CITY OF COURTENAY

5th STREET BRIDGE UPGRADES

HATCH PROJECT NUMBER: H356896

DRAWING LIST		
DRAWING NUMBER	DESCRIPTION	REV.
H356896-SR-100-S0-0000	COVER SHEET	0
H356896-SR-100-S0-0001	GENERAL NOTES AND ABBREVIATIONS	0
H356896-SR-100-S0-0020	REHABILITATION GENERAL ARRANGEMENT	0
H356896-SR-100-S0-0021	FLOOR BEAM REHABILITATION	0
22160-101	BRIDGE SLAB REINFORCING & CONCRETE REPAIR DETAILS	0
22160-102	CATHODIC PROTECTION SYSTEM INSTALLATION DETAILS	0
22160-103	PROJECT PHASING & ACCESS PLAN	0
E01	SITE PLAN	-
E02	DETAILS	-
E03	KIOSK DETAILS (1 OF 2)	-
E04	KIOSK DETAILS (2 OF 2)	-
E05	RECTFIER MOUNTING DETAIL	-
E06	POWER DISTRIBUTION DIAGRAMS	-
E07	COMMUNICATION BLOCK DIAGRAM	-
E08	CONTROLS	-
E09	TYPICAL PLC/RTU CABINET WIRING TERMINATIONS (1 OF 2)	-
E10	TYPICAL PLC/RTU CABINET WIRING TERMINATIONS (2 OF 2)	-

ISSUED FOR REQUEST FOR PROPOSAL
NOVEMBER 18, 2020

CITY OF COURTENAY

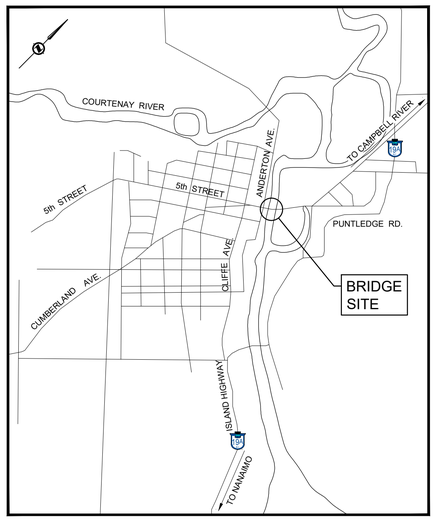
HATCH

DWG No. H356896-SR-100-S0-0000 REV No. 0

LIST OF ABBREVIATIONS

WP	DENOTES WORKING POINT
E/B	DENOTES EASTBOUND
W/B	DENOTES WESTBOUND
N/B	DENOTES NORTHBOUND
S/B	DENOTES SOUTHBOUND
T/R	DENOTES TOP OF RAIL
T/C	DENOTES TOP OF CONCRETE
T/F	DENOTES TOP OF FOOTING
T.O.	DENOTES TOP OF
BOT.	DENOTES BOTTOM
U/S	DENOTES UNDERSIDE
BRG.	DENOTES BEARINGS
ABUT.	DENOTES ABUTMENT
CJ	DENOTES CONSTRUCTION JOINT
EJ	DENOTES EXPANSION JOINT
EF	DENOTES EACH FACE
DIA	DENOTES DIAMETER
R	DENOTES RADIUS
TYP.	DENOTES TYPICAL
SIM.	DENOTES SIMILAR
REF.	DENOTES REFERENCE
NOM.	DENOTES NOMINAL
MIN.	DENOTES MINIMUM
MAX.	DENOTES MAXIMUM
NTS	DENOTES NOT TO SCALE
DWG.	DENOTES DRAWING
EXIST.	DENOTES EXISTING
CONT.	DENOTES CONTINUOUS
CLR.	DENOTES CLEAR
EXT.	DENOTES EXTERIOR
THK.	DENOTES THICKNESS
EQUIV.	DENOTES EQUIVALENT
CIP	DENOTES CAST-IN-PLACE
REINF.	DENOTES REINFORCEMENT

BRIDGE SITE



GENERAL NOTES

1. GENERAL

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.

ALL DIMENSIONS SHOWN FOR EXISTING ELEMENTS ARE PER THE ORIGINAL RECORD DRAWINGS AND SHALL BE CONFIRMED ON SITE BY THE CONTRACTOR PRIOR TO FABRICATION OR CONSTRUCTION. CONTRACTOR TO VERIFY ALL NECESSARY DIMENSIONS IN THE FIELD PRIOR TO SHOP DRAWING PRODUCTION AND MATERIAL FABRICATION.

RECORD DRAWINGS:
- ORIGINAL BRIDGE DRAWINGS
- STEEL SHOP DRAWINGS, WESTERN BRIDGE AND STEEL FABRICATORS (1948)
- REHABILITATION DRAWINGS, McELHANNEY (1984, 1996)

REFERENCE DRAWINGS:
- HATCH REHABILITATION DRAWINGS TO BE READ IN CONJUNCTION WITH DESIGN DRAWINGS BY THURBER ENGINEERING LTD.
- REFER TO DRAWINGS BY THURBER ENGINEERING LTD. FOR DETAILS ON DECK REHABILITATION AND ON COATINGS.

2. DESIGN CODES AND REFERENCES

CAN/CSA-S6-14 CANADIAN HIGHWAY BRIDGE DESIGN CODE (CHBDC) FOR PEDESTRIAN LIVE LOADING.

BC MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE BRIDGE STANDARDS AND PROCEDURES MANUAL, VOLUME 1, SUPPLEMENT TO CSA S6-14 (OCTOBER 2016).

3. CAST-IN-PLACE CONCRETE

CLASS OF CONCRETE SHALL BE IN ACCORDANCE WITH CSA A23.1 AS FOLLOWS:

COMPONENT	28 DAY COMPRESSIVE STRENGTH	EXPOSURE CLASS
ALL	35 MPa	C-1

CLEAR COVER TO REINFORCING STEEL:

DECK - TOP	70 ±20
SIDEWALK - TOP	50 ±10
VERTICAL FACES	50 ±10
REMAINDER - UNO	70 ±20

ALL EXPOSED EDGES OF CONCRETE TO BE CHAMFERED 20mm, UNLESS NOTED OTHERWISE.

CONCRETE SURFACES TO HAVE THE FOLLOWING FINISHES IN ACCORDANCE WITH BC MOTI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION:
- CLASS 3: RUBBED FINISH - TOP AND SURFACES OF CURBS AND PARAPETS.
- BROOM FINISH - UNFORMED SURFACES OF SIDEWALKS
- TINED FINISH - CONCRETE DECK WITHOUT ASPHALT OVERLAY

ROUGHENED CONCRETE SURFACES AND ALL CONSTRUCTION JOINTS SHALL BE WET ABRASIVE CLEANED TO SOUND CONCRETE IN ACCORDANCE WITH ASTM STANDARD D4259 TO A MINIMUM PROFILE OF 6mm.

4. REINFORCING STEEL

ALL REINFORCING STEEL SHALL CONFORM TO CAN/CSA G30.18M, GRADE 400W. G = GALVANIZED.

SPLICING OF LONGITUDINAL REINFORCING STEEL SHALL BE STAGGERED SUCH THAT NOT MORE THAN ONE-THIRD OF REINFORCEMENT IS SPLICED AT ANY CROSS-SECTION OF THE DECK.

LAP SPLICES SHALL BE AS FOLLOWS (mm), UNLESS NOTED OTHERWISE:

BAR SIZE	UNCOATED BOTTOM BAR	UNCOATED TOP BAR
10M	390	470
15M	510	660
20M	620	800

SPLICE LENGTHS ASSUME CLASS B TENSION SPLICES, SLABS WITH CLEAR SPACING BETWEEN BARS OF NOT LESS THAN 2 Db. BAR IS CONSIDERED TOP BAR IF MORE THAN 300mm OF FRESH CONCRETE IS CAST BELOW THE BAR.

5. STRUCTURAL AND MISCELLANEOUS STEEL

ALL STRUCTURAL STEEL SHALL CONFORM TO CAN/CSA G40.21:
- HSS SECTIONS AND ANGLES: GRADE 350W
- STRUCTURAL PLATE: GRADE 300W
- MISCELLANEOUS PLATE: GRADE 300W

FABRICATION AND ERECTION SHALL CONFORM TO CAN/CSA S6.

ALL STEEL SHALL BE HOT-DIP GALVANIZED (HDG) TO ASTM A123 UNLESS NOTED OTHERWISE.

ALL WELDING SHALL BE IN ACCORDANCE WITH CAN/CSA W59, WITH MINIMUM FILLET WELD SIZE OF 5mm.

ALL BOLTS SHALL BE HOT-DIP GALVANIZED ASTM F3125, GRADE A325M HIGH STRENGTH BOLTS. BOLTS SHALL BE 22mm DIA WITH THREADS EXCLUDED FROM THE SHEAR PLANE, UNLESS NOTED OTHERWISE.

UNLESS NOTED OTHERWISE, CONCRETE ANCHORS SHALL BE HAS-E B7 HDG RODS WITH STANDARD GALVANIZED NUTS AND WASHERS IN PRE-DRILLED HOLES. THE HOLE SHALL BE FILLED WITH HILTI HIT-RE 500 V3 ADHESIVE.

HEADED ANCHORS SHALL BE IN ACCORDANCE WITH ASTM A108 GRADE 1020, UNLESS NOTED OTHERWISE.

6. CONSTRUCTION AND INSTALLATION

DETAILS AND DIMENSIONS ARE BASED ON AVAILABLE RECORD DRAWINGS AND REPORTS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND GRADES OF THE EXISTING STRUCTURE AND ALL DETAILS ON SITE AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO ORDERING MATERIAL AND/OR COMMENCING WITH THE WORK.

WHERE REQUIRED, RIVETS SHALL BE REMOVED WITH A PNEUMATIC RIVET HAMMER. REMOVED RIVETS SHALL BE REPLACED WITH GRADE A325M TYPE 1 BOLTS, COMPLETE WITH NUTS AND WASHERS, TO MATCH THE SIZE OF THE HOLE.

THE CONTRACTOR SHALL ENSURE THE STABILITY AND THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF ALL TEMPORARY WORKS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES AND SERVICES DURING CONSTRUCTION.

FOR PRICING
NOT FOR CONSTRUCTION

REF.	DRAWING NUMBER	DRAWING TITLE

REFERENCE DRAWINGS

ENGINEER STAMP:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
F. T. HRISTOV
31982

NO.	DESCRIPTION	BY	YYYY/MM/DD
0	ISSUED FOR REQUEST FOR PROPOSAL	FH	2020/11/18

REVISIONS

HATCH

DRAWN:	PC		2020/11/18
DESIGN:	SL		2020/11/18
CHECK:	FH		2020/11/18
REVIEW:	MY		2020/11/18
	INITIALS	SIGNATURE	YYYY/MM/DD

SCALE: AS NOTED

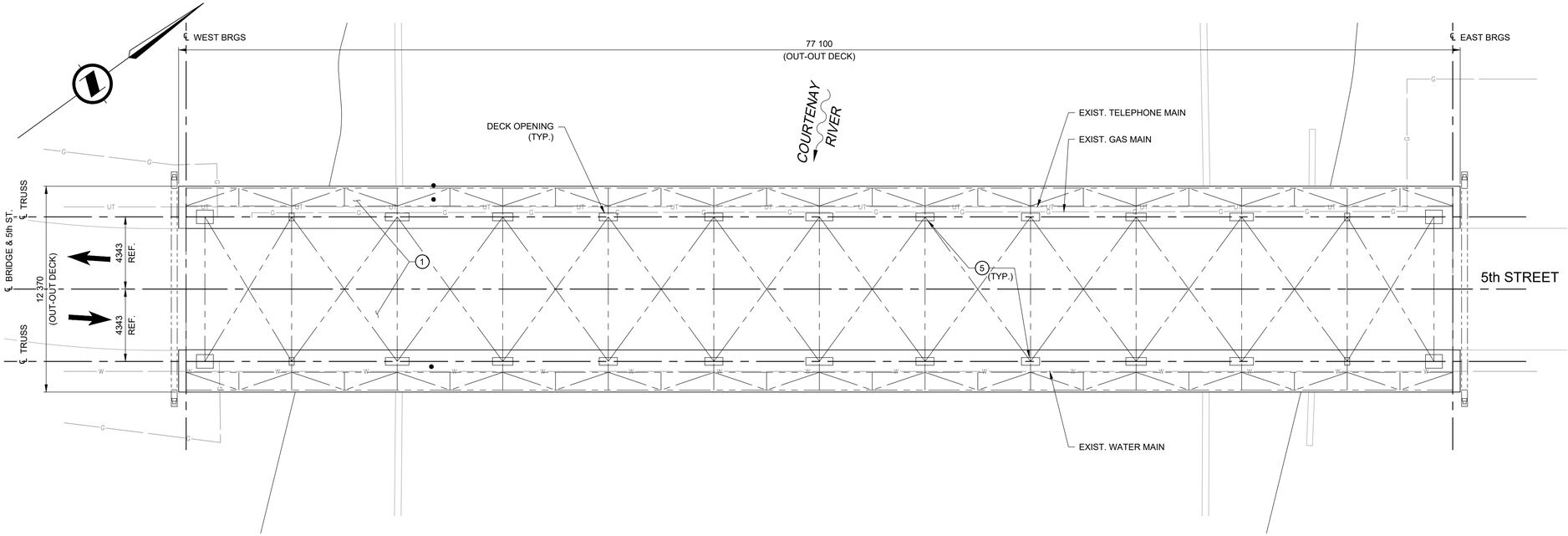
CLIENT REF. DWG. No.:

CLIENT: CITY OF COURTENAY

5th STREET BRIDGE UPGRADES

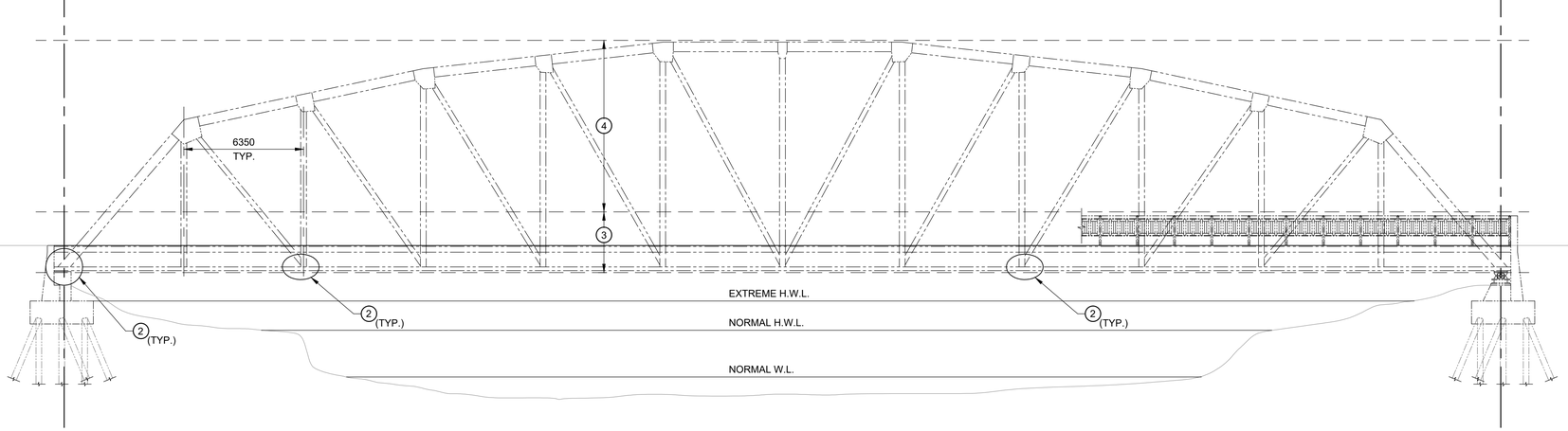
GENERAL NOTES AND ABBREVIATIONS

ANSI D | PROJECT/DWG No.: H356896-SR-100-S0-0001 | REV No 0



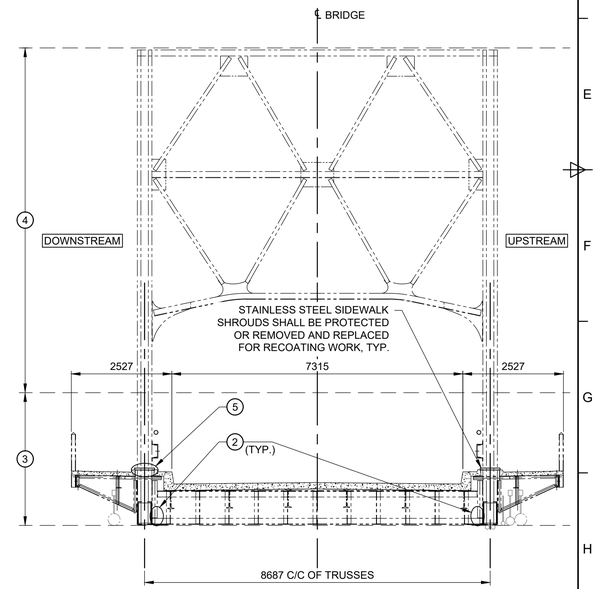
DECK PLAN

SCALE 1:150



ELEVATION

SCALE 1:150



TYPICAL SECTION

SCALE 1:75

SCOPE OF WORK

1. DECK REHABILITATION - CATHODIC PROTECTION AND OVERLAY (REFER TO DRAWINGS BY THURBER ENGINEERING LTD.)
2. FLOOR BEAM WEB SECTION LOSS REPAIR, SEE DRAWING 0021.
3. SPLASH ZONE AND BELOW DECK STEELWORK RECOATING (REFER TO SPECIFICATIONS AND DRAWINGS BY THURBER ENGINEERING LTD.)
4. ABOVE-SPLASH ZONE STEELWORK RECOATING (REFER TO SPECIFICATIONS AND DRAWINGS BY THURBER ENGINEERING LTD.)
5. NEW GALVANIZED STEEL SHROUDS AT DECK OPENINGS TO BE INSTALLED AFTER STEELWORK RECOATING.

FOR PRICING
NOT FOR CONSTRUCTION

REF.	DRAWING NUMBER	DRAWING TITLE

REFERENCE DRAWINGS

ENGINEER STAMP:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
F. T. HRISTOV
31982

NO.	DESCRIPTION	BY	YYYY/MM/DD
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REVIEW:	MY		2020/11/18
	INITIALS	SIGNATURE	YYYY/MM/DD

SCALE: AS NOTED

CLIENT REF. DWG. No.:

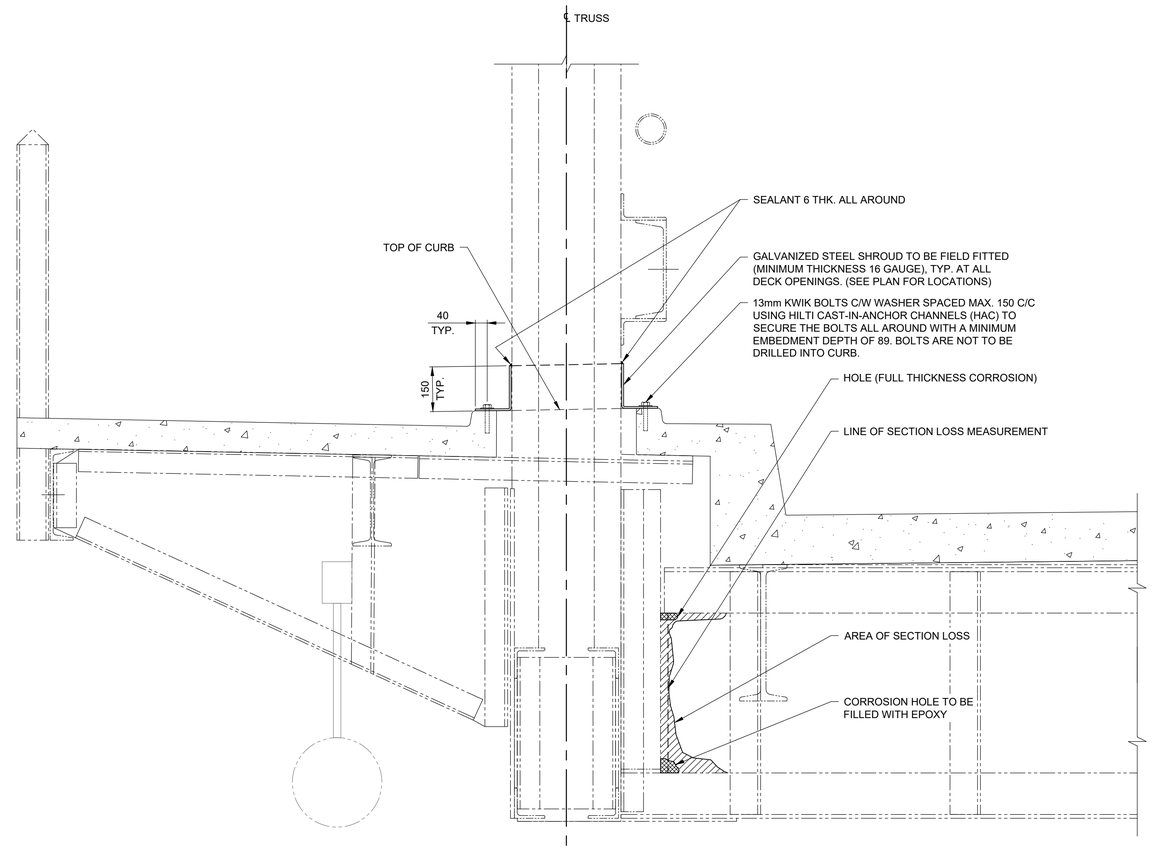
CLIENT: CITY OF COURTENAY

5th STREET BRIDGE UPGRADES

REHABILITATION GENERAL ARRANGEMENT

ANSI D | PROJECT/DWG No.: H356896-SR-100-S0-0020 | REV No 0

PLOT DATE: Monday, November 16, 2020 4:16:48 PM
USER NAME: Chan, Peter
FILE NAME: \\vandata01\HMM-PROJECTS\356896 - 5th Street Bridge Rehabilitation\CAD\H356896-SR-100-S0-0020.dwg



REHABILITATION DETAIL

SCALE 1:10

FLOOR BEAM SECTION LOSS REPAIR PROCEDURE:

1. BY EITHER GRINDING OR SANDBLASTING, REMOVE ALL LOOSE PAINT, DEBRIS AND CORROSION.
2. REMOVE SHARP RIDGES AND DEEP NARROW GROOVES OR PITS FROM THE STEEL SURFACES.
3. RECORD AND DOCUMENT WITH PHOTOS AND SKETCHES ALL SECTION LOSSES AT EACH END OF FLOOR BEAM. RECORD SECTION LOSSES AT MINIMUM 12 MEASUREMENT POINTS ALONG A VERTICAL LINE OF WEB. USE A ULTRASOUND THICKNESS GAUGE. IF THE CALCULATED AVERAGE SECTION LOSS ACROSS THE VERTICAL SECTION IS GREATER THAN 25%. CONTACT THE ENGINEER OF RECORD FOR DIRECTIONS.
4. OTHERWISE, FILL ALL HOLES AND VOIDS WITH APPROVED TWO-PART EPOXY. MIX AND APPLY EPOXY PRODUCTS ACCORDING TO MANUFACTURER'S DIRECTIONS. SCREED THE EPOXY TO THE SMOOTH, FLAT SURFACE REQUIRED USING A STRAIGHT EDGE SCREED. EPOXY PRODUCT TO BE REVIEWED BY ENGINEER OF RECORD.
5. AFTER EPOXY HAS SET, APPLY COATINGS TO THE FLOOR BEAMS AS PER DRAWINGS BY THURBER ENGINEERING LTD. AND AS PER SPECIFICATIONS.

FOR PRICING
NOT FOR CONSTRUCTION

REF.	DRAWING NUMBER	DRAWING TITLE

REFERENCE DRAWINGS

ENGINEER STAMP:

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — F. T. HRISTOV # 31982

NO.	DESCRIPTION	BY	YYYY/MM/DD
0	ISSUED FOR REQUEST FOR PROPOSAL	FH	2020/11/18

REVISIONS

HATCH

DRAWN:	PC		2020/11/18
DESIGN:	SL		2020/11/18
CHECK:	FH		2020/11/18
REVIEW:	MY		2020/11/18
	INITIALS	SIGNATURE	YYYY/MM/DD

SCALE: AS NOTED

CLIENT REF. DWG. No.:

CLIENT: CITY OF COURTENAY

5th STREET BRIDGE UPGRADES

FLOOR BEAM REHABILITATION

ANSI	PROJECT/DWG No.:	REV No
D	H356896-SR-100-S0-0021	0

PLOT DATE: Monday, November 16, 2020 4:24:25 PM
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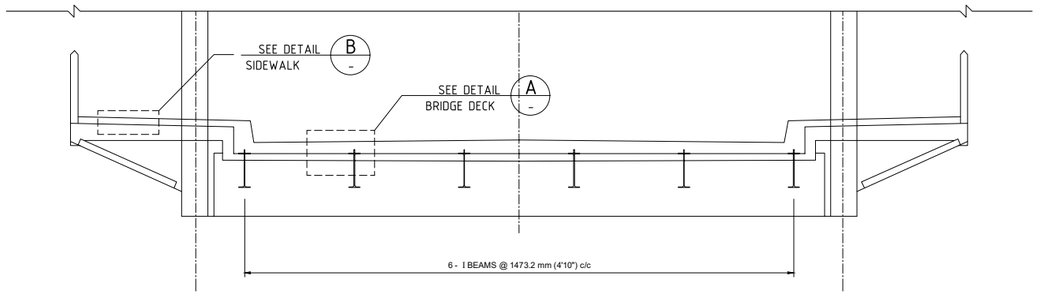
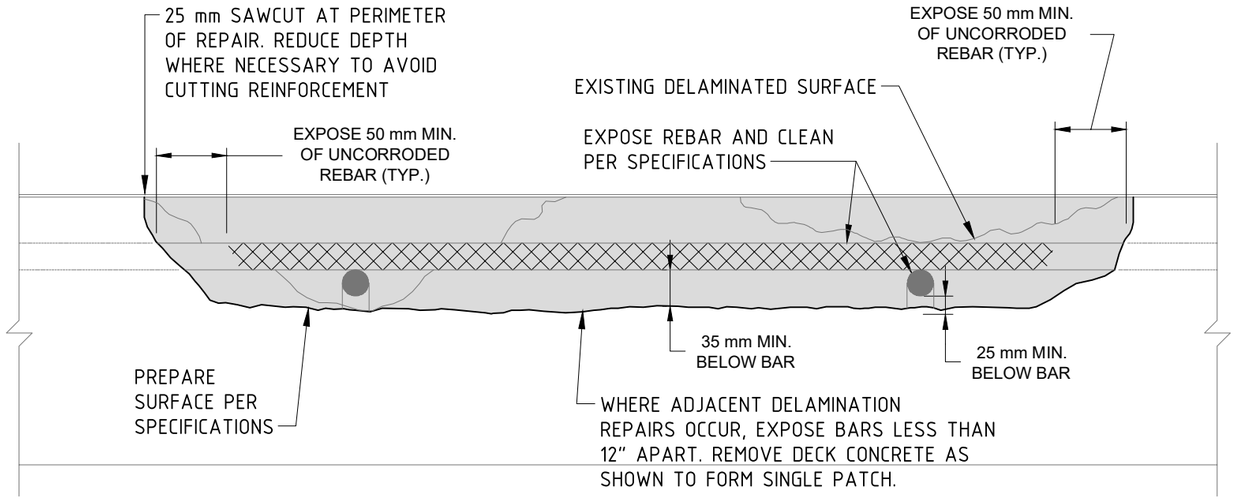
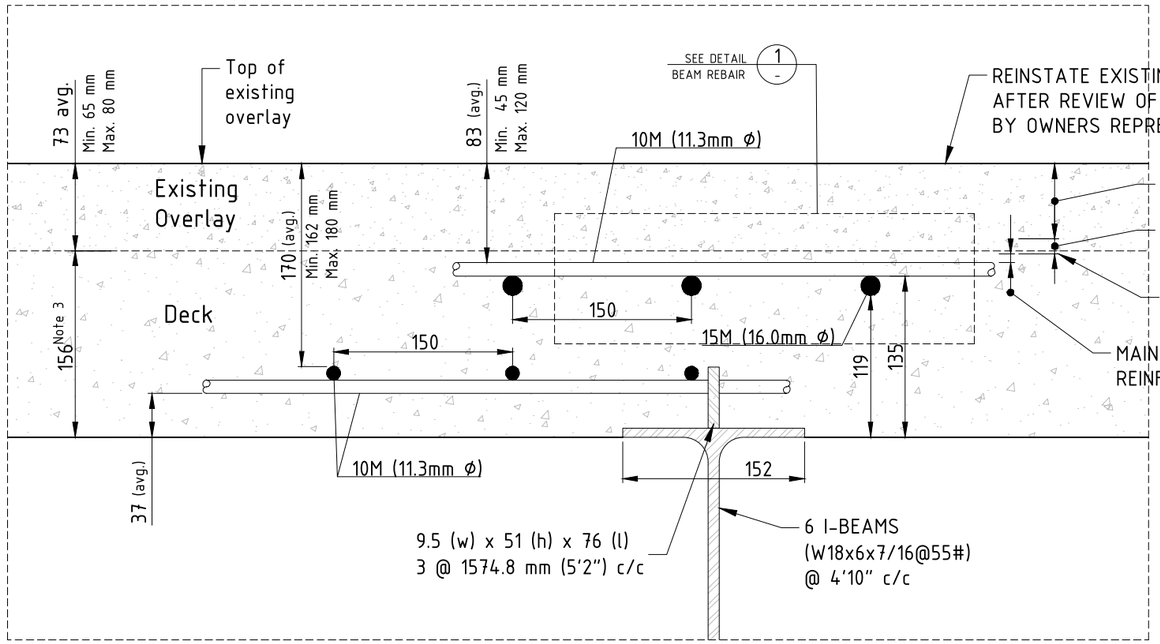
FILE NAME: \\vandata01\HMM-PROJECTS\356896 - 5th Street Bridge Rehabilitation\CAD\H356896-SR-100-S0-0021.dwg



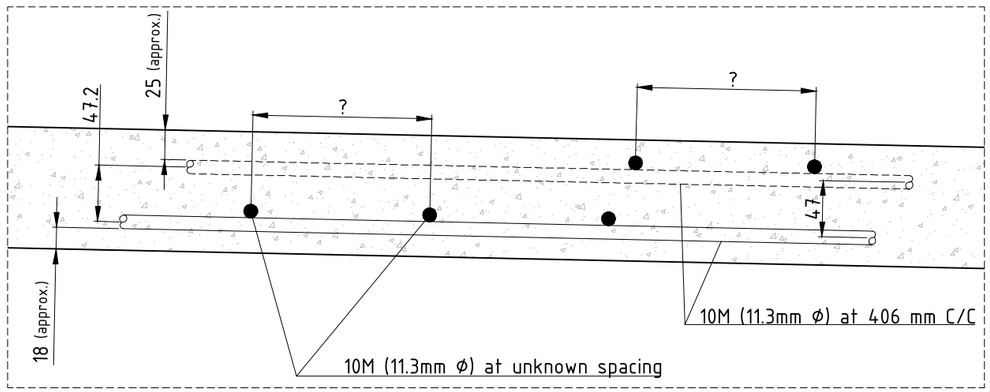
TRANSVERSE CROSS SECTION OF BRIDGE DECK



TYPICAL DETAIL 1 - BEAM REPAIR DETAILS
NOT TO SCALE



DETAIL A - TRANSVERSE CROSS SECTION
NOT TO SCALE



DETAIL B - SIDEWALK CROSS SECTION
NOT TO SCALE

GENERAL NOTES:

1. ALL DIMENSIONS SHOWN IN MILLIMETRES UNLESS OTHERWISE STATED.
2. DIMENSIONS SHOWN AND BAR SIZES TAKEN FROM WSP CANADA INC. DRAFT REPORT ENTITLED "FIFTH STREET BRIDGE, BRIDGE DECK & STEEL COATING EVALUATION REPORT", ISSUED JUNE 2016.
3. DIMENSION BASED ON ASSUMED 9" TOTAL DEPTH OF SLAB & OVERLAY NOTED IN HATCH REPORT ENTITLED "5TH STREET BRIDGE PRELIMINARY SIDEWALK DESIGN".

REFERENCE:

CATHODIC PROTECTION SYSTEM INSTALLATION DETAILS . . . . . Dwg. No. 22160-102
PROJECT PHASING & ACCESS PLAN . . . . . Dwg. No. 22160-103

REV.No.	DATE (MTH. D, Y)	BY	DESCRIPTION
0	NOV. 18/20	MAB	ISSUED FOR REQUEST FOR PROPOSAL

SEAL: PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA M. BYRAM # 35733 16 Nov. 2020

THURBER ENGINEERING LTD.

CITY OF COURTENAY

BRIDGE SLAB REINFORCING & CONCRETE REPAIR DETAILS

5th STREET BRIDGE — COURTENAY, B.C.

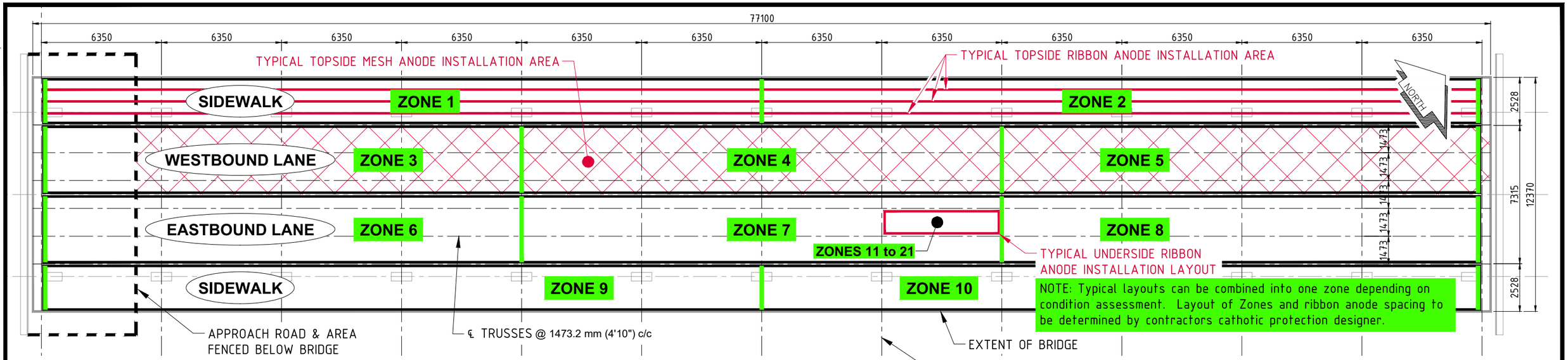
DESIGNED	DRAWN	APPROVED
MAB	DRB	

DATE	SCALE
NOV. 18, 2020	AS SHOWN

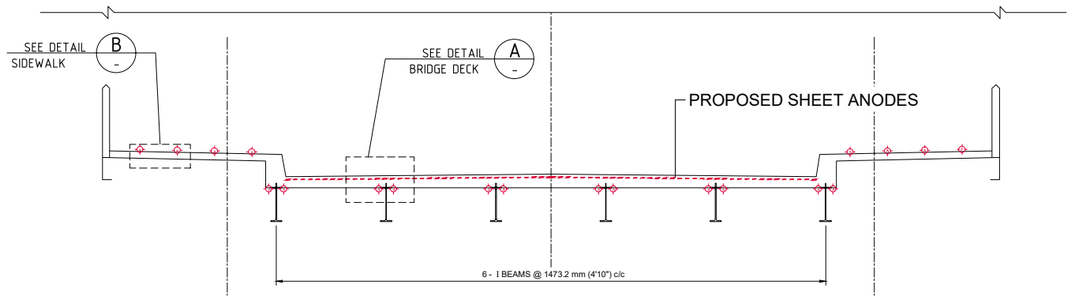
PROJECT No.	DWG. NO.	REV.
22160-101		0

22160-IFRP_R0.dwg

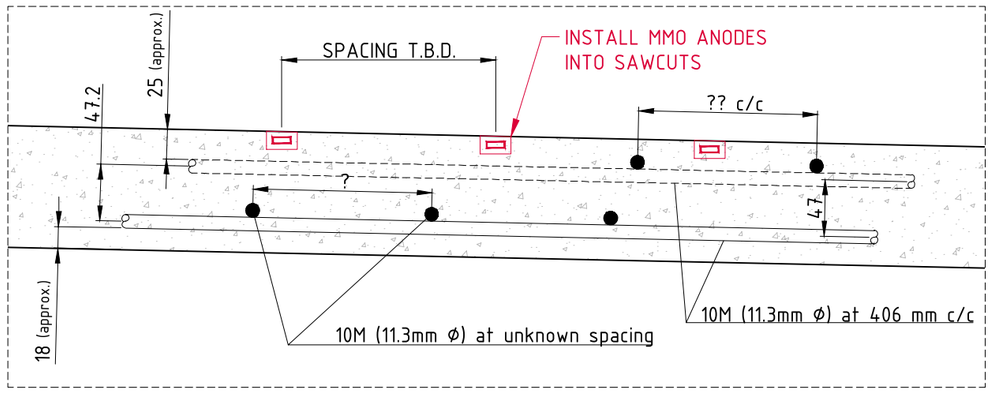
CANCEL PRINTS BEARING EARLIER LETTER



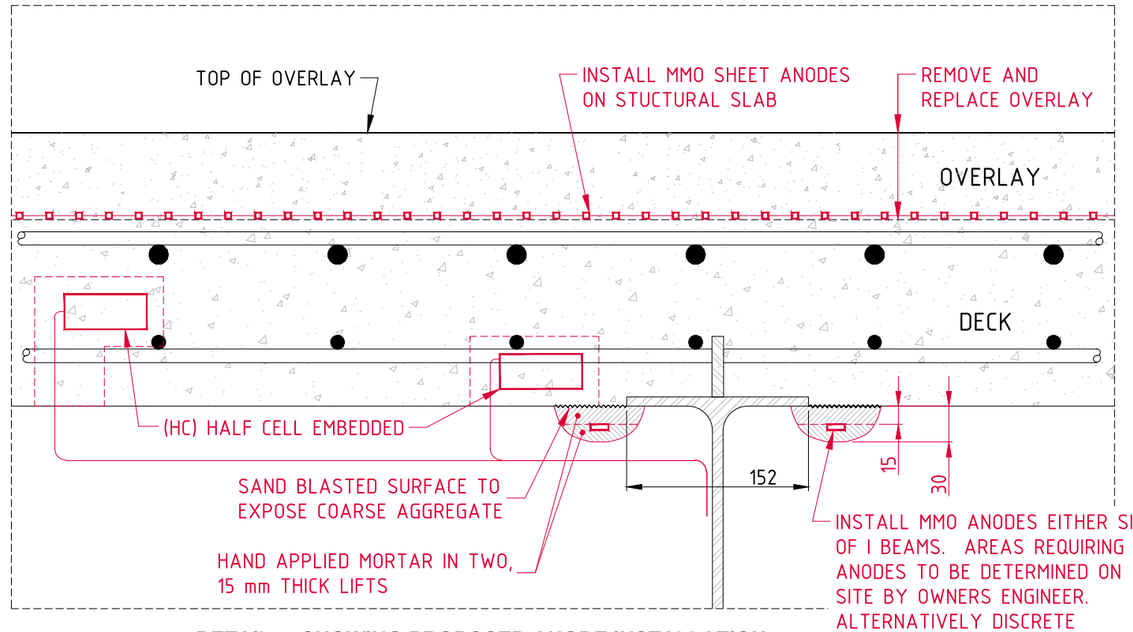
SCHEMATIC PLAN OF BRIDGE DECK



TRANSVERSE CROSS SECTION OF BRIDGE DECK



DETAIL B NOT TO SCALE — **SIDEWALK - SHOWING PROPOSED ANODE INSTALLATION**



DETAIL A NOT TO SCALE — **DETAIL - SHOWING PROPOSED ANODE INSTALLATION**

NOTES:

1. All dimensions shown in millimetres unless otherwise stated.
2. Refer to General Notes on drawing 22160-101.
3. Zoning shown for information purposes only.

REFERENCE:

BRIDGE SLAB REINFORCING & CONCRETE REPAIR DETAILS ..... *Dwg. No. 22160-101*

PROJECT PHASING & ACCESS PLAN ..... *Dwg. No. 22160-103*

REV.No.	DATE (MTH. D, Y)	BY	DESCRIPTION
0	NOV. 18/20	MAB	ISSUED FOR REQUEST FOR PROPOSAL

SEAL: PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — M. BYRAM # 35733 — 16 Nov. 2020

THURBER ENGINEERING LTD.

CITY OF COURTENAY

CATHODIC PROTECTION SYSTEM INSTALLATION DETAILS

5th STREET BRIDGE — COURTENAY, B.C.

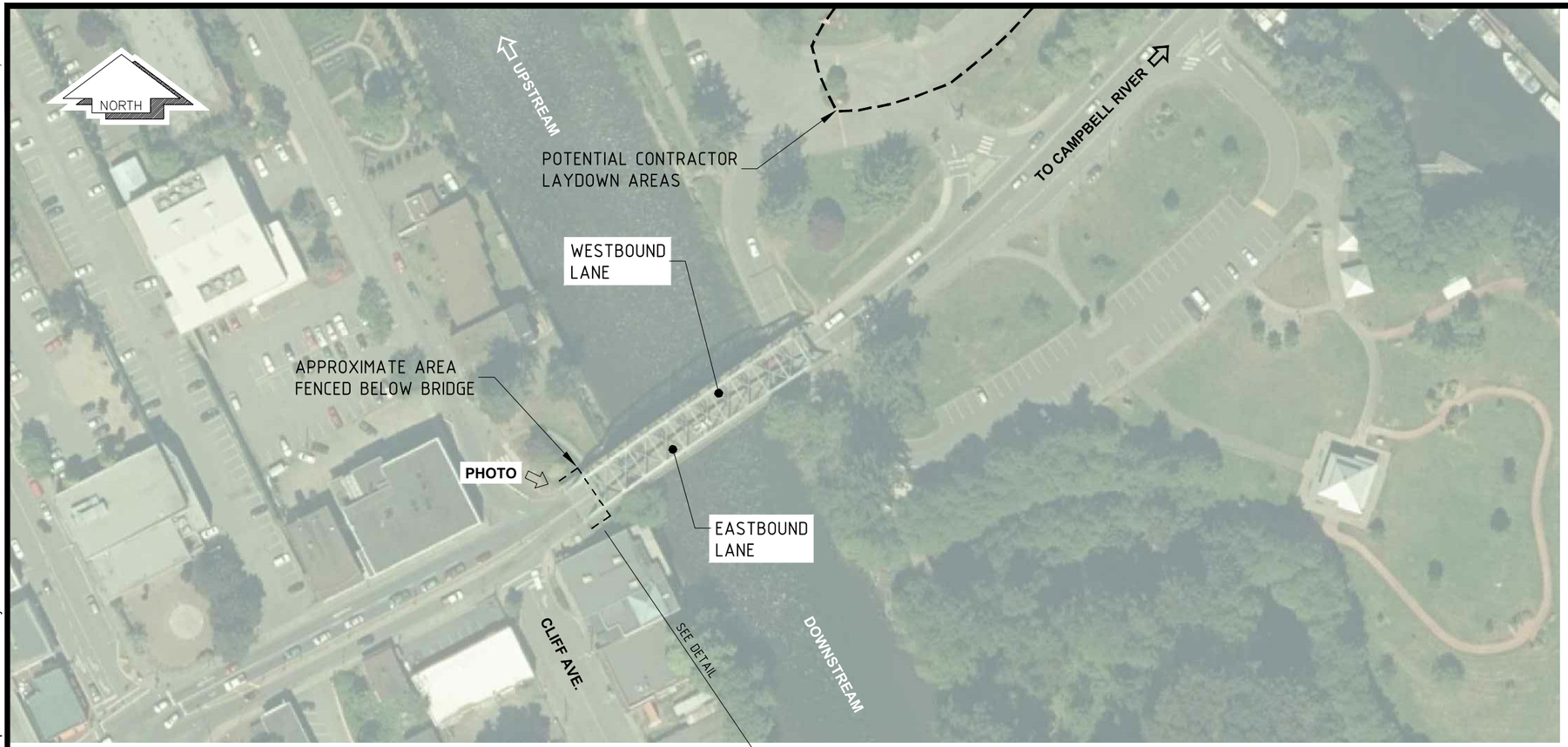
DESIGNED	DRAWN	APPROVED
MAB	DRB	MB

DATE	SCALE
NOV. 18, 2020	AS SHOWN

PROJECT No.	DWG. NO.	REV.
22160	-102	0

22160-IFRP_R0.dwg

CANCEL PRINTS BEARING EARLIER LETTER

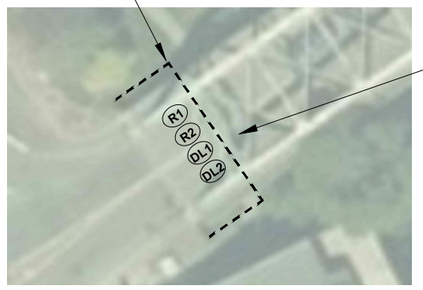


GENERAL SITE PLAN

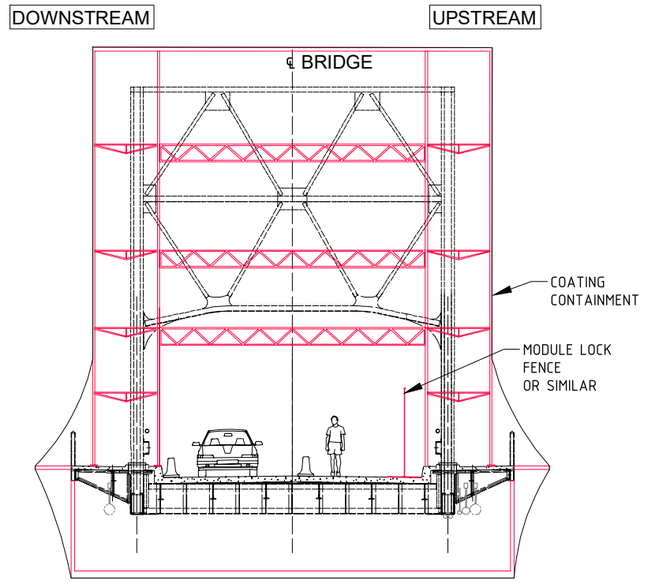
0 10 20 30 40 50m

NOTE: TRAFFIC TO BE SINGLE LANE ALTERNATING FOR DURATION OF PROJECT

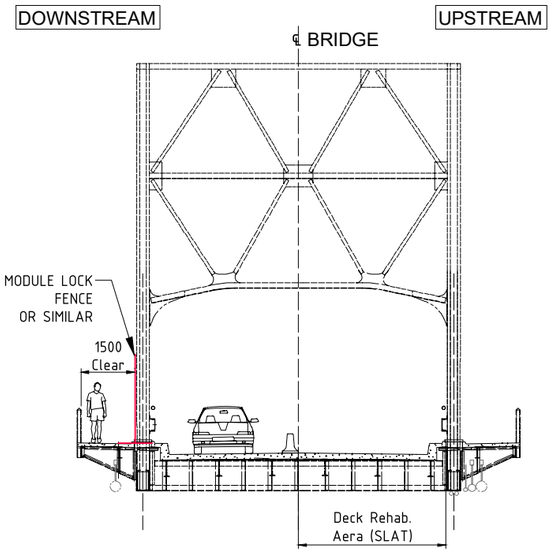
PHOTO SHOWING NORTH-WEST ABUTMENT, APRIL 3, 2018



DETAIL - WEST ABUTMENT



PEDESTRIAN ACCESS DURING STEEL RECOATING WORK



PEDESTRIAN ACCESS DURING DECK REHABILITATION WORK

REFERENCE:

BRIDGE SLAB REINFORCING & CONCRETE REPAIR DETAILS . . . . . Dwg. No. 22160-101

CATHODIC PROTECTION SYSTEM INSTALLATION DETAILS . . . . . Dwg. No. 22160-102

REV.No.	DATE (MTH. D, Y)	BY	DESCRIPTION
0	NOV. 18/20	MAB	ISSUED FOR REQUEST FOR PROPOSAL

SEAL — PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, M. BYRAM # 35733, 16 Nov. 2020

THURBER ENGINEERING LTD.

CITY OF COURTENAY

PROJECT PHASING & ACCESS PLAN

5th STREET BRIDGE — COURTENAY, B.C.

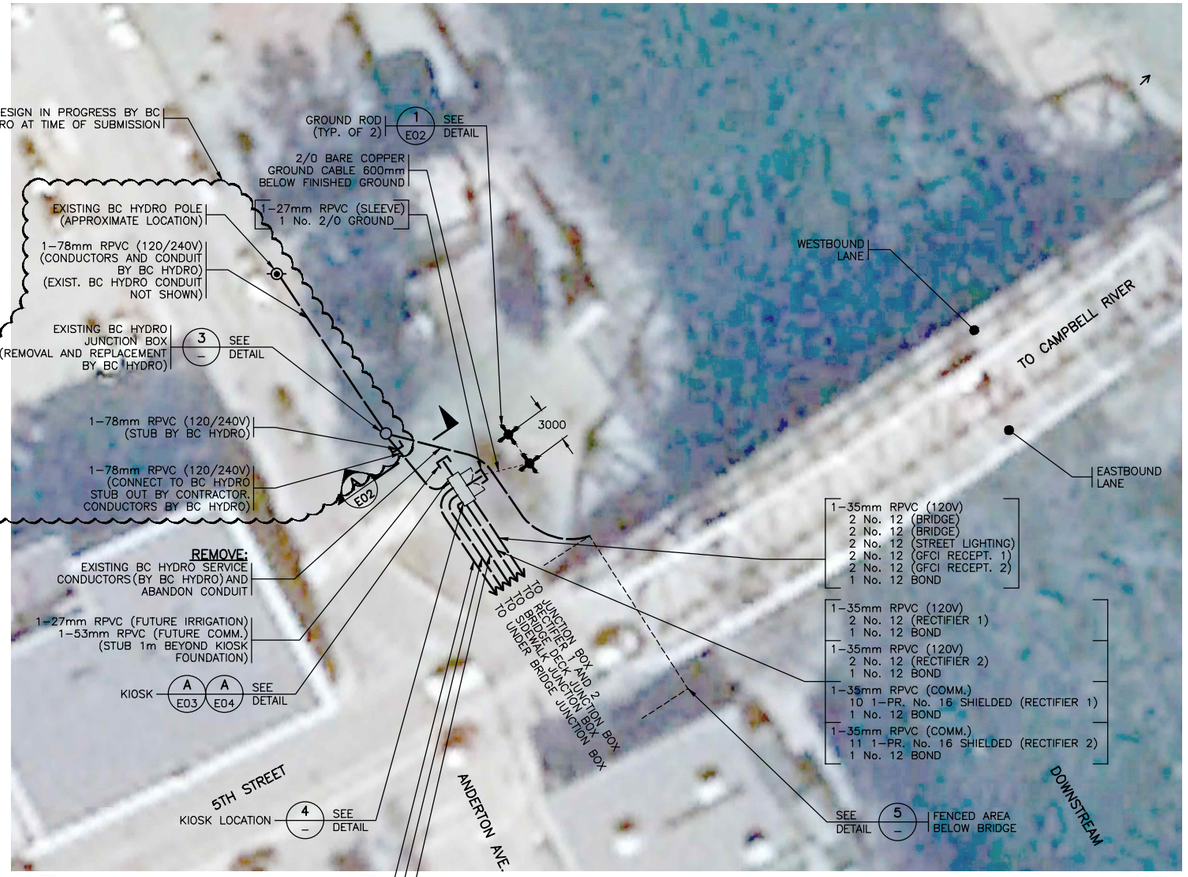
DESIGNED	DRAWN	APPROVED
MAB	DRB	

DATE	SCALE
NOV. 18, 2020	AS SHOWN

PROJECT No.	DWG. NO.	REV.
22160	-103	0

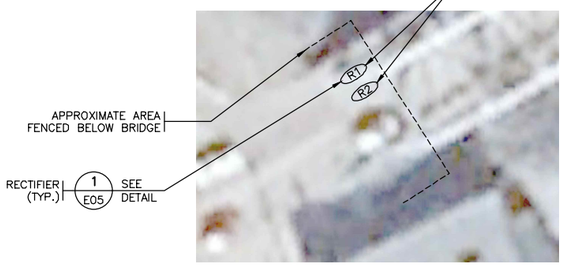
22160-IFRP_R0.dwg

CANCEL PRINTS BEARING EARLIER LETTER



SITE PLAN

0 1:250 10



DETAIL 5 – FENCED AREA BELOW BRIDGE
N.T.S.

NOTES:

1. BC HYDRO DESIGN IN PROGRESS DURING TIME OF SUBMISSION.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA K. S. NAIDU # 41036
2020-11-12

ALL EQUIPMENT IS PROPOSED UNLESS NOTED OTHERWISE

ISSUED FOR TENDER
NOT FOR CONSTRUCTION

BC 1C

CHECK BEFORE YOU DIG

CONTRACTOR SHALL CONFIRM THE LOCATIONS OF ALL UNDERGROUND UTILITIES.

PHOTO SHOWING SOUTH–EAST ABUTMENT, APRIL 3, 2018

REMOVE:
EXISTING LIGHTING SERVICE PANEL
INSTALL:
JUNCTION BOX
ROUTE:
EXISTING CIRCUITS FROM LIGHTING DISTRIBUTION TO JUNCTION BOX AND FEED FROM PANEL A IN KIOSK

DETAIL 2 – LIGHTING SERVICE PANEL
N.T.S.

SCOPE OF WORK:

- PROVIDE AND INSTALL NEW SERVICE KIOSK COMPLETE WITH CONTROL PANEL AND POWER DISTRIBUTION PANEL. REFER TO CIVIL DRAWINGS FOR FOUNDATION AND GRADING REQUIREMENTS.
- PROVIDE SITE GROUNDING (GROUND RODS SPACED 3 METERS APART)
- PROVIDE NEW UNDERGROUND INFRASTRUCTURE TO SUPPORT NEW POWER FEED FROM NEW BC HYDRO JUNCTION BOX TO NEW KIOSK. CONTRACTOR TO COORDINATE INSTALLATION WITH BC HYDRO. BC HYDRO TO REMOVE AND REPLACE EXISTING SERVICE JUNCTION BOX, PROVIDE INFRASTRUCTURE BETWEEN POLE AND JUNCTION BOX, AND STUB OUT 78mm CONDUIT FROM JUNCTION BOX FOR CONTRACTOR TO CONNECT TO.
- REMOVE EXISTING LIGHTING SERVICE PANEL. MAINTAIN EXISTING FIELD WIRING TO LUMINAIRES. REMOVE EXISTING LIGHTING SERVICE PANEL. INSTALL NEW 300mm x 300mm LOCKABLE RPVC JUNCTION BOX WITH REMOVABLE COVER. SPLICE NEW CIRCUIT FEEDERS TO EXISTING FIELD WIRING. INSTALL TWO NEW GFCI WEATHERPROOF RECEPTACLES BESIDE JUNCTION BOX. REMOVE CORD ENDS FROM EXISTING LIGHTING SERVICE PANEL.
- INSTALL TWO (2) CATHODIC PROTECTION RECTIFIERS AND FEED FROM PANEL A IN NEW SERVICE KIOSK. CONDUCTORS TO BE TECK CABLE AND SECURED TO BRIDGE STRUCTURE USING STAINLESS STEEL HARDWARE. SEE DETAIL 5 FOR CATHODIC PROTECTION RECTIFIER LOCATION.

DETAIL 3 – BC HYDRO JUNCTION BOX
N.T.S.

DETAIL 4 – KIOSK LOCATION
N.T.S.

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TITLE
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SITE PLAN

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NTS	22160	E01	–

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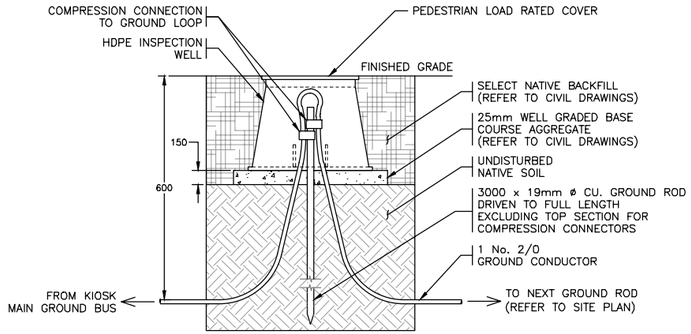
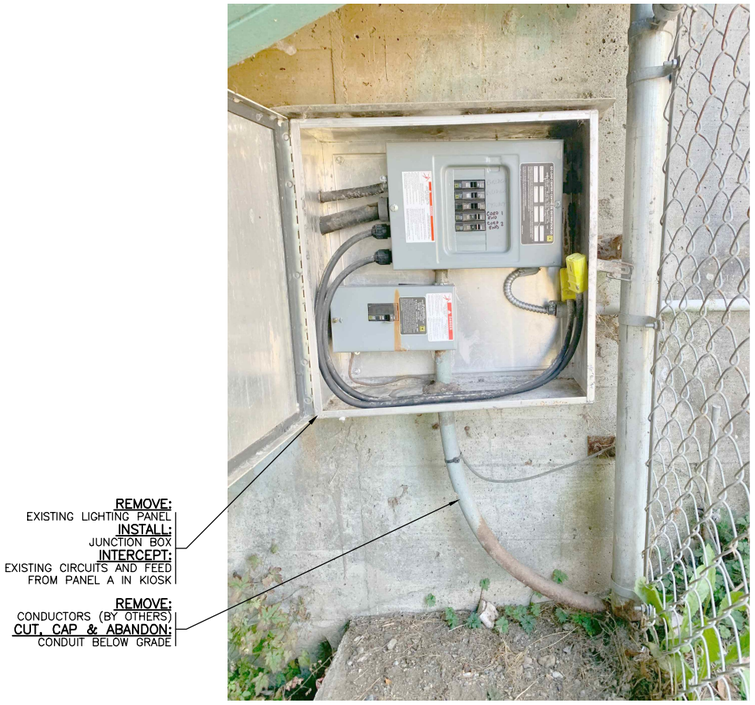
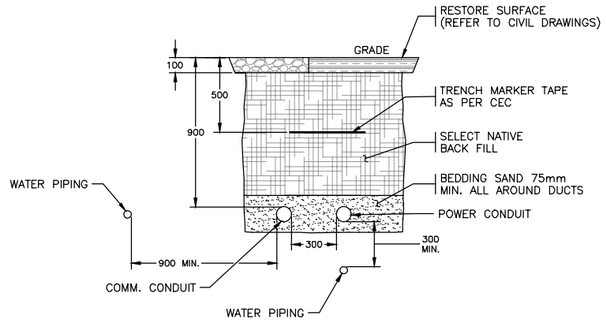


DETAIL 1 E01 GROUND ROD INSP. WELL
N.T.S.



DETAIL 2 E01 LIGHTING SERVICE PANEL
N.T.S.



SECTION A E01 TYPICAL TRENCH
N.T.S.

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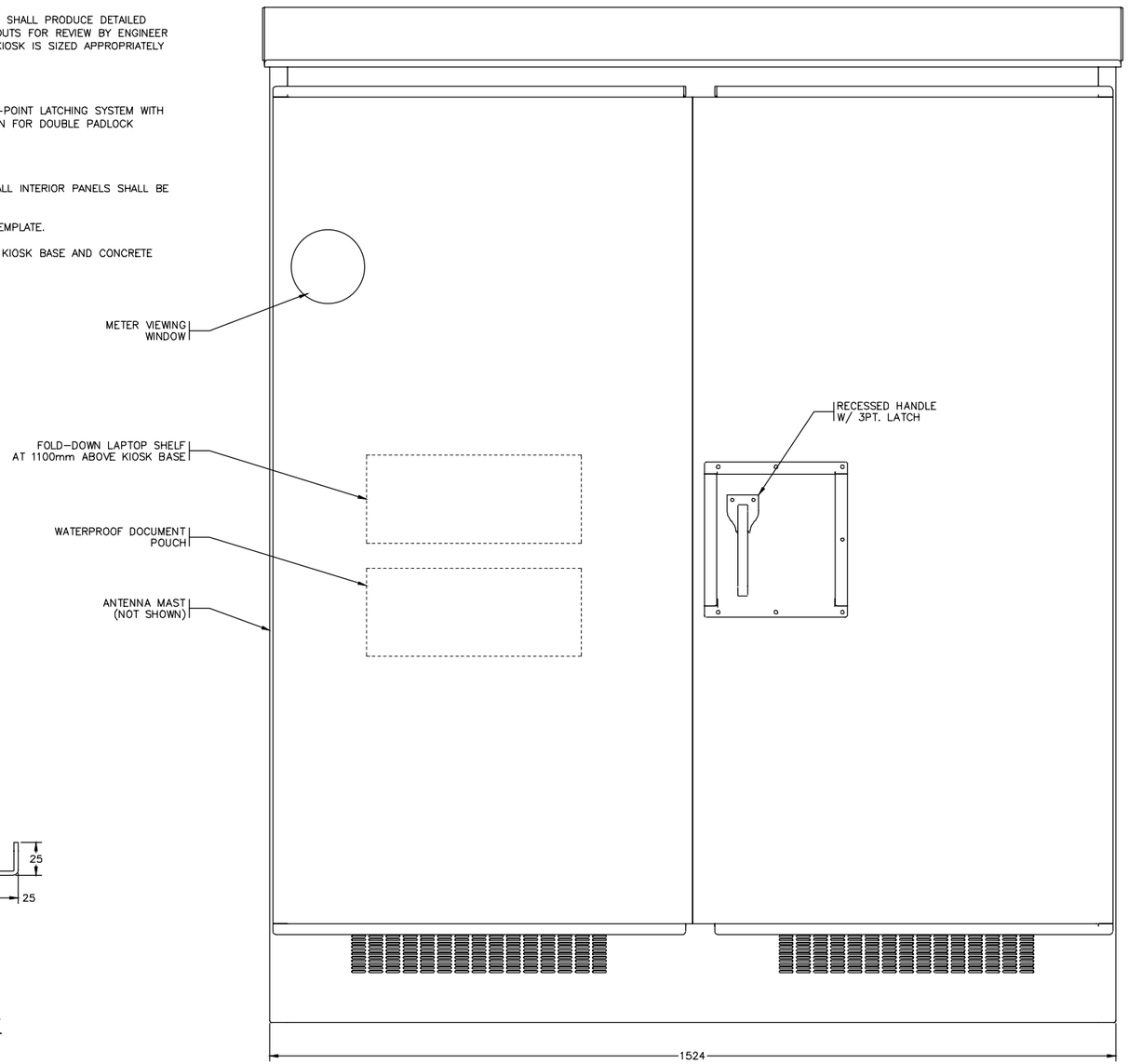
DETAILS

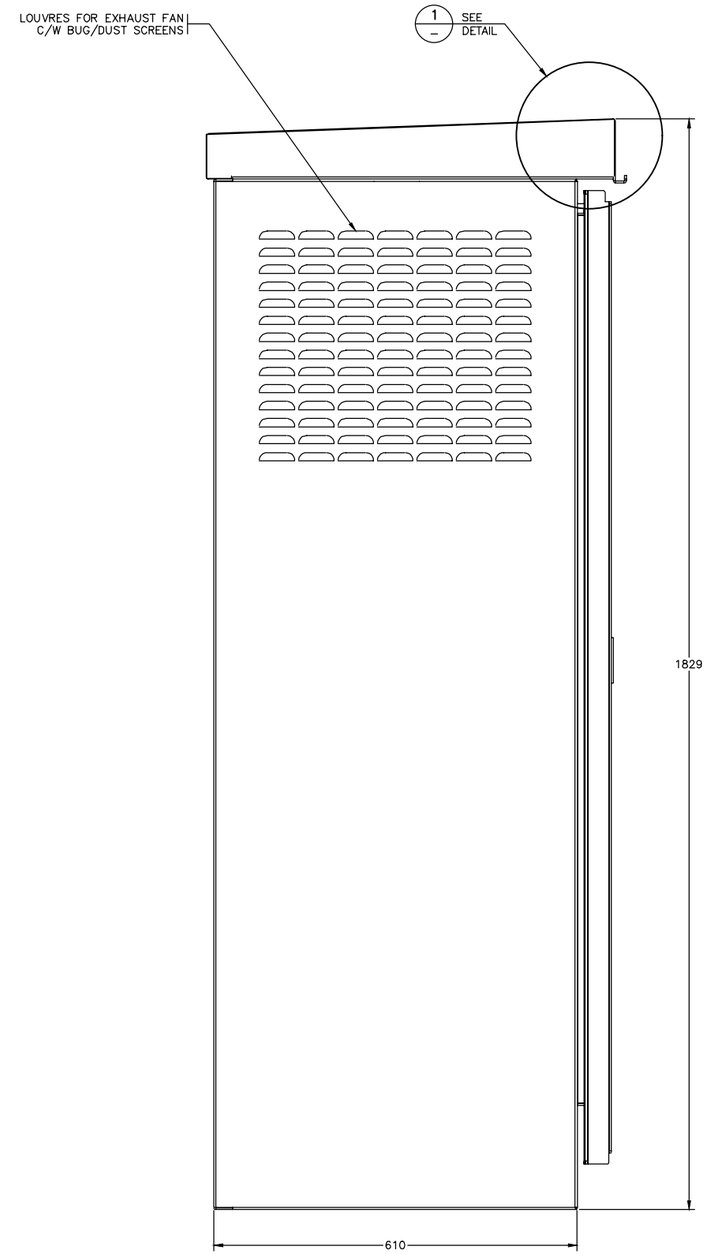
SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NTS	22160	E02	–

NOTES:

1. KIOSK SHALL BE CSA TYPE 3R RATED. OUTER SHELL SHALL BE MARINE GRADE ALUMINIUM AND SHALL BE WELDED TO ROOF ASSEMBLY, EQUIPMENT MOUNTING PANEL MOUNTS AND BASE PLATES. KIOSK SHALL INCLUDE STRUCTURAL BRACING TO ACCOMMODATE TRANSPORTATION, WIND, SNOW AND ICE LOADING. KIOSK MANUFACTURER SHALL BE RESPONSIBLE FOR OBTAINING CERTIFICATION FROM APEGBC REGISTERED PROFESSIONAL ENGINEER. KIOSK MANUFACTURER SHALL INCLUDE ANCHOR REQUIREMENTS CONSIDERING WIND LOADING, SEISMIC LOADING, DEAD LOADS, AND SNOW LOADING.
2. KIOSK DIMENSIONS ARE APPROXIMATE ONLY. KIOSK MANUFACTURER SHALL PRODUCE DETAILED SHOP DRAWINGS WHICH SHALL INCLUDE INTERNAL EQUIPMENT LAYOUTS FOR REVIEW BY ENGINEER PRIOR TO PRODUCTION. THE MANUFACTURER SHALL ENSURE THE KIOSK IS SIZED APPROPRIATELY TO HOUSE THE INTENDED EQUIPMENT.
3. ALL LOUVERS SHALL HAVE BUG SCREENS.
4. DOORS SHALL INCLUDE A GAS SPRING. ALL LATCHES SHALL BE 3-POINT LATCHING SYSTEM WITH PAD LOCKABLE HANDLES. DOOR HANDLES MUST CONTAIN PROVISION FOR DOUBLE PADLOCK CAPABILITY.
5. KIOSK TO BE POWDER COATED. COLOUR CODE: TO BE CONFIRMED.
6. ALL COMPARTMENTS SHALL HAVE REMOVABLE MOUNTING PANELS. ALL INTERIOR PANELS SHALL BE 14 GA. GALVANIZED PAINTED WHITE.
7. KIOSK MANUFACTURER TO PROVIDE CONDUIT STUB UP LOCATION TEMPLATE.
8. PROVIDE 12mm THICK NEOPRENE CLOSED CELL GASKET BETWEEN KIOSK BASE AND CONCRETE PAD.
9. PROVIDE VIEWING WINDOW FOR BC HYDRO METER.



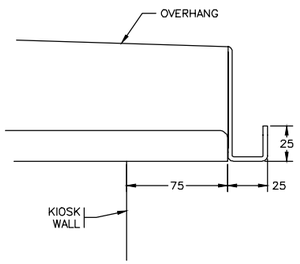
FRONT VIEW



SIDE VIEW

ELEVATION A E01 KIOSK
1:5

0 1:5 250mm



DETAIL 1 – KIOSK – ROOF (TYP.)
N.T.S.

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TITLE
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KIOSK DETAILS (1 OF 2)

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NTS	22160	E03	–

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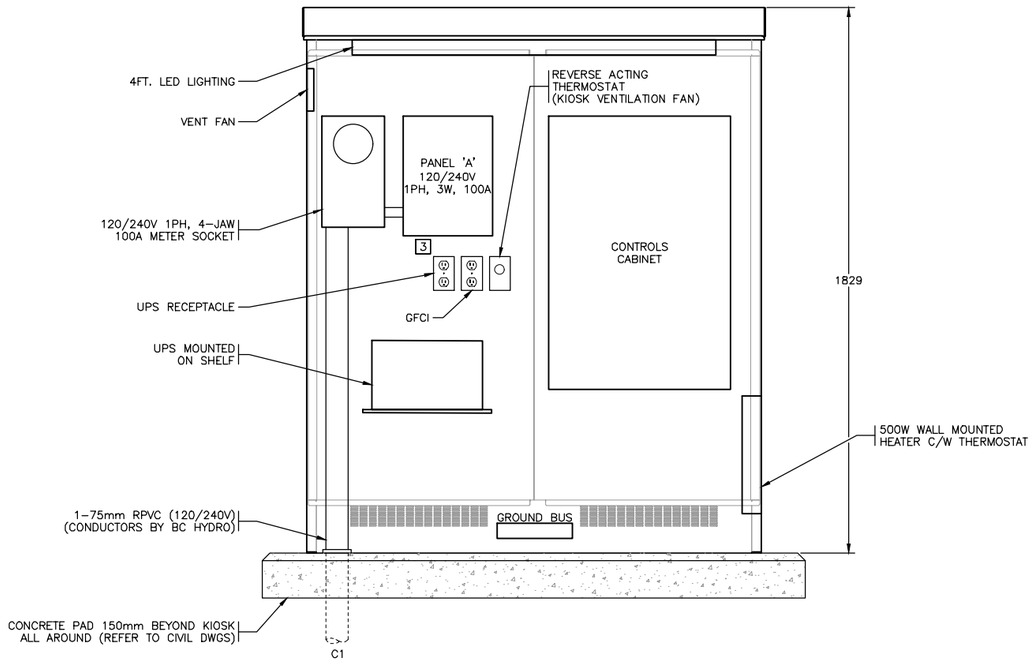
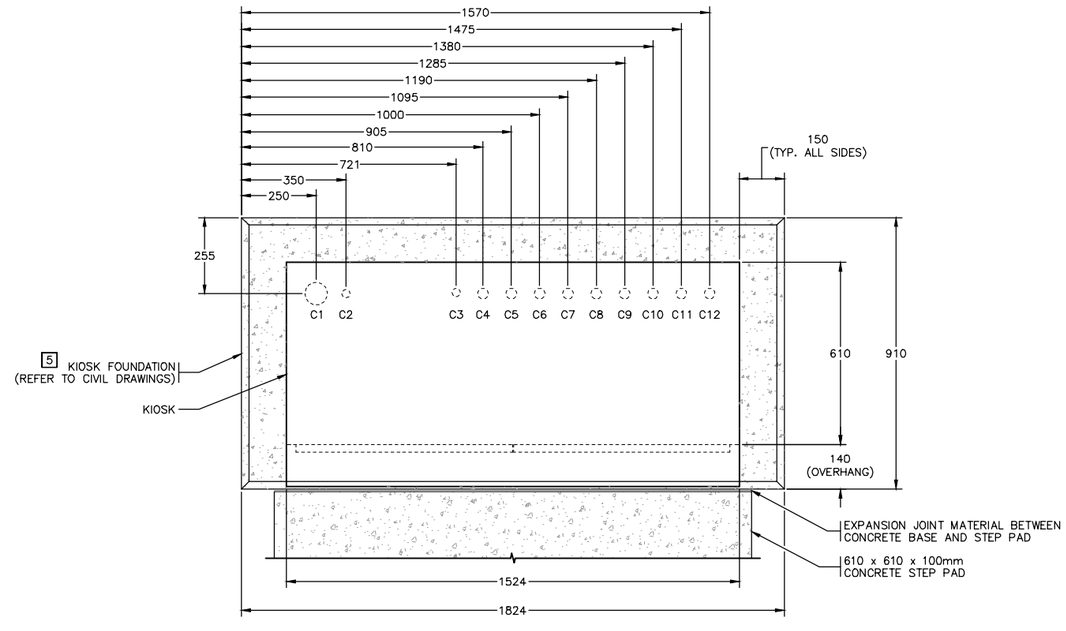
CONDUIT SCHEDULE					
ITEM	QTY	SIZE	TYPE	DESCRIPTION	CABLES
C1	1	75mm	RPVC	POWER (120/240V)	BC HYDRO SERVICE CONDUCTORS
C2	1	27mm	RPVC	GROUND	2/0 BARE COPPER
C3	1	27mm	RPVC	(FUTURE IRRIGATION)	
C4	1	35mm	RPVC	(FUTURE COMMUNICATIONS)	
C5	1	35mm	RPVC	UNDER BRIDGE REFERENCE ELECTRODES (COMM.)	22 No. 14 (UNDER BRIDGE REFERENCE ELECTRODES)
					1 No. 12 BOND
C6	1	35mm	RPVC	SIDEWALK REFERENCE ELECTRODES (COMM.)	8 No. 14 (SIDEWALK REFERENCE ELECTRODES)
					1 No. 12 BOND
C7	1	35mm	RPVC	BRIDGE DECK REFERENCE ELECTRODES (COMM.)	12 No. 14 (BRIDGE DECK REFERENCE ELECTRODES)
					1 No. 12 BOND
C8	1	35mm	RPVC	RECTIFIER 1	10 1-PR. No. 16 SHIELDED
C9	1	35mm	RPVC	RECTIFIER 2	11 1-PR. No. 16 SHIELDED
C10	1	35mm	RPVC	RECTIFIER 1	2 No. 12
C11	1	35mm	RPVC	RECTIFIER 2	2 No. 12
C12	1	35mm	RPVC	BRIDGE JUNCTION BOX	2 No. 12 (BRIDGE)
					2 No. 12 (BRIDGE)
					2 No. 12 (STREET LIGHTING)
					2 No. 12 (GFCI RECEPTACLE 1)
					2 No. 12 (GFCI RECEPTACLE 2)
					1 No. 12 BOND



FRONT VIEW
KIOSK DOORS NOT SHOWN



TOP VIEW

ELEVATION A KIOSK
1:10
E01

0 1:10 500mm

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NOTES:

1. CONTRACTOR TO PROVIDE DETAILED SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION. INTERIOR AND EXTERIOR PANEL LAYOUTS AND WIRING DIAGRAMS TO BE PROVIDED AS PART OF THE SUBMISSION. REFER TO SPECIFICATIONS FOR SPECIFIC LAYOUT DETAILS AND EQUIPMENT REQUIREMENTS.
2. BC HYDRO SERVICE EQUIPMENT SHALL BE TO BC HYDRO STANDARDS, INCLUDING PROVISION FOR EXTERIOR ANTENNA PER BC HYDRO REVENUE METERING BULLETIN DATED JANUARY 2016.
3. MOUNT DEVICES AT 1200mm TO CENTER.
4. CONTRACTOR TO CONFIRM KIOSK CONDUIT STUB-UP AREAS PRIOR TO POURING CONCRETE PAD.
5. REFER TO CIVIL DRAWINGS FOR FOUNDATION AND GRADING REQUIREMENTS.
6. ELECTRICAL CIRCUITS LEAVING KIOSK IN PROGRESS (NOT SHOWN AT TIME OF SUBMISSION).

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TITLE
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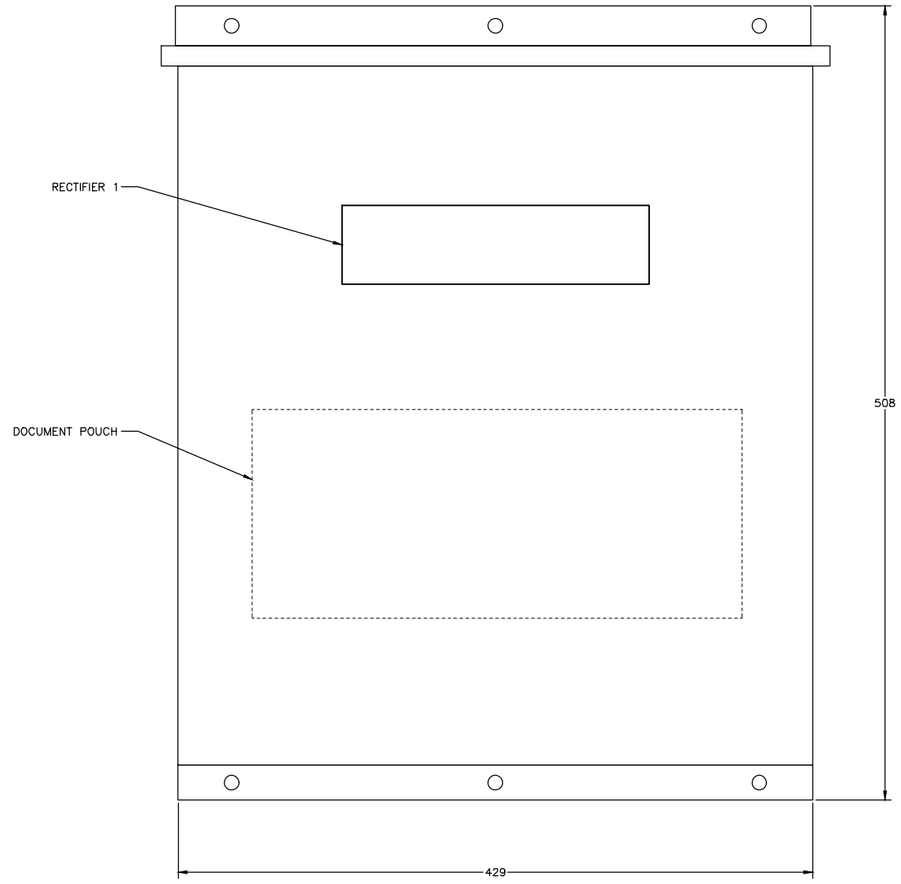
KIOSK DETAILS (2 OF 2)

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NTS	22160	E04	–



FRONT VIEW

DETAIL 1 (E01) RECTIFIER MOUNTING DETAIL
1:2

0 1:2 100mm

NOTES:

1. ENCLOSURE AND RECTIFIER (NOT SHOWN) PROVIDED BY INTEGRATED RECTIFIER TECHNOLOGY. CONTRACTOR TO PROVIDE SHOP DRAWING FOR RECTIFIER FOR REVIEW PRIOR TO CONSTRUCTION.
2. MOUNT RECTIFIER DIRECTLY TO CONCRETE STRUCTURE USING STAINLESS STEEL HARDWARE.

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SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NTS	22160	E05	–

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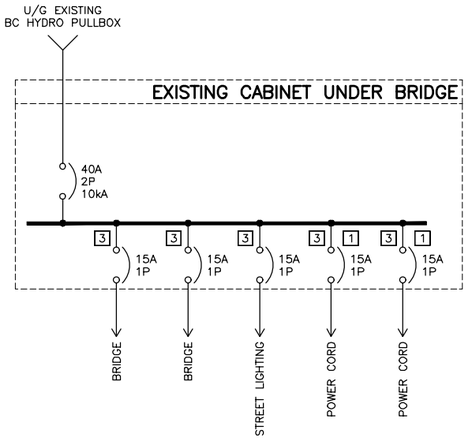
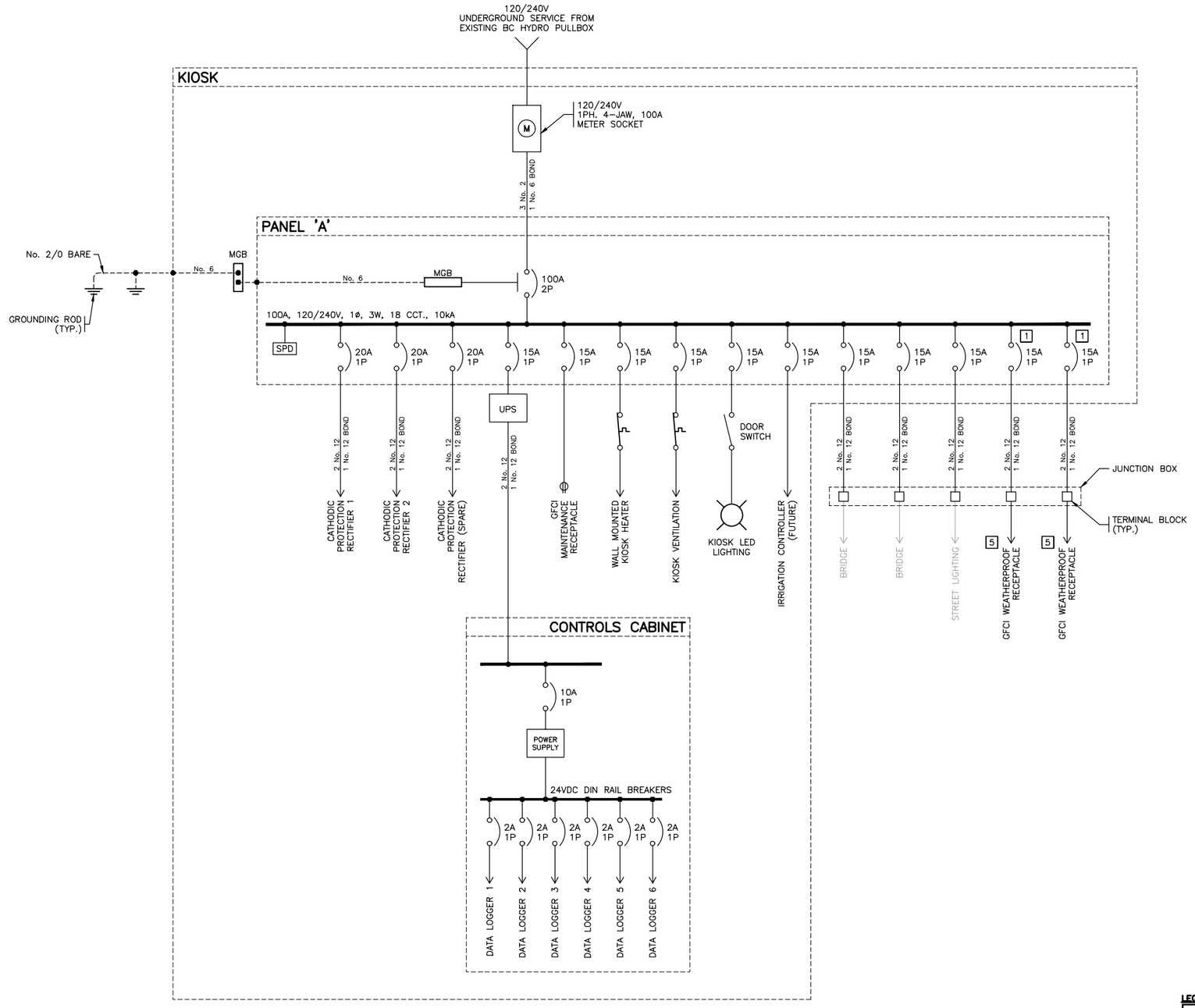


EXISTING POWER DISTRIBUTION



PROPOSED POWER DISTRIBUTION

LEGEND:

PROPOSED

EXISTING

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NOTES:

1. BREAKER TURNED OFF.
2. CONTRACTOR TO INVESTIGATE AND RED-LINE EXISTING CIRCUITS FOR AS-BUILT DRAWINGS.
3. RELOCATE CIRCUIT TO PANEL A IN CONTROL CABINET.
4. PROVIDE JUNCTION BOX UNDER BRIDGE. REMOVE EXISTING CABINET UNDER BRIDGE AND RELOCATE CIRCUITS TO PANEL A.
5. PROVIDE AND INSTALL GFCI WEATHERPROOF OUTLET BESIDE JUNCTION BOX.

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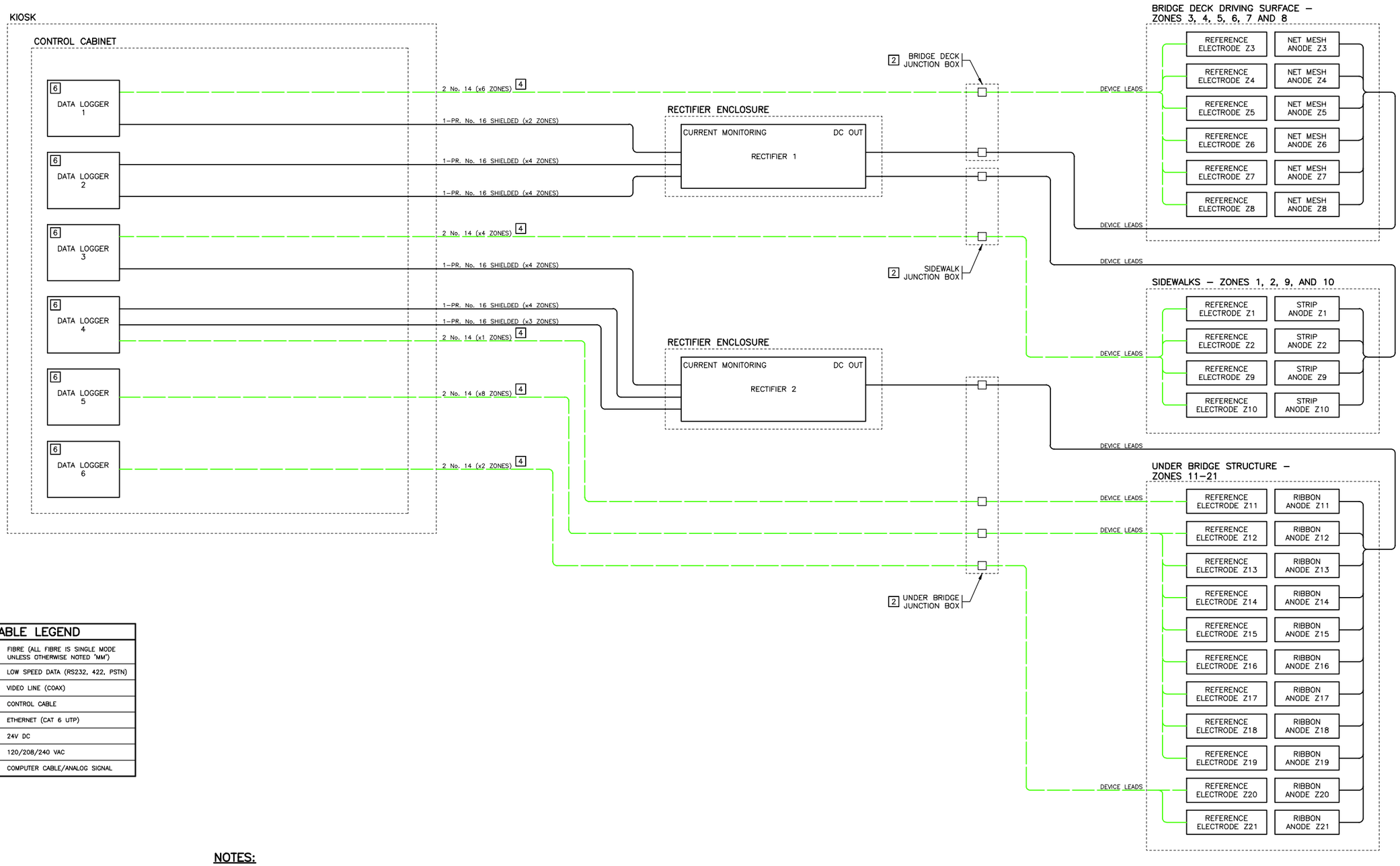
POWER DISTRIBUTION DIAGRAMS

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NTS	22160	E06	–



CABLE LEGEND

———	FIBRE (ALL FIBRE IS SINGLE MODE UNLESS OTHERWISE NOTED 'MM')
——·——·——	LOW SPEED DATA (RS232, 422, PSTN)
——··——··——	VIDEO LINE (COAX)
———	CONTROL CABLE
———	ETHERNET (CAT 6 UTP)
·····	24V DC
- - - - - -	120/208/240 VAC
———	COMPUTER CABLE/ANALOG SIGNAL

NOTES:

1. REFER TO CATHODIC PROTECTION SYSTEM INSTALLATION DETAILS, DRAWING 22160–102 FOR CABLING REQUIREMENTS.
2. JUNCTION BOXES SUPPLIED TO CONNECT FIELD WIRING TO DEVICE LEADS.
3. PER CATHODIC PROTECTION SYSTEM INSTALLATION DETAILS, DRAWING 22160–102, TYPICAL LAYOUTS CAN BE COMBINED INTO ONE ZONE DEPENDING ON CONDITION ASSESSMENT.
4. CONTRACTOR TO CONFIRM CABLE TYPE WITH CATHODIC PROTECTION VENDOR PRIOR TO INSTALLATION.
5. GENERAL ZONE ALLOCATION IS AN ASSUMPTION ONLY AND IS PROVIDED FOR BID PURPOSES. ELECTRODE AND STRIP ANODE QUANTITY IS SHOWN AS WORST CASE, CONDITION ASSESSMENT REQUIRED TO FURTHER IDENTIFY QUANTITIES NEEDED. REFER TO CATHODIC PROTECTION SYSTEM INSTALLATION DETAILS, DRAWING 22160–102 FOR ZONE ALLOCATION.
6. DATA LOGGER CAN MONITOR 8 SIGNALS MAX.

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TITLE
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COMMUNICATION BLOCK DIAGRAM

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NTS	22160	E07	–

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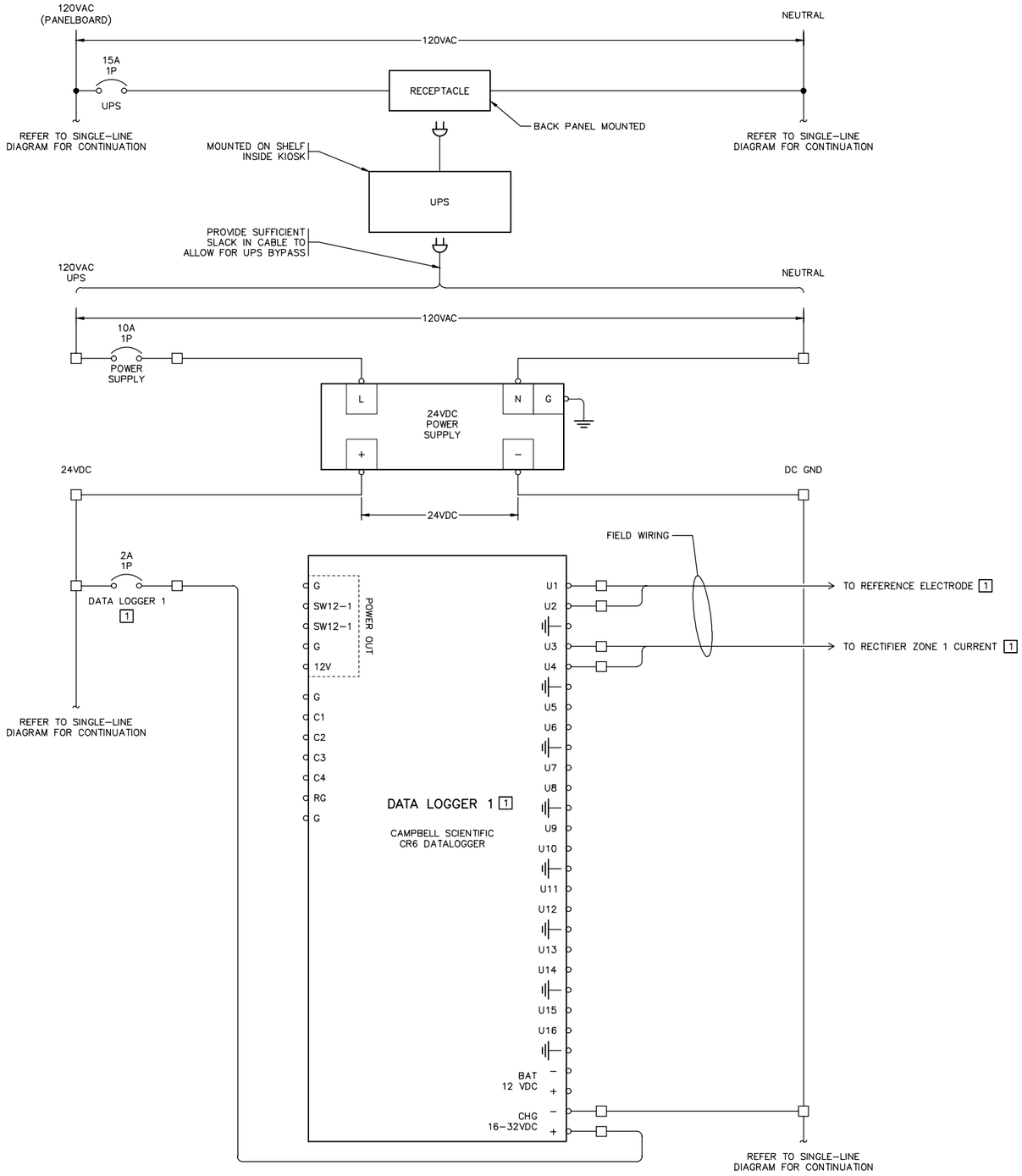

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NOTES:

1 ONLY RECTIFIER 1 ZONE 1 CIRCUIT SHOWN. REFER TO SINGLE LINE DIAGRAM AND COMMUNICATIONS BLOCK DIAGRAM FOR CONTINUATION.

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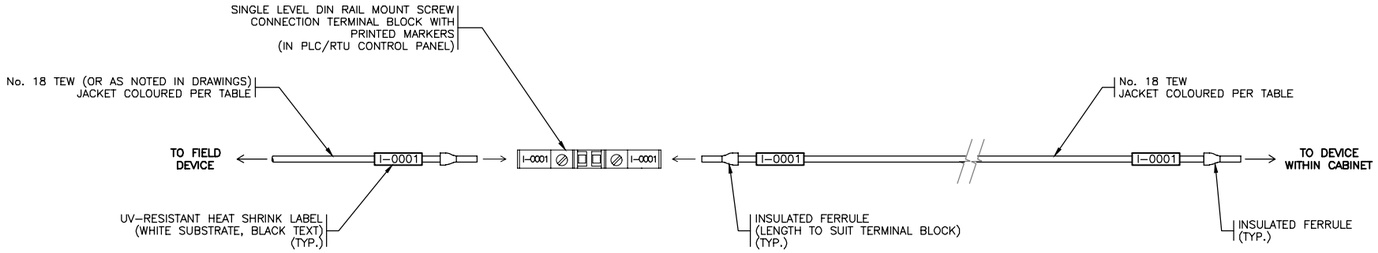
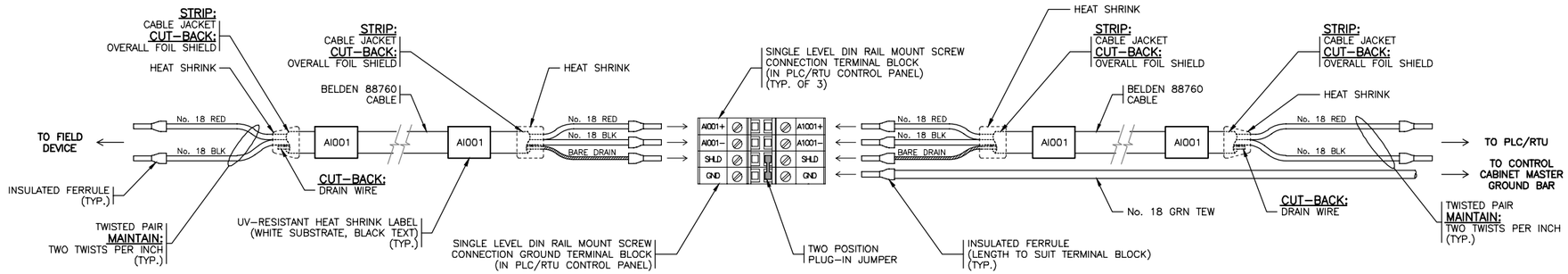
CONTROLS

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NTS	22160	E08	–

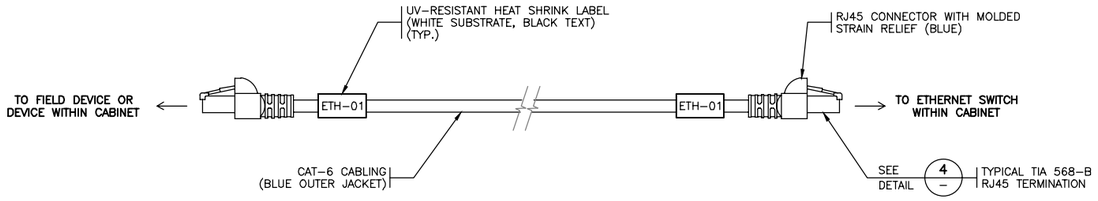


DETAIL 1 – TYPICAL DISCRETE CONTROL FIELD WIRING TERMINATION METHOD
N.T.S.

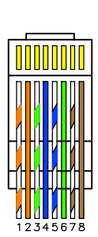
INSTRUMENTATION FIELD WIRING COLOUR CODE	
FUNCTION	COLOUR
AC HOT	BLACK
AC NEUTRAL	WHITE
DC POSITIVE	RED
DC NEGATIVE	BROWN
GROUND	GREEN



DETAIL 2 – TYPICAL ANALOG CONTROL FIELD WIRING TERMINATION METHOD
N.T.S.

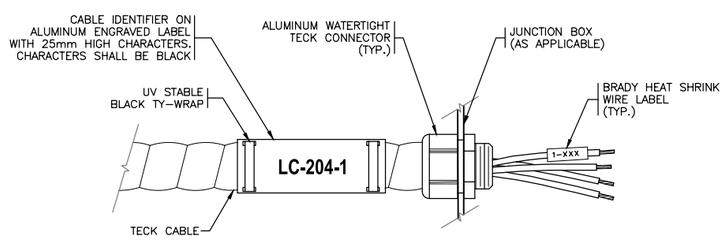


DETAIL 3 – TYPICAL ETHERNET CABLING TERMINATION METHOD
N.T.S.



PIN	COLOUR
1	WHT/ORG
2	ORG
3	WHT/GRN
4	BLU
5	WHT/BLU
6	GRN
7	WHT/BRN
8	BRN

DETAIL 4 – TYPICAL TIA 568-B RJ45 TERMINATION (CLIP FACING AWAY)
N.T.S.



DETAIL 5 – TECK CABLE TERMINATION
N.T.S.

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TITLE
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TYPICAL PLC/RTU CABINET WIRING TERMINATIONS (1 OF 2)

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NTS	22160	E09	–

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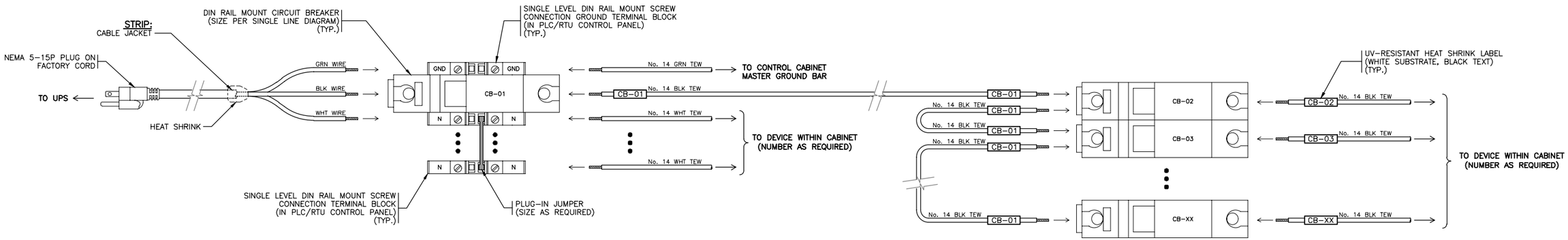
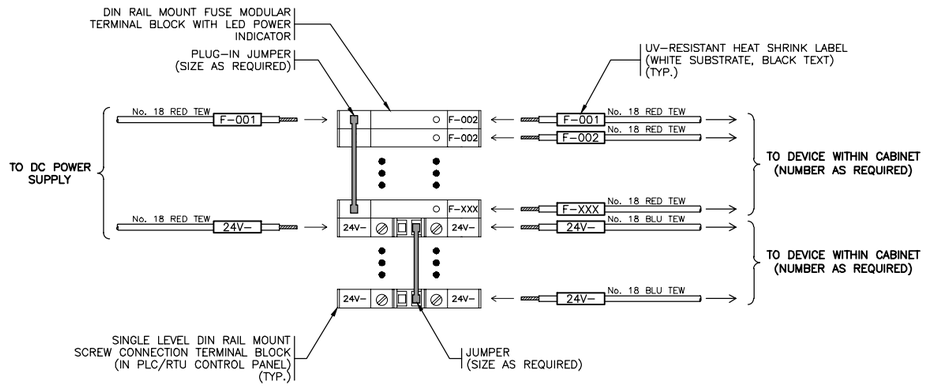
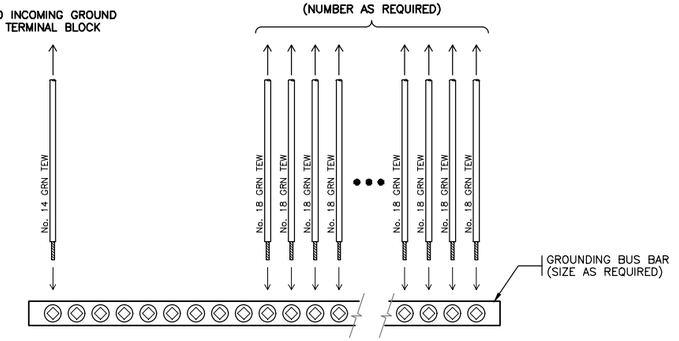


DETAIL 1 – TYPICAL 120V AC DISTRIBUTION WIRING TERMINATION METHOD
N.T.S.



DETAIL 2 – TYPICAL DC DISTRIBUTION WIRING TERMINATION METHOD
N.T.S.



DETAIL 3 – TYPICAL MASTER GROUND BUS TERMINATION METHOD
N.T.S.

ALL EQUIPMENT IS PROPOSED UNLESS NOTED OTHERWISE

ISSUED FOR TENDER
NOT FOR CONSTRUCTION

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
I.S. NAIDU
41036
2020-11-12

Rev.	DATE	ISSUE / REVISION DESCRIPTION	DESN	QC	QA
–	12NOV20	ISSUED FOR TENDER	MS	IN	IN

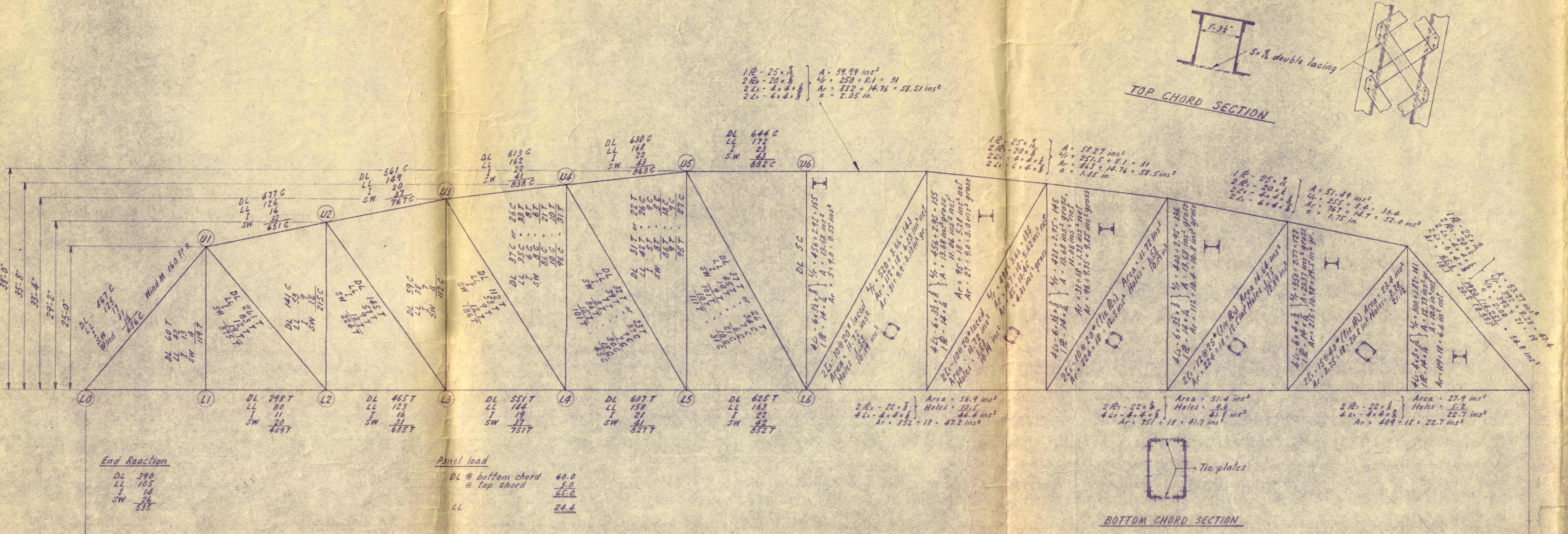
CLIENT: CITY OF COURTENAY
PROJECT: CITY OF COURTENAY 5TH STREET BRIDGE

PBX ENGINEERING
PBX ENGINEERING Ltd.
Suite 200 - 2612 Bridge St.
Victoria BC, V8T 4S9 Tel 250.388.7222
www.pbxeng.com

TITLE: CITY OF COURTENAY 5TH STREET BRIDGE TYPICAL PLC/RTU CABINET WIRING TERMINATIONS (2 OF 2)

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
NTS	22160	E10	–

P:\22053_Courtenay_5th_Street_Bridge\01_Detailed_Design\Drawings\ACAD\E10_PAL_12/11/2020_9:51_AM_ROBERT.PETERSON



End Reaction

DL	390
LL	105
I	14
SW	26
	535

Panel load

DL @ bottom chord	60.0
@ top chord	5.0
	65.0
LL	24.4

12 panels @ 20'-10" = 250'-0" c.c. bearings

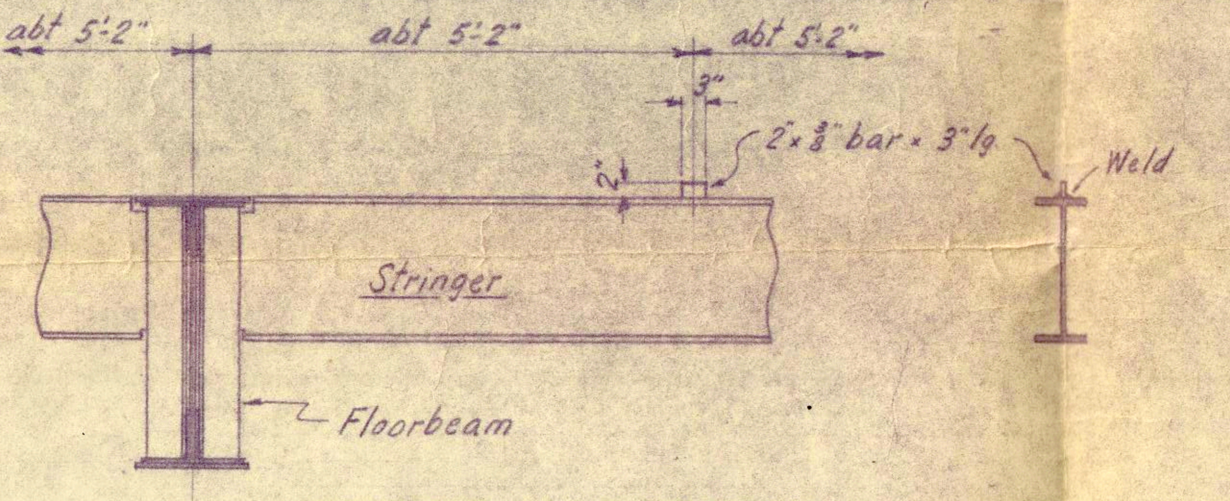
6"φ Rollers $\frac{549000}{750 \times 6}$ = 122 net lin ins. req'd

Bed plate bearing area $\frac{549000}{600}$ = 915 ins²

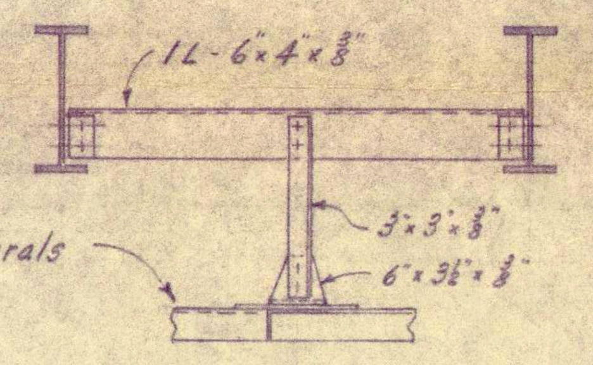
STRESSES

All stresses in kips

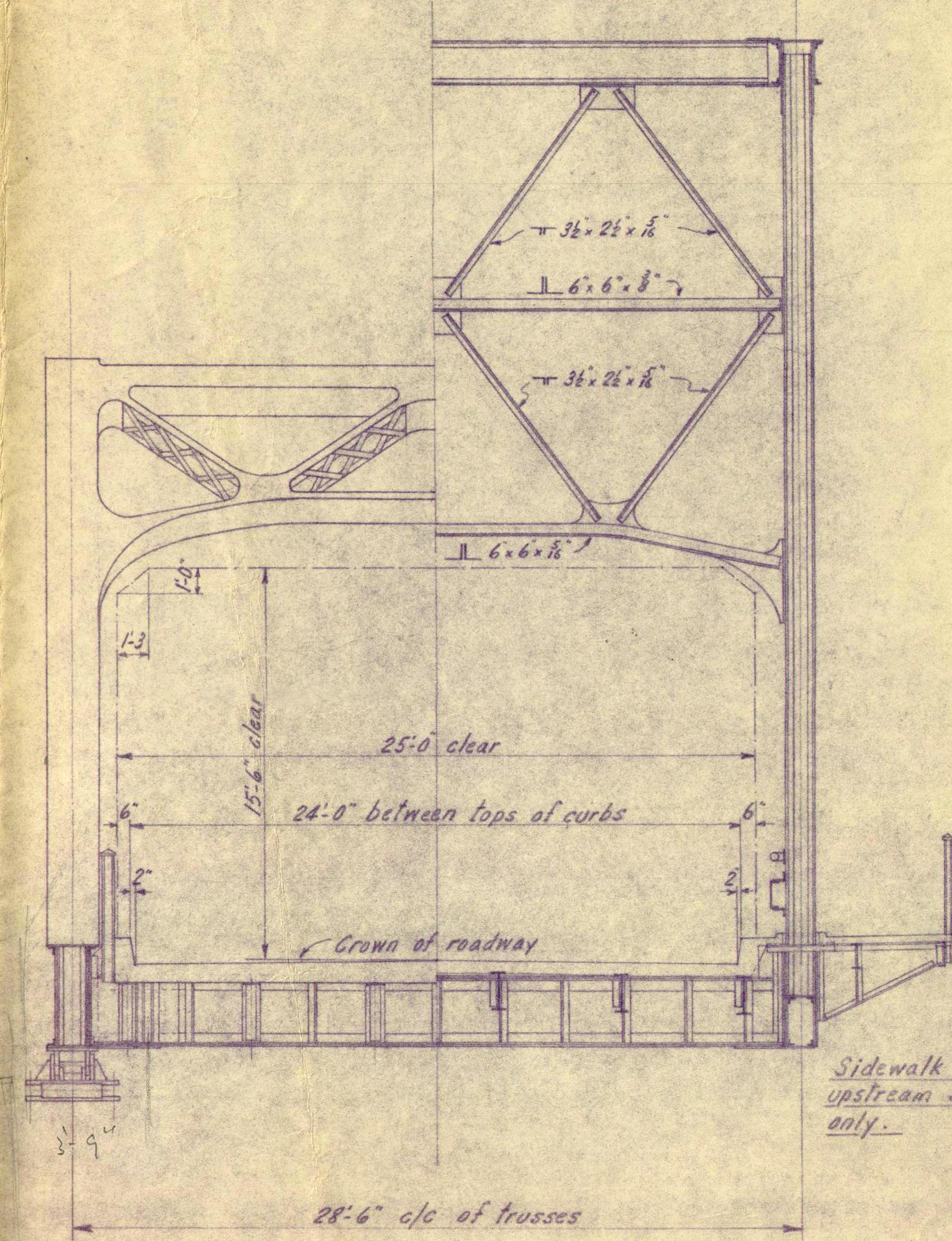
MEMBERS



STRINGER SLAB ANCHORS
Scale: ½" = 1'-0"

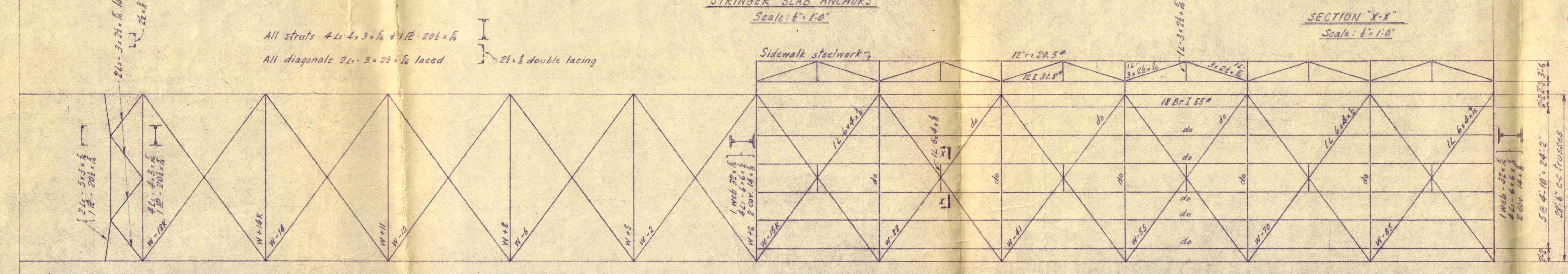


SECTION "X-X"
Scale: ½" = 1'-0"



HALF END VIEW HALF SECn AT ℄

SCALE: 3/16" = 1'-0"



TOP LATERALS

FLOOR SYSTEM & BOTTOM LATERALS

SIDEWALK STRINGER - INSIDE

	S.F.	M.
D.L.	2300#	12,000'#
L.L.	3100#	16,200'#
	5,400#	28,200'#

12 I 31.8# S = 36.0 ins³
f act = 28,200 × 12 ÷ 36 = 9400 #/in²
f all = 18,000 − 5($\frac{125}{5}$)² = 14,875 #/in²

SIDEWALK STRINGER - OUTSIDE

	S.F.	M.
D.L.	2400#	12,300'#
L.L.	1600#	8,100'#
	4000#	20,400'#

12" ⊏ 25.0# S = 23.9 ins³
f act = 20,400 × 12 ÷ 23.9 = 10,200 #/in²
f all = 18,000 − 5($\frac{125}{3.05}$)² = 9,600 #/in²

ROADWAY STRINGER

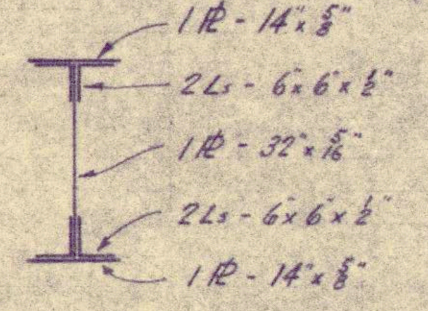
	S.F.	M.
D.L.	6,000#	31,100'#
L.L.	21,200#	80,500'#
I	6,400#	24,200'#
	33,600#	135,800'#

18 I @ 55# S = 93.5 ins³
f act = 18,000 − 5($\frac{62.5}{6}$)² = 17,460 #/in²
f all = 135,800 × 12 ÷ 93.5 = 17,400 #/in²

FLOORBEAM - INTERMEDIATE

	S.F.	M.
D.L.	38,700#	272,000'#
L.L.	48,200#	416,000'#
I	14,500#	125,000'#
	101,400#	813,000'#

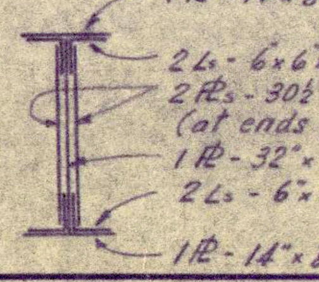
S for section shown = 630 ins.³
f act (Net section) 813,000 × 12 ÷ 529 = 18,450 #/in²
f all = 18,000 #/in²



FLOORBEAM - END

	S.F.	M.
Jacking load	389,000#	1,170,000'#

f (for b = 14") = [18,000 − 5($\frac{58}{14}$)²] 1.5 = 26,900 #/in²
S for section shown = 597 ins³
f = 1,170,000 × 12 ÷ 597 = 23,500 #/in²



Dead load

Concrete & asphalt	1814 #/ft/truss
Floor & fence	468
Truss & bracing	830
	3112 #/ft/truss

Live load
On roadway - for floor - 1 Std. H20 S16-44 truck
- for truss - 640 #/lineal ft. of load lane combined with concentrated load of 18,000 #/lane for moment or 26,000 #/lane for shear OR 1 Std. H20 S16-44 truck/lane.
On sidewalks - for floor - 85 #/ft²
- for truss - 42 #/ft²

Wind load
150 #/lineal ft. on top chord
400 #/ " " " bottom chord
200 #/ " " moving load 7 ft. above roadway.

Unit stresses
Tension 18,000 #/in²
Compression 15,000 − ¼($\frac{\ell^2}{r^2}$) or 18,000 − 5($\frac{\ell^2}{b^2}$)
Unit stresses increased 25% for D.L. + L.L. + Wind

Specification Dept. of Highways - Specifications for Highway Bridges

Notes
Paint: 1 shop coat red lead
Rivets: ¾"φ
Gussets: 3/8" thick minimum
Min. thickness of metal 5/16" except webs of rolled shapes min. thickness 0.23"
Design as shown allows for loads due to future sidewalks.

Estimated weight of steelwork, including floor plates, pier members, end stools, fences and drains = 657,000 lbs.

COMOX DISTRICT
ISLAND HIGHWAY - MILE 135.71
COURTENAY RIVER BRIDGE
TRUSS DESIGN SHEET

SCALE: 3/32" = 1'-0" & AS NOTED

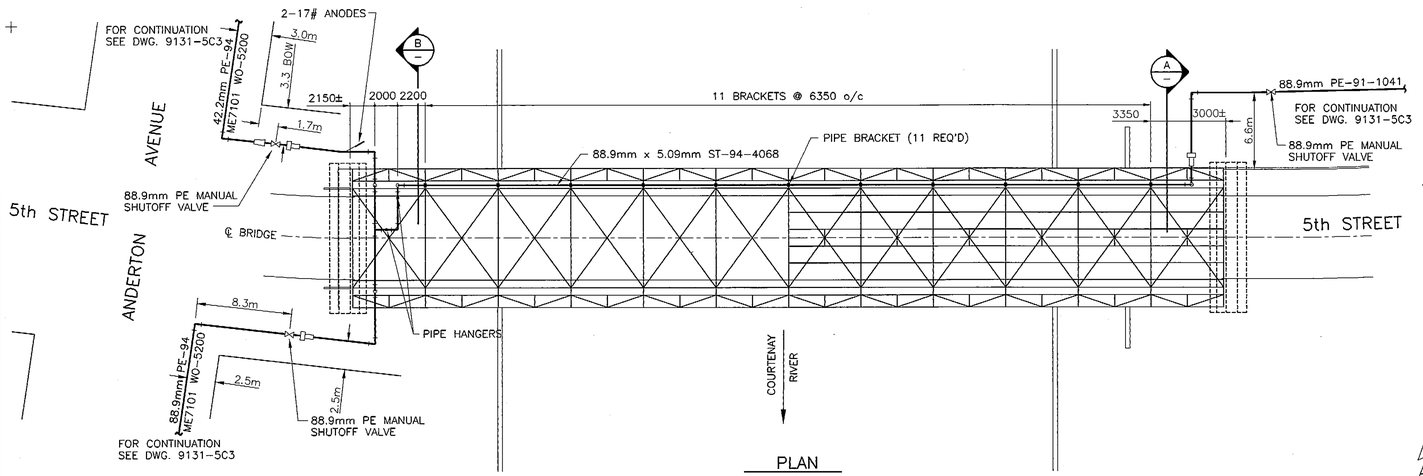
REVISIONS			
Rev.	Particulars	Init.	Date

GOVT. OF BRITISH COLUMBIA
DEPT. OF HIGHWAYS
BRIDGE ENGINEER'S OFFICE

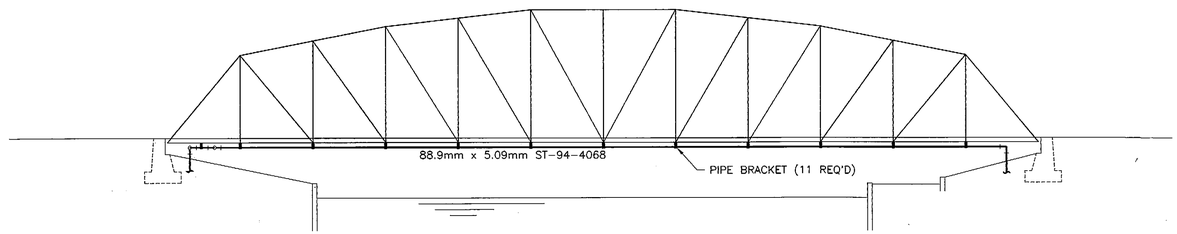
	Init.	Date
Made by	KW	July 8/58
Checked by		
Approved:		

DRAWING No. BRIDGES 455-41

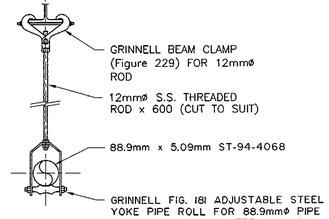
Cancel prints bearing earlier letter



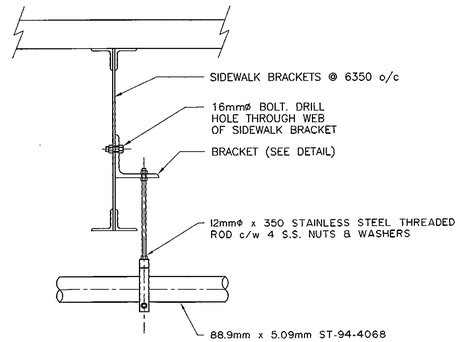
PLAN
SCALE 1 : 250



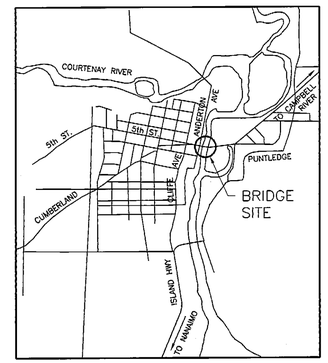
ELEVATION
SCALE 1 : 250



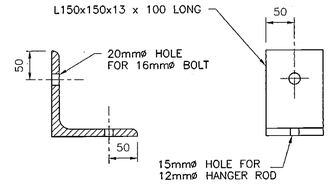
PIPE HANGER
SCALE 1 : 10



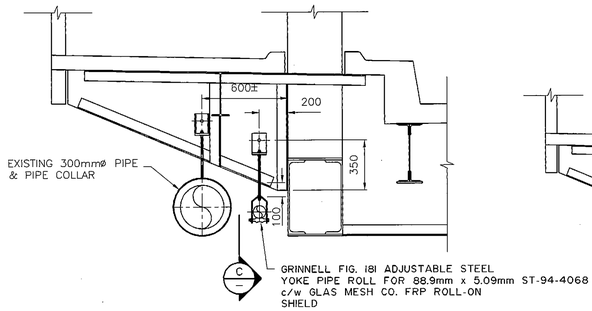
C SECTION
1 : 10



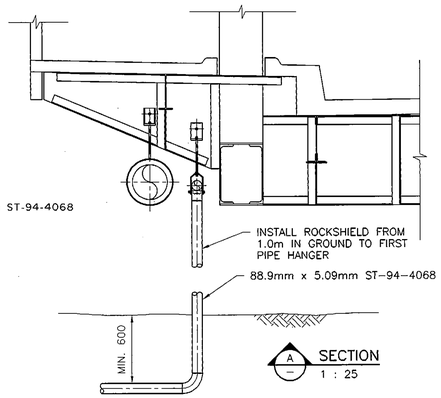
KEY PLAN

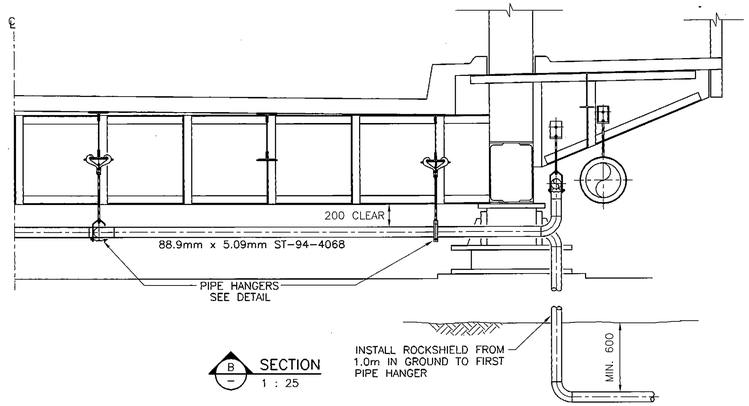


BRACKET DETAIL
SCALE 1 : 5



SECTION THROUGH BRIDGE
SCALE 1 : 20





GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.

W.O. 4068

ACCOUNT No.
88.9mm ST 9131-7N503

INSPECTION & TEST RECORD

I hereby certify that the piping was installed in accordance with current standard practices and was examined while under test of _____ kPa for _____ hours and that no leakage was indicated.

DATE:

SIGNATURE:

NOTES:

1. BRIDGE INFORMATION SHOWN HAS BEEN DIGITIZED, SCALED OR DIMENSIONED FROM DRAWINGS.
2. THE EXISTING SERVICES SHOWN HAVE BEEN DIGITIZED, DIMENSIONED OR SCALED FROM AS-BUILT INFORMATION PROVIDED.
3. SOME SITE MEASUREMENTS WERE MADE TO CLARIFY CONFLICTING INFORMATION.

ACCURACY CANNOT BE GUARANTEED

PLAN NO: 9131-5C3

APPROX. SURFACE COVERAGE (m)

BRUSH	☐	_____
PAVEMENT	☐	_____
GRAVEL	☐	_____
GRASS	☐	_____
SIDEWALK	☐	_____
_____	☐	_____

APPROVAL:

DATE:

SIGNATURE:

PROFESSIONAL ENGINEER SEAL

ISSUED FOR CONSTRUCTION

DATE:

SIGNATURE:

DWN	j.m.h.	DATE	93.10.29
CH'D	KJS	DATE	93.10.29
APP'D		DATE	
APP'D		DATE	
SCALE	AS SHOWN		

Centra Gas

LEGEND:

- SANITARY SEWER
- DRAIN/STORM SEWER
- WATER DISTRIBUTION
- TELEPHONE
- POWER
- EDGE OF PAVEMENT/CURB/SIDEWALK
- ABANDONED GAS
- EXISTING DP GAS
- EXISTING TP/IP GAS
- PROPOSED STEEL
- PROPOSED POLYETHYLENE
- POWER/TELEPHONE POLE
- FIRE HYDRANT
- WATER VALVE
- MANHOLE
- CATCH BASIN
- STREET LAMP
- SURVEY MONUMENT
- FIP — FOUND IRON PIN
- SLOPE
- ROCK
- DITCH
- TREE
- TBS — TOWN BORDER STATION
- MS — SALES METER STATION
- DRS — DISTRICT REG. STATION
- PRS — POST REG. STATION

D.P. MEDIUM PRESSURE (0-550 kPa)
I.P. INTERMEDIATE PRESSURE (550-1900 kPa)
T.P. TRUNK PRESSURE (1900-3100 kPa)

- CATHODIC TEST STATION
- 90° ELBOW
- 45° ELBOW
- REDUCER
- END CAP
- TEE
- MAGNESIUM ANODE
- CASING/INSERTION
- TAPPING TEE
- PIPELINE NOT CONNECTED
- LINESTOPPER FITTING
- VALVE
- SADDLE
- TRANSITION FITTING

MATERIAL LIST

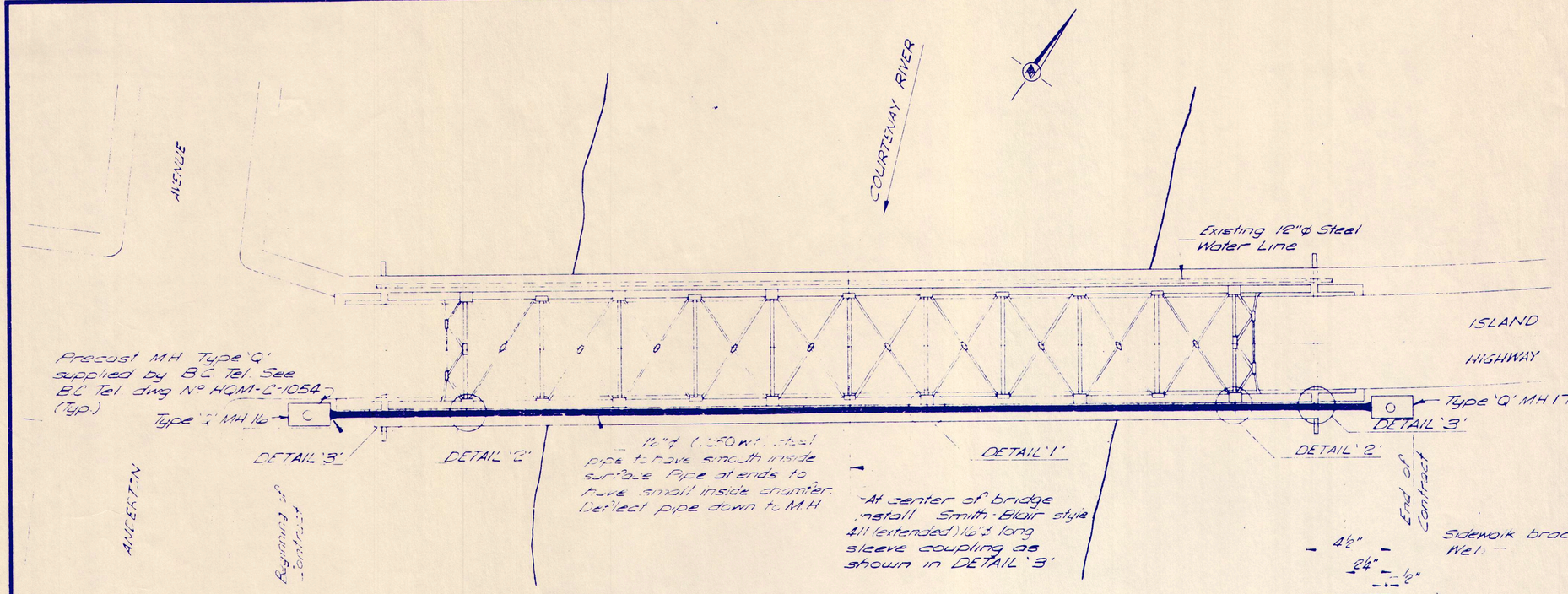
ITEM NO.	STOCK NO.	QUANTITY ESTIMATED	QUANTITY USED	MATERIAL DESCRIPTION
1.		100 m		88.9mm x 5.09mm STEEL PIPE GR290
2.		1 m		88.9mm POLYETHYLENE PIPE SDR11
3.		10		88.9mm 90 DEG. BUTT WELD ELBOW
4.		2		88.9mm TRANSITION FITTING STxPE
5.		13		GRINNELL YOKE PIPE ROLL Fig. 181
6.		2		GRINNELL BEAM CLAMP Fig. 229
7.		12		GLAS MESH CO. FRP ROLL-ON SHIELDS
8.		12 m		ROCKSHIELD
9.		12		12mmø STAINLESS STEEL THREADED ROD x 350 c/w 4 S.S. NUTS & WASHERS
10.		1		12mmø STAINLESS STEEL THREADED ROD x 600 c/w 2 S.S. NUTS & WASHERS
11.		11		BRACKETS
12.		1		88.9mm PE END CAP

NO.	DATE	BY	CH'D	APP'D	REVISION
1	94/07/14	MS			88.9mm PE SHUT OFF VALVES ADDED
2	95/09/11	GEB			ASBUILT

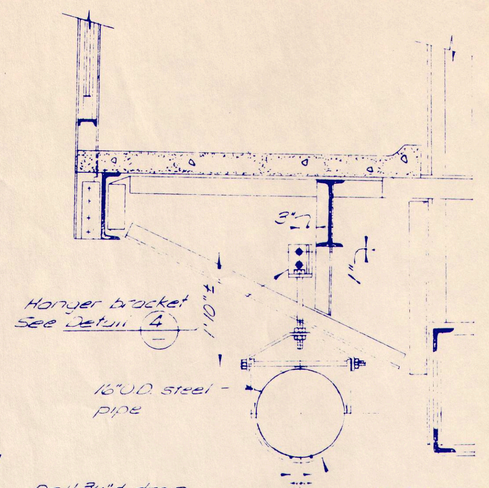
Centra Gas British Columbia Inc.
ENGINEERING DEPARTMENT VICTORIA B.C.

CITY OF COURTENAY
NATURAL GAS PIPELINE SYSTEM
ASBUILT
FIFTH STREET BRIDGE

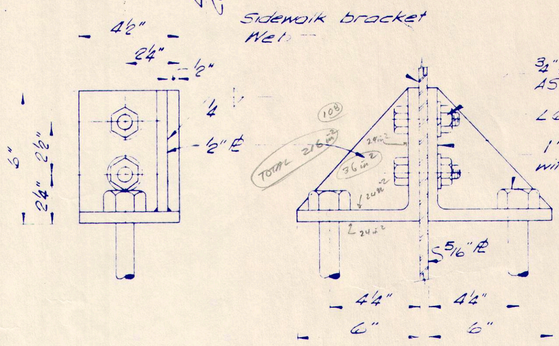
DWG. NO.: 9131-BR1-S1



PLAN
1" = 20'



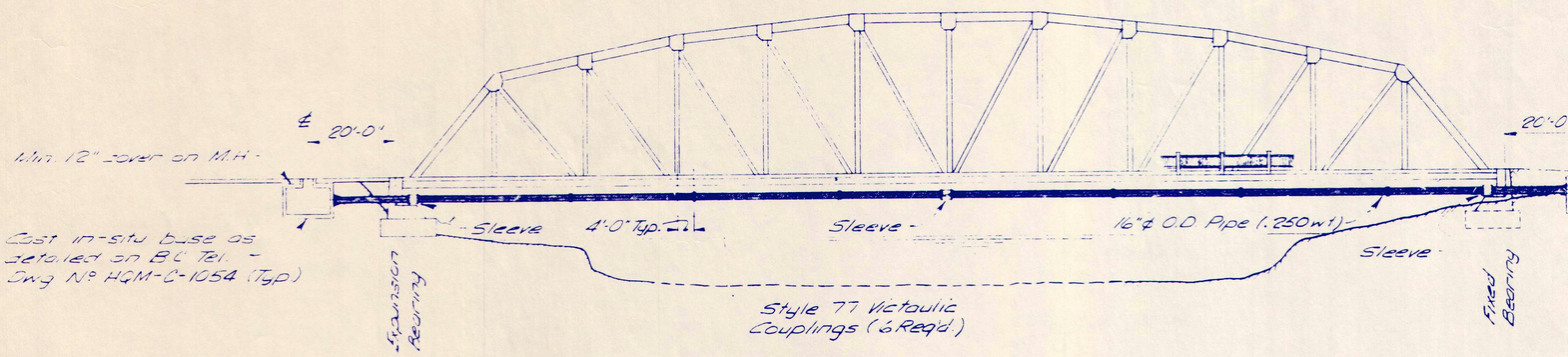
DETAIL 1 (11 REQ'D)
3/4" = 1'-0"



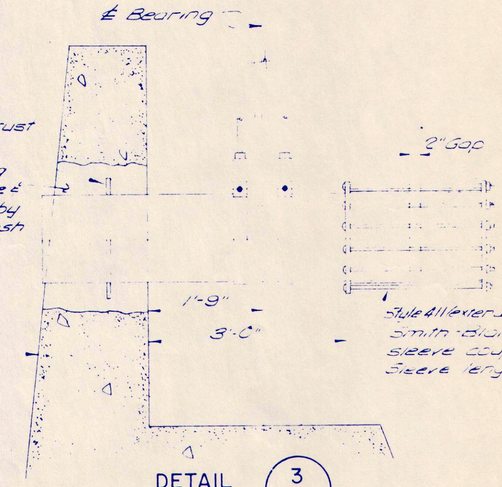
DETAIL 4 TYP. HANGER BRACKETS
3" = 1'-0"

253'-6" face to face of ballast walls

12 Panels @ 20'-10" = 250'-0" c.c. bearing



ELEVATION
1" = 20'



DETAIL 3
3/4" = 1'-0"

NOTES
1) All steel material to be to A.S.T.M. A36
2) Steelwork to be painted as follows;
a) Shop primed with D.O.H. A-2 - Red lead oil alkyd - Type (C.G.S.B. GP 140)
b) First field coat; D.O.H. B-1 - Red lead oil alkyd. Type (C.G.S.B. GP 140)
c) Top coat; D.O.H. C-6 Mid-Blue.

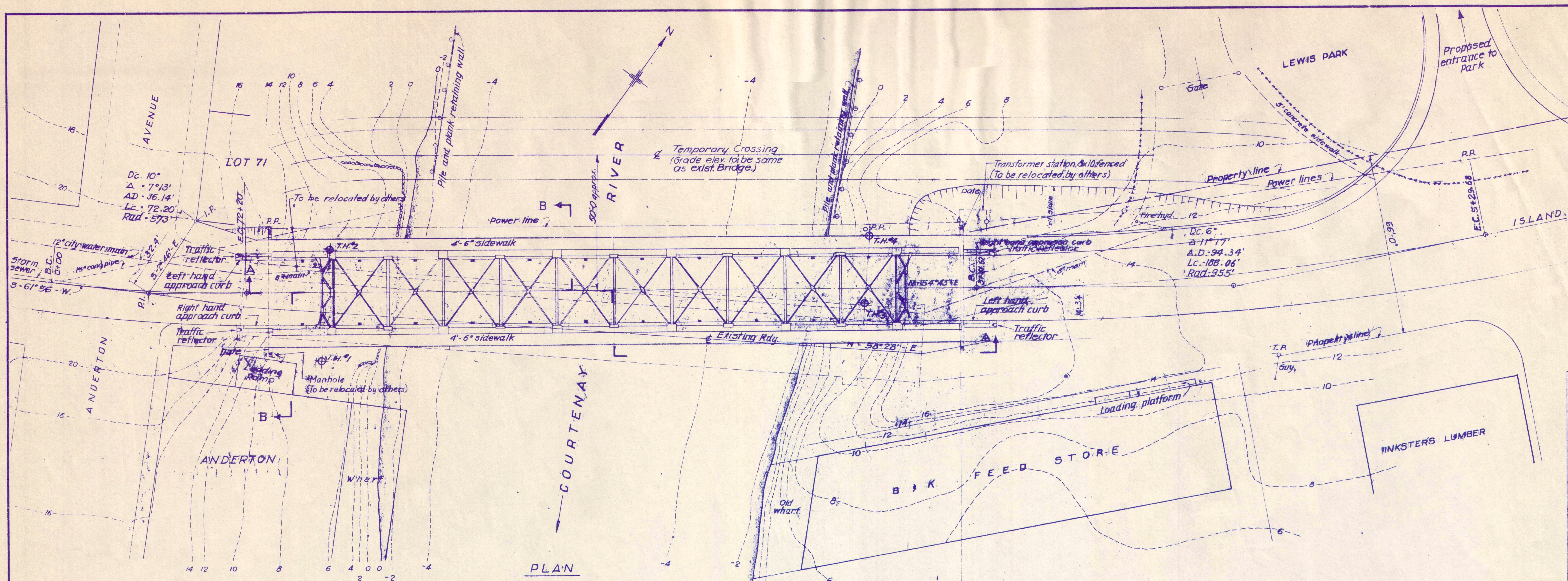
NO	DATE	REVISIONS	BY	APPROVED
A	Feb. '72	Precast M.H's added	DB	

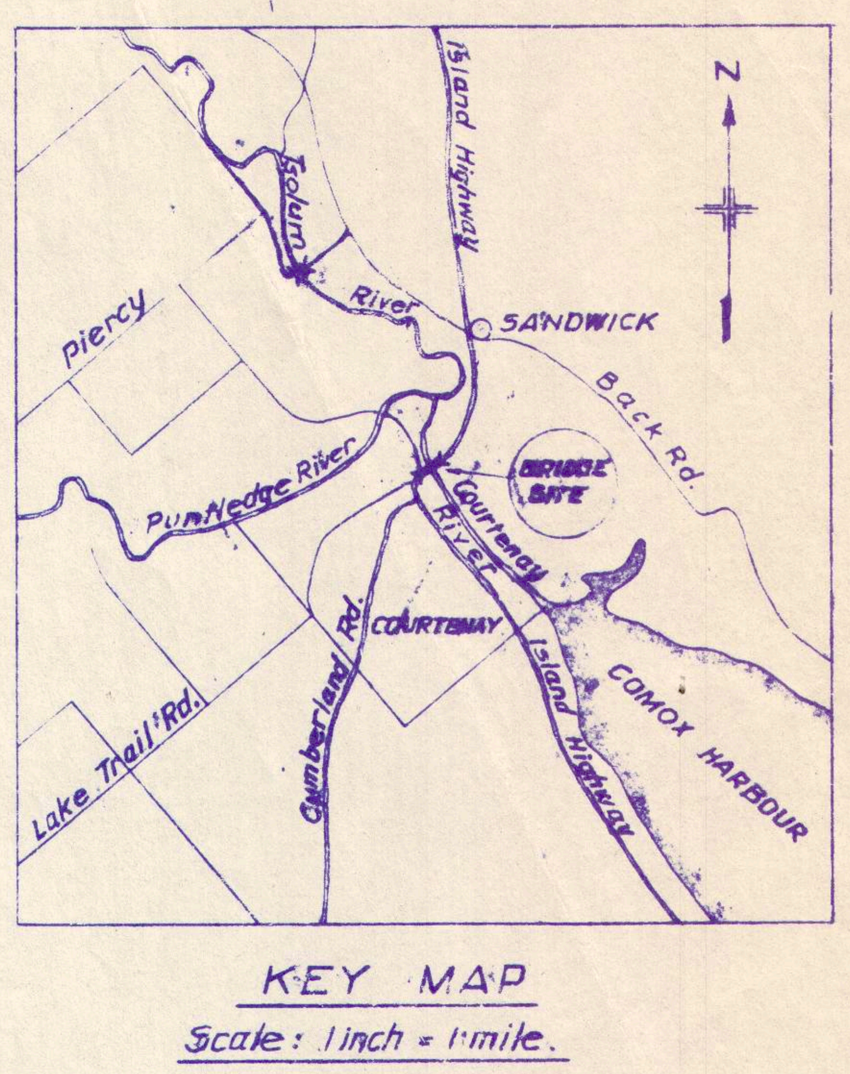
NO	REFERENCE DRAWINGS	DATE

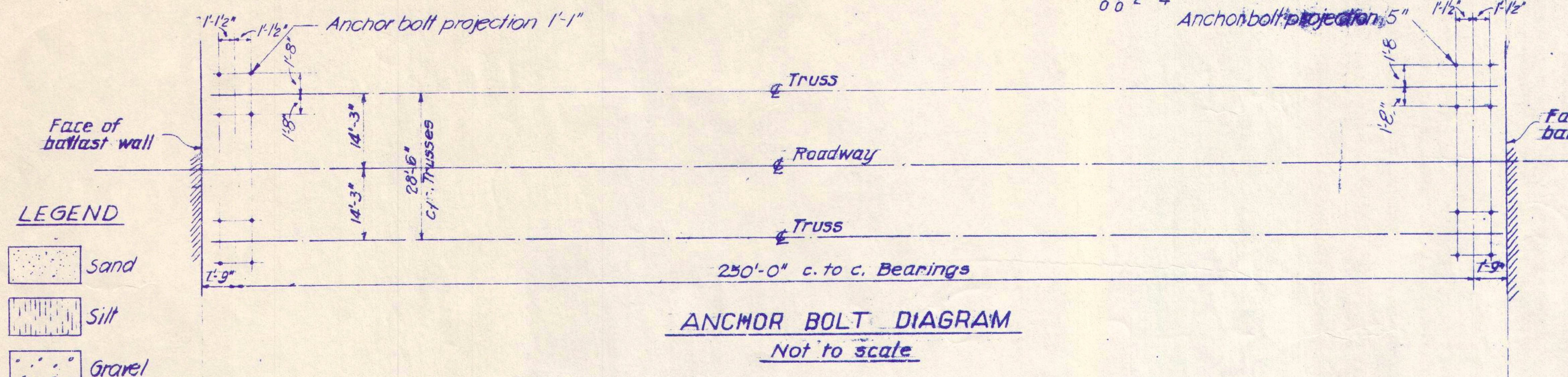
PROFESSIONAL ENGINEER PROVINCE OF B.C.

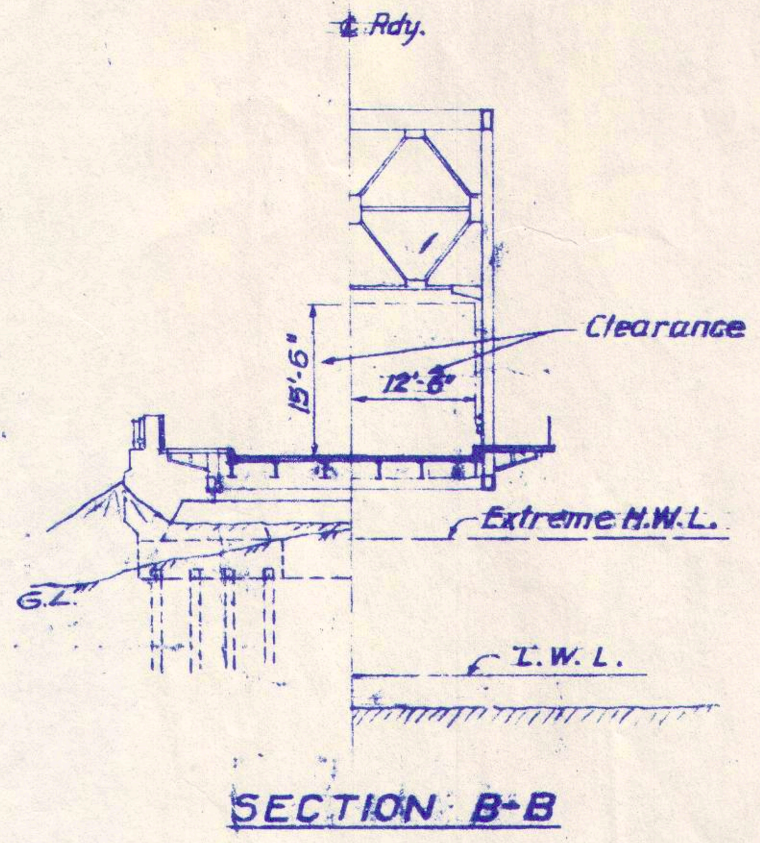
DESIGNED G.S.P.
DRAWN D.W.B.
CHECKED
APPROVED

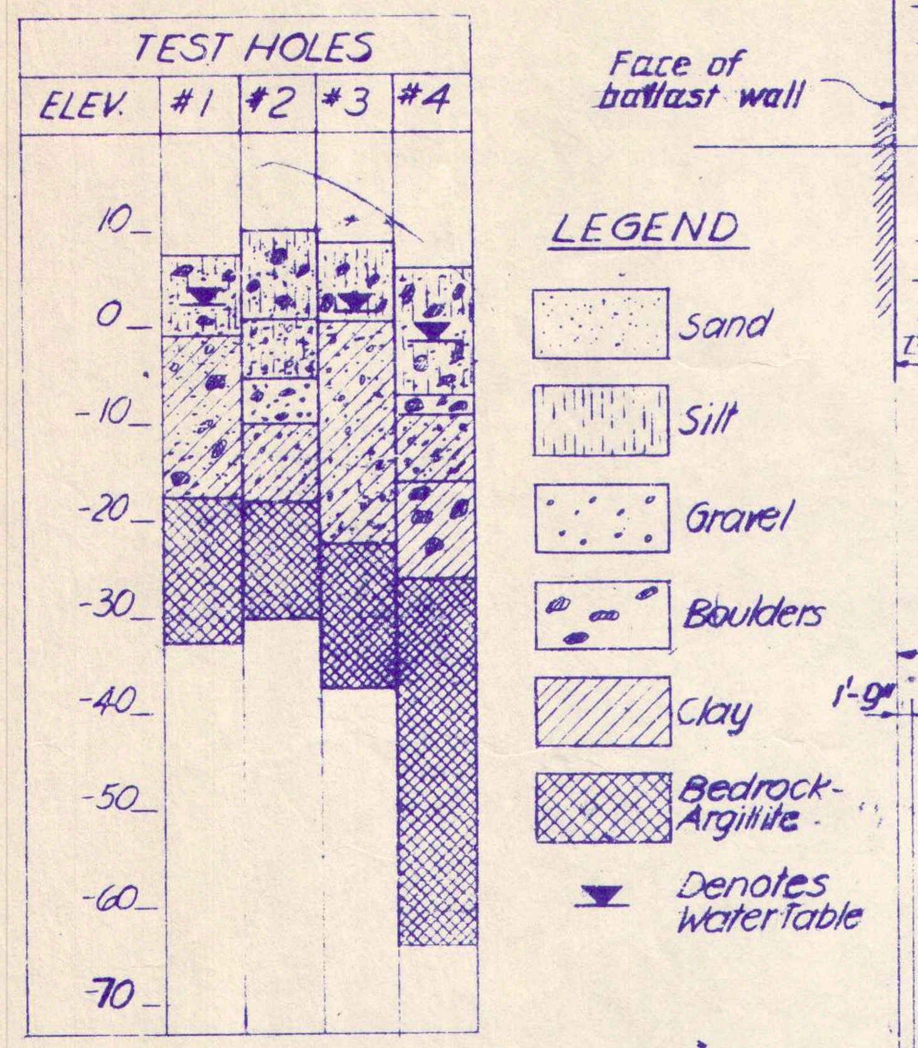
KPK KER, PRIES
400 - 800 DOUGL
CLIENT BRITISH C
TITLE COU
PIPE ENCLO

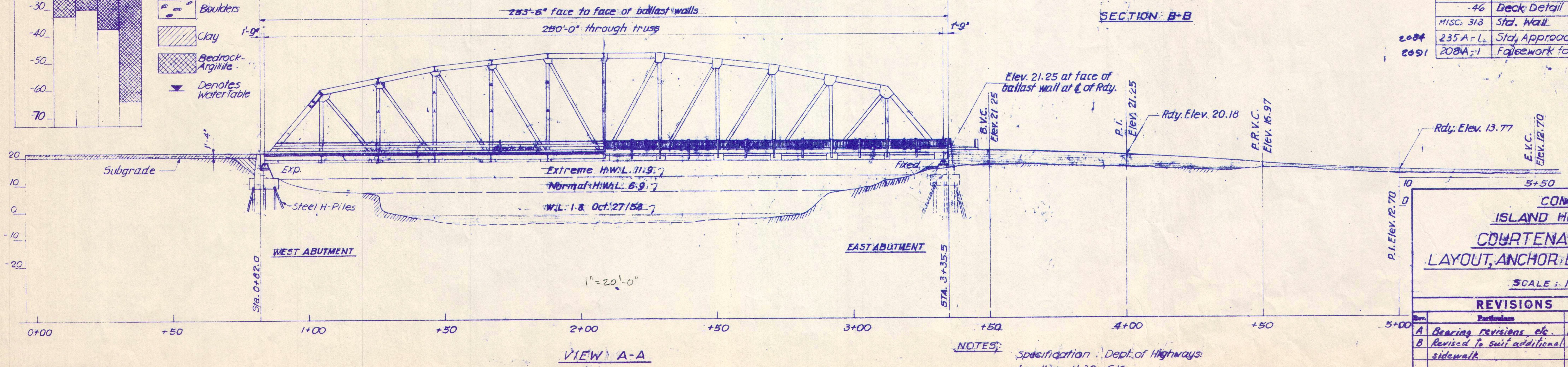












NOTES:
Specification: Dept. of Highways.
Loading: H 20-S16
Datum: Geodetic. B.M. #826 J. Tablet on west pier existing bridge El. 16.389
Survey by: District. M.B. Nov. 13/53.

LIST OF DRAWINGS

DWG. Nº	TITLE
455-40	Layout, Anchor Plan & Key Map
-41	Abutments
-42	Truss Design Sheet
-43	Typical Span Details
-44	Miscellaneous Steel Details
-45	Floor Plate & Protection Angle
-46	Deck Detail
MISC. 313	Std. Wall
2084 235 A-1	Std. Approach Curb
2091 208A-1	Falsework for Std Through Trusses

COMOX DISTRICT
ISLAND HIGHWAY MILE 135.71
COURTENAY RIVER BRIDGE
LAYOUT, ANCHOR BOLT PLAN & KEY MAP
SCALE: 1" = 20' & AS NOTED.

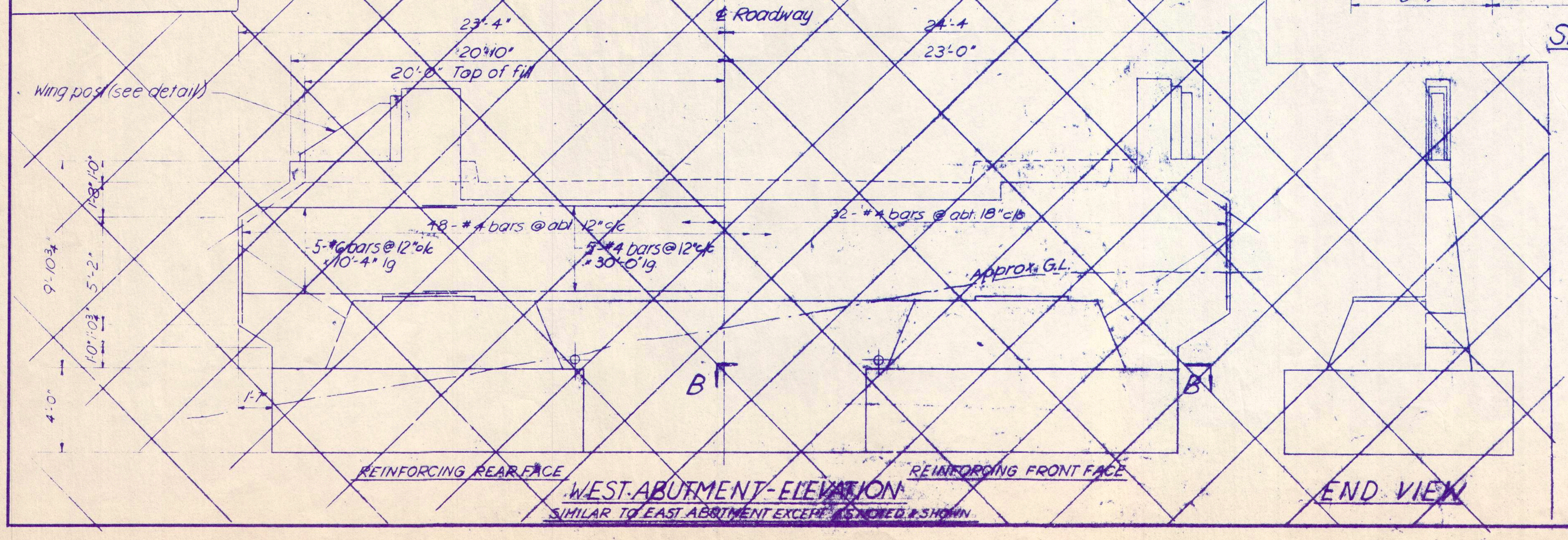
REVISIONS

Rev.	Particulars	Init.	Date
A	Bearing revisions, etc.	AS.	6/10/59
B	Revised to suit additional sidewalk	AS.	7/4/60

GOVT. of BRITISH COLUMBIA
DEPT. of HIGHWAYS
BRIDGE ENGINEER'S OFFICE

	Init.	Date
Made by	A.Sch.	July 18-58
Checked by	J.D.W.	MAY 19 /59
Approved	[illegible]	

DRAWING No. BRIDGES 455-40 B
Cancel prints bearing earlier letter
18887



Notes
1. Concrete to be Class "A" throughout.
2. Exposed edges to be chamfered 1" except where noted otherwise.
3. A drainage course 1'-0" thick of coarse gravel to be placed at back of walls
4. Anchor bolt pipes are to be filled with sand-cement grout by the Steelwork erector immediately prior to erecting steelwork.
5. Reinforcing steel to be structural grade
6. Reinforcing steel to have 2" cover except where otherwise noted.
7. Reinforcing: Min. dias of pins to be used for bending bars including hooks, to be 2×d for stirrups and ties, 6×d for #8 bars and under. Extensions of free ends on hooks to be 4×d. Lap bars for splices 40×d.
8. Piles to be driven to bedrock.

ESTIMATED QUANTITIES			
	Concrete	Reinforcing	Piles
East Abut.	94 cuyds.	5,500 lbs.	24
West Abut.	94 cuyds.	5,500 lbs.	24
Total	188 cuyds.	11,000 lbs.	48

COMOX DISTRICT
ISLAND HIGHWAY MILE 135.71
COURTENAY RIVER BRIDGE
ABUTMENTS
SCALE: 4" = 1'-0" & AS NOTED

SCANNED

REVISIONS			
Rev.	Particulars	Init.	Date
A	Revised to suit additional sidewalk	R.K.	Apr. 7/60
B	Reinforcing band #6 bars	G.E.D.	May 3/60

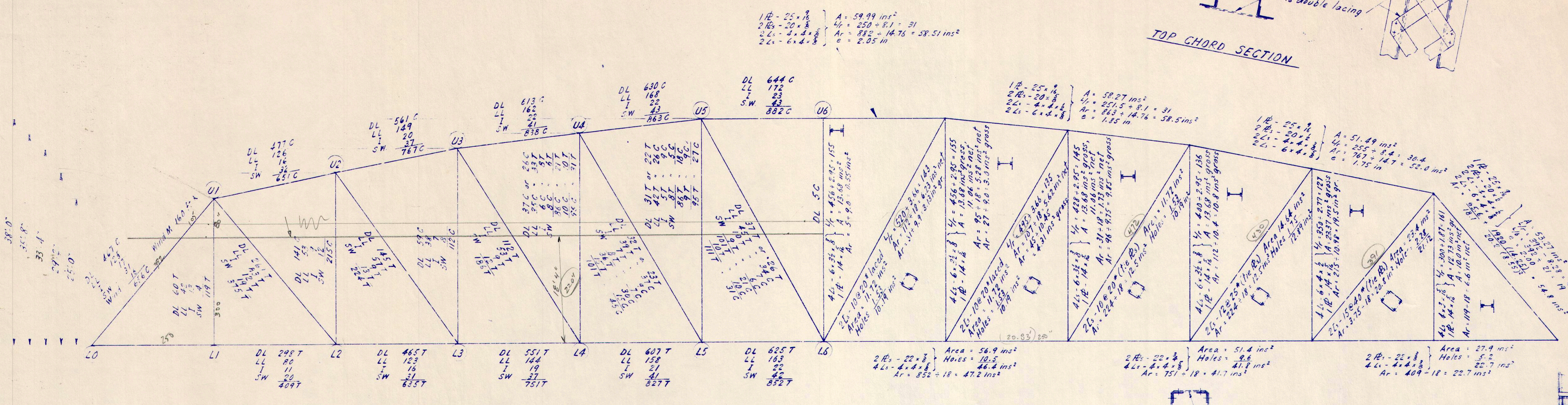
GOVT. OF BRITISH COLUMBIA
DEPT. OF HIGHWAYS
BRIDGE ENGINEER'S OFFICE

	Init.	Date
Made by	R.K.	April 17/59
Checked by	J. D. W.	May 19/59
Approved:	[illegible]	

DRAWING NO. BRIDGES 455-41 B

Cancel prints bearing earlier letter

18888



End Reaction

DL	390
LL	105
I	14
SW	26
	535

Panel load

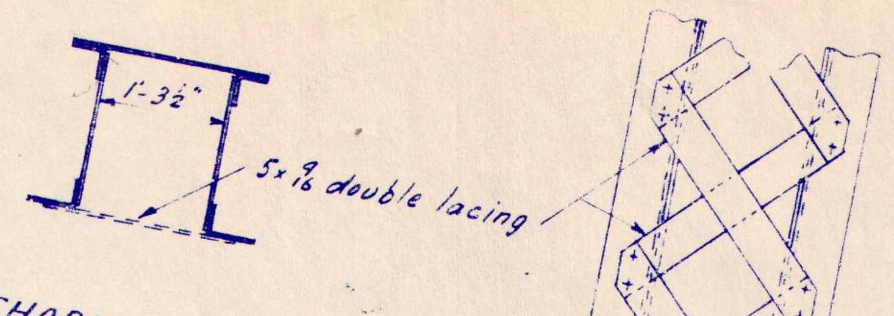
DL @ bottom chord	60.0
@ top chord	5.0
	65.0
LL	24.4

6" ϕ Rollers $\frac{549000}{750 \times 6}$ = 122 net lin ins req'd

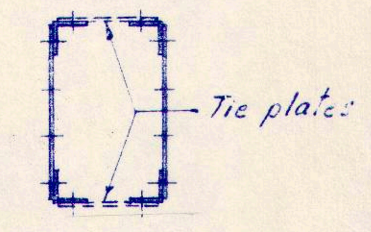
Bed plate bearing area $\frac{549000}{600}$ = 915 ins²

STRESSES

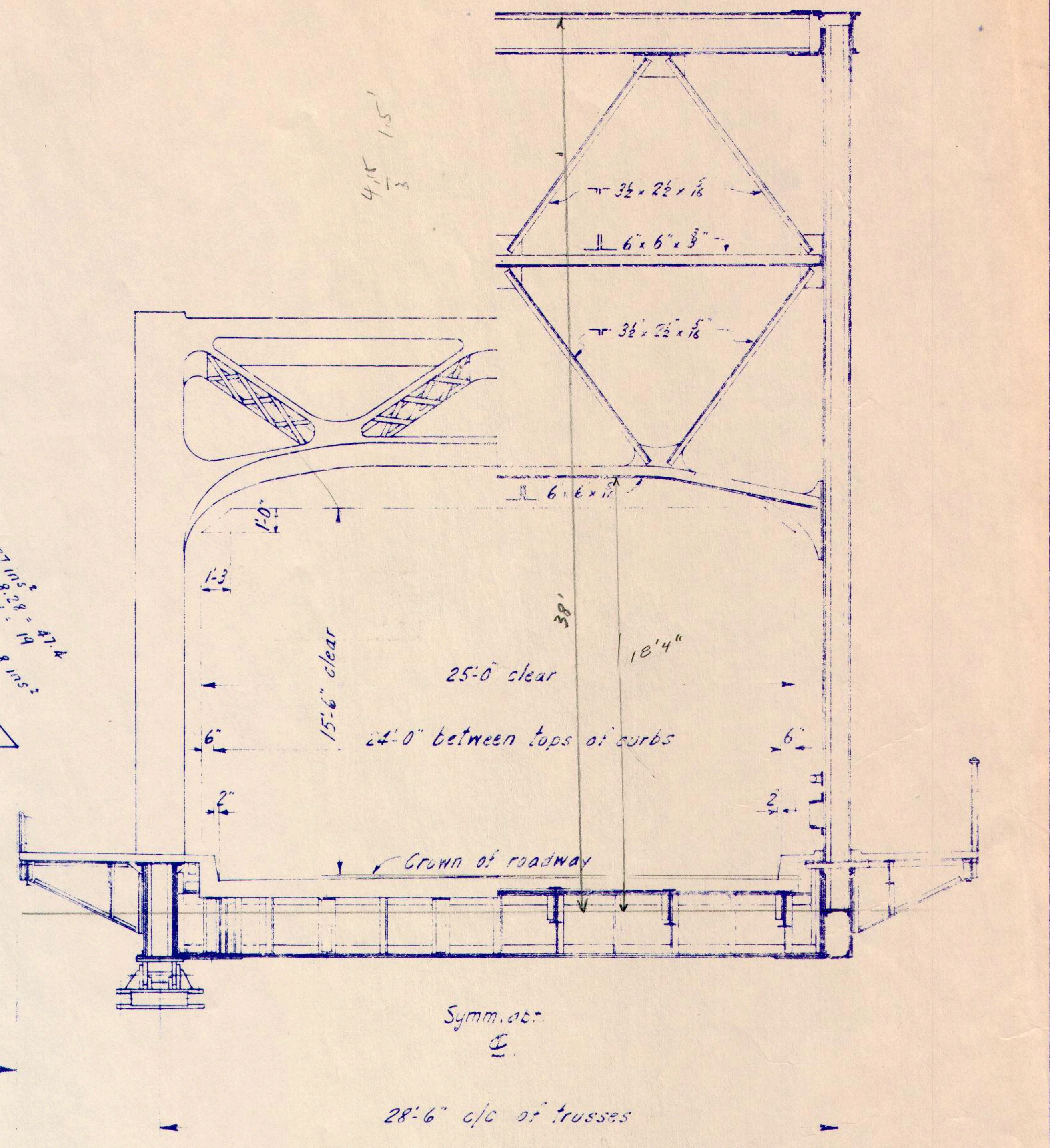
All stresses in kips



TOP CHORD SECTION



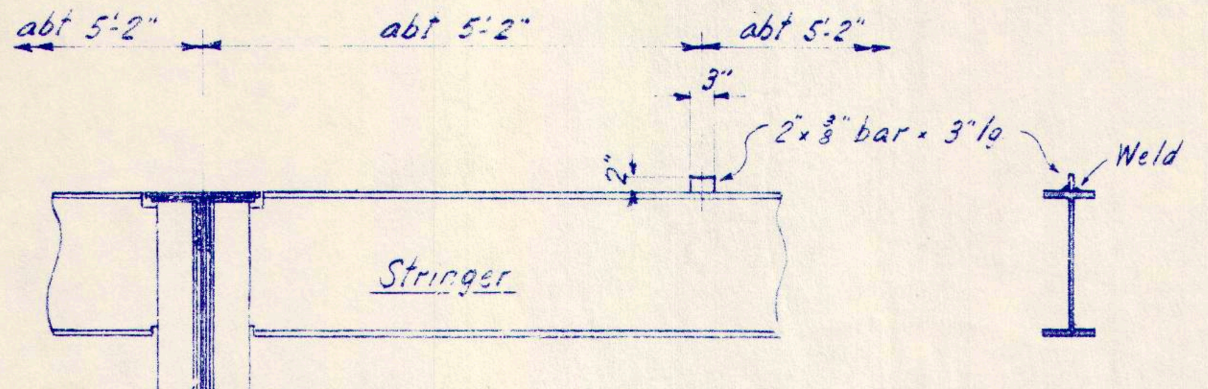
BOTTOM CHORD SECTION



HALF END VIEW HALF SECn AT ℄

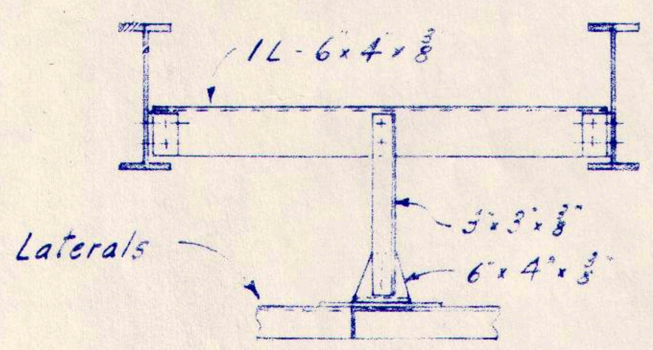
SCALE: 3/16" = 1'-0"

MEMBERS



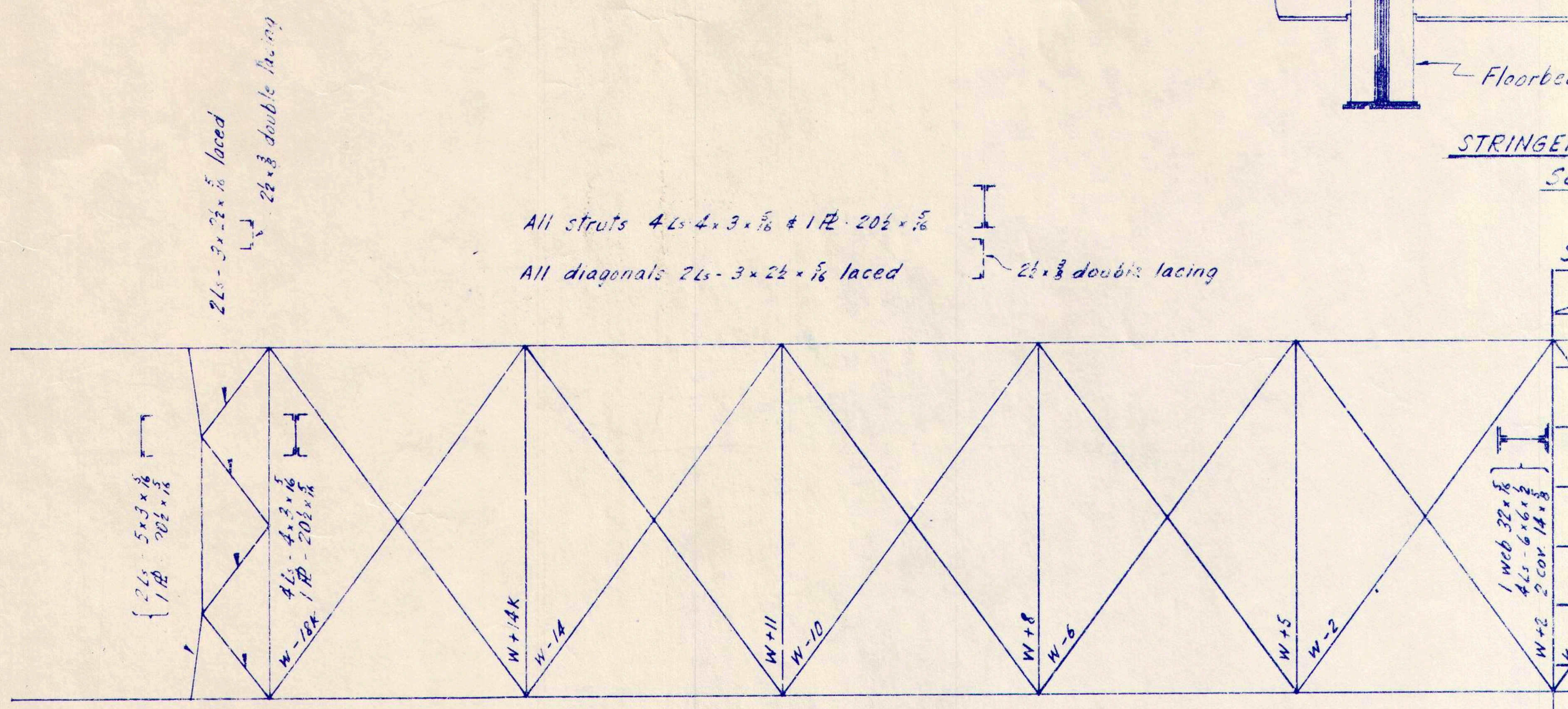
STRINGER SLAB ANCHORS

Scale: ½" = 1'-0"

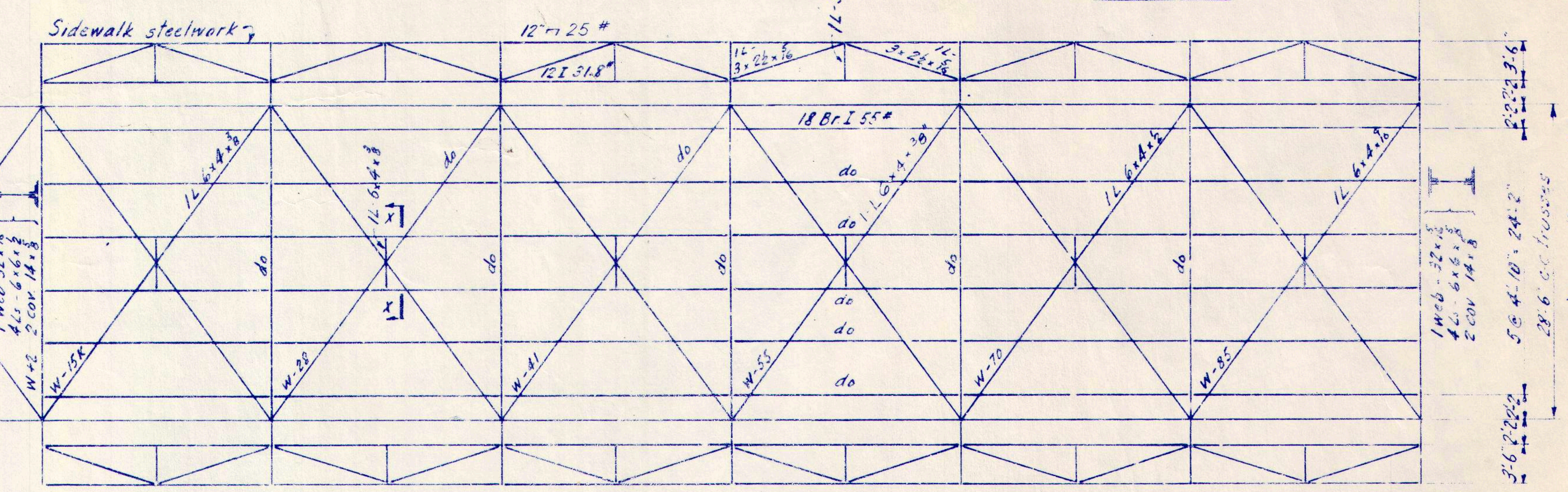


SECTION "X-X"

Scale: ½" = 1'-0"



TOP LATERALS



FLOOR SYSTEM & BOTTOM LATERALS

Dead load

Concrete & asphalt	1814 #/ft/truss
Floor & fence	468
Truss & bracing	830
	3112 #/ft/truss

Live load On roadway - for floor - 1 Std H20 S16-44 truck

- for truss: 640 #/lineal ft of load lane combined with concentrated load of 18000 #/lane for moment or 26,000 #/lane for shear OR 1 Std H20 S16-44 truck/lane

On sidewalks - for floor - 85 #/ft²
- for truss - 42 #/ft²

Wind load 150 #/lineal ft on top chord
400 #/ " " " bottom chord
200 #/ " " moving load 7 ft above roadway

Unit stresses Tension 18000 #/in²
Compression 15,000 - ¼ (l/r)² or 18,000 - 5 (l²/b²)
Unit stresses increased 25% for DL + LL + Wind

Specification Dept of Highways - Specifications for Highway Bridges

Notes Paint 1 shop coat red lead
Rivets ¾" ϕ
Gussets ⅜" thick minimum
Min thickness of metal 5/16" except webs of rolled shapes min thickness 0.23"

Estimated weight of steelwork, including floor plates, pier members, end stools, fences and drains = 701,000 lbs

SIDEWALK STRINGER - INSIDE

	S.F.	M.
D.L.	2300 #	12,000 '#
L.L.	3100 #	16,200 '#
	5400 #	28,200 '#

12 I 31.8# S = 36.0 ins³
f act = 28,200 x 12 ÷ 36 = 9400 #/in²
f all = 18,000 - 5 (125/5)² = 14,875 #/in²

SIDEWALK STRINGER - OUTSIDE

	S.F.	M
D.L	2400 #	12,300 '#
L.L	1600 #	8,100 '#
	4000 #	20,400 '#

12 [25.0# S = 23.9 ins³
f act = 20,400 x 12 ÷ 23.9 = 10,200 #/in²
f all = 18,600 - 5 (125/3.05)² = 9,600 #/in²

ROADWAY STRINGER

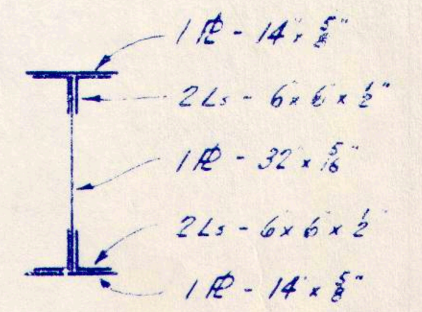
	S.F	M
D.L.	6,000 #	31,100 '#
L.L.	21,200 #	80,500 '#
I	6,400 #	24,200 '#
	33,600 #	135,800 '#

18 I @ 55# S = 93.5 ins³
f act = 18,000 - 5 (62.5/6)² = 17,460 #/in²
f all = 135,800 x 12 ÷ 93.5 = 17,400 #/in²

FLOORBEAM - INTERMEDIATE

	S.F.	M.
D.L.	38,700 #	272,000 '#
L.L	48,200 #	416,000 '#
I	14,500 #	125,000 '#
	101,400 #	813,000 '#

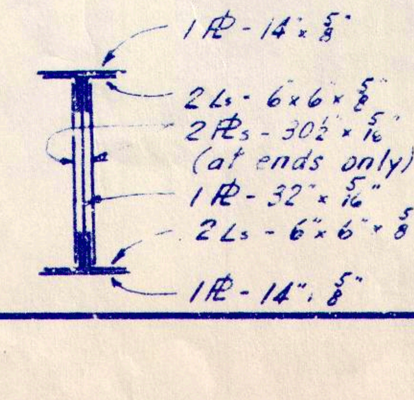
S for section shown = 630 ins³
f act (Net section) 813,000 x 12 ÷ 529 = 18,450 #/in²
f all = 18,000 #/in²



FLOORBEAM - END

	S.F	M
Jacking load	389,000 #	1,170,000 '#

f (for b = 14") = [18,000 - 5 (58/14)²] 1.5 = 26,900 #/in²
S for section shown = 597 ins³
f = 1,170,000 x 12 ÷ 597 = 23,500 #/in²



COMOX DISTRICT

ISLAND HIGHWAY - MILE 132.71

COURTENAY RIVER BRIDGE

TRUSS DESIGN SHEET

SCALE: 3/32" = 1'-0" & AS NOTED

REVISIONS			
Rev.	Particulars	Init.	Date
A	Revised to suit additional sidewalk	KW	7/4/60

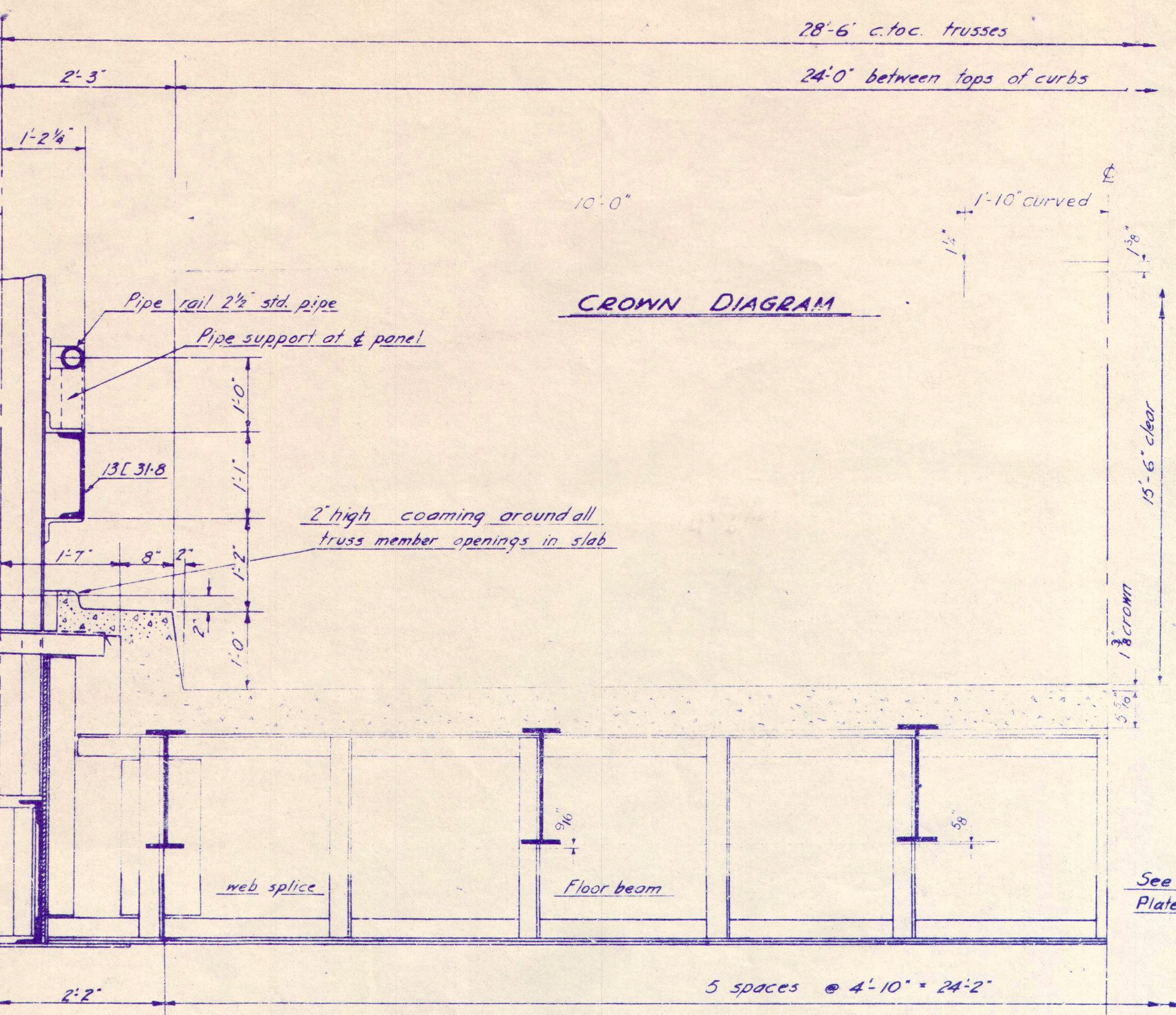
GOVT. OF BRITISH COLUMBIA
DEPT. OF HIGHWAYS
BRIDGE ENGINEER'S OFFICE

	Init.	Date
Made by	KW	July 8/58
Checked by	J.D.W.	[illegible] 1959
Approved:	[signature]	

DRAWING NO. BRIDGES 455-42

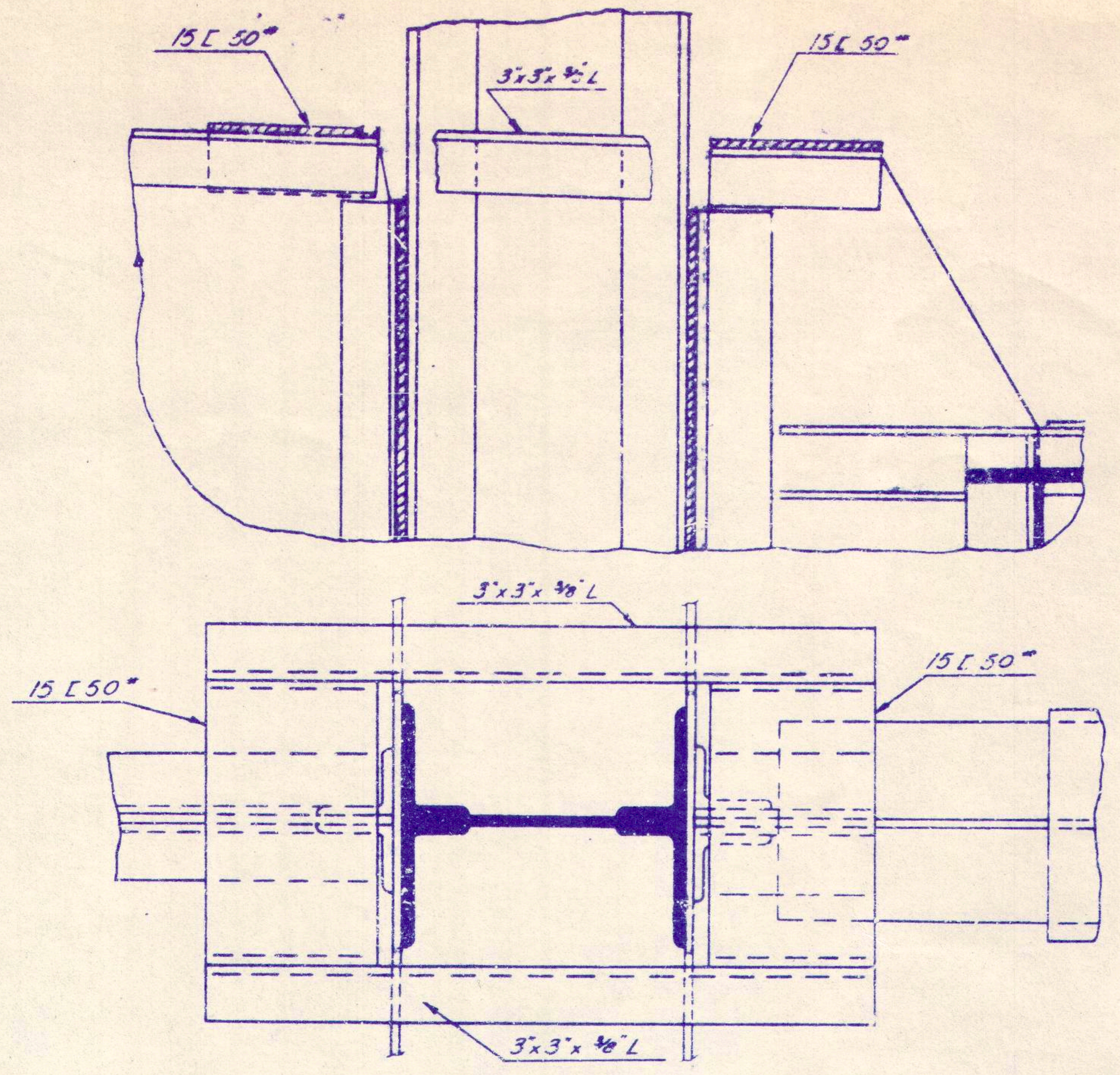
18889

Cancel prints bearing earlier letter



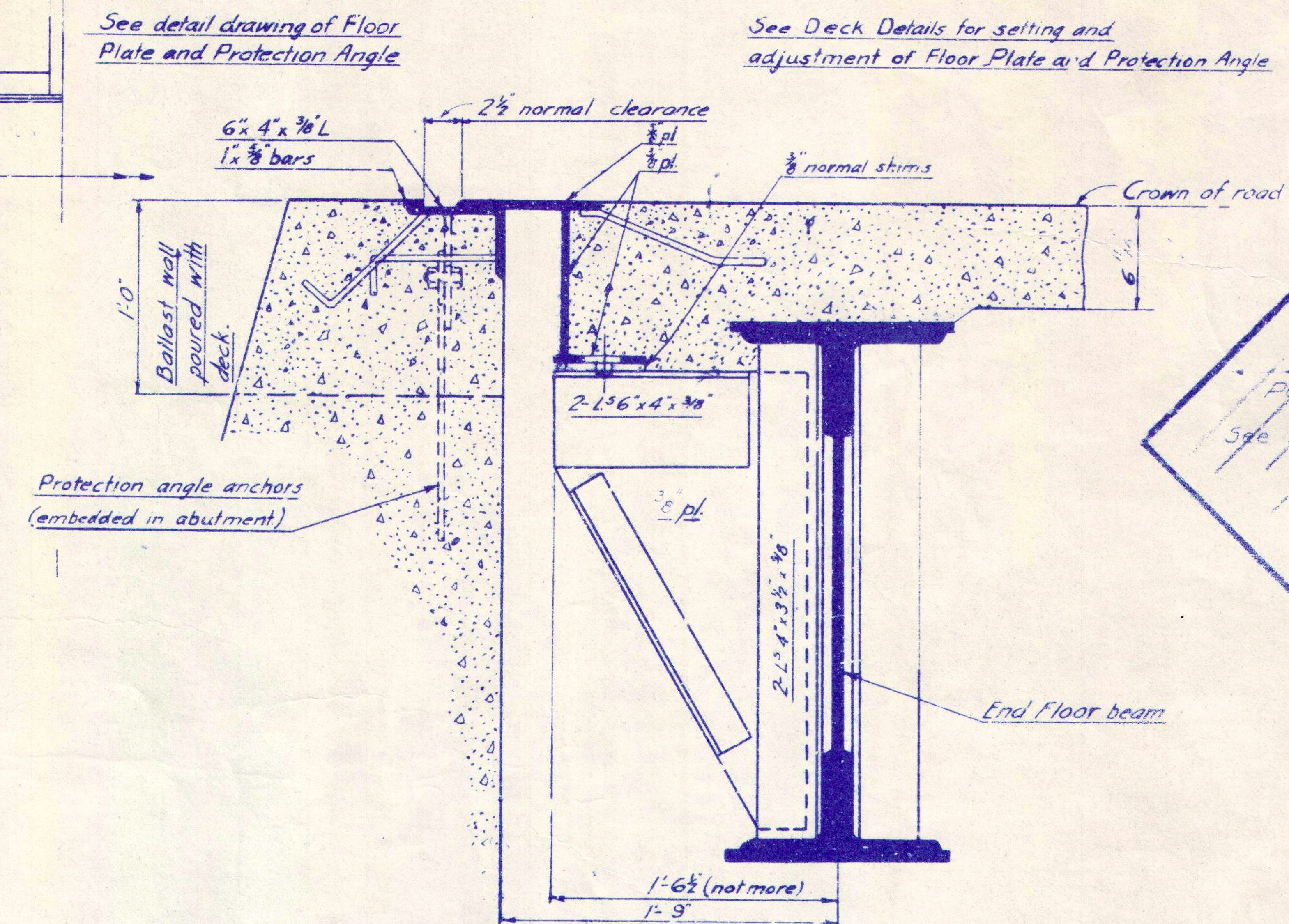
HALF CROSS-SECTION

Scale ¾" = 1'-0"



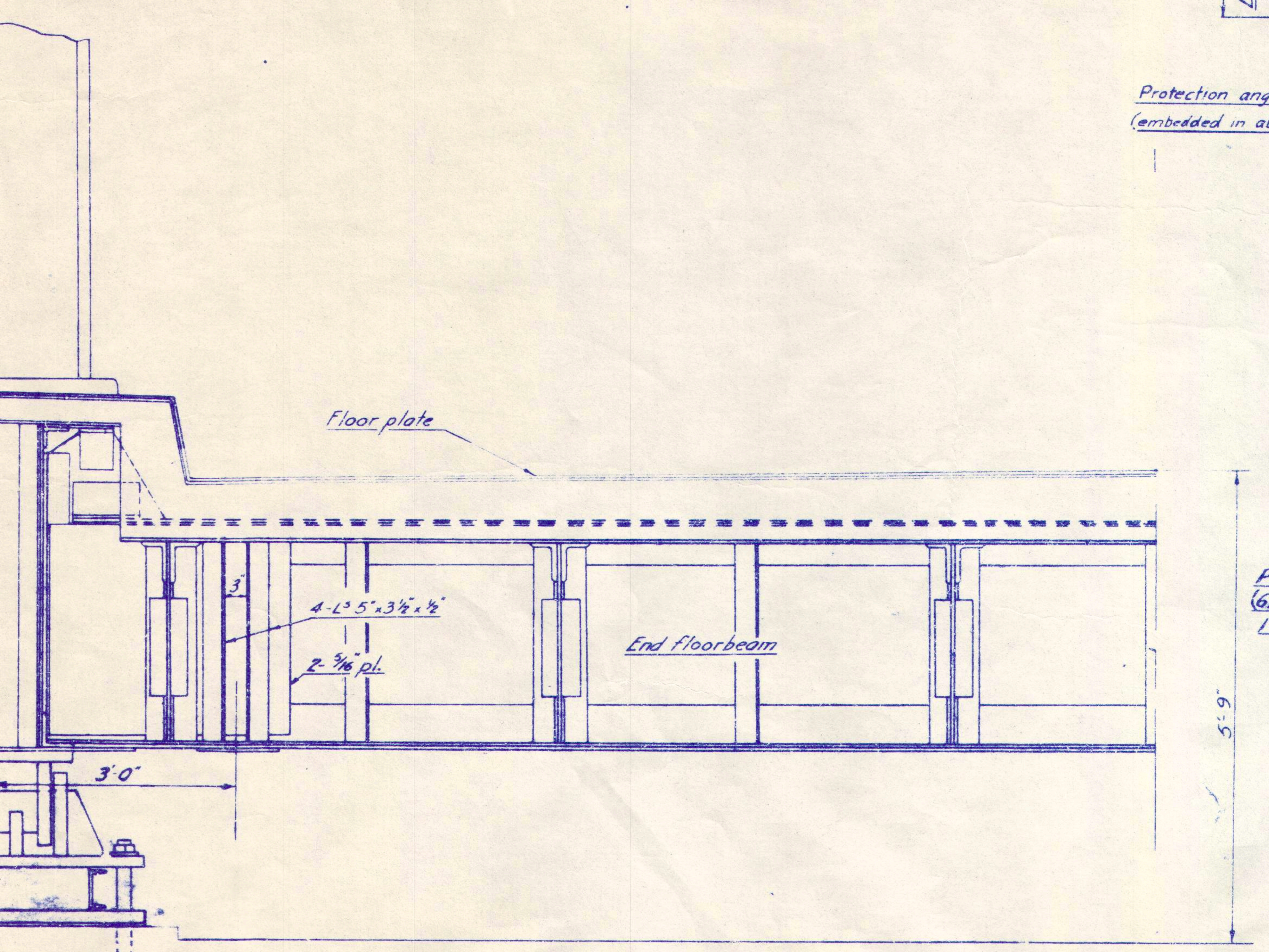
DETAIL OF SIDEWALK BRACKET CONNECTION TO TRUSS

Scale 1½" = 1'-0"



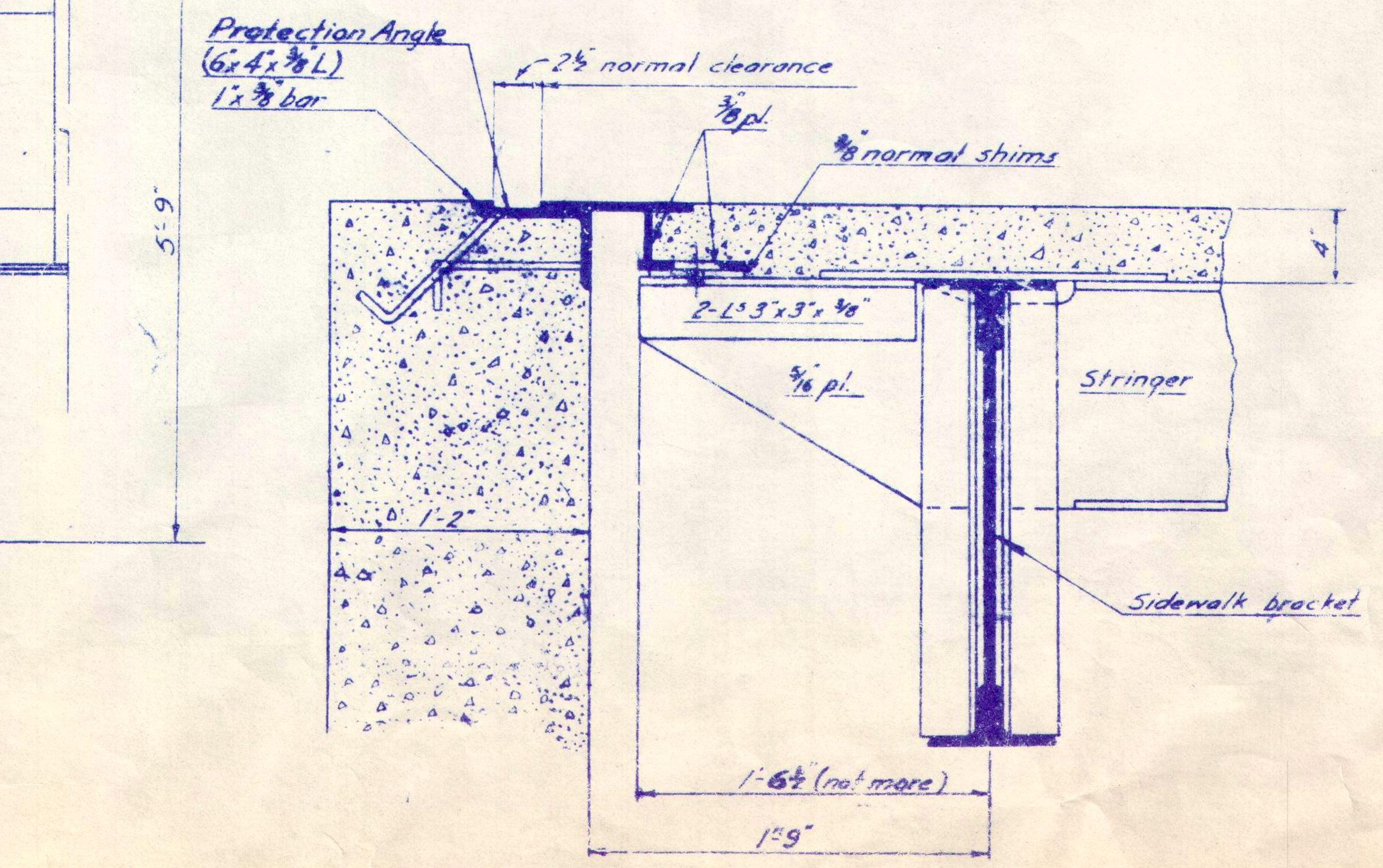
END SECTION - ROADWAY AT CROWN

Scale 1½" = 1'-0"



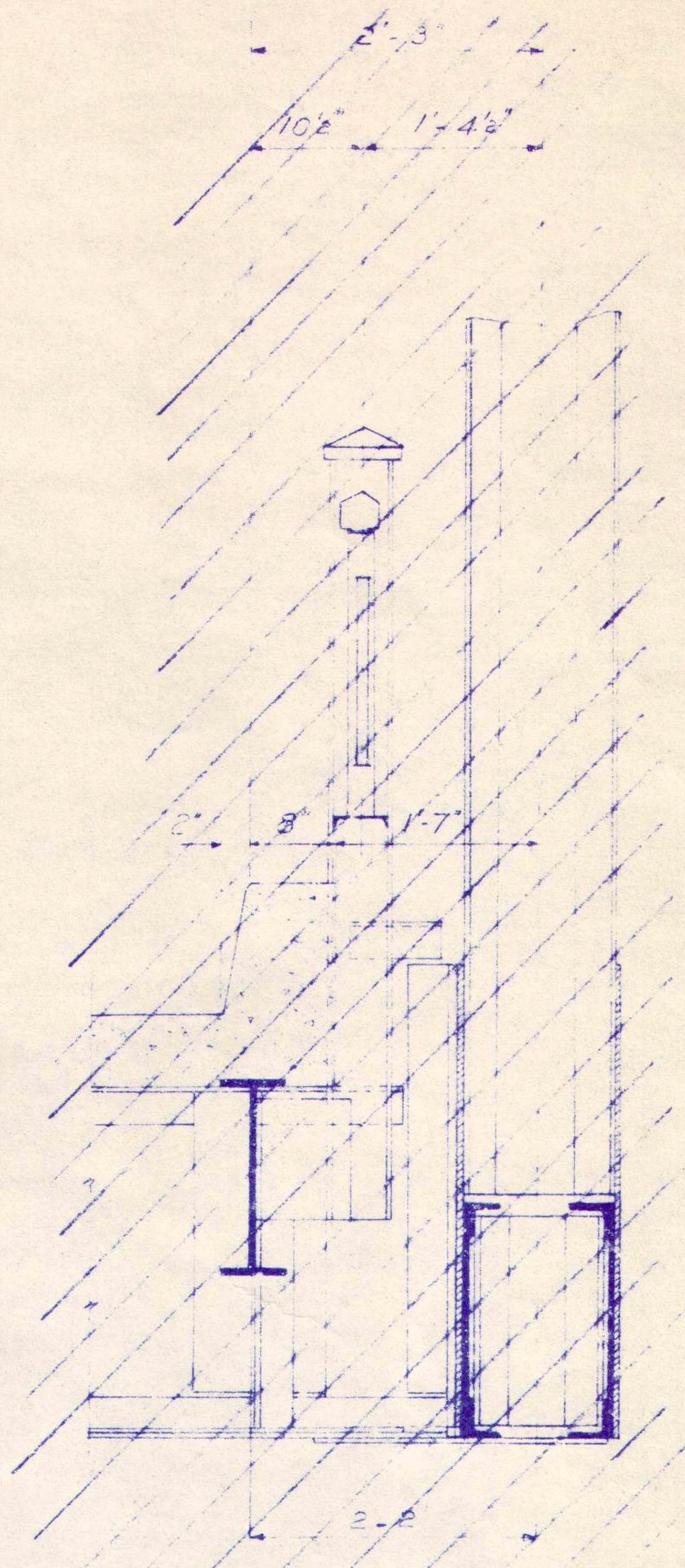
HALF END ELEVATION

Scale ¾" = 1'-0"



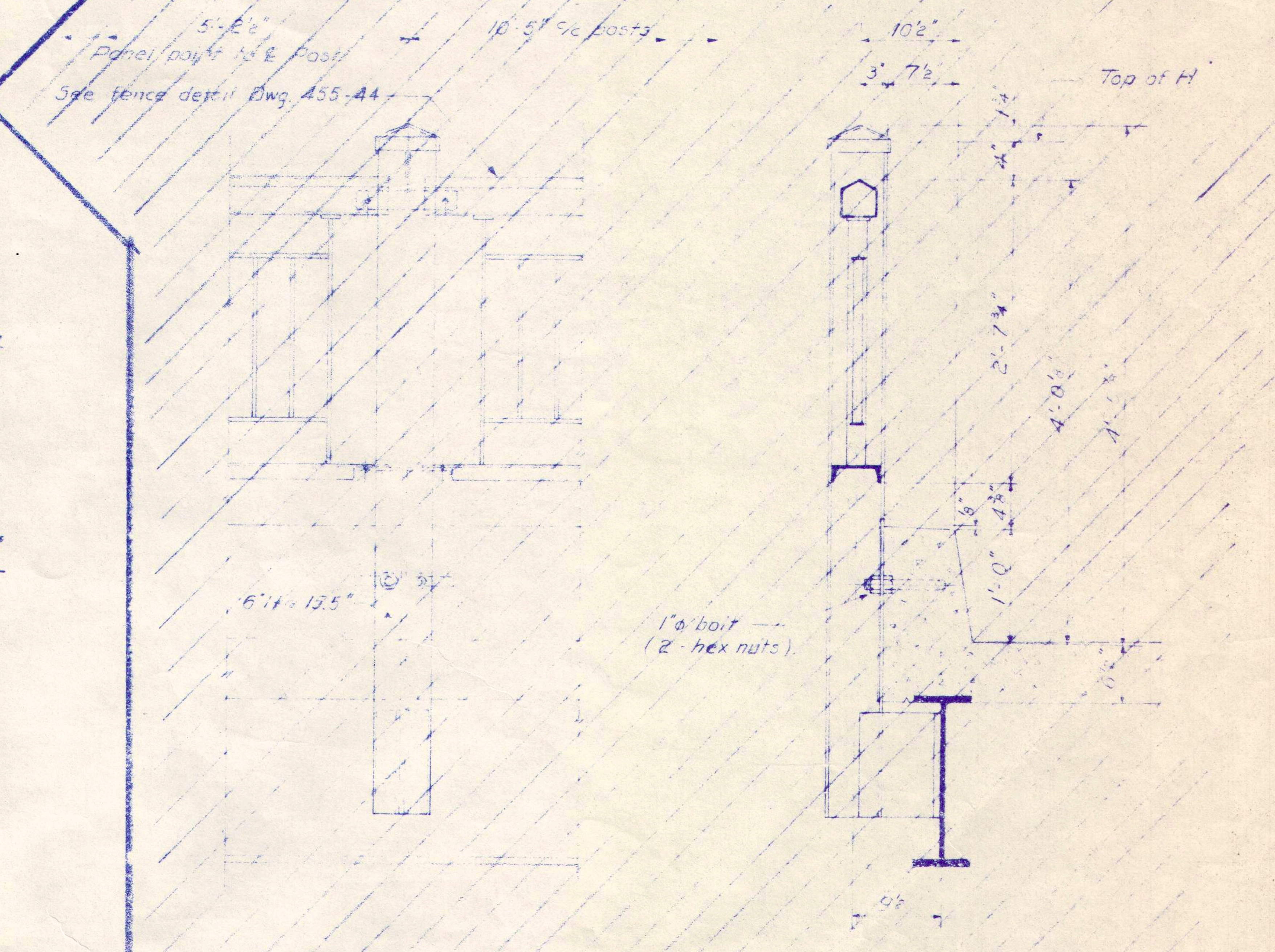
END SECTION - SIDEWALK

Scale 1½" = 1'-0"



PART SECTION

Scale ¾" = 1'-0"



DETAIL OF FENCE POST CONNECTION

Scale 1" = 1'-0"

COMOX DISTRICT
ISLAND HIGHWAY MILE 135.71
COURTENAY RIVER BRIDGE
TYPICAL SPAN DETAILS
SCALE: ¾" = 1'-0" & AS NOTED

REVISIONS			
Rev.	Particulars	Init.	Date
A	[illegible]		

GOVT. OF BRITISH COLUMBIA
DEPT. OF HIGHWAYS
BRIDGE ENGINEER'S OFFICE

	Init	Date	DRAWING NO.
Made by	E.B.	Apr 17/59	BRIDGES
Checked by	J.D.W.		455-43
Approved	[illegible]		

18890

Cancel prints bearing earlier letter


END POST
SCALE: 1½"=1'-0
END FENCE PANEL
INTERMEDIATE FENCE PANELS
ROADWAY FENCE DETAILS
PANEL CONNECTION
SCALE 1½"=1'-0
INTERMEDIATE FENCE POST
Details similar to end fence post except as shown
SCALE: 1½"=1'-0"
END POST
SCALE: 1½"=1'-0
END POST CONNECTION
END FENCE PANEL
INTERMEDIATE FENCE PANELS
SIDEWALK FENCE DETAILS
PANEL CONNECTION
SCALE: 1½"=1'-0
INTERMEDIATE FENCE POST
Details similar to end fence post except as shown
Scale: 1½"=1'-0"
TYPICAL GUARD RAIL DETAILS
FOR AS BUILT D
SEE SHOP DRAWING
EXPANSION BEARING
SCALE: 1"=1'-0
NOTE: DIMENSIONS & NOTES NOT SHOWN ARE SIMILAR TO EXPANSION BEARING
FIXED BEARING
SCALE: 1"=1'-0"
DRAIN DETAILS
SCALE: 1½"=1'-0"
COMOX DISTRICT
ISLAND HIGHWAY MILE 155.71
COURTENAY RIVER BRIDGE
MISCELLANEOUS STEEL DETAILS
SCALE: ¾"=1'-0 & AS NOTED
REVISIONS
Rev. Particulars Init. Date
A Roadway Fence & posts deleted R.J.D. April 7/60
B. Fence Posts and Guard Rail R.J.D. May 13/60
GOVT. OF BRITISH COLUMBIA
DEPT. OF HIGHWAYS
BRIDGE ENGINEER'S OFFICE
Made by R.J.D. July 22-58
Checked by J.D.W. May 21/59
Approved [illegible]
DRAWING No. BRIDGES 455-44 B
Cancel prints bearing earlier letter
18891