REF: 4734WW

VERSION [1.1]

AUGUST 31, 2023

SOIL AND SITE ASSESSMENT FOR ONSITE WASTEWATER DISPOSAL

120-140 BRIDGE STREET, PICTON

LGA: Wollondilly

Lot 11 DP 1012641

Project Manager: Paul Hume

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VERSION CONTROL

Title	Soil and Site Assessment for Onsite Wastewater Disposal			
Site address	120-140 Bridge Street, Picton			
Proposed development	Proposed alterations and additions			
Created By	Matthew Spann B. Env. Sci (Hons) (UOW)			
Approved by:	Sean Harris Msc Env Science (UOW), Grad dip Nat Res (UNE), BscAppSc, Agriculture (HAC)			
Date Created	Monday, 10 July 2023			
Version Number	**Modified By**	**Modifications Made**	**Date Modified**	**Status**
[0.1]	M.S.	Issue for client review	10/07/2023	Draft
[1.0]	M.S.	Issue for submission	13/07/2023	Complete
[1.1]	M.S.	Response to Council RFI	31/08/2023	Complete
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Limitations

The findings and recommendations in this report are based on the objectives and scope of work outlined above. Harris Environmental Consulting performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. The report and conclusions are based on the information obtained at the time of the assessment. Changes to the site conditions may occur subsequent to the investigation described herein, through natural processes or through the intentional or accidental addition of contaminants, and these conditions may change with space and time. The results of this assessment are based upon site assessment conducted by HEC personnel and information provided by the client and site management. All conclusions regarding the property are the professional opinions of the HEC personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, HEC assumes no responsibility or liability for errors in any data obtained from regulatory agencies, information from sources outside of HEC, or developments resulting from situations outside the scope of this project.

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1. ASSESSMENT CRITERIA

This Site and Soil Assessment for On-site Wastewater Management was prepared by Harris Environmental Consulting at the request of owner Paul Hume for the proposed development on Lot 11 DP 1012641 at 120-140 Bridge Street, Picton. The proposed development includes rezoning the land to IN2 Light Industrial and the construction of a new factory.

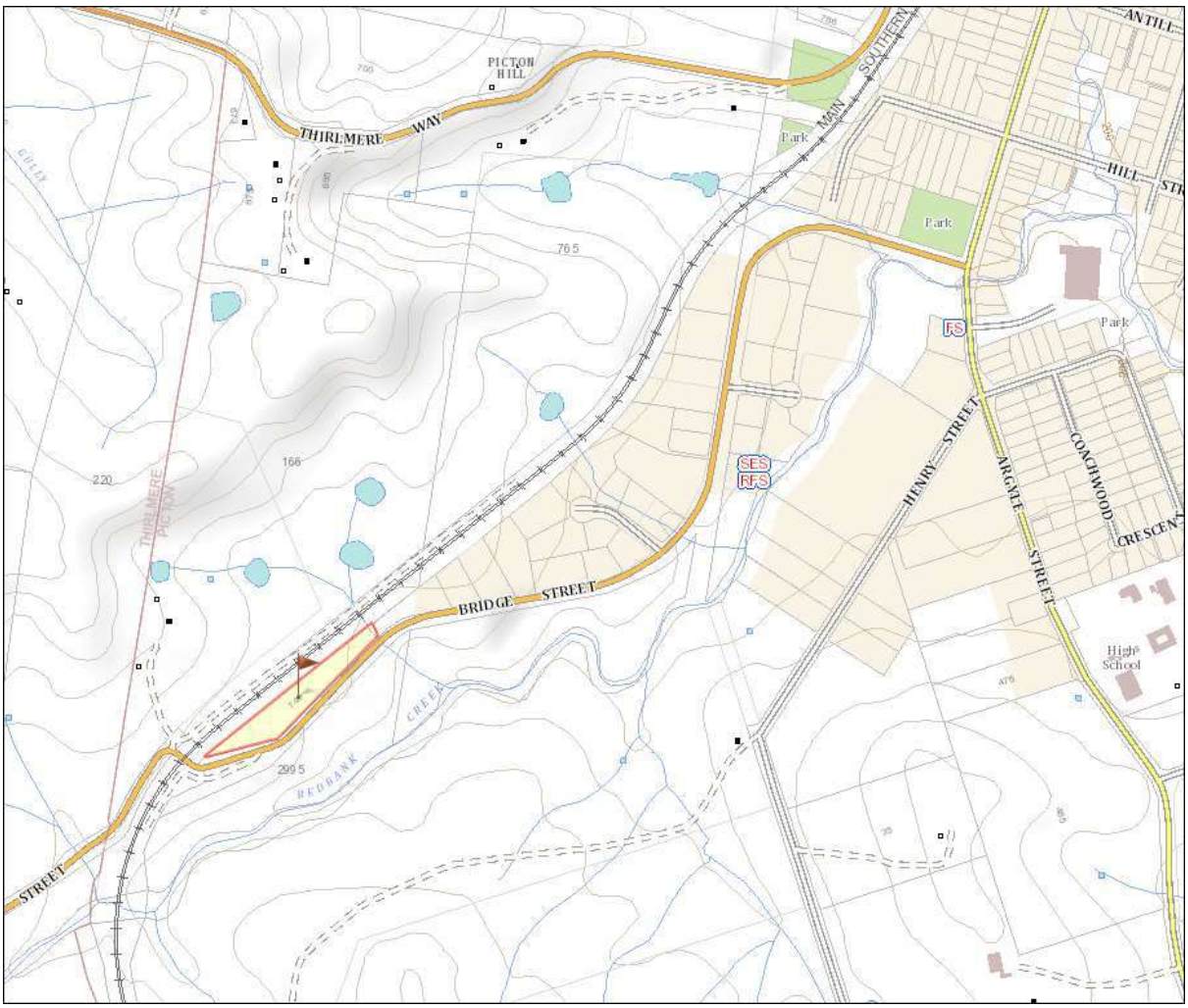
Field work was undertaken by Harris Environmental Consulting (HEC) on the 9th of June 2023 This plan is based on the primary investigation of the soils, topography and hydrology of the site observed on the day of inspection. Soil samples and photos of the site were taken for further analysis. This assessment was undertaken for a proposal to install an Aerated Water Treatment System for wastewater treatment and soil absorption beds for treated wastewater disposal.

Harris Environmental Consulting was commissioned to undertake this Soil and Site Assessment for On Site Wastewater Management and System Design in accordance with:

- Wollondilly Council's On-site Sewage Management and Greywater Re-use Policy.
- Local Government Act 1993
- Australian Standard AS/NZS 3500 Plumbing and Drainage 2015
- Environment and Health Protection Guidelines (1998) On-site Sewage Management for Single Households (Department of Local Government)
- AS/NZ 1547:2012 On-site wastewater management (Standards Australia, 2012)

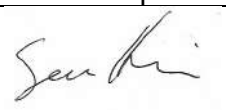
The location of the property is shown in Figure 1.

FIGURE 1 SITE LOCATION



Source: NSW Six Maps

2. SITE INFORMATION

Our Ref:	4734WW	
Project Manager:	Paul Hume *Premise Planning* E: paul.hume@premise.com.au P: 0404 110 899	
Folio:	Lot 11 DP 1012641	
Site address:	120-140 Bridge Street, Picton	
Size of property:	~1.03 ha	
Local Government Area:	Wollondilly	
Water supply	Town	
Wastewater design load and daily wastewater (L/day): *(As per WaterNSW (2019))*:	No. staff present on any one day: *(@ 27L/pp/day)*	*20*
	Total wastewater load (L/day)	**540L/day**
Proposed wastewater treatment:	AWTS	
Proposed wastewater disposal	Soil absorption bed	
Date site assessed:	28 June 2023	
Date report prepared:	31 August 2023	
Report prepared by	Matthew Spann B. Env. Sci (Hons) (UOW)	
Site assessor:	 Msc Env Science (UOW), Grad dip Nat Res (UNE), BscAppSc, Agriculture (HAC) Sean Harris	

3. SITE ASSESSMENT

Climate - rainfall	Picton Council Depot median monthly rainfall
Climate - evaporation	Picton Council Depot mean monthly evaporation
Flood potential	Proposed wastewater treatment system is above 1 in 100-year flood level; minor limitation. Proposed wastewater disposal area above 1 in 20-year flood level; minor limitation.
Frost potential	The site is not known to be subject to severe frosts, minor limitation
Exposure	Slight western aspect; minor limitation
Slope	~8% slope; minor limitation
Landform	Mid slope of soil landscape; minor limitation
Run-on	Minor potential for stormwater run-on;
Erosion potential	100% grass cover/minor erosion potential
Site drainage	Moderate to well drained soil profile; minor limitation
Evidence of fill	No evidence of fill, minor limitation.
Domestic groundwater use	No groundwater bores within 100m of the proposed soil absorption bed; minor limitation
Surface rock	No surface rock; minor limitation

4. SOIL ASSESSMENT

Methods	Mechanical Auger/Crowbar/shovel		
Depth to bedrock (m):	>1000mm to restrictive layer; minor limitation		
Depth to high soil water table (m)	No groundwater/free water or subsoil mottling encountered at limiting depth, some moisture identified below 600mm; minor limitation		
Coarse (%):	0-5% coarse fragments; minor limitation		
pH (soil/water):	pH 5.5-6; minor limitation		
Electrical conductivity:	<4dSm, minor limitation		
Salinity hazard:	No salinity information available for this area		
Native vegetation and environmentally sensitive vegetation	No native vegetation or environmentally sensitive vegetation within 1m of the proposed EMA.		
Geological Unit *(From Geoscience Australia Portal)* Soil Landscapes *(From eSPADE by NSW DPIE)* Australian Soil Classification: *(From Geoscience Australia Portal)*	Ashfield Shale – *Black to light grey shale and laminite;* AND Hawkesbury Sandstone – *Medium- to coarse-grained quartz sandstone with minor shale and laminite lenses.* Blacktown Soil Landscape – *shallow to moderately deep Red Podzolic Soils and Brown Podzolic Soils on crests, upper slopes and well-drained areas; deep Yellow Podzolic Soils and Soloths on lower slopes and in drainage depressions and localised areas of poor drainage.* Soils belonging to the Dermosols order – *Well-structured soils typically with a moderate to high potential to adsorb nutrients, moderate phosphorous buffering index (PBI) and well-drained with no water table perching or interflow. Low risk soils*		
Surface rock:	No surface rock in proposed effluent management area		
Bulk density:	Well drained soil profile; minor limitation		
Soil profile	Layer 1		DLR
	Texture Depth Colour Structure Coarse frag	Clay Loam 0-500mm Brown Compacted N/A	10 mm/day
	Layer 2		DLR
	Texture Depth Colour Structure Coarse frag	N/A	N/A

5. SUMMARY OF SITE AND SOIL INVESTIGATION

There are no significant soil or site constraints that would prevent the installation of an Aerated Wastewater Treatment System (AWTS) for wastewater treatment and soil absorption beds for treated wastewater disposal for the proposed factory.

The soils in the proposed disposal area are significantly compacted from access by heavy vehicles and landscaping machinery. Soil compaction made the onsite soil assessment difficult, with the auger only able to penetrate to a depth of 500mm. It is probable that the actual soil depth is more than 500m, as no parent material was encountered at this depth, however for the purpose of this Assessment, 500mm is assumed to be the limiting layer.

Upon installation of the soil absorption beds, the existing surface layer will need to be ripped to reduce the compaction of the soil and increase the permeability. An additional 500mm of soil will need to be added to the disposal area, with this additional soil depth requiring retaining by a retaining wall – the approximate location of which is shown on the site plans. **If the height of the required retaining wall is more than 600mm, it will need to be designed by a structural engineer.**

The additional soil added to the disposal area will need to be of a clean, clay loam texture (or a soil with more permeability, i.e., no more clayey than a clay loam). The existing soil profile will also need to be cleared of any industrial contaminants (i.e., plastics and metals) prior to the clean soil being added.

There is an existing area of raised and retained soil in and around the proposed disposal area. This existing soil can be utilised and expanded upon for the abovementioned required works, providing that this soil is also not compacted, and is of a clay loam or better texture. If these conditions are not met, the soil will need to be removed and replaced with appropriately structured and textured soil. See the Appendix for cross-section diagrams of the primary disposal area.

This proposed location of the soil absorption beds is compliant with all buffers and setback distances required by Wollondilly Shire Council. This includes being more than 40m from drainage depressions, 6m/12m from upslope/downslope boundary lines and 3m/6m from driveways and buildings.

As per Wollondilly Council's Sewage Management Policy and AS/NZ1547(2012), a **reserve effluent disposal area equal to the area calculated by the hydraulic balance** is required. For this site it is proposed at the opposite end of the property, in line with the required buffer distances. This area is to be protected from future development in case the reserve area is ever required to be installed. If this area is ever installed, it will need to be adequately prepared for wastewater disposal. This would include removing any industrial equipment from the area and clearing of any gravel/road base from up area, including up to 3m from the reserve area. It is likely that the reserve area would also require ripping to reduce soil compaction, as well as the importation of additional clean soil and retaining of this soil in a similar fashion to that outlined above. The final area (including the 3m buffer) would need to be a managed grassed area.

Photo 1 On site soil assessment

Photo 2 Looking over proposed primary absorption bed area.

Photo 3 Looking over proposed reserve absorption bed area.

6. SYSTEM DESIGN

6.1 WASTEWATER TREATMENT SYSTEM

An Aerated Wastewater Treatment System is proposed for wastewater treatment for the proposed development. The owner is required to provide the Council with the AWTS manufacturer's specifications of the proposed treatment system. (Information on proposed AWTS can be obtained from the manufacturer or NSW Heath Register of Accredited Sewage Management Systems at http://www.health.nsw.gov.au/publichealth/environment/water/waste_water.asp.

The owner will need to lodge an application to install/operate a Sewage Management System under the Local government act 1993, Section 68. Council will require the owner to have selected an AWTS manufacturer and provide Council with the necessary plans and specifications including NSW Health Accreditation, tank dimensions and capacity, operation and maintenance details, plus Licensed Plumber's name, address, phone number and license number.

The AWTS will be installed and maintained in accordance with Section 5 of the guidelines 'On-site Sewage Management for Single Households' (Department of Local Government, 1998) and AS/NZS 1547-2012 'On-site Domestic Wastewater Management' (Standards Australia, 2012). **Upon approval from Wollondilly Council, the owner is to enter into a servicing contract with an approved servicing agent for the life of the system. Copies of the written service reports should be lodged with Wollondilly Council following each quarterly service**.

6.2 LOCATION OF PROPOSED AWTS

The location of the AWTS should be decided in conjunction with the licensed plumber in consultation with the property owner. The AWTS must be positioned on a stable, level base and be downslope of the building so there is sufficient fall from drainage outlets in the building. The location of AWTS must:

- at least 2.5m away from the building/s
- at least 5m from the property boundary
- at least 6m downslope from any in ground water storage tanks.
- at least 100m from permanent water courses
- at least 40m from intermittent water course

AWTS installation must comply with the manufacturer's recommendations, AS/NZS 3500.2:2018 Plumbing and Drainage Part 2 Sanitary Plumbing and Drainage' and Council requirements.

6.3 INSTALLATION OF PIPES

The sewer pipes between the plumbing amenities, AWTS and irrigation area must conform with 'AS/NZS 3500(Set):2015 Plumbing and Drainage Set' specifying the nominal pipe sizes and respective minimum grades. Table 1 contains these specifications.

In addition, where a sewer carrying untreated wastewater to a treatment system is longer than 60 metres, the minimum grade should be doubled, and inspection ports should be installed at least every 30 metres or at an angle or change of grade.

The sewer pipes between the plumbing amenities, AWTS and irrigation area must be buried at a depth that provides protection against mechanical damage or deformation, in accordance with 'AS/NZS 3500.2:2018 Plumbing and Drainage Set'. Table 2 shows the minimum pipe depth for trafficable areas.

TABLE 1 MINIMUM PIPE DIAMETER AND GRADE CALCULATIONS

Nominal pipe size (DN)	Minimum grade %	Minimum grade ratio
65	2.5	1:40
80	1.65	1:60
100	1.65*	1:60
125	1.25	1:80
150	1.00	1:100
* Except for drains from septic tanks, sewage treatment plants and unvented discharge pipes from tundishes, which may have a minimum grade of 1%, Source: 'AS/NZS 3500.2:2018 Plumbing and drainage Part 2 Sanitary plumbing and drainage' Table 3.4.1. NB: pipe grades are expressed as a percentage of vertical to horizontal distances.		

TABLE 2 MINIMUM PIPE DEPTH FOR TRAFFICABLE AREAS

Location	Minimum depth of cover (mm) for all materials other than cast iron
Where subject to vehicular traffic	500
Elsewhere	300
Source: 'AS/NZS 3500 (Parts 0-4):2018 Plumbing and drainage Set'. Table 3.7.2 Minimum Cover for Buried Pipes'	

Installation is to be done in accordance with the AWTS manufacturer's Installation Manual. The wastewater treatment unit is to be buried to near ground level but 100mm above ground level to avoid accumulation and ingress of stormwater under the tank lid.

A buried 25mm poly pipe will run from the AWTS/filter to water rotor/gate valves and manifolds.

The filter is to be located near the AWTS and water rotor/gate valves to ensure it is accessible and visible for maintenance.

7. SIZING OF SOIL ABSORPTION BEDS

The soil absorption bed can be constructed within the range of widths and depths shown in Table 3 (ASNZ1547, 2012). The bed can be no deeper than 600mm and no wider than 4m. For this site, the proposed base of the bed is 450mm below the ground surface (300mm aggregate and 150mm topsoil).

TABLE 3 DIMENSIONS FOR CONSTRUCTING SOIL ABSORPTION BED

	Typical dimensions (mm)	Maximum (mm)	Minimum (mm)
Width	1000-4000	4000	1000
Depth of aggregate	300-600	600	300
Depth of topsoil	100-150	150	100
Spacing between adjacent beds	-	NA	1000
Source: 'AS/NZS 1547:2012 *On-site* domestic wastewater management			

The size of the soil absorption bed is calculated using the formulae in AS/NZ 1547(2012). It is based on design flow rate, design width and Design Loading Rate (DLR), which is the amount of effluent that, over the long-term, be applied each day per area of an infiltrative surface without failure of the infiltrative surface. AS/NZ1547(2012) recommends a DLR of 10mm/day for compacted (massively structured) clay loam subsoils, receiving secondary treated effluent.

The AS/NZ1547(2012) method for calculating bed size is as follows:

$$L = \frac{Q}{DLR \times W}$$

Where

L = Length in m
Q = Design daily flow in L/day **(540L/day)**
W = Width in m **(2m)**
DLR = Design Loading Rate in mm/d **(10mm/d**)

Based on the above formulae and assumptions described in this report, the soil absorption bed must be **27m long, or 54m^2. The proposed configuration will include two (2) beds measuring 13.5m long by 2m wide. The configuration may need to be adjusted to suit the alignment along the contour.**

The beds will need to receive and equal distribution of wastewater, which can be achieved using a gate valve or similar.

As per Wollondilly Council's Sewage Management Policy and AS/NZ1547(2012), an area equal to 100% of the primary area is required to be allocated as reserve disposal area. This area is to be protected from future development. The reserve areas are shown on the Site Plans in the Appendix and are described in Section 5.

8. SUMMARY

The assessment was prepared for the proposed factory on the subject site and recommends the following:

- Installation of an Aerated Wastewater Treatment System capable of treating 540L/day.
- Installation of 54m^2 soil absorption bed as two 13.5m by 2m beds as described in the Appendix and shown on the Site Plan.
- The addition of 500mm of soil to the disposal area as described in this Assessment, which will be retained by a retaining wall.
    - The beds will need to constructed in a retained soil profile, as described in this report and as shown in the Appendix.
- The beds will need to receive an equal distribution of wastewater, which can be achieved using gate valve or similar.
- Allocation of an additional 54m^2 of soil absorption bed as reserve effluent disposal area, as required by Wollondilly Shire Council and AS/NZ1547(2012). If required, the reserve disposal area will need to be prepared in a similar fashion to the primary area, as described in this report.

9. REFERENCES

Department of Local Government (1998) *On-site Sewage Management for Single Households*. NSW Government.

Standards Australia (2012) Australian/New Zealand Standard 1547:2012 *On-site domestic wastewater management*. Standards Australia.

NSW Health Septic Tank Accreditation Guidelines (2001).

Hazelton, P.A and Murphy, B.W ed. (1992) *What Do All the Numbers Mean? A Guide for the Interpretation of Soil Test Results.* Department of Conservation and Land Management (incorporating the Soil Conservation Service of NSW), Sydney.

Wollondilly Council's On-site Sewage Management and Greywater Re-use Policy.

APPENDIX I CONSTRUCTION OF SOIL ABSORPTION BEDS

The following is a summary of construction notes from WaterNSW (2019) and should be read in conjunction with Standard Drawing attached. Refer to these documents if further clarification is required.

Step 1 Site Preparation

Obtain a copy of the council approved plans and conditions of consent. Accurately locate beds as shown on the site plans and according to the specified and approved design and/or any covenant. Check the location of all constructed beds against the approved site plans. If there is any change in their position from the site plans, a Section 96 application (from the *Environmental Planning and Assessment Act 1979)* must be made to the council to alter their position.

Step 2 Positioning

Build the beds along the contours and use laser leveling to ensure that the base is exactly level. If this does not happen, distribution will not be even and one part of the bed will be more heavily loaded. This could cause the most heavily loaded part of the bed to fail prematurely, with further creeping failure as the effluent is forced to more distant parts of the bed.

The basal area of the beds has been determined according to the procedures in AS/NZS 1547(2012) and WaterNSW (2019) . This includes a minimum bed length to width ratio of 3:1, beds must be installed parallel to the site contours and beds must be of the same basal area if they are receiving the same volume of wastewater.

Always avoid cutting bed through existing weakened ground (eg., through the alignments of former underground pipes, cables or conduits) as they may provide preferential pathways for the effluent to escape from the bed. If they cut downslope through the ground occupied by a series of bed, effluent may preferentially flow to the lowest bed causing it to fail or surcharge. Where it is unavoidable to cut into alignment or it happens accidentally, seal the weaknesses in the bed walls with cement or bentonite grout.

Step 3 Timing

Build beds during fine weather. If it rains before beds are completed, they should be covered to protect them from rain damage.

Once dug, complete the beds promptly to avoid foreign material being washed into the open bed. In particular, avoid puddling, where clay settles out at the bottom of a water filled trench exposed to rain, as clay settling on the base of the bed will reduce bed performance.

Step 4 Excavation

- Carefully excavate the base of any bed and level it with a dumpy or laser level. The bed must be level along and across the line of the bed. If there is a slope across the base of the bed, the effluent will drain to and preferentially load the downslope side of the bed, which may then fail or overflow.

- Where beds are dug along the contour on sloping ground by an excavator that does not have a pivoting bucket, the base of the bed will probably be cut parallel to the ground surface. In this case, the base of the bed will have a fall towards the downslope side. The bed should be further hand dug to level the base and stop excessive effluent accumulating against the downslope wall of the bed.

- Where beds are dug by excavator in clayey soils, any smearing of the bed walls and floor must be fixed by scarifying the surface.

Step 5 Construction

- Do not dig beds in dispersive soils. If the soil appears dispersive after the beds are dug, add gypsum to the bed base at the rate of one kilogram per square metre. Absorption beds should not be built in medium to heavy clay soils, and preferably not in light clay soils.

- Pressure-dosing manifold consisting of 25mm PVC pipe with 3mm holes drilled (deburred) at 400mm centres facing upwards. The total number and length of laterals will be determined by the required bed size (m^2) and the lateral spacings shown in this drawing.

- Install a 90mm slotted PVC or agricultural pipe over manifold laterals.

- Install an inspection port on downhill side of trench / bed. This is made from 50mm PVC pipe with perforations in the aggregate level of the trench / bed.

- Install individual flush points for each lateral. This may be a screw cap fitting on a 90 degree elbow level with the bed surface or a pressure controlled flush valve (such as those used for subsurface irrigation systems) inside an irrigation control box. Manual flushing should be carried out at least every 12 months.

- Install a 40mm PVC dosing manifold. Larger systems may require different pipe sizes and orifice reducers at lateral connection points.

- Pump dosed effluent from treatment system. The pump must be capable of delivering the total flow rate required for all laterals whilst providing a 1.5m residual head (i.e. squirt height) at the highest orifice (with no more than 10% variation in squirt height across the whole bed). For beds with individual laterals no more than 10m long, it is acceptable to adopt a flow rate of 3.5-4L/min/lineal metre. Total dynamic head (including friction loss) will need to be determined on a site-specific basis.

- Ensure that the sides of beds are not damaged or caused to collapse when the beds are filled with gravel or sand.

- Beds can be filled with gravel (typically 20-40 millimetres or occasionally coarse sand), but it should not be compacted. Appropriate consideration should be given to bed storage capacity where beds are filled with material other than gravel.

- Lay geotextile filter cloth over the gravel or sand in a bed and under the topsoil to ensure that the topsoil does not penetrate and block the bed.

- Test the beds with clean water before filling with gravel (or coarse sand) to ensure effective and even distribution of effluent.

- Apply 150 to 200 millimetres of topsoil to the top of the bed and leave it slightly mounded above ground level to allow it to settle and to encourage incident rainfall to be shed away from the top of the bed.

- The top of the absorption bed area should be turfed or grass planted to establish vegetation cover promptly after construction. This ensures the best uptake of effluent by evapotranspiration. Ensure that larger deep-rooting plants are not planted close to bed to reduce the chance of root intrusion and clogging of the beds.

- A stormwater diversion berm/ drain should be built on sloping sites upslope of the absorption beds. Standard Drawing No. 9A provides detail about constructing a stormwater diversion drain.

Step 6 Dosing

- Beds may be gravity-fed or pressure-dosed using pumps or dosing siphons. Raised pressure-dosed absorption beds are a possible alternative where there are shallow limiting layers present (e.g., bedrock, clay or water table) and not enough separation distance from that layer. The linear loading rate must be addressed in these situations.

- Install a hydraulically operated indexing valve that delivers effluent to a different trench / bed or set of laterals at each pump cut-in.

- Checklist 10.1 details matters that should be checked when trenches or beds are installed. Plumbers/ installers and Council inspectors can use this checklist to ensure installation has been completed properly - see http://www.sca.nsw.gov.au/publications/publications/designing-and-installing-on-site-wastewater-systems

APPENDIX II GENERAL RECOMMENDATIONS TO MANAGE WATER QUALITY AND QUANTITY

InSinkErator style kitchen garbage disposal units should be avoided as they increase water consumption and raise the nutrient and BOD concentrations of household effluent.

Water conservation can reduce the volume of wastewater that needs to be treated and discharged on-site. The residence should include appliances that are rated under the Water Efficiency Labelling and Standards (WELS) Scheme that includes:

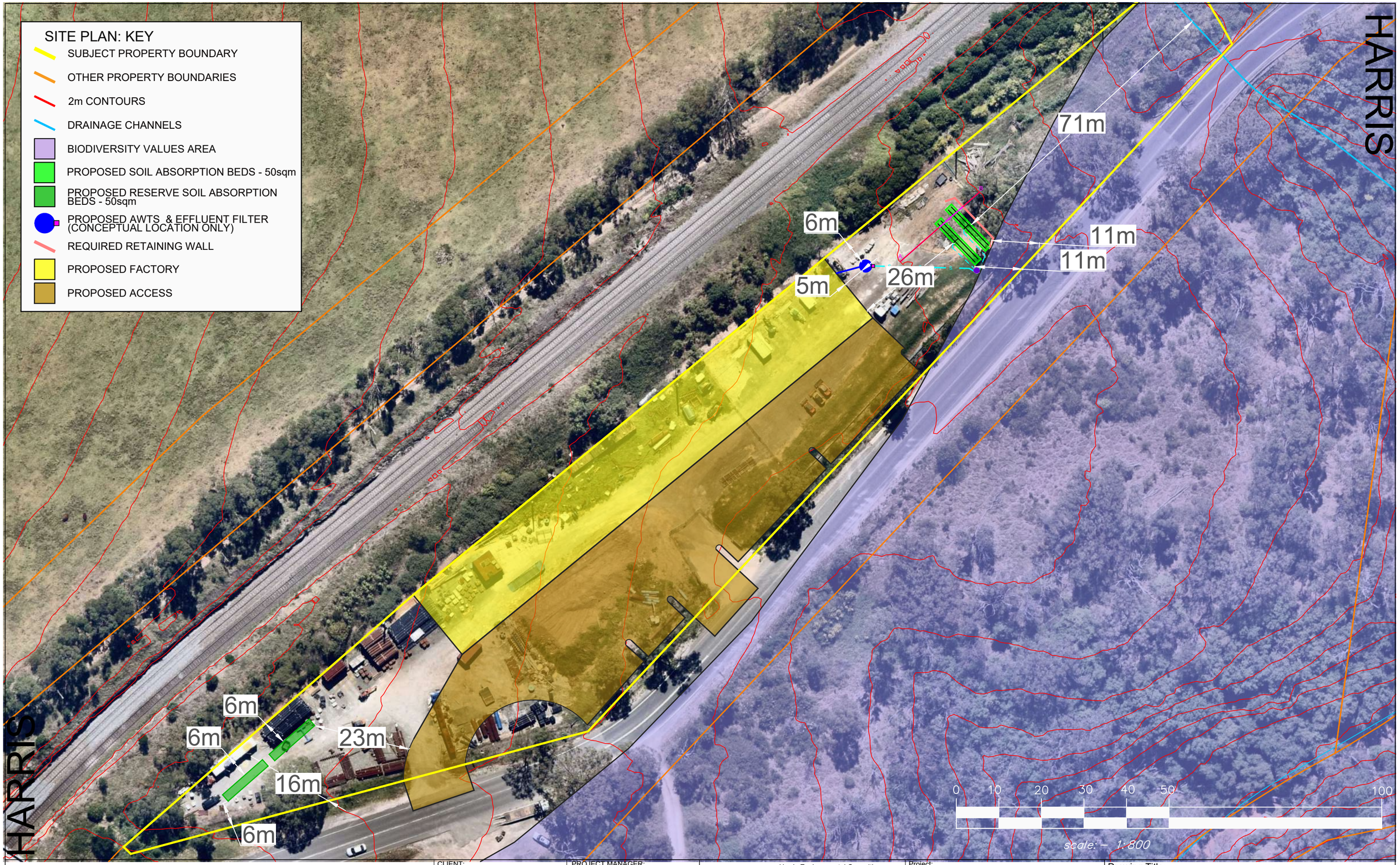
i. 4-star dual-flush toilets;
ii. 3-star showerheads;
iii. 4-star taps (for all taps other than bath outlets and garden taps);
iv. 3-star urinals; and
v. Water-efficient washing machines and dishwashers are to be specified and used wherever possible.

Chemical cleaning compounds and other chemicals that enter the treatment system should be low in phosphate and salt. Anti-bacterial chemical cleaning compounds and other chemicals that enter the treatment system should be avoided. This includes chlorine, disinfectants, bleaches etc.

APPENDIX III REQUIRED BUFFERS

The following buffers must be applied when installing all onsite sewage management systems in accordance with the Wollondilly Council's On-site Sewage Management and Greywater Re-use Policy.

SYSTEM	BUFFER DISTANCES
All Onsite Sewage Management Systems	• 100 metres to domestic groundwater well • 100 metres to permanent surface waters (e.g. rivers, creeks, streams, lakes etc.) • 150m to SCA named rivers • 40 metres to other waters (e.g. dams, intermittent water courses, overland flow paths etc.) • 15metres from in-ground water tank • 1 metre from the drip line of native trees and shrubs
Surface spray irrigation	• 6 metres if area up-slope and 3 metres if area down-slope of buildings, driveways and property boundaries • 15m to dwellings • 3m to paths and walkways • 6m to swimming pools
Subsurface irrigation	• 6 metres if area up-slope and 3 metres if area down-slope of buildings, driveways, swimming pools and property boundaries
Absorption system	• **12m if area up-slope and 6m if area down-slope of property boundary** • **6 metres if area up-slope and 3 metres if area down-slope of buildings, driveways and property boundaries**



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v1.1	Response to Council RFI	31/08/2023	MS	SH

North

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Wastewater | Bushfire | Stormwater

Project:
PROPOSED REZONE AND NEW FACTORY
LOT 11 DP 1012641
120-140 BRIDGE STREET, PICTON
LGA: WOLLONDILLY

Drawing Title:
WASTEWATER MANAGEMENT PLAN DETAILS SHEET No.1

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Designed:	Our reference:	Scale:	Issue:
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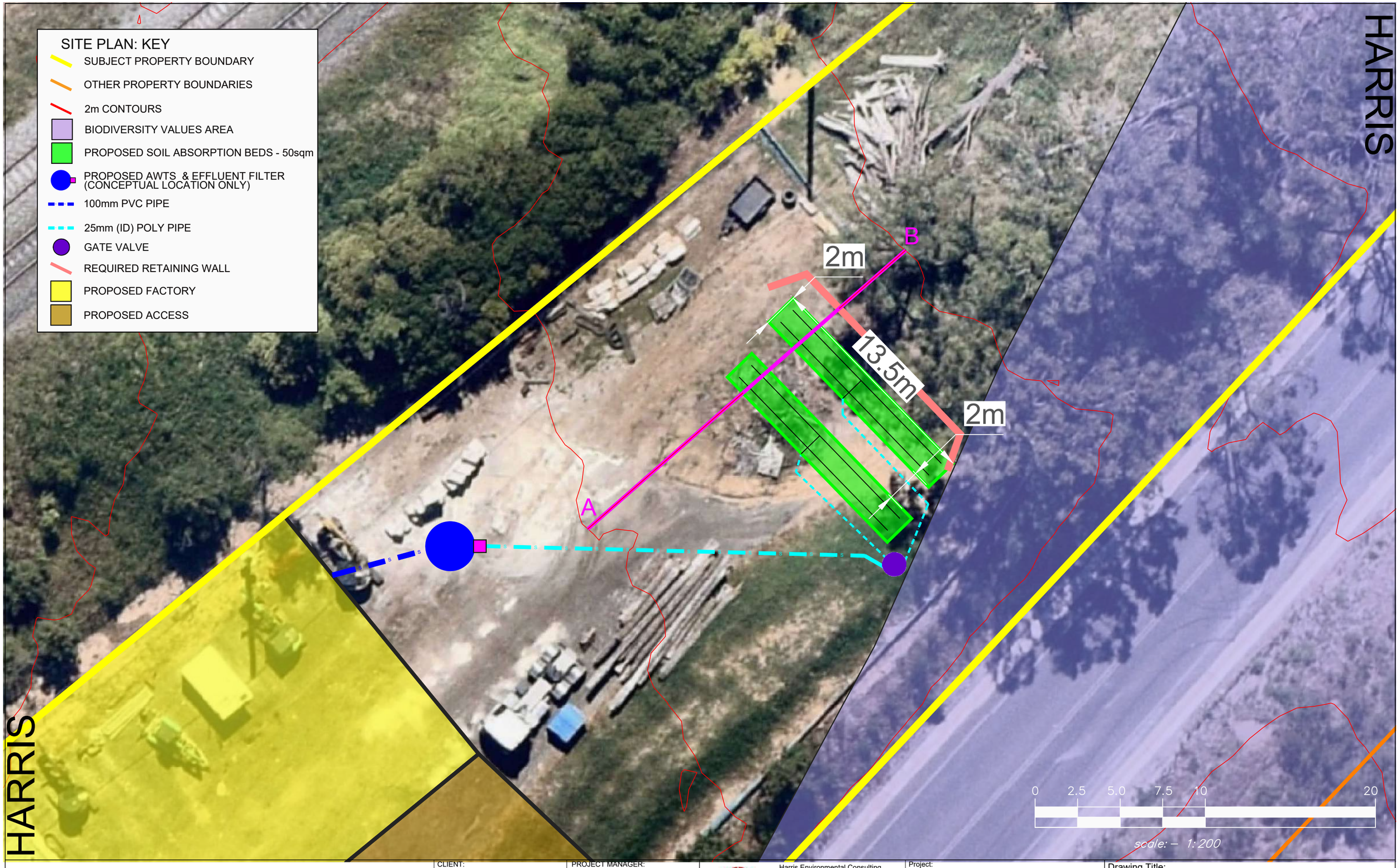

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Project:
PROPOSED REZONE AND NEW FACTORY
LOT 11 DP 1012641
120-140 BRIDGE STREET, PICTON
LGA: WOLLONDILLY

Drawing Title:
WASTEWATER MANAGEMENT PLAN DETAILS SHEET No. 2

Drawn:	Date:	Paper Size:	Q.A. Check:	Date:
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Designed:	**Our reference:**	**Scale:**	**Issue:**	
MS	4734WW	1:200	v1.1	

Issue:	Description:	Date	Drawn	Approved
v0.1	Issue for client review	10/07/2023	MS	SH
v1.0	Issue for submission	13/07/2023	MS	SH
v1.1	Response to Council RFI	31/08/2023	MS	SH

North

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Wastewater | Bushfire | Stormwater

Project:
PROPOSED REZONE AND NEW FACTORY
LOT 11 DP 1012641
120-140 BRIDGE STREET, PICTON
LGA: WOLLONDILLY

Drawing Title:
WASTEWATER MANAGEMENT PLAN DETAILS SHEET No. 3

Drawn:	Date:	Paper Size:	Q.A. Check:	Date:
MS	31/08/2023	ISO Expand A3	Complete	31/08/2023

Designed:	Our reference:	Scale:	Issue:
MS	4734WW	1:200	v1.1

HARRIS

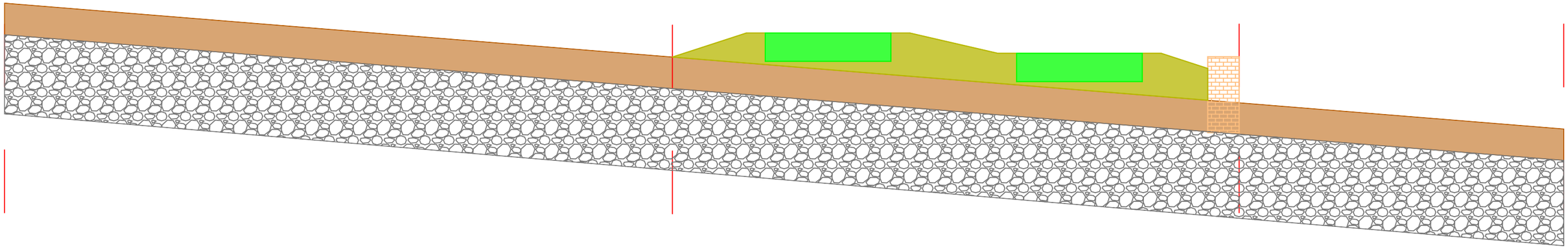
A

B

10.6m

9m

5.2m



HARRIS

Issue:	Description:	Date	Drawn	Approved
v0.1	Issue for client review	10/07/2023	MS	SH
v1.0	Issue for submission	13/07/2023	MS	SH
v1.1	Response to Council RFI	31/08/2023	MS	SH

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Wastewater | Bushfire | Stormwater

Project:

PROPOSED REZONE AND NEW FACTORY

LOT 11 DP 1012641

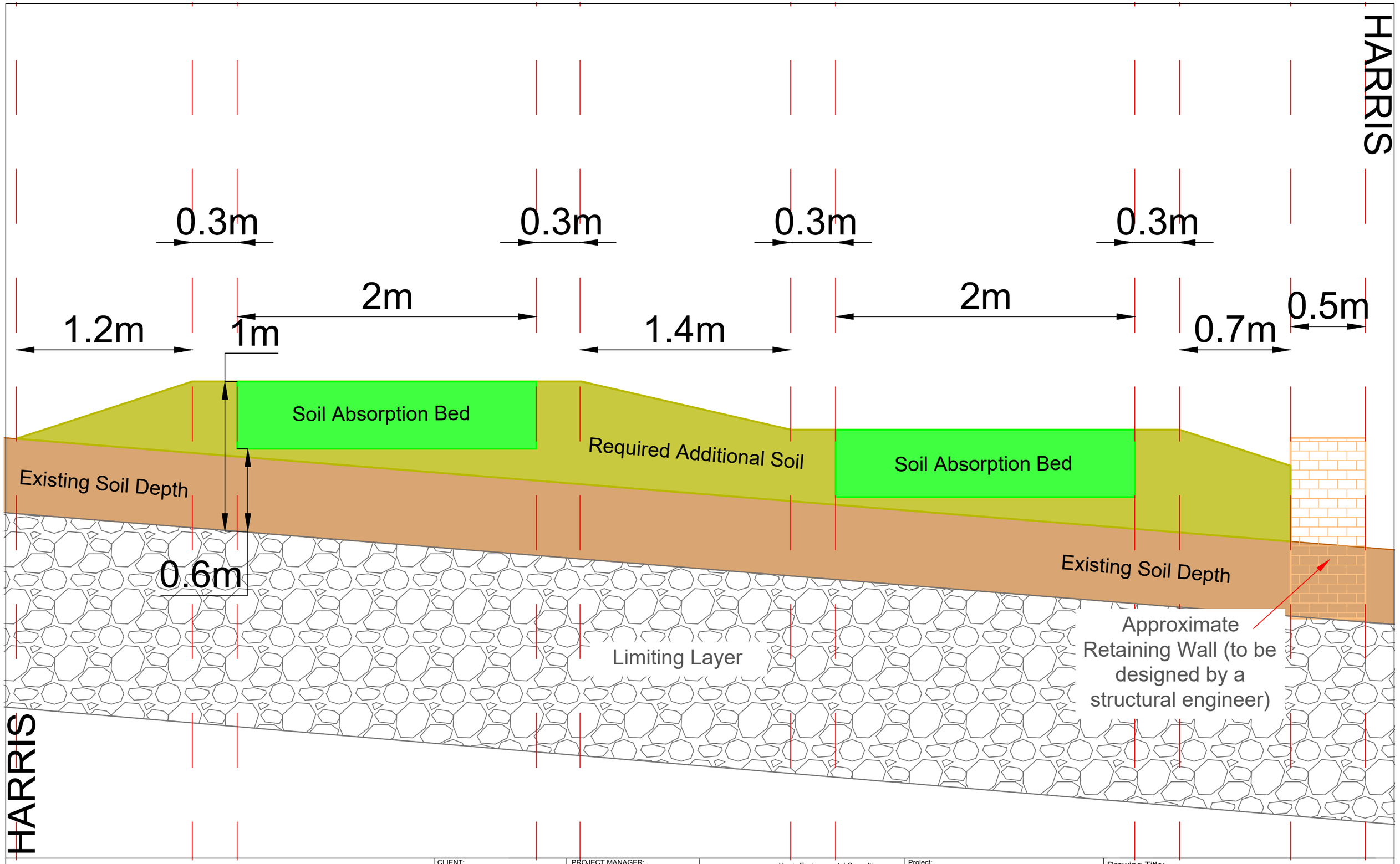
120-140 BRIDGE STREET, PICTON

LGA: WOLLONDILLY

Drawing Title:

WASTEWATER MANAGEMENT PLAN DETAILS SHEET No. 4

Drawn:	Date:	Paper Size:	Q.A. Check:	Date:
MS	31/08/2023	ISO Expand A3	Complete	31/08/2023
Designed:	**Our reference:**	**Scale:**	**Issue:**	
MS	4734WW	N/A	v1.1	



Issue:	Description:	Date	Drawn	Approved
v0.1	Issue for client review	10/07/2023	MS	SH
v1.0	Issue for submission	13/07/2023	MS	SH
v1.1	Response to Council RFI	31/08/2023	MS	SH

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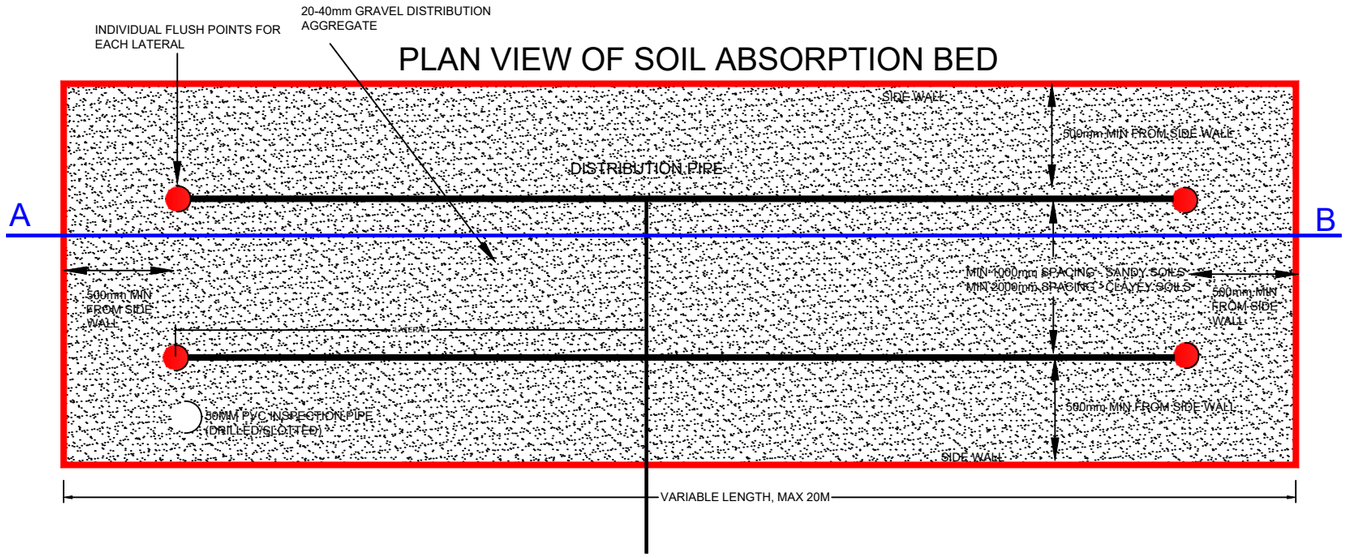
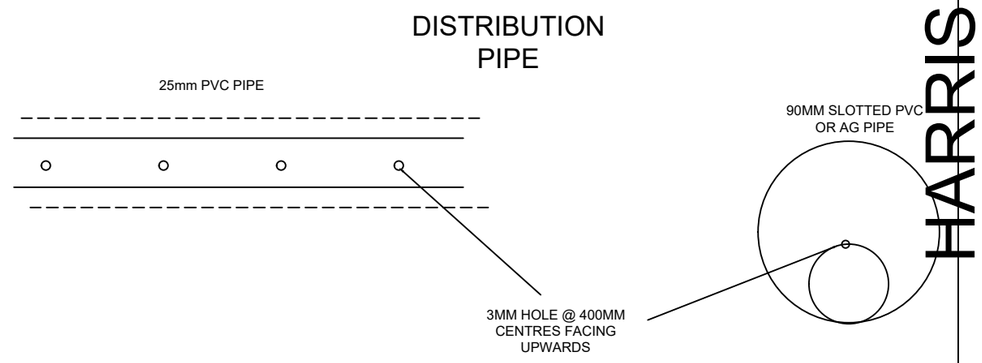
Project:
PROPOSED REZONE AND NEW FACTORY
LOT 11 DP 1012641
120-140 BRIDGE STREET, PICTON
LGA: WOLLONDILLY

Drawing Title:
WASTEWATER MANAGEMENT PLAN DETAILS SHEET No. 4.1

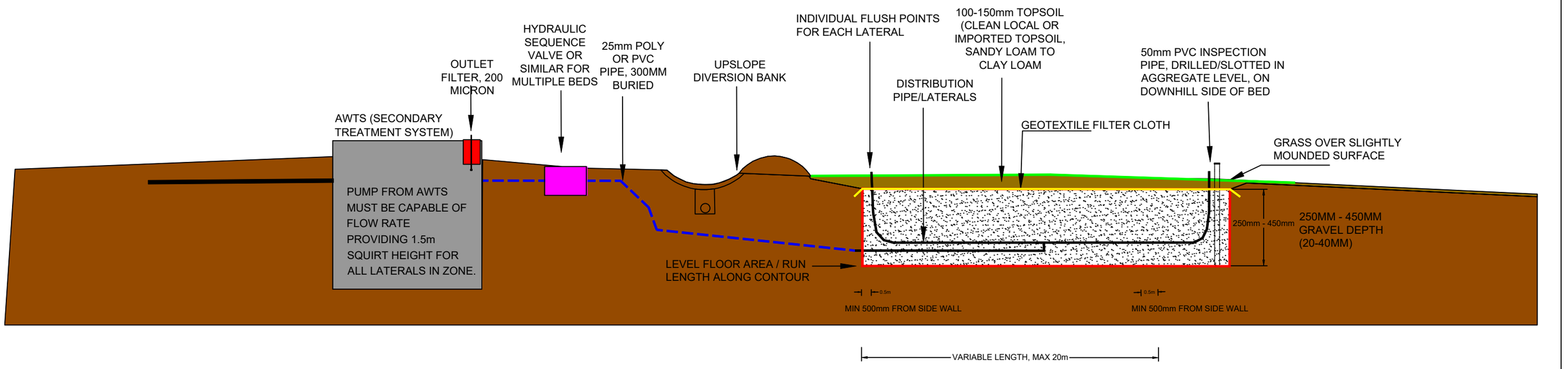
Drawn:	Date:	Paper Size:	Q.A. Check:	Date:
MS	31/08/2023	ISO Expand A3	Complete	31/08/2023
Designed:	**Our reference:**	**Scale:**	**Issue:**	
MS	4734WW	N/A	v1.1	





HARRIS

CROSS SECTION A-B OF SOIL ABSORPTION BED



Issue:	Description:	Date	Drawn	Approved
A	HEC Standard Drawing	31/10/2022		SH

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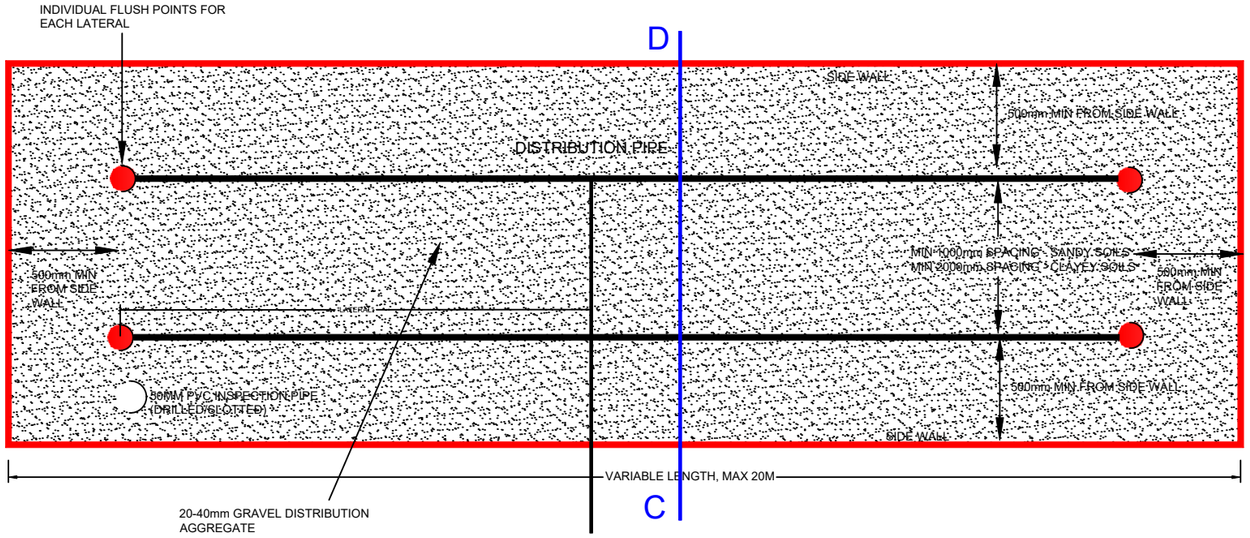
Designed in accordance with ASNZ1547 (2012) and WaterNSW

To be read in accordance with construction notes in Appendix

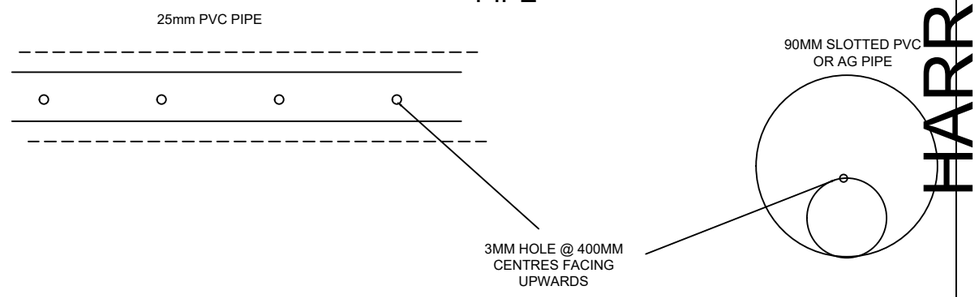
Drawing Title:
PRESSURE DOSED SOIL ABSORPTION BED STANDARD DRAWING

Drawn:	Date: 31/10/2022	Paper Size: ISO Expand A3	Q.A. Check: Date:	
Designed:	Our reference:	Scale: NTS	Dwg. No.	Issue:

PLAN VIEW OF SOIL ABSORPTION BED

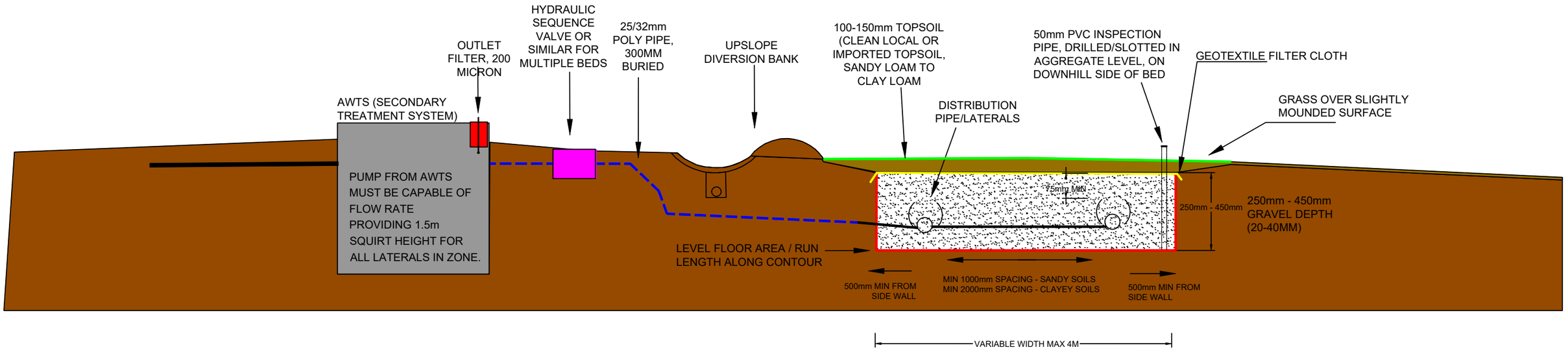


DISTRIBUTION PIPE



HARRIS

CROSS SECTION C-D OF SOIL ABSORPTION BED



Issue:	Description:	Date	Drawn	Approved
A	HEC Standard Drawing	31/10/2022		SH

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Wastewater | Bushfire | Stormwater

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Drawing Title:
PRESSURE DOSED SOIL ABSORPTION BED STANDARD DRAWING

Drawn:	Date: 31/10/2022	Paper Size: ISO Expand A3	Q.A. Check: Date:	
Designed:	Our reference:	Scale: NTS	Dwg. No.	Issue: