

INSPECTION AND TEST PLAN (ITP)

FRP (structures)

Document	Information											
Title	Inspection and Test Plan (ITP) -FRP (structures)											
Number	HPP-UGL-CIV-GN-GEN-ITP-0015											
Revision	2	2										
Revision In	formation											
Revision	Date	Description	Author	Reviewer	Approver							
0	30 April 2024	Issued For Use	N. Cook	S.Osborn	G.Wilkinson							
1	10 July 2024	Issued For Use	N. Cook	S.Osborn	G.Wilkinson							
2	13/09/2024	Issued For Use		N. Cook	G.Wilkinson							



Contact Details	Summary of Requirements	Principle Codes / Standards	Records
Customer: SHL Construction Manager: Sean Riddiford Project Engineer: Natalie Cook Quality Representative: Peter Garland	Process Qualifications		(MDR Insert as marked □) - Inspect Release Certs. □ - Deviations/Concessions □ - Material Certificates □
Subcontractors	Traceability: Material: Alloy Verification Heat Treatment: Pressure Testing	Client Specifications HPP-AEC-CIV-GN-GEN-SPT-0161 QUALITY (CONSTRUCTION)	 Conformance Certificate Welding Records Welder Qual. Register
	Heat Treatment: ☐ Pressure Testing ☐ Consumable: NDT: ☐ WPS: ☐	HPP-AEC-CIV-DD-SWS-SPT-1121 EARTHWORKS	 NDT Reports Report on Repairs Heat Treatment Records
Surveillance / Inspection Key	Electrical: Instruments	HPP-AEC-CIV-GN-GEN-SPT-0319 MINOR CONCRETE WORKS	Dimensional RecordsNon-Conformance Rpts
HOLD POINT (H): Nominated point beyond which work shall not proceed without verified acceptance by nominee.	Heat Treatment:	HPP-AEC-CIV-ST-GEN-SPT-0002 CONCRETE SUPPLY, CONSTRUCTION AND GROUTING	 Pressure Test Records Drawings & Data Sheets Misc Verification Records
WITNESS POINT (W): Points at which the nominee shall be notified and invited to witness an activity, but further work may proceed without the presence of the	Dimensional Control: Testing (NDT):	HPP-MHI-QUA-GN-GEN-ITP-0002 - CG-64290 – Inspection and Test Plan at Site for MHI Scope Section	Electrical Test Sheets
nominee. REVIEW (R): Verify by examination of documentary evidence that inspection / tests have been	Acceptance Specification: Pressure Testing:	HPP-MHI-CIV-ST-GPS-PRO-0001 – CG- 64293 - Installation Procedure for Anchor Bolts and Template for GT	
satisfactorily conducted. SURVEILLANCE (S): Continuing evaluation of the status of methods, analysis of records and	Elect. / Instrumentation:	HPP-MHI-CIV-ST-GPS-PRO-0002 – CG- 64292 – Check Sheet for GT & GTG Anchor Bolt Setting	
monitoring of activities on a random basis to ensure quality requirements will be met.	Notes:	MHI GT Erection Procedure (Site Assembly)	
VISUAL (V): 100% Visual Inspection of work / item to ensure compliance with code / specification.		Engineering Procedures / WI	
DIMENSIONAL (D): Measurement of critical dimensions to ensure work / item is within tolerance		HPP-MHI-CIV-ST-GPS-PRO-0001 HPP-MHI-CIV-ST-GPS-PRO-0002	
Prepared N Cook by:	Date: 13/09/2024 Approve	ed By: Grant Wilkinson Date : 10/07/2024	

				Veri	fication of	accepta	nce by	, .,	
					НР	P Con	HP	P QA	Remarks / record (eg. test frequency, reports,
Item no.	Activity	Ref docs	Acceptance criteria	Acceptance	Key	Sign date	Key	Sign date	certificates, checklist etc)
1.1	Documentatio n	Issued drawings / Site copy drawings	Check that you have the latest site and engineering drawings BEFORE starting each task/set of tasks.	☐ Yes ☐ No ☐ N/A	S		S		
1.2	Lot Traceability	Spec. 0161 Quality [Cl 7.3]	Prepare a lot map for traceability of the work area.	□ Yes □ No □ N/A	S		S		
1.3	Set out	Drawings	Setout structure to the location and levels on the drawings. This shall be presented for inspection by the superintendent.	☐ Yes ☐ No ☐ N/A	S		S		
1.4	Underlying Lot Conformance	Underlying Lot ITP	Underlying services and/or assets have been installed prior to commencing works over and/or above. Refer underlying lot ITP(s)	☐ Yes ☐ No ☐ N/A	S		S		
1.5	Site Checklist(s)		Have Site checklist(s) been signed and uploaded?	☐ Yes ☐ No ☐ N/A	S		S		☐ Site Checklist(S)
2.1	Excavation		Excavate to the depth nominated on the drawings and remove any loose material at the base. Ensure excavation is carried out to a width which will not impede external formwork.	☐ Yes ☐ No ☐ N/A	S		S		
2.2	Unsuitable Material	Spec. 1112 Earthwork s [Cl 4.6]	Any Unsuitable Material to be removed to the depth as directed by the Superintendent HOLD POINT	☐ Yes ☐ No ☐ N/A	н		н		
2.3	Compaction - Foundation	Spec. 1112 Earthwork s [Cl 4.7, 4.13] Spec 0161 [CL 7.2]	Foundation (including any unsuitable replacement) to be compacted to a relative compaction of 97% modified to a depth of 200mm below foundation level Test Frequency = 1 per 500m2	□ Yes □ No □ N/A	S		S		☐ Test reports
2.4	Foundation Inspection	Spec. 1112 Earthwork s [4.7]	Foundation to be inspected by the Superintendent prior to placing blinding HOLD POINT	☐ Yes ☐ No ☐ N/A	н		н		

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					HF	P Con	HF	PP QA	Remarks / record (eg. test frequency, reports,
Item no.	Activity	Ref docs	Acceptance criteria	Acceptance	Key	Sign date	Key	Sign date	certificates, checklist etc)
2.5	Blinding	Spec. 1354 Stormwate r Drainage Structures [Cl 3.6]	Blinding (N15) for Reinforced Concrete Bases to be a 100mm thick mass concrete layer or as otherwise shown on the drawings. Unreinforced bases can be poured directly on the earth	□ Yes □ No □ N/A	S		S		
2.6	Mating Concrete Surface Preparation	Spec. 0002 [CL 3.9]	Construction joints prepared and free of loose material Dowelled joints prepared and bond breaker applied for expansion joints if applicable	□ Yes □ No □ N/A	S		S		
3.1	Formwork	Spec. 0002 Concrete supply, constructio n, and grouting [Cl 4.0] Drawings	Formwork installed as per drawings and adequately supported. Completed formwork to be inspected by the Superintendent prior to concrete placement Formwork engineers inspection certificate complete and received Survey report to be received prior to ordering concrete. HOLD POINT Before Placing Concrete	□ Yes □ No □ N/A	Н		н		☐ Pre-pour inspection
3.2	Steel reinforcement	Spec. 0002 Concrete supply, constructio n, and grouting [Cl 5.0] Drawings	Reinforcement installed as per drawings, ensuring sufficient lap length and cover is achieved on all bars. Inspection per layer installed. Concrete pre-pour inspection complete. HOLD POINT Before Placing Concrete	□ Yes □ No □ N/A	Н		н		☐ Pre-pour inspection

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						НЕ	PP Con	HF	PP QA	Remarks / record (eg. test frequency, reports,
Item no.	Activity	Ref docs	Acceptance criteria		Acceptance	Key	Sign date	Key	Sign date	certificates, checklist etc)
3.3	Reinforcement Splice Lengths	Spec. 0002 Concrete supply, constructio n, and grouting [CI 5.7]	Where splicing of reinforcement is not shown on dr shown below shall be adopted. (SPT-0002 Table 6 Table 6 Reinforcement Splice Lengths Reinforcement Size N12 deformed bar N16 deformed bar N20 deformed bar N24 deformed bar N28 deformed bar N28 deformed bar Welded wire fabric Trench mesh	Lap Length (mm) 500 800 1150 1350 1600 1750 225*Minimum 2 cross wires 500	□ Yes □ No □ N/A	S		S		
3.4	Pit & Pipe Connections	Spec. 1354 Stormwate r Drainage Structures [Cl 3.3] Spec. 0002 Concrete supply, constructio n, and grouting [Cl 2.6] Drawings	Inlet and outlet pipes to be integrally cast into found waterproofed as per design requirements. Embedded pipes to be adequately restrained again HOLD POINT	□ Yes □ No □ N/A	н		w		ITP for associated pit/pipe reviewed for conformance	
3.5	Installation of Core Holes, Voids, HD Bolts and Embedments	Spec. 0002 Concrete supply, constructio n, and grouting [CL 2.6, 7.1, 7.2, 7.3]	Firmly Fixed in position in all directions Reinforcement displaced where necessary, bars re superintendent Integrity of surface treatments maintained (galvanis) Threads covered	□ Yes □ No □ N/A	S		S			

Hunter Power Project

									nce by	_ , , , , ,			
						HF	PP Con	HF	PP QA	Remarks / record (eg. test frequency, reports,			
Item no.	Activity	Ref docs	Acceptance criteria		Acceptance	Key	Sign date	Key	Sign date	certificates, checklist etc)			
			HD bolts positioned using a template. Tolerance fo (see below table)	r HD bolts as per CL 7.2									
			Condition	Tolerance									
			Any 2 bolts within a group	± 3mm Centre to Centre									
			Adjacent HD bolt groups	± 6mm Centre to Centre									
			Bolt Projections – From concrete level	+ 5mm, -0mm									
		Cnaa	Embedded steel finishing flush with surface	± 3mm from surface									
		Spec. 0002	Bolt reduced level	+ 5mm, -0mm									
	T-1	Concrete	Verticality of any bolt	1:300						☐ Pre-pour inspection and			
3.6	Tolerances of Core Holes, HD Bolts and Embedments	s, construction, and	Maximum accumulation of 6 mm per 30,000mi column line of multiple HD bolt groups, but no mm.	☐ Yes ⊠ No ☐ N/A	н		w		Survey Records Inc MHI Check Sheet for GT & GTG Anchor Bolt Setting CG-64294				
	Embedments		6 mm from the centre of any HD bolt group to the established column line through that group. *Before pouring concrete of the GT & GEN foundation, MPW TA will check the setting condition of GT & GEN anchor bolt. Witness Point as per MHI ITP.										
							Tolerances for other embedded fabricated items in AS4100 as applicable.	line with AS 3990 or					
			Pre-pour survey performed and recorded to verify I	ocation									
			HOLD POINT										
	Earth in a fee	Drawings Spec. 0002	Earthing installed for congrete structures as per pro-	ovided Drewings									
3.7	Earthing for Concrete Structures	Concrete supply, constructio n, and grouting [CL 2.6]	Earthing installed for concrete structures as per provided Drawings HOLD POINT		□ Yes □ No □ N/A	н		w		☐ UGL Earthing FIC			



				Verification of acceptance b		nce by	Barrantia / record /ac		
		T			НР	P Con	HP	P QA	Remarks / record (eg. test frequency, reports,
Item no.	Activity	Ref docs	Acceptance criteria	Acceptance	Key	Sign date	Key	Sign date	certificates, checklist etc)
3.8	Concrete Mix and properties		Concrete compressive strength required (28 days) = MPA Approved Concrete mix ID = Slump = mm	□ Yes □ No □ N/A	S		S		☐ Material dockets ☐ Concrete pour records
3.9a	Concrete Supply Temperature - GT Foundation Only	Spec. 0002 Concrete supply, constructio n, and grouting [CI 8.1.2] Thermal Analysis Report	Temperature of concrete at the time of placement must be minimum 10°C and maximum 25°C. Ambient air temperature at the time of placement must be between 5°C and 30°C.		S		S		☐ Material dockets ☐ Concrete pour records
3.9b	Concrete Supply Temperature – Other foundations	Spec. 0002 Concrete supply, constructio n, and grouting [CI 8.1.2]	Temperature of concrete at the time of placement must be minimum 10°C and maximum 30°C. Ambient air temperature at the time of placement must be between 5°C and 32°C. If ambient temperature is between 32°C and 38°C, seek approval from superintendent to proceed by taking special precautions noted in the specification.		S		S		☐ Material dockets ☐ Concrete pour records
3.10	Concrete Placement	Spec. 0002 Concrete supply, constructio n, and grouting [Cl 8.1.4]	Ensure elapsed time between batching and discharge of the mix does not exceed 1.5 hours. Concrete placed in layers ≤ 300mm thick and adequately vibrated avoiding over-vibration. Concrete thoroughly compacted – one internal vibrator per 10m³ concrete placed per hour		S		S		☐ Material dockets ☐ Concrete pour records

					Ver	ification of	accepta	nce by	Remarks / record (eg	
						Н	PP Con	HF	P QA	Remarks / record (eg. test frequency, reports,
Item no.	Activity	Ref docs	Acceptance criteria		Acceptance	Key	Sign date	Key	Sign date	certificates, checklist etc)
			Slump Test - One per batch of consump within tolerances specified TABLE PERMISSIBLE TOLE	I in AS 1379 E 5.1						
			Specified slump, mm	Tolerance, mm						
3.11	Concrete Slump Testing		<60	±10	☐ Yes ☐ No	S		S		☐ Concrete pour record
	Sidilip resting		≥60 ≤80	±15	□ N/A					
			>80 ≤110	±20						
			>110 ≤150	±30						
		>150 ±40		±40						
			Testing to be executed by a NAT							
3.12	Concrete Compressive Strength Testing	Drawings	Compressive Strength Testing - 2 Testing to be executed by a NAT		□ Yes □ No □ N/A	S		S		☐ Concrete pour record
3.13	Surface finish	Spec. 0319 Minor Concrete Works [Cl 4.2] Drawings	Concrete surfaces shall be true at depressions or rejections. Formed surfaces conform with susurface class nominated. WITNESS POINT 1 day prior	□ Yes □ No □ N/A	w		w			
3.14	Surface Treatments		Any surface treatments to be app rates have been determined	☐ Yes ☐ No ☐ N/A	S		S			
3.15	Joints	As per drawings	As per design drawings. Sawn jo hardened sufficiently.	s per design drawings. Sawn joints to commence as soon as the concrete has ardened sufficiently.				S		

								Ver	ification of	accepta	nce by	y Remarks / record (cg			
											НЕ	PP Con	HF	PP QA	Remarks / record (eg. test frequency, reports,
Item no.	Activity	Ref docs	Acceptance crit	riteria Acceptance						Key	Sign date	Key	Sign date	certificates, checklist etc)	
3.16	Curing	Spec. 0319 Minor Concrete Works [Cl 4.13]	min period of 7 of a. Ordinary b. High ear	days or as dire Portland cemely ly strength cor	cted by the ent concrete crete – 3 da	re continuously with an approved method for a sted by the Superintendent. ent concrete – 7 days crete – 3 days or pozzolan materials – 10 days					S		S		
			Member Type	Member	*Effective Span mm		ir Tempera	me (days) fo ture during							
						20°C and over	10°C to 20°C	4°C to 10°C	Under 4°C						
		Spec. 0002	Vertical Unloaded	Wall, column, beam side, slab side	0	2	3	5	7						
3.17	Stripping of formwork	Concrete supply, constructio	Vertical Loadbearing	Wall, column Or loadbearing Structure	0	5	6	7	9	☐ Yes ☐ No ☐ N/A	S		S		
		n, and	Horizontal	Slab	Under 3000	7	10	14	21						
		grouting [Cl 4.4.5]			3000-6000	10	14	21	28						
		[Ci 4.4.5]	Horizontal	Beam	Over 6000 Under 3000	14	21 14	28 21	28						
			Horizontal	Беаш	3000-6000	14	21	28	28						
					Over 6000	21	28	28	28						
			* Effective span is th	e maximum distan	e between sup	ports (either	temporary o	r permanent	i)						
3.18	Concrete Repair (If required)	Spec. 0002 Concrete supply, constructio n, and grouting [CI 8.7]		e examined an	aired or replaced. The materials and techniques I approved by the Superintendent prior to the				□ Yes □ No □ N/A	н		н		☐ Grout Placement Checklist ☐ Approved Aconex Corro for Repair Methodology	

4.0 Ba	ackfill and Co	mpaction								
4.1	Structure Backfill	Spec. 1112 Earthworks [Cl 4.10]	Backfill to be Select fill for material within 1.5m of pavement and General Fill below 1.5m deep. Placed in layers of maximum compacted thickness of 150mm Select backfill material to be a granular material with a maximum particle size of 50mm and a PI between 2 & 12	□ Yes □ No □ N/A	S		S		S	☐ Material Test Report
4.2	Compaction - Backfill	Spec. 1112 Earthworks [Cl 4.13]	Minimum relative compaction requirements for backfill against structures to be: - 92% for general fill - 97% for select fill Test Frequency = 1 per layer						S	☐ Test reports
4.3	Moisture Content	Spec. 1112 Earthworks [Cl 4.13 & 7.1]	Moisture Content for Backfill material to be within 60% to 90% OMC unless otherwise approved by Superintendent	□ Yes □ No □ N/A	S		S		S	☐ Test reports
5.0 Cd	onformance c	heck								
5.1	Survey Report	Spec. 0161 Quality [Cl 3.13] AS3610	An as-built survey of the structure has been completed to ensure all structures are within the following construction tolerances: • Absolute position in plan shall be within 10 mm. • Floor to floor plumb shall not exceed 0.002 times the dimension between the floors or 10 mm whichever is the greater. • Deviation from the specified dimension shall not exceed 0.001 times the specified dimension or 5mm, whichever is the greater.	□ Yes □ No □ N/A	н		Н		W	☐ Survey report
5.2	Concrete Test Results	Spec. 0002 [Cl 8.2]	Certificates received, reviewed and conforming to requirements for each pour.	□ Yes □ No □ N/A	S		S		S	☐ Test reports
5.3	Acceptance and closure of non- conforming items	Spec. 0161 Quality [Cl 3.8]	NCRs to be opened for non-conforming items and closed prior to closing construction lot. HOLD POINT	□ Yes □ No □ N/A	н		н		H	



Comments:			
Acceptance of works:			
HPP Construction	HPP Construction representative	Date	
representative name	signature		
HPP Quality	HPP Quality representative	Date	
representative name	signature		



Inspection Checklist Report

Project			Project n	name	Hu	nter Pow	ver Projec	t	Date			
ITP no.		375-ITP-15 0-0663-HPP-QA-ITP-015 SHL ITP no.										
UGLIT	-	UDD3-HF	-r-QA-I	1P-015	SHI	L ITP no.			Sub	b Lot no.		
Lot no.	on (chainages, detailed	descrint	tion or m	arked u	n nlan)				_			
2000010	m (enamages) actanea											
						Ve	rify of ac	ceptanc	e by	Remarks / records		
						НРІ	P Con	НР	P QA			
		Itou	ns confo		NCR /							
Step No.	Activity to be verified	Yes	No	NA	Test Report No.	Key	Sign Date	Key	Sign Date			
1.0 Pre	eliminaries	II.			1101	ı		1	ı			
1.1	Documentation					S		S				
1.2	Lot Traceability					S		S				
1.3	Setout					S		S				
1.4	Underlying Lot Conformance					S		S				
1.5	Site checklist(s)					S		S		☐ Site Checklist(S)		
Excava	tion and Pipe Laying											
2.1	Excavation					S		S				
2.2	Unsuitable Material HOLD POINT					н		н		☐ Test reports		
2.3	Compaction - Foundation					S		S				
2.4	Foundation Inspection HOLD POINT					н		н				
2.5	Blinding					S		S				
2.6	Mating Concrete Surface Preparation					S		S				
Installa	ation of Cast In-situ St	uctures	•	•	•	•		•	•			
3.1	Formwork HOLD POINT					н		н		☐ Pre-pour inspection		
3.2	Steel reinforcement Stage 1 HOLD POINT					н		н		☐ Pre-pour inspection		
3.2	Steel reinforcement Stage 2 HOLD POINT					н		н		☐ Pre-pour inspection		
3.2	Steel reinforcement Stage 3 HOLD POINT					н		н		☐ Pre-pour inspection		
3.2	Steel reinforcement Stage 4 HOLD POINT					н		н		☐ Pre-pour inspection		
3.3	Reinforcement Splice Lengths					S		S				
3.4	Pit & Pipe Connections HOLD POINT					н		w				
3.5	Installation of Core Holes, Voids, HD Bolts and Embedments					S		S				



						Ve	rify of ac	ceptanc	e by	Remarks / records
						HPF	Con	НР	P QA	
ITP		Iten	ns confo	ms?	NCR /					
Step No.	Activity to be verified	Yes	No	NA	Test Report No.	Key	Sign Date	Key	Sign Date	
3.6	Tolerances of Core Holes, HD Bolts and Embedments HOLD POINT					н		w		☐ MHI Checksheets
3.7	Earthing for Concrete Structures HOLD POINT					н		w		☐ UGL Earthing FIC
3.8	Concrete Mix and properties					S		S		☐ Material dockets ☐Concrete pour record
3.9a	Concrete Supply Temperature					S		s		☐ Material dockets ☐ Concrete pour record
3.9b	Concrete Supply Temperature					S		S		☐ Material dockets ☐ Concrete pour record
3.10	Concrete Placement					S		S		☐ Material dockets ☐ Concrete pour record
3.11	Concrete Slump Testing									☐ Concrete pour record
3.12	Concrete Compressive Strength Testing					S		S		☐ Concrete pour record
3.13	Surface finish WITNESS POINT					w		w		
3.14	Surface Treatments					S		S		
3.15	Joints					S		S		
3.16	Curing					S		S		
3.17	Stripping of formwork					S		S		
3.18	Concrete Repair (If required)					н		н		☐ Grout Placement Checklist ☐ Approved Aconex Corro for Repair Methodology
Filling	and Compaction									
4.1	Structure Backfill					S		S		☐ Material Test Report
4.2	Compaction - Backfill					S		S		☐ Test reports
4.3	Moisture Content					S		S		☐ Test reports
Confor	mance Check		1	ı	1	ı	ı	ı	ı	
5.1	Survey report					Н		w		☐ Survey reports
5.2	Concrete Test Results					S		S		☐ Test reports
5.3	Acceptance and closure of non-conforming items					н		н		



HPP Construction Representative	Signature	Date
HPP Quality Representative ments:	Signature	Date
ments.		