**Appendix A**: Paleohydrological data derived from set thickness of cross bedding in the fluvial section of Damdama Formation method adopted from Long, 2021

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Matrix % | | Compaction factor | (hx) | (hx)  in m | | (hd) | (dmx) | (dbf) | | (wbf) | (Qbf) | | | (DA) | (S) | | |
| **Bhitarwadi** | | | | | | | | | | | | | | | | | |
| 8 | | 1.08696 | 19 | 0.19 | | 0.5989 | 3.6809 | | 2.1659 | 41.1248 | 91.1972 | 12989.6678 | | | | 0.0022 | |
| 8 | | 1.08696 | 17 | 0.17 | | 0.5359 | 3.2530 | | 1.9206 | 35.6080 | 77.9227 | 10006.5890 | | | | 0.0024 | |
| 8 | | 1.08696 | 16 | 0.16 | | 0.5043 | 3.0411 | | 1.7987 | 32.9193 | 71.5199 | 8680.0906 | | | | 0.0025 | |
| 4 | | 1.04167 | 7 | 0.07 | | 0.2115 | 1.1578 | | 0.7029 | 10.6798 | 20.9180 | 1129.7467 | | | | 0.0059 | |
| 8 | | 1.08696 | 14 | 0.14 | | 0.4413 | 2.6218 | | 1.5570 | 27.6916 | 59.2119 | 6345.8253 | | | | 0.0029 | |
| 8 | | 1.08696 | 34 | 0.34 | | 1.0717 | 7.0263 | | 4.0630 | 87.3763 | 207.6881 | 50866.8865 | | | | 0.0012 | |
| 8 | | 1.08696 | 30 | 0.3 | | 0.9457 | 6.1142 | | 3.5488 | 74.3016 | 173.9936 | 37924.8812 | | | | 0.0014 | |
| 8 | | 1.08696 | 30 | 0.3 | | 0.9457 | 6.1142 | | 3.5488 | 74.3016 | 173.9936 | 37924.8812 | | | | 0.0014 | |
| 8 | | 1.08696 | 21 | 0.21 | | 0.6620 | 4.1138 | | 2.4134 | 46.8159 | 105.0643 | 16427.0224 | | | | 0.0020 | |
| 8 | | 1.08696 | 15 | 0.15 | | 0.4728 | 2.8307 | | 1.6775 | 30.2797 | 65.2808 | 7460.6237 | | | | 0.0027 | |
| 8 | | 1.08696 | 26 | 0.26 | | 0.8196 | 5.2155 | | 3.0402 | 61.7325 | 142.1142 | 27110.6000 | | | | 0.0016 | |
| 8 | | 1.08696 | 30 | 0.3 | | 0.9457 | 6.1142 | | 3.5488 | 74.3016 | 173.9936 | 37924.8812 | | | | 0.0014 | |
| 8 | | 1.08696 | 20 | 0.2 | | 0.6304 | 3.8967 | | 2.2894 | 43.9494 | 98.0589 | 14650.5352 | | | | 0.0021 | |
| 8 | | 1.08696 | 15 | 0.15 | | 0.4728 | 2.8307 | | 1.6775 | 30.2797 | 65.2808 | 7460.6237 | | | | 0.0027 | |
| 8 | | 1.08696 | 16 | 0.16 | | 0.5043 | 3.0411 | | 1.7987 | 32.9193 | 71.5199 | 8680.0906 | | | | 0.0025 | |
| 8 | | 1.08696 | 12 | 0.12 | | 0.3783 | 2.2092 | | 1.3180 | 22.6803 | 47.6130 | 4420.2405 | | | | 0.0034 | |
| 4 | | 1.04167 | 7 | 0.07 | | 0.2115 | 1.1578 | | 0.7029 | 10.6798 | 20.9180 | 1129.7467 | | | | 0.0059 | |
| 4 | | 1.04167 | 5 | 0.05 | | 0.1510 | 0.7967 | | 0.4886 | 6.9075 | 12.9972 | 513.0945 | | | | 0.0081 | |
| 4 | | 1.04167 | 4 | 0.04 | | 0.1208 | 0.6217 | | 0.3838 | 5.1739 | 9.4796 | 303.9962 | | | | 0.0101 | |
| 6 | | 1.06383 | 10 | 0.1 | | 0.3085 | 1.7615 | | 1.0573 | 17.4185 | 35.6886 | 2740.2790 | | | | 0.0041 | |
| 8 | | 1.08696 | 32 | 0.32 | | 1.0087 | 6.5687 | | 3.8052 | 80.7786 | 190.6226 | 44123.8450 | | | | 0.0013 | |
| 8 | | 1.08696 | 20 | 0.2 | | 0.6304 | 3.8967 | | 2.2894 | 43.9494 | 98.0589 | 14650.5352 | | | | 0.0021 | |
|  | | *Appendix A Continued…* | | | | | | | | | | | | | | | |
| Matrix % | | Compaction factor | (hx) | (hx) in m | | (hd) | (dmx) | | (dbf) | (wbf) | (Qbf) | (DA) | | | | (S) | |
| 8 | | 1.08696 | 19 | 0.19 | | 0.5989 | 3.6809 | | 2.1659 | 41.1248 | 91.1972 | 12989.6678 | | | | 0.0022 | |
| 8 | | 1.08696 | 13 | 0.13 | | 0.4098 | 2.4146 | | 1.4371 | 25.1575 | 53.3200 | 5333.2266 | | | | 0.0031 | |
| 8 | | 1.08696 | 18 | 0.18 | | 0.5674 | 3.4663 | | 2.0430 | 38.3438 | 84.4835 | 11442.3873 | | | | 0.0023 | |
| 8 | | 1.08696 | 11 | 0.11 | | 0.3467 | 2.0056 | | 1.1997 | 20.2634 | 42.0999 | 3604.1461 | | | | 0.0036 | |
| 4 | | 1.04167 | 5 | 0.05 | | 0.1510 | 0.7967 | | 0.4886 | 6.9075 | 12.9972 | 513.0945 | | | | 0.0081 | |
| 8 | | 1.08696 | 16 | 0.16 | | 0.5043 | 3.0411 | | 1.7987 | 32.9193 | 71.5199 | 8680.0906 | | | | 0.0025 | |
| 8 | | 1.08696 | 11 | 0.11 | | 0.3467 | 2.0056 | | 1.1997 | 20.2634 | 42.0999 | 3604.1461 | | | | 0.0036 | |
| 4 | | 1.04167 | 5 | 0.05 | | 0.1510 | 0.7967 | | 0.4886 | 6.9075 | 12.9972 | 513.0945 | | | | 0.0081 | |
| 6 | | 1.06383 | 10 | 0.1 | | 0.3085 | 1.7615 | | 1.0573 | 17.4185 | 35.6886 | 2740.2790 | | | | 0.0041 | |
| 4 | | 1.04167 | 7 | 0.07 | | 0.2115 | 1.1578 | | 0.7029 | 10.6798 | 20.9180 | 1129.7467 | | | | 0.0059 | |
| 4 | | 1.04167 | 5 | 0.05 | | 0.1510 | 0.7967 | | 0.4886 | 6.9075 | 12.9972 | 513.0945 | | | | 0.0081 | |
| 4 | | 1.04167 | 10 | 0.1 | | 0.3021 | 1.7208 | | 1.0335 | 16.9500 | 34.6416 | 2608.2334 | | | | 0.0042 | |
| 4 | | 1.04167 | 9 | 0.09 | | 0.2719 | 1.5307 | | 0.9223 | 14.7881 | 29.8458 | 2037.0872 | | | | 0.0046 | |
| 4 | | 1.04167 | 8 | 0.08 | | 0.2417 | 1.3429 | | 0.8120 | 12.6960 | 25.2661 | 1545.3157 | | | | 0.0052 | |
| **Average** | | | | | | | | | | | | | | | | | |
|  | |  |  |  | |  |  | |  |  | **71.7558** |  | | | | **0.0038** | |
| **Samraya** | | | | | | | | | | | | | | | | | |
| 3 | | 1.03093 | 13 | 0.13 | | 0.3887 | 2.2767 | | 1.3572 | 23.4910 | 49.4747 | 4710.5859 | | | | 0.0033 | |
| 3 | | 1.03093 | 10 | 0.1 | | 0.2990 | 1.7011 | | 1.0220 | 16.7240 | 34.1376 | 2545.5949 | | | | 0.0042 | |
| 3 | | 1.03093 | 9 | 0.09 | | 0.2691 | 1.5132 | | 0.9120 | 14.5909 | 29.4116 | 1988.1651 | | | | 0.0047 | |
| 3 | | 1.03093 | 8 | 0.08 | | 0.2392 | 1.3276 | | 0.8030 | 12.5268 | 24.8985 | 1508.2039 | | | | 0.0052 | |
| 3 | | 1.03093 | 7 | 0.07 | | 0.2093 | 1.1445 | | 0.6951 | 10.5375 | 20.6136 | 1102.6150 | | | | 0.0059 | |
| 3 | | 1.03093 | 6 | 0.06 | | 0.1794 | 0.9644 | | 0.5884 | 8.6305 | 16.5757 | 768.0362 | | | | 0.0069 | |
| 3 | | 1.03093 | 5 | 0.05 | | 0.1495 | 0.7875 | | 0.4831 | 6.8155 | 12.8081 | 500.7722 | | | | 0.0082 | |
| 3 | | 1.03093 | 7 | 0.07 | | 0.2093 | 1.1445 | | 0.6951 | 10.5375 | 20.6136 | 1102.6150 | | | | 0.0059 | |
| *Appendix A Continued…* | | | | | | | | | | | | | | | | | |
| Matrix % | | Compaction factor | (hx) | (hx) in m | | (hd) | (dmx) | | (dbf) | (wbf) | (Qbf) | (DA) | | | | (S) | |
| 3 | | 1.03093 | 8 | 0.08 | | 0.2392 | 1.3276 | | 0.8030 | 12.5268 | 24.8985 | 1508.2039 | | | | 0.0052 | |
| 3 | | 1.03093 | 7 | 0.07 | | 0.2093 | 1.1445 | | 0.6951 | 10.5375 | 20.6136 | 1102.6150 | | | | 0.0059 | |
| 3 | | 1.03093 | 8 | 0.08 | | 0.2392 | 1.3276 | | 0.8030 | 12.5268 | 24.8985 | 1508.2039 | | | | 0.0052 | |
| 3 | | 1.03093 | 5 | 0.05 | | 0.1495 | 0.7875 | | 0.4831 | 6.8155 | 12.8081 | 500.7722 | | | | 0.0082 | |
| 3 | | 1.03093 | 4 | 0.04 | | 0.1196 | 0.6146 | | 0.3796 | 5.1050 | 9.3417 | 296.6955 | | | | 0.0102 | |
| 3 | | 1.03093 | 7 | 0.07 | | 0.2093 | 1.1445 | | 0.6951 | 10.5375 | 20.6136 | 1102.6150 | | | | 0.0059 | |
| 3 | | 1.03093 | 6 | 0.06 | | 0.1794 | 0.9644 | | 0.5884 | 8.6305 | 16.5757 | 768.0362 | | | | 0.0069 | |
| 3 | | 1.03093 | 9 | 0.09 | | 0.2691 | 1.5132 | | 0.9120 | 14.5909 | 29.4116 | 1988.1651 | | | | 0.0047 | |
| 3 | | 1.03093 | 7 | 0.07 | | 0.2093 | 1.1445 | | 0.6951 | 10.5375 | 20.6136 | 1102.6150 | | | | 0.0059 | |
| 3 | | 1.03093 | 6 | 0.06 | | 0.1794 | 0.9644 | | 0.5884 | 8.6305 | 16.5757 | 768.0362 | | | | 0.0069 | |
| 3 | | 1.03093 | 4 | 0.04 | | 0.1196 | 0.6146 | | 0.3796 | 5.1050 | 9.3417 | 296.6955 | | | | 0.0102 | |
| 3 | | 1.03093 | 13 | 0.13 | | 0.3887 | 2.2767 | | 1.3572 | 23.4910 | 49.4747 | 4710.5859 | | | | 0.0033 | |
| 3 | | 1.03093 | 10 | 0.1 | | 0.2990 | 1.7011 | | 1.0220 | 16.7240 | 34.1376 | 2545.5949 | | | | 0.0042 | |
| 3 | | 1.03093 | 9 | 0.09 | | 0.2691 | 1.5132 | | 0.9120 | 14.5909 | 29.4116 | 1988.1651 | | | | 0.0047 |
| 4 | | 1.04167 | 8 | 0.08 | | 0.2417 | 1.3429 | | 0.8120 | 12.6960 | 25.2661 | 1545.3157 | | | | 0.0052 |
| 4 | | 1.04167 | 4 | 0.04 | | 0.1208 | 0.6217 | | 0.3838 | 5.1739 | 9.4796 | 303.9962 | | | | 0.0101 |
| 6 | | 1.06383 | 10 | 0.1 | | 0.3085 | 1.7615 | | 1.0573 | 17.4185 | 35.6886 | 2740.2790 | | | | 0.0041 |
| 6 | | 1.06383 | 9 | 0.09 | | 0.2777 | 1.5669 | | 0.9435 | 15.1968 | 30.7479 | 2140.2176 | | | | 0.0045 |
| 4 | | 1.04167 | 7 | 0.07 | | 0.2115 | 1.1578 | | 0.7029 | 10.6798 | 20.9180 | 1129.7467 | | | | 0.0059 |
| 6 | | 1.06383 | 15 | 0.15 | | 0.4628 | 2.7639 | | 1.6390 | 29.4480 | 63.3251 | 7093.5808 | | | | 0.0028 |
| 6 | | 1.06383 | 14 | 0.14 | | 0.4319 | 2.5599 | | 1.5212 | 26.9310 | 57.4380 | 6033.6275 | | | | 0.0030 |
| 6 | | 1.06383 | 10 | 0.1 | | 0.3085 | 1.7615 | | 1.0573 | 17.4185 | 35.6886 | 2740.2790 | | | | 0.0041 |
| 4 | | 1.04167 | 6 | 0.06 | | 0.1813 | 0.9755 | | 0.5950 | 8.7471 | 16.8204 | 786.9350 | | | | 0.0068 |
| 4 | | 1.04167 | 4.5 | 0.045 | | 0.1359 | 0.7087 | | 0.4360 | 6.0265 | 11.1979 | 400.7380 | | | | 0.0090 |
| 4 | | 1.04167 | 4 | 0.04 | | 0.1208 | 0.6217 | | 0.3838 | 5.1739 | 9.4796 | 303.9962 | | | | 0.0101 |
|  | |  |  |  | |  |  | |  |  |  |  | | | |  |
| *Appendix A Continued…* | | | | | | | | | | | | | | | | |
| Matrix % | | Compaction factor | (hx) | (hx) in m | | (hd) | (dmx) | | (dbf) | (wbf) | (Qbf) | (DA) | | | | (S) |
| 4 | | 1.04167 | 3 | 0.03 | | 0.0906 | 0.4517 | | 0.2813 | 3.5647 | 6.3109 | 154.8067 | | | | 0.0133 |
| 4 | | 1.04167 | 8.5 | 0.085 | | 0.2568 | 1.4365 | | 0.8670 | 13.7330 | 27.5280 | 1781.4721 | | | | 0.0049 |
| 4 | | 1.04167 | 3 | 0.03 | | 0.0906 | 0.4517 | | 0.2813 | 3.5647 | 6.3109 | 154.8067 | | | | 0.0133 |
| 4 | | 1.04167 | 5 | 0.05 | | 0.1510 | 0.7967 | | 0.4886 | 6.9075 | 12.9972 | 513.0945 | | | | 0.0081 |
| 4 | | 1.04167 | 8 | 0.08 | | 0.2417 | 1.3429 | | 0.8120 | 12.6960 | 25.2661 | 1545.3157 | | | | 0.0052 |
| 4 | | 1.04167 | 6 | 0.06 | | 0.1813 | 0.9755 | | 0.5950 | 8.7471 | 16.8204 | 786.9350 | | | | 0.0068 |
| 4 | | 1.04167 | 4 | 0.04 | | 0.1208 | 0.6217 | | 0.3838 | 5.1739 | 9.4796 | 303.9962 | | | | 0.0101 |
| 4 | | 1.04167 | 6 | 0.06 | | 0.1813 | 0.9755 | | 0.5950 | 8.7471 | 16.8204 | 786.9350 | | | | 0.0068 |
| 4 | | 1.04167 | 3 | 0.03 | | 0.0906 | 0.4517 | | 0.2813 | 3.5647 | 6.3109 | 154.8067 | | | | 0.0133 |
| 4 | | 1.04167 | 9 | 0.09 | | 0.2719 | 1.5307 | | 0.9223 | 14.7881 | 29.8458 | 2037.0872 | | | | 0.0046 |
| 4 | | 1.04167 | 6 | 0.06 | | 0.1813 | 0.9755 | | 0.5950 | 8.7471 | 16.8204 | 786.9350 | | | | 0.0068 |
| 4 | | 1.04167 | 7.5 | 0.075 | | 0.2266 | 1.2500 | | 0.7573 | 11.6780 | 23.0620 | 1328.2142 | | | | 0.0055 |
| 4 | | 1.04167 | 4 | 0.04 | | 0.1208 | 0.6217 | | 0.3838 | 5.1739 | 9.4796 | 303.9962 | | | | 0.0101 |
| 4 | | 1.04167 | 6 | 0.06 | | 0.1813 | 0.9755 | | 0.5950 | 8.7471 | 16.8204 | 786.9350 | | | | 0.0068 |
| 4 | | 1.04167 | 3 | 0.03 | | 0.0906 | 0.4517 | | 0.2813 | 3.5647 | 6.3109 | 154.8067 | | | | 0.0133 |
| 4 | | 1.04167 | 7 | 0.07 | | 0.2115 | 1.1578 | | 0.7029 | 10.6798 | 20.9180 | 1129.7467 | | | | 0.0059 |
| 4 | | 1.04167 | 3 | 0.03 | | 0.0906 | 0.4517 | | 0.2813 | 3.5647 | 6.3109 | 154.8067 | | | | 0.0133 |
| 4 | | 1.04167 | 4 | 0.04 | | 0.1208 | 0.6217 | | 0.3838 | 5.1739 | 9.4796 | 303.9962 | | | | 0.0101 |
| 4 | | 1.04167 | 8 | 0.08 | | 0.2417 | 1.3429 | | 0.8120 | 12.6960 | 25.2661 | 1545.3157 | | | | 0.0052 |
| 4 | | 1.04167 | 3 | 0.03 | | 0.0906 | 0.4517 | | 0.2813 | 3.5647 | 6.3109 | 154.8067 | | | | 0.0133 |
| 4 | | 1.04167 | 5.5 | 0.055 | | 0.1661 | 0.8857 | | 0.5416 | 7.8150 | 14.8728 | 641.6458 | | | | 0.0074 |
| 4 | | 1.04167 | 9 | 0.09 | | 0.2719 | 1.5307 | | 0.9223 | 14.7881 | 29.8458 | 2037.0872 | | | | 0.0046 |
| 4 | | 1.04167 | 6 | 0.06 | | 0.1813 | 0.9755 | | 0.5950 | 8.7471 | 16.8204 | 786.9350 | | | | 0.0068 |
| 4 | | 1.04167 | 6 | 0.06 | | 0.1813 | 0.9755 | | 0.5950 | 8.7471 | 16.8204 | 786.9350 | | | | 0.0068 |
| 4 | | 1.04167 | 5 | 0.05 | | 0.1510 | 0.7967 | | 0.4886 | 6.9075 | 12.9972 | 513.0945 | | | | 0.0081 |
| **Average** | | | | | | | | | | | | | | | | |
|  | |  |  |  | |  |  | |  |  | **21.2608** |  | | | | **0.0070** |
| *Appendix A Continued…* | | | | | | | | | | | | | | | | |
| Matrix % | | Compaction factor | (hx) | (hx) in m | | (hd) | (dmx) | | (dbf) | (wbf) | (Qbf) | (DA) | | | | (S) |
| **Tyohari** | | | | | | | | | | | | | | | | |
| 8 | | 1.08696 | 45 | 0.45 | | 1.4185 | 9.5935 | | 5.5009 | 125.6156 | 308.7307 | 98173.6568 | | | | 0.0009 |
| 8 | | 1.08696 | 25 | 0.25 | | 0.7880 | 4.9931 | | 2.9140 | 58.6753 | 134.4458 | 24727.6430 | | | | 0.0017 |
| 8 | | 1.08696 | 40 | 0.4 | | 1.2609 | 8.4168 | | 4.8433 | 107.8447 | 261.3573 | 74473.6402 | | | | 0.0011 |
| 8 | | 1.08696 | 20 | 0.2 | | 0.6304 | 3.8967 | | 2.2894 | 43.9494 | 98.0589 | 14650.5352 | | | | 0.0021 |
| 8 | | 1.08696 | 25 | 0.25 | | 0.7880 | 4.9931 | | 2.9140 | 58.6753 | 134.4458 | 24727.6430 | | | | 0.0017 |
| 8 | | 1.08696 | 18 | 0.18 | | 0.5674 | 3.4663 | | 2.0430 | 38.3438 | 84.4835 | 11442.3873 | | | | 0.0023 |
| 8 | | 1.08696 | 20 | 0.2 | | 0.6304 | 3.8967 | | 2.2894 | 43.9494 | 98.0589 | 14650.5352 | | | | 0.0021 |
| 8 | | 1.08696 | 21 | 0.21 | | 0.6620 | 4.1138 | | 2.4134 | 46.8159 | 105.0643 | 16427.0224 | | | | 0.0020 |
| 8 | | 1.08696 | 10 | 0.1 | | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | 2882.0692 | | | | 0.0040 |
| 6 | | 1.06383 | 7 | 0.07 | | 0.2160 | 1.1852 | | 0.7191 | 10.9750 | 21.5502 | 1186.9417 | | | | 0.0058 |
| 8 | | 1.08696 | 12 | 0.12 | | 0.3783 | 2.2092 | | 1.3180 | 22.6803 | 47.6130 | 4420.2405 | | | | 0.0034 |
| 8 | | 1.08696 | 10 | 0.1 | | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | 2882.0692 | | | | 0.0040 |
| 8 | | 1.08696 | 10 | 0.1 | | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | 2882.0692 | | | | 0.0040 |
| 8 | | 1.08696 | 7 | 0.07 | | 0.2207 | 1.2138 | | 0.7360 | 11.2850 | 22.2158 | 1248.3576 | | | | 0.0056 |
| 8 | | 1.08696 | 5 | 0.05 | | 0.1576 | 0.8352 | | 0.5116 | 7.2989 | 13.8036 | 566.9638 | | | | 0.0078 |
| 8 | | 1.08696 | 14 | 0.14 | | 0.4413 | 2.6218 | | 1.5570 | 27.6916 | 59.2119 | 6345.8253 | | | | 0.0029 |
| 8 | | 1.08696 | 16 | 0.16 | | 0.5043 | 3.0411 | | 1.7987 | 32.9193 | 71.5199 | 8680.0906 | | | | 0.0025 |
| 8 | | 1.08696 | 8 | 0.08 | | 0.2522 | 1.4080 | | 0.8503 | 13.4154 | 26.8336 | 1707.5568 | | | | 0.0050 |
| 8 | | 1.08696 | 28 | 0.28 | | 0.8826 | 5.6630 | | 3.2937 | 67.9508 | 157.8179 | 32257.9826 | | | | 0.0015 |
| 8 | | 1.08696 | 20 | 0.2 | | 0.6304 | 3.8967 | | 2.2894 | 43.9494 | 98.0589 | 14650.5352 | | | | 0.0021 |
| 8 | | 1.08696 | 18.4 | 0.184 | | 0.5800 | 3.5520 | | 2.0921 | 39.4508 | 87.1509 | 12047.8021 | | | | 0.0022 |
| 8 | | 1.08696 | 15 | 0.15 | | 0.4728 | 2.8307 | | 1.6775 | 30.2797 | 65.2808 | 7460.6237 | | | | 0.0027 |
|  | | *Appendix A Continued…* | | | | | | | | | | | | | | |
| Matrix % | | Compaction factor | (hx) | (hx) in m | | (hd) | (dmx) | | (dbf) | (wbf) | (Qbf) | (DA) | | | | (S) |
| 8 | | 1.08696 | 13 | 0.13 | | 0.4098 | 2.4146 | | 1.4371 | 25.1575 | 53.3200 | 5333.2266 | | | | 0.0031 |
| 8 | | 1.08696 | 16.5 | 0.165 | | 0.5201 | 3.1469 | | 1.8596 | 34.2576 | 74.7012 | 9329.8170 | | | | 0.0025 |
| 8 | | 1.08696 | 13 | 0.13 | | 0.4098 | 2.4146 | | 1.4371 | 25.1575 | 53.3200 | 5333.2266 | | | | 0.0031 |
| 8 | | 1.08696 | 16 | 0.16 | | 0.5043 | 3.0411 | | 1.7987 | 32.9193 | 71.5199 | 8680.0906 | | | | 0.0025 |
| 8 | | 1.08696 | 12.5 | 0.125 | | 0.3940 | 2.3117 | | 1.3774 | 23.9116 | 50.4428 | 4864.4487 | | | | 0.0032 |
| 8 | | 1.08696 | 20 | 0.2 | | 0.6304 | 3.8967 | | 2.2894 | 43.9494 | 98.0589 | 14650.5352 | | | | 0.0021 |
| 8 | | 1.08696 | 19 | 0.19 | | 0.5989 | 3.6809 | | 2.1659 | 41.1248 | 91.1972 | 12989.6678 | | | | 0.0022 |
| 8 | | 1.08696 | 14 | 0.14 | | 0.4413 | 2.6218 | | 1.5570 | 27.6916 | 59.2119 | 6345.8253 | | | | 0.0029 |
| 8 | | 1.08696 | 20 | 0.2 | | 0.6304 | 3.8967 | | 2.2894 | 43.9494 | 98.0589 | 14650.5352 | | | | 0.0021 |
| 8 | | 1.08696 | 18 | 0.18 | | 0.5674 | 3.4663 | | 2.0430 | 38.3438 | 84.4835 | 11442.3873 | | | | 0.0023 |
| 8 | | 1.08696 | 8 | 0.08 | | 0.2522 | 1.4080 | | 0.8503 | 13.4154 | 26.8336 | 1707.5568 | | | | 0.0050 |
| 8 | | 1.08696 | 10 | 0.1 | | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | 2882.0692 | | | | 0.0040 |
| **Average** | | | | | | | | | | | | | | | | |
|  | |  |  |  | |  |  | |  |  | **82.4710** |  | | | | **0.0030** |
| **Umraind** | | | | | | | | | | | | | | | | |
| 8 | | 1.08696 | 13 | | 0.13 | 0.4098 | 2.4146 | | 1.4371 | 25.1575 | 53.3200 | 5333.2266 | | | | 0.0031 |
| 8 | | 1.08696 | 10 | | 0.1 | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | 2882.0692 | | | | 0.0040 |
| 8 | | 1.08696 | 7 | | 0.07 | 0.2207 | 1.2138 | | 0.7360 | 11.2850 | 22.2158 | 1248.3576 | | | | 0.0056 |
| 8 | | 1.08696 | 13 | | 0.13 | 0.4098 | 2.4146 | | 1.4371 | 25.1575 | 53.3200 | 5333.2266 | | | | 0.0031 |
| 8 | | 1.08696 | 4 | | 0.04 | 0.1261 | 0.6518 | | 0.4019 | 5.4671 | 10.0677 | 335.9124 | | | | 0.0097 |
| 8 | | 1.08696 | 5 | | 0.05 | 0.1576 | 0.8352 | | 0.5116 | 7.2989 | 13.8036 | 566.9638 | | | | 0.0078 |
| 8 | | 1.08696 | 10 | | 0.1 | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | 2882.0692 | | | | 0.0040 |
| 8 | 1.08696 | | 12 | | 0.12 | 0.3783 | 2.2092 | | 1.3180 | 22.6803 | 47.6130 | 4420.2405 | | | | 0.0034 |
| 8 | 1.08696 | | 10 | | 0.1 | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | 2882.0692 | | | | 0.0040 |
| 8 | 1.08696 | | 12 | | 0.12 | 0.3783 | 2.2092 | | 1.3180 | 22.6803 | 47.6130 | 4420.2405 | | | | 0.0034 |
|  | *Appendix A Continued…* | | | | | | | | | | | | | | | |
| Matrix % | Compaction factor | | (hx) | | (hx) in m | (hd) | (dmx) | | (dbf) | (wbf) | (Qbf) | (DA) | | | | (S) |
| 8 | 1.08696 | | 9 | | 0.09 | 0.2837 | 1.6048 | | 0.9657 | 15.6260 | 31.6975 | 2250.9588 | | | | 0.0044 |
| 8 | 1.08696 | | 15 | | 0.15 | 0.4728 | 2.8307 | | 1.6775 | 30.2797 | 65.2808 | | 7460.6237 | | | 0.0027 |
| 8 | 1.08696 | | 11 | | 0.11 | 0.3467 | 2.0056 | | 1.1997 | 20.2634 | 42.0999 | | 3604.1461 | | | 0.0036 |
| 8 | 1.08696 | | 11 | | 0.11 | 0.3467 | 2.0056 | | 1.1997 | 20.2634 | 42.0999 | | 3604.1461 | | | 0.0036 |
| 8 | 1.08696 | | 10 | | 0.1 | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | | 2882.0692 | | | 0.0040 |
| 8 | 1.08696 | | 7 | | 0.07 | 0.2207 | 1.2138 | | 0.7360 | 11.2850 | 22.2158 | | 1248.3576 | | | 0.0056 |
| 8 | 1.08696 | | 6 | | 0.06 | 0.1891 | 1.0228 | | 0.6230 | 9.2428 | 17.8640 | | 869.5545 | | | 0.0065 |
| 8 | 1.08696 | | 15 | | 0.15 | 0.4728 | 2.8307 | | 1.6775 | 30.2797 | 65.2808 | | 7460.6237 | | | 0.0027 |
| 8 | 1.08696 | | 15 | | 0.15 | 0.4728 | 2.8307 | | 1.6775 | 30.2797 | 65.2808 | | 7460.6237 | | | 0.0027 |
| 8 | 1.08696 | | 10 | | 0.1 | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | | 2882.0692 | | | 0.0040 |
| 8 | 1.08696 | | 6 | | 0.06 | 0.1891 | 1.0228 | | 0.6230 | 9.2428 | 17.8640 | | 869.5545 | | | 0.0065 |
| 8 | 1.08696 | | 6 | | 0.06 | 0.1891 | 1.0228 | | 0.6230 | 9.2428 | 17.8640 | | 869.5545 | | | 0.0065 |
| 8 | 1.08696 | | 5 | | 0.05 | 0.1576 | 0.8352 | | 0.5116 | 7.2989 | 13.8036 | | 566.9638 | | | 0.0078 |
| 8 | 1.08696 | | 13 | | 0.13 | 0.4098 | 2.4146 | | 1.4371 | 25.1575 | 53.3200 | | 5333.2266 | | | 0.0031 |
| 8 | 1.08696 | | 12 | | 0.12 | 0.3783 | 2.2092 | | 1.3180 | 22.6803 | 47.6130 | | 4420.2405 | | | 0.0034 |
| 8 | 1.08696 | | 8 | | 0.08 | 0.2522 | 1.4080 | | 0.8503 | 13.4154 | 26.8336 | | 1707.5568 | | | 0.0050 |
| 8 | 1.08696 | | 18 | | 0.18 | 0.5674 | 3.4663 | | 2.0430 | 38.3438 | 84.4835 | | 11442.3873 | | | 0.0023 |
| 8 | 1.08696 | | 16 | | 0.16 | 0.5043 | 3.0411 | | 1.7987 | 32.9193 | 71.5199 | | 8680.0906 | | | 0.0025 |
| 8 | 1.08696 | | 10 | | 0.1 | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | | 2882.0692 | | | 0.0040 |
| 8 | 1.08696 | | 7 | | 0.07 | 0.2207 | 1.2138 | | 0.7360 | 11.2850 | 22.2158 | | 1248.3576 | | | 0.0056 |
| 8 | 1.08696 | | 4 | | 0.04 | 0.1261 | 0.6518 | | 0.4019 | 5.4671 | 10.0677 | | 335.9124 | | | 0.0097 |
|  |  | |  | |  |  |  | |  |  |  | |  | | |  |
| **Average** | | | | | | | | | | | | | | | | |
| ***Appendix A Continued…*** | | | | | | | | | | | | | | | | |
| Matrix % | Compaction factor | | (hx) | | (hx) in m | (hd) | (dmx) | | (dbf) | (wbf) | (Qbf) | | (DA) | | | (S) |
| **Damdama** | | | | | | | | | | | | | | | | |
| 8 | 1.08696 | | 16 | | 0.16 | 0.5043 | 3.0411 | | 1.7987 | 32.9193 | 71.5199 | | 8680.0906 | | | 0.0025 |
| 8 | 1.08696 | | 16 | | 0.16 | 0.5043 | 3.0411 | | 1.7987 | 32.9193 | 71.5199 | | 8680.0906 | | | 0.0025 |
| 8 | 1.08696 | | 12 | | 0.12 | 0.3783 | 2.2092 | | 1.3180 | 22.6803 | 47.6130 | | 4420.2405 | | | 0.0034 |
| 8 | 1.08696 | | 15 | | 0.15 | 0.4728 | 2.8307 | | 1.6775 | 30.2797 | 65.2808 | | 7460.6237 | | | 0.0027 |
| 8 | 1.08696 | | 21 | | 0.21 | 0.6620 | 4.1138 | | 2.4134 | 46.8159 | 105.0643 | | 16427.0224 | | | 0.0020 |
| 8 | 1.08696 | | 10 | | 0.1 | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | | 2882.0692 | | | 0.0040 |
| 8 | 1.08696 | | 9 | | 0.09 | 0.2837 | 1.6048 | | 0.9657 | 15.6260 | 31.6975 | | 2250.9588 | | | 0.0044 |
| 8 | 1.08696 | | 10 | | 0.1 | 0.3152 | 1.8041 | | 1.0822 | 17.9104 | 36.7908 | | 2882.0692 | | | 0.0040 |
| 8 | 1.08696 | | 8 | | 0.08 | 0.2522 | 1.4080 | | 0.8503 | 13.4154 | 26.8336 | | 1707.5568 | | | 0.0050 |
| 8 | 1.08696 | | 6 | | 0.06 | 0.1891 | 1.0228 | | 0.6230 | 9.2428 | 17.8640 | | 869.5545 | | | 0.0065 |
| 8 | 1.08696 | | 13 | | 0.13 | 0.4098 | 2.4146 | | 1.4371 | 25.1575 | 53.3200 | | 5333.2266 | | | 0.0031 |
| **Average** | | | | | | | | | | | | | | | | |
|  |  | |  | |  |  |  | |  |  | **41.67611816** | |  | | | **0.0044** |

hx(m)=Crossbed thickness (m), hd=Dune height (m), dmx=Channel thalweg (m), dbf=Average bankful depth (m), wbf=Bankfull channel width (m), Qbf=Bankfull discharge (m3/s), DA=Drainage area (m2), S=Paleoslope (m/m)

**Appendix B:** Paleohydrological data derived from set thickness of cross bedding in the fluvial section of Damdama Formation method adopted from Sarkar et al., 2012

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **h (cm)** | **10% compaction** | **h(m)** | **dm (m)** | **W (m)** | **Qm (m³s¯¹)** | **Wb (m)** | **db (m)** | **F= w/d** | **S (mm¯¹)** | **Ab=db\*wb** | **Qb (m³s¯¹)** | **Ad (m²)** | **L (m)** |
| **Bhitarwadi** | | | | | | | | | | | | | |
| 19.00 | 20.90 | 0.19 | 1.95 | 29.85 | 16.85 | 41.80 | 3.00 | 15.33 | 0.014 | 125.36 | 421.79 | 3163.23 | 176.28 |
| 17.00 | 18.70 | 0.17 | 1.77 | 25.18 | 12.70 | 35.49 | 2.67 | 14.20 | 0.016 | 94.74 | 308.56 | 2085.08 | 137.28 |
| 16.00 | 17.60 | 0.16 | 1.68 | 22.95 | 10.89 | 32.46 | 2.51 | 13.62 | 0.017 | 81.33 | 260.22 | 1661.35 | 119.79 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.34 | 9.61 | 1.06 | 7.71 | 0.033 | 10.14 | 25.49 | 75.01 | 18.67 |
| 14.00 | 15.40 | 0.14 | 1.51 | 18.71 | 7.76 | 26.66 | 2.18 | 12.42 | 0.019 | 58.11 | 178.80 | 1007.29 | 88.72 |
| 34.00 | 37.40 | 0.34 | 3.17 | 72.68 | 73.82 | 98.48 | 5.51 | 22.90 | 0.009 | 542.67 | 2164.51 | 27999.23 | 652.25 |
| 30.00 | 33.00 | 0.30 | 2.86 | 60.02 | 53.72 | 81.90 | 4.83 | 21.00 | 0.010 | 395.97 | 1522.62 | 17516.86 | 492.27 |
| 30.00 | 33.00 | 0.30 | 2.86 | 60.02 | 53.72 | 81.90 | 4.83 | 21.00 | 0.010 | 395.97 | 1522.62 | 17516.86 | 492.27 |
| 21.00 | 23.10 | 0.21 | 2.12 | 34.79 | 21.72 | 48.44 | 3.33 | 16.43 | 0.013 | 161.29 | 558.80 | 4602.63 | 220.77 |
| 15.00 | 16.50 | 0.15 | 1.60 | 20.79 | 9.24 | 29.51 | 2.34 | 13.03 | 0.018 | 69.13 | 217.06 | 1304.47 | 103.61 |
| 26.00 | 28.60 | 0.26 | 2.53 | 48.22 | 37.36 | 66.34 | 4.16 | 19.03 | 0.011 | 276.17 | 1018.43 | 10246.48 | 356.84 |
| 30.00 | 33.00 | 0.30 | 2.86 | 60.02 | 53.72 | 81.90 | 4.83 | 21.00 | 0.010 | 395.97 | 1522.62 | 17516.86 | 492.27 |
| 20.00 | 22.00 | 0.20 | 2.03 | 32.28 | 19.19 | 45.08 | 3.16 | 15.88 | 0.014 | 142.65 | 487.20 | 3833.58 | 197.83 |
| 15.00 | 16.50 | 0.15 | 1.60 | 20.79 | 9.24 | 29.51 | 2.34 | 13.03 | 0.018 | 69.13 | 217.06 | 1304.47 | 103.61 |
| 16.00 | 17.60 | 0.16 | 1.68 | 22.95 | 10.89 | 32.46 | 2.51 | 13.62 | 0.017 | 81.33 | 260.22 | 1661.35 | 119.79 |
| 12.00 | 13.20 | 0.12 | 1.32 | 14.78 | 5.25 | 21.25 | 1.85 | 11.17 | 0.021 | 39.41 | 115.94 | 565.31 | 62.73 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.34 | 9.61 | 1.06 | 7.71 | 0.033 | 10.14 | 25.49 | 75.01 | 18.67 |
| 5.00 | 5.50 | 0.05 | 0.63 | 3.87 | 0.57 | 5.85 | 0.74 | 6.11 | 0.044 | 4.35 | 9.90 | 21.26 | 8.76 |
| 4.00 | 4.40 | 0.04 | 0.53 | 2.75 | 0.32 | 4.21 | 0.59 | 5.24 | 0.054 | 2.48 | 5.29 | 9.21 | 5.31 |
| 10.00 | 11.00 | 0.10 | 1.14 | 11.18 | 3.30 | 16.25 | 1.53 | 9.85 | 0.025 | 24.90 | 69.45 | 285.48 | 41.64 |
| 32.00 | 35.20 | 0.32 | 3.02 | 66.25 | 63.28 | 90.07 | 5.17 | 21.96 | 0.009 | 465.84 | 1825.43 | 22309.30 | 569.14 |
| 20.00 | 22.00 | 0.20 | 2.03 | 32.28 | 19.19 | 45.08 | 3.16 | 15.88 | 0.014 | 142.65 | 487.20 | 3833.58 | 197.83 |
| ***Appendix B Continued….*** | | | | | | | | | | | | | |
| **h (cm)** | **10% compaction** | **h(m)** | **dm (m)** | **W (m)** | **Qm (m³s¯¹)** | **Wb (m)** | **db (m)** | **F= w/d** | **S (mm¯¹)** | **Ab=db\*wb** | **Qb (m³s¯¹)** | **Ad (m²)** | **L (m)** |
| 19.00 | 20.90 | 0.19 | 1.95 | 29.85 | 16.85 | 41.80 | 3.00 | 15.33 | 0.014 | 125.36 | 421.79 | 3163.23 | 176.28 |
| 13.00 | 14.30 | 0.13 | 1.42 | 16.71 | 6.43 | 23.91 | 2.02 | 11.80 | 0.020 | 48.21 | 145.18 | 763.05 | 75.10 |
| 18.00 | 19.80 | 0.18 | 1.86 | 27.48 | 14.69 | 38.60 | 2.83 | 14.77 | 0.015 | 109.41 | 362.33 | 2583.10 | 156.10 |
| 11.00 | 12.10 | 0.11 | 1.23 | 12.94 | 4.21 | 18.69 | 1.69 | 10.52 | 0.023 | 31.66 | 90.79 | 408.03 | 51.59 |
| 5.00 | 5.50 | 0.05 | 0.63 | 3.87 | 0.57 | 5.85 | 0.74 | 6.11 | 0.044 | 4.35 | 9.90 | 21.26 | 8.76 |
| 16.00 | 17.60 | 0.16 | 1.68 | 22.95 | 10.89 | 32.46 | 2.51 | 13.62 | 0.017 | 81.33 | 260.22 | 1661.35 | 119.79 |
| 11.00 | 12.10 | 0.11 | 1.23 | 12.94 | 4.21 | 18.69 | 1.69 | 10.52 | 0.023 | 31.66 | 90.79 | 408.03 | 51.59 |
| 5.00 | 5.50 | 0.05 | 0.63 | 3.87 | 0.57 | 5.85 | 0.74 | 6.11 | 0.044 | 4.35 | 9.90 | 21.26 | 8.76 |
| 10.00 | 11.00 | 0.10 | 1.14 | 11.18 | 3.30 | 16.25 | 1.53 | 9.85 | 0.025 | 24.90 | 69.45 | 285.48 | 41.64 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.34 | 9.61 | 1.06 | 7.71 | 0.033 | 10.14 | 25.49 | 75.01 | 18.67 |
| 5.00 | 5.50 | 0.05 | 0.63 | 3.87 | 0.57 | 5.85 | 0.74 | 6.11 | 0.044 | 4.35 | 9.90 | 21.26 | 8.76 |
| 10.00 | 11.00 | 0.10 | 1.14 | 11.18 | 3.30 | 16.25 | 1.53 | 9.85 | 0.025 | 24.90 | 69.45 | 285.48 | 41.64 |
| 9.00 | 9.90 | 0.09 | 1.04 | 9.52 | 2.53 | 13.91 | 1.37 | 9.16 | 0.027 | 19.10 | 51.65 | 192.36 | 32.85 |
| 8.00 | 8.80 | 0.08 | 0.94 | 7.95 | 1.87 | 11.70 | 1.21 | 8.45 | 0.030 | 14.20 | 37.10 | 123.72 | 25.21 |
| Average | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  | **0.023** |  | **413.30** |  |  |
| **Samraya** | | | | | | | | | | | | | |
| 13.00 | 14.30 | 0.13 | 1.42 | 16.71 | 6.43 | 23.91 | 2.02 | 11.80 | 0.020 | 48.21 | 145.18 | 763.05 | 75.10 |
| 10.00 | 11.00 | 0.10 | 1.14 | 11.18 | 3.30 | 16.25 | 1.53 | 9.85 | 0.025 | 24.90 | 69.45 | 285.48 | 41.64 |
| 9.00 | 9.90 | 0.09 | 1.04 | 9.52 | 2.53 | 13.91 | 1.37 | 9.16 | 0.027 | 19.10 | 51.65 | 192.36 | 32.85 |
| 8.00 | 8.80 | 0.08 | 0.94 | 7.95 | 1.87 | 11.70 | 1.21 | 8.45 | 0.030 | 14.20 | 37.10 | 123.72 | 25.21 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.34 | 9.61 | 1.06 | 7.71 | 0.033 | 10.14 | 25.49 | 75.01 | 18.67 |
| 6.00 | 6.60 | 0.06 | 0.74 | 5.12 | 0.90 | 7.66 | 0.90 | 6.93 | 0.038 | 6.88 | 16.53 | 42.10 | 13.20 |
| 5.00 | 5.50 | 0.05 | 0.63 | 3.87 | 0.57 | 5.85 | 0.74 | 6.11 | 0.044 | 4.35 | 9.90 | 21.26 | 8.76 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.34 | 9.61 | 1.06 | 7.71 | 0.033 | 10.14 | 25.49 | 75.01 | 18.67 |
| 8.00 | 8.80 | 0.08 | 0.94 | 7.95 | 1.87 | 11.70 | 1.21 | 8.45 | 0.030 | 14.20 | 37.10 | 123.72 | 25.21 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.34 | 9.61 | 1.06 | 7.71 | 0.033 | 10.14 | 25.49 | 75.01 | 18.67 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***Appendix B Continued….*** | | | | | | | | | | | | | |
| **h (cm)** | **10% compaction** | **h(m)** | **dm (m)** | **W (m)** | **Qm (m³s¯¹)** | **Wb (m)** | **db (m)** | **F= w/d** | **S (mm¯¹)** | **Ab=db\*wb** | **Qb (m³s¯¹)** | **Ad (m²)** | **L (m)** |
| 8.00 | 8.80 | 0.08 | 0.94 | 7.95 | 1.87 | 11.70 | 1.21 | 8.45 | 0.030 | 14.20 | 37.10 | 123.72 | 25.21 |
| 5.00 | 5.50 | 0.05 | 0.63 | 3.87 | 0.57 | 5.85 | 0.74 | 6.11 | 0.044 | 4.35 | 9.90 | 21.26 | 8.76 |
| 4.00 | 4.40 | 0.04 | 0.53 | 2.75 | 0.32 | 4.21 | 0.59 | 5.24 | 0.054 | 2.48 | 5.29 | 9.21 | 5.31 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.34 | 9.61 | 1.06 | 7.71 | 0.033 | 10.14 | 25.49 | 75.01 | 18.67 |
| 6.00 | 6.60 | 0.06 | 0.74 | 5.12 | 0.90 | 7.66 | 0.90 | 6.93 | 0.038 | 6.88 | 16.53 | 42.10 | 13.20 |
| 9.00 | 9.90 | 0.09 | 1.04 | 9.52 | 2.53 | 13.91 | 1.37 | 9.16 | 0.027 | 19.10 | 51.65 | 192.36 | 32.85 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.34 | 9.61 | 1.06 | 7.71 | 0.033 | 10.14 | 25.49 | 75.01 | 18.67 |
| 6.00 | 6.60 | 0.06 | 0.74 | 5.12 | 0.90 | 7.66 | 0.90 | 6.93 | 0.038 | 6.88 | 16.53 | 42.10 | 13.20 |
| 4.00 | 4.40 | 0.04 | 0.53 | 2.75 | 0.32 | 4.21 | 0.59 | 5.24 | 0.054 | 2.48 | 5.29 | 9.21 | 5.31 |
| 13.00 | 14.30 | 0.13 | 1.42 | 16.71 | 6.43 | 23.91 | 2.02 | 11.80 | 0.020 | 48.21 | 145.18 | 763.05 | 75.10 |
| 10.00 | 11.00 | 0.10 | 1.14 | 11.18 | 3.30 | 16.25 | 1.53 | 9.85 | 0.025 | 24.90 | 69.45 | 285.48 | 41.64 |
| 9.00 | 9.90 | 0.09 | 1.04 | 9.52 | 2.53 | 13.91 | 1.37 | 9.16 | 0.027 | 19.10 | 51.65 | 192.36 | 32.85 |
| 8.00 | 8.80 | 0.08 | 0.94 | 7.95 | 1.87 | 11.70 | 1.21 | 8.45 | 0.030 | 14.20 | 37.10 | 123.72 | 25.21 |
| 4.00 | 4.40 | 0.04 | 0.53 | 2.75 | 0.32 | 4.21 | 0.59 | 5.24 | 0.054 | 2.48 | 5.29 | 9.21 | 5.31 |
| 10.00 | 11.00 | 0.10 | 1.14 | 11.18 | 3.30 | 16.25 | 1.53 | 9.85 | 0.025 | 24.90 | 69.45 | 285.48 | 41.64 |
| 9.00 | 9.90 | 0.09 | 1.04 | 9.52 | 2.53 | 13.91 | 1.37 | 9.16 | 0.027 | 19.10 | 51.65 | 192.36 | 32.85 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.34 | 9.61 | 1.06 | 7.71 | 0.033 | 10.14 | 25.49 | 75.01 | 18.67 |
| 15.00 | 16.50 | 0.15 | 1.60 | 20.79 | 9.24 | 29.51 | 2.34 | 13.03 | 0.018 | 69.13 | 217.06 | 1304.47 | 103.61 |
| 14.00 | 15.40 | 0.14 | 1.51 | 18.71 | 7.76 | 26.66 | 2.18 | 12.42 | 0.019 | 58.11 | 178.80 | 1007.29 | 88.72 |
| 10.00 | 11.00 | 0.10 | 1.14 | 11.18 | 3.30 | 16.25 | 1.53 | 9.85 | 0.025 | 24.90 | 69.45 | 285.48 | 41.64 |
| 6.00 | 6.60 | 0.06 | 0.74 | 5.12 | 0.90 | 7.66 | 0.90 | 6.93 | 0.038 | 6.88 | 16.53 | 42.10 | 13.20 |
| 4.50 | 4.95 | 0.05 | 0.58 | 3.30 | 0.43 | 5.01 | 0.67 | 5.68 | 0.049 | 3.33 | 7.36 | 14.33 | 6.91 |
| 4.00 | 4.40 | 0.04 | 0.53 | 2.75 | 0.32 | 4.21 | 0.59 | 5.24 | 0.054 | 2.48 | 5.29 | 9.21 | 5.31 |
| 3.00 | 3.30 | 0.03 | 0.41 | 1.77 | 0.16 | 2.76 | 0.44 | 4.30 | 0.068 | 1.20 | 2.36 | 3.14 | 2.78 |
| 8.50 | 9.35 | 0.09 | 0.99 | 8.72 | 2.19 | 12.79 | 1.29 | 8.81 | 0.028 | 16.54 | 43.99 | 155.27 | 28.89 |
| 3.00 | 3.30 | 0.03 | 0.41 | 1.77 | 0.16 | 2.76 | 0.44 | 4.30 | 0.068 | 1.20 | 2.36 | 3.14 | 2.78 |
| 5.00 | 5.50 | 0.05 | 0.63 | 3.87 | 0.57 | 5.85 | 0.74 | 6.11 | 0.044 | 4.35 | 9.90 | 21.26 | 8.76 |
| 8.00 | 8.80 | 0.08 | 0.94 | 7.95 | 1.87 | 11.70 | 1.21 | 8.45 | 0.030 | 14.20 | 37.10 | 123.72 | 25.21 |
|  | ***Appendix B Continued….*** | | | | | | | | | | | | |
| **h (cm)** | **10% compaction** | **h(m)** | **dm (m)** | **W (m)** | **Qm (m³s¯¹)** | **Wb (m)** | **db (m)** | **F= w/d** | **S (mm¯¹)** | **Ab=db\*wb** | **Qb (m³s¯¹)** | **Ad (m²)** | **L (m)** |
| 6.00 | 6.60 | 0.06 | 0.74 | 5.12 | 0.90 | 7.66 | 0.90 | 6.93 | 0.038 | 6.88 | 16.53 | 42.10 | 13.20 |
| 4.00 | 4.40 | 0.04 | 0.53 | 2.75 | 0.32 | 4.21 | 0.59 | 5.24 | 0.054 | 2.48 | 5.29 | 9.21 | 5.31 |
| 6.00 | 6.60 | 0.06 | 0.74 | 5.12 | 0.90 | 7.66 | 0.90 | 6.93 | 0.038 | 6.88 | 16.53 | 42.10 | 13.20 |
| 3.00 | 3.30 | 0.03 | 0.41 | 1.77 | 0.16 | 2.76 | 0.44 | 4.30 | 0.068 | 1.20 | 2.36 | 3.14 | 2.78 |
| 9.00 | 9.90 | 0.09 | 1.04 | 9.52 | 2.53 | 13.91 | 1.37 | 9.16 | 0.027 | 19.10 | 51.65 | 192.36 | 32.85 |
| 6.00 | 6.60 | 0.06 | 0.74 | 5.12 | 0.90 | 7.66 | 0.90 | 6.93 | 0.038 | 6.88 | 16.53 | 42.10 | 13.20 |
| 7.50 | 8.25 | 0.08 | 0.89 | 7.20 | 1.59 | 10.64 | 1.13 | 8.08 | 0.032 | 12.07 | 30.94 | 97.14 | 21.81 |
| 4.00 | 4.40 | 0.04 | 0.53 | 2.75 | 0.32 | 4.21 | 0.59 | 5.24 | 0.054 | 2.48 | 5.29 | 9.21 | 5.31 |
| 6.00 | 6.60 | 0.06 | 0.74 | 5.12 | 0.90 | 7.66 | 0.90 | 6.93 | 0.038 | 6.88 | 16.53 | 42.10 | 13.20 |
| 3.00 | 3.30 | 0.03 | 0.41 | 1.77 | 0.16 | 2.76 | 0.44 | 4.30 | 0.068 | 1.20 | 2.36 | 3.14 | 2.78 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.34 | 9.61 | 1.06 | 7.71 | 0.033 | 10.14 | 25.49 | 75.01 | 18.67 |
| 3.00 | 3.30 | 0.03 | 0.41 | 1.77 | 0.16 | 2.76 | 0.44 | 4.30 | 0.068 | 1.20 | 2.36 | 3.14 | 2.78 |
| 4.00 | 4.40 | 0.04 | 0.53 | 2.75 | 0.32 | 4.21 | 0.59 | 5.24 | 0.054 | 2.48 | 5.29 | 9.21 | 5.31 |
| 8.00 | 8.80 | 0.08 | 0.94 | 7.95 | 1.87 | 11.70 | 1.21 | 8.45 | 0.030 | 14.20 | 37.10 | 123.72 | 25.21 |
| 3.00 | 3.30 | 0.03 | 0.41 | 1.77 | 0.16 | 2.76 | 0.44 | 4.30 | 0.068 | 1.20 | 2.36 | 3.14 | 2.78 |
| 5.50 | 6.05 | 0.06 | 0.69 | 4.48 | 0.72 | 6.74 | 0.82 | 6.53 | 0.041 | 5.53 | 12.94 | 30.39 | 10.86 |
| 9.00 | 9.90 | 0.09 | 1.04 | 9.52 | 2.53 | 13.91 | 1.37 | 9.16 | 0.027 | 19.10 | 51.65 | 192.36 | 32.85 |
| 6.00 | 6.60 | 0.06 | 0.74 | 5.12 | 0.90 | 7.66 | 0.90 | 6.93 | 0.038 | 6.88 | 16.53 | 42.10 | 13.20 |
| 6.00 | 6.60 | 0.06 | 0.74 | 5.12 | 0.90 | 7.66 | 0.90 | 6.93 | 0.038 | 6.88 | 16.53 | 42.10 | 13.20 |
| 5.00 | 5.50 | 0.05 | 0.63 | 3.87 | 0.57 | 5.85 | 0.74 | 6.11 | 0.044 | 4.35 | 9.90 | 21.26 | 8.76 |
| Average | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  | **0.039** |  | **34.93** |  |  |
| **Tyohari** | | | | | | | | | | | | | |
| 45.00 | 49.50 | 0.45 | 4.02 | 111.59 | 150.385 | 148.795 | 7.387 | 27.775 | 0.007 | 1099.154 | 4758.62 | 80040.13 | 1224.93 |
| 25.00 | 27.50 | 0.25 | 2.45 | 45.42 | 33.815 | 62.617 | 3.996 | 18.525 | 0.011 | 250.196 | 912.14 | 8846.01 | 326.72 |
| 40.00 | 44.00 | 0.40 | 3.64 | 93.19 | 111.516 | 125.102 | 6.531 | 25.610 | 0.008 | 817.064 | 3417.60 | 51478.79 | 939.95 |
| 20.00 | 22.00 | 0.20 | 2.03 | 32.28 | 19.190 | 45.081 | 3.164 | 15.885 | 0.014 | 142.646 | 487.20 | 3833.58 | 197.83 |
| ***Appendix B Continued….*** | | | | | | | | | | | | | |
| **h (cm)** | **10% compaction** | **h(m)** | **dm (m)** | **W (m)** | **Qm (m³s¯¹)** | **Wb (m)** | **db (m)** | **F= w/d** | **S (mm¯¹)** | **Ab=db\*wb** | **Qb (m³s¯¹)** | **Ad (m²)** | **L (m)** |
| 25.00 | 27.50 | 0.25 | 2.45 | 45.42 | 33.815 | 62.617 | 3.996 | 18.525 | 0.011 | 250.196 | 912.14 | 8846.01 | 326.72 |
| 18.00 | 19.80 | 0.18 | 1.86 | 27.48 | 14.686 | 38.602 | 2.834 | 14.772 | 0.015 | 109.407 | 362.33 | 2583.10 | 156.10 |
| 20.00 | 22.00 | 0.20 | 2.03 | 32.28 | 19.190 | 45.081 | 3.164 | 15.885 | 0.014 | 142.646 | 487.20 | 3833.58 | 197.83 |
| 21.00 | 23.10 | 0.21 | 2.12 | 34.79 | 21.721 | 48.439 | 3.330 | 16.428 | 0.013 | 161.293 | 558.80 | 4602.63 | 220.77 |
| 10.00 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.335 | 9.608 | 1.056 | 7.706 | 0.033 | 10.144 | 25.49 | 75.01 | 18.67 |
| 12.00 | 13.20 | 0.12 | 1.32 | 14.78 | 5.246 | 21.248 | 1.855 | 11.171 | 0.021 | 39.413 | 115.94 | 565.31 | 62.73 |
| 10.00 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| 10.00 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| 7.00 | 7.70 | 0.07 | 0.84 | 6.48 | 1.335 | 9.608 | 1.056 | 7.706 | 0.033 | 10.144 | 25.49 | 75.01 | 18.67 |
| 5.00 | 5.50 | 0.05 | 0.63 | 3.87 | 0.568 | 5.854 | 0.743 | 6.111 | 0.044 | 4.348 | 9.90 | 21.26 | 8.76 |
| 14.00 | 15.40 | 0.14 | 1.51 | 18.71 | 7.759 | 26.662 | 2.179 | 12.423 | 0.019 | 58.105 | 178.80 | 1007.29 | 88.72 |
| 16.00 | 17.60 | 0.16 | 1.68 | 22.95 | 10.890 | 32.456 | 2.506 | 13.621 | 0.017 | 81.328 | 260.22 | 1661.35 | 119.79 |
| 8.00 | 8.80 | 0.08 | 0.94 | 7.95 | 1.874 | 11.696 | 1.214 | 8.448 | 0.030 | 14.199 | 37.10 | 123.72 | 25.21 |
| 28.00 | 30.80 | 0.28 | 2.70 | 54.01 | 45.089 | 73.989 | 4.498 | 20.030 | 0.010 | 332.822 | 1254.25 | 13526.26 | 421.54 |
| 20.00 | 22.00 | 0.20 | 2.03 | 32.28 | 19.190 | 45.081 | 3.164 | 15.885 | 0.014 | 142.646 | 487.20 | 3833.58 | 197.83 |
| 18.40 | 20.24 | 0.18 | 1.89 | 28.42 | 15.529 | 39.872 | 2.900 | 14.998 | 0.015 | 115.632 | 385.42 | 2804.85 | 164.01 |
| 15.00 | 16.50 | 0.15 | 1.60 | 20.79 | 9.244 | 29.513 | 2.342 | 13.028 | 0.018 | 69.130 | 217.06 | 1304.47 | 103.61 |
| 13.00 | 14.30 | 0.13 | 1.42 | 16.71 | 6.428 | 23.906 | 2.017 | 11.805 | 0.020 | 48.214 | 145.18 | 763.05 | 75.10 |
| 16.50 | 18.15 | 0.17 | 1.73 | 24.06 | 11.775 | 33.960 | 2.588 | 13.913 | 0.016 | 87.880 | 283.73 | 1864.40 | 128.37 |
| 13.00 | 14.30 | 0.13 | 1.42 | 16.71 | 6.428 | 23.906 | 2.017 | 11.805 | 0.020 | 48.214 | 145.18 | 763.05 | 75.10 |
| 16.00 | 17.60 | 0.16 | 1.68 | 22.95 | 10.890 | 32.456 | 2.506 | 13.621 | 0.017 | 81.328 | 260.22 | 1661.35 | 119.79 |
| 12.50 | 13.75 | 0.13 | 1.37 | 15.73 | 5.819 | 22.564 | 1.936 | 11.490 | 0.020 | 43.680 | 130.03 | 658.75 | 68.76 |
| 20.00 | 22.00 | 0.20 | 2.03 | 32.28 | 19.190 | 45.081 | 3.164 | 15.885 | 0.014 | 142.646 | 487.20 | 3833.58 | 197.83 |
| 19.00 | 20.90 | 0.19 | 1.95 | 29.85 | 16.847 | 41.801 | 2.999 | 15.333 | 0.014 | 125.363 | 421.79 | 3163.23 | 176.28 |
| 14.00 | 15.40 | 0.14 | 1.51 | 18.71 | 7.759 | 26.662 | 2.179 | 12.423 | 0.019 | 58.105 | 178.80 | 1007.29 | 88.72 |
| 20.00 | 22.00 | 0.20 | 2.03 | 32.28 | 19.190 | 45.081 | 3.164 | 15.885 | 0.014 | 142.646 | 487.20 | 3833.58 | 197.83 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***Appendix B Continued….*** | | | | | | | | | | | | | |
| **h (cm)** | **10% compaction** | **h(m)** | **dm (m)** | **W (m)** | **Qm (m³s¯¹)** | **Wb (m)** | **db (m)** | **F= w/d** | **S (mm¯¹)** | **Ab=db\*wb** | **Qb (m³s¯¹)** | **Ad (m²)** | **L (m)** |
| 18.00 | 19.80 | 0.18 | 1.86 | 27.48 | 14.686 | 38.602 | 2.834 | 14.772 | 0.015 | 109.407 | 362.33 | 2583.10 | 156.10 |
| 8.00 | 8.80 | 0.08 | 0.94 | 7.95 | 1.874 | 11.696 | 1.214 | 8.448 | 0.030 | 14.199 | 37.10 | 123.72 | 25.21 |
| 10.00 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| Average | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  | **0.019** |  | **532.63** |  |  |
| **Umraind** | | | | | | | | | | | | | |
| 13 | 14.30 | 0.13 | 1.42 | 16.71 | 6.428 | 23.906 | 2.017 | 11.805 | 0.020 | 48.214 | 145.18 | 763.05 | 75.10 |
| 10 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| 7 | 7.70 | 0.07 | 0.84 | 6.48 | 1.335 | 9.608 | 1.056 | 7.706 | 0.033 | 10.144 | 25.49 | 75.01 | 18.67 |
| 13 | 14.30 | 0.13 | 1.42 | 16.71 | 6.428 | 23.906 | 2.017 | 11.805 | 0.020 | 48.214 | 145.18 | 763.05 | 75.10 |
| 4 | 4.40 | 0.04 | 0.53 | 2.75 | 0.322 | 4.215 | 0.588 | 5.240 | 0.054 | 2.479 | 5.29 | 9.21 | 5.31 |
| 5 | 5.50 | 0.05 | 0.63 | 3.87 | 0.568 | 5.854 | 0.743 | 6.111 | 0.044 | 4.348 | 9.90 | 21.26 | 8.76 |
| 10 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| 12 | 13.20 | 0.12 | 1.32 | 14.78 | 5.246 | 21.248 | 1.855 | 11.171 | 0.021 | 39.413 | 115.94 | 565.31 | 62.73 |
| 10 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| 12 | 13.20 | 0.12 | 1.32 | 14.78 | 5.246 | 21.248 | 1.855 | 11.171 | 0.021 | 39.413 | 115.94 | 565.31 | 62.73 |
| 9 | 9.90 | 0.09 | 1.04 | 9.52 | 2.527 | 13.910 | 1.373 | 9.163 | 0.027 | 19.101 | 51.65 | 192.36 | 32.85 |
| 15 | 16.50 | 0.15 | 1.60 | 20.79 | 9.244 | 29.513 | 2.342 | 13.028 | 0.018 | 69.130 | 217.06 | 1304.47 | 103.61 |
| 11 | 12.10 | 0.11 | 1.23 | 12.94 | 4.206 | 18.693 | 1.694 | 10.521 | 0.023 | 31.659 | 90.79 | 408.03 | 51.59 |
| 11 | 12.10 | 0.11 | 1.23 | 12.94 | 4.206 | 18.693 | 1.694 | 10.521 | 0.023 | 31.659 | 90.79 | 408.03 | 51.59 |
| 10 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| 7 | 7.70 | 0.07 | 0.84 | 6.48 | 1.335 | 9.608 | 1.056 | 7.706 | 0.033 | 10.144 | 25.49 | 75.01 | 18.67 |
| 6 | 6.60 | 0.06 | 0.74 | 5.12 | 0.903 | 7.657 | 0.899 | 6.929 | 0.038 | 6.881 | 16.53 | 42.10 | 13.20 |
| 15 | 16.50 | 0.15 | 1.60 | 20.79 | 9.244 | 29.513 | 2.342 | 13.028 | 0.018 | 69.130 | 217.06 | 1304.47 | 103.61 |
| 15 | 16.50 | 0.15 | 1.60 | 20.79 | 9.244 | 29.513 | 2.342 | 13.028 | 0.018 | 69.130 | 217.06 | 1304.47 | 103.61 |
| 10 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| 6 | 6.60 | 0.06 | 0.74 | 5.12 | 0.903 | 7.657 | 0.899 | 6.929 | 0.038 | 6.881 | 16.53 | 42.10 | 13.20 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***Appendix B Continued….*** | | | | | | | | | | | | | |
| **h (cm)** | **10% compaction** | **h(m)** | **dm (m)** | **W (m)** | **Qm (m³s¯¹)** | **Wb (m)** | **db (m)** | **F= w/d** | **S (mm¯¹)** | **Ab=db\*wb** | **Qb (m³s¯¹)** | **Ad (m²)** | **L (m)** |
| 6 | 6.60 | 0.06 | 0.74 | 5.12 | 0.903 | 7.657 | 0.899 | 6.929 | 0.038 | 6.881 | 16.53 | 42.10 | 13.20 |
| 5 | 5.50 | 0.05 | 0.63 | 3.87 | 0.568 | 5.854 | 0.743 | 6.111 | 0.044 | 4.348 | 9.90 | 21.26 | 8.76 |
| 13 | 14.30 | 0.13 | 1.42 | 16.71 | 6.428 | 23.906 | 2.017 | 11.805 | 0.020 | 48.214 | 145.18 | 763.05 | 75.10 |
| 12 | 13.20 | 0.12 | 1.32 | 14.78 | 5.246 | 21.248 | 1.855 | 11.171 | 0.021 | 39.413 | 115.94 | 565.31 | 62.73 |
| 8 | 8.80 | 0.08 | 0.94 | 7.95 | 1.874 | 11.696 | 1.214 | 8.448 | 0.030 | 14.199 | 37.10 | 123.72 | 25.21 |
| 18 | 19.80 | 0.18 | 1.86 | 27.48 | 14.686 | 38.602 | 2.834 | 14.772 | 0.015 | 109.407 | 362.33 | 2583.10 | 156.10 |
| 16 | 17.60 | 0.16 | 1.68 | 22.95 | 10.890 | 32.456 | 2.506 | 13.621 | 0.017 | 81.328 | 260.22 | 1661.35 | 119.79 |
| 10 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| 7 | 7.70 | 0.07 | 0.84 | 6.48 | 1.335 | 9.608 | 1.056 | 7.706 | 0.033 | 10.144 | 25.49 | 75.01 | 18.67 |
| 4 | 4.40 | 0.04 | 0.53 | 2.75 | 0.322 | 4.215 | 0.588 | 5.240 | 0.054 | 2.479 | 5.29 | 9.21 | 5.31 |
| Average | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  | **0.028** |  | **93.57** |  |  |
| **Damdama** | | | | | | | | | | | | | |
| 16 | 17.60 | 0.16 | 1.68 | 22.95 | 10.890 | 32.456 | 2.506 | 13.621 | 0.017 | 81.328 | 260.22 | 1661.35 | 119.79 |
| 16 | 17.60 | 0.16 | 1.68 | 22.95 | 10.890 | 32.456 | 2.506 | 13.621 | 0.017 | 81.328 | 260.22 | 1661.35 | 119.79 |
| 12 | 13.20 | 0.12 | 1.32 | 14.78 | 5.246 | 21.248 | 1.855 | 11.171 | 0.021 | 39.413 | 115.94 | 565.31 | 62.73 |
| 15 | 16.50 | 0.15 | 1.60 | 20.79 | 9.244 | 29.513 | 2.342 | 13.028 | 0.018 | 69.130 | 217.06 | 1304.47 | 103.61 |
| 21 | 23.10 | 0.21 | 2.12 | 34.79 | 21.721 | 48.439 | 3.330 | 16.428 | 0.013 | 161.293 | 558.80 | 4602.63 | 220.77 |
| 10 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| 9 | 9.90 | 0.09 | 1.04 | 9.52 | 2.527 | 13.910 | 1.373 | 9.163 | 0.027 | 19.101 | 51.65 | 192.36 | 32.85 |
| 10 | 11.00 | 0.10 | 1.14 | 11.18 | 3.302 | 16.245 | 1.533 | 9.853 | 0.025 | 24.904 | 69.45 | 285.48 | 41.64 |
| 8 | 8.80 | 0.08 | 0.94 | 7.95 | 1.874 | 11.696 | 1.214 | 8.448 | 0.030 | 14.199 | 37.10 | 123.72 | 25.21 |
| 6 | 6.60 | 0.06 | 0.74 | 5.12 | 0.903 | 7.657 | 0.899 | 6.929 | 0.038 | 6.881 | 16.53 | 42.10 | 13.20 |
| 13 | 14.30 | 0.13 | 1.42 | 16.71 | 6.428 | 23.906 | 2.017 | 11.805 | 0.020 | 48.214 | 145.18 | 763.05 | 75.10 |
| Average | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  | **0.023** |  | **163.782** |  |  |

h = set thickness of trough cross-beds (m), dm = mean water depth (m), w = channel width (m), Qm = maximum instantaneous water discharge (m3/s), db = mean bankfull channel depth (m), F= width/depth, wb = bankfull channel width (m), Ab = Bankfull channel area (m2), S = Stream palaeoslope (m/m), Ad = drainage area (m2), Qb = bankfull water discharge (m3/s), L = principle stream length (m).

**Appendix C**: Paleohydrological data derived from set thickness of cross bedding in the fluvial section of Damdama Formation method adopted from Eriksson et al., 2006

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **h (cm)** | | | **dm (m)** | | **W (m)** | | **(A)** | | **Qm (m³s¯¹)** | | | **Wb (m)** | | **db (m)** | | **S(mm¯¹)** | | **S1(mm¯¹)** | | **Ab=db\*wb** | **Qb (m³s¯¹)** | | **Qb-1 (m³s¯¹)** | | **Ad (m²)** | | **L (m)** | |
| **Bhitarwadi** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | 2.11 | | 84.36 | | 177.91 | | 133.43 | | | 67.96 | | 4.27 | | 0.010 | | 0.013 | | 290.33 | | | 1061.61 | 1130.78 | 10829.83 | | 368.89 | | |
| 17 | | 1.92 | | 76.83 | | 147.58 | | 110.68 | | | 63.00 | | 4.05 | | 0.011 | | 0.014 | | 254.91 | | | 917.58 | 991.17 | 8916.51 | | 328.28 | | |
| 16 | | 1.83 | | 73.02 | | 133.28 | | 99.96 | | | 60.44 | | 3.93 | | 0.011 | | 0.015 | | 237.46 | | | 847.49 | 922.47 | 8020.05 | | 308.06 | | |
| 7 | | 0.91 | | 36.45 | | 33.22 | | 24.91 | | | 34.38 | | 2.63 | | 0.015 | | 0.029 | | 90.29 | | | 286.75 | 346.40 | 1890.95 | | 129.46 | | |
| 14 | | 1.63 | | 65.27 | | 106.49 | | 79.87 | | | 55.18 | | 3.68 | | 0.012 | | 0.017 | | 203.12 | | | 711.40 | 787.49 | 6350.66 | | 267.81 | | |
| 34 | | 3.44 | | 137.57 | | 473.10 | | 354.83 | | | 101.09 | | 5.67 | | 0.008 | | 0.008 | | 573.49 | | | 2276.41 | 2253.25 | 29945.68 | | 679.09 | | |
| 30 | | 3.10 | | 123.83 | | 383.35 | | 287.51 | | | 92.82 | | 5.34 | | 0.009 | | 0.009 | | 495.38 | | | 1931.95 | 1942.70 | 24061.80 | | 595.56 | | |
| 30 | | 3.10 | | 123.83 | | 383.35 | | 287.51 | | | 92.82 | | 5.34 | | 0.009 | | 0.009 | | 495.38 | | | 1931.95 | 1942.70 | 24061.80 | | 595.56 | | |
| 21 | | 2.29 | | 91.76 | | 210.50 | | 157.88 | | | 72.77 | | 4.49 | | 0.010 | | 0.012 | | 326.39 | | | 1210.44 | 1273.14 | 12900.04 | | 409.72 | | |
| 15 | | 1.73 | | 69.16 | | 119.58 | | 89.69 | | | 57.84 | | 3.81 | | 0.011 | | 0.016 | | 220.20 | | | 778.74 | 854.56 | 7164.55 | | 287.90 | | |
| 26 | | 2.75 | | 109.80 | | 301.40 | | 226.05 | | | 84.18 | | 4.98 | | 0.009 | | 0.010 | | 419.03 | | | 1601.51 | 1639.73 | 18737.26 | | 512.57 | | |
| 30 | | 3.10 | | 123.83 | | 383.35 | | 287.51 | | | 92.82 | | 5.34 | | 0.009 | | 0.009 | | 495.38 | | | 1931.95 | 1942.70 | 24061.80 | | 595.56 | | |
| 20 | | 2.20 | | 88.08 | | 193.93 | | 145.45 | | | 70.38 | | 4.38 | | 0.010 | | 0.012 | | 308.29 | | | 1135.45 | 1201.63 | 11845.58 | | 389.28 | | |
| 15 | | 1.73 | | 69.16 | | 119.58 | | 89.69 | | | 57.84 | | 3.81 | | 0.011 | | 0.016 | | 220.20 | | | 778.74 | 854.56 | 7164.55 | | 287.90 | | |
| 16 | | 1.83 | | 73.02 | | 133.28 | | 99.96 | | | 60.44 | | 3.93 | | 0.011 | | 0.015 | | 237.46 | | | 847.49 | 922.47 | 8020.05 | | 308.06 | | |
| 12 | | 1.43 | | 57.34 | | 82.18 | | 61.64 | | | 49.67 | | 3.41 | | 0.012 | | 0.019 | | 169.61 | | | 581.24 | 656.03 | 4850.76 | | 227.83 | | |
| 7 | | 0.91 | | 36.45 | | 33.22 | | 24.91 | | | 34.38 | | 2.63 | | 0.015 | | 0.029 | | 90.29 | | | 286.75 | 346.40 | 1890.95 | | 129.46 | | |
| 5 | | 0.69 | | 27.47 | | 18.87 | | 14.15 | | | 27.33 | | 2.23 | | 0.017 | | 0.039 | | 60.91 | | | 184.48 | 232.51 | 1050.21 | | 90.97 | | |
| 4 | | 0.57 | | 22.78 | | 12.97 | | 9.73 | | | 23.47 | | 2.00 | | 0.018 | | 0.047 | | 46.92 | | | 137.70 | 178.50 | 711.05 | | 71.99 | | |
| 10 | | 1.23 | | 49.19 | | 60.49 | | 45.37 | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | | 457.68 | 528.58 | 3527.09 | | 188.18 | | |
| 32 | | 3.27 | | 130.73 | | 427.27 | | 320.45 | | | 97.00 | | 5.51 | | 0.008 | | 0.008 | | 534.23 | | | 2102.51 | 2097.08 | 26934.98 | | 637.26 | | |
| 20 | | 2.20 | | 88.08 | | 193.93 | | 145.45 | | | 70.38 | | 4.38 | | 0.010 | | 0.012 | | 308.29 | | | 1135.45 | 1201.63 | 11845.58 | | 389.28 | | |
| 19 | | 2.11 | | 84.36 | | 177.91 | | 133.43 | | | 67.96 | | 4.27 | | 0.010 | | 0.013 | | 290.33 | | | 1061.61 | 1130.78 | 10829.83 | | 368.89 | | |
| 13 | | 1.53 | | 61.33 | | 94.02 | | 70.51 | | | 52.46 | | 3.55 | | 0.012 | | 0.018 | | 186.26 | | | 645.54 | 721.29 | 5579.14 | | 247.78 | | |
| 18 | | 2.02 | | 80.61 | | 162.46 | | 121.84 | | | 65.50 | | 4.16 | | 0.011 | | 0.014 | | 272.54 | | | 988.98 | 1060.62 | 9853.30 | | 348.56 | | |
| 11 | | 1.33 | | 53.29 | | 71.00 | | 53.25 | | | 46.81 | | 3.27 | | 0.013 | | 0.020 | | 153.20 | | | 518.59 | 591.77 | 4166.42 | | 207.96 | | |
| **h (cm)** | | **dm (m)** | | **W (m)** | | **(A)** | | **Qm (m³s¯¹)** | | | **Wb (m)** | | **db (m)** | | **S(mm¯¹)** | | **S1(mm¯¹)** | | **Ab=db\*wb** | | | **Qb (m³s¯¹)** | **Qb-1 (m³s¯¹)** | **Ad (m²)** | | **L (m)** | | |
| 5 | | 0.69 | | 27.47 | | 18.87 | | 14.15 | | | 27.33 | | 2.23 | | 0.017 | | 0.039 | | 60.91 | | | 184.48 | 232.51 | 1050.21 | | 90.97 | | |
| 16 | | 1.83 | | 73.02 | | 133.28 | | 99.96 | | | 60.44 | | 3.93 | | 0.011 | | 0.015 | | 237.46 | | | 847.49 | 922.47 | 8020.05 | | 308.06 | | |
| 11 | | 1.33 | | 53.29 | | 71.00 | | 53.25 | | | 46.81 | | 3.27 | | 0.013 | | 0.020 | | 153.20 | | | 518.59 | 591.77 | 4166.42 | | 207.96 | | |
| 5 | | 0.69 | | 27.47 | | 18.87 | | 14.15 | | | 27.33 | | 2.23 | | 0.017 | | 0.039 | | 60.91 | | | 184.48 | 232.51 | 1050.21 | | 90.97 | | |
| 10 | | 1.23 | | 49.19 | | 60.49 | | 45.37 | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | | 457.68 | 528.58 | 3527.09 | | 188.18 | | |
| 7 | | 0.91 | | 36.45 | | 33.22 | | 24.91 | | | 34.38 | | 2.63 | | 0.015 | | 0.029 | | 90.29 | | | 286.75 | 346.40 | 1890.95 | | 129.46 | | |
| 5 | | 0.69 | | 27.47 | | 18.87 | | 14.15 | | | 27.33 | | 2.23 | | 0.017 | | 0.039 | | 60.91 | | | 184.48 | 232.51 | 1050.21 | | 90.97 | | |
| 10 | | 1.23 | | 49.19 | | 60.49 | | 45.37 | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | | 457.68 | 528.58 | 3527.09 | | 188.18 | | |
| 9 | | 1.13 | | 45.02 | | 50.68 | | 38.01 | | | 40.82 | | 2.97 | | 0.014 | | 0.024 | | 121.14 | | | 398.64 | 466.55 | 2933.88 | | 168.50 | | |
| 8 | | 1.02 | | 40.78 | | 41.58 | | 31.18 | | | 37.66 | | 2.80 | | 0.014 | | 0.026 | | 105.55 | | | 341.61 | 405.78 | 2388.02 | | 148.92 | | |
| Average | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | |  | |  | |  | |  | | |  | |  | | **0.012** | | **0.020** | |  | **839.219** | | **895.518** | |  | |  | |
| **Samraya** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | 1.53 | | 68.99 | | 105.77 | | | 79.33 | | 55.03 | | 3.67 | | 0.012 | | 0.016 | | 202.17 | | 707.66 | 771.18 | | 6306.12 | | 266.68 | |
| 10 | | | 1.23 | | 55.34 | | 68.06 | | | 51.04 | | 46.01 | | 3.23 | | 0.013 | | 0.020 | | 148.74 | | 501.72 | 565.14 | | 3986.69 | | 202.53 | |
| 9 | | | 1.13 | | 50.65 | | 57.01 | | | 42.76 | | 42.82 | | 3.07 | | 0.013 | | 0.021 | | 131.49 | | 437.00 | 498.81 | | 3316.18 | | 181.35 | |
| 8 | | | 1.02 | | 45.88 | | 46.77 | | | 35.08 | | 39.51 | | 2.90 | | 0.014 | | 0.023 | | 114.57 | | 374.48 | 433.84 | | 2699.19 | | 160.28 | |
| 7 | | | 0.91 | | 41.01 | | 37.37 | | | 28.03 | | 36.07 | | 2.72 | | 0.015 | | 0.026 | | 98.00 | | 314.35 | 370.36 | | 2137.35 | | 139.33 | |
| 6 | | | 0.80 | | 36.03 | | 28.84 | | | 21.63 | | 32.47 | | 2.52 | | 0.015 | | 0.030 | | 81.83 | | 256.83 | 308.53 | | 1632.55 | | 118.54 | |
| 5 | | | 0.69 | | 30.91 | | 21.23 | | | 15.92 | | 28.67 | | 2.31 | | 0.017 | | 0.035 | | 66.12 | | 202.23 | 248.59 | | 1187.06 | | 97.91 | |
| 7 | | | 0.91 | | 41.01 | | 37.37 | | | 28.03 | | 36.07 | | 2.72 | | 0.015 | | 0.026 | | 98.00 | | 314.35 | 370.36 | | 2137.35 | | 139.33 | |
| 8 | | | 1.02 | | 45.88 | | 46.77 | | | 35.08 | | 39.51 | | 2.90 | | 0.014 | | 0.023 | | 114.57 | | 374.48 | 433.84 | | 2699.19 | | 160.28 | |
| 7 | | | 0.91 | | 41.01 | | 37.37 | | | 28.03 | | 36.07 | | 2.72 | | 0.015 | | 0.026 | | 98.00 | | 314.35 | 370.36 | | 2137.35 | | 139.33 | |
| 8 | | | 1.02 | | 45.88 | | 46.77 | | | 35.08 | | 39.51 | | 2.90 | | 0.014 | | 0.023 | | 114.57 | | 374.48 | 433.84 | | 2699.19 | | 160.28 | |
| 5 | | | 0.69 | | 30.91 | | 21.23 | | | 15.92 | | 28.67 | | 2.31 | | 0.017 | | 0.035 | | 66.12 | | 202.23 | 248.59 | | 1187.06 | | 97.91 | |
| 4 | | | 0.57 | | 25.62 | | 14.59 | | | 10.94 | | 24.62 | | 2.07 | | 0.018 | | 0.042 | | 50.93 | | 150.95 | 190.84 | | 803.70 | | 77.48 | |
| 7 | | | 0.91 | | 41.01 | | 37.37 | | | 28.03 | | 36.07 | | 2.72 | | 0.015 | | 0.026 | | 98.00 | | 314.35 | 370.36 | | 2137.35 | | 139.33 | |
| 6 | | | 0.80 | | 36.03 | | 28.84 | | | 21.63 | | 32.47 | | 2.52 | | 0.015 | | 0.030 | | 81.83 | | 256.83 | 308.53 | | 1632.55 | | 118.54 | |
|  | | |  | |  | |  | | |  | |  | |  | |  | |  | |  | |  |  | |  | |  | |
| ***Appendix C Continued...*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **h (cm)** | | | **dm (m)** | | **W (m)** | | **(A)** | | | **Qm (m³s¯¹)** | | **Wb (m)** | | **db (m)** | | **S(mm¯¹)** | | **S1(mm¯¹)** | | **Ab=db\*wb** | | **Qb (m³s¯¹)** | **Qb-1 (m³s¯¹)** | | **Ad (m²)** | | **L (m)** | |
| 9 | | | 1.13 | | 50.65 | | 57.01 | | | 42.76 | | 42.82 | | 3.07 | | 0.013 | | 0.021 | | 131.49 | | 437.00 | 498.81 | | 3316.18 | | 181.35 | |
| 7 | | | 0.91 | | 41.01 | | 37.37 | | | 28.03 | | 36.07 | | 2.72 | | 0.015 | | 0.026 | | 98.00 | | 314.35 | 370.36 | | 2137.35 | | 139.33 | |
| 6 | | | 0.80 | | 36.03 | | 28.84 | | | 21.63 | | 32.47 | | 2.52 | | 0.015 | | 0.030 | | 81.83 | | 256.83 | 308.53 | | 1632.55 | | 118.54 | |
| 4 | | | 0.57 | | 25.62 | | 14.59 | | | 10.94 | | 24.62 | | 2.07 | | 0.018 | | 0.042 | | 50.93 | | 150.95 | 190.84 | | 803.70 | | 77.48 | |
| 13 | | | 1.53 | | 68.99 | | 105.77 | | | 79.33 | | 55.03 | | 3.67 | | 0.012 | | 0.016 | | 202.17 | | 707.66 | 771.18 | | 6306.12 | | 266.68 | |
| 10 | | | 1.23 | | 55.34 | | 68.06 | | | 51.04 | | 46.01 | | 3.23 | | 0.013 | | 0.020 | | 148.74 | | 501.72 | 565.14 | | 3986.69 | | 202.53 | |
| 9 | | | 1.13 | | 50.65 | | 57.01 | | | 42.76 | | 42.82 | | 3.07 | | 0.013 | | 0.021 | | 131.49 | | 437.00 | 498.81 | | 3316.18 | | 181.35 | |
| 8 | | | 1.02 | | 45.88 | | 46.77 | | | 35.08 | | 39.51 | | 2.90 | | 0.014 | | 0.023 | | 114.57 | | 374.48 | 433.84 | | 2699.19 | | 160.28 | |
| 4 | | | 0.57 | | 25.62 | | 14.59 | | | 10.94 | | 24.62 | | 2.07 | | 0.018 | | 0.042 | | 50.93 | | 150.95 | 190.84 | | 803.70 | | 77.48 | |
| 10 | | | 1.23 | | 55.34 | | 68.06 | | | 51.04 | | 46.01 | | 3.23 | | 0.013 | | 0.020 | | 148.74 | | 501.72 | 565.14 | | 3986.69 | | 202.53 | |
| 9 | | | 1.13 | | 50.65 | | 57.01 | | | 42.76 | | 42.82 | | 3.07 | | 0.013 | | 0.021 | | 131.49 | | 437.00 | 498.81 | | 3316.18 | | 181.35 | |
| 7 | | | 0.91 | | 41.01 | | 37.37 | | | 28.03 | | 36.07 | | 2.72 | | 0.015 | | 0.026 | | 98.00 | | 314.35 | 370.36 | | 2137.35 | | 139.33 | |
| 15 | | | 1.73 | | 77.81 | | 134.53 | | | 100.90 | | 60.67 | | 3.94 | | 0.011 | | 0.014 | | 239.01 | | 853.67 | 913.66 | | 8098.12 | | 309.86 | |
| 14 | | | 1.63 | | 73.42 | | 119.80 | | | 89.85 | | 57.88 | | 3.81 | | 0.011 | | 0.015 | | 220.48 | | 779.85 | 841.95 | | 7178.19 | | 288.23 | |
| 10 | | | 1.23 | | 55.34 | | 68.06 | | | 51.04 | | 46.01 | | 3.23 | | 0.013 | | 0.020 | | 148.74 | | 501.72 | 565.14 | | 3986.69 | | 202.53 | |
| 6 | | | 0.80 | | 36.03 | | 28.84 | | | 21.63 | | 32.47 | | 2.52 | | 0.015 | | 0.030 | | 81.83 | | 256.83 | 308.53 | | 1632.55 | | 118.54 | |
| 4.5 | | | 0.63 | | 28.29 | | 17.78 | | | 13.34 | | 26.68 | | 2.19 | | 0.017 | | 0.038 | | 58.45 | | 176.15 | 219.42 | | 987.41 | | 87.67 | |
| 4 | | | 0.57 | | 25.62 | | 14.59 | | | 10.94 | | 24.62 | | 2.07 | | 0.018 | | 0.042 | | 50.93 | | 150.95 | 190.84 | | 803.70 | | 77.48 | |
| 3 | | | 0.45 | | 20.12 | | 9.00 | | | 6.75 | | 20.23 | | 1.80 | | 0.020 | | 0.053 | | 36.37 | | 103.52 | 135.72 | | 486.10 | | 57.30 | |
| 8.5 | | | 1.07 | | 48.28 | | 51.79 | | | 38.84 | | 41.18 | | 2.99 | | 0.014 | | 0.022 | | 122.99 | | 405.45 | 466.15 | | 3000.90 | | 170.80 | |
| 3 | | | 0.45 | | 20.12 | | 9.00 | | | 6.75 | | 20.23 | | 1.80 | | 0.020 | | 0.053 | | 36.37 | | 103.52 | 135.72 | | 486.10 | | 57.30 | |
| 5 | | | 0.69 | | 30.91 | | 21.23 | | | 15.92 | | 28.67 | | 2.31 | | 0.017 | | 0.035 | | 66.12 | | 202.23 | 248.59 | | 1187.06 | | 97.91 | |
| 8 | | | 1.02 | | 45.88 | | 46.77 | | | 35.08 | | 39.51 | | 2.90 | | 0.014 | | 0.023 | | 114.57 | | 374.48 | 433.84 | | 2699.19 | | 160.28 | |
| 6 | | | 0.80 | | 36.03 | | 28.84 | | | 21.63 | | 32.47 | | 2.52 | | 0.015 | | 0.030 | | 81.83 | | 256.83 | 308.53 | | 1632.55 | | 118.54 | |
| 4 | | | 0.57 | | 25.62 | | 14.59 | | | 10.94 | | 24.62 | | 2.07 | | 0.018 | | 0.042 | | 50.93 | | 150.95 | 190.84 | | 803.70 | | 77.48 | |
| 6 | | | 0.80 | | 36.03 | | 28.84 | | | 21.63 | | 32.47 | | 2.52 | | 0.015 | | 0.030 | | 81.83 | | 256.83 | 308.53 | | 1632.55 | | 118.54 | |
| 3 | | | 0.45 | | 20.12 | | 9.00 | | | 6.75 | | 20.23 | | 1.80 | | 0.020 | | 0.053 | | 36.37 | | 103.52 | 135.72 | | 486.10 | | 57.30 | |
| ***Appendix C Continued...*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **h (cm)** | | | **dm (m)** | | **W (m)** | | **(A)** | | | **Qm (m³s¯¹)** | | **Wb (m)** | | **db (m)** | | **S(mm¯¹)** | | **S1(mm¯¹)** | | **Ab=db\*wb** | | **Qb (m³s¯¹)** | **Qb-1 (m³s¯¹)** | | **Ad (m²)** | | **L (m)** | |
| 9 | | | 1.13 | | 50.65 | | 57.01 | | | 42.76 | | 42.82 | | 3.07 | | 0.013 | | 0.021 | | 131.49 | | 437.00 | 498.81 | | 3316.18 | | 181.35 | |
| 6 | | | 0.80 | | 36.03 | | 28.84 | | | 21.63 | | 32.47 | | 2.52 | | 0.015 | | 0.030 | | 81.83 | | 256.83 | 308.53 | | 1632.55 | | 118.54 | |
| 7.5 | | | 0.97 | | 43.46 | | 41.96 | | | 31.47 | | 37.81 | | 2.81 | | 0.014 | | 0.025 | | 106.24 | | 344.10 | 401.91 | | 2411.27 | | 149.79 | |
| 4 | | | 0.57 | | 25.62 | | 14.59 | | | 10.94 | | 24.62 | | 2.07 | | 0.018 | | 0.042 | | 50.93 | | 150.95 | 190.84 | | 803.70 | | 77.48 | |
| 6 | | | 0.80 | | 36.03 | | 28.84 | | | 21.63 | | 32.47 | | 2.52 | | 0.015 | | 0.030 | | 81.83 | | 256.83 | 308.53 | | 1632.55 | | 118.54 | |
| 3 | | | 0.45 | | 20.12 | | 9.00 | | | 6.75 | | 20.23 | | 1.80 | | 0.020 | | 0.053 | | 36.37 | | 103.52 | 135.72 | | 486.10 | | 57.30 | |
| 7 | | | 0.91 | | 41.01 | | 37.37 | | | 28.03 | | 36.07 | | 2.72 | | 0.015 | | 0.026 | | 98.00 | | 314.35 | 370.36 | | 2137.35 | | 139.33 | |
| 3 | | | 0.45 | | 20.12 | | 9.00 | | | 6.75 | | 20.23 | | 1.80 | | 0.020 | | 0.053 | | 36.37 | | 103.52 | 135.72 | | 486.10 | | 57.30 | |
| 4 | | | 0.57 | | 25.62 | | 14.59 | | | 10.94 | | 24.62 | | 2.07 | | 0.018 | | 0.042 | | 50.93 | | 150.95 | 190.84 | | 803.70 | | 77.48 | |
| 8 | | | 1.02 | | 45.88 | | 46.77 | | | 35.08 | | 39.51 | | 2.90 | | 0.014 | | 0.023 | | 114.57 | | 374.48 | 433.84 | | 2699.19 | | 160.28 | |
| 3 | | | 0.45 | | 20.12 | | 9.00 | | | 6.75 | | 20.23 | | 1.80 | | 0.020 | | 0.053 | | 36.37 | | 103.52 | 135.72 | | 486.10 | | 57.30 | |
| 5.5 | | | 0.74 | | 33.49 | | 24.92 | | | 18.69 | | 30.60 | | 2.42 | | 0.016 | | 0.032 | | 73.91 | | 229.15 | 278.31 | | 1402.23 | | 108.20 | |
| 9 | | | 1.13 | | 50.65 | | 57.01 | | | 42.76 | | 42.82 | | 3.07 | | 0.013 | | 0.021 | | 131.49 | | 437.00 | 498.81 | | 3316.18 | | 181.35 | |
| 6 | | | 0.80 | | 36.03 | | 28.84 | | | 21.63 | | 32.47 | | 2.52 | | 0.015 | | 0.030 | | 81.83 | | 256.83 | 308.53 | | 1632.55 | | 118.54 | |
| 6 | | | 0.80 | | 36.03 | | 28.84 | | | 21.63 | | 32.47 | | 2.52 | | 0.015 | | 0.030 | | 81.83 | | 256.83 | 308.53 | | 1632.55 | | 118.54 | |
| 5 | | | 0.69 | | 30.91 | | 21.23 | | | 15.92 | | 28.67 | | 2.31 | | 0.017 | | 0.035 | | 66.12 | | 202.23 | 248.59 | | 1187.06 | | 97.91 | |
| Average | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | |  | |  | |  | |  | | |  | |  | | **0.015** | | **0.030** | |  | **316.12** | | **367.98** | |  | |  | |
| **Tyohari** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | 4.35 | | | 174.10 | | 757.79 | | 568.34 | | | | 122.40 | | 6.50 | | 0.007 | | 0.006 | | 796.02 | | 3287.19 | 3140.80 | | 48876.47 | | | 911.15 |
| 25 | 2.66 | | | 106.24 | | 282.18 | | 211.63 | | | | 81.96 | | 4.88 | | 0.009 | | 0.010 | | 400.24 | | 1521.25 | 1565.28 | | 17495.86 | | | 491.91 |
| 40 | 3.94 | | | 157.70 | | 621.70 | | 466.27 | | | | 112.95 | | 6.14 | | 0.008 | | 0.007 | | 693.56 | | 2816.90 | 2731.71 | | 39782.82 | | | 805.28 |
| 20 | 2.20 | | | 88.08 | | 193.93 | | 145.45 | | | | 70.38 | | 4.38 | | 0.010 | | 0.012 | | 308.29 | | 1135.45 | 1201.63 | | 11845.58 | | | 389.28 |
| 25 | 2.66 | | | 106.24 | | 282.18 | | 211.63 | | | | 81.96 | | 4.88 | | 0.009 | | 0.010 | | 400.24 | | 1521.25 | 1565.28 | | 17495.86 | | | 491.91 |
| 18 | 2.02 | | | 80.61 | | 162.46 | | 121.84 | | | | 65.50 | | 4.16 | | 0.011 | | 0.014 | | 272.54 | | 988.98 | 1060.62 | | 9853.30 | | | 348.56 |
| 20 | 2.20 | | | 88.08 | | 193.93 | | 145.45 | | | | 70.38 | | 4.38 | | 0.010 | | 0.012 | | 308.29 | | 1135.45 | 1201.63 | | 11845.58 | | | 389.28 |
| 21 | 2.29 | | | 91.76 | | 210.50 | | 157.88 | | | | 72.77 | | 4.49 | | 0.010 | | 0.012 | | 326.39 | | 1210.44 | 1273.14 | | 12900.04 | | | 409.72 |
| 10 | 1.23 | | | 49.19 | | 60.49 | | 45.37 | | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | | 188.18 |
| ***Appendix C Continued...*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **h (cm)** | **dm (m)** | | | **W (m)** | | **(A)** | | **Qm (m³s¯¹)** | | | | **Wb (m)** | | **db (m)** | | **S(mm¯¹)** | | **S1(mm¯¹)** | | **Ab=db\*wb** | | **Qb (m³s¯¹)** | **Qb-1 (m³s¯¹)** | | **Ad (m²)** | | | **L (m)** |
|  |  | | |  | |  | |  | | | |  | |  | |  | |  | |  | |  |  | |  | | |  |
| 7 | 0.91 | | | 36.45 | | 33.22 | | 24.91 | | | | 34.38 | | 2.63 | | 0.015 | | 0.029 | | 90.29 | | 286.75 | 346.40 | | 1890.95 | | | 129.46 |
| 12 | 1.43 | | | 57.34 | | 82.18 | | 61.64 | | | | 49.67 | | 3.41 | | 0.012 | | 0.019 | | 169.61 | | 581.24 | 656.03 | | 4850.76 | | | 227.83 |
| 10 | 1.23 | | | 49.19 | | 60.49 | | 45.37 | | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | | 188.18 |
| 10 | 1.23 | | | 49.19 | | 60.49 | | 45.37 | | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | | 188.18 |
| 7 | 0.91 | | | 36.45 | | 33.22 | | 24.91 | | | | 34.38 | | 2.63 | | 0.015 | | 0.029 | | 90.29 | | 286.75 | 346.40 | | 1890.95 | | | 129.46 |
| 5 | 0.69 | | | 27.47 | | 18.87 | | 14.15 | | | | 27.33 | | 2.23 | | 0.017 | | 0.039 | | 60.91 | | 184.48 | 232.51 | | 1050.21 | | | 90.97 |
| 14 | 1.63 | | | 65.27 | | 106.49 | | 79.87 | | | | 55.18 | | 3.68 | | 0.012 | | 0.017 | | 203.12 | | 711.40 | 787.49 | | 6350.66 | | | 267.81 |
| 16 | 1.83 | | | 73.02 | | 133.28 | | 99.96 | | | | 60.44 | | 3.93 | | 0.011 | | 0.015 | | 237.46 | | 847.49 | 922.47 | | 8020.05 | | | 308.06 |
| 8 | 1.02 | | | 40.78 | | 41.58 | | 31.18 | | | | 37.66 | | 2.80 | | 0.014 | | 0.026 | | 105.55 | | 341.61 | 405.78 | | 2388.02 | | | 148.92 |
| 28 | 2.92 | | | 116.86 | | 341.38 | | 256.04 | | | | 88.55 | | 5.16 | | 0.009 | | 0.009 | | 456.97 | | 1764.89 | 1790.22 | | 21328.41 | | | 553.99 |
| 20 | 2.20 | | | 88.08 | | 193.93 | | 145.45 | | | | 70.38 | | 4.38 | | 0.010 | | 0.012 | | 308.29 | | 1135.45 | 1201.63 | | 11845.58 | | | 389.28 |
| 18.4 | 2.05 | | | 82.12 | | 168.57 | | 126.43 | | | | 66.49 | | 4.21 | | 0.010 | | 0.013 | | 279.64 | | 1017.88 | 1088.60 | | 10239.17 | | | 356.69 |
| 15 | 1.73 | | | 69.16 | | 119.58 | | 89.69 | | | | 57.84 | | 3.81 | | 0.011 | | 0.016 | | 220.20 | | 778.74 | 854.56 | | 7164.55 | | | 287.90 |
| 13 | 1.53 | | | 61.33 | | 94.02 | | 70.51 | | | | 52.46 | | 3.55 | | 0.012 | | 0.018 | | 186.26 | | 645.54 | 721.29 | | 5579.14 | | | 247.78 |
| 16.5 | 1.87 | | | 74.93 | | 140.36 | | 105.27 | | | | 61.73 | | 3.99 | | 0.011 | | 0.015 | | 246.17 | | 882.37 | 956.72 | | 8463.20 | | | 318.16 |
| 13 | 1.53 | | | 61.33 | | 94.02 | | 70.51 | | | | 52.46 | | 3.55 | | 0.012 | | 0.018 | | 186.26 | | 645.54 | 721.29 | | 5579.14 | | | 247.78 |
| 16 | 1.83 | | | 73.02 | | 133.28 | | 99.96 | | | | 60.44 | | 3.93 | | 0.011 | | 0.015 | | 237.46 | | 847.49 | 922.47 | | 8020.05 | | | 308.06 |
| 12.5 | 1.48 | | | 59.34 | | 88.02 | | 66.02 | | | | 51.07 | | 3.48 | | 0.012 | | 0.018 | | 177.91 | | 613.19 | 688.54 | | 5209.50 | | | 237.80 |
| 20 | 2.20 | | | 88.08 | | 193.93 | | 145.45 | | | | 70.38 | | 4.38 | | 0.010 | | 0.012 | | 308.29 | | 1135.45 | 1201.63 | | 11845.58 | | | 389.28 |
| 19 | 2.11 | | | 84.36 | | 177.91 | | 133.43 | | | | 67.96 | | 4.27 | | 0.010 | | 0.013 | | 290.33 | | 1061.61 | 1130.78 | | 10829.83 | | | 368.89 |
| 14 | 1.63 | | | 65.27 | | 106.49 | | 79.87 | | | | 55.18 | | 3.68 | | 0.012 | | 0.017 | | 203.12 | | 711.40 | 787.49 | | 6350.66 | | | 267.81 |
| 20 | 2.20 | | | 88.08 | | 193.93 | | 145.45 | | | | 70.38 | | 4.38 | | 0.010 | | 0.012 | | 308.29 | | 1135.45 | 1201.63 | | 11845.58 | | | 389.28 |
| 18 | 2.02 | | | 80.61 | | 162.46 | | 121.84 | | | | 65.50 | | 4.16 | | 0.011 | | 0.014 | | 272.54 | | 988.98 | 1060.62 | | 9853.30 | | | 348.56 |
| 8 | 1.02 | | | 40.78 | | 41.58 | | 31.18 | | | | 37.66 | | 2.80 | | 0.014 | | 0.026 | | 105.55 | | 341.61 | 405.78 | | 2388.02 | | | 148.92 |
| 10 | 1.23 | | | 49.19 | | 60.49 | | 45.37 | | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | | 188.18 |
| Average | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | |  | |  | |  | |  | | |  | |  | | **0.011** | | **0.017** | |  | **952.73** | | **1008.38** | |  | |  | |
| ***Appendix C Continued...*** | | | | |  | |  | |  | | |  | |  | |  | |  | |  |  | |  | |  | |  | |
| **h (cm)** | | | **dm (m)** | | **W (m)** | | **(A)** | | **Qm (m³s¯¹)** | | | **Wb (m)** | | **db (m)** | | **S(mm¯¹)** | | **S1(mm¯¹)** | | **Ab=db\*wb** | **Qb (m³s¯¹)** | | **Qb-1 (m³s¯¹)** | | **Ad (m²)** | | **L (m)** | |
| **Umraind** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | 1.53 | | 61.33 | | 94.02 | | 70.51 | | | 52.46 | | 3.55 | | 0.012 | | 0.018 | | 186.26 | | 645.54 | 721.29 | | 5579.14 | | 247.78 | |
| 10 | | | 1.23 | | 49.19 | | 60.49 | | 45.37 | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | 188.18 | |
| 7 | | | 0.91 | | 36.45 | | 33.22 | | 24.91 | | | 34.38 | | 2.63 | | 0.015 | | 0.029 | | 90.29 | | 286.75 | 346.40 | | 1890.95 | | 129.46 | |
| 13 | | | 1.53 | | 61.33 | | 94.02 | | 70.51 | | | 52.46 | | 3.55 | | 0.012 | | 0.018 | | 186.26 | | 645.54 | 721.29 | | 5579.14 | | 247.78 | |
| 4 | | | 0.57 | | 22.78 | | 12.97 | | 9.73 | | | 23.47 | | 2.00 | | 0.018 | | 0.047 | | 46.92 | | 137.70 | 178.50 | | 711.05 | | 71.99 | |
| 5 | | | 0.69 | | 27.47 | | 18.87 | | 14.15 | | | 27.33 | | 2.23 | | 0.017 | | 0.039 | | 60.91 | | 184.48 | 232.51 | | 1050.21 | | 90.97 | |
| 10 | | | 1.23 | | 49.19 | | 60.49 | | 45.37 | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | 188.18 | |
| 12 | | | 1.43 | | 57.34 | | 82.18 | | 61.64 | | | 49.67 | | 3.41 | | 0.012 | | 0.019 | | 169.61 | | 581.24 | 656.03 | | 4850.76 | | 227.83 | |
| 10 | | | 1.23 | | 49.19 | | 60.49 | | 45.37 | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | 188.18 | |
| 12 | | | 1.43 | | 57.34 | | 82.18 | | 61.64 | | | 49.67 | | 3.41 | | 0.012 | | 0.019 | | 169.61 | | 581.24 | 656.03 | | 4850.76 | | 227.83 | |
| 9 | | | 1.13 | | 45.02 | | 50.68 | | 38.01 | | | 40.82 | | 2.97 | | 0.014 | | 0.024 | | 121.14 | | 398.64 | 466.55 | | 2933.88 | | 168.50 | |
| 15 | | | 1.73 | | 69.16 | | 119.58 | | 89.69 | | | 57.84 | | 3.81 | | 0.011 | | 0.016 | | 220.20 | | 778.74 | 854.56 | | 7164.55 | | 287.90 | |
| 11 | | | 1.33 | | 53.29 | | 71.00 | | 53.25 | | | 46.81 | | 3.27 | | 0.013 | | 0.020 | | 153.20 | | 518.59 | 591.77 | | 4166.42 | | 207.96 | |
| 11 | | | 1.33 | | 53.29 | | 71.00 | | 53.25 | | | 46.81 | | 3.27 | | 0.013 | | 0.020 | | 153.20 | | 518.59 | 591.77 | | 4166.42 | | 207.96 | |
| 10 | | | 1.23 | | 49.19 | | 60.49 | | 45.37 | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | 188.18 | |
| 7 | | | 0.91 | | 36.45 | | 33.22 | | 24.91 | | | 34.38 | | 2.63 | | 0.015 | | 0.029 | | 90.29 | | 286.75 | 346.40 | | 1890.95 | | 129.46 | |
| 6 | | | 0.80 | | 32.02 | | 25.64 | | 19.23 | | | 30.95 | | 2.44 | | 0.016 | | 0.033 | | 75.39 | | 234.29 | 288.58 | | 1444.34 | | 110.14 | |
| 15 | | | 1.73 | | 69.16 | | 119.58 | | 89.69 | | | 57.84 | | 3.81 | | 0.011 | | 0.016 | | 220.20 | | 778.74 | 854.56 | | 7164.55 | | 287.90 | |
| 15 | | | 1.73 | | 69.16 | | 119.58 | | 89.69 | | | 57.84 | | 3.81 | | 0.011 | | 0.016 | | 220.20 | | 778.74 | 854.56 | | 7164.55 | | 287.90 | |
| 10 | | | 1.23 | | 49.19 | | 60.49 | | 45.37 | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | 188.18 | |
| 6 | | | 0.80 | | 32.02 | | 25.64 | | 19.23 | | | 30.95 | | 2.44 | | 0.016 | | 0.033 | | 75.39 | | 234.29 | 288.58 | | 1444.34 | | 110.14 | |
| 6 | | | 0.80 | | 32.02 | | 25.64 | | 19.23 | | | 30.95 | | 2.44 | | 0.016 | | 0.033 | | 75.39 | | 234.29 | 288.58 | | 1444.34 | | 110.14 | |
| 5 | | | 0.69 | | 27.47 | | 18.87 | | 14.15 | | | 27.33 | | 2.23 | | 0.017 | | 0.039 | | 60.91 | | 184.48 | 232.51 | | 1050.21 | | 90.97 | |
| 13 | | | 1.53 | | 61.33 | | 94.02 | | 70.51 | | | 52.46 | | 3.55 | | 0.012 | | 0.018 | | 186.26 | | 645.54 | 721.29 | | 5579.14 | | 247.78 | |
| 12 | | | 1.43 | | 57.34 | | 82.18 | | 61.64 | | | 49.67 | | 3.41 | | 0.012 | | 0.019 | | 169.61 | | 581.24 | 656.03 | | 4850.76 | | 227.83 | |
| ***Appendix C Continued...*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **h (cm)** | | | **dm (m)** | | **W (m)** | | **(A)** | | **Qm (m³s¯¹)** | | | **Wb (m)** | | **db (m)** | | **S(mm¯¹)** | | **S1(mm¯¹)** | | **Ab=db\*wb** | | **Qb (m³s¯¹)** | **Qb-1 (m³s¯¹)** | | **Ad (m²)** | | **L (m)** | |
| 8 | | | 1.02 | | 40.78 | | 41.58 | | 31.18 | | | 37.66 | | 2.80 | | 0.014 | | 0.026 | | 105.55 | | 341.61 | 405.78 | | 2388.02 | | 148.92 | |
| 18 | | | 2.02 | | 80.61 | | 162.46 | | 121.84 | | | 65.50 | | 4.16 | | 0.011 | | 0.014 | | 272.54 | | 988.98 | 1060.62 | | 9853.30 | | 348.56 | |
| 16 | | | 1.83 | | 73.02 | | 133.28 | | 99.96 | | | 60.44 | | 3.93 | | 0.011 | | 0.015 | | 237.46 | | 847.49 | 922.47 | | 8020.05 | | 308.06 | |
| 10 | | | 1.23 | | 49.19 | | 60.49 | | 45.37 | | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | 188.18 | |
| 7 | | | 0.91 | | 36.45 | | 33.22 | | 24.91 | | | 34.38 | | 2.63 | | 0.015 | | 0.029 | | 90.29 | | 286.75 | 346.40 | | 1890.95 | | 129.46 | |
| 4 | | | 0.57 | | 22.78 | | 12.97 | | 9.73 | | | 23.47 | | 2.00 | | 0.018 | | 0.047 | | 46.92 | | 137.70 | 178.50 | | 711.05 | | 71.99 | |
| Average | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | |  | |  | |  | |  | | |  | |  | | **0.014** | | **0.025** | |  | **470.45** | | **536.55** | |  | |  | |
| **Damdama** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | 1.83 | | 73.02 | | 133.28 | | | 99.96 | | 60.44 | | 3.93 | | 0.011 | | 0.015 | | 237.46 | | 847.49 | 922.47 | | 8020.05 | | 308.06 | |
| 16 | | | 1.83 | | 73.02 | | 133.28 | | | 99.96 | | 60.44 | | 3.93 | | 0.011 | | 0.015 | | 237.46 | | 847.49 | 922.47 | | 8020.05 | | 308.06 | |
| 12 | | | 1.43 | | 57.34 | | 82.18 | | | 61.64 | | 49.67 | | 3.41 | | 0.012 | | 0.019 | | 169.61 | | 581.24 | 656.03 | | 4850.76 | | 227.83 | |
| 15 | | | 1.73 | | 69.16 | | 119.58 | | | 89.69 | | 57.84 | | 3.81 | | 0.011 | | 0.016 | | 220.20 | | 778.74 | 854.56 | | 7164.55 | | 287.90 | |
| 21 | | | 2.29 | | 91.76 | | 210.50 | | | 157.88 | | 72.77 | | 4.49 | | 0.010 | | 0.012 | | 326.39 | | 1210.44 | 1273.14 | | 12900.04 | | 409.72 | |
| 10 | | | 1.23 | | 49.19 | | 60.49 | | | 45.37 | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | 188.18 | |
| 9 | | | 1.13 | | 45.02 | | 50.68 | | | 38.01 | | 40.82 | | 2.97 | | 0.014 | | 0.024 | | 121.14 | | 398.64 | 466.55 | | 2933.88 | | 168.50 | |
| 10 | | | 1.23 | | 49.19 | | 60.49 | | | 45.37 | | 43.86 | | 3.12 | | 0.013 | | 0.022 | | 137.03 | | 457.68 | 528.58 | | 3527.09 | | 188.18 | |
| 8 | | | 1.02 | | 40.78 | | 41.58 | | | 31.18 | | 37.66 | | 2.80 | | 0.014 | | 0.026 | | 105.55 | | 341.61 | 405.78 | | 2388.02 | | 148.92 | |
| 6 | | | 0.80 | | 32.02 | | 25.64 | | | 19.23 | | 30.95 | | 2.44 | | 0.016 | | 0.033 | | 75.39 | | 234.29 | 288.58 | | 1444.34 | | 110.14 | |
| 13 | | | 1.53 | | 61.33 | | 94.02 | | | 70.51 | | 52.46 | | 3.55 | | 0.012 | | 0.018 | | 186.26 | | 645.54 | 721.29 | | 5579.14 | | 247.78 | |
| Average | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | |  | |  | |  | |  | | |  | |  | | **0.0125** | | **0.020** | |  | **618.26** | | **688.00** | |  | |  | |

h = set thickness of trough cross-beds (m), dm = mean water depth (m), w = channel width (m), Qm = maximum instantaneous water discharge (m3/s), db = mean bankfull channel depth (m), wb = bankfull channel width (m), S = Stream palaeoslope (m/m), s(1) = stream palaeoslope (m/m), Ab = Bankfull channel area (m2), Ad = drainage area (m2), Qb = bankfull water discharge (m3/s), Qb(1) = bankfull water discharge (m3/s), L = principle stream length (m)