DESIGN-BUILD AGREEMENT

SH 71 TOLL LANES PROJECT

EXHIBIT 20

WARRANTY PERFORMANCE AND MEASUREMENT TABLE BASELINE

Warranty Performance and Measurement Table Baseline

ELEMENT CATEGORY	REF	ELEMENT	WARRANTY TERM	TxDOT INSPECTION AND MEASUREMENT METHOD	PERFORMANCE REQUIREMENT
1) ROADWAY					
				Unless stated otherwise, measurements shall be conducted using procedures, techniques, and measuring equipment consistent with TxDOT's *Pavement Management Information System Rater's Manual.*	
	1.2	Pavement	5 years, except for mill and overlay sections having a 2-year performance Warranty Term per Note 1	**b) Ruts – Mainlanes, shoulders & ramps** Depth as measured using an automated device in compliance with TxDOT Standards.	No wheel path length with ruts greater than ¼" in depth
				10ft straight edge used to measure rut depth for localized areas.	No length with depth of rut at any location greater than 0.5"
				c) Ride quality Measurement of International Roughness Index (IRI) according to TxDOT standard Tex-1001-S, Operating Inertial Profilers and Evaluating Pavement Profiles	• Mainlanes, ramps – no results greater than 95" per mile • Frontage roads – no results greater than 120" per mile
				3-ft straightedge used to measure discontinuities	No individual discontinuities greater than 0.75"
				d) Failures Instances of failures exceeding the failure criteria set forth in the TxDOT PMIS Rater's Manual, including potholes, base failures, punchouts and jointed concrete pavement failures	No occurrence of failure
				f) Skid resistance ASTM E274/E274M-11 Standard Test Method for Skid Resistance Testing of Paved Surfaces at 50 MPH using a full scale smooth tire meeting the requirements of ASTM E524-08 .	• Mainlanes, shoulders and ramps – Number of sections investigated as to potential risk of skidding accident and appropriate remedial action taken where average Skid Number for 0.5-mile section of mainlanes, shoulders and ramps are in excess of 30. • Frontage roads –Number of sections investigated as to potential risk of skidding accident and appropriate remedial action taken where average Skid Number for 0.5-mile section of frontage roads is in excess of 30. • When the Skid Number is below 25 and/or when required by the Wet Weather Accident Reduction Program, areas categorized as high risk, the Concessionaire shall perform a site investigation and perform required corrective action. Instances where road users warned of potential skidding hazard where remedial action is identified.

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ELEMENT CATEGORY	REF	ELEMENT	WARRANTY TERM	TxDOT INSPECTION AND MEASUREMENT METHOD	PERFORMANCE REQUIREMENT
	1.3	Crossovers and other paved areas	2 years	**a) Potholes** **b) Base failures**	No potholes of low severity or higher No base failures of low severity or higher
	1.4	Joints in concrete	5 years	Visual inspection of joints Measurement of joint width and level difference of two sides of joints	No length with unsealed joints greater than ¼" No joint width more than 1" or faulting more than ¼"
	1.5	Curbs	2 years	Visual inspection	No length out of alignment
2) DRAINAGE					
	2.2	Drainage treatment devices	2 years	Visual inspection	Devices functioning correctly with means of operation displayed
	2.3	Travel Way	2 years	Visual inspection of water on surface	The travel way is free from water to the extent that such water would represent a hazard by virtue of its position and depth.
	2.4	Discharge systems	2 years	Visual inspection and records	Surface water discharge systems perform their proper function and discharge to groundwater and waterways complies with the relevant permits and other legal requirements.
3) STRUCTURES					
	3.1	Structures having an opening measured along the centre of the roadway of more than 20 feet between undercopings of abutments or springlines of arches or extreme ends of openings or multiple boxes	5 years	Inspection and assessment in accordance with the requirements of federal National Bridge Inspection Standards (NBIS) of the Code of Federal Regulations, 23 Highways – Part 650, the TxDOT Bridge inspection Manual, and the Federal Administration's Bridge Inspector's Reference Manual	No occurrences of condition rating below seven for any deck, superstructure, substructure or components as required in the TxDOT Bridge Inspection Manual.
	3.3	Non-bridge class culverts	5 years	Visual inspection	Non-bridge-class culverts are free of: • defects in sealant to movement joints • scour damage
	3.4	Gantries and high masts	5 years	Visual inspection	Sign signal gantries, high masts are structurally sound and free of defects in surface protection systems

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	3.5	Load ratings	5 years	Load rating calculations in accordance with the Manual for Bridge Evaluation and the TxDOT Bridge Inspection Manual. Load restriction requirements as per the TxDOT Bridge Inspection Manual	All structures maintain the design load capacity.
4) PAVEMENT MARKINGS, OBJECT MARKERS, BARRIER MARKERS AND DELINEATORS					
	4.1	Pavement markings	2 years	a) Markings General - Physical measurement Profile Markings -Visual inspection	No Length with no more than 5% loss of area of material at any point Length performing its intended function and compliant with relevant regulations
	4.2	Raised reflective markers	2 years	Visual inspection	Markings are functioning as intended
5) GUARDRAILS, SAFETY BARRIERS AND IMPACT ATTENUATORS					
	5.1	Guard rails and safety barriers	2 years	Visual inspection	All guardrails, safety barriers, concrete barriers, etc. are free of construction defects and remain at correct height.
	5.2	Impact attenuators	2 years	Visual inspection	All impact attenuators remain as installed.
6) TRAFFIC SIGNS					
	6.1	General – All Signs	2 years	**a) Retroreflectivity** Coefficient of retro reflectivity **b) Face damage** Visual inspection **c) Placement** Visual inspection	No signs with reflectivity below the requirements of TxDOT's TMUTCD and free from structural and electrical defects No signs with face damage greater than 5% of area, unless caused by a third party Sign mounting posts are structurally sound and rust free
7) TRAFFIC SIGNALS					
	7.2	Soundness	2 years	**a) Structural soundness** Visual inspection **b) Electrical soundness**	Traffic Signals, Pedestrian Elements and Vehicle Detectors are structurally and electrically sound Inspection records showing compliance
8) LIGHTING					
	8.1	Roadway Lighting – General	2 years		Columns are upright, correctly founded, visually acceptable and structurally sound
	8.3	Electrical Supply	2 years	Testing to meet NEC regulations, visual inspection	Electricity supply, feeder pillars, cabinets, switches and fittings are electrically, mechanically and structurally sound and functioning
	8.5	High Mast Lighting	2 years		All winch and safety equipment is correctly functioning. (for structural requirements refer to Element Category 3)

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9) FENCES, WALLS AND SOUND ABATEMENT					
	9.2	Construction	5 years	Structural assessment if visual inspection warrants	Integrity and structural condition of the fence is maintained
12) EARTHWORKS, EMBANKMENTS AND CUTTINGS					
	12.1	Slope Failure	5 years	Visual inspection by geotechnical specialist and further tests as recommended by the specialist	All structural failures of the embankment and cut slopes of the Facility are repaired
13) ITS EQUIPMENT					
	13.5	Vehicle Detection Equipment	2 years	Defect measurement dependent on equipment Traffic Detector Loops: Loop circuit's inductance to be > 50 and < 1,000 micro henries. Insulation resistance to be > 50 meg ohms.	All equipment free of defects and operational problems such as; • Inoperable loops. • Malfunctioning camera controllers.
14) PLANT MATERIALS					
	14.1	Trees, Shrubs, and Other Plant Materials	1 year	Visual inspection of trees, shrubs, and other plant materials	All trees, shrubs, and other plant materials shall be in healthy condition. • Remove dead plants within ten (10) Business Days of discovery. • Replace such plants during the next planting season.

Note 1: Where indicated, mill and overlay sections specified in Technical Provisions Section 1.2.1 shall meet performance requirements for a period of 2 years from Final Acceptance (rather than for the 5-year Warranty Term generally applicable to the element category).