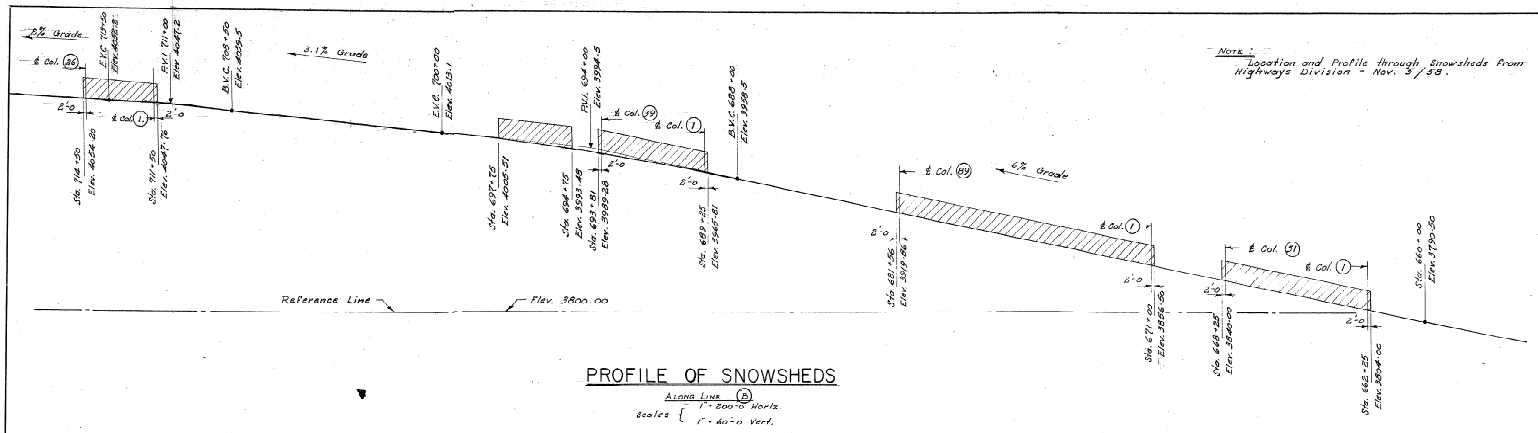
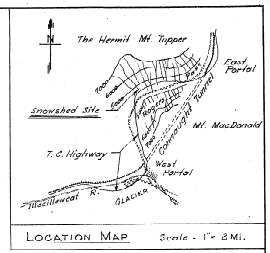


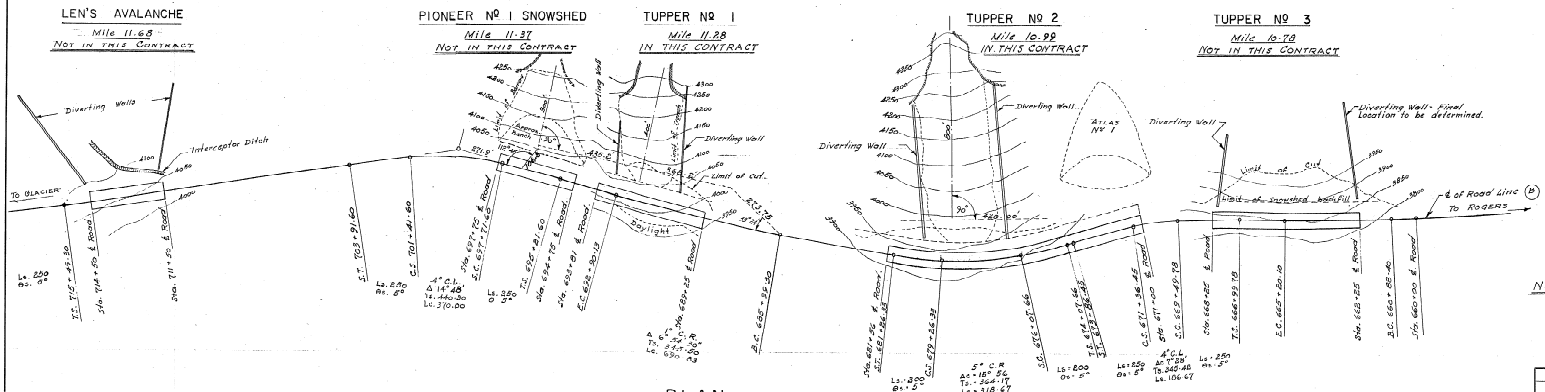
PROFILE OF SNOWSHEDS

Along Line (B)

Scales { 1" = 200'-0 Horiz. / 1" = 40'-0 Vert.

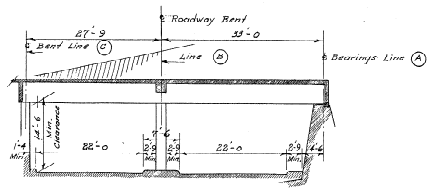


LOCATION MAP Scale - 1" = 2 Mi.



PLAN

Scale 1" = 200'-0



TYPICAL SECTION

Showing Clearances

Scale :- 1" = 10'-0

No.	REVISIONS	NAME	DATE

DEPARTMENT OF PUBLIC WORKS

CANADA

DEVELOPMENT ENGINEERING BRANCH

STRUCTURES DIVISION

TUPPER #1 & #2 SNOWSHEDS

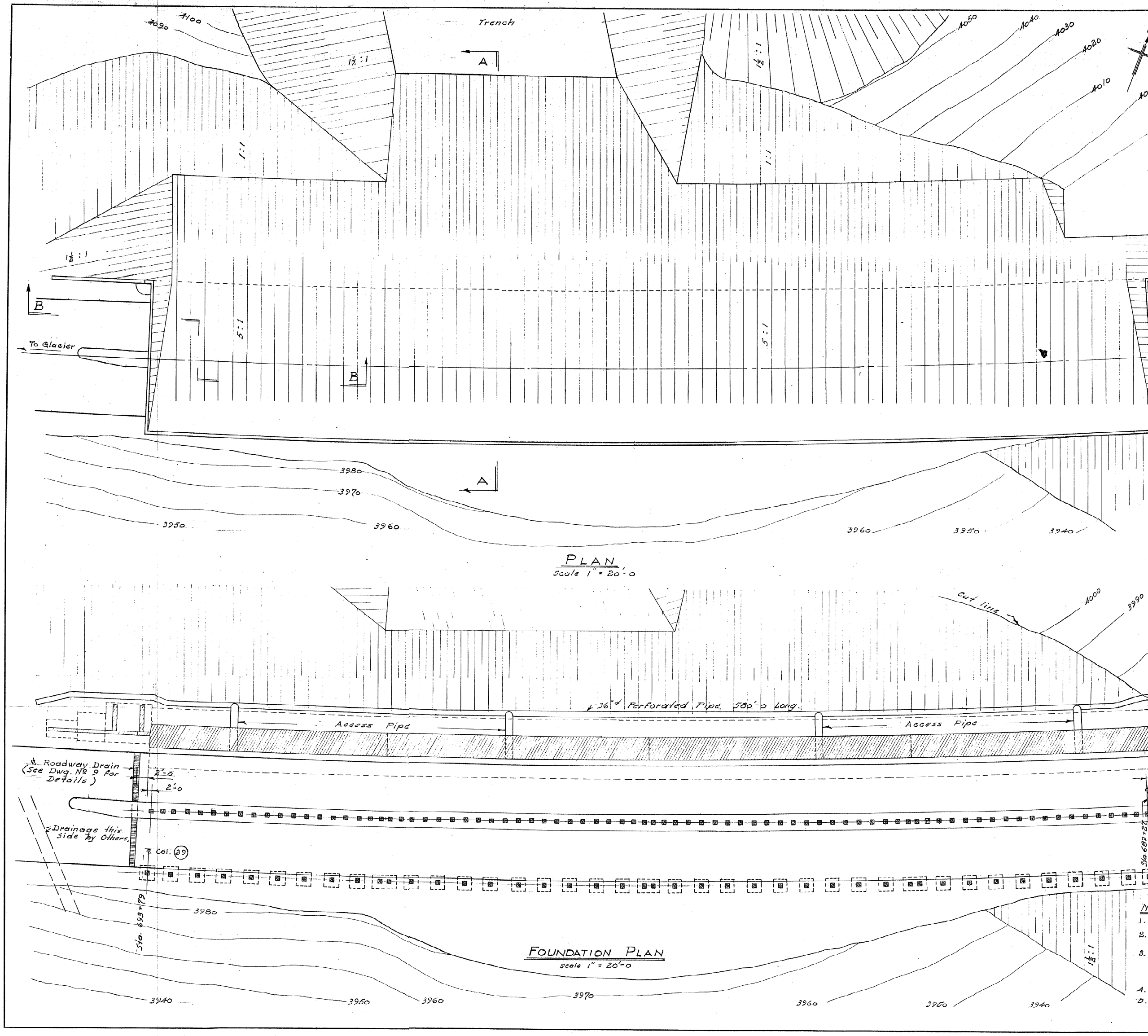
MI. 11.28 & 10.99

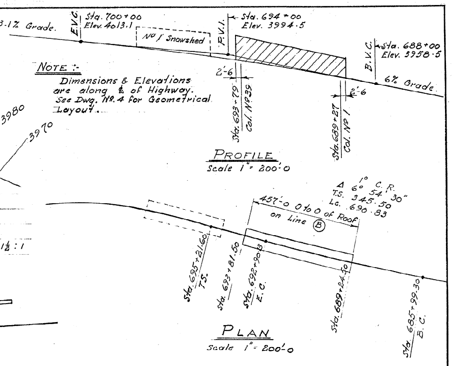
GLACIER NATIONAL PARK

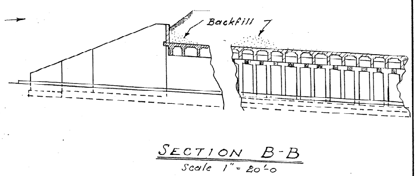
SITE PLAN

JOB SUPERVISOR S. Stanner	DESIGN		CHECK
APPROVED DATE 2/10/61	DRAWN	L.B.P.	CHECK T.D.
	TRACED		CHECK
	PROJECT NO.		SD-106 & 107
CHIEF-STRUCTURES DIVISION			
APPROVED DATE 2-10-61	SHEET 2 OF 24		
CHIEF ENGINEER			

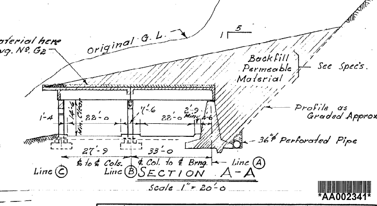
AA002340







Note to Contractor.
Accuracy in the location and elevation of Columns and Bearings shall be of essence of the structure.



AA002341

Nº	For	Date.
2	J.C.B.	28/7/60

NOTES :-
1. C.S.A. Specifications shall apply throughout.
2. Concrete, 3000 Psi @ 28 days unless otherwise noted on the drawings.
3. Reinforcing Steel: to be hard grade billet steel or rail steel, deformed bars throughout unless otherwise noted (Yield point 50,000 Psi.)
4. See General Specifications.
5. Pavement, Curbs & Sidewalks are not in this Contract.

No.	REVISIONS	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

TUPPER #1 SNOWSHED
T.C.H. Mi. 11.28
GLACIER NATIONAL PARK

GENERAL LAYOUT

JOB SUPERVISOR	S. Stamer	DESIGN	J.C.B.	CHECK	T.D.
APPROVED	DATE 2/10/61	DRAWN	L.B.P.	CHECK	T.D.
		TRACED		CHECK	

Geo. H. [signature]
CHIEF-STRUCTURES DIVISION

PROJECT NO. SD-106

APPROVED DATE 5.10.61
[signature]
CHIEF ENGINEER

SHEET 3 OF 24

LAYOUT DATA

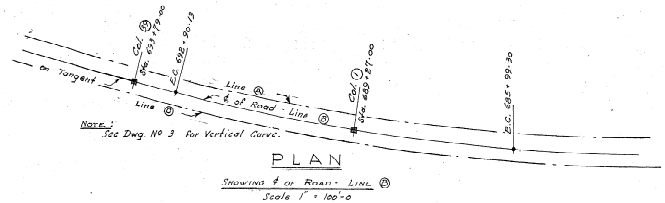
PRELIMINARY SECTIONS	LOCATION	COL. Nº	STATION	ALONG LINE (B) & OF ROAD ELEVATION *	CTR. TO CTR. OF COL.	DEFLECTION ANGLE	ALONG LINE (C) CTR. TO CTR. OF COL.	ELEVATION *	ALONG LINE (A) CTR. TO CTR. OF BEAMS OPPOSITE LINE (B)	ELEVATION *
		B.C.	685+99.30							
		1	682+27.00	3965.93		1° 48' 56"		3966.43		3963.27
		1 m	+38.00	66.81	5'-0					66.55
		2	+31.00	66.49	5'-0	1° 45' 56"	10'-0 5/16	67.05	9'-11 5/16	66.83
		2 m	+49.00	66.83	6'-0					66.17
		3	+49.00	67.15	6'-0	1° 42' 20"	12'-0 11/16	67.73	11'-11 5/16	66.51
		3 m	+55.00	67.51	6'-0					66.92
		4	+61.00	67.85	6'-0	1° 38' 44"	12'-0 11/16	68.41	11'-11 5/16	67.19
		4 m	+67.00	68.18	6'-0					67.52
		5	673.00	68.52	6'-0	1° 35' 08"	12'-0 5/16	69.08	11'-11 5/16	67.86
		5 m	+79.00	68.85	6'-0					68.19
		6	+85.00	69.19	6'-0	1° 31' 32"	12'-0 5/16	69.76	11'-11 5/16	68.53
		6 m	+91.00	69.52	6'-0					68.86
		7	+97.00	69.86	6'-0	1° 27' 56"	12'-0 11/16	70.41	11'-11 5/16	69.19
		7 m	670+03.00	70.18	6'-0					69.52
		8	109.00	70.91	6'-0	1° 24' 20"	12'-0 5/16	71.07	11'-11 5/16	69.85
		8 m	+15.00	70.84	6'-0					70.18
		9	+21.00	71.17	6'-0	1° 20' 44"	12'-0 5/16	71.73	11'-11 5/16	70.51
		9 m	+26.00	71.44	5'-0					70.78
		10 a	+31.00	71.72	5'-0		10'-0 5/16	72.28	9'-11 5/16	71.06
		1st Double Curve	+33.00	71.82		1° 17' 08"		72.38		71.16
		10 b	+35.00	71.93	4'-0		4'-0 1/4	72.49	3'-11 3/4	71.27
		10 m	+40.00	72.20	5'-0					71.54
		11	+45.00	72.47	5'-0	1° 13' 32"	10'-0 5/16	73.03	9'-11 5/16	71.81
		11 m	+51.00	72.80	6'-0					72.14
		12	+57.00	73.15	6'-0	1° 09' 56"	12'-0 5/16	73.68	11'-11 5/16	72.46
		12 m	+63.00	73.44	6'-0					72.78
		13	+69.00	73.77	6'-0	1° 06' 20"	12'-0 5/16	74.33	11'-11 5/16	73.11
		13 m	+76.00	74.07	6'-0					73.43
		14	+81.00	74.41	6'-0	1° 02' 44"	12'-0 5/16	74.97	11'-11 5/16	73.75
		14 m	+87.00	74.72	6'-0					74.06
		15	+93.00	75.04	6'-0	0° 59' 08"	12'-0 5/16	75.60	11'-11 5/16	74.38
		15 m	+99.00	75.36	6'-0					74.70
		16	691+05.00	75.69	6'-0	0° 55' 32"	12'-0 5/16	76.24	11'-11 5/16	75.02
		16 m	+11.00	75.99	6'-0					75.33
		17	+17.00	76.31	6'-0	0° 51' 56"	12'-0 11/16	76.87	11'-11 5/16	75.66
		17 m	+23.00	76.62	6'-0					75.96
		18	+29.00	76.93	6'-0	0° 48' 20"	12'-0 11/16	77.49	11'-11 5/16	76.27
		18 m	+35.00	77.24	6'-0					76.58
		19	+41.00	77.55	6'-0	0° 44' 44"	12'-0 11/16	78.11	11'-11 5/16	76.89
		19 m	+46.00	77.81	5'-0					77.15
		20 a	+51.00	78.07	5'-0		10'-0 5/16	78.63	9'-11 5/16	77.41
		2nd Double Curve	+53.00	78.17		0° 41' 08"		78.73		77.51
		20 b	+55.00	78.28	4'-0		4'-0 1/4	78.84	3'-11 3/4	77.62
		20 m	+60.00	78.53	5'-0					77.87
		21	+65.00	78.79	5'-0	0° 37' 32"	10'-0 5/16	79.35	9'-11 5/16	78.13
		21 m	+71.00	79.10	6'-0					78.44
		22	+77.00	79.40	6'-0	0° 33' 56"	12'-0 11/16	79.96	11'-11 5/16	78.74
		22 m	+83.00	79.71	6'-0					79.06
		23	+89.00	80.01	6'-0	0° 30' 20"	12'-0 5/16	80.54	11'-11 5/16	79.38
		23 m	+95.00	80.31	6'-0					79.70
		24	692+01.00	80.62	6'-0	0° 26' 44"	12'-0 5/16	81.18	11'-11 5/16	80.03
		24 m	+07.00	80.93	6'-0					80.35
		25	+13.00	81.22	6'-0	0° 23' 08"	12'-0 5/16	81.68	11'-11 5/16	80.67
		25 m	+19.00	81.52	6'-0					80.99
		26	+25.00	81.82	6'-0	0° 19' 32"	12'-0 11/16	82.26	11'-11 5/16	81.31
		26 m	+31.00	82.12	6'-0					81.63
		27	+37.00	82.41	6'-0	0° 15' 56"	12'-0 11/16	82.81	11'-11 5/16	81.94
		27 m	+43.00	82.71	6'-0					82.25
		28	+49.00	83.00	6'-0	0° 12' 20"	12'-0 5/16	83.37	11'-11 5/16	82.56
		28 m	+55.00	83.30	6'-0					82.88
		29	+61.00	83.59	6'-0	0° 08' 44"	12'-0 5/16	83.92	11'-11 5/16	83.19
		29 m	+66.00	83.86	5'-0					83.46
		30 a	+71.00	84.08	5'-0		10'-0 5/16	84.39	9'-11 5/16	83.76
		3rd Double Curve	+73.00	84.18		0° 05' 08"		84.48		83.82
		30 b	+75.00	84.27	4'-0		4'-0 1/4	84.59	3'-11 3/4	83.92
		30 m	+80.00	84.52	5'-0					84.18
		31	+85.00	84.76	5'-0	0° 01' 32"	10'-0 5/16	85.03	9'-11 5/16	84.44
		E.C.	+90.13							
		31 m	+91.00	85.05	6'-0					84.73
		32	+97.00	85.34	6'-0		12'-0 5/16	85.58	11'-11 5/16	85.06
		32 m	693+03.00	85.62	6'-0					85.36
		33	+09.00	86.91	6'-0		12'-0	86.11	12'-0	85.67
		33 m	+15.00	86.20	6'-0					85.98
		34	+21.00	86.48	6'-0		12'-0	86.65	12'-0	86.27
		34 m	+27.00	86.76	6'-0					86.57
		35	+33.00	87.05	6'-0		12'-0	87.19	12'-0	86.88
		35 m	+39.00	87.33	6'-0					87.18
		36	+45.00	87.61	6'-0		12'-0	87.73	12'-0	87.48
		36 m	+51.00	87.89	6'-0					87.78
		37	+57.00	88.17	6'-0		12'-0	88.25	12'-0	88.08
		37 m	+63.00	88.45	6'-0					88.38
		38	+69.00	88.73	6'-0		12'-0	88.77	12'-0	88.68
		38 m	+76.00	88.96	5'-0					88.93
		39	+79.00	3989.19	5'-0		10'-0	3989.30	10'-0	3989.18

* ELEVATIONS are given to the Control Points shown on Typical Cross Section.

ON CIRCULAR CURVE

RIM IS FROM E.C.

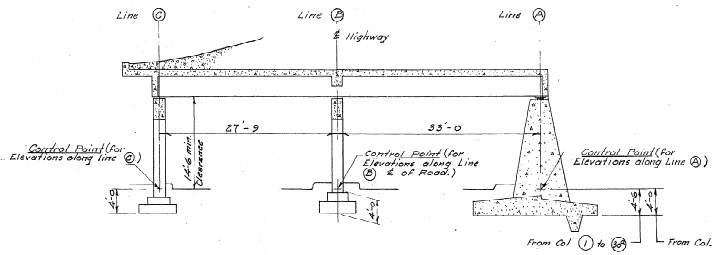
ON TANGENT



PLAN

Showing ℄ of Road - Line (A)

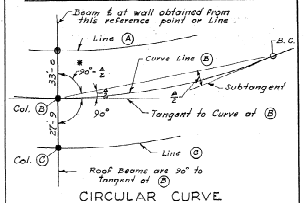
Scale 1" = 100'-0



TYPICAL CROSS SECTION

Scale 3/8"=1'-0

GENERAL CURVE LAYOUT SKETCHES



CIRCULAR CURVE

Scale 1" = 30'-0

PROCEDURE:

1. First Locate Columns on line (B).
2. Columns on line (B) located as follows - Set up at Column (B) and sight P.C. - Turn off Angle * (90° - Δ/2) and locate Column (B).
3. Locate points on Retaining Wall - Line (A).

* Angle 90° - Δ/2 becomes 90° + Δ/2 for opposite Deflection.

ROOF BEAM SPACING.

1. A Roof Beam is located over each column on line (B) and (C) and is located at wall on line (A) on extension of the line joining the columns.
2. The intermediate Roof Beams are located equidistant between Column Spacings on Line (B) and Line (C) and over Columns with SUFFIX "m" on line (A).
3. Columns designated "a" and "b" located at double Footings.
4. Columns designated "m" are located on Line (B) only.

NO.	REVISIONS	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

TUPPER "I" SNOWSHED
I.C.H. Mi. 11.28
GLACIER NATIONAL PARK

GEOMETRICAL LAYOUT
ELEVATION & CURVE DATA

R.M. SUPERVISOR S. Stamen	DESIGN		CHECK J.P.D.
APPROVED DATE 2/10/61	DRAWN	L.B.P.	CHECK J.P.D.
	TRACED		CHECK

PROJECT NO. SD - 106

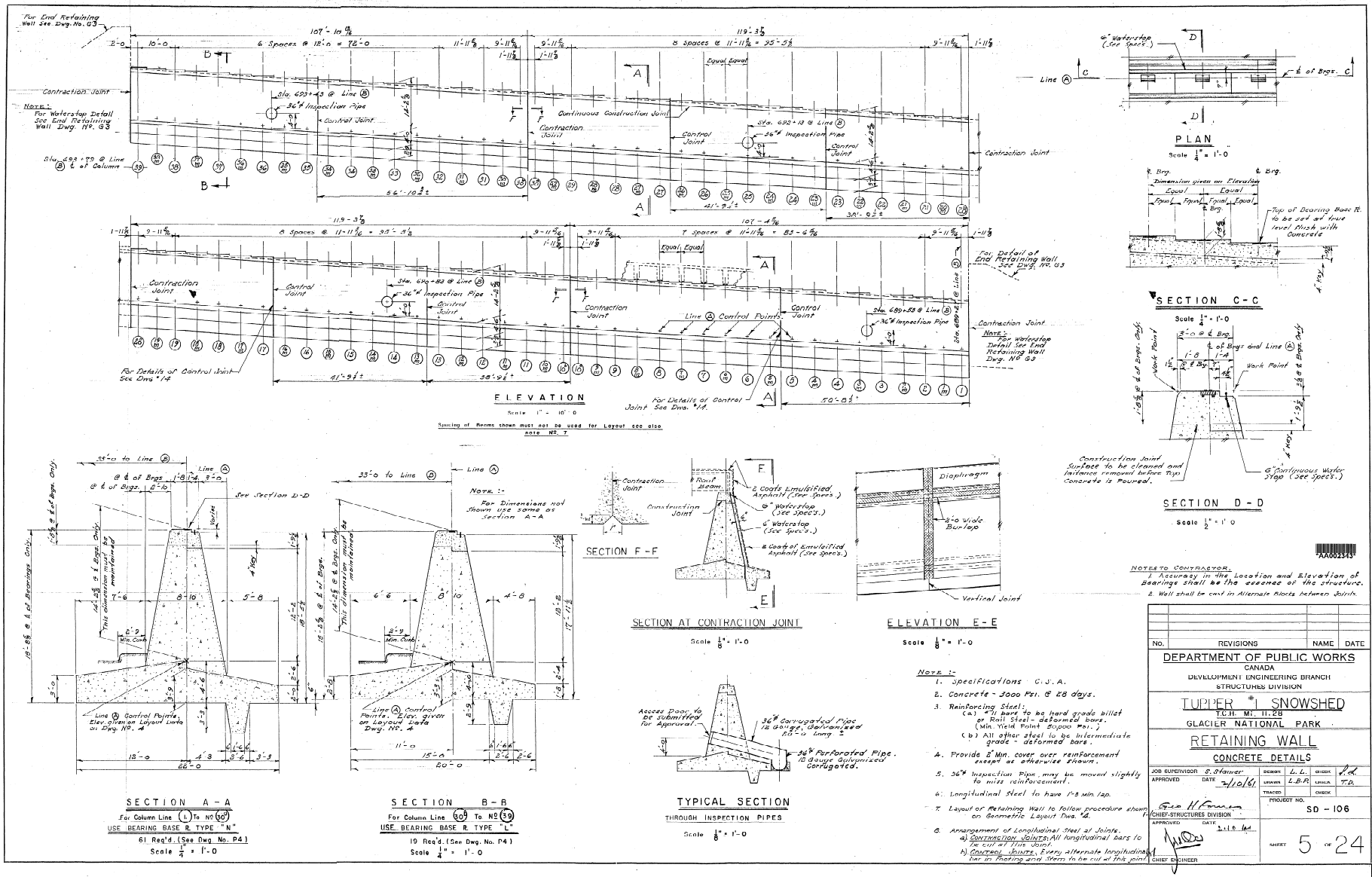
CHIEF STRUCTURES DIVISION

APPROVED DATE 2.10.61

CHIEF ENGINEER

SHEET 4 OF 24

AA002342



AA002343

NOTES TO CONTRACTOR.
1. Accuracy in the Location and Elevation of Bearings shall be the essence of the structure.
2. Wall shall be cast in Alternate Blocks between Joints.

Note :-
1. Specifications C.S.A.
2. Concrete - 3000 Psi. @ 28 days.
3. Reinforcing Steel:
(a) "T" bars to be hard grade billet or Rail Steel - deformed bars. (Min. Yield Point 50,000 Psi.)
(b) All other steel to be Intermediate grade - deformed bars.
4. Provide 3" Min. cover over reinforcement except as otherwise shown.
5. 36"ø Inspection Pipe may be moved slightly to miss reinforcement.
6. Longitudinal Steel to have 1'-3 min. lap.
7. Layout of Retaining Wall to follow procedure shown on Geometric Layout Dwg. "4.
8. Arrangement of Longitudinal Steel at Joints.
a) CONTRACTION JOINTS: All longitudinal bars to be cut at this Joint.
b) CONTROL JOINTS: Every alternate longitudinal bar in Footing and Stem to be cut at this joint.

NO.	REVISIONS	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

TUPPER #1 SNOWSHED
T.C.H. Mi. 11.28
GLACIER NATIONAL PARK

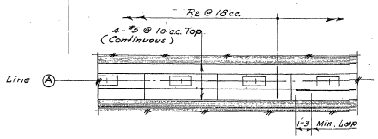
RETAINING WALL
CONCRETE DETAILS

JOB SUPERVISOR S. Stainer	DESIGN L. L.	CHECK L.L.
APPROVED DATE 7/10/61	DRAWN L.B.R.	CHECK T.D.
	TRACED	CHECK

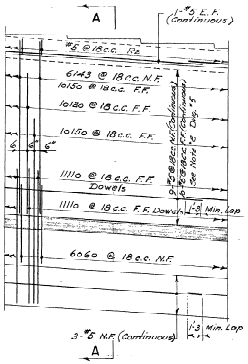
CHIEF-STRUCTURES DIVISION
APPROVED DATE 7.10.61
CHIEF ENGINEER

PROJECT NO. SD - 106

SHEET 5 OF 24

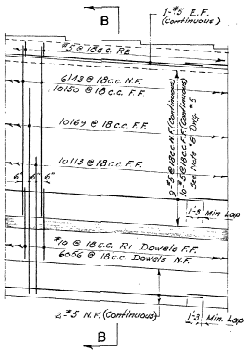


TYPICAL BEARING SEAT PLAN



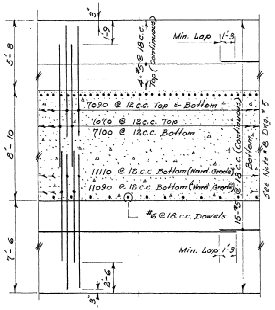
TYPICAL ELEVATION OF WALL

FOR COLUMN LINE (1) to (30)



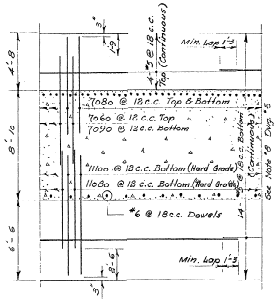
TYPICAL ELEVATION OF WALL

FOR COLUMN LINE (30) to (39)



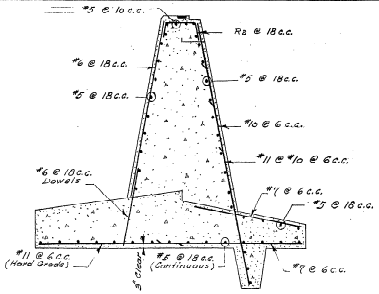
TYPICAL FOUNDATION PLAN

FOR COLUMN LINE (1) to (30)

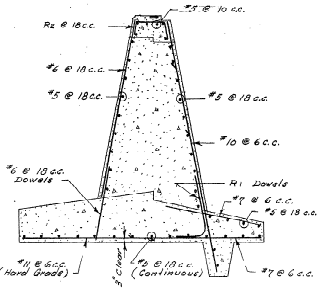


TYPICAL FOUNDATION PLAN

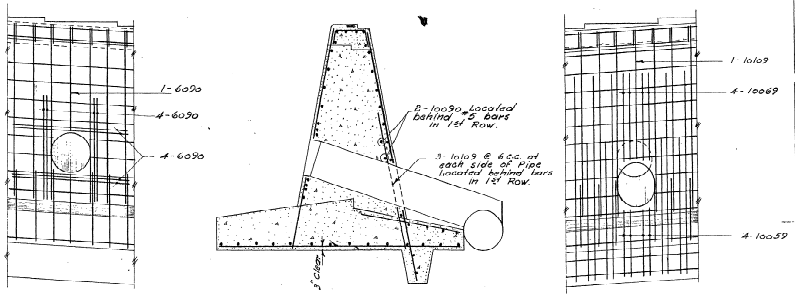
FOR COLUMN LINE (30) to (39)



SECTION A-A

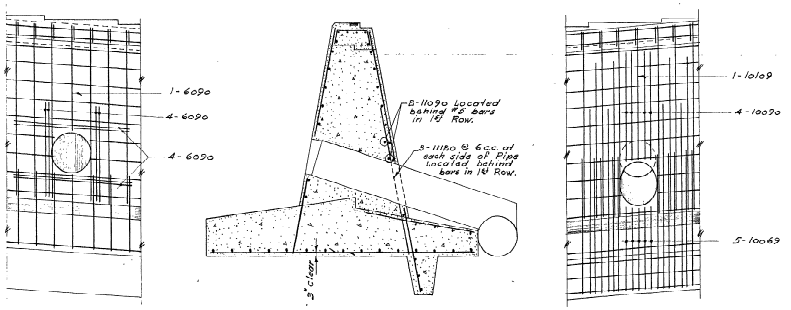


SECTION B B



FRONT ELEVATION — SECTION THROUGH PIPE — REAR ELEVATION

DETAIL OF REINFORCEMENT AT INSPECTION PIPE FOR SECTION B-B (1 Req'd.)



FRONT ELEVATION — SECTION THROUGH PIPE — REAR ELEVATION

DETAIL OF REINFORCEMENT AT INSPECTION PIPE FOR SECTION A-A (3 Req'd.)

STEEL SCHEDULE

LOCATION: CONC. Co. YOKE — REINF. STEEL LBS.

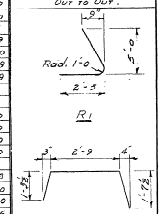
RETAINING WALL - TUPPER #1 SNOWSHED — 8746 — 201,328

STRAIGHT BARS				
No	SIZE	LENGTH	MARK
18	#11	12'-0	11120
801		11'-0	11110
109		10'-0	11100
351		9'-0	11090
107	#11	8'-0	11080
69	#10	16'-9	10169
505		15'-0	10150
883		10'-0	10180
70		11'-3	10113
10		10'-8	10107
14		9'-0	10090
19		6'-9	10069
6	#10	5'-9	10059
345	#7	10'-0	7100
603		9'-0	7090
318		8'-0	7080
340		7'-0	7070
107	#7	6'-0	7060
302	#6	14'-3	6143
36		9'-0	6090
223		6'-0	6060
73	#6	5'-6	6056

#5 - 24,300 lin. ft.

BENT BARS			
No	SIZE	LENGTH	MARK
72	#10	7'-0	R1
306	#5	5'-8	R2

BENDING DIAGRAM — DIMENSIONS GIVEN ARE OUT TO OUT.



NOTES:
1. #11 Bars to be hard grade billet or rail steel Min. Yield Point - 50,000 psi.
2. #5 Bars total lin. ft. based on 60'-0 Lengths and 1'-3 min. Laps.

Quantities Checked By: R. Lemmerke.

NOTES:
1. For Concrete details and General Notes see Dwg. No. 5.
2. For Reinforcing at Control Joints see Note 6 Dwg. No. 5.

Scale 1/4" = 1'-0

No.	REVISIONS	NAME	DATE

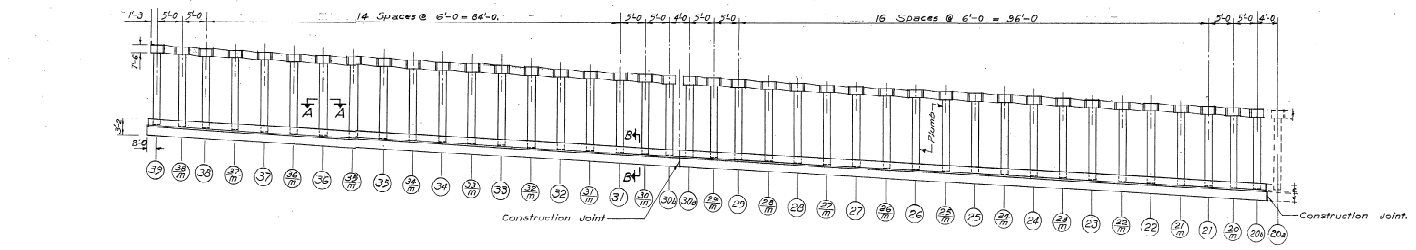
DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

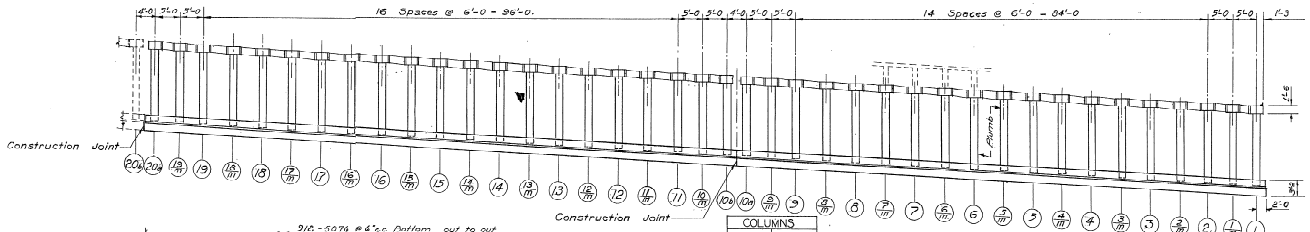
TUPPER #1 SNOWSHED
T.C.H. Mi. 11.28
GLACIER NATIONAL PARK

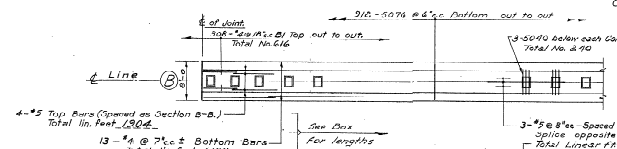
RETAINING WALL
— REINFORCEMENT —

JOB SUPERVISOR: S. Stamer	DESIGN: L.L.	CHECK: R.G.
APPROVED — DATE: 7/10/61	DRAWN: L.B.P	CHECK: R.A.
CHIEF STRUCTURES DIVISION	TRACED:	CHECK:
APPROVED — DATE: Oct. 11/61	PROJECT NO. SD - 106	
CHIEF ENGINEER	SHEET 6 OF 24	

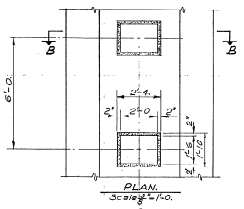
AA002344

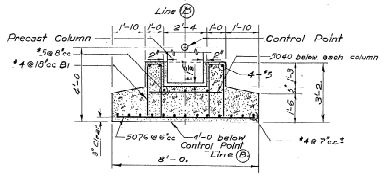






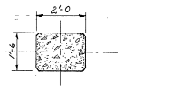
PART FOOTING PLAN.
Scale 1" = 10'-0



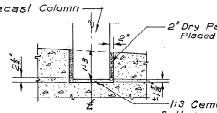


SECTION B-B.
Scale 3/8" = 1'-0

FOOTING.



SECTION A-A.
Showing Precast Column. See Note. *1
Scale 3/8" = 1'-0.



DETAIL A.
Showing Setting of the Column.
Scale 3/4" = 1'-0.

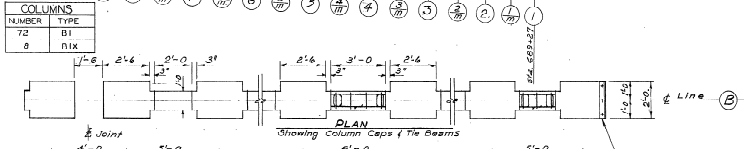
ELEVATION.
Scale 1" = 10'-0.

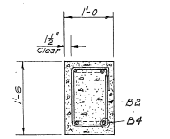
COLUMNS	
NUMBER	TYPE
72	B1
8	B1X

3-#5@8"cc. Spaced as Section B-B. Splice opposite Columns. Total Linear Ft. 1428 (See Jon Bars for lengths)

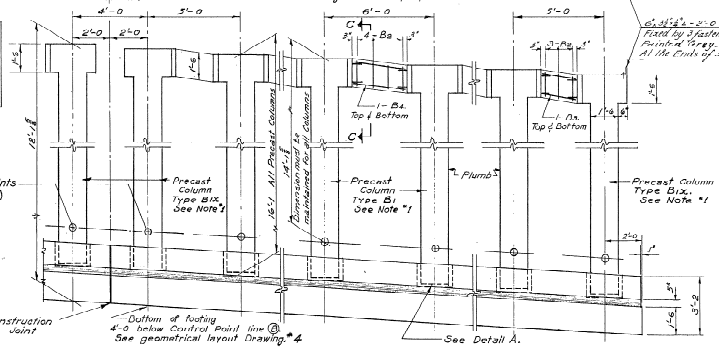
Splice Typ. Bars opposite Columns
Total Linear Ft. (1420 + 1904) Based on:
126 of 25'-0 Lengths - 19 of 13'-0 Lengths

Splice Bottom Bars between Columns
Total Linear Ft. (6188) Based on:
66 of 28'-0 Lengths - 156 of 25'-0 Lengths
52 of 22'-0 Lengths - 84 of 16'-0 Lengths
Min. Splice lap - 1'-3





SECTION C.C.
Showing Cast in Place Tie Beam.
Scale 1" = 1'-0.



TYPICAL ELEVATION.
Scale 3/8" = 1'-0.

NOTES:
1. See Dwg. *P6 for Precast Columns.
2. ½" Chamfer on all exposed edges.
3. For Reinforcement Specifications and Clearances, see Notes: 1, 2 & 3 Dwg *9
4. For Schedule see Dwg. *G4.

AA002345

NO.	REVISIONS	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

TUPPER #1 SNOWSHED
T.C.H. MI. 11.28
GLACIER NATIONAL PARK

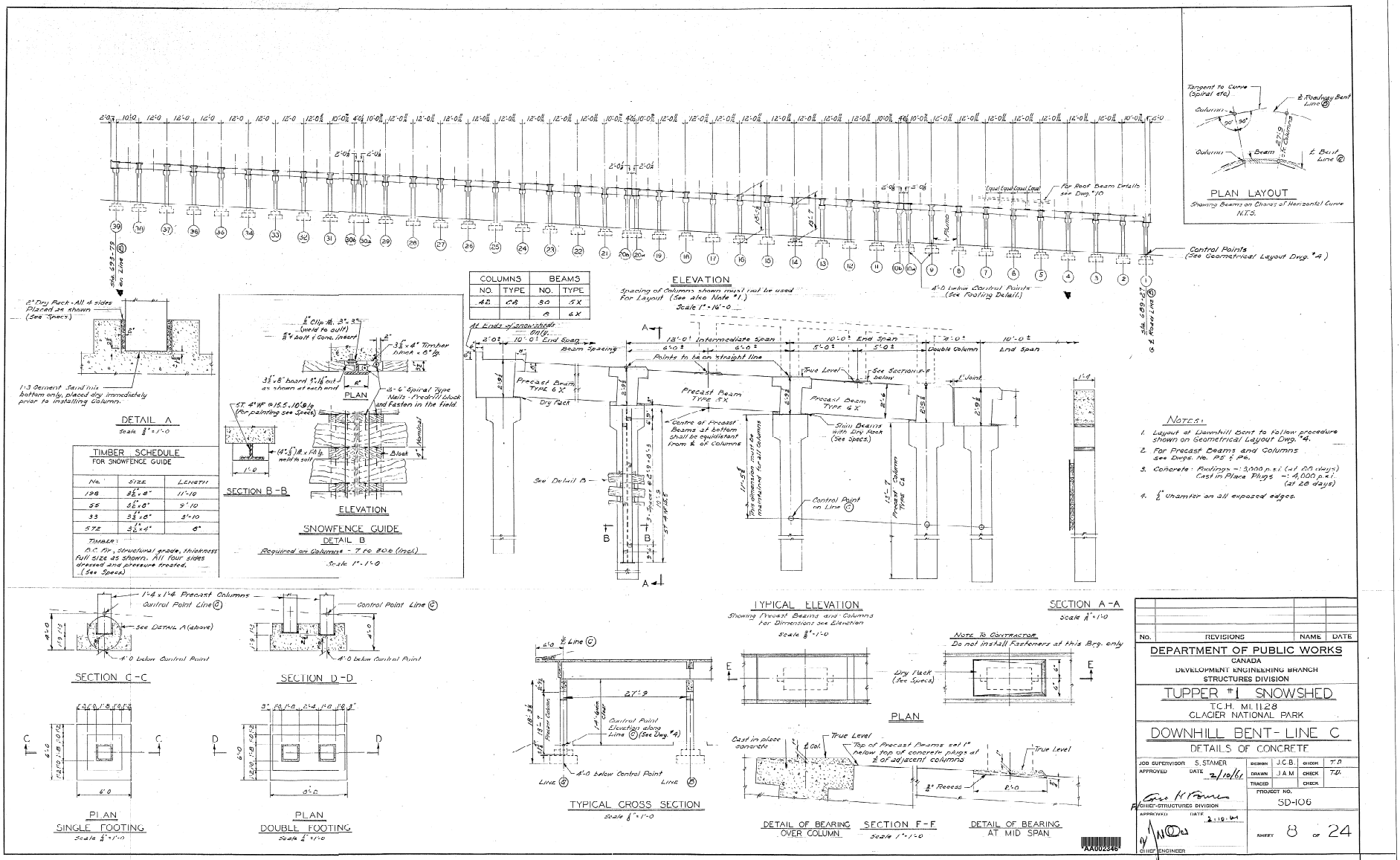
℄ OF ROADWAY BENT - LINE (B)
CONCRETE AND REINFORCING DETAILS

JOB SUPERVISOR	S. Stamen	DESIGN	J.C.B.
APPROVED	DATE 2/10/61	DRAWN	S.B.
		TRACED	
		CHECK	T.D.

CHIEF-STRUCTURES DIVISION
APPROVED DATE
CHIEF ENGINEER

PROJECT NO. SD-106

SHEET 7 OF 24



No.	REVISIONS	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

TUPPER #1 SNOWSHED
T.C.H. M.11.28
GLACIER NATIONAL PARK

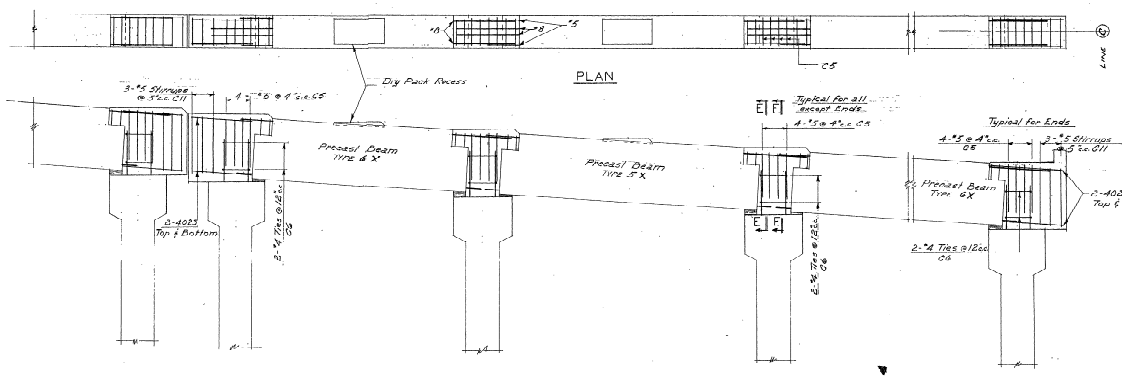
DOWNHILL BENT - LINE C
DETAILS OF CONCRETE

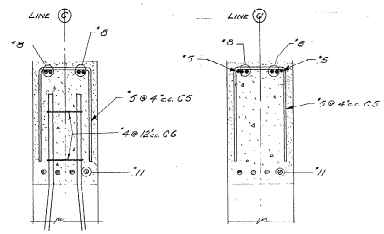
JOB SUPERVISOR	S. STAMER	DESIGN	J.C.B.
APPROVED	DATE 2/10/61	DRAWN	J.A.M.
TRACED		CHECK	T.D.
		CHECK	

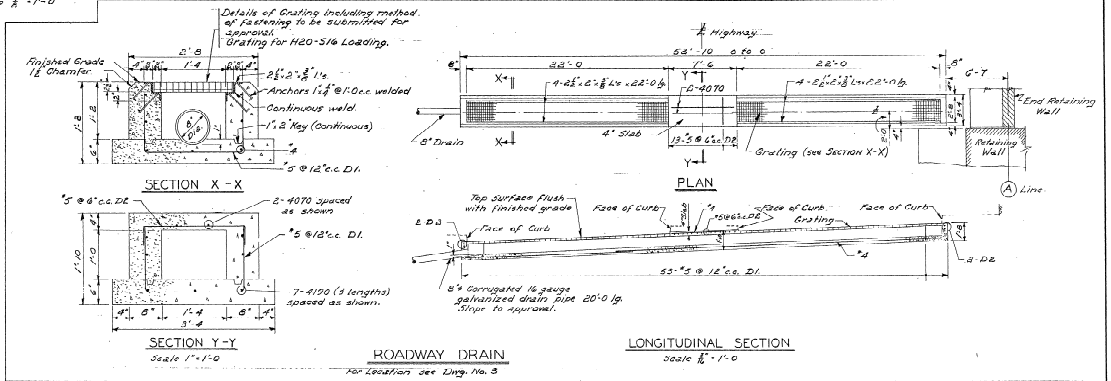
PROJECT NO. SD-106

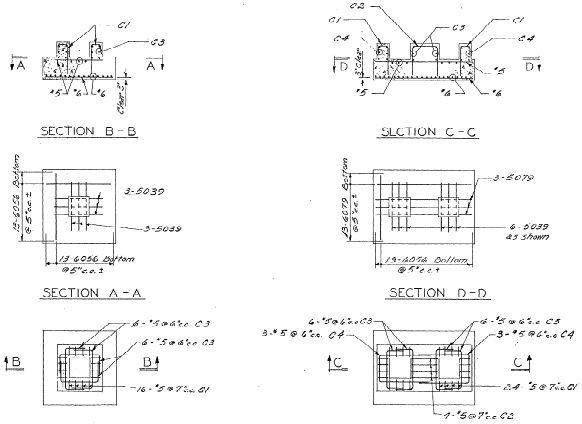
CHIEF-STRUCTURES DIVISION
APPROVED DATE 2-10-61
CHIEF ENGINEER

SHEET 8 OF 24









STEEL SCHEDULE

LOCATION	CU.YDs.CONC	LBS. REINF.	STRAIGHT BARS NO	SIZE	LENGTH	MARK	BENT BARS NO	SIZE	LENGTH	MARK
FOOTINGS	17	15,518	39	#6	17'-4	6019	618	#5	3'-4	D1
			993	#6	5'-6	6056	12	#5	7'-8	D2
							488	#5	6'-8	C2
			9	#5	71-9	5079	18	#5	10'-6	C4
			334	#5	3'-9	5039				
PLUGS	3	1277	32	#4	2'-3	4023	168	#5	4'-6	C5
							64	#4	4'-6	C6
							24	#5	7'-6	C11
ROADWAY DRAIN	6.5	578	21	#4	19'-0	4190	53	#5	4'-6	D1
			2	#4	7'-0	4070	17	#5	3'-0	D2

BENDING DIAGRAM — ALL DIMENSIONS ARE OUT TO OUT

C1 C2 C3 C4 C5 C6 C11 D1 D2

Quantities Checked by: A. Samuelis

Notes:

1. All bent bars intermediate grade billet steel - deformed bars.
2. All other steel to be hard grade billet or rail steel - deformed bars. (Min. yield point 50,000 p.s.i.)
3. Clearances for Reinforcement:
   a) Footing - 4" except as noted.
   b) Beam - 1½" Min.

AA002347

No.	REVISIONS	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

TUPPER #1 SNOWSHED
T.C.H. MI 11.28
GLACIER NATIONAL PARK

DOWNHILL BENT - 1 INF. C.

DETAILS OF REINFORCEMENT

JOB SUPERVISOR	S.STAMER	DESIGN	J.C.B.	CHECK	T.D.
APPROVED	DATE 7/10/61	DRAWN	J.A.M.	CHECK	T.D.
		TRACED		CHECK	

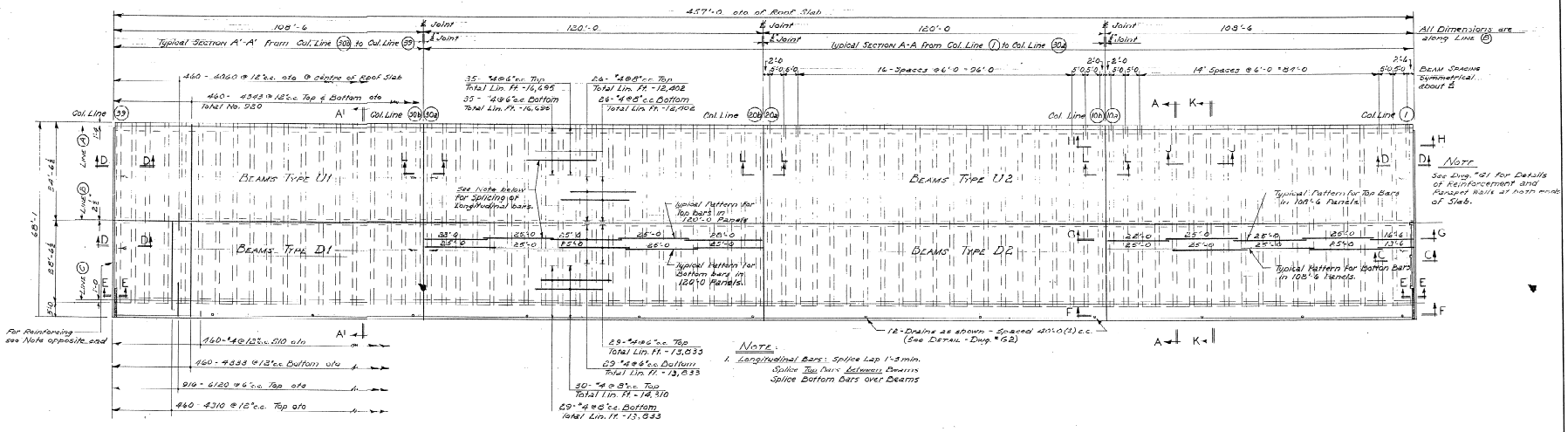
PROJECT NO. SD-106

CHIEF STRUCTURES DIVISION

APPROVED DATE 7.10.61

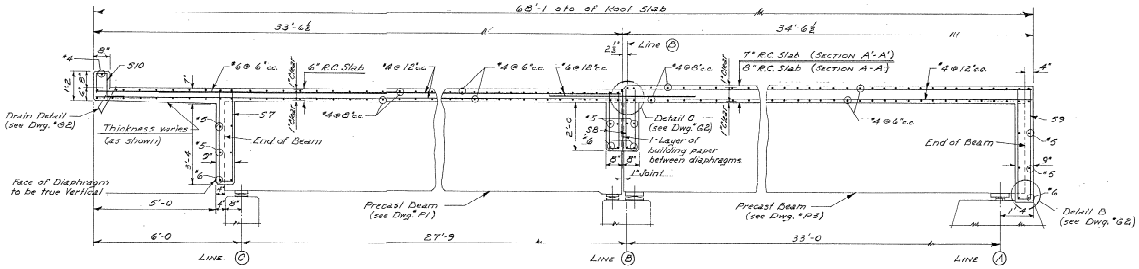
CHIEF ENGINEER

SHEET 9 OF 24



ROOF PLAN
Scale 1" = 15'-0

19 - Beams Type U1
19 - Beams Type D1
61 - Beams Type U2
61 - Beams Type D2



TYPICAL SECTION A-A
Section A-A and Section A'-A' are similar except for slab thicknesses as shown.
Scale ½" = 1'-0

NOTES:
1. Concrete :- 3000 p.s.i. @ 28 days.
2. Reinforcing :-
(a) Bent bars - Intermediate grade billet steel - deformed bars.
(b) All other bars - To be hard grade billet or rail steel - deformed bars.
(Min. yield point 50,000 p.s.i.
3. Concrete Cover 1½" except as noted.
4. Chamfer ¾" on all exposed edges.
5. For Parapet Walls, Details & Sections see Dwg. "G1 & G2.
6. For Schedules see Dwg. "G4.

No.	REVISIONS	NAME	DATE

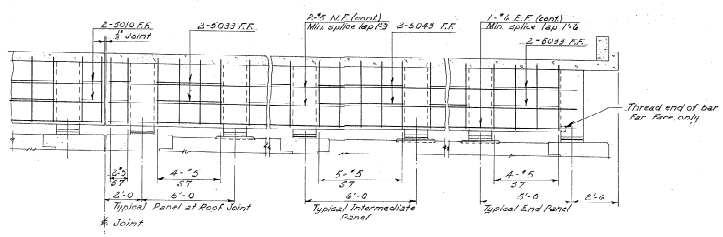
DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

TUPPER #1 SNOWSHED
T.C.H. MI. 11.28
GLACIER NATIONAL PARK

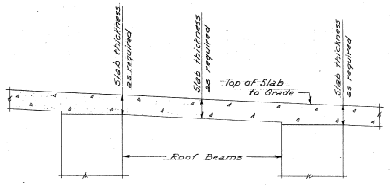
ROOF SLAB
CONCRETE AND REINFORCING DETAILS

JOB SUPERVISOR S.STAMER	DESIGN I.D.	CHECK	
APPROVED DATE 7/10/61	DRAWN J.A.M.	CHECK	T.D.
	TRACED	CHECK	
	PROJECT NO. SD-106		
CHIEF STRUCTURES DIVISION			
APPROVED DATE 7-10-61	SHEET 10 OF 24		
CHIEF ENGINEER			

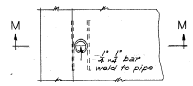
AA002348

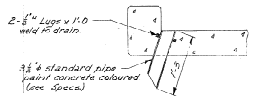


SECTIONAL VIEW F-F
Showing Diaphragm Steel
Scale 3/8"=1'-0



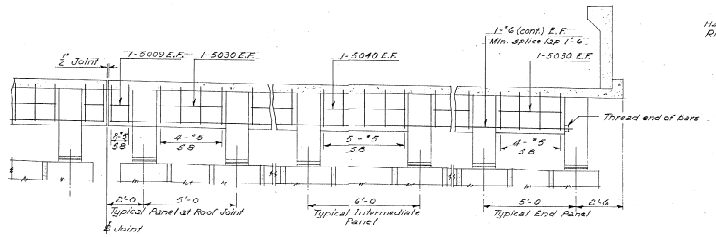
TYPICAL ROOF SECTION J-J
Showing Roof Slab Construction
Scale 3/8"=1'-0





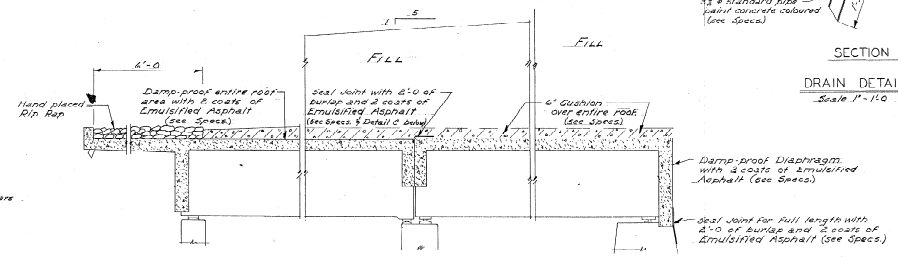
SECTION M-M

DRAIN DETAIL
Scale 1"=1'-0

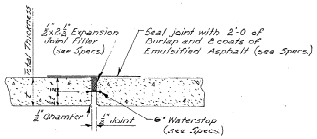


SECTIONAL VIEW G-G
Showing Diaphragm Steel
Scale 3/8"=1'-0

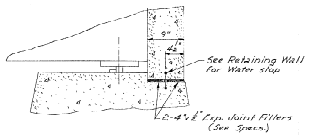
NOTE:
Reinforcing shown for Near Side diaphragm. Far Side diaphragm identical.



TYPICAL ROOF SECTION K-K

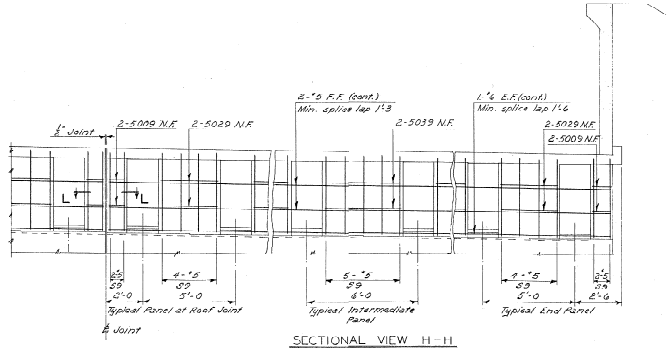


SECTION L-L
Showing Transverse Joint Detail
Scale 1"=1'-0

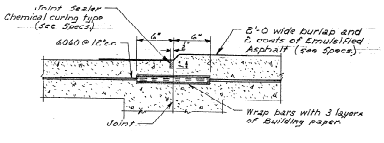


DETAIL B
Scale 1"=1'-0

NOTES:
1. For location of Sections and Details see Dwgs. #10 & #14.
2. For Schedule see Dwg. #64.



SECTIONAL VIEW H-H
Showing Diaphragm Steel
Scale 3/8"=1'-0



DETAIL C
Scale 1 1/2"=1'-0

AA002368

No.	REVISIONS	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

TUPPER #1 & #2 SNOWSHEDS
T.C.H. MI 10.99 AND T.C.H. MI 11.28
GLACIER NATIONAL PARK

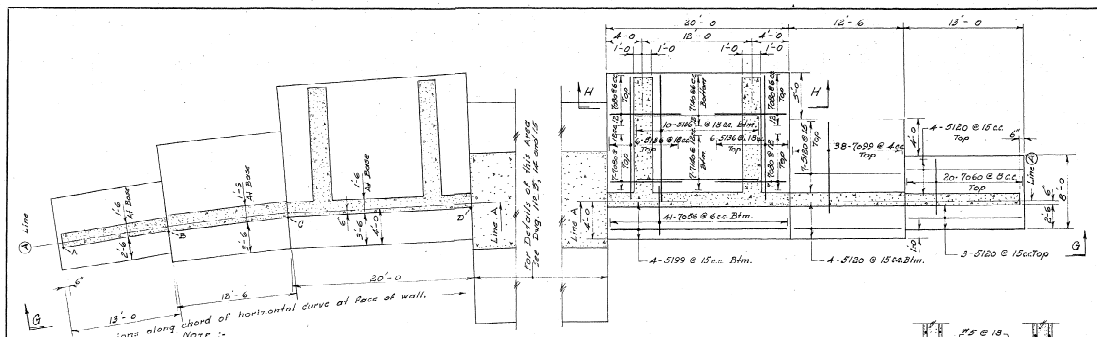
ROOF SLABS
TYPICAL SECTIONS AND DETAILS

JOB SUPERVISOR	S. STAMER	DESIGN	T.D.	CHECK	J.C.B.
APPROVED DATE	2/12/61	DRAWN	J.A.M.	CHECK	T.D.
		TRACED		CHECK	

PROJECT NO. SD-106 & 107

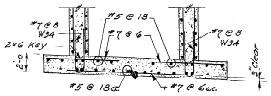
for CHIEF-STRUCTURES DIVISION
APPROVED DATE 2.12.61
CHIEF ENGINEER

SHEET G2 OF G4

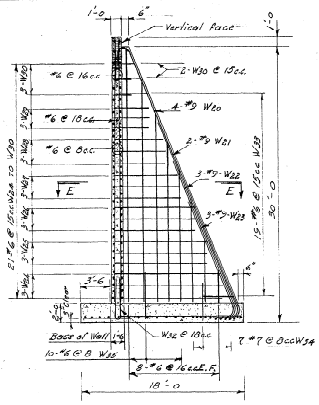


SECTIONAL PLAN P - P
Scale 3/16" = 1'-0

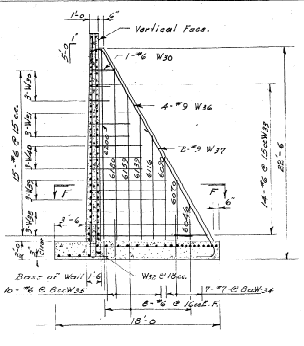
NOTE :- Points A, B, C and D on horizontal curve to suit see also Elev. G-G for location.



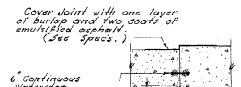
SECTION H - H
Scale 3/16" = 1'-0



SECTIONAL ELEVATION A - A
Scale 3/16" = 1'-0



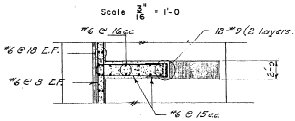
SECTIONAL ELEVATION B - B
Scale 3/16" = 1'-0



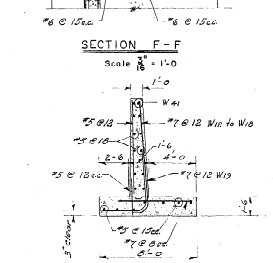
SECTION K - K

ELEVATION G - G
Scale 3/16" = 1'-0

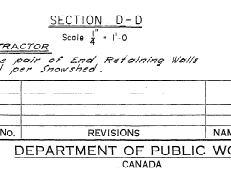
Note :- Bottom of footing on chord of vertical curve, or suit grade.



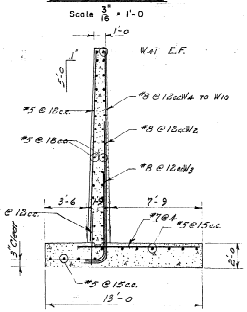
SECTION E - E
Scale 3/16" = 1'-0



SECTION F - F
Scale 3/16" = 1'-0

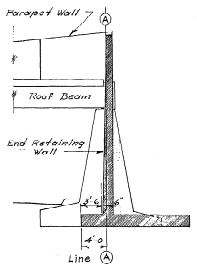


SECTION D - D
Scale 1/4" = 1'-0

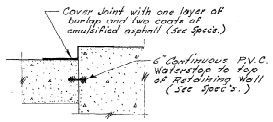


SECTION C - C
Scale 1/4" = 1'-0

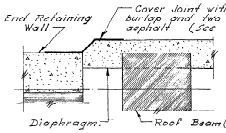
NOTE TO CONTRACTOR
One pair of End Retaining Walls Required per Snowshed.



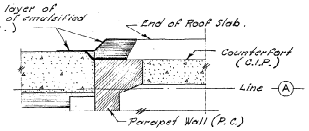
SECTION N - N
SHOWING LAYOUT OF WALL IN RESPECT TO LINE (A)
Scale 1/8" = 1'-0



SECTION J - J
Scale 3/4" = 1'-0



SECTION L - L
Scale 3/4" = 1'-0



SECTION M - M
Scale 3/4" = 1'-0

NOTES :-
1. C.S.A. Specifications shall apply.
2. Reinforcing - To be hard or intermediate grade billet steel or rail steel deformed bars throughout (See Spec's.)
3. Concrete - 3000 PSI @ 28 days.
4. Reinforcing to have 2" min. cover, except as noted.
5. Rear faces of retaining wall in contact with soil shall be damp-proofed with emulsified asphalt (see spec's.)
6. For schedule see Dwg. N° G4.

AA002369

No.	REVISIONS	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

TUPPER 1 & 2 SNOWSHEDS

T.C.H. Mi. 11.20 and 10.99
GLACIER NATIONAL PARK

END RETAINING WALLS

CONCRETE AND REINFORCING DETAILS

JOB SUPERVISOR	S. Skinner	DESIGN	Y.D.
APPROVED	DATE 2/10/61	DRAWN	L.B.P.
		TRACED	
CHIEF-STRUCTURES DIVISION		CHECK	J.C.B. / T.D.
APPROVED	DATE 2/10/61	PROJECT NO.	SD- 106 & 107
CHIEF ENGINEER		SHEET	G3 to G4

TIMBER SCHEDULE FOR SNOWFENCES

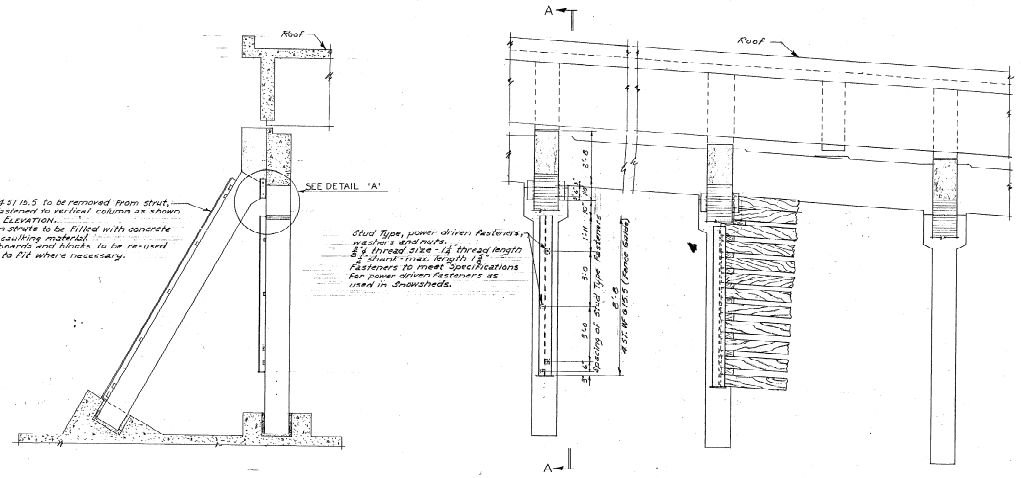
SNOWSHED	NO	SIZE	LENGTH	MARK	REMARKS
TUPPER #1	70	3½"x8"	11'-10		
	5	3½"x8"	9'-10		
	3	3½"x8"	5'-10		
	18	3½"x4"	11'-10		
	6	3½"x4"	5'-10		
	3	3½"x4"	3'-10		
TUPPER #2 EAST & WEST ENDS	6	3½"x8"	12'-0	A	
	8	3½"x8"	12'-0	A	From Col. Line 31 to 41
	15	3½"x8"	11'-10	B	From Col. Line 19 to 31 & 89 to 98
	15	3½"x4"	11'-10	B	
	13	3½"x8"	11'-0	C	From Col. Line E to 17
	19	3½"x4"	11'-0	C	
	3	3½"x8"	10'-0	D	Between Col. Lines 33 & 34a
	3	3½"x6"	10'-0	D	34b & 35 41 & 42a
	4	3½"x8"	9'-10	E	Between Col Lines 17 & 18a 18b & 19
	6	3½"x4"	9'-10	E	25 & 26a - 26b & 27 - 32a 33 - 33 & 89
	3	3½"x8"	5'-8	F	Between Col Lines 17a - 31 & 18a 18b & 11
	3	3½"x4"	5'-8	F	
	4	3½"x8"	5'-10		At Double Columns
	6	3½"x4"	5'-10		To be marked on edge before shipment.
TUPPER #3	20	3½"x8"	11' 10		
	10	3½"x8"	9'-10		
	4	3½"x8"	7'-10		
	108	3½"x4"	-8"		
	40	3½"x4"	11'-10		
	10	3½"x4"	9'-10		
	4	3½"x4"	5'-10		
EXISTING LEN'S	10	3½"x4"	11'-8		
	6	3½"x4"	9'-8		
	6	3½"x4"	5'-8		

TIMBER: B.C. Fir, structural grade, thickness 3½" full size. All four sides dressed. Cut as shown on Section C-C, except as noted above. The planks and blocks as detailed on the right shall be Pressure Treated in accordance with C.S.A. standard O80 M1-58 and O80 C2-59. The net retention of Pentachlorophenol (C.S.A. O80 P8-1964) shall be 0.9 lbs. per cubic foot.

The preservative solution shall be pentachlorophenol in a solvent meeting C.S.A. O80 P9 and the concentration of pentachlorophenol in the preservative solution shall be 4.5 to 5.5%.

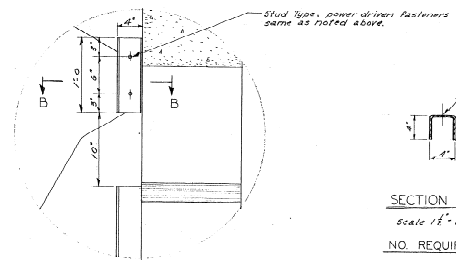
The treating process and solvent is to be such as to result in a clean surface. All fabrication including grooving of planks and blocks shall be done before treatment. The nailing of the spacer blocks may be done in the field.

NOTE: All 3½"x4"s, except blocks, to be nailed to top 4"x8" boards to close the gap.

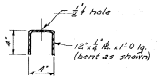


SECTIONAL ELEVATION A-A
Scale ⅜"=1'-0

PART ELEVATION TUPPER #2 SNOWSHED
DOWNHILL BENT FROM COL.#42B TO COL.#82A
STRUTS NOT SHOWN
Scale ⅜"=1'-0

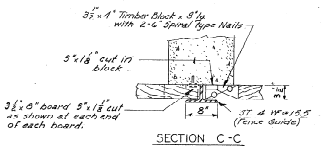


DETAIL 'A'
Scale 1½"=1'-0

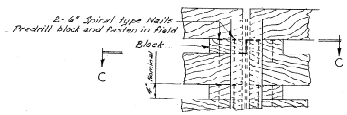


SECTION B-B
Scale 1½"=1'-0

NO. REQUIRED - 88



SECTION C-C



PART ELEVATION

DETAILS OF NAILING AND CUTTING
Scale 1"=1'-0

NOTES

1. All bent plates shall be painted in accordance with Division 5, Section 5 of the General Specifications for the purpose of this contract Clause 5.5.2A of the Specifications shall be changed to read: Field coats of Exterior Alkyd Enamel meeting the requirements of Specification 1-GP-59, shall then be applied by brushing in the following colours:
   1st coat - grey 1-3 standard paint colour 1-GP-126
   2nd coat - grey 1-3 standard paint colour 1-GP-126 containing non-fading pigment.
2. Fence guides where cut or removed shall be repainted with 2 field coats as shown above.

No.	REVISIONS	NAME	DATE
	This drawing supersedes the same	T.D.	July 10/63
	drawing dated - 6th June 1963		

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

SNOWSHEDS TUPPERS #1, 2, 3, & 1 FN'S
T.C.H. MILE 11.28 TO 11.68
GLACIER NATIONAL PARK

ADDITION TO SNOWFENCES

JOB SUPERVISOR S. STAMER	DESIGN	T.D.	CHECK
APPROVED DATE 10.7.63	DRAWN	J.A.M.	CHECK T.D.
	TRACED		CHECK

PROJECT NO. SD-1/4

for A/ CHIEF STRUCTURES DIVISION
APPROVED DATE 10.7.63
CHIEF ENGINEER

SHEET 1 OF 1

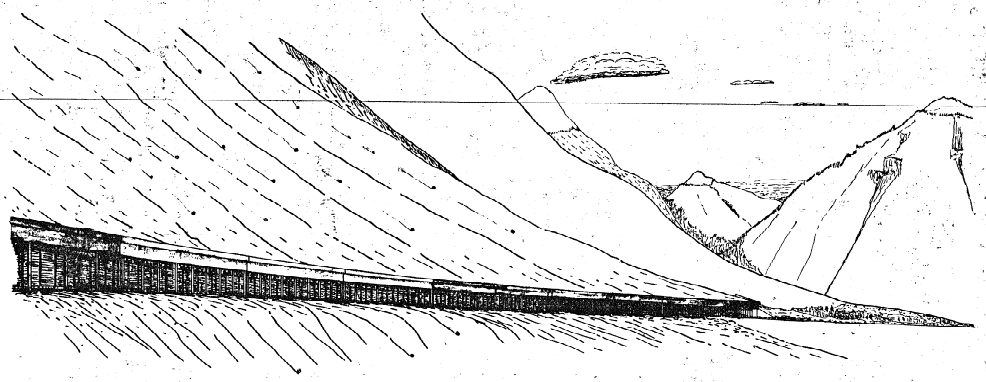
AA002402

DEPARTMENT OF PUBLIC WORKS
CANADA

DEVELOPMENT ENGINEERING BRANCH

STRUCTURES DIVISION

CONTRACT NO. 23/66/TCH-G

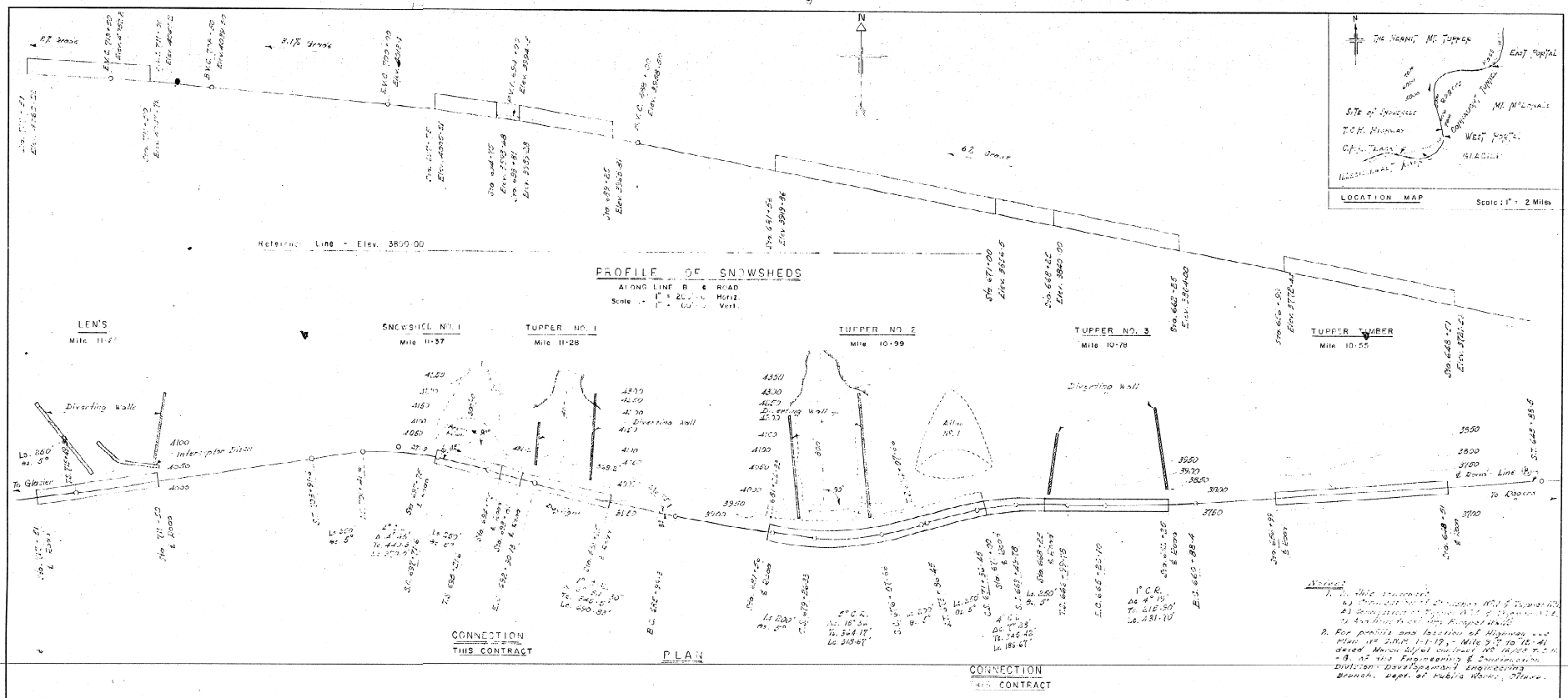


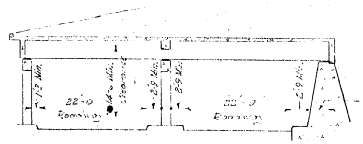
CONNECTION - TUPPER Nº 2 & TUPPER Nº 3
CONNECTION - SNOWSHED Nº 1 & TUPPER Nº 1
ADDITION - TO EXISTING PARAPET WALLS
GLACIER NATIONAL PARK

- PERSPECTIVE VIEW -

JOB SUPERVISOR S. Stoner	DESIGN	T.C.	CHECK	
APPROVED DATE 11/3/66	DRAWN	L.B.P.	CHECK	11.3.66
CHIEF-STRUCTURES DIVISION	TRACED		CHECK	
	PROJECT NO.	SD - 169		
APPROVED DATE				
CHIEF ENGINEER	SHEET	1	OF	28

AA002210





TYPICAL SECTION
SHOWING CLEARANCES
Scale 1" = 10'-0

1. PERSPECTIVE VIEW
2. SITE PLAN
3. GENERAL LAYOUT
4. LAYOUT DATA
5. RETAINING WALL — CONCRETE DETAILS
6. RETAINING WALL — STEEL REINFORCING
7. ℄ OF ROADWAY BENT — Line (B) = CONC. & REINF. DETAILS
8. DOWNHILL BENT — Line (C) = CONCRETE DETAILS
9. DOWNHILL BENT — Line (C) = DETAILS OF REINFORCING
10. ROOF SLAB — CONCRETE & REINFORCING DETAILS
11. ROOF SLAB — TYPICAL SECTIONS & DETAILS
12. ROOF BEAMS
13. BEARING DETAILS — ROOF BEAMS
14. ROADWAY EXCAVATION, BACKFILL & MISCELLANEOUS DETAILS

LIST OF DRAWINGS

15. GENERAL LAYOUT
16. RETAINING WALL — CONC. & REINF. DETAILS
17. ℄ ROADWAY BENT — Line (B) = CONC. & REINF. DETAILS
18. DOWNHILL BENT — Line (C) = CONC. & REINF. DETAILS
19. ROOF SLAB — CONC. & REINF. DETAILS
20. ROOF DETAILS — AT JUNCTION OF EXISTING SNOWSHED No 1.
21. ROOF BEAMS
22. BEARING DETAILS — ROOF BEAMS
23. ROADWAY EXCAVATION BACKFILL & MISCELLANEOUS DETAILS
24. MANHOLE — CONC. & REINF. DETAILS
25. ADDITION TO EXISTING PARAPETS — ASSEMBLY DETAILS
26. ADDITION TO EXISTING PARAPETS - PRECAST UNITS
27. SCHEDULE — TUPPER No 2 & TUPPER No 3
28. SCHEDULE — TUPPER No 1 & SNOWSHED No 1 ADDITION TO EXISTING PARAPETS
PA-66-Im-1. SKETCH — SHOWING AREAS TO BE PAINTED
PA-66-Im-2. STANDARDS

AA002211

NO.	REVISIONS	NAME	DATE

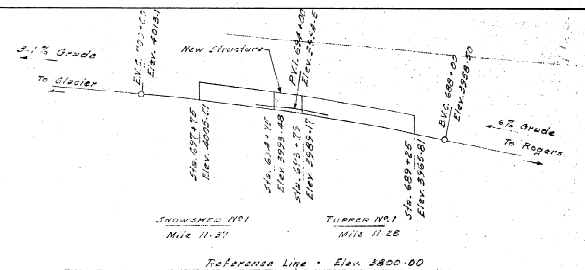
DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

CONNECTIONS

SNOWSHED No 1 & TUPPER No 1 Mile 11-37
TUPPER No 2 & TUPPER No 3 Mile 10-9
- GLACIER NATIONAL PARK -

SITE PLAN

JOB SUPERVISOR S. Stanier — DESIGN T.D. — CHECK
APPROVED DATE 11/3/66 — DRAWN L.B.P. — CHECK T.D.
TRACED — CHECK
PROJECT NO. SD - 169
CHIEF STRUCTURES DIVISION
APPROVED DATE 11-3-66
CHIEF ENGINEER
SHEET 2 OF 28



PROFILE OF SNOWSHEDS
ALONG LINE B ℄ ROAD
Scale :- 1" = 200'-0 Horiz.
1" = 60'-0 Vert.

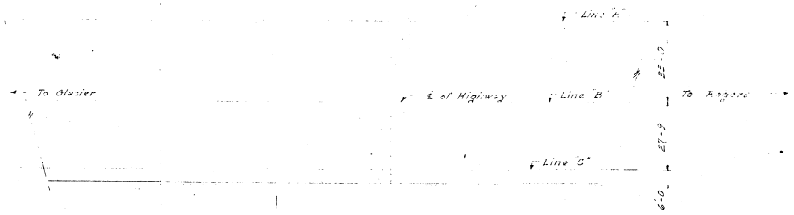
LAYOUT DATA

COLUMN NO.	ALONG LINE (B) ℄ OF ROAD STATION	ELEVATION *	CENTRE TO CENTRE OF COLUMN	ALONG LINE (C) CENTRE TO CENTRE OF COLUMN	ELEVATION *	ALONG LINE (A) CTR. TO CTR. OF BEAMS OPPOSITE COLS.	ELEVATION *	ZIMMERMAN ** ***
**39	493+75.0	3985.19			3989.27		3988.13	
40	+84.0	89.41	8'-0	8'-0	89.43	5'-0	89.39	1'-4
40m	+89.25	89.66	5'-3				89.66	1'-4
41	+94.50	89.90	5'-3	10'-6	89.89	10'-6	89.92	1'-4
41m	694+00.50	90.26	6'-0				90.31	1'-4
42	+10.50	90.63	6'-0	16'-0	90.58	16'-0	90.78	1'-4
42m	+18.50	90.98	8'-0				91.09	1'-3½
43	+26.50	91.32	8'-0	16'-0	91.24	16'-0	91.47	1'-3½
43m	+34.50	91.71	8'-0				91.86	1'-3½
44	+42.50	92.06	8'-0	16'-0	91.89	16'-0	92.23	1'-3½
44m	+50.50	92.42	8'-0				92.62	1'-3½
45	+58.50	92.77	8'-0	16'-0	92.54	16'-0	93.03	1'-3½
45m	+63.76	93.00	5'-3				93.30	1'-3½
46	+69.0	93.23	5'-3	10'-6	92.97	10'-6	93.47	1'-3½
**1	694+75.0	93.48	6'-0	6'-0	93.20	6'-0	93.86	

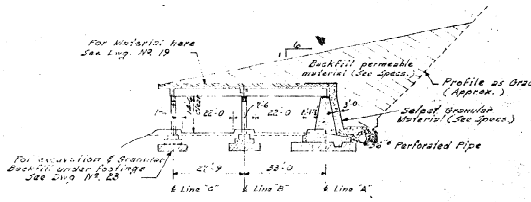
* ELEVATIONS are given to the Control Points - shown on Typical Cross Section.
** Existing Terminal Columns
*** See Typical Section Thru Wall, Dwg. # 16

ROOF BEAM SPACING

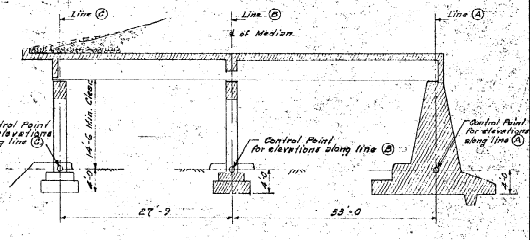
1. A roof beam is located over each column on line (B) and (C), and is located at the wall on line (A) on the exterior, of the line joining the columns.
2. The intermediate roof beams are located equidistant between the column spacings on line (C) and line (A), and over columns with suffix "m" on line (B).
3. Columns designated "m" are located on line (B) only.



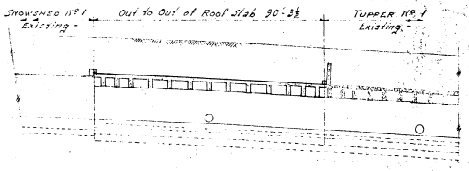
PLAN
Scale 1" = 20'-0

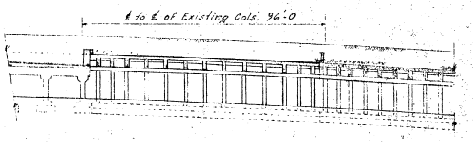


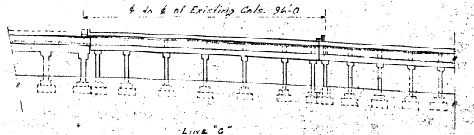
SECTION A-A
Scale 1" = 20'-0



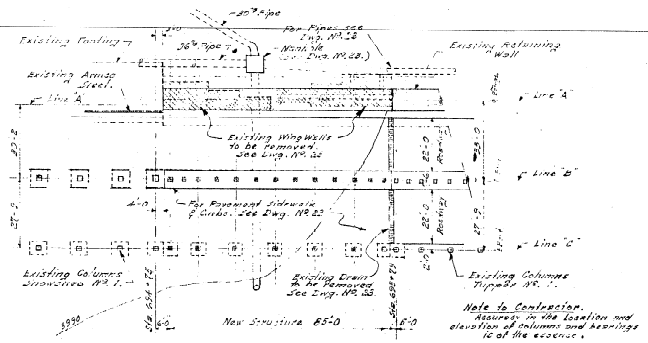
TYPICAL CROSS SECTION
Scale 1/8" = 1'-0







ELEVATIONS
Scale 1" = 20'-0



FOUNDATION PLAN
Scale 1" = 20'-0

Note :
1 - For General Notes see Dwg. NR 3.

NO.	REVISION	NAME	DATE

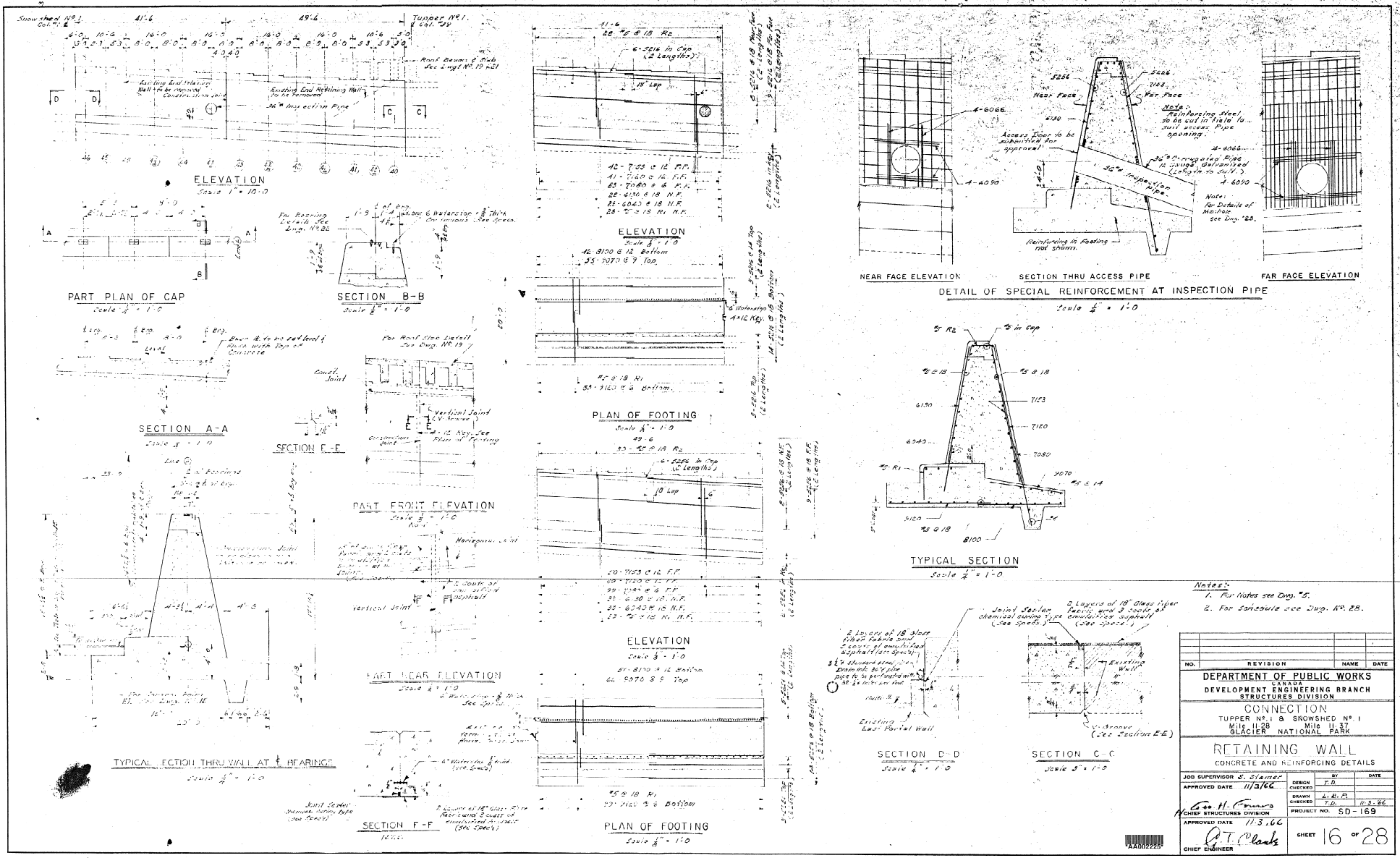
DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

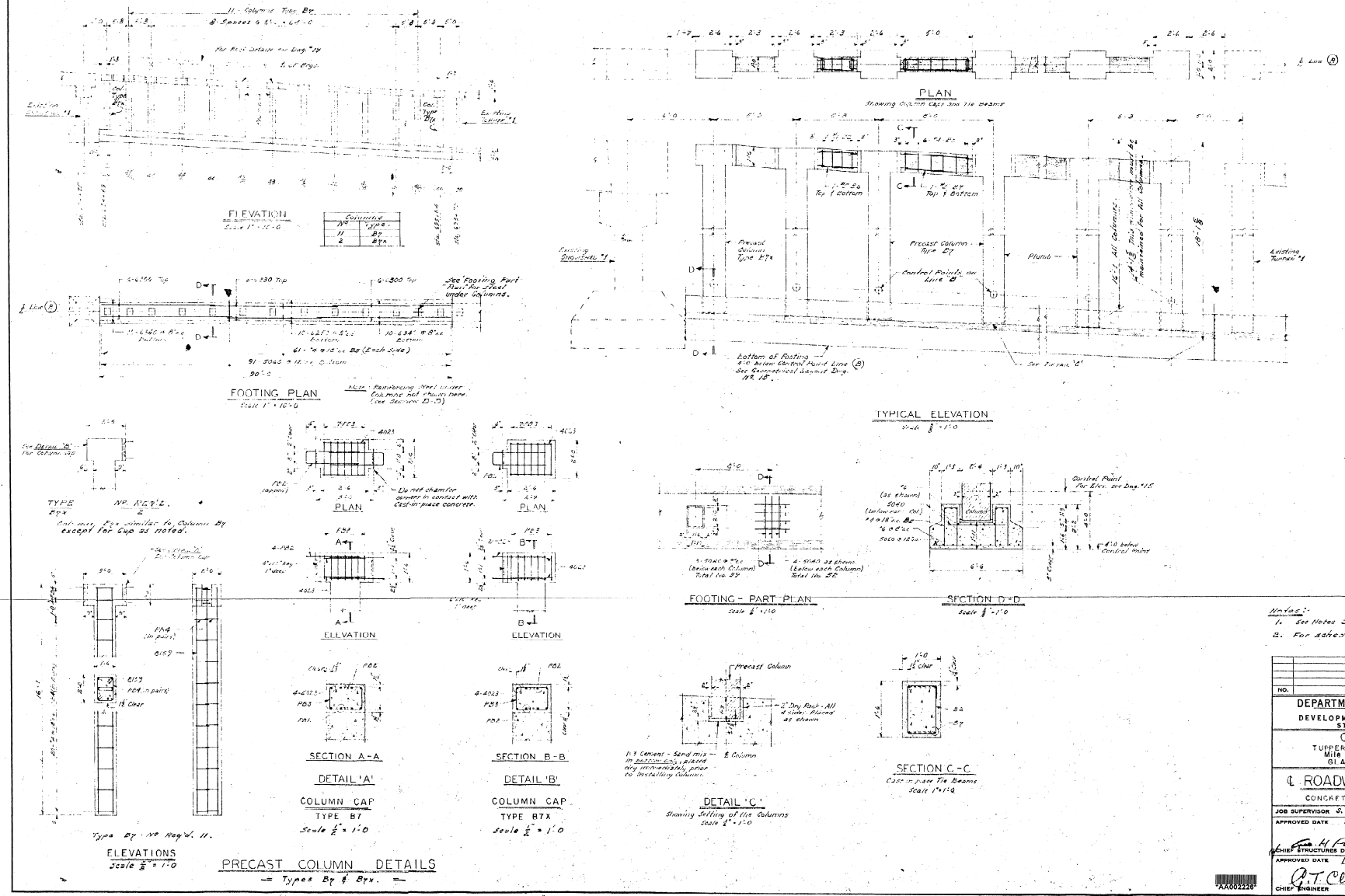
CONNECTION
TUPPER NO 1 & SNOWSHED No. 1
Mile 11.28 Mile 11.37
GLACIER NATIONAL PARK

GENERAL LAYOUT

JOB SUPERVISOR	E. Stamer	BY	DATE
APPROVED DATE	11/3/66	DESIGN	T.D.
		CHECKED	
		DRAWN	L.B.F.
CHIEF STRUCTURES DIVISION		CHECKED	T.D. 11/3/66
APPROVED DATE	11/3/66	PROJECT NO.	SD - 169
CHIEF ENGINEER	C.J. Clarke	SHEET	15 OF 28

AA002224


ELEVATION
PART PLAN OF CAP
SECTION B-B
SECTION A-A
SECTION E-E
PART FRONT ELEVATION
PART REAR ELEVATION
TYPICAL SECTION THRU WALL AT ℄ BEARINGS
SECTION F-F
ELEVATION
PLAN OF FOOTING
ELEVATION
PLAN OF FOOTING
NEAR FACE ELEVATION
SECTION THRU ACCESS PIPE
FAR FACE ELEVATION
DETAIL OF SPECIAL REINFORCEMENT AT INSPECTION PIPE
TYPICAL SECTION
SECTION D-D
SECTION C-C
Notes:
1. For Notes see Dwg. "5.
2. For Sonotube see Dwg. No. 28.
NO. REVISION NAME DATE
DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION
CONNECTION
TUPPER No. 1 & SNOWSHED No. 1
Mile 11.28 Mile 11.37
GLACIER NATIONAL PARK
RETAINING WALL
CONCRETE AND REINFORCING DETAILS
JOB SUPERVISOR S. Stamer
APPROVED DATE 11/3/66
DESIGN CHECKED T.D.
DRAWN CHECKED L.E.F. T.D. 11-3-66
PROJECT NO. SD-169
CHIEF STRUCTURES DIVISION
APPROVED DATE 11.3.66
CHIEF ENGINEER
SHEET 16 OF 28
AA002225



Notes:-
1. See Notes Dwg. "1".
2. For schedule see Dwg. No. 2A.

NO.	REVISION	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

CONNECTION
TUPPER No. 1 & SNOWSHED No. 1
Mile 11.28 Mile 11.37
GLACIER NATIONAL PARK

℄ ROADWAY BENT - LINE B

CONCRETE AND REINFORCING DETAILS

JOB SUPERVISOR S. Stoman
APPROVED DATE 11/3/66
CHIEF STRUCTURES DIVISION

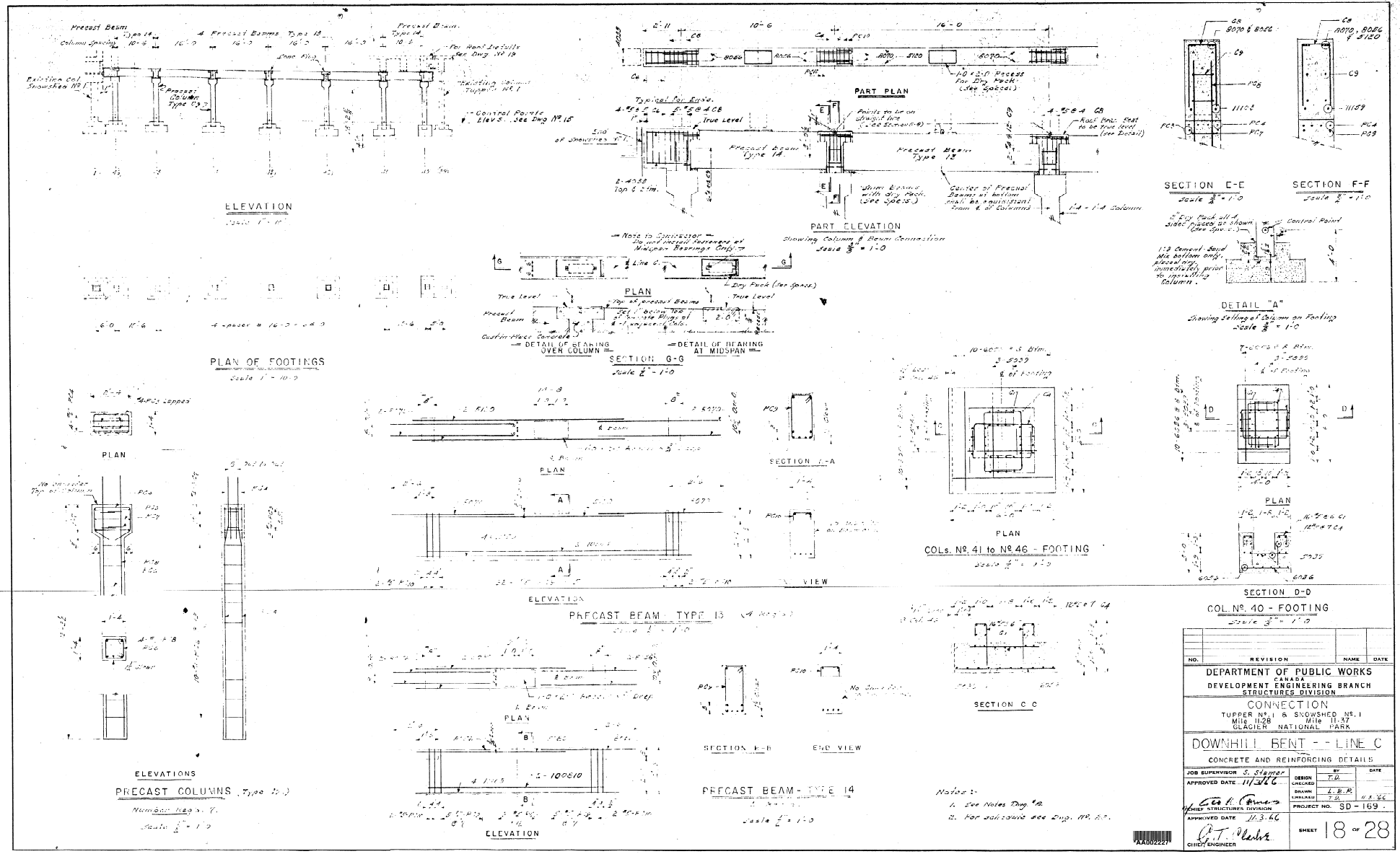
	BY	DATE
DESIGN CHECKED	T.D.	
DRAWN	J.A.M.	
CHECKED	T.D.	11.3.66

PROJECT NO. SD-169

APPROVED DATE 11.3.66
G.T. Clarke
CHIEF ENGINEER

SHEET 17 OF 28

AA002226



NO.	REVISION	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

CONNECTION
TUPPER Nº. 1 & SNOWSHED Nº. 1
Mile 11.28 Mile 11.37
GLACIER NATIONAL PARK

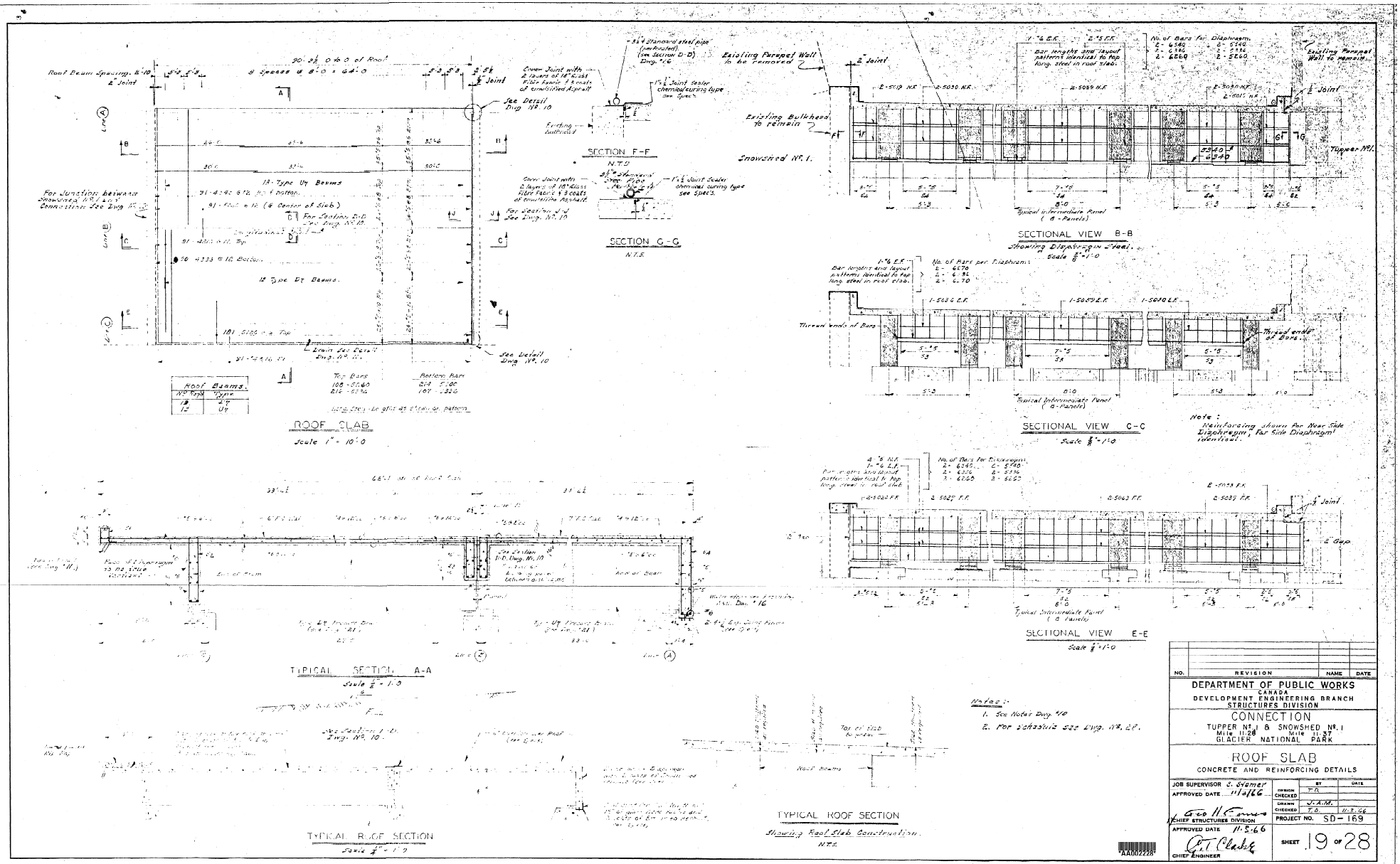
DOWNHILL BENT - - LINE C

CONCRETE AND REINFORCING DETAILS

		BY	DATE
JOB SUPERVISOR S. Stepner	DESIGN	T.O.	
APPROVED DATE 11/3/66	CHECKED		
	DRAWN	L.B.R.	
CHIEF STRUCTURES DIVISION	CHECKED	T.O.	11.3.66
	PROJECT NO.	SD-169	
APPROVED DATE 11.3.66	SHEET	18 OF 28	

CHIEF ENGINEER

AA002227



NO.	REVISION	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

CONNECTION
TUPPER No. 1 & SNOWSHED No. 1
Mile 1.37
GLACIER NATIONAL PARK

ROOF SLAB
CONCRETE AND REINFORCING DETAILS

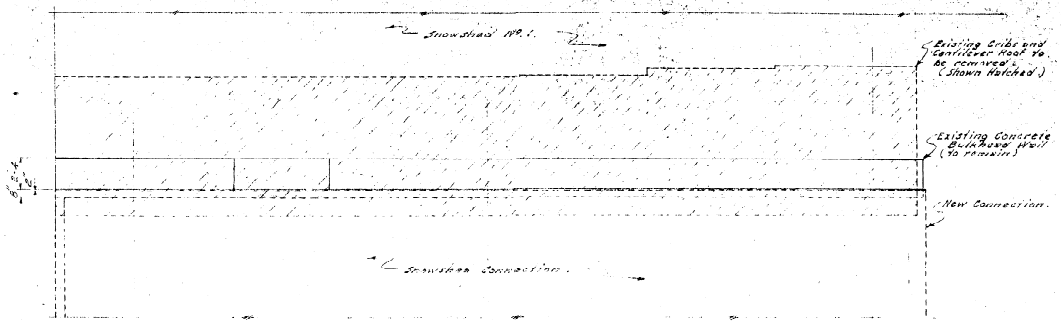
		BY	DATE
JOB SUPERVISOR E. Stamer	DESIGN	T.O.	
APPROVED DATE 11/3/66	CHECKED		
	DRAWN	J.A.M.	
	CHECKED	T.O.	11-3-66

PROJECT NO. SD-169

CHIEF STRUCTURES DIVISION
APPROVED DATE 11-5-66
CHIEF ENGINEER

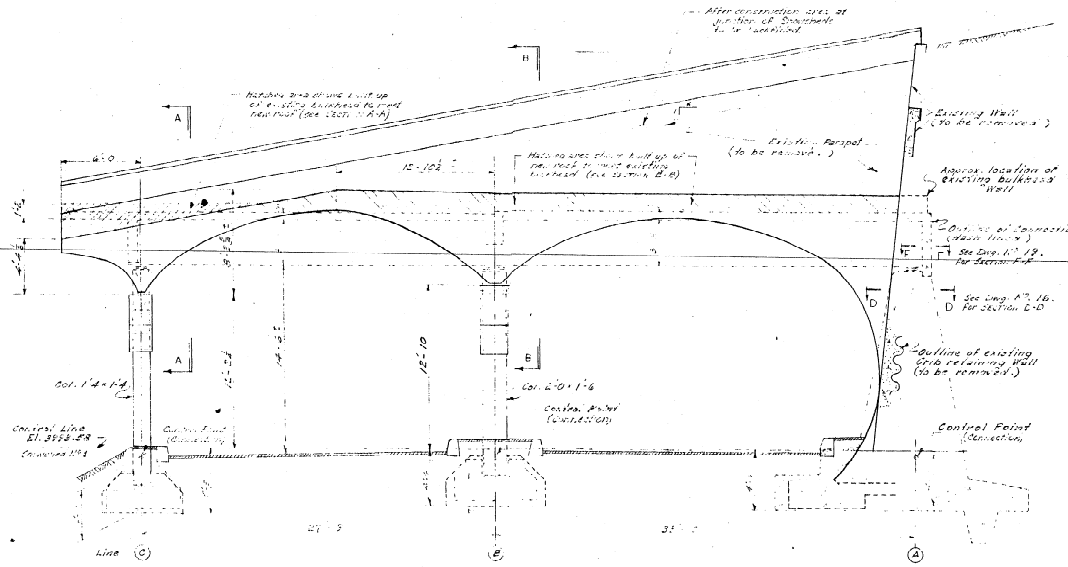
SHEET 19 OF 28

AA002228



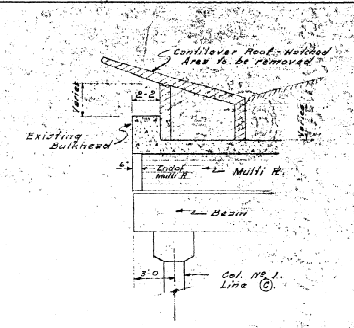
PLAN

Showing Connection of existing Snowshed
Scale 1/4" = 1'-0



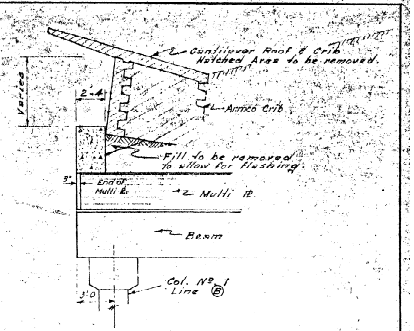
ELEVATION - EAST PORTAL

Showing Existing Snowshed #1 Connection Superimposed (dash lines.)
Scale 1/4" = 1'-0



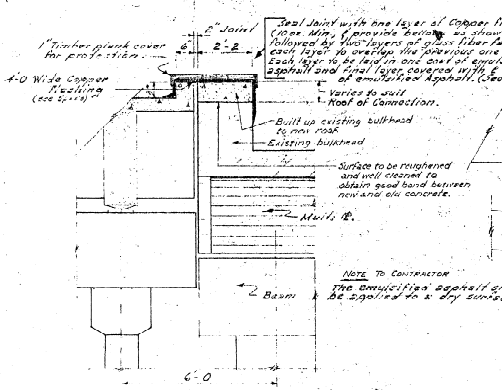
SECTION A-A

Showing existing Snowshed Only.
Scale 1/4" = 1'-0



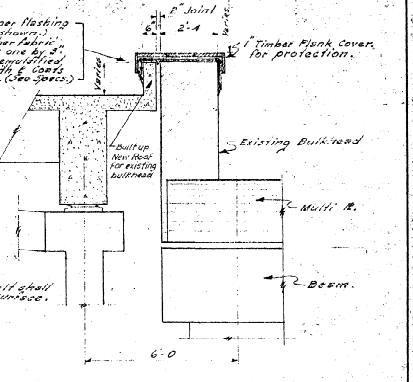
SECTION B-B

Showing existing Snowshed Only.
Scale 1/4" = 1'-0



SECTION A-A

Showing Connection between new and existing structure.
Scale 1/2" = 1'-0



SECTION B-B

Showing Connection between new and existing structure
Scale 1/2" = 1'-0

NO.	REVISION	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

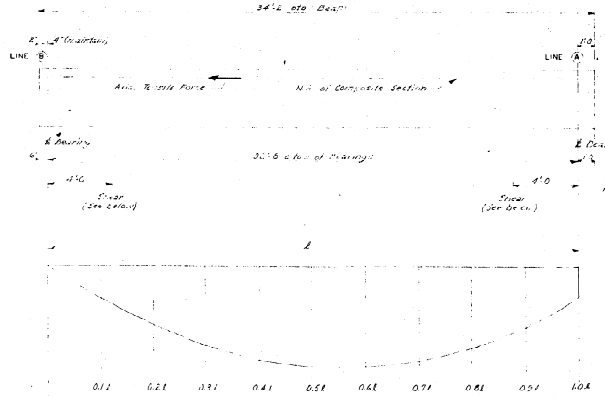
CONNECTION

TUPPER No. 1 & SNOWSHED No. 1
Mile 11.28 Mile 11.37
GLACIER NATIONAL PARK

ROOF DETAILS AT JUNCTION OF EXISTING SNOWSHED #1

		BY	DATE
JOB SUPERVISOR S. GIDNER	DESIGN CHECKED	T.D	
APPROVED DATE 11/3/66	DRAWN CHECKED	L.B.R. T.D	11-3-66
CHIEF STRUCTURES DIVISION	PROJECT NO.	SD - 169	
APPROVED DATE 11.3.66 CHIEF ENGINEER	SHEET	20 OF 28	

AA002229

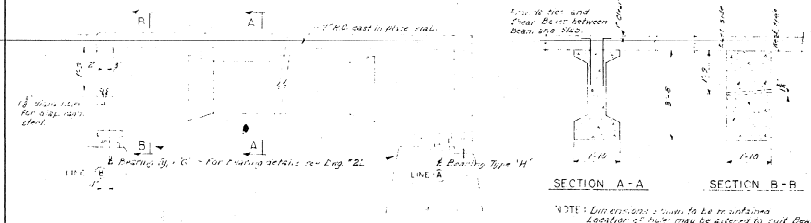


TYPICAL MOMENT DIAGRAM

	LINE (B) ℄ Bearing	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	LINE (A) ℄ Bearing
DEAD LOAD MOMENT		450	825	1120	1320	1430	1440	1330	1112	770	300
LIVE LOAD MOMENT		201	362	493	584	640	652	625	565	461	318
TOTAL MOMENT		651	87	1613	1904	2070	2092	1955	1677	1231	618
DEAD LOAD AXIAL TENSILE FORCE	13	19	24	30	36	41	47	53	59	64	70
LIVE LOAD AXIAL TENSILE FORCE	43	44	48	52	56	60	64	68	72	76	80
TOTAL AXIAL TENSILE FORCE	53	63	72	82	92	101	111	121	131	140	150
DEAD LOAD REACTION	181										189
LIVE LOAD REACTION	56										55
TOTAL REACTION	249										244
DEAD LOAD SHEAR		134								123	
LIVE LOAD SHEAR		77								35	
TOTAL SHEAR		211								158	

DESIGN FORCES
MOMENTS IN FT. KIPS
FORCES IN KIPS

NOTE TO FABRICATOR
Weight of Beam and Slab are not included in values of moments, reactions and shears shown.

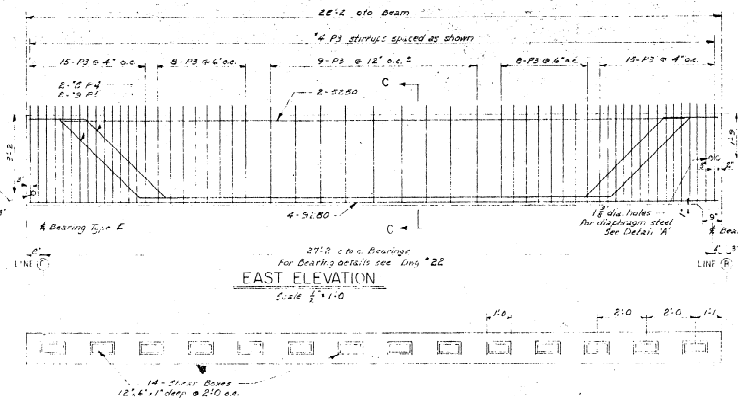


TYPICAL ELEVATION OF BEAM

SECTION A-A SECTION B-B

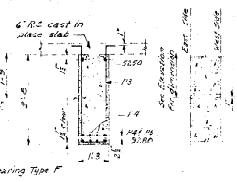
NOTE: Dimensions & Details to be to suit Beam Steel but must be within limits for Acceptance.
SUGGESTED SECTIONS

BEAM TYPE U7
PRESTRESSED PRECAST CONCRETE BEAMS
NUMBER REQUIRED 13



EAST ELEVATION
Scale ½" = 1'-0

PLAN SCALE ½" = 1'-0



SECTION C-C DETAIL 'A' TYPICAL

BEAM TYPE D7
PRECAST REINFORCED CONCRETE BEAMS
NUMBER REQUIRED 13

BEAM TYPE	NUMBER OF BEAMS WITH INSERTS EAST SIDE	WEST SIDE
U7	1	1
D7	1	1

Special Beams with inserts Provide 1" diam. Inserts instead of holes, located the same as holes and on Line (B) only.

NOTES:

1. See Notes on Dwg. "3
2. For Schedule see Dwg. "22
3. Concrete: a) Precast Beams 4000 p.s.i. @ 28 days
   b) Precast Prestressed Beams: Strength as required but not less than 5000 p.s.i.
4. Complete Bearing assemblies to be supplied with each beam, (including a bottom ℄ assembly to be embedded in c.i.p. substructure).
5. Provide ¾ Chamfer on all exposed corners in completed structure.

NO.	REVISION	NAME	DATE

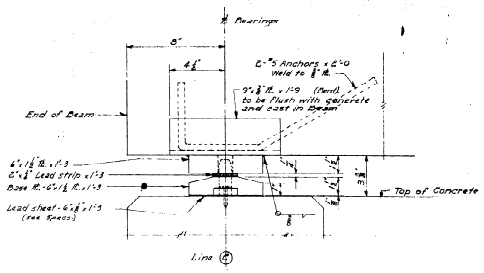
DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

CONNECTION
TUPPER NO.1 & SNOWSHED NO.1
MILE 11.28 MILE 11.37
GLACIER NATIONAL PARK

ROOF BEAMS

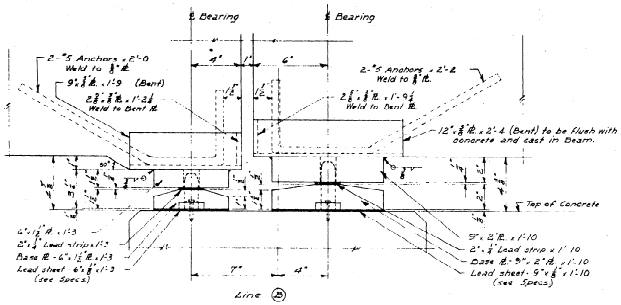
		BY	DATE
JOB SUPERVISOR S.STAMER	DESIGN	T.D.	
APPROVED DATE 11/3/66	CHECKED		
	DRAWN	J.A.M.	
CHIEF STRUCTURES DIVISION	CHECKED	T.D.	11.3.66
APPROVED DATE 11.3.66	PROJECT NO. SD-169		
CHIEF ENGINEER	SHEET 21 OF 28		

AA002230



BEARING TYPE E

Scale 3"=1'-0

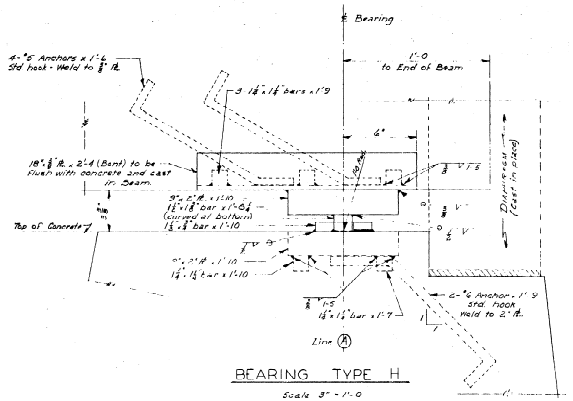


BEARING TYPE F

Scale 3"=1'-0

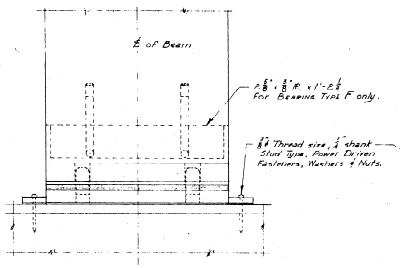
BEARING TYPE G

Scale 3"=1'-0



BEARING TYPE H

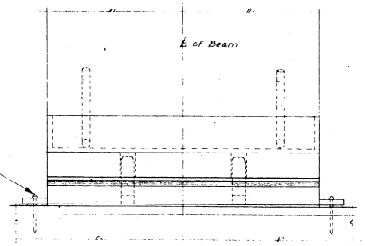
Scale 3"=1'-0



END VIEW

FOR BEARING TYPES - E & F

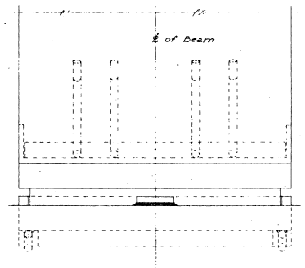
Scale 3"=1'-0



END VIEW

FOR BEARING TYPE - G

Scale 3"=1'-0



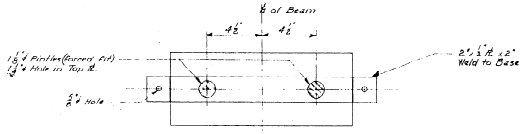
END VIEW

FOR BEARING TYPE - H

Scale 3"=1'-0

NOTES:

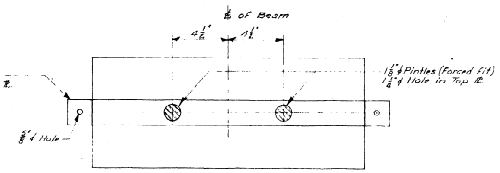
1. For Painting see Specs.
2. Steel for Bearings shall conform to the CSA Specification G40.9 or equivalent.



PLAN

FOR BEARING TYPES - E & F

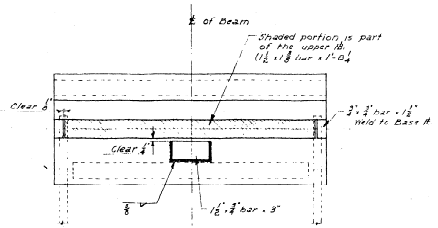
Scale 3"=1'-0



PLAN

FOR BEARING TYPE - G

Scale 3"=1'-0



PLAN

FOR BEARING TYPE - H

Scale 3"=1'-0

NO.	REVISIONS	NAME	DATE

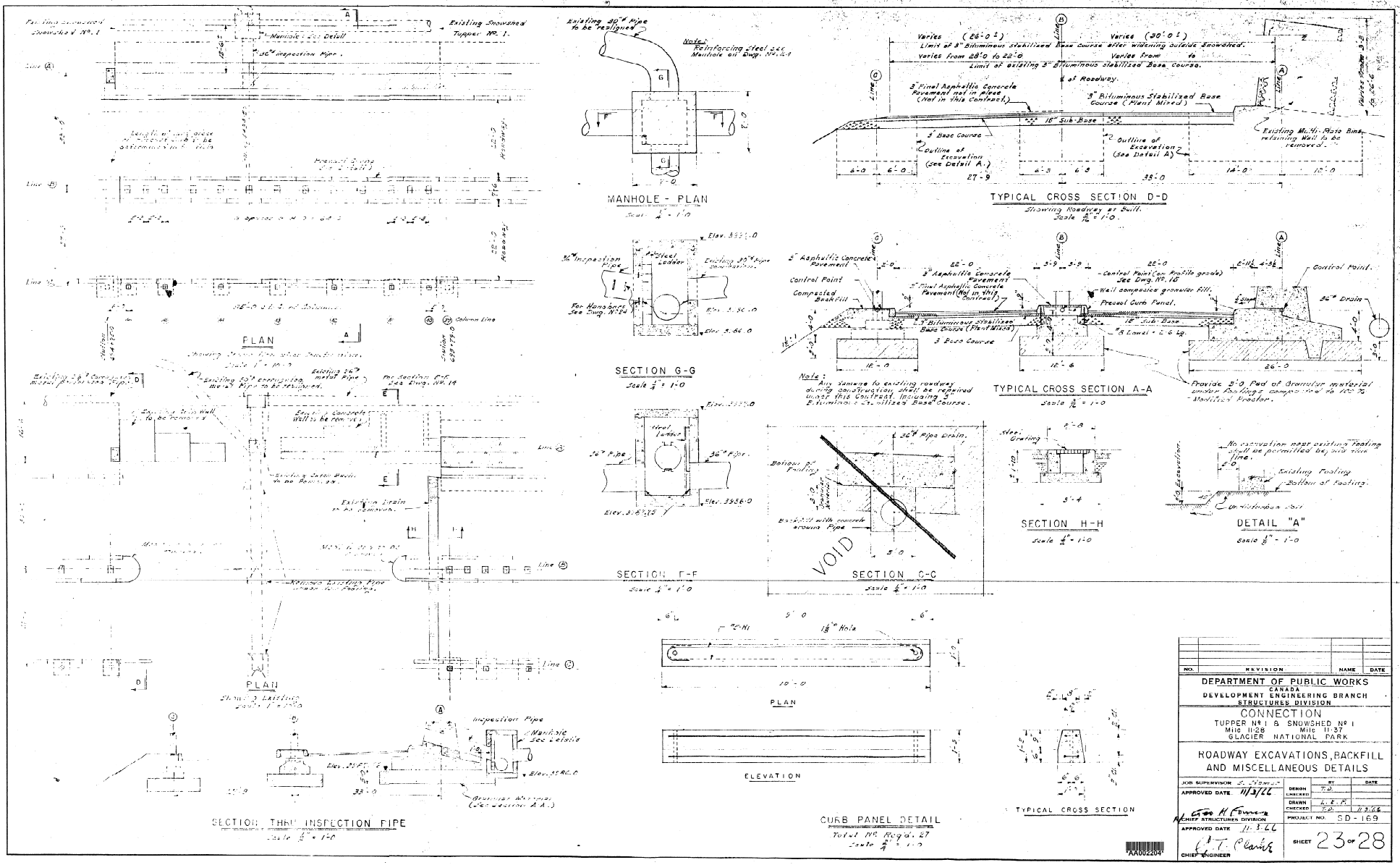
DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

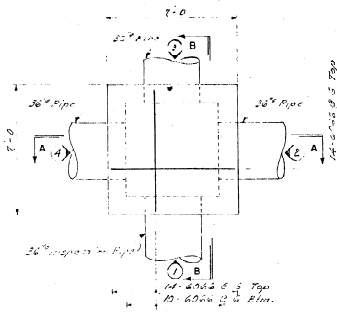
— CONNECTION —
TUPPER No. 1 & SNOWSHED No. 1
Mile 11.37
GLACIER NATIONAL PARK

BEARING DETAILS
ROOF BEAMS

JOB SUPERVISOR S.STAMER		DESIGN	J.C.R.	CHECK	T.D.
APPROVED DATE 27/11/64		DRAWN	J.A.M.	CHECK	T.D.
		TRACED		CHECK	S.S.A.
Geo H. Farmer CHIEF STRUCTURES DIVISION		PROJECT NO.	SD-16		
APPROVED DATE 27/11/64		SHEET	22 OF 28		
C.T. Clarke CHIEF ENGINEER					

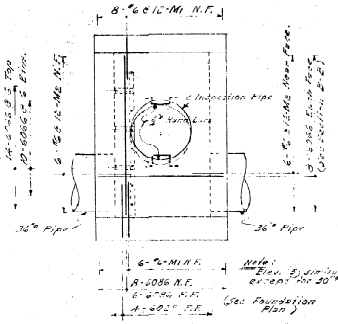
AA002203


Existing Snowshed Tupper No. 1.
Existing Snowshed Snowshed No. 1
Manhole - See Detail
36" Inspection Pipe
PLAN
Existing 30" Pipe to be realigned
Note: Reinforcing Steel see Manhole on Dwg. No. 2-4
MANHOLE - PLAN
Scale 1/4" = 1'-0
TYPICAL CROSS SECTION D-D
Showing Roadway as Built.
Scale 1/2" = 1'-0
Varies (28'-0 ±)
Limit of 8" Bituminous stabilized Base course after widening outside Snowshed.
Varies from 28'-0 to 22'-6
Varies (30'-0 ±)
Varies from to
Limit of existing 3" Bituminous stabilized Base Course.
℄ of Roadway.
3" Final Asphaltic Concrete Pavement not in place (Not in this Contract.)
8" Bituminous Stabilized Base Course (Plant Mixed)
16" Sub-Base
3" Base Course
Outline of Excavation (See Detail A.)
Outline of Excavation (See Detail A)
Existing Mt. Hy. Plate Bins retaining Wall to be removed.
SECTION G-G
Scale 1/4" = 1'-0
36" Inspection Pipe
Steel Ladder
Existing 30" Pipe Snowshed
For Manholes See Dwg. No. 2-4
Elev. 3332.0
Elev. 3326.0
5" Asphaltic Concrete Pavement
Control Point
Compacted Backfill
8" Asphaltic Concrete Pavement
3" Final Asphaltic Concrete Pavement (Not in this Contract.)
8" Bituminous Stabilized Base Course (Plant Mixed)
3" Base Course
Control Point (See Profile grade) See Dwg. No. 16
Well compacted granular Fill.
Precast Curb Panel.
16" Sub-Base
6" Gravel - 2-6 Lg.
36" Drain
Control Point.
Provide 2'-0 Pad of Granular material under footings compacted to 100% Modified Proctor.
Note: Any damage to existing roadway during construction shall be repaired under this Contract, including 3" Bituminous Stabilized Base Course.
TYPICAL CROSS SECTION A-A
Scale 1/2" = 1'-0
SECTION F-F
Scale 1/4" = 1'-0
Steel Ladder
36" Pipe
36" Pipe
Elev. 3355.0
Elev. 3346.75
36" Pipe Drain.
Bottom of Footing
3'-0 Granular Material
Backfill with concrete around Pipe
VOID
SECTION C-C
Scale 1/4" = 1'-0
Steel Grating
SECTION H-H
Scale 1/4" = 1'-0
No excavation near existing footing shall be permitted below this line.
Existing Footing
Bottom of Footing
DETAIL "A"
Scale 3/8" = 1'-0
PLAN
Showing Existing Snowshed
Scale 1/4" = 1'-0
Inspection Pipe
Manhole See Details
Structural Material (See Section A-A.)
SECTION THRU INSPECTION PIPE
Scale 1/2" = 1'-0
18" Hole
PLAN
ELEVATION
CURB PANEL DETAIL
Total No. Req'd. 27
Scale 1/4" = 1'-0
TYPICAL CROSS SECTION
NO. REVISION NAME DATE
DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION
CONNECTION
TUPPER No. 1 & SNOWSHED No. 1
Mile 11-28 Mile 11-37
GLACIER NATIONAL PARK
ROADWAY EXCAVATIONS, BACKFILL AND MISCELLANEOUS DETAILS
JOB SUPERVISOR
APPROVED DATE 11/3/66
CHIEF STRUCTURES DIVISION
APPROVED DATE
CHIEF ENGINEER
DESIGN BY DATE
DESIGN CHECKED T.D.
DRAWN L.E.K.
CHECKED T.D. 11-3-66
PROJECT NO. SD-169
SHEET 23 OF 28
AA002204



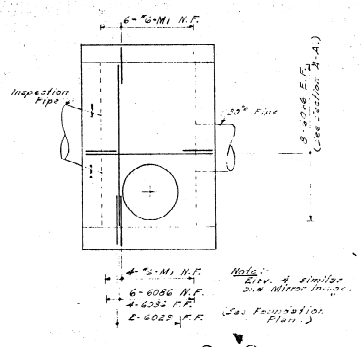
PLAN

Scale $\frac{3}{8}$" = 1'-0



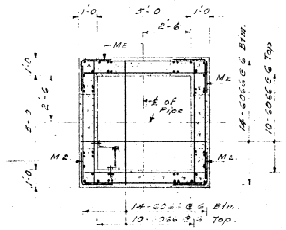
ELEVATIONS ① & ③

Scale $\frac{3}{8}$" = 1'-0



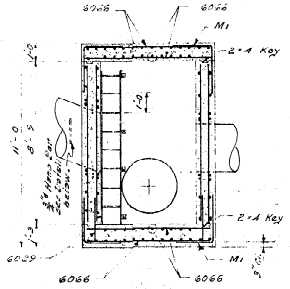
ELEVATIONS ② & ④

Scale $\frac{3}{8}$" = 1'-0



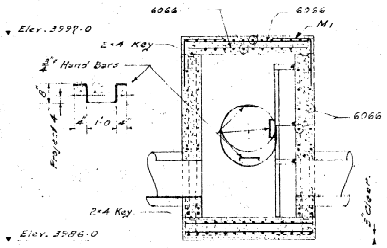
FOUNDATION PLAN

Scale $\frac{3}{8}$" = 1'-0



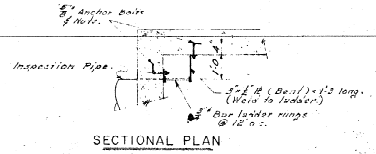
SECTION B B

Scale $\frac{3}{8}$" = 1'-0

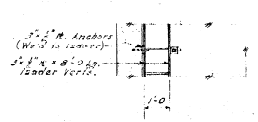


SECTION A-A

Scale $\frac{3}{8}$" = 1'-0



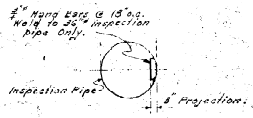
SECTIONAL PLAN



SECTIONAL ELEVATION

LADDER DETAILS

Scale $\frac{1}{2}$" = 1'-0



SECTION THRU INSPECTION PIPE

Scale $\frac{3}{8}$" = 1'-0

Notes:

1. For General Notes see Dwg. No. 5.
2. For Location of Manhole see Dwg. No. 23.
3. Concrete cover for reinforcing steel 2" except as noted.
4. For steel schedule see Dwg. No. 28.

NO.	REVISION	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

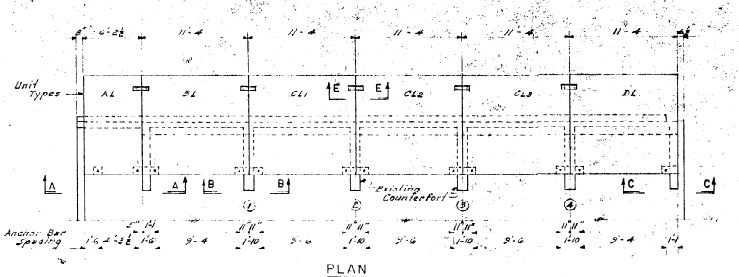
CONNECTION
TUPPER No. 1 & SNOWSHED No. 1
Mile 11.28 Mile 11.37
GLACIER NATIONAL PARK

MANHOLE

CONCRETE & REINFORCING DETAILS

		BY	DATE
JOB SUPERVISOR S. Skinner	DESIGN	T.D.	
APPROVED DATE 11/3/66	CHECKED		
	DRAWN	L.B.R.	
Geo H. Cowie	CHECKED	T.D.	11-3-66
CHIEF STRUCTURES DIVISION	PROJECT NO.	SD - 169	
APPROVED DATE 11/3/66	SHEET	24 OF 28	
C. T. Clarke			
CHIEF ENGINEER			

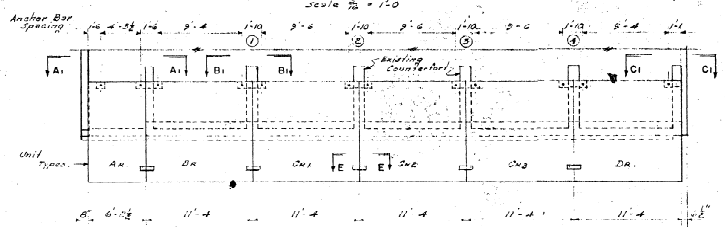
AA002205



PLAN

WEST PORTAL – LEN'S TUPPER No. 2 } For location see Dwg. No. 2.

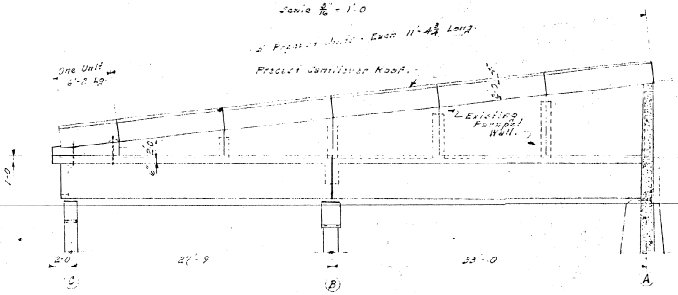
Scale 3/16" = 1'-0



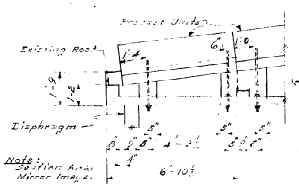
PLAN

EAST PORTAL – LEN'S TUPPER No. 3 For location see Dwg. No. 2.

Scale 3/16" = 1'-0

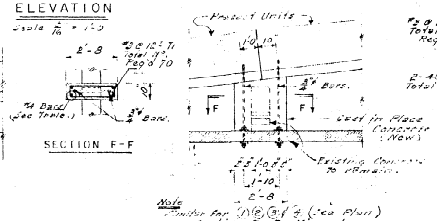


ELEVATION



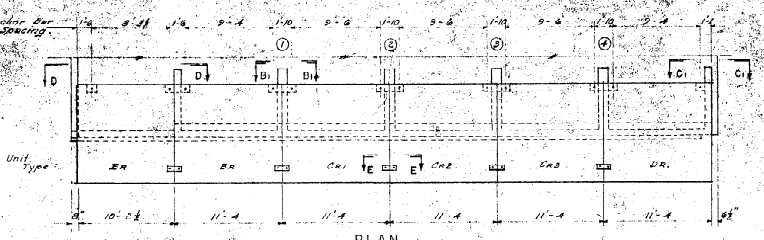
SECTIONAL ELEVATION A-A

Scale 3/8" = 1'-0



SECTIONAL ELEVATION B-B

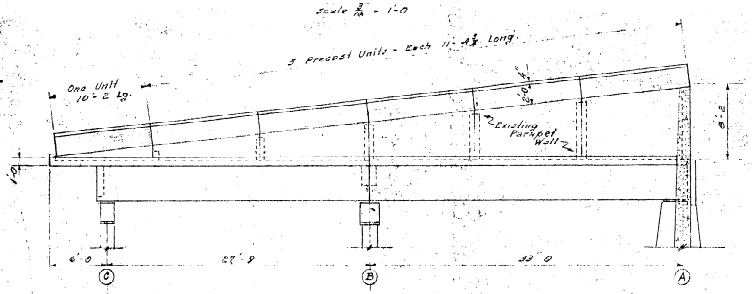
Scale 3/8" = 1'-0



PLAN

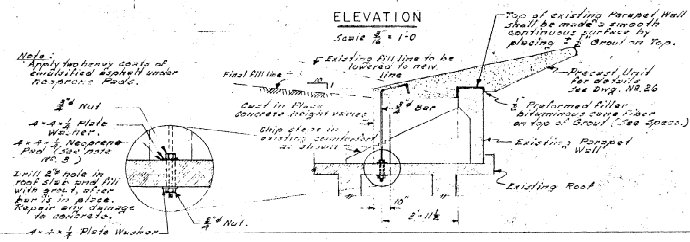
EAST PORTAL – LEN'S TUPPER No. 1 } For location see Dwg. No. 2.

Scale 3/16" = 1'-0



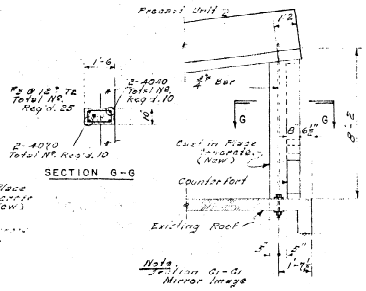
ELEVATION

Scale 3/16" = 1'-0



TYPICAL SECTIONAL ELEVATION

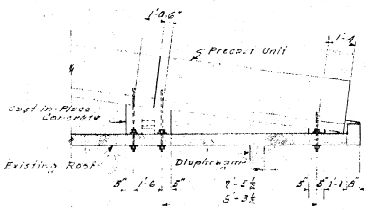
Except as noted.
Scale 3/8" = 1'-0.



SECTION G-G

SECTIONAL ELEVATION C-C

Scale 3/8" = 1'-0

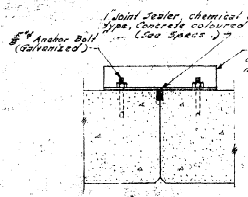


SECTIONAL ELEVATION D-D

Scale 3/8" = 1'-0

TABLE — Lengths of #4 Bars (see section F-F)		
Location (See Plans)	Total No. Req'd (All Snowsheds)	Lengths
No. 1	20	2'-3
No. 2	20	3'-3
No. 3	20	4'-6
No. 4	20	6'-9

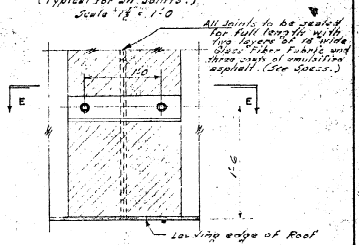
See also Steel Schedule Dwg. No. 28



SECTION E-E

(Typical for all Joints.)

Scale 1½" = 1'-0



PART PLAN AT JOINT

Scale 1½" = 1'-0

Notes:

1. See General Notes Dwg. No. 3.
2. Precast Concrete - 4000 psi @ 28 days
3. Neoprene Pads shall meet physical properties specified in AASHO clause 10.41.4 Grade 60.
4. ¾" Ø bars, nuts, washers, ¾" Ø bolts and 4"x4"x½" L to be hot dip galvanized with a minimum thickness of coating of .0036".
5. For Steel Schedule see Dwg. No. 28.

NO.	REVISION	NAME	DATE

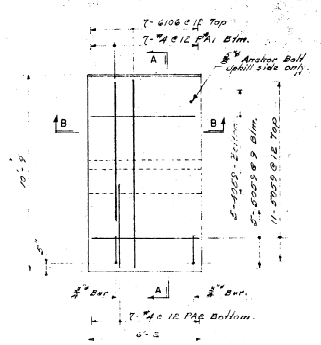
DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

SNOWSHEDS LEN'S – TUPPER No. 1
TUPPER No. 2 – TUPPER No. 3
GLACIER NATIONAL PARK

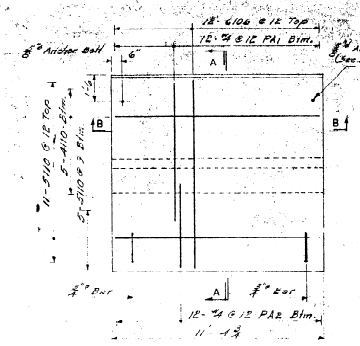
ADDITION TO EXISTING PARAPETS
ASSEMBLY DETAILS

		BY	DATE
JOB SUPERVISOR J. Stamer	DESIGN CHECKED	T.D.	
APPROVED DATE 11/3/66	DRAWN CHECKED	L.B.R. T.D.	11/3/66
G.T. Clarke CHIEF STRUCTURES DIVISION	PROJECT NO.	SD-169	
APPROVED DATE 11/3/66 G.T. Clarke CHIEF ENGINEER	SHEET	25 OF 28	

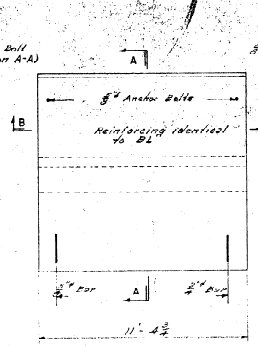
AA002206



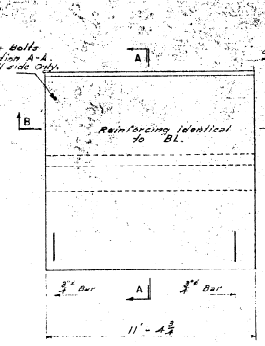
PLAN
Unit Type AL & AR.
Scale 3/8" = 1'-0



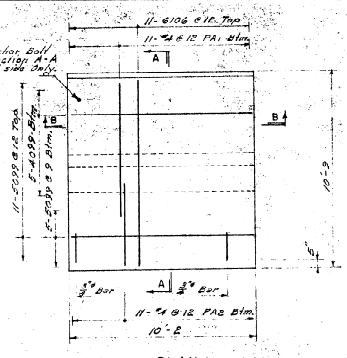
PLAN
Unit Type BL & BR.
Scale 3/8" = 1'-0



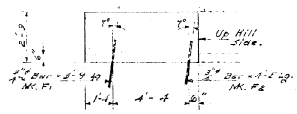
PLAN
Unit Types CL1, CL2 & CL3; CR1, CR2 & CR3.
Scale 3/8" = 1'-0



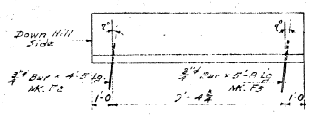
PLAN
Unit Type DL & DR.
Scale 3/8" = 1'-0



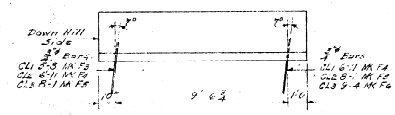
PLAN
Unit Type ER.
Scale 3/8" = 1'-0



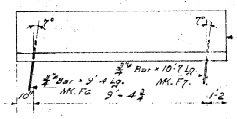
ELEVATION
Unit Type AL
Scale 3/8" = 1'-0



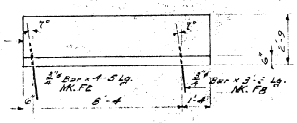
ELEVATION
Unit Type BL
Scale 3/8" = 1'-0



ELEVATION
Unit Types CL1, CL2 & CL3
Scale 3/8" = 1'-0

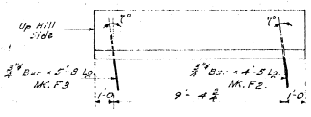


ELEVATION
Unit Type DL
Scale 3/8" = 1'-0

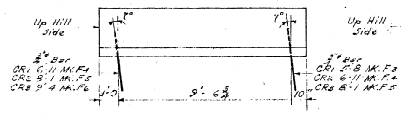


ELEVATION
Unit Type ER.
Scale 3/8" = 1'-0

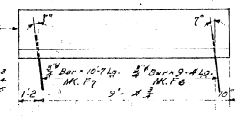
ELEVATION
Unit Type AR
Scale 3/8" = 1'-0



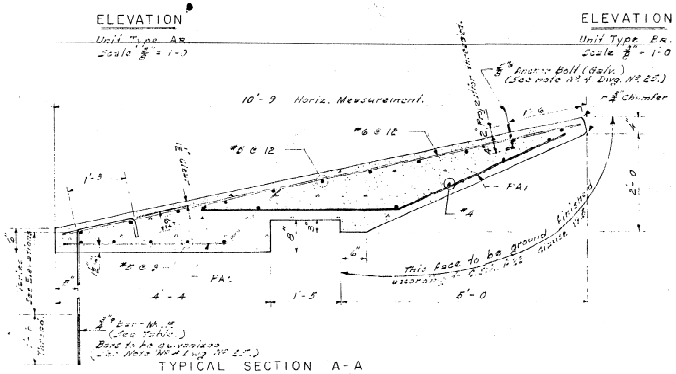
ELEVATION
Unit Type BR.
Scale 3/8" = 1'-0



ELEVATION
Unit Type CR1, CR2 & CR3.
Scale 3/8" = 1'-0



ELEVATION
Unit Type DR.
Scale 3/8" = 1'-0



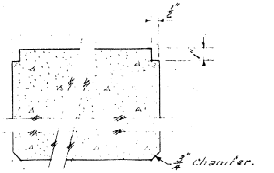
TYPICAL SECTION A-A
Scale 1" = 1'-0

TABLE OF UNITS
For Location See Dwg. No. 25.

Unit Type.	No. Reqd.
AL	1
BL	2
CL1	2
CL2	1
CL3	2
DL	1
AR	1
BR	2
CR1	2
CR2	1
CR3	2
DR	1
ER	1

TABLE
For 3/4" ø Bars.

Length	No Reqd.	Mark
3-3	2	F1
4-5	10	F2
5-9	10	F3
6-11	10	F4
8-1	10	F5
9-4	10	F6
10-7	5	F7
3-5	6	F8



PART SECTION B-B
Scale 3" = 1'-0

Notes:-
1. Contractor shall take extra precautions during erection not to damage the exposed surface of the units.
2. See Notes Dwg. No. 25.

NO.	REVISION	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

SNOWSHEDS LEN'S - TUPPER No. 1, TUPPER No. 2 - TUPPER No. 3,
GLACIER NATIONAL PARK

ADDITION TO EXISTING PARAPETS
PRECAST UNITS

		BY	DATE
JOB SUPERVISOR	J. Stamer		
APPROVED DATE	11/3/66	DESIGN CHECKED	T.D.
		DRAWN	L.B.F.
		CHECKED	T.D. 11-3-66
CHIEF STRUCTURES DIVISION		PROJECT NO.	SD - 169
APPROVED DATE	11.3.66	SHEET	26 OF 28
CHIEF ENGINEER	G.T. Clarke		

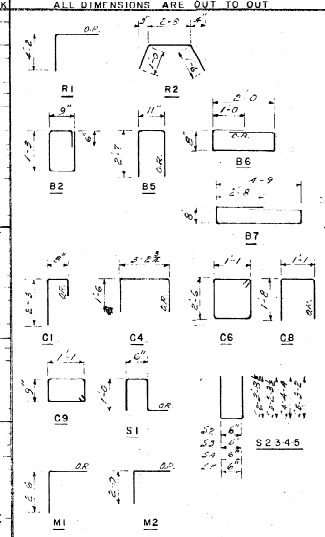
AA002207

CONNECTION - - SNOWSHEDS - SNOWSHED Nº 1 and TUPPER Nº 1

— CAST - IN - PLACE —

LOCATION	CU. YDS. CONC.	LBS. REINF.	STRAIGHT BARS Nº	SIZE	LENGTH	MARK	BENT BARS Nº	SIZE	LENGTH	MARK
LINE "A" RETAINING WALL	529	28,034	182	#6	12-3	3129	21	#6	8-6	P1
			141	#6	7-3	3089	61	#6	6-6	P2
			28	#8	10-3	8103				
			92	#7	12-3	11401				
			93	#7	12-0	11160				
			19	#7	8-3	7981				
			5	#6	15-0	6171				
			6	#6	9-3	6393				
			4	#5	6-6	6171				
			41	#5	4-3	6171				
LINE "B" FOOTINGS	58	3673	14	#7	15-0	11401				
			20	#6	34-10	6348	182	#6	6-3	B5
			6	#6	33-0	6393				
			18	#6	33-0	6393				
			10	#6	20-10	6423				
			31	#5	6-6	5393				
			31	#5	44-3	5393				
LINE "B" TIE BEAMS	2.7	435					64	#4	4-6	B2
							8	#5	6-0	B3
							16	#5	11-6	B4
LINE "C" FOOTINGS	19.0	2222	181	#6	8-6	6351	111	#6	2-6	C1
			13	#6	8-6	6351	84	#6	2-6	C4
			42	#5	3-0	5393				
LINE "C" PLUGS	2.3	265	8	#4	2-3	4233	8	#5	8-0	C6
							20	#5	11-6	C8
							14	#4	4-3	C9
ROOF SLAB CURBS AND DIAPHRAGMS	150	36,227	4	#6	34-0	6240	91	#4	2-6	S1
			16	#6	33-6	6321	82	#5	7-8	S2
			9	#6	28-0	6240	182	#5	4-0	S3
			4	#5	26-0	5343	81	#5	9-6	S4
				#6	34-3	6240	2	#5	4-9	S5
			127		33-6	5393				
			54		33-0	5390				
			11		26-3	5393				
			181		12-3	6180				
			16		6-3	5063				
			37		6-3	5060				
			48		5-9	5089				
			8		3-9	5089				
			5		3-3	5025				
			24		5-1	6030				
			5		6-6	5760				
			4	#5	1-9	5013				
			180	#4	34-3	4349				
			14	#4	33-3	4333				
			11	#4	31-7	4310				
MAN-HOLE	11	2693	12	#5	8-6	6091	48	#5	2-6	M1
			160	#5	6-6	6091	24	#5	4-0	M2
			12	#6	12-9	6029				

BENDING DIAGRAMS ALL DIMENSIONS ARE OUT TO OUT

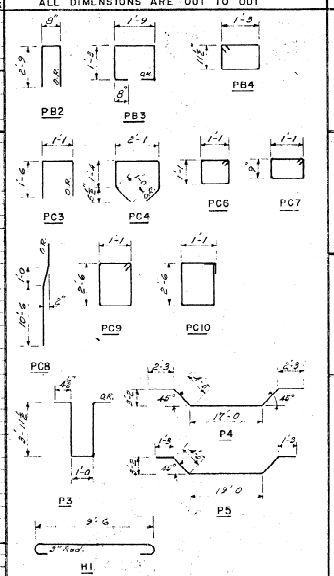


CONNECTION - - SNOWSHEDS - SNOWSHED Nº. 1 and TUPPER Nº. 1

— PRECAST UNITS —

ITEM	TYPE OF UNIT	TOTAL Nº REQ'D.	CU. YDS. CONC./UNIT	LBS. REINF./UNIT	TOTAL CU. YDS. CONC.	TOTAL LBS. REINF.	STRAIGHT BARS Nº	SIZE	LENGTH	MARK	BENT BARS Nº	SIZE	LENGTH	MARK
COLUMNS LINE "B"	B7	11	1.93	394	21.2	4,337	66	#3	12-9	8169	44	#3	6-3	P6
							44	#4	8-3	4055	22	#4	5-3	P7
	B7X	2	1.93	381	3.9	763	12	#3	16-9	8169	4	#5	6-3	P23
							19	#4	8-3	4055	8	#4	5-6	P33
											8	#4	5-3	P34
	C9	7	1.0	281	7.0	1956					42	#4	4-0	P23
											28	#4	6-3	P24
											70	#4	5-3	P25
											14	#5	4-6	P27
											28	#5	12-3	P28
BENT BEAMS LINE "C"	C3	4	2.0	858	8.0	3432	16	#11	16-4	11159	128	#5	8-0	P29
							8	#10	12-4	10144	16	#5	6-3	P30
	C4	2	1.25	5.1	2.5	1022	16	#5	7-0	5010				
							3	#5	12-0	5160				
	C3	2	1.65.2		6.3.2		8	#11	10-3	11135	26	#5	8-0	P31
							4	#10	8-10	10080	8	#6	8-0	P32
							3	#5	7-6	8035				
							4	#5	8-0	5080				
ROOF BEAMS	D7	13	4.8		62.4		52	#9	68-0	9690	118	#9	9-6	P8
							26	#8	65-0	9260	26	#8	30-4	P9
											26	#9	30-4	P10
ROADWAY CURBS		12	1.09		13.08		60	#5	2-6 (Hook)		60	#5	10-6	H1

BENDING DIAGRAMS ALL DIMENSIONS ARE OUT TO OUT

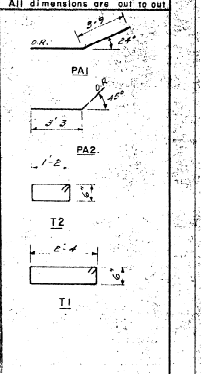


ADDITIONS TO EXISTING PARAPETS

LEN'S. TUPPER Nºs. 1, 2, & 3

ITEM	CU. YDS. CONC.	LBS. REINF.	STRAIGHT BARS Nº	SIZE	LENGTH	MARK	BENT BARS Nº	SIZE	LENGTH	MARK
PRECAST UNITS	11.7	14,517	343	#6	10-6	6108	343	#4	7-9	PA1
							343	#4	4-9	PA2
			100	#5	11-0	5110				
			30	#5	9-9	5099				
			48	#5	5-9	5089				
			166	#6	11-0	6110				
			10	#6	9-9	6099				
			12	#4	5-9	4369				
CAST IN PLACE	1.0	475	10	#4	7-0	4070	10	#3	6-0	T1
			20		6-9	4069	26	#4	5-6	T2
			10		4-6	4042				
			10		4-0	4040				
			20		3-3	4053				
			20	#4	2-3	4053				

BENDING DIAGRAMS All dimensions are out to out



Quantities for :-
Lines "A", "B" & "C" and Roadway Curbs
Checked By :- [illegible]

Quantities for :-
Roof Slab, Manhole and Additions to Parapet
Checked By :- [illegible]

NO.	REVISION	NAME	DATE

DEPARTMENT OF PUBLIC WORKS
CANADA
DEVELOPMENT ENGINEERING BRANCH
STRUCTURES DIVISION

CONNECTION
TUPPER Nº. 2 & TUPPER Nº. 3
TUPPER Nº. 1 & SNOWSHED Nº. 1
GLACIER NATIONAL PARK

SCHEDULE
TUPPER Nº 1 & SNOWSHED Nº. 1
ADDITION TO EXISTING PARAPET WALLS

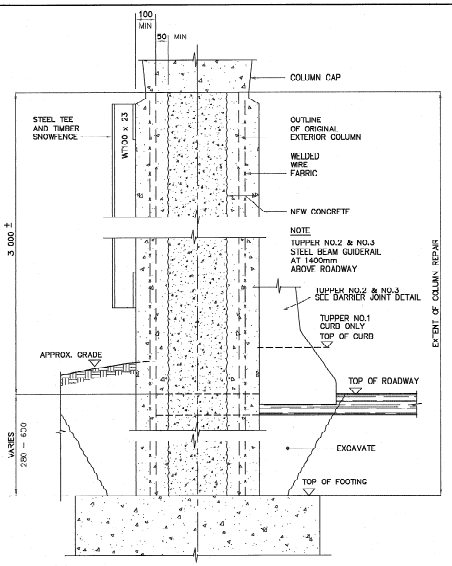
JOB SUPERVISOR L. Hamer
APPROVED DATE 11/3/66
CHIEF STRUCTURES DIVISION
APPROVED DATE 11-3-66
CHIEF ENGINEER

	BY	DATE
DESIGN CHECKED		
DRAWN	L.B.R.	11-3-66
CHECKED		

PROJECT NO. SD - 169

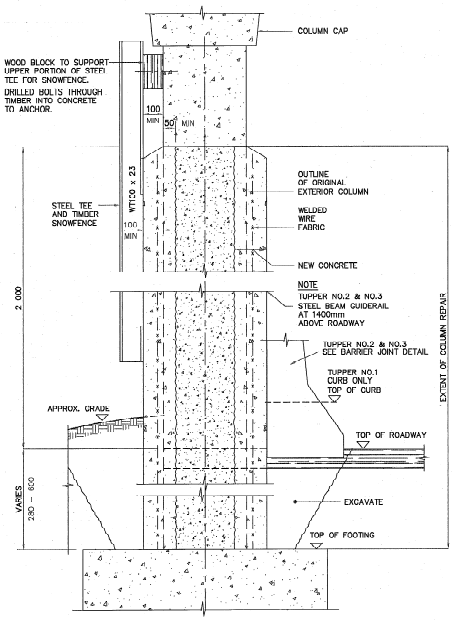
SHEET 28 OF 28

AA002209



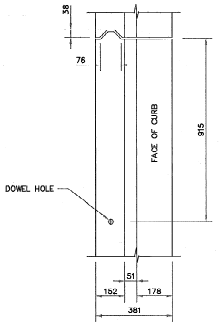
FULL HEIGHT COLUMN REPAIR
SCALE 1:10

NOTE
REPAIR COLUMN FROM TOP OF FOOTING TO UNDERSIDE OF COLUMN CAP AS FOLLOWS:
EXCAVATE AROUND COLUMN
SUPPORT TIE BEAM AND ROOF EACH SIDE OF COLUMN
REMOVE SNOW FENCE
CHIP OUT CONCRETE TO EXPOSE REINFORCING STEEL FULL PERIMETER.
PRESERVE AND CLEAN EXISTING REINFORCING STEEL
FULLY WRAP COLUMN WITH GALVANIZED WELDED WIRE FABRIC 152 x 152 MW13.3 x MW13.3 LAP WELDED WIRE FABRIC 200mm.
ENCASE COLUMN WITH FIBRE REINFORCED CONCRETE.
REPAIRED COLUMNS TO BE TREATED WITH A SURFACE SEALER ON ALL SIDES.
REPAIR AND REPLACE EXCAVATION, CURB, BARRIER, RAIL AND ASPHALT TO ORIGINAL CONDITION
MAINTAIN EXISTING CURB ALIGNMENT FOR TUPPER NO. 1
MAINTAIN EXISTING CURB ALIGNMENT FOR TUPPER NO. 2 THROUGH THE USE OF BLOCKOUT IN CONCRETE FORM. SEE "BLOCKOUT DETAIL" BELOW.
REINSTALL SNOWFENCE

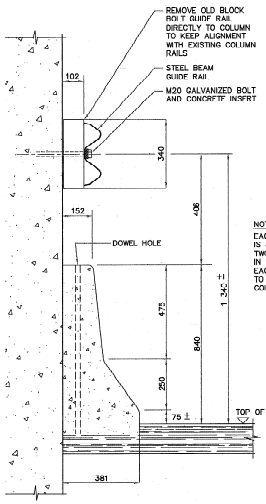


PARTIAL HEIGHT COLUMN REPAIR
SCALE 1:10

NOTE
REPAIR COLUMN FROM TOP OF FOOTING TO A HEIGHT OF TWO (2) METRES ABOVE EXISTING ROAD SURFACE AS FOLLOWS:
EXCAVATE AROUND COLUMN
SUPPORT TIE BEAM AND ROOF EACH SIDE OF COLUMN
REMOVE SNOW FENCE
CHIP OUT CONCRETE TO EXPOSE REINFORCING STEEL FULL PERIMETER.
PRESERVE AND CLEAN EXISTING REINFORCING STEEL
FULLY WRAP COLUMN WITH GALVANIZED WELDED WIRE FABRIC 152 x 152 MW13.3 x MW13.3 LAP WELDED WIRE FABRIC 200mm.
ENCASE COLUMN WITH FIBRE REINFORCED CONCRETE.
REPAIRED COLUMNS TO BE TREATED WITH A SURFACE SEALER ON ALL SIDES.
REPAIR AND REPLACE EXCAVATION, CURB, BARRIER, RAIL AND ASPHALT TO ORIGINAL CONDITION
MAINTAIN EXISTING CURB ALIGNMENT FOR TUPPER NO. 1
MAINTAIN EXISTING CURB ALIGNMENT FOR TUPPER NO. 2 THROUGH THE USE OF BLOCKOUT IN CONCRETE FORM. SEE "BLOCKOUT DETAIL" BELOW.
REINSTALL SNOWFENCE

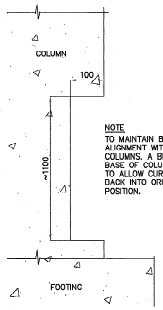


BARRIER JOINT PLAN
SCALE 1:10



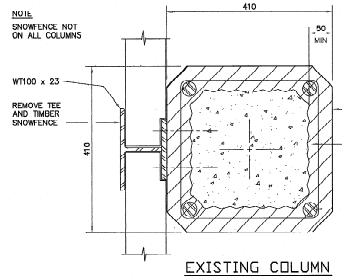
NOTE
EACH CURB SECTION IS 3658 mm LG. TWO VERTICAL DOWELS IN EACH SECTION. EACH SECTION IS ATTACHED TO CENTERLINE OF COLUMN WITH ONE BOLT.

BARRIER JOINT SECTION
SCALL 1:10



NOTE
TO MAINTAIN BARRIER ALIGNMENT WITH UNREPAIRED COLUMNS A BLOCKOUT AT BASE OF COLUMN WAS CREATED TO ALLOW CURB TO BE SLID BACK INTO ORIGINAL POSITION.

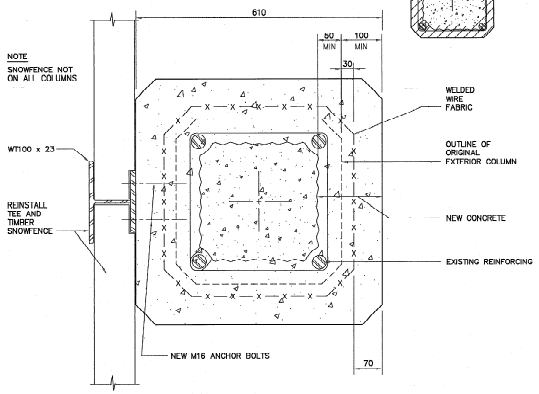
BLOCKOUT FOR CONCRETE BARRIER
NOT TO SCALE



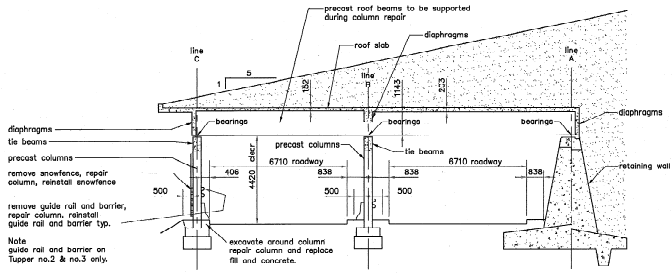
* WHERE STEEL WAS NOT CORRODED, DID NOT REMOVE CONCRETE BEHIND THE BARS. USUALLY THE TWO BARS ON EAST FACE WERE IN GOOD CONDITION.

EXISTING COLUMN
SCALE 1:5

MANY ACTUAL COLUMNS:



REPAIRED COLUMN
SCALE 1:5



SECTION
SCALE 1:100

NOTES

1. FOR GENERAL NOTES SEE DWG. NO. 1
2. FOR COLUMNS TO BE REPAIRED SEE SNOWSHED LAYOUT ON DRAWINGS NO. 1, 2 & 4

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

WESTERN REGION
REGION DE L'OUEST

ARCHITECTURAL AND ENGINEERING SERVICES
SERVICES D'ARCHITECTURE ET DE GENIE

revisions | date

project / projet
SNOWSHED COLUMN REPAIR 1994
(AS CONSTRUCTED)
T.C.H. – GLACIER NATIONAL PARK – B.C.

drawing / dessin
TUPPER NO. 1 , NO. 2 , NO. 3
SECTION AND DETAILS
(AS CONSTRUCTED)

designed / conçu: W.J. DANSON
date
drawn / dessiné: C.E. ROBERTS / S.J. CHOLETTE
modified: I.L. MYHASON (94 12 16)
reviewed / examiné: K.K. SOOD
date
approved / approuvé: G.S. HINNERT
date
Tender / Soumission
Project Manager / Administrateur de projets
project no. / no. du projet: 669112
drawing no. / no. du dessin: 3 of 5

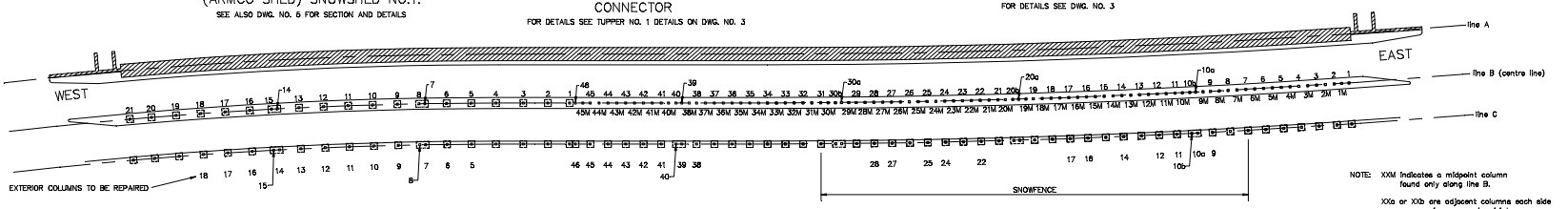
AA001475

P_OT SCALE 1:1

(ARMCO SHED) SNOWSHED NO.1.
SEE ALSO DWG. NO. 6 FOR SECTION AND DETAILS

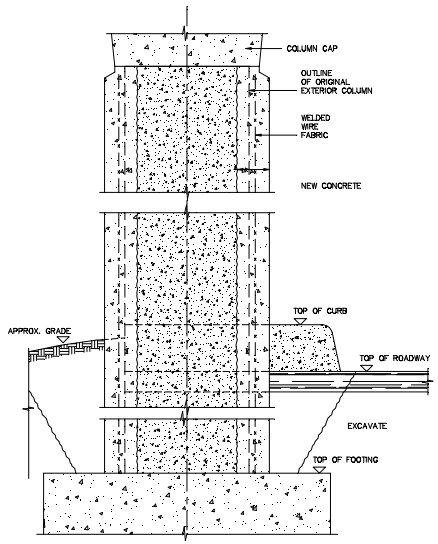
SNOWSHED NO.1. – TUPPER NO.1. CONNECTOR
FOR DETAILS SEE TUPPER NO. 1 DETAILS ON DWG. NO. 3

TUPPER NO.1. SNOWSHED
FOR DETAILS SEE DWG. NO. 3



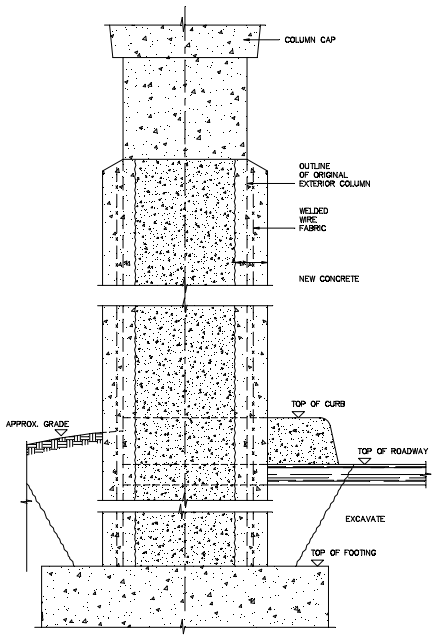
NOTE: XXM indicates a midpoint column found only along line B.
XXa or XXb are adjacent columns each side of an expansion joint.
repair exterior columns numbered along line C.
36 columns to be repaired.

PLAN
SCALE 1:400



NOTE
REPAIR COLUMN FROM TOP OF FOOTING TO UNDERSIDE OF COLUMN CAP AS FOLLOWS:
EXCAVATE AROUND COLUMN
SUPPORT TIE BEAM AND ROOF EACH SIDE OF COLUMN
CHIP OUT CONCRETE TO EXPOSE REINFORCING STEEL FULL PERIMETER.
PRESERVE AND CLEAN EXISTING REINFORCING STEEL.
FULLY WRAP COLUMN WITH GALVANIZED WELDED WIRE FABRIC 152 x 152 MW1.3.3 x MW1.3.3 LAP WELDED WIRE FABRIC 200mm.
ENCASE COLUMN WITH FIBRE REINFORCED CONCRETE.
REPAIRED COLUMNS TO BE TREATED WITH A SURFACE SEALER ON ALL SIDES.
REPAIR AND REPLACE EXCAVATION, CURB AND ASPHALT TO ORIGINAL CONDITION AND ALIGNMENT

SNOWSHED NO. 1
FULL HEIGHT COLUMN REPAIR
SCALE 1:10



NOTE
REPAIR COLUMN FROM TOP OF FOOTING TO A HEIGHT OF TWO (2) METRES ABOVE EXISTING ROAD SURFACE AS FOLLOWS:
EXCAVATE AROUND COLUMN
SUPPORT TIE BEAM AND ROOF EACH SIDE OF COLUMN
CHIP OUT CONCRETE TO EXPOSE REINFORCING STEEL FULL PERIMETER.
PRESERVE AND CLEAN EXISTING REINFORCING STEEL.
FULLY WRAP COLUMN WITH GALVANIZED WELDED WIRE FABRIC 152 x 152 MW1.3.3 x MW1.3.3 LAP WELDED WIRE FABRIC 200mm.
ENCASE COLUMN WITH FIBRE REINFORCED CONCRETE.
REPAIRED COLUMNS TO BE TREATED WITH A SURFACE SEALER ON ALL SIDES.
REPAIR AND REPLACE EXCAVATION, CURB AND ASPHALT TO ORIGINAL CONDITION AND ALIGNMENT

SNOWSHED NO. 1
PARTIAL HEIGHT COLUMN REPAIR
SCALE 1:10

NOTES
1. FOR GENERAL NOTES SEE DWG. NO. 1

PLOT SCALE 1:1

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

WESTERN REGION
REGION DE L'OUEST

ARCHITECTURAL AND ENGINEERING SERVICES
SERVICES D'ARCHITECTURE ET DE GENIE

revisions | date

project / projet
SNOWSHED COLUMN REPAIR 1994
T.C.H. – GLACIER NATIONAL PARK – B.C.

drawing / dessin
TUPPER NO. 1 SNOWSHED NO. 1
PLAN AND DETAILS

designed / conçu: W.J. DANSON
date
drawn / dessiné: S.J. CHOLETTE / G.E. ROBERTS
date
reviewed / examiné: K.K. SOOD
date
approved / approuvé: G.S. HEBERT
date
Tender / Soumission
Project Manager / Administrateur de projets
project no. / no. du projet: 669112
drawing no. / no. du dessin: 4 of 5