Technical Notes – ESC

- The Project has 3 distinct areas:
  1. The Lower Playing Field and Link Access Track leading to Area 2.
  2. The Upper Playing Filed and access tracks leading to Area 3.
  3. Reservoir Excavation Site.

Technical Notes – Area 1

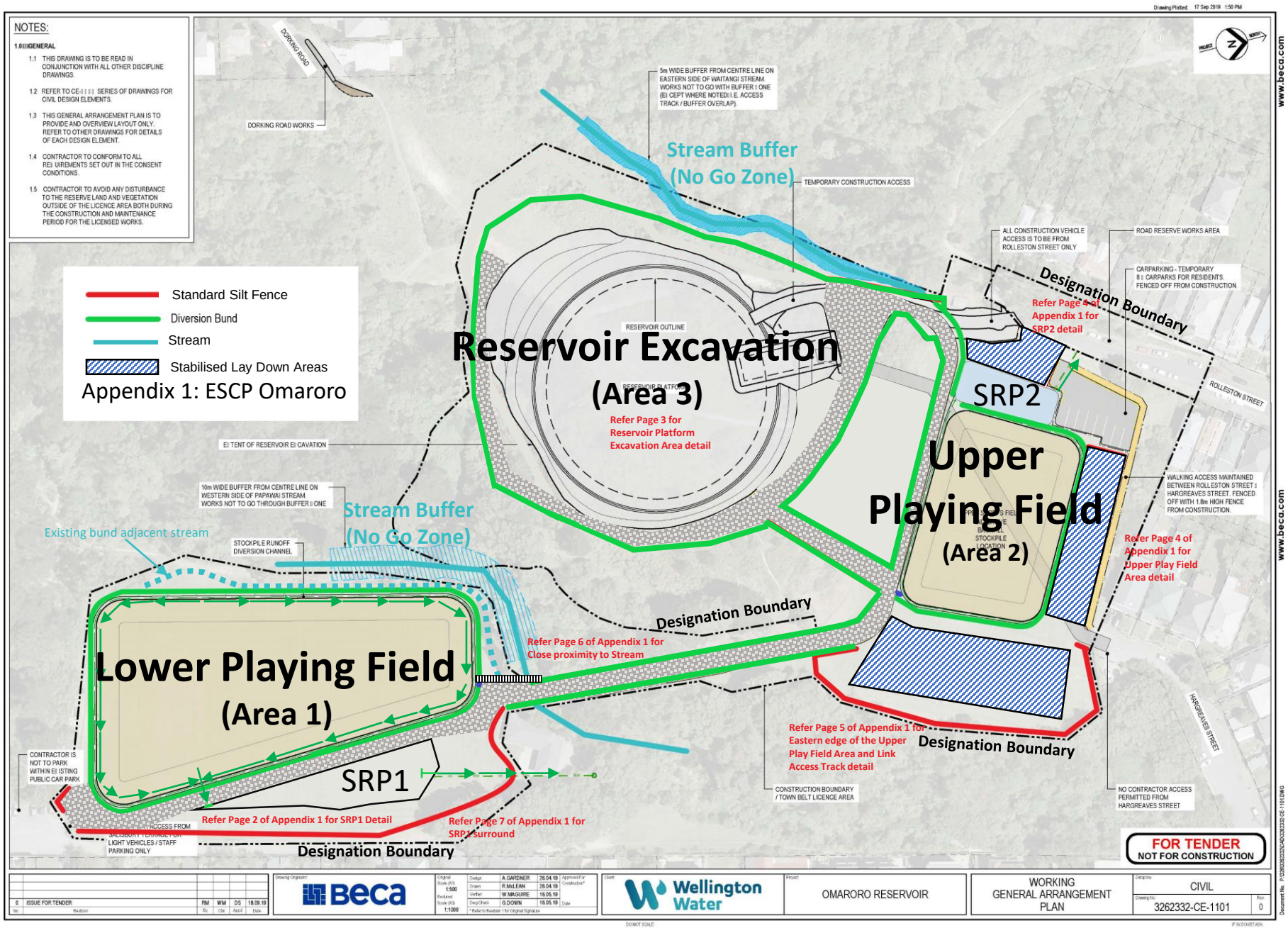
- SRP1 (non-conforming device due to buried utilities and limited space)
- Capacity of SRP1 is 455m^3.
- Treatment area for SRP1 is 5000m^2 and includes the link access track between the fields.
- Further detail on Pages 2, 5-7 of this Appendix.

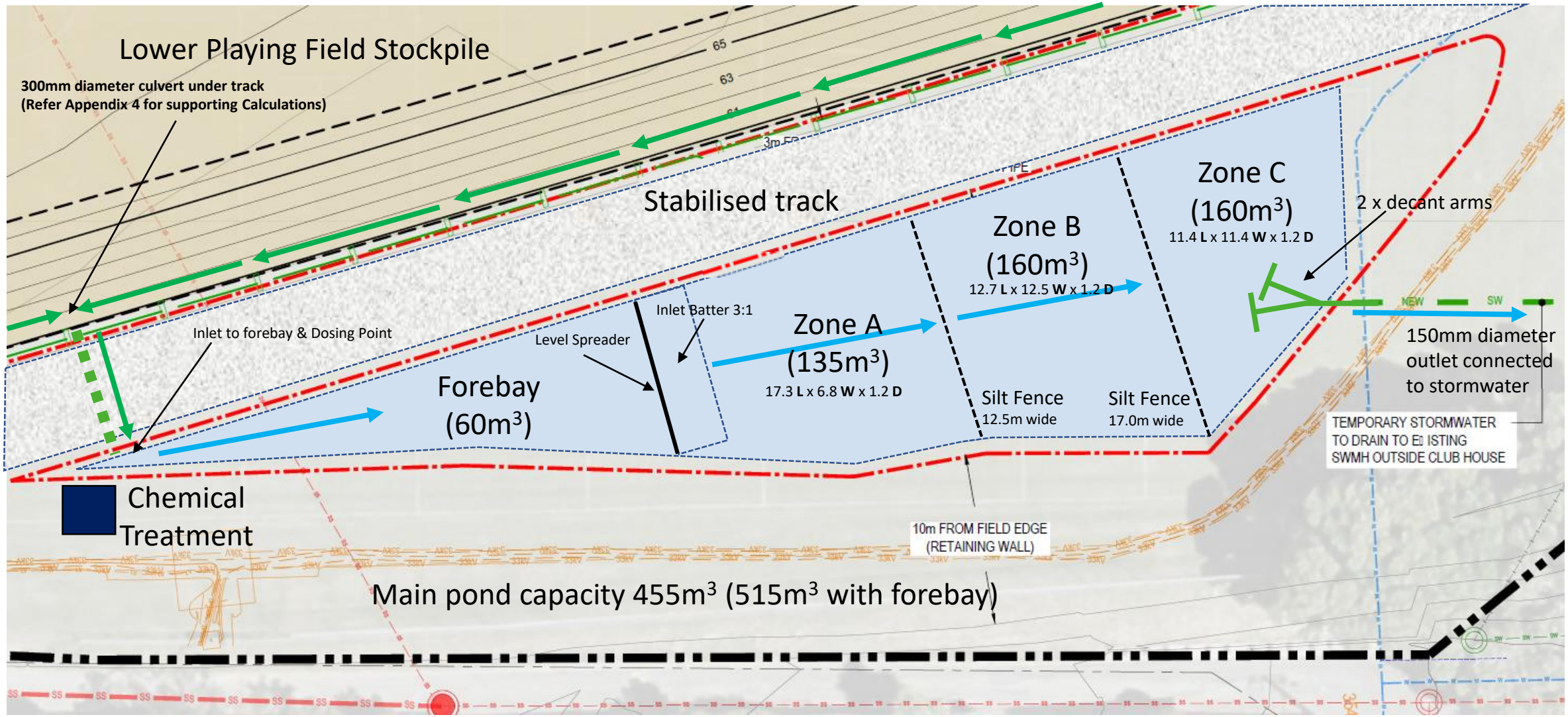
Technical Notes – Area 2

- SRP2 (conforming device)
- Capacity of SRP2 is 726m^3.
- Treatment area for SRP2 is 8000m^2 and includes the access tracks to Area 3.
- Further detail on Pages 3-5 of this Appendix.

Technical Notes – Area 3

- Bunding of perimeter.
- Interior will rapidly lower as the site is excavated.
- Treatment area for SRP2 is 4000m^2 and will be manually dewatered to SRP2.
- Further detail on Pages 3 of this Appendix.



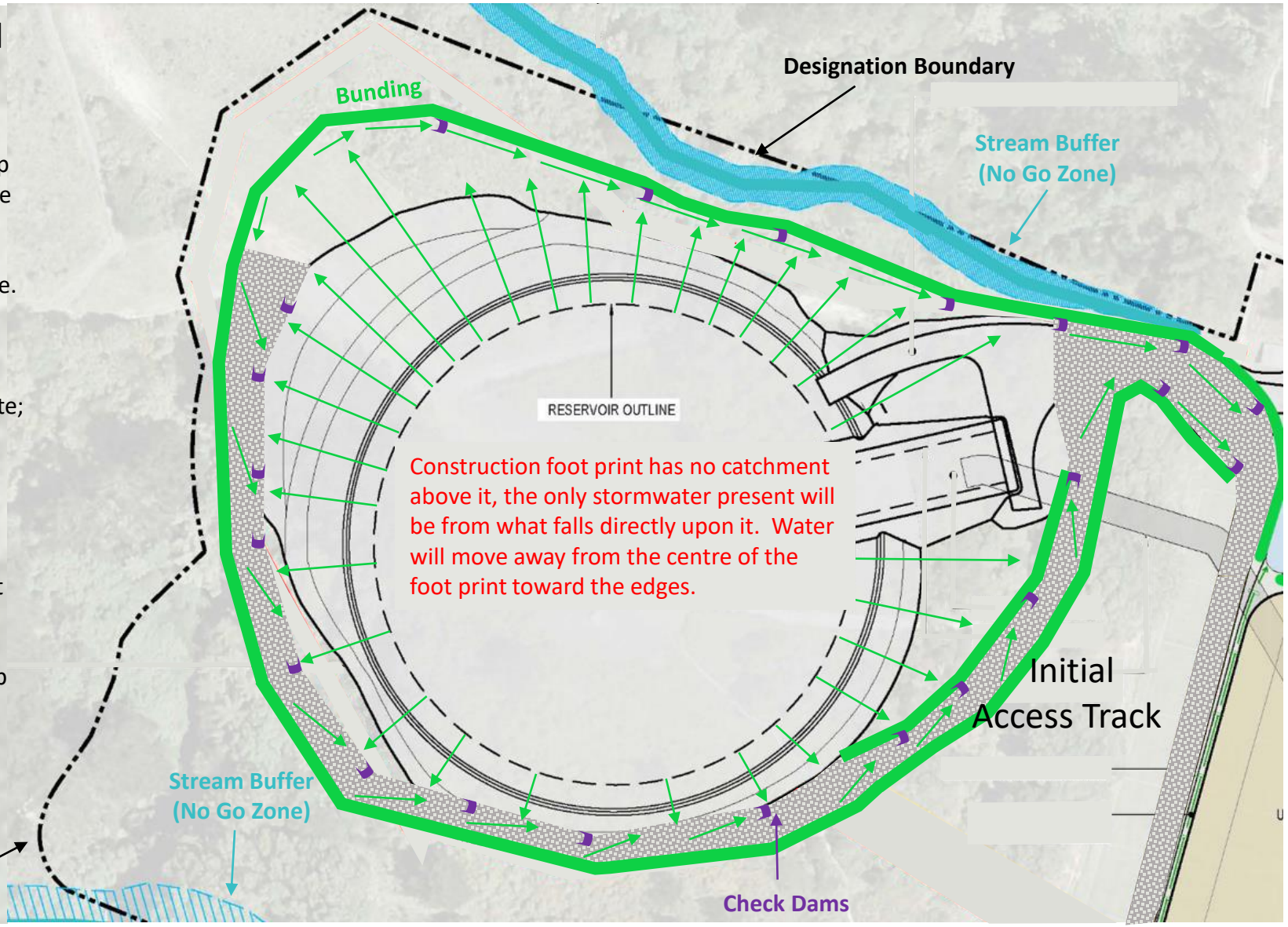


Technical Notes – Lower Playing Fields:

- The track surface will be covered with rock (GAP65 or Rota Millings) to render the surface stabilised.
- The track will be constructed using a cut and cover approach (leaving a stabilised surface at the conclusion of each day)
- The stabilised entranceway will also be constructed with the approach of cut and cover.
- The bunding will be at least 550mm in height and be stabilised in stages as completed.
- Any points that may scour due to water flow will be armoured using geotextile fabrics.

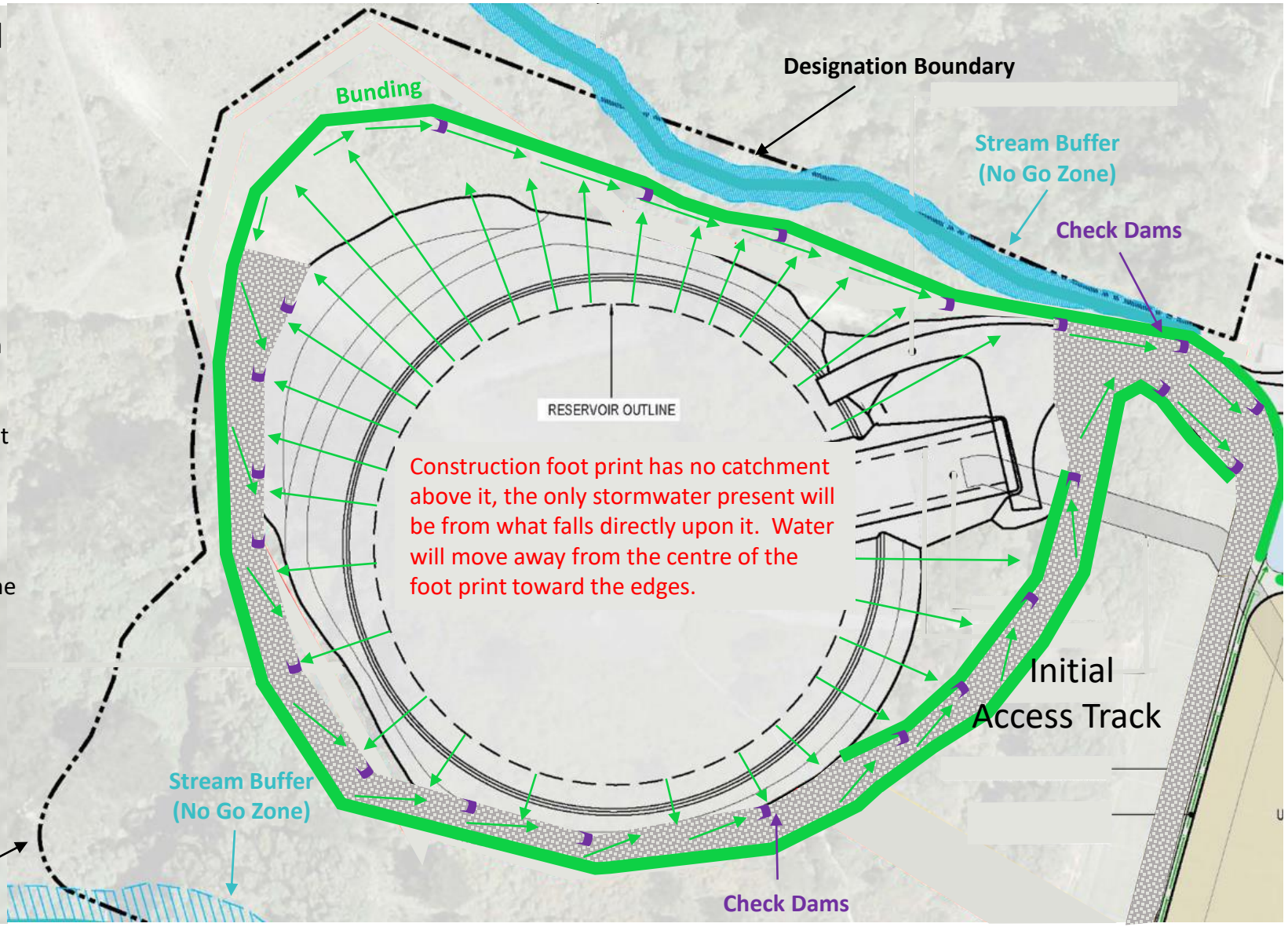
Sequence of ESC associated with initial access track installation

- Within a window of dry weather strip the vegetation on the footprint of the initial access track.
- The track will follow the contour around the hill at the minimum grade.
- The track surface will be slightly inclined toward the inside of the hill
- The track will be stabilised at the conclusion of each day with aggregate;
- Runoff from the track will be controlled with bunds on either side of the track directing the water to SRP2 on the Upper Playing Field.
- Velocity check dams will be installed on the track to slow stormwater as it travels to SRP2 on the Upper Playing Field
- This track will allow access to the top of the site.
- Perimeter bund will be installed and stabilised with geotextile fabric.
- Velocity check dams will be installed on the bund.



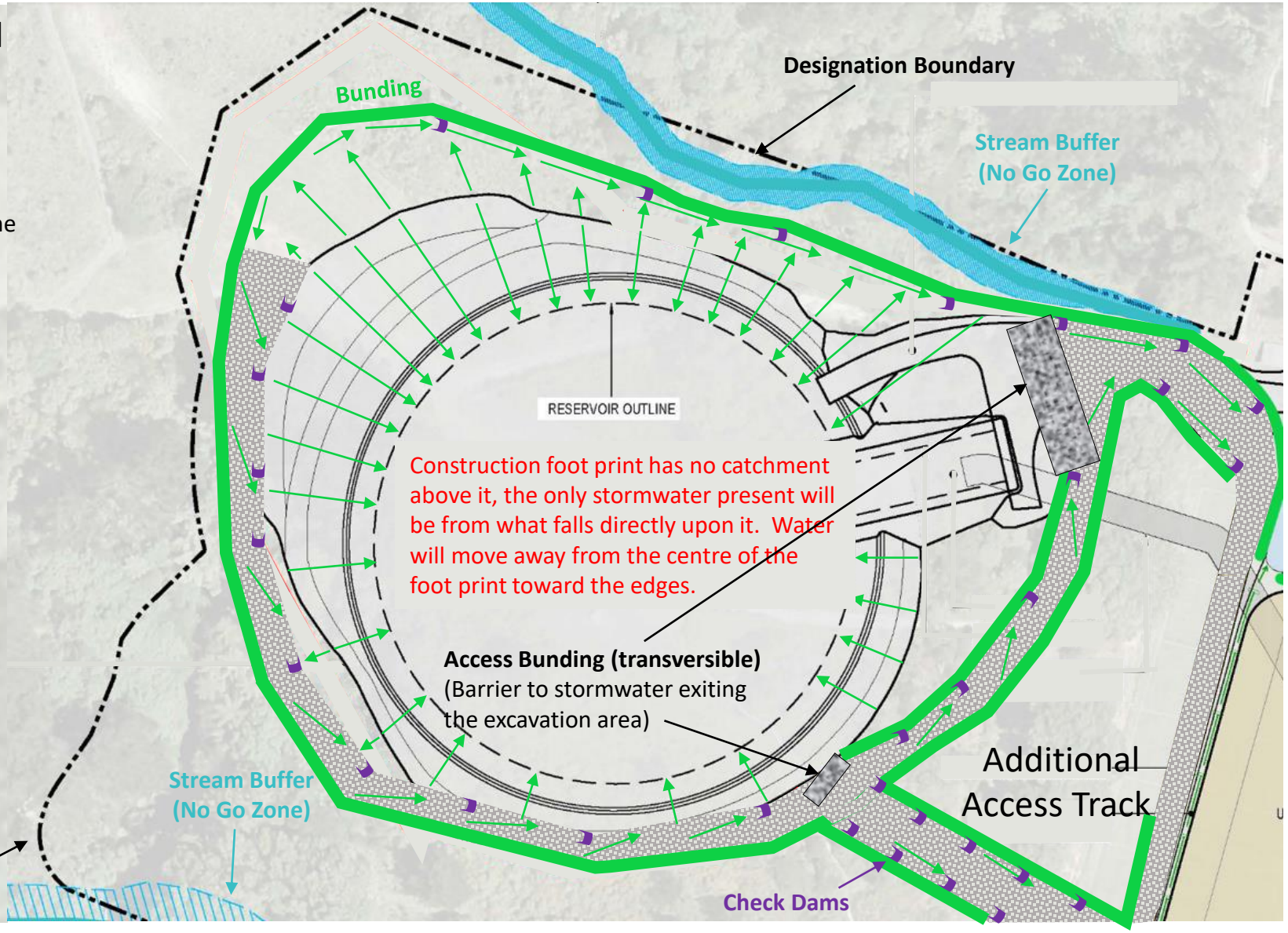
Sequence of ESC associated with excavation of the Reservoir Platform

- The interior of the area will be excavated to create a depression in the centre.
- The excavated moving down will further reduce the treatment areas associated with the bunding and will confine any rainfall to the excavation site.
- Stormwater will only be able to exit the excavation are when pumped out to the Upper Playing Filed Sediment Retention Pond.
- The two further access tracks to the excavation site will be stabilised and stormwater that falls directly onto the ramps will be directed to the Upper Playing Field Sediment Retention Pond.



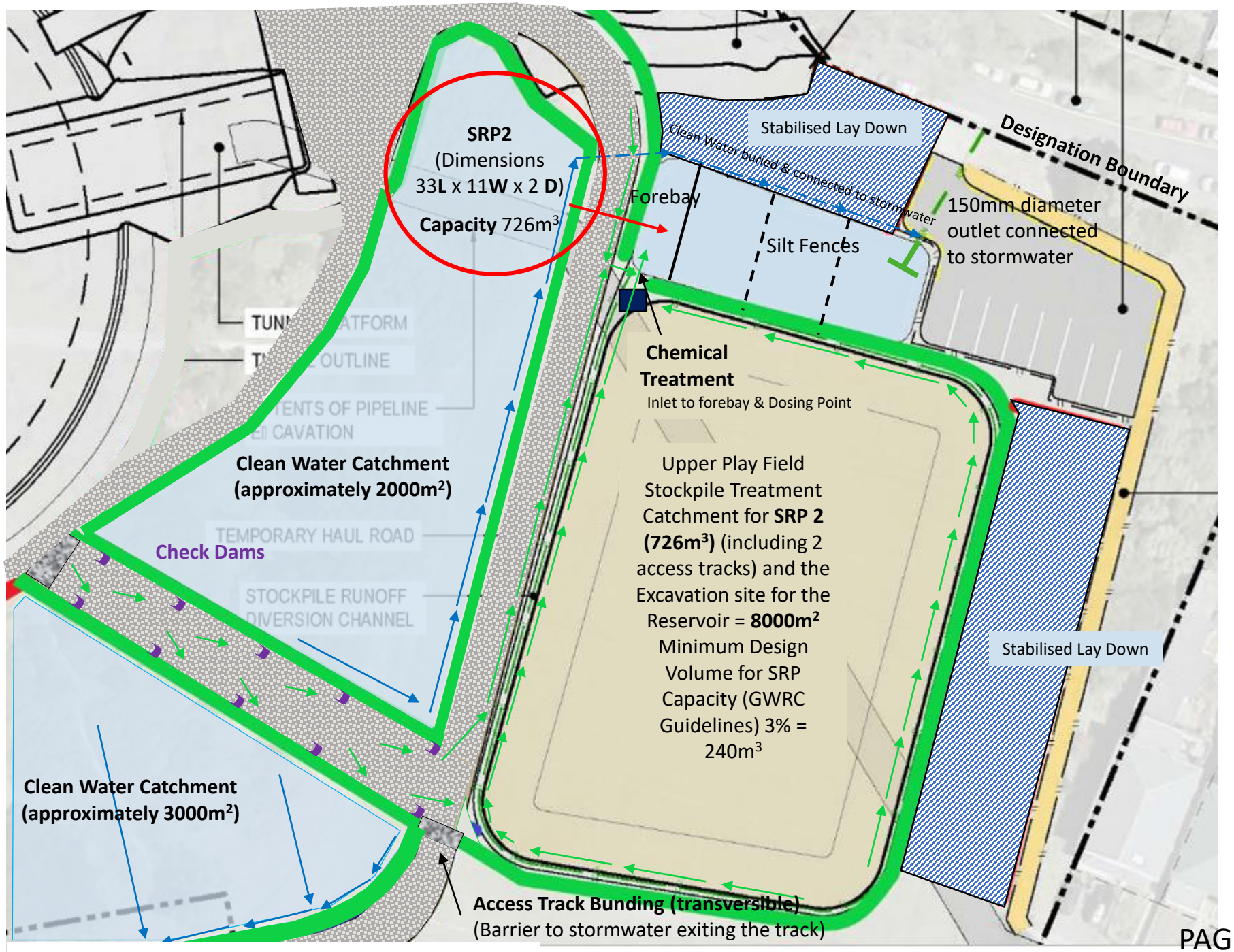
Sequence of ESC associated with excavation of the Reservoir Platform

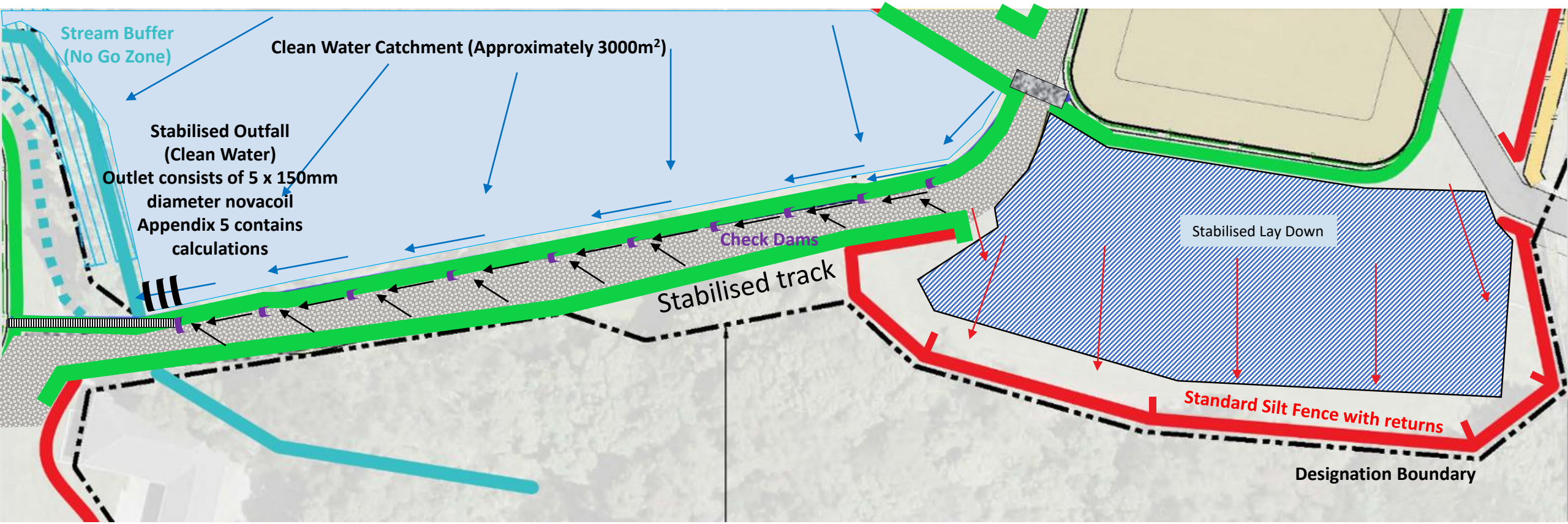
- An additional access track to the excavation site will be stabilised and stormwater that falls directly onto the ramps will be directed to the Upper Playing Field Sediment Retention Pond.



Technical Notes – Upper Playing Fields:

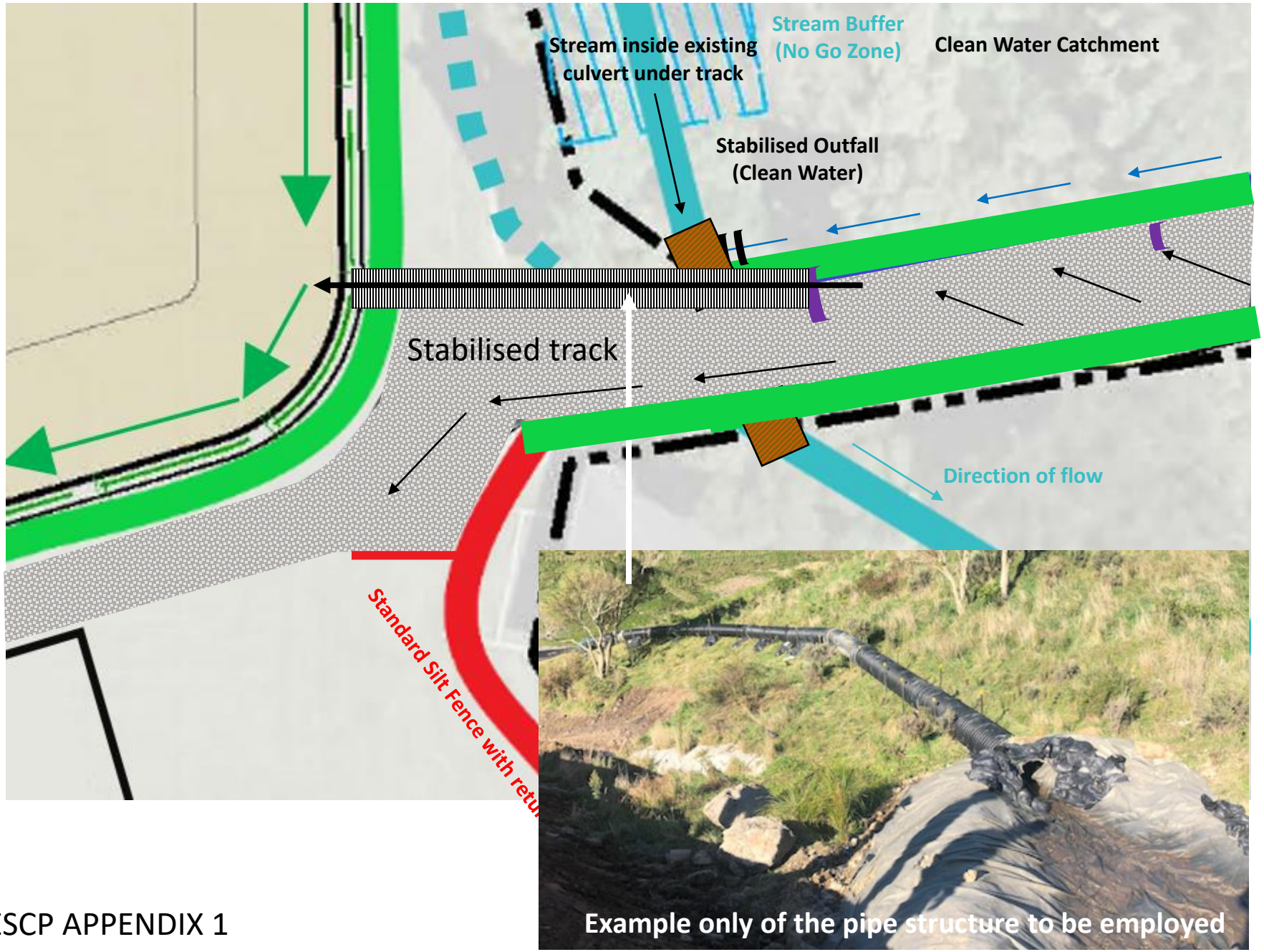
- The track surface will be covered with rock (GAP65 or Rota Millings) to render the surface stabilised.
- The track will be constructed using a cut and cover approach (leaving a stabilised surface at the conclusion of each day)
- The stabilised entranceway will also be constructed with the approach of cut and cover.
- The bunding will be at least 550mm in height and be stabilised in stages as completed.
- Any points that may scour due to water flow will be armoured using geotextile fabrics.
- SRP2 will be positioned to avoid existing services.
- The 8000m^2 treatment area is comprised of 3 parts however when the stock pile material has been completed it will be stabilised and be treated as a clean water area, thus reducing the treatment area to approximately 5000m^2, the areas include:
    1. 3000m^2 stockpile area
    2. 1000m^2 access track areas
    3. 4000m^2 reservoir excavation





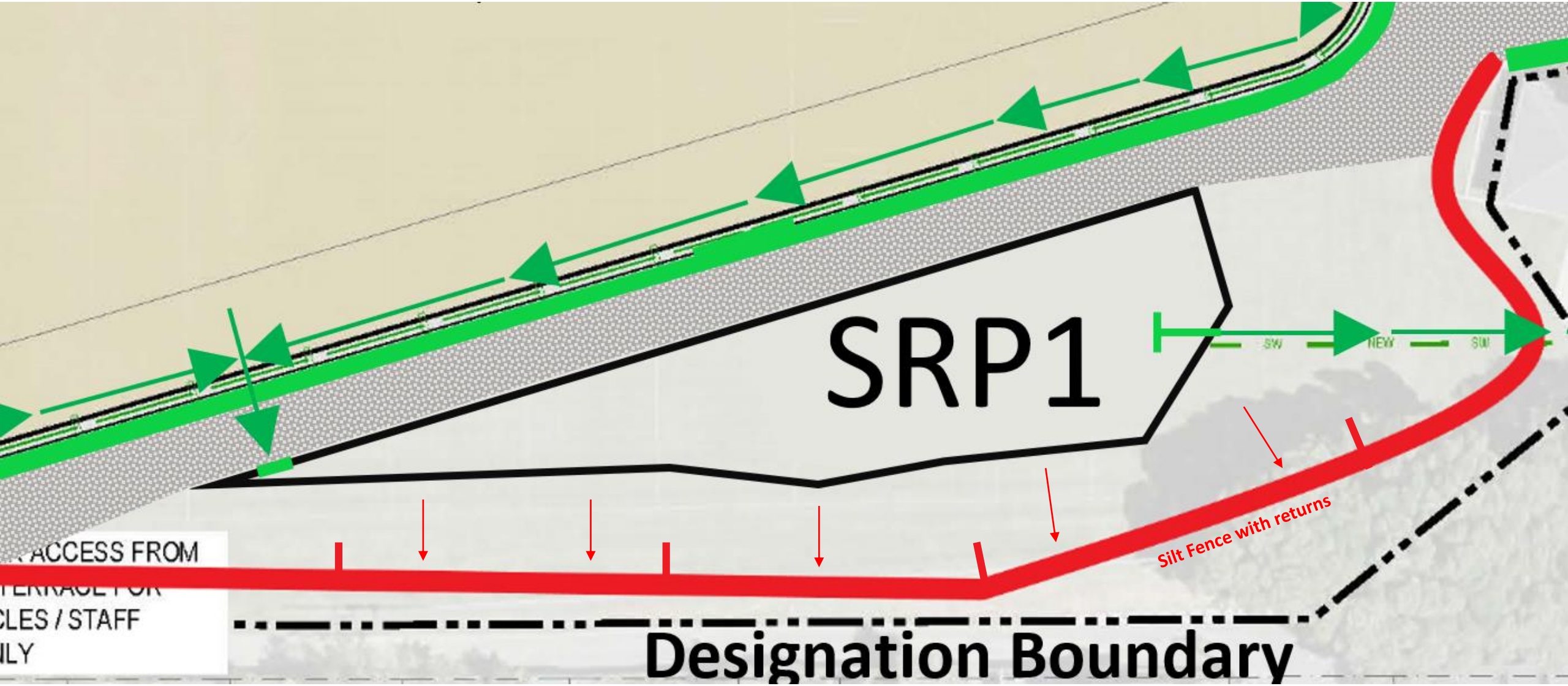
Technical Notes – Access Track between the Upper and Lower Playing Fields:

- The track surface will be covered rock (GAP65 or rota millings) to render the surface stabilised.
- A compacted earth bund of at least 550mm in height will be created on both sides of the track and then covered with geotextile to stabilise the bunds surface.
- The track surface will fall toward the hill side of the track which will manage stormwater to one side of the track.
- Velocity check dams will be positioned on the hill side of the track to slow the stormwater as it moves down the track.



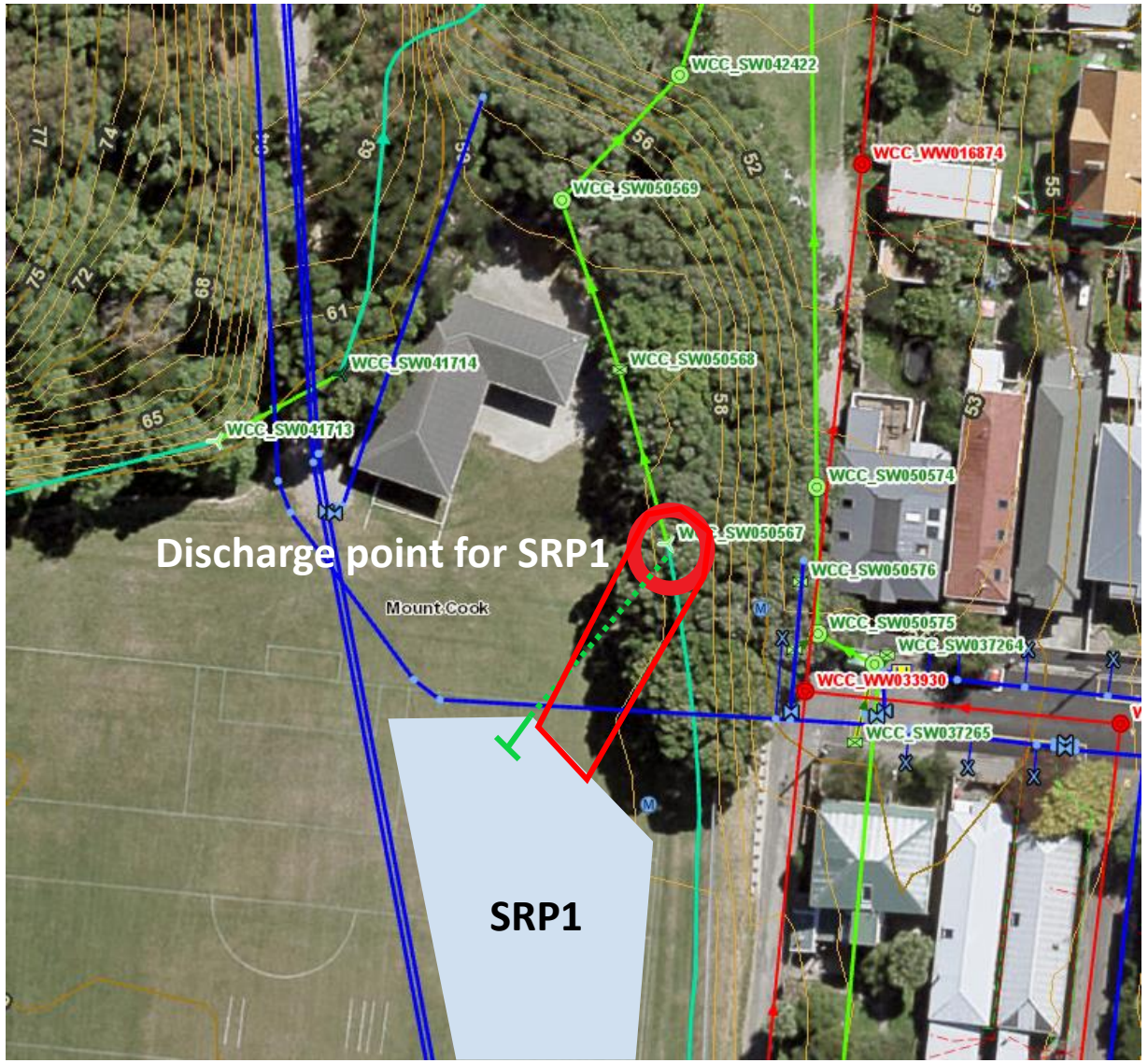
Technical Notes – Clean Water Diversion outfall:

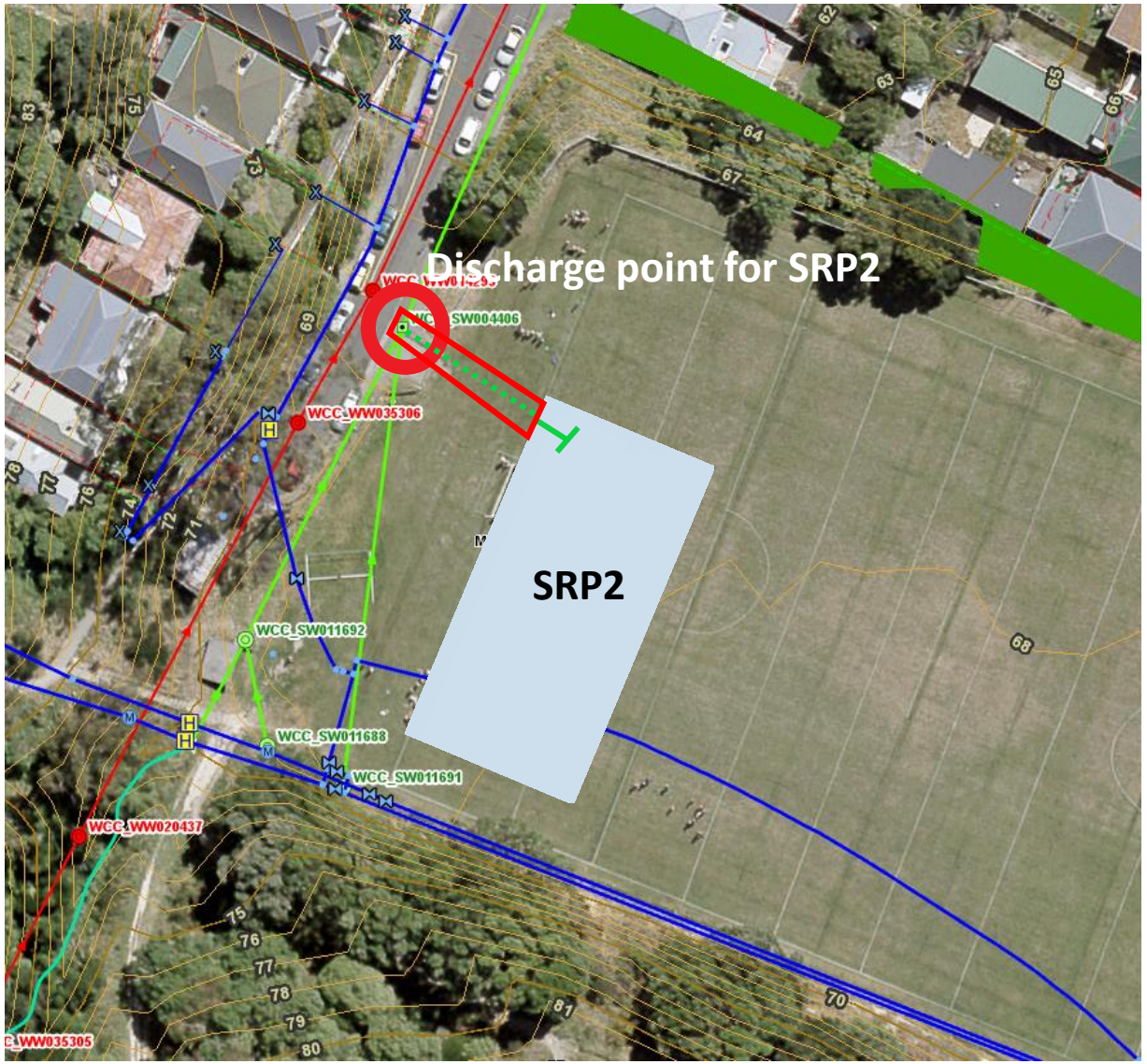
- Stormwater from the track surface will be directed through a 300mm diameter culvert across the area of the stream to enter into the stockpile bunding that delivers stormwater to SRP1.
- The upper part of the track will be shaped to direct off to the silt fences associated with the Upper Playing Field.
- To introduce clean stormwater into the stream at the bottom of the track without causing scour to the stream bed or stream bank a coffer dam will be constructed adjacent the stream and water will be dropped into the stream using novacoil pipes.
- To avoid the existing stream culvert an overland pipe culvert (300mm diameter), similar to that shown in the photo will be used to transfer the dirty water to the proposed bund surrounding the stock pile.


SRP1
SW
NEW
SW
Silt Fence with returns
ACCESS FROM
CLES / STAFF
Designation Boundary

Technical Notes – Watermain Installation:

- The Watermain needs to be installed prior to the stockpile area becoming available to receive material from the reservoir excavation area.
- The area involved is flat with a very slight fall toward the East
- Silt fencing will encircle the area to be used as a stock pile for excavated material.
- Large volumes of ground water entering the trench are not anticipated. Any water encountered will be allowed to drain away within the trench or alternatively pumped out of the trench adjacent the work site and allowed to flow overland to the area protected by the silt fence some 40-50m away.





Technical Notes – Discharge Points associated with SRPs:

- Primary outlet pipes will be directly connected to the stormwater network and buried.
- Emergency spillway will be overland within a confined flow path to the same stormwater network only it will enter via a connection through the manhole (diameter 500mm).
- SRP1 it discharges into the piped section of the Papawai Stream approximately 100m away and SRP2 discharges into the piped section of the Waitangi Stream that discharges into the harbour after several kilometres. The pipes at 375mm diameter concrete at the point of entry.