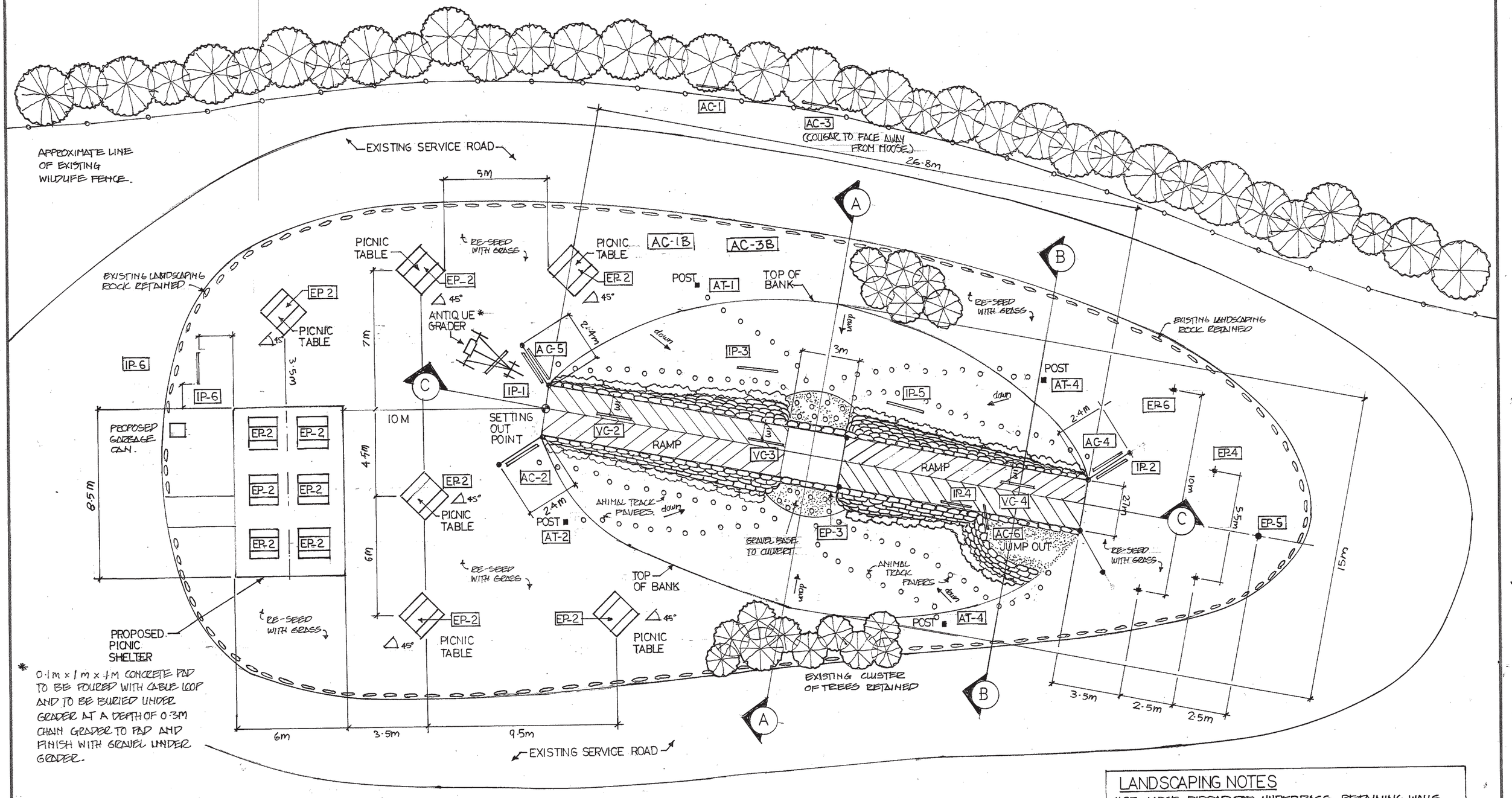


* 0.1m x 1m x 1m CONCRETE PAD TO BE POURED WITH CABLE LOOP AND TO BE BURIED UNDER GRADER AT A DEPTH OF 0.3M CHAIN GRADER TO PAD AND FINISH WITH GRAVEL UNDER GRADER.

INTERPRETIVE SIGN LIST

INTERPRETIVE PANELS

- IP-1 "A ROAD FOR B.C., A PARK FOR CANADA."
- IP-2 "A PARK DIVIDED"
- IP-3 "SAFE PASSAGES"
- IP-4 "ESCAPE HATCHES"
- IP-5 "HOW DID THE FISH CROSS THE ROAD?"
- IP-6 "MORE TO SEE & DO"

ANIMAL TRACKS

- AT-1 BLACK BEAR AND RELATED PAVERS
- AT-2 WOLF AND RELATED PAVERS
- AT-3 DEER AND RELATED PAVERS
- AT-4 DOLLY VARDEN AND RELATED PAVERS.

VEHICLE CUTOUTS

- VC-2 MODEL T FORD
- VC-3 VW BEETLE
- VC-4 FIRMS

ANIMAL CUTOUTS

- AC-1 MOOSE (MOUNTED OUTSIDE WILDLIFE FENCE)
- AC-1B MOOSE SUBSIGN
- AC-2 DEER (MOUNTED ON FENCE)
- AC-3 COUGAR (MOUNTED OUTSIDE WILDLIFE FENCE)
- AC-3B COUGAR SUBSIGN
- AC-4 WOLF (MOUNTED ON FENCE)
- AC-5 DOLLY VARDEN (MOUNTED ON FENCE)
- AC-6 BLACK BEAR (MOUNTED ON POST AT JUMPOUT)

ACTIVITIES PANELS

- EP-2 "HEY KIDS" (MOUNTED ON PICNIC TABLES) x12
- EP-3 DOLLY VARDEN CUTOUTS (MOUNTED IN CULVERT) x6
- EP-4 "HOW FAR CAN YOU LEAP?"
- EP-5 "HOW FAR CAN YOU JUMP?"
- EP-6 "HOW FAST CAN YOU RUN?"

LANDSCAPING NOTES

USE LARGE RIPRAP FOR UNDERPASS RETAINING WALLS. PRICKLY SHRUBS (SUCH AS JUNIPER) TO BE PLANTED ALONG BASE OF RIP RAP WALL TO DETER CLIMBING. ENTIRE SITE TO BE SCARIFIED AND HYDROSEEDED AFTER CONSTRUCTION. AREA UNDER STEPPING STONES TO BE EXCAVATED TO ½ STONE DEPTH & COMPACTED. AREA IN UNDERPASS TO BE FINISHED WITH 150mm DEPTH GRAVEL ON LANDSCAPING CLOTH. LAID OVER 300mm MINIMUM DEPTH OF DRAINROCK. JUMPOUT FINISHED WITH 50mm DEEP, BROWN COLOURED REMNANT PAD.

* DO NOT SCALE OFF DRAWING. USE WRITTEN DIMENSIONS ONLY. CROSS-REFERENCE THIS DRAWING WITH GRAPHIC MATERIAL FROM METEOGRAPHICS AND SPECIFICATIONS FROM CANADA CULVERT.

DOLLY VARDEN D.U.A.

SCALE: 1:125M	APPROVED BY:	DRAWN BY D.GUNN
DATE: AUG. 2016		REVISED

WILDLIFE UNDERPASS EXHIBIT

PROPOSED SITE PLAN — DRAWING NUMBER A1

26.8m

2.4m | 2.4m | 2.4m | 2.4m | 2.4m | 2.4m | 2.4m | 2.4m | 2.4m | 2.4m | 2.4m

CONTINUOUS PLANTING OF PRICKLY NATIVE GROUND COVER SUCH AS JUNIPER IN ORDER TO DETER CLIMBING ON RETAINING WALL

NO CLIMBING SIGN MOUNTED ON ROCK FACE

NO CLIMBING SIGN MOUNTED ON ROCK FACE

CONTINUOUS PLANTING OF PRICKLY NATIVE GROUND COVER SUCH AS JUNIPER ALONG BASE OF RETAINING WALL

45°

IP-3

IP-5

A

B

C

POST

3m

VC-2

VC-3

VC-4

WELL-COMPACTED, NON-ORGANIC 3/4" MINUS FILL

"WILD LIFE" FENCE

"WILDLIFE" FENCE

11% SLOPE DOWN

11% SLOPE DOWN

IP-4

AC-6

2.4m RADIUS

JUMP OUT

CONTINUOUS PLANTING OF PRICKLY NATIVE GROUND COVER SUCH AS JUNIPER ALONG BASE OF RETAINING WALL

NO CLIMBING SIGN MOUNTED ON ROCK FACE

150mm GRAVEL ON LANDSCAPING CLOTH ON 300mm DRAIN ROCK LAID IN BASE OF CULVERT

NO CLIMBING SIGN MOUNTED ON ROCK FACE.

PLAN VIEW

"WILDLIFE" FENCE ON BOTH SIDES OF ROAD

NOTE TOP WIRE TO WILDLIFE FENCE

EXISTING FINISHED GRADE

GAP IN FENCE

JUMP OUT SURFACE FINISHED WITH 150MM DEEP BROWN COLOURED CRUMPLE MAT CUT AND SHAPED TO FIT AREA.

RIP RAP RETAINING WALLS BUILT TO CANADA CULVERT SPECIFICATIONS.

PRICKLY NATIVE GROUND COVER TO BE PLANTED ALONG BASE OF RETAINING WALL IN SPRING.

"NO CLIMBING" SIGN MOUNTED DIRECTLY TO STONEWORK (4 No° REQUIRED.)

"NO CLIMBING" SIGN MOUNTED DIRECTLY TO STONE WORK (4 No° REQUIRED)

PRICKLY GROUNDCOVER TO BE PLANTED ALONG BASE OF RETAINING WALL TO DETER CLIMBING. PLANTS TO BE LOCAL & NATIVE IE JUNIPER & BE PLANTED IN SPRING.

CHANGE OF LEVEL AT JUMP OUT NOT TO EXCEED 600MM

JUMP OUT RETAINING WALL

ELEVATION

* DO NOT SCALE OFF DRAWING. USE WRITTEN DIMENSIONS ONLY. THIS DRAWING TO BE CROSS-REFERENCED WITH CANADA CULVERT'S AND METEORCRAFTS DRAWINGS AND SPECIFICATIONS

DOLLY VARDEN D.U.A.

SCALE: 1:50 (M)	APPROVED BY:	DRAWN BY D. GUNN
DATE: AUG. 2016		REVISED

WILDLIFE UNDERPASS EXHIBIT

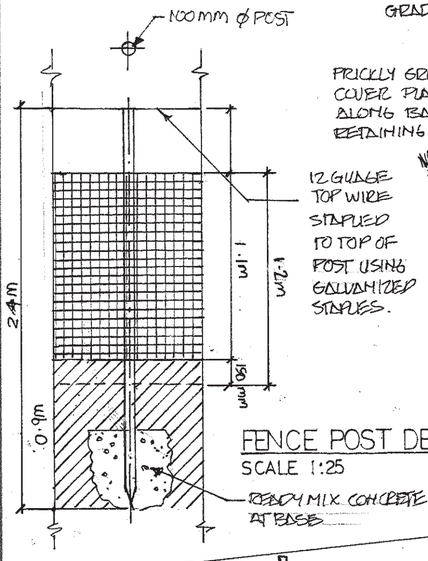
PLAN, ELEVATION — DRAWING NUMBER A2

POST

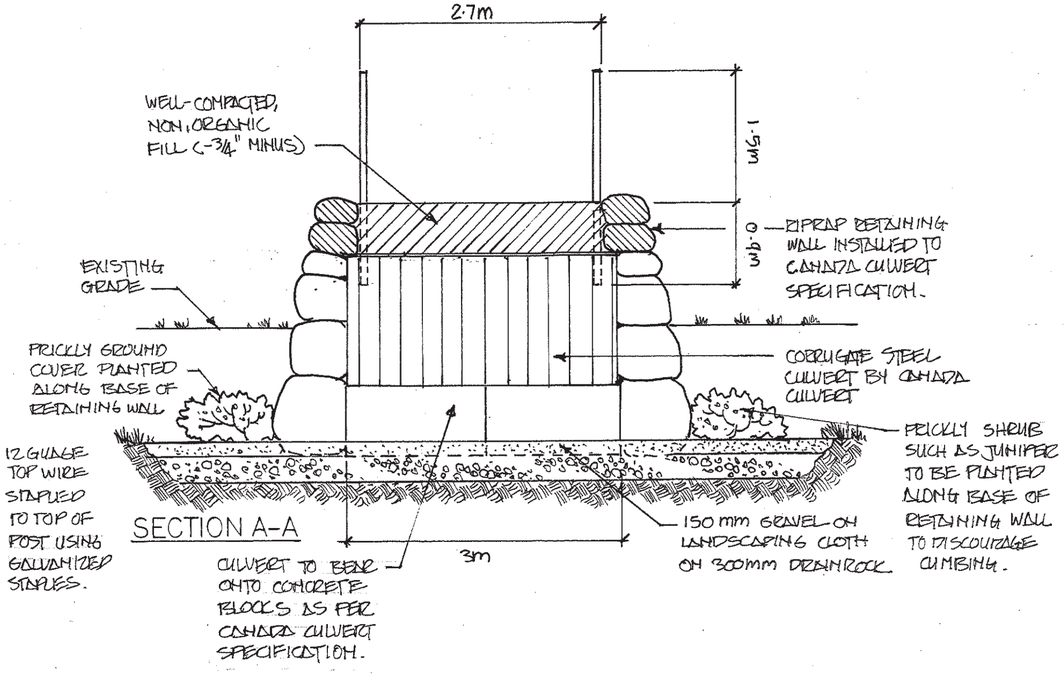
2·4m LONG PRESSURE-TREATED PINE OR SPRUCE PENCIL POSTS. EACH POST BURIED 900mm IN GROUND WITH READY MIX POURED AROUND BASE. FINISHED WITH WELL-COMPACTED, NON-ORGANIC FILL.

WIRE

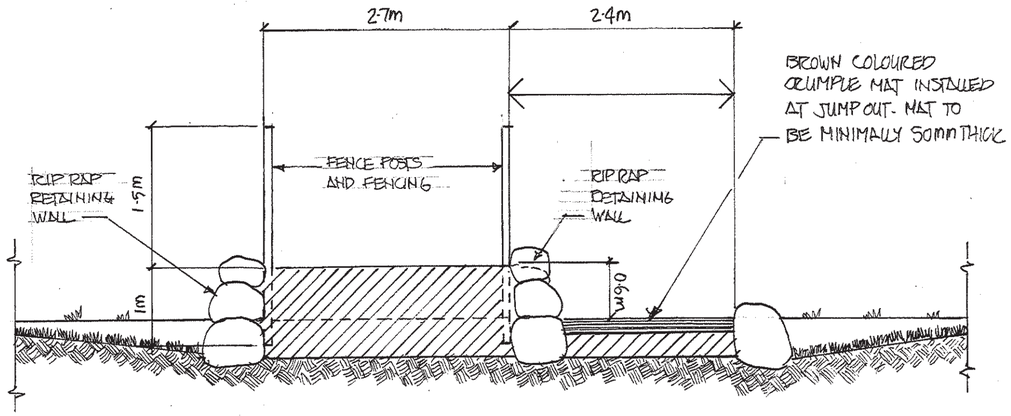
1·2m ROLL GALVANIZED FENCE WIRE WITH 1" MESH. SECURED WITH GALVANIZED STAPLES.



FENCE POST DETAIL
SCALE 1:25



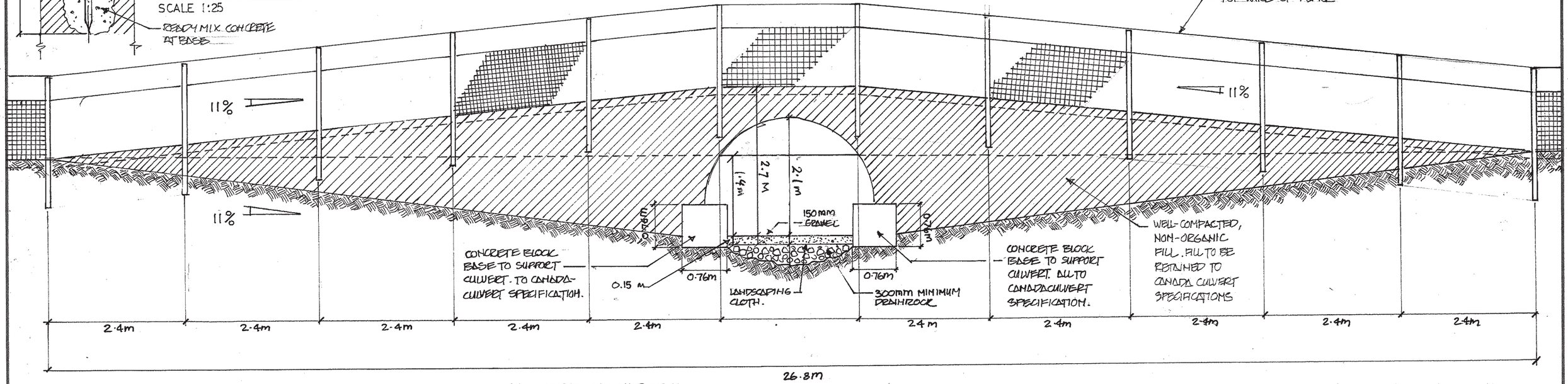
SECTION A-A



SECTION B-B

CULVERT
CULVERT TO BE 1·6M HIGH X 3M WIDE AT BASE AND 3M LONG. CULVERT TO BE FROM CANADA CULVERT AND ISTALLED AS PER MANUFACTURER'S PRINTED INSTRUCTIONS.

ALL NEW CONSTRUCTION TO BEAR ONTO WELL-COMPACTED, NON-ORGANIC SOIL OR BEDROCK.



SECTION C-C

IT IS ANTICIPATED THAT PEAK USAGE OF EXHIBIT WILL HAPPEN AT DRIEST TIME OF YEAR WHEN THERE IS MINIMAL RISK OF FLOODING.

*CONCRETE BLOCKS TO BEAR ONTO WELL-COMPACTED NON-ORGANIC SOIL OR ROCK.

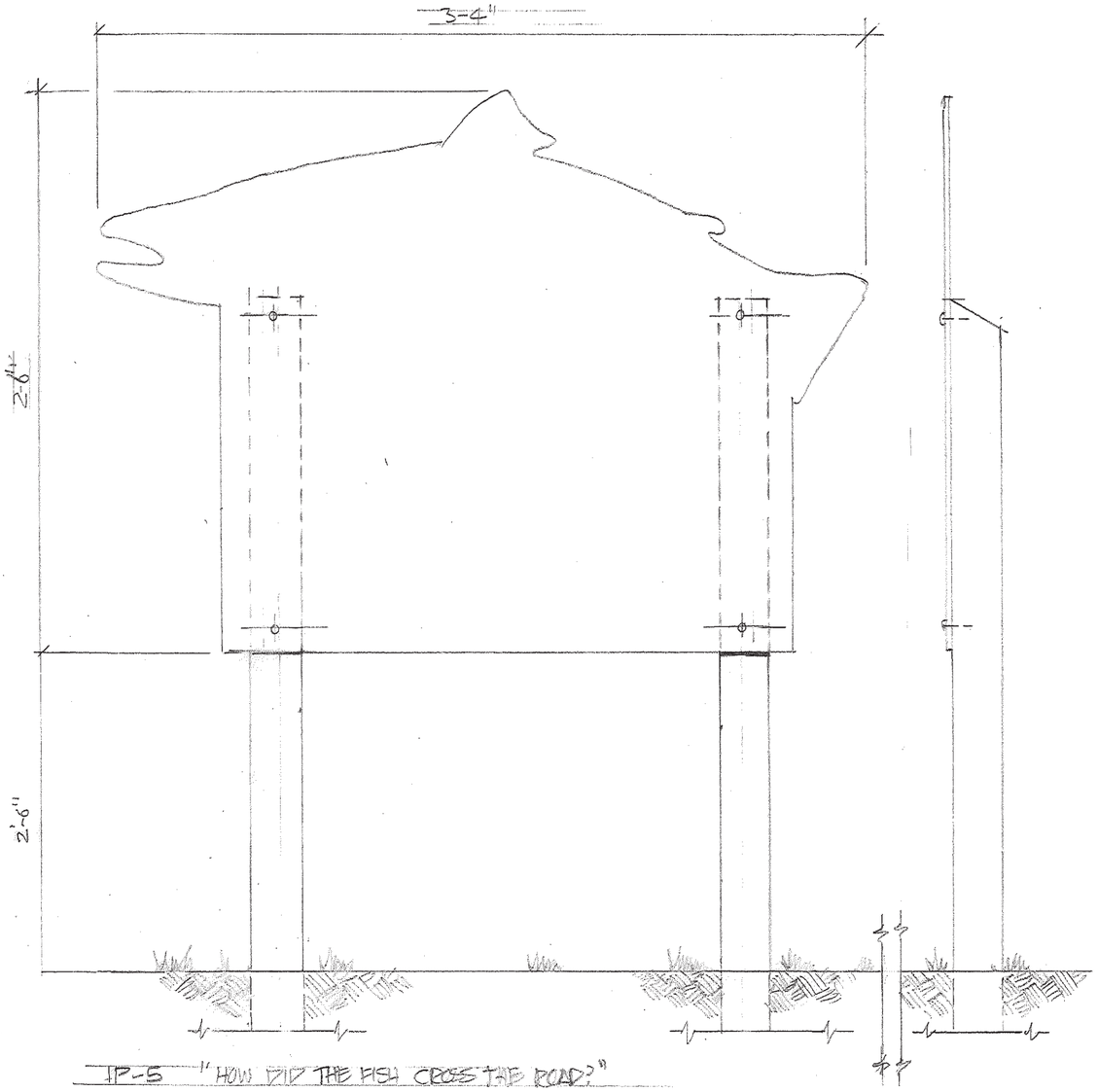
DO NOT SCALE OFF DRAWING. USE WRITTEN DIMENSIONS ONLY. THIS DRAWING TO CROSS-REFERENCE WITH SPECIFICATIONS FROM METROGRAPHICS AND CANADA CULVERT.

DOLLY VARDEN D.U.A

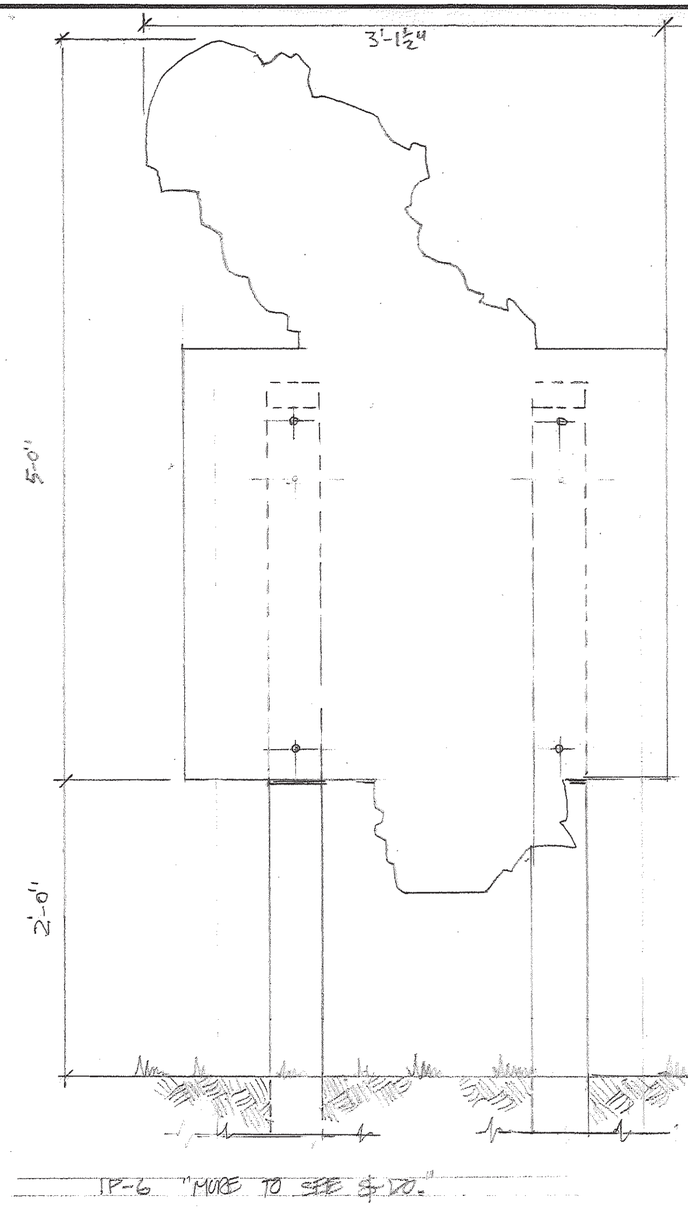
SCALE: 1:50(M)	APPROVED BY:	DRAWN BY D GUNN
DATE: AUG. 2016		REVISED

WILDLIFE UNDERPASS EXHIBIT

SECTIONS — DRAWING NUMBER A3



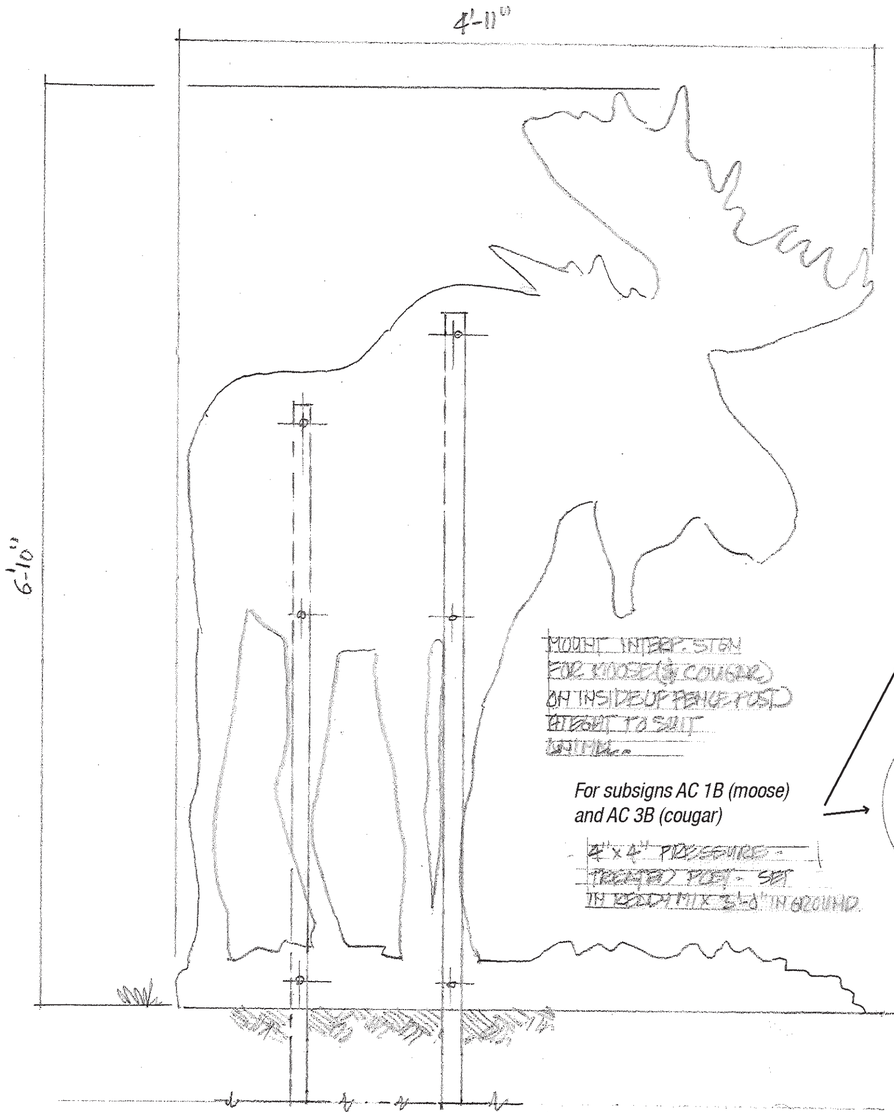
IP-5 "HOW DID THE FISH CROSS THE ROAD?"



IP-6 "MORE TO SEE & DO."

DOLLY UNBROKEN? DON'T USE BADGER.

SCALE:	APPROVED BY:	DRAWN BY
DATE:		REVISED
		DRAWING NUMBER

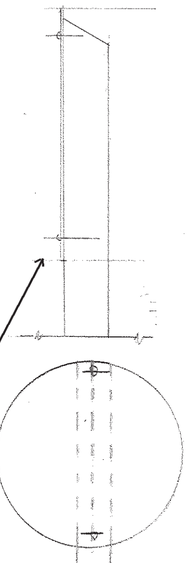


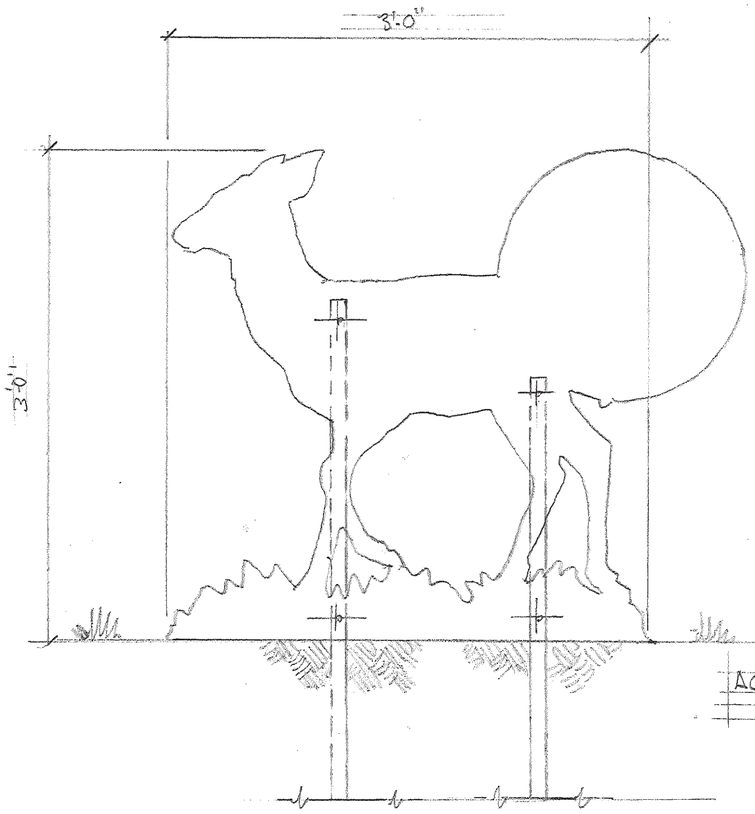
MOUNT INTERPRETION FOR MOOSE (& COUGAR) ON INSIDE OF FENCE POST HEIGHT TO SUIT WILDLIFE

For subsigns AC 1B (moose) and AC 3B (cougar)

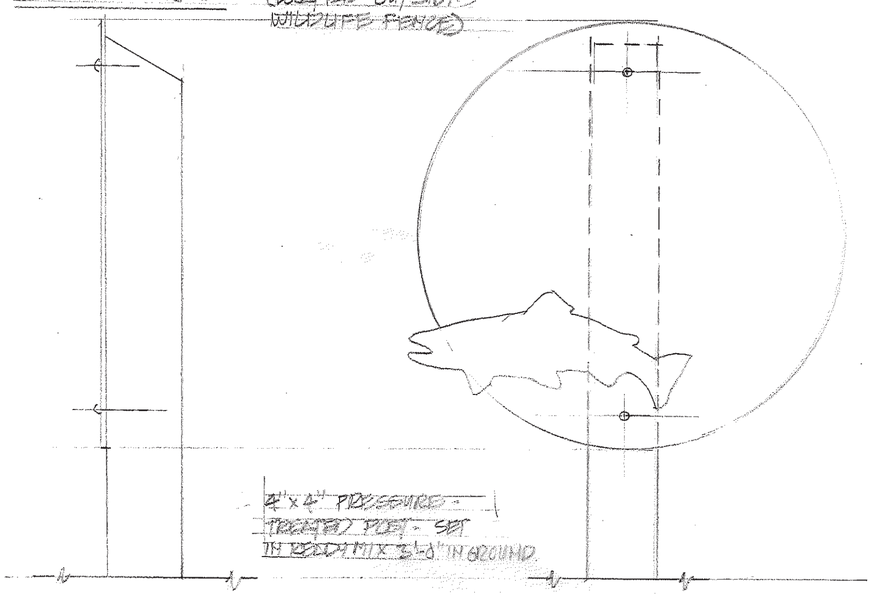
4"x4" PRESSURED TREATED POST - SET IN CONCRETE MIX 3'-0" IN GROUND.

AC-1 "MOOSE" (LOCATED OUTSIDE WILDLIFE FENCE)



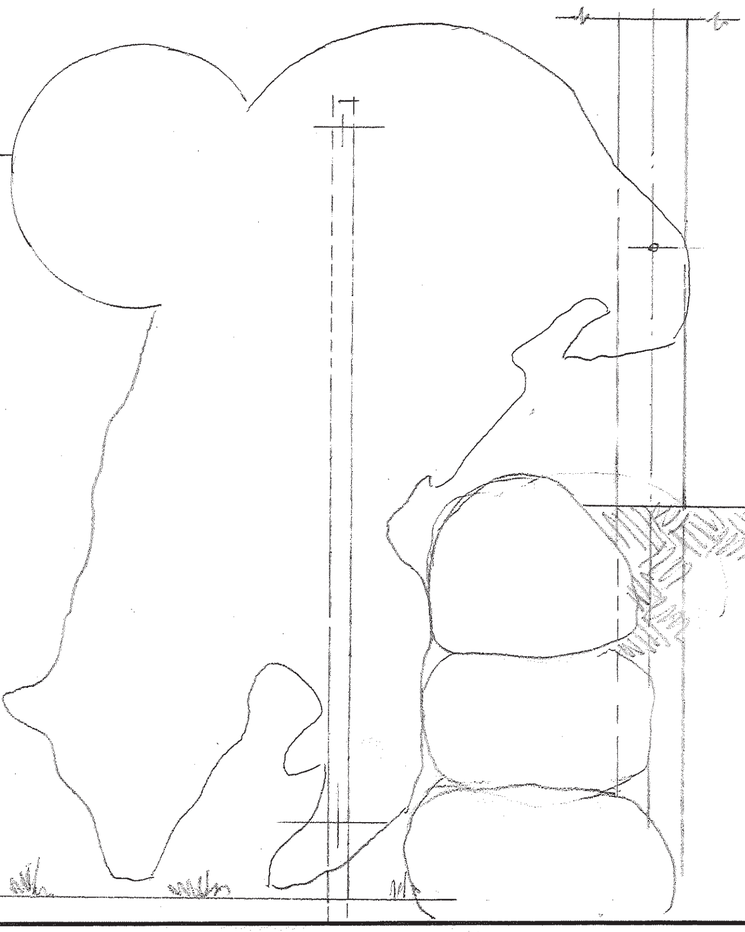


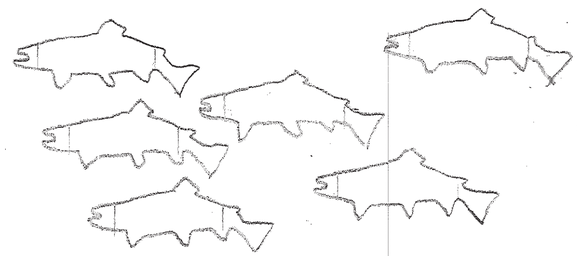
AC-2 "DEER"



4"x4" PRESSURED TREATED POST - SET IN CONCRETE MIX 3'-0" IN GROUND.

AC-5 "GOODBYE DOWN"





EP-3 DOWN VARIOUS

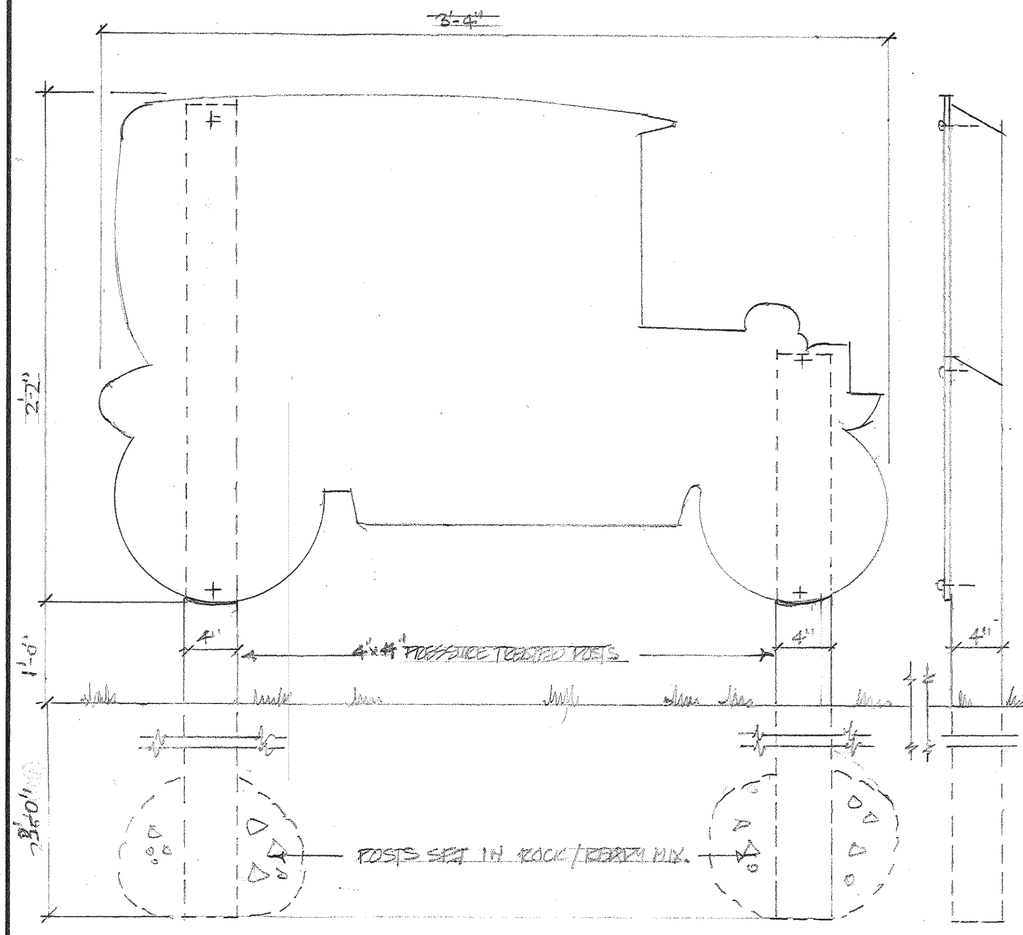
MOUNT TO INSIDE OF CULVERT USE M6 STAINLESS STEEL, TAMPER PROOF SCREWS. LOCATION OF SCREW TO SUIT CULVERT RIBS.

AC-6 "BUCK BEAR"

LOCATED AT JUMP OUT

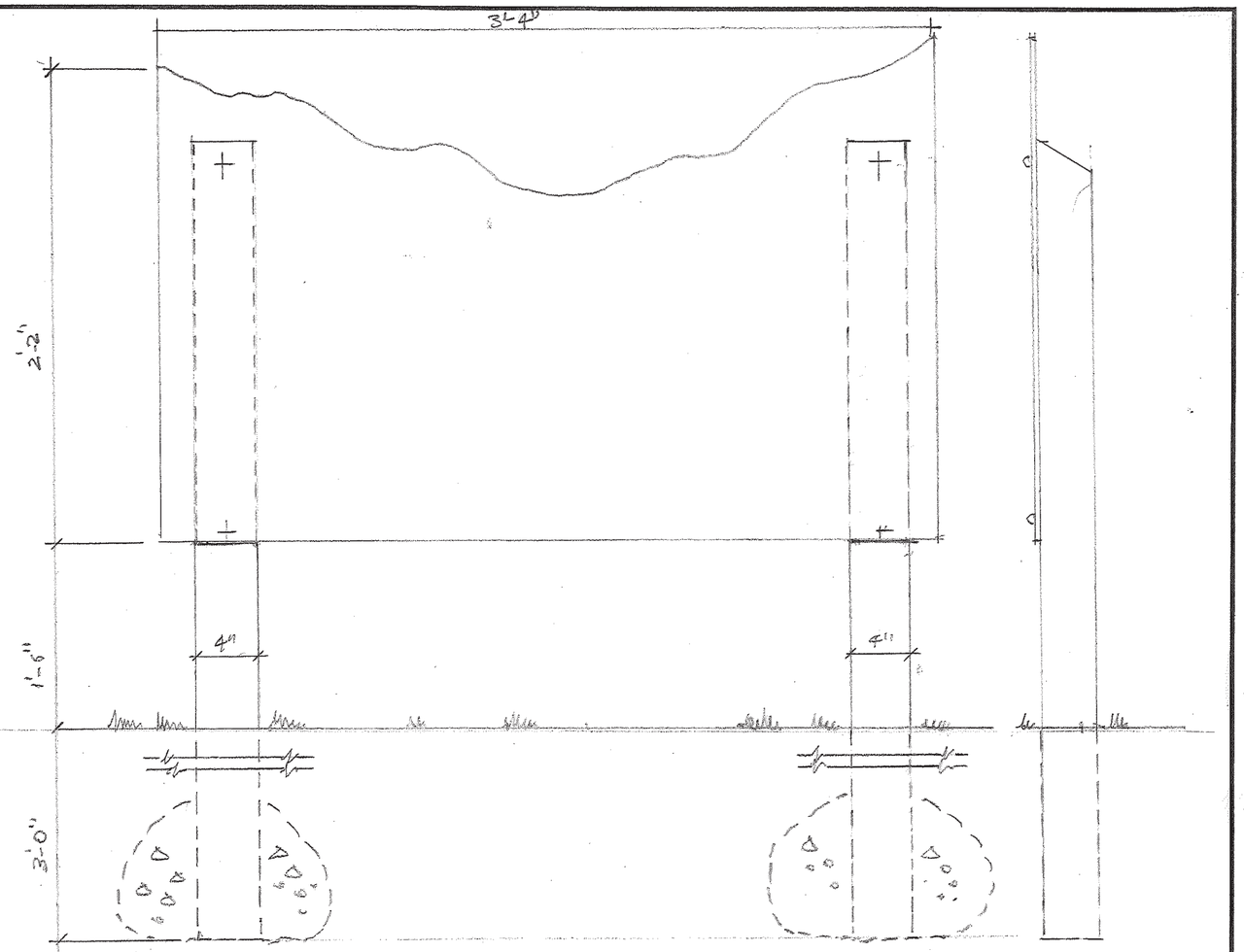
DOWN VARIOUS ONLY USE LABEL

SCALE:	APPROVED BY:	DRAWN BY
DATE:		REVISED
		DRAWING NUMBER

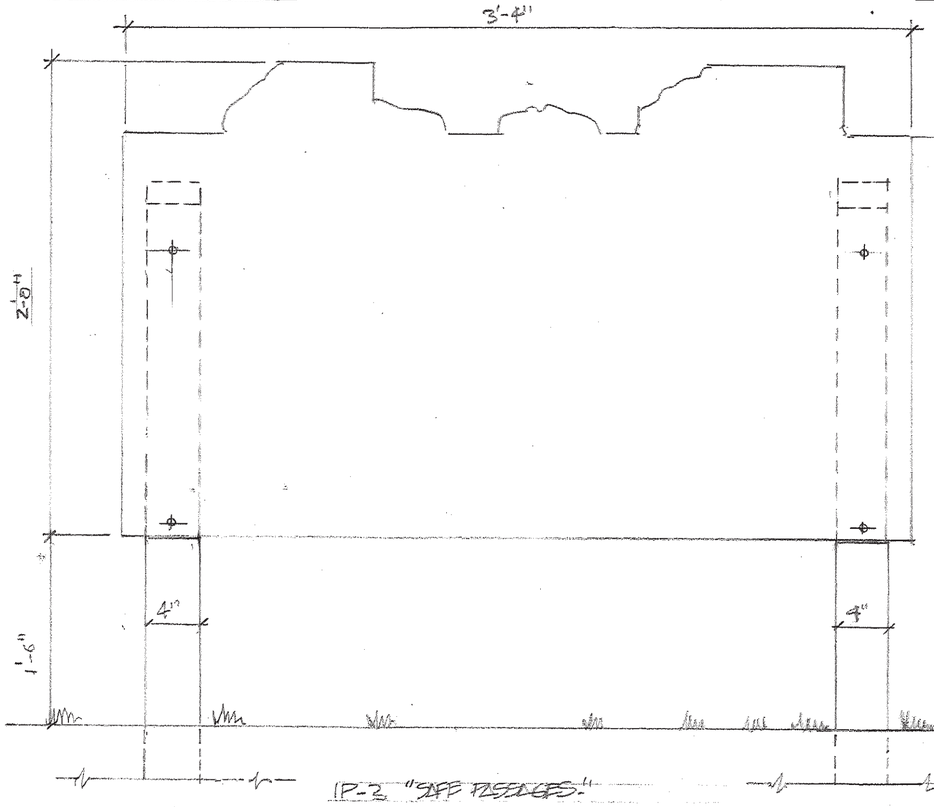


IP-1 - FRONT ELEVATION (A ROAD FOR T.C., A PARK FOR CAMPERS)

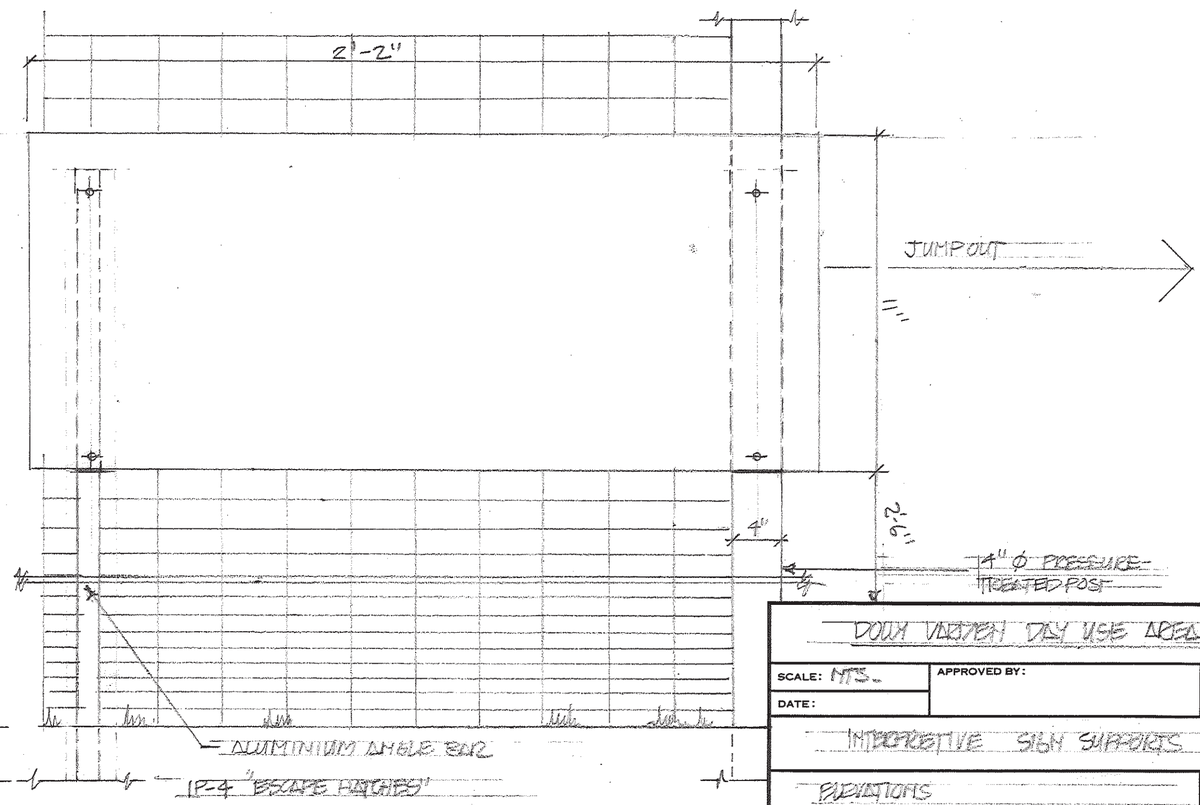
SIDE ELEVATION



EP-2 - FRONT ELEVATION (A PARK DIVIDED)



IP-2 "SAFE PASSAGES"



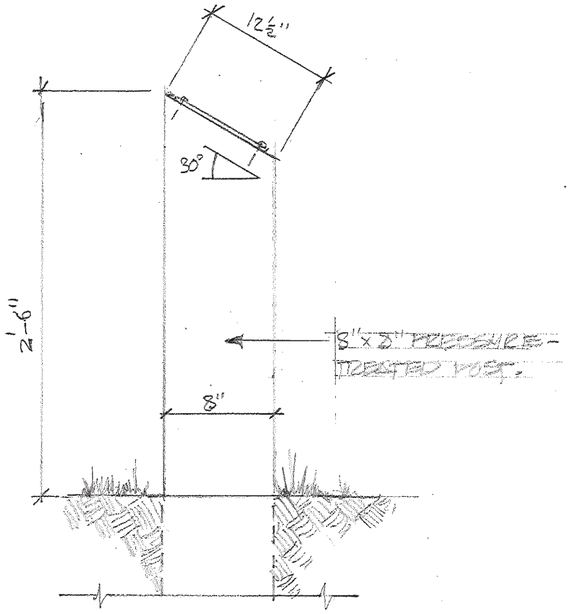
IP-4 "ESCAPE PASSAGES"

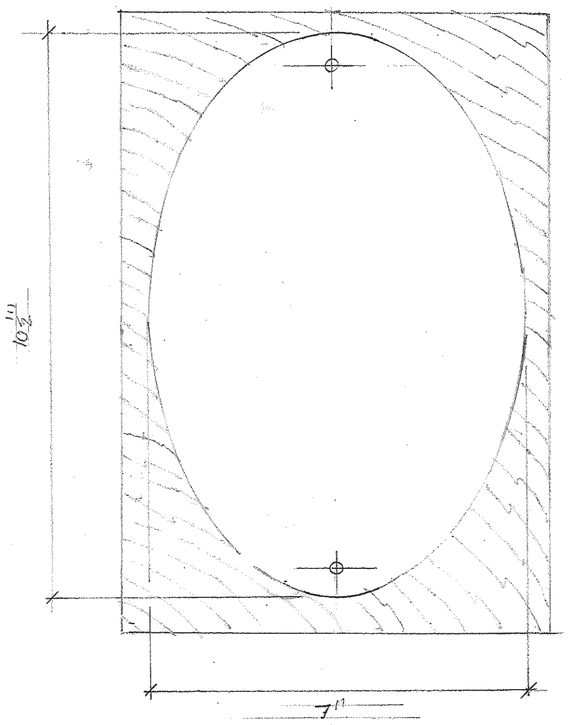
DOUK VALLEY DAY USE AREA

SCALE: NTS	APPROVED BY:	DRAWN BY
DATE:		REVISED

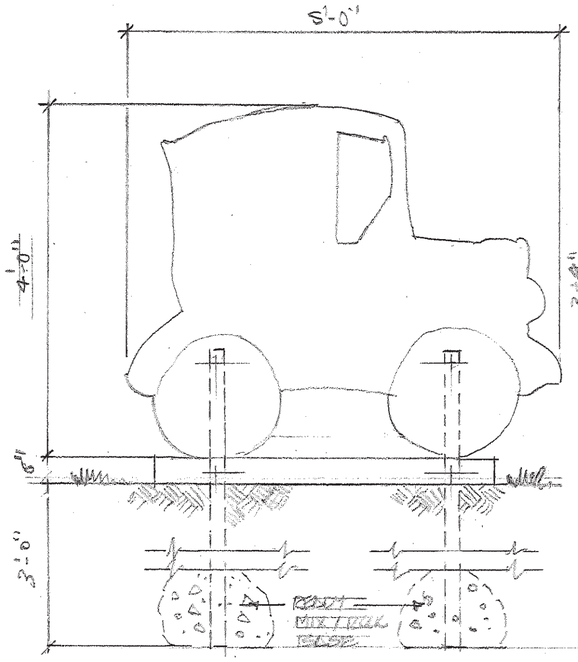
INTERPRETIVE SIGN SUPPORTS

DRAWING NUMBER



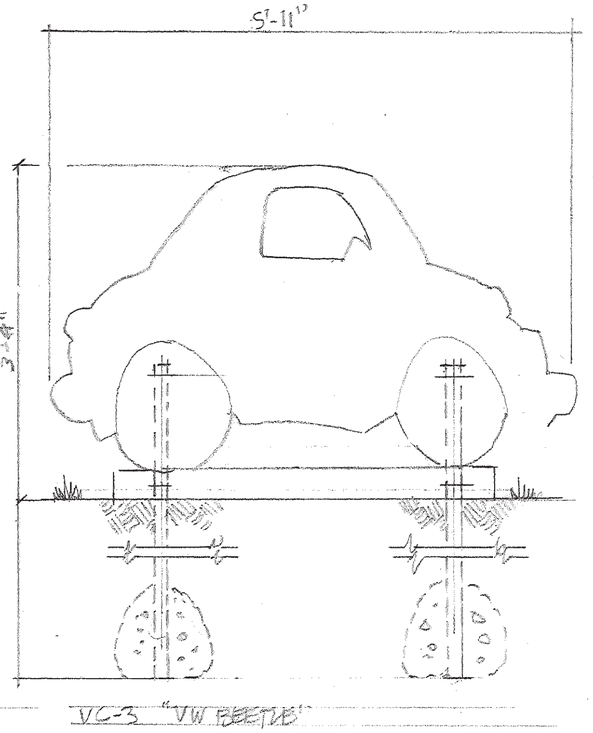


AT-1	BLACK BEAR.
AT-2	WOLF
AT-3	DEER
AT-4	DOLLY VARDEN.

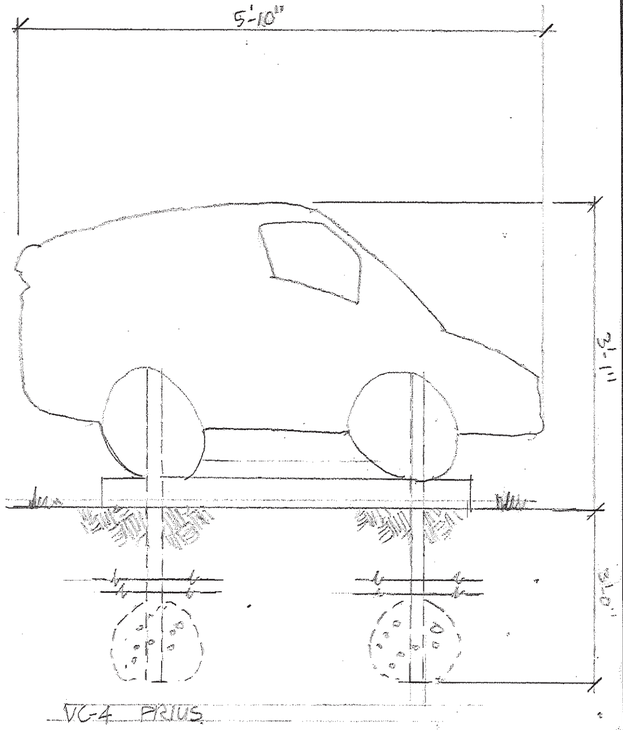


VC-2 "MODEL T FORD"

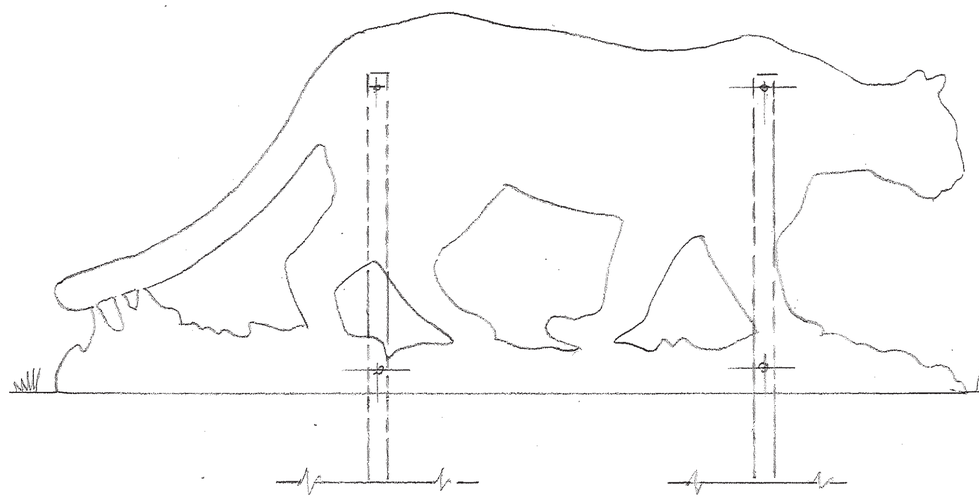
MOUNT ALUMINUM ANGLE BRACE TO REVERSE OF PANEL WITH TAMPER-PROOF BOLTS.



VC-3 "VW BEETLE"

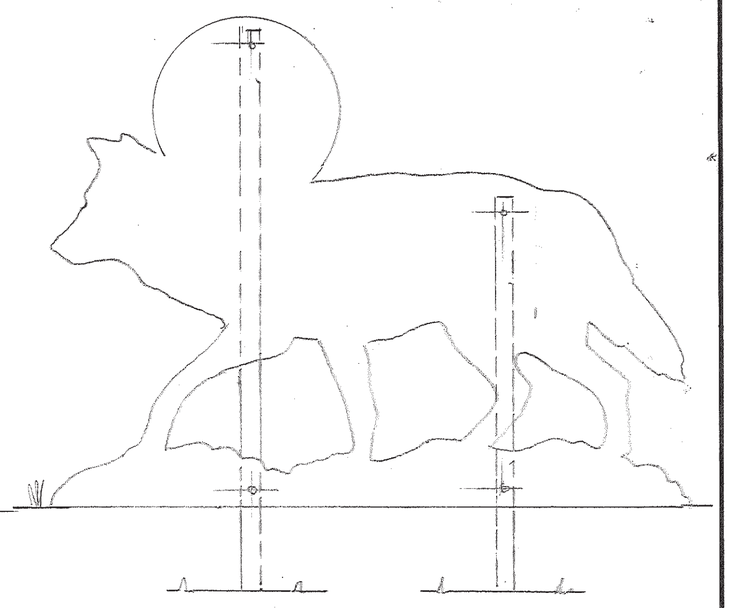


VC-4 PRIUS



AC-3 "COUGAR"

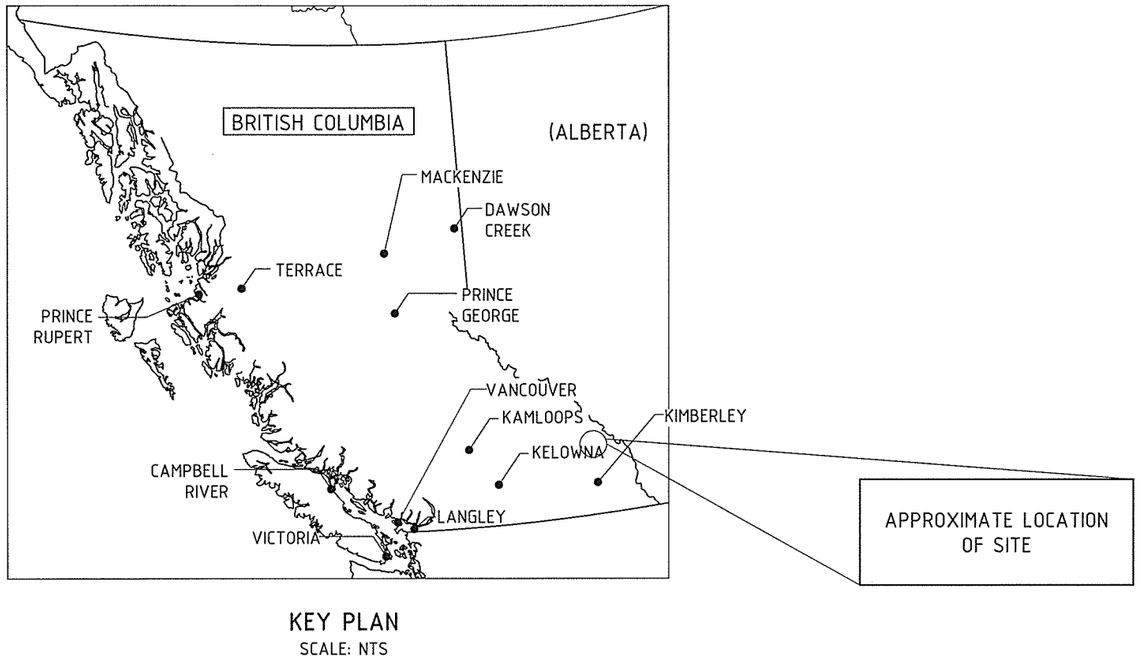
LOCATED OUTSIDE WILDLIFE FENCE FACING AWAY FROM MOOSE. NOTE CIRCULAR INTERP PANEL TO BE LOCATED ON INSIDE OF NEAREST FENCE POST.



DOLLY VARDEN DISH USE AREA

SCALE:	APPROVED BY:	DRAWN BY
DATE:		REVISED
		DRAWING NUMBER

PROJECT ENGINEER	CANADA CULVERT CUSTOMER/OWNER
ROSEKE ENGINEERING 191 COALBANKS BLVD. WEST LETHBRIDGE, AB T1J 4A7 PHONE: (403) 942-6170	PARKS CANADA



KEY PLAN
SCALE: NTS

PARKS CANADA
DOLLY VARDEN DAY PASS EXHIBIT, BC

22km NORTH OF RADIUM HOT SPRINGS ON HWY 93
3050 x 1600 x 3.0 mm ARCH CULVERT
152 x 51 CORRUGATION PROFILE
CANADA CULVERT PROJECT # 16-101

DRAWING INDEX

DRAWING #	DRAWING TITLE	REV. DATE	REV #
16-101-S01	ABBREVIATIONS AND SYMBOLS	2016-10-12	1
16-101-S02	DESIGN NOTES	2016-10-12	1
16-101-S03	SITE PLAN, ELEVATION, LONGITUDINAL PROFILE	2016-10-12	1
16-101-S04	TYPICAL GEOMETRY, BACKFILL SECTION	2016-10-12	1
16-101-S05	STRUCTURE LAYOUT, PROFILE	2016-10-12	1
16-101-S06	BASE CHANNELS, PLATE LAPPING DETAILS	2016-10-12	1
16-101-S07	INSTALLATION DETAILS - BASE CHANNEL AND CONCRETE FOOTING CONNECTION - TOP VIEW AND SECTION DETAILS	2016-10-12	1
16-101-S08	BASE CHANNEL AND CONCRETE FOOTING ISOMETRIC VIEW	2016-10-12	1
16-101-S09	BACKFILL INSTALLATION NOTES, OPEN-BOTTOM STRUCTURES	2016-10-12	1
16-101-S10	CONCRETE FOOTING AND COLLAR DETAILS, NOTES	2016-10-12	1
16-101-S11	BILL OF MATERIALS	2016-10-12	1

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. J. MACRAE
37292
OCT 12/16

CANADA'S BEST MANAGED COMPANIES

CorPlate®

CANADACULVERT™

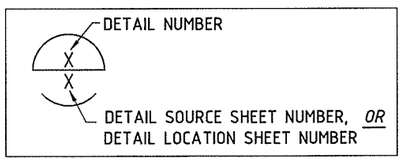
TOLL FREE: 1-800-565-1152
web site: www.canadaculvert.com

SYMBOLS & NOTATIONS

- TRUE LENGTH OF AN ARC
- ANGLE
- ALMOST EQUAL (APPROXIMATE)
- BREAK LINE
- CENTRE LINE
- DEGREES
- DELTA (QUANTITY DIFFERENCE)
- DIAMETER
- TOLERANCE
- UNIT WEIGHT OF SOIL
- WATER LEVEL
- DITCH/CREEK WITH FLOW DIRECTION
- BENCHMARK, ELEVATION LOCATION
- NORTH ARROW
- SECTION SYMBOL
- VIEW SYMBOL
- DETAIL REFERENCE SYMBOL
- REVISION INDICATOR
- COMPACTED BEDDING
- TRENCH REINFORCEMENT

COMMON ABBREVIATIONS

BCL	BOTTOM CENTRE LINE
c/c	CENTRE TO CENTRE
CLSM	CONTROLLED LOW-STRENGTH MATERIAL
CSP	CORRUGATED STEEL PIPE
C_u	COEFFICIENT OF UNIFORMITY – CHARACTERISTIC OF SOIL GRADATION CURVE
C_v	COEFFICIENT OF CURVATURE – CHARACTERISTIC OF SOIL GRADATION CURVE
i/s	INSIDE
N	CIRCUMFERENTIAL BOLT HOLE SPACING (1N = 244 mm)
NA	NEUTRAL AXIS
o/o	OUTSIDE TO OUTSIDE
o/s	OUTSIDE
SPCSP	STRUCTURAL PLATE CORRUGATED STEEL PIPE
TCL	TOP CENTRE LINE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
u/s	UNDERSIDE



COMMON TERMS

CONDUIT:
THE BRIDGED OPENING OF A BURIED STRUCTURE.
NOTE: THROUGHOUT THESE DRAWINGS, 'CONDUIT' AND 'CULVERT' SHALL INDICATE THE SAME STRUCTURE.

COVER (COVER HEIGHT):
THE VERTICAL DISTANCE BETWEEN THE ROADWAY SURFACE (OR BOTTOM OF TIE FOR RAILWAYS) AND THE NEUTRAL AXIS OF CONDUIT WALL.

CROWN:
THE HIGHEST POINT OF THE TRANSVERSE SECTION OF THE CONDUIT WALL.

ENGINEERED BACKFILL:
SOIL SELECTED AND PLACED TO ACHIEVE DESIRED GEOTECHNICAL PROPERTIES.

ENGINEERED BACKFILL ENVELOPE:
DEFINED ZONE OF ENGINEERING BACKFILL SURROUNDING THE CONDUIT

HEADWALL:
A TRANSVERSE WALL AT THE END OF A CULVERT.

HAUNCH / CORNER:
THE PORTION OF THE CONDUIT WALL BETWEEN THE SPRING LINE AND THE TOP OF THE BEDDING.

INSIDE VIEW:
FLAT PLAN VIEW OF A CONDUIT PLATE LAYOUT VIEWING THE INSIDE OF THE STRUCTURE, WHERE PLATES ARE SHOWN WITH VISIBLE INSIDE FACES.

INVERT:
THE LOWEST POINT OF THE TRANSVERSE SECTION OF THE CONDUIT WALL.

LONGITUDINAL DIRECTION:
THE DIRECTION ALONG THE CULVERT LENGTH.

MASTER CORNER HOLE:
CORNER HOLE IN THE OUTSIDE VALLEYS CLOSEST TO THE VISIBLE EDGE.

OUTSIDE VIEW:
FLAT PLAN VIEW OF A CONDUIT PLATE LAYOUT VIEWING THE OUTSIDE OF THE STRUCTURE, WHERE PLATES ARE SHOWN WITH VISIBLE OUTSIDE FACES.

PERIPHERY:
PERIMETER OF A STRUCTURE OPENING ALONG THE CIRCUMFERENTIAL SEAM, EXPRESSED IN MULTIPLES OF 'N'.

PLATE:
AN INDIVIDUAL SEGMENT USED IN THE FORMATION OF THE CONDUIT, CONSISTING OF A CORRUGATED METAL SHEET.

RING:
COMBINATION OF PLATES FORMING AN ANNULAR CONFIGURATION OF THE CONDUIT.

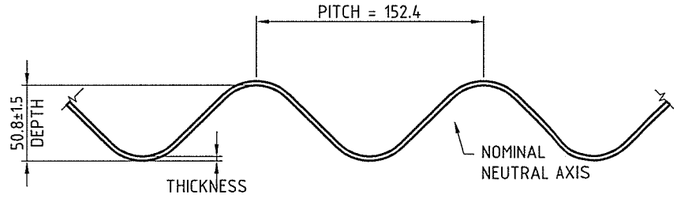
SEAM:
JOINT BETWEEN STRUCTURAL STEEL PLATES FORMED BY OVERLAPPING AND BOLTING PLATES TOGETHER.
A) CIRCUMFERENTIAL SEAM: SEAM RUNNING PERPENDICULAR TO THE LENGTH OF THE CULVERT.
B) LONGITUDINAL SEAM: SEAM RUNNING PARALLEL TO THE LENGTH OF THE CULVERT.

SKEW ANGLE:
THE ANGLE BETWEEN THE LONGITUDINAL AXIS OF A CULVERT AND A LINE PERPENDICULAR TO THE CENTRELINE OF THE ROAD.

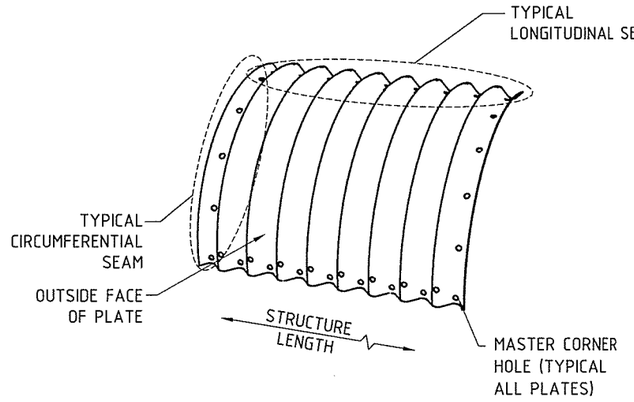
SPAN:
THE HORIZONTAL WIDTH BETWEEN THE SIDE WALLS OF THE CONDUIT, MEASURED AT THE INSIDE CRESTS OF THE CORRUGATIONS.

SPRING LINE:
THE HORIZONTAL LINE CONNECTING THE OUTER MOST POINTS OF THE CONDUIT.

VISIBLE EDGE OF PLATE:
EXPOSED EDGE OF STEEL, LOCATED AT THE LONGITUDINAL SEAM.



CROSS-SECTION OF 152 x 51 mm CORPLATE CORRUGATION
SCALE 1:4



CURVED 152 x 51 mm CORPLATE
ISOMETRIC VIEW FROM
OUTSIDE THE STRUCTURE
SCALE NTS

REV.NO	REVISION NOTE	DATE
1	ISSUED FOR CONSTRUCTION	2016-10-12

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. J. MACRAE
37292
OCT 12/16

CANADACULVERT™
CALL TOLL FREE 1-800-565-1152 www.canadaculvert.com

APPROVALS		DATE
DESIGN BY	AR	2016-09-27
DESIGN CHECK	SM	2016-09-27
DRAFT BY	CG	2016-10-03
DRAFT CHECK	AT	2016-10-06

CUSTOMER: PARKS CANADA
PROJECT NAME: DOLLY VARDEN DAY PASS EXHIBIT, BC
DRAWING TITLE: ABBREVIATIONS AND SYMBOLS

PAPER SIZE	CONTRACT NO.	SCALE	TOTAL SHEETS	PROJECT NO.	DRAWING NO.	REV.
11x17	-	NTS	11	16-101	S01	1

GENERAL DESIGN NOTES

1. DIMENSIONS

1.1. THE FOLLOWING DIMENSIONAL CONVENTIONS ARE FOLLOWED, UNLESS OTHERWISE NOTED:
1.2. ALL DIMENSIONS ARE IN MILLIMETERS (mm)
1.3. ALL ELEVATIONS ARE IN METERS (m)
1.4. ALL DIMENSIONS ARE TO THE INSIDE CREST OF STEEL.
1.5. ALL DIMENSIONS ARE TO THE CENTRE OF BOLT HOLE.
1.6. 1N = 244 mm

2. DESIGN STANDARDS

2.1. CANADIAN HIGHWAY BRIDGE DESIGN CODE CAN/CSA-S6-14.
2.2. CANADIAN STANDARDS ASSOCIATION (CSA).
2.3. ASTM INTERNATIONAL (ASTM).
2.4. AASHTO CORROSION MODEL FOR DETERMINING DESIGN SERVICE LIFE STEEL CORROSION LOSS.

3. DESIGN PARAMETERS

3.1. SERVICE LOADS
3.1.1. LIVE LOAD: CHBDC MAINTENANCE VEHICLE (GROSS WEIGHT, 8200 kg).
3.1.2. DEAD LOAD SOIL COVER AS NOTED ON LONGITUDINAL PROFILE SECTION.
3.2. CONSTRUCTION LOADS (ASSUMED CONFIGURATION).
3.2.1. 1500 lbs WACKER COMPACTOR 200 mm MINIMUM COVER (FOR COMPACTING BACKFILL MATERIAL).
3.2.2. CATERPILLAR D-4 DOZER 600 mm MINIMUM COVER (FOR SPREADING BACKFILL MATERIAL)
3.2.3. 3000 lbs DOUBLE DRUM VIBRATORY COMPACTOR 600 mm MINIMUM COVER (FOR COMPACTING BACKFILL MATERIAL).
3.2.4. MINIMUM COVER REQUIREMENT FOR THE CONSTRUCTION LOADS HEAVIER THAN THE ABOVE SHALL BE APPROVED BY DESIGNER.
3.3. UNIT WEIGHT OF ENGINEERED SOIL 22 kN/m^3.
3.4. UNIT WEIGHT OF RANDOM FILL SOIL 22 kN/m^3.
3.5. DESIGN SERVICE LIFE 75 YEARS.

4. MATERIAL SPECIFICATIONS

4.1. CORPLATE STEEL SHALL CONFORM TO CAN/CSA G401-14.
4.2. DESIGN YIELD OF PLATE 230 MPa.
4.3. BASE CHANNEL SHALL CONFORM TO CAN/CSA G401-14.
4.4. ø19 BOLTS SHALL CONFORM TO CAN/CSA G401-14 AND ASTM A 449, TYPE 1.
4.5. ø19 NUTS SHALL CONFORM TO CAN/CSA G401-14 AND ASTM A 563, GRADE C.
4.6. ø19 ANCHOR BOLTS SHALL CONFORM TO ASTM F 1554, GRADE 36.
4.7. PROTECTIVE COATING
4.7.1. PLATES: HOT-DIP GALVANIZED, 915 g/m^2 (Z915) ZINC COATING MASS (TOTAL ON BOTH SIDES) AND SHALL CONFORM TO CAN/CSA G401-14.
4.7.2. BASE CHANNEL: COATING SHALL BE IDENTICAL TO STRUCTURAL PLATES.
4.7.3. BOLTS: HOT-DIP GALVANIZED ACCORDING TO CAN/CSA-G164, CLASS 5, OR MECHANICALLY GALVANIZED ACCORDING TO ASTM B 695, CLASS 55..
4.7.4. ANCHOR BOLTS: HOT-DIP GALVANIZED ACCORDING TO ASTM F 2329, OR MECHANICALLY GALVANIZED ACCORDING TO ASTM B 695., CLASS 55.
4.7.5. NUTS: HOT-DIP GALVANIZED ACCORDING TO CAN/CSA-G164, CLASS 5, OR MECHANICALLY GALVANIZED ACCORDING TO ASTM B 695, CLASS 55..
4.7.6. WHEN USED TOGETHER, BOLTS AND NUTS, OR ANCHOR BOLTS AND NUTS, SHALL BE COATED USING THE SAME ZINC COATING PROCESS (HOT-DIP OR MECHANICALLY DEPOSITED PROCESS).
4.7.7. REPAIR NOTE: REPAIR OF DAMAGED GALVANIZED COATING SHALL BE DONE IN ACCORDANCE WITH CSA G401-14, CLAUSE 6.2.

5. FOUNDATION

5.1. FOUNDATION SOIL SHALL HAVE SLS BEARING CAPACITY OF 125 kPa AND FRICTION ANGLE OF 30°.
5.2. FOUNDATION DETAILS AS SHOWN ON DRAWING 16-101-S10.
5.3. FOUNDATION SHALL PROVIDE ADEQUATE FROST AND SCOUR PROTECTION AS DETERMINED BY THE CONTRACTOR / OWNER'S GEOTECHNICAL ENGINEER.
5.4. CONFIRMATION OF ADEQUATE SOIL BEARING CAPACITY AND FRICTION ANGLE IS THE RESPONSIBILITY OF THE CONTRACOTR / OWNER'S GEOTECHNICAL ENGINEER.
5.5. ALL UNSUITABLE MATERIAL WITHIN THE FOUNDATION ZONE SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL AS DETERMINED AND APPROVED BY THE CONTRACTOR / OWNER'S GEOTECHNICAL ENGINEER.

6. ASSEMBLY

6.1. LONGITUDINAL SEAMS SHALL BE OVERLAPPED TO ENSURE THE HOLE IN THE VALLEY IS CLOSEST TO THE VISIBLE EDGE WHEN VIEWED FROM THE INSIDE OR OUTSIDE.
6.2. BOLT HEADS CAN BE PLACED ON THE INSIDE OR OUTSIDE OF THE CONDUIT WALL, WHICHEVER FACILITATES THE BEST INSTALLATION.
6.3. TAPERED FACE OF THE NUTS SHALL FACE THE HOLE ON THE CORRUGATED PLATE.
6.4. FLAT FACE OF THE NUTS SHALL FACE THE FLAT STEEL OF THE BASE CHIANNEL.
6.5. BOLTS SHALL HAVE A MINIMUM OF TWO (2) THREAD PITCHES PROTRUDING BEYOND THE NUT FACE AND BE TORQUED WITHIN THE FOLLOWING RANGE: MINIMUM 200 Nm (150 ft lbs)
MAXIMUM 340 Nm (250 ft lbs)
6.6. CARE SHALL BE TAKEN TO AVOID OVERTORQUING OF BOLTS.

7. ENGINEERED BACKFILL

7.1. BURIED CORRUGATED STEEL PLATE STRUCTURE IS A COMPOSITE SYSTEM MADE UP OF THE STEEL RING AND THE ENGINEERED BACKFILL ENVELOPE, AND BOTH ELEMENTS PLAY A VITAL PART IN THE STRUCTURAL INTEGRITY THROUGHOUT THE SERVICE LIFE. THEREFORE IT IS IMPORTANT TO ENSURE THAT ENGINEERING BACKFILL IS MADE UP OF THE SPECIFIED MATERIAL AND WELL-CONSTRUCTED.
7.2. ENGINEERING BACKFILL MATERIAL SHALL BE CLEAN, GRANULAR, NON-FROST SUSCEPTIBLE, AND POSSESS TIME-INDEPENDENT PROPERTIES.
7.3. BACKFILL MATERIAL SHALL CONSISTS OF A WELL GRADED GRANULAR MATERIAL WITH ANGULAR GRAINS CLASSIFYING AS "BRIDGE END FILL" IN SECTION 202 OF BC MOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND MEETING THE FOLLOWING REQUIREMENTS.
7.4. MATERIAL GRADATION (ASTM C136 AND C117):

SIEVE NUMBER	SIEVE SIZE (mm)	PERCENT PASSING
	75.00	100
	50.00	30 - 100
	25.00	20 - 100
	19.00	15 - 95
4	4.75	10 - 65
16	1.18	6 - 35
50	0.30	4 - 20
200	0.075	0 - 10

7.5. PARTICLE ANGULARITY: PERCENTAGE OF FRACTURED GRAVEL PARTICLE (MINIMUM 2 FACES) SHALL BE MORE THAN 50 % (ASTM D5821).
7.6. PARTICLE DURABILITY OF THE COARSE AGGREGATE LOSS SHALL NOT EXCEED BY 30% AS DETERMINED BY MICRO-DEVAL TEST METHOD (ASTM D6928).
7.7. DELETERIOUS MATERIAL:
7.7.1. BACKFILL MATERIAL SHALL BE FREE FROM FOREIGN MATTER.
7.7.2. SHALES AND CLAYSTONES ARE GENERALLY CONSIDERED DELETERIOUS MATERIALS AND SHALL NOT BE ALLOWED IN THE ENGINEERED BACKFILL ENVELOPE.
7.7.3. FROZEN MATERIAL SHALL NOT BE ALLOWED IN THE ENGINEERED BACKFILL ENVELOPE.
7.8. PLASTICITY INDEX: PLASTICITY INDEX (PI) OF FINE GRAINED PORTION OF THE SOIL SHALL BE LESS THAN 10 (ASTM D4318). PLASTICITY INDEX CAN BE WAIVED IF FINES CONTENT IS LESS THAN OR EQUAL TO 5%.
7.9. ELECTROCHEMICAL LIMITS FOR GALVANIZED PLATES (AASHTO CORROSION MODEL):

pH: 5 - 10	(AASHTO T289-91 OR EQUIVALENT)
RESISTIVITY: ≥ 3000 ohm-cm	(AASHTO T288-91 OR EQUIVALENT)
CHLORIDES: ≤ 100 ppm	(AASHTO T291-91 OR EQUIVALENT)
SULPHATES: ≤ 200 ppm	(AASHTO T290-91 OR EQUIVALENT)
ORGANIC CONTENT: ≤ 1%	(AASHTO T267-86 OR EQUIVALENT)

7.10. COMPACTION
7.10.1. MAXIMUM UNCOMPACTED LIFT HEIGHT SHALL BE 200 mm.
7.10.2. EACH LAYER SHALL BE COMPACTED TO MINIMUM OF 95% STANDARD PROCTOR DENSITY ASTM D 698.
7.10.3. OPTIMUM MOISTURE CONTENT SHALL BE MAINTAINED DURING COMPACTION ASTM D 698.
7.11. BALANCED BACKFILLING: ROADWAY SKEW ANGLE SHALL BE LESS THAN 40 DEGREES. FOR SKEW ANGLE GREATER THAN 20 DEGREES EARTH PRESSURE IMBALANCE SHALL BE ACCOMMODATED BY CONTOUR GRADING OF EMBANKMENT SLOPE.

8. QUALITY ASSURANCE & INSPECTION

8.1. QUALITY ASSURANCE OF THE COMPLETE PROJECT INCLUDING FOUNDATION AND BACKFILL MATERIAL AND PLACEMENT SHALL BE COMPLETED IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS AND NOT BE THE RESPONSIBILITY OF CANADA CULVERT.
8.2. THE CONTRACTOR / OWNER'S REPRESENTATIVE SHALL ALSO BE RESPONSIBLE FOR ENSURING THAT THE FOLLOWING ITEMS HAVE BEEN ACHIEVED WITHIN THE REQUIRED TOLERANCES:
8.2.1. SATISFACTORY BEDDING AND/OR FOUNDATION
8.2.2. TORQUE ON THE BOLT ASSEMBLIES
8.2.3. ENGINEERED BACKFILL ELECTRO-CHEMICAL PARAMETERS
8.2.4. ENGINEERED BACKFILL GRADATION
8.2.5. ENGINEERED BACKFILL LIFT HEIGHT AND COMPACTION
8.2.6. CONFIRMATION OF DIMENSIONAL CHECKS OF THE CONDUIT PRIOR TO AND AFTER BACKFILLING
8.2.7. CONFIRMATION OF THE MINIMUM AND MAXIMUM COVER

9. HYDRAULIC CAPACITY & SCOUR PROTECTION

9.1. HYDRAULIC CAPACITY OF THE CONDUIT AND STABILITY OF THE INLET AND OUTLET IS THE RESPONSIBILITY OF THE CONTRACTOR / OWNER'S HYDROTECHNICAL ENGINEER.
9.2. TYPE AND EXTENT OF SCOUR PROTECTION TO PREVENT EROSION AND LOSS OF ENGINEERING BACKFILL FOR THE CONDUIT AND FOUNDATION IS THE RESPONSIBILITY OF THE CONTRACTOR / OWNER'S HYDROTECHNICAL ENGINEER.

REV.NO	REVISION NOTE	DATE
1	ISSUED FOR CONSTRUCTION	2016-10-12

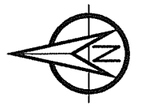
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — S. J. MACRAE # 37292
oct 12/16

CANADACULVERT™
CALL TOLL FREE 1-800-565-1152 www.canadaculvert.com

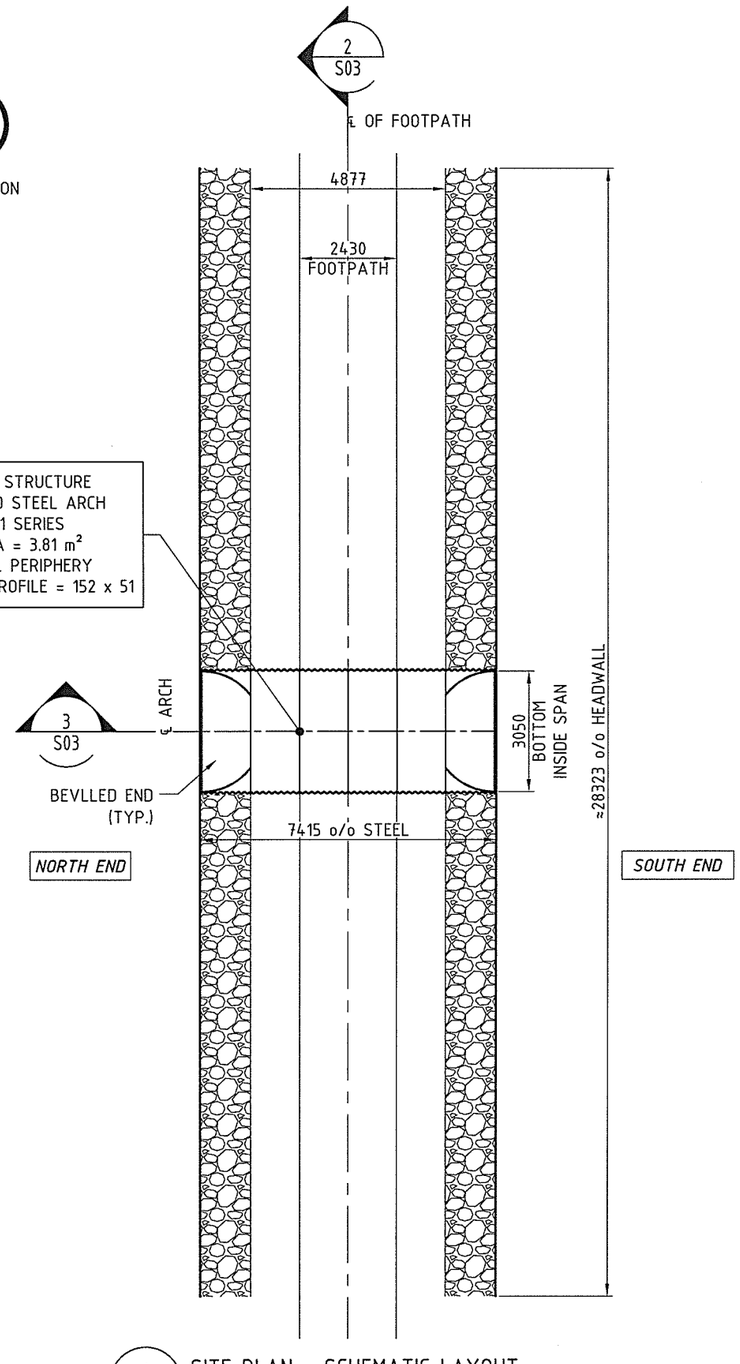
APPROVALS		DATE
DESIGN BY	AR	2016-09-27
DESIGN CHECK	SM	2016-09-27
DRAFT BY	CG	2016-10-03
DRAFT CHECK	AT	2016-10-06

CUSTOMER: PARKS CANADA
PROJECT NAME: DOLLY VARDEN DAY PASS EXHIBIT, BC
DRAWING TITLE: DESIGN NOTES

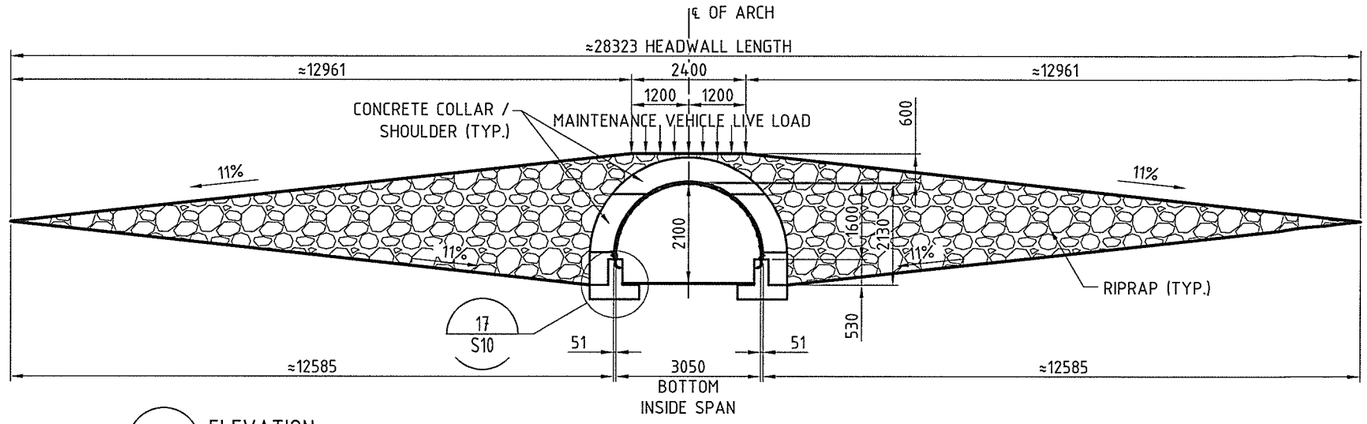
PAPER SIZE	CONTRACT NO.	SCALE	TOTAL SHEETS	PROJECT NO.	DRAWING NO.	REV.
11x17	-	NTS	11	16-101	S02	1



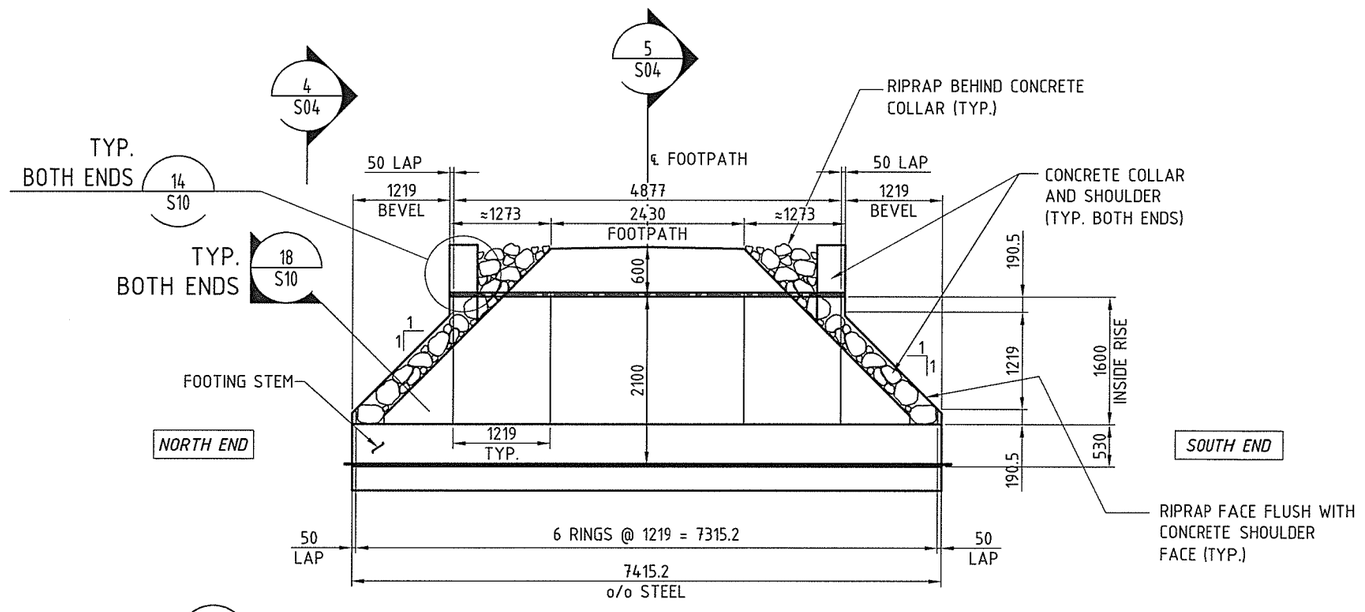
CONSTRUCTION
NORTH



1 S03 SITE PLAN - SCHEMATIC LAYOUT
SCALE 1:150



2 S03 ELEVATION
SCALE 1:125



3 S03 LONGITUDINAL PROFILE
SCALE 1:75

REV.NO	REVISION NOTE	DATE
1	ISSUED FOR CONSTRUCTION	2016-10-12

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. J. MACRAE
37292
OCT 12/16

CANADACULVERT™
CALL TOLL FREE 1-800-565-1152 www.canadaculvert.com

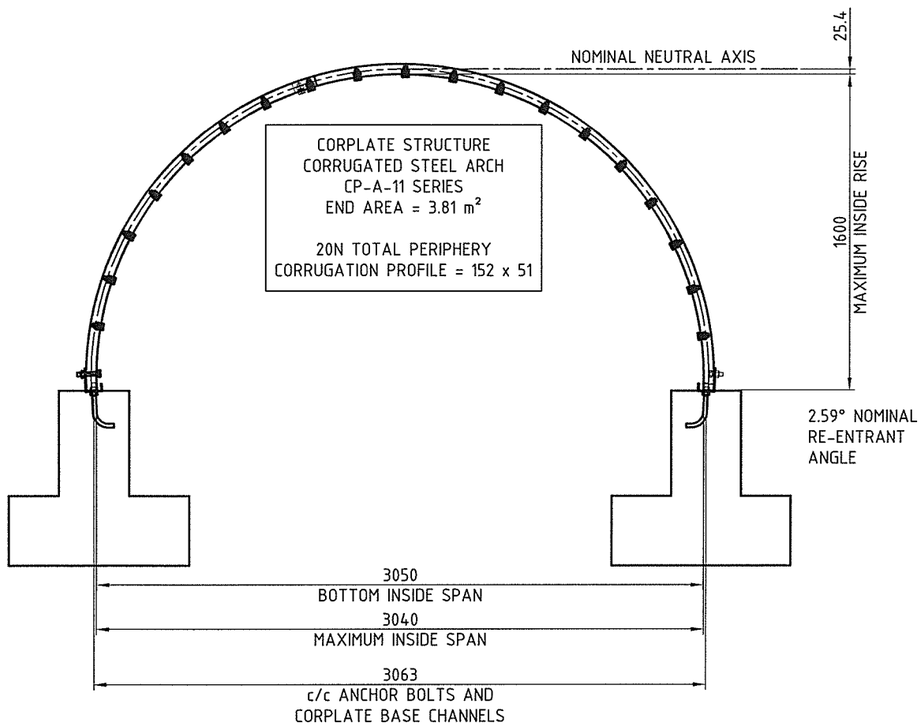
APPROVALS		DATE
DESIGN BY	AR	2016-09-27
DESIGN CHECK	SM	2016-09-27
DRAFT BY	CG	2016-10-03
DRAFT CHECK	AT	2016-10-06

CUSTOMER: PARKS CANADA

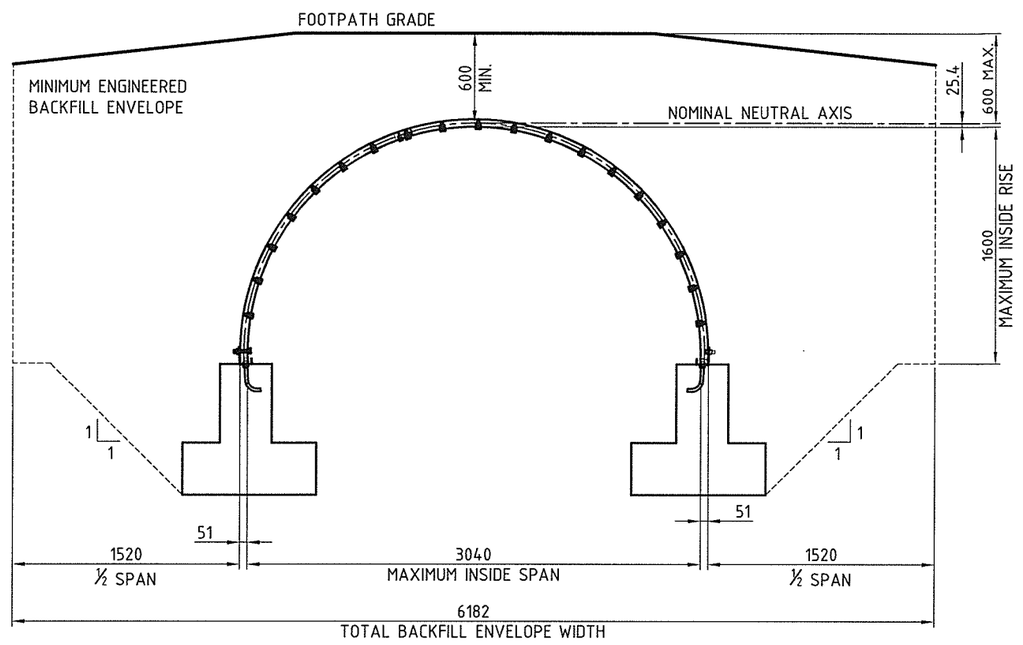
PROJECT NAME: DOLLY VARDEN DAY PASS EXHIBIT, BC

DRAWING TITLE: SITE PLAN, ELEVATION, LONGITUDINAL PROFILE

PAPER SIZE	CONTRACT NO.	SCALE	TOTAL SHEETS	PROJECT NO.	DRAWING NO.	REV.
11x17	-	AS NOTED	11	16-101	S03	1



4 S03 STRUCTURE GEOMETRY
SCALE 1:40



5 S03 BACKFILL - SECTION @ ℄ ROAD
VIEW FROM UPSTREAM END
SCALE 1:40

REV.NO	REVISION NOTE	DATE
1	ISSUED FOR CONSTRUCTION	2016-10-12

PROFESSIONAL ENGINEER
PROVINCE OF ALBERTA
S. J. MACRAE
37292
BRITISH COLUMBIA
OCT 12/16

CANADACULVERT™
CALL TOLL FREE 1-800-565-1152 www.canadaculvert.com

APPROVALS		DATE
DESIGN BY	AR	2016-09-27
DESIGN CHECK	SM	2016-09-27
DRAFT BY	CG	2016-10-03
DRAFT CHECK	AT	2016-10-06

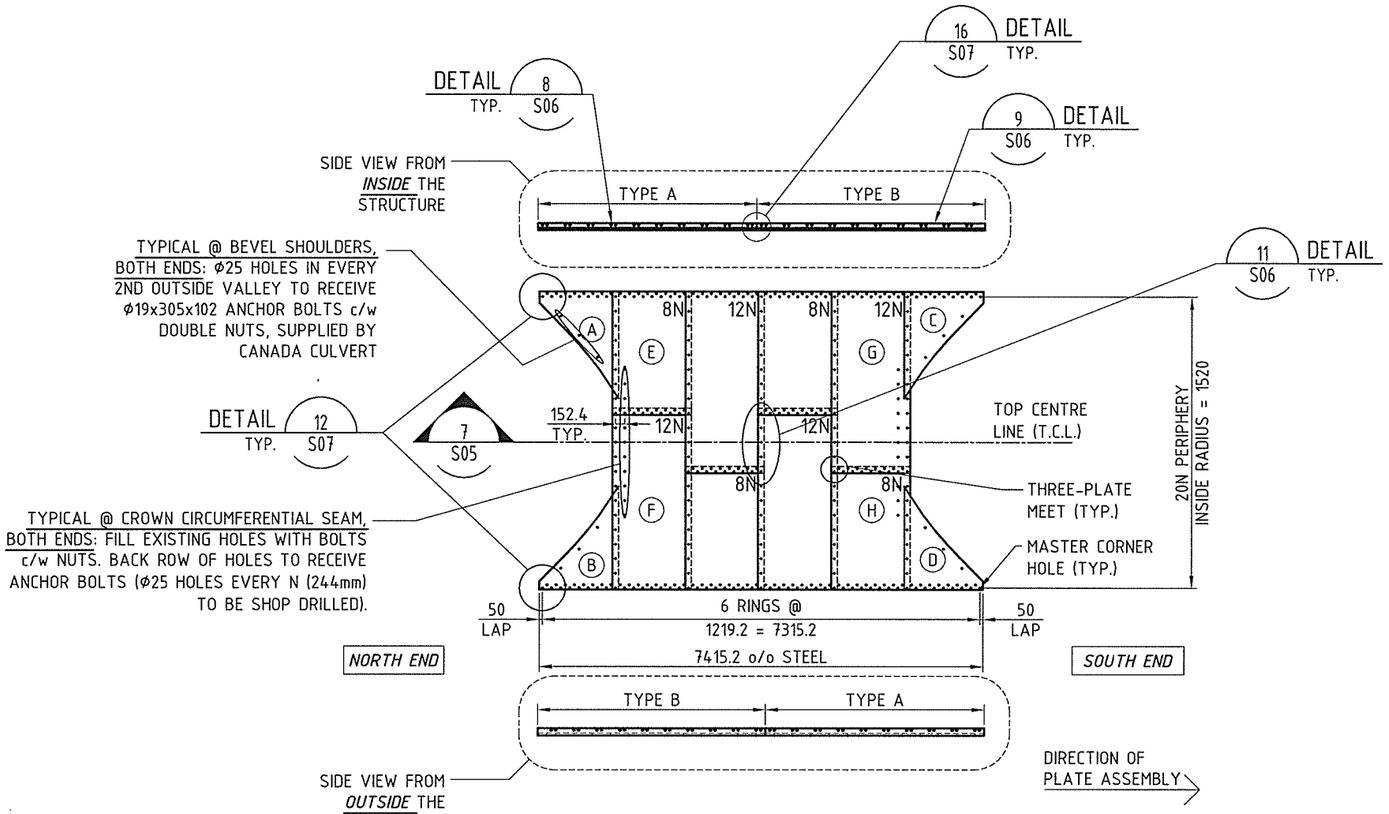
CUSTOMER: PARKS CANADA

PROJECT NAME: DOLLY VARDEN DAY PASS EXHIBIT, BC

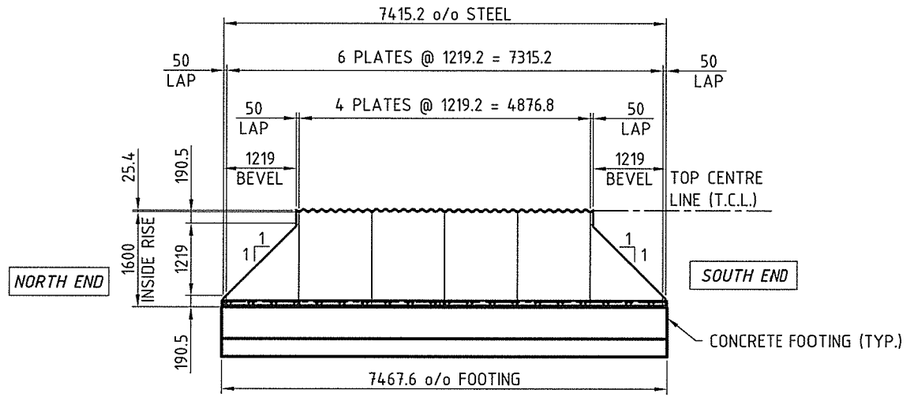
DRAWING TITLE: TYPICAL GEOMETRY, BACKFILL SECTION

PAPER SIZE	CONTRACT NO.	SCALE	TOTAL SHEETS	PROJECT NO.	DRAWING NO.	REV.
11x17	-	AS NOTED	11	16-101	S04	1

BOLT LENGTH CHART		
CORPLATE PLATE THICKNESS (mm)	BOLT LENGTH TO BE USED (mm)	COMMENTS
3.0	38	IF NEEDED, USE 102 LONG BOLTS @ THREE PLATE MEETS TO BRING PLATES TOGETHER.



6 S05 STRUCTURE LAYOUT
OUTSIDE FLAT VIEW
SCALE 1:100



7 S05 LONGITUDINAL PROFILE
SCALE 1:100

REV.NO	REVISION NOTE	DATE
1	ISSUED FOR CONSTRUCTION	2016-10-12

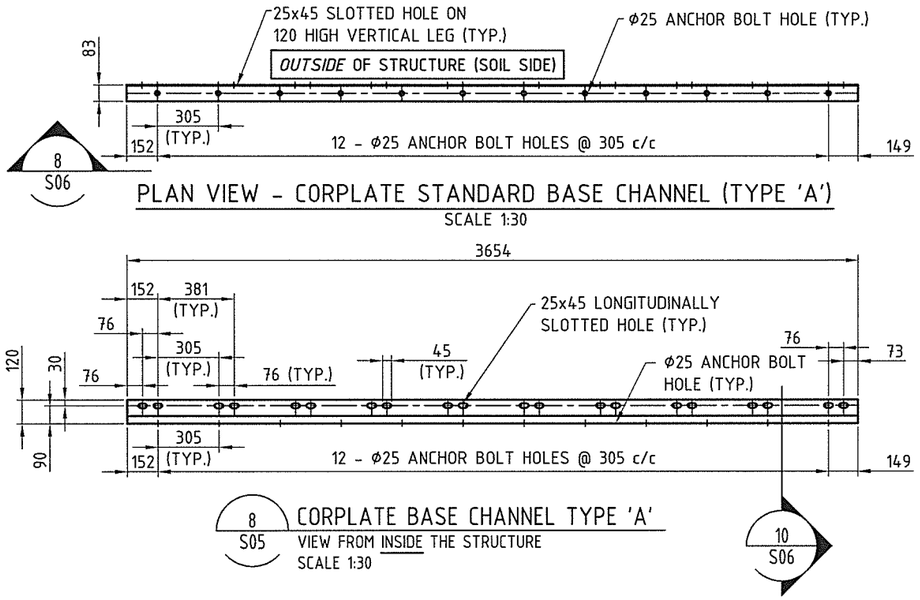
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — S. J. MACRAE # 37292 — OCT 12/16

CANADACULVERT™
CALL TOLL FREE 1-800-565-1152 www.canadaculvert.com

APPROVALS		DATE
DESIGN BY	AR	2016-09-27
DESIGN CHECK	SM	2016-09-27
DRAFT BY	CG	2016-10-03
DRAFT CHECK	AT	2016-10-06

CUSTOMER: PARKS CANADA
PROJECT NAME: DOLLY VARDEN DAY PASS EXHIBIT, BC
DRAWING TITLE: STRUCTURE LAYOUT, PROFILE

PAPER SIZE	CONTRACT NO.	SCALE	TOTAL SHEETS	PROJECT NO.	DRAWING NO.	REV.
11x17	-	AS NOTED	11	16-101	S05	1

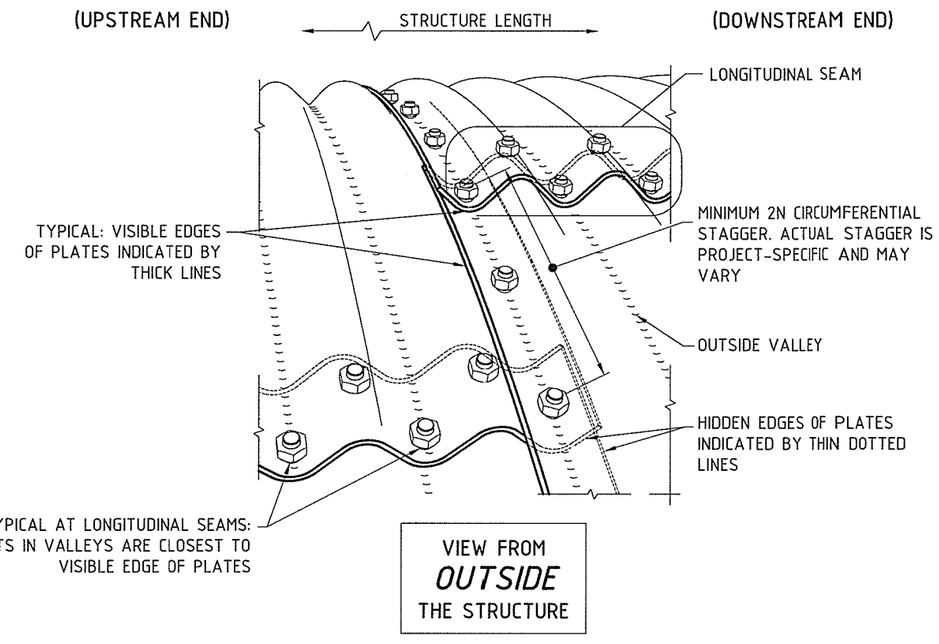


PLAN VIEW - CORPLATE STANDARD BASE CHANNEL (TYPE 'A')

SCALE 1:30

CORPLATE BASE CHANNEL TYPE 'A'

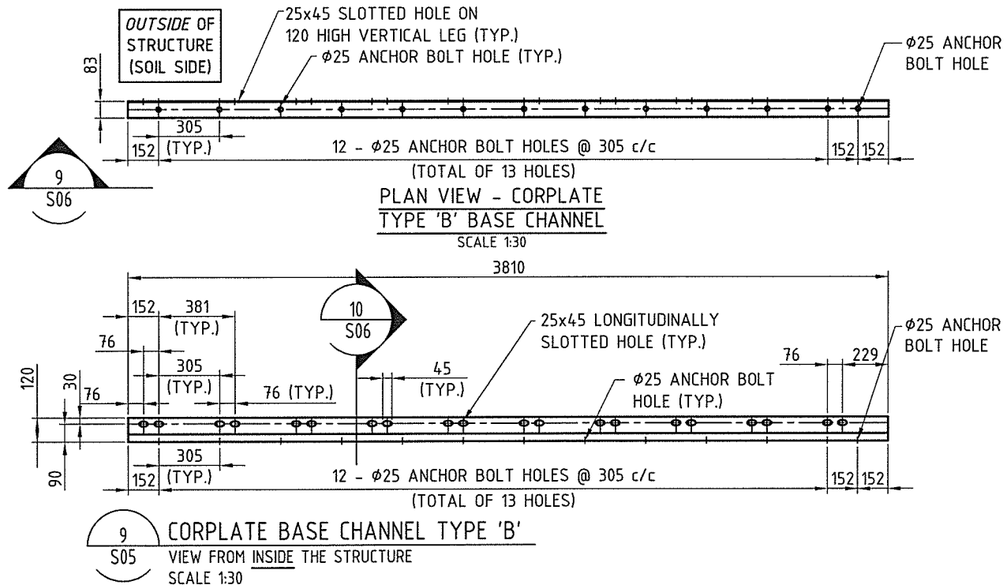
VIEW FROM INSIDE THE STRUCTURE
SCALE 1:30



NOTE: PROPER LAPPING OF PLATE IS IMPORTANT FOR THE INTENDED PERFORMANCE OF STRUCTURE.

TYPICAL PLATE LAPPING

VIEW FROM OUTSIDE THE STRUCTURE
SCALE: N.T.S.

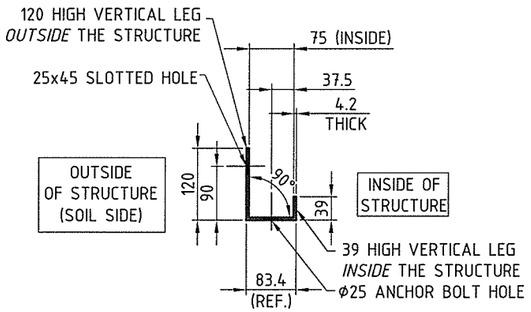


PLAN VIEW - CORPLATE TYPE 'B' BASE CHANNEL

SCALE 1:30

CORPLATE BASE CHANNEL TYPE 'B'

VIEW FROM INSIDE THE STRUCTURE
SCALE 1:30



CORPLATE - BASE CHANNEL

TYPICAL SECTION
SCALE 1:10

REV.NO	REVISION NOTE	DATE
1	ISSUED FOR CONSTRUCTION	2016-10-12

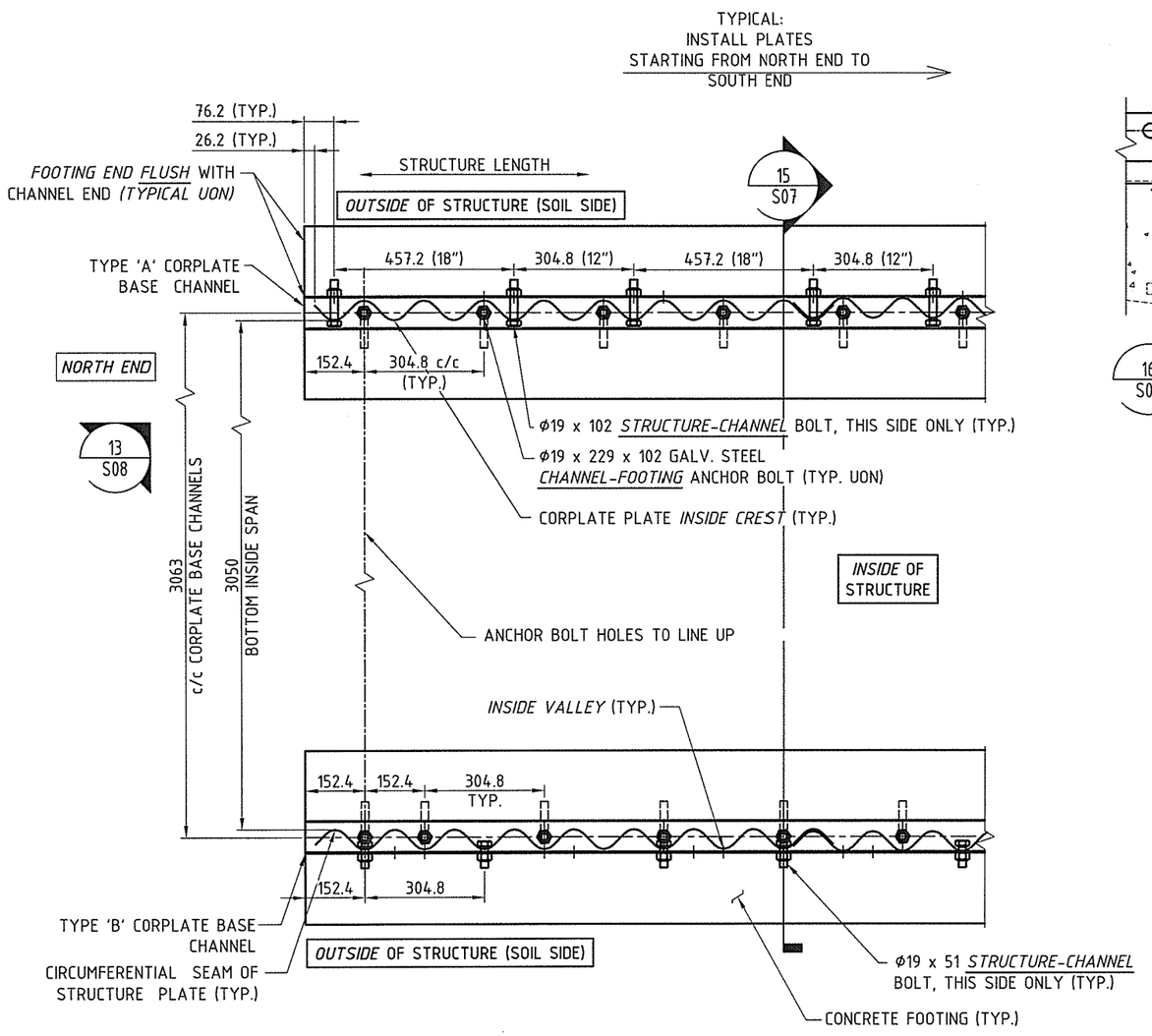
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — S. J. MACRAE # 37292 — OCT 12/16

CANADACULVERT™
CALL TOLL FREE 1-800-565-1152 www.canadaculvert.com

APPROVALS		DATE
DESIGN BY	AR	2016-09-27
DESIGN CHECK	SM	2016-09-27
DRAFT BY	CG	2016-10-03
DRAFT CHECK	AT	2016-10-06

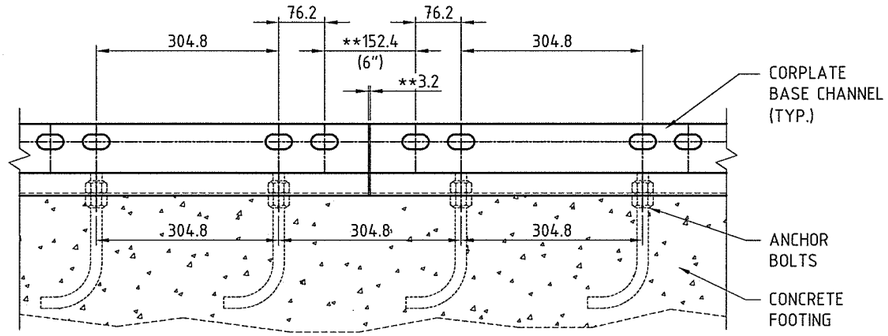
CUSTOMER: PARKS CANADA
PROJECT NAME: DOLLY VARDEN DAY PASS EXHIBIT, BC
DRAWING TITLE: BASE CHANNELS, PLATE LAPPING DETAILS

PAPER SIZE	CONTRACT NO.	SCALE	TOTAL SHEETS	PROJECT NO.	DRAWING NO.	REV.
11x17	-	AS NOTED	11	16-101	S06	1

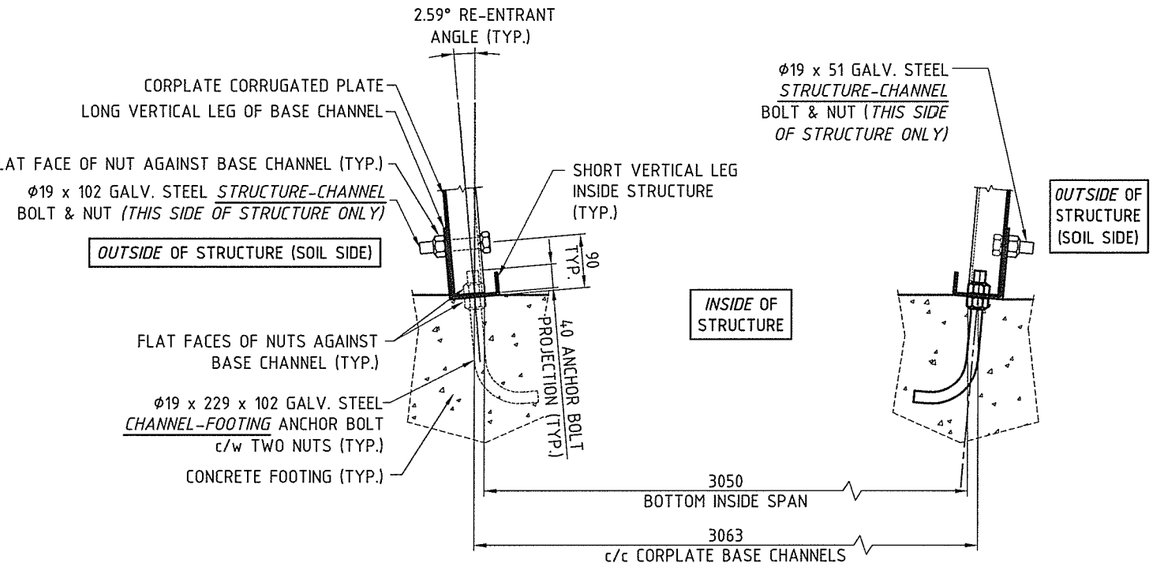


12 S07 PLAN VIEW DETAIL
STRUCTURE @ NORTH END
SCALE 1:15

** 3.2 NOMINAL GAP BETWEEN CHANNELS REQUIRED TO KEEP 152.4 (6") SPACING BETWEEN UPPER HOLES OF CONTIGUOUS BASE CHANNELS (TYP.)



16 S05 TYPICAL DETAIL
BASE CHANNEL SPACING
VIEW LOOKING FROM INSIDE THE STRUCTURE
SCALE 1:10



15 S07 SECTION VIEW DETAIL
VIEW LOOKING DOWNSTREAM (OUTLET END)
SCALE 1:10

REV.NO	REVISION NOTE	DATE
1	ISSUED FOR CONSTRUCTION	2016-10-12

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — S. J. MACRAE # 37292
OCT 12/16

CANADACULVERT™
CALL TOLL FREE 1-800-565-1152 www.canadaculvert.com

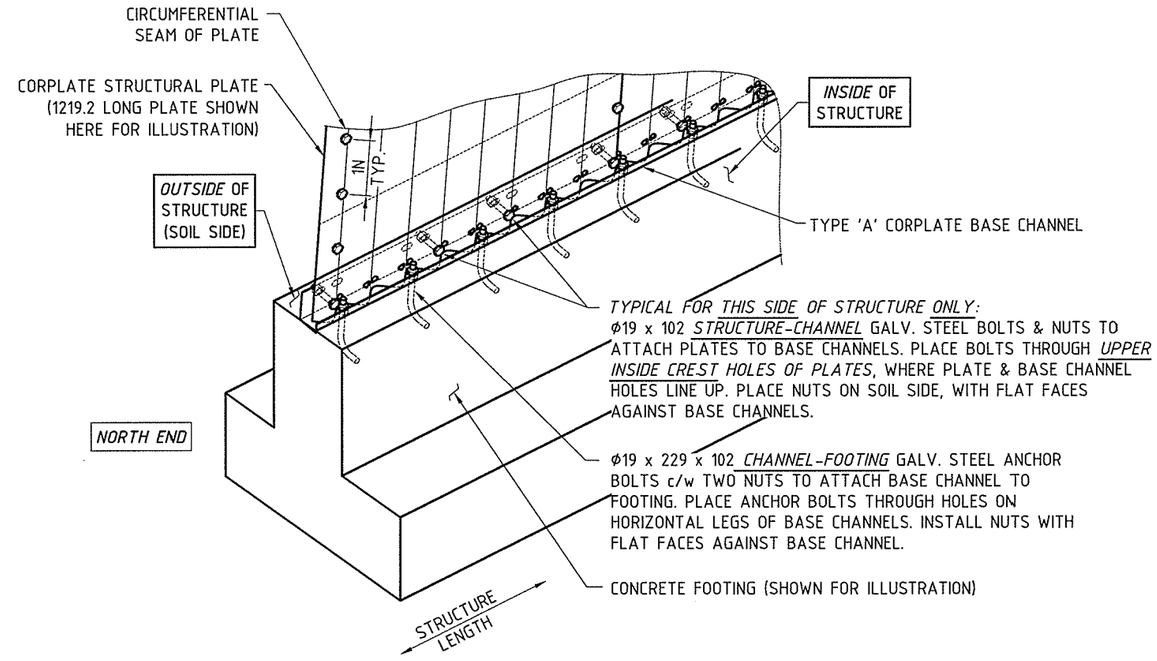
APPROVALS		DATE
DESIGN BY	AR	2016-09-27
DESIGN CHECK	SM	2016-09-27
DRAFT BY	CG	2016-10-03
DRAFT CHECK	AT	2016-10-06

CUSTOMER: PARKS CANADA

PROJECT NAME: DOLLY VARDEN DAY PASS EXHIBIT, BC

DRAWING TITLE: INSTALLATION DETAILS - BASE CHANNEL AND CONCRETE FOOTING CONNECTION - TOP VIEW AND SECTION DETAILS

PAPER SIZE	CONTRACT NO.	SCALE	TOTAL SHEETS	PROJECT NO.	DRAWING NO.	REV.
11x17	-	AS NOTED	11	16-101	S07	1



13
S07

STRUCTURE SIDE WITH ϕ19 x 102 STRUCTURE-CHANNEL BOLTS

ISOMETRIC VIEW FROM NORTH END
SCALE NTS

REV.NO	REVISION NOTE	DATE
1	ISSUED FOR CONSTRUCTION	2016-10-12

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA
S. J. MACRAE
37292
OCT 12/16

CANADACULVERT™
CALL TOLL FREE 1-800-565-1152 www.canadaculvert.com

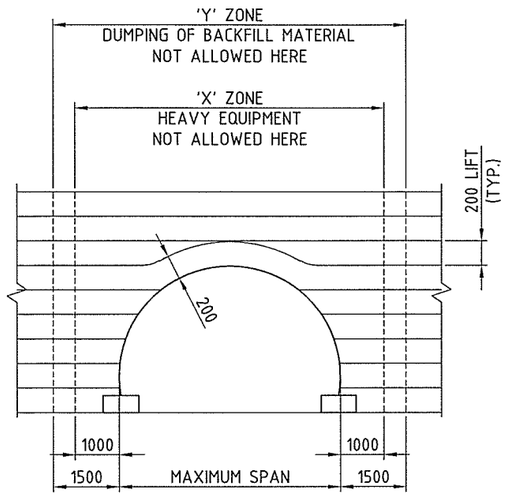
APPROVALS		DATE
DESIGN BY	AR	2016-09-27
DESIGN CHECK	SM	2016-09-27
DRAFT BY	CG	2016-10-03
DRAFT CHECK	AT	2016-10-06

CUSTOMER: PARKS CANADA

PROJECT NAME: DOLLY VARDEN DAY PASS EXHIBIT, BC

DRAWING TITLE: BASE CHANNEL AND CONCRETE FOOTING ISOMETRIC VIEW

PAPER SIZE	CONTRACT NO.	SCALE	TOTAL SHEETS	PROJECT NO.	DRAWING NO.	REV.
11x17	-	AS NOTED	11	16-101	S08	1



OPEN-BOTTOM GEOMETRY
RECOMMENDED BACKFILL

A
S09 SCALE: NTS

NOTE:
NUMBERS INDICATE PLATE
INSTALLATION SEQUENCE

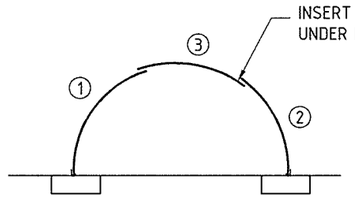


FIGURE 1.A.
OPEN-BOTTOM STRUCTURES
PLATE INSTALLATION
FOR *FIRST RING* BUILT AT UPSTREAM END
(GEOMETRY LOOKING *UPSTREAM*)
NUMBERS INDICATE INSTALLATION SEQUENCE

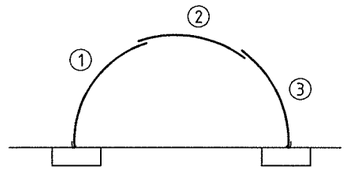
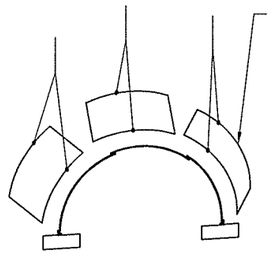


FIGURE 1.B.
OPEN-BOTTOM STRUCTURES
PLATE INSTALLATION FOR *NEXT RINGS*
(GEOMETRY LOOKING *UPSTREAM*)
NUMBERS INDICATE INSTALLATION SEQUENCE

OPEN-BOTTOM STRUCTURES
PLATE INSTALLATION SEQUENCE
GENERIC SKETCHES
(ACTUAL CONFIGURATION OF STRUCTURE INCLUDING NUMBER OF PLATES IS PROJECT-SPECIFIC)

B
S09 SCALE: NTS



SLING PLATES TO MATCH ORIENTATION IN STRUCTURE. SELECT LIFT POINTS ON THE PLATES SO THAT PLATES REMAIN BALANCED DURING INSTALLATION, FOR EASIER HANDLING. THIS MEANS LIFT POINTS MAY VARY PENDING ON THE POSITION OF THE PLATE RELATIVE TO THE STRUCTURE.

FIGURE 1.C.
OPEN-BOTTOM STRUCTURES
PLATE LIFTING USED FOR
INSTALLATION OF A RING

OPEN-BOTTOM STRUCTURES
PLATE LIFTING DETAILS
GENERIC SKETCH
(ACTUAL CONFIGURATION OF STRUCTURE INCLUDING NUMBER OF PLATES IS PROJECT-SPECIFIC)

C
S09 SCALE: NTS

PLATE ASSEMBLY NOTES

1. OPEN-BOTTOM STRUCTURES WITH MODERN PLATES (ARCHES)

1.1. INSTALL PLATES FROM UPSTREAM TO DOWNSTREAM END.
1.2. INSTALL PLATE BY PLATE, FOLLOWING THE SEQUENCES SHOWN BELOW.
1.3. INSTALL BOLTS HAND-TIGHT, STARTING NEAR THE MIDDLE OF THE PLATES.
1.4. TIGHTENING OF BOLTS CAN BEGIN ONCE 3 TO FULL 4 RINGS ARE ASSEMBLED.
1.5. KEEP 2 OR 3 RINGS WITH HAND-TIGHT BOLTS TO AID WITH INSTALLATION OF REMAINING PLATES.
1.6. USE OF PRY BAR AND DRIFT PIN WILL AID ASSEMBLY WHEN BOLTS ARE LOOSE.
1.7. USE TEMPORARY BRACING AS REQUIRED TO SUPPORT PLATES AND MAINTAIN GEOMETRY DURING ASSEMBLY.
1.8. TEMPORARY BRACING SHALL NOT HINDER MOVEMENT OF STRUCTURE DURING BACKFILL OPERATION.

BACKFILL OPERATION NOTES

1. BACKFILL MATERIAL SHALL BE PLACED IN 200 mm THICK LOOSE LIFTS (LAYERS) AT CONSTANT GRADE.
2. BACKFILL MATERIAL SHALL BE PLACED UNIFORMLY ON BOTH SIDES OF THE STRUCTURE.
3. LIFTS MUST NOT EXCEED 400 mm DIFFERENTIAL BETWEEN SIDES OF STRUCTURE„ MEASURED AT ANY TRANSVERSE SECTION THROUGH THE STRUCTURE.
4. COMPACTION EQUIPMENT TO TRAVEL PARALLEL TO THE LENGTH OF THE STRUCTURE. MAXIMUM OPERATING WEIGHT FOR COMPACTION EQUIPMENT SHALL BE AS FOLLOWS:
   4.1. 1500 lbs WACKER COMPACTOR 200 mm MINIMUM COVER (FOR COMPACTING BACKFILL MATERIAL).
   4.2. D4 DOZER: APPROX. 8500 kg.
   4.3. COMPACTOR: APPROX. 6800 kg.
5. WHEN BACKFILL SHALL REACH ¾ OF THE STRUCTURE HEIGHT (OR WHEREVER CONVENIENT) LIGHT COMPACTION EQUIPEMENT SHALL RUN OVER THE STRUCTURE CROWN, PERPENDICULAR TO THE LENGTH OF THE STRUCTURE.
6. HEAVY EQUIPMENT WILL NOT BE ALLOWED WITHIN THE 'X' ZONE (1000 mm MIN. FROM THE STRUCTURE, MEASURED AT THE MAXIMUM SPAN), UNTIL THE MINIMUM COVER OVER THE STRUCTURE IS IN PLACE. HAND TAMPING OR HAND-HELD COMPACTOR SHALL BE USED WITHIN 500 mm FROM THE STRUCTURE.
7. HEAVY EQUIPMENT SHALL VEER AWAY FROM THE ENDS OF THE STRUCTURE.
8. DUMPED BACKFILL MATERIAL WILL NOT BE ALLOWED WITHIN THE 'Y' ZONE (1500 mm MIN. FROM THE STRUCTURE, MEASURED AT THE MAXIMUM SPAN).
9. BACKFILL MATERIAL SHALL BE COMPACTED TO THE REQUIREMENTS AS DESCRIBED ON NOTE 7, SHEET S02.
10. CAUTION SHALL BE EXERCISED IN COMPACTING MATERIAL NEAR THE CORNERS/HAUNCHES.

SHAPE MONITORING AND TOLERANCES

1. IT IS IMPORTANT THAT THE DESIGN SHAPE OF THE STRUCTURE BE MAINTAINED AT ALL STAGES OF CONSTRUCTION.
2. BEFORE STARTING BACKFILLING OPERATION, CHECKS SHALL BE MADE TO ENSURE THAT RISE AND SPAN DIMENSIONS ARE WITHIN THE ALLOWABLE ASSEMBLY TOLERANCE LIMITS.
3. STRUCTURE SHAPE SHALL BE MONITORED REGULARLY.
4. DIMENSIONS AND TOLERANCES (RISE AND SPAN)
   4.1. DIMENSIONS OF ASSEMBLED SHAPE AFTER TORQUING AND PRIOR TO BACKFILLING SHALL BE WITHIN ±1% OF THE DESIGN DIMENSIONS.
   4.2. LENGTH OF ASSEMBLED STRUCTURE SHALL BE WITHIN ±1% OF THE SPECIFIED LENGTH.
   4.3. FINAL SHAPE AFTER BACKFILLING SHALL BE WITHIN ±1% OF ASSEMBLED SHAPE AND WITHIN ±2% OF DESIGN SHAPE.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. J. MACRAE
37292
OCT 12/16

CANADACULVERT™
CALL TOLL FREE 1-800-565-1152 www.canadaculvert.com

APPROVALS		DATE
DESIGN BY	AR	2016-09-27
DESIGN CHECK	SM	2016-09-27
DRAFT BY	CG	2016-10-03
DRAFT CHECK	AT	2016-10-06

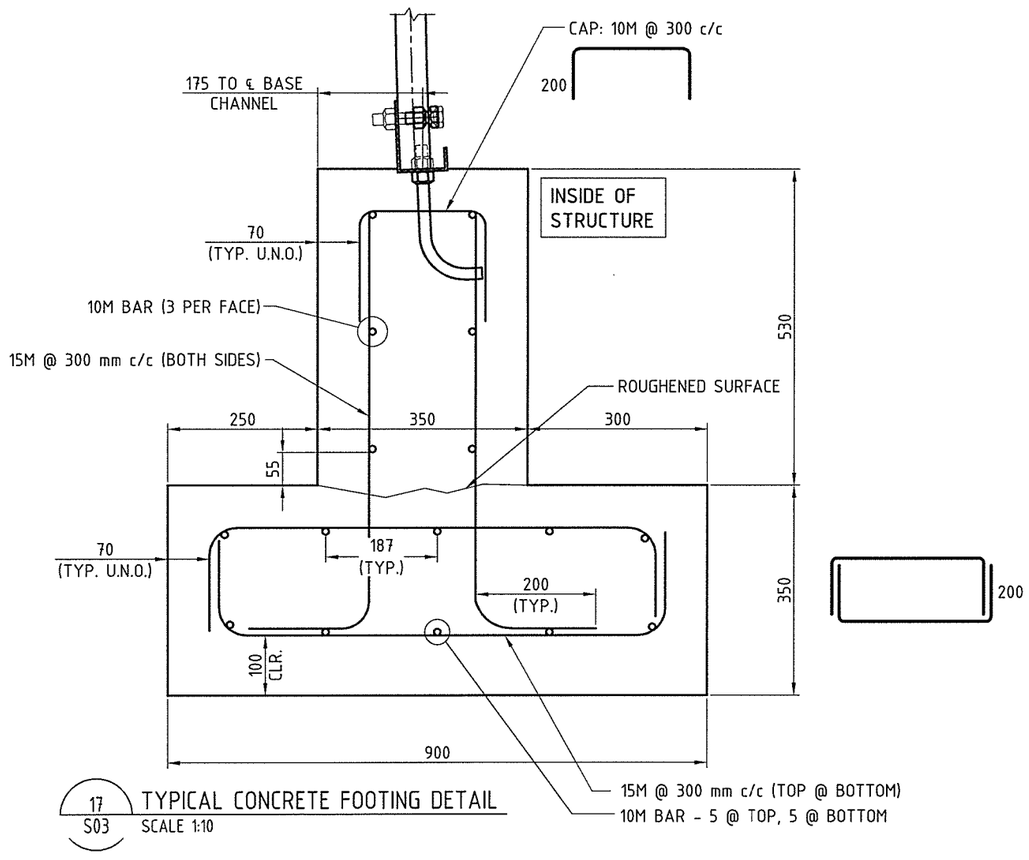
CUSTOMER: PARKS CANADA
PROJECT NAME: DOLLY VARDEN DAY PASS EXHIBIT, BC
DRAWING TITLE: BACKFILL INSTALLATION NOTES
OPEN-BOTTOM STRUCTURES

PAPER SIZE	CONTRACT NO.	SCALE	TOTAL SHEETS	PROJECT NO.	DRAWING NO.	REV.
11x17	-	AS NOTED	11	16-101	S09	1

REV.NO	REVISION NOTE	DATE
1	ISSUED FOR CONSTRUCTION	2016-10-12

CAST-IN-PLACE CONCRETE NOTES

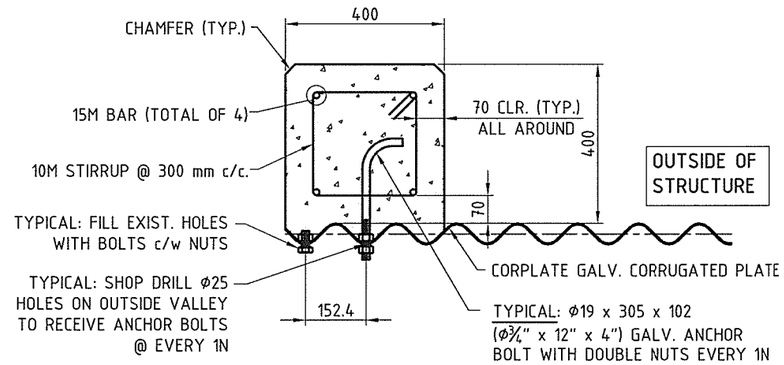
1. DESIGN IN GENERAL ACCORDANCE WITH CANADIAN HIGHWAY BRIDGE DESIGN CODE CAN/CSA-S6-14.
2. CONCRETE MATERIALS AND CONSTRUCTION PRACTICES TO CONFORM TO CSA 23.1-09 / CSA 23.2-09.
3. ALL CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES:
   - 3.1. MAXIMUM COARSE AGGREGATE SIZE OF 20 mm.
   - 3.2. MINIMUM COMPRESSIVE STRENGTH SHALL BE 35 MPa AT 28 DAYS.
   - 3.3. MINIMUM AIR ENTRAINMENT OF 5%.
4. ALL REINFORCING STEEL SHALL CONFORM TO CAN/CSA G30.18 GRADE 400 OR 400W AS APPROPRIATE.
5. REINFORCING STEEL SHALL HAVE MINIMUM COVER OF 100 mm AT THE BASE AND 70 mm AT SIDES, UNLESS NOTED OTHERWISE.
6. DO NOT BACKFILL UNTIL CONCRETE REACHED 70% OF DESIGN COMPRESSIVE STRENGTH.
7. FOOTING IS DESIGNED FOR AN ALLOWABLE SOIL BEARING CAPACITY OF 250 kPa. THIS VALUE MUST BE FIELD VERIFIED PRIOR TO CONSTRUCTION.



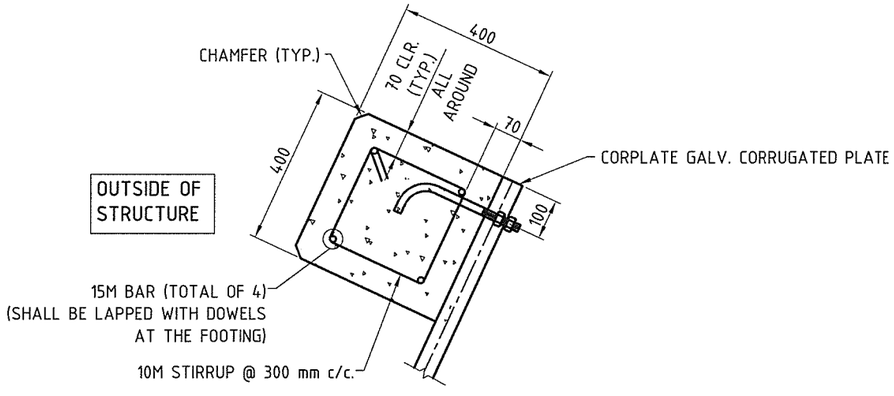
17 / S03 TYPICAL CONCRETE FOOTING DETAIL
SCALE 1:10

CAST-IN-PLACE CONCRETE COLLAR GENERAL NOTES

1. DESIGN IN GENERAL ACCORDANCE WITH CANADIAN HIGHWAY BRIDGE DESIGN CODE CAN/CSA-S6-14.
2. CONCRETE MATERIALS AND CONSTRUCTION PRACTICES TO CONFORM TO CSA 23.1-09 / CSA 23.2 - 09 CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION.
3. ALL CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES:
   - 3.1. MAXIMUM COURSE AGGREGATE SIZE OF 20 mm
   - 3.2. MINIMUM 28 DAYS COMPRESSIVE STRENGTH OF 35 MPa.
   - 3.3. MINIMUM AIR ENTRAINMENT OF 5%.
4. ALL REINFORCING STEEL SHALL CONFORM TO CAN/CSA G30.18 GRADE 400.



14 / S03 CONCRETE COLLAR DETAIL AT CROWN (TOP)
SCALE 1:15



18 / S03 CONCRETE COLLAR DETAIL AT BEVEL SHOULDER
SCALE 1:15

REV.NO	REVISION NOTE	DATE
1	ISSUED FOR CONSTRUCTION	2016-10-12

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — J. J. MACRAE # 37292 — OCT 12/16

CANADACULVERT™
CALL TOLL FREE 1-800-565-1152 www.canadaculvert.com

APPROVALS		DATE
DESIGN BY	AR	2016-09-27
DESIGN CHECK	SM	2016-09-27
DRAFT BY	CG	2016-10-03
DRAFT CHECK	AT	2016-10-06

CUSTOMER: PARKS CANADA
PROJECT NAME: DOLLY VARDEN DAY PASS EXHIBIT, BC
DRAWING TITLE: CONCRETE FOOTING AND COLLAR DETAILS, NOTES

PAPER SIZE	CONTRACT NO.	SCALE	TOTAL SHEETS	PROJECT NO.	DRAWING NO.	REV.
11x17	-	NTS	11	16-101	S10	1

Plot Date & Time: 2016-10-12, 11:17:18 AM

BILL OF MATERIALS - CORPLATE 152 x 51 CORRUGATION PROFILE

PART ID	QTY.	DESCRIPTION	CORRUGATION (mm)	LENGTH (mm)	DIAMETER (mm)	RADIUS (mm)	THICKNESS (mm)	MATERIAL SPECIFICATION	COATING SPECIFICATION	LABEL	COMMENT
MS8N300	4	*8N CORRUGATED STEEL PLATE	152 x 51	1219.2	-	1520	3.0	CSA G401-14	CSA G401-14	A, B, C, D	* CUT 1 PLATE FROM 1 FULL PLATE
MS8N300	4	8N CORRUGATED STEEL PLATE	152 x 51	1219.2	-	1520	3.0	CSA G401-14	CSA G401-14	E, H	SHOP DRILLED HOLES IN PLATES E & H
MS12N300	4	12N CORRUGATED STEEL PLATE	152 x 51	1219.2	-	1520	3.0	CSA G401-14	CSA G401-14	F, G	SHOP DRILLED HOLES IN PLATES F & G
CPBC12	2	BASE CHANNEL TYPE 'A'	-	3654	-	-	4.2	CSA G401-14	CSA G401-14	-	-
-	2	BASE CHANNEL TYPE 'B'	-	3810	-	-	4.2	CSA G401-14	CSA G401-14	-	-
SPAB34X4X9	50	GALV. ANCHOR BOLT ø19 x 229 x 102	-	229 x 102	ø19	-	-	ASTM F1554, GRADE 36	ASTM F2329 OR ASTM B695, CLASS 55	-	ø¾"x9"x4" ANCHOR BOLT (CHANNEL)
SPAB34X4X12	35	GALV. ANCHOR BOLT ø19 x 305 x 102	-	305 x 102	ø19	-	-	ASTM F1554, GRADE 36	ASTM F2329 OR ASTM B695, CLASS 55	-	ø¾"x12"x4" ANCHOR BOLT (COLLAR)
SPB3415	180	GALV. STEEL BOLT ø19 x 38	-	38	ø19	-	-	CSA G401-14/ASTM A449, TYPE 1	CSA G164, CLASS 5 OR ASTM B695, CLASS 55	-	ø¾" x 1.5" LONG BOLT
SPB3420	25	GALV. STEEL BOLT ø19 x 51	-	50	ø19	-	-	CSA G401-14/ASTM A449, TYPE 1	CSA G164, CLASS 5 OR ASTM B695, CLASS 55	-	ø¾" x 2" LONG BOLT
SPB3440	30	GALV. STEEL BOLT ø19 x 102	-	102	ø19	-	-	CSA G401-14/ASTM A449, TYPE 1	CSA G164, CLASS 5 OR ASTM B695, CLASS 55	-	ø¾" x 4" LONG BOLT
SPN34	405	GALV. STEEL NUT	-	-	ø19	-	-	CSA G401-14/ASTM A563, GRADE C	CSA G164, CLASS 5 OR ASTM B695, CLASS 55	-	ø¾" NUT
PRYBAR	2	PRY BAR	-	-	-	-	-	-	-	-	-
DRIFTPIN	1	DRIFT PIN	-	-	-	-	-	-	-	-	-

REV.NO	REVISION NOTE	DATE
1	ISSUED FOR CONSTRUCTION	2016-10-12

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S.J. MACRAE
37292
OCT 12/16

CANADACULVERT™
CALL TOLL FREE 1-800-565-1152 www.canadaculvert.com

APPROVALS		DATE
DESIGN BY	AR	2016-09-27
DESIGN CHECK	SM	2016-09-27
DRAFT BY	CG	2016-10-03
DRAFT CHECK	AT	2016-10-06

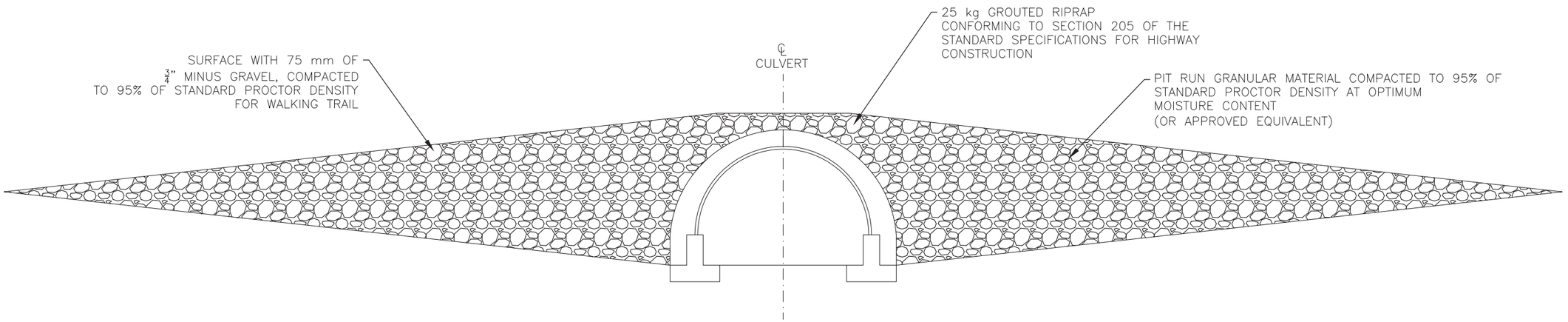
CUSTOMER: PARKS CANADA

PROJECT NAME: DOLLY VARDEN DAY PASS EXHIBIT, BC

DRAWING TITLE: BILL OF MATERIALS

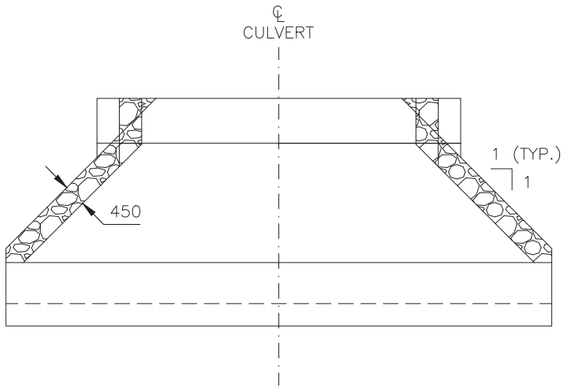
PAPER SIZE	CONTRACT NO.	SCALE	TOTAL SHEETS	PROJECT NO.	DRAWING NO.	REV.
11x17	-	NTS	11	16-101	S11	1

z:\1_projects\2016\16-101 ab dolly varden day\drawings\16-101_r1_ifc\16-101_r1_ifc.dwg



CULVERT PROFILE

1:50



LONGITUDINAL SECTION

1:50

ITEM	UNIT	ESTIMATE	AS CONST
PIT RUN GRANULAR BACKFILL	m^3	140	
25 kg RIPRAP	m^3	45	
¾" MINUS GRAVEL SURFACING	m^3	5	

QUANTITY ESTIMATE

NOTES

- ALL WORK SHALL CONFORM TO THE 2012 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION ISSUED BY THE BRITISH COLUMBIA MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE

CONSULTANT

Roseke Engineering

JOB No. 1082

REV	DATE	REVISION	BY
5			
4			
3			
2			
1			

DATE 2016-09-23 | LOCATION | SITE

PARKS CANADA

WILDLIFE UNDERPASS
DOLLY VARDEN DAY USE AREA
GENERAL LAYOUT

CONTRACT	HIGHWAY	SHEET	DRAWING
		5 OF 5	RE1082-1