

4.2. Preparation

1. Confirm and establish work area and set up exclusion zone as shown in above.
NOTE: Work area may not include entire area at once. It may be that areas are established as we work to them due to other site activities such as working around active haul roads.
NOTE: Asbestos pipe will not be removed under Haul Roads but removed to nearest join.
2. Establish Decontamination unit and mobilise excavator and loader
3. Walk and mark out excavation of the pipeline and confirm excavation permit covers the required area. Confirm any live services running close or over/under pipe to be removed.
NOTE: There will be expected services between Bore 6 and Bore 7 including live power to shed and pumps.
4. Use vac truck to hydro excavate potholes to confirm service locations as required per current excavation permit before commencing any excavator excavations in the area of the inground services.
NOTE: To be done out of asbestos condition and to avoid disturbance of asbestos pipe. If asbestos is disturbed/damaged works to stop and asbestos zone to be set up until cleaned by removalists. Works to commence once cleared by licenced third party hygienist

4.3. Excavation and Lifting Out Pipe

1. Using the 30t excavator and an experienced asbestos ticketed operator, excavate down and along the side of the asbestos cement pipe to expose it with care. Avoid any damage to the pipe as shown below in **Figure 4**. All excavated soil is to be cast to one side of the pipe leaving the other side clear for access and pipe loading. Excavated trench to have walls battered or sloped in accordance with Excavation Work Code of Practice for excavation as shown in **Figure 4a**. Vertical wall shall be no greater than 1 meter and the slope gradient no greater than 1:1 or the natural repose of the soil, whichever is the lesser grade.
NOTE: The majority of the main pipe only has approx. 600mm- 800mm cover.
NOTE: Separate the top soil from sub soil where possible during the excavation to create a separate windrow for later topsoiling when backfilling.



Figure 4: Excavate around and beside pipe

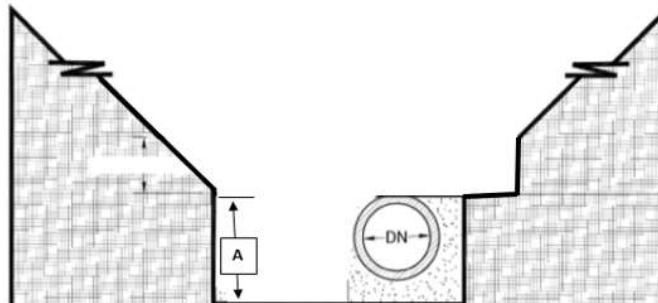


Figure 4a: Excavate around and beside pipe

Figure 5: Cracking the Flanges

2. NOTE: The asbestos team on the ground will hand dig a small trench under every joint and wrap the joint in plastic to catch any asbestos fibres if the joint location breaks
3. A sacrificial sling will then be placed around every pipe.
4. The excavator will lift out an exposed section of pipe and separate it from the next length that is in the ground.
5. NOTE: each sling will be a min rated of SW 1500 and 2m in length.

A sacrificial soft sling will be utilised for every individual pipe and disposed of with each pipe.

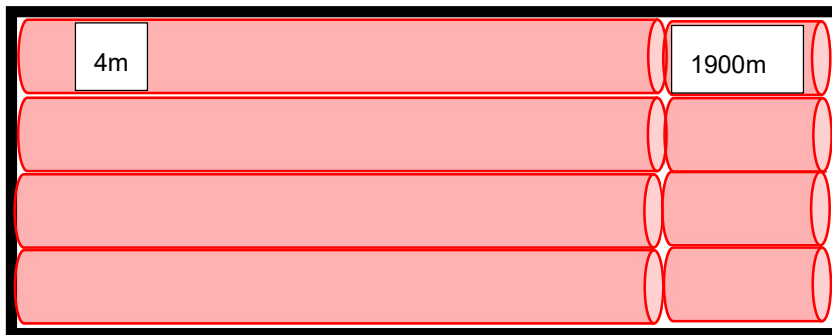


Figure 6: Lift Out Pipe Sections

6. The removed section of asbestos pipe will be then placed directly into a double 200um plastic lined transport container as indicated below.



7. Pipe sections to be lifted utilising the excavator carefully as to not spread asbestos pieces from the broken flange everywhere and place into double 200um plastic lined bin which will be moved as required with a loader with forks. Pipe should be placed at back of bin to avoid sliding when bin being relocated. Asbestos workers to enter the trench and collect all remnants of asbestos and bag and dispose in same bin.
8. NOTE: The bin end doors will be opened while the first layer of asbestos pipe is installed for transportation.
9. The transport bin will be double wrapped 200um plastic sheeting before placing any pipes into the bin.
10. NOTE: With the guidance of the hygienist and the asbestos team and exclusion zone will be set up with the pipe cutting machine to cut some asbestos pipes into 1900mm length to be utilised to fill the bins at one end.



11. All pipe that are placed into the transport bins will have the sling left on excluding the small cut sections of pipe.
12. Once the bin is full the lid will be replaced onto the bin in preparation for transport to sea swift via semi-trailers.
13. NOTE: Due to the quantity of bins that will be available while some bins are in transit and the remaining bins have been filled the removed asbestos pipes will be stockpiled in bundles of 16, plus 16 small cut sections, on top of the 200um plastic and then covered with the 200um plastic until the required bins have been returned from sea swift empty ready for more pipes to be transported to Darwin for disposal. These bundles will be barricaded and sign posted.
14. When pipe sections have been removed and all loose ACM collected the hygienist can clear the area.
NOTE: The asbestos work area will be moving with the removal of the pipe and a continuous clearing will be conducted by the hygienist to allow a backfill team to work directly behind the asbestos clearing team. There will be a 5m gap between the 2 teams and sign posted which area is the asbestos area and which area has been cleared for backfill.
15. Once bin is at capacity and wrapped, transport back to Darwin licenced waste facility for disposal
16. If damage to wrapping has occurred, stop work immediately and report to both hygienist and Supervisor. Area then to be considered and active "Asbestos Removal Area" and will need to be then contained by asbestos crew and cleared by hygienist before proceeding to load. Follow all Asbestos Removal procedures.

NOTE: Regularly shift and relocate the bins so they are close to the immediate work group

NOTE: The Bore Pipe under the haul roads are to remain. Excavators and equipment may need to be floated once cleared by hygienist into the 2 remaining areas and drivers will require a PIT PASS or HOT SPOT Escort into the active mine areas. Expect delays and this should be attempted during weekends.