

# **Environmental Impact Assessment Report (EIAR)**

## **Volume 6 of 6: Appendices**

### **(Appendix 18.1) Schedule of Minor Crossings**

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## **1. Introduction**

1. This appendix (A18.1) details the utilities crossed by the Proposed Project that are not otherwise listed in Chapter 18 (Material Assets). These crossings are minor utilities and this includes local road crossings, medium and low voltage electricity line crossings and smaller water distribution pipe crossings.
2. Section 6 provides a summary of the engagement undertaken to obtain the baseline data on which the assessment in Chapter 18 (Material Assets) was undertaken.

## 2. Electricity Supply Crossings

### 2.1 Medium and Low Voltage Electricity Line Crossings

3. Table 2.1 lists medium and low voltage electricity lines crossed by the Proposed Project. High voltage electricity line crossings are listed in Chapter 18 (Material Assets).

**Table 2.1: Overhead Power Line Crossings – Medium and Low Voltage: Below 38kV Voltage**

| Number | Crossing Type | Crossing ID | Crossing Reference | Existing Line | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method |
|--------|---------------|-------------|--------------------|---------------|-------------------------------|-----------------------------------|-----------------|
| 1      | Power         | ESB001      | Medium Voltage     | Overhead Line | RW-500                        | Figure 18.6                       | Open excavation |
| 2      | Power         | ESB002      | Medium Voltage     | Overhead Line | RW-600                        | Figure 18.6                       | Open excavation |
| 3      | Power         | ESB003      | Medium Voltage     | Overhead Line | TW-600                        | Figure 18.7                       | Open excavation |
| 4      | Power         | ESB004      | Medium Voltage     | Overhead Line | TW-1800                       | Figure 18.7                       | Open excavation |
| 5      | Power         | ESB005      | Medium Voltage     | Overhead Line | TW-3200                       | Figure 18.7                       | Open excavation |
| 6      | Power         | ESB006      | Medium Voltage     | Overhead Line | TW-6500                       | Figure 18.8                       | Open excavation |
| 7      | Power         | ESB007      | Medium Voltage     | Overhead Line | TW-8100                       | Figure 18.9                       | Open excavation |
| 8      | Power         | ESB008      | Medium Voltage     | Overhead Line | TW-9400                       | Figure 18.9                       | Open excavation |
| 9      | Power         | ESB009      | Medium Voltage     | Overhead Line | TW-11400                      | Figure 18.10                      | Open excavation |
| 10     | Power         | ESB010      | Medium Voltage     | Overhead Line | TW-12100                      | Figure 18.10                      | Open excavation |
| 11     | Power         | ESB011      | Medium Voltage     | Overhead Line | TW-16400                      | Figure 18.11                      | Open excavation |
| 12     | Power         | ESB012      | Medium Voltage     | Overhead Line | TW-17900                      | Figure 18.12                      | Open excavation |
| 13     | Power         | ESB013      | Medium Voltage     | Overhead Line | TW-21300                      | Figure 18.13                      | Open excavation |
| 14     | Power         | ESB014      | Medium Voltage     | Overhead Line | TW-22400                      | Figure 18.13                      | Open excavation |
| 15     | Power         | ESB015      | Medium Voltage     | Overhead Line | TW-26600                      | Figure 18.14                      | Open excavation |
| 16     | Power         | ESB016      | Medium Voltage     | Overhead Line | TW-26800                      | Figure 18.14                      | Open excavation |
| 17     | Power         | ESB017      | Medium Voltage     | Overhead Line | TW-27700                      | Figure 18.15                      | Open excavation |
| 18     | Power         | ESB018      | Medium Voltage     | Overhead Line | TW-28600                      | Figure 18.15                      | Open excavation |
| 19     | Power         | ESB019      | Medium Voltage     | Overhead Line | TW-28500                      | Figure 18.15                      | Open excavation |
| 20     | Power         | ESB020      | Medium Voltage     | Overhead Line | TW-28500                      | Figure 18.15                      | Open excavation |

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| Number | Crossing Type | Crossing ID | Crossing Reference | Existing Line | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method   |
|--------|---------------|-------------|--------------------|---------------|-------------------------------|-----------------------------------|---|
| 21     | Power         | ESB021      | Medium Voltage     | Overhead Line | TW-28600                      | Figure 18.15                      | Open excavation   |
| 22     | Power         | ESB022      | Medium Voltage     | Overhead Line | TW-28900                      | Figure 18.15                      | Trenchless (as coincides with RDX026)   |
| 23     | Power         | ESB023      | Low Voltage        | Overhead Line | TW-30000                      | Figure 18.15                      | Open excavation   |
| 24     | Power         | ESB024      | Medium Voltage     | Overhead Line | TW-30300                      | Figure 18.15                      | Open excavation   |
| 25     | Power         | ESB025      | Medium Voltage     | Overhead Line | TW-31600                      | Figure 18.16                      | Open excavation   |
| 26     | Power         | ESB026      | Medium Voltage     | Overhead Line | TW-32800                      | Figure 18.16                      | Open excavation   |
| 27     | Power         | ESB027      | Medium Voltage     | Overhead Line | TW-34400                      | Figure 18.16                      | Open excavation   |
| 28     | Power         | ESB028      | Medium Voltage     | Overhead Line | TW-34400                      | Figure 18.16                      | Open excavation   |
| 29     | Power         | ESB029      | Medium Voltage     | Overhead Line | TW-35500                      | Figure 18.17                      | Open excavation   |
| 30     | Power         | ESB030      | Medium Voltage     | Overhead Line | TW-35800                      | Figure 18.17                      | Open excavation   |
| 31     | Power         | ESB031      | Medium Voltage     | Overhead Line | TW-36800                      | Figure 18.17                      | Open excavation for pipeline but also diverted for connection to BPT and existing Radio Mast. |
| 32     | Power         | ESB032      | Medium Voltage     | Overhead Line | TWA-500                       | Figure 18.17                      | Open excavation   |
| 33     | Power         | ESB033      | Medium Voltage     | Overhead Line | TWA-1700                      | Figure 18.18                      | Open excavation   |
| 34     | Power         | ESB034      | Medium Voltage     | Overhead Line | TWA-1900                      | Figure 18.18                      | Open excavation   |
| 35     | Power         | ESB035      | Medium Voltage     | Overhead Line | TWA-2500                      | Figure 18.18                      | Open excavation   |
| 36     | Power         | ESB036      | Medium Voltage     | Overhead Line | TWA-7000                      | Figure 18.19                      | Open excavation   |
| 37     | Power         | ESB037      | Medium Voltage     | Overhead Line | TWA-9400                      | Figure 18.20                      | Open excavation   |
| 38     | Power         | ESB038      | Medium Voltage     | Overhead Line | TWA-10000                     | Figure 18.20                      | Open excavation   |
| 39     | Power         | ESB039      | Medium Voltage     | Overhead Line | TWA-11100                     | Figure 18.20                      | Open excavation   |
| 40     | Power         | ESB040      | Medium Voltage     | Overhead Line | TWA-11300                     | Figure 18.20                      | Open excavation   |
| 41     | Power         | ESB041      | Medium Voltage     | Overhead Line | TWA-14100                     | Figure 18.21                      | Open excavation   |
| 42     | Power         | ESB042      | Low Voltage        | Overhead Line | TWA-14500                     | Figure 18.21                      | Open excavation   |
| 43     | Power         | ESB043      | Medium Voltage     | Overhead Line | TWA-15400                     | Figure 18.22                      | Open excavation   |
| 44     | Power         | ESB044      | Medium Voltage     | Overhead Line | TWA-16300                     | Figure 18.22                      | Open excavation   |

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| Number | Crossing Type | Crossing ID | Crossing Reference | Existing Line | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method   |
|--------|---------------|-------------|--------------------|---------------|-------------------------------|-----------------------------------|---|
| 45     | Power         | ESB045      | Medium Voltage     | Overhead Line | TWA-17000                     | Figure 18.22                      | Open excavation   |
| 46     | Power         | ESB046      | Medium Voltage     | Overhead Line | TWA-17800                     | Figure 18.22                      | Open excavation   |
| 47     | Power         | ESB047      | Medium Voltage     | Overhead Line | TWA-21000                     | Figure 18.23                      | Open excavation   |
| 48     | Power         | ESB048      | Medium Voltage     | Overhead Line | TWA-21700                     | Figure 18.24                      | Open excavation   |
| 49     | Power         | ESB049      | Medium Voltage     | Overhead Line | TWA-21800                     | Figure 18.24                      | Open excavation   |
| 50     | Power         | ESB050      | Medium Voltage     | Overhead Line | TWA-25100                     | Figure 18.25                      | Open excavation   |
| 51     | Power         | ESB051      | Medium Voltage     | Overhead Line | TWA-27800                     | Figure 18.26                      | Trenchless (coincides with environmental mitigation measure)                  |
| 52     | Power         | ESB052      | Low Voltage        | Overhead Line | TWB-1200                      | Figure 18.26                      | Diverted -BPS   |
| 53     | Power         | ESB053      | Low Voltage        | Overhead Line | TWB-1300                      | Figure 18.26                      | Diverted -BPS   |
| 54     | Power         | ESB054      | Medium Voltage     | Overhead Line | TWB-4100                      | Figure 18.30                      | Open excavation   |
| 55     | Power         | ESB055      | Medium Voltage     | Overhead Line | TWB-4800                      | Figure 18.30                      | Open excavation   |
| 56     | Power         | ESB056      | Medium Voltage     | Overhead Line | TWB-8500                      | Figure 18.31                      | Open excavation   |
| 57     | Power         | ESB057      | Medium Voltage     | Overhead Line | TWB-9500                      | Figure 18.31                      | Open excavation   |
| 58     | Power         | ESB058      | Medium Voltage     | Overhead Line | TWB-10900                     | Figure 18.32                      | Open excavation   |
| 59     | Power         | ESB059      | Medium Voltage     | Overhead Line | TWB-12100                     | Figure 18.32                      | Open excavation   |
| 60     | Power         | ESB060      | Medium Voltage     | Overhead Line | TWB-14800                     | Figure 18.33                      | Open excavation   |
| 61     | Power         | ESB061      | Medium Voltage     | Overhead Line | TWB-15800                     | Figure 18.33                      | Open excavation   |
| 62     | Power         | ESB062      | Medium Voltage     | Overhead Line | TWB-17400                     | Figure 18.34                      | Open excavation   |
| 63     | Power         | ESB063      | Medium Voltage     | Overhead Line | TWB-18600                     | Figure 18.34                      | Open excavation for pipe and diversion for Construction Compound (Killananny) |
| 64     | Power         | ESB064      | Medium Voltage     | Overhead Line | TWB-24600                     | Figure 18.36                      | Open excavation   |
| 65     | Power         | ESB065      | Medium Voltage     | Overhead Line | TWB-25200                     | Figure 18.36                      | Open excavation   |
| 66     | Power         | ESB066      | Medium Voltage     | Overhead Line | TWB-28000                     | Figure 18.37                      | Open excavation   |
| 67     | Power         | ESB067      | Medium Voltage     | Overhead Line | TWC-1100                      | Figure 18.37                      | Open excavation   |
| 68     | Power         | ESB068      | Medium Voltage     | Overhead Line | TWC-1300                      | Figure 18.37                      | Open excavation   |

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| Number | Crossing Type | Crossing ID | Crossing Reference | Existing Line | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method                               |
|--------|---------------|-------------|--------------------|---------------|-------------------------------|-----------------------------------|---|
| 69     | Power         | ESB069      | Medium Voltage     | Overhead Line | TWC-1500                      | Figure 18.37                      | Open excavation                               |
| 70     | Power         | ESB070      | Medium Voltage     | Overhead Line | TWC-1800                      | Figure 18.37                      | Open excavation                               |
| 71     | Power         | ESB071      | Medium Voltage     | Overhead Line | TWC-1800                      | Figure 18.37                      | Open excavation                               |
| 72     | Power         | ESB072      | Medium Voltage     | Overhead Line | TWC-1900                      | Figure 18.37                      | Open excavation                               |
| 73     | Power         | ESB073      | Medium Voltage     | Overhead Line | TWC-2000                      | Figure 18.37                      | Open excavation                               |
| 74     | Power         | ESB074      | Medium Voltage     | Overhead Line | TWC-2400                      | Figure 18.37                      | Open excavation                               |
| 75     | Power         | ESB075      | Medium Voltage     | Overhead Line | TWC-6600                      | Figure 18.39                      | Open excavation                               |
| 76     | Power         | ESB076      | Medium Voltage     | Overhead Line | TWC-8000                      | Figure 18.39                      | Open excavation                               |
| 77     | Power         | ESB077      | Medium Voltage     | Overhead Line | TWC-9200                      | Figure 18.39                      | Open excavation                               |
| 78     | Power         | ESB078      | Medium Voltage     | Overhead Line | TWC-10600                     | Figure 18.40                      | Open excavation                               |
| 79     | Power         | ESB079      | Medium Voltage     | Overhead Line | TWC-11400                     | Figure 18.40                      | Open excavation                               |
| 80     | Power         | ESB080      | Medium Voltage     | Overhead Line | TWC-18600                     | Figure 18.42                      | Open excavation                               |
| 81     | Power         | ESB081      | Medium Voltage     | Overhead Line | TWC-19300                     | Figure 18.42                      | Open excavation                               |
| 82     | Power         | ESB082      | Medium Voltage     | Overhead Line | TWC-19700                     | Figure 18.42                      | Open excavation                               |
| 83     | Power         | ESB083      | Low Voltage        | Overhead Line | TWC-19700                     | Figure 18.42                      | Open excavation                               |
| 84     | Power         | ESB084      | Low Voltage        | Underground   | TWC-24600                     | Figure 18.44                      | Open excavation                               |
| 85     | Power         | ESB085      | Low Voltage        | Overhead Line | TWC-24800                     | Figure 18.44                      | Open excavation                               |
| 86     | Power         | ESB086      | Medium Voltage     | Overhead Line | TWC-24800                     | Figure 18.44                      | Open excavation                               |
| 87     | Power         | ESB087      | Medium Voltage     | Overhead Line | TWD-3500                      | Figure 18.45                      | Open excavation                               |
| 88     | Power         | ESB088      | Medium Voltage     | Overhead Line | TWD-3600                      | Figure 18.45                      | Open excavation                               |
| 89     | Power         | ESB089      | Medium Voltage     | Overhead Line | TWD-4100                      | Figure 18.45                      | Trenchless (As coincides with river crossing) |
| 90     | Power         | ESB090      | Medium Voltage     | Overhead Line | TWD-14800                     | Figure 18.48                      | Open excavation                               |
| 91     | Power         | ESB091      | Medium Voltage     | Overhead Line | TWD-15200                     | Figure 18.49                      | Open excavation                               |
| 92     | Power         | ESB092      | Medium Voltage     | Overhead Line | TWD-15900                     | Figure 18.49                      | Open excavation                               |

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| Number | Crossing Type | Crossing ID | Crossing Reference | Existing Line | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method   |
|--------|---------------|-------------|--------------------|---------------|-------------------------------|-----------------------------------|---|
| 93     | Power         | ESB093      | Medium Voltage     | Overhead Line | TWD-16100                     | Figure 18.49                      | Open excavation   |
| 94     | Power         | ESB094      | Medium Voltage     | Overhead Line | TWD-16600                     | Figure 18.49                      | Open excavation for pipe and diversion for Construction Compound (Drummond) |
| 95     | Power         | ESB095      | Medium Voltage     | Overhead Line | TWD-18300                     | Figure 18.49                      | Open excavation   |
| 96     | Power         | ESB096      | Medium Voltage     | Overhead Line | TWD-24700                     | Figure 18.51                      | Open excavation   |
| 97     | Power         | ESB097      | Medium Voltage     | Overhead Line | TWD-26000                     | Figure 18.52                      | Open excavation   |
| 98     | Power         | ESB098      | Medium Voltage     | Overhead Line | TWD-26200                     | Figure 18.52                      | Open excavation   |
| 99     | Power         | ESB099      | Medium Voltage     | Overhead Line | TWD-28000                     | Figure 18.52                      | Open excavation   |
| 100    | Power         | ESB100      | Medium Voltage     | Overhead Line | TWD-28300                     | Figure 18.52                      | Open excavation   |
| 101    | Power         | ESB101      | Medium Voltage     | Overhead Line | TWD-29700                     | Figure 18.53                      | Open excavation   |
| 102    | Power         | ESB102      | Medium Voltage     | Overhead Line | TWD-31500                     | Figure 18.53                      | Open excavation   |
| 103    | Power         | ESB103      | Medium Voltage     | Overhead Line | TWD-31700                     | Figure 18.53                      | Open excavation   |
| 104    | Power         | ESB104      | Medium Voltage     | Overhead Line | TWD-33000                     | Figure 18.54                      | Open excavation   |
| 105    | Power         | ESB105      | Medium Voltage     | Overhead Line | TWD-34200                     | Figure 18.54                      | Open excavation   |
| 106    | Power         | ESB106      | Medium Voltage     | Overhead Line | TWE-2400                      | Figure 18.55                      | Open excavation   |
| 107    | Power         | ESB107      | Medium Voltage     | Overhead Line | TWE-4200                      | Figure 18.55                      | Open excavation   |
| 108    | Power         | ESB108      | Medium Voltage     | Overhead Line | TWE-8000                      | Figure 18.56                      | Open excavation   |
| 109    | Power         | ESB111      | Medium Voltage     | Overhead Line | TWE-11900                     | Figure 18.57                      | Open excavation   |
| 110    | Power         | ESB112      | Medium Voltage     | Overhead Line | TWE-13000                     | Figure 18.58                      | Open excavation   |
| 111    | Power         | ESB113      | Medium Voltage     | Overhead Line | TWE-15000                     | Figure 18.58                      | Open excavation   |
| 112    | Power         | ESB114      | Medium Voltage     | Overhead Line | TWE-15100                     | Figure 18.58                      | Open excavation   |
| 113    | Power         | ESB115      | Medium Voltage     | Overhead Line | TWE-15300                     | Figure 18.58                      | Open excavation   |
| 114    | Power         | ESB116      | Medium Voltage     | Overhead Line | TWE-15300                     | Figure 18.58                      | Open excavation   |
| 115    | Power         | ESB117      | Medium Voltage     | Overhead Line | TWE-16300                     | Figure 18.59                      | Open excavation   |
| 116    | Power         | ESB118      | Medium Voltage     | Overhead Line | TWE-16500                     | Figure 18.59                      | Open excavation   |

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| Number | Crossing Type | Crossing ID | Crossing Reference | Existing Line | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method                                       |
|--------|---------------|-------------|--------------------|---------------|-------------------------------|-----------------------------------|---|
| 117    | Power         | ESB119      | Medium Voltage     | Overhead Line | TWE-16900                     | Figure 18.59                      | Open excavation                                       |
| 118    | Power         | ESB120      | Medium Voltage     | Overhead Line | TWE-17000                     | Figure 18.59                      | Open excavation                                       |
| 119    | Power         | ESB121      | Low Voltage        | Overhead Line | TW-34600                      | Figure 18.17                      | Open excavation                                       |
| 120    | Power         | ESB122      | Medium Voltage     | Overhead Line | TWC-1500                      | Figure 18.37                      | Open excavation                                       |
| 121    | Power         | ESB123      | Low Voltage        | Overhead Line | TWD-3500                      | Figure 18.45                      | Open excavation                                       |
| 122    | Power         | ESB124      | Low Voltage        | Underground   | TWD-21400                     | Figure 18.50                      | Open excavation                                       |
| 123    | Power         | ESB125      | Medium Voltage     | Overhead Line | TWE-9000                      | Figure 18.57                      | Open excavation                                       |
| 124    | Power         | ESB126      | Medium Voltage     | Overhead Line | TWD-26400                     | Figure 18.52                      | Open excavation                                       |
| 125    | Power         | ESB127      | Medium Voltage     | Overhead Line | TWD-26400                     | Figure 18.52                      | Open excavation                                       |
| 126    | Power         | ESB128      | Low Voltage        | Overhead Line | TWA-21400                     | Figure 18.29                      | BPS power connection cable crossing - Open excavation |
| 127    | Power         | ESB129      | Medium Voltage     | Overhead Line | TWA-21400                     | Figure 18.29                      | BPS power connection cable crossing - Open excavation |
| 128    | Power         | ESB130      | Low Voltage        | Overhead Line | TWA-21400                     | Figure 18.29                      | BPS power connection cable crossing - Open excavation |
| 129    | Power         | ESB131      | Low Voltage        | Overhead Line | TWA-21400                     | Figure 18.29                      | BPS power connection cable crossing - Open excavation |
| 130    | Power         | ESB132      | Low Voltage        | Overhead Line | TWA-21500                     | Figure 18.29                      | BPS power connection cable crossing - Open excavation |
| 131    | Power         | ESB133      | Low Voltage        | Overhead Line | TWA-21500                     | Figure 18.29                      | BPS power connection cable crossing - Open excavation |
| 132    | Power         | ESB134      | Low Voltage        | Overhead Line | TWA-21500                     | Figure 18.29                      | BPS power connection cable crossing - Open excavation |
| 133    | Power         | ESB135      | Low Voltage        | Overhead Line | TWA-21500                     | Figure 18.28                      | BPS power connection cable crossing - Open excavation |
| 134    | Power         | ESB136      | Medium Voltage     | Overhead Line | TWA-24100                     | Figure 18.28                      | BPS power connection cable crossing - Open excavation |
| 135    | Power         | ESB137      | Low Voltage        | Overhead Line | TWA-24200                     | Figure 18.28                      | BPS power connection cable crossing - Open excavation |
| 136    | Power         | ESB138      | Low Voltage        | Overhead Line | TWA-24200                     | Figure 18.28                      | BPS power connection cable crossing - Open excavation |

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| Number | Crossing Type | Crossing ID | Crossing Reference | Existing Line | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method                                       |
|--------|---------------|-------------|--------------------|---------------|-------------------------------|-----------------------------------|---|
| 137    | Power         | ESB139      | Low Voltage        | Overhead Line | TWA-24200                     | Figure 18.28                      | BPS power connection cable crossing - Open excavation |
| 138    | Power         | ESB140      | Low Voltage        | Overhead Line | TWA-24300                     | Figure 18.28                      | BPS power connection cable crossing - Open excavation |
| 139    | Power         | ESB141      | Low Voltage        | Overhead Line | TWA-24600                     | Figure 18.27                      | BPS power connection cable crossing - Open excavation |
| 140    | Power         | ESB142      | Low Voltage        | Overhead Line | TWA-24600                     | Figure 18.27                      | BPS power connection cable crossing - Open excavation |
| 141    | Power         | ESB143      | Low Voltage        | Overhead Line | TWA-24700                     | Figure 18.27                      | BPS power connection cable crossing - Open excavation |
| 142    | Power         | ESB144      | Low Voltage        | Overhead Line | TWA-24800                     | Figure 18.27                      | BPS power connection cable crossing - Open excavation |
| 143    | Power         | ESB145      | Low Voltage        | Overhead Line | TWA-25000                     | Figure 18.27                      | BPS power connection cable crossing - Open excavation |
| 144    | Power         | ESB146      | Low Voltage        | Overhead Line | TWA-27300                     | Figure 18.27                      | BPS power connection cable crossing - Open excavation |
| 145    | Power         | ESB147      | Low Voltage        | Overhead Line | TWA-27300                     | Figure 18.27                      | BPS power connection cable crossing - Open excavation |
| 146    | Power         | ESB148      | Medium Voltage     | Overhead Line | TWA-27300                     | Figure 18.27                      | BPS power connection cable crossing - Open excavation |
| 147    | Power         | ESB149      | Low Voltage        | Overhead Line | TWA-27300                     | Figure 18.27                      | BPS power connection cable crossing - Open excavation |
| 148    | Power         | ESB150      | Medium Voltage     | Overhead Line | TWA-27400                     | Figure 18.27                      | BPS power connection cable crossing - Open excavation |
| 149    | Power         | ESB151      | Medium Voltage     | Overhead Line | TWA-27700                     | Figure 18.27                      | BPS power connection cable crossing - Open excavation |
| 150    | Power         | ESB152      | Low Voltage        | Overhead Line | TWB-500                       | Figure 18.26                      | BPS power connection cable crossing - Open excavation |
| 151    | Power         | ESB153      | Medium Voltage     | Overhead Line | TWB-600                       | Figure 18.26                      | BPS power connection cable crossing - Open excavation |
| 152    | Power         | ESB154      | Medium Voltage     | Overhead Line | TWB-1200                      | Figure 18.26                      | BPS power connection cable crossing - Open excavation |
| 153    | Power         | ESB155      | Low Voltage        | Overhead Line | TWB-1200                      | Figure 18.26                      | BPS power connection cable crossing - Open excavation |
| 154    | Power         | ESB156      | Medium Voltage     | Overhead Line | RWI&PS                        | Figure 18.6                       | RWI&PS access road                                    |
| 155    | Power         | ESB157      | Medium Voltage     | Overhead Line | RWI&PS                        | Figure 18.6                       | RWI&PS access road                                    |

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| Number | Crossing Type | Crossing ID | Crossing Reference | Existing Line | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method                                |
|--------|---------------|-------------|--------------------|---------------|-------------------------------|-----------------------------------|--|
| 156    | Power         | ESB158      | Medium Voltage     | Overhead Line | RWI&PS                        | Figure 18.6                       | RWI&PS access road                             |
| 157    | Power         | ESB159      | Medium Voltage     | Overhead Line | R494                          | Figure 18.5                       | Buried power connection for 38kV Uprate Works  |
| 158    | Power         | ESB160      | Low Voltage        | Overhead Line | R494                          | Figure 18.6                       | Buried power connection for 38kV Uprate Works  |
| 159    | Power         | ESB161      | Low Voltage        | Underground   | R494                          | Figure 18.6                       | Buried power connection for 38kV Uprate Works  |
| 160    | Power         | ESB162      | Low Voltage        | Overhead Line | R445                          | Figure 18.5                       | Buried power connection for 38kV Uprate Works  |
| 161    | Power         | ESB163      | Medium Voltage     | Overhead Line | R445                          | Figure 18.5                       | Buried power connection for 38kV Uprate Works  |
| 162    | Power         | ESB164      | Medium Voltage     | Overhead Line | R445                          | Figure 18.6                       | Buried power connection for 38kV Uprate Works  |
| 163    | Power         | ESB165      | Medium Voltage     | Overhead Line | WTP                           | Figure 18.6                       | Diverted due to WTP site                       |
| 164    | Power         | ESB166      | Medium Voltage     | Overhead Line | BPT                           | Figure 18.17                      | Approach road to BPT                           |
| 165    | Power         | ESB167      | Medium Voltage     | Overhead Line | BPT                           | Figure 18.17                      | BPT access road (including moving one poleset) |
| 166    | Power         | ESB168      | Medium Voltage     | Overhead Line | TPR                           | Figure 18.59                      | Power diverted due to TPR                      |
| 167    | Power         | ESB169      | Medium Voltage     | Overhead Line | TPR                           | Figure 18.59                      | Power line crossed by TPR                      |
| 168    | Power         | PSN-ESB001  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.1                       | 38kV Uprate Works cable crossing               |
| 169    | Power         | PSN-ESB002  | Low Voltage        | Underground   | N/A                           | Figure 18.1                       | 38kV Uprate Works cable crossing               |
| 170    | Power         | PSN-ESB003  | Low Voltage        | Underground   | N/A                           | Figure 18.1                       | 38kV Uprate Works cable crossing               |
| 171    | Power         | PSN-ESB004  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.1                       | 38kV Uprate Works cable crossing               |
| 172    | Power         | PSN-ESB005  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.1                       | 38kV Uprate Works cable crossing               |
| 173    | Power         | PSN-ESB006  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.1                       | 38kV Uprate Works cable crossing               |
| 174    | Power         | PSN-ESB007  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.2                       | 38kV Uprate Works cable crossing               |
| 175    | Power         | PSN-ESB008  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.2                       | 38kV Uprate Works cable crossing               |
| 176    | Power         | PSN-ESB009  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.2                       | 38kV Uprate Works cable crossing               |
| 177    | Power         | PSN-ESB010  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.3                       | 38kV Uprate Works cable crossing               |

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| Number | Crossing Type | Crossing ID | Crossing Reference | Existing Line | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method                  |
|--------|---------------|-------------|--------------------|---------------|-------------------------------|-----------------------------------|----------------------------------|
| 178    | Power         | PSN-ESB011  | Low Voltage        | Underground   | N/A                           | Figure 18.3                       | 38kV Uprate Works cable crossing |
| 179    | Power         | PSN-ESB012  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.3                       | 38kV Uprate Works cable crossing |
| 180    | Power         | PSN-ESB013  | Medium Voltage     | Underground   | N/A                           | Figure 18.3                       | 38kV Uprate Works cable crossing |
| 181    | Power         | PSN-ESB014  | Low Voltage        | Underground   | N/A                           | Figure 18.3                       | 38kV Uprate Works cable crossing |
| 182    | Power         | PSN-ESB015  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.4                       | 38kV Uprate Works cable crossing |
| 183    | Power         | PSN-ESB016  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.4                       | 38kV Uprate Works cable crossing |
| 184    | Power         | PSN-ESB017  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.4                       | 38kV Uprate Works cable crossing |
| 185    | Power         | PSN-ESB018  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.4                       | 38kV Uprate Works cable crossing |
| 186    | Power         | PSN-ESB019  | Low Voltage        | Underground   | N/A                           | Figure 18.5                       | 38kV Uprate Works cable crossing |
| 187    | Power         | PSN-ESB020  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.5                       | 38kV Uprate Works cable crossing |
| 188    | Power         | PSN-ESB021  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.5                       | 38kV Uprate Works cable crossing |
| 189    | Power         | PSN-ESB022  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.5                       | 38kV Uprate Works cable crossing |
| 190    | Power         | PSN-ESB023  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.5                       | 38kV Uprate Works cable crossing |
| 191    | Power         | PSN-ESB024  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.5                       | 38kV Uprate Works cable crossing |
| 192    | Power         | PSN-ESB025  | Medium Voltage     | Underground   | N/A                           | Figure 18.5                       | 38kV Uprate Works cable crossing |
| 193    | Power         | PSN-ESB026  | Low Voltage        | Overhead Line | N/A                           | Figure 18.5                       | 38kV Uprate Works cable crossing |
| 194    | Power         | PSN-ESB027  | Low Voltage        | Overhead Line | N/A                           | Figure 18.5                       | 38kV Uprate Works cable crossing |
| 195    | Power         | PSN-ESB028  | Medium Voltage     | Overhead Line | N/A                           | Figure 18.5                       | 38kV Uprate Works cable crossing |

### 3. Water Distribution Crossings

#### 3.1 Water Main Crossings

4. Table 3.1 lists water distribution mains crossed by the Proposed Project. Trunk main crossings are listed in Chapter 18 (Material Assets).

**Table 3.1: Water Distribution Crossings**

| Number | Crossing Type     | Crossing ID | Crossing Reference                   | Approximate Starting Chainage                                   | Project Component Overview Figure | Crossing Method  |
|--------|-------------------|-------------|--------------------------------------|---|-----------------------------------|--|
| 1      | Distribution Main | PCN-UPC002  | uPVC 75mm                            | Overhead line connection for 38kV Uprate Works                  | Figure 18.1                       | 38 kV Uprate Works – overhead line   |
| 2      | Distribution Main | PCN-UPC004  | uPVC 100mm                           | Overhead line connection for 38kV Uprate Works                  | Figure 18.1                       | 38 kV Uprate Works – overhead line   |
| 3      | Distribution Main | PCN-UPC005  | uPVC 100mm                           | Overhead line connection for 38kV Uprate Works                  | Figure 18.2                       | 38 kV Uprate Works – overhead line   |
| 4      | Distribution Main | PCN-UPC006  | uPVC 50mm                            | Overhead line connection for 38kV Uprate Works                  | Figure 18.3                       | 38 kV Uprate Works – overhead line   |
| 5      | Distribution Main | PCN-UPC007  | uPVC 50mm                            | Overhead line connection for 38kV Uprate Works                  | Figure 18.3                       | 38 kV Uprate Works – overhead line   |
| 6      | Distribution Main | PCN-UPC008  | uPVC 75mm                            | Overhead line connection for 38kV Uprate Works                  | Figure 18.4                       | 38 kV Uprate Works – overhead line   |
| 7      | Distribution Main | PCN-UPC010  | uPVC 101.6 Inch                      | Power connection off the roundabout on the R494                 | Figure 18.5                       | Overhead line (to be removed) and buried cable for new power connection (directional drilling for crossings) |
| 8      | Distribution Main | PCN-UPC011  | uPVC 152.4 Inch and Unsurveyed 200mm | Power connection off the roundabout on the R445                 | Figure 18.5                       | Overhead line (to be removed) and buried cable for new power connection (directional drilling for crossings) |
| 9      | Distribution Main | UPC046      | DI 200mm and uPVC 152.4              | Power connection at interface of R494 and access road to RWI&PS | Figure 18.6                       | Directional drilling   |
| 10     | Distribution Main | UPC047      | uPVC 101.6 Inch                      | Power connection at interface of R445 and access road to WTP    | Figure 18.6                       | Directional drilling   |

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| Number | Crossing Type     | Crossing ID     | Crossing Reference           | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method |
|--------|-------------------|-----------------|------------------------------|-------------------------------|-----------------------------------|-----------------|
| 11     | Distribution Main | UPC001          | DI 200mm                     | RW-800                        | Figure 18.6                       | Trenchless      |
| 12     | Distribution Main | UPC002          | uPVC 152.4                   | RW-800                        | Figure 18.6                       | Trenchless      |
| 13     | Distribution Main | UPC003          | HDPE 50.8 Inch               | TW-500                        | Figure 18.7                       | Open Excavation |
| 14     | Distribution Main | UPC004          | HDPE 76.2inch                | TW-1900                       | Figure 18.7                       | Trenchless      |
| 15     | Distribution Main | UPC044          | uPVC 100 mm                  | TW-6000                       | Figure 18.8                       | Open Excavation |
| 16     | Distribution Main | UPC005          | uPVC 100 mm                  | TW-6600                       | Figure 18.8                       | Open Excavation |
| 17     | Distribution Main | UPC006          | uPVC 100mm                   | TW-11600                      | Figure 18.10                      | Open Excavation |
| 18     | Distribution Main | UPC043          | HDPE 50.8inch                | TW-12500                      | Figure 18.10                      | Open Excavation |
| 19     | Distribution Main | UPC007          | HDPE 50.8inch                | TW-12700                      | Figure 18.10                      | Trenchless      |
| 20     | Distribution Main | UPC009          | AC 200mm                     | TW-16700                      | Figure 18.11                      | Open Excavation |
| 21     | Distribution Main | UPC042          | uPVC 100mm                   | TW-18500                      | Figure 18.12                      | Open Excavation |
| 22     | Distribution Main | UPC010 (RDX024) | DI 600mm and uPVC 150mm      | TW – 22400                    | Figure 18.13                      | Open Excavation |
| 23     | Distribution Main | UPC011          | Unsurveyed 50.8 Inch         | TW-26300                      | Figure 18.14                      | Open Excavation |
| 24     | Distribution Main | UPC012          | Unsurveyed 101.6 Inch        | TW-26600                      | Figure 18.14                      | Open Excavation |
| 25     | Distribution Main | UPC013          | Unsurveyed 50.8 Inch         | TW-30100                      | Figure 18.15                      | Open Excavation |
| 26     | Distribution Main | UPC014          | Unsurveyed 50.8 Inch         | TW-30200                      | Figure 18.15                      | Open Excavation |
| 27     | Distribution Main | UPC015          | HDPE 101.6 Inch              | TW-34700                      | Figure 18.17                      | Open Excavation |
| 28     | Distribution Main | UPC016          | uPVC 150 mm                  | TWA-400                       | Figure 18.17                      | Open Excavation |
| 29     | Distribution Main | UPC017          | uPVC 50.8 Inch               | TWA-2000                      | Figure 18.18                      | Open Excavation |
| 30     | Distribution Main | UPC041          | uPVC 100 mm                  | TWA-2500                      | Figure 18.18                      | Open Excavation |
| 31     | Distribution Main | UPC018          | uPVC 76.2 Inch               | TWA-14200                     | Figure 18.21                      | Trenchless      |
| 32     | Distribution Main | UPC019          | CI 152.4 Inch                | TWA-27900                     | Figure 18.26                      | Trenchless      |
| 33     | Distribution Main | UPC020          | HPPE 160 mm                  | TWB-24700                     | Figure 18.36                      | Open Excavation |
| 34     | Distribution Main | UPC021          | AC 228.6 Inch                | TWB-24700                     | Figure 18.36                      | Open Excavation |
| 35     | Distribution Main | UPC023          | uPVC 101.6 Inch              | TWC-7900                      | Figure 18.39                      | Open Excavation |
| 36     | Distribution Main | UPC025          | uPVC 100 mm                  | TWD-18300                     | Figure 18.49                      | Open Excavation |
| 37     | Distribution Main | UPC026          | uPVC 100 mm                  | TWD-24600                     | Figure 18.51                      | Open Excavation |
| 38     | Distribution Main | UPC027          | HPPE 225 mm                  | TWD-26500                     | Figure 18.52                      | Open Excavation |
| 39     | Distribution Main | UPC048          | HPPE 225 mm                  | TWD-28800                     | Figure 18.52                      | Open Excavation |
| 40     | Distribution Main | UPC028          | uPVC 150 mm                  | TWD-29600                     | Figure 18.53                      | Open Excavation |
| 41     | Distribution Main | UPC029          | uPVC 150 mm                  | TWD-31600                     | Figure 18.53                      | Open Excavation |
| 42     | Distribution Main | UPC030 (RDX100) | Unknown 400mm and uPVC 150mm | TWE – 100                     | Figure 18.54                      | Open Excavation |
| 43     | Distribution Main | UPC031          | uPVC 250 mm                  | TWE-2500                      | Figure 18.55                      | Open Excavation |

| Number | Crossing Type     | Crossing ID | Crossing Reference                                    | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method   |
|--------|-------------------|-------------|---|-------------------------------|-----------------------------------|-------------------|
| 44     | Distribution Main | UPC032      | uPVC 100 mm   | TWE-3100                      | Figure 18.55                      | Open Excavation   |
| 45     | Distribution Main | UPC033      | uPVC 50.8 Inch  | TWE-5300                      | Figure 18.55                      | Open Excavation   |
| 46     | Distribution Main | UPC034      | uPVC 76.2 Inch  | TWE-6300                      | Figure 18.56                      | Open Excavation   |
| 47     | Distribution Main | UPC049      | uPVC 101.6 Inch                                       | TWE-12100                     | Figure 18.57                      | Open Excavation   |
| 48     | Distribution Main | UPC038      | AC 152.4 Inch   | TWE-14900                     | Figure 18.58                      | Open Excavation   |
| 49     | Distribution Main | UPC039      | CI 101.6 Inch   | TWE-17000                     | Figure 18.59                      | Open Excavation   |
| 50     | Distribution Main | UPC053      | CI 152.4 Inch   | BPS power connection          | Figure 18.27                      | Open Excavation   |
| 51     | Distribution Main | UPC054      | uPVC 152.4 Inch<br>CL 152.4 Inch<br>and AC 203.2 Inch | BPS power connection          | Figure 18.29                      | Directional drill |

## 4. Road Crossings

### 4.1 Local Road Crossings

5. Table 4.1 lists local roads crossed by the Proposed Project. Motorways, National Roads and Regional Roads crossed by the Proposed Project are listed in Chapter 18 (Material Assets).

**Table 4.1: Local Road Crossings**

| Number | Crossing Type | Crossing ID | Crossing Reference | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method |
|--------|---------------|-------------|--------------------|-------------------------------|-----------------------------------|-----------------|
| 1      | Road          | RDX002      | L6030              | TW – 600                      | Figure 18.7                       | Open Excavation |
| 2      | Road          | RDX004      | L6034              | TW – 2300                     | Figure 18.7                       | Open Excavation |
| 3      | Road          | RDX005      | L6031              | TW – 3300                     | Figure 18.7                       | Open Excavation |
| 4      | Road          | RDX006      | Unnamed Local Road | TW – 4100                     | Figure 18.8                       | Open Excavation |
| 5      | Road          | RDX009      | L2133              | TW – 6600                     | Figure 18.8                       | Open Excavation |
| 6      | Road          | RDX010      | L94452             | TW – 8400                     | Figure 18.9                       | Open Excavation |
| 7      | Road          | RDX011      | L94454             | TW – 9400                     | Figure 18.9                       | Open Excavation |
| 8      | Road          | RDX012      | L2143              | TW – 11600                    | Figure 18.10                      | Open Excavation |
| 9      | Road          | RDX129      | Unnamed Local Road | TW-12500                      | Figure 18.10                      | Open Excavation |
| 10     | Road          | RDX014      | L6060              | TW – 12900                    | Figure 18.10                      | Open Excavation |
| 11     | Road          | RDX016      | L5145              | TW – 14100                    | Figure 18.10                      | Open Excavation |
| 12     | Road          | RDX017      | L6059              | TW – 14600                    | Figure 18.11                      | Open Excavation |
| 13     | Road          | RDX018      | L21402             | TW – 16300                    | Figure 18.11                      | Open Excavation |
| 14     | Road          | RDX021      | Unnamed Local Road | TW-19400                      | Figure 18.12                      | Open Excavation |
| 15     | Road          | RDX022      | L5129              | TW-20700                      | Figure 18.13                      | Open Excavation |
| 16     | Road          | RDX024      | L1207              | TW-22400                      | Figure 18.13                      | Open Excavation |
| 17     | Road          | RDX122      | L12091             | TW-24000                      | Figure 18.13                      | Open Excavation |
| 18     | Road          | RDX025      | L1104              | TW-26300                      | Figure 18.14                      | Open Excavation |
| 19     | Road          | RDX116      | L1105              | TW-26600                      | Figure 18.14                      | Open Excavation |
| 20     | Road          | RDX128      | Unnamed Local Road | TW-28900                      | Figure 18.15                      | Trenchless      |
| 21     | Road          | RDX027      | L1061              | TW-30100                      | Figure 18.15                      | Open Excavation |
| 22     | Road          | RDX028      | L1061              | TW-30200                      | Figure 18.15                      | Open Excavation |
| 23     | Road          | RDX029      | L1061              | TW-31400                      | Figure 18.16                      | Open Excavation |
| 24     | Road          | RDX030      | L5082              | TW-33500                      | Figure 18.16                      | Open Excavation |
| 25     | Road          | RDX032      | L1064              | TW-35600                      | Figure 18.17                      | Open Excavation |
| 26     | Road          | RDX033      | L5020              | TWA-400                       | Figure 18.17                      | Open Excavation |
| 27     | Road          | RDX034      | L94911             | TWA-1300                      | Figure 18.18                      | Open Excavation |
| 28     | Road          | RDX036      | L5019              | TWA-2400                      | Figure 18.18                      | Open Excavation |
| 29     | Road          | RDX038      | L8032              | TWA-5700                      | Figure 18.19                      | Open Excavation |
| 30     | Road          | RDX039      | L4022              | TWA-6100                      | Figure 18.19                      | Open Excavation |

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| Number | Crossing Type | Crossing ID | Crossing Reference | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method |
|--------|---------------|-------------|--------------------|-------------------------------|-----------------------------------|-----------------|
| 31     | Road          | RDX040      | L5028              | TWA-8100                      | Figure 18.20                      | Open Excavation |
| 32     | Road          | RDX041      | L8028              | TWA-10600                     | Figure 18.20                      | Open Excavation |
| 33     | Road          | RDX042      | L8029              | TWA-10900                     | Figure 18.20                      | Open Excavation |
| 34     | Road          | RDX045      | L4006              | TWA-15300                     | Figure 18.22                      | Open Excavation |
| 35     | Road          | RDX123      | Unnamed Local Road | TWA-16300                     | Figure 18.22                      | Open Excavation |
| 36     | Road          | RDX124      | Unnamed Local Road | TWA-17900                     | Figure 18.22                      | Open Excavation |
| 37     | Road          | RDX046      | L8018              | TWA-19100                     | Figure 18.23                      | Open Excavation |
| 38     | Road          | RDX047      | L4008              | TWA-20800                     | Figure 18.23                      | Open Excavation |
| 39     | Road          | RDX048      | L4007              | TWA-21600                     | Figure 18.24                      | Open Excavation |
| 40     | Road          | RDX049      | L4005              | TWA-22000                     | Figure 18.24                      | Open Excavation |
| 41     | Road          | RDX050      | L4004              | TWA-23500                     | Figure 18.24                      | Open Excavation |
| 42     | Road          | RDX051      | L40042             | TWA-24000                     | Figure 18.24                      | Open Excavation |
| 43     | Road          | RDX052      | L8014              | TWA-25100                     | Figure 18.25                      | Open Excavation |
| 44     | Road          | RDX054      | L7003              | TWB-1200                      | Figure 18.26                      | Open Excavation |
| 45     | Road          | RDX055      | L6041              | TWB-4700                      | Figure 18.30                      | Open Excavation |
| 46     | Road          | RDX056      | L2027              | TWB-7400                      | Figure 18.31                      | Open Excavation |
| 47     | Road          | RDX057      | L6038              | TWB-7800                      | Figure 18.31                      | Open Excavation |
| 48     | Road          | RDX058      | L6037              | TWB-8300                      | Figure 18.31                      | Open Excavation |
| 49     | Road          | RDX059      | L6037              | TWB-8900                      | Figure 18.31                      | Open Excavation |
| 50     | Road          | RDX060      | L6034              | TWB-9300                      | Figure 18.31                      | Open Excavation |
| 51     | Road          | RDX061      | L60331             | TWB-11300                     | Figure 18.32                      | Open Excavation |
| 52     | Road          | RDX062      | L6032              | TWB-11900                     | Figure 18.32                      | Open Excavation |
| 53     | Road          | RDX063      | L60251             | TWB-13300                     | Figure 18.32                      | Open Excavation |
| 54     | Road          | RDX064      | L60261             | TWB-15100                     | Figure 18.33                      | Open Excavation |
| 55     | Road          | RDX065      | L6013              | TWB-15600                     | Figure 18.33                      | Open Excavation |
| 56     | Road          | RDX066      | L6052              | TWB-17400                     | Figure 18.34                      | Open Excavation |
| 57     | Road          | RDX067      | Unnamed Local Road | TWB-18100                     | Figure 18.34                      | Open Excavation |
| 58     | Road          | RDX069      | L2004              | TWB-24700                     | Figure 18.36                      | Open Excavation |
| 59     | Road          | RDX070      | Unnamed Local Road | TWB-25200                     | Figure 18.36                      | Open Excavation |
| 60     | Road          | RDX072      | L5035              | TWC-300                       | Figure 18.37                      | Open Excavation |
| 61     | Road          | RDX073      | L20011             | TWC-2000                      | Figure 18.37                      | Open Excavation |
| 62     | Road          | RDX074      | L6002              | TWC-4400                      | Figure 18.38                      | Open Excavation |
| 63     | Road          | RDX075      | L5036              | TWC-6700                      | Figure 18.39                      | Open Excavation |
| 64     | Road          | RDX130      | Unnamed Local Road | TWC – 7900                    | Figure 18.39                      | Open excavation |
| 65     | Road          | RDX077      | L1020              | TWC – 9000                    | Figure 18.39                      | Trenchless      |
| 66     | Road          | RDX078      | L5034              | TWC-9500                      | Figure 18.39                      | Open Excavation |
| 67     | Road          | RDX079      | L5034              | TWC-10500                     | Figure 18.40                      | Open Excavation |

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| Number | Crossing Type | Crossing ID | Crossing Reference | Approximate Starting Chainage                  | Project Component Overview Figure | Crossing Method                     |
|--------|---------------|-------------|--------------------|--|-----------------------------------|-------------------------------------|
| 68     | Road          | RDX080      | L5034              | TWC-11500                                      | Figure 18.40                      | Open Excavation                     |
| 69     | Road          | RDX081      | L1014              | TWC-13400                                      | Figure 18.40                      | Open Excavation                     |
| 70     | Road          | RDX082      | Unnamed Local Road | TWC-17600                                      | Figure 18.42                      | Open Excavation                     |
| 71     | Road          | RDX086      | L5006              | TWD-3200                                       | Figure 18.45                      | Open Excavation                     |
| 72     | Road          | RDX088      | L1001              | TWD-8100                                       | Figure 18.46                      | Open Excavation                     |
| 73     | Road          | RDX091      | L50222             | TWD-18300                                      | Figure 18.49                      | Open Excavation                     |
| 74     | Road          | RDX092      | L5025              | TWD-21600                                      | Figure 18.50                      | Open Excavation                     |
| 75     | Road          | RDX125      | Unnamed Local Road | TWD-24000                                      | Figure 18.51                      | Open Excavation                     |
| 76     | Road          | RDX093      | L5013              | TWD-24600                                      | Figure 18.51                      | Open Excavation                     |
| 77     | Road          | RDX127      | Unnamed Local Road | TWD-26200                                      | Figure 18.52                      | Open Excavation                     |
| 78     | Road          | RDX094      | L1017              | TWD-26500                                      | Figure 18.52                      | Open Excavation                     |
| 79     | Road          | RDX095      | Unnamed Local Road | TWD-27300                                      | Figure 18.52                      | Open Excavation                     |
| 80     | Road          | RDX126      | L5077              | TWD-27800                                      | Figure 18.52                      | Open Excavation                     |
| 81     | Road          | RDX096      | L1017              | TWD-28800                                      | Figure 18.52                      | Open Excavation                     |
| 82     | Road          | RDX097      | L1008              | TWD-29600                                      | Figure 18.53                      | Open Excavation / Trenchless        |
| 83     | Road          | RDX098      | L5033              | TWD-31600                                      | Figure 18.53                      | Open Excavation                     |
| 84     | Road          | RDX099      | L5034              | TWD-33000                                      | Figure 18.54                      | Open Excavation                     |
| 85     | Road          | RDX101      | L1010              | TWE-2500                                       | Figure 18.55                      | Open Excavation                     |
| 86     | Road          | RDX102      | L5039              | TWE-3100                                       | Figure 18.55                      | Open Excavation                     |
| 87     | Road          | RDX104      | L5044              | TWE-5300                                       | Figure 18.55                      | Open Excavation                     |
| 88     | Road          | RDX105      | L5046              | TWE-6300                                       | Figure 18.56                      | Open Excavation / Trenchless        |
| 89     | Road          | RDX108      | L5067              | TWE – 9600                                     | Figure 18.57                      | Trenchless                          |
| 90     | Road          | RDX109      | L1016              | TWE-12100                                      | Figure 18.57                      | Open Excavation                     |
| 91     | Road          | RDX110      | L5064              | TWE-12700                                      | Figure 18.58                      | Open Excavation                     |
| 92     | Road          | RDX113      | Unnamed Local Road | TWE-15400                                      | Figure 18.58                      | Trenchless                          |
| 93     | Road          | RDX114      | L6032              | TWE-15400                                      | Figure 18.58                      | Trenchless                          |
| 94     | Road          | RDX115      | L6032              | TWE-17000                                      | Figure 18.59                      | Open Excavation                     |
| 95     | Road          | RDX131      | L3003              | BPS power connection                           | Figure 18.26                      | Underground cable – open excavation |
| 96     | Road          | RDX132      | L7004              | BPS power connection                           | Figure 18.27                      | Underground cable – open excavation |
| 97     | Road          | RDX133      | L7004              | BPS power connection                           | Figure 18.27                      | Underground cable – open excavation |
| 98     | Road          | PSN-RDX002  | L3052              | Overhead line connection for 38kV Uprate Works | Figure 18.1                       | Overhead Line                       |

| Number | Crossing Type | Crossing ID | Crossing Reference | Approximate Starting Chainage                  | Project Component Overview Figure | Crossing Method |
|--------|---------------|-------------|--------------------|--|-----------------------------------|-----------------|
| 99     | Road          | PSN-RDX004  | L3046              | Overhead line connection for 38kV Uprate Works | Figure 18.1                       | Overhead Line   |
| 100    | Road          | PSN-RDX006  | L70361             | Overhead line connection for 38kV Uprate Works | Figure 18.3                       | Overhead Line   |
| 101    | Road          | PSN-RDX008  | Unnamed Local Road | Overhead line connection for 38kV Uprate Works | Figure 18.3                       | Overhead Line   |
| 102    | Road          | PSN-RDX011  | Unnamed Local Road | Overhead line connection for 38kV Uprate Works | Figure 18.4                       | Overhead Line   |
| 103    | Road          | PSN-RDX012  | Unnamed Local Road | Overhead line connection for 38kV Uprate Works | Figure 18.5                       | Overhead Line   |
| 104    | Road          | PSN-RDX014  | L2155              | Overhead line connection for 38kV Uprate Works | Figure 18.5                       | Overhead Line   |

## 5. Communication Line Crossings

### 5.1 Communication Line Crossings

6. Table 5.1 lists communication lines crossed by the Proposed Project.

**Table 5.1: Communication Line Crossings**

| Number | Crossing Type  | Crossing ID | Provider | Approximate Starting Chainage                  | Project Component Overview Figure | Crossing Method  |
|--------|----------------|-------------|----------|--|-----------------------------------|--|
| 1      | Communications | PSN-CCA001  | Eir      | Overhead line connection for 38kV Uprate Works | Figure 18.1                       | Overhead line  |
| 2      | Communications | PSN-CCA002  | Eir      | Overhead line connection for 38kV Uprate Works | Figure 18.1                       | Overhead line  |
| 3      | Communications | PSN-CCA003  | Eir      | Overhead line connection for 38kV Uprate Works | Figure 18.1                       | Overhead line  |
| 4      | Communications | PSN-CCA004  | Eir      | Overhead line connection for 38kV Uprate Works | Figure 18.2                       | Overhead line  |
| 5      | Communications | PSN-CCA005  | Eir      | Overhead line connection for 38kV Uprate Works | Figure 18.3                       | Overhead line  |
| 6      | Communications | PSN-CCA006  | Eir      | Overhead line connection for 38kV Uprate Works | Figure 18.3                       | Overhead line  |
| 7      | Communications | PSN-CCA007  | Eir      | Overhead line connection for 38kV Uprate Works | Figure 18.4                       | Overhead line  |
| 8      | Communications | PSN-CCA008  | Eir      | Overhead line connection for 38kV Uprate Works | Figure 18.5                       | Overhead line (to be removed) and buried cable for new power connection (directional drilling for crossings) |
| 9      | Communications | PSN-CCA009  | Eir      | Overhead line connection for 38kV Uprate Works | Figure 18.5                       | Overhead line (to be removed) and buried cable for new power connection (directional drilling for crossings) |
| 10     | Communications | CCA001      | Aurora   | TWE-100  | Figure 18.54                      | Open Excavation  |
| 11     | Communications | CCA002      | Aurora   | TWE-14200                                      | Figure 18.58                      | Trenchless   |
| 12     | Communications | CCA003      | Eir      | R494– power connection to RWI&PS               | Figure 18.6                       | Open Excavation  |
| 13     | Communications | CCA004      | Eir      | R445 – power connection to WTP                 | Figure 18.6                       | Open Excavation  |

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| Number | Crossing Type  | Crossing ID | Provider | Approximate Starting Chainage     | Project Component Overview Figure | Crossing Method |
|--------|----------------|-------------|----------|-----------------------------------|-----------------------------------|-----------------|
| 14     | Communications | CCA005      | Eir      | R445 – power connection to WTP    | Figure 18.6                       | Open Excavation |
| 15     | Communications | CCA006      | Eir      | R445 – power connection to WTP    | Figure 18.6                       | Open Excavation |
| 16     | Communications | CCA007      | Eir      | R494 – power connection to RWI&PS | Figure 18.6                       | Open Excavation |
| 17     | Communications | CCA008      | Eir      | R494 – power connection to RWI&PS | Figure 18.6                       | Open Excavation |
| 18     | Communications | CCA009      | Eir      | R494 – power connection to RWI&PS | Figure 18.6                       | Open Excavation |
| 19     | Communications | CCA010      | Eir      | RW-800                            | Figure 18.6                       | Trenchless      |
| 20     | Communications | CCA011      | Eir      | TW-1800                           | Figure 18.7                       | Open Excavation |
| 21     | Communications | CCA012      | Eir      | TW-2300                           | Figure 18.7                       | Open Excavation |
| 22     | Communications | CCA013      | EIR      | TW-3300                           | Figure 18.7                       | Open Excavation |
| 23     | Communications | CCA014      | EIR      | TW-6000                           | Figure 18.8                       | Open Excavation |
| 24     | Communications | CCA015      | EIR      | TW-6600                           | Figure 18.8                       | Open Excavation |
| 25     | Communications | CCA016      | EIR      | TW-8300                           | Figure 18.9                       | Open Excavation |
| 26     | Communications | CCA017      | Eir      | TW-9500                           | Figure 18.9                       | Open Excavation |
| 27     | Communications | CCA018      | Eir      | TW-11600                          | Figure 18.10                      | Open Excavation |
| 28     | Communications | CCA019      | Eir      | TW-12400                          | Figure 18.10                      | Open Excavation |
| 29     | Communications | CCA020      | Eir      | TW-12700                          | Figure 18.10                      | Open Excavation |
| 30     | Communications | CCA021      | Eir      | TW-12700                          | Figure 18.10                      | Open Excavation |
| 31     | Communications | CCA022      | Eir      | TW-16700                          | Figure 18.11                      | Open Excavation |
| 32     | Communications | CCA023      | Eir      | TW-18500                          | Figure 18.12                      | Open Excavation |
| 33     | Communications | CCA024      | Eir      | TW-22300                          | Figure 18.13                      | Open Excavation |
| 34     | Communications | CCA025      | Eir      | TW-26600                          | Figure 18.14                      | Open Excavation |
| 35     | Communications | CCA026      | Eir      | TW-28800                          | Figure 18.15                      | Open Excavation |
| 36     | Communications | CCA027      | Eir      | TW-28900                          | Figure 18.15                      | Open Excavation |
| 37     | Communications | CCA028      | Eir      | TW-29500                          | Figure 18.15                      | Open Excavation |
| 38     | Communications | CCA029      | Eir      | TW-30100                          | Figure 18.15                      | Open Excavation |
| 39     | Communications | CCA030      | Eir      | TW-31400                          | Figure 18.16                      | Open Excavation |
| 40     | Communications | CCA031      | Eir      | TWA-2000                          | Figure 18.18                      | Open Excavation |
| 41     | Communications | CCA032      | Eir      | TWA-14200                         | Figure 18.21                      | Open Excavation |
| 42     | Communications | CCA033      | Eir      | TWA-27900                         | Figure 18.26                      | Open Excavation |
| 43     | Communications | CCA034      | Eir      | TWB-1200                          | Figure 18.26                      | Open Excavation |
| 44     | Communications | CCA035      | Eir      | Birr Connection                   | Figure 18.26                      | Open Excavation |
| 45     | Communications | CCA036      | Eir      | Birr Connection                   | Figure 18.27                      | Open Excavation |
| 46     | Communications | CCA037      | Eir      | Birr Connection                   | Figure 18.27                      | Open Excavation |

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| Number | Crossing Type  | Crossing ID | Provider | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method                    |
|--------|----------------|-------------|----------|-------------------------------|-----------------------------------|------------------------------------|
| 47     | Communications | CCA038      | Eir      | Birr Connection               | Figure 18.27                      | Buried cable                       |
| 48     | Communications | CCA039      | Eir      | Birr Connection               | Figure 18.27                      | Buried cable                       |
| 49     | Communications | CCA040      | Eir      | Birr Connection               | Figure 18.29                      | Buried cable                       |
| 50     | Communications | CCA041      | Eir      | Birr Connection               | Figure 18.29                      | Buried cable                       |
| 51     | Communications | CCA042      | Eir      | Birr Connection               | Figure 18.29                      | Buried cable                       |
| 52     | Communications | CCA043      | Eir      | Birr Connection               | Figure 18.29                      | Buried cable                       |
| 53     | Communications | CCA044      | Eir      | TWB-9300                      | Figure 18.31                      | Buried cable                       |
| 54     | Communications | CCA045      | Eir      | TWB-25600                     | Figure 18.36                      | Buried cable                       |
| 55     | Communications | CCA046      | Eir      | TWB-24700                     | Figure 18.36                      | Buried cable                       |
| 56     | Communications | CCA047      | Eir      | TWB-25200                     | Figure 18.36                      | Open Excavation                    |
| 57     | Communications | CCA048      | Eir      | TWC-100                       | Figure 18.37                      | Open Excavation                    |
| 58     | Communications | CCA049      | Eir      | TWC-300                       | Figure 18.37                      | Open Excavation                    |
| 59     | Communications | CCA050      | Eir      | TWC-4400                      | Figure 18.38                      | Open Excavation                    |
| 60     | Communications | CCA051      | Eir      | TWC-7900                      | Figure 18.39                      | Open Excavation                    |
| 61     | Communications | CCA052      | Eir      | TWC-9000                      | Figure 18.39                      | Open Excavation                    |
| 62     | Communications | CCA053      | Eir      | TWC-13300                     | Figure 18.42                      | Open Excavation                    |
| 63     | Communications | CCA054      | Eir      | Power Connection (TWC-17500)  | Figure 18.42                      | Open Excavation                    |
| 64     | Communications | CCA055      | Eir      | TWC-18400                     | Figure 18.42                      | Open Excavation                    |
| 65     | Communications | CCA056      | Eir      | TWC-19100                     | Figure 18.42                      | Open Excavation                    |
| 66     | Communications | CCA057      | Eir      | TWC-19600                     | Figure 18.42                      | Open Excavation                    |
| 67     | Communications | CCA058      | Eir      | TWC-24700                     | Figure 18.43                      | Open Excavation                    |
| 68     | Communications | CCA059      | Eir      | TWD-3600                      | Figure 18.45                      | Open Excavation                    |
| 69     | Communications | CCA060      | Eir      | TWD-16200                     | Figure 18.49                      | Open Excavation                    |
| 70     | Communications | CCA061      | Eir      | TWD-18300                     | Figure 18.49                      | Open Excavation                    |
| 71     | Communications | CCA062      | Eir      | TWD-24600                     | Figure 18.51                      | Open Excavation                    |
| 72     | Communications | CCA063      | Eir      | TWD-28700                     | Figure 18.52                      | Open Excavation – power connection |
| 73     | Communications | CCA064      | Eir      | TWD-29000                     | Figure 18.52                      | Open Excavation                    |
| 74     | Communications | CCA065      | Eir      | TWD-29600                     | Figure 18.52                      | Open Excavation                    |
| 75     | Communications | CCA066      | Eir      | TWD-31600                     | Figure 18.53                      | Open Excavation                    |
| 76     | Communications | CCA067      | Eir      | TWD-33100                     | Figure 18.54                      | Open Excavation                    |
| 77     | Communications | CCA068      | Eir      | TWE-200                       | Figure 18.54                      | Open Excavation                    |
| 78     | Communications | CCA069      | Eir      | TWE-2500                      | Figure 18.55                      | Open Excavation                    |
| 79     | Communications | CCA070      | Eir      | TWE-5300                      | Figure 18.55                      | Open Excavation                    |
| 80     | Communications | CCA071      | Eir      | TWE-7800                      | Figure 18.56                      | Open Excavation                    |
| 81     | Communications | CCA072      | Eir      | TWE-7800                      | Figure 18.56                      | Open Excavation                    |
| 82     | Communications | CCA073      | Eir      | TWE12100                      | Figure 18.57                      | Open Excavation                    |
| 83     | Communications | CCA074      | Eir      | TWE-12700                     | Figure 18.58                      | Open Excavation                    |
| 84     | Communications | CCA075      | Eir      | TWE-14900                     | Figure 18.58                      | Open Excavation                    |

| Number | Crossing Type  | Crossing ID | Provider | Approximate Starting Chainage | Project Component Overview Figure | Crossing Method |
|--------|----------------|-------------|----------|-------------------------------|-----------------------------------|-----------------|
| 85     | Communications | CCA076      | Eir      | TWE-15400                     | Figure 18.58                      | Open Excavation |

## 6. Summary of Engagement on Material Assets

### 6.1 Obtaining Baseline Data

1. Table 6.1 provides a summary of the baseline obtained from third parties to create the schedules contained in this appendix and Chapter 18 (Materials Assets).

**Table 6.1: Third Party Baseline Data**

| Asset Type     | Baseline Data            | Source | Date of Update |
|----------------|--------------------------|--------|----------------|
| Communications | Aurora Telecomms         | Ervia  | April 2025     |
| Communications | Virgin Telecomms         | Virgin | May 2025       |
| Power          | 38kv-400kv               | ESB    | May 2025       |
| Power          | Low to Medium Voltage    | ESB    | June 2025      |
| Gas            | Low Pressure             | Ervia  | April 2025     |
| Gas            | Medium Pressure          | Ervia  | April 2025     |
| Gas            | High Pressure            | Ervia  | April 2025     |
| Sewer Network  | Sewer Mains              | Ervia  | July 2025      |
| Water Network  | Water Distribution Mains | Ervia  | August 2025    |
| Water Network  | Trunk Water Mains        | Ervia  | September 2025 |