

BAR LIST (CONSTANT)					BAR LIST (CONSTANT)					BAR LIST (CONSTANT)				
MARK	SIZE	NO.	LENGTH	SHAPE	MARK	SIZE	NO.	LENGTH	SHAPE	MARK	SIZE	NO.	LENGTH	SHAPE
W1	7	2	12'-1"	BENT	W28	7	2	11'-10"	BENT	F8	5	16	10'-6"	STR.
W2	7	2	11'-10"	BENT	W29	7	2	11'-4"	BENT	F9	5	10	29'-8"	STR.
W3	7	2	11'-8"	BENT	W30	7	2	10'-10"	BENT	F10-F18	5	2 SETS	141'-9"	STR.
W4	7	2	11'-5"	BENT	W31	7	2	10'-5"	BENT	F19	5	10	25'-11"	STR.
W5	7	2	11'-3"	BENT	W32	6	2	9'-9"	BENT	F20-F23	5	2 SETS	76'-6"	STR.
W6	7	2	11'-0"	BENT	W33	6	2	9'-4"	BENT	F24-F28	5	2 SETS	54'-5"	STR.
W7	7	2	10'-10"	BENT	W34	5	2	8'-9"	BENT	F29	6	8	5'-6"	BENT
W8	7	2	10'-7"	BENT	W35	5	2	8'-3"	BENT	F30-F49	4	2 SETS	284'-2"	BENT
W9	6	2	10'-3"	BENT	W36	4	2	7'-9"	BENT	F50-F69	4	2 SETS	249'-2"	STR.
W10	6	2	10'-0"	BENT	W37	4	2	7'-3"	BENT					
W11	6	2	9'-9"	BENT	W38	4	2	6'-10"	BENT	S6-S12	6	2 SETS	93'-4"	STR.
W12	6	2	9'-7"	BENT	W39	4	2	6'-4"	BENT	S13-S20	5	2 SETS	124'-8"	STR.
W13	5	2	9'-3"	BENT	W40	4	2	5'-10"	BENT	S21-S28	4	2 SETS	136'-8"	STR.
W14	5	2	9'-1"	BENT	W41	4	2	5'-5"	BENT					
W15	5	2	8'-10"	BENT	W42	4	2	4'-11"	BENT	T3	4	4	10'-8"	STR.
W16	5	2	8'-8"	BENT	W43	4	2	4'-4"	BENT	T4-T13	4	2 SETS	80'-5"	STR.
W17	5	2	8'-5"	BENT						T14	4	4	5'-4"	STR.
W18	4	2	8'-2"	BENT	C30	5	2	12'-10"	BENT	T15	4	4	14'-2"	STR.
W19	4	2	7'-11"	BENT	C31	5	2	12'-4"	BENT	T16-T25	4	2 SETS	115'-5"	STR.
W20	4	2	7'-9"	BENT	C32	5	2	11'-10"	BENT	T26	4	4	8'-10"	STR.
W21	4	2	7'-6"	BENT	C33	5	2	11'-6"	BENT	T27	4	28	11'-7"	STR.
W22	4	2	7'-3"	BENT	C34	5	2	11'-0"	BENT					
W23	4	2	7'-1"	BENT	C35	5	2	10'-6"	BENT	TE1-TE20	4	2 SETS	140'-0"	BENT
W24	4	2	6'-10"	BENT	C36	5	2	11'-8"	BENT	TE21-TE50	4	2 SETS	213'-9"	BENT
W25	4	2	6'-8"	BENT	C37	4	2	11'-1"	BENT					
W26	4	2	6'-5"	BENT	C38	4	2	10'-7"	BENT					
W27	4	2	6'-2"	BENT	C39	4	2	10'-1"	BENT					
					C40	4	2	9'-7"	BENT	BAR LIST (VARIABLE)				
C1	5	2	12'-10"	BENT	C41	4	2	9'-3"	BENT	V1	4	194	15'-0"	BENT
C2	5	2	12'-8"	BENT	C42	4	2	8'-9"	BENT	V2	5	194	5'-6"	BENT
C3	5	2	12'-4"	BENT	C43	4	2	8'-3"	BENT	V3	4	214	9'-4"	STR.
C4	5	2	12'-2"	BENT	C44	4	2	7'-9"	BENT	V5	4	428	9'-4"	STR.
C5	5	2	12'-0"	BENT	C45	4	2	7'-3"	BENT					
C6	5	2	11'-10"	BENT	C46	4	2	6'-7"	BENT	F1	4	194	9'-0"	BENT
C7	5	2	11'-6"	BENT	C47	4	6	6'-1"	BENT	F2	5	198	6'-3"	BENT
C8	5	2	11'-4"	BENT						F3	5	89	19'-9"	STR.
C9	5	2	11'-2"	BENT	H7	7	8	17'-10"	STR.	F4	5	214	5'-3"	STR.
C10	5	2	11'-0"	BENT	H8	4	8	16'-2"	STR.	F6	5	89	29'-8"	STR.
C11	5	2	12'-4"	BENT	H9	4	4	15'-4"	STR.	F7	5	196	10'-6"	STR.
C12	5	2	12'-2"	BENT	H10	4	4	12'-2"	STR.					
C13	5	2	11'-10"	BENT	H11	4	4	8'-11"	STR.	S1	6	89	19'-9"	STR.
C14	4	2	11'-7"	BENT	H12	4	4	5'-9"	STR.	S2	6	194	5'-8"	STR.
C15	4	2	11'-5"	BENT	H13	4	66	6'-0"	BENT	S4	5	89	29'-0"	STR.
C16	4	2	11'-1"	BENT	H14	6	4	8'-3"	STR.	S5	4	88	29'-0"	STR.
C17	4	2	10'-11"	BENT										
C18	4	2	10'-9"	BENT	O20-O30	4	2 SETS	73'-4"	STR.					
C19	4	2	10'-7"	BENT										
C20	4	2	10'-3"	BENT	A1	6	4	24'-9"	BENT					
C21	4	2	10'-1"	BENT	A2	6	4	21'-6"	BENT					
C22	4	2	9'-11"	BENT	A3	6	2	17'-8"	STR.					
C23	4	2	9'-9"	BENT	A4	6	2	11'-1"	STR.					
C24	4	2	9'-5"	BENT	A5	6	8	32'-7"	STR.					
C25	4	2	9'-3"	BENT	A6	6	8	22'-3"	STR.					
C26	4	2	9'-1"	BENT	A7	6	8	17'-10"	STR.					
C27	4	2	8'-9"	BENT	A8	6	8	13'-6"	STR.					
C28	4	2	8'-7"	BENT										
C29	4	10	6'-1"	BENT	P1	4	60	4'-7"	BENT					
					P2	6	4	5'-0"	BENT					
H1	7	8	27'-7"	STR.	P3	6	8	6'-0"	STR.					
H2	4	16	27'-1"	STR.	P4	6	4	5'-0"	BENT					
H3	4	4	20'-1"	STR.	PE	6	8	16'-2"	STR.					
H4	4	4	13'-1"	STR.										
H5	4	66	6'-0"	BENT	V6	4	8	8'-0"	STR.					
H6	6	4	13'-5"	STR.	V7	4	8	6'-7"	STR.					
					V8	4	8	5'-1"	STR.					
O1-O19	4	2 SETS	151'-2"	STR.	V9	4	8	3'-7"	STR.					
					V10	4	8	2'-2"	STR.					
					V11	6	8	10'-3"	STR.					

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	project number	170	14

23 U.S.C. 407  
NDDOT Reserves All Objections

**NOTES:**

1. Verify the quantity, size, and shape of the bar reinforcement against the structure drawings and immediately notify the Engineer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. The radius dimension in the "Bar Details" indicates the outside radius.

**NOTE:**

Unless construction requirements dictate otherwise, the Contractor has the option to construct the box culvert using construction joints or as one continuous unit. If construction joints are used, the longitudinal bar lengths may be adjusted, but a minimum lap length of 1'-3" must be maintained.

CONCRETE FORMULAS	
ENTIRE FLOOR	"L" x 0.86974 + 30.78759 = 123.0 CY
TWO OUTSIDE WALLS & FOUR WINGS	"L" x 0.41975 + 18.65734 = 63.2 CY
INSIDE WALLS	"L" x 0.41975 + 2.80882 = 47.3 CY
ENTIRE ROOF	"L" x 0.83256 + 1.69937 = 90.0 CY
TOTAL	"L" x 2.54180 + 53.95312 = 323.5 CY

This drawing is preliminary and not for construction or implementation purposes.

QUANTITIES	
CLASS AE-3 CONCRETE	323.5 CY
REINFORCING STEEL	45,747 LBS
LOCATION	
REINFORCING BAR LIST	