Fulton Hogan	**Inspection and Test Plan – Precast Drainage Structures**	**Doc ID:** FH-ZU2-QU-ITP007 **Rev: 0**

Client: Melbourne Airport (APAM)	**Contract No:** CP14038-01	**Prepared By:** John Kakoliris
Project: Taxiway Zulu Project 2.0	**Reviewed By:** Cristin Swar	**Date:** 22/04/2024
Construction Process:	**Approved By:** Jordan Nicolaou	**Date:** 29/04/2024
Specifications: Taxiway Zulu 2.0 Program – Works Specification ZULU-BECA-SPC-00002[C03]		
Structure / Component: Precast Drainage Structures		

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

Item No.	Task/Activity Description	Inspection/Test					HP/ WP/ AP/ IP/ TP/ SCP	Responsibility Project Engineer Superintendent Surveyor Foreman	Checked by:			
		Frequency	Acceptance Criteria	Reference Documents	Inspection/ Test Method	Record of conformity			Beca	Fulton Hogan	Other	Date
1.0	**Preliminaries**											
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	Visual Inspection	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	**Material Approvals**											
2.1	Precast Structures	Prior to commencing activity	Details of the proposed precast drainage pits, headwalls, and culverts to be as specified on the IFC Drawings. Approval of the shop drawings constitutes a **Hold Point.**	Cl16.6.1 & Manufacturer's documents	Document Review	Aconex Correspondence	**HP**	Project/ Site Engineer				

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			• Outline of sampling and test program									
2.2	Access Cover and Grates	Prior to commencing activity	All Pit covers to conform to AS 3996 and the applicable load class to be as noted on the Drawings. For all drainage pits, pit lids are to be Class D.	Cl16.5.7.1 & IFC Drawings	Verify	This ITP Signed	HP*	Project/ Site Engineer				
2.3	Box Culverts Bedding, Side, Overlay and Backfill Zone Materials.	Prior to commencing activity	Materials are to be compliant with the requirements detailed in Cl.16.5.6. Material submission approval.	Cl16.5.6 & 16.6.2.2	Document Review	Aconex Correspondence	**HP**	Project/ Site Engineer Beca				
2.4	Blinding for Drainage Pits and Headwalls	Prior to commencing activity	Approved bedding material as per IFC Drawings.	IFC Drawings	Document Review	Aconex Correspondence	HP*	Project/ Site Engineer				
2.5	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	**Material Receival**											
3.1	Precast Structure Delivery	Each Lot	Ensure each precast component is inspected upon arrival ensuring: • Dimensions are as shown on manufacturer drawings.	Cl16.6.1 & IFC Drawings	Visual Inspection	Order Acceptance Form	HP*	Project/ Site Engineer				

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			• All blockouts in correct positions and to dimensions. • No damage to any precast structure component to the satisfaction of FH Engineer • No modifications to the pits are to be made without written approval from manufacturer. • Manufacturer's conformance report									
4.0	**Drainage Pit, Headwall and Culvert Installation**											
4.1	Survey Setout	Prior to construction and each lot	Set out the drainage structures as shown on the Drawings to identify the locations, lengths and levels: • All pits, and inlet and outlet structures. • Ends of wing walls and headwalls. • At outlets and inlets of box culvert structures. Setout of each drainage system to constitute a **Hold Point**.	Cl16.7.1	Survey	This ITP Signed	**HP**	Project/ Site Engineer Beca				
4.2	Excavation	Each Lot	Excavation to be performed to the minimum depths, widths and batter slopes as shown on the Drawings, regardless of the type of material.	Cl16.8 & Cl 16.6.2.2	Verify	This ITP Signed	**HP**	Project/ Site Engineer Beca				

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			Inspection of completed excavation works to constitute a **Hold Point.** **Pits:** The shape of the excavation to be as required and the size sufficient to enable construction of the structure. **Box Culverts:** The width of trench to be not less than the exterior width of the culvert plus 400mm, and not greater than that required for satisfactory backfilling.									
4.3	Confirm Ground Conditions	Each Structure	Min. 1 x DCP test to be undertaken per drainage line / structure to confirm ground conditions. If the first DCP is inconclusive or fails, additional DCP to be taken as needed based on on-site assessment of the ground. Contractor to notify the Contract Administrator of any area of the foundation with inadequate material to support the proposed drainage structure. Inadequate	Cl16.8.2 & Tender Clarification #38	Site Inspection	DCP, Test Results	TP	Project/ Site Engineer				

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			material is deemed to have a bearing pressure less than 130kPa, equivalent to 4 DCP blows per 100mm, as per note 4 on drawing ZULU-BECA-012-DWG-07102. Inadequate foundation material is to be replaced with a layer of coarse crushed aggregate compacted to 95% relative standard compaction to AS1289 Section 5.5.1 over a geotextile Bidim A29 or approved equivalent.									
4.4	Blinding for Drainage Pits and Headwalls	Each Lot	Blinding to be installed as per the depths and widths shown on the Drawings. Pits: 50mm Crushed Rock bedding Headwalls: 100mm 15MPa Concrete blinding and 600x150mm apron cut off wall	IFC Drawings & VicRoads SD	Verify and Visual Inspection	Delivery Docket & This ITP Signed	HP*	Project/ Site Engineer				
4.5	Bedding for Box Culverts	Each Lot	Bedding material to comprise of approved select fill and to be placed for the full width of the trench. Upon completion, the bedding is to provide a uniform firm foundation	CL16.5.6.1	Verify and Visual Inspection	Delivery Docket & This ITP Signed	WP	Project/ Site Engineer Beca				

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			with the top surface of the bedding shaped to the details shown on the drawings. This to constitute a **Witness Point.**									
4.6	Positioning of Precast Structures	Each Lot	Precast structures installed as per survey set out points marked on blinding / bedding layer	Cl.16.8.1 & IFC Drawings	Verify	This ITP Signed	IP	Project/ Site Engineer				
4.7	Backfill Materials for Box Culverts	Each Lot	**Side Zone, Overlay Zone and Backfill Zone Subject to Vehicle Loads** • Approved Select fill material. • Completed in layers with maximum thickness of Cl200mm loose material. **Overlay and Backfill Zone – Not Subject to Vehicle Loads** • Ordinary fill material compliant with Cl.16.5.6.3 of Beca's specification	Cl.16.5.6 & IFC Drawings	Verify and Site Inspection	This ITP Signed	IP	Project/ Site Engineer				
4.8	Compaction Requirements (Box Culvert)	1 test per lot. *"1 test per layer of bedding for bedding materials and every 2nd*	**Bed Zone –** Minimum 90% SMDD **Side Zone Not Subject to Vehicle Loads –** Minimum RD of 95% SMDD **Side Zone Subject to Vehicle Loads –** Minimum of 95% SMDD	Cl.16.5.6. 1 (b) (iv)	Site Inspection	Test Records	TP	Project/ Site Engineer				

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		layer for side, overlay and backfill zone materials."	**Overlay Not Subject to Vehicle Loads –** Minimum RD of 90% SMDD **Backfill Zone Not Subject to Vehicle Loads –** Minimum RD of 90% SMDD **Overlay and Backfill Zone Subject to Vehicle Loads –** Minimum 95% SMDD. Top 300mm under pavement to a minimum of 98% SMDD.									

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.

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

Legend:

HP	Hold Point	Work to 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 to 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			

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