472	9.56E-02
29	0.00	0.000	0.387	0.0190	3.9094	2.0257	9.77E-02
30	0.00	0.000	0.000	0.0190	4.8243	2.4997	1.00E-01
31	0.00	0.000	0.000	0.0190	5.2479	2.7193	1.02E-01
32	0.00	0.000	0.000	0.0190	4.5655	2.3657	9.95E-02
33	0.00	0.000	0.000	0.0190	3.9254	2.0340	9.77E-02
34	0.00	0.000	0.000	0.0190	3.3719	1.7472	9.61E-02
35	0.10	0.000	0.100	0.0190	2.8933	1.4992	9.47E-02
36	1.70	0.000	0.378	0.0234	2.4794	1.2847	9.35E-02
37	0.00	0.000	0.366	0.0222	2.1216	1.0993	9.25E-02
38	0.00	0.000	0.556	0.0203	1.8121	0.9390	9.16E-02
39	0.00	0.000	0.311	0.0193	1.5445	0.8003	9.08E-02
40	0.00	0.000	0.067	0.0191	1.3131	0.6804	9.02E-02
41	0.00	0.000	0.017	0.0190	1.1130	0.5767	8.96E-02
42	0.00	0.000	0.004	0.0190	0.9400	0.4871	8.91E-02
43	0.00	0.000	0.001	0.0190	0.7904	0.4096	8.87E-02
44	16.00	0.000	0.501	0.0707	0.6611	0.3425	8.83E-02
45	157.40	0.000	0.694	0.1326	0.6791	0.3519	8.84E-02
46	190.70	0.000	2.534	0.1449	0.6050	0.3135	8.81E-02
47	130.30	0.000	3.349	0.1198	0.8297	0.4299	8.88E-02
48	47.40	0.000	3.828	0.0952	12.9032	6.6859	1.24E-01
49	18.40	0.000	6.317	0.0814	335.0290	22.6428	1.05E+00
50	4.20	0.000	5.757	0.0527	425.5878	24.7701	1.31E+00

51	9.00	0.000	7.165	0.0584	405.0268	24.1066	1.25E+00
52	0.00	0.000	6.270	0.0375	378.9977	23.2743	1.18E+00
53	0.00	0.000	4.841	0.0197	353.7558	22.4015	1.11E+00
54	0.00	0.000	0.158	0.0192	329.7346	21.6430	1.04E+00
55	0.00	0.000	0.050	0.0190	306.1714	20.9348	9.68E-01
56	0.00	0.000	0.002	0.0190	283.4107	20.2605	9.03E-01
57	0.00	0.000	0.001	0.0190	261.4146	19.6198	8.39E-01
58	5.20	0.000	0.939	0.0332	240.1454	19.0129	7.78E-01
59	4.80	0.000	1.145	0.0454	219.5653	18.4402	7.19E-01
60	2.70	0.000	1.302	0.0501	199.6358	17.8898	6.61E-01
61	0.00	0.000	1.165	0.0462	121.6119	16.5124	4.37E-01
62	9.20	0.000	1.127	0.0668	59.6503	15.5960	2.58E-01
63	57.60	0.000	6.476	0.1037	54.0025	15.5862	2.42E-01
64	2.20	0.000	5.582	0.0456	38.9908	15.5603	1.99E-01
65	0.00	0.000	6.645	0.0234	37.8803	15.5584	1.95E-01
66	0.00	0.000	1.003	0.0192	39.7735	15.5617	2.01E-01
67	0.00	0.000	0.035	0.0190	39.2080	15.5607	1.99E-01
68	0.00	0.000	0.009	0.0190	36.6524	15.5563	1.92E-01
69	0.00	0.000	0.002	0.0190	30.6855	15.3491	1.75E-01
70	0.20	0.000	0.201	0.0190	28.4063	14.7190	1.68E-01
71	0.00	0.000	0.000	0.0190	27.0769	14.0301	1.64E-01
72	0.00	0.000	0.000	0.0190	25.7017	13.3176	1.60E-01
73	0.00	0.000	0.000	0.0190	24.3211	12.6022	1.56E-01
74	0.00	0.000	0.000	0.0190	22.9630	11.8985	1.53E-01
75	0.00	0.000	0.000	0.0190	21.6463	11.2162	1.49E-01
76	0.00	0.000	0.000	0.0190	20.3833	10.5618	1.45E-01
77	0.00	0.000	0.000	0.0190	19.1817	9.9392	1.42E-01
78	0.00	0.000	0.000	0.0190	18.0521	9.3539	1.38E-01
79	0.00	0.000	0.000	0.0190	16.4598	8.5288	1.34E-01

80	0.00	0.000	0.000	0.0190	14.2105	7.3633	1.27E-01
81	0.00	0.000	0.000	0.0190	12.2656	6.3555	1.22E-01
82	2.20	0.000	0.357	0.0251	10.5837	5.4841	1.17E-01
83	0.00	0.000	0.290	0.0242	9.1294	4.7305	1.13E-01
84	0.00	0.000	0.450	0.0227	7.8719	4.0789	1.09E-01
85	0.00	0.000	0.435	0.0212	6.7845	3.5154	1.06E-01
86	0.00	0.000	0.342	0.0201	5.8442	3.0282	1.03E-01
87	0.00	0.000	0.270	0.0192	5.0311	2.6069	1.01E-01
88	0.00	0.000	0.043	0.0190	4.3280	2.2426	9.89E-02
89	0.00	0.000	0.010	0.0190	3.7200	1.9276	9.71E-02
90	0.00	0.000	0.003	0.0190	3.1943	1.6552	9.56E-02
91	0.00	0.000	0.000	0.0190	2.7397	1.4196	9.43E-02
92	0.00	0.000	0.000	0.0190	2.3466	1.2159	9.32E-02
93	0.00	0.000	0.000	0.0190	2.0067	1.0398	9.22E-02
94	0.00	0.000	0.000	0.0190	1.7128	0.8875	9.13E-02
95	0.00	0.000	0.000	0.0190	1.4587	0.7558	9.06E-02
96	0.00	0.000	0.000	0.0190	1.2389	0.6419	9.00E-02
97	0.50	0.000	0.099	0.0203	1.0488	0.5435	8.94E-02
98	0.00	0.000	0.200	0.0197	0.8845	0.4583	8.89E-02
99	0.00	0.000	0.148	0.0192	0.7424	0.3847	8.85E-02
100	0.00	0.000	0.039	0.0190	0.6195	0.3210	8.82E-02
101	0.00	0.000	0.011	0.0190	0.5133	0.2660	8.79E-02
102	0.00	0.000	0.003	0.0190	0.4214	0.2184	8.76E-02
103	0.20	0.000	0.094	0.0194	0.3420	0.1772	8.74E-02
104	3.40	0.000	0.240	0.0299	0.2733	0.1416	8.72E-02
105	0.40	0.000	0.346	0.0301	0.2139	0.1108	8.70E-02
106	0.30	0.000	0.405	0.0297	0.1625	0.0842	8.69E-02
107	3.80	0.000	0.401	0.0410	0.1181	0.0612	8.67E-02
108	0.00	0.000	0.353	0.0399	0.0797	0.0413	8.66E-02

109	0.00	0.000	0.370	0.0386	0.0465	0.0241	8.65E-02
110	0.00	0.000	0.388	0.0373	0.0177	0.0092	8.64E-02
111	0.00	0.000	0.383	0.0361	0.0004	0.0001	6.00E-03
112	0.00	0.000	0.378	0.0348	0.0000	0.0000	0.00E+00
113	0.00	0.000	0.360	0.0336	0.0000	0.0000	0.00E+00
114	0.00	0.000	0.370	0.0324	0.0000	0.0000	0.00E+00
115	0.00	0.000	0.366	0.0312	0.0000	0.0000	0.00E+00
116	0.00	0.000	0.362	0.0299	0.0000	0.0000	0.00E+00
117	0.00	0.000	0.358	0.0288	0.0000	0.0000	0.00E+00
118	0.00	0.000	0.357	0.0276	0.0000	0.0000	0.00E+00
119	0.00	0.000	0.362	0.0264	0.0000	0.0000	0.00E+00
120	1.00	0.000	0.425	0.0283	0.0000	0.0000	0.00E+00
121	2.40	0.000	0.421	0.0349	0.0000	0.0000	0.00E+00
122	0.00	0.000	0.352	0.0337	0.0000	0.0000	0.00E+00
123	0.00	0.000	0.348	0.0325	0.0000	0.0000	0.00E+00
124	0.20	0.000	0.409	0.0318	0.0000	0.0000	0.00E+00
125	0.00	0.000	0.342	0.0307	0.0000	0.0000	0.00E+00
126	0.00	0.000	0.339	0.0296	0.0000	0.0000	0.00E+00
127	0.00	0.000	0.336	0.0284	0.0000	0.0000	0.00E+00
128	0.00	0.000	0.333	0.0273	0.0000	0.0000	0.00E+00
129	0.00	0.000	0.330	0.0262	0.0000	0.0000	0.00E+00
130	0.00	0.000	0.328	0.0251	0.0000	0.0000	0.00E+00
131	0.00	0.000	0.325	0.0241	0.0000	0.0000	0.00E+00
132	0.00	0.000	0.322	0.0230	0.0000	0.0000	0.00E+00
133	0.00	0.000	0.320	0.0219	0.0000	0.0000	0.00E+00
134	0.00	0.000	0.317	0.0209	0.0000	0.0000	0.00E+00
135	0.00	0.000	0.315	0.0198	0.0000	0.0000	0.00E+00
136	0.00	0.000	0.244	0.0190	0.0000	0.0000	0.00E+00
137	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

138	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
139	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
140	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
141	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
142	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
147	0.10	0.000	0.079	0.0191	0.0000	0.0000	0.00E+00
148	0.90	0.000	0.096	0.0218	0.0000	0.0000	0.00E+00
149	0.00	0.000	0.119	0.0214	0.0000	0.0000	0.00E+00
150	0.00	0.000	0.168	0.0208	0.0000	0.0000	0.00E+00
151	0.00	0.000	0.190	0.0202	0.0000	0.0000	0.00E+00
152	0.00	0.000	0.189	0.0195	0.0000	0.0000	0.00E+00
153	0.00	0.000	0.122	0.0191	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.028	0.0190	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
158	0.20	0.000	0.092	0.0194	0.0000	0.0000	0.00E+00
159	7.00	0.000	0.187	0.0421	0.0000	0.0000	0.00E+00
160	1.00	0.000	0.294	0.0444	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.255	0.0436	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.257	0.0427	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.255	0.0419	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.254	0.0410	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.252	0.0402	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.259	0.0393	0.0000	0.0000	0.00E+00

167	0.90	0.000	0.328	0.0412	0.0000	0.0000	0.00E+00
168	0.00	0.000	0.257	0.0404	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.255	0.0395	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.254	0.0387	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.253	0.0378	0.0000	0.0000	4.43E-04
172	0.00	0.000	0.252	0.0370	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.250	0.0362	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.249	0.0353	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.248	0.0345	0.0000	0.0000	1.09E-04
176	0.00	0.000	0.247	0.0337	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.246	0.0329	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.245	0.0320	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.244	0.0312	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.242	0.0304	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.241	0.0296	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.240	0.0288	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.239	0.0280	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.238	0.0272	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.237	0.0264	0.0000	0.0000	9.00E-05
186	0.00	0.000	0.236	0.0256	0.0000	0.0000	8.40E-06
187	0.00	0.000	0.235	0.0249	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.234	0.0241	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.233	0.0233	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.232	0.0225	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.231	0.0218	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.230	0.0210	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.229	0.0202	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.228	0.0193	0.0069	0.0034	5.37E-02
195	0.00	0.000	0.082	0.0190	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
227	0.50	0.000	0.101	0.0203	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.085	0.0200	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.122	0.0196	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.118	0.0192	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.042	0.0191	0.0000	0.0000	0.00E+00
232	0.40	0.000	0.122	0.0200	0.0000	0.0000	0.00E+00
233	4.00	0.000	0.174	0.0328	0.0000	0.0000	0.00E+00
234	7.00	0.000	0.220	0.0554	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.192	0.0547	0.0000	0.0000	0.00E+00
236	2.00	0.000	0.283	0.0605	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.197	0.0591	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.196	0.0549	0.1550	0.0803	8.68E-02
239	0.00	0.000	0.196	0.0518	0.3586	0.1858	8.74E-02
240	0.00	0.000	0.195	0.0495	0.4490	0.2327	8.77E-02
241	0.00	0.000	0.195	0.0476	0.4822	0.2499	8.78E-02
242	0.00	0.000	0.194	0.0460	0.4841	0.2508	8.78E-02
243	0.00	0.000	0.193	0.0445	0.4679	0.2424	8.77E-02
244	0.00	0.000	0.193	0.0432	0.4414	0.2287	8.77E-02
245	0.00	0.000	0.192	0.0420	0.4092	0.2120	8.76E-02
246	0.00	0.000	0.192	0.0408	0.3742	0.1939	8.75E-02
247	0.00	0.000	0.166	0.0400	0.3364	0.1743	8.74E-02
248	0.00	0.000	0.191	0.0394	0.2748	0.1424	8.72E-02
249	0.00	0.000	0.190	0.0388	0.2152	0.1115	8.70E-02
250	0.00	0.000	0.190	0.0381	0.1636	0.0848	8.69E-02
251	0.00	0.000	0.189	0.0375	0.1190	0.0617	8.67E-02
252	0.00	0.000	0.189	0.0369	0.0805	0.0417	8.66E-02
253	0.00	0.000	0.188	0.0363	0.0472	0.0244	8.65E-02

254	0.00	0.000	0.188	0.0356	0.0184	0.0095	8.65E-02
255	0.00	0.000	0.187	0.0350	0.0006	0.0001	8.03E-03
256	0.00	0.000	0.187	0.0344	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.186	0.0338	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.186	0.0331	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.185	0.0325	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.185	0.0319	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.184	0.0313	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.184	0.0307	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.183	0.0301	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.183	0.0295	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.182	0.0289	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.182	0.0283	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.181	0.0277	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.181	0.0270	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.180	0.0264	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.180	0.0258	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.180	0.0252	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.179	0.0247	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.179	0.0241	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.178	0.0235	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.178	0.0229	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.177	0.0223	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.177	0.0217	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.176	0.0211	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.176	0.0205	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.176	0.0199	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.175	0.0193	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.103	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
301	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
314	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
318	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
319	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
321	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
322	0.20	0.000	0.099	0.0193	0.0000	0.0000	0.00E+00
323	0.00	0.000	0.013	0.0193	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.028	0.0192	0.0000	0.0000	0.00E+00
325	0.10	0.000	0.087	0.0192	0.0000	0.0000	0.00E+00
326	0.00	0.000	0.016	0.0192	0.0000	0.0000	0.00E+00
327	0.00	0.000	0.027	0.0191	0.0000	0.0000	0.00E+00
328	0.00	0.000	0.023	0.0190	0.0000	0.0000	0.00E+00
329	0.00	0.000	0.005	0.0190	0.0000	0.0000	7.63E-06
330	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
331	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
332	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
333	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
334	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
335	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
336	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
337	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
338	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
339	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
340	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

341	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
342	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
343	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
344	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
345	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
346	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
347	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
348	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
349	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
350	0.20	0.000	0.099	0.0193	0.0000	0.0000	0.00E+00
351	0.00	0.000	0.013	0.0193	0.0000	0.0000	0.00E+00
352	0.00	0.000	0.027	0.0192	0.0000	0.0000	0.00E+00
353	0.00	0.000	0.026	0.0191	0.0000	0.0000	0.00E+00
354	0.00	0.000	0.026	0.0190	0.0000	0.0000	0.00E+00
355	0.00	0.000	0.008	0.0190	0.0000	0.0000	0.00E+00
356	0.40	0.000	0.112	0.0200	0.0000	0.0000	0.00E+00
357	5.60	0.000	0.163	0.0381	0.0000	0.0000	2.92E-06
358	0.00	0.000	0.123	0.0377	0.0000	0.0000	0.00E+00
359	0.00	0.000	0.137	0.0372	0.0000	0.0000	0.00E+00
360	0.00	0.000	0.136	0.0368	0.0000	0.0000	0.00E+00
361	0.00	0.000	0.136	0.0363	0.0000	0.0000	0.00E+00
362	3.20	0.000	0.238	0.0462	0.0000	0.0000	0.00E+00
363	2.60	0.000	0.247	0.0540	0.0000	0.0000	0.00E+00
364	0.00	0.000	0.148	0.0535	0.0000	0.0000	0.00E+00
365	0.00	0.000	0.148	0.0530	0.0004	0.0001	5.82E-03

* = Frozen (air or soil)

Annual Totals for Year 7			
	mm*	cubic meters	percent
Precipitation	828.10	8,281.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	157.496	1,575.0	19.02
Drainage Collected from Layer 2	639.8240	6,398.2	77.26
Percolation/Leakage through Layer 3	24.489918	244.9	2.96
Average Head on Top of Layer 3	12.7885 (cm)	---	---
Change in Water Storage	6.2903	62.9	0.76
Soil Water at Start of Year	855.4170	8,554.2	103.30
Soil Water at End of Year	861.7073	8,617.1	104.06
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 8

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			0.00	0.000	0.148	0.0522		0.0035	0.0018	4.32E-02
2			3.00	0.000	0.219	0.0611		0.0190	0.0098	8.65E-02
3			0.00	0.000	0.147	0.0595		0.0115	0.0059	8.64E-02
4			0.00	0.000	0.147	0.0554		0.1872	0.0970	8.69E-02
5			0.00	0.000	0.147	0.0535		0.3486	0.1806	8.74E-02
6	*Note: head c		0.10	0.000	0.198	0.0522		0.3756	0.1946	8.75E-02
7			1.40	0.000	0.209	0.0552		0.3834	0.1987	8.75E-02
8			2.00	0.000	0.208	0.0608		0.3590	0.1860	8.74E-02
9			0.00	0.000	0.146	0.0595		0.3059	0.1585	8.73E-02
10			0.00	0.000	0.146	0.0552		0.4307	0.2232	8.76E-02
11			0.00	0.000	0.146	0.0523		0.6041	0.3130	8.81E-02
12			1.40	0.000	0.202	0.0563		0.6096	0.3159	8.82E-02
13			0.40	0.000	0.200	0.0564		0.5145	0.2666	8.79E-02
14			0.00	0.000	0.145	0.0544		0.4943	0.2561	8.78E-02
15			0.00	0.000	0.145	0.0526		0.5244	0.2717	8.79E-02
16			0.00	0.000	0.144	0.0509		0.5324	0.2758	8.79E-02
17			0.00	0.000	0.144	0.0503		0.5011	0.2597	8.78E-02
18			0.00	0.000	0.144	0.0498		0.4138	0.2144	8.76E-02
19			2.20	0.000	0.193	0.0563		0.3354	0.1738	8.74E-02
20			8.40	0.000	0.192	0.0626		0.3122	0.1618	8.73E-02
21			0.10	0.000	0.185	0.0581		0.3466	0.1796	8.74E-02

22	0.00	0.000	0.143	0.0552	1.0181	0.5275	8.93E-02
23	0.00	0.000	0.143	0.0532	1.9535	1.0122	9.20E-02
24	0.00	0.000	0.143	0.0527	1.9776	1.0247	9.21E-02
25	2.90	0.000	0.188	0.0613	1.7140	0.8881	9.13E-02
26	10.00	0.000	0.187	0.0665	1.5814	0.8194	9.10E-02
27	0.00	0.000	0.142	0.0570	1.4614	0.7572	9.06E-02
28	0.00	0.000	0.142	0.0549	1.9124	0.9909	9.19E-02
29	0.00	0.000	0.141	0.0544	2.8667	1.4854	9.47E-02
30	0.00	0.000	0.141	0.0539	3.2977	1.7087	9.59E-02
31	0.00	0.000	0.141	0.0534	2.8291	1.4659	9.45E-02
32	0.00	0.000	0.141	0.0530	2.4239	1.2560	9.34E-02
33	0.00	0.000	0.141	0.0525	2.0736	1.0744	9.24E-02
34	0.00	0.000	0.140	0.0520	1.7706	0.9175	9.15E-02
35	0.00	0.000	0.140	0.0516	1.5086	0.7817	9.07E-02
36	7.80	0.000	0.182	0.0698	1.2888	0.6678	9.01E-02
37	8.20	0.000	0.181	0.0622	1.1572	0.5996	8.97E-02
38	2.80	0.000	0.181	0.0569	1.0200	0.5285	8.93E-02
39	21.80	0.000	3.514	0.0862	1.5664	0.8117	9.09E-02
40	41.80	0.000	4.260	0.0920	1.6843	0.8727	9.12E-02
41	85.70	0.000	5.307	0.1094	1.4340	0.7430	9.05E-02
42	2.00	0.000	6.539	0.0424	1.2175	0.6309	8.99E-02
43	0.40	0.000	5.592	0.0251	3.7539	1.9451	9.72E-02
44	13.20	0.000	6.201	0.0484	8.0135	4.1523	1.09E-01
45	0.00	0.000	4.889	0.0321	11.0850	5.7438	1.18E-01
46	0.00	0.000	3.539	0.0204	13.2101	6.8449	1.24E-01
47	10.30	0.000	5.166	0.0375	14.6237	7.5774	1.29E-01
48	7.00	0.000	3.805	0.0481	15.5032	8.0331	1.31E-01
49	1.80	0.000	5.921	0.0344	15.9817	8.2811	1.32E-01
50	0.00	0.000	4.155	0.0205	16.1601	8.3735	1.33E-01

51	0.00	0.000	0.339	0.0191	16.1059	8.3454	1.33E-01
52	0.00	0.000	0.023	0.0190	15.8872	8.2321	1.32E-01
53	0.00	0.000	0.006	0.0190	15.5643	8.0648	1.31E-01
54	0.00	0.000	0.001	0.0190	15.1562	7.8533	1.30E-01
55	8.20	0.000	0.721	0.0439	14.6901	7.6118	1.29E-01
56	39.00	0.000	1.409	0.1050	14.2035	7.3597	1.27E-01
57	1.00	0.000	6.091	0.0433	13.0522	6.7631	1.24E-01
58	6.00	0.000	5.749	0.0442	12.3176	6.3825	1.22E-01
59	19.60	0.000	6.172	0.0866	12.4574	6.4549	1.22E-01
60	4.80	0.000	4.895	0.0572	12.3404	6.3943	1.22E-01
61	58.20	0.000	5.077	0.1027	11.2285	5.8181	1.19E-01
62	0.00	0.000	4.358	0.0519	9.9873	5.1750	1.15E-01
63	0.00	0.000	6.208	0.0312	10.1096	5.2384	1.16E-01
64	0.40	0.000	3.479	0.0190	11.3021	5.8563	1.19E-01
65	0.00	0.000	0.000	0.0190	12.1024	6.2710	1.21E-01
66	0.00	0.000	0.000	0.0190	12.6696	6.5649	1.23E-01
67	0.00	0.000	0.000	0.0190	12.9807	6.7261	1.24E-01
68	0.00	0.000	0.000	0.0190	13.0952	6.7854	1.24E-01
69	0.00	0.000	0.000	0.0190	13.0597	6.7670	1.24E-01
70	0.00	0.000	0.000	0.0190	12.9111	6.6900	1.24E-01
71	1.10	0.000	0.158	0.0221	12.6786	6.5695	1.23E-01
72	1.40	0.000	0.546	0.0250	12.3582	6.4035	1.22E-01
73	0.60	0.000	0.498	0.0253	10.9788	5.6888	1.18E-01
74	0.00	0.000	0.672	0.0231	9.4711	4.9075	1.14E-01
75	0.00	0.000	0.626	0.0210	8.1673	4.2320	1.10E-01
76	0.00	0.000	0.529	0.0192	7.0399	3.6478	1.07E-01
77	0.00	0.000	0.052	0.0191	6.0651	3.1427	1.04E-01
78	0.00	0.000	0.013	0.0190	5.2221	2.7059	1.01E-01
79	0.00	0.000	0.004	0.0190	4.4932	2.3282	9.93E-02

80	0.00	0.000	0.000	0.0190	3.8629	2.0016	9.75E-02
81	0.00	0.000	0.000	0.0190	3.3178	1.7192	9.60E-02
82	32.00	0.000	0.656	0.0914	2.8465	1.4750	9.46E-02
83	0.00	0.000	5.434	0.0424	2.4748	1.2823	9.35E-02
84	0.00	0.000	6.586	0.0205	2.6325	1.3641	9.40E-02
85	0.00	0.000	0.327	0.0190	3.5309	1.8296	9.66E-02
86	0.00	0.000	0.000	0.0190	4.5329	2.3488	9.95E-02
87	0.00	0.000	0.000	0.0190	5.2523	2.7215	1.02E-01
88	0.00	0.000	0.000	0.0190	4.7672	2.4702	1.00E-01
89	0.10	0.000	0.100	0.0190	4.0998	2.1244	9.82E-02
90	0.00	0.000	0.000	0.0190	3.5227	1.8253	9.65E-02
91	0.00	0.000	0.000	0.0190	3.0237	1.5668	9.51E-02
92	0.00	0.000	0.000	0.0190	2.5922	1.3432	9.39E-02
93	0.00	0.000	0.000	0.0190	2.2191	1.1498	9.28E-02
94	0.00	0.000	0.000	0.0190	1.8964	0.9826	9.19E-02
95	0.00	0.000	0.000	0.0190	1.6174	0.8381	9.11E-02
96	0.00	0.000	0.000	0.0190	1.3762	0.7131	9.04E-02
97	0.00	0.000	0.000	0.0190	1.1676	0.6050	8.98E-02
98	0.00	0.000	0.000	0.0190	0.9872	0.5115	8.92E-02
99	0.00	0.000	0.000	0.0190	0.8312	0.4307	8.88E-02
100	0.00	0.000	0.000	0.0190	0.6963	0.3608	8.84E-02
101	0.00	0.000	0.000	0.0190	0.5797	0.3004	8.81E-02
102	0.00	0.000	0.000	0.0190	0.4788	0.2481	8.78E-02
103	0.00	0.000	0.000	0.0190	0.3916	0.2029	8.75E-02
104	0.00	0.000	0.000	0.0190	0.3162	0.1638	8.73E-02
105	0.00	0.000	0.000	0.0190	0.2510	0.1300	8.71E-02
106	0.00	0.000	0.000	0.0190	0.1946	0.1008	8.70E-02
107	1.80	0.000	0.271	0.0241	0.1458	0.0756	8.68E-02
108	12.40	0.000	0.399	0.0641	0.1037	0.0537	8.67E-02

109	0.00	0.000	0.498	0.0581	0.0672	0.0348	8.66E-02
110	0.40	0.000	0.551	0.0556	0.3205	0.1661	8.73E-02
111	8.60	0.000	0.542	0.0633	0.4709	0.2440	8.78E-02
112	0.10	0.000	0.527	0.0530	0.4349	0.2253	8.77E-02
113	0.00	0.000	0.477	0.0492	1.0075	0.5220	8.93E-02
114	0.20	0.000	0.516	0.0482	2.0432	1.0587	9.23E-02
115	0.00	0.000	0.461	0.0450	2.2415	1.1614	9.29E-02
116	0.00	0.000	0.454	0.0427	2.0106	1.0418	9.22E-02
117	0.00	0.000	0.439	0.0407	1.7897	0.9274	9.16E-02
118	0.00	0.000	0.440	0.0392	1.5393	0.7976	9.08E-02
119	0.00	0.000	0.434	0.0378	1.3086	0.6781	9.02E-02
120	0.00	0.000	0.428	0.0363	1.1092	0.5747	8.96E-02
121	0.00	0.000	0.422	0.0349	0.9367	0.4853	8.91E-02
122	0.00	0.000	0.416	0.0335	0.7875	0.4081	8.87E-02
123	0.00	0.000	0.411	0.0322	0.6585	0.3412	8.83E-02
124	0.00	0.000	0.405	0.0308	0.5470	0.2834	8.80E-02
125	0.00	0.000	0.400	0.0295	0.4506	0.2335	8.77E-02
126	0.00	0.000	0.396	0.0282	0.3672	0.1903	8.75E-02
127	0.00	0.000	0.391	0.0269	0.2957	0.1532	8.73E-02
128	0.00	0.000	0.386	0.0256	0.2335	0.1210	8.71E-02
129	0.00	0.000	0.382	0.0243	0.1795	0.0930	8.69E-02
130	0.00	0.000	0.378	0.0230	0.1327	0.0688	8.68E-02
131	0.00	0.000	0.374	0.0218	0.0923	0.0479	8.67E-02
132	0.00	0.000	0.370	0.0206	0.0574	0.0298	8.66E-02
133	0.10	0.000	0.411	0.0195	0.0272	0.0141	8.65E-02
134	0.20	0.000	0.216	0.0195	0.0036	0.0017	3.59E-02
135	6.00	0.000	0.203	0.0388	0.0000	0.0000	0.00E+00
136	0.60	0.000	0.345	0.0396	0.0000	0.0000	0.00E+00
137	0.00	0.000	0.321	0.0386	0.0000	0.0000	0.00E+00

138	0.00	0.000	0.318	0.0375	0.0000	0.0000	0.00E+00
139	0.00	0.000	0.315	0.0365	0.0000	0.0000	0.00E+00
140	0.00	0.000	0.318	0.0354	0.0000	0.0000	0.00E+00
141	0.00	0.000	0.330	0.0343	0.0000	0.0000	0.00E+00
142	0.00	0.000	0.325	0.0332	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.323	0.0321	0.0000	0.0000	0.00E+00
144	0.10	0.000	0.367	0.0313	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.317	0.0302	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.315	0.0292	0.0000	0.0000	0.00E+00
147	0.00	0.000	0.312	0.0281	0.0000	0.0000	0.00E+00
148	0.00	0.000	0.310	0.0271	0.0000	0.0000	0.00E+00
149	0.00	0.000	0.307	0.0261	0.0000	0.0000	0.00E+00
150	1.20	0.000	0.365	0.0288	0.0000	0.0000	0.00E+00
151	1.40	0.000	0.363	0.0323	0.0000	0.0000	0.00E+00
152	0.10	0.000	0.349	0.0315	0.0000	0.0000	0.00E+00
153	0.00	0.000	0.298	0.0305	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.296	0.0295	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.294	0.0285	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.292	0.0275	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.299	0.0265	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.297	0.0255	0.0000	0.0000	0.00E+00
159	0.00	0.000	0.295	0.0246	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.293	0.0236	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.291	0.0226	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.289	0.0216	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.288	0.0207	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.286	0.0197	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.174	0.0192	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.047	0.0190	0.0000	0.0000	0.00E+00

167	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
168	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
175	0.60	0.000	0.090	0.0207	0.0000	0.0000	0.00E+00
176	6.60	0.000	0.178	0.0421	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.218	0.0414	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.244	0.0406	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.255	0.0397	0.0000	0.0000	0.00E+00
180	0.10	0.000	0.305	0.0390	0.0000	0.0000	0.00E+00
181	0.10	0.000	0.304	0.0384	0.0000	0.0000	0.00E+00
182	0.10	0.000	0.303	0.0377	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.249	0.0369	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.247	0.0360	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.246	0.0352	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.245	0.0344	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.244	0.0336	0.0000	0.0000	0.00E+00
188	0.80	0.000	0.314	0.0352	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.241	0.0344	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.248	0.0336	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.247	0.0327	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.246	0.0319	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.235	0.0311	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.244	0.0303	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.242	0.0295	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.241	0.0287	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.240	0.0279	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.239	0.0271	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.238	0.0263	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.237	0.0255	0.0000	0.0000	0.00E+00
201	0.10	0.000	0.292	0.0249	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.229	0.0241	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.231	0.0234	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.232	0.0226	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.232	0.0218	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.231	0.0210	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.230	0.0203	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.229	0.0195	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.114	0.0190	0.0037	0.0017	3.64E-02
210	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
217	0.10	0.000	0.076	0.0191	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.014	0.0190	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
223	0.10	0.000	0.076	0.0191	0.0000	0.0000	0.00E+00
224	0.10	0.000	0.076	0.0192	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.018	0.0191	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.024	0.0190	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.005	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
234	1.20	0.000	0.100	0.0227	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.087	0.0224	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.135	0.0219	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.139	0.0215	0.0000	0.0000	0.00E+00
238	7.20	0.000	0.221	0.0447	0.0000	0.0000	0.00E+00
239	0.10	0.000	0.227	0.0443	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.198	0.0436	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.197	0.0430	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.197	0.0423	0.0000	0.0000	0.00E+00
243	0.60	0.000	0.282	0.0434	0.0000	0.0000	0.00E+00
244	1.40	0.000	0.288	0.0471	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.201	0.0464	0.0001	0.0000	1.31E-03
246	0.00	0.000	0.201	0.0458	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.200	0.0451	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.199	0.0444	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.199	0.0438	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.198	0.0431	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.197	0.0424	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.197	0.0418	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.196	0.0411	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.196	0.0404	0.0002	0.0001	1.02E-02
255	0.00	0.000	0.172	0.0396	0.0009	0.0005	6.48E-02
256	0.00	0.000	0.195	0.0389	0.0010	0.0005	2.01E-02
257	0.00	0.000	0.194	0.0383	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.193	0.0376	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.193	0.0370	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.192	0.0364	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.192	0.0357	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.191	0.0351	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.191	0.0345	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.190	0.0338	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.190	0.0332	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.189	0.0326	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.189	0.0319	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.188	0.0313	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.188	0.0307	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.187	0.0300	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.187	0.0294	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.186	0.0288	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.186	0.0282	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.185	0.0276	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.185	0.0270	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.184	0.0263	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.184	0.0257	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.183	0.0251	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.183	0.0245	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.182	0.0239	0.0000	0.0000	0.00E+00
281	19.20	0.000	0.289	0.0869	0.0000	0.0000	0.00E+00
282	0.10	0.000	0.247	0.0502	0.0825	0.0427	6.50E-02

283	0.00	0.000	0.181	0.0493	0.4381	0.2270	8.77E-02
284	0.00	0.000	0.180	0.0487	1.3466	0.6977	9.03E-02
285	1.50	0.000	0.290	0.0527	2.3878	1.2373	9.33E-02
286	0.00	0.000	0.180	0.0521	2.1820	1.1306	9.27E-02
287	0.00	0.000	0.179	0.0515	1.8644	0.9661	9.18E-02
288	0.00	0.000	0.179	0.0509	1.5897	0.8237	9.10E-02
289	0.00	0.000	0.178	0.0503	1.3522	0.7007	9.03E-02
290	1.20	0.000	0.290	0.0533	1.1468	0.5942	8.97E-02
291	0.00	0.000	0.177	0.0474	0.9912	0.5136	8.93E-02
292	0.00	0.000	0.177	0.0458	1.1346	0.5879	8.97E-02
293	0.00	0.000	0.176	0.0452	1.1304	0.5857	8.97E-02
294	0.00	0.000	0.176	0.0445	0.9550	0.4948	8.91E-02
295	0.00	0.000	0.176	0.0432	0.8451	0.4379	8.88E-02
296	0.00	0.000	0.175	0.0426	0.7342	0.3804	8.85E-02
297	0.10	0.000	0.242	0.0421	0.6124	0.3173	8.82E-02
298	0.00	0.000	0.174	0.0408	0.5318	0.2756	8.79E-02
299	0.00	0.000	0.174	0.0397	0.4869	0.2523	8.78E-02
300	1.00	0.000	0.292	0.0421	0.4224	0.2188	8.76E-02
301	0.00	0.000	0.173	0.0412	0.3568	0.1849	8.74E-02
302	0.00	0.000	0.173	0.0404	0.3022	0.1566	8.73E-02
303	0.00	0.000	0.172	0.0395	0.2611	0.1353	8.72E-02
304	0.00	0.000	0.172	0.0387	0.2245	0.1163	8.70E-02
305	0.00	0.000	0.172	0.0379	0.1889	0.0979	8.69E-02
306	0.00	0.000	0.171	0.0372	0.1551	0.0804	8.68E-02
307	0.00	0.000	0.171	0.0365	0.1237	0.0641	8.68E-02
308	0.00	0.000	0.170	0.0358	0.0952	0.0493	8.67E-02
309	0.00	0.000	0.170	0.0351	0.0697	0.0361	8.66E-02
310	0.00	0.000	0.168	0.0346	0.0412	0.0214	8.65E-02
311	0.00	0.000	0.169	0.0340	0.0132	0.0067	7.76E-02

312	0.10	0.000	0.238	0.0335	0.0000	0.0000	0.00E+00
313	0.10	0.000	0.238	0.0331	0.0000	0.0000	0.00E+00
314	1.80	0.000	0.295	0.0381	0.0000	0.0000	0.00E+00
315	1.40	0.000	0.295	0.0418	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.167	0.0412	0.0006	0.0001	8.21E-03
317	0.00	0.000	0.167	0.0406	0.0000	0.0000	0.00E+00
318	0.20	0.000	0.269	0.0404	0.0000	0.0000	0.00E+00
319	0.80	0.000	0.296	0.0421	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.166	0.0415	0.0000	0.0000	0.00E+00
321	0.00	0.000	0.166	0.0409	0.0005	0.0001	7.13E-03
322	0.00	0.000	0.165	0.0404	0.0004	0.0001	5.72E-03
323	0.00	0.000	0.165	0.0398	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.165	0.0393	0.0003	0.0000	4.72E-03
325	0.00	0.000	0.164	0.0387	0.0006	0.0001	8.98E-03
326	0.00	0.000	0.164	0.0381	0.0006	0.0001	9.24E-03
327	0.30	0.000	0.285	0.0381	0.0006	0.0001	8.84E-03
328	0.00	0.000	0.163	0.0375	0.0009	0.0001	1.32E-02
329	0.00	0.000	0.163	0.0370	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.163	0.0364	0.0005	0.0001	1.47E-02
331	0.00	0.000	0.162	0.0358	0.0007	0.0002	2.05E-02
332	0.40	0.000	0.294	0.0362	0.0000	0.0000	0.00E+00
333	0.80	0.000	0.301	0.0378	0.0004	0.0001	5.93E-03
334	4.00	0.000	0.302	0.0501	0.0000	0.0000	0.00E+00
335	0.30	0.000	0.285	0.0502	0.0000	0.0000	0.00E+00
336	1.00	0.000	0.302	0.0525	0.0000	0.0000	0.00E+00
337	2.00	0.000	0.303	0.0581	0.0000	0.0000	0.00E+00
338	0.00	0.000	6.391	0.0367	0.0005	0.0001	6.81E-03
339	0.30	0.000	0.286	0.0367	0.0044	0.0021	5.78E-02
340	17.60	0.000	0.304	0.0942	0.0004	0.0001	2.53E-02

341	0.00	0.000	6.468	0.0402	0.0000	0.0000	0.00E+00
342	0.00	0.000	5.721	0.0190	0.4497	0.2330	8.77E-02
343	0.40	0.000	0.400	0.0190	1.5329	0.7943	9.08E-02
344	0.00	0.000	0.000	0.0190	2.3457	1.2155	9.32E-02
345	0.00	0.000	0.000	0.0190	2.0342	1.0541	9.23E-02
346	1.40	0.000	0.261	0.0228	1.7366	0.8998	9.14E-02
347	43.00	0.000	1.350	0.0906	1.4792	0.7665	9.07E-02
348	0.40	0.000	4.879	0.0304	1.2567	0.6511	9.00E-02
349	0.40	0.000	3.653	0.0190	1.6503	0.8551	9.12E-02
350	0.00	0.000	0.000	0.0190	3.1669	1.6410	9.55E-02
351	23.50	0.000	4.911	0.0810	4.4801	2.3214	9.93E-02
352	1.60	0.000	5.239	0.0395	5.5298	2.8653	1.02E-01
353	0.00	0.000	6.029	0.0194	5.5326	2.8668	1.02E-01
354	3.20	0.000	2.396	0.0220	5.9611	3.0888	1.04E-01
355	0.00	0.000	0.490	0.0204	6.6837	3.4632	1.06E-01
356	0.00	0.000	0.331	0.0193	7.2469	3.7551	1.07E-01
357	0.00	0.000	0.068	0.0191	6.8299	3.5390	1.06E-01
358	0.00	0.000	0.017	0.0190	5.8835	3.0486	1.03E-01
359	0.00	0.000	0.004	0.0190	5.0651	2.6245	1.01E-01
360	0.00	0.000	0.001	0.0190	4.3574	2.2578	9.89E-02
361	0.00	0.000	0.000	0.0190	3.7455	1.9407	9.72E-02
362	0.00	0.000	0.000	0.0190	3.2163	1.6666	9.57E-02
363	53.80	0.000	1.238	0.0981	2.8036	1.4527	9.45E-02
364	11.20	0.000	6.014	0.0609	2.5271	1.3094	9.37E-02
365	0.20	0.000	5.298	0.0436	2.7469	1.4233	9.43E-02

* = Frozen (air or soil)

Annual Totals for Year 8			
	mm*	cubic meters	percent
Precipitation	652.80	6,528.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	239.563	2,395.6	36.70
Drainage Collected from Layer 2	349.6588	3,496.6	53.56
Percolation/Leakage through Layer 3	18.478516	184.8	2.83
Average Head on Top of Layer 3	1.8438 (cm)	---	---
Change in Water Storage	45.0992	451.0	6.91
Soil Water at Start of Year	861.7073	8,617.1	132.00
Soil Water at End of Year	906.8065	9,068.1	138.91
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 9

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1				0.30	0.000	6.460	0.0190	5.5872	2.8951	1.02E-01
2				0.00	0.000	0.000	0.0190	6.6020	3.4209	1.05E-01
3				0.00	0.000	0.000	0.0190	7.3575	3.8123	1.08E-01
4				0.00	0.000	0.000	0.0190	7.9031	4.0951	1.09E-01
5				0.60	0.000	0.523	0.0193	8.3083	4.3050	1.10E-01
6	*Note: head c			0.80	0.000	0.272	0.0210	7.8026	4.0430	1.09E-01
7				0.20	0.000	0.491	0.0200	6.7245	3.4844	1.06E-01
8				0.00	0.000	0.213	0.0193	5.7923	3.0014	1.03E-01
9				0.00	0.000	0.073	0.0191	4.9863	2.5837	1.01E-01
10				10.50	0.000	0.836	0.0513	4.2892	2.2225	9.88E-02
11				25.40	0.000	1.063	0.0916	3.6865	1.9102	9.70E-02
12				45.00	0.000	2.822	0.0919	3.1653	1.6402	9.55E-02
13				177.60	0.000	5.144	0.1380	2.7147	1.4066	9.42E-02
14				19.40	0.000	5.377	0.0826	2.3439	1.2145	9.31E-02
15				27.40	0.000	4.351	0.0913	8.4084	4.3569	1.11E-01
16				31.60	0.000	3.611	0.0913	12.6643	6.5621	1.23E-01
17				1.40	0.000	5.528	0.0487	15.4417	8.0012	1.31E-01
18				0.00	0.000	6.767	0.0262	21.3846	11.0806	1.48E-01
19				0.00	0.000	2.122	0.0191	27.0305	14.0061	1.64E-01
20				0.00	0.000	0.024	0.0190	33.5429	15.4468	1.83E-01
21				2.40	0.000	1.503	0.0220	40.4829	15.5629	2.03E-01

22	10.20	0.000	4.186	0.0421	41.7863	15.5651	2.07E-01
23	4.20	0.000	5.088	0.0391	40.5942	15.5631	2.03E-01
24	0.00	0.000	4.387	0.0245	37.4911	15.5577	1.94E-01
25	0.00	0.000	1.424	0.0197	30.9105	15.3945	1.75E-01
26	0.00	0.000	0.203	0.0191	28.4276	14.7300	1.68E-01
27	0.00	0.000	0.014	0.0190	27.0217	14.0015	1.64E-01
28	0.00	0.000	0.003	0.0190	25.5918	13.2606	1.60E-01
29	0.00	0.000	0.001	0.0190	24.1729	12.5254	1.56E-01
30	0.00	0.000	0.000	0.0190	22.7889	11.8083	1.52E-01
31	3.20	0.000	0.533	0.0279	21.4557	11.1175	1.48E-01
32	1.80	0.000	0.496	0.0322	20.1834	10.4582	1.45E-01
33	53.60	0.000	1.009	0.1137	18.9940	9.8419	1.41E-01
34	0.40	0.000	5.468	0.0401	17.2191	8.9222	1.36E-01
35	32.80	0.000	5.906	0.0855	16.0250	8.3035	1.33E-01
36	0.80	0.000	4.205	0.0498	15.3034	7.9296	1.30E-01
37	4.00	0.000	4.139	0.0479	13.7891	7.1450	1.26E-01
38	1.50	0.000	6.159	0.0320	13.9181	7.2118	1.26E-01
39	0.00	0.000	3.484	0.0204	14.2350	7.3760	1.27E-01
40	15.00	0.000	4.930	0.0539	14.3425	7.4317	1.28E-01
41	0.40	0.000	4.391	0.0406	14.2884	7.4036	1.28E-01
42	28.20	0.000	4.047	0.0869	14.1165	7.3146	1.27E-01
43	116.60	0.000	4.138	0.1175	13.3975	6.9421	1.25E-01
44	24.20	0.000	3.593	0.0946	11.6309	6.0267	1.20E-01
45	46.00	0.000	4.030	0.0940	11.6908	6.0577	1.20E-01
46	22.00	0.000	6.881	0.0880	10.5534	5.4683	1.17E-01
47	0.00	0.000	6.695	0.0452	13.1469	6.8122	1.24E-01
48	0.00	0.000	6.517	0.0211	17.3846	9.0080	1.36E-01
49	0.60	0.000	1.221	0.0190	21.6227	11.2040	1.49E-01
50	0.30	0.000	0.300	0.0190	24.0610	12.4674	1.56E-01

51	0.00	0.000	0.000	0.0190	25.2975	13.1081	1.59E-01
52	0.00	0.000	0.000	0.0190	25.7553	13.3453	1.61E-01
53	0.00	0.000	0.000	0.0190	25.6746	13.3035	1.60E-01
54	0.00	0.000	0.000	0.0190	25.2238	13.0700	1.59E-01
55	0.00	0.000	0.000	0.0190	24.5234	12.7070	1.57E-01
56	7.70	0.000	0.563	0.0428	23.6602	12.2597	1.55E-01
57	0.00	0.000	0.894	0.0398	22.6973	11.7608	1.52E-01
58	0.00	0.000	0.968	0.0366	21.6805	11.2339	1.49E-01
59	77.90	0.000	0.991	0.1158	20.6547	10.7024	1.46E-01
60	1.10	0.000	6.137	0.0448	18.4953	9.5835	1.40E-01
61	0.00	0.000	6.809	0.0221	17.9463	9.2990	1.38E-01
62	0.00	0.000	0.692	0.0191	18.6245	9.6504	1.40E-01
63	1.80	0.000	0.959	0.0219	18.8615	9.7733	1.41E-01
64	0.00	0.000	0.690	0.0196	18.8368	9.7605	1.41E-01
65	0.00	0.000	0.135	0.0192	18.5877	9.6314	1.40E-01
66	0.00	0.000	0.034	0.0190	18.1792	9.4197	1.39E-01
67	0.00	0.000	0.009	0.0190	17.6604	9.1509	1.37E-01
68	0.00	0.000	0.002	0.0190	17.0683	8.8441	1.36E-01
69	0.00	0.000	0.001	0.0190	16.4311	8.5139	1.34E-01
70	0.00	0.000	0.000	0.0190	15.7698	8.1712	1.32E-01
71	0.00	0.000	0.000	0.0190	15.1001	7.8243	1.30E-01
72	5.80	0.000	0.476	0.0367	13.9922	7.2502	1.27E-01
73	1.30	0.000	0.721	0.0387	12.0768	6.2577	1.21E-01
74	0.00	0.000	0.797	0.0360	10.4205	5.3995	1.16E-01
75	0.60	0.000	0.813	0.0353	8.9883	4.6574	1.12E-01
76	0.00	0.000	0.723	0.0329	7.7499	4.0157	1.09E-01
77	2.00	0.000	0.747	0.0371	6.6790	3.4608	1.06E-01
78	3.40	0.000	0.718	0.0460	5.7529	2.9809	1.03E-01
79	0.00	0.000	0.671	0.0438	4.9522	2.5660	1.01E-01

80	0.00	0.000	0.658	0.0416	4.2598	2.2072	9.87E-02
81	0.00	0.000	0.627	0.0395	3.6610	1.8970	9.69E-02
82	0.00	0.000	0.560	0.0376	3.1433	1.6287	9.55E-02
83	0.00	0.000	0.590	0.0357	2.6956	1.3968	9.42E-02
84	0.00	0.000	0.593	0.0337	2.3085	1.1962	9.30E-02
85	3.20	0.000	0.640	0.0422	1.9738	1.0227	9.21E-02
86	4.80	0.000	0.626	0.0561	1.6843	0.8727	9.12E-02
87	0.00	0.000	0.550	0.0543	1.4340	0.7430	9.05E-02
88	0.00	0.000	0.537	0.0520	1.2192	0.6318	8.99E-02
89	0.00	0.000	0.526	0.0494	1.0957	0.5678	8.96E-02
90	0.00	0.000	0.515	0.0473	0.9857	0.5107	8.92E-02
91	0.00	0.000	0.505	0.0456	0.8392	0.4348	8.88E-02
92	0.00	0.000	0.495	0.0440	0.7032	0.3644	8.84E-02
93	0.00	0.000	0.486	0.0424	0.5856	0.3035	8.81E-02
94	0.00	0.000	0.477	0.0408	0.4840	0.2508	8.78E-02
95	7.20	0.000	0.532	0.0630	0.3961	0.2052	8.75E-02
96	0.00	0.000	0.461	0.0589	0.3541	0.1835	8.74E-02
97	0.00	0.000	0.454	0.0546	0.5528	0.2864	8.80E-02
98	0.00	0.000	0.447	0.0531	0.5661	0.2933	8.80E-02
99	0.00	0.000	0.440	0.0517	0.4671	0.2420	8.77E-02
100	0.00	0.000	0.434	0.0502	0.3815	0.1977	8.75E-02
101	0.00	0.000	0.428	0.0488	0.3074	0.1593	8.73E-02
102	0.00	0.000	0.422	0.0474	0.2434	0.1261	8.71E-02
103	1.80	0.000	0.477	0.0511	0.2295	0.1189	8.71E-02
104	0.00	0.000	0.411	0.0497	0.1889	0.0979	8.69E-02
105	0.00	0.000	0.405	0.0469	0.1940	0.1005	8.70E-02
106	0.00	0.000	0.400	0.0447	0.2346	0.1216	8.71E-02
107	0.00	0.000	0.396	0.0427	0.2415	0.1252	8.71E-02
108	0.00	0.000	0.391	0.0408	0.2375	0.1231	8.71E-02

109	0.00	0.000	0.334	0.0395	0.2223	0.1152	8.70E-02
110	0.00	0.000	0.382	0.0382	0.1767	0.0915	8.69E-02
111	0.00	0.000	0.378	0.0369	0.1303	0.0675	8.68E-02
112	0.00	0.000	0.374	0.0357	0.0903	0.0468	8.67E-02
113	0.00	0.000	0.370	0.0344	0.0556	0.0288	8.66E-02
114	0.00	0.000	0.366	0.0332	0.0257	0.0133	8.65E-02
115	0.00	0.000	0.362	0.0320	0.0029	0.0013	3.12E-02
116	36.00	0.000	0.420	0.0903	0.0000	0.0000	0.00E+00
117	4.40	0.000	3.753	0.0435	0.0000	0.0000	0.00E+00
118	8.80	0.000	3.563	0.0610	0.5859	0.3036	8.81E-02
119	2.60	0.000	4.555	0.0529	2.2327	1.1569	9.28E-02
120	2.40	0.000	4.803	0.0441	3.5745	1.8522	9.67E-02
121	0.00	0.000	4.494	0.0291	4.5815	2.3740	9.96E-02
122	0.00	0.000	2.894	0.0194	5.4606	2.8295	1.02E-01
123	0.00	0.000	0.118	0.0191	6.0767	3.1487	1.04E-01
124	0.00	0.000	0.013	0.0190	5.5063	2.8532	1.02E-01
125	0.00	0.000	0.004	0.0190	4.7390	2.4555	1.00E-01
126	0.40	0.000	0.400	0.0190	4.0754	2.1117	9.81E-02
127	1.70	0.000	0.478	0.0231	3.5016	1.8144	9.65E-02
128	0.00	0.000	0.677	0.0208	3.0054	1.5573	9.51E-02
129	0.00	0.000	0.355	0.0196	2.5764	1.3350	9.38E-02
130	0.00	0.000	0.142	0.0192	2.2054	1.1428	9.28E-02
131	2.80	0.000	0.550	0.0267	1.8846	0.9765	9.18E-02
132	1.00	0.000	0.487	0.0284	1.6072	0.8328	9.10E-02
133	0.00	0.000	0.629	0.0263	1.3673	0.7085	9.03E-02
134	0.00	0.000	0.701	0.0239	1.1599	0.6010	8.97E-02
135	0.00	0.000	0.680	0.0217	0.9806	0.5081	8.92E-02
136	0.10	0.000	0.696	0.0197	0.8255	0.4277	8.88E-02
137	0.00	0.000	0.162	0.0191	0.6914	0.3582	8.84E-02

138	0.00	0.000	0.032	0.0190	0.5754	0.2981	8.81E-02
139	0.00	0.000	0.011	0.0190	0.4751	0.2462	8.78E-02
140	0.00	0.000	0.000	0.0190	0.3884	0.2013	8.75E-02
141	0.00	0.000	0.000	0.0190	0.3134	0.1624	8.73E-02
142	0.00	0.000	0.000	0.0190	0.2486	0.1288	8.71E-02
143	0.30	0.000	0.113	0.0196	0.1925	0.0998	8.70E-02
144	0.00	0.000	0.050	0.0195	0.1440	0.0746	8.68E-02
145	0.00	0.000	0.109	0.0191	0.1021	0.0529	8.67E-02
146	0.10	0.000	0.120	0.0190	0.0659	0.0341	8.66E-02
147	0.00	0.000	0.005	0.0190	0.0345	0.0179	8.65E-02
148	0.00	0.000	0.002	0.0190	0.0079	0.0039	5.80E-02
149	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
150	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
151	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
152	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
153	0.20	0.000	0.101	0.0193	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.040	0.0192	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.043	0.0191	0.0000	0.0000	0.00E+00
156	0.10	0.000	0.101	0.0191	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.009	0.0190	0.0000	0.0000	0.00E+00
158	0.50	0.000	0.106	0.0203	0.0000	0.0000	0.00E+00
159	0.00	0.000	0.186	0.0197	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.149	0.0192	0.0000	0.0000	1.56E-05
161	0.00	0.000	0.043	0.0191	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.015	0.0190	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.005	0.0190	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.000	0.0190	0.0000	0.0000	3.44E-07
166	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

167	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
168	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
185	0.60	0.000	0.091	0.0207	0.0000	0.0000	0.00E+00
186	0.20	0.000	0.198	0.0207	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.136	0.0203	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.175	0.0197	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.139	0.0192	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.044	0.0191	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.014	0.0190	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.003	0.0190	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
212	4.60	0.000	0.179	0.0337	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.183	0.0331	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.223	0.0324	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.221	0.0316	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.224	0.0309	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.243	0.0301	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.242	0.0293	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.240	0.0285	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.239	0.0277	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.238	0.0269	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.237	0.0261	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.235	0.0253	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.234	0.0245	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.233	0.0238	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.232	0.0230	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.231	0.0222	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.230	0.0215	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.242	0.0206	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.241	0.0198	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.190	0.0192	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.063	0.0190	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
237	0.10	0.000	0.076	0.0191	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.014	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
243	0.20	0.000	0.090	0.0194	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.020	0.0193	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.041	0.0192	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.038	0.0190	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.009	0.0190	0.0000	0.0000	0.00E+00
248	4.80	0.000	0.173	0.0344	0.0000	0.0000	0.00E+00
249	4.10	0.000	0.230	0.0473	0.0000	0.0000	0.00E+00
250	1.00	0.000	0.284	0.0497	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.227	0.0490	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.227	0.0482	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.226	0.0475	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.225	0.0467	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.224	0.0460	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.223	0.0452	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.222	0.0444	0.0020	0.0009	3.40E-02
258	0.00	0.000	0.221	0.0435	0.0008	0.0002	2.30E-02
259	0.00	0.000	0.221	0.0427	0.0017	0.0006	2.85E-02
260	0.00	0.000	0.220	0.0420	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.219	0.0412	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.218	0.0405	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.217	0.0398	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.217	0.0391	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.216	0.0384	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.215	0.0376	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.214	0.0369	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.213	0.0362	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.213	0.0355	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.212	0.0348	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.211	0.0341	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.211	0.0334	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.210	0.0327	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.209	0.0320	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.208	0.0313	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.208	0.0306	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.207	0.0299	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.206	0.0292	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.206	0.0285	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.205	0.0279	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.204	0.0272	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.204	0.0265	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.203	0.0258	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.202	0.0251	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.202	0.0245	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.201	0.0238	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.201	0.0231	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.200	0.0225	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.199	0.0218	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.199	0.0211	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.198	0.0205	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.197	0.0198	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.197	0.0192	0.0000	0.0000	0.00E+00
294	1.00	0.000	0.162	0.0220	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.082	0.0217	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.103	0.0213	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.131	0.0209	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.130	0.0205	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.130	0.0200	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.130	0.0196	0.0000	0.0000	0.00E+00
301	0.00	0.000	0.108	0.0192	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.062	0.0190	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.009	0.0190	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
305	1.40	0.000	0.117	0.0233	0.0000	0.0000	0.00E+00
306	3.80	0.000	0.179	0.0353	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.127	0.0349	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.172	0.0344	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.172	0.0338	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.171	0.0332	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.171	0.0326	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.170	0.0321	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.170	0.0315	0.0000	0.0000	0.00E+00
314	0.00	0.000	0.169	0.0309	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.169	0.0304	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.168	0.0298	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.160	0.0293	0.0000	0.0000	0.00E+00
318	0.00	0.000	0.177	0.0287	0.0000	0.0000	0.00E+00
319	0.00	0.000	0.180	0.0281	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.177	0.0275	0.0000	0.0000	0.00E+00
321	0.50	0.000	0.284	0.0282	0.0000	0.0000	0.00E+00
322	0.00	0.000	0.176	0.0276	0.0000	0.0000	0.00E+00
323	0.00	0.000	0.176	0.0271	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.176	0.0265	0.0000	0.0000	0.00E+00
325	2.10	0.000	0.291	0.0325	0.0000	0.0000	0.00E+00
326	0.40	0.000	0.288	0.0329	0.0000	0.0000	0.00E+00
327	0.00	0.000	0.174	0.0323	0.0000	0.0000	0.00E+00
328	6.00	0.000	0.286	0.0513	0.0000	0.0000	0.00E+00
329	0.00	0.000	0.175	0.0508	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.178	0.0502	0.0000	0.0000	0.00E+00
331	0.60	0.000	0.291	0.0512	0.0000	0.0000	0.00E+00
332	7.70	0.000	0.292	0.0646	0.0000	0.0000	0.00E+00
333	0.00	0.000	0.177	0.0593	0.0315	0.0163	2.17E-02
334	0.00	0.000	0.176	0.0536	0.7536	0.3905	8.86E-02
335	0.00	0.000	0.176	0.0508	1.5060	0.7803	9.07E-02
336	0.40	0.000	0.289	0.0512	1.4442	0.7483	9.06E-02
337	0.00	0.000	0.175	0.0495	1.2510	0.6482	9.00E-02
338	0.00	0.000	0.175	0.0477	1.1606	0.6014	8.97E-02
339	0.00	0.000	0.174	0.0462	1.0658	0.5523	8.95E-02
340	0.00	0.000	0.174	0.0448	0.9688	0.5020	8.92E-02

341	0.10	0.000	0.241	0.0443	0.8517	0.4413	8.89E-02
342	0.60	0.000	0.293	0.0454	0.7140	0.3700	8.85E-02
343	14.00	0.000	0.294	0.0857	0.5950	0.3083	8.81E-02
344	9.60	0.000	0.294	0.0741	0.6907	0.3579	8.84E-02
345	66.70	0.000	0.294	0.1035	0.6149	0.3186	8.82E-02
346	1.00	0.000	5.718	0.0492	0.5376	0.2786	8.79E-02
347	4.00	0.000	6.774	0.0390	1.7098	0.8859	9.13E-02
348	0.00	0.000	5.734	0.0199	4.3175	2.2372	9.88E-02
349	0.00	0.000	0.207	0.0192	6.3418	3.2861	1.05E-01
350	0.50	0.000	0.553	0.0190	7.8516	4.0684	1.09E-01
351	0.00	0.000	0.005	0.0190	8.9539	4.6395	1.12E-01
352	0.00	0.000	0.002	0.0190	9.7333	5.0434	1.14E-01
353	26.60	0.000	2.049	0.1008	10.2572	5.3149	1.16E-01
354	0.00	0.000	5.930	0.0476	10.5459	5.4645	1.17E-01
355	0.20	0.000	6.203	0.0275	9.9579	5.1598	1.15E-01
356	3.20	0.000	4.921	0.0218	10.1272	5.2475	1.16E-01
357	0.10	0.000	0.459	0.0206	10.3670	5.3717	1.16E-01
358	0.00	0.000	0.406	0.0193	10.4723	5.4263	1.17E-01
359	0.00	0.000	0.058	0.0191	10.4040	5.3909	1.16E-01
360	0.00	0.000	0.014	0.0190	9.2403	4.7879	1.13E-01
361	1.80	0.000	0.519	0.0233	7.9678	4.1286	1.09E-01
362	35.60	0.000	1.292	0.0816	6.8888	3.5695	1.06E-01
363	6.90	0.000	5.471	0.0592	6.2905	3.2595	1.05E-01
364	0.00	0.000	6.190	0.0385	5.9560	3.0862	1.04E-01
365	4.40	0.000	6.478	0.0316	6.4581	3.3463	1.05E-01

* = Frozen (air or soil)

Annual Totals for Year 9			
	mm*	cubic meters	percent
Precipitation	1,103.20	11,032.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	297.906	2,979.1	27.00
Drainage Collected from Layer 2	799.0713	7,990.7	72.43
Percolation/Leakage through Layer 3	19.973709	199.7	1.81
Average Head on Top of Layer 3	4.3487 (cm)	---	---
Change in Water Storage	-13.7515	-137.5	-1.25
Soil Water at Start of Year	906.8065	9,068.1	82.20
Soil Water at End of Year	893.0550	8,930.6	80.95
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 10

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			0.00	0.000	3.273	0.0207		7.1528	3.7063	1.07E-01
2			0.00	0.000	0.410	0.0193		7.6611	3.9697	1.08E-01
3			0.00	0.000	0.085	0.0190		7.7006	3.9901	1.09E-01
4			0.00	0.000	0.011	0.0190		6.6859	3.4643	1.06E-01
5			0.00	0.000	0.004	0.0190		5.7589	2.9840	1.03E-01
6	*Note: head c		0.00	0.000	0.000	0.0190		4.9574	2.5687	1.01E-01
7			0.00	0.000	0.000	0.0190		4.2642	2.2096	9.87E-02
8			0.00	0.000	0.000	0.0190		3.6649	1.8990	9.70E-02
9			37.10	0.000	1.135	0.0818		3.1466	1.6305	9.55E-02
10			0.80	0.000	6.074	0.0378		2.9949	1.5519	9.50E-02
11			0.00	0.000	4.382	0.0193		3.1034	1.6081	9.53E-02
12			0.00	0.000	0.058	0.0191		3.8688	2.0046	9.75E-02
13			0.00	0.000	0.018	0.0190		4.9423	2.5609	1.01E-01
14			0.00	0.000	0.004	0.0190		5.7804	2.9952	1.03E-01
15			7.40	0.000	0.963	0.0405		6.3395	3.2849	1.05E-01
16			0.10	0.000	1.389	0.0362		5.7169	2.9623	1.03E-01
17			10.80	0.000	1.402	0.0675		4.9211	2.5499	1.01E-01
18			5.00	0.000	6.385	0.0523		4.2329	2.1933	9.86E-02
19			0.00	0.000	5.700	0.0333		4.1219	2.1358	9.83E-02
20			0.00	0.000	4.021	0.0192		3.9220	2.0322	9.77E-02
21			1.20	0.000	0.325	0.0221		3.3808	1.7518	9.61E-02

22	24.00	0.000	1.410	0.0974	2.9010	1.5032	9.48E-02
23	123.40	0.000	3.961	0.1221	2.6160	1.3555	9.39E-02
24	156.00	0.000	4.118	0.1313	2.2799	1.1813	9.30E-02
25	2.20	0.000	4.553	0.0451	2.7559	1.4280	9.43E-02
26	11.60	0.000	5.378	0.0654	12.2801	6.3631	1.22E-01
27	0.00	0.000	5.917	0.0442	21.8399	11.3166	1.49E-01
28	0.00	0.000	6.726	0.0218	27.0294	14.0055	1.64E-01
29	0.00	0.000	0.620	0.0190	31.2991	15.3827	1.77E-01
30	0.00	0.000	0.000	0.0190	38.4165	15.5593	1.97E-01
31	0.00	0.000	0.000	0.0190	39.2799	15.5608	2.00E-01
32	0.00	0.000	0.000	0.0190	37.7578	15.5582	1.95E-01
33	0.00	0.000	0.000	0.0190	32.6406	15.5094	1.80E-01
34	31.90	0.000	1.545	0.0941	28.9638	15.0079	1.70E-01
35	0.00	0.000	5.604	0.0441	27.3681	14.1810	1.65E-01
36	0.00	0.000	6.296	0.0209	24.2526	12.5667	1.56E-01
37	0.00	0.000	0.420	0.0190	23.3408	12.0943	1.54E-01
38	0.00	0.000	0.000	0.0190	22.7533	11.7898	1.52E-01
39	0.00	0.000	0.000	0.0190	22.0265	11.4132	1.50E-01
40	0.00	0.000	0.000	0.0190	21.1973	10.9835	1.47E-01
41	3.20	0.000	0.636	0.0275	20.3084	10.5230	1.45E-01
42	0.00	0.000	0.503	0.0259	19.3914	10.0478	1.42E-01
43	0.00	0.000	0.731	0.0234	18.4690	9.5699	1.40E-01
44	0.00	0.000	0.552	0.0216	17.5577	9.0977	1.37E-01
45	0.30	0.000	0.719	0.0202	16.6691	8.6372	1.34E-01
46	0.00	0.000	0.250	0.0194	15.6029	8.0848	1.31E-01
47	0.10	0.000	0.173	0.0191	13.5707	7.0318	1.25E-01
48	0.00	0.000	0.029	0.0190	11.7123	6.0688	1.20E-01
49	0.00	0.000	0.006	0.0190	10.1053	5.2361	1.16E-01
50	0.00	0.000	0.001	0.0190	8.7157	4.5161	1.11E-01

51	0.00	0.000	0.000	0.0190	7.5141	3.8935	1.08E-01
52	0.00	0.000	0.000	0.0190	6.4751	3.3551	1.05E-01
53	0.50	0.000	0.122	0.0203	5.5767	2.8896	1.02E-01
54	0.00	0.000	0.209	0.0196	4.7998	2.4871	1.00E-01
55	0.00	0.000	0.112	0.0192	4.1280	2.1390	9.83E-02
56	0.00	0.000	0.041	0.0191	3.5471	1.8380	9.66E-02
57	0.00	0.000	0.011	0.0190	3.0448	1.5777	9.52E-02
58	0.00	0.000	0.004	0.0190	2.6104	1.3526	9.39E-02
59	0.00	0.000	0.001	0.0190	2.2348	1.1580	9.28E-02
60	0.00	0.000	0.000	0.0190	1.9100	0.9897	9.19E-02
61	0.00	0.000	0.000	0.0190	1.6292	0.8442	9.11E-02
62	0.00	0.000	0.000	0.0190	1.3864	0.7184	9.04E-02
63	6.20	0.000	0.280	0.0387	1.1764	0.6095	8.98E-02
64	4.40	0.000	0.476	0.0518	0.9948	0.5155	8.93E-02
65	8.40	0.000	0.539	0.0651	0.8466	0.4387	8.88E-02
66	0.00	0.000	0.477	0.0571	0.7967	0.4128	8.87E-02
67	0.00	0.000	0.469	0.0555	1.4664	0.7598	9.06E-02
68	0.00	0.000	0.461	0.0540	1.8547	0.9610	9.17E-02
69	0.00	0.000	0.454	0.0525	1.5813	0.8194	9.10E-02
70	0.00	0.000	0.447	0.0510	1.3450	0.6969	9.03E-02
71	0.00	0.000	0.440	0.0495	1.1406	0.5910	8.97E-02
72	0.00	0.000	0.434	0.0481	0.9638	0.4994	8.92E-02
73	18.40	0.000	0.491	0.0927	0.8523	0.4416	8.89E-02
74	0.20	0.000	5.276	0.0493	0.8298	0.4300	8.88E-02
75	0.00	0.000	6.534	0.0275	1.0341	0.5359	8.94E-02
76	0.00	0.000	2.555	0.0190	2.1892	1.1343	9.27E-02
77	0.00	0.000	0.000	0.0190	3.1452	1.6297	9.55E-02
78	0.00	0.000	0.000	0.0190	2.8478	1.4756	9.46E-02
79	0.00	0.000	0.000	0.0190	2.4401	1.2644	9.34E-02

80	0.00	0.000	0.000	0.0190	2.0875	1.0817	9.24E-02
81	0.00	0.000	0.000	0.0190	1.7827	0.9237	9.15E-02
82	0.00	0.000	0.000	0.0190	1.5191	0.7871	9.08E-02
83	0.00	0.000	0.000	0.0190	1.2911	0.6690	9.01E-02
84	0.00	0.000	0.000	0.0190	1.0940	0.5669	8.95E-02
85	0.00	0.000	0.000	0.0190	0.9236	0.4786	8.91E-02
86	0.00	0.000	0.000	0.0190	0.7762	0.4022	8.86E-02
87	2.20	0.000	0.374	0.0251	0.6487	0.3362	8.83E-02
88	4.20	0.000	0.361	0.0379	0.5385	0.2791	8.79E-02
89	0.00	0.000	0.570	0.0360	0.4433	0.2297	8.77E-02
90	0.00	0.000	0.610	0.0339	0.3609	0.1870	8.74E-02
91	0.00	0.000	0.590	0.0320	0.2896	0.1501	8.72E-02
92	0.00	0.000	0.572	0.0301	0.2280	0.1181	8.71E-02
93	0.00	0.000	0.556	0.0282	0.1747	0.0905	8.69E-02
94	0.00	0.000	0.540	0.0264	0.1286	0.0667	8.68E-02
95	0.00	0.000	0.556	0.0246	0.0888	0.0460	8.67E-02
96	0.00	0.000	0.545	0.0228	0.0544	0.0282	8.66E-02
97	0.00	0.000	0.532	0.0210	0.0246	0.0127	8.65E-02
98	2.60	0.000	0.585	0.0277	0.0024	0.0011	2.77E-02
99	3.20	0.000	0.546	0.0365	0.0000	0.0000	0.00E+00
100	2.30	0.000	0.526	0.0425	0.0000	0.0000	0.00E+00
101	3.80	0.000	0.526	0.0534	0.0000	0.0000	0.00E+00
102	5.30	0.000	0.561	0.0629	0.0000	0.0000	0.00E+00
103	1.40	0.000	0.553	0.0613	0.1464	0.0758	8.68E-02
104	0.00	0.000	0.477	0.0575	0.7665	0.3972	8.86E-02
105	0.00	0.000	0.469	0.0555	0.8559	0.4435	8.89E-02
106	0.00	0.000	0.461	0.0539	0.7261	0.3762	8.85E-02
107	0.00	0.000	0.454	0.0524	0.6054	0.3137	8.81E-02
108	0.00	0.000	0.447	0.0509	0.5011	0.2596	8.78E-02

109	0.00	0.000	0.440	0.0495	0.4108	0.2129	8.76E-02
110	0.00	0.000	0.434	0.0480	0.3328	0.1725	8.74E-02
111	0.00	0.000	0.428	0.0466	0.2654	0.1375	8.72E-02
112	0.00	0.000	0.422	0.0452	0.2070	0.1073	8.70E-02
113	0.00	0.000	0.416	0.0438	0.1566	0.0811	8.68E-02
114	0.80	0.000	0.476	0.0449	0.1130	0.0585	8.67E-02
115	0.00	0.000	0.405	0.0420	0.1063	0.0551	8.67E-02
116	3.00	0.000	0.465	0.0505	0.1547	0.0801	8.68E-02
117	0.00	0.000	0.396	0.0492	0.1113	0.0577	8.67E-02
118	0.00	0.000	0.391	0.0479	0.0738	0.0382	8.66E-02
119	0.00	0.000	0.386	0.0457	0.0618	0.0320	8.66E-02
120	0.00	0.000	0.382	0.0436	0.1043	0.0541	8.67E-02
121	0.00	0.000	0.378	0.0418	0.1242	0.0644	8.68E-02
122	0.00	0.000	0.374	0.0400	0.1272	0.0659	8.68E-02
123	0.00	0.000	0.365	0.0388	0.1090	0.0565	8.67E-02
124	0.00	0.000	0.366	0.0376	0.0718	0.0372	8.66E-02
125	0.00	0.000	0.362	0.0364	0.0396	0.0205	8.65E-02
126	0.00	0.000	0.359	0.0352	0.0118	0.0060	7.31E-02
127	0.00	0.000	0.355	0.0340	0.0000	0.0000	0.00E+00
128	0.00	0.000	0.352	0.0329	0.0000	0.0000	0.00E+00
129	0.00	0.000	0.348	0.0317	0.0000	0.0000	0.00E+00
130	10.60	0.000	0.410	0.0657	0.0000	0.0000	0.00E+00
131	7.40	0.000	0.407	0.0611	0.0000	0.0000	0.00E+00
132	1.80	0.000	6.178	0.0455	0.1144	0.0593	4.35E-02
133	0.00	0.000	5.730	0.0264	0.9761	0.5058	8.92E-02
134	0.00	0.000	2.183	0.0191	1.9606	1.0159	9.20E-02
135	0.00	0.000	0.029	0.0190	1.7711	0.9177	9.15E-02
136	0.00	0.000	0.007	0.0190	1.5091	0.7820	9.07E-02
137	0.00	0.000	0.002	0.0190	1.2825	0.6645	9.01E-02

138	0.00	0.000	0.000	0.0190	1.0866	0.5630	8.95E-02
139	0.00	0.000	0.000	0.0190	0.9171	0.4752	8.90E-02
140	0.00	0.000	0.000	0.0190	0.7706	0.3993	8.86E-02
141	0.00	0.000	0.000	0.0190	0.6439	0.3337	8.83E-02
142	0.00	0.000	0.000	0.0190	0.5344	0.2769	8.79E-02
143	0.00	0.000	0.000	0.0190	0.4396	0.2278	8.77E-02
144	0.00	0.000	0.000	0.0190	0.3577	0.1854	8.74E-02
145	0.00	0.000	0.000	0.0190	0.2869	0.1487	8.72E-02
146	0.00	0.000	0.000	0.0190	0.2257	0.1169	8.70E-02
147	0.00	0.000	0.000	0.0190	0.1727	0.0895	8.69E-02
148	0.00	0.000	0.000	0.0190	0.1269	0.0658	8.68E-02
149	0.00	0.000	0.000	0.0190	0.0873	0.0452	8.67E-02
150	0.00	0.000	0.000	0.0190	0.0531	0.0275	8.66E-02
151	0.00	0.000	0.000	0.0190	0.0234	0.0121	8.65E-02
152	0.00	0.000	0.000	0.0190	0.0019	0.0009	2.41E-02
153	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
157	1.00	0.000	0.109	0.0220	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.215	0.0213	0.0000	0.0000	0.00E+00
159	0.00	0.000	0.316	0.0202	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.266	0.0193	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.078	0.0191	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.011	0.0190	0.0000	0.0000	0.00E+00
163	0.10	0.000	0.094	0.0190	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.006	0.0190	0.0000	0.0000	0.00E+00
165	0.60	0.000	0.108	0.0207	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.188	0.0200	0.0000	0.0000	0.00E+00

167	5.00	0.000	0.328	0.0356	0.0000	0.0000	4.44E-07
168	2.20	0.000	0.377	0.0417	0.0000	0.0000	2.71E-07
169	0.10	0.000	0.442	0.0405	0.0000	0.0000	0.00E+00
170	15.40	0.000	0.451	0.0851	0.0000	0.0000	0.00E+00
171	1.00	0.000	0.483	0.0605	0.1880	0.0974	8.69E-02
172	0.10	0.000	0.463	0.0551	0.4383	0.2271	8.77E-02
173	0.00	0.000	0.405	0.0521	1.2468	0.6460	9.00E-02
174	0.00	0.000	0.400	0.0494	2.3106	1.1972	9.31E-02
175	0.00	0.000	0.396	0.0481	2.3534	1.2194	9.32E-02
176	0.00	0.000	0.391	0.0468	2.0126	1.0428	9.22E-02
177	0.00	0.000	0.386	0.0455	1.7179	0.8901	9.13E-02
178	0.20	0.000	0.446	0.0447	1.4630	0.7581	9.06E-02
179	3.40	0.000	0.445	0.0546	1.2427	0.6439	9.00E-02
180	0.00	0.000	0.374	0.0532	1.0521	0.5452	8.94E-02
181	0.00	0.000	0.370	0.0513	0.9076	0.4703	8.90E-02
182	0.00	0.000	0.366	0.0495	0.8353	0.4328	8.88E-02
183	0.00	0.000	0.362	0.0482	0.7170	0.3715	8.85E-02
184	0.10	0.000	0.411	0.0465	0.6209	0.3217	8.82E-02
185	0.00	0.000	0.355	0.0446	0.5694	0.2951	8.80E-02
186	5.00	0.000	0.419	0.0599	0.5008	0.2595	8.78E-02
187	0.00	0.000	0.348	0.0587	0.4106	0.2127	8.76E-02
188	0.10	0.000	0.397	0.0547	0.4705	0.2438	8.78E-02
189	1.30	0.000	0.410	0.0560	0.5361	0.2778	8.79E-02
190	0.10	0.000	0.391	0.0544	0.5273	0.2732	8.79E-02
191	0.00	0.000	0.336	0.0523	0.4885	0.2531	8.78E-02
192	0.00	0.000	0.333	0.0503	0.4935	0.2557	8.78E-02
193	0.00	0.000	0.330	0.0488	0.4665	0.2417	8.77E-02
194	0.00	0.000	0.328	0.0477	0.3878	0.2009	8.75E-02
195	0.10	0.000	0.378	0.0468	0.3129	0.1621	8.73E-02

196	0.00	0.000	0.322	0.0457	0.2481	0.1286	8.71E-02
197	0.00	0.000	0.320	0.0446	0.1921	0.0995	8.70E-02
198	0.00	0.000	0.317	0.0436	0.1437	0.0745	8.68E-02
199	0.00	0.000	0.315	0.0425	0.1018	0.0528	8.67E-02
200	0.00	0.000	0.312	0.0415	0.0656	0.0340	8.66E-02
201	6.00	0.000	0.381	0.0602	0.0343	0.0178	8.65E-02
202	26.40	0.000	0.379	0.0931	0.0187	0.0097	8.65E-02
203	0.00	0.000	5.275	0.0476	0.0016	0.0008	2.23E-02
204	0.00	0.000	5.102	0.0306	0.3447	0.1786	8.74E-02
205	1.70	0.000	3.891	0.0222	1.6055	0.8319	9.10E-02
206	0.00	0.000	0.720	0.0198	2.9345	1.5205	9.48E-02
207	0.00	0.000	0.182	0.0192	4.0456	2.0963	9.80E-02
208	0.20	0.000	0.244	0.0190	4.8556	2.5160	1.00E-01
209	0.00	0.000	0.011	0.0190	4.4533	2.3075	9.92E-02
210	0.10	0.000	0.103	0.0190	3.8284	1.9837	9.74E-02
211	0.00	0.000	0.001	0.0190	3.2880	1.7037	9.59E-02
212	0.00	0.000	0.000	0.0190	2.8207	1.4616	9.45E-02
213	0.00	0.000	0.000	0.0190	2.4167	1.2522	9.34E-02
214	33.00	0.000	0.921	0.0894	2.0673	1.0712	9.24E-02
215	8.60	0.000	4.187	0.0617	1.9384	1.0044	9.20E-02
216	0.00	0.000	5.068	0.0448	1.9188	0.9943	9.19E-02
217	0.00	0.000	5.181	0.0267	2.9471	1.5271	9.49E-02
218	0.00	0.000	2.310	0.0190	4.0922	2.1204	9.82E-02
219	0.00	0.000	0.005	0.0190	5.0291	2.6059	1.01E-01
220	0.00	0.000	0.001	0.0190	5.5848	2.8938	1.02E-01
221	0.10	0.000	0.100	0.0190	4.9328	2.5560	1.01E-01
222	0.00	0.000	0.000	0.0190	4.2430	2.1986	9.86E-02
223	0.00	0.000	0.000	0.0190	3.6466	1.8895	9.69E-02
224	7.60	0.000	0.644	0.0422	3.1308	1.6222	9.54E-02

225	0.40	0.000	1.062	0.0400	2.6848	1.3911	9.41E-02
226	0.00	0.000	0.992	0.0367	2.2991	1.1913	9.30E-02
227	0.00	0.000	0.839	0.0339	1.9656	1.0185	9.21E-02
228	0.10	0.000	0.956	0.0310	1.6773	0.8691	9.12E-02
229	0.00	0.000	0.848	0.0282	1.4279	0.7399	9.05E-02
230	0.00	0.000	0.801	0.0255	1.2123	0.6282	8.99E-02
231	0.00	0.000	0.762	0.0230	1.0259	0.5316	8.94E-02
232	0.00	0.000	0.752	0.0205	0.8646	0.4480	8.89E-02
233	0.00	0.000	0.446	0.0190	0.7252	0.3758	8.85E-02
234	0.10	0.000	0.100	0.0190	0.6047	0.3133	8.81E-02
235	0.00	0.000	0.000	0.0190	0.5004	0.2593	8.78E-02
236	0.00	0.000	0.000	0.0190	0.4103	0.2126	8.76E-02
237	0.00	0.000	0.000	0.0190	0.3324	0.1722	8.74E-02
238	0.00	0.000	0.000	0.0190	0.2650	0.1373	8.72E-02
239	0.00	0.000	0.000	0.0190	0.2067	0.1071	8.70E-02
240	0.10	0.000	0.100	0.0190	0.1563	0.0810	8.68E-02
241	0.00	0.000	0.000	0.0190	0.1127	0.0584	8.67E-02
242	0.00	0.000	0.000	0.0190	0.0750	0.0389	8.66E-02
243	0.40	0.000	0.122	0.0199	0.0424	0.0220	8.65E-02
244	0.00	0.000	0.044	0.0198	0.0143	0.0072	8.11E-02
245	0.00	0.000	0.151	0.0193	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.056	0.0191	0.0000	0.0000	0.00E+00
247	0.60	0.000	0.142	0.0206	0.0000	0.0000	0.00E+00
248	0.10	0.000	0.266	0.0201	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.174	0.0195	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.110	0.0191	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.026	0.0190	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.000	0.0190	0.0000	0.0000	3.45E-07
255	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
274	1.00	0.000	0.108	0.0220	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.144	0.0215	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.198	0.0208	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.228	0.0201	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.212	0.0194	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.087	0.0191	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.020	0.0190	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
287	0.20	0.000	0.100	0.0193	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.026	0.0192	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.053	0.0191	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.018	0.0190	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
293	5.20	0.000	0.206	0.0356	0.0000	0.0000	0.00E+00
294	0.20	0.000	0.274	0.0354	0.0000	0.0000	0.00E+00
295	10.80	0.000	0.324	0.0703	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.293	0.0548	0.0000	0.0000	0.00E+00
297	1.00	0.000	0.374	0.0556	0.4229	0.2191	8.76E-02
298	4.40	0.000	0.372	0.0622	1.1507	0.5962	8.97E-02
299	0.10	0.000	0.346	0.0561	1.1617	0.6019	8.97E-02
300	0.40	0.000	0.368	0.0544	1.6295	0.8443	9.11E-02
301	0.00	0.000	0.284	0.0522	1.6656	0.8630	9.12E-02
302	0.00	0.000	0.282	0.0496	1.5287	0.7921	9.08E-02
303	0.00	0.000	0.281	0.0474	1.4208	0.7362	9.05E-02
304	0.00	0.000	0.279	0.0455	1.2929	0.6699	9.01E-02
305	0.00	0.000	0.277	0.0439	1.1612	0.6017	8.97E-02
306	1.40	0.000	0.361	0.0473	1.0160	0.5265	8.93E-02
307	1.00	0.000	0.360	0.0495	0.8561	0.4436	8.89E-02
308	0.60	0.000	0.359	0.0503	0.7179	0.3720	8.85E-02
309	0.40	0.000	0.357	0.0503	0.5983	0.3100	8.81E-02
310	0.00	0.000	0.269	0.0491	0.5087	0.2636	8.79E-02
311	0.00	0.000	0.268	0.0478	0.4524	0.2344	8.77E-02

312	0.00	0.000	0.266	0.0465	0.3933	0.2038	8.75E-02
313	0.00	0.000	0.265	0.0454	0.3499	0.1813	8.74E-02
314	0.00	0.000	0.264	0.0445	0.2856	0.1480	8.72E-02
315	1.60	0.000	0.353	0.0487	0.2245	0.1163	8.70E-02
316	0.00	0.000	0.261	0.0476	0.1784	0.0924	8.69E-02
317	0.00	0.000	0.259	0.0466	0.1449	0.0751	8.68E-02
318	0.00	0.000	0.258	0.0457	0.1111	0.0576	8.67E-02
319	0.00	0.000	0.257	0.0447	0.0768	0.0398	8.66E-02
320	0.40	0.000	0.347	0.0448	0.0600	0.0311	8.66E-02
321	0.00	0.000	0.254	0.0438	0.0375	0.0194	8.65E-02
322	0.00	0.000	0.253	0.0426	0.0258	0.0134	8.65E-02
323	0.00	0.000	0.252	0.0415	0.0239	0.0124	8.65E-02
324	0.00	0.000	0.250	0.0405	0.0181	0.0094	8.65E-02
325	0.00	0.000	0.249	0.0394	0.0092	0.0048	8.64E-02
326	0.00	0.000	0.226	0.0386	0.0013	0.0006	4.16E-02
327	0.20	0.000	0.332	0.0381	0.0000	0.0000	0.00E+00
328	4.20	0.000	0.344	0.0510	0.0000	0.0000	0.00E+00
329	0.40	0.000	0.341	0.0512	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.244	0.0503	0.0012	0.0005	1.67E-02
331	0.00	0.000	0.242	0.0493	0.0014	0.0007	1.97E-02
332	0.00	0.000	0.241	0.0483	0.0058	0.0028	5.39E-02
333	0.20	0.000	0.327	0.0476	0.0108	0.0056	8.64E-02
334	11.20	0.000	0.340	0.0738	0.0086	0.0044	6.76E-02
335	0.80	0.000	0.340	0.0560	0.0000	0.0000	0.00E+00
336	3.80	0.000	0.339	0.0596	0.3762	0.1949	8.75E-02
337	0.80	0.000	0.339	0.0577	1.4266	0.7392	9.05E-02
338	0.00	0.000	0.235	0.0552	2.1838	1.1316	9.27E-02
339	0.00	0.000	0.234	0.0530	2.7113	1.4049	9.42E-02
340	0.00	0.000	0.233	0.0504	2.4595	1.2744	9.35E-02

341	0.00	0.000	0.232	0.0482	2.2355	1.1583	9.28E-02
342	0.00	0.000	0.231	0.0463	2.0109	1.0420	9.22E-02
343	0.00	0.000	0.230	0.0446	1.7953	0.9302	9.16E-02
344	0.00	0.000	0.229	0.0432	1.5940	0.8259	9.10E-02
345	0.00	0.000	0.228	0.0418	1.4091	0.7301	9.05E-02
346	0.00	0.000	0.208	0.0407	1.2416	0.6433	9.00E-02
347	0.00	0.000	0.227	0.0399	1.0674	0.5531	8.95E-02
348	0.00	0.000	0.226	0.0392	0.9005	0.4666	8.90E-02
349	0.00	0.000	0.225	0.0384	0.7563	0.3919	8.86E-02
350	0.00	0.000	0.224	0.0377	0.6315	0.3272	8.82E-02
351	0.00	0.000	0.223	0.0369	0.5236	0.2713	8.79E-02
352	0.00	0.000	0.222	0.0362	0.4304	0.2230	8.76E-02
353	0.00	0.000	0.221	0.0354	0.3497	0.1812	8.74E-02
354	0.00	0.000	0.221	0.0347	0.2800	0.1451	8.72E-02
355	0.00	0.000	0.220	0.0340	0.2197	0.1138	8.70E-02
356	0.00	0.000	0.219	0.0332	0.1675	0.0868	8.69E-02
357	0.10	0.000	0.284	0.0326	0.1224	0.0634	8.68E-02
358	58.70	0.000	0.330	0.1102	0.0882	0.0457	8.67E-02
359	0.00	0.000	6.407	0.0378	0.0923	0.0478	8.67E-02
360	0.00	0.000	5.654	0.0190	0.8838	0.4579	8.89E-02
361	0.00	0.000	0.000	0.0190	2.8584	1.4811	9.46E-02
362	0.00	0.000	0.000	0.0190	4.4574	2.3097	9.92E-02
363	0.00	0.000	0.000	0.0190	5.6909	2.9488	1.03E-01
364	0.00	0.000	0.000	0.0190	6.6273	3.4340	1.05E-01
365	7.60	0.000	0.997	0.0410	7.3227	3.7943	1.07E-01

* = Frozen (air or soil)

Annual Totals for Year 10			
	mm*	cubic meters	percent
Precipitation	739.80	7,398.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	230.580	2,305.8	31.17
Drainage Collected from Layer 2	482.0618	4,820.6	65.16
Percolation/Leakage through Layer 3	26.649724	266.5	3.60
Average Head on Top of Layer 3	2.6302 (cm)	---	---
Change in Water Storage	0.5082	5.0818	0.07
Soil Water at Start of Year	893.0550	8,930.6	120.72
Soil Water at End of Year	893.5632	8,935.6	120.78
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 11

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			0.00	0.000	1.332	0.0366		7.8228	4.0535	1.09E-01
2			0.00	0.000	1.246	0.0324		7.9968	4.1436	1.09E-01
3			0.00	0.000	1.165	0.0285		7.0136	3.6342	1.07E-01
4			0.00	0.000	0.902	0.0255		6.0423	3.1309	1.04E-01
5			0.00	0.000	0.984	0.0223		5.2024	2.6957	1.01E-01
6	*Note: head c		0.00	0.000	0.727	0.0198		4.4762	2.3194	9.93E-02
7			0.00	0.000	0.249	0.0190		3.8482	1.9940	9.75E-02
8			0.00	0.000	0.000	0.0190		3.3051	1.7126	9.59E-02
9			72.00	0.000	0.866	0.1165		2.8487	1.4761	9.46E-02
10			3.40	0.000	4.851	0.0463		2.4980	1.2944	9.36E-02
11			34.00	0.000	4.737	0.0892		3.0437	1.5771	9.52E-02
12			64.80	0.000	3.672	0.0941		4.2410	2.1975	9.86E-02
13			44.80	0.000	4.963	0.0910		3.6691	1.9012	9.70E-02
14			0.00	0.000	5.907	0.0461		3.4921	1.8094	9.65E-02
15			3.10	0.000	5.689	0.0374		7.2704	3.7672	1.07E-01
16			1.10	0.000	5.608	0.0224		12.0067	6.2214	1.21E-01
17			0.00	0.000	0.908	0.0193		15.1524	7.8513	1.30E-01
18			0.70	0.000	0.664	0.0194		17.1982	8.9114	1.36E-01
19			2.20	0.000	1.446	0.0219		18.4470	9.5585	1.40E-01
20			14.70	0.000	4.688	0.0553		19.1124	9.9032	1.41E-01
21			1.40	0.000	5.348	0.0422		19.3522	10.0275	1.42E-01

22	2.20	0.000	6.516	0.0278	19.2831	9.9917	1.42E-01
23	1.80	0.000	3.325	0.0220	18.9691	9.8290	1.41E-01
24	5.00	0.000	2.197	0.0313	18.5012	9.5866	1.40E-01
25	54.20	0.000	2.176	0.1120	17.9716	9.3121	1.38E-01
26	63.40	0.000	2.567	0.0970	16.6613	8.6332	1.34E-01
27	142.90	0.000	3.315	0.1263	14.3848	7.4536	1.28E-01
28	14.00	0.000	4.923	0.0699	12.4611	6.4569	1.22E-01
29	0.40	0.000	3.909	0.0481	18.9735	9.8313	1.41E-01
30	2.00	0.000	5.869	0.0352	26.8428	13.9089	1.64E-01
31	0.00	0.000	4.697	0.0196	44.1099	15.5691	2.13E-01
32	0.00	0.000	0.130	0.0191	53.3611	15.5851	2.40E-01
33	0.00	0.000	0.033	0.0190	57.8693	15.5929	2.53E-01
34	0.00	0.000	0.008	0.0190	59.0268	15.5949	2.56E-01
35	0.30	0.000	0.302	0.0190	57.7043	15.5926	2.53E-01
36	1.00	0.000	0.235	0.0216	54.4818	15.5871	2.43E-01
37	0.00	0.000	0.556	0.0197	49.7639	15.5789	2.30E-01
38	0.00	0.000	0.155	0.0192	43.8440	15.5687	2.13E-01
39	1.00	0.000	0.201	0.0218	36.9414	15.5568	1.93E-01
40	0.00	0.000	0.466	0.0203	29.0409	15.0478	1.70E-01
41	0.00	0.000	0.258	0.0194	27.1574	14.0719	1.65E-01
42	0.00	0.000	0.098	0.0191	25.3665	13.1439	1.59E-01
43	0.00	0.000	0.024	0.0190	23.6819	12.2710	1.55E-01
44	0.00	0.000	0.006	0.0190	22.1059	11.4544	1.50E-01
45	0.00	0.000	0.002	0.0190	20.6380	10.6938	1.46E-01
46	0.40	0.000	0.121	0.0199	19.2665	9.9831	1.42E-01
47	2.40	0.000	0.360	0.0267	17.0567	8.8381	1.36E-01
48	8.20	0.000	0.524	0.0523	14.7267	7.6308	1.29E-01
49	0.00	0.000	0.610	0.0503	12.7119	6.5868	1.23E-01
50	0.00	0.000	0.647	0.0481	10.9697	5.6841	1.18E-01

51	0.00	0.000	0.627	0.0460	9.4639	4.9038	1.14E-01
52	0.00	0.000	0.609	0.0440	8.1611	4.2287	1.10E-01
53	3.60	0.000	0.652	0.0538	7.0345	3.6450	1.07E-01
54	0.00	0.000	0.577	0.0519	6.0604	3.1403	1.04E-01
55	3.20	0.000	0.621	0.0602	5.2315	2.7108	1.01E-01
56	7.20	0.000	0.607	0.0633	4.5981	2.3826	9.96E-02
57	0.00	0.000	6.934	0.0378	4.1082	2.1287	9.82E-02
58	0.00	0.000	0.537	0.0360	4.3882	2.2738	9.90E-02
59	0.00	0.000	0.526	0.0342	4.3296	2.2434	9.89E-02
60	0.50	0.000	0.570	0.0340	3.7215	1.9283	9.71E-02
61	0.00	0.000	0.505	0.0323	3.1956	1.6558	9.56E-02
62	0.00	0.000	0.461	0.0308	2.7408	1.4202	9.43E-02
63	0.00	0.000	0.479	0.0292	2.3476	1.2164	9.32E-02
64	0.00	0.000	0.476	0.0276	2.0075	1.0402	9.22E-02
65	4.40	0.000	0.522	0.0405	1.7135	0.8879	9.13E-02
66	46.40	0.000	0.514	0.1072	1.4811	0.7674	9.07E-02
67	2.80	0.000	5.841	0.0454	1.3126	0.6801	9.02E-02
68	0.60	0.000	6.233	0.0266	2.0204	1.0469	9.22E-02
69	13.40	0.000	5.080	0.0544	3.6637	1.8984	9.69E-02
70	0.20	0.000	4.465	0.0401	4.9851	2.5831	1.01E-01
71	0.00	0.000	6.074	0.0199	6.0001	3.1090	1.04E-01
72	1.00	0.000	0.908	0.0202	6.7654	3.5055	1.06E-01
73	0.00	0.000	0.270	0.0193	7.3276	3.7969	1.08E-01
74	0.60	0.000	0.646	0.0192	7.4278	3.8488	1.08E-01
75	0.00	0.000	0.029	0.0191	6.4573	3.3459	1.05E-01
76	0.00	0.000	0.013	0.0190	5.5613	2.8816	1.02E-01
77	0.00	0.000	0.004	0.0190	4.7865	2.4801	1.00E-01
78	0.00	0.000	0.001	0.0190	4.1165	2.1330	9.83E-02
79	25.40	0.000	1.149	0.0998	3.5371	1.8328	9.66E-02

80	17.00	0.000	3.808	0.0787	3.1069	1.6099	9.53E-02
81	34.00	0.000	5.312	0.0915	2.7887	1.4450	9.44E-02
82	0.20	0.000	3.413	0.0534	2.4007	1.2439	9.33E-02
83	0.00	0.000	6.012	0.0333	2.6561	1.3763	9.40E-02
84	0.00	0.000	4.294	0.0190	4.3039	2.2301	9.88E-02
85	0.00	0.000	0.000	0.0190	5.7633	2.9863	1.03E-01
86	2.40	0.000	1.557	0.0218	6.8686	3.5590	1.06E-01
87	0.00	0.000	0.589	0.0198	7.6881	3.9837	1.09E-01
88	3.60	0.000	2.019	0.0251	8.2774	4.2890	1.10E-01
89	7.20	0.000	1.518	0.0441	8.6815	4.4984	1.11E-01
90	6.00	0.000	4.901	0.0477	8.9314	4.6279	1.12E-01
91	18.60	0.000	6.412	0.0817	8.1347	4.2151	1.10E-01
92	1.00	0.000	6.173	0.0443	7.0395	3.6476	1.07E-01
93	0.80	0.000	6.378	0.0257	6.3480	3.2893	1.05E-01
94	18.60	0.000	5.577	0.0674	6.7407	3.4927	1.06E-01
95	62.80	0.000	6.627	0.0937	6.5444	3.3910	1.05E-01
96	1.00	0.000	5.498	0.0516	5.7287	2.9684	1.03E-01
97	5.00	0.000	4.853	0.0521	5.3461	2.7701	1.02E-01
98	38.00	0.000	4.572	0.0982	6.7131	3.4784	1.06E-01
99	33.50	0.000	3.989	0.0927	6.7740	3.5100	1.06E-01
100	0.60	0.000	4.316	0.0427	5.8351	3.0235	1.03E-01
101	93.30	0.000	5.310	0.1174	5.9983	3.1081	1.04E-01
102	4.60	0.000	6.085	0.0515	6.4495	3.3419	1.05E-01
103	0.00	0.000	5.472	0.0322	10.0258	5.1950	1.15E-01
104	0.30	0.000	4.172	0.0193	14.6490	7.5905	1.29E-01
105	1.10	0.000	0.689	0.0207	17.5767	9.1075	1.37E-01
106	0.10	0.000	0.499	0.0193	19.3976	10.0510	1.42E-01
107	0.80	0.000	0.573	0.0201	20.4273	10.5846	1.45E-01
108	1.60	0.000	0.973	0.0222	20.8877	10.8231	1.47E-01

109	16.80	0.000	4.247	0.0640	20.9386	10.8495	1.47E-01
110	0.00	0.000	3.341	0.0529	20.6975	10.7246	1.46E-01
111	1.40	0.000	3.801	0.0449	20.2510	10.4932	1.45E-01
112	1.80	0.000	4.329	0.0364	19.6637	10.1889	1.43E-01
113	5.10	0.000	5.948	0.0336	18.9839	9.8367	1.41E-01
114	0.10	0.000	3.726	0.0215	18.2474	9.4551	1.39E-01
115	0.00	0.000	0.645	0.0194	17.4810	9.0579	1.37E-01
116	0.00	0.000	0.086	0.0191	16.7044	8.6556	1.35E-01
117	0.00	0.000	0.021	0.0190	15.9322	8.2554	1.32E-01
118	0.00	0.000	0.006	0.0190	14.9766	7.7603	1.30E-01
119	1.40	0.000	0.153	0.0232	13.0325	6.7529	1.24E-01
120	8.60	0.000	0.783	0.0492	11.2469	5.8277	1.19E-01
121	9.10	0.000	0.964	0.0624	9.7029	5.0277	1.14E-01
122	0.10	0.000	0.976	0.0518	8.4044	4.3548	1.11E-01
123	0.00	0.000	0.857	0.0473	7.9555	4.1222	1.09E-01
124	0.20	0.000	0.878	0.0450	7.8360	4.0603	1.09E-01
125	0.10	0.000	0.831	0.0426	6.8381	3.5432	1.06E-01
126	7.60	0.000	0.804	0.0649	5.8905	3.0522	1.03E-01
127	1.40	0.000	5.249	0.0483	5.1433	2.6651	1.01E-01
128	0.10	0.000	0.766	0.0449	4.6895	2.4299	9.99E-02
129	0.00	0.000	0.694	0.0426	4.1062	2.1277	9.82E-02
130	0.00	0.000	0.604	0.0402	3.5526	1.8408	9.66E-02
131	0.00	0.000	0.647	0.0381	3.0571	1.5840	9.52E-02
132	0.00	0.000	0.627	0.0360	2.6210	1.3581	9.39E-02
133	3.20	0.000	0.663	0.0444	2.2440	1.1628	9.29E-02
134	6.80	0.000	0.646	0.0649	1.9180	0.9938	9.19E-02
135	0.00	0.000	4.487	0.0441	1.7018	0.8818	9.13E-02
136	0.00	0.000	4.635	0.0265	1.9314	1.0008	9.20E-02
137	0.00	0.000	2.176	0.0192	1.7286	0.8957	9.14E-02

138	4.20	0.000	0.983	0.0299	1.4723	0.7629	9.06E-02
139	0.00	0.000	1.104	0.0262	1.2507	0.6481	9.00E-02
140	0.00	0.000	1.123	0.0225	1.0591	0.5488	8.94E-02
141	0.00	0.000	0.965	0.0193	0.8934	0.4629	8.90E-02
142	0.10	0.000	0.173	0.0190	0.7501	0.3887	8.86E-02
143	0.90	0.000	0.154	0.0215	0.6262	0.3244	8.82E-02
144	1.70	0.000	0.445	0.0257	0.5190	0.2689	8.79E-02
145	0.10	0.000	0.412	0.0247	0.4264	0.2209	8.76E-02
146	0.00	0.000	0.556	0.0228	0.3462	0.1794	8.74E-02
147	0.50	0.000	0.638	0.0224	0.2770	0.1435	8.72E-02
148	2.60	0.000	0.674	0.0288	0.2171	0.1125	8.70E-02
149	0.00	0.000	0.543	0.0270	0.1653	0.0856	8.69E-02
150	0.00	0.000	0.477	0.0254	0.1205	0.0624	8.67E-02
151	0.00	0.000	0.453	0.0239	0.0817	0.0424	8.66E-02
152	0.00	0.000	0.407	0.0225	0.0482	0.0250	8.65E-02
153	0.00	0.000	0.480	0.0209	0.0193	0.0100	8.65E-02
154	0.00	0.000	0.466	0.0194	0.0008	0.0002	1.10E-02
155	0.00	0.000	0.083	0.0191	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.020	0.0190	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.005	0.0190	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
159	0.20	0.000	0.102	0.0193	0.0000	0.0000	0.00E+00
160	0.60	0.000	0.104	0.0210	0.0000	0.0000	0.00E+00
161	8.80	0.000	0.405	0.0490	0.0000	0.0000	0.00E+00
162	1.20	0.000	0.520	0.0512	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.495	0.0496	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.486	0.0480	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.477	0.0464	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.469	0.0447	0.0003	0.0000	3.72E-03

167	0.00	0.000	0.461	0.0431	0.0030	0.0015	4.82E-02
168	0.00	0.000	0.454	0.0416	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.447	0.0401	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.440	0.0386	0.0000	0.0000	0.00E+00
171	2.00	0.000	0.496	0.0436	0.0000	0.0000	0.00E+00
172	0.60	0.000	0.490	0.0440	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.422	0.0426	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.416	0.0411	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.411	0.0397	0.0019	0.0008	3.02E-02
176	0.10	0.000	0.456	0.0385	0.0000	0.0000	0.00E+00
177	0.10	0.000	0.451	0.0374	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.396	0.0359	0.0009	0.0004	3.10E-02
179	0.00	0.000	0.367	0.0346	0.0013	0.0006	3.95E-02
180	0.00	0.000	0.377	0.0333	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.382	0.0321	0.0000	0.0000	0.00E+00
182	0.10	0.000	0.429	0.0310	0.0000	0.0000	0.00E+00
183	0.10	0.000	0.425	0.0299	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.358	0.0287	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.361	0.0275	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.361	0.0263	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.359	0.0251	0.0000	0.0000	0.00E+00
188	0.10	0.000	0.407	0.0241	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.344	0.0229	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.346	0.0218	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.345	0.0206	0.0000	0.0000	0.00E+00
192	0.10	0.000	0.395	0.0196	0.0000	0.0000	0.00E+00
193	0.10	0.000	0.256	0.0191	0.0000	0.0000	0.00E+00
194	14.20	0.000	0.296	0.0655	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.304	0.0591	0.0180	0.0093	2.17E-02

196	0.40	0.000	0.400	0.0559	0.3171	0.1643	8.73E-02
197	14.40	0.000	0.398	0.0830	0.6459	0.3347	8.83E-02
198	2.60	0.000	4.047	0.0592	0.5611	0.2908	8.80E-02
199	0.00	0.000	5.242	0.0386	0.7247	0.3755	8.85E-02
200	0.00	0.000	5.097	0.0216	1.7275	0.8951	9.14E-02
201	0.00	0.000	0.792	0.0190	2.8855	1.4952	9.47E-02
202	1.80	0.000	0.536	0.0232	2.8314	1.4671	9.46E-02
203	0.00	0.000	0.571	0.0213	2.4259	1.2570	9.34E-02
204	0.00	0.000	0.567	0.0194	2.0753	1.0753	9.24E-02
205	0.10	0.000	0.194	0.0191	1.7721	0.9182	9.15E-02
206	0.00	0.000	0.024	0.0190	1.5099	0.7824	9.07E-02
207	0.00	0.000	0.006	0.0190	1.2832	0.6649	9.01E-02
208	0.10	0.000	0.102	0.0190	1.0872	0.5633	8.95E-02
209	0.00	0.000	0.000	0.0190	0.9176	0.4755	8.90E-02
210	0.10	0.000	0.100	0.0190	0.7711	0.3995	8.86E-02
211	0.10	0.000	0.100	0.0190	0.6443	0.3339	8.83E-02
212	0.00	0.000	0.000	0.0190	0.5347	0.2771	8.79E-02
213	0.60	0.000	0.131	0.0206	0.4399	0.2280	8.77E-02
214	0.00	0.000	0.280	0.0196	0.3580	0.1855	8.74E-02
215	0.00	0.000	0.141	0.0192	0.2871	0.1488	8.72E-02
216	0.10	0.000	0.136	0.0190	0.2258	0.1170	8.70E-02
217	0.00	0.000	0.009	0.0190	0.1729	0.0896	8.69E-02
218	0.00	0.000	0.002	0.0190	0.1270	0.0658	8.68E-02
219	0.00	0.000	0.001	0.0190	0.0874	0.0453	8.67E-02
220	0.00	0.000	0.000	0.0190	0.0532	0.0275	8.66E-02
221	0.00	0.000	0.000	0.0190	0.0235	0.0122	8.65E-02
222	0.00	0.000	0.000	0.0190	0.0019	0.0009	2.44E-02
223	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
227	0.10	0.000	0.095	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.003	0.0190	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
231	0.10	0.000	0.093	0.0190	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.004	0.0190	0.0000	0.0000	0.00E+00
233	0.40	0.000	0.113	0.0200	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.042	0.0198	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.137	0.0194	0.0000	0.0000	0.00E+00
236	0.10	0.000	0.135	0.0193	0.0000	0.0000	0.00E+00
237	0.10	0.000	0.101	0.0193	0.0000	0.0000	0.00E+00
238	0.10	0.000	0.092	0.0193	0.0000	0.0000	4.11E-06
239	0.00	0.000	0.035	0.0192	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.034	0.0190	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.010	0.0190	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.003	0.0190	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
245	11.00	0.000	0.328	0.0546	0.0000	0.0000	0.00E+00
246	40.00	0.000	0.448	0.1042	0.0000	0.0000	0.00E+00
247	3.40	0.000	6.341	0.0490	0.0095	0.0049	2.16E-02
248	0.00	0.000	6.179	0.0279	1.0468	0.5424	8.94E-02
249	0.00	0.000	2.653	0.0191	2.7604	1.4303	9.43E-02
250	0.00	0.000	0.016	0.0190	4.1486	2.1496	9.83E-02
251	0.00	0.000	0.004	0.0190	5.2282	2.7091	1.01E-01
252	0.00	0.000	0.001	0.0190	6.0551	3.1375	1.04E-01
253	0.00	0.000	0.000	0.0190	6.6929	3.4680	1.06E-01

254	0.00	0.000	0.000	0.0190	6.3203	3.2749	1.05E-01
255	0.00	0.000	0.000	0.0190	5.4428	2.8202	1.02E-01
256	0.00	0.000	0.000	0.0190	4.6840	2.4271	9.99E-02
257	0.00	0.000	0.000	0.0190	4.0279	2.0871	9.80E-02
258	0.00	0.000	0.000	0.0190	3.4605	1.7931	9.64E-02
259	0.00	0.000	0.000	0.0190	2.9699	1.5389	9.50E-02
260	0.00	0.000	0.000	0.0190	2.5457	1.3191	9.37E-02
261	0.00	0.000	0.000	0.0190	2.1789	1.1290	9.27E-02
262	0.00	0.000	0.000	0.0190	1.8617	0.9646	9.18E-02
263	1.80	0.000	0.377	0.0237	1.5874	0.8225	9.10E-02
264	0.00	0.000	0.290	0.0228	1.3502	0.6996	9.03E-02
265	0.10	0.000	0.505	0.0214	1.1451	0.5933	8.97E-02
266	2.40	0.000	0.511	0.0277	0.9677	0.5014	8.92E-02
267	3.80	0.000	0.430	0.0390	0.8144	0.4220	8.87E-02
268	0.20	0.000	0.593	0.0376	0.6818	0.3533	8.84E-02
269	0.00	0.000	0.544	0.0358	0.5671	0.2938	8.80E-02
270	0.00	0.000	0.527	0.0341	0.4680	0.2425	8.77E-02
271	0.00	0.000	0.516	0.0324	0.3823	0.1981	8.75E-02
272	0.00	0.000	0.504	0.0307	0.3081	0.1597	8.73E-02
273	0.00	0.000	0.511	0.0290	0.2440	0.1264	8.71E-02
274	0.00	0.000	0.509	0.0273	0.1886	0.0977	8.69E-02
275	0.00	0.000	0.498	0.0256	0.1406	0.0729	8.68E-02
276	0.00	0.000	0.489	0.0240	0.0992	0.0514	8.67E-02
277	0.00	0.000	0.479	0.0224	0.0633	0.0328	8.66E-02
278	0.00	0.000	0.470	0.0208	0.0323	0.0167	8.65E-02
279	0.00	0.000	0.385	0.0195	0.0064	0.0032	5.14E-02
280	0.00	0.000	0.161	0.0190	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
284	0.60	0.000	0.123	0.0206	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.181	0.0200	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.237	0.0192	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.049	0.0190	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.008	0.0190	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
291	8.20	0.000	0.255	0.0455	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.325	0.0444	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.378	0.0431	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.378	0.0419	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.382	0.0406	0.0000	0.0000	0.00E+00
296	0.10	0.000	0.438	0.0395	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.374	0.0382	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.370	0.0370	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.366	0.0358	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.362	0.0346	0.0000	0.0000	0.00E+00
301	0.00	0.000	0.359	0.0334	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.355	0.0322	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.352	0.0310	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.348	0.0299	0.0000	0.0000	0.00E+00
305	0.10	0.000	0.408	0.0288	0.0000	0.0000	5.96E-04
306	0.00	0.000	0.338	0.0277	0.0000	0.0000	4.08E-04
307	0.00	0.000	0.338	0.0266	0.0000	0.0000	5.70E-04
308	1.00	0.000	0.435	0.0285	0.0001	0.0000	7.38E-04
309	0.00	0.000	0.333	0.0273	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.330	0.0262	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.328	0.0252	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.322	0.0241	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.300	0.0231	0.0000	0.0000	0.00E+00
314	0.00	0.000	0.314	0.0220	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.317	0.0210	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.315	0.0199	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.278	0.0190	0.0000	0.0000	0.00E+00
318	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
319	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
321	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
322	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
323	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
325	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
326	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
327	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
328	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
329	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
331	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
332	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
333	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
334	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
335	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
336	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
337	0.10	0.000	0.088	0.0190	0.0000	0.0000	0.00E+00
338	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
339	0.00	0.000	0.004	0.0190	0.0000	0.0000	0.00E+00
340	6.80	0.000	0.221	0.0409	0.0000	0.0000	0.00E+00

341	0.00	0.000	0.220	0.0402	0.0000	0.0000	8.55E-08
342	8.80	0.000	0.350	0.0684	0.0000	0.0000	0.00E+00
343	2.40	0.000	0.372	0.0626	0.0124	0.0064	2.16E-02
344	15.50	0.000	0.371	0.0857	0.4468	0.2315	8.77E-02
345	0.20	0.000	0.353	0.0532	0.5301	0.2747	8.79E-02
346	0.00	0.000	0.261	0.0519	0.6798	0.3523	8.84E-02
347	0.00	0.000	0.259	0.0495	1.7870	0.9259	9.15E-02
348	0.00	0.000	0.258	0.0485	2.9716	1.5397	9.50E-02
349	0.10	0.000	0.322	0.0478	4.0098	2.0777	9.79E-02
350	0.00	0.000	0.255	0.0469	4.1966	2.1745	9.85E-02
351	0.00	0.000	0.254	0.0461	3.6064	1.8687	9.68E-02
352	0.60	0.000	0.364	0.0469	3.0961	1.6043	9.53E-02
353	0.00	0.000	0.252	0.0460	2.6548	1.3756	9.40E-02
354	0.00	0.000	0.250	0.0452	2.2732	1.1779	9.29E-02
355	0.00	0.000	0.249	0.0444	1.9432	1.0069	9.20E-02
356	0.20	0.000	0.342	0.0439	1.6579	0.8590	9.12E-02
357	2.20	0.000	0.362	0.0500	1.4111	0.7312	9.05E-02
358	0.40	0.000	0.357	0.0502	1.1978	0.6207	8.98E-02
359	0.00	0.000	0.245	0.0490	1.0266	0.5320	8.94E-02
360	0.00	0.000	0.244	0.0475	0.9010	0.4669	8.90E-02
361	0.00	0.000	0.242	0.0463	0.8010	0.4150	8.87E-02
362	0.10	0.000	0.309	0.0452	0.7001	0.3628	8.84E-02
363	0.00	0.000	0.240	0.0441	0.6132	0.3177	8.82E-02
364	1.00	0.000	0.357	0.0460	0.5331	0.2762	8.79E-02
365	15.00	0.000	0.357	0.0854	0.4443	0.2302	8.77E-02

* = Frozen (air or soil)

Annual Totals for Year 11			
	mm*	cubic meters	percent
Precipitation	1,252.30	12,523.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	397.766	3,977.7	31.76
Drainage Collected from Layer 2	846.8268	8,468.3	67.62
Percolation/Leakage through Layer 3	25.594767	255.9	2.04
Average Head on Top of Layer 3	4.9884 (cm)	---	---
Change in Water Storage	-17.8874	-178.9	-1.43
Soil Water at Start of Year	893.5632	8,935.6	71.35
Soil Water at End of Year	875.6757	8,756.8	69.93
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 12

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			9.60	0.000	4.934	0.0628		0.3618	0.1875	8.74E-02
2			0.00	0.000	5.706	0.0407		0.4250	0.2202	8.76E-02
3			3.60	0.000	5.364	0.0336		1.1981	0.6208	8.98E-02
4			0.00	0.000	4.115	0.0198		2.3737	1.2300	9.32E-02
5			1.40	0.000	0.745	0.0220		3.4272	1.7758	9.63E-02
6	*Note: head c		0.00	0.000	0.651	0.0199		3.2403	1.6790	9.57E-02
7			0.00	0.000	0.190	0.0192		2.7795	1.4402	9.44E-02
8			0.00	0.000	0.049	0.0191		2.3811	1.2338	9.33E-02
9			0.00	0.000	0.014	0.0190		2.0366	1.0553	9.23E-02
10			0.00	0.000	0.003	0.0190		1.7388	0.9010	9.14E-02
11			0.00	0.000	0.001	0.0190		1.4811	0.7675	9.07E-02
12			0.00	0.000	0.000	0.0190		1.2583	0.6520	9.00E-02
13			0.00	0.000	0.000	0.0190		1.0656	0.5522	8.95E-02
14			0.60	0.000	0.144	0.0205		0.8990	0.4658	8.90E-02
15			0.00	0.000	0.285	0.0196		0.7550	0.3912	8.86E-02
16			0.00	0.000	0.128	0.0191		0.6304	0.3266	8.82E-02
17			5.20	0.000	0.417	0.0351		0.5227	0.2708	8.79E-02
18			7.60	0.000	0.566	0.0585		0.4295	0.2226	8.76E-02
19			1.40	0.000	0.743	0.0605		0.3568	0.1849	8.74E-02
20			5.40	0.000	0.741	0.0610		0.4696	0.2433	8.78E-02
21			14.40	0.000	0.719	0.0788		0.7135	0.3697	8.85E-02

22	71.80	0.000	4.841	0.0991	0.5945	0.3081	8.81E-02
23	66.20	0.000	5.930	0.0979	0.4917	0.2548	8.78E-02
24	109.40	0.000	5.817	0.1153	0.4027	0.2087	8.76E-02
25	11.20	0.000	5.597	0.0662	0.3707	0.1921	8.75E-02
26	1.20	0.000	6.032	0.0476	7.1562	3.7080	1.07E-01
27	47.00	0.000	4.897	0.1076	15.7223	8.1466	1.32E-01
28	1.20	0.000	6.068	0.0459	18.2737	9.4687	1.39E-01
29	0.00	0.000	5.311	0.0282	22.3762	11.5945	1.51E-01
30	4.40	0.000	3.507	0.0311	26.5873	13.7765	1.63E-01
31	60.20	0.000	2.704	0.1138	28.5742	14.8060	1.69E-01
32	240.60	0.000	2.855	0.1602	27.2187	14.1036	1.65E-01
33	167.60	0.000	3.151	0.1332	23.9537	12.4118	1.55E-01
34	129.00	0.000	3.654	0.1204	476.2449	27.3185	1.46E+00
35	35.80	0.000	3.031	0.0939	680.0998	33.3386	2.05E+00
36	20.00	0.000	3.192	0.0885	678.5826	33.2858	2.04E+00
37	8.60	0.000	3.527	0.0676	659.1210	32.6111	1.98E+00
38	13.70	0.000	2.908	0.0757	635.1233	31.7834	1.92E+00
39	31.20	0.000	4.432	0.0955	609.2532	30.8959	1.84E+00
40	0.60	0.000	6.859	0.0419	598.7937	30.5387	1.81E+00
41	0.00	0.000	6.861	0.0190	572.0649	29.6305	1.73E+00
42	0.00	0.000	0.000	0.0190	539.5245	28.5328	1.64E+00
43	0.00	0.000	0.000	0.0190	508.2166	27.4859	1.55E+00
44	0.00	0.000	0.000	0.0190	478.0851	26.4873	1.46E+00
45	0.30	0.000	0.300	0.0190	449.0764	25.5348	1.38E+00
46	0.00	0.000	0.000	0.0190	421.1395	24.6263	1.30E+00
47	14.60	0.000	1.135	0.0639	394.2256	23.7601	1.22E+00
48	0.10	0.000	4.454	0.0484	368.2878	22.9346	1.15E+00
49	0.60	0.000	1.412	0.0447	343.8604	22.0719	1.08E+00
50	0.10	0.000	1.147	0.0398	320.1788	21.3546	1.01E+00

51	0.00	0.000	1.077	0.0362	297.0910	20.6645	9.42E-01
52	0.00	0.000	0.997	0.0329	274.6367	20.0035	8.77E-01
53	6.40	0.000	0.977	0.0509	252.9321	19.3762	8.15E-01
54	11.00	0.000	0.920	0.0734	232.0819	18.7866	7.55E-01
55	8.40	0.000	4.954	0.0665	98.7394	16.3062	3.71E-01
56	6.00	0.000	6.469	0.0593	130.1327	16.7666	4.61E-01
57	0.10	0.000	5.890	0.0394	123.0762	16.5488	4.41E-01
58	0.00	0.000	6.079	0.0192	60.1411	15.5968	2.60E-01
59	0.60	0.000	0.516	0.0194	58.7588	15.5944	2.56E-01
60	8.20	0.000	0.926	0.0437	55.4884	15.5888	2.46E-01
61	0.00	0.000	1.332	0.0392	50.7313	15.5806	2.33E-01
62	0.00	0.000	1.322	0.0348	44.7786	15.5703	2.15E-01
63	0.00	0.000	1.165	0.0310	37.8481	15.5583	1.95E-01
64	0.00	0.000	1.056	0.0274	29.2620	15.1624	1.71E-01
65	0.60	0.000	1.014	0.0261	27.3429	14.1680	1.65E-01
66	0.00	0.000	0.825	0.0233	25.5232	13.2251	1.60E-01
67	0.50	0.000	0.854	0.0221	23.8141	12.3395	1.55E-01
68	2.70	0.000	0.761	0.0286	22.2175	11.5122	1.50E-01
69	0.10	0.000	0.554	0.0271	20.7319	10.7424	1.46E-01
70	0.00	0.000	0.538	0.0253	19.3400	10.0212	1.42E-01
71	0.00	0.000	0.593	0.0233	17.0900	8.8553	1.36E-01
72	0.00	0.000	0.570	0.0214	14.7555	7.6457	1.29E-01
73	23.00	0.000	0.652	0.0959	12.7368	6.5997	1.23E-01
74	9.80	0.000	5.037	0.0673	10.9912	5.6952	1.18E-01
75	1.10	0.000	4.729	0.0526	9.6955	5.0238	1.14E-01
76	0.80	0.000	6.037	0.0329	9.2619	4.7991	1.13E-01
77	3.60	0.000	6.760	0.0223	9.3158	4.8271	1.13E-01
78	0.00	0.000	0.721	0.0199	9.2924	4.8149	1.13E-01
79	0.00	0.000	0.236	0.0192	8.1539	4.2250	1.10E-01

80	1.30	0.000	0.269	0.0226	7.0284	3.6418	1.07E-01
81	0.60	0.000	0.732	0.0222	6.0551	3.1375	1.04E-01
82	0.00	0.000	0.758	0.0196	5.2135	2.7014	1.01E-01
83	0.40	0.000	0.298	0.0200	4.4858	2.3244	9.93E-02
84	0.00	0.000	0.108	0.0196	3.8565	1.9983	9.75E-02
85	0.00	0.000	0.118	0.0192	3.3123	1.7163	9.59E-02
86	0.00	0.000	0.049	0.0191	2.8418	1.4725	9.46E-02
87	0.00	0.000	0.012	0.0190	2.4349	1.2616	9.34E-02
88	0.00	0.000	0.003	0.0190	2.0830	1.0793	9.24E-02
89	0.00	0.000	0.001	0.0190	1.7788	0.9217	9.15E-02
90	0.00	0.000	0.000	0.0190	1.5157	0.7854	9.08E-02
91	0.00	0.000	0.000	0.0190	1.2882	0.6675	9.01E-02
92	0.80	0.000	0.109	0.0213	1.0915	0.5656	8.95E-02
93	0.00	0.000	0.280	0.0204	0.9214	0.4774	8.91E-02
94	0.00	0.000	0.323	0.0193	0.7743	0.4012	8.86E-02
95	0.00	0.000	0.077	0.0190	0.6471	0.3353	8.83E-02
96	0.00	0.000	0.009	0.0190	0.5371	0.2783	8.79E-02
97	0.00	0.000	0.002	0.0190	0.4420	0.2290	8.77E-02
98	0.00	0.000	0.001	0.0190	0.3598	0.1864	8.74E-02
99	0.00	0.000	0.000	0.0190	0.2887	0.1496	8.72E-02
100	0.60	0.000	0.098	0.0207	0.2272	0.1177	8.71E-02
101	0.00	0.000	0.225	0.0199	0.1740	0.0902	8.69E-02
102	0.00	0.000	0.214	0.0192	0.1280	0.0663	8.68E-02
103	0.00	0.000	0.047	0.0191	0.0883	0.0457	8.67E-02
104	1.20	0.000	0.108	0.0227	0.0539	0.0279	8.66E-02
105	1.00	0.000	0.261	0.0252	0.0242	0.0125	8.65E-02
106	0.00	0.000	0.204	0.0245	0.0022	0.0010	2.65E-02
107	0.00	0.000	0.321	0.0234	0.0000	0.0000	0.00E+00
108	0.10	0.000	0.360	0.0225	0.0000	0.0000	0.00E+00

109	0.00	0.000	0.310	0.0215	0.0000	0.0000	0.00E+00
110	0.00	0.000	0.292	0.0205	0.0000	0.0000	0.00E+00
111	0.00	0.000	0.363	0.0193	0.0000	0.0000	0.00E+00
112	0.00	0.000	0.076	0.0191	0.0000	0.0000	0.00E+00
113	0.00	0.000	0.017	0.0190	0.0000	0.0000	0.00E+00
114	0.00	0.000	0.006	0.0190	0.0000	0.0000	0.00E+00
115	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
116	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
117	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
118	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
119	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
120	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
121	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
122	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
123	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
124	0.10	0.000	0.078	0.0191	0.0000	0.0000	0.00E+00
125	0.00	0.000	0.012	0.0190	0.0000	0.0000	0.00E+00
126	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
127	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
128	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
129	0.30	0.000	0.085	0.0197	0.0000	0.0000	0.00E+00
130	0.20	0.000	0.083	0.0201	0.0000	0.0000	0.00E+00
131	0.20	0.000	0.175	0.0202	0.0000	0.0000	0.00E+00
132	0.00	0.000	0.146	0.0197	0.0000	0.0000	0.00E+00
133	0.00	0.000	0.094	0.0194	0.0000	0.0000	0.00E+00
134	0.00	0.000	0.072	0.0192	0.0000	0.0000	0.00E+00
135	0.10	0.000	0.099	0.0192	0.0000	0.0000	0.00E+00
136	0.10	0.000	0.082	0.0192	0.0000	0.0000	0.00E+00
137	0.00	0.000	0.030	0.0191	0.0000	0.0000	0.00E+00

138	0.00	0.000	0.026	0.0190	0.0000	0.0000	0.00E+00
139	0.00	0.000	0.006	0.0190	0.0000	0.0000	0.00E+00
140	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
141	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
142	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
147	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
148	1.40	0.000	0.081	0.0234	0.0000	0.0000	0.00E+00
149	0.00	0.000	0.127	0.0230	0.0000	0.0000	0.00E+00
150	0.00	0.000	0.203	0.0223	0.0000	0.0000	0.00E+00
151	0.00	0.000	0.201	0.0216	0.0000	0.0000	0.00E+00
152	0.00	0.000	0.200	0.0210	0.0000	0.0000	0.00E+00
153	0.00	0.000	0.198	0.0203	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.186	0.0197	0.0000	0.0000	0.00E+00
155	0.10	0.000	0.231	0.0192	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.054	0.0191	0.0000	0.0000	0.00E+00
157	0.40	0.000	0.099	0.0201	0.0000	0.0000	0.00E+00
158	24.00	0.000	0.294	0.0991	0.0000	0.0000	0.00E+00
159	3.60	0.000	0.342	0.0656	0.0368	0.0190	2.21E-02
160	0.00	0.000	0.282	0.0596	0.3909	0.2025	8.75E-02
161	0.00	0.000	0.281	0.0541	1.1534	0.5977	8.97E-02
162	0.00	0.000	0.279	0.0510	2.0826	1.0791	9.24E-02
163	0.10	0.000	0.325	0.0487	3.0510	1.5809	9.52E-02
164	0.10	0.000	0.324	0.0467	3.5201	1.8240	9.65E-02
165	0.00	0.000	0.274	0.0449	3.1063	1.6096	9.53E-02
166	12.40	0.000	0.332	0.0795	2.7071	1.4027	9.42E-02

167	11.20	0.000	0.330	0.0760	2.4982	1.2945	9.36E-02
168	0.10	0.000	2.973	0.0476	2.1750	1.1270	9.27E-02
169	2.70	0.000	2.894	0.0470	2.3469	1.2160	9.32E-02
170	19.60	0.000	3.466	0.0951	3.4291	1.7768	9.63E-02
171	1.90	0.000	3.396	0.0510	4.2702	2.2126	9.87E-02
172	11.00	0.000	2.631	0.0715	4.1269	2.1384	9.83E-02
173	9.20	0.000	2.919	0.0638	4.6747	2.4222	9.99E-02
174	3.00	0.000	3.546	0.0589	4.3174	2.2371	9.88E-02
175	0.00	0.000	3.722	0.0453	4.7906	2.4823	1.00E-01
176	0.20	0.000	3.524	0.0342	5.6541	2.9297	1.03E-01
177	11.00	0.000	3.503	0.0590	6.4234	3.3284	1.05E-01
178	0.00	0.000	4.548	0.0438	7.0207	3.6378	1.07E-01
179	0.10	0.000	4.560	0.0287	6.7082	3.4759	1.06E-01
180	0.00	0.000	2.900	0.0190	5.7827	2.9964	1.03E-01
181	0.00	0.000	0.010	0.0190	4.9780	2.5794	1.01E-01
182	0.00	0.000	0.002	0.0190	4.2821	2.2188	9.87E-02
183	0.00	0.000	0.001	0.0190	3.6803	1.9070	9.70E-02
184	0.00	0.000	0.000	0.0190	3.1600	1.6374	9.55E-02
185	0.20	0.000	0.200	0.0190	2.7100	1.4042	9.42E-02
186	0.00	0.000	0.000	0.0190	2.3210	1.2026	9.31E-02
187	0.00	0.000	0.000	0.0190	1.9845	1.0283	9.21E-02
188	0.00	0.000	0.000	0.0190	1.6936	0.8776	9.13E-02
189	0.00	0.000	0.000	0.0190	1.4420	0.7472	9.06E-02
190	0.00	0.000	0.000	0.0190	1.2245	0.6345	8.99E-02
191	0.00	0.000	0.000	0.0190	1.0364	0.5370	8.94E-02
192	0.00	0.000	0.000	0.0190	0.8738	0.4528	8.89E-02
193	0.00	0.000	0.000	0.0190	0.7331	0.3799	8.85E-02
194	0.00	0.000	0.000	0.0190	0.6115	0.3169	8.82E-02
195	0.00	0.000	0.000	0.0190	0.5063	0.2624	8.79E-02

196	0.00	0.000	0.000	0.0190	0.4154	0.2152	8.76E-02
197	0.00	0.000	0.000	0.0190	0.3368	0.1745	8.74E-02
198	0.00	0.000	0.000	0.0190	0.2688	0.1393	8.72E-02
199	0.00	0.000	0.000	0.0190	0.2100	0.1088	8.70E-02
200	0.00	0.000	0.000	0.0190	0.1591	0.0825	8.69E-02
201	0.00	0.000	0.000	0.0190	0.1152	0.0597	8.67E-02
202	0.00	0.000	0.000	0.0190	0.0772	0.0400	8.66E-02
203	0.00	0.000	0.000	0.0190	0.0443	0.0229	8.65E-02
204	0.00	0.000	0.000	0.0190	0.0159	0.0082	8.63E-02
205	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
210	0.20	0.000	0.099	0.0193	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.042	0.0192	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.042	0.0191	0.0000	0.0000	0.00E+00
213	0.20	0.000	0.110	0.0194	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.043	0.0192	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.050	0.0190	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.011	0.0190	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.003	0.0190	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
222	3.60	0.000	0.233	0.0302	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.276	0.0293	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.333	0.0282	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.344	0.0270	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.336	0.0259	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.324	0.0248	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.324	0.0238	0.0000	0.0000	0.00E+00
229	0.80	0.000	0.386	0.0251	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.313	0.0241	0.0000	0.0000	0.00E+00
231	0.20	0.000	0.394	0.0235	0.0000	0.0000	2.11E-04
232	1.80	0.000	0.378	0.0282	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.331	0.0271	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.330	0.0260	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.327	0.0249	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.331	0.0238	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.246	0.0230	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.234	0.0222	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.227	0.0214	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.281	0.0205	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.301	0.0195	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.113	0.0191	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.026	0.0190	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.009	0.0190	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
248	2.40	0.000	0.201	0.0263	0.0000	0.0000	0.00E+00
249	6.90	0.000	0.281	0.0484	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.287	0.0474	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.303	0.0464	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.300	0.0454	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.308	0.0444	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.306	0.0434	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.304	0.0424	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.301	0.0414	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.293	0.0404	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.297	0.0394	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.295	0.0384	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.293	0.0374	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.291	0.0365	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.289	0.0355	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.288	0.0345	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.286	0.0336	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.284	0.0326	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.282	0.0317	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.281	0.0308	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.279	0.0298	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.277	0.0289	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.276	0.0280	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.274	0.0271	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.272	0.0262	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.271	0.0253	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.269	0.0244	0.0000	0.0000	0.00E+00
275	18.20	0.000	0.346	0.0839	0.0000	0.0000	0.00E+00
276	3.60	0.000	0.345	0.0598	0.0848	0.0440	6.50E-02
277	0.00	0.000	0.265	0.0515	0.1352	0.0701	8.68E-02
278	0.00	0.000	0.264	0.0506	0.8931	0.4628	8.90E-02
279	0.00	0.000	0.262	0.0497	2.1937	1.1367	9.27E-02
280	0.00	0.000	0.261	0.0457	2.9315	1.5190	9.48E-02
281	0.00	0.000	0.259	0.0445	2.5892	1.3416	9.39E-02
282	0.00	0.000	0.258	0.0429	2.2700	1.1762	9.29E-02

283	0.00	0.000	0.257	0.0417	1.9815	1.0267	9.21E-02
284	0.00	0.000	0.251	0.0406	1.7158	0.8891	9.13E-02
285	0.00	0.000	0.253	0.0398	1.4696	0.7615	9.06E-02
286	6.20	0.000	0.335	0.0593	1.2483	0.6468	9.00E-02
287	0.00	0.000	0.252	0.0585	1.0570	0.5477	8.94E-02
288	0.00	0.000	0.250	0.0552	1.0211	0.5291	8.93E-02
289	0.00	0.000	0.249	0.0543	0.9249	0.4793	8.91E-02
290	0.00	0.000	0.248	0.0535	0.7773	0.4028	8.86E-02
291	0.00	0.000	0.247	0.0527	0.6497	0.3367	8.83E-02
292	0.90	0.000	0.331	0.0546	0.5394	0.2795	8.80E-02
293	0.00	0.000	0.245	0.0520	0.5024	0.2603	8.78E-02
294	0.00	0.000	0.244	0.0497	0.5386	0.2791	8.79E-02
295	0.00	0.000	0.242	0.0478	0.5461	0.2830	8.80E-02
296	0.00	0.000	0.241	0.0460	0.5313	0.2753	8.79E-02
297	0.20	0.000	0.319	0.0457	0.4798	0.2486	8.78E-02
298	0.00	0.000	0.239	0.0443	0.4045	0.2096	8.76E-02
299	0.00	0.000	0.238	0.0428	0.3799	0.1968	8.75E-02
300	0.00	0.000	0.237	0.0414	0.3565	0.1847	8.74E-02
301	0.00	0.000	0.236	0.0402	0.3276	0.1698	8.73E-02
302	0.00	0.000	0.231	0.0394	0.2828	0.1465	8.72E-02
303	0.00	0.000	0.234	0.0386	0.2221	0.1151	8.70E-02
304	0.00	0.000	0.233	0.0379	0.1696	0.0879	8.69E-02
305	0.00	0.000	0.232	0.0371	0.1242	0.0644	8.68E-02
306	0.00	0.000	0.231	0.0363	0.0850	0.0440	8.66E-02
307	0.00	0.000	0.230	0.0356	0.0511	0.0265	8.65E-02
308	0.00	0.000	0.229	0.0348	0.0217	0.0112	8.65E-02
309	0.00	0.000	0.228	0.0340	0.0013	0.0006	1.87E-02
310	0.00	0.000	0.227	0.0333	0.0000	0.0000	0.00E+00
311	0.20	0.000	0.310	0.0329	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.226	0.0321	0.0000	0.0000	0.00E+00
313	0.40	0.000	0.320	0.0324	0.0000	0.0000	0.00E+00
314	0.00	0.000	0.224	0.0317	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.223	0.0309	0.0000	0.0000	0.00E+00
316	0.20	0.000	0.299	0.0306	0.0000	0.0000	0.00E+00
317	1.30	0.000	0.320	0.0339	0.0000	0.0000	0.00E+00
318	2.20	0.000	0.319	0.0401	0.0000	0.0000	0.00E+00
319	7.40	0.000	0.319	0.0637	0.0000	0.0000	0.00E+00
320	0.80	0.000	0.318	0.0615	0.1460	0.0757	6.52E-02
321	0.00	0.000	0.218	0.0570	0.3788	0.1963	8.75E-02
322	0.20	0.000	0.304	0.0542	0.5634	0.2919	8.80E-02
323	3.60	0.000	0.318	0.0586	0.5673	0.2940	8.80E-02
324	0.00	0.000	0.216	0.0570	0.6245	0.3236	8.82E-02
325	0.00	0.000	0.215	0.0563	0.9356	0.4848	8.91E-02
326	0.00	0.000	0.214	0.0556	0.7866	0.4076	8.87E-02
327	0.00	0.000	0.213	0.0549	0.6577	0.3408	8.83E-02
328	5.40	0.000	0.317	0.0639	0.5463	0.2831	8.80E-02
329	0.50	0.000	5.369	0.0420	0.6284	0.3256	8.82E-02
330	3.80	0.000	0.317	0.0536	1.2507	0.6481	9.00E-02
331	17.80	0.000	0.317	0.0948	1.2380	0.6415	9.00E-02
332	96.40	0.000	5.303	0.1108	1.1575	0.5997	8.97E-02
333	9.80	0.000	5.793	0.0669	0.9876	0.5117	8.92E-02
334	10.00	0.000	5.254	0.0670	2.1365	1.1071	9.26E-02
335	10.00	0.000	6.705	0.0623	4.4329	2.2969	9.92E-02
336	0.20	0.000	5.302	0.0450	6.3808	3.3063	1.05E-01
337	0.20	0.000	4.527	0.0305	8.6718	4.4934	1.11E-01
338	2.60	0.000	5.119	0.0221	10.4552	5.4175	1.17E-01
339	17.20	0.000	4.798	0.0635	11.6983	6.0616	1.20E-01
340	0.20	0.000	3.715	0.0430	12.5246	6.4897	1.22E-01

341	0.00	0.000	6.556	0.0212	12.7057	6.5836	1.23E-01
342	0.00	0.000	0.494	0.0190	12.8330	6.6495	1.23E-01
343	0.00	0.000	0.000	0.0190	13.0295	6.7513	1.24E-01
344	0.00	0.000	0.000	0.0190	13.0804	6.7777	1.24E-01
345	0.00	0.000	0.000	0.0190	12.9972	6.7346	1.24E-01
346	0.00	0.000	0.000	0.0190	12.8133	6.6393	1.23E-01
347	0.00	0.000	0.000	0.0190	12.5550	6.5055	1.23E-01
348	0.00	0.000	0.000	0.0190	11.9236	6.1783	1.21E-01
349	0.00	0.000	0.000	0.0190	10.3335	5.3544	1.16E-01
350	3.80	0.000	0.567	0.0298	8.9130	4.6184	1.12E-01
351	0.00	0.000	0.672	0.0275	7.6848	3.9819	1.09E-01
352	0.00	0.000	0.693	0.0252	6.6227	3.4316	1.05E-01
353	0.20	0.000	0.811	0.0232	5.7043	2.9557	1.03E-01
354	0.00	0.000	0.672	0.0209	4.9101	2.5442	1.01E-01
355	1.60	0.000	0.777	0.0237	4.2234	2.1884	9.86E-02
356	0.00	0.000	0.377	0.0224	3.6296	1.8807	9.69E-02
357	1.00	0.000	0.610	0.0237	3.1161	1.6146	9.54E-02
358	1.40	0.000	0.478	0.0268	2.6721	1.3846	9.41E-02
359	0.60	0.000	0.582	0.0269	2.2882	1.1856	9.30E-02
360	40.60	0.000	0.764	0.0917	1.9562	1.0136	9.20E-02
361	16.90	0.000	3.625	0.0861	1.6691	0.8648	9.12E-02
362	33.60	0.000	3.716	0.0861	1.9469	1.0088	9.20E-02
363	3.20	0.000	4.695	0.0588	2.0908	1.0834	9.24E-02
364	0.90	0.000	5.745	0.0393	2.5748	1.3341	9.38E-02
365	0.00	0.000	5.712	0.0195	4.4247	2.2927	9.91E-02

* = Frozen (air or soil)

Annual Totals for Year 12			
	mm*	cubic meters	percent
Precipitation	1,626.20	16,262.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	363.989	3,639.9	22.38
Drainage Collected from Layer 2	1,164.4704	11,644.7	71.61
Percolation/Leakage through Layer 3	52.600559	526.0	3.23
Average Head on Top of Layer 3	31.0274 (cm)	---	---
Change in Water Storage	45.1396	451.4	2.78
Soil Water at Start of Year	875.6757	8,756.8	53.85
Soil Water at End of Year	920.8154	9,208.2	56.62
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 13

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			0.00	0.000		0.034	0.0190	7.5058	3.8892	1.08E-01
2			0.00	0.000		0.007	0.0190	8.5049	4.4069	1.11E-01
3			1.40	0.000		0.526	0.0219	9.2157	4.7752	1.13E-01
4			18.40	0.000		4.828	0.0672	9.6971	5.0246	1.14E-01
5			27.40	0.000		6.067	0.1021	10.0091	5.1863	1.15E-01
6	*Note: head c		1.40	0.000		5.234	0.0410	9.6557	5.0032	1.14E-01
7			0.20	0.000		5.140	0.0245	9.1362	4.7340	1.13E-01
8			62.00	0.000		3.501	0.1053	9.4089	4.8753	1.13E-01
9			152.00	0.000		3.009	0.1266	8.8179	4.5691	1.12E-01
10			18.80	0.000		4.912	0.0845	7.8330	4.0587	1.09E-01
11			12.60	0.000		5.070	0.0734	12.2655	6.3555	1.22E-01
12			35.20	0.000		5.581	0.0999	16.6330	8.6185	1.34E-01
13			52.80	0.000		4.310	0.1003	17.8799	9.2647	1.38E-01
14			45.10	0.000		2.779	0.0968	17.1140	8.8678	1.36E-01
15			133.80	0.000		3.334	0.1243	17.8980	9.2740	1.38E-01
16			18.00	0.000		5.797	0.0777	22.4516	11.6335	1.51E-01
17			15.40	0.000		6.244	0.0729	397.8572	23.8762	1.23E+00
18			19.60	0.000		5.967	0.0877	382.2676	23.3781	1.19E+00
19			4.20	0.000		5.504	0.0578	367.2792	22.9024	1.14E+00
20			0.20	0.000		6.476	0.0349	349.9625	22.2846	1.09E+00
21			0.00	0.000		4.706	0.0192	325.9368	21.5282	1.03E+00

22	0.00	0.000	0.040	0.0190	302.5036	20.8254	9.58E-01
23	0.20	0.000	0.210	0.0190	279.8668	20.1565	8.92E-01
24	0.20	0.000	0.202	0.0190	257.9887	19.5212	8.29E-01
25	0.00	0.000	0.001	0.0190	236.8315	18.9196	7.68E-01
26	0.00	0.000	0.000	0.0190	216.3574	18.3525	7.09E-01
27	0.00	0.000	0.000	0.0190	196.5276	17.8086	6.52E-01
28	0.00	0.000	0.000	0.0190	90.2425	16.0378	3.46E-01
29	0.00	0.000	0.000	0.0190	59.5240	15.5958	2.58E-01
30	4.20	0.000	0.555	0.0311	57.0014	15.5914	2.51E-01
31	27.80	0.000	1.044	0.0890	52.8373	15.5842	2.39E-01
32	0.30	0.000	5.184	0.0363	43.5802	15.5682	2.12E-01
33	1.20	0.000	5.476	0.0220	30.3879	15.2810	1.74E-01
34	1.40	0.000	1.391	0.0220	28.4493	14.7413	1.68E-01
35	40.80	0.000	5.065	0.0826	27.3351	14.1639	1.65E-01
36	6.20	0.000	6.946	0.0527	25.6419	13.2866	1.60E-01
37	0.00	0.000	5.607	0.0340	23.1765	12.0091	1.53E-01
38	0.80	0.000	5.045	0.0199	22.5030	11.6601	1.51E-01
39	0.20	0.000	0.328	0.0194	22.0364	11.4183	1.50E-01
40	53.00	0.000	5.640	0.0943	21.4049	11.0912	1.48E-01
41	8.40	0.000	3.796	0.0603	19.8818	10.3019	1.44E-01
42	145.00	0.000	2.932	0.1303	17.9673	9.3099	1.38E-01
43	44.00	0.000	5.250	0.0930	16.2162	8.4026	1.33E-01
44	0.30	0.000	4.673	0.0464	17.1391	8.8808	1.36E-01
45	1.50	0.000	5.821	0.0320	22.6531	11.7379	1.52E-01
46	18.50	0.000	4.290	0.0793	28.4170	14.7245	1.68E-01
47	265.80	0.000	3.139	0.1680	37.0078	15.5569	1.93E-01
48	6.00	0.000	4.713	0.0530	136.8719	17.7348	4.81E-01
49	7.20	0.000	2.989	0.0670	442.7790	25.3292	1.36E+00
50	1.10	0.000	6.283	0.0462	415.4648	24.4429	1.28E+00

51	30.00	0.000	5.956	0.0808	389.6248	23.6130	1.21E+00
52	0.00	0.000	3.887	0.0470	376.4836	23.1941	1.17E+00
53	0.00	0.000	6.989	0.0237	358.9695	22.5896	1.12E+00
54	0.00	0.000	1.412	0.0190	334.4889	21.7870	1.05E+00
55	0.00	0.000	0.000	0.0190	310.7625	21.0720	9.81E-01
56	0.00	0.000	0.000	0.0190	287.8463	20.3910	9.15E-01
57	69.40	0.000	3.256	0.1151	266.1967	19.7580	8.53E-01
58	21.40	0.000	4.633	0.0920	114.4899	16.7918	4.16E-01
59	4.00	0.000	3.919	0.0576	291.4946	20.4984	9.26E-01
60	7.20	0.000	5.350	0.0637	278.2536	20.1092	8.88E-01
61	0.20	0.000	4.634	0.0464	257.0638	19.4946	8.27E-01
62	0.40	0.000	4.073	0.0342	236.2003	18.9019	7.67E-01
63	0.20	0.000	4.281	0.0206	215.7463	18.3358	7.08E-01
64	0.00	0.000	0.468	0.0190	195.9355	17.7932	6.51E-01
65	1.80	0.000	0.854	0.0222	90.0781	16.0343	3.46E-01
66	0.20	0.000	0.954	0.0196	59.4400	15.5956	2.58E-01
67	0.00	0.000	0.146	0.0192	56.8575	15.5912	2.50E-01
68	0.00	0.000	0.037	0.0190	52.6462	15.5839	2.38E-01
69	0.00	0.000	0.009	0.0190	47.1352	15.5744	2.22E-01
70	0.00	0.000	0.002	0.0190	40.5677	15.5630	2.03E-01
71	0.00	0.000	0.001	0.0190	32.2964	15.4216	1.79E-01
72	0.30	0.000	0.142	0.0195	28.0641	14.5417	1.67E-01
73	0.00	0.000	0.087	0.0192	26.2057	13.5787	1.62E-01
74	0.00	0.000	0.051	0.0191	24.4555	12.6718	1.57E-01
75	0.00	0.000	0.016	0.0190	22.8170	11.8228	1.52E-01
76	0.00	0.000	0.004	0.0190	21.2901	11.0317	1.48E-01
77	0.00	0.000	0.001	0.0190	19.8737	10.2977	1.44E-01
78	0.00	0.000	0.000	0.0190	18.0959	9.3765	1.39E-01
79	0.80	0.000	0.104	0.0213	15.6253	8.0964	1.31E-01

80	0.00	0.000	0.302	0.0203	13.4889	6.9894	1.25E-01
81	0.00	0.000	0.328	0.0192	11.6416	6.0322	1.20E-01
82	0.00	0.000	0.058	0.0190	10.0442	5.2045	1.15E-01
83	0.00	0.000	0.007	0.0190	8.6629	4.4887	1.11E-01
84	0.90	0.000	0.096	0.0217	7.4684	3.8698	1.08E-01
85	0.00	0.000	0.255	0.0208	6.4356	3.3347	1.05E-01
86	0.00	0.000	0.356	0.0197	5.5425	2.8719	1.02E-01
87	0.00	0.000	0.148	0.0192	4.7702	2.4717	1.00E-01
88	0.20	0.000	0.124	0.0194	4.1024	2.1257	9.82E-02
89	3.00	0.000	0.281	0.0285	3.5250	1.8265	9.66E-02
90	0.00	0.000	0.227	0.0277	3.0257	1.5678	9.51E-02
91	0.00	0.000	0.354	0.0265	2.5939	1.3440	9.39E-02
92	0.00	0.000	0.360	0.0253	2.2205	1.1506	9.28E-02
93	0.00	0.000	0.392	0.0240	1.8977	0.9833	9.19E-02
94	0.00	0.000	0.344	0.0229	1.6185	0.8386	9.11E-02
95	0.00	0.000	0.401	0.0215	1.3771	0.7136	9.04E-02
96	0.00	0.000	0.393	0.0202	1.1684	0.6054	8.98E-02
97	0.00	0.000	0.317	0.0192	0.9879	0.5119	8.92E-02
98	0.00	0.000	0.044	0.0190	0.8318	0.4310	8.88E-02
99	0.00	0.000	0.009	0.0190	0.6968	0.3611	8.84E-02
100	0.00	0.000	0.000	0.0190	0.5801	0.3006	8.81E-02
101	0.00	0.000	0.000	0.0190	0.4792	0.2483	8.78E-02
102	0.00	0.000	0.000	0.0190	0.3919	0.2031	8.75E-02
103	0.00	0.000	0.000	0.0190	0.3165	0.1640	8.73E-02
104	0.00	0.000	0.000	0.0190	0.2512	0.1302	8.71E-02
105	0.00	0.000	0.000	0.0190	0.1948	0.1009	8.70E-02
106	0.00	0.000	0.000	0.0190	0.1460	0.0757	8.68E-02
107	0.00	0.000	0.000	0.0190	0.1038	0.0538	8.67E-02
108	0.90	0.000	0.080	0.0217	0.0673	0.0349	8.66E-02

109	0.00	0.000	0.165	0.0212	0.0358	0.0186	8.65E-02
110	0.00	0.000	0.230	0.0204	0.0087	0.0044	6.18E-02
111	0.00	0.000	0.260	0.0196	0.0000	0.0000	0.00E+00
112	0.00	0.000	0.111	0.0192	0.0000	0.0000	0.00E+00
113	0.00	0.000	0.041	0.0190	0.0000	0.0000	0.00E+00
114	0.00	0.000	0.010	0.0190	0.0000	0.0000	0.00E+00
115	0.00	0.000	0.003	0.0190	0.0000	0.0000	0.00E+00
116	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
117	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
118	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
119	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
120	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
121	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
122	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
123	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
124	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
125	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
126	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
127	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
128	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
129	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
130	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
131	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
132	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
133	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
134	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
135	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
136	0.60	0.000	0.074	0.0208	0.0000	0.0000	0.00E+00
137	0.00	0.000	0.128	0.0203	0.0000	0.0000	0.00E+00

138	0.00	0.000	0.160	0.0198	0.0000	0.0000	0.00E+00
139	0.00	0.000	0.168	0.0192	0.0000	0.0000	0.00E+00
140	0.00	0.000	0.048	0.0191	0.0000	0.0000	0.00E+00
141	0.00	0.000	0.017	0.0190	0.0000	0.0000	0.00E+00
142	0.00	0.000	0.005	0.0190	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
147	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
148	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
149	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
150	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
151	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
152	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
153	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
157	0.20	0.000	0.070	0.0194	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.023	0.0194	0.0000	0.0000	0.00E+00
159	0.00	0.000	0.049	0.0192	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.044	0.0190	0.0000	0.0000	0.00E+00
161	0.50	0.000	0.085	0.0204	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.111	0.0201	0.0000	0.0000	3.50E-08
163	0.80	0.000	0.222	0.0220	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.125	0.0216	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.171	0.0210	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.174	0.0204	0.0000	0.0000	0.00E+00

167	0.00	0.000	0.172	0.0198	0.0000	0.0000	0.00E+00
168	0.00	0.000	0.158	0.0193	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.076	0.0191	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.017	0.0190	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
197	2.40	0.000	0.144	0.0265	0.0000	0.0000	0.00E+00
198	14.40	0.000	0.201	0.0738	0.0000	0.0000	0.00E+00
199	0.60	0.000	0.266	0.0563	0.0493	0.0256	4.33E-02
200	0.00	0.000	0.221	0.0545	0.2283	0.1183	8.71E-02
201	0.00	0.000	0.221	0.0531	1.0994	0.5696	8.96E-02
202	0.20	0.000	0.270	0.0519	1.3587	0.7040	9.03E-02
203	5.00	0.000	0.270	0.0669	1.2419	0.6435	9.00E-02
204	3.90	0.000	0.269	0.0608	1.0997	0.5698	8.96E-02
205	26.50	0.000	0.269	0.0898	1.2739	0.6601	9.01E-02
206	34.40	0.000	0.268	0.0897	1.1372	0.5892	8.97E-02
207	0.00	0.000	5.458	0.0468	1.1102	0.5753	8.96E-02
208	0.00	0.000	5.157	0.0296	2.0108	1.0419	9.22E-02
209	0.00	0.000	3.185	0.0190	3.9877	2.0663	9.79E-02
210	0.00	0.000	0.000	0.0190	5.6533	2.9293	1.03E-01
211	0.00	0.000	0.000	0.0190	6.9141	3.5826	1.06E-01
212	0.00	0.000	0.000	0.0190	7.8498	4.0674	1.09E-01
213	0.00	0.000	0.000	0.0190	8.5243	4.4170	1.11E-01
214	0.00	0.000	0.000	0.0190	8.9897	4.6581	1.12E-01
215	0.00	0.000	0.000	0.0190	9.2879	4.8126	1.13E-01
216	0.00	0.000	0.000	0.0190	9.4271	4.8847	1.14E-01
217	0.00	0.000	0.000	0.0190	8.4479	4.3773	1.11E-01
218	0.00	0.000	0.000	0.0190	7.2825	3.7735	1.07E-01
219	0.00	0.000	0.000	0.0190	6.2748	3.2514	1.04E-01
220	0.00	0.000	0.000	0.0190	5.4035	2.7999	1.02E-01
221	0.00	0.000	0.000	0.0190	4.6500	2.4095	9.98E-02
222	0.00	0.000	0.000	0.0190	3.9985	2.0719	9.79E-02
223	0.00	0.000	0.000	0.0190	3.4351	1.7799	9.63E-02
224	0.00	0.000	0.000	0.0190	2.9479	1.5275	9.49E-02

225	0.00	0.000	0.000	0.0190	2.5267	1.3092	9.37E-02
226	0.00	0.000	0.000	0.0190	2.1624	1.1205	9.26E-02
227	0.00	0.000	0.000	0.0190	1.8474	0.9573	9.17E-02
228	0.00	0.000	0.000	0.0190	1.5751	0.8161	9.09E-02
229	0.00	0.000	0.000	0.0190	1.3395	0.6941	9.03E-02
230	0.00	0.000	0.000	0.0190	1.1359	0.5886	8.97E-02
231	0.00	0.000	0.000	0.0190	0.9598	0.4973	8.92E-02
232	0.00	0.000	0.000	0.0190	0.8075	0.4184	8.87E-02
233	0.00	0.000	0.000	0.0190	0.6758	0.3502	8.83E-02
234	0.00	0.000	0.000	0.0190	0.5620	0.2912	8.80E-02
235	0.00	0.000	0.000	0.0190	0.4635	0.2402	8.77E-02
236	0.00	0.000	0.000	0.0190	0.3784	0.1960	8.75E-02
237	0.00	0.000	0.000	0.0190	0.3047	0.1579	8.73E-02
238	0.00	0.000	0.000	0.0190	0.2411	0.1249	8.71E-02
239	0.00	0.000	0.000	0.0190	0.1860	0.0964	8.69E-02
240	0.00	0.000	0.000	0.0190	0.1384	0.0717	8.68E-02
241	0.00	0.000	0.000	0.0190	0.0973	0.0504	8.67E-02
242	0.00	0.000	0.000	0.0190	0.0617	0.0320	8.66E-02
243	0.00	0.000	0.000	0.0190	0.0309	0.0160	8.65E-02
244	0.00	0.000	0.000	0.0190	0.0055	0.0027	4.71E-02
245	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
248	0.50	0.000	0.088	0.0204	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.176	0.0198	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.198	0.0191	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.028	0.0190	0.0000	0.0000	0.00E+00
252	2.00	0.000	0.229	0.0249	0.0000	0.0000	0.00E+00
253	3.60	0.000	0.222	0.0362	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.326	0.0351	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.357	0.0339	0.0000	0.0000	0.00E+00
256	2.20	0.000	0.405	0.0399	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.348	0.0387	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.358	0.0376	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.345	0.0364	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.337	0.0353	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.354	0.0341	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.351	0.0329	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.342	0.0318	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.344	0.0306	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.340	0.0295	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.337	0.0284	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.334	0.0273	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.331	0.0262	0.0000	0.0000	0.00E+00
269	5.80	0.000	0.389	0.0442	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.325	0.0431	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.333	0.0420	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.330	0.0409	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.322	0.0398	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.315	0.0388	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.320	0.0377	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.320	0.0366	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.317	0.0356	0.0000	0.0000	0.00E+00
278	0.40	0.000	0.381	0.0357	0.0000	0.0000	0.00E+00
279	0.20	0.000	0.376	0.0351	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.310	0.0340	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.308	0.0330	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.306	0.0320	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.266	0.0311	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.301	0.0301	0.0000	0.0000	0.00E+00
285	0.40	0.000	0.370	0.0302	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.297	0.0292	0.0000	0.0000	0.00E+00
287	10.40	0.000	0.367	0.0626	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.293	0.0556	0.1035	0.0536	4.35E-02
289	0.00	0.000	0.291	0.0523	0.4935	0.2557	8.78E-02
290	0.00	0.000	0.289	0.0503	0.5810	0.3011	8.81E-02
291	0.00	0.000	0.288	0.0494	0.5088	0.2636	8.79E-02
292	0.00	0.000	0.286	0.0484	0.4175	0.2163	8.76E-02
293	0.40	0.000	0.358	0.0486	0.3386	0.1754	8.74E-02
294	0.00	0.000	0.282	0.0474	0.2806	0.1454	8.72E-02
295	0.00	0.000	0.281	0.0464	0.2298	0.1191	8.71E-02
296	0.00	0.000	0.279	0.0455	0.1762	0.0913	8.69E-02
297	0.00	0.000	0.277	0.0446	0.1300	0.0673	8.68E-02
298	0.00	0.000	0.276	0.0437	0.0900	0.0466	8.67E-02
299	0.00	0.000	0.274	0.0427	0.0554	0.0287	8.66E-02
300	0.00	0.000	0.272	0.0418	0.0254	0.0132	8.65E-02
301	0.00	0.000	0.271	0.0409	0.0028	0.0013	3.04E-02
302	0.00	0.000	0.269	0.0400	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.268	0.0391	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.266	0.0382	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.265	0.0374	0.0000	0.0000	0.00E+00
306	1.00	0.000	0.342	0.0396	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.262	0.0382	0.0085	0.0044	4.32E-02
308	0.00	0.000	0.261	0.0374	0.0143	0.0072	8.11E-02
309	0.00	0.000	0.259	0.0365	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.258	0.0356	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.257	0.0348	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.252	0.0339	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.253	0.0331	0.0000	0.0000	0.00E+00
314	10.60	0.000	0.335	0.0673	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.252	0.0564	0.0000	0.0000	0.00E+00
316	3.40	0.000	0.333	0.0640	0.4820	0.2497	8.78E-02
317	0.00	0.000	0.249	0.0597	0.9486	0.4916	8.91E-02
318	0.00	0.000	0.248	0.0564	1.0919	0.5658	8.95E-02
319	0.00	0.000	0.247	0.0541	1.0883	0.5639	8.95E-02
320	0.00	0.000	0.246	0.0527	1.0163	0.5266	8.93E-02
321	0.00	0.000	0.245	0.0519	0.8668	0.4491	8.89E-02
322	0.00	0.000	0.244	0.0511	0.7271	0.3768	8.85E-02
323	0.00	0.000	0.242	0.0502	0.6063	0.3142	8.81E-02
324	6.40	0.000	0.328	0.0659	0.5107	0.2646	8.79E-02
325	1.40	0.000	0.327	0.0605	0.6815	0.3531	8.84E-02
326	0.00	0.000	0.239	0.0563	1.2834	0.6650	9.01E-02
327	0.00	0.000	0.238	0.0537	1.4832	0.7685	9.07E-02
328	3.20	0.000	0.325	0.0633	1.3395	0.6941	9.03E-02
329	0.30	0.000	0.322	0.0565	1.1842	0.6136	8.98E-02
330	0.00	0.000	0.235	0.0516	1.6324	0.8458	9.11E-02
331	0.00	0.000	0.234	0.0495	1.5919	0.8249	9.10E-02
332	0.20	0.000	0.313	0.0487	1.4203	0.7359	9.05E-02
333	65.80	0.000	0.322	0.1098	1.3521	0.7006	9.03E-02
334	1.60	0.000	4.944	0.0474	1.2478	0.6465	9.00E-02
335	0.40	0.000	5.020	0.0312	2.1892	1.1343	9.27E-02
336	0.00	0.000	3.630	0.0191	4.1963	2.1744	9.85E-02
337	0.00	0.000	0.030	0.0190	5.8151	3.0131	1.03E-01
338	0.00	0.000	0.007	0.0190	7.0380	3.6468	1.07E-01
339	0.00	0.000	0.002	0.0190	7.9431	4.1158	1.09E-01
340	0.00	0.000	0.001	0.0190	8.5929	4.4525	1.11E-01

341	0.20	0.000	0.200	0.0190	9.0383	4.6833	1.12E-01
342	0.00	0.000	0.000	0.0190	9.3205	4.8295	1.13E-01
343	53.40	0.000	1.457	0.0976	9.4328	4.8877	1.14E-01
344	0.20	0.000	4.602	0.0256	8.5016	4.4052	1.11E-01
345	0.00	0.000	1.623	0.0201	7.9957	4.1430	1.09E-01
346	0.00	0.000	0.343	0.0190	8.8897	4.6063	1.12E-01
347	0.00	0.000	0.000	0.0190	9.5898	4.9690	1.14E-01
348	0.00	0.000	0.000	0.0190	10.0567	5.2109	1.15E-01
349	5.00	0.000	2.223	0.0283	10.3391	5.3573	1.16E-01
350	1.60	0.000	1.293	0.0293	10.4764	5.4285	1.17E-01
351	0.00	0.000	1.150	0.0254	10.5227	5.4525	1.17E-01
352	0.00	0.000	0.805	0.0228	9.6536	5.0021	1.14E-01
353	0.00	0.000	0.886	0.0198	8.3251	4.3137	1.10E-01
354	0.00	0.000	0.209	0.0191	7.1764	3.7185	1.07E-01
355	0.00	0.000	0.025	0.0190	6.1832	3.2039	1.04E-01
356	0.00	0.000	0.008	0.0190	5.3242	2.7588	1.02E-01
357	2.50	0.000	0.461	0.0258	4.5815	2.3739	9.96E-02
358	7.10	0.000	0.651	0.0473	3.9392	2.0411	9.77E-02
359	0.00	0.000	0.717	0.0449	3.3838	1.7534	9.61E-02
360	0.00	0.000	0.728	0.0425	2.9036	1.5045	9.48E-02
361	0.00	0.000	0.698	0.0402	2.4884	1.2894	9.36E-02
362	0.00	0.000	0.672	0.0379	2.1293	1.1033	9.25E-02
363	1.60	0.000	0.765	0.0407	1.8188	0.9424	9.16E-02
364	8.00	0.000	0.746	0.0649	1.5503	0.8033	9.09E-02
365	31.00	0.000	5.361	0.0947	1.3211	0.6845	9.02E-02

* = Frozen (air or soil)

Annual Totals for Year 13			
	mm*	cubic meters	percent
Precipitation	1,713.80	17,138.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	315.323	3,153.2	18.40
Drainage Collected from Layer 2	1,376.0891	13,760.9	80.29
Percolation/Leakage through Layer 3	47.965655	479.7	2.80
Average Head on Top of Layer 3	27.6261 (cm)	---	---
Change in Water Storage	-25.5779	-255.8	-1.49
Soil Water at Start of Year	920.8154	9,208.2	53.73
Soil Water at End of Year	895.2375	8,952.4	52.24
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 14

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone			
	Air	Soil				Water (cm/cm)	Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
1	*Note: head c		0.00	0.000	5.381	0.0486	1.1209	0.5808	8.96E-02
2		2.40	0.000	5.706	0.0366	1.2863	0.6665	9.01E-02	
3		0.40	0.000	3.208	0.0273	2.5406	1.3164	9.37E-02	
4		36.40	0.000	5.135	0.0871	3.8080	1.9731	9.74E-02	
5		10.40	0.000	5.283	0.0646	4.2951	2.2255	9.88E-02	
6		1.00	0.000	3.706	0.0540	3.9837	2.0642	9.79E-02	
7		5.20	0.000	4.023	0.0565	4.7979	2.4861	1.00E-01	
8		0.00	0.000	3.213	0.0458	5.8192	3.0153	1.03E-01	
9		3.00	0.000	3.077	0.0455	6.6919	3.4675	1.06E-01	
10		0.80	0.000	2.852	0.0387	7.3389	3.8027	1.08E-01	
11		0.00	0.000	3.078	0.0284	7.8133	4.0485	1.09E-01	
12		9.60	0.000	3.288	0.0495	7.5491	3.9116	1.08E-01	
13		201.40	0.000	3.450	0.1501	6.6145	3.4274	1.05E-01	
14		23.00	0.000	3.074	0.0930	5.7310	2.9696	1.03E-01	
15		53.40	0.000	4.347	0.0953	8.9091	4.6164	1.12E-01	
16		10.00	0.000	4.168	0.0621	9.0231	4.6754	1.12E-01	
17		5.40	0.000	3.209	0.0629	14.6556	7.5939	1.29E-01	
18		4.80	0.000	3.041	0.0652	21.5971	11.1907	1.49E-01	
19		0.20	0.000	2.960	0.0528	26.0489	13.4975	1.61E-01	
20		6.00	0.000	5.559	0.0520	28.3005	14.6642	1.68E-01	
21		1.20	0.000	5.635	0.0372	29.3969	15.2323	1.71E-01	

22	1.20	0.000	5.166	0.0239	29.6742	15.3760	1.72E-01
23	5.20	0.000	3.254	0.0304	29.3551	15.2106	1.71E-01
24	22.80	0.000	4.928	0.0900	28.6405	14.8403	1.69E-01
25	44.60	0.000	5.002	0.0944	27.5814	14.2915	1.66E-01
26	53.40	0.000	5.719	0.0957	24.4797	12.6844	1.57E-01
27	28.40	0.000	5.451	0.0953	21.1553	10.9618	1.47E-01
28	1.40	0.000	5.317	0.0427	19.1346	9.9148	1.42E-01
29	22.40	0.000	5.791	0.0946	20.6178	10.6833	1.46E-01
30	72.30	0.000	6.225	0.1007	23.2531	12.0488	1.53E-01
31	42.00	0.000	6.527	0.0984	21.0525	10.9085	1.47E-01
32	64.20	0.000	6.232	0.0963	20.1804	10.4566	1.45E-01
33	107.80	0.000	3.345	0.1146	18.6886	9.6837	1.40E-01
34	138.00	0.000	3.467	0.1251	18.5731	9.6238	1.40E-01
35	171.60	0.000	5.134	0.1368	316.0887	22.4076	9.97E-01
36	11.00	0.000	5.059	0.0651	661.5485	32.6953	1.99E+00
37	10.40	0.000	5.047	0.0670	643.3103	32.0653	1.94E+00
38	97.00	0.000	6.213	0.1118	627.9725	31.5381	1.89E+00
39	138.00	0.000	6.081	0.1250	691.4691	33.7917	2.08E+00
40	56.00	0.000	6.970	0.0932	766.8475	36.6182	2.29E+00
41	5.80	0.000	7.131	0.0590	772.6367	36.8266	2.31E+00
42	0.00	0.000	6.672	0.0361	742.2027	35.7319	2.22E+00
43	36.40	0.000	6.324	0.0823	703.1107	34.1409	2.11E+00
44	35.40	0.000	6.577	0.0882	683.5852	33.4597	2.06E+00
45	9.00	0.000	5.164	0.0613	673.1150	33.0960	2.02E+00
46	1.00	0.000	4.732	0.0483	648.5157	32.2449	1.95E+00
47	5.60	0.000	6.277	0.0460	614.1897	31.0651	1.86E+00
48	49.90	0.000	6.683	0.1089	580.7809	29.9260	1.76E+00
49	0.00	0.000	6.169	0.0445	578.8343	29.8597	1.75E+00
50	0.00	0.000	5.383	0.0265	553.2858	28.9959	1.68E+00

51	0.00	0.000	1.858	0.0190	521.7748	27.9382	1.59E+00
52	0.00	0.000	0.000	0.0190	491.2386	26.9221	1.50E+00
53	41.40	0.000	6.115	0.0831	461.7408	25.9495	1.42E+00
54	57.60	0.000	6.452	0.0888	454.3005	25.7056	1.39E+00
55	25.00	0.000	6.788	0.0954	472.5228	26.3037	1.45E+00
56	4.60	0.000	6.190	0.0520	464.0399	26.0247	1.42E+00
57	18.30	0.000	4.833	0.0854	444.7121	25.3922	1.37E+00
58	0.00	0.000	5.354	0.0432	420.8761	24.6176	1.30E+00
59	0.00	0.000	6.324	0.0221	400.7987	23.9708	1.24E+00
60	0.00	0.000	0.934	0.0190	374.9156	23.1446	1.17E+00
61	0.00	0.000	0.000	0.0190	349.6914	22.2764	1.09E+00
62	0.00	0.000	0.000	0.0190	325.4341	21.5130	1.02E+00
63	0.00	0.000	0.000	0.0190	302.0180	20.8109	9.56E-01
64	0.00	0.000	0.000	0.0190	279.3977	20.1427	8.91E-01
65	0.00	0.000	0.000	0.0190	257.5352	19.5081	8.28E-01
66	0.60	0.000	0.173	0.0204	236.3928	18.9073	7.67E-01
67	2.80	0.000	0.608	0.0277	215.9326	18.3409	7.08E-01
68	3.80	0.000	0.547	0.0386	196.1160	17.7979	6.51E-01
69	0.00	0.000	0.894	0.0356	90.1283	16.0354	3.46E-01
70	1.40	0.000	0.950	0.0371	59.4656	15.5957	2.58E-01
71	28.20	0.000	0.887	0.0830	56.8257	15.5911	2.50E-01
72	0.00	0.000	6.587	0.0364	49.0459	15.5777	2.28E-01
73	18.80	0.000	6.680	0.0768	42.0610	15.5656	2.08E-01
74	0.00	0.000	6.093	0.0469	37.2409	15.5573	1.94E-01
75	0.00	0.000	5.412	0.0287	29.2409	15.1514	1.71E-01
76	0.20	0.000	3.097	0.0190	27.9865	14.5014	1.67E-01
77	0.00	0.000	0.000	0.0190	26.6698	13.8192	1.63E-01
78	0.00	0.000	0.000	0.0190	25.3125	13.1159	1.59E-01
79	0.00	0.000	0.000	0.0190	23.9528	12.4113	1.55E-01

80	0.00	0.000	0.000	0.0190	22.6171	11.7193	1.52E-01
81	0.00	0.000	0.000	0.0190	21.3233	11.0489	1.48E-01
82	0.00	0.000	0.000	0.0190	20.0831	10.4062	1.44E-01
83	0.00	0.000	0.000	0.0190	18.9035	9.7950	1.41E-01
84	0.00	0.000	0.000	0.0190	17.8160	9.2315	1.38E-01
85	0.00	0.000	0.000	0.0190	15.9747	8.2774	1.32E-01
86	0.00	0.000	0.000	0.0190	13.7910	7.1459	1.26E-01
87	0.00	0.000	0.000	0.0190	11.9028	6.1676	1.21E-01
88	0.00	0.000	0.000	0.0190	10.2701	5.3215	1.16E-01
89	0.00	0.000	0.000	0.0190	8.8582	4.5900	1.12E-01
90	0.00	0.000	0.000	0.0190	7.6374	3.9574	1.08E-01
91	0.00	0.000	0.000	0.0190	6.5817	3.4104	1.05E-01
92	0.00	0.000	0.000	0.0190	5.6688	2.9373	1.03E-01
93	0.00	0.000	0.000	0.0190	4.8794	2.5283	1.00E-01
94	0.00	0.000	0.000	0.0190	4.1969	2.1747	9.85E-02
95	0.00	0.000	0.000	0.0190	3.6067	1.8688	9.68E-02
96	0.00	0.000	0.000	0.0190	3.0963	1.6044	9.53E-02
97	0.00	0.000	0.000	0.0190	2.6550	1.3757	9.40E-02
98	0.00	0.000	0.000	0.0190	2.2733	1.1779	9.29E-02
99	0.00	0.000	0.000	0.0190	1.9433	1.0070	9.20E-02
100	0.20	0.000	0.086	0.0194	1.6580	0.8591	9.12E-02
101	3.20	0.000	0.260	0.0292	1.4113	0.7313	9.05E-02
102	8.40	0.000	0.387	0.0559	1.1979	0.6207	8.98E-02
103	6.00	0.000	0.529	0.0654	1.0714	0.5552	8.95E-02
104	3.80	0.000	0.536	0.0607	1.1514	0.5966	8.97E-02
105	57.80	0.000	0.527	0.1053	1.4254	0.7386	9.05E-02
106	1.20	0.000	4.675	0.0454	1.2952	0.6711	9.01E-02
107	1.20	0.000	4.771	0.0335	1.9705	1.0210	9.21E-02
108	0.00	0.000	4.098	0.0198	4.0648	2.1062	9.81E-02

109	0.00	0.000	0.190	0.0192	5.7293	2.9687	1.03E-01
110	0.00	0.000	0.047	0.0191	6.9878	3.6208	1.07E-01
111	0.00	0.000	0.012	0.0190	7.9204	4.1040	1.09E-01
112	0.00	0.000	0.003	0.0190	8.5914	4.4517	1.11E-01
113	0.00	0.000	0.001	0.0190	9.0530	4.6909	1.12E-01
114	0.00	0.000	0.000	0.0190	9.3474	4.8434	1.13E-01
115	0.00	0.000	0.000	0.0190	9.4925	4.9186	1.14E-01
116	0.00	0.000	0.000	0.0190	8.5617	4.4363	1.11E-01
117	0.00	0.000	0.000	0.0190	7.3809	3.8245	1.08E-01
118	0.00	0.000	0.000	0.0190	6.3599	3.2955	1.05E-01
119	0.00	0.000	0.000	0.0190	5.4771	2.8380	1.02E-01
120	0.00	0.000	0.000	0.0190	4.7137	2.4424	1.00E-01
121	0.00	0.000	0.000	0.0190	4.0535	2.1004	9.81E-02
122	0.00	0.000	0.000	0.0190	3.4827	1.8046	9.64E-02
123	0.00	0.000	0.000	0.0190	2.9891	1.5488	9.50E-02
124	0.00	0.000	0.000	0.0190	2.5623	1.3277	9.38E-02
125	0.00	0.000	0.000	0.0190	2.1932	1.1364	9.27E-02
126	0.60	0.000	0.103	0.0207	1.8740	0.9710	9.18E-02
127	0.00	0.000	0.290	0.0197	1.5981	0.8281	9.10E-02
128	10.80	0.000	0.492	0.0541	1.3594	0.7044	9.03E-02
129	3.00	0.000	0.633	0.0619	1.1531	0.5975	8.97E-02
130	0.10	0.000	0.666	0.0579	1.0336	0.5356	8.94E-02
131	0.00	0.000	0.609	0.0531	1.0850	0.5622	8.95E-02
132	6.50	0.000	0.636	0.0656	1.0727	0.5558	8.95E-02
133	0.00	0.000	0.577	0.0590	1.0977	0.5688	8.96E-02
134	0.00	0.000	0.563	0.0537	1.6350	0.8472	9.11E-02
135	0.00	0.000	0.550	0.0507	1.6625	0.8614	9.12E-02
136	0.00	0.000	0.537	0.0489	1.4664	0.7598	9.06E-02
137	0.00	0.000	0.526	0.0472	1.2456	0.6454	9.00E-02

138	0.00	0.000	0.515	0.0455	1.0547	0.5465	8.94E-02
139	0.00	0.000	0.505	0.0438	0.8895	0.4609	8.90E-02
140	0.00	0.000	0.495	0.0421	0.7468	0.3869	8.85E-02
141	0.00	0.000	0.486	0.0405	0.6233	0.3230	8.82E-02
142	0.00	0.000	0.477	0.0389	0.5165	0.2677	8.79E-02
143	0.00	0.000	0.469	0.0374	0.4242	0.2198	8.76E-02
144	0.00	0.000	0.461	0.0358	0.3444	0.1785	8.74E-02
145	0.00	0.000	0.454	0.0343	0.2754	0.1427	8.72E-02
146	0.60	0.000	0.495	0.0347	0.2157	0.1118	8.70E-02
147	0.00	0.000	0.440	0.0332	0.1641	0.0850	8.69E-02
148	0.00	0.000	0.407	0.0318	0.1194	0.0619	8.67E-02
149	0.00	0.000	0.410	0.0305	0.0808	0.0419	8.66E-02
150	0.00	0.000	0.416	0.0291	0.0475	0.0246	8.65E-02
151	0.00	0.000	0.415	0.0277	0.0186	0.0096	8.65E-02
152	0.40	0.000	0.460	0.0275	0.0006	0.0001	8.86E-03
153	0.20	0.000	0.455	0.0266	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.400	0.0253	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.387	0.0240	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.381	0.0227	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.380	0.0215	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.381	0.0199	0.0000	0.0000	0.00E+00
159	0.00	0.000	0.270	0.0190	0.0157	0.0081	8.58E-02
160	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

167	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
168	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
202	0.20	0.000	0.074	0.0194	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.023	0.0193	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.048	0.0192	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.043	0.0190	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.010	0.0190	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.000	0.0190	0.0000	0.0000	1.85E-08
209	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
245	2.40	0.000	0.146	0.0265	0.0000	0.0000	0.00E+00
246	0.80	0.000	0.146	0.0287	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.148	0.0282	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.148	0.0277	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.180	0.0271	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.179	0.0265	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.179	0.0259	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.178	0.0253	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.177	0.0247	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.177	0.0241	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.176	0.0236	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.173	0.0230	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.175	0.0224	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.174	0.0218	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.193	0.0212	0.0000	0.0000	0.00E+00
260	0.80	0.000	0.253	0.0230	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.191	0.0224	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.196	0.0217	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.192	0.0211	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.189	0.0204	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.189	0.0198	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.187	0.0192	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.047	0.0190	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.008	0.0190	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
284	3.00	0.000	0.148	0.0285	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.081	0.0282	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.130	0.0278	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.137	0.0273	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.159	0.0268	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.158	0.0263	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.158	0.0258	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.157	0.0252	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.157	0.0247	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.156	0.0242	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.156	0.0237	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.135	0.0232	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.155	0.0227	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.155	0.0222	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.154	0.0217	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.171	0.0211	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.170	0.0205	0.0000	0.0000	0.00E+00
301	1.00	0.000	0.244	0.0231	0.0000	0.0000	0.00E+00
302	0.40	0.000	0.244	0.0236	0.0000	0.0000	0.00E+00
303	0.50	0.000	0.248	0.0244	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.180	0.0238	0.0000	0.0000	0.00E+00
305	2.20	0.000	0.247	0.0303	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.165	0.0298	0.0000	0.0000	4.49E-04
307	0.00	0.000	0.132	0.0293	0.0000	0.0000	4.64E-04
308	0.00	0.000	0.151	0.0288	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.150	0.0283	0.0000	0.0000	0.00E+00
310	1.40	0.000	0.229	0.0322	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.156	0.0317	0.0000	0.0000	0.00E+00

312	2.60	0.000	0.244	0.0396	0.0000	0.0000	0.00E+00
313	1.40	0.000	0.238	0.0434	0.0000	0.0000	0.00E+00
314	1.80	0.000	0.247	0.0486	0.0000	0.0000	0.00E+00
315	0.10	0.000	0.222	0.0482	0.0000	0.0000	0.00E+00
316	10.60	0.000	0.257	0.0758	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.179	0.0568	0.0287	0.0149	8.65E-02
318	0.00	0.000	0.178	0.0535	0.4579	0.2373	8.77E-02
319	0.00	0.000	0.178	0.0524	1.4816	0.7677	9.07E-02
320	0.00	0.000	0.177	0.0518	1.8810	0.9747	9.18E-02
321	0.00	0.000	0.177	0.0512	1.6041	0.8312	9.10E-02
322	0.00	0.000	0.176	0.0506	1.3646	0.7071	9.03E-02
323	0.00	0.000	0.176	0.0500	1.1576	0.5998	8.97E-02
324	0.00	0.000	0.176	0.0494	0.9785	0.5070	8.92E-02
325	0.00	0.000	0.175	0.0488	0.8237	0.4268	8.88E-02
326	3.00	0.000	0.265	0.0577	0.7083	0.3670	8.84E-02
327	0.00	0.000	0.174	0.0543	0.6084	0.3153	8.82E-02
328	0.30	0.000	0.262	0.0510	0.8534	0.4422	8.89E-02
329	2.50	0.000	0.266	0.0578	0.8691	0.4503	8.89E-02
330	0.00	0.000	0.173	0.0573	0.7434	0.3852	8.85E-02
331	0.00	0.000	0.173	0.0552	0.6421	0.3327	8.82E-02
332	0.00	0.000	0.172	0.0522	0.7022	0.3639	8.84E-02
333	0.00	0.000	0.172	0.0499	0.7498	0.3885	8.86E-02
334	1.00	0.000	0.267	0.0524	0.7048	0.3652	8.84E-02
335	0.00	0.000	0.171	0.0515	0.5946	0.3081	8.81E-02
336	0.00	0.000	0.171	0.0509	0.5130	0.2658	8.79E-02
337	0.00	0.000	0.170	0.0503	0.4212	0.2182	8.76E-02
338	0.00	0.000	0.170	0.0497	0.3417	0.1771	8.74E-02
339	0.00	0.000	0.170	0.0492	0.2731	0.1415	8.72E-02
340	0.00	0.000	0.169	0.0486	0.2137	0.1107	8.70E-02

341	0.00	0.000	0.169	0.0481	0.1624	0.0841	8.69E-02
342	0.00	0.000	0.169	0.0475	0.1180	0.0611	8.67E-02
343	0.00	0.000	0.168	0.0469	0.0796	0.0412	8.66E-02
344	0.00	0.000	0.168	0.0464	0.0464	0.0240	8.65E-02
345	0.00	0.000	0.167	0.0458	0.0177	0.0092	8.64E-02
346	0.00	0.000	0.167	0.0453	0.0004	0.0001	5.74E-03
347	0.00	0.000	0.167	0.0447	0.0000	0.0000	0.00E+00
348	0.00	0.000	0.166	0.0441	0.0000	0.0000	0.00E+00
349	4.80	0.000	0.267	0.0593	0.0000	0.0000	0.00E+00
350	0.20	0.000	0.253	0.0566	0.0000	0.0000	0.00E+00
351	0.40	0.000	0.264	0.0551	0.2470	0.1280	8.71E-02
352	0.00	0.000	0.165	0.0541	0.3106	0.1609	8.73E-02
353	0.00	0.000	0.165	0.0535	0.2551	0.1322	8.71E-02
354	0.00	0.000	0.164	0.0530	0.1982	0.1027	8.70E-02
355	0.60	0.000	0.266	0.0535	0.1667	0.0864	8.69E-02
356	0.40	0.000	0.265	0.0528	0.1879	0.0973	8.69E-02
357	0.00	0.000	0.163	0.0512	0.2195	0.1137	8.70E-02
358	0.00	0.000	0.163	0.0498	0.2461	0.1275	8.71E-02
359	0.00	0.000	0.163	0.0484	0.2576	0.1335	8.71E-02
360	18.40	0.000	0.268	0.0939	0.2574	0.1333	8.71E-02
361	1.80	0.000	0.268	0.0593	0.2330	0.1207	8.71E-02
362	4.00	0.000	0.268	0.0583	0.4170	0.2161	8.76E-02
363	0.20	0.000	5.728	0.0386	1.0466	0.5423	8.94E-02
364	1.00	0.000	0.268	0.0400	2.0570	1.0658	9.23E-02
365	228.80	0.000	0.269	0.1573	3.1047	1.6087	9.53E-02

* = Frozen (air or soil)

Annual Totals for Year 14			
	mm*	cubic meters	percent
Precipitation	2,208.70	22,087.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	379.410	3,794.1	17.18
Drainage Collected from Layer 2	1,550.7520	15,507.5	70.21
Percolation/Leakage through Layer 3	69.591503	695.9	3.15
Average Head on Top of Layer 3	50.0793 (cm)	---	---
Change in Water Storage	208.9469	2,089.5	9.46
Soil Water at Start of Year	895.2375	8,952.4	40.53
Soil Water at End of Year	1,104.1844	11,041.8	49.99
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 15

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			7.00	0.000	4.601	0.0548		2.9039	1.5047	9.48E-02
2			6.20	0.000	4.642	0.0600		9.2380	4.7868	1.13E-01
3			9.80	0.000	4.704	0.0647		16.6692	8.6373	1.34E-01
4			1.20	0.000	5.433	0.0464		20.4869	10.6155	1.45E-01
5			1.20	0.000	5.516	0.0317		22.9414	11.8873	1.52E-01
6	*Note: head c		0.00	0.000	3.653	0.0195		24.5549	12.7233	1.57E-01
7			1.80	0.000	1.033	0.0221		25.3068	13.1130	1.59E-01
8			28.20	0.000	4.778	0.1001		25.4391	13.1815	1.60E-01
9			12.60	0.000	3.998	0.0735		24.9998	12.9539	1.58E-01
10			4.40	0.000	5.519	0.0558		23.2390	12.0415	1.53E-01
11			0.60	0.000	5.301	0.0387		21.4693	11.1245	1.48E-01
12			0.00	0.000	5.098	0.0193		21.4807	11.1304	1.48E-01
13			0.00	0.000	0.066	0.0191		21.2507	11.0113	1.48E-01
14			0.00	0.000	0.020	0.0190		20.9137	10.8366	1.47E-01
15			0.00	0.000	0.005	0.0190		20.3928	10.5667	1.45E-01
16			0.00	0.000	0.001	0.0190		19.7479	10.2325	1.43E-01
17			26.80	0.000	4.704	0.0927		19.0236	9.8572	1.41E-01
18			0.00	0.000	6.217	0.0455		18.2182	9.4399	1.39E-01
19			0.00	0.000	6.504	0.0238		16.6637	8.6345	1.34E-01
20			0.00	0.000	1.443	0.0190		16.0133	8.2974	1.33E-01
21			0.00	0.000	0.000	0.0190		15.4923	8.0275	1.31E-01

22	0.00	0.000	0.000	0.0190	14.9352	7.7388	1.29E-01
23	0.50	0.000	0.189	0.0200	14.3907	7.4567	1.28E-01
24	2.00	0.000	0.624	0.0246	13.0280	6.7506	1.24E-01
25	79.40	0.000	1.256	0.1164	11.2430	5.8257	1.19E-01
26	45.00	0.000	3.529	0.0977	9.6995	5.0259	1.14E-01
27	41.80	0.000	3.095	0.0950	8.3648	4.3343	1.10E-01
28	85.40	0.000	2.872	0.1047	7.2107	3.7363	1.07E-01
29	55.20	0.000	3.207	0.0934	6.2259	3.2260	1.04E-01
30	47.80	0.000	2.862	0.0929	6.1848	3.2047	1.04E-01
31	74.00	0.000	5.563	0.1019	10.5321	5.4573	1.17E-01
32	0.00	0.000	4.595	0.0417	16.4437	8.5204	1.34E-01
33	0.40	0.000	6.568	0.0211	108.1846	16.3384	3.98E-01
34	0.00	0.000	0.474	0.0190	309.1306	21.0232	9.77E-01
35	0.00	0.000	0.000	0.0190	286.3103	20.3458	9.11E-01
36	0.00	0.000	0.000	0.0190	264.2174	19.7008	8.47E-01
37	0.00	0.000	0.000	0.0190	242.8563	19.0895	7.86E-01
38	17.60	0.000	1.779	0.0717	222.1893	18.5123	7.26E-01
39	0.00	0.000	5.451	0.0443	202.1779	17.9704	6.69E-01
40	1.20	0.000	4.809	0.0322	58.8666	15.5946	2.56E-01
41	0.20	0.000	3.996	0.0196	59.8252	15.5963	2.59E-01
42	21.40	0.000	1.779	0.0850	58.4027	15.5938	2.55E-01
43	50.80	0.000	5.611	0.0884	52.7700	15.5841	2.38E-01
44	0.20	0.000	4.742	0.0408	39.3444	15.5609	2.00E-01
45	17.40	0.000	5.693	0.0780	35.1173	15.5536	1.88E-01
46	3.40	0.000	5.936	0.0553	33.7743	15.5282	1.84E-01
47	13.40	0.000	5.256	0.0727	28.9270	14.9888	1.70E-01
48	27.20	0.000	4.458	0.0911	28.1937	14.6088	1.68E-01
49	35.00	0.000	3.054	0.0911	25.1166	13.0144	1.59E-01
50	109.00	0.000	3.942	0.1131	21.6962	11.2421	1.49E-01

51	2.60	0.000	5.799	0.0504	18.7904	9.7364	1.41E-01
52	0.00	0.000	5.762	0.0307	23.7591	12.3110	1.55E-01
53	0.90	0.000	4.071	0.0201	35.8370	15.3304	1.90E-01
54	5.40	0.000	2.804	0.0287	50.4436	15.5801	2.32E-01
55	0.00	0.000	1.913	0.0224	56.6230	15.5908	2.49E-01
56	1.80	0.000	1.712	0.0227	58.9817	15.5948	2.56E-01
57	47.20	0.000	5.816	0.0903	58.5595	15.5941	2.55E-01
58	32.20	0.000	3.093	0.0838	47.4916	15.5750	2.23E-01
59	131.40	0.000	4.577	0.1198	35.4360	15.5109	1.88E-01
60	16.00	0.000	5.775	0.0736	27.2305	14.1097	1.65E-01
61	16.00	0.000	5.814	0.0758	45.4503	15.4134	2.17E-01
62	0.00	0.000	6.946	0.0402	288.6875	20.4155	9.18E-01
63	24.20	0.000	7.129	0.0920	270.5646	19.8849	8.66E-01
64	0.00	0.000	5.375	0.0378	156.8354	17.5123	5.38E-01
65	0.00	0.000	4.753	0.0215	196.5874	18.1980	6.53E-01
66	0.00	0.000	0.764	0.0190	223.5621	18.5502	7.30E-01
67	0.00	0.000	0.000	0.0190	203.5078	18.0058	6.72E-01
68	0.00	0.000	0.000	0.0190	153.8919	17.0085	5.30E-01
69	5.20	0.000	2.105	0.0293	59.8074	15.5963	2.59E-01
70	1.20	0.000	1.311	0.0289	57.9494	15.5930	2.53E-01
71	8.40	0.000	1.370	0.0524	54.3079	15.5868	2.43E-01
72	3.40	0.000	4.180	0.0498	49.2547	15.5780	2.28E-01
73	2.10	0.000	5.943	0.0369	43.0600	15.5673	2.10E-01
74	0.90	0.000	4.987	0.0219	35.0108	15.5393	1.87E-01
75	0.40	0.000	0.928	0.0202	28.6749	14.8582	1.69E-01
76	0.00	0.000	0.218	0.0195	26.8087	13.8912	1.64E-01
77	1.20	0.000	0.293	0.0225	25.0422	12.9758	1.59E-01
78	0.00	0.000	0.538	0.0207	23.3815	12.1153	1.54E-01
79	0.00	0.000	0.394	0.0194	21.8287	11.3107	1.49E-01

80	3.20	0.000	0.545	0.0282	20.3827	10.5615	1.45E-01
81	0.00	0.000	0.411	0.0269	18.9688	9.8288	1.41E-01
82	183.20	0.000	0.916	0.1454	16.6407	8.6225	1.34E-01
83	6.20	0.000	5.514	0.0588	14.6243	7.5777	1.29E-01
84	1.40	0.000	5.151	0.0426	17.4624	9.0483	1.37E-01
85	0.00	0.000	5.495	0.0243	20.5826	10.6651	1.46E-01
86	0.00	0.000	1.521	0.0192	22.4898	11.6533	1.51E-01
87	0.00	0.000	0.044	0.0190	23.4804	12.1666	1.54E-01
88	0.00	0.000	0.011	0.0190	23.8275	12.3464	1.55E-01
89	1.60	0.000	0.711	0.0220	23.7234	12.2925	1.55E-01
90	1.80	0.000	1.641	0.0225	23.3054	12.0759	1.54E-01
91	4.80	0.000	1.625	0.0331	22.6732	11.7483	1.52E-01
92	0.50	0.000	3.040	0.0246	21.8998	11.3476	1.49E-01
93	0.00	0.000	1.417	0.0199	21.0386	10.9014	1.47E-01
94	3.50	0.000	0.869	0.0287	20.1290	10.4300	1.44E-01
95	0.30	0.000	0.651	0.0275	19.1996	9.9485	1.42E-01
96	2.00	0.000	1.043	0.0307	18.2711	9.4673	1.39E-01
97	1.20	0.000	0.937	0.0316	17.3582	8.9943	1.36E-01
98	0.00	0.000	0.847	0.0287	16.4741	8.5362	1.34E-01
99	0.00	0.000	0.788	0.0261	15.1408	7.8454	1.30E-01
100	0.00	0.000	0.727	0.0237	13.0700	6.7723	1.24E-01
101	0.00	0.000	0.713	0.0213	11.2794	5.8445	1.19E-01
102	0.00	0.000	0.609	0.0193	9.7309	5.0422	1.14E-01
103	0.00	0.000	0.073	0.0190	8.3920	4.3484	1.11E-01
104	5.20	0.000	0.362	0.0352	7.2342	3.7485	1.07E-01
105	0.00	0.000	0.466	0.0336	6.2331	3.2297	1.04E-01
106	0.00	0.000	0.550	0.0318	5.3674	2.7812	1.02E-01
107	0.00	0.000	0.545	0.0300	4.6188	2.3933	9.97E-02
108	0.20	0.000	0.619	0.0286	3.9715	2.0579	9.78E-02

109	1.60	0.000	0.604	0.0319	3.4118	1.7678	9.62E-02
110	0.00	0.000	0.540	0.0301	2.9278	1.5170	9.48E-02
111	0.00	0.000	0.526	0.0283	2.5092	1.3002	9.36E-02
112	0.00	0.000	0.513	0.0266	2.1473	1.1127	9.26E-02
113	0.00	0.000	0.508	0.0249	1.8344	0.9505	9.17E-02
114	4.40	0.000	0.547	0.0378	1.5638	0.8103	9.09E-02
115	2.60	0.000	0.559	0.0446	1.3298	0.6890	9.02E-02
116	0.00	0.000	0.508	0.0429	1.1276	0.5843	8.96E-02
117	0.00	0.000	0.478	0.0413	0.9535	0.4940	8.91E-02
118	0.00	0.000	0.479	0.0397	0.8020	0.4156	8.87E-02
119	0.00	0.000	0.470	0.0381	0.6711	0.3477	8.83E-02
120	0.00	0.000	0.462	0.0366	0.5579	0.2891	8.80E-02
121	0.00	0.000	0.449	0.0351	0.4600	0.2383	8.77E-02
122	0.00	0.000	0.461	0.0335	0.3753	0.1945	8.75E-02
123	0.00	0.000	0.454	0.0320	0.3021	0.1565	8.73E-02
124	0.00	0.000	0.447	0.0305	0.2388	0.1237	8.71E-02
125	0.00	0.000	0.440	0.0291	0.1841	0.0954	8.69E-02
126	0.00	0.000	0.434	0.0276	0.1368	0.0709	8.68E-02
127	0.00	0.000	0.428	0.0262	0.0958	0.0497	8.67E-02
128	0.00	0.000	0.422	0.0248	0.0604	0.0313	8.66E-02
129	0.00	0.000	0.416	0.0234	0.0298	0.0155	8.65E-02
130	0.00	0.000	0.411	0.0220	0.0048	0.0025	4.39E-02
131	0.00	0.000	0.405	0.0207	0.0000	0.0000	0.00E+00
132	0.00	0.000	0.400	0.0193	0.0000	0.0000	0.00E+00
133	0.00	0.000	0.103	0.0190	0.0000	0.0000	0.00E+00
134	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
135	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
136	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
137	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

138	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
139	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
140	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
141	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
142	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
147	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
148	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
149	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
150	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
151	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
152	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
153	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
154	1.30	0.000	0.085	0.0230	0.0000	0.0000	0.00E+00
155	17.30	0.000	0.321	0.0796	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.307	0.0475	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.315	0.0430	0.1138	0.0590	4.35E-02
158	0.00	0.000	0.312	0.0411	1.0144	0.5256	8.93E-02
159	0.00	0.000	0.310	0.0400	2.1085	1.0925	9.25E-02
160	0.00	0.000	0.308	0.0385	2.2664	1.1744	9.29E-02
161	0.00	0.000	0.306	0.0370	1.9862	1.0292	9.21E-02
162	0.00	0.000	0.304	0.0356	1.7306	0.8967	9.14E-02
163	0.00	0.000	0.298	0.0346	1.4902	0.7722	9.07E-02
164	0.00	0.000	0.299	0.0336	1.2662	0.6561	9.00E-02
165	0.00	0.000	0.297	0.0326	1.0724	0.5557	8.95E-02
166	0.00	0.000	0.295	0.0316	0.9049	0.4689	8.90E-02

167	0.00	0.000	0.293	0.0307	0.7601	0.3938	8.86E-02
168	0.00	0.000	0.291	0.0297	0.6348	0.3289	8.82E-02
169	0.00	0.000	0.289	0.0287	0.5265	0.2728	8.79E-02
170	0.00	0.000	0.288	0.0278	0.4328	0.2243	8.76E-02
171	0.00	0.000	0.286	0.0268	0.3518	0.1823	8.74E-02
172	0.00	0.000	0.284	0.0259	0.2818	0.1460	8.72E-02
173	0.00	0.000	0.282	0.0249	0.2212	0.1146	8.70E-02
174	0.00	0.000	0.281	0.0240	0.1689	0.0875	8.69E-02
175	0.00	0.000	0.279	0.0231	0.1236	0.0640	8.68E-02
176	0.60	0.000	0.341	0.0239	0.0844	0.0438	8.66E-02
177	0.90	0.000	0.339	0.0258	0.0506	0.0262	8.65E-02
178	0.00	0.000	0.274	0.0249	0.0213	0.0110	8.65E-02
179	0.00	0.000	0.272	0.0240	0.0012	0.0005	1.74E-02
180	0.00	0.000	0.271	0.0231	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.269	0.0222	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.268	0.0213	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.266	0.0204	0.0000	0.0000	0.00E+00
184	0.60	0.000	0.308	0.0214	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.246	0.0205	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.179	0.0199	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.172	0.0194	0.0000	0.0000	0.00E+00
188	0.40	0.000	0.137	0.0202	0.0000	0.0000	0.00E+00
189	2.10	0.000	0.187	0.0266	0.0000	0.0000	0.00E+00
190	4.50	0.000	0.177	0.0410	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.211	0.0403	0.0000	0.0000	0.00E+00
192	0.10	0.000	0.284	0.0397	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.231	0.0389	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.244	0.0381	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.242	0.0373	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.241	0.0365	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.240	0.0357	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.239	0.0349	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.238	0.0341	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.237	0.0333	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.236	0.0326	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.235	0.0318	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.234	0.0310	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.234	0.0302	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.232	0.0294	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.231	0.0287	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.231	0.0279	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.230	0.0271	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.235	0.0263	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.234	0.0256	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.233	0.0248	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.232	0.0240	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.231	0.0232	0.0000	0.0000	0.00E+00
214	0.10	0.000	0.286	0.0226	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.225	0.0219	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.226	0.0211	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.227	0.0204	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.226	0.0196	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.183	0.0190	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
222	2.10	0.000	0.173	0.0254	0.0000	0.0000	0.00E+00
223	46.80	0.000	0.301	0.0981	0.0449	0.0233	2.17E-02
224	0.00	0.000	5.244	0.0434	0.1498	0.0776	8.68E-02

225	0.00	0.000	4.790	0.0261	0.4026	0.2086	8.76E-02
226	0.00	0.000	2.120	0.0191	1.9378	1.0041	9.20E-02
227	0.00	0.000	0.014	0.0190	3.4559	1.7907	9.64E-02
228	0.00	0.000	0.005	0.0190	4.6476	2.4082	9.98E-02
229	0.10	0.000	0.100	0.0190	5.5693	2.8858	1.02E-01
230	0.00	0.000	0.000	0.0190	6.2841	3.2562	1.04E-01
231	1.50	0.000	0.278	0.0231	6.1989	3.2120	1.04E-01
232	0.00	0.000	0.677	0.0208	5.3378	2.7658	1.02E-01
233	0.00	0.000	0.336	0.0197	4.5932	2.3800	9.96E-02
234	0.30	0.000	0.337	0.0196	3.9494	2.0464	9.78E-02
235	0.00	0.000	0.112	0.0192	3.3926	1.7579	9.62E-02
236	0.00	0.000	0.043	0.0191	2.9112	1.5085	9.48E-02
237	0.00	0.000	0.013	0.0190	2.4949	1.2928	9.36E-02
238	2.80	0.000	0.450	0.0268	2.1350	1.1062	9.25E-02
239	0.70	0.000	0.428	0.0278	1.8237	0.9450	9.17E-02
240	0.00	0.000	0.529	0.0260	1.5545	0.8055	9.09E-02
241	0.30	0.000	0.585	0.0250	1.3218	0.6849	9.02E-02
242	5.00	0.000	0.675	0.0395	1.1205	0.5806	8.96E-02
243	0.10	0.000	0.682	0.0375	0.9465	0.4904	8.91E-02
244	0.00	0.000	0.610	0.0355	0.7960	0.4125	8.87E-02
245	0.00	0.000	0.590	0.0335	0.6659	0.3450	8.83E-02
246	0.00	0.000	0.578	0.0316	0.5534	0.2867	8.80E-02
247	4.00	0.000	0.673	0.0427	0.4561	0.2363	8.77E-02
248	0.70	0.000	0.666	0.0428	0.3719	0.1927	8.75E-02
249	2.60	0.000	0.660	0.0493	0.2992	0.1550	8.73E-02
250	0.20	0.000	0.630	0.0478	0.2363	0.1224	8.71E-02
251	0.20	0.000	0.617	0.0464	0.1819	0.0942	8.69E-02
252	0.20	0.000	0.597	0.0451	0.1348	0.0699	8.68E-02
253	0.00	0.000	0.526	0.0434	0.0942	0.0488	8.67E-02

254	0.00	0.000	0.515	0.0416	0.0590	0.0306	8.66E-02
255	1.20	0.000	0.592	0.0437	0.0286	0.0148	8.65E-02
256	0.00	0.000	0.495	0.0420	0.0042	0.0021	4.01E-02
257	0.00	0.000	0.486	0.0404	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.477	0.0388	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.469	0.0372	0.0002	0.0000	3.07E-03
260	1.00	0.000	0.551	0.0387	0.0003	0.0000	3.80E-03
261	1.90	0.000	0.544	0.0432	0.0005	0.0001	7.68E-03
262	0.60	0.000	0.537	0.0434	0.0007	0.0003	1.43E-02
263	39.30	0.000	0.531	0.1029	0.0944	0.0489	4.35E-02
264	3.20	0.000	6.206	0.0450	0.2236	0.1159	8.70E-02
265	5.00	0.000	5.356	0.0419	0.9114	0.4723	8.90E-02
266	7.10	0.000	6.244	0.0448	2.4786	1.2843	9.35E-02
267	0.60	0.000	4.129	0.0328	3.8147	1.9766	9.74E-02
268	11.00	0.000	5.678	0.0506	4.9018	2.5399	1.01E-01
269	6.80	0.000	6.253	0.0524	5.7536	2.9813	1.03E-01
270	1.00	0.000	6.386	0.0344	6.3747	3.3031	1.05E-01
271	0.30	0.000	4.145	0.0216	5.8237	3.0176	1.03E-01
272	1.30	0.000	1.414	0.0212	5.0134	2.5977	1.01E-01
273	5.60	0.000	2.955	0.0300	4.3127	2.2347	9.88E-02
274	0.30	0.000	2.847	0.0216	3.7068	1.9207	9.71E-02
275	0.30	0.000	0.958	0.0194	3.1829	1.6492	9.56E-02
276	0.10	0.000	0.182	0.0191	2.7298	1.4145	9.43E-02
277	0.80	0.000	0.293	0.0208	2.3381	1.2115	9.31E-02
278	0.00	0.000	0.345	0.0196	1.9993	1.0360	9.22E-02
279	0.00	0.000	0.148	0.0191	1.7064	0.8842	9.13E-02
280	0.00	0.000	0.030	0.0190	1.4531	0.7529	9.06E-02
281	0.00	0.000	0.008	0.0190	1.2341	0.6395	9.00E-02
282	10.00	0.000	0.769	0.0498	1.0447	0.5413	8.94E-02

283	7.50	0.000	0.945	0.0657	0.9255	0.4796	8.91E-02
284	3.20	0.000	5.152	0.0522	1.1861	0.6146	8.98E-02
285	0.30	0.000	5.742	0.0332	1.5431	0.7996	9.08E-02
286	3.60	0.000	4.502	0.0302	1.3912	0.7209	9.04E-02
287	2.10	0.000	2.199	0.0289	1.1806	0.6117	8.98E-02
288	13.60	0.000	1.392	0.0696	1.0739	0.5565	8.95E-02
289	11.80	0.000	6.073	0.0625	0.9062	0.4696	8.90E-02
290	0.00	0.000	5.124	0.0450	0.8772	0.4545	8.89E-02
291	0.00	0.000	5.468	0.0268	1.6635	0.8620	9.12E-02
292	0.00	0.000	2.056	0.0190	2.4814	1.2857	9.35E-02
293	0.00	0.000	0.000	0.0190	2.1594	1.1189	9.26E-02
294	8.20	0.000	0.982	0.0431	1.8448	0.9559	9.17E-02
295	5.00	0.000	1.431	0.0550	1.5728	0.8150	9.09E-02
296	0.00	0.000	1.322	0.0506	1.3376	0.6931	9.03E-02
297	0.10	0.000	1.266	0.0466	1.1342	0.5877	8.97E-02
298	0.00	0.000	1.088	0.0430	0.9628	0.4989	8.92E-02
299	0.00	0.000	1.000	0.0396	0.8110	0.4202	8.87E-02
300	0.00	0.000	0.931	0.0365	0.6788	0.3517	8.84E-02
301	0.00	0.000	0.874	0.0336	0.5645	0.2925	8.80E-02
302	0.00	0.000	0.827	0.0309	0.4657	0.2413	8.77E-02
303	0.00	0.000	0.787	0.0282	0.3803	0.1971	8.75E-02
304	0.00	0.000	0.752	0.0257	0.3064	0.1588	8.73E-02
305	0.00	0.000	0.721	0.0233	0.2425	0.1257	8.71E-02
306	0.00	0.000	0.694	0.0210	0.1873	0.0970	8.69E-02
307	28.10	0.000	0.775	0.0974	0.1406	0.0728	8.68E-02
308	45.10	0.000	3.446	0.0995	0.1020	0.0529	8.67E-02
309	0.90	0.000	5.514	0.0495	0.0796	0.0412	8.66E-02
310	0.10	0.000	6.294	0.0289	0.8982	0.4654	8.90E-02
311	0.00	0.000	2.935	0.0191	2.8080	1.4550	9.45E-02

312	0.00	0.000	0.025	0.0190	4.5289	2.3467	9.94E-02
313	0.10	0.000	0.106	0.0190	5.8522	3.0324	1.03E-01
314	3.60	0.000	2.186	0.0237	6.8537	3.5513	1.06E-01
315	3.80	0.000	2.373	0.0285	7.5949	3.9354	1.08E-01
316	39.70	0.000	3.782	0.0883	8.1259	4.2105	1.10E-01
317	20.10	0.000	4.949	0.0885	8.0316	4.1617	1.10E-01
318	11.60	0.000	3.854	0.0691	7.4371	3.8536	1.08E-01
319	25.90	0.000	5.189	0.0904	6.7391	3.4919	1.06E-01
320	3.40	0.000	5.474	0.0519	5.9490	3.0825	1.04E-01
321	0.40	0.000	5.927	0.0335	5.7802	2.9950	1.03E-01
322	0.00	0.000	4.241	0.0193	7.4669	3.8690	1.08E-01
323	29.60	0.000	4.199	0.1040	8.8936	4.6083	1.12E-01
324	0.90	0.000	3.404	0.0475	9.8212	5.0890	1.15E-01
325	15.10	0.000	5.290	0.0769	9.7982	5.0770	1.15E-01
326	9.80	0.000	4.728	0.0634	10.2609	5.3168	1.16E-01
327	2.00	0.000	4.783	0.0482	9.6262	4.9879	1.14E-01
328	0.00	0.000	4.223	0.0341	9.5539	4.9504	1.14E-01
329	9.80	0.000	4.984	0.0502	10.4130	5.3956	1.16E-01
330	3.40	0.000	5.833	0.0420	11.0135	5.7067	1.18E-01
331	0.20	0.000	5.194	0.0253	11.3770	5.8951	1.19E-01
332	0.30	0.000	2.132	0.0192	11.5605	5.9902	1.20E-01
333	9.70	0.000	3.397	0.0402	11.6048	6.0131	1.20E-01
334	6.80	0.000	4.218	0.0489	11.5401	5.9796	1.20E-01
335	3.60	0.000	5.382	0.0429	11.3092	5.8600	1.19E-01
336	0.00	0.000	4.330	0.0285	10.0014	5.1823	1.15E-01
337	44.60	0.000	5.407	0.0908	8.6259	4.4696	1.11E-01
338	0.00	0.000	5.576	0.0334	7.4364	3.8533	1.08E-01
339	0.00	0.000	4.139	0.0190	6.9607	3.6067	1.06E-01
340	0.00	0.000	0.000	0.0190	7.6819	3.9804	1.09E-01

341	0.00	0.000	0.000	0.0190	8.3429	4.3229	1.10E-01
342	1.00	0.000	0.642	0.0202	8.8015	4.5606	1.12E-01
343	0.00	0.000	0.260	0.0193	9.0975	4.7140	1.13E-01
344	0.20	0.000	0.284	0.0190	9.0557	4.6923	1.12E-01
345	0.00	0.000	0.010	0.0190	7.9092	4.0982	1.09E-01
346	0.00	0.000	0.003	0.0190	6.8168	3.5322	1.06E-01
347	18.60	0.000	1.242	0.0769	5.8721	3.0427	1.03E-01
348	7.80	0.000	6.173	0.0555	5.0607	2.6222	1.01E-01
349	0.10	0.000	5.013	0.0354	4.5183	2.3412	9.94E-02
350	20.20	0.000	6.307	0.0817	4.8059	2.4902	1.00E-01
351	4.40	0.000	6.763	0.0551	5.3169	2.7550	1.02E-01
352	0.00	0.000	5.533	0.0328	4.9744	2.5775	1.01E-01
353	24.90	0.000	5.215	0.0954	5.2451	2.7178	1.02E-01
354	22.30	0.000	5.042	0.0845	5.1993	2.6941	1.01E-01
355	28.20	0.000	4.772	0.0863	4.4734	2.3180	9.93E-02
356	0.00	0.000	4.080	0.0396	4.0903	2.1194	9.82E-02
357	6.60	0.000	3.832	0.0472	4.0219	2.0840	9.80E-02
358	95.40	0.000	3.722	0.1185	5.0036	2.5927	1.01E-01
359	0.00	0.000	3.049	0.0517	5.1330	2.6597	1.01E-01
360	0.00	0.000	3.196	0.0405	7.1277	3.6933	1.07E-01
361	51.20	0.000	5.861	0.1060	10.2817	5.3276	1.16E-01
362	29.00	0.000	5.266	0.0904	10.8023	5.5973	1.18E-01
363	0.00	0.000	6.072	0.0439	10.2018	5.2862	1.16E-01
364	7.80	0.000	6.326	0.0475	12.1656	6.3037	1.21E-01
365	7.40	0.000	4.556	0.0570	15.4650	8.0133	1.31E-01

* = Frozen (air or soil)

Annual Totals for Year 15			
	mm*	cubic meters	percent
Precipitation	2,244.30	22,443.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	687.520	6,875.2	30.63
Drainage Collected from Layer 2	1,581.9255	15,819.3	70.49
Percolation/Leakage through Layer 3	42.259173	422.6	1.88
Average Head on Top of Layer 3	16.6325 (cm)	---	---
Change in Water Storage	-67.4046	-674.0	-3.00
Soil Water at Start of Year	1,104.1844	11,041.8	49.20
Soil Water at End of Year	1,036.7798	10,367.8	46.20
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 16

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			0.00	0.000	4.607	0.0415	17.6363	9.1384	1.37E-01	
2			0.00	0.000	4.299	0.0272	18.9611	9.8249	1.41E-01	
3			0.00	0.000	2.452	0.0190	19.6693	10.1918	1.43E-01	
4			0.00	0.000	0.000	0.0190	19.9254	10.3245	1.44E-01	
5			0.00	0.000	0.000	0.0190	19.8546	10.2878	1.44E-01	
6	*Note: head c		0.00	0.000	0.000	0.0190	19.5501	10.1301	1.43E-01	
7			2.80	0.000	1.829	0.0222	19.0815	9.8872	1.41E-01	
8			0.00	0.000	0.521	0.0205	18.5008	9.5864	1.40E-01	
9			0.00	0.000	0.379	0.0192	17.8474	9.2478	1.38E-01	
10			39.00	0.000	1.399	0.0827	17.1564	8.8897	1.36E-01	
11			13.80	0.000	5.017	0.0734	16.0208	8.3013	1.33E-01	
12			21.20	0.000	4.869	0.0949	14.1794	7.3472	1.27E-01	
13			9.20	0.000	5.860	0.0612	12.2386	6.3415	1.22E-01	
14			4.00	0.000	5.179	0.0551	10.7261	5.5578	1.17E-01	
15			2.00	0.000	4.736	0.0451	11.0843	5.7434	1.18E-01	
16			0.10	0.000	5.389	0.0272	11.9330	6.1832	1.21E-01	
17			0.20	0.000	2.583	0.0193	12.5026	6.4783	1.22E-01	
18			1.40	0.000	0.560	0.0221	12.8406	6.6535	1.23E-01	
19			3.00	0.000	2.432	0.0240	12.9778	6.7245	1.24E-01	
20			26.20	0.000	4.850	0.0951	12.9615	6.7161	1.24E-01	
21			12.40	0.000	5.311	0.0630	12.7919	6.6282	1.23E-01	

22	14.80	0.000	4.751	0.0715	11.6689	6.0464	1.20E-01
23	5.80	0.000	6.288	0.0600	10.3792	5.3781	1.16E-01
24	3.60	0.000	6.402	0.0488	9.7561	5.0552	1.14E-01
25	0.00	0.000	5.674	0.0295	10.0876	5.2270	1.15E-01
26	0.00	0.000	3.025	0.0195	10.4431	5.4112	1.16E-01
27	0.00	0.000	0.102	0.0191	10.6789	5.5334	1.17E-01
28	0.50	0.000	0.525	0.0190	10.7780	5.5847	1.17E-01
29	0.00	0.000	0.006	0.0190	10.7923	5.5921	1.17E-01
30	0.00	0.000	0.002	0.0190	9.9948	5.1789	1.15E-01
31	0.00	0.000	0.000	0.0190	8.6202	4.4666	1.11E-01
32	4.20	0.000	0.739	0.0305	7.4316	3.8507	1.08E-01
33	2.20	0.000	0.979	0.0346	6.4037	3.3181	1.05E-01
34	207.60	0.000	1.265	0.1510	5.5149	2.8576	1.02E-01
35	36.00	0.000	4.658	0.0889	4.8345	2.5051	1.00E-01
36	69.00	0.000	6.244	0.1029	6.8571	3.5531	1.06E-01
37	26.00	0.000	5.712	0.0928	6.8625	3.5559	1.06E-01
38	5.00	0.000	6.225	0.0579	14.5790	7.5543	1.28E-01
39	1.20	0.000	6.072	0.0397	22.6704	11.7469	1.52E-01
40	10.50	0.000	5.974	0.0548	33.9030	15.0813	1.84E-01
41	29.00	0.000	5.712	0.0936	48.0406	15.5759	2.25E-01
42	20.00	0.000	5.898	0.0849	42.0684	15.5656	2.08E-01
43	8.00	0.000	6.471	0.0606	38.6018	15.5596	1.98E-01
44	0.00	0.000	5.319	0.0413	39.9660	15.5620	2.01E-01
45	2.00	0.000	6.429	0.0265	45.1031	15.5709	2.16E-01
46	0.00	0.000	2.091	0.0195	47.7829	15.5755	2.24E-01
47	43.00	0.000	5.105	0.0833	47.5917	15.5752	2.23E-01
48	30.00	0.000	6.331	0.0891	39.3245	15.5609	2.00E-01
49	2.20	0.000	5.262	0.0352	31.0562	15.2268	1.76E-01
50	7.00	0.000	6.218	0.0378	27.7735	14.3911	1.66E-01

51	0.00	0.000	5.045	0.0210	28.2909	14.6592	1.68E-01
52	0.00	0.000	0.457	0.0195	28.4064	14.7190	1.68E-01
53	0.00	0.000	0.114	0.0191	28.0170	14.5173	1.67E-01
54	16.00	0.000	3.345	0.0613	27.2898	14.1404	1.65E-01
55	27.00	0.000	5.157	0.0977	26.3426	13.6497	1.62E-01
56	1.20	0.000	4.441	0.0518	24.5819	12.7373	1.57E-01
57	6.00	0.000	4.548	0.0567	22.3390	11.5751	1.51E-01
58	0.00	0.000	5.122	0.0391	21.9983	11.3986	1.50E-01
59	22.40	0.000	3.098	0.0957	21.4617	11.1206	1.48E-01
60	38.20	0.000	4.264	0.0973	20.5416	10.6438	1.46E-01
61	4.00	0.000	4.520	0.0528	17.9444	9.2980	1.38E-01
62	0.80	0.000	6.129	0.0343	16.7407	8.6744	1.35E-01
63	0.00	0.000	4.360	0.0198	17.3544	8.9924	1.36E-01
64	0.00	0.000	0.173	0.0192	17.8584	9.2535	1.38E-01
65	28.00	0.000	3.485	0.1009	18.0132	9.3337	1.38E-01
66	53.00	0.000	2.794	0.1008	17.7982	9.2223	1.38E-01
67	240.00	0.000	4.207	0.1603	15.7978	8.1858	1.32E-01
68	0.00	0.000	2.979	0.0446	14.4660	7.4957	1.28E-01
69	17.00	0.000	4.075	0.0792	37.9406	14.3277	1.96E-01
70	74.00	0.000	2.712	0.1011	182.4646	18.2958	6.12E-01
71	165.00	0.000	3.225	0.1371	52.4290	15.5835	2.37E-01
72	33.50	0.000	4.262	0.0891	400.4701	24.7257	1.24E+00
73	5.00	0.000	6.088	0.0548	510.5297	27.5626	1.56E+00
74	23.00	0.000	3.343	0.0907	489.3364	26.8591	1.50E+00
75	101.00	0.000	4.638	0.1115	488.5392	26.8337	1.49E+00
76	15.00	0.000	6.022	0.0688	537.4630	28.4634	1.63E+00
77	0.00	0.000	5.409	0.0430	524.4627	28.0279	1.60E+00
78	0.00	0.000	6.129	0.0226	496.4057	27.0934	1.52E+00
79	0.00	0.000	1.074	0.0190	466.7154	26.1129	1.43E+00

80	24.00	0.000	5.355	0.0812	438.1279	25.1777	1.35E+00
81	10.00	0.000	5.588	0.0646	411.8759	24.3270	1.27E+00
82	7.00	0.000	6.704	0.0583	393.9576	23.7514	1.22E+00
83	0.00	0.000	6.647	0.0362	370.0855	22.9915	1.15E+00
84	15.00	0.000	4.323	0.0718	345.0534	22.1082	1.08E+00
85	5.00	0.000	4.668	0.0634	321.6199	21.3979	1.01E+00
86	0.00	0.000	4.938	0.0469	300.6378	20.7699	9.52E-01
87	0.00	0.000	3.797	0.0343	278.0640	20.1037	8.87E-01
88	17.00	0.000	3.176	0.0790	256.2457	19.4711	8.24E-01
89	55.00	0.000	5.197	0.0897	148.4768	17.3099	5.14E-01
90	4.00	0.000	5.443	0.0614	50.6325	15.5804	2.32E-01
91	40.00	0.000	4.149	0.1033	158.5028	17.5651	5.43E-01
92	4.00	0.000	4.226	0.0551	55.9952	15.5897	2.48E-01
93	5.00	0.000	4.063	0.0582	260.0799	19.5814	8.35E-01
94	10.00	0.000	4.918	0.0667	238.9753	18.9799	7.75E-01
95	0.20	0.000	4.736	0.0491	179.8420	17.7348	6.04E-01
96	0.00	0.000	5.726	0.0300	202.6463	17.9828	6.70E-01
97	0.00	0.000	3.296	0.0190	123.1233	16.5484	4.41E-01
98	0.00	0.000	0.000	0.0190	59.9842	15.5966	2.59E-01
99	0.00	0.000	0.000	0.0190	58.0690	15.5933	2.54E-01
100	0.00	0.000	0.000	0.0190	54.3825	15.5869	2.43E-01
101	0.00	0.000	0.000	0.0190	49.2930	15.5781	2.28E-01
102	0.00	0.000	0.000	0.0190	43.0700	15.5673	2.10E-01
103	0.00	0.000	0.000	0.0190	35.1460	15.5503	1.88E-01
104	0.00	0.000	0.000	0.0190	28.7591	14.9018	1.69E-01
105	0.00	0.000	0.000	0.0190	26.8621	13.9188	1.64E-01
106	0.00	0.000	0.000	0.0190	25.0707	12.9906	1.59E-01
107	0.00	0.000	0.000	0.0190	23.3908	12.1202	1.54E-01
108	2.00	0.000	0.435	0.0242	21.8232	11.3079	1.49E-01

109	0.00	0.000	0.366	0.0230	20.3659	10.5528	1.45E-01
110	0.00	0.000	0.556	0.0211	18.8719	9.7786	1.41E-01
111	0.00	0.000	0.428	0.0197	16.4549	8.5263	1.34E-01
112	0.00	0.000	0.187	0.0191	14.2063	7.3611	1.27E-01
113	0.00	0.000	0.022	0.0190	12.2619	6.3536	1.22E-01
114	0.00	0.000	0.005	0.0190	10.5806	5.4824	1.17E-01
115	0.00	0.000	0.002	0.0190	9.1267	4.7291	1.13E-01
116	0.00	0.000	0.000	0.0190	7.8695	4.0777	1.09E-01
117	0.00	0.000	0.000	0.0190	6.7824	3.5144	1.06E-01
118	0.00	0.000	0.000	0.0190	5.8424	3.0273	1.03E-01
119	3.00	0.000	0.295	0.0280	5.0296	2.6061	1.01E-01
120	0.00	0.000	0.241	0.0272	4.3267	2.2419	9.89E-02
121	0.00	0.000	0.378	0.0260	3.7189	1.9270	9.71E-02
122	0.00	0.000	0.369	0.0247	3.1933	1.6547	9.56E-02
123	0.00	0.000	0.379	0.0235	2.7389	1.4192	9.43E-02
124	0.00	0.000	0.314	0.0224	2.3459	1.2156	9.32E-02
125	0.00	0.000	0.423	0.0210	2.0061	1.0395	9.22E-02
126	0.00	0.000	0.434	0.0196	1.7123	0.8872	9.13E-02
127	0.00	0.000	0.142	0.0191	1.4582	0.7556	9.06E-02
128	6.50	0.000	0.272	0.0398	1.2385	0.6417	9.00E-02
129	14.00	0.000	0.447	0.0850	1.0485	0.5433	8.94E-02
130	0.00	0.000	0.469	0.0612	0.8842	0.4582	8.89E-02
131	0.00	0.000	0.461	0.0565	1.1268	0.5839	8.96E-02
132	0.00	0.000	0.454	0.0524	2.0061	1.0395	9.22E-02
133	0.00	0.000	0.447	0.0497	2.4777	1.2838	9.35E-02
134	0.00	0.000	0.440	0.0473	2.2150	1.1477	9.28E-02
135	0.00	0.000	0.434	0.0457	1.9494	1.0101	9.20E-02
136	0.00	0.000	0.428	0.0443	1.6652	0.8629	9.12E-02
137	0.00	0.000	0.422	0.0429	1.4175	0.7345	9.05E-02

138	0.00	0.000	0.416	0.0415	1.2033	0.6235	8.99E-02
139	0.00	0.000	0.411	0.0401	1.0181	0.5275	8.93E-02
140	0.00	0.000	0.405	0.0388	0.8579	0.4445	8.89E-02
141	2.00	0.000	0.454	0.0439	0.7194	0.3728	8.85E-02
142	1.00	0.000	0.450	0.0458	0.5997	0.3107	8.81E-02
143	1.00	0.000	0.445	0.0476	0.4961	0.2571	8.78E-02
144	0.00	0.000	0.386	0.0463	0.4065	0.2107	8.76E-02
145	0.00	0.000	0.382	0.0451	0.3291	0.1705	8.73E-02
146	0.00	0.000	0.378	0.0435	0.2694	0.1396	8.72E-02
147	0.00	0.000	0.374	0.0421	0.2354	0.1220	8.71E-02
148	0.00	0.000	0.370	0.0408	0.1870	0.0969	8.69E-02
149	0.00	0.000	0.366	0.0396	0.1393	0.0722	8.68E-02
150	0.00	0.000	0.362	0.0384	0.0980	0.0508	8.67E-02
151	0.00	0.000	0.359	0.0372	0.0623	0.0323	8.66E-02
152	0.00	0.000	0.355	0.0360	0.0315	0.0163	8.65E-02
153	0.00	0.000	0.352	0.0349	0.0059	0.0029	4.88E-02
154	0.00	0.000	0.348	0.0337	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.345	0.0325	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.342	0.0314	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.339	0.0303	0.0000	0.0000	0.00E+00
158	3.20	0.000	0.396	0.0396	0.0000	0.0000	0.00E+00
159	0.00	0.000	0.333	0.0385	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.330	0.0374	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.328	0.0363	0.0000	0.0000	0.00E+00
162	10.00	0.000	0.385	0.0684	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.322	0.0559	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.320	0.0524	0.4596	0.2381	8.77E-02
165	0.00	0.000	0.317	0.0502	1.0217	0.5294	8.93E-02
166	0.00	0.000	0.315	0.0485	0.9312	0.4825	8.91E-02

167	0.00	0.000	0.312	0.0473	0.8217	0.4258	8.88E-02
168	0.00	0.000	0.310	0.0463	0.6898	0.3574	8.84E-02
169	0.00	0.000	0.308	0.0453	0.5741	0.2975	8.81E-02
170	0.00	0.000	0.306	0.0443	0.4740	0.2456	8.78E-02
171	0.00	0.000	0.304	0.0433	0.3874	0.2007	8.75E-02
172	0.00	0.000	0.301	0.0422	0.3126	0.1620	8.73E-02
173	0.00	0.000	0.299	0.0413	0.2479	0.1284	8.71E-02
174	0.00	0.000	0.297	0.0403	0.1919	0.0994	8.70E-02
175	0.00	0.000	0.295	0.0393	0.1435	0.0744	8.68E-02
176	0.00	0.000	0.293	0.0383	0.1016	0.0527	8.67E-02
177	0.00	0.000	0.291	0.0373	0.0655	0.0339	8.66E-02
178	0.00	0.000	0.289	0.0364	0.0342	0.0177	8.65E-02
179	0.00	0.000	0.288	0.0354	0.0077	0.0038	5.70E-02
180	0.00	0.000	0.286	0.0345	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.284	0.0335	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.282	0.0326	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.281	0.0316	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.279	0.0307	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.277	0.0298	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.276	0.0289	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.274	0.0279	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.272	0.0270	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.271	0.0261	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.269	0.0252	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.268	0.0243	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.266	0.0235	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.265	0.0226	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.264	0.0217	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.262	0.0208	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.261	0.0199	0.0000	0.0000	0.00E+00
197	1.90	0.000	0.332	0.0252	0.0000	0.0000	0.00E+00
198	0.20	0.000	0.309	0.0248	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.173	0.0242	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.172	0.0237	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.171	0.0231	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.170	0.0225	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.207	0.0218	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.206	0.0212	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.205	0.0205	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.204	0.0198	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.215	0.0191	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.017	0.0190	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.004	0.0190	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
242	1.40	0.000	0.095	0.0234	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.089	0.0231	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.143	0.0226	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.142	0.0221	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.142	0.0216	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.141	0.0212	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.141	0.0207	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.141	0.0202	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.140	0.0198	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.137	0.0193	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.072	0.0191	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.013	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.003	0.0190	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
288	2.50	0.000	0.158	0.0268	0.0000	0.0000	0.00E+00
289	2.00	0.000	0.158	0.0329	0.0000	0.0000	0.00E+00
290	3.00	0.000	0.205	0.0423	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.168	0.0417	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.172	0.0411	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.179	0.0405	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.177	0.0399	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.177	0.0394	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.176	0.0388	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.176	0.0382	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.176	0.0376	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.181	0.0370	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.180	0.0364	0.0000	0.0000	0.00E+00
301	0.00	0.000	0.180	0.0358	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.177	0.0352	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.179	0.0346	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.179	0.0340	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.178	0.0334	0.0000	0.0000	0.00E+00
306	0.20	0.000	0.257	0.0332	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.177	0.0326	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.177	0.0320	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.176	0.0315	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.152	0.0309	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.176	0.0304	0.0001	0.0000	1.39E-03

312	0.00	0.000	0.175	0.0298	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.175	0.0292	0.0000	0.0000	0.00E+00
314	7.00	0.000	0.267	0.0516	0.0000	0.0000	6.49E-05
315	0.00	0.000	0.174	0.0511	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.174	0.0505	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.173	0.0499	0.0000	0.0000	0.00E+00
318	0.00	0.000	0.173	0.0492	0.0010	0.0004	1.47E-02
319	0.00	0.000	0.172	0.0479	0.0195	0.0101	8.65E-02
320	0.00	0.000	0.172	0.0468	0.0457	0.0237	8.65E-02
321	0.00	0.000	0.172	0.0460	0.0554	0.0287	8.66E-02
322	0.00	0.000	0.171	0.0454	0.0292	0.0151	8.65E-02
323	0.20	0.000	0.256	0.0452	0.0045	0.0023	4.20E-02
324	0.00	0.000	0.170	0.0447	0.0000	0.0000	0.00E+00
325	0.00	0.000	0.170	0.0441	0.0000	0.0000	0.00E+00
326	0.00	0.000	0.170	0.0435	0.0000	0.0000	0.00E+00
327	0.80	0.000	0.270	0.0453	0.0000	0.0000	0.00E+00
328	0.00	0.000	0.169	0.0445	0.0026	0.0014	4.32E-02
329	0.40	0.000	0.269	0.0450	0.0013	0.0006	1.89E-02
330	2.50	0.000	0.271	0.0524	0.0000	0.0000	0.00E+00
331	0.00	0.000	0.168	0.0518	0.0000	0.0000	0.00E+00
332	0.00	0.000	0.167	0.0511	0.0032	0.0016	2.16E-02
333	11.50	0.000	0.271	0.0745	0.0255	0.0132	4.38E-02
334	6.00	0.000	0.271	0.0622	0.2029	0.1051	8.70E-02
335	0.00	0.000	0.166	0.0572	0.2648	0.1372	8.72E-02
336	0.00	0.000	0.166	0.0550	1.0532	0.5457	8.94E-02
337	0.50	0.000	0.271	0.0544	2.1523	1.1152	9.26E-02
338	15.00	0.000	0.272	0.0857	3.1631	1.6390	9.55E-02
339	40.00	0.000	4.242	0.0868	3.0873	1.5997	9.53E-02
340	14.00	0.000	5.006	0.0756	2.7570	1.4285	9.43E-02

341	8.00	0.000	6.993	0.0581	2.5577	1.3253	9.38E-02
342	0.00	0.000	6.289	0.0371	3.0489	1.5798	9.52E-02
343	0.00	0.000	5.130	0.0190	4.5253	2.3448	9.94E-02
344	2.00	0.000	1.111	0.0220	6.0391	3.1292	1.04E-01
345	0.40	0.000	1.077	0.0197	7.2195	3.7408	1.07E-01
346	1.20	0.000	0.807	0.0210	8.0893	4.1916	1.10E-01
347	0.00	0.000	0.494	0.0194	8.7101	4.5132	1.11E-01
348	0.00	0.000	0.081	0.0191	9.1315	4.7316	1.13E-01
349	37.00	0.000	2.154	0.0836	9.3938	4.8675	1.13E-01
350	7.00	0.000	5.456	0.0499	9.2106	4.7726	1.13E-01
351	0.60	0.000	5.406	0.0321	8.4649	4.3861	1.11E-01
352	0.00	0.000	3.718	0.0197	8.7843	4.5517	1.12E-01
353	1.00	0.000	0.677	0.0208	9.1983	4.7662	1.13E-01
354	0.00	0.000	0.447	0.0193	9.5085	4.9269	1.14E-01
355	0.00	0.000	0.079	0.0191	9.6881	5.0200	1.14E-01
356	0.00	0.000	0.016	0.0190	9.2122	4.7734	1.13E-01
357	0.00	0.000	0.004	0.0190	7.9434	4.1160	1.09E-01
358	0.00	0.000	0.001	0.0190	6.8463	3.5475	1.06E-01
359	0.00	0.000	0.000	0.0190	5.8977	3.0559	1.03E-01
360	0.00	0.000	0.000	0.0190	5.0773	2.6309	1.01E-01
361	0.00	0.000	0.000	0.0190	4.3680	2.2633	9.90E-02
362	3.00	0.000	0.567	0.0271	3.7546	1.9455	9.72E-02
363	0.40	0.000	0.527	0.0267	3.2242	1.6707	9.57E-02
364	0.00	0.000	0.626	0.0246	2.7656	1.4330	9.44E-02
365	0.00	0.000	0.719	0.0222	2.3690	1.2275	9.32E-02

* = Frozen (air or soil)

Annual Totals for Year 16			
	mm*	cubic meters	percent
Precipitation	1,941.60	19,416.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	474.231	4,742.3	24.42
Drainage Collected from Layer 2	1,596.5122	15,965.1	82.23
Percolation/Leakage through Layer 3	49.128957	491.3	2.53
Average Head on Top of Layer 3	29.6114 (cm)	---	---
Change in Water Storage	-178.2724	-1,782.7	-9.18
Soil Water at Start of Year	1,036.7798	10,367.8	53.40
Soil Water at End of Year	858.5073	8,585.1	44.22
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 17

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			0.00	0.000	0.242	0.0192		1.7295	0.8962	9.14E-02
2			0.00	0.000	0.061	0.0190		1.4731	0.7633	9.06E-02
3			0.00	0.000	0.008	0.0190		1.2517	0.6486	9.00E-02
4			0.00	0.000	0.000	0.0190		1.0602	0.5494	8.95E-02
5			0.00	0.000	0.000	0.0190		0.8944	0.4634	8.90E-02
6	*Note: head c		0.00	0.000	0.000	0.0190		0.7509	0.3891	8.86E-02
7			0.00	0.000	0.000	0.0190		0.6269	0.3248	8.82E-02
8			0.00	0.000	0.000	0.0190		0.5197	0.2693	8.79E-02
9			0.00	0.000	0.000	0.0190		0.4269	0.2212	8.76E-02
10			0.00	0.000	0.000	0.0190		0.3467	0.1797	8.74E-02
11			0.00	0.000	0.000	0.0190		0.2774	0.1437	8.72E-02
12			0.00	0.000	0.000	0.0190		0.2174	0.1127	8.70E-02
13			0.00	0.000	0.000	0.0190		0.1656	0.0858	8.69E-02
14			0.00	0.000	0.000	0.0190		0.1207	0.0626	8.67E-02
15			3.50	0.000	0.291	0.0297		0.0820	0.0425	8.66E-02
16			7.00	0.000	0.415	0.0516		0.0484	0.0251	8.65E-02
17			7.00	0.000	0.555	0.0642		0.0195	0.0101	8.65E-02
18			61.00	0.000	0.562	0.1053		0.0008	0.0002	1.16E-02
19			17.00	0.000	4.855	0.0847		0.0262	0.0136	2.17E-02
20			1.00	0.000	5.495	0.0477		0.5666	0.2936	8.80E-02
21			1.00	0.000	6.273	0.0280		1.2424	0.6438	9.00E-02

22	0.00	0.000	2.609	0.0193	3.4866	1.8066	9.64E-02
23	1.00	0.000	0.518	0.0209	5.4571	2.8276	1.02E-01
24	5.00	0.000	2.550	0.0291	6.9851	3.6194	1.07E-01
25	62.50	0.000	5.403	0.1157	8.1282	4.2117	1.10E-01
26	3.00	0.000	5.154	0.0508	8.2653	4.2827	1.10E-01
27	5.00	0.000	6.661	0.0453	8.8120	4.5660	1.12E-01
28	0.00	0.000	4.717	0.0296	10.3663	5.3714	1.16E-01
29	1.00	0.000	3.592	0.0209	11.4468	5.9313	1.19E-01
30	2.30	0.000	2.005	0.0219	12.1603	6.3010	1.21E-01
31	8.70	0.000	3.174	0.0403	12.5895	6.5234	1.23E-01
32	34.00	0.000	5.581	0.0878	12.7995	6.6322	1.23E-01
33	1.00	0.000	6.160	0.0349	12.3289	6.3884	1.22E-01
34	18.50	0.000	4.126	0.0828	11.2404	5.8243	1.19E-01
35	183.00	0.000	3.628	0.1413	11.5772	5.9988	1.20E-01
36	6.50	0.000	6.290	0.0499	10.3709	5.3738	1.16E-01
37	0.00	0.000	6.894	0.0265	15.0722	7.8098	1.30E-01
38	0.00	0.000	2.219	0.0191	21.4251	11.1016	1.48E-01
39	2.80	0.000	2.011	0.0218	25.0570	12.9835	1.59E-01
40	0.00	0.000	0.480	0.0202	26.8353	13.9050	1.64E-01
41	2.50	0.000	1.927	0.0221	27.5695	14.2854	1.66E-01
42	2.00	0.000	2.006	0.0221	27.6238	14.3135	1.66E-01
43	0.00	0.000	0.742	0.0196	27.2143	14.1013	1.65E-01
44	2.00	0.000	0.910	0.0232	26.4938	13.7280	1.63E-01
45	0.00	0.000	0.711	0.0209	25.5708	13.2498	1.60E-01
46	1.20	0.000	0.600	0.0229	24.5236	12.7071	1.57E-01
47	8.00	0.000	0.937	0.0464	23.4080	12.1291	1.54E-01
48	0.00	0.000	0.994	0.0431	22.2643	11.5364	1.51E-01
49	0.00	0.000	0.968	0.0399	21.1209	10.9440	1.47E-01
50	0.00	0.000	0.901	0.0368	19.9981	10.3622	1.44E-01

51	0.00	0.000	0.856	0.0340	18.9095	9.7981	1.41E-01
52	0.00	0.000	0.802	0.0313	17.8642	9.2565	1.38E-01
53	0.00	0.000	0.787	0.0287	16.8337	8.7226	1.35E-01
54	1.60	0.000	0.812	0.0313	14.8396	7.6893	1.29E-01
55	24.00	0.000	0.782	0.0976	12.8096	6.6374	1.23E-01
56	2.00	0.000	4.450	0.0477	11.0991	5.7511	1.18E-01
57	1.50	0.000	5.110	0.0351	9.9844	5.1735	1.15E-01
58	23.00	0.000	3.315	0.0954	9.8210	5.0888	1.15E-01
59	36.00	0.000	5.597	0.0956	9.6994	5.0258	1.14E-01
60	14.00	0.000	5.734	0.0694	8.4529	4.3799	1.11E-01
61	7.00	0.000	5.554	0.0661	7.3813	3.8247	1.08E-01
62	15.00	0.000	4.607	0.0741	7.3966	3.8326	1.08E-01
63	2.50	0.000	7.258	0.0433	7.4553	3.8631	1.08E-01
64	0.00	0.000	6.162	0.0215	7.2775	3.7709	1.07E-01
65	0.00	0.000	0.612	0.0194	8.4692	4.3884	1.11E-01
66	2.00	0.000	1.285	0.0218	9.4869	4.9157	1.14E-01
67	0.00	0.000	0.685	0.0195	10.1956	5.2829	1.16E-01
68	60.00	0.000	2.845	0.1037	10.6710	5.5293	1.17E-01
69	8.00	0.000	4.738	0.0657	10.2634	5.3181	1.16E-01
70	0.00	0.000	5.340	0.0440	9.6039	4.9763	1.14E-01
71	0.80	0.000	3.731	0.0342	10.5136	5.4477	1.17E-01
72	0.00	0.000	3.444	0.0228	11.4466	5.9312	1.19E-01
73	0.00	0.000	1.104	0.0191	12.0554	6.2466	1.21E-01
74	0.80	0.000	0.380	0.0205	12.4091	6.4299	1.22E-01
75	47.00	0.000	2.836	0.0915	12.5658	6.5111	1.23E-01
76	98.00	0.000	3.208	0.1044	12.0751	6.2568	1.21E-01
77	140.00	0.000	4.138	0.1246	10.4210	5.3998	1.16E-01
78	90.00	0.000	2.981	0.1065	8.9888	4.6576	1.12E-01
79	57.00	0.000	2.771	0.0955	10.5345	5.4585	1.17E-01

80	155.00	0.000	2.972	0.1348	20.6500	10.7000	1.46E-01
81	19.00	0.000	6.668	0.0821	282.1882	20.9584	8.99E-01
82	0.00	0.000	4.848	0.0494	507.0870	27.4481	1.55E+00
83	4.00	0.000	6.278	0.0418	481.1681	26.5890	1.47E+00
84	0.00	0.000	4.524	0.0258	452.1204	25.6343	1.39E+00
85	0.90	0.000	2.397	0.0208	424.2938	24.7284	1.31E+00
86	0.10	0.000	0.497	0.0194	397.2648	23.8575	1.23E+00
87	0.70	0.000	0.676	0.0195	371.2173	23.0273	1.16E+00
88	0.70	0.000	0.640	0.0197	346.1451	22.1415	1.08E+00
89	0.00	0.000	0.124	0.0193	322.0172	21.4100	1.01E+00
90	0.00	0.000	0.066	0.0191	298.7179	20.7128	9.47E-01
91	0.00	0.000	0.020	0.0190	276.2088	20.0494	8.82E-01
92	0.00	0.000	0.005	0.0190	254.4521	19.4197	8.19E-01
93	0.00	0.000	0.001	0.0190	233.4102	18.8238	7.59E-01
94	0.00	0.000	0.000	0.0190	213.0449	18.2624	7.00E-01
95	0.00	0.000	0.000	0.0190	161.9226	17.2365	5.53E-01
96	0.00	0.000	0.000	0.0190	90.6396	16.0478	3.47E-01
97	0.00	0.000	0.000	0.0190	59.3540	15.5955	2.57E-01
98	0.00	0.000	0.000	0.0190	56.5426	15.5906	2.49E-01
99	0.00	0.000	0.000	0.0190	52.1502	15.5830	2.37E-01
100	0.00	0.000	0.000	0.0190	46.4928	15.5733	2.20E-01
101	0.00	0.000	0.000	0.0190	39.8052	15.5617	2.01E-01
102	2.00	0.000	0.337	0.0245	31.7721	15.3667	1.78E-01
103	0.00	0.000	0.280	0.0236	27.8511	14.4313	1.67E-01
104	0.00	0.000	0.435	0.0222	26.0022	13.4733	1.61E-01
105	0.00	0.000	0.422	0.0208	24.2628	12.5720	1.56E-01
106	0.00	0.000	0.385	0.0195	22.6357	11.7289	1.52E-01
107	0.00	0.000	0.115	0.0191	21.1203	10.9437	1.47E-01
108	0.00	0.000	0.020	0.0190	19.7333	10.2250	1.43E-01

109	0.00	0.000	0.005	0.0190	17.7750	9.2103	1.38E-01
110	0.00	0.000	0.002	0.0190	15.3478	7.9526	1.31E-01
111	0.00	0.000	0.000	0.0190	13.2490	6.8651	1.25E-01
112	0.00	0.000	0.000	0.0190	11.4341	5.9247	1.19E-01
113	0.00	0.000	0.000	0.0190	9.8648	5.1115	1.15E-01
114	0.00	0.000	0.000	0.0190	8.5077	4.4084	1.11E-01
115	0.00	0.000	0.000	0.0190	7.3343	3.8003	1.08E-01
116	0.00	0.000	0.000	0.0190	6.3196	3.2746	1.05E-01
117	0.00	0.000	0.000	0.0190	5.4422	2.8199	1.02E-01
118	0.30	0.000	0.088	0.0197	4.6835	2.4268	9.99E-02
119	7.50	0.000	0.241	0.0439	4.0274	2.0869	9.80E-02
120	0.00	0.000	0.373	0.0427	3.4601	1.7929	9.64E-02
121	0.00	0.000	0.433	0.0412	2.9696	1.5387	9.50E-02
122	0.00	0.000	0.426	0.0398	2.5454	1.3189	9.37E-02
123	0.00	0.000	0.420	0.0384	2.1786	1.1289	9.27E-02
124	0.00	0.000	0.419	0.0370	1.8614	0.9645	9.18E-02
125	0.00	0.000	0.411	0.0356	1.5872	0.8224	9.10E-02
126	0.00	0.000	0.406	0.0343	1.3500	0.6995	9.03E-02
127	0.00	0.000	0.399	0.0329	1.1449	0.5933	8.97E-02
128	0.00	0.000	0.405	0.0316	0.9676	0.5014	8.92E-02
129	0.00	0.000	0.400	0.0303	0.8143	0.4219	8.87E-02
130	0.00	0.000	0.396	0.0289	0.6817	0.3532	8.84E-02
131	0.00	0.000	0.391	0.0276	0.5670	0.2938	8.80E-02
132	0.00	0.000	0.386	0.0263	0.4679	0.2424	8.77E-02
133	2.00	0.000	0.437	0.0316	0.3821	0.1980	8.75E-02
134	0.00	0.000	0.378	0.0303	0.3080	0.1596	8.73E-02
135	0.00	0.000	0.374	0.0291	0.2439	0.1264	8.71E-02
136	0.00	0.000	0.370	0.0278	0.1885	0.0977	8.69E-02
137	0.00	0.000	0.366	0.0266	0.1405	0.0728	8.68E-02

138	0.00	0.000	0.362	0.0254	0.0991	0.0513	8.67E-02
139	0.50	0.000	0.416	0.0257	0.0633	0.0328	8.66E-02
140	0.00	0.000	0.355	0.0245	0.0325	0.0169	8.65E-02
141	0.00	0.000	0.335	0.0234	0.0068	0.0033	5.30E-02
142	0.00	0.000	0.309	0.0223	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.337	0.0212	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.340	0.0201	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.324	0.0190	0.0000	0.0000	0.00E+00
146	56.00	0.000	0.395	0.1014	0.0449	0.0233	2.17E-02
147	3.00	0.000	3.758	0.0428	0.1498	0.0776	8.68E-02
148	0.60	0.000	4.951	0.0283	0.6907	0.3579	8.84E-02
149	0.00	0.000	2.582	0.0197	2.5385	1.3153	9.37E-02
150	0.00	0.000	0.166	0.0191	4.1479	2.1493	9.83E-02
151	0.00	0.000	0.033	0.0190	5.3948	2.7953	1.02E-01
152	13.00	0.000	2.234	0.0549	6.3463	3.2884	1.05E-01
153	10.00	0.000	3.917	0.0600	7.0682	3.6625	1.07E-01
154	4.00	0.000	3.939	0.0596	7.3549	3.8110	1.08E-01
155	6.00	0.000	5.453	0.0604	7.3519	3.8095	1.08E-01
156	0.00	0.000	5.363	0.0411	7.6564	3.9672	1.08E-01
157	0.00	0.000	5.079	0.0242	6.9726	3.6129	1.06E-01
158	0.00	0.000	1.155	0.0190	6.0872	3.1541	1.04E-01
159	0.00	0.000	0.000	0.0190	5.2661	2.7287	1.02E-01
160	0.00	0.000	0.000	0.0190	4.5312	2.3479	9.94E-02
161	0.00	0.000	0.000	0.0190	3.8958	2.0186	9.76E-02
162	0.00	0.000	0.000	0.0190	3.3463	1.7339	9.60E-02
163	0.00	0.000	0.000	0.0190	2.8711	1.4877	9.47E-02
164	0.00	0.000	0.000	0.0190	2.4603	1.2748	9.35E-02
165	0.00	0.000	0.000	0.0190	2.1050	1.0907	9.25E-02
166	0.00	0.000	0.000	0.0190	1.7978	0.9315	9.16E-02

167	0.00	0.000	0.000	0.0190	1.5321	0.7939	9.08E-02
168	0.00	0.000	0.000	0.0190	1.3024	0.6749	9.01E-02
169	0.00	0.000	0.000	0.0190	1.1038	0.5719	8.96E-02
170	0.00	0.000	0.000	0.0190	0.9320	0.4829	8.91E-02
171	0.00	0.000	0.000	0.0190	0.7835	0.4060	8.87E-02
172	0.00	0.000	0.000	0.0190	0.6551	0.3394	8.83E-02
173	0.00	0.000	0.000	0.0190	0.5440	0.2819	8.80E-02
174	1.00	0.000	0.121	0.0219	0.4480	0.2321	8.77E-02
175	2.00	0.000	0.350	0.0274	0.3649	0.1891	8.74E-02
176	0.00	0.000	0.391	0.0261	0.2931	0.1519	8.72E-02
177	0.00	0.000	0.435	0.0247	0.2310	0.1197	8.71E-02
178	4.50	0.000	0.482	0.0381	0.1773	0.0919	8.69E-02
179	0.00	0.000	0.501	0.0364	0.1309	0.0678	8.68E-02
180	0.00	0.000	0.540	0.0346	0.0908	0.0470	8.67E-02
181	0.40	0.000	0.588	0.0340	0.0561	0.0290	8.66E-02
182	0.00	0.000	0.513	0.0323	0.0260	0.0135	8.65E-02
183	0.00	0.000	0.501	0.0306	0.0031	0.0014	3.23E-02
184	0.00	0.000	0.490	0.0290	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.496	0.0273	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.498	0.0256	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.489	0.0240	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.479	0.0224	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.470	0.0208	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.361	0.0196	0.0000	0.0000	0.00E+00
191	0.30	0.000	0.258	0.0198	0.0000	0.0000	0.00E+00
192	107.00	0.000	0.527	0.1237	0.0867	0.0449	4.34E-02
193	10.00	0.000	4.053	0.0609	0.1499	0.0777	8.68E-02
194	6.00	0.000	5.262	0.0618	1.2285	0.6366	8.99E-02
195	0.00	0.000	5.088	0.0417	3.8833	2.0122	9.76E-02

196	1.70	0.000	4.450	0.0325	6.2634	3.2455	1.04E-01
197	0.30	0.000	3.692	0.0212	8.2117	4.2549	1.10E-01
198	0.00	0.000	0.547	0.0194	9.6240	4.9868	1.14E-01
199	0.00	0.000	0.081	0.0191	10.6182	5.5019	1.17E-01
200	0.00	0.000	0.021	0.0190	11.2852	5.8475	1.19E-01
201	0.00	0.000	0.005	0.0190	11.6967	6.0608	1.20E-01
202	0.00	0.000	0.002	0.0190	11.9095	6.1710	1.21E-01
203	0.00	0.000	0.000	0.0190	11.9684	6.2015	1.21E-01
204	0.00	0.000	0.000	0.0190	11.9093	6.1709	1.21E-01
205	0.00	0.000	0.000	0.0190	11.7620	6.0946	1.20E-01
206	0.00	0.000	0.000	0.0190	11.0826	5.7425	1.18E-01
207	0.00	0.000	0.000	0.0190	9.5608	4.9540	1.14E-01
208	0.00	0.000	0.000	0.0190	8.2449	4.2722	1.10E-01
209	0.00	0.000	0.000	0.0190	7.1070	3.6826	1.07E-01
210	0.00	0.000	0.000	0.0190	6.1231	3.1727	1.04E-01
211	0.00	0.000	0.000	0.0190	5.2723	2.7319	1.02E-01
212	0.00	0.000	0.000	0.0190	4.5365	2.3507	9.95E-02
213	0.00	0.000	0.000	0.0190	3.9004	2.0210	9.76E-02
214	0.00	0.000	0.000	0.0190	3.3503	1.7360	9.60E-02
215	0.00	0.000	0.000	0.0190	2.8746	1.4895	9.47E-02
216	0.00	0.000	0.000	0.0190	2.4632	1.2763	9.35E-02
217	0.00	0.000	0.000	0.0190	2.1076	1.0920	9.25E-02
218	0.00	0.000	0.000	0.0190	1.8000	0.9327	9.16E-02
219	0.00	0.000	0.000	0.0190	1.5340	0.7949	9.08E-02
220	0.00	0.000	0.000	0.0190	1.3041	0.6757	9.02E-02
221	0.00	0.000	0.000	0.0190	1.1052	0.5727	8.96E-02
222	0.00	0.000	0.000	0.0190	0.9333	0.4836	8.91E-02
223	0.00	0.000	0.000	0.0190	0.7846	0.4065	8.87E-02
224	0.00	0.000	0.000	0.0190	0.6560	0.3399	8.83E-02

225	0.00	0.000	0.000	0.0190	0.5448	0.2823	8.80E-02
226	0.00	0.000	0.000	0.0190	0.4487	0.2325	8.77E-02
227	0.00	0.000	0.000	0.0190	0.3655	0.1894	8.75E-02
228	0.00	0.000	0.000	0.0190	0.2936	0.1522	8.72E-02
229	0.00	0.000	0.000	0.0190	0.2315	0.1199	8.71E-02
230	0.00	0.000	0.000	0.0190	0.1777	0.0921	8.69E-02
231	0.00	0.000	0.000	0.0190	0.1313	0.0680	8.68E-02
232	0.00	0.000	0.000	0.0190	0.0911	0.0472	8.67E-02
233	1.50	0.000	0.139	0.0235	0.0563	0.0292	8.66E-02
234	0.00	0.000	0.190	0.0229	0.0263	0.0136	8.65E-02
235	0.00	0.000	0.300	0.0219	0.0032	0.0014	3.30E-02
236	0.80	0.000	0.361	0.0234	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.331	0.0223	0.0000	0.0000	8.55E-08
238	0.00	0.000	0.298	0.0213	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.286	0.0203	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.225	0.0196	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.141	0.0191	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.022	0.0190	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.005	0.0190	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
262	10.00	0.000	0.290	0.0514	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.299	0.0504	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.325	0.0492	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.322	0.0480	0.0016	0.0008	2.18E-02
266	0.00	0.000	0.320	0.0465	0.0160	0.0083	8.64E-02
267	0.00	0.000	0.317	0.0451	0.0238	0.0123	8.65E-02
268	0.00	0.000	0.315	0.0440	0.0148	0.0076	8.29E-02
269	0.00	0.000	0.312	0.0430	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.310	0.0419	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.308	0.0409	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.306	0.0399	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.304	0.0389	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.301	0.0379	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.299	0.0369	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.297	0.0359	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.295	0.0349	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.293	0.0339	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.291	0.0330	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.289	0.0320	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.288	0.0310	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.286	0.0301	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.284	0.0291	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.282	0.0282	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.281	0.0273	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.279	0.0263	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.277	0.0254	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.276	0.0245	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.274	0.0236	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.272	0.0227	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.271	0.0218	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.269	0.0209	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.268	0.0200	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.266	0.0191	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.025	0.0190	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
301	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
310	5.00	0.000	0.184	0.0351	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.164	0.0345	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.200	0.0338	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.221	0.0331	0.0000	0.0000	0.00E+00
314	0.00	0.000	0.220	0.0324	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.219	0.0316	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.218	0.0309	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.217	0.0302	0.0000	0.0000	0.00E+00
318	0.00	0.000	0.216	0.0295	0.0000	0.0000	0.00E+00
319	0.00	0.000	0.215	0.0287	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.214	0.0280	0.0000	0.0000	0.00E+00
321	0.00	0.000	0.213	0.0273	0.0000	0.0000	0.00E+00
322	0.00	0.000	0.213	0.0266	0.0000	0.0000	0.00E+00
323	1.00	0.000	0.300	0.0289	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.211	0.0282	0.0000	0.0000	0.00E+00
325	0.00	0.000	0.222	0.0275	0.0000	0.0000	0.00E+00
326	0.00	0.000	0.222	0.0268	0.0000	0.0000	0.00E+00
327	0.00	0.000	0.221	0.0260	0.0000	0.0000	0.00E+00
328	0.00	0.000	0.220	0.0253	0.0000	0.0000	0.00E+00
329	0.00	0.000	0.219	0.0246	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.192	0.0239	0.0000	0.0000	0.00E+00
331	0.00	0.000	0.219	0.0232	0.0000	0.0000	0.00E+00
332	0.00	0.000	0.223	0.0224	0.0000	0.0000	0.00E+00
333	0.00	0.000	0.223	0.0217	0.0000	0.0000	0.00E+00
334	0.00	0.000	0.221	0.0210	0.0000	0.0000	0.00E+00
335	0.00	0.000	0.214	0.0203	0.0000	0.0000	0.00E+00
336	0.00	0.000	0.214	0.0195	0.0000	0.0000	0.00E+00
337	0.00	0.000	0.124	0.0191	0.0000	0.0000	0.00E+00
338	0.00	0.000	0.038	0.0190	0.0000	0.0000	0.00E+00
339	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
340	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

341	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
342	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
343	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
344	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
345	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
346	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
347	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
348	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
349	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
350	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
351	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
352	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
353	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
354	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
355	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
356	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
357	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
358	1.80	0.000	0.185	0.0244	0.0000	0.0000	0.00E+00
359	17.20	0.000	0.267	0.0808	0.0000	0.0000	0.00E+00
360	7.00	0.000	0.296	0.0684	0.0000	0.0000	1.71E-07
361	0.00	0.000	0.202	0.0566	0.0449	0.0233	2.17E-02
362	0.00	0.000	0.202	0.0554	0.7379	0.3823	8.85E-02
363	0.00	0.000	0.201	0.0527	2.0322	1.0530	9.23E-02
364	0.00	0.000	0.201	0.0520	3.0113	1.5603	9.51E-02
365	0.00	0.000	0.200	0.0514	2.9037	1.5046	9.48E-02

* = Frozen (air or soil)

Annual Totals for Year 17			
	mm*	cubic meters	percent
Precipitation	1,540.50	15,405.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	327.628	3,276.3	21.27
Drainage Collected from Layer 2	1,161.4683	11,614.7	75.40
Percolation/Leakage through Layer 3	39.081136	390.8	2.54
Average Head on Top of Layer 3	18.6058 (cm)	---	---
Change in Water Storage	12.3226	123.2	0.80
Soil Water at Start of Year	858.5073	8,585.1	55.73
Soil Water at End of Year	870.8299	8,708.3	56.53
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 18

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			42.00	0.000	0.301	0.1067		2.4884	1.2894	9.36E-02
2			0.00	0.000	6.565	0.0433		2.1556	1.1169	9.26E-02
3			0.00	0.000	6.493	0.0217		2.7816	1.4413	9.44E-02
4			0.00	0.000	0.809	0.0190		4.2571	2.2059	9.87E-02
5			0.00	0.000	0.000	0.0190		5.4338	2.8156	1.02E-01
6	*Note: head c		0.00	0.000	0.000	0.0190		6.3316	3.2808	1.05E-01
7			0.00	0.000	0.000	0.0190		7.0021	3.6282	1.07E-01
8			0.00	0.000	0.000	0.0190		7.4889	3.8805	1.08E-01
9			0.00	0.000	0.000	0.0190		6.9248	3.5881	1.06E-01
10			0.00	0.000	0.000	0.0190		5.9655	3.0911	1.04E-01
11			0.00	0.000	0.000	0.0190		5.1360	2.6613	1.01E-01
12			0.00	0.000	0.000	0.0190		4.4187	2.2896	9.91E-02
13			0.00	0.000	0.000	0.0190		3.7985	1.9682	9.73E-02
14			0.00	0.000	0.000	0.0190		3.2622	1.6903	9.58E-02
15			0.00	0.000	0.000	0.0190		2.7984	1.4500	9.45E-02
16			5.00	0.000	0.376	0.0344		2.3974	1.2422	9.33E-02
17			22.00	0.000	0.719	0.0994		2.0506	1.0625	9.23E-02
18			0.40	0.000	5.252	0.0409		1.8211	0.9436	9.16E-02
19			0.00	0.000	0.694	0.0386		2.1558	1.1170	9.26E-02
20			6.00	0.000	0.731	0.0561		3.0296	1.5698	9.51E-02
21			5.00	0.000	5.099	0.0537		4.0623	2.1049	9.81E-02

22	2.00	0.000	3.122	0.0494	4.0980	2.1234	9.82E-02
23	85.60	0.000	2.679	0.1153	3.6446	1.8885	9.69E-02
24	220.00	0.000	3.305	0.1556	3.2111	1.6638	9.56E-02
25	4.00	0.000	5.875	0.0406	3.0060	1.5576	9.51E-02
26	0.00	0.000	5.881	0.0210	13.5765	7.0348	1.25E-01
27	0.00	0.000	0.507	0.0193	23.9884	12.4298	1.55E-01
28	0.00	0.000	0.066	0.0191	33.5966	15.1891	1.83E-01
29	0.00	0.000	0.016	0.0190	45.0807	15.5708	2.16E-01
30	0.00	0.000	0.004	0.0190	49.8889	15.5791	2.30E-01
31	0.00	0.000	0.001	0.0190	51.2740	15.5815	2.34E-01
32	0.00	0.000	0.000	0.0190	50.1324	15.5795	2.31E-01
33	0.00	0.000	0.000	0.0190	47.0585	15.5742	2.22E-01
34	0.00	0.000	0.000	0.0190	42.4664	15.5663	2.09E-01
35	0.00	0.000	0.000	0.0190	36.6553	15.5563	1.92E-01
36	0.00	0.000	0.000	0.0190	29.1332	15.0956	1.70E-01
37	0.00	0.000	0.000	0.0190	27.4283	14.2122	1.65E-01
38	0.00	0.000	0.000	0.0190	25.7684	13.3521	1.61E-01
39	0.00	0.000	0.000	0.0190	24.1751	12.5265	1.56E-01
40	1.00	0.000	0.116	0.0219	22.6600	11.7415	1.52E-01
41	5.00	0.000	0.364	0.0374	21.2297	11.0004	1.48E-01
42	0.00	0.000	0.593	0.0354	19.8869	10.3046	1.44E-01
43	2.00	0.000	0.683	0.0398	18.6375	9.6572	1.40E-01
44	0.00	0.000	0.626	0.0377	16.5912	8.5969	1.34E-01
45	0.00	0.000	0.615	0.0357	14.3241	7.4222	1.28E-01
46	14.00	0.000	0.629	0.0802	12.3638	6.4064	1.22E-01
47	1.00	0.000	0.661	0.0575	10.6687	5.5281	1.17E-01
48	0.00	0.000	4.139	0.0424	9.4351	4.8889	1.14E-01
49	40.00	0.000	0.644	0.1000	9.2574	4.7968	1.13E-01
50	2.00	0.000	6.482	0.0453	8.4792	4.3936	1.11E-01

51	0.00	0.000	6.407	0.0239	7.8186	4.0513	1.09E-01
52	5.50	0.000	4.065	0.0276	8.3221	4.3122	1.10E-01
53	0.00	0.000	1.950	0.0211	8.8941	4.6085	1.12E-01
54	0.00	0.000	0.543	0.0193	9.3286	4.8337	1.13E-01
55	12.00	0.000	4.488	0.0443	9.5985	4.9735	1.14E-01
56	0.00	0.000	4.614	0.0289	9.7498	5.0520	1.14E-01
57	0.00	0.000	2.686	0.0200	8.9383	4.6314	1.12E-01
58	0.00	0.000	0.224	0.0192	7.7066	3.9932	1.09E-01
59	14.00	0.000	1.539	0.0608	6.6415	3.4414	1.06E-01
60	2.00	0.000	5.641	0.0445	5.7529	2.9809	1.03E-01
61	0.70	0.000	6.128	0.0264	5.2333	2.7117	1.01E-01
62	27.30	0.000	5.147	0.0961	4.5093	2.3365	9.94E-02
63	0.20	0.000	3.687	0.0420	3.9986	2.0719	9.79E-02
64	0.20	0.000	5.531	0.0242	3.6296	1.8807	9.69E-02
65	19.00	0.000	5.801	0.0682	4.2602	2.2074	9.87E-02
66	0.00	0.000	5.758	0.0474	5.1358	2.6611	1.01E-01
67	0.00	0.000	5.404	0.0294	5.2416	2.7160	1.01E-01
68	0.00	0.000	3.130	0.0190	4.5100	2.3369	9.94E-02
69	3.00	0.000	2.119	0.0219	3.8774	2.0091	9.76E-02
70	0.00	0.000	0.459	0.0204	3.3304	1.7257	9.60E-02
71	0.00	0.000	0.341	0.0193	2.8574	1.4806	9.46E-02
72	0.00	0.000	0.060	0.0191	2.4484	1.2687	9.34E-02
73	0.00	0.000	0.015	0.0190	2.0947	1.0854	9.24E-02
74	0.00	0.000	0.004	0.0190	1.7889	0.9269	9.16E-02
75	0.00	0.000	0.001	0.0190	1.5245	0.7899	9.08E-02
76	0.00	0.000	0.000	0.0190	1.2958	0.6714	9.01E-02
77	0.00	0.000	0.000	0.0190	1.0980	0.5690	8.96E-02
78	0.00	0.000	0.000	0.0190	0.9271	0.4804	8.91E-02
79	0.00	0.000	0.000	0.0190	0.7792	0.4038	8.86E-02

80	15.00	0.000	0.603	0.0670	0.6514	0.3375	8.83E-02
81	9.00	0.000	0.765	0.0707	0.5408	0.2802	8.80E-02
82	15.00	0.000	5.825	0.0709	0.4452	0.2307	8.77E-02
83	4.00	0.000	6.032	0.0561	0.6430	0.3332	8.83E-02
84	0.00	0.000	5.232	0.0363	1.3164	0.6821	9.02E-02
85	0.00	0.000	5.034	0.0195	2.4883	1.2893	9.36E-02
86	0.00	0.000	0.108	0.0191	3.5743	1.8520	9.67E-02
87	0.00	0.000	0.027	0.0190	4.1663	2.1588	9.84E-02
88	0.00	0.000	0.007	0.0190	3.6299	1.8809	9.69E-02
89	0.00	0.000	0.002	0.0190	3.1164	1.6148	9.54E-02
90	0.00	0.000	0.000	0.0190	2.6723	1.3847	9.41E-02
91	0.00	0.000	0.000	0.0190	2.2883	1.1857	9.30E-02
92	0.00	0.000	0.000	0.0190	1.9563	1.0137	9.20E-02
93	3.00	0.000	0.436	0.0275	1.6692	0.8649	9.12E-02
94	12.00	0.000	0.634	0.0654	1.4210	0.7363	9.05E-02
95	0.20	0.000	0.847	0.0595	1.2689	0.6575	9.01E-02
96	0.00	0.000	0.787	0.0537	1.4512	0.7520	9.06E-02
97	0.40	0.000	0.800	0.0503	1.4010	0.7259	9.04E-02
98	0.00	0.000	0.721	0.0465	1.3178	0.6828	9.02E-02
99	0.00	0.000	0.686	0.0442	1.1938	0.6186	8.98E-02
100	3.00	0.000	0.717	0.0518	1.0098	0.5232	8.93E-02
101	23.50	0.000	0.694	0.0887	0.8508	0.4408	8.88E-02
102	14.00	0.000	4.972	0.0682	0.7132	0.3696	8.85E-02
103	2.00	0.000	6.073	0.0465	0.7800	0.4042	8.86E-02
104	1.00	0.000	5.814	0.0300	1.4848	0.7693	9.07E-02
105	0.00	0.000	3.094	0.0197	2.8924	1.4987	9.47E-02
106	2.00	0.000	1.289	0.0220	4.1244	2.1371	9.83E-02
107	0.00	0.000	0.735	0.0196	5.0863	2.6355	1.01E-01
108	0.00	0.000	0.130	0.0192	5.8103	3.0107	1.03E-01

109	0.00	0.000	0.034	0.0190	5.3876	2.7916	1.02E-01
110	0.00	0.000	0.010	0.0190	4.6364	2.4024	9.98E-02
111	0.00	0.000	0.002	0.0190	3.9868	2.0658	9.79E-02
112	0.00	0.000	0.001	0.0190	3.4250	1.7747	9.63E-02
113	0.00	0.000	0.000	0.0190	2.9392	1.5230	9.49E-02
114	0.00	0.000	0.000	0.0190	2.5191	1.3053	9.37E-02
115	0.00	0.000	0.000	0.0190	2.1559	1.1171	9.26E-02
116	0.00	0.000	0.000	0.0190	1.8418	0.9543	9.17E-02
117	0.00	0.000	0.000	0.0190	1.5702	0.8136	9.09E-02
118	0.00	0.000	0.000	0.0190	1.3353	0.6919	9.02E-02
119	0.00	0.000	0.000	0.0190	1.1322	0.5867	8.97E-02
120	0.00	0.000	0.000	0.0190	0.9566	0.4957	8.92E-02
121	0.00	0.000	0.000	0.0190	0.8048	0.4170	8.87E-02
122	0.20	0.000	0.104	0.0193	0.6735	0.3490	8.83E-02
123	0.00	0.000	0.053	0.0191	0.5599	0.2901	8.80E-02
124	0.00	0.000	0.030	0.0190	0.4617	0.2392	8.77E-02
125	0.00	0.000	0.009	0.0190	0.3768	0.1953	8.75E-02
126	0.00	0.000	0.002	0.0190	0.3034	0.1572	8.73E-02
127	0.00	0.000	0.001	0.0190	0.2399	0.1243	8.71E-02
128	3.00	0.000	0.288	0.0280	0.1850	0.0959	8.69E-02
129	2.00	0.000	0.282	0.0338	0.1376	0.0713	8.68E-02
130	0.20	0.000	0.434	0.0330	0.0965	0.0500	8.67E-02
131	0.60	0.000	0.488	0.0334	0.0610	0.0316	8.66E-02
132	0.00	0.000	0.453	0.0318	0.0303	0.0157	8.65E-02
133	0.00	0.000	0.429	0.0304	0.0051	0.0026	4.54E-02
134	0.00	0.000	0.418	0.0290	0.0000	0.0000	0.00E+00
135	0.00	0.000	0.450	0.0275	0.0000	0.0000	0.00E+00
136	1.20	0.000	0.491	0.0299	0.0000	0.0000	0.00E+00
137	20.80	0.000	0.484	0.0976	0.0000	0.0000	0.00E+00

138	0.00	0.000	0.469	0.0583	0.0048	0.0025	2.16E-02
139	2.40	0.000	0.511	0.0631	0.2916	0.1511	8.72E-02
140	0.00	0.000	0.454	0.0584	1.4765	0.7651	9.07E-02
141	0.00	0.000	0.447	0.0538	2.5073	1.2992	9.36E-02
142	0.00	0.000	0.440	0.0500	2.9625	1.5351	9.49E-02
143	5.00	0.000	0.482	0.0636	2.6434	1.3697	9.40E-02
144	0.00	0.000	0.428	0.0567	2.5644	1.3287	9.38E-02
145	0.00	0.000	0.422	0.0550	2.4518	1.2704	9.35E-02
146	0.00	0.000	0.416	0.0536	2.1030	1.0897	9.25E-02
147	0.00	0.000	0.411	0.0523	1.7961	0.9307	9.16E-02
148	0.00	0.000	0.405	0.0509	1.5307	0.7931	9.08E-02
149	9.00	0.000	0.450	0.0728	1.3011	0.6742	9.01E-02
150	0.00	0.000	4.578	0.0521	1.1543	0.5981	8.97E-02
151	0.00	0.000	4.575	0.0368	1.6652	0.8628	9.12E-02
152	0.00	0.000	5.097	0.0198	1.6160	0.8373	9.11E-02
153	0.00	0.000	0.191	0.0190	1.3876	0.7190	9.04E-02
154	0.00	0.000	0.000	0.0190	1.1813	0.6121	8.98E-02
155	0.00	0.000	0.000	0.0190	0.9991	0.5177	8.93E-02
156	0.00	0.000	0.000	0.0190	0.8415	0.4360	8.88E-02
157	0.80	0.000	0.141	0.0212	0.7052	0.3654	8.84E-02
158	0.00	0.000	0.413	0.0198	0.5874	0.3043	8.81E-02
159	0.10	0.000	0.270	0.0193	0.4855	0.2515	8.78E-02
160	0.20	0.000	0.171	0.0193	0.3973	0.2059	8.75E-02
161	0.00	0.000	0.065	0.0191	0.3212	0.1664	8.73E-02
162	0.00	0.000	0.028	0.0190	0.2553	0.1323	8.71E-02
163	0.00	0.000	0.009	0.0190	0.1983	0.1028	8.70E-02
164	0.00	0.000	0.002	0.0190	0.1490	0.0772	8.68E-02
165	0.00	0.000	0.001	0.0190	0.1064	0.0552	8.67E-02
166	0.00	0.000	0.000	0.0190	0.0696	0.0361	8.66E-02

167	0.00	0.000	0.000	0.0190	0.0378	0.0196	8.65E-02
168	0.00	0.000	0.000	0.0190	0.0102	0.0052	6.75E-02
169	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
198	0.50	0.000	0.082	0.0204	0.0000	0.0000	0.00E+00
199	0.60	0.000	0.205	0.0217	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.216	0.0210	0.0000	0.0000	2.56E-07
201	0.00	0.000	0.194	0.0203	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.242	0.0195	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.126	0.0191	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.028	0.0190	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	1.00	0.000	0.074	0.0221	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.113	0.0217	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.149	0.0212	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.179	0.0206	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.178	0.0200	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.177	0.0194	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.097	0.0191	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.025	0.0190	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.006	0.0190	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
266	4.00	0.000	0.153	0.0318	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.159	0.0313	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.194	0.0306	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.193	0.0300	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.192	0.0294	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.192	0.0287	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.191	0.0281	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.190	0.0274	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.189	0.0268	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.209	0.0261	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.208	0.0254	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.207	0.0247	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.207	0.0240	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.206	0.0234	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.205	0.0227	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.204	0.0220	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.203	0.0213	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.203	0.0206	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.202	0.0200	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.214	0.0193	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.067	0.0190	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.010	0.0190	0.0000	0.0000	0.00E+00
288	2.80	0.000	0.157	0.0278	0.0000	0.0000	0.00E+00
289	14.50	0.000	0.245	0.0753	0.0000	0.0000	0.00E+00
290	4.00	0.000	0.276	0.0643	0.0239	0.0124	4.33E-02
291	0.00	0.000	0.216	0.0595	0.1799	0.0932	8.69E-02
292	0.00	0.000	0.215	0.0542	0.9982	0.5172	8.93E-02
293	2.00	0.000	0.281	0.0586	1.8882	0.9784	9.18E-02
294	0.00	0.000	0.213	0.0574	2.1261	1.1016	9.25E-02
295	1.50	0.000	0.280	0.0598	1.8576	0.9625	9.17E-02
296	0.00	0.000	0.212	0.0576	1.7208	0.8916	9.14E-02
297	0.00	0.000	0.211	0.0550	1.5989	0.8285	9.10E-02
298	0.00	0.000	0.211	0.0522	1.5165	0.7858	9.08E-02
299	0.00	0.000	0.210	0.0498	1.4432	0.7478	9.06E-02
300	0.00	0.000	0.209	0.0478	1.3457	0.6973	9.03E-02
301	0.00	0.000	0.208	0.0461	1.2337	0.6393	9.00E-02
302	0.00	0.000	0.208	0.0445	1.1183	0.5795	8.96E-02
303	0.00	0.000	0.207	0.0431	1.0053	0.5209	8.93E-02
304	0.00	0.000	0.206	0.0419	0.8978	0.4652	8.90E-02
305	0.00	0.000	0.206	0.0407	0.7975	0.4132	8.87E-02
306	22.00	0.000	0.276	0.0921	0.6981	0.3617	8.84E-02
307	4.00	0.000	0.276	0.0598	0.5833	0.3023	8.81E-02
308	0.00	0.000	0.204	0.0549	0.5520	0.2860	8.80E-02
309	0.00	0.000	0.203	0.0531	1.3694	0.7096	9.03E-02
310	5.40	0.000	0.275	0.0622	2.6543	1.3754	9.40E-02
311	0.00	0.000	0.202	0.0574	3.6812	1.9075	9.70E-02

312	0.00	0.000	0.201	0.0548	4.1035	2.1263	9.82E-02
313	0.00	0.000	0.201	0.0526	4.7507	2.4616	1.00E-01
314	0.00	0.000	0.200	0.0507	4.8121	2.4934	1.00E-01
315	0.00	0.000	0.199	0.0494	4.2287	2.1912	9.86E-02
316	0.00	0.000	0.199	0.0487	3.6509	1.8918	9.69E-02
317	0.00	0.000	0.198	0.0480	3.1346	1.6242	9.54E-02
318	0.00	0.000	0.197	0.0474	2.6881	1.3928	9.41E-02
319	0.00	0.000	0.197	0.0467	2.3020	1.1928	9.30E-02
320	0.00	0.000	0.196	0.0461	1.9681	1.0198	9.21E-02
321	0.00	0.000	0.196	0.0454	1.6794	0.8702	9.12E-02
322	13.00	0.000	0.273	0.0821	1.4298	0.7408	9.05E-02
323	0.00	0.000	4.876	0.0479	1.3773	0.7137	9.04E-02
324	3.00	0.000	0.273	0.0570	1.6969	0.8792	9.13E-02
325	0.00	0.000	5.812	0.0356	2.5832	1.3385	9.38E-02
326	38.00	0.000	0.273	0.0942	2.4249	1.2565	9.34E-02
327	7.90	0.000	5.358	0.0631	2.1996	1.1397	9.27E-02
328	31.10	0.000	6.051	0.0938	2.3290	1.2068	9.31E-02
329	1.00	0.000	5.218	0.0531	2.3664	1.2262	9.32E-02
330	0.00	0.000	6.487	0.0303	2.4291	1.2586	9.34E-02
331	0.00	0.000	3.368	0.0191	4.0293	2.0878	9.80E-02
332	0.50	0.000	0.496	0.0191	5.5591	2.8805	1.02E-01
333	0.00	0.000	0.017	0.0190	6.7210	3.4825	1.06E-01
334	0.00	0.000	0.009	0.0190	7.5856	3.9306	1.08E-01
335	0.00	0.000	0.002	0.0190	8.2109	4.2546	1.10E-01
336	3.00	0.000	0.964	0.0258	8.6436	4.4788	1.11E-01
337	0.00	0.000	0.677	0.0235	8.9468	4.6359	1.12E-01
338	0.00	0.000	0.841	0.0207	8.3944	4.3497	1.11E-01
339	0.00	0.000	0.409	0.0194	7.2363	3.7496	1.07E-01
340	0.00	0.000	0.092	0.0191	6.2349	3.2307	1.04E-01

341	0.30	0.000	0.177	0.0195	5.3689	2.7820	1.02E-01
342	1.00	0.000	0.165	0.0222	4.6202	2.3940	9.97E-02
343	0.00	0.000	0.366	0.0210	3.9727	2.0585	9.78E-02
344	0.00	0.000	0.452	0.0195	3.4128	1.7684	9.62E-02
345	0.00	0.000	0.131	0.0191	2.9286	1.5175	9.48E-02
346	0.00	0.000	0.020	0.0190	2.5100	1.3006	9.36E-02
347	0.00	0.000	0.005	0.0190	2.1480	1.1130	9.26E-02
348	0.10	0.000	0.102	0.0190	1.8349	0.9508	9.17E-02
349	1.90	0.000	0.364	0.0241	1.5643	0.8105	9.09E-02
350	0.00	0.000	0.271	0.0232	1.3302	0.6893	9.02E-02
351	0.00	0.000	0.422	0.0218	1.1278	0.5844	8.96E-02
352	0.00	0.000	0.409	0.0204	0.9528	0.4937	8.91E-02
353	0.00	0.000	0.312	0.0194	0.8015	0.4153	8.87E-02
354	0.00	0.000	0.092	0.0191	0.6706	0.3475	8.83E-02
355	0.80	0.000	0.157	0.0212	0.5574	0.2888	8.80E-02
356	0.00	0.000	0.236	0.0205	0.4596	0.2381	8.77E-02
357	0.00	0.000	0.315	0.0194	0.3750	0.1943	8.75E-02
358	0.00	0.000	0.093	0.0191	0.3018	0.1564	8.73E-02
359	0.00	0.000	0.024	0.0190	0.2385	0.1236	8.71E-02
360	0.00	0.000	0.005	0.0190	0.1838	0.0953	8.69E-02
361	0.00	0.000	0.002	0.0190	0.1365	0.0707	8.68E-02
362	0.00	0.000	0.000	0.0190	0.0956	0.0496	8.67E-02
363	0.00	0.000	0.000	0.0190	0.0603	0.0312	8.66E-02
364	0.00	0.000	0.000	0.0190	0.0297	0.0154	8.65E-02
365	0.00	0.000	0.000	0.0190	0.0047	0.0024	4.34E-02

* = Frozen (air or soil)

Annual Totals for Year 18			
	mm*	cubic meters	percent
Precipitation	854.40	8,544.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	276.298	2,763.0	32.34
Drainage Collected from Layer 2	573.3855	5,733.9	67.11
Percolation/Leakage through Layer 3	24.047081	240.5	2.81
Average Head on Top of Layer 3	3.3508 (cm)	---	---
Change in Water Storage	-19.3303	-193.3	-2.26
Soil Water at Start of Year	870.8299	8,708.3	101.92
Soil Water at End of Year	851.4996	8,515.0	99.66
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 19

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone				
	Air	Soil				Water (cm/cm)	Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)	
1				0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
2				0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
3				0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
4				0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
5				0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
6	*Note: head c			0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
7				0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
8				0.60	0.000	0.094	0.0207	0.0000	0.0000	0.00E+00
9				22.00	0.000	0.393	0.0927	0.0000	0.0000	1.71E-07
10				18.00	0.000	0.460	0.0838	0.0000	0.0000	0.00E+00
11				0.40	0.000	4.207	0.0401	0.1120	0.0581	4.35E-02
12				0.40	0.000	6.252	0.0206	0.6769	0.3507	8.83E-02
13				0.00	0.000	0.357	0.0190	1.9172	0.9934	9.19E-02
14				0.00	0.000	0.011	0.0190	3.3006	1.7102	9.59E-02
15				0.40	0.000	0.238	0.0196	4.4112	2.2857	9.91E-02
16				0.60	0.000	0.194	0.0209	5.2793	2.7355	1.02E-01
17				0.00	0.000	0.405	0.0196	5.4358	2.8166	1.02E-01
18				0.00	0.000	0.124	0.0191	4.6780	2.4239	9.99E-02
19				0.00	0.000	0.032	0.0190	4.0227	2.0844	9.80E-02
20				0.00	0.000	0.008	0.0190	3.4560	1.7908	9.64E-02
21				0.00	0.000	0.002	0.0190	2.9660	1.5369	9.49E-02

22	0.00	0.000	0.001	0.0190	2.5423	1.3173	9.37E-02
23	0.00	0.000	0.000	0.0190	2.1759	1.1275	9.27E-02
24	0.00	0.000	0.000	0.0190	1.8591	0.9633	9.18E-02
25	0.50	0.000	0.121	0.0203	1.5852	0.8214	9.10E-02
26	0.00	0.000	0.222	0.0195	1.3483	0.6986	9.03E-02
27	21.00	0.000	0.628	0.0874	1.1434	0.5925	8.97E-02
28	0.80	0.000	4.674	0.0456	1.0962	0.5680	8.96E-02
29	1.60	0.000	0.727	0.0458	1.0878	0.5636	8.95E-02
30	0.00	0.000	0.647	0.0435	1.8993	0.9841	9.19E-02
31	80.00	0.000	0.685	0.1151	2.8417	1.4725	9.46E-02
32	0.30	0.000	5.154	0.0435	2.6052	1.3499	9.39E-02
33	32.80	0.000	4.432	0.0897	3.7748	1.9559	9.73E-02
34	19.90	0.000	4.652	0.0864	5.1173	2.6516	1.01E-01
35	0.00	0.000	5.503	0.0399	4.9230	2.5509	1.01E-01
36	0.00	0.000	5.481	0.0216	5.2062	2.6976	1.01E-01
37	1.50	0.000	1.050	0.0225	7.4265	3.8481	1.08E-01
38	9.00	0.000	2.677	0.0435	9.4255	4.8839	1.14E-01
39	5.00	0.000	4.423	0.0455	10.8661	5.6304	1.18E-01
40	10.00	0.000	3.832	0.0660	11.8537	6.1421	1.21E-01
41	29.00	0.000	6.285	0.0893	12.4890	6.4713	1.22E-01
42	0.00	0.000	6.035	0.0455	11.6094	6.0155	1.20E-01
43	0.00	0.000	6.684	0.0232	10.7681	5.5796	1.17E-01
44	0.00	0.000	1.257	0.0190	11.4631	5.9397	1.19E-01
45	0.00	0.000	0.000	0.0190	12.1456	6.2933	1.21E-01
46	0.00	0.000	0.000	0.0190	12.5523	6.5041	1.23E-01
47	0.00	0.000	0.000	0.0190	12.7460	6.6045	1.23E-01
48	8.00	0.000	0.930	0.0426	12.7765	6.6202	1.23E-01
49	241.00	0.000	3.742	0.1618	12.5727	6.5147	1.23E-01
50	87.00	0.000	3.635	0.1012	11.1731	5.7894	1.19E-01

51	37.00	0.000	6.763	0.0997	11.0394	5.7201	1.18E-01
52	5.00	0.000	5.687	0.0588	21.5466	11.1646	1.48E-01
53	4.50	0.000	5.553	0.0524	107.6925	16.6948	3.97E-01
54	0.60	0.000	5.446	0.0362	287.0690	20.3681	9.13E-01
55	0.00	0.000	5.017	0.0195	264.9508	19.7220	8.49E-01
56	2.50	0.000	1.721	0.0221	243.5744	19.1098	7.88E-01
57	0.00	0.000	0.632	0.0200	222.8843	18.5315	7.28E-01
58	7.00	0.000	2.591	0.0347	202.8511	17.9883	6.71E-01
59	0.00	0.000	3.835	0.0219	123.2266	16.5508	4.41E-01
60	0.60	0.000	1.258	0.0197	60.0073	15.5966	2.59E-01
61	0.00	0.000	0.163	0.0192	58.1141	15.5933	2.54E-01
62	0.00	0.000	0.043	0.0190	54.4436	15.5870	2.43E-01
63	1.70	0.000	0.437	0.0232	49.3679	15.5782	2.29E-01
64	1.30	0.000	0.615	0.0255	43.1564	15.5675	2.11E-01
65	0.00	0.000	0.540	0.0237	36.0122	15.5552	1.90E-01
66	0.00	0.000	0.731	0.0213	28.7824	14.9139	1.69E-01
67	0.00	0.000	0.506	0.0196	26.8840	13.9302	1.64E-01
68	0.00	0.000	0.128	0.0191	25.0913	13.0013	1.59E-01
69	0.00	0.000	0.033	0.0190	23.4099	12.1301	1.54E-01
70	0.00	0.000	0.008	0.0190	21.8409	11.3171	1.49E-01
71	0.00	0.000	0.003	0.0190	20.3823	10.5613	1.45E-01
72	0.00	0.000	0.000	0.0190	18.8934	9.7898	1.41E-01
73	0.00	0.000	0.000	0.0190	16.4829	8.5408	1.34E-01
74	0.00	0.000	0.000	0.0190	14.2305	7.3737	1.27E-01
75	0.00	0.000	0.000	0.0190	12.2829	6.3645	1.22E-01
76	0.00	0.000	0.000	0.0190	10.5987	5.4918	1.17E-01
77	0.00	0.000	0.000	0.0190	9.1424	4.7372	1.13E-01
78	0.00	0.000	0.000	0.0190	7.8831	4.0847	1.09E-01
79	0.00	0.000	0.000	0.0190	6.7941	3.5204	1.06E-01

80	14.00	0.000	0.434	0.0642	5.8525	3.0325	1.03E-01
81	2.00	0.000	0.559	0.0611	5.0383	2.6107	1.01E-01
82	32.00	0.000	0.596	0.0988	4.5402	2.3525	9.95E-02
83	0.00	0.000	4.408	0.0449	4.0804	2.1143	9.81E-02
84	30.00	0.000	4.349	0.0841	4.2273	2.1904	9.86E-02
85	32.00	0.000	4.302	0.0890	4.8780	2.5276	1.00E-01
86	10.00	0.000	4.670	0.0656	4.2942	2.2251	9.88E-02
87	27.00	0.000	5.748	0.0888	4.1149	2.1322	9.82E-02
88	0.00	0.000	6.291	0.0398	4.1822	2.1671	9.84E-02
89	0.00	0.000	5.621	0.0210	4.8817	2.5295	1.00E-01
90	0.00	0.000	0.607	0.0190	7.3614	3.8144	1.08E-01
91	0.00	0.000	0.000	0.0190	9.2780	4.8075	1.13E-01
92	0.00	0.000	0.000	0.0190	10.6440	5.5153	1.17E-01
93	0.00	0.000	0.000	0.0190	11.5824	6.0015	1.20E-01
94	0.00	0.000	0.000	0.0190	12.1890	6.3159	1.22E-01
95	0.00	0.000	0.000	0.0190	12.5386	6.4970	1.23E-01
96	0.00	0.000	0.000	0.0190	12.6898	6.5753	1.23E-01
97	0.00	0.000	0.000	0.0190	12.6891	6.5750	1.23E-01
98	0.00	0.000	0.000	0.0190	12.5729	6.5148	1.23E-01
99	0.00	0.000	0.000	0.0190	12.3704	6.4098	1.22E-01
100	0.00	0.000	0.000	0.0190	11.9802	6.2076	1.21E-01
101	0.00	0.000	0.000	0.0190	10.5236	5.4529	1.17E-01
102	45.00	0.000	0.918	0.0901	9.0775	4.7036	1.13E-01
103	285.00	0.000	3.720	0.1680	7.8270	4.0556	1.09E-01
104	16.00	0.000	6.727	0.0700	7.3614	3.8144	1.08E-01
105	2.00	0.000	6.397	0.0471	19.6949	10.2051	1.43E-01
106	0.00	0.000	5.729	0.0263	35.9976	14.9242	1.90E-01
107	0.00	0.000	2.173	0.0191	101.4356	16.4298	3.79E-01
108	0.00	0.000	0.024	0.0190	225.0821	18.5921	7.35E-01

109	0.00	0.000	0.006	0.0190	204.9800	18.0451	6.77E-01
110	0.00	0.000	0.001	0.0190	154.9787	17.0350	5.33E-01
111	0.00	0.000	0.000	0.0190	59.9229	15.5965	2.59E-01
112	0.00	0.000	0.000	0.0190	58.2299	15.5935	2.54E-01
113	0.00	0.000	0.000	0.0190	54.7175	15.5875	2.44E-01
114	0.00	0.000	0.000	0.0190	49.7674	15.5789	2.30E-01
115	6.00	0.000	0.545	0.0372	43.6580	15.5684	2.12E-01
116	0.00	0.000	0.894	0.0342	36.5983	15.5562	1.92E-01
117	2.00	0.000	0.865	0.0380	28.9346	14.9927	1.70E-01
118	0.00	0.000	0.849	0.0352	27.0359	14.0089	1.64E-01
119	0.00	0.000	0.836	0.0324	25.2364	13.0765	1.59E-01
120	0.00	0.000	0.779	0.0298	23.5475	12.2014	1.54E-01
121	0.00	0.000	0.708	0.0274	21.9706	11.3842	1.50E-01
122	0.00	0.000	0.685	0.0251	20.5039	10.6243	1.45E-01
123	0.00	0.000	0.657	0.0229	19.0630	9.8777	1.41E-01
124	0.00	0.000	0.672	0.0207	16.7096	8.6582	1.35E-01
125	0.00	0.000	0.407	0.0193	14.4265	7.4752	1.28E-01
126	0.00	0.000	0.102	0.0190	12.4523	6.4523	1.22E-01
127	0.00	0.000	0.000	0.0190	10.7452	5.5677	1.17E-01
128	0.00	0.000	0.000	0.0190	9.2691	4.8029	1.13E-01
129	0.00	0.000	0.000	0.0190	7.9926	4.1415	1.09E-01
130	0.00	0.000	0.000	0.0190	6.8889	3.5695	1.06E-01
131	0.00	0.000	0.000	0.0190	5.9345	3.0750	1.03E-01
132	0.00	0.000	0.000	0.0190	5.1092	2.6474	1.01E-01
133	0.00	0.000	0.000	0.0190	4.3955	2.2776	9.91E-02
134	5.00	0.000	0.267	0.0348	3.7784	1.9578	9.73E-02
135	0.00	0.000	0.346	0.0336	3.2448	1.6813	9.57E-02
136	0.00	0.000	0.415	0.0322	2.7834	1.4422	9.44E-02
137	2.00	0.000	0.469	0.0373	2.3844	1.2355	9.33E-02

138	1.00	0.000	0.495	0.0390	2.0394	1.0567	9.23E-02
139	2.00	0.000	0.511	0.0440	1.7410	0.9021	9.14E-02
140	0.00	0.000	0.444	0.0425	1.4831	0.7685	9.07E-02
141	0.00	0.000	0.421	0.0411	1.2600	0.6529	9.00E-02
142	0.00	0.000	0.440	0.0396	1.0671	0.5529	8.95E-02
143	0.00	0.000	0.433	0.0382	0.9003	0.4665	8.90E-02
144	0.00	0.000	0.426	0.0368	0.7561	0.3918	8.86E-02
145	0.00	0.000	0.412	0.0354	0.6313	0.3271	8.82E-02
146	0.00	0.000	0.428	0.0340	0.5235	0.2713	8.79E-02
147	0.00	0.000	0.422	0.0326	0.4302	0.2229	8.76E-02
148	0.00	0.000	0.416	0.0312	0.3496	0.1811	8.74E-02
149	0.00	0.000	0.411	0.0298	0.2799	0.1450	8.72E-02
150	0.00	0.000	0.405	0.0285	0.2196	0.1138	8.70E-02
151	0.00	0.000	0.400	0.0271	0.1675	0.0868	8.69E-02
152	4.00	0.000	0.449	0.0390	0.1224	0.0634	8.68E-02
153	0.00	0.000	0.391	0.0377	0.0834	0.0432	8.66E-02
154	0.00	0.000	0.386	0.0364	0.0497	0.0257	8.65E-02
155	0.00	0.000	0.382	0.0351	0.0205	0.0106	8.65E-02
156	0.00	0.000	0.378	0.0338	0.0010	0.0004	1.49E-02
157	0.00	0.000	0.374	0.0326	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.370	0.0314	0.0000	0.0000	0.00E+00
159	1.10	0.000	0.421	0.0336	0.0000	0.0000	0.00E+00
160	5.90	0.000	0.417	0.0519	0.0000	0.0000	0.00E+00
161	31.00	0.000	0.414	0.1015	0.0949	0.0492	4.35E-02
162	0.00	0.000	5.220	0.0462	0.2738	0.1419	8.72E-02
163	0.00	0.000	4.994	0.0296	1.0054	0.5210	8.93E-02
164	0.00	0.000	2.808	0.0196	2.4696	1.2796	9.35E-02
165	1.00	0.000	0.561	0.0211	3.6872	1.9105	9.70E-02
166	0.00	0.000	0.497	0.0194	4.6722	2.4209	9.99E-02

167	0.00	0.000	0.090	0.0191	5.2043	2.6967	1.01E-01
168	3.00	0.000	0.961	0.0259	4.5679	2.3669	9.96E-02
169	1.00	0.000	0.738	0.0268	3.9275	2.0351	9.77E-02
170	0.00	0.000	0.919	0.0237	3.3737	1.7481	9.61E-02
171	0.00	0.000	0.897	0.0207	2.8948	1.5000	9.47E-02
172	0.00	0.000	0.443	0.0192	2.4808	1.2854	9.35E-02
173	0.00	0.000	0.056	0.0191	2.1227	1.0999	9.25E-02
174	0.00	0.000	0.015	0.0190	1.8131	0.9395	9.16E-02
175	0.00	0.000	0.000	0.0190	1.5454	0.8008	9.08E-02
176	0.00	0.000	0.000	0.0190	1.3139	0.6808	9.02E-02
177	0.00	0.000	0.000	0.0190	1.1137	0.5771	8.96E-02
178	0.00	0.000	0.000	0.0190	0.9406	0.4874	8.91E-02
179	0.00	0.000	0.000	0.0190	0.7909	0.4098	8.87E-02
180	0.00	0.000	0.000	0.0190	0.6615	0.3427	8.83E-02
181	0.00	0.000	0.000	0.0190	0.5495	0.2848	8.80E-02
182	0.00	0.000	0.000	0.0190	0.4528	0.2346	8.77E-02
183	0.00	0.000	0.000	0.0190	0.3691	0.1912	8.75E-02
184	0.00	0.000	0.000	0.0190	0.2967	0.1537	8.73E-02
185	0.20	0.000	0.105	0.0193	0.2341	0.1213	8.71E-02
186	0.00	0.000	0.049	0.0192	0.1800	0.0933	8.69E-02
187	0.00	0.000	0.035	0.0190	0.1332	0.0690	8.68E-02
188	0.00	0.000	0.009	0.0190	0.0928	0.0481	8.67E-02
189	0.00	0.000	0.002	0.0190	0.0578	0.0299	8.66E-02
190	0.00	0.000	0.001	0.0190	0.0275	0.0143	8.65E-02
191	0.00	0.000	0.000	0.0190	0.0037	0.0018	3.69E-02
192	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
206	3.00	0.000	0.226	0.0282	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.167	0.0277	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.266	0.0268	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.264	0.0259	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.298	0.0249	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.306	0.0239	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.298	0.0229	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.294	0.0219	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.304	0.0209	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.329	0.0198	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.201	0.0192	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.040	0.0190	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
227	15.00	0.000	0.281	0.0681	0.0000	0.0000	0.00E+00
228	32.00	0.000	0.386	0.0952	0.0000	0.0000	0.00E+00
229	0.00	0.000	5.850	0.0457	0.0447	0.0232	2.17E-02
230	0.00	0.000	5.860	0.0262	0.7208	0.3735	8.85E-02
231	0.00	0.000	1.739	0.0190	2.2138	1.1471	9.28E-02
232	0.00	0.000	0.000	0.0190	3.5467	1.8378	9.66E-02
233	0.00	0.000	0.000	0.0190	4.6597	2.4145	9.98E-02
234	0.00	0.000	0.000	0.0190	5.5217	2.8611	1.02E-01
235	0.00	0.000	0.000	0.0190	6.0172	3.1179	1.04E-01
236	0.00	0.000	0.000	0.0190	5.3152	2.7541	1.02E-01
237	0.00	0.000	0.000	0.0190	4.5736	2.3699	9.96E-02
238	0.00	0.000	0.000	0.0190	3.9325	2.0376	9.77E-02
239	0.00	0.000	0.000	0.0190	3.3780	1.7503	9.61E-02
240	0.00	0.000	0.000	0.0190	2.8986	1.5019	9.47E-02
241	0.00	0.000	0.000	0.0190	2.4840	1.2871	9.36E-02
242	0.00	0.000	0.000	0.0190	2.1255	1.1013	9.25E-02
243	0.00	0.000	0.000	0.0190	1.8155	0.9407	9.16E-02
244	0.00	0.000	0.000	0.0190	1.5475	0.8018	9.09E-02
245	0.00	0.000	0.000	0.0190	1.3157	0.6817	9.02E-02
246	0.00	0.000	0.000	0.0190	1.1152	0.5779	8.96E-02
247	0.00	0.000	0.000	0.0190	0.9419	0.4881	8.91E-02
248	0.00	0.000	0.000	0.0190	0.7921	0.4104	8.87E-02
249	0.00	0.000	0.000	0.0190	0.6625	0.3433	8.83E-02
250	0.00	0.000	0.000	0.0190	0.5504	0.2852	8.80E-02
251	0.00	0.000	0.000	0.0190	0.4535	0.2350	8.77E-02
252	0.00	0.000	0.000	0.0190	0.3697	0.1916	8.75E-02
253	0.00	0.000	0.000	0.0190	0.2973	0.1540	8.73E-02

254	0.00	0.000	0.000	0.0190	0.2346	0.1216	8.71E-02
255	0.00	0.000	0.000	0.0190	0.1804	0.0935	8.69E-02
256	0.00	0.000	0.000	0.0190	0.1336	0.0692	8.68E-02
257	0.00	0.000	0.000	0.0190	0.0931	0.0482	8.67E-02
258	0.00	0.000	0.000	0.0190	0.0581	0.0301	8.66E-02
259	0.00	0.000	0.000	0.0190	0.0278	0.0144	8.65E-02
260	0.00	0.000	0.000	0.0190	0.0038	0.0018	3.76E-02
261	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
267	0.40	0.000	0.097	0.0200	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.052	0.0198	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.136	0.0194	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.074	0.0191	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.029	0.0190	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.008	0.0190	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.000	0.0190	0.0000	0.0000	3.43E-07
276	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
295	2.00	0.000	0.196	0.0250	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.133	0.0246	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.212	0.0239	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.210	0.0232	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.208	0.0225	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.207	0.0218	0.0000	0.0000	0.00E+00
301	0.00	0.000	0.205	0.0211	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.181	0.0205	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.222	0.0198	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.190	0.0191	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.029	0.0190	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
309	6.80	0.000	0.188	0.0410	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.236	0.0403	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.261	0.0394	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.275	0.0385	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.274	0.0376	0.0000	0.0000	0.00E+00
314	0.00	0.000	0.272	0.0366	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.270	0.0357	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.268	0.0349	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.267	0.0340	0.0000	0.0000	0.00E+00
318	0.00	0.000	0.267	0.0331	0.0000	0.0000	0.00E+00
319	0.00	0.000	0.266	0.0322	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.269	0.0313	0.0000	0.0000	0.00E+00
321	0.00	0.000	0.263	0.0304	0.0000	0.0000	0.00E+00
322	0.00	0.000	0.268	0.0295	0.0000	0.0000	0.00E+00
323	0.00	0.000	0.266	0.0286	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.265	0.0278	0.0000	0.0000	0.00E+00
325	0.00	0.000	0.264	0.0269	0.0000	0.0000	0.00E+00
326	0.00	0.000	0.262	0.0260	0.0000	0.0000	0.00E+00
327	0.00	0.000	0.261	0.0251	0.0000	0.0000	0.00E+00
328	0.00	0.000	0.259	0.0243	0.0000	0.0000	0.00E+00
329	0.00	0.000	0.258	0.0234	0.0000	0.0000	0.00E+00
330	2.00	0.000	0.336	0.0289	0.0000	0.0000	0.00E+00
331	0.00	0.000	0.255	0.0281	0.0000	0.0000	0.00E+00
332	0.00	0.000	0.254	0.0273	0.0000	0.0000	0.00E+00
333	0.00	0.000	0.253	0.0264	0.0000	0.0000	0.00E+00
334	5.00	0.000	0.333	0.0420	0.0000	0.0000	0.00E+00
335	2.60	0.000	0.333	0.0495	0.0000	0.0000	0.00E+00
336	0.20	0.000	0.325	0.0491	0.0000	0.0000	0.00E+00
337	0.00	0.000	0.248	0.0483	0.0000	0.0000	0.00E+00
338	0.00	0.000	0.247	0.0475	0.0000	0.0000	0.00E+00
339	0.00	0.000	0.246	0.0466	0.0000	0.0000	0.00E+00
340	0.00	0.000	0.245	0.0455	0.0022	0.0011	6.24E-02

341	4.00	0.000	0.329	0.0575	0.0055	0.0029	8.64E-02
342	0.00	0.000	0.242	0.0549	0.0009	0.0003	1.34E-02
343	0.00	0.000	0.241	0.0525	0.1891	0.0980	8.69E-02
344	0.00	0.000	0.240	0.0498	0.2643	0.1370	8.72E-02
345	0.00	0.000	0.239	0.0476	0.3421	0.1773	8.74E-02
346	0.00	0.000	0.238	0.0456	0.3762	0.1949	8.75E-02
347	9.00	0.000	0.323	0.0726	0.3543	0.1836	8.74E-02
348	0.00	0.000	0.236	0.0567	0.4352	0.2255	8.77E-02
349	49.00	0.000	0.321	0.1055	0.7268	0.3766	8.85E-02
350	0.00	0.000	6.603	0.0432	0.7329	0.3798	8.85E-02
351	0.00	0.000	6.834	0.0204	1.8296	0.9480	9.17E-02
352	0.00	0.000	0.322	0.0190	3.6520	1.8923	9.69E-02
353	0.00	0.000	0.000	0.0190	5.0725	2.6284	1.01E-01
354	0.30	0.000	0.261	0.0191	6.1759	3.2001	1.04E-01
355	2.50	0.000	0.764	0.0249	7.0058	3.6301	1.07E-01
356	0.00	0.000	0.571	0.0230	7.6138	3.9452	1.08E-01
357	0.00	0.000	0.798	0.0204	8.0493	4.1708	1.10E-01
358	0.00	0.000	0.321	0.0193	7.8080	4.0458	1.09E-01
359	0.00	0.000	0.074	0.0190	6.7292	3.4868	1.06E-01
360	0.00	0.000	0.009	0.0190	5.7964	3.0035	1.03E-01
361	0.00	0.000	0.003	0.0190	4.9898	2.5855	1.01E-01
362	0.00	0.000	0.000	0.0190	4.2923	2.2241	9.88E-02
363	0.00	0.000	0.000	0.0190	3.6891	1.9116	9.70E-02
364	0.00	0.000	0.000	0.0190	3.1676	1.6413	9.55E-02
365	0.00	0.000	0.000	0.0190	2.7166	1.4076	9.42E-02

* = Frozen (air or soil)

Annual Totals for Year 19			
	mm*	cubic meters	percent
Precipitation	1,344.00	13,440.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	276.227	2,762.3	20.55
Drainage Collected from Layer 2	1,027.4084	10,274.1	76.44
Percolation/Leakage through Layer 3	31.370238	313.7	2.33
Average Head on Top of Layer 3	10.9253 (cm)	---	---
Change in Water Storage	8.9941	89.9	0.67
Soil Water at Start of Year	851.4996	8,515.0	63.36
Soil Water at End of Year	860.4937	8,604.9	64.02
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 20

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone			
	Air	Soil				Water (cm/cm)	Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
1			0.00	0.000	0.000	0.0190	2.3267	1.2056	9.31E-02
2			6.00	0.000	0.341	0.0379	1.9895	1.0309	9.21E-02
3			6.00	0.000	0.594	0.0559	1.6979	0.8798	9.13E-02
4			111.00	0.000	0.689	0.1161	1.5139	0.7845	9.08E-02
5			1.50	0.000	5.190	0.0477	1.6645	0.8625	9.12E-02
6	*Note: head c		6.50	0.000	3.267	0.0577	3.4664	1.7961	9.64E-02
7			9.50	0.000	5.060	0.0667	6.4796	3.3575	1.05E-01
8			0.50	0.000	5.207	0.0482	8.3615	4.3326	1.10E-01
9			0.00	0.000	5.822	0.0288	9.8645	5.1114	1.15E-01
10			0.00	0.000	2.549	0.0190	11.1176	5.7607	1.18E-01
11			0.00	0.000	0.008	0.0190	11.9641	6.1993	1.21E-01
12			0.00	0.000	0.002	0.0190	12.5413	6.4984	1.23E-01
13			0.00	0.000	0.001	0.0190	12.8622	6.6647	1.23E-01
14			0.00	0.000	0.000	0.0190	12.9862	6.7289	1.24E-01
15			0.00	0.000	0.000	0.0190	12.9598	6.7152	1.24E-01
16			0.00	0.000	0.000	0.0190	12.8197	6.6427	1.23E-01
17			12.00	0.000	0.970	0.0558	12.5951	6.5263	1.23E-01
18			7.00	0.000	1.150	0.0630	12.2766	6.3612	1.22E-01
19			0.00	0.000	5.816	0.0411	11.2182	5.8128	1.19E-01
20			3.00	0.000	1.141	0.0473	10.3545	5.3653	1.16E-01
21			0.00	0.000	1.000	0.0439	9.0399	4.6841	1.12E-01

22	56.00	0.000	0.982	0.1081	7.7945	4.0388	1.09E-01
23	35.00	0.000	6.302	0.0936	6.7175	3.4808	1.06E-01
24	0.00	0.000	4.738	0.0463	5.7863	2.9982	1.03E-01
25	5.00	0.000	6.164	0.0401	5.7069	2.9571	1.03E-01
26	25.00	0.000	6.653	0.0958	7.5656	3.9202	1.08E-01
27	0.00	0.000	7.334	0.0375	8.9589	4.6421	1.12E-01
28	0.00	0.000	5.546	0.0190	9.0025	4.6647	1.12E-01
29	0.00	0.000	0.000	0.0190	10.0624	5.2139	1.15E-01
30	0.00	0.000	0.000	0.0190	11.0189	5.7096	1.18E-01
31	24.00	0.000	5.424	0.0809	11.6503	6.0367	1.20E-01
32	0.00	0.000	5.045	0.0352	12.0665	6.2524	1.21E-01
33	2.00	0.000	6.084	0.0216	11.3393	5.8756	1.19E-01
34	0.00	0.000	0.638	0.0195	11.2000	5.8034	1.19E-01
35	10.50	0.000	4.170	0.0406	11.4806	5.9488	1.19E-01
36	2.00	0.000	4.279	0.0330	11.6016	6.0115	1.20E-01
37	0.00	0.000	3.748	0.0205	11.5957	6.0084	1.20E-01
38	0.00	0.000	0.384	0.0192	11.4926	5.9550	1.19E-01
39	2.00	0.000	0.843	0.0231	10.9013	5.6486	1.18E-01
40	4.00	0.000	0.721	0.0340	9.4041	4.8728	1.13E-01
41	0.00	0.000	1.085	0.0304	8.1094	4.2019	1.10E-01
42	4.00	0.000	1.076	0.0401	6.9898	3.6218	1.07E-01
43	0.00	0.000	0.981	0.0369	6.0217	3.1202	1.04E-01
44	0.00	0.000	0.917	0.0338	5.1846	2.6865	1.01E-01
45	0.20	0.000	0.947	0.0313	4.4608	2.3114	9.92E-02
46	3.00	0.000	0.893	0.0383	3.8348	1.9871	9.74E-02
47	0.00	0.000	0.801	0.0357	3.2936	1.7066	9.59E-02
48	0.00	0.000	0.769	0.0331	2.8256	1.4641	9.45E-02
49	0.00	0.000	0.728	0.0307	2.4209	1.2544	9.34E-02
50	0.00	0.000	0.693	0.0284	2.0709	1.0731	9.24E-02

51	0.00	0.000	0.694	0.0261	1.7683	0.9163	9.15E-02
52	3.00	0.000	0.719	0.0337	1.5067	0.7807	9.07E-02
53	3.00	0.000	0.698	0.0413	1.2804	0.6634	9.01E-02
54	4.00	0.000	0.678	0.0524	1.0847	0.5621	8.95E-02
55	1.00	0.000	0.653	0.0536	0.9155	0.4744	8.90E-02
56	0.00	0.000	0.593	0.0516	0.7692	0.3986	8.86E-02
57	1.40	0.000	0.629	0.0541	0.6427	0.3330	8.82E-02
58	0.00	0.000	6.572	0.0321	0.5417	0.2807	8.80E-02
59	0.00	0.000	0.563	0.0303	0.4460	0.2311	8.77E-02
60	0.00	0.000	0.550	0.0284	0.3632	0.1882	8.74E-02
61	0.00	0.000	0.537	0.0266	0.2916	0.1511	8.72E-02
62	0.00	0.000	0.526	0.0249	0.2297	0.1190	8.71E-02
63	0.00	0.000	0.515	0.0232	0.1762	0.0913	8.69E-02
64	0.00	0.000	0.505	0.0215	0.1299	0.0673	8.68E-02
65	0.00	0.000	0.495	0.0198	0.0899	0.0466	8.67E-02
66	0.00	0.000	0.254	0.0190	0.0553	0.0287	8.66E-02
67	0.00	0.000	0.000	0.0190	0.0254	0.0132	8.65E-02
68	0.00	0.000	0.000	0.0190	0.0028	0.0012	3.04E-02
69	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
70	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
71	10.00	0.000	0.351	0.0512	0.0000	0.0000	0.00E+00
72	4.00	0.000	0.452	0.0630	0.0000	0.0000	0.00E+00
73	0.00	0.000	6.582	0.0376	0.1711	0.0887	6.53E-02
74	0.00	0.000	0.434	0.0361	0.2208	0.1144	8.70E-02
75	0.00	0.000	0.428	0.0347	0.1685	0.0873	8.69E-02
76	0.00	0.000	0.422	0.0333	0.1233	0.0639	8.68E-02
77	0.00	0.000	0.416	0.0319	0.0841	0.0436	8.66E-02
78	0.00	0.000	0.411	0.0306	0.0503	0.0261	8.65E-02
79	0.00	0.000	0.405	0.0292	0.0211	0.0109	8.65E-02

80	0.00	0.000	0.400	0.0279	0.0012	0.0005	1.67E-02
81	0.00	0.000	0.396	0.0266	0.0000	0.0000	0.00E+00
82	0.00	0.000	0.391	0.0253	0.0000	0.0000	0.00E+00
83	0.00	0.000	0.386	0.0240	0.0000	0.0000	0.00E+00
84	0.00	0.000	0.382	0.0227	0.0000	0.0000	0.00E+00
85	0.00	0.000	0.378	0.0214	0.0000	0.0000	0.00E+00
86	0.00	0.000	0.374	0.0202	0.0000	0.0000	0.00E+00
87	0.00	0.000	0.356	0.0190	0.0000	0.0000	0.00E+00
88	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
89	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
90	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
91	10.00	0.000	0.289	0.0514	0.0000	0.0000	0.00E+00
92	0.00	0.000	0.321	0.0503	0.0000	0.0000	0.00E+00
93	0.00	0.000	0.348	0.0491	0.0000	0.0000	0.00E+00
94	2.00	0.000	0.396	0.0541	0.0063	0.0032	6.48E-02
95	10.50	0.000	0.393	0.0703	0.0056	0.0028	4.76E-02
96	0.00	0.000	7.040	0.0424	0.0418	0.0217	2.17E-02
97	0.00	0.000	6.624	0.0203	0.7429	0.3850	8.85E-02
98	2.00	0.000	1.332	0.0222	1.5813	0.8193	9.10E-02
99	0.00	0.000	0.745	0.0198	1.3518	0.7004	9.03E-02
100	0.00	0.000	0.167	0.0192	1.1465	0.5941	8.97E-02
101	0.00	0.000	0.045	0.0191	0.9689	0.5021	8.92E-02
102	0.50	0.000	0.164	0.0202	0.8154	0.4225	8.87E-02
103	0.00	0.000	0.172	0.0196	0.6827	0.3537	8.84E-02
104	0.00	0.000	0.114	0.0192	0.5679	0.2942	8.80E-02
105	1.50	0.000	0.226	0.0235	0.4686	0.2428	8.77E-02
106	0.00	0.000	0.378	0.0222	0.3828	0.1983	8.75E-02
107	0.30	0.000	0.611	0.0212	0.3086	0.1599	8.73E-02
108	2.00	0.000	0.576	0.0259	0.2444	0.1266	8.71E-02

109	0.00	0.000	0.354	0.0247	0.1889	0.0979	8.69E-02
110	0.00	0.000	0.492	0.0231	0.1409	0.0730	8.68E-02
111	3.00	0.000	0.522	0.0314	0.0994	0.0515	8.67E-02
112	0.00	0.000	0.550	0.0295	0.0635	0.0329	8.66E-02
113	0.00	0.000	0.532	0.0277	0.0325	0.0168	8.65E-02
114	0.00	0.000	0.516	0.0260	0.0066	0.0032	5.20E-02
115	0.00	0.000	0.501	0.0244	0.0000	0.0000	0.00E+00
116	0.00	0.000	0.487	0.0227	0.0000	0.0000	0.00E+00
117	0.00	0.000	0.526	0.0210	0.0000	0.0000	0.00E+00
118	0.00	0.000	0.475	0.0194	0.0000	0.0000	0.00E+00
119	0.00	0.000	0.097	0.0191	0.0000	0.0000	0.00E+00
120	0.00	0.000	0.020	0.0190	0.0000	0.0000	0.00E+00
121	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
122	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
123	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
124	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
125	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
126	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
127	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
128	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
129	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
130	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
131	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
132	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
133	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
134	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
135	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
136	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
137	0.40	0.000	0.092	0.0200	0.0000	0.0000	0.00E+00

138	0.00	0.000	0.056	0.0198	0.0000	0.0000	0.00E+00
139	0.00	0.000	0.134	0.0194	0.0000	0.0000	0.00E+00
140	0.00	0.000	0.077	0.0191	0.0000	0.0000	0.00E+00
141	0.50	0.000	0.126	0.0204	0.0000	0.0000	0.00E+00
142	0.00	0.000	0.170	0.0198	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.209	0.0191	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.028	0.0190	0.0000	0.0000	0.00E+00
145	0.20	0.000	0.094	0.0194	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.032	0.0193	0.0000	0.0000	0.00E+00
147	0.00	0.000	0.062	0.0191	0.0000	0.0000	0.00E+00
148	0.00	0.000	0.017	0.0190	0.0000	0.0000	0.00E+00
149	0.50	0.000	0.091	0.0204	0.0000	0.0000	0.00E+00
150	0.80	0.000	0.206	0.0224	0.0000	0.0000	0.00E+00
151	0.00	0.000	0.198	0.0217	0.0000	0.0000	0.00E+00
152	0.00	0.000	0.232	0.0209	0.0000	0.0000	1.20E-05
153	0.00	0.000	0.230	0.0202	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.216	0.0194	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.103	0.0191	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.024	0.0190	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.003	0.0190	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
159	1.00	0.000	0.087	0.0220	0.0000	0.0000	0.00E+00
160	5.00	0.000	0.195	0.0381	0.0000	0.0000	0.00E+00
161	0.40	0.000	0.323	0.0383	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.289	0.0374	0.0000	0.0000	0.00E+00
163	1.00	0.000	0.348	0.0395	0.0000	0.0000	0.00E+00
164	2.00	0.000	0.346	0.0450	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.300	0.0440	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.308	0.0430	0.0000	0.0000	0.00E+00

167	0.00	0.000	0.299	0.0420	0.0000	0.0000	0.00E+00
168	0.00	0.000	0.294	0.0410	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.292	0.0401	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.299	0.0391	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.297	0.0381	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.286	0.0371	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.293	0.0361	0.0000	0.0000	0.00E+00
174	2.00	0.000	0.356	0.0416	0.0000	0.0000	0.00E+00
175	0.20	0.000	0.351	0.0411	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.288	0.0402	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.286	0.0392	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.284	0.0383	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.282	0.0373	0.0000	0.0000	0.00E+00
180	5.00	0.000	0.346	0.0528	0.0000	0.0000	0.00E+00
181	2.00	0.000	0.345	0.0583	0.0001	0.0000	1.15E-03
182	0.00	0.000	0.277	0.0574	0.0005	0.0001	7.12E-03
183	0.00	0.000	0.276	0.0544	0.0375	0.0194	4.33E-02
184	0.00	0.000	0.274	0.0512	0.2135	0.1106	8.70E-02
185	0.00	0.000	0.272	0.0486	0.3186	0.1651	8.73E-02
186	0.00	0.000	0.271	0.0465	0.3653	0.1893	8.75E-02
187	0.00	0.000	0.269	0.0447	0.3792	0.1965	8.75E-02
188	0.00	0.000	0.268	0.0430	0.3737	0.1937	8.75E-02
189	0.00	0.000	0.266	0.0415	0.3568	0.1849	8.74E-02
190	0.00	0.000	0.262	0.0406	0.3167	0.1641	8.73E-02
191	0.00	0.000	0.264	0.0397	0.2514	0.1303	8.71E-02
192	0.00	0.000	0.262	0.0389	0.1950	0.1010	8.70E-02
193	0.00	0.000	0.261	0.0380	0.1462	0.0757	8.68E-02
194	0.00	0.000	0.259	0.0371	0.1039	0.0539	8.67E-02
195	0.00	0.000	0.258	0.0363	0.0674	0.0349	8.66E-02

196	0.00	0.000	0.257	0.0354	0.0359	0.0186	8.65E-02
197	0.00	0.000	0.255	0.0346	0.0088	0.0045	6.20E-02
198	0.00	0.000	0.254	0.0337	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.253	0.0329	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.252	0.0320	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.250	0.0312	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.249	0.0304	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.248	0.0295	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.247	0.0287	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.246	0.0279	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.245	0.0271	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.244	0.0263	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.242	0.0255	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.241	0.0246	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.240	0.0238	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.239	0.0230	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.238	0.0223	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.237	0.0215	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.236	0.0207	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.235	0.0199	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.234	0.0191	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.034	0.0190	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
244	0.50	0.000	0.093	0.0204	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.088	0.0201	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.135	0.0196	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.125	0.0192	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.043	0.0191	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.011	0.0190	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.003	0.0190	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
258	2.00	0.000	0.161	0.0251	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.084	0.0248	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.134	0.0244	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.134	0.0240	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.134	0.0235	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.133	0.0231	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.133	0.0226	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.132	0.0222	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.132	0.0217	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.132	0.0213	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.131	0.0209	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.128	0.0204	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.160	0.0199	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.174	0.0193	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.077	0.0191	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.017	0.0190	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.006	0.0190	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
293	0.20	0.000	0.091	0.0194	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.015	0.0193	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.033	0.0192	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.030	0.0191	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.025	0.0190	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.004	0.0190	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.000	0.0190	0.0000	0.0000	7.17E-06
301	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
305	1.00	0.000	0.099	0.0220	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.074	0.0218	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.091	0.0215	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.118	0.0211	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.118	0.0207	0.0000	0.0000	0.00E+00
310	2.00	0.000	0.203	0.0267	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.095	0.0263	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.121	0.0259	0.0000	0.0000	0.00E+00
313	2.00	0.000	0.204	0.0319	0.0000	0.0000	0.00E+00
314	0.50	0.000	0.230	0.0328	0.0000	0.0000	0.00E+00
315	0.40	0.000	0.235	0.0334	0.0000	0.0000	0.00E+00
316	0.10	0.000	0.203	0.0330	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.142	0.0326	0.0000	0.0000	1.09E-04
318	0.00	0.000	0.141	0.0321	0.0000	0.0000	0.00E+00
319	2.00	0.000	0.246	0.0379	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.156	0.0374	0.0000	0.0000	0.00E+00
321	0.00	0.000	0.163	0.0369	0.0000	0.0000	0.00E+00
322	0.80	0.000	0.251	0.0387	0.0000	0.0000	0.00E+00
323	0.00	0.000	0.163	0.0382	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.164	0.0376	0.0000	0.0000	0.00E+00
325	0.00	0.000	0.154	0.0371	0.0000	0.0000	0.00E+00
326	0.00	0.000	0.163	0.0366	0.0000	0.0000	0.00E+00
327	5.00	0.000	0.258	0.0524	0.0000	0.0000	0.00E+00
328	0.00	0.000	0.162	0.0518	0.0000	0.0000	0.00E+00
329	0.00	0.000	0.167	0.0513	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.167	0.0507	0.0000	0.0000	0.00E+00
331	0.00	0.000	0.167	0.0502	0.0000	0.0000	0.00E+00
332	0.00	0.000	0.166	0.0493	0.0026	0.0012	3.77E-02
333	0.00	0.000	0.166	0.0482	0.0162	0.0084	8.64E-02
334	0.00	0.000	0.166	0.0473	0.0319	0.0165	8.65E-02
335	0.00	0.000	0.165	0.0464	0.0387	0.0201	8.65E-02
336	0.00	0.000	0.165	0.0459	0.0215	0.0111	8.65E-02
337	22.00	0.000	0.264	0.0846	0.0235	0.0121	3.97E-02
338	0.00	0.000	0.164	0.0563	0.1817	0.0942	8.69E-02
339	2.00	0.000	0.264	0.0621	0.5034	0.2608	8.78E-02
340	0.00	0.000	0.164	0.0586	1.6582	0.8592	9.12E-02

341	0.00	0.000	0.163	0.0550	2.7449	1.4223	9.43E-02
342	2.00	0.000	0.265	0.0608	3.5716	1.8507	9.67E-02
343	0.00	0.000	0.163	0.0590	3.9775	2.0610	9.79E-02
344	0.00	0.000	0.162	0.0550	3.6005	1.8656	9.68E-02
345	0.00	0.000	0.162	0.0521	3.3298	1.7254	9.60E-02
346	0.00	0.000	0.162	0.0498	3.0180	1.5638	9.51E-02
347	3.00	0.000	0.266	0.0590	2.6641	1.3804	9.41E-02
348	0.20	0.000	0.250	0.0585	2.2994	1.1914	9.30E-02
349	1.50	0.000	0.266	0.0589	2.0947	1.0854	9.24E-02
350	0.00	0.000	0.160	0.0573	1.9788	1.0253	9.21E-02
351	0.80	0.000	0.266	0.0574	1.7905	0.9278	9.16E-02
352	0.00	0.000	0.160	0.0552	1.6663	0.8634	9.12E-02
353	0.00	0.000	0.159	0.0534	1.5262	0.7908	9.08E-02
354	0.00	0.000	0.159	0.0510	1.4216	0.7366	9.05E-02
355	2.00	0.000	0.266	0.0568	1.2924	0.6697	9.01E-02
356	2.00	0.000	0.267	0.0619	1.1249	0.5829	8.96E-02
357	0.00	0.000	0.158	0.0596	0.9907	0.5134	8.93E-02
358	0.00	0.000	0.158	0.0550	1.0987	0.5693	8.96E-02
359	0.00	0.000	0.158	0.0521	1.1777	0.6103	8.98E-02
360	0.10	0.000	0.223	0.0500	1.1580	0.6000	8.97E-02
361	1.00	0.000	0.268	0.0525	1.0568	0.5476	8.94E-02
362	67.00	0.000	0.268	0.1072	0.9795	0.5075	8.92E-02
363	63.00	0.000	4.195	0.0964	0.9065	0.4697	8.90E-02
364	6.00	0.000	5.438	0.0627	0.8622	0.4468	8.89E-02
365	0.00	0.000	4.999	0.0433	2.0172	1.0452	9.22E-02

* = Frozen (air or soil)

Annual Totals for Year 20			
	mm*	cubic meters	percent
Precipitation	604.00	6,040.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	217.303	2,173.0	35.98
Drainage Collected from Layer 2	254.5466	2,545.5	42.14
Percolation/Leakage through Layer 3	13.653779	136.5	2.26
Average Head on Top of Layer 3	1.3422 (cm)	---	---
Change in Water Storage	118.4963	1,185.0	19.62
Soil Water at Start of Year	860.4937	8,604.9	142.47
Soil Water at End of Year	978.9900	9,789.9	162.08
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 21

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			0.00	0.000	5.343	0.0212		8.4536	4.3803	1.11E-01
2			0.20	0.000	0.693	0.0190		10.4834	5.4320	1.17E-01
3			13.00	0.000	3.758	0.0498		11.9067	6.1695	1.21E-01
4			2.50	0.000	5.906	0.0385		12.8753	6.6714	1.23E-01
5			0.00	0.000	4.851	0.0223		13.4768	6.9831	1.25E-01
6	*Note: head c		0.00	0.000	0.944	0.0191		13.7973	7.1492	1.26E-01
7			0.00	0.000	0.031	0.0190		13.9037	7.2043	1.26E-01
8			0.00	0.000	0.007	0.0190		13.8480	7.1755	1.26E-01
9			0.00	0.000	0.002	0.0190		13.6711	7.0838	1.26E-01
10			0.00	0.000	0.001	0.0190		13.4049	6.9459	1.25E-01
11			0.00	0.000	0.000	0.0190		13.0746	6.7747	1.24E-01
12			0.00	0.000	0.000	0.0190		12.4570	6.4547	1.22E-01
13			0.00	0.000	0.000	0.0190		10.8336	5.6135	1.18E-01
14			0.00	0.000	0.000	0.0190		9.3455	4.8425	1.13E-01
15			0.00	0.000	0.000	0.0190		8.0587	4.1757	1.10E-01
16			0.00	0.000	0.000	0.0190		6.9461	3.5992	1.06E-01
17			0.00	0.000	0.000	0.0190		5.9839	3.1006	1.04E-01
18			7.00	0.000	0.399	0.0410		5.1519	2.6695	1.01E-01
19			2.00	0.000	0.688	0.0454		4.4325	2.2967	9.92E-02
20			0.00	0.000	0.682	0.0431		3.8104	1.9744	9.74E-02
21			0.00	0.000	0.678	0.0408		3.2724	1.6956	9.58E-02

22	0.00	0.000	0.648	0.0387	2.8073	1.4546	9.45E-02
23	0.00	0.000	0.573	0.0368	2.4051	1.2462	9.33E-02
24	0.00	0.000	0.607	0.0348	2.0572	1.0660	9.23E-02
25	0.00	0.000	0.609	0.0327	1.7565	0.9101	9.15E-02
26	22.00	0.000	0.666	0.0970	1.4964	0.7754	9.07E-02
27	0.50	0.000	4.227	0.0414	1.3123	0.6800	9.02E-02
28	1.50	0.000	5.616	0.0277	1.6191	0.8389	9.11E-02
29	0.20	0.000	2.155	0.0198	2.5531	1.3229	9.38E-02
30	2.00	0.000	0.949	0.0233	3.5550	1.8421	9.66E-02
31	12.70	0.000	1.214	0.0616	3.9637	2.0538	9.78E-02
32	0.00	0.000	5.993	0.0412	3.4050	1.7643	9.62E-02
33	0.00	0.000	1.366	0.0365	2.9600	1.5338	9.49E-02
34	0.20	0.000	1.269	0.0329	2.5406	1.3164	9.37E-02
35	0.00	0.000	0.855	0.0301	2.1745	1.1267	9.27E-02
36	2.00	0.000	1.067	0.0332	1.8578	0.9627	9.17E-02
37	10.50	0.000	0.996	0.0649	1.5841	0.8208	9.10E-02
38	0.00	0.000	6.082	0.0437	1.3659	0.7078	9.03E-02
39	2.00	0.000	0.937	0.0472	1.2106	0.6273	8.99E-02
40	56.00	0.000	0.888	0.1057	1.0244	0.5308	8.93E-02
41	0.00	0.000	6.359	0.0471	0.9017	0.4672	8.90E-02
42	0.00	0.000	5.229	0.0296	1.5533	0.8049	9.09E-02
43	1.00	0.000	3.444	0.0210	3.3033	1.7117	9.59E-02
44	0.00	0.000	0.520	0.0193	4.8040	2.4892	1.00E-01
45	0.00	0.000	0.065	0.0190	5.9783	3.0977	1.04E-01
46	0.00	0.000	0.011	0.0190	6.8653	3.5573	1.06E-01
47	0.00	0.000	0.003	0.0190	7.5192	3.8961	1.08E-01
48	0.00	0.000	0.001	0.0190	7.9844	4.1372	1.09E-01
49	0.00	0.000	0.000	0.0190	8.0487	4.1705	1.10E-01
50	0.00	0.000	0.000	0.0190	7.0185	3.6367	1.07E-01

51	0.00	0.000	0.000	0.0190	6.0466	3.1331	1.04E-01
52	0.00	0.000	0.000	0.0190	5.2061	2.6976	1.01E-01
53	2.00	0.000	0.474	0.0241	4.4793	2.3210	9.93E-02
54	10.00	0.000	0.682	0.0551	3.8509	1.9954	9.75E-02
55	0.00	0.000	0.797	0.0525	3.3075	1.7138	9.59E-02
56	0.00	0.000	0.827	0.0497	2.8376	1.4703	9.46E-02
57	0.00	0.000	0.787	0.0468	2.4329	1.2606	9.34E-02
58	0.00	0.000	0.726	0.0436	2.1379	1.1078	9.26E-02
59	0.00	0.000	0.721	0.0412	1.8524	0.9598	9.17E-02
60	0.00	0.000	0.694	0.0389	1.5794	0.8184	9.09E-02
61	29.00	0.000	0.724	0.0814	1.3563	0.7028	9.03E-02
62	0.00	0.000	5.601	0.0440	1.2805	0.6635	9.01E-02
63	0.60	0.000	4.285	0.0313	1.6295	0.8444	9.11E-02
64	45.00	0.000	2.927	0.0961	2.7362	1.4178	9.43E-02
65	63.50	0.000	4.834	0.0921	3.2428	1.6803	9.57E-02
66	42.60	0.000	5.161	0.0892	2.7817	1.4413	9.44E-02
67	1.20	0.000	5.530	0.0476	2.5473	1.3199	9.37E-02
68	0.00	0.000	4.608	0.0322	4.7180	2.4447	1.00E-01
69	52.00	0.000	5.101	0.0980	8.4228	4.3644	1.11E-01
70	102.00	0.000	3.671	0.1064	9.2616	4.7990	1.13E-01
71	3.20	0.000	4.836	0.0528	8.1801	4.2386	1.10E-01
72	5.00	0.000	4.622	0.0541	13.8859	7.1951	1.26E-01
73	1.00	0.000	6.243	0.0349	21.1129	10.9399	1.47E-01
74	3.80	0.000	5.959	0.0277	25.1950	13.0550	1.59E-01
75	17.40	0.000	4.845	0.0696	27.3426	14.1678	1.65E-01
76	114.80	0.000	3.181	0.1152	27.9920	14.5043	1.67E-01
77	35.40	0.000	3.648	0.0949	25.3392	13.1297	1.59E-01
78	1.60	0.000	5.575	0.0428	26.0396	13.4926	1.61E-01
79	0.00	0.000	6.496	0.0211	36.5779	15.2736	1.92E-01

80	0.00	0.000	0.475	0.0191	99.0083	16.3838	3.72E-01
81	0.00	0.000	0.026	0.0190	218.8443	18.4205	7.17E-01
82	0.00	0.000	0.006	0.0190	198.9373	17.8715	6.59E-01
83	108.40	0.000	6.228	0.1227	90.7156	16.0758	3.48E-01
84	0.00	0.000	6.046	0.0359	47.2381	15.5745	2.22E-01
85	0.00	0.000	5.085	0.0190	100.5591	16.4169	3.76E-01
86	0.00	0.000	0.000	0.0190	223.3809	18.5452	7.30E-01
87	0.00	0.000	0.000	0.0190	203.3322	18.0011	6.72E-01
88	0.00	0.000	0.000	0.0190	153.7623	17.0054	5.29E-01
89	0.00	0.000	0.000	0.0190	59.7937	15.5962	2.59E-01
90	0.00	0.000	0.000	0.0190	57.9161	15.5930	2.53E-01
91	0.00	0.000	0.000	0.0190	54.2593	15.5867	2.43E-01
92	0.00	0.000	0.000	0.0190	49.1938	15.5779	2.28E-01
93	0.00	0.000	0.000	0.0190	42.9906	15.5672	2.10E-01
94	0.00	0.000	0.000	0.0190	35.0931	15.5480	1.87E-01
95	0.00	0.000	0.000	0.0190	28.7465	14.8952	1.69E-01
96	0.00	0.000	0.000	0.0190	26.8541	13.9147	1.64E-01
97	0.00	0.000	0.000	0.0190	25.0664	12.9884	1.59E-01
98	0.00	0.000	0.000	0.0190	23.3893	12.1194	1.54E-01
99	0.00	0.000	0.000	0.0190	21.8238	11.3082	1.49E-01
100	0.00	0.000	0.000	0.0190	20.3682	10.5540	1.45E-01
101	0.00	0.000	0.000	0.0190	18.8857	9.7858	1.41E-01
102	0.00	0.000	0.000	0.0190	16.4820	8.5403	1.34E-01
103	0.00	0.000	0.000	0.0190	14.2297	7.3733	1.27E-01
104	0.00	0.000	0.000	0.0190	12.2822	6.3641	1.22E-01
105	5.60	0.000	0.307	0.0366	10.5981	5.4915	1.17E-01
106	4.60	0.000	0.454	0.0505	9.1418	4.7369	1.13E-01
107	2.50	0.000	0.585	0.0568	7.8826	4.0845	1.09E-01
108	0.00	0.000	0.577	0.0549	6.7938	3.5202	1.06E-01

109	0.00	0.000	0.563	0.0529	5.8522	3.0324	1.03E-01
110	0.00	0.000	0.550	0.0491	5.1094	2.6475	1.01E-01
111	0.00	0.000	0.537	0.0458	4.5366	2.3507	9.95E-02
112	0.00	0.000	0.458	0.0437	3.9985	2.0719	9.79E-02
113	0.50	0.000	0.561	0.0435	3.4510	1.7881	9.63E-02
114	0.00	0.000	0.505	0.0409	2.9901	1.5494	9.50E-02
115	0.40	0.000	0.541	0.0404	2.6068	1.3507	9.39E-02
116	0.00	0.000	0.486	0.0388	2.2317	1.1564	9.28E-02
117	0.00	0.000	0.477	0.0372	1.9073	0.9883	9.19E-02
118	0.00	0.000	0.444	0.0357	1.6268	0.8430	9.11E-02
119	0.00	0.000	0.457	0.0342	1.3843	0.7173	9.04E-02
120	0.00	0.000	0.454	0.0327	1.1746	0.6086	8.98E-02
121	0.00	0.000	0.447	0.0312	0.9933	0.5147	8.93E-02
122	0.00	0.000	0.440	0.0297	0.8364	0.4334	8.88E-02
123	0.00	0.000	0.434	0.0283	0.7008	0.3631	8.84E-02
124	0.00	0.000	0.428	0.0269	0.5836	0.3024	8.81E-02
125	0.00	0.000	0.422	0.0255	0.4822	0.2499	8.78E-02
126	0.00	0.000	0.416	0.0241	0.3945	0.2044	8.75E-02
127	0.00	0.000	0.411	0.0227	0.3187	0.1652	8.73E-02
128	0.00	0.000	0.405	0.0210	0.2747	0.1424	8.72E-02
129	0.20	0.000	0.448	0.0202	0.2218	0.1149	8.70E-02
130	0.60	0.000	0.313	0.0211	0.1694	0.0878	8.69E-02
131	0.20	0.000	0.211	0.0211	0.1240	0.0643	8.68E-02
132	0.00	0.000	0.173	0.0205	0.0848	0.0440	8.66E-02
133	0.00	0.000	0.213	0.0198	0.0509	0.0264	8.65E-02
134	0.00	0.000	0.198	0.0191	0.0216	0.0112	8.65E-02
135	0.00	0.000	0.036	0.0190	0.0013	0.0006	1.83E-02
136	0.00	0.000	0.005	0.0190	0.0000	0.0000	2.27E-05
137	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00

138	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
139	0.00	0.000	0.000	0.0190	0.0000	0.0000	7.56E-08
140	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
141	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
142	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
143	0.60	0.000	0.079	0.0207	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.143	0.0203	0.0000	0.0000	0.00E+00
145	2.20	0.000	0.221	0.0269	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.148	0.0264	0.0000	0.0000	0.00E+00
147	0.00	0.000	0.226	0.0256	0.0000	0.0000	0.00E+00
148	0.00	0.000	0.222	0.0249	0.0000	0.0000	0.00E+00
149	0.00	0.000	0.220	0.0241	0.0000	0.0000	0.00E+00
150	0.00	0.000	0.218	0.0234	0.0000	0.0000	0.00E+00
151	3.50	0.000	0.268	0.0342	0.0000	0.0000	0.00E+00
152	2.20	0.000	0.314	0.0405	0.0000	0.0000	0.00E+00
153	0.00	0.000	0.261	0.0396	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.287	0.0386	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.285	0.0377	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.293	0.0367	0.0000	0.0000	0.00E+00
157	0.20	0.000	0.350	0.0362	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.296	0.0352	0.0000	0.0000	0.00E+00
159	0.00	0.000	0.294	0.0343	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.292	0.0333	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.264	0.0324	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.288	0.0314	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.286	0.0305	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.284	0.0295	0.0000	0.0000	0.00E+00
165	3.70	0.000	0.339	0.0407	0.0000	0.0000	0.00E+00
166	4.80	0.000	0.339	0.0556	0.0000	0.0000	0.00E+00

167	0.60	0.000	0.343	0.0565	0.0000	0.0000	0.00E+00
168	0.40	0.000	0.344	0.0562	0.0051	0.0026	2.16E-02
169	1.60	0.000	0.342	0.0597	0.0529	0.0274	8.66E-02
170	0.00	0.000	0.282	0.0571	0.0868	0.0450	8.66E-02
171	61.00	0.000	0.339	0.1066	0.1722	0.0892	8.69E-02
172	4.50	0.000	5.224	0.0564	0.1738	0.0900	8.69E-02
173	0.00	0.000	5.091	0.0391	1.1333	0.5872	8.97E-02
174	0.00	0.000	5.302	0.0214	3.2817	1.7005	9.58E-02
175	0.00	0.000	0.542	0.0190	4.9740	2.5773	1.01E-01
176	0.00	0.000	0.000	0.0190	6.2619	3.2447	1.04E-01
177	0.00	0.000	0.000	0.0190	7.2547	3.7591	1.07E-01
178	0.00	0.000	0.000	0.0190	7.9826	4.1363	1.09E-01
179	0.00	0.000	0.000	0.0190	8.4974	4.4030	1.11E-01
180	0.00	0.000	0.000	0.0190	8.8410	4.5811	1.12E-01
181	0.00	0.000	0.000	0.0190	8.8934	4.6082	1.12E-01
182	0.00	0.000	0.000	0.0190	7.8099	4.0468	1.09E-01
183	0.00	0.000	0.000	0.0190	6.7309	3.4877	1.06E-01
184	0.00	0.000	0.000	0.0190	5.7979	3.0042	1.03E-01
185	0.00	0.000	0.000	0.0190	4.9910	2.5861	1.01E-01
186	1.30	0.000	0.138	0.0229	4.2934	2.2246	9.88E-02
187	1.60	0.000	0.425	0.0268	3.6901	1.9121	9.70E-02
188	0.00	0.000	0.490	0.0252	3.1684	1.6417	9.55E-02
189	0.00	0.000	0.529	0.0234	2.7173	1.4080	9.42E-02
190	0.00	0.000	0.505	0.0217	2.3273	1.2059	9.31E-02
191	0.00	0.000	0.476	0.0201	1.9900	1.0311	9.21E-02
192	0.00	0.000	0.277	0.0192	1.6983	0.8800	9.13E-02
193	0.00	0.000	0.046	0.0191	1.4461	0.7493	9.06E-02
194	0.00	0.000	0.011	0.0190	1.2281	0.6363	8.99E-02
195	0.00	0.000	0.004	0.0190	1.0395	0.5386	8.94E-02

196	0.00	0.000	0.000	0.0190	0.8764	0.4541	8.89E-02
197	26.60	0.000	0.602	0.1031	0.7354	0.3811	8.85E-02
198	8.00	0.000	5.020	0.0567	0.9255	0.4796	8.91E-02
199	0.00	0.000	4.349	0.0422	1.4362	0.7442	9.05E-02
200	6.00	0.000	4.332	0.0478	2.2433	1.1624	9.29E-02
201	1.60	0.000	5.064	0.0362	3.3869	1.7550	9.62E-02
202	7.40	0.000	5.272	0.0433	3.9879	2.0664	9.79E-02
203	0.00	0.000	4.925	0.0269	3.4677	1.7968	9.64E-02
204	0.20	0.000	2.270	0.0198	2.9861	1.5473	9.50E-02
205	0.00	0.000	0.170	0.0192	2.5690	1.3311	9.38E-02
206	0.00	0.000	0.057	0.0190	2.1990	1.1394	9.27E-02
207	0.00	0.000	0.000	0.0190	1.8791	0.9737	9.18E-02
208	0.00	0.000	0.000	0.0190	1.6024	0.8303	9.10E-02
209	0.00	0.000	0.000	0.0190	1.3632	0.7063	9.03E-02
210	0.00	0.000	0.000	0.0190	1.1563	0.5992	8.97E-02
211	0.00	0.000	0.000	0.0190	0.9775	0.5065	8.92E-02
212	0.00	0.000	0.000	0.0190	0.8228	0.4263	8.88E-02
213	0.00	0.000	0.000	0.0190	0.6890	0.3570	8.84E-02
214	0.00	0.000	0.000	0.0190	0.5734	0.2971	8.80E-02
215	0.00	0.000	0.000	0.0190	0.4734	0.2453	8.78E-02
216	0.00	0.000	0.000	0.0190	0.3869	0.2005	8.75E-02
217	0.00	0.000	0.000	0.0190	0.3121	0.1617	8.73E-02
218	0.00	0.000	0.000	0.0190	0.2475	0.1282	8.71E-02
219	0.00	0.000	0.000	0.0190	0.1916	0.0993	8.70E-02
220	0.00	0.000	0.000	0.0190	0.1432	0.0742	8.68E-02
221	0.00	0.000	0.000	0.0190	0.1014	0.0525	8.67E-02
222	0.00	0.000	0.000	0.0190	0.0652	0.0338	8.66E-02
223	0.00	0.000	0.000	0.0190	0.0340	0.0176	8.65E-02
224	0.00	0.000	0.000	0.0190	0.0075	0.0037	5.64E-02

225	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
229	4.60	0.000	0.278	0.0334	0.0000	0.0000	0.00E+00
230	0.60	0.000	0.402	0.0341	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.407	0.0327	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.400	0.0314	0.0000	0.0000	0.00E+00
233	1.00	0.000	0.499	0.0330	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.446	0.0316	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.439	0.0301	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.421	0.0287	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.408	0.0273	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.402	0.0260	0.0000	0.0000	0.00E+00
239	23.20	0.000	0.462	0.1018	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.428	0.0570	0.1465	0.0759	8.68E-02
241	0.00	0.000	0.422	0.0554	0.6613	0.3427	8.83E-02
242	0.00	0.000	0.416	0.0540	1.6808	0.8709	9.12E-02
243	0.00	0.000	0.411	0.0526	2.7569	1.4285	9.43E-02
244	0.00	0.000	0.405	0.0512	2.5883	1.3411	9.39E-02
245	0.20	0.000	0.466	0.0504	2.2157	1.1481	9.28E-02
246	0.80	0.000	0.465	0.0515	1.8935	0.9811	9.19E-02
247	0.40	0.000	0.460	0.0501	1.6437	0.8517	9.11E-02
248	0.00	0.000	0.386	0.0477	1.4930	0.7736	9.07E-02
249	0.00	0.000	0.382	0.0455	1.3525	0.7008	9.03E-02
250	0.00	0.000	0.378	0.0435	1.2114	0.6277	8.99E-02
251	0.00	0.000	0.374	0.0416	1.0801	0.5597	8.95E-02
252	0.00	0.000	0.370	0.0400	0.9594	0.4971	8.92E-02
253	0.00	0.000	0.363	0.0388	0.8229	0.4264	8.88E-02

254	0.00	0.000	0.362	0.0376	0.6892	0.3571	8.84E-02
255	0.00	0.000	0.359	0.0364	0.5735	0.2972	8.81E-02
256	7.20	0.000	0.428	0.0589	0.4735	0.2453	8.78E-02
257	8.40	0.000	0.425	0.0622	0.4665	0.2417	8.77E-02
258	8.50	0.000	6.509	0.0622	0.5645	0.2925	8.80E-02
259	0.00	0.000	6.444	0.0399	1.1434	0.5925	8.97E-02
260	0.40	0.000	5.171	0.0240	2.1773	1.1282	9.27E-02
261	0.00	0.000	1.110	0.0190	2.1834	1.1314	9.27E-02
262	0.00	0.000	0.000	0.0190	1.8893	0.9790	9.18E-02
263	0.00	0.000	0.000	0.0190	1.6113	0.8349	9.10E-02
264	0.00	0.000	0.000	0.0190	1.3709	0.7103	9.03E-02
265	0.40	0.000	0.167	0.0198	1.1630	0.6026	8.97E-02
266	0.00	0.000	0.084	0.0195	0.9832	0.5095	8.92E-02
267	0.00	0.000	0.103	0.0192	0.8277	0.4289	8.88E-02
268	0.00	0.000	0.034	0.0190	0.6933	0.3593	8.84E-02
269	0.00	0.000	0.009	0.0190	0.5771	0.2990	8.81E-02
270	0.00	0.000	0.002	0.0190	0.4766	0.2469	8.78E-02
271	0.00	0.000	0.001	0.0190	0.3897	0.2019	8.75E-02
272	0.00	0.000	0.000	0.0190	0.3145	0.1630	8.73E-02
273	9.40	0.000	0.542	0.0485	0.2495	0.1293	8.71E-02
274	0.20	0.000	0.681	0.0469	0.1933	0.1002	8.70E-02
275	0.00	0.000	0.647	0.0448	0.1448	0.0750	8.68E-02
276	0.00	0.000	0.627	0.0427	0.1027	0.0532	8.67E-02
277	0.00	0.000	0.609	0.0406	0.0665	0.0345	8.66E-02
278	0.00	0.000	0.593	0.0387	0.0359	0.0186	8.65E-02
279	0.00	0.000	0.577	0.0367	0.0101	0.0052	7.65E-02
280	0.00	0.000	0.563	0.0348	0.0005	0.0001	7.22E-03
281	0.00	0.000	0.550	0.0329	0.0004	0.0001	6.43E-03
282	0.00	0.000	0.537	0.0311	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.526	0.0294	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.515	0.0277	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.505	0.0260	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.495	0.0243	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.486	0.0227	0.0000	0.0000	0.00E+00
288	0.20	0.000	0.554	0.0215	0.0000	0.0000	0.00E+00
289	2.10	0.000	0.554	0.0267	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.461	0.0252	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.441	0.0237	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.300	0.0227	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.296	0.0217	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.292	0.0207	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.282	0.0198	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.193	0.0191	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.031	0.0190	0.0000	0.0000	0.00E+00
298	10.80	0.000	0.373	0.0538	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.372	0.0525	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.400	0.0499	0.0356	0.0185	6.49E-02
301	0.00	0.000	0.396	0.0486	0.0729	0.0378	8.66E-02
302	0.00	0.000	0.391	0.0473	0.0406	0.0210	8.65E-02
303	0.00	0.000	0.386	0.0460	0.0127	0.0064	7.59E-02
304	0.00	0.000	0.382	0.0447	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.378	0.0434	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.374	0.0422	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.370	0.0410	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.366	0.0397	0.0000	0.0000	0.00E+00
309	0.20	0.000	0.446	0.0389	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.359	0.0377	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.325	0.0363	0.0144	0.0075	6.48E-02

312	0.00	0.000	0.352	0.0351	0.0040	0.0019	3.85E-02
313	0.00	0.000	0.348	0.0339	0.0000	0.0000	0.00E+00
314	0.00	0.000	0.345	0.0328	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.342	0.0317	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.339	0.0305	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.336	0.0294	0.0000	0.0000	0.00E+00
318	0.20	0.000	0.420	0.0287	0.0000	0.0000	0.00E+00
319	5.20	0.000	0.431	0.0446	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.328	0.0435	0.0000	0.0000	0.00E+00
321	0.00	0.000	0.325	0.0424	0.0000	0.0000	0.00E+00
322	0.00	0.000	0.322	0.0413	0.0000	0.0000	0.00E+00
323	0.00	0.000	0.320	0.0402	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.317	0.0392	0.0000	0.0000	0.00E+00
325	0.00	0.000	0.315	0.0381	0.0000	0.0000	0.00E+00
326	0.00	0.000	0.312	0.0371	0.0000	0.0000	0.00E+00
327	0.00	0.000	0.310	0.0361	0.0000	0.0000	0.00E+00
328	0.00	0.000	0.308	0.0350	0.0000	0.0000	0.00E+00
329	0.00	0.000	0.306	0.0340	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.304	0.0329	0.0000	0.0000	0.00E+00
331	0.00	0.000	0.301	0.0319	0.0034	0.0016	3.50E-02
332	0.00	0.000	0.299	0.0309	0.0000	0.0000	0.00E+00
333	0.70	0.000	0.407	0.0319	0.0000	0.0000	0.00E+00
334	0.00	0.000	0.295	0.0307	0.0021	0.0011	2.16E-02
335	0.00	0.000	0.293	0.0297	0.0029	0.0013	3.10E-02
336	0.00	0.000	0.291	0.0287	0.0000	0.0000	0.00E+00
337	0.00	0.000	0.286	0.0277	0.0015	0.0007	2.06E-02
338	0.00	0.000	0.283	0.0268	0.0000	0.0000	0.00E+00
339	0.00	0.000	0.285	0.0258	0.0000	0.0000	0.00E+00
340	0.00	0.000	0.284	0.0249	0.0000	0.0000	0.00E+00

341	0.00	0.000	0.282	0.0239	0.0000	0.0000	0.00E+00
342	0.00	0.000	0.281	0.0230	0.0000	0.0000	0.00E+00
343	0.00	0.000	0.279	0.0221	0.0000	0.0000	0.00E+00
344	0.00	0.000	0.277	0.0211	0.0000	0.0000	0.00E+00
345	0.00	0.000	0.276	0.0202	0.0000	0.0000	0.00E+00
346	21.40	0.000	0.392	0.0902	0.0008	0.0004	2.16E-02
347	6.20	0.000	4.725	0.0599	0.0002	0.0000	2.44E-03
348	23.00	0.000	4.156	0.0964	0.2160	0.1119	6.54E-02
349	18.00	0.000	5.567	0.0785	0.5274	0.2733	8.79E-02
350	0.60	0.000	5.536	0.0446	0.4336	0.2247	8.76E-02
351	0.00	0.000	6.662	0.0223	0.8126	0.4211	8.87E-02
352	0.00	0.000	1.003	0.0190	2.3221	1.2032	9.31E-02
353	0.00	0.000	0.000	0.0190	3.8430	1.9913	9.75E-02
354	0.00	0.000	0.000	0.0190	5.0296	2.6061	1.01E-01
355	0.80	0.000	0.664	0.0195	5.9413	3.0785	1.04E-01
356	0.00	0.000	0.075	0.0192	6.6285	3.4346	1.05E-01
357	0.00	0.000	0.043	0.0191	6.9650	3.6090	1.06E-01
358	0.00	0.000	0.013	0.0190	6.1226	3.1725	1.04E-01
359	0.00	0.000	0.003	0.0190	5.2719	2.7317	1.02E-01
360	4.00	0.000	0.626	0.0303	4.5362	2.3505	9.95E-02
361	0.00	0.000	0.731	0.0278	3.9001	2.0209	9.76E-02
362	0.00	0.000	0.822	0.0251	3.3500	1.7358	9.60E-02
363	3.90	0.000	0.888	0.0351	2.8744	1.4894	9.47E-02
364	0.20	0.000	0.870	0.0329	2.4631	1.2763	9.35E-02
365	0.00	0.000	0.693	0.0306	2.1074	1.0920	9.25E-02

* = Frozen (air or soil)

Annual Totals for Year 21			
	mm*	cubic meters	percent
Precipitation	1,089.20	10,892.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	352.636	3,526.4	32.38
Drainage Collected from Layer 2	823.7210	8,237.2	75.63
Percolation/Leakage through Layer 3	29.898353	299.0	2.74
Average Head on Top of Layer 3	7.5443 (cm)	---	---
Change in Water Storage	-117.0550	-1,170.5	-10.75
Soil Water at Start of Year	978.9900	9,789.9	89.88
Soil Water at End of Year	861.9350	8,619.4	79.13
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 22

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			4.00	0.000		0.846	0.0411	1.7999	0.9326	9.16E-02
2			0.00	0.000		0.703	0.0387	1.5339	0.7948	9.08E-02
3			0.50	0.000		0.752	0.0379	1.3040	0.6757	9.02E-02
4			0.00	0.000		0.633	0.0358	1.1051	0.5726	8.96E-02
5			27.50	0.000		0.732	0.0773	0.9369	0.4855	8.91E-02
6	*Note: head c		50.20	0.000		3.604	0.0858	0.9999	0.5181	8.93E-02
7			81.00	0.000		4.420	0.1024	0.8717	0.4517	8.89E-02
8			10.00	0.000		4.290	0.0675	0.7313	0.3789	8.85E-02
9			0.60	0.000		4.443	0.0498	2.4601	1.2747	9.35E-02
10			0.00	0.000		6.203	0.0291	6.5094	3.3729	1.05E-01
11			2.00	0.000		3.827	0.0222	9.8707	5.1146	1.15E-01
12			13.00	0.000		4.151	0.0517	12.2429	6.3437	1.22E-01
13			5.40	0.000		5.442	0.0515	13.8733	7.1886	1.26E-01
14			0.00	0.000		4.172	0.0376	14.9242	7.7331	1.29E-01
15			14.00	0.000		3.924	0.0712	15.5384	8.0514	1.31E-01
16			40.00	0.000		6.265	0.0892	15.8432	8.2093	1.32E-01
17			2.80	0.000		6.275	0.0496	14.5442	7.5362	1.28E-01
18			0.00	0.000		5.855	0.0287	13.4019	6.9443	1.25E-01
19			0.00	0.000		2.899	0.0191	14.3144	7.4172	1.28E-01
20			0.00	0.000		0.018	0.0190	15.0213	7.7834	1.30E-01
21			0.00	0.000		0.005	0.0190	15.3860	7.9724	1.31E-01

22	0.00	0.000	0.001	0.0190	15.4937	8.0282	1.31E-01
23	0.00	0.000	0.000	0.0190	15.4096	7.9846	1.31E-01
24	54.80	0.000	2.176	0.0982	15.1966	7.8743	1.30E-01
25	0.60	0.000	5.562	0.0350	14.1892	7.3523	1.27E-01
26	6.20	0.000	6.554	0.0338	12.9480	6.7091	1.24E-01
27	0.00	0.000	3.537	0.0213	13.5091	6.9999	1.25E-01
28	0.00	0.000	0.515	0.0196	13.9187	7.2121	1.26E-01
29	0.00	0.000	0.129	0.0191	14.1176	7.3152	1.27E-01
30	0.00	0.000	0.032	0.0190	14.1275	7.3203	1.27E-01
31	0.20	0.000	0.210	0.0190	13.9952	7.2518	1.27E-01
32	10.00	0.000	1.482	0.0474	13.7578	7.1288	1.26E-01
33	0.00	0.000	4.754	0.0315	13.4441	6.9662	1.25E-01
34	0.00	0.000	1.568	0.0263	13.0953	6.7854	1.24E-01
35	0.00	0.000	1.322	0.0219	12.0435	6.2405	1.21E-01
36	1.00	0.000	0.908	0.0222	10.3917	5.3846	1.16E-01
37	0.20	0.000	0.617	0.0207	8.9700	4.6479	1.12E-01
38	0.20	0.000	0.380	0.0201	7.7360	4.0085	1.09E-01
39	0.00	0.000	0.184	0.0195	6.6670	3.4546	1.06E-01
40	0.20	0.000	0.219	0.0194	5.7426	2.9756	1.03E-01
41	0.00	0.000	0.084	0.0192	4.9432	2.5614	1.01E-01
42	0.00	0.000	0.035	0.0190	4.2520	2.2032	9.86E-02
43	0.00	0.000	0.010	0.0190	3.6544	1.8935	9.69E-02
44	0.00	0.000	0.003	0.0190	3.1375	1.6257	9.54E-02
45	0.00	0.000	0.001	0.0190	2.6906	1.3942	9.41E-02
46	23.80	0.000	0.618	0.0963	2.3042	1.1939	9.30E-02
47	5.00	0.000	3.499	0.0582	1.9700	1.0208	9.21E-02
48	20.40	0.000	6.367	0.0845	1.8644	0.9661	9.18E-02
49	0.00	0.000	6.526	0.0421	1.8631	0.9654	9.18E-02
50	0.00	0.000	6.104	0.0218	1.8693	0.9686	9.18E-02

51	1.80	0.000	1.551	0.0219	3.0228	1.5663	9.51E-02
52	0.00	0.000	0.686	0.0196	4.1645	2.1579	9.84E-02
53	1.80	0.000	1.051	0.0221	5.0904	2.6376	1.01E-01
54	8.00	0.000	2.662	0.0399	5.6278	2.9161	1.03E-01
55	6.00	0.000	5.338	0.0421	4.9570	2.5685	1.01E-01
56	1.00	0.000	1.993	0.0388	4.2640	2.2094	9.87E-02
57	0.00	0.000	1.544	0.0336	3.6647	1.8989	9.70E-02
58	0.00	0.000	1.338	0.0292	3.1464	1.6304	9.55E-02
59	2.60	0.000	1.230	0.0338	2.6983	1.3982	9.42E-02
60	0.20	0.000	1.115	0.0307	2.3108	1.1974	9.31E-02
61	0.00	0.000	0.968	0.0275	1.9758	1.0238	9.21E-02
62	0.80	0.000	0.968	0.0269	1.6860	0.8736	9.13E-02
63	9.00	0.000	0.942	0.0538	1.4355	0.7438	9.05E-02
64	0.00	0.000	5.556	0.0353	1.2189	0.6316	8.99E-02
65	0.40	0.000	0.895	0.0336	1.0315	0.5345	8.94E-02
66	0.00	0.000	0.787	0.0310	0.8695	0.4506	8.89E-02
67	12.60	0.000	0.820	0.0702	0.7295	0.3780	8.85E-02
68	1.00	0.000	4.802	0.0470	0.6083	0.3152	8.82E-02
69	28.40	0.000	6.538	0.0892	0.7716	0.3998	8.86E-02
70	0.00	0.000	3.845	0.0394	1.2522	0.6488	9.00E-02
71	0.00	0.000	6.132	0.0190	1.3128	0.6803	9.02E-02
72	0.00	0.000	0.000	0.0190	2.3881	1.2374	9.33E-02
73	0.00	0.000	0.000	0.0190	3.5992	1.8650	9.68E-02
74	0.00	0.000	0.000	0.0190	4.5869	2.3768	9.96E-02
75	12.50	0.000	1.486	0.0557	4.5779	2.3721	9.96E-02
76	0.00	0.000	5.503	0.0374	3.9361	2.0395	9.77E-02
77	0.00	0.000	1.620	0.0320	3.3812	1.7520	9.61E-02
78	46.00	0.000	1.434	0.1011	2.9462	1.5266	9.49E-02
79	13.00	0.000	5.409	0.0706	2.6504	1.3733	9.40E-02

80	20.50	0.000	5.969	0.0892	2.8035	1.4526	9.45E-02
81	2.20	0.000	6.474	0.0449	2.8436	1.4734	9.46E-02
82	42.80	0.000	5.675	0.0976	2.8606	1.4822	9.46E-02
83	4.60	0.000	4.446	0.0575	3.2044	1.6604	9.56E-02
84	0.00	0.000	6.705	0.0349	3.6315	1.8817	9.69E-02
85	0.00	0.000	4.772	0.0190	5.9790	3.0981	1.04E-01
86	0.00	0.000	0.000	0.0190	7.8240	4.0541	1.09E-01
87	0.00	0.000	0.000	0.0190	9.1714	4.7522	1.13E-01
88	2.20	0.000	1.232	0.0222	10.1275	5.2476	1.16E-01
89	0.00	0.000	0.735	0.0198	10.7759	5.5836	1.17E-01
90	0.00	0.000	0.175	0.0192	11.1829	5.7945	1.19E-01
91	0.00	0.000	0.044	0.0190	11.4012	5.9076	1.19E-01
92	0.00	0.000	0.011	0.0190	11.4726	5.9446	1.19E-01
93	1.40	0.000	0.203	0.0230	11.4307	5.9229	1.19E-01
94	0.00	0.000	0.572	0.0211	11.2491	5.8288	1.19E-01
95	0.00	0.000	0.482	0.0195	9.9906	5.1767	1.15E-01
96	0.00	0.000	0.110	0.0191	8.6165	4.4647	1.11E-01
97	0.00	0.000	0.027	0.0190	7.4284	3.8491	1.08E-01
98	0.00	0.000	0.007	0.0190	6.4010	3.3167	1.05E-01
99	0.00	0.000	0.002	0.0190	5.5126	2.8564	1.02E-01
100	0.00	0.000	0.000	0.0190	4.7443	2.4583	1.00E-01
101	0.00	0.000	0.000	0.0190	4.0800	2.1141	9.81E-02
102	0.00	0.000	0.000	0.0190	3.5056	1.8165	9.65E-02
103	0.00	0.000	0.000	0.0190	3.0089	1.5591	9.51E-02
104	0.00	0.000	0.000	0.0190	2.5794	1.3365	9.38E-02
105	0.30	0.000	0.120	0.0196	2.2080	1.1441	9.28E-02
106	0.00	0.000	0.054	0.0194	1.8869	0.9777	9.18E-02
107	0.00	0.000	0.099	0.0191	1.6092	0.8338	9.10E-02
108	0.00	0.000	0.019	0.0190	1.3690	0.7094	9.03E-02

109	0.00	0.000	0.005	0.0190	1.1614	0.6018	8.97E-02
110	0.00	0.000	0.001	0.0190	0.9818	0.5087	8.92E-02
111	1.20	0.000	0.113	0.0226	0.8266	0.4283	8.88E-02
112	1.00	0.000	0.295	0.0250	0.6923	0.3587	8.84E-02
113	0.60	0.000	0.290	0.0260	0.5762	0.2986	8.81E-02
114	0.00	0.000	0.353	0.0248	0.4758	0.2465	8.78E-02
115	0.00	0.000	0.346	0.0237	0.3890	0.2016	8.75E-02
116	0.00	0.000	0.339	0.0225	0.3139	0.1627	8.73E-02
117	0.00	0.000	0.333	0.0214	0.2490	0.1290	8.71E-02
118	0.00	0.000	0.321	0.0204	0.1929	0.1000	8.70E-02
119	0.00	0.000	0.341	0.0192	0.1444	0.0748	8.68E-02
120	0.00	0.000	0.053	0.0191	0.1024	0.0531	8.67E-02
121	0.00	0.000	0.013	0.0190	0.0661	0.0343	8.66E-02
122	0.00	0.000	0.004	0.0190	0.0347	0.0180	8.65E-02
123	0.20	0.000	0.102	0.0193	0.0080	0.0040	5.87E-02
124	0.00	0.000	0.037	0.0192	0.0000	0.0000	0.00E+00
125	1.20	0.000	0.142	0.0227	0.0000	0.0000	0.00E+00
126	2.00	0.000	0.256	0.0285	0.0000	0.0000	0.00E+00
127	0.20	0.000	0.350	0.0280	0.0000	0.0000	0.00E+00
128	0.00	0.000	0.280	0.0271	0.0000	0.0000	0.00E+00
129	0.00	0.000	0.338	0.0260	0.0000	0.0000	0.00E+00
130	0.00	0.000	0.333	0.0249	0.0000	0.0000	0.00E+00
131	0.00	0.000	0.329	0.0238	0.0000	0.0000	0.00E+00
132	0.00	0.000	0.325	0.0227	0.0000	0.0000	0.00E+00
133	4.00	0.000	0.391	0.0347	0.0000	0.0000	0.00E+00
134	0.00	0.000	0.345	0.0336	0.0000	0.0000	0.00E+00
135	0.00	0.000	0.327	0.0325	0.0000	0.0000	0.00E+00
136	0.00	0.000	0.315	0.0314	0.0000	0.0000	0.00E+00
137	0.00	0.000	0.341	0.0303	0.0000	0.0000	0.00E+00

138	20.40	0.000	0.409	0.0969	0.0000	0.0000	0.00E+00
139	105.20	0.000	0.438	0.1165	0.1212	0.0628	8.67E-02
140	5.00	0.000	5.508	0.0565	0.1226	0.0635	8.68E-02
141	0.00	0.000	4.730	0.0400	2.1377	1.1077	9.26E-02
142	0.00	0.000	5.588	0.0214	5.6131	2.9085	1.03E-01
143	2.60	0.000	2.161	0.0223	8.1572	4.2267	1.10E-01
144	0.00	0.000	0.662	0.0201	10.0032	5.1832	1.15E-01
145	0.00	0.000	0.259	0.0192	11.3196	5.8654	1.19E-01
146	0.00	0.000	0.042	0.0190	12.2074	6.3254	1.22E-01
147	0.00	0.000	0.011	0.0190	12.7640	6.6138	1.23E-01
148	0.00	0.000	0.003	0.0190	13.0654	6.7700	1.24E-01
149	0.00	0.000	0.001	0.0190	13.1710	6.8247	1.24E-01
150	0.00	0.000	0.000	0.0190	13.1276	6.8022	1.24E-01
151	0.00	0.000	0.000	0.0190	12.9719	6.7215	1.24E-01
152	0.00	0.000	0.000	0.0190	12.7329	6.5977	1.23E-01
153	0.50	0.000	0.163	0.0201	12.4105	6.4306	1.22E-01
154	0.00	0.000	0.144	0.0196	11.0462	5.7237	1.18E-01
155	0.00	0.000	0.135	0.0192	9.5293	4.9377	1.14E-01
156	0.00	0.000	0.044	0.0190	8.2177	4.2581	1.10E-01
157	0.00	0.000	0.011	0.0190	7.0835	3.6704	1.07E-01
158	0.00	0.000	0.003	0.0190	6.1027	3.1622	1.04E-01
159	0.00	0.000	0.001	0.0190	5.2547	2.7228	1.02E-01
160	0.00	0.000	0.000	0.0190	4.5213	2.3428	9.94E-02
161	0.00	0.000	0.000	0.0190	3.8872	2.0142	9.76E-02
162	0.00	0.000	0.000	0.0190	3.3389	1.7301	9.60E-02
163	0.30	0.000	0.125	0.0196	2.8647	1.4844	9.46E-02
164	0.00	0.000	0.053	0.0194	2.4547	1.2719	9.35E-02
165	0.00	0.000	0.099	0.0191	2.1002	1.0882	9.24E-02
166	0.00	0.000	0.018	0.0190	1.7936	0.9294	9.16E-02

167	0.00	0.000	0.004	0.0190	1.5285	0.7920	9.08E-02
168	0.00	0.000	0.001	0.0190	1.2993	0.6733	9.01E-02
169	0.00	0.000	0.000	0.0190	1.1011	0.5705	8.96E-02
170	0.00	0.000	0.000	0.0190	0.9297	0.4817	8.91E-02
171	0.00	0.000	0.000	0.0190	0.7815	0.4049	8.86E-02
172	0.00	0.000	0.000	0.0190	0.6533	0.3385	8.83E-02
173	0.00	0.000	0.000	0.0190	0.5425	0.2811	8.80E-02
174	0.00	0.000	0.000	0.0190	0.4467	0.2314	8.77E-02
175	0.00	0.000	0.000	0.0190	0.3638	0.1885	8.74E-02
176	0.00	0.000	0.000	0.0190	0.2922	0.1514	8.72E-02
177	0.00	0.000	0.000	0.0190	0.2302	0.1193	8.71E-02
178	0.00	0.000	0.000	0.0190	0.1766	0.0915	8.69E-02
179	0.00	0.000	0.000	0.0190	0.1303	0.0675	8.68E-02
180	0.50	0.000	0.109	0.0203	0.0902	0.0468	8.67E-02
181	0.00	0.000	0.184	0.0197	0.0556	0.0288	8.66E-02
182	0.00	0.000	0.123	0.0193	0.0256	0.0133	8.65E-02
183	1.40	0.000	0.163	0.0234	0.0029	0.0013	3.11E-02
184	0.20	0.000	0.258	0.0232	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.283	0.0223	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.289	0.0213	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.276	0.0204	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.269	0.0195	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.115	0.0191	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.027	0.0190	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.004	0.0190	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
219	9.60	0.000	0.276	0.0501	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.273	0.0492	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.297	0.0482	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.295	0.0472	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.293	0.0461	0.0004	0.0000	5.21E-03
224	0.00	0.000	0.291	0.0449	0.0055	0.0027	5.61E-02

225	0.00	0.000	0.289	0.0437	0.0113	0.0058	8.64E-02
226	0.00	0.000	0.288	0.0428	0.0004	0.0001	5.51E-03
227	0.00	0.000	0.286	0.0418	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.284	0.0409	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.282	0.0399	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.281	0.0390	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.279	0.0381	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.277	0.0372	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.276	0.0362	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.274	0.0353	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.272	0.0344	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.271	0.0335	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.269	0.0326	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.268	0.0317	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.266	0.0308	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.265	0.0299	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.264	0.0291	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.262	0.0282	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.261	0.0273	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.259	0.0265	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.258	0.0256	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.257	0.0247	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.255	0.0239	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.254	0.0230	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.253	0.0222	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.252	0.0214	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.250	0.0205	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.249	0.0197	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.210	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
263	0.60	0.000	0.099	0.0207	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.099	0.0203	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.118	0.0199	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.150	0.0194	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.069	0.0192	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.052	0.0190	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.009	0.0190	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
275	0.40	0.000	0.100	0.0200	0.0000	0.0000	0.00E+00
276	0.60	0.000	0.115	0.0216	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.097	0.0213	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.110	0.0209	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.143	0.0205	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.149	0.0200	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.148	0.0195	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.106	0.0191	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.024	0.0190	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.006	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
288	0.50	0.000	0.102	0.0203	0.0000	0.0000	0.00E+00
289	17.00	0.000	0.260	0.0761	0.0000	0.0000	0.00E+00
290	23.80	0.000	0.291	0.0913	0.0000	0.0000	0.00E+00
291	21.60	0.000	0.297	0.0931	0.0000	0.0000	0.00E+00
292	25.00	0.000	3.981	0.0934	0.0000	0.0000	0.00E+00
293	51.40	0.000	5.964	0.0949	0.0000	0.0000	0.00E+00
294	0.40	0.000	4.402	0.0379	0.0714	0.0370	4.34E-02
295	8.00	0.000	5.659	0.0457	1.1615	0.6018	8.97E-02
296	0.00	0.000	6.299	0.0247	4.6252	2.3966	9.97E-02
297	12.80	0.000	6.003	0.0474	7.5320	3.9028	1.08E-01
298	0.00	0.000	4.754	0.0315	9.6377	4.9939	1.14E-01
299	0.00	0.000	3.355	0.0203	11.1296	5.7669	1.18E-01
300	0.00	0.000	0.320	0.0193	12.1482	6.2947	1.21E-01
301	0.00	0.000	0.079	0.0190	12.8017	6.6333	1.23E-01
302	0.00	0.000	0.000	0.0190	13.1740	6.8262	1.24E-01
303	0.00	0.000	0.000	0.0190	13.3306	6.9074	1.25E-01
304	0.70	0.000	0.264	0.0205	13.3228	6.9033	1.25E-01
305	2.80	0.000	0.764	0.0272	13.1910	6.8350	1.24E-01
306	0.00	0.000	0.597	0.0252	12.9669	6.7189	1.24E-01
307	0.00	0.000	0.809	0.0226	12.6764	6.5684	1.23E-01
308	0.00	0.000	0.709	0.0202	11.8794	6.1554	1.21E-01
309	0.00	0.000	0.295	0.0192	10.2498	5.3110	1.16E-01
310	0.00	0.000	0.047	0.0191	8.8407	4.5809	1.12E-01
311	0.00	0.000	0.012	0.0190	7.6222	3.9495	1.08E-01

312	0.00	0.000	0.004	0.0190	6.5686	3.4036	1.05E-01
313	0.60	0.000	0.155	0.0205	5.6575	2.9315	1.03E-01
314	9.00	0.000	0.594	0.0485	4.8697	2.5233	1.00E-01
315	0.00	0.000	0.657	0.0463	4.1884	2.1703	9.85E-02
316	0.00	0.000	0.672	0.0441	3.5993	1.8650	9.68E-02
317	0.00	0.000	0.648	0.0419	3.0900	1.6011	9.53E-02
318	4.00	0.000	0.738	0.0528	2.6495	1.3729	9.40E-02
319	1.20	0.000	0.718	0.0544	2.2686	1.1755	9.29E-02
320	0.00	0.000	0.609	0.0520	1.9466	1.0086	9.20E-02
321	0.00	0.000	0.593	0.0500	1.6812	0.8711	9.12E-02
322	0.00	0.000	0.577	0.0481	1.4313	0.7416	9.05E-02
323	0.00	0.000	0.563	0.0462	1.2152	0.6297	8.99E-02
324	9.90	0.000	0.643	0.0760	1.0284	0.5329	8.94E-02
325	3.00	0.000	0.631	0.0643	0.9494	0.4919	8.91E-02
326	0.80	0.000	5.063	0.0464	1.2278	0.6362	8.99E-02
327	0.20	0.000	0.608	0.0439	2.0616	1.0682	9.23E-02
328	0.00	0.000	0.515	0.0413	2.2439	1.1627	9.29E-02
329	0.00	0.000	0.505	0.0396	1.9589	1.0150	9.20E-02
330	0.00	0.000	0.439	0.0381	1.6715	0.8661	9.12E-02
331	0.00	0.000	0.486	0.0365	1.4229	0.7373	9.05E-02
332	0.00	0.000	0.477	0.0349	1.2080	0.6259	8.99E-02
333	0.00	0.000	0.469	0.0333	1.0221	0.5296	8.93E-02
334	26.00	0.000	0.558	0.0900	0.8614	0.4463	8.89E-02
335	0.00	0.000	5.844	0.0427	0.7224	0.3743	8.85E-02
336	0.00	0.000	6.376	0.0214	0.8826	0.4573	8.89E-02
337	0.00	0.000	0.546	0.0190	2.0872	1.0815	9.24E-02
338	10.60	0.000	4.474	0.0394	3.2540	1.6861	9.58E-02
339	0.20	0.000	3.774	0.0275	4.0012	2.0733	9.79E-02
340	0.00	0.000	2.075	0.0206	3.5383	1.8334	9.66E-02

341	0.00	0.000	0.358	0.0194	3.0372	1.5737	9.51E-02
342	0.00	0.000	0.119	0.0190	2.6038	1.3492	9.39E-02
343	0.00	0.000	0.000	0.0190	2.2291	1.1550	9.28E-02
344	0.00	0.000	0.000	0.0190	1.9051	0.9872	9.19E-02
345	0.00	0.000	0.000	0.0190	1.6249	0.8420	9.11E-02
346	5.80	0.000	0.518	0.0366	1.3827	0.7164	9.04E-02
347	3.50	0.000	0.725	0.0459	1.1732	0.6079	8.98E-02
348	0.00	0.000	0.797	0.0432	0.9920	0.5140	8.93E-02
349	0.00	0.000	0.801	0.0405	0.8354	0.4329	8.88E-02
350	0.00	0.000	0.762	0.0380	0.6999	0.3627	8.84E-02
351	0.00	0.000	0.730	0.0356	0.5828	0.3020	8.81E-02
352	0.00	0.000	0.706	0.0332	0.4815	0.2495	8.78E-02
353	0.00	0.000	0.679	0.0309	0.3939	0.2041	8.75E-02
354	0.00	0.000	0.669	0.0287	0.3182	0.1649	8.73E-02
355	0.00	0.000	0.647	0.0266	0.2527	0.1310	8.71E-02
356	0.00	0.000	0.627	0.0245	0.1961	0.1016	8.70E-02
357	0.00	0.000	0.609	0.0224	0.1471	0.0762	8.68E-02
358	0.00	0.000	0.593	0.0205	0.1048	0.0543	8.67E-02
359	0.00	0.000	0.437	0.0190	0.0682	0.0353	8.66E-02
360	0.00	0.000	0.000	0.0190	0.0365	0.0189	8.65E-02
361	0.00	0.000	0.000	0.0190	0.0092	0.0047	6.39E-02
362	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
363	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
364	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
365	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 22			
	mm*	cubic meters	percent
Precipitation	989.20	9,892.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	362.820	3,628.2	36.68
Drainage Collected from Layer 2	613.0137	6,130.1	61.97
Percolation/Leakage through Layer 3	23.801639	238.0	2.41
Average Head on Top of Layer 3	3.2413 (cm)	---	---
Change in Water Storage	-10.4354	-104.4	-1.05
Soil Water at Start of Year	861.9350	8,619.4	87.13
Soil Water at End of Year	851.4996	8,515.0	86.08
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 23

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone				
	Air	Soil				Water (cm/cm)	Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)	
1				0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
2				0.60	0.000	0.115	0.0206	0.0000	0.0000	0.00E+00
3				6.50	0.000	0.274	0.0414	0.0000	0.0000	0.00E+00
4				0.00	0.000	0.386	0.0401	0.0000	0.0000	0.00E+00
5				31.50	0.000	0.521	0.0911	0.0000	0.0000	0.00E+00
6	*Note: head c			25.00	0.000	5.980	0.0965	0.0000	0.0000	0.00E+00
7				5.00	0.000	6.099	0.0497	0.3502	0.1815	8.74E-02
8				0.20	0.000	4.761	0.0341	0.6600	0.3420	8.83E-02
9				0.00	0.000	3.471	0.0202	2.2269	1.1539	9.28E-02
10				0.00	0.000	0.270	0.0193	3.7174	1.9262	9.71E-02
11				1.80	0.000	1.002	0.0220	5.0303	2.6065	1.01E-01
12				0.00	0.000	0.700	0.0196	6.0465	3.1331	1.04E-01
13				0.00	0.000	0.142	0.0192	6.8120	3.5297	1.06E-01
14				0.00	0.000	0.034	0.0190	7.3737	3.8208	1.08E-01
15				0.00	0.000	0.009	0.0190	7.5288	3.9011	1.08E-01
16				30.00	0.000	1.548	0.0970	6.5727	3.4057	1.05E-01
17				1.00	0.000	4.252	0.0495	5.6962	2.9516	1.03E-01
18				3.60	0.000	5.342	0.0407	5.3014	2.7470	1.02E-01
19				0.00	0.000	5.324	0.0229	5.5325	2.8667	1.02E-01
20				0.00	0.000	0.881	0.0194	6.2324	3.2294	1.04E-01
21				0.00	0.000	0.083	0.0191	6.6912	3.4671	1.06E-01

22	0.00	0.000	0.021	0.0190	6.0160	3.1172	1.04E-01
23	0.00	0.000	0.005	0.0190	5.1796	2.6839	1.01E-01
24	4.00	0.000	0.636	0.0302	4.4565	2.3092	9.92E-02
25	0.40	0.000	0.872	0.0286	3.8311	1.9851	9.74E-02
26	24.00	0.000	1.055	0.0918	3.2904	1.7049	9.59E-02
27	1.50	0.000	4.962	0.0469	2.8228	1.4627	9.45E-02
28	0.00	0.000	6.182	0.0263	2.6687	1.3828	9.41E-02
29	0.00	0.000	2.166	0.0191	3.4886	1.8076	9.64E-02
30	1.60	0.000	0.644	0.0223	4.4808	2.3217	9.93E-02
31	0.00	0.000	0.693	0.0199	4.5493	2.3573	9.95E-02
32	0.00	0.000	0.213	0.0192	3.9114	2.0267	9.77E-02
33	0.00	0.000	0.053	0.0191	3.3598	1.7409	9.61E-02
34	0.00	0.000	0.013	0.0190	2.8828	1.4938	9.47E-02
35	7.50	0.000	0.519	0.0423	2.4704	1.2801	9.35E-02
36	20.00	0.000	0.974	0.0971	2.1137	1.0953	9.25E-02
37	2.20	0.000	5.491	0.0413	1.8053	0.9355	9.16E-02
38	1.50	0.000	5.762	0.0271	1.7804	0.9225	9.15E-02
39	0.20	0.000	2.344	0.0200	2.7306	1.4149	9.43E-02
40	1.20	0.000	0.707	0.0216	3.8336	1.9864	9.74E-02
41	0.00	0.000	0.595	0.0196	4.4343	2.2977	9.92E-02
42	0.00	0.000	0.148	0.0191	3.8817	2.0113	9.76E-02
43	0.00	0.000	0.029	0.0190	3.3341	1.7276	9.60E-02
44	0.00	0.000	0.007	0.0190	2.8606	1.4822	9.46E-02
45	0.00	0.000	0.002	0.0190	2.4512	1.2701	9.35E-02
46	0.00	0.000	0.001	0.0190	2.0971	1.0866	9.24E-02
47	0.00	0.000	0.000	0.0190	1.7910	0.9280	9.16E-02
48	0.00	0.000	0.000	0.0190	1.5262	0.7908	9.08E-02
49	0.00	0.000	0.000	0.0190	1.2973	0.6722	9.01E-02
50	0.00	0.000	0.000	0.0190	1.0994	0.5696	8.96E-02

51	9.80	0.000	0.564	0.0498	0.9282	0.4810	8.91E-02
52	73.30	0.000	0.779	0.1101	0.8683	0.4499	8.89E-02
53	10.80	0.000	5.461	0.0633	0.8104	0.4199	8.87E-02
54	76.00	0.000	3.814	0.1061	1.4311	0.7415	9.05E-02
55	38.00	0.000	3.086	0.1011	1.2899	0.6684	9.01E-02
56	165.00	0.000	4.929	0.1359	1.9442	1.0074	9.20E-02
57	6.00	0.000	5.756	0.0528	3.8654	2.0029	9.75E-02
58	2.00	0.000	6.476	0.0378	17.9019	9.2760	1.38E-01
59	158.00	0.000	3.264	0.1377	28.0213	14.5195	1.67E-01
60	169.00	0.000	3.335	0.1362	29.1939	14.8195	1.70E-01
61	39.20	0.000	5.421	0.0887	430.7393	25.6827	1.33E+00
62	0.90	0.000	4.645	0.0533	548.9766	28.8504	1.67E+00
63	0.00	0.000	6.159	0.0327	524.8134	28.0398	1.60E+00
64	0.00	0.000	4.101	0.0191	494.0594	27.0156	1.51E+00
65	0.00	0.000	0.012	0.0190	464.4566	26.0387	1.42E+00
66	5.20	0.000	2.327	0.0286	435.9526	25.1069	1.34E+00
67	9.80	0.000	2.194	0.0539	408.4975	24.2183	1.26E+00
68	31.80	0.000	4.916	0.0984	382.1121	23.3734	1.19E+00
69	0.00	0.000	5.349	0.0447	374.4046	23.1281	1.16E+00
70	1.30	0.000	5.876	0.0294	356.5748	22.5153	1.11E+00
71	0.00	0.000	3.000	0.0194	332.0649	21.7135	1.04E+00
72	0.00	0.000	0.092	0.0191	308.4217	21.0020	9.75E-01
73	0.00	0.000	0.023	0.0190	285.5848	20.3244	9.09E-01
74	0.00	0.000	0.006	0.0190	263.5162	19.6805	8.45E-01
75	0.00	0.000	0.001	0.0190	242.1781	19.0703	7.84E-01
76	0.00	0.000	0.000	0.0190	221.5328	18.4943	7.24E-01
77	0.00	0.000	0.000	0.0190	201.5420	17.9535	6.67E-01
78	0.00	0.000	0.000	0.0190	122.5661	16.5351	4.39E-01
79	13.30	0.000	0.856	0.0605	59.8604	15.5963	2.59E-01

80	0.30	0.000	1.039	0.0566	57.7296	15.5927	2.53E-01
81	4.80	0.000	1.048	0.0652	53.0474	15.5846	2.39E-01
82	0.00	0.000	3.514	0.0496	47.1595	15.5744	2.22E-01
83	6.00	0.000	0.979	0.0603	40.6539	15.5632	2.03E-01
84	27.00	0.000	4.495	0.0911	31.9628	15.3555	1.78E-01
85	12.80	0.000	3.107	0.0695	27.0539	14.0182	1.64E-01
86	92.00	0.000	4.426	0.1087	23.6530	12.2560	1.55E-01
87	1.60	0.000	4.482	0.0439	20.4832	10.6135	1.45E-01
88	0.20	0.000	5.950	0.0248	21.0170	10.8901	1.47E-01
89	0.00	0.000	1.662	0.0192	23.8412	12.3535	1.55E-01
90	0.00	0.000	0.053	0.0191	25.3716	13.1465	1.59E-01
91	0.00	0.000	0.015	0.0190	26.0220	13.4836	1.61E-01
92	0.20	0.000	0.202	0.0190	26.0655	13.5061	1.61E-01
93	8.60	0.000	2.331	0.0399	25.6909	13.3120	1.60E-01
94	0.00	0.000	4.531	0.0248	25.0332	12.9712	1.58E-01
95	0.00	0.000	1.574	0.0195	24.1892	12.5339	1.56E-01
96	0.40	0.000	0.304	0.0199	23.2292	12.0364	1.53E-01
97	0.00	0.000	0.156	0.0193	22.2041	11.5052	1.50E-01
98	3.40	0.000	0.549	0.0289	21.1504	10.9593	1.47E-01
99	0.00	0.000	0.632	0.0267	20.0947	10.4122	1.44E-01
100	0.00	0.000	0.672	0.0245	19.0554	9.8737	1.41E-01
101	0.00	0.000	0.538	0.0227	18.0456	9.3505	1.38E-01
102	0.00	0.000	0.719	0.0203	17.0739	8.8470	1.36E-01
103	0.40	0.000	0.445	0.0202	15.7726	8.1727	1.32E-01
104	0.00	0.000	0.123	0.0197	13.6335	7.0643	1.26E-01
105	0.00	0.000	0.189	0.0191	11.7666	6.0970	1.20E-01
106	0.00	0.000	0.027	0.0190	10.1523	5.2605	1.16E-01
107	0.00	0.000	0.007	0.0190	8.7564	4.5372	1.12E-01
108	0.00	0.000	0.002	0.0190	7.5493	3.9117	1.08E-01

109	0.00	0.000	0.000	0.0190	6.5055	3.3709	1.05E-01
110	0.00	0.000	0.000	0.0190	5.6030	2.9032	1.03E-01
111	0.00	0.000	0.000	0.0190	4.8225	2.4988	1.00E-01
112	0.00	0.000	0.000	0.0190	4.1476	2.1491	9.83E-02
113	0.00	0.000	0.000	0.0190	3.5641	1.8468	9.67E-02
114	0.00	0.000	0.000	0.0190	3.0595	1.5853	9.52E-02
115	0.00	0.000	0.000	0.0190	2.6231	1.3592	9.40E-02
116	0.00	0.000	0.000	0.0190	2.2458	1.1637	9.29E-02
117	0.00	0.000	0.000	0.0190	1.9195	0.9946	9.19E-02
118	0.00	0.000	0.000	0.0190	1.6374	0.8484	9.11E-02
119	0.00	0.000	0.000	0.0190	1.3935	0.7220	9.04E-02
120	0.00	0.000	0.000	0.0190	1.1825	0.6127	8.98E-02
121	0.00	0.000	0.000	0.0190	1.0001	0.5182	8.93E-02
122	0.00	0.000	0.000	0.0190	0.8424	0.4365	8.88E-02
123	0.00	0.000	0.000	0.0190	0.7060	0.3658	8.84E-02
124	2.20	0.000	0.241	0.0255	0.5880	0.3047	8.81E-02
125	0.00	0.000	0.190	0.0249	0.4860	0.2518	8.78E-02
126	0.00	0.000	0.300	0.0239	0.3978	0.2061	8.75E-02
127	0.00	0.000	0.296	0.0229	0.3216	0.1666	8.73E-02
128	0.00	0.000	0.292	0.0219	0.2556	0.1325	8.71E-02
129	0.00	0.000	0.287	0.0210	0.1986	0.1029	8.70E-02
130	0.00	0.000	0.278	0.0201	0.1493	0.0774	8.68E-02
131	0.00	0.000	0.275	0.0191	0.1067	0.0553	8.67E-02
132	0.00	0.000	0.020	0.0191	0.0698	0.0362	8.66E-02
133	0.00	0.000	0.015	0.0190	0.0379	0.0197	8.65E-02
134	0.00	0.000	0.005	0.0190	0.0104	0.0053	6.81E-02
135	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
136	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
137	0.50	0.000	0.083	0.0204	0.0000	0.0000	0.00E+00

138	3.20	0.000	0.210	0.0304	0.0000	0.0000	0.00E+00
139	0.00	0.000	0.254	0.0295	0.0000	0.0000	0.00E+00
140	0.00	0.000	0.307	0.0285	0.0000	0.0000	0.00E+00
141	0.00	0.000	0.304	0.0275	0.0000	0.0000	0.00E+00
142	0.00	0.000	0.301	0.0265	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.298	0.0255	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.295	0.0245	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.292	0.0235	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.321	0.0225	0.0000	0.0000	0.00E+00
147	0.00	0.000	0.318	0.0214	0.0000	0.0000	0.00E+00
148	0.30	0.000	0.368	0.0212	0.0000	0.0000	0.00E+00
149	1.00	0.000	0.366	0.0233	0.0000	0.0000	0.00E+00
150	0.00	0.000	0.273	0.0224	0.0000	0.0000	0.00E+00
151	0.00	0.000	0.243	0.0216	0.0000	0.0000	0.00E+00
152	0.00	0.000	0.224	0.0208	0.0000	0.0000	0.00E+00
153	0.00	0.000	0.222	0.0201	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.193	0.0194	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.104	0.0191	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.020	0.0190	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.003	0.0190	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
159	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

167	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
168	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
179	0.70	0.000	0.080	0.0211	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.115	0.0207	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.138	0.0202	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.176	0.0196	0.0000	0.0000	0.00E+00
183	10.00	0.000	0.238	0.0522	0.0000	0.0000	3.75E-07
184	0.70	0.000	0.302	0.0535	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.266	0.0525	0.0027	0.0014	3.98E-02
186	0.00	0.000	0.265	0.0510	0.0113	0.0058	6.48E-02
187	0.00	0.000	0.264	0.0494	0.0375	0.0194	8.65E-02
188	0.00	0.000	0.262	0.0475	0.0807	0.0418	8.66E-02
189	0.00	0.000	0.261	0.0456	0.1265	0.0656	8.68E-02
190	0.00	0.000	0.259	0.0440	0.1573	0.0815	8.69E-02
191	0.00	0.000	0.258	0.0424	0.1729	0.0896	8.69E-02
192	0.00	0.000	0.237	0.0412	0.1773	0.0919	8.69E-02
193	0.00	0.000	0.255	0.0403	0.1476	0.0765	8.68E-02
194	0.00	0.000	0.254	0.0395	0.1052	0.0545	8.67E-02
195	0.00	0.000	0.253	0.0386	0.0685	0.0355	8.66E-02

196	0.00	0.000	0.252	0.0378	0.0368	0.0191	8.65E-02
197	0.00	0.000	0.250	0.0370	0.0094	0.0049	6.48E-02
198	0.00	0.000	0.249	0.0361	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.248	0.0353	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.247	0.0345	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.246	0.0337	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.245	0.0328	0.0000	0.0000	0.00E+00
203	1.60	0.000	0.304	0.0372	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.242	0.0364	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.241	0.0356	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.240	0.0348	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.239	0.0340	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.238	0.0332	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.237	0.0324	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.236	0.0316	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.203	0.0309	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.218	0.0302	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.233	0.0294	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.232	0.0286	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.231	0.0279	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.230	0.0271	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.229	0.0263	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.228	0.0256	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.227	0.0248	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.227	0.0241	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.226	0.0233	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.225	0.0226	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.224	0.0218	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.223	0.0211	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.222	0.0203	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.221	0.0196	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.176	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
255	13.20	0.000	0.202	0.0623	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.182	0.0566	0.0274	0.0142	2.17E-02
257	0.00	0.000	0.199	0.0537	0.3737	0.1936	8.75E-02
258	0.00	0.000	0.199	0.0514	0.5335	0.2764	8.79E-02
259	0.00	0.000	0.198	0.0500	0.5437	0.2817	8.80E-02
260	0.00	0.000	0.197	0.0493	0.4781	0.2478	8.78E-02
261	0.40	0.000	0.266	0.0496	0.3910	0.2026	8.75E-02
262	0.40	0.000	0.266	0.0498	0.3387	0.1755	8.74E-02
263	0.00	0.000	0.196	0.0484	0.3001	0.1555	8.73E-02
264	0.00	0.000	0.195	0.0472	0.2891	0.1498	8.72E-02
265	0.00	0.000	0.195	0.0460	0.2720	0.1409	8.72E-02
266	0.00	0.000	0.194	0.0448	0.2602	0.1348	8.71E-02
267	0.00	0.000	0.193	0.0437	0.2434	0.1261	8.71E-02
268	0.00	0.000	0.193	0.0427	0.2200	0.1140	8.70E-02
269	0.00	0.000	0.192	0.0417	0.1932	0.1001	8.70E-02
270	0.00	0.000	0.192	0.0408	0.1666	0.0863	8.69E-02
271	0.00	0.000	0.191	0.0399	0.1423	0.0737	8.68E-02
272	0.00	0.000	0.165	0.0392	0.1197	0.0620	8.67E-02
273	0.00	0.000	0.190	0.0386	0.0848	0.0439	8.66E-02
274	0.00	0.000	0.190	0.0380	0.0509	0.0264	8.65E-02
275	0.00	0.000	0.189	0.0373	0.0215	0.0112	8.65E-02
276	0.00	0.000	0.189	0.0367	0.0013	0.0006	1.82E-02
277	0.00	0.000	0.188	0.0361	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.188	0.0355	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.187	0.0348	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.187	0.0342	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.186	0.0336	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.186	0.0330	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.185	0.0324	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.185	0.0317	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.184	0.0311	0.0000	0.0000	0.00E+00
286	23.70	0.000	0.265	0.0969	0.0000	0.0000	0.00E+00
287	4.30	0.000	0.265	0.0634	0.0300	0.0156	2.17E-02
288	0.00	0.000	0.183	0.0615	0.4300	0.2228	8.76E-02
289	0.00	0.000	0.182	0.0566	1.3282	0.6882	9.02E-02
290	0.00	0.000	0.182	0.0553	2.3714	1.2288	9.32E-02
291	0.40	0.000	0.264	0.0544	3.4173	1.7707	9.62E-02
292	0.20	0.000	0.257	0.0522	4.0772	2.1126	9.81E-02
293	0.00	0.000	0.180	0.0516	3.6663	1.8997	9.70E-02
294	0.00	0.000	0.180	0.0510	3.1479	1.6311	9.55E-02
295	0.00	0.000	0.180	0.0504	2.6996	1.3988	9.42E-02
296	0.00	0.000	0.179	0.0498	2.3119	1.1979	9.31E-02
297	0.00	0.000	0.179	0.0492	1.9767	1.0243	9.21E-02
298	0.00	0.000	0.178	0.0486	1.6868	0.8741	9.13E-02
299	0.00	0.000	0.178	0.0480	1.4362	0.7442	9.05E-02
300	0.00	0.000	0.177	0.0474	1.2195	0.6319	8.99E-02
301	0.00	0.000	0.177	0.0468	1.0321	0.5348	8.94E-02
302	0.00	0.000	0.176	0.0463	0.8700	0.4508	8.89E-02
303	0.00	0.000	0.176	0.0457	0.7299	0.3782	8.85E-02
304	0.00	0.000	0.176	0.0451	0.6087	0.3154	8.82E-02
305	0.00	0.000	0.175	0.0445	0.5039	0.2611	8.78E-02
306	5.00	0.000	0.267	0.0603	0.4133	0.2142	8.76E-02
307	0.00	0.000	0.174	0.0587	0.3548	0.1838	8.74E-02
308	0.00	0.000	0.174	0.0549	0.4790	0.2482	8.78E-02
309	0.00	0.000	0.174	0.0535	0.5535	0.2868	8.80E-02
310	0.00	0.000	0.173	0.0529	0.4734	0.2453	8.78E-02
311	0.00	0.000	0.173	0.0523	0.3869	0.2005	8.75E-02

312	0.00	0.000	0.172	0.0518	0.3121	0.1617	8.73E-02
313	3.30	0.000	0.268	0.0614	0.2775	0.1438	8.72E-02
314	0.00	0.000	0.172	0.0566	0.2462	0.1276	8.71E-02
315	2.00	0.000	0.269	0.0610	0.4923	0.2551	8.78E-02
316	0.00	0.000	6.566	0.0388	0.5340	0.2767	8.79E-02
317	0.00	0.000	0.171	0.0382	0.4449	0.2305	8.77E-02
318	0.00	0.000	0.170	0.0377	0.3623	0.1877	8.74E-02
319	0.00	0.000	0.170	0.0371	0.2908	0.1507	8.72E-02
320	0.00	0.000	0.170	0.0365	0.2290	0.1187	8.71E-02
321	0.00	0.000	0.169	0.0360	0.1756	0.0910	8.69E-02
322	0.00	0.000	0.169	0.0354	0.1294	0.0671	8.68E-02
323	0.00	0.000	0.169	0.0348	0.0895	0.0464	8.67E-02
324	0.00	0.000	0.168	0.0343	0.0549	0.0285	8.66E-02
325	0.00	0.000	0.168	0.0337	0.0251	0.0130	8.65E-02
326	0.00	0.000	0.167	0.0332	0.0026	0.0012	2.93E-02
327	5.00	0.000	0.272	0.0489	0.0000	0.0000	0.00E+00
328	0.00	0.000	0.167	0.0484	0.0000	0.0000	0.00E+00
329	0.00	0.000	0.166	0.0478	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.166	0.0470	0.0000	0.0000	0.00E+00
331	0.00	0.000	0.166	0.0462	0.0227	0.0118	8.65E-02
332	0.00	0.000	0.165	0.0452	0.0186	0.0096	8.65E-02
333	8.50	0.000	0.272	0.0725	0.0210	0.0109	8.65E-02
334	0.00	0.000	5.930	0.0451	0.0294	0.0152	4.37E-02
335	0.00	0.000	0.165	0.0442	0.5450	0.2824	8.80E-02
336	0.00	0.000	0.164	0.0437	0.5059	0.2621	8.79E-02
337	0.00	0.000	0.164	0.0432	0.4150	0.2150	8.76E-02
338	1.00	0.000	0.272	0.0456	0.3364	0.1743	8.74E-02
339	0.00	0.000	0.163	0.0445	0.2805	0.1453	8.72E-02
340	22.00	0.000	0.272	0.0922	0.2812	0.1457	8.72E-02

341	3.00	0.000	4.101	0.0527	0.3109	0.1611	8.73E-02
342	0.00	0.000	3.791	0.0391	0.3561	0.1845	8.74E-02
343	2.00	0.000	3.135	0.0354	1.4052	0.7281	9.04E-02
344	30.00	0.000	3.209	0.0889	2.7344	1.4169	9.43E-02
345	52.00	0.000	3.724	0.0938	3.2632	1.6909	9.58E-02
346	0.20	0.000	4.690	0.0437	2.8230	1.4628	9.45E-02
347	0.00	0.000	6.092	0.0234	2.8459	1.4746	9.46E-02
348	19.00	0.000	6.045	0.0666	4.8083	2.4915	1.00E-01
349	2.00	0.000	3.779	0.0551	6.6296	3.4352	1.05E-01
350	170.00	0.000	4.512	0.1404	7.5715	3.9233	1.08E-01
351	2.00	0.000	6.433	0.0429	6.8244	3.5361	1.06E-01
352	0.00	0.000	6.327	0.0218	11.8465	6.1384	1.21E-01
353	0.00	0.000	0.631	0.0191	17.6820	9.1621	1.37E-01
354	0.00	0.000	0.030	0.0190	21.0946	10.9304	1.47E-01
355	0.00	0.000	0.008	0.0190	22.9976	11.9164	1.53E-01
356	0.00	0.000	0.002	0.0190	23.9699	12.4202	1.55E-01
357	0.00	0.000	0.000	0.0190	24.2915	12.5869	1.56E-01
358	3.60	0.000	0.792	0.0284	24.1574	12.5174	1.56E-01
359	0.00	0.000	0.571	0.0265	23.7075	12.2843	1.55E-01
360	0.00	0.000	0.809	0.0238	23.0432	11.9400	1.53E-01
361	0.00	0.000	0.764	0.0212	22.2385	11.5231	1.50E-01
362	0.00	0.000	0.549	0.0194	21.3476	11.0614	1.48E-01
363	0.00	0.000	0.090	0.0191	20.4100	10.5756	1.45E-01
364	0.00	0.000	0.022	0.0190	19.4546	10.0806	1.42E-01
365	1.20	0.000	0.191	0.0224	18.5021	9.5870	1.40E-01

* = Frozen (air or soil)

Annual Totals for Year 23			
	mm*	cubic meters	percent
Precipitation	1,531.00	15,310.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	309.109	3,091.1	20.19
Drainage Collected from Layer 2	1,100.7331	11,007.3	71.90
Percolation/Leakage through Layer 3	42.662334	426.6	2.79
Average Head on Top of Layer 3	21.4917 (cm)	---	---
Change in Water Storage	78.4953	785.0	5.13
Soil Water at Start of Year	851.4996	8,515.0	55.62
Soil Water at End of Year	929.9949	9,299.9	60.74
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 24

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			0.00	0.000	0.329	0.0213		17.5672	9.1026	1.37E-01
2			0.80	0.000	0.577	0.0220		16.6604	8.6327	1.34E-01
3			0.00	0.000	0.407	0.0207		15.4162	7.9880	1.31E-01
4			0.00	0.000	0.391	0.0194		13.3259	6.9049	1.25E-01
5			0.00	0.000	0.094	0.0191		11.5006	5.9591	1.20E-01
6	*Note: head c		0.00	0.000	0.012	0.0190		9.9224	5.1414	1.15E-01
7			0.00	0.000	0.003	0.0190		8.5576	4.4342	1.11E-01
8			0.00	0.000	0.001	0.0190		7.3774	3.8227	1.08E-01
9			0.00	0.000	0.000	0.0190		6.3569	3.2939	1.05E-01
10			1.00	0.000	0.128	0.0219		5.4745	2.8366	1.02E-01
11			2.80	0.000	0.314	0.0302		4.7114	2.4412	1.00E-01
12			3.00	0.000	0.448	0.0387		4.0516	2.0994	9.81E-02
13			0.00	0.000	0.442	0.0372		3.4810	1.8037	9.64E-02
14			0.00	0.000	0.479	0.0356		2.9876	1.5481	9.50E-02
15			0.00	0.000	0.470	0.0341		2.5610	1.3270	9.38E-02
16			0.80	0.000	0.546	0.0349		2.1921	1.1358	9.27E-02
17			0.60	0.000	0.562	0.0350		1.8731	0.9706	9.18E-02
18			0.00	0.000	0.477	0.0334		1.5972	0.8276	9.10E-02
19			8.20	0.000	0.558	0.0589		1.3587	0.7040	9.03E-02
20			0.20	0.000	0.543	0.0527		1.1742	0.6084	8.98E-02
21			0.20	0.000	0.538	0.0501		1.2990	0.6731	9.01E-02

22	3.60	0.000	0.538	0.0603	1.2856	0.6661	9.01E-02
23	0.20	0.000	0.522	0.0560	1.1838	0.6134	8.98E-02
24	0.00	0.000	0.440	0.0512	1.2617	0.6538	9.00E-02
25	0.60	0.000	0.512	0.0515	1.2238	0.6341	8.99E-02
26	3.20	0.000	0.504	0.0605	1.0358	0.5367	8.94E-02
27	39.00	0.000	0.497	0.1043	0.9282	0.4810	8.91E-02
28	49.00	0.000	2.638	0.1013	0.8222	0.4260	8.88E-02
29	66.00	0.000	2.711	0.0981	0.6885	0.3568	8.84E-02
30	117.00	0.000	2.551	0.1178	0.5730	0.2969	8.80E-02
31	233.00	0.000	2.563	0.1604	0.4730	0.2451	8.78E-02
32	170.00	0.000	3.049	0.1343	7.0850	3.6712	1.07E-01
33	217.00	0.000	3.032	0.1548	502.9746	28.0081	1.53E+00
34	182.00	0.000	3.862	0.1394	814.1769	38.3399	2.43E+00
35	146.00	0.000	2.949	0.1680	951.4755	43.4120	2.83E+00
36	57.00	0.000	4.997	0.1680	1,029.9995	46.3726	3.05E+00
37	126.00	0.000	4.858	0.1680	1,029.9995	46.3726	3.05E+00
38	6.50	0.000	3.114	0.1680	1,029.9995	46.3726	3.05E+00
39	125.00	0.000	4.148	0.1680	1,029.9995	46.3726	3.05E+00
40	0.80	0.000	7.020	0.1680	1,029.9995	46.3726	3.05E+00
41	0.00	0.000	7.441	0.1676	1,029.9499	46.3708	3.05E+00
42	0.00	0.000	4.291	0.0334	1,014.5692	45.7868	3.01E+00
43	0.00	0.000	3.633	0.0213	967.6290	44.0142	2.87E+00
44	0.00	0.000	0.698	0.0190	919.2310	42.2034	2.73E+00
45	0.00	0.000	0.000	0.0190	872.6706	40.4779	2.60E+00
46	0.00	0.000	0.000	0.0190	828.0307	38.8391	2.47E+00
47	0.00	0.000	0.000	0.0190	785.2166	37.2819	2.35E+00
48	4.00	0.000	0.932	0.0292	744.1388	35.8013	2.23E+00
49	0.00	0.000	1.089	0.0256	704.7921	34.1996	2.12E+00
50	0.00	0.000	1.123	0.0219	667.1308	32.8888	2.01E+00

51	0.00	0.000	0.794	0.0192	630.9372	31.6395	1.90E+00
52	0.00	0.000	0.052	0.0190	596.1434	30.4487	1.80E+00
53	0.00	0.000	0.011	0.0190	562.6850	29.3131	1.71E+00
54	0.00	0.000	0.000	0.0190	530.5009	28.2302	1.61E+00
55	24.00	0.000	0.769	0.0964	499.5330	27.1972	1.53E+00
56	0.40	0.000	5.516	0.0501	472.4616	26.3017	1.45E+00
57	0.00	0.000	6.052	0.0300	450.0348	25.5661	1.38E+00
58	0.00	0.000	3.286	0.0190	422.0627	24.6562	1.30E+00
59	0.00	0.000	0.000	0.0190	395.1152	23.7886	1.22E+00
60	2.80	0.000	0.726	0.0259	369.1452	22.9617	1.15E+00
61	0.00	0.000	0.571	0.0240	344.1464	22.0806	1.08E+00
62	0.20	0.000	0.857	0.0218	320.0875	21.3519	1.01E+00
63	0.00	0.000	0.582	0.0199	296.8541	20.6575	9.41E-01
64	0.00	0.000	0.199	0.0192	274.4077	19.9968	8.77E-01
65	0.00	0.000	0.049	0.0191	252.7107	19.3698	8.14E-01
66	22.50	0.000	0.778	0.0915	231.7253	18.7767	7.54E-01
67	0.00	0.000	5.150	0.0450	136.8453	16.9726	4.81E-01
68	28.00	0.000	6.114	0.0956	58.2434	15.5936	2.54E-01
69	0.00	0.000	6.376	0.0448	54.0390	15.5863	2.42E-01
70	0.00	0.000	6.668	0.0226	52.4855	15.5836	2.38E-01
71	0.00	0.000	0.810	0.0190	54.2854	15.5867	2.43E-01
72	0.00	0.000	0.000	0.0190	53.5961	15.5855	2.41E-01
73	0.00	0.000	0.000	0.0190	50.9271	15.5809	2.33E-01
74	0.00	0.000	0.000	0.0190	46.6532	15.5735	2.21E-01
75	0.00	0.000	0.000	0.0190	41.0968	15.5639	2.05E-01
76	22.00	0.000	1.172	0.0884	33.9470	15.5029	1.84E-01
77	0.60	0.000	5.490	0.0420	28.4947	14.7648	1.68E-01
78	5.00	0.000	5.106	0.0413	25.7999	13.3685	1.61E-01
79	5.00	0.000	5.776	0.0387	24.1179	12.4969	1.56E-01

80	11.00	0.000	3.635	0.0632	22.8966	11.8641	1.52E-01
81	17.50	0.000	4.069	0.0830	21.7227	11.2558	1.49E-01
82	4.00	0.000	4.770	0.0584	19.5778	10.1444	1.43E-01
83	3.50	0.000	5.763	0.0498	17.2186	8.9220	1.36E-01
84	3.80	0.000	6.080	0.0421	16.3305	8.4618	1.33E-01
85	1.00	0.000	6.779	0.0228	15.9397	8.2593	1.32E-01
86	19.50	0.000	4.133	0.0741	15.4827	8.0225	1.31E-01
87	10.90	0.000	4.629	0.0689	14.9712	7.7575	1.30E-01
88	105.00	0.000	3.472	0.1183	13.9800	7.2438	1.27E-01
89	11.00	0.000	4.525	0.0627	12.0820	6.2604	1.21E-01
90	23.00	0.000	6.158	0.0945	11.9377	6.1856	1.21E-01
91	2.50	0.000	4.564	0.0590	12.7787	6.6214	1.23E-01
92	1.60	0.000	4.952	0.0439	13.1937	6.8364	1.24E-01
93	0.00	0.000	5.899	0.0243	15.2386	7.8960	1.30E-01
94	0.40	0.000	1.937	0.0191	16.7826	8.6960	1.35E-01
95	2.60	0.000	1.726	0.0220	17.7079	9.1755	1.37E-01
96	0.40	0.000	0.841	0.0206	18.1661	9.4129	1.39E-01
97	15.00	0.000	4.550	0.0554	18.2810	9.4725	1.39E-01
98	0.20	0.000	4.464	0.0412	18.1455	9.4023	1.39E-01
99	2.20	0.000	5.742	0.0294	17.8295	9.2385	1.38E-01
100	0.00	0.000	2.885	0.0198	17.3861	9.0088	1.36E-01
101	0.00	0.000	0.174	0.0192	16.8557	8.7339	1.35E-01
102	0.00	0.000	0.044	0.0190	16.2687	8.4298	1.33E-01
103	0.00	0.000	0.011	0.0190	15.6483	8.1083	1.31E-01
104	0.00	0.000	0.003	0.0190	15.0119	7.7786	1.30E-01
105	1.00	0.000	0.149	0.0218	14.1056	7.3089	1.27E-01
106	0.00	0.000	0.455	0.0203	12.2470	6.3459	1.22E-01
107	0.80	0.000	0.428	0.0216	10.5677	5.4758	1.17E-01
108	0.00	0.000	0.443	0.0201	9.1156	4.7233	1.13E-01

109	0.00	0.000	0.263	0.0192	7.8599	4.0727	1.09E-01
110	0.00	0.000	0.046	0.0191	6.7741	3.5101	1.06E-01
111	0.00	0.000	0.013	0.0190	5.8353	3.0236	1.03E-01
112	0.00	0.000	0.003	0.0190	5.0235	2.6030	1.01E-01
113	0.00	0.000	0.001	0.0190	4.3214	2.2392	9.88E-02
114	1.00	0.000	0.106	0.0220	3.7144	1.9246	9.71E-02
115	0.00	0.000	0.280	0.0210	3.1894	1.6526	9.56E-02
116	2.80	0.000	0.474	0.0288	2.7355	1.4174	9.43E-02
117	0.00	0.000	0.451	0.0273	2.3430	1.2140	9.31E-02
118	0.00	0.000	0.417	0.0259	2.0036	1.0382	9.22E-02
119	0.00	0.000	0.401	0.0246	1.7101	0.8861	9.13E-02
120	0.00	0.000	0.410	0.0232	1.4563	0.7546	9.06E-02
121	0.00	0.000	0.397	0.0219	1.2368	0.6409	9.00E-02
122	2.50	0.000	0.502	0.0285	1.0471	0.5425	8.94E-02
123	0.00	0.000	0.460	0.0270	0.8830	0.4575	8.89E-02
124	0.00	0.000	0.479	0.0254	0.7411	0.3840	8.85E-02
125	0.00	0.000	0.420	0.0240	0.6184	0.3204	8.82E-02
126	0.00	0.000	0.352	0.0228	0.5123	0.2655	8.79E-02
127	0.00	0.000	0.290	0.0219	0.4206	0.2179	8.76E-02
128	0.00	0.000	0.386	0.0206	0.3412	0.1768	8.74E-02
129	0.00	0.000	0.393	0.0193	0.2726	0.1413	8.72E-02
130	0.00	0.000	0.064	0.0191	0.2133	0.1105	8.70E-02
131	0.00	0.000	0.015	0.0190	0.1620	0.0840	8.69E-02
132	0.00	0.000	0.003	0.0190	0.1177	0.0610	8.67E-02
133	0.00	0.000	0.000	0.0190	0.0793	0.0411	8.66E-02
134	0.00	0.000	0.000	0.0190	0.0461	0.0239	8.65E-02
135	0.00	0.000	0.000	0.0190	0.0175	0.0091	8.64E-02
136	0.00	0.000	0.000	0.0190	0.0004	0.0000	5.12E-03
137	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

138	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
139	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
140	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
141	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
142	0.20	0.000	0.086	0.0194	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.033	0.0193	0.0000	0.0000	0.00E+00
144	0.20	0.000	0.109	0.0196	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.040	0.0194	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.075	0.0192	0.0000	0.0000	0.00E+00
147	2.00	0.000	0.219	0.0251	0.0000	0.0000	0.00E+00
148	1.00	0.000	0.214	0.0278	0.0000	0.0000	0.00E+00
149	0.00	0.000	0.247	0.0269	0.0000	0.0000	2.00E-05
150	0.00	0.000	0.244	0.0261	0.0000	0.0000	0.00E+00
151	2.00	0.000	0.349	0.0316	0.0000	0.0000	0.00E+00
152	1.00	0.000	0.360	0.0338	0.0000	0.0000	0.00E+00
153	5.00	0.000	0.371	0.0492	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.323	0.0481	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.334	0.0470	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.342	0.0459	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.339	0.0447	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.336	0.0436	0.0000	0.0000	0.00E+00
159	2.00	0.000	0.390	0.0490	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.330	0.0479	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.328	0.0468	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.325	0.0457	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.322	0.0446	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.320	0.0436	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.317	0.0425	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.315	0.0414	0.0001	0.0001	1.96E-02

167	0.00	0.000	0.310	0.0403	0.0000	0.0000	0.00E+00
168	0.00	0.000	0.310	0.0393	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.308	0.0383	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.306	0.0373	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.304	0.0363	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.301	0.0352	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.299	0.0343	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.297	0.0333	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.295	0.0323	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.293	0.0313	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.291	0.0303	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.289	0.0294	0.0000	0.0000	0.00E+00
179	1.00	0.000	0.348	0.0315	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.286	0.0306	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.284	0.0296	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.282	0.0287	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.281	0.0278	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.256	0.0269	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.260	0.0260	0.0000	0.0000	0.00E+00
186	6.00	0.000	0.338	0.0449	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.274	0.0440	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.272	0.0431	0.0000	0.0000	0.00E+00
189	3.80	0.000	0.333	0.0547	0.0000	0.0000	0.00E+00
190	1.60	0.000	0.332	0.0587	0.0003	0.0002	2.16E-02
191	1.80	0.000	0.330	0.0628	0.0247	0.0128	8.65E-02
192	3.60	0.000	0.329	0.0593	0.0486	0.0252	8.65E-02
193	3.00	0.000	0.328	0.0592	0.3868	0.2004	8.75E-02
194	0.00	0.000	0.264	0.0552	1.1187	0.5797	8.96E-02
195	0.00	0.000	0.262	0.0524	1.7849	0.9249	9.15E-02

196	0.00	0.000	0.261	0.0516	1.7084	0.8852	9.13E-02
197	0.00	0.000	0.259	0.0507	1.4549	0.7539	9.06E-02
198	0.00	0.000	0.258	0.0498	1.2356	0.6402	9.00E-02
199	0.00	0.000	0.257	0.0490	1.0460	0.5420	8.94E-02
200	0.00	0.000	0.255	0.0481	0.8821	0.4571	8.89E-02
201	0.00	0.000	0.254	0.0473	0.7403	0.3836	8.85E-02
202	0.00	0.000	0.253	0.0464	0.6177	0.3201	8.82E-02
203	0.00	0.000	0.252	0.0456	0.5117	0.2651	8.79E-02
204	0.00	0.000	0.250	0.0448	0.4200	0.2177	8.76E-02
205	0.00	0.000	0.249	0.0439	0.3408	0.1766	8.74E-02
206	0.00	0.000	0.248	0.0431	0.2722	0.1411	8.72E-02
207	0.00	0.000	0.247	0.0423	0.2130	0.1104	8.70E-02
208	0.00	0.000	0.246	0.0415	0.1617	0.0838	8.69E-02
209	0.00	0.000	0.245	0.0407	0.1174	0.0608	8.67E-02
210	0.00	0.000	0.244	0.0398	0.0791	0.0410	8.66E-02
211	0.00	0.000	0.242	0.0390	0.0460	0.0238	8.65E-02
212	0.00	0.000	0.241	0.0382	0.0173	0.0090	8.64E-02
213	0.00	0.000	0.240	0.0374	0.0003	0.0000	4.60E-03
214	0.00	0.000	0.239	0.0366	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.238	0.0358	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.237	0.0350	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.236	0.0343	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.235	0.0335	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.234	0.0327	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.233	0.0319	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.232	0.0311	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.231	0.0304	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.230	0.0296	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.229	0.0288	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.228	0.0281	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.227	0.0273	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.227	0.0266	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.226	0.0258	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.225	0.0251	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.224	0.0243	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.223	0.0236	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.222	0.0228	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.221	0.0221	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.221	0.0214	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.220	0.0206	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.219	0.0199	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.218	0.0192	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.052	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
301	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
304	1.40	0.000	0.095	0.0233	0.0000	0.0000	0.00E+00
305	0.20	0.000	0.148	0.0235	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.119	0.0231	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.119	0.0227	0.0000	0.0000	0.00E+00
308	0.20	0.000	0.193	0.0227	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.136	0.0223	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.139	0.0218	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.123	0.0214	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.118	0.0210	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.117	0.0206	0.0000	0.0000	0.00E+00
314	0.00	0.000	0.117	0.0202	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.117	0.0199	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.108	0.0195	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.106	0.0191	0.0000	0.0000	0.00E+00
318	0.00	0.000	0.033	0.0190	0.0000	0.0000	0.00E+00
319	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
321	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
322	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
323	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
325	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
326	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
327	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
328	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
329	0.20	0.000	0.093	0.0194	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.014	0.0193	0.0000	0.0000	0.00E+00
331	0.00	0.000	0.030	0.0192	0.0000	0.0000	0.00E+00
332	0.00	0.000	0.028	0.0191	0.0000	0.0000	0.00E+00
333	0.00	0.000	0.027	0.0190	0.0000	0.0000	0.00E+00
334	0.00	0.000	0.006	0.0190	0.0000	0.0000	0.00E+00
335	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
336	5.50	0.000	0.158	0.0368	0.0000	0.0000	6.81E-06
337	0.00	0.000	0.136	0.0364	0.0000	0.0000	0.00E+00
338	0.00	0.000	0.139	0.0359	0.0000	0.0000	0.00E+00
339	0.20	0.000	0.230	0.0358	0.0000	0.0000	0.00E+00
340	0.00	0.000	0.150	0.0353	0.0000	0.0000	0.00E+00

341	0.00	0.000	0.150	0.0348	0.0000	0.0000	0.00E+00
342	0.00	0.000	0.150	0.0343	0.0000	0.0000	0.00E+00
343	0.00	0.000	0.150	0.0338	0.0000	0.0000	0.00E+00
344	0.00	0.000	0.154	0.0333	0.0000	0.0000	0.00E+00
345	0.00	0.000	0.154	0.0328	0.0000	0.0000	0.00E+00
346	0.00	0.000	0.156	0.0322	0.0000	0.0000	0.00E+00
347	0.00	0.000	0.159	0.0317	0.0000	0.0000	0.00E+00
348	0.00	0.000	0.157	0.0312	0.0000	0.0000	0.00E+00
349	0.00	0.000	0.156	0.0307	0.0000	0.0000	0.00E+00
350	0.00	0.000	0.156	0.0302	0.0000	0.0000	0.00E+00
351	0.00	0.000	0.156	0.0296	0.0000	0.0000	0.00E+00
352	0.00	0.000	0.156	0.0291	0.0000	0.0000	0.00E+00
353	0.00	0.000	0.155	0.0286	0.0000	0.0000	0.00E+00
354	0.00	0.000	0.155	0.0281	0.0000	0.0000	0.00E+00
355	0.00	0.000	0.155	0.0276	0.0000	0.0000	0.00E+00
356	0.00	0.000	0.154	0.0271	0.0000	0.0000	0.00E+00
357	0.00	0.000	0.154	0.0265	0.0000	0.0000	0.00E+00
358	0.00	0.000	0.154	0.0260	0.0000	0.0000	0.00E+00
359	0.00	0.000	0.153	0.0255	0.0000	0.0000	0.00E+00
360	0.00	0.000	0.153	0.0250	0.0000	0.0000	0.00E+00
361	0.10	0.000	0.217	0.0246	0.0000	0.0000	0.00E+00
362	0.00	0.000	0.152	0.0241	0.0000	0.0000	0.00E+00
363	0.00	0.000	0.152	0.0236	0.0000	0.0000	0.00E+00
364	0.00	0.000	0.152	0.0231	0.0000	0.0000	0.00E+00
365	1.10	0.000	0.256	0.0259	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 24			
	mm*	cubic meters	percent
Precipitation	1,960.30	19,603.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	272.180	2,721.8	13.88
Drainage Collected from Layer 2	1,682.1284	16,821.3	85.81
Percolation/Leakage through Layer 3	82.565808	825.7	4.21
Average Head on Top of Layer 3	65.4138 (cm)	---	---
Change in Water Storage	-76.5742	-765.7	-3.91
Soil Water at Start of Year	929.9949	9,299.9	47.44
Soil Water at End of Year	853.4207	8,534.2	43.54
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 25

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone				
	Air	Soil				Water (cm/cm)	Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)	
1				0.00	0.000	0.151	0.0249	0.0000	0.0000	0.00E+00
2				0.00	0.000	0.151	0.0244	0.0000	0.0000	0.00E+00
3				21.80	0.000	0.222	0.0963	0.0000	0.0000	0.00E+00
4				4.00	0.000	0.227	0.0649	0.0000	0.0000	1.71E-07
5				2.00	0.000	0.228	0.0618	0.0989	0.0513	8.67E-02
6	*Note: head c			0.00	0.000	0.155	0.0589	0.8657	0.4486	8.89E-02
7				3.00	0.000	0.223	0.0657	2.0564	1.0656	9.23E-02
8				10.50	0.000	0.221	0.0697	2.9823	1.5453	9.50E-02
9				0.00	0.000	6.672	0.0465	2.9368	1.5217	9.49E-02
10				0.00	0.000	0.154	0.0460	3.4778	1.8020	9.64E-02
11				0.00	0.000	0.154	0.0455	4.4564	2.3091	9.92E-02
12				0.00	0.000	0.153	0.0450	4.4901	2.3266	9.93E-02
13				0.00	0.000	0.153	0.0444	3.8602	2.0002	9.75E-02
14				2.70	0.000	0.210	0.0527	3.3155	1.7180	9.59E-02
15				0.00	0.000	0.152	0.0522	2.8445	1.4739	9.46E-02
16				0.00	0.000	0.152	0.0517	2.4372	1.2629	9.34E-02
17				35.20	0.000	0.205	0.1013	2.0851	1.0804	9.24E-02
18				0.00	0.000	6.386	0.0413	1.8196	0.9428	9.16E-02
19				0.00	0.000	5.902	0.0194	2.3239	1.2041	9.31E-02
20				0.00	0.000	0.080	0.0191	3.6429	1.8876	9.69E-02
21				9.00	0.000	2.690	0.0401	4.8358	2.5057	1.00E-01

22	89.00	0.000	5.576	0.1167	5.7571	2.9831	1.03E-01
23	11.00	0.000	6.003	0.0673	5.4597	2.8290	1.02E-01
24	0.00	0.000	6.625	0.0418	5.9514	3.0838	1.04E-01
25	0.00	0.000	5.758	0.0226	7.6517	3.9648	1.08E-01
26	50.00	0.000	4.643	0.0944	9.4343	4.8885	1.14E-01
27	53.00	0.000	4.258	0.0888	9.7999	5.0779	1.15E-01
28	16.00	0.000	5.430	0.0768	8.6492	4.4816	1.11E-01
29	17.00	0.000	2.666	0.0898	9.5206	4.9332	1.14E-01
30	45.00	0.000	4.182	0.0901	10.7615	5.5762	1.17E-01
31	19.00	0.000	6.715	0.0860	10.0363	5.2004	1.15E-01
32	0.00	0.000	5.711	0.0455	12.1025	6.2710	1.21E-01
33	14.00	0.000	6.921	0.0687	15.7258	8.1485	1.32E-01
34	0.00	0.000	6.136	0.0482	19.6324	10.1727	1.43E-01
35	0.00	0.000	7.197	0.0242	21.8703	11.3323	1.49E-01
36	0.20	0.000	1.768	0.0190	23.0990	11.9690	1.53E-01
37	0.00	0.000	0.000	0.0190	23.6185	12.2382	1.54E-01
38	0.00	0.000	0.000	0.0190	23.6395	12.2490	1.54E-01
39	0.00	0.000	0.000	0.0190	23.3120	12.0793	1.54E-01
40	0.00	0.000	0.000	0.0190	22.7446	11.7853	1.52E-01
41	0.40	0.000	0.176	0.0197	22.0168	11.4082	1.50E-01
42	0.00	0.000	0.115	0.0194	21.1870	10.9782	1.47E-01
43	0.00	0.000	0.079	0.0191	20.2979	10.5175	1.45E-01
44	0.00	0.000	0.022	0.0190	19.3809	10.0424	1.42E-01
45	0.00	0.000	0.006	0.0190	18.4588	9.5646	1.40E-01
46	0.00	0.000	0.001	0.0190	17.5478	9.0925	1.37E-01
47	0.00	0.000	0.000	0.0190	16.6595	8.6323	1.34E-01
48	6.00	0.000	0.386	0.0377	15.5844	8.0752	1.31E-01
49	4.00	0.000	0.687	0.0488	13.5502	7.0212	1.25E-01
50	0.00	0.000	0.687	0.0465	11.6946	6.0597	1.20E-01

51	0.00	0.000	0.699	0.0441	10.0900	5.2282	1.15E-01
52	0.00	0.000	0.687	0.0418	8.7025	4.5093	1.11E-01
53	14.00	0.000	0.711	0.0811	7.5027	3.8876	1.08E-01
54	127.00	0.000	3.622	0.1230	6.5486	3.3932	1.05E-01
55	59.00	0.000	3.627	0.0948	5.6402	2.9225	1.03E-01
56	43.00	0.000	5.832	0.0948	4.8547	2.5155	1.00E-01
57	9.00	0.000	6.080	0.0611	4.9065	2.5424	1.01E-01
58	50.00	0.000	6.069	0.1031	9.8800	5.1194	1.15E-01
59	6.00	0.000	7.087	0.0526	11.5016	5.9597	1.20E-01
60	0.00	0.000	5.751	0.0332	17.2083	8.9166	1.36E-01
61	0.00	0.000	4.270	0.0190	23.5924	12.2246	1.54E-01
62	0.00	0.000	0.000	0.0190	27.1281	14.0567	1.65E-01
63	0.00	0.000	0.000	0.0190	28.7539	14.8991	1.69E-01
64	0.00	0.000	0.000	0.0190	29.3114	15.1880	1.71E-01
65	0.00	0.000	0.000	0.0190	29.1928	15.1265	1.70E-01
66	18.00	0.000	1.776	0.0731	28.6208	14.8301	1.69E-01
67	6.00	0.000	6.172	0.0556	27.7503	14.3791	1.66E-01
68	0.00	0.000	5.478	0.0374	26.1279	13.5384	1.62E-01
69	18.00	0.000	6.363	0.0762	24.7002	12.7986	1.58E-01
70	0.00	0.000	4.870	0.0483	23.7513	12.3069	1.55E-01
71	39.00	0.000	4.739	0.0974	22.0665	11.4340	1.50E-01
72	3.00	0.000	5.623	0.0404	19.9430	10.3336	1.44E-01
73	0.00	0.000	6.004	0.0203	18.0569	9.3563	1.38E-01
74	0.00	0.000	0.339	0.0192	18.3174	9.4913	1.39E-01
75	0.00	0.000	0.048	0.0191	18.3778	9.5226	1.39E-01
76	0.00	0.000	0.012	0.0190	18.2004	9.4307	1.39E-01
77	0.00	0.000	0.003	0.0190	17.8525	9.2504	1.38E-01
78	0.00	0.000	0.001	0.0190	17.3850	9.0082	1.36E-01
79	0.00	0.000	0.000	0.0190	16.8363	8.7239	1.35E-01

80	0.00	0.000	0.000	0.0190	16.2359	8.4128	1.33E-01
81	2.00	0.000	0.612	0.0236	15.6058	8.0863	1.31E-01
82	0.00	0.000	0.503	0.0219	14.9626	7.7530	1.29E-01
83	0.20	0.000	0.771	0.0200	13.9305	7.2182	1.27E-01
84	0.00	0.000	0.187	0.0194	12.0325	6.2347	1.21E-01
85	2.00	0.000	0.457	0.0246	10.3822	5.3796	1.16E-01
86	5.00	0.000	0.429	0.0398	8.9551	4.6402	1.12E-01
87	0.00	0.000	0.682	0.0375	7.7212	4.0008	1.09E-01
88	0.00	0.000	0.717	0.0351	6.6542	3.4479	1.06E-01
89	2.00	0.000	0.729	0.0394	5.7315	2.9698	1.03E-01
90	2.00	0.000	0.727	0.0436	4.9336	2.5564	1.01E-01
91	0.00	0.000	0.678	0.0414	4.2437	2.1989	9.86E-02
92	0.00	0.000	0.644	0.0392	3.6472	1.8898	9.69E-02
93	0.00	0.000	0.627	0.0371	3.1313	1.6225	9.54E-02
94	0.00	0.000	0.575	0.0352	2.6853	1.3914	9.41E-02
95	0.00	0.000	0.589	0.0332	2.2995	1.1915	9.30E-02
96	0.00	0.000	0.574	0.0313	1.9660	1.0187	9.21E-02
97	0.00	0.000	0.559	0.0295	1.6776	0.8693	9.12E-02
98	0.00	0.000	0.549	0.0276	1.4282	0.7400	9.05E-02
99	0.00	0.000	0.550	0.0258	1.2125	0.6283	8.99E-02
100	0.00	0.000	0.537	0.0240	1.0261	0.5317	8.94E-02
101	0.00	0.000	0.526	0.0223	0.8648	0.4481	8.89E-02
102	0.00	0.000	0.515	0.0205	0.7254	0.3759	8.85E-02
103	0.00	0.000	0.464	0.0190	0.6048	0.3134	8.81E-02
104	0.00	0.000	0.000	0.0190	0.5006	0.2594	8.78E-02
105	0.00	0.000	0.000	0.0190	0.4104	0.2127	8.76E-02
106	0.00	0.000	0.000	0.0190	0.3324	0.1723	8.74E-02
107	0.40	0.000	0.091	0.0200	0.2650	0.1373	8.72E-02
108	0.20	0.000	0.112	0.0203	0.2067	0.1071	8.70E-02

109	6.00	0.000	0.241	0.0395	0.1563	0.0810	8.68E-02
110	2.00	0.000	0.419	0.0448	0.1128	0.0584	8.67E-02
111	0.00	0.000	0.403	0.0434	0.0751	0.0389	8.66E-02
112	0.00	0.000	0.411	0.0421	0.0425	0.0220	8.65E-02
113	0.00	0.000	0.414	0.0407	0.0143	0.0073	8.12E-02
114	0.00	0.000	0.408	0.0393	0.0000	0.0000	0.00E+00
115	0.00	0.000	0.403	0.0380	0.0000	0.0000	0.00E+00
116	0.00	0.000	0.349	0.0368	0.0000	0.0000	0.00E+00
117	0.00	0.000	0.405	0.0355	0.0000	0.0000	0.00E+00
118	0.00	0.000	0.400	0.0341	0.0000	0.0000	0.00E+00
119	0.00	0.000	0.396	0.0328	0.0000	0.0000	0.00E+00
120	0.00	0.000	0.391	0.0315	0.0000	0.0000	0.00E+00
121	0.60	0.000	0.443	0.0320	0.0000	0.0000	0.00E+00
122	0.00	0.000	0.382	0.0308	0.0000	0.0000	0.00E+00
123	0.00	0.000	0.378	0.0295	0.0000	0.0000	0.00E+00
124	0.00	0.000	0.374	0.0283	0.0000	0.0000	0.00E+00
125	0.00	0.000	0.362	0.0271	0.0000	0.0000	0.00E+00
126	0.00	0.000	0.366	0.0258	0.0000	0.0000	0.00E+00
127	0.00	0.000	0.362	0.0246	0.0000	0.0000	0.00E+00
128	0.00	0.000	0.359	0.0234	0.0000	0.0000	0.00E+00
129	0.20	0.000	0.413	0.0227	0.0000	0.0000	0.00E+00
130	9.00	0.000	0.412	0.0513	0.0000	0.0000	0.00E+00
131	0.00	0.000	0.348	0.0502	0.0000	0.0000	0.00E+00
132	0.00	0.000	0.345	0.0490	0.0000	0.0000	0.00E+00
133	0.00	0.000	0.342	0.0479	0.0000	0.0000	0.00E+00
134	0.00	0.000	0.339	0.0467	0.0000	0.0000	0.00E+00
135	1.80	0.000	0.398	0.0511	0.0048	0.0023	4.81E-02
136	0.00	0.000	0.333	0.0500	0.0057	0.0028	4.81E-02
137	0.00	0.000	0.330	0.0487	0.0024	0.0011	3.33E-02

138	0.00	0.000	0.328	0.0472	0.0122	0.0063	8.64E-02
139	0.00	0.000	0.325	0.0459	0.0162	0.0084	8.64E-02
140	2.20	0.000	0.385	0.0517	0.0054	0.0028	8.64E-02
141	9.00	0.000	0.383	0.0705	0.0026	0.0012	3.69E-02
142	32.00	0.000	0.380	0.1010	0.0000	0.0000	0.00E+00
143	4.00	0.000	3.989	0.0556	0.0393	0.0204	2.17E-02
144	17.00	0.000	3.020	0.0855	0.8562	0.4436	8.89E-02
145	18.00	0.000	4.831	0.0914	2.1433	1.1106	9.26E-02
146	0.00	0.000	4.712	0.0497	1.9619	1.0166	9.20E-02
147	0.00	0.000	4.811	0.0337	2.2351	1.1581	9.28E-02
148	0.00	0.000	3.650	0.0190	3.8712	2.0059	9.75E-02
149	0.00	0.000	0.000	0.0190	5.3389	2.7664	1.02E-01
150	0.00	0.000	0.000	0.0190	6.5677	3.4031	1.05E-01
151	0.00	0.000	0.000	0.0190	7.4860	3.8789	1.08E-01
152	0.00	0.000	0.000	0.0190	8.1536	4.2249	1.10E-01
153	0.00	0.000	0.000	0.0190	8.6196	4.4663	1.11E-01
154	0.00	0.000	0.000	0.0190	8.9239	4.6240	1.12E-01
155	0.00	0.000	0.000	0.0190	8.7336	4.5254	1.12E-01
156	0.00	0.000	0.000	0.0190	7.5508	3.9125	1.08E-01
157	0.00	0.000	0.000	0.0190	6.5069	3.3716	1.05E-01
158	0.00	0.000	0.000	0.0190	5.6041	2.9038	1.03E-01
159	0.00	0.000	0.000	0.0190	4.8235	2.4993	1.00E-01
160	0.00	0.000	0.000	0.0190	4.1485	2.1496	9.83E-02
161	0.00	0.000	0.000	0.0190	3.5648	1.8471	9.67E-02
162	0.00	0.000	0.000	0.0190	3.0601	1.5856	9.52E-02
163	0.00	0.000	0.000	0.0190	2.6237	1.3595	9.40E-02
164	0.00	0.000	0.000	0.0190	2.2463	1.1639	9.29E-02
165	0.00	0.000	0.000	0.0190	1.9200	0.9948	9.19E-02
166	9.00	0.000	0.531	0.0472	1.6378	0.8486	9.11E-02

167	0.20	0.000	0.672	0.0457	1.3938	0.7222	9.04E-02
168	0.60	0.000	0.712	0.0453	1.1828	0.6129	8.98E-02
169	0.00	0.000	0.627	0.0432	1.0003	0.5183	8.93E-02
170	0.00	0.000	0.609	0.0412	0.8426	0.4366	8.88E-02
171	0.00	0.000	0.593	0.0392	0.7061	0.3659	8.84E-02
172	0.00	0.000	0.577	0.0373	0.5882	0.3048	8.81E-02
173	0.00	0.000	0.563	0.0354	0.4862	0.2519	8.78E-02
174	0.00	0.000	0.550	0.0336	0.3980	0.2062	8.75E-02
175	0.00	0.000	0.537	0.0318	0.3217	0.1667	8.73E-02
176	0.00	0.000	0.526	0.0300	0.2557	0.1325	8.71E-02
177	0.00	0.000	0.515	0.0283	0.1987	0.1030	8.70E-02
178	0.00	0.000	0.505	0.0266	0.1494	0.0774	8.68E-02
179	0.00	0.000	0.495	0.0250	0.1067	0.0553	8.67E-02
180	0.00	0.000	0.486	0.0233	0.0699	0.0362	8.66E-02
181	0.80	0.000	0.547	0.0242	0.0380	0.0197	8.65E-02
182	0.00	0.000	0.469	0.0226	0.0104	0.0053	8.62E-02
183	0.60	0.000	0.531	0.0229	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.445	0.0214	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.445	0.0199	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.233	0.0191	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.025	0.0190	0.0000	0.0000	0.00E+00
188	0.00	0.000	0.006	0.0190	0.0000	0.0000	0.00E+00
189	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
190	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
191	0.60	0.000	0.106	0.0206	0.0000	0.0000	0.00E+00
192	1.40	0.000	0.241	0.0245	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.167	0.0240	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.266	0.0231	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.263	0.0222	0.0000	0.0000	0.00E+00

196	0.00	0.000	0.260	0.0213	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.257	0.0205	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.245	0.0197	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.165	0.0191	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.023	0.0190	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.006	0.0190	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
204	0.80	0.000	0.104	0.0213	0.0000	0.0000	0.00E+00
205	17.00	0.000	0.363	0.0768	0.0000	0.0000	0.00E+00
206	1.60	0.000	0.411	0.0521	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.345	0.0432	0.1663	0.0862	6.53E-02
208	0.00	0.000	0.342	0.0421	0.9600	0.4974	8.92E-02
209	0.00	0.000	0.339	0.0410	2.2098	1.1450	9.28E-02
210	0.00	0.000	0.336	0.0398	2.3108	1.1973	9.31E-02
211	0.00	0.000	0.333	0.0353	2.0820	1.0788	9.24E-02
212	0.00	0.000	0.330	0.0342	1.9384	1.0044	9.20E-02
213	0.00	0.000	0.284	0.0333	1.6537	0.8569	9.12E-02
214	0.00	0.000	0.325	0.0322	1.4076	0.7293	9.05E-02
215	0.00	0.000	0.322	0.0311	1.1947	0.6190	8.98E-02
216	0.00	0.000	0.320	0.0300	1.0106	0.5237	8.93E-02
217	0.00	0.000	0.317	0.0290	0.8515	0.4412	8.89E-02
218	0.00	0.000	0.315	0.0279	0.7139	0.3699	8.85E-02
219	0.00	0.000	0.312	0.0269	0.5948	0.3082	8.81E-02
220	3.00	0.000	0.389	0.0356	0.4919	0.2549	8.78E-02
221	0.00	0.000	0.308	0.0346	0.4029	0.2088	8.76E-02
222	0.00	0.000	0.306	0.0335	0.3260	0.1689	8.73E-02
223	0.00	0.000	0.304	0.0325	0.2595	0.1344	8.71E-02
224	0.00	0.000	0.301	0.0315	0.2019	0.1046	8.70E-02

225	0.00	0.000	0.299	0.0305	0.1522	0.0788	8.68E-02
226	0.00	0.000	0.297	0.0295	0.1092	0.0566	8.67E-02
227	0.00	0.000	0.295	0.0282	0.0879	0.0456	8.67E-02
228	0.00	0.000	0.281	0.0272	0.0672	0.0348	8.66E-02
229	0.00	0.000	0.291	0.0263	0.0357	0.0185	8.65E-02
230	0.00	0.000	0.289	0.0253	0.0087	0.0044	6.14E-02
231	0.00	0.000	0.288	0.0243	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.254	0.0235	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.271	0.0226	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.282	0.0216	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.281	0.0207	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.279	0.0198	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.235	0.0190	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
263	0.20	0.000	0.099	0.0193	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.020	0.0193	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.042	0.0191	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.032	0.0190	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.005	0.0190	0.0000	0.0000	8.55E-08
268	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.000	0.0190	0.0000	0.0000	4.12E-08
270	0.00	0.000	0.000	0.0190	0.0000	0.0000	1.15E-05
271	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
280	3.00	0.000	0.182	0.0284	0.0000	0.0000	0.00E+00
281	1.00	0.000	0.182	0.0311	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.184	0.0305	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.190	0.0299	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.184	0.0293	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.183	0.0287	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.181	0.0280	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.181	0.0274	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.180	0.0268	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.180	0.0262	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.198	0.0256	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.197	0.0249	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.197	0.0243	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.196	0.0236	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.195	0.0230	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.195	0.0223	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.194	0.0217	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.193	0.0210	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.193	0.0204	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.197	0.0197	0.0000	0.0000	0.00E+00
300	8.00	0.000	0.303	0.0454	0.0000	0.0000	0.00E+00
301	0.40	0.000	0.300	0.0457	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.205	0.0450	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.201	0.0444	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.207	0.0437	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.206	0.0430	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.206	0.0423	0.0000	0.0000	5.16E-04
307	0.00	0.000	0.205	0.0416	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.204	0.0409	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.204	0.0402	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.203	0.0396	0.0002	0.0000	2.33E-03
311	0.00	0.000	0.202	0.0389	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.202	0.0382	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.201	0.0375	0.0000	0.0000	0.00E+00
314	1.80	0.000	0.308	0.0425	0.0001	0.0000	2.13E-03
315	0.00	0.000	0.200	0.0418	0.0002	0.0000	3.41E-03
316	0.00	0.000	0.199	0.0412	0.0001	0.0000	1.01E-03
317	0.00	0.000	0.199	0.0405	0.0003	0.0000	4.27E-03
318	0.00	0.000	0.198	0.0398	0.0002	0.0000	4.59E-03
319	0.00	0.000	0.197	0.0391	0.0007	0.0002	1.69E-02
320	0.00	0.000	0.197	0.0384	0.0001	0.0000	2.10E-03
321	0.00	0.000	0.196	0.0378	0.0000	0.0000	0.00E+00
322	0.00	0.000	0.196	0.0371	0.0000	0.0000	0.00E+00
323	0.00	0.000	0.195	0.0364	0.0002	0.0000	7.77E-03
324	0.00	0.000	0.195	0.0357	0.0005	0.0001	1.58E-02
325	0.00	0.000	0.191	0.0351	0.0003	0.0000	4.78E-03
326	0.00	0.000	0.193	0.0344	0.0003	0.0000	4.86E-03
327	0.00	0.000	0.193	0.0338	0.0008	0.0001	1.12E-02
328	0.00	0.000	0.192	0.0331	0.0006	0.0001	8.90E-03
329	0.00	0.000	0.192	0.0324	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.191	0.0318	0.0000	0.0000	0.00E+00
331	0.00	0.000	0.191	0.0312	0.0000	0.0000	0.00E+00
332	0.00	0.000	0.190	0.0305	0.0000	0.0000	0.00E+00
333	0.00	0.000	0.190	0.0299	0.0000	0.0000	0.00E+00
334	0.00	0.000	0.189	0.0293	0.0000	0.0000	0.00E+00
335	0.00	0.000	0.189	0.0286	0.0000	0.0000	0.00E+00
336	0.00	0.000	0.188	0.0280	0.0000	0.0000	0.00E+00
337	0.00	0.000	0.188	0.0274	0.0000	0.0000	0.00E+00
338	0.00	0.000	0.187	0.0268	0.0000	0.0000	0.00E+00
339	0.00	0.000	0.187	0.0262	0.0000	0.0000	0.00E+00
340	0.00	0.000	0.186	0.0255	0.0000	0.0000	0.00E+00

341	0.00	0.000	0.186	0.0249	0.0000	0.0000	0.00E+00
342	0.00	0.000	0.185	0.0243	0.0000	0.0000	0.00E+00
343	0.60	0.000	0.309	0.0253	0.0000	0.0000	0.00E+00
344	0.00	0.000	0.184	0.0247	0.0000	0.0000	0.00E+00
345	0.00	0.000	0.184	0.0240	0.0000	0.0000	0.00E+00
346	0.00	0.000	0.183	0.0234	0.0000	0.0000	0.00E+00
347	0.00	0.000	0.167	0.0229	0.0000	0.0000	0.00E+00
348	0.00	0.000	0.177	0.0223	0.0000	0.0000	0.00E+00
349	0.00	0.000	0.182	0.0217	0.0000	0.0000	0.00E+00
350	0.00	0.000	0.181	0.0211	0.0000	0.0000	0.00E+00
351	43.00	0.000	0.310	0.0899	0.0000	0.0000	0.00E+00
352	0.00	0.000	5.856	0.0343	0.0939	0.0486	4.35E-02
353	0.00	0.000	4.586	0.0190	0.7587	0.3931	8.86E-02
354	0.00	0.000	0.000	0.0190	2.3718	1.2290	9.32E-02
355	0.00	0.000	0.000	0.0190	3.7415	1.9387	9.72E-02
356	0.00	0.000	0.000	0.0190	4.8138	2.4943	1.00E-01
357	0.00	0.000	0.000	0.0190	5.6413	2.9231	1.03E-01
358	0.00	0.000	0.000	0.0190	5.9826	3.0999	1.04E-01
359	0.00	0.000	0.000	0.0190	5.2137	2.7015	1.01E-01
360	0.00	0.000	0.000	0.0190	4.4859	2.3244	9.93E-02
361	67.00	0.000	1.131	0.1149	3.8566	1.9983	9.75E-02
362	45.00	0.000	4.287	0.0966	3.5155	1.8216	9.65E-02
363	4.00	0.000	5.233	0.0496	3.1550	1.6348	9.55E-02
364	35.00	0.000	5.581	0.0906	3.7145	1.9247	9.71E-02
365	38.00	0.000	5.186	0.0909	4.9998	2.5907	1.01E-01

* = Frozen (air or soil)

Annual Totals for Year 25			
	mm*	cubic meters	percent
Precipitation	1,203.00	12,030.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	313.408	3,134.1	26.05
Drainage Collected from Layer 2	699.1221	6,991.2	58.11
Percolation/Leakage through Layer 3	20.380342	203.8	1.69
Average Head on Top of Layer 3	3.6966 (cm)	---	---
Change in Water Storage	170.0894	1,700.9	14.14
Soil Water at Start of Year	853.4207	8,534.2	70.94
Soil Water at End of Year	1,023.5101	10,235.1	85.08
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 26

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			75.00	0.000	4.197	0.0981		4.3115	2.2340	9.88E-02
2			1.00	0.000	4.417	0.0409		3.9326	2.0377	9.77E-02
3			6.00	0.000	5.135	0.0438		8.6187	4.4659	1.11E-01
4			9.00	0.000	3.521	0.0620		15.2219	7.8874	1.30E-01
5			49.00	0.000	2.545	0.0994		19.2704	9.9852	1.42E-01
6	*Note: head c		112.00	0.000	3.695	0.1179		18.5362	9.6047	1.40E-01
7			2.00	0.000	5.798	0.0459		16.8852	8.7492	1.35E-01
8			2.00	0.000	4.086	0.0385		25.0310	12.9700	1.58E-01
9			24.00	0.000	4.236	0.0986		51.2403	15.5815	2.34E-01
10			0.50	0.000	4.955	0.0504		150.3443	17.3563	5.19E-01
11			1.00	0.000	4.158	0.0388		231.2244	18.7627	7.52E-01
12			8.00	0.000	4.115	0.0518		211.0848	18.2093	6.94E-01
13			10.00	0.000	4.983	0.0679		160.4764	17.1995	5.49E-01
14			5.00	0.000	5.761	0.0558		88.8346	16.0352	3.42E-01
15			0.00	0.000	5.357	0.0375		56.8200	15.5911	2.50E-01
16			0.00	0.000	5.544	0.0190		54.3974	15.5869	2.43E-01
17			0.00	0.000	0.000	0.0190		50.4211	15.5800	2.32E-01
18			13.00	0.000	2.166	0.0551		45.1020	15.5709	2.16E-01
19			10.00	0.000	4.585	0.0668		38.5809	15.5596	1.98E-01
20			1.50	0.000	4.395	0.0543		29.8017	15.1025	1.72E-01
21			9.00	0.000	6.236	0.0617		27.1127	14.0487	1.64E-01

22	0.00	0.000	6.359	0.0405	25.4120	13.1675	1.60E-01
23	0.00	0.000	4.990	0.0238	23.8953	12.3816	1.55E-01
24	0.00	0.000	1.451	0.0190	22.4450	11.6301	1.51E-01
25	0.00	0.000	0.000	0.0190	21.0674	10.9163	1.47E-01
26	0.00	0.000	0.000	0.0190	19.7674	10.2427	1.43E-01
27	0.00	0.000	0.000	0.0190	18.5616	9.6178	1.40E-01
28	0.00	0.000	0.000	0.0190	16.8111	8.7108	1.35E-01
29	1.00	0.000	0.190	0.0217	14.5143	7.5207	1.28E-01
30	0.00	0.000	0.550	0.0199	12.5283	6.4916	1.22E-01
31	0.00	0.000	0.192	0.0192	10.8109	5.6018	1.18E-01
32	5.00	0.000	0.554	0.0340	9.3259	4.8323	1.13E-01
33	0.00	0.000	0.684	0.0318	8.0417	4.1669	1.10E-01
34	0.00	0.000	0.768	0.0292	6.9313	3.5915	1.06E-01
35	3.00	0.000	0.775	0.0366	5.9712	3.0940	1.04E-01
36	9.00	0.000	0.809	0.0639	5.1409	2.6638	1.01E-01
37	0.00	0.000	0.787	0.0590	4.4719	2.3172	9.93E-02
38	0.00	0.000	0.752	0.0537	4.0741	2.1110	9.81E-02
39	0.00	0.000	0.721	0.0496	3.6836	1.9087	9.70E-02
40	35.00	0.000	0.748	0.1001	3.2519	1.6850	9.58E-02
41	18.00	0.000	4.370	0.0814	2.8094	1.4557	9.45E-02
42	8.00	0.000	3.637	0.0614	2.5128	1.3020	9.36E-02
43	39.00	0.000	5.225	0.1004	2.3890	1.2379	9.33E-02
44	0.00	0.000	6.867	0.0408	2.4588	1.2741	9.35E-02
45	0.00	0.000	6.552	0.0190	3.7689	1.9529	9.73E-02
46	1.00	0.000	0.472	0.0208	6.0028	3.1104	1.04E-01
47	11.00	0.000	2.943	0.0476	7.6715	3.9751	1.08E-01
48	0.50	0.000	4.051	0.0358	8.8940	4.6085	1.12E-01
49	0.00	0.000	3.327	0.0247	9.7637	5.0591	1.15E-01
50	20.00	0.000	3.013	0.0813	10.3546	5.3654	1.16E-01

51	23.00	0.000	3.484	0.0899	10.7534	5.5720	1.17E-01
52	19.00	0.000	5.816	0.0877	9.9921	5.1775	1.15E-01
53	0.00	0.000	6.325	0.0453	8.6561	4.4852	1.11E-01
54	0.00	0.000	6.769	0.0205	8.2577	4.2788	1.10E-01
55	0.00	0.000	0.415	0.0191	9.1925	4.7632	1.13E-01
56	0.00	0.000	0.032	0.0190	10.0496	5.2073	1.15E-01
57	6.00	0.000	1.563	0.0338	10.6261	5.5060	1.17E-01
58	17.00	0.000	2.452	0.0823	10.9817	5.6903	1.18E-01
59	18.00	0.000	2.586	0.0946	11.1353	5.7698	1.18E-01
60	90.00	0.000	2.812	0.1091	10.0077	5.1856	1.15E-01
61	11.00	0.000	5.439	0.0632	8.6313	4.4724	1.11E-01
62	0.00	0.000	6.136	0.0427	8.9334	4.6289	1.12E-01
63	0.00	0.000	6.284	0.0218	11.5361	5.9775	1.20E-01
64	0.00	0.000	0.624	0.0190	13.7060	7.1019	1.26E-01
65	0.00	0.000	0.000	0.0190	15.1473	7.8487	1.30E-01
66	0.00	0.000	0.000	0.0190	16.0520	8.3175	1.33E-01
67	0.00	0.000	0.000	0.0190	16.5358	8.5682	1.34E-01
68	0.00	0.000	0.000	0.0190	16.7058	8.6563	1.35E-01
69	0.00	0.000	0.000	0.0190	16.6436	8.6241	1.34E-01
70	0.00	0.000	0.000	0.0190	16.4114	8.5037	1.34E-01
71	0.00	0.000	0.000	0.0190	16.0568	8.3200	1.33E-01
72	0.00	0.000	0.000	0.0190	15.6164	8.0918	1.31E-01
73	0.00	0.000	0.000	0.0190	15.1181	7.8336	1.30E-01
74	0.00	0.000	0.000	0.0190	14.5836	7.5566	1.28E-01
75	0.00	0.000	0.000	0.0190	13.9792	7.2435	1.27E-01
76	0.00	0.000	0.000	0.0190	12.3558	6.4023	1.22E-01
77	2.50	0.000	0.392	0.0260	10.6618	5.5245	1.17E-01
78	4.00	0.000	0.375	0.0381	9.1969	4.7655	1.13E-01
79	21.00	0.000	0.732	0.0889	7.9303	4.1091	1.09E-01

80	0.00	0.000	3.968	0.0415	6.8349	3.5416	1.06E-01
81	23.00	0.000	0.768	0.0922	6.1391	3.1810	1.04E-01
82	0.00	0.000	6.603	0.0459	6.0955	3.1584	1.04E-01
83	0.00	0.000	6.749	0.0234	5.7547	2.9818	1.03E-01
84	34.00	0.000	6.373	0.0954	6.4728	3.3539	1.05E-01
85	3.00	0.000	4.611	0.0434	7.0315	3.6434	1.07E-01
86	0.00	0.000	4.456	0.0285	6.5796	3.4093	1.05E-01
87	4.00	0.000	5.490	0.0235	7.1092	3.6837	1.07E-01
88	0.00	0.000	1.083	0.0199	7.8600	4.0727	1.09E-01
89	0.00	0.000	0.202	0.0193	8.3976	4.3513	1.11E-01
90	0.00	0.000	0.055	0.0191	8.7602	4.5392	1.12E-01
91	0.00	0.000	0.020	0.0190	8.8607	4.5913	1.12E-01
92	0.00	0.000	0.003	0.0190	7.8291	4.0567	1.09E-01
93	1.00	0.000	0.224	0.0216	6.7474	3.4963	1.06E-01
94	0.00	0.000	0.545	0.0198	5.8122	3.0116	1.03E-01
95	16.00	0.000	0.963	0.0699	5.0034	2.5926	1.01E-01
96	0.00	0.000	5.905	0.0449	4.3489	2.2534	9.89E-02
97	0.00	0.000	1.203	0.0398	4.1407	2.1455	9.83E-02
98	0.00	0.000	1.088	0.0362	3.6071	1.8690	9.68E-02
99	0.00	0.000	1.000	0.0329	3.0967	1.6046	9.53E-02
100	0.00	0.000	0.931	0.0298	2.6553	1.3759	9.40E-02
101	0.00	0.000	0.874	0.0268	2.2736	1.1781	9.29E-02
102	0.00	0.000	0.656	0.0247	1.9436	1.0071	9.20E-02
103	0.00	0.000	0.787	0.0220	1.6582	0.8592	9.12E-02
104	0.00	0.000	0.752	0.0195	1.4114	0.7313	9.05E-02
105	0.00	0.000	0.160	0.0190	1.1980	0.6208	8.98E-02
106	0.00	0.000	0.000	0.0190	1.0135	0.5252	8.93E-02
107	0.00	0.000	0.000	0.0190	0.8540	0.4425	8.89E-02
108	0.00	0.000	0.000	0.0190	0.7160	0.3710	8.85E-02

109	0.00	0.000	0.000	0.0190	0.5967	0.3092	8.81E-02
110	13.00	0.000	0.457	0.0608	0.4935	0.2557	8.78E-02
111	10.00	0.000	0.588	0.0715	0.4101	0.2125	8.76E-02
112	10.00	0.000	4.314	0.0648	0.4341	0.2249	8.76E-02
113	30.00	0.000	3.785	0.0946	0.5256	0.2723	8.79E-02
114	21.00	0.000	4.014	0.0961	0.5151	0.2669	8.79E-02
115	2.00	0.000	4.239	0.0528	0.4678	0.2424	8.77E-02
116	2.00	0.000	4.695	0.0433	0.8905	0.4614	8.90E-02
117	0.00	0.000	5.528	0.0245	2.7845	1.4428	9.44E-02
118	0.00	0.000	1.533	0.0194	4.5438	2.3544	9.95E-02
119	4.00	0.000	2.407	0.0247	5.9076	3.0611	1.03E-01
120	0.00	0.000	1.125	0.0209	6.9482	3.6003	1.06E-01
121	0.00	0.000	0.446	0.0194	7.7174	3.9989	1.09E-01
122	0.00	0.000	0.109	0.0191	8.2679	4.2841	1.10E-01
123	0.00	0.000	0.021	0.0190	8.6425	4.4782	1.11E-01
124	0.00	0.000	0.004	0.0190	8.7210	4.5189	1.12E-01
125	0.00	0.000	0.000	0.0190	7.6599	3.9690	1.08E-01
126	0.00	0.000	0.000	0.0190	6.6012	3.4205	1.05E-01
127	0.00	0.000	0.000	0.0190	5.6857	2.9461	1.03E-01
128	0.00	0.000	0.000	0.0190	4.8940	2.5359	1.00E-01
129	0.00	0.000	0.000	0.0190	4.2095	2.1812	9.85E-02
130	0.00	0.000	0.000	0.0190	3.6176	1.8745	9.68E-02
131	0.00	0.000	0.000	0.0190	3.1057	1.6092	9.53E-02
132	0.00	0.000	0.000	0.0190	2.6631	1.3799	9.41E-02
133	0.00	0.000	0.000	0.0190	2.2804	1.1816	9.30E-02
134	0.00	0.000	0.000	0.0190	1.9494	1.0101	9.20E-02
135	0.00	0.000	0.000	0.0190	1.6633	0.8618	9.12E-02
136	0.00	0.000	0.000	0.0190	1.4158	0.7336	9.05E-02
137	0.00	0.000	0.000	0.0190	1.2018	0.6227	8.99E-02

138	0.00	0.000	0.000	0.0190	1.0168	0.5269	8.93E-02
139	0.00	0.000	0.000	0.0190	0.8568	0.4440	8.89E-02
140	0.00	0.000	0.000	0.0190	0.7185	0.3723	8.85E-02
141	0.00	0.000	0.000	0.0190	0.5988	0.3103	8.81E-02
142	0.00	0.000	0.000	0.0190	0.4954	0.2567	8.78E-02
143	0.00	0.000	0.000	0.0190	0.4059	0.2103	8.76E-02
144	0.00	0.000	0.000	0.0190	0.3286	0.1703	8.73E-02
145	0.00	0.000	0.000	0.0190	0.2617	0.1356	8.72E-02
146	0.00	0.000	0.000	0.0190	0.2039	0.1056	8.70E-02
147	0.00	0.000	0.000	0.0190	0.1538	0.0797	8.68E-02
148	0.00	0.000	0.000	0.0190	0.1106	0.0573	8.67E-02
149	0.00	0.000	0.000	0.0190	0.0732	0.0379	8.66E-02
150	0.00	0.000	0.000	0.0190	0.0409	0.0212	8.65E-02
151	0.00	0.000	0.000	0.0190	0.0129	0.0065	7.66E-02
152	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
153	0.40	0.000	0.087	0.0200	0.0000	0.0000	0.00E+00
154	1.20	0.000	0.151	0.0235	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.187	0.0229	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.296	0.0219	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.292	0.0210	0.0000	0.0000	0.00E+00
158	1.20	0.000	0.337	0.0238	0.0000	0.0000	0.00E+00
159	0.20	0.000	0.344	0.0234	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.269	0.0225	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.286	0.0215	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.275	0.0206	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.269	0.0197	0.0000	0.0000	3.46E-07
164	1.00	0.000	0.232	0.0223	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.198	0.0216	0.0000	0.0000	0.00E+00
166	4.60	0.000	0.287	0.0360	0.0000	0.0000	0.00E+00

167	0.20	0.000	0.369	0.0354	0.0000	0.0000	8.67E-07
168	0.00	0.000	0.329	0.0343	0.0000	0.0000	3.64E-04
169	0.00	0.000	0.344	0.0332	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.338	0.0320	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.334	0.0309	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.330	0.0298	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.327	0.0287	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.324	0.0276	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.321	0.0266	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.318	0.0255	0.0000	0.0000	0.00E+00
177	3.00	0.000	0.370	0.0343	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.328	0.0332	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.328	0.0321	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.325	0.0310	0.0000	0.0000	0.00E+00
181	0.80	0.000	0.380	0.0324	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.325	0.0313	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.326	0.0302	0.0000	0.0000	0.00E+00
184	0.00	0.000	0.315	0.0292	0.0000	0.0000	0.00E+00
185	0.00	0.000	0.315	0.0281	0.0000	0.0000	0.00E+00
186	0.00	0.000	0.320	0.0271	0.0000	0.0000	0.00E+00
187	0.00	0.000	0.297	0.0261	0.0000	0.0000	0.00E+00
188	2.00	0.000	0.347	0.0316	0.0000	0.0000	0.00E+00
189	0.50	0.000	0.348	0.0321	0.0000	0.0000	0.00E+00
190	3.00	0.000	0.350	0.0409	0.0000	0.0000	0.00E+00
191	0.00	0.000	0.288	0.0400	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.286	0.0390	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.277	0.0381	0.0000	0.0000	0.00E+00
194	0.00	0.000	0.275	0.0372	0.0000	0.0000	0.00E+00
195	0.00	0.000	0.290	0.0362	0.0000	0.0000	0.00E+00

196	7.00	0.000	0.351	0.0584	0.0000	0.0000	0.00E+00
197	0.00	0.000	0.290	0.0574	0.0000	0.0000	0.00E+00
198	0.00	0.000	0.293	0.0552	0.0204	0.0106	4.33E-02
199	0.00	0.000	0.291	0.0543	0.0708	0.0367	8.66E-02
200	0.00	0.000	0.289	0.0533	0.0388	0.0201	8.65E-02
201	0.00	0.000	0.288	0.0523	0.0111	0.0056	7.07E-02
202	0.00	0.000	0.286	0.0514	0.0000	0.0000	0.00E+00
203	0.00	0.000	0.284	0.0504	0.0000	0.0000	0.00E+00
204	0.00	0.000	0.282	0.0495	0.0000	0.0000	0.00E+00
205	0.00	0.000	0.281	0.0486	0.0000	0.0000	0.00E+00
206	0.00	0.000	0.279	0.0476	0.0000	0.0000	0.00E+00
207	0.00	0.000	0.277	0.0467	0.0000	0.0000	0.00E+00
208	0.00	0.000	0.276	0.0458	0.0000	0.0000	0.00E+00
209	0.00	0.000	0.274	0.0449	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.272	0.0440	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.271	0.0431	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.269	0.0422	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.268	0.0413	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.266	0.0404	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.265	0.0395	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.264	0.0386	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.262	0.0378	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.261	0.0369	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.259	0.0360	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.258	0.0352	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.257	0.0343	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.255	0.0335	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.254	0.0326	0.0000	0.0000	0.00E+00
224	2.00	0.000	0.325	0.0382	0.0000	0.0000	0.00E+00

225	1.00	0.000	0.324	0.0405	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.250	0.0396	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.249	0.0388	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.248	0.0380	0.0000	0.0000	0.00E+00
229	0.00	0.000	0.247	0.0371	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.246	0.0363	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.245	0.0355	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.244	0.0347	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.242	0.0339	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.241	0.0331	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.240	0.0323	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.239	0.0315	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.238	0.0307	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.237	0.0299	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.236	0.0291	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.235	0.0283	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.234	0.0275	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.233	0.0268	0.0000	0.0000	0.00E+00
243	18.00	0.000	0.310	0.0857	0.0000	0.0000	0.00E+00
244	15.00	0.000	0.310	0.0890	0.1162	0.0602	6.51E-02
245	0.00	0.000	5.981	0.0454	0.1585	0.0821	8.69E-02
246	0.00	0.000	0.230	0.0436	0.5640	0.2922	8.80E-02
247	0.00	0.000	0.229	0.0429	1.7399	0.9016	9.14E-02
248	0.00	0.000	0.228	0.0421	3.0256	1.5677	9.51E-02
249	0.00	0.000	0.227	0.0414	4.0684	2.1081	9.81E-02
250	0.00	0.000	0.227	0.0406	4.0338	2.0901	9.80E-02
251	0.00	0.000	0.226	0.0399	3.4656	1.7957	9.64E-02
252	0.00	0.000	0.225	0.0391	2.9743	1.5412	9.50E-02
253	0.00	0.000	0.224	0.0384	2.5495	1.3210	9.37E-02

254	0.00	0.000	0.223	0.0376	2.1821	1.1307	9.27E-02
255	0.00	0.000	0.222	0.0369	1.8645	0.9661	9.18E-02
256	0.00	0.000	0.221	0.0361	1.5898	0.8238	9.10E-02
257	0.00	0.000	0.221	0.0354	1.3523	0.7007	9.03E-02
258	0.00	0.000	0.220	0.0347	1.1469	0.5943	8.97E-02
259	0.00	0.000	0.219	0.0339	0.9693	0.5023	8.92E-02
260	0.00	0.000	0.218	0.0332	0.8157	0.4227	8.87E-02
261	0.00	0.000	0.217	0.0325	0.6829	0.3539	8.84E-02
262	0.00	0.000	0.217	0.0318	0.5681	0.2944	8.80E-02
263	0.00	0.000	0.216	0.0310	0.4688	0.2429	8.77E-02
264	0.00	0.000	0.215	0.0303	0.3830	0.1984	8.75E-02
265	0.00	0.000	0.214	0.0296	0.3087	0.1600	8.73E-02
266	0.00	0.000	0.213	0.0289	0.2445	0.1267	8.71E-02
267	0.00	0.000	0.213	0.0282	0.1890	0.0979	8.69E-02
268	0.00	0.000	0.212	0.0275	0.1410	0.0731	8.68E-02
269	0.00	0.000	0.211	0.0268	0.0995	0.0516	8.67E-02
270	0.00	0.000	0.211	0.0261	0.0636	0.0330	8.66E-02
271	0.00	0.000	0.210	0.0254	0.0326	0.0169	8.65E-02
272	0.00	0.000	0.209	0.0247	0.0066	0.0032	5.22E-02
273	0.00	0.000	0.208	0.0240	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.208	0.0233	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.207	0.0226	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.206	0.0219	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.206	0.0212	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.205	0.0206	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.204	0.0199	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.204	0.0192	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.058	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
288	9.00	0.000	0.232	0.0482	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.181	0.0476	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.197	0.0470	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.197	0.0463	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.196	0.0457	0.0000	0.0000	0.00E+00
293	15.00	0.000	0.297	0.0860	0.0000	0.0000	5.88E-04
294	0.00	0.000	6.284	0.0474	0.0000	0.0000	0.00E+00
295	0.00	0.000	6.980	0.0241	0.4883	0.2530	8.78E-02
296	0.00	0.000	1.139	0.0190	1.6716	0.8661	9.12E-02
297	0.00	0.000	0.000	0.0190	1.8085	0.9371	9.16E-02
298	0.00	0.000	0.000	0.0190	1.5414	0.7987	9.08E-02
299	0.00	0.000	0.000	0.0190	1.3104	0.6790	9.02E-02
300	0.00	0.000	0.000	0.0190	1.1107	0.5755	8.96E-02
301	0.00	0.000	0.000	0.0190	0.9380	0.4860	8.91E-02
302	0.00	0.000	0.000	0.0190	0.7887	0.4087	8.87E-02
303	0.00	0.000	0.000	0.0190	0.6595	0.3417	8.83E-02
304	0.00	0.000	0.000	0.0190	0.5479	0.2839	8.80E-02
305	30.00	0.000	0.857	0.0959	0.4513	0.2339	8.77E-02
306	6.80	0.000	6.599	0.0480	0.3890	0.2015	8.75E-02
307	0.20	0.000	5.449	0.0305	0.9300	0.4819	8.91E-02
308	0.00	0.000	3.348	0.0194	2.0328	1.0533	9.23E-02
309	1.00	0.000	0.621	0.0207	3.2778	1.6984	9.58E-02
310	0.00	0.000	0.343	0.0195	4.2680	2.2115	9.87E-02
311	0.00	0.000	0.116	0.0191	4.1380	2.1441	9.83E-02

312	0.00	0.000	0.027	0.0190	3.5557	1.8424	9.66E-02
313	0.00	0.000	0.007	0.0190	3.0522	1.5815	9.52E-02
314	0.00	0.000	0.002	0.0190	2.6169	1.3560	9.39E-02
315	0.00	0.000	0.001	0.0190	2.2404	1.1609	9.29E-02
316	0.00	0.000	0.000	0.0190	1.9149	0.9922	9.19E-02
317	33.00	0.000	0.903	0.0894	1.6334	0.8463	9.11E-02
318	4.80	0.000	4.990	0.0442	1.5601	0.8084	9.09E-02
319	0.00	0.000	5.167	0.0270	1.5882	0.8230	9.10E-02
320	44.00	0.000	5.736	0.0887	2.7182	1.4085	9.42E-02
321	0.40	0.000	4.269	0.0376	3.4649	1.7953	9.64E-02
322	0.00	0.000	5.567	0.0190	3.5696	1.8496	9.67E-02
323	0.00	0.000	0.000	0.0190	4.9934	2.5874	1.01E-01
324	0.00	0.000	0.000	0.0190	6.2181	3.2220	1.04E-01
325	0.00	0.000	0.000	0.0190	7.1391	3.6992	1.07E-01
326	0.00	0.000	0.000	0.0190	7.8145	4.0492	1.09E-01
327	0.00	0.000	0.000	0.0190	8.2918	4.2965	1.10E-01
328	0.00	0.000	0.000	0.0190	8.6280	4.4707	1.11E-01
329	62.00	0.000	1.475	0.1078	8.0419	4.1670	1.10E-01
330	0.80	0.000	4.568	0.0482	7.0568	3.6565	1.07E-01
331	11.50	0.000	6.120	0.0661	6.7853	3.5159	1.06E-01
332	7.00	0.000	5.650	0.0584	7.8493	4.0672	1.09E-01
333	13.00	0.000	6.015	0.0649	8.3590	4.3313	1.10E-01
334	59.00	0.000	5.694	0.1036	8.1806	4.2388	1.10E-01
335	0.00	0.000	6.627	0.0395	7.1173	3.6879	1.07E-01
336	0.00	0.000	6.146	0.0190	7.6556	3.9668	1.08E-01
337	0.00	0.000	0.000	0.0190	9.6729	5.0121	1.14E-01
338	0.00	0.000	0.000	0.0190	11.1019	5.7526	1.18E-01
339	0.00	0.000	0.000	0.0190	12.0759	6.2572	1.21E-01
340	0.00	0.000	0.000	0.0190	12.6983	6.5798	1.23E-01

341	0.00	0.000	0.000	0.0190	13.0498	6.7618	1.24E-01
342	0.00	0.000	0.000	0.0190	13.1931	6.8361	1.24E-01
343	0.00	0.000	0.000	0.0190	13.1777	6.8282	1.24E-01
344	10.00	0.000	0.922	0.0493	13.0425	6.7581	1.24E-01
345	0.00	0.000	0.992	0.0460	12.8182	6.6418	1.23E-01
346	0.00	0.000	1.000	0.0426	12.5591	6.5076	1.23E-01
347	2.00	0.000	1.045	0.0458	11.4639	5.9401	1.19E-01
348	0.00	0.000	0.874	0.0429	9.8905	5.1249	1.15E-01
349	0.00	0.000	0.827	0.0401	8.5300	4.4199	1.11E-01
350	0.00	0.000	0.787	0.0375	7.3536	3.8103	1.08E-01
351	0.00	0.000	0.745	0.0350	6.3363	3.2832	1.05E-01
352	0.00	0.000	0.721	0.0326	5.4566	2.8274	1.02E-01
353	0.00	0.000	0.694	0.0302	4.6996	2.4352	9.99E-02
354	0.00	0.000	0.669	0.0279	4.0501	2.0986	9.81E-02
355	0.00	0.000	0.647	0.0257	3.4827	1.8046	9.64E-02
356	0.00	0.000	0.627	0.0236	2.9891	1.5488	9.50E-02
357	0.00	0.000	0.483	0.0220	2.5623	1.3277	9.38E-02
358	0.00	0.000	0.593	0.0200	2.1932	1.1364	9.27E-02
359	0.00	0.000	0.314	0.0190	1.8740	0.9711	9.18E-02
360	47.00	0.000	0.685	0.0928	1.6429	0.8513	9.11E-02
361	29.00	0.000	4.401	0.0802	1.5235	0.7894	9.08E-02
362	0.00	0.000	5.225	0.0426	1.6553	0.8577	9.12E-02
363	8.00	0.000	3.396	0.0563	2.1871	1.1333	9.27E-02
364	0.00	0.000	4.139	0.0425	3.7838	1.9606	9.73E-02
365	0.00	0.000	6.311	0.0215	5.4169	2.8068	1.02E-01

* = Frozen (air or soil)

Annual Totals for Year 26			
	mm*	cubic meters	percent
Precipitation	1,327.60	13,276.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	469.367	4,693.7	35.35
Drainage Collected from Layer 2	943.7481	9,437.5	71.09
Percolation/Leakage through Layer 3	29.427922	294.3	2.22
Average Head on Top of Layer 3	7.1538 (cm)	---	---
Change in Water Storage	-114.9428	-1,149.4	-8.66
Soil Water at Start of Year	1,023.5101	10,235.1	77.09
Soil Water at End of Year	908.5673	9,085.7	68.44
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 27

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			0.00	0.000	0.749	0.0190		6.6586	3.4502	1.06E-01
2			0.00	0.000	0.000	0.0190		7.5845	3.9300	1.08E-01
3			36.00	0.000	6.589	0.0962		8.2562	4.2780	1.10E-01
4			0.00	0.000	5.755	0.0444		8.5170	4.4131	1.11E-01
5			0.00	0.000	6.801	0.0200		7.7134	3.9968	1.09E-01
6	*Note: head c		0.00	0.000	0.229	0.0190		8.0164	4.1537	1.09E-01
7			1.00	0.000	0.634	0.0202		8.5761	4.4438	1.11E-01
8			0.00	0.000	0.276	0.0193		8.9690	4.6474	1.12E-01
9			0.00	0.000	0.076	0.0190		9.2224	4.7786	1.13E-01
10			9.00	0.000	1.496	0.0441		8.7842	4.5516	1.12E-01
11			0.00	0.000	1.335	0.0396		7.5734	3.9242	1.08E-01
12			0.40	0.000	1.396	0.0363		6.5263	3.3817	1.05E-01
13			0.00	0.000	1.167	0.0324		5.6210	2.9125	1.03E-01
14			0.00	0.000	1.048	0.0289		4.8381	2.5069	1.00E-01
15			0.00	0.000	0.983	0.0256		4.1611	2.1561	9.84E-02
16			0.00	0.000	0.901	0.0226		3.5757	1.8528	9.67E-02
17			0.00	0.000	0.813	0.0199		3.0695	1.5905	9.52E-02
18			0.00	0.000	0.275	0.0190		2.6318	1.3637	9.40E-02
19			1.20	0.000	0.144	0.0225		2.2533	1.1676	9.29E-02
20			0.00	0.000	0.314	0.0215		1.9260	0.9980	9.19E-02
21			0.00	0.000	0.476	0.0199		1.6430	0.8514	9.11E-02

22	0.00	0.000	0.162	0.0193	1.3983	0.7246	9.04E-02
23	0.00	0.000	0.078	0.0191	1.1867	0.6149	8.98E-02
24	9.00	0.000	0.540	0.0473	1.0037	0.5201	8.93E-02
25	0.00	0.000	0.579	0.0454	0.8455	0.4381	8.88E-02
26	110.00	0.000	0.689	0.1215	0.7134	0.3697	8.85E-02
27	137.00	0.000	4.787	0.1250	0.9810	0.5083	8.92E-02
28	15.00	0.000	4.529	0.0773	1.3894	0.7199	9.04E-02
29	13.00	0.000	5.577	0.0669	8.1444	4.2201	1.10E-01
30	0.00	0.000	5.506	0.0447	14.2418	7.3795	1.27E-01
31	0.00	0.000	6.566	0.0228	19.4699	10.0885	1.42E-01
32	0.00	0.000	0.859	0.0190	23.2121	12.0276	1.53E-01
33	0.00	0.000	0.000	0.0190	25.1491	13.0312	1.59E-01
34	0.00	0.000	0.000	0.0190	26.0854	13.5164	1.62E-01
35	74.00	0.000	4.212	0.1168	26.2971	13.6261	1.62E-01
36	3.00	0.000	5.899	0.0423	24.5058	12.6979	1.57E-01
37	0.00	0.000	6.005	0.0223	24.6810	12.7887	1.57E-01
38	0.00	0.000	0.846	0.0195	25.9890	13.4664	1.61E-01
39	11.00	0.000	4.337	0.0417	26.4690	13.7151	1.63E-01
40	0.00	0.000	4.577	0.0264	26.3806	13.6694	1.62E-01
41	0.00	0.000	2.035	0.0196	25.9060	13.4234	1.61E-01
42	0.00	0.000	0.143	0.0191	25.1721	13.0432	1.59E-01
43	0.00	0.000	0.043	0.0190	24.2703	12.5759	1.56E-01
44	0.00	0.000	0.000	0.0190	23.2663	12.0557	1.53E-01
45	0.00	0.000	0.000	0.0190	22.2080	11.5073	1.50E-01
46	0.00	0.000	0.000	0.0190	21.1296	10.9485	1.47E-01
47	24.00	0.000	1.189	0.0950	20.0555	10.3920	1.44E-01
48	4.00	0.000	4.546	0.0536	18.9675	9.8282	1.41E-01
49	3.00	0.000	6.743	0.0384	17.0332	8.8259	1.35E-01
50	0.00	0.000	5.367	0.0205	15.9489	8.2641	1.32E-01

51	0.00	0.000	0.345	0.0194	15.4251	7.9927	1.31E-01
52	0.00	0.000	0.086	0.0191	14.8761	7.7082	1.29E-01
53	0.00	0.000	0.022	0.0190	14.3356	7.4281	1.28E-01
54	0.00	0.000	0.007	0.0190	12.9700	6.7205	1.24E-01
55	0.00	0.000	0.000	0.0190	11.1929	5.7997	1.19E-01
56	0.00	0.000	0.000	0.0190	9.6561	5.0034	1.14E-01
57	0.00	0.000	0.000	0.0190	8.3273	4.3149	1.10E-01
58	0.00	0.000	0.000	0.0190	7.1783	3.7195	1.07E-01
59	2.00	0.000	0.429	0.0242	6.1847	3.2047	1.04E-01
60	0.00	0.000	0.346	0.0231	5.3256	2.7595	1.02E-01
61	0.00	0.000	0.529	0.0213	4.5826	2.3745	9.96E-02
62	0.00	0.000	0.440	0.0199	3.9402	2.0417	9.77E-02
63	0.00	0.000	0.213	0.0191	3.3847	1.7538	9.61E-02
64	0.00	0.000	0.033	0.0190	2.9044	1.5049	9.48E-02
65	0.00	0.000	0.008	0.0190	2.4890	1.2897	9.36E-02
66	0.00	0.000	0.003	0.0190	2.1298	1.1036	9.25E-02
67	0.00	0.000	0.000	0.0190	1.8193	0.9427	9.16E-02
68	0.00	0.000	0.000	0.0190	1.5507	0.8035	9.09E-02
69	0.00	0.000	0.000	0.0190	1.3185	0.6832	9.02E-02
70	0.00	0.000	0.000	0.0190	1.1177	0.5791	8.96E-02
71	0.00	0.000	0.000	0.0190	0.9440	0.4892	8.91E-02
72	0.00	0.000	0.000	0.0190	0.7939	0.4114	8.87E-02
73	17.00	0.000	0.506	0.0740	0.6640	0.3441	8.83E-02
74	0.00	0.000	0.479	0.0509	0.6265	0.3246	8.82E-02
75	0.00	0.000	0.515	0.0465	0.7037	0.3646	8.84E-02
76	0.00	0.000	0.505	0.0441	1.5653	0.8111	9.09E-02
77	0.00	0.000	0.495	0.0425	2.0309	1.0523	9.22E-02
78	0.00	0.000	0.486	0.0408	1.7337	0.8983	9.14E-02
79	0.00	0.000	0.477	0.0392	1.4767	0.7652	9.07E-02

80	0.00	0.000	0.469	0.0377	1.2545	0.6500	9.00E-02
81	0.00	0.000	0.461	0.0361	1.0623	0.5505	8.95E-02
82	0.00	0.000	0.454	0.0346	0.8962	0.4644	8.90E-02
83	0.00	0.000	0.447	0.0331	0.7525	0.3899	8.86E-02
84	0.00	0.000	0.440	0.0317	0.6283	0.3255	8.82E-02
85	1.00	0.000	0.493	0.0334	0.5208	0.2699	8.79E-02
86	0.00	0.000	0.428	0.0319	0.4279	0.2217	8.76E-02
87	0.00	0.000	0.422	0.0305	0.3476	0.1801	8.74E-02
88	0.00	0.000	0.416	0.0291	0.2781	0.1441	8.72E-02
89	0.00	0.000	0.369	0.0279	0.2181	0.1130	8.70E-02
90	0.00	0.000	0.395	0.0266	0.1661	0.0861	8.69E-02
91	0.00	0.000	0.400	0.0253	0.1212	0.0628	8.67E-02
92	1.50	0.000	0.451	0.0288	0.0824	0.0427	8.66E-02
93	15.00	0.000	0.446	0.0773	0.0488	0.0253	8.65E-02
94	0.00	0.000	0.386	0.0553	0.0198	0.0102	8.65E-02
95	0.50	0.000	0.437	0.0548	0.1178	0.0609	5.61E-02
96	0.00	0.000	0.378	0.0524	1.0664	0.5526	8.95E-02
97	0.00	0.000	0.374	0.0508	1.5717	0.8144	9.09E-02
98	0.00	0.000	0.370	0.0496	1.3428	0.6958	9.03E-02
99	0.00	0.000	0.366	0.0484	1.1387	0.5900	8.97E-02
100	0.00	0.000	0.362	0.0472	0.9622	0.4986	8.92E-02
101	0.00	0.000	0.359	0.0460	0.8096	0.4195	8.87E-02
102	0.00	0.000	0.355	0.0448	0.6776	0.3511	8.84E-02
103	0.00	0.000	0.352	0.0436	0.5635	0.2920	8.80E-02
104	0.00	0.000	0.348	0.0425	0.4648	0.2409	8.77E-02
105	0.00	0.000	0.345	0.0413	0.3795	0.1967	8.75E-02
106	0.00	0.000	0.342	0.0402	0.3057	0.1584	8.73E-02
107	0.00	0.000	0.339	0.0390	0.2419	0.1254	8.71E-02
108	6.00	0.000	0.389	0.0577	0.1868	0.0968	8.69E-02

109	0.00	0.000	6.209	0.0369	0.1391	0.0721	8.68E-02
110	0.00	0.000	0.333	0.0357	0.1122	0.0581	8.67E-02
111	0.00	0.000	0.330	0.0346	0.0746	0.0387	8.66E-02
112	62.00	0.000	0.381	0.1106	0.0421	0.0218	8.65E-02
113	11.00	0.000	5.374	0.0642	0.0197	0.0102	8.65E-02
114	1.00	0.000	4.591	0.0492	0.5950	0.3083	8.81E-02
115	21.00	0.000	5.188	0.0932	2.5372	1.3147	9.37E-02
116	220.00	0.000	5.285	0.1539	4.1110	2.1301	9.82E-02
117	6.00	0.000	5.528	0.0463	3.7742	1.9556	9.73E-02
118	0.00	0.000	6.073	0.0257	11.8443	6.1372	1.21E-01
119	0.00	0.000	1.506	0.0196	21.1456	10.9568	1.47E-01
120	0.00	0.000	0.137	0.0192	26.3646	13.6610	1.62E-01
121	0.00	0.000	0.034	0.0190	29.1226	15.0901	1.70E-01
122	0.00	0.000	0.009	0.0190	34.5677	15.5494	1.86E-01
123	0.00	0.000	0.003	0.0190	36.4470	15.5559	1.91E-01
124	0.00	0.000	0.000	0.0190	33.7931	15.5329	1.84E-01
125	0.00	0.000	0.000	0.0190	29.3043	15.1843	1.71E-01
126	0.00	0.000	0.000	0.0190	28.2585	14.6424	1.68E-01
127	0.00	0.000	0.000	0.0190	27.0616	14.0222	1.64E-01
128	4.50	0.000	0.556	0.0321	25.7831	13.3598	1.61E-01
129	11.00	0.000	0.784	0.0662	24.4721	12.6804	1.57E-01
130	33.00	0.000	1.054	0.0944	23.2009	12.0218	1.53E-01
131	146.00	0.000	3.636	0.1319	20.8876	10.8231	1.47E-01
132	13.00	0.000	4.839	0.0669	18.0778	9.3672	1.38E-01
133	4.00	0.000	5.924	0.0511	20.6760	10.7135	1.46E-01
134	0.00	0.000	5.323	0.0327	24.6437	12.7694	1.57E-01
135	0.00	0.000	4.004	0.0194	27.6612	14.3329	1.66E-01
136	0.00	0.000	0.083	0.0191	29.0094	15.0315	1.70E-01
137	0.00	0.000	0.021	0.0190	29.4044	15.2361	1.71E-01

138	0.00	0.000	0.005	0.0190	29.1746	15.1171	1.70E-01
139	0.00	0.000	0.002	0.0190	28.5268	14.7814	1.69E-01
140	0.00	0.000	0.000	0.0190	27.6055	14.3040	1.66E-01
141	0.00	0.000	0.000	0.0190	26.5130	13.7380	1.63E-01
142	0.00	0.000	0.000	0.0190	25.3222	13.1209	1.59E-01
143	0.00	0.000	0.000	0.0190	24.0850	12.4799	1.56E-01
144	0.00	0.000	0.000	0.0190	22.8380	11.8337	1.52E-01
145	0.00	0.000	0.000	0.0190	21.6070	11.1959	1.49E-01
146	0.00	0.000	0.000	0.0190	20.4096	10.5754	1.45E-01
147	0.00	0.000	0.000	0.0190	19.2576	9.9785	1.42E-01
148	0.00	0.000	0.000	0.0190	18.1583	9.4089	1.39E-01
149	0.00	0.000	0.000	0.0190	17.0374	8.8281	1.35E-01
150	0.00	0.000	0.000	0.0190	14.9610	7.7522	1.29E-01
151	0.00	0.000	0.000	0.0190	12.9145	6.6918	1.24E-01
152	0.00	0.000	0.000	0.0190	11.1449	5.7748	1.18E-01
153	0.00	0.000	0.000	0.0190	9.6147	4.9819	1.14E-01
154	0.00	0.000	0.000	0.0190	8.2915	4.2963	1.10E-01
155	0.00	0.000	0.000	0.0190	7.1473	3.7034	1.07E-01
156	0.00	0.000	0.000	0.0190	6.1579	3.1908	1.04E-01
157	0.00	0.000	0.000	0.0190	5.3024	2.7475	1.02E-01
158	45.00	0.000	0.631	0.0904	4.5626	2.3641	9.95E-02
159	0.00	0.000	5.430	0.0332	3.9294	2.0361	9.77E-02
160	0.00	0.000	3.868	0.0190	3.9701	2.0571	9.78E-02
161	0.00	0.000	0.000	0.0190	5.1452	2.6660	1.01E-01
162	0.00	0.000	0.000	0.0190	6.1912	3.2081	1.04E-01
163	0.00	0.000	0.000	0.0190	6.9782	3.6158	1.06E-01
164	0.00	0.000	0.000	0.0190	7.5538	3.9141	1.08E-01
165	0.00	0.000	0.000	0.0190	7.9433	4.1159	1.09E-01
166	0.00	0.000	0.000	0.0190	7.2290	3.7458	1.07E-01

167	0.00	0.000	0.000	0.0190	6.2286	3.2274	1.04E-01
168	0.00	0.000	0.000	0.0190	5.3635	2.7791	1.02E-01
169	0.00	0.000	0.000	0.0190	4.6154	2.3915	9.97E-02
170	0.00	0.000	0.000	0.0190	3.9686	2.0564	9.78E-02
171	0.00	0.000	0.000	0.0190	3.4093	1.7665	9.62E-02
172	0.00	0.000	0.000	0.0190	2.9256	1.5159	9.48E-02
173	0.00	0.000	0.000	0.0190	2.5074	1.2992	9.36E-02
174	0.00	0.000	0.000	0.0190	2.1457	1.1118	9.26E-02
175	0.00	0.000	0.000	0.0190	1.8330	0.9498	9.17E-02
176	0.00	0.000	0.000	0.0190	1.5626	0.8097	9.09E-02
177	0.00	0.000	0.000	0.0190	1.3287	0.6885	9.02E-02
178	0.00	0.000	0.000	0.0190	1.1265	0.5837	8.96E-02
179	0.00	0.000	0.000	0.0190	0.9517	0.4931	8.91E-02
180	0.00	0.000	0.000	0.0190	0.8005	0.4148	8.87E-02
181	0.00	0.000	0.000	0.0190	0.6698	0.3470	8.83E-02
182	0.00	0.000	0.000	0.0190	0.5567	0.2885	8.80E-02
183	0.00	0.000	0.000	0.0190	0.4590	0.2378	8.77E-02
184	3.00	0.000	0.290	0.0280	0.3744	0.1940	8.75E-02
185	7.00	0.000	0.424	0.0500	0.3014	0.1561	8.73E-02
186	46.00	0.000	0.592	0.1078	0.2382	0.1234	8.71E-02
187	2.00	0.000	4.990	0.0465	0.1936	0.1003	8.70E-02
188	0.00	0.000	4.634	0.0311	1.2097	0.6268	8.99E-02
189	0.00	0.000	3.526	0.0193	3.0046	1.5569	9.51E-02
190	0.00	0.000	0.070	0.0191	4.4443	2.3029	9.92E-02
191	0.00	0.000	0.017	0.0190	5.5579	2.8799	1.02E-01
192	0.00	0.000	0.004	0.0190	6.4055	3.3191	1.05E-01
193	0.00	0.000	0.001	0.0190	7.0364	3.6460	1.07E-01
194	0.00	0.000	0.000	0.0190	7.3617	3.8145	1.08E-01
195	0.00	0.000	0.000	0.0190	6.5222	3.3795	1.05E-01

196	0.00	0.000	0.000	0.0190	5.6174	2.9107	1.03E-01
197	0.00	0.000	0.000	0.0190	4.8350	2.5053	1.00E-01
198	0.00	0.000	0.000	0.0190	4.1584	2.1547	9.84E-02
199	0.00	0.000	0.000	0.0190	3.5734	1.8516	9.67E-02
200	0.00	0.000	0.000	0.0190	3.0675	1.5895	9.52E-02
201	0.00	0.000	0.000	0.0190	2.6301	1.3628	9.40E-02
202	3.00	0.000	0.421	0.0276	2.2518	1.1668	9.29E-02
203	0.00	0.000	0.346	0.0264	1.9247	0.9973	9.19E-02
204	0.00	0.000	0.529	0.0247	1.6419	0.8508	9.11E-02
205	0.00	0.000	0.505	0.0230	1.3973	0.7240	9.04E-02
206	0.00	0.000	0.456	0.0215	1.1859	0.6145	8.98E-02
207	0.00	0.000	0.483	0.0199	1.0030	0.5197	8.93E-02
208	0.00	0.000	0.214	0.0192	0.8449	0.4378	8.88E-02
209	0.00	0.000	0.036	0.0190	0.7081	0.3669	8.84E-02
210	0.00	0.000	0.010	0.0190	0.5899	0.3057	8.81E-02
211	0.00	0.000	0.000	0.0190	0.4877	0.2527	8.78E-02
212	0.00	0.000	0.000	0.0190	0.3992	0.2069	8.75E-02
213	0.00	0.000	0.000	0.0190	0.3228	0.1673	8.73E-02
214	0.00	0.000	0.000	0.0190	0.2567	0.1330	8.71E-02
215	0.00	0.000	0.000	0.0190	0.1995	0.1034	8.70E-02
216	0.00	0.000	0.000	0.0190	0.1501	0.0778	8.68E-02
217	0.00	0.000	0.000	0.0190	0.1074	0.0556	8.67E-02
218	0.00	0.000	0.000	0.0190	0.0704	0.0365	8.66E-02
219	0.00	0.000	0.000	0.0190	0.0384	0.0199	8.65E-02
220	0.40	0.000	0.099	0.0200	0.0108	0.0055	6.96E-02
221	0.00	0.000	0.056	0.0198	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.145	0.0193	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.067	0.0191	0.0000	0.0000	0.00E+00
224	0.00	0.000	0.024	0.0190	0.0000	0.0000	0.00E+00

225	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
226	0.00	0.000	0.002	0.0190	0.0000	0.0000	0.00E+00
227	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
228	0.00	0.000	0.000	0.0190	0.0000	0.0000	3.43E-07
229	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
230	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
231	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
233	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
234	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	1.00	0.000	0.090	0.0220	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.155	0.0215	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.213	0.0208	0.0000	0.0000	0.00E+00
243	4.50	0.000	0.302	0.0348	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.284	0.0339	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.293	0.0329	0.0000	0.0000	0.00E+00
246	21.00	0.000	0.350	0.0982	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.348	0.0577	0.2681	0.1389	8.72E-02
248	0.00	0.000	0.345	0.0539	0.7481	0.3876	8.86E-02
249	0.00	0.000	0.342	0.0515	1.7326	0.8978	9.14E-02
250	0.00	0.000	0.339	0.0502	2.7226	1.4107	9.42E-02
251	0.00	0.000	0.336	0.0491	2.8155	1.4589	9.45E-02
252	0.00	0.000	0.333	0.0480	2.4122	1.2499	9.33E-02
253	0.00	0.000	0.330	0.0469	2.0634	1.0692	9.23E-02

254	0.00	0.000	0.328	0.0458	1.7618	0.9129	9.15E-02
255	0.00	0.000	0.325	0.0447	1.5010	0.7778	9.07E-02
256	0.00	0.000	0.322	0.0436	1.2755	0.6609	9.01E-02
257	0.00	0.000	0.320	0.0426	1.0805	0.5599	8.95E-02
258	0.00	0.000	0.317	0.0415	0.9119	0.4725	8.90E-02
259	0.00	0.000	0.315	0.0405	0.7661	0.3970	8.86E-02
260	0.00	0.000	0.312	0.0394	0.6400	0.3316	8.82E-02
261	0.00	0.000	0.310	0.0384	0.5310	0.2751	8.79E-02
262	0.00	0.000	0.308	0.0374	0.4367	0.2263	8.77E-02
263	0.00	0.000	0.306	0.0363	0.3552	0.1841	8.74E-02
264	0.00	0.000	0.304	0.0353	0.2847	0.1475	8.72E-02
265	0.00	0.000	0.301	0.0343	0.2238	0.1159	8.70E-02
266	0.00	0.000	0.299	0.0333	0.1711	0.0886	8.69E-02
267	0.00	0.000	0.297	0.0323	0.1255	0.0650	8.68E-02
268	0.00	0.000	0.295	0.0314	0.0861	0.0446	8.66E-02
269	0.00	0.000	0.293	0.0304	0.0520	0.0269	8.65E-02
270	0.00	0.000	0.291	0.0294	0.0225	0.0117	8.65E-02
271	0.00	0.000	0.289	0.0284	0.0015	0.0008	2.12E-02
272	14.00	0.000	0.357	0.0739	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.286	0.0601	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.284	0.0559	0.2521	0.1306	6.55E-02
275	0.00	0.000	0.282	0.0550	1.0707	0.5548	8.95E-02
276	0.00	0.000	0.281	0.0540	1.0285	0.5329	8.94E-02
277	0.00	0.000	0.279	0.0531	0.8669	0.4492	8.89E-02
278	0.00	0.000	0.277	0.0522	0.7272	0.3768	8.85E-02
279	0.00	0.000	0.276	0.0513	0.6064	0.3142	8.81E-02
280	0.00	0.000	0.274	0.0503	0.5019	0.2601	8.78E-02
281	0.00	0.000	0.272	0.0494	0.4116	0.2133	8.76E-02
282	0.00	0.000	0.271	0.0485	0.3334	0.1728	8.74E-02

283	0.00	0.000	0.269	0.0476	0.2659	0.1378	8.72E-02
284	0.00	0.000	0.268	0.0467	0.2075	0.1075	8.70E-02
285	0.00	0.000	0.266	0.0459	0.1570	0.0813	8.69E-02
286	0.00	0.000	0.265	0.0450	0.1133	0.0587	8.67E-02
287	0.00	0.000	0.264	0.0435	0.1097	0.0569	8.67E-02
288	0.00	0.000	0.262	0.0426	0.0830	0.0430	8.66E-02
289	0.00	0.000	0.261	0.0418	0.0494	0.0256	8.65E-02
290	0.00	0.000	0.259	0.0409	0.0203	0.0105	8.65E-02
291	0.00	0.000	0.258	0.0400	0.0010	0.0003	1.41E-02
292	0.00	0.000	0.257	0.0392	0.0000	0.0000	0.00E+00
293	5.00	0.000	0.336	0.0547	0.0000	0.0000	0.00E+00
294	40.00	0.000	0.335	0.1037	0.0000	0.0000	0.00E+00
295	2.00	0.000	6.845	0.0460	0.0182	0.0094	2.17E-02
296	0.00	0.000	6.685	0.0238	0.9701	0.5027	8.92E-02
297	0.00	0.000	1.389	0.0191	2.6764	1.3868	9.41E-02
298	0.00	0.000	0.028	0.0190	4.0645	2.1061	9.81E-02
299	0.00	0.000	0.007	0.0190	5.1453	2.6661	1.01E-01
300	12.70	0.000	3.510	0.0496	5.9744	3.0957	1.04E-01
301	20.00	0.000	6.569	0.0848	6.5942	3.4168	1.05E-01
302	0.00	0.000	6.980	0.0364	6.1280	3.1753	1.04E-01
303	0.00	0.000	5.219	0.0190	5.5480	2.8747	1.02E-01
304	0.00	0.000	0.000	0.0190	6.0180	3.1183	1.04E-01
305	0.00	0.000	0.000	0.0190	6.3083	3.2687	1.05E-01
306	2.00	0.000	0.778	0.0231	5.4977	2.8487	1.02E-01
307	0.00	0.000	0.677	0.0208	4.7315	2.4517	1.00E-01
308	0.00	0.000	0.476	0.0192	4.0689	2.1084	9.81E-02
309	0.00	0.000	0.052	0.0191	3.4960	1.8115	9.65E-02
310	0.00	0.000	0.013	0.0190	3.0006	1.5548	9.50E-02
311	0.00	0.000	0.003	0.0190	2.5722	1.3328	9.38E-02

312	0.00	0.000	0.001	0.0190	2.2018	1.1409	9.27E-02
313	0.00	0.000	0.000	0.0190	1.8815	0.9749	9.18E-02
314	0.00	0.000	0.000	0.0190	1.6045	0.8314	9.10E-02
315	0.00	0.000	0.000	0.0190	1.3650	0.7073	9.03E-02
316	0.00	0.000	0.000	0.0190	1.1579	0.6000	8.97E-02
317	0.00	0.000	0.000	0.0190	0.9788	0.5072	8.92E-02
318	0.00	0.000	0.000	0.0190	0.8240	0.4269	8.88E-02
319	0.00	0.000	0.000	0.0190	0.6901	0.3576	8.84E-02
320	2.00	0.000	0.356	0.0245	0.5743	0.2976	8.81E-02
321	0.00	0.000	0.262	0.0236	0.4741	0.2457	8.78E-02
322	0.00	0.000	0.409	0.0222	0.3876	0.2008	8.75E-02
323	0.00	0.000	0.398	0.0209	0.3127	0.1620	8.73E-02
324	0.00	0.000	0.312	0.0199	0.2480	0.1285	8.71E-02
325	21.00	0.000	0.550	0.0880	0.1920	0.0995	8.70E-02
326	41.00	0.000	0.637	0.0877	0.1436	0.0744	8.68E-02
327	18.00	0.000	6.167	0.0804	0.1980	0.1026	8.70E-02
328	0.00	0.000	6.330	0.0471	0.6643	0.3442	8.83E-02
329	0.00	0.000	5.584	0.0255	1.6284	0.8438	9.11E-02
330	0.00	0.000	1.911	0.0191	3.5065	1.8169	9.65E-02
331	5.00	0.000	2.561	0.0273	5.1288	2.6576	1.01E-01
332	53.00	0.000	5.694	0.1007	6.3796	3.3057	1.05E-01
333	1.00	0.000	5.785	0.0400	6.6173	3.4288	1.05E-01
334	3.00	0.000	4.882	0.0337	6.4348	3.3342	1.05E-01
335	33.00	0.000	5.549	0.0897	7.9135	4.1005	1.09E-01
336	0.00	0.000	5.521	0.0425	8.4866	4.3974	1.11E-01
337	0.00	0.000	5.631	0.0237	8.1245	4.2098	1.10E-01
338	0.00	0.000	1.401	0.0191	9.1782	4.7558	1.13E-01
339	14.00	0.000	4.353	0.0512	10.2066	5.2886	1.16E-01
340	0.00	0.000	5.125	0.0341	10.9070	5.6515	1.18E-01

341	0.00	0.000	4.248	0.0200	11.3505	5.8813	1.19E-01
342	0.00	0.000	0.222	0.0190	11.5869	6.0039	1.20E-01
343	0.00	0.000	0.000	0.0190	11.6645	6.0441	1.20E-01
344	0.00	0.000	0.000	0.0190	11.6356	6.0291	1.20E-01
345	0.00	0.000	0.000	0.0190	11.5303	5.9746	1.20E-01
346	15.00	0.000	1.185	0.0651	10.7180	5.5536	1.17E-01
347	0.00	0.000	5.725	0.0460	9.2455	4.7907	1.13E-01
348	0.00	0.000	1.366	0.0414	7.9723	4.1309	1.09E-01
349	0.00	0.000	1.203	0.0374	6.8713	3.5604	1.06E-01
350	0.00	0.000	1.088	0.0338	5.9192	3.0671	1.03E-01
351	8.00	0.000	1.098	0.0568	5.0960	2.6405	1.01E-01
352	55.00	0.000	1.030	0.1044	4.5356	2.3502	9.95E-02
353	2.00	0.000	5.108	0.0442	4.0460	2.0965	9.81E-02
354	0.00	0.000	4.522	0.0288	4.1784	2.1651	9.84E-02
355	0.00	0.000	2.918	0.0191	5.5636	2.8828	1.02E-01
356	0.00	0.000	0.020	0.0190	6.8851	3.5676	1.06E-01
357	0.00	0.000	0.005	0.0190	7.8670	4.0764	1.09E-01
358	0.00	0.000	0.001	0.0190	8.5763	4.4439	1.11E-01
359	44.00	0.000	3.990	0.0854	9.0671	4.6982	1.13E-01
360	2.00	0.000	3.987	0.0294	9.0143	4.6709	1.12E-01
361	0.00	0.000	2.606	0.0201	8.5651	4.4381	1.11E-01
362	0.00	0.000	0.237	0.0193	9.3447	4.8421	1.13E-01
363	0.00	0.000	0.067	0.0190	9.9705	5.1663	1.15E-01
364	0.00	0.000	0.009	0.0190	10.3800	5.3785	1.16E-01
365	0.00	0.000	0.002	0.0190	10.6135	5.4995	1.17E-01

* = Frozen (air or soil)

Annual Totals for Year 27			
	mm*	cubic meters	percent
Precipitation	1,571.70	15,717.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	385.197	3,852.0	24.51
Drainage Collected from Layer 2	1,159.5416	11,595.4	73.78
Percolation/Leakage through Layer 3	35.073225	350.7	2.23
Average Head on Top of Layer 3	6.1715 (cm)	---	---
Change in Water Storage	-8.1120	-81.1	-0.52
Soil Water at Start of Year	908.5673	9,085.7	57.81
Soil Water at End of Year	900.4554	9,004.6	57.29
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 28

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			12.00	0.000	3.171	0.0484		10.7090	5.5490	1.17E-01
2			10.00	0.000	4.057	0.0644		10.7083	5.5486	1.17E-01
3			0.00	0.000	5.131	0.0458		10.0430	5.2039	1.15E-01
4			0.00	0.000	6.520	0.0241		8.7941	4.5568	1.12E-01
5			0.00	0.000	1.522	0.0190		7.5820	3.9287	1.08E-01
6	*Note: head c		46.00	0.000	4.427	0.0870		6.5338	3.3855	1.05E-01
7			0.00	0.000	5.726	0.0378		5.7570	2.9830	1.03E-01
8			0.00	0.000	5.101	0.0207		5.7994	3.0050	1.03E-01
9			4.00	0.000	3.229	0.0229		6.6143	3.4273	1.05E-01
10			0.00	0.000	0.941	0.0197		7.3400	3.8033	1.08E-01
11			0.00	0.000	0.171	0.0192		7.8841	4.0852	1.09E-01
12			0.00	0.000	0.042	0.0190		8.2873	4.2941	1.10E-01
13			62.00	0.000	4.132	0.1038		7.7797	4.0311	1.09E-01
14			35.00	0.000	2.583	0.0851		6.8300	3.5390	1.06E-01
15			155.00	0.000	4.390	0.1280		5.8835	3.0486	1.03E-01
16			72.00	0.000	4.252	0.0974		5.0651	2.6245	1.01E-01
17			5.00	0.000	3.614	0.0610		5.6621	2.9339	1.03E-01
18			31.00	0.000	4.144	0.0936		15.6342	8.1010	1.31E-01
19			0.00	0.000	5.171	0.0378		22.0500	11.4254	1.50E-01
20			0.00	0.000	5.654	0.0190		27.3423	14.1677	1.65E-01
21			0.00	0.000	0.000	0.0190		48.1475	15.5761	2.25E-01

22	0.00	0.000	0.000	0.0190	94.9011	16.2170	3.60E-01
23	0.00	0.000	0.000	0.0190	194.4537	17.7417	6.46E-01
24	0.00	0.000	0.000	0.0190	89.6701	16.0255	3.45E-01
25	0.00	0.000	0.000	0.0190	59.2326	15.5953	2.57E-01
26	0.00	0.000	0.000	0.0190	56.5020	15.5905	2.49E-01
27	31.00	0.000	1.296	0.0952	52.1737	15.5831	2.37E-01
28	3.00	0.000	4.833	0.0379	43.3557	15.5678	2.11E-01
29	24.00	0.000	6.275	0.0947	31.9227	15.4124	1.78E-01
30	0.00	0.000	5.884	0.0455	28.4768	14.7555	1.68E-01
31	10.00	0.000	5.831	0.0594	26.1019	13.5249	1.62E-01
32	35.00	0.000	5.085	0.1012	25.3320	13.1260	1.59E-01
33	18.00	0.000	6.851	0.0768	23.0991	11.9690	1.53E-01
34	4.00	0.000	6.464	0.0548	20.9461	10.8534	1.47E-01
35	102.00	0.000	6.174	0.1198	19.9005	10.3116	1.44E-01
36	71.00	0.000	4.958	0.1001	18.4322	9.5508	1.39E-01
37	70.00	0.000	6.300	0.0991	16.1000	8.3423	1.33E-01
38	0.00	0.000	5.886	0.0492	15.4951	8.0289	1.31E-01
39	4.00	0.000	6.126	0.0421	25.6178	13.2741	1.60E-01
40	0.00	0.000	5.756	0.0229	103.6481	16.5601	3.85E-01
41	0.00	0.000	1.105	0.0192	243.6403	19.1117	7.88E-01
42	0.00	0.000	0.051	0.0190	222.9481	18.5332	7.28E-01
43	0.00	0.000	0.010	0.0190	202.9129	17.9899	6.71E-01
44	0.00	0.000	0.003	0.0190	123.2578	16.5516	4.41E-01
45	0.00	0.000	0.000	0.0190	60.0143	15.5966	2.59E-01
46	0.00	0.000	0.000	0.0190	58.1277	15.5934	2.54E-01
47	10.00	0.000	0.960	0.0491	54.4637	15.5870	2.43E-01
48	17.00	0.000	1.139	0.0903	49.3922	15.5783	2.29E-01
49	3.00	0.000	3.709	0.0551	39.5424	15.5613	2.00E-01
50	23.00	0.000	6.254	0.0953	28.6498	14.8452	1.69E-01

51	4.00	0.000	5.256	0.0549	26.6835	13.8263	1.63E-01
52	0.00	0.000	4.878	0.0373	23.6536	12.2563	1.55E-01
53	0.00	0.000	3.866	0.0244	22.8472	11.8385	1.52E-01
54	0.00	0.000	1.581	0.0191	22.3406	11.5760	1.51E-01
55	1.50	0.000	0.584	0.0222	21.6660	11.2264	1.49E-01
56	1.00	0.000	1.277	0.0213	20.8823	10.8204	1.47E-01
57	0.00	0.000	0.589	0.0193	20.0333	10.3805	1.44E-01
58	0.00	0.000	0.065	0.0191	19.1512	9.9233	1.42E-01
59	0.00	0.000	0.016	0.0190	18.2592	9.4612	1.39E-01
60	0.00	0.000	0.004	0.0190	17.3745	9.0028	1.36E-01
61	0.00	0.000	0.001	0.0190	16.5090	8.5543	1.34E-01
62	0.00	0.000	0.000	0.0190	15.4472	8.0041	1.31E-01
63	33.00	0.000	1.033	0.0897	13.4283	6.9580	1.25E-01
64	3.00	0.000	4.020	0.0407	11.7593	6.0932	1.20E-01
65	2.00	0.000	4.502	0.0291	10.3870	5.3821	1.16E-01
66	7.00	0.000	4.015	0.0390	10.1299	5.2489	1.16E-01
67	53.00	0.000	6.161	0.1111	10.3859	5.3815	1.16E-01
68	0.00	0.000	6.046	0.0382	9.8707	5.1146	1.15E-01
69	7.00	0.000	6.774	0.0376	9.6205	4.9850	1.14E-01
70	2.00	0.000	6.064	0.0241	10.3010	5.3376	1.16E-01
71	0.00	0.000	1.125	0.0203	10.8913	5.6434	1.18E-01
72	0.00	0.000	0.308	0.0193	11.2550	5.8319	1.19E-01
73	0.00	0.000	0.063	0.0191	11.4393	5.9274	1.19E-01
74	0.00	0.000	0.020	0.0190	11.4842	5.9507	1.19E-01
75	0.00	0.000	0.001	0.0190	11.4219	5.9183	1.19E-01
76	0.00	0.000	0.000	0.0190	11.1122	5.7579	1.18E-01
77	0.00	0.000	0.000	0.0190	9.7119	5.0323	1.14E-01
78	0.00	0.000	0.000	0.0190	8.3755	4.3399	1.11E-01
79	0.00	0.000	0.000	0.0190	7.2200	3.7411	1.07E-01

80	7.00	0.000	0.458	0.0408	6.2208	3.2233	1.04E-01
81	2.00	0.000	0.806	0.0448	5.3567	2.7756	1.02E-01
82	2.00	0.000	0.849	0.0486	4.6096	2.3885	9.97E-02
83	0.00	0.000	0.806	0.0459	3.9635	2.0537	9.78E-02
84	0.00	0.000	0.773	0.0434	3.4049	1.7643	9.62E-02
85	0.00	0.000	0.728	0.0409	2.9218	1.5140	9.48E-02
86	0.00	0.000	0.702	0.0386	2.5041	1.2975	9.36E-02
87	0.00	0.000	0.694	0.0363	2.1429	1.1103	9.26E-02
88	0.00	0.000	0.669	0.0341	1.8305	0.9485	9.17E-02
89	0.00	0.000	0.647	0.0319	1.5604	0.8086	9.09E-02
90	0.00	0.000	0.627	0.0298	1.3269	0.6875	9.02E-02
91	0.00	0.000	0.609	0.0278	1.1250	0.5829	8.96E-02
92	0.00	0.000	0.593	0.0258	0.9503	0.4924	8.91E-02
93	61.00	0.000	0.623	0.1117	0.9202	0.4768	8.90E-02
94	2.00	0.000	6.531	0.0330	0.9467	0.4906	8.91E-02
95	62.00	0.000	6.929	0.1108	1.4462	0.7494	9.06E-02
96	0.00	0.000	6.111	0.0380	2.2392	1.1603	9.28E-02
97	8.00	0.000	7.157	0.0408	3.4156	1.7698	9.62E-02
98	0.00	0.000	5.475	0.0226	6.1105	3.1662	1.04E-01
99	0.00	0.000	0.803	0.0199	8.1131	4.2039	1.10E-01
100	0.00	0.000	0.202	0.0192	9.5676	4.9575	1.14E-01
101	0.00	0.000	0.050	0.0190	10.5936	5.4892	1.17E-01
102	0.00	0.000	0.013	0.0190	11.2847	5.8472	1.19E-01
103	0.00	0.000	0.000	0.0190	11.7141	6.0698	1.20E-01
104	0.00	0.000	0.000	0.0190	11.9400	6.1868	1.21E-01
105	0.00	0.000	0.000	0.0190	12.0084	6.2223	1.21E-01
106	0.00	0.000	0.000	0.0190	11.9559	6.1950	1.21E-01
107	11.00	0.000	0.776	0.0531	11.8115	6.1202	1.20E-01
108	10.00	0.000	0.958	0.0682	11.2895	5.8498	1.19E-01

109	0.00	0.000	5.584	0.0451	10.0308	5.1976	1.15E-01
110	0.00	0.000	0.931	0.0420	9.3844	4.8626	1.13E-01
111	0.00	0.000	0.874	0.0391	8.5907	4.4514	1.11E-01
112	0.00	0.000	0.827	0.0363	7.4060	3.8375	1.08E-01
113	0.00	0.000	0.787	0.0337	6.3817	3.3067	1.05E-01
114	0.00	0.000	0.752	0.0312	5.4959	2.8477	1.02E-01
115	0.00	0.000	0.721	0.0288	4.7299	2.4508	1.00E-01
116	0.00	0.000	0.694	0.0265	4.0676	2.1076	9.81E-02
117	0.00	0.000	0.669	0.0243	3.4948	1.8109	9.65E-02
118	0.00	0.000	0.647	0.0221	2.9996	1.5543	9.50E-02
119	0.00	0.000	0.627	0.0200	2.5713	1.3324	9.38E-02
120	1.00	0.000	0.403	0.0220	2.2010	1.1405	9.27E-02
121	0.00	0.000	0.248	0.0212	1.8808	0.9746	9.18E-02
122	0.00	0.000	0.371	0.0199	1.6039	0.8311	9.10E-02
123	0.00	0.000	0.217	0.0192	1.3645	0.7070	9.03E-02
124	0.00	0.000	0.049	0.0191	1.1575	0.5998	8.97E-02
125	0.00	0.000	0.012	0.0190	0.9784	0.5070	8.92E-02
126	0.00	0.000	0.003	0.0190	0.8236	0.4268	8.88E-02
127	0.00	0.000	0.001	0.0190	0.6898	0.3574	8.84E-02
128	0.00	0.000	0.000	0.0190	0.5740	0.2974	8.81E-02
129	0.00	0.000	0.000	0.0190	0.4739	0.2456	8.78E-02
130	0.00	0.000	0.000	0.0190	0.3874	0.2007	8.75E-02
131	0.00	0.000	0.000	0.0190	0.3125	0.1619	8.73E-02
132	0.00	0.000	0.000	0.0190	0.2478	0.1284	8.71E-02
133	0.00	0.000	0.000	0.0190	0.1919	0.0994	8.70E-02
134	0.00	0.000	0.000	0.0190	0.1435	0.0743	8.68E-02
135	0.00	0.000	0.000	0.0190	0.1016	0.0527	8.67E-02
136	0.00	0.000	0.000	0.0190	0.0654	0.0339	8.66E-02
137	0.00	0.000	0.000	0.0190	0.0342	0.0177	8.65E-02

138	0.00	0.000	0.000	0.0190	0.0077	0.0038	5.69E-02
139	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
140	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
141	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
142	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
147	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
148	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
149	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
150	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
151	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
152	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
153	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
156	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
157	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
159	1.00	0.000	0.078	0.0221	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.141	0.0216	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.190	0.0210	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.222	0.0202	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.220	0.0195	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.082	0.0192	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.051	0.0191	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.013	0.0190	0.0000	0.0000	0.00E+00

167	0.00	0.000	0.003	0.0190	0.0000	0.0000	0.00E+00
168	2.00	0.000	0.183	0.0251	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.131	0.0246	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.208	0.0239	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.207	0.0232	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.205	0.0226	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.204	0.0219	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.203	0.0212	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.196	0.0205	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.217	0.0198	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.211	0.0191	0.0000	0.0000	0.00E+00
178	0.00	0.000	0.028	0.0190	0.0000	0.0000	0.00E+00
179	0.00	0.000	0.007	0.0190	0.0000	0.0000	0.00E+00
180	0.00	0.000	0.001	0.0190	0.0000	0.0000	0.00E+00
181	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
182	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
183	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
184	6.00	0.000	0.172	0.0384	0.0000	0.0000	0.00E+00
185	45.00	0.000	0.334	0.1091	0.0449	0.0233	2.17E-02
186	4.00	0.000	5.783	0.0463	0.1556	0.0806	8.68E-02
187	0.00	0.000	5.225	0.0284	1.1127	0.5765	8.96E-02
188	0.00	0.000	2.746	0.0192	2.7668	1.4337	9.44E-02
189	0.00	0.000	0.063	0.0190	4.1879	2.1700	9.85E-02
190	0.00	0.000	0.008	0.0190	5.2943	2.7433	1.02E-01
191	0.00	0.000	0.003	0.0190	6.1406	3.1818	1.04E-01
192	0.00	0.000	0.000	0.0190	6.7745	3.5103	1.06E-01
193	0.00	0.000	0.000	0.0190	6.8059	3.5265	1.06E-01
194	0.00	0.000	0.000	0.0190	5.8627	3.0378	1.03E-01
195	0.00	0.000	0.000	0.0190	5.0471	2.6152	1.01E-01

196	0.00	0.000	0.000	0.0190	4.3418	2.2498	9.89E-02
197	1.00	0.000	0.138	0.0219	3.7320	1.9338	9.71E-02
198	0.00	0.000	0.389	0.0206	3.2047	1.6605	9.56E-02
199	0.00	0.000	0.383	0.0193	2.7487	1.4243	9.43E-02
200	0.00	0.000	0.067	0.0191	2.3544	1.2199	9.32E-02
201	0.00	0.000	0.017	0.0190	2.0134	1.0433	9.22E-02
202	0.00	0.000	0.004	0.0190	1.7186	0.8905	9.13E-02
203	0.00	0.000	0.001	0.0190	1.4637	0.7584	9.06E-02
204	0.00	0.000	0.000	0.0190	1.2432	0.6442	9.00E-02
205	4.00	0.000	0.334	0.0312	1.0526	0.5454	8.94E-02
206	0.00	0.000	0.435	0.0298	0.8877	0.4600	8.90E-02
207	10.00	0.000	0.571	0.0612	0.7452	0.3861	8.85E-02
208	0.00	0.000	0.590	0.0570	0.7064	0.3660	8.84E-02
209	0.00	0.000	0.593	0.0550	0.6795	0.3521	8.84E-02
210	0.00	0.000	0.577	0.0531	0.5652	0.2928	8.80E-02
211	0.00	0.000	0.563	0.0512	0.4663	0.2416	8.77E-02
212	0.00	0.000	0.550	0.0494	0.3807	0.1973	8.75E-02
213	0.00	0.000	0.537	0.0476	0.3068	0.1590	8.73E-02
214	1.00	0.000	0.583	0.0490	0.2429	0.1258	8.71E-02
215	7.00	0.000	0.572	0.0635	0.1876	0.0972	8.69E-02
216	0.00	0.000	0.505	0.0591	0.2899	0.1502	8.72E-02
217	0.00	0.000	0.495	0.0566	0.8566	0.4439	8.89E-02
218	0.00	0.000	0.486	0.0550	0.7566	0.3920	8.86E-02
219	0.00	0.000	0.477	0.0534	0.6318	0.3274	8.82E-02
220	0.00	0.000	0.469	0.0518	0.5239	0.2715	8.79E-02
221	0.00	0.000	0.461	0.0503	0.4306	0.2231	8.76E-02
222	0.00	0.000	0.454	0.0488	0.3499	0.1813	8.74E-02
223	0.00	0.000	0.447	0.0473	0.2801	0.1452	8.72E-02
224	0.00	0.000	0.440	0.0458	0.2198	0.1139	8.70E-02

225	0.00	0.000	0.434	0.0444	0.1676	0.0869	8.69E-02
226	0.00	0.000	0.428	0.0429	0.1225	0.0635	8.68E-02
227	0.00	0.000	0.422	0.0415	0.0835	0.0433	8.66E-02
228	0.00	0.000	0.416	0.0401	0.0498	0.0258	8.65E-02
229	0.00	0.000	0.411	0.0388	0.0206	0.0107	8.65E-02
230	0.00	0.000	0.405	0.0374	0.0011	0.0004	1.52E-02
231	0.00	0.000	0.400	0.0361	0.0000	0.0000	0.00E+00
232	0.00	0.000	0.396	0.0341	0.0333	0.0173	6.49E-02
233	0.00	0.000	0.391	0.0328	0.0194	0.0100	8.65E-02
234	0.00	0.000	0.386	0.0315	0.0008	0.0002	1.13E-02
235	0.00	0.000	0.382	0.0303	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.378	0.0290	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.374	0.0278	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.370	0.0265	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.366	0.0253	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.362	0.0241	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.359	0.0225	0.0219	0.0113	6.49E-02
242	0.00	0.000	0.355	0.0213	0.0068	0.0033	5.30E-02
243	0.00	0.000	0.352	0.0201	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.330	0.0190	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
251	10.00	0.000	0.291	0.0514	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.296	0.0504	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.322	0.0492	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.320	0.0480	0.0015	0.0007	4.19E-02
255	0.00	0.000	0.317	0.0466	0.0106	0.0055	8.64E-02
256	0.00	0.000	0.315	0.0455	0.0056	0.0028	4.76E-02
257	0.00	0.000	0.312	0.0445	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.310	0.0434	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.308	0.0424	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.306	0.0414	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.304	0.0404	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.301	0.0394	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.299	0.0384	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.297	0.0374	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.295	0.0364	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.293	0.0354	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.291	0.0345	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.289	0.0335	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.288	0.0325	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.286	0.0316	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.284	0.0306	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.282	0.0297	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.281	0.0288	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.279	0.0278	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.277	0.0269	0.0000	0.0000	0.00E+00
276	9.00	0.000	0.359	0.0557	0.0000	0.0000	0.00E+00
277	15.00	0.000	0.358	0.0856	0.0000	0.0000	0.00E+00
278	0.00	0.000	6.334	0.0471	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.272	0.0437	0.4385	0.2272	8.77E-02
280	9.00	0.000	0.357	0.0719	1.5189	0.7870	9.08E-02
281	0.00	0.000	5.735	0.0528	2.5699	1.3316	9.38E-02
282	0.00	0.000	6.238	0.0320	2.3804	1.2334	9.33E-02

283	0.00	0.000	3.898	0.0190	2.0359	1.0549	9.23E-02
284	0.00	0.000	0.000	0.0190	1.7380	0.9006	9.14E-02
285	0.00	0.000	0.000	0.0190	1.4805	0.7671	9.07E-02
286	0.00	0.000	0.000	0.0190	1.2577	0.6517	9.00E-02
287	0.00	0.000	0.000	0.0190	1.0651	0.5519	8.95E-02
288	0.00	0.000	0.000	0.0190	0.8986	0.4656	8.90E-02
289	0.00	0.000	0.000	0.0190	0.7546	0.3910	8.86E-02
290	0.00	0.000	0.000	0.0190	0.6301	0.3265	8.82E-02
291	0.00	0.000	0.000	0.0190	0.5224	0.2707	8.79E-02
292	0.00	0.000	0.000	0.0190	0.4293	0.2224	8.76E-02
293	0.00	0.000	0.000	0.0190	0.3488	0.1807	8.74E-02
294	0.00	0.000	0.000	0.0190	0.2792	0.1447	8.72E-02
295	0.00	0.000	0.000	0.0190	0.2190	0.1135	8.70E-02
296	0.00	0.000	0.000	0.0190	0.1669	0.0865	8.69E-02
297	0.00	0.000	0.000	0.0190	0.1219	0.0632	8.67E-02
298	0.00	0.000	0.000	0.0190	0.0830	0.0430	8.66E-02
299	0.00	0.000	0.000	0.0190	0.0493	0.0255	8.65E-02
300	0.00	0.000	0.000	0.0190	0.0202	0.0105	8.65E-02
301	0.00	0.000	0.000	0.0190	0.0010	0.0003	1.39E-02
302	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

312	4.00	0.000	0.285	0.0314	0.0000	0.0000	0.00E+00
313	4.00	0.000	0.399	0.0434	0.0000	0.0000	0.00E+00
314	2.00	0.000	0.503	0.0484	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.433	0.0469	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.433	0.0455	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.420	0.0441	0.0000	0.0000	0.00E+00
318	0.00	0.000	0.428	0.0427	0.0000	0.0000	0.00E+00
319	0.00	0.000	0.422	0.0413	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.369	0.0400	0.0000	0.0000	0.00E+00
321	0.00	0.000	0.411	0.0386	0.0008	0.0002	1.16E-02
322	0.00	0.000	0.405	0.0372	0.0011	0.0004	1.55E-02
323	0.00	0.000	0.400	0.0358	0.0013	0.0006	1.90E-02
324	0.00	0.000	0.396	0.0345	0.0000	0.0000	0.00E+00
325	0.00	0.000	0.391	0.0332	0.0000	0.0000	0.00E+00
326	0.00	0.000	0.386	0.0319	0.0000	0.0000	0.00E+00
327	0.00	0.000	0.382	0.0306	0.0000	0.0000	0.00E+00
328	1.00	0.000	0.476	0.0324	0.0000	0.0000	0.00E+00
329	6.00	0.000	0.472	0.0508	0.0000	0.0000	0.00E+00
330	1.50	0.000	0.469	0.0542	0.0000	0.0000	0.00E+00
331	1.30	0.000	0.466	0.0570	0.0000	0.0000	0.00E+00
332	2.20	0.000	0.462	0.0628	0.0000	0.0000	0.00E+00
333	3.00	0.000	0.459	0.0622	0.0214	0.0111	4.33E-02
334	0.00	0.000	0.355	0.0580	0.4356	0.2257	8.77E-02
335	0.00	0.000	0.352	0.0544	0.9123	0.4727	8.90E-02
336	0.00	0.000	0.348	0.0517	0.9253	0.4794	8.91E-02
337	0.00	0.000	0.345	0.0497	0.8846	0.4584	8.89E-02
338	0.00	0.000	0.342	0.0483	0.7940	0.4114	8.87E-02
339	0.00	0.000	0.339	0.0471	0.6710	0.3477	8.83E-02
340	0.00	0.000	0.336	0.0460	0.5578	0.2890	8.80E-02

341	0.00	0.000	0.333	0.0449	0.4599	0.2383	8.77E-02
342	0.00	0.000	0.330	0.0438	0.3752	0.1944	8.75E-02
343	0.00	0.000	0.328	0.0427	0.3020	0.1565	8.73E-02
344	0.00	0.000	0.325	0.0416	0.2387	0.1237	8.71E-02
345	0.00	0.000	0.322	0.0406	0.1840	0.0953	8.69E-02
346	5.00	0.000	0.427	0.0558	0.1367	0.0708	8.68E-02
347	4.00	0.000	0.425	0.0625	0.1157	0.0599	8.67E-02
348	6.00	0.000	0.423	0.0630	0.3972	0.2058	8.75E-02
349	7.00	0.000	0.421	0.0641	0.6827	0.3537	8.84E-02
350	7.50	0.000	0.419	0.0596	0.9064	0.4697	8.90E-02
351	17.00	0.000	4.727	0.0791	0.9028	0.4678	8.90E-02
352	0.00	0.000	4.530	0.0466	1.0589	0.5487	8.94E-02
353	0.00	0.000	6.206	0.0259	1.2056	0.6247	8.99E-02
354	0.00	0.000	2.080	0.0190	2.5776	1.3356	9.38E-02
355	0.00	0.000	0.000	0.0190	3.8713	2.0060	9.75E-02
356	5.00	0.000	2.242	0.0282	4.8843	2.5309	1.00E-01
357	65.00	0.000	2.222	0.1155	5.6865	2.9465	1.03E-01
358	2.00	0.000	6.245	0.0452	5.4683	2.8335	1.02E-01
359	5.00	0.000	5.642	0.0411	5.9913	3.1045	1.04E-01
360	21.00	0.000	6.075	0.0908	7.2183	3.7402	1.07E-01
361	2.00	0.000	6.459	0.0407	8.2245	4.2616	1.10E-01
362	0.00	0.000	6.368	0.0195	7.8355	4.0601	1.09E-01
363	0.00	0.000	0.100	0.0191	8.4715	4.3896	1.11E-01
364	0.00	0.000	0.031	0.0190	9.2254	4.7802	1.13E-01
365	3.00	0.000	2.147	0.0219	9.7400	5.0469	1.14E-01

* = Frozen (air or soil)

Annual Totals for Year 28			
	mm*	cubic meters	percent
Precipitation	1,435.00	14,350.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	420.235	4,202.4	29.28
Drainage Collected from Layer 2	985.8138	9,858.1	68.70
Percolation/Leakage through Layer 3	30.064911	300.6	2.10
Average Head on Top of Layer 3	8.5591 (cm)	---	---
Change in Water Storage	-1.1139	-11.1	-0.08
Soil Water at Start of Year	900.4554	9,004.6	62.75
Soil Water at End of Year	899.3415	8,993.4	62.67
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 29

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1			71.00	0.000	6.410	0.1152		10.2709	5.3220	1.16E-01
2			0.00	0.000	6.051	0.0392		9.7408	5.0473	1.14E-01
3			0.00	0.000	6.068	0.0190		9.5870	4.9676	1.14E-01
4			0.00	0.000	0.000	0.0190		10.4865	5.4337	1.17E-01
5			0.00	0.000	0.000	0.0190		11.1617	5.7835	1.19E-01
6	*Note: head c		0.00	0.000	0.000	0.0190		11.5816	6.0011	1.20E-01
7			0.00	0.000	0.000	0.0190		11.8027	6.1157	1.20E-01
8			0.00	0.000	0.000	0.0190		11.8698	6.1504	1.21E-01
9			29.00	0.000	1.547	0.0992		11.8184	6.1238	1.20E-01
10			36.00	0.000	5.499	0.1000		11.4711	5.9439	1.19E-01
11			25.00	0.000	4.515	0.0942		10.0362	5.2003	1.15E-01
12			3.00	0.000	3.776	0.0532		9.0629	4.6960	1.12E-01
13			3.00	0.000	6.501	0.0415		8.6998	4.5079	1.11E-01
14			11.00	0.000	4.871	0.0603		9.8365	5.0969	1.15E-01
15			49.20	0.000	4.646	0.1007		10.7783	5.5849	1.17E-01
16			6.80	0.000	5.630	0.0639		10.1629	5.2660	1.16E-01
17			18.00	0.000	6.300	0.0830		10.4180	5.3982	1.16E-01
18			3.00	0.000	4.990	0.0508		11.0290	5.7148	1.18E-01
19			43.00	0.000	5.914	0.1035		10.8710	5.6329	1.18E-01
20			12.00	0.000	5.837	0.0625		10.5073	5.4444	1.17E-01
21			2.00	0.000	6.346	0.0459		10.7453	5.5678	1.17E-01

22	0.00	0.000	7.016	0.0225	12.7096	6.5856	1.23E-01
23	0.00	0.000	0.790	0.0191	14.4962	7.5113	1.28E-01
24	0.00	0.000	0.031	0.0190	15.6540	8.1113	1.31E-01
25	0.00	0.000	0.008	0.0190	16.3493	8.4716	1.33E-01
26	58.00	0.000	6.091	0.0974	16.6822	8.6441	1.34E-01
27	0.00	0.000	6.507	0.0317	15.9140	8.2460	1.32E-01
28	0.00	0.000	3.653	0.0191	14.7025	7.6183	1.29E-01
29	0.00	0.000	0.033	0.0190	15.7351	8.1533	1.32E-01
30	0.00	0.000	0.000	0.0190	16.4092	8.5026	1.34E-01
31	27.00	0.000	4.059	0.0955	16.7206	8.6639	1.35E-01
32	16.00	0.000	5.417	0.0791	16.7095	8.6582	1.35E-01
33	1.00	0.000	5.554	0.0433	15.1724	7.8617	1.30E-01
34	0.00	0.000	6.804	0.0207	13.7903	7.1456	1.26E-01
35	0.00	0.000	0.476	0.0191	14.2482	7.3828	1.27E-01
36	0.00	0.000	0.017	0.0190	14.5865	7.5581	1.28E-01
37	0.00	0.000	0.004	0.0190	14.6908	7.6122	1.29E-01
38	5.00	0.000	3.022	0.0256	14.6193	7.5751	1.29E-01
39	16.00	0.000	4.238	0.0648	14.4172	7.4704	1.28E-01
40	0.00	0.000	5.981	0.0406	14.1295	7.3213	1.27E-01
41	0.00	0.000	6.488	0.0190	13.5640	7.0283	1.25E-01
42	0.00	0.000	0.000	0.0190	13.0832	6.7792	1.24E-01
43	0.00	0.000	0.000	0.0190	12.5226	6.4887	1.22E-01
44	0.00	0.000	0.000	0.0190	10.9138	5.6551	1.18E-01
45	0.00	0.000	0.000	0.0190	9.4149	4.8784	1.14E-01
46	5.00	0.000	0.551	0.0338	8.1187	4.2068	1.10E-01
47	11.00	0.000	0.779	0.0679	6.9979	3.6260	1.07E-01
48	44.00	0.000	1.049	0.0988	6.0506	3.1352	1.04E-01
49	16.00	0.000	5.004	0.0769	5.2396	2.7150	1.01E-01
50	29.00	0.000	6.395	0.0970	4.9837	2.5824	1.01E-01

51	8.00	0.000	6.473	0.0641	4.3952	2.2774	9.91E-02
52	0.00	0.000	4.667	0.0474	4.6635	2.4164	9.98E-02
53	28.00	0.000	4.341	0.0855	6.6130	3.4266	1.05E-01
54	44.00	0.000	2.931	0.0885	7.4437	3.8570	1.08E-01
55	50.30	0.000	3.048	0.0908	6.4393	3.3366	1.05E-01
56	15.70	0.000	5.584	0.0721	5.7641	2.9867	1.03E-01
57	0.00	0.000	6.659	0.0416	7.1604	3.7102	1.07E-01
58	31.00	0.000	5.728	0.0839	11.4943	5.9559	1.20E-01
59	35.00	0.000	5.019	0.0896	13.7535	7.1265	1.26E-01
60	13.00	0.000	6.358	0.0658	13.1395	6.8083	1.24E-01
61	0.00	0.000	5.535	0.0458	14.6730	7.6030	1.29E-01
62	0.00	0.000	6.873	0.0229	18.4281	9.5487	1.39E-01
63	1.00	0.000	1.510	0.0202	21.0142	10.8887	1.47E-01
64	3.00	0.000	2.539	0.0217	22.5238	11.6709	1.51E-01
65	0.00	0.000	0.403	0.0204	23.2718	12.0585	1.53E-01
66	2.50	0.000	1.954	0.0222	23.4595	12.1557	1.54E-01
67	12.00	0.000	3.510	0.0505	23.2536	12.0491	1.53E-01
68	4.00	0.000	4.537	0.0487	22.7746	11.8009	1.52E-01
69	10.00	0.000	5.168	0.0648	22.1103	11.4567	1.50E-01
70	4.00	0.000	5.477	0.0566	21.2773	11.0250	1.48E-01
71	0.00	0.000	4.646	0.0399	20.2745	10.5054	1.45E-01
72	0.00	0.000	5.822	0.0204	19.3278	10.0149	1.42E-01
73	4.00	0.000	2.496	0.0254	18.4776	9.5744	1.40E-01
74	0.00	0.000	1.056	0.0219	17.6356	9.1380	1.37E-01
75	0.00	0.000	0.574	0.0200	16.7999	8.7050	1.35E-01
76	0.00	0.000	0.228	0.0193	15.9954	8.2882	1.32E-01
77	3.00	0.000	0.604	0.0272	14.5925	7.5612	1.28E-01
78	0.00	0.000	0.469	0.0257	12.5958	6.5266	1.23E-01
79	0.00	0.000	0.677	0.0234	10.8693	5.6320	1.18E-01

80	0.00	0.000	0.547	0.0216	9.3764	4.8585	1.13E-01
81	0.00	0.000	0.612	0.0196	8.0854	4.1895	1.10E-01
82	0.00	0.000	0.138	0.0191	6.9691	3.6111	1.06E-01
83	1.00	0.000	0.134	0.0220	6.0038	3.1109	1.04E-01
84	4.00	0.000	0.367	0.0341	5.1692	2.6784	1.01E-01
85	72.00	0.000	0.767	0.1146	4.5087	2.3362	9.94E-02
86	2.00	0.000	5.684	0.0466	3.9340	2.0384	9.77E-02
87	6.00	0.000	6.035	0.0465	4.5283	2.3464	9.94E-02
88	6.50	0.000	5.420	0.0492	6.2280	3.2271	1.04E-01
89	7.50	0.000	4.978	0.0577	7.5548	3.9146	1.08E-01
90	0.00	0.000	5.927	0.0371	8.5741	4.4427	1.11E-01
91	0.00	0.000	5.179	0.0198	9.2481	4.7920	1.13E-01
92	16.00	0.000	4.473	0.0583	9.7509	5.0525	1.14E-01
93	0.00	0.000	5.552	0.0398	10.0690	5.2173	1.15E-01
94	0.00	0.000	6.229	0.0190	10.2377	5.3048	1.16E-01
95	0.00	0.000	0.000	0.0190	10.2992	5.3366	1.16E-01
96	13.00	0.000	4.475	0.0474	9.4010	4.8712	1.13E-01
97	0.00	0.000	4.495	0.0324	8.1067	4.2006	1.10E-01
98	0.00	0.000	3.563	0.0206	6.9875	3.6207	1.07E-01
99	0.00	0.000	0.396	0.0192	6.0198	3.1192	1.04E-01
100	0.00	0.000	0.071	0.0190	5.1829	2.6856	1.01E-01
101	0.00	0.000	0.000	0.0190	4.4593	2.3106	9.92E-02
102	0.00	0.000	0.000	0.0190	3.8336	1.9864	9.74E-02
103	0.00	0.000	0.000	0.0190	3.2925	1.7060	9.59E-02
104	0.00	0.000	0.000	0.0190	2.8246	1.4636	9.45E-02
105	0.00	0.000	0.000	0.0190	2.4201	1.2540	9.34E-02
106	0.00	0.000	0.000	0.0190	2.0702	1.0727	9.24E-02
107	2.00	0.000	0.437	0.0242	1.7677	0.9160	9.15E-02
108	0.00	0.000	0.366	0.0230	1.5061	0.7804	9.07E-02

109	0.00	0.000	0.556	0.0211	1.2799	0.6632	9.01E-02
110	0.00	0.000	0.428	0.0197	1.0843	0.5619	8.95E-02
111	0.00	0.000	0.184	0.0191	0.9152	0.4742	8.90E-02
112	3.00	0.000	0.373	0.0279	0.7689	0.3984	8.86E-02
113	0.00	0.000	0.296	0.0269	0.6425	0.3329	8.82E-02
114	0.00	0.000	0.452	0.0254	0.5331	0.2762	8.79E-02
115	0.00	0.000	0.435	0.0239	0.4386	0.2272	8.77E-02
116	0.00	0.000	0.422	0.0225	0.3568	0.1849	8.74E-02
117	0.00	0.000	0.463	0.0210	0.2861	0.1482	8.72E-02
118	4.00	0.000	0.552	0.0325	0.2250	0.1166	8.70E-02
119	3.00	0.000	0.577	0.0405	0.1721	0.0892	8.69E-02
120	1.00	0.000	0.565	0.0420	0.1264	0.0655	8.68E-02
121	0.00	0.000	0.509	0.0403	0.0868	0.0450	8.66E-02
122	0.00	0.000	0.490	0.0387	0.0527	0.0273	8.66E-02
123	3.00	0.000	0.562	0.0468	0.0231	0.0120	8.65E-02
124	0.00	0.000	0.498	0.0451	0.0017	0.0009	2.31E-02
125	0.00	0.000	0.503	0.0434	0.0000	0.0000	0.00E+00
126	0.00	0.000	0.479	0.0418	0.0000	0.0000	0.00E+00
127	0.00	0.000	0.470	0.0403	0.0000	0.0000	0.00E+00
128	0.00	0.000	0.474	0.0387	0.0002	0.0000	3.01E-03
129	3.00	0.000	0.525	0.0469	0.0000	0.0000	0.00E+00
130	0.00	0.000	0.461	0.0454	0.0000	0.0000	0.00E+00
131	0.00	0.000	0.454	0.0439	0.0002	0.0000	2.81E-03
132	4.00	0.000	0.504	0.0555	0.0000	0.0000	0.00E+00
133	0.00	0.000	0.440	0.0541	0.0000	0.0000	0.00E+00
134	0.00	0.000	0.434	0.0517	0.0247	0.0128	6.49E-02
135	0.00	0.000	0.428	0.0495	0.0637	0.0330	8.66E-02
136	0.00	0.000	0.422	0.0477	0.0895	0.0464	8.67E-02
137	0.00	0.000	0.416	0.0463	0.0701	0.0363	8.66E-02

138	0.00	0.000	0.411	0.0449	0.0382	0.0198	8.65E-02
139	0.00	0.000	0.405	0.0436	0.0106	0.0054	6.88E-02
140	0.00	0.000	0.400	0.0422	0.0000	0.0000	0.00E+00
141	0.00	0.000	0.396	0.0409	0.0000	0.0000	0.00E+00
142	0.00	0.000	0.391	0.0396	0.0000	0.0000	0.00E+00
143	0.00	0.000	0.386	0.0383	0.0000	0.0000	0.00E+00
144	0.00	0.000	0.382	0.0370	0.0000	0.0000	0.00E+00
145	0.00	0.000	0.378	0.0358	0.0000	0.0000	0.00E+00
146	0.00	0.000	0.374	0.0345	0.0000	0.0000	0.00E+00
147	0.00	0.000	0.370	0.0333	0.0000	0.0000	0.00E+00
148	0.00	0.000	0.366	0.0321	0.0000	0.0000	0.00E+00
149	0.00	0.000	0.362	0.0309	0.0000	0.0000	0.00E+00
150	0.00	0.000	0.359	0.0297	0.0000	0.0000	0.00E+00
151	3.00	0.000	0.416	0.0383	0.0000	0.0000	0.00E+00
152	2.00	0.000	0.413	0.0436	0.0000	0.0000	0.00E+00
153	0.00	0.000	0.348	0.0424	0.0000	0.0000	0.00E+00
154	0.00	0.000	0.345	0.0413	0.0000	0.0000	0.00E+00
155	0.00	0.000	0.342	0.0400	0.0023	0.0012	2.16E-02
156	0.00	0.000	0.339	0.0389	0.0007	0.0002	1.06E-02
157	0.00	0.000	0.336	0.0378	0.0000	0.0000	0.00E+00
158	0.00	0.000	0.333	0.0367	0.0000	0.0000	0.00E+00
159	0.00	0.000	0.297	0.0357	0.0000	0.0000	0.00E+00
160	0.00	0.000	0.328	0.0346	0.0000	0.0000	0.00E+00
161	0.00	0.000	0.325	0.0335	0.0000	0.0000	0.00E+00
162	0.00	0.000	0.322	0.0324	0.0000	0.0000	0.00E+00
163	0.00	0.000	0.320	0.0314	0.0000	0.0000	0.00E+00
164	0.00	0.000	0.317	0.0303	0.0000	0.0000	0.00E+00
165	0.00	0.000	0.315	0.0293	0.0000	0.0000	0.00E+00
166	0.00	0.000	0.312	0.0282	0.0000	0.0000	0.00E+00

167	0.00	0.000	0.310	0.0272	0.0000	0.0000	0.00E+00
168	0.00	0.000	0.249	0.0263	0.0000	0.0000	0.00E+00
169	0.00	0.000	0.306	0.0253	0.0000	0.0000	0.00E+00
170	0.00	0.000	0.304	0.0243	0.0000	0.0000	0.00E+00
171	0.00	0.000	0.301	0.0233	0.0000	0.0000	0.00E+00
172	0.00	0.000	0.299	0.0223	0.0000	0.0000	0.00E+00
173	0.00	0.000	0.297	0.0213	0.0000	0.0000	0.00E+00
174	0.00	0.000	0.295	0.0203	0.0000	0.0000	0.00E+00
175	0.00	0.000	0.293	0.0194	0.0000	0.0000	0.00E+00
176	0.00	0.000	0.108	0.0190	0.0000	0.0000	0.00E+00
177	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
178	12.00	0.000	0.262	0.0581	0.0000	0.0000	0.00E+00
179	4.00	0.000	0.330	0.0578	0.0161	0.0083	2.16E-02
180	5.00	0.000	0.353	0.0595	0.2561	0.1327	8.71E-02
181	11.00	0.000	0.352	0.0684	0.6766	0.3506	8.83E-02
182	0.00	0.000	5.298	0.0440	0.6497	0.3366	8.83E-02
183	1.00	0.000	5.589	0.0287	1.3338	0.6911	9.02E-02
184	0.00	0.000	2.756	0.0195	2.6089	1.3518	9.39E-02
185	0.00	0.000	0.107	0.0191	3.5612	1.8453	9.67E-02
186	0.00	0.000	0.027	0.0190	3.2716	1.6952	9.58E-02
187	0.00	0.000	0.007	0.0190	2.8066	1.4543	9.45E-02
188	0.00	0.000	0.002	0.0190	2.4045	1.2459	9.33E-02
189	0.00	0.000	0.001	0.0190	2.0567	1.0657	9.23E-02
190	0.00	0.000	0.000	0.0190	1.7560	0.9099	9.15E-02
191	0.00	0.000	0.000	0.0190	1.4960	0.7752	9.07E-02
192	0.00	0.000	0.000	0.0190	1.2712	0.6587	9.01E-02
193	0.00	0.000	0.000	0.0190	1.0768	0.5579	8.95E-02
194	0.00	0.000	0.000	0.0190	0.9087	0.4708	8.90E-02
195	0.00	0.000	0.000	0.0190	0.7633	0.3955	8.86E-02

196	0.00	0.000	0.000	0.0190	0.6376	0.3304	8.82E-02
197	0.00	0.000	0.000	0.0190	0.5289	0.2741	8.79E-02
198	0.00	0.000	0.000	0.0190	0.4349	0.2254	8.77E-02
199	0.00	0.000	0.000	0.0190	0.3536	0.1832	8.74E-02
200	0.00	0.000	0.000	0.0190	0.2834	0.1468	8.72E-02
201	0.00	0.000	0.000	0.0190	0.2226	0.1153	8.70E-02
202	0.00	0.000	0.000	0.0190	0.1701	0.0881	8.69E-02
203	0.00	0.000	0.000	0.0190	0.1246	0.0646	8.68E-02
204	0.00	0.000	0.000	0.0190	0.0853	0.0442	8.66E-02
205	0.00	0.000	0.000	0.0190	0.0513	0.0266	8.65E-02
206	0.00	0.000	0.000	0.0190	0.0220	0.0114	8.65E-02
207	0.00	0.000	0.000	0.0190	0.0014	0.0006	1.95E-02
208	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
209	2.00	0.000	0.282	0.0247	0.0000	0.0000	0.00E+00
210	0.00	0.000	0.207	0.0240	0.0000	0.0000	0.00E+00
211	0.00	0.000	0.327	0.0229	0.0000	0.0000	0.00E+00
212	0.00	0.000	0.321	0.0219	0.0000	0.0000	0.00E+00
213	0.00	0.000	0.315	0.0208	0.0000	0.0000	0.00E+00
214	0.00	0.000	0.252	0.0200	0.0000	0.0000	0.00E+00
215	0.00	0.000	0.243	0.0192	0.0000	0.0000	0.00E+00
216	0.00	0.000	0.044	0.0190	0.0000	0.0000	0.00E+00
217	0.00	0.000	0.008	0.0190	0.0000	0.0000	0.00E+00
218	0.00	0.000	0.003	0.0190	0.0000	0.0000	0.00E+00
219	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
220	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
221	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
222	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
223	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
224	6.00	0.000	0.240	0.0382	0.0000	0.0000	0.00E+00

225	70.00	0.000	0.468	0.1133	0.0867	0.0449	4.34E-02
226	3.00	0.000	5.819	0.0543	0.1400	0.0725	8.68E-02
227	0.00	0.000	5.495	0.0346	1.3492	0.6991	9.03E-02
228	0.00	0.000	4.654	0.0191	3.4721	1.7991	9.64E-02
229	0.00	0.000	0.019	0.0190	5.1730	2.6804	1.01E-01
230	0.00	0.000	0.005	0.0190	6.4692	3.3521	1.05E-01
231	0.00	0.000	0.001	0.0190	7.4393	3.8547	1.08E-01
232	0.00	0.000	0.000	0.0190	8.1469	4.2214	1.10E-01
233	0.00	0.000	0.000	0.0190	8.6436	4.4788	1.11E-01
234	0.00	0.000	0.000	0.0190	8.9711	4.6485	1.12E-01
235	0.00	0.000	0.000	0.0190	9.0305	4.6792	1.12E-01
236	0.00	0.000	0.000	0.0190	7.9600	4.1246	1.09E-01
237	0.00	0.000	0.000	0.0190	6.8607	3.5549	1.06E-01
238	0.00	0.000	0.000	0.0190	5.9101	3.0624	1.03E-01
239	0.00	0.000	0.000	0.0190	5.0881	2.6364	1.01E-01
240	0.00	0.000	0.000	0.0190	4.3773	2.2681	9.90E-02
241	0.00	0.000	0.000	0.0190	3.7627	1.9497	9.72E-02
242	0.00	0.000	0.000	0.0190	3.2312	1.6743	9.57E-02
243	0.00	0.000	0.000	0.0190	2.7716	1.4361	9.44E-02
244	0.00	0.000	0.000	0.0190	2.3742	1.2302	9.32E-02
245	0.00	0.000	0.000	0.0190	2.0306	1.0522	9.22E-02
246	0.00	0.000	0.000	0.0190	1.7334	0.8982	9.14E-02
247	0.00	0.000	0.000	0.0190	1.4765	0.7650	9.07E-02
248	0.00	0.000	0.000	0.0190	1.2543	0.6499	9.00E-02
249	0.00	0.000	0.000	0.0190	1.0622	0.5504	8.95E-02
250	0.00	0.000	0.000	0.0190	0.8960	0.4643	8.90E-02
251	0.00	0.000	0.000	0.0190	0.7524	0.3898	8.86E-02
252	0.00	0.000	0.000	0.0190	0.6282	0.3255	8.82E-02
253	0.00	0.000	0.000	0.0190	0.5207	0.2698	8.79E-02

254	0.00	0.000	0.000	0.0190	0.4279	0.2217	8.76E-02
255	0.00	0.000	0.000	0.0190	0.3475	0.1801	8.74E-02
256	0.00	0.000	0.000	0.0190	0.2781	0.1441	8.72E-02
257	0.00	0.000	0.000	0.0190	0.2180	0.1130	8.70E-02
258	0.00	0.000	0.000	0.0190	0.1661	0.0861	8.69E-02
259	0.00	0.000	0.000	0.0190	0.1212	0.0628	8.67E-02
260	0.00	0.000	0.000	0.0190	0.0824	0.0427	8.66E-02
261	0.00	0.000	0.000	0.0190	0.0488	0.0253	8.65E-02
262	0.00	0.000	0.000	0.0190	0.0198	0.0102	8.65E-02
263	0.00	0.000	0.000	0.0190	0.0009	0.0003	1.25E-02
264	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
288	7.00	0.000	0.216	0.0416	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.276	0.0407	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.304	0.0397	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.320	0.0386	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.317	0.0376	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.315	0.0365	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.312	0.0355	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.310	0.0344	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.308	0.0334	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.305	0.0324	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.303	0.0314	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.310	0.0303	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.308	0.0293	0.0000	0.0000	4.17E-04
301	0.00	0.000	0.306	0.0283	0.0000	0.0000	0.00E+00
302	0.00	0.000	0.304	0.0273	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.301	0.0263	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.299	0.0253	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.297	0.0243	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.295	0.0233	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.293	0.0223	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.291	0.0214	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.289	0.0204	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.288	0.0194	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.099	0.0190	0.0030	0.0013	3.18E-02

312	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
314	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
317	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
318	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
319	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
321	1.00	0.000	0.112	0.0220	0.0000	0.0000	0.00E+00
322	0.00	0.000	0.112	0.0216	0.0000	0.0000	0.00E+00
323	1.00	0.000	0.238	0.0241	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.130	0.0237	0.0000	0.0000	0.00E+00
325	0.00	0.000	0.181	0.0231	0.0000	0.0000	0.00E+00
326	4.00	0.000	0.268	0.0355	0.0000	0.0000	0.00E+00
327	14.00	0.000	0.306	0.0812	0.0000	0.0000	7.25E-05
328	5.00	0.000	0.351	0.0674	0.0009	0.0003	1.23E-02
329	1.00	0.000	0.350	0.0607	0.1216	0.0630	6.51E-02
330	0.00	0.000	0.257	0.0577	0.8470	0.4389	8.88E-02
331	0.00	0.000	0.255	0.0550	1.9524	1.0117	9.20E-02
332	0.00	0.000	0.254	0.0525	2.7853	1.4432	9.44E-02
333	0.00	0.000	0.253	0.0509	2.5699	1.3316	9.38E-02
334	0.80	0.000	0.346	0.0522	2.2348	1.1580	9.28E-02
335	48.00	0.000	0.345	0.1055	1.9456	1.0081	9.20E-02
336	4.00	0.000	5.657	0.0545	1.6706	0.8656	9.12E-02
337	2.00	0.000	5.518	0.0418	2.5728	1.3331	9.38E-02
338	18.00	0.000	4.429	0.0870	4.1763	2.1640	9.84E-02
339	49.50	0.000	4.335	0.0904	5.4377	2.8176	1.02E-01
340	67.00	0.000	5.275	0.0985	5.1006	2.6429	1.01E-01

341	4.00	0.000	5.936	0.0561	4.4926	2.3279	9.93E-02
342	2.00	0.000	6.226	0.0404	5.8042	3.0075	1.03E-01
343	0.00	0.000	6.050	0.0202	9.4328	4.8877	1.14E-01
344	0.00	0.000	0.264	0.0193	12.1551	6.2983	1.21E-01
345	0.00	0.000	0.069	0.0191	14.0061	7.2574	1.27E-01
346	0.00	0.000	0.017	0.0190	15.2078	7.8801	1.30E-01
347	0.00	0.000	0.005	0.0190	15.9231	8.2507	1.32E-01
348	114.00	0.000	2.210	0.1252	16.2888	8.4402	1.33E-01
349	9.00	0.000	6.545	0.0611	14.9781	7.7610	1.30E-01
350	0.00	0.000	5.415	0.0411	16.1088	8.3469	1.33E-01
351	0.00	0.000	6.616	0.0190	18.7360	9.7082	1.40E-01
352	0.00	0.000	0.000	0.0190	20.4135	10.5775	1.45E-01
353	27.00	0.000	5.702	0.0900	21.3169	11.0455	1.48E-01
354	0.00	0.000	4.820	0.0465	21.6116	11.1982	1.49E-01
355	48.00	0.000	3.099	0.1062	20.3681	10.5539	1.45E-01
356	248.00	0.000	4.162	0.1632	18.7108	9.6952	1.40E-01
357	40.00	0.000	5.827	0.0881	17.4416	9.0375	1.37E-01
358	0.00	0.000	5.128	0.0465	119.9722	16.8907	4.32E-01
359	0.00	0.000	6.863	0.0236	356.6695	22.5182	1.11E+00
360	0.00	0.000	1.376	0.0190	332.1563	21.7163	1.04E+00
361	0.00	0.000	0.000	0.0190	308.5100	21.0046	9.75E-01
362	0.00	0.000	0.000	0.0190	285.6701	20.3269	9.09E-01
363	0.00	0.000	0.000	0.0190	263.5986	19.6829	8.46E-01
364	0.00	0.000	0.000	0.0190	242.2578	19.0726	7.84E-01
365	0.00	0.000	0.000	0.0190	221.6100	18.4964	7.25E-01

* = Frozen (air or soil)

Annual Totals for Year 29			
	mm*	cubic meters	percent
Precipitation	1,792.80	17,928.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	508.184	5,081.8	28.35
Drainage Collected from Layer 2	1,021.9517	10,219.5	57.00
Percolation/Leakage through Layer 3	30.941283	309.4	1.73
Average Head on Top of Layer 3	10.3959 (cm)	---	---
Change in Water Storage	231.7228	2,317.2	12.93
Soil Water at Start of Year	899.3415	8,993.4	50.16
Soil Water at End of Year	1,131.0642	11,310.6	63.09
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Daily Output for Year 30

Title: Bluewater
Simulated On: 26/05/2026 10:06

Column key: Head #1: drainage from Layer 3
 Drain #1: drainage from Layer 2
 Leak #1: leakage thru Layer 3

Day	Freezing Status*		Rain (mm)	Runoff (mm)	ET (mm)	Evap. Zone		Head #1 (cm)	Drain #1 (mm)	Leak #1 (mm)
	Air	Soil				Water (cm/cm)				
1				0.00	0.000	0.000	0.0190	201.6167	17.9555	6.67E-01
2				1.50	0.000	0.201	0.0233	122.6039	16.5360	4.39E-01
3				0.00	0.000	0.455	0.0218	59.8687	15.5964	2.59E-01
4				0.00	0.000	0.596	0.0198	57.8429	15.5929	2.53E-01
5				0.00	0.000	0.202	0.0192	54.0698	15.5863	2.42E-01
6	*Note: head c			0.00	0.000	0.038	0.0190	48.9110	15.5774	2.27E-01
7				7.00	0.000	0.422	0.0410	42.6315	15.5666	2.09E-01
8				0.00	0.000	0.649	0.0388	34.7528	15.5324	1.86E-01
9				0.00	0.000	0.685	0.0365	28.6369	14.8385	1.69E-01
10				0.00	0.000	0.698	0.0342	26.7477	13.8596	1.63E-01
11				5.00	0.000	0.745	0.0484	24.9641	12.9354	1.58E-01
12				0.00	0.000	0.661	0.0462	23.2917	12.0688	1.53E-01
13				8.00	0.000	0.720	0.0700	21.7315	11.2604	1.49E-01
14				0.00	0.000	4.694	0.0459	20.2494	10.4924	1.45E-01
15				0.00	0.000	0.627	0.0438	18.5736	9.6241	1.40E-01
16				0.00	0.000	0.609	0.0417	17.0215	8.8198	1.35E-01
17				0.00	0.000	0.593	0.0398	14.7146	7.6245	1.29E-01
18				0.00	0.000	0.577	0.0378	12.7014	6.5814	1.23E-01
19				0.00	0.000	0.563	0.0360	10.9606	5.6794	1.18E-01
20				0.00	0.000	0.550	0.0341	9.4553	4.8994	1.14E-01
21				0.40	0.000	0.600	0.0335	8.1537	4.2249	1.10E-01

22	3.00	0.000	0.587	0.0415	7.0282	3.6417	1.07E-01
23	0.00	0.000	0.515	0.0398	6.0549	3.1374	1.04E-01
24	0.00	0.000	0.505	0.0381	5.2133	2.7013	1.01E-01
25	0.00	0.000	0.495	0.0365	4.4856	2.3242	9.93E-02
26	0.00	0.000	0.486	0.0341	3.8726	2.0066	9.76E-02
27	2.00	0.000	0.532	0.0390	3.3648	1.7435	9.61E-02
28	68.00	0.000	0.523	0.1105	2.9753	1.5417	9.50E-02
29	18.00	0.000	5.147	0.0857	2.6771	1.3872	9.41E-02
30	20.00	0.000	4.807	0.0948	2.8545	1.4791	9.46E-02
31	12.00	0.000	2.858	0.0760	2.6001	1.3473	9.39E-02
32	340.00	0.000	2.522	0.1680	2.2402	1.1608	9.29E-02
33	380.00	0.000	2.577	0.1680	3.1133	1.6132	9.54E-02
34	246.00	0.000	3.310	0.1632	641.0785	33.3104	1.93E+00
35	44.00	0.000	3.489	0.0881	968.5364	44.0487	2.88E+00
36	9.00	0.000	5.141	0.0634	956.3045	43.5885	2.84E+00
37	71.00	0.000	4.872	0.1076	928.3238	42.5418	2.76E+00
38	78.50	0.000	4.747	0.1035	943.8537	43.1220	2.80E+00
39	102.00	0.000	4.226	0.1680	990.4320	44.8749	2.94E+00
40	60.50	0.000	4.656	0.1680	1,029.9995	46.3726	3.05E+00
41	60.00	0.000	4.420	0.1680	1,029.9995	46.3726	3.05E+00
42	88.00	0.000	3.487	0.1680	1,029.9995	46.3726	3.05E+00
43	18.00	0.000	6.392	0.1680	1,029.9995	46.3726	3.05E+00
44	0.00	0.000	7.269	0.0750	1,017.1228	45.8836	3.02E+00
45	0.00	0.000	5.672	0.0470	973.4755	44.2341	2.89E+00
46	18.00	0.000	6.998	0.0763	925.3451	42.4312	2.75E+00
47	0.00	0.000	6.996	0.0426	881.2103	40.7930	2.62E+00
48	0.00	0.000	7.081	0.0190	839.0728	39.2431	2.50E+00
49	0.00	0.000	0.000	0.0190	795.8085	37.6658	2.38E+00
50	1.00	0.000	0.619	0.0203	754.3025	36.1664	2.26E+00

51	0.00	0.000	0.308	0.0192	714.5093	34.5924	2.14E+00
52	0.00	0.000	0.055	0.0191	676.4540	33.2122	2.03E+00
53	0.50	0.000	0.228	0.0200	639.8981	31.9478	1.93E+00
54	28.00	0.000	1.514	0.1007	604.7588	30.7426	1.83E+00
55	0.00	0.000	3.656	0.0379	578.7070	29.8554	1.75E+00
56	2.50	0.000	5.940	0.0264	555.4194	29.0677	1.69E+00
57	20.00	0.000	6.891	0.0698	524.3975	28.0259	1.60E+00
58	0.00	0.000	6.108	0.0417	493.7468	27.0052	1.51E+00
59	1.00	0.000	6.884	0.0221	466.5451	26.1073	1.43E+00
60	0.00	0.000	0.714	0.0192	438.0833	25.1762	1.35E+00
61	0.00	0.000	0.056	0.0191	410.5844	24.2855	1.27E+00
62	0.00	0.000	0.014	0.0190	384.0545	23.4353	1.19E+00
63	0.00	0.000	0.003	0.0190	358.4897	22.5748	1.12E+00
64	0.00	0.000	0.001	0.0190	333.9130	21.7695	1.05E+00
65	0.00	0.000	0.000	0.0190	310.2064	21.0553	9.80E-01
66	0.00	0.000	0.000	0.0190	287.3090	20.3752	9.14E-01
67	0.00	0.000	0.000	0.0190	265.1828	19.7287	8.50E-01
68	0.00	0.000	0.000	0.0190	243.7900	19.1159	7.89E-01
69	0.00	0.000	0.000	0.0190	223.0929	18.5372	7.29E-01
70	50.00	0.000	0.912	0.0955	169.1697	17.4434	5.74E-01
71	4.00	0.000	5.297	0.0401	49.7229	15.5788	2.30E-01
72	0.00	0.000	4.484	0.0251	49.4889	15.5784	2.29E-01
73	49.00	0.000	5.265	0.0953	56.1026	15.5899	2.48E-01
74	11.00	0.000	5.049	0.0674	46.8289	15.5738	2.21E-01
75	6.00	0.000	3.914	0.0576	44.3623	15.5696	2.14E-01
76	10.00	0.000	4.265	0.0649	46.9757	15.5741	2.22E-01
77	71.00	0.000	3.625	0.1069	45.1635	15.5710	2.16E-01
78	275.00	0.000	3.933	0.1680	31.6276	15.2815	1.77E-01
79	90.00	0.000	4.445	0.1018	161.9350	17.9577	5.53E-01

80	21.00	0.000	5.662	0.0876	555.0357	29.0546	1.68E+00
81	0.00	0.000	5.291	0.0492	542.6468	28.6375	1.65E+00
82	2.00	0.000	5.265	0.0383	516.8657	27.7742	1.57E+00
83	116.00	0.000	4.912	0.1270	381.3373	24.0757	1.18E+00
84	60.00	0.000	3.456	0.0952	563.9453	29.3563	1.71E+00
85	25.00	0.000	3.994	0.0898	585.9302	30.1007	1.77E+00
86	22.00	0.000	4.533	0.0950	575.9101	29.7605	1.74E+00
87	42.00	0.000	5.420	0.0950	565.2355	29.3990	1.71E+00
88	5.00	0.000	5.108	0.0616	565.4211	29.4053	1.71E+00
89	3.00	0.000	6.233	0.0491	541.7928	28.6090	1.65E+00
90	2.00	0.000	5.496	0.0361	511.4662	27.5941	1.56E+00
91	5.00	0.000	6.275	0.0311	481.3845	26.5962	1.47E+00
92	12.00	0.000	4.471	0.0562	452.4957	25.6466	1.39E+00
93	6.00	0.000	6.928	0.0531	424.4330	24.7329	1.31E+00
94	40.00	0.000	6.605	0.1049	397.9462	23.8792	1.23E+00
95	7.00	0.000	6.685	0.0590	396.8963	23.8453	1.23E+00
96	63.00	0.000	6.270	0.1046	300.6990	21.4246	9.52E-01
97	0.00	0.000	6.479	0.0477	403.1648	24.0465	1.25E+00
98	0.00	0.000	6.477	0.0261	384.6443	23.4541	1.19E+00
99	0.00	0.000	2.139	0.0190	359.0583	22.5925	1.12E+00
100	0.00	0.000	0.000	0.0190	334.4618	21.7862	1.05E+00
101	0.00	0.000	0.000	0.0190	310.7363	21.0712	9.81E-01
102	0.00	0.000	0.000	0.0190	287.8210	20.3903	9.15E-01
103	1.00	0.000	0.217	0.0216	265.6776	19.7431	8.52E-01
104	0.00	0.000	0.539	0.0198	244.2686	19.1295	7.90E-01
105	0.00	0.000	0.183	0.0192	223.5561	18.5500	7.30E-01
106	3.00	0.000	0.588	0.0272	203.5019	18.0056	6.72E-01
107	0.00	0.000	0.466	0.0257	153.8876	17.0084	5.30E-01
108	0.00	0.000	0.675	0.0234	59.8069	15.5963	2.59E-01

109	0.00	0.000	0.548	0.0216	57.9483	15.5930	2.53E-01
110	2.00	0.000	0.725	0.0259	54.3063	15.5868	2.43E-01
111	0.00	0.000	0.680	0.0236	49.2527	15.5780	2.28E-01
112	0.00	0.000	0.611	0.0216	43.0591	15.5673	2.10E-01
113	0.00	0.000	0.456	0.0200	35.1553	15.5509	1.88E-01
114	0.00	0.000	0.253	0.0192	28.7658	14.9053	1.69E-01
115	0.00	0.000	0.051	0.0190	26.8723	13.9241	1.64E-01
116	0.00	0.000	0.006	0.0190	25.0835	12.9972	1.59E-01
117	0.00	0.000	0.002	0.0190	23.4052	12.1276	1.54E-01
118	0.00	0.000	0.000	0.0190	21.8386	11.3159	1.49E-01
119	0.00	0.000	0.000	0.0190	20.3819	10.5611	1.45E-01
120	0.00	0.000	0.000	0.0190	18.9037	9.7951	1.41E-01
121	0.00	0.000	0.000	0.0190	16.5053	8.5524	1.34E-01
122	0.00	0.000	0.000	0.0190	14.2499	7.3837	1.27E-01
123	0.00	0.000	0.000	0.0190	12.2996	6.3731	1.22E-01
124	1.00	0.000	0.088	0.0220	10.6131	5.4993	1.17E-01
125	3.00	0.000	0.262	0.0312	9.1549	4.7437	1.13E-01
126	0.00	0.000	0.346	0.0300	7.8939	4.0903	1.09E-01
127	0.00	0.000	0.415	0.0286	6.8035	3.5253	1.06E-01
128	0.00	0.000	0.407	0.0273	5.8606	3.0367	1.03E-01
129	0.00	0.000	0.400	0.0259	5.0453	2.6143	1.01E-01
130	0.00	0.000	0.392	0.0246	4.3403	2.2490	9.89E-02
131	0.00	0.000	0.423	0.0232	3.7307	1.9331	9.71E-02
132	1.00	0.000	0.465	0.0250	3.2035	1.6599	9.56E-02
133	0.00	0.000	0.414	0.0236	2.7477	1.4237	9.43E-02
134	0.50	0.000	0.463	0.0237	2.3535	1.2195	9.32E-02
135	0.00	0.000	0.422	0.0223	2.0127	1.0429	9.22E-02
136	0.00	0.000	0.410	0.0210	1.7180	0.8902	9.13E-02
137	1.00	0.000	0.377	0.0231	1.4632	0.7581	9.06E-02

138	0.00	0.000	0.248	0.0222	1.2428	0.6440	9.00E-02
139	0.00	0.000	0.290	0.0213	1.0522	0.5452	8.94E-02
140	0.00	0.000	0.278	0.0203	0.8874	0.4598	8.90E-02
141	0.00	0.000	0.246	0.0195	0.7449	0.3860	8.85E-02
142	0.00	0.000	0.121	0.0191	0.6217	0.3221	8.82E-02
143	0.00	0.000	0.027	0.0190	0.5152	0.2669	8.79E-02
144	0.00	0.000	0.004	0.0190	0.4230	0.2192	8.76E-02
145	0.00	0.000	0.001	0.0190	0.3434	0.1779	8.74E-02
146	0.00	0.000	0.000	0.0190	0.2745	0.1422	8.72E-02
147	0.00	0.000	0.000	0.0190	0.2149	0.1114	8.70E-02
148	0.00	0.000	0.000	0.0190	0.1634	0.0847	8.69E-02
149	27.00	0.000	0.386	0.1013	0.1189	0.0616	8.67E-02
150	0.00	0.000	4.942	0.0386	0.1555	0.0805	8.68E-02
151	9.00	0.000	0.415	0.0673	0.6966	0.3610	8.84E-02
152	0.00	0.000	4.852	0.0501	1.7127	0.8875	9.13E-02
153	0.00	0.000	4.366	0.0338	2.8346	1.4688	9.46E-02
154	0.00	0.000	4.449	0.0190	3.4833	1.8049	9.64E-02
155	0.00	0.000	0.000	0.0190	3.0740	1.5928	9.53E-02
156	0.00	0.000	0.000	0.0190	2.6357	1.3657	9.40E-02
157	0.00	0.000	0.000	0.0190	2.2567	1.1693	9.29E-02
158	2.00	0.000	0.554	0.0238	1.9289	0.9995	9.20E-02
159	0.00	0.000	0.455	0.0223	1.6455	0.8527	9.11E-02
160	0.00	0.000	0.672	0.0201	1.4005	0.7257	9.04E-02
161	0.00	0.000	0.247	0.0192	1.1886	0.6159	8.98E-02
162	0.00	0.000	0.061	0.0190	1.0053	0.5209	8.93E-02
163	0.00	0.000	0.008	0.0190	0.8469	0.4388	8.88E-02
164	0.00	0.000	0.003	0.0190	0.7099	0.3678	8.84E-02
165	0.00	0.000	0.000	0.0190	0.5914	0.3064	8.81E-02
166	0.00	0.000	0.000	0.0190	0.4890	0.2534	8.78E-02

167	0.00	0.000	0.000	0.0190	0.4004	0.2075	8.76E-02
168	11.00	0.000	0.501	0.0540	0.3238	0.1678	8.73E-02
169	10.00	0.000	0.642	0.0690	0.2851	0.1477	8.72E-02
170	0.00	0.000	0.627	0.0559	0.3545	0.1837	8.74E-02
171	0.00	0.000	0.609	0.0538	0.8127	0.4211	8.87E-02
172	0.00	0.000	0.593	0.0519	1.9118	0.9906	9.19E-02
173	0.00	0.000	0.577	0.0499	1.8339	0.9503	9.17E-02
174	0.00	0.000	0.563	0.0481	1.5634	0.8101	9.09E-02
175	0.00	0.000	0.550	0.0462	1.3294	0.6889	9.02E-02
176	0.00	0.000	0.537	0.0444	1.1271	0.5840	8.96E-02
177	0.00	0.000	0.526	0.0427	0.9522	0.4934	8.91E-02
178	0.00	0.000	0.515	0.0410	0.8010	0.4150	8.87E-02
179	0.00	0.000	0.505	0.0393	0.6702	0.3473	8.83E-02
180	2.00	0.000	0.550	0.0441	0.5571	0.2886	8.80E-02
181	0.00	0.000	0.486	0.0425	0.4593	0.2380	8.77E-02
182	0.00	0.000	0.477	0.0409	0.3747	0.1942	8.75E-02
183	0.00	0.000	0.469	0.0393	0.3016	0.1563	8.73E-02
184	0.00	0.000	0.461	0.0378	0.2383	0.1235	8.71E-02
185	0.00	0.000	0.400	0.0365	0.1837	0.0952	8.69E-02
186	0.00	0.000	0.377	0.0352	0.1364	0.0707	8.68E-02
187	0.00	0.000	0.440	0.0337	0.0955	0.0495	8.67E-02
188	0.00	0.000	0.434	0.0323	0.0601	0.0312	8.66E-02
189	0.00	0.000	0.428	0.0309	0.0296	0.0153	8.65E-02
190	0.00	0.000	0.422	0.0295	0.0046	0.0024	4.31E-02
191	0.00	0.000	0.416	0.0281	0.0000	0.0000	0.00E+00
192	0.00	0.000	0.411	0.0267	0.0000	0.0000	0.00E+00
193	0.00	0.000	0.405	0.0239	0.0840	0.0435	6.50E-02
194	0.00	0.000	0.400	0.0225	0.0789	0.0409	8.66E-02
195	0.00	0.000	0.396	0.0212	0.0458	0.0237	8.65E-02

196	0.00	0.000	0.391	0.0199	0.0172	0.0089	8.64E-02
197	0.00	0.000	0.276	0.0190	0.0003	0.0000	4.22E-03
198	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
199	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
200	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
201	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
202	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
203	2.00	0.000	0.213	0.0250	0.0000	0.0000	0.00E+00
204	25.00	0.000	0.388	0.1005	0.0000	0.0000	2.16E-02
205	16.00	0.000	5.897	0.0759	0.0357	0.0185	8.65E-02
206	0.00	0.000	5.035	0.0497	0.5420	0.2808	8.80E-02
207	0.00	0.000	5.350	0.0318	1.2088	0.6264	8.99E-02
208	1.50	0.000	4.404	0.0221	2.5669	1.3301	9.38E-02
209	0.00	0.000	0.658	0.0199	3.7101	1.9224	9.71E-02
210	0.00	0.000	0.213	0.0192	4.4421	2.3017	9.92E-02
211	0.00	0.000	0.053	0.0191	3.9419	2.0425	9.78E-02
212	0.00	0.000	0.013	0.0190	3.3862	1.7546	9.62E-02
213	0.00	0.000	0.003	0.0190	2.9056	1.5056	9.48E-02
214	0.00	0.000	0.001	0.0190	2.4901	1.2903	9.36E-02
215	0.00	0.000	0.000	0.0190	2.1308	1.1041	9.25E-02
216	0.00	0.000	0.000	0.0190	1.8201	0.9431	9.16E-02
217	0.00	0.000	0.000	0.0190	1.5514	0.8039	9.09E-02
218	0.00	0.000	0.000	0.0190	1.3191	0.6835	9.02E-02
219	0.00	0.000	0.000	0.0190	1.1182	0.5794	8.96E-02
220	0.00	0.000	0.000	0.0190	0.9445	0.4894	8.91E-02
221	0.00	0.000	0.000	0.0190	0.7943	0.4116	8.87E-02
222	0.00	0.000	0.000	0.0190	0.6644	0.3443	8.83E-02
223	0.00	0.000	0.000	0.0190	0.5521	0.2861	8.80E-02
224	0.00	0.000	0.000	0.0190	0.4549	0.2357	8.77E-02

225	0.00	0.000	0.000	0.0190	0.3710	0.1922	8.75E-02
226	0.00	0.000	0.000	0.0190	0.2983	0.1546	8.73E-02
227	0.00	0.000	0.000	0.0190	0.2355	0.1220	8.71E-02
228	0.00	0.000	0.000	0.0190	0.1812	0.0939	8.69E-02
229	0.00	0.000	0.000	0.0190	0.1343	0.0696	8.68E-02
230	0.00	0.000	0.000	0.0190	0.0937	0.0485	8.67E-02
231	0.00	0.000	0.000	0.0190	0.0586	0.0304	8.66E-02
232	0.00	0.000	0.000	0.0190	0.0282	0.0146	8.65E-02
233	0.00	0.000	0.000	0.0190	0.0040	0.0020	3.90E-02
234	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
235	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
236	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
237	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
238	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
239	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
240	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
241	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
242	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
243	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
244	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
245	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
246	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
247	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
248	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
249	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
250	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
251	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
252	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
253	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

254	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
255	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
256	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
257	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
258	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
259	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
260	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
261	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
262	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
263	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
264	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
265	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
266	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
267	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
268	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
269	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
270	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
271	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
272	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
273	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
274	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
275	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
276	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
277	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
278	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
279	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
280	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
281	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
282	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00

283	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
284	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
285	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
286	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
287	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
288	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
289	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
290	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
291	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
292	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
293	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
294	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
295	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
296	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
297	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
298	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
299	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
300	0.00	0.000	0.000	0.0190	0.0000	0.0000	0.00E+00
301	3.00	0.000	0.175	0.0284	0.0000	0.0000	0.00E+00
302	3.80	0.000	0.174	0.0405	0.0000	0.0000	0.00E+00
303	0.00	0.000	0.218	0.0398	0.0000	0.0000	0.00E+00
304	0.00	0.000	0.240	0.0390	0.0000	0.0000	0.00E+00
305	0.00	0.000	0.239	0.0382	0.0000	0.0000	0.00E+00
306	0.00	0.000	0.238	0.0374	0.0000	0.0000	0.00E+00
307	0.00	0.000	0.251	0.0365	0.0000	0.0000	0.00E+00
308	0.00	0.000	0.250	0.0357	0.0000	0.0000	0.00E+00
309	0.00	0.000	0.249	0.0349	0.0000	0.0000	0.00E+00
310	0.00	0.000	0.247	0.0341	0.0000	0.0000	0.00E+00
311	0.00	0.000	0.246	0.0332	0.0000	0.0000	0.00E+00

312	0.00	0.000	0.245	0.0324	0.0000	0.0000	0.00E+00
313	0.00	0.000	0.244	0.0316	0.0000	0.0000	0.00E+00
314	4.00	0.000	0.311	0.0439	0.0000	0.0000	0.00E+00
315	0.00	0.000	0.241	0.0431	0.0000	0.0000	0.00E+00
316	0.00	0.000	0.248	0.0423	0.0000	0.0000	0.00E+00
317	2.00	0.000	0.312	0.0479	0.0000	0.0000	0.00E+00
318	0.00	0.000	0.238	0.0471	0.0000	0.0000	0.00E+00
319	0.00	0.000	0.245	0.0463	0.0000	0.0000	0.00E+00
320	0.00	0.000	0.242	0.0455	0.0000	0.0000	0.00E+00
321	3.00	0.000	0.315	0.0544	0.0000	0.0000	0.00E+00
322	0.00	0.000	0.241	0.0536	0.0000	0.0000	0.00E+00
323	0.00	0.000	0.240	0.0528	0.0000	0.0000	0.00E+00
324	0.00	0.000	0.239	0.0518	0.0034	0.0017	2.16E-02
325	0.00	0.000	0.238	0.0507	0.0240	0.0124	8.65E-02
326	0.00	0.000	0.237	0.0499	0.0050	0.0025	4.47E-02
327	0.00	0.000	0.236	0.0491	0.0000	0.0000	0.00E+00
328	0.00	0.000	0.235	0.0483	0.0000	0.0000	0.00E+00
329	0.00	0.000	0.234	0.0475	0.0000	0.0000	0.00E+00
330	0.00	0.000	0.233	0.0468	0.0000	0.0000	0.00E+00
331	4.00	0.000	0.310	0.0591	0.0000	0.0000	0.00E+00
332	0.00	0.000	0.231	0.0583	0.0000	0.0000	0.00E+00
333	0.00	0.000	0.230	0.0574	0.0055	0.0027	4.71E-02
334	2.00	0.000	0.308	0.0607	0.0000	0.0000	0.00E+00
335	5.00	0.000	0.307	0.0615	0.2074	0.1075	8.70E-02
336	0.40	0.000	0.306	0.0590	0.7319	0.3793	8.85E-02
337	0.00	0.000	0.227	0.0558	1.3601	0.7048	9.03E-02
338	0.00	0.000	0.226	0.0529	1.4229	0.7373	9.05E-02
339	0.00	0.000	0.225	0.0512	1.3480	0.6985	9.03E-02
340	0.00	0.000	0.224	0.0505	1.1789	0.6108	8.98E-02

341	0.00	0.000	0.223	0.0497	0.9970	0.5166	8.93E-02
342	0.00	0.000	0.222	0.0490	0.8396	0.4351	8.88E-02
343	0.00	0.000	0.221	0.0482	0.7036	0.3646	8.84E-02
344	0.00	0.000	0.221	0.0475	0.5860	0.3036	8.81E-02
345	0.00	0.000	0.220	0.0468	0.4843	0.2509	8.78E-02
346	0.00	0.000	0.219	0.0460	0.3963	0.2054	8.75E-02
347	0.00	0.000	0.218	0.0453	0.3203	0.1660	8.73E-02
348	0.00	0.000	0.217	0.0446	0.2545	0.1319	8.71E-02
349	0.00	0.000	0.217	0.0439	0.1976	0.1024	8.70E-02
350	0.00	0.000	0.216	0.0431	0.1485	0.0769	8.68E-02
351	12.00	0.000	0.303	0.0806	0.1060	0.0549	8.67E-02
352	0.00	0.000	0.214	0.0616	0.1885	0.0977	8.69E-02
353	0.00	0.000	0.213	0.0609	0.6184	0.3204	8.82E-02
354	0.00	0.000	0.213	0.0602	1.4224	0.7370	9.05E-02
355	0.00	0.000	0.212	0.0595	1.2431	0.6441	9.00E-02
356	0.00	0.000	0.211	0.0588	1.0525	0.5454	8.94E-02
357	0.00	0.000	0.211	0.0581	0.8877	0.4600	8.90E-02
358	4.00	0.000	0.302	0.0652	0.9328	0.4833	8.91E-02
359	7.50	0.000	0.301	0.0608	1.0068	0.5217	8.93E-02
360	0.00	0.000	0.208	0.0578	0.9495	0.4920	8.91E-02
361	92.00	0.000	0.301	0.1146	1.6106	0.8346	9.10E-02
362	38.00	0.000	4.391	0.0959	1.6551	0.8576	9.12E-02
363	14.50	0.000	3.608	0.0757	1.5046	0.7796	9.07E-02
364	132.00	0.000	3.675	0.1257	1.8247	0.9455	9.17E-02
365	31.00	0.000	3.592	0.0884	1.9757	1.0237	9.21E-02

* = Frozen (air or soil)

Annual Totals for Year 30			
	mm*	cubic meters	percent
Precipitation	3,186.10	31,861.0	100.00
Runoff	0.000	0.0000	0.00
Evapotranspiration	397.644	3,976.4	12.48
Drainage Collected from Layer 2	2,625.7331	26,257.3	82.41
Percolation/Leakage through Layer 3	131.700720	1,317.0	4.13
Average Head on Top of Layer 3	104.3036 (cm)	---	---
Change in Water Storage	31.0221	310.2	0.97
Soil Water at Start of Year	1,131.0642	11,310.6	35.50
Soil Water at End of Year	1,162.0864	11,620.9	36.47
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00
Annual Water Budget Balance	0.0000	0.0000	0.00

*Note: head on liners expressed in cm

Average Annual Totals Summary

Title: Bluewater
Simulated on: 26/05/2026 10:06

	Average Annual Totals for Years 1 - 3		
	(millimeters)**	[std dev]	(cubic meters)
Precipitation	1,469.00	[629.03]	14,690.0
Runoff	0.000	[0]	0.0000
Evapotranspiration	355.417	[111.258]	3,554.2
Subprofile1			
Lateral drainage collected from Layer 2	1,064.0763	[547.9712]	10,640.8
Percolation/leakage through Layer 3	39.427138	[24.616432]	394.3
Average Head on Top of Layer 3	18.8443	[22.9434]	---
Water storage			
Change in water storage	10.0766	[112.0203]	100.8

* Note: Average inches are converted to volume based on the user-specified area.

**Note: head on liners expressed in cm

0*
(percent)
100.00
0.00
24.19
72.44
2.68

0.69

Peak Values Summary

Title: Bluewater
Simulated on: 26/05/2026 10:06

	Peak Values for Years 1 - 30*	
	(millimeters)*	(cubic meters)
Precipitation	453.00	4,530.0
Runoff	0.000	0.0000
Subprofile1		
Drainage collected from Layer 2	46.3726	463.7
Percolation/leakage through Layer 3	3.052749	30.5
Average head on Layer 3	1,029.9995 (cm)	---
Maximum head on Layer 3	1,227.5065 (cm)	---
Location of maximum head in Layer 2	155.60 (meters from drain)	
Other Parameters		
Snow water	0.0000	0.0000
Maximum vegetation soil water	0.1680 (vol/vol)	
Minimum vegetation soil water	0.0190 (vol/vol)	

*Note: head on liners expressed in cm

Final Water Storage in Landfill Profile at End of Simulation Period

Title: Bluewater
Simulated on: 26/05/2026 10:06
Simulation period: 30 years

Layer	Final Water Storage	
	(centimeters)	(vol/vol)
1	100.3306	0.1003
2	3.0681	0.1023
3	12.8100	0.4270
Snow water	0.0000	---

APPENDIX F

WATER BALANCE

Landfill area (m ²) =	10,000
Pond area (m ²) =	3375
Pan evaporation coefficient =	0.7
Sprinkler coefficient of	1.3

	Evaporation (m ³)	Trigger Volume (m ³)	Pond depth (m)
Extra spray - Trigger 1 (m ³) =	700	5080	2.1
Extra spray - Trigger 2 (m ³) =	900	6040	2.4

Max. volume (m ³) =	10,771	Ok > 90th percentile
Normal operating storage volume (m ³) =	5,082	
24hr 25 year storm event (m ³) =	1,230	
Available buffer volume (m ³) =	1,293	
Total volume available before overflow of pond (m ³)	6,375	Ok > 95th percentile

95th %ile =	6,032	95th %ile =	4,526
90th %ile =	4,213	90th %ile =	3,411

Year	Month	HELP Drainage collected from Layer 2 (drainage layer) (mm)	Total discharge from landfill (m ³)	Precipitation (mm)	Precipitation over pond (m ³)	SILO Class A Pan (mm)	Pan evaporation from pond (m ³)	Evaporation via sprinkler over pond (m ³)	Scenario 1 - Total pond volume required (m ³)	Trigger spraying over landfill (m ³)	Scenario 2 - Total pond volume required after additional spray (m ³)
1	Jan	292.2	2922	407.0	1374	211.7	500	650	398.5	0	398.5
1	Feb	85.4	854	47.7	161	197.2	466	606	20.4	0	20.4
1	Mar	19.6	196	43.1	145	199.8	472	614	0.0	0	0.0
1	Apr	1.7	17	22.2	75	165.2	390	507	0.0	0	0.0
1	May	11.4	114	14.5	49	145.1	343	446	0.0	0	0.0
1	Jun	4.7	47	17.5	59	118.6	280	364	0.0	0	0.0
1	Jul	0.2	2	0.4	1	135.2	319	415	0.0	0	0.0
1	Aug	0.0	0	5.2	18	168.6	398	518	0.0	0	0.0
1	Sep	0.0	0	2.5	8	203.8	481	626	0.0	0	0.0
1	Oct	61.5	615	99.4	335	214.5	507	659	0.0	0	0.0
1	Nov	16.8	168	34.8	117	240.4	568	738	0.0	0	0.0
1	Dec	14.6	146	55.5	187	249.8	590	767	0.0	0	0.0
2	Jan	19.7	197	163.1	550	230.4	544	708	0.0	0	0.0
2	Feb	314.3	3143	387.1	1306	149.0	352	458	1027.2	0	1027.2
2	Mar	434.2	4342	814.1	2748	167.3	395	514	1712.7	0	1712.7
2	Apr	358.7	3587	4.8	16	148.4	351	456	4477.1	0	4477.1
2	May	39.8	398	53.3	180	120.5	285	370	4040.7	0	4040.7
2	Jun	5.1	51	18.1	61	105.7	250	325	3456.2	0	3456.2
2	Jul	0.0	0	5.4	18	119.6	283	367	2788.1	0	2788.1
2	Aug	0.0	0	24.2	82	140.1	331	430	1945.1	0	1945.1
2	Sep	43.3	433	46.4	157	168.8	399	518	1304.1	0	1304.1
2	Oct	0.4	4	1.4	5	216.6	512	665	126.7	0	126.7
2	Nov	0.0	0	4.1	14	234.7	554	721	0.0	0	0.0
2	Dec	114.6	1146	478.5	1615	195.3	461	600	0.0	0	0.0
3	Jan	715.1	7151	936.4	3160	194.7	460	598	2932.4	0	2932.4
3	Feb	355.0	3550	216.5	731	171.9	406	528	4818.1	0	4818.1
3	Mar	185.2	1852	82.5	278	171.8	406	528	5458.1	700	4758.1
3	Apr	29.1	291	76.3	258	150.0	354	461	4676.9	0	3976.9
3	May	53.8	538	108.0	365	122.9	290	377	4183.0	0	3483.0
3	Jun	7.6	76	18.2	61	115.7	273	355	3568.8	0	2868.8
3	Jul	2.5	25	16.3	55	112.2	265	345	2928.7	0	2228.7
3	Aug	0.4	4	290.5	980	132.2	312	406	1233.6	0	533.6
3	Sep	299.9	2999	68.3	231	159.5	377	490	3135.3	0	2435.3
3	Oct	28.6	286	84.0	284	189.9	449	583	2105.9	0	1405.9
3	Nov	33.0	330	87.9	297	188.0	444	577	1117.6	0	417.6
3	Dec	37.1	371	92.4	312	208.4	492	640	44.0	0	0.0
4	Jan	185.3	1853	304.2	1027	193.9	458	596	0.0	0	0.0
4	Feb	129.6	1296	328.1	1107	156.9	371	482	0.0	0	0.0
4	Mar	223.9	2239	128.7	434	162.5	384	499	921.5	0	921.5
4	Apr	45.0	450	91.3	308	137.5	325	422	316.1	0	316.1
4	May	7.3	73	15.5	52	122.4	289	376	0.0	0	0.0
4	Jun	0.0	0	0.4	1	115.6	273	355	0.0	0	0.0
4	Jul	0.0	0	13.1	44	120.6	285	370	0.0	0	0.0
4	Aug	0.0	0	6.2	21	147.5	348	453	0.0	0	0.0
4	Sep	0.0	0	2.8	9	187.1	442	575	0.0	0	0.0
4	Oct	0.0	0	2.7	9	222.9	527	685	0.0	0	0.0
4	Nov	90.7	907	312.6	1055	178.1	421	547	0.0	0	0.0
4	Dec	123.8	1238	119.4	403	206.4	488	634	0.0	0	0.0
5	Jan	188.0	1880	205.3	693	214.0	506	657	24.3	0	24.3
5	Feb	297.8	2978	191.5	3103	152.1	359	467	0.0	0	0.0
5	Mar	591.8	5918	248.3	838	175.9	416	540	4123.8	0	4123.8
5	Apr	523.6	5236	566.0	1910	126.4	299	388	6762.9	700	6062.9
5	May	112.8	1128	29.0	98	134.3	317	412	7063.4	700	5663.4
5	Jun	22.0	220	39.4	133	98.5	233	303	6614.8	700	4514.8
5	Jul	1.2	12	0.0	0	122.4	289	376	5961.7	700	3161.7
5	Aug	0.0	0	1.0	3	149.2	352	458	5147.6	700	1647.6

5	Sep	0.0	0	0.0	0	188.3	445	578	4124.4	0	624.4
5	Oct	7.3	73	66.6	225	200.2	473	615	2885.0	0	0.0
5	Nov	130.4	1304	410.6	1386	165.6	391	509	1903.6	0	0.0
5	Dec	236.7	2367	124.8	421	184.8	437	568	2845.3	0	941.7
6	Jan	53.0	530	30.6	103	208.3	492	640	2140.2	0	236.6
6	Feb	137.8	1378	311.6	1052	161.0	380	494	1591.2	0	0.0
6	Mar	116.5	1165	107.0	361	194.5	460	597	1337.9	0	0.0
6	Apr	15.6	156	20.1	68	166.6	394	512	520.5	0	0.0
6	May	1.8	18	0.0	0	148.9	352	457	0.0	0	0.0
6	Jun	2.8	28	14.8	50	123.6	292	380	0.0	0	0.0
6	Jul	0.0	0	8.7	29	124.6	294	383	0.0	0	0.0
6	Aug	0.0	0	0.0	0	164.5	389	505	0.0	0	0.0
6	Sep	0.0	0	2.6	9	191.7	453	589	0.0	0	0.0
6	Oct	1.1	11	16.5	56	216.0	510	663	0.0	0	0.0
6	Nov	1.6	16	30.1	102	229.8	543	706	0.0	0	0.0
6	Dec	25.4	254	25.2	85	244.7	578	752	0.0	0	0.0
7	Jan	51.5	515	120.3	406	231.1	546	710	0.0	0	0.0
7	Feb	259.2	2592	585.2	1975	192.6	455	592	0.0	0	0.0
7	Mar	317.9	3179	74.1	250	224.0	529	688	1711.6	0	1711.6
7	Apr	8.8	88	9.6	32	182.0	430	559	778.3	0	778.3
7	May	0.0	0	3.6	12	153.1	362	470	0.0	0	0.0
7	Jun	0.0	0	9.1	31	128.1	303	393	0.0	0	0.0
7	Jul	0.0	0	0.0	0	130.7	309	401	0.0	0	0.0
7	Aug	1.2	12	13.9	47	146.2	345	449	0.0	0	0.0
7	Sep	1.3	13	0.0	0	195.7	462	601	0.0	0	0.0
7	Oct	0.0	0	0.0	0	241.7	571	742	0.0	0	0.0
7	Nov	0.0	0	0.3	1	269.0	636	826	0.0	0	0.0
7	Dec	0.0	0	12.0	41	278.7	658	856	0.0	0	0.0
8	Jan	14.6	146	31.9	108	246.4	582	757	0.0	0	0.0
8	Feb	126.9	1269	276.6	934	190.2	449	584	0.0	0	0.0
8	Mar	129.1	1291	98.6	333	194.7	460	598	0.0	0	0.0
8	Apr	17.2	172	23.5	79	168.4	398	517	0.0	0	0.0
8	May	2.5	25	9.6	32	147.0	347	451	0.0	0	0.0
8	Jun	0.0	0	7.5	25	121.3	287	373	0.0	0	0.0
8	Jul	0.0	0	1.0	3	154.5	365	475	0.0	0	0.0
8	Aug	0.0	0	9.4	32	149.4	353	459	0.0	0	0.0
8	Sep	0.0	0	1.4	5	202.8	479	623	0.0	0	0.0
8	Oct	11.1	111	23.1	78	237.3	561	729	0.0	0	0.0
8	Nov	0.4	4	9.9	33	270.1	638	830	0.0	0	0.0
8	Dec	45.7	457	160.3	541	253.0	598	777	0.0	0	0.0
9	Jan	254.6	2546	360.2	1216	213.9	505	657	167.8	0	167.8
9	Feb	264.8	2648	433.8	1464	187.9	444	577	330.9	0	330.9
9	Mar	158.9	1589	24.0	81	196.2	464	603	772.6	0	772.6
9	Apr	7.4	74	63.2	213	169.3	400	520	0.0	0	0.0
9	May	27.4	274	6.4	22	126.9	300	390	0.0	0	0.0
9	Jun	0.0	0	0.8	3	125.4	296	385	0.0	0	0.0
9	Jul	0.0	0	5.4	18	125.7	297	386	0.0	0	0.0
9	Aug	0.0	0	0.3	1	162.8	385	500	0.0	0	0.0
9	Sep	0.0	0	9.9	33	188.7	446	580	0.0	0	0.0
9	Oct	0.0	0	1.0	3	236.5	559	726	0.0	0	0.0
9	Nov	0.4	4	22.5	76	247.8	585	761	0.0	0	0.0
9	Dec	85.6	856	175.7	593	221.9	524	682	0.0	0	0.0
10	Jan	137.7	1377	379.6	1281	203.1	480	624	0.0	0	0.0
10	Feb	218.6	2186	36.0	122	227.5	537	699	828.4	0	828.4
10	Mar	21.7	217	44.0	149	210.3	497	646	0.0	0	0.0
10	Apr	3.5	35	22.4	76	198.6	469	610	0.0	0	0.0
10	May	7.2	72	19.8	67	154.0	364	473	0.0	0	0.0
10	Jun	7.7	77	29.1	98	115.5	273	355	0.0	0	0.0
10	Jul	18.8	188	41.1	139	141.9	335	436	0.0	0	0.0
10	Aug	30.3	303	50.4	170	144.2	341	443	0.0	0	0.0
10	Sep	0.0	0	0.7	2	186.7	441	573	0.0	0	0.0
10	Oct	5.3	53	23.3	79	224.3	530	689	0.0	0	0.0
10	Nov	3.8	38	21.6	73	261.5	618	803	0.0	0	0.0
10	Dec	27.4	274	71.8	242	282.2	667	867	0.0	0	0.0
11	Jan	190.8	1908	528.1	1782	217.1	513	667	0.0	0	0.0
11	Feb	267.7	2677	27.3	92	218.4	516	671	1398.3	0	1398.3
11	Mar	73.9	739	165.7	559	188.9	446	580	551.7	0	551.7
11	Apr	201.4	2014	316.9	1070	119.8	283	368	845.7	0	845.7
11	May	45.4	454	38.7	131	115.7	273	355	539.9	0	539.9
11	Jun	0.0	0	13.6	46	114.9	271	353	0.0	0	0.0
11	Jul	11.8	118	34.3	116	118.6	280	364	0.0	0	0.0
11	Aug	0.9	9	1.6	5	162.0	383	498	0.0	0	0.0
11	Sep	35.2	352	62.7	212	187.7	443	576	0.0	0	0.0
11	Oct	0.3	3	8.9	30	229.7	543	705	0.0	0	0.0
11	Nov	0.0	0	1.1	4	252.3	596	775	0.0	0	0.0
11	Dec	19.4	194	53.4	180	249.6	590	767	0.0	0	0.0
12	Jan	77.3	773	421.8	1424	210.9	498	648	0.0	0	0.0
12	Feb	658.3	6583	695.3	2347	151.4	358	465	3414.2	0	3414.2
12	Mar	223.0	2230	52.7	178	193.4	457	594	4415.4	0	4415.4
12	Apr	3.7	37	3.7	12	193.7	458	595	3386.9	0	3386.9
12	May	0.0	0	2.4	8	160.2	378	492	2508.3	0	2508.3
12	Jun	44.2	442	110.7	374	92.3	218	283	2074.9	0	2074.9

12	Jul	14.5	145	0.4	1	125.5	296	385	1536.2	0	1536.2
12	Aug	0.0	0	6.6	22	152.1	359	467	687.4	0	687.4
12	Sep	0.0	0	9.3	31	177.6	420	545	0.0	0	0.0
12	Oct	14.1	141	29.1	98	235.7	557	724	0.0	0	0.0
12	Nov	6.7	67	160.0	540	240.4	568	738	0.0	0	0.0
12	Dec	119.6	1196	134.2	453	233.6	552	717	0.0	0	0.0
13	Jan	392.9	3929	650.9	2197	199.9	472	614	646.0	0	646.0
13	Feb	455.3	4553	726.5	2452	145.6	344	447	1956.3	0	1956.3
13	Mar	336.2	3362	15.2	51	193.3	457	594	4216.6	0	4216.6
13	Apr	8.3	83	0.9	3	178.3	421	548	3327.5	0	3327.5
13	May	0.0	0	0.6	2	156.3	369	480	2476.2	0	2476.2
13	Jun	0.0	0	1.5	5	123.2	291	378	1801.7	0	1801.7
13	Jul	18.1	181	87.4	295	119.2	282	366	1040.4	0	1040.4
13	Aug	48.8	488	0.0	0	151.5	358	465	705.1	0	705.1
13	Sep	0.0	0	14.1	48	187.2	442	575	0.0	0	0.0
13	Oct	1.8	18	11.8	40	258.8	611	795	0.0	0	0.0
13	Nov	10.7	107	93.9	317	223.5	528	686	0.0	0	0.0
13	Dec	104.0	1040	111.0	375	248.3	587	763	0.0	0	0.0
14	Jan	234.3	2343	668.3	2256	166.6	394	512	0.0	0	0.0
14	Feb	777.1	7771	1084.0	3659	140.4	332	431	3349.1	0	3349.1
14	Mar	433.0	4330	55.8	188	207.1	489	636	6365.7	700	5665.7
14	Apr	72.4	724	81.8	276	169.9	401	522	5890.6	700	4490.6
14	May	19.2	192	21.6	73	142.1	336	436	5237.8	700	3137.8
14	Jun	0.0	0	0.6	2	124.8	295	383	4557.7	0	2457.7
14	Jul	0.0	0	0.2	1	144.7	342	444	3770.7	0	1670.7
14	Aug	0.0	0	0.0	0	169.2	400	520	2851.3	0	751.3
14	Sep	0.0	0	4.0	14	223.7	528	687	1622.3	0	0.0
14	Oct	0.0	0	4.9	17	274.5	649	843	114.2	0	0.0
14	Nov	8.5	85	26.9	91	256.4	606	787	0.0	0	0.0
14	Dec	6.2	62	260.6	880	279.6	661	859	0.0	0	0.0
15	Jan	263.4	2634	530.9	1792	203.1	480	624	0.0	0	0.0
15	Feb	435.2	4352	518.7	1751	163.9	387	503	1710.7	0	1710.7
15	Mar	434.5	4345	276.4	933	173.8	411	534	4178.9	0	4178.9
15	Apr	135.7	1357	26.3	89	134.2	317	412	4718.1	0	4718.1
15	May	1.0	10	0.0	0	142.4	336	437	3954.1	0	3954.1
15	Jun	9.1	91	20.1	68	125.6	297	386	3295.1	0	3295.1
15	Jul	0.0	0	7.7	26	130.9	309	402	2557.8	0	2557.8
15	Aug	31.2	312	59.8	202	143.6	339	441	1888.0	0	1888.0
15	Sep	22.6	226	93.8	317	169.7	401	521	875.2	0	875.2
15	Oct	23.2	232	66.9	226	210.5	497	646	0.0	0	0.0
15	Nov	105.8	1058	270.4	913	166.9	394	513	0.0	0	0.0
15	Dec	120.1	1201	373.3	1260	171.5	405	527	0.0	0	0.0
16	Jan	223.7	2237	160.0	540	189.8	448	583	665.2	0	665.2
16	Feb	326.7	3267	575.5	1942	169.2	400	520	1070.6	0	1070.6
16	Mar	578.0	5780	934.5	3154	151.9	359	467	2871.0	0	2871.0
16	Apr	350.9	3509	64.2	217	153.8	363	472	5328.1	700	4628.1
16	May	20.6	206	24.5	83	144.5	341	444	4666.6	0	3966.6
16	Jun	3.4	34	13.2	45	121.9	288	374	3993.3	0	3293.3
16	Jul	0.0	0	2.1	7	129.0	305	396	3285.3	0	2585.3
16	Aug	0.0	0	1.4	5	163.6	387	502	2391.6	0	1691.6
16	Sep	0.0	0	0.0	0	197.3	466	606	1319.5	0	619.5
16	Oct	0.0	0	7.5	25	222.7	526	684	84.1	0	0.0
16	Nov	0.2	2	28.6	97	249.6	590	767	0.0	0	0.0
16	Dec	92.0	920	130.1	439	227.2	537	698	0.0	0	0.0
17	Jan	51.6	516	186.0	628	217.4	514	668	0.0	0	0.0
17	Feb	266.5	2665	349.6	1180	179.1	423	550	512.1	0	512.1
17	Mar	349.6	3496	722.5	2438	149.7	354	460	756.5	0	756.5
17	Apr	332.2	3322	9.8	33	170.8	404	525	3116.9	0	3116.9
17	May	16.4	164	62.1	210	148.4	351	456	2264.5	0	2264.5
17	Jun	43.4	434	40.9	138	100.0	236	307	2017.1	0	2017.1
17	Jul	84.2	842	125.3	423	117.8	278	362	1796.4	0	1796.4
17	Aug	13.0	130	2.3	8	147.3	348	452	1118.7	0	1118.7
17	Sep	0.0	0	10.0	34	186.2	440	572	73.5	0	73.5
17	Oct	0.0	0	0.0	0	249.5	589	766	0.0	0	0.0
17	Nov	0.0	0	6.0	20	263.6	623	810	0.0	0	0.0
17	Dec	4.5	45	26.0	88	276.6	653	850	0.0	0	0.0
18	Jan	133.1	1331	392.0	1323	261.3	617	803	0.0	0	0.0
18	Feb	242.1	2421	96.5	326	208.1	492	639	964.5	0	964.5
18	Mar	45.4	454	95.4	322	195.4	462	600	34.4	0	34.4
18	Apr	35.5	355	61.1	206	157.9	373	485	0.0	0	0.0
18	May	14.7	147	44.4	150	143.4	339	440	0.0	0	0.0
18	Jun	4.8	48	1.1	4	130.8	309	402	0.0	0	0.0
18	Jul	0.0	0	1.1	4	149.5	353	459	0.0	0	0.0
18	Aug	0.0	0	1.0	3	164.3	388	505	0.0	0	0.0
18	Sep	0.0	0	4.0	14	212.2	501	652	0.0	0	0.0
18	Oct	9.8	98	24.8	84	264.8	626	813	0.0	0	0.0
18	Nov	44.8	448	125.9	425	218.0	515	670	0.0	0	0.0
18	Dec	43.2	432	7.1	24	297.6	703	914	0.0	0	0.0
19	Jan	27.9	279	146.3	494	269.4	636	827	0.0	0	0.0
19	Feb	239.9	2399	500.1	1688	180.6	427	555	0.0	0	0.0
19	Mar	246.9	2469	150.6	508	188.3	445	578	937.9	0	937.9
19	Apr	322.4	3224	356.0	1202	153.9	364	473	2124.5	0	2124.5

19	May	93.0	930	10.0	34	152.7	361	469	2191.1	0	2191.1
19	Jun	23.7	237	47.0	159	117.0	276	359	1633.9	0	1633.9
19	Jul	1.0	10	3.2	11	132.6	313	407	912.2	0	912.2
19	Aug	25.5	255	47.0	159	185.7	439	570	0.0	0	0.0
19	Sep	4.5	45	0.4	1	198.3	468	609	0.0	0	0.0
19	Oct	0.0	0	2.0	7	278.1	657	854	0.0	0	0.0
19	Nov	0.0	0	13.8	47	273.1	645	839	0.0	0	0.0
19	Dec	42.5	425	67.6	228	278.1	657	854	0.0	0	0.0
20	Jan	137.0	1370	308.0	1040	221.5	523	680	0.0	0	0.0
20	Feb	80.4	804	40.1	135	224.0	529	688	0.0	0	0.0
20	Mar	1.1	11	14.0	47	259.4	613	797	0.0	0	0.0
20	Apr	5.1	51	31.8	107	210.9	498	648	0.0	0	0.0
20	May	0.0	0	2.4	8	180.3	426	554	0.0	0	0.0
20	Jun	0.0	0	18.6	63	142.6	337	438	0.0	0	0.0
20	Jul	1.6	16	0.0	0	154.5	365	475	0.0	0	0.0
20	Aug	0.0	0	0.0	0	180.3	426	554	0.0	0	0.0
20	Sep	0.0	0	2.5	8	238.3	563	732	0.0	0	0.0
20	Oct	0.0	0	0.2	1	291.7	689	896	0.0	0	0.0
20	Nov	0.0	0	13.8	47	267.5	632	822	0.0	0	0.0
20	Dec	26.3	263	172.6	583	287.5	679	883	0.0	0	0.0
21	Jan	120.6	1206	63.6	215	263.1	622	808	0.0	0	0.0
21	Feb	54.0	540	83.7	282	199.0	470	611	0.0	0	0.0
21	Mar	312.0	3120	626.5	2114	190.0	449	584	0.0	0	0.0
21	Apr	207.1	2071	13.6	46	196.0	463	602	959.7	0	959.7
21	May	2.7	27	7.3	25	165.3	391	508	64.1	0	64.1
21	Jun	29.9	299	79.0	267	128.8	304	396	0.0	0	0.0
21	Jul	42.3	423	52.7	178	126.8	300	389	0.0	0	0.0
21	Aug	4.4	44	29.4	99	164.3	388	505	0.0	0	0.0
21	Sep	17.7	177	35.7	120	187.6	443	576	0.0	0	0.0
21	Oct	0.4	4	13.3	45	262.2	619	805	0.0	0	0.0
21	Nov	0.0	0	6.3	21	278.5	658	855	0.0	0	0.0
21	Dec	32.8	328	78.1	264	253.3	598	778	0.0	0	0.0
22	Jan	163.8	1638	312.8	1056	226.8	536	697	0.0	0	0.0
22	Feb	81.4	814	82.0	277	202.5	478	622	0.0	0	0.0
22	Mar	58.9	589	196.2	662	185.4	438	569	0.0	0	0.0
22	Apr	59.4	594	4.5	15	188.1	444	578	0.0	0	0.0
22	May	59.5	595	140.8	475	142.5	337	438	0.0	0	0.0
22	Jun	52.8	528	1.3	4	120.1	284	369	0.0	0	0.0
22	Jul	0.0	0	1.6	5	134.7	318	414	0.0	0	0.0
22	Aug	0.0	0	9.6	32	173.5	410	533	0.0	0	0.0
22	Sep	0.0	0	0.6	2	192.3	454	591	0.0	0	0.0
22	Oct	51.3	513	162.2	547	204.0	482	627	0.0	0	0.0
22	Nov	68.5	685	57.5	194	233.2	551	716	0.0	0	0.0
22	Dec	17.4	174	20.1	68	284.8	673	875	0.0	0	0.0
23	Jan	60.4	604	136.7	461	234.4	554	720	0.0	0	0.0
23	Feb	55.3	553	571.5	1929	188.6	446	579	0.0	0	0.0
23	Mar	590.1	5901	415.2	1401	188.3	445	578	3476.6	0	3476.6
23	Apr	193.9	1939	13.0	44	168.9	399	519	4453.8	0	4453.8
23	May	2.7	27	7.2	24	157.2	371	483	3602.2	0	3602.2
23	Jun	0.0	0	0.7	2	128.1	303	393	2903.7	0	2903.7
23	Jul	0.6	6	12.3	42	139.2	329	428	2111.7	0	2111.7
23	Aug	0.0	0	0.0	0	182.2	430	560	1121.7	0	1121.7
23	Sep	2.6	26	14.0	47	223.2	527	686	0.0	0	0.0
23	Oct	17.2	172	28.6	97	243.1	574	747	0.0	0	0.0
23	Nov	3.6	36	23.8	80	299.2	707	919	0.0	0	0.0
23	Dec	174.5	1745	308.0	1040	238.8	564	733	0.0	0	0.0
24	Jan	77.2	772	529.2	1786	254.3	601	781	0.0	0	0.0
24	Feb	990.3	9903	1058.7	3573	203.0	480	623	5226.8	700	4526.8
24	Mar	437.3	4373	296.3	1000	172.3	407	529	7663.9	700	6263.9
24	Apr	167.0	1670	30.5	103	173.1	409	532	8290.4	700	6190.4
24	May	3.5	35	7.9	27	149.0	352	458	7488.9	700	4688.9
24	Jun	0.0	0	9.0	30	127.7	302	392	6764.6	700	3264.6
24	Jul	6.9	69	19.8	67	134.5	318	413	6035.5	700	1835.5
24	Aug	0.0	0	0.0	0	181.1	428	556	5051.4	0	851.4
24	Sep	0.0	0	0.0	0	217.5	514	668	3869.6	0	0.0
24	Oct	0.0	0	1.4	5	263.2	622	808	2434.7	0	0.0
24	Nov	0.0	0	0.6	2	285.7	675	877	880.3	0	0.0
24	Dec	0.0	0	6.9	23	303.6	717	932	0.0	0	0.0
25	Jan	68.2	682	388.2	1310	251.0	593	771	0.0	0	0.0
25	Feb	223.7	2237	332.6	1123	176.6	417	542	155.0	0	155.0
25	Mar	295.5	2955	97.2	328	178.4	421	548	1812.7	0	1812.7
25	Apr	14.3	143	8.6	29	162.8	385	500	1042.3	0	1042.3
25	May	15.8	158	93.8	317	136.9	323	420	140.1	0	140.1
25	Jun	44.5	445	10.6	36	112.5	266	346	0.0	0	0.0
25	Jul	5.0	50	22.0	74	132.2	312	406	0.0	0	0.0
25	Aug	5.0	50	3.0	10	159.8	378	491	0.0	0	0.0
25	Sep	0.0	0	0.2	1	187.6	443	576	0.0	0	0.0
25	Oct	0.0	0	12.4	42	253.4	599	778	0.0	0	0.0
25	Nov	0.0	0	1.8	6	258.8	611	795	0.0	0	0.0
25	Dec	27.1	271	232.6	785	238.8	564	733	0.0	0	0.0
26	Jan	364.4	3644	339.0	1144	192.2	454	590	1455.5	0	1455.5
26	Feb	102.2	1022	232.5	785	156.0	369	479	844.8	0	844.8

26	Mar	177.6	1776	192.5	650	186.7	441	573	957.1	0	957.1
26	Apr	45.4	454	109.0	368	138.6	327	426	290.4	0	290.4
26	May	44.3	443	0.0	0	138.7	328	426	0.0	0	0.0
26	Jun	0.0	0	12.6	43	113.8	269	350	0.0	0	0.0
26	Jul	0.1	1	12.5	42	131.6	311	404	0.0	0	0.0
26	Aug	0.0	0	21.0	71	152.3	360	468	0.0	0	0.0
26	Sep	18.6	186	15.0	51	194.0	458	596	0.0	0	0.0
26	Oct	5.6	56	24.0	81	235.1	555	722	0.0	0	0.0
26	Nov	68.8	688	273.5	923	218.1	515	670	0.0	0	0.0
26	Dec	116.7	1167	96.0	324	226.9	536	697	0.0	0	0.0
27	Jan	90.9	909	331.6	1119	203.3	480	624	0.0	0	0.0
27	Feb	281.3	2813	121.0	408	188.0	444	577	1383.0	0	1383.0
27	Mar	24.7	247	18.0	61	212.6	502	653	414.0	0	414.0
27	Apr	41.9	419	344.0	1161	172.9	408	531	0.0	0	0.0
27	May	391.7	3917	211.5	714	135.3	320	416	2468.2	0	2468.2
27	Jun	72.9	729	45.0	152	126.4	299	388	2358.0	0	2358.0
27	Jul	41.4	414	61.0	206	120.4	284	370	1912.3	0	1912.3
27	Aug	0.6	6	5.9	20	150.8	356	463	1079.0	0	1079.0
27	Sep	11.9	119	35.0	118	166.9	394	513	173.1	0	173.1
27	Oct	25.9	259	79.7	269	210.5	497	646	0.0	0	0.0
27	Nov	38.0	380	146.0	493	238.6	564	733	0.0	0	0.0
27	Dec	138.4	1384	173.0	584	225.5	533	693	0.0	0	0.0
28	Jan	271.2	2712	500.0	1688	210.6	498	647	0.0	0	0.0
28	Feb	368.3	3683	363.5	1227	165.6	391	509	1556.1	0	1556.1
28	Mar	136.8	1368	118.0	398	182.2	430	560	1535.6	0	1535.6
28	Apr	100.9	1009	155.0	523	163.8	387	503	1131.7	0	1131.7
28	May	5.7	57	0.0	0	165.1	390	507	291.8	0	291.8
28	Jun	0.0	0	3.0	10	130.8	309	402	0.0	0	0.0
28	Jul	37.6	376	70.0	236	130.9	309	402	0.0	0	0.0
28	Aug	2.9	29	8.0	27	168.9	399	519	0.0	0	0.0
28	Sep	0.0	0	10.0	34	215.6	509	662	0.0	0	0.0
28	Oct	9.8	98	33.0	111	261.6	618	803	0.0	0	0.0
28	Nov	0.2	2	25.0	84	238.0	562	731	0.0	0	0.0
28	Dec	47.1	471	149.5	505	227.5	537	699	0.0	0	0.0
29	Jan	195.5	1955	397.0	1340	196.8	465	604	0.0	0	0.0
29	Feb	150.8	1508	355.0	1198	169.8	401	521	0.0	0	0.0
29	Mar	229.8	2298	155.5	525	186.8	441	574	757.8	0	757.8
29	Apr	59.2	592	42.0	142	162.7	384	500	324.3	0	324.3
29	May	0.2	2	13.0	44	136.0	321	418	0.0	0	0.0
29	Jun	0.5	5	34.0	115	114.2	270	351	0.0	0	0.0
29	Jul	15.0	150	3.0	10	134.7	318	414	0.0	0	0.0
29	Aug	51.2	512	79.0	267	158.5	374	487	0.0	0	0.0
29	Sep	7.5	75	0.0	0	199.0	470	611	0.0	0	0.0
29	Oct	0.0	0	7.0	24	251.5	594	772	0.0	0	0.0
29	Nov	5.4	54	26.8	90	240.7	569	739	0.0	0	0.0
29	Dec	306.8	3068	680.5	2297	228.3	539	701	0.0	0	0.0
30	Jan	272.2	2722	144.9	489	211.2	499	649	1085.0	0	1085.0
30	Feb	996.7	9967	1568.0	5292	165.8	392	509	4859.3	0	4859.3
30	Mar	689.5	6895	864.0	2916	164.5	389	505	7944.8	700	7244.8
30	Apr	551.0	5510	139.0	469	150.0	354	461	12170.7	700	10770.7
30	May	60.9	609	42.5	143	126.1	298	387	11950.6	700	9850.6
30	Jun	20.3	203	25.0	84	111.0	262	341	11466.1	700	8666.1
30	Jul	11.1	111	44.5	150	119.0	281	365	10780.6	700	7280.6
30	Aug	9.4	94	0.0	0	159.9	378	491	10005.8	700	5805.8
30	Sep	0.0	0	0.0	0	197.0	465	605	8935.4	700	4035.4
30	Oct	0.0	0	6.8	23	250.2	591	768	7552.9	700	1952.9
30	Nov	0.0	0	15.0	51	234.6	554	721	6227.7	700	0.0
30	Dec	14.6	146	336.4	1135	221.1	522	679	4036.9	0	0.0

Attachment 3

To	State Assessment and Referral Agency (SARA)	Pages	9
CC	Milford Planning, Absolute Waste Pty Ltd		
Subject	Information Request Response – SARA Ref. 2511-49169 SRA, Item 1		
From	Brett Langtree		
Ref No./File	1343/TM-NP0356	Date	19/12/25

1.0 INTRODUCTION

This technical memorandum has been prepared in response to an information request from the State Assessment and Referral Agency (SARA) (Ref. No. 2511-49169 SRA) dated 25 November 2025, concerning the undertaking of a pavement impact assessment (Item 1).

This assessment has been performed in accordance with the Queensland Government Guide to Traffic Impact Assessment, Practice Note: Pavement Impact Assessment for state-controlled roads (SCR). This technical memorandum should be read in conjunction with the associated Traffic Impact Assessment (TIA) for the proposed development (ref. R-NP0328).

2.0 PORPOSED DEVELOPMENT

The site is an existing waste management facility and is proposed to remain as such, however, the development proposes to increase the existing volume of waste received and processed at the facility from the current 5,000t or more (but less than 10,000t per year) to 50,000t per annum.

2.1 Operating regime

The site is anticipated to be operational between 6am and 7pm Monday to Saturday. The waste management site is anticipated to have four (4) staff members. For the purpose of this assessment the, the facility is assumed to operate 240 days a year (i.e. 5 days a week 48 weeks a year).

2.2 Development vehicles

The fleet will consist of three (3) 2-axle rigid body trucks. Vehicles operate under standard mass limits. Refer to **Figures 1 and 2** for proposed fleet vehicle.



2 Axle Rigid Truck

Figure 1. Typical fleet vehicles



Figure 2. Example of proposed fleet vehicle

The loaded and unloaded Standard Axle Repetition (SAR)'s for the proposed fleet vehicle are shown in **Table 1**.

Table 1. 2-axle rigid truck axle group loading

ID	Axle group type	SAST	TADT	Sum
-	Axles	Single	Single	-
-	Tyres	Single	Dual	-
A	Legal loading (t)	6	9	15
B	Base load per SAR4	5.4	8.2	13.6
C	Unloaded axle group load (t)	4.5	4	8.5
-	Unloaded SAR4 = ESAs = $[(C)/(B)]^4$	0.482	0.057	0.539
-	Unloaded SAR5 = $[(C)/(B)]^5$	0.402	0.028	0.43
-	Unloaded SAR12 = $[(C)/(B)]^{12}$	0.112	0	0.112
D	Loaded axle group Load (t)	6	9	15
-	Loaded SAR4 = ESAs = $[(D)/(B)]^4$	1.524	1.451	2.975
-	Loaded SAR5 = $[(D)/(B)]^5$	1.693	1.593	3.286
-	Loaded SAR12 = $[(D)/(B)]^{12}$	3.541	3.056	6.597
-	Payload (t)	1.5	5	6.5

2.3 Traffic Distribution

The anticipated traffic distribution has been assumed to be 30% to/from the north and 70% to/from the south. The assumed traffic distribution is based on perceived demand based on initial business demand analysis.

3.0 PAVEMENT IMPACT ASSESSMENT

3.1 Data

The 2023 traffic census data for the Bruce Highway has been adopted to ensure consistency with the original traffic impact assessment report. A review of the 2024 traffic data determined that it does not materially influence the scope of the assessment.

3.2 Assessment area

Pavement impact assessment has been performed on Section 10M from Chainage 26.64km to 120.50km (end of section chainage). These segments have been selected as and chainage 26.64km represents the junction between the Ring Road (Bruce Highway 10M) and North Townsville Road (832), which is a key junction to Townsville routes whilst 120.5km is the intersection of the Townsville Road (Bruce Highway 10M) and Lannercost Street, a key intersection in Ingham.



Figure 3. Bruce Highway (10M) - Chainage 120.64km



Figure 4. Bruce Highway (10M) - Chainage 120.64km

3.3 5% Development SAR impact Scoping

The development is considered to have an impact to the network pavement if the development generated SAR4's are greater than 5% of on any given SCR segment. Pavement impact scoping has been performed and is provided in **Appendix A**.

Based on 50,000 tonnes of material moved the development generated SARs is estimated to be 4.9% in the worse cases (Chainage 118.18km to 120.5km, against gazettal). The pavement impacting scoping indicates that the proposed development does not generate and contribute more than 5% SARs to the existing network and thus is not considered to not significantly impact the existing network warranting pavement impact contributions.

4.0 SUMMARY

A pavement impact assessment has been undertaken for the proposed development and has found that the development will not generate and contribute more than an additional 5% SAR4s to the state-controlled road on any assessment segment. The development is thus considered not to have significantly impact the state-controlled road network in terms of a reduction in pavement life and thus, does not warrant any pavement contributions.

5.0 CERTIFICATION

Registered Professional Engineer Queensland

for

Project Title:	42386 Bruce Highway, Bluewater (Pavement Impact Assessment)

As a professional engineer registered by the Board of Professional Engineers of Queensland pursuant to the *Professional Engineers Act 2002* as competent in my areas of nominated expertise, I understand and recognise:

- the significant role of engineering as a profession, and that
- the community has a legitimate expectation that my certification affixed to this engineering work can be trusted, and that
- I am responsible for ensuring its preparation has satisfied all necessary standards, conduct and contemporary practice.

As the responsible RPEQ, I certify:

- i. I am satisfied that all submitted components comprising this traffic impact assessment, listed in the following table, have been completed in accordance with the *Guide to Traffic Impact Assessment* published by the Queensland Department of Transport and Main Roads and using sound engineering principles, and
- ii. where specialised areas of work have not been under my direct supervision, I have reviewed the outcomes of the work and consider the work and its outcomes as suitable for the purposes of this traffic impact assessment, and that
- iii. the outcomes of this traffic impact assessment are a true reflection of results of assessment, and that
- iv. I believe the strategies recommended for mitigating impacts by this traffic impact assessment, embrace contemporary practice initiatives and will deliver the desired outcomes.

Name:	Brett Langtree		
RPEQ competencies:	Civil Engineering	RPEQ No:	11932
Signature:		Date:	19 December 2025
Postal address:	14 Ingham Road, West End QLD 4810		
Email:	brett@langtreeconsulting.com.au		

APPENDIX A

PAVEMENT IMPACT SCOPING

Pavement Impact Assessment

Development vehicles



Table 1A - 3 Axle Rigid Truck

ID	Axle group type	SAST	TADT	Sum
-	Axles	Single	Single	-
-	Tyres	Single	Dual	-
A	Legal loading (t)	6	9	15
B	Base load per SAR4	5.4	8.2	13.6
C	Unloaded axle group load (t)	4.5	4	8.5
-	Unloaded SAR4 = ESAs = $[(C)/(B)]^4$	0.482	0.057	0.539
-	Unloaded SAR5 = $[(C)/(B)]^5$	0.402	0.028	0.43
-	Unloaded SAR12 = $[(C)/(B)]^{12}$	0.112	0	0.112
D	Loaded axle group Load (t)	6	9	15
-	Loaded SAR4 = ESAs = $[(D)/(B)]^4$	1.524	1.451	2.975
-	Loaded SAR5 = $[(D)/(B)]^5$	1.693	1.593	3.286
-	Loaded SAR12 = $[(D)/(B)]^{12}$	3.541	3.056	6.597
-	Payload (t)	1.5	5	6.5

Pavement Impact Scoping

Operational days = 240 /year
 Average payload = 6.50 Tonnes

Table 2A - Traffic data

Table 2A - Traffic data						Background Data											Development Data				
Link ID	Road ID	Road Name	Chainage Section Start	Chainage Section End	Loaded/ Unloaded	Count Year AADT (vpd)	Count Year AADT per Section (vpd)	AADT Count Year	Heavy Vehicle %	Daily Heavy Vehicle Volume (vpd)	Growth	Base Year	Base Year - Background AADT (vpd)	Base Year - Background Heavy Vehicle Daily Volume (vpd)	SARS/ Heavy Vehicle	Base Year - Background SARs Loadings per Section	Percentage of Development Traffic	Development Traffic Average SARS	Development Traffic Average SARS		
1	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	26.64	33.99	Loaded (G)	14503	7237	2023	6.99%	1014	0.81%	2026	7414	518	2.9	548577	70.0%	2.98	3.29		
2	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	26.64	33.99	Unloaded (AG)	14503	7266	2023	7.09%	1028	0.72%	2026	7424	526	2.9	557160	70.0%	0.54	0.43		
3	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	33.99	37.81	Loaded (G)	11948	5939	2023	35.26%	4213	0.63%	2026	6052	2134	2.9	2258754	70.0%	2.98	3.29		
4	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	33.99	37.81	Unloaded (AG)	11948	6009	2023	44.36%	5300	0.54%	2026	6107	2709	2.9	2867486	70.0%	0.54	0.43		
5	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	37.81	41.81	Loaded (G)	10414	4899	2023	35.26%	3672	5.51%	2026	5754	2029	2.9	2147640	70.0%	2.98	3.29		
6	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	37.81	41.81	Unloaded (AG)	10414	5515	2023	44.36%	4620	2.88%	2026	6005	2664	2.9	2819816	70.0%	0.54	0.43		
7	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	41.81	47.00	Loaded (G)	4105	2048	2023	24.07%	988	1.00%	2026	2110	508	2.9	537602	70.0%	2.98	3.29		
8	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	41.81	47.00	Unloaded (AG)	4105	2057	2023	32.70%	1342	1.00%	2026	2119	693	2.9	733562	70.0%	0.54	0.43		
Subject site			47.00																		
9	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	47.00	112.30	Loaded (AG)	4105	2057	2023	32.70%	1342	1.00%	2026	2119	693	2.9	733562	30.0%	2.98	3.29		
10	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	47.00	112.30	Unloaded (G)	4105	2048	2023	24.07%	988	1.00%	2026	2110	508	2.9	537602	30.0%	0.54	0.43		
11	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	112.30	118.18	Loaded (AG)	5051	2545	2023	29.15%	1472	1.00%	2026	2622	764	2.9	809061	30.0%	2.98	3.29		
12	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	112.30	118.18	Unloaded (G)	5051	2506	2023	28.97%	1463	1.00%	2026	2582	748	2.9	791744	30.0%	0.54	0.43		
13	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	118.18	120.50	Loaded (AG)	4725	2325	2023	5.54%	262	1.00%	2026	2395	133	2.9	140471	30.0%	2.98	3.29		
14	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	118.18	120.50	Unloaded (G)	4725	2400	2023	5.58%	264	1.00%	2026	2473	138	2.9	146050	30.0%	0.54	0.43		

Table 2B - Pavement impact scoping based on tonnes of material hauled

Link ID	Road ID	Road Name	Chainage Section Start	Chainage Section End	Loaded/ Unloaded	Total Development Heavy Vehicle AADT (vpd)					Development SARS per annum					No. of Heavy Vehicles per annum				
						10,000	20,000	30,000	40,000	50,000	10,000	20,000	30,000	40,000	50,000	10,000	20,000	30,000	40,000	50,000
1	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	26.64	33.99	Loaded (G)	4.5	9.0	13.5	17.9	22.4	3204	6408	9612	12815	16019	1077	2154	3231	4308	5385
2	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	26.64	33.99	Unloaded (AG)	4.5	9.0	13.5	17.9	22.4	580	1161	1741	2322	2902	1077	2154	3231	4308	5385
3	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	33.99	37.81	Loaded (G)	4.5	9.0	13.5	17.9	22.4	3204	6408	9612	12815	16019	1077	2154	3231	4308	5385
4	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	33.99	37.81	Unloaded (AG)	4.5	9.0	13.5	17.9	22.4	580	1161	1741	2322	2902	1077	2154	3231	4308	5385
5	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	37.81	41.81	Loaded (G)	4.5	9.0	13.5	17.9	22.4	3204	6408	9612	12815	16019	1077	2154	3231	4308	5385
6	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	37.81	41.81	Unloaded (AG)	4.5	9.0	13.5	17.9	22.4	580	1161	1741	2322	2902	1077	2154	3231	4308	5385
7	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	41.81	47.00	Loaded (G)	4.5	9.0	13.5	17.9	22.4	3204	6408	9612	12815	16019	1077	2154	3231	4308	5385
8	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	41.81	47.00	Unloaded (AG)	4.5	9.0	13.5	17.9	22.4	580	1161	1741	2322	2902	1077	2154	3231	4308	5385
Subject site			47.00																	
9	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	47.00	112.30	Loaded (AG)	1.9	3.8	5.8	7.7	9.6	1373	2746	4119	5492	6865	462	923	1385	1846	2308
10	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	47.00	112.30	Unloaded (G)	1.9	3.8	5.8	7.7	9.6	249	498	746	995	1244	462	923	1385	1846	2308
11	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	112.30	118.18	Loaded (AG)	1.9	3.8	5.8	7.7	9.6	1373	2746	4119	5492	6865	462	923	1385	1846	2308
12	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	112.30	118.18	Unloaded (G)	1.9	3.8	5.8	7.7	9.6	249	498	746	995	1244	462	923	1385	1846	2308
13	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	118.18	120.50	Loaded (AG)	1.9	3.8	5.8	7.7	9.6	1373	2746	4119	5492	6865	462	923	1385	1846	2308
14	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	118.18	120.50	Unloaded (G)	1.9	3.8	5.8	7.7	9.6	249	498	746	995	1244	462	923	1385	1846	2308

Table 2C- Pavement impact scoping based on tonnes of material hauled

Link ID	Road ID	Road Name	Chainage Section Start	Chainage Section End	Loaded/ Unloaded	Development Impact Scoping				
						10,000	20,000	30,000	40,000	50,000
1	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	26.64	33.99	Loaded (G)	0.6%	1.2%	1.8%	2.3%	2.9%
2	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	26.64	33.99	Unloaded (AG)	0.1%	0.2%	0.3%	0.4%	0.5%
3	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	33.99	37.81	Loaded (G)	0.1%	0.3%	0.4%	0.6%	0.7%
4	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	33.99	37.81	Unloaded (AG)	0.0%	0.0%	0.1%	0.1%	0.1%
5	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	37.81	41.81	Loaded (G)	0.1%	0.3%	0.4%	0.6%	0.7%
6	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	37.81	41.81	Unloaded (AG)	0.0%	0.0%	0.1%	0.1%	0.1%
7	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	41.81	47.00	Loaded (G)	0.6%	1.2%	1.8%	2.4%	3.0%
8	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	41.81	47.00	Unloaded (AG)	0.1%	0.2%	0.2%	0.3%	0.4%
Subject site			47.00							
9	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	47.00	112.30	Loaded (AG)	0.2%	0.4%	0.6%	0.7%	0.9%
10	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	47.00	112.30	Unloaded (G)	0.0%	0.1%	0.1%	0.2%	0.2%
11	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	112.30	118.18	Loaded (AG)	0.2%	0.3%	0.5%	0.7%	0.8%
12	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	112.30	118.18	Unloaded (G)	0.0%	0.1%	0.1%	0.1%	0.2%
13	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	118.18	120.50	Loaded (AG)	1.0%	2.0%	2.9%	3.9%	4.9%
14	10M	BRUCE HIGHWAY (TOWNSVILLE - INGHAM)	118.18	120.50	Unloaded (G)	0.2%	0.3%	0.5%	0.7%	0.9%

Attachment 4



Groundwater Monitoring Network Assessment

ABSOLUTE WASTE BLUEWATER LANDFILL

*Document Reference No. 26014-05
Prepared for Queensland Resource and Recovery Pty Ltd*

1/07/2026

Document Control

Client	Queensland Resource and Recovery Pty Ltd
Document	Report Type
Project Name	Absolute Waste Bluewater Landfill – Response to Request for Information
Project Number	26014-05
Revision Number	02

Version History

Version No.	Date	Prepared By	Reviewed By	Approved By
01	1/07/2026	Jai Kaartinen-Price	Christa Placzek	Anton Fitzgerald
2.02	1/7/2026	Jai Kaartinen-Price	Anton Fitzgerald	Anton Fitzgerald

Issue Register

Distribution List	Date Issued	Number of Copies
Queensland Resource and Recovery Pty Ltd	1/07/2026	01 - Electronic
Queensland Resource and Recovery Pty Ltd	1/07/2026	01 - Electronic

TERRA SOLUTIONS PTY LTD Company Details

Approved By	Laurence Liessmann
Address	2/106 Dalrymple Service Road, Currajong QLD 4812, Australia
Signature	
Telephone	0407 623 528
Email	laurence@terrasolutions.com.au
Website	www.terrasolutions.com.au

The information within this document is and shall remain the property of:
Terra Solutions Pty Ltd and Queensland Resource and Recovery Pty Ltd

Important Notice

This report is confidential and is provided solely for the purposes of Report Type of the Absolute Waste Bluewater Landfill – Response to Request for Information. This report is provided pursuant to a Consultancy Agreement between Terra Solutions Pty Ltd ("Terra Solutions") and Queensland Resource and Recovery Pty Ltd, under which Terra Solutions undertook to perform a specific and limited task for Queensland Resource and Recovery Pty Ltd. This report is strictly limited to the matters stated in it and subject to the various assumptions, qualifications, and limitations in it and does not apply by implication to other matters. Terra Solutions makes no representation that the scope, assumptions, qualifications, and exclusions set out in this report will be suitable or sufficient for other purposes nor that the content of the report covers all matters which you may regard as material for your purposes.

This report must be read as a whole. Any subsequent report must be read in conjunction with this report.

The report supersedes all previous draft or interim reports, whether written or presented orally, before the date of this report. This report has not and will not be updated for events or transactions occurring after the date of the report or any other matters which might have a material effect on its contents, or which come to light after the date of the report. Terra Solutions is not obliged to inform you of any such event, transaction, or matter nor to update the report for anything that occurs, or of which Terra Solutions becomes aware, after the date of this report.

Unless expressly agreed otherwise in writing, Terra Solutions does not accept a duty of care or any other legal responsibility whatsoever in relation to this report, or any related enquiries, advice, or other work, nor does Terra Solutions make any representation in connection with this report, to any person other than Queensland Resource and Recovery Pty Ltd. Any other person who receives a draft or a copy of this report (or any part of it) or discusses it (or any part of it) or any related matter with Terra Solutions, does so on the basis that he or she acknowledges and accepts that he or she may not rely on this report nor on any related information or advice given by Terra Solutions for any purpose whatsoever.

Table of Contents

Executive Summary	1
1. Introduction	3
1.1 Scope of Works	4
1.2 Purpose	5
1.3 Limitations.....	5
1.4 Environmental Authority Requirements.....	7
2. Site Description	8
2.1 Site Setting	8
2.2 Landfill cell liners	9
2.3 Landfill gas	10
2.4 Surrounding Land Use.....	11
2.5 Climate	11
2.6 Geology.....	13
2.7 Soil.....	13
2.8 Hydrology & Topography.....	13
2.9 Environmental Values	17
2.10 Monitoring Network	18
2.11 Potential sources of impacts.....	22
3. Hydrogeological conceptual model	23
3.1 Hydrostratigraphic units	23
3.2 Groundwater levels	23
3.2.1 Potentiometric groundwater contour maps.....	25
3.2.2 Potential tidal influence	28
3.3 Groundwater recharge and discharge	33
3.4 Groundwater quality.....	33
3.4.1 EC, pH and ionic composition.....	33
3.4.2 Other water quality parameters	37
4. Appropriateness of network.....	44
4.1 Characterisation of baseline conditions.....	44
4.2 Surface water network.....	44
4.3 Source-pathway-receptor assessment.....	47
4.4 Monitoring parameters	47
4.5 Compliance with EA Condition 1-WT7: Item f	48
5. Recommendations.....	49
6. References	50

Appendices

Appendix A	BL-BH4 bore report	52
	Bore RN: 201073	52
Appendix B	Environmental Authority.....	55
	P-EA 100698838	55
Appendix C	Waste Management Facility	57
	Proposed Site Layout.....	57
Appendix D	Waste Management Facility	59
	Details (Leachate + Capping Layers).....	59
Appendix E	Permeability Test Reports.....	63
	Conducted in 2002 by MSM Engineering	63
Appendix F	Email Correspondence.....	67
	From Ace Mini Skips, dated 10 th July 2024	67

List of Tables

Table 1.1	Alignment of RFI items with sections within this report.....	5
Table 2.1	Coefficient of permeability values from tests conducted by MSM Engineering.....	9
Table 2.2:	Environmental Valves of Black River Basin	17
Table 2.3:	Monitoring Locations	18

List of Figures

Figure 3.19	Historic nitrogen (total) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form).....	38
Figure 3.20	Historic nitrate as N in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form).....	39
Figure 3.21	Historic ammonia as N in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form).....	39
Figure 3.22	Historic phosphorus in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form).....	39
Figure 3.24	Reported nitrate as N (filtered) from November 2023 to the time of reporting in groundwater 40	
Figure 3.25	Reported ammonia as N (filtered) from November 2023 to the time of reporting in groundwater 41	
Figure 3.26	Reported total phosphorus from November 2023 to the time of reporting in groundwater.....	41
Figure 3.27	Historic aluminium (filtered) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form).....	42
Figure 3.28	Historic cadmium (filtered)H in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form).....	42
Figure 3.29	Historic chromium (filtered) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form).....	42
Figure 3.30	Historic copper (filtered) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form).....	43
Figure 3.31	Historic lead (filtered) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form).....	43
Figure 3.32	Historic zinc (filtered) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form).....	43
Figure 4.1	Surface water monitoring points.....	46

Executive Summary

Terra Solutions is a North Queensland-based environmental consultancy providing innovative and cost-effective solutions across the private and public sectors.

Queensland Resource and Recovery Pty Ltd (QRR) operate the Bluewater Landfill at 42386 Bruce Highway, Bluewater, under Environmental Authority (EA) P-EA-100698838. QRR has submitted a change application to the Queensland State Assessment and Referral Agency (SARA) seeking an increase in the volume of waste that may be received, sorted and disposed of at the facility. In response to SARA's information request, Terra Solutions Pty Ltd was engaged to undertake a groundwater monitoring network assessment and provide supporting hydrogeological interpretation relevant to the current and proposed landfill operations.

This report presents the findings of a desktop review of historical monitoring information, recent field investigations, groundwater level monitoring, and an assessment of the suitability of the existing groundwater monitoring network. The assessment also considers surface water and leachate monitoring results where relevant to interpretation of groundwater conditions and potential contaminant pathways. The purpose of the work is to determine whether the current monitoring program is sufficient to identify potential impacts to groundwater and receiving waters, and whether it satisfies the intent of EA Condition 1-WT7(f).

The Bluewater Landfill is located on low-lying coastal terrain between Christmas Creek and Sleeper Log Creek, both of which are intermittent watercourses that are tidally influenced downstream of the site. The site is underlain by Quaternary alluvial sediments comprising variable clay, silt, sand and gravel, with available information indicating that shallow hydrostratigraphic units are likely to be clay-rich and comparatively low permeability, although some horizontal and vertical heterogeneity is expected. Permeability testing from 2002 indicates that the compacted clay liner materials are on the order of 10^{-9} m/s, consistent with the documented design intent of the landfill liner system. Available design information indicates that the current landfill cells are lined and drained by a leachate collection system that conveys leachate to onsite ponds, and available correspondence indicates that leachate pond overflow has not occurred during the last 17 years, including major flood events.

Given the accepted waste stream is described as inert and non-putrescible, the relative risk of landfill gas generation is considered low compared with putrescible municipal landfills. While landfill gas remains a recognised pathway in principle, the information reviewed for this assessment suggests that the more material environmental risks relate to leachate generation and containment, management of collected leachate, contaminated stormwater/contact water, and the integrity and continuity of the liner and leachate collection systems. Legacy contamination associated with the historical brickworks is also recognised as a possible localised source of some analytes.

Review of groundwater level data indicates that groundwater flow at the site is generally consistent with a northeasterly regional gradient toward the coast, but is also influenced by local hydrological controls including Christmas Creek, Sleeper Log Creek, onsite structures, rainfall recharge and tidal effects. Potentiometric contouring of post-dry and post-wet season groundwater levels indicates a seasonal groundwater level variation of approximately one metre. Automated groundwater level logging undertaken in February 2026 showed that groundwater levels at BL-BH1 and BL-BH3 respond relatively quickly to rainfall, while BL-BH2 and BL-BH4 exhibit more subdued or delayed responses, likely reflecting lower permeability conditions and/or differing recharge pathways. Minor but consistent tidal influence was also observed in all bores, with varying lag times, indicating that tidal forcing is an important modifier of groundwater levels and chemistry at the site.

Groundwater quality data indicate that salinity, pH and ionic composition vary both between bores and through time. BL-BH2 has historically exhibited higher salinity than the other bores, and the previous interpretation of this bore as an "upgradient" reference location based primarily on total cations is not considered robust. The available data suggest that groundwater chemistry across the site is influenced by variable combinations of rainfall recharge, tidal influence, and possibly surface water interactions. Water types are commonly sodium chloride dominated at BL-BH1, BL-BH2 and BL-BH3 during higher salinity conditions, with more mixed or bicarbonate-influenced signatures at BL-BH4 and at times BL-BH3.

A range of contaminants has been detected in groundwater over the historical and recent monitoring periods, including elevated dissolved metals, PFAS and petroleum hydrocarbons. Iron and manganese exceedances have occurred repeatedly, and isolated exceedances of copper, cadmium and lead have also been reported. PFAS and hydrocarbon detections have occurred in both nominally upgradient and downgradient bores in recent monitoring years. These results indicate that anthropogenic contaminants are present within the groundwater system; however, the current data do not conclusively resolve whether their source is landfill-derived, related to legacy site activities, influenced by surface water intrusion, or associated with other hydrogeological processes such as tidal recharge.

Based on the information reviewed, the existing groundwater monitoring network is considered likely to satisfy the general intent of EA Condition 1-WT7(f), in that the installed bores are located within potentially affected formations and are capable of detecting groundwater impacts in the vicinity of the site. However, this conclusion is contingent on implementation of the recommendations made in this report to improve interpretation, strengthen compliance assessment, and better resolve contaminant sources and pathways. In particular, the current designation of BL-BH2 as an upgradient bore is not considered appropriate under the revised conceptual understanding of the site.

Key recommendations arising from this assessment are as follows:

- BL-BH2 should remain in the compliance monitoring network but should no longer be referred to as an upgradient bore.
- A new interpretation bore should be installed to the southwest of the main potential sources of impact to better characterise groundwater quality outside potential landfill influence and assist in distinguishing onsite from offsite contaminant sources.
- Bore-specific trigger values should be derived for compliance bores BL-BH1 to BL-BH4 in accordance with current Queensland guidance, with consideration of tidal influence and possible saline wedge effects.
- Surface water monitoring locations SW4 and SW5 should be revised, with consolidation to a more practicable downstream location in Christmas Creek considered.
- PFAS and petroleum hydrocarbons should be monitored at every sampling event.
- Major cations and anions should be included in every groundwater, surface water and leachate sampling round to improve water type interpretation and conceptual model validation.
- Dissolved metals should be used for groundwater trigger derivation and compliance assessment, while total metals should continue to be monitored for interpretive purposes.
- Manganese, in both dissolved and total fractions, should be monitored in groundwater, surface water and leachate during each monitoring round.

In summary, the assessment concludes that the Bluewater Landfill monitoring network provides a reasonable basis for ongoing groundwater compliance monitoring. However, refinements are required to ensure the network is fit for purpose under the current regulatory framework and sufficiently robust to support interpretation of groundwater quality trends as waste disposal activities increase. The recommended changes will improve the defensibility of the monitoring program, strengthen the hydrogeological conceptual model, and support continued assessment of potential impacts to groundwater and receiving waters.

1. Introduction

The Bluewater Landfill, located at 42386 Bruce Highway, Bluewater, is operated by Queensland Resource and Recovery Pty Ltd (QRR) and located approximately 40 km north of Townsville City (Figure 1.1). “The Site” (Lot 1 of plan: RP735647) is regulated under Environmental Authority: P-EA-100698838 (referred to hereafter as the EA). The following environmentally relevant activities (ERA's) are approved under the EA:

- ERA 60 – Waste disposal 2, operating a facility for disposing of more than 5,000 t but not more than 10,000 t of relevant waste per year.
- ERA 62 – Resource recovery and transfer facility operation 1: Operating a facility for receiving and sorting, dismantling, baling or temporarily storing:
 - General waste,
 - category 2 regulated waste, and
 - category 1 regulated waste.
- ERA 54 – Mechanical waste reprocessing 1: Operating a facility for receiving and mechanically reprocessing, in a year, more than 5,000 t of inert, non-putrescible waste or green waste only.
- ERA 57 – Regulated waste transport: Mobile and temporary within the State of Queensland.

QRR has submitted a formal change application to the Queensland State Assessment and Referral Agency (SARA) seeking an increase in the waste volumes that may be received sorted and disposed of at the facility. SARA has issued an information request in response to the Change Application. QRR have contracted Terra Solutions Pty Ltd (Terra Solutions) to undertake a Scope of Work (SoW) associated with the information request issued by SARA. This report has been prepared by Terra Solutions for the Bluewater Waste Management Facility's (Bluewater Landfill) inert landfill, and the specific SoW and purpose provided within are detailed below in Sections 1.1 and 1.2.

1.1 Scope of Works

The scope of works undertaken and presented in this document consists of a technical groundwater report presenting key findings from:

- Historic data, including:
 - Collation and review of previous water quality and monitoring reports relevant to the Site; and
 - review and consideration of surface water monitoring data relevant to the Site.
- Recent field investigations, specifically:
 - A field investigation documenting the condition of the current groundwater monitoring network; and
 - groundwater monitoring data (and potential tidal influence) captured by automated water level loggers in the groundwater monitoring bores.
- A groundwater monitoring network assessment, which:
 - describes the current groundwater monitoring network based on a desktop review and the field investigations outlined above;
 - includes a series of potentiometric maps (i.e. groundwater contour maps) to define groundwater flow direction (i.e. to identify upgradient and downgradient);
 - generated and interpreted hydrographs (time-series representations of water level) to further understand historical, seasonal, and tidal changes in groundwater flow direction;
 - undertakes a brief source-pathway-receptor analysis;
 - assesses the groundwater network and monitoring parameters;
 - determines if the groundwater monitoring network meets the requirements of item (f) of EA Condition 1-WT7; and
 - provides recommendations, if necessary, to close any identified gaps in the groundwater monitoring network.

1.2 Purpose

The purpose of this report is to provide a clear presentation and fulfillment of the scope items detailed in the fee proposal: *Absolute Waste Bluewater Landfill – Response to Request for Information* (Terra Solutions 2026) and summarised above in Section 1.1. The document is to be submitted to SARA to facilitate QRR in fulfilling the information request that they received in response to their formal change application (Section 1). A summary of the Request for Information (RFI) items included in SARA's response to the Change Application submitted by QRR, and where they are addressed within this report is shown in Table 1.1, below.

Table 1.1 Alignment of RFI items with sections within this report

RFI subject	Item	Section of this report
Landfill cell liners	Description of how the current cell liner is appropriate and ensures that leachate is prevented from being released to land and waters and the subsurface migration of landfill gas is also prevented from the landfill unit.	Section 2.2 Appendix C Appendix D Appendix E
	As part of the proposal, describe if any additional landfill lining is proposed to ensure that environmental values are protected from the disposal of waste within the landfill cells.	Section 2.2
Receiving waters environmental values – Groundwater	An interpretation of the most recent groundwater monitoring results (for at least the last 2 years of monitoring) from each of the groundwater bores at the Site, including graphical representation, by an appropriately qualified person.	Section 3.2 Section 3.3
	Information on the current groundwater monitoring program and how all aspects of condition 1-WT7 of the environmental authority have been considered and included within the program. Include a description of the current groundwater monitoring network including a map of all upgradient and downgradient monitoring bores in relation to the Site.	Section 1.4 Section 3 Section 4 Section 4.5 Appendix A
	Provide a determination by an appropriately qualified person, as to whether the current groundwater monitoring program is sufficient to monitor for and identify the increase of potential impacts and risks to groundwater as a result of the increase in waste disposal activities at the Site.	Section 4 Section 5

1.3 Limitations

The report presents findings of the recent field investigations and groundwater monitoring network assessment (Section 1.1). All data and reports available at the time of preparation were used, and recommendations were made where gaps in monitoring, data, or reporting were observed (discussed further in Section 5). However, some data may not be considered if it was not provided to or accessible at the time of preparation of this report. This report was scoped to summarise key findings from the data review and field investigations (Terra Solutions 2026). Therefore, only a summary level of detail has been presented for these items within the report.

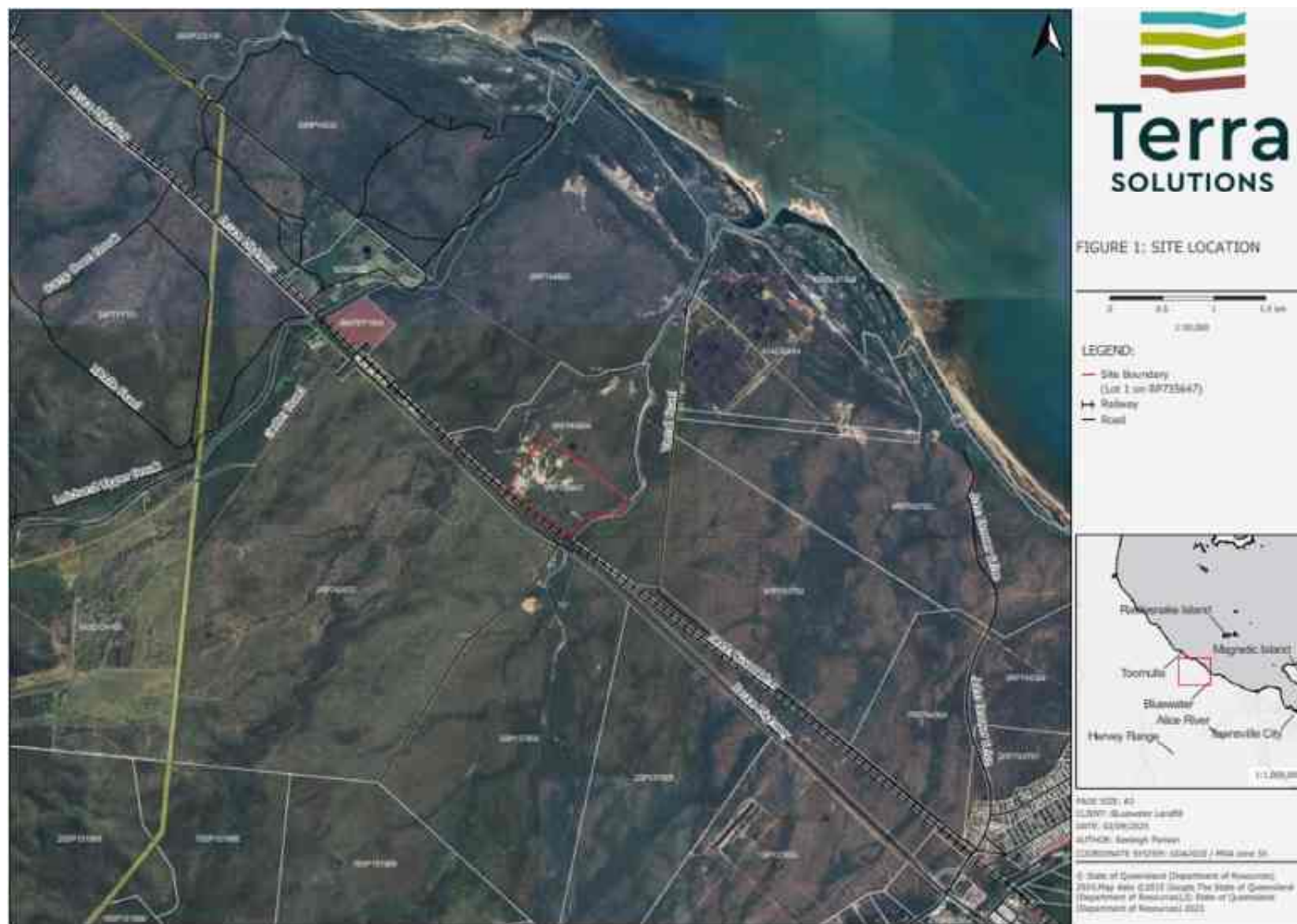


Figure 1.1: Site Location

1.4 Environmental Authority Requirements

A licence for landfilling activity (formerly NR0520) was issued for the Bluewater Landfill on 12 August 2006. The licence was amended with the most contemporary P-EA 100698838 (Attached as Appendix B) and reissued on 30 August 2024 for the ERAs listed in Section 1.

The EA specifies the monitoring requirements to assess the potential impacts of the Bluewater Landfill. Monitoring requirements are specified in conditions 1-G13 (receiving environment monitoring program), 1-W18 (Leachate), 1-WT5 (surface water), 1-WT6 to 1-WT11 (groundwater) and 1-WT12 (surface water and groundwater), and consist of the monitoring of groundwater quality, surface water quality and leachate water quality.

In accordance with the requirements of the EA, monitoring was undertaken on a quarterly basis commencing in November 2024, with subsequent rounds in February 2025, May 2025, August 2025, and February 2026. Prior to these events, monitoring was undertaken in alignment with the previous EA version. Annual reports have been produced with this monitoring data over the last two years (Terra Solutions Pty Ltd 2024, 2025).

2. Site Description

2.1 Site Setting

The Site is located at 42386 Bruce Highway, Bluewater, approximately 40 km north of Townsville in north Queensland (Lot 1 on RP735647). Access is via the Bruce highway to the southwest of the site. A site locality plan is provided in **Figure 2.5**.

The Site was developed in 2005 upon the Townsville Brickworks site, a former commercial brickworks operation that utilised the naturally formed alluvial clay deposits as a feedstock for brick production. Legacy borrow pits established during operation of the brickworks now form part of the stormwater and leachate management of the landfill operations in the east of the Site. Rehabilitation of some brickworks clay extraction areas has occurred in the southeastern corner of the Site.

Current operations at Bluewater landfill includes the storage of non-putrescible general waste disposal incorporating domestic waste clean-up and construction demolition waste (i.e. inert solid waste). Under the EA, authority for limited regulated waste (asbestos) acceptance and disposal is also provisioned. The Site occupies an area of 56 ha and has a current operational volume of is 5,000-10,000 tonnes per annum.

A resource recovery area, ancillary to landfilling activities is designated for the sorting, segregation, screening and crushing of recoverable resources (concrete, gyprock, metals, timber including green waste). The landfill largely services the commercial waste sector (skip hire and bulk waste operators) within the greater Townsville region.

Progressive surface capping occurs, with soil and recovered earthen material. A leachate reticulation system has been established within the operational cell, and is used for the transfer, retention and evaporation of leachate in onsite ponds (Terra Solutions Pty Ltd 2024, 2025). Overflow is to the adjacent land, noting evaporation rates typically exceed inputs. Landfill cell liners are understood to be in use (described in further detail below).

2.2 Landfill cell liners

Waste disposal activities are to be sited, designed, operated and rehabilitated appropriately, with supporting evidence provided as part of EA assessment on a case-by-case, risk-based basis (State of Queensland 2025). Principal functions of a landfill liner system are limiting contaminant migration to groundwater and controlling landfill gas migration (State of Queensland 2025, Section 6.2). This is achieved by slowing the vertical and lateral seepage of leachate so that leachate can be collected and removed by the leachate collection system, while also containing landfill gas within the landfill.

It is understood that landfill cell liners are installed in the current cells, to the specifications presented in the D & N Pascoe development application (Appendix C and Appendix D). The layout of infrastructure (including cells, slotted PVC leachate collection pipes, and ponds is shown in Appendix C; while the liner composition and thicknesses are shown in Appendix D. Designs show a (minimum) 300 mm layer of clay, compacted to 97% MDD, with permeability (K) of 10^{-9} m/s. Permeability tests conducted in 2002 by MSM Engineering produced permeability values on the order of those dictated in the design documents (Appendix E). These results are summarised below in Table 2.1.

The liner is understood to extend from beneath the bunds at the edges of the cells, and beneath the entire cell. It has a 300 mm layer of rubble like material overlying it, to facilitate leachate drainage toward the 150/300 mm slotted PVC leachate collection pipes. Slopes of this rubble layer and the underlying liner are documented as being around 18.44 degrees around the edges of the cells, followed by a 2% fall (1.15 degrees) towards the slotted PVC leachate collection pipes. Appendix C shows that POND 2 and POND 3 receive leachate, while POND 1 receives the drainage swale discharge and overflow from POND 2. Correspondence from the Ace Mini Skips Administration Officer (Appendix F) notes that neither of the leachate storage ponds have overflowed in the past 17 years, including during the 2019 floods. This statement is understood to infer that overflow from POND 2 into POND 1 also has not occurred in the past 17 years.

In addition, SDAP State code 22 requires development to be suitably located and designed to avoid or mitigate environmental harm to the receiving waters environment (PO4), with AO4.1 referring to the management intent, water quality guidelines and objectives of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019. Available design information indicates that the site incorporates containment and drainage measures intended to protect groundwater and receiving waters. Furthermore, following the original assessment presented in this report, QRR updated the site management plans. The updated plans (current at the time of issuing version 2.02 of this report) are attached in Appendix G.

Table 2.1 Coefficient of permeability values from tests conducted by MSM Engineering

Borehole	Location depth	Trial 1 (m/sec)	Trial 2 (m/sec)	Average coefficient (m/sec)	Material description
BH 9	3.8 - 4.0 m	1.0E-09	1.3E-09	1.2E-09	Clayey SAND (SC) fine to medium grained sand, light brown, low plasticity fines.
BH 11	5.2 m	1.2E-09	9.5E-10	1.1E-09	Clayey SAND (SC) fine to medium grained sand, brown, low plasticity fines.
BH 13	6.0 m	5.9E-10	5.2E-10	5.6E-10	Clayey SAND (SC) fine to medium grained sand, brown, low plasticity fines.
BH 21	1.0 - 3.0 m	3.6E-10	3.6E-10	3.6E-10	Clayey SAND (SC) fine to medium grained sand, brown, low plasticity fines.
BH 23	3.8 m	2.8E-10	3.9E-10	3.4E-10	Sandy CLAY (CI) medium plasticity, grey, fine to medium grained.
BH 25	3.6 - 4.0 m	4.6E-10	2.7E-10	3.7E-10	Sandy CLAY (CI) medium plasticity, grey/brown, fine to medium grained.
BH 28	3.5 - 3.8 m	2.5E-10	1.6E-10	2.1E-10	Sandy CLAY (CI) medium plasticity, grey, fine to medium grained.
BH 29	0.2 m	6.3E-10	7.2E-10	6.8E-10	Clayey SAND/Sandy CLAY (SC/CI) medium plasticity, grey, fine to medium grained.
BH 30	3.5 - 4.0 m	5.6E-10	5.4E-10	5.5E-10	Clayey SAND (SC) fine to medium grained, grey, medium plasticity.
BH 31	5.0 m	4.4E-10	3.6E-10	4.0E-10	Clayey SAND (SC) fine to medium grained, grey, medium plasticity.

2.3 Landfill gas

The guideline (State of Queensland, 2025) indicates that landfill risks vary according to the types of waste accepted and that landfill gas (LFG) must be considered on a site-specific, risk-based basis. In this context, facilities accepting only non-putrescible waste may reasonably be expected to present a comparatively low landfill gas risk relative to putrescible landfills. LFG is primarily generated through the anaerobic decomposition of organic, putrescible waste materials such as household food waste, green waste, paper and other biodegradable fractions. In typical municipal solid waste landfills, this process produces methane and carbon dioxide, which may pose risks to on-site and off-site receptors due to their explosive and asphyxiant properties, odour impacts, potential for off-site migration, and contribution to greenhouse gas emissions. By contrast, non-putrescible construction and demolition (C&D) landfills such as the GSQ Landfill differ fundamentally in waste composition and, therefore, are not expected to present the same level of gas-related risk.

It is understood that the Bluewater Landfill accepts materials with little to no biodegradable organic content, including concrete, bricks, metals, plastics, timber, inert soils, glass and asphalt. As these wastes do not typically undergo significant biological decomposition, and because the prevailing conditions in a C&D landfill are generally aerobic rather than anaerobic, the mechanisms necessary for sustained methane generation, and to a lesser extent carbon dioxide generation, do not generally exist.

It is understood that the Bluewater Landfill collects green waste in the Resource Recovery Area (RRA). However, this waste does not make its way into landfill cells and is turned over regularly to ensure that oxidising conditions exist (preventing anaerobic pathways to LFG production). While minor quantities of timber or other potentially degradable materials may occur within the waste stream, these are not anticipated to be present in sufficient proportions to generate meaningful quantities of landfill gas. Any gas that is produced would likely be limited in volume and concentration, short-lived, and unlikely to develop sufficient pressure to enable subsurface migration. Accordingly, with low or negligible methane generation, the typical risks associated with landfill gas, including migration, accumulation in confined spaces, and explosive or asphyxiant conditions, are considered unlikely. Carbon dioxide generation is also expected to be minimal, reducing the potential for oxygen displacement in confined spaces or nearby structures.

This interpretation is broadly consistent with the current environmental authority framework. It is assumed that site-specific landfill gas assessments were undertaken previously as part of the supporting evidence for environmental approval. The current EA (P-EA 100698838) includes methane trigger levels under Conditions 1-A4 and 1-A5 (Appendix B), indicating that landfill gas has been considered in the regulatory context. However, landfill gas monitoring and collection systems are not otherwise referenced, aside from Conditions 1-L4 and 1-L5, which relate to the closure and post-closure phases of operation. This is generally consistent with the expectation that operational landfill gas risks for an inert or predominantly non-putrescible landfill would be low, with any future gas management measures more likely to be relevant to later stages of the landfill lifecycle if waste acceptance practices were to change or if unexpected degradable material inputs were identified.

For all of the reasons outlined above and subject to the landfill continuing to accept only inert or non-putrescible waste streams, long-term active landfill gas monitoring or collection infrastructure would not typically be expected to be necessary.

2.4 Surrounding Land Use

The Site is bounded by the Bruce Highway and north coast rail line to the southwest. Christmas Creek borders the north-east of the Site approximately 200 m from operation and Sleeper Log Creek occurs 700 m south of landfill operations. Other surrounding land primarily consists of natural ecosystems and grazing native pastures.

2.5 Climate

Bluewater experiences a dry tropical climate that is dominated by distinct seasons; the wet season (November to April) and dry season (May to October). Rainfall in the Bluewater area results from a variety of synoptic patterns, the most common being south-easterly storm tracks, tropical cyclones and barometric troughs. The closest weather station is Yabulu Qld Nickel weather station (ID 32050), situated approximately 12 km east of the site (BOM 2025a). As the Yabulu Qld Nickel weather station lacks data for some periods (for example, February 2025), records from Townsville Aero (ID 32040) (BOM 2025b) were also used for interpretation of climate.

Cumulative Rainfall Departure (CRD) is a simple indicator used to compare rainfall conditions over time against a long-term average. It is commonly used in groundwater assessments as a broad proxy for climatic conditions influencing recharge and groundwater level behaviour. In groundwater context, CRD does not directly measure recharge, but it can assist in interpreting whether groundwater trends are occurring during relatively wetter or drier (than average) periods. An increasing CRD trend reflects a period of above average rainfall, while a decreasing CRD trend reflects a period of below average rainfall. CRD is therefore useful as an interpretive line of evidence for groundwater assessments, providing useful context when considering whether observed groundwater level changes may be influenced, at least in part, by climatic variability rather than site-specific factors alone.

CRD values for both rainfall stations were calculated from historic data dating back to 1941 (the first record available for the Yabulu station). However, the x-axis has been clipped to show the last 20 years, to improve clarity in both figures. The monthly rainfall data and CRD derived from the Yabulu Qld Nickel weather station is presented in Figure 2.1, demonstrating that the last five years have been considerably wetter than the long-term average. The monthly rainfall data and CRD derived from the Townsville Aero weather station is presented in Figure 2.2, demonstrating a similar trend (particularly over the last two years) in a second locality.

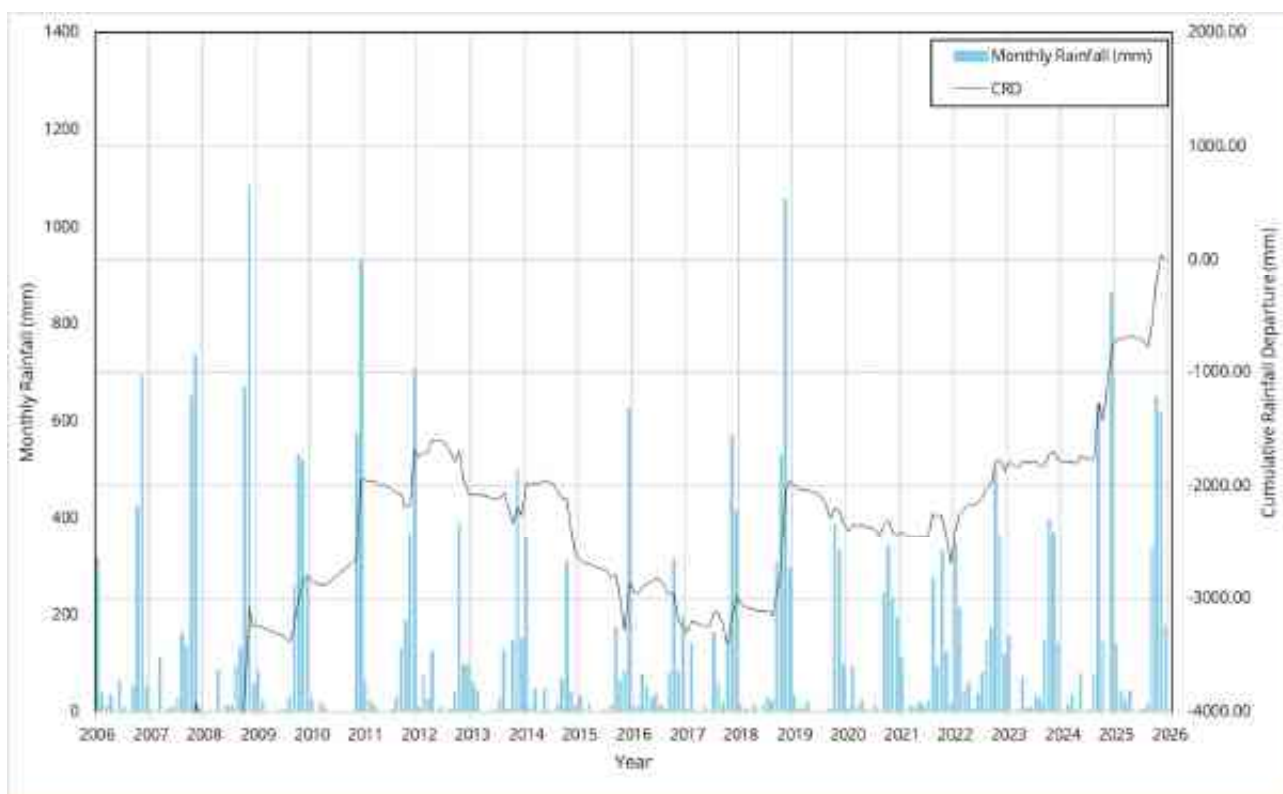


Figure 2.1 Monthly rainfall and CRD for Yabulu Qld Nickel weather station (ID 32050)

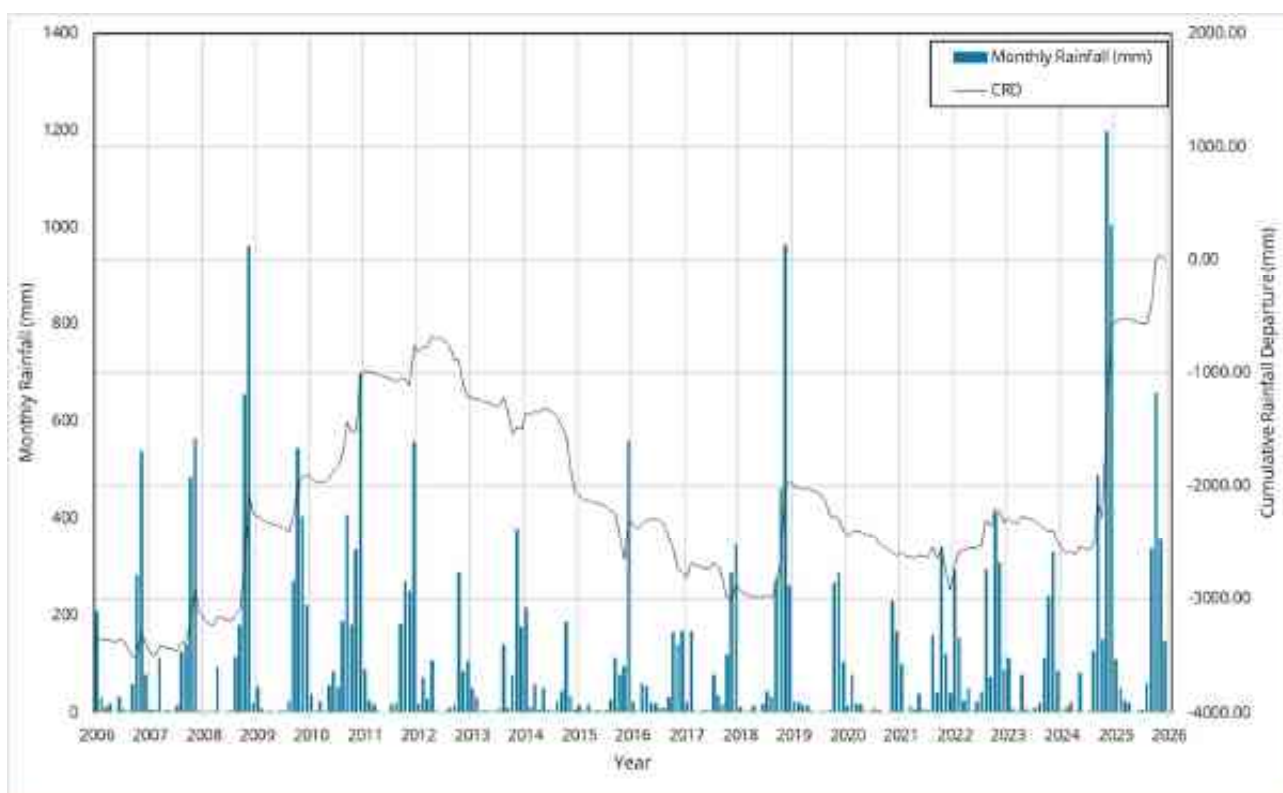


Figure 2.2 Monthly rainfall and CRD for Townsville Aero (ID 32040)

2.6 Geology

Bluewater Landfill is located approximately two kilometres from the coastal extent of Paluma Range National Park and six kilometres from the inland extent (Figure 2.3). The site is approximately three kilometres from the coastline, and the surface geology is dominated by Quaternary Alluvium including clay, silt, sand and gravel and flood plain alluvium on high terraces. One recorded stratigraphic sequence is available from a groundwater bore at the site reaching a depth of 12 meter below ground level (mbgl). It shows clay from 0 to 12 mbgl, with no sand or gravel in the upper 6 m of the sequence (Appendix A). Sand, pebbles and gravel are present below 5 mbgl, and the content of clastic material may increase with depth.

2.7 Soil

Soil types for the subject site have been classified and mapped in the 'Soils and Land Use on the Northern Section of the Townsville Coastal Plain, North Queensland' (Murtha 1975) as Bluewater. This unit is described as soils of recent levees and alluviums, which are characterised as possessing a brown or grey-brown sandy loam A1 horizon overlying a slightly paler weakly developed A2 horizon, normally massive but occasionally with a weak subangular blocky structure (Terra Solutions Pty Ltd 2024, 2025).

2.8 Hydrology & Topography

The Site is situated on relatively flat terrain below ten meters AHD and has minimal change in elevation (Figure 2.4). Christmas Creek, a stream order three watercourse traverses land along the northwestern flank of the site. Sleeper Log Creek, a stream order four watercourse traverses land along the southeastern flank of the site. Sleeper Log Creek originates approximately 12 km south-west of the site in the Paluma Range National Park. Christmas Creek and Sleeper Log Creek converge to the northeast of the site and discharges into Halifax Bay approximately two kilometres northeast.

Surface water flows are directed around the landfill extent via constructed earth division bunds to the east and west of the operational area (Section 2.2; Appendix C). Surface water ponding has been historically reported at the eastern extent of the landfill during rainfall events, which was confirmed by the operator during the February 2019 Townsville flood event.

Christmas Creek and Sleeper Log Creek are considered intermittent, with surface flows occurring during the wet season months (November to March) and after rainfall events, while isolated pools persist through the dry season (April to October). Both watercourses contain tidally influenced water downstream of the site. These waters are identified as moderately disturbed mid-estuary waters on the Environmental Protection Policy (EPP) map of the Bluewater lowland catchment (WQ1171 - Black River Basin 117) (DESI 2018). Immediately adjacent to the site the waters of Christmas and Sleeper Log Creeks are identified as moderately disturbed lowland freshwater and have been referenced in assessing potential impact and or influence. The highest astronomical tide line reaches both sides of the site (Figure 2.4) and some physio-chemical indicators in waters (e.g. electrical conductivity (EC)) may deviate based on the tidal regime at the time of sampling (Terra Solutions Pty Ltd 2024, 2025).

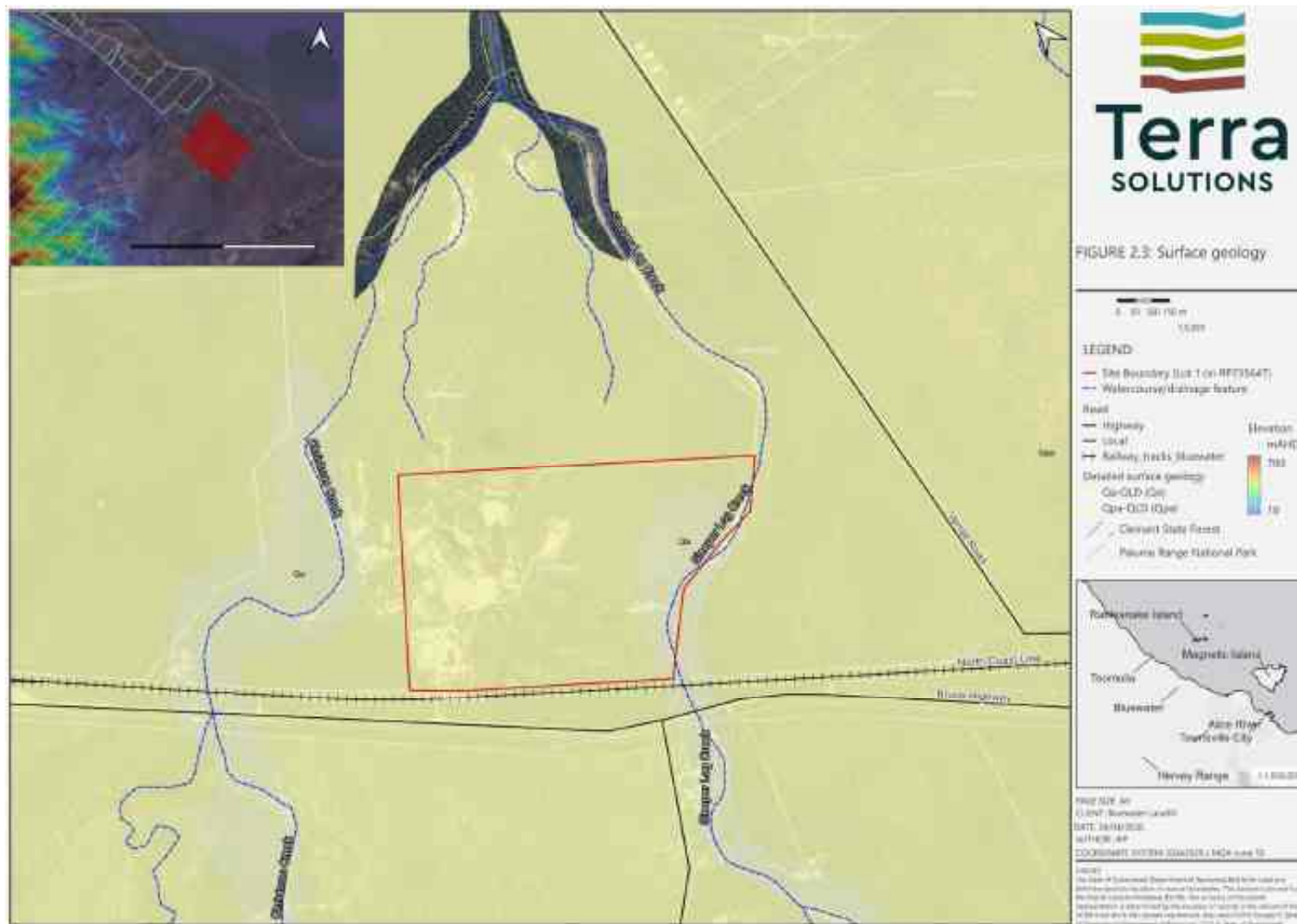


Figure 2.3 Surface Geology



Figure 2.4 Topography

2.9 Environmental Values

Black River Basin Environmental Values and Water Quality Objectives (DEHP 2013) has been prepared pursuant to the provisions of the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (EPP (Water))*, which is subordinate legislation under the EP Act. The EPP (Water) provides a framework for:

- Identifying environmental values (EVs) for Queensland waters and deciding the water quality objectives (WQOs) to protect or enhance those EVs, and
- Including the identified EVs and WQOs under Schedule 1 of the EPP (Water).

The water type and the spatial extent and boundaries of surface freshwater and groundwater zones which fall into the Black River Basin (basin 117) are identified in the Plan WQ1171 and WQ1184 respectively. The immediate receiving water type of the project area is classified as moderately disturbed 'lowland freshwaters'.

The EVs for the Black River fresh waters and groundwater and their relevance to project are shown in **Table 2.2** with respect to the Bluewater Landfill (Terra Solutions Pty Ltd 2024, 2025).

Table 2.2: Environmental Values of Black River Basin

Environmental Values	Definition	Surface Water	Groundwater
Aquatic ecosystems	A community of organisms living within or adjacent to water, including riparian or foreshore area. (EPP (Water and Wetland), schedule 2).	✓	✓
Irrigation	Suitability of water supply for irrigation, for example, irrigation of crops, pastures, parks, gardens and recreational areas.	✓	✓
Farm supply/use	Suitability of domestic farm water supply, other than drinking water. For example, water used for laundry and produce preparation.	✓	✓
Stock water	Suitability of water supply for production of healthy livestock.	✓	✓
Aquaculture	Health of aquaculture species and humans consuming aquatic foods (such as fish, molluscs and crustaceans) from commercial ventures.	-	✓
Drinking water	Suitability of raw drinking water supply. This assumes minimal treatment of water is required, for example, coarse screening and/or disinfection.	-	✓
Industrial	Suitability of water supply for industrial use, for example, food, beverage, paper, petroleum and power industries, mining and minerals refining/processing. Industries usually treat water supplies to meet their needs.	-	✓
Human consumption	Health of humans consuming aquatic foods – such as fish, crustaceans, and shellfish (other than oysters) from natural waterways. (EPP (Water and Wetland), s. 6).	✓	-
Primary Recreation	Primary recreation Health of humans during recreation which involves direct contact and a high probability of water being swallowed, for example, swimming, surfing, windsurfing, diving, and water-skiing. Primary recreational use, of water, means full body contact with the water, including, for example, diving, swimming, surfing, water-skiing, and windsurfing. (EPP (Water), s 6)	✓	-
Secondary recreation	Health of humans consuming aquatic foods, such as fish, crustaceans, and shellfish from natural waterways. (EPP (Water and Wetland), s. 6).	✓	-
Visual recreation	Health of humans during recreation which involves direct contact and a high probability of water being swallowed, for example, swimming, surfing, windsurfing, diving, and water-skiing. Primary recreational use, of water, means contact other than full body contact with the water, including, for example, boating and fishing, (EPP (Water and Wetland), s. 6).	✓	-
Cultural and spiritual values	Health of humans during recreation which involves indirect contact and a low probability of water being swallowed, for example, wading, boating, rowing, and fishing. Secondary recreational use, of water, means contact other than full body contact with the water, including, for example, boating and fishing. (EPP (Water and Wetland), s. 6).	✓	-

2.10 Monitoring Network

The current monitoring network is understood to have been rationalised and installed by GHD between 2004 and 2017 (GHD 2017). Details of the network are presented in **Table 2.3** and represented spatially on **Figure 2.5**.

Table 2.3: Monitoring Locations

Bore ID	Description	Level Top of Casing (m AHD)	Well Depth	Latitude	Longitude
Groundwater					
BL-BH1 (BH1)	East of landfill operations, down-gradient	8.87	6.358	-19.136	146.514
BL-BH2 (BH2)	West of landfill operations, up-gradient	8.16	10.59	-19.137	146.512
BL-BH3 (BH3)	East of landfill operations, down-gradient	8.4	10.40	-19.137	146.516
BL-BH4 (BH4)	Southeast of landfill operations, down-gradient	9.84	11.75	-19.140	146.513
Surface Water					
BL-SW1	Upstream reach of Sleeper Log Creek, directly south of the landfill and adjacent to the railway bridge.	-	-	-19.143	146.516
BL-SW2	Downstream reach of Sleeper Log Creek, approximately 400 m from BL-SW1. Located on a rock bar that extends along the northern bank of the creek.	-	-	-19.141	146.519
BL-SW3	Upstream reach of Christmas Creek, directly north-west of the landfill and adjacent to the railway bridge.	-	-	-19.136	146.510
Leachate					
BL-L1	Located on eastern boundary of landfill operations.	-	-	-19.136	146.516



Figure 2.5: Sample Locations

2.11 Potential sources of impacts

Consistent with the Queensland Landfill siting, design, operation and rehabilitation guideline (State of Queensland 2025) and SDAP State code 22, the relevant potential sources of impact for a landfill facility are those that may cause environmental harm to groundwater, receiving waters, air, adjacent sensitive uses and other environmental values if not appropriately contained and managed.

In this context, the main potential sources of impacts relevant to the present assessment are considered to be:

- Leachate generation and migration from waste cells or associated leachate infrastructure;
- spills, leakage or overflow from leachate collection, transfer or storage systems;
- seepage to groundwater or lateral migration to surrounding land from defects, deterioration or discontinuities in liner or containment systems;
- contaminated stormwater or contact water generated by rainfall interacting with waste or operational areas;
- operational contaminants such as pesticides, fuels, and lubricants; and
- landfill gas generation and migration, where generated.

For the Site, the designation of the waste stream as non-putrescible is relevant to the character and relative magnitude of potential impacts. In general, a non-putrescible waste stream would be expected to present a lower potential for biodegradation-related landfill gas generation, odour and highly loaded putrescible leachate than a landfill accepting putrescible wastes. However, these pathways should still be considered, to ensure conservative management.

On the basis of the information reviewed for this assessment, the most pertinent information on the potential sources of impact relate to the integrity and continuity of the liner and leachate collection system, the management and storage of collected leachate, and the ability of the overall containment system to prevent adverse effects on groundwater and receiving waters.

While landfill gas should remain a recognised pathway in principle, the understanding that the facility accepts non-putrescible waste supports a more limited, qualitative discussion of landfill gas risk. This approach is consistent with the guideline's emphasis on site-specific, risk-based assessment (State of Queensland 2025) and the present assessment being based on available plans, correspondence, and data; rather than detailed as-built validation or review of baseline environmental assessments.

The historic brickworks may present a potential legacy source of impacts. However, impacts (if they exist) are expected to be localised hydrocarbons/tars/PAHs, metals in made ground, and fluoride; associated with the brickworks operations and infrastructure.

3. Hydrogeological conceptual model

3.1 Hydrostratigraphic units

The only geological units present at the Site are Quaternary cover units. The characteristics of the cover units reflect the nature of the source rocks, weathering, transport, and depositional conditions. Variable clays, silts, sands, and gravel comprise these only hydrostratigraphic unit present at the Site. This unit has variable primary porosity, which is dependent on the size and properties of the comprising grains and the degree of cementation and compaction of these units. In particular, the clay content of this unit has a significant influence on its permeability.

Permeability data reported for nearby registered bores suggests that high flow aquifers may exist in the area (Bluewater Environmental 2020). However, the registered bores with high groundwater yields are considerably deeper than the monitoring bores on the Site. Furthermore, the presence of the historical brickworks (Section 2.1) and surface geology of the area (Section 2.6) indicates that a smaller grain size with a considerable clay component dominates shallow hydrostratigraphic sequences, reducing permeability. This is supported by the lithological sequence presented above, in Section 2.6. Christmas and Sleeper Log Creeks do not appear considerably different geomorphologically and therefore no clear differences in sedimentation dynamics are inferred between them. The horizontal heterogeneity of the shallow clay rich hydrostratigraphic unit(s) is relatively unknown.

3.2 Groundwater levels

Groundwater level monitoring data has been collected as part of the quarterly monitoring at the Site between 2017 and the time of reporting and have ranged from around 2 mAHD to 12 mAHD, this data is presented below, in Figure 3.1. The key observation from the water level data are:

- All groundwater monitoring bores have broadly similar trends until late 2023.
- There are no clear relationships between water level and rainfall; however, this is potentially due to differences in data density over time.
- After 2023 groundwater levels in BL-BH4 are relatively flat, whereas oscillating trends are apparent in the other bores.
 - Previous reports have noted that responses to rainfall often take much longer to be observed at this location due to the low permeability clay substrates at this location (Wulguru Technical Services Pty Ltd 2023).

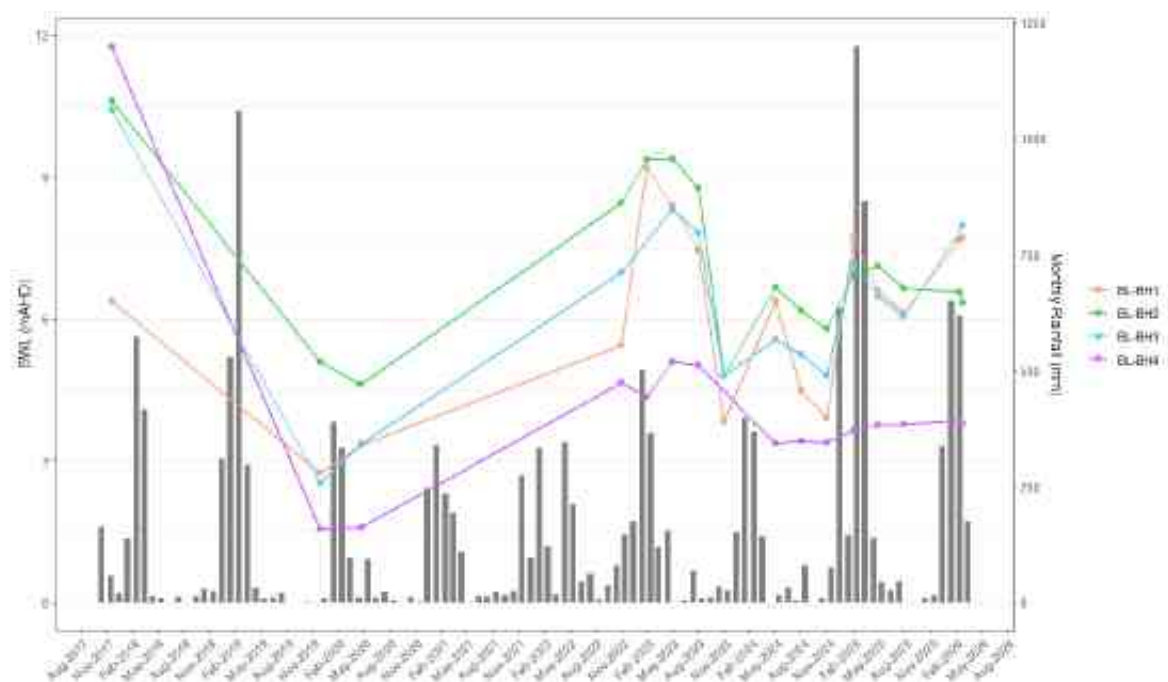


Figure 3.1 Manual groundwater level records and monthly rainfall (Yabulu) from 2017 to present

3.2.1 Potentiometric groundwater contour maps

Potentiometric groundwater data was used to derive groundwater contour maps, using the kriging method within Surfer® (Golden Software, LLC). The preliminary kriged contour maps were modified to reflect the conceptual understanding of the site, this modification involved:

- Opening of contours in areas of uncertainty,
- adding dummy points to constrain groundwater contours to the depth of creek incisions during the dry season,
- adding dummy points to reflect likely mounding/hydraulic loading of groundwater beneath Cell 1 (0.5m added to original interpolated groundwater height in two locations where the structure is around ten meters higher than surrounding ground), and
- adding a dummy point to the northwest of the site to reflect the regional scale conceptualisation of groundwater moving from the Paluma Ranges in the southwest toward the coastline in the northeast (GHD 2017, Pg. 17).

Christmas Creek and Sleeper Log Creek are deeply incised, between five and ten meters based on DEMs (Figure 3.2; Figure 3.3). To reduce dry season bias in the post wet contour map, one meter was added to the creek incision dummy points. The aim of this was to reflect a combination of the (likely) reversed hydraulic gradient perpendicular to the creek lines during peak flood events, and the associated increases in recharge/slowing of discharge within and along the drainage lines around these events. One meter was chosen in place of a greater value to conservatively reflect the relatively short periods of peak events (i.e. the ephemeral nature of creeks discussed in Section 2.8).

Groundwater contours generated from the post-dry (August) and post-wet (February) season water levels measured in 2025 show a general seasonal variation/increase of around one meter (Figure 3.2; Figure 3.3). This is consistent with past assessments (Wulguru Technical Services Pty Ltd 2023). It is noted that the measured potentiometric water level at BH4 was actually lower in the post-wet monitoring (Figure 3.3) than in the post-dry monitoring (Figure 3.2).

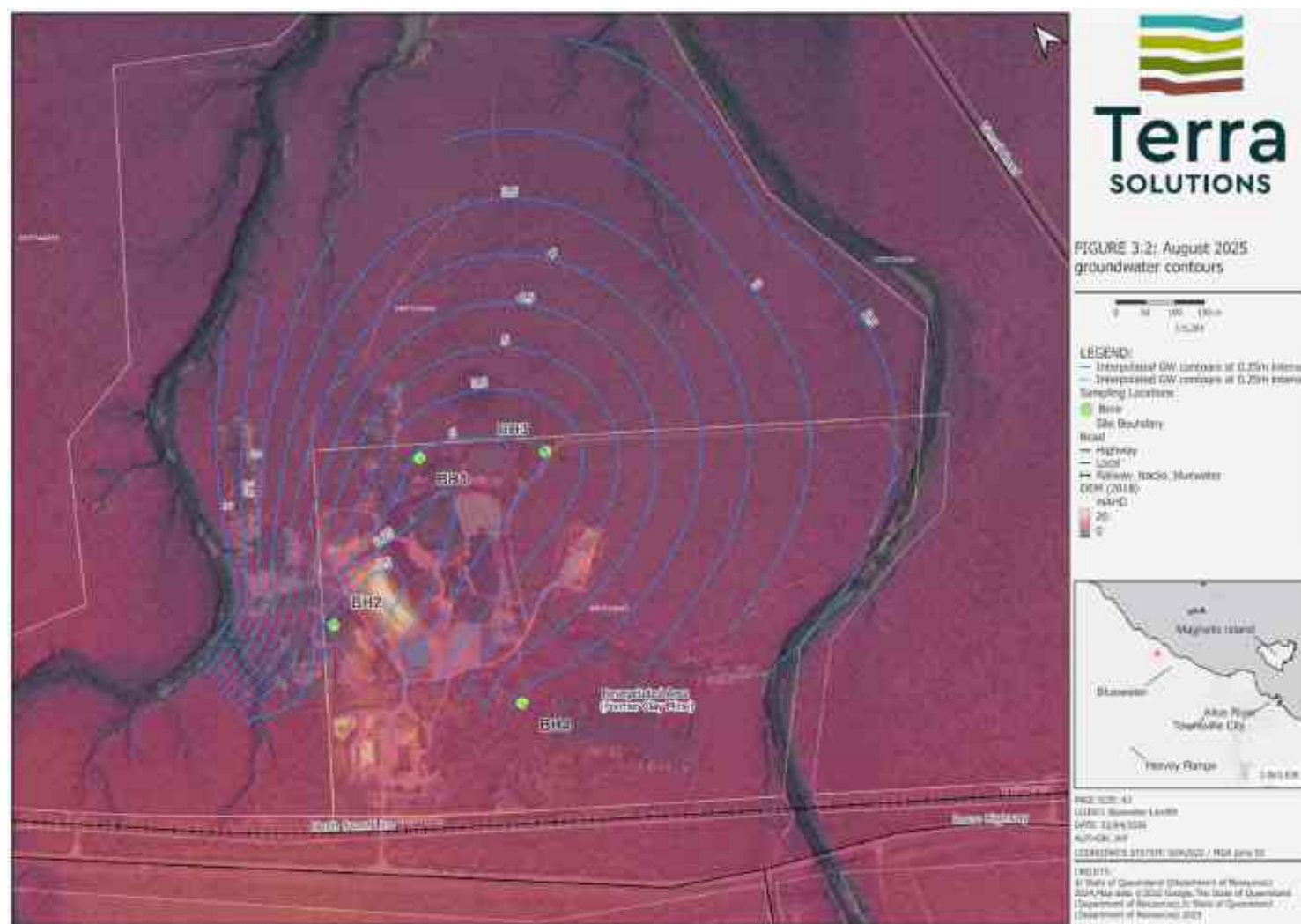


Figure 3.2 August 2025 groundwater contours

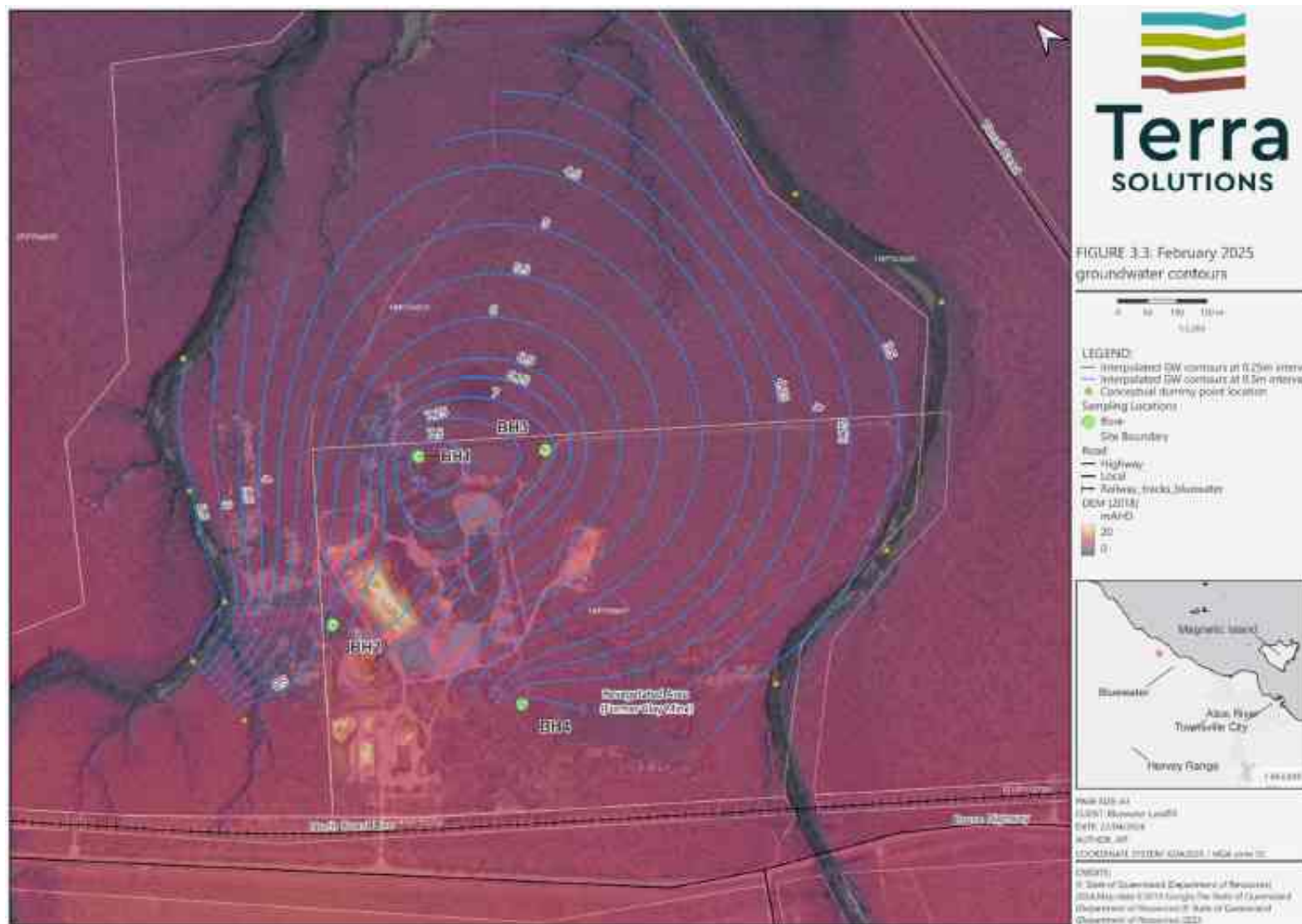


Figure 3.3 February 2025 groundwater contours

3.2.2 Potential tidal influence

Previous reports (GHD 2017; Terra Solutions Pty Ltd 2024, 2025; Wulguru Technical Services Pty Ltd 2023) have indicated that tidal influence may be a factor contributing to variability in groundwater level at the site. In February 2026, Terra Solutions field staff deployed automated groundwater level loggers in groundwater bores BL-BH1 through BL-BH4 to further evaluate this influence. A barometric logger was simultaneously deployed to allow retrospective compensation for barometric variations during the logging period. Loggers were set to log at fifteen-minute intervals for the first month and following collection of data from the loggers, they were compensated for barometric variations. Daily rainfall data were also obtained from the Bureau of Meteorology (Yabulu Qld Nickel weather station, ID: 32050) to allow side by side comparison of tidal and rainfall influences on groundwater level variability at each bore. Figure 3.4 through Figure 3.11 show these comparisons.

Logged (potentiometric) groundwater levels at BL-BH1 show the dominant pattern is short-term rising and falling trend patterns of 0.2 to 0.3 m occurring across periods of just under a week (Figure 3.4). The duration of these patterns is too large to be driven primarily by individual tides, and it does not show a clear correlation with the neap-spring tide cycle¹. However, the rising and falling trends observed at BL-BH1 correlate well with rainfall events recorded at Yabulu Qld Nickel weather station, suggesting that rainfall is a key driver of short term water level fluctuations in the hydrostratigraphic unit screened at this location, and recharge occurs relatively quickly after rainfall (Figure 3.5). Closer inspection of minor fluctuations in the logged groundwater levels (in the order of 0.03 to 0.04 m over six to seven hours) show a consistent correlation with daily tidal cycles, with a response lag time of around seven hours.

Logged groundwater levels at BL-BH2 show some rising and falling trend patterns across a similar temporal scale to those observed at BL-BH1. However, their correlation with frequency and intensity of rainfall event is not as clear at BL-BH2 when compared with BL-BH1 (Figure 3.5; Figure 3.7). Weekly trends at BL-BH2 show less variation (generally >0.1 m) and the broad-scale trend is upward over the one-month period, contrasting with the broad-scale trend at BL-BH1, which was downward. This suggests that while rainfall is likely a driver of water level fluctuations at BL-BH2, recharge is slower compared with BL-BH1. It is unclear from the available data whether the neap-spring tide cycle is a key driver of water level fluctuations at BL-BH2, additional data collected over the coming months will clarify this. Minor fluctuations in the logged groundwater levels (in the order of 0.03 to 0.04 m over six to seven hours) are also present at BL-BH2 and show a consistent correlation with daily tidal cycles, with a response lag time of around six and a half hours.

Logged groundwater levels at BL-BH3 show some rising and falling patterns across a similar temporal scale to those observed at BL-BH1. There is strong correlation with rainfall events (Figure 3.9), although the increases in logged groundwater level are generally in the order of 0.03 to 0.08 m, much less than those observed at BL-BH1. One sudden rise on the 6th of March 2026 appears to begin the day prior to the rainfall event, but this may be the product of the rainfall event beginning at the Site one day ahead of the Yabulu Qld Nickel weather station (i.e. it due to local rainfall variability). Recharge from rainfall also appears to reach the screened interval quickly at this location. Some very minor tidal influence (generally less than 0.01 m) appears to occur at BL-BH3, and the overall trend in water level is downward (Figure 3.8).

Logged groundwater levels at BL-BH4 show rising and falling trends very similar to those observed at BL-BH2 (Figure 3.6; Figure 3.10). As with the data from BL-BH2, groundwater responses from rainfall events are not clear (Figure 3.7; Figure 3.11). Weekly trends at BL-BH4 show less variation (generally >0.1 m) and the overall trend is flat over the one-month period. This suggests that while rainfall likely influences water level fluctuations at BL-BH4 to some degree, recharge patterns are less evident, and likely slower compared with BL-BH1 and BL-BH3. Minor fluctuations in the logged groundwater levels (in the order of 0.03 m over six to seven hours) are also present at BL-BH4 and show a consistent correlation with daily tidal cycles, with a response lag time of around seven to ten hours.

¹ The neap-spring tide cycle determines the size of tidal movements and is influenced by the relative positions of the earth, moon, and sun; occurring on a roughly 14 to 15 day cycle.

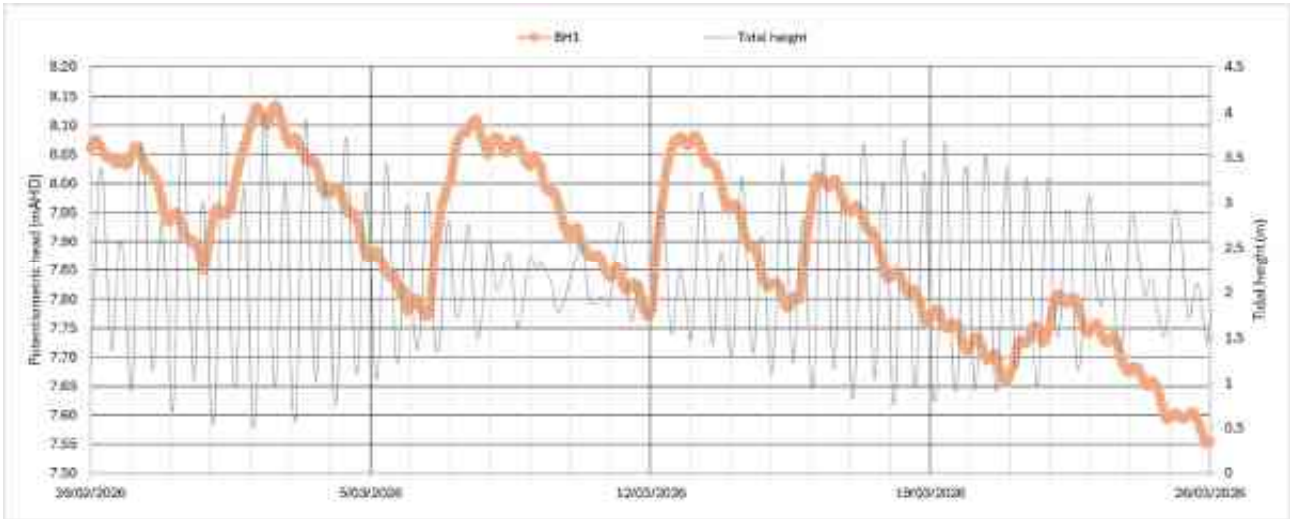


Figure 3.4 Tidal height (Townsville Berth 1) and logged potentiometric head at BL-BH1

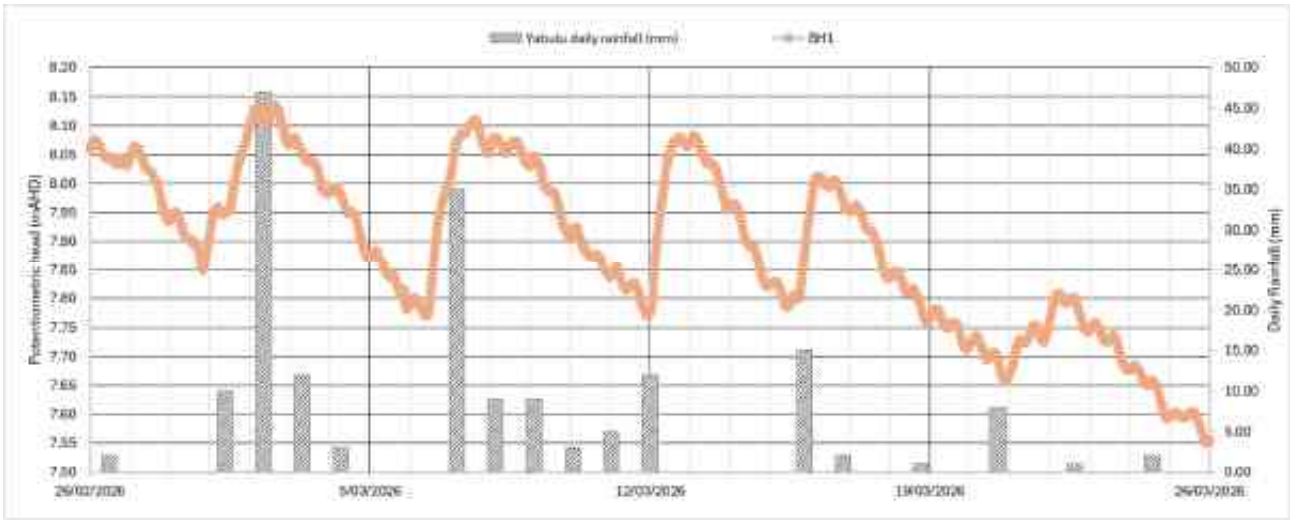


Figure 3.5 Daily rainfall (Yabulu Qld Nickel weather station: ID 32050) and logged potentiometric head at BL-BH1

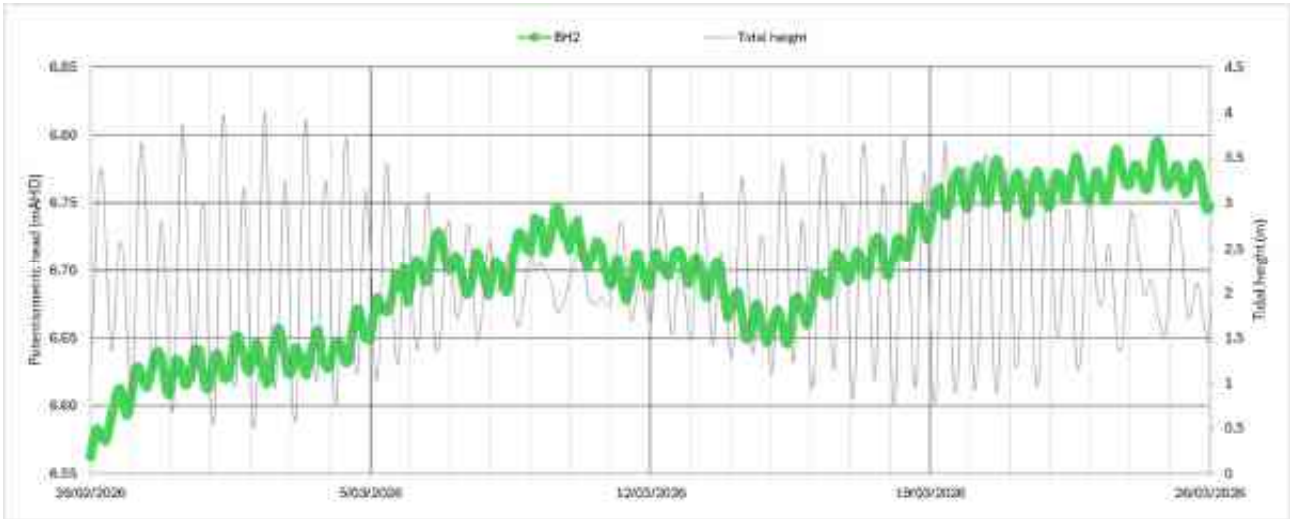


Figure 3.6 Tidal height (Townsville Berth 1) and logged potentiometric head at BL-BH2



Figure 3.7 Daily rainfall (Yabulu Qld Nickel weather station: ID 32050) and logged potentiometric head at BL-BH2

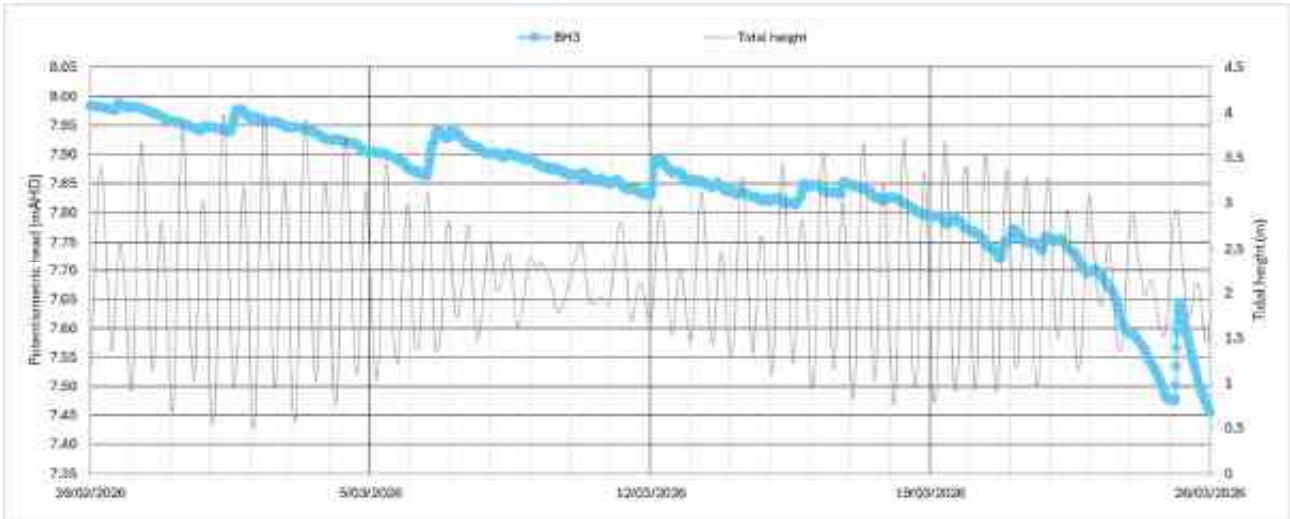


Figure 3.8 Tidal height (Townsville Berth 1) and logged potentiometric head at BL-BH3

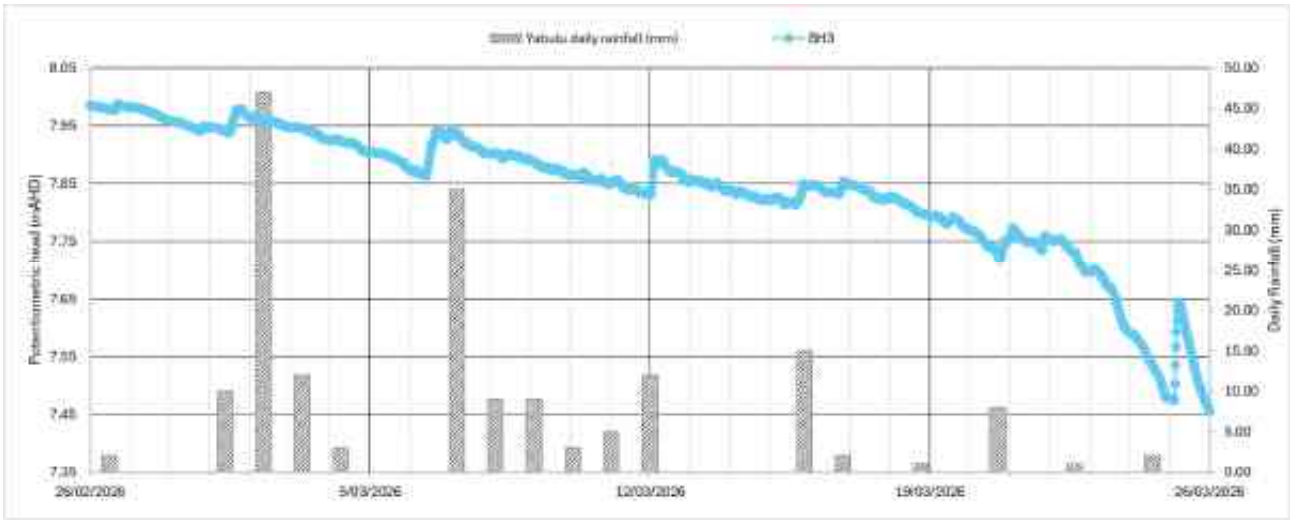


Figure 3.9 Daily rainfall (Yabulu Qld Nickel weather station: ID 32050) and logged potentiometric head at BL-BH3

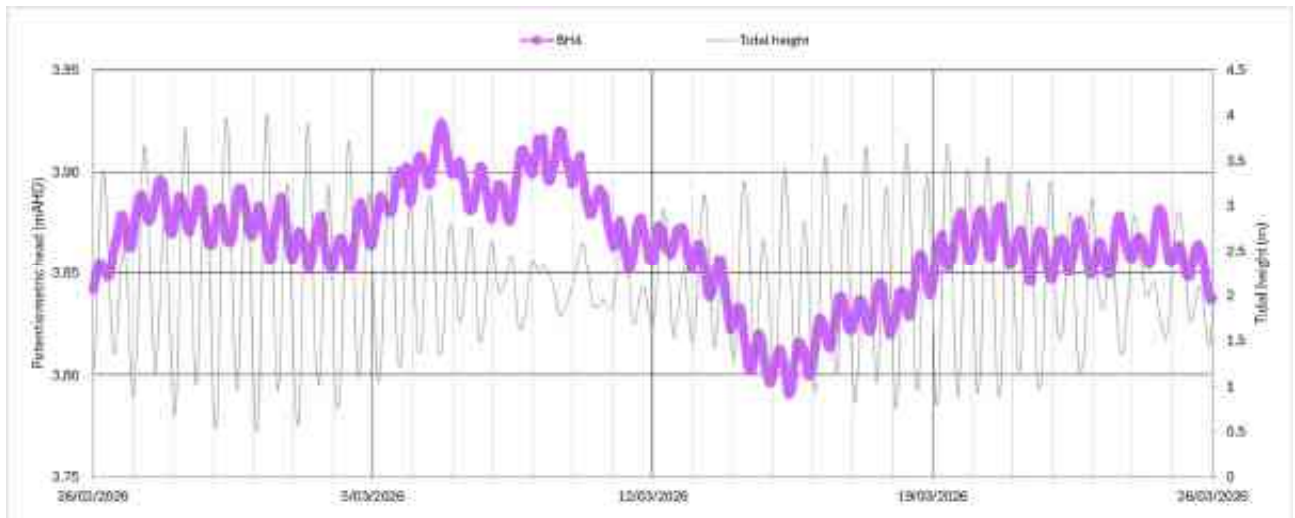


Figure 3.10 Tidal height (Townsville Berth 1) and logged potentiometric head at BL-BH4

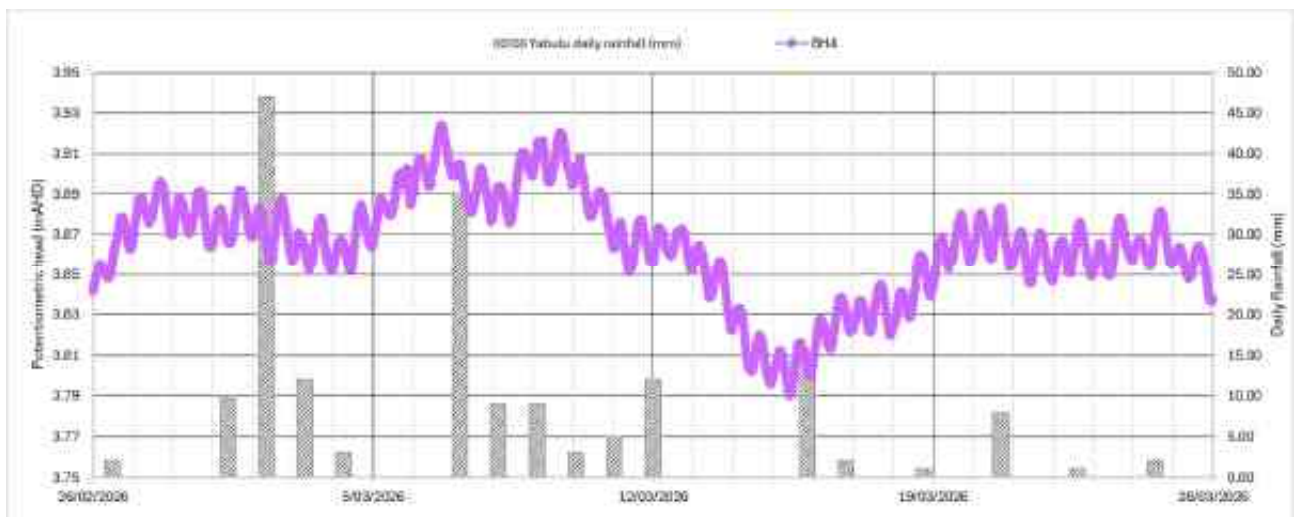


Figure 3.11 Daily rainfall (Yabulu Qld Nickel weather station: ID 32050) and logged potentiometric head at BL-BH4

3.3 Groundwater recharge and discharge

Groundwater flow direction is conceptualised as flowing in a northeasterly direction (GHD 2017), which aligns with the regional flow dynamic of fresh water moving towards the coastline from the elevated Paluma Ranges. Groundwater flow direction on site is reported to be influenced by Christmas and Sleeper Log creeks, and the onsite storage of stormwater and leachate (Bluewater Environmental 2020). As discussed within this report, water levels within the adjacent creeks appear to influence the recharge and discharge dynamics considerably, commonly driven by tidal influence, but presumably also heavily influenced during short periods of high creek flow during wet season. Direct recharge from rainfall was observed most prominently within the data from BL-BH1 and BL-BH3, suggesting that shallow groundwater in these locations has direct recharge pathways.

Tidal influence was evident in the dataset from BL-BH1 and therefore this location may also have recharge pathways connected to water levels within the creeks, in addition to the direct rainfall recharge pathway. Tidal influence was more muted at BL-BH3, likely due to the low permeability of the lithology in that area, suggesting that recharge from rainfall is the key recharge pathway in that location.

Discharge of groundwater from site is likely to vary in intensity in response to changing fluxes of the recharge dynamics described above, as well as low water intervals within the creeks and coastline tidal cycle. Generally, it is expected that groundwater discharges towards the coastline and through the incisions associated with Christmas and Sleeper Log Creeks.

3.4 Groundwater quality

3.4.1 EC, pH and ionic composition

Historic reporting by GHD has designated BL-BH2 as a likely upgradient bore based on its groundwater having significantly higher total cation concentrations than the other three bores (GHD 2017, Pg. 3). However, assessment of the specific cation and anion compositional differences between bores is necessary to determine water type differences in addition to basic salinity. The total cation concentration chart presented in GHD (2017) suggests that BL-BH2 has always been more saline than the other three bores (Figure 3.12). These salinity differences have generally persisted over the last two to three years, as reflected in the reported EC values (Figure 3.13). EC was reported to temporarily drop significantly at BL-BH2 in February 2024, aligning more closely with the values of other bores at that time (Figure 3.13). Field sheets have noted BL-BH2 being underwater during wet events (Bluewater Environmental 2020, Pg. 11) and given the timing of this observation, it is possible that surface water intrusion is responsible for the reduction in EC.

Historic field readings of pH show considerable variability, ranging from around 5 to 7.5 (Figure 3.14). This variability has continued across the same range of values over the last two to three years (Figure 3.15). Ionic composition of water also shows considerable variation within and between bores (Figure 3.16). The observed variability in ionic composition is likely to be the result of varying tidal/rainfall contributions to the aquifer recharge. Figure 3.17 supports this, showing that the samples within each bore that had highest EC values over the last two to three years (BL-BH1 => 1,000 $\mu\text{S}/\text{cm}$; BL-BH2 => 18,000 $\mu\text{S}/\text{cm}$; BL-BH3 => 610 $\mu\text{S}/\text{cm}$; and BL-BH4 => 770 $\mu\text{S}/\text{cm}$) show a significantly reduced spread across the piper diagram, within each bore's data.

Figure 3.18 shows the samples within each bore that had lowest EC values over the last two to three years (BL-BH1 =< 287 $\mu\text{S}/\text{cm}$; BL-BH2 =< 4,800 $\mu\text{S}/\text{cm}$; BL-BH3 =< 120 $\mu\text{S}/\text{cm}$; and BL-BH4 =< 600 $\mu\text{S}/\text{cm}$). Considerable spread in water type is still seen within each bore in the lowest EC samples on Figure 3.18, closer inspection of the data revealed that this is due to two main influences:

- In lower salinity waters, small absolute changes in major ion concentrations can result in comparatively larger changes in relative ionic proportions, and therefore larger shifts in position on the Piper diagram than occur in more saline waters; and
- Variable Limit of Reporting (LoR) values for samples from the same bore over time produced some of the observed variation in water type, while being representative of varying laboratory methods and instrumentation and not actual water chemistry.

Considering the likely tidal influence on groundwater chemistry at the Site and the available data, groundwater typically appears to be sodium chloride type at bores BL-BH1, BL-BH2, and BL-BH3 (particularly when EC is high) and a mixed type with more bicarbonate influence at BL-BH4 and at times at BL-BH3 (Figure 3.16; Figure 3.17; Figure 3.18).

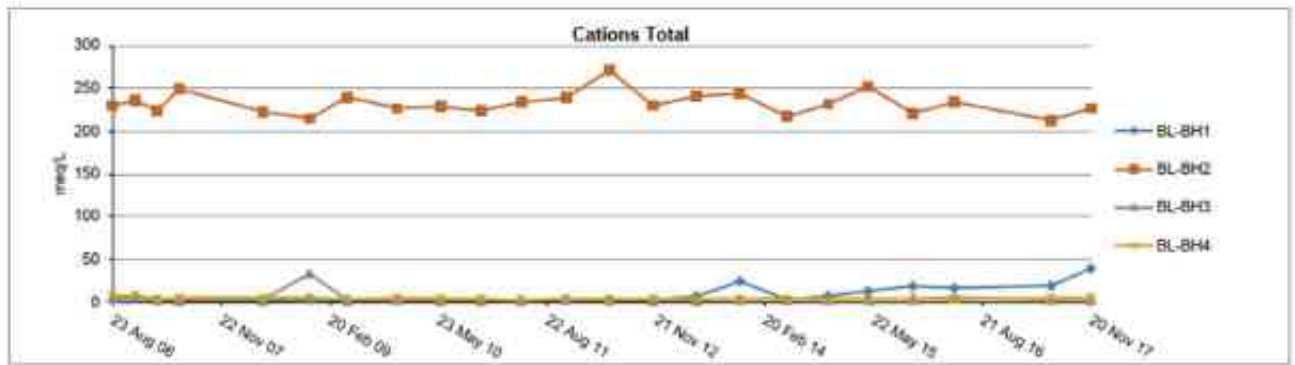


Figure 3.12 Historic total cations in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)



Figure 3.13 Reported electrical conductivity values ($\mu\text{s}/\text{cm}$) from November 2023 to the time of reporting in groundwater

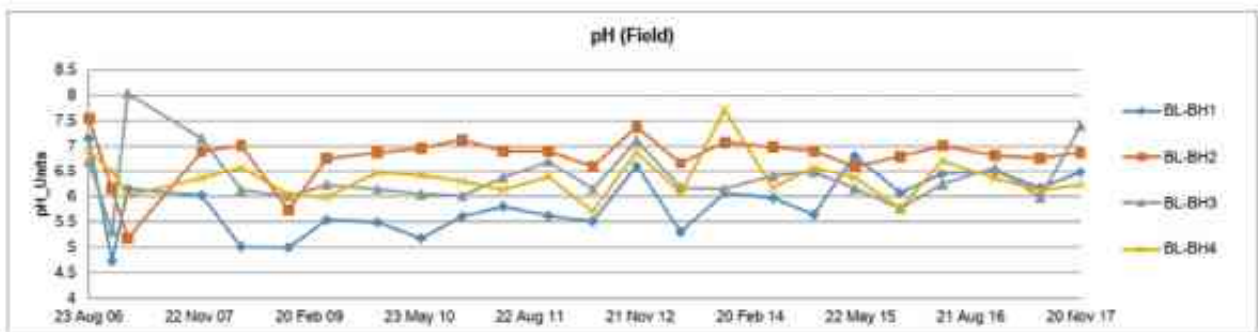


Figure 3.14 Historic field pH in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)

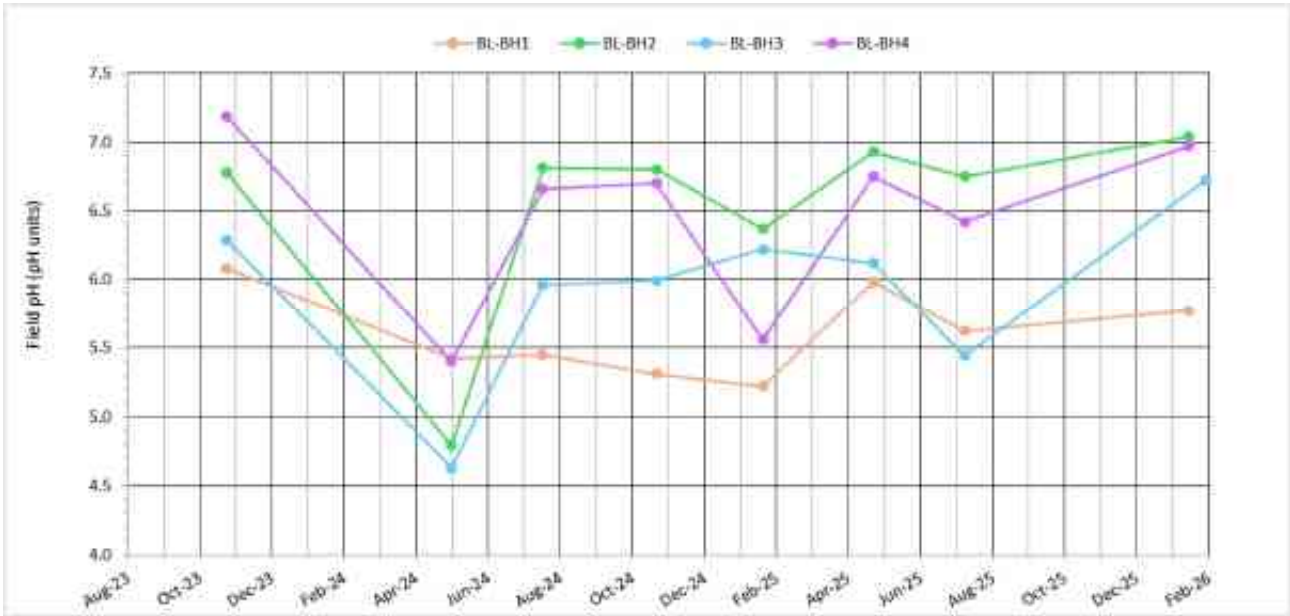


Figure 3.15 Observed field pH values from November 2023 to the time of reporting in groundwater

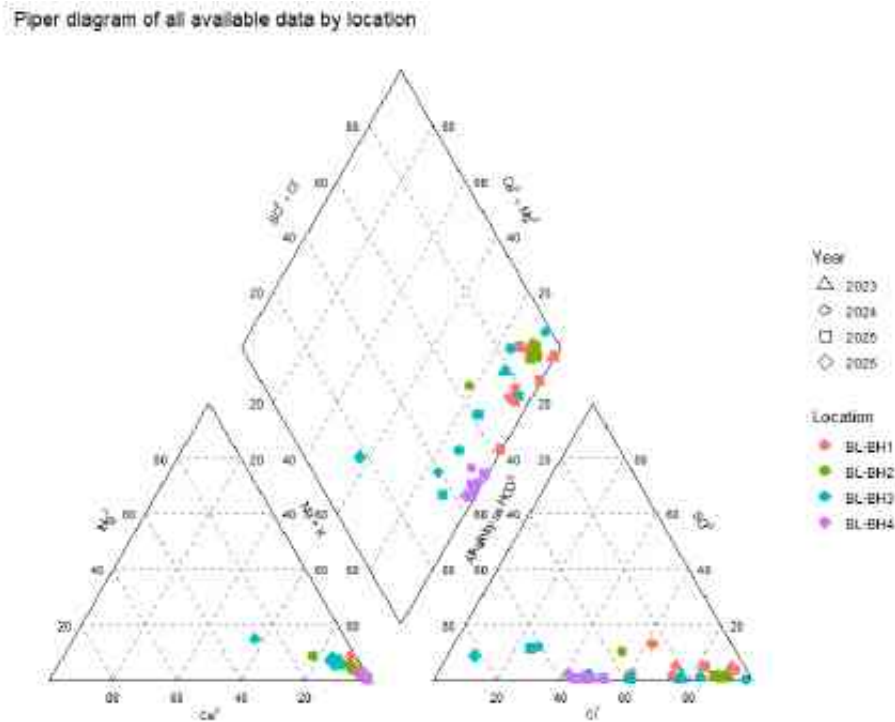


Figure 3.16 Piper diagram – all data

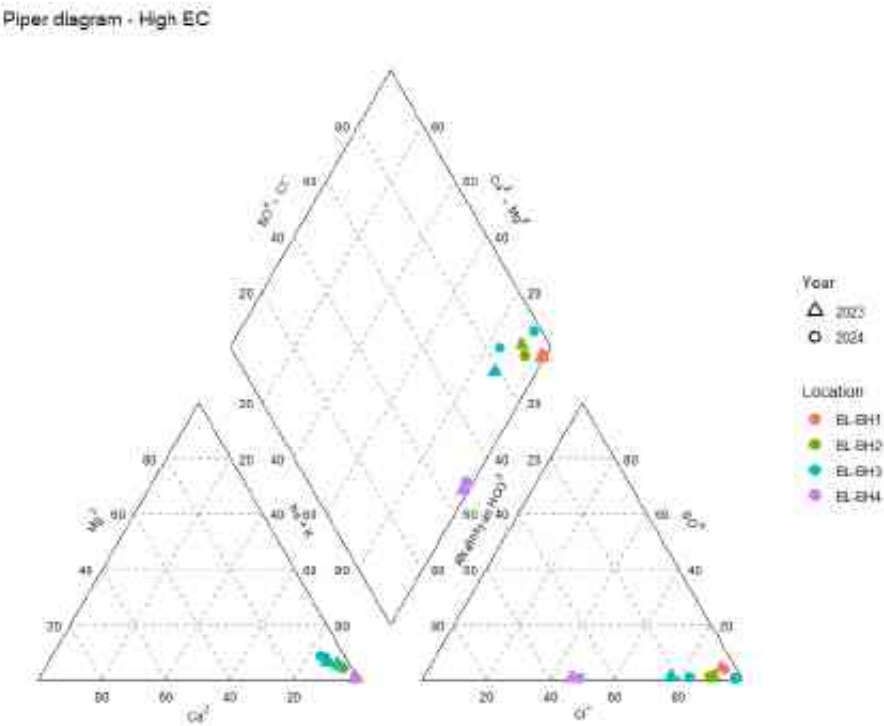


Figure 3.17 Piper diagram – high EC data within each bore

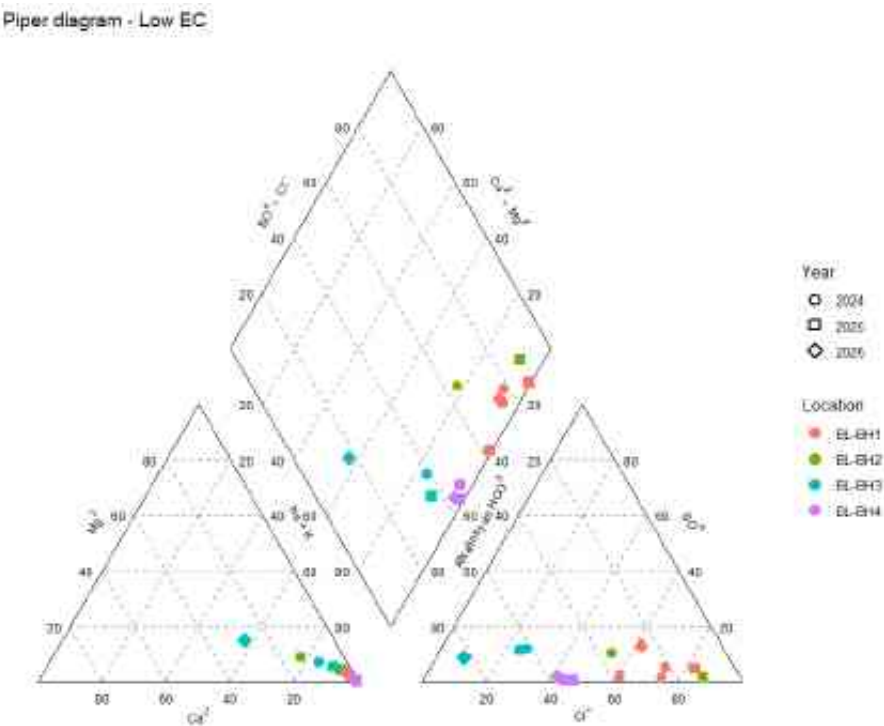


Figure 3.18 Piper diagram – low EC data within each bore

3.4.2 Other water quality parameters

Historically, nitrogen levels have been variable across all bores (Figure 3.19). Ammonia and phosphorus levels have generally been low, as have nitrate levels with the exception of BL-BH2 for which the reported range is generally between 200 and 600 µg/L (Figure 3.20; Figure 3.21; Figure 3.22). Phosphorus levels have historically varied from around or less than 1 mg/L, with occasional increases to around 4 mg/L or more (Figure 3.22). Reported concentration of phosphorus and nitrogen species do not appear to have varied from their historical ranges in the two to three years prior to the time of reporting (Figure 3.23 through Figure 3.26).

Historic reported levels of filtered aluminium, cadmium, chromium, copper, lead, and zinc show occasional increase that generally do not appear to increase in frequency or concentration between 2006 to 2017 (Figure 3.27; Figure 3.28; Figure 3.29; Figure 3.30; Figure 3.31; Figure 3.32). A broader suite of metals is now monitored as is required in the current EA (Appendix B). Of the metals currently monitored, the following exceedances have been reported over the last two to three years:

- Within the 2023-2024 monitoring period (Terra Solutions Pty Ltd 2024):
 - dissolved copper concentrations for the “up-gradient bore” BL-BH2 (0.028 mg/L) was the only bore to exceed the guideline value (during the August 2024 sample round);
 - dissolved iron concentrations for 14 of the 16 groundwater samples (up-gradient range 1.4 to 21 mg/L; down-gradient range <0.05 to 28 mg/L) exceeded the guideline value (0.04 mg/L). Two samples recorded at the “up-gradient bore” BL-BH2 (<0.05 mg/L) and down-gradient bore BL-BH4 (<0.05 mg/L) recorded concentrations below their LOR, however, this value was above the guideline value of 0.04 mg/L;
 - dissolved manganese concentrations for nine samples (up-gradient range of 0.229 to 0.597 mg/L; down-gradient range of 0.28 to 0.64 mg/L) exceeded the guideline value of 0.094 mg/L; and
 - dissolved zinc concentrations for all sites in the August 2024 sampling round (up-gradient concentration of 0.16; down-gradient range of 0.12 to 0.93 mg/L) exceeded the guideline value of 0.075 mg/L, and the down-gradient bore BL-BH3 exceeded on one other occasion during the November 2023 sampling round (0.094 mg/L).
- Within the 2024-2025 monitoring period (Terra Solutions Pty Ltd 2025):
 - dissolved cadmium concentrations for one “upgradient bore” sample (0.0003 mg/L) exceeded the lowland freshwater WQO (0.0002 mg/L), The corresponding total cadmium concentration did not exceed the WQO;
 - dissolved lead concentration for one “upgradient bore” sampled (26 µg/L) and three downgradient bores sampled (range = 5 to 15 µg/L) exceeded the lowland freshwater WQO (3.4 µg/L). The corresponding total lead concentration also exceeded the WQO; and
 - dissolved manganese concentrations for one “upgradient bore” sampled (0.11 mg/L) and four downgradient bore samples (range = 0.13 to 0.42 mg/L) exceeded the WQO 80th percentile (0.094 mg/L).
- Within the 2025-2026 monitoring period:
 - iron concentrations for all bores (range: 0.41 to 4.5 mg/L) exceeded the guideline value of 0.04 mg/L in the February sampling round; and
 - manganese concentrations for bores BL-BH3 and BL-BH4 (0.91 and 0.11 mg/L, respectively) exceeded the guideline value of 0.094 mg/L in the February sampling round.

PFAS and petroleum hydrocarbons are also monitored as required by the current EA and detections have been reported for both categories of analytes across all bores in the last two to three years, more specifically:

- Within the 2023-2024 monitoring period (Terra Solutions Pty Ltd 2024):
 - Total recoverable hydrocarbons (2013 NEPM fractions) fraction >C10 to C16 was the only fraction detected in two of the down-gradient monitoring wells, including BL-BH3 (0.51 mg/L) and BL-BH4 (0.08 mg/L); and
 - only the “up-gradient bore” BL-BH2 detected PFAS compounds, however concentrations of PFOS (0.01 µg/L) and PFOA (0.03 µg/L) were below their ANZECC (2000) 95% species protection guideline values of 0.13 µg/L and 220 µg/L, respectively.
- Within the 2024-2025 monitoring period (Terra Solutions Pty Ltd 2025):
 - Total recoverable hydrocarbons (2013 NEPM fractions) fraction >C10 to C16 was detected in all monitoring wells. The >C16 to C34 fraction was detected in a single sample at downgradient bore BL-BH3 (Feb = 670 µg/L);
 - Total petroleum hydrocarbons fraction C10 to C14 was detected in all monitoring wells. The C15 to C27 fraction was detected in two samples at downgradient bore BL-BH3 (Feb = 510 µg/L and May = 210 µg/L; LOR = 200 µg/L). The C29 to C36 fraction was detected in a single sample at the upgradient bore (May = 260 µg/L; LOR = 200 µg/L) and on three occasions at downgradient bores BL-BH3 (Feb = 240 µg/L and May = 360 µg/L) and BL-BH4 (May = 350 µg/L); and
 - PFAS compounds were detected on multiple occasions at all bores. However, detected concentrations of PFOS (range = 0.0007 to 0.0047 µg/L) and PFOA (range = 0.0007 to 0.071 µg/L) were below their respective HEPA (2020) 95% species protection guideline values of 0.13 and 220 µg/L.
- Within the 2025-2026 monitoring period PFAS and petroleum hydrocarbons do not appear to have been monitored.

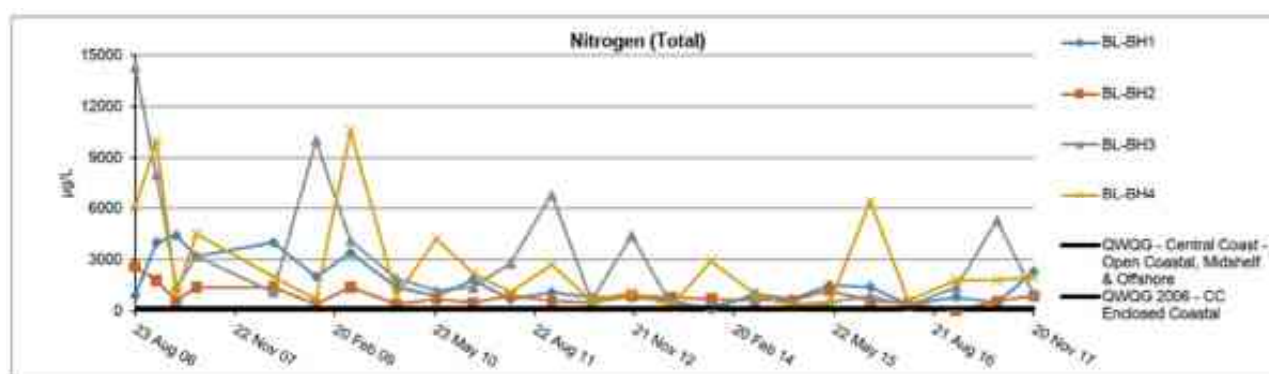


Figure 3.19 Historic nitrogen (total) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)

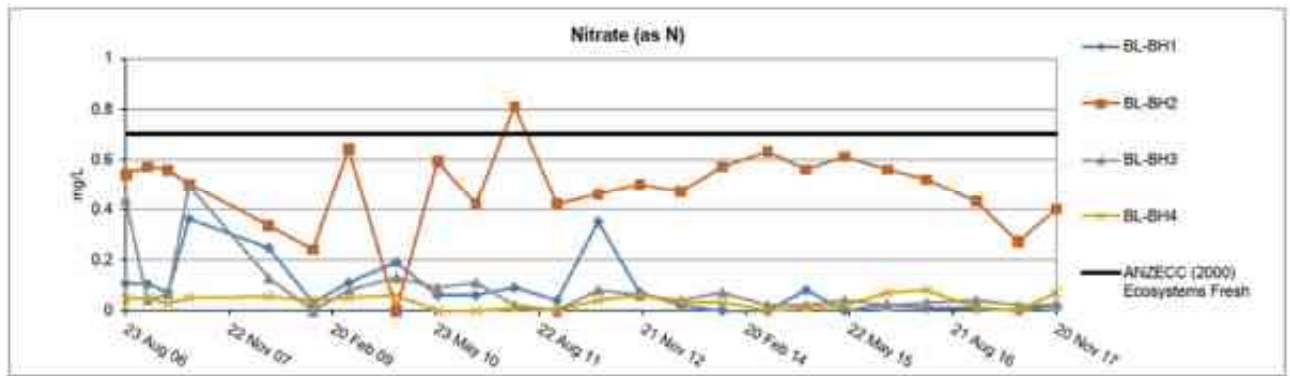


Figure 3.20 Historic nitrate as N in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)

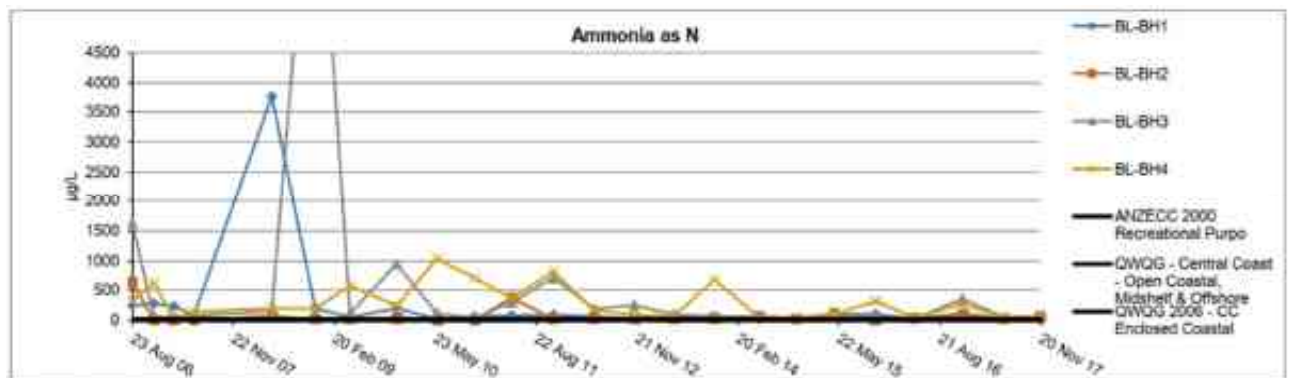


Figure 3.21 Historic ammonia as N in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)

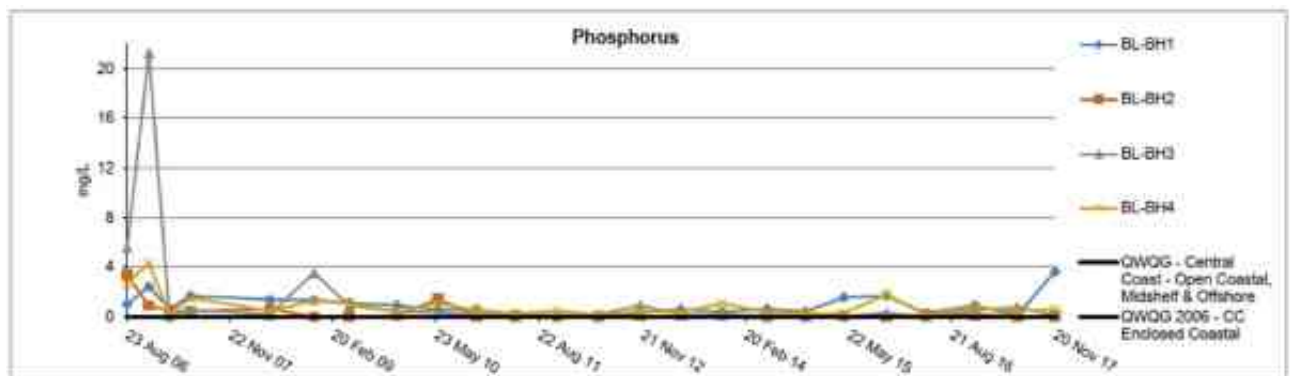


Figure 3.22 Historic phosphorus in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)

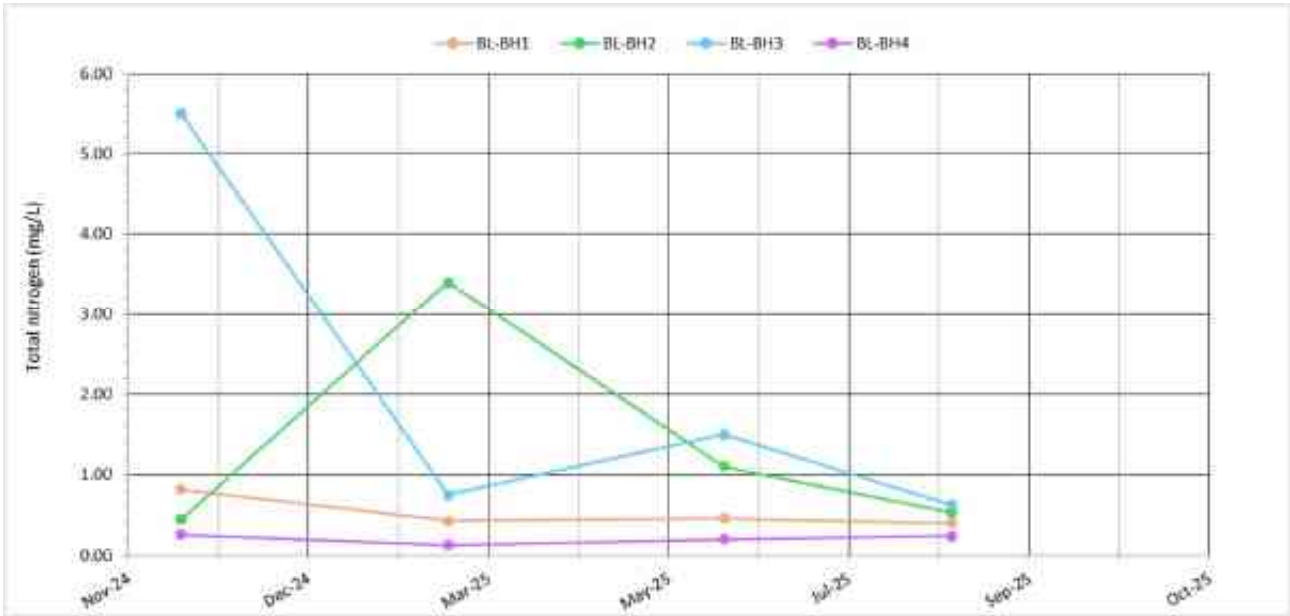


Figure 3.23 Reported nitrogen (total) from November 2023 to the time of reporting in groundwater

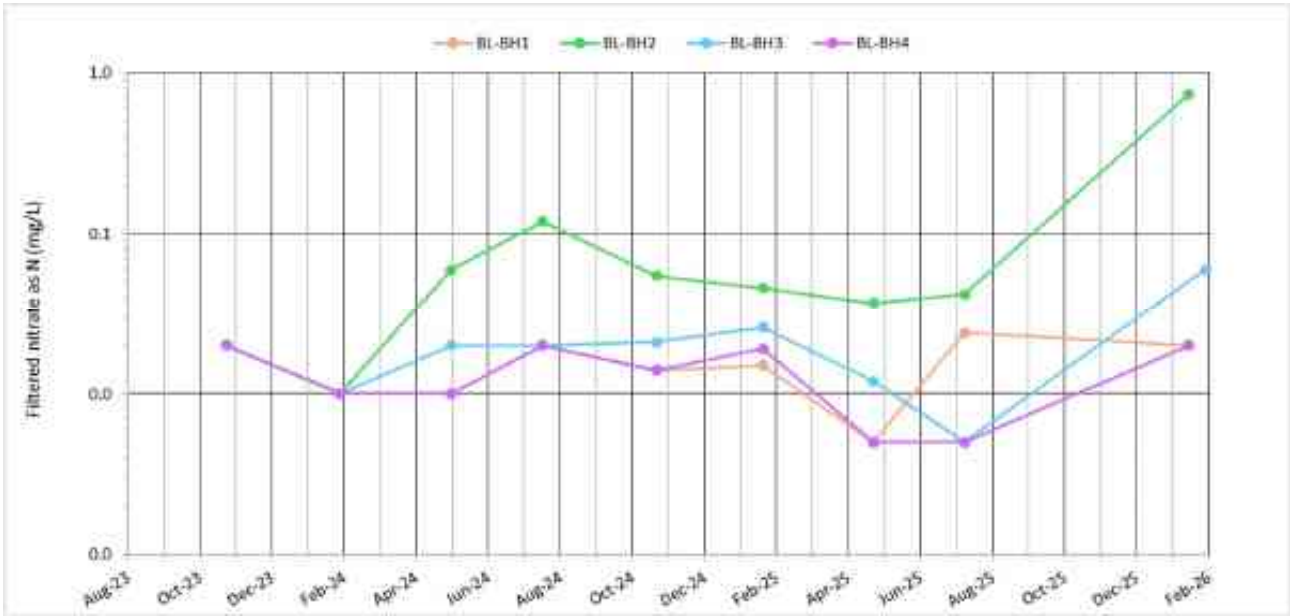


Figure 3.24 Reported nitrate as N (filtered) from November 2023 to the time of reporting in groundwater

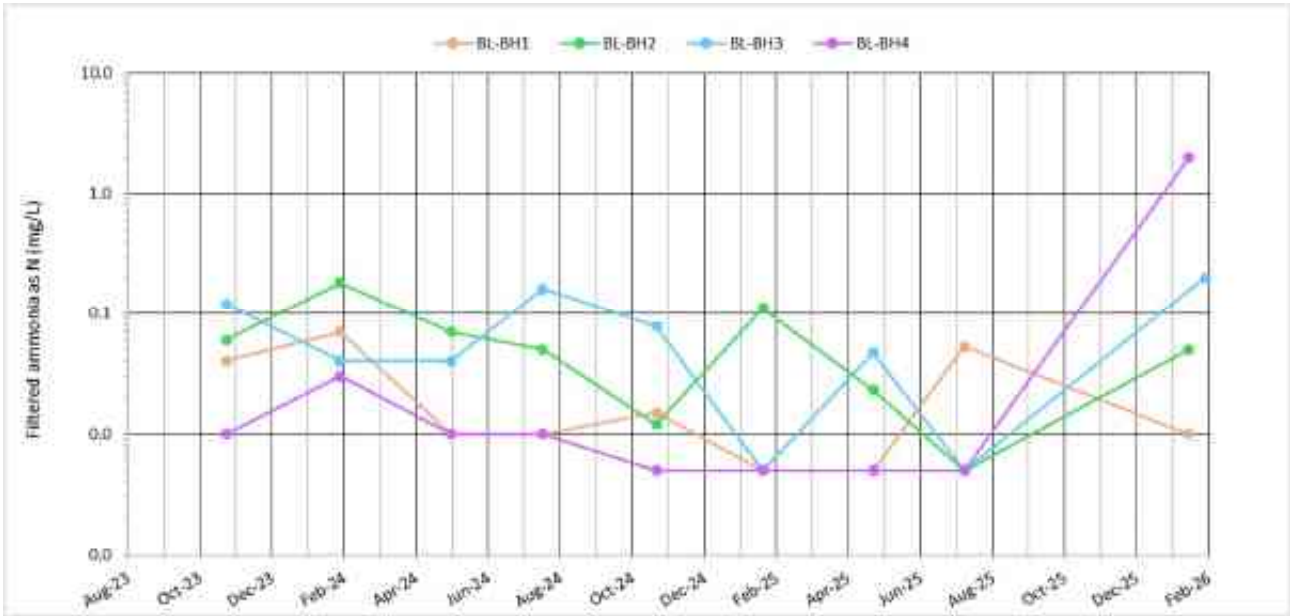


Figure 3.25 Reported ammonia as N (filtered) from November 2023 to the time of reporting in groundwater

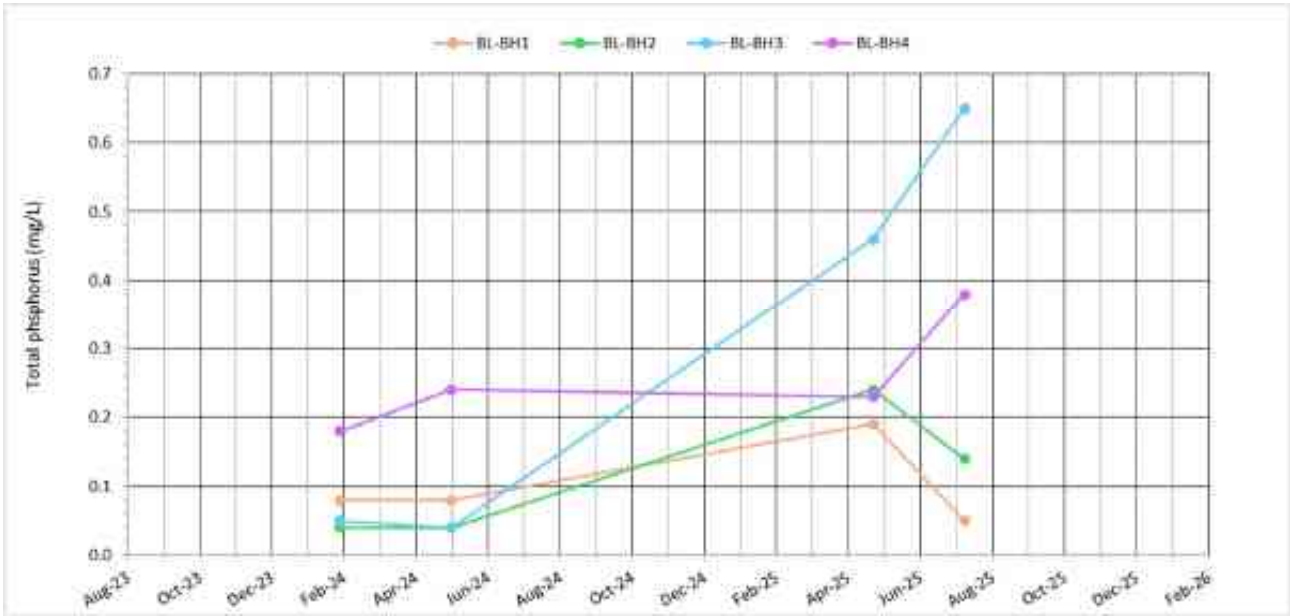


Figure 3.26 Reported total phosphorus from November 2023 to the time of reporting in groundwater

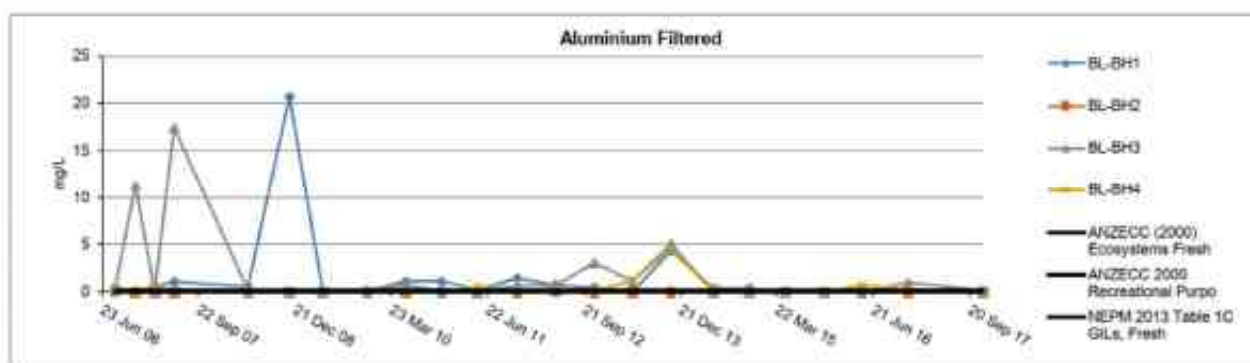


Figure 3.27 Historic aluminium (filtered) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)

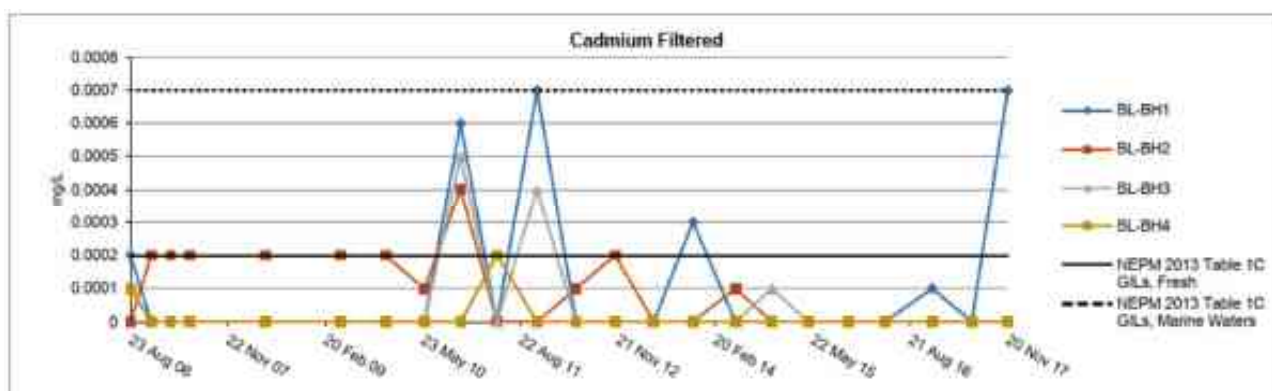


Figure 3.28 Historic cadmium (filtered)H in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)

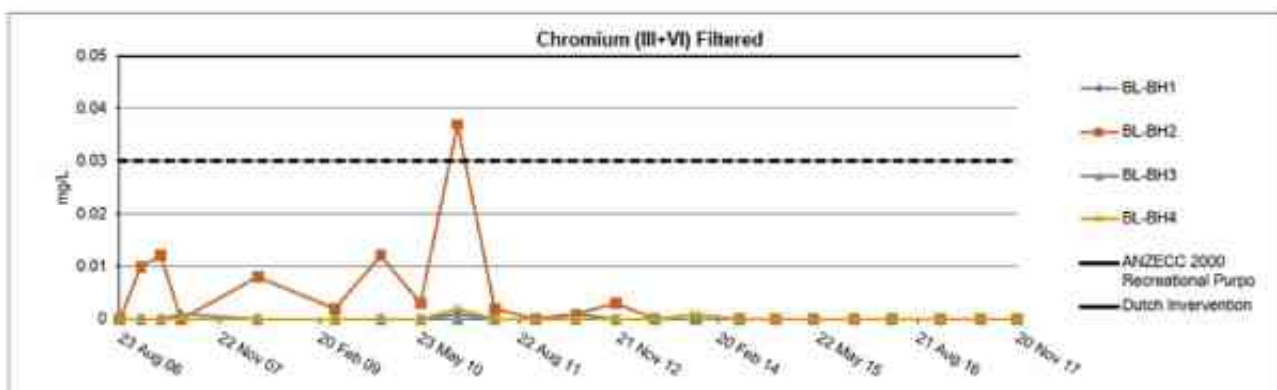


Figure 3.29 Historic chromium (filtered) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)

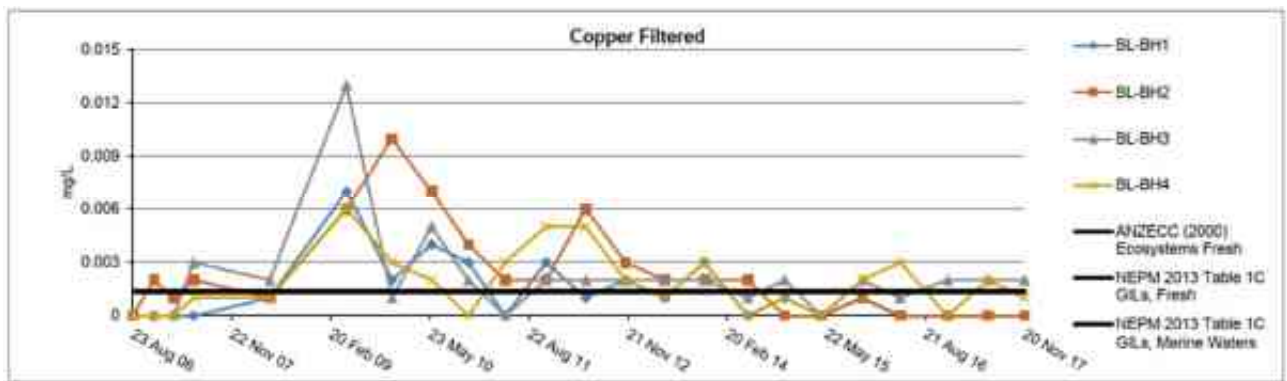


Figure 3.30 Historic copper (filtered) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)

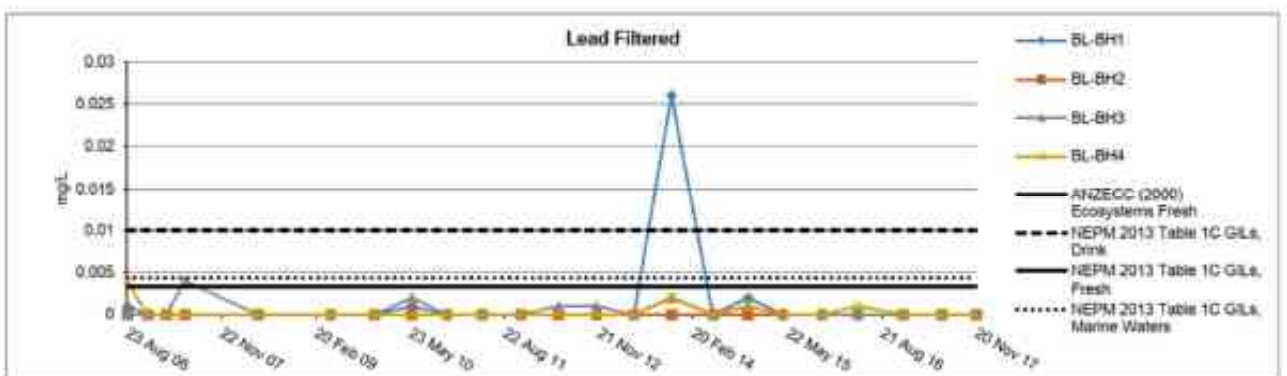


Figure 3.31 Historic lead (filtered) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)

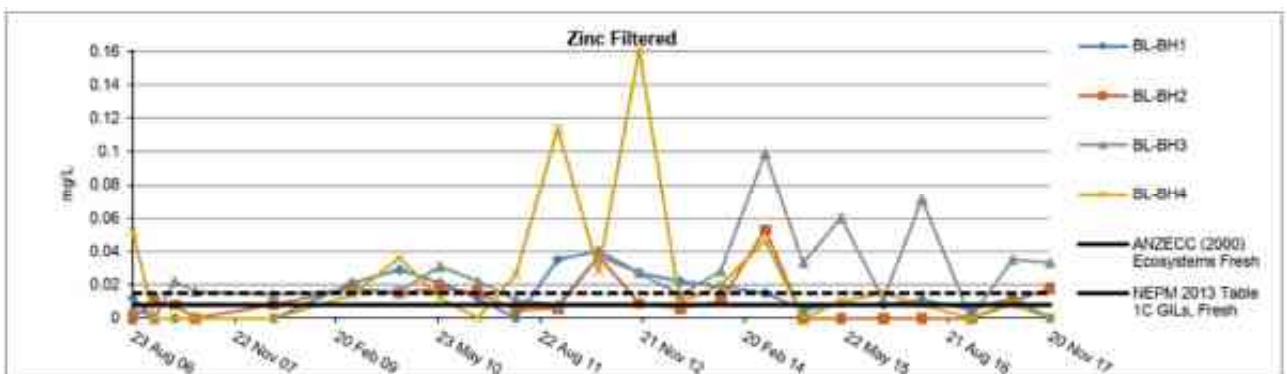


Figure 3.32 Historic zinc (filtered) in groundwater at the Site (reproduced from GHD (2017), as the data is only available in this form)

4. Appropriateness of network

The groundwater monitoring network is understood to have been in place since 2006, with long term data available for some analytes across most of this period (Section 3.3). Surface water monitoring points and one leachate monitoring point also make up constituent parts of the monitoring network (Section 2.10). The bore locations and results from monitoring are relevant to the effective management of groundwater at the Site. Comparison of water types and analyte trends across the monitoring network will allow continual validation/refinement of the conceptualisation of groundwater and surface water movement on Site. It will also allow for an integrated assessment of trends in water quality, should contaminants emerge.

4.1 Characterisation of baseline conditions

The methods applied to characterise baseline conditions and designate “upgradient” vs “downgradient” bores is discussed in Section 3.3. It is possible that the groundwater conditions at the time of bore installation represented an altered baseline (i.e. already impacted by anthropogenic activity). However, figures reproduced from GHD (2017) in Section 3.3 suggest that no major changes in conditions occurred in the groundwater system between 2006 and 2017. The designation of BH-BL2 as upgradient due to observed differences in cations (effectively reflecting no more than a difference in salinity) is considered outdated/invalid, and while there is value in maintaining this bore as part of the monitoring network, it does not appear to be well rationalised as an upgradient bore as the designation of upgradient should be based on groundwater flow directions and the location of site infrastructure.

However, new regulatory frameworks; specifically “*Using monitoring data to assess groundwater quality and potential environmental impacts*” (DES 2021) allow water quality compliance criteria to be set without an “upgradient” bore. BH-BL2 appears suitable for use with bore-specific trigger limits as per the guidelines (DES 2021), along with bores BH-BL1, BH-BL3, and BH-BL4. Due to the potentially altered baseline conditions at the Site, bore-specific triggers are likely to provide a statistically robust method for detecting changes to background/reference groundwater quality. The influence of tidal salinity on the groundwater system will need to be considered in the trigger derivation assessment, and some consideration should also be given for the coastal saline wedge in the area.

4.2 Surface water network

Additional surface water monitoring points have been proposed recently; these are depicted on Figure 4.1. Of the additional surface water monitoring sites, only SW3 is currently monitored, with logistical challenges hindering the successful monitoring of SW4 and SW5. The locations of SW4 and SW5 should be reconsidered so as to reduce the risk of logistical challenges in achieving successful monitoring at their locations. It is likely that the surface monitoring network will be adequate without the addition of SW5, contingent on the successful monitoring of a revised SW4 location within Christmas Creek and downgradient or adjacent to the Site.

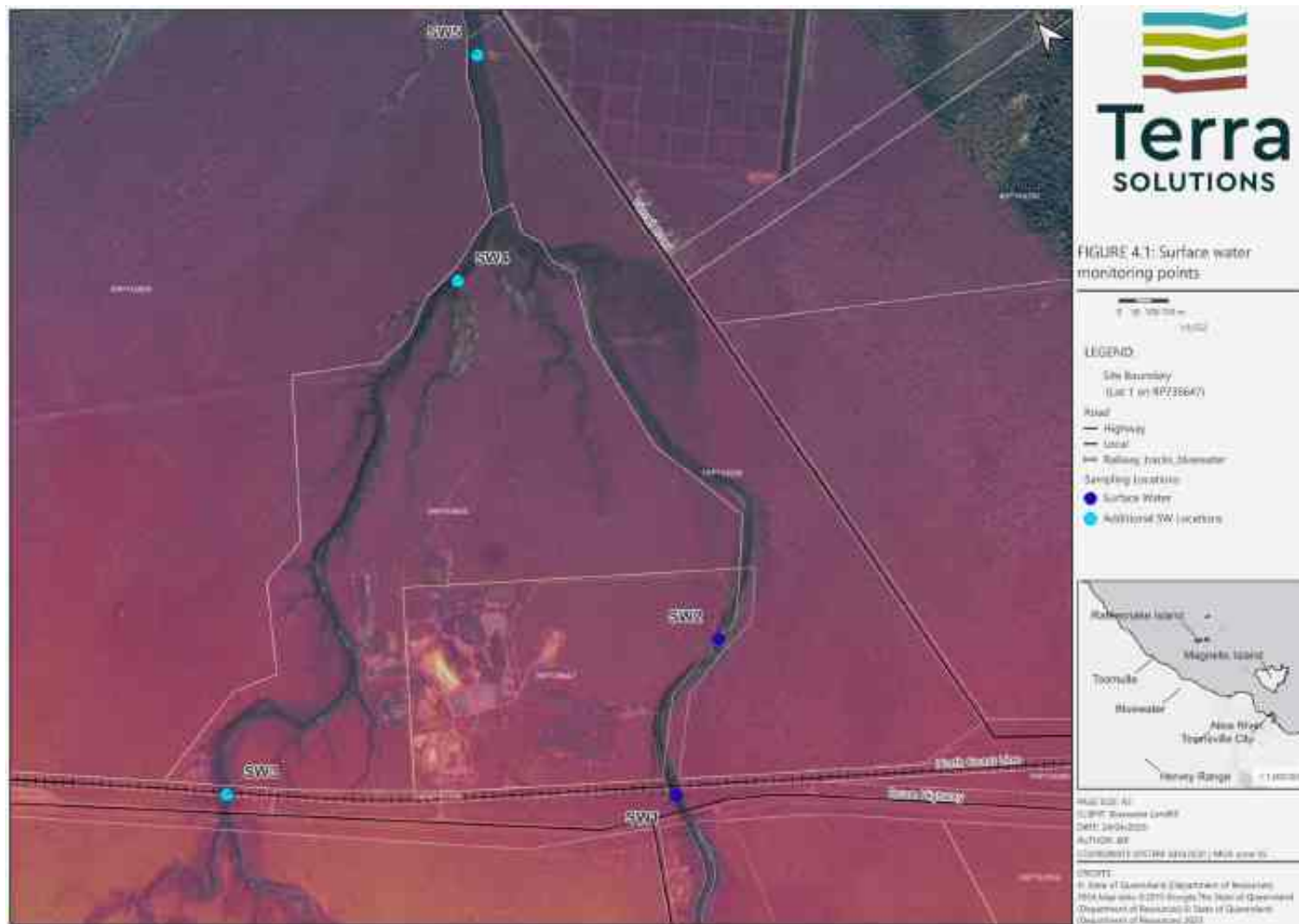


Figure 4.1 Surface water monitoring points

4.3 Source-pathway-receptor assessment

The main potential contaminant sources on the Site include:

- leachate from waste cells and associated infrastructure,
- contaminated stormwater/contact water,
- spills of fuels and other operational chemicals, and
- disturbance of legacy contaminants.

Potential migration pathways include:

- downward seepage to groundwater through defects or discontinuities in the liner and containment systems,
- lateral migration through shallow hydrostratigraphic units,
- overland flow or ponding during intense rainfall events, and
- discharge to adjacent surface waters.

Given the non-putrescible nature of the accepted waste stream, landfill gas is considered a secondary and qualitatively lower-risk pathway relative to leachate and contaminated water management, unless further evidence indicates otherwise.

Receptors include:

- shallow groundwater beneath and surrounding the site,
- Christmas Creek and Sleeper Log Creek,
- downstream estuarine waters of Halifax Bay, and environmental values associated with these (environmental values relevant to the Site are discussed in Section 2.9).

Groundwater monitoring data suggests that some contaminants are present within the groundwater system at the Site. This includes PFAS, hydrocarbons, and dissolved metals (presented in Section 3.3): However, the source and pathways of these contaminants entering the groundwater system remains unclear and may be a combination of one or more of the following:

- Surface water intrusion into bores;
- surface water recharge pathways;
- legacy contamination within the groundwater system;
- tidally influenced recharge pathways; and/or
- on site water/leachate management system failure or overwhelm.

Effective investigation and validation of these pathways and the related sources will rely on a number of improvements to the current site monitoring network, including an update of the parameters monitored (briefly summarised in Section 4.4, below). Recommended steps to complete this investigation and validation are presented in Section 5.

4.4 Monitoring parameters

It is recommended that monitoring parameters be thoroughly assessed while deriving bore-specific trigger values. However, the following observations are relevant to the discussion of monitoring parameters in the current assessment:

- PFAS and petroleum hydrocarbons should be monitored at each sampling event;
- Major cations and anions should be monitored at each sampling event for all groundwater, surface water, and leachate monitoring locations;
- Dissolved fractions of metals should be analysed for derivation of and assessment against groundwater triggers, while total fractions of the same metals should continue to be monitored for interpretational purposes; and
- Manganese (total and dissolved fractions) should be monitored in groundwater, surface water and leachate each round.

4.5 Compliance with EA Condition 1-WT7: Item f

EA Condition 1-WT7: item f states the following (Appendix B):

The groundwater monitoring program required by condition 1-G13 must include but not necessarily be limited to:

- *installation of compliance groundwater monitoring bores that:*
 - *are within formations potentially affected by the activities authorised under this environmental authority (i.e. within the potential area of impact);*
 - *provide for the early detection of negative impacts in the immediate vicinity of potential contaminant sources, prior to reaching groundwater dependent ecosystems, site boundaries, landholder's active groundwater bores, or water supply bores;*
 - *provide for the early detection of negative impacts prior to reaching migration pathways to other formations (i.e. faults, areas of unconformities known to connect two or more formations) if applicable; and*
 - *establish the quality of groundwater down-gradient of any potential leakage of contaminants to groundwater from the landfill site.*

Based on the groundwater monitoring network assessment presented within this report:

- Compliance monitoring bores on the Site are installed within formations potentially affected by the activities authorised under the EA;
- the current groundwater monitoring network is likely to provide for the early detection of negative impacts in the immediate vicinity of potential contaminant sources, prior to reaching groundwater dependent ecosystems, site boundaries, landholder's active groundwater bores, and/or water supply bores;
- the current groundwater monitoring network is likely to provide for the early detection of negative impacts prior to reaching migration pathways to other formations;
- the current groundwater monitoring network is likely to establish the quality of groundwater down-gradient of any potential leakage of contaminants to groundwater from the landfill site.

However, the statement above is contingent on the recommendations provided in Section 4.3, Section 4.4, and Section 5 being implemented.

5. Recommendations

As an outcome of this assessment, the following recommendations are made:

- Groundwater monitoring network:
 - Bore BL-BH2 should remain in the network as a compliance bore. However, it should no longer be referred to as “up-gradient”, following the revised hydrogeological conceptualisation presented in this assessment (Section 3).
 - An interpretation bore should be installed in a location to the southwest of the main sources of impacts, to aid in the future refinements/validation of the source-receptor pathway model (sources of impacts are discussed in Section 2.11 and the source-receptor pathway model is discussed in Section 4.3) and to monitor for potential contaminants (e.g. PFAS and hydrocarbons) originating offsite.
 - Bore specific trigger derivation should be undertaken for compliance bores BL-BH1 through BL-BH4 to establish statistically robust monitoring for a site with a potentially altered baseline. The derivation should consider the potential effects of a coastal saline wedge within the groundwater aquifer, and tidal influences from nearby creeks.
- Surface water monitoring network:
 - Surface water monitoring locations SW4 and SW5 should be revised (and potentially lumped into a single downstream point within Christmas Creek).
- Monitoring parameters:
 - PFAS and petroleum hydrocarbons should be monitored at every sampling event.
 - Major cations and anions should be monitored every sampling round for groundwater, surface water, and leachate monitoring locations.
 - Dissolved fractions of metals should be analysed for derivation of and assessment against groundwater triggers, while total fractions of the same metals should continue to be monitored for interpretational purposes.
 - Manganese (total and dissolved fractions) should be monitored in groundwater, surface water and leachate each round.

Following these recommendations will support fulfillment of all aspects of condition 1-WT7 of the EA.

6. References

- ANZECC and Agriculture and Resource Management Council of Australia and New Zealand (ANZECC & ARMCANZ) (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality, National Water Quality Management Strategy Paper No. 4
- Bluewater Environmental. 2020. *Annual Water Quality Monitoring*.
- Bourg, A. C. M., and J. P. G. Loch. 1995. "Mobilization of Heavy Metals as Affected by pH and Redox Conditions." Pp. 87–102 in *Biogeochemistry of Pollutants in Soils and Sediments, Environmental Science*, edited by W. Salomons and W. M. Stigliani. Berlin, Heidelberg: Springer.
- Bureau of Meteorology. 2024. "Monthly Rainfall - Yabulu QLD Nickel." http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=139&p_display_type=dataFile&p_startYear=&p_c=&p_stn_num=32050.
- DEHP. 2013. *Environmental Protection (Water) Policy 2009 Black River Basin Environmental Values and Water Quality Objectives Basin No. 117, Including All Waters of the Black River Basin and Adjacent Coastal Waters*. Environmental Policy and Planning Division, Department of Environment and Heritage Protection. https://environment.desi.qld.gov.au/__data/assets/pdf_file/0023/88106/black-river-basin-ev-wqo.pdf.
- DES. 2018. *Monitoring and Sampling Manual: Environmental Protection (Water) Policy 2009*. Brisbane: Department of Environment and Science, Queensland Government. https://environment.des.qld.gov.au/__data/assets/pdf_file/0031/89914/monitoring-sampling-manual-2018.pdf.
- DES. 2021. *Using Monitoring Data to Assess Groundwater Quality and Potential Environmental Impacts. Version 2*. Brisbane: Department of Environment and Science, Queensland Government.
- El-Saadony, M. T., A. M. Saad, N. A. El-Wafai, H. E. Abou-Aly, H. M. Salem, S. M. Soliman, M. E. Soliman, T. A. Abd El-Mageed, A. S. Elrys, S. Selim, M. E. Abd El-Hack, S. Kappachery, K. A. El-Tarabily, and S. F. AbuQamar. 2023. "Hazardous Wastes and Management Strategies of Landfill Leachates: A Comprehensive Review." doi:<https://doi.org/10.1016/j.eti.2023.103150>.
- GHD. 2017. *Annual Landfill Environmental Monitoring Program Pre-Wet Season Monitoring Report, November 2017*. 4220369.
- HEPA. 2020. *PFAS National Environmental Management Plan Version 2.0*. 2. Heads of EPAs Australia and New Zealand. <https://www.dcceew.gov.au/sites/default/files/documents/pfas-nemp-2.pdf>.
- Murtha, G. G. 1975. *Soils and Land Use on the Northern Section of the Townsville Coastal Plain, North Queensland*. 55. Soils and Land Use. Melbourne: Division of Soils Commonwealth Scientific and Industrial Research Organization, Australia.
- Piper, A. M. 1944. *A Graphic Procedure in the Geochemical Interpretation of Water-Analyses*. 25(6). Transactions American Geophysical Union.
- State of Queensland. 2025. *Guideline: Landfill Siting, Design, Operation and Rehabilitation*. Department of Environment, Science and Innovation.
- Terra Solutions. 2026. "Fee Proposal – Absolute Waste Bluewater Landfill – Response to Request for Information."

Terra Solutions Pty Ltd. 2024. *BLUEWATER LANDFILL ANNUAL MONITORING REPORT*. 202336. Prepared for Bluewater Landfill.

Terra Solutions Pty Ltd. 2025. *Annual Monitoring Report. Report*. 202336202336. Prepared for Bluewater Landfill.

Wulguru Technical Services Pty Ltd. 2023. *ANNUAL WATER QUALITY MONITORING REPORT 2022/23*.

Yadav, M., Singh, G and Jadeja, R.N. (2021) *Groundwater Geochemistry: Pollution and Remediation Methods*. John Wiley and Sons Ltd.

Appendix A BL-BH4 bore report

Bore RN: 201073

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
201073	Sub-Artesian Facility	Existing	26/08/2022	Ayr	7010 - TOWNSVILLE CITY
Details			Location		
Description			Datum	GDA94	Basin 1170
Parish	6000 - NO LONGER USED		Latitude	19-08-22	Sub-area
Original Name	MONITORING BORE		Longitude	146-30-48	Lot 1
			GIS Latitude	-19.1394529771	Plan RP735647
			GIS Longitude	146.5133264831	
Driller Name	GIDDY, DWAYNE		Easting	448820	Map Scale
			Northing	7883671	Map Series
Const Method	ROTARY AIR		Zone	55	Map No
Bore Line			Accuracy	GPS	Map Name
D/O File No	NOR/078802	Polygon	GPS Accuracy	50	Prog Section
R/O File No		Equipment	Checked	Yes	
H/O File No		RN of Bore Replaced			
Log Received Date	29/08/2022	Data Owner	DNR		
Roles	Water Supply				

Casing								5 records for RN 201073
Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	26/08/2022	1	0.00	12.00	Polyvinyl Chloride	4.950	WT - Wall Thickness	60
A	26/08/2022	2	6.00	12.00	Perforated or Slotted Casing	1.000	AP - Aperture Size	60
X	26/08/2022	3	5.00	12.00	Gravel Pack	5.000	GR - Gravel Size	140
X	26/08/2022	4	4.00	5.00	Bentonite Seal			140
X	26/08/2022	5	0.00	4.00	Grout			140

From Year:

Strata Logs				6 records for RN 201073
Rec	Top (m)	Bottom (m)	Strata Description	
1	0.00	2.70	SILTY BROWN CLAY	
2	2.70	4.00	HARD DRY CLAY	
3	4.00	6.00	FIRM DRY CLAY	
4	6.00	7.50	CEMENTED CLAY - SOME GRAVEL	
5	7.50	9.00	DAMP SANDY CLAY AND SMALL PEBBLE	
6	9.00	12.00	DRY GRAVELY CLAY	
Stratigraphies				0 records for RN 201073
Aquifers				0 records for RN 201073
Pump Tests Part 1				0 records for RN 201073
Pump Tests Part 2				0 records for RN 201073
Bore Conditions				0 records for RN 201073
Elevations				0 records for RN 201073
Water Analysis Part 1				0 records for RN 201073
Water Analysis Part 2				0 records for RN 201073
Water Levels				0 records for RN 201073
Wire Line Logs				0 records for RN 201073
Field Measurements				0 records for RN 201073

Report Date: 22/04/2026 08:48

Queensland Government
Groundwater Information
Bore Report

From Year:

Special Water Analysis	0 records for RN 201073

From Year:

User Licence and Conditions

Disclaimer

Based on or contains data provided by the State of Queensland 2026. The State makes no representations or warranties in relation to the supplied data, and you agree that, to the extent permitted by law, all warranties relating to accuracy, reliability, completeness, currency or suitability for any particular purpose and all liability for any loss, damage or costs (including consequential damage) incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the supplied data are excluded or limited. You agree to continually indemnify the State (including its officers and employees) against any loss, cost, expense, damage and liability of any kind (including consequential damage and liability in negligence) arising directly or indirectly from or related to any claim relating to your use of the supplied data or any product made from the supplied data.

© State of Queensland, 2026 The Queensland Government supports and encourages the dissemination and exchange of its information. The copyright in this publication is licensed under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence. Under this licence you are free, without having to seek our permission, to use this publication in accordance with the licence terms. You must keep intact the copyright notice and attribute the State of Queensland as the source of the publication.

Appendix B Environmental Authority

P-EA 100698838

Permit

Environmental Protection Act 1994

Environmental authority P-EA-100698838

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Environmental authority number: P-EA-100698838

Environmental authority takes effect on the date that settlement of the sale of business from D.J Pascoe & N.A. Pascoe (trading as Bluewater Landfill) to Queensland Resource and Recovery Pty Ltd (ACN 677 037 268 Pty Ltd, ACN 677 037 035 Pty Ltd and ACN 677 037 099 Pty Ltd) occurs. This is the take effect date.

Within 5 business days of the environmental authority taking effect, the administering authority must be given written notice of the occurrence.

The first annual fee is payable within 20 business days of the take effect date.

The anniversary date of this environmental authority is the same day each year as the take effect date. The payment of the annual fee will be due each year on this day.

Environmental authority holder

Name	Registered address
A.C.N. 677 037 268 PTY LTD	96 Artillery Road, MULARA QLD 4703

Environmentally relevant activity and location details

Environmentally relevant activities	Locations
ERA 60 – Waste disposal 2(c) Waste disposal facility (any combination of general waste and no more than 10% limited regulated waste): >5,000-10,000t/yr	42386 Bruce Highway, BLUEWATER QLD 4818 – Lot 1 RP735647
ERA 62 – Resource recovery and transfer facility operation 1: Operating a facility for receiving and sorting, dismantling, baling or temporarily storing— (b) general waste (c) category 2 regulated waste (d) category 1 regulated waste.	
ERA 54 – Mechanical waste reprocessing	

Environmentally relevant activities	Locations
1: Operating a facility for receiving and mechanically reprocessing, in a year, more than 5,000t of inert, non-putrescible waste or green waste only.	
ERA 57 – Regulated waste transport	Mobile and temporary within the State of Queensland.

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that an owner or occupier of land give written notice to the administering authority if they become aware of the following:

- the presence of, or happening of an event involving, a hazardous contaminant on the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- if the land is contaminated land – a change in the condition of the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the land (notice must be given within 20 business days).

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term 'duty to notify'.

Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

- a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority – on the nominated day; or
- b) if the authority states a day or an event for it to take effect – on the stated day or when the stated event happens; or
- c) otherwise – on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Planning Act 2016* or an SDA Approval under the *State*

Development and Public Works Organisation Act 1971), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.



Signature

30 August 2024

Date

Scott Blanchard
Department of Environment, Science and Innovation
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Waste Assessment
Department of Environment, Science and Innovation
GPO Box 2454 BRISBANE
Phone: 1300 130 372
Email: palm@des.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Resources (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Development Approval

This permit is not a development approval under the *Planning Act 2016*. The conditions of this environmental authority are separate, and in addition to, any conditions that may be on the development approval. If a copy of this environmental authority is attached to a development approval, it is for information only, and may not be current. Please contact the Department of Environment, Science and Innovation to ensure that you have the most current version of the environmental authority relating to this site.

Conditions of environmental authority**Part 1 – Bluewater Waste Management Facility**

Location: 42386 Bruce Highway, BLUEWATER QLD 4818 – Lot 1 RP735647

Relevant activities: ERA 60 – 2(c) Waste disposal facility (any combination of general waste and no more than 10% limited regulated waste): >5,000-10,000t/yr

ERA 62 – Resource recovery and transfer facility operation 1: Operating a facility for receiving and sorting, dismantling, baling or temporarily storing—(b) general waste

ERA 62 – Resource recovery and transfer facility operation 1: Operating a facility for receiving and sorting, dismantling, baling or temporarily storing—(c) category 2 regulated waste

ERA 62 – Resource recovery and transfer facility operation 1: Operating a facility for receiving and sorting, dismantling, baling or temporarily storing—(d) category 1 regulated waste

ERA 54 – Mechanical waste reprocessing 1: Operating a facility for receiving and mechanically reprocessing, in a year, more than 5,000t of inert, non-putrescible waste or green waste only.

The environmentally relevant activities conducted at the location as described above must be conducted in accordance with the following site-specific conditions of approval.

Condition number	Condition
Agency interest: General	
1-G1	Activities under this environmental authority must be conducted in accordance with the following limitations: a) the activity must be undertaken in accordance with Appendix A – Bluewater Site Plans, Figure 1: Current Site Plan with Waste Storage Locations; b) the landfill facility must be constructed and operated in accordance with the figures depicted in Appendix A – Bluewater Site Plans; c) a landfill liner must be installed in every landfill unit; and d) the only waste types which may be mechanically reprocessed are concrete and green waste.
1-G2	All reasonable and practicable measures must be taken to prevent or minimise environmental harm caused by the activities.
1-G3	Any breach of a condition of this environmental authority must be reported to the administering authority as soon as practicable within 24 hours of becoming aware of the breach. Records must be kept including full details of the breach and any subsequent actions taken.
1-G4	The reporting and recording of breaches required in condition 1-G3 must include the following details about the breach, as it becomes available: a) date; and b) time; and c) duration; and d) location; and e) what happened; and f) why did it happen; and g) conditions breached; and

Condition number	Condition
	h) actions taken to contain and rectify; and i) continuous improvement actions to prevent a recurrence.
1-G5	Written procedures must be developed and documented for the activity that meet the following standards: a) identify all potential risks to the environment from the activity, including during and outside routine operations, during closure and in an emergency; and b) identify measures to prevent or minimise the potential for environmental harm for each of the potential risks identified; and c) establish an inspection and maintenance program for plant and equipment including calibration and servicing that is in accordance with manufacturer's instructions; and d) establish a staff training program on obligations under this environmental authority and the <i>Environmental Protection Act 1994</i> to be conducted as part of staff inductions and at least annually; and e) establish processes to review environmental risks, incidents, performance and complaints.
1-G6	Procedures required by condition 1-G5 must include a Fire Prevention and Contingency Plan (FPCP) that must include, but not be limited to, the following: a) the scale of fire emergencies covered under the plan; and b) fire prevention measures including tyre storage configuration; and c) fire response measures, including effective firefighting means and containment; and d) clean-up procedures and strategies; and e) reporting procedures to relevant authorities; and f) the responsibilities for site personnel; and g) staff training on the FPCP; and h) containment, management and disposal systems and procedures for fire washwater; and i) details regarding the implementation of the FPCP; and j) monitoring and reporting of the effectiveness of the FPCP and any corrective measures taken; and k) requirements for a periodic review of the FPCP.
1-G7	Written procedures required by condition 1-G5 must be: a) implemented; and b) reviewed at least annually; and c) provided to the administering authority upon request at the time and in the format requested.
1-G8	For plant and equipment, all measures necessary to comply with the conditions of this environmental authority must be: a) installed, operated and maintained in a proper and effective manner; and b) in accordance with condition 1-G5.
1-G9	All information and records required by the conditions of this environmental authority must be kept for a minimum of five years with the exception of environmental monitoring results must be kept until the surrender of this environmental authority. All information and records required by the conditions of this environmental authority must be provided to the administering authority upon request and in the format requested.

Condition number	Condition
1-G10	An appropriately qualified person(s) must monitor, record and interpret all parameters that are required to be monitored by this environmental authority and in the manner specified by this environmental authority.
1-G11	All analyses required under this environmental authority must be carried out by a laboratory that has National Association of Testing Authorities (NATA) certification, or an equivalent certification, for such analyses.
1-G12	When required by the administering authority, monitoring must be undertaken in the manner prescribed by the administering authority, to investigate a complaint of environmental nuisance arising from the activity. The monitoring results must be provided within 10 business days to the administering authority upon its request.
1-G13	The receiving environment monitoring program must include at least the following: a) a groundwater monitoring program as prescribed in conditions 1-WT6 and 1-WT7; b) a surface water monitoring program as prescribed in condition 1-WT5; c) leachate monitoring as prescribed in condition 1-W16.
1-G14	An annual monitoring report must be prepared by an appropriately qualified person(s) and submitted to the administering authority by the anniversary date each year. The annual monitoring report must include: a) a summary of the previous 12 months monitoring data obtained in accordance with any of the monitoring requirements of this approval; and b) an evaluation/explanation of the data from any monitoring programs, including graphical representations showing relevant limits and trends referenced to baseline data; and c) an outline of actions taken, and proposed to be taken, to minimise the environmental risk from any deficiency identified by the monitoring or recording programs.
1-G15	Chemicals and fuels in containers of greater than 15 litres must be stored within a secondary containment system.
1-G16	Financial assurance must be paid to the administering authority within two months of the take effect date.
Agency interest: Waste	
1-W1	The activity must only receive the following waste streams on site for disposal: 1. Construction and demolition waste; 2. Domestic clean-up waste; 3. Inert commercial and industrial waste; and 4. Asbestos, including soils which are contaminated by asbestos only.

Condition number	Condition
1-W2	The only regulated wastes which may be accepted on site for temporary storage are: a) batteries; b) paint waste; c) oil; and d) end-of-life tyres.
1-W3	All storage, sorting and mechanical reprocessing of wastes must only be carried out on the hardstand area: a) constructed of concrete or other low permeable material to minimise soil infiltration; b) graded to prevent rainwater ponding; c) bunded to contain the materials stored; and d) graded to facilitate collection of leachates and contaminated stormwater runoff for discharge to the leachate pond.
1-W4	Asbestos must: a) only be accepted for disposal if packaged and managed in accordance with all relevant work health and safety legislation requirements; b) be managed at all times to avoid any potential release of particulate matter to the atmosphere; c) be disposed of as a special burial of waste that is located greater than 2 metres from the sides and final waste surface of the landfill cell; and d) be covered immediately when being disposed with at least 200mm of soil, and prior to any compaction.
1-W5	An effective firebreak between the areas where end-of-life tyres are stored and the surrounding environment, properties and infrastructure must be provided and maintained at all times.
1-W6	The minimum separation distance between flammable and combustible materials and end-of-life tyre stacks or stockpiles must be at least ten metres in any direction.
1-W7	The dimension of the end-of-life tyre stack or stockpile must not exceed: a) five metres as the maximum width of the base; and b) thirty metres for the maximum length of the base; and c) three metres for the maximum height; and d) a maximum of 10 tonnes or end-of-life tyres.

Condition number	Condition
1-W8	A Site Development Plan, identifying all activities to be carried out on the site during the period of the plan, must be prepared for each cell subject to this development permit. Each Site Development Plan must be finalised at least 3 months before the expiring of the previous plan and must include details of at least the following: a) dimensions of landfill units used for waste disposal or storage; b) an accurate level survey of any area to be utilised for the disposal or storage of wastes. The levels must be reduced to a common datum and related to contour plans; c) the dimensions of the active waste disposal face; d) location of any new site infrastructure or extensions, such as a new leachate dam, pond, or pump well to be used or other plant and equipment, required to the leachate collection, storage and recirculation infrastructure to serve the new cell; e) location of any new stormwater drains, diversion embankments or settling ponds required to serve the new cell; and f) location of any areas to be capped (both final and interim capping where the next stage on the complete cell will not commence within 12 months), the proposed capped surface levels and contours, surface drainage system and species of vegetation to be planted as part of a rehabilitation program.
1-W9	In addition to condition 1-W1, the following waste streams must not be disposed at the landfill: a) liquid or semi-liquid waste, other than: i. liquid or semi-liquid waste that has been produced in the carrying out of the activity; ii. liquid or semi-liquid waste that is incidental to, and commingled with, the permitted waste streams. b) hot ash; c) material that is smouldering or aflame; d) material containing a substance which is ignitable, corrosive, reactive or toxic material (other than materials containing a toxic substance from domestic premises; e) waste that possesses characteristics of controlled waste listed in the “National Environmental Protection (Movement of Controlled Waste between states and territories) Measure 1998” other than toxic or ecotoxic if it complies with conditions 1-W1 and 1-W7; f) an explosive; g) all radioactive wastes and any soils contaminated by radioactive material, unless otherwise approved under the Radiation Safety Act 1999; h) ammunition, other than ammunition that no longer contains explosives, pyrotechnics or propellants apart from trace residues that are no longer capable of supporting combustion or an explosive reaction; i) salt or brine generated from coal seam gas water; and j) green waste.
1-W10	Deposited waste must be covered as soon as practicable to limit stormwater infiltration, prevent exposure of waste and prevent issues arising from vectors and pest species.
1-W11	All reasonable and practicable measures must be taken to exclude vectors of disease and pest species to prevent environmental nuisance.
1-W12	All reasonable and practicable measures must be taken to contain litter.

Condition number	Condition
1-W13	Waste must not be burnt.
1-W14	The landfill liner system must be designed, installed and maintained by appropriately qualified person(s) to: - prevent release of contaminants, including leachate, to land and waters; and - prevent subsurface migration of landfill gas from the landfill unit.
1-W15	A leachate management system must be designed by an appropriately qualified person(s) and installed and maintained to: - collect leachate generated in the landfill unit; and - convey the collected leachate out of the landfill unit to an appropriate leachate storage facility; and - restrict the height of the leachate above the liner system to a maximum level of 300mm.
1-W16	Leachate must be stored in the leachate storage facility and be: - recirculated through a landfill unit; or - disposed of at a facility that is approved to receive such waste.
1-W17	All ponds used for the storage of leachate or contaminated stormwater on the site must be constructed to achieve a permeability of less than 1×10^{-9} m/s and must be installed and maintained: - so to prevent release through the bed or banks of the pond to any waters (including groundwater); and - so that a freeboard capable of containing at least a 24 hour storm event with an average recurrence interval of 1 in 10 years is maintained at all times; and - so as to ensure the stability of ponds construction.
1-W18	The Leachate Monitoring Program must include: - leachate quality monitoring undertaken at least quarterly; - the annual measurement and recording of the quantity of leachate recirculated through the landfill facility; and - monitoring for, at a minimum, the following water quality characteristics: - Ammonia (as N) (mg/L); - Calcium (mg/L); - Chloride (mg/L); - Iron (total) (mg/L); - Lead (total µg/L); - Nitrate + Nitrite (as N) (mg/L); - pH (pH units); - Potassium (mg/L); - Sodium (mg/L); - Sulphate (mg/L); - specific conductance (µS/cm); - Total Organic Carbon (TOC) (mg/L); - Zinc (total µg/L); - Aluminium (total µg/L); - Carbonate and bicarbonate (mg/L);

Condition number	Condition
	xvi. Magnesium (mg/L); xvii. Total nitrogen (mg/L); - xviii. Copper (total µg/L); xix. Lead (total µg/L); xx. PFAS, TOP Assay and TOF as required by condition 1-WT12; xxi. Temperature (°C); xxii. Redox potential (mV); - xxiii. Total dissolved solids (mg/L); xxiv. Dissolved oxygen (mg/L); xxv. Carbonate (mg/L); xxvi. TKN (mg/L); - xxvii. Total phosphorus (mg/L); - xxviii. Hexavalent chromium (mg/L); xxix. Cadmium (mg/L); xxx. Mercury (mg/L); xxxi. Arsenic (mg/L); - xxxii. Nickel (mg/L); - xxxiii. Total petroleum hydrocarbons (mg/L); - xxxiv. BTEX (mg/L); and xxxv. 5 day biological oxygen demand (mg/L).
Agency interest: Air	
1-A1	Other than as permitted within this environmental authority, odours or airborne contaminants must not cause environmental nuisance to any sensitive place or commercial place.
1-A2	Dust and particulate matter emissions must not exceed the following concentrations at any sensitive place or commercial place: a) dust deposition of 120 milligrams per square metre per day, when monitored in accordance with Australian Standard AS 3580.10.1 (or more recent editions); or b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with Australian Standard AS 3580.9.6 (or more recent editions) or any other method approved by the administering authority. c) a concentration of respirable crystalline silica (as PM2.5) of 3 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with Australian Standard AS 3580.9.10 (or more recent editions) or any other method approved by the administering authority.
1-A3	The only materials that can be used for dust suppression purposes are: i. stormwater that has not been in contact with waste; and ii. products specifically designed for dust suppression.

Condition number	Condition
1-A4	Landfill gas measured as methane must not exceed: 25% of the lower explosive limit at any location at the landfill (but excluding facility structures used for the management of landfill gas or leachate); and 25% of the lower explosive limit within service pits, service trenches, stormwater drains or other structures beyond the landfill site boundary; and - the lower explosive limit in subsurface geology at or beyond the landfill site boundary.
1-A5	Additional measures to manage landfill gas must be taken if landfill gas levels measured as methane exceed 500 parts per million at a height of 50mm above the final and intermediate cover surface including the batter slopes of the landfill unit.
Agency interest: Noise	
1-N1	Noise generated by the activity must not cause environmental nuisance to any sensitive place or commercial place.
Agency interest: Land	
1-L1	Other than permitted within this environmental authority, contaminants must not be released to land.
1-L2	When the deposition of waste to the landfill unit ceases, a final capping system to the landfill unit must be designed by an appropriately qualified person(s) and installed to minimise: - infiltration of water into the landfill unit and water ponding on the surface; and - the likelihood of any erosion occurring to either the final capping system or the landfilled materials. A final capping system is not required where the deposition of waste to a landfill unit ceases temporarily for the purpose of using an alternative working face.
1-L3	Land that has been disturbed for activities conducted under this environmental authority must be rehabilitated in a manner such that: - suitable species of vegetation for the location are established and sustained for earthen surfaces; and - potential for erosion is minimised; and - the quality of water, including seepage, released from the site does not cause environmental harm; and - potential for environmental nuisance caused by dust is minimised; and - the water quality of any residual water body does not have potential to cause environmental harm; and - the final landform is stable and protects public safety; and - the contaminant concentrations within the final capping layer for the landfill facility are appropriate for the final land use and in accordance with the latest edition of the 'National Environmental Protection (Assessment of Soil Contamination) Measure'. NOTE: This condition continues to apply after the environmental authority has ended or ceased to have effect pursuant to section 207(3) of the <i>Environmental Protection Act 1994</i>.

Condition number	Condition
1-L4	Following cessation of deposition of waste in the landfill unit, post-closure care of the landfill unit must be conducted for a period of 30 years or until such time that the operator demonstrates, on the basis of correct information, that the landfill unit and surrounding site are stable and that no release of waste materials, leachate, landfill gas or other contaminants that may cause environmental harm is likely. NOTE: This condition continues to apply after the environmental authority has ended or ceased to have effect pursuant to section 207(3) of the <i>Environmental Protection Act 1994</i>.
1-L5	The program of post-closure care implemented must be effective in preventing and/or minimising the likelihood of environmental harm being caused and must achieve the final rehabilitation criteria stated in condition 1-L3. The program must include measures to: 1. maintain the structural integrity and effectiveness of the final capping system; 2. maintain and operate the leachate collection system; 3. maintain the groundwater monitoring program and monitor quality of groundwater at a frequency sufficient to detect any release of contaminants to groundwater; 4. monitor long term subsidence and stability using routine GPS survey monitoring, Lidar or equivalent monitoring methods, to provide a means to quantify the occurrence of subsidence and link the results to the groundwater monitoring program; 5. maintain and operate the landfill gas monitoring system; and 6. maintain and operate the landfill gas collection system. NOTE: This condition continues to apply after the authority has ended or ceased to have effect pursuant to section 207(3) of the <i>Environmental Protection Act 1994</i>.
Agency interest: Water	
1-WT1	Contaminants must not be released to any waters in a manner that causes or is likely to cause environmental harm.
1-WT2	Erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment from the site.
1-WT3	The stormwater runoff from disturbed areas, generated by (up to and including) a 24 hour storm event with an average recurrence interval of 1 in 5 years must be retained on site or managed to remove contaminants that may cause environmental harm before release.
1-WT4	The controlled release of treated/settled stormwater must be conducted in a way and at a rate that does not cause: 1. re-suspension of particles; or 2. erosion of bed or banks of receiving waters; or 3. landscape damage; or 4. ponding of the water; or 5. vegetation damage.

Condition number	Condition
1-WT5	The surface water monitoring program must include: a) monitoring locations for upstream of the discharge points and downstream of the discharge points; b) at least quarterly monitoring to identify potential impacts by the landfill facility on surface waters; c) monitoring of at least the following parameters: i. pH (pH units) ii. Electrical Conductivity ($\mu\text{S}/\text{cm}$) iii. Dissolved Oxygen (mg/L) iv. Suspended Solids (mg/L) v. Total Organic Carbon (mg/L) vi. Total fluorinated organic compounds* (mg/L) vii. Heavy metals (total and dissolved) viii. appropriate trigger values that reflect the Water Quality Objectives or locally relevant water quality guidelines derived in accordance with the Queensland Water Quality Guidelines (2009 or most recent update). NOTE: *For monitoring of fluorinated organic compounds, monitoring must be consistent with recommendations in the PFAS National Environmental Management Plan.
1-WT6	The groundwater monitoring program required by condition 1-G13 must be designed, carried out and periodically reviewed and updated by an appropriately qualified person(s). The appropriately qualified person(s) must have appropriate qualifications and experience in the fields of hydrology and groundwater monitoring programs to be able to competently make recommendations about these matters.
1-WT7	The groundwater monitoring program required by condition 1-G13 must include but not necessarily be limited to: a) identification of the aquifer(s) for which groundwater will be monitored; b) baseline monitoring undertaken in accordance with the latest version of the administering authority's guideline Using Monitoring Data to Assess Groundwater Quality and Potential Environmental Impacts; c) identification of trigger parameters that are associated with the potential or actual contaminants held on the site; d) identification of trigger concentration levels that are suitable for early detection of contaminant releases at the site; e) installation of interpretation groundwater monitoring bores where groundwater quality will not have been affected by the site's activities authorised under this environmental authority; f) installation of compliance groundwater monitoring bores that: i. are within formations potentially affected by the activities authorised under this environmental authority (i.e. within the potential area of impact); ii. provide for the early detection of negative impacts in the immediate vicinity of potential contaminant sources, prior to reaching groundwater dependent ecosystems, site boundaries, landholder's active groundwater bores, or water supply bores; iii. provide for the early detection of negative impacts prior to reaching migration pathways to other formations (i.e. faults, areas of unconformities known to connect two or more formations) if applicable; and

Condition number	Condition																																				
	iv. establish the quality of groundwater down-gradient of any potential leakage of contaminants to groundwater from the landfill site. g) monitoring of groundwater at each interpretation groundwater monitoring bore and compliance groundwater monitoring bore at least quarterly for the trigger parameters identified in Table 1 – Groundwater monitoring parameters below; h) groundwater trigger action response procedures for when trigger parameters and trigger levels identified in point (c) above trigger the early detection of seepage of contaminants, or upon becoming aware of any monitoring results that indicate potential groundwater contamination; and i) a rationale detailing the groundwater monitoring program conceptualisation including assumptions, determinations, monitoring equipment, sampling methods and data analysis.																																				
1-WT8	The locations of wells and groundwater monitoring facilities that comprise the groundwater monitoring program must be given with horizontal coordinates of such facilities accurate to 1.0 metre.																																				
1-WT9	On any occasion that samples are obtained, the holder of the environmental authority must measure and record standing groundwater levels in metres, accurate to 0.001 metres. The elevation of the reference point, relative to Australian Height Datum, for use in any groundwater level measurement must be determined to an accuracy of 0.005 metres.																																				
1-WT10	Measurements of groundwater levels must be undertaken prior to any disturbance by sampling and must be reported as the depth in metres from the established reference point to the water surface within the bore.																																				
1-WT11	The groundwater monitoring must be undertaken for, at least, the following water quality characteristics: Table 1 - Groundwater monitoring parameters <table><tr><th>Quality Characteristic</th><th>Unit of Measure</th><th>Frequency</th></tr><tr><td>pH</td><td>pH</td><td rowspan="16">Quarterly</td></tr><tr><td>Dissolved oxygen</td><td>mg/L</td></tr><tr><td>Electrical conductivity (EC)</td><td>µS/cm</td></tr><tr><td>Redox potential</td><td>mV</td></tr><tr><td>Temperature</td><td>°C</td></tr><tr><td>Standing Water Level</td><td>m AHD</td></tr><tr><td>5-Day Biological Oxygen Demand</td><td>mg/L</td></tr><tr><td>Total Organic Carbon</td><td>mg/L</td></tr><tr><td>Total Dissolved Solids</td><td>mg/L</td></tr><tr><td>Calcium</td><td>mg/L</td></tr><tr><td>Magnesium</td><td>mg/L</td></tr><tr><td>Potassium</td><td>mg/L</td></tr><tr><td>Sodium</td><td>mg/L</td></tr><tr><td>Chloride</td><td>mg/L</td></tr><tr><td>Sulphate</td><td>mg/L</td></tr><tr><td>Fluoride</td><td>mg/L</td></tr></table>	Quality Characteristic	Unit of Measure	Frequency	pH	pH	Quarterly	Dissolved oxygen	mg/L	Electrical conductivity (EC)	µS/cm	Redox potential	mV	Temperature	°C	Standing Water Level	m AHD	5-Day Biological Oxygen Demand	mg/L	Total Organic Carbon	mg/L	Total Dissolved Solids	mg/L	Calcium	mg/L	Magnesium	mg/L	Potassium	mg/L	Sodium	mg/L	Chloride	mg/L	Sulphate	mg/L	Fluoride	mg/L
Quality Characteristic	Unit of Measure	Frequency																																			
pH	pH	Quarterly																																			
Dissolved oxygen	mg/L																																				
Electrical conductivity (EC)	µS/cm																																				
Redox potential	mV																																				
Temperature	°C																																				
Standing Water Level	m AHD																																				
5-Day Biological Oxygen Demand	mg/L																																				
Total Organic Carbon	mg/L																																				
Total Dissolved Solids	mg/L																																				
Calcium	mg/L																																				
Magnesium	mg/L																																				
Potassium	mg/L																																				
Sodium	mg/L																																				
Chloride	mg/L																																				
Sulphate	mg/L																																				
Fluoride	mg/L																																				

Condition number	Condition			
	Alkalinity (Carbonate and Bicarbonate)	mg/L		
	Ammonia	mg/L		
	Nitrate and nitrite	mg/L		
	Total phosphorus	mg/L		
	Aluminium	mg/L		
	Arsenic	mg/L		
	Barium	mg/L		
	Cadmium	mg/L		
	Chromium	mg/L		
	Cobalt	mg/L		
	Lead	mg/L		
	Copper	mg/L		
	Iron	mg/L		
	Manganese	mg/L		
	Mercury	mg/L		
	Nickel	mg/L		
	Zinc	mg/L		
	Phenols	mg/L		
	Petroleum Hydrocarbons	mg/L		
	Monoaromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene and xylene)	mg/L		
	Organochlorine and Organophosphate Pesticides	mg/L		
	Chlorinated Compounds	mg/L		
	Polycyclic Aromatic Hydrocarbons*	mg/L		
	Per- and Poly-Fluoroalkyl Substances*	mg/L		
Associated monitoring requirements				
1. Monitoring must be in accordance with the methods prescribed in the current edition of the administering authority’s <i>Water Quality and Sampling Manual</i>.				
2. Samples must be representative of the groundwater quality within the well.				
3. All determinations must employ analytical practical quantification limits sufficiently low enough to enable comparisons to be made against water quality objectives / triggers relevant to the water quality characteristic.				
4. Monitoring must be undertaken as per the frequency stated.				
5. All monitoring devices must be correctly calibrated and maintained.				
*For monitoring of Per- and Poly-Fluoroalkyl Substances, monitoring must be consistent with recommendations in the most recent version of the PFAS National Environmental Management Plan.				

Condition number	Condition
1-WT12	The surface water and groundwater monitoring programs must include: a) determination of PFAS compounds low level trace analysis, under both standard analysis and total oxidisable precursor assay; b) determination of total organic fluorine content; c) for characterising leachate and any surface water or groundwater found to contain more than 50% additional PFAS present on a molar basis or organic fluorine content compared to the standard analysis, qualitative compound identification by liquid chromatography quadrupole time of flight mass spectrometry (LC-QToF-MS); d) compliance with quality assurance and quality control measures, including those advised in the most recent version of the PFAS National Environmental Management Plan; and e) measurement of PFAS concentrations in sediments in any water storages or waters found to be materially affected by PFAS compounds.

Part 2 – Regulated waste transport

Location: Mobile and temporary within the State of Queensland

Relevant activities: ERA 57 – Regulated waste transport

Eligibility criteria

Eligibility criteria
Regulated waste is transported by road vehicles only (not by train, boat, aircraft, pipeline or other means).

Conditions

Condition number	Condition
2-G1	For new operators — details of all vehicles used to transport regulated waste must be provided to the department before commencing the activity.
2-G2	For existing operators — if any vehicle registration details change, or any vehicles are added to or removed from the fleet of vehicles used to transport regulated waste, details of these changes must be provided to the department: a) as soon as practicable after the changes occur; or b) if transporting tyres — prior to each anniversary day (see section 9); or c) if transporting other regulated wastes — when paying the annual fee to the department for the registration certificate.
2-G3	Incompatible wastes must not be: a) placed in the same container; or b) transported in such a way that mixing may occur.
2-G4	Regulated waste must only be transported in suitably designed vehicles, tanks, containers or secondary containers that are appropriate for containing the waste being transported.
2-G5	All vehicles, tanks, containers and secondary containers used to transport regulated waste: a) must be maintained in a good condition at all times to prevent any spillage or leakage of regulated waste or other contaminants; and b) kept free of regulated waste residues at all times when not in use.
2-G6	A solid impervious partition must be provided to separate the load compartment/area of the regulated waste transport vehicle from the driver's compartment.
2-G7	Regulated waste must not be removed or released from any vehicle other than: a) at a facility that can lawfully receive the regulated waste; or b) for the purpose of consolidation grease trap and/or other oily wastes in a larger road tank vehicle where access to the waste source is restricted to smaller road tank vehicles.
2-G8	Regulated waste must not leak or spill from the vehicle.
2-G9	Notwithstanding condition 2-G8, any leakage or spillage of regulated wastes must be contained immediately, recovered and disposed of to a facility that can lawfully accept the waste.

Condition number	Condition
2-G10	An appropriate spill kit, personal protective equipment and relevant instructions for the management of the regulated wastes transported must be maintained and kept in each vehicle.
2-G11	If operating interstate, any spillage, leak, escape or other loss of regulated waste from the vehicle must be reported as soon as practicable to the relevant regulatory agency of the State or Territory in which the vehicle is travelling when the incident occurs.
2-G12	When operating in Queensland, any release of contaminants not in accordance with the conditions of this code must be reported by telephone to the department's Pollution Hotline or regional office located in the area where the release occurred. Any such release must be reported as soon as practicable, but no later than 24 hours (depending on the level of risk to the environment), after becoming aware of the release.
2-G13	A written notice detailing the following information must be provided to the department within 14 days of any advice provided in accordance with condition 2-G12: a) the name of the operator, including the operator's registration certificate number; b) the name and telephone number of a designated contact person; c) substance and quantity released; d) vehicle and vehicle registration details; e) person/s involved (driver and any others); f) the location and time of the release; g) the suspected cause of the release; h) a description of the effects of the release; i) the results of any sampling performed in relation to the release; j) actions taken to mitigate the risk or extent of environmental harm caused by the release; k) the success of any actions taken to mitigate the risk or extent of environmental harm; and l) proposed actions to prevent a recurrence of the release.
2-G14	All vehicles used to transport regulated wastes (that are not classified as dangerous goods, or as a placard load of dangerous goods), must be covered by a policy of insurance or other form of indemnity, for a sum that is not less than \$100,000, in respect of: a) personal injury, death, property damage and other damage (except consequential economic loss) arising out of fire, explosion, leakage or spillage of dangerous goods in, on or from the vehicle or a container on the vehicle; and b) costs incurred by or on behalf of a Commonwealth, State or Territory government authority in a clean-up resulting from any event of the kind referred to in subparagraph a) of this condition.
2-G15	All records required by this code must be kept for 5 years and be made available to an authorised officer of the department when requested.
2-G16	A record of all regulated waste (excluding trackable waste) must be kept detailing the following information for every load of waste transported: a) date of pickup of waste; b) description of waste; c) quantity of waste; d) origin of the waste; and e) destination of the waste.

Condition number	Condition
2-G17	At all times, a copy of: a) the registration certificate issued by the department for regulated waste transport activities; and b) the appropriate emergency guides in relation to the waste transported must be carried in the cabin of each vehicle used to transport regulated waste and when requested, be presented to an authorised officer of the department or relevant regulatory agency of the State or Territory in which the vehicle is travelling.
2-G18	All vehicle drivers must: a) have access to a copy of this code in the vehicle, or through direct communication with the vehicle depot or operations base; and b) be trained in the requirements of this code, including the use of all equipment and procedures necessary to comply with the conditions of this code, and document all training undertaken.
2-G19	The following details must be recorded: a) time, date, name and contact details of the complainant; b) reasons for the complaint; c) any investigations undertaken; d) conclusions formed; and e) any actions taken.

Table 2.1 Asbestos conditions**Additional conditions applying to the transport of asbestos waste under this code.**

2-G20	All asbestos transported must be: a) double bagged and sealed in heavy-duty polythene bags (minimum 200 µm thickness); or b) contained in sealed drums or bins that are lined with heavy-duty plastic (minimum 200 µm thickness); or c) where the volume or size of asbestos waste (e.g. large asbestos cement sheets) is greater than the volume or size of a bag, drum or bin: i. for friable asbestos waste, sealed in double lined heavy-duty plastic sheeting (minimum 200 µm thickness) prior to being placed into a waste skip, vehicle tray or similar container; or ii. for non-friable asbestos waste, kept damp and contained in a waste skip, vehicle tray or similar container that has been double lined with heavy duty plastic sheeting (minimum 200 µm thickness) and then completely sealed with the plastic sheeting and adhesive tape.
2-G21	All asbestos transported must be: a) labelled with a warning statement to indicate the presence of asbestos and that dust creation and inhalation needs to be avoided; b) securely loaded and stowed on the vehicle during transit in such a way that does not cause the packaging to rupture; c) off loaded carefully to prevent the packaging from rupturing; and d) repackaged immediately if rupturing of the packaging does occur.

Table 2.2 Lead conditions**Additional conditions applying to the transport of particulate lead waste under this code.**

2-G22	All particulate lead waste must be: a) double bagged and sealed in heavy duty polythene bags (minimum 200 µm thickness), and placed in containers on the vehicle; b) labelled to indicate the presence of lead and with appropriate lead risk and safety phrases (see definitions “risk phrase” and “safety phrase” in section 9 of this code); c) securely loaded and stowed on the vehicle during transit in such a way that does not cause the packaging to rupture; d) off loaded carefully to prevent the packaging from rupturing; and e) repackaged immediately if rupturing of the packaging does occur.

Table 2.3 Clinical and related waste conditions**Additional conditions applying to the transport of clinical and related waste under this code.**

2-G23	All clinical and related wastes must be transported in a fully enclosed load compartment of a vehicle that: a) is bunded or otherwise designed to contain any spills and leaks; b) is lockable; and c) has internal surfaces which are rigid and seamless to facilitate cleaning and disinfection.
2-G24	Vehicles and load compartments must be locked when unattended.
2-G25	All clinical and related wastes must be provided with rigid secondary containment during transport.
2-G26	Secondary containers used for the transportation of clinical and related wastes must be effectively cleaned and disinfected before reuse.
2-G27	Clinical and related wastes must not be transported in vehicles fitted with compaction systems.
2-G28	Noxious or offensive odours must not be released from any vehicle transporting clinical or related wastes.

Table 2.4 Polychlorinated biphenyl (PCB) conditions**Additional conditions applying to the transport of PCB waste under this code.**

2-G29	The transport of wastes containing PCBs that are also classified as scheduled wastes under the Australian and New Zealand Environment and Conservation Council (ANZECC) <i>Polychlorinated Biphenyls Management Plan – July 1999</i> must comply with the requirements of that Plan.
2-G30	Personnel suitably trained in methods of handling and containing spilled PCBs must accompany any vehicle transporting waste containing PCBs.

Table 2.5 Rigid vehicle conditions

Additional conditions applying to the transport of regulated waste in rigid vehicles and trailers under this code.

2-G31	When transporting regulated waste in rigid vehicles and trailers, the tray of the vehicles must be: a) constructed of an impervious material; b) maintained in a sound condition; and c) designed to contain any spills on the tray.
2-G32	When transporting regulated waste in rigid vehicles and trailers, any waste not fully contained within weatherproof packages must be covered during transport to contain the load and protect it from wind and rain.
2-G33	When transporting regulated waste in rigid vehicles and trailers, all regulated waste containers must be: a) mounted securely to the vehicle; and b) contained within the tray of the vehicle.
2-G34	When transporting regulated waste in rigid vehicles and trailers, the vehicle must be fitted with: a) adequate cargo securing devices; and b) in the case of vehicles transporting packaged regulated waste (see definitions in section 9 of this code), rigid sides or gates that contain the load while in transit.
2-G35	When transporting packaged regulated waste in rigid vehicles and trailers, the top of any container must not protrude above the sides or gates of the vehicle by more than 30% of the height of the container.

Table 2.6 Road tank vehicle conditions

Additional conditions applying to the transport of liquescent and dry particulate regulated waste in road tank vehicles under this code.

2-G36	Road tank vehicles must be constructed to minimise instability and risk of rollover.
2-G37	Road tank vehicles must be provided with roll-over protection to protect all tanks, components and fittings on the upper and side surfaces of the tank in the event of the vehicle rolling over or becoming inverted.
2-G38	Waste transfer equipment, including discharge point and pipe-work on road tank vehicles, must be: a) fitted to the vehicle so as to not extend beyond the outer body line of the vehicle; or b) designed to provide sufficient inherent resistance to damage; or c) provided with protection to prevent damage.
2-G39	Road tank vehicles used for the transport of liquid regulated waste must have sampling points on the top of each compartment that are readily accessible for the purposes of a roadside inspection.
2-G40	Regulated waste material must not leak or spill from waste transfer hoses to the ground while the road tank vehicle is in transit.
2-G41	All tank filling and discharge points on road tank vehicles must have adequate ground clearance and be rigidly connected to the tank.

2-G42	All road tank vehicle vacuum pump systems must be fitted with operational: a) pressure and/or vacuum relief valves; and b) pump shut-off valves.
2-G43	Where regulated waste is transported in road tank vehicles, the tank capacity must not be exceeded and a mechanism for volume measurement that is readily visible and calibrated to show maximum volume of waste in the tank must be fitted to each tank.
2-G44	Where regulated waste is transported in road tank vehicles, manholes of sufficient size to allow internal inspection, cleaning and maintenance of the tanks must be fitted.
2-G45	All filling and discharge points of road tank vehicles must be fitted with suitable leak proof caps and captive chains when regulated wastes are in transit.
2-G46	Each road tank vehicle must be provided with an effective bumper and/or barrier system to protect the tank and fittings from rear impact.
2-G47	The transfer of grease trap and/or oily wastes as permitted in condition 2-G7 must: a) only occur directly from one road tank vehicle to another; b) be conducted using a closed vacuum system; and c) be supervised at all times.
2-G48	The transfer of grease trap waste and/or oily wastes must: a) not take place at a sensitive place; b) not take place on a road adjacent to a sensitive place; c) not cause odour nuisance at a sensitive place. The transfer of grease trap waste and/or oily wastes must take place at least 10 metres up gradient from any waters or stormwater drain inlet.
2-G49	Where practicable the transfer of waste must be conducted on a bunded, hardstand area to minimise any releases of contaminants to land or water if a spill occurs. Where there is potential for a release to waters or stormwater during a transfer, temporary bunding and/or containment devices must be used to minimise the potential for release.

Table 2.7 Operating 36 or more vehicles.**Additional conditions applying to an activity that involves the operation of 36 or more regulated waste transport vehicles (i.e. ERA 57(2)(c)) under this code.**

2-G50	When an activity involves the operation of 36 or more regulated waste transport vehicles, an Operational Management System (OMS) must be developed for implementation by the person carrying out the activity. The OMS must be implemented on commencement of the activity and provide for: a) identification of actual and potential releases of all contaminants, their environmental impacts and the actions to be taken to prevent the likelihood of environmental harm; b) establishment and maintenance of procedures to identify the potential for accidents; c) activation of appropriate responses to emergency situations; d) training of staff to achieve awareness of the potential for environmental harm and competence in the application of preventative measures and emergency response procedures; and e) a review of, and continual improvement to, the overall environmental performance of the business operations.

Definitions for Part 1

Where a word or phrase in this document is defined in this Schedule or within the document, it has its corresponding meaning. Where a word or phrase in this document is not defined in this Schedule, it has the meaning given to it in (in order of priority):

- the *Environmental Protection Act 1994* (EP Act), its regulations or its environmental protection policies;
- the *Acts Interpretation Act 1954*;
- the Macquarie Dictionary (taking account of the context in which the word or phrase is used in this document).

For example, environmental value, environmental harm, environmental nuisance, material environmental harm, serious environmental harm and relevant act are defined in the EP Act and groundwater is defined in the Environmental Protection Regulation 2019.

Defined words or phrases in the singular include the plural and vice versa.

24 hour storm event with an average recurrence interval of 1 in 5 years means the maximum rainfall depth from a 24-hour duration precipitation event with an average recurrence interval of once in 5 years.

24 hour storm event with an average recurrence interval of 1 in 10 years means the maximum rainfall depth from a 24 hour duration precipitation event with an average recurrence interval of once in 10 years. *For example, an Intensity-Frequency-Duration table for a 24 hour duration event with an average recurrence interval of 1 in 10 years, identifies a rainfall intensity of 8.2mm/hour. The rainfall depth for this event is therefore 24 hour x 8.2mm/hour = 196.8mm.*

Activity means the environmentally relevant activities, whether resource activities or prescribed activities, to which the environmental authority relates.

Administering authority means the Department of Environment and Science or its successors or predecessors.

Appropriately qualified person(s) means a person or persons who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature.

Coal seam gas water means underground water brought to the surface of the earth, or moved underground in connection with exploring for, or producing coal seam gas.

Commercial place means a place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.

Commercial and industrial waste as defined in the Environmental Protection Regulation 2019.

Construction and demolition waste as defined in the Waste Reduction and Recycling Regulation 2011.

Disturbed areas include areas:

1. that are susceptible to erosion;
2. that are contaminated by the **activity**; and/or
3. upon which stockpiles of soil or other materials are located.

Domestic clean-up waste means non-putrescible, dry and inoffensive waste, other than green waste or recyclable waste, produced as a result of a clean-up of domestic premises.

Environmental harm as defined in Chapter 1 of the *Environmental Protection Act 1994*.

Environmental nuisance as defined in Chapter 1 of the *Environmental Protection Act 1994*.

Financial assurance as defined in Chapter 5 of the *Environmental Protection Act 1994*.

Fire washwater includes, but is not limited to, firefighting water; firefighting foams and other firefighting additives used in fire fighting operations.

General waste means waste other than regulated waste.

Green waste means grass cuttings, trees, bushes, shrubs, loppings of trees, bushes or shrubs, or similar matter produced as a result of the ordinary use or occupation of premises.

Groundwater monitoring bore means groundwater monitoring bore, constructed in accordance with the relevant Australian Standard, and used to sample groundwater from an aquifer the water quality of which may be potentially affected by the activity. This may be a background bore, an up-gradient bore, down-gradient bore or bore in the same aquifer in a nearby location unaffected by the activity.

Groundwater monitoring program means a system of groundwater monitoring devices, such as monitoring bores, and specified monitoring requirements used to provide data in respect to the level and quality of groundwater in the uppermost aquifer.

Incompatible waste means waste that may chemically react when:

- a) placed in proximity to other wastes; and / or
- b) mixed with other wastes.

Inert means:

1. bricks, pavers, ceramics, concrete, glass or steel; or
2. similar general waste that does not biodegrade or decompose.

Land does not include **waters**.

Landfill facility means land and structures at the site approved used for the disposal of solid waste.

Landfill liner means a compacted clay barrier at least 600 mm thickness achieving a maximum permeability of 1×10^{-9} metres per second.

Landfill unit means a discrete area of land or an excavation that receives solid waste.

Leachate means a **liquid** that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of at the site that contains soluble, suspended or miscible contaminants likely to have been derived from the said material.

Liquid means any substance that:

1. has an angle of repose of less than five degrees; or
2. becomes free flowing at or below 60 degrees Celsius or when it is transported; or
3. is not generally capable of being picked up by a spade or shovel.

Measures have the broadest interpretation and includes plant, equipment, physical objects, monitoring, procedures, actions, directions and competency.

NATA means National Association of Testing Authorities.

PFAS Compounds means the PFAS sub-classes outlined in the most recent edition of the PFAS National Environmental Management Plan.

Receiving environment monitoring program means a monitoring program designed to monitor and assess the potential impacts of controlled or uncontrolled releases of contaminants to the environment from the **activity**.

Records include breach notifications, written procedures, analysis results, monitoring reports and monitoring programs required under a condition of this authority.

Secondary containment system means a system designed, installed and operated to prevent any release of contaminants from the system, or containers within the system, to land, groundwater, or surface waters.

Semi-liquid means imperfectly fluid, having both fluid and solid characteristics.

Sensitive place includes the following and includes a place within the curtilage of such a place reasonably used by persons at that place:

1. a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
2. a motel, hotel or hostel; or
3. a kindergarten, school, university or other educational institution; or
4. a medical centre or hospital; or
5. a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area; or
6. a public park or garden; or
7. for noise, a place listed as a sensitive receptor in Schedule 1 of the Environmental Protection (Noise) Policy 2019.

Toxic material means:

1. cytotoxic wastes;
2. drugs and poisons listed in the Health (Drugs and Poisons) Regulation 1996; and
3. any other material that:
 - a. has contaminant concentrations in the waste exceeding the allowable levels in *Appendix B – Additional Tables, Table 2 - Maximum contaminant levels*; or
 - b. has leaching contaminant levels in the waste when measured in accordance with toxicity characteristic leaching procedure (TCLP), exceeding the concentrations prescribed in *Appendix B – Additional Tables, Table 3 - Allowable leaching contaminant levels*.

Waters includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water, natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

Definitions for Part 2

Where a word or phrase in this document is defined in this Schedule or within the document, it has its corresponding meaning. Where a word or phrase in this document is not defined in this Schedule, it has the meaning given to it in (in order of priority):

- the *Environmental Protection Act 1994* (EP Act), its regulations or its environmental protection policies;
- the *Acts Interpretation Act 1954*;
- the Macquarie Dictionary (taking account of the context in which the word or phrase is used in this document).

For example, environmental value, environmental harm, environmental nuisance, material environmental harm, serious environmental harm and relevant act are defined in the EP Act and groundwater is defined in the Environmental Protection Regulation 2019.

Defined words or phrases in the singular include the plural and vice versa.

Activity means the **environmentally relevant activity**, or aspect of the ERA to which this code relates.

ADG Code means the *Australian Code for the Transport of Dangerous Goods by Road and Rail*, 7th edition, or more recent versions as they become available. The ADG Code is available for purchase from Canprint — Telephone: (02) 6293 8383 or from the National Transport Commission website at www.ntc.gov.au

Anniversary day, for a **registration certificate** is defined in Schedule 4 of the EP Act.

Asbestos-containing material means any material, object, product or debris that contains asbestos.

Asbestos waste means all removed **asbestos-containing materials** and disposable items used during the asbestos removal work, such as plastic sheeting used for an enclosure or to cover surfaces in the asbestos work area, disposable coveralls, disposable respirators and rags used for cleaning etc.

Clinical waste means waste that has the potential to cause disease including, for example, the following:

- a) animal waste;
- b) discarded sharps;
- c) human tissue waste; and
- d) laboratory waste.

Code of environmental compliance means a code of environmental compliance approved or made under a regulation of the EP Act.

Department means the Department of Environment, Science and Innovation or its successor or predecessors.

Environmentally relevant activity (ERA) means an activity prescribed by regulation as an ERA.

Friable asbestos means **asbestos-containing material** which, when dry, is or may become crumbled, pulverised or reduced to powder by hand pressure.

Note: This may include asbestos containing materials that have been subjected to conditions, such as weathering, physical damage, water damage etc., that leave them in a state where they meet the above definition.

Incompatible wastes means wastes that are likely to interact and increase the risk to human health and/or the environment when mixed or brought into contact.

Liquescent waste means waste tending toward a liquid state; waste that is not spadable.

Oily waste means hydrocarbons and water mixtures or emulsions, including oil and water mixtures or emulsions, which is the **regulated waste** item 37 of Schedule 7 of the Environmental Protection Regulation

2008. **Oily waste** does not include mineral oil (item 34) that is not in a mixture or emulsion with water. Vegetable oil (item 63) is also excluded.

Operator means the person carrying out the ERA.

Packaged regulated waste means **regulated waste** in a container with:

- e) a capacity of not more than 450 litres; and
- f) a nett mass of not more than 400 kilograms.

Registration certificate means a **registration certificate** given under section 73F of the EP Act to the **operator** of an ERA.

Regulated waste means waste that—

1. a) is commercial or industrial waste, whether or not it has been immobilised or treated; and
b) is of a type, or contains a constituent of a type, mentioned in schedule 7.
2. Waste prescribed under subsection (1) includes—
 - a) for an element—any chemical compound containing the element; and
 - b) anything that contains residues of the waste.

Regulatory agency means the agency of a State or Territory that has responsibility for regulating the transport of regulated wastes in that State or Territory.

Related waste means waste that constitutes, or is contaminated with, chemicals, cytotoxic drugs, human body parts, pharmaceutical products or radioactive substances.

Release of a contaminant into the environment, includes:

- a) to deposit, discharge, emit or disturb the contaminant;
- b) to cause or allow the contaminant to be deposited, discharged, emitted or disturbed;
- c) to allow the contaminant to escape; and
- d) to fail to prevent the contaminant from escaping.

Rigid vehicle means a vehicle the load carrying area of which is fixed to the vehicle's chassis or frame (as defined in the ADG Code).

Risk phrase means a phrase stated in the National Occupational Health and Safety Commission's (NOHSC's) document entitled *National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012(1994)]*, or more recent versions, that gives information about the substance's hazards.

Road tank vehicle means a truck, trailer or semi-trailer or unit in a road train, incorporating a tank, or having a tank or tanks mounted thereon, either permanently or temporarily (as defined in AS 2809.1–2008 — *Road Tank Vehicles for Dangerous Goods*).

Safety phrase means a phrase stated in National Occupational Health and Safety Commission's document entitled *National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012(1994)]*, or more recent versions, that gives information about:

- a) the safe use of the substance; or
- b) the personal protective equipment for the substance.

Sensitive place means—

- a) a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel);
- b) a library, childcare centre, kindergarten, school, university or other educational institution;
- c) a medical centre, surgery or hospital; or

- d) a public park or garden that is open to the public (whether or not on payment of money) for use other than for sport or organised entertainment.

Standard environmental conditions for a **code of environmental compliance**, means the **standard environmental conditions** approved for the ERA, or aspect of the ERA, under section 549 of the EP Act.

Ullage means a vapour space which is left above the liquid surface after filling, to permit a degree of thermal expansion of the liquid without loss of cargo (as defined in AS 2809.1–2008 — *Road Tank Vehicles for Dangerous Goods*)

Waters includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water, natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), and groundwater and any part thereof.

Page 30 of 38



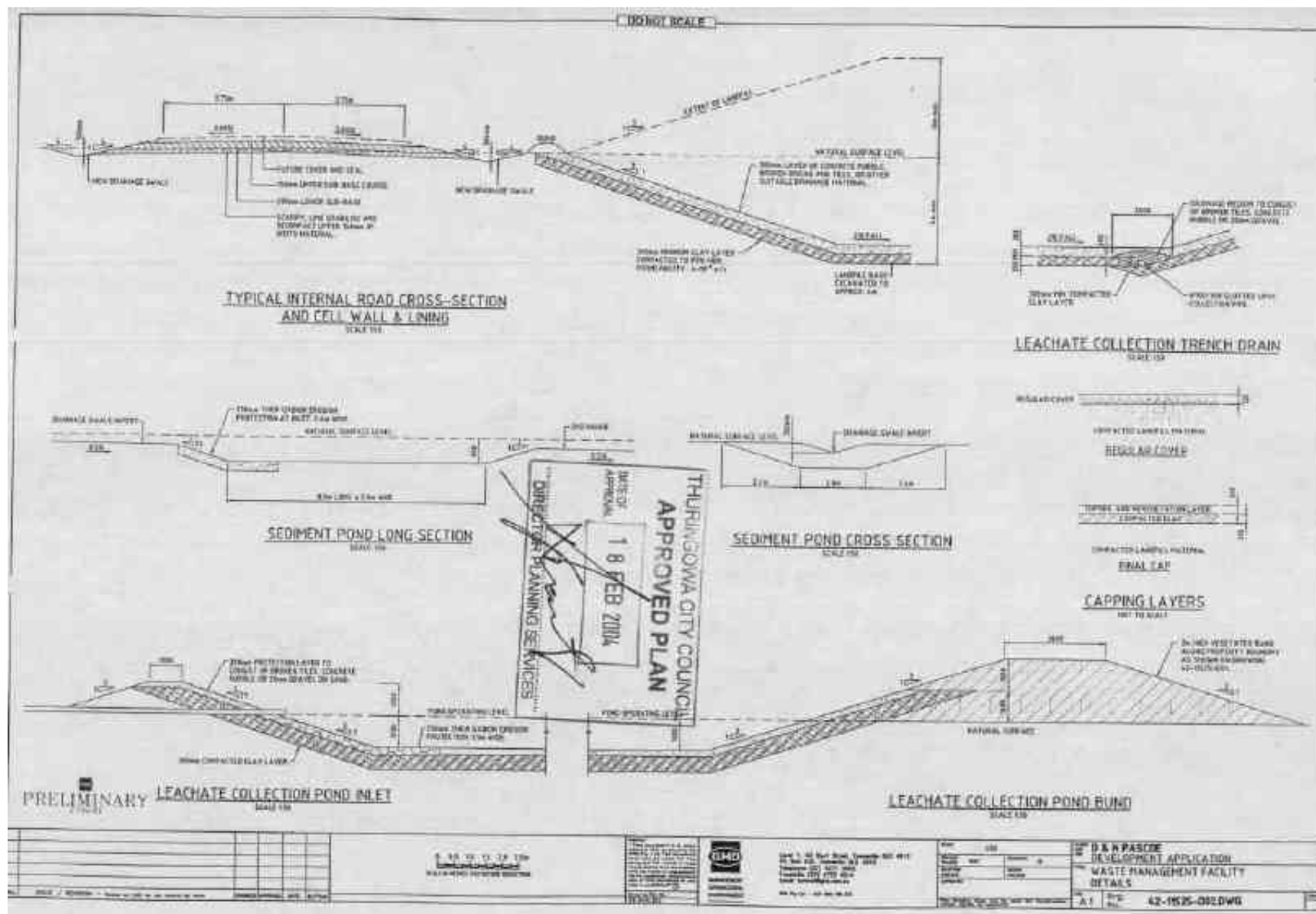


Figure 3: Landfill Design Specifications

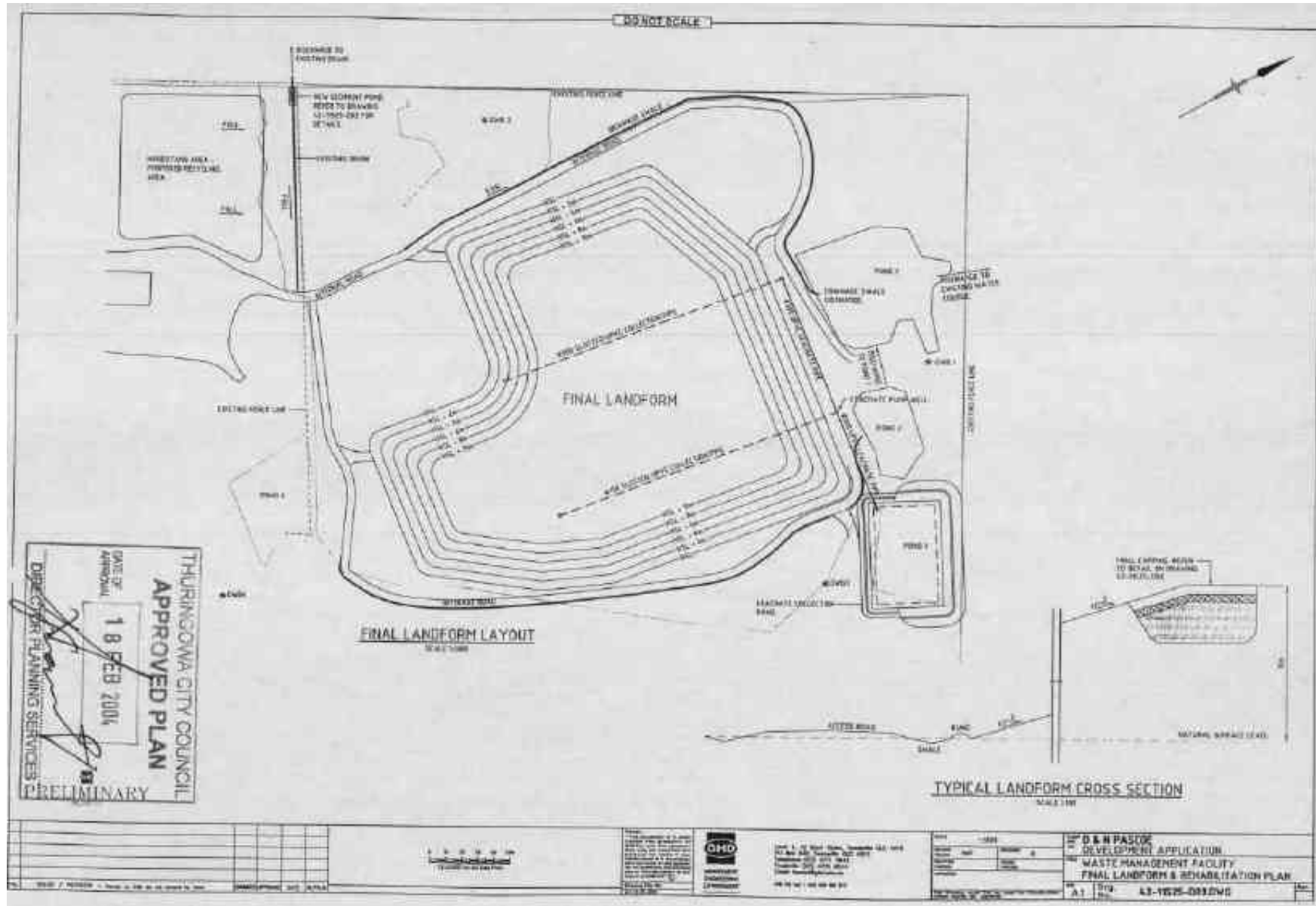


Figure 4: Final Landform and Rehabilitation Plan

Appendix B - Additional Tables

Table 2 - Maximum contaminant levels

Contaminant	Maximum contaminant level (mg/kg)
<i>Monocyclic aromatic hydrocarbons (MAH)</i>	
Benzene	10
Ethyl Benzene	500
Toluene	300
Xylene	250
Total MAH	500
<i>Polycyclic aromatic hydrocarbons (PAH)</i>	
Total PAH	500
<i>Phenolic contaminants - Non halogenated compounds</i>	
Phenol	100
m-cresol	250
o-cresol	250
p-cresol	250
Total non-halogenated phenol	250
<i>Phenolic contaminants - Halogenated phenol</i>	
Chlorophenol	1
Pentachlorophenol	5
Trichlorophenol	5
Total halogenated phenol	5
<i>Chlorinated Hydrocarbons - Chlorinated aliphatic compounds</i>	
Carbon tetrachloride	5
1,2 Dichloroethane	10
1,1 Dichloroethene	1
Tetrachloroethene	10
Trichloroethene	25
Total chlorinated aliphatic compounds	50
<i>Chlorinated Hydrocarbons - Chlorinated aromatic compounds</i>	
Chlorobenzene	100
Hexachlorobenzene	1
Total chlorinated aromatic compounds	100
Non-scheduled solid polychlorinated biphenyls (PCBs)	2
<i>Pesticides (screening)</i>	
Total organochlorine	5
Total herbicides	25

Contaminant	Maximum contaminant level (mg/kg)
Total carbamates	25
Total organophosphorus	10
<i>Petroleum hydrocarbons</i>	
Total petroleum hydrocarbons (C ₆ -C ₉)	500
Total petroleum hydrocarbons (C ₁₀ -C ₁₄)	5,000
Total petroleum hydrocarbons (C ₁₅ -C ₂₈)	10,000
Total petroleum hydrocarbons (C ₂₉ -C ₃₆)	10,000

Table 3 - Allowable leaching contaminant levels

Contaminant	Allowable leaching contaminant levels (TCLP*) (mg/L)
<i>Non-specific contaminants</i>	
Biochemical oxygen demand	20,000
Total organic carbon	10,000
Petroleum hydrocarbons	25
<i>Metals and metalloids</i>	
Antimony	0.5
Arsenic	0.5
Barium	10
Cadmium	0.05
Chromium	0.5
Cobalt	0.5
Copper	10
Lead	0.5
Mercury	0.01
Molybdenum	0.1
Nickel	0.5
Selenium	0.1
Silver	0.5
Thallium	0.1
Tin	0.3
Vanadium	0.5
Zinc	50
<i>Inorganic anions</i>	
Bromide	5
Chloride	6,000
Cyanide (total)	1

Contaminant	Allowable leaching contaminant levels (TCLP*) (mg/L)
Fluoride	15
Nitrate	100
Sulphate	2,500
<i>Monocyclic aromatic hydrocarbons (MAH)</i>	
Benzene	0.1
Ethyl benzene	5
Toluene	3
Xylene	2
Total MAH	5
<i>Polycyclic aromatic hydrocarbons (PAH)</i>	
Anthracene	0.07
Benz (a) anthracene	0.005
Benz (c) phenanthrene	0.005
Benzo (a) pyrene	0.002
Benzo (b) fluoranthene	0.005
Benzo (k) fluoranthene	0.005
Chrysene	0.01
Dibenz (a,h) anthracene	0.002
Dibenz (a,h) pyrene	0.01
Dimethylbenz (a) anthracene	0.005
Fluoranthene	0.02
Indeno (1,2,3-cd) pyrene	0.01
Naphthalene	0.07
Phenanthrene	0.01
Pyrene	0.07
Total PAH	0.1
<i>Phenolic contaminants – Non-halogenated compounds</i>	
Phenol	1
m-cresol	2
o-cresol	2
p-cresol	2
<i>Phenolic contaminants - Halogenated phenols</i>	
Chlorophenol	0.01
Pentachlorophenol	0.1
Trichlorophenol	0.1
<i>Chlorinated hydrocarbons - Chlorinated aliphatic compounds</i>	
Carbon tetrachloride	0.03

Contaminant	Allowable leaching contaminant levels (TCLP*) (mg/L)
1,2 Dichloroethane	0.1
1,1 Dichloroethene	0.003
Tetrachloroethene	0.1
Trichloroethene	0.3
Chlorinated hydrocarbons - <i>Chlorinated aromatic compounds</i>	
Chlorobenzene (total)	1
Hexachlorobenzene	0.002
<i>Pesticides - Organochlorine</i>	
Aldrin	0.001
Chlordane	0.006
Chlorpyrifos	0.01
Dieldrin	0.001
DDT	0.003
Endrin	0.001
Heptachlor	0.003
Lindane	0.1
Methoxychlor	0.1
Toxaphene	0.005
<i>Pesticides - Herbicides</i>	
2,4-D	0.1
2,4-DB	0.2
2,4,5 -T	0.002
MCPA	0.2
<i>Pesticides - Carbamates</i>	
Carbaryl	0.06
Carbofuran	0.03
<i>Pesticides - Organophosphorus</i>	
Diazinon	0.01
Methyl Parathion	0.006
Parathion	0.03
<i>Pesticides - Triazines</i>	
Atrazine	0.01
Simazine	0.01
<i>Fluorinated organic compounds</i>	
Total fluorinated organic compounds (if leachate reused on or off-site) [#]	0.0003
Total fluorinated organic compounds (if leachate not reused on	0.05

Contaminant	Allowable leaching contaminant levels (TCLP*) (mg/L)
or off-site) [#]	

*Allowable leaching levels to be determined using the **TCLP** procedure mentioned in United States Environmental Protection Agency (USEPA), Washington DC (2008) "Test methods for evaluating solid waste, physical/chemical methods" Document number SW 846. 3rd Edition or more recent editions or supplement to that procedure as they become available.

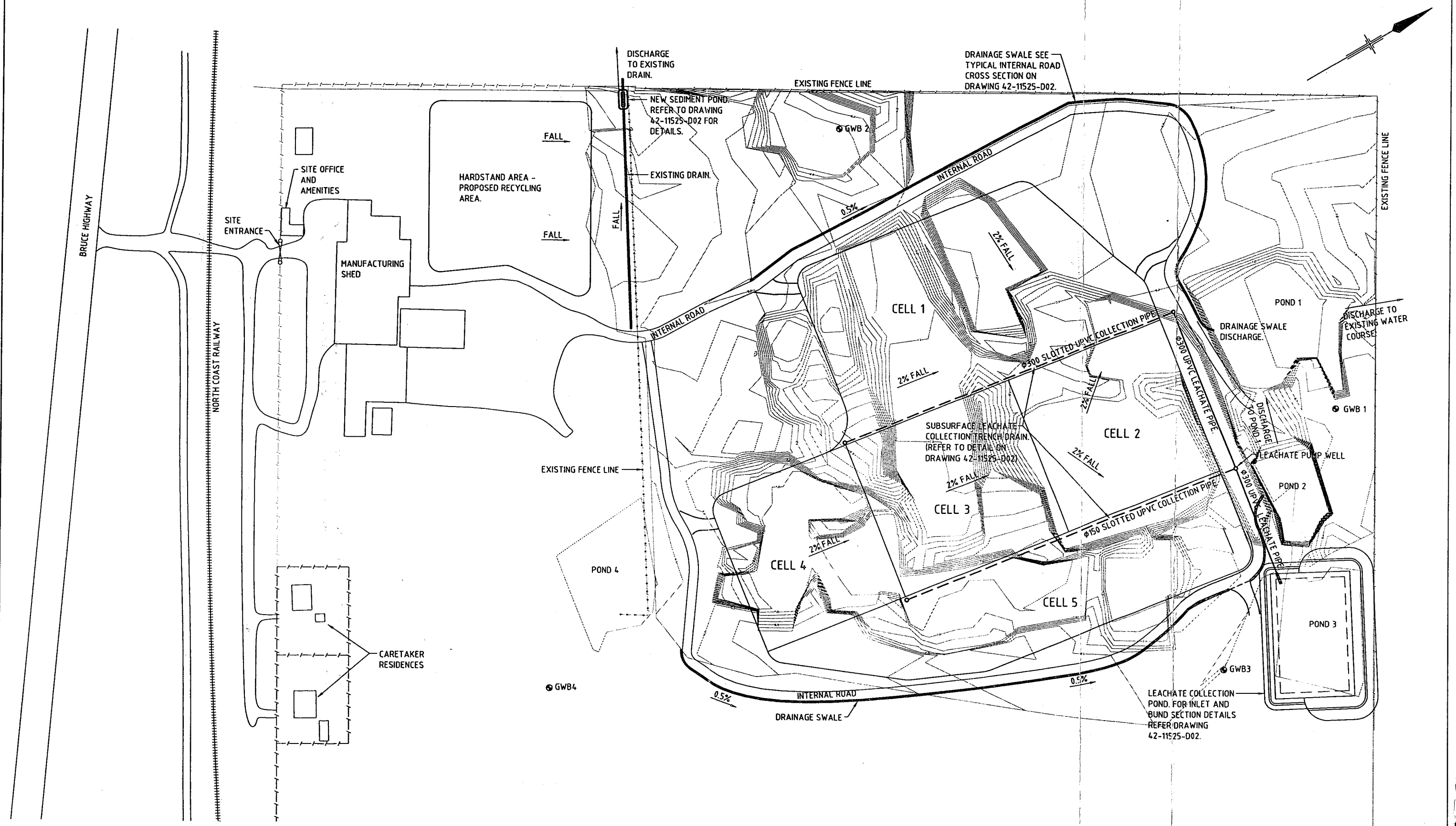
[#] The standard suite of Total fluorinated organic compounds (PFCs) (including key sulfonates), plus total oxidisable precursor assay reported as the analyses for the resulting perfluorinated carboxylates for C₄ to C₁₄ carbon chain length (refer to the most recent version of the PFAS National Environmental Management Plan).

END OF ENVIRONMENTAL AUTHORITY

Appendix C Waste Management Facility

Proposed Site Layout

DO NOT SCALE



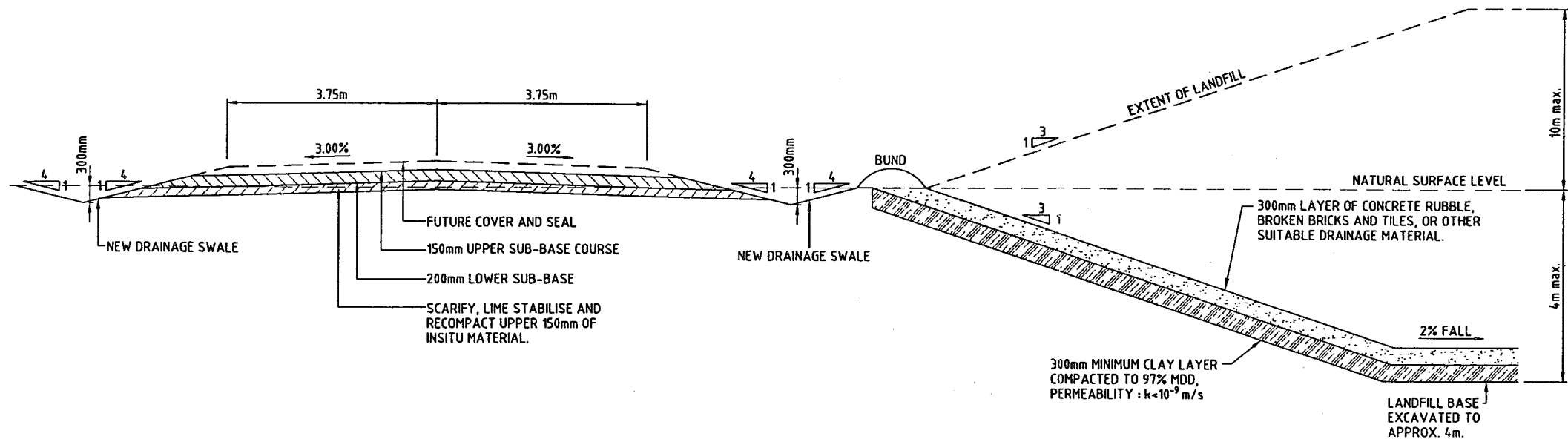
PROPOSED SITE LAYOUT
SCALE 1:1000

PRELIMINARY
27/06/03

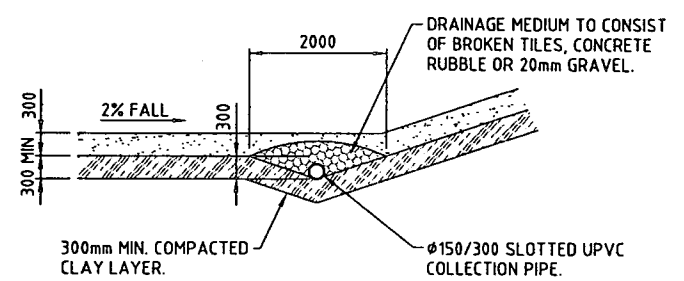
Appendix D Waste Management Facility

Details (Leachate + Capping Layers)

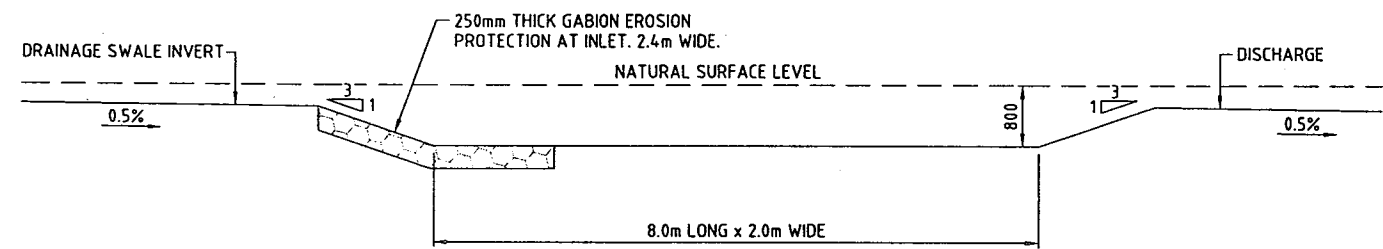
DO NOT SCALE



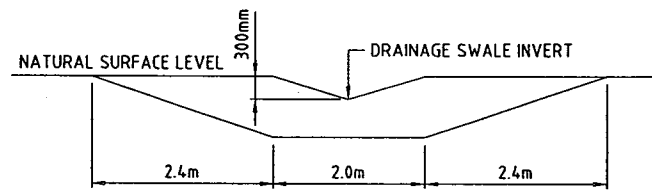
TYPICAL INTERNAL ROAD CROSS-SECTION
AND CELL WALL & LINING
SCALE 1:50



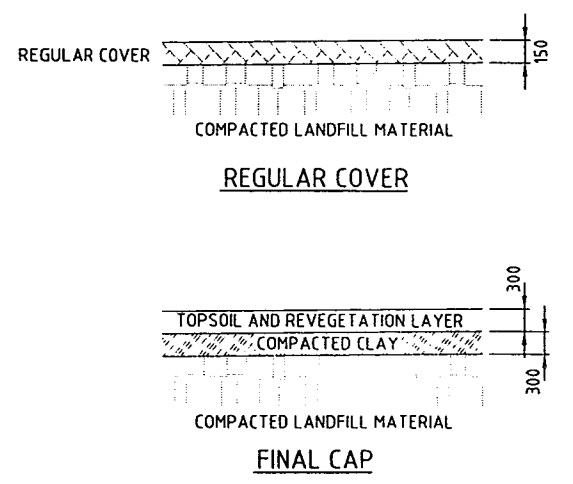
LEACHATE COLLECTION TRENCH DRAIN
SCALE 1:50



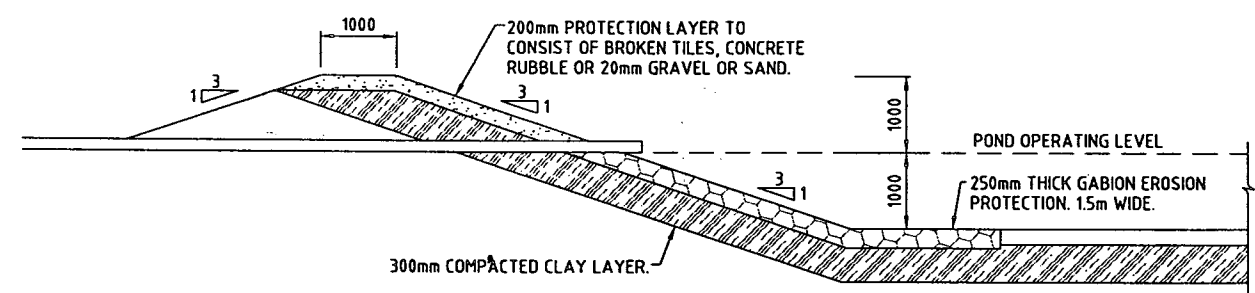
SEDIMENT POND LONG SECTION
SCALE 1:50



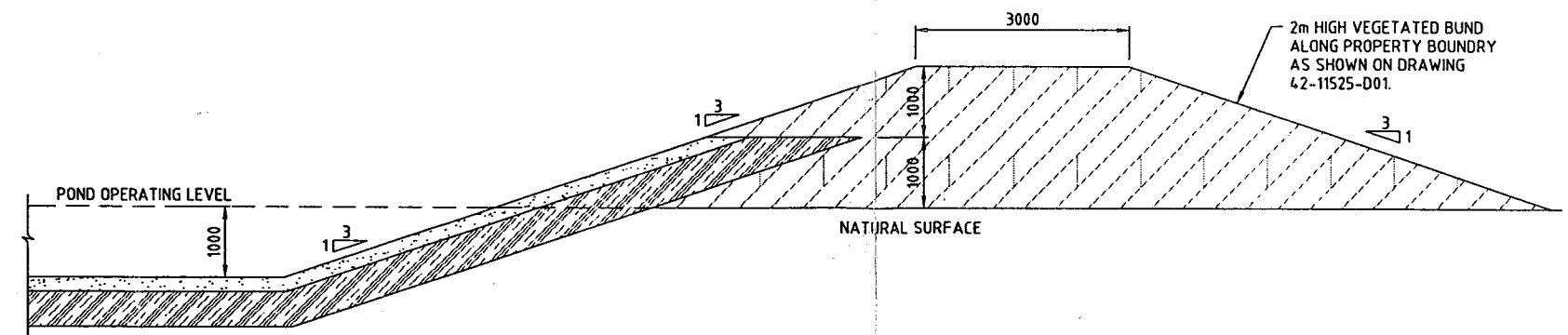
SEDIMENT POND CROSS SECTION
SCALE 1:50



CAPPING LAYERS
NOT TO SCALE



PRELIMINARY LEACHATE COLLECTION POND INLET
SCALE 1:50



LEACHATE COLLECTION POND BUND
SCALE 1:50

Appendix E Permeability Test Reports

Conducted in 2002 by MSM Engineering



Geotechnical & Environmental
Consultants & Laboratories

MSM Engineering
Pty Ltd
ACN 010 826 561

Page 1 of 10
1/51 Secam Street, Mansfield Qld
P.O. Box 2034 Mansfield DC Qld 4122
Phone: (07) 3343 3166 Fax: (07) 3849 4705
Email: laboratories@msmeng.com.au
Website: www.msmeng.com.au

COEFFICIENT OF PERMEABILITY

Client : Soil Engineering Services
Address : 9 Catalyst Court, Mt. St John
Project : Delivered Samples
Location : BH 9 (3.8 - 4.0 m)

Report No. : R 5351
Job No : 03634017
Reg'n No. : L0008/03
Senders No. :
Date Received : 19/12/02
Sampled By : Client

SPECIMEN PREPARATION

Type of Sample :	Disturbed	Specimen Size :	48 mm dia x 60 mm
Specimen Preparation :	Remoulded at OMC to 97 % Standard MDD		

SPECIMEN DETAILS

Before Test			After Test		
Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)	Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)
13.4	1.79	71	18.6	1.79	99

TEST DETAILS

Cell Pressure (kPa)	Inlet Pressure (kPa)	Outlet Pressure (kPa)
400	350	300
Type of Water Used	Hydraulic Gradient	Specimen Void Ratio
Distilled	84.6	0.507

COEFFICIENT OF PERMEABILITY

Trial No.	Duration (mins)	Coefficient of Permeability (m/sec)
1	360	1.0×10^{-9}
2	240	1.3×10^{-9}
Average Coefficient of Permeability		1.2×10^{-9}

Remarks :

Material Description : Clayey SAND (SC) fine to medium grained sand, light brown, low plasticity fines.

Test Procedure : ASTM D5084

Prepared by *NF*

Checked by *H/A*

This laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with the terms of registration. This document shall not be reproduced except in full without the prior approval of the laboratory.



1446

Authorised Signatory

N. Juma 17/2/13

R27.2

I:\2003\03634017\08_LAB TESTING\0008 Permeability.doc



Geotechnical & Environmental
Consultants & Laboratories

MSM Engineering
Pty Ltd
ACN 010 826 561

Page 2 of 10
1/51 Secam Street, Mansfield Qld
P.O. Box 2034 Mansfield DC Qld 4122
Phone: (07) 3343 3166 Fax: (07) 3849 4705
Email: laboratories@msmeng.com.au
Website: www.msmeng.com.au

COEFFICIENT OF PERMEABILITY

Client :	Soil Engineering Services	Report No. :	R 5351
Address :	9 Catalyst Court, Mt. St John	Job No. :	03634017
Project :	Delivered Samples	Reg'n No. :	L0009/03
Location :	BH 11 (5.2 m)	Senders No. :	
		Date Received :	19/12/02
		Sampled By :	Client

SPECIMEN PREPARATION

Type of Sample :	Disturbed	Specimen Size :	48 mm dia x 60 mm
Specimen Preparation :	Remoulded at OMC to 97 % Standard MDD		

SPECIMEN DETAILS

Before Test			After Test		
Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)	Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)
10.9	1.92	73	14.9	1.92	99.5

TEST DETAILS

Cell Pressure (kPa)	Inlet Pressure (kPa)	Outlet Pressure (kPa)
400	350	300
Type of Water Used	Hydraulic Gradient	Specimen Void Ratio
Distilled	84.7	0.403

COEFFICIENT OF PERMEABILITY

Trial No.	Duration (mins)	Coefficient of Permeability (m/sec)
1	390	1.2×10^{-9}
2	240	0.95×10^{-9}
Average Coefficient of Permeability		1.1×10^{-9}

Remarks :

Material Description : Clayey SAND (SC) fine to medium grained sand, brown, low plasticity fines.

Test Procedure : ASTM D5084

Prepared by **NF**

Checked by **HP**

This laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with the terms of registration. This document shall not be reproduced except in full without the prior approval of the laboratory.



1446

Authorised Signatory

N. Jamer 17/2/3

R27.2

Z:\Jobs_Golder\2003\03634017\08_LAB TESTING\L0009 Permeability.doc



Geotechnical & Environmental
Consultants & Laboratories

MSM Engineering
Pty Ltd
ACN 010 826 561

Page 3 of 10
1/51 Secam Street, Mansfield Qld
P.O. Box 2034 Mansfield DC Qld 4122
Phone: (07) 3343 3166 Fax: (07) 3849 4705
Email: laboratories@msmeng.com.au
Website: www.msmeng.com.au

COEFFICIENT OF PERMEABILITY

Client : Soil Engineering Services
Address : 9 Catalyst Court, Mt. St John
Project : Delivered Samples
Location : BH 13 (6.0 m)

Report No. : R 5351
Job No : 03634017
Reg'n No. : L0010/03
Senders No. :
Date Received : 19/12/02
Sampled By : Client

SPECIMEN PREPARATION

Type of Sample :	Disturbed	Specimen Size :	48 mm dia x 60.4 mm
Specimen Preparation :	Remoulded at OMC to 96 % Standard MDD		

SPECIMEN DETAILS

Before Test			After Test		
Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)	Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)
8.6	2.00	67	12.8	2.00	100

TEST DETAILS

Cell Pressure (kPa)	Inlet Pressure (kPa)	Outlet Pressure (kPa)
400	350	300
Type of Water Used	Hydraulic Gradient	Specimen Void Ratio
Distilled	84.4	0.348

COEFFICIENT OF PERMEABILITY

Trial No.	Duration (mins)	Coefficient of Permeability (m/sec)
1	390	5.9×10^{-10}
2	360	5.2×10^{-10}
Average Coefficient of Permeability		5.6×10^{-10}

Remarks :

Material Description : Clayey SAND (SC) fine to medium grained sand, brown, low plasticity fines.

Test Procedure : ASTM D5084

Prepared by *NF*

Checked by *HP*

This laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with the terms of registration. This document shall not be reproduced except in full without the prior approval of the laboratory.



1446

Authorised Signatory

N. J. J. 17/2/13

R27.2

\\FILES1\JOBS_GOLD\R\2003\03634017\08_LAB TESTING\L0010 Permeability.doc

COEFFICIENT OF PERMEABILITY

Client :	Soil Engineering Services	Report No. :	R 5351
Address :	9 Catalyst Court, Mt. St John	Job No. :	03634017
Project :	Delivered Samples	Reg'n No. :	L0011/03
Location :	BH 21 (1.0 - 3.0 m)	Senders No. :	
		Date Received :	19/12/02
		Sampled By :	Client

SPECIMEN PREPARATION

Type of Sample :	Disturbed	Specimen Size :	48 mm dia x 60.2 mm
Specimen Preparation :	Remoulded at OMC to 96.5 % Standard MDD		

SPECIMEN DETAILS

Before Test			After Test		
Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)	Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)
12.5	1.83	70	17.7	1.83	100

TEST DETAILS

Cell Pressure (kPa)	Inlet Pressure (kPa)	Outlet Pressure (kPa)
400	350	300
Type of Water Used	Hydraulic Gradient	Specimen Void Ratio
Distilled	84.7	0.480

COEFFICIENT OF PERMEABILITY

Trial No.	Duration (mins)	Coefficient of Permeability (m/sec)
1	210	3.6×10^{-10}
2	120	3.6×10^{-10}
Average Coefficient of Permeability		3.6×10^{-10}

Remarks :
Material Description : Clayey SAND (SC) fine to medium grained sand, brown, low plasticity fines.

Test Procedure : ASTM D5084

Prepared by *NF*

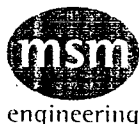
Checked by *HP*

This laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with the terms of registration. This document shall not be reproduced except in full without the prior approval of the laboratory.



1446

N Jones 17/2/13
Authorised Signatory



Geotechnical & Environmental
Consultants & Laboratories

MSM Engineering
Pty Ltd
ACN 010 826 561

Page 5 of 10
1/51 Secam Street, Mansfield Qld
P.O. Box 2034 Mansfield DC Qld 4122
Phone: (07) 3343 3166 Fax: (07) 3849 4705
Email: laboratories@msmeng.com.au
Website: www.msmeng.com.au

COEFFICIENT OF PERMEABILITY

Client :	Soil Engineering Services	Report No. :	R 5351
Address :	9 Catalyst Court, Mt. St John	Job No. :	03634017
Project :	Delivered Samples	Reg'n No. :	L0012/03
Location :	BH 23 (3.8 m)	Senders No. :	
		Date Received :	19/12/02
		Sampled By :	Client

SPECIMEN PREPARATION

Type of Sample :	Disturbed	Specimen Size :	48 mm dia x 60.0 mm
Specimen Preparation :	Remoulded at OMC to 97.0 % Standard MDD		

SPECIMEN DETAILS

Before Test			After Test		
Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)	Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)
16.2	1.73	78	20.7	1.73	100

TEST DETAILS

Cell Pressure (kPa)	Inlet Pressure (kPa)	Outlet Pressure (kPa)
400	350	300
Type of Water Used	Hydraulic Gradient	Specimen Void Ratio
Distilled	85.0	0.561

COEFFICIENT OF PERMEABILITY

Trial No.	Duration (mins)	Coefficient of Permeability (m/sec)
1	360	2.8×10^{-10}
2	330	3.9×10^{-10}
Average Coefficient of Permeability		3.4×10^{-10}

Remarks :
Material Description : Sandy CLAY (CI) medium plasticity, grey, fine to medium grained.

Test Procedure : ASTM D5084

Prepared by *NF*

Checked by *HA*

This laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with the terms of registration. This document shall not be reproduced except in full without the prior approval of the laboratory.



1446

N. Jurek 17/2/13
Authorised Signatory

COEFFICIENT OF PERMEABILITY

Client :	Soil Engineering Services	Report No. :	R 5351
Address :	9 Catalyst Court, Mt. St John	Job No. :	03634017
Project :	Delivered Samples	Reg'n No. :	L0013/03
Location :	BH 25 (3.6 -4.0 m)	Senders No. :	
		Date Received :	19/12/02
		Sampled By :	Client

SPECIMEN PREPARATION

Type of Sample :	Disturbed	Specimen Size :	48 mm dia x 60.2 mm
Specimen Preparation :	Remoulded at OMC to 96.5 % Standard MDD		

SPECIMEN DETAILS

Before Test			After Test		
Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)	Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)
13.9	1.77	72	19.3	1.77	100

TEST DETAILS

Cell Pressure (kPa)	Inlet Pressure (kPa)	Outlet Pressure (kPa)
400	350	300
Type of Water Used	Hydraulic Gradient	Specimen Void Ratio
Distilled	84.7	0.523

COEFFICIENT OF PERMEABILITY

Trial No.	Duration (mins)	Coefficient of Permeability (m/sec)
1	330	4.6×10^{-10}
2	240	2.7×10^{-10}
Average Coefficient of Permeability		3.7×10^{-10}

Remarks :

Material Description :Sandy CLAY (CI) medium plasticity, grey/brown, fine to medium grained.

Test Procedure : ASTM D5084

Prepared by *NF*

Checked by *H/P*

This laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with the terms of registration. This document shall not be reproduced except in full without the prior approval of the laboratory.



1446

Authorised Signatory

N. Jurek 17/2/03

COEFFICIENT OF PERMEABILITY

Client :	Soil Engineering Services	Report No. :	R 5351
Address :	9 Catalyst Court, Mt. St John	Job No. :	03634017
Project :	Delivered Samples	Reg'n No. :	L0014/03
Location :	BH 28 (3.5 -3.8 m)	Senders No. :	
		Date Received :	19/12/02
		Sampled By :	Client

SPECIMEN PREPARATION

Type of Sample :	Disturbed	Specimen Size :	48.1 mm dia x 59.8 mm
Specimen Preparation :	Remoulded at OMC to 97.0 % Standard MDD		

SPECIMEN DETAILS

Before Test			After Test		
Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)	Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)
15.1	1.75	75	20.0	1.75	99

TEST DETAILS

Cell Pressure (kPa)	Inlet Pressure (kPa)	Outlet Pressure (kPa)
400	350	300
Type of Water Used	Hydraulic Gradient	Specimen Void Ratio
Distilled	85.3	0.545

COEFFICIENT OF PERMEABILITY

Trial No.	Duration (mins)	Coefficient of Permeability (m/sec)
1	360	2.5×10^{-10}
2	330	1.6×10^{-10}
Average Coefficient of Permeability		2.1×10^{-10}

Remarks :
Material Description :Sandy CLAY (CI) medium plasticity, grey, fine to medium grained.

Test Procedure : ASTM D5084

Prepared by *NF*

Checked by *HP*

This laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with the terms of registration. This document shall not be reproduced except in full without the prior approval of the laboratory.



1446

Authorised Signatory

N. Janner 17/2/13

COEFFICIENT OF PERMEABILITY

Client :	Soil Engineering Services	Report No. :	R 5351
Address :	9 Catalyst Court, Mt. St John	Job No. :	03634017
Project :	Delivered Samples	Reg'n No. :	L0015/03
Location :	BH 29 (0.2 m)	Senders No. :	
		Date Received :	19/12/02
		Sampled By :	Client

SPECIMEN PREPARATION

Type of Sample :	Disturbed	Specimen Size :	48 mm dia x 59.9 mm
Specimen Preparation :	Remoulded at OMC to 96.5 % Standard MDD		

SPECIMEN DETAILS

Before Test			After Test		
Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)	Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)
12.9	1.79	69	18.8	1.79	100

TEST DETAILS

Cell Pressure (kPa)	Inlet Pressure (kPa)	Outlet Pressure (kPa)
400	350	300
Type of Water Used	Hydraulic Gradient	Specimen Void Ratio
Distilled	85.1	0.506

COEFFICIENT OF PERMEABILITY

Trial No.	Duration (mins)	Coefficient of Permeability (m/sec)
1	360	6.3×10^{-10}
2	330	7.2×10^{-10}
Average Coefficient of Permeability		6.8×10^{-10}

Remarks :
Material Description : Clayey SAND/Sandy CLAY (SC/CI) medium plasticity, grey, fine to medium grained.

Test Procedure : ASTM D5084

Prepared by *NF*

Checked by *HP*

This laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with the terms of registration. This document shall not be reproduced except in full without the prior approval of the laboratory.



1446

Authorised Signatory

Numer 17/2/13

COEFFICIENT OF PERMEABILITY

Client :	Soil Engineering Services	Report No. :	R 5351
Address :	9 Catalyst Court, Mt. St John	Job No :	03634017
Project :	Delivered Samples	Reg'n No. :	L0016/03
Location :	BH 30 (3.5 - 4.0 m)	Senders No. :	
		Date Received :	19/12/02
		Sampled By :	Client

SPECIMEN PREPARATION

Type of Sample :	Disturbed	Specimen Size :	48 mm dia x 60 mm
Specimen Preparation :	Remoulded at OMC to 97.5 % Standard MDD		

SPECIMEN DETAILS

Before Test			After Test		
Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)	Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)
10.6	1.92	70	15.0	1.92	100

TEST DETAILS

Cell Pressure (kPa)	Inlet Pressure (kPa)	Outlet Pressure (kPa)
400	350	300
Type of Water Used	Hydraulic Gradient	Specimen Void Ratio
Distilled	85.0	0.407

COEFFICIENT OF PERMEABILITY

Trial No.	Duration (mins)	Coefficient of Permeability (m/sec)
1	330	5.6×10^{-10}
2	180	5.4×10^{-10}
Average Coefficient of Permeability		5.5×10^{-10}

Remarks :

Material Description : Clayey SAND (SC) fine to medium grained, grey, medium plasticity.

Test Procedure : ASTM D5084

Prepared by *NF*

Checked by *HP*

This laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with the terms of registration. This document shall not be reproduced except in full without the prior approval of the laboratory.



1446

Authorised Signatory

N. Jurek 17/2/3

COEFFICIENT OF PERMEABILITY

Client :	Soil Engineering Services	Report No. :	R 5351
Address :	9 Catalyst Court, Mt. St John	Job No. :	03634017
Project :	Delivered Samples	Reg'n No. :	L0017/03
Location :	BH 31 (5.0 m)	Senders No. :	
		Date Received :	19/12/02
		Sampled By :	Client

SPECIMEN PREPARATION

Type of Sample :	Disturbed	Specimen Size :	48 mm dia x 59.6 mm
Specimen Preparation :	Remoulded at OMC to 97.0 % Standard MDD		

SPECIMEN DETAILS

Before Test			After Test		
Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)	Moisture Content (%)	Dry Density (t/m ³)	Degree of Saturation (%)
10.9	1.92	72	15.0	1.92	100

TEST DETAILS

Cell Pressure (kPa)	Inlet Pressure (kPa)	Outlet Pressure (kPa)
400	350	300
Type of Water Used	Hydraulic Gradient	Specimen Void Ratio
Distilled	85.5	0.407

COEFFICIENT OF PERMEABILITY

Trial No.	Duration (mins)	Coefficient of Permeability (m/sec)
1	420	4.4×10^{-10}
2	300	3.6×10^{-10}
Average Coefficient of Permeability		4.0×10^{-10}

Remarks :
Material Description : Clayey SAND (SC) fine to medium grained, grey, medium plasticity.

Test Procedure : ASTM D5084

Prepared by *NF*

Checked by *HP*

This laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with the terms of registration. This document shall not be reproduced except in full without the prior approval of the laboratory.



1446

Authorised Signatory

N. J. J. 17/2/13

Appendix F Email Correspondence

From Ace Mini Skips, dated 10th July 2024

Jai Kaartinen-Price - Terra Solutions

From: Jai Kaartinen-Price - Terra Solutions
Sent: Friday, 24 April 2026 6:52 AM
To: Jai Kaartinen-Price - Terra Solutions
Subject: FW: Bluewater follow up

From: Nola Pascoe <admin@aceminiskips.com.au>
Sent: Wednesday, July 10, 2024 2:43 PM
To: Andy Scott <a.scott@securedlending.com.au>
Subject: RE: Townsville EA

Hi Andy

In response to your email below, please find attached the following.

Item 1- The liner was designed by GHD. The liner is Clay. Soil Engineering Services conducted all tests (Compaction & Permeability Tests). SES have been contacted by David directly, SES lost 2 x 40ft containers which contained their historical hand written records in the in the 2019 floods. I have attached some records we still retained upstairs in our office which were unaffected. **See attachment "Permeability Test Reports (2002) ORIGINAL"**

Item 2 – The leachate management system was designed by GHD, prescribed requirements are met. **See attachment "Waste Management Facility - Details (Leachate + Capping Layers)"**

Item 3 – The Permeability testing was conducted by Soil Engineering Services. Refer to Item 1

Item 4 – There are two leachate storage ponds on site. Designed by GHD. The second pond is at the bottom of Landfill Cell No. 1 (neither of these storage areas have overflowed in the past 17 years including the 2019 floods).

Item 6 – No Site Development Plan available. However, **See attachment 'Waste Management Facility - Proposed Site Layout'**

Item 9 – As designed by GHD. The water in the freshwater lagoons are separated by bunding from any leachate water contained in the leachate cells. This freshwater discharges to a natural water course as shown on **attachment "Waste Management Facility - Proposed Site Layout"**.

Item 12 – Yes there is a signed declared RRA for the site – **See attachment "wastelevy-amendment-or-change-notification-rra-declaration – SIGNED"**

Item 13 – DESI Inspections – There are no outstanding issues with DESI (This would have been highlighted and addressed on the latest correspondence). Our last inspection was on the 1st May 2024, minor administration oversight issues have been noted and pose no significant issues to our Landfill. We had until today to submit our response. We attach our response for your perusal. **See email attachment "RE_ Post inspection letter EPPR00193413 Bluewater Landfill (David and Nola Pascoe)"**

I will send through the 3 years of Water Monitoring Reports, separately due to their size.

Regards

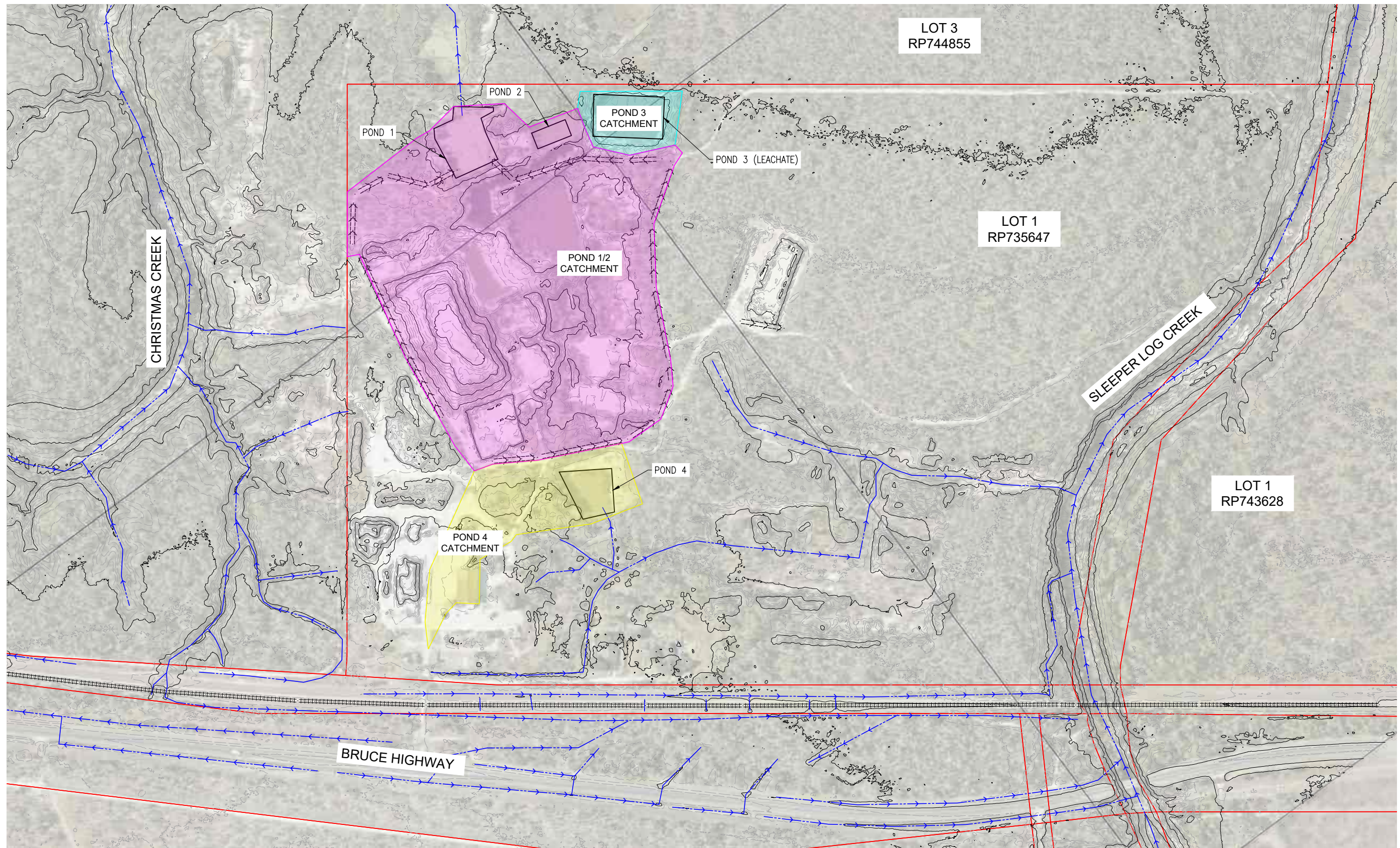


Katrina Campbell
Administration Officer

Ace Mini Skips
50 Mabin Street, Rosslea Q 4812
T: (07) 4779 8275
M: 0408 758 229
E: admin@aceminiskips.com.au
W: www.aceminiskips.com.au

Appendix G Updated Site Management Plans

Current as at 1st July 2026

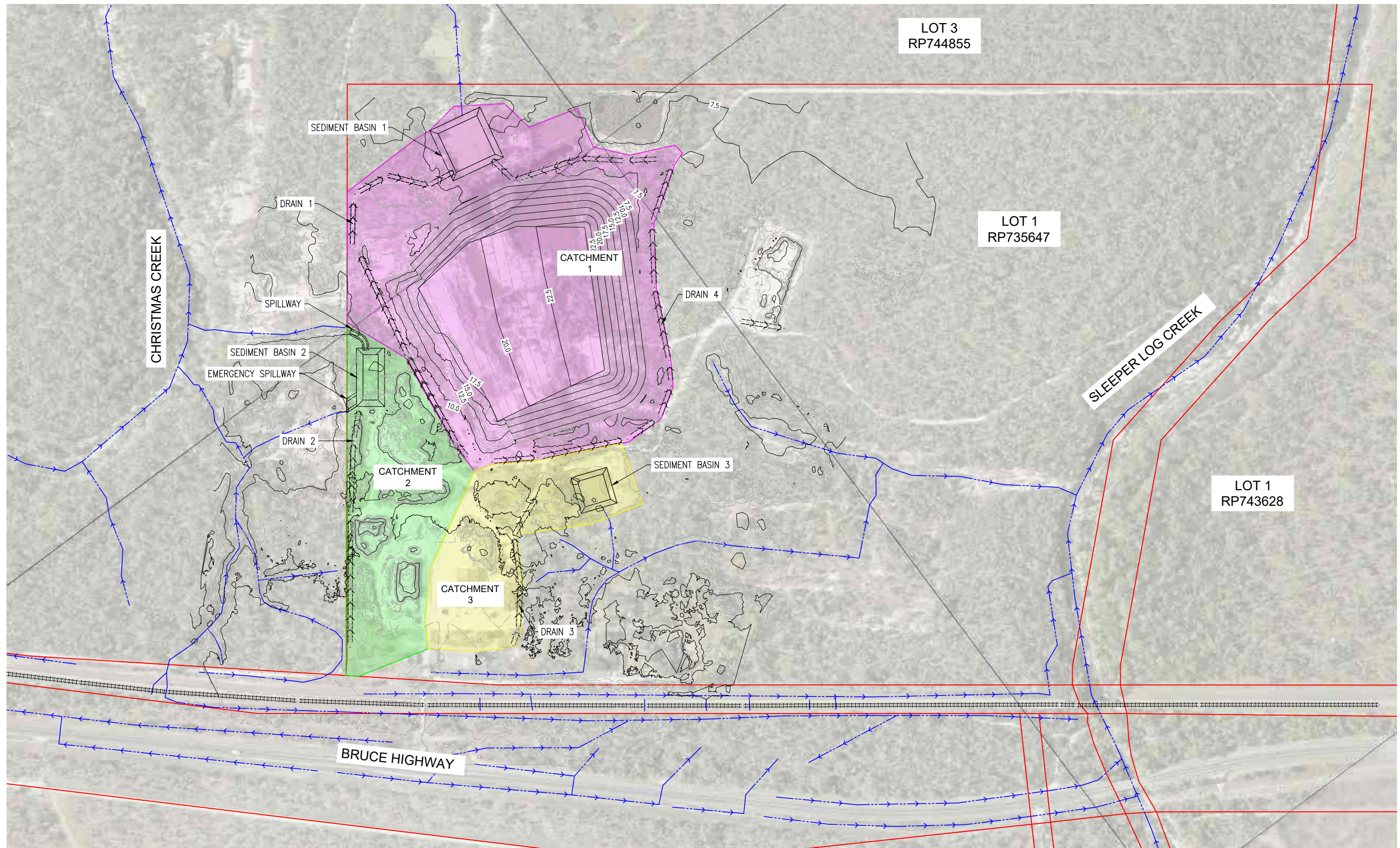


EXISTING STORMWATER CATCHMENT PLAN
SCALE 1:2000

REVISIONS					HORIZ. DATUM		CERTIFICATION		ABSOLUTE WASTE PTY LTD		SCALE	AS SHOWN
					VERT. DATUM		BRETT LANGTREE MIEAust, NER, RPEQ 11932		42386 BRUCE HIGHWAY, BLUEWATER		SHEET	SHEET 1 OF 17
					DRG. FILE		COPYRIGHT ©		LOT 1 on RP735647		REVISION	B
					DESIGN		These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.		EXISTING STORMWATER CATCHMENT PLAN		DRG No.	1343-SMP-001
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26					
B	N.P	18/06/26	TITLE BLOCK AMENDMENTS									
A	N.P	31/07/25	ISSUED FOR SMP REPORT									

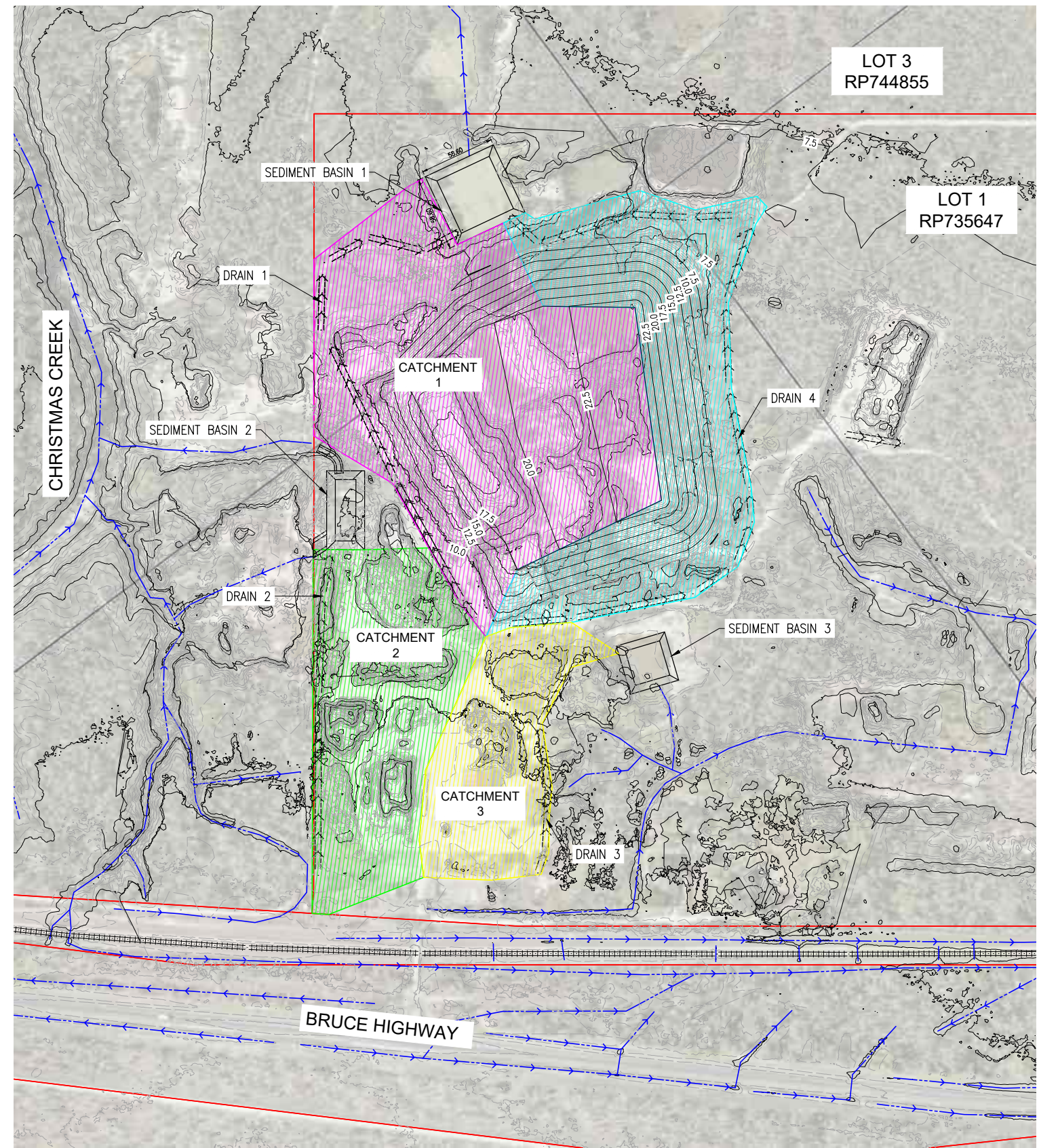


m 0400 699 979
e brett@langtreeconsulting.com.au

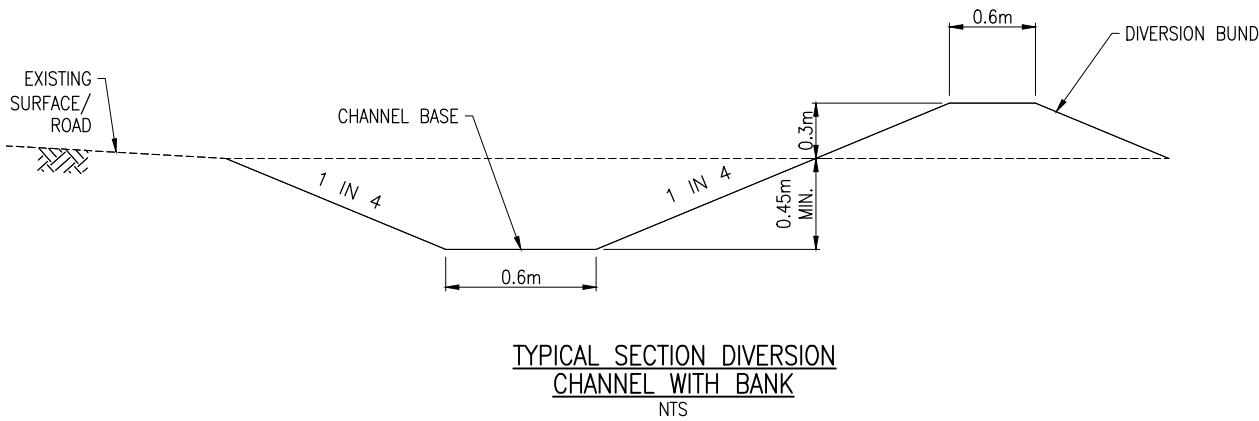


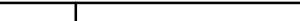
PROPOSED STORMWATER CATCHMENT PLAN
SCALE 1:2000

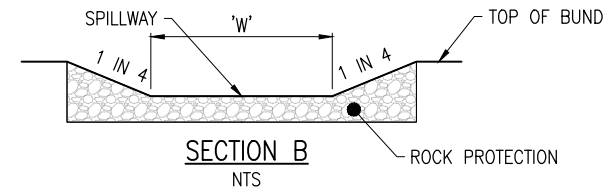
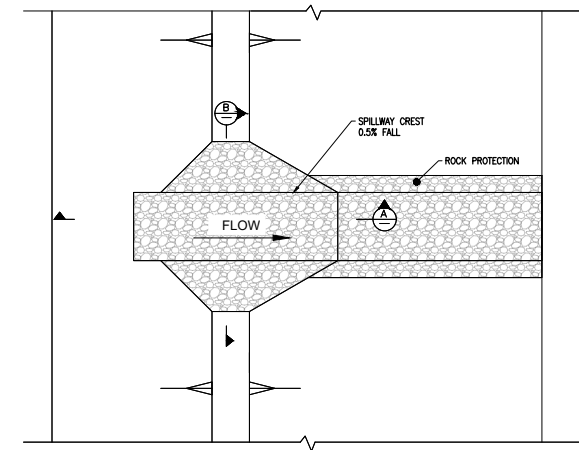
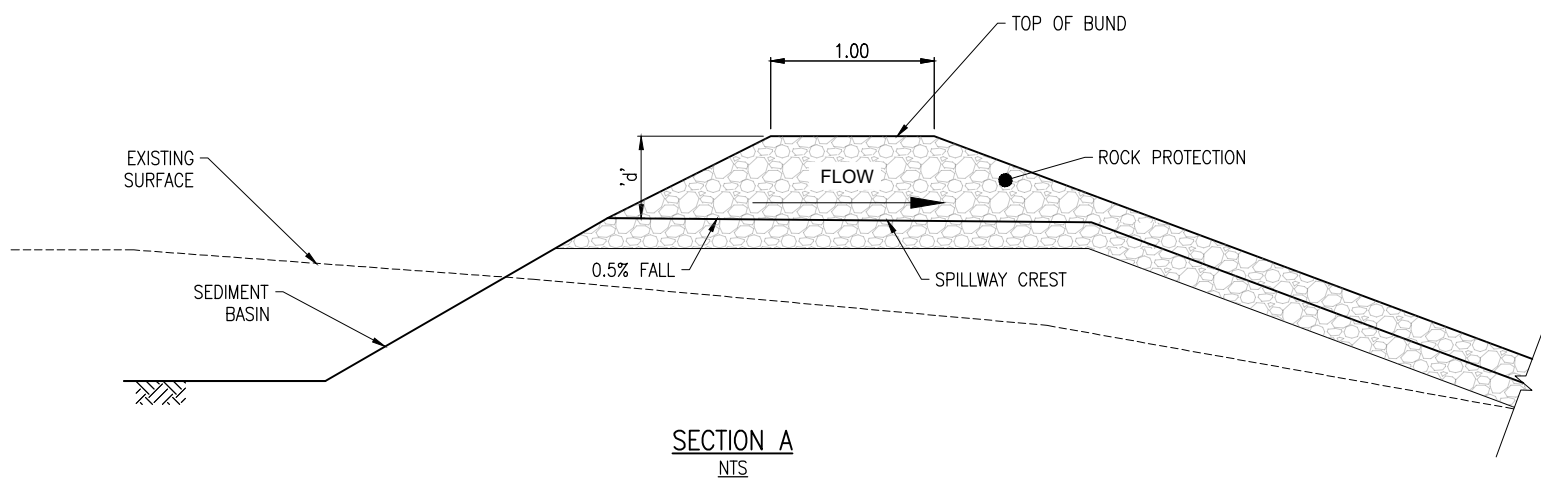
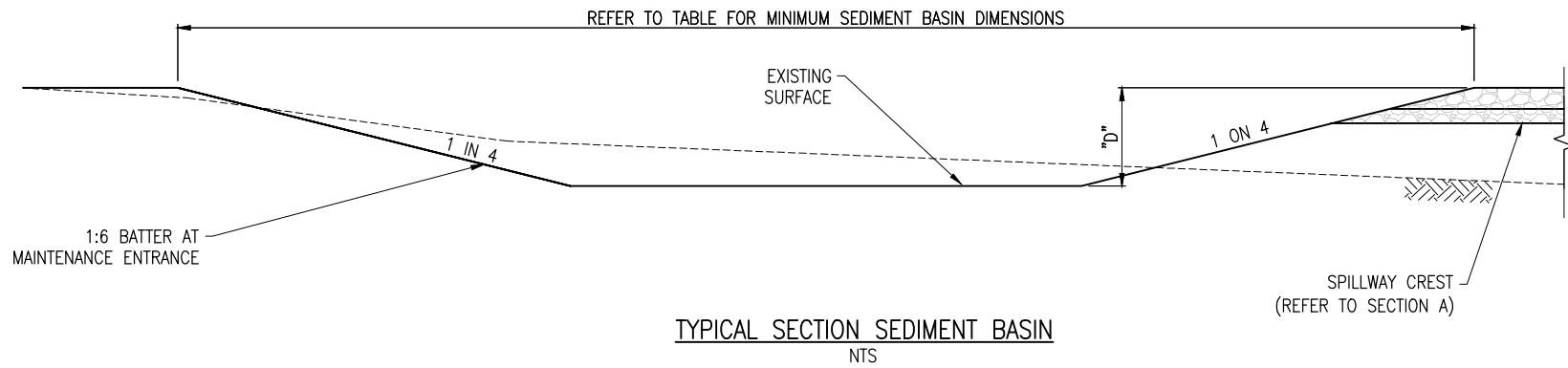
REVISIONS					HORIZ. DATUM				CERTIFICATION		 m e 0400 699 979 brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD		SCALE	AS SHOWN
					VERT. DATUM				BRETT LANGTREE MIEAust, NER, RPEQ 11932			42386 BRUCE HIGHWAY, BLUEWATER		SHEET	SHEET 2 OF 17
	B	N.P	18/06/26	UPDATE FINAL LANDFORM	DRG. FILE		DATE	COPYRIGHT ©	These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.			LOT 1 on RP735647		REVISION	B
	A	N.P	31/07/25	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26					PROPOSED STORMWATER CATCHMENT PLAN		DRG No.	1343-SMP-002
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26								



DRAIN CATCHMENT AREA PLAN
SCALE 1:2000



REVISIONS					HORIZ. DATUM		GDA2020 ZONE 55		CERTIFICATION 		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD				SCALE	AS SHOWN
					VERT. DATUM		AHD		BRETT LANGTREE MIEAust, NER, RPEQ 11932			42386 BRUCE HIGHWAY, BLUEWATER				SHEET	SHEET 3 OF 17
	B	N.P	18/06/26	DRAIN CATCHMENT FOR SIZING REVISED		DRG. FILE		DATE	COPYRIGHT ©			LOT 1 on RP735647				REVISION	B
	A	N.P	31/07/25	ISSUED FOR SMP REPORT		DESIGN	N.P	18/06/26	These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.			DRAIN CATCHMENTS				DRG No.	1343-SMP-003
	No.	BY	DATE	DESCRIPTION		DRAWN	N.P	18/06/26									



SEDIMENT BASIN NOTES:

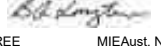
- DETAILS SHOWN ON THESE REPRESENT PROPOSED MINIMUM REQUIREMENTS FOR ONE POSSIBLE METHOD TO ACHIEVE COMPLIANCE WITH LEGISLATION TO PREVENT ENVIRONMENTAL HARM FROM EROSION AND SEDIMENT TRANSFER OFF THE SITE.
- DRAWINGS ARE INDICATIVE ONLY. DRAWINGS ARE NOT TO BE SCALED.
- EARTH EMBANKMENTS GREATER THAN 1m TO BE BE CERTIFIED BY GEOTECHNICAL ENGINEER.
- MINIMUM EMBANKMENT CREST WIDTH TO BE 2.5m UNLESS JUSTIFIED BY GEOTECHNICAL ENGINEER.
- EARTH FILL FOR EMBANKMENTS SHALL BE CLEAN SOIL NON-DISPERSIVE SOIL AND FREE OF ROOTS, WOODY VEGETATION, ROCKS AND OTHER UNSUITABLE MATERIAL. FILL MATERIAL TO FROM EMBANKMENT TO BE CERTIFIED BY GEOTECHNICAL ENGINEER.
- SPILLWAY ROCK SHALL BE HARD, ANGULAR, DURABLE WEATHER RESISTANT AND EVENLY GRADED ROCK WITH 50% BY WEIGHT LARGER THAN THE SPECIFIED NOMINAL d_{50} ROCK SIZE. THE DIAMETER OF THE LARGEST ROCK SIZE SHOULD BE NO GREATER THAN 1.5 TIMES THE NOMINAL ROCK SIZE. SPECIFIC GRAVITY SHALL BE AT LEAST 2.5.
- SEDIMENT BASIN DETAILS AND DIMENSIONS SHOWN PROVIDE ONE POSSIBLE METHOD OF ACHIEVE MINIMUM REQUIRED SEDIMENT BASIN VOLUMES.
- NOMINAL ROCK SIZING, d_{50} , SHOWN IN SPILLWAY TABLE ARE RECOMMENDED ROCK SIZING BASED ON ARI 50 FLOW VELOCITY

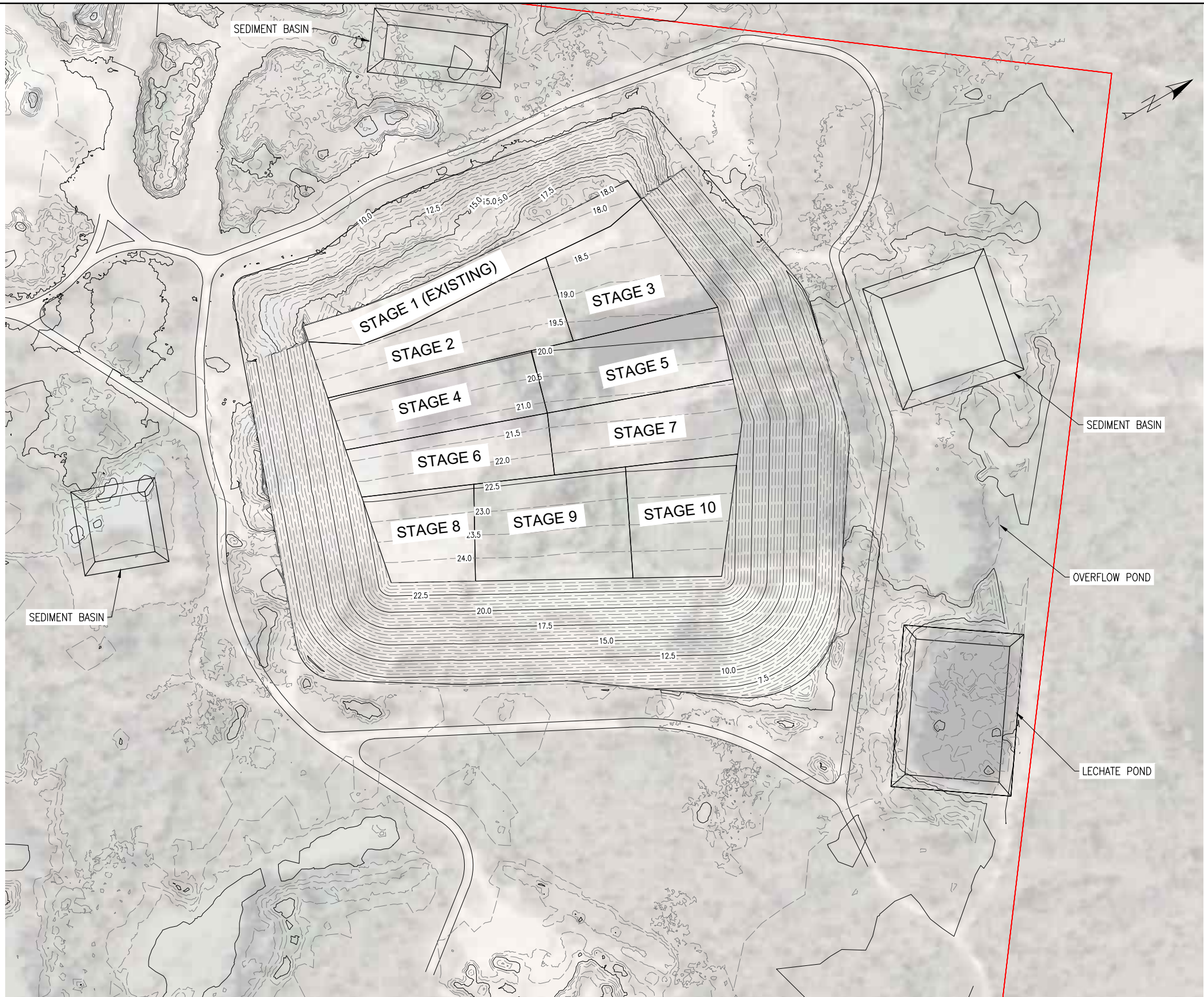
SEDIMENT BASIN MINIMUM DIMENSIONS

PARAMETER	BASIN 1	BASIN 2	BASIN 3
CATCHMENT (ha)	10.12	3.27	3.56
BATTER SLOPE (1 in x)	4	4	4
TOP WIDTH (m)	57.9	30.6	28.8
TOP LENGTH (m)	57.9	51.6	60.8
SETTLING ZONE DEPTH (m)	0.90	0.70	0.65
SEDIMENT STORAGE DEPTH (m)	0.6	0.70	0.65
BASIN DESIGN DEPTH (m)	1.5	1.4	1.3
FREEBOARD (m)	0.30	0.30	0.30
TOTAL DEPTH "D" (m)	1.80	1.70	1.60
BASIN VOLUME (m ³)	3,336	1,182	1,262

NOMINAL DIMENSIONS FOR SPILLWAY AND ROCK PROTECTION (Q50)

PARAMETER	BASIN 1	BASIN 2	BASIN 3
MIN. SPILLWAY BASE WIDTH (m) 'W'	3.50	2.50	2.50
MIN. SPILLWAY DEPTH (m) 'd'	0.30	0.30	0.30
NOMINAL ROCK SIZE (mm) ' d_{50} '	400	300	300

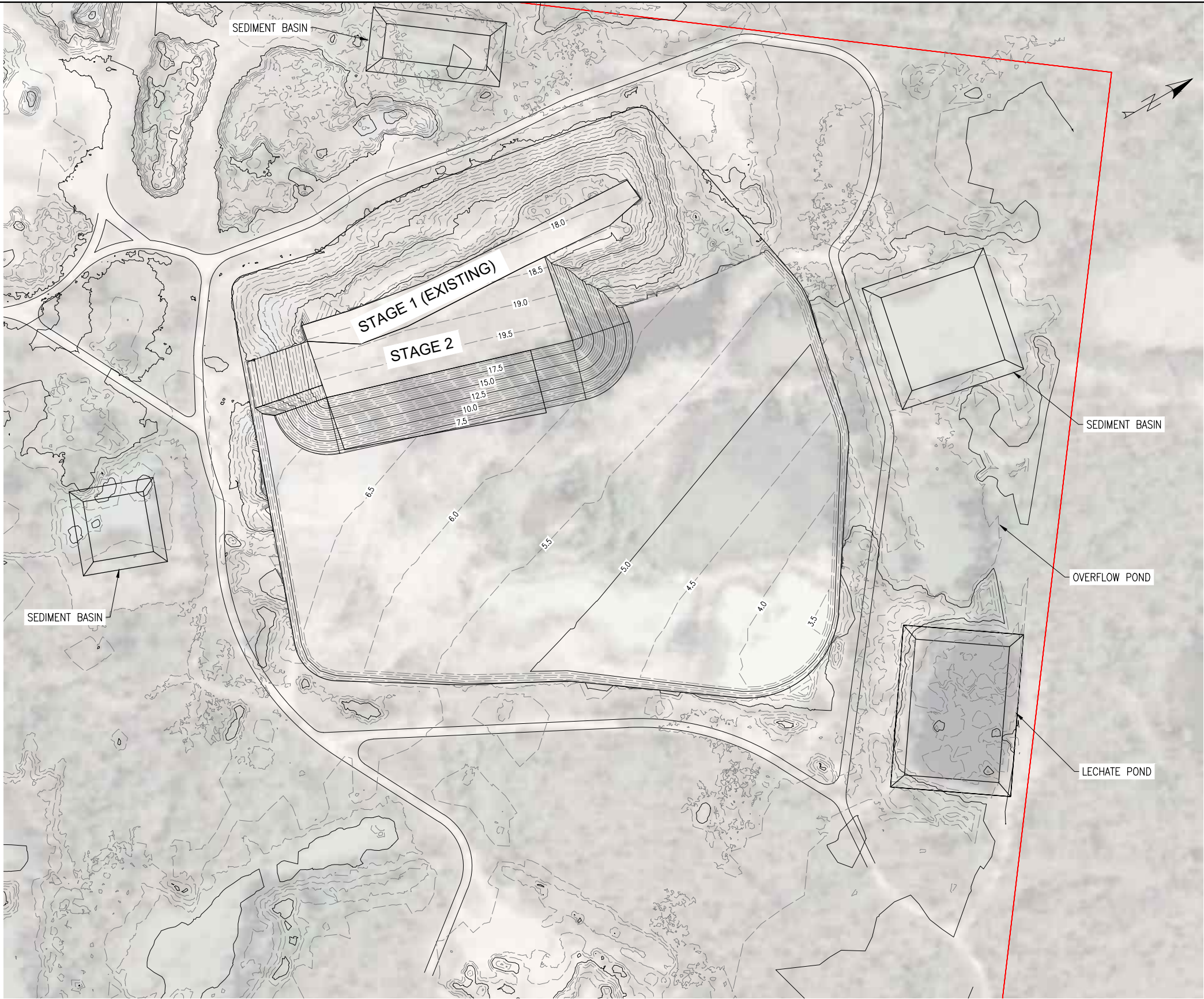
REVISIONS					HORIZ. DATUM	GDA2020 ZONE 55	CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932	 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD	SCALE	AS SHOWN
					VERT. DATUM	AHD				SHEET	SHEET 4 OF 17
	B	N.P	18/06/26	TITLE BLOCK AMENDMENTS	DRG. FILE		DATE			REVISION	B
	A	N.P	31/07/25	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			DRG No.	1343-SMP-004
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26		42386 BRUCE HIGHWAY, BLUEWATER LOT 1 on RP735647 SEDIMENT BASIN DETAILS		



- NOTES:**
1. STAGES BASE IS TO BE PROGRESSIVELY EXCAVATED AND/OR BUNDED AS REQUIRED TO PREVENT CLEAN WATER COMING INTO CONTACT WITH WASTE DISPOSAL AREA.
 2. FINAL EXTERNAL BATTERS TO BE 1:3.
 3. INTERNAL BATTERS BETWEEN STAGES TO BE 1:2.
 4. STAGES TO NOT BE GREATER THAN 1HA IN WORKING AREA BEFORE FINAL OR INTER-CELL CAPPING.

FINAL LAND FORMATION - STAGE 10
SCALE 1:500 (A1)

REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932		 LANGTREE CONSULTING ENGINEERS m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD				SCALE	1:500 (A1)
					VERT. DATUM					42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FINAL FORMATION - STAGE 10				SHEET	SHEET 5 OF 17
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.						REVISION	A
	No.	BY	DATE	DESCRIPTION	DESIGN	N.P	18/06/26					DRG No.	1343-SMP-005		
					DRAWN	N.P	18/06/26								



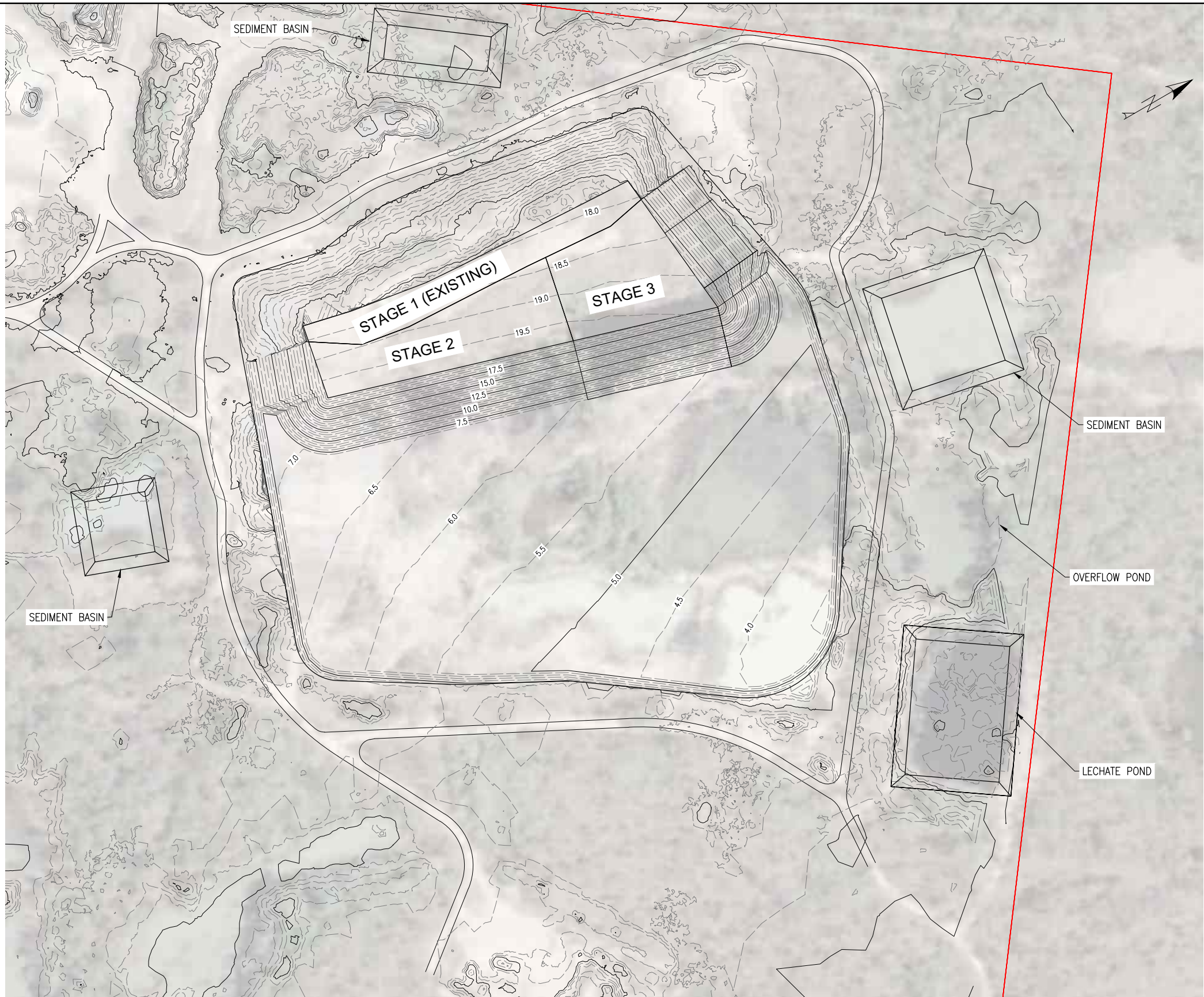
NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 2
SCALE 1:500 (A1)

REVISIONS					HORIZ. DATUM		CERTIFICATION		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD		SCALE	1:500 (A1)
					VERT. DATUM		BRETT LANGTREE MIEAust, NER, RPEQ 11932			42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FORMATION - STAGE 2	SHEET	SHEET 6 OF 17	
					DRG. FILE		DATE	COPYRIGHT ©			REVISION	A	
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26	These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.			DRG No.	1343-SMP-006	
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26						



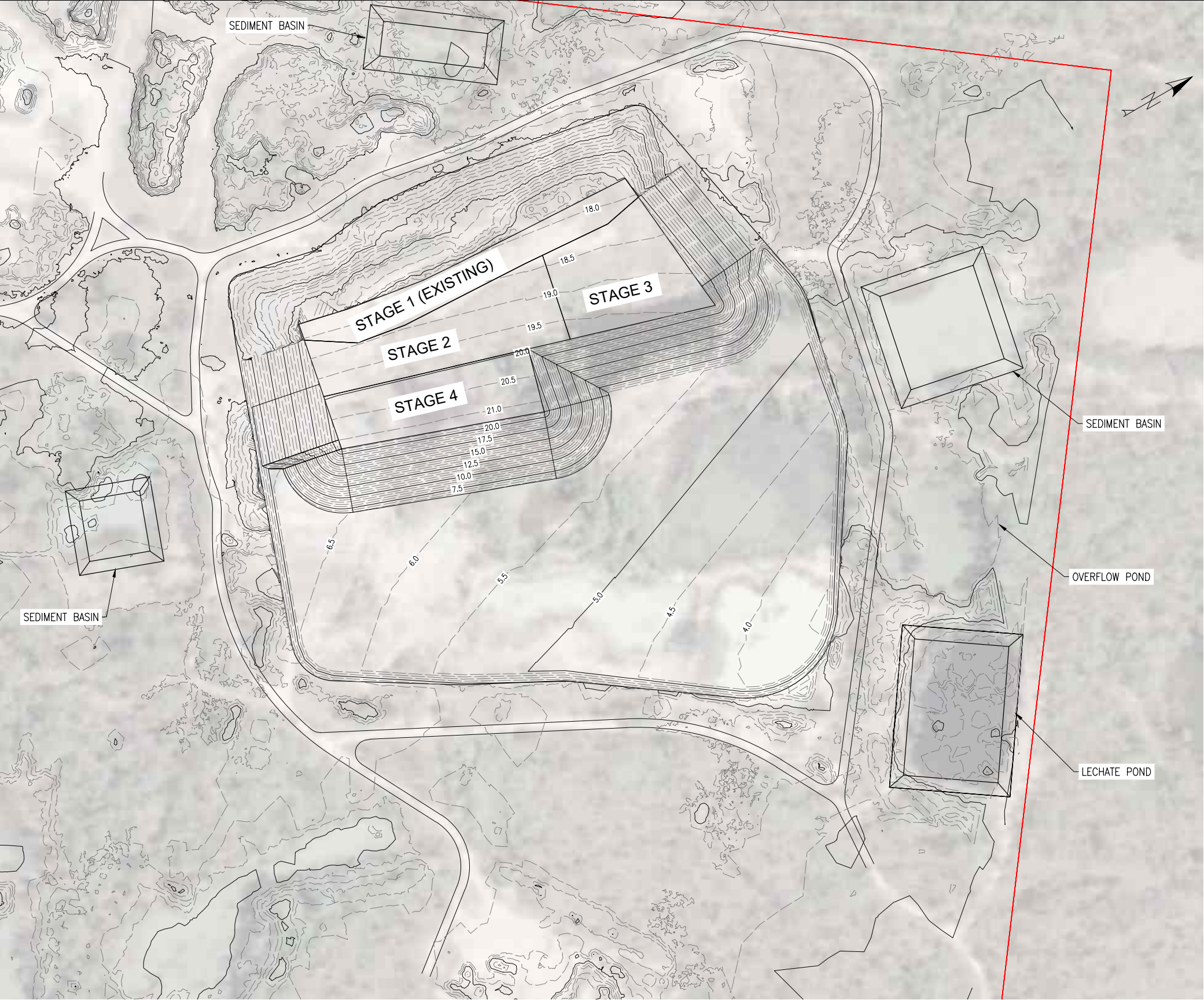
m 0400 699 979
e brett@langtreeconsulting.com.au



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 3
SCALE 1:500 (A1)

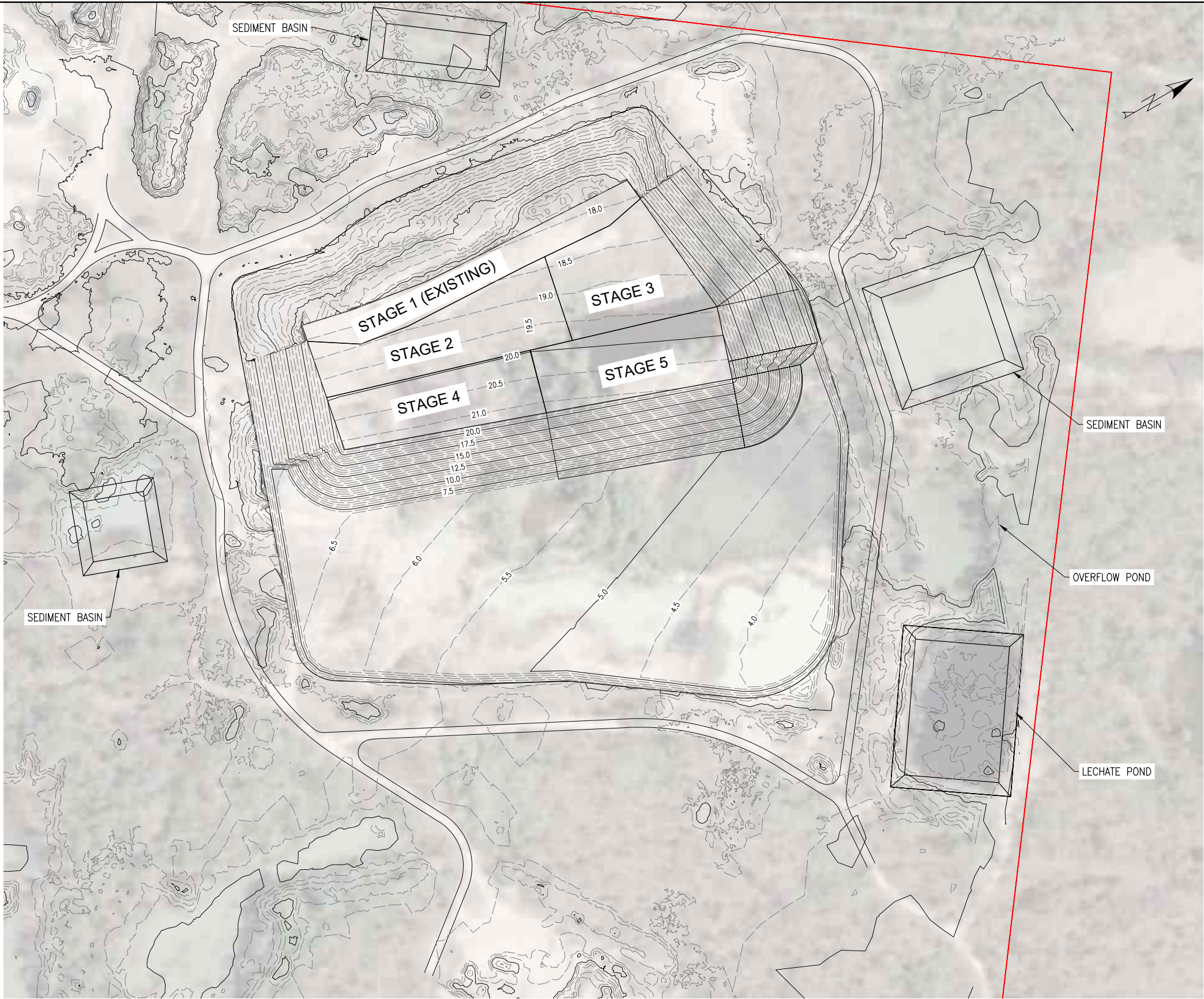
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932	 LANGTREE CONSULTING ENGINEERS	ABSOLUTE WASTE PTY LTD 42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FORMATION - STAGE 3	SCALE	1:500 (A1)
					VERT. DATUM					SHEET	SHEET 7 OF 17
					DRG. FILE					REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			DRG No.	1343-SMP-007
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26				



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 4
SCALE 1:500 (A1)

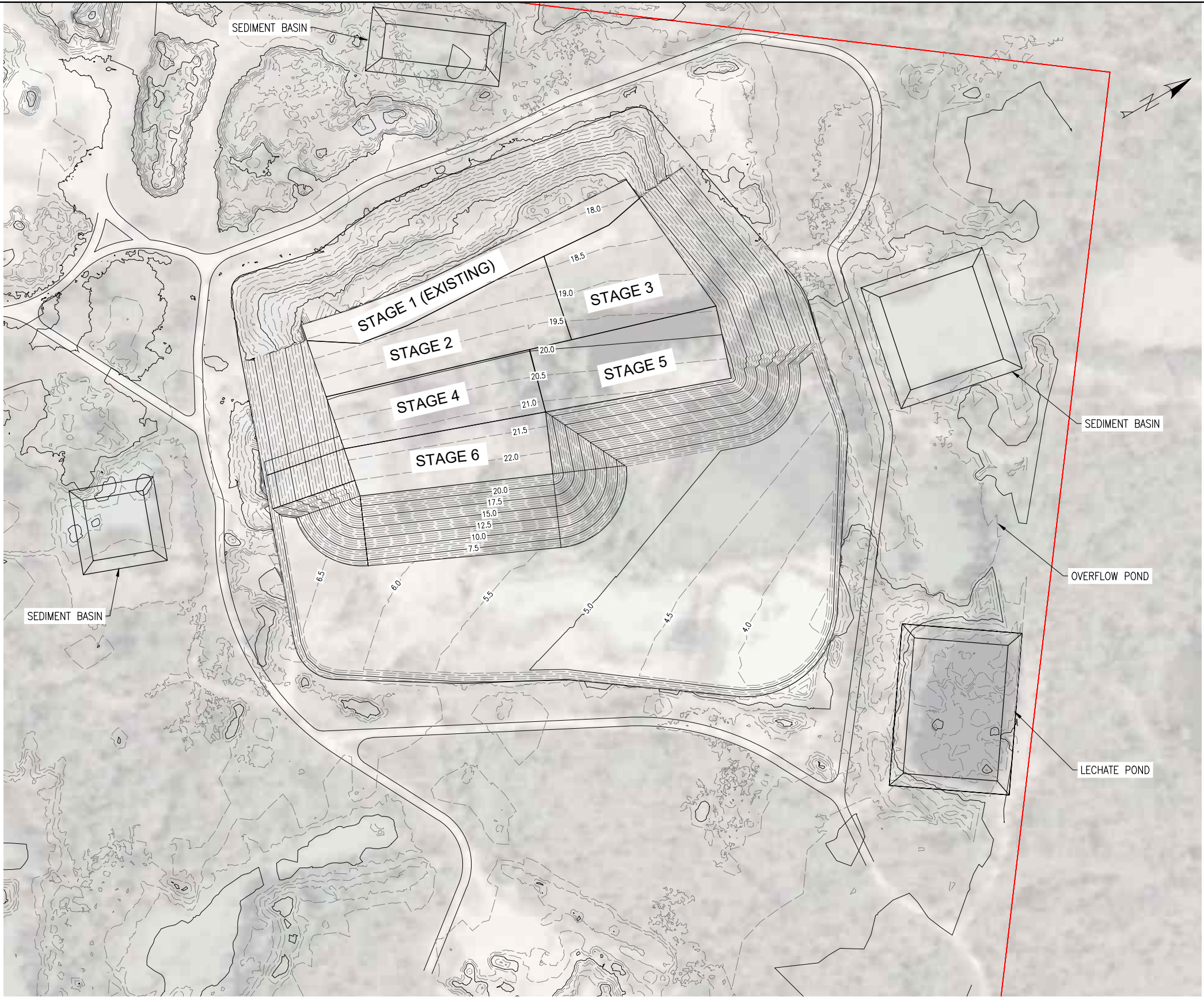
REVISIONS					HORIZ. DATUM		CERTIFICATION 		 LANGTREE CONSULTING ENGINEERS m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD		SCALE	1:500 (A1)
					VERT. DATUM							BRETT LANGTREE MIEAust, NER, RPEQ 11932	
					DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.		42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647		REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26					PROPOSED FORMATION -STAGE 4	
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26						



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 5
SCALE 1:500 (A1)

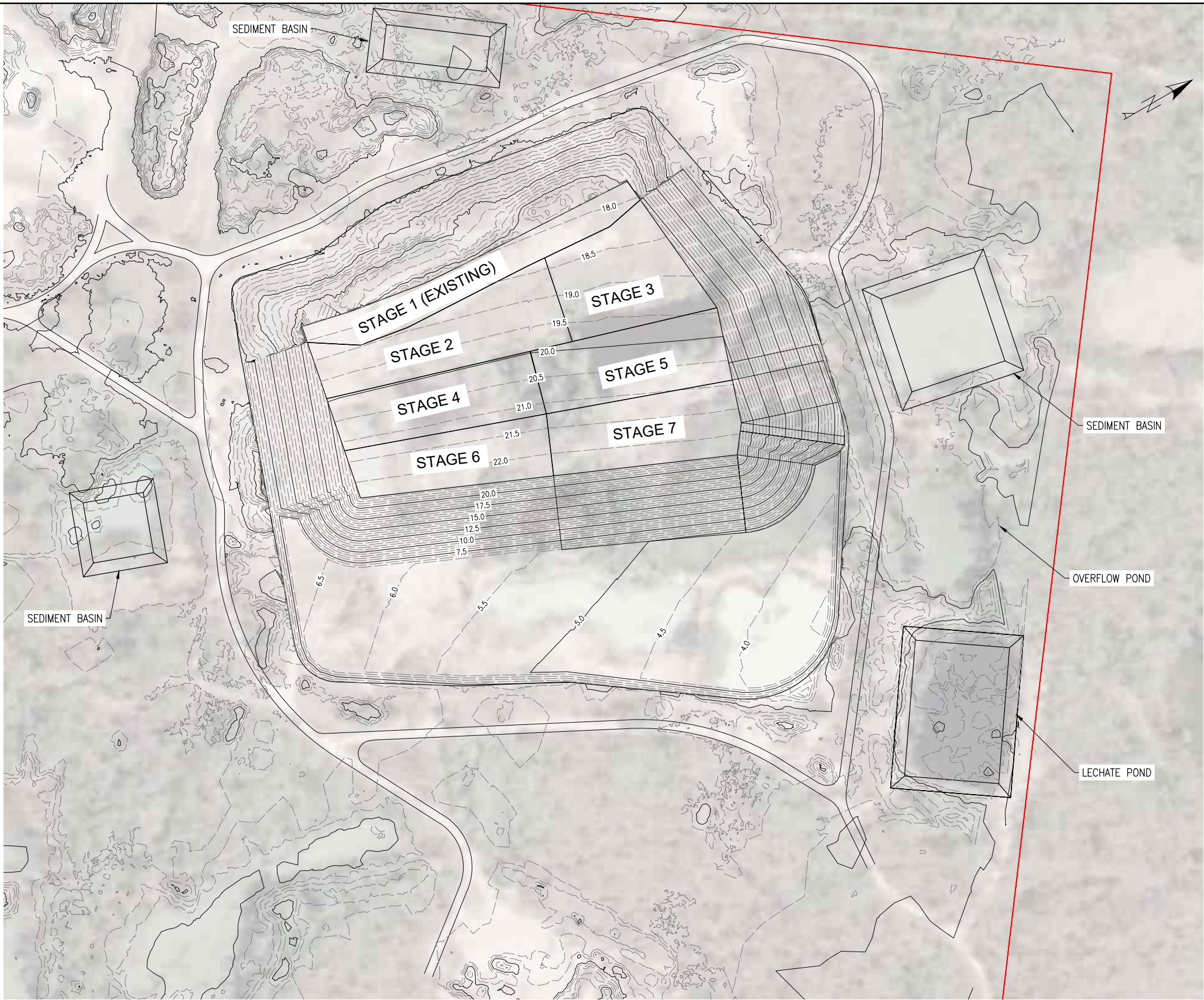
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932	 LANGTREE CONSULTING ENGINEERS	ABSOLUTE WASTE PTY LTD 42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FORMATION - STAGE 5	SCALE	1:500 (A1)
					VERT. DATUM					SHEET	SHEET 9 OF 17
					DRG. FILE					REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			DRG No.	1343-SMP-009
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26				



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 6
SCALE 1:500 (A1)

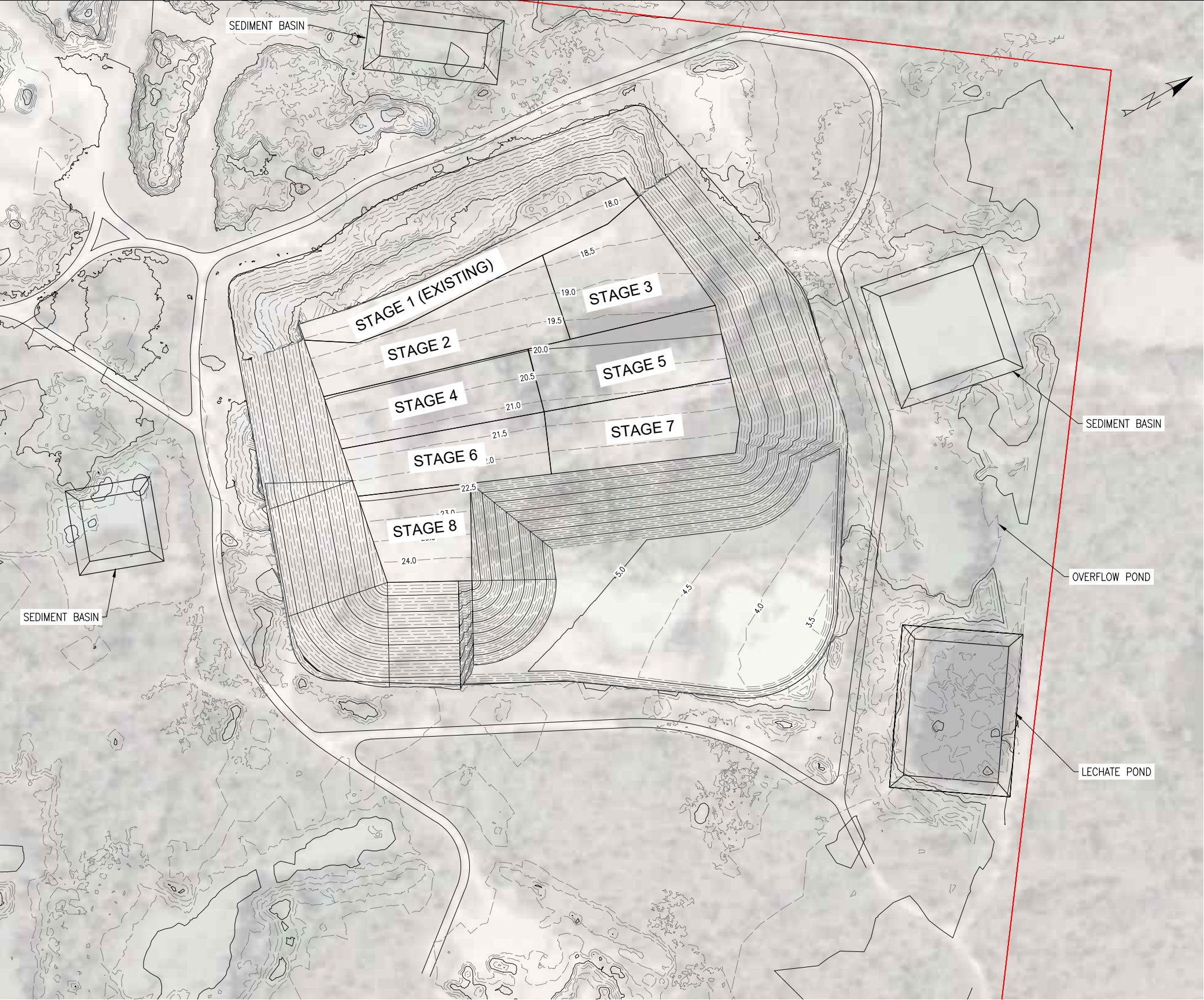
REVISIONS					HORIZ. DATUM		CERTIFICATION		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD		SCALE	1:500 (A1)
					VERT. DATUM		BRETT LANGTREE MIEAust, NER, RPEQ 11932			42386 BRUCE HIGHWAY, BLUEWATER		SHEET	SHEET 10 OF 17
					DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purposes for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.		LOT 1 ON RP735647		REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			PROPOSED FORMATION -STAGE 6		DRG No.	1343-SMP-010
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26						



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 7
SCALE 1:500 (A1)

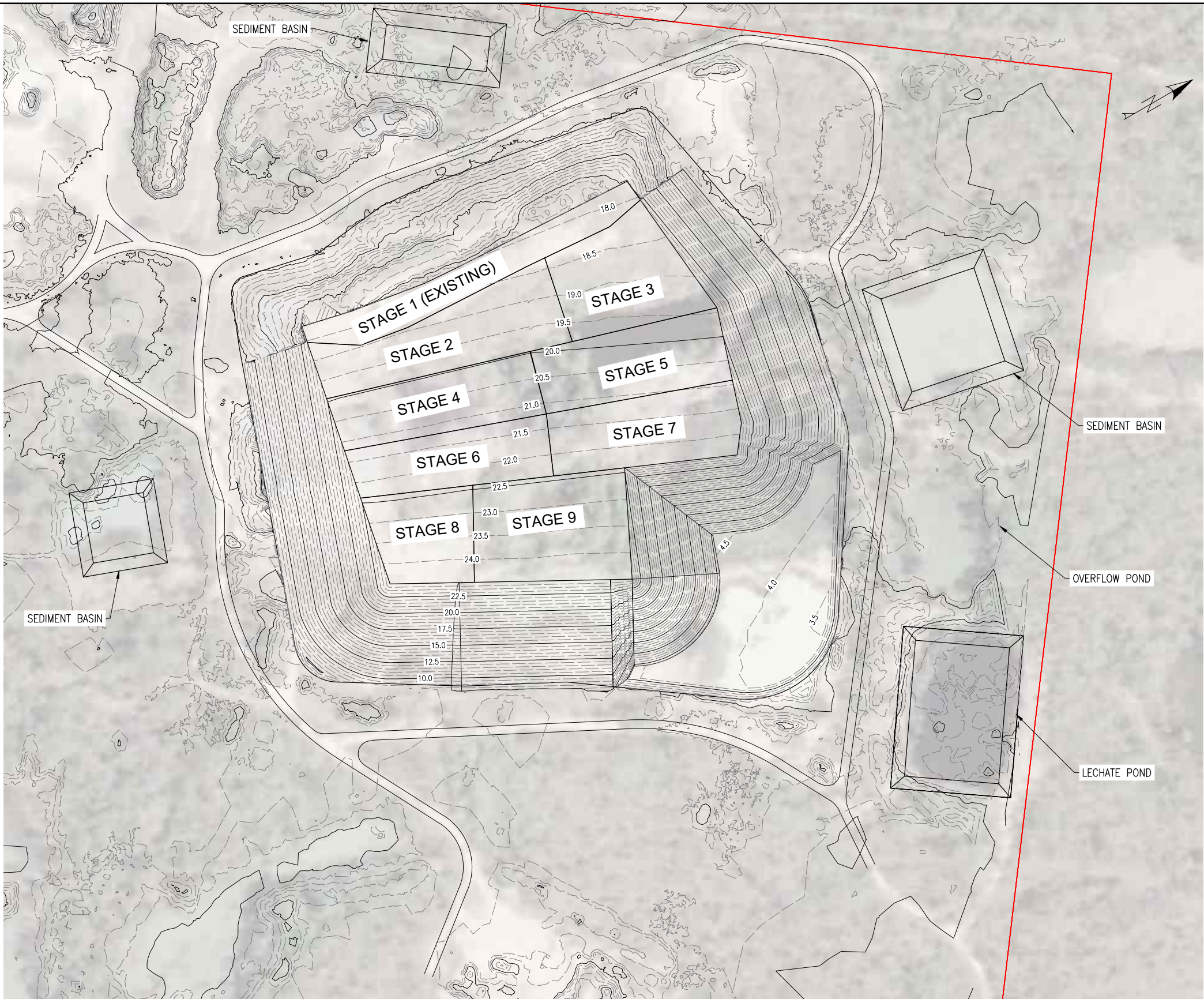
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932		 LANGTREE CONSULTING ENGINEERS m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD				SCALE	1:500 (A1)
					VERT. DATUM									COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.	
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DRG. FILE		DATE			REVISION	A				
	No.	BY	DATE	DESCRIPTION	DESIGN	N.P	18/06/26	42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FORMATION - STAGE 7				DRG No.	1343-SMP-011		
					DRAWN	N.P	18/06/26								



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 8
SCALE 1:500 (A1)

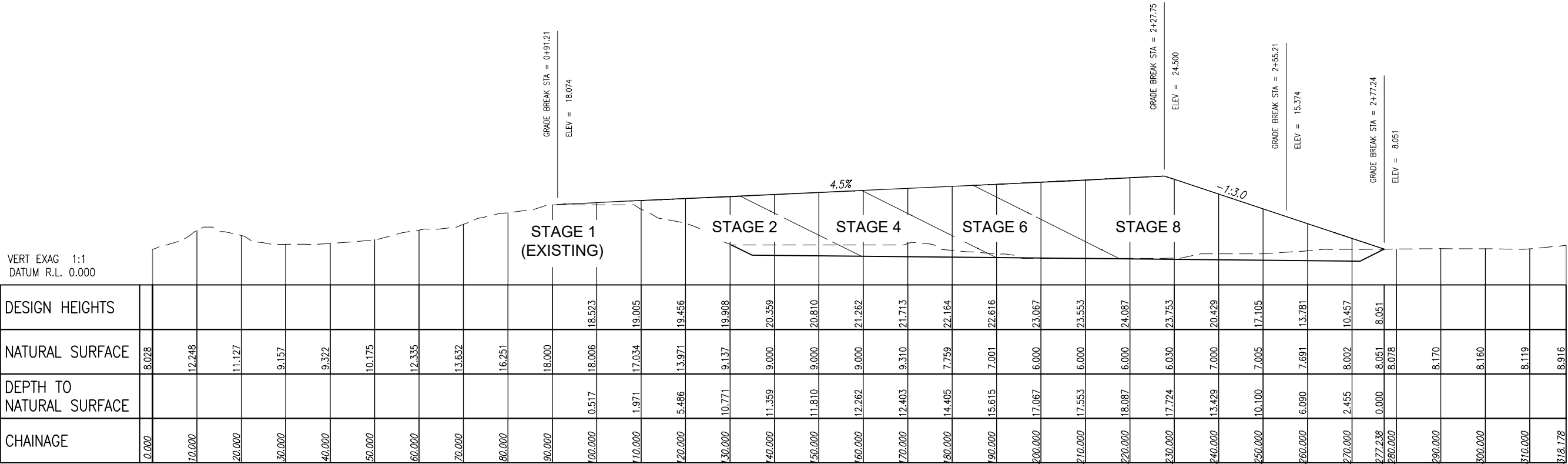
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD			SCALE	1:500 (A1)
					VERT. DATUM								SHEET	SHEET 12 OF 17
					DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.		42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FORMATION - STAGE 8	REVISION	A		
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26				DRG No.	1343-SMP-012		
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26							



NOTES:
1. REFER TO SK05 FOR NOTES.

STAGE 9
SCALE 1:500 (A1)

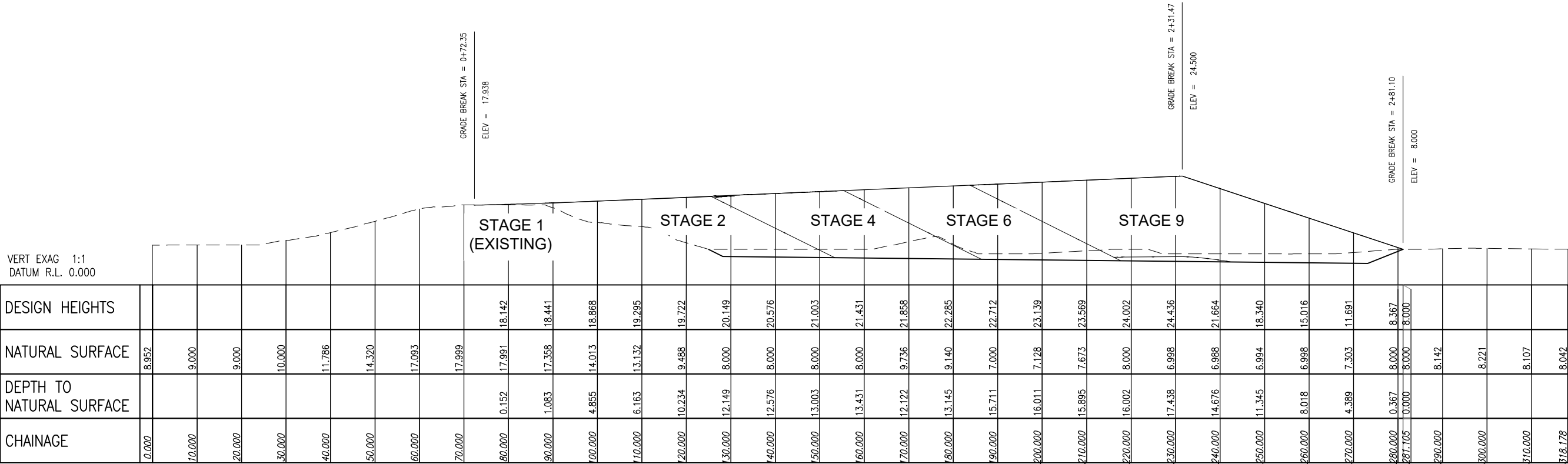
REVISIONS					HORIZ. DATUM		CERTIFICATION  BRETT LANGTREE MIEAust, NER, RPEQ 11932	 LANGTREE CONSULTING ENGINEERS	ABSOLUTE WASTE PTY LTD 42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FORMATION - STAGE 9	SCALE	1:500 (A1)
					VERT. DATUM					SHEET	SHEET 13 OF 17
					DRG. FILE					REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			DRG No.	1343-SMP-013
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26				



ALIGNMENT - (1) LONG SECTION

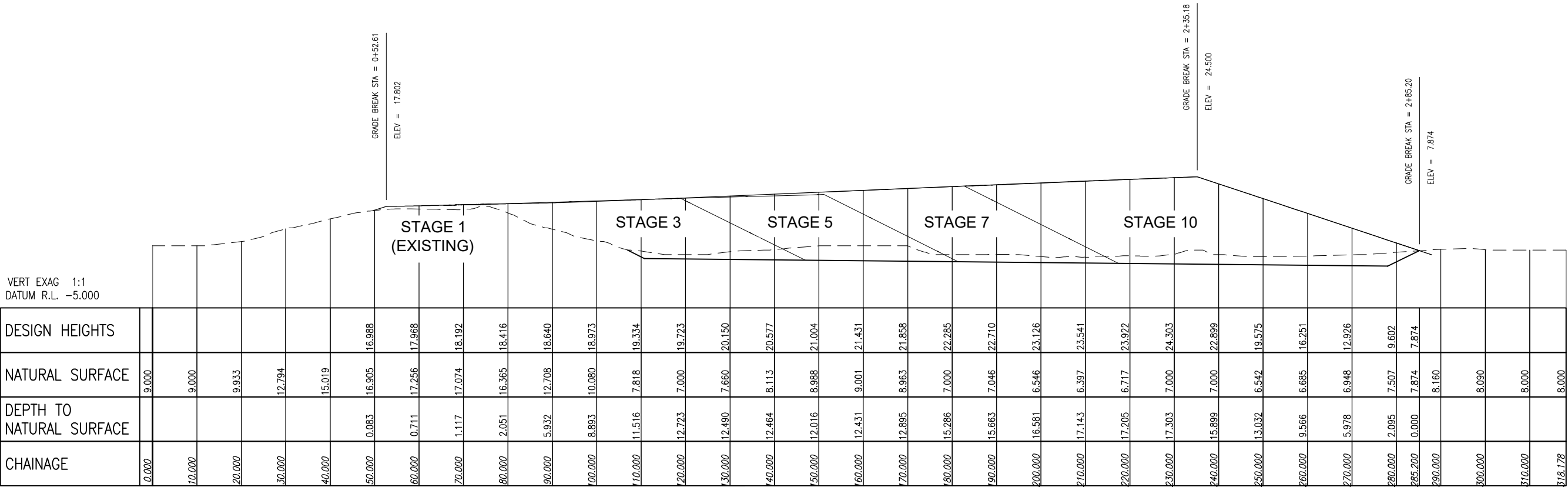
SECTION A
SCALE 1:500 (A1)

REVISIONS					HORIZ. DATUM		CERTIFICATION		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD 42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647 PROPOSED FINAL FORMATION - SECTION A	SCALE	1:500 (A1)
					VERT. DATUM		BRETT LANGTREE MIEAust, NER, RPEQ 11932				SHEET	SHEET 14 OF 17
					DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.			REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26				DRG No.	1343-SMP-014
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26					



SECTION B
SCALE 1:500 (A1)

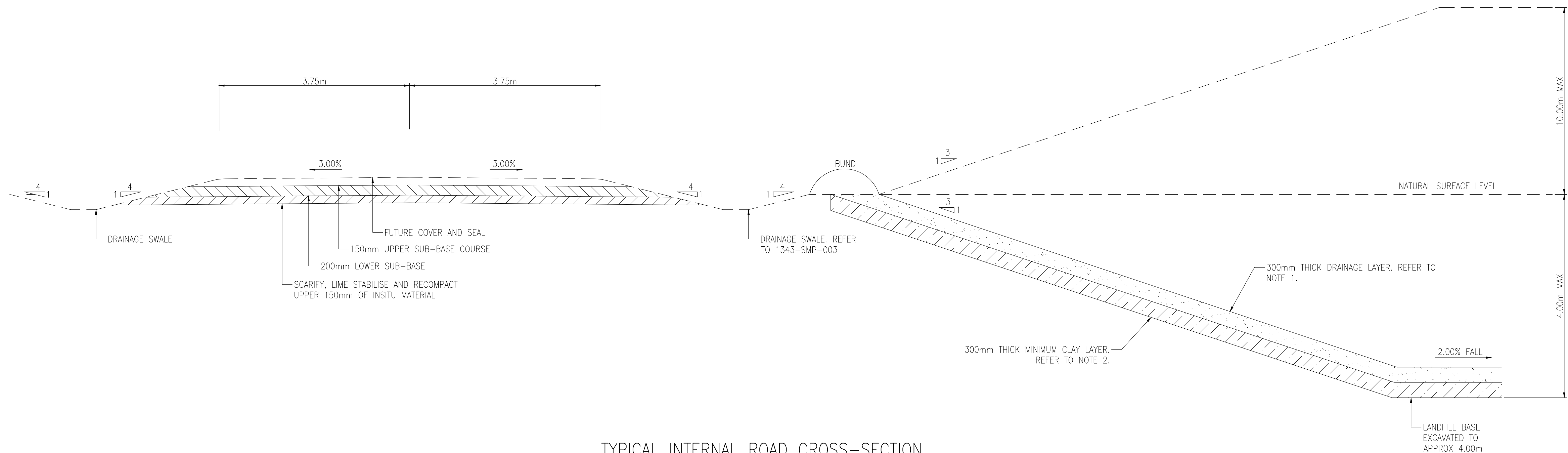
REVISIONS					HORIZ. DATUM		CERTIFICATION		 m 0400 699 979 e brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD		SCALE	1:500 (A1)
					VERT. DATUM		BRETT LANGTREE MIEAust, NER, RPEQ 11932			42386 BRUCE HIGHWAY, BLUEWATER LOT 1 ON RP735647	SHEET	SHEET 15 OF 17	
					DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.			REVISION	A	
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26				DRG No.	1343-SMP-015	
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26	PROPOSED FINAL FORMATION - SECTION B					



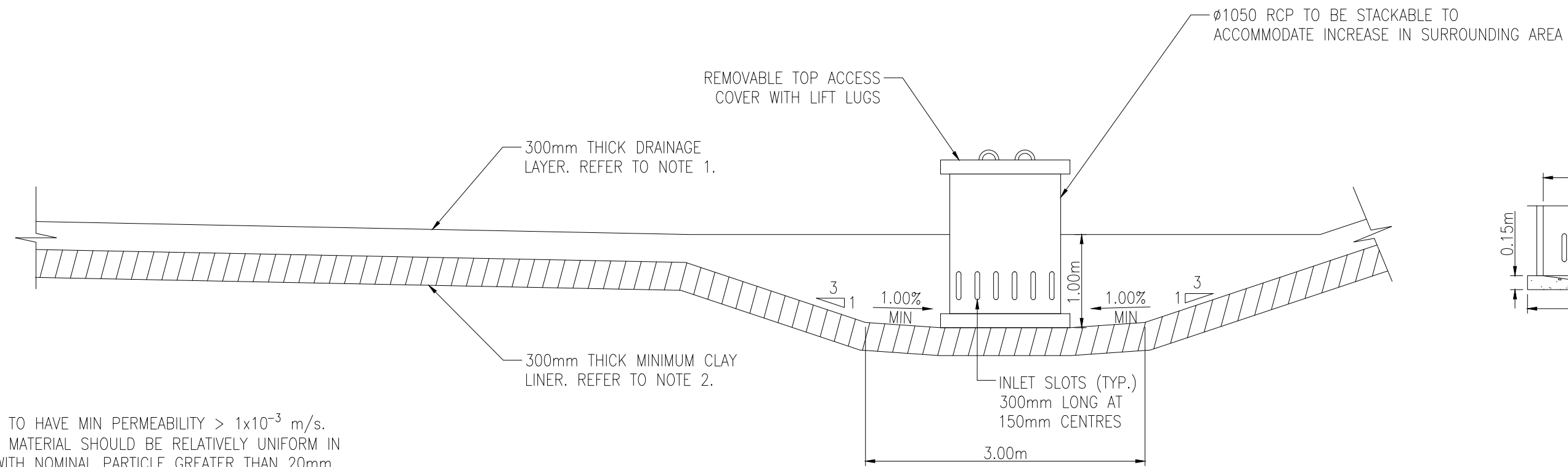
ALIGNMENT - (3) LONG SECTION

SECTION C
SCALE 1:500 (A1)

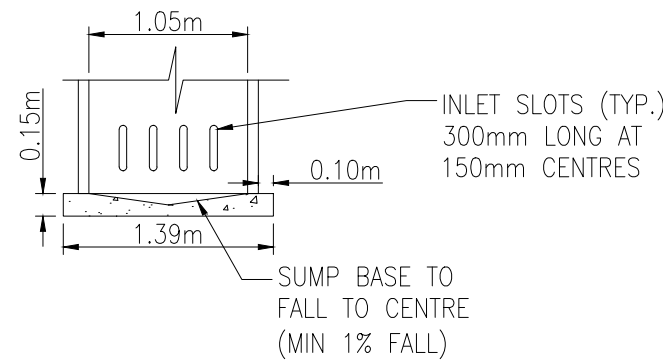
REVISIONS					HORIZ. DATUM		CERTIFICATION		 m e 0400 699 979 brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD		SCALE	1:500 (A1)
					VERT. DATUM		BRETT LANGTREE MIEAust, NER, RPEQ 11932			42386 BRUCE HIGHWAY, BLUEWATER		SHEET	SHEET 16 OF 17
					DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.		LOT 1 ON RP735647		REVISION	A
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26			PROPOSED FINAL FORMATION - SECTION C		DRG No.	1343-SMP-016
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26						



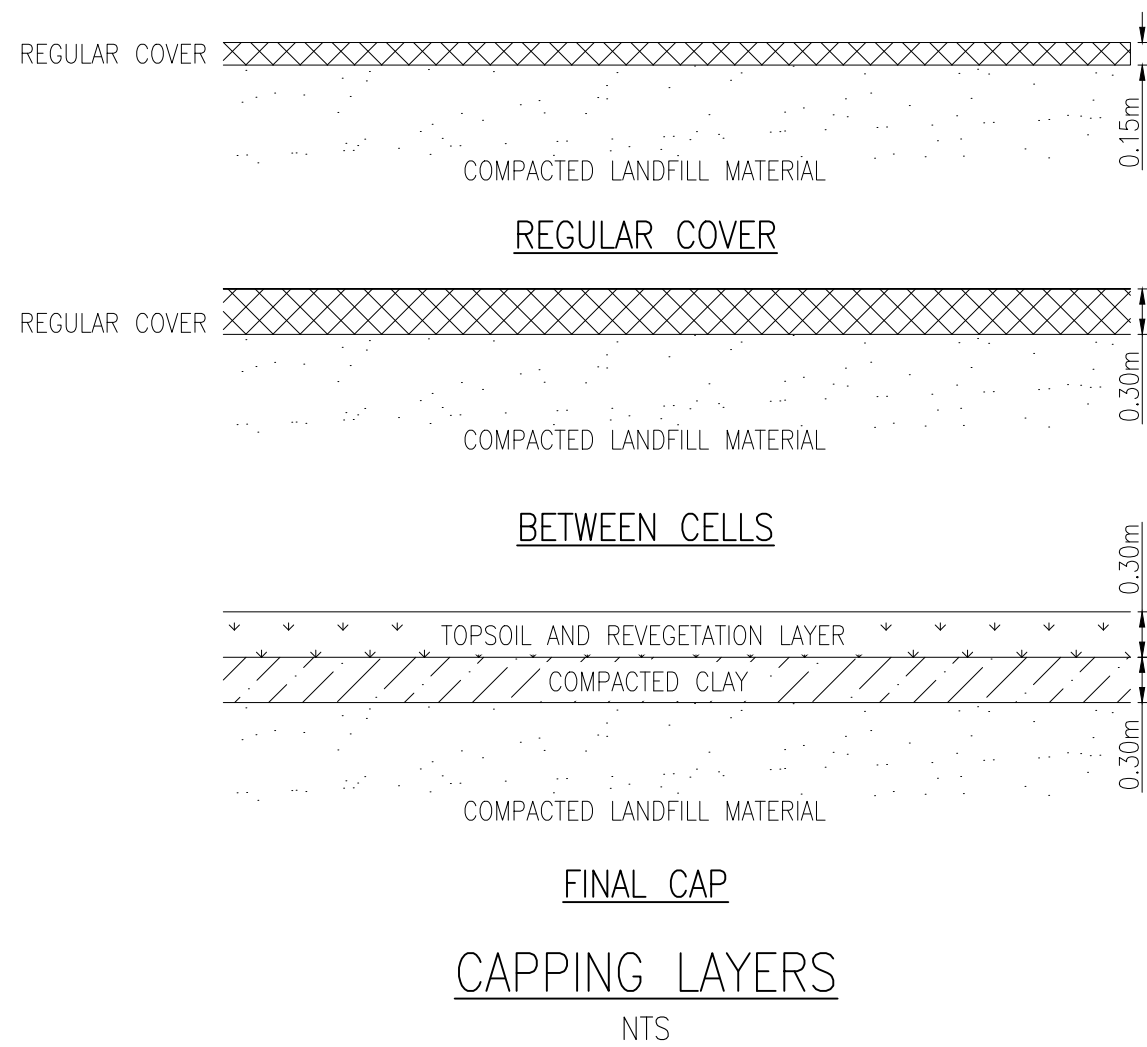
TYPICAL INTERNAL ROAD CROSS-SECTION
AND CELL WALL & LINING
SCALE 1:50



SUMP ARRANGEMENT DETAIL
NTS

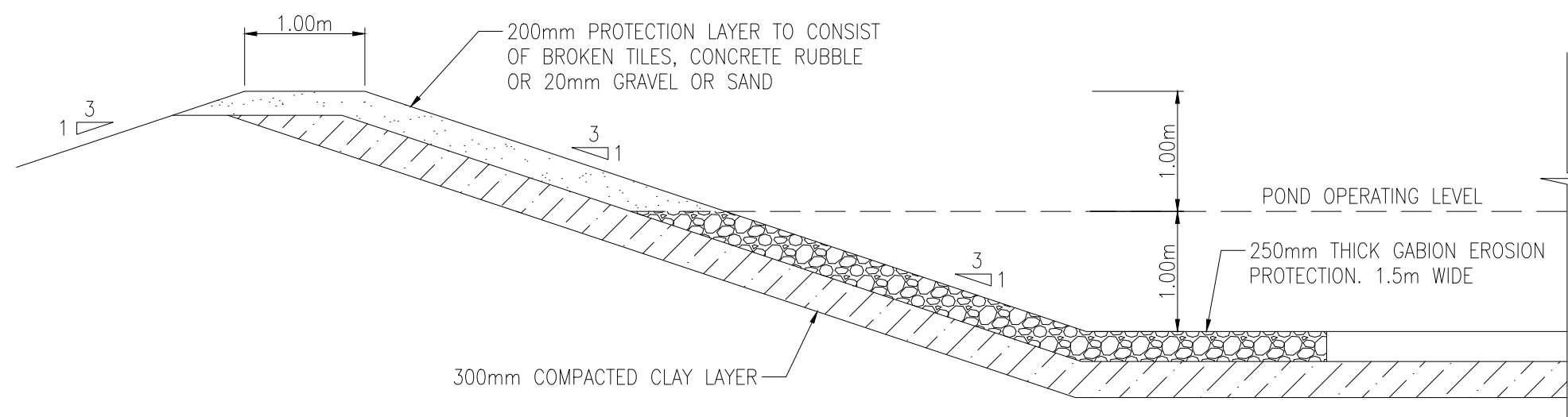


SUMP DETAIL
NTS

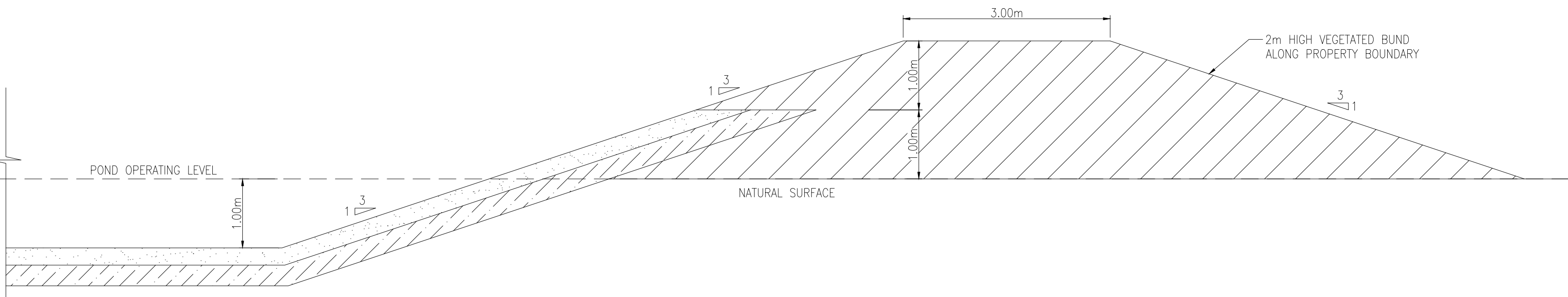


FINAL CAP
CAPPING LAYERS
NTS

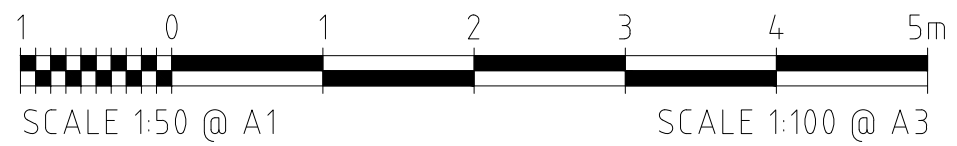
- NOTES:
1. DRAINAGE LAYER TO HAVE MIN PERMEABILITY $> 1 \times 10^{-3}$ m/s. DRAINAGE LAYER MATERIAL SHOULD BE RELATIVELY UNIFORM IN PARTICLE SIZE WITH NOMINAL PARTICLE GREATER THAN 20mm AND MAX 40mm. NOT MORE THAN 10% OF PARTICLES SMALLER THAN 20mm IN DIAMETER AND NOT MORE THAN 3% SMALLER THAN 0.075mm.
 2. CLAY LINER TO BE COMPACTED TO 97% MDD. PERMEABILITY TO BE $K=1 \times 10^{-9}$ m/s OR LESS.



LEACHATE COLLECTION POND INLET
SCALE 1:50



LEACHATE COLLECTION POND BUND
SCALE 1:50



REVISIONS					HORIZ. DATUM		CERTIFICATION		 m e 0400 699 979 brett@langtreeconsulting.com.au	ABSOLUTE WASTE PTY LTD	SCALE	1:500 (A1)		
					VERT. DATUM		BRETT LANGTREE MIEAust, NER, RPEQ 11932				SHEET	SHEET 17 OF 17		
					DRG. FILE		DATE	COPYRIGHT © These designs and drawings are copyright and are not to be used or reproduced without the written permission of LANGTREE CONSULTING PTY LTD (ACN 29 611 368 024). The contents of this drawing are electronically generated, are confidential and may only be used for the purpose for which they were intended. This is an uncontrolled document issued for information purposes only, unless the checked sections are signed and approved. Figured dimensions take precedence over scale. Do not scale from this drawing.			LOT 1 ON RP735647	REVISION	A	
	A	N.P	18/06/26	ISSUED FOR SMP REPORT	DESIGN	N.P	18/06/26					PROPOSED FINAL FORMATION - STAGE 10	DRG No.	1343-SMP-017
	No.	BY	DATE	DESCRIPTION	DRAWN	N.P	18/06/26							

Attachment 5



Simpson Engineering Group

Document title:

Expansion Project 42386 Bruce Highway, Bluewater

Document Type:

Air Quality Consulting Engineering Services

Prepared for:

Terra Solutions Group

Document & Date issued:

251203D03 on Friday, 8 May 2026

SEG Pty Ltd

3/1404 Logan Road
Mount Gravatt East, Qld 4122
Ph: 61 7 31172468
Mobile: 0414383172
Email: mark@segroup.com.au

Revision History

Title	Expansion Project 42386 Bruce Highway, Bluewater
Document Type	Air Quality Consulting Engineering Services
Created By	Christopher Simpson BE
Date Created	10/04/2026
Date Printed	8/5/2026
Authorised By	 Mark A Simpson (Principal) BE RPEQ6224

Version Number or Doc Number	Date	Description of Change	Author	Reviewer	Status
D03	17/4/2026	Initial Document	CS	MS	Draft
D03	8/5/2026	Minor edits	MS	CS	Final

Contents

LIST OF TABLES	II
LIST OF FIGURES	II
GLOSSARY	I
1 INTRODUCTION	2
1.1 LAYOUT SITE DESCRIPTION	2
1.2 DESCRIPTION OF THE PROPOSED DEVELOPMENT	3
1.3 SARA AND DESTI INFORMATION REQUEST	5
2 AIR QUALITY CRITERIA	7
2.1 TOWNSVILLE CITY COUNCIL	7
2.2 GUIDELINE ESR/2015/1840 ERA	7
2.3 NEPM	8
2.4 ENVIRONMENTAL PROTECTION (AIR) POLICY	8
2.5 SITE SPECIFIC AIR QUALITY CRITERIA	9
3 AIR POLLUTION	11
3.1 AIR EMISSIONS INVENTORY	11
3.2 ODOUR	12
3.3 BACKGROUND AIR QUALITY	12
3.4 METEOROLOGY	13
3.4.1 <i>Meteorology Validation</i>	15
3.5 AIR POLLUTION MODEL	15
3.5.1 <i>Receptor Location</i>	16
3.6 CALCULATED POLLUTANT CONCENTRATION	18
3.7 AIR QUALITY ASSESSMENT	18
3.8 AIR QUALITY RECOMMENDATIONS	18
4 CONCLUSIONS	19
5 REFERENCES	20
APPENDIX A: WINDROSES	21
APPENDIX B: AIR POLLUTION CONTOURS	22

List of Tables

Table 1: Relevant Standards from NEPM.....	8
Table 2: Selected Design Ground Level Concentrations for Sensitive Receptors (EPP(Air) Air quality objectives)	9
Table 3: Site Emission Factors by Operation (Uncontrolled and Controlled)	12
Table 4: Background Analysis (DETSI Monitoring)	13
Table 5: Assumed Project Background Levels	13
Table 6: Meteorology Nudge Sites	14
Table 7: Nested Receptor Grid Spacing.....	16
Table 8: Modelled Sensitive Receptors	16
Table 9: Calculated Particulates for Each Sensitive Receptor Including Background Levels	18

List of Figures

Figure 1: Site and Surroundings (North Up)	3
Figure 2: Site Staged Plans (North Left)	5
Figure 3: Site Source Location.....	15
Figure 4: Modelled Sensitive Receptor Locations	17
Figure 5: Wind Rose - All Hours	21
Figure 6: 9am and 3pm Wind Rose	21

Glossary

Term / Acronym	Description
Council	Townsville City Council
Project	Waste Disposal and Recycling Facility
QRR	Queensland Resource and Recovery Pty Ltd
SARA	State Assessment and Referral Agency, Department of State Development, Infrastructure and Planning, Queensland Government
SEG	Simpson Engineering Group Pty Ltd
Site	Lot 1 on RP735647, 42386 Bruce Highway, Bluewater

1 Introduction

Simpson Engineering Group (SEG) has been engaged by Terra Solutions Group on behalf of Queensland Resource and Recovery Pty Ltd (QRR) to prepare an air assessment from a proposed expansion of a Waste Disposal and Recycling Facility (the Project), located at 42386 Bruce Highway, Bluewater (the Site). The site is located in the Townsville City Council (the Council) Local Government Area. The existing operations is approved under Environmental Authority P-EA-100698838 (Department of Environment, Science and Innovation, 2024). Following a Change Application by Milford Planning (Jones, 2025), a SARA information request was issued (Department of State Development, Infrastructure and Planning, 2025).

This document addresses the request for information in the SARA information request, and is based upon the information presented in the Change Application. SEG specifically has assessed air quality impacts from the site onto all nearby sensitive receptors.

This air quality assessment addresses the following issues:

- likely change in the air quality following commencement of operations,
- development of appropriate air quality,
- assessment of air quality at sensitive receptors and comparison to goals, and;
- recommendations for relevant impact mitigation measures.

SEG is a consulting engineering group specialising in noise, vibration, air quality, odour and lighting assessments. This assessment and report was prepared by Chris Simpson of SEG who is a suitably qualified person for conducting air and odour emission assessments.

1.1 Layout Site Description

The project is situated in an established rural rangeland characterized by vegetation and agricultural grazing activities. From the Townsville City Plan (Townsville City Council, 2026) The site is zoned Rural. The neighbouring properties are all also zoned Rural. The Bruce Highway is the major access to the site and runs approximately northwest/southeast to the west of the site. Between the Bruce Highway and the Site is the Queensland Rail Systems North Coast Line (Nambour to Cairns) and segments of the rail corridor are zoned Community Facilities. The location of the Project is shown on Figure 1.



Figure 1: Site and Surroundings (North Up)

1.2 Description of the Proposed Development

QRR operates several environmentally relevant activities (ERAs) at the Project. Waste disposal and resource recovery and transfer facility operation main ERAs on the site, with the site operating under Development Permit (M33/03) for Material Change of Use (Waste Management/Recycling Facility) (The City of Thuringowa, 2004). The site comprises:

- four cells for landfill;
- resource recovery area;
- concrete storage;
- stockpiling;
- concrete crushing and screening;
- sediment basins and leachate pond;

- site office, amenities and parking; and
- access tracks.

QRR is pursuing a change to development Permit M33/03 and EA P-EA100698838 to increase the threshold of waste the facility receive and dispose from 10,000 tonnes of waste per annum to 50,000 tonnes of waste per annum. The proposed changes will result in the following changes in the facility:

- Receive and dispose of no more than 50,000 tonnes of waste, whilst maintaining the same footprint, up from 10,000 tonnes
- Truck movements will likely be between 30 to 50 per day with peaks up to 60 to 70 per day, up from average of 36 trucks per day.

Additionally, the layout and working area will be maintained as per the current approved design.

This report is addressing the dust emissions the site. The process on site generally consists of the following elements:

- Receiving trucks, up to 7,000 trucks per year and up to 1,000 tonnes per day.
- Crushing operations for suitable C&D waste.
- Loading crushed C&D waste for export offsite.
- Emplacing C&D waste.
- Cap and covering stage when at suitable level.



Figure 2: Site Staged Plans (North Left)

1.3 SARA and DESTI Information Request

QRR received a SARA Information Request (Department of State Development, Infrastructure and Planning, 2025) dated 25 November 2025. As a part of this request, there are specific issues listed under “Environmentally Relevant Activity”. Most notably for air quality is item 6. This has been included below.

Air environmental values

Issue:

The ‘Change Application Report’ states that the hours of operation will remain Monday to Saturday 6:30am-7pm and that the number of truck movements to and from the facility will be between 30 to 50 per day (with a worse case of 60-70), where historically it has been 36 trucks per day. The report also states that dust emissions from the waste management and recycling activities are expected to be

minimal but may occur as a result of screening and crushing activities of concrete, concrete stockpiling activities, and waste particles from the landfill.

The application material has not considered the potential increase in impacts to air environmental values as a result of the increase in not only these screening and crushing activities, but also the increase in other activities associated with the operation of the landfill and resource recovery facility as a result of the proposal.

It cannot be determined that the proposed increase to the activity thresholds can sufficiently achieved PO2 of the SDAP State code 22 – Environmentally Relevant Activities, ensuring that the development is suitably located and designed to avoid or mitigate environmental harm to the air environment.

Action:

- a) Identify all the potential risks and impacts to air environmental values (dust and odour) from the site, as a result of the increase in proposed activities e.g. increase in waste deliveries, vehicle movements, machinery operating on tipping face and compacting waste, mechanically reprocessing waste and waste storage areas onsite etc.
- b) Conduct an air impact assessment to determine if the predicted air emissions from the proposed increase in activity at the site, will impact nearby sensitive receptors (residential and commercial) and whether the predicted air emissions will comply with the air quality objectives within the Environmental Protection Policy Air 2019 (EPP Air) at sensitive receptors. The assessment must take into consideration an increase in activities and potential impacts described in (a).
- c) Identify specific mitigation measures that will be put in place to manage and minimise any adverse impacts to environmental values and sensitive receptors to ensure the air quality objective of the EPP Air are met.

The DETSI information request is functionally similar to the SARA request with respect to air quality.

2 Air Quality Criteria

For the project there are three sources of criteria to be considered, namely:

- Townsville City Council,
- Environmental Protection (Air) Policy, and;
- National Environmental Protection Measures (NEPM.)

The following section will go through each before summarising the site-specific criteria used for the Project.

2.1 Townsville City Council

In the Townsville City Council, the Project is zoned Rural (Townsville City Council, 2026). Under the Townsville planning scheme, Townsville City Plan (City of Townsville, 2025), the scheme does not make any specific recommendations in regard to air quality or dust.

Under Table 6.6.1.3 section PO17 the development does not adversely impact (c): Likely emissions including water-borne contaminants, noise, dust, lighting and odour. For this there is no acceptable outcome nominated. Also, in this section it states “For other uses council may require a study that, amongst other matters, identifies how the development is in accordance with Environmental Protection (Air) Policy 2019 or Environmental Protection (Noise) Policy 2019.”

In general, the planning scheme makes the recommendation that developments should achieve air quality levels consistent with the objectives set out in the Environmental Protection (Air) Policy 2019 and the relevant national standard.

2.2 Guideline ESR/2015/1840 ERA

The Guideline ESR/2015/1840 ERA describes types of impacts that environmentally relevant activities can have in relation to air and outlines the information to be provided to the department as part of the ERA application process.

There are three key areas to be identified and addressed through the ERA application process:

- Identify the environmental values of the receiving air environment including the identification of any nearby sensitive places.
- Identify the possible impacts due to the proposed activity and all associated risks to environmental values.
- Identify the strategies to mitigate the identified risks to the environmental values

It is necessary to identify the environmental values of the site, this is assisted by the following:

1. Describe the surrounding land.
2. Use of a scaled map with site and sensitive receptors.
3. Describe site topography.
4. Analyse and describe the prevailing site wind direction and speed.
5. Provide a description of the localised ambient air quality.

The department seeks to determine possible impacts to identified environmental values. To assist with this the following information is sought:

1. Identify and provide an overview of emissions and processes.
2. Describe the characteristics of the emissions.
3. Identify if an odour impact assessment is required.
- 4.1. Describe how air emissions will be avoided, minimised or otherwise managed in accordance with the EPP (Air).

Once the value and risk of each impact to the environmental value is known, mitigation strategies can be devised to address the risk. When selecting a mitigation strategy, the following will be provided:

1. Describe the control measure including equipment and techniques used.
2. Identify contingency plans in case of failure in a control measure.

With regards to dust deposition, ESR/2015/1840 suggests that a limit of 120 milligrams per square metre per day, averaged over 1 month is used for dust nuisance in Queensland.

2.3 NEPM

The current National Environment Protection (Ambient Air Quality) Measure (NEPM), Schedule 2 Standards and Goals (Department of Climate Change, Energy, the Environment and Water, 2021) is similar to the pre 2025 versions of the EPP(Air). The relevant sections of the NEPM are included in Table 2.

Table 1: Relevant Standards from NEPM

Pollutant	Averaging period	Maximum concentration standard
Particles as PM ₁₀	1 day	50 µg/m ³
	1 year	25 µg/m ³
Particles as PM _{2.5}	1 day	25 µg/m ³
	1 year	8 µg/m ³

2.4 Environmental Protection (Air) Policy

The Queensland Environmental Protection (Air) Policy 2019 (EPP(Air)) (Queensland Government, 2025) commenced in 2019 and was updated in 2025. The pre-2025 EPP(Air) matched the NEPM standards, but the update in 2025 made changes to selected air quality criteria. The EPP(Air) 2019 aims to achieve the object of the *Environmental Protection Act 1994* (the Act) in relation to Queensland's air environment. The object of the Act is “.. to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).”

Specifically, the EPP (Air) 2019 addresses the environmental values to be enhanced or protected namely—

- (a) the qualities of the air environment that are conducive to protecting the health and biodiversity of

ecosystems;

- (b) the qualities of the air environment that are conducive to human health and wellbeing;
- (c) the qualities of the air environment that are conducive to protecting the aesthetics of the environment, including the appearance of buildings, structures and other property;
- (d) the qualities of the air environment that are conducive to protecting agricultural use of the environment.

To meet the environmental values, Schedule 1 of the EPP (Air) nominates relevant air quality indicators and goals. Relevant air quality indicators from Schedule 1 dealing with emissions and particulates are included in Table 2.

Table 2: Selected Design Ground Level Concentrations for Sensitive Receptors (EPP(Air) Air quality objectives)

Pollutant Type	Design Concentration (including background)	Averaging Period	Environmental Value
PM _{2.5}	20 µg/m ³	24 hours	health and wellbeing
	7 µg/m ³	Annual average	health and wellbeing
PM ₁₀	50 µg/m ³	24 hours	health and wellbeing
	25 µg/m ³	Annual average	health and wellbeing
TSP	90 µg/m ³	Annual average	health and wellbeing

Note 1: µg/m³ is a measure of the concentration of pollutant in the atmosphere and is in micrograms per cubic meter of air

Particulates are often described as respirable and inhalable. Respirable particulates are those small enough to penetrate the nose and deep into the lung. Respirable particulates that penetrate past the nose and upper respiratory system are likely to be retained in the body. This involves particulates having an aerodynamic diameter of up to 10 µm. Inhalable particulates are particulates which enter the body but are collected in the nose and upper respiratory system and rejected. Inhalable particulates are those having an aerodynamic diameter of nominally 10 µm and larger.

As a general guide particulates having diameters of 7 to 10 µm are mostly large enough to be caught by nose and throat. Particles in the range 0.5 to 7 µm are small enough to reach the lung yet large enough to be retained. Since these particulates remain in the lung, they may be hazardous to health and well-being.

2.5 Site Specific Air Quality Criteria

In summary, the applicable dust quality criteria (from EPP Air and NEPM) are:

- Particulate concentration of PM_{2.5} 20 µg/m³ averaged over 24 hours;
- Particulate concentration of PM_{2.5} 7 µg/m³ averaged over one year;
- Particulate concentration of PM₁₀ of 50 µg/m³ over a 24-hour averaging time;
- Particulate concentration of PM₁₀ of 25 µg/m³ over one year;
- Total suspended particulate 90 µg/m³ averaged over a year; and,
- Dust deposition of 120 mg/m²/day averaged over one month;

All these indicators (except deposition) are qualities of the air environment that are important to human health and wellbeing. The deposition (or dust fallout) is for assessing dust nuisance.

3 Air Pollution

Several steps were taken to calculate the potential impacts of the Project. These steps include:

- Development of a site specific inventory based upon the described works,
- Establish the likely background levels for the Project, and;
- Air dispersion modelling and reporting.

3.1 Air Emissions Inventory

The emissions for the Project have been based upon the National Pollution Inventory (NPI) Emission Estimation Technique Manual for Mining Version 3.1 (Department of Sustainability, Environment, Water, Population and Communities, 2012). This manual has the most relevant emission factors for the operations occurring on the Project.

SEG has been advised that the following for the project:

- Up to 50,000 tonnes per year
- Up to 70 trucks per day
- Operating 6:30am to 7pm Monday to Saturday

Also, advice has been received that the Project will be using dust controls measures on site with water spray on road and active stockpiles, as well as dust control on the crusher.

SEG has developed an emissions database based upon a maximum or peak site operation model. This model is then applied to all operational hours of the site to determine a maximum exposure from the site. For this the following assumptions have been made:

- 43 tonnes per hour of inbound material
- 8.6 trucks per hour driving across the site with inbound material
- 9 tonnes per hour of export material
- 0.3 trucks per hour of export material
- Crusher is operating at 133 tonnes per hour of material with a loader in support
- Dozer/compaction is occurring
- Loader is also covering and loading material for export

From this emission factors for the operations on the site have been determined using the NPI manual and the estimated maximum site emission factors for both uncontrolled and controlled emission has been determined. This is summarised in Table 3.

Table 3: Site Emission Factors by Operation (Uncontrolled and Controlled)

Sources	Uncontrolled Emissions (kg/hr)			Controlled Emissions (kg/hr)		
	TSP	PM ₁₀	PM _{2.5}	TSP	PM ₁₀	PM _{2.5}
Trucks Inbound Material	55.1	16.3	2.0	13.8	4.1	0.5
Trucks Unload Material	0.5	0.2	<0.1	0.5	0.2	<0.1
Dozer/Compactor	8.5	2.1	0.3	8.5	2.1	0.3
Loader Cover and Cap	0.3	0.1	0.0	0.3	0.1	<0.1
Loader for Crusher	3.3	1.6	0.2	3.3	1.6	0.2
Trucks Outbound Material	0.6	0.2	0.0	0.1	<0.1	<0.1
Load Outbound Material	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Crusher	26.7	2.7	0.3	13.3	1.3	0.2
Wind Erosion	0.8	0.4	0.1	0.3	0.2	<0.1
Total	191.5	47.0	5.9	80.4	19.2	2.4

3.2 Odour

The potential for odour generation at the site is very low and below a level that can be readily modelled. Additionally, with the large separation distances, there is very little change of odour from the site being impacted at any sensitive receptor. This is due to several factors with the design and operation of the site. Most importantly, the site does not accept putrefiable waste, i.e. liquid or sludge from grease traps, septic or piggery, additionally the site does not accept liquid or semi liquid wastes.

It is estimated that 95% of waste is construction and demolition waste, with the remaining estimated 5% from inert commercial and industrial waste sources. These waste streams are very low odour generating, especially when compared to a municipal landfill.

Additionally, the site covers material soon after emplacement, reducing possible odour generation.

3.3 Background Air Quality

The Department of the Environment, Tourism, Science and Innovation (DETSI) conducts monitoring of various air pollution at several sites throughout Queensland. The background concentrations for PM_{2.5} and PM₁₀ has been determined from the DETSI monitoring site North Ward situated 34km south-west of the site. North Ward commenced operations in the year 2017 and statistics for the years 2020 to 2024 are presented. The site Pimlico is slightly closer at 33km, but only has PM₁₀ for the period 2009 to 2016. Refer to Table 4 for an analysis of the DETSI monitoring.

Table 4: Background Analysis (DETSI Monitoring)

Site	Year	PM _{2.5}			PM ₁₀		
		Ann Avg	24h Average	24hr 70 th Percentile	Ann Avg	24h Average	24hr 70 th Percentile
North Ward	2020	5.8	5.8	6.6	16.2	16.1	18.3
	2021	5.8	5.8	6.7	16.3	16.3	18.7
	2022	5.8	5.8	6.6	15.2	15.2	17.5
	2023	6.2	6.2	6.5	16.3	16.2	18.1
	2024	5.6	5.6	6.4	15.6	15.6	17.7
	Maximum	6.2	6.2	6.7	16.3	16.3	18.7
Pimlico	2009	-	-	-	21.2	21.2	17.1
	2010	-	-	-	13.9	13.9	15.5
	2011	-	-	-	15.4	15.6	17.6
	2012	-	-	-	12.9	12.9	14.9
	2013	-	-	-	15.1	15.0	17.5
	2014	-	-	-	15.1	15.1	17.0
	2015	-	-	-	17.6	17.7	20.1
	2016	-	-	-	17.9	18.2	20.4
	2009	-	-	-	21.2	21.2	20.4
	Maximum	-	-	-	21.2	21.2	17.1

Background levels assumed for this site have been calculated the maximum of the annual survey results from the last five years of monitoring. For pollutants with a time period of 24 hours, the highest recorded from five years of monitoring of the 70th percentile.

For the pollutants TSP and Dust Deposition, the value assumed for the background is based upon SEG experience with these measures. The assumed background levels for the Project are shown in Table 5.

Table 5: Assumed Project Background Levels

Pollutant	PM _{2.5}		PM ₁₀		TSP	Dust Deposition
Averaging Period	24 Hour Maximum	Annual Average	24 Hour Maximum	Annual Average	Annual Average	Month
Units	µg/m ³					mg/m ² /day
Background	6	6	21	21	28	53

3.4 Meteorology

To determine the likely meteorology for the site a TAPM meteorological model was developed. Specifically, the TAPM model based on a 2-year modelling simulation period 2023 & 2024 and was resolved to a 300m inner grid with 40 by 40 grid points. Five nested gridded domains were processed with grid spacings of 30000m, 10000m, 3000m, 1000m and 300m. Since the terrain surrounding the site is at most gently undulating a grid finer than 300m is unlikely to produce significantly different results. Additionally, the adoption of 300m grid means that the

closest grid point to the subject site is 150m away from the site, improving interpolation accuracy. Simulation tests carried by Hurley et al (Hurley, Physick, Luhar, & Edwards, 2005) indicate that even with a 3 km grid spacing, winds are predicted well, with no significant bias. Hence the adoption of 300m inner grid is expected to provide an accurate prediction of winds for the subject site.

The meteorological file was nudged with 2 years of hourly data obtained from DESTI at 50 locations. A summary of the sites and location is included in Table 6.

Table 6: Meteorology Nudge Sites

Site	Distance (km)	Direction
North Ward	34	E
Townsville Coast Guard	36	E
Townsville Lennon Drive	36	E
Townsville Environment Park	36	E
Ayr	106	SE
Abbot Point	185	SE
Woree	254	N
West Mackay	356	SE
Moranbah West	356	SE
Moranbah East	356	SE
Emerald	514	S
Longreach	529	SW
Blackwater	548	SE
Bluff	559	SE
Parkhurst	622	SE
Targinie	700	SE
Aldoga	702	SE
Fisherman's Landing	706	SE
Boat Creek	707	SE
Auckland Point	716	SE
Clinton	716	SE
Memorial Park	716	SE
South Gladstone	719	SE
Boyne Island	731	SE

TAPM predicts meteorology and optionally pollutant concentration for a range of pollutants important for air pollution applications. The model consists of coupled prognostic meteorological and air pollution concentration components, eliminating the need to have site-specific meteorological observations. Instead, the model predicts the flows important to local-scale air pollution, such as sea breezes and terrain induced flows, against a background of larger-scale meteorology provided by synoptic analyses.

Initially the 3D wind data was transferred from TAPM into Calmet (using Caltapm). Within Calmet a 100m wind grid of 100 by 100 points adopted.

3.4.1 Meteorology Validation

Windroses for the site were prepared for the subject year. This is included in Appendix A: Windroses. The wind roses for Townsville Aero (Bureau of Meteorology, 2026) are also included in the Appendix.

The two wind roses show high correlation for wind speed and wind direction. This validates that the modelled meteorology modelled is representative for the site and the general trends of the area

3.5 Air Pollution Model

The model Calpuff was used to model the dispersion of pollutants from the Project. The model is an approved model for modelling these types of sources. Specifically, the model comprised one area source for the works on the site, proportional to the size of the works.

Refer to Figure 3 for the location of the source. The Lakes Environment Pre/Processor was used to prepare all datafiles for Calpuff as well as Calmet.



Figure 3:Site Source Location

3.5.1 Receptor Location

Calpuff provides results on a computational grid as well as at discrete receptors. For the contours the computational grid modelled was a nested grid centred on the Project site with an increasing grid spacing as per Table 7.

Table 7: Nested Receptor Grid Spacing

Distance from Project (m)	Receptor Spacing (m)
1,000	100
2,000	200
4,000	500

The modelling has been carried out at modelling heights of 1.5m. Contours have been presented for each pollutant, odour and dusts. Calculations at each of the receptor locations has also been carried out. The specific receptor locations reported are included in Table 8 and Figure 4.

Table 8: Modelled Sensitive Receptors

Receptor	Coordinate (WGS 84/UTM Zone 56S)		Lot Plan
	X (m)	Y (m)	
R1	448894	7883006	Lot 1 on RP742572
R2	449024	7882593	Lot 3 on SP137805
R3	446664	7885146	Lot 162 on EP2088
R4	447021	7885696	Lot 52 on SP327415
R5	445015	7883600	Lot 583 on E124155



Figure 4: Modelled Sensitive Receptor Locations

3.6 Calculated Pollutant Concentration

The calculated pollutant concentrations were determined for each sensitive receptor and a 100 by 100 grid with 100m spacing (i.e. 10km by 10km) centred over the site. A summary of the results is included in Table 9. The calculated pollution contours are contained in **Error! Reference source not found..**

Table 9: Calculated Particulates for Each Sensitive Receptor Including Background Levels.

Pollutant	PM _{2.5}		PM ₁₀		TSP	Dust Dep
Averaging Time	24 Hour	Annual	24 Hour	Annual	Annual	Month
Units	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ² /day
Criteria	25	8	50	25	90	120
Background	6	6	21	21	28	53
Receptor						
R1	9.2	6.5	37.7	22.4	28.9	62
R2	8.3	6.3	31.5	21.7	28.3	56
R3	6.6	6.2	23.3	21.3	28.1	55
R4	6.6	6.2	23.0	21.3	28.1	55
R5	6.5	6.2	22.6	21.2	28.1	54

3.7 Air Quality Assessment

The modelling of dust demonstrates all sensitive receptors readily comply with all pollutants for all averaging period times.

3.8 Air Quality Recommendations

Several assumptions on controls have been assumed and modelled based on advice received on the Project. This includes:

- Watering internal roads
- Covering completed stockpile areas
- Revegetation where possible on complete stockpiles
- Dust controls on crusher

It is recommended that these dust controls are continued on the project in order to achieve the modelled results.

4 Conclusions

The Project was investigated with regards to air quality impacts as described in the SARA request.

The background air quality is based on the recent and relevant publication of long-term monitoring conducted by DSITI. The meteorology for the site was predicted using TAPM over a two-year period, 2023 & 2024. The modelling of the pollution utilised the approved model Calpuff configured in according to the recommended settings.

The emission factors for the Project have been derived from National Pollution Inventory documents. Only one modelling case was considered comprising all elements of the project, that is inbound trucks, export trucks, crushing and material handling occurring on the site at the same time during operating hours

With the site operating with controls described in Air Emissions Inventory it was found that the air quality from the project readily meets all air quality and odour goals for realistic meteorological conditions both now and into the future.

Thus, the Project may proceed without any adverse air quality impacts onto sensitive uses.

5 References

- Bureau of Meteorology. (2026). *Climate statistics for Australian locations*. Retrieved from Summary statistics TOWNSVILLE AERO: https://www.bom.gov.au/climate/averages/tables/cw_032040.shtml
- City of Townsville. (2025). *Townsville City Plan*. Townsville: Townsville City Council.
- Department of Climate Change, Energy, the Environment and Water. (2021). *National Environment Protection (Ambient Air Quality) Measure*. Australian Government.
- Department of Environment, Science and Innovation. (2024). *Environmental authority P-EA-100698838*. Queensland Government.
- Department of State Development, Infrastructure and Planning. (2025). *SARA information request - 42386 Bruce Highway, Bluewater*. Queensland Government.
- Department of Sustainability, Environment, Water, Population and Communities. (2012). *Emission Estimation Technique Manual for Mining Version 3.1*. Canberra: Commonwealth of Australia.
- Hurley, P., Physick, W., Luhar, A., & Edwards, M. (2005). The Air Pollution Model (TAPM) Version 3. Part 2: Summary of some verification studies. *CSIRO Atmospheric Research Technical Paper No. 72*, 36 pp.
- Jones, S. (2025). *Change Application (Other) to Development Permit M33/03 for a Material Change of Use (Waste Disposal and Recycling Facility) and Environmental Authority P-EA100698838 (ERA60 only)*. Milford Planning.
- Queensland Government. (2025). *Environmental Protection (Air) Policy 2019*. Brisbane: Queensland Government.
- The City of Thuringowa. (2004). *DEVELOPMENT APPLICATION DECISION NOTICE, DEVELOPMENT PERMIT NO. M33/03*. The City of Thuringowa.
- Townsville City Council. (2026). *TownsvilleMAPS*. Retrieved from Townsville City Plan: https://maps.townsville.qld.gov.au/Mapping/index.html?viewer=TownsvilleMAPS_City_Plan_2014.Mapping
- TRC Environmental Corporation. (2011). *Generic Guidance and Optimum Model Settings for the CALPUFF Modeling System for Inclusion into the 'Approved Methods for the Modeling and Assessments of Air Pollutants in NSW, Australia'*. NSW Office of Environment and Heritage.

Appendix A: Windroses

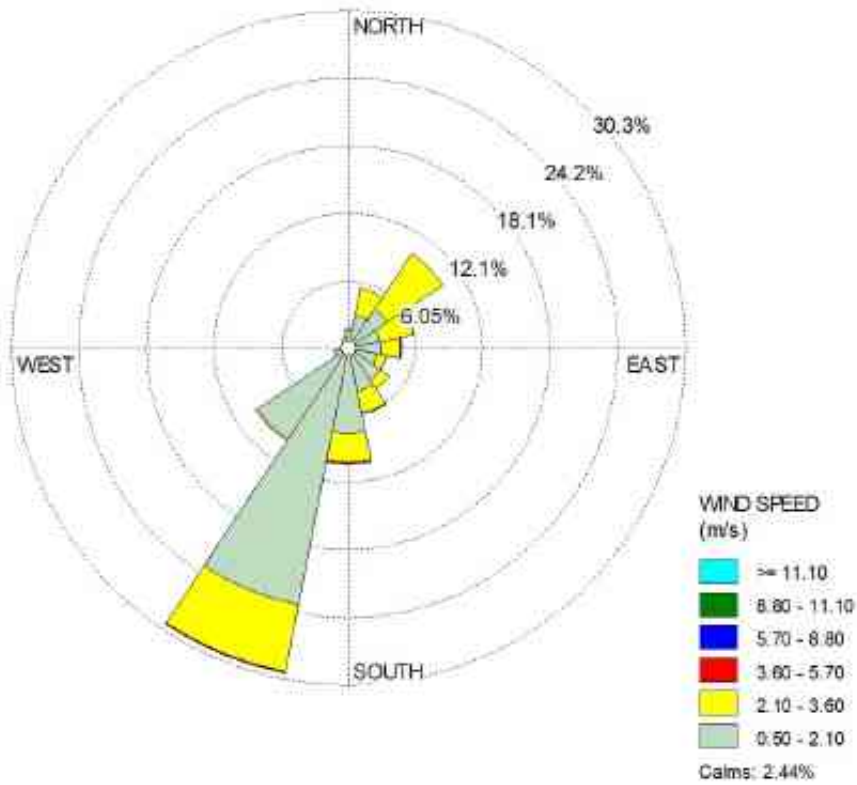


Figure 5: Wind Rose - All Hours

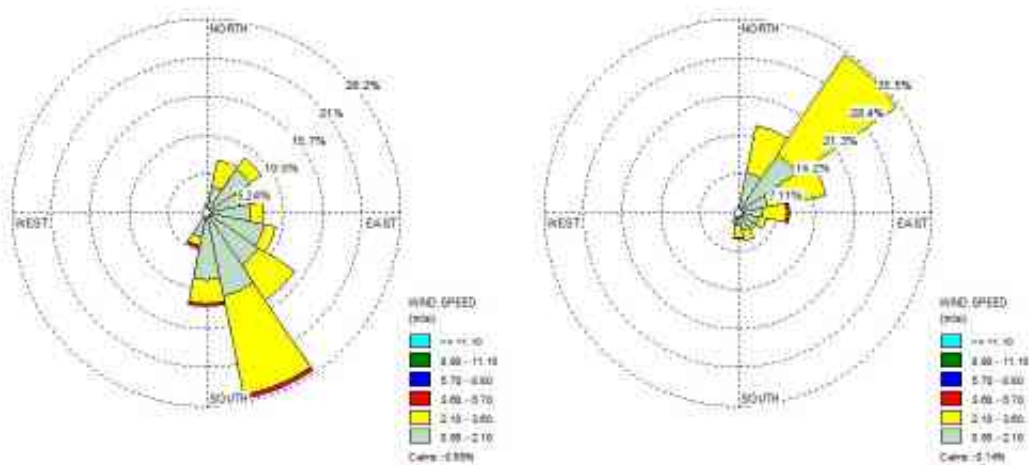


Figure 6: 9am and 3pm Wind Rose

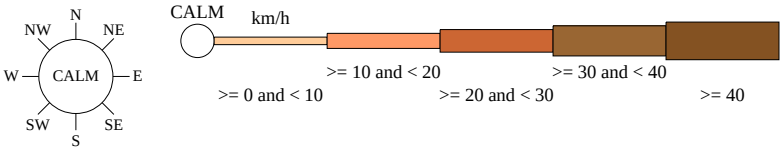
Rose of Wind direction versus Wind speed in km/h (01 Nov 1940 to 10 Feb 2026)

Custom times selected, refer to attached note for details

TOWNSVILLE AERO

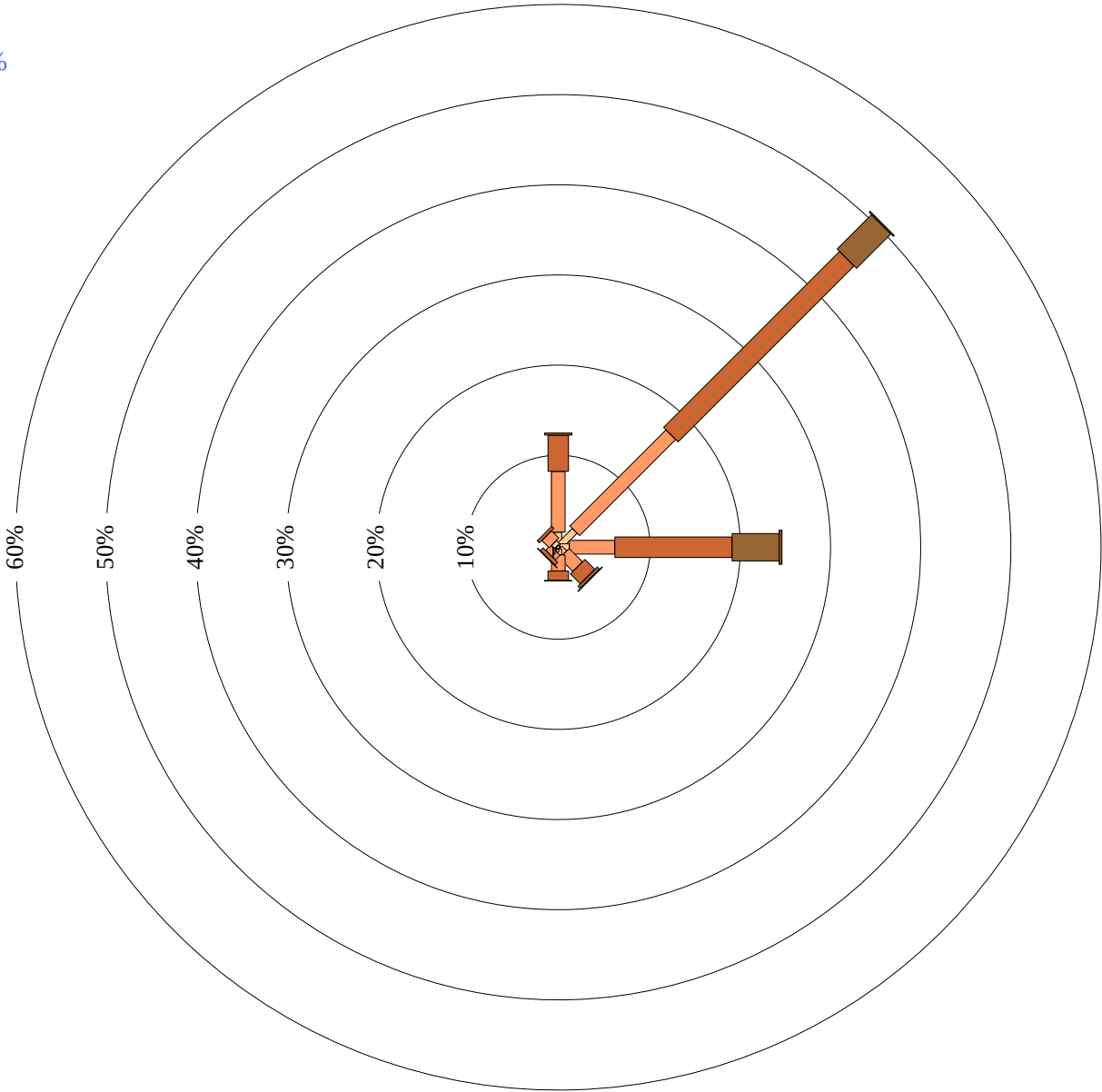
Site No: 032040 • Opened Jan 1940 • Still Open • Latitude: -19.2483° • Longitude: 146.7661° • Elevation 4.3m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.



3 pm
30986 Total Observations

Calm 1%



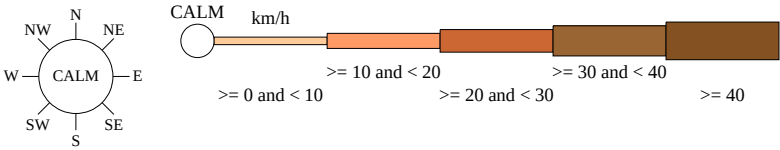
Rose of Wind direction versus Wind speed in km/h (01 Nov 1940 to 10 Feb 2026)

Custom times selected, refer to attached note for details

TOWNSVILLE AERO

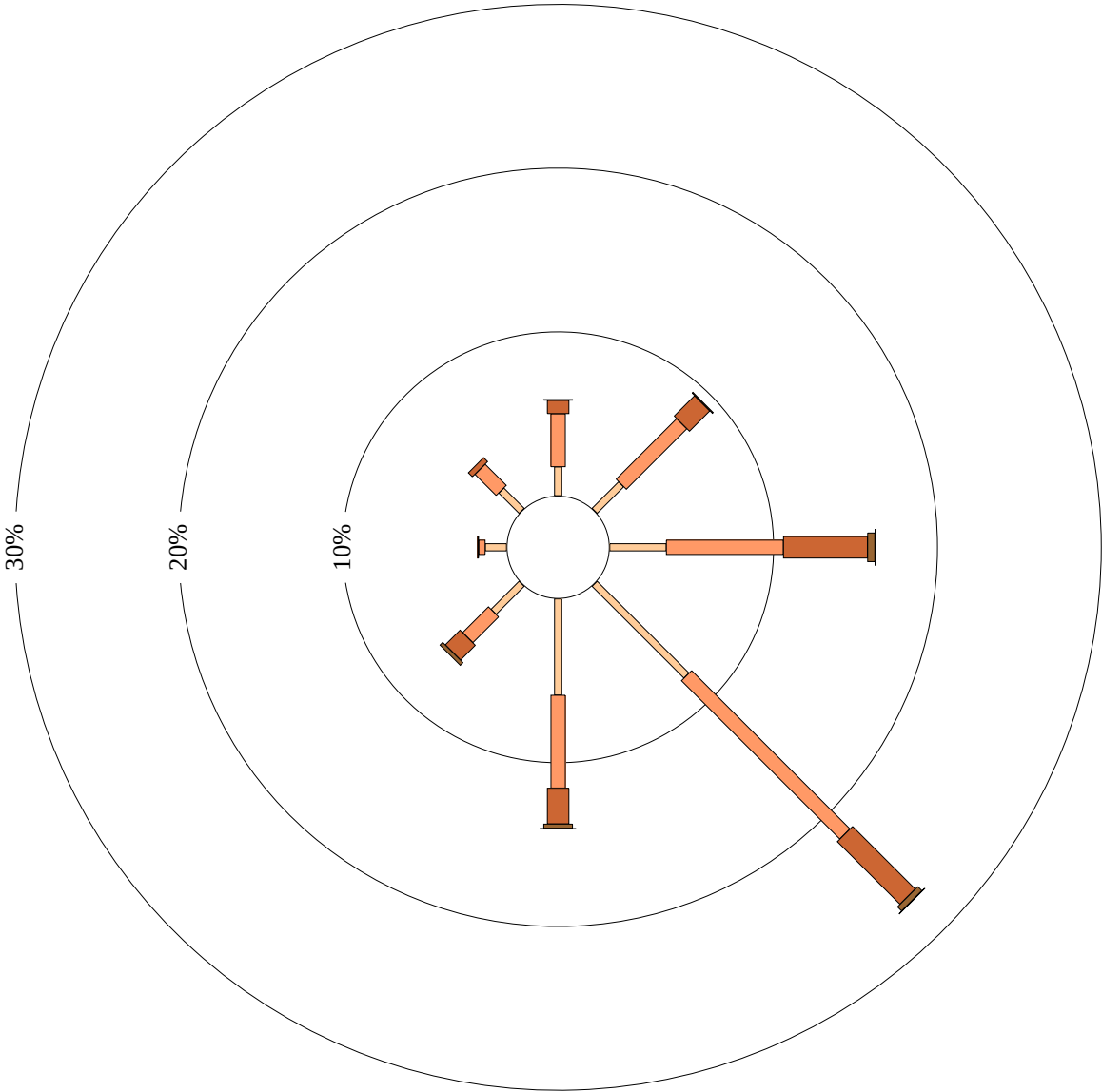
Site No: 032040 • Opened Jan 1940 • Still Open • Latitude: -19.2483° • Longitude: 146.7661° • Elevation 4.3m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.



9 am
30985 Total Observations

Calm 16%

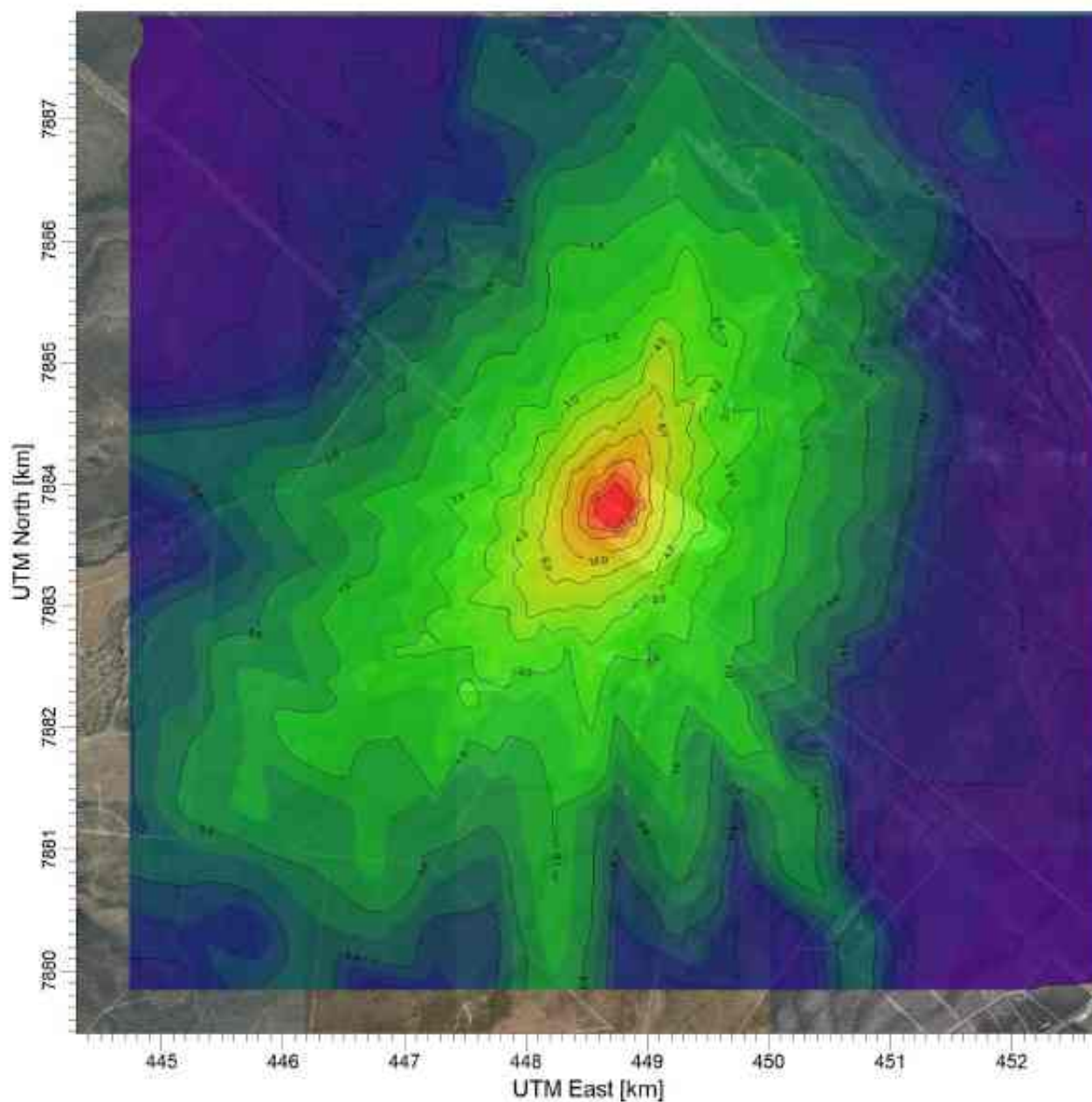


Appendix B: Air Pollution Contours



PROJECT TITLE:

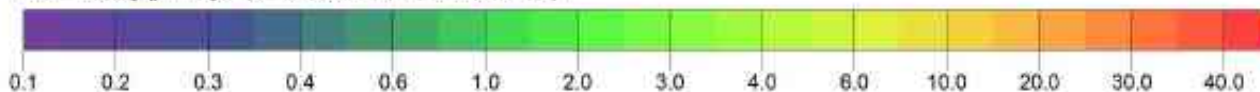
**Expansion Project 42386 Bruce Highway, Bluewater
PM2.5 24 Hour Maximum**



1 RANK 24 HOUR AVERAGE CONCENTRATION (PM2.5)

ug/m**3

Max = 70.4 [ug/m**3] at (X = 448741.00, Y = 7883845.00)



COMMENTS:

COMPANY NAME:

Simpson Engineering Group

MODELER:

Chris Simpson

SCALE:

1:54,413

0 1 km

DATE:

17/04/2026

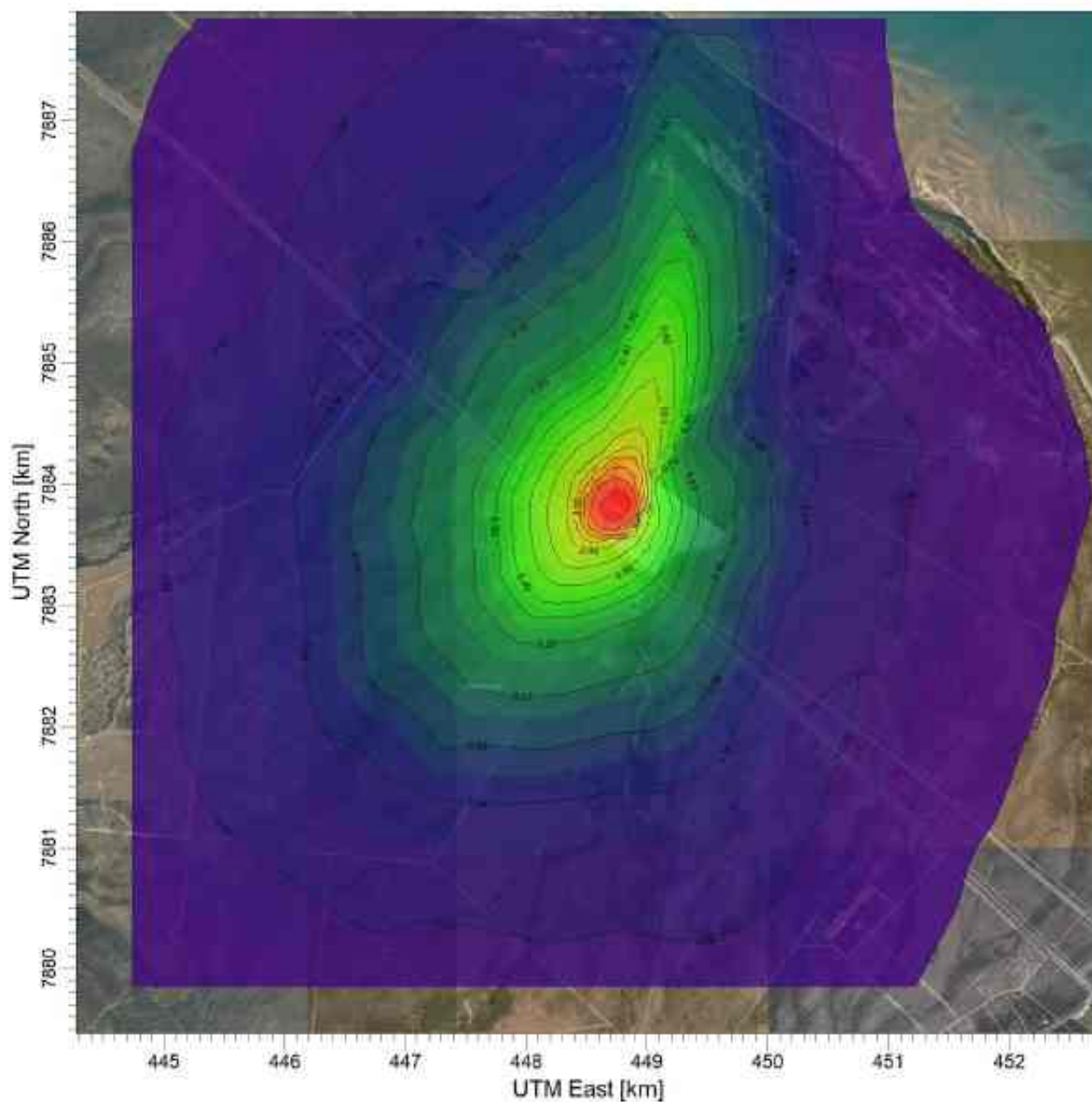
PROJECT NO.:

251002



PROJECT TITLE:

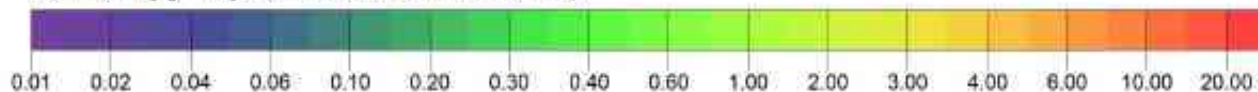
**Expansion Project 42386 Bruce Highway, Bluewater
PM2.5 Annual Average**



VALUE RUN LENGTH AVERAGE CONCENTRATION (PM2.5)

ug/m**3

Max = 30.08 [ug/m**3] at (X = 448741.00, Y = 7883845.00)



COMMENTS:

COMPANY NAME:

Simpson Engineering Group

MODELER:

Chris Simpson

SCALE:

1:54,709

0 1 km

DATE:

17/04/2026

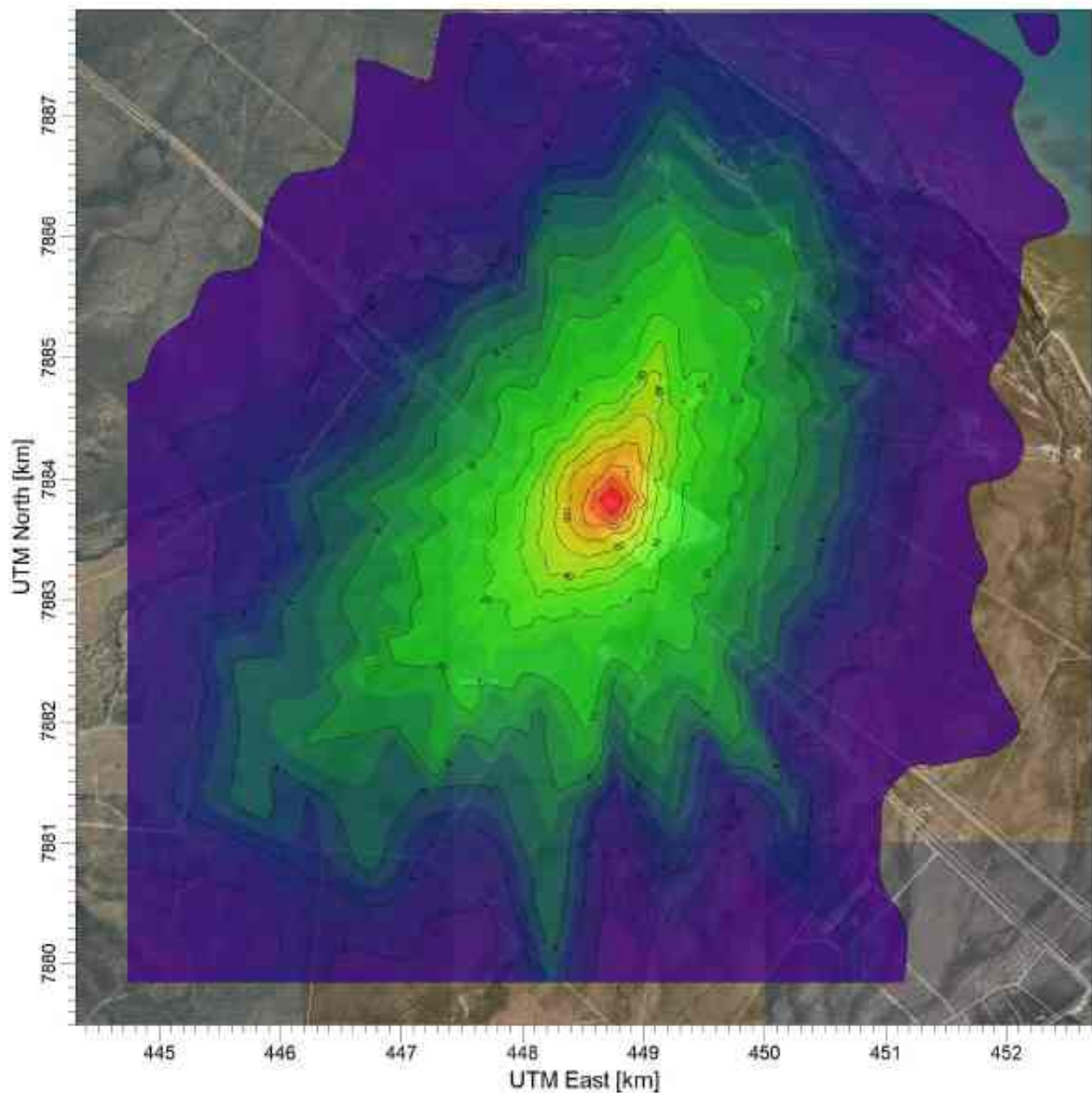
PROJECT NO.:

251002



PROJECT TITLE:

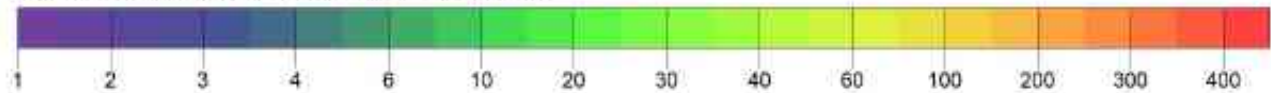
**Expansion Project 42386 Bruce Highway, Bluewater
PM10 24 Hour Maximum**



1 RANK 24 HOUR AVERAGE CONCENTRATION (PM10)

ug/m³

Max = 546 [ug/m³] at (X = 448741.00, Y = 7883845.00)



COMMENTS:

COMPANY NAME:

Simpson Engineering Group

MODELER:

Chris Simpson

SCALE:

1:54,265

0 1 km

DATE:

17/04/2026

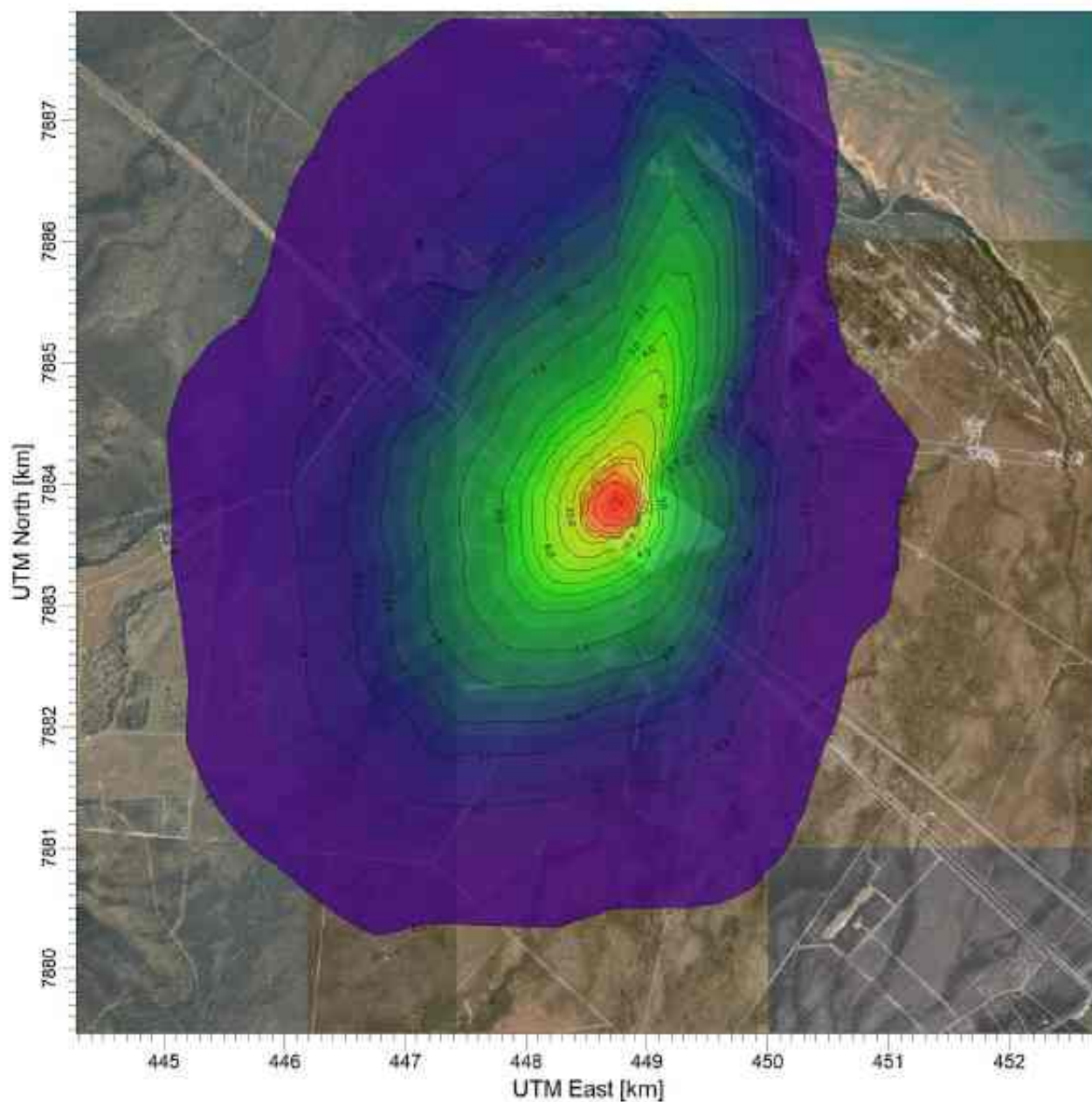
PROJECT NO.:

251002



PROJECT TITLE:

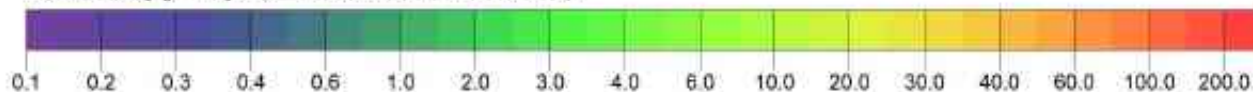
**Expansion Project 42386 Bruce Highway, Bluewater
PM10 Annual Average**



VALUE RUN LENGTH AVERAGE CONCENTRATION (PM10)

ug/m**3

Max = 234.8 [ug/m**3] at (X = 448741.00, Y = 7883845.00)



COMMENTS:

COMPANY NAME:

Simpson Engineering Group

MODELER:

Chris Simpson

SCALE:

1:54,709

0  1 km

DATE:

17/04/2026

PROJECT NO.:

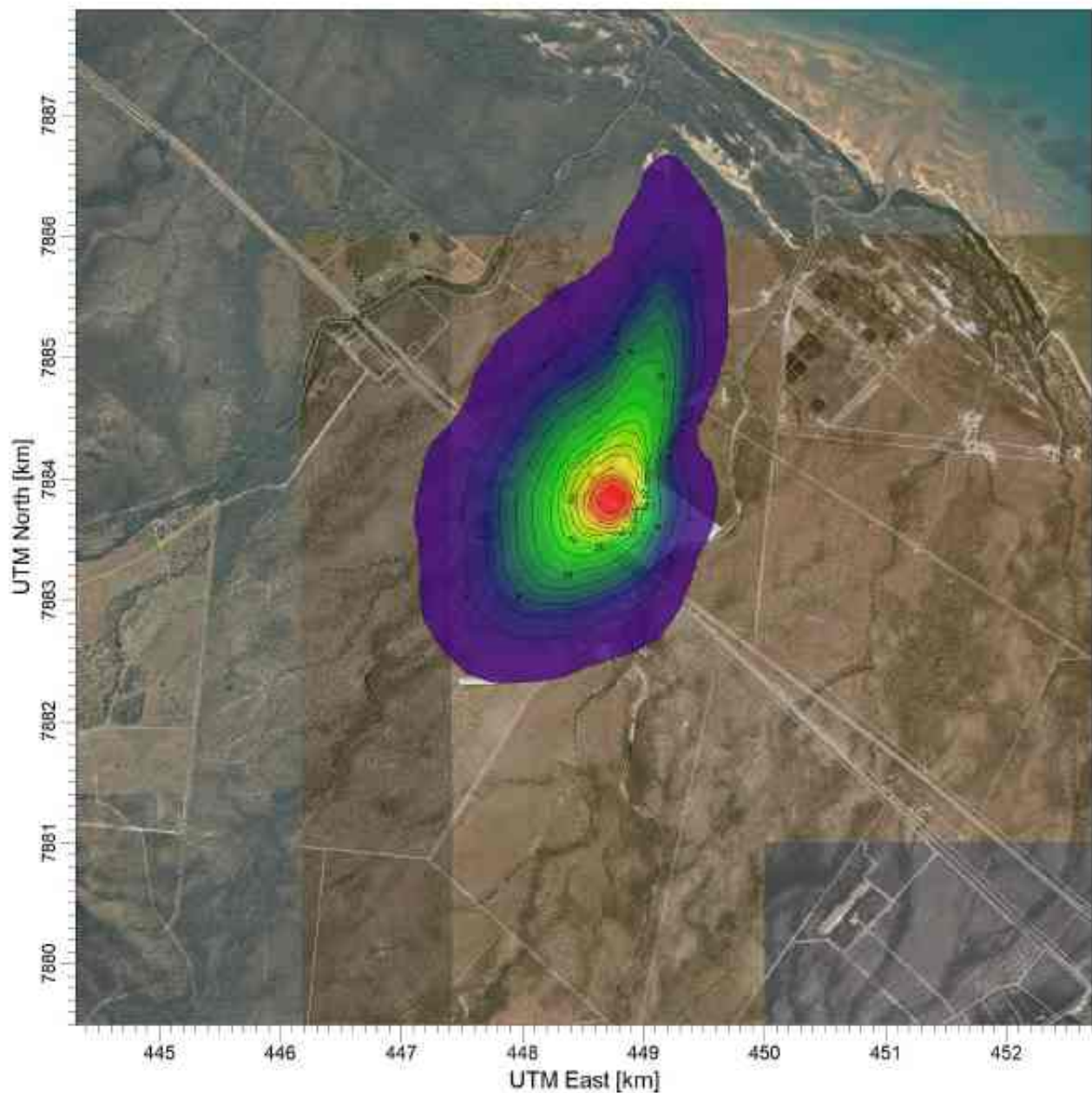
251002



Simpson Engineering Group

PROJECT TITLE:

**Expansion Project 42386 Bruce Highway, Bluewater
TSP Annual Average**



COMMENTS:

COMPANY NAME:

Simpson Engineering Group

MODELER:

Chris Simpson

SCALE:

1:54,265

0

1 km

DATE:

17/04/2026

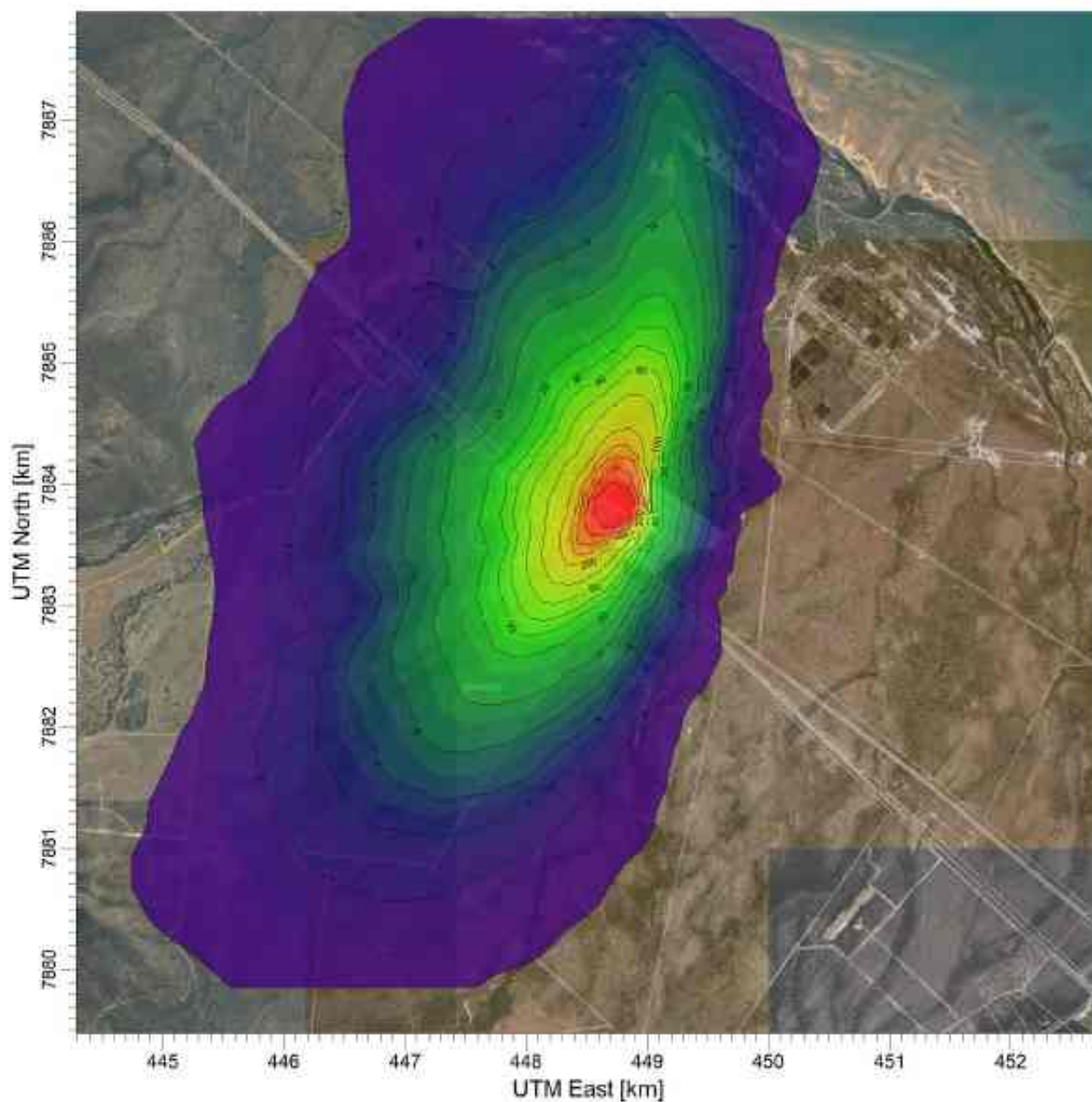
PROJECT NO.:

251002



PROJECT TITLE:

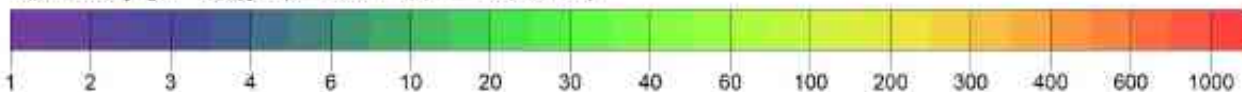
**Expansion Project 42386 Bruce Highway, Bluewater
Dust Deposition Maximum Month**



1 RANK 720 HOUR AVERAGE W+D DEPOSITION (TSP)

mg/m**2/day

Max = 2327 [mg/m**2/day] at (X = 448741.00, Y = 7883845.00)



COMMENTS:

COMPANY NAME:

Simpson Engineering Group

MODELER:

Chris Simpson

SCALE:

1:54,561

0 1 km

DATE:

17/04/2026

PROJECT NO.:

251002



Attachment 6



Document title:

Expansion Project 42386 Bruce Highway, Bluewater

Document Type:

Environmental Noise Consulting Engineering Services

Prepared for:

Terra Solutions Group

Document & Date issued:

251203D02 on Friday, 3 July 2026

SEG Pty Ltd

3/1404 Logan Road
Mount Gravatt East, Qld 4122
Ph: 61 7 31172468
Mobile: 0414383172
Email: mark@segroup.com.au

Revision History

Title	Expansion Project 42386 Bruce Highway, Bluewater
Document Type	Environmental Noise Consulting Engineering Services
Created By	Christopher Simpson BE
Date Created	10/04/2026
Date Printed	8/5/2026
Authorised By	 Mark A Simpson (<i>Principal</i>) BE RPEQ6224

Version Number or Doc Number	Date	Description of Change	Author	Reviewer	Status
D03	28/4/2026	Initial Document	CS	MS	Draft
D03	8/5/2026	Minor changes.	MS	CS	Final
D03	3/7/2026	Correct start time of operations	MS	CS	Final

Contents

LIST OF TABLES	II
LIST OF FIGURES	II
GLOSSARY	I
1 INTRODUCTION	3
1.1 LAYOUT SITE DESCRIPTION	3
1.2 DESCRIPTION OF THE PROPOSED DEVELOPMENT	4
1.3 SARA AND DETSI INFORMATION REQUEST	6
1.4 NOISE SENSITIVE RECEPTORS	7
1.5 EXISTING NOISE ENVIRONMENT	8
2 NOISE LEVEL GOALS	11
2.1 TOWNSVILLE CITY COUNCIL	11
2.2 STATE CODE 22 – ENVIRONMENTALLY RELEVANT ACTIVITIES	11
2.2.1 ESR/2015/1838	11
2.3 ENVIRONMENTAL PROTECTION ACT 1994	13
2.3.1 Managing Intent For Noise	15
2.4 SLEEP DISTURBANCE WHO GUIDELINES	15
2.5 LOW FREQUENCY NOISE	16
2.6 ROAD TRAFFIC NOISE GOALS	16
2.7 SUMMARY OF NOISE GOALS	16
3 PREDICTED NOISE LEVELS	19
3.1 MODELLING METHODOLOGY	19
3.2 METEOROLOGY	21
3.2.1 Temperature Inversions	21
3.2.2 Wind Effects	21
3.3 NOISE MODEL PARAMETERS	25
3.4 NOISE MODELLING RESULTS	25
4 ASSESSMENT OF MODELLED NOISE LEVELS	27
5 CONCLUSIONS	31
6 REFERENCES	32
APPENDIX A: NOISE CONTOUR DIAGRAMS	34

List of Tables

Table 1: Modelled Sensitive Receptors	7
Table 2: Measured Noise Levels at Noise Logging Location.....	10
Table 3: Performance and Acceptable Outcome	11
Table 4: Acoustic Quality Objectives for Dwellings and Other Receivers Relevant to the Project during the Day (7 am to 6 pm), Evening (6 pm to 10 pm) and Night (10 pm to 7 am) (<i>EPP (Noise)</i>)	14
Table 5: Noise Level Goals to Avoid Background Creep	15
Table 6: Summary of Component Noise Goals (free-field)	18
Table 7: Wind Speed Analysis For Inversions June to August (6 pm to 7 am)	21
Table 8: Wind Speed and Wind Direction Analysis for Winds 0.5m/s to 3m/s.....	23
Table 9: Meteorology Modelling Cases Assessed	24
Table 10: Sound Power Levels ($L_{eq(1\text{ hr})}$) in dB for plant.....	25
Table 11: Calculated Noise Levels Noise sensitive receptors	26

List of Figures

Figure 1: Site and Surroundings (North Up)	4
Figure 2: Site Staged Plans (North Up)	6
Figure 3: Sensitive Receptor Locations	8
Figure 4: Chart of Measured Noise Levels [dB(A)]	10
Figure 5: Acoustic Noise Control	27
Figure 6: Mounding For Crusher	28
Figure 7: Mounding Location relative to Crusher Location in Figure 6	29
Figure 8: Acoustic Screen for Pump (Conceptual layout)	30

Glossary

Term / Acronym	Description
Council	Townsville City Council
Project	Waste Disposal and Recycling Facility
QRR	Queensland Resource and Recovery Pty Ltd
SARA	State Assessment and Referral Agency, Department of State Development, Infrastructure and Planning, Queensland Government
SEG	Simpson Engineering Group Pty Ltd
Site	Lot 1 on RP735647, 42386 Bruce Highway, Bluewater
$L_{A01,t}$	The L_{A01} is the “A”-weighted statistical noise level exceeded 1% of the time. Commonly accepted time periods (t) include 10 minutes, 15 minutes, 30 minutes, 60 minutes and 24 hours.
$L_{A10,t}$	The L_{A10} is the “A”-weighted statistical noise level exceeded 10% of the time. Commonly accepted time periods (t) include 10 minutes, 15 minutes, 30 minutes, 60 minutes and 24 hours. It is sometimes referred to as the average maximum noise level.
$L_{A90,t}$	The L_{A90} is the “A”-weighted statistical noise level exceeded 90% of the time. Commonly accepted time periods (t) include 10 minutes, 15 minutes, 30 minutes, 60 minutes and 24 hours. It is commonly referred to as the background noise level.
$L_{Aeq,t}$	The L_{Aeq} is the “A”-weighted energy average noise level over the time in question. It is the constant noise level containing the same energy as the actual fluctuating noise level. Commonly accepted time periods (t) include 10 minutes, 15 minutes, 30 minutes, 60 minutes and 24 hours.
Adjusted noise level	The $L_{A01\ adj,t}$, $L_{A10\ adj,t}$, $L_{Aeq\ adj,t}$, is the A-weighted sound pressure level, adjusted for tonal character or impulsiveness when measured using a fast standardised response time.
Day	Refers to the period between 7 am and 6 pm
Evening	Refers to the period between 6 pm and 10 pm
Night	Refers to the period between after 10 pm and before 7 pm
Ambient noise	The all-encompassing noise associated within a given environment. It is the composite of sounds from many sources, both near and far.
Assessment background level (ABL)	The single-figure background level representing each assessment period–day, evening and night (i.e. three ABLs are determined for each 24 hour period of the monitoring period). ABL is a measure of background noise level in the absence of noise from the source. Determination of the ABL is by the tenth percentile method, i.e sort the recorded hourly L_{A90} ’s into ascending order and select the are the lowest ten percentile level.
Rating background level (RBL)	The overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period (as opposed to over each 24 hour period used for the ABL). It is the median value of the ABL’s.

Term / Acronym	Description
Free field	A position where there are no reflecting surfaces, other than the ground, close enough to influence the sound pressure level. Taken as a minimum of 1.2 metres above ground level and 4m from the closest building façade.
Noise floor	The noise floor, inherent or 'self-noise' of sound level measuring equipment is the combination of the preamplifier's electrical noise and thermal noise from the microphone.
dB (linear) peak	the maximum reading in decibels (dB) obtained using the "P" time – weighting characteristic as specified in AS 1259.1 – 1990 with all frequency-weighted networks inoperative.
octas	Is a rating system describing cloud cover. A clear sky is zero octas while full cloud cover is 8 octas.
residence	includes a building, or part of building, capable of being used as a dwelling.
Sensitive receptor	is an area or place where noise is measured.
Acoustic quality objective	for a sensitive receptor, is the maximum level of noise that should be experienced in the acoustic environment of the sensitive receptor.
Acoustic environment	the part of the environment of an area or place characterised by the total amount of noise that may be experienced there.

1 Introduction

Simpson Engineering Group (SEG) has been engaged by Terra Solutions Group on behalf of Queensland Resource and Recovery Pty Ltd (QRR) to prepare an environmental noise assessment from a proposed expansion of a Waste Disposal and Recycling Facility (the Project), located at 42386 Bruce Highway, Bluewater (the Site). The site is located in the Townsville City Council (the Council) Local Government Area. The existing operations is approved under Environmental Authority P-EA-100698838 (Department of Environment, Science and Innovation, 2024). Following a Change Application by Milford Planning (Jones, 2025), a SARA information request was issued (Department of State Development, Infrastructure and Planning, 2025).

This document addresses the request for information in the SARA information request and is based upon the information presented in the Change Application. SEG specifically has assessed noise impacts from the site onto all nearby sensitive receptors.

This noise assessment addresses the following issues:

- likely change in the noise levels following commencement of operations,
- development of appropriate noise goals,
- assessment of noise at sensitive receptors and comparison to goals, and;
- recommendations for relevant impact mitigation measures.

SEG is a consulting engineering group specialising in noise, vibration, air quality, odour and lighting assessments. This assessment and report was prepared by Chris Simpson of SEG who is a suitably qualified person for conducting noise assessments.

1.1 Layout Site Description

The project is situated in an established rural rangeland characterized by vegetation and agricultural grazing activities. From the Townsville City Plan (Townsville City Council, 2026) The site is zoned Rural. The neighbouring properties are all also zoned Rural. The Bruce Highway is the major access to the site and runs approximately northwest/southeast to the west of the site. Between the Bruce Highway and the Site is the Queensland Rail Systems North Coast Line (Nambour to Cairns) and segments of the rail corridor are zoned Community Facilities. The location of the Project is shown on Figure 1.



Figure 1: Site and Surroundings (North Up)

1.2 Description of the Proposed Development

QRR operates several environmentally relevant activities (ERAs) at the Project. Waste disposal and resource recovery and transfer facility operation main ERAs on the site, with the site operating under Development Permit (M33/03) for Material Change of Use (Waste Management/Recycling Facility) (The City of Thuringowa, 2004). The site comprises:

- four cells for landfill;
- resource recovery area;
- concrete storage;
- stockpiling;
- concrete crushing and screening;
- sediment basins and leachate pond;
- site office, amenities and parking; and
- access tracks.

QRR is pursuing a change to development Permit M33/03 and EA P-EA100698838 to increase the threshold of waste the facility receives and dispose from 10,000 tonnes of waste per annum to 50,000 tonnes of waste per annum. The proposed changes will result in the following changes in the facility:

- Receive and dispose of no more than 50,000 tonnes of waste, whilst maintaining the same footprint, up from 10,000 tonnes
- Truck deliveries will likely be between 30 to 50 per day with peaks up to 60 to 70 per day, up from average of 36 trucks per day.

Additionally, the layout and working area will be maintained as per the current approved design.

This report is addressing the noise from the site. The process on site generally consists of the following elements:

- Receiving trucks, up to 7,000 trucks per year and up to 1,000 tonnes per day.
- Crushing operations for suitable C&D waste.
- Loading crushed C&D waste for export offsite.
- Emplacing C&D waste.
- Cap and covering stage when at suitable level.



Figure 2: Site Staged Plans (North Up)

1.3 SARA and DETSI Information Request

QRR received a SARA Information Request (Department of State Development, Infrastructure and Planning, 2025) dated 25 November 2025. As a part of this request, there are specific issues listed under “Environmentally Relevant Activity”. Most notably for noise is item 6. This has been included below.

Acoustic environmental values

Issue:

The ‘Change Application Report’ states that the activities undertaken at the facility do not generate significant amounts of noise and that the main noise generating activities are from the operation of machinery onsite. The report comments that these activities are undertaken infrequently and as required. However, with the significant increase in the operations at the site, and waste disposed to the landfill onsite, it is likely there will be a significant increase in noise generated onsite. The application

material does not quantify the potential increase in noise generated from the site as a result of the proposal or describe how this could potentially impact nearby sensitive receptors.

It cannot be determined that the proposed increase to the activity thresholds can sufficiently achieved PO1 of the SDAP State code 22 – Environmentally Relevant Activities, ensuring that the development is suitably located and designed to avoid or mitigate environmental harm to the acoustic environment.

Action:

- a) Identify all the potential risks and impacts to noise environmental values as a result of the increase in proposed activities e.g. vehicle movements, deliveries, compaction of waste in landfill cell, waste sorting and other machinery operations and mechanical waste reprocessing within the RRA etc.
- b) Conduct a noise impact assessment to determine if noise from the activity at the site, taking into consideration the proposed increase in activities, will impact nearby sensitive receptors. Determine whether the acoustic quality objectives of the Environmental Protection Policy Noise 2019 (EPP Noise) will be met at sensitive receptors as a result of the increase in activities.
- c) The assessment must take into consideration and evaluate the increase in all the activities with the potential to increase impacts to noise environmental values identified in point (a).
- d) Identify specific noise mitigation strategies that will be implemented to avoid, minimise or manage the impact of noise from the proposal to ensure the acoustic quality objective of the EPP Noise are met.

The DETSI information request is functionally similar to the SARA request with respect to noise.

1.4 Noise Sensitive Receptors

Thirteen noise sensitive receptors have been identified surrounding the subject site. The closest receptors are to the south of the site. Specific receptor locations are included in Table 1 and Figure 1.

Table 1: Modelled Sensitive Receptors

Receptor	Coordinate (WGS 84/UTM Zone 56S)		Lot Plan
	X (m)	Y (m)	
R1	448894	7883006	Lot 1 on RP742572
R2	449024	7882593	Lot 3 on SP137805
R3	446664	7885146	Lot 162 on EP2088
R4	447021	7885696	Lot 52 on SP327415
R5	445015	7883600	Lot 583 on E124155



Figure 3: Sensitive Receptor Locations

1.5 Existing Noise Environment

A noise survey has been carried out at a location close to the western boundary of the site. The site was adjacent to the railway and the Bruce Highway. Dominant noise comprised road traffic, insects and birds. It followed a period of heavy rainfall.

Existing noise levels were obtained at one location with calibrated noise logger recorded the noise level statistics in fifteen-minute intervals. Site selection was based on the following rationale:

- In proximity to road and railway
- Distant from site operations

The monitoring was carried out in compliance with Queensland Government Noise Measurement Manual 2019 (Department of Environment and Science , 2020) and AS 1055 Acoustics—Description and measurement of environmental noise (Standards Australia, 2018).

The noise levels are presented in terms of the $L_{A01}(15 \text{ minute})$, $L_{A10}(15 \text{ minute})$, $L_{A90}(15 \text{ minute})$ and $L_{Aeq}(15 \text{ minute})$, refer to Table 2 for the tabulated measurements and Figure 4 for a chart of the measurements. The $L_{A90}(15 \text{ minute})$ reported in the table for the day, evening and night comprises the Assessment Background Level (ABL). For the $L_{A01}(15 \text{ minute})$, $L_{A10}(15 \text{ minute})$ and $L_{Aeq}(15 \text{ minute})$ the table refers to the average result. The rating background level (RBL) is the median of the daily ABL for the period in question.

The measured noise levels at the sensitive receptor are likely to be caused by noise associated with residential activity, farming, birds, wind (e.g. rustling of leaves) and/or traffic. Industrial noise (from the site) was not a feature of the measurements.

The procedure used to develop the RBL is expected to provide a representative background noise level, ideally free increased noise levels due to seasonal effects (insects) and commercial noise. There is often bird noise at dawn and dusk and insect noise at night. It is evident the background noise during the evening and night is greater than that during the day. The RBL was obtained during the wet season, and it is possible the dry season may have slightly lower RBL's during the Evening and Night periods. It is likely the Day RBL would be representative of the entire year. It is understood the site commences operations at 6:30am. This is during the night period and it was determined that the RBL during this period was higher than the day RBL. To account for seasonal variability, it is proposed to adopt the Day RBL for the period 6:30am to 7:00am, i.e. for the entire opening hours it is proposed to adopt an RBL of 42 dB(A) at all nearby sensitive receptors.

Table 2: Measured Noise Levels at Noise Logging Location

Date	Sound Pressure Noise Levels [dB(A)]												
	L _{A01}			L _{A10}			L _{Aeq}			L _{A90}			
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	6:30 to 7am
10/03/2026	59	58	56	55	55	54	52	53	50	43	46	46	-
11/03/2026	57	61	56	53	58	52	50	54	50	37	45	46	50
12/03/2026	59	59	57	55	55	54	52	53	52	42	46	46	49
13/03/2026	58	60	56	54	57	51	51	56	49	42	47	46	50
14/03/2026	58	57	58	54	54	55	51	52	54	43	44	48	50
15/03/2026	54	54	54	53	53	53	52	52	51	44	48	47	46
16/03/2026	58	56	57	54	55	54	51	52	51	43	47	46	47
17/03/2026	57	58	58	53	54	54	50	51	52	41	43	43	52
18/03/2026	58	58	57	54	55	53	51	52	51	42	45	46	50
19/03/2026	58	58	57	54	55	53	51	52	51	41	45	46	49
Median/RBL	58	58	57	54	55	53	51	52	51	42	45	46	50
Week Day	58	58	57	54	55	53	51	52	51	41	45	46	49

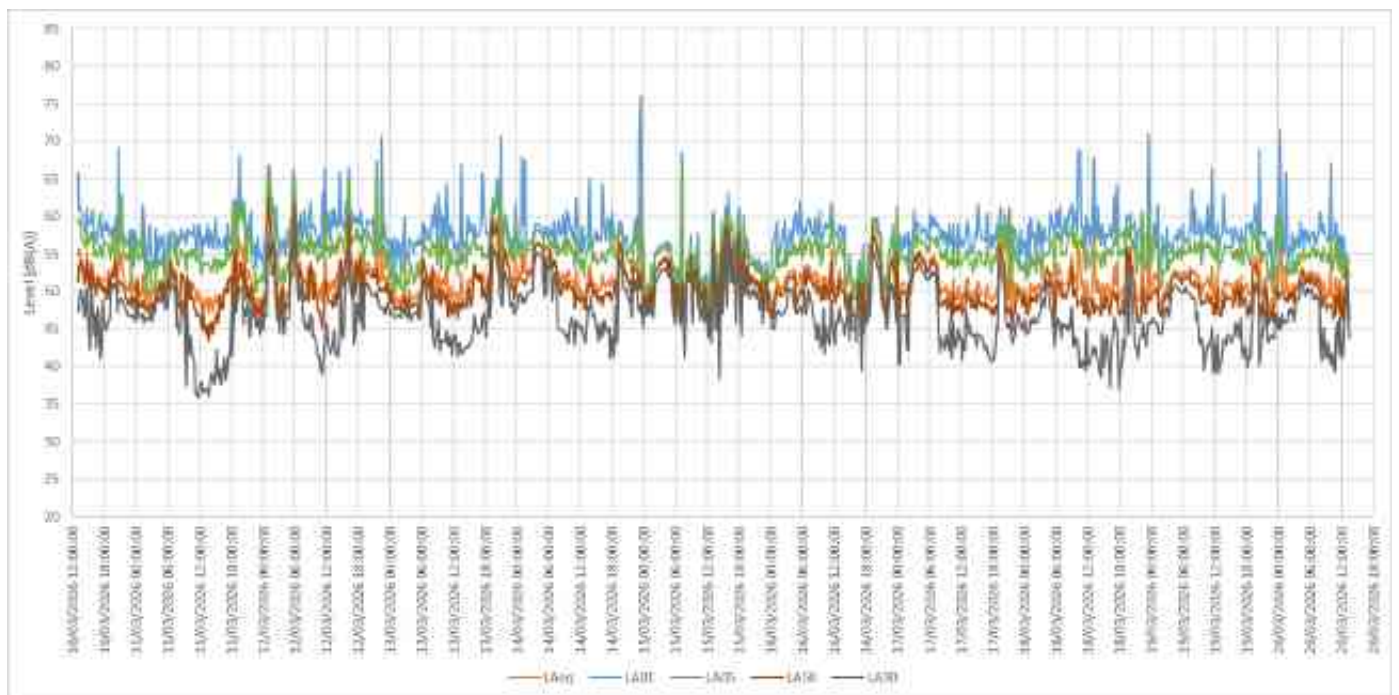


Figure 4: Chart of Measured Noise Levels [dB(A)]

2 Noise Level Goals

For the project there are several sources of criteria to be considered, namely:

- Townsville City Council,
- Environmental Protection (Noise) Policy,
- State Code 22 – Environmentally Relevant Activities,

The following section will go through each before summarising the site-specific criteria used for the Project.

2.1 Townsville City Council

In the Townsville City Council, the Project is zoned Rural (Townsville City Council, 2026). Under the Townsville planning scheme, Townsville City Plan (City of Townsville, 2025), the scheme does not make any specific recommendations in regard to noise.

Under Table 6.6.1.3 section PO17 the development does not adversely impact (c): Likely emissions including water-borne contaminants, noise, dust, lighting and odour. For this there is no acceptable outcome nominated. Also, in this section it states “For other uses council may require a study that, amongst other matters, identifies how the development is in accordance with Environmental Protection (Air) Policy 2019 or Environmental Protection (Noise) Policy 2019.”

In general, the planning scheme makes the recommendation that developments should achieve air quality levels consistent with the objectives set out in the Environmental Protection (Noise) Policy 2019 and the relevant national standard.

2.2 State Code 22 – Environmentally Relevant Activities

The purpose of the code is to ensure that environmentally relevant activities (ERAs) as described under Schedule 2 of the Environmental Protection Regulation 2019:

1. are located and designed to avoid or mitigate environmental harm on environmental values of the natural environment, adjacent sensitive land uses and sensitive receptors;
2. are designed and located to avoid impacts or, where the matters of state environmental significance cannot be reasonably avoided, impacts are reasonably minimised and mitigated;
3. does not result in a significant residual impact on a matter of state environmental significance unless the significant residual impact is acceptable, and an offset is provided.

The performance outcomes and acceptable outcomes with respect to noise is contained in Table 3.

Table 3: Performance and Acceptable Outcome

Performance Outcome	Acceptable Outcome
PO1 Development is suitably located and designed to avoid or mitigate environmental harm to the acoustic environment.	AO1.1 Development meets the acoustic quality objectives for sensitive receptors identified in the Environmental Protection (Noise) Policy 2019.

2.2.1 ESR/2015/1838

The Guideline ESR/2015/1838 (Department of the Environment, Tourism, Science and Innovation, 2025) describes types of impacts that ERA's can have in relation to noise and outlines the information to be provided to the department as part of the ERA application process.

There are three key areas to be identified and addressed through the ERA application process:

- Identify the environmental values of the receiving acoustic environment including the identification of any nearby sensitive places.
- Identify the possible impacts due to the proposed activity and all associated risks to environmental values.
- Identify the strategies to mitigate the identified risks to the environmental values

It is necessary to identify the environmental values of the site including but not limited to:

1. Identify sensitive places
2. Provide a site description.
3. Provide details of a background noise survey.

The department seeks to determine possible impacts to identified environmental values. To assist with this the following information is sought:

1. Identify all noise, vibration, and air blast overpressure sources, including stationary and mobile sources, associated with the activity. Also provide a scaled map which shows the source of all noise emissions in relation to any existing noise sensitive places
2. Describe in detail, the characteristics of the noise emissions produced.
3. Describe how noise, vibration or airblast overpressure emissions will be avoided, minimised or otherwise managed in accordance with the noise management hierarchy provided in the EPP (Noise).

If it is not possible to mitigate the impacts associated with the noise emission, applicants are to provide a noise impact assessment, which identifies the likely effect of noise from the activity on nearby sensitive places and include:

- Noise modelling contour maps to show predicted noise levels at all potential noise source locations.
- Analysis on whether noise emissions associated with the activity will adversely affect the environmental values of the receiving environment (including noise sensitive places).
- Description of controls (e.g. noise emission limits or operational controls such as operating hours) which are appropriate to protect environmental values.
- A vibration risk assessment for blasting activities, if applicable.
- If blasting is to occur, that blasting activities will be managed in accordance with AS 2187: Explosives.

Due to the rapid growth and increasing density of noise-producing activities in Queensland, the consideration of cumulative noise impacts and background creep is particularly important. For applications where background creep is likely, applicants are encouraged to use modelling to demonstrate that the activity will, to the extent it is reasonable to do so, ensure that background creep in an area or place is prevented or minimised. If the

acoustic quality objectives for an area or place are not being achieved or maintained, the noise experienced in the area or place must, to the extent it is reasonable to do so, be dealt with in a way that progressively improves the acoustic environment of the area or place.

2.3 Environmental Protection Act 1994

The objective of the EP Act (Queensland Legislation, 2025) is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.

The EP Act states a person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm. This is termed the 'general environmental duty'.

Environmental harm is defined as any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.

The noise level goals for operations may be determined from the Environmental Protection (Noise) Policy 2019 (EPP (Noise)) (Queensland Legislation, 2019). The EPP (Noise) came into effect on 1 Sept 2019.

The purpose of the EPP(Noise) is to achieve the objects of the Act and achieved by:

- a) identifying and declaring the environmental values of the acoustic environment; and
- a) stating acoustic quality objectives that are directed at enhancing or protecting the environmental values; and
- b) providing a framework for making consistent, equitable and informed decisions that relate to the acoustic environment.

The environmental values to be enhanced or protected under the EPP(Noise) are:

- (a) the qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystems; and
- (b) the qualities of the acoustic environment that are conducive to human health and wellbeing, including by ensuring a suitable acoustic environment for individuals to do any of the following-
 - a. sleep;
 - b. study or learn;
 - c. be involved in recreation, including relaxation and conversation; and
- (c) the qualities of the acoustic environment that are conducive to protecting the amenity of the community.

There are two main considerations namely:

1. Acoustic quality objective (noise levels that are conducive to human health and well-being, ensuring a suitable acoustic environment for individuals to sleep, study or learn, be involved in recreation, including relaxation and conversation; and preserve the qualities of the acoustic environment that are conducive to protecting the amenity of the community); and

2. Management Intent

(Department of Health, 2018)The 'Acoustic Quality Objectives' described in the EPP(Noise) seek to protect the amenity of an acoustic environment. The indoor night-time goals effectively address sleep disturbance and sleep awakenings, while during the day it protects conversation. It should be noted that these are not strictly design limits for individual sources but objectives that are considered to provide acceptable health and wellbeing for the community.

The acoustic quality objectives are expressed as indoor noise level goals for dwellings at Night (10 pm to 7 am) and outdoor noise level goals during the Day (7 am to 6 pm) and Evening (6 pm to 10 pm). These objectives are all contained in Table 4.

The equivalent external noise levels (for the dwelling indoor noise level goals in Table 4) measured at least 4 m from the dwelling would be 7 dB higher (to allow for the reduction of noise through the building envelope) for windows wide open, as per EIS Information Guideline - Noise and vibration (Department of the Environment, Tourism, Science and Innovation, 2026). If windows are closed the external noise goals would be 15 dB(A) higher than the internal noise level goals, as per (Department of Health, 2018) The health effects of environmental noise, for the windows closed noise reduction.

Table 4: Acoustic Quality Objectives for Dwellings and Other Receivers Relevant to the Project during the Day (7 am to 6 pm), Evening (6 pm to 10 pm) and Night (10 pm to 7 am) (*EPP (Noise)*).

Location	Time of Day	Acoustic Quality Objectives (Measured at the receptors) dB(A)			Environmental Value
		L _{Aeq} , adj, 1 hr	L _{A10} , adj, 1 hr	L _{A1} , adj, 1 hr	
Dwelling outdoors	Daytime & evening	50	55	65	Health and wellbeing
Dwelling indoors	Daytime & evening	35	40	45	Health and wellbeing
Dwelling indoors	Night-time	30	35	40	Health and wellbeing, in relation to the ability to sleep
Protected area or critical area	anytime	The level of noise that preserves the amenity of the existing area or place			Health and biodiversity of ecosystems

2.3.1 Managing Intent For Noise

It is intended that noise from an activity that affects or may affect an environmental value to be enhanced or protected under the EPP(Noise) be appropriately managed.

To the extent it is reasonable to do so, noise must be dealt with in a way that ensures:

- a) the noise does not have any adverse effect, or potential adverse effect, on an environmental value under this policy; and
- b) background creep in an area or place is prevented or minimised.

In the situation where existing noise levels exceed the Acoustic Quality objectives, to the extent it is reasonable to do so, noise at that sensitive place must be dealt with in a way that progressively improves the acoustic environment of the area or place.

Background creep, for noise in an area or place, is described as a gradual increase in the total amount of background noise in the area or place.

The EPP(Noise) does not provide any guidance nor limits regarding how to address background creep.

However, the guiding principles are:

- i. Background creep in an area is to be prevented or minimised
- ii. Any control requirements are to be reasonable

Background creep can be prevented by ensuring the noise from activity is always below the background noise level. However, this may be excessively onerous for many situations. The EPP(Noise) does not include any guidance regarding how to assess “reasonable” noise control. A work practice or abatement measure is feasible if it is capable of being put into practice or of being engineered and is practical to build given project constraints such as safety and maintenance requirements. Selecting reasonable measures from those that are feasible involves making a judgement to determine whether the overall noise-reduction benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the noise abatement measure. To make such a judgement, consideration may be given to aspects such as noise level impacts, noise mitigation benefits, cost effectiveness and community views.

It is proposed that the noise level goal, in terms of $L_{Aeq, adj, T}$, to avoid background creep is the RBN Level plus 3 dB(A) during the day and evening and RBL+0 dB(A) at night. In the event the RBN noise level is below 30 dB(A), then adopt a RBN of 30 dB(A). In this way there will not be any background creep.

The noise level goals based on the measured background noise levels are contained in Table 5.

Table 5: Noise Level Goals to Avoid Background Creep

Noise Level Goals to Avoid Background Creep $L_{Aeq, adj, T}$	
Day	Night Shoulder Period 6:30am to 7:00am
$42+3 = 45 \text{ dB(A)}$	$42 + 0 = 42 \text{ dB(A)}$.

2.4 Sleep Disturbance WHO Guidelines

Research has shown that the ability to get to sleep and, when asleep, the probability of experiencing a change of sleep state or ultimately of awakening are related to both the ambient and maximum instantaneous noise levels at the ear of the sleeper and the number of events during the night period (Environment, Climate Change and Health, 1999).

As a rule in planning for short-term or transient noise events, for good sleep over eight hours, the indoor sound pressure level measured as a maximum instantaneous value should not exceed approximately 45dBA maxLpA more than 10-15 times per night. According to the withdrawn Guideline Ecoaccess Planning for Noise Control (Environmental Protection Agency, 2004), the corresponding external noise level, assuming partially closed windows, is 52dB(A) maxLpA (L_{Amax}), measured in the free field. With fully closed windows the corresponding external noise level is 60dB(A) maxLpA (L_{Amax}). Although now withdrawn, the sleep disturbance approach and calculation methodology in the guideline are still recognised (e.g., in the Model Mining Conditions ESR/2016/1936).

For larger number of events per night, the noise level goal is reduced by $10 \cdot \log(\text{Number of events}/10)$. Hence if there are 100 events per night (over an 8-hour period) the external noise level goal would 10 dB(A) lower than that described above.

2.5 Low Frequency Noise

There are not any current Queensland guidelines dealing with low frequency noise. Recognised noise criteria for low frequency noise are provided in the withdrawn Ecoaccess Draft Guideline Assessment of Low Frequency Noise (Environmental Protection Agency, 2004) identifies a number of industrial sources and processes having high noise levels and frequency content less than 200 Hz.

Industrial sources may exhibit a spectrum that characteristically shows a general increase in sound pressure level with decrease in frequency. Annoyance due to low frequency noise can be high, even though the dB(A) level measured is relatively low. Typically, annoyance is experienced in the otherwise quiet environs of residences, offices and factories adjacent to, or near, low frequency noise sources. Generally, low level/low frequency noises become annoying when the masking effect of higher frequencies is absent. This loss of high frequency components may occur as a result of transmission through the fabric of a building, or in propagation over long distances.

Where a noise emission occurs exhibiting an unbalanced frequency spectra, the overall sound pressure level inside residences should not exceed 50 dB(Linear) to avoid complaints of low frequency noise annoyance.

2.6 Road Traffic Noise Goals

Queensland Department of Transport and Main Roads (TMR) is responsible for setting noise level limits from road traffic on public roads in Queensland. Typically, the planning goals for roads are met close to the road, i.e. distances up to about 30 m or thereabouts. There are no criteria in Queensland to assess the impact of noise from a road traffic-generating development. However, for existing roads with regular traffic an increase of 3 dB(A) over a short period of time is considered to be a significant increase in traffic noise and an increase which justifies consideration of noise control.

The site has direct access to the Bruce Highway. The traffic speed past the site is 100km/h and the daily traffic in 2024 had an AADT of 9,700 vpd and 17% heavy vehicles. It is possible the site may generate up to 70 truck deliveries per day. This is a minor increase in traffic on the Bruce Highway and consequently road traffic noise impacts will not be considered further.

2.7 Summary of Noise Goals

The proposed development has a proposed start time of 6:30am. The period between 6:30am and 7:00am is during the night period and the remainder of the workday is during day. It is not proposed to operate during the evening. Thus, the noise level goals have been developed for this period.

Application of State Code 22

The state code requires the indoor noise objectives set out in the EPP (Noise) to be met. This ensures the ability to sleep and converse while inside a residence.

Application of the EP Act and EPP(Noise)

The EP Act provides the framework for all noise impacts. Apart from some selected noise sources, the Act and the EPP(Noise) does not provide source limits for industrial developments, rather it provides noise quality objectives to be met in Queensland, ensuring the quality of the environment does not deteriorate. In this instance the State Code 22/ESR/2015/1838 indicates the indoor quality objectives are to be used as limits for the development. As discussed in Section 2.3 an external noise level goal may be obtained by adding 7 dB(A) to the indoor noise level goal, being the noise reduction from outside to inside assuming wide open windows. Equivalent external noise level goals are more convenient for reporting and comparison purposes.

The goals to avoid background creep are also addressed.

Application of Low Frequency Noise Goals

It is possible that, due to the propagation of noise over the large separation distances between the source of noise and the receiver, a loss of high frequency components may occur. Thus, the low frequency noise goal of 50 dB(Linear) applies inside noise sensitive receptors. The same 7 dB reduction from outside to inside applies (for partially open windows), i.e. the equivalent external noise is 57 dB(Linear).

Application of WHO Sleep Disturbance Guidelines

It is proposed to adopt an L_{Amax} of 52dB(A) (outside dwellings) as the appropriate noise level goal to protect sleep disturbance.

A summary of the noise goals for this project is contained in Table 6. The limits are component levels, i.e. directly attributable to the use (modelled noise levels), rather than measured levels. Measured noise levels include background and other noise sources.

Table 6: Summary of Component Noise Goals (free-field)

Location	Time Period	Background Creep [dB(A)]	Acoustic Quality Objectives [dB(A)]			Sleep disturbance [dB(A)]	Low Frequency [dB]
		$L_{Aeq, adj, 1 hr}$	$L_{Aeq, adj, 1 hr}$	$L_{A10, adj, 1 hr}$	$L_{A01, adj, 1 hr}$	$L_{Amax, adj, 1 hr}$	$L_{eq, adj, 1 hr}$
All Residential Receptors	Day	45	42	47	52	-	-
	Night Shoulder	42	37	42	47	52	57

3 Predicted Noise Levels

3.1 Modelling Methodology

A digital terrain noise model of the site and surroundings has been developed using PEN3D software. The PEN3D General Prediction Model (GPM) is based on the method contained in a book by Bies and Hansen (1988, pages 117, 127). The implementation is a more complex and sophisticated variation of the approach to sound propagation described in Concawe (1981). Concawe is one of the most commonly used methodologies to predict outdoor noise propagation from industrial sites. PEN3D also draws on aspects from ISO 9613-2. The PEN3D software was originally developed in 1993 and has been in constant development and review. The basic equation adopted by the GPM is:

$$L_p = L_w - 20 \log_{10}(r) - 10 \log_{10}(4\pi) + AE$$

Where:

L_p is the sound pressure level at an observer

L_w is the sound power level of the source, in octave bands from 63 Hz to 8 kHz

$20 \log_{10}(r) + 10 \log_{10}(4\pi)$ is the distance attenuation (spherical)

AE is the excess attenuation factors.

The excess attenuation factors AE comprise:

$$AE = A_a + A_g + A_m + A_b + A_f$$

Where:

A_a = Excess attenuation due to air absorption from Sutherland *et. al.* (1974)

A_g = Excess attenuation due to ground reflection

A_m = Excess attenuation due to meteorological effects

A_b = Excess attenuation due to barriers

A_f = Excess attenuation due to forests.

PEN3D is a sophisticated environmental noise model incorporating a 3D terrain model that permits accurate representation of the ground, ground cover, tree zones, mounds, barriers and weather conditions. PEN3D calculates a curved noise path based on surface friction, vertical temperature gradients and wind speed. All the noise calculations are based on this curved path. A finite differences approximation method is used to calculate the curved path. The curvature of the path determines the meteorology corrections. The meteorology corrections are frequency and distance dependent and are limited to +12 dB (downwind at night) and –7 dB (upwind and during the day) similar to the Concawe Category 1 and Category 6 meteorological corrections.

The excess attenuation due to ground reflection is obtained by combining the direct wave and the reflected wave incoherently, that is the energy from the ground wave is added to the direct wave. The ground reflection attenuation (or ground effects) will be between 0 and –3 dB (a negative value is an increase in noise levels) for all cases. This contrasts with the coherent reflection approach. The coherent approach is considered to be an

“exact” method. For those situations where the source and receiver are located close to the same very hard reflecting plane and the path difference between the direct path and the reflected path is small, then the addition of the reflected wave and the direct wave will result in 6 dB increase rather than a 3 dB increase. However, at large distances the sound pressure level reduces at 12 dB per doubling with the coherent model (not 6 dB as per the incoherent model). This approach, while “exact”, is dubious as Digital Terrain Models (DTM) models are neither of sufficient accuracy nor can noise models truly account for the effects of atmospheric turbulence. Other methods such as the Nordic method or ISO 9613-2 divide the region between the source and receiver into three zones, and those zones closest to the source and to the receiver can potentially have higher absorption values. Consequently, if a noise source was measured say at a distance of 30 m and the sound power level is calculated by the commonly adopted formula $PWL = SPL + 10\log_{10}(2\pi r^2)$ then the calculations using the PEN3D methodology would remain conservatively high for all distances.

The ground reflection (or ground effects) is a complex calculation using the flow resistivity for the surface likely to provide the ground reflection and the likely angle of incidence of the reflected wave to the ground. In those instances where the ground is highly absorptive the excess correction will approach zero. For those surfaces which are highly reflective the correction will be - 3dB, i.e. will lead to an increase in noise levels of 3 dB(A) (simulates hemispherical propagation).

While there are numerous methods to calculate ground effects (some of which provide significant attenuation [reduction of noise levels]), the PEN3D implementation is one of the more conservative estimates of ground effect in the far field. Bies & Hansen (1988) indicate “as the distance from the source or frequency increases, the incoherent model will become more appropriate”.

The theoretical approach to meteorology implies that PEN3D is likely to provide more significant corrections than other models. Thus, at night or during downwind predictions, the PEN3D calculations are likely to result in conservatively high results, i.e. the modelled noise levels are likely to be higher than the measured levels.

The likely barrier attenuations are calculated for four possible curved paths, namely:

- source, to the top of barrier then to the receiver;
- source, reflection from ground (source side), top of barrier, receiver;
- source, top of barrier, reflection from ground (receiver side), receiver; and
- source, reflection from ground (source side), top of barrier, reflection from ground (receiver side), receiver.

These are combined to obtain effective barrier attenuation. In the situation where the source and receiver are well above the ground and the barrier just intercepts line-of-sight then the barrier effect will be 5 dB(A). However, if the source and receiver are close to the ground and the noise barrier just intercepts line of sight (a pebble) the barrier effect will tend to zero.

Once the most likely curved path has been calculated, the method determines if it intercepts any tree zones within the digital terrain model. If the curved noise path travels in the lower 75% of the tree zone then the full excess attenuation is applied for the distance travelled through the tree zone. If the curved noise path travels in the upper 25% of the tree zone then:

- a) the average propagation height is determined;
- b) the length in the zone is determined; and,
- c) the forest excess attenuation is taken to be linearly interpolated between zero at the top of the tree zone and full excess attenuation at 75% height.

Tree zones can potentially provide extremely high attenuation if the tree coverage is large. However, in practice, the curved path adopted in the PEN3D methodology usually results in the noise rays passing above tree zones (at night or during downwind conditions) and only intercepting tree zones if they exist on the tops of hills or whenever the noise ray approaches the ground.

3.2 Meteorology

The meteorology for the site has been analysed to address frequent wind speeds, wind directions and inversions.

3.2.1 Temperature Inversions

The total night-time period during winter (June, July and August) has been analysed to determine the frequency of inversions, as presented in Table 7. Temperature inversions generally occur during the night-time and early morning periods. The likelihood of inversions reduces with wind speed. It was determined that inversions are mostly weak and likely most of the time since calm winds are common at night. The inversions are a night phenomenon and by 6:30am they do not exist at this location. It is not proposed to model inversions during the period 6:30am to 7:00am. During this period the most common stability is neutral.

Table 7: Wind Speed Analysis For Inversions June to August (6 pm to 7 am)

Wind speeds	Percentage of Time Occurring (%)
Calms	0%
Winds less than 1m/s	1%
Wind 1 to 2 m/s	68%
Wind 2 to 3 m/s	27%
Wind 3 to 4 m/s	2%
Wind 4 to 5 m/s	0%

3.2.2 Wind Effects

Wind effects are typically assessed when wind is a feature of the area. Wind is a feature when source-to-receiver wind speeds (at 10 m height) of 3 m/s or below occur for 30 percent of the time or more in any assessment period (day, evening, night) in any season. This differs from the procedure used with temperature inversions, in that the 30 percent occurrence applies to all seasons and each assessment period and not just the winter season and night/early morning assessment period. Refer to

Table 8 for an analysis of the winds. During the day winds occur in most directions, with NE being more frequent during most seasons during the day. During Autumn and Winter winds from the south increase in frequency.

Table 8: Wind Speed and Wind Direction Analysis for Winds 0.5m/s to 3m/s

Direction	Day				Evening				Night			
	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring
N	2%	1%	0%	1%	14%	7%	2%	9%	4%	0%	0%	1%
NNE	21%	9%	5%	12%	9%	5%	2%	10%	3%	0%	0%	1%
NE	16%	15%	10%	25%	6%	4%	3%	16%	1%	0%	0%	2%
ENE	11%	7%	8%	10%	8%	3%	4%	9%	0%	0%	0%	2%
E	6%	8%	8%	10%	3%	5%	3%	9%	2%	0%	0%	1%
ESE	5%	5%	7%	7%	2%	3%	5%	7%	2%	0%	0%	1%
SE	8%	7%	7%	6%	3%	5%	3%	4%	1%	0%	0%	2%
SSE	8%	11%	14%	7%	4%	4%	4%	4%	3%	1%	0%	3%
S	9%	10%	16%	6%	8%	6%	14%	4%	11%	9%	6%	9%
SSW	9%	15%	18%	8%	9%	20%	35%	3%	42%	62%	77%	45%
SW	1%	2%	1%	1%	5%	17%	15%	5%	21%	26%	15%	22%
WSW	0%	0%	0%	0%	4%	7%	4%	6%	3%	0%	0%	3%
W	0%	0%	0%	0%	4%	4%	1%	2%	2%	0%	0%	3%
WNW	0%	0%	0%	0%	2%	2%	1%	3%	1%	0%	0%	2%
NW	0%	0%	0%	0%	7%	3%	1%	5%	1%	0%	0%	0%
NNW	0%	0%	0%	0%	11%	5%	2%	4%	2%	0%	0%	1%

The wind direction and wind speeds were analysed to determine whether wind effects need to be considered. For this analysis, the wind speed has been limited to 3 m/s since higher wind speeds tend to increase the ambient noise.

The modelling cases adopted in Table 9 are based on the wind distribution. For this project, the neutral case represents likely worst case in the period between 6:30am and 7:00am. The neutral meteorological case is likely to be an adverse day case. The two daytime cases comprise the most common and the likely adverse case.

Table 9: Meteorology Modelling Cases Assessed

Case	Estimated Percentage of time Case Occurs	Wind speed [m/s]	Wind Direction [degrees from North]	Vertical Temp Profile [°C/100 m]	Air Temp [°C]
Day with wind	~30%	2	45	-2	25
Day no wind	5%	0	-	-2	25
Neutral case (early morning)	~30%	0	-	0	15

3.3 Noise Model Parameters

The DTM for the site and surrounds was obtained from LIDAR obtained from Elvis - Elevation and Depth - Foundation Spatial Data <https://elevation.fsdf.org.au>. The ground was contoured with 1m height intervals. The noise model has an adopted ground cover of 'thick grass' as a representation of the combination of the roughness provided by pasture and the taller vegetation that exists throughout the region. The model does not incorporate excess attenuation factors associated with tree zones.

The $L_{eq(60 \text{ min})}$ equipment noise levels are contained in Table 10. The noise levels are expressed as a sound power level. The model represents the operating condition likely to lead to the highest noise emissions. However, these levels are unlikely to be maintained at this intensity through the day. The crusher and truck noise levels were obtained at a similar site in crushing building and construction waste in north Queensland. The noise levels for the other plant were obtained on site.

Table 10: Sound Power Levels ($L_{eq(1 \text{ hr})}$) in dB for plant

Noise Source	Duty (% of time operating)	Sound Power Level in dB in Octave band centre frequency (Hz)								Sound Pressure Level at 7m dB(A)
		63	125	250	500	1000	2000	4000	8000	
Crusher	100%	116	112	103	100	98	96	94	87	87
Front end loader Komatsu WA470	100%	105	105	100	101	96	95	94	95	79
Dozer/Compactor Cat 816K	100%	111	108	104	97	101	99	93	90	79
Trucks	25%	91	101	100	101	105	104	95	84	84
Pump (Water sprays)	100%	114	103	106	107	96	97	92	99	82

3.4 Noise Modelling Results

A single modelling noise case has been developed for the project involving simultaneous crushing, compacting and loading of trucks. A series of noise models was developed for each of the various meteorological cases.

Table 11 contains the calculated $L_{Aeq(1 \text{ hour})}$ noise levels at the sensitive receptors for all modelling cases in tabular format, Appendix A contains the noise contour diagrams. The contours reveal that R1 and R2 are likely to experience the highest noise levels compared with the other sensitive receptors. The NE wind would enhance the noise levels at these dwellings.

The results are summarised for the day, evening and night periods. The highlighted cells are potential exceedances of a noise level goal.

Table 11: Calculated Noise Levels Noise sensitive receptors

Location	Background Creep [dB(A)]		Acoustic Quality Objectives [dB(A)]						Sleep disturbance [dB(A)]	Low Frequency [dB]
	$L_{Aeq, adj, 1 hr}$		$L_{Aeq, adj, 1 hr}$		$L_{A10, adj, 1 hr}$		$L_{A01, adj, 1 hr}$		$L_{Amax, adj, 1 hr}$	$L_{eq, adj, 1 hr}$
Goals	Day	Night Shoulder	Day	Night Shoulder	Day	Night Shoulder	Day	Night Shoulder	Night Shoulder	Night Shoulder
	45	42	42	37	47	42	52	47	52	57
R1	41	39	41	39	46	44	49	49	49	52
R2	35	35	35	35	40	40	43	43	45	49
R3	30	28	30	28	35	33	38	36	38	44
R4	26	27	27	27	31	32	35	35	37	44
R5	29	19	29	19	34	24	37	27	29	37

Note: The three day cases comprise the neutral, day with wind, day without wind. The one night shoulder case comprise the neutral case.

4 Assessment of Modelled Noise Levels

Operational Noise Assessment

The modelled noise levels comply with all the proposed noise level limits during the day at all sensitive receptors.

This is contingent of two acoustic screens, one adjacent to the crusher (4m high and nominally 20m long) and the second adjacent to the water pump (3 m high and 5 m long), see Figure 5, Figure 6, Figure 7 and Figure 8

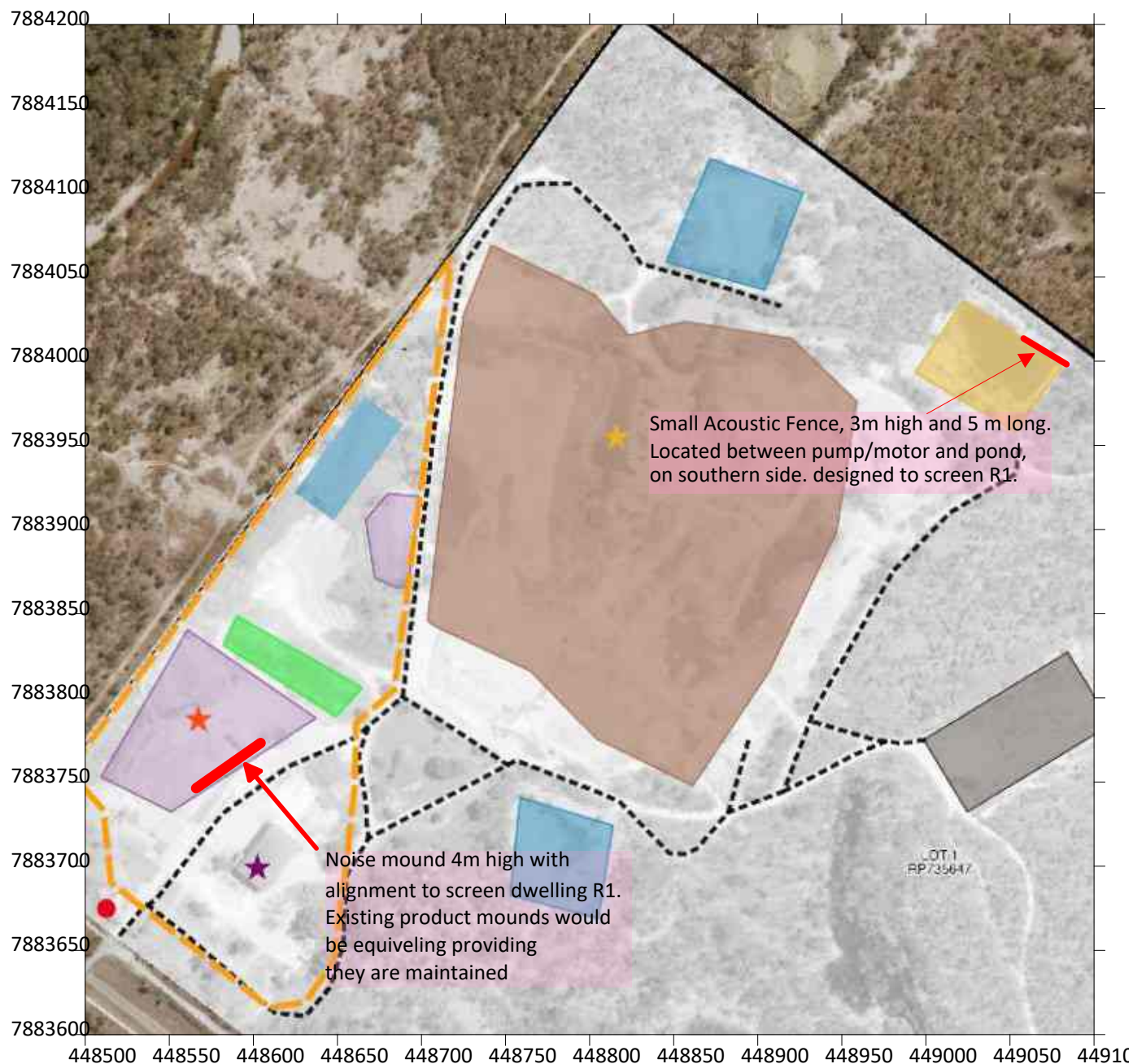


Figure 5: Acoustic Noise Control



Figure 6: Mounding For Crusher



Figure 7: Mounding Location relative to Crusher Location in Figure 6



Figure 8: Acoustic Screen for Pump (Conceptual layout)

The noise levels for a fully operation plant are likely to exceed the Acoustic Quality objectives at R1 during the early morning shoulder period prior to 7 am. These indoor objectives are based on open windows at R1 and with façade of the building generally facing towards the site. It is noted that this façade also faces towards the Bruce Highway and this is also a source of high noise levels from road and railway traffic.

It is normal that during the first 30 minutes, the site would carry out start-of-day toolbox meetings, progress to any daily maintenance tasks and pre-start checkups of plant and equipment. Hence it is unlikely that all operations commence immediately at 6:30am. It is most likely the first works would be truck deliveries or truck loading with crushing and compacting occurring later in the day.

If the works are limited to truck deliveries and truck loading using the front-end loader, then the noise levels during the period 6:30am to 7:00am comply with all noise level goals.

Thus, it is recommended that operation of the crusher and use of the compactors take place after 7:00 am.

5 Conclusions

The noise investigation of proposed expansion of a Waste Disposal and Recycling Facility located at Bluewater has been based on a conservative modelling methodology.

Initially the meteorology for the site was assessed in detail to determine whether inversions and/or winds were likely to be frequent for the site. It was determined that inversions do not apply during the night shoulder period 6:30am to 7:00am. Assessment of wind occurrence indicated that winds occur during the day.

The likely noise levels from operating equipment have been robustly established based on measurements on site and similar elsewhere. It should be noted that the frequency spectra for the process plant are heavily biased towards the low frequency noise components. This implies that barrier screening effects and air absorption will be low compared with noise sources having relatively more high frequency components.

The digital terrain model has been based on Lidar data from the public domain. The adoption of these contour levels would provide the major features without over emphasising possible noise screening effects of smaller landforms.

A noise survey was undertaken on site. It is likely the measure Day RBL would be representative of the entire year. It is understood the site commences operations at 6:30am. This is during the night period and it was determined that the RBL during this period was higher than the day RBL. To account for seasonal variability, it is proposed to adopt the Day RBL for the period 6:30am to 7:00am, i.e. for the entire opening hours it is proposed to adopt an RBL of 42 dB(A) at all nearby sensitive receptors.

The noise level goals applicable to the site have been reviewed. Noise level goals are to ensure that the noise levels do not lead to a deterioration of the noise environment at noise sensitive receptors. Additionally, the preservation of sleep and avoiding low-frequency impacts are important considerations. Since traffic from the site will not pass any sensitive receptors prior to combining with existing Bruce Highway traffic, road traffic noise was not assessed.

It was determined that noise from the operation of the proposed expanded landfill and building and construction waste processing is expected to comply with all noise level goals during all time periods subject to limiting operation of the crusher and the compactor to the period 7:00 am to 5:00 pm and to provide two acoustic screens, one near the crusher and the other near a water pump.

6 References

- Bureau of Meteorology. (2026). *Climate statistics for Australian locations*. Retrieved from Summary statistics TOWNSVILLE AERO: https://www.bom.gov.au/climate/averages/tables/cw_032040.shtml
- City of Townsville. (2025). *Townsville City Plan*. Townsville: Townsville City Council.
- Department of Environment and Science . (2020). *Noise Measurement Manual* . Queensland Government.
- Department of Environment, Science and Innovation. (2024). *Environmental authority P-EA-100698838*. Queensland Government.
- Department of Health. (2018). *The health effects of environmental noise*. Commonwealth of Australia.
- Department of State Development, Infrastructure and Planning. (2025). *SARA information request - 42386 Bruce Highway, Bluewater*. Queensland Government.
- Department of the Environment, Tourism, Science and Innovation. (2025). *Guideline ESR/2015/1838 - Application requirements for activities with noise impacts*. Queensland Government.
- Department of the Environment, Tourism, Science and Innovation. (2026). *EIS Information Guideline - Noise and vibration*. Queensland Governmen.
- Department of the Environment, Tourism, Science and Inovation. (2024). *Model mining conditions—ESR/2016/1936 (formerly EM944)*. Queensland Government.
- Envircnmental Prctec'tion Agency. (2004). *Assessment of Low Frequency Noise*. Queensland Government.
- Environment, Climate Change and Health. (1999). *Guidelines for community noise*. World Health Organization.
- Environmental Proteciton Agency. (2004). *Planning for Noise Control*. Queensland Government.
- Jones, S. (2025). *Change Application (Other) to Development Permit M33/03 for a Material Change of Use (Waste Disposal and Recycling Facility) and Environmental Authority P-EA100698838 (ERA60 only)*. Milford Planning.
- Queensland Legislation. (2019). *Environmental Protection (Noise) Policy 2019*. Queensland Government.
- Queensland Legislation. (2025). *Environmental Protection Act 1994*. Queensland Government.
- Standards Australia. (1997). *AS 1055.3-1997 Acoustics—Description and measurement of environmental noise Part 3: Acquisition of data pertinent to land use*. Standards Australia.
- Standards Australia. (2018). *AS 1055:2018 Acoustics - Description and measurement of environmental noise*. Standards Australia.
- Standards Australia. (2018). *AS 1055:2018 Acoustics—Description and measurement of environmental noise*. Standards Association of Australia.
- The City of Thuringowa. (2004). *DEVELOPMENT APPLICATION DECISION NOTICE, DEVELOPMENT PERMIT NO. M33/03*. The City of Thuringowa.

Townsville City Council. (2026). *TownsvilleMAPS*. Retrieved from Townsville City Plan:
https://maps.townsville.qld.gov.au/Mapping/index.html?viewer=TownsvilleMAPS_City_Plan_2014.Mapping

Appendix A: Noise Contour Diagrams



