PLAN OF PROPOSED COUNTY BRIDGE

FEDERAL AID PROJECT NO. STP-259D(044)CI BRIDGE AND APPROACHES COUNTY ROAD E0510 OVER UNNAMED CREEK

PAWNEE COUNTY

STATE JOB NO. JP29930(04) BRIDGE "A" LOCATION NO. 59E051N3490007 LOCAL ID: 089 LATITUDE N36°16'31.5" LONGITUDE W96°46'16.5" EXISTING NBI NO. 04189; NEW NBI NO. 32009

PAWNEE CITY LIMITS STA. 13+75.00 BEGIN PROJECT STA. 14+73.00 BEGIN BRIDGE "A STA. 15+28.00 TO MORRISON END BRIDGE "A" STA. 16+10.00 END PROJECT E0490 RD TO CLEVELAND E0500 RD E0510 RD E0520 RD NOBLE RD US-412 TO SAND SPRINGS US-412 TO 8 N3510

NOTE: PROJECT LENGTH BASED ON CRL STATIONING

ROADWAY LENGTH 235.00 FT.	0.04	MI.
BRIDGE LENGTH 55.00 FT.	0.01	MI.
PROJECT LENGTH	0.05	MI.

EQUATIONS : NONE

OKLAHOMA DEPARTMENT OF TRANSPORTATI

INDEX OF SHEETS

001 TITLE SHEET

002 TYPICAL SECTION

ARO1 PAY QUANTITIES & NOTES (ROADWAY & BRIDGE)

ATO1 PAY QUANTITY & NOTES (TRAFFIC)

BO1 GENERAL PLAN & ELEVATION

BO2 BRIDGE PLAN

BO3 BRIDGE SECTIONS

B04-B05 BRIDGE NOTES

RO1 STORM WATER MANAGEMENT PLAN

RO2 EROSION CONTROL DETAIL

RO3 PLAN & PROFILE

SO1 SURVEY AND ALIGNMENT DATA

TO1 TRAFFIC CONTROL

X01-X02 CROSS SECTIONS

THE FOLLOWING STANDARD DRAWINGS WILL BE NEEDED:

ROADWAY TRAFFIC TCS1-1-01 TSD-2-0 TCS2-1-00 TSC2-3-2 TCS4-1-01 TCS5-1-00 TCS7-1-02 TCS8-1-00 TCS9-1-01 TCS14-1-00 TCS20-1-00

DATE:	Agrant 21:2017	
DIST. 1:	Van	
DIST. 2:	and Normado	AMOUNT
DIST. 3:	Dale Cotter of	
ATTEST:	Guell Moles	
		1 9



PRIOR TO PERFORMING ANY GRADING OR EXCAVATING WORK, THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS OR "CALL OKIE (OKLAHOMA ONE—CALL)" NOT LESS THAN 48 HOURS IN ADVANCE AND SHALL VERIFY OR ESTABLISH THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND LINES.

WILLIAM T MESHEK 17353

OKLAHOM



DATE angust 11, 2017

OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED	DATE APPROVED

COUNTY_	PAWNEE	COUNTY ROAD	E0510	SHEET NO. 001
	S.	TATE JOB NO.	JP299	930(04)
	CHIEF ENGINE	ER	DIVIS	SION ADMINISTRATOR
BY			BY	
DATE APP	ROVED	DATE	APPROVED	

UTILITIES INFORMATION

CALL OKIE 1-800-522-OKIE (1-800-522-6543)

918-762-2565

ELECTRIC INDIAN ELECTRIC COOP 918-295-9517

PAWNEE COUNTY RWD#3
DELMAN WEAVER JR. 405-747-5426

TELEPHONE CIMARRON TELEPHONE 918-839-2484

PAWNEE COUNTY SHERIFF 500 HARRISON STREET PAWNEE, OK 74058

NATURAL GAS 405-707-5609

FOR SURVEY CONTROL DATA SEE SURVEY DATA SHEETS

DESIGN DATA

ADT 2015 = 100 = 160 ADT 2035 T (% ADT) = 10% = 30MPH

20YR FLEX ESALS =100,000

SCALES PLAN 1"=50"

PROFILE HOR. 1"=50" VER. 1"=5"

LAYOUT MAP 1"=5280' CONVENTIONAL SYMBOLS

> PROPOSED ROAD ___ --- RANGE & TOWNSHIP --- SECTION LINES QUARTER SECTION LINES FENCES ---GROUND LINE ==== EXISTING ROADS BASE LINE 11 0-21 GRADE LINES -04-0-TELEPHONE & TELEGRAP

-0-0-POWER LINES BUILDINGS DRAINAGE STRUCTURES - IN PLACE DRAINAGE STRUCTURES - NEW PRES. R/W RIGHT-OF-WAY LINES - EXISTING RIGHT-OF-WAY LINES - NEW CONTROLLED ACCESS

RIGHT-OF-WAY FENCE 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION GOVERN, APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, JANUARY 4, 2010.

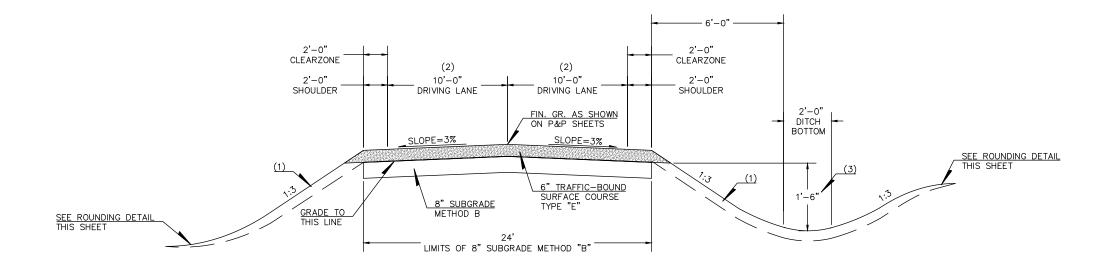
DIVISION VIII

PAWNEE COUNTY

LOCATION MAP

EXCEPTIONS : NONE





PAVEMENT REQUIREMENT			
6" PAVT. STRUCTURE	10'-0" DRIVING LANES	2'-0" SHOULDERS	
SURFACE COURSE	6" TRAFFIC-BOUND SURFACE COURSE TYPE "E"	6" TRAFFIC-BOUND SURFACE COURSE TYPE "E"	

TYPICAL T.B.S.C. SECTION (2)

STA. 13+75.00 TO STA. 16+10.00

TOPSOIL NOTE:

The Contractor Shall Strip All Of The Available Topsoil, Stockpile It, And Place It Back On The Section In Accordance with Section 205 Of The Standard Specifications. Reserved Topsoil Shall Be Spread First On The Completed Slopes Of The Cut Sections And The Remainder On Completed Fill Slopes Or Other Priority Areas Located By The Engineer. All Additional Costs Associated With Operations Shall Be Included In The Pay Item For Salvaged Topsoil. Lump Sum.

The Grading Line As Shown On The Typical And Cross Sections Is To The Top Of The Topsoil. Earthwork Quantities Were Not Adjusted for Salvage and The Topsoil Quantity Is Included In The mass Line Balance.

-STA. 13+75.00 TO STA. 14+28.89 TRANSITION FROM EX. ROADWAY TO TYPICAL SECTION
-STA. 15+39.66 TO STA. 16+10.00 TRANSITION FROM TYPICAL SECTION TO EX. ROADWAY

(3) Distance Measured Vertically From Edge Of Finished Grade Shoulder.

CHECKED	BWF	6/17	TYPICAL SECTION	
APPROVED SQUAD		6/17 SHEK	THORESECTION	
COUNTY_	P	AWNE	COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO 002	2

ROUNDING DETAIL

● INTERSECTION OF CUT AND/OR FILL SLOPES WITH GROUND LINE TO BE ROUNDED AS PART OF FINISHING OPERATIONS. ROUNDING SHALL BE 5' MINIMUM FOR SMALLER CUTS AND FILLS TO 15' MAXIMUM FOR LARGER CUTS AND FILLS OR AS DESIGNATED BY THE ENGINEER. COST OF ROUNDING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.

TOPSOIL-● 5' MIN. - 15' MAX. TOE OF FILL ROUNDING TOP OF CUT ROUNDING

ROADWAY GENERAL CONSTRUCTION NOTES

THE CONTRACTOR SHALL CONTACT ODOT AT 918-838-9933 AND COUNTY AT 918-454-2488 14 DAYS PRIOR TO COMMENCING WORK.

COUNTY ROAD 0510 IS TO BE CLOSED DURING CONSTRUCTION.

FOR PROJECTS THAT INCLUDE WIDENING AND/OR RESURFACING, THE CONTRACTOR SHALL SCHEDULE OPERATIONS TO MINIMIZE POTENTIAL DROP-OFF HAZARDS AND SHALL SUBMIT A SEQUENCE OF CONSTRUCTION OPERATIONS TO THE RESIDENT ENGINEER FOR APPROVAL BEFORE OPERATIONS BEGIN. ANY PORTION OF THE CONSTRUCTION OPERATIONS, SUCH AS SUPERPAVE LAYING OPERATIONS, EXCAVATION FOR PAVEMENT WIDENING, OR EXTENSION OF ROADWAY STRUCTURES, SHALL BE LIMITED TO ONE SIDE AT A TIME, AND THE PROCEDURES OUTLINED IN THE TRAFFIC CONTROL DROP-OFF STANDARD TCS29-1 SHALL BE IMPLEMENTED. ONLY THAT AMOUNT OF OPEN TRENCH WILL BE ALLOWED THAT CAN BE SURFACED IN 1 (ONE) DAY'S TIME WITHOUT APPROVAL BY THE ENGINEER. LIGHTS, SIGNS AND BARRICADES SHALL BE MOVED AS WORK PROGRESSES.

MEET AND MATCH GRADE ON THE ROADWAY.

ALL TREES, BRUSH, AND OTHER DEBRIS THAT MIGHT INTERFERE WITH THE FLOW OF WATER SHALL BE CLEANED OUT TO THE RIGHT—OF—WAY LINE, AT EACH STRUCTURE AND BRIDGE, IN A MANNER APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY STOCK TIGHT RIGHT-OF-WAY FENCE AS REQUIRED. WHEN THE PORTION OF THE PROJECT THAT REQUIRED THIS FENCE IS COMPLETED, THE TEMPORARY FENCE SHALL BE REMOVED, AND PERMANENT RIGHT-OF-WAY FENCING SHALL BE RESTORED OR INSTALLED IN A MANNER APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

ALL FLOWLINES THAT ARE TO BE FILLED SHALL BE THOROUGHLY TAMPED BEFORE CONSTRUCTION OR EXTENSION OF DRAINAGE STRUCTURES. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

IN ORDER TO ALLEVIATE DUST CONDITIONS DURING GRADING OPERATIONS AND BEFORE PAVEMENT WORK IS COMPLETED, THE CONTRACTOR SHALL SPRINKLE GRADING AT INTERVALS APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

THE CONTRACTOR SHALL NOT WASTE ANY EXCESS EXCAVATION UNTIL ALL PLANNED EMBANKMENTS AND BACKFILLS ARE COMPLETED. EXCESS UNCLASSIFIED EXCAVATION MATERIAL DETERMINED BY THE ENGINEER TO BE SUITABLE FOR BACKFILL SHALL BE USED TO REDUCE ANY UNCLASSIFIED BORROW NEEDED. COST OF SECOND HANDLING SHALL BE INCLUDED IN OTHER ITEMS OF WORK. ANY REMAINING EXCESS EXCAVATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER. NO MATERIALS ARE TO BE STORED IN THE FLOODPLAIN.

THE CONTRACTOR SHALL KEEP THE OPEN TRENCH DRAINED. COST TO BE INCLUDED IN OTHER ITEMS OF WORK

AT THE BEGINNING OF TURFING OPERATIONS, ANY AREAS INCLUDED IN PLANNED QUANTITIES THAT HAVE GROWN A SATISFACTORY VOLUNTEER TURF OF PERENNIAL GRASS, AS DETERMINED BY THE ENGINEER, SHALL BE FERTILIZED AND WATERED AS CALLED FOR ON THE PLANS, BUT SHALL NOT BE SEEDED, SODDED, OR SPRIGGED

T.B.S.C. SURFACES SHALL BE SPRINKLED WITH WATER AND ROLLED WITH A PNEUMATIC ROLLER IN A MANNER APPROVED BY THE ENGINEER.

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.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE HE MAY INFLICT TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF HIS DIGGING, TRENCHING, BORING, ETC... PRIOR TO DIGGING NEAR THE UTILITIES, THE CONTRACTOR SHALL CALL FOR A LIST OF ALL UNDERGROUND FACILITIES REGISTERED IN THE AREA OF CONSTRUCTION LISTED WITH THE FOLLOWING AGENCIES:

THE "OKIE" NOTIFICATION CENTER 811 OR 1-800-522-6543 OR

WWW.CALLOKIE.COM OR THE LOCAL COUNTY CLERK'S OFFICE.
DEPTH OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR
PRIOR TO CONSTRUCTION

ENVIRONMENTAL MITIGATION NOTES

THE AMERICAN BURYING BEETLE IS A LARGE CARRION BURYING BEETLE THAT IS LISTED AS ENDANGERED UNDER THE ENDANGERED SPECIES ACT. IN ORDER TO AVOID ADVERSE IMPACTS, NO ARTIFICIAL LIGHTING SHALL BE USED DURING CONSTRUCTION. CARCASSES AND ALL FOOD TRASH SHALL BE REMOVED FROM THE PERMANENT AND TEMPORARY RIGHT—OF—WAY THROUGHOUT PROJECT ACTIVITIES.

MIGRATORY BIRDS ARE PROTECTED BY THE FEDERAL MIGRATORY BIRD TREATY ACT. THESE BIRDS COMMONLY USE BRIDGES AND CULVERTS FOR NESTING. THE NESTING SEASON FOR THE BIRDS RUNS FROM APRIL 1 TO AUGUST 31. ANY ACTIVITIES WHICH WOULD DESTROY ACTIVE NESTS OR HARM EGGS OR BIRDS WOULD VIOLATE THE MIGRATORY BIRD TREATY ACT. MIGRATORY BIRD USE OF BRIDGE NBI NO. 04189 HAS BEEN OBSERVED DURING THE INITIAL SURVEY CONDUCTED AS PART OF THE BIOLOGICAL STUDIES IN 2016. THE RESIDENT ENGINEER WILL EVALUATE THE CONTRACTOR'S PROPOSED WORK METHODS AND CONCLUDE WHETHER THE PROPOSED WORK WOULD POSE DISRUPTION TO ANY NESTING BIRDS BEFORE WORK NEAR THE STRUCTURE IS AUTHORIZED. IF THE PROPOSED WORK WILL HARM ANY NESTING BIRDS, THE BRIDGE MAY BE NETTED PRIOR TO APRIL 1 OR THE WORK DELAYED UNTIL THE NESTING SEASON IS COMPLETE. METHODS OTHER THAN NETTING MUST BE PRE-APPROVED BY THE ODDT BIOLOGIST.

SPECIAL PAY ITEM NOTES

- (1) INCLUDES THE REMOVAL AND DISPOSAL OF TREES, BRUSH, WEEDS, BROKEN CONCRETE, ROCKS, MISCELLANEOUS DEBRIS AND R.O.W. RESTORATION.
- (2) PRICE SHALL INCLUDE THE COST OF EXCAVATION, HAULING, PLACEMENT, COMPACTION AND DISPOSAL OF WASTE SOIL.
- (3) PRICE INCLUDES FINE GRADING AND FERTILIZING. PRICE SHALL INCLUDE ALL EROSION & SEDIMENT CONTROL MEASURES TO COMPLY WITH THE SP3 AND EROSION CONTROL PLAN. (SEE SHEETS R01 & R02)
- (4) COST INCLUDES REPLACEMENT OF DEAD SOD UNTIL AN ACCEPTABLE STAND HAS BEEN ESTABLISHED.
- (5) PRICE INCLUDES THE REMOVAL OF ALL ITEMS REQUIRED FOR THE COMPLETION OF THE PROJECT AS SHOWN, BUT NOT SPECIFICALLY INCLUDED IN OTHER PAY ITEMS. INCLUDES REMOVAL OF ALL EXISTING ROADWAY DRAINAGE STRUCTURES, HEADWALLS (UNLESS OTHERWISE SPECIFIED), INLETS, FENCES, GUARDRAILS, AND OTHER STRUCTURES WITHIN THE RIGHT OF WAY.
- (6) COST INCLUDES MATERIALS AND CONSTRUCTION OF THE FOUNDATION, PRECAST CONCRETE BRIDGE UNITS,

HEADALLS, AND WINGWALLS FOR A 36'-0" WIDE X 8'-118" TALL CONSPAN (OR APPROVED EQUAL) STRUCTURE AS DETAILED IN THESE PLANS. COST ALSO INCLUDES EXCAVATION, BACKFILL AND CLSM REQUIRED FOR PLACEMENT OF STRUCTURE.

- (7) TO INCLUDE 135 C.Y. OF AGGREGATE BASE TYPE A TO BE PLACED BENEATH THE SEGMENTS OF WINGWALL FOOTINGS BEARING ON SHEET 11.
- (8) TO INCLUDE 1700 C.Y. OF SELECT BACKFILL AT 'CRITICAL BACKFILL ZONE' BEHIND THE WINGWALL AND AROUND THE PRECAST ARCH, AS IDENTIFIED ON SHEET 13, WILL BE BACKFILLED UNDER 'AGGREGATE BASE TYPE A' PAY ITEM. THE BACKFILL MATERIAL MUST MEET THE SOIL REQUIREMENTS SPECIFIED ON SHEET 13.
- (9) THE WINGWALLS WILL BE PAID FOR IN SQUARE YARDS OF 'RETAINING WALL' AS MEASHURED FROM TOP OF THE FOOTING TO THE WALL TOP. THE PRICE BID SHALL INCLUDE THE COST OF ALL PREFABRICATED ELEMENTS, EQUIPMENT AND LABOR, GROUT, ANCHOR UNITS, CONNECTION PLATES AND HARDWARE, AND ALL MISCELLANEOUS ITEMS AS SHOWN IN THE PLANS.
- (10) ESTIMATED AT 140 LBS. PER CU. FT.
- (11) ITEM "REMOVAL OF EXISTING BRIDGE STRUCTURE" CONSISTS OF REMOVAL OF A $1-25^{\circ}$ AND $1-27^{\circ}$ I-BEAM SPANS AT APPROXIMATE CENTERLINE STATION 15+00.53 (NOT SET). THE REMOVAL SHALL BE IN ACCORDANCE WITH SECTION 619.04(b)2 OF THE 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND IN A MANNER APPROVED BY THE ENGINEER.
- (12) THE CONTRACTOR SHALL REMOVE BEAMS FROM THE EXISTING BRIDGE WITH CARE AND PLACE THEM ON THE RIGHT-OF-WAY FOR COUNTY REMOVAL. THE CONTRACTOR SHALL ENSURE THAT THE BEAMS ARE FREE OF CONSTRUCTION DEBRIS AND CONCRETE. THE REMAINING STRUCTURE AND MATERIALS REMOVED DURING THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR. ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING BRIDGE, AS DESCRIBED ABOVE AND AS DIRECTED BY THE ENGINEER INCLUDING LABOR, EQUIPMENT, AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER LUMP SUM OF "REMOVAL OF EXISTING BRIDGE STRUCTURE".
- (13) THIS ITEM TO BE UTILIZED IF ROCK EXCAVATION IS NECESSARY FOR ROADWAY CONSTRUCTION. THE EXTENTS WILL BE AGREED TO BY THE ENGINEER PRIOR TO BEGINNING THIS ACTIVITY. THE RESPONSIBILITY FOR MEASURING, DOCUMENTING, AND COMPUTING THIS QUANTITY WILL BE INCLUDED IN THE COST BID FOR CONSTRUCTION STAKING.
- (14) CONSTRUCTION STAKING SHALL INCLUDE ESTABLISH AND RE-ESTABLISH STAKING OF CENTERLINE, BENCHMARKS, AND RIGHT OF WAY. INCLUDES SLOPE STAKING, STRUCTURE AND BRIDGE STAKING, ROADWAY STAKING (DRIVEWAYS INCLUDED), BLUETOPPING, AND CHECKING ALIGNMENTS AND ELEVATIONS AS REQUIRED.
- (15) QUANTITY INCLUDES 6" OF T.B.S.C. OVER BRIDGE BACKFILL ZONE B AND 8" OF SUBGRADE METHOD B UP TO BRIDGE BACKFILL ZONE B.

ROADWAY PAY ITEM NOTES

- (R-1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITY ONLY. SEE SECTION 109.01B OF THE STANDARD SPECIFIACTIONS.
- (R-5) AN ESTIMATED QUANTITY OF **87** C.Y. TOPSOIL TO BE RESERVED FOR REPLACEMENT OF APPROXIMATELY 5" ON COMPLETED FORESLOPES, DITCHES, AND BACKSLOPES. THIS QUANTITY IS INCLUDED IN THE EARTHWORK BALANCE. ANY ADDITIONAL EXCAVATION REQUIRED IN CUT SECTIONS TO ALLOW FOR PLACEMENT OF TOPSOIL TO FINAL GRADE, SHALL BE INCLUDED IN THE PRICE BID.
- (R-7) FOR 205(A) TYPE A SALVAGED TOPSOIL, PRICE BID TO INCLUDE COST OF 18-46-0 FERTILIZER OR APPROVED EQUIVALENT, ESTIMATED AT 150 POUNDS PER ACRE.
- (R-8) FOR 230 (A) SOLID SLAB SODDING, PRICE TO INCLUDE COST OF WATERING, ESTIMATED AT 80 GALLONS PER S.Y.
- (R-48) INCLUDES REMOVAL OF ALL EXISTING ROADWAY DRAINAGE STRUCTURES, HEADWALLS (UNLESS OTHERWISE SPECIFIED), INLETS, FENCES, AND OTHER STRUCTURES WITHIN THE RIGHT OF WAY.
- (R-49) TO BECOME THE PROPERTY OF AND BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED BY THE ENGINEER.
- (R-52) INCLUDES 2% FOR GROUND MEASUREMENT.
- (R-53) ALL GATES AND GATE END POSTS FOR STRANDED WIRE FENCE (SWF) SHALL BE CONSTRUCTED AT THE SAME WIDTH AS THE EXISTING, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

SEQUENCE OF CONSTRUCTION

- . MOBILIZATION
- 2. INSTALL TRAFFIC AND EROSION CONTROL
- 3. CONSTRUCT NEW BRIDGE 4. CONSTRUCT NEW ROAD
- 5. OPEN ROAD

SUMMARY OF PAY ITEMS

SUMMAR	SUMMARY OF SURFACING				
********	TRAFFIC BOUND				
SUBGRADE,	SURFACE COURSE				
METHOD 8	TYPE E				
310(B)	402(E)				
S.Y.	TON				
413.88	181.14				

SUMMARY OF EROSION CONTROL					
TYPE A-	I TEMPODA DVI COLID CI AB I		TYPE (-A	FILTER	
\$ALVAGED			PLAIN	FABRIC	
TOPSOIL SILI FENCE		230(A) RIPRAP (RI		(RIPRAP)	
205(A)	221(¢)	250(A)	601(B)	601(I)	
C.Y.	L.F.	\$.Y.	TON	\$.Y.	
72.28	237.80	520.42	218.00	277.00	

SUMMARY OF EARTHWORK - ROADWAY

UNCLASSIFIED EXCAVATION 202(A)	EMBANKMENTS 202(F)
C.Y.	C.Y.
43.38	10.45

LOCATION		FENCE-STYLE	
STATION TO STATION	LT.	RT.	SWF (5 BARBED WIRE) 624(C)
			LF
13+88.68 TO 14+92.77		Х	114.28
13+89.62 TO 14+39.17	Х		64.20
15+03.04 TO 16+16.39	Х		129.21
16+04.57 TO 16+19.80		Х	21.54
	OT/	LS=	329.23

SUMMARY OF FENCE

RESPONSIBILITY OF COUNTY: RIGHT-OF-WAY UTILITY COORDINATION

(OKLAHOMA	DEPARTMENT C	OF TRANSPOR	TATION)
DESCRIPTION	REVISIONS		DATE
REMOVED	PAY ITEM A	1 OCT. 17	, 2017
REMOVED	PAY ITEM Δ :	2 OCT. 23	3, 2017
ADDED PA	Y ITEM 🛕	3 OCT. 23	3, 2017

SUM

SUM

1

	PAY QUANTITIES				
ROADWAY	2100				
ITEM	DESCRIPTION		UNITS	QUANTITY	
201(A) 0102	CLEARING AND GRUBBING	(1) (5)	LSUM	1	
202(A) 0183	UNCLASSIFIED EXCAVATION	(2)	ĊY	43	
202(F) 0110	CIVIDATIVISTICS		7	10	
205(A) 4230	TYPE A-SALVAGED TOPSOIL	(R-5)	ÇY	72	
221(C) 2801	TEMPORARY SILT FENCE	(3) (R-11)	LF	238	
230(A) 2806	SOLID SLAB SODDING	(3) (4) (R-7) (R-8)	ŞY	520	
310(B) 0149	SUBGRADE, METHOD B	(15)	SY	414	
402(E) 0225	TRAFFIC BOUND SURFACE COURSE TYPE E	(11) (15)	TON	181	
619(A) 0920	REMOVAL OF STRUCTURES & OBSTRUCTIONS	(R-48) (R-49)	LSUM	1	
624(C) 4459	FENCE-STYLE SWF (5 BARBED WIRE)	(R-52) (R-53)	LF	329	

PAY QUANTITIES							
BRIDGE 0200							
ITEM#	DESCRIPTION		UNITS	QUANTITY			
202(A) 1301	UNCLASSIFIED EXCAVATION	(R-1)	CY	2500			
202(C) 0182	ROCK EXCAVATION	(13)	CY	100			
303(A) 2100	AGGREGATE BASE TYPE A	(7) (8) (R-1)	CY	1835			
508 6359	PRECAST ARCH CULVERT (BRIDGE A)	(6) (R-1)	LF	38			
509(A) 1326	CLASS AA CONCRETE	(R-1)	CY	43			
511(A) 0332	REINFORCING STEEL	(R-1)	LB	926			
601(B) 1353	TYPE I-A PLAIN RIPRAP	(R-1)	TON	218			
601(I) 6312	FILTER FABRIC (RIPRAP)	(R-1)	SY	277			
619(D) 1 397	REMOVAL OF EXISTING BRIDGE STRUCTURE	(11) (12)	LSUM	1			
			•				

DESCRIPTION		UNITS	QUANTI
	(TC-26) (TC-33) (TC-84)	50	240
CONSTRUCTION SIGNS 6.26 SF TO 15.99 SF	(TC 26) (TC 33) (TC 84)	5D	488
	(TC-26) (TC-33) (TC-84)	SO	240
CONSTRUCTION BARRICADES (TYPE III)	(TC-26) (TC-84)	50	248
THE CHILD CLICK (THE A)	(TC ACLITC OA)		480
			1
	DESCRIPTION CONSTRUCTION SIGNS 0 TO 6.25 SF CONSTRUCTION SIGNS 6.26 SF TO 15.99 SF CONSTRUCTION SIGNS 16.0 SF TO 32.99 SF CONSTRUCTION BARRICADES (TYPE HI) WARNING LIGHTS (TYPE A) CONSTRUCTION TRAFFIC CONTROL	CONSTRUCTION SIGNS 0 TO 6.25 SF (TC-26) (TC-33) (TC-84) CONSTRUCTION SIGNS 6.26 SF TO 15.99 SF (TC-26) (TC-33) (TC-84) CONSTRUCTION SIGNS 16.0 SF TO 32.99 SF (TC-26) (TC-33) (TC-84) CONSTRUCTION BARRICADES (TYPE III) (TC-26) (TC-84) WARNING LIGHTS (TYPE B) (TC-84)	CONSTRUCTION SIGNS 0 TO 6.25 SF (TC-26) (TC-33) (TC-04) SD CONSTRUCTION SIGNS 6.26 SF TO 15.99 SF (TC-26) (TC-33) (TC-04) SD CONSTRUCTION SIGNS 16.0 SF TO 32.99 SF (TC-26) (TC-33) (TC-04) SD CONSTRUCTION BARRICADES (TYPE III) (TC-26) (TC-04) SD WARNING LIGHTS (TYPE B) (TC-36) (TC-04) SD

STAKING 0600

641 1399 MOBILIZATION

ITEM	DESCRIPTION	UNITS	QUANTITY					
642(8) 0096	CONSTRUCTION STAKING LEVEL II (14)	LSUM	1					
	PAY QUANTITIES							
CONSTRUCT	ION 0640							
ITEM	DESCRIPTION	UNITS	CUANTITY					

220 2800 SWPPP DOCUMENTATION AND MANAGEMENT

 DESIGN
 RJP
 6/17
 OKLAHOMA DEPARTMENT OF TRANSPORTATION

 DRAWN
 ATD
 6/17

 CHECKED
 BWF
 6/17

 APPROVED
 WTM
 6/17

 SQUAD
 MESHEK
 (ROADWAY & BRIDGE)

 COUNTY
 PAWNEE
 COUNTY RD.
 E0510
 STATE JOB NO.
 JP29930(04)
 SHEET NO ARO.

TRAFFIC OPERATIONS GENERAL CONSTRUCTION NOTES

ANY SIGNS AND/OR DELINEATORS WHICH ARE TO BE REMOVED DURING THIS PROJECT WILL BE STORED IN A PROTECTED AREA DESIGNATED BY THE RESIDENT ENGINEER, UNTIL SUCH A TIME THAT THEY ARE TO BE RESET BY THE CONTRACTOR. COST OF THIS WORK TO BE INCLUDED IN OTHER ITEMS OF WORK.

FIVE (5) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION ON THIS PROJECT, THE RESIDENT ENGINEER SHALL CONTACT THE OKLAHOMA HIGHWAY PATROL, SIZE AND WEIGHTS SECTION (405)-425-2210 AND ADVISE THE OFFICE WHEN SAID DETOURING WILL BEGIN AND THAT WIDE LOADS OVER 12 FT. SHOULD BE ADVISED AND RESTRICTED. UPON COMPLETION OF THE PROJECT, THE RESIDENT ENGINEER SHALL CONTACT THE OKLAHOMA HIGHWAY PATROL AND ADVISE THE OFFICE THAT THE PROJECT IS COMPLETE

FIVE (5) WORKING DAYS PRIOR TO DETOURING WIDE LOAD VEHICLES, FOR THE CONSTRUCTION OF THE PROJECT, THE RESIDENT ENGINEER SHALL CONTACT THE OKLAHOMA HIGHWAY PATROL, SIZE AND WEIGHTS SECTION (405)-425-2210 AND ADVISE THE OFFICE WHEN SAID DETOURING WILL BEGIN AND THAT WIDE LOADS OVER 12 FT. SHOULD BE ADVISED AND RESTRICTED (SEE PLANS FOR PROPOSED WIDE LOAD DETOUR ROUTE). UPON COMPLETION OF THE PROJECT THE RESIDENT ENGINEER SHALL CONTACT THE OKLAHOMA HIGHWAY PATROL AND ADVISE THE OFFICE THAT THE WIDE LOAD DETOUR IS NO LONGER IN EFFECT.

ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL MEET ODOT'S, "QUALITY STANDARDS FOR TEMPORARY TRAFFIC CONTROL DEVICES".

THE CONTRACTOR SHALL PRESERVE ALL SURVEY MARKERS AND RESET ANY MARKERS OBLITERATED USING A REGISTERED LAND SURVEYOR.

TRAFFIC SIGNING GENERAL CONSTRUCTION NOTES

REMOVED MATERIAL TO BECOME PROPERTY OF CONTRACTOR AND IT SHALL BE DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER.

ANY DAMAGE CAUSED BY THE CONTRACTOR TO ANY STRUCTURES. ROADWAY SURFACES, STRIPING, RAISED PAVEMENT MARKERS, GUARDRAIL, SLOPES, AND SIGNS SHALL BE REPAIRED AT CONTRACTOR"S EXPENSE TO THE SATISFACTION OF THE

ALL REMOVED SIGNS, SIGN POSTS, BOLTS, MISCELLANEOUS HARDWARE, AND DELINEATORS SHALL REMAIN THE PROPERTY OF THE COUNTY. THE CONTRACTOR SHALL NEATLY STACK SUCH REMOVED MATERIAL AT A LOCATION ON THE JOB SITE AS DESIGNATED BY THE ENGINEER UNTIL SUCH TIME AS DIVISION PERSONNEL CAN REMOVE THE MATERIAL FROM THE JOB SITE.

AFTER REMOVAL OF ANY SIGN FOOTINGS, THE HOLES SHALL BE FILLED WITH SOIL AND TAMPED AND SHAPED IN A MANNER APPROVED BY THE ENGINEER.

TRAFFIC CONSTRUCTION PAY ITEM NOTES

(TC-26) CONSTRUCTION TRAFFIC CONTROL WILL BE INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, AND APPLICABLE O.D.O.T. STANDARD DRAWINGS. PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL DEVICES REQUIRED FOR COMPLETION OF THE

(TC-33) ALL CONSTRUCTION WORK ZONE SIGNS SHALL HAVE FLUORESCENT SHEETING. THE FLUORESCENT SHEETING SHALL MEET THE REQUIREMENTS OF ASTM D4956 (LATEST REVISION)

THE MANUFACTURER SHALL FURNISH A TYPE "D" CERTIFICATION IN ACCORDANCE WITH O.D.O.T. STANDARD SPECIFICATIONS (CURRENT EDITION) SUBSECTION 106.04. THE CERTIFICATION SHALL INCLUDE TEST RESULTS ON MATERIAL SUBMITTED FOR APPROVAL.

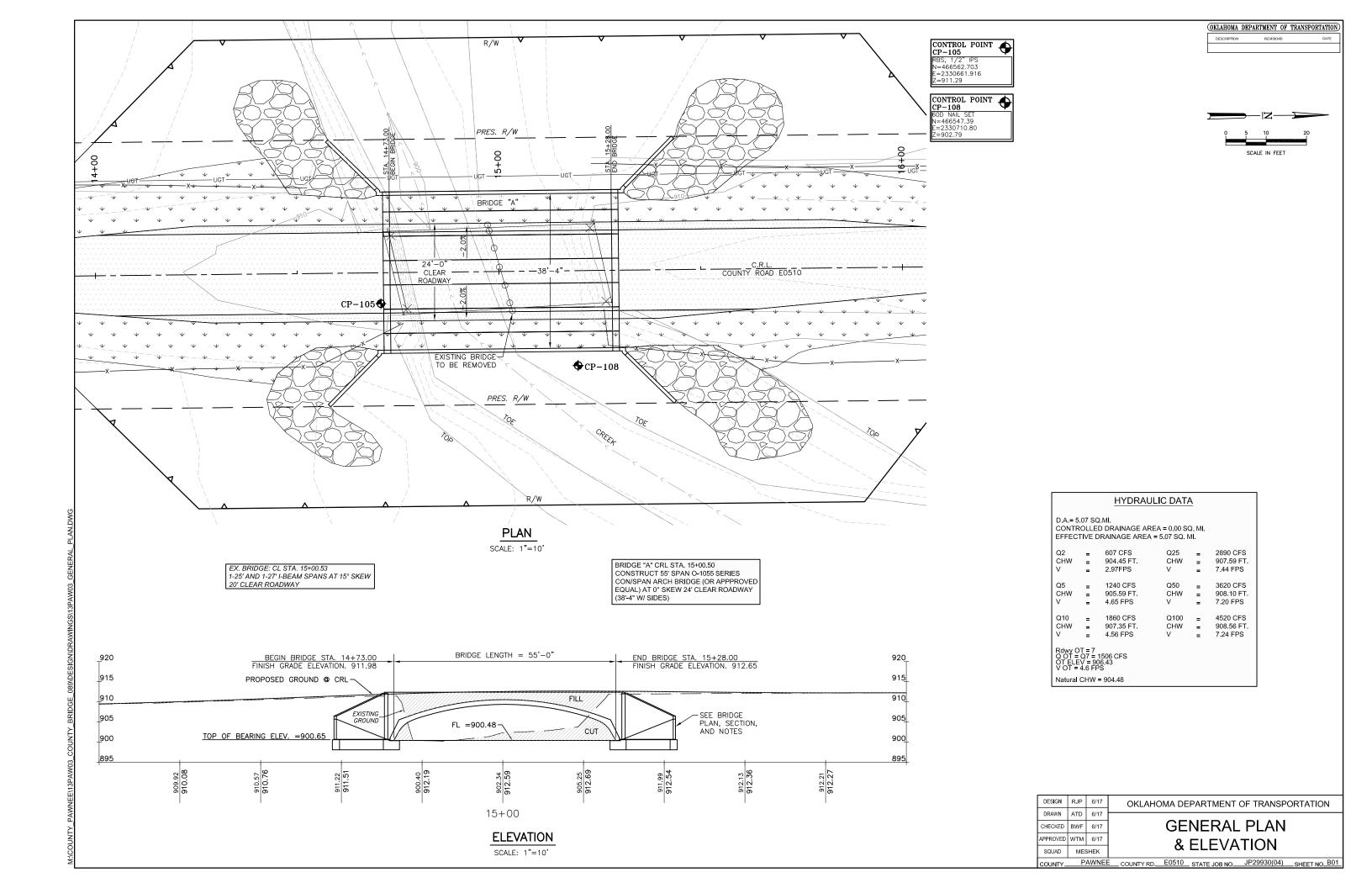
∆1 —(TC 84) 129 CONSTRUCTION CALENDAR DAYS WERE USED TO COMPUTE THE SIGN DAY PAY ITEMS. THE AMOUNT OF CALENDAR DAYS USED TO COMPUTE THE SIGN DAY PAY -ITEMS IS AN ESTIMATED QUANTITY ONLY. BASED ON THE CHRRENT O D.O.T. STANDARDS AND SUGGESTED CONSTRUCTION SEQUENCE FOR THIS PROJECT. THESE ESTIMATED - SIGN DAY QUANTITIES MAY CHANGE AS THE PROJECT'S CONSTRUCTION TRAFFIC - CONTROL IS MODIFIED DURING CONSTRUCTION.

OKLAHOMA DEPARTMENT OF TRANSPORTATION

REMOVED NOTE \$\int 1\$ OCT. 23, 2017

DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION
DRAWN	ATD	6/17	
HECKED	BWF	6/17	PAY QUANTITIES
PPROVED	WTM	6/17	& NOTES (TRAFFIC)
SQUAD	MES	SHEK	a NOTES (TRAFFIC)

PAWNEE COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO AT01



NOTES GENERAL NOTES:

- ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF OKLAHOMA, EMPLOYED BY THE PRECAST CONCRETE BRIDGE SUPPLIER, ARE SUBMITTED TO THE ENGINEER 2 WEEKS PRIOR TO THE BID DATE FOR REVIEW AND APPROVAL.
- ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT THE ALTERNATE DESIGN DOES NOT REDUCE THE HYDRAULIC OPENING OF THE STRUCTURE AS SHOWN ON THE DRAWINGS. AT A MINIMUM THE ALTERNATE STRUCTURE MUST PROVIDE THE SAME OR LARGER SPAN AND RISE AS THE STRUCTURE SHOWN ON THE DRAWINGS.
- 3. THE PRECAST ARCH SUPPLIER MUST ATTEND THE PRE-BID MEETING, IF ONE IS HELD.
- 4. SUPPLIER OF PROPOSED ALTERNATES TO A CON/SPAN® BRIDGE SYSTEM MUST SUBMIT AT LEAST TWO (2) INDEPENDENTLY VERIFIED FULL SCALE LOAD TESTS THAT CONFIRM THE PROPOSED DESIGN METHODOLOGY OF THE THREE SIDED/ARCH STRUCTURE(S). THE PROPOSED ALTERNATE, UPON SATISFACTORY CONFIRMATION OF DESIGN METHODOLOGY, MAY BE CONSIDERED AN ACCEPTABLE ALTERNATE.
- 5. PROPOSED ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT THE PRECAST CONCRETE BRIDGE STRUCTURES ARE PROVIDED BY A SUPPLIER THAT HAS A MINIMUM OF TWO (2) OKLAHOMA REGISTERED PROFESSIONAL ENGINEERS ON STAFF THAT ARE DEDICATED TO THE DESIGN OF THESE TYPES OF STRUCTURES. SUPPLIER MUST PROVIDE THESE NAMES, P.E. LICENSE NUMBERS AND DATES OF HIRE AT TIME OF ALTERNATE SUBMITTAL.
- 6. PRIOR TO CONSTRUCTION, CONTRACTOR MUST VERIFY ALL ELEVATIONS SHOWN THROUGH THE ENGINEER.

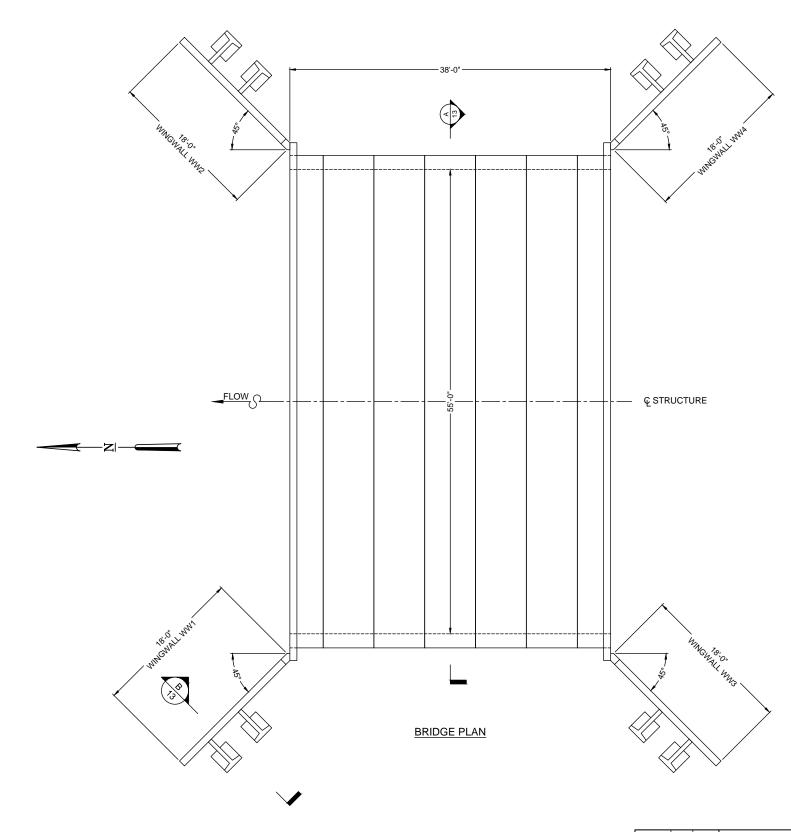
DESIGN DATA

OBJETA

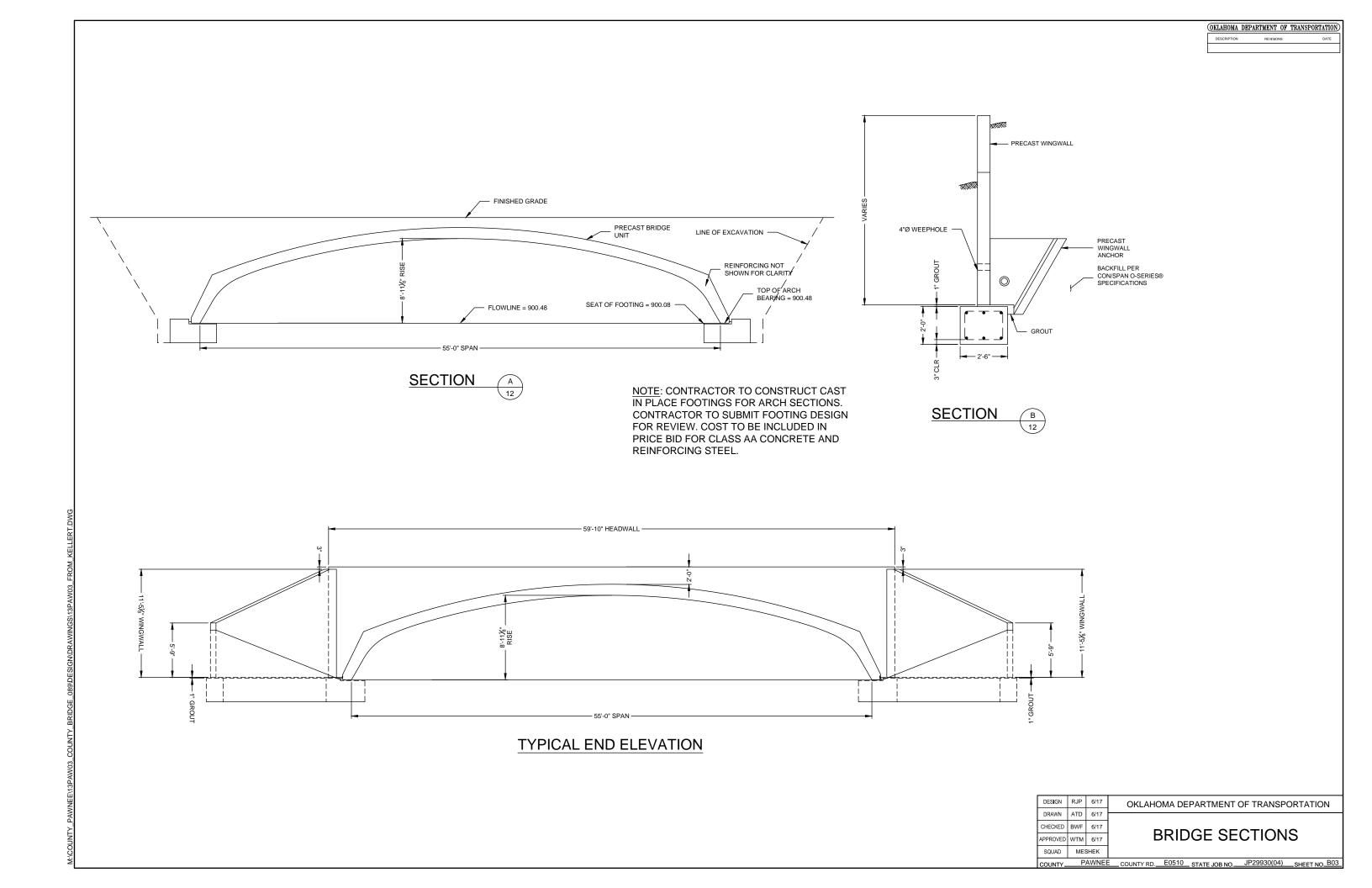
DESIGN LOADING:
BRIDGE UNITS: HS20
HEADWALLS: EARTH PRESSURE ONLY
WINGWALLS: EARTH PRESSURE ONLY
DESIGN FILL HEIGHT: DESIGN FILL HEIGHT
FROM TOP OF CROWN TO TOP OF PAVEMENT.
DESIGN METHOD: LOAD RESISTANCE FACTOR DESIGN PER AASHTO LRFD SPECIFICATION

MATERIAL

PRECAST UNITS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH CON/SPAN® SPECIFICATIONS. CONCRETE FOR FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. REINFORCING STEEL FOR FOOTINGS SHALL CONFORM TO ASTM A615 OR A996-GRADE 60.



DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION			
DRAWN	ATD	6/17				
CHECKED	BWF	6/17				
APPROVED	WTM	6/17	BRIDGE PLAN			
SQUAD	MES	SHEK				
COUNTY_	P.	AWNE	COUNTY RD. <u>E0510</u> STATE JOB NO. <u>JP29930(04)</u> SHEET NO B02			



LFD NEW SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN O-SERIES BRIDGE SYSTEMS OR APPROVED EQUAL

 DESCRIPTION
 1.1. TYPE - THIS WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTING A CON/SPAN® O-SERIES BRIDGE SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES. GRADES. REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN AND DIMENSIONS SHOWN ON THE PLANS OR AS ESTABLISHED BY THE ENGINEER. IN SITUATIONS WHERE TWO OR MORE SPECIFICATIONS APPLY TO THIS WORK, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN

 STRINGENT REQUIREMENTS SHALL GOVERN.
 1.2. DESIGNATION - PRECAST REINFORCED CONCRETE CON/SPAN®
 O-SERIES BRIDGE UNITS MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY SPAN AND RISE. PRECAST REINFORCED CONCRETE WINGWALLS AND HEADWALLS MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY LENGTH, HEIGHT, AND DEFLECTION ANGLE. PRECAST REINFORCED CONCRETE EXPRESS™ FOUNDATION UNITS MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY LENGTH, HEIGHT AND

 DESIGN
 2.1. SPECIFICATIONS - THE PRECAST ELEMENTS ARE DESIGNED IN
 TOTALISADE SPECIFICATIONS FOR ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" 1/TH EDITION, ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002. A MINIMUM OF ONE FOOT OF COVER ABOVE THE CROWN OF THE BRIDGE UNITS IS REQUIRED IN THE INSTALLED CONDITION. (UNLESS NOTED OTHERWISE ON THE SHOP DRAWINGS AND DESIGNED ACCORDINGLY.)

- 3. MATERIALS
 3.1. CONCRETE THE CONCRETE FOR THE PRECAST ELEMENTS SHALL BE AIR-ENTRAINED WHEN INSTALLED IN AREAS SUBJECT TO FREEZE-THAW CONDITIONS, COMPOSED OF PORTLAND CEMENT, FINE AND COARSE AGGREGATES, ADMIXTURES AND WATER. AIR-ENTRAINED CONCRETE SHALL CONTAIN 6 ± 2
 PERCENT AIR. THE AIR. ENTRAINING ADMIXTURE SHALL
 CONFORM TO ASSHTO M154. THE MINIMUM CONCRETE
 COMPRESSIVE STRENGTH SHALL BE AS SHOWN ON THE SHOP
 - 3 1 1 PORTLAND CEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATIONS C150-TYPE I, TYPE II, OR TYPE III CEMENT. 3.1.2.COARSE AGGREGATE - SHALL CONSIST OF STONE HAVING A
 - MAXIMUM SIZE OF 1 INCH. AGGREGATE SHALL MEET MAXIMUM SIZE OF 1 INOH. AGSREGATE SHALL MEET REQUIREMENTS FOR ASTM C33.

 3.1.3. WATER REDUCING ADMIXTURE - THE MANUFACTURER MAY SUBMIT, FOR APPROVAL BY THE ENGINEER, A WATER-REDUCING ADMIXTURE FOR THE PURPOSE OF
 - WATER-REDUCING ADMIXTURE FOR THE PURPOSE OF INCREASING WORKABILITY AND REDUCING THE WATER REQUIREMENT FOR THE CONCRETE.

 3.1.4. CALCIUM CHLORIDE THE ADDITION TO THE MIX OF CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE WILL NOT BE PERMITTED.
- 3.1.5.MIXTURE THE AGGREGATES, CEMENT AND WATER SHALL BE PROPORTIONED AND MIXED IN A BATCH MIXER TO PRODUCE A HOMOGENEOUS CONCRETE MEETING THE STRENGTH REQUIREMENTS OF THIS SPECIFICATION. THE PROPORTION OF PORTLAND CEMENT IN THE MIXTURE SHALL NOT BE LESS THAN 564 POUNDS (6 SACKS) PER CUBIC YARD OF CONCRETE.

 3.2. STEEL REINFORCEMENT

3.2.1. THE MINIMUM STEEL YIELD STRENGTH SHALL BE 60.000 PSI.

- UNLESS OTHERWISE NOTED ON THE SHOP DRAWINGS.

 3.2.2. ALL REINFORCING STEEL FOR THE PRECAST ELEMENTS
 SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH THE DETAILED SHOP DRAWINGS SUBMITTED BY THE MANUFACTURER
- 3.2.3.REINFORCEMENT SHALL CONSIST OF WELDED WIRE FABRIC CONFORMING TO ASTM SPECIFICATION A 185 OR A 497, OR DEFORMED BILLET STEEL BARS CONFORMING TO ASTM SPECIFICATION A 615, GRADE 60. LONGITUDINAL DISTRIBUTION REINFORCEMENT MAY CONSIST OF WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS.

- 3.3. STEEL HARDWARE 3.3.1.BOLTS AND THREADED RODS FOR WINGWALL CONNECTIONS SHALL CONFORM TO ASTM A 307. NUTS SHALL CONFORM TO AASHTO M292 (ASTM A194) GRADE 2H. ALL BOLTS, THREADED RODS AND NUTS USED IN WINGWALL CONNECTIONS SHALL BE MECHANICALLY ZINC COATED IN ACCORDANCE WITH ASTM B695 CLASS 50
- 3.3.2. STRUCTURAL STEEL FOR WINGWALL CONNECTION PLATES
 AND PLATE WASHERS SHALL CONFORM TO AASHTO M 270
 (ASTM A 709) GRADE 38 AND SHALL BE HOT DIP GALVANIZED
 AS PER AASHTO M111 (ASTM A123).
- AS PER AASHTO M111 (ASTM A123).
 3.3.INSERTS FOR WINGWALLS SHALL BE 1* DIAMETER
 TWO-BOLT PRESET WINGWALL ANCHORS AS
 MANUFACTURED BY DAYTON SUPERIOR CONCRETE
 ACCESSORIES, MIAMISBURG, OHIO, (80) 745-3700 AND
 SHALL BE MECHANICALLY ZINC COATED IN ACCORDANCE
- WITH ASTM B695 CLASS 50.

 3.3.4.FERRULE LOOP INSERTS SHALL BE F-64 FERRULE LOOP INSERTS AS MANUFACTURED BY DAYTON SUPERIOR CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800)
- 749-3700.

 3.3.5.HOOK BOLTS USED IN ATTACHED HEADWALL CONNECTIONS SHALL BE ASTM A307.

 3.3.6.INSERTS FOR DETACHED HEADWALL CONNECTIONS SHALL
- BE AISI TYPE 304 STAINLESS STEEL, EXPANDED COIL INSERTS AS MANUFACTURED BY DAYTON SUPERIOR

CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700. COIL RODS AND NUTS USED IN HEADWALL CONNECTIONS SHALL BE AISI TYPE 304 STAINLESS STEEL. WASHERS LISED IN HEADWALL CONNECTIONS SHALL BE WASHERS USED IN HEADWALL CONNECTIONS SHALL BE EITHER AISI TYPE 304 STAINLESS STEEL PLATE WASHERS OR AASHTO M270 (ASTM A709) GRADE 36 PLATE WASHERS HOT DIP GALVANIZED AS PER AASHTO M111 (ASTM A123). 3.3.7.MECHANICAL SPLICES OF REINFORCING BARS SHALL BE

MADE USING THE DOWEL BAR SPLICER SYSTEM AS MANUFACTURED BY DAYTON SUPERIOR CONCRETE
ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700, AND
SHALL CONSIST OF THE DOWEL BAR SPLICER (DB-SAE) AND DOWEL-IN (DI)

- 4. MANUFACTURE OF PRECAST ELEMENTS SUBJECT TO THE PROVISIONS OF SECTION 5, BELOW, THE PRECAST ELEMENT DIMENSION AND REINFORCEMENT DETAILS SHALL BE AS PRESCRIBED IN THE PLAN AND SHOP DRAWINGS PROVIDED BY THE
- 4.1. FORMS THE FORMS USED IN MANUFACTURE SHALL BE SUFFICIENTLY RIGID AND ACCURATE TO MAINTAIN THE REQUIRED PRECAST ELEMENT DIMENSIONS WITHIN THE PERMISSIBLE VARIATIONS GIVEN IN SECTION 5 OF THESE SPECIFICATIONS. ALL CASTING SURFACES SHALL BE OF A SMOOTH MATERIAL.

 4.2. PLACEMENT OF REINFORCEMENT

- 4.2.1.PLACEMENT OF REINFORCEMENT IN PRECAST BRIDGE UNITS - THE COVER OF CONCRETE OVER THE OUTSIDE CIRCUMFERENTIAL REINFORCEMENT SHALL BE 2" MINIMUM THE COVER OF CONCRETE OVER THE INSIDE THE COVER OF CONCRETE OVER THE INSIDE CIRCUMFERENTIAL REINFORCEMENT SHALL BE 1½" MINIMUM, UNLESS OTHERWISE NOTED ON THE SHOP DRAWINGS. THE CLEAR DISTANCE OF THE END CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 1" NOR MORE THAN 2" FROM THE ENDS OF EACH SECTION. MORE THAN 2 FROM THE ENDS OF EACH SECTION. REINFORCEMENT SHALL BE ASSEMBLED UTILIZING SINGLE OR MULTIPLE LAYERS OF WELDED WIRE FABRIC (NOT TO EXCEED 3 LAYERS), SUPPLEMENTED WITH A SINGLE LAYER OF DEFORMED BILLET-STEEL BARS, WHEN NECESSARY. WELDED WIRE FABRIC SHALL BE COMPOSED OF CIRCUMFERENTIAL AND LONGITUDINAL WIRES MEETING THE SPACING REQUIREMENTS OF 4.3, BELOW, AND SHALL CONTAIN SUFFICIENT LONGITUDINAL WIRES EXTENDING THROUGH THE BRIDGE UNIT TO MAINTAIN THE SHAPE AND POSITION OF THE REINFORCEMENT, LONGITUDINAL DISTRIBUTION REINFORCEMENT MAY BE WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS AND SHALL MEET THE SPACING REQUIREMENTS OF 4.3, BELOW. THE ENDS OF THE LONGITUDINAL DISTRIBUTION REINFORCEMENT SHALL BE NOT MORE THAN 3" AND NOT LESS THAN 1½" FROM THE ENDS OF THE BRIDGE UNIT.
 4.2.2.BENDING OF REINFORCEMENT FOR PRECAST BRIDGE UNITS
- THE OUTSIDE AND INSIDE CIRCUMFERENTIAL FINE OUTSIDE AND INSIDE CIRCOWIFERENTIAL REINFORCING STEEL FOR THE CORNERS OF THE BRIDGE SHALL BE BENT TO SUCH AN ANGLE THAT IS APPROXIMATELY EQUAL TO THE CONFIGURATION OF THE BRIDGE'S OUTSIDE CORNER.
- 4.2.3. PLACEMENT OF REINFORCEMENT FOR PRECAST WINGWALLS AND HEADWALLS - THE COVER OF CONCRETE
 OVER THE LONGITUDINAL AND TRANSVERSE
 REINFORCEMENT SHALL BE 2" MINIMUM. THE CLEAR REINFORCEMENT SHALL BE 2" MINIMUM. THE CLEAR DISTANCE FROM THE END OF EACH PRECAST ELEMENT TO THE END OF REINFORCING STEEL SHALL NOT BE LESS THAN 1%" NOR MORE THAN 3". REINFORCEMENT SHALL BE ASSEMBLED UTILIZING A SINGLE LAYER OF WELDED WIRE FABRIC, OR A SINGLE LAYER OF DEFORMED BILLET-STEEL BARS. WELDED WIRE FABRIC SHALL BE COMPOSED OF TRANSVERSE AND LONGITUDINAL WIRES MEETING THE SPACING REQUIREMENTS OF 4.3, BELOW, AND SHALL CONTAIN SUFFICIENT LONGITUDINAL WIRES EXTENDING THROUGH THE ELEMENT TO MAINTAIN THE SHAPE AND POSITION OF THE REINFORCEMENT I ONGITUDINAL REINFORCEMENT LONGITUDINAL REINFORCEMENT: LONGITUDINAL REINFORCEMENT MAY BE WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS AND SHALL MEET THE SPACING REQUIREMENTS OF 4.3, BELOW.
- 4.2.4.PLACEMENT OF REINFORCMENT FOR PRECAST FOUNDATION UNITS THE COVER OF CONCRETE OVER THE BOTTOM REINFORCEMENT SHALL BE 3 INCHES MINIMUM. THE COVER OF CONCRETE FOR ALL OTHER REINFORCEMENT SHALL BE 2 INCHES MINIMUM. THE CLEAR DISTANCE FROM THE END OF EACH PRECAST ELEMENT TO THE END OF REINFORCING STEEL SHALL NOT BE LESS THAI 2 INCHES NOR MORE THAN 3 INCHES REINFORCEMENT SHALL BY SEMENT OF STEEL SHALL FOR THE SHALL WELDED WIRE FABRIC OR A SINGLE LAYER OF DEFOREMED BILLET-STEEL BARS. WELDED WIRE FABRIC SHALL BE COMPOSED OF TRANSVERSE AND LONGITUDINAL WIRES MEETING THE SPACING REQUIREMENTS OF 4.3, BELOW, AND SHALL CONTAIN SUFFICIENT LONGITUDINAL WIRES EXTENDING THROUGH THE ELEMENT TO MAINTAIN THE SHAPE AND POSITION OF THE REINFORCEMENT. LONGITUDINAL REINFORCEMENT MAY BE WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS AND SHALL MEET THE SPACING REQUIREMENTS OF 4.3, BELOW

4.3. LAPS, WELDS, SPACING
4.3.1.LAPS, WELDS, AND SPACING FOR PRECAST BRIDGE UNITS TENSION SPLICES IN THE CIRCUMFERENTIAL
REINFORCEMENT SHALL BE MADE BY LAPPING. LAPS MAY BE TACK WELDED TOGETHER FOR ASSEMBLY PURPOSES. FOR SMOOTH WELDED WIRE FABRIC, THE

OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.2 AND 5.11.6.2. FOR DEFORMED WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.1 AND 5.11.6.1. THE OVERLAP OF WELDED ANSH 10 3.11.2.3.1 AND 3.11.5.1 THE OVERLAP OF WELLED WIRE FABRIC SHALL BE MEASURED BETWEEN THE OUTER-MOST LONGITUDINAL WIRES OF EACH FABRIC SHEET. FOR DEFORMED BILLET-STEEL BARS, THE OVERLAF SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.1 FOR SPLICES OTHER THAN TENSION SPLICES. THE OVERLAP SPALLES OTHER THAIN TENSION SPLICES, THE OVERLAP SHALL BE A MINIMUM OF 1'-0" FOR WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS. THE SPACING CENTER TO CENTER OF THE CIRCUMFERENTIAL WIRES IN A WIRE FABRIC SHEET SHALL BE NOT LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8". THE SPACING CENTER TO THE LONGITUDINAL DISTRIBUTION STEEL FOR EITHER LINE OF REINFORCING IN

- THE TOP SLAB SHALL BE NOT MORE THAN 1'-4".

 4.3.2.LAPS, WELDS, AND SPACING FOR PRECAST WINGWALLS, HEADWALLS AND FOUNDATIONS SPLICES IN THE REINFORCEMENT SHALL BE MADE BY LAPPING. LAPS MAY BE TACK WELDED TOGETHER FOR ASSEMBLY PURPOSES. BE TACK WELDED TOGETHER FOR ASSEMBLY PORPOSES. FOR SMOOTH WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.2 AND 5.11.6.2. FOR DEFORMED WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.1 AND 5.11.6.1. FOR DEFORMED BILLET-STEEL BARS, 3.11.23.1 AND STALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.1. THE SPACING CENTER-TO-CENTER OF THE WIRES IN A WIRE FABRIC SHEET SHALL BE NOT LESS THAN 2" NOR MORE THAN 8".
- 4.4. CURING THE PRECAST CONCRETE ELEMENTS SHALL BE CURED FOR A SUFFICIENT LENGTH OF TIME SO THAT THE CONCRETE WILL DEVELOP THE SPECIFIED COMPRESSIVE STRENGTH IN 28 DAYS OR LESS. ANY ONE OF THE FOLLOWING METHODS OF CURING OR COMBINATIONS THERE OF SHALL BE USED: CURING OR COMBINATIONS THERE OF SHALL BE USED:

 4.4.1.STEAM CURING - THE PRECAST ELEMENTS MAY BE

 LOW-PRESSURE STEAM CURED BY A SYSTEM THAT WILL

 MAINTAIN A MOIST ATMOSPHERE.

4.4.2. WATER CURING - THE PRECAST ELEMENTS MAY BE WATER

4.4.2. WAI ER CURING - THE PRECAST ELEMENTS MAY BE WATER CURED BY ANY METHOD THAT WILL KEEP THE SECTIONS MOIST.

4.4.3. MEMBRANE CURING - A SEALING MEMBRANE CONFORMING TO THE REQUIREMENTS OF ASTM SPECIFICATION C309 MAY BE APPLIED AND SHALL BE LEFT INTACT UNTIL THE REQUIRED CONCRETE COMPRESSIVE STRENGTH IS ATTAINED. THE CONCRETE TEMPERATURE AT THE TIME OF APPLICATION SHALL BE WITHIN +/- 10 DEGREES F OF THE ATMOSPHERIC TEMPERATURE, ALL SURFACES SHALL BE KEPT MOIST PRIOR TO THE APPLICATION OF THE COMPOUNDS AND SHALL BE DAMP WHEN THE COMPOUND IS APPLIED.

4.5. STORAGE, HANDLING & DELIVERY

- 4.5.1.STORAGE PRECAST CONCRETE BRIDGE ELEMENTS SHALL BE LIFTED AND STORED IN "AS-CAST" POSITION. PRECAST CONCRETE HEADWALL AND WINGWALL UNITS ARE CAST, STORED AND SHIPPED IN A FLAT POSITION. THE PRECAST ELEMENTS SHALL BE STORED IN SUCH A MANNER TO PREVENT CRACKING OR DAMAGE. STORE ELEMENTS USING TIMBER SUPPORTS AS APPROPRIATE. THE UNITS SHALL NOT BE MOVED UNTIL THE CONCRETE COMPRESSIVE STRENGTH HAS REACHED A MINIMUM OF 2500 PSI, AND
- STRENG IT HAS REACHED A MINIMUM OF 2500 PSI, AND THEY SHALL NOT BE STORED IN AN UPRIGHT POSITION.

 4.5.2.HANDLING HANDLING DEVICES SHALL BE PERMITTED IN EACH PRECAST ELEMENT FOR THE PURPOSE OF HANDLING AND SETTING. SPREADER BEAMS MAY BE REQUIRED FOR THE LIFTING OF PRECAST CONCRETE BRIDGE ELEMENTS TO
- PRECLUDE DAMAGE FROM BENDING OR TORSION FORCES.

 4.5.3.DELIVERY PRECAST CONCRETE ELEMENTS MUST NOT BE SHIPPED UNTIL THE CONCRETE HAS ATTAINED THE SPECIFIED DESIGN COMPRESSIVE STRENGTH, OR AS DIRECTED BY THE DESIGN ENGINEER, PRECAST CONCRETE ELEMENTS MAY BE UNLOADED AND PLACED ON THE GROUND AT THE SITE UNTIL INSTALLED. STORE ELEMENTS USING TIMBER SUPPORTS AS APPROPRIATE. 4.6. QUALITY ASSURANCE - THE PRECASTER SHALL DEMONSTRATE
- 6. QUALITY ASSURANCE THE PRECASTER SHALL DEMONSTRATE ADHERENCE TO THE STANDARDS SET FORTH IN THE NPCA QUALITY CONTROL MANUAL. THE PRECASTER SHALL MEET EITHER SECTION 4.6.1 OR 4.6.2

 4.6.1.CERTIFICATION THE PRECASTER SHALL BE CERTIFIED BY THE PRECAST/PRESTRESSED CONCRETE INSTITUTE PLANT CERTIFICATION PROGRAM OR THE NATIONAL PRECAST CONCRETE ASSOCIATIONS PLANT CERTIFICATION PROGRAM PRIOR TO AND DURING PRODUCTION OF THE PRODUCTS COVERED BY THIS SPECIFICATION.

 4.6.2.QUALIFICATIONS, TESTING AND INSPECTION

 4.6.2.1. THE PRECASTER SHALL HAVE BEEN IN THE BUSINESS OF PRODUCING PRECAST CONCRETE PRODUCTS SIMILAR TO THOSE SPECIFIED FOR A MINIMUM OF THREE YEARS. HE SHALL MAINTAIN A PERMANENT QUALITY CONTROL DEPARTMENT OR

PERMANENT QUALITY CONTROL DEPARTMENT OR RETAIN AN INDEPENDENT TESTING AGENCY ON A CONTINUING BASIS. THE AGENCY SHALL ISSUE A REPORT CERTIFIED BY A LICENSED ENGINEER DETAILING THE ABILITY OF THE PRECASTER TO PRODUCE QUALITY PRODUCTS CONSISTENT WITH INDUSTRY STANDARDS.

4.6.2.2. THE PRECASTER SHALL SHOW THAT THE

FOLLOWING TESTS ARE PERFORMED IN ACCORDANCE WITH THE ASTM STANDARDS INDICATED. TESTS SHALL BE PERFORMED AS INDICATED IN SECTION 6 OF THESE SPECIFICATIONS.
4.6.2.2.1. AIR CONTENT: C231 OR C173

4.6.2.2.2. COMPRESSIVE STRENGTH: C31 C39 C497 4.6.2.2. COMPRESSIVE STRENGTH: CST(259,09)

4.6.2.3. THE PRECASTER SHALL PROVIDE DOCUMENTATION DEMONSTRATING COMPLIANCE WITH THIS SECTION TO CONTECH® ENGINEERED SOLUTIONS AT REGULAR INTERVALS OR UPON REQUEST.

4.6.2.4 THE OWNER MAY PLACE AN INSPECTOR IN THE 4.6.2.4. THE OWNER WINT PLACE AN INSPECTOR IN THE PRODUCTS COVERED BY THIS SPECIFICATION ARE BEING MANUFACTURED.

4.6.3.DOCUMENTATION - THE PRECASTER SHALL SUBMIT

PRECAST PRODUCTION REPORTS TO CONTECH® ENGINEERED SOLUTIONS AS REQUIRED.

MISSIBLE VARIATIONS

1. BRIDGE UNITS

5.1.1.INTERNAL DIMENSIONS - THE INTERNAL DIMENSION SHALL VARY NOT MORE THAN 1% FROM THE DESIGN DIMENSIONS NOR MORE THAN 1½ WHICHEVER IS LESS.

5.1.2. SLAB AND WALL THICKNESS - THE SLAB AND WALL THICKNESS SHALL NOT BE LESS THAN THAT SHOWN IN THE

DESIGN BY MORE THAN X. A THICKNESS MORE THAN THAT REQUIRED IN THE DESIGN SHALL NOT BE CAUSE FOR REJECTION.

5.1.3. LENGTH OF OPPOSITE SURFACES - VARIATIONS IN LAYING

LENGTHS OF TWO OPPOSITE SURFACES OF THE BRIDGE UNIT SHALL NOT BE MORE THAN X" IN ANY SECTION, EXCEPT WHERE BEVELED ENDS FOR LAYING OF CURVES ARE SPECIFIED BY THE PURCHASER.

5.1.4. LENGTH OF SECTION - THE UNDERRUN IN LENGTH OF A

SECTION SHALL NOT BE MORE THAN ½" IN ANY BRIDGE UNIT 5.1.5. POSITION OF REINFORCEMENT - THE MAXIMUM VARIATION IN POSITION OF THE REINFORCEMENT SHALL BE ±½". IN NO CASE SHALL THE COVER OVER THE REINFORCEMENT BE CASE STALL THE COVER OF THE REPROPERTIES THE COVER OF THE FORTHE INSIDE CIRCUMFERENTIAL STEEL OR BE LESS THAN 15 FOR THE INSIDE CIRCUMFERENTIAL STEEL AS MEASURED TO THE EXTERNAL OR INTERNAL SURFACE OF THE BRIDGE. THESE TOLERANCES OR COVER REQUIREMENTS DO NOT APPLY TO MATING SURFACES OF

THE JOINTS.
5.1.6. AREA OF REINFORCEMENT - THE AREAS OF STEEL PAREA OF REINFURGEMENT: THE AREAS OF STEEL
REINFORCEMENT SHALL BE THE DESIGN STEEL AREAS AS
SHOWN IN THE MANUFACTURER'S SHOP DRAWINGS. STEEL
AREAS GREATER THAN THOSE REQUIRED SHALL NOT BE
CAUSE FOR REJECTION. THE PERMISSIBLE VARIATION IN
DIAMETER OF ANY REINFORCEMENT SHALL CONFORM TO
THE TOLERANCES PRESCRIBED IN THE ASTM
SPECIFICATION FOR THAT TYPE OF DESIGNORALITY.

SPECIFICATION FOR THAT TYPE OF REINFORCEMENT.

5.2. WINGWALLS & HEADWALLS

5.2.1. WALL THICKNESS - THE WALL THICKNESS SHALL NOT VARY

FROM THAT SHOWN IN THE DESIGN BY MORE THAN ½". 5.2.2. LENGTH/HEIGHT OF WALL SECTIONS - THE LENGTH AND HEIGHT OF THE WALL SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY MORE THAN \(\frac{1}{2} \).

5.2.3. POSITION OF REINFORCEMENT - THE MAXIMUM VARIATION

IN THE POSITION OF THE REINFORCEMENT SHALL BE $\pm \frac{1}{2}$ ". IN NO CASE SHALL THE COVER OVER THE REINFORCEMENT

BE LESS THAN 1½". 5.2.4. SIZE OF REINFORCEMENT - THE PERMISSIBLE VARIATION IN DIAMETER OF ANY REINFORCING SHALL CONFORM TO THE TOLERANCES PRESCRIBED IN THE ASTM SPECIFICATION FOR THAT TYPE OF REINFORCING, STEEL AREA GREATER THAN THAT REQUIRED SHALL NOT BE CAUSE FOR

5.3. FOUNDATION UNITS
5.3.1. WALL THICKNESS - THE WALL THICKNESS SHALL NOT VARY

FROM THAT SHOWN IN THE DESIGN BY MORE THAN $\frac{1}{2}$ ". 5.3.2. LENGTH/ HEIGHT/WIDTH OF FOUNDATION SECTIONS - THE LENGTH, HEIGHT AND WIDTH OF THE FOUNDATION UNITS SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY MORE THAN ½".

5.3.3. POSITION OF REINFORCEMENT - THE MAXIMUM VARIATION

IN THE POSITION OF THE REINFORCEMENT SHALL BE $\pm \frac{1}{2}$ ". IN NO CASE SHALL THE COVER OVER THE REINFORCEMENT BE

LESS THAN $1\frac{1}{2}$ ". 5.3.4. SIZE OF REINFORCEMENT - THE PERMISSIBLE VARIATION IN DIAMETER OF ANY REINFORCING SHALL CONFORM TO THE TOLERANCES PRESCRIBED IN THE ASTM SPECIFICATION FOR THAT TYPE OF REINFORCING, STEEL AREA GREATER THAN THAT REQUIRED SHALL NOT BE CAUSE FOR REJECTION

6. TESTING/ INSPECTION 6.1. TESTING

6.1.1. TYPE OF TEST SPECIMEN - CONCRETE COMPRESSIVE STRENGTH SHALL BE DETERMINED FROM COMPRESSION STRENGTH SHALL BE DETERMINED FROM COMPRESSION TESTS MADE ON CYLINDERS OR CORES. FOR CYLINDER TESTING, A MINIMUM OF 4 CYLINDERS SHALL BE TAKEN FOR EACH BRIDGE ELEMENT. EACH ELEMENT SHALL BE CONSIDERED SEPARATELY FOR THE PURPOSE OF TESTING AND ACCEPTANCE

AND ACCEPTANCE.

6.1.2. COMPRESSION TESTING - CYLINDERS SHALL BE MADE AND TESTED AS PRESCRIBED BY THE ASTM C39 SPECIFICATION. CYLINDERS SHALL BE CURED IN THE SAME ENVIRONMENT AS THE BRIDGE ELEMENTS, CORES SHALL BE OBTAINED AND TESTED FOR COMPRESSIVE STRENGTH IN ACCORDANCE WITH THE PROVISIONS OF THE ASTM C42 SPECIFICATION.
6.1.3. ACCEPTABILITY OF CYLINDER TESTS - WHEN THE AVERAGE

COMPRESSIVE STRENGTH OF ALL CYLINDERS TESTED IS EQUAL TO OR GREATER THAN THE DESIGN COMPRESSIVE

STRENGTH, AND NOT MORE THAN 10% OF THE CYLINDERS TESTED HAVE A COMPRESSIVE STRENGTH LESS THAN THE DESIGN CONCRETE STRENGTH, AND NO CYLINDER TESTED HAS A COMPRESSIVE STRENGTH LESS THAN 80% OF THE DESIGN COMPRESSIVE STRENGTH, THEN THE ELEMENT DESIGN COMPRESSIVE STRENGTH, THEN THE ELEMENT SHALL BE ACCEPTED. WHEN THE COMPRESSIVE STRENGTH OF THE CYLINDERS TESTED DOES NOT CONFORM TO THESE ACCEPTANCE CRITERIA, THE ACCEPTABILITY OF THE ELEMENT MAY BE DETERMINED AS DESCRIBED IN SECTION

6.1.4, BELOW.
6.1.4. ACCEPTABILITY OF CORE TESTS - THE COMPRESSIVE STANDARD THE CONCRETE IN A BRIDGE ELEMENT IS ACCEPTABLE WHEN THE AVERAGE CORE TEST STRENGTH ACCEPTABLE WIEN THE APPROACH AND THE DESIGN CONCRETE STRENGTH. WHEN THE COMPRESSIVE STRENGTH OF A CORE TESTED IS LESS THAN THE DESIGN CONCRETE STRENGTH, THE PRECAST ELEMENT FROM WHICH THAT CORE WAS TAKEN MAY BE RE-CORED. WHEN THE COMPRESSIVE STRENGTH OF THE RE-CORE IS EQUAL TO OR GREATER THAN THE DESIGN CONCRETE STRENGTH, THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THAT BRIDGE ELEMENT IS ACCEPTABLE.

BRIDGE ELEMENT IS ACCEPTABLE.
6.1.4.1. WHEN THE COMPRESSIVE STRENGTH OF ANY
RECORE IS LESS THAN THE DESIGN CONCRETE
STRENGTH, THE PRECAST ELEMENT FROM WHICH
THAT CORE WAS TAKEN SHALL BE REJECTED.
6.1.4.2. PLUGGING CORE HOLES - THE CORE HOLES SHALL

BE PLUGGED AND SEALED BY THE MANUFACTUREF IN A MANNER SUCH THAT THE ELEMENTS WILL MEET ALL OF THE TEST REQUIREMENTS OF THIS SPECIFICATION, PRECAST ELEMENTS SO SEALED

SPECIFICATION. PRECAST ELEMENTS SO SALED
SHALL BE CONSIDERED SATISFACTORY FOR USE.
6.1.4.3. TEST EQUIPMENT - EVERY MANUFACTURER
FURNISHING PRECAST ELEMENTS UNDER THIS
SPECIFICATION SHALL FURNISH ALL FACILITIES AND
PERSONNEL NECESSARY TO CARRY OUT THE TEST

REQUIRED.
6.2. INSPECTION - THE QUALITY OF MATERIALS, THE PROCESS OF MANUFACTURE, AND THE FINISHED PRECAST ELEMENTS SHALL BE SUBJECT TO INSPECTION BY THE PURCHASER

7. JOINTS
THE BRIDGE UNITS SHALL BE PRODUCED WITH FLAT BUTT ENDS.
THE ENDS OF THE BRIDGE UNITS SHALL BE SUCH THAT WHEN THE SECTIONS ARE LAID TOGETHER THEY WILL MAKE A CONTINUOUS LINE WITH A SMOOTH INTERIOR FREE OF APPRECIABLE IRREGULARITIES, ALL COMPATIBLE WITH THE PERMISSIBLE VARIATIONS IN SECTION 5, ABOVE. THE JOINT WIDTH BETWEEN AD IACENT PRECAST LINITS SHALL NOT EXCEED 3/4".

ADJACENT PRECAST UNITS SHALL NOT EXCEED ¾".

WORKMANSHIP INISH

THE BRIDGE UNITS, WINGWALLS, HEADWALLS AND FOUNDATION
UNITS SHALL BE SUBSTANTIALLY FREE OF FRACTURES. THE ENDS OF
THE BRIDGE UNITS SHALL BE NORMAL TO THE WALLS AND
CENTERLINE OF THE BRIDGE SECTION, WITHIN THE LIMITS OF THE VARIATIONS GIVEN IN SECTION 5. ABOVE, EXCEPT WHERE BEVELED VARIATIONS GIVEN IN SECTION 5, ABOVE, EXCEPT WHERE BEVELED ENDS ARE SPECIFIED. THE FACES OF THE WINGWALLS AND HEADWALLS SHALL BE PARALLEL TO EACH OTHER, WITHIN THE LIMITS OF VARIATIONS GIVEN IN SECTION 5, ABOVE. THE SURFACE OF THE PRECAST ELEMENTS SHALL BE A SMOOTH STEEL FORM OR TROWELED SURFACE. TRAPPED AIR POCKETS CAUSING SURFACE DEFECTS SHALL BE CONSIDERED AS PART OF A SMOOTH, STEEL FORM FINISH.

9. REPAIRS
PRECAST ELEMENTS MAY BE REPAIRED. IF NECESSARY, BECAUSE OF IMPERFECTIONS IN MANUFACTURE OR HANDLING DAMAGE AND WILL BE ACCEPTABLE IF, IN THE OPINION OF THE PURCHASER, THE REPAIRS ARE SOUND, PROPERLY FINISHED AND CURED, AND THE REPAIRED SECTION CONFORMS TO THE REQUIREMENTS OF THIS SPECIFICATION.

10.REJECTION
THE PRECAST ELEMENTS SHALL BE SUBJECT TO REJECTION ON ACCOUNT OF ANY OF THE SPECIFICATION REQUIREMENTS. INDIVIDUAL PRECAST ELEMENTS MAY BE REJECTED BECAUSE OF

ANY OF THE FOLLOWING:

10.1.FRACTURES OR CRACKS PASSING THROUGH THE WALL,
EXCEPT FOR A SINGLE END CRACK THAT DOES NOT EXCEED ONE HALF THE THICKNESS OF THE WALL

10.2.DEFECTS THAT INDICATE PROPORTIONING, MIXING, AND MOLDING NOT IN COMPLIANCE WITH SECTION 4 OF THESE SPECIFICATIONS.
 10.3.HONEYCOMBED OR OPEN TEXTURE.

10.4.DAMAGED ENDS, WHERE SUCH DAMAGE WOULD PREVENT MAKING A SATISFACTORY JOINT.

DESIGN RJP 6/17 OKLAHOMA DEPARTMENT OF TRANSPORTATION DRAWN ATD 6/17 CHECKED BWF 6/17 **BRIDGE NOTES** APPROVED WTM 6/17 SOLIAD MESHEK PAWNEE COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO B04

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN O-SERIES BRIDGE SYSTEMS OR APPROVED EQUAL (CONT'D)

11. MARKING EACH BRIDGE UNIT SHALL BE CLEARLY MARKED BY WATERPROOF PAINT. THE FOLLOWING SHALL BE SHOWN ON THE INSIDE OF THE VERTICAL LEG OF THE BRIDGE SECTION: BRIDGE SPAN x BRIDGE RISE

DATE OF MANUFACTURE

NAME OR TRADEMARK OF THE MANUFACTURER
 INSTALLATION PREPARATION
 TO ENSURE CORRECT INSTALLATION OF THE PRECAST CONCRETE

BRIDGE SYSTEM, CARE AND CAUTION MUST BE EXERCISED IN FORMING THE SUPPORT AREAS FOR BRIDGE UNITS, HEADWALL, AND WINGWALL ELEMENTS. EXERCISING SPECIAL CARE WILL FACILITATE THE RAPID INSTALLATION OF THE PRECAST COMPONENTS.

12.1. <u>FOOTINGS</u>
DO NOT OVER EXCAVATE FOUNDATIONS UNLESS DIRECTED BY SITE SOIL ENGINEER TO REMOVE UNSUITABLE SOIL

THE SITE SOILS ENGINEER SHALL CERTIFY THAT THE BEARING CAPACITY MEETS OR EXCEEDS THE FOOTING DESIGN REQUIREMENTS, PRIOR TO THE CONTRACTOR POURING OF THE

THE BRIDGE UNITS AND WINGWALLS SHALL BE INSTALLED ON EITHER PRECAST OR CAST-IN-PLACE CONCRETE FOOTINGS. THE SIZE AND ELEVATION OF THE FOOTINGS SHALL BE AS DESIGNED BY THE ENGINEER. A KEYWAY SHALL BE FORMED IN THE TOP SURFACE OF THE BRIDGE FOOTING AS SPECIFIED ON THE PLANS NO KEYWAY IS REQUIRED IN THE WINGWALL FOOTINGS, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

THE FOOTINGS SHALL BE GIVEN A SMOOTH FLOAT FINISH AND SHALL REACH A COMPRESSIVE STRENGTH OF 2,000 PSI BEFORE PLACEMENT OF THE BRIDGE AND WINGWALL FLEMENTS. BACKFILLING SHALL NOT BEGIN UNTIL THE FOOTING HAS REACHED THE FULL DESIGN COMPRESSIVE STRENGTH.

THE FOOTING SURFACE SHALL BE CONSTRUCTED IN ACCORDANCE WITH GRADES SHOWN ON THE PLANS. WHEN TESTED WITH A 10'-0 STRAIGHT EDGE, THE SURFACE SHALL NOT VARY MORE THAN 1/4" IN

IF A PRECAST CONCRETE FOOTING IS USED. THE CONTRACTOR SHALL PREPARE A 4" THICK BASE LAYER OF COMPACTED
GRANULAR MATERIAL THE FULL WIDTH OF THE FOOTING PRIOR TO
PLACING THE PRECAST FOOTING.

THE FOUNDATIONS FOR PRECAST CONCRETE BRIDGE ELEMENTS AND WINGWALLS MUST BE CONNECTED BY REINFORCEMENT TO FORM ONE MONOLITHIC BODY. EXPANSION JOINTS SHALL NOT BE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF THE FOUNDATIONS PER THE PLANS AND SPECIFICATIONS.

INSTALLATION
 I. GENERAL - THE INSTALLATION OF THE PRECAST CONCRETE ELEMENTS SHALL BE AS EXPLAINED IN THE PUBLICATION CON/SPAN BRIDGE SYSTEMS INSTALLATION HANDBOOK.

- 1.1. LIFTING IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT A CRANE OF THE CORRECT LIFTING CAPACITY IS AVAILABLE TO HANDLE THE PRECAST CONCRETE UNITS. THIS CAN BE ACCOMPLISHED BY USING THE WEIGHTS GIVEN FOR THE PRECAST CONCRETE COMPONENTS AND BY DETERMINING THE LIFTING REACH FOR EACH CRANE UNIT, SITE CONDITIONS MUST BE CHECKED WELL IN ADVANCE OF SHIPPING TO ENSURE PROPER CRANE LOCATION AND TO AVOID ANY LIFTING RESTRICTIONS. THE LIFT ANCHORS OR HOLES PROVIDED IN EACH UNIT ARE THE ONLY MEANS TO BE USED TO LIFT THE ELEMENTS. THE PRECAST CONCRETE ELEMENTS MUST NOT BE SUPPORTED OR RAISED BY OTHER MEANS THAN THOSE GIVEN IN THE MANUALS AND DRAWINGS WITHOUT WRITTEN APPROVAL FROM CONTECH®
- ENGINEERED SOLUTIONS.

 2. CONSTRUCTION EQUIPMENT WEIGHT RESTRICTIONS IN NO 13.1.2. CONSTRUCTION EQUIPMENT WEIGHT RESTRICTIONS - IN NO CASE SHALL EQUIPMENT OPERATING IN EXCESS OF THE DESIGN LOAD (HS20 OR HS25) BE PERMITTED OVER THE BRIDGE UNITS UNLESS APPROVED BY CONTECH® ENGINEERED SOLUTIONS.

 13.1.2.1. IN THE IMMEDIATE AREA OF THE BRIDGE UNITS, THE FOLLOWING RESTRICTIONS FOR THE USE OF HEAVY CONSTRUCTION MACHINERY DURING BACKFILLING OPERATIONS APPLY:

 • NO CONSTRUCTION EQUIPMENT SHALL CROSS THE BARE DEPORT CONDETED PROPER LITT.
- PRECAST CONCRETE BRIDGE UNIT.
- PRECAST CONCRETE BRIDGE UNIT.

 AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF

 4" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT
 WITH A WEIGHT OF LESS THAN 10 TONS MAY CROSS THE BRIDGE. AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 1'-0" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 30 TONS MAY CROSS
- AFTER THE COMPACTED FILL LEVEL HAS REACHED THE DESIGN COVER, OR 2-0" MINIMUM, OVER THE CROWN OF THE PRECAST CONCRETE BRIDGE, CONSTRUCTION EQUIPMENT WITHIN THE DESIGN LOAD LIMITS FOR THE ROAD MAY CROSS THE PRECAST CONCRETE BRIDGE.
- 13.2. LEVELING PAD/SHIMS THE BRIDGE UNITS AND WINGWALLS SHALL BE SET ON HARDBOARD SHIMS CONFORMING TO ASTM D1037 OR PLASTIC SHIMS (DAYTON SUPERIOR P-80, P-81 OR APPROVED EQUAL) MEASURING 5" x 5", MINIMUM, UNLESS SHOWN OTHERWISE ON THE PLANS. A MINIMUM GAP OF ½" SHALL BE PROVIDED BETWEEN THE FOOTING AND THE BOTTOM OF THE BRIDGE'S

VERTICAL LEGS OR THE BOTTOM OF THE WINGWALL ALSO A

SUPPLY OF ½", ½" AND ½" THICK HARDBOARD OR PLASTIC SHIMS FOR VARIOUS SHIMMING PURPOSES SHALL BE ON SITE.

13.3. PLACEMENT OF BRIDGE UNITS - THE BRIDGE UNITS SHALL BE PLACED AS SHOWN ON THE ENGINEER'S PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE. THE JOINT WIDTH BETWEEN ADJACENT PRECAST UNITS SHALL NOT EXCEED 3/4".

13.4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE STRUCTURE SPAN DURING ALL PHASES OF INSTALLATION, DUE TO THE ARCH SHAPE, BRIDGE ELEMENTS WILL TEND TO SPREAD UNDER SELF-WEIGHT. IT IS IMPERATIVE THAT ANY LATERAL SPREADING OF THE BRIDGE ELEMENTS BE AVOIDED DURING AND AFTER THEIR PLACEMENT. GENERALLY, HORIZONTAL CABLE TIES OR TIE RODS ARE SHIPPED IN THE LARGER BRIDGE ELEMENTS TO ASSIST IN PREVENTING THIS SPREADING. CABLE TIES/TIE RODS SHALL NOT BE REMOVED UNTILL BRIDGE UNITS ARE GROUTED AND GROUT HAS CURED IT IS RECOMMENDED THAT TEMPORARY AND GROUT HAS CURED. IT IS RECOMMENDED IN AN INFARMAND HARDWOOD BLOCKS BE USED IN CONJUNCTION WITH THE CABLE TIES/TIE RODS TO MAINTAIN SPAN, IF, HOWEVER, DUE TO SITE RESTRICTIONS, THESE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO PLACEMENT OF THE BRIDGE ELEMANTS. THE CONTRACTOR MUST NOTIFY CONTECH (MANUFACTURER) AND REQUEST A SUGGESTED INSTALLATION PROCEDURE.

IN ADDITION, IF THE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO SETTING ARCH UNITS. THE FOLLOWING QUALITY

CONTROL PROCEDURE MUST BE FOLLOWED:

1) FIND "MEASURED SPAN" UPON ARCH UNIT'S DELIVERY TO SITE, PRIOR TO LIFTING FROM TRUCK AND REMOVING CABLE. TIES/TIE RODS. "MEASURED SPAN" SHALL BE THE AVERAGE OF (3) SPAN MEASUREMENTS ALONG THE LAY LENGTH OF THE ARCH UNIT.

2) AFTER SETTING OF BRIDGE UNIT ON THE FOUNDATION VÉRIFY THE SPAN. THIS "INSTALLED SPAN MEASUREMENT" SHALL NOT EXCEED THE MAXIMUM OF:

A) THE NOMINAL SPAN +½" OR
B) THE "MEASURED SPAN"

IF THE "INSTALLED SPAN MEASUREMENT" EXCEEDS THIS AMOUNT, THE ARCH UNIT SHALL BE LIETED AND RE-SET UNTIL THE 'INSTALLED SPAN MEASUREMENT" MEETS THE LIMITS.

- 13.5. PLACEMENT OF WINGWALLS, HEADWALLS AND FOUNDATION UNITS - THE WINGWALLS, HEADWALLS AND FOUNDATIONS SHALL BE PLACED AS SHOWN ON THE PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE.

 13.6. WATERPROOFING/JOINT PROTECTION AND SUBSURFACE
- DRAINAGE
- EXTERNAL PROTECTION OF JOINTS THE BUTT JOINT MADE BY TWO ADJOINING BRIDGE UNITS SHALL BE COVERED WITH A 7/8" x %" PREFORMED BITUMINOUS JOINT SEALANT AND A MINIMUM OF A 9" WIDE JOINT WRAP. THE SURFACE SHALL BE FREE OF DIRT A 9 WIDE JOINT WRAP. THE SURFACE SHALL BE FREE OF DIRT BEFORE APPLYING THE JOINT MATERIAL. A PRIMER COMPATIBLE WITH THE JOINT WRAP TO BE USED SHALL BE APPLIED FOR A MINIMUM WIDTH OF 9" ON EACH SIDE OF THE JOINT. THE EXTERNAL WRAP SHALL BE CS212 BY CONCRETE SEALANTS INC. EZ-WRAP WHAT SHALL BE COSTED BY CONCRETE SEALANTS INC., EX-WATER
 WIBBER BY PRESS-SEAL GASKET CORPORATION, SEAL WRAP BY
 MAR MAC MANUFACTURING CO. INC. OR APPROVED EQUAL. THE
 JOINT SHALL BE COVERED CONTINUOUSLY FROM THE BOTTOM OF ONE BRIDGE SECTION LEG. ACROSS THE TOP OF THE BRIDGE AND ONE BRIDGE SECTION LEG, ACROSS THE TOP OF THE BRIDGE AND TO THE OPPOSITE BRIDGE SECTION LEG. ANY LAPS THAT RESULT IN THE JOINT WRAP SHALL BE A MINIMUM OF 6" LONG WITH THE OVERLAP RUNNING DOWNHILL. 13.6.2. IN ADDITION TO THE JOINTS BETWEEN BRIDGE UNITS, THE JOINT BETWEEN THE END BRIDGE UNIT AND THE HEADWALL SHALL
- ALSO BE SEALED AS DESCRIBED ABOVE. IF PRECAST WINGWALLS ARE USED, THE JOINT BETWEEN THE END BRIDGE UNIT AND THE WINGWALLS HALL BE SEALED WITH A 2-0° STRIP OF FILTER FABRIC. ALSO, IF LIFT HOLES ARE FORMED IN THE BRIDGE UNITS, THEY SHALL BE PRIMED AND COVERED WITH A 9" x 9" SQUARE OF JOINT
- WKAF.
 5.3. DURING THE BACKFILLING OPERATION, CARE SHALL BE TAKEN
 TO KEEP THE JOINT WRAP IN ITS PROPER LOCATION OVER THE
- SUBSOIL DRAINAGE SHALL BE AS DIRECTED BY THE

- 13.7. GROUTING

 13.7.1. GROUTING SHALL NOT BE PERFORMED WHEN TEMPERATURES ARE EXPECTED TO GO BELOW 35° FOR A PERIOD OF 72 HOURS.
 FILL THE BRIDGE-FOUNDATION KEYWAY WITH CEMENT GROUT
 (PORTLAND CEMENT AND WATER OR CEMENT MORTAR COMPOSED OF PORTLAND CEMENT, SAID AND WATER) WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI. VIBRATE AS REQUIRED TO ENSURE THAT THE ENTIRE KEY AROUND THE BRIDGE ELEMENT IS COMPLETELY FILLED. IF BRIDGE ELEMENTS HAVE BEEN SET WITH TEMPORARY TIES (CABLES, BARS, ETC.) GROUT MUST ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF
- GROUT WOST A TAIN A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI BEFORE TIES MAY BE REMOVED. 2. ALL GROUT SHALL HAVE A MAXIMUM AGGREGATE SIZE OF ½". 3. LIFTING AND ERECTION ANCHOR RECESSES SHALL BE FILLED
- AFTER GROUT HAS REACHED ITS DESIGN STRENGTH THE TEMPORARY HARDWOOD WEDGES SHALL BE REMOVED AND THEIR HOLES FILLED WITH GROUT.
- 13.8. BACKFILL
 13.8.1. DO NOT PERFORM BACKFILLING DURING WET OR FREEZING

13.8.2 NO BACKELL SHALL BE PLACED AGAINST ANY STRUCTURAL

ELEMENTS UNTIL THEY HAVE BEEN APPROVED BY THE ENGINEER.

13.8.3. BACKFILL SHALL BE CONSIDERED AS ALL REPLACED
EXCAVATION AND NEW EMBANKMENT ADJACENT TO THE PRECAST CONCRETE ELEMENTS. THE PROJECT CONSTRUCTION AND MATERIAL SPECIFICATIONS, WHICH INCLUDE THE SPECIFICATIONS
FOR EXCAVATION FOR STRUCTURES AND ROADWAY EXCAVATION
AND EMBANKMENT CONSTRUCTION, SHALL APPLY EXCEPT AS
MODIFIED IN THIS SECTION.

13.8.4. BACKFILL ZONES:

- in-situ Soil.

 1 IN-SITU SOIL

 2 ONE A: CONSTRUCTED EMBANKMENT OR OVERFILL.

 2 ONE A: GORGEGATE BASE TYPE A FILL THAT IS DIRECTLY
 ASSOCIATED WITH PRECAST CONCRETE BRIDGE INSTALLATION.
- ZONE C: 6" T.B.S.C.ROAD STRUCTURE ZONE C: 0 1.B.S.C ROAD STRUCTURE:

 ZONE D: 8" SUBGRADE, METHOD B

 8.5. REQUIRED BACKFILL PROPERTIES

- 13.8.5.1. IN-SITU SOIL NATURAL GROUND IS TO BE SUFFICIENTLY
 STABLE TO ALLOW EFFECTIVE SUPPORT TO THE PRECAST CONCRETE BRIDGE UNITS. AS A GUIDE, THE EXISTING NATURAL GROUND SHOULD BE OF SIMILAR QUALITY AND DENSITY TO ZONE B MATERIAL FOR MINIMUM LATERAL DIMENSION OF ONE BRIDGE SPAN OUTSIDE OF THE BRIDGE
- 13.8.5.2. ZONE A ZONE A REQUIRES FILL MATERIAL WITH SPECIFICATIONS AND COMPACTING PROCEDURES EQUAL TO THAT FOR NORMAL ROAD EMBANKMENTS.
- 13.8.5.3. ZONE B GENERALLY SOILS SHALL BE REASONABLY FREE 20NE B - GENERALET, SOILS SHALL BE REASONABLE FREE
 OF ORGANIC MATTER, AND, NEAR CONCRETE SURFACES,
 FREE OF STONES LARGER THAN 3" IN DIAMETER SEE CHARTS
 FOR DETAILED DESCRIPTIONS OF ACCEPTABLE SOILS. 13.8.5.4. ZONE C - ZONE C IS THE ROAD SECTION OF GRAVEL
- ASPHALT OR CONCRETE BUILT IN COMPLIANCE WITH LOCAL
- ASPHALL OR CONCETE BOILT IN COMPLIANCE WITH LOCAL ENGINEERING PRACTICES.

 13.8.5.5. GEOTECHNICAL ENGINEER SHALL REVIEW GRADATIONS OF ALL INTERFACING MATERIALS AND, IF NECESSARY, RECOMMEND GEOTEXTILE FILTER FABRIC (PROVIDED BY CONTRACTOR)

8.6. PLACING AND COMPACTING BACKFILL DUMPING FOR BACKFILLING IS NOT ALLOWED ANY NEARER THAN 3'-0" FROM THE BRIDGE LEG.

THE FILL MUST BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE MAXIMUM DIFFERENCE IN THE SURFACE LEVELS OF THE FILL ON OPPOSITE SIDES OF THE BRIDGE MUST NOT EXCEED 2'-0"

THE FILL BEHIND WINGWALLS MUST BE PLACED AT THE SAME TIME AS THAT OF THE BRIDGE FILL. IT MUST BE PLACED IN PROGRESSIVELY PLACED HORIZONTAL LAYERS NOT EXCEEDING 8"

THE BACKFILL OF ZONE B SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% OF THE STANDARD PROCTOR, AS REQUIRED BY

SOIL WITHIN 1'-0" OF CONCRETE SURFACES SHALL BE HAND-COMPACTED. ELSEWHERE, USE OF ROLLERS IS ACCEPTABLE IF VIBRATING ROLLER-COMPACTORS ARE USED THEY SHALL NOT BE STARTED OR STOPPED WITHIN ZONE B AND THE VIBRATION FREQUENCY SHOULD BE AT LEAST 30 REVOLUTIONS PER SECOND.

THE BACKELL MATERIAL AND COMPACTING BEHIND WINGWALLS SHALL SATISFY THE CRITERIA FOR THE BRIDGE BACKFILL, ZONE B

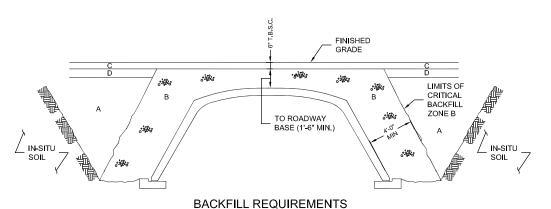
BACKFILL AGAINST A WATERPROOFED SURFACE SHALL BE PLACED CAREFULLY TO AVOID DAMAGE TO THE WATERPROOFING MATERIAL

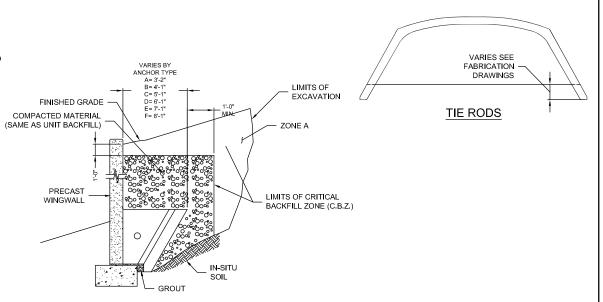
13.8.7. BRIDGE UNITS
FOR FILL HEIGHTS OVER 12 FEET (AS MEASURED FROM TOP
CROWN OF BRIDGE TO FINISHED GRADE), NO BACKFILLING MAY
COMPACTION TESTING PLAN HAS BEEN BEGIN UNTIL A BACKELL COMPACTION TESTING PLAN HAS BEEN COORDINATED WITH AND APPROVED BY CONTECH® ENGINEERED SOLUTIONS. 8. WINGWALLS

13.8.8. WINGWALLS
BACKFILL IN FRONT OF WINGWALLS SHALL BE CARRIED TO

13.8.9. MONITORING
THE CONTRACTOR SHALL CHECK SETTLEMENTS AND HORIZONTAL DISPLACEMENT OF FOUNDATION TO ENSURE THAT THEY ARE WITHIN THE ALLOWABLE LIMIT PROVIDED BY THE ENGINEER. THESE MEASUREMENTS SHOULD GIVE AN INDICATION OF THE SETTLEMENTS AND DEFORMATIONS ALONG THE LENGTH OF THE

THE FIRST MEASUREMENT SHOULD TAKE PLACE AFTER THE ERECTION OF ALL PRECAST BRIDGE SYSTEM ELEMENTS, A SECOND AFTER COMPLETION OF BACKFILLING, AND A THIRD BEFORE OPENING OF THE BRIDGE TO TRAFFIC. FURTHER MEASUREMENTS MAY BE MADE ACCORDING TO LOCAL CONDITIONS.





SQUAD

YTNUC

WALL BACKFILL REQUIREMENTS

DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION
DRAWN	ATD	6/17	
CHECKED	BWF	6/17	DDIDOE NOTEO

BRIDGE NOTES PPROVED WTM 6/17 MESHEK

PAWNEE COUNTY RD E0510 STATE JOB NO. JP29930(04) SHEET NO. B05

STORM WATER MANAGEMENT PLAN

	(OKLAHOMA	DEPAR	TMENT	OF	TRANSPORTATION
	DESCRIPTION		REVISIO	NS	DATE
/1\	REVISED	RO1			8/31/2017

SITE DESCRIPTION
PROJECT LIMITS: .04 MILES OF NEW ROADWAY AND NEW BRIDGE OVER UNNAMED CREEK
APPROXIMATELY 3.5 MILES NORTH OF THE INTERSECTION OF SH-18 & I-412, AND 0.6 MILES
EAST ON COUNTY RD. E0510 IN PAWNEE COUNTY. LIMITS ARE 100' EAST AND WEST OF THE
BRIDGE.
PROJECT DESCRIPTION: BRIDGE AND APPROACH PLANS FOR COUNTY ROAD E0510
OVER UNNAMED CREEK. PROJECT REPLACES EXISTING 1-25' AND 1-27' I-BEAM SPANS AT
15° SKEW WITH 55' PRECAST ARCH BRIDGE, 24' CLEAR ROADWAY AT 0° SKEW, AND

RECONSTRUCTS 180 LF OF GRAVEL ROADWAY.

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:
1. TEMPORARY EROSION CONTROL.
2. ROADWAY AND BRIDGE REMOVAL.
3. NEW BRIDGE INSTALLATION
4. NEW ROADWAY AND RECONSTRUCTION.
5. PERMANENT EROSION CONTROL.

	SOIL TYPE:C
	TOTAL AREA OF THE CONSTRUCTION SITE: 0.57 ACRES
	ESTIMATED AREA TO BE DISTURBED: 0.29 ACRES
	OFFSITE AREA TO BE DISTURBED:(FOR CONTRACTOR USE)
	TOTAL IMPERVIOUS AREA PRE-CONSTRUCTION: 0.09 ACRES
VG.	TOTAL IMPERVIOUS AREA POST-CONSTRUCTION: 0.18 ACRES
SP3.DWG	POST-CONSTRUCTION RUNOFF

SENSITIVE WATERS OR WATERSHEDS: 303(d) IMPAIRED WATERS: YES NO X IF YES, LIST IMPAIRMENT:

PROJECT WILL DISCHARGE TO:

UNNAMED TRIBUTARY OF CAMP CREEK

YES 🗌

NO X

NO X

NO X

OF CENTER OF PROJECT: N36° 16' 31.5", W96° 46' 16.5"

LOCATED IN A TMDL:

NAME OF RECEIVING WATERS:

COEFFICIENT OF THE SITE: 0.3

LATITUDE & LONGITUDE

LAKE THUNDERBIRD TMDL:

MS4 ENTITY

IF YES, LOCATION:

NOTE:

THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- X TEMPORARY SEEDING
- X PERMANENT SODDING, SPRIGGING OR SEEDING
- _____ VEGETATIVE MULCHING
- _____ SOIL RETENTION BLANKET
- X PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

	STABILIZED CONSTRUCTION EXIT
X	TEMPORARY SILT FENCE
	TEMPORARY SILT DIKES
	_ TEMPORARY FIBER LOG
	DIVERSION, INTERCEPTOR OR PERIMETER DIKES
	DIVERSION, INTERCEPTOR OR PERIMETER SWALES
	ROCK FILTER DAMS
-	_ TEMPORARY SLOPE DRAIN
	PAVED DITCH W/ DITCH LINER PROTECTION
	TEMPORARY DIVERSION CHANNELS
	TEMPORARY SEDIMENT BASINS

TEMPORARY SEDIMENT TRAPS TEMPORARY SEDIMENT FILTERS X TEMPORARY SEDIMENT REMOVAL X RIP RAP INLET SEDIMENT FILTER

____ TEMPORARY BRUSH SEDIMENT BARRIERS

____ SANDBAG BERMS

_____ TEMPORARY STREAM CROSSINGS

OFFSITE VEHICLE TRACKING:

- X HAUL ROADS DAMPENED FOR DUST CONTROL
- ___X__ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- X EXCESS DIRT ON ROAD REMOVED DAILY

NOTE	ES:		
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THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:

ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH AS RECORDED BY A NON-FREEZING RAIN GAUGE TO BE LOCATED ON SITE. POTENTIALLY ERODIBLE AREAS, DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

WASTE MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DEBRIS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

HAZARDOUS MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

GENERAL NOTES:

A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT (NOI) FORM AND PERMIT CERTIFICATE THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAINMENT OF HAZARDOUS MATERIALS AND/OR THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

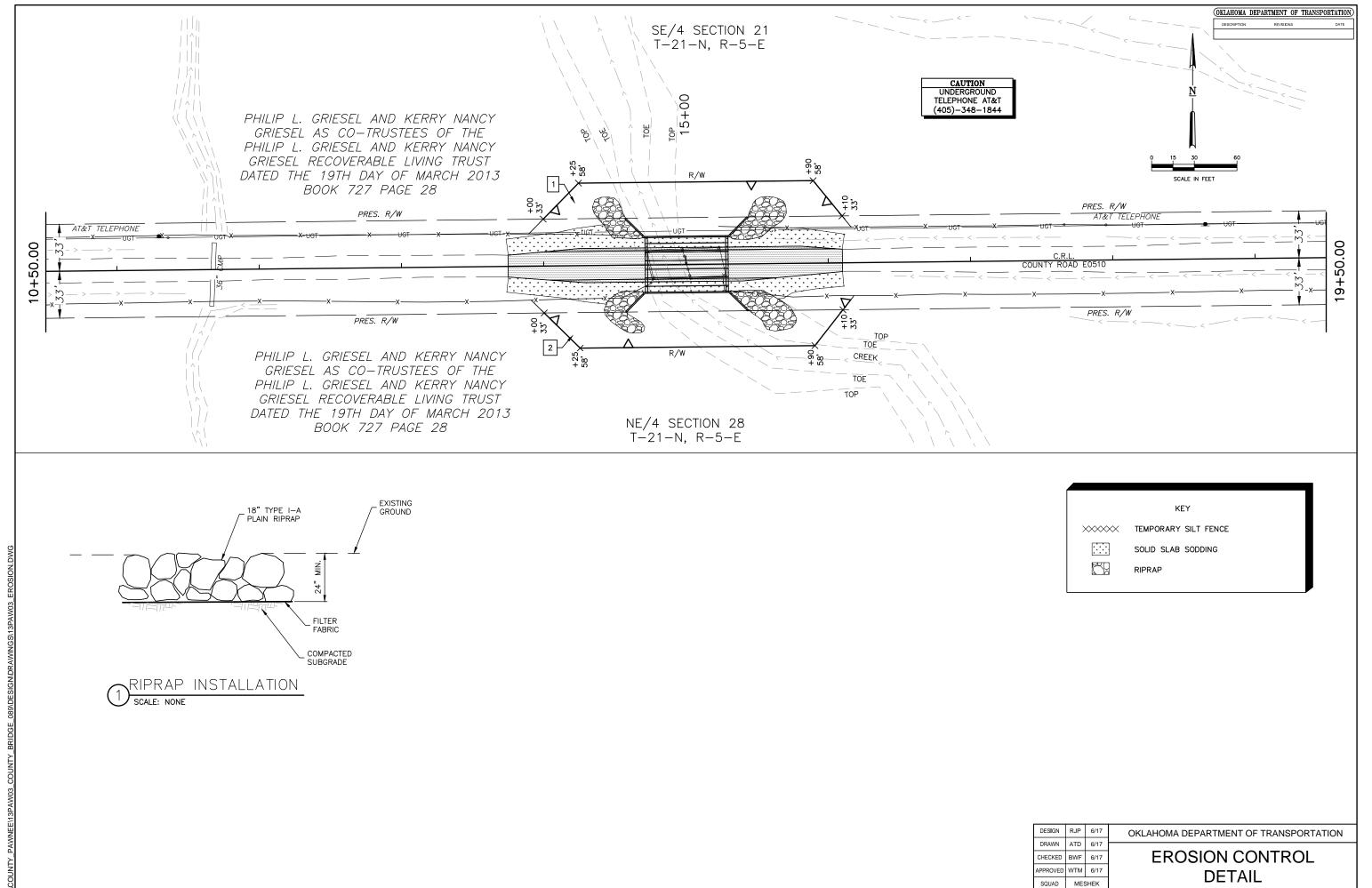
- 103.05 BONDING REQUIREMENTS
- 104.10 FINAL CLEANING UP
- 104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
- 104.13 ENVIRONMENTAL PROTECTION
- 106.08 STORAGE AND HANDLING OF MATERIAL
- 107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
- 107.20 STORM WATER MANAGEMENT
- 220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
- 221 TEMPORARY SEDIMENT CONTROL

IN ADDITION:

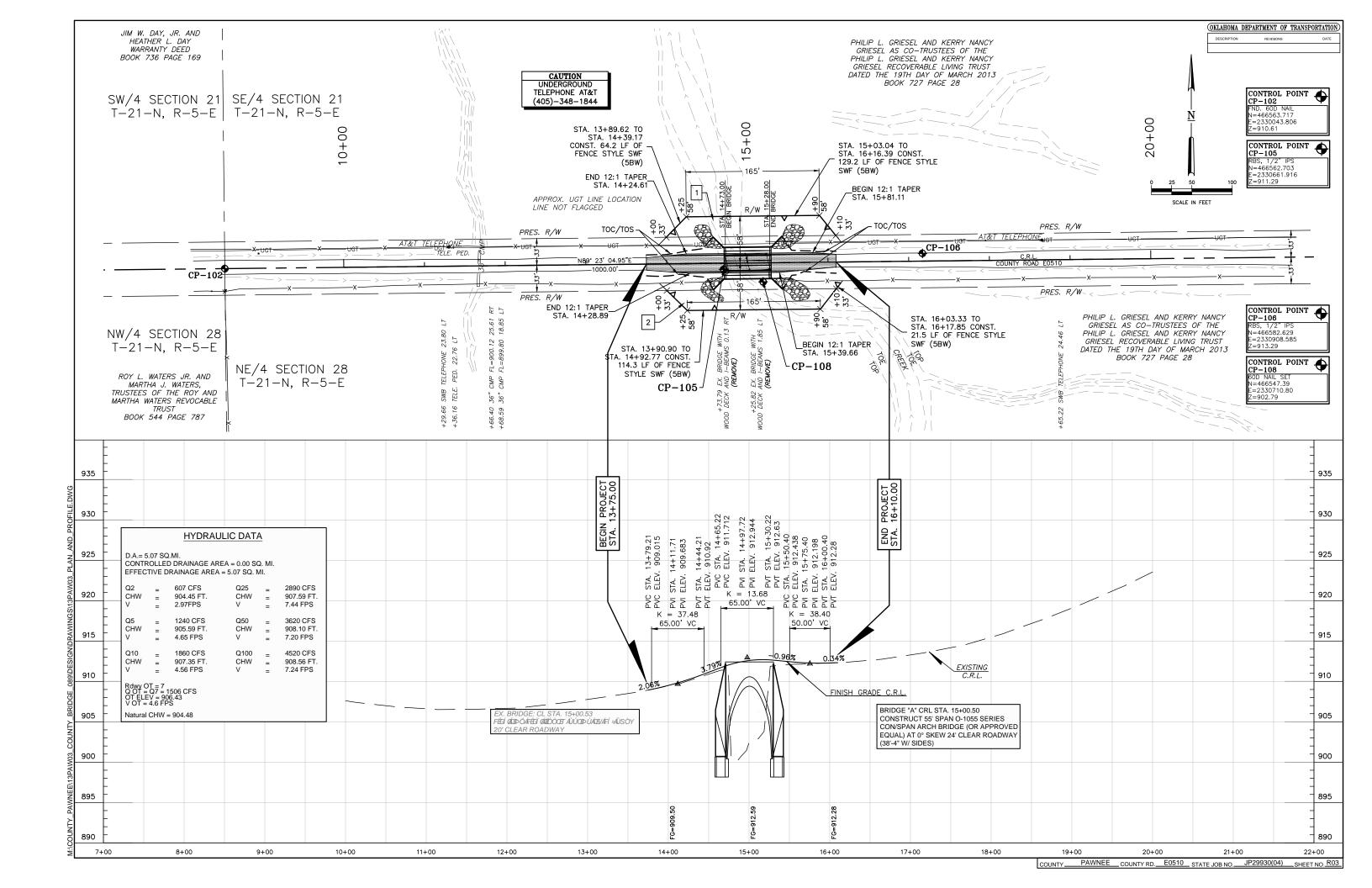
"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.

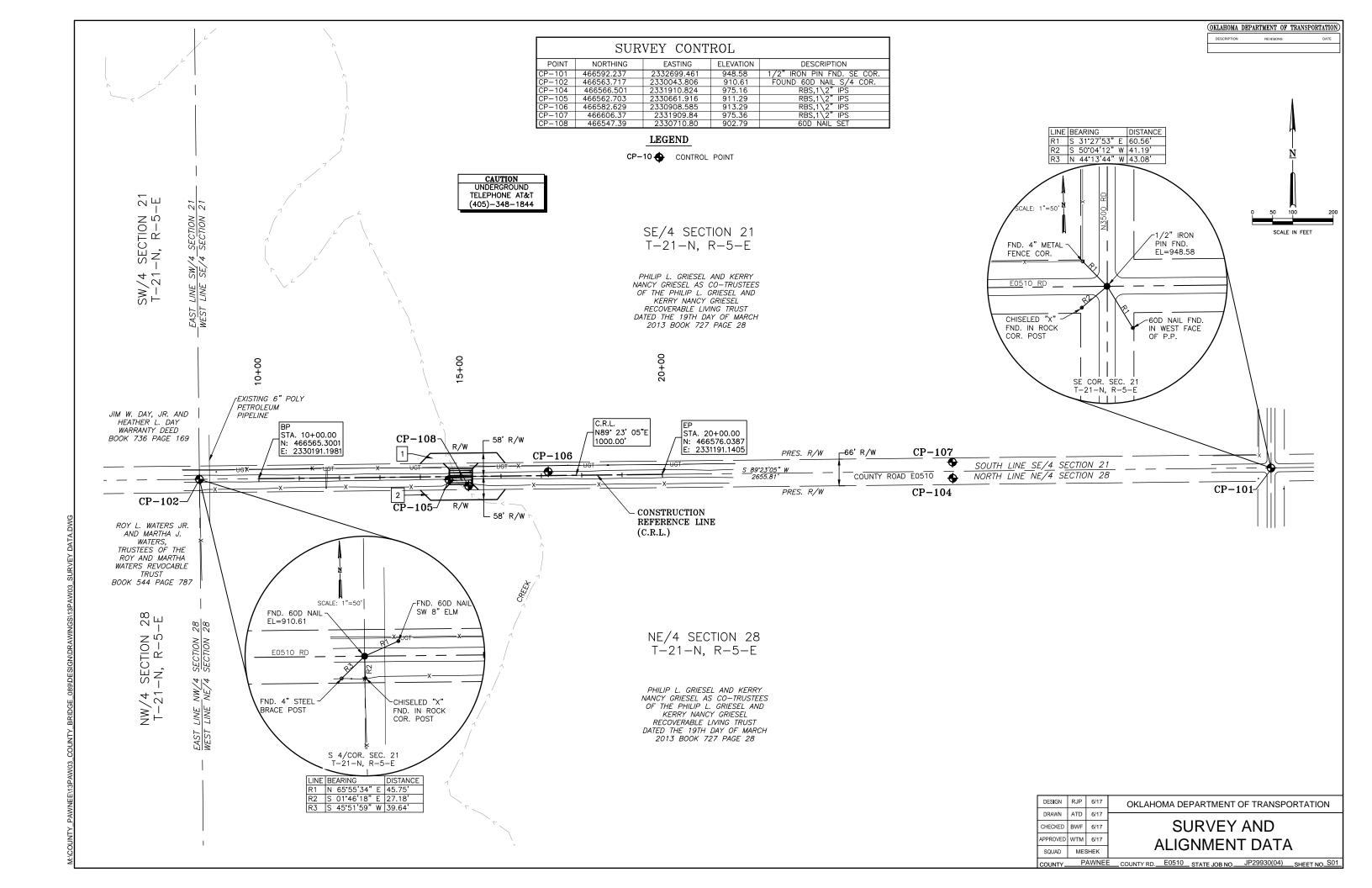
DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN	ATD	6/17	
CHECKED	BWF	6/17	STORM WATER
APPROVED	WTM	6/17	MANAGEMENT PLAN
SQUAD	MES	SHEK	MANAGEMENT PLAN
COUNTY_	P.	AWNE	COUNTY RD. <u>E0510</u> STATE JOB NO. JP29930(04) SHEET NO. R01

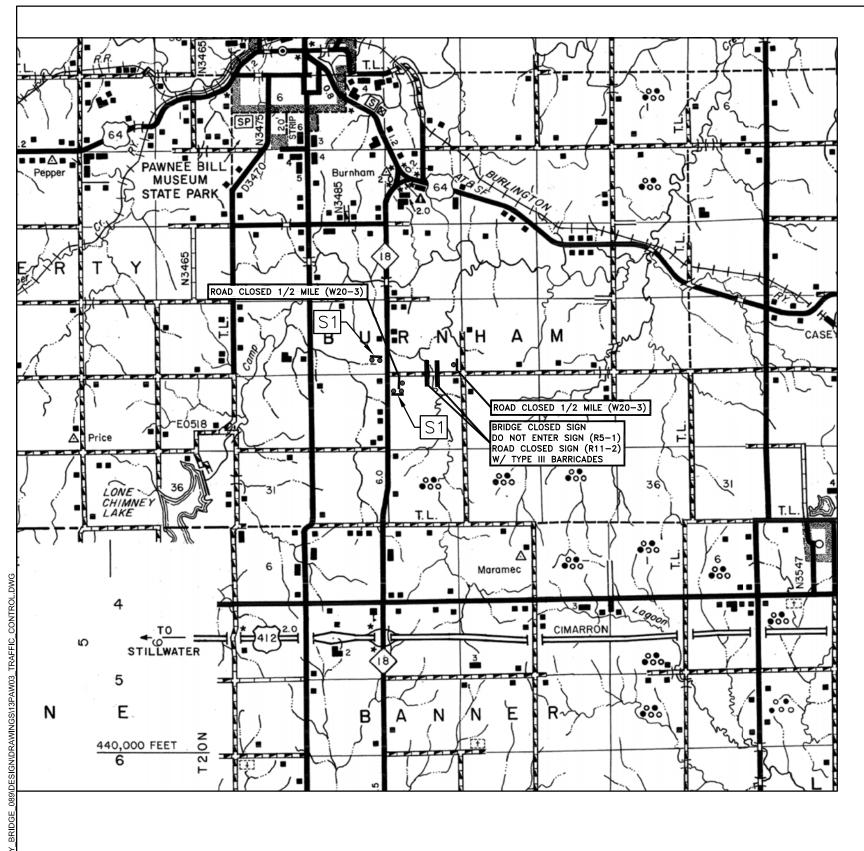
REVISED 08 / 18 / 2017

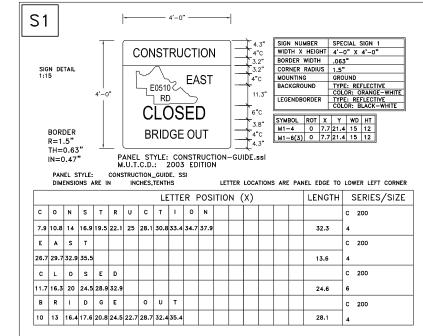


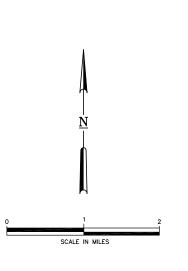
PAWNEE COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO R02







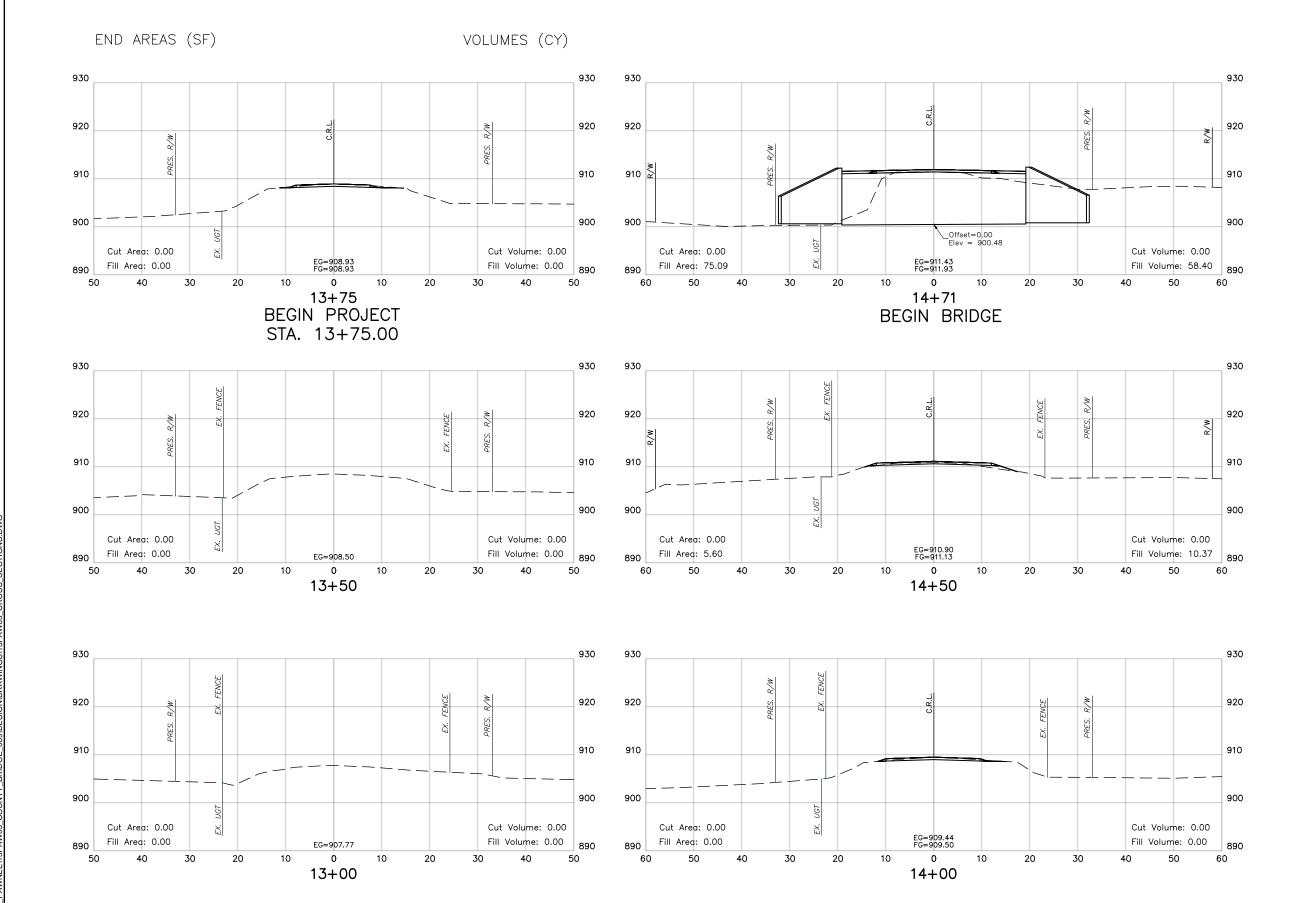




OKLAHOMA DEPARTMENT OF TRANSPORTATION

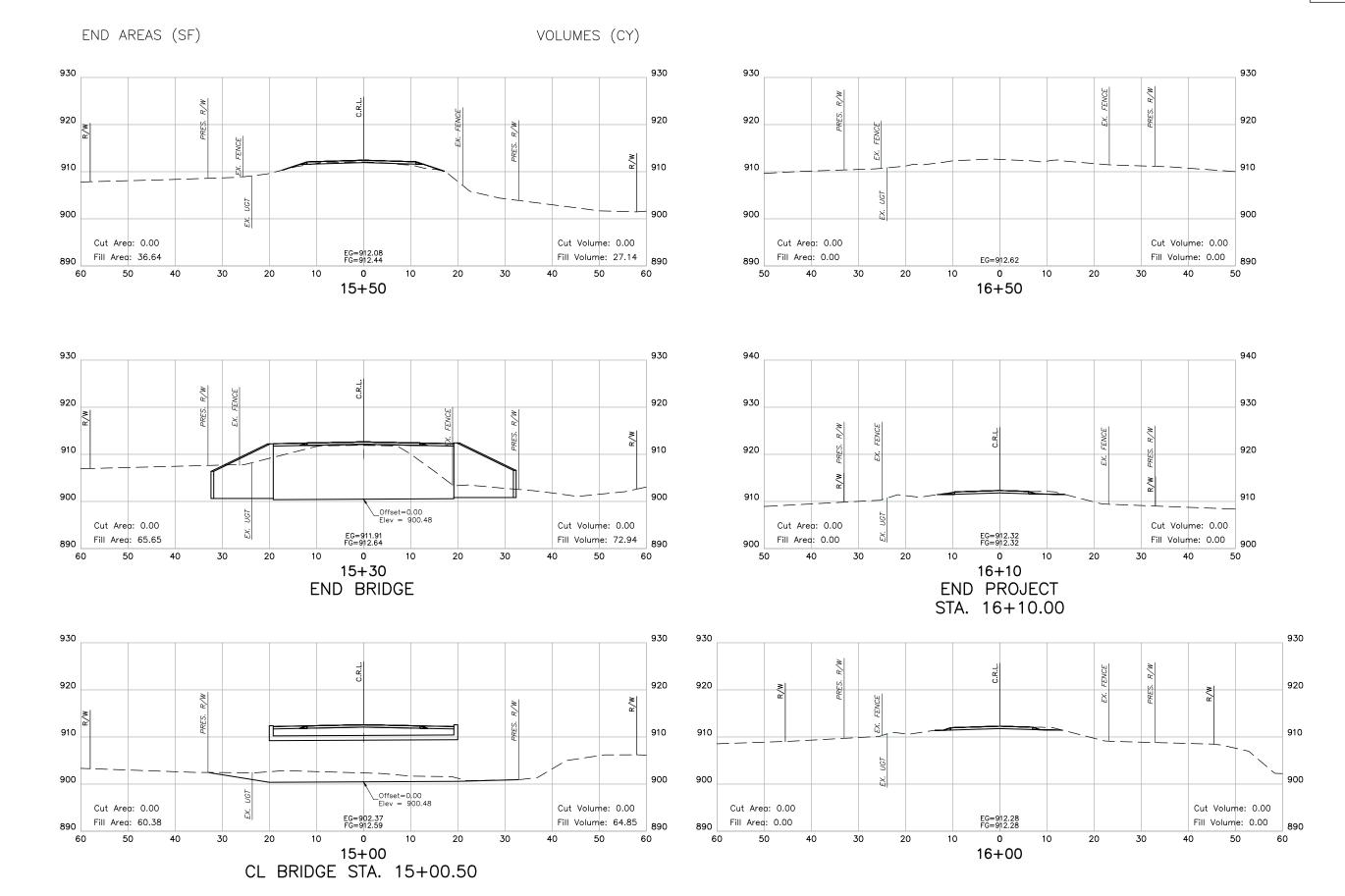
	DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION	
	DRAWN	ATD	6/17		
	CHECKED	BWF	6/17	TRAFFIC CONTROL	
Ī	APPROVED	WTM	6/17	PLAN	
Ī	SQUAD	QUAD MESHEK		FLAIN	
	COUNTY PAWNEE		AWNEE	COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO. T01	





COUNTY PAWNEE COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO. X01





COUNTY PAWNEE COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO. X02