

Dry Creek Saltfields PEPR 2017/001

Response to DEM Environmental Direction 10 December 2020 regarding rectification works at Little Para River crossing

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Introduction

On 10 December 2020, Buckland Dry Creek Pty Ltd (BDC) received an Environmental Direction from the Department of Energy and Mining (DEM) regarding the observed presence of brine in the Little Para River estuary downstream of the Northern Connector crossing and in the vicinity of brine pond PA11.

The site as referred to in this report is shown on **Figure 1** and roughly consists of the land between the Northern Connector, brine pond PA11 and the land immediately downstream of the Little Para River bed-level crossing.

To assist in documenting activities relating to this Environmental Direction, BDC has undertaken daily site inspections and collected photos of various site features and remedial works.

This report sets out the work undertaken to date and proposed in the future to resolve the issue of brine presence in Little Para River. It responds to Point 2 of the Environmental Direction.

Leadup Events

Following completion of the Northern Connector by DIT in early 2020, BDC resumed access across the site for Saltfields activities. In late October 2020, BDC commenced release of brine from PA11 into PA12, following the relocation of the Peter's Peak pumpstation and the lodgement of the PEPR change document.

An events timeline is set out in **Table 1**.

Table 1: Events timeline

Date (all 2020)	Who	Description
Sept-Oct	BDC	Relocation eastward of Peter's Peak pumpstation and removal of old pump station
26 October	BDC	Submission of PEPR Change documents to DEM portal
27 October	BDC	Commenced filling of PA11 and PA12 to reach full pond level ready for pumping from Peter's Peak to Section 1
20 November	DEM	Direction given to BDC by DEM to cease pumping from Peter's Peak to Section 1. BDC complies with direction.
3 December	EPA	Officers inspected Little Para River estuary in vicinity of Northern Connector and pond PA11 (the site) and observed seepage of brine from PA11 into the estuary.
4 December	DEM	Advised BDC by phone late afternoon that brine was present in the Little Para River estuary and asked for BDC to propose urgent rectification works. BDC advised that matter will be investigated immediately.
5-6 December	BDC	Site was inspected and assessed ready for compilation of action plans with BDC staff.
7 December	BDC	BDC engineer and earthworks supervisor inspected the site with Saltfields officers and identified potential solutions to a) remove brine from the estuary and b) prevent further seepage of brine into the estuary
8 December	DEM, BDC	DEM executive officers inspected site in the company of BDC and observed seepage of brine from PA11 into the estuary. Verbal description given by BDC to DEM while on-site about preferred remedial works.
8 December	DEM, EPA, DEW, BDC	In-person afternoon meeting with executives of each attending, where BDC gave verbal undertaking to immediately commence remedial works to prevent future seepage of brine into the estuary. DEM accepted BDC verbal undertaking. (minutes recorded by DEM)
9 December	BDC	Staff identified preferred remedial works to prevent future seepage of brine into the estuary; prepared initial work scope and attended site with earthworks crew to discuss sequencing of works.
10 December	BDC	About 7am, staff commenced pumping of brine from pond extension back into PA11. About 9am an excavator was mobilised to the site and across the day about 500t of low permeability clay was delivered to the site by BDC for use in creating new bund wall. The clay was sourced from Adelaide Resource Recovery and was certified as waste fill. Damage to existing ground cover vegetation was minimised.
11 December	BDC	Continuation of works from 6am, including pumping out of pond extension and enlargement of new bund wall. A further 500t of low permeability clay was delivered to the site.
11 December	BDC	Provision of this document to DEM.
Intended future works		
12-13 Dec	BDC	Maintain pumping to continue drawdown of brine in PA11 extension.
14-18 Dec	BDC	Continuation of remedial works as outlined in Table 2 .

Site works completed

Site works undertaken this week are displayed in the following photos.



Photo 1: View south at construction of new bund wall in PA11 extension. 10 Dec.



Photo 2: View SE at construction of new bund wall in PA11 extension. 11 Dec.



Photo 3: View N at new bund under construction. Existing gypsum is placed on the downstream side of the bund. 11 Dec.



Photo 4: View NW at pumping of brine upstream to PA11 from existing pipe inlet. 11 Dec.

Remedial work scope

The work scope is denoted on **Figure 4**. **Table 2** sets out individual work tasks in approximate sequential order.

Table 2: Remedial work scope

Task	Description	Date(s)
1	Commence pumping of brine from PA11 extension back into PA11	10 Dec
2	Deliver approx. 1,000t low permeability clay to site	10-11 Dec
3	Continue pumping of brine from PA11 extension back into PA11	11 Dec
4	Strip gypsum from pond base to find existing clay layer as foundation and place/compact clay above into new trapezoidal bund 1.2m high and approx. 6.0m wide at base. Gypsum is placed on the downstream side of the bund.	10-12 Dec
5	Excavate sump at new pipe inlet point in PA11 extension	14 Dec
6	Apply clay to start of PA12 channel to prevent back seepage of brine to creek	14 Dec
7	Trim and remove crusted brine from western side of bed level crossing and deposit in PA11.	14 Dec
8	Prepare PA11 extension for delivery of new pipe strings, shape landform, cut trench through bund, excavate area for welding frames	14 Dec
9	Receive 4 x 12m pipe strings and undertake stringing preparations	15 Dec
10	Weld and integrate pipe strings from existing inlet to new inlet point	16 Dec
11	Fill new bund trench and additional area with surplus clay to aid in suppression of seepage potential	16 Dec
12	Excavate shallow channel (300mm depth and width) as well as a new sump 500mm deep at southern corner of creek expansion area	16 Dec
13	Deploy temporary sand bags to creek bed near Northern Connector crossing to prevent water flush travelling upstream. Block existing RC pipe at bed level crossing to prevent water flush travelling downstream	17 Dec
14	Deliver 2x 20,000L potable water to release point with water tankers. Commence pumping from sump to PA12 channel and slowly release water from truck to flush brine towards sump. Ensure no overflow of bed level crossing.	17 Dec
15	Repeat Task 14 until all brine is visibly removed from creek area	17 Dec
16	Remove sandbags, unblock bed level RC pipe, perform final site trim and cleanup.	18 Dec

In undertaking these remedial works, BDC notes the following:

- the new pipe inlet point will have a control valve allowing the pipe to be shut off completely to prevent water flowing from PA11 into PA12 channel.
- There is currently no flow in the creek channel and weather forecasts indicate this is unlikely to change in the next week, meaning our site controls will be effective in controlling introduced potable water.
- Across 16 and 17 December, spring tides will likely assist in removing liquid and crusted brine from downstream portions of Little Para River
- The work scope involves complete removal of introduced water into PA12 channel and therefore no discharge to downstream portions of Little Para River



Figure 1: Site location and context

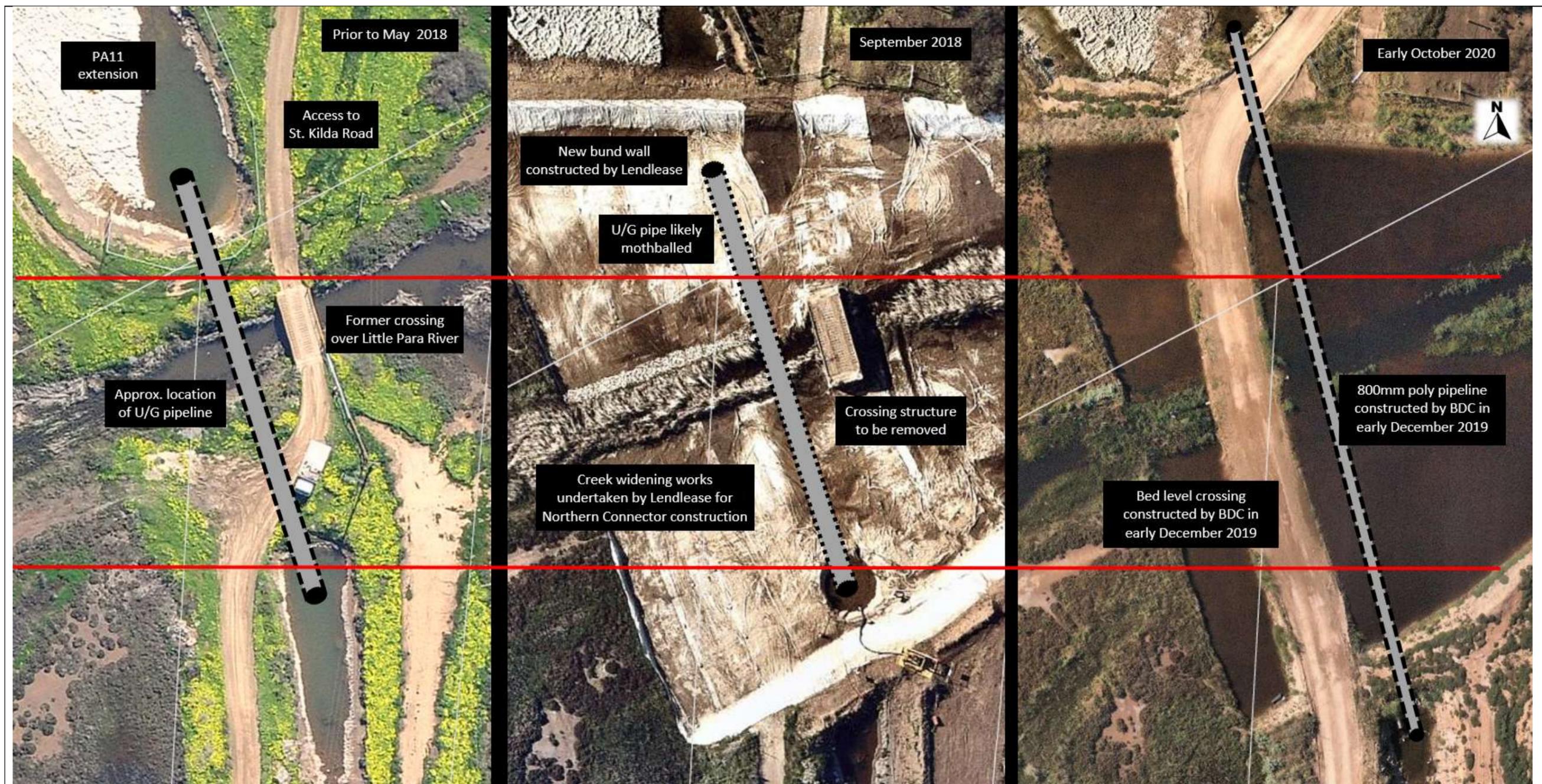


Figure 2: Changes to site due to construction of Northern Connector

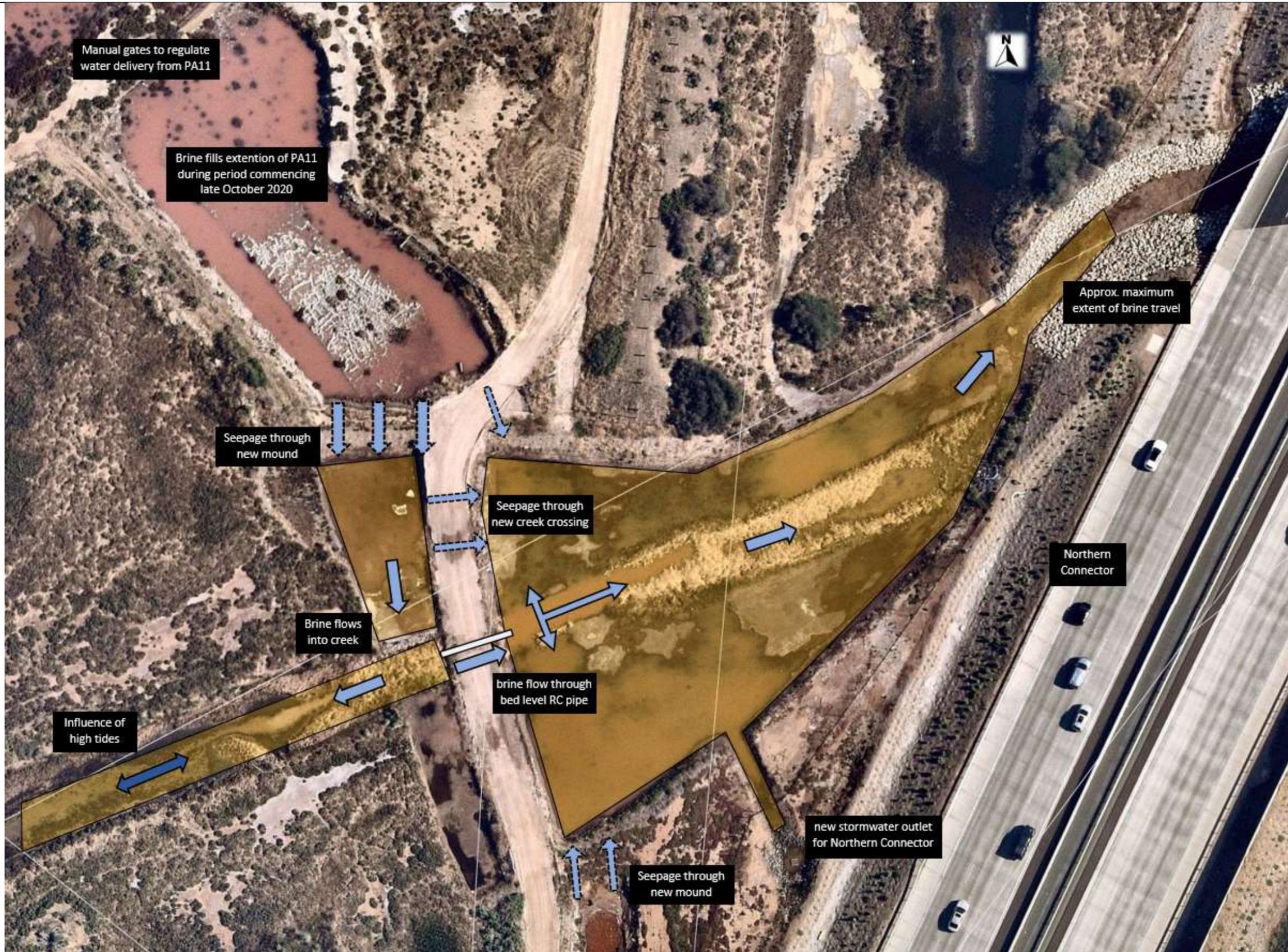


Figure 3: Apparent distribution and mode of travel of brine



Figure 4: Remedial work scope