Texas Department of Transportation

COMPREHENSIVE MAINTENANCE AGREEMENT

FOR

LOOP 375 - BORDER HIGHWAY WEST EXTENSION

PROJECT

Design-Build Project

EXHIBIT 2
ATTACHMENTS 1-7

DECEMBER 20, 2013

ATTACHMENT 1: PERFORMANCE AND MEASUREMENT TABLE BASELINE

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
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. Unless otherwise stated, pavement performance measurement records relate to 0.5-mile sections as described in the Pavement Management Information System Rater's Manual.		
1.1	Obstructions and debris	Roadway and clear zone free from obstructions and debris	2 hrs	N/A	N/A	Visual Inspection	Number of obstructions and debris	Nil
1.2	Pavement	All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects.	24 hrs	28 days	6 months	**a) Pavement Condition Score** Measurements and inspections necessary to derive Pavement Condition Score	Pavement Condition Score for 80% of Auditable Sections exceeding: • Mainlanes and ramps - 90 100% • Frontage roads – 80 100% Pavement Condition Score of Auditable Sections • Mainlanes and ramps - 80 100% • Frontage roads - 70 100%	
		All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects.	24 hrs	28 days	6 months	**b) Ruts – Mainlanes, shoulders & ramps** Depth as measured using an automated device in compliance with TxDOT Standards.	Perecentage of wheel path length with ruts greater than ¼" in depth in each Auditable Section • Mainlanes, shoulders and ramps - 3% Nil • Frontage roads - 10% Nil	
						10ft straight edge used to measure rut depth for localized areas.	Depth of rut at any location greater than ½"	Nil
		All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects.	24 hrs	28 days	6 months	**c) Ride quality** Measurement of International Roughness Index (IRI) according to TxDOT standard Tex-1001-S, Operating Inertial Profilers and Evaluating Pavement Profiles	For 80% of all Auditable Sections measured, IRI throughout 98% of each Auditable Section is less than or equal to:	

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1.2 Cont.							• Mainlanes, ramps - 95" per mile**	100%
						** To allow for measurement bias, an adjustment of -10 (minus ten) is made to IRI measurements for concrete pavements before assessing threshold compliance.	• Frontage roads - 120" per mile**	100%
							IRI throughout 98% of each Auditable Section is less than or equal to:	
							• Mainlanes, ramps - 120" per mile**	100%
							• Frontage roads - 150" per mile**	100%
						(Renewal Work and new construction subject to construction quality standards)	Mainlanes, ramps, 0.1 mile average - 150" per mile**	100%
							Frontage roads, 0.1 mile average - 180" per mile**	100%
							IRI measured throughout 98% of each lane containing a bridge deck in any Auditable Section, 0.1 mile average - 200" per mile**	100%
						10-ft straightedge used to measure discontinuities	Individual discontinuities greater than 1/4”	Nil
		All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects.	24 hrs	28 days	6 months	**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	Occurrence of any failure	Nil
		All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects.	24 hrs	28 days	6 months	**e) Edge drop-offs** Physical measurement of edge drop-off level compared to adjacent surface	Number of instances of edge drop-off greater than 2"	Nil

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1.2 Cont.		All roadways have a smooth and quiet surface course (including bridge decks, covers, gratings, frames and boxes) with adequate skid resistance and free from Defects.	24 hrs	28 days	6 months	**f) Skid resistance** ASTM E 274 Standard Test Method for Skid Resistance Testing of Paved Surfaces at 50 MPH using a full scale smooth tire meeting the requirements of ASTM E 524	• Auditable Sections with skid numbers for 0.5-mile section of mainlanes, shoulders and ramps exceeding 30 and for which investigations as to potential risk of skidding accidents and appropriate remedial actions have been taken. • Auditable Sections with skid numbers for 0.5-mile section of frontage roads exceeding 30 and for which investigations as to potential risk of skidding accidents and appropriate remedial actions have been taken. • When the skid number is below 25 and/or when required by the Wet Weather Accident Reduction Program, areas categorized as high risk, Maintenance Contractor shall perform a site investigation and perform required corrective action.	100% 100% 100%
		Road users warned of potential skidding hazards	24 hrs	7days	N/A		Instances where road users are warned of a potential skidding hazard where remedial action is identified.	100%
1.3	Crossovers and other paved areas	Crossovers and other paved areas are free of Defects	24 hrs	28 days	6 months	**a) Potholes**	Number of potholes of low severity or higher	Nil
			24 hrs	28 days	6 months	**b) Base failures**	Number of base failures of low severity or higher	Nil
1.4	Joints in concrete	Joints in concrete paving are sealed and watertight	24 hrs	28 days	6 months	Visual inspection of joints	Length of unsealed joints greater than ¼"	Nil
		Longitudinal joint separation				Measurement of joint width and level difference of two sides of joints	Joint width more than 1" or faulting more than ¼”	Nil
1.5	Curbs	Curbs are free of defects	24 hrs	28 days	6 months	Visual inspection	Length of curb out of alignment	Nil

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2) DRAINAGE								
2.1	Pipes and Channels	Each element of the drainage system is maintained in its proper function by cleaning, clearing and/or emptying as appropriate from the point at which water drains from the travel way to the outfall or drainage way.	24 hrs	28 days	6 months	Visual inspection supplemented by CCTV where required to inspect buried pipe work	Length of pipe or channel in feet with less than 90% of cross sectional clear area, calculated as the arithmetic mean of the clear cross-sectional areas of individual 10 feet lengths of pipes and channels in each Auditable Section.	Nil
2.2	Drainage treatment devices	Drainage treatment and balancing systems, flow and spillage control devices function correctly and their location and means of operation is recorded adequately to permit their correct operation on Emergency.	24 hrs	28 days	6 months	Visual inspection	Number of devices functioning correctly with means of operation displayed	100%
2.3	Travel Way	The travel way is free from water to the extent that such water would represent a hazard by virtue of its position and depth.	24 hrs	28 days	6 months	Visual inspection of water on surface	Number of instances of hazardous water build-up	Nil
2.4	Discharge systems	Surface water discharge systems perform their proper function and discharge to groundwater and waterways complies with the relevant legislation and permits.	24 hrs	28 days	6 months	Visual inspection and records	Auditable Sections with surface water discharge systems performing their proper function and discharging in compliance with the relevant legislation and permits.	100%
2.5	Protected Species	Named species and habitats are protected.	24 hrs	28 days	6 months	Visual inspection	Auditable Sections with named species and habitats with protection of these named species and habitats	100%
3) STRUCTURES								
3.1	Structures having an opening measured along the center of the roadway of more than 20 feet between	Substructures and superstructures are free of: • graffiti	24 hrs	28 days	6 months	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.	Records as required in the TxDOT Bridge Inspection Manual	

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3.1 Cont.	undercopings of abutments or springlines of arches or extreme ends of openings or multiple boxes	• undesirable vegetation • debris and bird droppings • blocked drains, weep pipes manholes and chambers • blocked drainage holes in structural components • defects in joint sealants • defects in pedestrian protection measure • scour damage • corrosion of rebar • paint system failures • impact damage					Occurrence of condition rating, in accordance with the TxDOT Bridge Inspection Manual, below seven for any deck, superstructure or substructure Auditable Sections with structure components with condition states of one	Nil 100%
3.2	Structure components	i) Expansion joints are free of: • dirt debris and vegetation • defects in drainage systems • loose nuts and bolts • defects in gaskets	24 hrs	28 days	6 months	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.	Records as required in the TxDOT Bridge Inspection Manual Occurrence of condition rating, in accordance with the TxDOT Bridge Inspection Manual, below seven for any deck, superstructure or substructure Auditable Sections with structure components with condition states of one	 Nil 100%

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3.2 Cont.		ii) The deck drainage system is free of all and operates as intended. iii) Parapets are free of: • loose nuts or bolts • blockages of hollow section drain holes • graffiti • vegetation • accident damage iv) Bearings and bearing shelves are clean. v) Sliding and roller surfaces are clean and greased to ensure satisfactory performance. Additional advice contained in bearing manufacturers' instructions in the Structure Maintenance Manual is followed. Special finishes are clean and perform to the appropriate standards. vii) All non-structural items such as hoists and electrical fixings, operate correctly, are clean and lubricated as appropriate, in accordance with the manufacturer's recommendations and certification of lifting devices is maintained.						
3.3	Non-bridge class culverts	Non-bridge-class culverts are free of: • vegetation and debris and silt • defects in sealant to movement joints	24 hrs	28 days	6 months	Visual inspection	Number of non-bridge class culverts with vegetation, debris and silt in each Auditable Section Number of non-bridge class culverts with defects in sealant and movement joints in each Auditable Section	Nil Nil

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3.3 Cont.		• scour damage					Number of non-bridge class culverts with scour damage in each Auditable Section	Nil
3.4	Gantries and high masts	Sign signal gantries, high masts are structurally sound and free of: • loose nuts and bolts • defects in surface protection systems • graffiti	24 hrs	28 days	6 months	Visual inspection	Number of gantries and high masts with loose assemblies in each Auditable Section Number of gantries and high masts with defects in surface protection in each Auditable Section	Nil Nil
3.5	Load ratings	All structures maintain the design load capacity.	24 hrs	28 days	6 months	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	Number of structures with load restrictions for Texas legal loads (including legally permitted vehicles) in each Auditable Section	Nil
3.6	Access points	All hatches and points of access have fully operational and lockable entryways.	24 hrs	28 days	6 months	Visual Inspection	Number with defects in locks or entryways	Nil
3.7	Mechanically Stabilized Earth and Retaining Walls	Mechanically Stabilized Earth and Retaining Walls free of: • blocked weep holes • undesirable vegetation • defects in joint sealants • defects in pedestrian protection • scour damage • corrosion of reinforcing bars • paint system failure • concrete spalling • impact damage	24 hrs	28 days	6 months	Inspection and assessment in accordance with the requirements of federal Nations Bridge Inspection Standards (NBIS) of the Code of Federal Regulations, 23 Highways - Part 650, the TxDOT Bridge Inspection Manual and the Federal Highway Administration's Bridge Inspector's Reference Manual.	Records as required in the TxDOT Bridge Inspection Manual	100%

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3.7 Cont.		Parapets free of: • loose nuts and bolts • blockage of drain holes • undesirable vegetation • impact damage • concrete spalling						
4) PAVEMENT MARKINGS, OBJECT MARKERS, BARRIER MARKERS AND DELINEATORS								
4.1	Pavement markings	Pavement markings are: • clean and visible during the day and at night • whole and complete and of the correct color, type, width and length • placed to meet the TMUTCD and TxDOT's Pavement Marking Standard Sheets	24 hrs	28 days	6 months	a) Markings - General Portable retroreflectometer, which uses 30 meter geometry, meeting the requirements described in ASTM E 1710 Physical measurement b) Profile Markings	Percentage of total length of pavement marking in each auditable section meeting the minimum retroreflectivity 175 med/sqm/lx for white Percentage of total length of pavement marking in each auditable section meeting the minimum retroreflectivity 125 med/sqm/lx for white Length of pavement marking in each auditable section with more than 5% loss of area of material at any point Length of pavement marking in each auditable section with spread more than 10% of specified dimensions.	100% 100% Nil Nil

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4.1 Cont.						Visual inspection	Percentage of total length of pavement marking in each auditable section performing its intended function and compliant with relevant regulations	100%
4.2	Raised reflective markers	Raised reflective pavement markers are:	24 hrs	28 days	6 months	Visual inspection	Number of markers associated with road markings that are ineffective in any 10 consecutive markers. (Ineffective includes missing, damaged, settled or sunk)	Nil
4.2 Cont.		• clean and clearly visible • of the correct color and type • reflective or retroreflective in accordance with TxDOT standards • correctly located, aligned and at the correct level • are firmly fixed • are in a condition that will ensure that they remain at the correct level.					A minimum of four markers are visible at 80' spacing when viewed under low beam headlights. Uniformity (replacement raised reflective pavement markers have equivalent physical and performance characteristics to adjacent markers).	100% 100%
4.3	Delineators & Markers	Object markers, mail box markers and delineators are: • clean and visible • of the correct color and type • legible and reflective • straight and vertical	24 hrs	28 days	6 months	Visual inspection	Number of object markers or delineators in each Auditable Section that is defective or missing	Nil

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5) GUARDRAILS, SAFETY BARRIERS AND IMPACT ATTENUATORS								
5.1	Guardrails and safety barriers	All guardrails, safety barriers, concrete barriers, etc. are maintained free of Defects. They are appropriately placed and correctly installed at the correct height and distance from roadway or obstacles. Installation and repairs shall be carried out in accordance with the requirements of NCHRP 350 standards.	24 hrs	28 days	6 months	Visual inspection	Auditable Sections with all guard rails and safety barriers appropriately placed and correction installed Auditable Sections with all guard rails and safety barriers free from defects Auditable Sections with all guard rails and safety barriers at correct heights	100% 100% 100%
5.1 Cont.							Auditable Sections with all guard rails and safety barriers at correct distances from roadway obstacles	100%
5.2	Impact attenuators	All impact attenuators are appropriately placed and correctly installed	24 hrs	7 days	6 months	Visual inspection	Auditable Sections will all impact attenuators appropriately placed and correctly installed.	100%
6) TRAFFIC SIGNS								
6.1	General - All Signs	i) Signs are clean, correctly located, clearly visible, legible, reflective, at the correct height and free from structural and electrical defects ii) Identification markers are provided, correctly located, visible, clean and legible iii) Sign mounting posts are vertical, structurally sound and rust free iv) All break-away sign mounts are clear of silt or other debris that could impede break-away features and shall have correct stub heights	24 hrs	28 days	6 months	**a) Retroreflectivity** Determination of Coefficient of retro-reflectivity **b) Face damage** Visual inspection **c) Placement** Visual inspection	Number of signs with actual reflectivity below the requirements of TxDOT's TMUTCD in each auditable section Number of signs in each auditable section with face damage greater than 5% of area All signs in each auditable section are placed in accordance with TxDOT's Sign Crew Field Book including not twisted or leaning	Nil Nil

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6.1 Cont.		v) Obsolete and redundant signs are removed or replaced as appropriate vi) Visibility distances meet the stated requirements vii) Sign information is of the correct size, location, type and wording to meet its intended purpose and any statutory requirements viii) All structures and elements of the signing system are kept clean and free from debris and have clear access provided.				**d) Obsolete signs** Visual inspection **e) Sign Information** Visual inspection	Number of obsolete signs in each auditable section All sign information in each auditable section is of the correct size, location, type and wording to meet its intended purpose	100% 100%
6.1 Cont.		ix) All replacement and repair materials and equipment are in accordance with the requirements of the TMUTCD x) Dynamic message signs are in an operational condition				**f) Dynamic Message Signs** Visual inspection	All dynamic message signs in each auditable section are fully functioning	100%
6.2	General - Safety critical signs	Requirements as 6.1, Plus: "Stop," "Yield," "Do Not Enter," "One Way" and "Wrong Way" signs are clean legible and undamaged.	2hrs	1 week	6 months	Visual inspection	Number of damaged Safety critical signs in each auditable section	Nil
7) TRAFFIC SIGNALS								
7.1	General	i) Traffic Signals and their associated equipment are: • clean and visible • correctly aligned and operational • free from damage caused by accident or vandalism • correctly aligned and operational ii) Signal timing and operation is correct	2hrs	24 hrs	6 months	**a) General condition** Visual inspection **b) Damage** Visual inspection **c) Signal timing** Timed measurements **d) Contingency plans** Records Review	All Signals in each auditable section are clean and visible All Signals in each auditable section are undamaged All Installations in each auditable section have correct signal timings Full contingency plans are in place in each auditable section	100% 100% 100% 100%

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7.1 Cont.		iii) Contingency plans are in place to rectify Category 1 defects not immediately repairable to assure alternative traffic control is provided during a period of failure						
7.2	Soundness	Traffic signals are structurally and electrically sound	24 hrs	28 days	6 months	**a) Structural soundness** Visual inspection **b) Electrical soundness** Testing to meet NEC regulations	Inspection records showing safe installation and maintenance in each auditable section	100%
7.3	Identification marking	Signals have identification markers and the telephone number for reporting faults are correctly located, clearly visible, clean and legible	N/A	28 days	6 months	Visual inspection	Inspection records showing identification markers and other information are easily readable in each auditable section	100%
7.4	Pedestrian Elements and Vehicle Detectors	All pedestrian elements and vehicle detectors are correctly positioned and fully functional at all times	24 hrs	28 days	6 months	Visual inspection	Inspection records showing compliance with requirements for positioning and functionality in each auditable section with pedestrian elements and vehicle detectors.	100%
8) LIGHTING								
8.1	Roadway Lighting – General	i) All lighting is free from defects and provides acceptable uniform lighting quality ii) Lanterns are clean and correctly positioned iii) Lighting units are free from accidental damage or vandalism iv) Columns are upright, correctly founded, visually acceptable and structurally sound	24 hrs	28 days	6 months	**a) Mainlane lights operable** Night time inspection or automated logs **b) Mainlane lights out of action** Night time inspection or automated logs	Auditable Sections with 10 or more lights with more than 90% of lights functioning correctly / Auditable Sections with less than 10 lights with no more than 1 light not functioning correctly Number of instances of more than two consecutive lights out of action in each auditable section	100% Nil
8.2	Sign Lighting	Sign lighting is fully operational	24 hrs	28 days	6 months	Night time inspection or automated logs	Number of instances of more than one bulb per sign not working in each auditable section	Nil

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8.3	Electrical Supply	Electricity supply, feeder pillars, cabinets, switches and fittings are electrically, mechanically and structurally sound and functioning	24 hrs	7 days	1 month	Testing to meet NEC regulations, visual inspection	Inspection records showing safe installation and maintenance in each auditable section	100%
8.4	Access Panels	All access panels in place at all times.	24 hrs	7 days	1 month	Visual Inspection	Number of instances of missing access panels in each auditable section	Nil
8.5	High Mast Lighting	i) All high mast luminaries functioning on each pole ii) All obstruction lights are present and working (if required) iii) Compartment door is secure with all bolts in place iv) All winch and safety equipment is correctly functioning and maintained without rusting or corrosion	24 hrs	48 days	1 month	Yearly inspection and night time inspections or automated logs	Number of instances of two or more lamps not working per high mast pole in each auditable section Number of other high mast lighting defects identified in each auditable section	Nil Nil
8.5 Cont.		(for structural requirements refer to Element Category 3)						
9) FENCES, WALLS AND SOUND ABATEMENT								
9.1	Design and Location	Fences and walls act as designed and serve the purpose for which they were intended	24 hrs	28 days	6 months	Visual Inspection	Inspection records for fences and walls showing compliance with fence and wall requirements in each auditable section	100%
9.2	Construction	Integrity and structural condition of the fence is maintained	24 hrs	28 days	6 months	Structural assessment if visual inspection warrants	Inspection records for fences and walls showing compliance with fence and wall requirements in each auditable section	100%
10) ROADSIDE MANAGEMENT								
10.1	Vegetated Areas - Except landscaped areas - General	Vegetation is maintained so that:	24 hrs	7 days	28 days	**a) Urban areas** Physical measurement of height of grass and weeds	Individual measurement areas in each auditable section to have 95% of grass and weeds between 5” and 18” in height.	100%

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10.1 Cont.		i) Height of grass and weeds is kept within the limits described for urban and rural areas. Mowing begins before vegetation reaches the maximum height. ii) Spot mowing at intersections, ramps or other areas maintains visibility of appurtenances and sight distance. iii) Grass or vegetation does not encroach into or on paved shoulders, main lanes, sidewalks, islands, riprap, traffic barrier or curbs. iv) A herbicide program is undertaken in accordance with the TxDOT Herbicide Manual to control noxious weeds and to eliminate grass in pavement or concrete. v) A full width mowing cycle is completed after the first frost.				**b) Rural areas** Physical measurement of height of grass and weeds **c) Encroachment** Visual inspection of instances of encroachment of vegetation **d) Wildflowers** Visual Inspection with audit of process. **e) Sight lines** Visual inspection	Individual measurement areas in each auditable section to have 95% of height of grass and weeds between 5" and 30" in height. Number of occurrences of vegetation encroachment in each auditable section Adherence to vegetation management manuals Number of instances of impairment of sight lines or sight distance to signs in each auditable section	100% Nil 100% Nil
10.2	Landscaped Areas	i) All landscaped areas are maintained to their originally constructed condition. Landscaped areas are as designated in the plans. ii) Mowing, litter pickup, irrigation system maintenance and operation, plant maintenance, pruning, insect, disease and pest control, fertilization, mulching, bed maintenance, watering is undertaken as per MMP. iii) The height of grass and weeds is kept between 2" and 8". Mowing begins before vegetation reaches 8 in. iv) Damaged or dead vegetation is replaced.	24 hrs	7 days	28 days	Visual inspection	Inspection records showing compliance with requirements for landscaping in each auditable section.	100%
10.3	Fire Hazards	Fire hazards are controlled	24 hrs	7 days	28 days	Visual inspection	Number of instances of dry brush or vegetation forming fire hazard in each auditable section.	Nil

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10.4	Trees, brush and ornamentals	i) Trees, brush and ornamentals on the right of way, except in established no mow areas, are trimmed in accordance with TxDOT standards. ii) Trees, brush and ornamentals are trimmed to insure they do not interfere with vehicles or sight distance, or inhibit the visibility of signs. iii) Dead trees, brush, ornamentals and branches are removed. Potentially dangerous trees or limbs are removed. iv) All undesirable trees and vegetation are removed. Diseased trees or limbs are treated or removed by licensed contractors.	24 hrs	7 days	28 days	Visual inspection	Inspection records showing compliance with requirements for trees, brush and ornamentals in each auditable section.	100%
10.5	Wetlands	Wetlands are managed in accordance with the permit requirements.	24 hrs	7 days	28 days	Visual inspection, assessment of permit issuers	Number of instances of permit requirements not met in each auditable section	Nil
11) REST AREAS AND PICNIC AREAS (Not Used)								
12) EARTHWORKS, EMBANKMENTS AND CUTTINGS								
12.1	Slope Failure	All structural or natural failures of the embankment and cut slopes of the Project are repaired	24 hrs	28 days	6 months	Visual inspection by geotechnical specialist and further tests as recommended by the specialist	Number of recorded instances of slope failure in each Auditable Section	Nil
12.2	Slopes - General	Slopes are maintained in general conformance to the original graded cross-sections, the replacement of landscaping materials, reseeding and re-vegetation for erosion control purposes and removal and disposal of all eroded materials from the roadway and shoulders	24 hrs	28 days	6 months	Visual inspection by geotechnical specialist and further tests as recommended by the specialist	Inspection records showing compliance with requirements for slopes in each auditable section.	100%

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13) ITS EQUIPMENT								
13.1	ITS Equipment - Maintenance	All ITS equipment is fully functional and housing is functioning and free of defects. i) All equipment and cabinet identification numbers are visible, sites are well drained and access is clear. ii) Steps, handrails and accesses are kept in a good condition. iii) Access to all communication hubs, ground boxes, cabinets and sites is clear. iv) All drainage is operational and all external fixtures and fittings are in a satisfactory condition. v) All communications cable markers, cable joint markers and duct markers are visible and missing markers are replaced. vi) Backup power supply system is available at all times	24 hrs	14 days	1 month	Visual Inspection	Inspection records showing compliance with requirements for maintenance of ITS equipment in each auditable section.	100%
13.2	Dynamic Message Sign Equipment	Dynamic Message Signs are free from faults such as: i) Any signal displaying a message which is deemed to be a safety hazard. ii) Failure of system to clear sign settings when appropriate. iii) 2 or more contiguous sign failures that prevent control office setting strategic diversions. iv) Signs displaying an incorrect message.	2 hrs	24 hrs	14 days	Defect measurement dependent on equipment	Inspection records showing compliance with requirements for Dynamic Message Signs in each auditable section	100%

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			Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
13.3	CCTV Equipment	CCTV Systems are free from serious faults that significantly limit the availability of the operators to monitor the area network, such as: i) Failure of CCTV Systems to provide control offices with access and control of CCTV images. ii) Failure of a CCTV camera or its video transmission system. iii) Failure of a Pan / Tilt unit or its control system. iv) Moisture ingress onto CCTV camera lens. v) Faults that result in significant degradation of CCTV images.	2 hrs	24 hrs	14 days	Defect measurement dependent on equipment	Inspection records showing compliance with requirements for CCTV equipment in each auditable section	100%
13.4	Vehicle Detection Equipment	All equipment free of defects and operational problems such as: i) Inoperable loops. ii) Malfunctioning camera controllers.	2 hrs	24 hrs	1 month	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.	Inspection records showing compliance with requirements for vehicle detection equipment in each auditable section	100%
14) TOLLING Facilities and Buildings (Not Used)								
15) AMENITY								
15.1	Graffiti	Graffiti is removed in a manner and using materials that restore the surface to a like appearance similar to adjoining surfaces	24 hrs	N/A	N/A	Visual Inspection	Inspection records showing compliance with requirements regarding grafitti in each auditable section	100%

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
16) SNOW AND ICE CONTROL								
16.1	Travel lanes	Maintain travel way free from snow and ice	2 hrs	N/A	N/A	Maximum 1hr response time to complete manning and loading of spreading vehicles. Maximum 2hrs from departure from loading point to complete treatment and return to loading point. Maximum 1hr response time for snow and ice clearance vehicles to depart from base.	Inspection records showing compliance with requirements for snow and ice control in each auditable section	100%
16.2	Weather Forecasting	Weather forecast information is obtained and assessed and appropriate precautionary treatment is carried out to prevent ice forming on the travel way.	2 hrs	N/A	N/A	Operations plan details the process and procedures in place and followed.	Inspection records showing compliance with requirements for weather forecasting in each auditable section	100%
16.3	Operational Plans	Operate snow and ice clearance plans to maintain traffic flows during and after snowfall and restore the travel way to a clear condition as soon as possible.	2 hrs	N/A	N/A	Operations plan details the process and procedures in place and followed.	Inspection records showing compliance with snow and ice clearance plans in each auditable section	100%
17) INCIDENT RESPONSE								
17.1	General	Monitor the Project and respond to Incidents in accordance with the Maintenance Management Plan (MMP).	1 hr	N/A	N/A	Maintenance Specifications are met for 98% of incidents measured on a 1 year rolling basis. No complaints from Emergency Services.	Inspection records showing compliance with the MMP and requirements regarding incident response times in each auditable section	100%
17.2	Hazardous Materials	Monitor the Project and respond to Incidents involving Hazardous Materials in accordance with the Maintenance Management Plan (MMP).	1 hr	N/A	N/A	MMP details the process and procedures in place and followed.	Inspection records showing compliance with the MMP details regarding hazardous materials in each auditable section	100%
17.3	Structural assessment	Evaluate structural damage to structures and liaise with emergency services to ensure safe working environment while clearing the incident	1 hr	N/A	N/A	Inspections and surveys as required by incident	Inspection records showing compliance with the MMP and requirements for incidents in each auditable section	100%

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
17.4	Temporary and permanent remedy	Propose and implement temporary measures or permanent repairs to Defects arising from the incident. Ensure the structural safety of any structures affected by the Incident.	24 hrs	28 days	N/A	Review and inspection of the incident site	Auditable inspection records showing compliance with requirements for temporary and permanent remedy for incidents in each auditable section	100%
18) CUSTOMER RESPONSE								
18.1	Response to inquiries	Timely and effective response to customer inquiries and complaints.	48 hrs	28 days	N/A	Contact the customer within 48 hours following initial customer inquiry. All work resulting from customer requests is scheduled within 48 hours of customer contact. Follow-up contact with the customer within 72 hours of initial inquiry. All customer concerns/requests are resolved to TxDOT's satisfaction within 2 weeks of the initial inquiry.	Percentage of responses within specified times in each auditable section.	100%
18.2	Customer contact line	Telephone line manned during business hours and 24 hour availability of messaging system. Faults to telephone line or message system rectified.	24 hrs	28 days	N/A	Instances of line out of action or unmanned	Number of operations records showing non availability of the customer contact line in each auditable section including complaints from public.	Nil
19) SWEEPING AND CLEANING								
19.1	Sweeping	i) Keep all channels, hard shoulders, gore areas, ramps, intersections, islands and frontage roads swept clean, ii) Clear and remove debris from traffic lanes, hard shoulders, verges and central reservations, footways and cycle ways iii) Remove all sweepings without stockpiling in the right of way and dispose of at approved tip.	24 hrs	28 days	6 months	Buildup of dirt, ice, rock, debris, etc. on roadways and bridges not to accumulate greater than 24" wide or 1/2" deep	Inspection records showing compliance with requirements for sweeping in each auditable section.	100%

ELEMENT CATEGORY		PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
			Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
19.2	Litter	i) Keep the right of way in a neat condition, remove litter regularly. ii) Pick up large litter items before mowing operations. Dispose of all litter and debris collected at an approved solid waste site.	24 hrs	28 days	6 months	No more than 20 pieces of litter per roadside mile shall be visible when traveling at highway speed.	Inspection records showing compliance with requirements regarding litter pick-up in each auditable section.	100%

ATTACHMENT 2: ELEMENTS FOR WHICH MAINTENANCE SERVICES ARE TO BE PROVIDED

ELEMENT CATEGORY		MAINTENANCE TYPES				
		Routine	**Preventive**	**Major**	**Emergency**	**Operational Items**
1) ROADWAY						
1.1	Obstructions and debris	x				
1.2	Pavement	x	x	x		
1.3	Crossovers and other paved areas	x	x	x		
1.4	Joints in concrete	x	x	x		
1.5	Curbs	x		x		
2) DRAINAGE						
2.1	Pipes and Channels	x	x	x		
2.2	Drainage treatment devices	x	x	x		
2.3	Travel Way	x	x	x		
2.4	Discharge systems	x	x	x		
2.5	Protected species	x				
3) STRUCTURES						
3.1	Structures having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or springlines of arches or extreme ends of openings or multiple boxes	x	x	x		
3.2	Structure components	x	x	x		
3.3	Non-bridge class culverts	x	x	x		
3.4	Gantries and high masts	x	x	x		
3.5	Load ratings	x	x	x		
3.6	Access points	x		x		
3.7	Mechanically Stabilized Earth and Retaining Walls	x	x	x		
4) PAVEMENT MARKINGS, OBJECT MARKERS, BARRIER MARKERS AND DELINEATORS						
4.1	Pavement markings	x		x		
4.2	Raised reflective markers	x		x		
4.3	Delineators & Markers	x		x		
5) GUARDRAILS, SAFETY BARRIERS AND IMPACT ATTENUATORS						
5.1	Guard rails and safety barriers	x		x		
5.2	Impact attenuators	x		x		
6) TRAFFIC SIGNS						
6.1	General – All Signs	x		x		
6.2	General - Safety critical signs	x		x		

ELEMENT CATEGORY		MAINTENANCE TYPES				
		Routine	**Preventive**	**Major**	**Emergency**	**Operational Items**
7) TRAFFIC SIGNALS						
7.1	General	x		x		
7.2	Soundness	x		x		
7.3	Identification marking	x		x		
7.4	Pedestrian Elements and Vehicle Detectors	x		x		
8) LIGHTING						
8.1	Roadway Lighting – General	x		x		
8.2	Sign Lighting	x		x		
8.3	Electrical Supply	x		x		
8.4	Access Panels	x		x		
8.5	High Mast Lighting	x		x		
9) FENCES, SOUND WALLS AND ABATEMENT						
9.1	Design and Location	x		x		
9.2	Construction	x		x		
10) ROADSIDE MANAGEMENT						
10.1	Vegetated Areas – Except landscaped areas – General	x				
10.2	Landscaped Areas	x				
10.3	Fire Hazards	x				
10.4	Trees, brush and ornamentals	x				
10.5	Wetlands	x				
11) REST AREAS AND PICNIC AREAS (Not Used)						
12) EARTHWORKS, EMBANKMENTS AND CUTTINGS						
12.1	Slope Failure	x	x	x		
12.2	Slopes - General	x	x	x		
13) ITS EQUIPMENT						
13.1	ITS Equipment	x		x		
13.2	Dynamic Message Sign Equipment	x		x		
13.3	CCTV Equipment	x		x		
13.4	Vehicle Detection Equipment	x		x		
14) TOLLING Facilities and Buildings (Not Used)						
15) AMENITY						
15.1	Graffiti	x				
16) SNOW AND ICE CONTROL						
16.1	Travel lanes				x	
16.2	Weather Forecasting				x	
16.3	Operational Plans				x	
17) INCIDENT RESPONSE						
17.1	General				x	

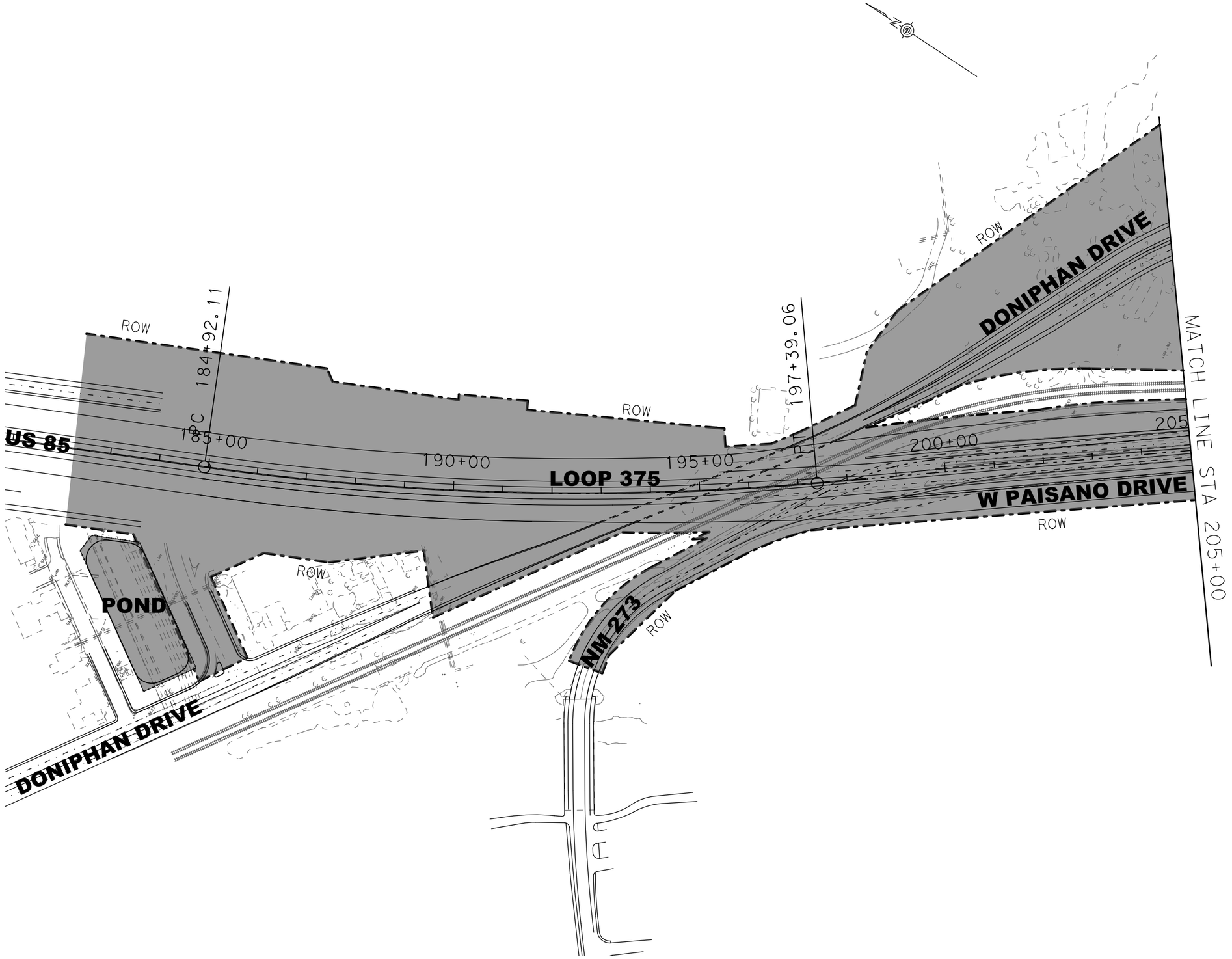
ELEMENT CATEGORY		MAINTENANCE TYPES				
		Routine	**Preventive**	**Major**	**Emergency**	**Operational Items**
17.2	Hazardous Materials				x	
17.3	Structural assessment				x	
17.4	Temporary and permanent remedy				x	
18) CUSTOMER RESPONSE						
18.1	Response to inquiries					x
18.2	Customer contact line					x
19) SWEEPING AND CLEANING						
19.1	Sweeping	x				
19.2	Litter	x				

ATTACHMENT 3: LIMITS FOR MAINTENANCE SERVICES

LEGEND

LIMITS OF MAINTENANCE

RIGHT-OF-WAY



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LOOP 375/BORDER HIGHWAY WEST

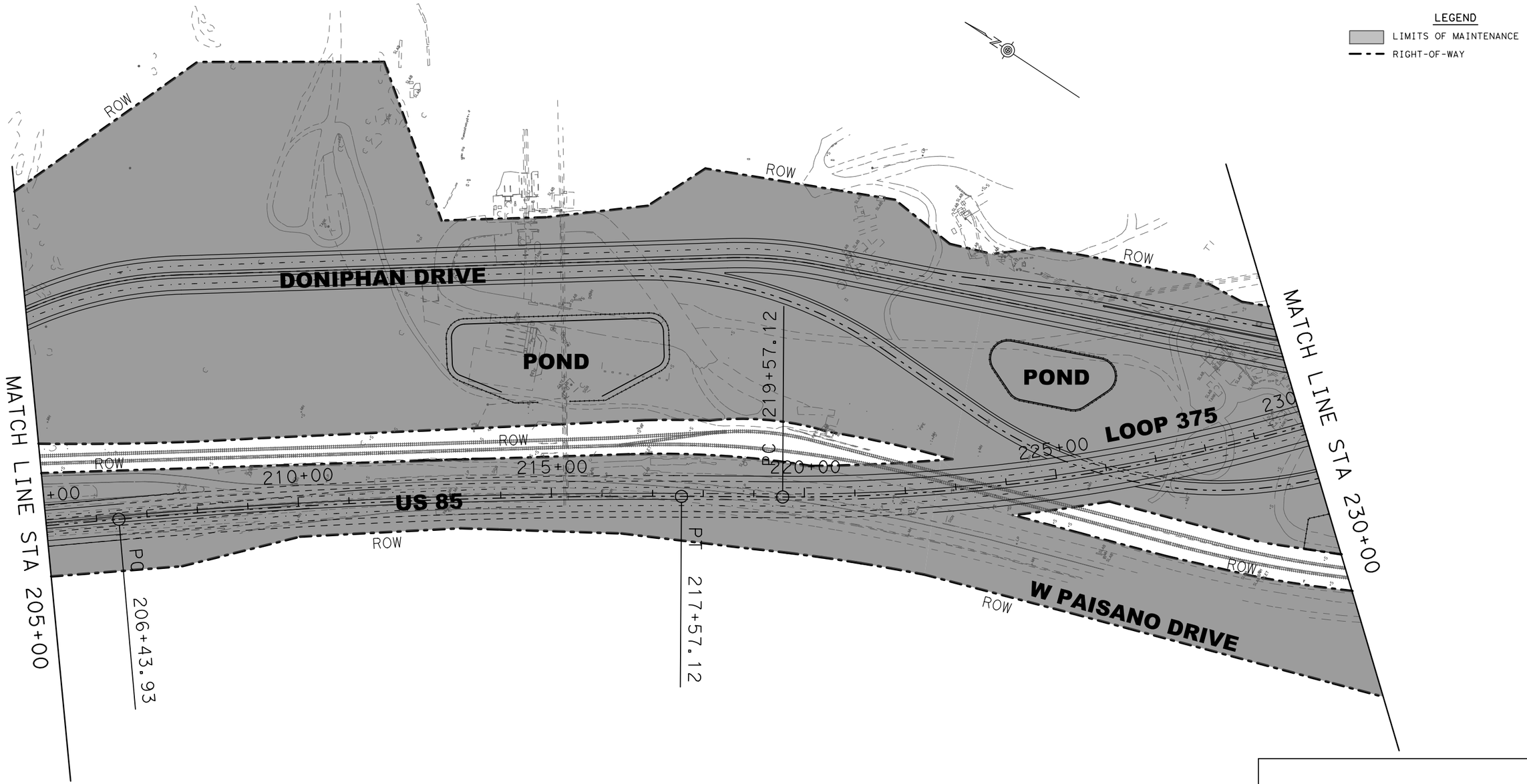
COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 1 OF 15

COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET 1
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\dlv\3750M01.dgn
DATE: 11/1/2013



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LOOP 375/BORDER HIGHWAY WEST

COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 2 OF 15

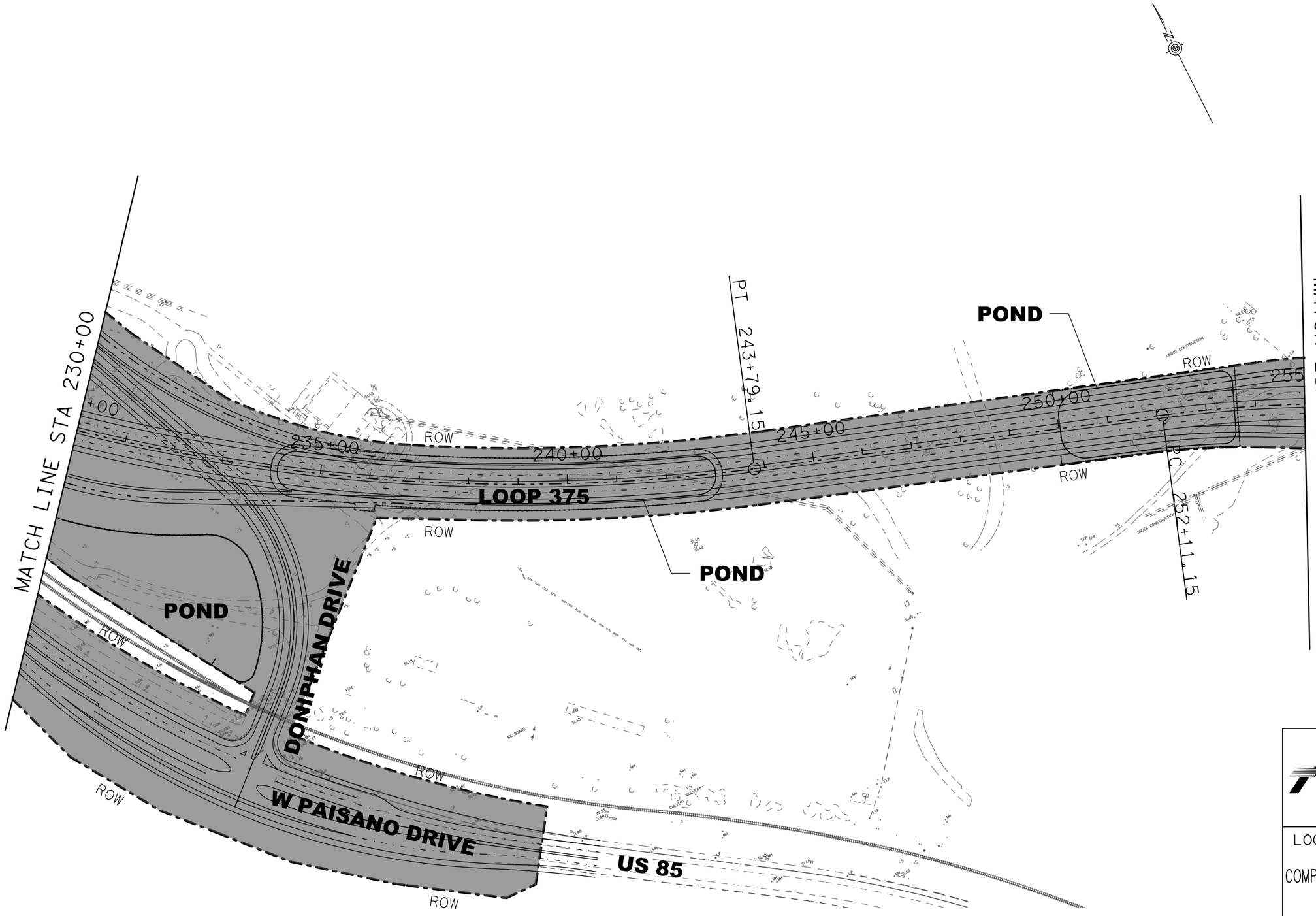
COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET 2
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\dlv\3750M02.dgn
DATE: 11/1/2013

LEGEND

LIMITS OF MAINTENANCE

RIGHT-OF-WAY



LOOP 375/BORDER HIGHWAY WEST

COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 3 OF 15

COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET 3
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\dlv\3750M03.dgn
DATE: 11/1/2013

LEGEND

LIMITS OF MAINTENANCE

RIGHT-OF-WAY

IH 10

LOOP 375

ACCESS ROAD

EXECUTIVE CENTER BLVD

MATCH LINE STA 255+00

MATCH LINE STA 280+00

ROW

260+00

265+00

270+00

275+00

280

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LOOP 375/BORDER HIGHWAY WEST

COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 4 OF 15

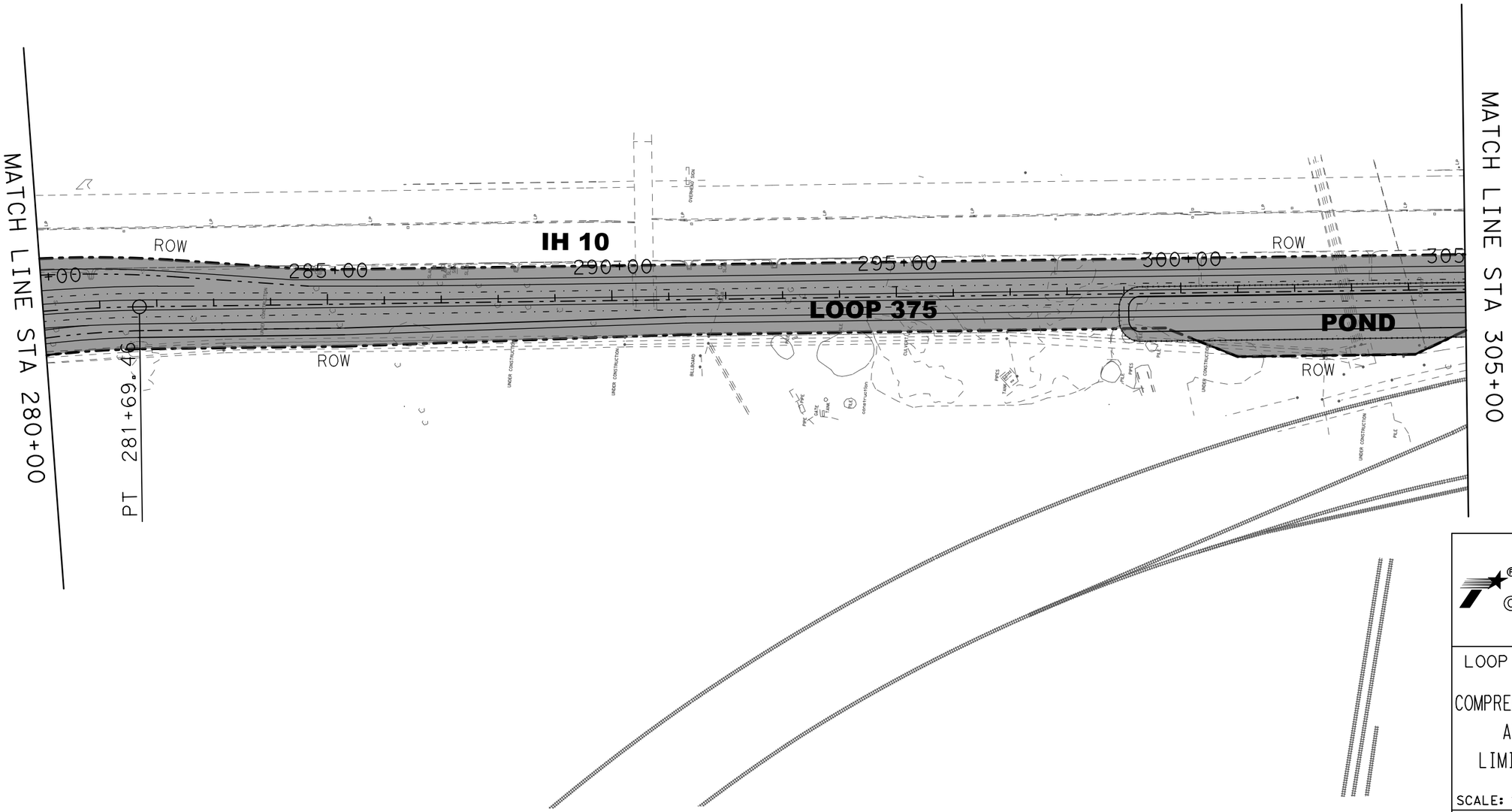
COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET 4
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\dlv\3750M04.dgn
DATE: 11/1/2013

LEGEND

LIMITS OF MAINTENANCE

RIGHT-OF-WAY



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LOOP 375/BORDER HIGHWAY WEST

COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 5 OF 15

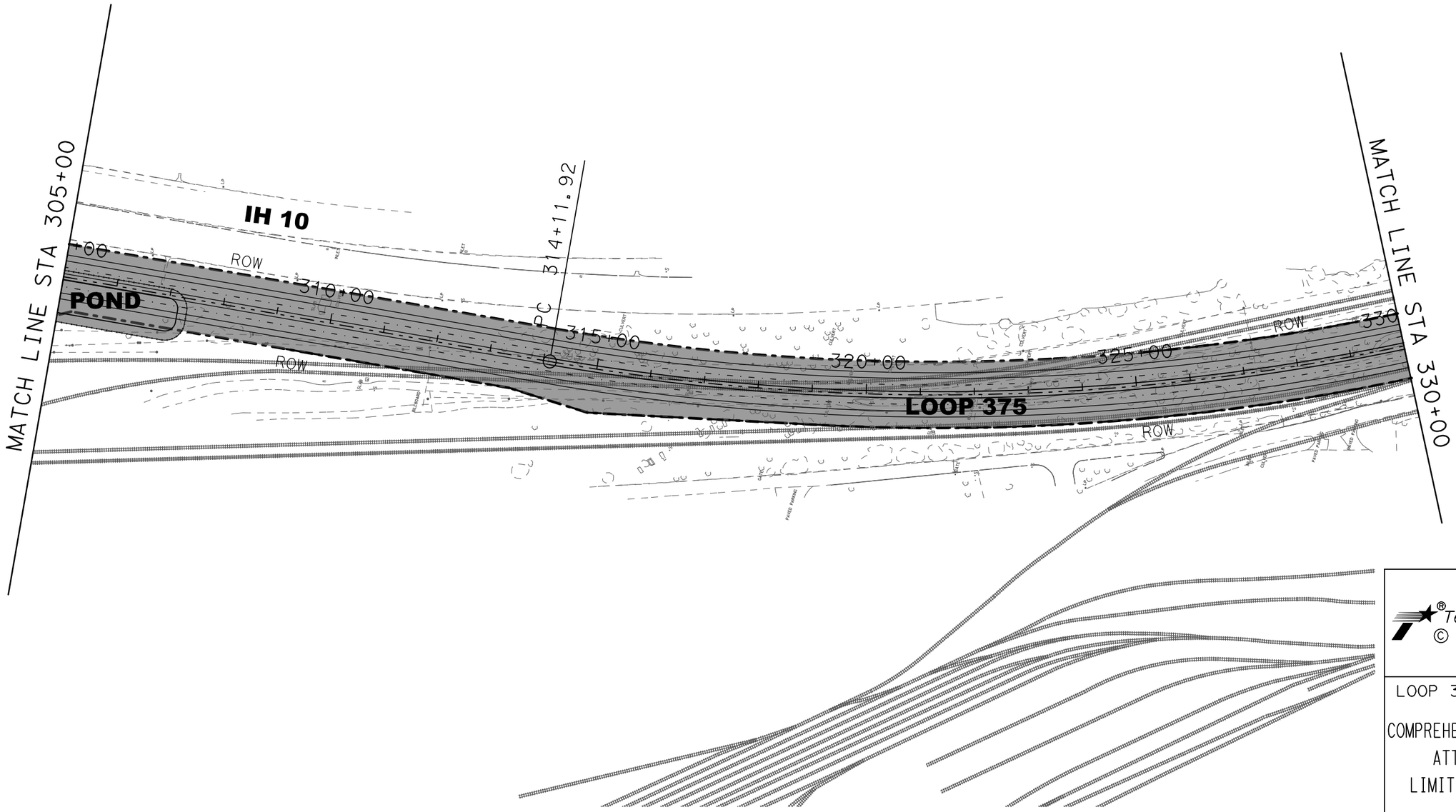
COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET 5
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\div\3750M05.dgn
DATE: 11/1/2013

LEGEND

LIMITS OF MAINTENANCE

RIGHT-OF-WAY



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LOOP 375/BORDER HIGHWAY WEST

COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 6 OF 15

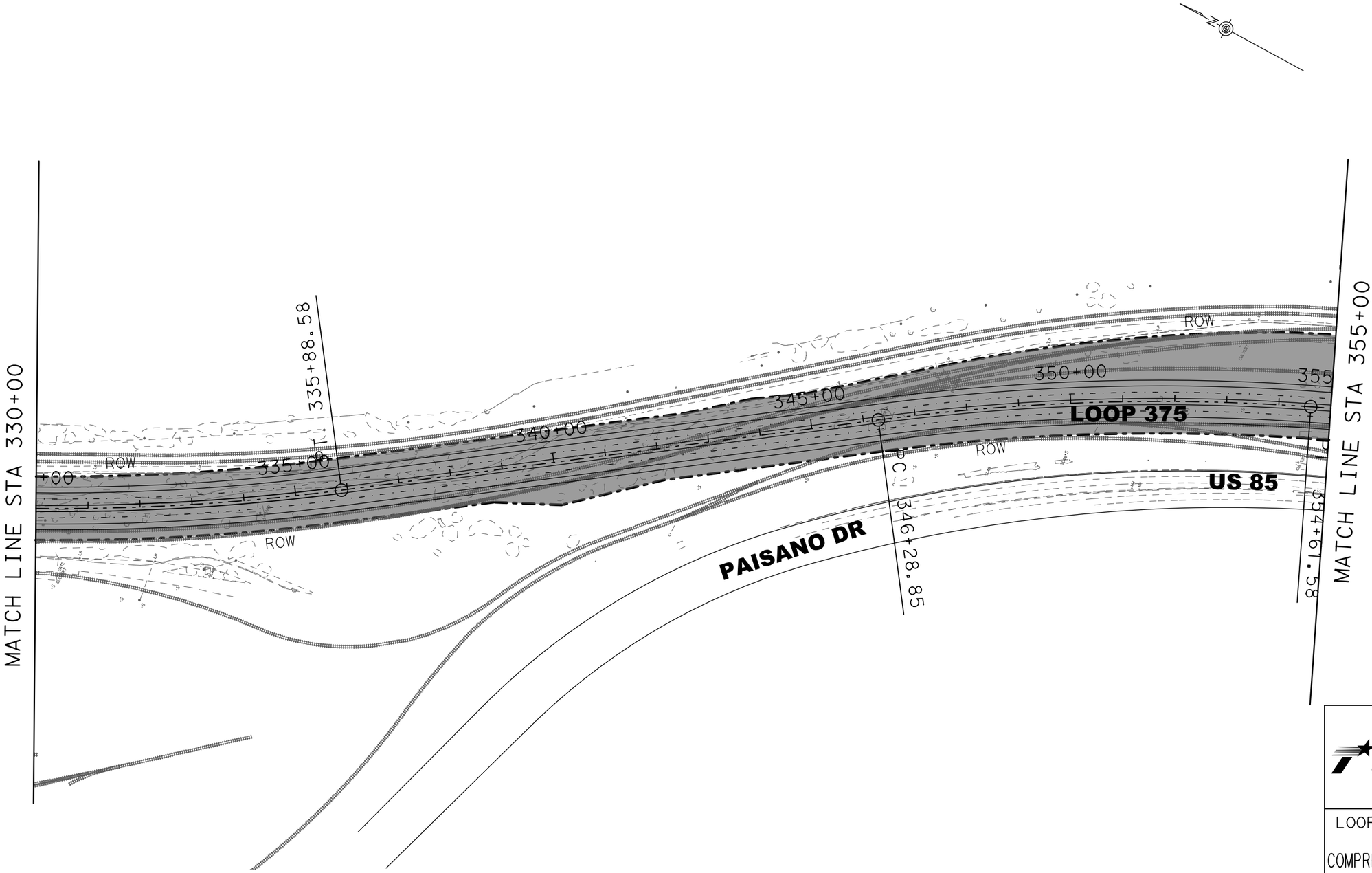
COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL	6

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\div\3750M06.dgn
DATE: 11/1/2013

LEGEND

LIMITS OF MAINTENANCE

RIGHT-OF-WAY



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LOOP 375/BORDER HIGHWAY WEST

COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 7 OF 15

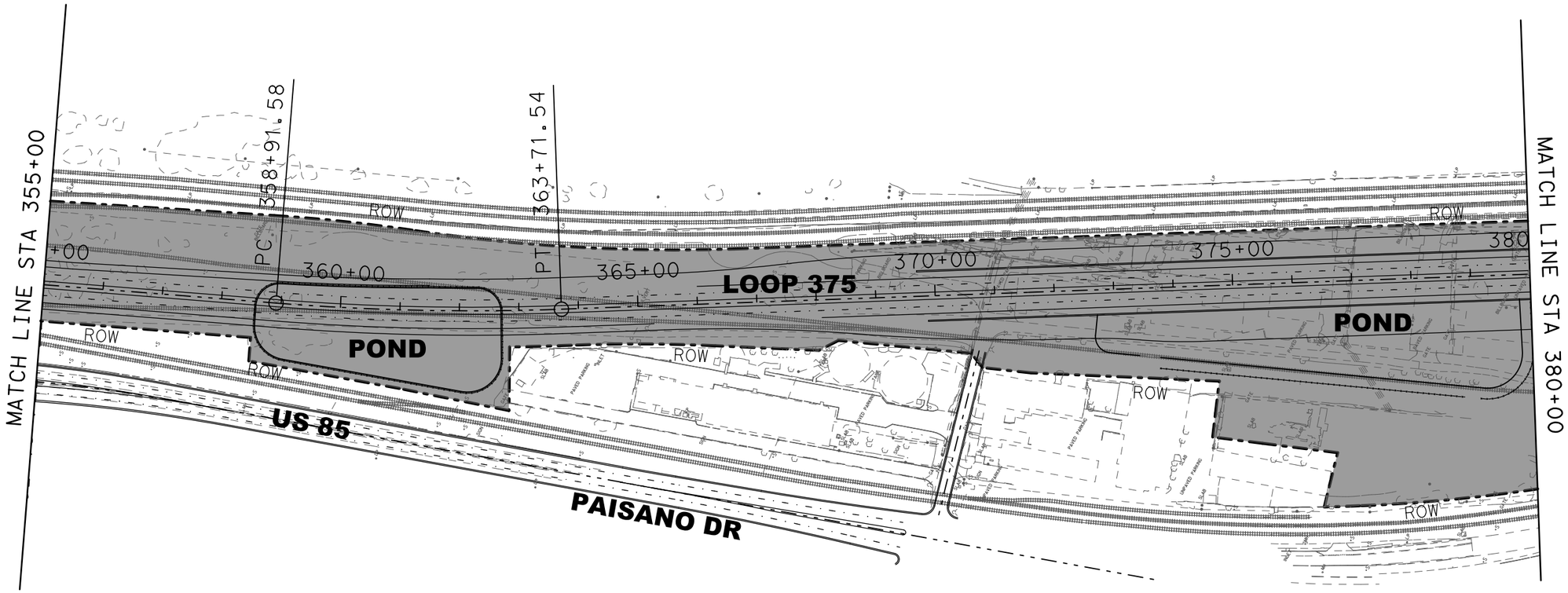
COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET 7
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\div\3750M07.dgn
DATE: 11/1/2013

LEGEND

LIMITS OF MAINTENANCE

RIGHT-OF-WAY



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LOOP 375/BORDER HIGHWAY WEST

COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 8 OF 15

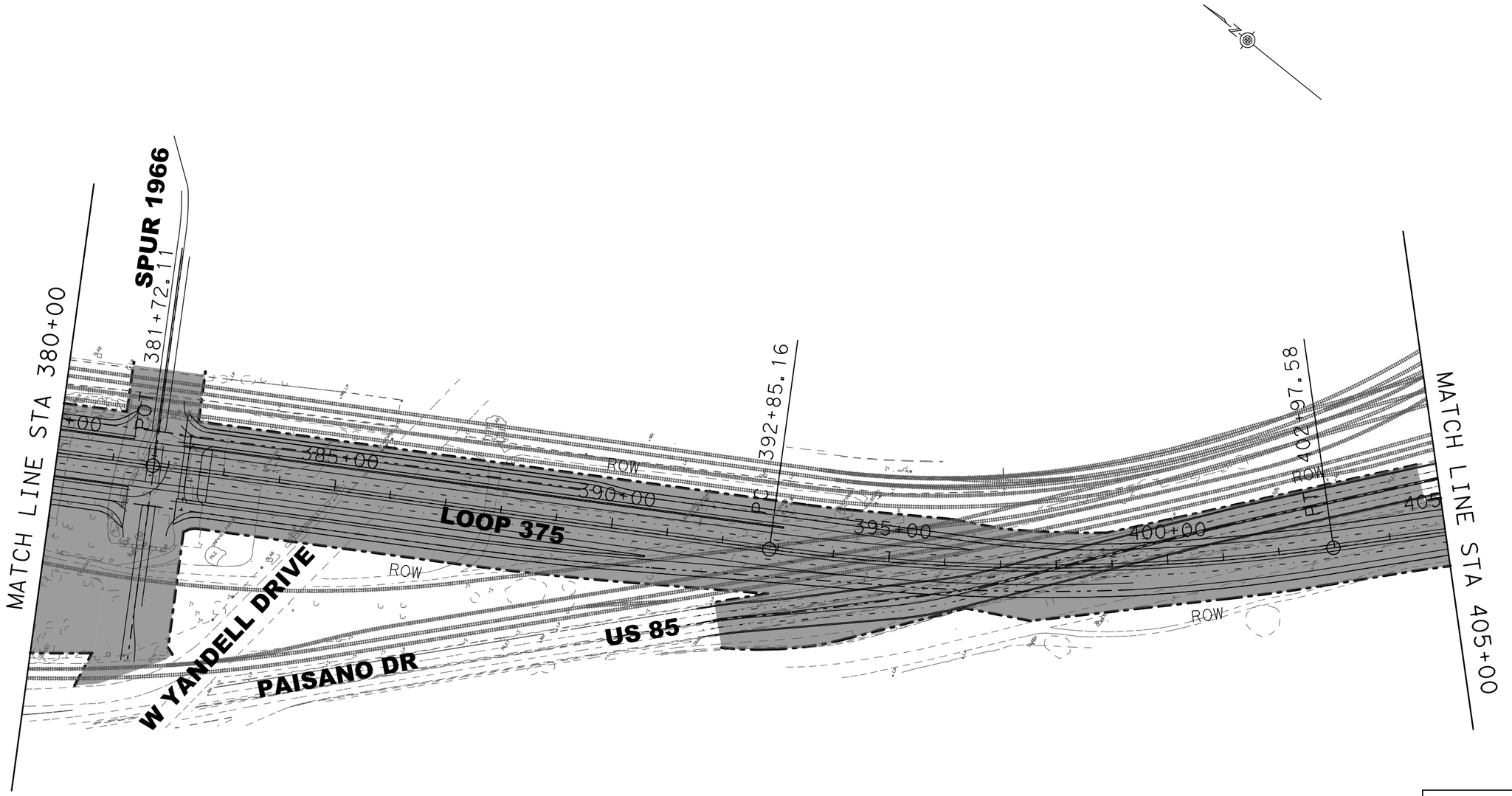
COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL	8

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\div\3750M08.dgn
DATE: 11/1/2013

LEGEND

LIMITS OF MAINTENANCE

RIGHT-OF-WAY



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LOOP 375/BORDER HIGHWAY WEST

COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 9 OF 15

COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL	9

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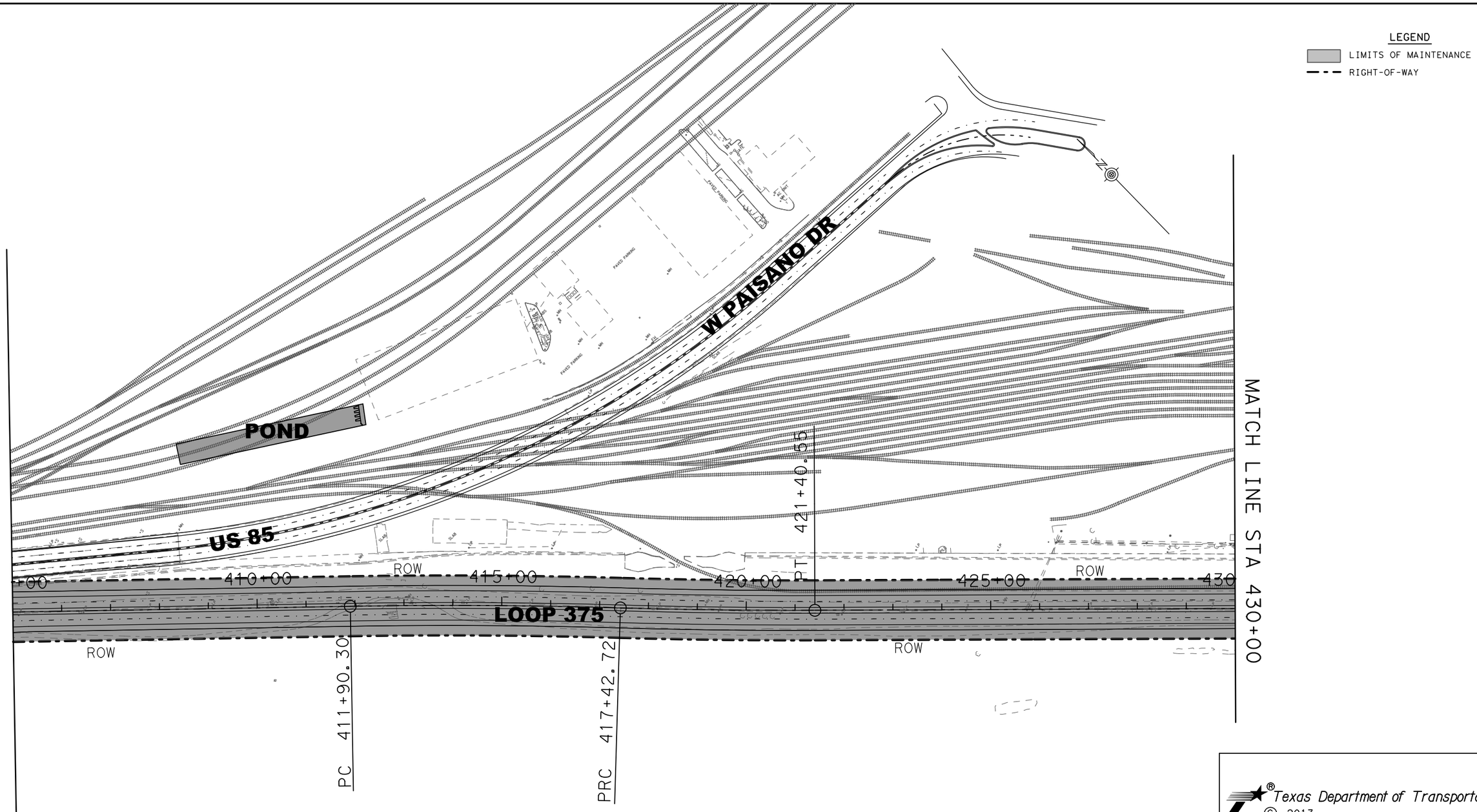
DATE: 11/1/2013



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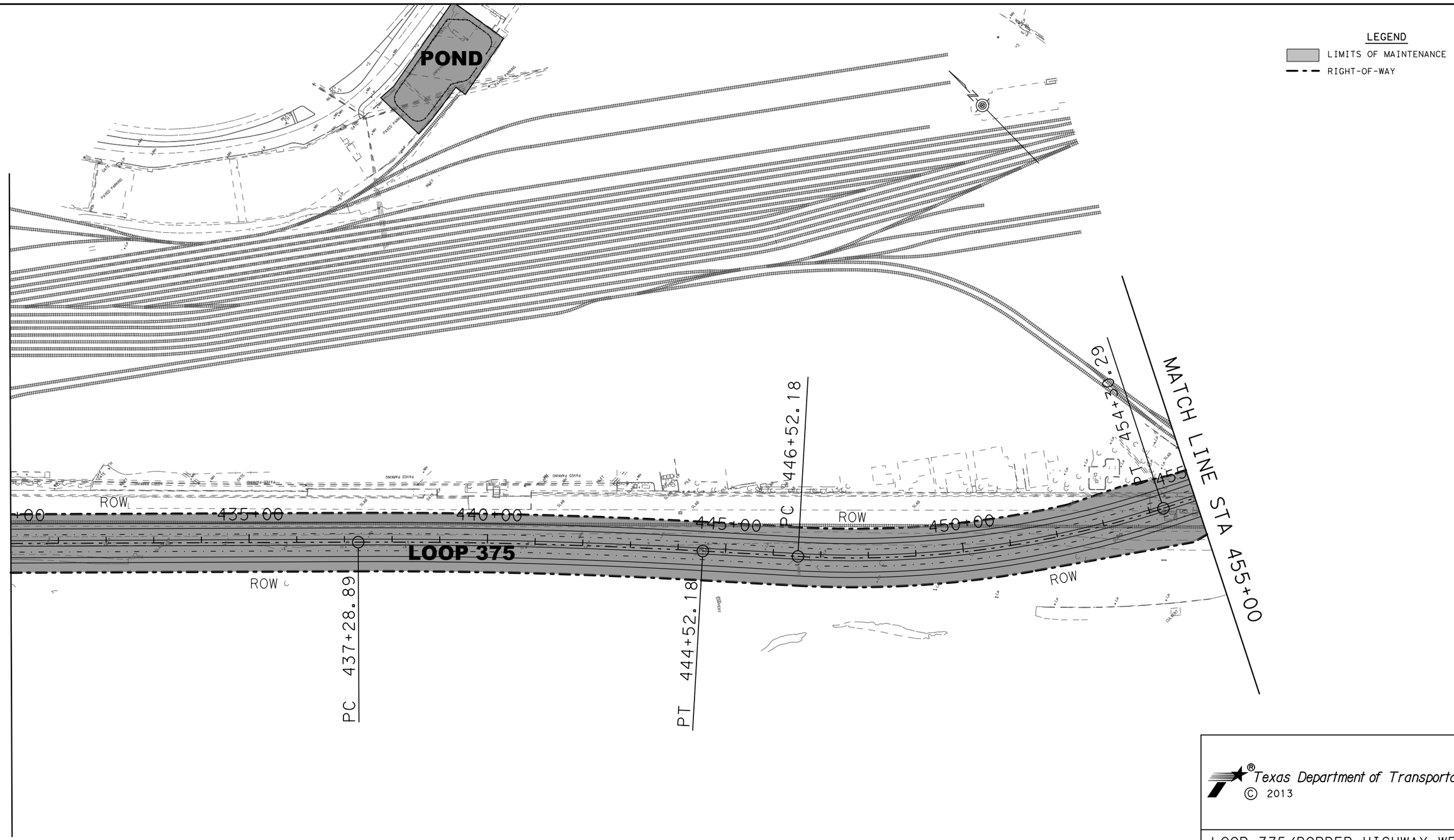
COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 10 OF 15

COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL	10

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\dlv\3750MI0.dgn
DATE: 11/1/2013



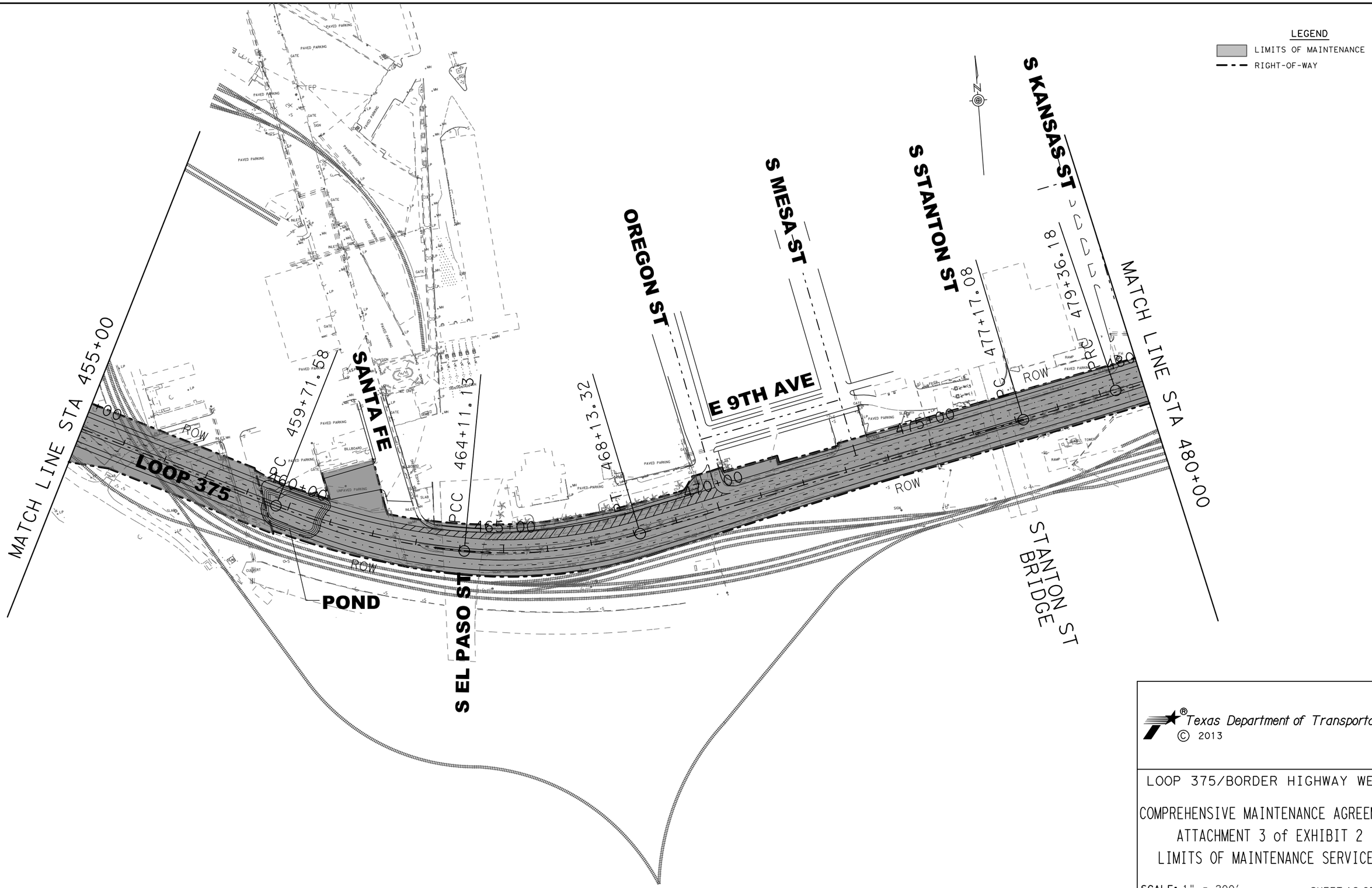
LOOP 375/BORDER HIGHWAY WEST

COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL	11

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\dlv\3750MII.dgn
DATE: 11/1/2013



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COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 12 OF 15

COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET 12
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\dlv\3750MI2.dgn
DATE: 11/1/2013

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\dlv\3750M13.dgn
DATE: 11/1/2013

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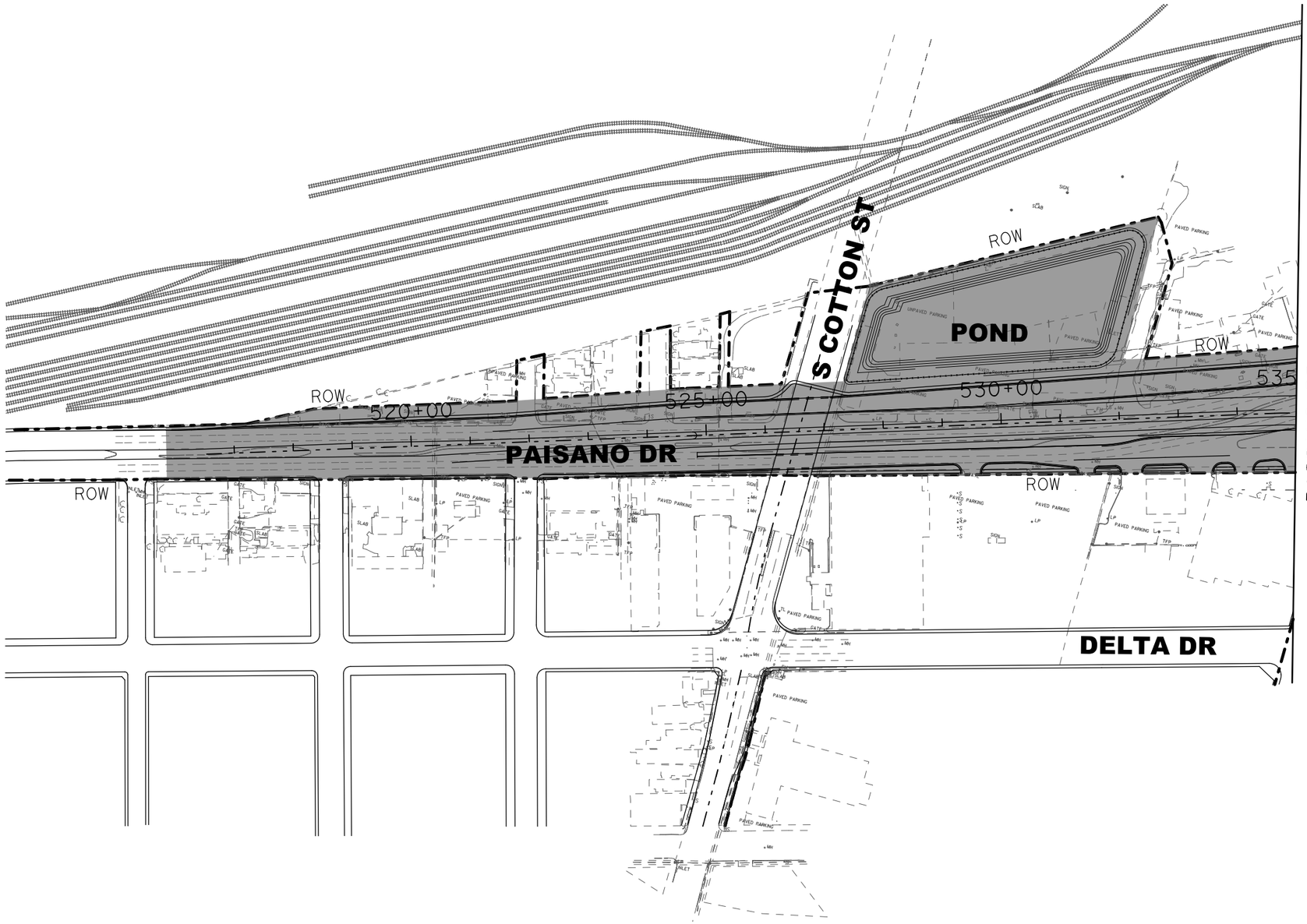
COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 13 OF 15

COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET 13
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL



LEGEND

LIMITS OF MAINTENANCE

RIGHT-OF-WAY

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LOOP 375/BORDER HIGHWAY WEST

COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

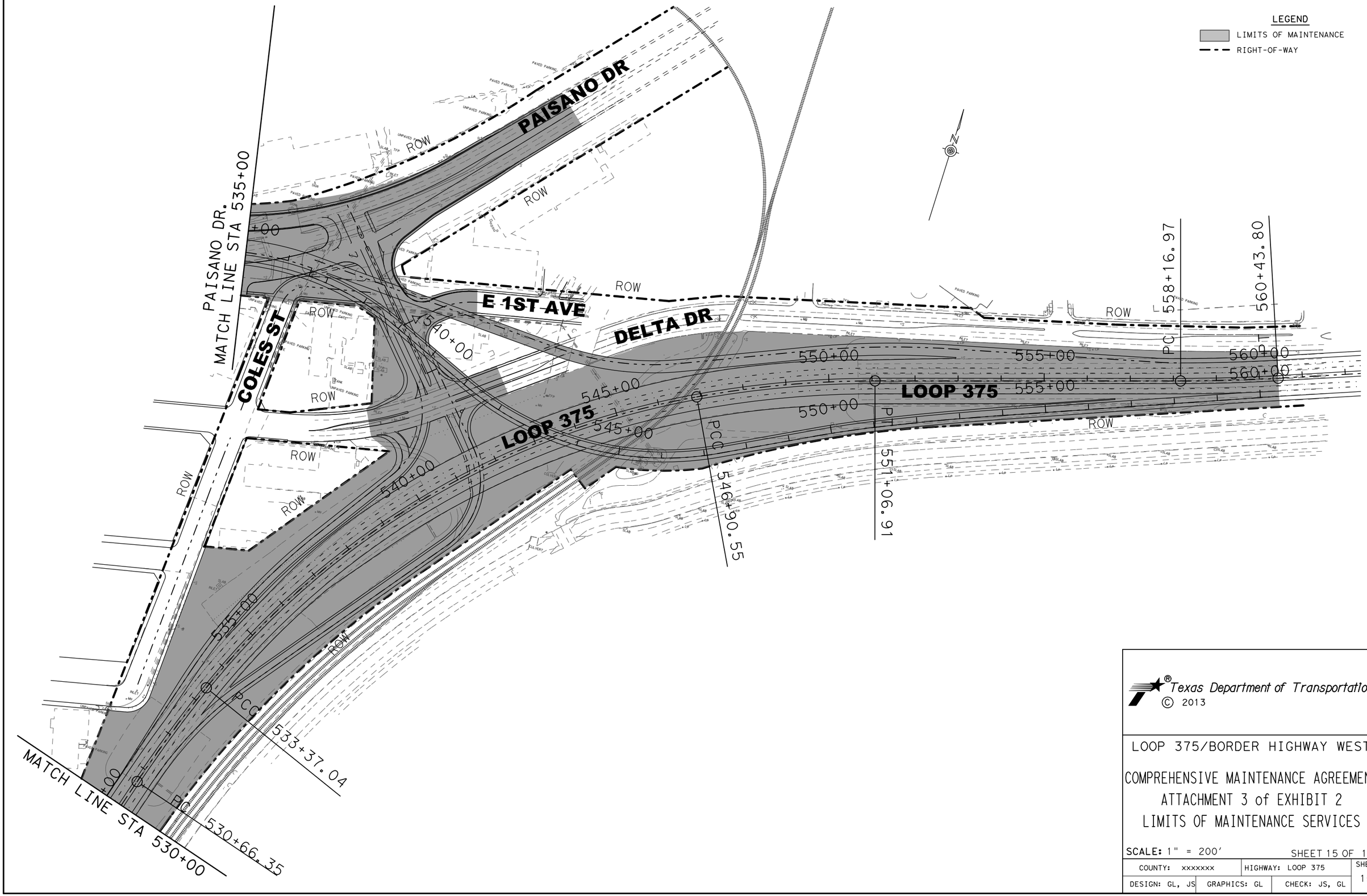
11/1/

SCALE: 1" = 200'

SHEET 14 OF 15

COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL	14

FILE: Z:\Projects\JEC0206 WA 08\Border Highway\dlv\3750MH4.dgn
DATE: 11/1/2013



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LOOP 375/BORDER HIGHWAY WEST

COMPREHENSIVE MAINTENANCE AGREEMENT
ATTACHMENT 3 of EXHIBIT 2
LIMITS OF MAINTENANCE SERVICES

SCALE: 1" = 200'

SHEET 15 OF 15

COUNTY: xxxxxxx	HIGHWAY: LOOP 375	SHEET 15
DESIGN: GL, JS	GRAPHICS: GL	CHECK: JS, GL

FILE: Z:\Projects\VEC0206 WA 08\Border Highway\dlw\3750MI5.dgn
DATE: 11/1/2013

ATTACHMENT 4: NOT USED

ATTACHMENT 5: NOT USED

ATTACHMENT 6: RESTRICTIONS ON TRAFFIC MANAGEMENT

Lane Closure restrictions for maintenance work will be as follows:

No Lane Closure that restricts or interferes with traffic shall be allowed from noon on the day preceding to 10:00 PM on the day after the following holiday schedule. For this Project, unless otherwise noted in the plans and/or as directed by TxDOT, daily Lane Closures shall be limited according to the following restrictions:

A. General restrictions for mainlanes, ramps, and arterials:

- Easter Holiday Weekend (Friday through Sunday)
- Memorial Day Weekend (Friday through Monday)
- Independence Day (July 3 through noon on July 5)
- Labor Day Weekend (Friday through Monday)
- Thanksgiving Holiday (Wednesday through Sunday)
- Christmas and New Year's Eve Holiday (December 15 through December January 1)
- Spring break week (Saturday through the following Sunday)
- Tax-free shopping weekend (Saturday and Sunday)
- At least one through mainline in each direction shall remain open at all times, unless otherwise approved by TxDOT
- Complete closure of the mainlanes will not be allowed, unless approved by the TxDOT.

B. Arterial crossings:

- At least one through mainline in each direction shall remain open at all times, unless otherwise approved by TxDOT.
- Provide and maintain access to properties and businesses adjacent to the right-of-way at all times unless otherwise directed by the TxDOT.
- No mainlane and arterial road closures may occur at the same time, unless approved by the TxDOT.

C. Ramps:

- No two adjacent ramp closures may occur at the same time.

ATTACHMENT 7 : MAINTENANCE PLANNING ACTIVITIES & ASSOCIATED FUNC. CODES

All segment 78 functions are trackable

DISTRICT CROSS REFERENCE CODE CHART 12 (FIMS SEGMENT 78, AND PORTIONS OF 70, 71 AND 72)

Effective September, 2012 (Rev Date: July, 2011)

110	P03	CY	Removal and Replacement Removal of base and/or subgrade materials from distressed or failed areas and replacement with suitable materials. (Includes resurfacing.)	522	RD	MI	Street Sweeping Routine street sweeping. Units are the actual miles swept regardless of centerline miles.	593	T04	LF	Cable Median Barrier Installation and maintenance of high tension cable median barrier systems, including the cable, posts and end treatments.	733	T03	EA	Vandalized Signs Replacement or repair of signs damaged by vandalism.
120	P03	CY	In Place Repair In place repair base and/or subgrade material. (Includes resurfacing, and may or may not include additional stabilizing material.)	523	R1	MI	Debris Routine patrolling to remove and dispose of debris, including dead animals.	594	T04	LF	Concrete Barrier Installation, removal and maintenance of concrete barriers, including attached headlight barrier fence.	738	111	EA	Installation and Maintenance of Flashing Beacons Installation and maintenance of overhead flashing beacons, pedestal or sign mounted flashing beacons, etc.
135	R05	EA LF	Install and/or Maintain Underdrains Installation, repair and maintenance of all types of underdrains.	524	RD	AC	Spot Litter Spot removal and disposal of litter, including dead animals, from the right of way.	595	T04	LF	Guard Fence Installation and maintenance of guard fence, MBGF, turn down ends, headlights barrier fence, including posts, metal beams, etc. (End treatment other than turn down ends, see function 596.)	742	T07	EA	Illumination Installation, maintenance and operation of illumination systems, including continuous lighting, safety lighting and sign illumination.
145	S06	SY	Unpaved Road Maintenance Repair of gravel or dirt roads, including blading, addition of base, etc.	525	RD	HRS	Adopt-A-Highway Installation of posts and signs, materials furnished to groups, and the personnel and equipment used to assist in removal and disposal of collected litter.					743	T06	EA	Installation and Maintenance of Isolated Traffic Signals Maintenance and operation of isolated traffic signals, diamond interchange signals, etc.
				526			Deleted replaced by 522	596	T05	EA	Guardrail End Treatment Systems	744			Replaced by Function Code 743
211	P01	SY	Leveling or Overlay with Laydown Machine The application of asphaltic tack coat and placing of asphaltic concrete materials to improve the ride qualities or level up low spots.	527	RD	SY	Hand Sweeping Hand sweeping of riprap, islands, medians, curb & gutter, bullpens, driveways, etc.				Installation and maintenance of guardrail end treatment systems. (For attenuators other than GETS, see function 725).	745	T08	CL MI	Traffic Management System Maintenance and operation of traffic management systems on freeways or non-freeways, entrance/exit ramps, motorist information (e.g. changeable message signs, highway advisory radio, etc.) surveillance and related communications equipment. (ITS Control Center personnel should charge to segment 70, detail 0570.)
212	P01	SY	Leveling or Overlay with a Manfiancer The application of asphaltic tack coat and placing layers of asphaltic concrete material.	530	S1D	SF	Removal of Graffiti Removal of graffiti from fixtures, wing walls, bridge structures, etc. Not to be used in lieu of function 733 (Vandalized Signs), 731 or 732 (Sign Installation).	597	T03	EA	Mailboxes, Installation and Maintenance				
				531	SD6	HRS	Picnic Area Maintenance (Without Restrooms) Refer to function 532 for description.	598	S06	HRS	Boat Ramp Maintenance Work performed in maintaining boat ramps, including mowing, litter removal, emptying litter barrels, maintenance of paved and unpaved areas, etc.	750	T09	EA	Installation and Removal of Pavement Markers Installation and/or removal of traffic buttons or reflective pavement markers.
213	P01	SY	Leveling by Hand The application of asphaltic tack coat and placing layers of asphaltic concrete material by hand. This includes repair of pavement areas greater than one square	532	SD6	HRS	Rest Area Maintenance (With Restrooms) Work performed in janitorial and grounds maintenance, including mowing, litter pickup, emptying litter barrels, maintenance of plantings, cleaning restroom, cleaning arbors, graffiti removal, minor paintings, etc. This item shall also include special maintenance required to repair/replace arbors, picnic tables, fixtures, litter barrels, paved areas, etc. (including maintenance of treatment plants and dump stations).	610	S04	HRS	Bridge, Movable Span Operation, routine maintenance and inspection of movable span bridges (swing barge, lift or turn). Restricted use: Beaumont, Houston, Pharr and Yoakum Districts only.	790	S07	HR	Miscellaneous Traffic Services All traffic surveys (including all motor vehicle and pedestrian counts at intersections and directly related locations) and other traffic services not covered elsewhere. **Note**: Traffic control performed during the pavement evaluation process should be charged to segment 71, detail 3214 and the appropriate function (600 thru 690).
214	P01	SY	Leveling or Overlay with Drag Box The application of asphaltic tack coat and placing layers of asphaltic concrete material.					611	S04	HRS	Bridge, Portable Installation, removal, maintenance and inspection of portable bridges.				
225	P06	LM	Sealing Cracks Cleaning, filling and sealing cracks in the pavement using asphaltic rubber or other sealants.	533	SD6	HRS	Rest Area Facility Maintenance through Regional Contracts (Maintenance Division Use Only)	620	S05	CY	Bridge Channel Maintenance Removal of silt and drift, filling eroded areas, channel maintenance (including easements) and maintenance and repair of jetties and dikes.	799	S07	HR	Traffic Control The placement, maintenance and removal of barricades, signs, cones, lights and other such devices needed to handle traffic during emergencies or special events. This includes flaggers.
				535	SD	HRS	Maintenance of Specialty Facilities All maintenance costs to specialty facilities including border safety inspection facilities (BSIFs), toll booths, service plazas, fencing and associated appurtenances. This includes both temp and perm facilities. The highway class code will determine the type of facility.	628	S02	LF	Bridge Rail Maintenance of bridge rail, posts & post connections to deck, including painting.	806			Replaced by Function Code 799
231	P05	SY	Seal Coat Application of a single layer of asphaltic material followed by the application of a single layer of aggregate over the full width of the lane or a shoulder (greater than 6' in width) for a minimum of 1000 continuous feet.					645	S02	LF	Bridge Joint Maintenance Repair of bridge joints, including cleaning and sealing.	807			Replaced by Function Code 799 Accident Flag selected
								646	S02	LF	Bridge Joint Replacement Replacement of bridge joints.	809			Replaced by Function Code 799 Disaster Project Task number
232	P04	SY	Strip or Spot Seal Coat Application of a single layer of asphaltic material followed by the application of a single layer of aggregate over areas less than the full width of the lane or shoulder (6' or less in width), or the full width of the lane or shoulder but less than 1000 feet in length.	538	RD	AC	Pest Control Activities related to use of predatory animal and insect control whether in turf and ornamental sites or on the ROW.	650	S01	SF	Bridge Deck Repair to bridge decks.	810			Replaced by Function Code 523 Disaster Project Task number
												811	S07	HR	Snow and Ice Response Emergency response to clear roads during or after a snowvice event. Includes sanding, deicing, cleaning and removal, etc.
				540	RD	HRS	Hand Vegetation Control Hand cleaning vegetation out of islands, medians, riprap, drainage channels, etc. by chemical, manual or mechanical means.	660	S01	SF	Bridge Superstructure, Concrete Routine maintenance of the concrete components of the bridge superstructure, including bearings, concrete diaphragms, and beams.	813			Replaced by Function Code 799, 523 Disaster Project Task number
233	P04	SY	Fog Seal Retain aggregate, enliven surface and/or seal hairline cracks by the application of a thin layer of asphaltic material.	541	RD	AC	Chemical Vegetation Control, Foliage Complete control of vegetation encroaching in pavement edges, shoulders, medians, islands and curbs with herbicides.	665	S01	SF	Bridge Superstructure, Steel Routine maintenance of the steel components of the bridge superstructure, including steel diaphragms and beams.	814			Replaced by Function Code 563 Disaster Project Task number
												820			Deleted
235	P04	SY	Microsurfacing The application of a polymer modified high performance emulsion coupled with fine graded aggregate, mineral fillers and special additives in a slurry, to full ruts or to a new wearing surface. (Caution: Should not be used to seal cracked pavements.)	542	RD	AC	Chemical Vegetation Control, Overspray Control of undesirable vegetation growth by overspraying wide areas of the right of way including fixtures (i.e. signs, delineators, guardrails, culverts, etc.) with herbicides.	670	S03	SF	Bridge Substructure, Concrete Routine maintenance of the concrete components of the bridge substructure, including caps, columns, abutments, wingwalls, pilings, etc.	821			Replaced by Function Code 799, 523 Disaster Project Task number
												822			Replaced by Function Code 360 Disaster Project Task number
												823			Replaced by Function Code 360 Disaster Project Task number
												824			Replaced by Function Code 211, 212, 213, 214
												825			Replaced by Function Code 231, 232 Disaster Project Task number
												826			Replaced by Function Code 560,561,562,563
241	P09	EA	Pothole Repair The repair of holes with an area of less than or equal to one square yard. Charge to Function 213 if greater than one square yard.	544	RD	AC	Chemical Vegetation Control, Rope wick Control of tall vegetation (i.e. Johnsongrass) in the right of way with a wick applicator.	675	S03	SF	Bridge Substructure, Steel and Timber Routine maintenance of the steel or timber components of the bridge substructure, including caps, abutments, pile extensions, etc.	826			Appropriate Bridge, Disaster Project Task number
												827			Replaced by whatever Function Code, Disaster or Damage Claim Project Task number
242			Replaced by Function 241	545	RD	HRS	Chemical Vegetation Control, Basal Application Control of undesirable brush species in the right of way with a low volume basal bark application.	680	S03	SF	Bridge Painting Cleaning and painting of superstructure or substructure.	828			Replaced by Function Code 743, Disaster or Damage Claim Project Task number
												829			Replaced by Function Code 721, 731, 732; Disaster or Damage Claim Project Task number
245	P10	SY	Adding or Widening Pavement Widening travel lanes up to 2 feet, adding shoulders up to 4 feet to correct a maintenance problem (includes sub-grade, base & surfacing), or adding turn lanes to improve safety.					690	S04	HRS	Bridge, Mechanical and Electrical Maintenance and repair of the electrical & mechanical components of a bridge.	830	R1	HR	Hazardous Material Cleanup, Spills or Leaking Storage Tanks Investigations, testing, clean up, removal, disposal and restoration work associated with a spill or leaking storage tanks.
				548	RD	SY	Seeding, Sodding, Hydromulching and Blanketing Seeding, sodding, hydromulching and/or placing soil retention blankets.	695	S04	HRS	Fender Systems Installation and maintenance of fender systems.	831	R1	HR	Hazardous Material Cleanup, Abandoned Materials Investigations, testing, clean up, removal, disposal and restoration work associated with abandoned hazardous materials of unknown ownership.
252	P02	SY	Milling and Planing The removal of pavement surface by milling or planing.	551	RD	AC	Landscaping The installation or maintenance of landscape plantings and their facilities including planter walls, borders, sprinkler systems, etc. (excluding picnic and rest areas).				Work performed in maintaining boat ramps, including mowing, litter removal, emptying litter barrels, maintenance of paved and unpaved areas, etc.				
253	P02	SY	Spot Milling The removal of pavement surface by milling using a small milling machine (4 feet or less drum width).	552	RD	CL	Tree and Brush Control The trimming, pruning and disposal of shrubs, vines, and trees (excluding picnic and rest areas).	711	T01	LF	Paint and Bead Striping Striping or re-striping lane lines, centerlines and edge lines using paint and beads.	Segment 70			Maintenance Section Overhead Costs Detail 0XXX (XX = Office No.), not reasonably identifiable to a roadway
265	P04	SY	Treat Bleeding Pavement Treatment of excess asphalt on the pavement surface.	558	RD	LF	Storm Water Pollution Protection Maintenance or installation of storm water pollution protection plan (SW3P) in accordance with EPA regulations on projects designated by area engineers.	712	T02	LF	High Performance Striping Striping or re-striping lane lines, centerlines and edge lines using thermoplastic or other high performance materials.	400			Training (informal or on the job training)
												401			Meetings (non-coded meetings, Safety Banquets)
270	P07	LF	Edge Repair Repair of raveled, low or damaged pavement edges with asphaltic materials.	560	R06	SY	Riprap Installation and Maintenance Installation and maintenance of ditch liners, retards, down drains, riprap, flumes, concrete mowing strips, gabions, retaining walls and other erosion protection.	713	T02	EA	Specialty Striping Medians, islands and other pavement markings not covered under function 711 or 712 (including make-ready operations for all stripe alignment, such spotting, tabs, temporary tape, etc.)	402			Yard Maintenance and Inspections (maintenance/inspections to facilities or yard)
												403			Office/Section Administration (pick up/purchase supplies, HR admin., office tech duties)
315	P08	SY	Slab Stabilization / Jacking Leveling concrete pavement through the use of hydraulically placed material.	561	R04	CY	Ditch Maintenance Removal and hauling of silt, drift, and/or filling eroded areas. Not to be used for work at culverts or bridges (see functions 570 or 620).					404			Specialty Work (customer support, contractor support, damage claims)
												405			Section Management (checking on crews, supervisor admin, meeting with local govts.)
325	P06	LF	Cleaning and Sealing Joints and Cracks Cleaning, filling and sealing joints and cracks in concrete pavement.									406			Material Management (inventory mgmt, material deliveries from WH to yard, hauling)
								715	T02	LF	Removal of Pavement Striping Use when striping is not going to be replaced.	407			Standby Time (weekend and weekday)
330	P08	SY	Blowouts and Stress Relief Repair of blowouts and cutting pavement for stress relief.									408			General Overhead
								716	S11	LM	Performance Based Contract Destination (Contract Payments ONLY) These contracts are set up to pay the contractor a fixed price on a periodic basis of type of work performed and/or amount of work performed.				**District Contract Management - Roadway Maintenance (not reasonably identifiable to a roadway)** Detail 0585 All distrct costs of roadway maintenance contract development and management not reasonably identifiable to a specific roadway or other accounts.
345	P08	SY	Repair Spalling Clean and repair spalled areas (not full depth of concrete slab).	562	R04	LF	Reshaping Ditches Reshaping ditches using maintainer and/or gradall, etc. Not to be used for work at culverts or bridges (see functions 570 or 620).								
360	P08	SY	Full Depth Removal and Replacement The removal and replacement of failed areas for the full depth of the concrete slab.	563	R06	SY	Slope Repair/Stabilization Slope repair and/or stabilization. Not to be used for work at culverts or bridges (see functions 570 or 620).	721	T03	EA	Delineators Installation, maintenance and/or replacement of damaged or missing reflectors and/or posts. This function shall include straightening of posts. Measured by each post and each reflector replaced.	Segment 71			Direct District Charges (No specified road location) Detail 1305, function 020; field inspections not identifiable to a roadway, including damage assessments, night inspections, permit inspections, bridge inspections
455	P07	LF SY	Reshaping Unpaved Shoulders Restore sod or flexible base shoulders to original sections. Includes reshaping front slope to eliminate low pavement edges along a paved shoulder.	570	RD	EA	Culvert and Storm Drain Maintenance The installation, repair and maintenance of culverts up to bridge classification (identify feet measured along centerline of roadway). This work includes silt and debris removal from inlet, storm drains, retention ponds and culverts (except those costs associated with function 571).	724	T04	LF	Roadway Access Control Installation and maintenance of barriers (other than those covered by functions 594 or 595) designed to control access on highways, including post and cable fences, ROW fences and cattle guards.				Detail 1310, function 020; special services not identifiable to a roadway, including clearing stockpile locations, collecting ditch grade data, and counting loads of RAP for county assistance.
480	S08	SY	Safe Road Approaches, Crossovers and Turnouts The installation or maintenance of side road approaches, crossovers, historical markers, mailbox and litter barrel turnouts, etc.												Detail 1315, function 020; Courtesy Patrol
488	S08	SY	Concrete Appurtenance Installation and Maintenance The maintenance, installation, or removal of concrete appurtenances which include curbs and/or gutters, raised medians, sidewalks and sound barriers.	571	RD	EA	Storm Water Pump Station Maintenance Repair and maintenance of motors, pumps, generators, wet wells, dry wells, debris screening baskets, buildings, etc., including costs of utility services.	725	T05	EA	Vehicle Attenuators Installation and maintenance of vehicle attenuators, crash cushions, etc. (Excludes the end treatment devices on guard fence.)				**Roadway Evaluation** Detail 3214, function codes 600 thru 690; functions related to Pavement Management, including traffic control while performing pavement evaluation
495	S06	SY	Parking Area Maintenance Repair of sub-grade, base or surface of areas including parking lots, park and ride lots and camping pads.	580	T03	EA	Removal of Illegal Signs on ROW, TEMP (Temporary, no special handling required.) Removal of illegal signs on right of way, including disposal and written notice to owners.	731	T03	EA	Installation/Maintenance of Small Signs The installation or maintenance of signs (less than 4 ft. X 4 ft.). Includes the installation of an old sign on a new post, the installation of a new sign on an existing post, removing or straightening of signs and posts. Not to be used in lieu of function 732 (Installation of Large Signs), function 733 (Vandalized Signs), or function 525 (Adopt-A-Highway). Measured by each post and each sign maintained.	Segment 72			**Off-Systems Disaster Cleanup** Detail 000470001, off-system assistance that has been approved by the Disaster District Chairman
511	R02	AC	Mowing Mowing of the right of way.	581	T03	EA	Removal of Illegal Signs on ROW, PERM (Permanent, special handling required.) Removal of illegal signs on right of way, including disposal and to written notice to owners.					500			Debris Removal
513	R02	HRS	Spot Mowing Spot mowing of the right of way.									501			Fire Control
520	R10	CY	Illegal Dumpsite Removal and Disposal Removal and disposal of debris discarded or deposited in an unauthorized area in the right of way such as under a bridge, overpass, culvert, etc.	582	S10	HRS	Removal of Encroachments, Other than Signs Removal of illegal encroachments (other than signs) on the ROW, including disposal and written notice to owners.	732	T10	EA	Installation/Maintenance of Large Signs The installation or maintenance of signs (equal to or greater than 4 ft. X 4 ft.). Includes the installation of an old sign on a new post, the installation of a new sign on an existing post, removing or straightening of signs and posts. Not to be used in lieu of function 731 (Installation of Small Signs), function 733 (Vandalized Signs), or function 525 (Adopt-A-Highway).	505			Evacuee Assistance
												510			Traffic Control for Disasters
												515			Sign and Signal Repair for Disasters
521	R03	AC	Litter Removal and disposal of litter from the entire right of way, excluding paved areas, picnic and rest areas.	585	S08	SY	Driveway Installation/Removal and Maintenance See access management policy.					520			Repairs to Roads for Disasters
				591	S09	HRS	Utilities and Driveway Inspection								

P01	Pavement Leveling	R01	Sweeping	S01	Bridge Superstructure Maintenance	T01	Paint and Bead Striping		
P02	Milling	R02	Mowing	S02	Bridge Rail and Joints	T02	High Performance Striping		
P03	Base Repair	R03	Litter Control	S03	Bridge Substructure Maintenance	T03	Sign Maintenance		
P04	Spot Seal Coat	R04	Drainage Maintenance	S04	Specialty Bridge Maintenance	T04	Safety Barrier Maintenance		
P05	Full Width Seal Coat	R05	Drainage Structures	S05	Bridge Channel Maintenance	T05	Crash Attenuators		
P06	Crack Seal	R06	Erosion Control	S06	Specialty Maintenance	T06	Traffic Signal Maintenance		
P07	Edge Maintenance	R07	Vegetation and Pest Control	S07	Traffic Control Services	T07	Illumination Maintenance		
P08	Concrete Pavement Maintenance	R08	Tree and Brush Control	S08	County Road Approaches, Crossovers, & Turnouts	T08	Traffic Management Systems		
P09	Pothole Repair	R09	Landscape Maintenance	S09	Utility & Driveway Inspection	T09	Raised Pavement Markings		
P10	Adding or Widening Pavement	R10	Debris and Cleanup	S10	Graffiti & Encroachment Removal	T10	Large Sign Maintenance		
						T11	Beacon Maintenance		