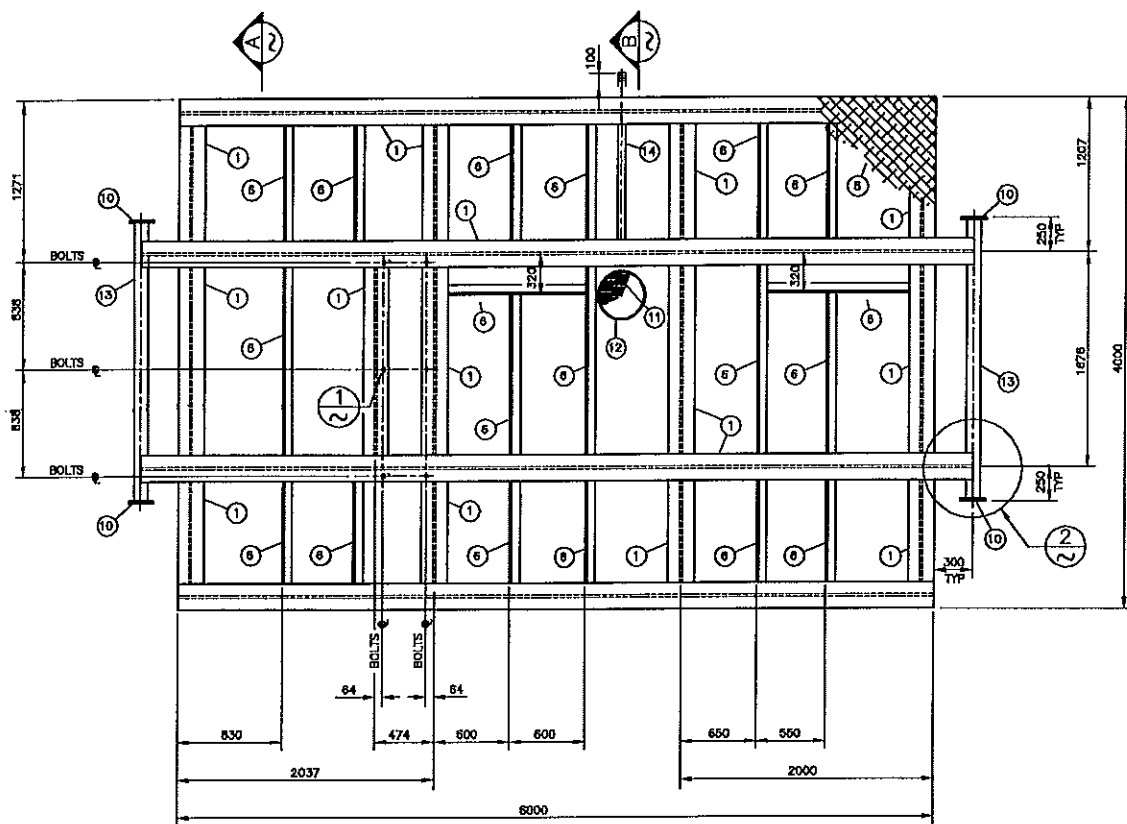
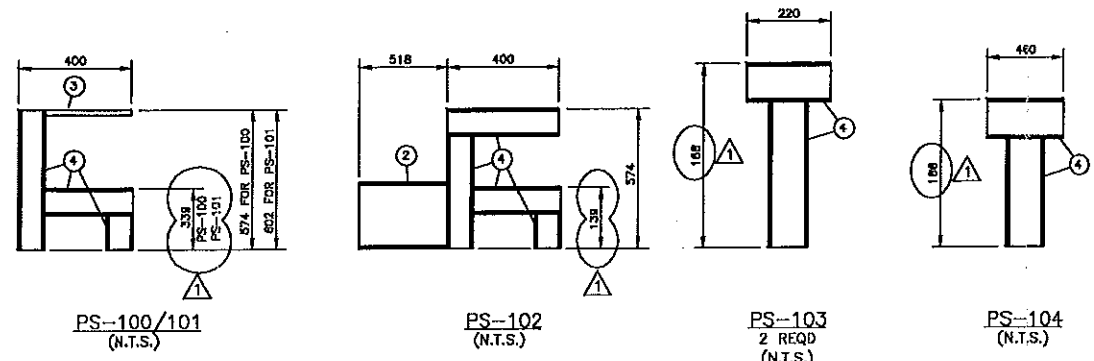


BILL OF MATERIAL

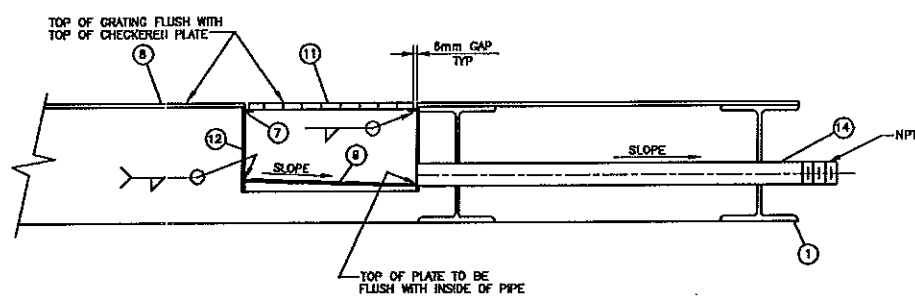
ITEM	QTY.	DESCRIPTION	
1	40.4m	W 310 x 67	44W
2	.8m	W 150 x 22	
3	.5m	C 100 x 8	
4	3.2m	W 100 x 19	44W
5			
6	22m	L 75 x 75 x 8	44W
7	1	450 O.D RING x 400 I.D. FROM 6mm PLATE	A-38
8	24m <sup>2</sup>	CHECKERED PLATE 6mm THK.	A-38
9	1	PLATE 437# x 8mm THK.	A-36
10	4	PLATE 200# x 19mm THK.	A-36
11	1	GRATING 19 x 4.8 TYPE 30.102 x 425#	
12	.2m	PIPE 457# STD. W.T.	A-53B
13	4.5m	PIPE 114# SCH. 80	A-53B
14	2m	PIPE 60# SCH. 80	A-53B
15	2	TICO PAD 1981 x 200 x 13mm THK.	
16			
17	6	MACH. BOLT 3/4" x 3 1/2" I.G. C/W LOCK WASHER AND HEX NUT GRADE 8	



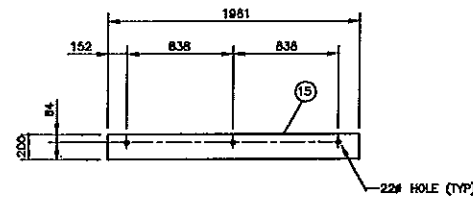
PLAN



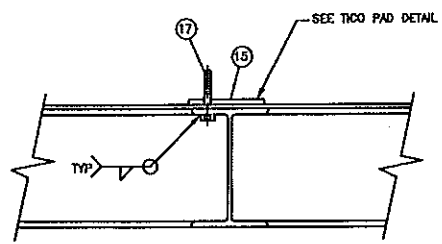
SECTION A



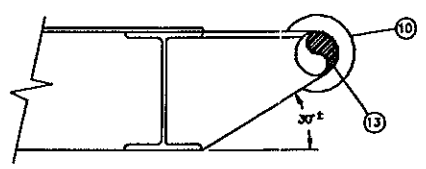
SECTION B



TICO PAD DETAIL



DETAIL 1 (TYP. @ PLACES)



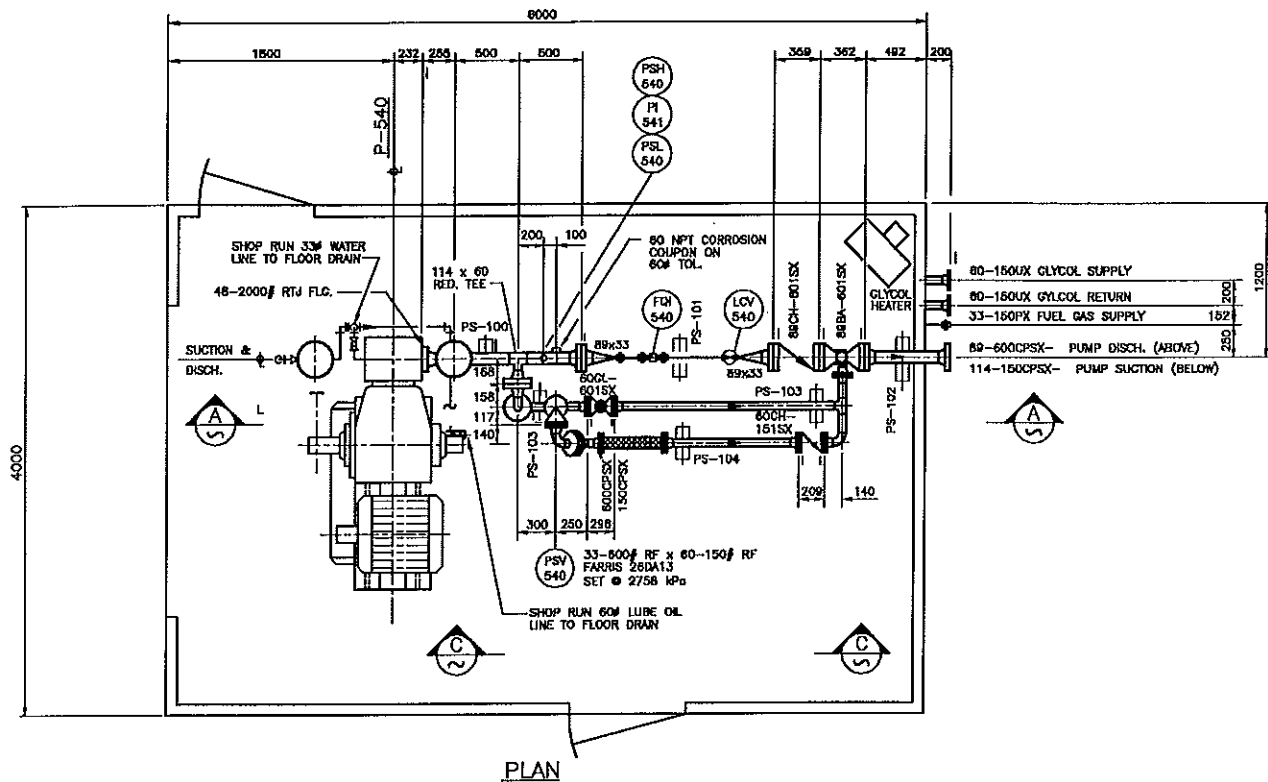
DETAIL 2

NOTES

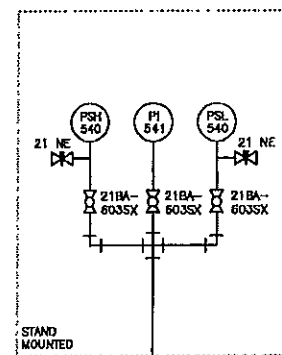
- ALL WELDS TO BE 6mm CONTINUOUS FILLETS UNLESS OTHERWISE NOTED.
- ALL JOINING MEMBERS TO BE COPED.
- ALL CHECKERED PLATE JOINTS TO BE MADE ON SUPPORTING MEMBERS AND JOINED WITH CONTINUOUS FULL PENETRATION WELDS.
- CHECKERED PLATE TO BE STITCH WELDED ON UNDERSIDE OF SKID (50-150 CENTRES) TO SUPPORTING MEMBERS AND AROUND THE SKID PERIMETER.
- ALL GRATING TO BE Banded AROUND PERIMETER.
- CLEANING: SSPC-SP2 HAND TOOL CLEANING  
PRIME: 1 S/C CLOVERDALE RUSTEX 71029  
PAINT: 1 S/C CLOVERDALE 74 IND. WARM GRAY F-34, SKID  
1 S/C CLOVERDALE 74 IND. GLOSS BLACK J-5, SUPPORTS

MAY 1 1997

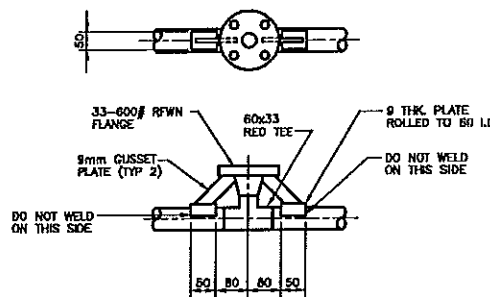
REVISION		BY	DATE	BOWER DAMBERGER ROLSETH ENGINEERING LTD.	
1	CHANGED SUPPORT DIMENSIONS	LS	97.04.17	Pinnacle Resources Ltd. CALGARY ALBERTA GAMBLER COMPRESSOR STATION WATER INJECTION SKID STRUCTURAL STEEL DETAILS	
0	ISSUED FOR CONSTRUCTION	CW	97.03.27		
NO		CHK.	RKP	97.04.09	SCALE
		APP'D.			DRAWING NUMBER
		L.S.D.			REV.
					1:30
					D-71504-S-05-01
					1



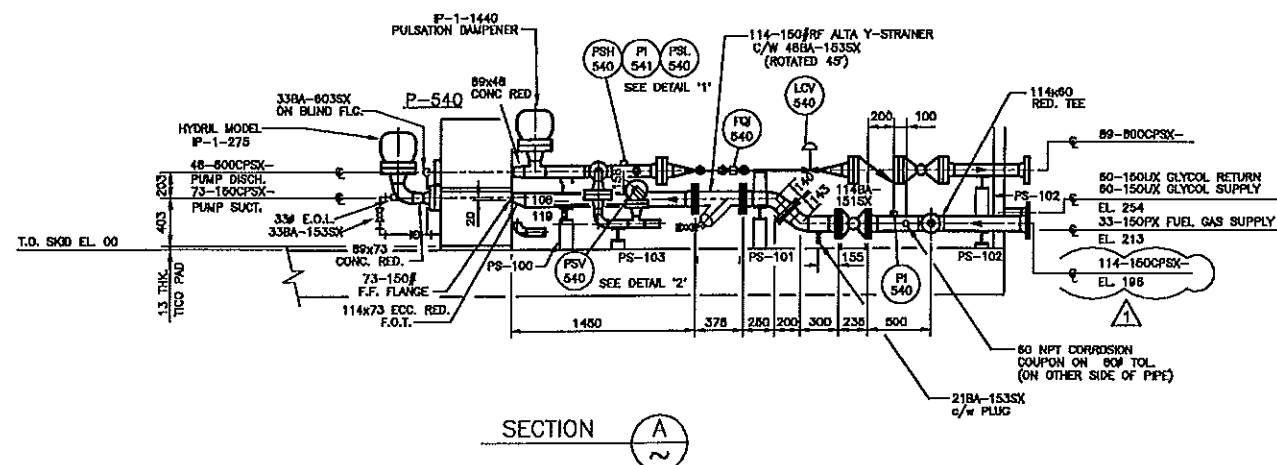
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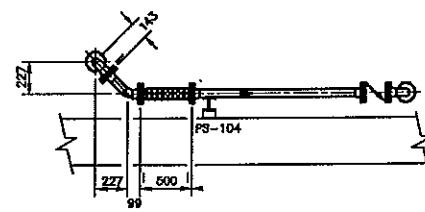
DETAIL 1



DETAIL 2  
GUSSET FOR PSV 540



SECTION A



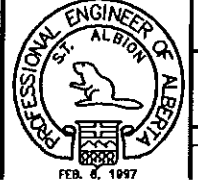
SECTION C

- GENERAL NOTES**
- THE MANUFACTURER IS TO SUPPLY THE FOLLOWING:  
PIPE, FITTINGS, STUDS, NUTS, GASKETS, CLAMP SUPPORTS, STAINLESS STEEL TUBING AND TUBE FITTINGS.  
**INSTRUMENTATION & TUBING**  
ALL INSTRUMENTATION TUBING IS TO BE SWAGelok STAINLESS STEEL. ALL INSTRUMENTATION VENTS ARE TO BE MANFOLDED AND VENTED TO THE OUTSIDE OF BLDG. EACH INSTRUMENT SHALL HAVE A VALVED TAKE-OFF FROM THE SUPPLY HEADER & WILL BE COMPLETE WITH ARMOUR CHANNEL TO ITS LOCATION.
  - PINNACLE ENERGY LTD. SHALL SUPPLY THE FOLLOWING FOR INSTALLATION BY SKID MANUFACTURER:  
-ALL INSTRUMENTATION AS DESCRIBED ON THE DRAWINGS & PURCHASE ORDERS.  
-ONE (1) WATER INJ. PUMP NATIONAL OILWELL 30T-2L C/W 30 HP MOTOR.  
-TWO (2) HYDR. PULSATION DAMPENER
  - VALVES**  
ALL VALVES ARE TO BE SOUR TRIM WITH THE FOLLOWING MAKES BEING ACCEPTABLE:  
BALL VALVES - MITRON & CWC  
CHECK VALVES - KF  
**VALVE DESIGNATIONS**  
-151SX AND 153SX ARE TO BE SUITABLE FOR 150# ANSI (SOUR SERVICE)  
-80SX AND 803SX ARE TO BE SUITABLE FOR 150# ANSI (SOUR SERVICE)
  - MATERIALS OF CONSTRUCTION**  
PIPE - ALL WELDED PIPE 600# ANSI 3# & LARGER TO BE A106B, SCH. 40  
- ALL WELDED PIPE 150# ANSI 60# & LARGER TO BE A106B, SCH. 40  
- ALL SCREWED PIPE 60# & SMALLER TO BE A106B, SCH. 80  
- ALL PIPE NIPPLES TO BE SCH. 160  
WELD FITTINGS - A234-WPB  
FLANGES - A-105  
SCREWED FITTINGS - A-105, 3000# F.S.  
STUDS AND NUTS - A-193-B7A, A-194-2HM  
GASKETS - 3mm THK. FLEXITALLIC T316SS (OR EQUAL)
  - TESTING**  
RADIOGRAPH - ALL PIPING DESIGNATED CPXK TO HAVE 100% INSPECTION OF ALL WELDED PIPE JOINTS.  
- ALL OTHER LINES TO HAVE A RANDOM 10% INSPECTION WELDED PIPE JOINTS.  
HYDROTEST - 1.5 TIMES DESIGN PRESSURE FOR A MINIMUM OF 4 HOURS.
  - APPLICABLE CODES**  
PIPING - ANSI B31.3
  - SURFACE PREPARATION**  
SKIDS AND SUPPORTS - MECHANICAL CLEAN TO SSPC-SP2 OF ALL WELDED PIPE JOINTS.  
- PRIME WITH 1 S/C CLOVERDALE RUSTEX 71029  
- FINISH WITH 1 S/C CLOVERDALE 74 INDUSTRIAL (COLORS AS PER PINNACLE'S PAINTING SPECIFICATIONS)  
PIPING AND OTHER EQUIPMENT - COMMERCIAL SANDBLAST TO SSPC-SP8  
- PRIME WITH 1 S/C CLOVERDALE RUSTEX 71029  
- FINISH WITH 1 S/C CLOVERDALE 74 IND. (COLORS AS PER PINNACLE RESOURCES PAINTING SPECIFICATIONS)
  - ALL OPEN ENDS OF PIPE TO BE COVERED FOR SHIPPING. SKID MANUFACTURER SHALL LOAD SKID PACKAGE ON A PINNACLE SUPPLIED TRUCK.
  - ALL LINES ARE TO BE ADEQUATELY SUPPORTED, CLAMPED & SHIMMED.
  - PIPING SHALL BE ADEQUATELY BRACED TO PREVENT SHIPPING DAMAGE OR SHALL BE REMOVED FOR REASSEMBLY ON SITE BY OTHERS.
  - PIPE SUPPORT LOCATIONS ARE SHOWN ON THE PIPING PLAN AND SECTIONS. THE SKID MANUFACTURER IS TO VERIFY PIPE SUPPORT LOCATIONS PRIOR TO WELDING SUPPORTS TO SKID.
  - THE SKID MANUFACTURER IS TO CALCULATE THE ESTIMATED SHIPPING WEIGHT OF THE SKID PACKAGE.
  - THE SKID MANUFACTURER IS TO INCLUDE FOUR (4) COPIES OF OPERATION MANUALS IN HIS PRICE.
  - ALL PIPING DESIGNATED CPXK SHALL BE INTERNALLY COATED WITH 12-14 MILS DFT DEVCO 263.

MAY 1 1997

PERMIT TO PRACTICE  
Bower Damberger Rolseth Engineering Ltd.  
Signature \_\_\_\_\_  
Date: FEB. 6, 1997  
PERMIT NUMBER: P 3935  
The Association of Professional Engineers,  
Geologists and Geophysicists of Alberta

NO	REVISION	BY	DATE
1	CHANGED ELEV.	LS	97.04.17
0	ISSUED FOR CONSTRUCTION	CHW	97.03.25
		RKP	97.04.08
		APP'D.	
		L.S.D.	

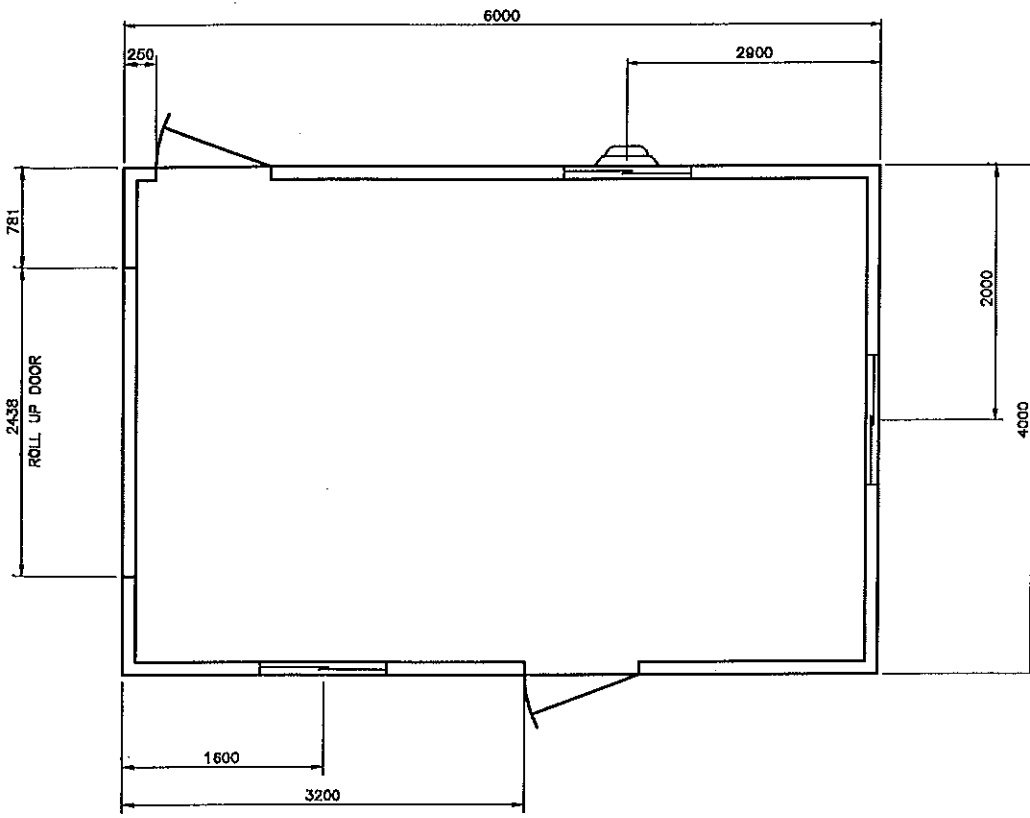


**BOWER DAMBERGER ROLSETH ENGINEERING LTD.**

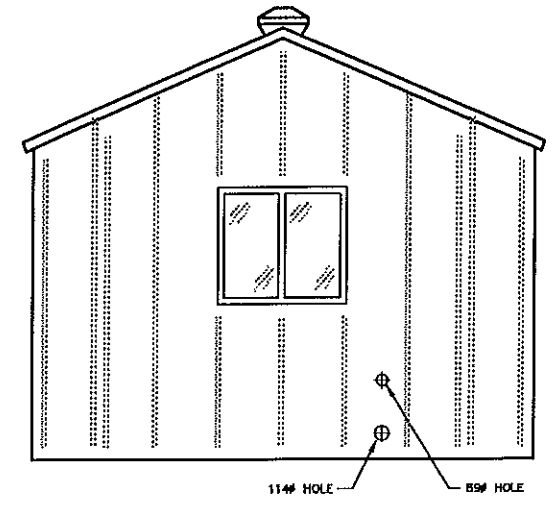
PINNACLE RESOURCES LTD.  
CALGARY ALBERTA

GAMBLER COMPRESSOR STATION  
WATER INJECTION SKID  
PIPING PLAN & SECTIONS

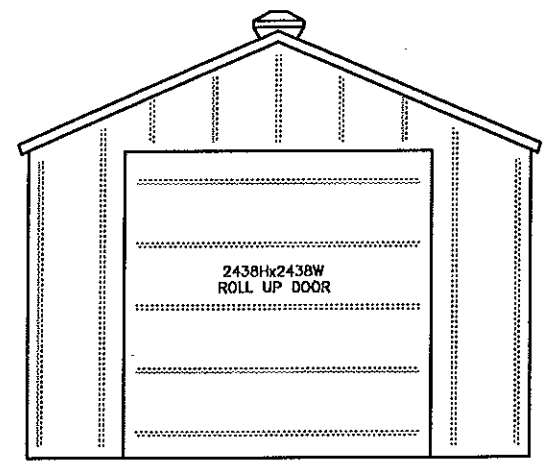
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REV: 1



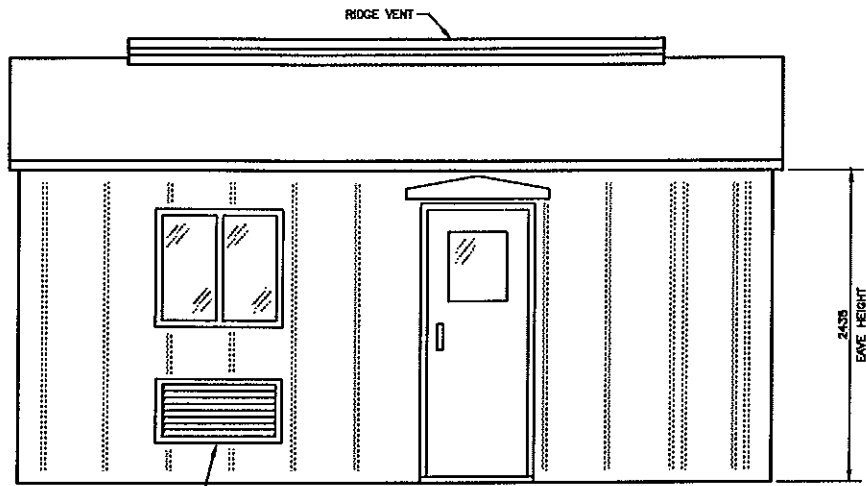
PLAN



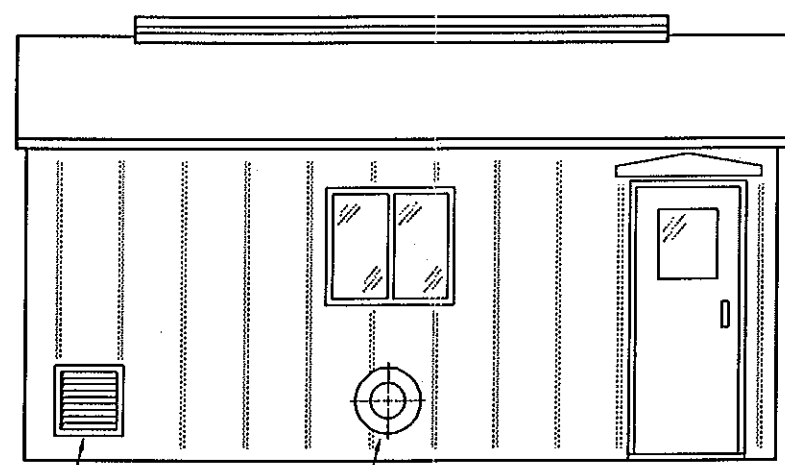
RIGHT ELEVATION



LEFT ELEVATION



FRONT ELEVATION



BACK ELEVATION

MAY 1 1997

NOTE  
1. BOWER DAMBERGER ROLSETH ENG. LTD MUST APPROVE SHOP DRAWINGS PRIOR TO CONSTRUCTION.

NO	ISSUED FOR CONSTRUCTION	BY	DATE	CHK.	DATE
0	ISSUED FOR CONSTRUCTION	CW	97.03.27	RKP	97.04.09

BUILDING SPECIFICATIONS

DESIGN NOTES

- THE BUILDING SHALL BE DESIGNED FOR MIN. WIND LOADS OF 160 KM/H, SNOW LOADS OF 2 KPA AND AS PER THE LATEST EDITION OF THE ALBERTA BUILDING CODE. LOCATION (LSD - SEC 28, TWP 70, RGE 21, W.4.W)
- ALL BOLTS, SCREWS, ETC. USED FOR FASTENING ALUMINUM TO ALUMINUM AND ALUMINUM TO STEEL SHALL BE AUSTENITIC STAINLESS STEEL OR CADMIUM PLATED.
- PROVIDE PRE-MOULDDED RUBBER OR NEOPRENE CLOSURE STRIPS DESIGNED TO WEATHERTIGHT AND WATERTIGHT JOINTS AT ALL TERMINATIONS BETWEEN PANELS AND ADJOINING INSTALLATIONS.

GENERAL NOTES

- NOTES WHICH ARE APPLICABLE TO THIS JOB WHEN SHADED.
- SUBNOTES WHICH ARE APPLICABLE WHEN SHADED.

- TYPE OF BUILDING  
 SELF FRAMING - SHED  SELF FRAMING - GABLE  RIGID FRAMING - GABLE
- MATERIAL - WALL AND ROOF PANELS (22 GA. MIN)  
 GALVANIZED  ALUMINUM  PRE-PAINTED STEEL  
COLOR: WALLS BOHE WHITE ROOF RED  
DOORS RED TRIM RED
- ROOF SLOPE  
 1:12  2:12  3:12  4:12  5:12
- INSULATION - FIBREGLASS  
 WALLS  R-10  R-12  R-14  3 LB/CU.FT. DENSITY SOUND  
 ROOF  R-10  R-12  R-14  3 LB/CU.FT. DENSITY SOUND
- DOORS - 20 GA METAL, INSULATED (NOMINAL SIZES)  
 2 214x2134  WS  WGW  PH  LS  DC  SF  CC  CP  
 1829x2134  WS  WGW  PH  LS  DC  SF  CC  CP  
WS - WEATHER STRIPPING LS - LOCKSET CC - CHECKCHAM  
WGW - WIRE GLAZED WINDOW DO - DOOR CLOSURE CP - CANOPY  
PH - PANIC HARDWARE SF - STEEL FRAME
- WINDOWS - HORIZONTAL SLIDING c/w SCREEN (DOUBLE GLAZED)  
 3 1016x1016  1016x1270  1016x1824  WIRE GLAZED
- LINING  
 24 GA FLUTED ALUMINUM  22 GA PERFORATED ALUMINUM
- ERECTION  
 ON SITE BY BUILDING MANUFACTURER  
 AT FAB. SHOP BY BUILDING MANUFACTURER  
 ON CONCRETE FOUNDATION (BY OTHERS)  
 ON STRUCTURAL STEEL SKOD (BY OTHERS)
- WALL LOUVRES (NOMINAL SIZES)  
 2-305x305 STAMPED LOUVRE c/w SLIDE CLOSURE AND SCREEN  
 ADJUSTABLE LOUVRE c/w MANUAL CONTROL AND SCREEN
- RIDGE VENTILATOR  
 RIDGE VENTILATOR c/w MANUAL CONTROLS AND BIRDSCREEN (CAPABLE OF 4 AIR CHANGES PER HOUR BASED ON 8 KM/H WINDS)
- ROLL-UP DOORS / SECTIONAL O/H DOORS / SLIDING DOORS  
 2438h x 2438w STEEL ROLL-UP DOOR  DIRECT DRIVE CHAIN HOIST  
 STEEL SECTIONAL O/H DOOR  GEARED CHAIN HOIST  
 STEEL SLIDING DOOR  MANUAL OPER. CHAIN HOIST  
 INSULATED
- FANS - ROOF/WALL  
 ROOF ELECTRIC DRIVEN FAN CAPABLE OF PROVIDING A MIN. OF 12 AIR CHANGES/HOUR AT 1/8" SP c/w BACK DRAFT DAMPERS, ALUM. HOUSING AND BIRDSCREEN. MOTOR TO BE CSA APPROVED.  
 WALL EXPLOSION PROOF (CLASS 1 GROUP 0, DIVISION 1) 120/240 V, 60 Hz, 1 PHASE. EXTERNALLY MOUNTED; PENN DOMEX OR EQUAL.
- POLYETHYLENE VAPOUR BARRIER  
 2 MIL  4 MIL  6 MIL
- RIGID FRAME - ANCHOR BOLTS/GIRTS  
 COLUMN SIZES, ANCHOR BOLT SIZES AND LOCATIONS TO BE SUBMITTED TO BOWER DAMBERGER ROLSETH ENGINEERING LTD. BY BUILDING CONTRACTOR TO ALLOW FOR COMPLETION OF FOUNDATION DRAWING. BUILDING DRAWING TO BE SUBMITTED WITHIN 5 DAYS AFTER AWARD OF CONTRACT.  
 GIRTS TO BE LOCATED INSIDE BUILDING COLUMNS
- CRANE  
 3 TON BRIDGE CRANE c/w MANUALLY OPERATED CHAIN HOIST  
MIN. HOOK HEIGHT \_\_\_\_\_
- EAVESTROUGH, DOWNSPOUT AND ICE RAKES  
 EAVESTROUGH  DOWNSPOUT  ICE RAKES

BY	DATE	<b>BOWER DAMBERGER ROLSETH ENGINEERING LTD.</b> PINNACLE RESOURCES LTD. CALGARY ALBERTA GAMBLER COMPRESSOR STATION WATER INJECTION SKID BUILDING DETAILS
DRN. CW	97.03.27	
CHK. RKP	97.04.09	
APP'D.		
SCALE	DRAWING NUMBER	REV.
1:30	D-71504-B-05-01	0