440 QUARRY IMPROVMENTS (NW MILITARY HWY) SAN ANTONIO, TEXAS

FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED.

TURN LANE PLANS



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PREPARED FOR:

SHAVANO QUARRY DEVELOPMENT, LTD 11 LYNN BATTS LANE, SUITE 100 SAN ANTONIO, TEXAS 78218

JULY 2023



2000 NW LOOP 410 | SAN ANTONIO, TX 78213 TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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Item 672

	of Transportation		ממווש בתושנווש ו מעכוווכוונ שמ
	DESCRIPTION	1.	DESCRIPTION
			Eliminate existing pavement markings and rais
	Markers, Eurnich PDMs in accordance with the following Department Material Specifications:	2.	
. 1.	 Reflectorized Pavement Markers. DMS-4200, "Pavement Markers (Reflectorized)," types I-A, I-C, I-R, II-A-A, and II-C- R. 		 Furnish surface treatment materials in accorda Item 300, "Asphalts, Oils, and Emulsions" Item 302, "Aggregates for Surface Treatment
	 Traffic Buttons. DMS-4300, "Traffic Buttons," types I-A, I-C, I-R, II-A-A, II-C-R, W, Y and B. Round or oval unless otherwise specified on the plans. 		Item 316, "Seal Coat"
	 Plowable Reflectorized Pavement Markers. DMS-4210, "Snowplowable Pavement Markers," types I-A, I-C, I-R, II-A-A, and II-C- R. 		Use approved patching materials for repairing
	The following are descriptions for each type of RPM:		Use a commercial abrasive blasting medium ca potable water when water is required.
	Type I-A. The approach face must retro-reflect amber light. The body, other than the retro-reflective face, must be yellow.	3.	EQUIPMENT
	 Type I-C. The approach face must retro-reflect white light. The body, other than the retro-reflective face, must be white or silver-white. Type I-R. The trailing face must retro-reflect red light. The body, other than the retro-reflective face, must be white or silver-white, except for I-R plowable markers which may be black. 		Furnish and maintain equipment in good workin equipment to remove all contaminants from the other contaminants on the roadway surface.
	Type II-A-A. The 2 retro-reflective faces (approach and trailing) must retro-reflect amber light. The body, other than the retro-reflective faces, must be yellow.	4.	CONSTRUCTION
	 Type II-C-R. Contain 2 retro-reflective faces with an approach face that must retro-reflect white light and a trailing face that must retro-reflect red light. The body, other than the retro-reflective faces, must be white or silver-white. Type W. Must have a white body and no reflective faces. Type Y. Must have a vellow body and no reflective faces. 		Eliminate existing pavement markings and mar manner that color and texture contrast of the pa markings and markers with minimal damage to damage to asphaltic surfaces, such as spalling removal of pavement markings and markers. D
	 Type B. Must have a black body and no reflective faces. 	4 1	regulations. Use any of the following methods i
.2.	 Adhesives. Furnish adhesives that conform to the following requirements: DMS-6100, "Epoxies and Adhesives," Type II—Traffic Marker Adhesives. DMS-6130, "Bituminous Adhesive for Pavement Markers." 	7.1.	Place a surface treatment a minimum of 2 ft. w thin overlay, or microsurfacing a minimum of or are involved or other areas as directed.
.3.	 The Contractor may propose alternate adhesive materials for consideration and approval. Sampling. The Engineer will sample in accordance with Tex-729-I. 	4.2.	Burn Method . Use an approved burning methor pavement markings, heat may be applied to re When using heat, avoid spalling pavement surf
	CONSTRUCTION	13	minor residue.
	Remove existing RPMs in accordance with Item 677, "Eliminating Existing Pavement Markings and Markers," except for measurement and payment. Furnish RPMs for each class from the same manufacturer. Prepare all surfaces in accordance with Item 678, "Pavement Surface Preparation for Markings," when shown on the	4.3.	shot blasting, slurry blasting, water-injected abi pavement markings on concrete surfaces by a
	pavement markings, and any other material that would adversely affect the adhesive bond. Establish pavement marking guides to mark the lateral location of RPMs as shown on the plans and as directed. Do not make permanent marks on the roadway for the guides	4.4.	Mechanical Method. Use any mechanical met of markings on asphalt and concrete surfaces.
	Place RPMs in proper alignment with the guides. Acceptable placement deviations are shown on the plans.	5.	MEASUREMEN I
	Remove RPMs placed out of alignment or sequence, as shown on the plans or stated in this specification, at		by any other unit shown on the plans.
	Contractor's expense, in accordance with Item 677, "Eliminating Existing Pavement Markings and Markers" (except for measurement and payment). Use the following adhesive materials for placement of reflectorized pavement markers, and traffic buttons		This is a plans quantity measurement Item. The unless modified by Article 9.2., "Plans Quantity be made if adjustments of quantities are requir
	unless otherwise shown on the plans: standard or flexible bituminous adhesive for applications on bituminous pavements, and	6.	PAYMENT
	epoxy adhesive or flexible bituminous adhesive for applications on hydraulic cement concrete pavements.		The work performed and materials furnished in "Measurement" will be paid for at the unit price of the type and width as applicable. This price
	Use epoxy adhesive for plowable reflectorized pavement markers.		materials, equipment, tools, labor, and incident subsidiary to the pertinent bid items.
	 Apply enough adhesives to: ensure that 100% of the bonding area of RPMs is in contact with the adhesive, and ensure that RPMs, except for plowable markers, are seated on a continuous layer of adhesive and not in contact with the neueron of adhesive. 		70
	Apply adhesives in accordance with manufacturer's recommendations unless otherwise required by this	Item 6	10 cont Curford Dronorotion for
	Article. Apply bituminous adhesive only when pavement temperature and RPM temperature are 40°F or higher. Do not heat bituminous adhesive above 400°F. Machine agitate bituminous adhesive continuously before application to ensure even heat distribution.		
	Machine-mix epoxy adhesive. Apply epoxy adhesive only when payement temperature is 50°F or higher.	1.	Prepare payement surface areas before placer
	Furnish RPMs free of rust, scale, dirt, oil, grease, moisture, and contaminants that might adversely affect the		(RPMs). Item 677, "Eliminating Existing Paver markings.
	Place RPMs immediately after the adhesive is applied and ensure proper bonding. Do not use adhesives or	2.	MATERIALS
	any other material that impairs the functional retro-reflectivity of the RPMs. Provide a 30-day performance period that begins the day following written acceptance for each separate		Use a commercial abrasive blasting medium ca potable water, when water is required.
	location. The date of written acceptance will be the last calendar day of each month for the RPMs installed that month for the completed separate project locations. This written acceptance does not constitute final	3.	EQUIPMENT
	acceptance. Replace all missing, broken or non-reflective RPMs. Visual evaluations will be used for these determinations. Upon request, the Engineer will allow a Contractor representative to accompany the Engineer on these		Furnish and maintain equipment in good workin equipment to remove all contaminants from the other contaminants on the roadway surface.
	evaluations.	4.	CONSTRUCTION
	Engineer determines the failure is a result of causes other than defective material or inadequate installation procedures. Examples of outside causes are extreme wear at intersections, damage by snow or ice removal, and pavement failure.		Prepare enough pavement surface for the pave contamination and loose material. Avoid dama when existing pavement markings are present.
	Replace all missing or non-reflective RPMs identified during the performance period within 30 days after notification. The end of the performance period does not relieve the Contractor from the performance deficiencies requiring corrective action identified during the performance period.		Air blast concrete pavement surfaces, in addition material and just before placing the stripe. Perf
	MEASUREMENT		compressed air at a minimum of 150 cu. ft. per
	This Item will be measured by each RPM.		 before application of markings: Step 1. Air blast the surface to be tested
	This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments are required.		 Step 2. Firmly press a 10-in. long, 2-in. wi approximately 2 in. free. Step 3. Grasp the free end and remove the step 3. Grasp the free end and the step 3. Grasp the free end and the step 3. Grasp the free end and the step 3. Grasp the st
	DAVMENT	5.	MEASUREMENT
	FAIMENT	-	
1	The work performed and materials furnished in accordance with this Item and measured as provided under		This Item will be measured by the foot for each
1	The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Reflectorized Pavement Marker," "Traffic Button," or "Plowable Reflectorized Pavement Marker" of the types specified. This price is full compensation for removing existing markers; furnishing and installing RPMs; and materials, equipment, labor, tools, and incidentals.		This Item will be measured by the foot for each other unit except lump sum. This is a plans quantity measurement Item. The unless modified by Article 9.2 "Plans Quantity

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Item 677



pavement markings and raised pavement markers (RPMs).

atment materials in accordance with the following Items: gregates for Surface Treatments"

hing materials for repairing damaged surfaces. abrasive blasting medium capable of producing the specified surface cleanliness. Use

in equipment in good working condition. Use moisture and oil traps in air compression ve all contaminants from the blasting air and prevent the deposition of moisture, oil, or

pavement markings and markers on both concrete and asphaltic surfaces in such a and texture contrast of the pavement surface will be held to a minimum. Remove all kers with minimal damage to the roadway to the satisfaction of the Engineer. Repair c surfaces, such as spalling, shelling, etc., greater than 1/4 in. deep resulting from the ent markings and markers. Dispose of markers in accordance with federal, state, and local ny of the following methods unless otherwise shown on the plans:

t Method. Apply surface treatment material at rates shown on the plans, or as directed. atment a minimum of 2 ft. wide to cover the existing marking. Place a surface treatment, rosurfacing a minimum of one lane in width in areas where directional changes of traffic

an approved burning method. For thermoplastic pavement markings or prefabricated , heat may be applied to remove the bulk of the marking material before blast cleaning. avoid spalling pavement surfaces. Sweeping or light blast cleaning may be used to remove

Use a blasting method such as water blasting, abrasive blasting, water abrasive blasting, / blasting, water-injected abrasive blasting, or brush blasting as approved. Remove s on concrete surfaces by a blasting method.

pd. Use any mechanical method except grinding. Flail milling is acceptable in the removal

easured by each word, symbol, or shape eliminated; by the foot of marking eliminated; or

ntity measurement Item. The quantity to be paid is the quantity shown in the proposal Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will ents of quantities are required.

and materials furnished in accordance with this Item and measured as provided under I be paid for at the unit price bid for "Eliminating Existing Pavement Markings and Markers" th as applicable. This price is full compensation for the elimination method used and ent, tools, labor, and incidentals. Removal of RPMs will not be paid for directly but will be

reparation for Markings



surface areas before placement of pavement markings and raised pavement markers 'Eliminating Existing Pavement Markings and Markers," governs removal of existing

abrasive blasting medium capable of producing the specified surface cleanliness. Use

in equipment in good working condition. Use moisture and oil traps in air compression ve all contaminants from the blasting air and prevent the deposition of moisture, oil, or

avement surface for the pavement markings or RPMs shown on the plans. Remove all loose material. Avoid damaging the pavement surface. Remove loose and flaking material ment markings are present. Approved pavement surface preparation methods are ing, flail milling, and blast cleaning unless otherwise specified on the plans.

pavement surfaces, in addition to the above, after the removal of contamination or existing efore placing the stripe. Perform air blasting with a compressor capable of generating a minimum of 150 cu. ft. per minute and 100 psi using 5/16 in. or larger hosing.

0.5 sq. in. may remain if they are not removed by the following test, performed just

ast the surface to be tested, to simulate blasting during application of markings. press a 10-in. long, 2-in. wide strip of monofilament tape onto the surface, leaving

the free end and remove the tape with a sharp pull.

easured by the foot for each width specified; by each word, shape, or symbol; or by any

ntity measurement Item. The quantity to be paid is the quantity shown in the proposal, Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will ents of quantities are required.

PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Pavement Surface Preparation for Markings" of the type and width as applicable. This price is full compensation for the cleaning method used, materials, equipment, labor, tools, and incidentals.

DIMENSIONAL CONTROL NOTES

- 1. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MY ARISE CONCERNING THE INTENT, PLACEMENT OR LIMITS OF DIMENSIONS NECESSARY FOR CONSTRUCTION OF THE PROJECT
- 2. THE CONTRACTOR SHALL PRESERVE ALL CONTROL POINTS, PROPERTY PINS, BENCH MARKS, HUBS OR OTHER KEY CONTROL POINTS. THE CONTRACTOR SHALL BE RESPONSIBLE TO RE-ESTABLISH ANY SUCH POINTS AT THEIR OWN EXPENSE IN THE EVENT THEY ARE REMOVED.
- 3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO THE START OF CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING ALL HORIZONTAL AND VERTICAL CONTROL PER THE CONSTRUCTION DRAWINGS.
- 5. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL USE THE TRAVERSE CONTROL POINTS FOR HORIZONTAL CONTROL POINTS. IF TRAVERSE CONTROL POINTS ARE NOT PROVIDED, THE CONTRACTOR MAY USE PROPERTY CORNER PINS. BENCHMARKS ARE NOT TO BE USED FOR HORIZONTAL CONTROL.
- 6. COORDINATES FOR HORIZONTAL CONTROL POINTS ARE BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, AND 83(96) DISPLAYED IN SURFACE VALUES USING A SURFACE ADJUSTMENT FACTOR FOR EACH COUNTY. (THE SURFACE ADJUSTMENT FACTOR FOR BEXAR COUNTY IS 1.00017. OTHER COUNTIES WILL HAVE A DIFFERENT FACTOR: CHECK WITH THE SURVEYOR TO OBTAIN THE CORRECT SURFACE ADJUSTMENT FACTOR FOR PROJECTS LOCATED OUTSIDE OF BEXAR COUNTY.)
- 7. BENCHMARK ELEVATIONS ARE BASED ON NAVD 88, GEOID 03.

FOR ADDITIONAL DIMENSIONAL CONTROL INFORMATION.

- 8. ALL DIMENSIONAL CONTROL POINTS OR DIMENSIONS ARE TO THE FACE OF CURB, FACE OF RETAINING WALL AT THE BOTTOM TOE OF SLOPE, AND CENTER OF PAINT STRIPING. ALL DIMENSIONS ARE PERPENDICULAR TO THE POINT OF REFERENCE.
- 9. CURB RADII ARE 3' UNLESS OTHERWISE NOTED ON THE DRAWINGS. 10. REFER TO THE ARCHITECTURAL, STRUCTURAL, AND LANDSCAPE PLANS
- 11. THE CONTRACTOR SHALL RELY ON THE INFORMATION PROVIDED ON THE SIGNED AND SEALED CONSTRUCTION DRAWINGS. SUBJECT TO A SIGNED RELEASE AGREEMENT, CAD FILES MAY BE OBTAINED FROM THE ENGINEER FOR THE CONVENIENCE AND USE OF THE CONTRACTOR.

DEMOLITION NOTES

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS/APPROVALS BEFORE BEGINNING DEMOLITION. 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING FROM THE SITE ALL ITEMS SHOWN TO BE DEMOLISHED UNLESS OTHERWISE INDICATED. ALL MATERIALS SHALL BE DEMOLISHED AND REMOVED
- FROM SITE IN ACCORDANCE WITH ALL APPLICABLE, FEDERAL, STATE AND LOCAL REGULATIONS.
- 3. ALL EXISTING ITEMS NOT SPECIFICALLY NOTED TO BE DEMOLISHED SHALL REMAIN. CONTRACTOR IS RESPONSIBLE FOR REPLACING EXISTING ITEMS REMOVED DURING DEMOLITION THAT WERE TO REMAIN. 4. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH ALL UTILITY
- COMPANIES REGARDING REMOVAL OF EXISTING SERVICES, POWER POLES TO BE REMOVED, VERIFYING UTILITIES ARE SHUT OFF OR DISCONNECTED, AND THAT ALL POSSIBLE SAFETY PRECAUTIONS HAVE BEEN ENACTED TO ENSURE THE SAFEST ENVIRONMENT FOR ALL PERSONNEL
- 5. LOCATION AND DEPTH OF EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO THE CONSTRUCTION AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, THROUGHOUT ALL PHASES OF CONSTRUCTION.
- 6. ALL NECESSARY EROSION CONTROL MEASURES ARE TO BE IN PLACE PRIOR TO CONSTRUCTION. EROSION CONTROL MEASURES ARE TO BE MAINTAINED AND IN WORKING CONDITION AT ALL TIMES.
- 7. CONTRACTOR SHALL CONFIRM WITH THE OWNER OR HIS DESIGNATE WHETHER TO SALVAGE AND MAKE ARRANGEMENTS TO STORE TRANSPLANTABLE TREES PRIOR TO REMOVAL. 8. FOR TREES SHOWN TO REMAIN. THE CONTRACTOR SHALL INSTALL
- TREE PROTECTION IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL NOT REMOVE OR DAMAGE ANY TREES WITHOUT A PERMIT TO DO SO.
- 9. NO PARKING AND/OR STORAGE SHALL BE ALLOWED WITHIN THE DRIP LINE OF THE TREES TO REMAIN.
- 10. THE CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT, CURBS AND SIDEWALKS AT NEW PAVEMENT, CURB AND SIDEWALK JUNCTURES, NO JAGGED OR IRREGULAR CUTS WILL BE ACCEPTED.
- 11. THE CONTRACTOR SHALL PROTECT ALL PROPERTY PINS, BENCH MARKS, CONSTRUCTION STAKES, HUBS, OR OTHER KEY CONTROL POINTS. THE CONTRACTOR SHALL BE RESPONSIBLE TO RE-ESTABLISH ANY SUCH POINTS AT THEIR OWN EXPENSE.
- 12. DEMOLITION CONTRACTOR IS RESPONSIBLE FOR CLEARING THE SITE OF ALL OBSTRUCTIONS THAT EXIST ON THIS SITE PRIOR TO THE START OF CONSTRUCTION OR DURING THE CONSTRUCTION SO AS TO NOT IMPEDE THE BUILDING CONSTRUCTION CONTRACTOR.
- 13. CONTRACTOR SHALL COORDINATE WITH THE OWNER TO IDENTIFY ANY MATERIAL OR EQUIPMENT SCHEDULED FOR REMOVAL TO BE SALVAGED AND REUSED. CONTRACTOR SHALL REPLACE AT HIS EXPENSE ANY DESTROYED MATERIAL OR EQUIPMENT THAT WAS MARKED FOR SALVAGE.
- 14. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL HAZARDOUS MATERIAL OFFSITE FOLLOWING ALL APPLICABLE DISPOSABLE REGULATIONS. ON SITE CONCRETE PROPOSED FOR DEMOLITION MAY BE REUSED ON SITE AS FILL AS LONG AS IT IS CRUSHED, FREE OF REBAR, WIRE MESH AND DEBRIS AND CAN MEET GEOTECHNICAL SPECIFICATIONS.
- 15. CONTRACTOR SHALL REMOVE ALL EXISTING IRRIGATION PIPING ON SITE. UNLESS SHOWN OTHERWISE. CUT AND CAP LATERALS AT PROJECT LIMITS TO ALLOW PROPER FUNCTION OF ZONES INTENDED TO REMAIN OR EXTEND OFF-SITE.
- 16. CONTRACTOR SHALL NOT DEMOLISH ANY PUBLIC WATER OR SANITARY SEWER LINES WITHOUT APPROVAL. EXISTING WATER AND SANITARY SEWER SERVICES SHALL REMAIN OPERATIONAL UNTIL NEW SERVICE IS COMPLETE. CUT AND CAP ANY ABANDONED SANITARY SEWER AND WATER SERVICES AT THE EXISTING MAIN. NO ABANDONED SERVICES SHALL REMAIN CONNECTED TO THE PUBLIC MAIN.
- 17. THE USE OF EXPLOSIVES WILL NOT BE PERMITTED.
- 18. ALL WASTE MATERIAL REMAINING AFTER OWNER SALVAGE IS COMPLETE AND RESULTING FROM DEMOLITION OPERATIONS BECOMES THI PROPERTY OF THE CONTRACTOR. APPROPRIATE DISPOSAL OF WASTE MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT HIS OWN EXPENSE. OWNER WILL PROVIDE LIST OF ITEMS TO BE SALVAGED.
- ORDERLY MANNER.
- 20. THE CONTRACTOR SHALL MEET ALL LOCAL, STATE, AND FEDERAL REGULATIONS FOR DUST CONTROL. THE CONTRACTOR SHALL BE RESPONSIBLE AT THEIR OWN EXPENSE FOR ANY FUGITIVE DUST ON ADJOINING PROPERTIES.

- 19. THE CONTRACTOR SHALL MAINTAIN THE SITE IN A CLEAN AND

PAVEMENT & STRIPING NOTES

- 1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THIS SCOPE OF WORK WHERE NOT SPECIFICALLY COVERED IN THE SPECIFICATIONS OR GEOTECHNICAL REPORT SHALL CONFORM TO ALL APPLICABLE CITY, COUNTY OR TXDOT STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION).
- 2. THE CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UTILITY AND STORM DRAIN SYSTEMS PRIOR TO CONSTRUCTION.
- 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL, OR BETTER, CONDITION ANY DAMAGE DONE TO EXISTING TREES, BUILDINGS, UTILITIES, FENCES, PAVEMENT, CURBS, OR DRIVEWAYS (NO SEPARATE PAY ITEMS).
- 4. THE CONTRACTOR SHALL VERIFY ELEVATIONS AND LOCATIONS OF EXISTING FACILITIES AND NOTIFY THE ENGINEER OF ANY CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
- 5. ALL PAINT SHALL BE 4" WIDE REFLECTIVE PAINT: WHITE ON ASPHALT PAVING AND YELLOW ON CONCRETE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- 6. ALL PAVEMENT MARKINGS SHALL RECEIVE TWO COATS OF PAINT. 7. NO WORK SHALL BE PERFORMED IN A PUBLIC RIGHT-OF-WAY WITHOUT
- A PERMIT.
- 8. ALL SIGNS SHALL CONFORM TO MUTCD, LATEST EDITION.
- 9. THE CONTRACTOR SHALL SAW CUT EXISTING PAVING, CURB, AND SIDEWALKS TO PROVIDE A SMOOTH TRANSITION. NO JAGGED OR IRREGULAR EDGES WILL BE ALLOWED. 10. ALL CURBS SHALL BE 6" UNLESS OTHERWISE NOTED.
- 11. ALL STANDARD PERPENDICULAR PARKING STALLS ARE 9' X 18' AND COMPACT PARKING STALLS ARE 8' X 16' UNLESS DIMENSIONED OTHERWISE

CAUTION UNDERGROUND UTILITIES

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OF ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO WATER, SEWER, TELEPHONE, AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCT BANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. THE CONTRACTOR MUST CONTACT 1-800-DIG-TESS AND CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION AND/OR START OF CONSTRUCTION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTORS SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

CAUTION OVERHEAD UTILITIES

CONTRACTOR TO EXERCISE EXTREME CAUTION WHEN WORKING UNDER "HIGH VOLTAGE TRANSMISSION LINES". A WORKING HEIGHT OF 30' FROM GROUNE ELEVATION WILL BE OBSERVED WHEN WORKING UNDER THE HIGH VOLTAGE LINE. COORDINATE ALL WORK WITH THE LOCAL UTILITY PROVIDER.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE STRUCTURAL DESIGN / GEOTECHNICAL / SAFETY / EQUIPMENT CONSULTANT, IF AN SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATIC AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUA TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMU OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFE CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDAN WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

a la	S/ONA	SEP. Giller Leverser /SI/23
PAPE-DAWSON	ENGINEERS	SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS 2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000 texas engineering firm #470 i texas surveying firm #10028800
440 QUARRY IMPROVMENTS (NW MILITARY HWY)	SAN ANTONIO, TEXAS	TXDOT GENERAL CONSTRUCTION NOTES (1 OF 3)
PLAT NC OB NO. PATE PESIGNEF CHECKED	23- 1: JUL R O AS C	11800125 2934-00 27 2023 DL DRAWN DD 0.10

CALEB M. CHANCI

ltem 662

Work Zone Pavement Markings



ltem 666	······································	4.2.	Surface Preparation. Prepare surfaces in accordance with this Section unless otherwise shown on the plans.	4.6.	Performance Per days after installat
Retrorefle	ectorized Pavement Markings	4.2.1.	Cleaning for New Asphalt Surfaces and Retracing of All Surfaces. Air blast or broom the pavement		replacement mark
1.	DESCRIPTION		surface for new asphalt surfaces (less than 3 years old) and for retracing of all surfaces to remove loose material, unless otherwise shown on the plans. A sealer for Type I markings is not required unless otherwise shown on the plans.	5.	Installation.
2	Furnish and place retroreflectorized, non-retroreflectorized (shadow) and profile pavement markings.	4.2.2.	Cleaning for Old Asphalt and Concrete Surfaces (Excludes Retracing) . Clean old asphalt surfaces (more than 3 years old) and all concrete surfaces in accordance with Item 678, "Pavement Surface Preparation for Markings," to remove curing membrane, dirt, grease, loose and flaking existing construction markings, and other forms of contamination.		This Item will be n plans. Each stripe
21	Type Marking Materials, Eurnish in accordance with DMS-8220, "Hot Applied Thermoplastic,"	4.2.2	Sealer for Type I Markings, Apply a payament cooler to old apphalt surfaces (more than 3 years old) and to		unless modified by
2.1.	Furnish pavement marking material used for Type I profile markings and shadow markings that have been	4.2.3.	all concrete surfaces before placing Type I markings on locations that do not have existing markings, unless otherwise approved. The payement sealer may be either a Type II marking or an acrylic or epoxy sealer as		
	approved by the Construction Division, and in accordance with DMS-8220, "Hot Applied Thermoplastic."		recommended by the Type I marking manufacturer unless otherwise shown on the plans. Follow the manufacturer's directions for application of acrylic or epoxy sealers. Clean sealer that becomes dirty after		the foot; by each v
2.2.	Type II Marking Materials. Furnish in accordance with DMS-8200, "Traffic Paint."		placement by washing or in accordance with Section 666.4.2.1., "Cleaning for New Asphalt Surfaces and Retracing of All Surfaces," as directed. Place the sealer in the same configuration and color (unless clear) as	6.	PAYMENT
2.3.	Glass Traffic Beads. Furnish drop-on glass beads in accordance with DMS-8290, "Glass Traffic Beads" or as approved. Furnish a double-drop of Type II and Type III drop-on glass beads where each type bead is		the Type I markings unless otherwise shown on the plans.		The work perform
24	applied separately in equal portions (by weight), unless otherwise approved. Apply the Type III beads before applying the Type II beads.	4.3.	Application . Apply markings during good weather unless otherwise directed. If markings are placed at Contractor option when inclement weather is impending and the markings are damaged by subsequent precipitation, the Contractor is responsible for all required replacement costs.		"Retroreflectorized thickness specifie of the types, color
3.	number.	4.3.1.	Type I Markings . Place the Type I marking after the sealer cures. Apply within the temperature limits recommended by the material manufacturer. Flush the spray head if spray application operations cease for 5 min or longer by spraying marking material into a pan or similar container until the material being applied is		This price is full co
3.1.	General Requirements. Use equipment that:		at the recommended temperature.		Surface preparatio
	 is maintained in satisfactory condition, meets or exceede the requirements of the National Roard of Fire Underwriters and the Texas Pailroad 		Apply on clean, dry pavements passing the moisture test described in Section 666.4.1., "General," and with a surface temperature above 50°F when measured in accordance with Tex-829-B.		exists, will be paic all other asphalt a
	Commission for this application,	4.3.1.1.	Non-Profile Pavement Markings. Apply Type I non-profile markings with a minimum thickness of:		to this Item.
	applies beads by an automatic bead dispenser attached to the pavement marking equipment in such a manner that the beads are dispensed uniformly and almost instantly upon the marking as the marking is		 0.100 in. (100 mils) for new markings and retracing water-based markings on surface treatments involving Item 316. "Seal Coat." 		Work zone pavem (thermoplastic) wi
	being applied to the road surface. The bead dispenser must have an automatic cut-off control, synchronized with the cut-off of the pavement marking equipment,		 0.060 in. (60 mils) for retracing on thermoplastic pavement markings, or 0.090 in. (90 mils) for all other Type I markings 		If the Engineer red
	 has an automatic cut-off device with manual operating capabilities to provide clean, square marking ends, is capable of producing the types and shapes of profiles specified, and can provide continuous mixing and agitation of the pavement marking material. The use of pans, aprons, 		The maximum thickness for Type I non-profile markings is 0.180 in. (180 mils). Measure thickness for markings in accordance with Tex-854-B using the tape method.		damaged by the ir
	or similar appliances which the die overruns will not be permitted for longitudinal striping applications.	4.3.1.2.	Profile Pavement Markings. Apply Type I profile markings with a minimum thickness of:	ltem 66	8
	Provide a hand-held thermometer capable of measuring the temperature of the marking material when applying Type I material.		 0.060 in. (60 mil) for edgeline markings, or 0.090 in. (90 mil) for gore and centerline/no-passing barrier line markings. 	Prefabr	icated Paver
	When pavement markings are required to meet minimum retroreflectivity requirements on the plans:		In addition, at a longitudinal spacing indicated on the plans, the markings must be profiled in a vertical		
	Use a mobile retroreflectometer approved by the Construction Division and certified by the Texas A&M Transportation Institute Mobile Retroreflectometer Certification Program.		manner such that the profile is transverse to the longitudinal marking direction. The profile must not be less than 0.30 in. (300 mil) nor greater than 0.50 in. (500 mil) in height when measured above the normal top	1.	DESCRIPTION
	■ Use a portable retroreflectometer that:		surface plane of the roadway. The transverse width of the profile must not be less than 3.25 in., and the longitudinal width not less than 1 in., when measured at the top surface plane of the profile bar. The profile		Furnish and place
	 uses so-meter geometry and meets the requirements described in ASTM 21710, has either an internal global positioning system (GPS) or the ability to be linked with an external 		may be either a 1 or 2 transverse bar profile. When the 2 transverse bar profile is used, the spacing between the bases of the profile bars must not exceed 0.50 in. The above transverse bar width is for each 4 in. of line	2.	MATERIALS
	GPS with a minimum accuracy rating of 16 ft. 5 in., in accordance with the circular error probability (CEP) method (CEP is the radius of the circle with its origin at a known position that encompasses		width.		Furnish prefabrica Pavement Markin
	 50% of the readings returned from the GPS instrument); can record and print the GPS location and retroreflectivity reading for each location where readings are taken. 	4.3.2.	Type II Markings . Apply on surfaces with a minimum surface temperature of 50°F. Apply at least 20 gal. per mile on concrete and asphalt surfaces and at least 22 gal. per mile on surface treatments for a solid 4-in. line. Adjust application rates proportionally for other widths. When Type II markings are used as a sealer for Type I markings, apply at least 15 gal. per mile using Type II drop-on beads.		Furnish prefabrica "Permanent Prefa contrast portion de
3.2.	 Material Placement Requirements. Use equipment that can place: at least 40,000 ft. of 4-in. solid or broken non-profile markings per working day at the specified 	4.3.3.	Bead Coverage . Provide a uniform distribution of beads across the surface of the stripe for Type I and Type II markings, with 40% to 60% bead embedment.	3.	all materials in a v
	thickness; ■ at least 15.000 ft. of solid or broken profile pavement markings per working day at the specified	4.4.	Retroreflectivity Requirements . When specified on the plans, Type I markings must meet the following	3.1.	General. Obtain a
	thickness;		when measured any time after 3 days, but not later than 10 days after application:		generated from th
	 non-profile pavement markings other than solid or broken lines at an approved production rate; a contacting and no passing partier line configuration consisting of 1 broken line and 2 solid lines at the 		 White markings: 250 millicandelas per square meter per lux (mcd/m²/lx) Yellow markings: 175 mcd/m²/lx 		Establish guides t have guide locatio
	same time to the alignment, spacing, and thickness for non-profile pavement markings shown on the	4.5.	Retroreflectivity Measurements. Use a mobile retroreflectometer for projects requiring minimum		Place pavement n
	 solid and broken lines simultaneously; 		pavement markings, unless otherwise shown on the plans. For Contracts with less than 200,000 ft. of	3.0	Placement Limit
	 white line from both sides; lines with clean edges, uniform cross-section with a tolerance of ±1/8 in. per 4 in. width, uniform 		Contractor's discretion.	0.2.	March 1 unless of
	thickness, and reasonably square ends; ■ skip lines between 10 and 10-1/2 ft., a stripe-to-gap ratio of 10 to 30, and a stripe-gap cycle between	4.5.1.	Mobile Retroreflectometer Measurements . Provide mobile measurements averages for every 0.1 miles unless otherwise specified or approved. Take measurements on each section of roadway for each series of	3.2.1.	Moisture . Apply r day after 15 min.,
	 39-1/2 ft. and 40-1/2 ft., automatically; beads uniformly and almost instantly on the marking as the marking is being applied; 		markings (i.e., edgeline, center skip line, each line of a double line, etc.) and for each direction of traffic flow. Measure each line in both directions for centerlines on two-way roadways (i.e., measure both double solid		placed on the pav
	 beads uniformly during the application of all lines (each line must have an equivalent bead yield rate and embedment); and 		lines in both directions and measure all center skip lines in both directions). Furnish measurements in compliance with Special Specification, "Mobile Retroreflectivity Data Collection for Pavement Markings,"	3.2.2.	Temperature. Fo manufacturer. Do
	 double-drop bead applications using both Type II and Type III beads from separate independent bead applicators, unless otherwise approved by the Engineer. 		unless otherwise approved. The Engineer may require an occasional field comparison check with a portable retroreflectometer meeting the requirements listed above to ensure accuracy. Use all equipment in		material manufact
4.	CONSTRUCTION		24 hr. before taking any measurements.	3.3.	the plans. Locate
	Place markings before opening to traffic unless short-term or work zone markings are allowed.		A marking meets the retroreflectivity requirements if: the combined average retroreflectivity measurement for a one-mile segment meets the minimum	3.4.	Methods. Place a surface condition,
4.1.	General. Obtain approval for the sequence of work and estimated daily production. Minimize interference to		 retroreflectivity values specified, and no more than 20% of the retroreflectivity measurement values are below the minimum retroreflectivity. 	3.5.	Surface Preparat
	roadway operations when placing markings on roadways open to traffic. Use traffic control as shown on the plans or as approved. Protect all markings placed under open-traffic conditions from traffic damage and		requirements value within the one-mile segment.		contaminants, loo cleaning is not rec
	disfigurement.		The Engineer may accept failing one-mile segments if no more than 20% of the retroreflectivity measurements within that mile segment are below the minimum retroreflectivity requirement value.		"Pavement Surfac as recommended
	have guide locations verified. Use material for guides that will not leave a permanent mark on the roadway.		The one-mile segment will start from the beginning of the data collection and end after a mile worth of measurements will be a new segment		clean concrete pa
	Apply markings on pavement that is completely dry and passes the following tests:		Centerlines with 2 stripes (either solid or broken) will result in 2 miles of data for each mile segment. Each centerline stripe must be tested for compliance as a stand-alone stripe.	3.6.	Performance Rec
	Type I Marking Application—Place a sample of Type I marking material on a piece of tarpaper placed on the pavement. Allow the material to cool to ambient temperature, and then inspect the underside of the		Restripe at the Contractor's expense with a minimum of 0.060 in. (60 mils) of Type I marking if the marking	3.6.1.	Adhesion. Ensure
	tarpaper in contact with the pavement. Pavement will be considered dry if there is no condensation on the tarpaper.		fails retroreflectivity requirements. Take measurements every 0.1 miles a minimum of 10 days after this second application within that mile segment for that series of markings.	3.6.2.	Appearance. Ens ragged edges, and
	Type II Marking Application—Place a 1-sq. ft. piece of clear plastic on the pavement, and weight down the edges. The pavement is considered dry if, when inspected after 15 min., no condensation has occurred on the underside of the plastic.		If the markings do not meet minimum retroreflectivity after 10 days of this second application, the Engineer may require removal of all existing markings, a new application as initially specified, and a repeat of the	3.6.3.	Visibility . Ensure Tex-828-B.
	Apply markings:	450	application process until minimum retroreflectivity requirements are met.	3.7.	Performance Per
	■ that meet the requirements of Tex-828-B,	4.5.2.	of roadway for each series of markings (i.e., edgeline, center skip line, each line of a double line, etc.) and direction of traffic flow when using a portable reflectementer. Measure each line in both directions for		Contractor's exper
	that meet minimum retroreflectivity requirements when specified on the plans (applies to Type I markings only),		centerlines on two-way roadways (i.e., measure both double solid lines in both directions and measure all center skip lines in both directions). The spacing between each measurement must be at least 100 ft. The		installation.
	 using widths and colors shown on the plans, at locations shown on the plans, 		Engineer may decrease the mileage frequency for measurements if the previous measurements provide satisfactory results. The Engineer may require the original number of measurements if concerns arise.	4.	MEASUREME
	in proper alignment with the guides without deviating from the alignment more than 1 in. per 200 ft. of roadway or more than 2 in. maximum,		Restripe once at the Contractor's expense with a minimum of 0.060 in. (60 mils) of Type I marking material if		This Item will be n
	 without abrupt deviations, free of blisters and with no more than 5% by area of holes or voids, 		the average of these measurements fails. Take a minimum of 10 more measurements after 10 days of this second application within that mile segment for that series of markings. Restripe again at the Contractor's		This is a plans qua unless modified by
	 with uniform cross-section, density and thickness, with clean and reasonably square ends, 		expense with a minimum of 0.060 in. (60 mils) of Type I marking material if the average of these measurements fall below the minimum retroreflectivity requirements. If the markings do not meet minimum retroreflectivity and applications the Engineer measurements for the markings are used to be a set of the s		be made if adjustr
	 that are retroreflectorized with drop-on glass beads, and using personnel skilled and experienced with installation of pavement markings 		application as initially specified, and a repeat of the application process until minimum retroreflectivity requirements are met	5.	PAYMENT
	Remove all applied markings that are not in alignment or sequence as stated on the plans, or in the	453	Traffic Control. Provide traffic control, as required, when taking retroreflectivity measurements after marking		The work perform "Measurement" wi
	specifications, at the Contractor's expense in accordance with Item 677, "Eliminating Existing Pavement Markings and Markers," except for measurement and payment.		application. On low volume roadways (as defined on the plans), refer to the figure, "Temporary Road Closure" in Part 6 of the Texas Manual on Uniform Traffic Control Devices for the minimum traffic control		color specified and cleaning the pave
			requirements. For all other roadways, the minimum traffic control requirements will be as shown on the Traffic Control Plan (TCP) standard sheets TCP (3-1) and TCP (3-2). The lead vehicle will not be required on		Abrasive or wotor
			divided highways. The TCP and traffic control devices must meet the requirements listed in Item 502, "Barricades, Signs, and Traffic Handling." Time restrictions that apply during striping application will also		"Pavement Surfac
			apply during the retroreflectivity inspections except when using the mobile retroreflectometer unless otherwise shown on the plans or approved.		

1.	DESCRIPTION	1.
	Furnish, place, and maintain work zone pavement markings.	
2.	MATERIALS	2.
	Provide thermoplastic, paint and beads, raised pavement markers (RPMs), prefabricated pavement markings, temporary flexible reflective roadway marker tabs, or other approved materials for work zone pavement markings.	2.1.
	Supply materials meeting:	2.2.
	 DMS-4300, "Traffic Buttons," DMS-8200, "Traffic Paint " 	2.3.
	 DMS-8220, "Hot Applied Thermoplastic," DMS-8240, "Bermanent Prefabricated Payement Markings." 	
	 DMS-0240, Termanent Freizbildated Favement Markings, DMS-8241, "Temporary (Removable) Prefabricated Pavement Markings," DMS-8242, "Temporary Elevible, Perfective Readway Marker Table," and 	2.4.
	 DMS-8242, Temporary Flexible, Relective Roadway Marker Tabs, and DMS-8290, "Glass Traffic Beads." 	
2.1.	Nonremovable Markings . Use hot-applied thermoplastic or permanent prefabricated pavement markings for nonremovable markings. Paint and beads or other materials are not allowed for nonremovable markings unless shown on the plans.	3. 3.1.
2.2.	Removable and Short-Term Markings . Use RPMs, removable prefabricated pavement markings, temporary flexible reflective roadway marker tabs, or other approved materials for removable and short-term markings. Do not use hot-applied thermoplastic or traffic paint for removable markings. Use removable prefabricated pavement markings on the final pavement surface when the plans specify removable markings.	
3.	CONSTRUCTION	
	 Apply pavement markings in accordance with the following Items. Item 666, "Retroreflectorized Pavement Markings" Item 668, "Prefabricated Pavement Markings" Item 672, "Raised Pavement Markers" 	
3.1.	Placement . Install longitudinal markings on pavement surfaces before opening to traffic. Maintain lane alignment traffic control devices and operations until markings are installed. Install markings in proper alignment in accordance with the TMUTCD and as shown on the plans. Short-term markings will be allowed when standard markings (removable or nonremovable) cannot be placed before opening to traffic, if shown on the plans or directed.	
	When short-term markings are allowed for opening to traffic, place standard longitudinal markings no later than 14 calendar days after the placement of the surface. When inclement weather prohibits placement of markings, the 14-day period may be extended until weather permits proper application.	
	Place standard longitudinal markings no sooner than 3 calendar days after the placement of a surface treatment, unless otherwise shown on the plans.	
	Apply thermoplastic markings to a minimum thickness of 0.060 in. (60 mils). When paint and beads are allowed, apply to a minimum dry thickness of 0.012 in. (12 mils).	
	Place short-term markings in proper alignment with the location of the final pavement markings. Remove and replace short-term markings not in alignment at the Contractor's expense.	3.2.
	For removable placements, use of RPMs to simulate longitudinal markings is at the Contractor's option. Use side-by-side RPMs to simulate longitudinal lines wider than 4 in. Do not use RPMs for words, symbols, shapes, or diagonal or transverse lines.	
3.2.	Marking Removal . Remove markings that conflict with succeeding markings in accordance with Item 677, "Eliminating Existing Pavement Markings and Markers." Remove short-term markings that interfere or conflict with final marking placement immediately before placing final pavement markings, unless otherwise directed. Remove the remainder of the short-term markings before final acceptance.	
	Remove all temporary markings with minimal damage to the roadway to the satisfaction of the Engineer.	
3.3.	Performance Requirements . Ensure all markings are visible from a distance at least 300 ft. in daylight conditions and at least 160 ft. in nighttime conditions when illuminated by automobile low-beam headlights. Determine visibility distances using an automobile traveling on the roadway under dry conditions.	
	Maintain the markings for 30 calendar days after installation. The end of the 30-day maintenance period does not relieve the Contractor from the performance deficiencies requiring corrective action identified during the 30-day period. Remove and replace markings at the Contractor's expense if they fail to meet the requirements of this Item during the 30-day period. The 30-calendar day performance requirement will begin again after replacement of the markings.	
	Ensure daytime and nighttime reflected color of the markings are distinctly white or yellow. Ensure markings exhibit uniform retroreflective characteristics.	4.
4.	MEASUREMENT	
	This Item will be measured by the foot or each word, shape, symbol, or temporary flexible reflective roadway marker tab. Each stripe will be measured separately. RPMs used to simulate a marking will be measured by the foot of marking or each RPM.	4.1.
	This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.	
5.	PAYMENT	
	The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Work Zone Pavement Markings" of the type and color specified and the shape, width, and size specified as applicable. This price is full compensation for furnishing, placing, maintaining, and removing work zone pavement markings and for materials, equipment, labor, tools, and incidentals.	
	Elimination of nonremovable markings will be paid for under Item 677, "Eliminating Existing Pavement Markings and Markers." Removal of short-term and removable markings will not be paid for directly but will be subsidiary to this Item.	
	Type II work zone pavement markings (paint and beads) used as a sealer for Type I pavement markings (thermoplastic) will be paid for under this Item.	

m 666	4.2.	Surface Preparation . Prepare surfaces in accordance with this Section unless otherwise shown on the plans.	4.6.	Perform days aft
trevellectorized Devement Markings	4.2.1.	Cleaning for New Asphalt Surfaces and Retracing of All Surfaces. Air blast or broom the pavement		and repl replacer
etrorenectorized Pavement Warkings		surface for new asphalt surfaces (less than 3 years old) and for retracing of all surfaces to remove loose material, unless otherwise shown on the plans. A sealer for Type I markings is not required unless otherwise		installati
DESCRIPTION Furnish and place retroreflectorized, non-retroreflectorized (shadow) and profile pavement markings.	4.2.2.	Cleaning for Old Asphalt and Concrete Surfaces (Excludes Retracing). Clean old asphalt surfaces (more than 3 years old) and all concrete surfaces in accordance with Item 678, "Pavement Surface Preparation for Markings," to remove curing membrane, dirt, grease, loose and flaking existing construction	5.	MEAS This Iter plans. E
MATERIALS		markings, and other forms of contamination.		This is a unless r
Type I Marking Materials. Furnish in accordance with DMS-8220, "Hot Applied Thermoplastic."	4.2.3.	Sealer for Type I Markings. Apply a pavement sealer to old asphalt surfaces (more than 3 years old) and to all concrete surfaces before placing Type I markings on locations that do not have existing markings, unless		be mad
Furnish pavement marking material used for Type I profile markings and shadow markings that have been approved by the Construction Division, and in accordance with DMS-8220, "Hot Applied Thermoplastic."		otherwise approved. The pavement sealer may be either a Type II marking or an acrylic or epoxy sealer as recommended by the Type I marking manufacturer unless otherwise shown on the plans. Follow the		Acrylic of the foot
Type II Marking Materials. Furnish in accordance with DMS-8200, "Traffic Paint."		manufacturer's directions for application of acrylic or epoxy sealers. Clean sealer that becomes dirty after placement by washing or in accordance with Section 666.4.2.1., "Cleaning for New Asphalt Surfaces and Detroiting of All Surfaces," and directed place the sealer in the same configuration and color (unless clear) as	6.	PAYM
Glass Traffic Beads . Furnish drop-on glass beads in accordance with DMS-8290, "Glass Traffic Beads" or as approved. Furnish a double-drop of Type II and Type III drop-on glass beads where each type bead is applied separately in equal portions (by weight), unless otherwise approved. Apply the Type III beads before applying the Type II beads.	4.3.	Application. Apply markings during good weather unless otherwise directed. If markings are placed at Contractor option when inclement weather is impending and the markings are damaged by subsequent		The wor "Measu "Retrore
Labeling. Use clearly marked containers that indicate color, mass, material type, manufacturer, and batch		precipitation, the Contractor is responsible for all required replacement costs.		of the ty Marking
number. EQUIPMENT	4.3.1.	Type I Markings . Place the Type I marking after the sealer cures. Apply within the temperature limits recommended by the material manufacturer. Flush the spray head if spray application operations cease for 5 min or longer by spraying marking material into a pan or similar container until the material being applied is at the recommended temperature.		This prio
General Requirements. Use equipment that:		Apply on clean, dry pavements passing the moisture test described in Section 666.4.1., "General," and with a		Surface exists, v
 meets or exceeds the requirements of the National Board of Fire Underwriters and the Texas Railroad Commission for this application 	4011	surface temperature above 50°F when measured in accordance with Tex-829-B.		all other to this It
 applies beads by an automatic bead dispenser attached to the pavement marking equipment in such a marking in the marking is the marking is the marking is the marking in the marking is the	4.3.1.1.	 0.100 in. (100 mils) for new markings and retracing water-based markings on surface treatments 		Work zo
being applied to the road surface. The bead dispenser must have an automatic cut-off control,		 involving Item 316. "Seal Coat." 0.060 in. (60 mils) for retracing on thermoplastic pavement markings, or 		(thermo
synchronized with the cut-off of the pavement marking equipment, ■ has an automatic cut-off device with manual operating capabilities to provide clean, square marking ends,		 0.090 in. (90 mils) for all other Type I markings. 		If the Er damage
 is capable of producing the types and shapes of profiles specified, and can provide continuous mixing and agitation of the pavement marking material. The use of pans, aprons, or similar appliances which the die overruns will not be permitted for longitudinal striping applications. 	4312	The maximum thickness for Type I non-profile markings is 0.180 in. (180 mils). Measure thickness for markings in accordance with Tex-854-B using the tape method. Profile Pavement Markings Apply Type I profile markings with a minimum thickness of:	ltom 6	68
Provide a hand-held thermometer capable of measuring the temperature of the marking material when applying Type I material.		 0.060 in. (60 mil) for edgeline markings, or 0.090 in. (90 mil) for gore and centerline/no-passing barrier line markings. 	Drofab	ricated
When pavement markings are required to meet minimum retroreflectivity requirements on the plans:		In addition, at a longitudinal spacing indicated on the plans, the markings must be profiled in a vertical		ncaleu
Use a mobile retroreflectometer approved by the Construction Division and certified by the Texas A&M Transportation Institute Mobile Retroreflectometer Certification Program		manner such that the profile is transverse to the longitudinal marking direction. The profile must not be less than 0.30 in. (300 mil) nor greater than 0.50 in. (500 mil) in height when measured above the normal top	1.	DESC
 Use a portable retroreflectometer that: 		surface plane of the roadway. The transverse width of the profile must not be less than 3.25 in., and the longitudinal width not less than 1 in., when measured at the top surface plane of the profile bar. The profile		Furnish
 uses 30-meter geometry and meets the requirements described in ASTM E1710; has either an internal global positioning system (GPS) or the ability to be linked with an external 		may be either a 1 or 2 transverse bar profile. When the 2 transverse bar profile is used, the spacing between the bases of the profile bars must not exceed 0.50 in. The above transverse bar width is for each 4 in. of line	2.	MATE
GPS with a minimum accuracy rating of 16 ft. 5 in., in accordance with the circular error probability (CEP) method (CEP is the radius of the circle with its origin at a known position that encompasses		width.		Furnish Paveme
 50% of the readings returned from the GPS instrument); can record and print the GPS location and retroreflectivity reading for each location where readings are taken. 	4.3.2.	Type II Markings . Apply on surfaces with a minimum surface temperature of 50°F. Apply at least 20 gal. per mile on concrete and asphalt surfaces and at least 22 gal. per mile on surface treatments for a solid 4-in. line. Adjust application rates proportionally for other widths. When Type II markings are used as a sealer for Type I markings, apply at least 15 gal. per mile using Type II drop-on beads.		Furnish "Perma contras
Material Placement Requirements. Use equipment that can place:	4.3.3.	Bead Coverage . Provide a uniform distribution of beads across the surface of the stripe for Type I and Type II markings, with 40% to 60% bead embedment		all mate
 thickness; at least 15,000 ft, of solid or broken profile group and the provide states of the provide stat	4.4.	Retroreflectivity Requirements. When specified on the plans, Type I markings must meet the following	3 1	Genera
at least 15,000 ft. of solid or broken profile pavement markings per working day at the specified thickness;		minimum retroreflectivity values for edgeline markings, centerline or no passing barrier-line, and lane lines when measured any time after 3 days, but not later than 10 days after application:	0.1.	generat
 linear non-profile markings up to 8 in. wide in a single pass; non-profile pavement markings other than solid or broken lines at an approved production rate; 		 White markings: 250 millicandelas per square meter per lux (mcd/m²/lx) Yellow markings: 175 mcd/m²/lx 		Establis have qu
a centerline and no-passing barrier-line configuration consisting of 1 broken line and 2 solid lines at the same time to the alignment, spacing, and thickness for non-profile pavement markings shown on the	4.5.	Retroreflectivity Measurements . Use a mobile retroreflectometer for projects requiring minimum		Place p
plans; ■ solid and broken lines simultaneously;		retroreflectivity requirements to measure retroreflectivity for Contracts totaling more than 200,000 ft. of pavement markings, unless otherwise shown on the plans. For Contracts with less than 200,000 ft. of		per 200
 white line from both sides; lines with clean edges, uniform cross-section with a tolerance of ±1/8 in. per 4 in. width, uniform 		pavement markings or Contracts with callout work, mobile or portable retroreflectometers may be used at the Contractor's discretion.	3.2.	Placem March 1
thickness, and reasonably square ends; ■ skip lines between 10 and 10-1/2 ft., a stripe-to-gap ratio of 10 to 30, and a stripe-gap cycle between	4.5.1.	Mobile Retroreflectometer Measurements. Provide mobile measurements averages for every 0.1 miles	3.2.1.	Moistu
39-1/2 ft. and 40-1/2 ft., automatically; ■ beads uniformly and almost instantly on the marking as the marking is being applied:		markings (i.e., edgeline, center skip line, each line of a double line, etc.) and for each direction of traffic flow. Measure each line in both directions for centerlines on two-way roadways (i.e. measure both double solid		placed of
 beads uniformly during the application of all lines (each line must have an equivalent bead yield rate and embedment); and 		lines in both directions and measure all center skip lines in both directions). Furnish measurements in compliance with Special Specification, "Mobile Retroreflectivity Data Collection for Pavement Markings."	3.2.2.	Tempe manufa
 double-drop bead applications using both Type II and Type III beads from separate independent bead applications uplace attentice approved by the Engineer 		unless otherwise approved. The Engineer may require an occasional field comparison check with a portable retroreflectometer meeting the requirements listed above to ensure accuracy. Use all equipment in		materia
		accordance with the manufacturer's recommendations and directions. Inform the Engineer at least 24 hr. before taking any measurements.	3.3.	Dimens the plar
		A marking meets the retroreflectivity requirements if:	3.4.	Method
Place markings before opening to traffic unless short-term or work zone markings are allowed.		the combined average retroreflectivity measurement for a one-mile segment meets the minimum retroreflectivity values specified, and	3.5	Surface
roadway operations when placing markings on roadways open to traffic. Use traffic control as shown on the place or as approved. Protect all markings placed under open-traffic conditions from traffic damage and		no more than 30% of the retroreflectivity measurement values are below the minimum retroreflectivity requirements value within the one-mile segment.	0.0.	contami
disfigurement.		The Engineer may accept failing one-mile segments if no more than 20% of the retroreflectivity measurements within that mile segment are below the minimum retroreflectivity requirement value.		"Pavem as reco
Establish guides to mark the lateral location of pavement markings as shown on the plans or as directed, and have guide locations verified. Use material for guides that will not leave a permanent mark on the roadway.		The one-mile segment will start from the beginning of the data collection and end after a mile worth of		required clean co
Apply markings on pavement that is completely dry and passes the following tests:		measurements have been taken; each subsequent mile of measurements will be a new segment. Centerlines with 2 stripes (either solid or broken) will result in 2 miles of data for each mile segment. Each	3.6.	Perform
Type I Marking Application—Place a sample of Type I marking material on a piece of tarpaper placed on the pavement. Allow the material to cool to ambient temperature, and then inspect the underside of the		Centerline stripe must be tested for compliance as a stand-alone stripe.	3.6.1.	Adhesi
tarpaper in contact with the pavement. Pavement will be considered dry if there is no condensation on the tarpaper.		fails retroreflectivity requirements. Take measurements every 0.1 miles a minimum of 10 days after this second application within that mile segment for that series of markings	3.6.2.	Appear ragged
Type II Marking Application—Place a 1-sq. ft. piece of clear plastic on the pavement, and weight down the edges. The pavement is considered dry if, when inspected after 15 min., no condensation has		If the markings do not meet minimum retroreflectivity after 10 days of this second application, the Engineer	3.6.3.	Visibilit
occurred on the underside of the plastic.		may require removal of all existing markings, a new application as initially specified, and a repeat of the application process until minimum retroreflectivity requirements are met.	0.7	Tex-828
Apply markings: that meet the requirements of Tex-828-B	4.5.2.	Portable Retroreflectometer Measurements. Take a minimum of 20 measurements for each 1-mi. section	3.7.	after ins
that meet minimum retroreflectivity requirements when specified on the plans (applies to Type I)		direction of traffic flow when using a portable reflectometer. Measure each line in both directions for		replacer
markings only), ■ using widths and colors shown on the plans,		center skip lines in both directions). The spacing between each measurement must be at least 100 ft. The Engineer may decrease the mileage frequency for measurements if the previous measurements provide	4	MEAS
 at locations shown on the plans, in proper alignment with the guides without deviating from the alignment more than 1 in. per 200 ft. of 		satisfactory results. The Engineer may require the original number of measurements if concerns arise.		This Iter
roadway or more than 2 in. maximum, ■ without abrupt deviations,		Restripe once at the Contractor's expense with a minimum of 0.060 in. (60 mils) of Type I marking material if the average of these measurements fails. Take a minimum of 10 more measurements after 10 days of this		This is a
 free of blisters and with no more than 5% by area of holes or voids, with uniform cross-section, density and thickness, 		second application within that mile segment for that series of markings. Restripe again at the Contractor's expense with a minimum of 0.060 in. (60 mils) of Type I marking material if the average of these		unless r be made
 with clean and reasonably square ends, that are retroreflectorized with drop-on glass beads, and 		measurements rail below the minimum retroreflectivity requirements. If the markings do not meet minimum retroreflectivity after this third application, the Engineer may require removal of all existing markings, a new application as initially specified, and a report of the application preserves with minimum retroreflectivity.	5.	PAYM
 using personnel skilled and experienced with installation of pavement markings. 		application as initially specified, and a repeat of the application process until minimum retroreflectivity requirements are met.		The wor
Remove all applied markings that are not in alignment or sequence as stated on the plans, or in the specifications, at the Contractor's expense in accordance with Item 677 "Eliminating Evisting Pavement	4.5.3.	Traffic Control . Provide traffic control, as required, when taking retroreflectivity measurements after marking application. On low volume roadways (as defined on the plans), refer to the figure "Temporary Pood		"Measu color sp
Markings and Markers," except for measurement and payment.		Closure" in Part 6 of the <i>Texas Manual on Uniform Traffic Control Devices</i> for the minimum traffic control requirements. For all other roadways, the minimum traffic control requirements will be as shown on the		cleaning furnishir
		Traffic Control Plan (TCP) standard sheets TCP (3-1) and TCP (3-2). The lead vehicle will not be required on divided highways. The TCP and traffic control devices must meet the requirements listed in Item 502,		Abrasive "Powers
		"Barricades, Signs, and Traffic Handling." Time restrictions that apply during striping application will also apply during the retroreflectivity inspections except when using the mobile retroreflectometer unless		Pavem
		otherwise shown on the plans or approved.		

mance Period. All markings must meet the requirements of this specification for at least 30 calendar fter installation. Unless otherwise directed, remove pavement markings that fail to meet requirements, place at the Contractor's expense. Replace failing markings within 30 days of notification. All ement markings must also meet all requirements of this Item for a minimum of 30 calendar days after ition.

SUREMENT

em will be measured by the foot; by each word, symbol, or shape; or by any other unit shown on the Each stripe will be measured separately.

a plans quantity measurement item. The quantity to be paid is the quantity shown in the proposal modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will de if adjustments of quantities are required.

or epoxy sealer, or Type II markings when used as a sealer for Type I markings, will be measured by t; by each word, symbol, or shape; or by any other unit shown on the plans.

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ork performed and materials furnished in accordance with this Item and measured as provided under urement" will be paid for at the unit price bid for "Pavement Sealer" of the size specified, eflectorized Pavement Markings" of the type and color specified and the shape, width, size, and ess specified as applicable, "Retroreflectorized Pavement Markings with Retroreflective Requirements" types, colors, sizes, widths, and thicknesses specified or "Retroreflectorized Profile Pavement gs" of the various types, colors, shapes, sizes, and widths specified.

ice is full compensation for application of pavement markings, materials, equipment, labor, tools, and tals.

e preparation of new concrete and asphalt concrete pavements more than 3 years old, where no stripe will be paid for under Item 678, "Pavement Surface Preparation for Markings." Surface preparation of r asphalt and old concrete pavement, except for sealing, will not be paid for directly but is subsidiary tem.

one pavement markings (Type II, paint and beads) used as a sealer for Type I markings oplastic) will be paid for under Item 662, "Work Zone Pavement Markings."

Engineer requires that markings be placed in inclement weather, repair or replacement of markings ed by the inclement weather will be paid for in addition to the original plans quantity.

Pavement Markings



CRIPTION

and place retroreflectorized or non-reflectorized (contrast) prefabricated pavement markings.

prefabricated pavement marking materials in accordance with DMS-8240, "Permanent Prefabricated nent Markings."

h prefabricated pavement marking materials used for contrast markings in accordance with DMS-8240, anent Prefabricated Pavement Markings," with the exception that the color requirement for the black t portion does not have to meet the color requirements specified for white or yellow markings. Store erials in a weatherproof enclosure and prevent damage during storage.

STRUCTION

al. Obtain approval for the sequence of work and estimated daily production. Remove all waste ated from the jobsite before the end of each working day.

ish guides to mark the lateral location of pavement markings as shown on the plans or as directed, and uide locations verified. Use guide material that will not leave a permanent mark on the roadway.

avement markings in alignment with the guides without deviating from the alignment more than 1 in. 0 ft. of roadway or more than 2 in. maximum and with no abrupt deviations.

nent Limitations. Do not place Type B pavement-marking materials between September 30 and 1 unless otherwise directed.

ure. Apply material to pavement that is completely dry. Pavement will be considered dry if, on a sunny ter 15 min., no condensation occurs on the underside of a 1-sq. ft. piece of clear plastic that has been on the pavement and weighted on the edges.

erature. Follow pavement and ambient air temperature requirements recommended by the material acturer. Do not place material when the pavement temperature is below 60°F or above 120°F if the I manufacturer does not establish temperature requirements.

sions. Place markings in accordance with the color, length, width, shape, and configuration shown on ns. Locate alignment as shown on the plans or as directed.

ds. Place all materials in accordance with the material manufacturer's instructions, as well as the condition, moisture and temperature requirements of this Item, unless otherwise directed.

e Preparation. Prepare surface by any approved cleaning method that effectively removes ninants, loose materials, and conditions deleterious to proper adhesion. Abrasive or water-blast ng is not required unless shown on the plans. Blast clean, when required, in accordance with Item 678, nent Surface Preparation for Markings." Prepare surfaces further after cleaning by sealing or priming ommended by the pavement-marking material manufacturer or as directed. Use adhesive, when ed, of the type and quality recommended by the pavement-marking material manufacturer. Do not concrete pavement surfaces by grinding.

mance Requirements.

ion. Ensure markings do not lift, shift, smear, spread, flow, or tear by traffic action.

rance. Ensure markings present a neat, uniform appearance that is free of excessive adhesive, l edges, and irregular lines or contours.

ity. Ensure markings have uniform and distinctive retroreflectance when inspected in accordance with

mance Period. All markings must meet the requirements of this Item for at least 30 calendar days stallation. Remove and replace all pavement markings that fail to meet requirements at the ctor's expense unless otherwise directed. Replace failing markings within 30 days of notification. All ement markings must also meet all requirements of this Item for a minimum of 30 calendar days after tion.

SUREMENT

em will be measured by the foot or by each word, shape, or symbol.

a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will de if adjustments of quantities are required.

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ork performed and materials furnished in accordance with this Item and measured as provided under urement" will be paid for at the unit price bid for "Prefabricated Pavement Markings" of the type and pecified and the shape, width, and size specified as applicable. This price is full compensation for g the pavement by any means other than required abrasive or water-blast cleaning or milling; ing and placing materials; and equipment, labor, tools, and incidentals.

ve or water-blast cleaning and milling, when shown on the plans, will be paid for under Item 678, nent Surface Preparation for Markings."

CALEB M. CHANCE 98401 7/31/2 0 PE-DAWS PA МH RY S A Ш ROVMENTS (NW MILIT SAN ANTONIO, TEXAS NOT TION RUC⁻ 3) 3) NОПО ЮŇ Ц ш Z Ш IMP C \mathbf{O} \succ QUARR Õ \times 440 - NO. 23-11800125 JOB NO. 12934-00 JULY 2023 ATE DESIGNER DL CHECKED AS DRAWN DD C0.11 SHEET

TXDOT CONSTRUCTION GENERAL NOTES

1. The design and construction will provide for preserving all existing features in or near the State Right Of Way being affected by the widening. This includes but is not limited to, existing driveway gate set-backs, relocation of electronic private property gates, mailbox turnouts, mail boxes and supports, cattle guards, roadway signing, existing rip-rap or other permanent erosion control features, diversionary berms, swales, ditches, amount and configuration of driveway flares and driveway centerline profile, metal beam guard fence and end treatments, etc. Existing driveway culverts and safety end treatments if effected by roadway widening will be reconstructed to preserve existing front slope rates. The coordination of items that effect existing private property access, mail delivery, etc. is the responsibility of the developer. The written concurrence of any effected property owners for construction effecting their driveways or mailbox turnouts must be obtained and provided TxDOT prior to TxDOT driveway permits being issued.

2. For work in State Right Of Way, the developer is responsible for coordination of, obtaining permits for, and complying with any and all state and federal regulatory agencies and all applicable laws, rules and regulations pertaining to the regulation of drainage, preservation of cultural resources, natural resources and the environment. The developer is responsible for determining if the project is in an environmentally sensitive area such as within the recharge or contributing zone of protected aquifers, and act in accordance with all resource agency regulations.

If TxDOT has a CZP or WPAP on file with TCEQ, the developer is responsible for amending TxDOT's permit, obtaining TCEQ approval and providing TxDOT with the approved amended permit. The amended permit will address the relocation of any TxDOT permanent BMP's including vegetative filter strips that may be impacted by work done within TxDOT ROW.

If TxDOT does not have a CZP or WPAP on file with TCEQ, any permanent BMP's including vegetative filter strips, that may be required in order to treat additional impervious cover placed in TxDOT ROW will be located in private property and the developer will provide TxDOT with evidence of TCEQ approval of the additional impervious cover.

The developer may not operate under resource agency environmental clearance of a previous or ongoing TxDOT project, but will be required to obtain separate resource/environmental agency clearance.

3. If waste areas or material source areas result from this project, the Contractor is reminded to follow the requirements of the Texas Aggregate Quarry and Pit Safety Act. In addition, it is requested that these areas not be visible from any highway on the State system.

4. Any trees existing within State Right Of Way are the natural resources of the State and will be protected. In the event that trees must be removed, TxDOT written permission will be received in advance and will identify the specific trees by species, diameter and location to be removed. The developer will be fined for any unpermitted removal of trees.

5. The developer will maintain at the project site, and make available upon request, copies of all approved environmental plans and permits relating to work in State Right Of Way.

6. Prior to beginning grading activity the contractor will set and maintain roadway stationing, control points, marks, stakes to establish lines, slopes, grades and centerlines.

7. Any slopes in State Right Of Way which become steeper than 3:1 as a result of the work will be treated with 4" thick reinforced concrete riprap and be treated with metal beam guard fence. This may entail additional rip-rap beyond that shown in the plans.

8. TxDOT Inspector will be contacted by the contractor 48 hours prior to work occurring in State Right Of Way.

9. State Right Of Way will not be used as an area for contractor parking or for staging the receipt of materials or equipment.

10. Traffic control and construction barricades will meet the requirements of the Texas MUTCD.

11. At no time will the roadway travel way be blocked.

12. Lane closures will only be permitted with 48 hour prior approval of the TxDOT Inspector. Lane closures will be permitted only between 9:00 a.m. and 4:00 p.m. Monday through Friday.

13. A minimum 3:1 (H:V) temporary safety slope of stable compacted material will be required adjacent to the State highway edge of pavement at all times during non working hours.

14. Only one side of the roadway will be open to construction at a time. Work will be completed and pavement edges backfilled on one side of the road before work will begin on the opposite side of the roadway.

15. Any pavement edge drop-offs between 1 and 2 inches in height will have CW 8-11 warning signs. Any pavement edge drop-off 2 inches or greater will have a 3:1 compacted safety slope and CW 8-9a or CW 8-11 signs plus channelizing devices. Pavement edges will be shouldered up with compacted embankment material and 4 inches of topsoil as soon as possible after paving is completed on the side of the road being widened.

16. Proof rolling of subgrade is required and shall be witnessed by TxDOT prior to placement of pavement structure unless otherwise approved by the TxDOT Inspector.

17. All Flexible Base will have a minimum Plasticity Index of 4.

18. All courses of asphaltic concrete pavement (regardless of type) will be placed with a asphalt paving equipment meeting the requirements of TxDOT Item 320, "Equipment for Asphalt Concrete Pavement", unless otherwise approved by the TxDOT Inspector.

19. All surface aggregates will meet the requirements of TxDOT friction classification "B" and will meet PG Binder grade 70-22.

20. All surface Asphalt Concrete Pavement will be under-sealed with a One Course Surface Treatment.

21. All Asphaltic Concrete Pavement used in base courses will be Type "B" and will meet PG binder grade 64-22.

22. All pavement widening including shoulders will match the existing pavement cross slope.

23. All pavement markings will be Type I thermoplastic with under-seal meeting TxDOT specifications.

24. All materials and construction methods used in State Right Of Way will meet TxDOT specifications. This supersedes all other specifications in the plans.

25. All turn lane concrete pavement in state ROW will meet the requirements of TxDOT Item 360 Class P concrete and will be batched at concrete plans having a current approved mix design. Class P concrete shall have 7 and 28 day compressive strength of 3200 psi and 4400 psi respectively.

26. When widening existing concrete pavements, joints in the new pavement will match joints in existing pavement and curb.

27. The contractor is responsible for ensuring that TxDOT approved materials, mix designs, approved sources and products are used for all work in state ROW. The contractor will arrange for the services of a qualified testing laboratory for all items requiring testing and will notify TxDOT of any discrepancies between test results and TxDOT specs in a timely manner. The contractor will provide to TxDOT invoices and testing results as soon they are available. Failure to do this will result in rejection of the work.

28. Sawing of contraction/construction joints in concrete pavement will be accomplished as soon as personnel can walk on the concrete without damaging the surface regardless of time of day or weather conditions. Stand-by power driven concrete saws will be provided during the sawing operation. Curing compound will be re-applied to the sawed joint immediately upon sawing the joint.

29. Any concrete curb to be removed will be saw-cut at the limits of removal and be removed entirely. Slicing the top portion of the curb off and leaving remaining portion of curb in place is unacceptable.

30. Any damage to TxDOT facilities will be repaired at no expense to the State, to TxDOT's satisfaction.

31. Sidewalks placed in the highway right-of-way will be a minimum width of five feet or comply with the more stringent width as required by city ordinance and will meet all other requirements of the Americans with Disabilities Act. Pedestrian ramps will be provided at street and driveway intersections as shown on the current State Standard for Pedestrian Facilities. Color contrast and texturing of pedestrian ramps will be place at street intersection ramps only as shown on the current State Standard for Pedestrian Facilities. Pedestrian ramps at driveway intersections will not receive any color contrast or texturing.

32. The contractor will use Best Management Practices (BMP's) to minimize erosion and sedimentation in the State Right Of Way resulting from the proposed construction. Revegetation of disturbed areas will be completed in accordance with TxDOT Standard Specifications. Permanent vegetative cover must achieve 70% coverage prior to project acceptance. Soil Retention Blankets may be required to prevent erosion of topsoil prior to vegetation re-establishment

33. Prior to seeding or re-vegetation the front slopes will be shouldered up with topsoil to eliminate any pavement edge drop-off.

34. Mud tracked onto the roadway from the site will be immediately removed to the satisfaction of TxDOT.

35. It will be the developer/owner's responsibility to clean out, to the state's satisfaction, any drainage structure or storm sewer system that becomes silted as a result of their operations.

36. The adjustment of any utilities in State Right Of Way or adjacent private easement will be the responsibility of the developer/owner's.

37. The contractor is responsible for placing and maintaining existing signs on TxDOT approved temporary mounts until permanent signs are placed.

38. The final placement of permanent signs will be coordinated prior to placement with the local TxDOT Inspector.

39. For work within the State Right Of Way where removal of materials or debris within the construction limits and not incorporated in the finished roadway section of right of way, will be disposed of in a manner acceptable to the Maintenance Supervisor at no expense to the State. Materials that are not determined to be salvageable by the Maintenance Supervisor become the property of the Contractor for proper disposal at their expense. Materials determined to be salvageable will be returned to the State and delivered to the location as determined by the Maintenance Supervisor.

40. Contact TxDOT representative, Craig Williams, at (210) 615-6213, e-mail Craig.Williams@txdot.gov, 48 hours before beginning signal work or when working within 400 feet of existing traffic signals. The contractor is responsible for repair or replacement of any signal equipment damaged by construction operations. The method of repair or replacement shall be pre-approved and inspected. Depending on the type and extent of the damages, the Engineer reserves the right to perform repair or replacement work and the Contractor will be billed for this work. When working near aerial electrical lines or utility poles, comply with Federal, State and local regulations.

41. All quantities shown in the TxDOT permit plans are for contractor's information only. TxDOT's review and approval of the permit in no way implies that all items of work necessary for the completion of the work are reflected in the plans nor does it imply the accuracy of the item quantities shown.

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ENTERLIN	E	
XISTING (CONT	OUR
ROJECT I		S

1	6" DOUBLE YELLOW LINE RAISED PAVEMENT MARK
2	8" SOLID WHITE LINE WIT RAISED PAVEMENT MARK
3	WHITE LEFT ARROW PAVE
4	WHITE WORD "ONLY" PAV
5	4" SOLID WHITE EDGE LIN



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