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|  | **Inspection and Test Plan – Subsurface Drainage** | | | | **Doc ID:** FH-ZU2-QU-ITP006  **Rev: 1** | |
| **Client:** Melbourne Airport (APAM) | | **Contract No:** CP14038-01 | | **Prepared By:** John Kakoliris | | |
| **Project:** Taxiway Zulu 2.0 Project | | | **Reviewed By:** Cristin Swar | | | **Date:** 19/04/2024 |
| **Construction Process:** Installation of Subsoil Drainage | | | **Approved By:** Jordan Nicolaou | | | **Date:** 29/04/2024 |
| **Specifications:** Taxiway Zulu 2.0 Program – Works Specification ZULU-BECA-SPC-00002[C03] | | | | | | |
| **Structure / Component:** Subsoil Drainage | | | | | | |

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| Lot No: | Lot Details: | Lot size/Quantity: | Date: |

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| **Frequency** | **Acceptance Criteria** | **Reference Documents** | **Inspection/ Test Method** | **Record of conformity** | **Beca** | **Fulton Hogan** | **Other** | **Date** |
| **1.0** | **Preliminary Activities** | | | | | | | | | | | |
| 1.1 | Check for correct documentation | Prior to commencing activity | Ensure that all employees and subcontractors are:   * using the correct and complete set of drawings. * all drawings are the latest revision. | IFC  Drawings | Document Review | This ITP Signed | HP\* | Project / Site Engineer |  |  |  |  |
| 1.2 | Implementation of all measures and controls | Prior to commencing activity | All necessary measures and controls are being implemented, that is: CEMP, TMP, SWMS & WP. | CEMP, TMP, SWMS & WP | Verify | Site and Office Inspection | HP\* | Project/ Site Engineer/ Supervisor |  |  |  |  |
| 1.3 | Excavation Permit | Prior to commencing activity | Excavation Permit issued by APAM obtained prior to any excavation on site. | Approved Permits | Verify | Proof of permit & ITP signed | HP\* | Project/ Site Engineer |  |  |  |  |
| **2.0** | **Subsoil Materials** | | | | | | | | | | | |
| 2.1 | Subsoil Drainage Pipes | Prior to commencing work | **Pavement Subsoils**:   * 100mm Dia slotted with filter fabric (sock) CL1000 SN20.   **Subsoil Collector Pipes:**   * AGL Carrier Pipe: 80mm Dia PN12 uPVC Non-Perforated Pipe. | Cl.16.5.3,  Cl.16.5.4 & IFC  Drawings | Verify | Order Inspection Checklist | IP | Project/ Site Engineer |  |  |  |  |

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|  |  |  | * SSD Carrier Pipe: 150mm Dia PN12 uPVC Non-Perforated Pipe. |  |  |  |  |  |  |  |  |  |
| 2.2 | Bedding and Backfill | Prior to commencing work | **Subsoil Drain Pipes Under Pavement**   * Holcim’s 5mm Moriac Sand or approved equivalent.   **Subsoil Collector Pipes – Under Pavement**   * Approved 5MPa lean mix.   **Subsoil Collector Pipes In Grass**   * Holcim’s 5mm Moriac Sand or approved equivalent. * Excavated Soil | IFC  Drawings & VicRoads Section 702 | Verify | Visual Inspection & Delivery Docket | IP | Project/ Site Engineer |  |  |  |  |
| 2.3 | Geotextile Fabric | Prior to commencing work | Non-woven type complying with the requirements of VicRoads for first stage filter. | Cl.16.5.8 &  VicRoads Section 702 | Verify | Visual Inspection & Delivery Docket | IP | Project/ Site Engineer |  |  |  |  |
| **3.0** | **Excavation and Installation** | | | | | | | | | | | |
| 3.1 | Trench Excavation | Each Lot | Trenches shall be excavated to the minimum depths, widths and batter slopes as shown on the drawings.  **Minimum Trench Widths:** | Cl.16.8.1 & IFC  Drawings | Verify | This ITP Signed | **HP** | Project/ Site Engineer  Beca |  |  |  |  |

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| **Frequency** | **Acceptance Criteria** | **Reference Documents** | **Inspection/ Test Method** | **Record of conformity** | **Beca** | **Fulton Hogan** | **Other** | **Date** |
|  |  |  | **Subsoil Drain Pipes**   * 300mm total width for the subsoil drain pipe (DN100).   **Subsoil Collector Pipes**   * Horizontal clearance from the outside of the pipe to the wall of the trench to be minimum of 150mm for all collector pipes (DN80 & DN150 both under pavement and in grassed areas).   Excavated material disposed per approved CEMP.  Completed excavation works shall constitute a **Hold Point.** |  |  |  |  |  |  |  |  |  |

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| 3.2 | Geotextile Placement | Each Lot | Geotextiles in trench drains shall be placed to conform loosely to the shape of the trenches.  Site trial to be undertaken to evaluate the proposed construction process and compaction method, **Hold Point**. | Cl.16.9.4.2,  Cl.16.9.4.5 & IFC  Drawings | Visual Inspection | This ITP Signed | **HP** | Project/ Site Engineer  Beca |  |  |  |  |
| 3.3 | Bedding | Each Lot | **Bedding for Subsoil Drain Pipes Under Pavement and Subsoil Collector Pipes in Grass**   * Bedding of granular filter material:   + 100mm for subsoil drain pipes.   + 75mm for subsoil collector pipes * Filter material shall be placed and compacted with minimum disturbance to pipes and in layers no greater than 200mm uncompacted. | Cl.16.9.2 & IFC  Drawings | Visual Inspection | This ITP Signed | IP | Project/ Site Engineer |  |  |  |  |
| 3.4 | Laying and Jointing of Pipes | Each Lot | Pipes laid at the depths and lines indicated on the drawings. | Cl.16.9.2 &  VicRoads Section | Visual Inspection | This ITP Signed | IP | Project/ Site Engineer |  |  |  |  |

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|  |  |  | Where grades are not specified, the bottom of the trenches shall be trimmed to provide no less than 0.5% longitudinal fall. | 702.03,  702.09 |  |  |  |  |  |  |  |  |
| 3.5 | Backfill | Each Lot | **Backfill for Subsoil Drain Pipe (⌀100mm pipe)**   * Granular filter material backfill is to be placed to the underside of the CTB layer.   **Backfill for Subsoil Collector pipe**  **⌀150mm Under Pavement**   * 5MPa lean mix backfill is to be placed to a minimum of 150mm above the pipe crown to underside of pavement formation. * Backfill to be completed in two stages to avoid pipe floatation.   **Backfill for Subsoil Collector pipe**  **⌀150mm In Grassed Areas**   * Granular filter material is to be placed to a minimum of 150mm above the pipe crown. * Excavated soil recompacted in layers not exceeding 200mm loose thickness to underside of topsoil. | Cl.16.9.2, IFC  Drawings & Tender Clarification #38 | Visual Inspection | This ITP Signed | Projec t/ Site Engin eer |  |  |  |  |  |

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| **Frequency** | **Acceptance Criteria** | **Reference Documents** | **Inspection/ Test Method** | **Record of conformity** | **Beca** | **Fulton Hogan** | **Other** | **Date** |
|  |  |  | **Backfill for Subsoil Collector pipe**  **⌀80mm**   * 5MPa lean mix backfill to be placed to be placed to top of 150mm FCR subbase layer * Backfill to be completed in two stages to avoid pipe floatation. |  |  |  |  |  |  |  |  |  |
| 3.6 | Geotextile Protection | Each Lot | Geotextile must fully envelope the drainage material in the trench with a minimum 150mm lap.  Prior to placement of next layer of pavement material, inspection to be undertaken to check if the geotextile is correctly overlapped and free from punctures or tears and ensure it is pinned down to prevent movement and the filter material becoming contaminated. Should these issues occur, they must be rectified prior to placing the next fill material. This shall constitute a **Hold Point.** | Cl.16.9.4.2,  Cl.16.9.4.3  & Aconex FHPL- GCOR- 006263 & IFC  Drawings | Visual Inspection | This ITP Signed | **HP** | Project/ Site Engineer  Beca |  |  |  |  |

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| 3.7 | Subsoil Drain Outlet | Each Lot | Subsoil outlet point to be located at a drainage pit, pipe end wall or outlet in a fill batter or drain.  All subsoil drain outlets shall be fitted with Vermin Guards. | IFC  Drawings | Verify | This ITP Signed | IP | Project/ Site Engineer |  |  |  |  |
| 3.8 | Flush out Risers | As applicable | Cleanouts shall be located at the heads of all subsoil drains and as specified on the Drawings. | Cl.16.9.2 & IFC  Drawings | Visual Inspection | This ITP Signed | IP | Project/ Site Engineer |  |  |  |  |
| **4.0** | **Post Construction** | | | | | | | | | | | |
| 4.1 | Flushing Test | Each Lot | Flushing test to be carried out for subsoil pipes to remove material that has entered the pipes during construction and to ensure that the drainage line is free from obstruction. This constitutes a Witness Point. | Tender Clarificati on #33 | Visual Inspection | This ITP Signed | WP | Project/ Site Engineer |  |  |  |  |
| 4.2 | Records | Each Lot | Levels and alignment recorded in as built documentation. | As built Data | Verify | Aconex Correspond ence / Asbuilts | SCP | Project/ Site Engineer |  |  |  |  |

**Final Inspection**

The signature below verifies that this ITP has been completed in accordance with the Fulton Hogan’s Quality system Procedures and verifies lot compliance with specifications.

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**Print Name: Position: Signature: Date: / /**

**Legend:**

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| **HP** | Hold Point | Work shall not proceed past the HP until released by the Superintendent | **IP** | Inspection point | Formal Inspection to be done and recorded |
| **HP\*** | Fulton Hogan Hold Point | Work shall not proceed past the HP\* until released by Fulton Hogan | **TP** | Test Point | Product compliance test to be undertaken and recorded/reported |
| **WP** | Witness Point | An inspection which must be witnessed by the Superintendent | **SCP** | Survey conformance point | A qualified surveyor to check product/section/structure and report |
| **AP** | Approval Point | Written or verbal approval given by the Superintendent |  | | |

**Notes**