CITY OF TEXARKANA, TEXAS
DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION PLANS FOR

KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

BOWIE COUNTY

PROJECT NO. 23-1901-13

MAY 2024

INDEX OF SHEETS

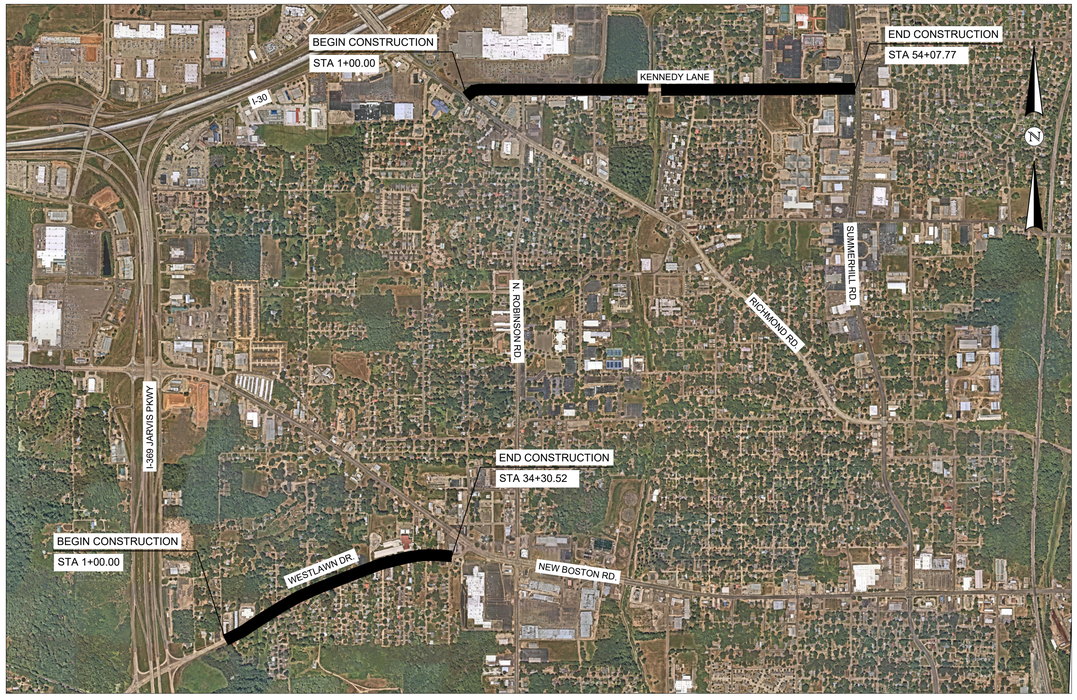
TOTAL SHEETS = 28

THE CONTRACTOR SHALL MAKE HIS OWN INVESTIGATIONS AND ARRANGEMENTS FOR DELIVERY OF MATERIALS.

REQUIRED SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT BARRICADE AND CONSTRUCTION OR BC SHEETS AND THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

NET LENGTH OF KENNEDY LANE = 5,307.77 FT. = 1.005 MI.
NET LENGTH OF WESTLAWN DR. = 3,330.52 FT. = 0.631 MI.
NET LENGTH OF PROJECT = 8,638.29 FT. = 1.636 MI.

MILL AND OVERLAY ASPHALT ROADWAY ALONG KENNEDY LANE FROM RICHMOND RD TO SUMMERHILL RD AND ALONG WESTLAWN DR. FROM MADISON DR. TO ARLINGTON ST.



LOCATION MAP - KENNEDY LN AND WESTLAWN DR

NOT TO SCALE

ENGINEER
HALFF ASSOCIATES, INC.
401 Market Street
Shreveport, LA 71101

Contact: Brandon Aillet, PE
Email: baillet@halff.com
Telephone: (318) 716-6130

TYPE OF CONSTRUCTION
Roadway Improvement, Mill and Overlay, Asphalt Reconstruction, Replacement of Base Course

DATUM
Horizontal: NAD83 TX State Plane/North Central Zone/US Foot
Vertical: NAVD88

DESIGN SPEED
40 MPH

THE CONSTRUCTION WORK WAS PREFORMED IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT.

R. BRANDON AILLET P.E. 05/28/2024
DATE

STATE OF TEXAS
R.BRANDON. AILLET
90942
LICENSED
PROFESSIONAL ENGINEER
5/28/24

OWNER/CLIENT:

CITY OF TEXARKANA
1873
220 TEXAS BLVD
TEXARKANA, TX 75501
www.texarkanatexas.gov

PREPARED BY:

halff
FIRM REGISTRATION NO. 312
401 MARKET STREET
SHREVEPORT, LA 71101
TEL. (318) 716.6132
www.halff.com

811 Know what's below. Call before you dig.

NOTE: THE 2014 EDITION OF THE TEXAS DOTD STANDARD SPECIFICATIONS FOR CONTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES, AS AMENDED BY THE PROJECT SPECIFICATIONS, SHALL GOVERN THIS PROJECT.

THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.

GENERAL NOTES

1. THE LOCATION AND DEPTH OF ALL UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND THERE MAY BE OTHER UNKNOWN EXISTING UTILITIES NOT SHOWN ON THE PLANS. ALL EXISTING UTILITIES SHALL BE FIELD VERIFIED AND PROTECTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE ENGINEER ASSUMES NO LIABILITY FOR DAMAGES TO EXISTING UTILITIES NOT SHOWN ON THE PLANS, OR DAMAGES RESULTING FROM DISCREPANCIES BETWEEN THE LOCATION OF UTILITIES SHOWN ON THE PLANS, AND THEIR ACTUAL LOCATION. THE CONTRACTOR SHALL CALL TEXAS ONE CALL (1-800-245-4545), TEXARKANA WATER UTILITIES ("TWU") (903-798-3800), AND ALL OTHER AFFECTED UTILITIES 72 HOURS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH TEXAS DEPARTMENT OF TRANSPORTATION'S 'STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES' NOVEMBER 1, 2014 EDITION, AS AMENDED BY PROJECT SPECIFICATIONS AND PLAN DETAILS. A COPY OF THE CONSTRUCTION PLANS SHALL BE MADE AVAILABLE ON-SITE AT ALL TIMES BY THE CONTRACTOR.
3. CONTRACTOR SHALL CONTACT THE CITY OF TEXARKANA ("CITY") REPRESENTATIVE PRIOR TO CONSTRUCTION TO COORDINATE WORK.
4. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO THE START OF THE CONSTRUCTION. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR REPAIRS TO EXISTING UTILITIES DAMAGED BY THE CONTRACTOR'S ACTIVITIES FOR NO ADDITIONAL COMPENSATION TO THE CONTRACTOR.
5. CONTRACTOR SHALL THOROUGHLY REVIEW THE PLANS AND SPECIFICATIONS, PREPARE DETAILED MATERIAL TAKE-OFFS, MAKE SITE VISITS AS REQUIRED, AND ESTIMATE HIS LABOR AND MATERIAL QUANTITIES AND COSTS ACCORDINGLY BEFORE SUBMITTING HIS BID. ANY WORK, MATERIALS, SIGNAGE AND/OR APPURTENANCES REQUIRED BY THE PLANS AND SPECIFICATIONS AND NOT OTHERWISE IDENTIFIED AS A PAY ITEM OR A MATERIAL TAKE-OFF ITEM, OR SHOWN IN THE BID SUBMITTAL FORM SHALL BE DEEMED INCIDENTAL TO CONSTRUCTION AND SHALL BE PERFORMED, SUPPLIED, AND INSTALLED AT NO ADDITIONAL PAY.
6. CONTRACTOR SHALL VERIFY ALIGNMENT AND GRADE OF ALL PROPOSED IMPROVEMENTS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES AND/OR CONFLICTS THAT ARE DISCOVERED SHALL BE REPORTED TO THE PROJECT ENGINEER FAR ENOUGH IN ADVANCE TO MAKE ANY REQUIRED ADJUSTMENTS TO THE DESIGN.
7. CONTRACTOR SHALL MAKE A VIDEO RECORDING OR DETAILED PHOTOGRAPHIC DOCUMENTATION OF THE PRE-CONSTRUCTION CONDITIONS OF THE ENTIRE PROJECT LIMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION, AND SHALL MAKE A COPY AVAILABLE TO THE CITY.
8. CONTRACTOR IS TO PREVENT ANY PROPERTY DAMAGE TO PROPERTY OWNERS' POLES, FENCES, SHRUBS, MAILBOXES, ETC., UNLESS DESIGNATED AS A REMOVAL ITEM IN THE PLANS. SHRUBBERY AND LANDSCAPE FEATURES ARE TO BE REMOVED WITHIN THE RIGHT-OF-WAY ONLY TO THE LIMITS NECESSARY FOR ROADWAY CONSTRUCTION. SHRUBBERY AND LANDSCAPE FEATURES ARE TO BE REPLACED TO THE APPROXIMATE SIZE, TYPE, AND NUMBER AS PRE-CONSTRUCTION CONDITIONS.
9. IT IS CONTRACTOR'S RESPONSIBILITY TO PROVIDE FOR SAFE ACCESS (INGRESS AND EGRESS) IN ALL WEATHER CONDITIONS TO PROPERTY OWNERS AND TO VEHICULAR TRAFFIC DURING THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL STRICTLY ADHERE TO CITY, STATE AND FEDERAL REQUIREMENTS FOR SAFETY DURING CONSTRUCTION, AND SHALL REVISE AND UPDATE THE TRAFFIC CONTROL & SEQUENCING PLANS MONTHLY OR AS NECESSARY, AND AS APPROVED BY CITY AND PROJECT ENGINEER.
10. THE CONTRACTOR SHALL INSTALL THE CAPITAL IMPROVEMENT PROJECT SIGNS AS SPECIFIED IN SPECIAL CONDITIONS OF THE PROJECT MANUAL PRIOR TO CONSTRUCTION.
11. BARRICADING, SIGNAGE AND TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (T.M.U.T.C.D.) AND ANY OTHER APPLICABLE REGULATIONS. TRAFFIC FLOW AND ACCESS SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR PUBLIC SAFETY IN THE CONSTRUCTION AREA DURING THE DURATION OF CONSTRUCTION ACTIVITIES.
12. CONTRACTOR SHALL REMOVE FROM SITE AND DISPOSE OF ALL EXCESS EXCAVATION MATERIAL, CONCRETE PAVING, STORM DRAIN PIPE, AND OTHER CONSTRUCTION DEBRIS, IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT MANUAL AT NO DIRECT PAY.
13. WHERE DEMOLITION OF CONCRETE AND/OR ASPHALT PAVEMENT, CONCRETE SIDEWALKS, CONCRETE CURBS, ETC. IS REQUIRED FOR CONSTRUCTION, CONTRACTOR SHALL SAW-CUT PRIOR TO DEMOLITION TO PROVIDE A NEAT EDGE FOR TIE TO NEW CONSTRUCTION, OR CONTRACTOR SHALL REMOVE TO NEAREST JOINT. RESTORE DEMOLISHED AREAS TO PRE-CONSTRUCTION CONDITIONS AT NO DIRECT PAY.
14. PROJECT CONSTRUCTION SHALL REMAIN WITHIN THE PUBLIC RIGHT-OF-WAY AND/OR EASEMENTS AND SERVITUDES. ANY ENCROACHMENT OUTSIDE THESE LIMITS WILL BE THE CONTRACTOR'S LIABILITY.
15. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SAFE CONDITIONS ON ADJACENT ROADWAYS AND ROAD SHOULDERS, AND SHALL TAKE IMMEDIATE ACTION TO REMOVE DEBRIS, MUD, EXCESS CONSTRUCTION WATER, AND ANY OTHER UNSAFE ITEMS FROM THE AREA. FAILURE TO COMPLY MAY RESULT IN THE CITY CLEANING UP AND THE RESULTING COSTS BEING SUBTRACTED FROM THE CONTRACT.
16. EXISTING TRAFFIC SIGNS TO REMAIN IN PLACE DURING CONSTRUCTION, IF POSSIBLE. SIGNS REMOVED AND RELOCATED OR REPLACED TO BE IN EQUAL OR BETTER CONDITION, AT NO DIRECT PAY.
17. ALL FENCES, SIGNS, UTILITY POLES AND PROPERTY CORNER MONUMENTS REMOVED FOR, OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED OR REPAIRED TO AS GOOD A CONDITION OR WITH A BETTER MATERIAL, AT NO DIRECT PAY.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING ALL PRECAUTIONS TO PROTECT EXISTING TREES AND SHRUBBERY OUTSIDE THE LIMITS OF CONSTRUCTION.
19. CONTRACTOR SHALL LOCATE, VERIFY WORKING CONDITIONS, AND PROTECT ALL EXISTING IRRIGATION SYSTEMS' LINES AND HEADS (IF ANY). REMOVE, ADJUST AND REINSTALL IN GOOD CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITION; REPLACE, IF IN DIRECT CONFLICT, WITH THE SAME OR BETTER QUALITY MATERIAL AND APPURTENANCES.
20. CONSTRUCTION DEWATERING, IF ANY, IS INCIDENTAL TO THE PROJECT BID ITEMS.
21. ALL EXCAVATIONS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH OSHA REGULATIONS AND ANY OTHER APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND ORDINANCES.
22. DURING CONSTRUCTION, POSITIVE DRAINAGE SHALL BE MAINTAINED IN ALL DRAINAGE DITCHES AND CHANNELS.
23. ALL EARTHWORK, SOIL MATERIALS, AND PAVEMENT REQUIREMENTS INCLUDING BUT NOT LIMITED TO SUBGRADE PREPARATION, COMPACTION, LIME TREATMENT, FILL CONSTRUCTION, CONCRETE PAVEMENT DESIGN, FLEXIBLE PAVEMENT DESIGN, JOINT SPACING, AND PREPARATION SHALL ADHERE TO ALL CITY REQUIREMENTS FOR RESIDENTIAL AND COMMERCIAL STREET PAVEMENT, AND TO GEOTECHNICAL REPORT "PROJECT B2311099", PERFORMED BY BRAUN INTERTEC CORPORATION, DATED DECEMBER 22, 2023, AND INCLUDED IN PROJECT MANUAL.
24. CONTRACTOR IS NOT PERMITTED TO PARK EQUIPMENT OR VEHICLES ON GRASS. CONTRACTOR AND WORKERS MUCH PARK VEHICLES AND EQUIPMENT ON ROADWAY OR ADJACENT STREETS. ANY RUTTING, OR DAMAGE TO YARDS CAUSED BY CONTRACTOR'S EQUIPMENT OR WORKER'S VEHICLES WILL BE FIXED AT THE CONTRACTOR'S EXPENSE.
27. CONTRACTOR SHALL PROVIDE CONSTRUCTION LAYOUT.
28. CONTRACTOR SHALL PROVIDE ONE COMPLETE SET OF CONSTRUCTION DRAWINGS APPROPRIATELY MARKED UP TO REFLECT ACTUAL "AS-BUILT" CONDITIONS (INCLUDING ELEVATIONS, DIMENSIONS, LOCATIONS, ETC.) AT PROJECT COMPLETION.
29. ALL WORK IS SUBJECT TO FINAL INSPECTION BY THE CITY AND PROJECT ENGINEER.
30. WORK HOURS WILL BE MONDAY-FRIDAY, 8 AM TO 6 PM. WORK PERFORMED ON SATURDAY MUST HAVE PRIOR PERMISSION FROM THE CITY, REQUEST FOR SATURDAY WORK SHALL BE MADE TO THE CITY ENGINEER PRIOR TO 12:00 NOON ON THURSDAY.

PROJECT BIDDING NOTES

1. A PORTABLE CHANGE MESSAGE SIGN SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 502 6001 "BARRICADES, SIGNS, AND TRAFFIC HANDLING".
2. SURFACE PREPARATION OF ASPHALT SURFACES FOR PAVEMENT STRIPING SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO REFLECTIVE PAVEMENT MARKING ITEMS 666 6176 THROUGH 666 6217.

EROSION CONTROL GENERAL NOTES

1. CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL STORMWATER REGULATIONS. CONTRACTOR SHALL ACQUIRE ALL REQUIRED PERMITS PRIOR TO COMMENCEMENT OF WORK. SEE SPECIAL CONDITIONS SECTION OF PROJECT MANUAL FOR ADDITIONAL CONTRACTOR REQUIREMENTS.
2. CONTRACTOR SHALL CONFORM ACTIVITIES TO THE SWPPP AS SPECIFIED, INCLUDING INSTALLING, MAINTAINING, AND REMOVING POLLUTION CONTROLS, CONDUCTING AND DOCUMENTING INSPECTIONS OF POLLUTION CONTROLS, SPRINKLING FOR DUST CONTROL, MAINTAINING SPILL RESPONSE EQUIPMENT ON-SITE, AND "GOOD HOUSEKEEPING". POLLUTION CONTROLS INCLUDE SILT FENCES, STABILIZED CONSTRUCTION ENTRANCE, ESTABLISHING GRASS, AND SPRINKLING FOR DUST CONTROL.
3. APPROXIMATELY 7.85 ACRES OR 1.52 MILES OF ROADWAY WILL BE DISTURBED WITH THIS CONSTRUCTION.
4. ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE IDENTIFIED IN THE CONTRACTOR'S STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
5. A COPY OF THE NOTICE OF INTENT (NOI) AND A COPY OF THE SWPPP MUST BE KEPT AND MAINTAINED ON THE CONSTRUCTION SITE.
6. STABILIZATION MEASURES SHALL BE PROVIDED AND MAINTAINED BY A QUALIFIED CONTRACTOR EXPERIENCED IN PROVIDING SAID FACILITIES AND SERVICES.
7. STABILIZATION MEASURES SHALL BE INITIATED ON DISTURBED AREAS AS SOON AS PRACTICAL, BUT NO MORE THAN 14 DAYS AFTER CONSTRUCTION ACTIVITY HAS CEASED, UNLESS ACTIVITIES ARE TO RESUME WITHIN 21 DAYS.
8. CONTRACTOR SHALL INSPECT STABILIZATION MEASURES AT A MINIMUM OF ONCE EVERY 7 DAYS, AND WITHIN 24 HOURS AFTER ANY RAINSTORM EVENT GREATER THAN 0.5 INCHES. REPAIRS AND INADEQUACIES REVEALED BY THE INSPECTION SHALL BE IMPLEMENTED WITHIN 7 CALENDAR DAYS FOLLOWING INSPECTION.
9. AN INSPECTION REPORT SUMMARIZING ALL INSPECTION ACTIVITIES RELATED TO THE SWPPP SHALL BE RETAINED AND MADE A PART OF THE PLAN.
10. CONTRACTOR SHALL AMEND THE SWPPP WHENEVER THERE IS A CHANGE OF DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE PLAN, OR WHEN THE INITIAL PLAN BECOMES INEFFECTIVE.
11. DURING DRAINAGE SYSTEM CONSTRUCTION, ALL CULVERTS AND INLETS SHALL BE PROTECTED FROM SILT AND SOIL DEPOSITS BY USE OF INLET PROTECTION.
12. IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO USE WHATEVER METHODS AND/OR MEANS ARE REQUIRED TO CONTROL AND LIMIT THE AMOUNTS OF SILT AND SEDIMENT THAT ARE ALLOWED TO LEAVE THE CONSTRUCTION SITE, INCLUDING LIMITING THE AMOUNT OF SOIL TRACKED OFFSITE BY CONSTRUCTION VEHICLES. THE CONTRACTOR SHALL PROTECT PUBLIC STREETS, WALKS, ALLEYS, STREAMS, STORM DRAINAGE SYSTEMS, AND INLETS FROM SOIL DEPOSITS.
13. CONTRACTOR SHALL ADOPT APPROPRIATE CONSTRUCTION SITE MANAGEMENT PRACTICES TO PREVENT THE DISCHARGE OF OILS, GREASE, PAINTS, GASOLINE, AND OTHER POLLUTANTS TO STORMWATER. APPROPRIATE PRACTICES INCLUDE:

    A) DESIGNATION OF AREAS FOR EQUIPMENT MAINTENANCE AND REPAIR.

    B) COLLECTION OF WASTES ON A REGULAR BASIS.

    C) CONVENIENT LOCATION OF WASTE RECEPTACLES.

    D) DESIGNATION AND CONTROL OF EQUIPMENT WASH DOWN AREAS.

14. IT IS ANTICIPATED THAT THE FOLLOWING NON-STORMWATER DISCHARGES WILL BE ASSOCIATED WITH THE CONSTRUCTION WORK AT THE SITE. EACH OF THE FOLLOWING DISCHARGES IS AUTHORIZED BY THE NPDES CONSTRUCTION GENERAL PERMIT:

    E) FIRE HYDRANT FLUSHING

    F) WATER USED FOR DUST CONTROL

    G) POTABLE WATER SOURCES

    H) UNCONTAMINATED GROUNDWATER

    I) CONSTRUCTION WATER

15. CONTRACTOR SHALL CLEAN ALL STORM DRAIN LINES, BOX CULVERTS AND CHANNELS AFTER COMPLETION OF CONSTRUCTION. SAID FACILITIES SHALL BE MAINTAINED UNTIL STABILIZATION OF DISTURBED AREAS IS COMPLETE.
16. CONTRACTOR IS RESPONSIBLE FOR PERMANENT TURF ESTABLISHMENT PER TXDOT SPECIFICATIONS, AND SHALL RESTORE ALL DISTURBED AREAS TO AN EQUAL OR BETTER CONDITION THAN THE EXISTING ESTABLISHED GROUND COVER. CONTRACTOR IS RESPONSIBLE FOR WATERING AND MAINTENANCE OF SEEDED OR SODDED AREAS TO ENSURE ROOT ESTABLISHMENT AND PROGRESSIVE GROWTH.
17. THE PLAN AND DETAILS SHOWN ARE CONSIDERED TO BE THE MINIMUM REQUIRED. THE CONTRACTOR SHALL PROVIDE ALL APPROPRIATE MEASURES TO CONFORM TO TCEQ REQUIREMENTS UNTIL THE PROJECT IS COMPLETE AND ACCEPTED BY THE CITY.

KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6910
TEL (318) 716-6100

REVISION		
NO.	DATE	DESCRIPTION

STATE OF TEXAS
R.BRANDON. AILLET
90942
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA
1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

C2.0

KENNEDY LANE

500-6001	MOBILIZATION	1	LS
3080-6025	STONE-MATRIX ASPHALT (SMA TYP-D)(PG 76-22) (SURFACE COURSE) (2")	1324	TON
3076-6015	DENSE-GRADED HOT-MIX ASPHALT (TYP-C) (PG 64-22)(BINDER COURSE)(2")	54	TON
354-6002	PLAN & TEXT ASPH CONC PAV (0" TO 2")	25000	SY
275-6011	CEMENT TREAT (EXIST MATERIAL) (8")	482	SY
275-6001	CEMENT	13	TON
3077-6075	TACK COAT (0.12 GAL/SY)	420	GAL
666-6224	PAVEMENT SEALER 6"	12780	LF
666-6226	PAVEMENT SEALER 8"	485	LF
666-6228	PAVEMENT SEALER 12"	90	LF
666-6230	PAVEMENT SEALER 24"	350	LF
672-6009	REFL PAV MRKR TY II-A-A	252	EA
666-6231	PAVEMENT SEALER (ARROW)	8	EA
666-6232	PAVEMENT SEALER (WORD)	3	EA
666-6042	REFL PAV MARK TY I (W) 12" (SLD) (100 MIL)	90	LF
668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	350	LF
668-6077	PREFAB PAV MRK TY C (W) (ARROW)	8	EA
668-6085	PREFAB PAV MRK TY C (W) (WORD)	3	EA
6149-6010	REFLPAV MRK AWT (Y) 6" (SLD) (100 MIL)	9810	LF
6149-6011	REFLPAV MRK AWT (Y) 6" (BRK) (100 MIL)	320	LF
6149-6005	REFLPAV MRK AWT (W) 6" (BRK) (100 MIL)	2650	LF
666-6036	REFL PAV MARK TY I (W) 8" (SLD) (100 MIL)	485	LF
6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	45	DAY
6185-6002	TMA (STATIONARY)	45	DAY
6185-6005	TMA (MOBILE OPERATION)	45	DAY
502-6025	BARRICADES, SIGNS, & TRAFFIC HANDLING	1	EA
506-6035	TEMPORARY EROSION, SEDIMENTATION, ENVIROMENTAL CONTROL	13	EA
S-1	MISCELLANEOUS CONSTRUCTION ITEMS	1	LS

WESTLAWN DRIVE

500-6001	MOBILIZATION	1	LS
3080-6025	STONE-MATRIX ASPHALT (SMA TYP-D) (SURFACE COURSE) (2")	1822	TON
3076-6015	DENSE-GRADED HOT-MIX ASPHALT (TYP-C) (BINDER COURSE)(2")	1279	TON
354-6002	PLAN & TEXT ASPH CONC PAV (0" TO 2")	16750	SY
275-6011	CEMENT TREAT (EXIST MATERIAL) (8")	3620	SY
275-6001	CEMENT	300	TON
3077-6075	TACK COAT (0.12 GAL/SY)	450	GAL
666-6224	PAVEMENT SEALER 6"	7300	LF
666-6228	PAVEMENT SEALER 12"	100	LF
666-6230	PAVEMENT SEALER 24"	100	LF
672-6009	REFL PAV MRKR TY II-A-A	164	EA
668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	100	LF
6149-6010	REFLPAV MRK AWT (Y) 6" (SLD) (100 MIL)	5400	LF
6149-6005	REFLPAV MRK AWT (W) 6" (BRK) (100 MIL)	1900	LF
666-6042	REFL PAV MARK TY I (W) 12" (SLD) (100 MIL)	100	LF
6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	45	DAY
6185-6002	TMA (STATIONARY)	45	DAY
6185-6005	TMA (MOBILE OPERATION)	45	DAY
502-6025	BARRICADES, SIGNS, & TRAFFIC HANDLING	1	EA
506-6035	TEMPORARY EROSION, SEDIMENTATION, ENVIROMENTAL CONTROL	14	EA
S-1	MISCELLANEOUS CONSTRUCTION ITEMS	1	LS

KENNEDY LANE & WESTLAWN DRIVE
ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6910
TEL (318) 716-6136

REVISION

NO.	DATE	DESCRIPTION

STATE OF TEXAS
R.BRANDON. AILLET
90842
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA 1873

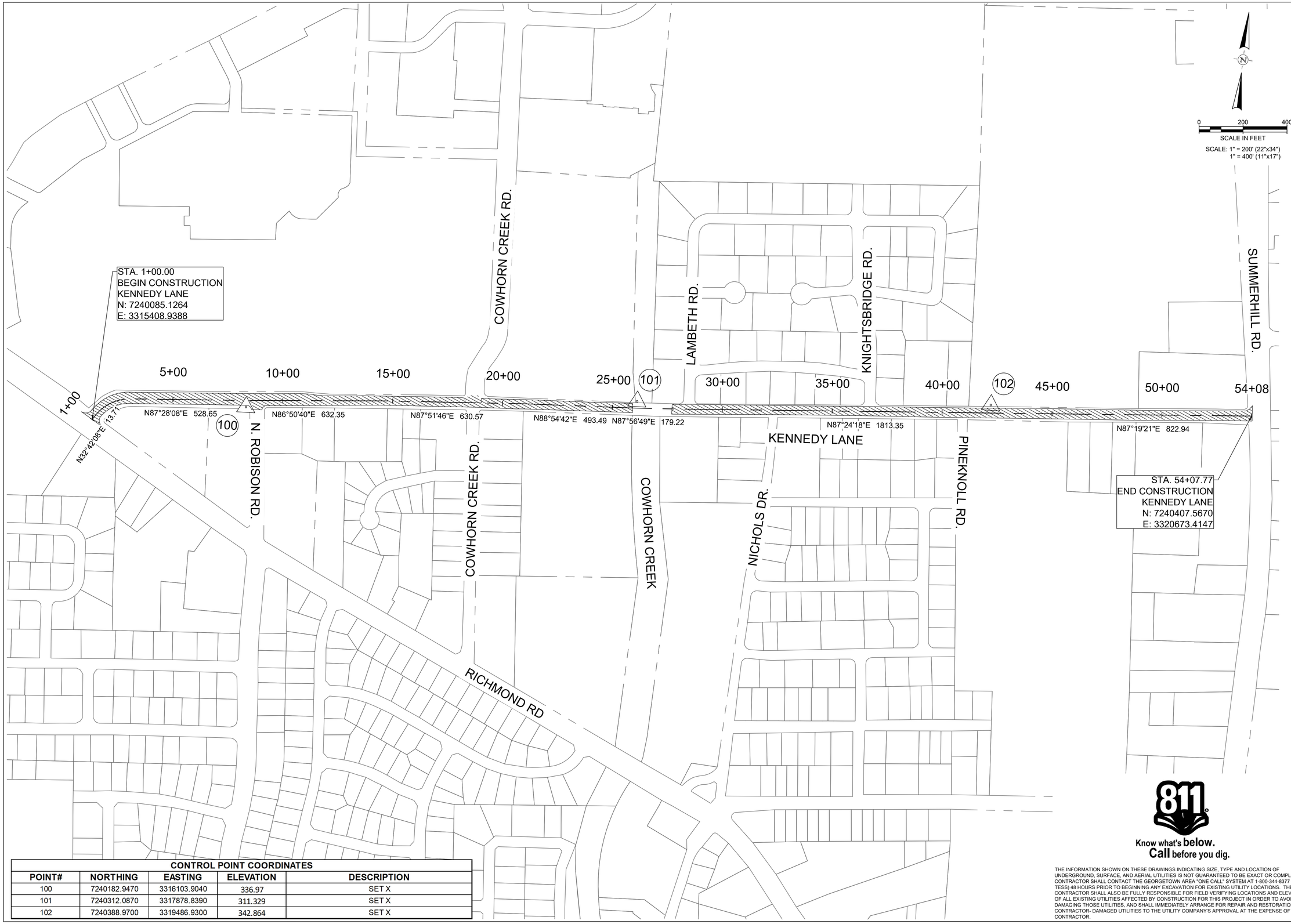
PROJECT NO.: 55640.001
ISSUED: 5/29/2024
DRAWN BY: JKR
CHECKED BY: MDT
SCALE: AS SHOWN

SHEET TITLE

SUMMARY OF QUANTITIES

SHEET NUMBER

C3.0



CONTROL POINT COORDINATES				
POINT#	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	7240182.9470	3316103.9040	336.97	SET X
101	7240312.0870	3317878.8390	311.329	SET X
102	7240388.9700	3319486.9300	342.864	SET X

Know what's **below.**
Call before you dig.

THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING SIZE, TYPE AND LOCATION OF UNDERGROUND, SURFACE, AND AERIAL UTILITIES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT THE GEORGETOWN AREA "ONE CALL" SYSTEM AT 1-800-344-8377 (DIG TESS) 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION FOR EXISTING UTILITY LOCATIONS. THE CONTRACTOR SHALL ALSO BE FULLY RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES AFFECTED BY CONSTRUCTION FOR THIS PROJECT IN ORDER TO AVOID DAMAGING THOSE UTILITIES, AND SHALL IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR- DAMAGED UTILITIES TO THE UTILITY COMPANY'S APPROVAL AT THE EXPENSE OF THE CONTRACTOR.

KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6910
TEL (318) 716-0358

REVISION NO.	DATE	DESCRIPTION

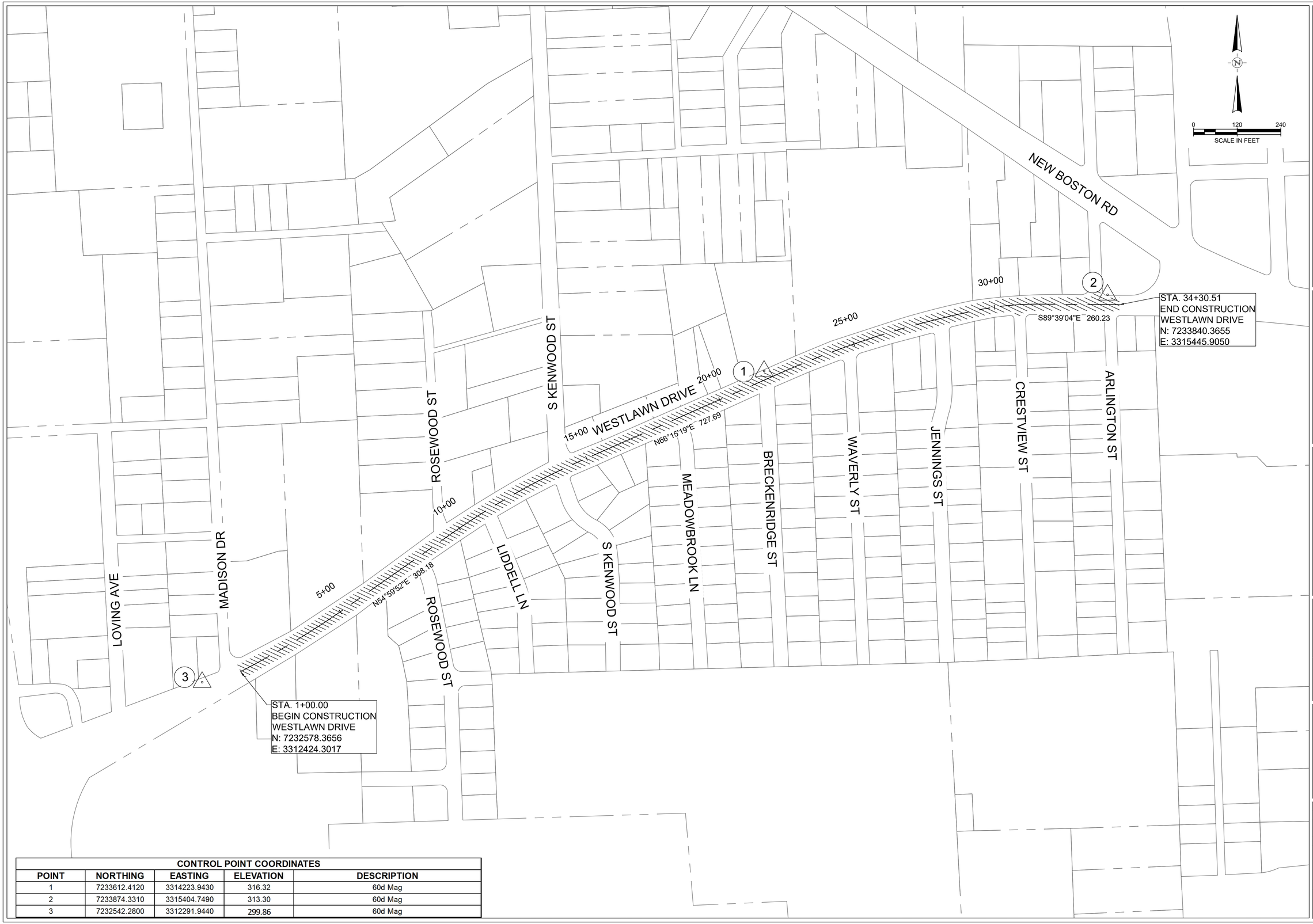
STATE OF TEXAS
R.BRANDON. AILLET
90842
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA
1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

SHEET TITLE
PROJECT LAYOUT
KENNEDY LANE
BEGIN TO END

SHEET NUMBER
C4.0



CONTROL POINT COORDINATES				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	7233612.4120	3314223.9430	316.32	60d Mag
2	7233874.3310	3315404.7490	313.30	60d Mag
3	7232542.2800	3312291.9440	299.86	60d Mag

KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6910
TEL (318) 716-5100

REVISION NO.	DATE	DESCRIPTION

STATE OF TEXAS
R.BRANDON. AILLET
90942
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA
1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
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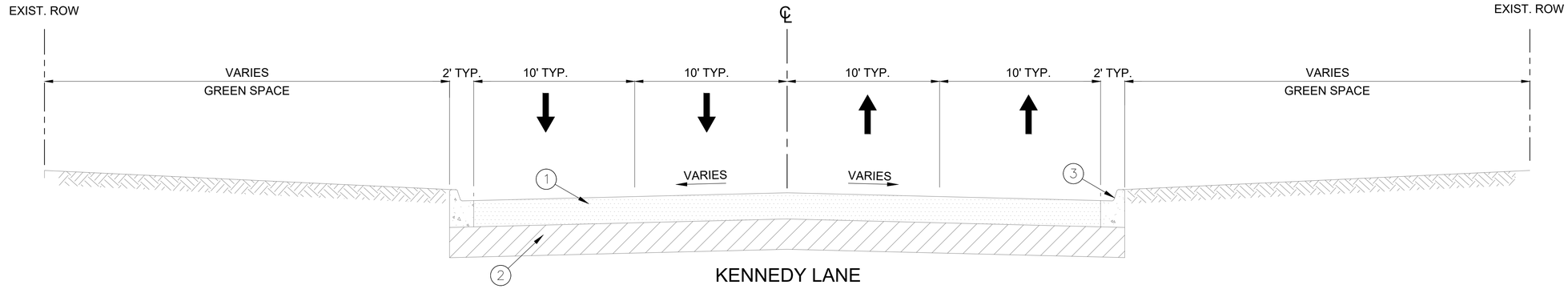
SCALE:	AS SHOWN

SHEET TITLE
PROJECT LAYOUT
WESTLAWN DRIVE
BEGIN TO END

SHEET NUMBER
C4.1

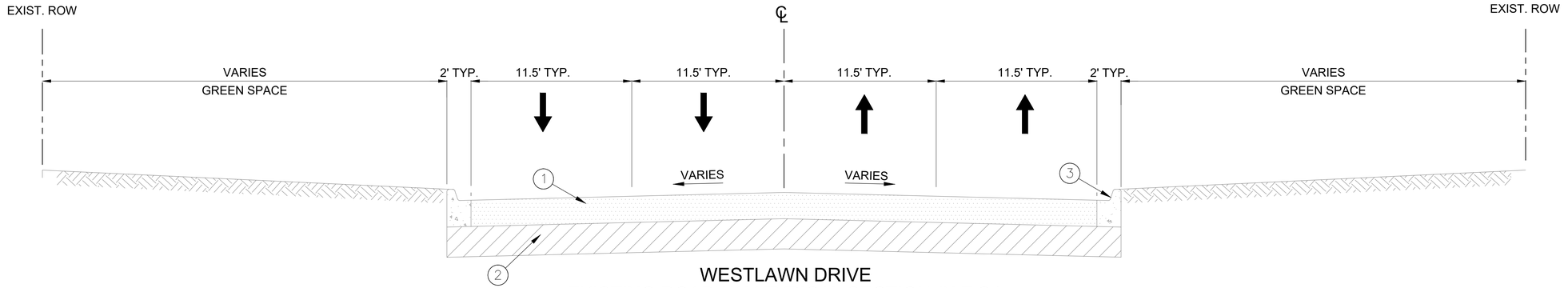


KENNEDY LANE
EXISTING ROADWAY TYPICAL SECTION (N.T.S.)

APPLIES: STA. 1+00.00' TO STA. 18+54.97'
STA. 20+34.19' TO STA. 46+70.48'

LEGEND

1. EXISTING ASPHALT PAVEMENT
   DEPTH VARIES (3" - 5" THICK)
2. EXISTING BASE COURSE
   DEPTH VARIES (REF. GEOTECH)
3. EXISTING CONCRETE CURB AND GUTTER
   (6" BARRIER CURB)



WESTLAWN DRIVE
EXISTING ROADWAY TYPICAL SECTION (N.T.S.)

APPLIES: STA. 1+00.00' TO STA. 34+30.52'

LEGEND

1. EXISTING ASPHALT PAVEMENT
   DEPTH VARIES (2" - 4" THICK)
2. EXISTING BASE COURSE
   DEPTH VARIES (REF. GEOTECH)
3. EXISTING CONCRETE CURB AND GUTTER
   (6" BARRIER CURB)

KENNEDY LANE & WESTLAWN DRIVE
ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6910
TEL (318) 716-0300

REVISION

NO.	DATE	DESCRIPTION

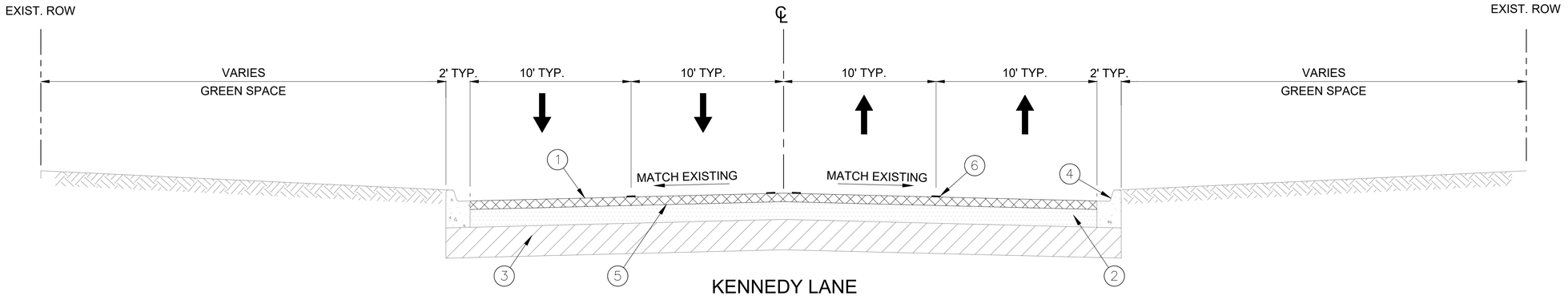
STATE OF TEXAS
R.BRANDON. AILLET
90942
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA 1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

SHEET TITLE
EXISTING
TYPICAL SECTIONS
KENNEDY LANE &
WESTLAWN DRIVE

SHEET NUMBER
C5.0

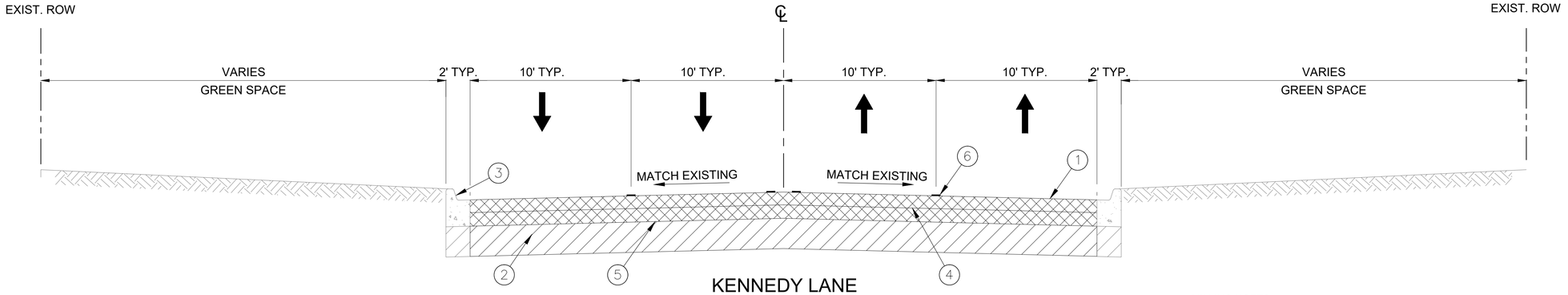


KENNEDY LANE
PROPOSED ROADWAY TYPICAL SECTION (N.T.S.)
2" MILL & OVERLAY

APPLIES: STA. 1+00.00' TO STA. 18+54.97'
STA. 20+34.19' TO STA. 46+25.00'

LEGEND

1. MILL 2" OF EXISTING ASPHALT PAVEMENT & OVERLAY WITH 2" PROPOSED S.M.A. TYPE-D SURFACE COURSE
2. EXISTING ASPHALT LAYER (DEPTH VARIES)
3. EXISTING BASE COURSE DEPTH VARIES (REF. GEOTECH)
4. EXISTING CONCRETE CURB & GUTTER (6" BARRIER CURB)
5. TACK COAT
6. PAVEMENT MARKINGS, TYP. (REF. PAVEMENT MARKING PLAN C7.0- C7.3)



KENNEDY LANE
PROPOSED ROADWAY TYPICAL SECTION (N.T.S.)
FULL DEPTH REPAIR

APPLIES: STA. 10+91.13' TO STA. 11+65.39'
STA. 46+25.00' TO STA. 46+70.48'

LEGEND

1. PROPOSED 2" S.M.A. TYPE-D SURFACE COURSE & 2" DENSE-GRADE H.M.A. TYPE-C BINDER COURSE
2. SOIL CEMENT-TREATED BASE (8" EXIST. MATERIAL, 9% CEMENT @ 40LB/SY)
3. EXISTING CONCRETE CURB AND GUTTER (6" BARRIER CURB)
4. TACK COAT BETWEEN LIFTS
5. PRIME COAT
6. PAVEMENT MARKINGS, TYP. (REF. PAVEMENT MARKING PLAN C7.0- C7.3)

MILLING NOTES:

1. REFERENCE: GEOTECHNICAL REPORT PROVIDED BY BRAUN INTERTEC CORPORATION (DECEMBER 22, 2023), STAMPED BY DIRECTOR-SENIOR ENGINEER CODY WARDIEN, PE. ASSOCIATED PROJECT NO. B2311099
2. PROVIDE A MILLED SURFACE THAT CONSISTS OF A UNIFORM SURFACE FREE OF GOUGES, RIDGES, OIL FILM, AND OTHER IMPERFECTIONS OF WORKMANSHIP WITH A UNIFORM TEXTURED APPEARANCE.
3. IN ALL SITUATIONS WHERE THE EXISTING HMAC SURFACE CONTACTS THE GUTTER LINE, THE MILLING INCLUDES THE REMOVAL OF ANY EXISTING ASPHALT COVERING/OVERLAPPING THE EXISTING CONCRETE GUTTER.
4. USE CARE TO PREVENT DAMAGE TO EXISTING PAVEMENT STRUCTURES ADJACENT TO THE ROADWAY IMPROVEMENTS.
5. BUTT JOINT MILLING:
   a. BUTT JOINTS SHOULD CONSIST OF A FULL WIDTH TRANSITION SECTION AND A CONSTANT DEPTH AT THE POINT WHERE THE NEW OVERLAY IS TERMINATED.
   b. TYPICAL LOCATIONS FOR BUTT JOINTS ARE AT ALL BEGINNING AND ENDING POINTS OF STREETS WHERE PAVING MATERIAL IS REMOVED. PRIOR TO MILLING OF THE BUTT JOINTS, CONSULT WITH THE CITY FOR PROPER LOCATION AND LIMITS.
   c. PROVIDE A TEMPORARY WEDGE OF ASPHALT AT ALL BUTT JOINTS TO PROVIDE A SMOOTH RIDE OVER THE TRANSITION OF NEW AND EXISTING PAVEMENT.

KENNEDY LANE & WESTLAWN DRIVE
ROADWAY IMPROVEMENTS
CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6910
TEL (318) 716-6700

REVISION NO.	DATE	DESCRIPTION

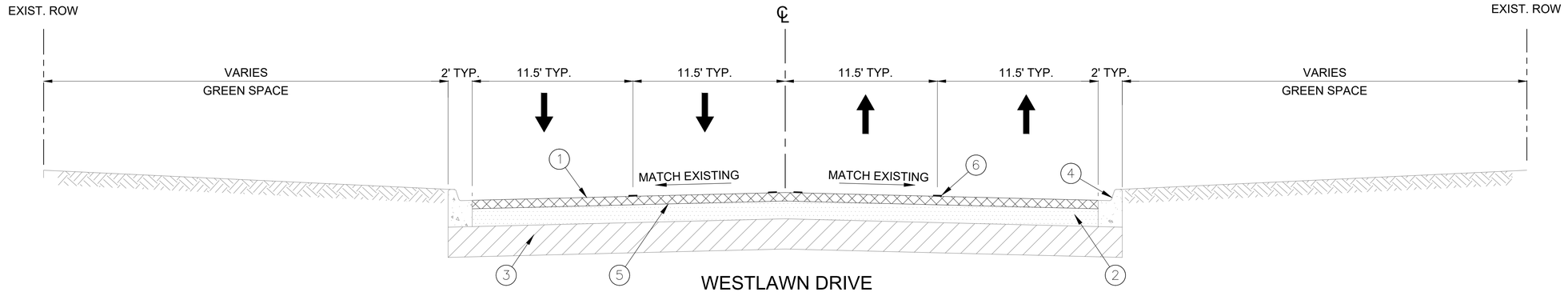
STATE OF TEXAS
R.BRANDON. AILLET
90942
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA
1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

SHEET TITLE
PROPOSED TYPICAL SECTIONS
KENNEDY LANE

SHEET NUMBER
C5.1

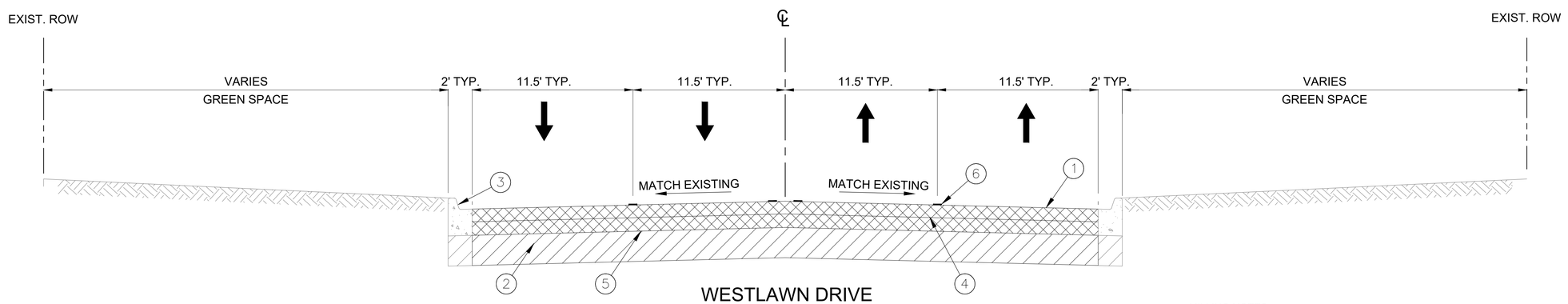


WESTLAWN DRIVE
PROPOSED ROADWAY TYPICAL SECTION (N.T.S.)
2" MILL & OVERLAY

APPLIES: STA. 1+50.00' TO STA. 11+41.73'

LEGEND

1. MILL 2" OF EXISTING ASPHALT PAVEMENT & OVERLAY WITH 2" PROPOSED S.M.A. TYPE-D SURFACE COURSE
2. EXISTING ASPHALT LAYER (DEPTH VARIES)
3. EXISTING BASE COURSE DEPTH VARIES (REF. GEOTECH)
4. EXISTING CONCRETE CURB & GUTTER (6" BARRIER CURB)
5. TACK COAT
6. PAVEMENT MARKINGS, TYP. (REF. PAVEMENT MARKING PLAN C7.0- C7.3)



WESTLAWN DRIVE
PROPOSED ROADWAY TYPICAL SECTION (N.T.S.)
FULL DEPTH REPAIR

APPLIES: STA. 1+00.00' TO STA. 1+50.00'
STA. 11+41.73' TO STA. 34+30.52'

LEGEND

1. PROPOSED 2" S.M.A. TYPE-D SURFACE COURSE & 2" DENSE-GRADE H.M.A. TYPE-C BINDER COURSE
2. SOIL CEMENT-TREATED BASE (8" EXIST. MATERIAL, 9% CEMENT @ 40LB/SY)
3. EXISTING CONCRETE CURB AND GUTTER (6" BARRIER CURB)
4. TACK COAT BETWEEN LIFTS
5. PRIME COAT
6. PAVEMENT MARKINGS, TYP. (REF. PAVEMENT MARKING PLAN C7.0- C7.3)

MILLING NOTES:

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3. IN ALL SITUATIONS WHERE THE EXISTING HMAC SURFACE CONTACTS THE GUTTER LINE, THE MILLING INCLUDES THE REMOVAL OF ANY EXISTING ASPHALT COVERING/OVERLAPPING THE EXISTING CONCRETE GUTTER.
4. USE CARE TO PREVENT DAMAGE TO EXISTING PAVEMENT STRUCTURES ADJACENT TO THE ROADWAY IMPROVEMENTS.
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   b. TYPICAL LOCATIONS FOR BUTT JOINTS ARE AT ALL BEGINNING AND ENDING POINTS OF STREETS WHERE PAVING MATERIAL IS REMOVED. PRIOR TO MILLING OF THE BUTT JOINTS, CONSULT WITH THE CITY FOR PROPER LOCATION AND LIMITS.
   c. PROVIDE A TEMPORARY WEDGE OF ASPHALT AT ALL BUTT JOINTS TO PROVIDE A SMOOTH RIDE OVER THE TRANSITION OF NEW AND EXISTING PAVEMENT.

KENNEDY LANE & WESTLAWN DRIVE
ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
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REVISION NO.	DATE	DESCRIPTION

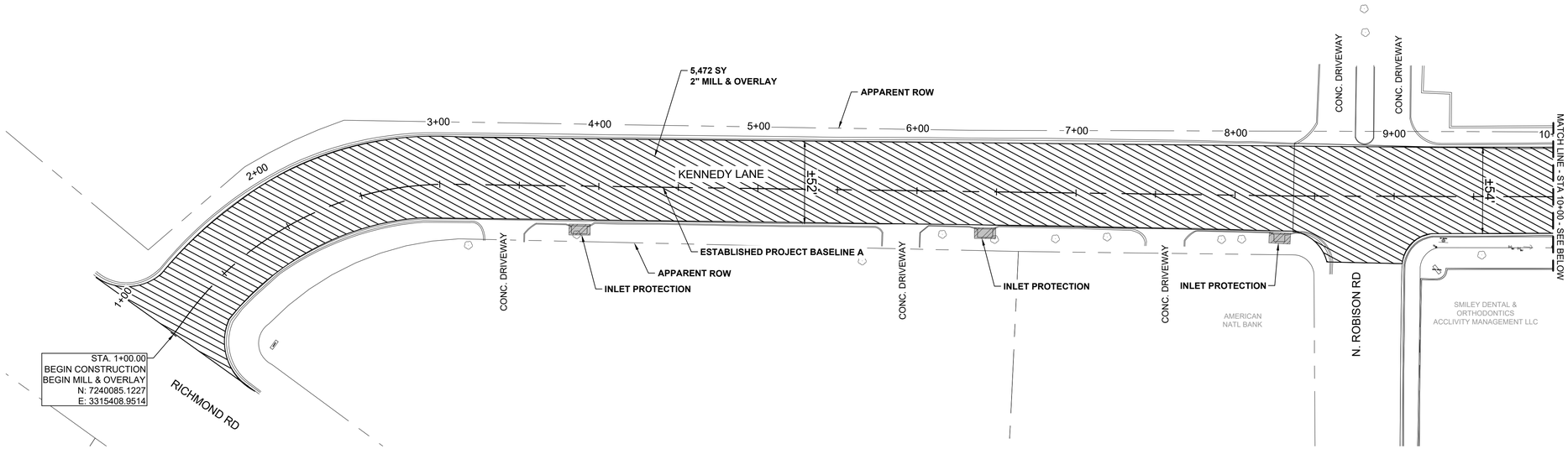
STATE OF TEXAS
R.BRANDON. AILLET
90942
LICENSED
PROFESSIONAL ENGINEER
5/28/24

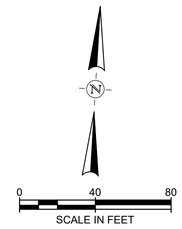
CITY OF TEXARKANA
1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

SHEET TITLE
PROPOSED TYPICAL SECTIONS
WESTLAWN DRIVE

SHEET NUMBER
C5.2





KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

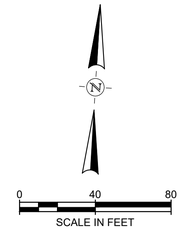
NOTES:

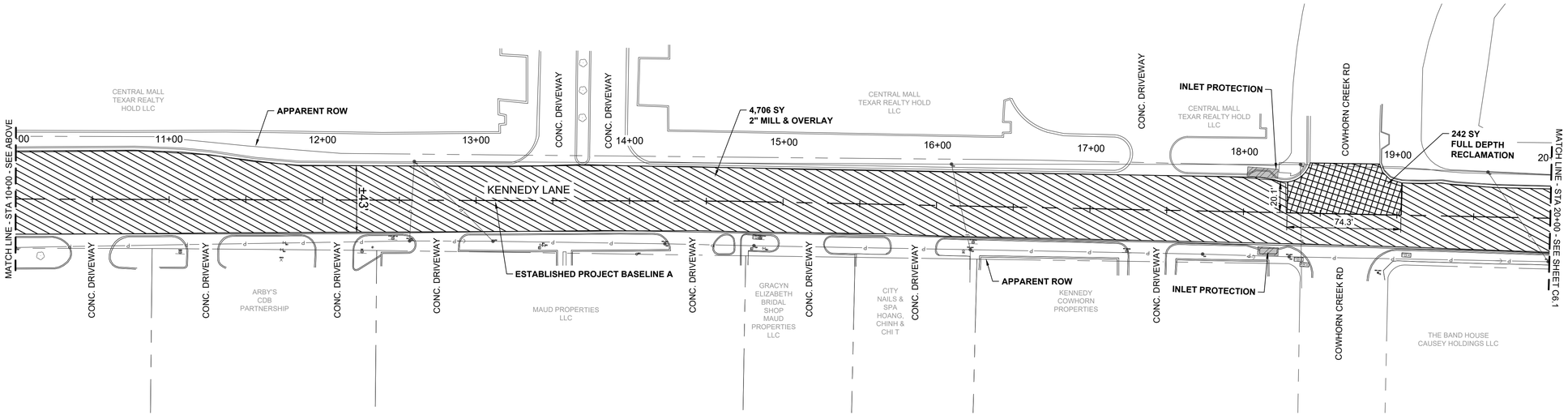
1. REFER TO PAVEMENT DETAILS AND STANDARD DETAILS FOR PAVING NOTES, DETAILS, AND OTHER INFORMATION.
2. CONTRACTOR SHALL MATCH EDGE OF PROPOSED PAVEMENT TO ALL EXISTING DRIVEWAYS. THIS MAY REQUIRE A FLARE TO THE DRIVEWAY TO MAINTAIN A STRAIGHT ROADWAY EDGE.
3. CONTRACTOR TO VERIFY LOCATIONS TO EXISTING UTILITIES PRIOR TO CONSTRUCTION.
4. CONTRACTOR TO PROTECT ALL TREES, MAILBOXES, AND LANDSCAPING ADJACENT TO PROPOSED PAVEMENT.
5. QUANTITIES AND LIMITS OF ASPHALT TRANSITIONS ARE APPROXIMATE. DEPTH OF MILLING NEAR DRIVEWAYS MAY VARY TO ALLOW BETTER TIE-INS. AT NO TIME SHALL THE CONTRACTOR MILL INTO THE BASE.
6. CONTRACTOR TO TAKE PICTURES AND VIDEO OF THE PROJECT SITE TO DOCUMENT THE EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
7. CONTRACTOR TO MAINTAIN ACCESS TO ALL DRIVEWAYS.

LEGEND:

- PARCEL BOUNDARY
- OVERHEAD POWER LINE
- POWER POLE
- WATER VALVE
- SHRUB
- INLET PROTECTION
- LIMITS OF MILL AND OVERLAY
- LIMITS OF FULL DEPTH REPAIR

!!!CAUTION!!!
EXISTING OVERHEAD POWER AND TELEPHONE LINES IN THIS AREA. CONTRACTOR TO PROTECT DURING CONSTRUCTION.





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401 MARKET ST., SUITE 650
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TEL (318) 716-0100

REVISION		
NO.	DATE	DESCRIPTION

STATE OF TEXAS
R.BRANDON. AILLET
90942
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA
1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

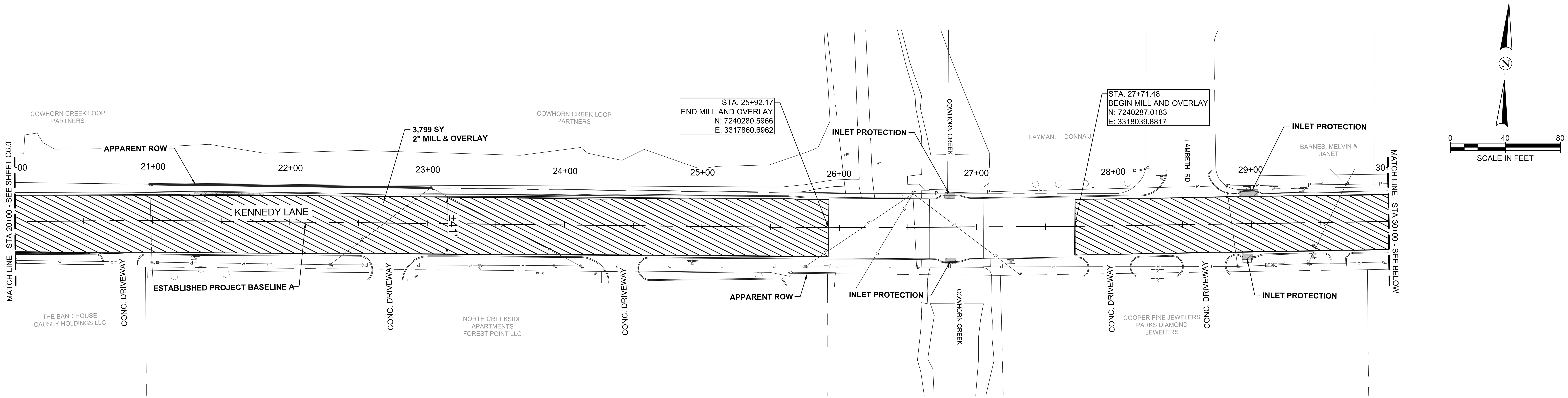
SHEET TITLE

PAVING PLAN

KENNEDY LANE
BEGIN TO STA 20+00.00

SHEET NUMBER

C6.0



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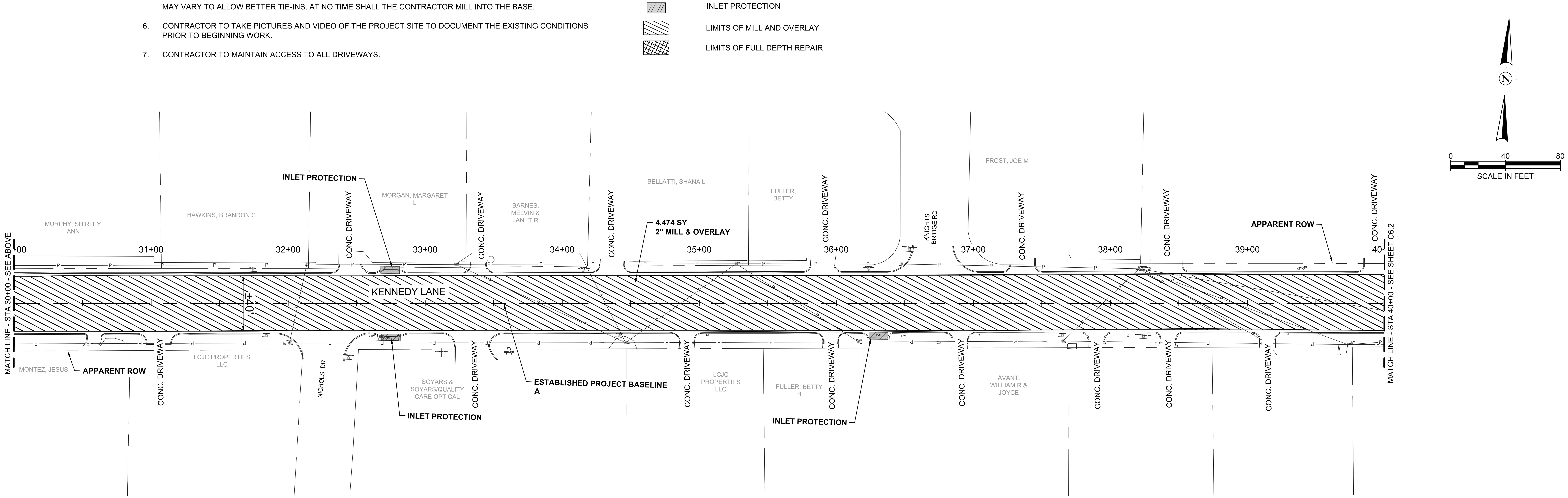
7. CONTRACTOR TO MAINTAIN ACCESS TO ALL DRIVEWAYS.

LEGEND:

- PARCEL BOUNDARY
- OVERHEAD POWER LINE
- POWER POLE
- WATER VALVE
- SHRUB
- INLET PROTECTION
- LIMITS OF MILL AND OVERLAY
- LIMITS OF FULL DEPTH REPAIR

!!!CAUTION!!!
EXISTING OVERHEAD POWER AND TELEPHONE LINES IN THIS AREA. CONTRACTOR TO PROTECT DURING CONSTRUCTION.

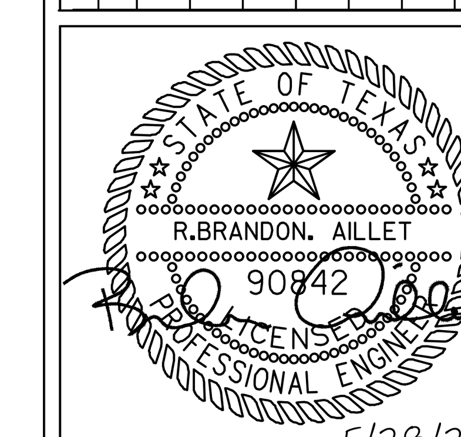


KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6910
TEL (318) 716-6136

REVISION NO.	DATE	DESCRIPTION



PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

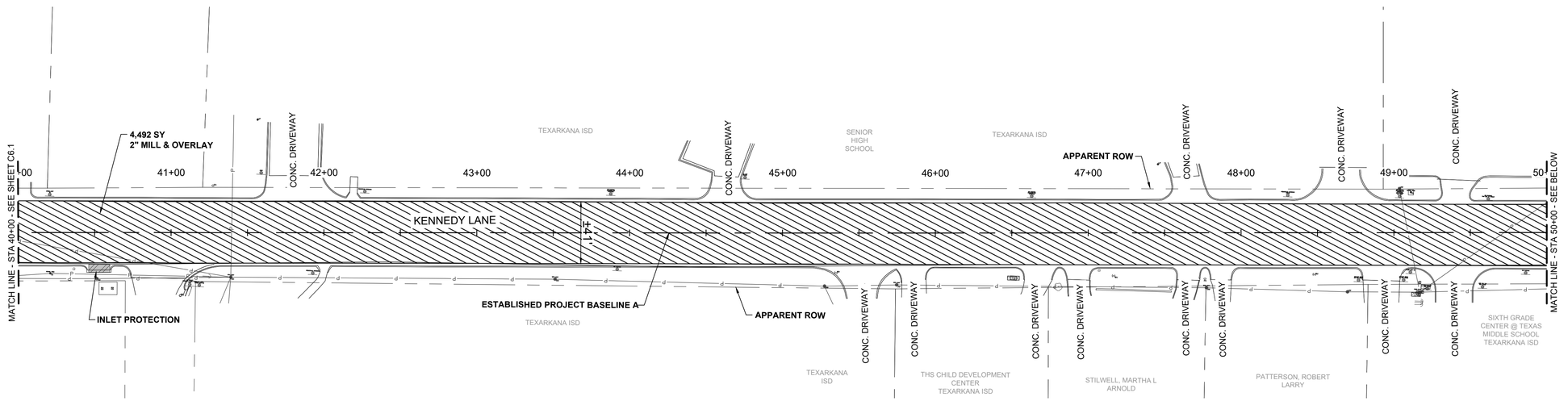
SHEET TITLE

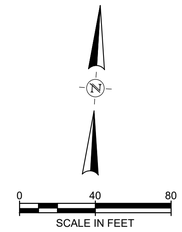
PAVING PLAN

KENNEDY LANE
BEGIN TO STA 40+00.00

SHEET NUMBER

C6.1





NOTES:

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4. CONTRACTOR TO PROTECT ALL TREES, MAILBOXES, AND LANDSCAPING ADJACENT TO PROPOSED PAVEMENT.
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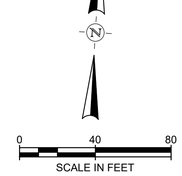
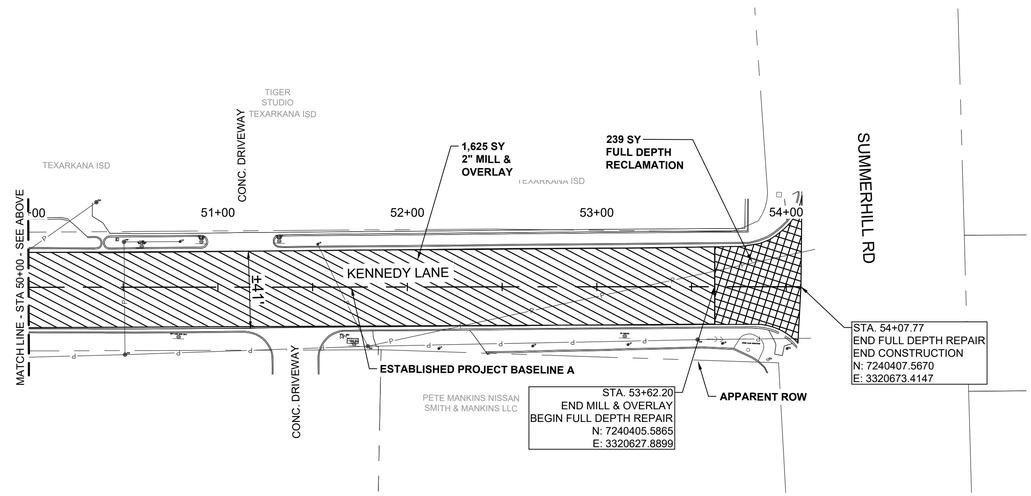
6. CONTRACTOR TO TAKE PICTURES AND VIDEO OF THE PROJECT SITE TO DOCUMENT THE EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
7. CONTRACTOR TO MAINTAIN ACCESS TO ALL DRIVEWAYS.

LEGEND:

- PARCEL BOUNDARY
- OVERHEAD POWER LINE
- POWER POLE
- WATER VALVE
- SHRUB
- INLET PROTECTION
- LIMITS OF MILL AND OVERLAY
- LIMITS OF FULL DEPTH REPAIR

!!!CAUTION!!!
EXISTING OVERHEAD POWER AND TELEPHONE LINES IN THIS AREA. CONTRACTOR TO PROTECT DURING CONSTRUCTION.





KENNEDY LANE & WESTLAWN DRIVE
ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6910
TEL (318) 716-0100

REVISION NO.	DATE	DESCRIPTION

STATE OF TEXAS
R. BRANDON AILLET
90942
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA
1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

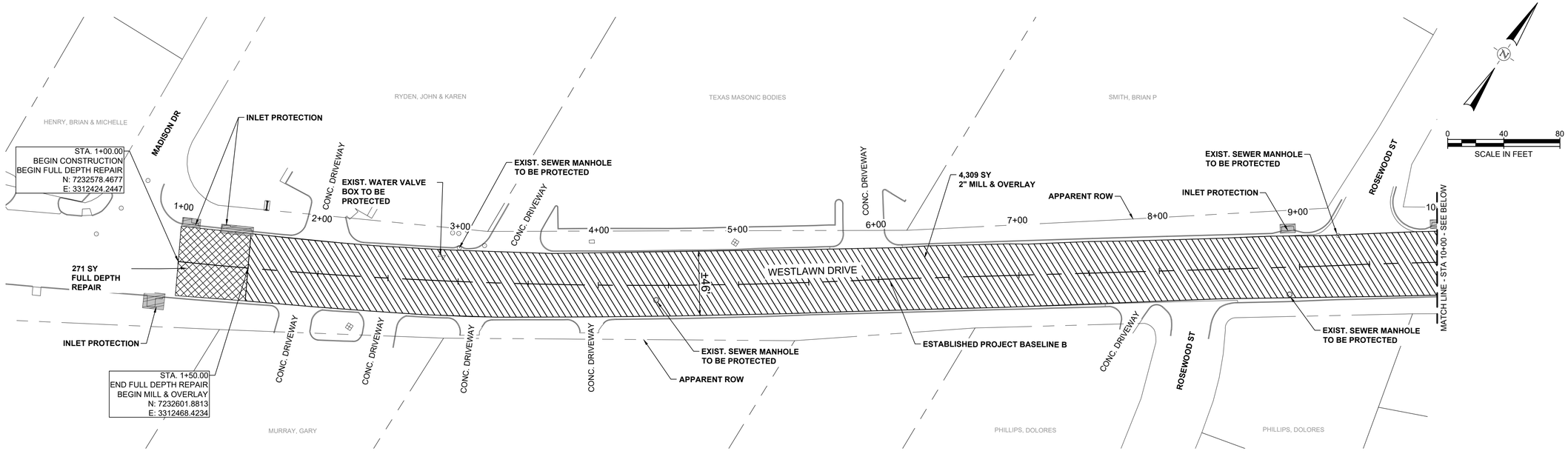
SHEET TITLE

PAVING PLAN

KENNEDY LANE
STA 40+00.00 TO END

SHEET NUMBER

C6.2



NOTES:

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2. CONTRACTOR SHALL MATCH EDGE OF PROPOSED PAVEMENT TO ALL EXISTING DRIVEWAYS. THIS MAY REQUIRE A FLARE TO THE DRIVEWAY TO MAINTAIN A STRAIGHT ROADWAY EDGE.
3. CONTRACTOR TO VERIFY LOCATIONS TO EXISTING UTILITIES PRIOR TO CONSTRUCTION.
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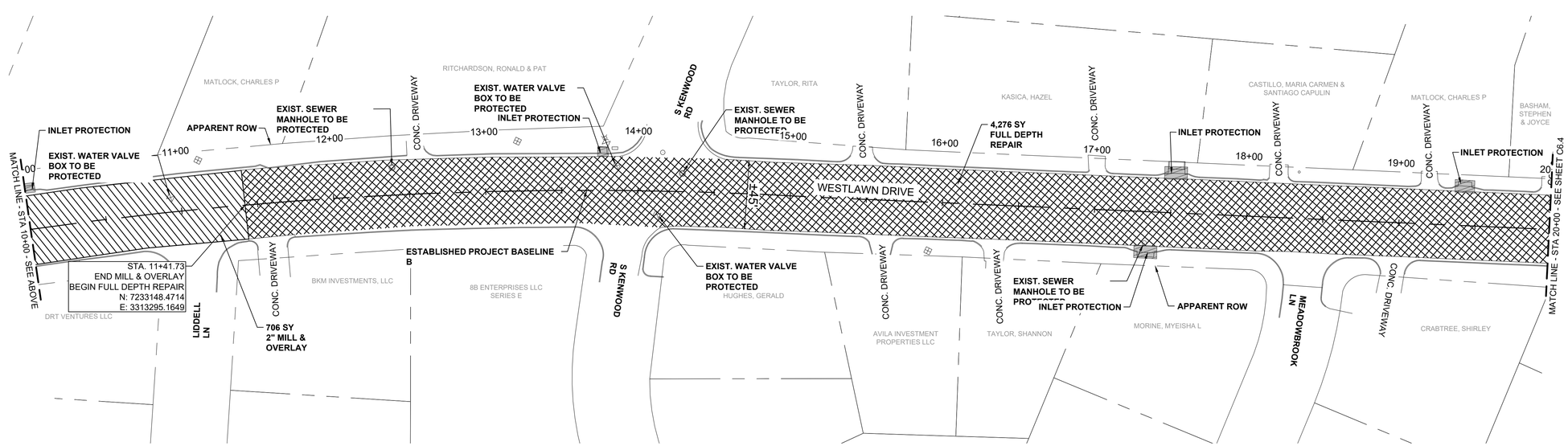
6. CONTRACTOR TO TAKE PICTURES AND VIDEO OF THE PROJECT SITE TO DOCUMENT THE EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
7. CONTRACTOR TO MAINTAIN ACCESS TO ALL DRIVEWAYS.

LEGEND:

- PARCEL BOUNDARY
- OVERHEAD POWER LINE
- POWER POLE
- WATER VALVE
- SHRUB
- SEWER MANHOLE
- INLET PROTECTION
- LIMITS OF MILL AND OVERLAY
- LIMITS OF FULL DEPTH REPAIR

!!!CAUTION!!!
EXISTING OVERHEAD POWER AND TELEPHONE LINES IN THIS AREA. CONTRACTOR TO PROTECT DURING CONSTRUCTION.



KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
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REVISION NO.	DATE	DESCRIPTION

STATE OF TEXAS
R.BRANDON. AILLET
90842
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA
1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

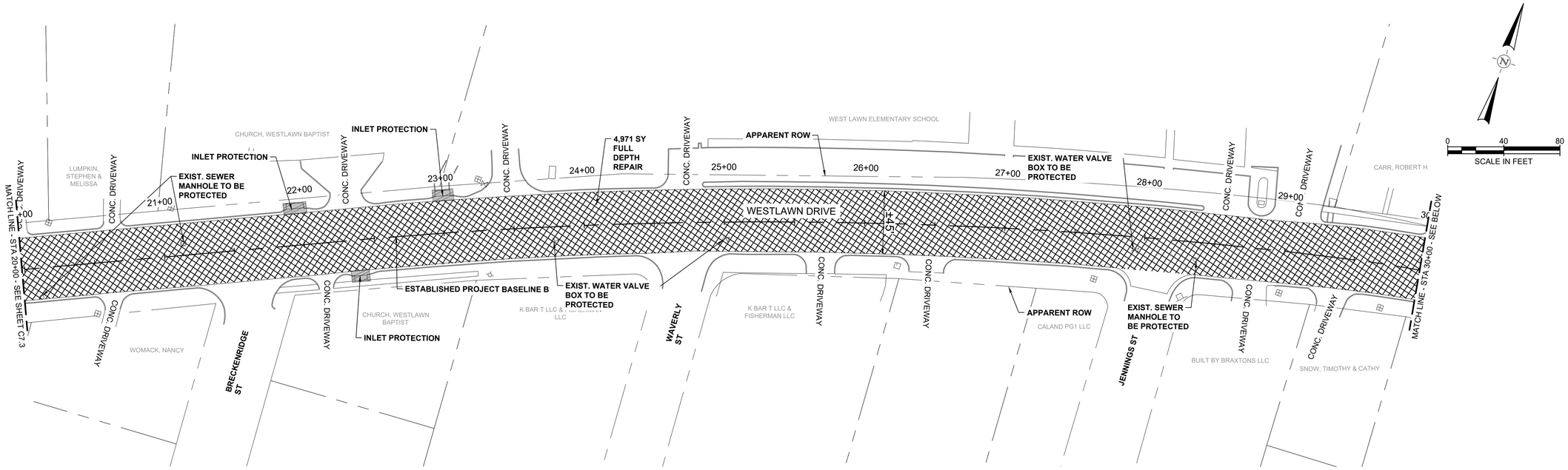
SHEET TITLE

PAVING PLAN

WESTLAWN DRIVE
BEGIN TO STA 20+00.00

SHEET NUMBER

C6.3



NOTES:

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LEGEND:

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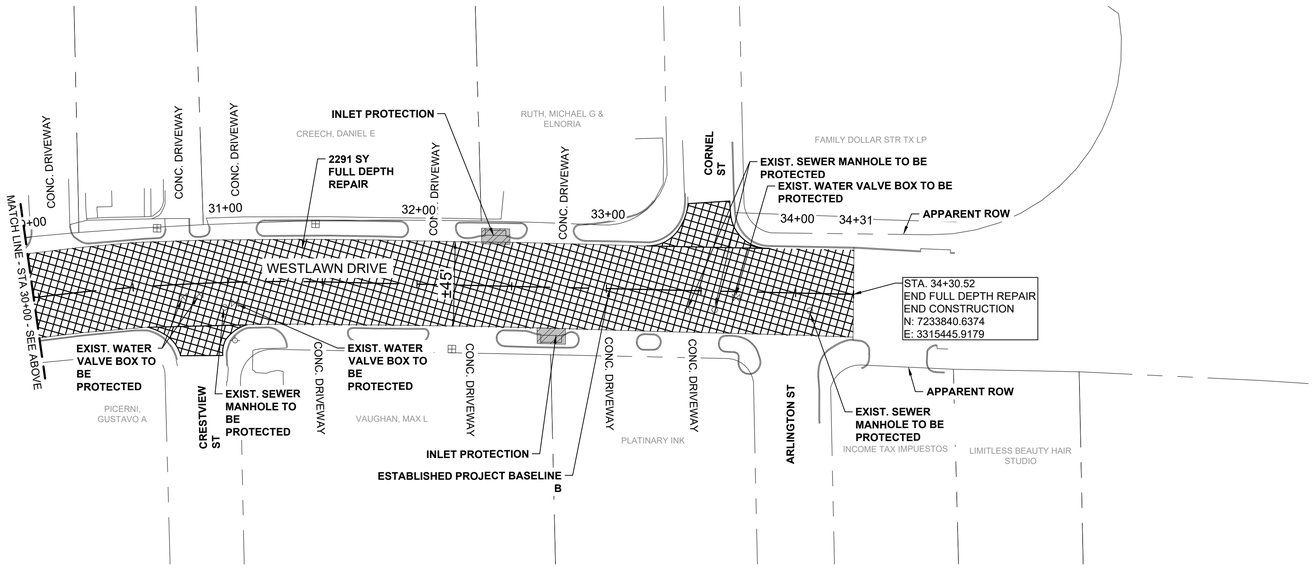
- LIMITS OF MILL AND OVERLAY
- LIMITS OF FULL DEPTH REPAIR

!!!CAUTION!!!
EXISTING OVERHEAD POWER AND TELEPHONE LINES IN THIS AREA. CONTRACTOR TO PROTECT DURING CONSTRUCTION.



KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

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BOWIE COUNTY, TEXAS

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REVISION NO.	DATE	DESCRIPTION

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R.BRANDON AILLET
90942
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA
1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

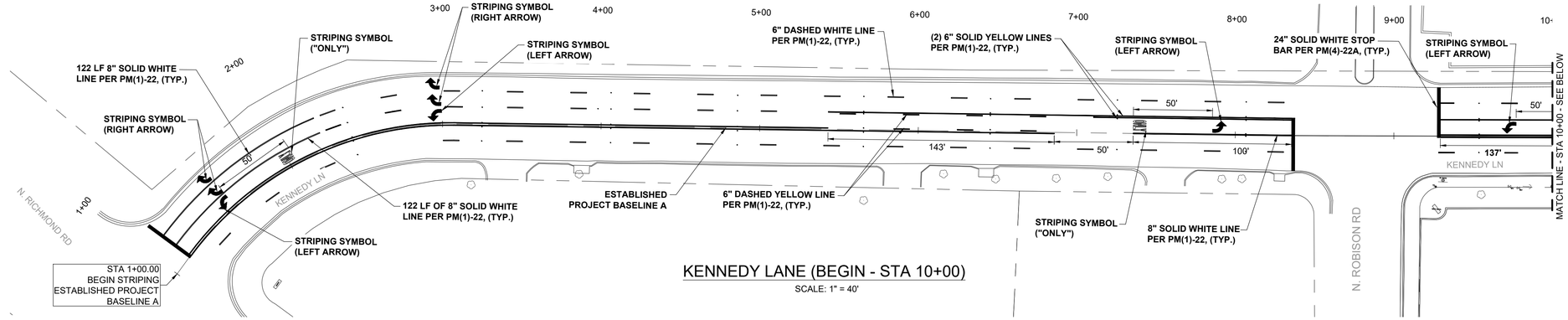
SHEET TITLE

PAVING PLAN

WESTLAWN DRIVE
STA 20+00.00 TO END

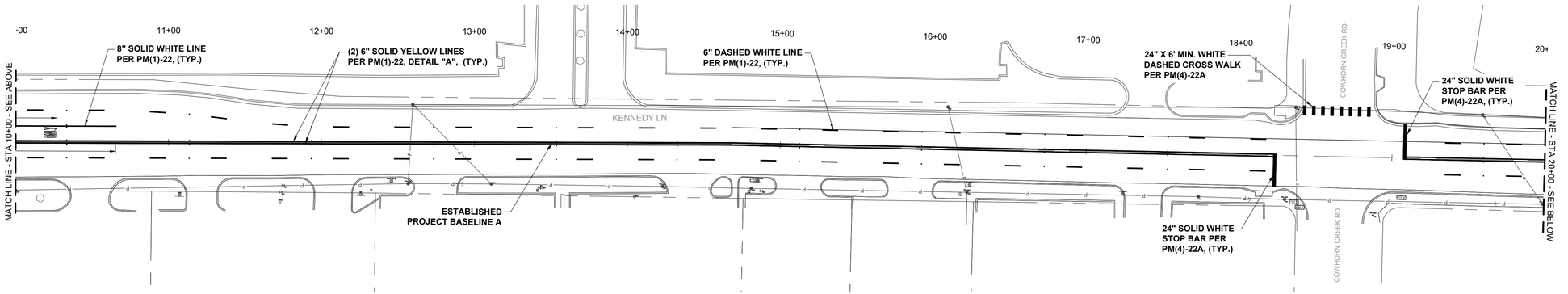
SHEET NUMBER

C6.4



KENNEDY LANE (BEGIN - STA 10+00)

SCALE: 1" = 40'



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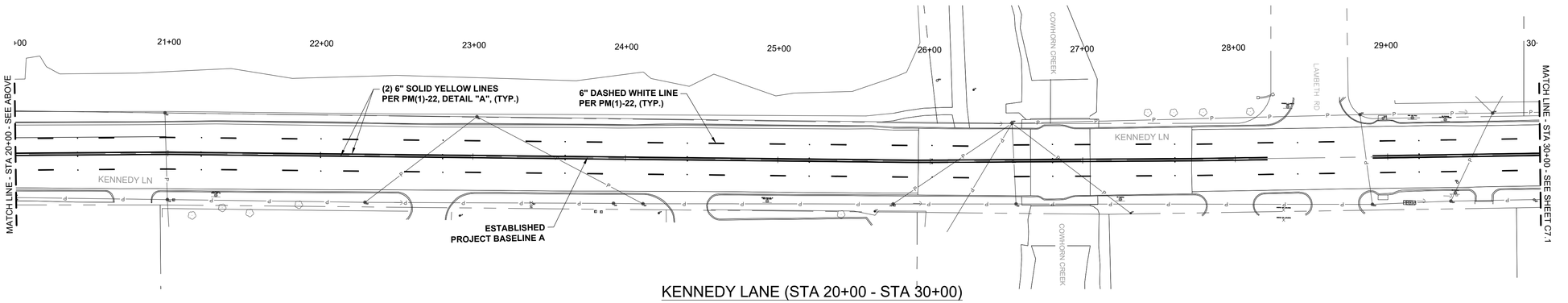
SCALE: 1" = 40'

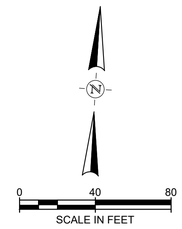


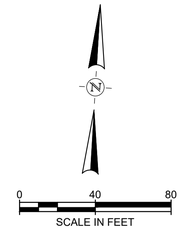
KENNEDY LANE (STA 20+00 - STA 30+00)

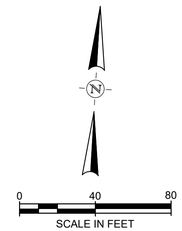
SCALE: 1" = 40'

PAVEMENT MARKING NOTES:

1. ANY PROPOSED REVISIONS TO THE LOCATION, SIZE, AND/OR COLOR OF THE PAVEMENT MARKINGS OR REFLECTORIZED RAISED PAVEMENT MARKERS SHOWN ON THIS PLAN SHALL BE APPROVED BY THE PROJECT ENGINEER AND OWNER PRIOR TO INSTALLATION.
2. PAVEMENT MARKINGS AND REFLECTORIZED RAISED PAVEMENT MARKERS SHOWN ON THIS PLAN ADHERE TO THE MINIMUM REQUIREMENTS SET FORTH BY TXDOT PAVEMENT MARKINGS DETAIL SHEETS. CONTRACTOR TO ABIDE BY SAID DETAILS WHICH ARE INCLUDED IN THIS SET.
3. " 6" DASHED WHITE LINE" - DASHES SHALL BE 6" WIDE, 10' LONG, AND SPACED @ 40' O.C. PER PM(1)-22.
4. " (2) 6" SOLID YELLOW LINES" - SOLID LINES SHALL BE 6" IN WIDTH, 4" SEPARATION IN ACCORDANCE WITH DETAIL "A" PER PM(1)-22.
5. " 24" X 6' MIN. WHITE DASHED CROSS WALK" - DASHED CROSS WALK STRIPING SHALL BE 24" WIDE, 6' MINIMUM IN LENGTH, AND CROSSWALK LINES TO BE CENTERED WITH TRAVEL LANE, ALL PER PM(4)-22A.
6. " 24" SOLID WHITE STOP BAR" - STOP BARS SHALL BE 24" WIDE STRETCHING ACROSS THE ENTIRE DIRECTIONAL LANE WIDTH PER PM(4)-22A.







KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6910
TEL (318) 716-0188

REVISION NO.	DATE	DESCRIPTION

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

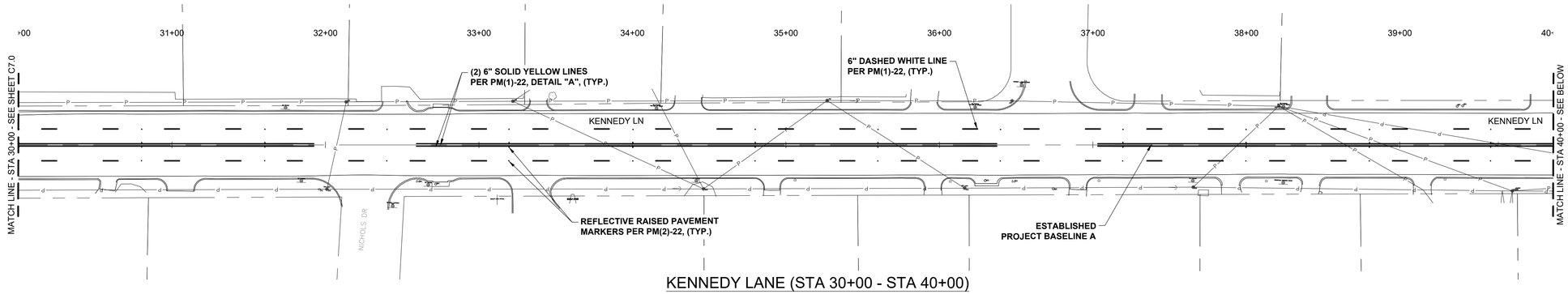
SHEET TITLE

PAVEMENT MARKING PLAN

KENNEDY LANE

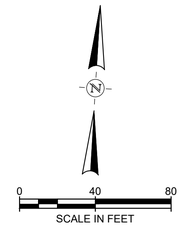
SHEET NUMBER

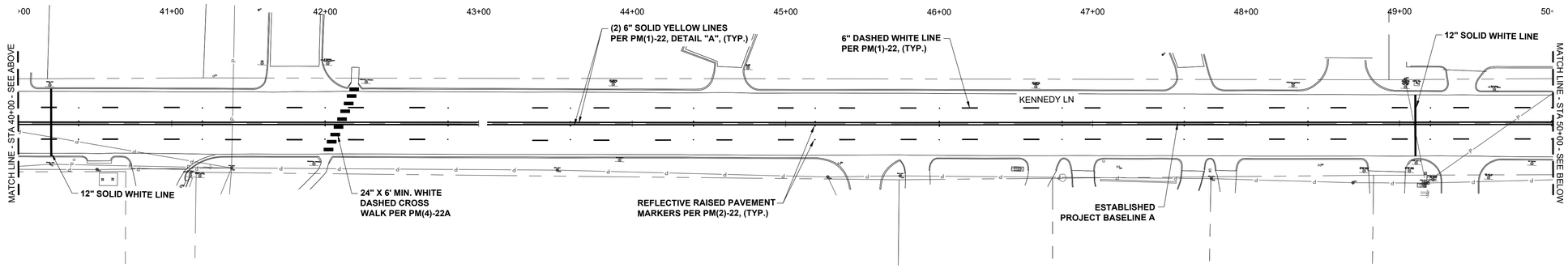
C7.0



KENNEDY LANE (STA 30+00 - STA 40+00)

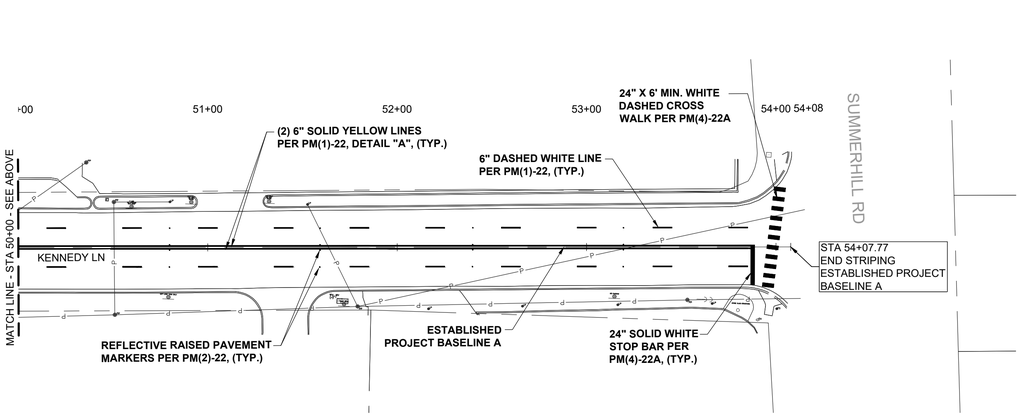
SCALE: 1" = 40'





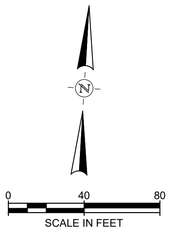
KENNEDY LANE (STA 40+00 - STA 50+00)

SCALE: 1" = 40'



KENNEDY LANE (STA 50+00 - END)

SCALE: 1" = 40'



NOTES:

1. REFERENCE SHEET C7.0 FOR PAVEMENT MARKING NOTES

KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6910
TEL (318) 716-0358

REVISION NO.	DATE	DESCRIPTION

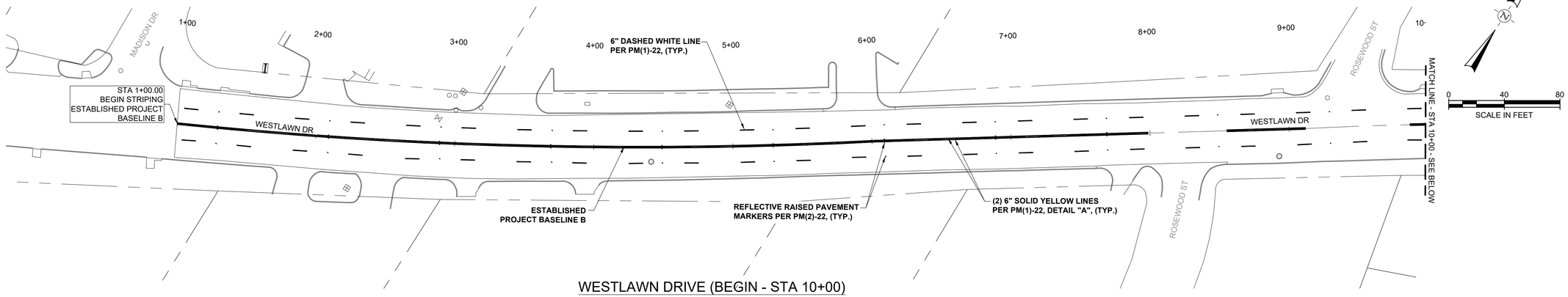
STATE OF TEXAS
R.BRANDON. AILLET
90942
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA 1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN

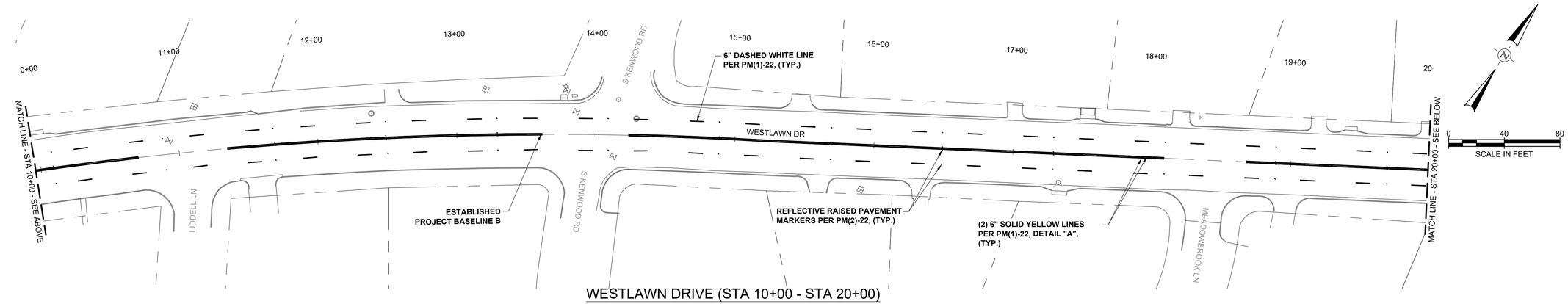
SHEET TITLE
PAVEMENT MARKING PLAN
KENNEDY LANE

SHEET NUMBER
C7.1



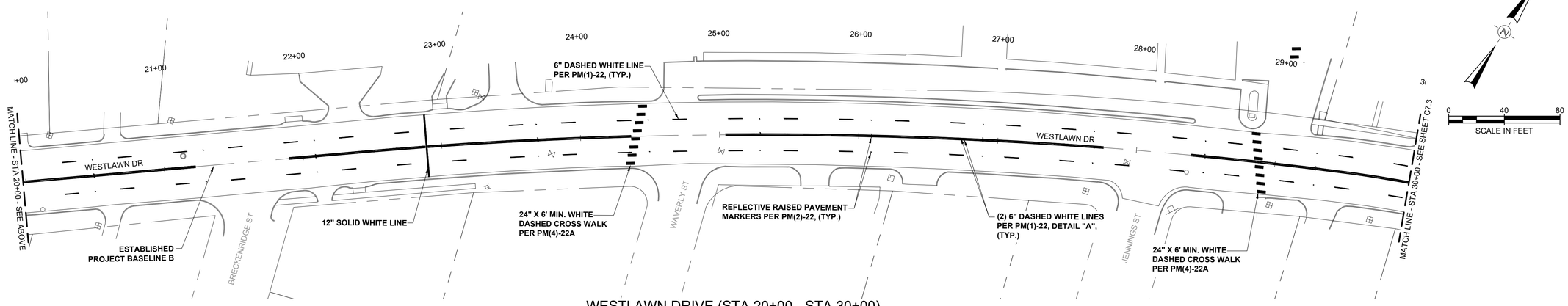
WESTLAWN DRIVE (BEGIN - STA 10+00)

SCALE: 1" = 40'



WESTLAWN DRIVE (STA 10+00 - STA 20+00)

SCALE: 1" = 40'



WESTLAWN DRIVE (STA 20+00 - STA 30+00)

SCALE: 1" = 40'

NOTES:

1. REFERENCE SHEET C7.0 FOR PAVEMENT MARKING NOTES

KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6810
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REVISION NO.	DATE	DESCRIPTION

STATE OF TEXAS
R. BRANDON AILLET
90942
LICENSED
PROFESSIONAL ENGINEER
5/28/24

CITY OF TEXARKANA
1873

PROJECT NO.:	55640.001
ISSUED:	5/28/2024
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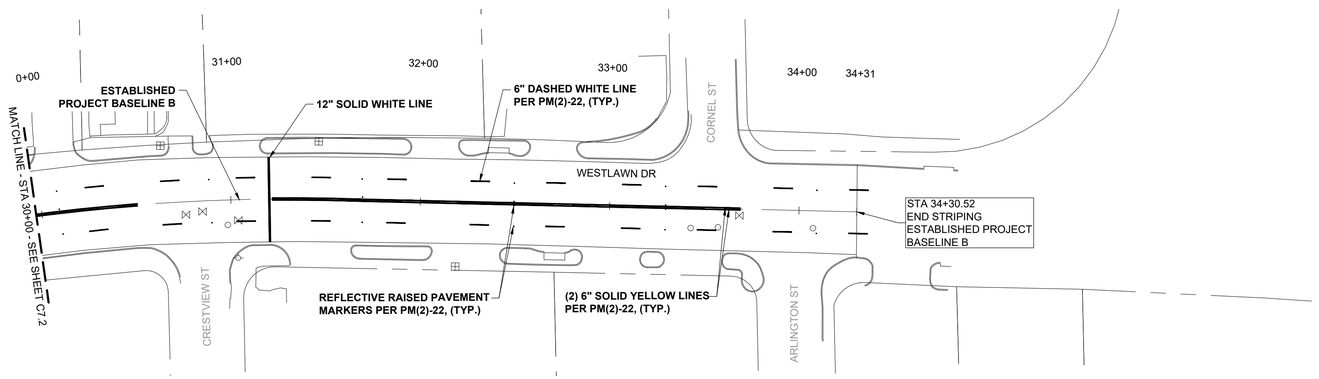
CHECKED BY:	MDT
SCALE:	AS SHOWN

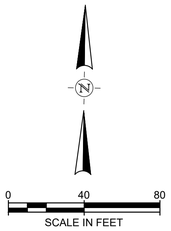
SHEET TITLE
PAVEMENT MARKING PLAN
WESTLAWN DRIVE

SHEET NUMBER
C7.2



WESTLAWN DRIVE (STA 30+00 - END)

SCALE: 1" = 40'



NOTES:

1. REFERENCE SHEET C7.0 FOR PAVEMENT MARKING NOTES

KENNEDY LANE & WESTLAWN DRIVE ROADWAY IMPROVEMENTS

CITY OF TEXARKANA
BOWIE COUNTY, TEXAS

halff
401 MARKET ST., SUITE 650
SHREVEPORT, LOUISIANA 71101-6910
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REVISION NO.	DATE	DESCRIPTION

STATE OF TEXAS
R.BRANDON. AILLET
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PROFESSIONAL ENGINEER
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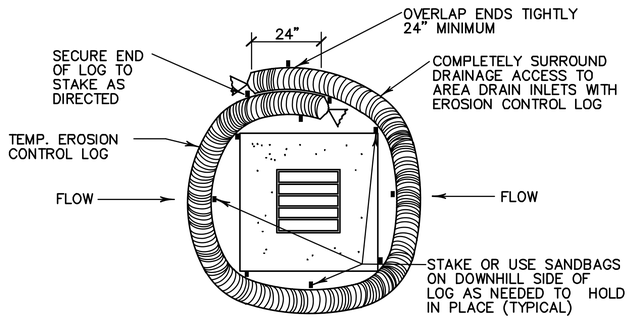
CITY OF TEXARKANA 1873

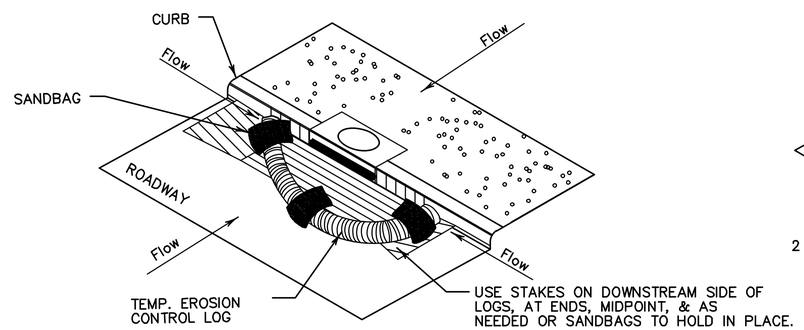
PROJECT NO.:	55640.001
ISSUED:	5/28/2024
DRAWN BY:	JKR
CHECKED BY:	MDT
SCALE:	AS SHOWN
SHEET TITLE	
SHEET NUMBER	C7.3

DATE:
FILE:



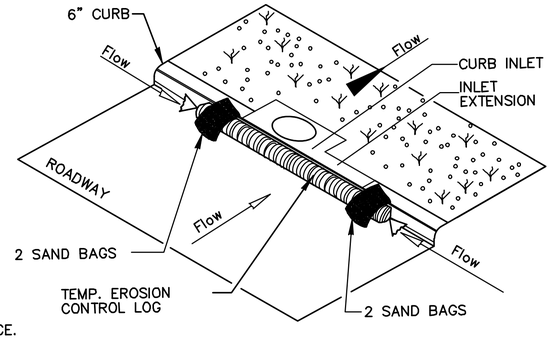
EROSION CONTROL LOG AT DROP INLET

CL–DI



EROSION CONTROL LOG AT CURB INLET

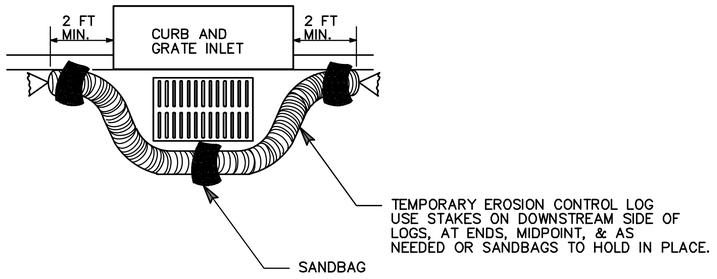
CL–CI



EROSION CONTROL LOG AT CURB INLET

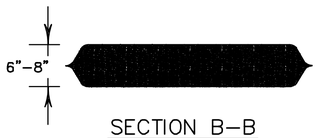
CL–CI

NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.

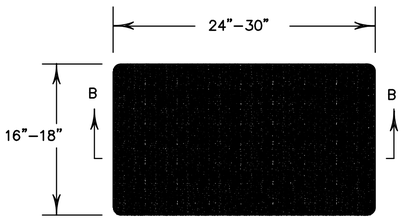


EROSION CONTROL LOG AT CURB & GRADE INLET

CL–GI



SECTION B–B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)–16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				C8.0

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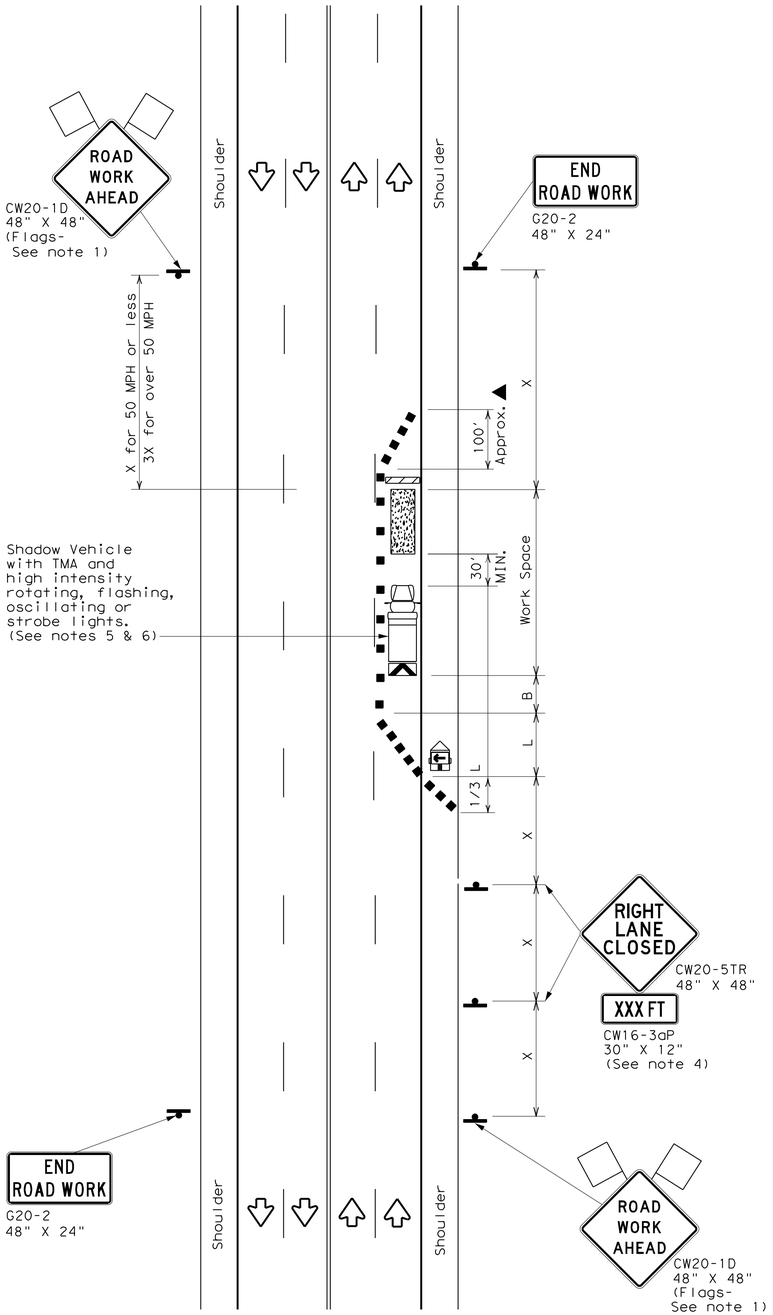
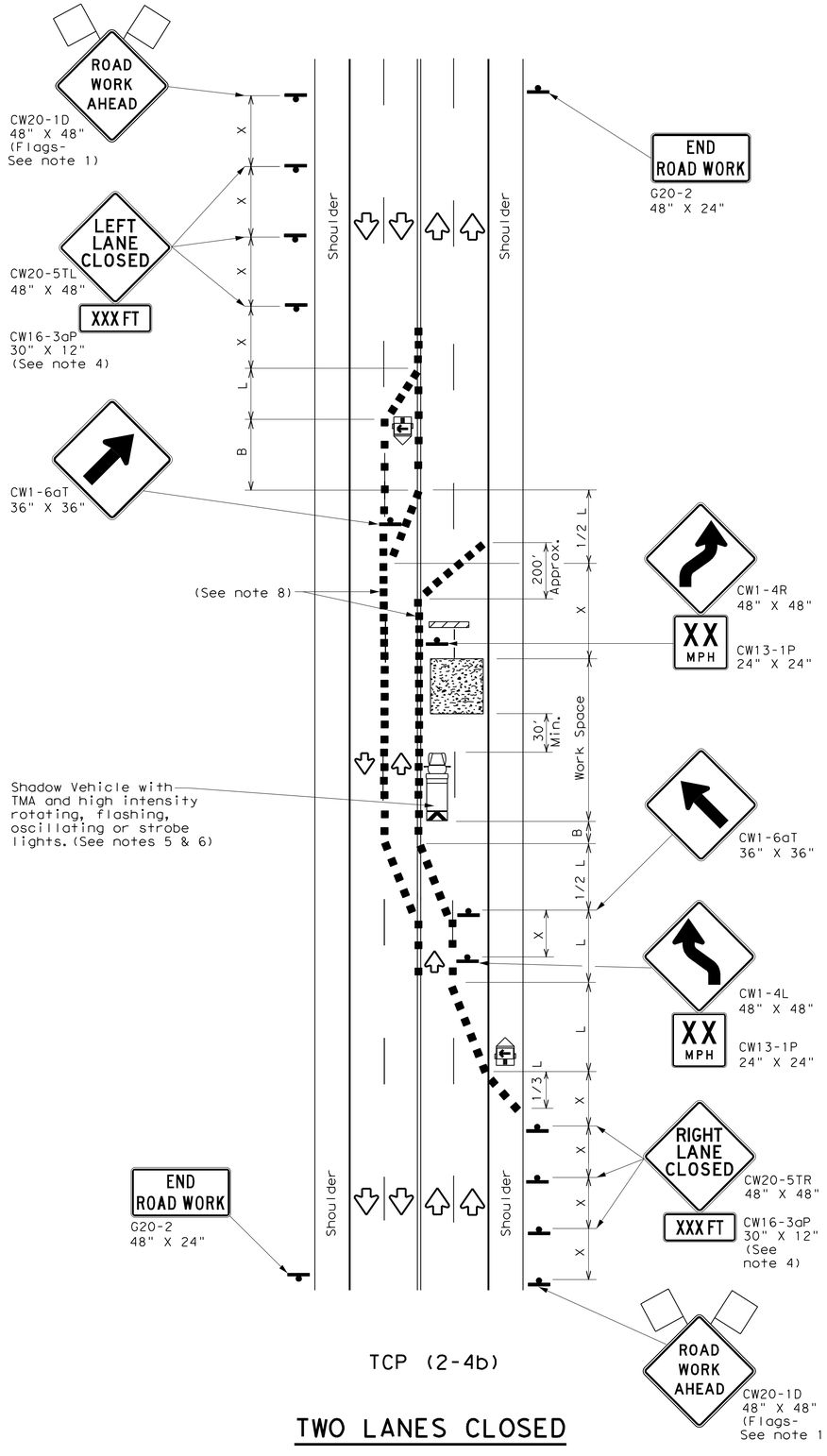
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10′ Offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′	120′	90′
35		205′	225′	245′	35′	70′	160′	120′
40		265′	295′	320′	40′	80′	240′	155′
45	L=WS	450′	495′	540′	45′	90′	320′	195′
50		500′	550′	600′	50′	100′	400′	240′
55		550′	605′	660′	55′	110′	500′	295′
60		600′	660′	720′	60′	120′	600′	350′
65		650′	715′	780′	65′	130′	700′	410′
70		700′	770′	840′	70′	140′	800′	475′
75		750′	825′	900′	75′	150′	900′	540′

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓	✓	

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

7. If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED"signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-4b)

8. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20′ or 15′ if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

FILE: tcp2-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03				
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18				C8.1

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP)is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.

11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.

12. The Engineer has the final decision on the location of all traffic control devices.

13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.

2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.

2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

Texas Department of Transportation

Traffic Safety Division Standard

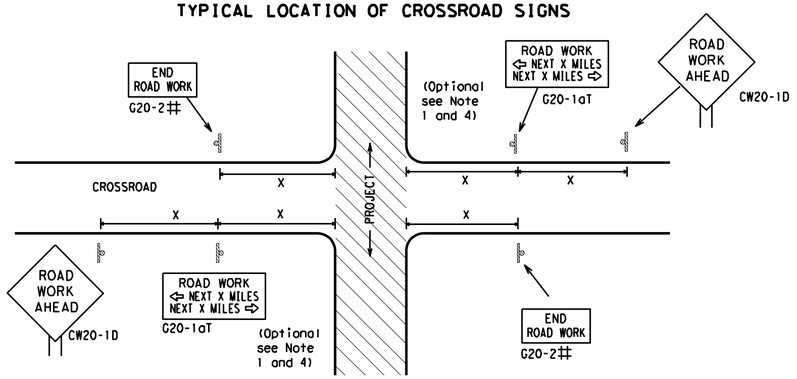
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13 9-07 8-14 5-10 5-21	DIST	COUNTY		SHEET NO. C8.2

DATE:
FILE:

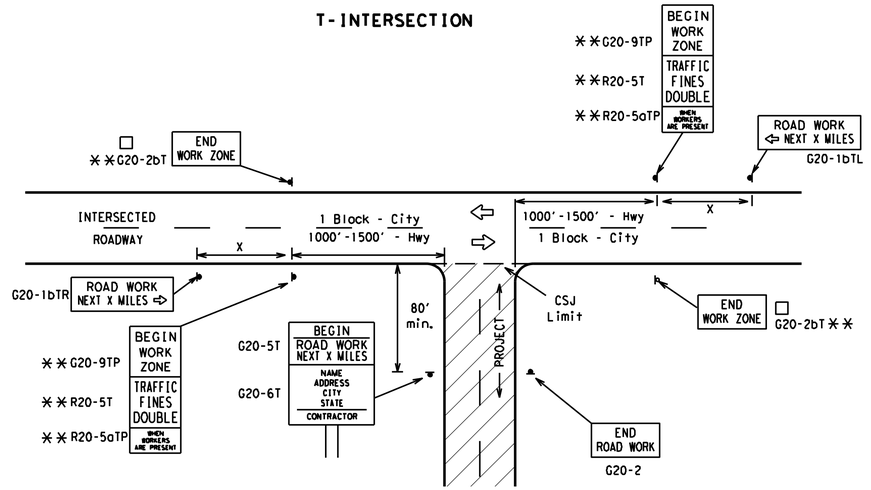
TYPICAL LOCATION OF CROSSROAD SIGNS



May be mounted on back of "ROAD WORK AHEAD"(CW20-1D) sign with approval of Engineer. (See note 2 below)

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume as per TMUTCD Part 5. This information shall be shown in the plans.
3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
4. The "ROAD WORK NEXT X MILES"(G20-1aT)sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
6. When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING[1,5,6]

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4] CW21 CW22 CW23 CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign △ Spacing "X"
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500[2]
60	600[2]
65	700[2]
70	800[2]
75	900[2]
80	1000[2]
*	*[3]

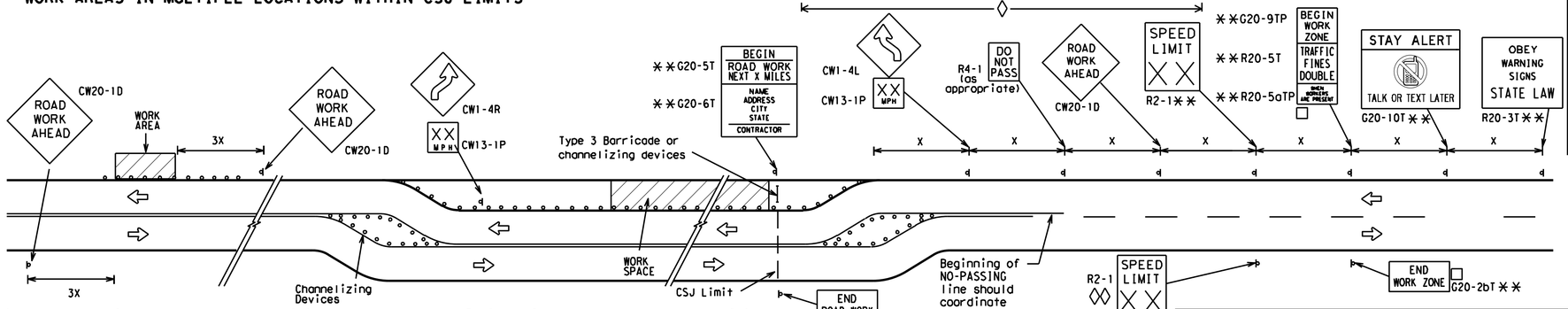
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

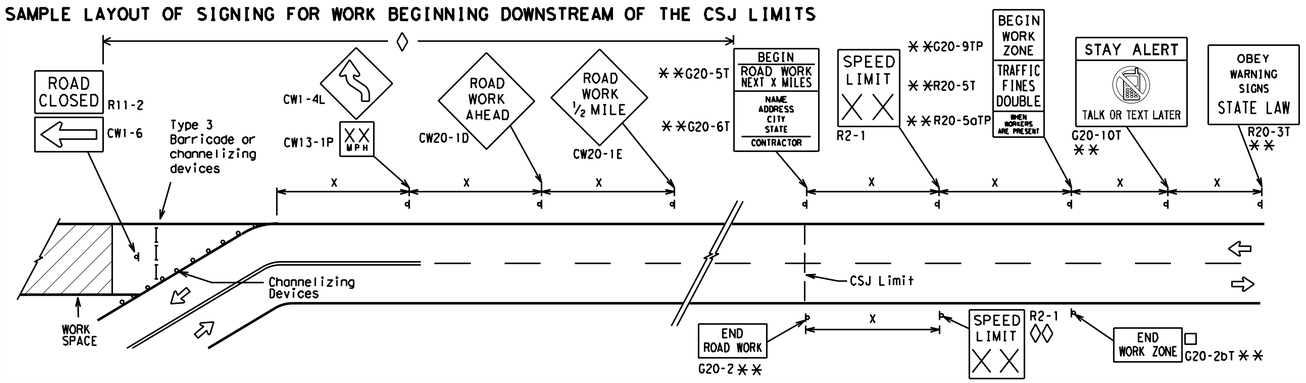
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES"(G20-5T)sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

□ The "BEGIN WORK ZONE"(G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

** CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

◊ Area for placement of "ROAD WORK AHEAD" (CW20-1D)sign and other signs or devices as called for on the Traffic Control Plan.

◊◊ Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND	
⊢⊣	Type 3 Barricade
○ ○ ○	Channelizing Devices
▬	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

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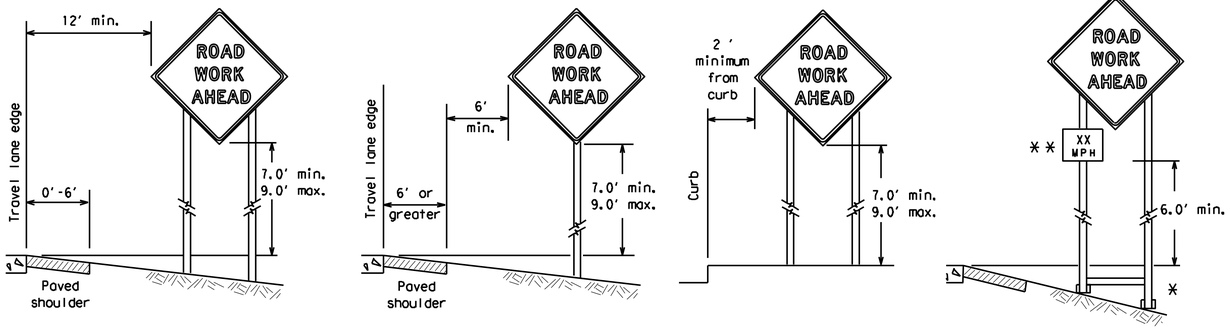
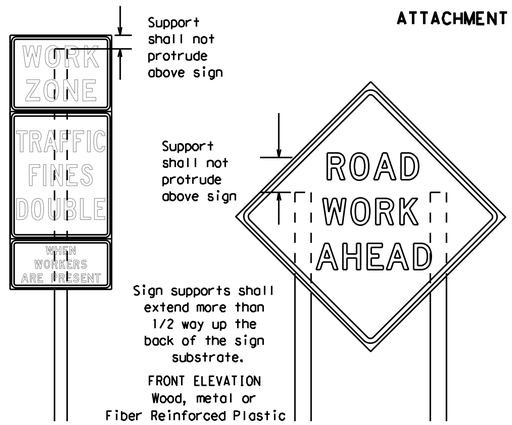
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

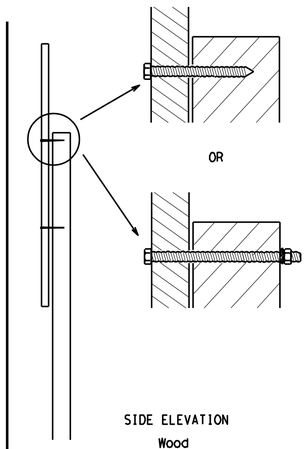


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS





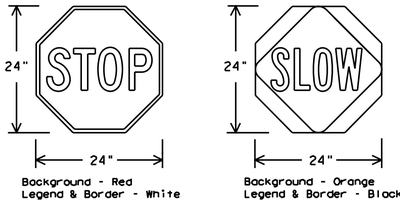
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the spice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
2. STOP/SLOW paddles shall be retroreflectorized when used at night.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRS standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. Flags may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

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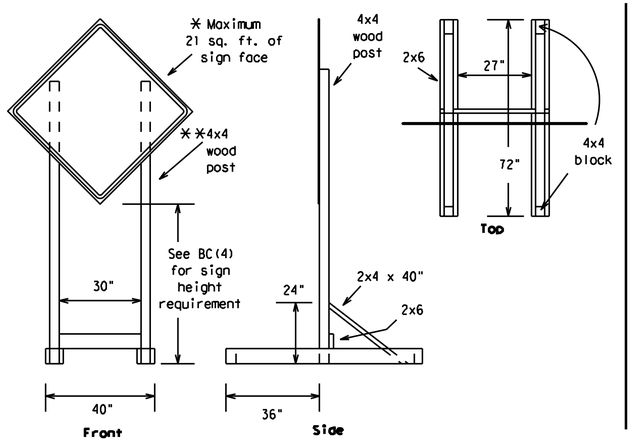
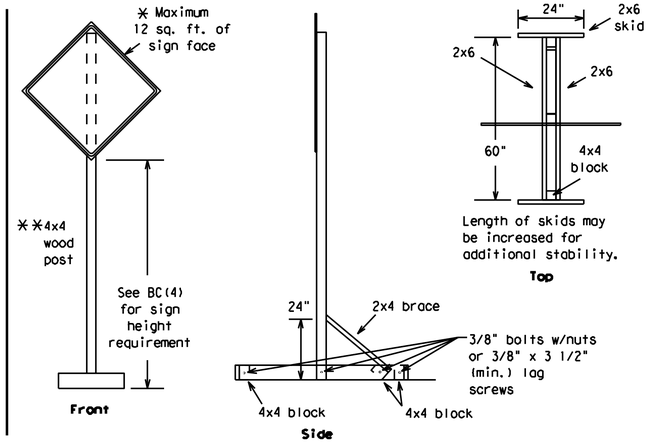
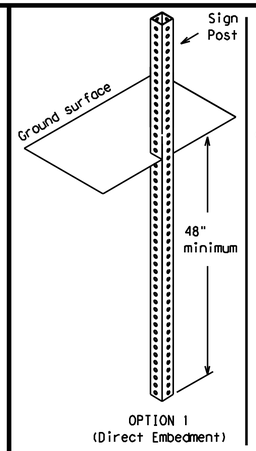


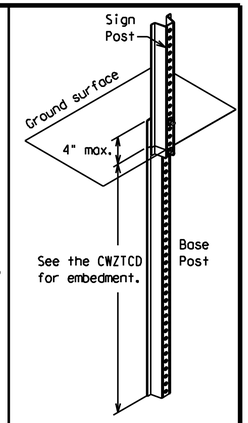


SKID MOUNTED WOOD SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS



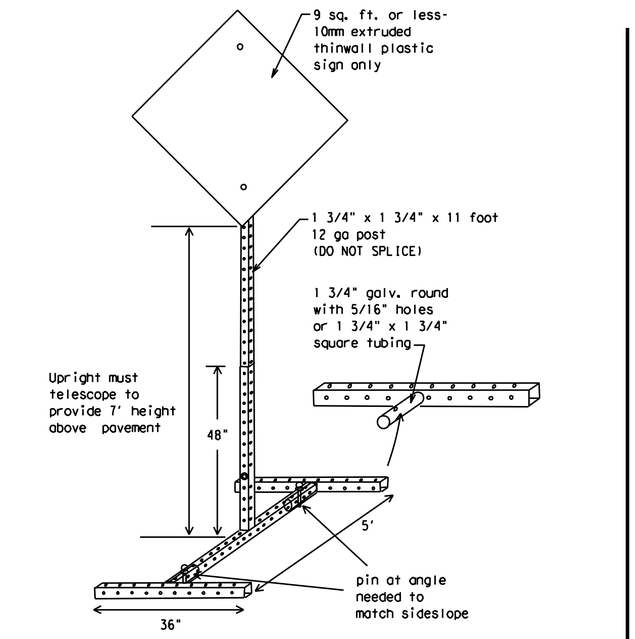
PERFORATED SQUARE METAL TUBING

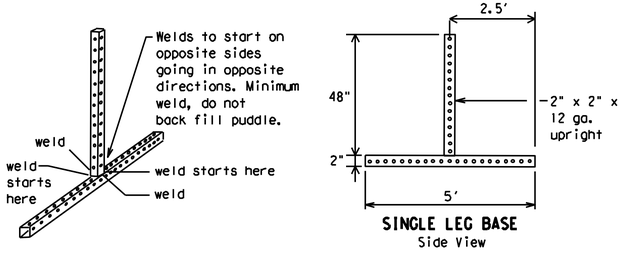


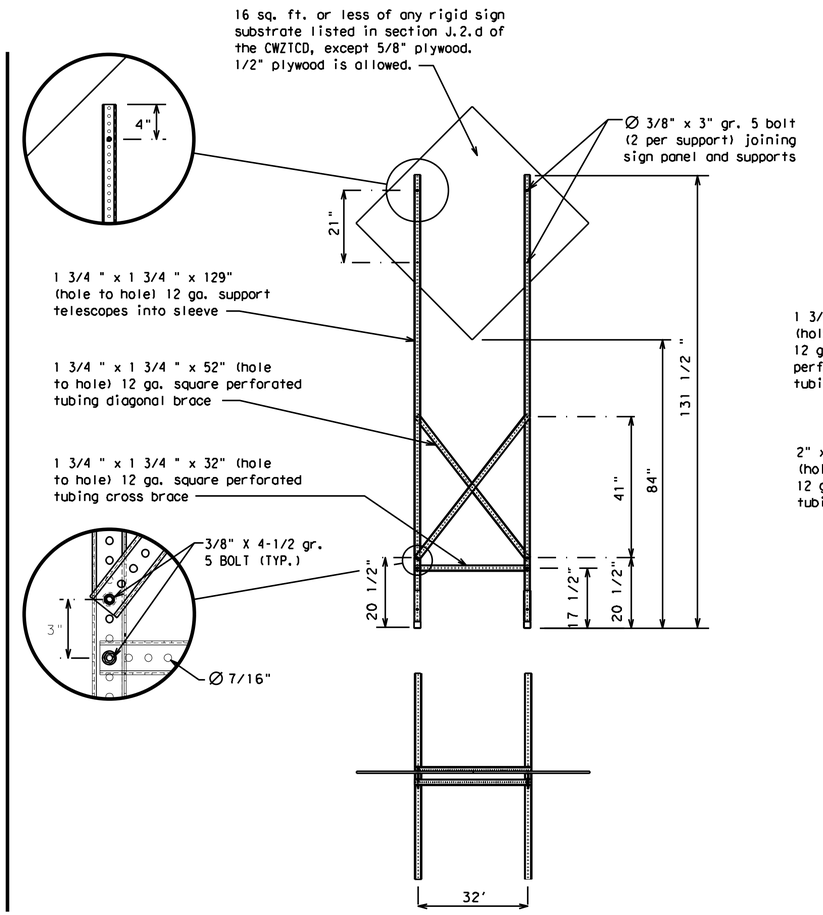
WING CHANNEL
Lap-splice/base bolted anchor

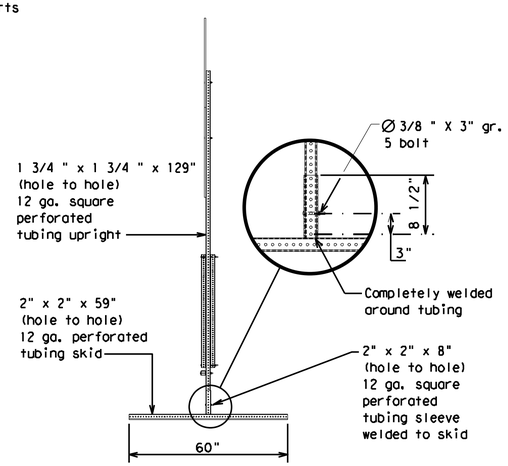
GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.
The maximum sign square footage shall adhere to the manufacturer's recommendation.
Two post installations can be used for larger signs.









SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

WEDGE ANCHORS

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS

MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

* See BC(4) for definition of "Work Duration."

** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

☐ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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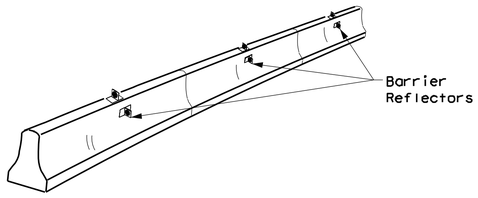
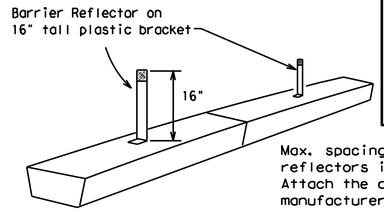
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.

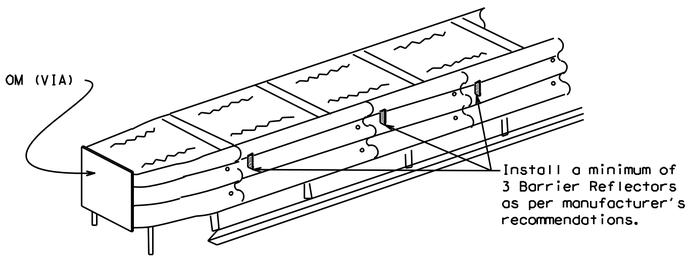


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

LOW PROFILE CONCRETE BARRIER (LPCB)

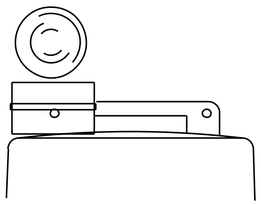


DELINEATION OF END TREATMENTS

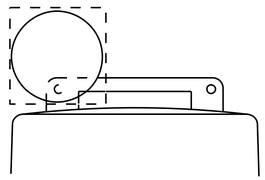
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

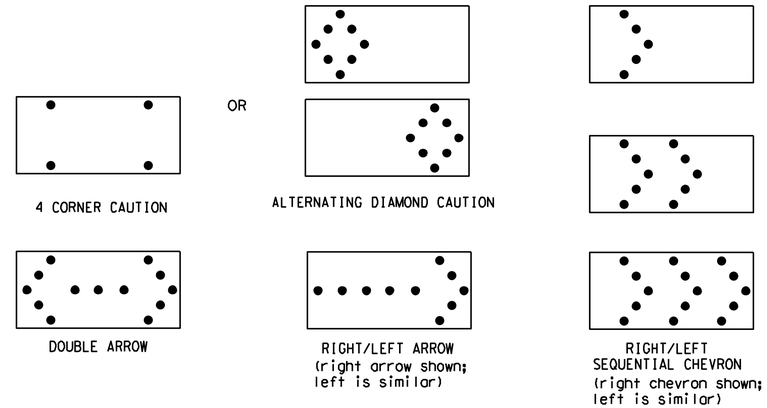
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:



5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21				C8.6

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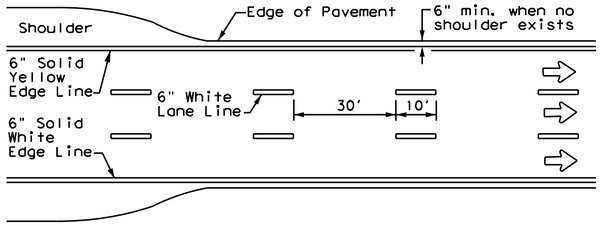
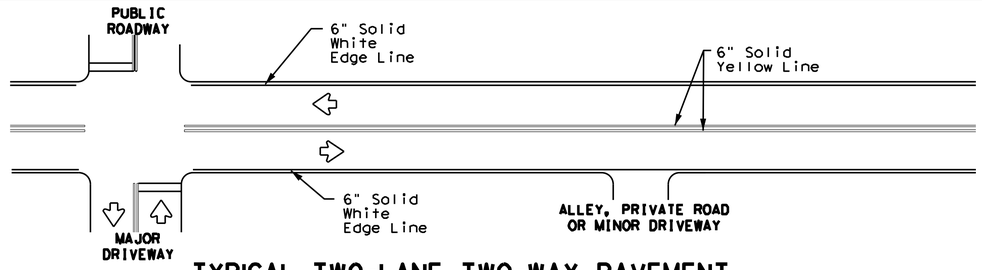
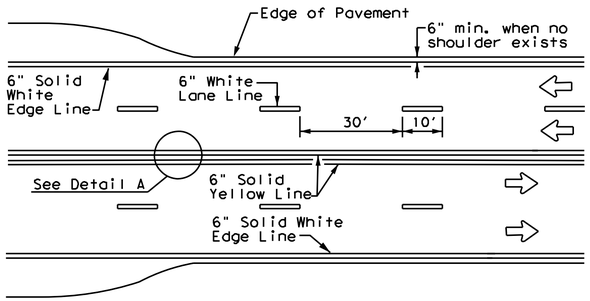
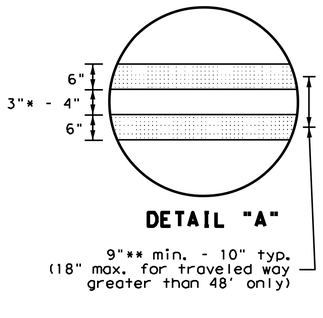


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS

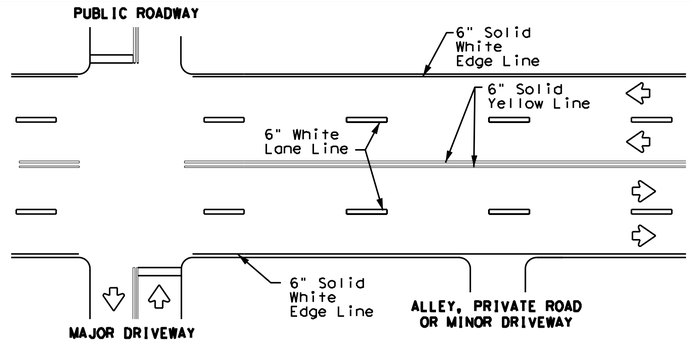




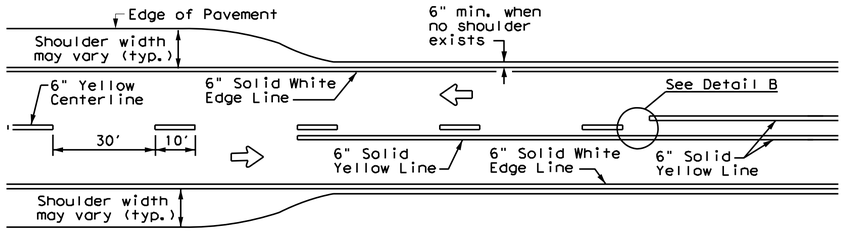
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

* 2" minimum for restripe projects when approved by the Engineer.

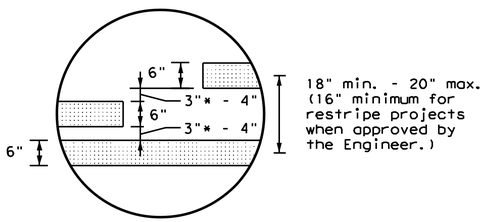
** 8" minimum for restripe projects when approved by the Engineer.



TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS

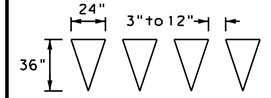


TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



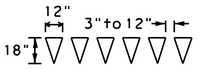
DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.

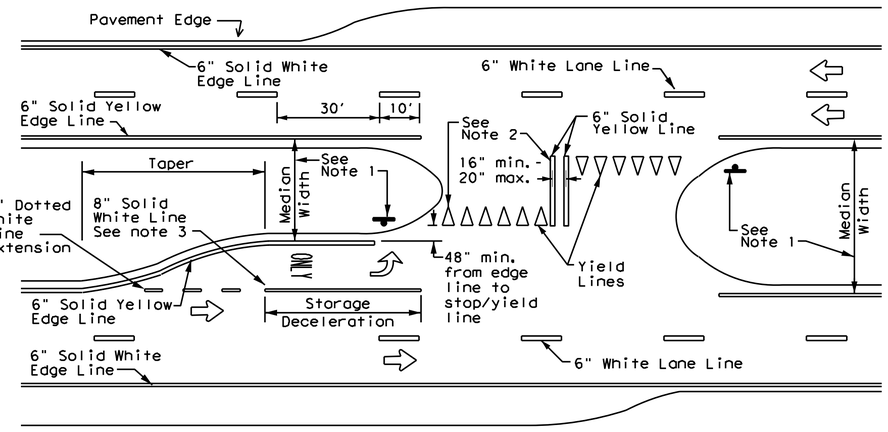


For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



For posted speed on road being marked equal to or less than 40 MPH.



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

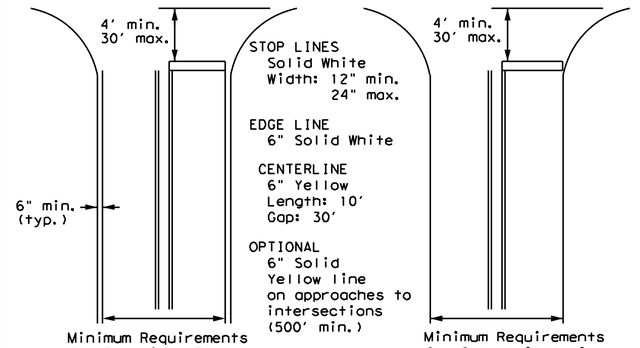
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections.
   Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
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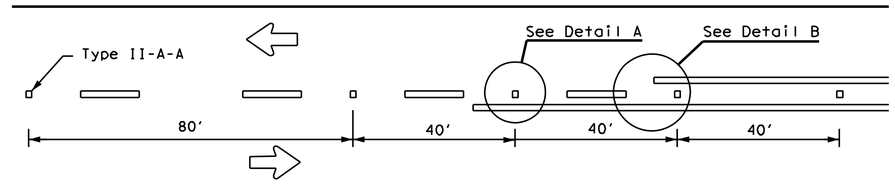
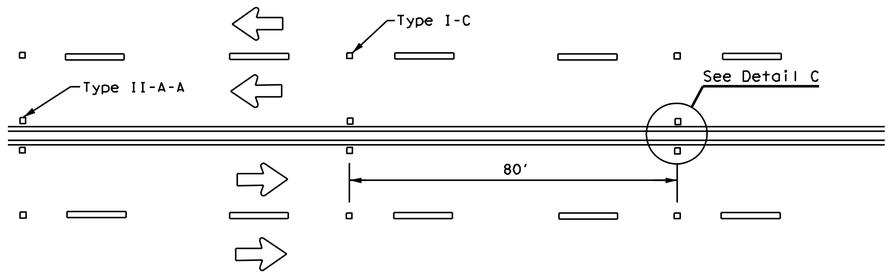
REVISIONS 11-78 8-00 6-20 / 8-95 3-03 12-22 / 5-00 2-12	DIST	COUNTY		SHEET NO. C8.7

22A

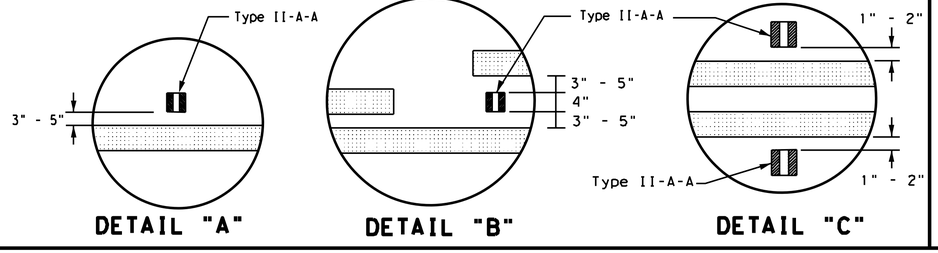
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

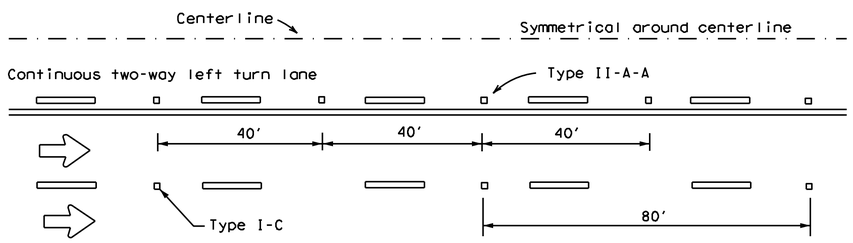


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

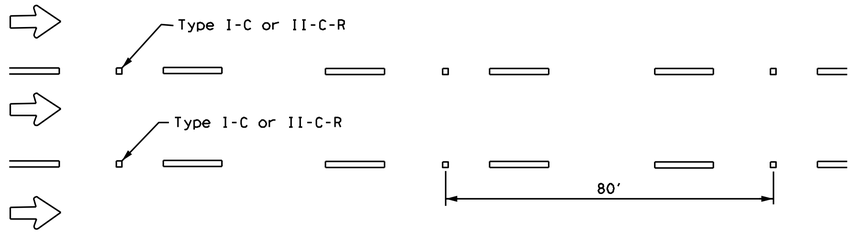


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



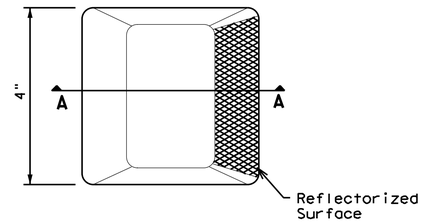
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

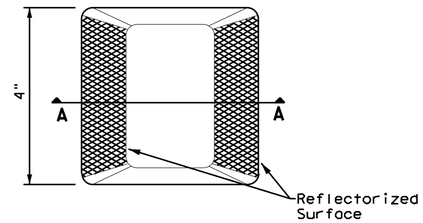
See Note 3.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

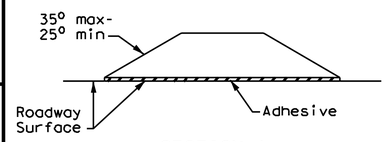
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

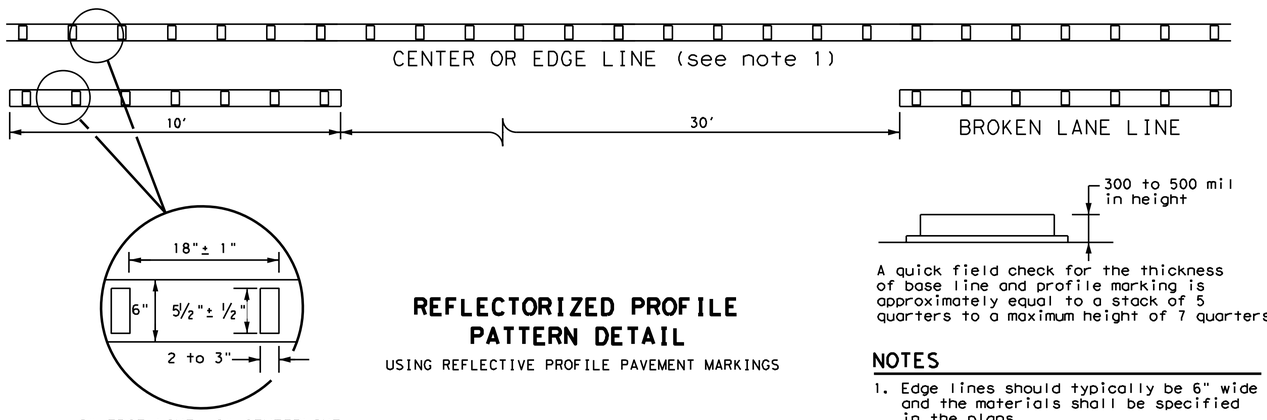


Type II (Top View)



SECTION A

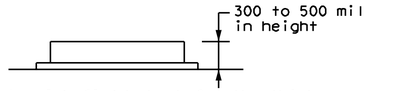
RAISED PAVEMENT MARKERS



6" EDGE LINE, 6" CENTERLINE OR 6" LANE LINE

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements, the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians, and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS PM(2)-22

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
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REVISIONS 4-77 8-00 6-20 4-92 2-10 12-22 5-00 2-12	DIST	COUNTY		SHEET NO. C8.8

228

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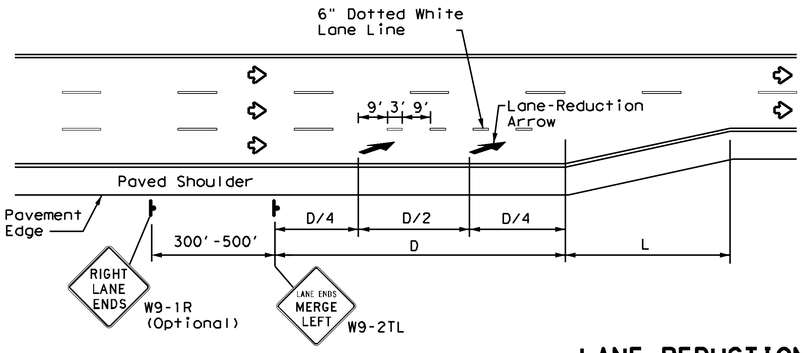
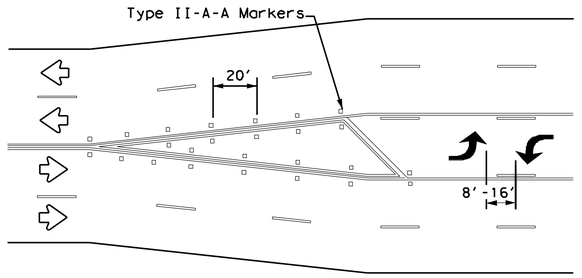


LANE REDUCTION

NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

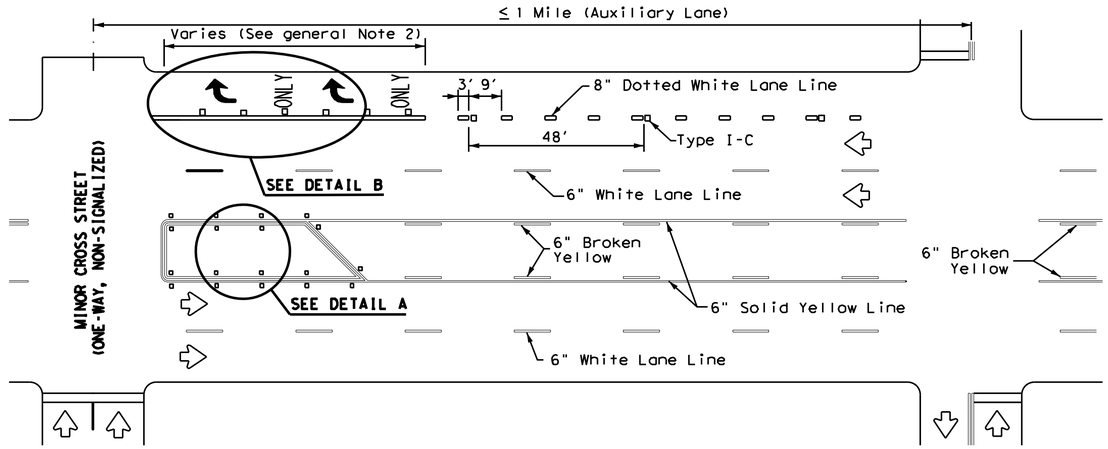
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

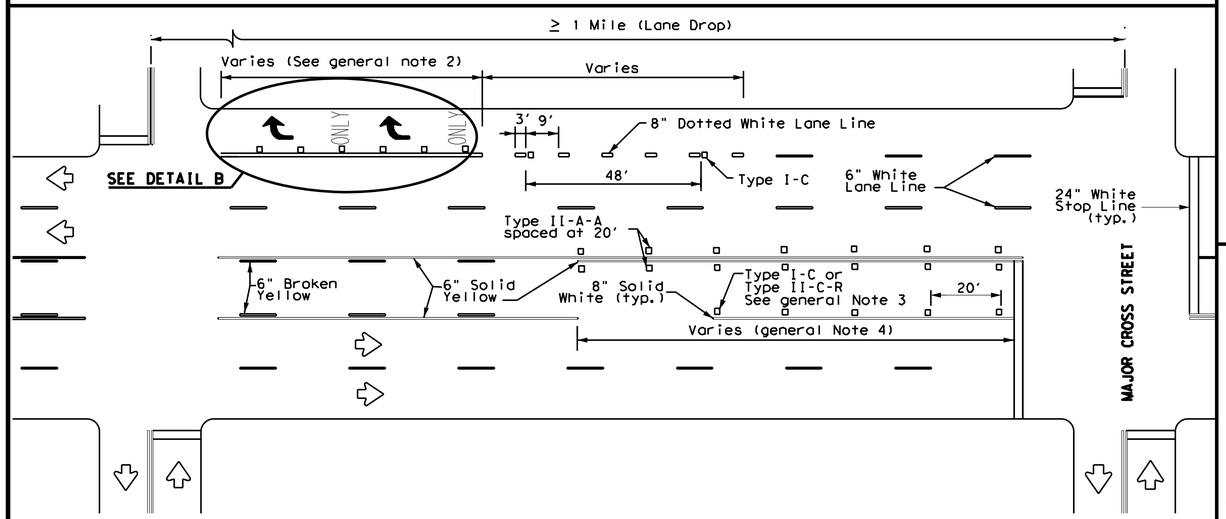
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

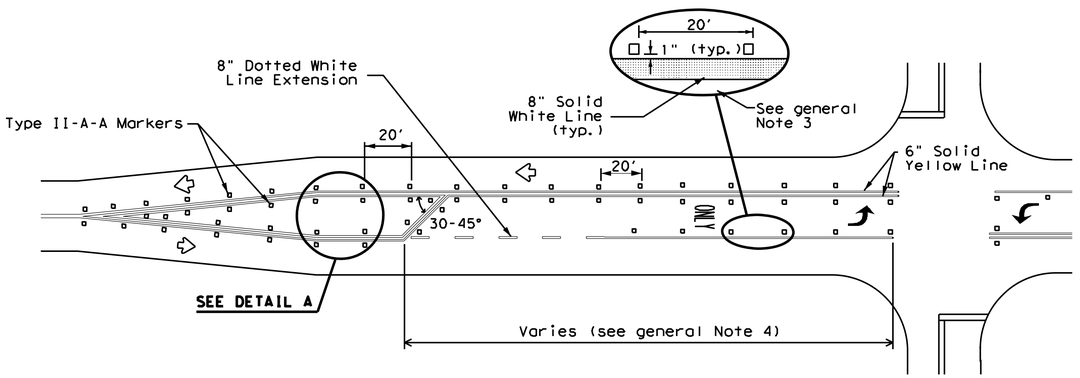
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



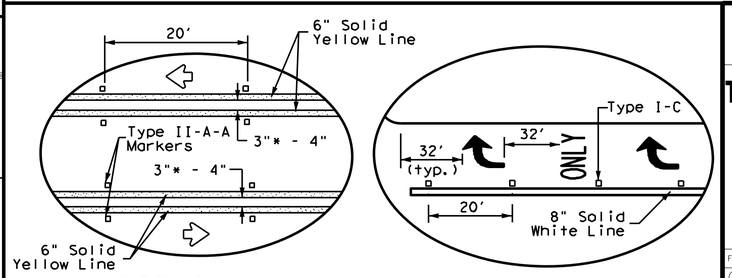
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
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REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	DIST	COUNTY		SHEET NO. C8.9

22C

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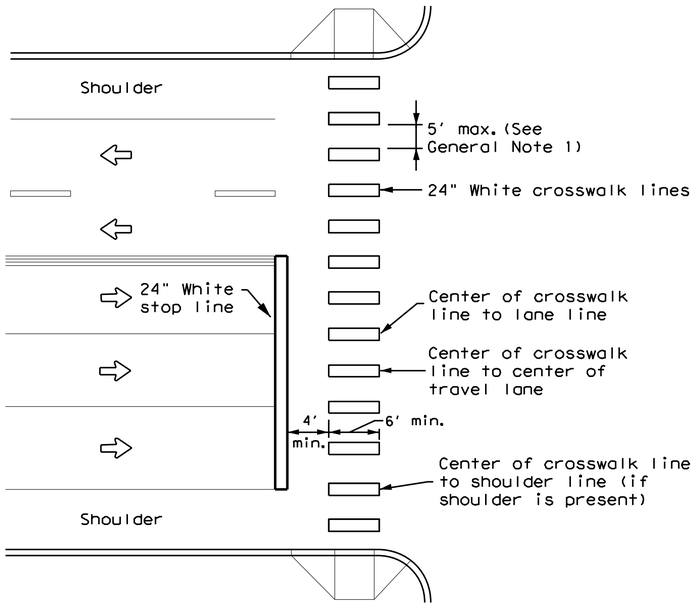


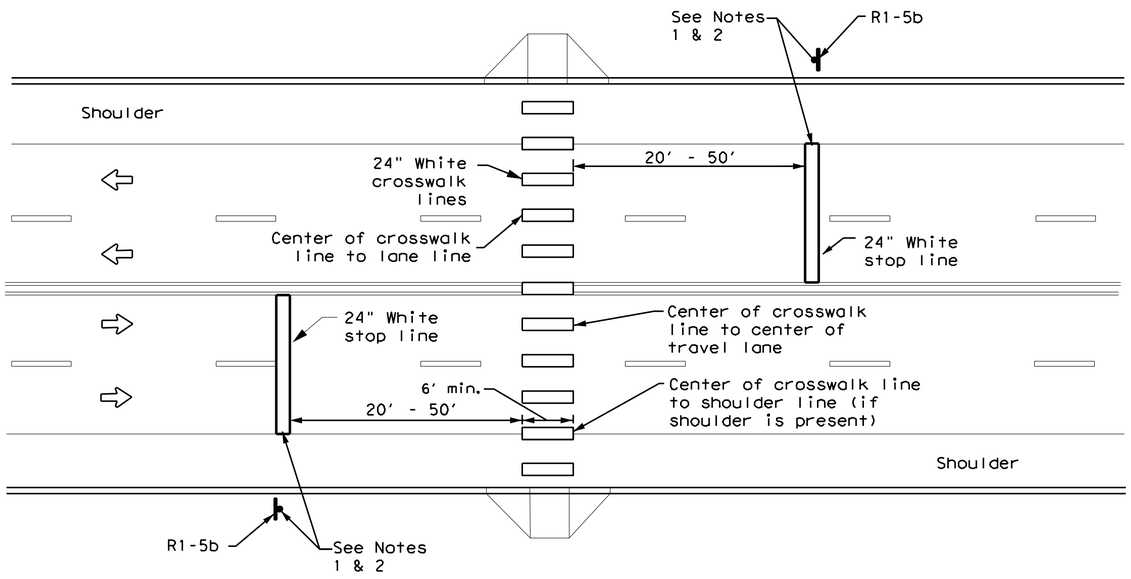
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



UNSIGNALIZED MIDBLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES:

1. Use stop bars with Stop Here For Pedestrians (R1-5b) signs at unsignalized midblock cross walks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation

Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-22A

FILE: pm4-22a.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS				
6-20	DIST	COUNTY		SHEET NO.
6-22				C8.10
12-22				
22D				

DATE:
FILE: