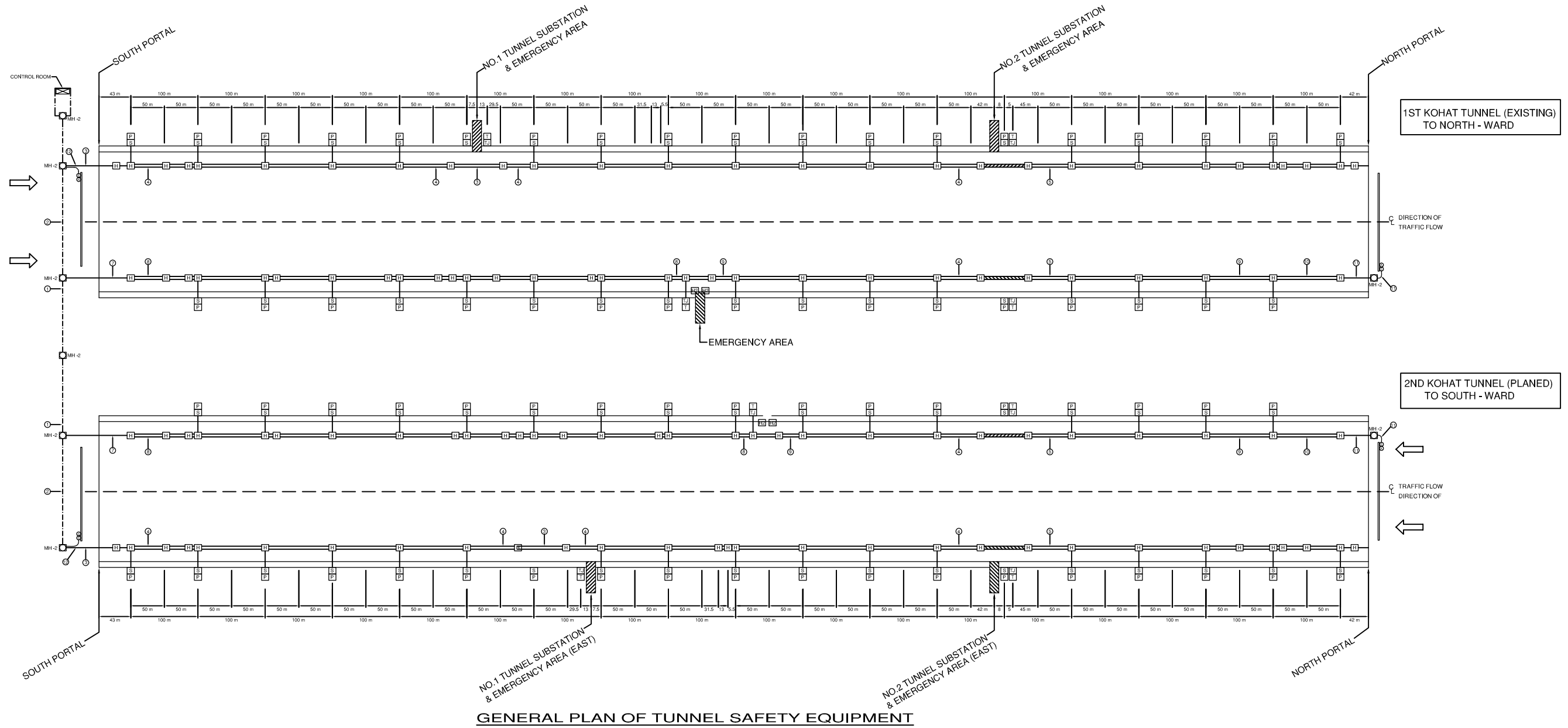


**GENERAL VIEW OF TUNNEL FACILITIES INSTALLATION**

PROJECT NAME	CLIENTS		CONSULTANTS	DRAWING TITLE	SCALE	DWG NO
FEASIBILITY STUDY ON THE 2ND KOHAT TUNNEL AND ACCESS ROADS PROJECT	 GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY	 JAPAN INTERNATIONAL COOPERATION AGENCY	NIPPON KOEI CO., LTD AND ALMEC CORPORATION	GENERAL VIEW OF TUNNEL FACILITIES INSTALLATION	1:60	F-1



**GENERAL PLAN OF TUNNEL SAFETY EQUIPMENT**

**DIMENSION OF CABLES AND DUCTS.**

LOCATION	CABLE	NOS. OF CABLE	DESCRIPTION	PIPE/DUCT
①	2C - 0.6	2	EMERGENCY TELEPHONE	54
	2C - 0.6	2	TELEPHONE JACK	-
	6C - 1.5	2	ALARM BUTTON	-
	4C - 10	2	DISPLAY LAMP	-
	4C - 10	1	N . P SIGNAL & ALARM	100
	4C - 2.5	1	S . P SIGNAL & ALARM	-
	6 SG - BC	2	EARTH	-

LOCATION	CABLE	NOS. OF CABLE	DESCRIPTION	PIPE/DUCT
②	2C - 0.6	1	EMERGENCY TELEPHONE	54
	2C - 0.6	1	TELEPHONE JACK	-
	6C - 1.5	1	ALARM BUTTON	-
	4C - 10	1	DISPLAY LAMP	100
	4C - 2.5	1	S . P SIGNAL & ALARM	-
6 SG - BC	1	EARTH	-	

**DIMENSION OF CABLES AND DUCTS.**

LOCATION	CABLE	NOS. OF CABLE	DESCRIPTION	PIPE/DUCT
③	2C - 0.6	1	EMERGENCY TELEPHONE	54
	2C - 0.6	1	TELEPHONE JACK	M. W. D 100 Ø - 6
	6C - 1.5	1	ALARM BUTTON	75
	4C - 10	1	DISPLAY LAMP	M. W. D 100 Ø - 6
6 SG - BC	1	EARTH	-	

LOCATION	CABLE	NOS. OF CABLE	DESCRIPTION	PIPE/DUCT
④	6C - 1.5	1	ALARM BUTTON	M. W. D 100 Ø - 6
	4C - 10	1	DISPLAY LAMP	-
	6 SG - BC	1	EARTH	-

LOCATION	CABLE	NOS. OF CABLE	DESCRIPTION	PIPE/DUCT
⑤	2C - 0.6	1	EMERGENCY TELEPHONE	54
	2C - 0.6	1	TELEPHONE JACK	M. W. D 100 Ø - 6
	6C - 1.5	1	ALARM BUTTON	75
	4C - 10	1	DISPLAY LAMP	M. W. D 100 Ø - 6
	4C - 10	1	N . P SIGNAL & ALARM	-
6 SG - BC	1	EARTH	-	

⑥	6C - 1.5	1	ALARM BUTTON	M. W. D 100 Ø - 4
	4C - 10	1	DISPLAY LAMP	
	4C - 10	1	N . P SIGNAL & ALARM	
	6 SG - BC	1	EARTH	
⑩	4C - 10	1	N . P SIGNAL & ALARM	M. W. D 100 Ø - 4
⑪	4C - 10	1	DITTO	54
⑫	4C - 2.5	1	S . P SIGNAL & ALARM	54

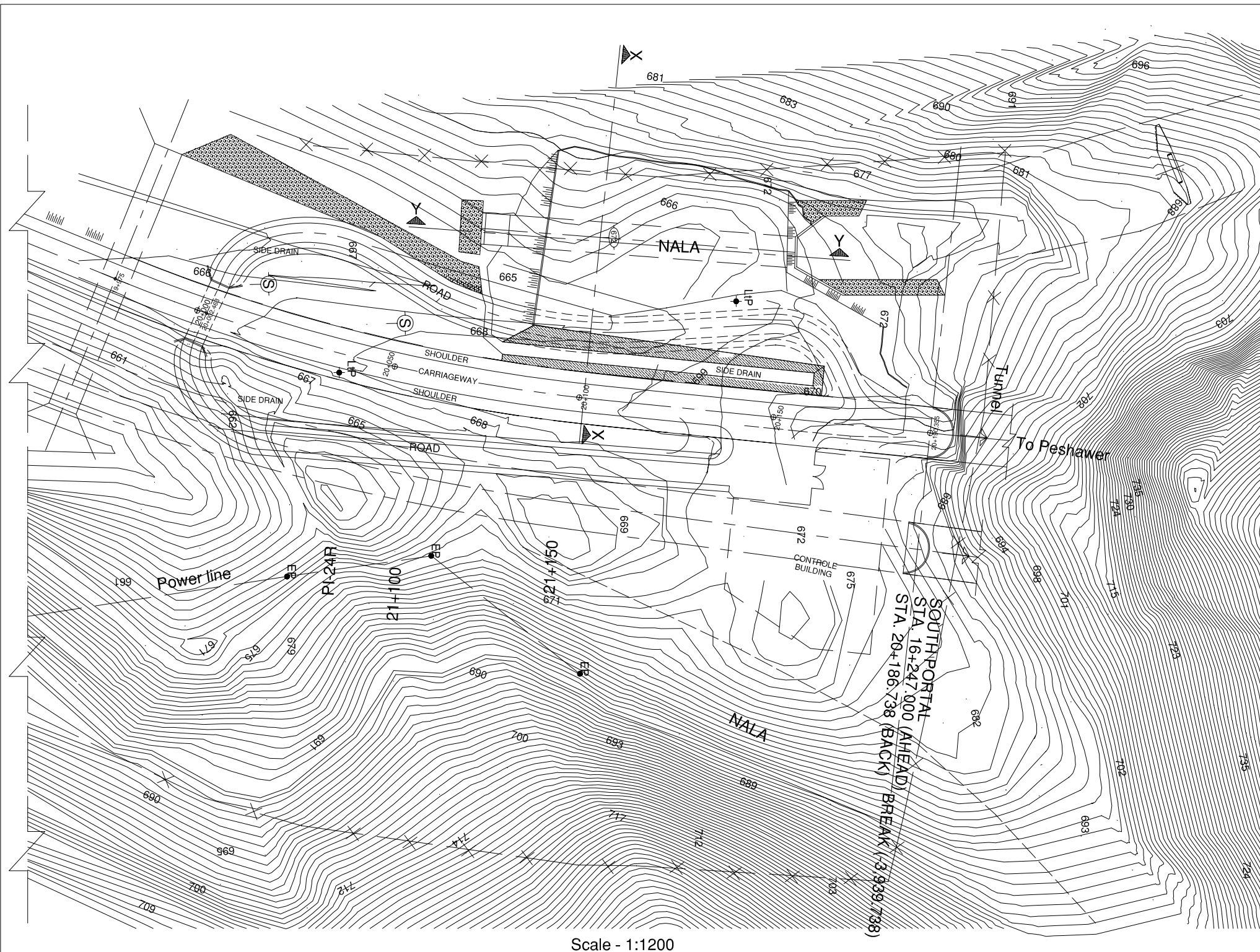
**NOTE :-**  
 1- IN NO. 1 TUNNEL SUB-STATION (STA 16797.5)  
 NO. 2 TUNNEL SUB-STATION (STA 17-582) AND  
 EMERGENCY AREA (STA 17-184.5) 100 Kg FIRE  
 EXTINGUISHERS WILL BE USED.

**LEGEND**

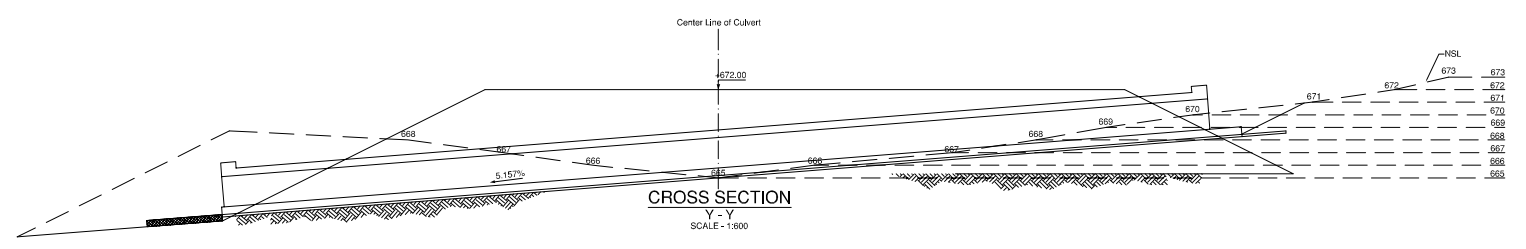
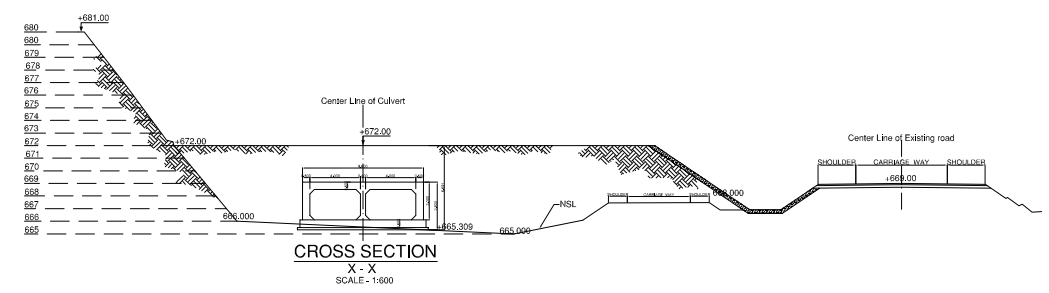
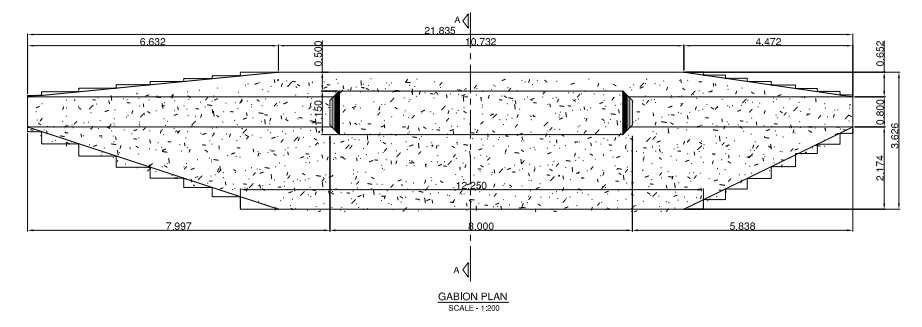
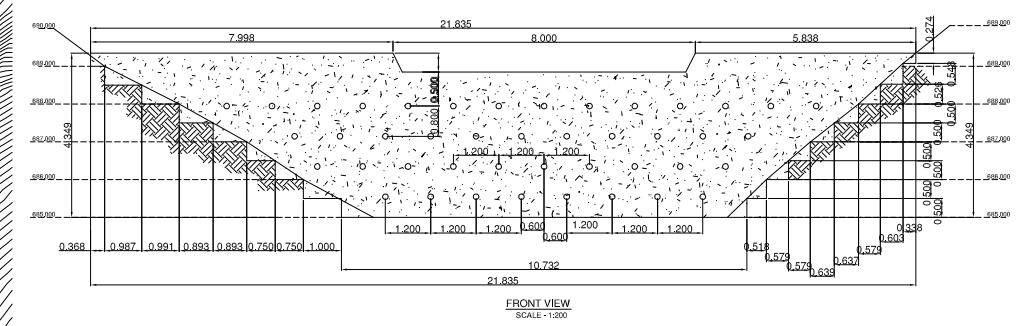
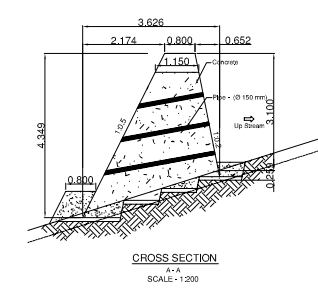
SYMBOL	DESCRIPTION
[Symbol]	FIR ALARM CONTROL & ZONE - PANEL
[Symbol]	ALARM BUTTON
[Symbol]	EXTINGUISHER
[Symbol]	EMERGENCY TELEPHONE
[Symbol]	TELEPHONE JACK FOR PORTAL MAN
[Symbol]	SIGNAL & ALARM FITTING ON GUARD - BAR
[Symbol]	HAND HOLE
[Symbol]	MAN HOLE
[Symbol]	(M.W.D) MULTIPLE WIRING DUCT
[Symbol]	N . P. NORTH PORTAL (INSTALLING)
[Symbol]	S . P. SOUTH PORTAL (INSTALLING)
[Symbol]	WIRING PIT
[Symbol]	HAND HOLE (TYPE - 2)
[Symbol]	DITTO (TYPE - 3)

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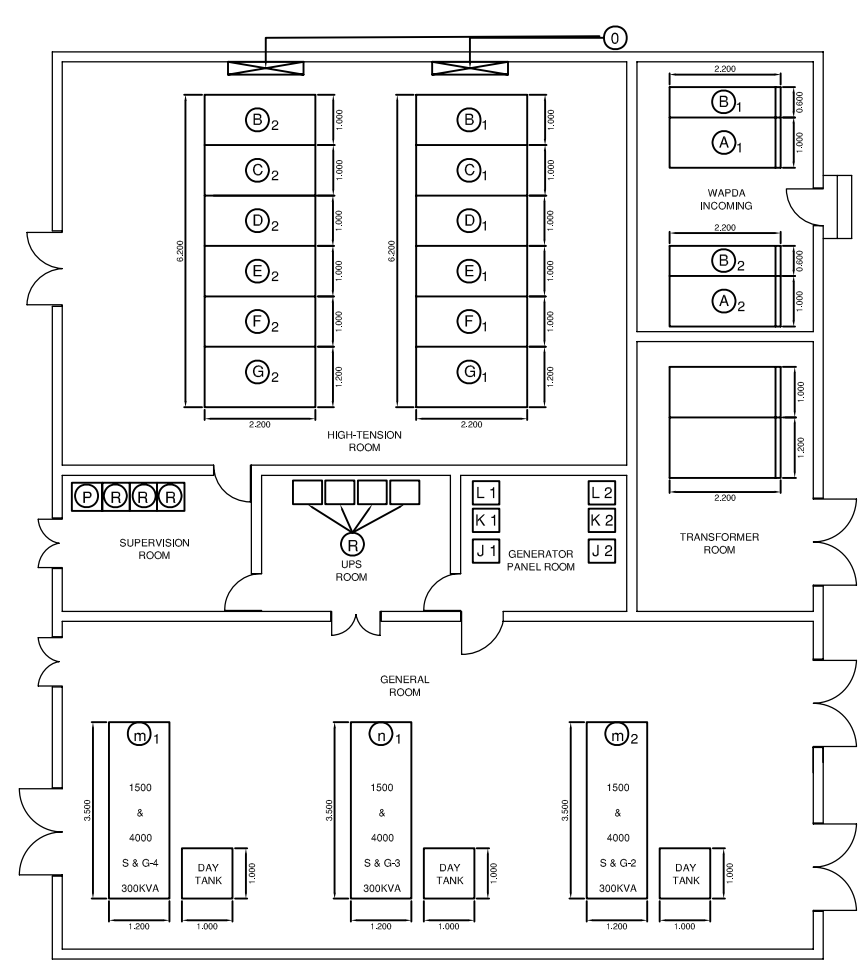
# **BUILDINGS**



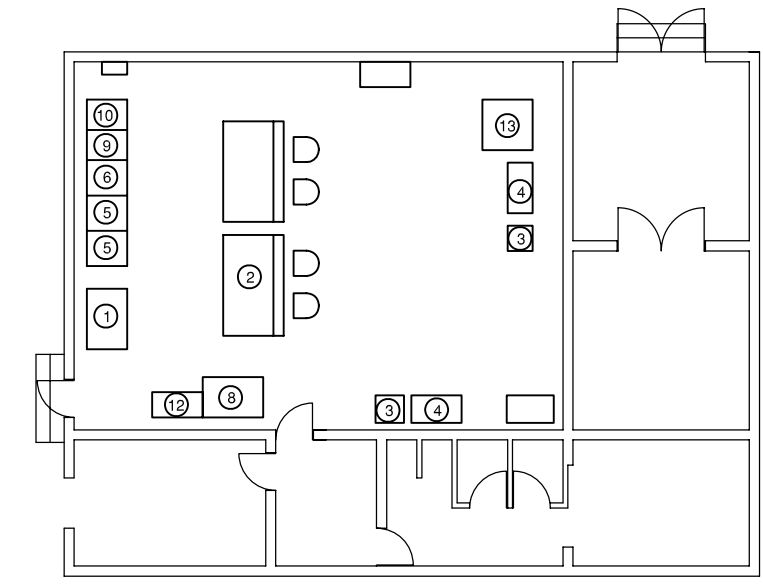
Scale - 1:1200



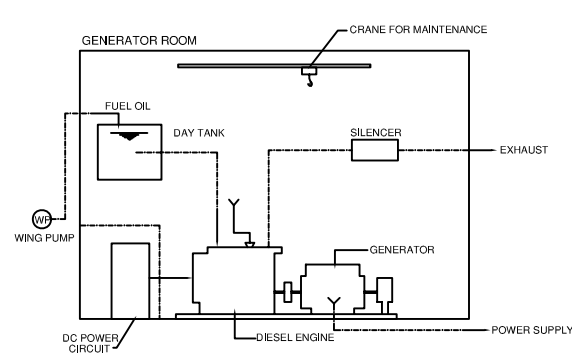
PROJECT NAME	CLIENTS	CONSULTANTS	DRAWING TITLE	SCALE	DWG NO
FEASIBILITY STUDY ON THE 2ND KOHAT TUNNEL AND ACCESS ROADS PROJECT	GOVERNMENT OF PAKISTAN MINISTRY OF COMMUNICATIONS NATIONAL HIGHWAY AUTHORITY 	 JAPAN INTERNATIONAL COOPERATION AGENCY  NIPPON KOEI CO., LTD AND ALMEC CORPORATION	YARD PREPARATION FOR SUBSTATION & CONTROL BUILDING RELOCATION	AS SHOWN	AR-1



PANEL LAYOUT IN SUBSTATION



PANEL LAYOUT IN CONTROL ROOM



SYSTEMATIC DIAGRAM OF STANDBY GENERATOR

CONTROL ROOM

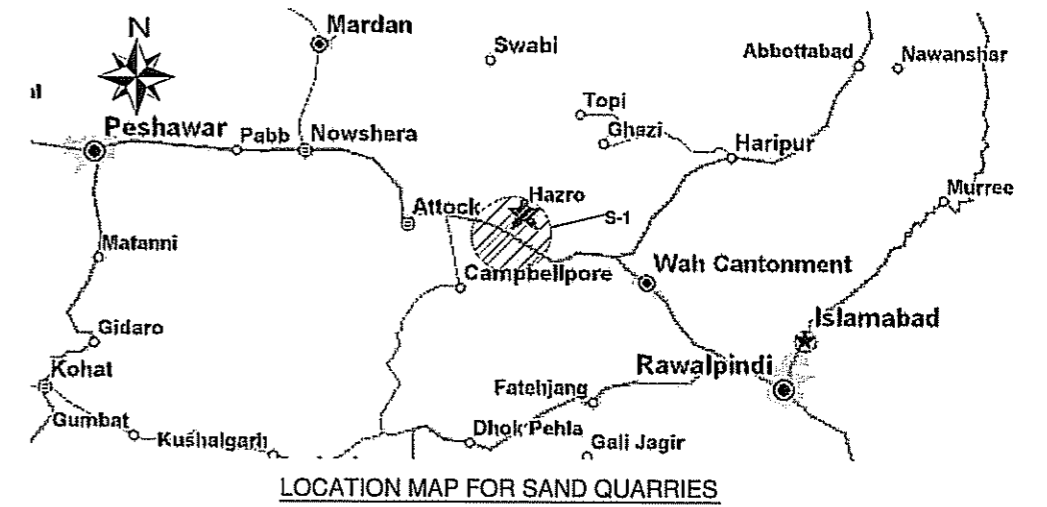
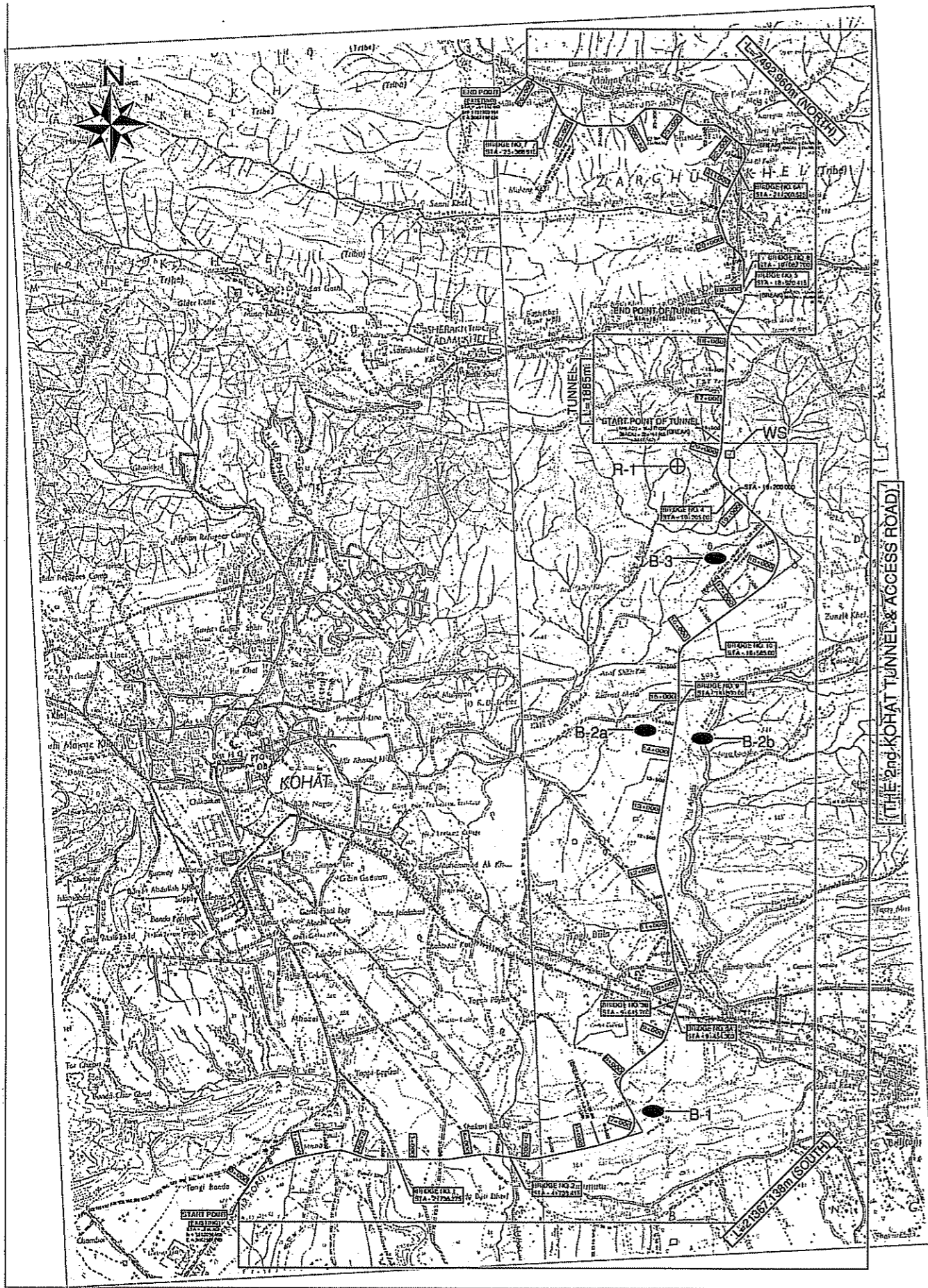
NO	ITEM
1	GRAPHIC PANEL (GP)
2	CONTROL DESK WITH CRT DISPLAY (CD)
3	HARD COPY SET (HC2)
4	ANNOUNCEMENT PRINTER SET (APS)
5	CENTRAL PROCESSING UNIT (CPU)
6	MASTER-SUPPERVISOR & CONTROL PANEL (M-SVG)
7	COMBINED TERMINAL UNIT PANEL
8	SAFETY PANEL (SAP)
9	PROCESS COMPUTER PANEL (PCP)
10	VENTILATION CONTROL PANEL (VCP)
11	EARTH TERMINAL PANEL (TYPE-3) (1500X500X300)
12	TELEPHONE EXCHANGE UNIT (TEX)
13	MAINTENANCE CONSOLE SET (MCS)

SUBSTATION

NO	ITEM
A	WAPDA INCOMING PANEL
AA	WAPDA METER PANEL
B	RECEIVING PANEL
C	TUNNEL NO. 02 SUBSTATION VCB PANEL
D	TUNNEL NO. 01 SUBSTATION VCB PANEL
E	SUBSTATION VCB PANEL
F	TRANSFORMER PANEL (TR 100 KVA)
G	SUBSTATION FEEDER PANEL
H	GENERATOR VCB PANEL
I	GENERATOR TRANSFORMER PANEL
J	GENERATOR FEEDER PANEL
K	GENERATOR NO. 01 PANEL
L	GENERATOR NO. 02 PANEL
M	& STATIC GENERATOR NO. 01
N	DITTO NO. 02
O	EARTH TERMINAL PANEL
P	LOCAL SUPERVISOR & CONTROL (SVG-3) PANEL
Q	COMMUNICATION PANEL
R	TELEPHONE POWER SYSTEM (UPS)

PROJECT NAME	CLIENTS	CONSULTANTS	DRAWING TITLE	SCALE	DWG NO
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## **MATERIAL SOURCES**



INFORMATION ON MATERIAL SOURCES

WORK / ITEM CLASSIFICATIONS	LOCATION			MATERIAL SOURCE NO.	AVAILABLE QTY. (M <sup>3</sup> )
	STATION	L/S	R/S		
1. EMBANKMENT CBR > 30% for Sub-grade (H=1m) / CBR > 6% for Fill	7+300 14+200 14+200 17+500	150m 150m	150m	B-1 B-2a B-2b B-3	200,000 200,000 200,000 400,000
2. PAVEMENT 2.1 Asphalt Pavement (1) Asphalt Concrete a. Coarse Aggregate b. Fine Aggregate (2) Base Course Materials CBR >80% (Crushed Rock) (3) Sub-base Course Material CBR >50% (Granular Material) 2.2 Concrete Pavement a. Coarse Aggregate b. Fine Aggregate (Sand / Crushed Sand)	19+700	300m		R-1 S-1/R-1	
3. CONCRETE STRUCTURES. 3.1 Structural Concrete (Bridges, Culverts, Tunnel, etc.) a. Coarse Aggregate b. Fine Aggregate (Sand / Crushed Sand) 3.2 Sand for Mortar (1) Shot Crete (2) Grouted Rip rap, Stone Masonry, etc.	19+700	300m		R-1 S-1/R-1 S-1	UNLIMITED

LEGEND:

- B-1 ● : BORROW AREAS
- R-1 ⊕ : ROCK (LIME STONE) FOR ASPHALT PAVEMENT & CONCRETE MATERIALS
- WS. □ : WATER POINTS
- S-1 ⊙ : SAND QUARRIES

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