

9.8 図面

FEASIBILITY STUDY FOR EXPANSION OF
VICTORIA HYDROPOWER STATION
SRI LANKA

FEASIBILITY STUDY FOR EXPANSION OF VICTORIA HYDROPOWER STATION SRI LANKA

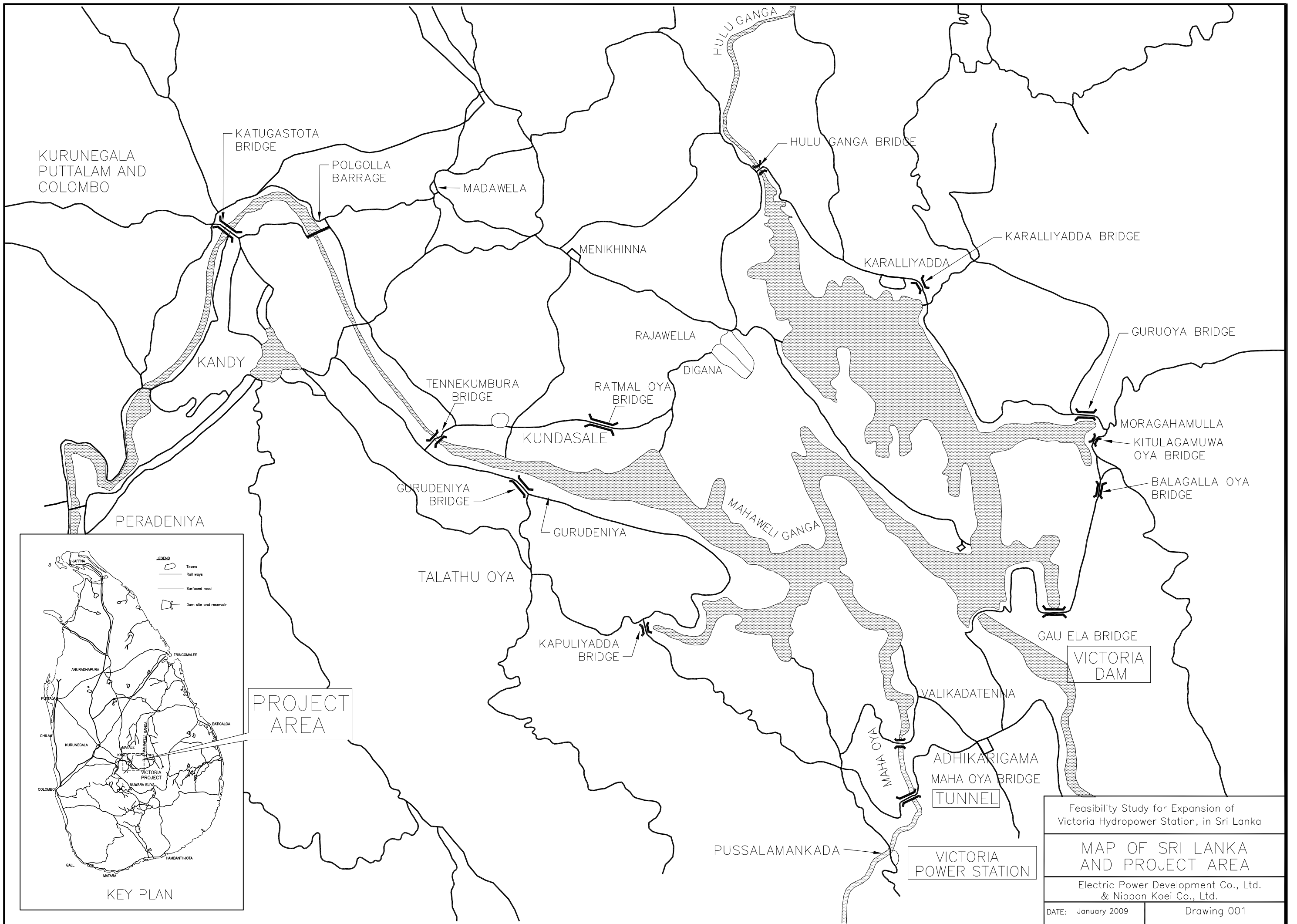
INDEX	DRAWING TITLE	DRAWING No.	SHT. NO.	ISSUING STAGE
	COVER SHEET			
	LIST OF DRAWINGS			
1	MAP OF SRI LANKA AND PROJECT AREA	001	1	DRAFT FINAL REPORT
2	PLAN OF PROJECT AREA	002	1	- DITTO -
3	GEOLOGY WATERWAY PLAN & HORIZONTAL SECTION	003	1	- DITTO -
4	GEOLOGY WATERWAY PROFILE OF EXISTING TUNNEL	004	1	- DITTO -
5	GEOLOGY WATERWAY PROFILE OF NEW TUNNEL	005	1	- DITTO -
6	GEOLOGY POWERHOUSE & PENSTOCK PLAN & SECTION	006	1	- DITTO -
7	WATERWAY PLAN AND PROFILE	007	1	- DITTO -
8	HEADRACE TYPICAL SECTION	008	1	- DITTO -
9	PENSTOCK (TUNNEL) TYPICAL SECTION	009	1	- DITTO -
10	PENSTOCK (OPEN-AIR) PLAN AND SECTION	010	1	- DITTO -
11	PENSTOCK (OPEN-AIR) PROFILE	011	1	- DITTO -
12	SURGETANK VERTICAL AND CROSS SECTION	012	1	- DITTO -
13	ACCESS ADIT PLUG CONCRETE PLAN AND SECTION	013	1	- DITTO -
14	POWERHOUSE OVERALL PLAN	014	1	- DITTO -
15	POWERHOUSE LONGITUDINAL SECTION C-C	015	1	- DITTO -
16	POWERHOUSE CROSS SECTION (A-A, B-B)	016	1	- DITTO -
17	POWERHOUSE PLAN at ELEVATION 218.00	017	1	- DITTO -
18	POWERHOUSE PLAN at ELEVATION 224.00	018	1	- DITTO -
19	POWERHOUSE PLAN at ELEVATION 226.00	019	1	- DITTO -
20	POWERHOUSE PLAN at ELEVATION 230.25	020	1	- DITTO -
21	POWERHOUSE PLAN at ELEVATION 238.00	021	1	- DITTO -
22	POWERHOUSE PLAN at ELEVATION 242.00	022	1	- DITTO -
23	POWERHOUSE PLAN at ELEVATION 249.00	023	1	- DITTO -
24	GENERATOR CIRCUIT SINGLE LINE DIAGRAM	024	1	- DITTO -
25	400 VOLT SYSTEM SINGLE LINE DIAGRAM	025	1	- DITTO -
26	SWITCHYARD PLAN OF 220kV SWITCHYARD	026	1	- DITTO -
27	POWERHOUSE COMPARISON OF SECTION	027	1	- DITTO -
28	POWERHOUSE COMPARISON OF PLAN at ELEVATION 242.00	028	1	- DITTO -

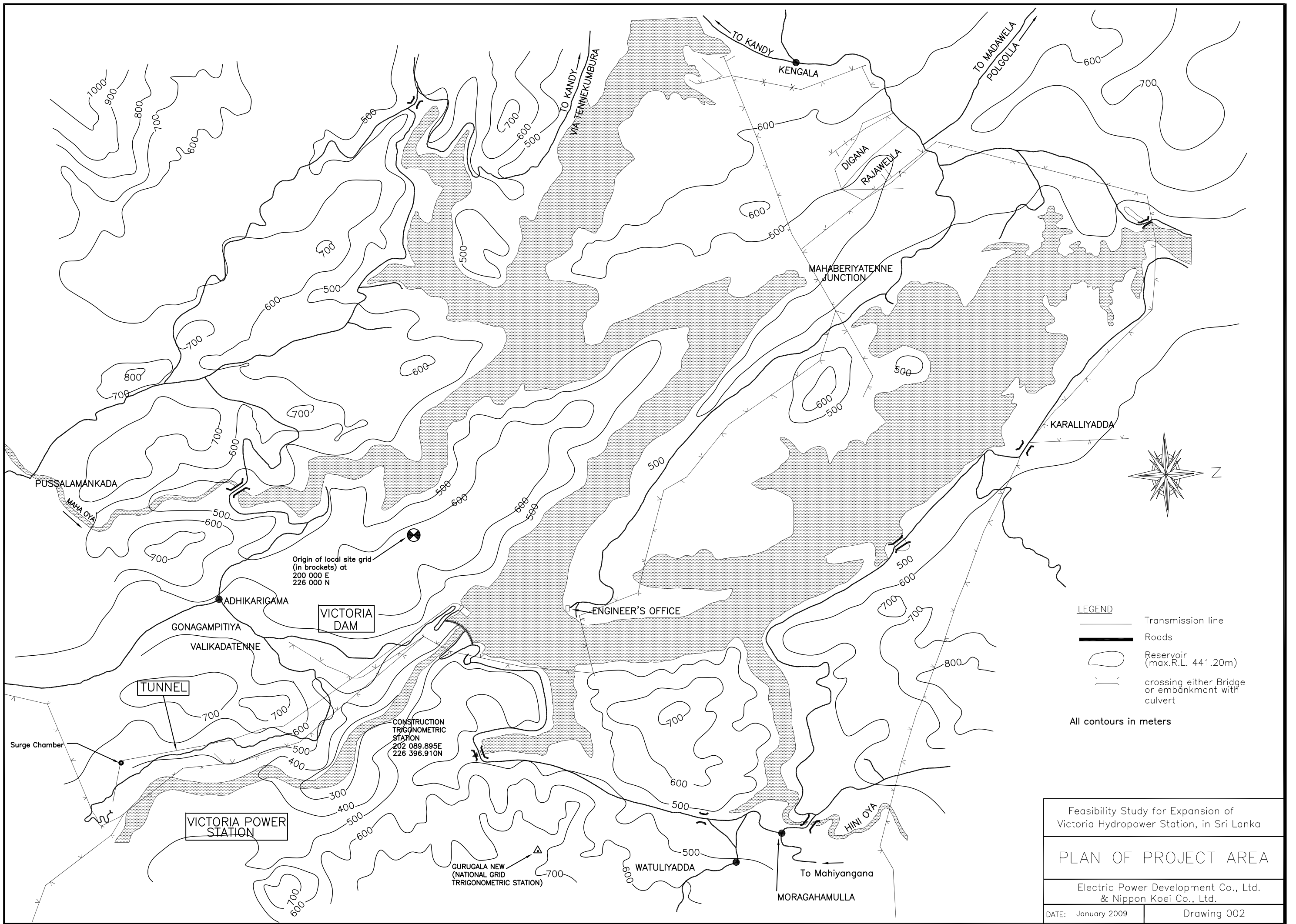
Feasibility Study for Expansion of
Victoria Hydropower Station, in Sri Lanka

LIST OF DRAWINGS

Electric Power Development Co., Ltd.
& Nippon Koei Co., Ltd.

DATE: January 2009






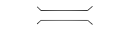


Origin of local site grid
(in brackets) at
200 000 E
226 000 N

CONSTRUCTION
TRIGONOMETRIC
STATION
202 089.895E
226 396.910N

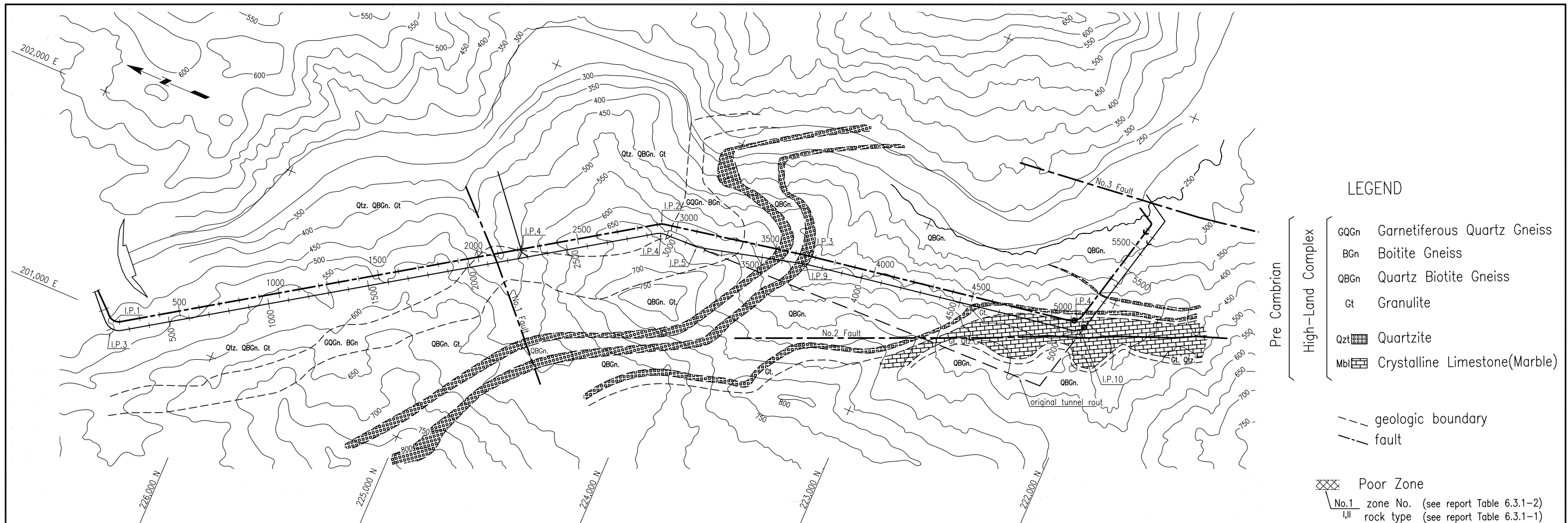
GURUGALA NEW
(NATIONAL GRID
TRIGONOMETRIC STATION)

LEGEND

-  Transmission line
-  Roads
-  Reservoir
(max.R.L. 441.20m)
-  crossing either Bridge
or embankment with
culvert

All contours in meters

Feasibility Study for Expansion of Victoria Hydropower Station, in Sri Lanka	
PLAN OF PROJECT AREA	
Electric Power Development Co., Ltd. & Nippon Koei Co., Ltd.	
DATE: January 2009	Drawing 002



Geologic Plan

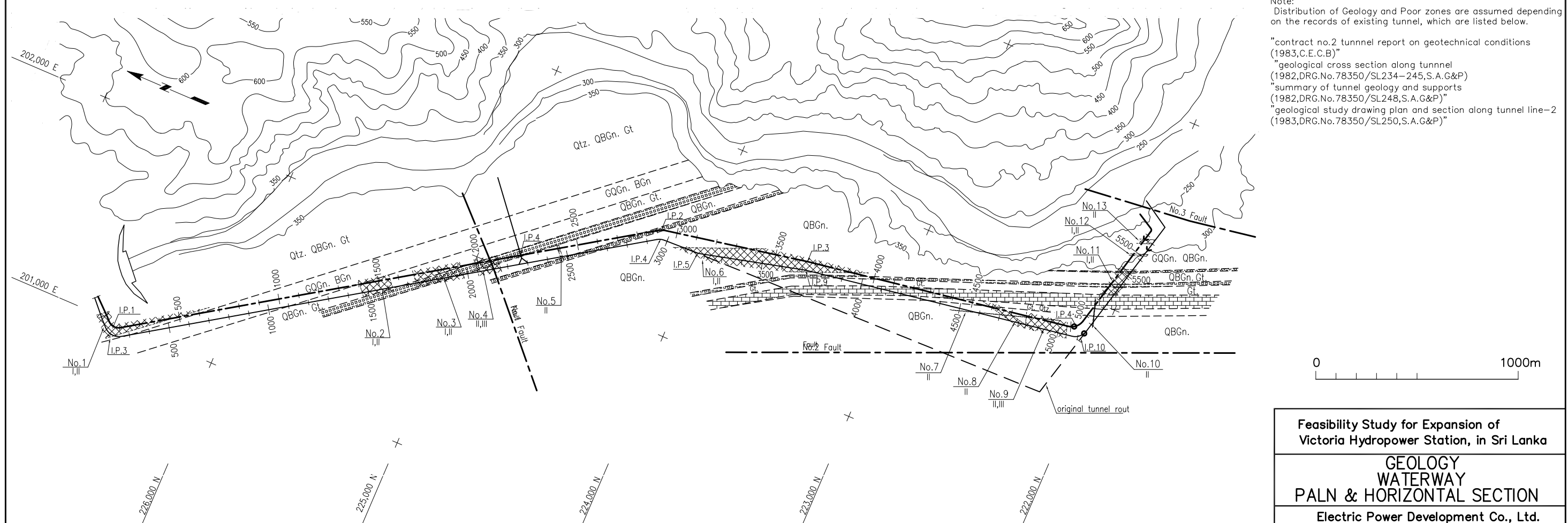
LEGEND

Pre Cambrian High-Land Complex

- GQGn Garnetiferous Quartz Gneiss
- BGn Boitite Gneiss
- QBGn Quartz Biotite Gneiss
- Gt Granulite
- Qtz Quartzite
- Mbl Crystalline Limestone(Marble)

--- geologic boundary
- - - fault

⊗ Poor Zone
No.1 zone No. (see report Table 6.3.1-2)
I,II rock type (see report Table 6.3.1-1)



Geologic Horizontal Section

Note:
Distribution of Geology and Poor zones are assumed depending on the records of existing tunnel, which are listed below.

- "contract no.2 tunnel report on geotechnical conditions (1983,C.E.C.B)"
- "geological cross section along tunnel (1982,DRG.No.78350/SL234-245,S.A.G&P)"
- "summary of tunnel geology and supports (1982,DRG.No.78350/SL248,S.A.G&P)"
- "geological study drawing plan and section along tunnel line-2 (1983,DRG.No.78350/SL250,S.A.G&P)"

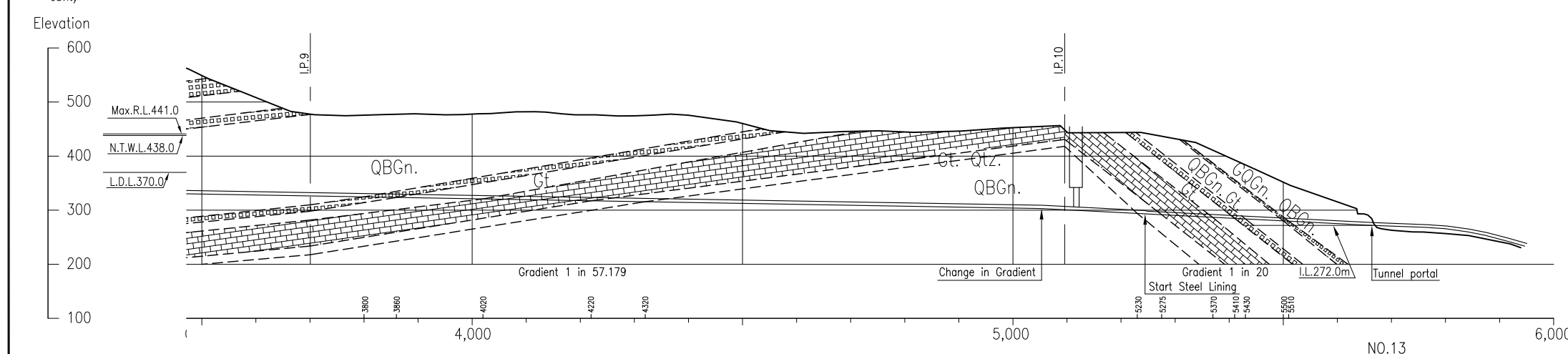
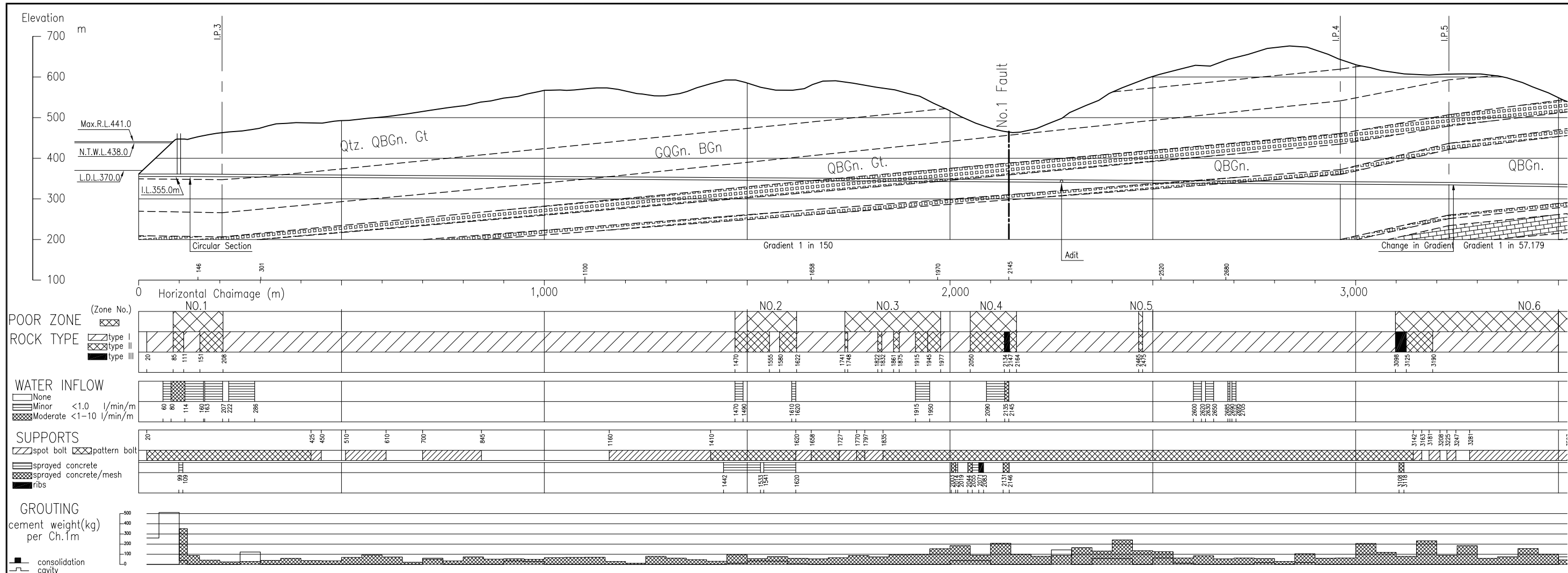


Feasibility Study for Expansion of Victoria Hydropower Station, in Sri Lanka

GEOLOGY WATERWAY PALN & HORIZONTAL SECTION

Electric Power Development Co., Ltd. & Nippon Koei Co., Ltd.

DATE: January, 2009 Drawing 003



LEGEND

- GQGn Garnetiferous Quartz Gneiss
- BGn Boitite Gneiss
- QBGn Quartz Biotite Gneiss
- Gt Granulite
- Qtz Quartzite
- Mbl Crystalline Limestone(Marble)
- geologic boundary
- - - fault

Pre Cambrian High-Land Complex

Note:
 Geology and other items are based on the records of existing tunnel, which are listed below.
 "contract no.2 tunnel report on geotechnical conditions (1983,C.E.C.B)"
 "geological cross section along tunnel (1982,DRG.No.78350/SL234-245,S.A.G&P)"
 "tunnel record of cavity and consolidation grouting (1984,DRG.No.78350/SL418-423,S.A.G&P)"
 "summary of tunnel geology and supports (1982,DRG.No.78350/SL248,S.A.G&P)"
 "geological study drawing plan and section along tunnel line-2 (1983,DRG.No.78350/SL250,S.A.G&P)"

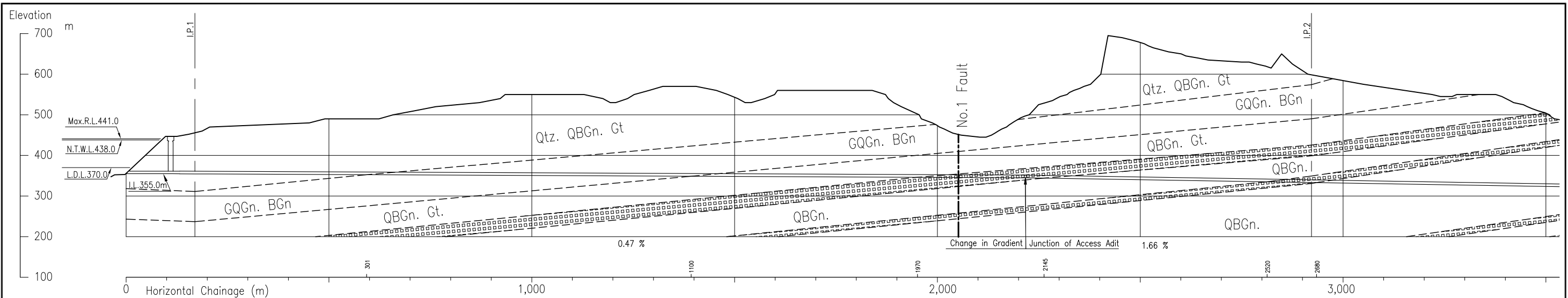
0 500m

Feasibility Study for Expansion of Victoria Hydropower Station, in Sri Lanka

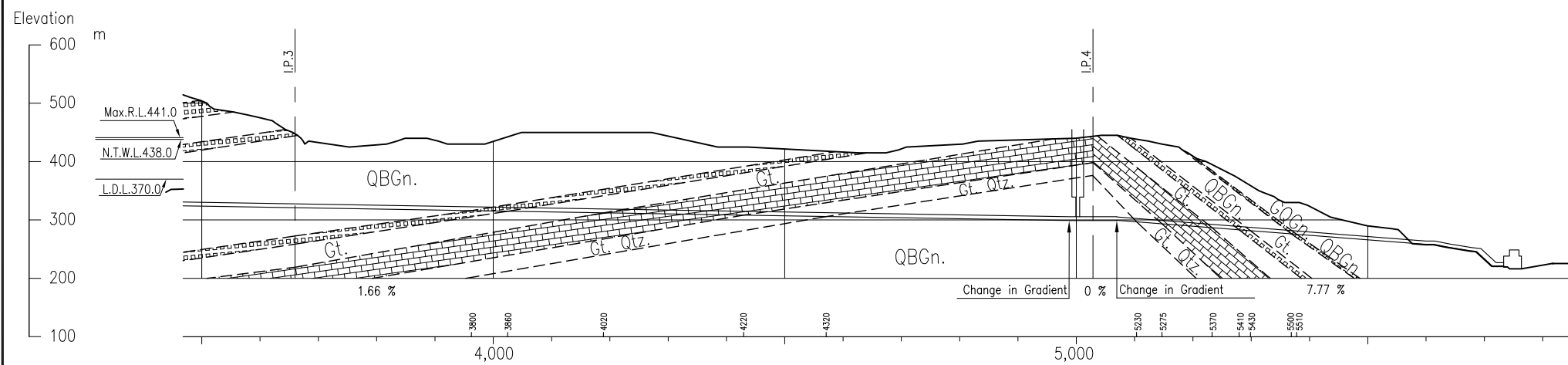
GEOLOGY WATERWAY PROFILE OF EXISTING TUNNEL

Electric Power Development Co., Ltd. & Nippon Koei Co., Ltd.

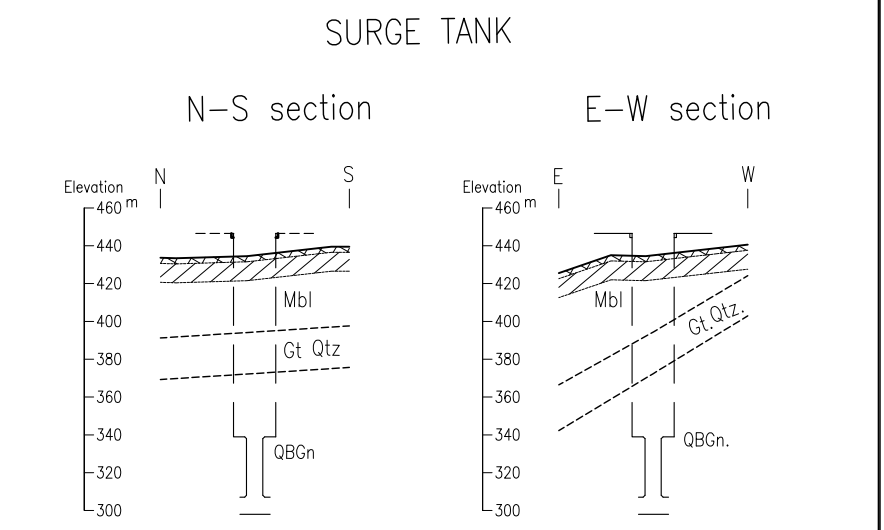
DATE: January, 2009 Drawing 004



ROCK NAME	Qtz. QBGn. Gt		GQGn. BGn		QBGn. Gt.		QBGn.		QBGn.	
Ch.	301		1100		1970		2145		2680	
POOR ZONE	NO.1		NO.2		NO.3		NO.4		NO.5	
rock type	type I: 32.5%, type II: 67.5%, type III: 0%		type I: 16.4%, type II: 83.6%, type III: 0%		type I: 60.6%, type II: 39.4%, type III: 0%		type I: 0%, type II: 88.6%, type III: 11.4%		type I: 100%, type II: 0%, type III: 0%	
WATER INFLOW	minor		minor		minor		minor		minor	
Ch. & No.	(1)		(2)		(3)		(4)		(5)	



ROCK NAME	QBGn.		Gt.		Gt. Qtz.		QBGn.		Gt. QBGn.		GQGn. QBGn.	
Ch.	3800		3960		4020		4220		4320		4985	
POOR ZONE	NO.6		NO.8		NO.7		NO.9		NO.10		NO.11	
rock type	type I: 76.6%, type II: 19.3%, type III: 4.1%		type I: 100%, type II: 0%, type III: 0%		type I: 41.3%, type II: 58.7%, type III: 0%		type I: 0%, type II: 25.9%, type III: 74.1%		type I: 100%, type II: 0%, type III: 0%		type I: 100%, type II: 0%, type III: 0%	
WATER INFLOW	minor		minor		minor		minor		minor		minor	
Ch. & No.	(6)		(7)		(8)		(9)		(10)		(11)	



highly weathered zone
 moderately weathered zone (rippable)
 slightly weathered or fresh zone
 partly moderately weathered (drilling&blasting)

Note: Actual distribution of geology and weathered zones are not clear. Detailed examinations should be carried out in the detailed design stage.

LEGEND

- geologic boundary
- fault

Pre Cambrian High-Land Complex

- GQGn Garnetiferous Quartz Gneiss
- BGn Boitite Gneiss
- QBGn Quartz Biotite Gneiss
- Gt Granulite
- Qtz Quartzite
- Mbl Crystalline Limestone(Marble)

Note: Geology and other items are assumed depending on the records of existing tunnel, which are listed below.

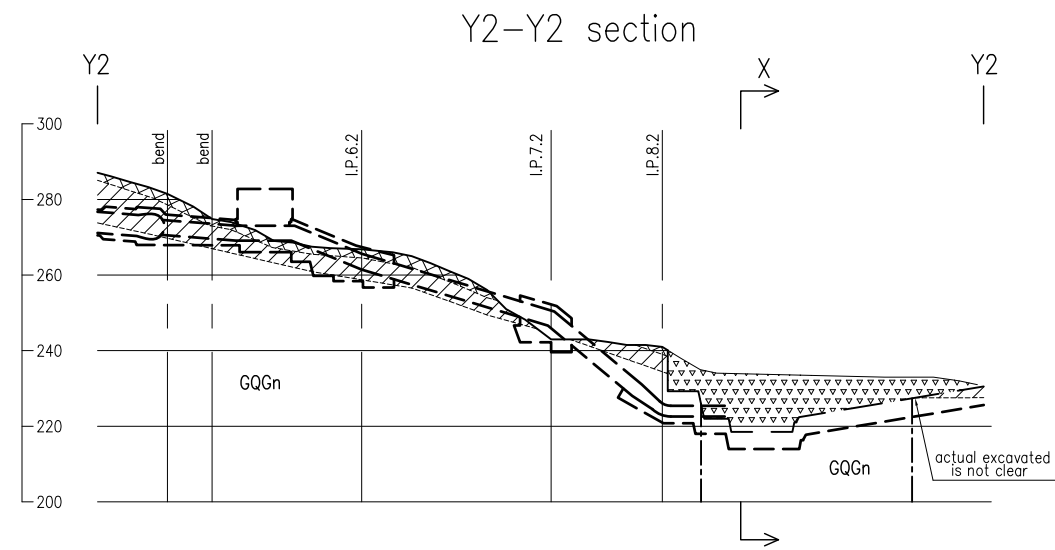
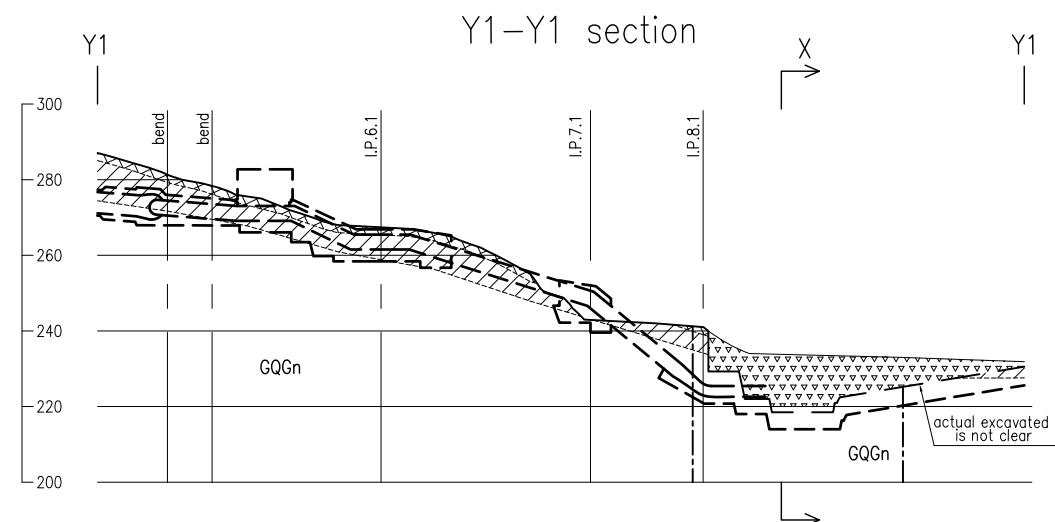
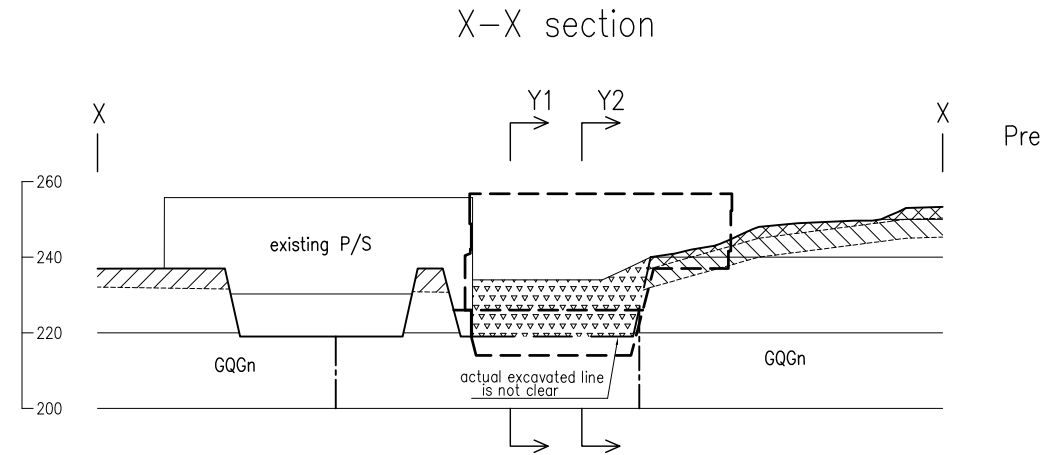
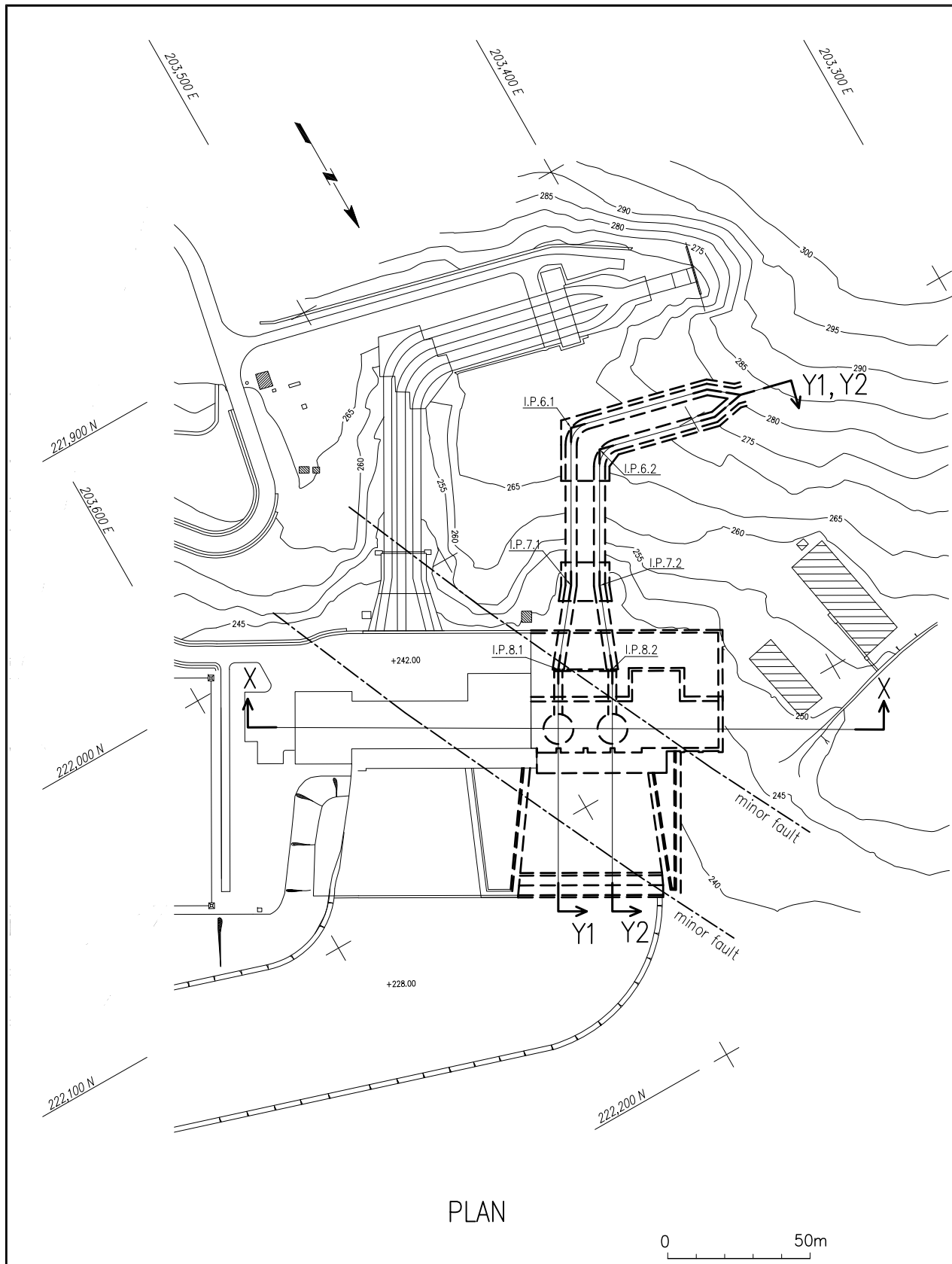
- *contract no.2 tunnel report on geotechnical conditions (1983,C.E.C.B)
- *geological cross section along tunnel (1982,DRG.No.78350/SL234-245,S.A.G&P)
- *tunnel record of cavity and consolidation grouting (1984,DRG.No.78350/SL418-423,S.A.G&P)
- *summary of tunnel geology and supports (1982,DRG.No.78350/SL248,S.A.G&P)
- *geological study drawing plan and section along tunnel line-2 (1983,DRG.No.78350/SL250,S.A.G&P)

Feasibility Study for Expansion of Victoria Hydropower Station, in Sri Lanka

GEOLOGY WATERWAY PROFILE OF NEW TUNNEL

Electric Power Development Co., Ltd. & Nippon Koei Co., Ltd.

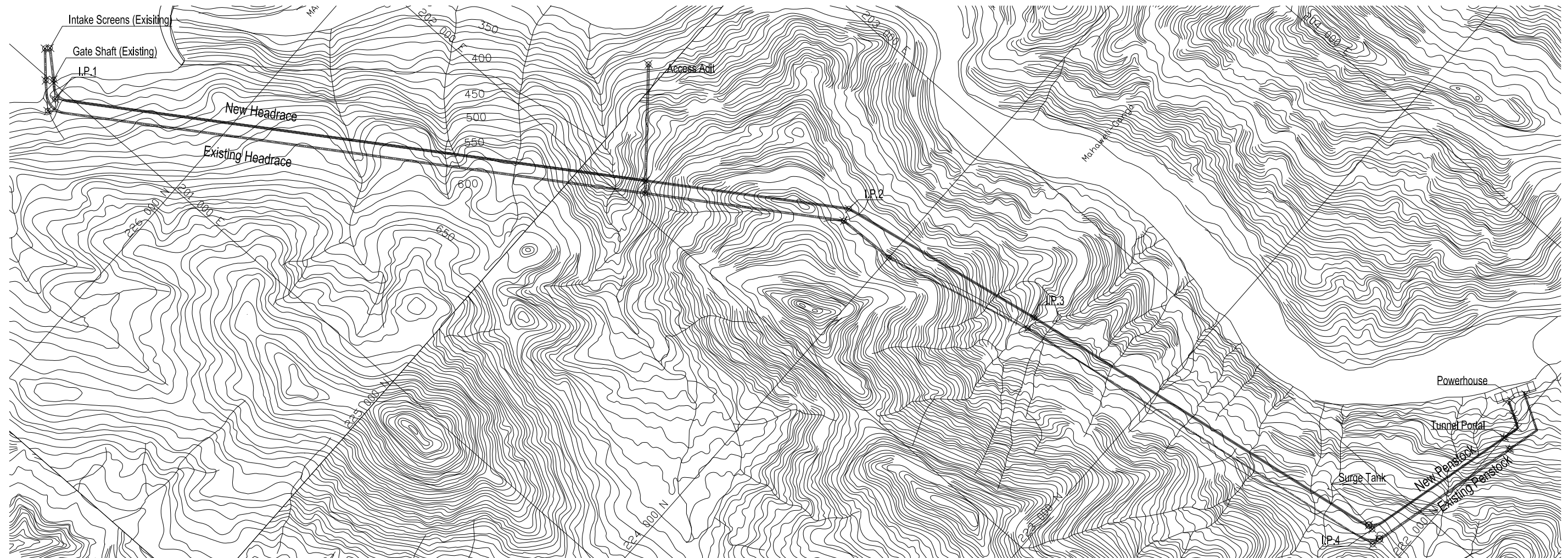
DATE: January, 2009 Drawing 005



- LEGEND
- Pre Cambrian High-Land Complex
 - GQGn Garnetiferous Quartz Gneiss
 - fault
 - highly weathered zone
 - moderately weathered zone (rippable)
 - slightly weathered or fresh zone partly moderately weathered (drilling&blasting)
 - backfill

Note:
Geology, fault and weathered zone were assumed depending on the "victria power station civil engineering & architectual works construction report volume I (1986,S.A.G&P.)". But the actual distribution of each geologic items are not clear. Detailed examinations should be carried out in the detailed design stage.

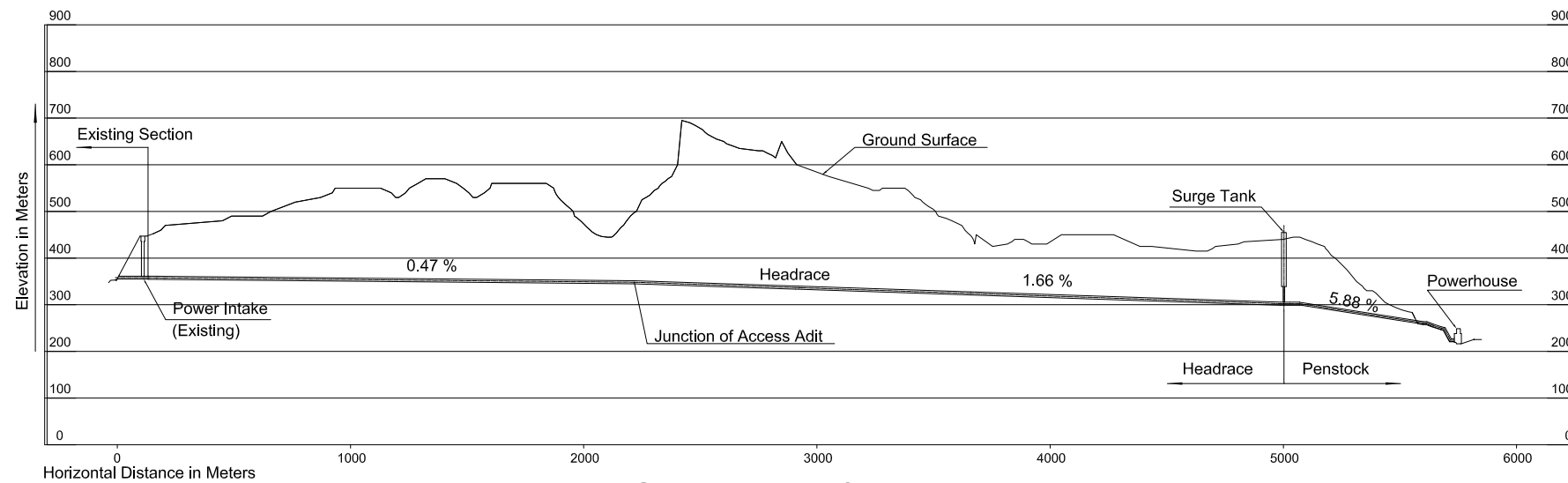
Feasibility Study for Expansion of Victoria Hydropower Station, in Sri Lanka	
GEOLOGY POWERHOUSE & PENSTOCK PALN & SECTION	
Electric Power Development Co., Ltd. & Nippon Koei Co., Ltd.	
DATE: January, 2009	Drawing 006



General Plan

Scale a

	E	N	Bend Radius (m)	Horizontal Chainage (m)	Center EL. (m)
Intake screen (Existing)	201,081.44	226,643.99		0.000	
Gate shaft (Existing)	201,008.01	226,562.62		109.606	358.100
T.P.1 (A)	-	-		135.512	357.979
I.P.1	200,961.08	226,515.37	50.000	-	-
T.P.1 (B)	-	-		203.821	357.598
Adit junction	202,092.79	224,803.53		2,215.245	348.250
T.P.2 (A)	-	-		2,908.350	336.743
I.P.2	202,482.73	224,213.70	70.000	-	-
T.P.2 (B)	-	-		2,935.920	336.279
I.P.3	202,622.33	223,488.85		-	-
Change in Gradient	202,836.10	222,183.44		4,982.916	302.302
Start of Steel Lining	202,836.10	222,183.44		4,982.916	302.302
T.P.4 (A)	-	-		4,987.916	302.302
Surge tank	202,847.41	222,151.53	70.000	5,002.497	302.302
I.P.4	202,844.37	222,132.97	70.000	-	-
T.P.4 (B)	-	-		5,069.580	302.302
Start of Contraction	202,889.16	222,121.87		5,069.580	302.302
End of Contraction	202,894.69	222,120.50		5,069.580	301.967
Tunnel portal	203,381.15	222,000.01		5,576.437	272.496



General Profile

Horizontal; scale a. Vertical; scale b

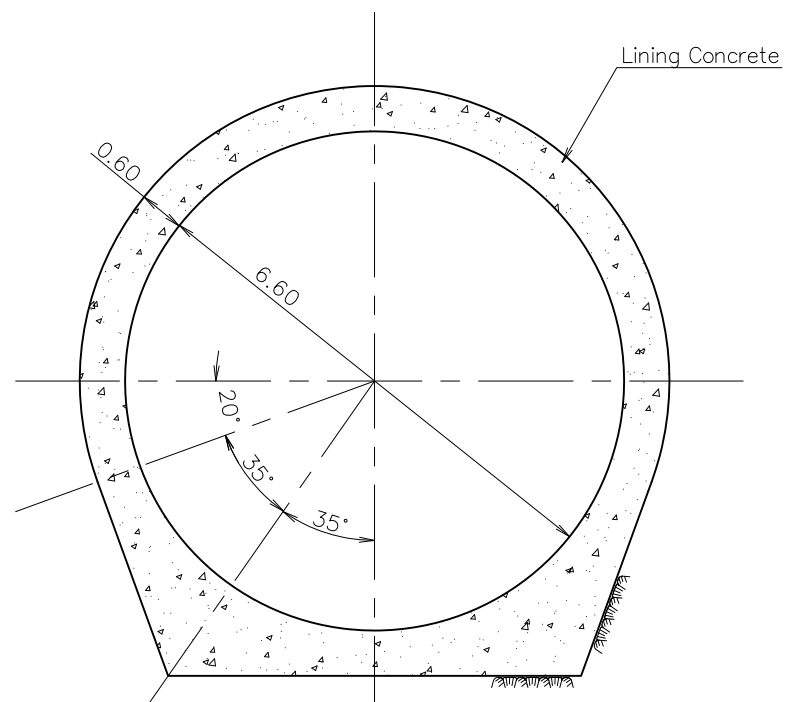


Feasibility Study for Expansion of Victoria Hydropower Station, in Sri Lanka

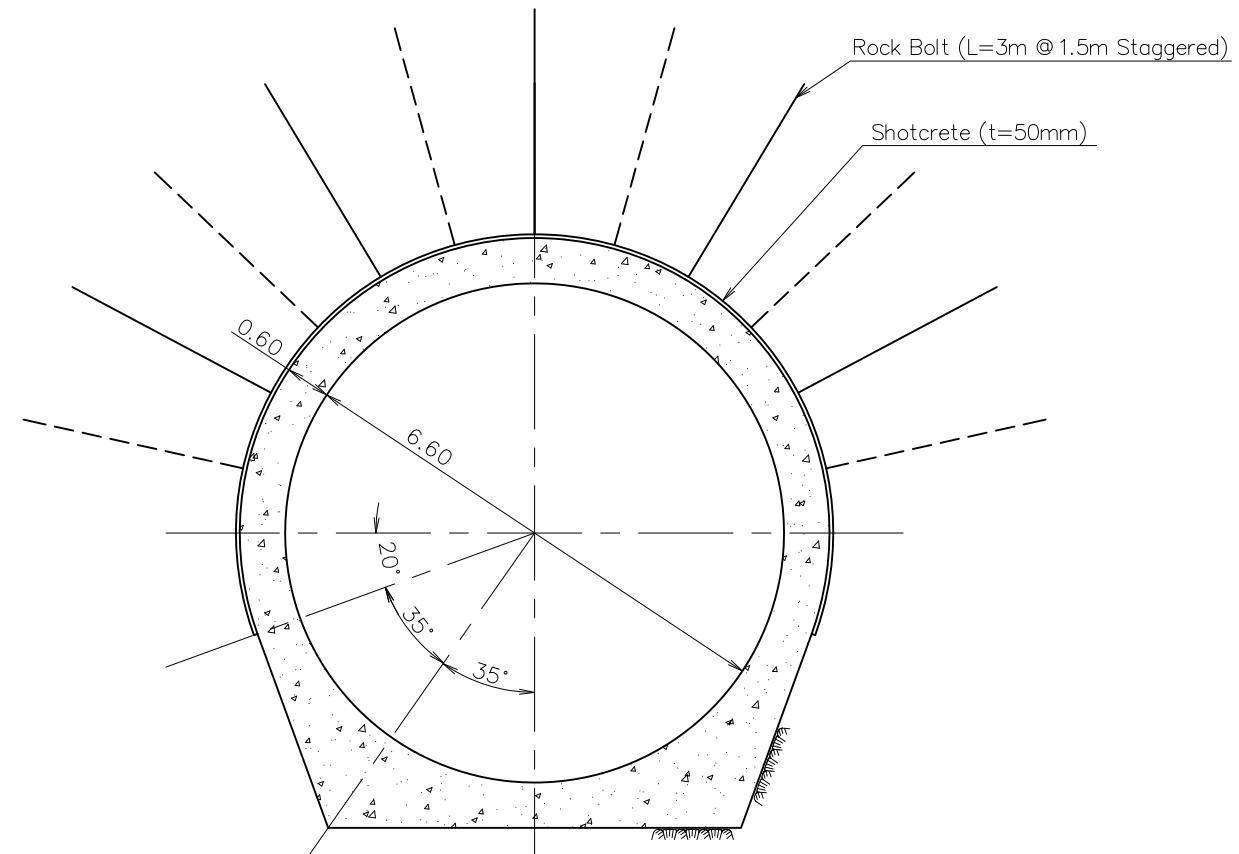
**WATER WAY
PLAN AND PROFILE**

Electric Power Development Co., Ltd.
& Nippon Koei Co., Ltd.

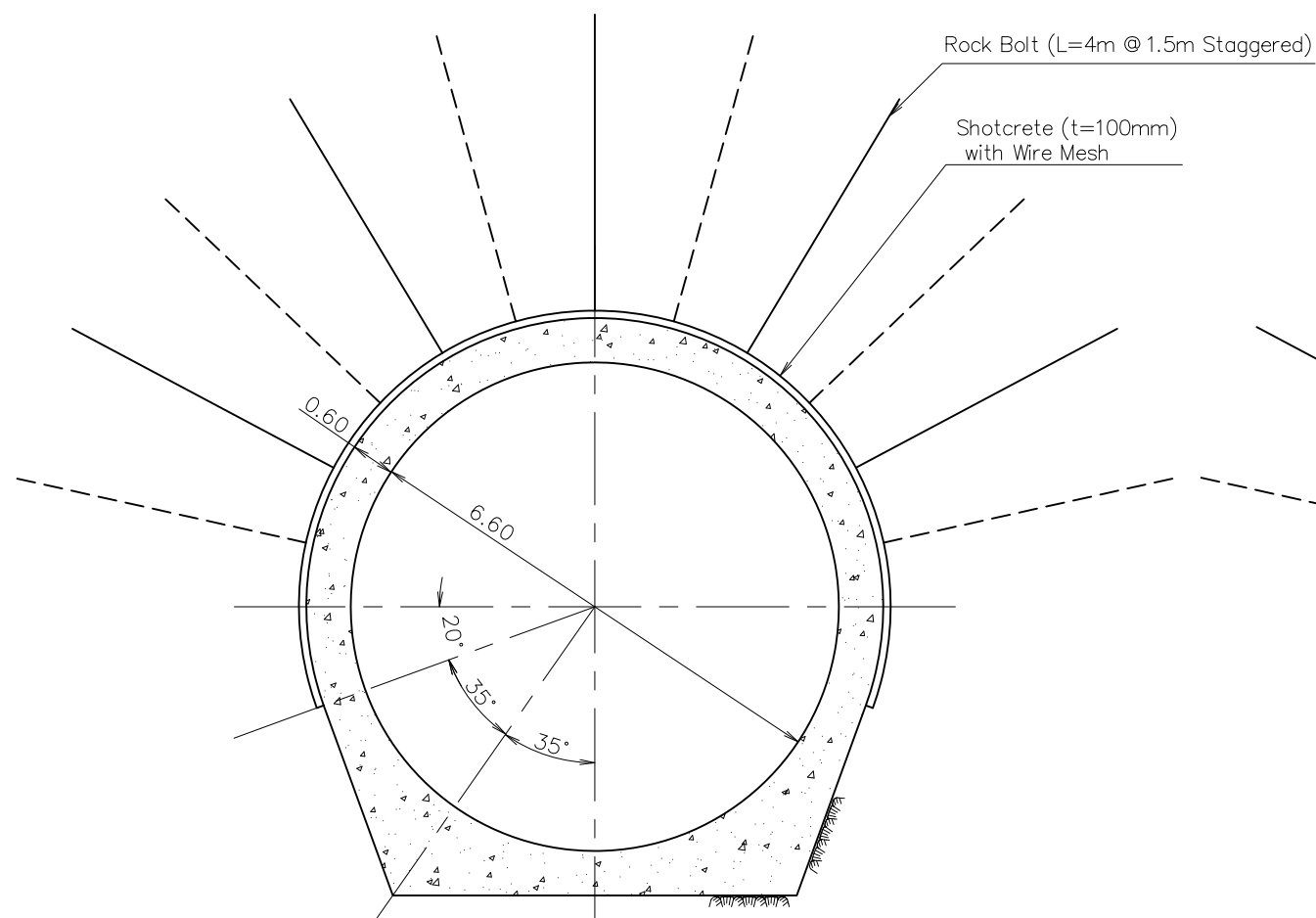
DATE: January, 2009 Drawing 007



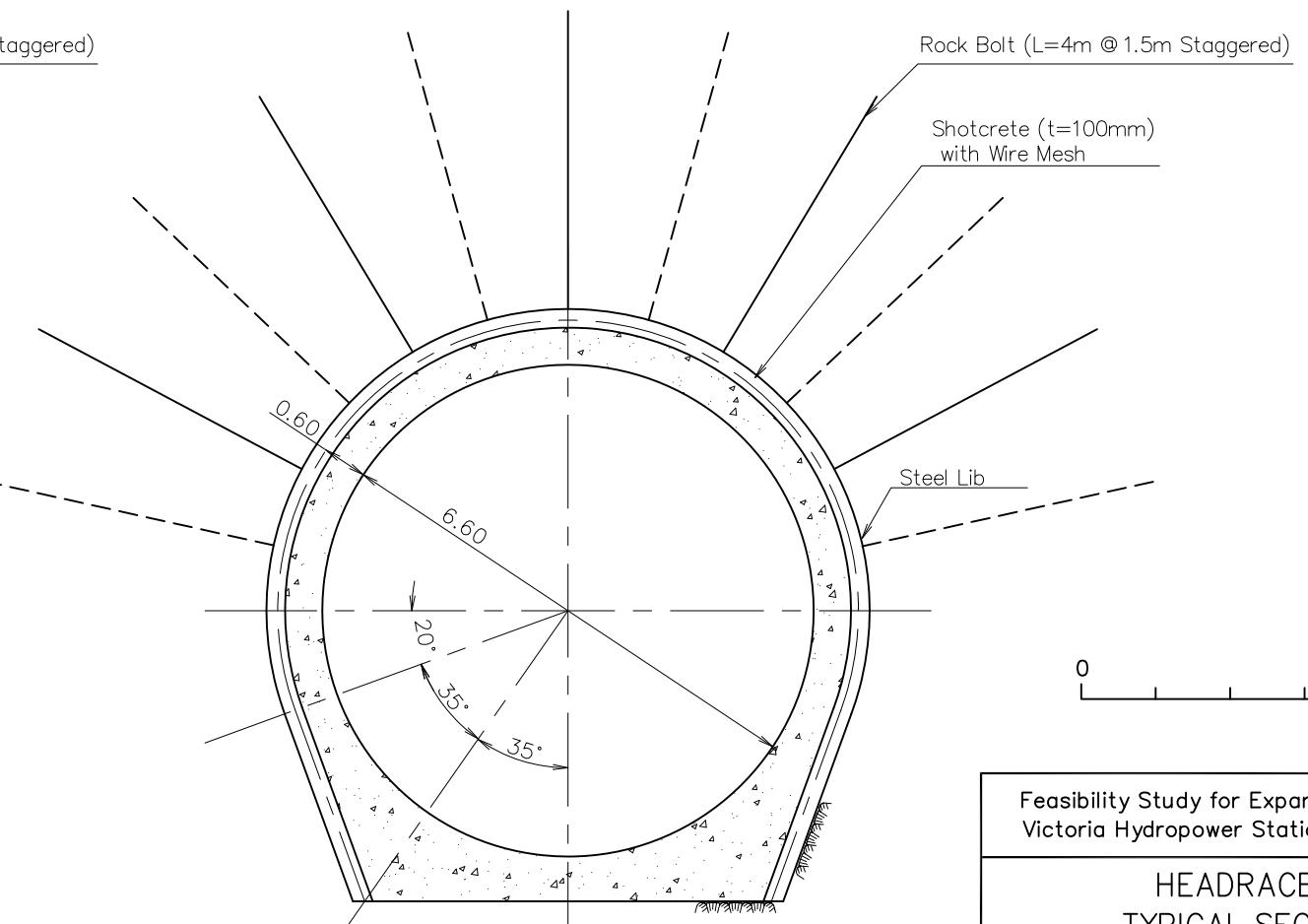
TYPE - I



TYPE - II



TYPE - III



TYPE - IV



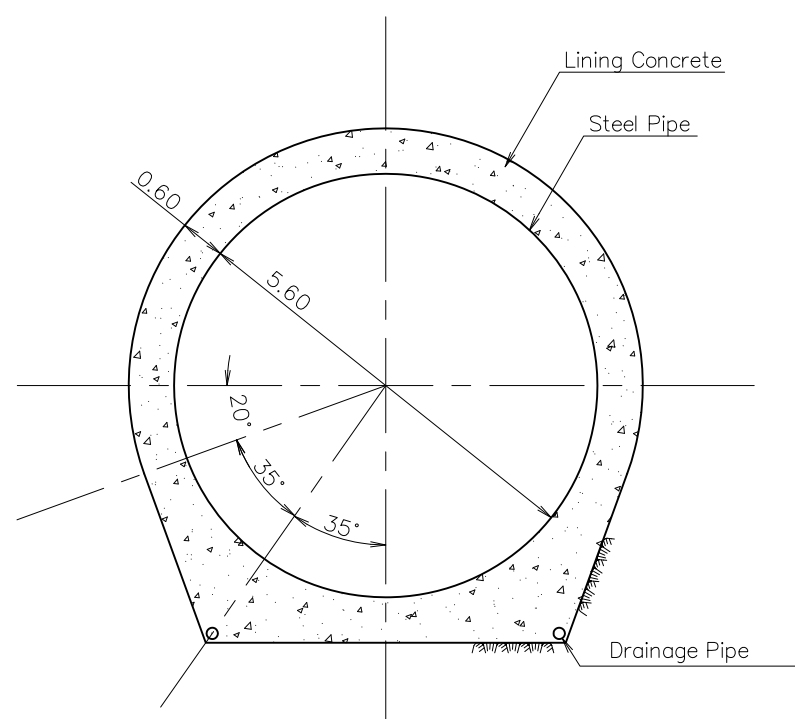
Feasibility Study for Expansion of
Victoria Hydropower Station, in Sri Lanka

HEADRACE
TYPICAL SECTION

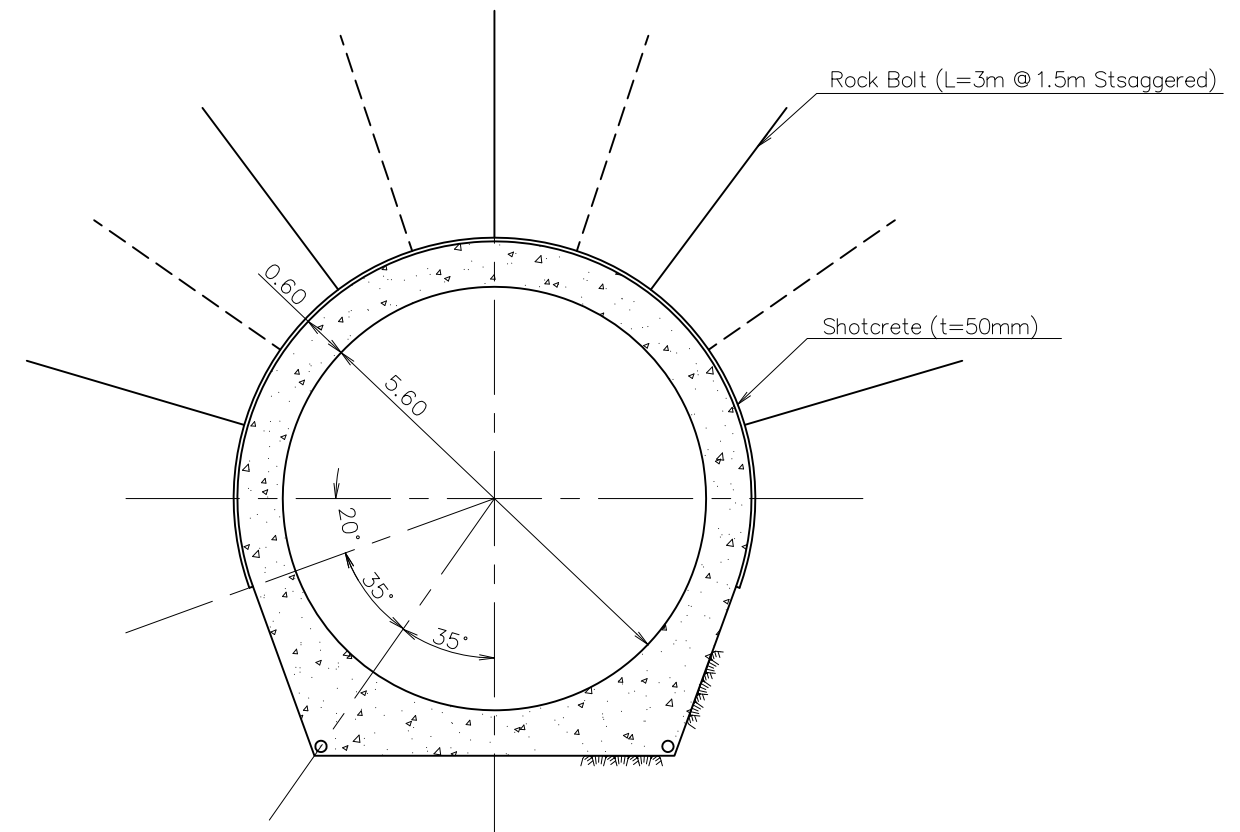
Electric Power Development Co., Ltd.
& Nippon Koei Co., Ltd.

DATE: January, 2009

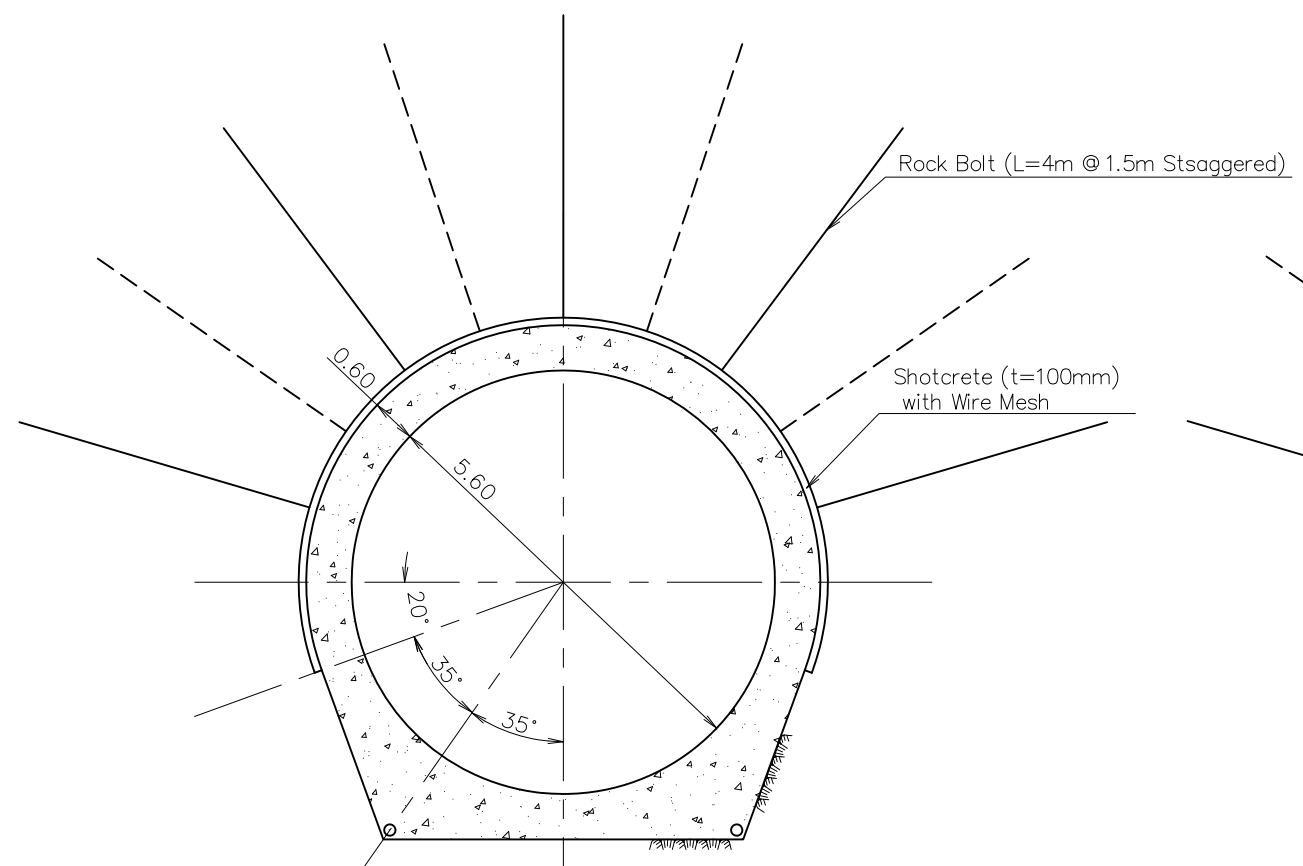
Drawing 008



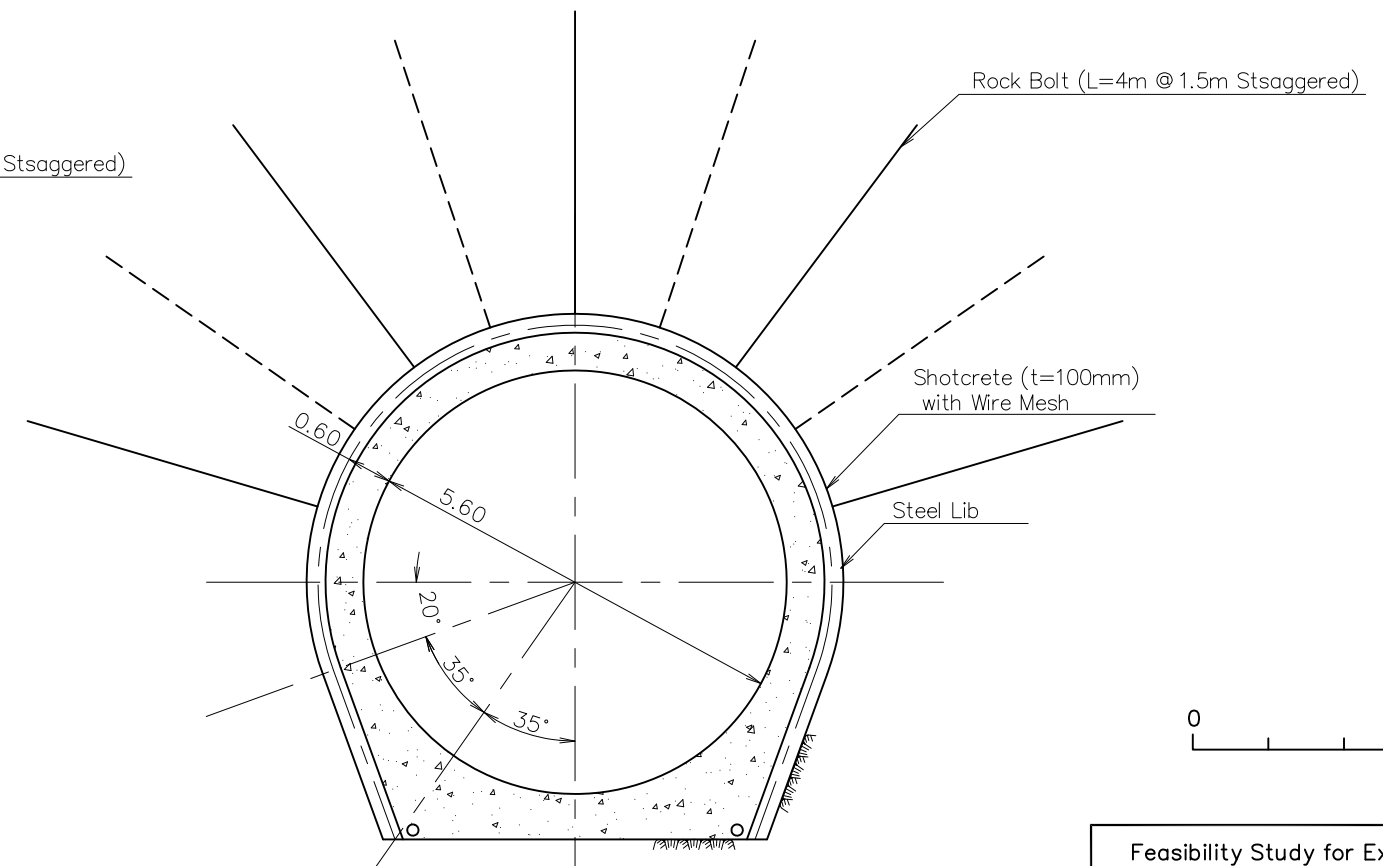
TYPE - I



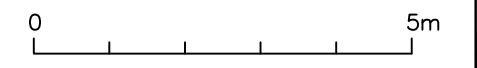
TYPE - II



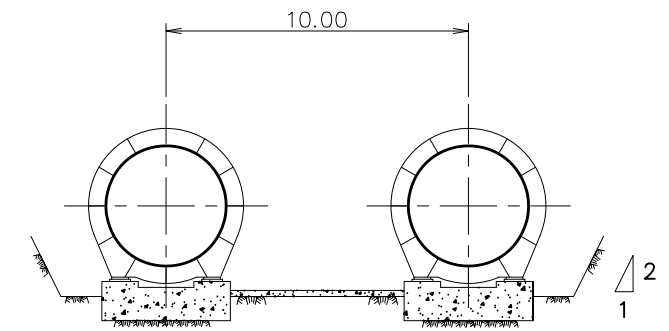
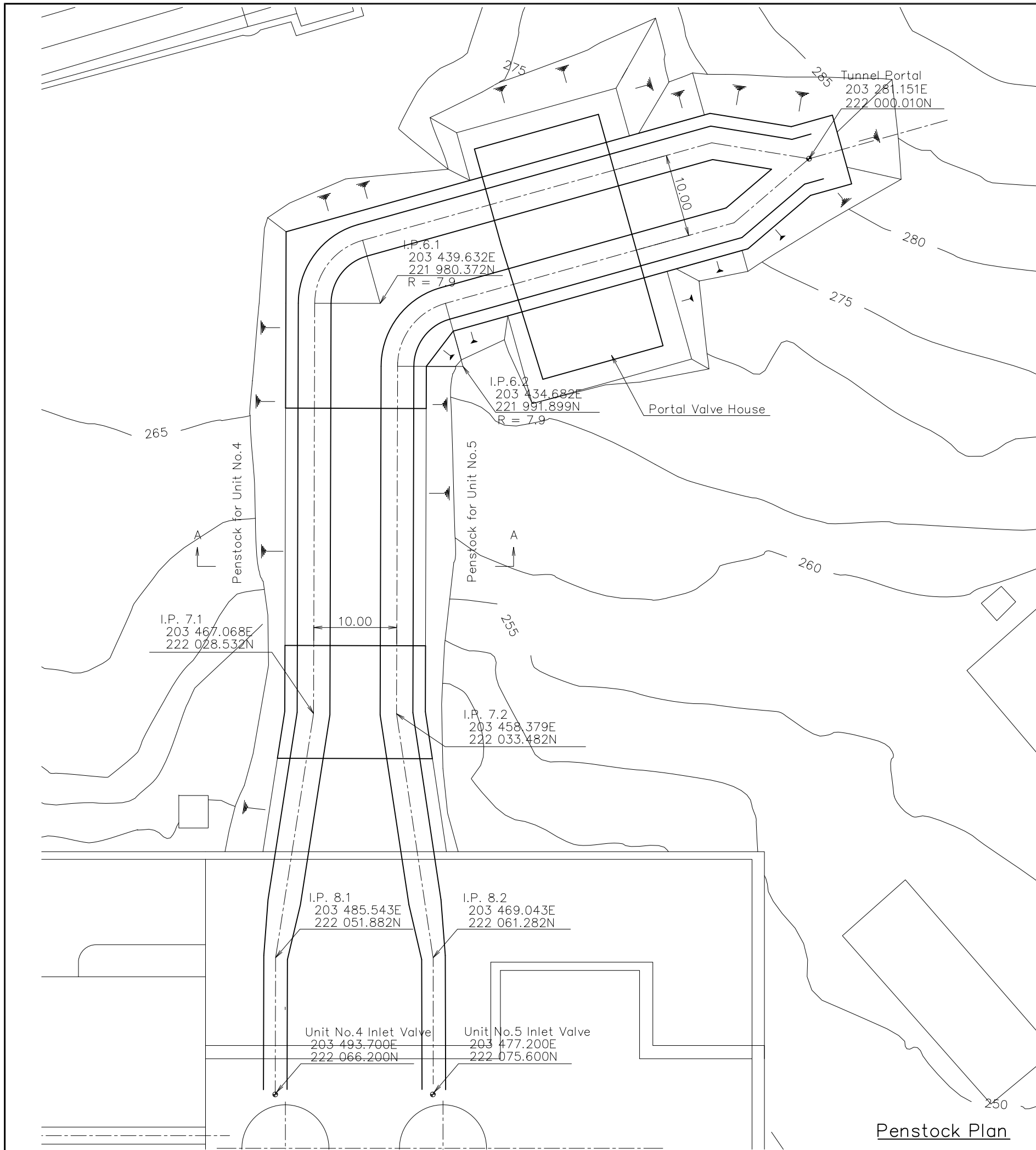
TYPE - III



TYPE - IV

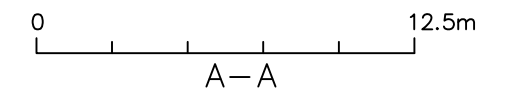
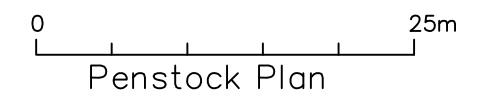


Feasibility Study for Expansion of Victoria Hydropower Station, in Sri Lanka	
PENSTOCK (TUNNEL) TYPICAL SECTION	
Electric Power Development Co., Ltd. & Nippon Koei Co., Ltd.	
DATE: January, 2009	Drawing 009



A-A

NOTE:
 Coordinations are tentative value. They shall be finalized at D/D stage.



Penstock Plan

Feasibility Study for Expansion of Victoria Hydropower Station, in Sri Lanka	
PENSTOCK (OPEN-AIR) PLAN AND SECTION	
Electric Power Development Co., Ltd. & Nippon Koei Co., Ltd.	
DATE: January, 2009	Drawing 010