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ARCHAEOLOGICAL RESCUE EXCAVATIONS ON PACKAGES 3 AND 4 OF THE BATINAH EXPRESSWAY, SULTANATE OF OMAN

Ben Saunders

with

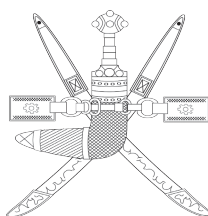
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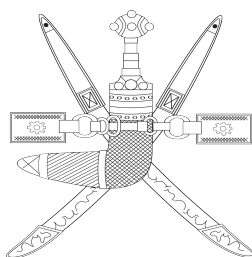
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Cover: A landscape from the Batinah bajada zone
Back cover left image: Unexcavated tomb, south-west of Sohar
Back cover right image: Survey team conducting pole photography of tomb in Package 4

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Project Directors: Nasser Said al-Jahwari and Derek Kennet
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Table of Contents

| | |
|---|-----|
| <i>List of Figures</i> | i |
| <i>Series Editors' Note</i> | ix |
| <i>Abstract</i> | ix |
| <i>Acknowledgements</i> | x |
| | |
| <i>Section I</i> | |
| Introduction | 1 |
| | |
| <i>Section II</i> | |
| Tomb typology | 8 |
| | |
| <i>Section IIIa</i> | |
| The excavations in Package 3 | 15 |
| | |
| <i>Section IIIb</i> | |
| The excavations in Package 4 | 100 |
| | |
| <i>Section IV</i> | |
| The human remains | 134 |
| Alyson CAINE | |
| | |
| <i>Section V</i> | |
| Finds from the excavations | 164 |
| Andrew BLAIR, Cameron CLEGG, Anna HILTON, Heiko KALWEIT, Derek KENNET, Peter MAGEE, Ben SAUNDERS, and Michel DE VREEZE | |
| | |
| <i>Section VI</i> | |
| Discussion | 189 |
| W.M. DEADMAN | |
| | |
| Bibliography | 207 |

List of Figures

| | |
|---|----|
| FIGURE 1. LOCATION OF PACKAGES 3 AND 4, AND THE LOCATIONS OF GROUPS OF TOMBS WITHIN EACH PACKAGE..... | 2 |
| FIGURE 2. EXAMPLE OF A CONTEXT-RECORDING SHEET (DEPOSIT) | 4 |
| FIGURE 3. TOMB L3-11 BEFORE EXCAVATION (STAGE 1: PRE-EXCAVATION POLE PHOTOGRAPH)..... | 6 |
| FIGURE 4. TOMB L3-11 AFTER CLEARING AND EXCAVATION OF THE CHAMBER (STAGES 2 AND 3)..... | 6 |
| FIGURE 5. TOMB L3-11 AFTER HALF-SECTIONING (STAGE 4)..... | 6 |
| FIGURE 6. L3-25, SHOWING ASSOCIATED ROCK OUTCROP TO THE RIGHT OF THE PHOTO, LOOKING SOUTH | 8 |
| FIGURE 7. TOMB TYPE 1 — SECTION | 9 |
| FIGURE 8. TOMB TYPE 1 — PLAN VIEW | 9 |
| FIGURE 9. TOMB TYPE 2 — SECTION | 10 |
| FIGURE 10. TOMB TYPE 2 — PLAN VIEW | 10 |
| FIGURE 11. TOMB TYPE 3 — SECTION | 11 |
| FIGURE 12. TOMB TYPE 3 — PLAN VIEW | 11 |
| FIGURE 13. TOMB TYPE 4 — SECTION | 12 |
| FIGURE 14. TOMB TYPE 4 — PLAN VIEW | 12 |
| FIGURE 15. TOMB TYPE 5 — SECTION | 13 |
| FIGURE 16. TOMB TYPE 5 — PLAN VIEW | 13 |
| FIGURE 17. TOMB TYPE 6 — SECTION | 13 |
| FIGURE 18. TOMB TYPE 6 — PLAN VIEW..... | 14 |
| FIGURE 19. PACKAGE 3 LOCATIONS..... | 15 |
| FIGURE 20. PACKAGE 3 SITES | 16 |
| FIGURE 21. PACKAGE 3, LOCATION 1 MAP | 17 |
| FIGURE 22. LOCATION 1 — ISOLATED HONEYCOMB TOMB L3-41 ON RIDGELINE..... | 17 |
| FIGURE 23. L3-41A (WITH L3-41B TO THE SOUTH) | 18 |
| FIGURE 24. LINE DRAWING OF L3-41A AND L3-41B SHOWING LOCATION OF SECTION | 18 |
| FIGURE 25. EAST-FACING SECTION THROUGH L3-41A AND L3-41B | 19 |
| FIGURE 26. TOMB L3-41B AFTER EXCAVATION LOOKING NORTH | 19 |
| FIGURE 27. PACKAGE 3, LOCATION 2 MAP | 20 |
| FIGURE 28. LOCATION 2: SAND DUNE RIDGE WITH FOUR TOMBS AT THE TOP OF THE SOUTH-WEST SLOPE | 21 |
| FIGURE 29. TOMB L3-02 AFTER EXCAVATION..... | 21 |
| FIGURE 30. LINE DRAWING OF L3-02 AFTER EXCAVATION..... | 21 |
| FIGURE 31. TOMB L3-02 AFTER EXCAVATION LOOKING NORTH-EAST | 22 |
| FIGURE 32. TOMB L3-03 AFTER EXCAVATION..... | 23 |
| FIGURE 33. TOMB L3-03 HALF-SECTION LOOKING NORTH | 23 |
| FIGURE 34. LINE DRAWING OF L3-03 AFTER EXCAVATION, SHOWING LOCATION OF SECTION..... | 23 |
| FIGURE 35. SOUTH-FACING SECTION THROUGH L3-03 | 24 |
| FIGURE 36. TOMB L3-23 AFTER EXCAVATION..... | 24 |
| FIGURE 37. LINE DRAWING OF L3-23 AFTER EXCAVATION..... | 25 |
| FIGURE 38. TOMB L3-23 AFTER EXCAVATION LOOKING NORTH | 25 |
| FIGURE 39. TOMB L3-36 AFTER EXCAVATION..... | 26 |
| FIGURE 40. LINE DRAWING OF L3-36 | 26 |
| FIGURE 41. TOMB L3-36 LOOKING EAST | 26 |
| FIGURE 42. PACKAGE 3, LOCATION 3 MAP | 27 |
| FIGURE 43. LOCATION 3: RIDGE-TOP GRAVEYARD (ONLY ONE EXCAVATED) | 27 |
| FIGURE 44. TOMB L3-34 AFTER EXCAVATION..... | 28 |
| FIGURE 45. LINE DRAWING OF L3-34 SHOWING LOCATION OF SECTION | 28 |
| FIGURE 46. TOMB L3-34 AFTER EXCAVATION LOOKING SOUTH-WEST | 29 |
| FIGURE 47. SECTION OF L3-34 — SOUTH-WEST-FACING | 29 |
| FIGURE 48. PACKAGE 3, LOCATION 4 MAP | 29 |
| FIGURE 49. LOCATION 4: ISOLATED HILLSIDE TOMB | 30 |
| FIGURE 50. TOMB L3-06 AFTER EXCAVATION..... | 30 |
| FIGURE 51. TOMB L3-06 LOOKING NORTH..... | 31 |
| FIGURE 52. LINE DRAWING OF L3-06 | 31 |
| FIGURE 53. PACKAGE 3, LOCATION 5 MAP..... | 32 |
| FIGURE 54. LOCATION 5: RIDGE-TOP GRAVEYARD | 32 |
| FIGURE 55. TOMB L3-17 AFTER EXCAVATION..... | 33 |
| FIGURE 56. TOMB L3-17 AFTER HALF-SECTIONING, LOOKING NORTH-EAST..... | 33 |
| FIGURE 57. LINE DRAWING OF L3-17 SHOWING LOCATION OF SECTION | 33 |
| FIGURE 58. SOUTH-WEST-FACING SECTION THROUGH L3-17 | 34 |
| FIGURE 59. TOMB L3-18 AFTER EXCAVATION..... | 34 |
| FIGURE 60. TOMB L3-18 AFTER HALF SECTIONING, LOOKING NORTH-EAST..... | 35 |

| | |
|---|----|
| FIGURE 61. LINE DRAWING OF L3-18 SHOWING LOCATION OF SECTION | 35 |
| FIGURE 62. SOUTH-FACING SECTION THROUGH L3-18..... | 36 |
| FIGURE 63. TOMB L3-19 AFTER EXCAVATION..... | 36 |
| FIGURE 64. TOMB L3-19 AFTER EXCAVATION, LOOKING NORTH | 37 |
| FIGURE 65. LINE DRAWING OF L3-19 | 37 |
| FIGURE 66. TOMB L3-20 AFTER EXCAVATION..... | 38 |
| FIGURE 67. TOMB L3-20 AFTER EXCAVATION, LOOKING EAST..... | 38 |
| FIGURE 68. LINE DRAWING OF L3-20 | 38 |
| FIGURE 69. TOMB L3-35 AFTER EXCAVATION..... | 39 |
| FIGURE 70. TOMB L3-35 AFTER EXCAVATION, LOOKING NORTH | 39 |
| FIGURE 71. LINE DRAWING OF L3-35 SHOWING LOCATION OF SECTION | 40 |
| FIGURE 72. SOUTH-WEST FACING SECTION THROUGH L3-35 | 40 |
| FIGURE 73. TOMB L3-55 AFTER EXCAVATION..... | 41 |
| FIGURE 74. TOMB L3-55 AFTER HALF-SECTIONING, LOOKING SOUTH-WEST..... | 41 |
| FIGURE 75. LINE DRAWING OF L3-55 SHOWING LOCATION OF SECTION | 41 |
| FIGURE 76. NORTH-EAST-FACING SECTION THROUGH L3-55..... | 42 |
| FIGURE 77. PACKAGE 3, LOCATION 6 MAP | 42 |
| FIGURE 78. LOCATION 6: (SKETCH 1 OF 2) RIDGE-TOP TOMBS AT 108/109 KM..... | 43 |
| FIGURE 79. LOCATION 6: (SKETCH 2 OF 2) RIDGE-TOP TOMBS AT 109/110 KM..... | 43 |
| FIGURE 80. TOMB L3-01 AFTER EXCAVATION..... | 43 |
| FIGURE 81. TOMB L3-01, LOOKING NORTH..... | 44 |
| FIGURE 82. LINE DRAWING OF L3-01 | 44 |
| FIGURE 83. TOMB L3-05 AFTER EXCAVATION..... | 45 |
| FIGURE 84. TOMB L3-05 HALF-SECTION, LOOKING SOUTH | 45 |
| FIGURE 85. LINE DRAWING OF L3-05 SHOWING LOCATION OF SECTION | 46 |
| FIGURE 86. SOUTH-WEST-FACING SECTION THROUGH L3-05..... | 46 |
| FIGURE 87. TOMB L3-10 AFTER EXCAVATION..... | 47 |
| FIGURE 88. TOMB L3-10 AFTER HALF-SECTIONING, LOOKING NORTH..... | 47 |
| FIGURE 89. LINE DRAWING OF L3-10 SHOWING LOCATION OF SECTION | 47 |
| FIGURE 90. SOUTH-FACING SECTION THROUGH L3-10..... | 48 |
| FIGURE 91. TOMB L3-15 AFTER EXCAVATION..... | 48 |
| FIGURE 92. TOMB L3-15 AFTER EXCAVATION LOOKING NORTH-EAST | 49 |
| FIGURE 93. LINE DRAWING OF L3-15 SHOWING LOCATION OF SECTION | 49 |
| FIGURE 94. WEST-FACING SECTION THROUGH L3-15..... | 49 |
| FIGURE 95. TOMB L3-29 AFTER EXCAVATION..... | 50 |
| FIGURE 96. TOMB L3-29 AFTER HALF-SECTIONING, LOOKING SOUTH | 50 |
| FIGURE 97. LINE DRAWING OF L3-29 SHOWING LOCATION OF SECTION | 51 |
| FIGURE 98. NORTH-FACING SECTION THROUGH L3-29..... | 51 |
| FIGURE 99. TOMB L3-30 AFTER EXCAVATION..... | 52 |
| FIGURE 100. TOMB L3-30 CHAMBER AFTER EXCAVATION, LOOKING NORTH-EAST | 52 |
| FIGURE 101. LINE DRAWING OF L3-30 | 52 |
| FIGURE 102. TOMB L3-31 AFTER EXCAVATION | 53 |
| FIGURE 103. TOMB L3-31 CHAMBER AFTER EXCAVATION, LOOKING SOUTH-WEST..... | 53 |
| FIGURE 104. LINE DRAWING OF L3-31 | 54 |
| FIGURE 105. TOMB L3-38 | 54 |
| FIGURE 106. TOMB L3-38, LOOKING NORTH..... | 55 |
| FIGURE 107. LINE DRAWING OF L3-38 AFTER EXCAVATION..... | 55 |
| FIGURE 108. TOMB L3-39 | 56 |
| FIGURE 109. TOMB L3-39, LOOKING NORTH..... | 56 |
| FIGURE 110. LINE DRAWING OF L3-39 AFTER EXCAVATION..... | 56 |
| FIGURE 111. SITE L3-48, LOOKING NORTH | 57 |
| FIGURE 112. LINE DRAWING OF L3-48 | 57 |
| FIGURE 113. SITE L3-53 AFTER EXCAVATION | 58 |
| FIGURE 114. LINE DRAWING OF L3-53 AFTER EXCAVATION..... | 58 |
| FIGURE 115. TOMB L3-54 AFTER EXCAVATION | 59 |
| FIGURE 116. TOMB L3-54 AFTER EXCAVATION, LOOKING SOUTH-EAST | 59 |
| FIGURE 117. LINE DRAWING OF L3-54 AFTER EXCAVATION..... | 59 |
| FIGURE 118. TOMB L3-56 | 60 |
| FIGURE 119. TOMB L3-56, LOOKING NORTH-WEST | 60 |
| FIGURE 120. LINE DRAWING OF L3-56 AFTER EXCAVATION..... | 61 |
| FIGURE 121. TOMB L3-57 | 61 |
| FIGURE 122. TOMB L3-57, LOOKING EAST | 62 |
| FIGURE 123. LINE DRAWING OF L3-57 AFTER EXCAVATION..... | 62 |
| FIGURE 124. SITE L3-58..... | 63 |

| | |
|---|----|
| FIGURE 125. SITE L3-58, LOOKING EAST..... | 63 |
| FIGURE 126. LINE DRAWING OF L3-58 AFTER EXCAVATION..... | 63 |
| FIGURE 127. PACKAGE 3, LOCATION 7 MAP | 64 |
| FIGURE 128. LOCATION 7 RIDGE-TOP TOMBS AT 110 KM | 64 |
| FIGURE 129. TOMB L3-09 AFTER EXCAVATION | 65 |
| FIGURE 130. TOMB L3-09 AFTER EXCAVATION, LOOKING SOUTH-WEST | 65 |
| FIGURE 131. TOMB L3-09 AFTER HALF-SECTION, LOOKING SOUTH-WEST | 66 |
| FIGURE 132. LINE DRAWING OF L3-09 SHOWING LOCATION OF SECTION | 66 |
| FIGURE 133. NORTH-WEST-FACING SECTION THROUGH L3-09 | 66 |
| FIGURE 134. TOMB L3-24 AFTER EXCAVATION | 67 |
| FIGURE 135. TOMB L3-24 CHAMBER AFTER EXCAVATION, LOOKING NORTH | 67 |
| FIGURE 136. LINE DRAWING OF L3-24 SHOWING LOCATION OF SECTION | 68 |
| FIGURE 137. SOUTH-WEST-FACING SECTION THROUGH L3-24..... | 68 |
| FIGURE 138. TOMB L3-25 AFTER EXCAVATION | 69 |
| FIGURE 139. TOMB L3-25 CHAMBER AFTER EXCAVATION, LOOKING SOUTH-EAST..... | 69 |
| FIGURE 140. LINE DRAWING OF L3-25 AFTER EXCAVATION..... | 69 |
| FIGURE 141. TOMB L3-28 AFTER EXCAVATION | 70 |
| FIGURE 142. TOMB L3-28 CHAMBER AFTER EXCAVATION, LOOKING SOUTH-EAST..... | 70 |
| FIGURE 143. LINE DRAWING OF L3-28 SHOWING LOCATION OF SECTION | 71 |
| FIGURE 144. EAST-FACING SECTION THROUGH L3-28 | 71 |
| FIGURE 145. TOMB L3-59 AFTER EXCAVATION | 71 |
| FIGURE 146. TOMB L3-59 AFTER EXCAVATION, LOOKING SOUTH | 72 |
| FIGURE 147. LINE DRAWING OF L3-59 | 72 |
| FIGURE 148. PACKAGE 3, LOCATIONS 8 AND 9 | 73 |
| FIGURE 149. LOCATION 8: WADI TERRACE IN VALLEY (TWO TOMBS — L3-37 AND L3-40, ONE SITE — L3-60) AND WEST PART OF LOCATION 9 — HILLTOP TOMBS | 73 |
| FIGURE 150. TOMB L3-37 AFTER EXCAVATION | 74 |
| FIGURE 151. TOMB L3-37 AFTER EXCAVATION, LOOKING NORTH-WEST..... | 74 |
| FIGURE 152. LINE DRAWING OF L3-37 AFTER EXCAVATION..... | 74 |
| FIGURE 153. TOMB L3-40 AFTER EXCAVATION | 75 |
| FIGURE 154. TOMB L3-40 AFTER EXCAVATION, LOOKING NORTH | 75 |
| FIGURE 155. LINE DRAWING OF L3-40 SHOWING LOCATION OF SECTION | 76 |
| FIGURE 156. NORTH-WEST-FACING SECTION THROUGH L3-40 | 76 |
| FIGURE 157. SITE L3-60..... | 76 |
| FIGURE 158. SITE L3-60, LOOKING EAST..... | 77 |
| FIGURE 159. LINE DRAWING OF L3-60 AFTER CLEANING..... | 77 |
| FIGURE 160. PACKAGE 3, LOCATIONS 8 AND 9 | 78 |
| FIGURE 161. LOCATION 9 — HILLTOP TOMBS L3-13, L3-14, L3-26, AND L3-27 (SKETCH 1 OF 2)..... | 78 |
| FIGURE 162. LOCATION 9 — HILLTOP TOMBS (SKETCH 2 OF 2) | 78 |
| FIGURE 163. TOMB L3-08 AFTER EXCAVATION | 79 |
| FIGURE 164. TOMB L3-08 FULLY EXCAVATED CHAMBER, LOOKING SOUTH-WEST..... | 79 |
| FIGURE 165. LINE DRAWING OF L3-08 AFTER EXCAVATION..... | 79 |
| FIGURE 166. TOMB L3-11 AFTER EXCAVATION | 80 |
| FIGURE 167. TOMB L3-11 AFTER EXCAVATION, LOOKING NORTH-WEST..... | 80 |
| FIGURE 168. LINE DRAWING OF L3-11 SHOWING LOCATION OF SECTION | 81 |
| FIGURE 169. EAST-FACING SECTION THROUGH L3-11 | 81 |
| FIGURE 170. TOMB L3-12 AFTER EXCAVATION | 82 |
| FIGURE 171. TOMB L3-12 AFTER EXCAVATION, LOOKING NORTH-WEST..... | 82 |
| FIGURE 172. LINE DRAWING OF L3-12 SHOWING LOCATION OF SECTION | 82 |
| FIGURE 173. EAST-FACING SECTION THROUGH L3-12 | 83 |
| FIGURE 174. TOMB L3-13 AFTER EXCAVATION | 83 |
| FIGURE 175. TOMB L3-13 CHAMBER AFTER EXCAVATION, LOOKING NORTH | 84 |
| FIGURE 176. LINE DRAWING OF L3-13 AFTER EXCAVATION..... | 84 |
| FIGURE 177. TOMB L3-14 AFTER EXCAVATION | 85 |
| FIGURE 178. TOMB L3-14 CHAMBER AFTER EXCAVATION, LOOKING SOUTH-WEST..... | 85 |
| FIGURE 179. LINE DRAWING OF L3-14 AFTER EXCAVATION..... | 85 |
| FIGURE 180. TOMB L3-26 AFTER EXCAVATION | 86 |
| FIGURE 181. TOMB L3-26 AFTER EXCAVATION, LOOKING SOUTH-EAST | 86 |
| FIGURE 182. LINE DRAWING OF L3-26 SHOWING LOCATION OF SECTION | 87 |
| FIGURE 183. NORTH-FACING SECTION THROUGH L3-26..... | 87 |
| FIGURE 184. TOMB L3-27 AFTER EXCAVATION | 88 |
| FIGURE 185. TOMB L3-27 AFTER EXCAVATION, LOOKING NORTH-WEST..... | 88 |
| FIGURE 186. LINE DRAWING OF L3-27 SHOWING LOCATION OF SECTION | 88 |
| FIGURE 187. EAST-FACING SECTION THROUGH L3-27 | 89 |

| | |
|--|-----|
| FIGURE 188. TOMB L3-32 AFTER EXCAVATION | 89 |
| FIGURE 189. TOMB L3-32, LOOKING NORTH..... | 89 |
| FIGURE 190. LINE DRAWING OF L3-32 SHOWING LOCATION OF SECTION | 90 |
| FIGURE 191. SOUTH-FACING SECTION THROUGH L3-32..... | 90 |
| FIGURE 192. TOMB L3-33 AFTER EXCAVATION | 91 |
| FIGURE 193. TOMB L3-33 CHAMBER AFTER EXCAVATION, LOOKING NORTH | 91 |
| FIGURE 194. LINE DRAWING OF L3-33 AFTER EXCAVATION..... | 91 |
| FIGURE 195. PACKAGE 3, LOCATION 10 MAP | 92 |
| FIGURE 196. LOCATION 10: WADI TERRACE LOCATION FOR ISOLATED HONEYCOMB TOMB L3-42 (AND L3-42A BELOW IT) | 92 |
| FIGURE 197. TOMB L3-42 AFTER EXCAVATION | 93 |
| FIGURE 198. TOMB L3-42A AFTER EXCAVATION..... | 93 |
| FIGURE 199. TOMB L3-42A CHAMBER AFTER EXCAVATION, LOOKING NORTH..... | 94 |
| FIGURE 200. LINE DRAWING OF L42 SHOWING LOCATIONS OF SECTIONS | 94 |
| FIGURE 201. NORTH-WEST-FACING SECTION A–B THROUGH L3-42 | 95 |
| FIGURE 202. EAST-FACING SECTION A–C THROUGH L3-42 | 95 |
| FIGURE 203. LINE DRAWING OF L42A SHOWING LOCATION OF SECTION | 95 |
| FIGURE 204. NORTH-FACING SECTION THROUGH L3-42A..... | 95 |
| FIGURE 205. PACKAGE 3, LOCATION 11 MAP | 96 |
| FIGURE 206. LOCATION 11: WADI TERRACE POSSIBLE STRUCTURE L3-51 AND WADI REVETMENT WALLS L3-50..... | 96 |
| FIGURE 207. SITE L3-50..... | 97 |
| FIGURE 208. SITE L3-50 LOOKING SOUTH..... | 97 |
| FIGURE 209. SITE L3-51 AFTER EXCAVATION | 98 |
| FIGURE 210. SITE L3-51 LOOKING EAST..... | 98 |
| FIGURE 211. LINE DRAWING OF L3-51 AFTER EXCAVATION..... | 99 |
| FIGURE 212. PACKAGE 4 LOCATIONS..... | 100 |
| FIGURE 213. TOMB LOCATIONS WITHIN PACKAGE 4..... | 100 |
| FIGURE 214. TOMBS TO BE PROTECTED BY PACKAGE 4 CONTRACTORS WITH SIGNAGE..... | 101 |
| FIGURE 215. PACKAGE 4, LOCATION 1 MAP | 101 |
| FIGURE 216. LOCATION 1: WADI TERRACE WITH A SERIES OF SITES | 101 |
| FIGURE 217. TOMB L4-12A AFTER CLEARING..... | 102 |
| FIGURE 218. TOMB L4-12B AFTER EXCAVATION | 102 |
| FIGURE 219. TOMB L4-12C AFTER EXCAVATION | 103 |
| FIGURE 220. TOMB L4-12D AFTER EXCAVATION | 103 |
| FIGURE 221. TOMB L4-12, GENERAL SHOT LOOKING SOUTH-WEST | 103 |
| FIGURE 222. TOMB L4-12B CHAMBER AFTER EXCAVATION, LOOKING NORTH | 104 |
| FIGURE 223. LINE DRAWING OF L4-12A..... | 104 |
| FIGURE 224. LINE DRAWING OF L4-12B AND E SHOWING LOCATION OF SECTION | 105 |
| FIGURE 225. SOUTH-WEST-FACING SECTION THROUGH L4-12 B AND E..... | 105 |
| FIGURE 226. LINE DRAWING OF L4-12C | 105 |
| FIGURE 227. LINE DRAWING OF L4-12D SHOWING LOCATION OF SECTION..... | 106 |
| FIGURE 228. WEST-FACING SECTION THROUGH L4-12D..... | 106 |
| FIGURE 229. PACKAGE 4, LOCATION 2 MAP | 106 |
| FIGURE 230. LOCATION 2: WADI TERRACE WITH TOMBS | 107 |
| FIGURE 231. TOMB L4-10 AFTER EXCAVATION | 107 |
| FIGURE 232. TOMB L4-10 AFTER EXCAVATION, LOOKING SOUTH | 108 |
| FIGURE 233. LINE DRAWING OF L4-10 AFTER EXCAVATION..... | 108 |
| FIGURE 234. TOMB L4-11 AFTER EXCAVATION | 109 |
| FIGURE 235. TOMB L4-11 AFTER HALF-SECTIONING, LOOKING NORTH-EAST..... | 109 |
| FIGURE 236. LINE DRAWING OF L4-11 SHOWING LOCATION OF SECTION | 109 |
| FIGURE 237. SOUTH-EAST-FACING SECTION THROUGH L4-11 | 110 |
| FIGURE 238. PACKAGE 4, LOCATION 3 MAP | 110 |
| FIGURE 239. LOCATION 3: TOMBS ON SLOPES AND BASE OF NARROW VALLEY | 110 |
| FIGURE 240. TOMB L4-07 AFTER EXCAVATION | 111 |
| FIGURE 241. TOMB L4-07 AFTER PARTIAL HALF-SECTIONING, LOOKING SOUTH-WEST | 111 |
| FIGURE 242. LINE DRAWING OF L4-07 AFTER EXCAVATION..... | 111 |
| FIGURE 243. TOMB L4-08 AFTER EXCAVATION | 112 |
| FIGURE 244. TOMB L4-08 AFTER HALF-SECTIONING, LOOKING NORTH-EAST..... | 112 |
| FIGURE 245. LINE DRAWING OF L4-08 SHOWING LOCATION OF SECTION | 113 |
| FIGURE 246. SOUTH-WEST-FACING SECTION THROUGH L4-08..... | 113 |
| FIGURE 247. TOMB L4-09 AND L4-09A (LEFT-HAND CHAMBER) AFTER EXCAVATION..... | 114 |
| FIGURE 248. TOMB L4-09 AFTER EXCAVATION, LOOKING SOUTH-WEST | 114 |
| FIGURE 249. LINE DRAWING OF L4-09 AND L4-09A SHOWING LOCATION OF SECTION | 114 |
| FIGURE 250. SOUTH-WEST-FACING SECTION THROUGH L4-09 AND L4-09A..... | 115 |
| FIGURE 251. PACKAGE 4, LOCATION 4 MAP | 115 |

| | |
|--|-----|
| FIGURE 252. LOCATION 4: TOMBS ON OPEN PLAN ON SLIGHTLY RAISED WADI TERRACE..... | 115 |
| FIGURE 253. TOMB L4-13 AFTER EXCAVATION | 116 |
| FIGURE 254. TOMB L4-13 AFTER HALF-SECTION, LOOKING WEST | 116 |
| FIGURE 255. TOMB L4-13 CHAMBER WITH PARTIALLY ARTICULATED SKELETON LOOKING SOUTH-WEST | 117 |
| FIGURE 256. LINE DRAWING OF L4-13 SHOWING LOCATION OF SECTION | 117 |
| FIGURE 257. NORTH-EAST-FACING SECTION THROUGH L4-13..... | 117 |
| FIGURE 258. TOMB L4-14 AFTER EXCAVATION | 118 |
| FIGURE 259. TOMB L4-14 AFTER EXCAVATION, LOOKING EAST..... | 118 |
| FIGURE 260. TOMB L4-14 CHAMBER WITH PARTIALLY ARTICULATED SKELETON, LOOKING WEST..... | 119 |
| FIGURE 261. LINE DRAWING OF L4-14 SHOWING LOCATION OF SECTION | 119 |
| FIGURE 262. NORTH-EAST-FACING SECTION THROUGH L4-14..... | 119 |
| FIGURE 263. TOMB L4-15 AFTER EXCAVATION | 120 |
| FIGURE 264. TOMB L4-15 AFTER EXCAVATION, LOOKING WEST | 120 |
| FIGURE 265. TOMB L4-15 CHAMBER WITH SKULL IN SITU..... | 120 |
| FIGURE 266. TOMB L4-15 SKULL IN SITU | 120 |
| FIGURE 267. LINE DRAWING OF L4-15 AFTER EXCAVATION..... | 121 |
| FIGURE 268. TOMB L4-16 AFTER EXCAVATION | 121 |
| FIGURE 269. TOMB L4-16 AFTER EXCAVATION, LOOKING SOUTH-EAST | 122 |
| FIGURE 270. LINE DRAWING OF L4-16 SHOWING LOCATION OF SECTION | 122 |
| FIGURE 271. WEST-FACING SECTION THROUGH L4-16..... | 123 |
| FIGURE 272. PACKAGE 4, LOCATION 5 MAP | 123 |
| FIGURE 273. LOCATION 5: RIDGE WITH LARGE NUMBER OF TOMBS ALONG THE TOP, AND A SMALL NUMBER AT THE BASE TO THE NORTH-EAST..... | 123 |
| FIGURE 274. TOMB L4-01 AFTER EXCAVATION | 124 |
| FIGURE 275. TOMB L4-01 AFTER EXCAVATION, LOOKING SOUTH | 124 |
| FIGURE 276. LINE DRAWING OF L4-01 AFTER EXCAVATION..... | 125 |
| FIGURE 277. TOMB L4-02 AFTER EXCAVATION | 125 |
| FIGURE 278. L4-02 LOOKING NORTH | 126 |
| FIGURE 279. LINE DRAWING OF L4-02 AFTER EXCAVATION..... | 126 |
| FIGURE 280. TOMB L4-03A, B, AND C AFTER EXCAVATION..... | 127 |
| FIGURE 281. TOMB L4-03C AFTER EXCAVATION, LOOKING EAST..... | 127 |
| FIGURE 282. TOMB L4-03B SKELETONS WITHIN CHAMBER LOOKING EAST | 128 |
| FIGURE 283. LINE DRAWING OF L4-03A, B, AND C SHOWING LOCATION OF SECTION | 128 |
| FIGURE 284. WEST-FACING SECTION THROUGH L4-03A, B, AND C | 129 |
| FIGURE 285. TOMB L4-04 AFTER EXCAVATION | 129 |
| FIGURE 286. TOMB L4-04 AFTER EXCAVATION, LOOKING NORTH | 130 |
| FIGURE 287. LINE DRAWING OF L4-04 AFTER EXCAVATION..... | 130 |
| FIGURE 288. TOMB L4-05 AFTER EXCAVATION | 131 |
| FIGURE 289. TOMB L4-05 AFTER EXCAVATION, LOOKING SOUTH | 131 |
| FIGURE 290. LINE DRAWING OF L4-05 AFTER EXCAVATION..... | 132 |
| FIGURE 291. TOMB L4-06 AFTER EXCAVATION, LOOKING NORTH | 132 |
| FIGURE 292. LINE DRAWING OF L4-06 SHOWING LOCATION OF SECTION | 133 |
| FIGURE 293. SECTION THROUGH L4-06..... | 133 |
| FIGURE 294. DISTRIBUTION OF SKELETAL FRAGMENTS FROM PACKAGE 3 TOMBS..... | 136 |
| FIGURE 295. DISTRIBUTION OF NON-DIAGNOSTIC FRAGMENTS FROM L3-14..... | 137 |
| FIGURE 296. INFERIOR (LEFT) AND SUPERIOR (RIGHT) VIEW OF MANDIBULAR MOLAR IDENTIFIED IN TOMB L3-14..... | 137 |
| FIGURE 297. COMPLETENESS OF THE INDIVIDUAL INTERRED IN L3-18 | 138 |
| FIGURE 298. ANATOMICAL DEPICTION OF HUMAN REMAINS IDENTIFIED IN L3-18..... | 138 |
| FIGURE 299. DISTRIBUTION OF NON-DIAGNOSTIC FRAGMENTS FROM L3-18..... | 138 |
| FIGURE 300. LEFT AND RIGHT INNOMINATE OF INDIVIDUAL INTERRED IN L3-18..... | 139 |
| FIGURE 301. ANTERIOR VIEW OF AN ADULT FRONTAL BONE. THE WHITE ARROW POINTS TO THE METOPIC SUTURE | 139 |
| FIGURE 302. SUPERIOR VIEW OF MANDIBLE FRAGMENT FROM L3-18 | 140 |
| FIGURE 303. DISTRIBUTION OF OSTEOPHYTE FORMATION IN L3-18..... | 140 |
| FIGURE 304. ANATOMICAL REPRESENTATION OF THE HUMAN REMAINS FROM L3-35..... | 140 |
| FIGURE 305. DISTRIBUTION OF NON-DIAGNOSTIC FRAGMENTS FROM L3-35..... | 141 |
| FIGURE 306. MANDIBLE (SUPERIOR VIEW) AND OCCIPITAL BONE (POSTERIOR VIEW) IDENTIFIED IN L3-35 | 141 |
| FIGURE 307. SUPERIOR VIEW OF A LEFT RIB HEAD..... | 141 |
| FIGURE 308. IN-DEPTH VIEW OF THE CORTEX OF A RIGHT HUMERUS FROM L3-35..... | 142 |
| FIGURE 309. DISTRIBUTION OF OSTEOPHYTE FORMATION IN THE SKELETAL MATERIAL FROM L3-35 | 142 |
| FIGURE 310. POSTERIOR VIEW OF THORACIC VERTEBRAL FRAGMENT..... | 142 |
| FIGURE 311. ANTERIOR VIEW OF SPINOUS PROCESS OF THORACIC VERTEBRAL FRAGMENT..... | 143 |
| FIGURE 312. DISTRIBUTION OF NON-DIAGNOSTIC SKELETAL FRAGMENTS FROM PACKAGE 4 | 143 |
| FIGURE 313. DISTRIBUTION OF NON-DIAGNOSTIC FRAGMENTS FROM L4-01..... | 144 |
| FIGURE 314. TABULATION OF FRAGMENTS FROM L4-02 | 144 |

| | |
|---|-----|
| FIGURE 315. INVENTORY OF THE SKELETAL ELEMENTS IDENTIFIED IN L4-02..... | 145 |
| FIGURE 316. SEX ESTIMATIONS FOR DISARTICULATED SKELETAL MATERIAL FROM L4-02 | 145 |
| FIGURE 317. ENDOCRANIAL VIEW OF LEFT TEMPORAL BONE | 146 |
| FIGURE 318. INFERIOR VIEW OF FRONTAL BONE WITH NEW BONE FORMATION AT FRONTAL SINUS | 146 |
| FIGURE 319. LATERAL VIEW OF THE FRONTAL BONE..... | 146 |
| FIGURE 320. SUPERIOR VIEW OF MANDIBLE FRAGMENT EXHIBITING AMTL | 147 |
| FIGURE 321. POSTERIOR VIEW OF PETROUS PORTION OF THE LEFT TEMPORAL BONE FROM L4-03C | 147 |
| FIGURE 322. ANATOMICAL POSITION OF INDIVIDUAL A FROM L4-03B | 148 |
| FIGURE 323. ANATOMICAL POSITION OF INDIVIDUAL B FROM L4-03B | 149 |
| FIGURE 324. DISTRIBUTION OF NON-DIAGNOSTIC FRAGMENTS FROM L4-03B..... | 150 |
| FIGURE 325. IN SITU PICTURE OF INDIVIDUAL A AND INDIVIDUAL B..... | 150 |
| FIGURE 326. POSTERIOR VIEW OF THE DENS OF AN AXIS WITH MARGINAL OSTEOPHYTE FORMATION SURROUNDING THE ARTICULATION POINT OF THE ATLAS | 151 |
| FIGURE 327. OSTEOPHYTE DISTRIBUTION IN INDIVIDUAL B SKELETAL MATERIAL..... | 151 |
| FIGURE 328. POSTERIOR VIEW OF RIGHT RIB HEAD WITH OSTEOPHYTE FORMATION PRESENT ON THE TUBERCLE | 151 |
| FIGURE 329. DISTRIBUTION OF NON-DIAGNOSTIC FRAGMENTS FROM TOMB L4-06..... | 151 |
| FIGURE 330. ANATOMICAL POSITION OF INDIVIDUAL INTERRED IN L4-13..... | 152 |
| FIGURE 331. DISTRIBUTION OF NON-DIAGNOSTIC FRAGMENTS FROM L4-13..... | 152 |
| FIGURE 332. POSTERIOR VIEW OF INTERMEDIATE PHALANX..... | 153 |
| FIGURE 333. ANTERIOR VIEW OF LEFT HUMERUS | 153 |
| FIGURE 334. FRAGMENT OF METACARPAL WITH GNAWING PRESENT ON THE SHAFT OF THE BONE | 153 |
| FIGURE 335. POSTERIOR VIEW OF TIBIA FRAGMENT FROM L4-13..... | 153 |
| FIGURE 336. MEDIAL VIEW OF DISTAL RIGHT FIBULA | 154 |
| FIGURE 337. DISTRIBUTION OF NON-DIAGNOSTIC FRAGMENTS FROM L4-14..... | 154 |
| FIGURE 338. INVENTORY OF SKELETAL MATERIAL FROM L4-15 | 155 |
| FIGURE 339. DISTRIBUTION OF NON-DIAGNOSTIC FRAGMENTS FROM L4-15..... | 156 |
| FIGURE 340. POSTERIOR LATERAL VIEW OF THE INTACT SKULL FROM THE RIGHT SIDE OF THE INDIVIDUAL FROM L4-15.. | 157 |
| FIGURE 341. SUPERIOR VIEW OF INTACT SKULL FROM L4-15..... | 157 |
| FIGURE 342. TRUE PREVALENCE OF JOINT ALTERATION IN L4-15..... | 157 |
| FIGURE 343. ANTERIOR VIEW OF THE DISTAL END OF A LEFT HUMERUS | 158 |
| FIGURE 344. MEDIAL VIEW OF THE DISTAL END OF A LEFT HUMERUS..... | 158 |
| FIGURE 345. LATERAL VIEW OF THE PROXIMAL END OF A LEFT ULNA..... | 158 |
| FIGURE 346. ANTERIOR VIEW OF THE LEFT PROXIMAL RADIUS..... | 159 |
| FIGURE 347. INFERIOR VIEW OF THE 7TH CERVICAL VERTEBRA..... | 159 |
| FIGURE 348. INFERIOR VIEW OF THE RIGHT LATERAL DEMI-FACET OF A THORACIC VERTEBRA FROM L4-15 | 159 |
| FIGURE 349. SUPERIOR VIEW OF A MANDIBLE FRAGMENT FROM L4-15..... | 159 |
| FIGURE 350. INFERIOR VIEW OF A FRONTAL BONE FROM L4-15 | 160 |
| FIGURE 351. ANATOMICAL POSITION OF INDIVIDUAL INTERRED IN L4-16..... | 160 |
| FIGURE 352. DISTRIBUTION OF NON-DIAGNOSTIC FRAGMENTS FROM L4-16..... | 161 |
| FIGURE 353. DEMOGRAPHIC PROFILE (SEX AND AGE) COMPILED FROM PACKAGE 4 TOMBS..... | 161 |
| FIGURE 354. DISTRIBUTION OF SEX ESTIMATION FROM PACKAGE 4 TOMBS | 162 |
| FIGURE 355. STATURE CALCULATIONS FROM PACKAGE 4 INDIVIDUALS WITH PRESERVED LONG BONES. | 162 |
| FIGURE 356. CRUDE PREVALENCE OF PATHOLOGICAL CONDITIONS PRESENT IN PACKAGE 4 TOMBS | 162 |
| FIGURE 357. THE FULL CERAMICS ASSEMBLAGE FROM PACKAGES 3 AND 4..... | 164 |
| FIGURE 358. CERAMIC WARES | 166 |
| FIGURE 359. THE OCCURRENCE OF CERAMIC WARES BY SITE | 166 |
| FIGURE 360. SHERDS ILLUSTRATED IN FIGURE 361 | 167 |
| FIGURE 361. CERAMIC WARES AND RIM TYPES..... | 168 |
| FIGURE 362. SMALL FINDS REGISTER | 175 |
| FIGURE 363. SF16 THIRD-/SECOND-MILLENNIUM WARE VESSEL FROM CHAMBER OF L4-02..... | 176 |
| FIGURE 364. SF17 CHLORITE/SOFT-STONE VESSEL FROM CHAMBER OF L4-02 | 176 |
| FIGURE 365. SF18 THIRD-/SECOND-MILLENNIUM WARE VESSEL FROM CHAMBER OF L4-02 | 176 |
| FIGURE 366. SMALL FIND ILLUSTRATIONS: BEADS, GLASS, SOFT-STONE BRACELET, AND METALWORK | 177 |
| FIGURE 367. SUMMARY OF DATABLE NON-CERAMIC SMALL FINDS | 182 |
| FIGURE 368. SUMMARY OF DATABLE POTTERY AND SMALL FINDS | 183 |
| FIGURE 369. ILLUSTRATIONS OF FLINT ARTEFACTS..... | 185 |
| FIGURE 370. THE LITHICS FROM L4-12 | 186 |
| FIGURE 371. FAUNAL ASSEMBLAGE FROM BEH 3-4..... | 188 |
| FIGURE 372. TOMB TYPES | 190 |
| FIGURE 373. PRESERVATION OF HUMAN BONE ACROSS TOMB TYPES | 190 |
| FIGURE 374. PROPORTION OF SITES OF EACH TYPE YIELDING ARTEFACTS BY CLASS..... | 190 |
| FIGURE 375. DISTRIBUTION OF SITES BY TYPE AND LOCATION | 191 |
| FIGURE 376. SIMILAR HAFIT TOMBS FROM THE REGION | 191 |
| FIGURE 377: HAFIT STYLE TOMBS (TYPE 1) FROM BEH3-4..... | 192 |

| | |
|---|-----|
| FIGURE 378. PARALLELS WITH TYPE 2 TOMBS FROM THE REGION..... | 192 |
| FIGURE 379. TYPE 2 TOMB FROM BEH3-4..... | 193 |
| FIGURE 380. TYPE 3 PARALLELS FROM THE REGION | 193 |
| FIGURE 381. TYPE 3 TOMBS FROM BEH3-4..... | 194 |
| FIGURE 382. TYPE 4 TOMB PARALLELS | 195 |
| FIGURE 383. TYPE 4 TOMBS FROM BEH3-4..... | 195 |
| FIGURE 384. TYPE 5 PARALLELS FROM THE REGION | 196 |
| FIGURE 385. TYPE 5 TOMBS FROM BEH3-4..... | 196 |
| FIGURE 386. TYPE 6 EXAMPLES FROM AROUND THE REGION | 197 |
| FIGURE 387. TYPE 6 TOMBS FROM BEH3-4..... | 197 |
| FIGURE 388. TYPE 7 TOMB (L3-37) EXAMPLE FROM THE REGION..... | 198 |
| FIGURE 389. TYPE 7 TOMBS (L3-40) EXAMPLES FROM THE REGION..... | 199 |
| FIGURE 390. TYPE 7 TOMBS (L4-03) EXAMPLES FROM THE REGION..... | 200 |
| FIGURE 391. L4-03 TOMB FROM BEH3-4 AND THE INDIVIDUAL TYPE 3 TOMB EXAMPLE | 201 |
| FIGURE 392. TYPE 8 NON-FUNERARY SITE L3-56, L3-54, L3-57..... | 201 |
| FIGURE 393. L4-12B TOMB | 202 |
| FIGURE 394. EVIDENCE OF OCCUPATION OF THE AL-BATINAH HIGHWAY PATH BY PREHISTORIC PERIOD | 202 |
| FIGURE 395. DISTRIBUTION OF SITES BY PERIOD ALONG THE COURSE OF THE BATINAH HIGHWAY..... | 203 |

Series Editors' Note

One of the aims of the BFSA Series, when it was set up in 2004, was to facilitate the rapid publication of archaeological fieldwork carried out in the Arabian Peninsula. In such cases, which are known as 'BFSA Field Reports', where the publication consists predominantly of a descriptive presentation of field data, the emphasis is on prompt publication rather than detailed, scholarly, comparative analysis. The standards required by the peer review process are adjusted accordingly.

DK & StJS

Abstract

This report presents the results of rescue excavations conducted during the spring and summer of 2014 in preparation for the construction of the Batinah Expressway (Packages 3 and 4) on the Batinah coastal plain in al-Batinah North Governate, Sultanate of Oman. Through previous survey work by the Ministry of Heritage and Culture and a team from Durham University and Sultan Qaboos University, it was known that the development footprint included upwards of sixty archaeological sites, the vast majority of which are stone cairn burials. The project was designed to recover and record as much information from these sites as possible through rectified photography, survey, excavation, and study of finds and human bones prior to their destruction. In addition to this primary function, the results of the excavations also present a useful archaeological cross section of the foothills of the Hajar Mountains where they meet the Batinah plain. They represent various archaeological periods from the Neolithic through to the post-Iron Age 'Samad' and Sasanian periods and — along with the results of the rescue excavations in the other packages of the Expressway and ongoing research projects around the Batinah — emphasize the previously unrecognized richness of the area's archaeological record. The data from the excavations has also suggested something of a rethinking of Omani tomb forms in this area, in particular in relation to possible Iron Age burial traditions, in addition to the previously recognized Hafit tradition.

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The field team consisted of Dr Julian Jansen van Rensburg, Anne Mortimer, Othman al-Wardi, Vince Cherubini, Jack Outram, Adam Fraser, Alyson Caine, Adil al-Muqbasi, and Hafel al-Muqbasi, directed in the field by Ben Saunders. In addition, illustration work in the field was carried out by Dr Julian Jansen van Rensburg and Anne Mortimer, while the final drawings were completed by Vicki Herring.

Section I

Introduction

The project

Project Background

This report presents the findings from the rescue excavations carried out between 6 April and 17 June 2014 in the Sultanate of Oman along the route of Packages 3 and 4 of the Batinah Expressway, a multi-lane highway which will run across the Batinah coastal plain from Muscat in the south to Suhar and the UAE border in the north.

The project recorded and excavated all known archaeological sites (excluding Islamic burial sites which were dealt with by the Ministry of Endowments and Religious Affairs) within the Right of Way (ROW) of Package 3 (forty-eight sites) and the majority of sites within the ROW of Package 4 (sixteen sites).

The project partners were the Omani Ministry of Heritage and Culture, the Omani Ministry of Transport and Communication, Parsons International LLC (Consultants for Packages 3 and 4), Simplex-Konstruktor JV (Contractors for Package 3), and Larson & Toubro LLC (Contractors for Package 4). The project was overseen by Dr Nasser al-Jahwari of Sultan Qaboos University and Dr Derek Kennet of Durham University/Sultan Qaboos University (Project Directors) and the fieldwork was directed by Ben Saunders (Field Director).

Summary of results

The project encountered a wide variety of pre-Islamic graves and tombs, demonstrating different forms, construction techniques, and locations as well as a small number of other types of archaeological site. Excavation of all tombs along with half-sections of a selection allowed the team to investigate the construction methods and techniques used. The form and construction are the main criteria for dating many of the tombs, as artefacts were extremely scarce. From this study a number of tomb types have been identified, which are presented here in Section II. One key conclusion derived from the work is to suggest that many of the tombs do not date to the Hafit or Early Bronze Age period (*c.* 3200–2700/2500 BC) as was previously thought. While a number of good examples of such tombs were certainly present, it is suggested that a large number of the tombs can in fact be dated much later to the mid-Iron Age (*c.* 1000–600 BC). In addition a small number of tombs datable to the Wadi Suq period

(*c.* 2000–1650 BC) were also excavated. Together, these results help to inform us about the density and nature of human exploitation and occupation of the Batinah plain during different periods of Oman's past.

Skeletal and artefact survival in the area was generally very poor. The vast majority of the tombs contained either nothing or a few very fragmentary bone pieces and no finds. Only twenty-seven tombs contained human remains and sixteen of these only contained very fragmentary remains, which allowed minimal analysis. This left eleven tombs containing partially articulated human remains, amounting to approximately seventeen partially complete individuals, with six female or probable female skeletons, four male or probably male skeletons, and seven unidentifiable skeletons. These are discussed fully in Section IV. A total of fifty-two small finds of various materials including chlorite, copper, and glass were recovered along with 549 sherds of ceramics dating to various periods. These included 303 sherds from the exterior of tomb L3-06 and small amounts of ceramics from outside and within the chambers of other tombs. These ceramics range from an almost complete probable Wadi Suq goblet to individual sherds of late Islamic pottery and a large number of Iron Age II sherds which were often found within the rubble covering the tomb. It is thought likely that the majority of the tombs had previously been disturbed by tomb robbers during antiquity and prehistory. Artefactual evidence from the thirteenth–twentieth century AD for this in the form of beads was found at several tombs, as discussed in Section V.

Dates

The team arrived in Oman between 4 and 6 of April 2014 and began fieldwork on 8 April. D. Kennet was present until 12 April, having been involved in setting the project up. Fieldwork in Package 3 was completed by 21 May and Package 4 was complete by 29 May. The team then completed paperwork and other aspects of post-excavation work until 16 June. The team palaeopathologist continued to work on the human remains until 7 July.

Location

The project dealt with Packages 3 and 4 of the Batinah Expressway route. All archaeological sites were located within the ROW corridor, which included the 80 m

roadway itself and up to 100 m (occasionally more where topography dictated) either side of the roadway centreline. Package 3 began approximately 20 km inland from al-Suwayq, running north-east to approximately 20 km inland from Hafeet. Package 4 continued from this point to c.15 km inland from Suhar. Figure 1 shows the location of the two packages.

The Batinah plain is a coastal gravel plain lying between the Hajar mountains to the south-west and the coast to the north-east. It is approximately 250 km long and varies from 10 to 50 km in width. Close to the foot of the mountains the undulating topography of the bajada zone is formed of uncultivable boulders, cobbles, and large gravels but the flatter, distal parts of the plain close to the sea are formed of silt, which is more easily cultivated. This predominates in a band about 5 km wide close to the sea where the water table is also at its highest, and this area is densely covered with modern cultivation and settlement (cf. Costa & Wilkinson 1987: 23–27; Costa 1985: 109).

The route of the Expressway runs largely through the outer bajada zone, parallel to the coast to the north-east and the mountains to the south-west. It does not

involve the more densely occupied cultivated, coastal zone mentioned above or the foothills of the mountains but focuses on the least densely occupied area of large gravels in the middle of the plain, where cultivable areas exist only in and around a few wadi beds. It is thought that human occupation has generally been quite sparse in this area for most of antiquity. The route does not therefore provide a representative cross section of human exploitation of the whole Batinah plain.

The topography of the Expressway route is made up of areas of flat boulder/gravel plains dissected by wadi valleys into interfluvial ridges and plateaus. The wadi valleys run roughly south-west–north-east through the landscape, channelling the flow of water from the mountains to the coast. Some of the wadis run through wide flat valleys with gravel terraces, and in such cases it is clear that the path of the wadi channel varies from year to year. Other valleys are narrower and the wadi gullies appears to be more permanent. The majority of the tomb sites that were excavated are located on ridges overlooking the larger valleys, possibly because the continually changing course of the wadi made construction of tombs problematic or their survival unlikely. This may not be the only factor in tomb

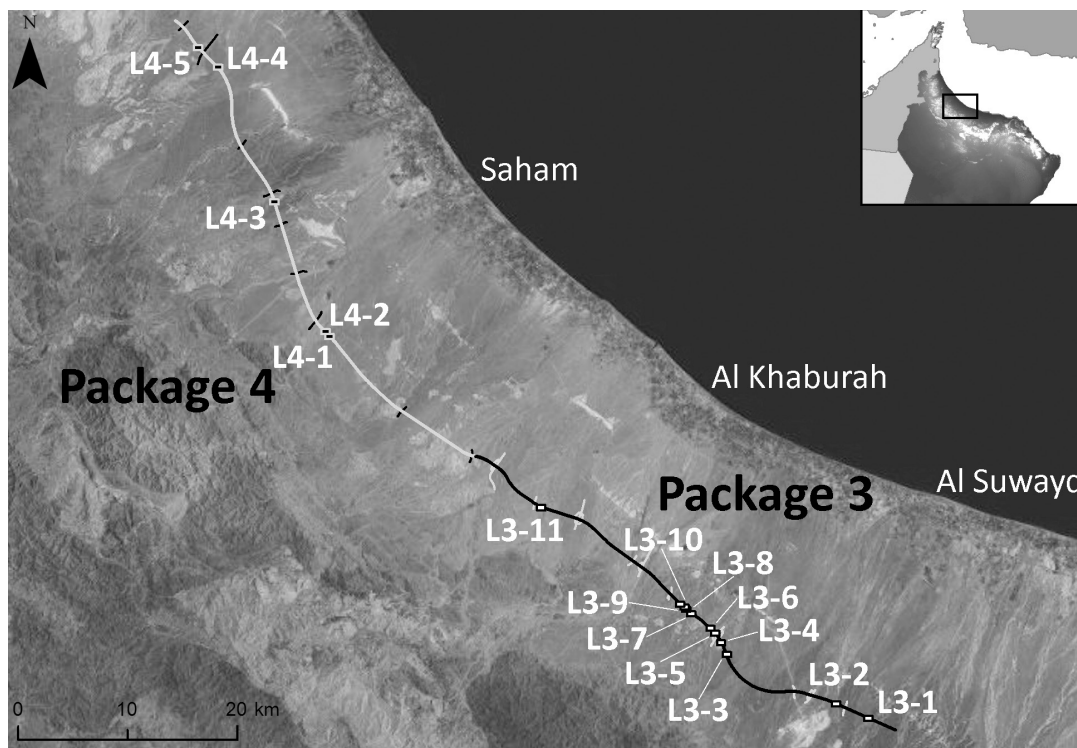


FIGURE 1. LOCATION OF PACKAGES 3 AND 4, AND THE LOCATIONS OF GROUPS OF TOMBS WITHIN EACH PACKAGE (MAP BY W. DEADMAN, IMAGERY SOURCE: ESRI, DIGITAL GLOBE © 2014).

placement, however; alongside practical concerns, it is likely that tombs were deliberately constructed in commanding positions within the landscape, often on ridge tops dominating views over a large area. These tombs were in some cases a significant distance from the material utilized to build them and therefore demonstrate a substantial investment of time and effort in their construction (see Type 2 tombs below). The variation in tomb placement within the landscape will be discussed later in Section VI.

The area of investigation is therefore a landscape where movement and occupation would have been easiest within the wadi valleys and at least slightly restricted by the ridges and hills that are located between them. It could be argued that the wadi valleys therefore formed communication routes of the area, even before any formal routes existed (cf. Deadman 2014: 143–144). This will be discussed more fully in Section VI.

Preliminary survey

The rescue excavations were based on sites located by preliminary surveys conducted during the winter of 2013/14. Package 3 was surveyed by Mr William Deadman and other members of the Rustaq-Batinah Archaeological Survey team, while Package 4 was surveyed by Mr Khamis al-Aufi of the Ministry of Heritage and Culture.

The preliminary surveys involved inspection of satellite imagery, which identified a number of potential sites that were then ground-truthed. The entirety of the ROWs of both packages were also inspected by individuals or groups in vehicles who focused on identifying visible cairns, tombs, earthworks, and other structures. No detailed or systematic inspection of the ground surface was carried out in either package, meaning that archaeological sites consisting only of unrounded scatters of surface artefacts, such as lithics or pottery, would not normally have been detected. A limited number of small sites not found by the preliminary surveys came to light during the excavation work in both Packages (e.g L3-59, L3-60, and L4-08b).

Site locations

The preliminary surveys and the excavations demonstrated that most tombs are located within groups of similar tombs in cemetery-style groupings across the landscape (the various types of tombs that were defined will be discussed below). The tombs will therefore be presented in these groupings in Section IIIa/b.

The forty-eight Package 3 sites were divided into eleven locations of which six were ridgelines, three were wadi terraces, one was an isolated hillside tomb, and one was a hilltop graveyard.

The sixteen Package 4 sites were divided into five locations of which one was a ridgeline, three were wadi terrace locations, and one on the slopes of a narrow valley. No isolated tombs were located within this Package.

Package 4 also contained a potential occupation site based on a widespread flint scatter close to L4-12, a wadi terrace site. No obvious structures related to the artefacts were present, suggesting the pick-up related to a much more nomadic period.

Methodology

Excavation strategy and method

As stated above, the project recorded and excavated all known archaeological sites (excluding Islamic burial sites) within the ROW of Package 3 (forty-eight sites) and the majority of sites within the ROW of Package 4 (sixteen sites). A number of sites were not excavated in Package 4 as they were deemed far enough away from the road line not to be threatened; they will be protected by fencing and appropriate signage by agreement with the contractors.

The project was run according to current UK commercial standards using single-context recording adapted from the *Museum of London Archaeological Manual* (MOLAS 1994). This system, along with various adaptations for local conditions, is used widely throughout British and European archaeological investigations. It was agreed between the Ministry of Heritage and Culture and the Ministry of Transport and Communications that the project would fully excavate and record (or protect if possible) all known archaeological sites within the ROW, to allow road construction to go ahead. The project was funded by the Ministry of Transport and Communication, with support from the Ministry of Heritage and Culture.

The recording system

Five different types of written recording sheet were used during the excavation of the tomb chambers: a deposit sheet for soil-based deposits connected with the tomb; a masonry sheet for stone structures; a cut sheet for any cuts/interfaces present; a skeleton sheet; and a 'general deposit' sheet for the collapse around the tombs (example in Figure 2).

Sections were recorded at either 1:10 or 1:20, depending on which was most applicable, on UK standard permatrace using a 4H or 6H pencil. These were then digitized in Adobe Illustrator, Corel Draw, or AutoCAD and saved as .ai files.

Plans were digitally completed using the rectified pole photographs taken of each tomb, before and after full excavation, with appropriate scales and cardinal points.

DEPOSIT RECORDING SHEET

| | | | | |
|-------------------------------|--------------------------|--------------------------------|------------------------|----------|
| Grid Square(s) | Area/Section | Context Type DEPOSIT | Site Code | Context |
| Compaction | Coarse-grained sediments | | Fine-grained sediments | |
| | Indurated | Strong / Weak Cemented | Compact | Loose |
| Colour | Dark / Mid / Light | | Hue: | Colour: |
| | | | | Munsell: |
| Composition (= 100%) | Clay: % | Silt: % | Other () % | |
| | Coarse Sand: % | Medium Sand: % | Fine Sand: % | |
| Inclusions (<10% of whole) | Frequent | | | |
| | Moderate | | | |
| Other Comments | Occasional | | | |
| | | | | |

Excavation method:
 Mattock Trowel
 Other

Weather conditions:
 PTO ☀ ☁ ☔ ☇ ☈ ☉

| Stratigraphic matrix | | | | | | | | |
|----------------------|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| This context is | | | | | | | | |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | | | | | | |

Now transfer to plan Continue levels as necessary
Draw sketch profile/plan
 (show : scale, cardinal points / north point, co-ords & dimensions)

| | | | |
|---|---|---|---|
| + | + | + | + |
| | | | |
| + | + | + | + |
| | | | |
| + | + | + | + |

| Your interpretation | Land-use interpretation |
|---|-------------------------|
| Interpretive Type: | Internal |
| Your discussion: | External |
| PTO | Structural |
| Context same as: | Other |
| Strength/confidence of interpretation: Weak ← 1 2 3 4 5 → Strong | |
| Plan nos: P (X) | Your initials & date: |
| Other drawings: S/E | Checked by & date: |
| Photographs/Video (inc. date): | |

| | |
|---|--|
| Levels: Tick when reduced <input type="checkbox"/> Tick when transferred to plans <input type="checkbox"/> | Finds present (tick): None <input type="checkbox"/> Pot <input type="checkbox"/> Bone <input type="checkbox"/> Glass <input type="checkbox"/> Metal <input type="checkbox"/> CBM <input type="checkbox"/> Other <input type="checkbox"/> BM <input type="checkbox"/> Wood <input type="checkbox"/> Leather <input type="checkbox"/> |
| Environmental samples: (nos & type) | Small finds (insert small find nos & type): |
| Analytical samples: (nos & type) | Finds sieving: on site <input type="checkbox"/> off site <input type="checkbox"/> (mesh sizemm) |
| Metal detecting: In situ <input type="checkbox"/> on site <input type="checkbox"/> off site <input type="checkbox"/> | |
| Checked interpretation (post-ex use only): | |

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FIGURE 2. EXAMPLE OF A CONTEXT-RECORDING SHEET (DEPOSIT).
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Both plans and sections were completed in line with the drawing conventions set out in the MOLAS manual (MOLAS 1994).

All record photographs, excluding pole photographs, contain an appropriate scale, north arrow, and photoboard detailing the specifics of the photograph. Pole photographs differ only when a site’s size required multiple photographs to be taken. In these cases, the first photograph contained a north arrow, appropriate scale, and photoboard, which were then removed from all other photographs to avoid problems in processing. All photographs were recorded in a register.

The resulting written, drawn, and photographic records thereby provide a very detailed description of the tombs and the overlying deposits.

Excavation system

Due to the logistics of the project and in order to make the work as efficient as possible, a ‘production line’ system of excavation was developed. The team was split into three sub-teams for the majority of the project, each with its own specific role.

The recording and excavation of each tomb was divided into the following stages:

Stage 1

A team of two to three people set up an appropriately sized grid around each tomb, including placing a Temporary Bench Mark (TBM) on the south-west point of each grid. A series of pre-excavation pole photos

and cardinal photos was then taken, including scales, north arrows, and a chalkboard with the site number on it.

Stage 2

A second team of two to three people accompanied by most of the workmen then removed the loose and collapsed stones and other deposits that covered the remaining structure of the tomb. This was a difficult process in some cases, as the upper structures of the tombs are unbonded and judgement had to be used about whether any particular stone was an *in situ* part of the structure or was part of the rubble collapse covering the structure. To deal with this, it was generally found best to isolate a segment of clearly defined tomb wall and to work around the outside of the tomb from this point, clearing back to the wall face. The top of the chamber was then cleared using a similar method. This was extremely difficult on the badly damaged tombs that were present in both packages but in general this part of the work did not present many problems. During this process the excavators completed a context sheet for any removed deposits including levels taken from the TBM on the south-west gridpeg, which was then passed on to the tomb excavation team (see below). If it was noticed that part of a tomb had either been over-cleared or under-cleared, this was noted down and any extra clearance required took place at that point. Generally the area around the tomb within the grid was also cleared of loose stones and trowelled back to expose the old land surface. The chamber was then cleared to the upper sand/soil deposit within it ready for full excavation. Cardinal photos were taken and the team then moved on to the next tomb.

Stage 3

A third team of two to three people with a small number of skilled workmen then excavated the tomb chamber, using single-context excavation and recording methods (see Figure 2 for an example of the recording sheet and MOLAS 1994 for a complete description of the single-context recording system). This allowed the excavation team to keep control of the occasionally quite complex archaeology present in the chambers, as well as providing a complete paper record of the excavations, which was presented to the Ministry of Heritage and Culture at the end of excavations, along with the preliminary report.

The excavation team excavated each chamber down to the old land surface, and recorded any intact *in situ* human remains, artefacts, or later disturbances (although the first two of these were relatively rare). *Ex situ* finds were bagged up according to context. Once the chamber had been fully excavated, post-excavation pole and cardinal photos were taken.

Stage 4

After excavation of the chamber a decision was taken about whether the tomb was well preserved or interesting enough to warrant half-sectioning. If it was, the excavation team would decide which section through the tomb was most likely to provide information about the construction. A corresponding line was then marked out across the tomb and the entire structure on one side of this was removed down to the old land surface. The standing section through the tomb was photographed, drawn, and a final pole photograph was taken.

Stage 5

Finally, surveyors from the contractors for each package surveyed in the grid points around each tomb, locating them to UTM 40Q (Package 3) and to UTM 40R (Package 4) with a 5 mm accuracy, and the heights to mean sea level, giving each site a bench mark of known height on the south-west gridpeg.

The first team consisted of JJvR, JO and, when free, BJS. The second team consisted of VC, AJF, OaW, and HaM, along with a team of nine to fifteen workmen supplied by the contractors. The final team consisted of AEM and AaM along with a team of six to seven skilled workmen. As teams one and two finished their work, they were added to the excavation team. In the case of VC, AJF, OaW, and HaM it was decided that they would conduct the majority of the excavation in Package 4, as it was necessary for teams to work in both packages simultaneously. This 'production line' method of excavation and recording allowed the team to deal rapidly and effectively with the sites within the Package areas.

Photographs of the excavation process

This series of photographs show the excavation process for a typical tomb (L3-11). The first (Figure 3) presents the tombs before excavation work had begun (Stage 1: pre-excavation pole photo), demonstrating the scatter of rubbles covering the tomb and the immediate area. Figure 4 shows the same tomb after Stages 2 and 3 (rock clearing and excavation of the chamber). Finally, Figure 5 shows the final post-excavation photograph of the tomb after half-sectioning (Stage 4).

These photographs demonstrate the process of excavation used throughout the project. As mentioned, not all tombs were half-sectioned — badly damaged examples and those of a known construction type were left complete. Out of thirty-six tombs with a stone superstructure in Package 3, twenty were half-sectioned. In Package 4, eight out of sixteen potential tombs with stone superstructures were half-sectioned. The smaller percentage in Package 4 is due to a large proportion of



FIGURE 3. TOMB L3-11 BEFORE EXCAVATION (STAGE 1: PRE-EXCAVATION POLE PHOTOGRAPH).



FIGURE 4. TOMB L3-11 AFTER CLEARING AND EXCAVATION OF THE CHAMBER (STAGES 2 AND 3).



FIGURE 5. TOMB L3-11 AFTER HALF-SECTIONING (STAGE 4).

the tombs being very badly deflated and robbed, making half-sectioning less effective in relation to the amount of effort invested.

Glossary of terms used in the report

This report contains a number of technical excavation terms that are either not commonly used in English or have multiple meanings. Their definitions as used within this work are listed below:

- Bonding:** this refers to the material used to hold together masonry, brick, or other building material in a structure. In most cases here, this was wet mud/silt but in modern structures mortar was used.
- Boulder:** a large stone/rock measuring more than 260 mm on any axis. Boulders were generally used in the construction of tomb walls and for building foundation platforms.
- Cardinal photos:** photographs taken facing north, east, south, and west, showing the main aspects of the structure.
- Cobble:** a medium-sized stone measuring between 70 and 260 mm on any axis. Cobbles are generally used as building material in the walls of smaller tombs; they also make up the rubble core between the outer walls in larger tombs.
- Corbelling:** this is a basic roofing technique common in prehistoric stone tombs in Oman and elsewhere in the Arabian Peninsula. Long, thin boulders, generally between 400 and 600 mm in length, are placed in courses with a short end facing in to the chamber, with each course slightly overhanging the one below to create a stepped ceiling. The boulders are kept in place by the counterweight of stones placed on them in the interior of the wall (the rubble core). Once the gap to be roofed is narrow enough, flat lintel stones are placed across to complete the roof.
- Deposit:** soil, sand, gravel, stone, or other material laid down through either anthropogenic or natural processes.
- Half-sectioning:** this describes the excavation of one half of a tomb or other feature leaving a standing section revealing the sequence of deposits and, in the case of the tombs, the construction methods.
- In situ:*** literally meaning ‘in place’, this term describes an archaeological find that is in its original location rather than having been moved or redeposited.
- Manganese patination or ‘desert varnish’:** the local limestone, when exposed to the air, slowly develops a dark brown patination or surface colouring formed of particles of clay along with iron and manganese oxides. The presence of such patination normally indicates that the rock has been exposed to the air for a considerable period of time and not subject to rapid erosion.
- Old land surface:** this term describes a buried ancient land surface, for example the original surface on which a particular tomb was constructed. The excavations generally aimed to expose this surface around and within the tombs.
- Pebble:** a small stone measuring less than 70 mm on all axes. Pebbles were generally used in the construction of tombs as packing in tomb walls made up of larger boulders and cobbles, or as a covering material for the whole tomb, as seen in L4-13.
- Platform:** the walls of a large number of tombs were not built directly onto the old land surface, but instead onto a soil-bonded stone foundation platform, referred to simply as a ‘platform’ throughout this report. These platforms were generally wider than the tombs, and seem to have been intended to provide a stable, flat base for construction of the tomb walls.
- Pole photo:** in addition to normal photography, the project also used a remotely operated camera on an extendible pole up to 6.5 m long in order to take overhead vertical or oblique photographs of the tombs before, during, and after excavation.
- Unbonded:** This term indicates that no bonding material was obviously present in a wall or other structure — effectively suggesting the walls were built using a ‘drystone’ walling technique.
- Robbing:** all the tombs excavated by this project had been damaged and disturbed to some degree. There are two reasons for this, firstly the removal of the stones making up the tomb for the construction of other structures, possibly for other tombs in some cases (spoliation); the second is the retrieval of potentially valuable grave-goods such as metal or beads.
- Temporary Bench Mark (TBM):** a fixed point (generally the south-west grid point on each tomb), which was used to measure the levels of excavated deposits and parts of the tomb structures.