

Performance and Measurement Table Baseline									
MAINTENANCE ELEMENT CATEGORY	REF	MAINTENANCE ELEMENT	PERFORMANCE REQUIREMENT	RESPONSE TO DEFECTS			INSPECTION AND MEASUREMENT METHOD*	MEASUREMENT RECORD*	TARGET
				Cat 1	Cat 1	Cat 2			
				Hazard Mitigation	Permanent Remedy	Permanent Repair			
	1.2 cont						<p>c) 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</p> <p>d) Edge drop-offs Physical measurement of edge drop-off level compared to adjacent surface</p> <p>e) 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.</p>	<p>Occurrence of any failure</p> <p>Instances of edge drop-off greater than 2" (Number)</p> <p>• 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 is in excess of 30.</p> <p>• 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.</p> <p>• When the skid number is below 25 and/or when required by the Wet Weather Accident Reduction Program, areas categorized as high risk, the Maintenance Contractor shall perform a site investigation and perform required corrective action.</p>	<p>Nil</p> <p>Nil</p> <p>100%</p> <p>100%</p> <p>100%</p>
		Road Users warned of potential skidding hazards		24hrs	7 days	N/A	<p>Skid resistance (as above)</p>	<p>Instances where road Users warned of potential skidding hazard where remedial action is identified.</p>	<p>100%</p>
	1.3	Crossovers and other paved areas	Crossovers and other paved areas are free of Defects	24 hrs	28 days	6 months	<p>a) Potholes</p> <p>b) Base failures</p>	<p>Potholes of low severity or higher (Number)</p> <p>Base failures of low severity or higher (Number)</p>	<p>Nil</p> <p>Nil</p>
	1.4	Joints in concrete	<p>Joints in concrete paving are sealed and watertight</p> <p>Longitudinal joint separation</p>	24 hrs	28 days	6 months	<p>Visual inspection of joints</p> <p>Measurement of joint width and level difference of two sides of joints</p>	<p>Length unsealed joints greater than ¼"</p> <p>Joint width more than 1" or faulting more than ¼"</p>	<p>Nil</p> <p>Nil</p>
	1.5	Curbs	Curbs are free of Defects	24 hrs	28 days	6 months	3 feet straight edge will be used to measure each curb alignment	Deviation from original alignment greater than 1 inch	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 with less than 90% of cross-sectional area clear (feet)	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 in Emergency.	24 hrs	28 days	6 months	Visual inspection	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	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	Non-compliances with legislation	Nil
	2.5	Protected species	Named species and habitats are protected.	24 hrs	28 days	6 months	Visual inspection	Compliance with the requirement	100%
3) STRUCTURES									
	3.1	Structure components (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)	<p>(i) Substructures and superstructures are free of:</p> <ul style="list-style-type: none"> • graffiti • 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 <p>(ii) Expansion joints free of:</p> <ul style="list-style-type: none"> • dirt, debris and vegetation • defects in drainage systems • loose nuts and bolts • defects in gaskets <p>(iii) The deck drainage system is free of all and operates as intended.</p> <p>(iv) Parapets free of:</p> <ul style="list-style-type: none"> • loose nuts and bolts • blockages of hollow section drain holes • graffiti • vegetation • accident damage 	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 Highway Administration’s Bridge Inspector’s Reference Manual.	Records as required in the TxDOT Bridge Inspection Manual	

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	3.1 Cont.		(v) Bearings and bearing shelves are clean. (vi) 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.					Occurrences of condition rating below six (6) for any deck, superstructure or substructure Auditable Sections with structure components with condition states of one	Nil 100%
	3.2	Non-bridge class culverts	Non-bridge-class culverts are free of: <ul style="list-style-type: none">• vegetation and debris and silt• defects in sealant to movement joints• scour damage	24 hrs	28 days	6 months	Visual inspection	Number with vegetation, debris and silt Number with defects in sealant and movement joints Number with scour damage	Nil Nil Nil
	3.3	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 load restrictions for Texas legal loads (including legally permitted vehicles)	Nil
	3.4	Gantries and high masts	Sign signal gantries, high masts are structurally sound and free of: <ul style="list-style-type: none">• loose nuts and bolts• defects in surface protection systems• graffiti	24 hrs	28 days	6 months	Visual inspection	Number with loose assemblies Number with defects in surface protection Number with graffiti	Nil Nil Nil
	3.5	Access points	All hatches and points of access have fully operational and lockable entryways.	24 hrs	28 days	6 months	Visual inspection	Number of Defects in locks or entryways	Nil
	3.6	Mechanically stabilized earth and retaining walls	Mechanically stabilized earth and retaining walls free of: <ul style="list-style-type: none">• 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 Parapets free of: <ul style="list-style-type: none">• loose nuts and bolts• blockage of drain holes• undesirable vegetation• impact damage• concrete spalling	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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4) PAVEMENT MARKINGS, OBJECT MARKERS, BARRIER MARKERS AND DELINEATORS									
	4.1	Pavement markings	Pavement markings are: <ul style="list-style-type: none"> • 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 General Portable retroreflectometer, which uses 30 meter geometry meeting the requirements described in ASTM E 1710 Physical measurement b) Profile Markings Visual inspection	Length meeting the minimum retroreflectivity 175 med/sqm/lx for white Length meeting the minimum retroreflectivity 125 med/sqm/lx for white Length with more than 5% loss of area of material at any point Length with spread more than 10% of specified dimensions. Length performing its intended function and compliant with relevant regulations	100% 100% Nil Nil 100%
	4.2	Raised reflective markers	Raised reflective pavement markers, object markers and delineators are: <ul style="list-style-type: none"> • clean and clearly visible • of the correct color and type • reflective or retroreflective as TxDOT standard • 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. 	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) [A minimum of four markers should be 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).	Nil 100%
	4.3	Delineators & markers	Object markers, mail box markers and delineators are: <ul style="list-style-type: none"> • 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 defective or missing	Nil
5) GUARDRAILS, SAFETY BARRIERS AND IMPACT ATTENUATORS									
	5.1	Guard rails and safety barriers	All guardrails, safety barriers, and concrete barriers 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	Length of road restraint systems correctly installed Length free from Defects Length at correct height Length at correct distance from roadway and obstacle	100% 100% 100% 100%
	5.2	Impact attenuators	All impact attenuators are appropriately placed and correctly installed	24 hrs	7 days	6 months	Visual inspection	Number correctly placed and installed	100%

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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 (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. (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	24 hrs	28 days	6 months	a) Retroreflectivity Coefficient of retro -reflectivity b) Face damage Visual inspection c) Placement Visual inspection d) Sign Information Visual inspection e) Sign Information Visual inspection f) Dynamic Message Signs Visual inspection	Number of signs with reflectivity below the requirements of TxDOT's TMUTCD Number of signs with face damage greater than 5% of area Signs are placed in accordance with TxDOT's Sign Crew Field Book including not twisted or leaning Sign information is of the correct size, location, type and wording to meet its intended purpose Sign information is of the correct size, location, type and wording to meet its intended purpose Dynamic message signs are fully functioning	Nil Nil 100% 100% 100% 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	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 (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	2 hrs	24 hrs	6 months	a) General condition Visual inspection b) Damage Visual inspection c) Signal timing Timed measurements	Signals are clean and visible Signals are undamaged Installations have correct signal timings	100% 100% 100%

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	7.1 Cont.						d) Contingency plans Records review	Full contingency plans are in place	100%
	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	100% 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	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	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	Number of sections with less than 90% of lights functioning correctly at all times Instances of more than two consecutive lights out of action	Nil Nil
	8.2	Sign lighting	Sign lighting is fully operational	24 hrs	28 days	6 months	Night time inspection or automated logs	Instances of more than one bulb per sign not working	Nil
	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	100%
	8.4	Access panels	All access panels in place at all times.	24 Hhrs	7 days	1 month	Visual inspection	Instances of missing access panels	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 (for structural requirements refer to Maintenance Element Category 3)	24 hrs	48 hrs	1 month	Yearly inspection and night time inspections or automated logs	Instances of two or more lamps not working per high mast pole Identification of other defects	Nil Nil
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 showing compliance	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 showing compliance	100%

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10) ROADSIDE MANAGEMENT									
	10.1	Vegetated areas – Except landscaped areas – General	Vegetation is maintained so that: (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, mainlanes, 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 (vi) Wildflowers are preserved utilizing the guidelines in the mowing specifications and TxDOT Roadside Vegetation Manual.	24 hrs	7 days	28 days	a) Urban areas Physical measurement of height of grass and weeds 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 to have 95% of height of grass and weeds between 5 in. and 18 in Individual measurement areas to have 95% of height of grass and weeds between 5 in. and 30 in Occurrences of vegetation encroachment in each auditable section Adherence to vegetation management manuals Instances of impairment of sight lines or sight distance to signs	100% 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	100%
	10.3	Fire hazards	Fire hazards are controlled	24 hrs	7 days	28 days	Visual inspection	Instances of dry brush or vegetation forming fire hazard	Nil
	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	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	Instances of permit requirements not met	Nil

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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	Recorded instances of slope failure	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		Inspection records showing compliance	100%
13) ITS EQUIPMENT									
	13.1	ITS Equipment	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 communication 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	100%
	13.3	CCTV equipment	CCTV Systems are free from faults that 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	100%

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	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 Instances of loops out of compliance	100% Nil
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	28 days	6 months	All graffiti is considered a Category 1 defect	Inspection records showing compliance	100%
	15.2	Animals	All dead or injured animals are removed	2 hrs	N/A	N/A	Visual inspection	No dead or injured animals are present	100%
	15.3	Abandoned vehicles and equipment	All abandoned vehicles and equipment are removed	1 hr	24 hrs	N/A	Visual inspection	No abandoned vehicles or equipment present	100%
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 2 hrs from departure from loading point to complete treatment and return to loading point Maximum 1 hr response time for snow and ice clearance vehicles to depart from base	Inspection records showing compliance	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	2hrs	N/A	N/A	Operations plan details the process and procedures in place and followed	Inspection records showing compliance	100%
	16.3	Operational plans	Operate snow and ice clearance plans to maintain traffic flows during and after precipitation resulting in snowfall or ice and restore the travel way to a clear condition as soon as possible.	2hrs	N/A	N/A	Operations plan details the process and procedures in place and followed	Inspection records showing compliance	100%
17) INCIDENT RESPONSE									
	17.1	General	Respond to Incidents in accordance with the MMP	1 hr	N/A	N/A	Response times met for 98% of Incidents measured on a 1 year rolling basis. No complaints from Emergency Services.	Inspection records showing compliance	100%
	17.2	Hazardous Materials	For any Hazardous Materials spills, comply with the requirements of the MMP.	1 hr	N/A	N/A	MMP details the process and procedures in place and followed.	Inspection records showing compliance	100%
	17.3	Structural assessment	Evaluate structural damage to structures and liaise with Emergency Services to ensure safe working in clearing the Incident	1 hr	N/A	N/A	Inspections and surveys as required by Incident	Incident reports showing compliance	100%

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	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	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.	Number of responses within specified times	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	Operations records showing non availability 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	100%
	19.2	Litter	(i) Keep the Project in a neat condition, remove litter regularly (ii) Pick up large litter items before mowing operations. (iii) 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	100%

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

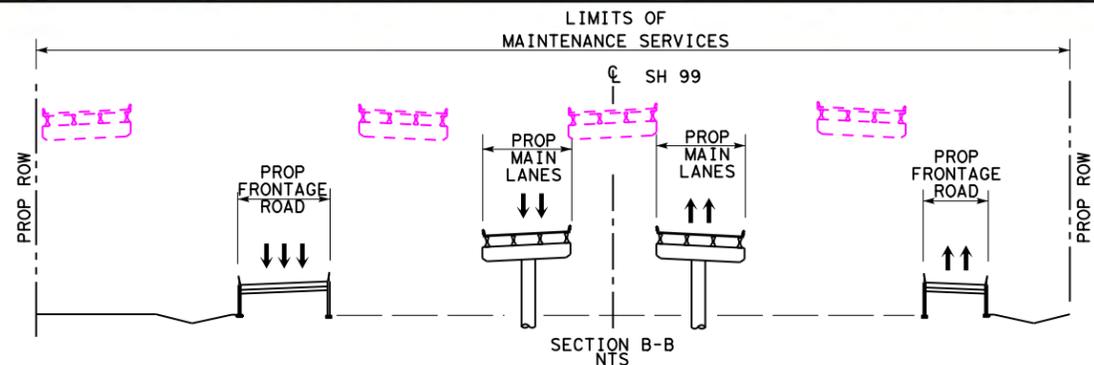
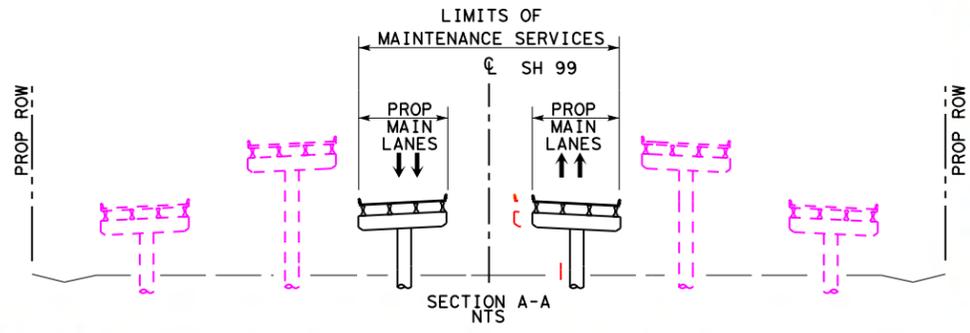
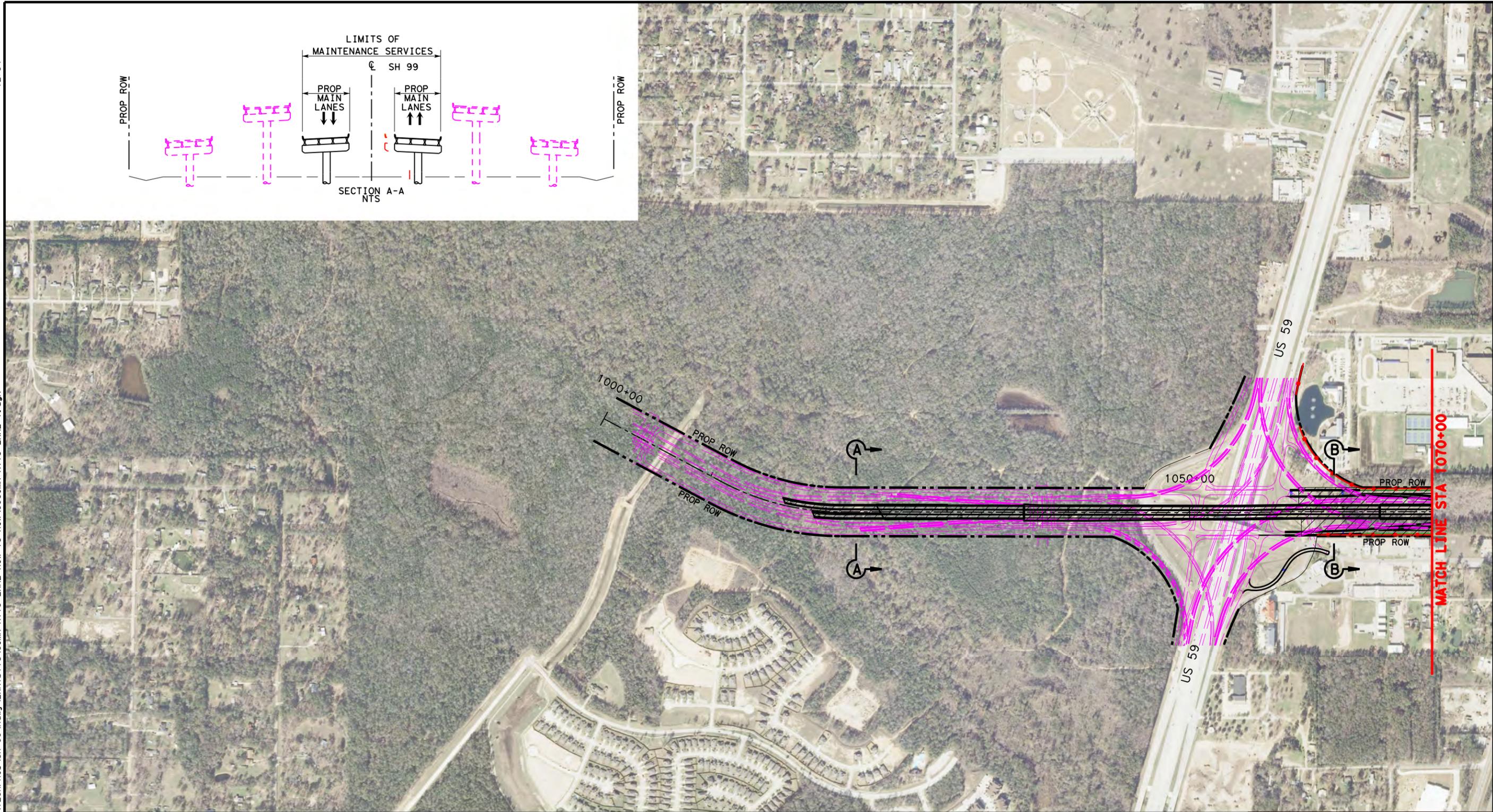
ELEMENT CATEGORY		MAINTENANCE TYPES				
		Routine	Preventive	Major	Emergency	Operational Items
1) ROADWAY						
1.1	Obstructions and debris	x				
1.2	Pavement	x	x	x		
1.3	Crossovers and other paved areas	x	x	x		
1.4	Joints in concrete	x	x	x		
1.5	Curbs	x	x	x		
2) DRAINAGE						
2.1	Pipes and channels	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	Structure components	x	x	x		
3.2	Non-bridge class culverts	x	x	x		
3.3	Load ratings	x	x	x		
3.4	Gantries and high masts	x	x	x		
3.5	Access points	x	x	x		
3.6	Mechanically stabilized earth and retaining walls	x	x	x		
4) PAVEMENT MARKINGS, OBJECT MARKERS, BARRIER MARKERS AND DELINEATORS						
4.1	Pavement markings	x	x	x		
4.2	Raised reflective markers	x	x	x		
4.3	Delineators & markers	x	x	x		
5) GUARDRAILS, SAFETY BARRIERS AND IMPACT ATTENUATORS						
5.1	Guard rails and safety barriers	x	x	x		
5.2	Impact attenuators	x	x	x		
6) TRAFFIC SIGNS						
6.1	General – All signs	x	x	x		
6.2	General – Safety critical signs	x	x	x		
7) TRAFFIC SIGNALS						
7.1	General	x	x	x		
7.2	Soundness	x	x	x		
7.3	Identification marking	x	x	x		
7.4	Pedestrian elements and vehicle detectors	x	x	x		
8) LIGHTING						

ELEMENT CATEGORY		MAINTENANCE TYPES				
		Routine	Preventive	Major	Emergency	Operational Items
8.1	Roadway lighting – General	x	x	x		
8.2	Sign lighting	x	x	x		
8.3	Electrical supply	x	x	x		
8.4	Access panels	x	x	x		
8.5	High mast lighting	x	x	x		
9) FENCES, SOUND WALLS AND ABATEMENT						
9.1	Design and location	x	x	x		
9.2	Construction	x	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	x		
13.2	Dynamic message sign equipment	x	x	x		
13.3	CCTV equipment	x	x	x		
13.4	Vehicle detection equipment	x	x	x		
14) TOLLING Facilities and Buildings (Not Used)						
15) AMENITY						
15.1	Graffiti	x				
15.2	Animals	x				
15.3	Abandoned vehicles and equipment	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	
17.2	Hazardous Materials				x	
17.3	Structural assessment				x	
17.4	Temporary and permanent remedy				x	
18) CUSTOMER RESPONSE						

ELEMENT CATEGORY		MAINTENANCE TYPES				
		Routine	Preven- tive	Major	Emergen- cy	Operation- al Items
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: MAINTENANCE LIMITS

[SEE ATTACHED]



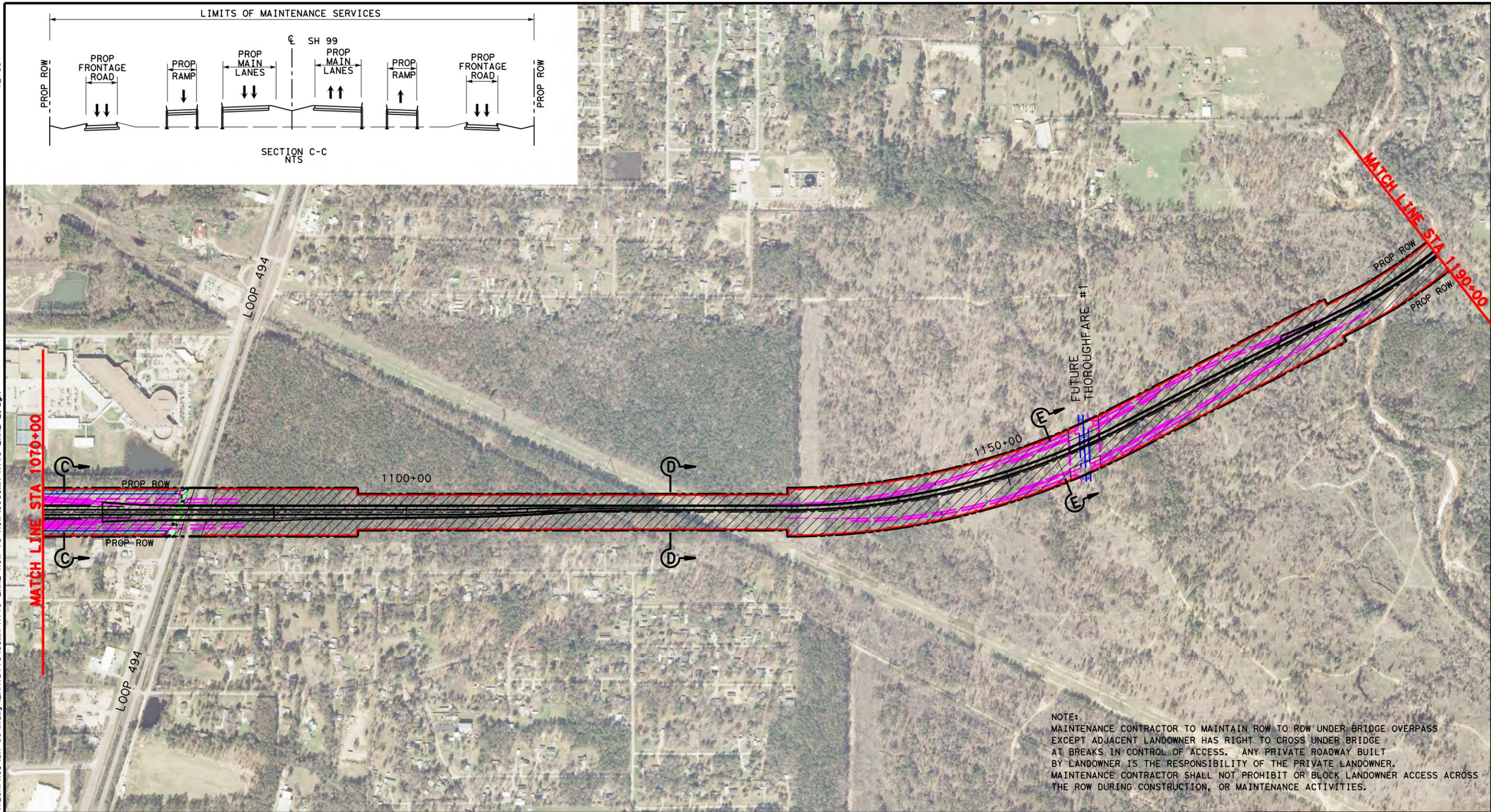
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- LIMITS OF MAINTENANCE SERVICES
 - PROPOSED GRAND PARKWAY
 - PROP ROW
 - PROP CONTROL OF ACCESS
 - EXISTING ROW
 - PROPERTY LINE
 - PROPOSED GRAND PARKWAY BY OTHERS



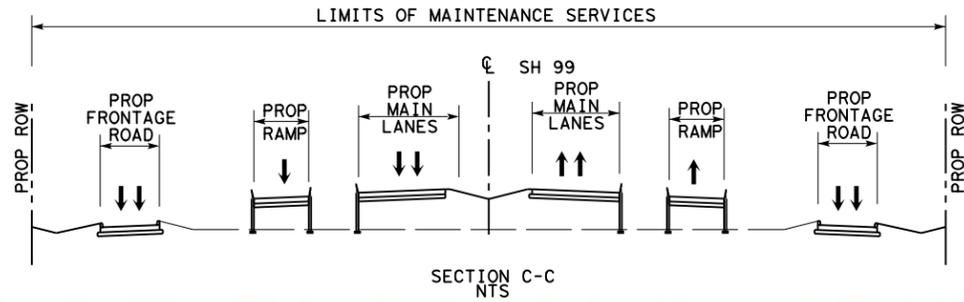
SH99 GRAND PARKWAY
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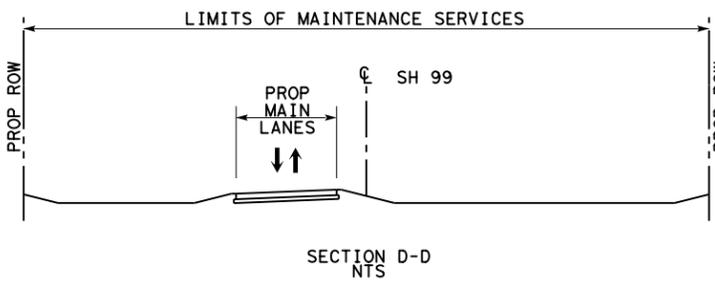
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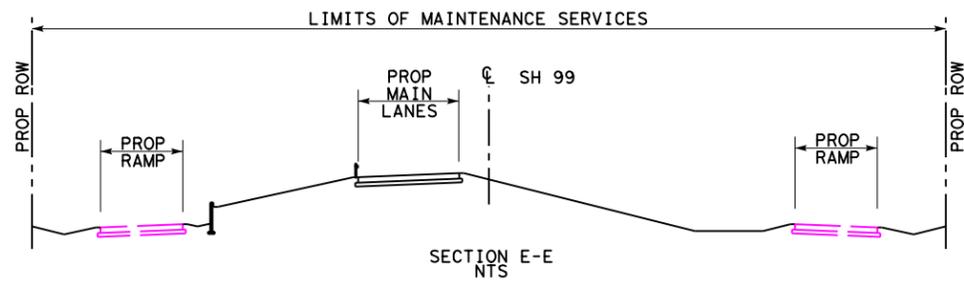
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SECTION C-C
 NTS



SECTION D-D
 NTS



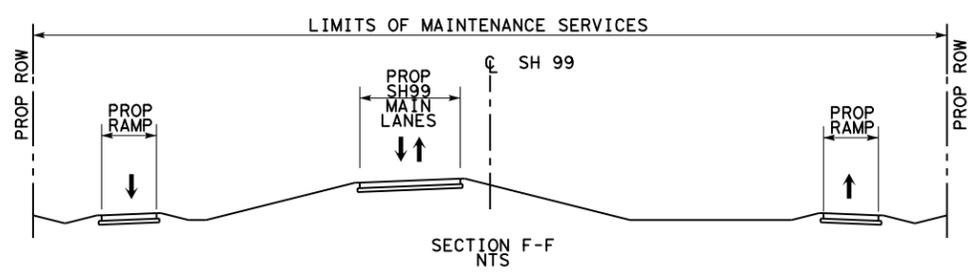
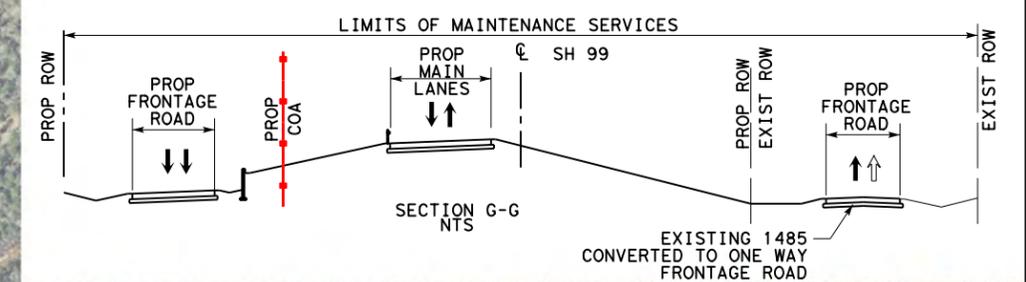
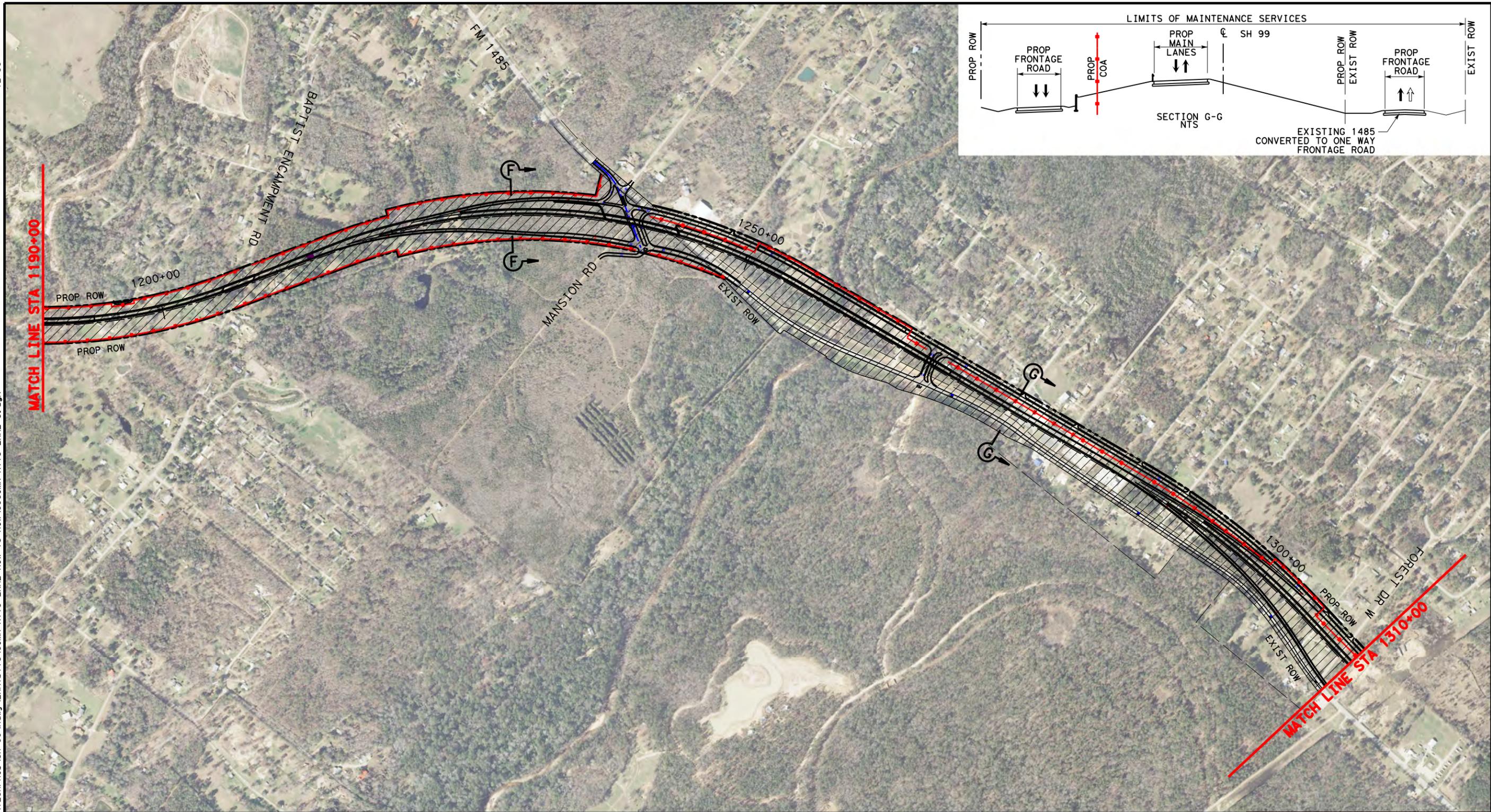
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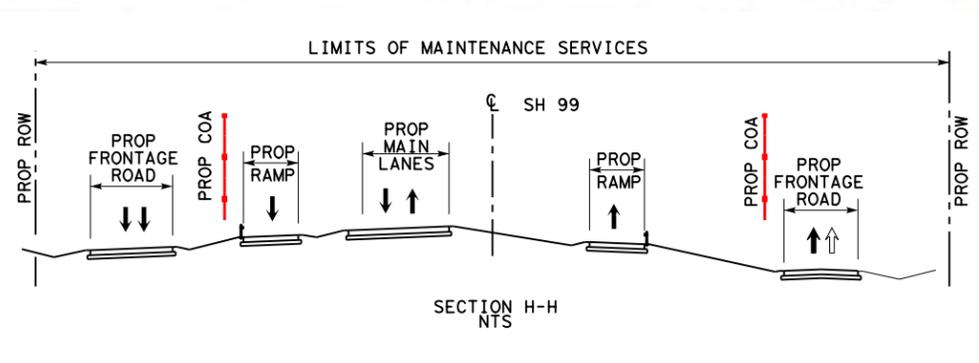
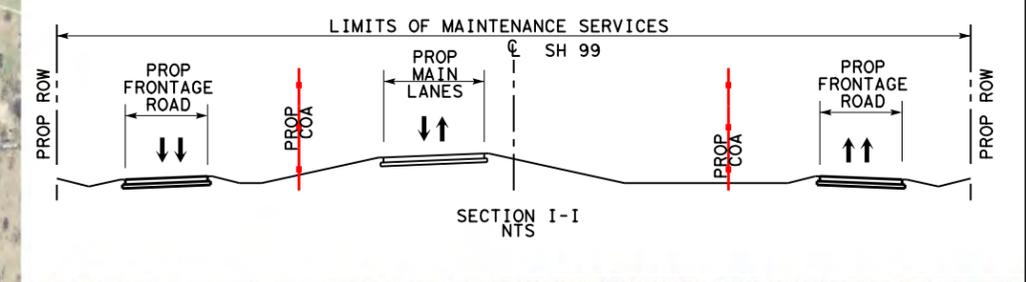
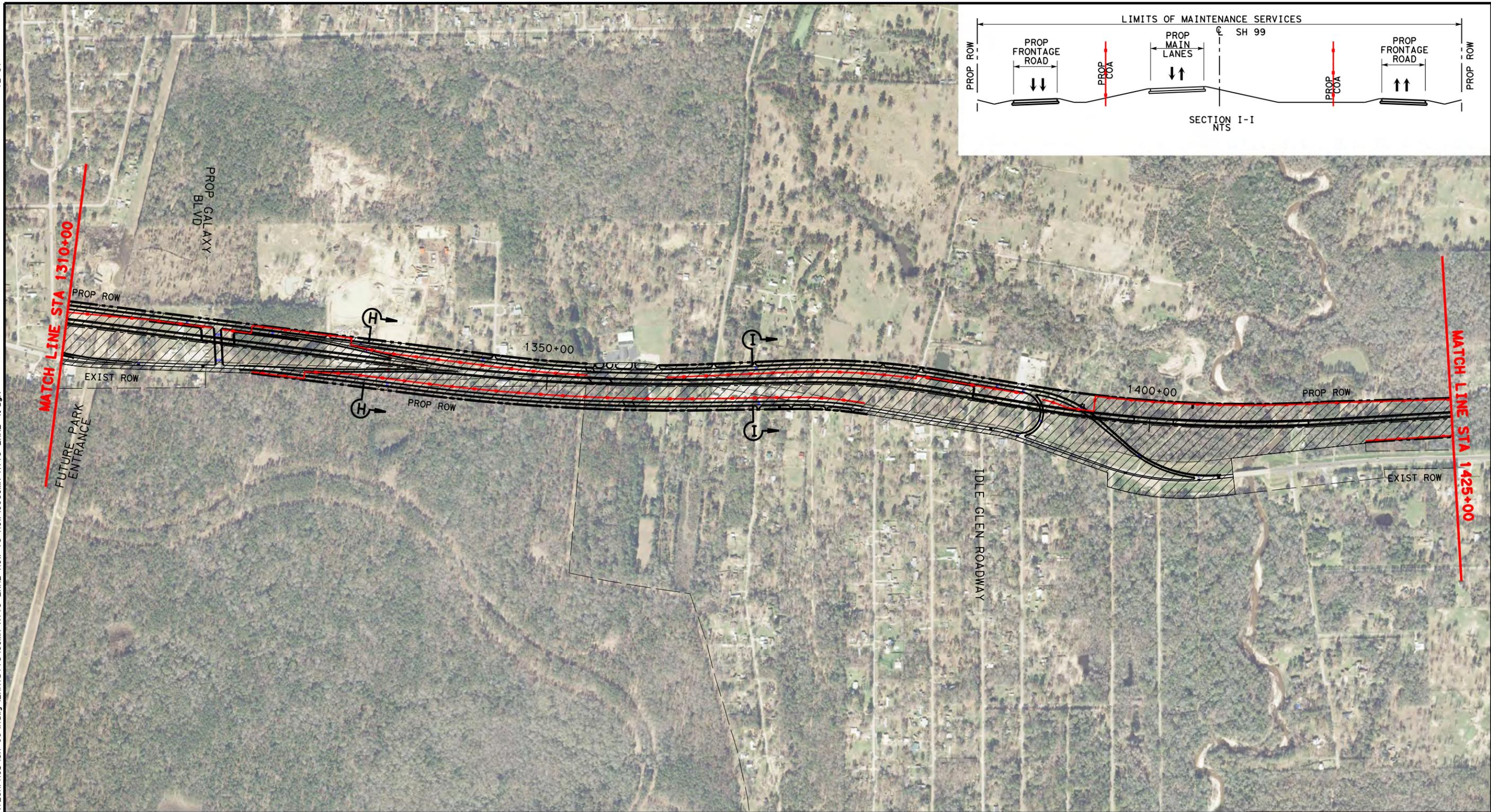
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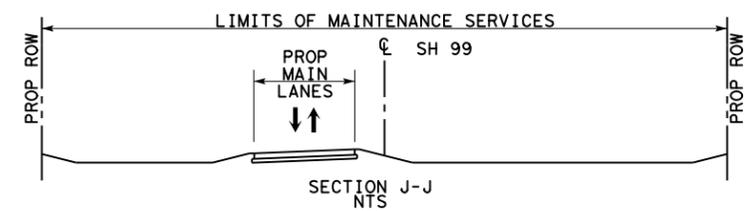
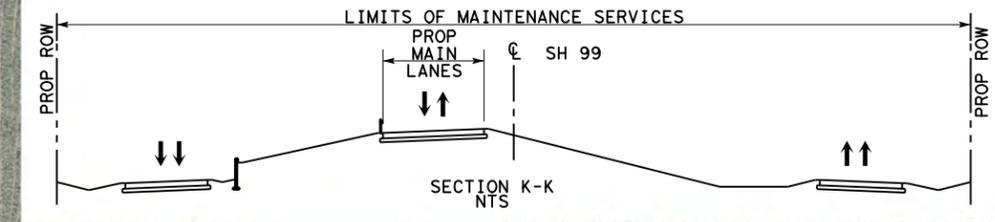
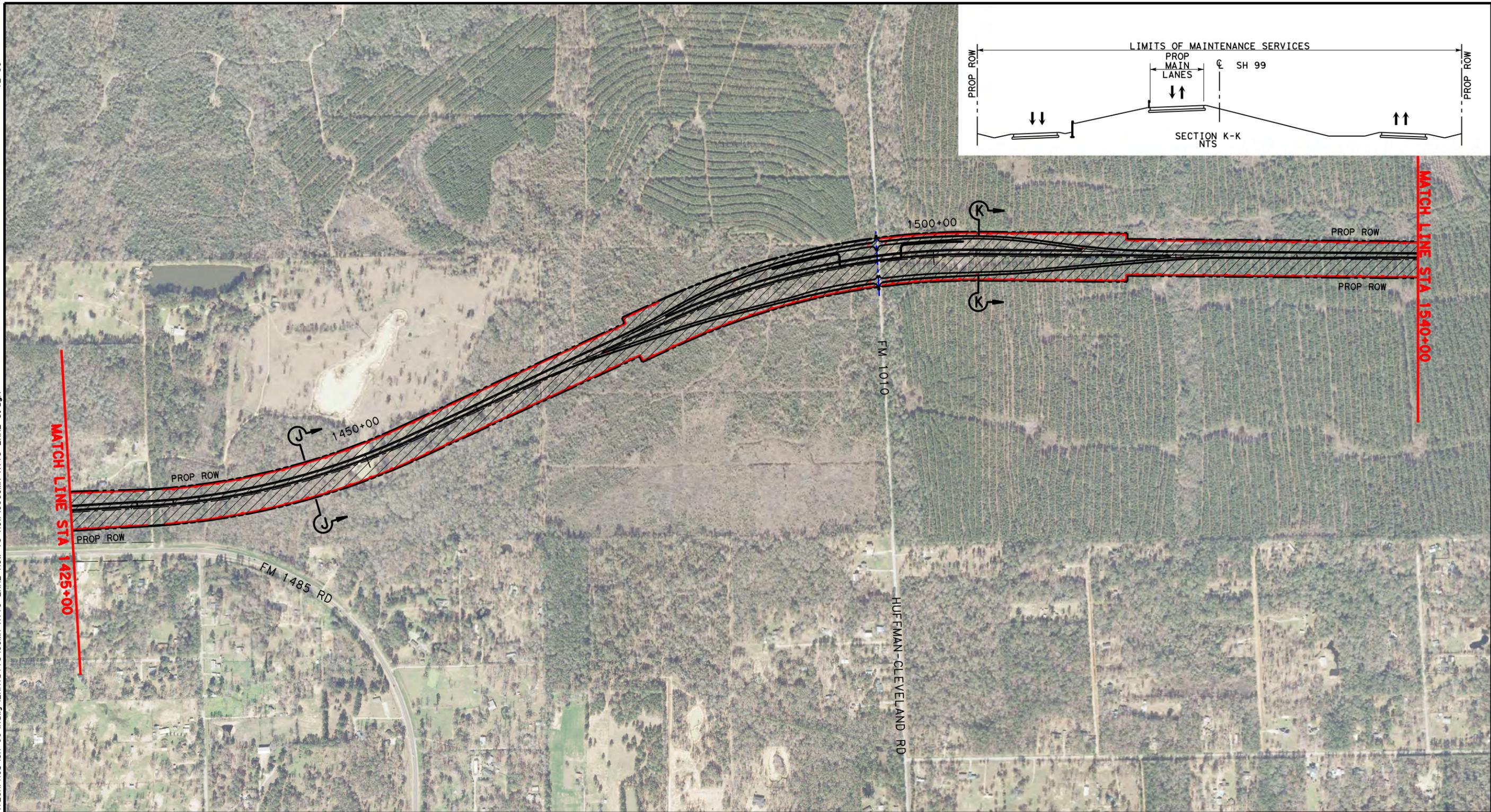


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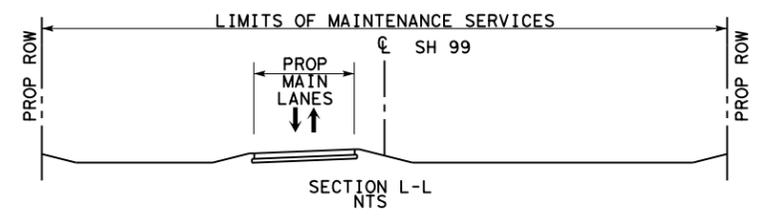
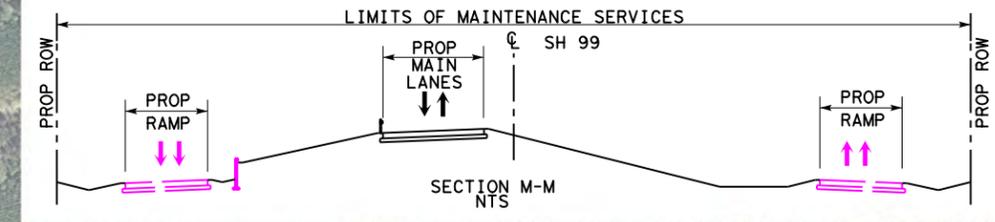
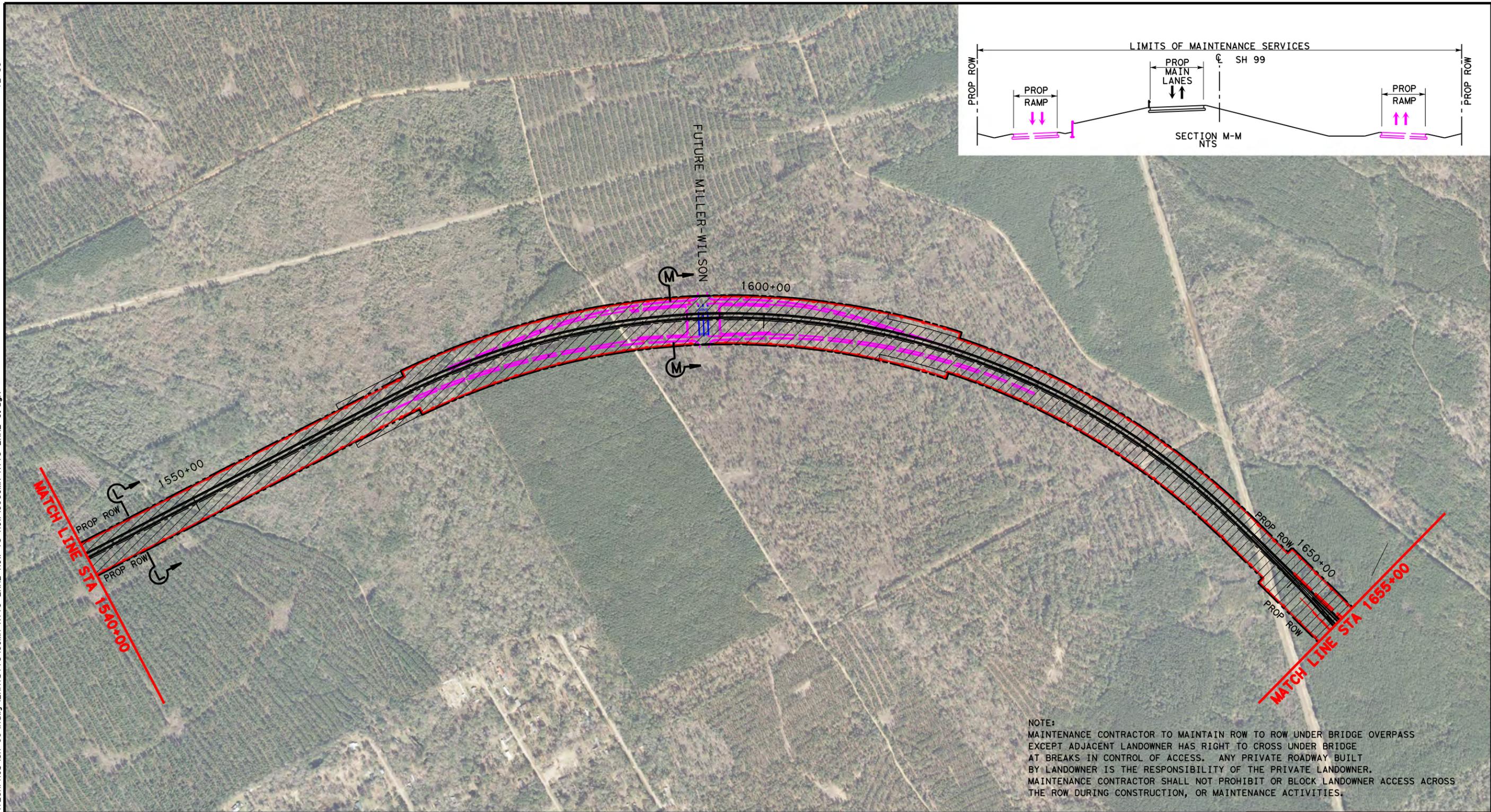
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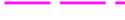
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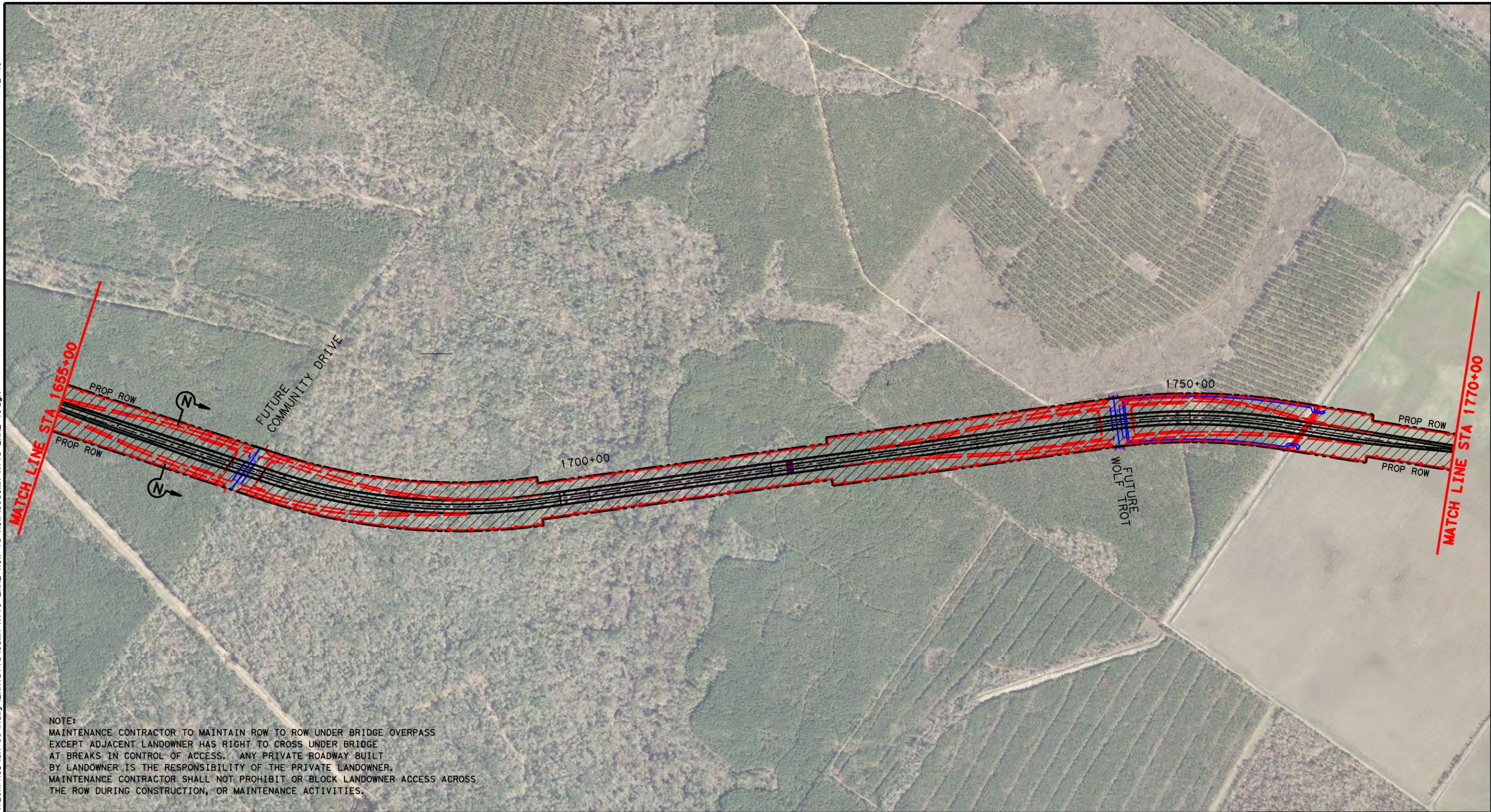
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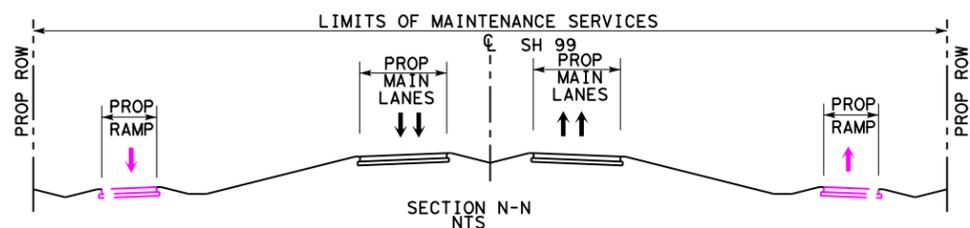


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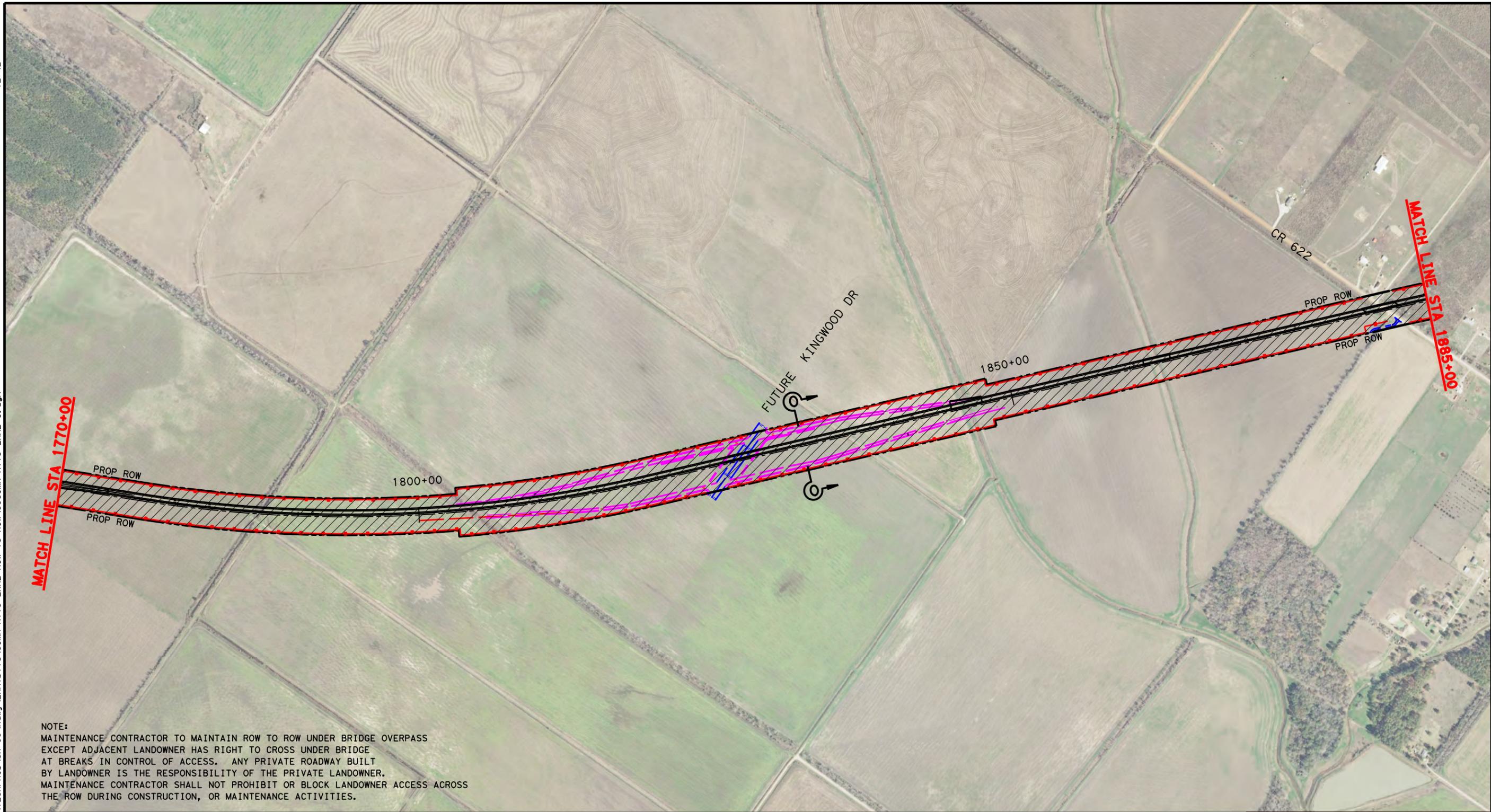


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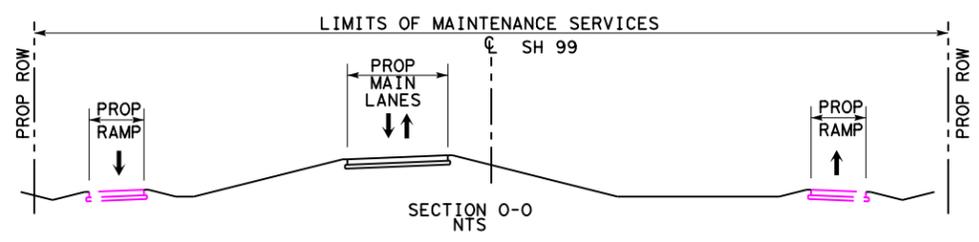


SH99 GRAND PARKWAY
 SEGMENT H, I-1 AND I-2
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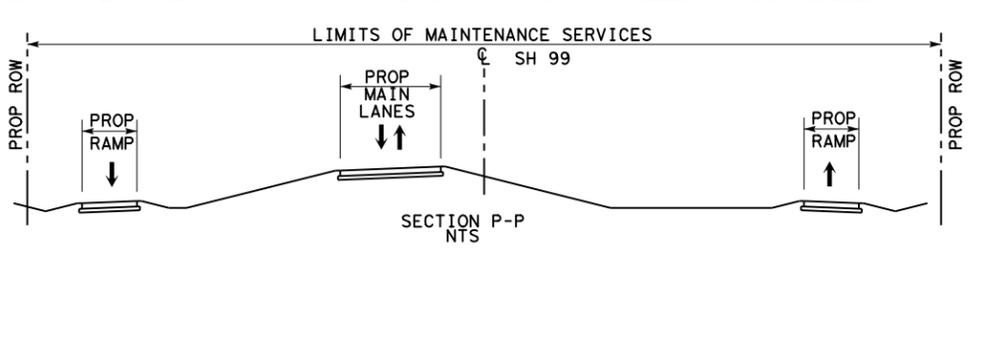
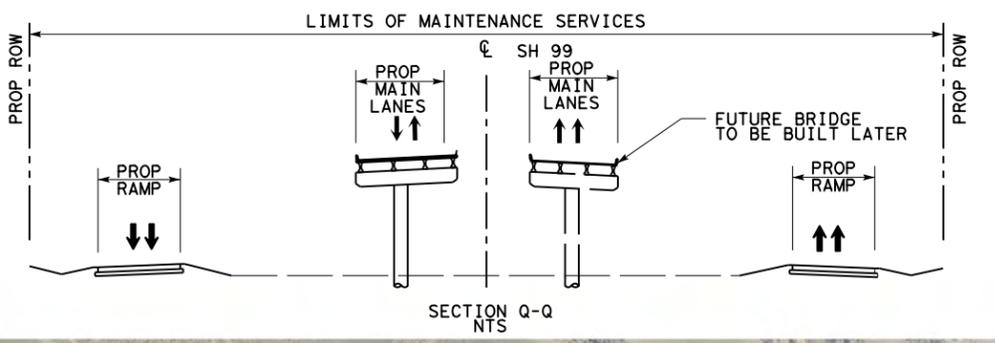
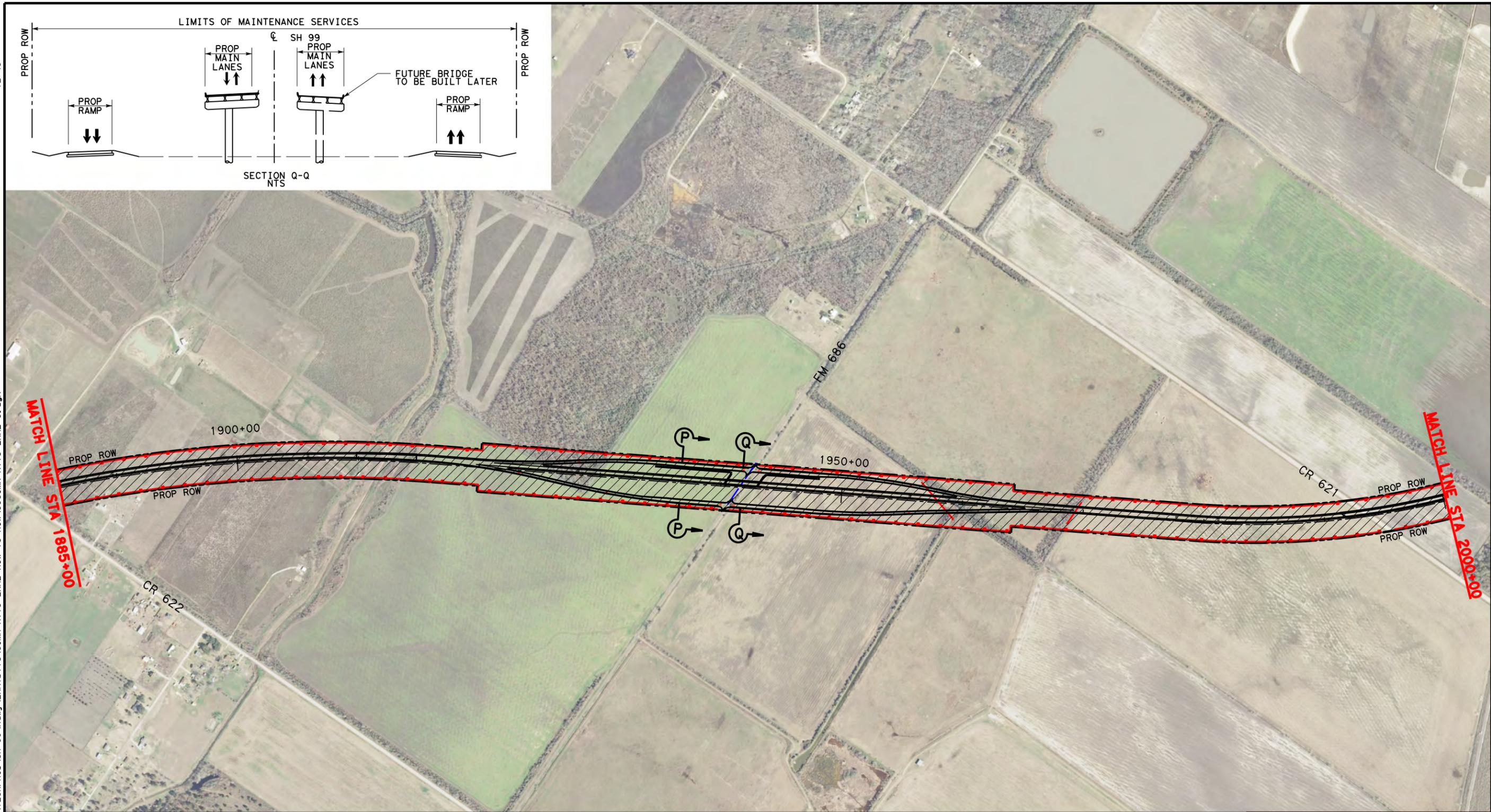
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LEGEND

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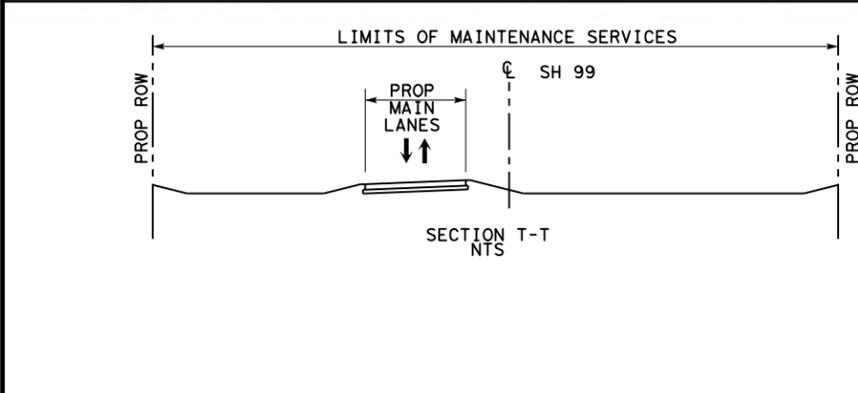
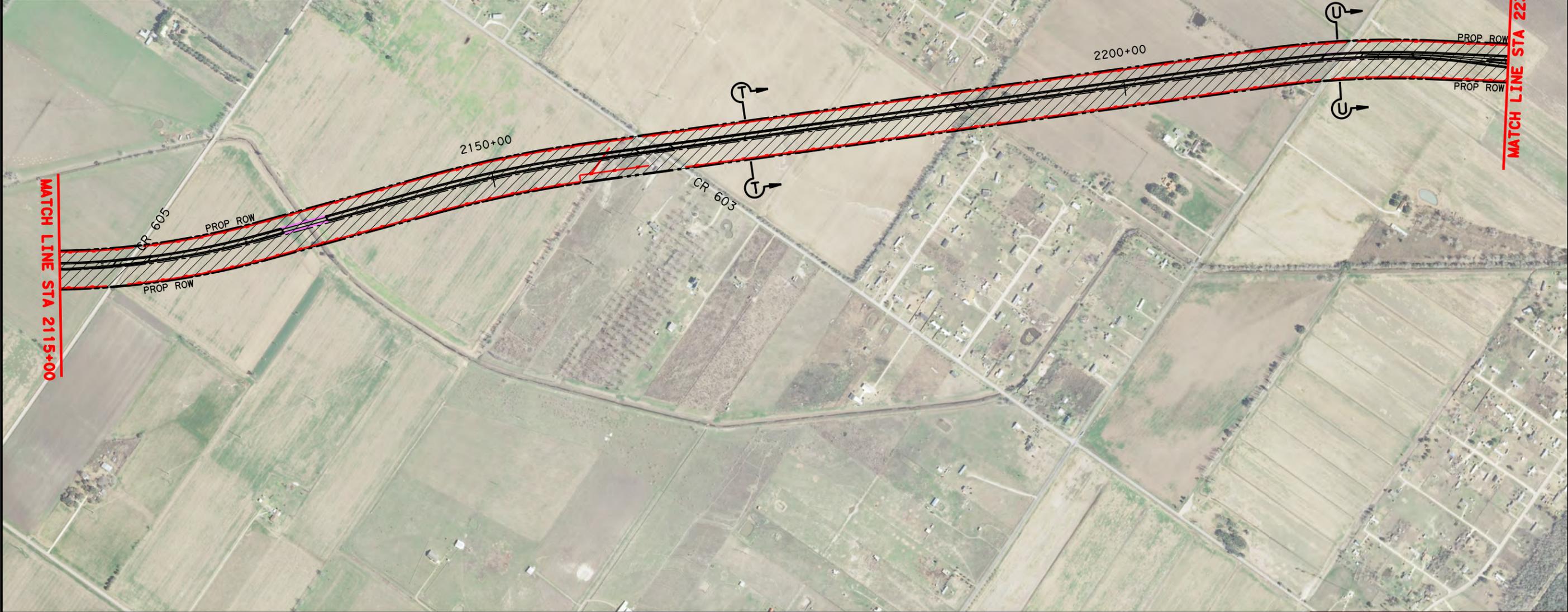
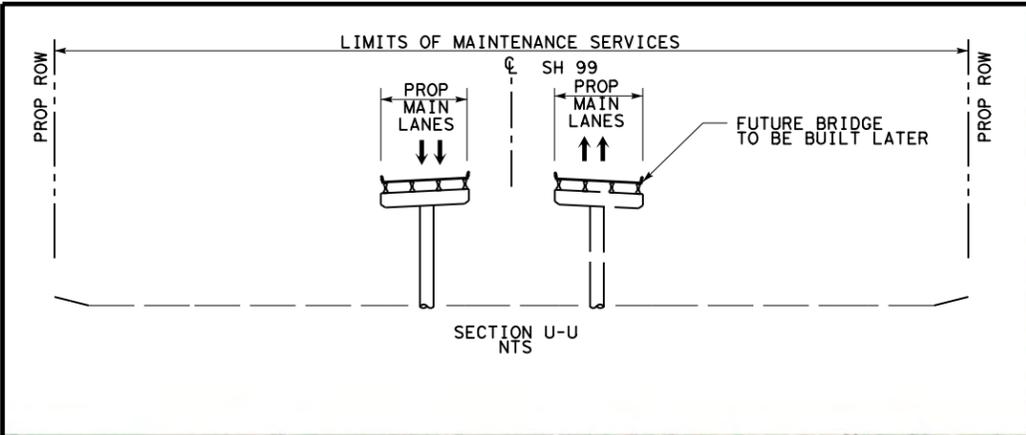
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**SH99 GRAND PARKWAY
 SEGMENT H, I-1 AND I-2
 COMPREHENSIVE MAINTENANCE AGREEMENT
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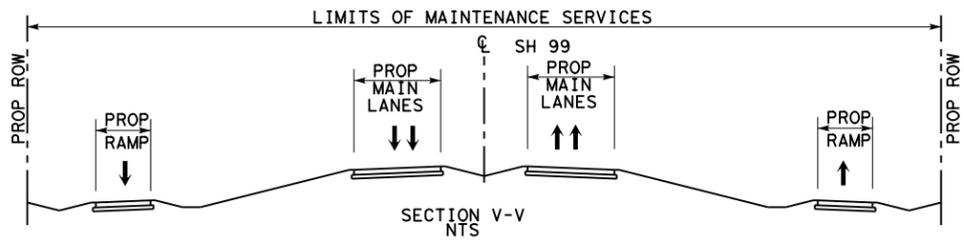
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LEGEND

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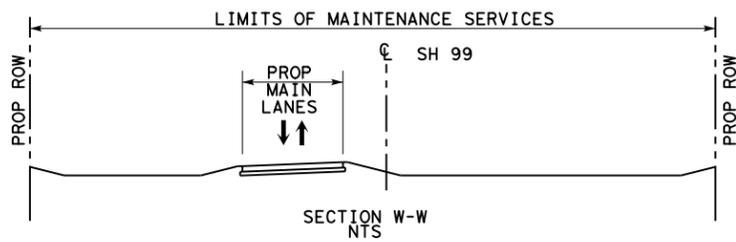
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STATE HIGHWAY 99 GRAND PARKWAY H&I

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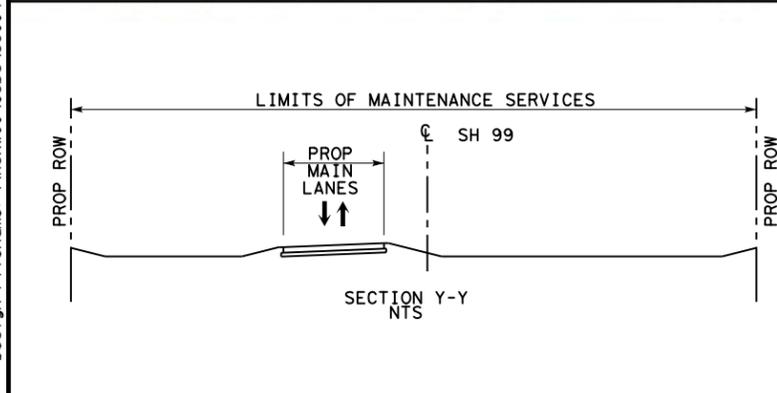
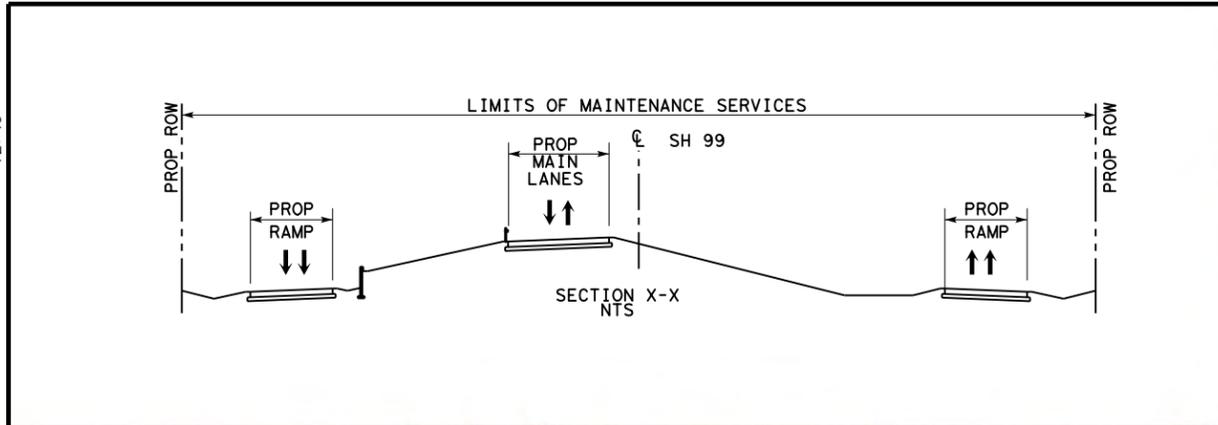


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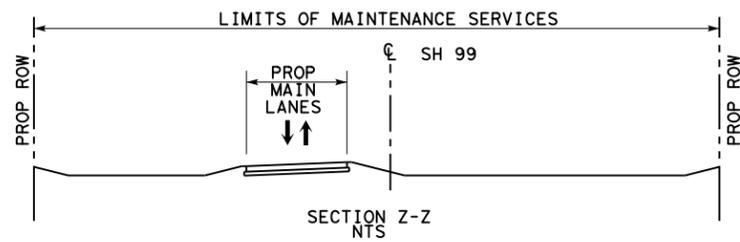


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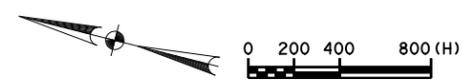


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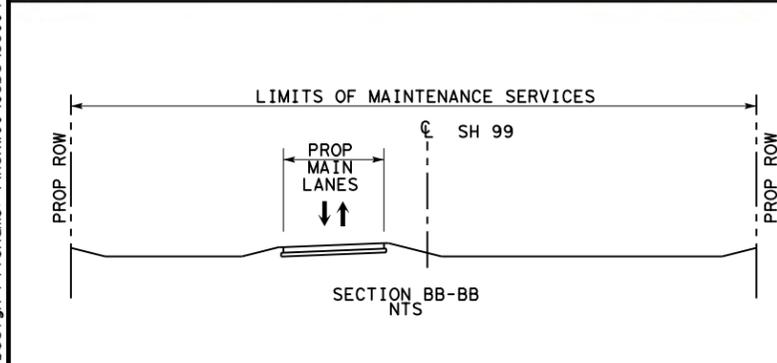
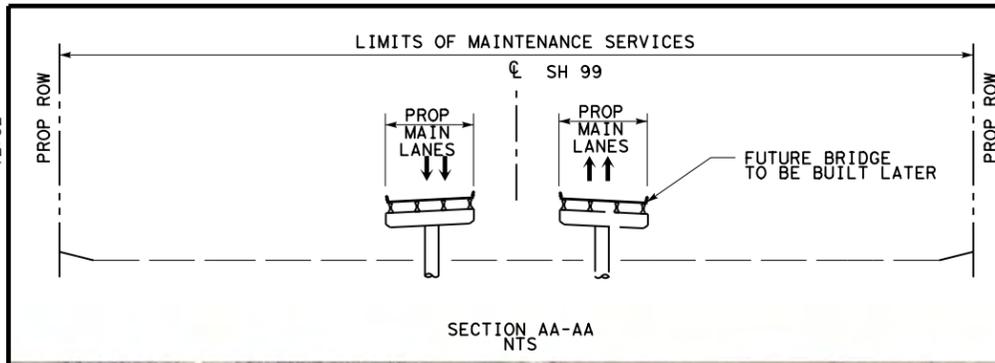
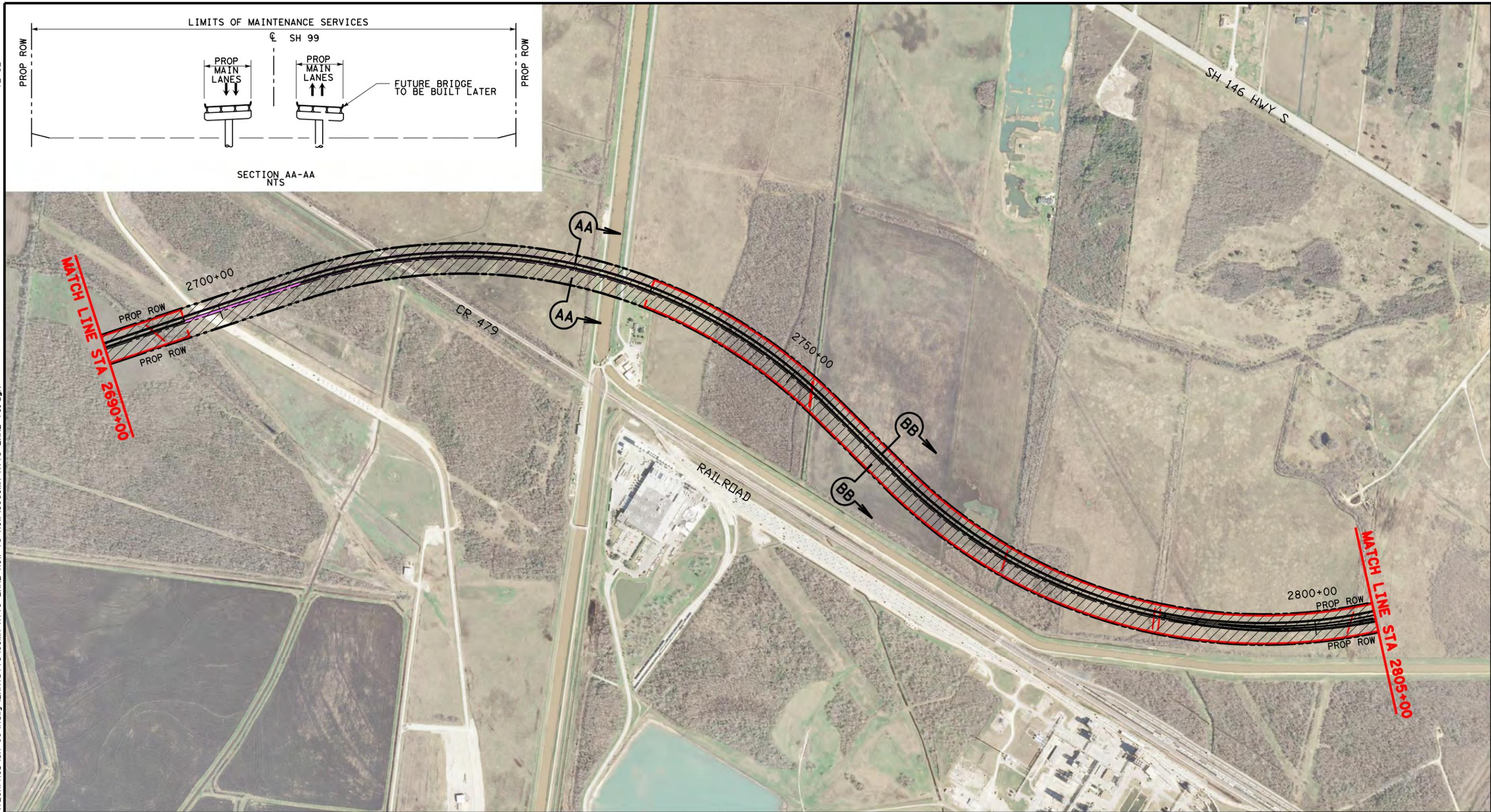


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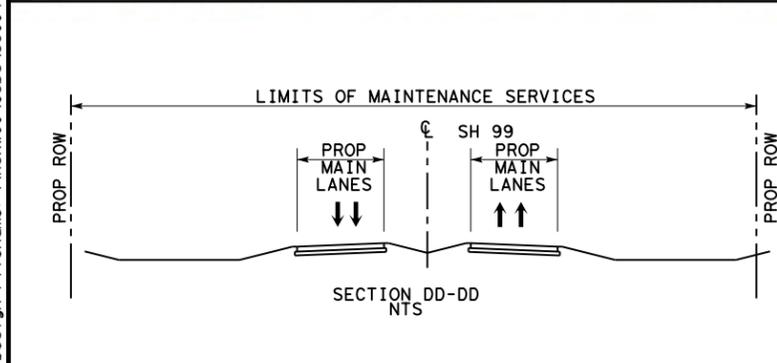
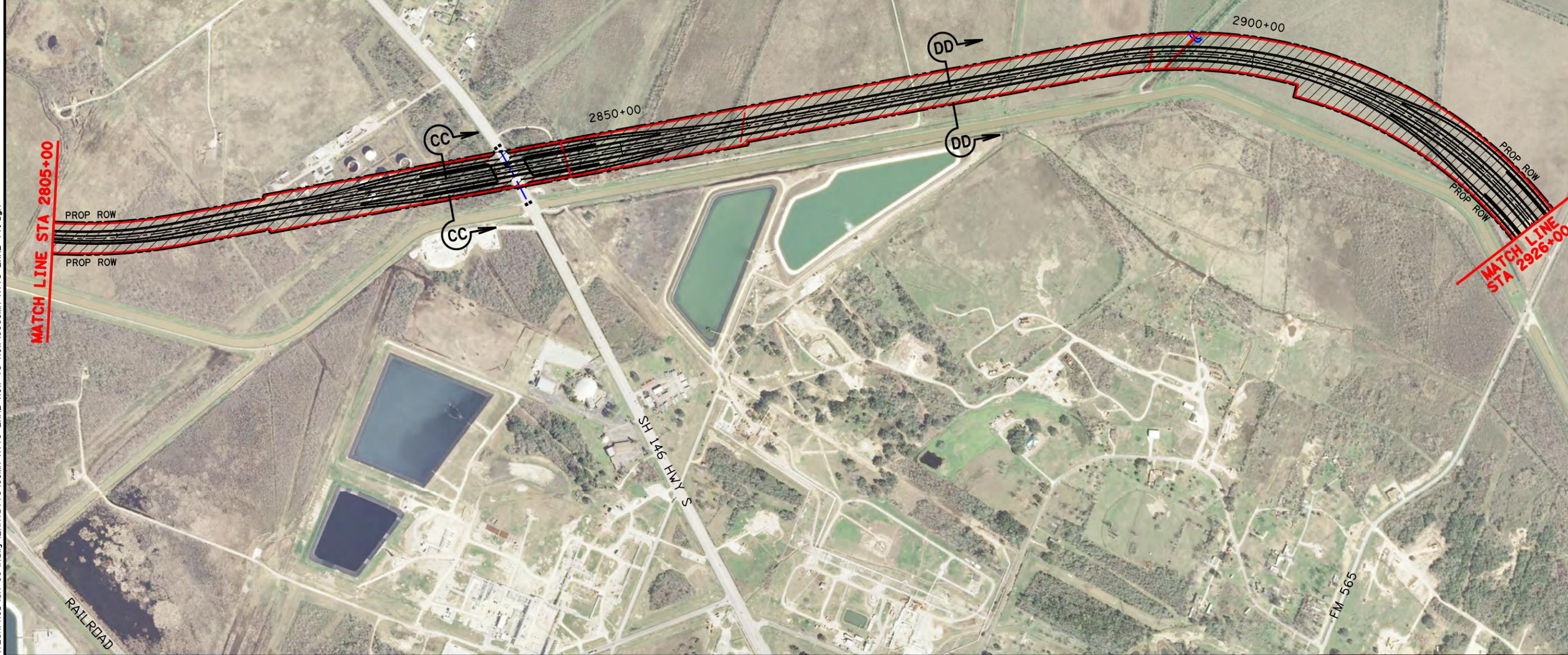
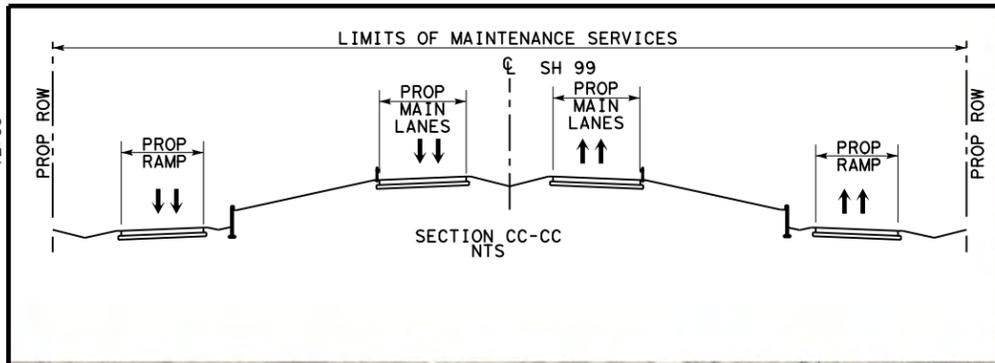
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 SEGMENT H, I-1 AND I-2
 COMPREHENSIVE MAINTENANCE AGREEMENT
 ATTACHMENT 3 OF EXHIBIT 2
 LIMITS OF MAINTENANCE SERVICES

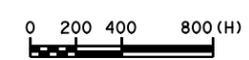
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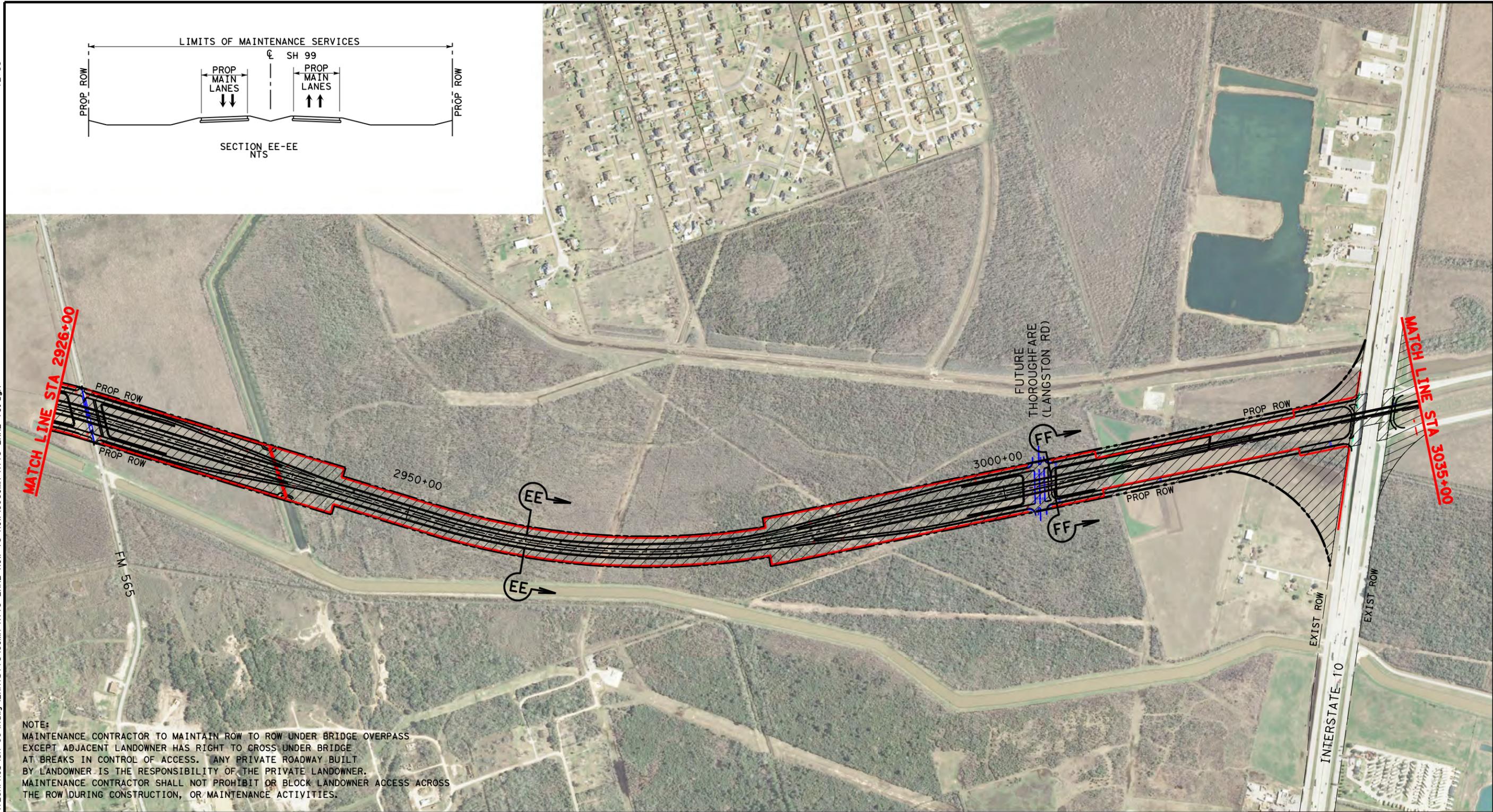
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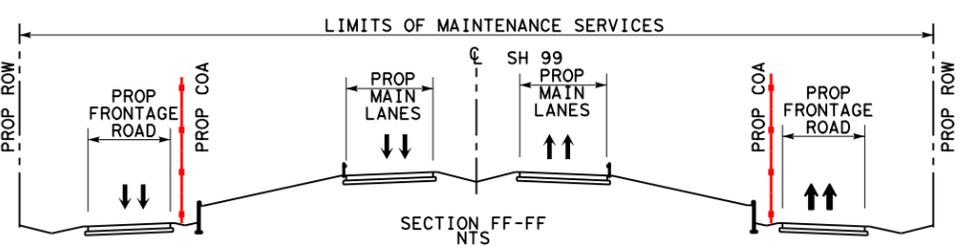
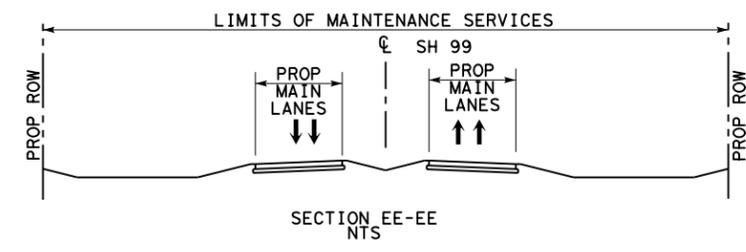
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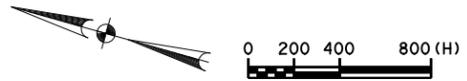
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NOTE:
 MAINTENANCE CONTRACTOR TO MAINTAIN ROW TO ROW UNDER BRIDGE OVERPASS EXCEPT ADJACENT LANDOWNER HAS RIGHT TO CROSS UNDER BRIDGE AT BREAKS IN CONTROL OF ACCESS. ANY PRIVATE ROADWAY BUILT BY LANDOWNER IS THE RESPONSIBILITY OF THE PRIVATE LANDOWNER. MAINTENANCE CONTRACTOR SHALL NOT PROHIBIT OR BLOCK LANDOWNER ACCESS ACROSS THE ROW DURING CONSTRUCTION, OR MAINTENANCE ACTIVITIES.

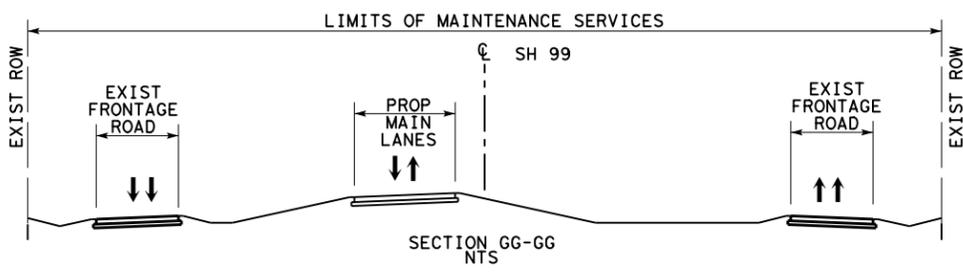
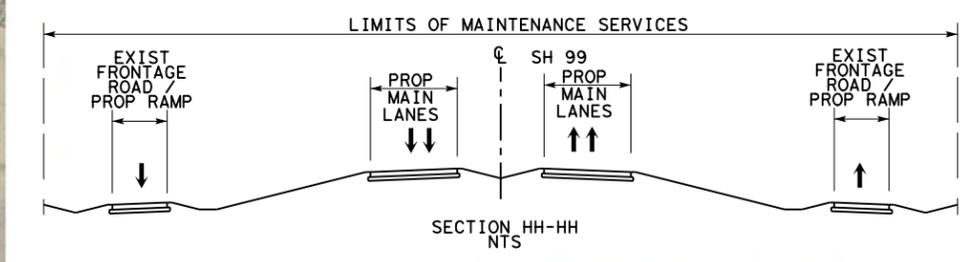
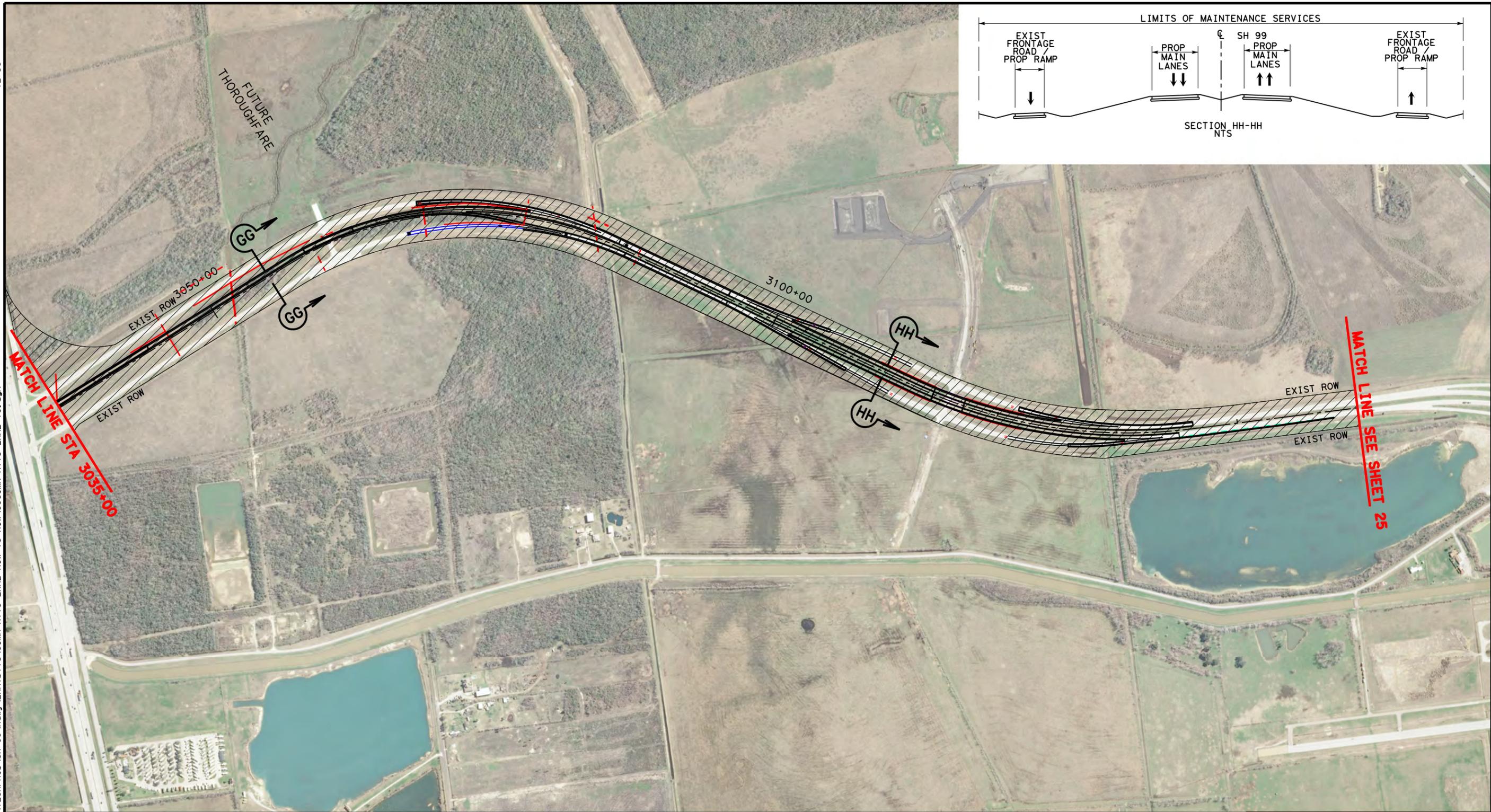


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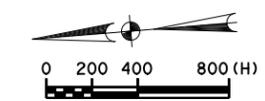


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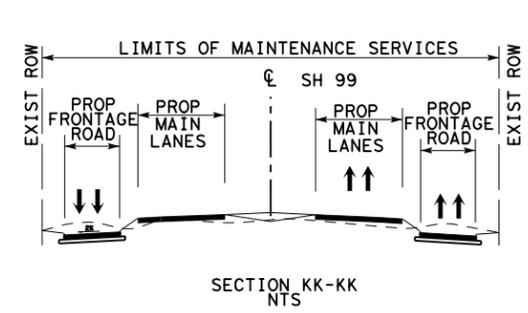
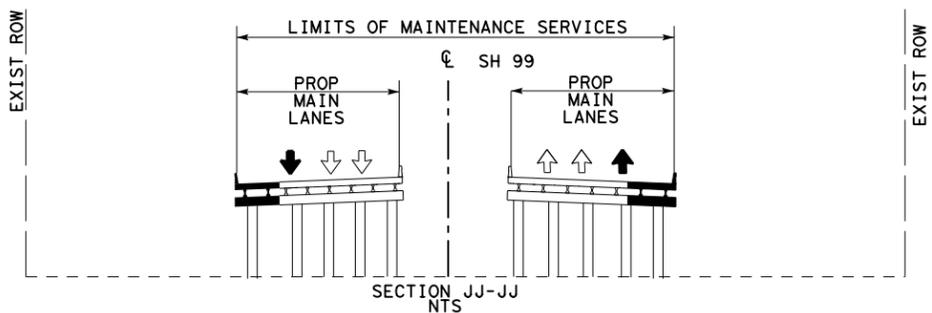


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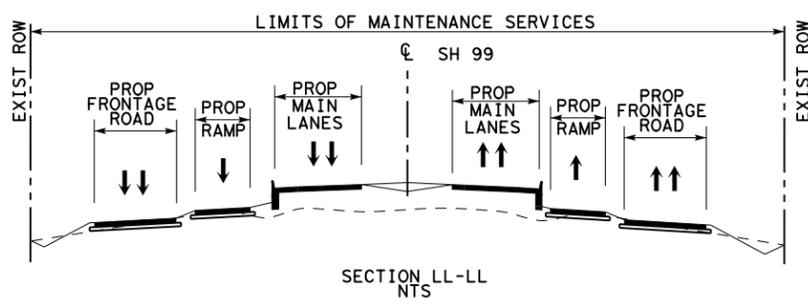


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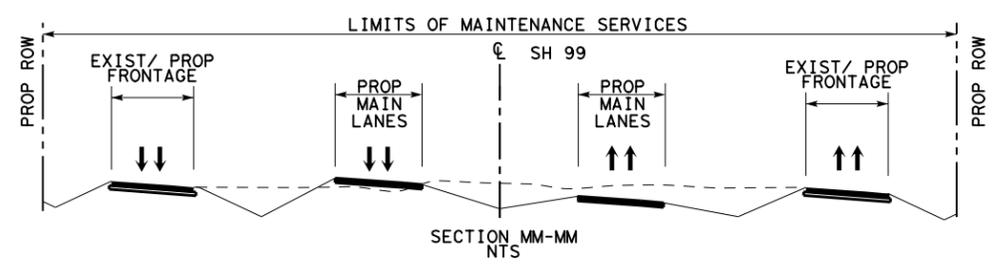
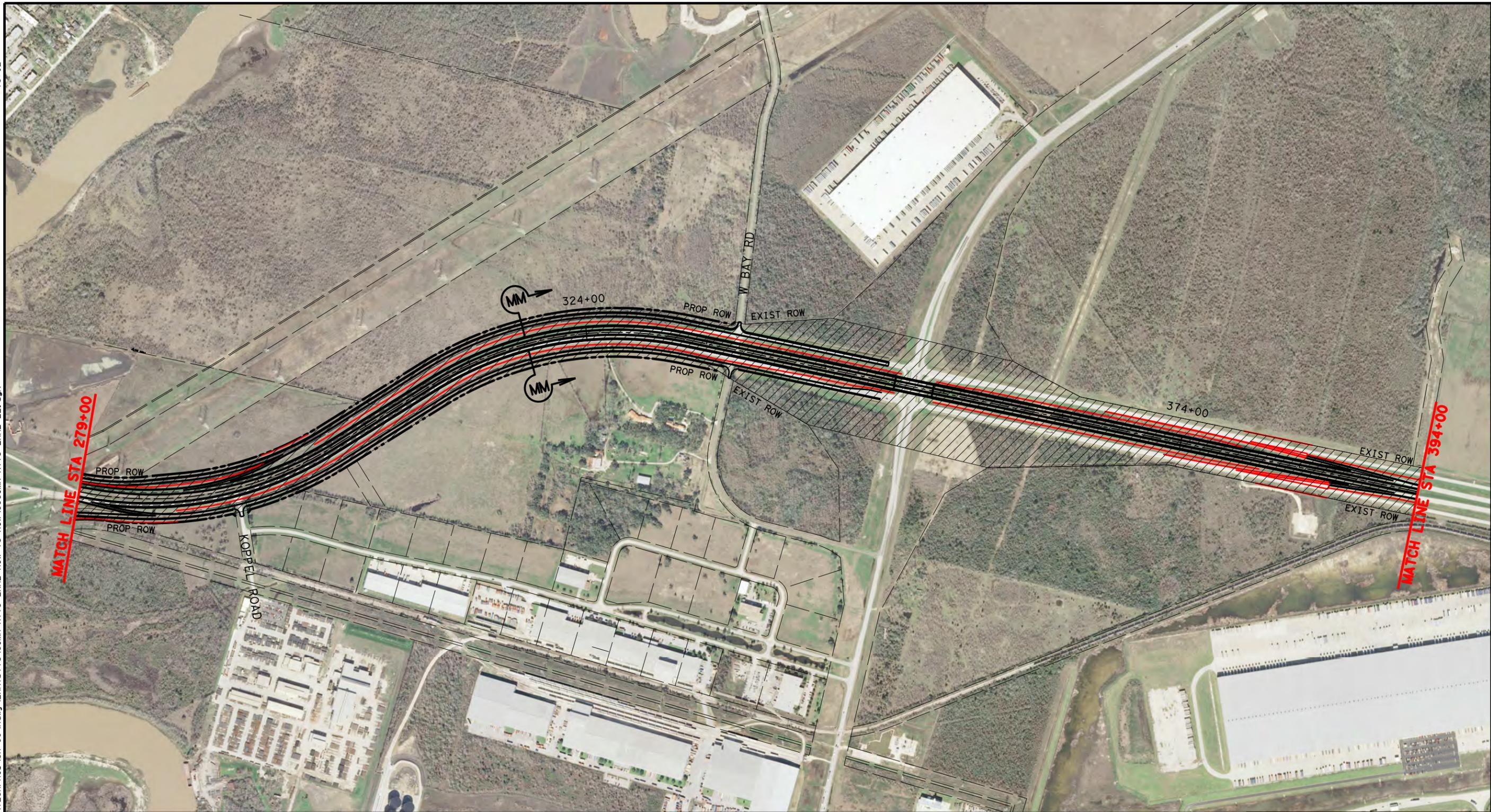


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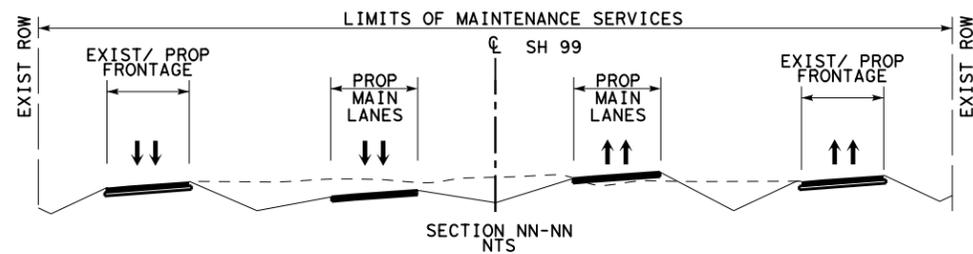


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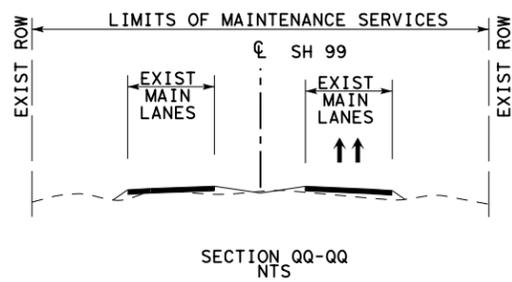


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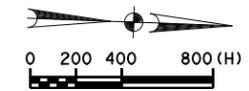
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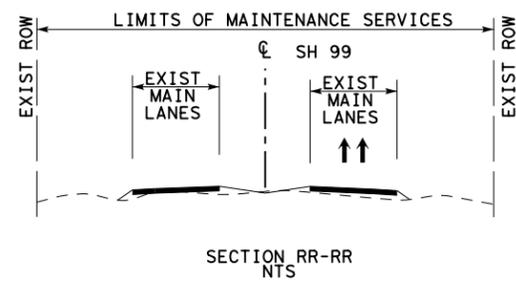
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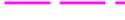


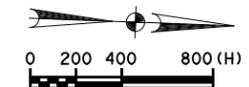
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LEGEND

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ATTACHMENT 4: CONTENT OF PLANS FOR COMA

Part	Ref	Section	Contents
1. Maintenance Management Plan			
1.1. Project Administration			
	1.1.1	Organization	Maintenance Contractor's main contractual arrangements
			Organizational structure covering the activities to be performed in accordance with the COMA Documents
	1.1.2	Personnel	Maintenance Contractor's approach to provide experienced personnel for the maintenance of the Project including Subcontractors
			Arrangements for coordinating and managing staff interaction with TxDOT and its consultants including collocation of Key Personnel and description of approach to coordinating work of off-site personnel
			Names and contact details, titles, job roles of principal personnel for Contractors and any third party with which Maintenance Contractor will coordinate its activities
			Names and contact details, titles, job roles of Key Personnel
			Procedures for providing training for personnel involving with environmental mitigation activities and hazardous materials handling
	1.1.3	Procurement	Procedures for procurement of services, materials and products including methods to ensure best value
	1.1.4	Subcontractors	Overall control procedures for Subcontractors, including consultants and subconsultants
			Responsibility of Subcontractors and Affiliates
Steps taken to ensure Subcontractors and Suppliers meet the obligations imposed by their respective Subcontracts			
		Procedures for providing training for employees of Subcontractors involving with environmental mitigation activities and Hazardous Materials handling	
1.1.5	Offices and Equipment	Description of the necessary offices and office equipment to be provided by Maintenance Contractor during the Maintenance Term	
1.2. Maintenance Schedule			
	1.2.1	Schedule	Maintenance Service Deliverables Schedule
			Renewal Work Schedule
1.3. Emergency Response			
	1.3.1	Incident and Emergency Management Plan	Procedures setting out how Maintenance Contractor will respond to accidents and Incidents on the Project
			Procedures to establish protocols with Emergency Services and others in Emergency
	1.3.2	Snow and Ice Control Plan	Procedures for performing snow and ice control
1.4. Operation and Maintenance			
	1.4.1	Maintenance	Procedures for how the principal activities will be performed during the Maintenance Term: to include routine maintenance, Renewal Work, traffic management, and inspections regime

Part	Ref	Section	Contents
			Procedures to address Maintenance Contractor's performance requirements, measurement procedures, threshold values at which maintenance is required, inspection procedures and frequencies, and subsequent maintenance to address noted deficiencies, as well as thresholds for rehabilitation in accordance with Attachment 1 to Exhibit 2 of the COMA and Good Industry Practice
	1.4.2	Traffic Management and Control Plans	Procedures for setting out how contractor will coordinate lane closure, and traffic control for conducting maintenance services
	1.4.3	Complaints	Procedures to respond to comments and/or complaints received from Users and others
1.5. Environmental			
	1.5.1	Hazardous Materials Management Plan	Procedures for handling Hazardous Materials
	1.5.2	Environmental Compliance and Mitigation Plan	Compliance strategies and procedures to be employed in accordance with in accordance with the requirements of applicable Environmental Laws and Environmental Approvals
1.6. Safety			
	1.6.1	Maintenance Safety Plan	Policies, plans, training programs, and work site controls to ensure the health and safety of personnel involved in the Project and the general public affected by the Project during the Maintenance Term. Procedures for notifying TxDOT of Incidents arising out of or in connection with the performance of the Maintenance Services
1.7. Communication			
	1.7.1	Maintenance Communications Plan	Procedures for communication of Project information between the Maintenance Contractor's organization and TxDOT
1.8. Document Management			
	1.8.1	Maintenance Document Management Plan	Procedures for maintaining maintenance records
2. Maintenance Services Quality Management Plan			
	2.1	Procedure	Procedures for quality control activities including a complete description of the quality policies and objectives
	2.2	Document Management	Procedures for maintaining quality records
3. Maintenance Transition Plan			
	3.1	Procedure	Procedures for preparing list of items to be transferred to TxDOT
4. Handback Plan			
	4.1	Procedure	Procedures for Residual Life Methodology Plan including performing Residual Life inspections and Renewal Work needed to meet Residual Life requirement at handback.

ATTACHMENT 5: RESIDUAL LIFE AT HANDBACK (YEARS)

Ref.	Maintained Element	Residual Life at handback (yrs)
1	Structures	
	Bridges (Structural Elements)	25
	Reinforced Concrete	25
	Pre-Stress Concrete	25
	Structural Steelwork	25
	Weathering Steel	25
	Corrugated Steel	25
	Corrosion protection for structural steelwork	10
	Deck surfacing	10
	Deck joints	10
	Bearings	25
	Railing	25
2	Road Pavement	
	Main lanes	5
	Ramps / direct connectors	5
	Frontage Roads	5
	Local Roads	5

ATTACHMENT 6: RESTRICTIONS ON TRAFFIC MANAGEMENT

6.1 Allowable Lane Closures

Lane Closures will only be permitted when Maintenance Contractor can demonstrate that the closure will provide clear benefit to the progress of the Maintenance Services. Lane Closures must be coordinated with adjacent projects and priority shall be given to the closure submitted first.

The safety of workers and the traveling public must be the first consideration when determining the appropriate time to implement a Lane Closure.

At a minimum, Maintenance Contractor shall inform the TxDOT public information officer by 3:15 p.m. on the previous day of all road closures or major lane closures that will affect mobility so they can inform the public, Emergency Services, schools, etc. as needed.

Prior to implementing any Lane Closure, Maintenance Contractor shall input Lane Closure information into the Highway Conditions and Reporting System.

The following TxDOT policy and procedure manuals and references apply for all lane closures:

- Texas Manual of Uniform Traffic Control Devices (TMUTCD)
- TxDOT Traffic Control Plan Standards
- TxDOT Barricade and Construction Standards
- TxDOT Standard Specifications “Item 502 (Barricades Signs and Traffic Handling)

The following Lane Closure requirements for the mainlane, frontage roads, and cross streets are intended to supplement the above list of manuals and references for the Project:

Table 6-1: Lane Closure Requirements

Roadway	Roadway Lanes (one direction)	Permitted Lane Closures		
		Peak Times Monday-Friday (6:00 a.m. - 9:00 a.m.) (3:30 p.m. - 7:00 p.m.) and Major Events and Major Holidays	Off-Peak Times Monday-Friday (9:00 a.m. - 3:30 p.m.) (7:00 p.m. to 10:30 p.m.) and Saturday	Lowest Volume Times Monday-Friday (10:30 p.m. - 6:00 a.m.) and Sunday
Mainlanes and Ramps	3	None	1	1
	2	None	None	1
	1	None	None	1*
Frontage Roads	3	None	1	2
	2	None	1	1
Cross Streets	3	None	1	2
	2	None	1	1
	1	None	None	1

*Traffic shifted to shoulder

Additional requirements:

Any complete roadway closure will require a Traffic Control Plan with appropriate detour routing to be submitted and approved by TxDOT.

- Maintenance Contractor shall seek TxDOT's approval for all required Lane Closures at least 48 hours in advance for temporary Lane Closures and fourteen (14) days for complete closures.
- If reasonable mobility can be maintained, or exceptional circumstances exist, additional lanes may be closed during Off-Peak Times or Lowest Volume Times with written permission of TxDOT. In such event, with the express written permission of TxDOT, Maintenance Contractor will not be subject to Lane Rental Charges for failure to comply with the Lane Closure requirements. Off-Peak Times may be started earlier or be extended later, subject to obtaining such express written permission, if reasonable mobility can be maintained.
- If at any time backups become unreasonable, (>20 min.), Maintenance Contractor shall immediately undertake modifications to alleviate the congestion. Contingency plan of how this will occur should be in place and approved by TxDOT.
- Use off duty uniformed peace officers as directed by the Maintenance Contractor.
- Inclement weather should be considered when planning closures.

6.2 Driveway Closures

Maintenance Contractor shall maintain a minimum of one driveway per business at all times. For businesses with multiple driveways, when driveway closure is necessary to progress Maintenance Services, no driveway may be closed for more than three (3) consecutive days.

6.3 Ramp Closures

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

6.4 Detour Usage

Maintenance Contractor shall use State routes for detour routes, wherever applicable. If State routes are unavailable, Maintenance Contractor shall use local roadways, provided that Maintenance Contractor has obtained TxDOT approval and the necessary permits from the Governmental Entity having jurisdiction.

Maintenance Contractor shall provide motorists with guidance on the use of alternate routes to divert traffic around the construction, detouring around specific construction sites, and traveling through the construction areas. This shall include the installation and maintenance of temporary regional signs. Motorist guidance to and along detour routes shall be provided, together with regional guidance.

6.4 Restricted Hours

A. Holiday Restrictions

No Lane Closure that restricts or interferes with traffic shall be allowed from 12:00 PM (noon) on the day proceeding to 10:00 PM on the day after the following holiday schedule. No additional lane or ramp closure that restricts or interferes with traffic shall be allowed. TxDOT has the right to lengthen, shorten, or otherwise modify these restrictions as actual traffic conditions may warrant.

- New Year's Eve and New Year's Day (December 31 through January 1)

- 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 Holiday (December 23 through December 26)

