

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek
Date: 25 September 2024
Monitoring Site: UC08
Coordinates (MGA/Zone 55): 757800.6 (E) 6434755.0 (N)
CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water pooling and flowing at this location above LDP6 in 2024. LDP6 was not discharging into Ulan Creek at the time of the inspection. In 2020, flood debris was recorded above flow line on both the LHB and RHB. The channel bed at the discharge point is formed from bedrock and provides stability at this location. Several meters upstream of LDP6 (the assessment site), the RHB has a moderate slope above, established trees with comparable ground vegetation coverage in 2024 to that observed in 2023. The LHB has a gentle slope above with areas of exposed bare ground and is also tree lined. The LHB wall has steep sections (when not covered by water) which are bare and exposed with signs of instability. As in previous years the channel bed assessment in 2024 could not be completed due to water in the creek. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the LHB and water flowing. The creek bed could not be assessed in 2024. The site appeared potentially stabilising above the water line upstream of LDP6. As a general comment algal discolouration of the bedrock at LPD6 was comparable to 2022 and 2023.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|--|---|---|
| <div><div><div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div></div></div><div>⊗ 62°NE (T) ● 55 S 757795 6434756 ±4m ▲ 465m</div><div></div><div>UC0811 Oct 2022, 08:53:00</div></div> | <div><div><div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div></div></div><div>⊗ 57°NE (T) ● 55 S 757797 6434754 ±4m ▲ 464m</div><div></div><div>Ulan Creek Site 0828 Nov 2023, 08:18:19</div></div> | <div><div><div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div></div></div><div>⊗ 58°NE (T) ● 55 S 757797 6434751 ±4m ▲ 467m</div><div></div><div>UC0825 Sep 2024, 8:20:52 AM</div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div><div>SW</div><div>W</div><div>NW</div><div>N</div></div><div><div>210</div><div>240</div><div>270</div><div>300</div><div>330</div><div>0</div></div></div><div>⊗ 282°W (T) ● 55 S 757800 6434757 ±4m ▲ 465m</div><div></div><div>UC0811 Oct 2022, 08:52:05</div></div> | <div><div><div><div>SW</div><div>W</div><div>NW</div><div>N</div></div><div><div>210</div><div>240</div><div>270</div><div>300</div><div>330</div><div>0</div></div></div><div>⊗ 290°W (T) ● 55 S 757800 6434755 ±4m ▲ 465m</div><div></div><div>Ulan Creek Site 0828 Nov 2023, 08:18:35</div></div> | <div><div><div><div>SW</div><div>W</div><div>NW</div><div>N</div></div><div><div>210</div><div>240</div><div>270</div><div>300</div><div>330</div><div>0</div></div></div><div>⊗ 278°W (T) ● 55 S 757801 6434752 ±4m ▲ 466m</div><div></div><div>UC0825 Sep 2024, 8:21:11 AM</div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024



Monitoring Site: UC09

Coordinates (MGA/Zone 55): 757770.2 (E) 6434734.0 (N)

CISRO Ephemeral Stream Assessment: Very Active

General Observations: Ulan Creek had water flowing at this location in 2024. Exposed bedrock is within the floor of the channel, although channel bed assessment in 2024 could not be completed due to water in the creek. A high flow event in the 2020 monitoring period moved the log that was across the channel. In 2020, flood debris was recorded above the banks. In 2022 signs of additional sand and silts deposits were noted just above the water line on the LHB. Signs of instabilities along both banks was observed in 2021 and 2022. The LHB walls are near vertical, exposed with signs of recent erosion. The RHB wall is a more moderate slope and mostly vegetated. Both banks are tree lined with fewer trees along the LHB. The tunnel erosion deep into the RHB, is comparable to previous observations since 2020. The observations in 2024 are comparable with recent years. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'very active'.

Notes: In 2024 observations were limited to the LHB and water flowing. The creek bed could not be assessed.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|--|--|
| <div><div><div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div></div></div><div><div>72°E (T)</div><div>55 S 757767 6434747 ±4m</div><div>▲ 464m</div></div><div><div>UC0911 Oct 2022, 09:01:07</div></div></div> | <div><div><div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div></div></div><div><div>66°NE (T)</div><div>55 S 757764 6434747 ±4m</div><div>▲ 463m</div></div><div><div>Ulan Creek Site 0928 Nov 2023, 08:25:14</div></div></div> | <div><div><div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div></div></div><div><div>66°NE (T)</div><div>55 S 757764 6434743 ±11m</div><div>▲ 461m</div></div><div><div>UC0925 Sep 2024, 8:24:08 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div><div>S</div><div>SW</div><div>W</div><div>NW</div><div>N</div></div><div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div><div>330</div><div>0</div></div></div><div><div>272°W (T)</div><div>55 S 757768 6434748 ±4m</div><div>▲ 465m</div></div><div><div>UC0911 Oct 2022, 09:01:25</div></div></div> | <div><div><div><div>S</div><div>SW</div><div>W</div><div>NW</div><div>N</div></div><div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div><div>330</div><div>0</div></div></div><div><div>275°W (T)</div><div>55 S 757765 6434747 ±4m</div><div>▲ 466m</div></div><div><div>Ulan Creek Site 0928 Nov 2023, 08:24:59</div></div></div> | <div><div><div><div>S</div><div>SW</div><div>W</div><div>NW</div><div>N</div></div><div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div><div>330</div><div>0</div></div></div><div><div>275°W (T)</div><div>55 S 757766 6434745 ±4m</div><div>▲ 465m</div></div><div><div>UC0925 Sep 2024, 8:24:35 AM</div></div></div> |

APPENDIX B: Ulan Creek

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC10

Coordinates (MGA/Zone 55): 757647.7 (E) 6434676.0 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. The channel bed assessment in 2024 could not be completed due to water in the creek. From previous monitoring, the creek bed is a mix of silt, sand and small gravel. In 2020, flood debris was located above the LHB with fine sand deposits. Slight increase to groundcover in 2024 above the LHB and RHB compared to 2023. The RHB walls are near vertical, mostly exposed with signs of recent erosion. Tree roots are exposed along the RHB with signs of minor bank undercutting. The LHB is a more moderate slope and was vegetated. Both banks are tree lined. Tree of Heaven was noted along the LHB at this location. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to water flowing and the LHB. The creek bed could not be assessed. This site appeared potentially stabilising above the water line.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|--|--|
| <div><div>W270NW300330N0NE60</div><div>347°N (T) 55 S 757652 6434676 ±4m ▲ 465m</div><div><div>UC0911 Oct 2022, 09:10:10</div></div></div> | <div><div>W270NW300330N0NE6090</div><div>2°N (T) 55 S 757647 6434680 ±4m ▲ 464m</div><div><div>Ulan Creek Site 1028 Nov 2023, 08:29:07</div></div></div> | <div><div>W270NW300330N0NE6090</div><div>4°N (T) 55 S 757649 6434677 ±4m ▲ 466m</div><div><div>UC1025 Sep 2024, 8:28:40 AM</div></div></div> |
| <div><div>SE120150180SW210240W270</div><div>187°S (T) 55 S 757651 6434674 ±4m ▲ 465m</div><div><div>UC0911 Oct 2022, 09:09:51</div></div></div> | <div><div>E90SE120150180SW210240270</div><div>175°S (T) 55 S 757650 6434677 ±4m ▲ 465m</div><div><div>Ulan Creek Site 1028 Nov 2023, 08:29:21</div></div></div> | <div><div>E90SE120150180SW210240270</div><div>172°S (T) 55 S 757651 6434677 ±4m ▲ 466m</div><div><div>UC1025 Sep 2024, 8:28:55 AM</div></div></div> |

APPENDIX B: Ulan Creek

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024



Monitoring Site: UC11

Coordinates (MGA/Zone 55): Stable

CISRO Ephemeral Stream Assessment: 757651.1 (E) 6434633.0 (N)

General Observations: Ulan Creek had water flowing at this location in 2024. Exposed bedrock is within the floor of the channel providing stability, although the channel bed assessment (immediately upstream) in 2024 could not be completed due to water in the creek. Flood debris was located above the LHB in 2020. Groundcover had slightly increased above the LHB and RHB in 2024. The LHB is formed from bedrock with a moderate slope. The RHB has a gentler slope partially vegetated in 2024 with some signs of minor undercutting. Both banks are tree lined. A tree had fallen into the creek from the LHB prior to monitoring in 2021. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'stable'.

Notes: In 2024 observations were limited to the LHB and water flowing. This site appeared stable above the water line upstream of the bedrock.

| Upstream 2023 | Upstream 2023 | Upstream 2024 |
|--|---|---|
| <div><div><div>W270NW300330N03060NE</div><div>☉ 352°N (T) ● 55 S 757652 6434629 ±4m ▲ 464m</div><div><div>UC1111 Oct 2022, 09:13:31</div></div></div></div> | <div><div><div>W270NW300330N03060NE90E</div><div>☉ 359°N (T) ● 55 S 757648 6434630 ±4m ▲ 463m</div><div><div>Ulan Creek Site 1128 Nov 2023, 08:31:15</div></div></div></div> | <div><div><div>W270NW300330N03060NE</div><div>☉ 349°N (T) ● 55 S 757649 6434631 ±6m ▲ 465m</div><div><div>UC1125 Sep 2024, 8:30:04 AM</div></div></div></div> |
| Downstream 2023 | Downstream 2023 | Downstream 2024 |
| <div><div><div>SE150S180SW210240W270300N</div><div>☉ 220°SW (T) ● 55 S 757655 6434629 ±3m ▲ 459m</div><div><div>UC1111 Oct 2022, 09:12:22</div></div></div></div> | <div><div><div>SE150S180SW210240W270300</div><div>☉ 214°SW (T) ● 55 S 757649 6434632 ±4m ▲ 461m</div><div><div>Ulan Creek Site 1128 Nov 2023, 08:31:26</div></div></div></div> | <div><div><div>SE150S180SW210240W270300</div><div>☉ 217°SW (T) ● 55 S 757652 6434630 ±4m ▲ 465m</div><div><div>UC1125 Sep 2024, 8:30:19 AM</div></div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC12

Coordinates (MGA/Zone 55): 757649.4 (E) 6434531.0 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. The channel bed is characterised by gravel size and some larger rock, with signs of increasing vegetation along the low flow channel. Flood debris was located above the LHB in 2020. Increased erosion along the LHB was noted again in 2022. A tree had fallen into the creek from the LHB as noted back in 2020. The LHB wall is near vertical, almost entirely bare, with exposed tree roots, signs of very recent erosion and some minor undercutting. The RHB is a gentler slope, mostly with bare areas and sparse vegetation. A slight increase in groundcover above the LHB and RHB was noted in 2024. Both sides of the creek are tree lined. An infestation of Tree of Heaven was noted between sites UC11 and UC12. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the LHB and water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|---|---|
| <div><div>SWW300NW030</div><div>306°NW (T) 55 S 757654 6434536 ±4m ▲ 463m</div><div><div>UC1211 Oct 2022, 09:17:34</div></div></div> | <div><div>SWW300NW030</div><div>302°NW (T) 55 S 757645 6434546 ±4m ▲ 462m</div><div><div>Ulan Creek Site 1228 Nov 2023, 08:37:22</div></div></div> | <div><div>SWW300NW030</div><div>301°NW (T) 55 S 757647 6434545 ±4m ▲ 464m</div><div><div>UC1225 Sep 2024, 8:35:14 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div>ESE180S240SW</div><div>167°S (T) 55 S 757647 6434549 ±4m ▲ 462m</div><div><div>UC1211 Oct 2022, 09:16:34</div></div></div> | <div><div>ESE180S240SW</div><div>167°S (T) 55 S 757645 6434551 ±4m ▲ 462m</div><div><div>Ulan Creek Site 1228 Nov 2023, 08:36:41</div></div></div> | <div><div>ESE180S240SW</div><div>171°S (T) 55 S 757646 6434548 ±4m ▲ 464m</div><div><div>UC1225 Sep 2024, 8:33:59 AM</div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024



Monitoring Site: UC13

Coordinates (MGA/Zone 55): 757621.8 (E) 6434447.0 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. From previous monitoring, the channel bed is a mix of silt, sand and gravel. In 2022 additional sand and sediments had deposited along the creek bed with little vegetation. Flood debris was located above the LHB in 2020. Active erosion along both banks was again observed in 2022. The LHB and RHB walls are near vertical, bare with exposed tree roots, signs of erosion and undercutting. Both sides of the creek are tree lined. A slight increase in groundcover above the LHB and RHB was noted in 2024. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the LHB and water flowing. The creek bed could not be assessed.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|--|--|--|
| <div><div><div>N70NW300330N0NE3060E90</div><div>☉ 4°N (T) ● 55 S 757631 6434448 ±4m ▲ 464m</div><div><div>UC1311 Oct 2022, 09:23:50</div></div></div></div> | <div><div><div>N300330N0NE3060E90</div><div>☉ 10°N (T) ● 55 S 757628 6434447 ±4m ▲ 464m</div><div><div>Ulan Creek Site 1328 Nov 2023, 08:41:13</div></div></div></div> | <div><div><div>N70NW300330N0NE3060E90</div><div>☉ 4°N (T) ● 55 S 757632 6434444 ±4m ▲ 465m</div><div><div>UC1325 Sep 2024, 8:40:44 AM</div></div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>S180SW210240W270NW300330</div><div>☉ 249°W (T) ● 55 S 757639 6434457 ±4m ▲ 463m</div><div><div>UC1311 Oct 2022, 09:23:12</div></div></div></div> | <div><div><div>S180SW210240W270NW300330</div><div>☉ 253°W (T) ● 55 S 757633 6434454 ±4m ▲ 458m</div><div><div>Ulan Creek Site 1328 Nov 2023, 08:40:50</div></div></div></div> | <div><div><div>S180SW210240W270NW300330</div><div>☉ 248°W (T) ● 55 S 757636 6434456 ±5m ▲ 465m</div><div><div>UC1325 Sep 2024, 8:39:52 AM</div></div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024


Monitoring Site: UC14

Coordinates (MGA/Zone 55): 757522.5 (E) 6434327.0 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek was flowing at this location in 2024. Active erosion along both banks was observed in 2022. From previous monitoring, the channel bed is a mix of silt, sand and smaller gravel. In 2022 additional build up of sand, silt and small gravel deposits were noted. Flood debris was located above the LHB in 2020. Increased erosion along both the LHB and RHB with undercutting more notable under the top edge of the banks in 2022. The LHB and RHB have near vertical walls from the top of the bank, bare with exposed tree roots and with signs of erosion. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'

Notes: In 2024 observations were limited to the LHB and water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|--|---|
| <div><div><div>W270NW300330N0NE306090E</div><div>☼ 359°N (T) ● 55 S 757517 6434311 ±4m ▲ 460m</div><div></div><div>UC1411 Oct 2022, 09:36:02</div></div></div> | <div><div><div>W270NW300330N0NE306090E</div><div>☼ 0°N (T) ● 55 S 757515 6434311 ±4m ▲ 462m</div><div></div><div>Ulan Creek Site 1428 Nov 2023, 08:50:28</div></div></div> | <div><div><div>W270NW300330N0NE306090E</div><div>☼ 356°N (T) ● 55 S 757518 6434312 ±4m ▲ 464m</div><div></div><div>UC1425 Sep 2024, 8:48:24 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>SE150S180SW210240W270300NW</div><div>☼ 224°SW (T) ● 55 S 757518 6434318 ±4m ▲ 461m</div><div></div><div>UC1411 Oct 2022, 09:35:09</div></div></div> | <div><div><div>E150S180SW210240W270300NW</div><div>☼ 230°SW (T) ● 55 S 757519 6434317 ±4m ▲ 462m</div><div></div><div>Ulan Creek Site 1428 Nov 2023, 08:50:09</div></div></div> | <div><div><div>SE150S180SW210240W270300NW</div><div>☼ 224°SW (T) ● 55 S 757520 6434318 ±4m ▲ 464m</div><div></div><div>UC1425 Sep 2024, 8:48:07 AM</div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC15

Coordinates (MGA/Zone 55): 757408.6 (E) 6434095.0 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek was flowing at this location in 2024. Active erosion along both banks was observed in 2022. From previous monitoring, the channel bed is a mix of silt, sand and gravel. In 2022 additional build-up of sand, silt and small gravel deposits were noted. The LHB and RHB have near vertical walls from the top of the bank, bare with exposed tree roots, with signs of erosion and bank undercutting. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the LHB and water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|--|---|---|
| <div><div><div>W270NW330N0NE60E90</div><div>☉ 355°N (T) ● 55 S 757415 6434109 ±4m ▲ 461m</div><div>UC1511 Oct 2022 09:49:58</div></div></div> | <div><div><div>W270NW330N0NE60E90</div><div>☉ 354°N (T) ● 55 S 757412 6434107 ±4m ▲ 462m</div><div>Ulan Creek Site 1528 Nov 2023 08:57:32</div></div></div> | <div><div><div>W270NW330N0NE60E90</div><div>☉ 354°N (T) ● 55 S 757415 6434105 ±4m ▲ 462m</div><div>UC1525 Sep 2024 9:02:14 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>S150SW180210W270NW330</div><div>☉ 238°SW (T) ● 55 S 757420 6434113 ±4m ▲ 462m</div><div>UC1511 Oct 2022 09:49:19</div></div></div> | <div><div><div>S180SW240W270NW330</div><div>☉ 248°SW (T) ● 55 S 757416 6434112 ±4m ▲ 461m</div><div>Ulan Creek Site 1528 Nov 2023 08:58:05</div></div></div> | <div><div><div>E150S180SW240W270NW330</div><div>☉ 231°SW (T) ● 55 S 757418 6434110 ±4m ▲ 462m</div><div>UC1525 Sep 2024 9:01:39 AM</div></div></div> |

APPENDIX B: Ulan Creek

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC16

Coordinates (MGA/Zone 55): 757495.4 (E) 6433929.0 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. Active erosion along both banks was observed again in 2022. A tree had also fallen into the creek sometime after the 2019 inspection. In 2022 additional gravel, silt and sand deposits had accumulated but less obvious than in previous years. The LHB and RHB have near vertical walls from the top of the bank, mostly bare with exposed tree roots and signs of erosion. An old concrete pipe culvert remains upstream from the site. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CISRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the RHB and water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|--|--|
| <div><div><div>NW</div><div>N</div><div>NE</div><div>E</div></div><div><div>300</div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div></div><div>☼ 32°NE (T) ● 55 S 757498 6433928 ±4m ▲ 457m</div><div></div><div>UC16 11 Oct 2022, 10:05:23</div></div> | <div><div><div>NW</div><div>N</div><div>NE</div><div>E</div></div><div><div>300</div><div>330</div><div>0</div><div>60</div><div>90</div><div>120</div></div><div>☼ 30°NE (T) ● 55 S 757494 6433928 ±4m ▲ 459m</div><div></div><div>Ulan Creek Site 16 28 Nov 2023, 09:08:55</div></div> | <div><div><div>NW</div><div>N</div><div>NE</div><div>E</div></div><div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div></div><div>☼ 38°NE (T) ● 55 S 757494 6433932 ±4m ▲ 459m</div><div></div><div>UC16 25 Sep 2024, 9:09:00 AM</div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>E</div><div>SE</div><div>S</div><div>SW</div></div><div><div>90</div><div>120</div><div>150</div><div>180</div><div>210</div><div>240</div></div><div>☼ 170°S (T) ● 55 S 757500 6433935 ±4m ▲ 457m</div><div></div><div>UC16 11 Oct 2022, 10:06:44</div></div> | <div><div><div>E</div><div>SE</div><div>S</div><div>SW</div></div><div><div>90</div><div>120</div><div>150</div><div>180</div><div>210</div><div>240</div></div><div>☼ 174°S (T) ● 55 S 757495 6433937 ±4m ▲ 458m</div><div></div><div>Ulan Creek Site 16 28 Nov 2023, 09:09:19</div></div> | <div><div><div>E</div><div>SE</div><div>S</div><div>SW</div></div><div><div>90</div><div>120</div><div>150</div><div>180</div><div>210</div><div>240</div></div><div>☼ 174°S (T) ● 55 S 757496 6433935 ±4m ▲ 460m</div><div></div><div>UC16 25 Sep 2024, 9:08:44 AM</div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC17

Coordinates (MGA/Zone 55): 757510.9 (E) 6433763.0 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. Water was seeping into the creek along the LHB from an entering drainage line in 2021. The low flow channel bed had no vegetation and was a mix of silt, sand, gravel and larger rock material noted. In 2022 additional build up of sand, silt and small gravel deposits were noted. The LHB wall is near vertical, bare with exposed tree roots and signs of active slumping. Undercutting also observed along the LHB in 2022. The RHB is a gentler slope, mostly with bare areas and no vegetation. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the RHB and water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|---|---|
| <div><div><div>W270NW300N0NE60</div><div>☀ 350°N (T) ● 55 S 757513 6433765 ±4m ▲ 458m</div><div><div>UC1711 Oct 2022, 10:22:38</div></div></div></div> | <div><div><div>W270NW300N0NE60E90</div><div>☀ 357°N (T) ● 55 S 757511 6433761 ±4m ▲ 459m</div><div><div>Ulan Creek Site 1728 Nov 2023, 09:16:18</div></div></div></div> | <div><div><div>W270NW300N0NE60E90</div><div>☀ 355°N (T) ● 55 S 757512 6433757 ±4m ▲ 459m</div><div><div>UC1725 Sep 2024, 9:14:55 AM</div></div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>E60SE90S120SW240</div><div>☀ 150°SE (T) ● 55 S 757514 6433767 ±4m ▲ 458m</div><div><div>UC1711 Oct 2022, 10:23:17</div></div></div></div> | <div><div><div>E60SE90S120SW240</div><div>☀ 151°SE (T) ● 55 S 757510 6433766 ±4m ▲ 460m</div><div><div>Ulan Creek Site 1728 Nov 2023, 09:15:52</div></div></div></div> | <div><div><div>E60SE90S120SW240</div><div>☀ 145°SE (T) ● 55 S 757509 6433762 ±4m ▲ 460m</div><div><div>UC1725 Sep 2024, 9:14:00 AM</div></div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024







Monitoring Site: UC18

Coordinates (MGA/Zone 55): 757473.7 (E) 6433691.0 (N)

CISRO Ephemeral Stream Assessment: Potentially Stabilising

General Observations: Ulan Creek had water flowing at this location in 2024. Inflows into the creek were noted at this location in 2020. Continued undercutting (albeit minor) along the RHB was observed in 2021 and 2022. Silt, sand, small gravel and larger rocks noted in the channel bed. An increasing layer of silt sediments deposited within the low flow channel bed was noted in 2019. Flood debris and sand deposits were identified above the RHB in 2020. The RHB has a low slope with decreasing ground cover vegetation in 2024. The LHB wall is a steeper slope and partially vegetated in 2024. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'potentially stabilising'.

Notes: In 2024 observations were limited to the RHB and water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|---|---|
| <div><div><div><div>N</div><div>0</div><div>30</div><div>NE</div><div>60</div><div>E</div><div>90</div><div>120</div><div>SE</div><div>150</div></div><div>73°E (T) 55 S 757474 6433691 ±4m 449m</div><div><div>UC1711 Oct 2022, 10:27:36</div></div></div></div> | <div><div><div><div>N</div><div>0</div><div>30</div><div>NE</div><div>60</div><div>E</div><div>90</div><div>120</div><div>SE</div><div>150</div></div><div>72°E (T) 55 S 757471 6433689 ±4m 458m</div><div><div>Ulan Creek Site 1828 Nov 2023, 09:19:42</div></div></div></div> | <div><div><div><div>N</div><div>0</div><div>30</div><div>NE</div><div>60</div><div>E</div><div>90</div><div>120</div><div>SE</div><div>150</div></div><div>83°E (T) 55 S 757466 6433687 ±4m 460m</div><div><div>UC1825 Sep 2024, 9:17:53 AM</div></div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div><div>E</div><div>150</div><div>S</div><div>180</div><div>SW</div><div>210</div><div>240</div><div>W</div><div>270</div><div>NW</div><div>300</div></div><div>230°SW (T) 55 S 757478 6433693 ±4m 457m</div><div><div>UC1811 Oct 2022, 10:29:17</div></div></div></div> | <div><div><div><div>SE</div><div>150</div><div>S</div><div>180</div><div>SW</div><div>210</div><div>240</div><div>W</div><div>270</div><div>N</div><div>300</div></div><div>220°SW (T) 55 S 757471 6433691 ±4m 458m</div><div><div>Ulan Creek Site 1828 Nov 2023, 09:19:17</div></div></div></div> | <div><div><div><div>SE</div><div>150</div><div>S</div><div>180</div><div>SW</div><div>210</div><div>240</div><div>W</div><div>270</div><div>300</div></div><div>214°SW (T) 55 S 757470 6433689 ±4m 459m</div><div><div>UC1825 Sep 2024, 9:17:38 AM</div></div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC19

Coordinates (MGA/Zone 55): 757372.3 (E) 6433508.0 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek was flowing at this location in 2024. The channel bed had little to no vegetation and is a mix of silt, sand, small gravel and rock material. In 2022 additional build up of sand, silt and small gravel deposits was noted. Sand deposits were noted above the RHB in 2020. The small fallen tree observed in the channel bed in 2022 has been transported further downstream in 2023 to Site 20a. The establishment of a Common Rush (*Juncus* spp) since 2019 on the RHB with increasing density in 2021 and 2022 appears to be going through a 'dieback' phase. Both the LHB and RHB have a moderate to steep slope and remain generally well vegetated. The LHB downstream displays recent signs of undercutting. A small section of the RHB had slumped into the flow channel in 2022. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the RHB and water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|--|--|--|
| <div><div><div>W270NW300330N0NE3060</div><div>☼ 353°N (T) ● 55 S 757376 6433512 ±4m ▲ 456m</div><div><div>UC1911 Oct 2022, 10:40:15</div></div></div></div> | <div><div><div>NW300330N0NE6090120</div><div>☼ 29°NE (T) ● 55 S 757370 6433513 ±4m ▲ 457m</div><div><div>Ulan Creek Site 1928 Nov 2023, 09:31:55</div></div></div></div> | <div><div><div>NW0330N0NE306090120</div><div>☼ 36°NE (T) ● 55 S 757368 6433511 ±4m ▲ 458m</div><div><div>UC1925 Sep 2024, 9:29:26 AM</div></div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>SE120S180SW240W270300</div><div>☼ 209°SW (T) ● 55 S 757376 6433517 ±4m ▲ 457m</div><div><div>UC1911 Oct 2022, 10:39:51</div></div></div></div> | <div><div><div>E90SE120S180SW210240</div><div>☼ 167°S (T) ● 55 S 757370 6433512 ±4m ▲ 458m</div><div><div>Ulan Creek Site 1928 Nov 2023, 09:31:01</div></div></div></div> | <div><div><div>E90SE120S180SW210240</div><div>☼ 170°S (T) ● 55 S 757368 6433513 ±4m ▲ 459m</div><div><div>UC1925 Sep 2024, 9:29:02 AM</div></div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC20a

Coordinates (MGA/Zone 55): 757348.6 (E) 6433349.0 (N)

CISRO Ephemeral Stream Assessment: Very Active

General Observations: Ulan Creek had water flowing at this location in 2024. Active erosion along both banks was again observed. Accumulation of flood debris was observed in 2020 caught up around the dead tree located in the middle of the flow line. The flow channel bed had little to no vegetation and is a mix of silt, sand and small gravel material. In 2022 additional build up of sand, silt and small gravel deposits were noted. Both the LHB and RHB have a moderate slope above the channel and were well vegetated. Both banks display recent signs slumping and bank undercutting, in particular the RHB has significant active erosion. A tree has fallen along the edge of the RHB in 2022. Since 2015 the channel width at this location has increased. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring*. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'very active'.

Notes: In 2024 observations were limited to the LHB and water flowing. *The increased erosion on the RHB exposing >1m of wall height decreased the 2022 score. Additional flood debris build up noted in 2023.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|---|--|
| <div><div><div>W270NW300N0NE30E90</div><div>☼ 358°N (T) ● 55 S 757350 6433346 ±4m ▲ 455m</div><div><div>UC20a11 Oct 2022, 10:54:31</div></div></div></div> | <div><div><div>NW300N0NE30E90</div><div>☼ 19°N (T) ● 55 S 757344 6433343 ±4m ▲ 455m</div><div><div>Ulan Creek Site 20a28 Nov 2023, 09:38:03</div></div></div></div> | <div><div><div>NW300N0NE30E90120</div><div>☼ 33°NE (T) ● 55 S 757343 6433345 ±4m ▲ 457m</div><div><div>UC20a25 Sep 2024, 9:34:08 AM</div></div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>SE120S180SW240W270300</div><div>☼ 208°SW (T) ● 55 S 757355 6433363 ±4m ▲ 446m</div><div><div>UC20a11 Oct 2022, 10:52:55</div></div></div></div> | <div><div><div>SE120S180SW240W270</div><div>☼ 196°S (T) ● 55 S 757355 6433363 ±4m ▲ 456m</div><div><div>Ulan Creek Site 20a28 Nov 2023, 09:35:56</div></div></div></div> | <div><div><div>E90SE120S180SW240W270</div><div>☼ 177°S (T) ● 55 S 757350 6433362 ±4m ▲ 457m</div><div><div>UC20a25 Sep 2024, 9:33:14 AM</div></div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024







Monitoring Site: UC20b

Coordinates (MGA/Zone 55): 757339.7 (E) 6433297.0 (N)

CISRO Ephemeral Stream Assessment: Very Active

General Observations: Ulan Creek had flowing at this location in 2024. Active erosion along both banks was again observed. The flow channel bed had little to no vegetation. Silt, sand and small gravel size rock material was noted in the channel bed. Significant loss of a bank material and widening of the flow channel observed in 2020. Sand deposits above the flow line along the RHB noted in 2020. In 2022 additional build up of sand, silt and small gravel deposits were noted. The channel bed contains much larger foreign rock placed in the creek at some point, to possibly stabilise the creek (a portion of the RHB displays stability due to the rock armouring), however it appears to be having a more destabilising impact. Both the LHB and RHB have a moderate slope above the ban. The banks walls are sparsely vegetated, display recent signs of slumping, bank undercutting and causing a widening of the creek (particularly along the LHB). Both sides are tree lined. Observations in 2024 noted a similar deteriorating trend when compared to previous monitoring*. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'very active'.

Notes: In 2024 observations were limited to the LHB and water flowing. *The increased erosion on the LHB exposing >1m of wall height decreased the 2022 score.Loss of bed/bank material since 2022 monitoring.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|---|---|
| <div><div><div><div>N</div><div>NW</div><div>N</div><div>NE</div><div>E</div></div><div><div>70</div><div>300</div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div></div></div><div>☀ 4°N (T) ● 55 S 757343 6433301 ±4m ▲ 454m</div><div><div>UC20b11 Oct 2022, 11:01:51</div></div></div> | <div><div><div><div>NW</div><div>N</div><div>NE</div><div>E</div></div><div><div>300</div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div></div></div><div>☀ 9°N (T) ● 55 S 757340 6433294 ±4m ▲ 455m</div><div><div>Ulan Creek Site 20b28 Nov 2023, 09:41:01</div></div></div> | <div><div><div><div>NW</div><div>N</div><div>NE</div><div>E</div></div><div><div>300</div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div></div></div><div>☀ 16°N (T) ● 55 S 757340 6433296 ±4m ▲ 456m</div><div><div>UC20b25 Sep 2024, 9:37:18 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div><div>SE</div><div>S</div><div>SW</div><div>W</div></div><div><div>120</div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div></div></div><div>☀ 200°S (T) ● 55 S 757344 6433309 ±4m ▲ 454m</div><div><div>UC20b11 Oct 2022, 11:00:11</div></div></div> | <div><div><div><div>E</div><div>SE</div><div>S</div><div>SW</div></div><div><div>90</div><div>120</div><div>150</div><div>180</div><div>210</div><div>240</div></div></div><div>☀ 173°S (T) ● 55 S 757335 6433306 ±4m ▲ 455m</div><div><div>Ulan Creek Site 20b28 Nov 2023, 09:39:46</div></div></div> | <div><div><div><div>E</div><div>SE</div><div>S</div><div>SW</div></div><div><div>90</div><div>120</div><div>150</div><div>180</div><div>210</div><div>240</div></div></div><div>☀ 159°S (T) ● 55 S 757338 6433306 ±4m ▲ 456m</div><div><div>UC20b25 Sep 2024, 9:36:46 AM</div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC21

Coordinates (MGA/Zone 55): 757289 (E) 6433168 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. Water was seeping from the LHB into the channel in 2022. Active erosion along both banks was again observed. The flow channel bed had little to no vegetation and is a mix of sand, small size gravel and rock material. Decrease of vegetation above the banks. Both the LHB and RHB have a moderate slope. Both banks have exposed bare areas and display recent signs of erosion. The RHB has near vertical sections with bank undercutting. The LHB displayed bank undercutting in 2021 although in 2022 additional build up of sand, silt and small gravel deposits had infilled. The formation of small scour holes in 2019 appeared to have been infilled since 2020. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the RHB and water flowing. One tree upstream and another tree downstream had fallen across the creek from the RHB since 2022 monitoring.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|--|--|---|
| <div><div><div>W</div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div></div><div><div>48°NE (T)</div><div>55 S 757276 6433160 ±4m</div><div>▲ 457m</div></div><div><div>UC2111 Oct 2022, 11:10:28</div></div></div> | <div><div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div></div><div><div>62°NE (T)</div><div>55 S 757273 6433157 ±4m</div><div>▲ 456m</div></div><div><div>Ulan Creek Site 2128 Nov 2023, 09:48:04</div></div></div> | <div><div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div></div><div><div>68°E (T)</div><div>55 S 757268 6433154 ±4m</div><div>▲ 459m</div></div><div><div>UC2125 Sep 2024, 9:42:44 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>SE</div><div>S</div><div>SW</div><div>W</div></div><div><div>0</div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div></div><div><div>217°SW (T)</div><div>55 S 757278 6433158 ±4m</div><div>▲ 458m</div></div><div><div>UC2111 Oct 2022, 11:09:24</div></div></div> | <div><div><div>SE</div><div>S</div><div>SW</div><div>W</div></div><div><div>120</div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div></div><div><div>205°SW (T)</div><div>55 S 757275 6433158 ±4m</div><div>▲ 458m</div></div><div><div>Ulan Creek Site 2128 Nov 2023, 09:47:35</div></div></div> | <div><div><div>SE</div><div>S</div><div>SW</div><div>W</div></div><div><div>120</div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div></div><div><div>194°S (T)</div><div>55 S 757272 6433159 ±4m</div><div>▲ 458m</div></div><div><div>UC2125 Sep 2024, 9:42:15 AM</div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024




Monitoring Site: UC22

Coordinates (MGA/Zone 55): 757246 (E) 6433127 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. Active erosion along both banks was again observed in 2022. The flow channel bed had little to no vegetation and is a mix of silt, sand, small size gravel and rock material. In 2022 additional build up of sand, silt and small gravel deposits was noted. Decrease of vegetation above the banks. A small scour in the channel bed forming in 2019 was infilled in 2020. Both the LHB and RHB have a moderate slope above the bank. Both bank walls are exposed and display recent signs of erosion. The RHB has a near vertical lower section with ongoing bank undercutting. The LHB also displays signs of bank undercutting. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the RHB and water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|---|---|
| <div><div><div>W3300306090120SE</div><div>49°NE (T) 55 S 757243 6433118 ±4m ▲ 454m</div><div><div>UC2211 Oct 2022, 11:14:04</div></div></div></div> | <div><div><div>W3300306090120SE</div><div>50°NE (T) 55 S 757241 6433115 ±4m ▲ 455m</div><div><div>Ulan Creek Site 2228 Nov 2023, 09:53:45</div></div></div></div> | <div><div><div>W3300306090120SE</div><div>50°NE (T) 55 S 757239 6433116 ±4m ▲ 456m</div><div><div>UC2225 Sep 2024, 9:44:47 AM</div></div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>SE120150180210240270W</div><div>187°S (T) 55 S 757244 6433118 ±4m ▲ 455m</div><div><div>UC2211 Oct 2022, 11:14:34</div></div></div></div> | <div><div><div>SE120150180210240270W</div><div>198°S (T) 55 S 757241 6433114 ±4m ▲ 455m</div><div><div>Ulan Creek Site 2228 Nov 2023, 09:53:57</div></div></div></div> | <div><div><div>SE120150180210240270W</div><div>188°S (T) 55 S 757239 6433116 ±4m ▲ 455m</div><div><div>UC2225 Sep 2024, 9:44:38 AM</div></div></div></div> |

APPENDIX B: Ulan Creek

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC23

Coordinates (MGA/Zone 55): 757162 (E) 6432943 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. The channel bed had little to no vegetation and is a mix of sand and small to medium size gravel. In 2022 additional build up of sand, silt and small gravel deposits were noted. The channel also has larger foreign rock and geofabric material to possibly stabilise the creek, however it appears to be having a more destabilising impact. Very active erosion along both banks was observed, particularly along the RHB causing a widening of the creek at this location. The RHB has a gentle slope above the bank. The bank wall is bare and exposed, near vertical walls and displays recent signs of erosion and undercutting. The LHB has a steeper slope above the bank and is partially stabilised by the foreign rock material. An old concrete pipe also sits downstream from this location and has been moved further downstream since 2019. Both sides of the creek are tree lined. Observations in 2024 noted a similar deteriorating trend when compared to previous monitoring*. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'very active'.

Notes: In 2024 observations were limited to the RHB and water flowing. Very active undercutting and bank instabilities noted in 2024, two small tress has fallen on the creek along the LHB.



2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC24

Coordinates (MGA/Zone 55): 757096 (E) 6432880 (N)

CISRO Ephemeral Stream Assessment: Very Active

General Observations: Ulan Creek had water flowing at this location in 2024. Active erosion along both banks was again observed. The low flow channel bed had little to no vegetation and is a mix of silt, sand, small size gravel and rock material. In 2022 additional build up of sand, silt and small gravel deposits were noted. The channel bed contains much larger foreign rock and geofabric material to possibly stabilise the creek, however it appears to be having a more destabilising impact. The RHB has a gentle to moderate slope above the bank, the bank wall is bare and exposed, near vertical and displays recent signs of erosion and bank undercutting. The LHB has a steeper slope above the bank and is partially stabilised by the imported rock. Both sides of the creek are tree lined. Observations in 2024 noted a similar deteriorating trend when compared to previous monitoring. The CSIRO *Ephemeral Stream* Assessment classification at this location as 'very active'.

Notes: In 2024 observations were limited to the RHB and water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|--|--|--|
| <div><div><div><div>N</div><div>NE</div><div>E</div><div>SE</div><div>S</div></div><div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div><div>180</div></div></div><div>☉ 89°E (T) ● 55 S 757080 6432881 ±4m ▲ 453m</div><div><div>UC2411 Oct 2022, 11:40:28</div></div></div> | <div><div><div><div>N</div><div>NE</div><div>E</div><div>SE</div><div>S</div></div><div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div><div>180</div></div></div><div>☉ 88°E (T) ● 55 S 757082 6432879 ±4m ▲ 454m</div><div><div>Ulan Creek Site 2428 Nov 2023, 10:18:10</div></div></div> | <div><div><div><div>NE</div><div>E</div><div>SE</div><div>S</div></div><div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div><div>180</div></div></div><div>☉ 103°E (T) ● 55 S 757085 6432883 ±4m ▲ 456m</div><div><div>UC2425 Sep 2024, 9:55:43 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div><div>E</div><div>S</div><div>SW</div><div>W</div><div>NW</div></div><div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div></div></div><div>☉ 230°SW (T) ● 55 S 757105 6432887 ±4m ▲ 455m</div><div><div>UC2411 Oct 2022, 11:38:47</div></div></div> | <div><div><div><div>SE</div><div>S</div><div>SW</div><div>W</div><div>NW</div></div><div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div></div></div><div>☉ 227°SW (T) ● 55 S 757093 6432883 ±4m ▲ 454m</div><div><div>Ulan Creek Site 2428 Nov 2023, 10:19:06</div></div></div> | <div><div><div><div>SE</div><div>S</div><div>SW</div><div>W</div><div>N</div></div><div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div></div></div><div>☉ 219°SW (T) ● 55 S 757092 6432885 ±4m ▲ 457m</div><div><div>UC2425 Sep 2024, 9:55:24 AM</div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC25

Coordinates (MGA/Zone 55): 757052 (E) 6432871 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had flowing at this location in 2024. The low flow channel bed had little vegetation and was a mix of silt, sand, small size gravel and rock material. In 2022 additional build up of sand, silt and small gravel deposits were noted. Active erosion was again noted along both banks in 2022. Both the LHB and RHB have a gentle slope above the bank. The LHB wall is near vertical, bare and exposed, with bank undercutting further downstream exposing tree roots. The RHB wall also has sparse vegetation with exposed tree roots, near vertical sections from the top of the bank. Both sides of the creek are tree lined. Observations in 2024 noted a similar deteriorating trend when compared to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the RHB and water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|--|--|--|
| <div><div><div>0306090120150</div><div>NNEESE</div><div>73°E (T) 55 S 757040 6432859 ±4m ▲ 453m</div></div><div><div>UC2511 Oct 2022, 11:44:43</div></div></div> | <div><div><div>306090120150180</div><div>NEESE</div><div>108°E (T) 55 S 757034 6432862 ±4m ▲ 453m</div></div><div><div>Ulan Creek Site 2528 Nov 2023, 10:22:07</div></div></div> | <div><div><div>306090120150180</div><div>NEESE</div><div>102°E (T) 55 S 757032 6432863 ±4m ▲ 456m</div></div><div><div>UC2525 Sep 2024, 9:58:11 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>150180210240270300</div><div>SESNWN</div><div>225°SW (T) 55 S 757047 6432865 ±4m ▲ 453m</div></div><div><div>UC2511 Oct 2022, 11:44:00</div></div></div> | <div><div><div>120150180210240270300</div><div>SESNW</div><div>212°SW (T) 55 S 757046 6432866 ±4m ▲ 453m</div></div><div><div>Ulan Creek Site 2528 Nov 2023, 10:21:21</div></div></div> | <div><div><div>120150180210240270300</div><div>SESNW</div><div>209°SW (T) 55 S 757046 6432867 ±4m ▲ 456m</div></div><div><div>UC2525 Sep 2024, 9:57:32 AM</div></div></div> |

APPENDIX B: Ulan Creek

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC26

Coordinates (MGA/Zone 55): 756929 (E) 6432750 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. The channel bed had little to no vegetation and is a mix of sand, silt and small size gravel. Active erosion was again noted along both banks in 2022. Both the LHB and RHB have a gentle slope above the banks. The RHB wall is near vertical, bare and exposed with signs of erosion back to bedrock. The LHB wall also has near vertical sections from the top of the bank, with bank undercutting further downstream exposing tree roots along the LHB. Both sides of the creek are tree lined. A large tree had fallen across the channel downstream since 2021. Observations in 2024 noted a similar deteriorating trend when compared to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the RHB and water flowing.



2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC27

Coordinates (MGA/Zone 55): 756876 (E) 6432651 (N)







CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. The channel bed had little to no vegetation and is a mix of silt, sand and small gravel material. Active erosion was again noted along both banks in 2022, particularly on the RHB. In 2022 additional build up of sand, silt and small gravel deposits were noted. Sand deposits above the RHB were recorded in 2020. Both the LHB and RHB have a gentle slope above the bank. The RHB wall is near vertical, bare and exposed with signs of erosion. The LHB wall also has near vertical sections and is also bare and exposed. Tree roots are exposed on both bank walls. There is slight bank undercutting along the LHB. Both sides of the creek are tree lined. Observations in 2024 noted a similar deteriorating trend when compared to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the RHB and water flowing. Upstream a tree had fallen from the LHB across the creek since 2022 monitoring.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|--|--|
| <div><div><div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div></div></div><div><div>74°E (T)</div><div>55 S 756880 6432658 ±4m</div><div>▲ 450m</div></div><div><div>UC2711 Oct 2022, 12:21:22</div></div></div> | <div><div><div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div></div></div><div><div>77°E (T)</div><div>55 S 756881 6432655 ±4m</div><div>▲ 450m</div></div><div><div>Ulan Creek Site 2728 Nov 2023, 10:53:51</div></div></div> | <div><div><div><div>N</div><div>NE</div><div>E</div><div>SE</div></div><div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div></div></div><div><div>77°E (T)</div><div>55 S 756883 6432663 ±4m</div><div>▲ 453m</div></div><div><div>UC2725 Sep 2024, 10:17:46 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div><div>SE</div><div>S</div><div>SW</div><div>W</div></div><div><div>120</div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div></div></div><div><div>211°SW (T)</div><div>55 S 756887 6432662 ±4m</div><div>▲ 451m</div></div><div><div>UC2711 Oct 2022, 12:22:31</div></div></div> | <div><div><div><div>SE</div><div>S</div><div>SW</div><div>W</div></div><div><div>120</div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div></div></div><div><div>202°S (T)</div><div>55 S 756887 6432664 ±4m</div><div>▲ 451m</div></div><div><div>Ulan Creek Site 2728 Nov 2023, 10:53:17</div></div></div> | <div><div><div><div>SE</div><div>S</div><div>SW</div><div>W</div></div><div><div>120</div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div></div></div><div><div>208°SW (T)</div><div>55 S 756886 6432664 ±4m</div><div>▲ 452m</div></div><div><div>UC2725 Sep 2024, 10:17:31 AM</div></div></div> |

| 2024 Channel Stability Monitoring - Site Inspection Details | | | |
|--|--|--|---|
| <div><div>Creek Name: Ulan Creek</div><div>Date: 25 September 2024</div><div>Monitoring Site: UC28</div><div>Coordinates (MGA/Zone 55): 756824 (E) 6432508 (N)</div><div>CISRO Ephemeral Stream Assessment: Potentially Stabilising</div><div>General Observations: Ulan Creek had water flowing at this location in 2024. The flow channel bed had little to no vegetation and is a mix of silt, sand, small size gravel and rock material. Deposited sediment was noted in the channel bed in 2020. Both the LHB and RHB have a gentle slope above the bank. The RHB wall is formed from bedrock and is stable. The LHB has near vertical lower sections, partially vegetated with signs of erosion and bank undercutting. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO <i>Ephemeral Stream</i> Assessment classification at this location as 'potentially stabilising'.</div><div>Notes: In 2024 observations were limited to the RHB and water flowing.</div></div> | | | |
| Upstream 2022 | | Upstream 2023 | Upstream 2024 |
| <div><div><div>W</div><div>NW</div><div>N</div><div>NE</div></div><div><div>240</div><div>270</div><div>300</div><div>330</div><div>0</div><div>30</div></div><div>☼ 323°NW (T) ● 55 S 756815 6432506 ±4m ▲ 450m</div><div></div><div><div>UC28</div><div>11 Oct 2022, 12:31:24</div></div></div> | | <div><div><div>W</div><div>NW</div><div>N</div><div>NE</div></div><div><div>240</div><div>270</div><div>300</div><div>330</div><div>0</div><div>30</div></div><div>☼ 322°NW (T) ● 55 S 756816 6432505 ±4m ▲ 450m</div><div></div><div><div>Ulan Creek Site 28</div><div>28 Nov 2023, 11:00:40</div></div></div> | <div><div><div>W</div><div>NW</div><div>N</div><div>NE</div></div><div><div>240</div><div>270</div><div>300</div><div>330</div><div>0</div><div>30</div></div><div>☼ 323°NW (T) ● 55 S 756815 6432504 ±4m ▲ 451m</div><div></div><div><div>UC28</div><div>25 Sep 2024, 10:22:29 AM</div></div></div> |
| Downstream 2022 | | Downstream 2023 | Downstream 2024 |
| <div><div><div>NE</div><div>E</div><div>SE</div><div>S</div></div><div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div><div>180</div><div>210</div></div><div>☼ 124°SE (T) ● 55 S 756816 6432508 ±4m ▲ 451m</div><div></div><div><div>UC28</div><div>11 Oct 2022, 12:31:04</div></div></div> | | <div><div><div>NE</div><div>E</div><div>SE</div><div>S</div></div><div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div><div>180</div><div>210</div></div><div>☼ 123°SE (T) ● 55 S 756814 6432506 ±3m ▲ 439m</div><div></div><div><div>Ulan Creek Site 28</div><div>28 Nov 2023, 11:00:07</div></div></div> | <div><div><div>NE</div><div>E</div><div>SE</div><div>S</div></div><div><div>30</div><div>60</div><div>90</div><div>120</div><div>150</div><div>180</div><div>210</div></div><div>☼ 121°SE (T) ● 55 S 756811 6432507 ±4m ▲ 451m</div><div></div><div><div>UC28</div><div>25 Sep 2024, 10:22:07 AM</div></div></div> |

| 2024 Channel Stability Monitoring - Site Inspection Details | | |
|---|--|---|
| <p>Creek Name: Ulan Creek</p> <p>Date: 25 September 2024</p> <p>Monitoring Site: UC29</p> <p>Coordinates (MGA/Zone 55): 756821 (E) 6432374 (N)</p> <p>CISRO Ephemeral Stream Assessment: Active</p> <p>General Observations: Ulan Creek had water flowing at this location in 2024. The low flow channel bed had little to no vegetation and was a mix of sand and small to medium gravel size rock material. Deposited sediment was noted in the channel bed in 2020. Both the LHB and RHB have a steep rock/boulder slope above the bank. The RHB is near vertical formed from bedrock and is stable. The LHB wall has near vertical mid sections, sparsely vegetated with signs of active erosion in 2022. Both sides of the creek are tree lined. A piece of jute mesh that was most likely from Site UC25 was caught up on the RHB. Observations in 2024 are comparable to previous monitoring. The CSIRO <i>Ephemeral Stream Assessment</i> classification at this location as 'active'.</p> <p>Notes: In 2024 observations were limited to the LHB and water flowing. Jute mesh material from RHB transported downstream since 2022 monitoring.</p> | | |
| Upstream 2022 | Upstream 2023 | Upstream 2024 |
| <div><div><div>NW3003300N030NE6090E120</div><div>☀ 24°NE (T) ● 55 S 756826 6432371 ±4m ▲ 452m</div><div>UC2911 Oct 2022, 12:39:38</div></div></div> | <div><div><div>NW3003300N030NE6090E120</div><div>☀ 26°NE (T) ● 55 S 756823 6432368 ±4m ▲ 444m</div><div>Ulan Creek Site 2928 Nov 2023, 11:05:58</div></div></div> | <div><div><div>NW3003300N030NE6090E120</div><div>☀ 28°NE (T) ● 55 S 756824 6432371 ±4m ▲ 452m</div><div>UC2925 Sep 2024, 10:26:07 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>E90SE120150S180SW210240</div><div>☀ 168°S (T) ● 55 S 756824 6432373 ±4m ▲ 444m</div><div>UC2911 Oct 2022, 12:39:07</div></div></div> | <div><div><div>N0NE3060E90SE120150S180SW210240</div><div>☀ 104°E (T) ● 55 S 756816 6432503 ±4m ▲ 450m</div><div>Ulan Creek Site 2928 Nov 2023, 11:05:35</div></div></div> | <div><div><div>E90SE120150S180SW210240</div><div>☀ 173°S (T) ● 55 S 756824 6432375 ±4m ▲ 452m</div><div>UC2925 Sep 2024, 10:25:39 AM</div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024



Monitoring Site: UC30 (Not visited in 2020 this site was inaccessible)







Coordinates (MGA/Zone 55): 756851 (E) 6432305 (N)



CISRO Ephemeral Stream Assessment: Active







General Observations: Ulan Creek had water pooling at this location in 2023. The channel bed had little to no vegetation and is a mix of silt, sand and small gravel size rock material with several large boulders. In 2022 additional build up of sand, silt and small gravel deposits were noted. The RHB has a steep rock and boulder slope above the bank. The RHB wall is near vertical, bare and exposed, displays undercutting erosion with exposed tree roots. The LHB wall has near vertical sections from the top of the bank, a moderate to steep slope above the bank, increased vegetation in 2022 with signs of erosion. Both sides of the creek are tree lined. A large tree had fallen across the channel downstream since 2021. Observations in 2023 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited to the LHB and water flowing. Decreasing vegetative ground cover noted in 2023. Silt deposits along the edges of the channel bed noted in 2023.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|--|--|---|
| <div><div>SW210240270300330NW0N</div><div>☀ 288°W (T) ● 55 S 756856 6432307 ±4m ▲ 440m</div><div><div>UC3011 Oct 2022, 12:47:04</div></div></div> | <div><div>SW240270300330NW0N30</div><div>☀ 307°NW (T) ● 55 S 756854 6432307 ±4m ▲ 452m</div><div><div>Ulan Creek Site 3028 Nov 2023, 11:11:10</div></div></div> | <div><div>SW210240270300330NW0N</div><div>☀ 293°NW (T) ● 55 S 756859 6432312 ±4m ▲ 454m</div><div><div>UC3025 Sep 2024, 10:32:18 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div>E6090120150180210240SW</div><div>☀ 150°SE (T) ● 55 S 756851 6432311 ±4m ▲ 442m</div><div><div>UC3011 Oct 2022, 12:46:40</div></div></div> | <div><div>E90120150180210240SW</div><div>☀ 155°SE (T) ● 55 S 756850 6432313 ±4m ▲ 445m</div><div><div>Ulan Creek Site 3028 Nov 2023, 11:10:52</div></div></div> | <div><div>SE120150180210240270W</div><div>☀ 191°S (T) ● 55 S 756854 6432321 ±4m ▲ 453m</div><div><div>UC3025 Sep 2024, 10:32:53 AM</div></div></div> |

| 2024 Channel Stability Monitoring - Site Inspection Details | | |
|--|---|---|
| <p>Creek Name: Ulan Creek</p> <p>Date: 25 September 2024</p> <p>Monitoring Site: UC31 (Not visited in 2020 this site was inaccessible)</p> <p>Coordinates (MGA/Zone 55): 756840(E) 6432211(N)</p> <p>CISRO Ephemeral Stream Assessment: Active</p> <p>General Observations: Ulan Creek had water flowing at this location in 2024. The channel bed had little to no vegetation and formed from bedrock with deposited sediments and sand. Large pieces of bedrock type material were noted in the channel bed. In 2022 additional build up of sand and silt deposits were noted. The RHB has a steep rock slope above the bank. The RHB wall is near vertical, bare and exposed, displays undercutting erosion with exposed tree roots. The LHB wall has near vertical lower sections, a steep rock/boulder slope above the bank. The LHB is partially vegetated with signs of erosion. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO <i>Ephemeral Stream Assessment</i> classification at this location as 'active'.</p> <p>Notes: In 2024 observations were limited to the LHB and by water flowing. A tree had fallen from the RHB across the creek since 2022 monitoring.</p> | | |
| Upstream 2022 | Upstream 2023 | Upstream 2024 |
| <div><div><div>NW</div><div>N</div><div>NE</div><div>E</div></div><div><div>300</div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div></div><div>☉ 28°NE (T) ● 55 S 756841 6432212 ±4m ▲ 454m</div><div></div><div>UC3111 Oct 2022, 12:53:34</div></div> | <div><div><div>NW</div><div>N</div><div>NE</div><div>E</div></div><div><div>300</div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div><div>120</div></div><div>☉ 30°NE (T) ● 55 S 756827 6432221 ±5m ▲ 437m</div><div></div><div>Ulan Creek Site 3128 Nov 2023, 11:16:48</div></div> | <div><div><div>W</div><div>NW</div><div>N</div><div>NE</div><div>E</div></div><div><div>270</div><div>300</div><div>330</div><div>0</div><div>30</div><div>60</div><div>90</div></div><div>☉ 2°N (T) ● 55 S 756844 6432202 ±4m ▲ 452m</div><div></div><div>UC3125 Sep 2024, 10:36:50 AM</div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>S</div><div>SW</div><div>W</div><div>NW</div></div><div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div><div>330</div></div><div>☉ 235°SW (T) ● 55 S 756845 6432214 ±4m ▲ 453m</div><div></div><div>UC3111 Oct 2022, 12:54:07</div></div> | <div><div><div>S</div><div>SW</div><div>W</div><div>NW</div></div><div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div><div>330</div></div><div>☉ 238°SW (T) ● 55 S 756841 6432209 ±4m ▲ 445m</div><div></div><div>Ulan Creek Site 3128 Nov 2023, 11:17:16</div></div> | <div><div><div>S</div><div>SW</div><div>W</div><div>NW</div></div><div><div>150</div><div>180</div><div>210</div><div>240</div><div>270</div><div>300</div><div>330</div></div><div>☉ 240°SW (T) ● 55 S 756850 6432213 ±4m ▲ 452m</div><div></div><div>UC3125 Sep 2024, 10:36:20 AM</div></div> |

| 2024 Channel Stability Monitoring - Site Inspection Details | | | |
|--|--|---|--|
| <p>Creek Name: Ulan Creek</p> <p>Date: 25 September 2024</p> <p>Monitoring Site: UC32 (Not visited in 2020 this site was inaccessible)</p> <p>Coordinates (MGA/Zone 55): 756816 (E) 6432138 (N)</p> <p>CISRO Ephemeral Stream Assessment: Potentially Stabilising</p> <p>General Observations: Ulan Creek had water flowing at this location in 2024. The low flow channel bed has no vegetation and is formed from bedrock with sediment deposits. In 2022 additional build up of sand, silt and small gravel deposits were noted. There is a steep rock (almost cliff line in appearance) slope above the RHB bank. The RHB wall is a moderate slope and is partially vegetated with rock boulders and appears stable. The LHB is similar to the RHB. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO <i>Ephemeral Stream Assessment</i> classification at this location as 'potentially stabilising'.</p> <p>Notes: In 2024 observations were limited to the LHB by water flowing.</p> | | | |
| Upstream 2022 | Upstream 2023 | Upstream 2024 | |
| <div><div><div>300NW3300N30NE6090E</div><div>10°N (T) 55 S 756809 6432136 ±4m ▲ 443m</div><div><div>UC3211 Oct 2022, 13:01:21</div></div></div></div> | <div><div><div>270W300NW3300N30NE60</div><div>348°N (T) 55 S 756811 6432135 ±4m ▲ 453m</div><div><div>Ulan Creek Site 3228 Nov 2023, 11:21:36</div></div></div></div> | <div><div><div>270W300NW3300N30NE60</div><div>344°N (T) 55 S 756813 6432133 ±4m ▲ 453m</div><div><div>UC3225 Sep 2024, 10:40:44 AM</div></div></div></div> | |
| Downstream 2022 | Downstream 2023 | Downstream 2024 | |
| <div><div><div>120SE150180S210SW240270W</div><div>200°S (T) 55 S 756808 6432134 ±4m ▲ 454m</div><div><div>UC3211 Oct 2022, 13:01:57</div></div></div></div> | <div><div><div>120SE150180S210SW240270W300</div><div>209°SW (T) 55 S 756813 6432133 ±4m ▲ 453m</div><div><div>Ulan Creek Site 3228 Nov 2023, 11:21:52</div></div></div></div> | <div><div><div>120SE150180S210SW240270W300</div><div>210°SW (T) 55 S 756812 6432134 ±4m ▲ 452m</div><div><div>UC3225 Sep 2024, 10:40:21 AM</div></div></div></div> | |

| 2024 Channel Stability Monitoring - Site Inspection Details | | | |
|--|--|---|---|
| <p>Creek Name: Ulan Creek</p> <p>Date: 25 September 2024</p> <p>Monitoring Site: UC33 (Not visited in 2020 this site was inaccessible)</p> <p>Coordinates (MGA/Zone 55): 756812 (E) 6432094 (N)</p> <p>CISRO Ephemeral Stream Assessment: Potentially Stabilising</p> <p>General Observations: Ulan Creek had water flowing at this location in 2024. The low flow channel bed had little to no vegetation, on bedrock covered with sediment deposits. In 2022 additional build up of sand, silt and small gravel deposits were noted. The RHB has a steep slope above the bank. The RHB wall is near vertical, bare and exposed and formed from bedrock and loose rocks and boulders, with signs of erosion. Carbonaceous bedrock material is also exposed along the RHB. The LHB has a moderate, partially vegetated slope, with a moderate to slope with rock boulders above the bank. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO <i>Ephemeral Stream Assessment</i> classification at this location as 'potentially stabilising'.</p> <p>Notes: In 2024 observations were limited to the LHB by water flowing.</p> | | | |
| Upstream 2022 | | Upstream 2023 | Upstream 2024 |
| <div><div>SW210240270300330N0</div><div>292°W (T) 55 S 756838 6432096 ±4m ▲ 451m</div><div>UC3311 Oct 2022, 13:05:16</div></div> | | <div><div>SW210240270300330N0</div><div>293°W (T) 55 S 756839 6432096 ±4m ▲ 451m</div><div>Ulan Creek Site 3328 Nov 2023, 11:23:48</div></div> | <div><div>SW210240270300330N0</div><div>281°W (T) 55 S 756836 6432097 ±4m ▲ 451m</div><div>UC3325 Sep 2024, 10:42:19 AM</div></div> |
| Downstream 2022 | | Downstream 2023 | Downstream 2024 |
| <div><div>E90120150180210SW240</div><div>161°S (T) 55 S 756818 6432111 ±4m ▲ 440m</div><div>UC3311 Oct 2022, 13:03:30</div></div> | | <div><div>E90120150180210SW240</div><div>157°SE (T) 55 S 756817 6432110 ±4m ▲ 453m</div><div>Ulan Creek Site 3328 Nov 2023, 11:22:51</div></div> | <div><div>E609012015180210SW240</div><div>152°SE (T) 55 S 756819 6432110 ±4m ▲ 454m</div><div>UC3325 Sep 2024, 10:41:55 AM</div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek

Date: 25 September 2024

Monitoring Site: UC34

Coordinates (MGA/Zone 55): 756873(E) 6431844 (N)

CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. Small to medium size rock material and deposited sediments noted in the channel bed. In 2022 additional build up of sand, silt and small gravel deposits were noted. The RHB is a moderate slope with increasing vegetation up slope, with little to no vegetation along the lower section. The LHB wall has near vertical sections from the top of the bank, mostly bare and exposed, with a moderate to steep slope above the bank. Signs of erosion was noted along both the LHB and RHB in 2022. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited by water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|--|--|--|
| <div><div><div>NW0300330N030NE60E90</div><div>☀ 23°NE (T) ● 55 S 756856 6431851 ±4m ▲ 429m</div><div>UC3411 Oct 2022, 13:24:20</div></div></div> | <div><div><div>NW0300330N030NE60E90</div><div>☀ 26°NE (T) ● 55 S 756855 6431847 ±4m ▲ 447m</div><div>Ulan Creek Site 3428 Nov 2023, 11:34:24</div></div></div> | <div><div><div>NW0300330N030NE60E90</div><div>☀ 34°NE (T) ● 55 S 756854 6431846 ±4m ▲ 447m</div><div>UC3425 Sep 2024, 10:53:40 AM</div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>E90SE120150S180SW210240W270</div><div>☀ 181°S (T) ● 55 S 756863 6431853 ±4m ▲ 448m</div><div>UC3411 Oct 2022, 13:25:01</div></div></div> | <div><div><div>E90SE120150S180SW210240W270</div><div>☀ 175°S (T) ● 55 S 756858 6431847 ±4m ▲ 437m</div><div>Ulan Creek Site 3428 Nov 2023, 11:33:36</div></div></div> | <div><div><div>E90SE120150S180SW210240W270</div><div>☀ 177°S (T) ● 55 S 756860 6431850 ±12m ▲ 449m</div><div>UC3425 Sep 2024, 10:53:20 AM</div></div></div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek
Date: 25 September 2024
Monitoring Site: UC35*
Coordinates (MGA/Zone 55): 756809 (E) 6431741 (N)
CISRO Ephemeral Stream Assessment: Potentially Stabilising

General Observations: Ulan Creek had water flowing at this location in 2024. The low flow channel bed had little to no vegetation and is a mix of silt, sand and small to medium size gravel. In 2022 additional build up of sand, silt and small gravel deposits were noted. Minor bank instabilities were noted in 2022 along the LHB. A flow line enters Ulan Creek at this point. The LHB has a moderate slope and is well vegetated. The RHB is similar to the LHB. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'potentially stabilising'.

Notes: In 2024 observations were limited to the RHB by water flowing.

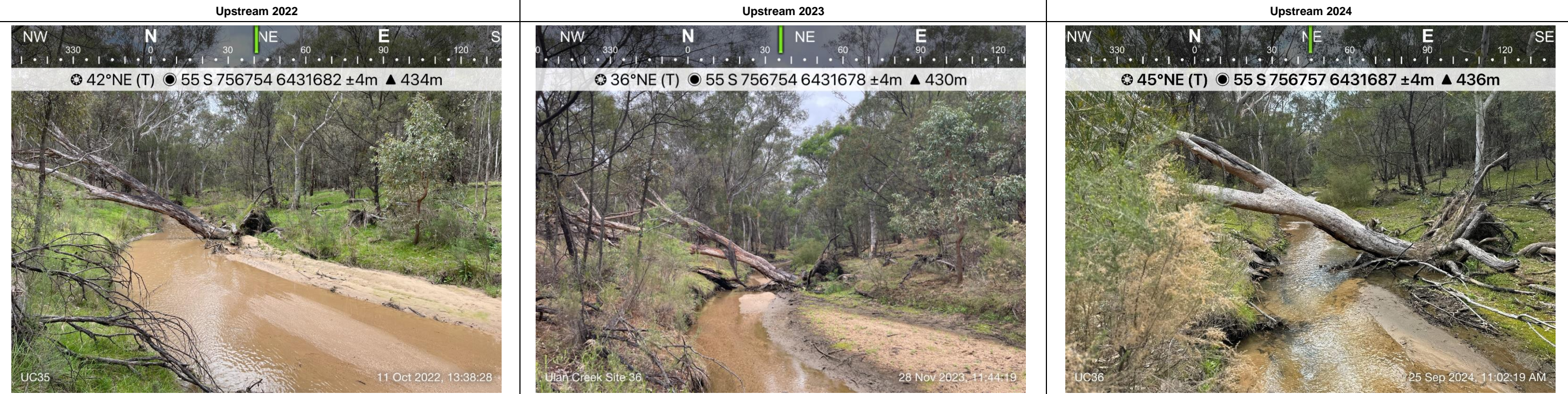
| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|--|--|---|
| <div><div><div>NW330N030NE60E90S120</div><div>☼ 41°NE (T) ● 55 S 756812 6431750 ±4m ▲ 442m</div><div>UC3511 Oct 2022, 13:34:11</div></div></div> | <div><div><div>N330NE60E90SE120150</div><div>☼ 63°NE (T) ● 55 S 756802 6431740 ±4m ▲ 441m</div><div>Ulan Creek Site 3528 Nov 2023, 11:37:21</div></div></div> | <div>Not Available</div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 (*Photo taken approx. 50m further downstream) |
| <div><div><div>SE20S180SW210W270300</div><div>☼ 216°SW (T) ● 55 S 756813 6431751 ±4m ▲ 442m</div><div>UC3511 Oct 2022, 13:33:49</div></div></div> | <div><div><div>SE20S180SW210W270300</div><div>☼ 214°SW (T) ● 55 S 756815 6431749 ±4m ▲ 435m</div><div>Ulan Creek Site 3528 Nov 2023, 11:36:28</div></div></div> | <div>Not Available</div> |

2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek
Date: 25 September 2024
Monitoring Site: UC36
Coordinates (MGA/Zone 55): 756754 (E) 6431673 (N)
CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. The channel bed had little to no vegetation and is a mix of silt, sand and small to medium size gravel. In 2022 additional build up of sand, silt and small gravel deposits were noted. The LHB has a moderate slope above and was vegetated. The LHB wall displayed signs of undercutting. The RHB has a steeper slope above well vegetated. Both sides of the creek have some bare and exposed areas with evidence of past erosion although the amount. Both sides of the creek are tree lined. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'potentially stabilising'.

Notes: In 2024 observations were limited to the RHB by water flowing.



2024 Channel Stability Monitoring - Site Inspection Details

Creek Name: Ulan Creek
Date: 25 September 2024
Monitoring Site: UC37
Coordinates (MGA/Zone 55): 756795 (E) 6431567 (N)
CISRO Ephemeral Stream Assessment: Active

General Observations: Ulan Creek had water flowing at this location in 2024. The flow channel bed had little to no vegetation. Larger size rock material was noted in the channel bed. The site is located at a failed gabion structure installed to gain access across the creek which has accumulated flood debris. Previous scour holes in the creek bed downstream from the gabion structure have been infilled. The RHB has a moderate to steep slope. The LHB is a more moderate slope. Both sides of the creek have some bare and exposed areas with evidence of past erosion and flood debris. The coverage of ground cover noted along the banks appeared to be slightly increasing. Both sides of the creek have few trees lining the banks. Observations in 2024 are comparable to previous monitoring. The CSIRO *Ephemeral Stream Assessment* classification at this location as 'active'.

Notes: In 2024 observations were limited by water flowing.

| Upstream 2022 | Upstream 2023 | Upstream 2024 |
|---|---|--|
| <div><div><div>W270NW300N0NE60E90</div><div>☼ 356°N (T) ● 55 S 756768 6431579 ±3m ▲ 422m</div><div><div>UC3711 Oct 2022, 13:43:14</div></div></div></div> | <div><div><div>W270NW300N0NE60E90</div><div>☼ 354°N (T) ● 31 N 166021 0 ▲ 0m</div><div><div>Ulan Creek Site 3728 Nov 2023, 11:49:14</div></div></div></div> | <div><div><div>W270NW300N0NE60E90</div><div>☼ 352°N (T) ● 55 S 756768 6431575 ±4m ▲ 435m</div><div><div>UC3725 Sep 2024, 11:06:41 AM</div></div></div></div> |
| Downstream 2022 | Downstream 2023 | Downstream 2024 |
| <div><div><div>NE60E90SE120150S180SW210</div><div>☼ 137°SE (T) ● 55 S 756766 6431588 ±3m ▲ 432m</div><div><div>UC3711 Oct 2022, 13:42:35</div></div></div></div> | <div><div><div>NE60E90SE120150S180SW210</div><div>☼ 132°SE (T) ● 55 S 756763 6431583 ±4m ▲ 432m</div><div><div>Ulan Creek Site 3728 Nov 2023, 11:49:46</div></div></div></div> | <div><div><div>NE60E90SE120150S180SW210</div><div>☼ 131°SE (T) ● 55 S 756764 6431584 ±4m ▲ 434m</div><div><div>UC3725 Sep 2024, 11:06:16 AM</div></div></div></div> |

