BRIDGE REHABILITION PLANS
FOR

BRIDGE MAINTENANCE BOND PROJECT

CLASSEN BOULEVARD AND LINDSEY STREET OVER BISHOP CREEK
CITY OF NORMAN

SECTION 32, T9N, R2W
SECTION 05, T8N, R2W
NORMAN, CLEVELAND COUNTY, OKLAHOMA

INDEX OF SHEETS

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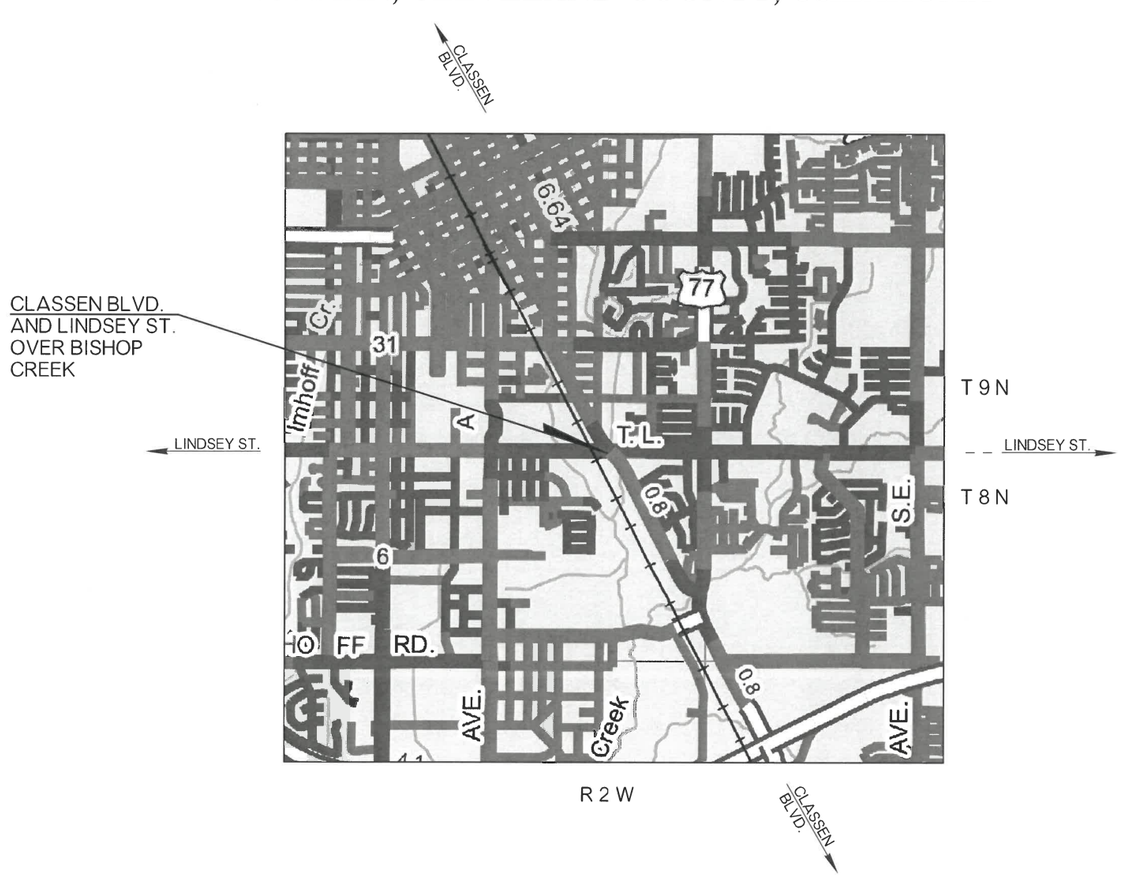

(1) AN EFFORT HAS BEEN MADE TO LOCATE AND SHOW APPROXIMATE LOCATION OF UNDERGROUND UTILITY LINES. BURIED UTILITIES ARE NOT NECESSARILY SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND PRESERVE ALL UTILITIES.

(2) CONTRACTOR IS RESPONISBLE FOR CONTACTING ALL UTILITY COMPANIES WITH WORK ZONE PRIOR TO CONSTRUCTION.

PREPARED BY:
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CERTIFICATE OF AUTHORITY: CA 6131
EXPIRES: 6/30/25

REGISTERED PROFESSIONAL ENGINEER — EVAN READ LUDWIG — 25858 — OKLAHOMA

Evan Read Ludwig 12-15-2023

EVAN READ LUDWIG, P.E.
OKLA. REG. NO. 25858

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BRIDGE MAINTENANCE BOND PROJECT

CLASSEN BLVD. AND LINDSEY STREET
NORMAN, CLEVELAND COUNTY, OKLAHOMA

PROJECT NO.	000022174
DRAWN BY	DATE
CHECKED BY	DATE
DESIGNED BY	DATE
REVISIONS	DATE
ADED STANDARD	5/13/2024
ISSUE DATE	12/15/2023

TITLE SHEET

1

SHEET 1 OF 6

GENERAL NOTES

SPECIFICATIONS -
COMPLY WITH THE REQUIREMENTS OF THE 2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, THE CITY OF NORMAN SPECIFICATIONS AND THE CONTRACT DOCUMENTS FOR THE BRIDGE MAINTENACE PROJECT AND EXCEPT AS MODIFIED BY THE PLANS AND SPECIAL PROVISIONS.

DESCRIPTION OF WORK -
THE WORK TO BE PERFORMED CONSISTS OF REPAIRING AND PATCHING RCB BARREL AND WINGWALLS, CONSTRUCTING NEW 6' CURTAIN WALLS, AND REMOVING DEBRIS FROM THE CREEK CHANNEL. REPAIRS INCLUDE PNEUMATIC MORTAR OR CLASS AA CONCRETE.

VERIFICATION OF EXISTING CONDITIONS -
THE CONTRACTOR IS RESPONSIBLE FOR FULLY UNDERSTANDING THE NATURE OF THE WORK AND CONDITIONS UNDER WHICH THE WORK WILL BE PERFORMED.
ALL DIMENSIONS AND ELEVATIONS OF THE EXISTING BRIDGE COMPONENTS SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR WILL VERIFY ALL DIMENSIONS AND ELEVATIONS NECESSARY TO CONNECT THE NEW MATERIAL AND WILL BE SOLELY RESPONSIBLE FOR THE ACCURACY THEREOF.
USE METHODS CONSISTENT WITH GOOD CONSTRUCTION PRACTICE AND TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO THE EXISTING BRIDGE AND ATTACHMENTS. ANY DAMAGE TO THE EXISTING BRIDGE STRUCTURE OR ROADWAY DUE TO THE CONTRACTOR'S NEGLIGENCE WILL BE REPAIRED, AT THE CONTRACTOR'S EXPENSE, TO THE SATISFACTION OF THE ENGINEER.

EXISTING PLANS -
CONSTRUCTION PLANS FOR THE EXISTING STRUCTURE(S) MAY BE OBTAINED FROM THE OFFICE SERVICES DIVISION OF THE OKLAHOMA DEPARTMENT OF TRANSPORTATION.

PHYSICAL ADDRESS: OKLAHOMA DEPARTMENT OF TRANSPORTATION
200 NE 21ST STREET
OKLAHOMA CITY, OKLAHOMA 73105
405-521-2586

CONSTRUCTION PLANS ARE AVAILABLE FOR DIGITAL DELIVERY THROUGH THE URL LISTED BELOW:
HTTPS://OKLAHOMA.GOV/ODOT/BUSINESS-CENTER/PLANS-LIBRARY/PLANS-RESEARCH-REQUEST.HTML

FOR QUESTIONS AND CONCERNS REGARDING AS-BUILT PLANS, PLEASE EMAIL: ODOT-PLANSLIBRARY@ODOT.ORG

OPENING CHANNEL -
THE EXISTING CHANNEL SHALL BE OPENED BOTH UPSTREAM AND DOWNSTREAM TO THE LIMITS OF THE RIGHT-OF-WAY IN A MANNER APPROVED BY THE ENGINEER.
ALL COSTS INCLUDING LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK DESCRIBED ABOVE SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

DEBRIS REMOVAL -
REMOVE ALL DEBRIS FROM THE EXISTING RCB BARREL, NEW CURTAIN WALL LOCATIONS, AND OTHER LOCATIONS AS DIRECTED BY THE ENGINEER.

CONCRETE REPAIR -
CLEAN REPAIR AREA OF ALL DELAMINATED OR LOOSE CONCRETE AND DEBRIS LEAVING ONLY SOUND CONCRETE. DO NOT USE POWER TOOLS FOR REMOVING LOOSE CONCRETE UNLESS HAND TOOLS PROVE INCAPABLE OF EXCAVATING DETERIORATED CONCRETE TO SOUND CONCRETE AS DETERMINED BY THE ENGINEER. IF POWER TOOLS ARE DEEMED NECESSARY, USE TOOLS OF A SIZE THAT DO NOT DAMAGE SOUND CONCRETE. PREPARE THE GEOMETRY OF THE PATCH IN ACCORDANCE WITH FIGURE 513:1 OF THE SPECIFICATIONS. ENSURE DIMENSION OF RE-ENTRANT CORNER IS EQUAL TO AT LEAST 4 INCHES.
DO NOT CUT, STRETCH OR DAMAGE EXPOSED REINFORCING STEEL. BLAST EXPOSED REINFORCING STEEL CLEAN. REPLACE CORROSION DAMAGED REINFORCING STEEL IF MORE THAN 20% OF THE AREA OF THE SECTION HAS BEEN LOST. REPLACE OR REPAIR DAMAGED REINFORCING STEEL BY EITHER LAPPING OR PROVIDING MECHANICAL SPLICES IN ACCORDANCE WITH SECTION 511.04.C(3) OF THE SPECIFICATIONS. DO NOT LAP BARS IF EXCESSIVE REMOVAL OF SOUND CONCRETE IS REQUIRED, AS DETERMINED BY THE ENGINEER.
THE CONTRACTOR MAY USE CAST-IN-PLACE CONCRETE OR MORTAR AS THE PATCHING MATERIAL FOR THE TWO TYPES OF REPAIRS AS SHOWN IN THE DETAILS. PROVIDE CLASS AA CONCRETE IN ACCORDANCE WITH SECTION 701 OF THE SPECIFICATIONS. PROVIDE ONE OF THE FOLLOWING, COMMERCIALLY AVAILABLE, MORTAR-TYPE PRODUCTS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS APPROVED BY THE ENGINEER.

(1) QUIKRETE SHOTCRETE MS WITH POLYPROPYLENE FIBERS
(2) SIKACEM 103F
(3) SIKACEM 133
(4) SIKACRETE 211 SCC PLUS
(5) MASTEREMACO S 210SP
(6) MASTEREMACO S 211SP
(7) PROSPEC SHOTCRETE 300V

PLACE NEW PATCHING MATERIAL TO THE ORIGINAL NEAT LINES OF THE STRUCTURAL COMPONENT UNDER REPAIR AND FINISH TO PROVIDE A SURFACE TEXTURE MATCHING THAT OF THE ADJACENT EXISTING CONCRETE. COORDINATE THE APPLICATION OF THE CORROSION INHIBITOR WITH THE CONCRETE REPAIR AS SHOWN IN THE DETAILS.
SUBMIT A PROPOSED WORK PLAN FOR THE CHOSEN REPAIR METHOD WHICH INCLUDES SURFACE PREPARATION METHODS, PATCHING MATERIAL, BONDING AGENTS, MATERIAL PLACING METHODS AND FINISHING METHODS. REPAIR A TEST AREA TO VERIFY THE EFFECTIVENESS OF THE PROPOSED REPAIR METHOD PRIOR TO COMMENCING WORK. REPLACE FAULTY REPAIRS AT NO ADDITIONAL COST TO THE DEPARTMENT.

CALL OKIE -
IN ACCORDANCE WITH THE OKLAHOMA UNDERGROUND FACILITIES DAMAGE PREVENTION ACT, THE CONTRACTOR SHALL NOTIFY THE OKLAHOMA ONE-CALL SYSTEM, INC. 48 HOURS PRIOR TO BEGINNING EXCAVATION. OKLAHOMA ONE-CALL SYSTEM, INC. "CALL OKIE" 1-800-522-6543 OR 811.

TEMPORARY RETAINING STRUCTURE:
THE EXISTING WINGWALLS SHALL BE SUPPORTED AGAINST ROTATION AND SLIDING DURING EXCAVATION AND PLACEMENT OF THE CURTAIN WALLS.
TEMPORARY RETAINING STRUCTURES NOT SPECIFICALLY DESIGNED AND COMPLETELY DETAILED IN THE PLANS WILL BE MEASURED FOR PAYMENT AND WILL BE INCLUDED IN THE CONTRACT UNIT PRICE OF "TEMPORARY EARTH RETAINAGE." LOCATIONS OF POTENTIAL TEMPORARY RETAINING STRUCTURES TO FACILITATE THE PROPOSED SEQUENCE OF CONSTRUCTION SHOWN IN THE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND HAVE NOT BEEN DESIGNED AND DETAILED. ACTUAL LIMITS OF TEMPORARY RETAINING STRUCTURES WILL BE DETERMINED BY THE CONTRACTOR. TEMPORARY RETAINING STRUCTURES WILL BE DESIGNED IN ACCORDANCE WITH SUBSECTION 502.04 OF THE SPECIFICATIONS BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF OKLAHOMA. SUBMIT TEMPORARY RETAINING STRUCTURE DESIGN CALCULATIONS AND DRAWINGS TO THE BRIDGE ENGINEER FOR APPROVAL. DO NOT BEGIN INSTALLATION UNTIL APPROVAL OF THE DESIGN CALCULATIONS AND DRAWINGS BY THE ENGINEER IS RECEIVED.

PAY ITEM NOTES

BR-1. ITEM "(PL) REMOVE DRIFT AND SILT" CONSISTS OF REMOVING THE DRIFT AND DEBRIS PILE IS APPROXIMATELY 40' WIDE x 36' LONG x 14' DEEP IN SIZE.

ALL COSTS IF REMOVAL INCLUDING LABOR, EQUIPMENT, MATERIAL, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS DESCRIBED WILL BE INCLUDED IN THE UNIT PRICE BID PER LUMP SUM OF "(PL) REMOVE DRIFT AND SILT".

BR-2. PAYMENT TO THE CONTRACTOR WILL BE BASED ON PLAN QUANTITIES.

BR-3. REPAIR AREAS SHOWN IN THE PLANS AND AS DIRECTED BY THE ENGINEER. QUANTITY SHOWN IS APPROXIMATE AND SUBJECT TO THE ACTUAL LOCATIONS AND EXTENTS OF REPAIRS DETERMINED IN THE FIELD BY THE ENGINEER. ALL REMOVED MATERIALS WILL BECOME THE PROPERTY OF THE CONTRACTOR. SEE PLANS FOR ESTIMATED QUANTITIES AND LOCATIONS.

BR-4. QUANTITY INCLUDES 50 L.F. TO BE USED AS DIRECTED BY THE ENGINEER.

BR-5. QUANTITY SHOWN FOR EPOXY RESIN ESTIMATED AT 0.08 GALLONS PER FOOT OF CRACK REPAIR.

QUANTITY INCLUDES 4 GAL. TO BE USED AS DIRECTED BY THE ENGINEER.

BR-6. ITEM "CORROSION INHIBITOR (SURFACE APPLIED)" CONSISTS OF APPLYING A CORROSION INHIBITOR TO THE RCB, WING WALLS, AND CURTAIN WALLS AT THE LOCATIONS SHOWN ON ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

QUANTITY INCLUDES AN ADDITIONAL 50 S.Y. TO BE USED AT THE DISCRETION OF THE ENGINEER.

BR-7. ITEM "(PL) REPAIR BRIDGE ITEMS" CONSISTS OF REPAIRING DETERIORATED CONCRETE WITH PNEUMATICALLY PLACED MORTAR OR CLASS AA CONCRETE MATERIAL AS DESCRIBED IN THE GENERAL NOTES, AS SHOWN ON THE PLANS, AND IN A MANNER APPROVED BY THE ENGINEER.

PROVIDE REPLACEMENT REINFORCING STEEL HAVING A SECTION LOSS OF 20% OR MORE DETERMINED IN THE FIELD BY THE ENGINEER.

QUANTITY INCLUDES AN ADDITIONAL 40 S.Y. TO BE USED AT THE DISCRETION OF THE ENGINEER.

BR-8. QUANTITY SHOWN FOR TYPE I PLAIN RIPRAP ESTIMATED AT 110 LB PER CUBIC FOOT.

BR-9. ITEM "REMOVAL OF BRIDGE ITEMS" CONSISTS OF SAWCUT REMOVAL OF PORTIONS OF THE EXISTING RCB BARREL, WING WALLS, AND CURTAIN WALLS NECESSARY TO REPAIR THE RCB BARREL, WING WALLS, AND CONSTRUCT THE CURTAIN WALLS IN ACCORDANCE WITH SUBSECTION 619.04(B)2 OF THE SPECIFICATIONS AND IN A MANNER APPROVED BY THE ENGINEER. ALL REMOVED MATERIALS WILL BECOME THE PROPERTY OF THE CONTRACTOR.

R-6. FOR SOLID SLAB SODDING PRICE BID TO INCLUDE COST OF 10-20-10 FERTILIZER, ESTIMATED AT 200 POUNDS PER 1,000 SQUARE YARDS.

R-7. FOR SOLID SLAB SODDING PRICE BID TO INCLUDE COST OF WATERING, ESTIMATED AT 60 GALLONS PER SQUARE YARD.

R-40. TO BECOME THE PROPERTY OF AND BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED BY THE ENGINEER.

R-41. MATERIALS REMOVED SHALL NOT BE MEASURED FOR PAYMENT UNDER SECTION 202.06 UNCLASSIFIED EXCAVATION.

SP-1. REPLACE THE EXISTING CURB AS DIRECTED BY THE ENGINEER. THE CURB SHALL BE REPLACED IN KIND AND MATCH DIMENSIONS OF THE EXISTING CURB.

SP-2. REPLACE THE EXISTING SIDEWALK AS DIRECTED BY THE ENGINEER.

SP-3. REMOVAL SHALL INCLUDE ALL COSTS OF SAW CUTTING AND OTHER INCIDENTALS NECESSARY TO REMOVE THE CURB.

TRAFFIC PAY QUANTITY NOTES

(1) ALL CONSTRUCTION TRAFFIC CONTROL WILL BE IMPLEMENTED ACCORDING TO CONSTRUCTION PLANS, AND INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (2009 EDITION), AND COMPLIANT WITH APPLICABLE O.D.O.T. STANDARD DRAWINGS. PRICE PER BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL DEVICES AND PAVEMENT MARKINGS REQUIRED FOR COMPLETION OF THE PROJECT.

ALL SIGNS AND BARRICADES, WHICH ARE SHOWN WITH TYPE "A" LIGHTS IN THE STANDARD DRAWINGS SHALL HAVE THE CORRESPONDING LIGHT ATTACHED DURING NON-DAYLIGHT HOURS.

TRAFFIC CONTROL GENERAL NOTES

CONTRACTOR NOTES -
THE CONTRACTOR SHALL HANDLE TRAFFIC THROUGH MUTCD. THE CONTRACTOR IS RESPONSIBLE FOR THE PROMPT REPLACEMENT AND/OR REPAIR OF ALL TRAFFIC CONTROL DEVICES AND APPURTENANCES DAMAGED OR DISRUPTED DUE TO CONSTRUCTION.

GENERAL CONSTRUCTION NOTES

THE CONTRACTOR SHALL AGREE WITH THE CITY INSPECTOR AT THE END OF EACH WORKING DAY ON ALL REMOVAL ITEMS AND CONSTRUCTION ITEMS NOT MEASURABLE AFTER CONSTRUCTION IS COMPLETE.

ALL MATERIALS USED ON THIS PROJECT SHALL BE APPROVED BY THE ENGINEER IN WRITING.

CONTRACTOR TO ENSURE PROPER DRAINAGE OF THE SITE THROUGHOUT CONSTRUCTION.

CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION STAKING.

CONTRACTOR SHALL NOTIFY THE CITY A MINIMUM OF 72 HOURS PRIOR TO ANY STREET OR LANE CLOSURE.

PAY QUANTITIES

NBI 12549

REPAIR 2-10' X 12' X 115' CLR RDY RCB SK. 30 DEG.
ACROSS INTERSECTION OF LINDSEY ST. & CLASSEN BLVD.
OVER BISHOP CREEK

ITEM NO.		DESCRIPTION		UNIT	TOTAL
201	1100	(PL) REMOVE DRIFT AND SILT	(BR-1)	LSUM	1.00
201(A)	1200	CLEARING AND GRUBBING		LSUM	1.00
230(A)	7200	SOLID SLAB SODDING	(R-6, 7)	SY	200.00
501(A)	1210	STRUCTURAL EXCAVATION UNCLASSIFIED	(BR-2)	CY	28.00
502	3100	TEMPORARY EARTH RETAINAGE		LSUM	1.00
509(A)	0210	CLASS AA CONCRETE	(BR-2)	CY	46.20
511(A)	2210	REINFORCING STEEL	(BR-2)	LB	6,700.00
512	3110	CLEANING AND PAINTING BRIDGE METAL RAIL	(BR-2)	LF	132.00
520(A)	1200	PREPARATION OF CRACKS, ABOVE WATER	(BR-3, 4)	LF	95.00
520(C)	1400	EPOXY RESIN, ABOVE WATER	(BR-3, 5)	GAL	9.10
535	7100	CORROSION INHIBITOR (SURFACE APPLIED)	(BR-3, 6)	SY	103.50
540	8112	(PL) REPAIR BRIDGE ITEMS	(BR-3, 7)	SY	75.60
601(A)	1110	TYPE I PLAIN RIPRAP	(BR-8)	TON	400.00
609(A)	4230	CONC. CURB (6" BARRIER-DOWELLED)	(SP-1)	LF	50.00
610(A)	5220	6" CONCRETE SIDEWALK	(SP-2)	SY	30.00
619(B)	6304	REMOVAL OF BRIDGE ITEMS	(BR-9)	LSUM	1.00
619(B)	6400	REMOVAL OF CURB	(R-40, 41)(SP-3)	LF	50.00
619(B)	6404	REMOVAL OF SIDEWALK	(R-40, 41)	SY	30.00
641	2100	MOBILIZATION		LSUM	1.00
642(B)	3300	CONSTRUCTION STAKING LEVEL II		LSUM	1.00
880(J)	7110	CONSTRUCTION TRAFFIC CONTROL	(1)	LSUM	1.00

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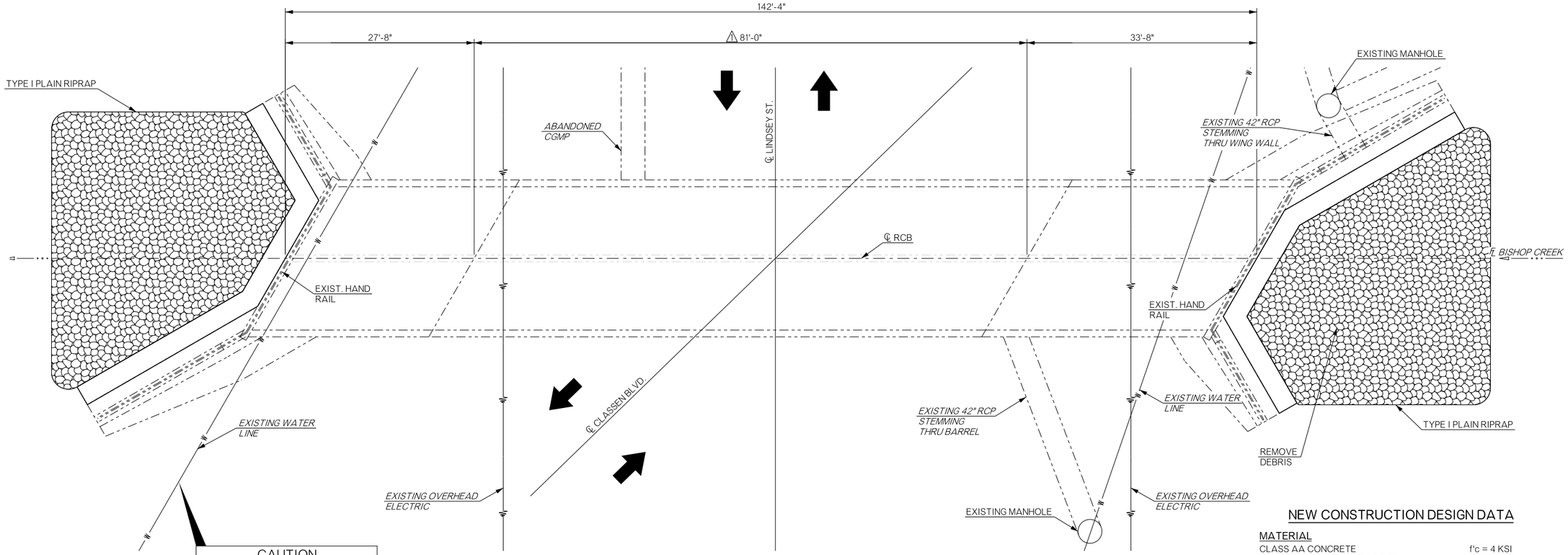
BRIDGE MAINTENANCE BOND PROJECT

CLASSEN BLVD. AND LINDSEY STREET
NORMAN, CLEVELAND COUNTY, OKLAHOMA

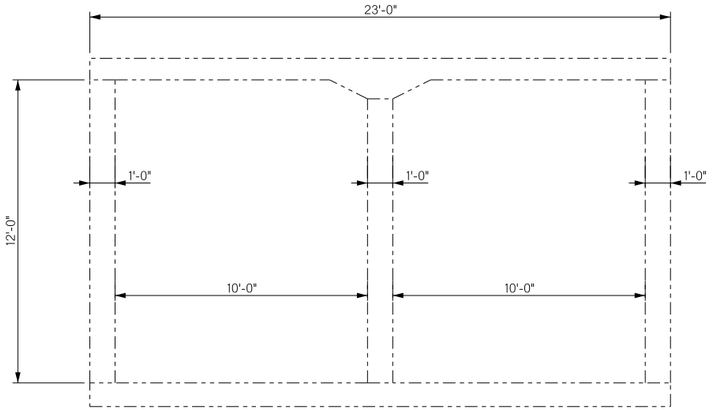
PROJECT NO. 000022174
DRAWN BY DATE
CHECKED BY DATE
DESIGNED BY DATE
REVISIONS DATE
REVISED NOTES & ITEMS 5/13/2024
ISSUE DATE 12/15/2023

GENERAL NOTES & PAY QUANTITIES

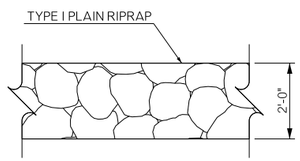
2



PLAN



ELEVATION



RIPRAP DETAIL

NEW CONSTRUCTION DESIGN DATA

MATERIAL

CLASS AA CONCRETE	f'c = 4 KSI
REINFORCING STEEL (GRADE 60)	fy = 60 KSI

DESIGN

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION

INDEX OF SHEETS

2019 ODOT STANDARDS

SBI-5-2

SUMMARY OF BRIDGE QUANTITIES

ITEM	UNIT	BARREL	INLET			OUTLET			TOTAL
			BOTTOM SLAB	CURTAIN WALL	WINGS	BOTTOM SLAB	CURTAIN WALL	WINGS	
(PL)REMOVE DRIFT AND SILT	LSUM								1.00
CLEARING AND GRUBBING	LSUM								1.00
SUBSTRUCTURE EXCAVATION UNCLASSIFIED	CY		14.00			14.00			28.00
CLASS AA CONCRETE	CY			23.10			23.10		46.20
REINFORCING STEEL	LB			3,350.00			3,350.00		6,700.00
CLEANING AND PAINTING BRIDGE METAL RAIL	LF	50.00			41.00			41.00	132.00
PREPARATION OF CRACKS, ABOVE WATER	LF	27.00						18.00	45.00
EPOXY RESIN, ABOVE WATER	GAL	3.60						1.50	5.10
CORROSION INHIBITOR (SURFACE APPLIED)	SY	52.70						0.80	53.50
(PL) REPAIR BRIDGE ITEMS	SY	35.10						0.50	35.60
REMOVAL OF BRIDGE ITEMS	LSUM								1.00

THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

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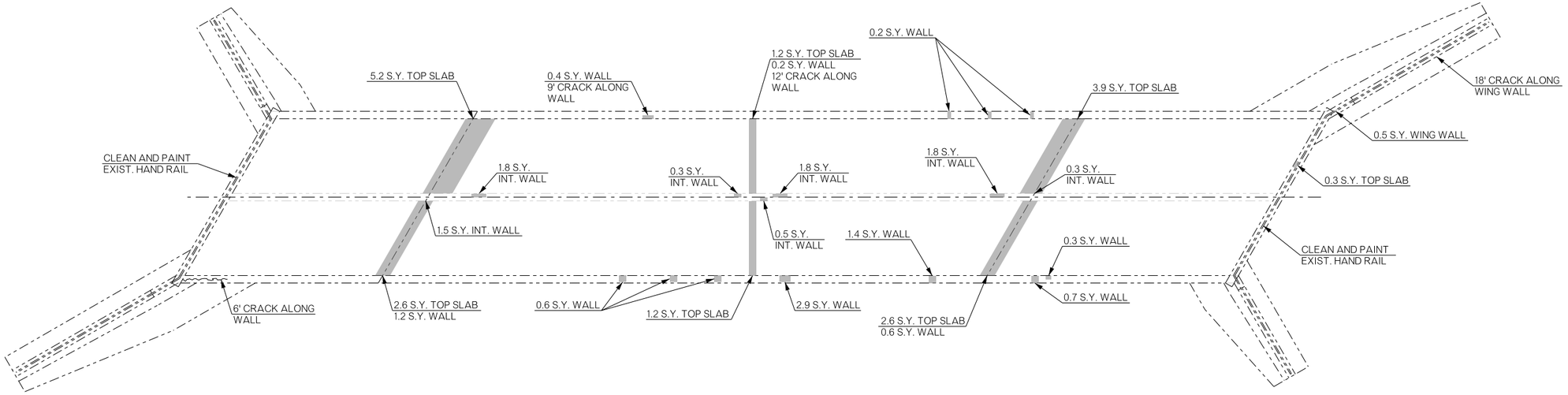
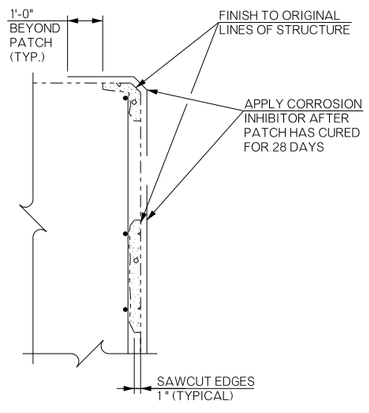
GENERAL PLAN & ELEVATION

3

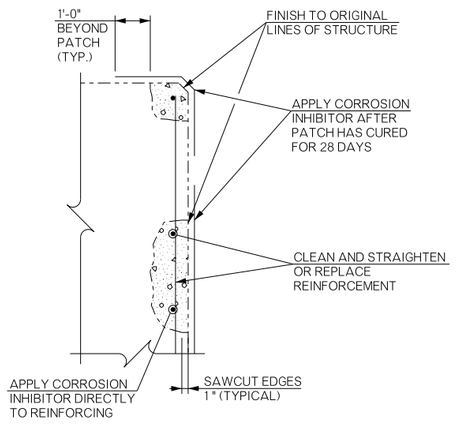
SHEET 3 OF 6



REPAIR PLAN



PNEUMATICALLY PLACED MORTAR



CLASS AA CONCRETE

CONCRETE REPAIR DETAILS

LEGEND

CONCRETE REPAIR WITH CORROSION INHIBITOR (SURFACE APPLIED)

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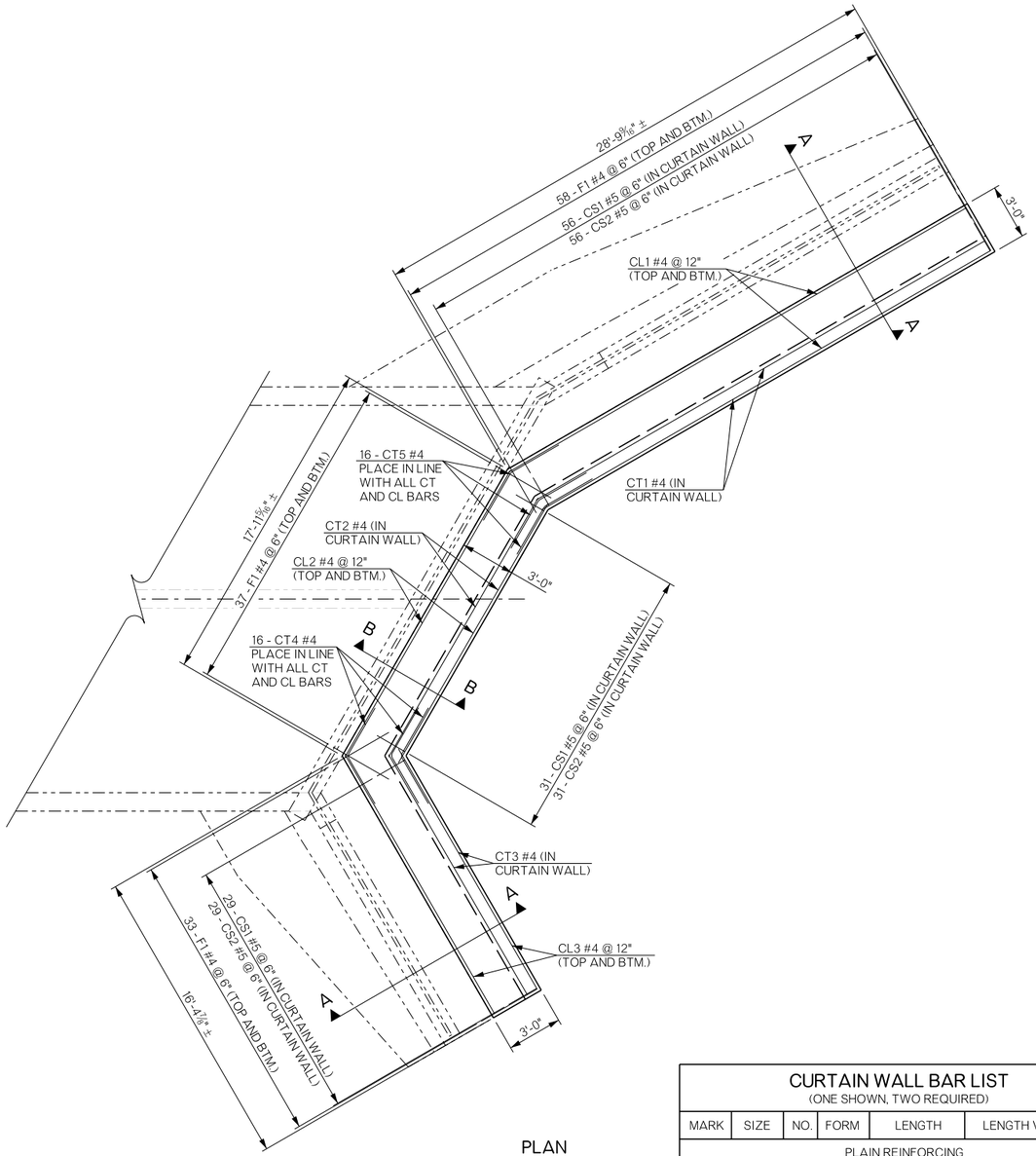
REPAIR PLAN

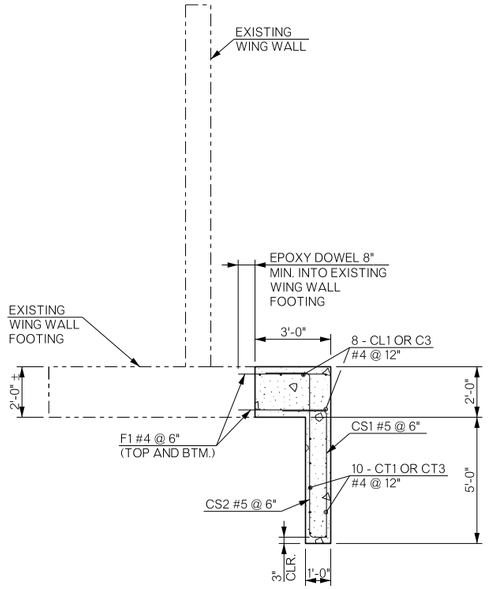
4

SHEET 4 OF 6

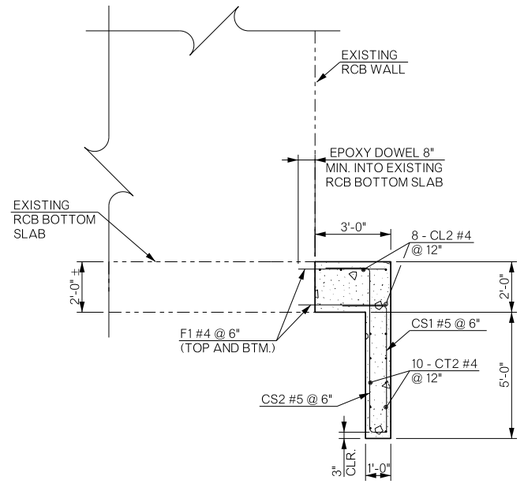


PLAN

INLET END SHOWN
OUTLET END SECTION SIMILAR

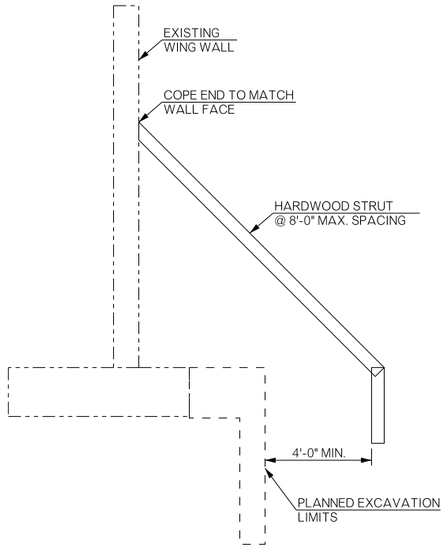


SECTION A-A

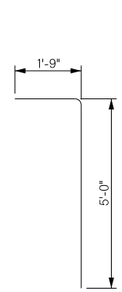


SECTION B-B

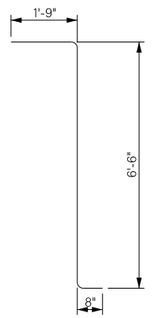
CURTAIN WALL BAR LIST (ONE SHOWN, TWO REQUIRED)					
MARK	SIZE	NO.	FORM	LENGTH	LENGTH VARIATION
PLAIN REINFORCING					
CL1	#4	8	STR.	28'-6"	
CL2	#4	8	STR.	17'-8"	
CL3	#4	8	STR.	16'-0"	
CS1	#5	116	BNT.	6'-9"	
CS2	#5	116	BNT.	8'-11"	
CT1	#4	10	STR.	28'-0"	
CT2	#4	10	STR.	16'-0"	
CT3	#4	10	STR.	14'-11"	
CT4	#4	16	BNT.	6'-0"	
CT5	#4	16	BNT.	6'-0"	
F1	#4	256	STR.	3'-6"	



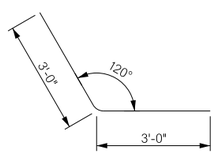
TEMPORARY WALL SUPPORT



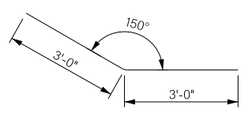
CS1 #5 X 6'-9"



CS2 #5 X 8'-11"



CT4 #4 X 6'-0"



CT5 #4 X 6'-0"

THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

LOCHNER
6301 Waterford Blvd. Suite 310 | Oklahoma City, OK 73118
P 405.748.6651

BRIDGE MAINTENANCE BOND PROJECT

CLASSEN BLVD. AND LINDSEY STREET
NORMAN, CLEVELAND COUNTY, OKLAHOMA

PROJECT NO. 000022174
DRAWN BY DATE
CHECKED BY DATE
DESIGNED BY DATE
REVISIONS DATE

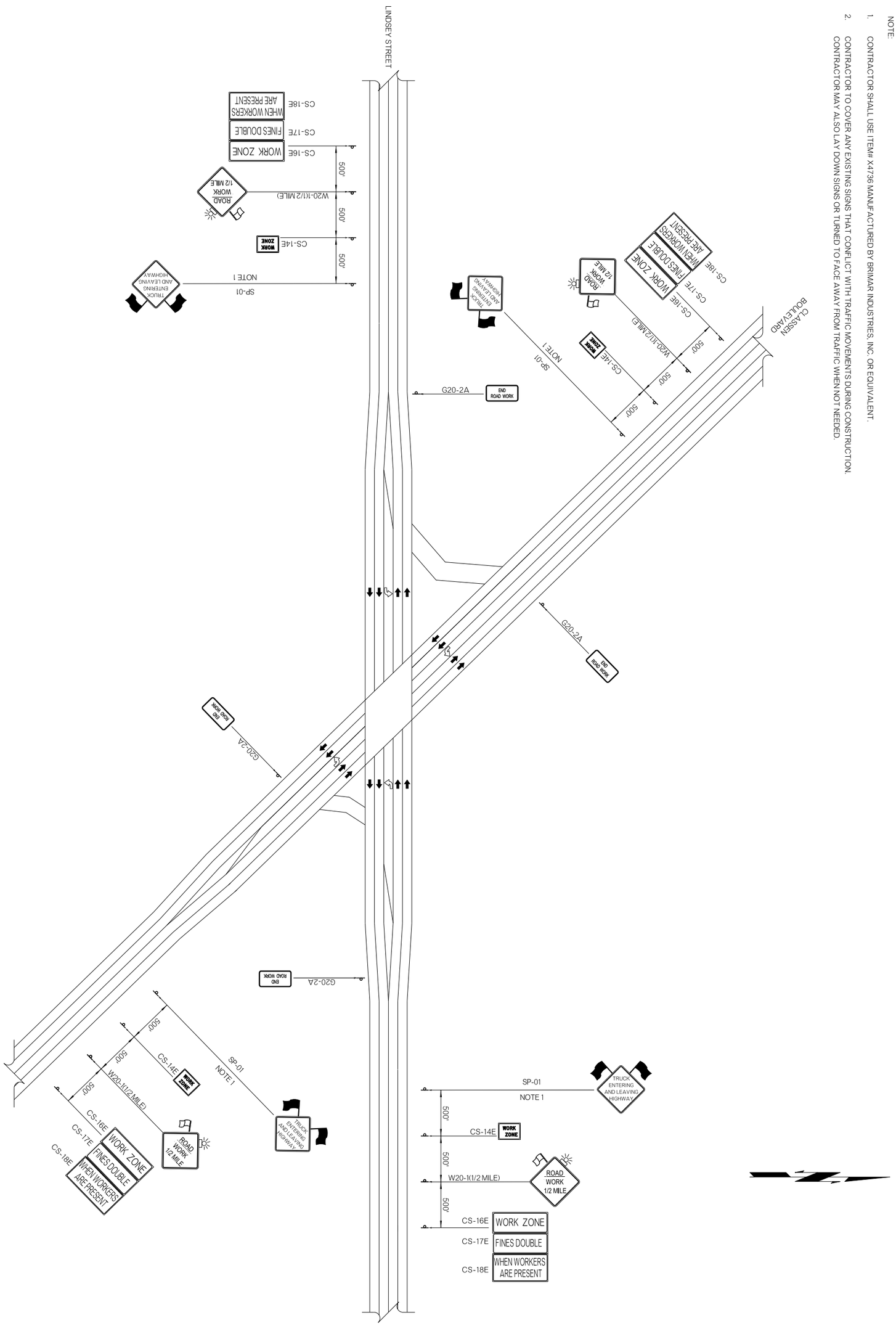
ISSUE DATE 12/15/2023

CURTAIN WALL DETAILS

5

NOTE:

1. CONTRACTOR SHALL USE ITEM# X4736 MANUFACTURED BY BRIMAR INDUSTRIES, INC. OR EQUIVALENT.
2. CONTRACTOR TO COVER ANY EXISTING SIGNS THAT CONFLICT WITH TRAFFIC MOVEMENTS DURING CONSTRUCTION. CONTRACTOR MAY ALSO LAY DOWN SIGNS OR TURNED TO FACE AWAY FROM TRAFFIC WHEN NOT NEEDED.



BRIDGE MAINTENANCE BOND PROJECT

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PROJECT NO. 000022174
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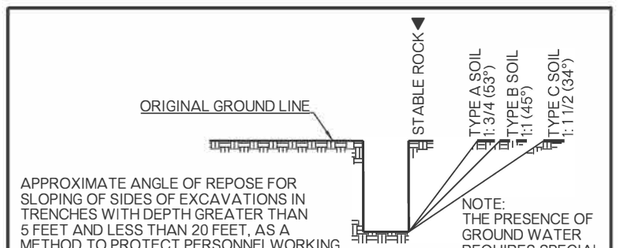
TRAFFIC CONTROL



APPROXIMATE ANGLE OF REPOSE FOR SLOPING OF SIDES OF EXCAVATIONS IN TRENCHES WITH DEPTH GREATER THAN 5 FEET AND LESS THAN 20 FEET, AS A METHOD TO PROTECT PERSONNEL WORKING IN EXCAVATIONS FROM CAVE-INS. ♦

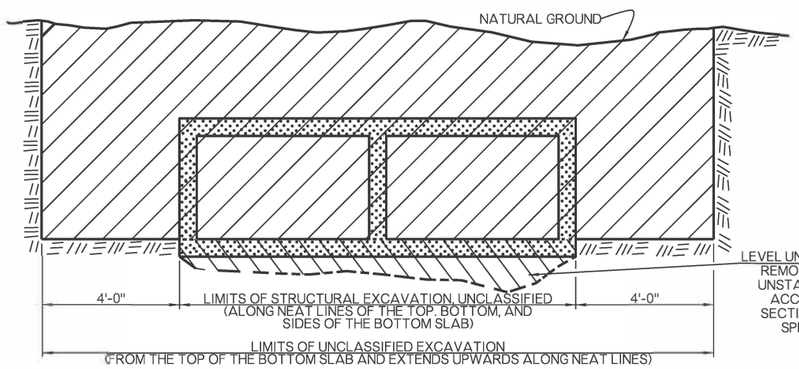
NOTE: THE PRESENCE OF GROUND WATER REQUIRES SPECIAL TREATMENT.

⬓ OPTIONAL TRENCHES WITH DEPTH GREATER THAN 5.0 FEET

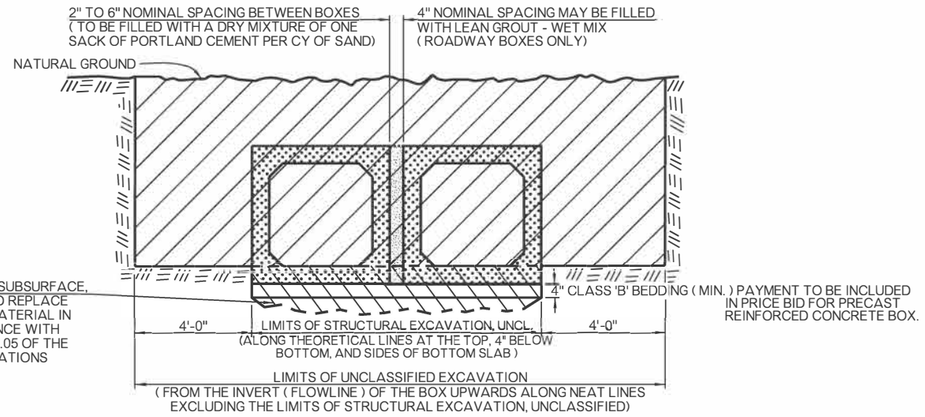
EXCAVATION AND BEDDING MATERIAL WILL BE MEASURED AND PAID FOR AS IF TRENCHED WALLS WERE VERTICAL. (SPECIAL TRENCHING = STD. WIDTH TRENCH+12")

▼ NATURAL SOLID MINERAL MATTER THAN CAN BE EXCAVATED WITH VERTICAL SIDES AND REMAIN INTACT WHILE EXPOSED.

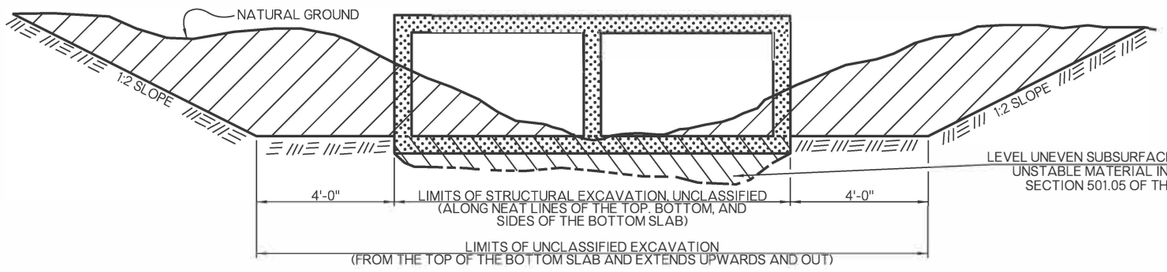
♦ SOIL CLASSIFICATION - SOIL AND ROCK DEPOSITS SHALL BE CLASSIFIED IN ACCORDANCE WITH APPENDIX A UNDER SUBPART P 'EXCAVATIONS' OF 29 CFR 1926.



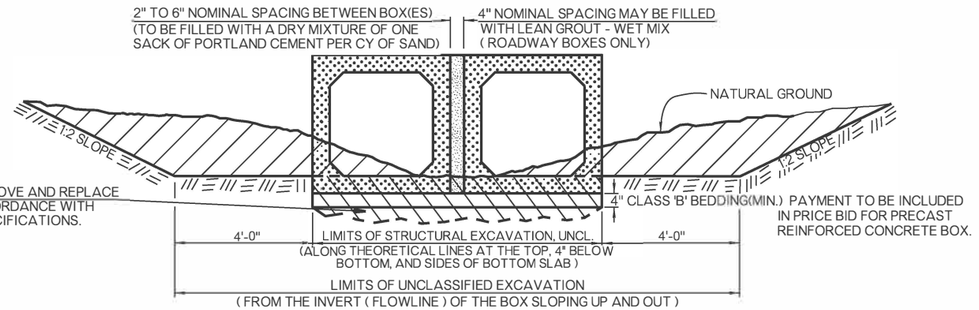
REQUIREMENTS FOR UNCLASSIFIED AND STRUCTURAL EXCAVATION OF RCB STORM SEWERS



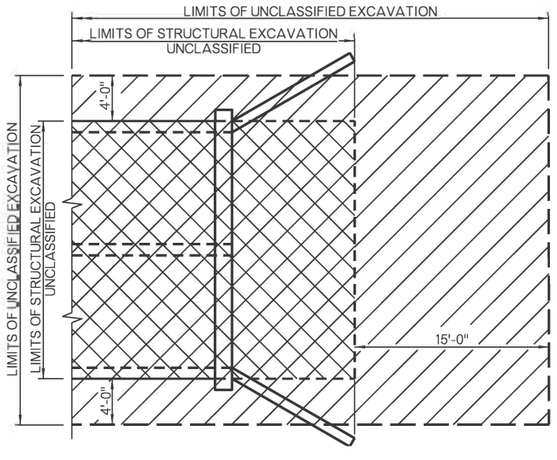
REQUIREMENTS FOR EXCAVATION OF PRECAST RCB STORM SEWERS



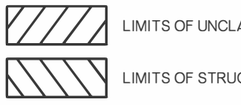
REQUIREMENTS FOR UNCLASSIFIED AND STRUCTURAL EXCAVATION OF RCB CULVERTS OF ROADWAY AND BRIDGE CLASSIFICATION

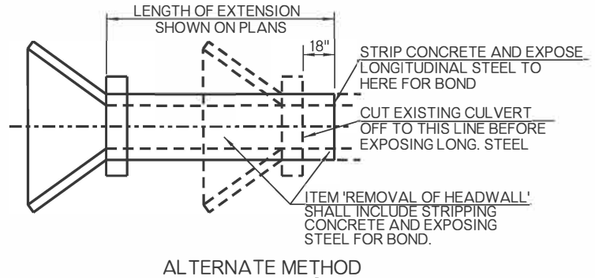


REQUIREMENTS FOR EXCAVATION OF PRECAST RCB CULVERTS OF ROADWAY AND BRIDGE CLASSIFICATION.



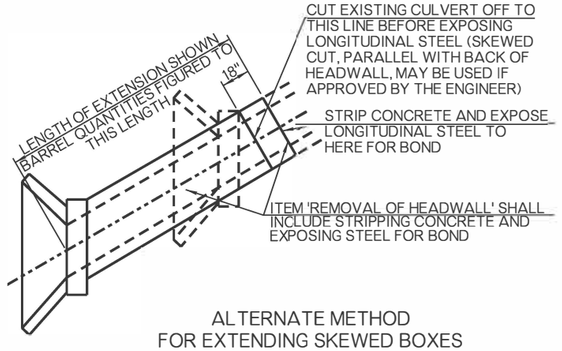
PLAN VIEW





ALTERNATE METHOD FOR EXTENDING 90° BOXES

ALTERNATIVE METHOD FOR 'REMOVAL OF HEADWALL' WILL ALLOW FOR SAWING AND REMOVING HEADWALL BEHIND CURB, DRILL HORIZONTAL HOLES AND USE AN APPROVED EPOXY BOND MATERIAL, OR APPROVED ANCHOR, TO ATTACH HORIZONTAL TIE STEEL



ALTERNATE METHOD FOR EXTENDING SKEWED BOXES

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2019 ODOT STANDARD SPECIFICATIONS.
2. PAYMENT FOR CAST-IN-PLACE REINFORCED CONCRETE BOXES WILL BE IN CUBIC YARDS OF CLASS A OR CLASS AA CONCRETE AND POUNDS OF REINFORCING STEEL, IN ACCORDANCE WITH SECTION 509 AND 511 OF THE SPECIFICATIONS.
3. PAYMENT FOR PRECAST CONCRETE BOX CULVERTS WILL BE MADE BASED ON THE UNIT PRICE BID FOR ITEMS AND QUANTITIES OF A CAST-IN-PLACE BOX OF THE LENGTH REQUIRED AS DETERMINED BY FIELD MEASUREMENTS, AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH SECTION 508 OF THE SPECIFICATIONS.
4. PRECAST CONCRETE BOX SECTIONS, USED IN LIEU OF CAST-IN-PLACE CONCRETE BOXES, SHALL MEET MINIMUM DESIGN REQUIREMENTS OF AASHTO M 259 OR M 273, AND ASTM C1433 OR C1577, AND JOINT FILLER SHALL MEET THE REQUIREMENTS OF SUBSECTION 726.01.B OF THE SPECIFICATIONS.

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
202 (A)	UNCLASSIFIED EXCAVATION	CY
501 (A)	STRUCTURAL EXCAVATION UNCLASSIFIED	CY
619 (B)	REMOVAL OF HEADWALL	EA

APPROVED BY ROADWAY ENGINEER: _____ DATE: 6/30/22

ROADWAY DESIGN DIVISION STANDARD

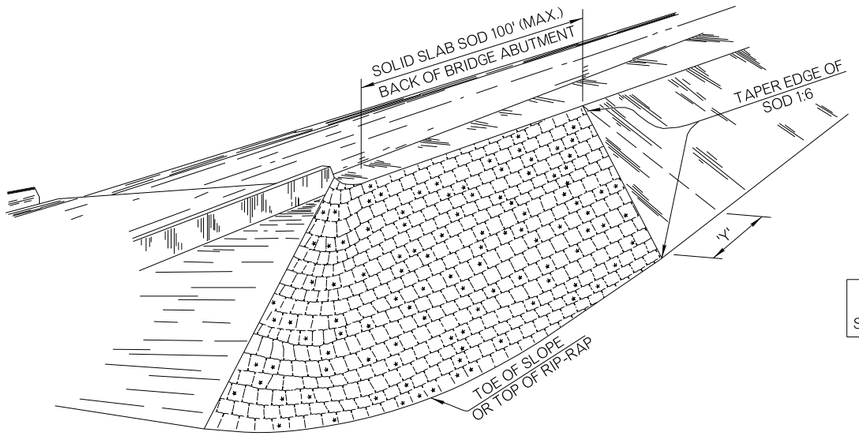
STANDARD BOX INSTALLATION

OKLAHOMA Transportation

2019 SPECIFICATIONS

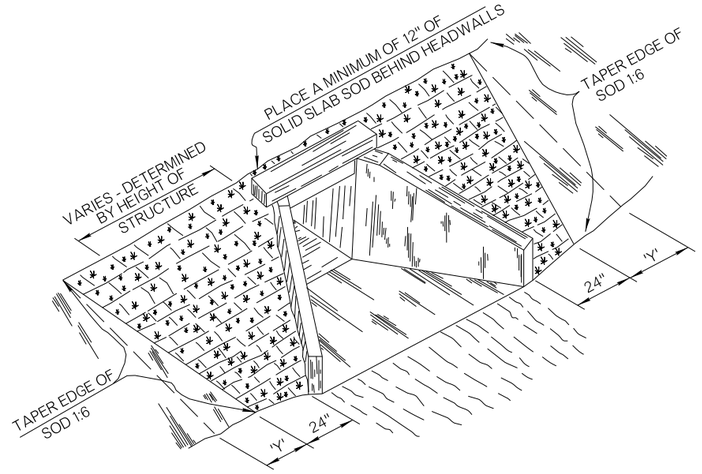
SBI-5 | 2

R-64

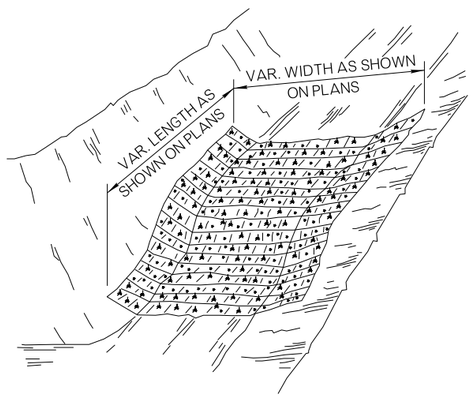


TAPER NOTE
'Y' DIMENSION =
SLOPE LENGTH x 0.17

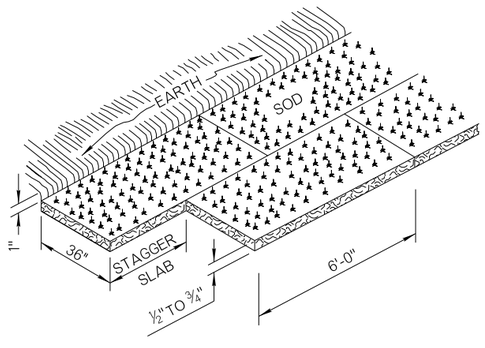
TYPICAL PLACEMENT OF SOLID SLAB SODDING OR APPROVED STABILIZING MAT ON FILL SLOPES, APPROACHES TO OVERPASSES AND BRIDGES



TYPICAL PLACEMENT OF SOLID SLAB SODDING AT STRUCTURE HEADWALLS



TYPICAL PLACEMENT OF SOLID SLAB SODDING IN DITCHES



SOLID SLAB SODDING
(MARCH 1 THRU AUGUST 31)

THE PLACEMENT OF SOLID SLAB SOD SHALL BE RESTRICTED TO THE PERIOD FROM MARCH 1 THRU AUGUST 31, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2019 ODOT STANDARD SPECIFICATIONS.
2. SOLID SLAB SOD SHALL BE PLACED IN HORIZONTAL ROWS WITH THE LONGEST SIDE OF EACH SLAB RUNNING PARALLEL TO THE ROADWAY, AND THE SLABS IN ALTERNATE ROWS STAGGERED HALF THE LENGTH OF EACH INDIVIDUAL SLAB. ENSURE THE ROWS RUN PARALLEL TO THE ROADWAY.
3. SLABS SHALL BE CUT AND HARVESTED WITH A COMMERCIAL SOD CUTTER TO THE DIMENSIONS SHOWN, THEN LOADED, TRANSPORTED AND HANDLED ON PALLETS.
4. AFTER PLACEMENT OF SOLID SLAB SOD, EARTH AT THE OUTER EDGES OF THE PLACEMENT SHALL BE BACKFILLED AND LOOSELY COMPACTED TO AT LEAST 1 INCH ABOVE THE TOP OF THE SOLID SLAB SODDING.
5. WATER THE SOD IMMEDIATELY AFTER INSTALLATION, TO AN APPROPRIATE DEPTH SO AS TO ENCOURAGE HEALTHY GROWTH. SOD SHALL BE ESTABLISHED BEFORE BEING MOWED.
6. ON SLOPES STEEPER THAN ONE UNIT VERTICAL TO 4 UNITS HORIZONTAL (1:4), STAKE THE SOD WITH STAKES SPACED AS THE SOIL NATURE AND SLOPE STEEPNESS DICTATE, 24 INCHES APART ALONG THE LENGTH OF THE SOD STRIP. MAXIMUM SLOPE OF USING STAKED SOD IS 1:3; STEEPER SLOPES WILL REQUIRE AN APPROVED STABILIZING MAT. AFTER INSTALLING, STAKES SHOULD HOLD THE SOD FIRMLY IN PLACE AND PRESENT NO DANGER TO PEDESTRIANS OR MOWING CREWS. STAKES CAN BE MADE OF SOUND WOOD APPROXIMATELY 1 INCH SQUARE OR 1 INCH IN DIAMETER AND AT LEAST 6 INCHES LONG, OR METAL STAPLES IN PLACE OF WOODEN STAKES.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
230(A)	SOLID SLAB SODDING	SY

APPROVED BY
ROADWAY ENGINEER: _____ DATE: 6/24/22

ROADWAY DESIGN DIVISION STANDARD

OKLAHOMA Transportation

SOLID SLAB SODDING

2019 SPECIFICATIONS

SSS-2	1

R-14

ALL GENERAL NOTES SHOWN BELOW SHALL APPLY
TO ALL OF THE STANDARD DRAWINGS IN TCS SERIES

REVISIONS	
DESCRIPTION	DATE
MODIFIED NOTES	3/15/2011

CONTRACTOR

ON CONSTRUCTION PROJECTS IT WILL BE THE CONTRACTORS RESPONSIBILITY TO INSTALL THE NECESSARY TRAFFIC CONTROL BEFORE CONSTRUCTION BEGINS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL DEVICES TO ASSURE A HIGH DEGREE OF BOTH DAY AND NIGHT VISIBILITY, WHICH WILL INCLUDE ANY WASHING, REPLACEMENT AND/OR REPOSITIONING WHERE DEEMED NECESSARY BY THE ENGINEER.

THE CONTRACTOR SHALL REPAIR OR REPLACE ANY NEW OR EXISTING PERMANENT STATE OWNED SIGNS WHICH ARE DAMAGED DUE TO HIS NEGLIGENCE OR CARELESS HANDLING DURING THE CONSTRUCTION OF THIS PROJECT. THIS SHALL BE DONE AT THE CONTRACTORS EXPENSE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TEMPORARY TRAFFIC CONTROL WORK ZONE AND EXISTING PAVEMENT MARKINGS ON ALL ROADWAYS OPEN TO TRAFFIC WITHIN THE PROJECT. SUFFICIENT QUANTITIES HAVE BEEN PROVIDED FOR MAINTAINING PAVEMENT MARKINGS FOR PRESCRIBED DETOUR ROUTES WHEN DEEMED NECESSARY BY THE ENGINEER.

SIGN MATERIALS

ALL SIGN BLANK MATERIALS SHALL BE THE OPTION OF THE CONTRACTOR BUT SHALL BE OF SUCH MATERIAL THAT WILL RETAIN A SATISFACTORY APPEARANCE THROUGHOUT THE LIFE OF THE PROJECT.

ALL SIGNS, LIGHTS, FLAGS, ETC. SHALL CONFORM IN SIZE, SHAPE, COLOR, LEGENDS AND APPLICATIONS TO THE STANDARDS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND/OR OKLAHOMA STATE STANDARD DRAWINGS FOR SIGNS. STANDARD DRAWINGS ARE AVAILABLE FROM THE DEPARTMENT OF TRANSPORTATION. INTERPRETATIONS THAT MAY BE NECESSARY SHALL BE REFERRED TO THE ENGINEER.

SIGN SHEETING

REFLECTORIZATION OF TRAFFIC CONTROL DEVICES SHALL BE BY MEANS OF WIDE ANGLE, FLAT TOP REFLECTIVE SHEETING MEETING THE REQUIREMENTS OF 2009, OKLAHOMA STANDARD SPECIFICATIONS.

SIGN INSTALLATION

ALL SIGNS SHALL BE SECURELY PLACED OR WEIGHTED TO PREVENT BLOWING OVER. ROCKS, BROKEN CONCRETE OR OTHER SUCH OBJECTS SHALL NOT BE CONSIDERED AN ACCEPTABLE SUBSTITUTE FOR SAND BAGS WHEN USED TO OBTAIN ADDED STABILITY FOR MOVABLE SIGNS AND BARRICADES.

SPACING OF SIGNING, ON THE PLANS OR TCS STANDARDS, SHOULD BE NO LESS THAN THE DISTANCES SHOWN. THE DISTANCE BETWEEN SIGNS SHOULD BE INCREASED ON HIGH SPEED OR MORE HEAVILY TRAVELED HIGHWAYS, OR WHERE SIGHT DISTANCE IS RESTRICTED.

IN ALL CONSTRUCTION ZONES, THE 48 INCH X 48 INCH WARNING SIGNS SHALL HAVE ATTACHED THERETO FLORESCENT FLAGS AND TYPE "A" WARNING LIGHTS. THIS SHALL ALSO APPLY WHEN SIGNS ARE USED ON BOTH SIDES OF THE ROADWAY. ADDITIONAL FLASHING LIGHTS MAY BE REQUIRED WHEN SO DESIRED BY THE ENGINEER.

ALL DIAMOND SHAPED CONSTRUCTION WARNING SIGNS ON EXPRESSWAYS OR FREEWAYS SHALL BE 48 INCH X 48 INCH, WITH THE APPROPRIATE ADVISORY SIGN WHERE REQUIRED UNLESS OTHERWISE NOTED IN THE PLANS.

DUE TO THE TEMPORARY NATURE OF CONSTRUCTION, SIGNS WHICH ARE 33 S.F. AND OVER WILL HAVE NO REINFORCING STEEL IN THEIR FOOTINGS.

ALL SIGNS AND SIGN ASSEMBLIES WITH A TOTAL SURFACE AREA OF 10 S.F. OR MORE SHALL BE INSTALLED ON TWO (2) POSTS. THE EXCEPTION BEING SINGLE ROUTE MARKER ASSEMBLIES.

SIGNS MOUNTED ON BARRICADES SHALL BE MOUNTED AS HIGH AS NECESSARY TO BE VISIBLE.

BARRICADES

ONE (1) WING BARRICADE SHALL BE SET ON EACH SIDE OF THE ROADWAY IN ADVANCE OF THE FIRST ADVANCE WARNING SIGN. THE EXCEPTIONS ARE MINOR CROSS STREETS AND SECTION LINE ROADS WHICH INTERSECT THE WORK AREA.

WING BARRICADES SHALL BE INSTALLED ON TWO (2) BREAKAWAY POSTS.

WORK DURATION

THE FIVE CATEGORIES OF WORK DURATION AND THIER TIME AT A LOCATION SHALL BE:
A) LONG-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN 3 DAYS.
B) INTERMEDIATE-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 DAYS, OR NIGHTTIME WORKLASTING MORE THAN 1 HOUR.
C) SHORT-TERM STATIONARY IS DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD.
D) SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.
E) MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.

LIGHTING

TYPE "A" WARNING LIGHTS SHALL BE USED ON BARRICADES (AS REQUIRED) AND WARNING SIGNS.

TYPE "C" WARNING LIGHTS MAY BE USED ON VERTICAL PANELS (OPTIONAL).

CONSTRUCTION NOTES

SHOULD THE REQUIRED WORK ON ANY PROJECT, INCLUDING ANY TRAFFIC CONTROL, OVERLAP OR OTHERWISE INTERFERE WITH THE ON-GOING WORK OR TRAFFIC CONTROL OF ANOTHER PROJECT, IT SHALL BE THE RESPONSIBILITY OF THE RESPECTIVE CONTRACTORS TO COORDINATE THEIR WORK ACTIVITIES TO FACILITATE THE SAFE MOVEMENT OF TRAFFIC THROUGHOUT OR AROUND THEIR COLLECTIVE WORK AREAS. ANY SUCH RECOMMENDED CHANGES SHALL BE SUBMITTED IN WRITING TO EACH PROJECT RESIDENT ENGINEER FOR REVIEW AND APPROVAL.

ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC THROUGH THE TEMPORARY TRAFFIC CONTROL ZONE SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC OR OTHERWISE TAKEN OUT OF SERVICE. DEVICES SHALL NOT BE STORED ALONG THE ROADWAY, WITHIN 15 FEET (15') OF AN OPEN DRIVING LANE, EITHER BEFORE OR AFTER THEY ARE TO BE USED UNLESS PROTECTED BY GUARDRAIL, BRIDGE RAIL, AND/OR BARRIERS INSTALLED FOR OTHER PURPOSES. THESE DEVICES SHALL BE REMOVED FROM THE TEMPORARY TRAFFIC CONTROL ZONE WHEN THE ENGINEER DETERMINES THEY ARE NO LONGER NEEDED. WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY TO PROVIDE FOR THIS 15 FEET (15') SETBACK, THE CONTRACTOR SHALL DETERMINE ALTERNATE LOCATIONS AND REQUEST THE ENGINEERS APPROVAL TO USE THEM.

TRAFFIC CONTROL DEVICES, WARNING DEVICES, AND BARRIERS SHALL BE KEPT IN CORRECT POSITION, PROPERLY DIRECTED, CLEARLY VISIBLE AND CLEAN AT ALL TIMES. DAMAGED, DEFACED OR DIRTY DEVICES OR BARRICADES SHALL IMMEDIATELY BE REPAIRED, REPLACED OR CLEANED BY THE CONTRACTOR AND APPROVED FOR USE BY THE ENGINEER.

NO EQUIPMENT OR VEHICLES BELONGING TO THE CONTRACTOR, HIS SUB-CONTRACTORS OR EMPLOYEES SHALL BE PARKED OR STOPPED WITHIN 30 FEET (30') OF A LANE CARRYING TRAFFIC, AT ANY TIME, UNLESS REQUIRED BY ONGOING WORK OPERATIONS.

ALL DETOURS AND DIVERSIONS SHOULD BE IN PLACE, WITH SIGNING, STRIPING AND CHANNELIZING DEVICES, AS SHOWN IN THE PLANS OR STANDARD DRAWINGS. BEFORE THEY ARE OPENED TO TRAFFIC.

WHEN IT BECOMES NECESSARY TO CLOSE THE ROAD TO THROUGH TRAFFIC, NO LESS THAN SEVEN DAYS PRIOR TO THE CLOSURE, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING INDIVIDUALS OR AGENCIES DESCRIBING THE AFFECTED ROAD AND THE APPROXIMATE DURATION OF THE CLOSURE. THOSE TO BE NOTIFIED INCLUDE BUT ARE NOT LIMITED TO 1) LOCAL LAW ENFORCEMENT OFFICIALS, 2) LOCAL FIRE OFFICIALS, 3) AMBULANCE SERVICES, 4) LOCAL SCHOOL SUPERINTENDENT, 5) UNITED STATES POSTAL SERVICE, AND 6) CITY OR COUNTY ROAD SUPERINTENDENT.

ALL TEMPORARY TRAFFIC CONTROL DEVICES, AND THIER CONDITIONS THROUGHOUT THE LIFE OF THE CONSTRUCTION PROJECT, SHALL MEET O.D.O.T.'S LATEST "QUALITY STANDARDS FOR TEMPORARY TRAFFIC CONTROL DEVICES". THE O.D.O.T. RESIDENT ENGINEER WILL MAKE FINAL DECISION OF ALL TEMPORARY TRAFFIC CONTROL DEVICES BASED ON THE O.D.O.T. GUIDELINES.

NO GENDER BIAS SIGNS ARE ALLOWED.

ARROW DISPLAY

USE OF AN ARROW DISPLAY, IN THE ARROW OR CHEVRON MODE, SHALL BE LIMITED TO STATIONARY OR MOVING LANE CLOSURES.

AN ARROW DISPLAY, IN THE CAUTION MODE, SHALL BE USED ONLY FOR SHOULDER WORK, BLOCKING THE SHOULDER, ROADSIDE WORK NEAR THE SHOULDER, OR FOR MOBILE OPERATIONS (I.E. STRIPING).

AN ARROW DISPLAY IN THE ARROW OR CHEVRON MODE, SHALL NOT BE USED ON A TWO-LANE, TWO-WAY ROADWAY FOR TEMPORARY ONE-LANE OPERATION.

AN ARROW DISPLAY SHALL NOT BE USED ON A MULTI-LANE ROADWAY TO LATERALLY SHIFT TRAFFIC.

CHANNELIZING DEVICES

IN THOSE AREAS WHERE DRIVERS ARE ASKED TO MAKE A DECISION OR MUST BE GUIDED THROUGH A PRECISE MOVEMENT, BY USE OF CHANNELIZING DEVICES, IT IS ESPECIALLY IMPORTANT TO PROVIDE A CLEARLY DEFINED PATH. EXAMPLES OF THIS COULD BE IN DELINEATING A TEMPORARY GORE OR TURNING RADIUS. IN SUCH AREAS THE SPACING OF CHANNELIZING DEVICES MAY BE REDUCED TO 10 FEET FOR SPEEDS OF 40 M.P.H. OR LESS, AND 20 FEET FOR SPEEDS GREATER THAN 40 M.P.H.

WHEN CHANNELIZING DEVICES ARE USED TO DIRECT TRAFFIC ACROSS EXISTING LANE LINES OR EDGE LINES, THE SPACING BETWEEN CHANNELIZING DEVICES SHALL BE REDUCED 50%. SPACING SHOULD ALSO BE REDUCED WHEN CHANNELIZING DEVICES ARE PLACED ON CURVES, HILLS, OR NEXT TO POTENTIAL HAZARDS.

ALL TRAFFIC CONTROL CHANNELIZING DEVICES SHALL MEET MUTCD COLOR REQUIREMENTS.

FLAGGERS

FLAGGERS MUST BE CLEARLY VISIBLE TO APPROACHING TRAFFIC FOR A DISTANCE SUFFICIENT TO PERMIT PROPER RESPONSE BY MOTORISTS TO THE FLAGGING INSTRUCTIONS, AND TO PERMIT TRAFFIC TO REDUCE SPEED OR STOP BEFORE ENTERING THE TEMPORARY TRAFFIC CONTROL ZONE. FLAGGERS SHALL BE POSITIONED TO MAINTAIN MAXIMUM COLOR CONTRAST BETWEEN THE FLAGGER'S REFLECTIVE CLOTHING AND EQUIPMENT AND THE WORK AREA BACKGROUND.

DURING HOURS OF DARKNESS, FLAGGER STATIONS SHALL BE ILLUMINATED SUCH THAT THE FLAGGER WILL BE CLEARLY VISIBLE TO APPROACHING TRAFFIC. LIGHTS TO BE USED FOR ILLUMINATING THE STATION SHALL BE APPROVED BY THE ENGINEER. REFLECTORIZED PADDLES AND REFLECTORIZED VESTS, SHIRTS OR JACKETS SHALL BE USED FOR NIGHTTIME FLAGGING.

UNLESS OTHERWISE SPECIFIED IN THE PLANS, THE COST OF FLAGGING OPERATIONS SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

MINIMUM STANDARDS FOR TRAFFIC CONTROL DEVICES

(1) WARNING LIGHTS (TYPE A FLASHERS AND TYPE C STEADY BURN)
- (A) NOT LESS THAN NINETY (90) PERCENT OF THE TOTAL NUMBER OF LIGHTS BEING USED AT ANY ONE TIME SHALL BE FULLY OPERATIONAL.
- (B) NOT MORE THAN THREE (3) LIGHTS ADJACENT TO ONE ANOTHER SHALL BE FAILING.

(2) ARROW DISPLAY
- (A) WHEN IN ARROW MODE, NO MORE THAN TWO (2) LAMPS IN THE STEM AND ZERO (0) LAMPS IN THE HEAD SHALL BE FAILING. THE DIMMING FUNCTION SHALL BE OPERATING PROPERLY.
- (B) WHEN IN CAUTION MODE (CORNERS), A MINIMUM OF FOUR (4) LAMPS SHALL BE OPERATIONAL. THE DIMMING FUNCTION SHALL BE OPERATING PROPERLY.
- (C) ANY LAMP WHICH IS LIGHTED BUT IMPROPERLY ALIGNED SHALL NOT BE CONSIDERED OPERATIONAL.

(3) CHANGEABLE MESSAGE SIGNS
- (A) NOT LESS THAN NINETY (90) PERCENT OF THE PIXELS SHALL BE FUNCTIONAL IN EACH CHARACTER MODULE.
- (B) NO SANDBAG BALLASTING OVER 3 FEET IN HEIGHT.

(4) PAVEMENT MARKING TAPE
- (A) NOT MORE THAN TEN (10) PERCENT OF ALL TAPE, PAINT, MESSAGE OR SYMBOL SHALL BE MISSING
- (B) NOT MORE THAN TWO (2) CONSECUTIVE DASHED LINES SHALL BE MISSING.
- (C) NOT MORE THAN FIFTY (50) CONTINUOUS FEET OF A SOLID LINE SHALL BE MISSING.

(5) CONSTRUCTION ZONE PAVEMENT MARKERS
- (A) NOT MORE THAN TEN (10) PERCENT OF THE TOTAL NUMBER OF MARKERS SHALL BE MISSING.
- (B) NOT MORE THAN THREE (3) CONSECUTIVE MARKERS SHALL BE MISSING.

STRIPING

WHENEVER THE WORK CAUSES THE OBLITERATION OF PAVEMENT MARKINGS, EITHER TEMPORARY OR PERMANENT MARKINGS SHALL BE IN PLACE PRIOR TO OPENING THE ROADWAY TO TRAFFIC. CENTERLINE PAVEMENT MARKINGS SHALL BE PROVIDED AT ALL TIMES FOR ROADWAYS OPEN TO TRAFFIC.

THE APPLICATION SURFACES FOR PAVEMENT MARKINGS SHALL BE FREE OF DUST, DIRT, MOISTURE OR OTHER FOREIGN MATTER WHICH WOULD INTERFERE WITH ADHESION. INSTALLATION OF ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

ALL TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED IMMEDIATELY AHEAD OF THE PERMANENT STRIPING OPERATIONS OR RE-STRIPING FOR FOLLOWING CONSTRUCTION PHASES.

WHEN REMOVABLE PAVEMENT MARKINGS TAPE IS TO BE INSTALLED ON NEW CONCRETE PAVEMENT, THE CURING COMPOUND SHALL BE REMOVED PRIOR TO INSTALLATION.

IF REMOVABLE PAVEMENT MARKING TAPE IS INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND FAILS DURING THE FIRST SIX MONTHS OF SERVICE, IT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. REPLACEMENT SHALL BE ACCOMPLISHED IN A TIMELY MANNER UPON BEING NOTIFIED, BY THE ENGINEER, OF SUCH FAILURE.

PILOT CAR

WHEN LANE CLOSURES ARE REQUIRED ON TWO-LANE / TWO-WAY ROADWAYS, THE CONTRACTOR MAY, AT HIS OPTION, UTILIZE A PILOT CAR. IF THE CONTRACTOR ELECTS TO USE A PILOT CAR, CHANNELIZING DEVICES ALONG THE CENTERLINE WILL NOT BE REQUIRED. THE PILOT CAR OPERATOR SHALL BE IN RADIO CONTACT WITH PERSONNEL IN THE TEMPORARY TRAFFIC CONTROL ZONE. MAXIMUM SPEED OF THE PILOT CAR THROUGH THE WORK AREA SHALL BE 25 M.P.H. FULL COMPENSATION FOR FURNISHING AND OPERATING THE PILOT CAR, (INCLUDING DRIVER, RADIOS, AND ANY OTHER EQUIPMENT OR LABOR REQUIRED) SHALL BE CONSIDERED AS INCLUDED IN THE COST OF OTHER ITEMS OF WORK.

MISCELLANEOUS

TRAFFIC CONDITIONS MAY NECESSITATE CHANGES IN THE USE AND/OR QUANTITIES OF THE TRAFFIC CONTROL DEVICES AS SHOWN IN THE PLANS OR IN THE STANDARDS. ANY SUCH CHANGES ARE SUBJECT TO APPROVAL BY THE ENGINEER.

ALL CHANNELIZING DEVICES PROVIDED ON THIS PROJECT SHALL BE IN GOOD CONDITION AND SHALL BE APPROVED FOR USE ON THIS PROJECT BY THE ENGINEER.

THE REGULATORY SPEED LIMITS THROUGH THE WORK ZONE MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER WITH THE DOCUMENTED APPROVAL OF THE DIVISION ENGINEER IN ACCORDANCE WITH TITLE 47 OF THE OKLAHOMA MOTOR VEHICLE LAWS.

THE TERMINATION AREA EXTENDS FROM THE DOWNSTREAM END OF THE WORK AREA TO THE TEMPORARY TRAFFIC CONTROL DEVICE SUCH AS "END ROAD WORK" SIGNS, IF POSTED. A SPEED SIGN, OR OTHER SIGNS MAY BE USED TO INFORM ROAD USERS THAT THEY CAN RESUME NORMAL OPERATIONS.

THE CONSTRUCTION SIGNING AND BARRICADE CONTRACTOR SHOULD AFFIX THEIR COMPANY NAME AND/OR LOGO INCONSPICUOUSLY ON EACH TRAFFIC CONTROL DEVICE.

APPROVED BY TRAFFIC ENGINEER: _____ DATE: 3/21/11

TRAFFIC STANDARD

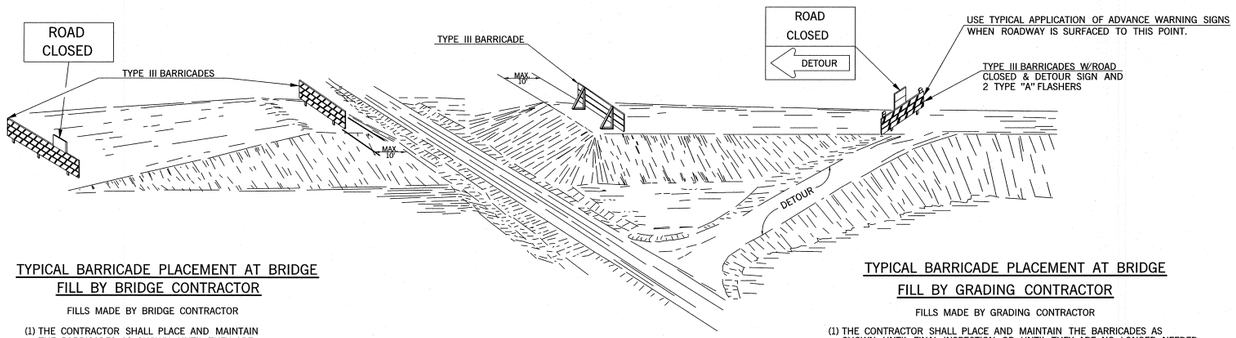
TRAFFIC CONTROL STANDARD
TRAFFIC CONTROL CONSTRUCTION NOTES

2009 SPECIFICATIONS

TCS1-1	01
	T-501

$$date$$

REVISIONS	
DESCRIPTION	DATE
MODIFIED NOTE	3/15/2011
ADD "NO CELL PHONE" USAGE IN WORK ZONE, DISTANCE SIGN TO WARNING SIGNS	4/2/2013



TYPICAL BARRICADE PLACEMENT AT BRIDGE FILL BY BRIDGE CONTRACTOR

FILLS MADE BY BRIDGE CONTRACTOR

(1) THE CONTRACTOR SHALL PLACE AND MAINTAIN THE BARRICADES AS SHOWN UNTIL THEY ARE NO LONGER NEEDED.

(2) THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO REMOVAL OF THE BARRICADES.

(3) THE ENGINEER SHALL NOTIFY THE GRADING CONTRACTOR TO FURNISH AND ERECT HIS BARRICADES "IMMEDIATELY" AFTER THE BRIDGE CONTRACTOR REMOVES HIS BARRICADES. THE GRADING CONTRACTOR SHALL MAINTAIN HIS BARRICADES UNTIL FINAL INSPECTION OR UNTIL THEY ARE NO LONGER NEEDED.

(4) BARRICADES AT BRIDGE FILL SHALL BE IN PLACE AND MAINTAINED AT ALL TIMES UNTIL OPENED TO TRAFFIC, HOWEVER, BARRICADES MAY BE REMOVED OR ADJUSTED, AS NEEDED, TO ALLOW ACCESS TO THE WORK AREA.

TYPICAL BARRICADE PLACEMENT AT BRIDGE FILL BY GRADING CONTRACTOR

FILLS MADE BY GRADING CONTRACTOR

(1) THE CONTRACTOR SHALL PLACE AND MAINTAIN THE BARRICADES AS SHOWN UNTIL FINAL INSPECTION OR UNTIL THEY ARE NO LONGER NEEDED.

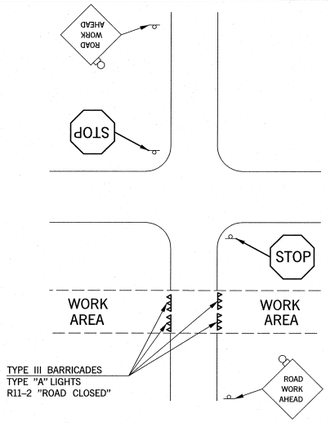
(2) THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO REMOVAL OF THE BARRICADES.

(3) IF THE BRIDGE WORK ORDER IS ISSUED PRIOR TO COMPLETION OF THE GRADING CONTRACT, THE BRIDGE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE GRADING CONTRACTOR TO ASSUME RESPONSIBILITY FOR PROTECTION OF THE BRIDGE WORK AREA. THIS WILL INCLUDE FURNISHING, INSTALLING, AND MAINTAINING ALL BARRICADES AND SIGNS NECESSARY TO PROVIDE THAT PROTECTION UNTIL THE BRIDGE IS COMPLETED AND THE FINAL INSPECTION IS COMPLETED.

(4) IF THE BRIDGE WORK ORDER HAS NOT BEEN ISSUED PRIOR TO THE FINAL INSPECTION OF THE GRADING, THEN THE GRADING CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OKLAHOMA DEPARTMENT OF TRANSPORTATION FOR STATE FORCES TO SUPPLY, INSTALL AND MAINTAIN ANY NECESSARY TRAFFIC CONTROL DEVICES NEEDED TO PROTECT THE WORK AREA. THESE STATE OWNED DEVICES SHALL REMAIN IN PLACE UNTIL SUCH TIME THAT THE BRIDGE WORK ORDER IS ISSUED, AT THAT TIME THE BRIDGE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR TRAFFIC CONTROL AND REPLACE THE STATE OWNED DEVICES WITH HIS OWN.

(5) SUFFICENT NUMBER OF TYPE II BARRICADES WITH SIGNS SHALL BE USED TO COMPLETELY CLOSE THE WORK AREA TO THROUGH TRAFFIC.

(6) BARRICADES AT BRIDGE FILL SHALL BE IN PLACE AND MAINTAINED AT ALL TIMES UNTIL OPENED TO TRAFFIC, HOWEVER, BARRICADES MAY BE REMOVED OR ADJUSTED, AS NEEDED, TO ALLOW ACCESS TO THE WORK AREA.



TYPICAL SIGN PLACEMENT FOR INTERSECTING ROADS AND STREETS

NOTES:

(1) SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.

(2) FLASHING WARNING LIGHTS SHALL BE USED TO CALL ATTENTION TO THE EARLY WARNING SIGNS.

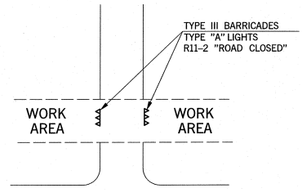
(3) WARNING LIGHTS SHOULD BE USED TO MARK CHANNELIZING DEVICES AT NIGHT AS NEEDED.

(4) PLACEMENT OF TYPE III BARRICADES SHALL BE APPROVED BY THE ENGINEER.

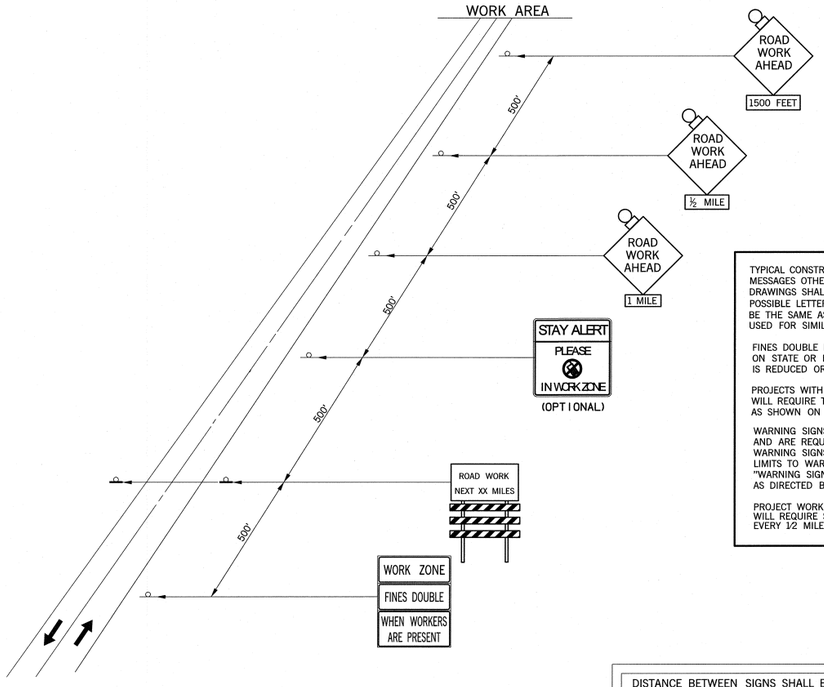
(5) TYPE II BARRICADES, DRUMS AND/OR VERTICAL PANELS MAY BE SUBSTITUTED FOR TYPE III BARRICADES TO AVOID OBSTRUCTING THE MOTORISTS VIEW.

(6) IF TWO OR MORE DRIVEWAYS ARE IN CLOSE PROXIMITY, THE BARRICADES BETWEEN THE DRIVEWAYS MAY BE OMITTED AT THE DISCRETION OF THE ENGINEER.

(7) THE "ROAD WORK AHEAD" SIGN, WHICH SERVES AS A GENERAL WARNING OF OBSTRUCTIONS OR RESTRICTIONS, SHALL BE LOCATED ON ALL INTERSECTING ROADS AND STREETS.



TYPICAL SIGN PLACEMENT FOR PRIVATE DRIVE OR RESIDENCE



TYPICAL APPLICATION ADVANCE WARNING SIGNS ON 2–LANE HIGHWAY

TYPICAL CONSTRUCTION WARNING SIGNS WITH MESSAGES OTHER THAN DETAILED ON STANDARD DRAWINGS SHALL BE CONSTRUCTED USING THE LARGEST POSSIBLE LETTER SIZE. SIGN SIZE AND COLOR SHALL BE THE SAME AS OTHER CONSTRUCTION WARNING SIGNS USED FOR SIMILAR CONDITIONS.

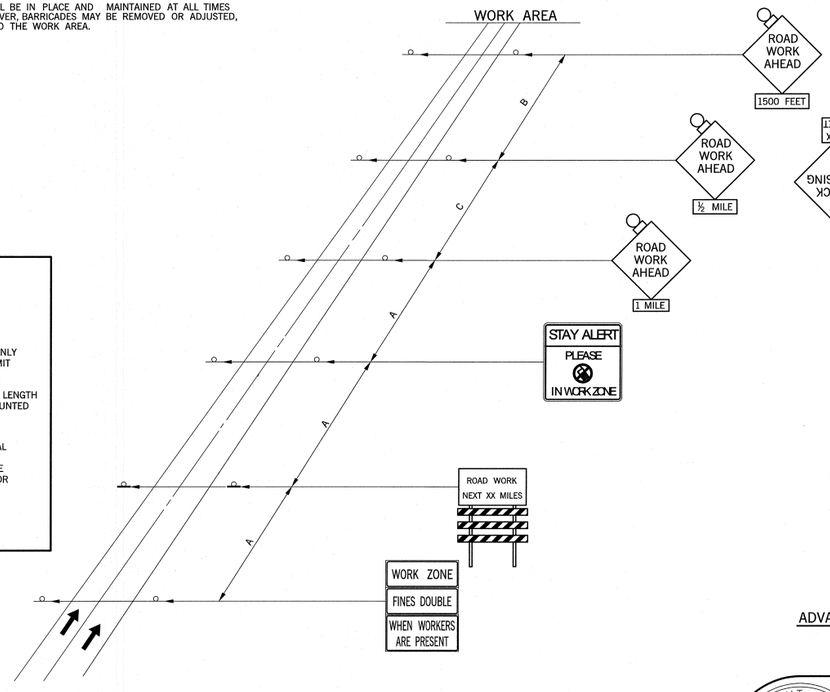
FINES DOUBLE IN WORK ZONE SIGNS ARE TO BE USED ONLY ON STATE OR FEDERAL HIGHWAYS WHERE THE SPEED LIMIT IS REDUCED OR AS DIRECTED BY THE ENGINEER.

PROJECTS WITH WORK LIMITS OF 1.0 MILES OR MORE IN LENGTH WILL REQUIRE THE G20-1A SIGN. THE SIGN SHALL BE MOUNTED AS SHOWN ON TCS4-1-(LATEST REVISION).

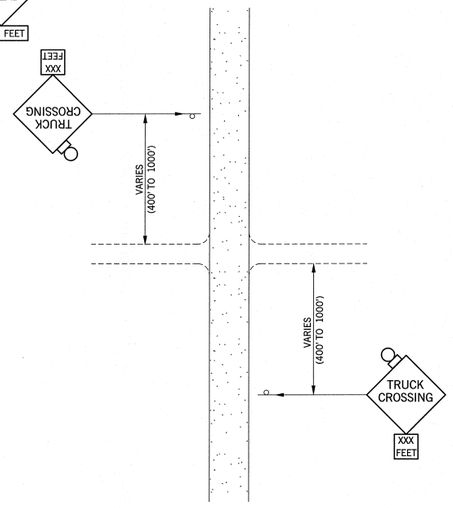
WARNING SIGNS SHOWN ARE "ADVANCE" WARNING SIGNS AND ARE REQUIRED ON ALL STATE HIGHWAYS. ADDITIONAL WARNING SIGNS MAY BE REQUIRED WITHIN THE PROJECT LIMITS TO WARN DRIVERS OF SPECIFIC HAZARDS. ADVANCE "WARNING SIGNS" MAY CHANGE AS CONDITIONS CHANGE OR AS DIRECTED BY THE ENGINEER.

PROJECT WORK OF 1.0 MILE OR MORE IN LENGTH WILL REQUIRE SIGNS CS-14 AND R2-1 TO BE PLACED EVERY 1/2 MILE THROUGH WORK ZONE.

DISTANCE BETWEEN SIGNS SHALL BE A (MIN.)			
ROAD TYPE	A (FT)	B (FT)	C (FT)
URBAN (LOW SPEED)	100	100	100
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY /FREEWAY	1,000	1,500	2,640



TYPICAL APPLICATION ADVANCE WARNING SIGNS ON A DIVIDED HIGHWAY



TYPICAL APPLICATION ADVANCE SIGNING WHERE TRUCKS ARE CROSSING

APPROVED BY TRAFFIC ENGINEER: _____ DATE: 4/8/2013

TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD PLACEMENT OF ADVANCE WARNING SIGNS

2009 SPECIFICATIONS

TCS7-1 | 02

T-507

$$date$$

DESCRIPTION	REVISIONS	DATE
CHANGED SIGN DESIGNATION		3/15/2011

ROAD CLOSED

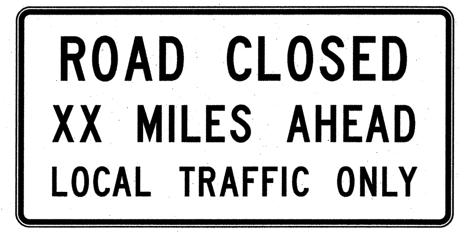
R11-2 48 x 30 10.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)

LANE CLOSED

R11-2(LANE) 48 x 30 10.00 SF

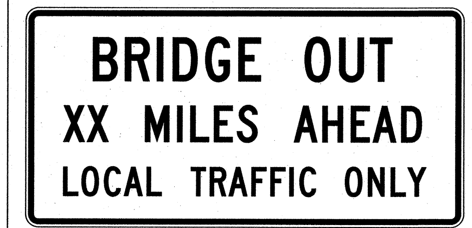
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



ROAD CLOSED XX MILES AHEAD

R11-3a 60 x 30 12.50 SF

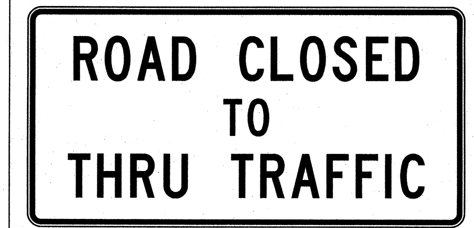
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



BRIDGE OUT XX MILES AHEAD

R11-3b 60 x 30 12.50 SF

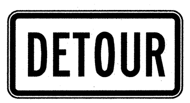
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



ROAD CLOSED TO THRU TRAFFIC

R11-4 60 x 30 12.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



DETOUR SIGN

M4-8 24 x 12 2.00 SF
M4-8E 30 x 15 3.13 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)

DETOUR SIGN

M4-9(R) 30 x 24 5.00 SF
M4-9(R)E 48 x 36 12.00 SF
M4-9(R)F 60 x 48 20.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)

DETOUR SIGN

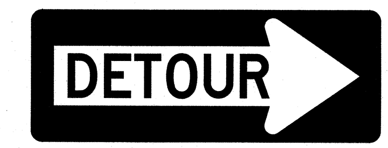
M4-9(L) 30 x 24 5.00 SF
M4-9(L)E 48 x 36 12.00 SF
M4-9(L)F 60 x 48 20.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)

DETOUR SIGN

M4-9(V) 30 x 24 5.00 SF
M4-9(V)E 48 x 36 12.00 SF
M4-9(V)F 60 x 48 20.00 SF

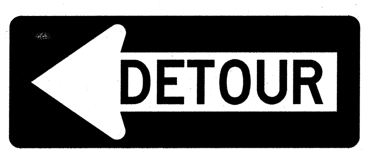
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-10(R) 48 x 18 6.00 SF

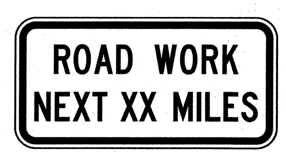
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-10(L) 48 x 18 6.00 SF

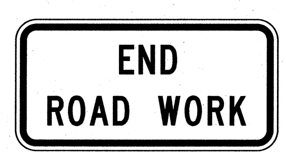
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



ROAD WORK NEXT XX MILES SIGN

G20-1A 36 x 18 4.50 SF

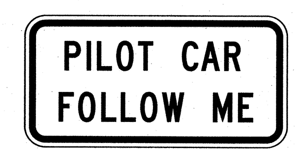
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



END ROAD WORK SIGN

G20-2A 36 x 18 4.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



PILOT CAR FOLLOW ME SIGN

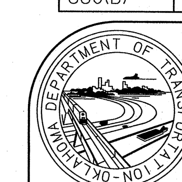
G20-4 36 x 18 4.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)

NOTES:
WORD SIGNS MAY BE USED IF SYMBOL SIGNS ARE NOT AVAILABLE EITHER IN "STANDARD HIGHWAY SIGNS MANUAL" OR IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) (CURRENT EDITION).

ALL DIAMOND SHAPE CONSTRUCTION WARNING SIGNS SHALL BE 48 INCHES X 48 INCHES UNLESS OTHERWISE NOTED IN THE PLANS.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



APPROVED BY TRAFFIC ENGINEER: [signature] DATE: 3/21/11

TRAFFIC STANDARD

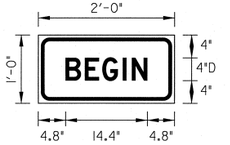
TRAFFIC CONTROL STANARD
CONSTRUCTION SIGNS

2009 SPECIFICATIONS

TCS9-1 | 01
T-509

$$date$$

REVISIONS	
DESCRIPTION	DATE
CHANGED DECRIPTIONS	3/15/2011

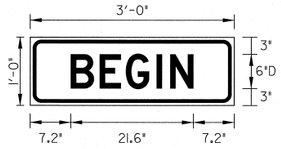


Dimensions are in inches.tenths

SIGN NUMBER	CS-13
WIDTH x HGHT.	2'-0" x 1'-0"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	2.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: FLO*
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X) — LENGTH SERIES/SIZE

B	E	G	I	N					
4.8	8.2	11.3	14.9	16.5				14.4	D 2000

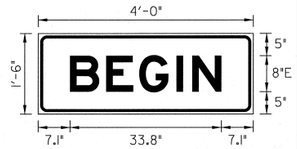


Dimensions are in inches.tenths

SIGN NUMBER	CS-13E
WIDTH x HGHT.	3'-0" x 1'-0"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	3.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: FLO*
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X) — LENGTH SERIES/SIZE

B	E	G	I	N						
7.2	12.3	16.9	22.3	24.7					21.6	D 2000



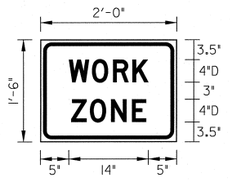
Dimensions are in inches.tenths

SIGN NUMBER	CS-13F
WIDTH x HGHT.	4'-0" x 1'-6"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	6.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: FLO*
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X) — LENGTH SERIES/SIZE

B	E	G	I	N						
7.1	15.2	22.6	30.9	34.4					33.8	E 2000

FLO* = FLUORESCENT ORANGE

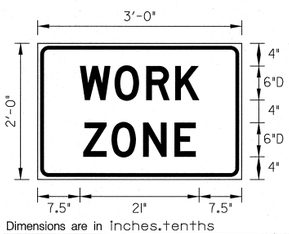


Dimensions are in inches.tenths

SIGN NUMBER	CS-14
WIDTH x HGHT.	2'-0" x 1'-6"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	3.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: FLO*
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X) — LENGTH SERIES/SIZE

W	O	R	K						
5	9.1	12.8	16.2					14	D 2000
Z	O	N	E						D 2000
5.4	8.7	12.5	16.1					13.2	

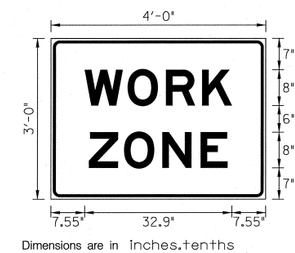


Dimensions are in Inches.tenths

SIGN NUMBER	CS-14E
WIDTH x HGHT.	3'-0" x 2'-0"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	6.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: FLO*
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X) — LENGTH SERIES/SIZE

W	O	R	K							
7.5	13.6	19.2	24.3						21	D 2000
Z	O	N	E							D 2000
8.1	13.1	18.7	24.2						19.8	

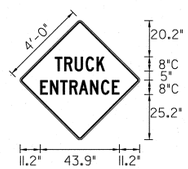


Dimensions are in inches.tenths

SIGN NUMBER	CS-14F
WIDTH x HGHT.	4'-0" x 3'-0"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	12.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: FLO*
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X) — LENGTH SERIES/SIZE

W	O	R	K							
7.6	17.2	25.7	33.8						32.9	E 2000
Z	O	N	E							E 2000
8.5	16.4	24.9	33.5						31	



Dimensions are in inches.tenths

SIGN NUMBER	CS-15
WIDTH x HGHT	4'-0" x 4'-0"
BORDER WIDTH	0.75"
CORNER RADIUS	1.38"
MOUNTING	Ground
SIGN AREA	16.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: Yellow
LEGEND/BORDER	TYPE: Reflective
	COLOR: Black

LETTER POSITIONS (X) — LENGTH SERIES/SIZE

T	R	U	C	K						
19.3	24.5	30.4	36.5	42.5					27.7	C 2000
E	N	T	R	A	N	C	E			C 2000
11.2	16.7	22.3	27.5	32.7	38.9	45	51.1		43.9	

CS-13, E, F

CS-14, E, F

R2-1, E, F

CONSTRUCTION
BEGIN WORK ZONE
SPEED LIMIT
ASSEMBLY

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD

APPROVED BY
TRAFFIC ENGINEER: David Streb DATE: 3/21/11

TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

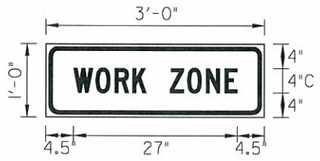
2009 SPECIFICATIONS

TCS19-1 | 01

T-519

$$date$$

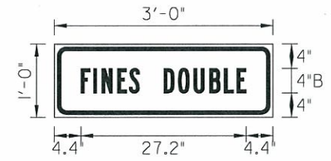
REVISIONS		
DESCRIPTION		DATE



Dimensions are in inches.tenths

SIGN NUMBER	CS-16
WIDTH x HGHT.	3'-0" x 1'-0"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	3.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X)											LENGTH	SERIES/SIZE
W	O	R	K		Z	O	N	E				C 2000
4.5	8	11.2	14.1	16.3	20.3	23.2	26.3	29.5		27		



Dimensions are in inches.tenths

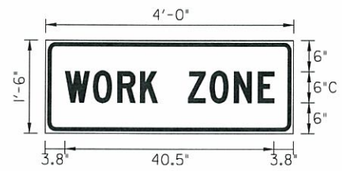
SIGN NUMBER	CS-17
WIDTH x HGHT.	3'-0" x 1'-0"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	3.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: White
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X)													LENGTH	SERIES/SIZE
F	I	N	E	S		D	O	U	B	L	E			B 2000
4.4	6.5	7.9	10.5	12.4	14.1	18.1	20.5	23.1	25.7	28	30.1	27.2		

Dimensions are in inches.tenths

SIGN NUMBER	CS-18
WIDTH x HGHT.	3'-0" x 1'-6"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	4.5 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: White
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X)													LENGTH	SERIES/SIZE
W	H	E	N		W	O	R	K	E	R	S			B 2000
3	6.1	8.7	10.9	12.6	16.6	19.6	22.2	24.6	27	29.1	31.3	30		
A	R	E		P	R	E	S	E	N	T				B 2000
5.3	8	10.3	11.9	15.9	18.1	20.5	22.4	24.8	26.9	29.2		25.5		



Dimensions are in inches.tenths

SIGN NUMBER	CS-16E
WIDTH x HGHT.	4'-0" x 1'-6"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	6.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X)											LENGTH	SERIES/SIZE
W	O	R	K		Z	O	N	E				C 2000
3.8	9	13.8	18.2	21.5	27.5	31.8	36.5	41.2		40.5		

Dimensions are in inches.tenths

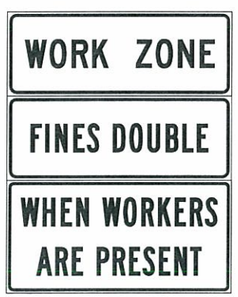
SIGN NUMBER	CS-17E
WIDTH x HGHT.	4'-0" x 1'-6"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	6.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: White
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X)													LENGTH	SERIES/SIZE
F	I	N	E	S	D	O	U	B	L	E				B 2000
5.1	8.2	10.3	14.2	17.1	22.7	26.2	30.1	34	37.5	40.7	37.9			

Dimensions are in inches.tenths

SIGN NUMBER	CS-18E
WIDTH x HGHT.	4'-0" x 2'-0"
BORDER WIDTH	0.63"
CORNER RADIUS	1.13"
MOUNTING	Ground
SIGN AREA	8.0 Sq.Ft.
BACKGROUND	TYPE: Reflective
	COLOR: White
LEGEND/BORDER	TYPE: Non-Reflective
	COLOR: Black

LETTER POSITIONS (X)												LENGTH	SERIES/SIZE
W	H	E	N	W	O	R	K	E	R	S			B 2000
3	7.7	11.6	14.9	20.4	24.9	28.8	32.4	36	39.2	42.4	41.9		
A	R	E	P	R	E	S	E	N	T				B 2000
6.4	10.5	14	19.3	22.7	26.3	29.1	32.7	35.9	39.3		35.2		



CS-16, E

CS-17, E

CS-18, E

CONSTRUCTION
FINES DOUBLE
ASSEMBLY

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD

APPROVED BY TRAFFIC ENGINEER David Streb DATE 6/23/10

TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

2009 SPECIFICATIONS

TCS20-1	00
	T-520