British Columbia Transmission
CORPORATION™

Potential Northwest Transmission Line Project
Preliminary Facility Ratings and
System Data

Report No: SPA2007-66
July 2007

System Planning & Performance Assessment

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Potential Northwest Transmission Line Project
Preliminary Facility Ratings and System Data

BC Transmission Corporation is studying options for potentially expanding the existing electricity system in northwest B.C. Currently, the most north-western part of the transmission system consists of a 138 kV transmission line to Meziadin Junction, which then runs west to power Stewart, B.C.

BCTC is now focusing its studies on a potential 335 km, 287 kV new transmission line that would run from Skeena Substation (located near Terrace) to a new substation near Bob Quinn Lake – the Northwest Transmission Line (NTL). At this time, a decision on whether to proceed with an NTL has not been made.

This document provides facility ratings and system data with respect to a potential Point of Delivery as indicated below.

1. Point of Delivery

Bob Quinn Substation 138 kV bus. Bob Quinn Substation will be approximately 123 km north of Meziadin Substation.

2. Supply Voltage

Supply voltage at the Point of Delivery: 138,000 volts, +/- 10%

3. Fault Level

Fault Level at Point of Delivery

	All Facilities in Service	Single Contingency
2009 Stage	**242 MVA**	**182 MVA**
2011 Stage	**567 MVA**	**450 MVA**
Ultimate	**3000 MVA**	

Notes: 1. Fault levels assume no local generation.
2. Single contingency fault level based on one Bob Quinn 287/138 kV transformer out of service.

4. 287 kV Transmission Line Data

Conductor: Two bundle 477 MCM ACSR Hawk

Transmission Line Parameters
(p.u. @ nominal operating voltage, 100 MVA)

	R	X	B/2
Skeena to Meziadin Section – 287 kV operation (215 km)	0.0177	0.0968	0.3893
Meziadin to Bob Quinn Section – 138 kV operation (123 km)	0.0437	0.2396	0.0515
Meziadin to Bob Quinn Section – 287 kV operation (123 km)	0.0101	0.0554	0.2227

Summer Rating @ 30 degree ambient:

2009 Stage operated at 138 kV: 1456 Amperes/348 MVA
2011 Stage operated at 287 kV: 1456 Amperes/724 MVA

Note: Actual line capability may be limited by other factors to less than the thermal rating.

5. Bob Quinn Substation One Line Diagram

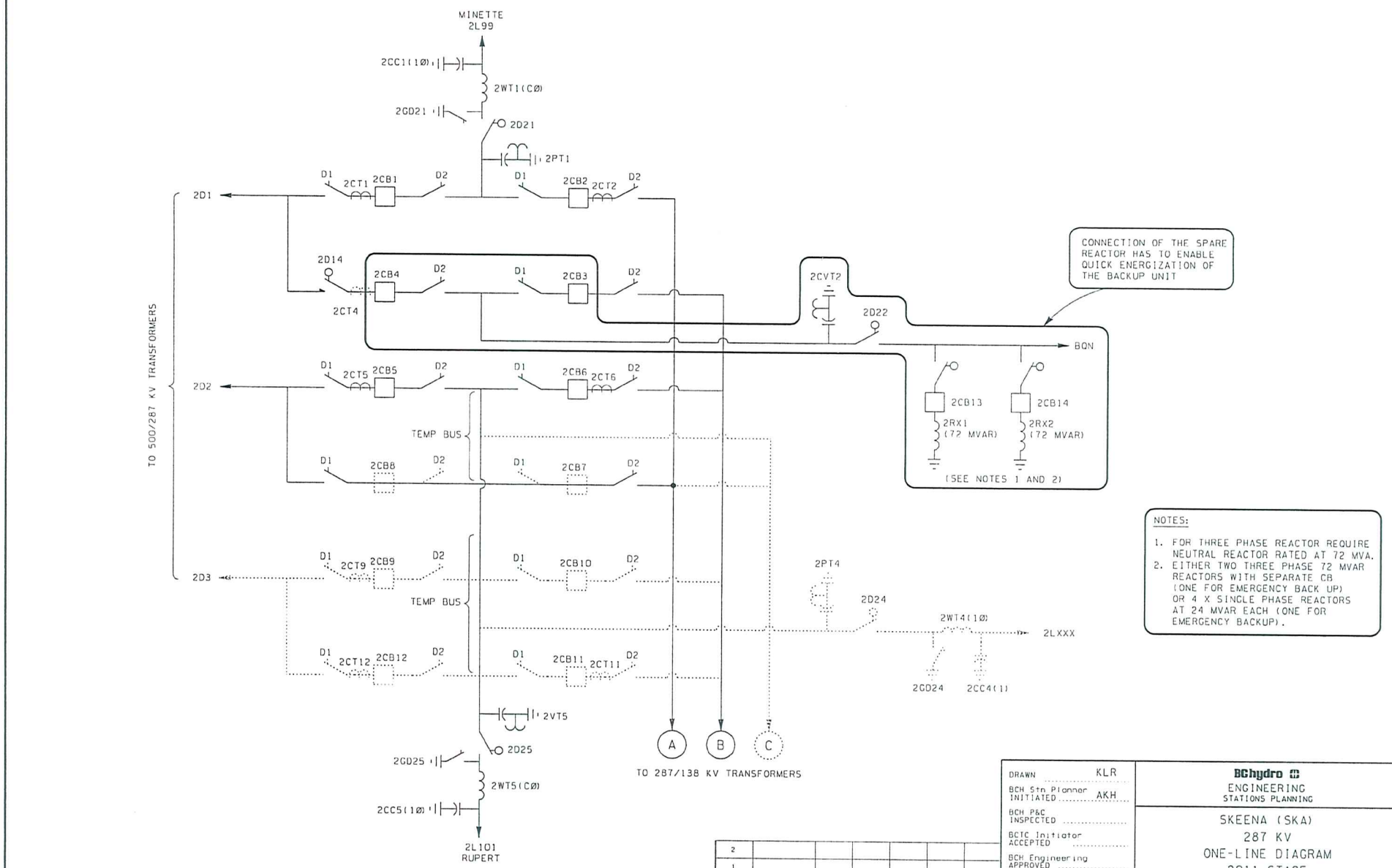
See Appendix 1.

6. Bob Quinn Substation Equipment Ratings

Transformers: 287/138/12.6 kV, 120 MVA, ONAN. Tertiary windings rated at 45 MVA
Synchronous Condensers: +/- 45 MVAR

Appendix 1

Station One Line Diagrams



REV NO	DATE	DWN	BCH INIT	BCH INSP	BCTC ACCPT	BCH APPD
2						
1						

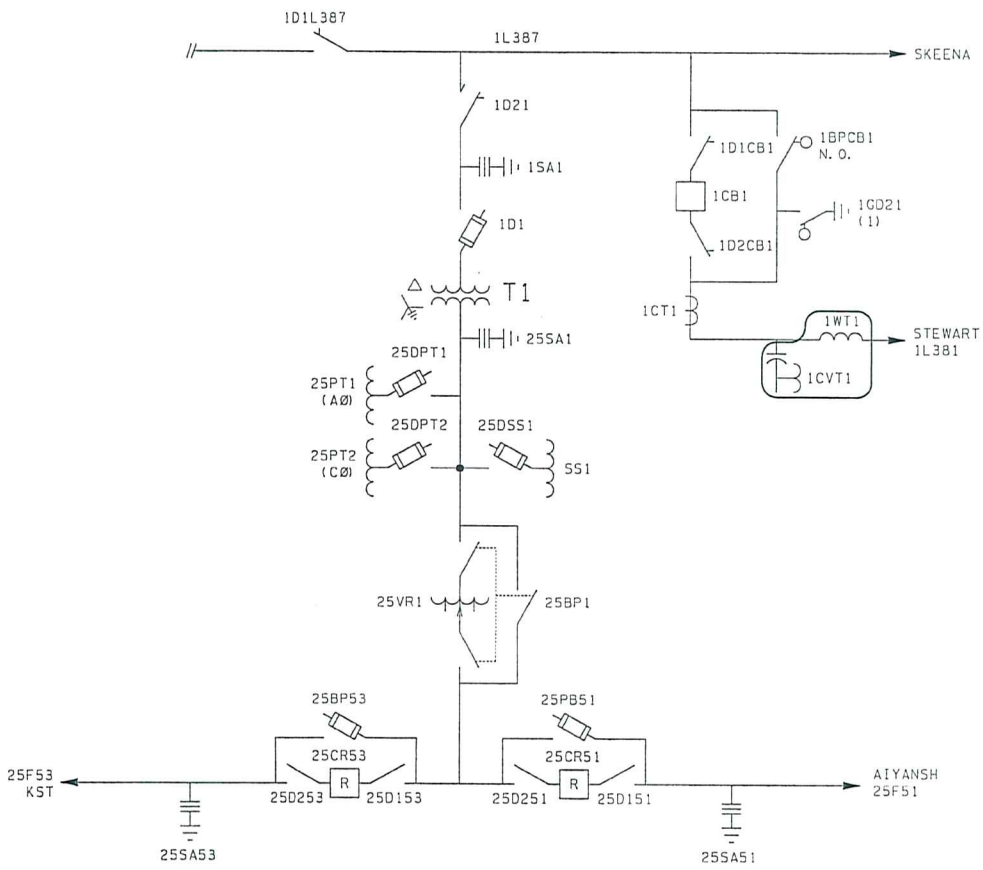
DRAWN KLR
BCH Stn Planner INITIATED AKH
BCH P&C INSPECTED
BCTC Initiator ACCEPTED
BCH Engineering APPROVED
DATE 29 MAY 07

BCHydro
ENGINEERING
STATIONS PLANNING

SKEENA (SKA)
287 KV
ONE-LINE DIAGRAM
2011 STAGE

SHEET 1 | DWG NO SKA-P06-SK1 | R1

907-P06-SK1S13



NOTE:

25CR53 - MGE. TYPE CWVE. 25 kV
400 A, 150 kV BIL.

REV NO	DATE	DWN	BCH INIT	BCH INSP	BCTC ACCPT	BCH APPD
2						
1						

DRAWN KLR
BCH Stn Planner INITIATED AKH
BCH P&C INSPECTED
BCTC Initiator ACCEPTED
BCH Engineering APPROVED
DATE 12 JUN 07

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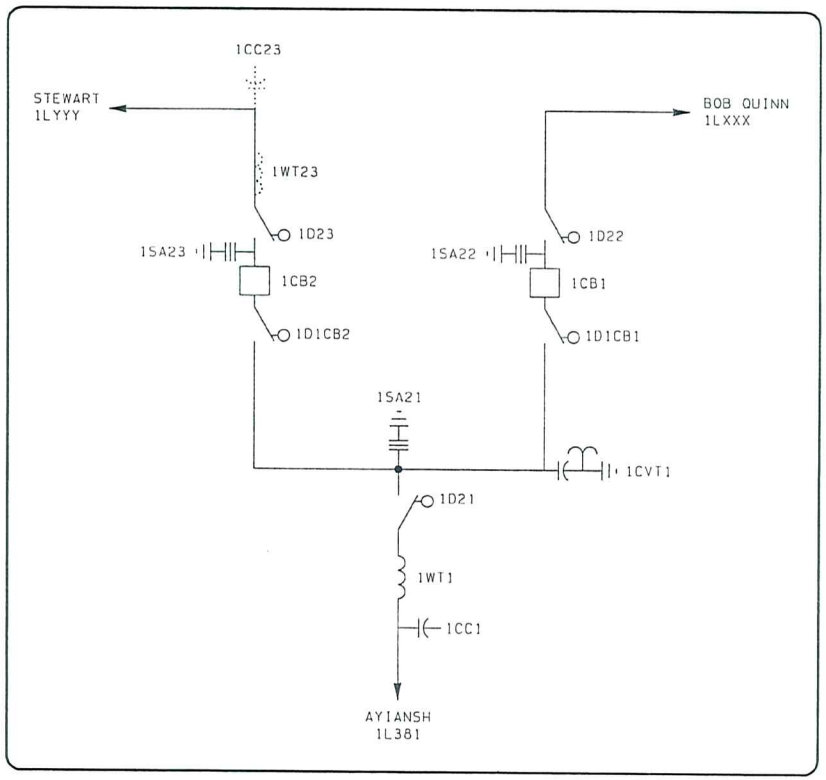
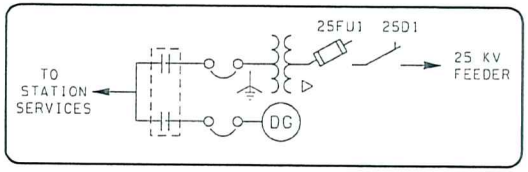
STATIONS PLANNING

AIYANSH (AYH)
ONE-LINE DIAGRAM
2009 STAGE

SHEET 1 | DWG NO 924-P06-SK1 | R0





NOTE:

1. ONE 138 KV CB SITTING ON PAD FOR SPARE OF BOTH BCN AND MEJ.

REV NO.	DATE	DWN	BCH INIT	BCH INSP	BCTC ACCPT	BCH APPD
2						
1						

DRAWN KLR
BCH Stn Planner INITIATED AKH
BCH P&C INSPECTED
BCTC Initiator ACCEPTED
BCH Engineering APPROVED
DATE 27 JUN 07

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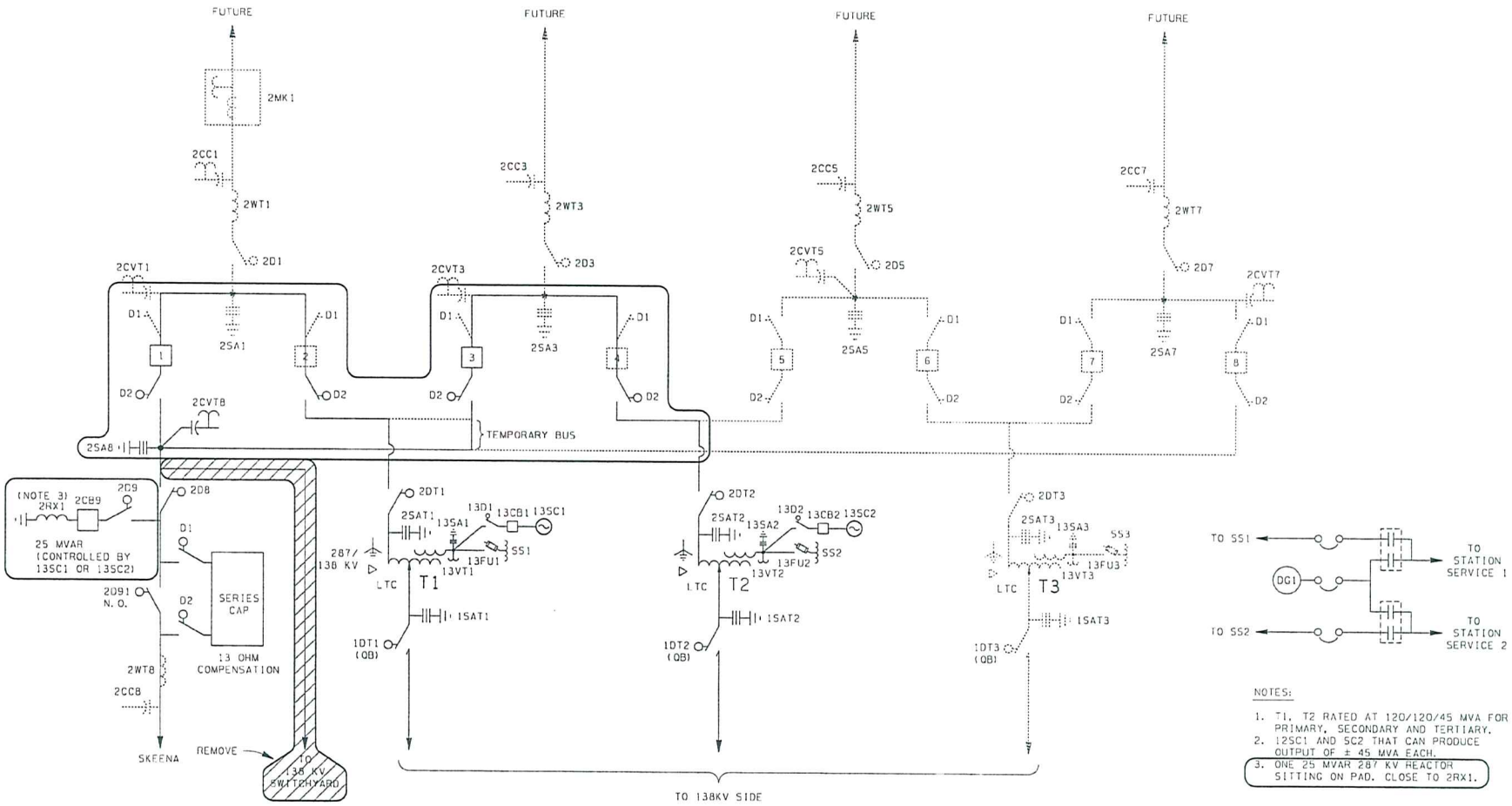
STATIONS PLANNING

NEW MEZIADIN
138 KV
ONE-LINE DIAGRAM
2009 STAGE

SHEET 1 | DWG NO NMEZ-P06-SK1 | R 2



NOTES:

1. T1, T2 RATED AT 120/120/45 MVA FOR PRIMARY, SECONDARY AND TERTIARY.
2. 125C1 AND 5C2 THAT CAN PRODUCE OUTPUT OF ± 45 MVA EACH.
3. ONE 25 MVAR 287 KV REACTOR SITTING ON PAD. CLOSE TO 2RX1.

REV NO	DATE	DWN	BCH INIT	BCH INSP	BCTC ACCPT	BCH APPD
2						
1						

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BCTC Initiator ACCEPTED
BCH Engineering APPROVED
DATE 27 JUN 07

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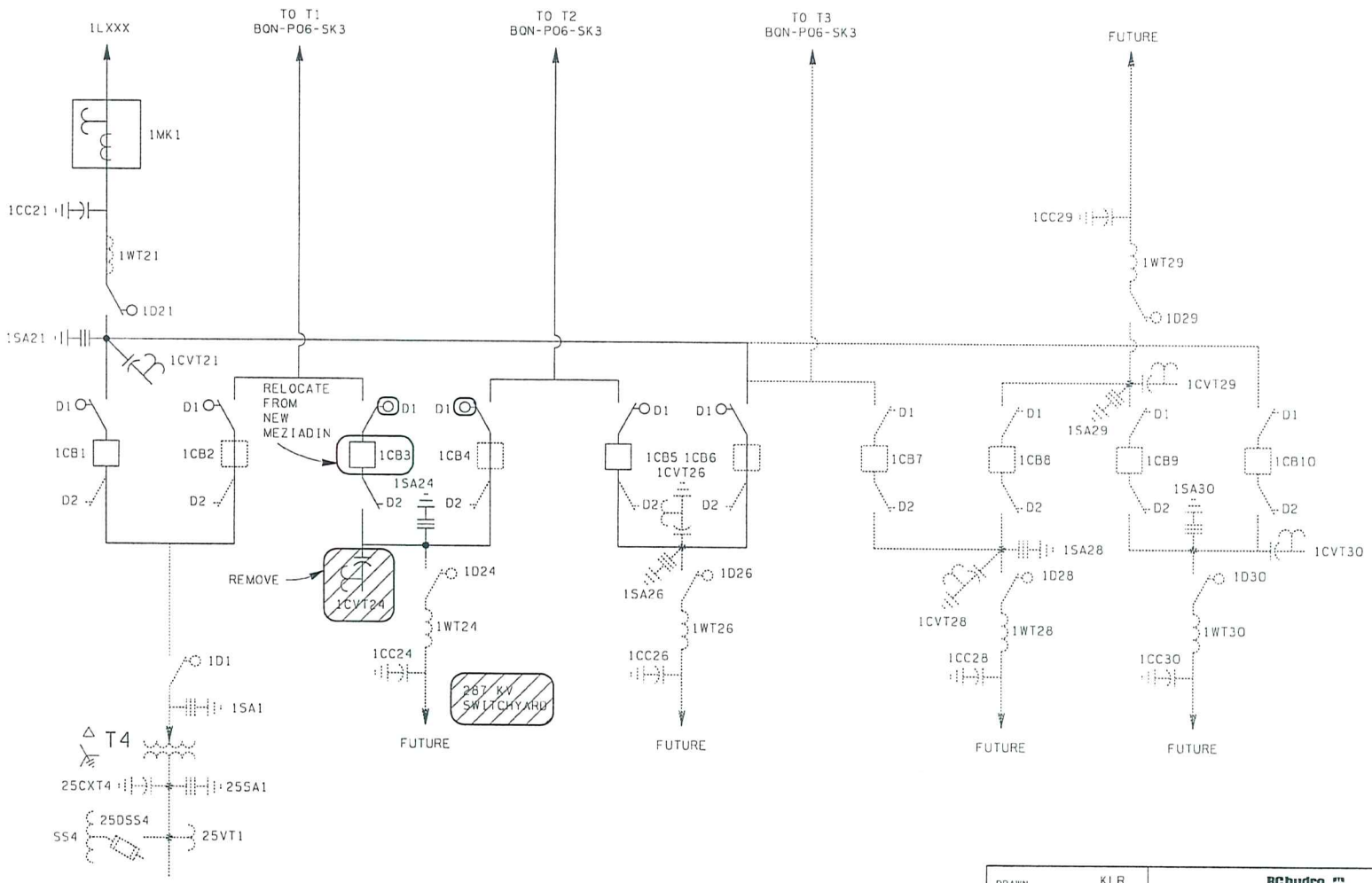
BOB QUINN
287 KV
ONE-LINE DIAGRAM
2011 STAGE

SHEET 1 | DWG NO BQN-P06-SK3 | R 2



REV NO	DATE	DWN	BCH INIT	BCH INSP	BCTC ACCPT	BCH APPD
2						
1						

DRAWN KLR
BCH Stn Planner INITIATED AKH
BCH P&C INSPECTED
BCTC Initiator ACCEPTED
BCH Engineering APPROVED
DATE 12 JUN 07

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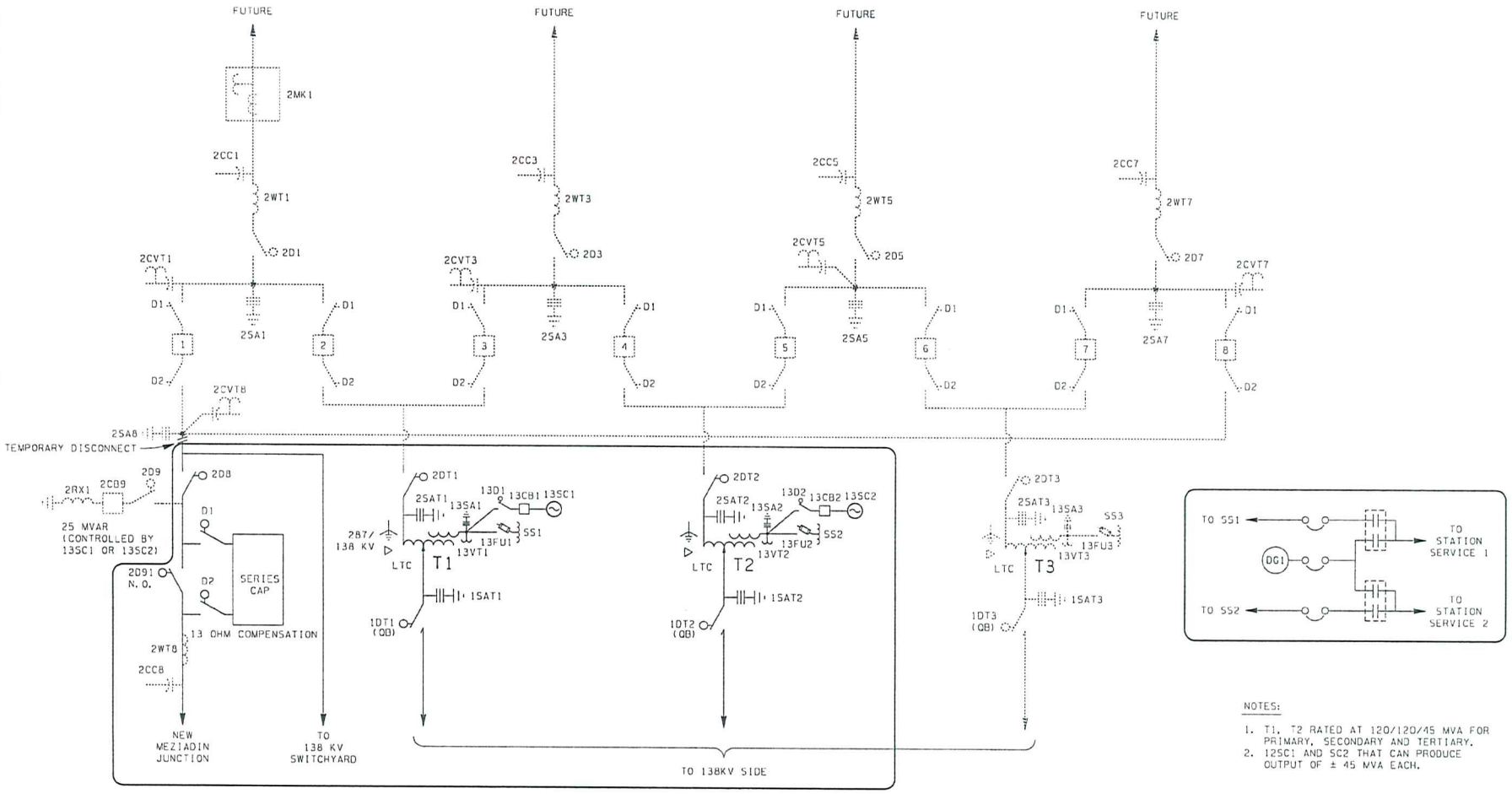
BOB QUINN
138 KV
ONE-LINE DIAGRAM
2011 STAGE

SHEET 1 | DWG NO BQN-P06-SK4 | R2



NOTES:

1. T1, T2 RATED AT 120/120/45 MVA FOR PRIMARY, SECONDARY AND TERTIARY.
2. 12SC1 AND SC2 THAT CAN PRODUCE OUTPUT OF ± 45 MVA EACH.

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1						

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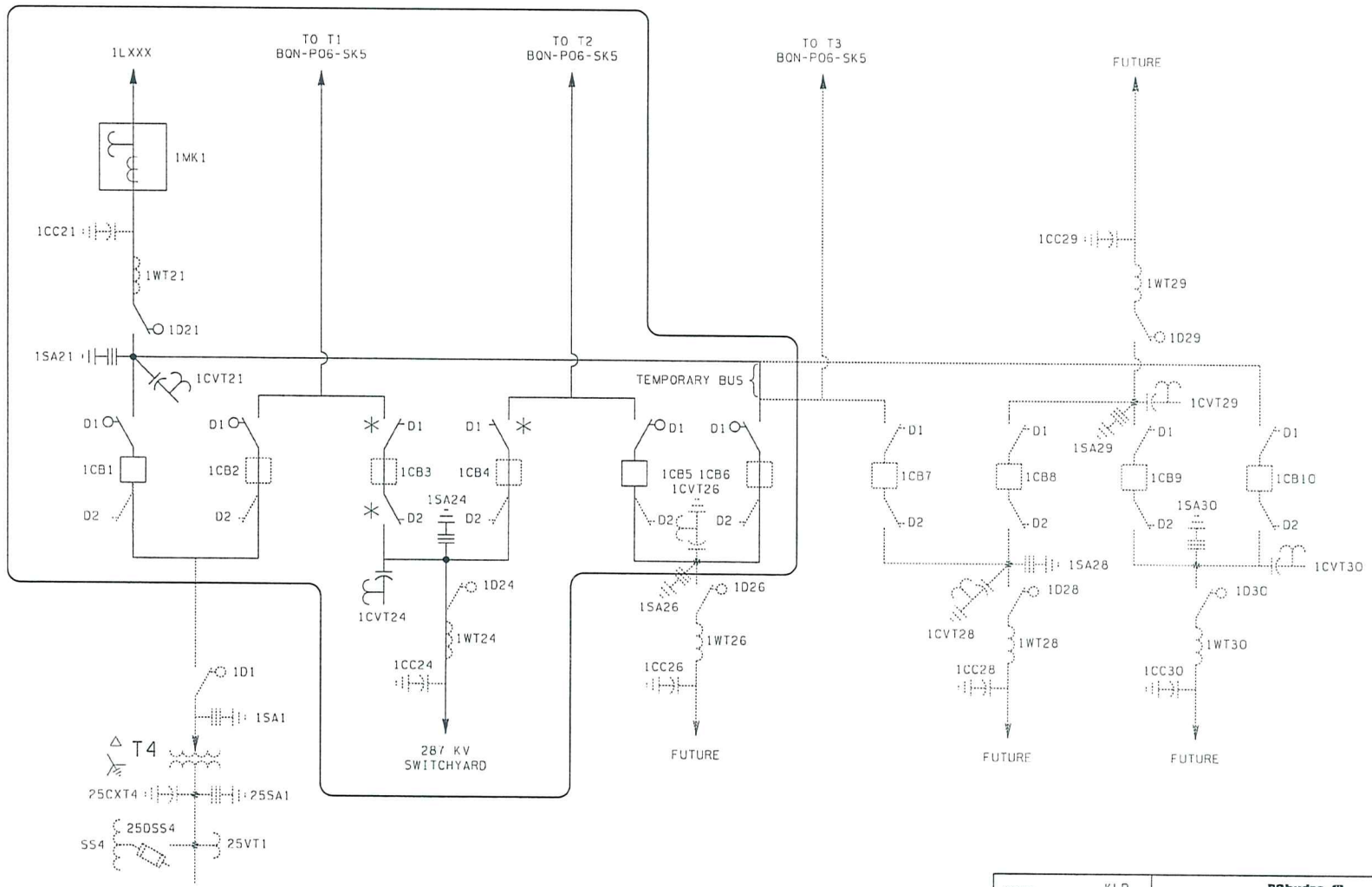
STATIONS PLANNING

BOB QUINN
287 KV
ONE-LINE DIAGRAM
2009 STAGE

SHEET 1 | DWG NO BQN-P06-SK5 | R2



NOTE:

1. ✳ DISCONNECT INSTALLED AT 2009 STAGE
   TO ALLOW SHORTER OUTAGE PERIOD FOR 2011 STAGE MODIFICATIONS.

REV NO	DATE	DWN	BCH INIT	BCH INSP	BCTC ACCPT	BCH APPD
2						
1						

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BCIC Initiator ACCEPTED
BCH Engineering APPROVED
DATE 12 JUN 07

BCHydro
ENGINEERING
STATIONS PLANNING

BOB QUINN
138 KV
ONE-LINE DIAGRAM
2009 STAGE

SHEET 1 | DWG NO BQN-P06-SK6 | R1