Central Darling Shire Council

Draft Menindee Waste Facility
Long Term Plan of Management

Robert Bailey Consulting
Unit 408 12-24 William Street
Port Macquarie, NSW 2444
Phone 0448737383

Table of Contents

Contents

1.0 Overview

The Menindee Waste Facility is described as lot 71 DP 46640, is located about four kilometres from the township of Menindee off Racecourse Road and serves a population of around 550 residents. The landfill undertakes an “excavation and fill” method for waste disposal and stockpile areas have been established within the site for the recovery of green waste and scrap metal. Asbestos and used tyres are accepted at the facility as are deceased animals. The site occupies around 20 hectares of land and has been in operation for many years.

The site is not supervised, that is, there is no Council presence to oversee the operation of the facility or to collect fees nor is the site controlled, that is, gates are not shut to limit access to defined times. Previous Council endeavours to supervise and control the site have been discontinued primarily because of resourcing constraints. More regular attendances at the site by Council staff with suitable plant to push up waste and separate contamination from stockpiles of recoverable materials should form part of the future management protocols for the waste facility

A recent Waste Less, Recycle More grant has seen the vast accumulations of above ground waste concrete and contaminated green waste and contaminated scrap metal re-shaped, covered with ENM and compacted to effectively rehabilitate that portion of the site in the delivery of “part closure” works as supported by the grant funding. The application of shredded/crushed green waste across the rehabilitated surfaces is yet to be completed.

Waste is currently being placed in a large excavated void and should have a significant residual life depending on what materials are directed for disposal and the compaction achieved. Green waste and scrap metal are being stockpiled, though there is the option for the green waste to be landfilled in the future if there is no plausible plan for its re-use. A rubber tyre front end loader (FEL) is used to push up and to cover the waste but has limited scope to achieve any compaction of the material. The ongoing use of the FEL will be a compromise between the purchase of a more suitable item of plant (eg traxcavator) and the accelerated consumption void space and cover material. Appendix 4 of this Plan provides guidance on the waste placement technique where a FEL is used that should improve performance if adopted.

Windblown litter is not being well managed and improvements should be pursued. Mobile litter fences may be procured and placed near to the tipping platform to collect windblown litter but also to restrict the area where waste can be deposited. .

The current excavation does have about 38 years of residual life as demonstrated in the Amaral concept designs that appear as Appendix 1 of this Plan. This assessment is based on winning cover from the buttresses of the perimeter berm and to re-grade the floor of the excavation to expand the void and to adopt improved waste placement and covering techniques. Currently, excessive quantities of cover material are being consumed unnecessarily. There is also the potential to extend the current excavation beyond the site boundaries with the consent of the Crown.

The landfill does not have a leachate management system and therefore relies on good practices to minimise the production of leachate. Such practices include keeping the active tipping area to minimum size, diverting surface water away from the tipping face, maintaining gradients on the capped and covered areas to shed water and applying cover regularly. These measures should form part of Council's standard operating procedures in the future management of the facility.

Scrap metal is separated and placed in a stockpile to be taken off site by a collection contractor. Recovered materials should be removed or processed routinely so that the stockpile is maintained at a manageable size. Given the site is not supervised, controlling contamination of the metals stockpile is difficult, however endeavours should be undertaken to regularly remove the gross contamination. Fluctuations in the market value of scrap steel have an effect on the frequency of the removal of this material from site.

Changes to current practices have been identified and together with the Amaral concept design filling plans and final landform designs, provide the guidance for the long term management of the waste facility.

2.0 Background

Central Darling Shire Council has determined to undertake a review of the operations of its waste facilities in order to identify how the residual life of the landfill can be maximised, how improvements to current practices could be introduced, where efficiencies may be gained and risks mitigated. Council's aim is to achieve sustainable management of the waste facility that is commensurate with available resources.

Council has prepared a scope of works and engaged Robert Bailey Consulting and Robert Amaral Geotechnical (Landfill) Engineer to prepare a long term plan of management for the Menindee Waste Facility that will provide a final landform design, filling/staging plans and procedures to improve operational performance and to mitigate risks.

3.0 Purpose

The purpose of this Long Term Plan of Management (LTPoM) is to provide a process with the highest probability of achieving the defined project aims. The LTPoM would address long term planning and the future design of the Menindee Waste Facility in considering the final landform, activity area interrelationships, existing and future infrastructure, plant utilisation, complying with the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016), valuing responsible environmental performance, improving existing landfill management practices and recognising resource recovery opportunities.

The primary aims of the project are:

- To put measures in place that will maximise the residual life of the landfill
- To identify improvements to existing practices that will translate into cost efficiencies and provide for the realisation of these opportunities.
- To develop plans for the coordinated development of the facility over the longer term.
- To engage practices that will ensure responsible environmental performance is achieved
- To comply with the requirements of the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016) together with other relevant legislation, regulations and codes where applicable
- To address risk
- To contribute to the development of an overarching strategic plan for Council's waste facilities including the preparation of a financial model that will predict future incomes and expenditures and will provide for the managed development of the facility over the longer term.

4.0 Operations

4.1 **Current operations for the general waste active tipping area –** general waste, including self haul and kerbside collected waste, is deposited at the top of the tipping face as well as at the bottom of the tipping face. There is no site supervision, therefore signage is the main means of directing traffic to the disposal area. The waste material is pushed up using a front end loader (FEL). The tipping platform is located above the excavated void and waste material is progressively pushed into the void, where the tipping face is about 4 metres deep. Some waste material is being deposited at the toe of the tipping face. Windblown litter is an issue largely as a consequence of this procedure and that the waste is only pushed up and covered every few days. The waste is not compacted and an excessive quantity of cover material is consumed when covering the waste, perhaps as much as 70% cover to 30% waste. This is not an efficient method of waste management and disposal. A lot of potential cover material is being sterilised given the thickness of the perimeter berms and a proportion of the internal wall of the berm should be recovered prior to waste placement

4.2 **Proposed improvements to the operation of the general waste tipping area –** Geotechnical engineer Robert Amaral (Amaral) has prepared concept designs for the future operation of the current general waste disposal area that includes sequencing and concept designs for staging and final landform. The first step will be to win cover material from the inside face of the perimeter berm and stockpiling this material for future use. (see Appendix 2, figures 2 and 3). Additional cover material can be won by re-grading the floor of the excavation and by removing the current stockpile of green waste and excavating this area to link with the current void.. Landfilling will adopt a top down approach where a tipping platform is established with a tipping face

having a vertical height of 2 – 2.5 metres.. Waste will be pushed onto the tipping face and covered progressively (see Appendix 4) . Waste will continue to be deposited in this manner for four passes until the designed landform shape of stage 1 has been achieved. Subsequent stages will be undertaken in accordance with the Amaral concept designs..

4.3 **Existing landfill plant -** a front end loader (FEL)

4.4 **Proposed improvement to landfill plant utilisation**– Appendix 4 provides guidance on the placement and partial compaction of the deposited waste using the FEL and keeping the depth of waste to a maximum of 2 - 2.5 metres. The ongoing use of the FEL will be a compromise between avoiding the purchase cost of a more suitable item of plant (eg traxcavator) and the accelerated consumption of void space and cover material

4.5 **Current site control and supervision –** the site is not supervised, that is, there is no Council presence to oversee the operation of the facility or to collect fees nor is the site controlled, that is, gates are not shut to limit access to defined times. Previous Council endeavours to supervise and control the site have been discontinued primarily because of resourcing constraints. Improved signage and the use of bollards or mobile litter fences will be required to better manage traffic and to identify where waste is to be deposited.

4.6 **Proposed improvement to site control and supervision –** no changes are proposed to site control and supervision, however Council may consider the use of CCTV in the future..

4.7 **Current Green Waste Management –** there is a separate area where self haul green waste and wood waste are stockpiled, pushed up and can be shredded as part of a service contract. Contamination is significant where plastics and metals are evident. The stockpile also includes materials such as MDF(medium density fibreboard), treated pine, particle board and laminated timber. Shredding can be expensive and the contaminated product has little re-use value. The better quality material can be used for cover material or placement over disturbed areas to control dust and erosion.

4.8 **Proposed improvements to green waste management** – although no change is proposed to the manner in which green waste is stockpiled, the location may shift from time to time as the general waste disposal area changes. The existing stockpile of green waste is heavily contaminated and should be landfilled and the area below this stockpile excavated to provide additional cover material and additional void space. The Amaral concepts provides guidance as to where the existing green waste material should be landfilled (see Appendix 2) For the future management of green waste, as an alternative to shredding and to save costs, when suitable plant is available, that is larger plant with tracks such as dozer or excavator, the stockpiled green waste can be spread, larger items of contamination removed and the green waste broken up using a number of passes of the track machine. The broken up green waste can then be landfilled or placed on top of capped surfaces, depending on the quality of the finished product, to control dust and erosion. Initially, this recovered material should be applied to the recently

capped and partially closed portion of the site. It may also be used as cover as a substitute to ENM.

4.9 **Current scrap metal management –** self haul scrap metal is stockpiled and on sold to a service contractor whereby the material is taken off site on a routine basis. The scrap metal stockpile is pushed up from time to time using the Council FEL

4.10 **Proposed scrap metal management –** an effort should be made to ensure the scrap metal is contained to one controlled stockpile area and not allowed to spread or multiple stockpile areas develop. Contamination remains an issue and some effort should be made to better manage the contamination. This may require contamination to be removed routinely. A collection contractor should be engaged to remove the accumulated scrap metal on a regular basis

4.11 **Current and proposed waste concrete management – h**istorically waste concrete and other inert materials were placed over previously trenched and filled areas of the site. A recent Waste Less, Recycle More grant has seen the vast accumulations of above ground waste concrete and contaminated green waste and contaminated scrap metal re-shaped, covered with ENM and compacted to effectively rehabilitate that portion of the site in the delivery of a part closure plan. Currently, receivals of waste concrete are being stockpiled near to the existing green waste stockpile area. However, the retained concrete and future loads of waste concrete should be confined to the general waste disposal area. The Amaral "notes" at Appendix 1 provide guidance on how this can be achieved.

4.12 **Asbestos disposal and deceased animals management-** the issue confronting Council with difficult wastes such as asbestos is that the waste facility is not controlled nor supervised. Therefore Council relies on those wanting to dispose of asbestos to act responsibly. The information contained on Council's website states " ***Any wastes containing or potentially containing asbestos are classified as asbestos waste and must be disposed of properly, according to NSW legislation and relevant guidelines. There are significant penalties that apply if legislation isn't adhered to, including illegal dumping of asbestos and placing into kerbside bins. Furthermore, improper handling and disposal of this material can put you, others and the environment at risk".*** There is a download on the website that provides guidance on the correct means of disposing of asbestos**.** The Waste Regulations require final depth of soil above the asbestos should be 1 metre as prescribed in the Waste Regulations (2014) (see Appendix 5) and cover applied at the end of each day to a depth of 0.5 metres. Council should develop an asbestos policy and require advanced notice of a person's intention to dispose of asbestos in order that plant can be on site to assist with the correct means of unloading asbestos and to apply the ENM cover in accordance with the Waste Regulations. Equally Council should develop a procedure for the management of deceased animals.

4.13 **Used tyres** – a small quantity of used tyres are currently being stockpiled and are accumulating. An alternative measure would be to place used tyres on the

floor of the active tipping area and at the toe of the advancing waste mass as they are received and cover with general waste.

5.0 Landform Concept Design

Final landform design and filling/staging plans have been prepared for the future development of the Menindee waste facility and these appear as –

- Notes to Accompany Design Drawings in Appendix 1,
- Guide to Site Capacity in Appendix 1,
- Concept Designs in Appendix 2 .

This suite of documents provides information on the development of the landfill for future decades and offers guidance for the orderly progression of the landfilling operations. Each sub stage is essentially a building block that in total combination will deliver the final landform. It will be most important that the design is followed in order to deliver the desired outcomes. This may require periodical examination by an external party (surveyor, geotechnical engineer) to confirm the landfilling works are progressing in keeping with the adopted designs.

Council should also be aware that operating a landfill effectively and in keeping with the EPA Guidelines requires skilled plant operators, correct plant, an understanding of grades, reduced levels, waste placement, surface water management, covering and compaction. Council staff who have been given the responsibility to oversee the operation of the facility and contractors who may be engaged to perform specific tasks should be trained accordingly and be familiar with the designs and the principles supporting those designs

6.0 Acts and Policies Associated with the Project

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Waste) Regulation 2014
- EPA Environmental Guidelines: Solid Waste Landfills (2nd edition 2016)
- Environmental Planning and Assessment Act 1979
- Environmental Planning and Assessment Regulation 2000
- Infrastructure SEPP 2007

7.0 Delivery

Desired Outcomes -

- The Menindee waste facility will be developed in a planned and co-ordinated manner.
- The project will deliver the stated aims

- Risk will be managed
- Regulatory agencies gain confidence in Council's management processes
- Succession planning is achieved
- Landfill void space will be maximised
- Residual life of the landfill will be optimised
- Long term planning prevents re-work resulting in corresponding savings
- Budgets can be developed for the capital works and programmed for delivery in a measured way and for optimum benefit

Key Actions to deliver the desired outcomes

Sequencing – broadly speaking, win cover material from the inner side slopes of the perimeter berm and stockpile for future use (Amaral Appendix 2), establish the next filling stage (Amaral Appendix 2,), discontinue landfilling at the current active tipping area, apply intermediate cover to the current active tipping, crush and landfill the existing stockpile of green waste in the new stage, landfill the existing stockpile of waste concrete in the new stage, establish litter fences near to the new filling stage, signpost access to the new filling area, place waste in accordance with the "waste placement technique" (Appendix 4), continue to develop the landfill in accordance with the Amaral concept designs

Milestone 1 – Prepare the first stage in the new filling area (Amaral Appendix 2,)

Key Tasks

- Win cover material from the inner side slopes of the perimeter berm and stockpile this material for future use as cover
- Construct a shallow berm on the floor of the new stage that will contain any leachate that may seep from the active tipping area
- Establish litter fencing near to the new active tipping area
- Identify vehicular access to the tipping platform and signpost accordingly
- Develop the tipping platform where lifts of placed waste will not exceed 2.5 metres (Appendix 4)

Milestone 2 – commence landfilling at the new active tipping area

- Crush and landfill the existing stockpile of green waste
- Landfill the existing stockpile of waste concrete
- Expand the void by excavating where the green waste had been stockpiled
- Provide barricades or litter fences to control the depositing of waste to ensure materials are confined to the active tipping area
- Push up waste in accordance with the "waste placement technique" (Appendix 4)
- Apply cover routinely from the established stockpile

Milestone 3 – discontinue landfilling at the current active tipping area.

- Establish barricades to prevent access to the tipping platform from both above and below.
- Cap the existing waste disposal area.
- Collect litter
- Control surface water to manage flows across the adjacent capped landform. This may take the form of shredded green waste berms, silt stop fencing or other suitable means
- Provide signage directing all general waste to the new waste disposal area.

Milestone 4 – prepare an asbestos management policy

- Review the asbestos information currently contained on Council's website
- Develop protocols for advanced notice for the disposal of asbestos
- Train Council staff who may be required to deal with incoming loads of asbestos in the correct management of asbestos

Cost Estimates - Figures provided below for the likely cost of works required to achieve the milestones are cost estimates only and may well vary depending on a range of circumstances. The purpose of the estimates is to provide inputs for the financial model that has been developed in the overarching Strategic Plan. The Strategic Plan has been prepared to provide a roadmap for the future management of all of Council's waste facilities.

Milestone 1

Prepare the first stage in the new filling area **Year 1 $15,000** (capital cost)

Procure litter fencing **Year 1 $10,000**

Increase the waste facility operating budget by 30% **Year 1 and ongoing**

Milestone 2

Commence landfilling at the new active tipping area **Year 1 $10,000** (capital cost)

Milestone 3

Discontinue landfilling at the current active tipping area. **Year 1 $6,000** (capital cost)

Milestone 4

Prepare an asbestos management policy (in house- no direct cost)

9.0 Appendices

Appendix 1- Notes to Accompany Design Drawings

NOTES FOR INCLUSION WITH LANDFILL DESIGN DRAWINGS 20205m

GENERAL

There are a number of issues/circumstances which have an impact on the design of the Menindee Landfill as discussed in more detail by Bob Bailey in the main text of this LTPoM:

* an existing relatively large void with little immediately available soil with which to cover incoming waste
* small size of the waste generating community
* remote location
* unlimited access to an unmanned site
* limited available on site heavy equipment
* advantageous low permeability geologic soil profile
* advantageous evaporation to rainfall ratio (at least 6:1)

The following conceptual design details attempt to take account of these issues and do not always follow the NSW EPA Guidelines for Landfills but can be technically supported/defended as is allowed for and accepted by the EPA for small, remote communities which are in favourable geological and climatic locations.

At this site, in particular, I have not followed the basic principle of always filling from upstream to downstream in every Stage of filling to limit the extent of run-on surface water entering the waste.

This is feasible at this site since the opportunity for leachate production is severely limited by the low annual rainfall and what leachate does develop during significant rare rainfall events can be readily contained on site by the low permeability soil profile.

The actual waste filling process will be somewhat inhibited due to the reliance on a front end loader (FEL) to carry out all the pushing, spreading, compacting and covering activities but should be capable of doing this by a variety of approaches discussed herein with the occasional use of a piece of larger equipment (bulldozer, excavator and the like).

FIGURE 1 SITE SURVEY PLAN (DECEMBER 2020)

Council has provided an up to date 0.5m contour plan of the site which is reproduced herein as Figure 1.

FIGURE 2 SITE PLAN

The area of interest within the contour plan provided by Council is noted on Figure 1 and has been reproduced herein as Figure 2 with simplified contours, excluding local stockpiles and the like.

FIGURE 3 EXCAVATION PLAN

As noted above, the existing landfill area consists of an already excavated void with oversized perimeter soil bunds or embankments on its southern and eastern sides.

The existing void if filled to about 2m above its perimeter edges has a capacity of about 40,000m3.

Assuming a normal cover usage rate of 20% (daily, intermediate and final) would require 8,000m3 of soil.

The actual soil cover usage rate at this site is more likely closer to 40% or 16,000m3 due to the necessity of using additional soil to allow trafficking by the rubber tyred FEL.

In any event it is important to recover as much of the soil within the oversized perimeter embankments as is feasible.

A recommended excavation plan is provided in Figure 3 with side batters of 1:1.

This will achieve about 7,500m3 of soil cover, well short of what will likely be required.

Further soil could be won by grading the base downwards from west to east at, say, 1%. This would also have the advantage of draining rainwater to the eastern end of the site for easier collection and removal.

This excavation work need not be carried out in one operation but can be done in stages as the filling advances.

Also, the embankment beneath the current green waste stockpile should be removed as shown on Figure 3 to gain additional soil cover (this is included in the above estimates).

FIGURE 4 STAGE 1 FILLING PLAN

This figure illustrates the completed Stage 1 filling with the completed surface shedding rainwater off the site.

FIGURE 5 SUB-STAGE 1A FILLING PLAN

This figure illustrates the completion of the Stage 1A filling whereby waste has been pushed progressively to the south over a leading face of 2m depth.

Where practicable, larger waste matter (cobbles, concrete, timber, demolition material and the like) should be end dumped or pushed over the leading face first, followed by smaller household refuse, fine green waste, paper, cardboard and the like and, where necessary, soil to allow the FEL to traffic the surface and provide some compactive effort.

Occasionally it may be necessary to hire the available bulldozer or excavator from the local Contractor to spread, break up and track roll the waste to provide reasonable access for Council and private vehicles.

Where appropriate, gravel, cobbles, boulders, concrete and other hard materials located across the balance of the adjoining land where legacy stockpiles of waste exist should be utilised to assist in developing an accessible working surface.

FIGURE 6 SUB-STAGE 1B FILLING PLAN

Figure 6 illustrates the completion of the sub-stages 1A and 1B areas.

As with sub-stage 1A, the sub-stage 1B area should be initially prepared by placing a 1m high soil bund across its eastern end to isolate any rainwater from the balance of the void where there is no exposed waste.

In this way, any rainwater that does collect in this void space can be pumped directly to the environment or otherwise used on site.

The filling process would replicate that used in sub-stage 1A, over a 2m high leading face.

FIGURES 7 AND 8 SUB-STAGE 1C AND 1D FILLING PLANS

Both of these figures illustrate the raising of the landfill surface by between 1 and 2m over the completed Sub-stages 1A and 1B areas.

Working with a leading face of less than about 2m deep may prove difficult using an FEL and will lead to an excessive use of soil.

Placing large objects within a limited depth of waste is also a problem and it may be necessary to open up Stage 4 to cater for larger waste while Stages 1C, 1D, 2 and 3 are being used for household waste and other finer waste materials.

FIGURES 9 AND 10 STAGES 2 AND 3 FILLING PLANS

These figures show the landfill levels at the completion of Stages 2 and 3.

The average depth of filling over these two areas is about 2m. Locally, the waste depth will be less than 2m and only fine waste should be dumped, spread and compacted in these areas.

The depth of existing intermediate soil cover over these stage areas is unknown but could be considerable.

Prior to the placement of waste in these two areas the existing soil cover should be progressively pulled back by a gummy bucket excavator or the FEL to expose the underlying waste before overtopping with new waste.

The removed cover should be used to create soil bunding or stockpiled for later use as a final cover.

The western batters of Stages 2 and 3 and the northern batter of Stage 3 should be battered at 3H:1V.

A “final“ cover of 600mm of the local soil should be placed over the completed Stages 1, 2 and 3.

FIGURE 11 STAGE 4 FILLING PLAN

This figure illustrates the Stage 4 filling area at completion of filling.

As with the other stages, this stage should be divided into sub-stages so that filling is carried out within contained/bunded zones similar to the sub-stages shown for Stage 1.

Starter bunds about 1m high will be sufficient to separate the waste from unfilled areas and allow adequate segregation of leachate and clean rainwater, provided that waste is not allowed to spill over the top of the containing soil bunds.

The depth of the waste filling in this stage is about 4m and can thus be carried out in two 2m lifts.

Additional soil cover could be obtained by lowering the base of this stage to grade downwards from west to east on a gradient of at least 2%, say, 0.5m at the western side to 1.5m at the eastern side.

This will also allow the use of deeper lifts which would be more suitable to an FEL operation.

FIGURE 12 "FINAL" LANDFILL LANDFORM

Figure 12 illustrates the "final" landfill landform with an average surface gradient of between 4 and 5%.

The several stages and sub-stages should be filled in a similar manner to the earlier stages and sub-stages depending on the available equipment and depth of waste fill.

Although not necessary at this stage or for many years to come, this landform could be overtopped further if required to maintain a suitable, well graded final cap.

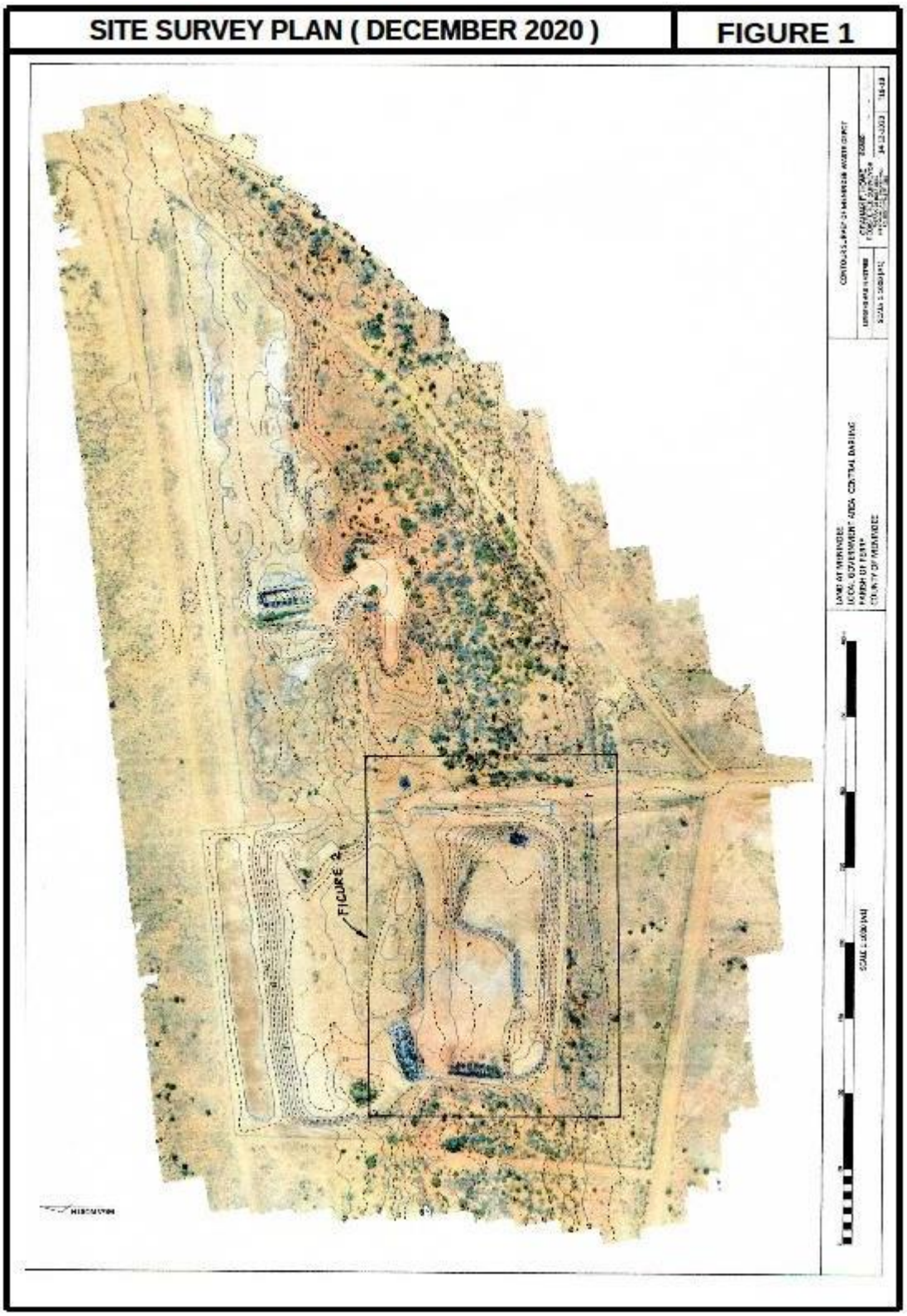
ESTIMATED LIFE OF LANDFILL

TABLE 1

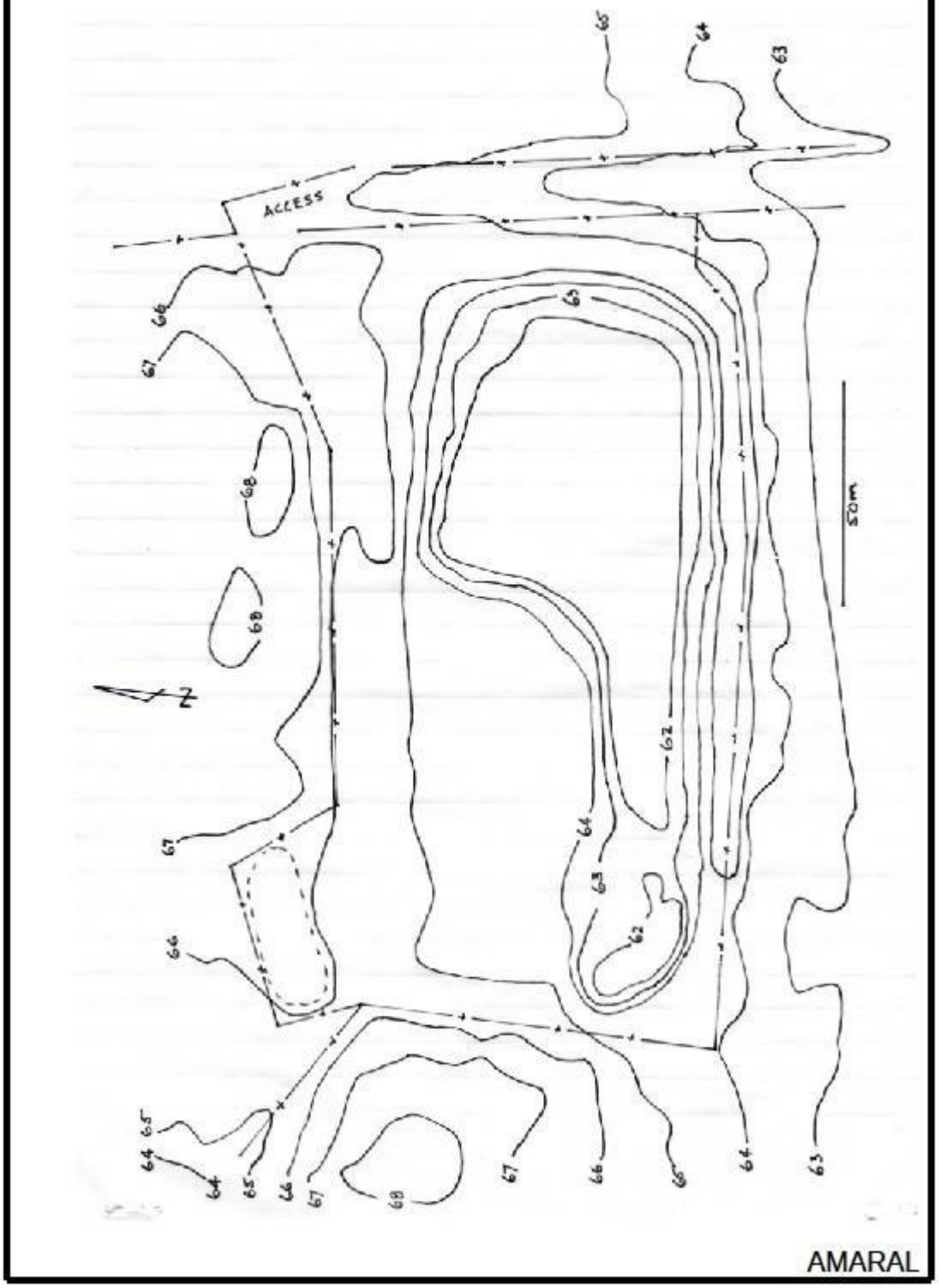
Stage	Void Capacity (m3)	Cover Required (m3)	Net Void (m3)	Life (years)
1	3,750	750	3,000	3.75
2	2,100	420	1,680	2.1
3	2,500	500	2,000	2.5
4	5,300	1,060	4,240	5.3
5	3,600	720	2,880	3.6

6	**3,000**	**600**	**2,400**	**3.0**
7	**4,700**	**940**	**3,760**	**4.7**
8	**4,800**	**960**	**3,840**	**4.8**
9	**2,400**	**480**	**1,920**	**2.4**
10	**3,100**	**620**	**2,480**	**3.1**
11	**3,000**	**600**	**2,400**	**3.0**
Totals	**38,250**	**7,650**	**30,600**	**38.25**

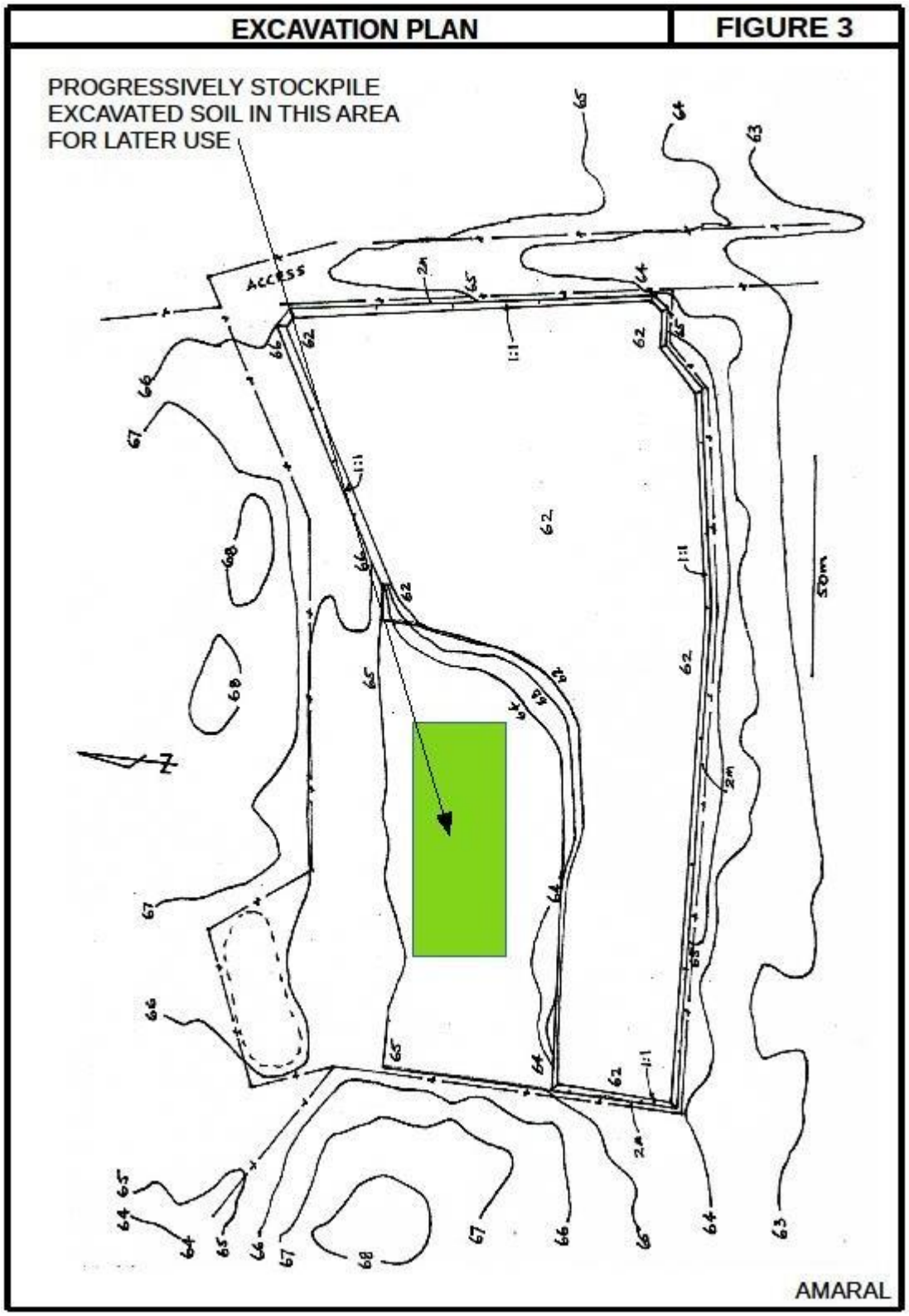
Appendix 2 – Design Concept Figures 1 to 12



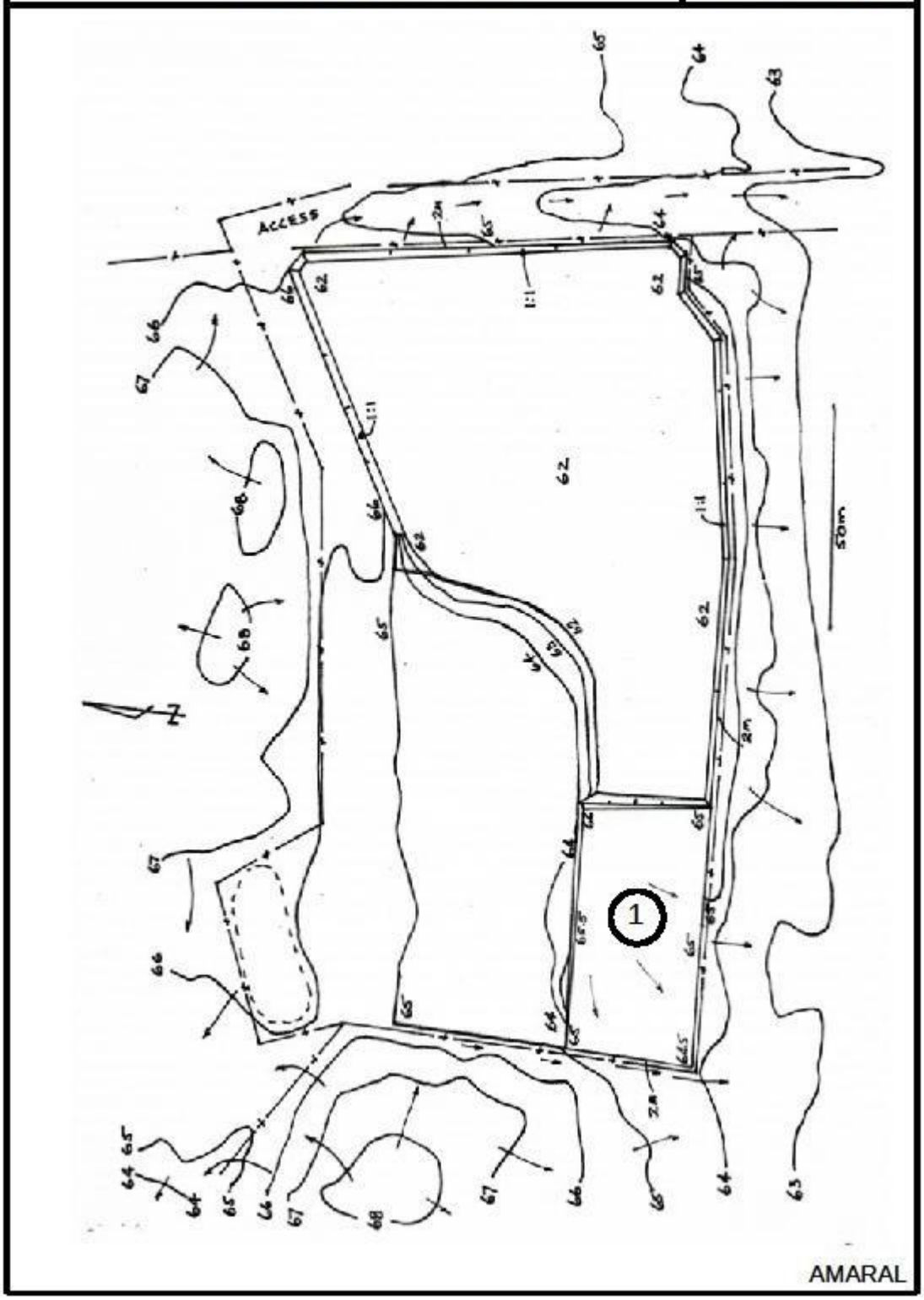
SITE PLAN	FIGURE 2



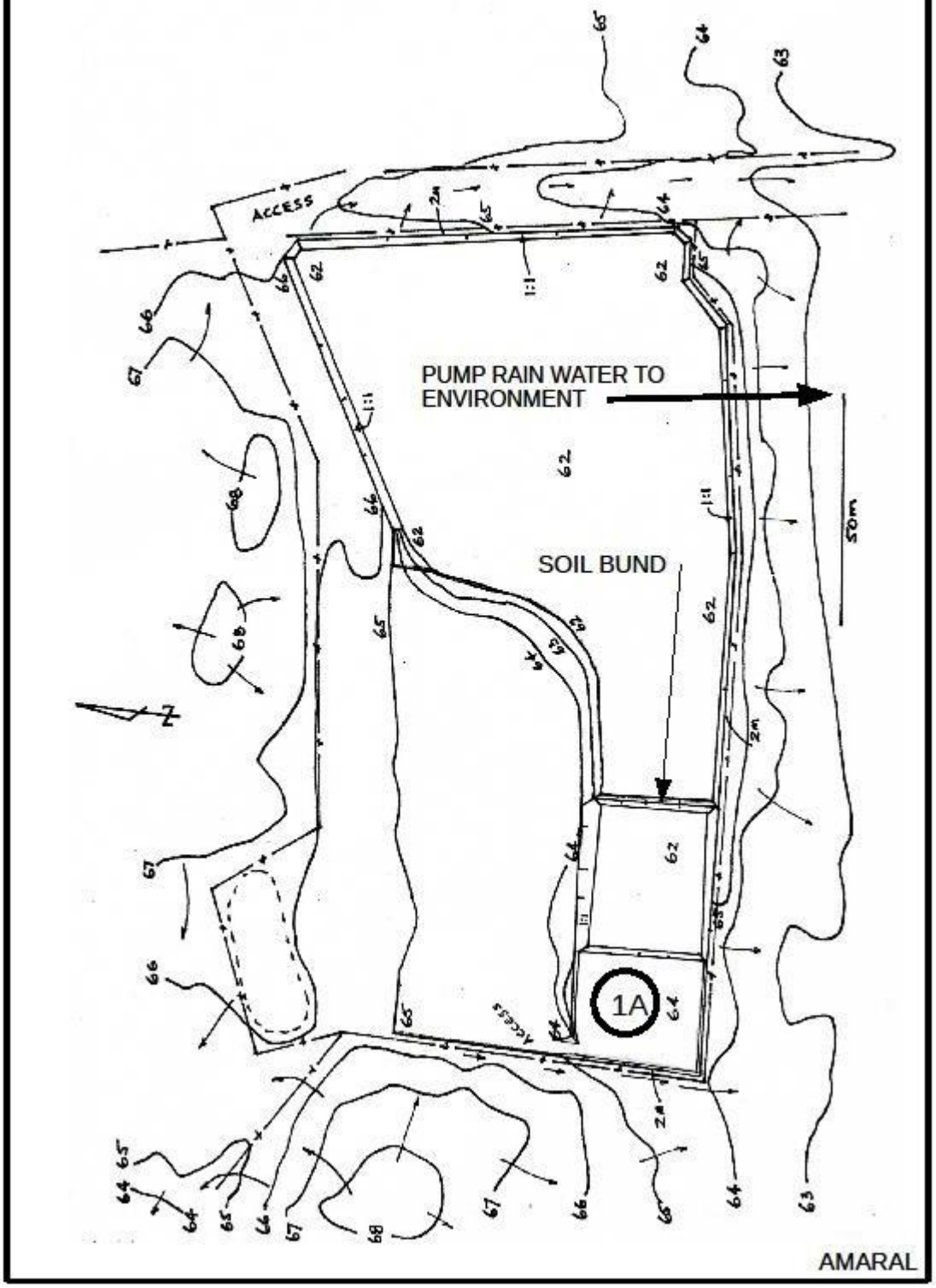
EXCAVATION PLAN | **FIGURE 3**

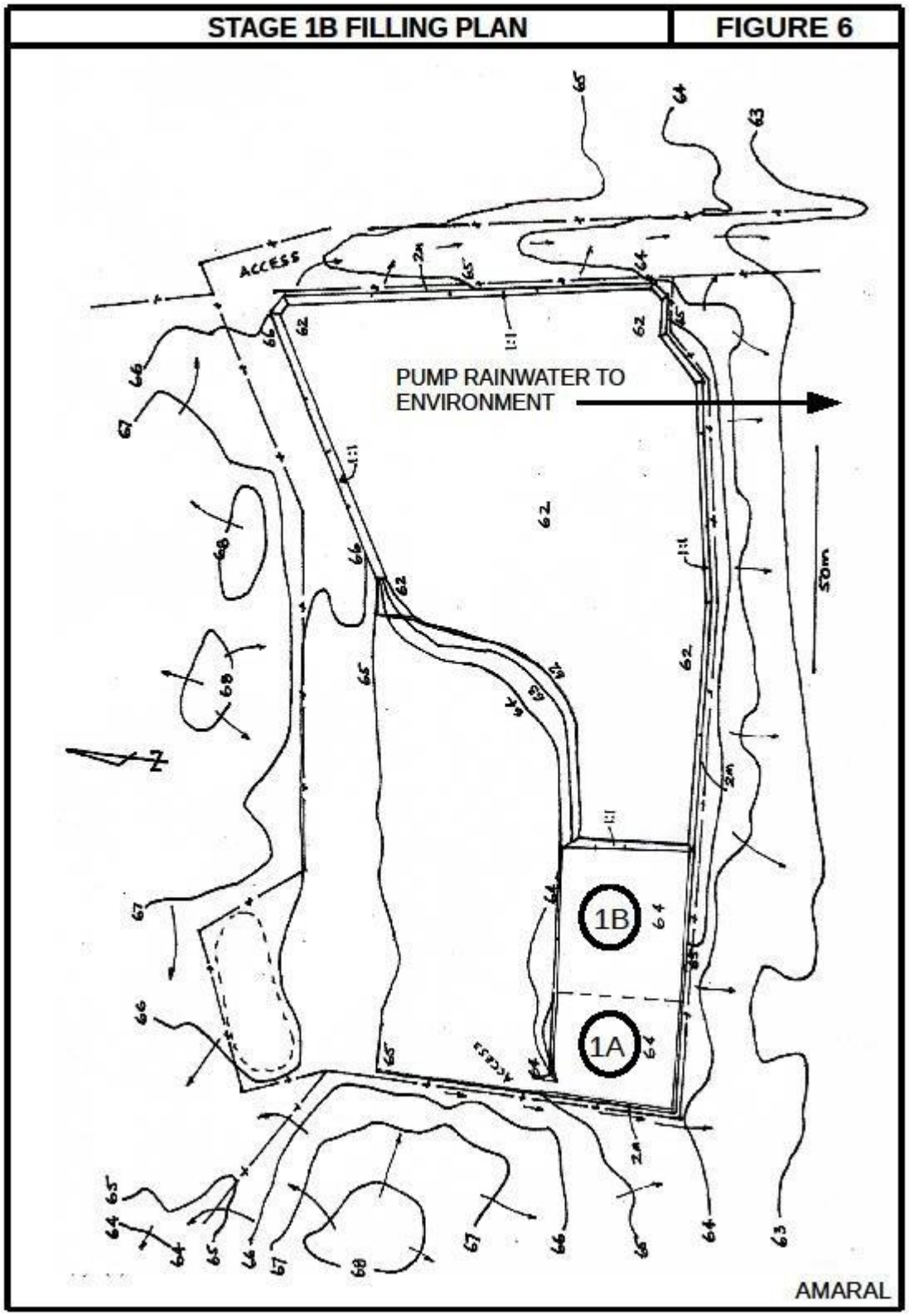


STAGE 1 FILLING PLAN	FIGURE 4

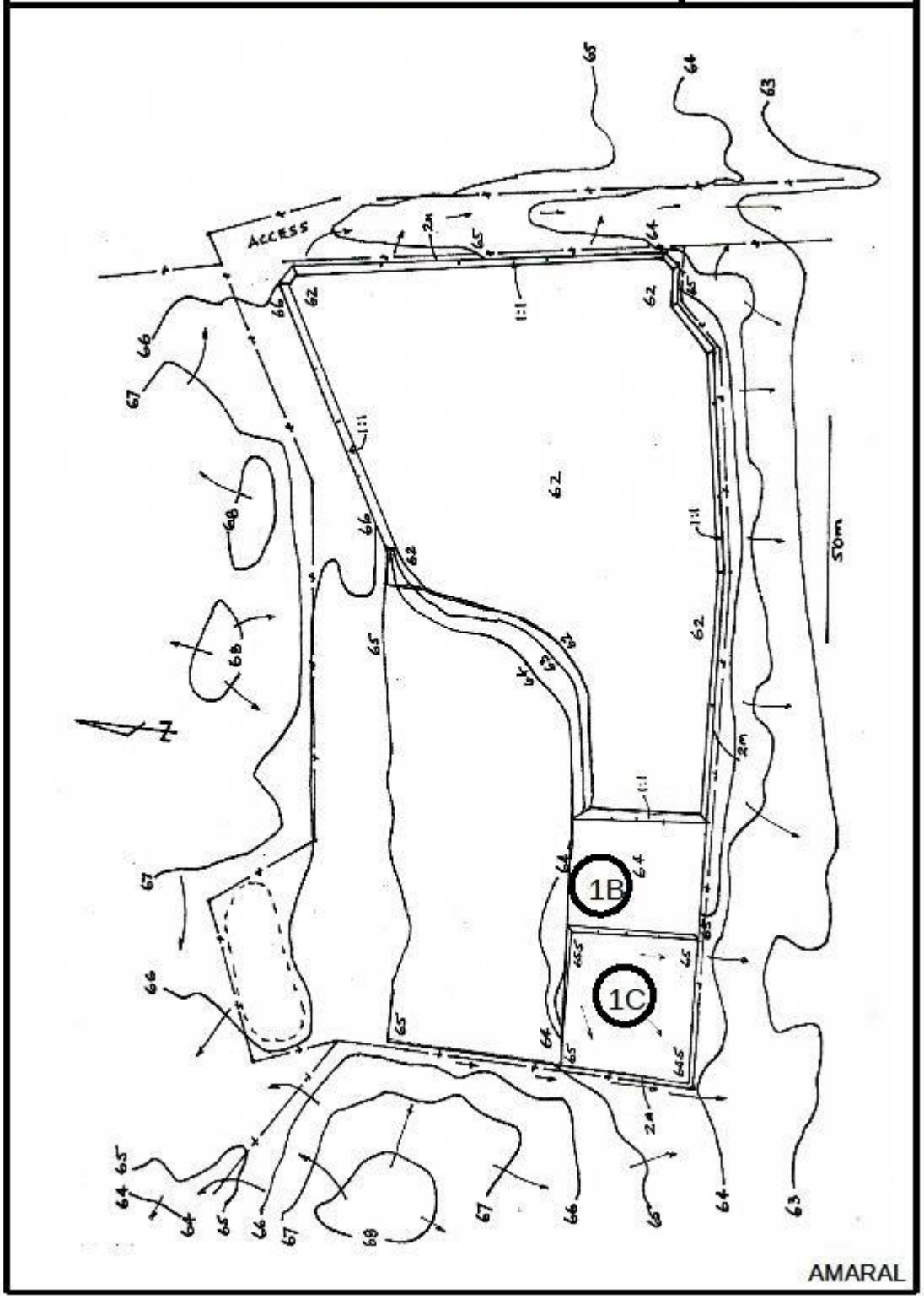


STAGE 1A FILLING PLAN	FIGURE 5

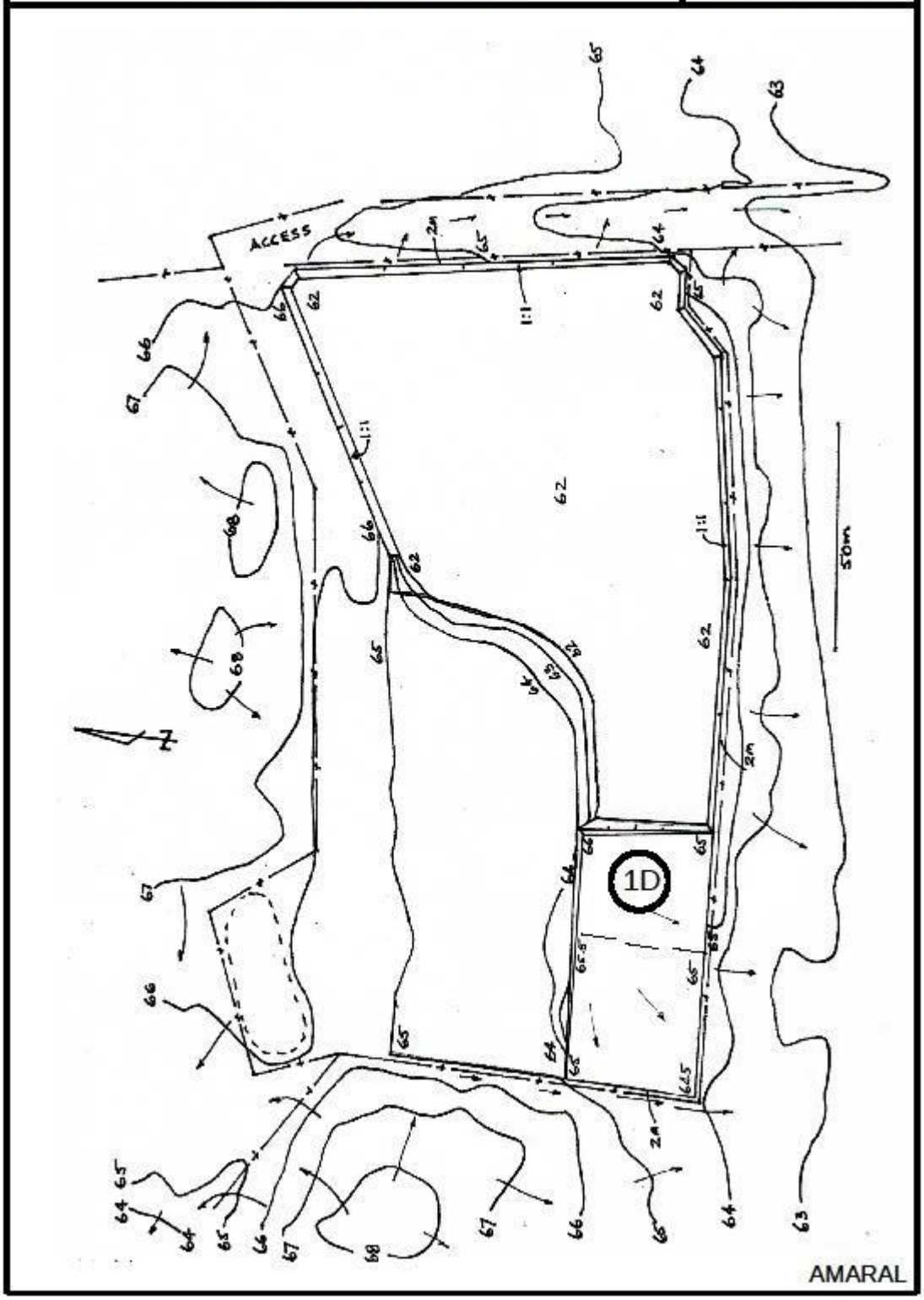



STAGE 1B FILLING PLAN
FIGURE 6
ACCESS
PUMP RAINWATER TO ENVIRONMENT
1B
1A
AMARAL

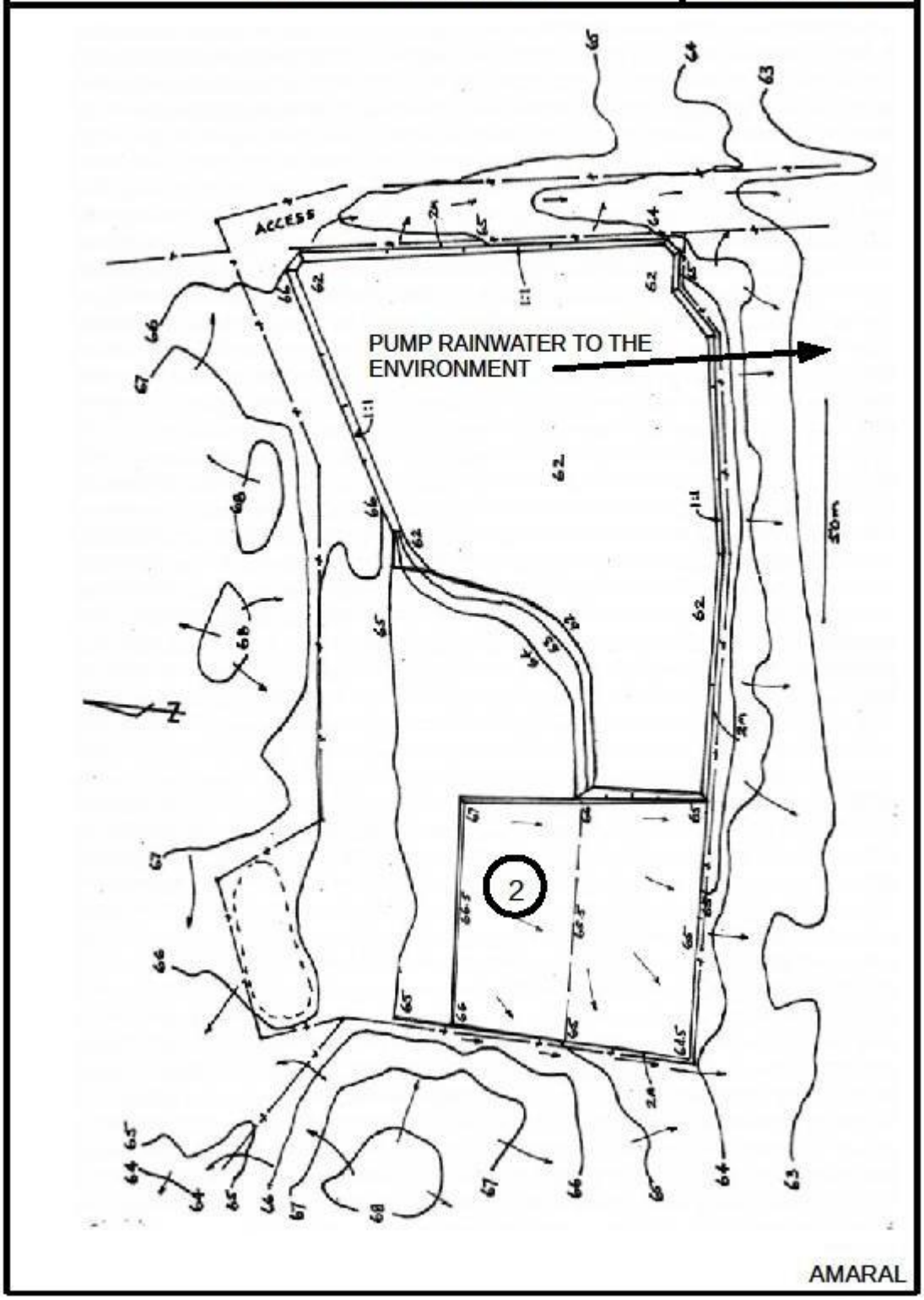
STAGE 1C FILLING PLAN	FIGURE 7



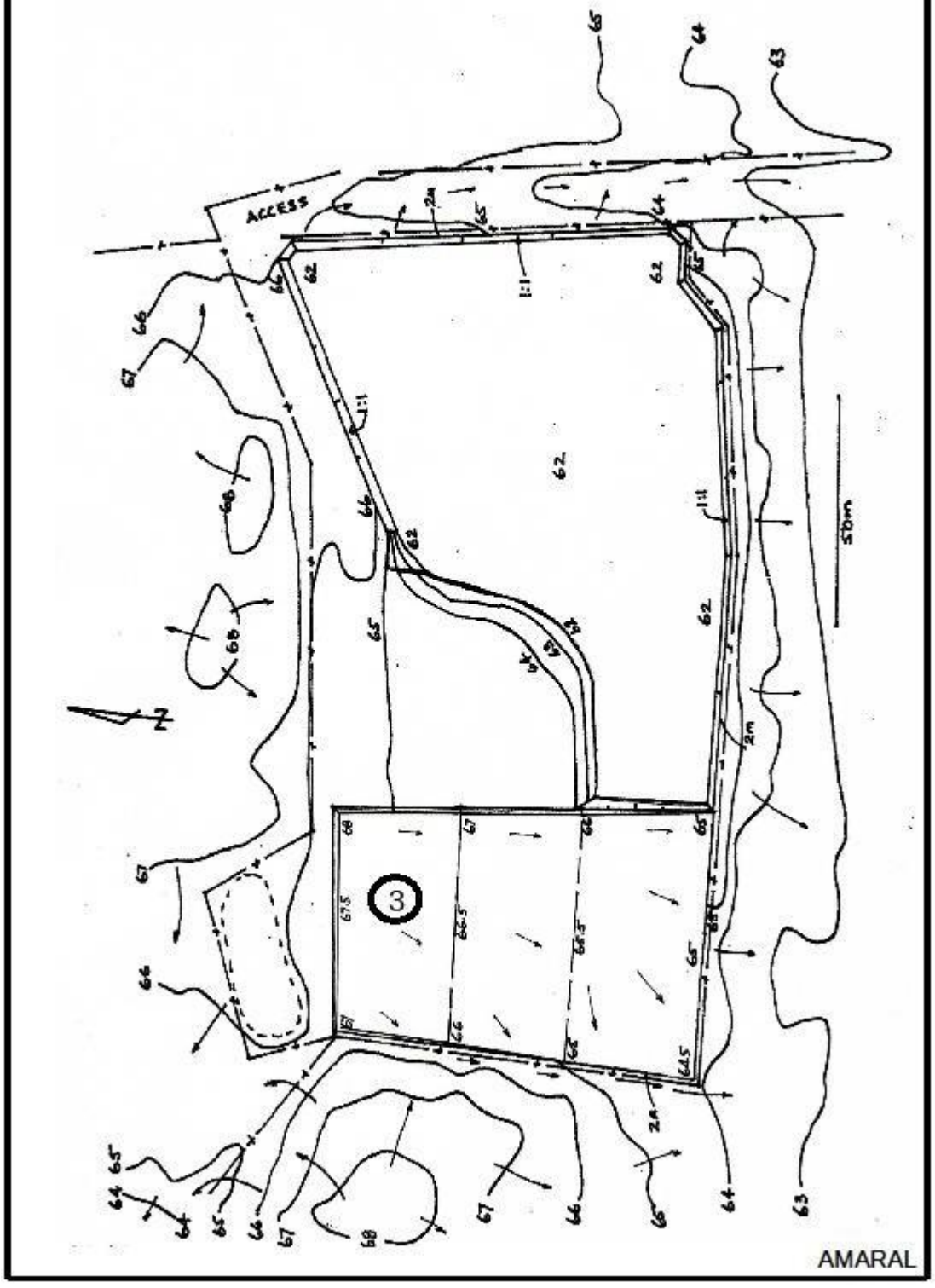
STAGE 1D FILLING PLAN	FIGURE 8



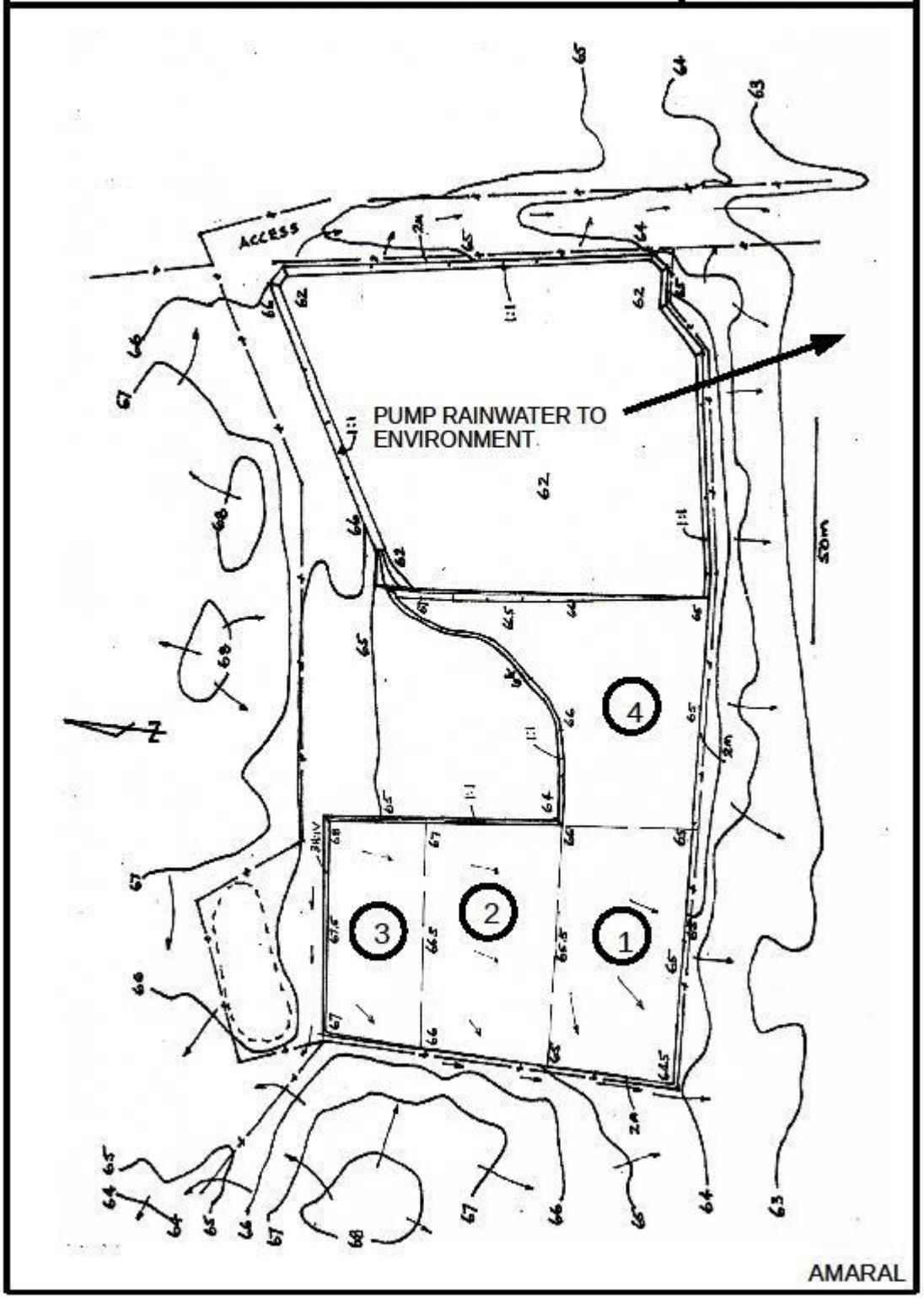
STAGE 2 FILLING PLAN | **FIGURE 9**

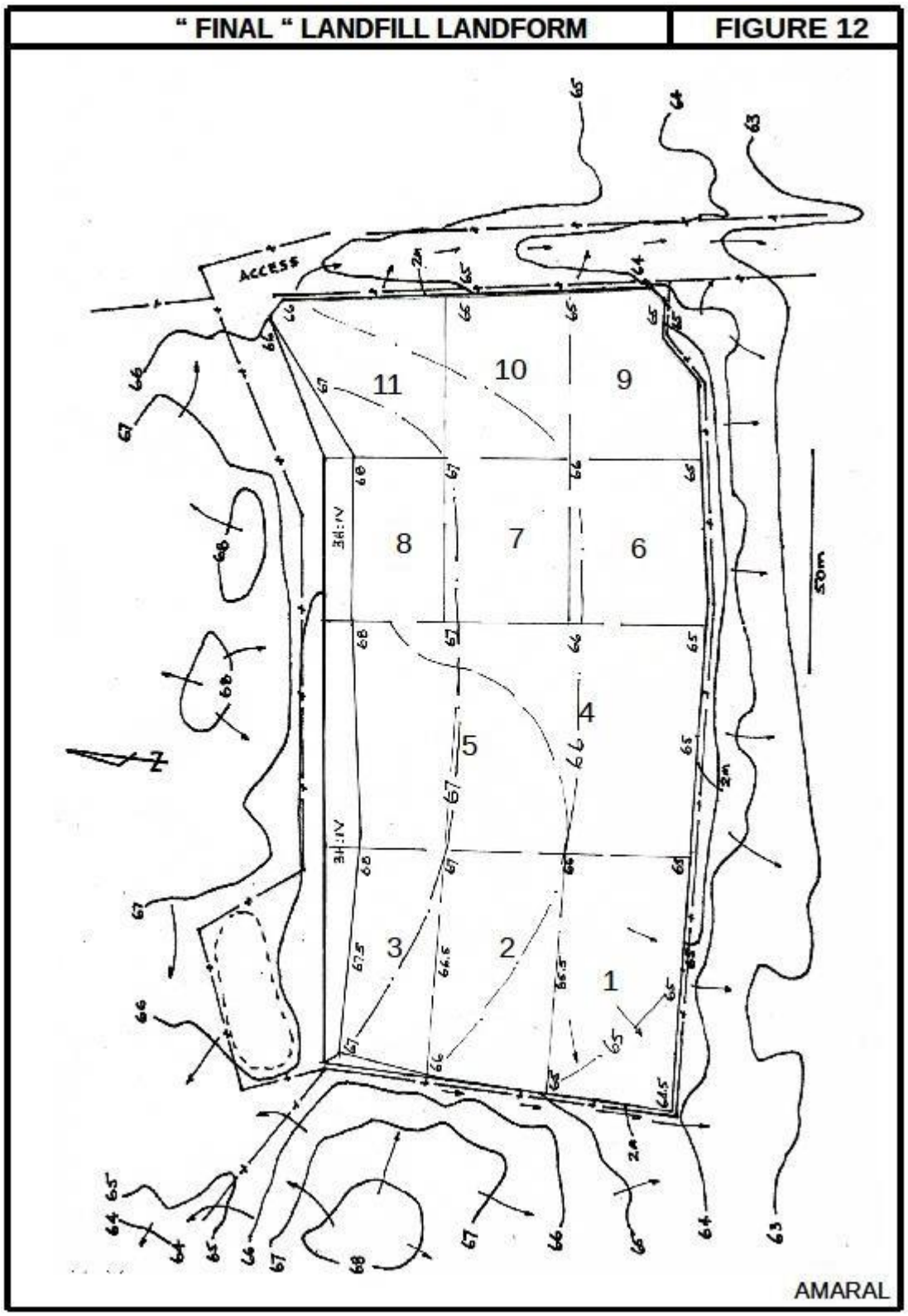


STAGE 3 FILLING PLAN	FIGURE 10



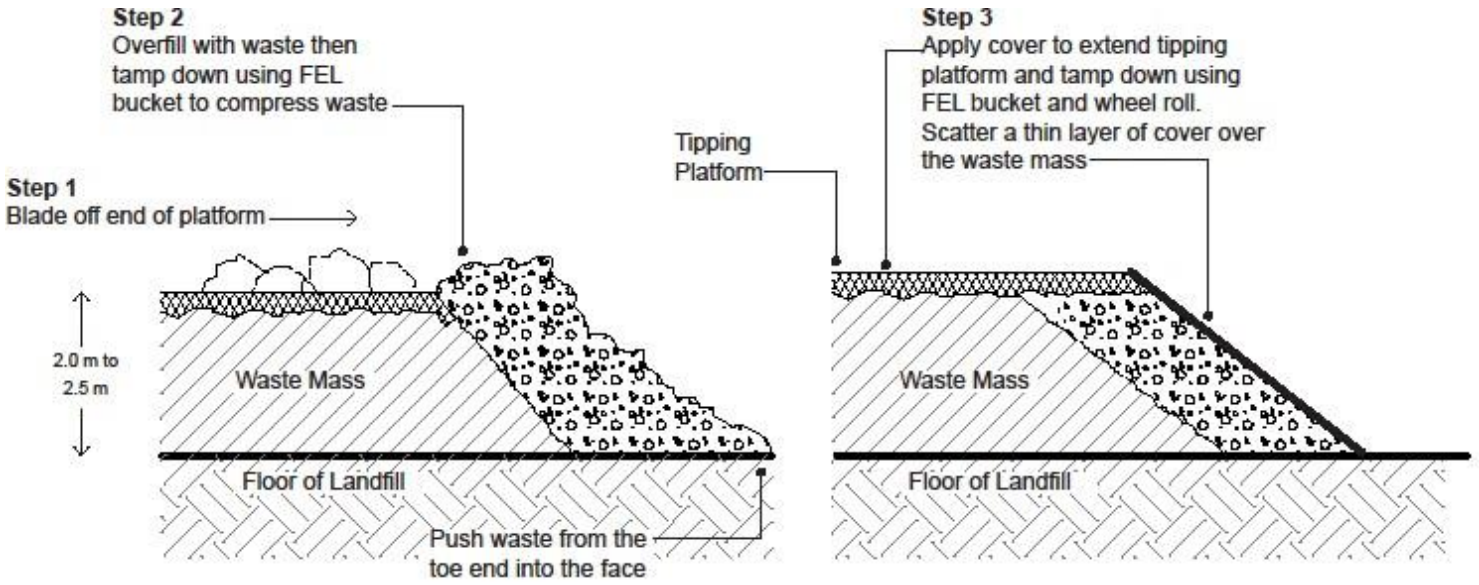
STAGE 4 FILLING PLAN	FIGURE 11




" FINAL " LANDFILL LANDFORM
FIGURE 12
ACCESS
11
10
9
8
7
6
5
4
3
2
1
3H:1V
50m
AMARAL

Appendix 3 - Aerial Site Plan

Appendix 4 – Waste Placement Technique



Note – Tamp down the exposed waste with the FEL bucket from the top and then, if accessible, from the toe area push any loose waste into the leading face. Then tamp in the exposed waste with the FEL bucket. Scatter some soil over the leading face from the top (and from the bottom, if accessible) after tamping is completed. This will save cover material and reduce windblown litter

WASTE PLACEMENT TECHNIQUE USING FEL ONLY

Appendix 5 - Protection of the Environment Operations (Waste) Regulation 2014

80 Disposal of asbestos waste
(cf clause 42(4) of 2005 Reg)

(1) (Repealed)

(2) When a person delivers asbestos waste to a landfill site, the person must inform the occupier of the landfill site that the waste contains asbestos.

(3) The following persons must ensure that when a person unloads or disposes of asbestos waste at a landfill site (regardless of whether the site is subject to an environment protection licence) no dust is generated from the waste—

(a) the person unloading or disposing of the asbestos waste,

(b) the occupier of the landfill site.

(4) Subject to any alternative cover conditions provided in an environment protection licence held by the occupier or approved in writing by the EPA, the occupier of a landfill site must ensure that asbestos waste disposed of at the site is covered with virgin excavated natural material—

(a) initially (at the time of disposal), to a depth of at least 0.15 metre, and

(b) at the end of each day's operation, to a depth of at least 0.5 metre, and

(c) finally, to a depth of at least 1 metre (in the case of bonded asbestos material or asbestos-contaminated soils) or 3 metres (in the case of friable asbestos material) beneath the final land surface of the landfill site.

(5) In this clause, ***landfill site*** means a landfill site that can lawfully receive asbestos waste.

Appendix 6 – Example of Mobile Litter Fence