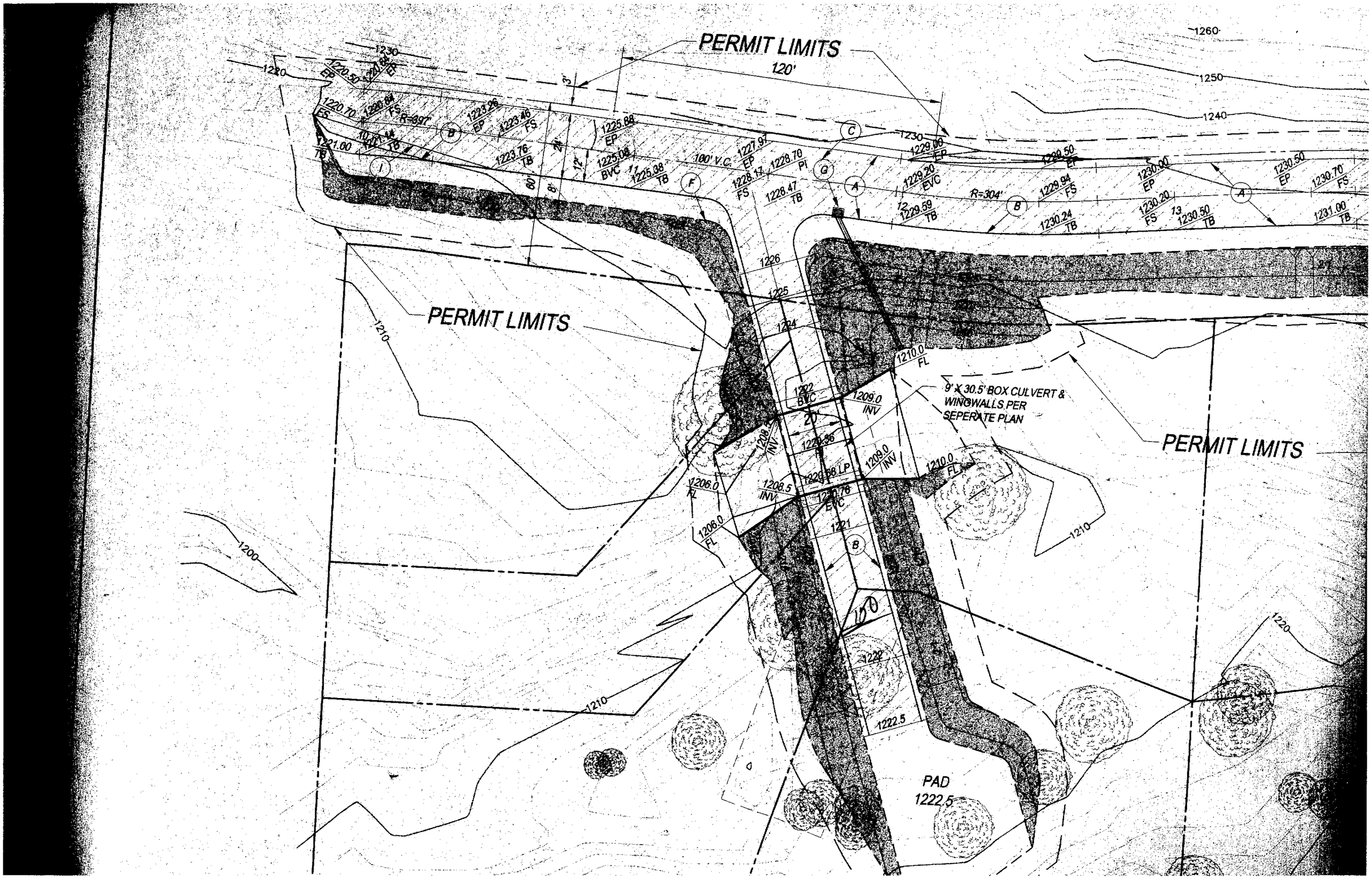
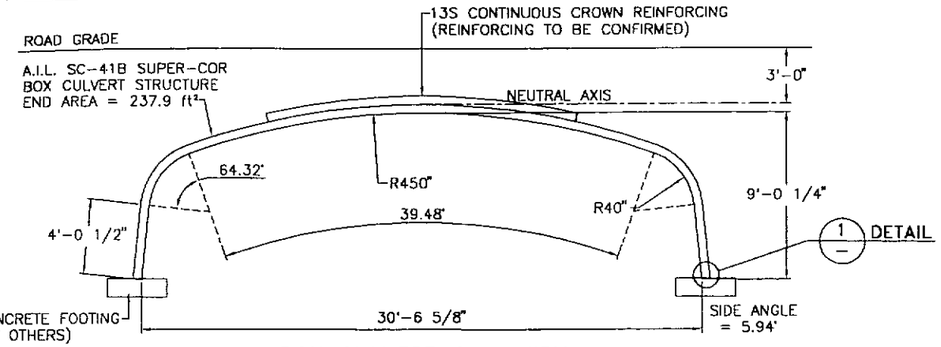
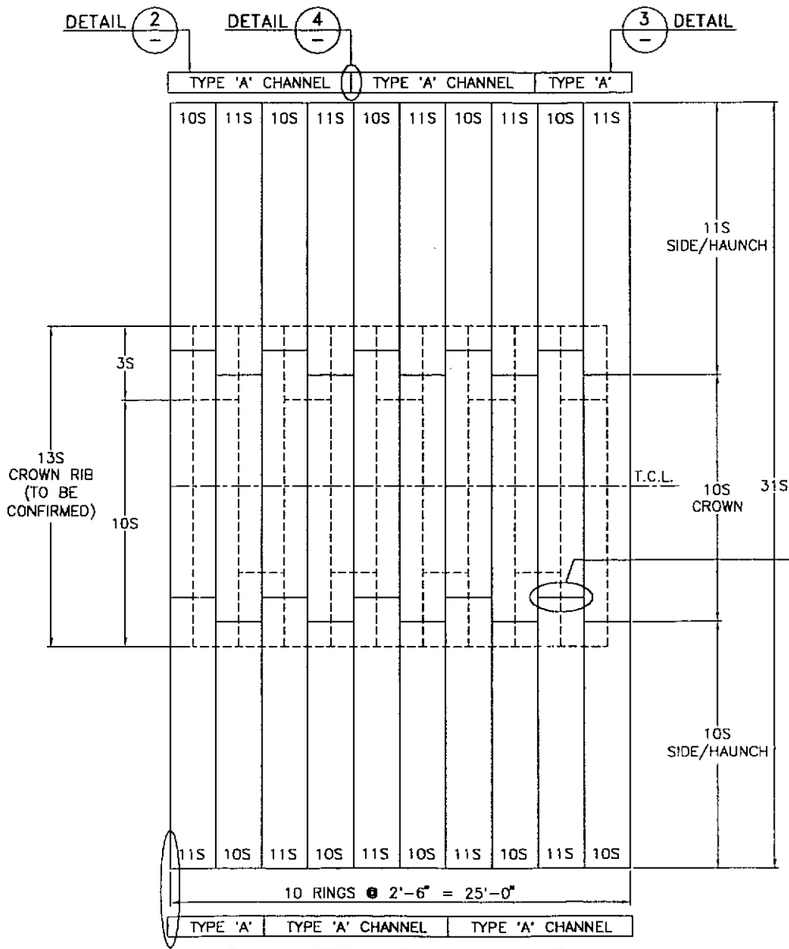

PERMIT LIMITS
120'
PERMIT LIMITS
PERMIT LIMITS
9' X 30.5' BOX CULVERT & WINGWALLS PER SEPERATE PLAN
PAD
1222.5
1260
1250
1240
1230
1220
1210
1200
1220.50 EP
1220.70 FS
1220.84 EP
1221.00 TB
1223.26 EP
1223.46 FS
1223.76 TB
1225.88 EP
1225.08 BVC
1225.38 TB
1227.97 EP
1228.17 FS
1228.70 PI
1228.47 TB
1229.00 EP
1229.20 EVC
1229.59 TB
1229.50 EP
1229.94 FS
1230.24 TB
1230.00 EP
1230.20 FS
1230.50 TB
1230.50 EP
1230.70 FS
1231.00 TB
100' V.C.
R=397'
R=304'
1210.0 FL
1209.0 INV
1208.5 INV
1206.0 FL
1222 BVC
1220.76 EVC
1220.96 LP

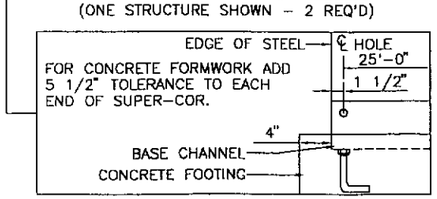


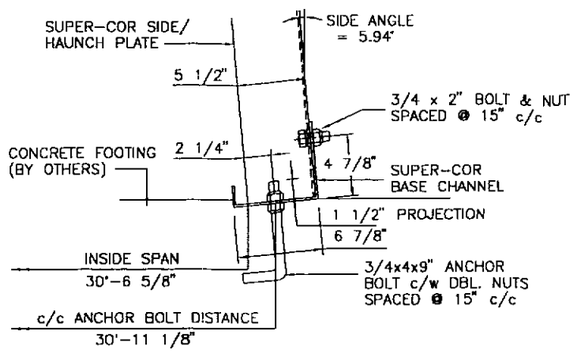
BOX CULVERT GEOMETRY



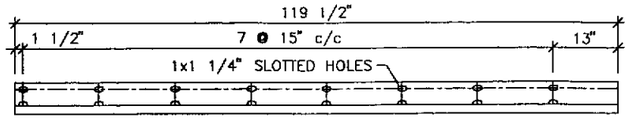
PLAN VIEW – PLATE LAYOUT

(ONE STRUCTURE SHOWN – 2 REQ'D)



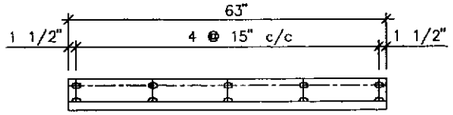


1 DETAIL – BASE CHANNEL



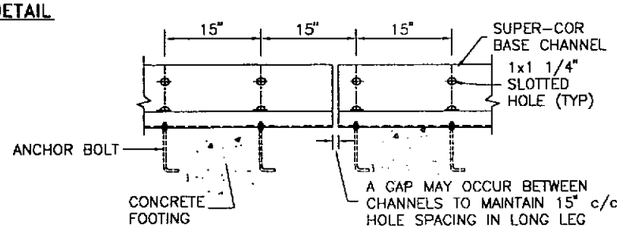
2 DETAIL – TYPE 'A' CHANNEL

8 pcs REQUIRED



3 DETAIL – TYPE 'B' CHANNEL

4 pcs REQUIRED



4 DETAIL – CHANNEL SPACING

GENERAL NOTES:

1S = 16"
ALL DIMENSIONS ARE TO THE INSIDE CREST OF STEEL UNLESS NOTED OTHERWISE.
RECOMMENDED TORQUE ON BOLTS: MINIMUM 150 ft.lbs
AVERAGE 200 ft.lbs
MAXIMUM 250 ft.lbs

1.0 DESIGN STANDARDS, SPECIFICATIONS, AND GUIDELINES
- 1.1 AASHTO
- 1.2 ONTARIO HIGHWAY BRIDGE DESIGN CODE, 3rd EDITION, 1991 (OHBDC)
- 1.2 ASTM STANDARD A 796.

2.0 DESIGN PARAMETERS
- 2.1 NON-LINEAR ANALYSIS
- 2.2 LIVE LOAD OCFA FIRE VEHICLE, TANDEM AXLE = 48 kips.
- 2.3 DESIGN UNIT WEIGHT OF SOIL = 135 lbs/ft3
- 2.4 DESIGN HEIGHT OF COVER = 3'-0" FROM OUTSIDE OF BARREL CROWN.
- 2.5 DESIGN YIELD OF SUPER-COR PLATE = 44 ksi.

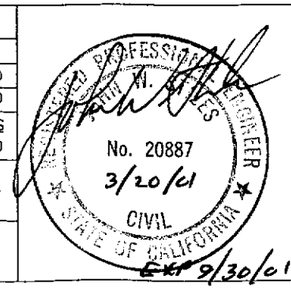
3.0 STEEL CULVERT
- 3.1 STEEL TO CONFORM TO ASTM STANDARD A 907/A 570.
- 3.2 ZINC COATING – ASTM A761, AVERAGE COATING MASS OF 3 oz/ft2 (TOTAL BOTH SURFACES), A153 OR B695 CLASS 55 (FASTENERS)
- 3.3 BOLTS – 3/4" ø ASTM A449.
  NUTS – 3/4" ø ASTM A563.
- 3.4 ANCHOR BOLTS – 3/4" ø ASTM A307, GRADE C (HOT DIP GALVANIZED)

4.0 EXCAVATING AND BACKFILLING
- 4.1 THE ENGINEERED BACKFILL ENVELOPE SHALL EXTEND A TOTAL WIDTH OF 37'-5 1/2" AND A HEIGHT OF 3'-0" ABOVE THE CROWN OF THE STRUCTURE, AS SHOWN ON SHEET 2.
- 4.2 THE GRANULAR MATERIAL IN THE ENGINEERED BACKFILL ZONE SHALL MEET THE REQUIREMENTS SPECIFIED BY ATLANTIC INDUSTRIES LIMITED (SEE ENGINEERED BACKFILL MATERIAL NOTES).
- 4.3 PLACEMENT OF GRANULAR MATERIAL IN THE ENGINEERED BACKFILL ZONE AS PER ATLANTIC INDUSTRIES LIMITED (SEE BACKFILL PROCEDURE NOTES).
- 4.4 WHEN REQUIRED, AS DETERMINED BY THE OWNER'S GEOTECHNICAL ENGINEER, A GEOTEXTILE OR GRADED SOIL FILTER SHALL BE USED BETWEEN THE ENGINEERED BACKFILL AND THE SOIL BEYOND TO PREVENT MIGRATION OF FINES AND POSSIBLE INTERNAL EROSION OF THE SOIL.
- 4.5 FOOTING ELEVATION MUST PROVIDE ADEQUATE SCOUR PROTECTION AS DETERMINED BY OWNER'S GEOTECHNICAL ENGINEER.
- 4.6 ANY UNSUITABLE FOUNDATION MATERIAL BELOW THE FOOTINGS OF THE SUPER-COR STRUCTURE, AS DETERMINED BY THE OWNER'S GEOTECHNICAL ENGINEER, SHALL BE EXCAVATED AND REPLACED WITH SUITABLE MATERIAL AND COMPACTED AS DIRECTED BY SAME.

5.0 CONCRETE FOOTING
- 5.1 CONCRETE FOOTING DESIGN BY OTHERS.
- 5.2 ANCHOR BOLTS FOR CAST-IN-PLACE FOOTING PROVIDED BY ATLANTIC INDUSTRIES LIMITED.

BILL OF MATERIALS (TOTALS TWO STRUCTURES)

PLATES	S	THICK	LENGTH	RADIUS	MARK	HARDWARE	
20	10	1 ga	2'-6"	VARIES	SIDE/HAUNCH	3/4x2"	1200
20	11	1 ga	2'-6"	VARIES	SIDE/HAUNCH	3/4x3"	150
20	10	1 ga	2'-6"	450"	CROWN	COUNTERSUNK BOLTS	
18	3	1 ga	2'-6"	455.5"	CROWN RIB	3/4x2"	250
18	10	1 ga	2'-6"	455.5"	CROWN RIB	ANCHOR BOLTS 3/4x4x9" c/w DBL. NUTS	84
						BASE CHANNEL 8 pcs @ TYPE 'A' 4 pcs @ TYPE 'B'	



REV. No.	DATE	BY	DESCRIPTION

Atlantic Industries Limited

TWO ONLY A.I.L. SC-41B SUPER-COR BOX CULVERT STRUCTURES
30'-6 5/8" SPAN x 9'-0 1/4" RISE x 25'-0" B.C.L.
ENDS SQUARE, PERIPHERY = 31S

WILLIAMS SPRINGS LLC, ORANGE COUNTY, CALIFORNIA — CUSTOMER REF. #

		DATE	CADD FILE	AIL ENG'G #	BRANCH P.O.	PAGE No.
DESIGNED			00BC103C	00-BC-103		1 OF 3
CHECKED	JWS	1/24/01	DRAWING NUMBER	00-BC-103		
DRAWN	AC	11/22/00				