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|  | **Inspection and Test Plan - Control and Supervision of the Works** | **Document #**  **ITP-005**  Revision : 0 Date : 30/11/2020 |

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| **Client:** | **Yarra Trams** | **Construction Process:** | Prepared by: | Reviewed by : | Approved by : |
| **Project:** |  | ***Track Drainage*** | Name: **Aaron Hatch** | Name: **Ruan Dippenaar** | Name: **Shaun Kent** |
| **Contract No:** |  | **Specifications:** Yarra Trams Infrastructure - Tram Track Construction Standard (CE-021-ST-0044), Yarra Trams Standard Drawings and Technical Specification  **Structure / Component: Tram Tracks**  **Location** | Signed :  Date : 30/11/2020 | Signed :  Date : 30/11/2020 | Signed :  Date : 30/11/2020 |

**Lot No: Lot Details: Lot Size/ Quantity:**

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| **Item No.** | **Task/Activity Description** | **Inspection / Controls and Verification Detail** | | | | | **HP/ WP/ AP/ IP/ TP/ SCP** | **Responsibility**  Project Engineer Site Engineer Superintendent Surveyor Foreman | **Checked by:** | | | |
| **Frequency** | **Acceptance Criteria** | **Reference Documents** | **Inspection / Test Method** | **Record of conformity** | **Client** | **Fulton Hogan** | **FH's Sub- contractor** | **Date** |
| **1** | **Preliminary Works** | | | | | | | | | | | |
| 1.1 | Check for correct documentation | Prior to commencing any activity | Drainage design satisfies requirements of all relevant catchment and drainage authorities, a copy of all drainage work approvals are to be forwaded to the superintendent | Drawings and drawing registers | Visual inspection | This ITP signed off | **HP\*** | Fulton Hogan Engineer | N/A |  | N/A |  |
| 1.3 | Materials Check | Prior to commencing any activity | Ensure drainage pipes are of correct classification and are without damage  Check triangle drains are of adequate quality, and are design according Ri57A rail profile Ensure lid and j-bolts being used are in accordance with STD T9022 | CE-021-ST-0044 cl 4.3.1  STD T9021A STD T9020 STD T9022 | Visual inspection Inspection Checklist | This ITP signed off Recievable Inspection Checklist | **HP\*** | Fulton Hogan Engineer | N/A |  | N/A |  |
| 1.4 | Bedding Sand | Prior to commencing any activity | The bedding of all pipes shall be in accordance with AS.3500.3-2003 using sand  complying to the following: Max. particle size of 5 mm, Not more than 5% by weight passing a 75 micron AS 1152 sieve, Free from organic impurities,Consisting of hard durable particles, and well graded. | CE-021-ST-0044  cl 4.3 | Visual inspection | This ITP signed off | **HP\*** | Fulton Hogan Engineer | N/A |  | N/A |  |
| **2** | **Construction Works** | | | | | | | | | | | |
| 2.1 | Set out drainage | Prior to commencing any activity | The position of all drainage lines are to be confirmed with the superintendent  Track drain locations are to be identified and based off  IFC drawings and sections. | Design Drawings and Register | Visual inspection | This ITP signed off | **HP\*** | Fulton Hogan Engineer | N/A |  | N/A |  |
| 2.2 | Excavation (pipes) | Each Trench | Trenching to allow for minimum clearance depth of 100mm below UPVC pipe, and 15mm from bottom of rail to surface of pipe  Track drains usually have invert for pipes at 400mm depth, with floor of pit 10mm deeper. | STD T9021 CE-021-ST-0044  cl 4.3 | Visual Inspection | This ITP signed off | **IP** | Fulton Hogan Engineer | N/A |  | N/A |  |
| 2.3 | Bedding | Each lot | Class 2 crush rock shall be compacted to refusal of  100mm minimum thickness | STD T9021A | Visual inspection | This ITP signed off | **IP** | Fulton Hogan Engineer | N/A |  | N/A |  |
| 2.4 | Joining | Eaach lot | All UPVC pipes shall be joined utilising 'male' to 'female' ends.UPVC pipes shall be joined using appropriate plumbing adhesive immediately prior to  connection. | CE-021-ST-0044 cl 4.3.2 | Verify | This ITP signed off | **IP** | Fulton Hogan Engineer | N/A |  | N/A |  |

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| 2.5 | Track Drain Installation | Each Lot | Track drains shall be welded to designated positions, and cleaned of all weld splatter . Weld shall be sealed after installation Rectangular 300 x 450mm junction pit & lid shall be used with 4 x j-bolts secured as per STD T9022 | STD T9021A STD T9022 | Visual inspection | This ITP signed off | **IP** | Fulton Hogan Engineer | N/A |  | N/A |  |
| 2.6 | Points Drainage | Where required | The road motor box pit for automatic points shall be drained separately to the normal  switch drain and care shall be taken to ensure that water cannot flow into the road  motor box pit. Points drainage shall be constructed as shown on Standard Drawing  STD\_T0304, with 100mm dia UPVC pipe. | CE-021-ST-0044  cl 4.3 STD T0304 STD T0305 | Visual inspection | This ITP signed off | **IP** | Fulton Hogan Engineer | N/A |  | N/A |  |
| 2.7 | Concrete Pour | Each Lot | Ensure correct heights of sub grade, as to allow for minimum thickness 150mm concrete, to be poured in same period as track slab | STD T9021A | Visual inspection | This ITP Signed off | **IP** | Fulton Hogan Engineer | N/A |  | N/A |  |
| 2.8 | Connection to local drainage | Each Lot | Drainage shall be connected to existing Principal’s,  VicRoads or the Local Authority's  storm water drainage system using either UPVC pipe or reinforced concrete pipes, or  an alternative approved by the relevant authority. The minimum pipe size shall be  150 mm. | CE-021-ST-0044 cl 4.3.2 | Visual inspection | This ITP Signed off | **IP** | Fulton Hogan Engineer | N/A |  | N/A |  |

**Final Inspection**

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

Print Name:

Position:

Signature:

Date:

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| ***Legend*** | | | | | |
| **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\*** | FH Hold Point | Work shall not proceed past the HP\* until released by FH | **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 |  | | |