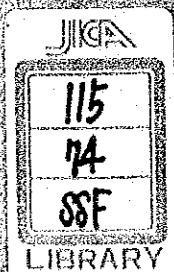


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MINISTRY OF TRADE AND INDUSTRY MONGOLIA

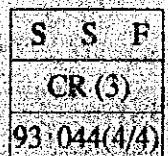
THE STUDY  
ON  
THE IMPROVEMENT PLAN  
FOR  
TRANSHIPMENT FACILITIES  
AT ZAMYN-UUD STATION  
IN  
MONGOLIA

FINAL REPORT  
VOL. 4  
APPENDIX

MARCH, 1993



JAPAN RAILWAY TECHNICAL SERVICE  
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JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
MINISTRY OF TRADE AND INDUSTRY MONGOLIA

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## CONTENTS

Appendix 1-3-1	Advisory Committee.....	1
Appendix 1-3-2	Coordinator.....	1
Appendix 1-3-3	Study Team.....	1
Appendix 1-3-4	Members of the Government of Mongolian Contacted by the Team and Counterparts .....	2
Appendix 2-2-1	Freight Transport Volume by Commodities .....	3
Appendix 2-2-2	Railway Freight Transportation Volume by Export Items .....	4
Appendix 2-2-3	Railway Freight Transportation Volume by Import Items .....	5
Appendix 2-2-4	Railway Freight Transportation Volume by Transit Commodities .....	6
Appendix 2-2-5	Railway Freight Transportation Volume by Domestic Commodities .....	7
Appendix 2-2-6	Shipping Freight Volume between Each Station (1990).....	8
Appendix 2-2-7	Shipping Freight Volume between Each Station (1991).....	9
Appendix 2-2-8	Shipping Freight Volume between Each Station (1990) (Thous. ton).....	10
Appendix 2-2-9	Shipping Freight Volume between Each Station (1991) (Thous. ton).....	11
Appendix 2-2-10	OD Table of Freight Volume (1990) (Thous. ton) .....	12
Appendix 2-2-11	OD Table of Freight Volume (1991) (Thous. ton) .....	16
Appendix 2-9-1	Electric Power Distribution System (present).....	20
Appendix 3-2-1	Freight Volume of Export by Commodity in 2000 (Thous. ton).....	21
Appendix 3-2-2	Freight Volume of Import by Commodity in 2000 (Thous. ton).....	22
Appendix 3-2-3	Demand Estimates for Domestic Freight Transport (Thous. ton) .....	23
Appendix 4-3-1	Construction Gauge .....	24
Appendix 4-3-2	Car Gauge.....	25
Appendix 4-3-3	Turn Out Skelton.....	26
Appendix 4-3-4	Main Size of Oblique-Angled Crossing .....	27
Appendix 4-3-5	Track Layout.....	28
Appendix 4-3-6	Standard Section of Embankment (1,520mm) .....	29
Appendix 4-3-7	Standard Section of Embankment (1,435mm) .....	30
Appendix 4-3-8	Cross Section of Ballast Track (1,520mm).....	31
Appendix 4-3-9	Cross Section of Ballast Track (1,435mm).....	32
Appendix 4-3-10	Track Materials.....	33
Appendix 4-3-11	Track Materials.....	34
Appendix 4-3-12	Anti-sand and Snow Wall .....	35
Appendix 4-5-1	Election Power Distribution System of 2000 .....	36
Appendix 4-7-1	Existing Facilities .....	37
Appendix 4-7-2	Building Plan.....	38
Appendix 6-1-1	Preliminary Design Drawings of Building (Front/Side View) for Plan 1/Plan 2.....	39
Appendix 6-1-2	Preliminary Design Drawings of Building (Layout/Cross Section) for Plan 1/Plan 2.....	40
Appendix 6-1-3	Level Crossing .....	41
Appendix 6-1-4	Entrance Gate.....	42

Appendix 6-1-5	Plumbing System .....	43
Appendix 6-1-6	Inspection Shed .....	44
Appendix 6-1-7	Car Washing Stand .....	45
Appendix 6-1-8	Buffer Stop .....	46
Appendix 6-3-1	Zamyn-Uud Station.....	47
Appendix 6-3-2	Special Automatic Block System.....	49
Appendix 6-3-3	Layout of Illumination for Transshipping Facilities .....	50
Appendix 6-3-4	Illumination for Transshipping Facilities.....	50
Appendix 6-3-5	Layout of Illumination for Storage Tracks and Engine Run Around Tracks....	51
Appendix 10-1-1	Economic Estimate (Plan 1 Thous. Tugrik) .....	53
Appendix 10-1-2	Economic Estimate (Plan 2 Thous. Tugrik) .....	54
Appendix 10-2-1	Total Investment with Contingency Plan 2.....	55
Appendix 10-2-2	Financial Analysis for the Study on the Improvement Plan for Transshipment Facilities at Zamyn-Uud Station in Mongolia .....	58
Appendix 10-2-3	Financial Analysis for the Study on the Improvement Plan for Transshipment Facilities at Zamyn-Uud Station in Mongolia .....	61
Appendix 10-2-4	Financial Analysis for the Study on the Improvement Plan for Transshipment Facilities at Zamyn-Uud Station in Mongolia .....	64
Appendix 10-2-5	Financial Analysis for the Study on the Improvement Plan for Transshipment Facilities at Zamyn-Uud Station in Mongolia .....	67



### Appendix 1-3-1 Advisory Committee

Naoto EGAWA Chairman, Transport planning	Director, Railway Division, Chubu District Transport Bureau, Ministry of Transport
Shigemasa SATO Cargo transshipment system planning	Deputy Director of the Division, Railway Bureau, Ministry of Transport
Masaki KAMIURA Stating yard planning	Manager, Grand Facility Maintenance Office, Railway Operation Headquarters, Japan Freight Railway Company

### Appendix 1-3-2 Coordinator

Shingo SAITO Coordinator	Staff, First Development Study Division, Social Development Study Department, Japan International Cooperation Agency
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### Appendix 1-3-3 Study Team

Name	Assignment
Masaaki FUJIMOTO	Team leader
Makio KASAI	Planning, transportation
Kazuyosi WATANABE	Planning, roadbed, structure and station
Yutaka WADA	Planning, signal and telecommunication facilities
Kuniaki HASHIMOTO	Planning, rolling stock and cargo handling facilities
Taro IWATA	Operation and management, and financial analysis
Ryuichi OZAWA	Demand estimate and economic analysis
Hikaru ISHIKAWA	Designing, civil work
Fumio OKABE	Designing, electrical equipment
Toshikazu ONO	Designing, mechanical equipment

**Appendix 1-3-4 Members of the Government of Mongolian  
Contacted by the Team and Counterparts**

**MINISTRY OF TRADE AND INDUSTRY**

Mr. Ts. Tsogt	Minister
Mr. Yondon	First Deputy Minister
Mr. H. Naranhuu	Director of Industry and Foreign Investment Policy Department
Mr. N. Batsaikhan	Assistant of the Minister
Mss. L. Nusunbuyan	Assistant of Director
Mr. T. Legjeem	Office of Foreign Trade Policy Department

**MINISTRY OF TRANSPORT AND COMMUNICATION**

Mr. S. Jamts	Senior Expert of International Division
Mr. L. Gombo	Senior Official of Foreign Relation Division

**NATIONAL DEVELOPMENT BOARD UNDER THE PRIME MINISTER**

Mr. C. Ganzorig	Deputy Director-General
Mr. B. Doyoddozj	Expert of Department Economic Cooperation

**MONGOLIAN RAILWAY**

Mr. Rash	Chairman
Mr. J. Nyamaa	Chief Engineer
Mr. D. Dashtseveg	Chief of Engineering Division
Mr. D. Badarch	Senior Engineer of Engineering Division
Mr. Ch. Lhagvasuren	Chief Engineer of Traffic Management Department
Mr. D. Sukhetomor	Chief of Signal and Communication Department
Mr. S. Bat-ochir	Chief of Car Facilities Department
Mr. N. Khurelsukhe	Chief Engineer of Power and Water Supply Section
Mr. M. Gantulga	Deputy-Chief of Finance Department
Mr. B. Jigjdsuren	Deputy-Chief of Civil Engineering Department
Mss. D. Nyamtuya	Senior Engineer of Track Facilities Department
Mr. Ts. Ganbileg	Senior Engineer of Loco. Facilities Department
Mr. M. Batku	Senior Engineer of Design Division
Mr. L. Tudev	Deputy-Chief of Economic Department

**Appendix 2-2-1 Freight Transport Volume by Commodities**

(thous. ton)

Item	1985	1986	1987	1988	1989	1990	1991
Export	2116.2	2144.2	2339.7	2829.0	2873.3	2753.4	1706.8
	100.0	101.3	110.6	133.7	135.8	130.1	80.7
Import	4356.0	4080.5	3711.3	3709.0	2959.7	2209.7	1281.2
	100.0	93.7	85.2	85.1	67.9	50.7	29.4
Transit	1473.9	1802.6	1549.2	1353.8	1268.1	978.4	168.6
	100.0	122.3	105.1	91.9	86.0	66.4	11.4
Domestic	7083.6	7902.1	9152.6	9958.4	9691.1	8575.6	7113.2
	100.0	111.6	129.2	140.6	136.8	121.1	100.4
Total	15029.7	15929.4	16752.8	17850.2	16792.2	14517.1	10269.8
	100.0	106.0	111.5	118.8	111.7	96.6	68.3

Source: Mongolia Railway Statistics

Note: Upper column: Volume

Lower column; Index standardized 1985

## Appendix 2-2-2 Railway Freight Transportation Volume by Export Items

(thous. ton)

Commodity	1985	1986	1987	1988	1989	1990	1991
Coal	226.6 100.0	301.6 133.1	602.5 265.9	1055.5 465.8	779.8 344.1	515.9 227.7	119.0 52.5
Oil	5.9 100.0	5.0 84.7	2.6 44.1	5.4 91.5	55.0 932.2	65.0 1101.7	2.4 40.7
Steel	59.9 100.0	91.8 153.3	83.9 140.1	80.4 134.2	92.7 154.8	80.6 134.6	25.5 42.6
Machine facility	18.2 100.0	12.6 69.2	13.4 73.6	16.1 88.5	11.0 60.4	69.5 381.9	19.1 104.9
Construction materials	74.8 100.0	120.3 160.8	151.4 202.4	125.9 168.3	118.4 158.3	106.7 142.6	131.3 175.5
Wheat and cereal	46.6 100.0	178.4 382.8	75.3 161.6	169.0 362.7	69.3 148.7	52.0 111.6	30.0 64.4
Raw foods	29.3 100.0	53.6 182.9	38.1 130.0	27.6 94.2	57.2 195.2	32.7 111.6	21.0 71.7
Livestock	18.5 100.0	19.6 105.9	17.5 94.6	14.7 79.5	14.3 77.3	13.3 71.9	8.8 47.6
Wool	17.8 100.0	15.8 88.8	14.1 79.2	15.7 88.2	18.2 102.2	10.2 57.3	2.6 14.6
Fluorite	783.6 100.0	571.1 72.9	537.3 68.6	653.9 83.4	686.0 87.5	632.4 80.7	356.8 45.5
Chemical materials	0.5 100.0	1.0 200.0	1.9 380.0	7.7 1540.0	1.5 300.0	14.4 2880.0	3.2 640.0
Fertilizer	0.0	0.0	0.0	0.0	5.3 100.0	24.2 456.6	39.3 741.5
Foods	13.8 100.0	5.3 38.4	10.1 73.2	12.7 92.0	12.4 89.9	6.5 47.1	1.6 11.6
Fuel	12.1 100.0	8.4 69.4	3.8 31.4	2.2 18.2	6.5 53.7	9.1 75.2	2.5 20.7
Wood	176.1 100.0	157.7 89.6	134.5 76.4	93.7 53.2	94.8 53.8	68.0 38.6	64.9 36.9
*Copper concentration	408.0 100.0	397.1 97.3	398.7 97.7	406.7 99.7	517.7 126.9	557.1 136.5	450.7 110.5
Non ferrous metal	1.3 100.0	1.8 138.5	2.6 200.0	2.8 215.4	3.8 292.3	4.5 346.2	5.5 423.1
Others	223.2 100.0	203.1 91.0	252.0 112.9	139.0 62.3	329.4 147.6	491.3 220.1	422.6 189.3
Total	2116.2 100.0	2144.2 101.3	2339.7 110.6	2829.0 133.7	2873.3 135.8	2753.4 130.1	1706.8 80.7

Source: Mongolia Railway Statistics

Note: Upper column; Volume  
Lower column; Index standardized 1985

Note: \* this commodity changes 'iron ore' in export case

### Appendix 2-2-3 Railway Freight Transportation Volume by Import Items

(thous. ton)

Commodity	1985	1986	1987	1988	1989	1990	1991
Coal	333.2 100.0	469.6 140.9	398.5 119.6	349.9 105.0	287.1 86.2	180.1 54.1	198.2 59.5
Oil	1160.7 100.0	1081.4 93.2	1149.2 99.0	1174.7 101.2	1034.1 89.1	817.2 70.4	634.2 54.6
Steel	230.0 100.0	219.5 95.4	215.2 93.6	249.7 108.6	260.0 113.0	227.5 98.9	49.9 21.7
Machine facility	137.2 100.0	123.7 90.2	132.3 96.4	140.4 102.3	123.4 89.9	106.6 77.7	23.1 16.8
Construction materials	1455.6 100.0	1130.0 77.6	844.0 58.0	798.0 54.8	573.5 39.4	306.8 21.1	94.7 6.5
Wheat and cereal	70.9 100.0	61.0 86.0	56.0 79.0	55.7 78.6	72.8 102.7	50.7 71.5	92.2 130.0
Raw foods	55.1 100.0	66.1 120.0	54.6 99.1	62.8 114.0	49.7 90.2	34.0 61.7	12.4 22.5
Livestock	0.4 100.0	0.2 50.0	0.5 125.0	1.2 300.0	0.4 100.0	0.0 0.0	0.0 0.0
Wool	1.0 100.0	0.6 60.0	4.2 420.0	1.6 160.0	2.5 250.0	1.0 100.0	0.2 20.0
Fluorite	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemical materials	109.8 100.0	98.5 89.7	109.2 99.5	120.7 109.9	91.8 83.6	64.8 59.0	23.1 21.0
Fertilizer	0.0	0.0	0.0	1.5 100.0	9.6 640.0	53.7 3580.0	35.5 2366.7
Foods	116.6 100.0	114.1 97.9	114.5 98.2	121.3 104.0	117.0 100.3	108.2 92.8	45.1 38.7
Fuel	20.5 100.0	30.1 146.8	17.5 85.4	12.1 59.0	12.2 59.5	8.3 40.5	4.1 20.0
Wood	75.4 100.0	86.0 114.1	69.9 92.7	57.9 76.8	40.1 53.2	19.0 25.2	9.7 12.9
*Copper concentrate	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non ferrous metal	5.3 100.0	3.5 66.0	6.5 122.6	5.7 107.5	3.8 71.7	3.6 67.9	0.6 11.3
Others	584.3 100.0	596.2 102.0	539.2 92.3	555.8 95.1	341.7 58.5	228.2 39.1	58.2 10.0
Total	4356.0 100.0	4080.5 93.7	3711.3 85.2	3709.0 85.1	2959.7 67.9	2209.7 50.7	1281.2 29.4

Source: Mongolia Railway Statistics

Note: Upper column; Volume

Lower column; Index standardized 1985

**Appendix 2-2-4 Railway Freight Transportation Volume by Transit Commodities**

Commodity	1985	1986	1987	1988	1989	1990	1991
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Steel	556.6 100.0	707.8 127.2	770.0 138.3	615.7 110.6	549.2 98.7	433.1 77.8	10.9 2.0
Machine facility	67.9 100.0	41.1 60.5	23.4 34.5	23.6 34.8	26.5 39.0	32.3 47.6	21.6 31.8
Construction materials	116.6 100.0	163.4 140.1	2.5 2.1	1.6 1.4	1.4 1.2	1.1 0.9	0.0 0.0
Wheat and cereal	0.0	0.6	0.0	10.0	0.0 0	0.0 0	0.0
Raw foods	0.0	0.0	0.0	0.9	0.0	0.0	0.0
Livestock	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Wool	0.0	0.0	2.1 100.0	1.8 85.7	2.0 95.2	1.8 85.7	0.0 0.0
Fluorite	183.8 100.0	183.8 100.0	120.0 65.3	74.4 40.5	110.8 60.3	132.5 72.1	0.0 0.0
Chemical materials	100.2 100.0	101.1 100.9	106.8 106.6	118.8 118.6	99.7 99.5	75.3 75.1	35.9 35.8
Fertilizer	0.0	0.0	0.0	0.0	67.2 100.0	38.2 56.8	79.6 114.0
Foods	71.8 100.0	71.8 100.0	81.1 113.0	89.0 124.0	92.4 128.7	102.2 142.3	2.4 3.3
Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wood	204.5 100.0	331.6 162.2	241.4 118.0	193.5 94.6	166.5 81.4	39.4 19.3	0.0 0.0
*Copper concentrate	0.1 100.0	0.3 300.0	8.2 8200.0	13.5 13500.0	9.9 9900.0	10.1 10100.0	0.0 0.0
Non ferrous metal	33.4 100.0	53.8 161.1	52.9 158.4	53.2 159.3	52.1 156.0	19.5 58.4	8.8 26.3
Others	139.0 100.0	147.3 106.0	140.6 101.2	157.8 113.5	90.4 65.0	92.9 66.8	12.4 8.9
Total	1473.9 100.0	1802.6 122.3	1549.2 105.1	1353.8 91.9	1268.1 86.0	978.4 66.4	168.6 11.4

Source: Mongolia Railway Statistics

Note: Upper column; Volume  
Lower column; Index standardized 1985

**Appendix 2-2-5 Railway Freight Transportation Volume by Domestic Commodities**

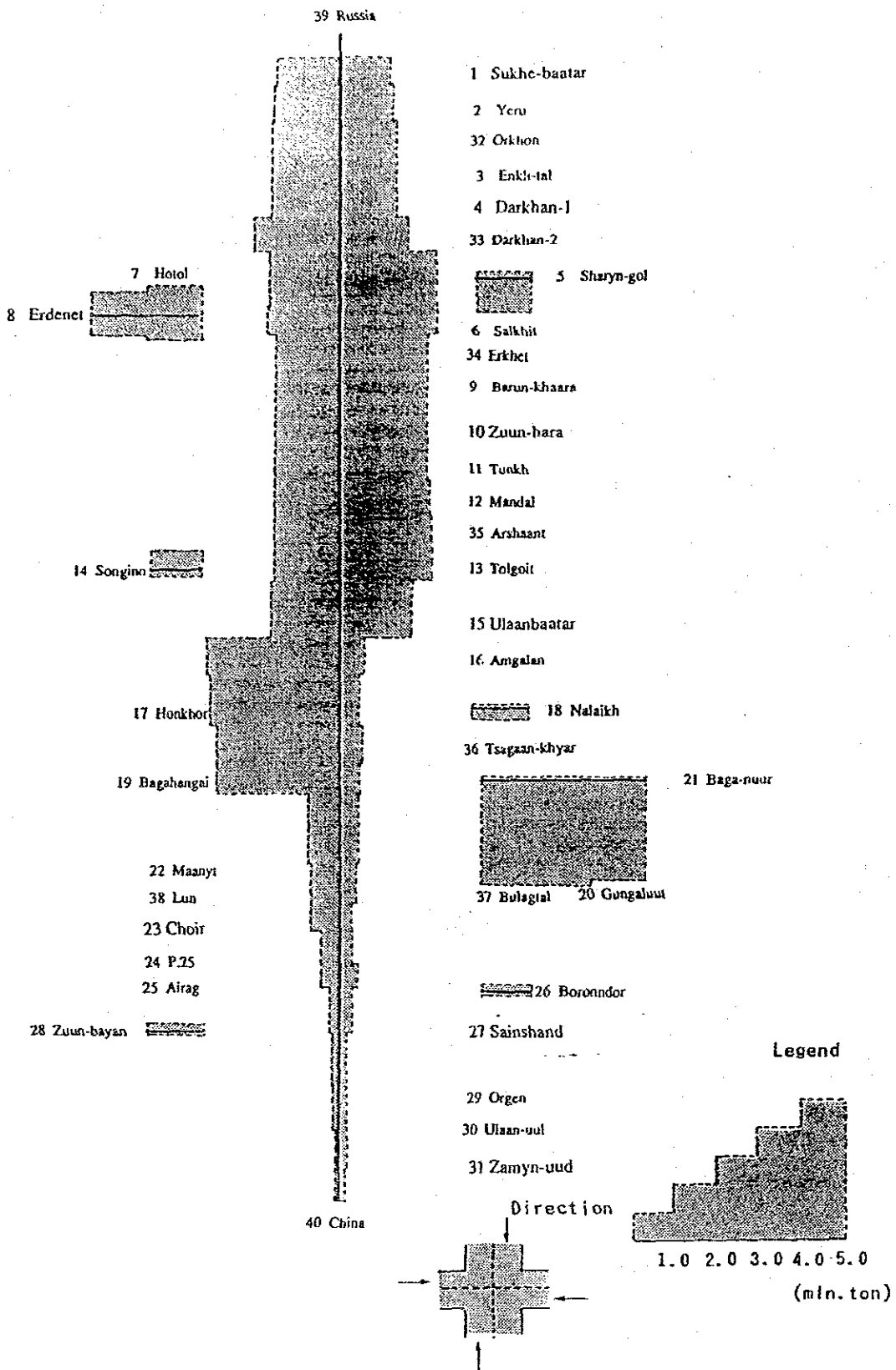
Commodity	1985	1986	1987	1988	1989	1990	1991
Coal	4046.9 100.0	4533.3 112.0	5023.0 124.1	5342.2 132.0	5073.7 125.4	4830.0 119.4	4910.1 121.3
Oil	79.3 100.0	40.4 50.9	29.3 36.9	21.5 27.1	43.8 55.2	32.3 40.7	26.3 33.2
Steel	34.9 100.0	70.8 202.9	73.8 211.5	85.3 244.4	55.9 160.2	25.3 72.5	23.1 66.2
Machine facility	43.7 100.0	48.5 111.0	45.7 104.6	34.6 79.2	14.6 33.4	11.3 25.9	9.6 22.0
Construction materials	1563.1 100.0	1831.1 117.1	2564.7 164.1	3148.5 201.4	3301.4 211.2	2693.9 172.3	1414.5 90.5
Wheat and cereal	81.6 100.0	82.7 101.3	67.1 82.2	89.4 109.6	91.5 112.1	66.0 80.9	45.5 55.8
Raw foods	27.9 100.0	12.2 43.7	21.6 77.4	15.5 55.6	11.3 40.5	10.3 36.9	6.9 24.7
Livestock	13.4 100.0	16.6 123.9	14.5 108.2	10.0 74.6	9.9 73.9	9.3 69.4	8.9 66.4
Wool	8.4 100.0	9.9 117.9	10.2 121.4	10.0 119.0	9.0 107.1	7.4 88.1	5.1 60.7
Fluorite	0.1 100.0	0.1 100.0	3.8 3800.0	78.6 78600.0	77.9 77900.0	105.5 105500.0	104.4 104400.0
Chemical materials	4.5 100.0	4.2 93.3	4.2 93.3	6.0 133.3	3.6 80.0	10.6 235.6	2.1 46.7
Fertilizer	0.0	0.0	0.0	0.0	0.0	0.0	0.9 100.0
Foods	31.3 100.0	44.9 143.5	29.1 93.0	47.9 153.0	49.9 159.4	39.7 126.8	24.9 79.6
Fuel	253.7 100.0	294.1 115.9	299.7 118.1	268.1 105.7	221.2 87.2	151.9 59.9	101.2 39.9
Wood	523.8 100.0	570.8 109.0	599.6 114.5	474.2 90.5	441.0 84.2	375.9 71.8	258.5 49.4
*Copper concentrate	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non ferrous metal	0.0	0.0	0.4 100.0	1.3 325.0	0.6 150.0	0.3 75.0	0.7 175.0
Others	371.0 100.0	342.5 92.3	365.9 98.6	325.3 87.7	285.8 77.0	205.9 55.5	170.5 46.0
Total	7083.6 100.0	7902.1 111.6	9152.6 129.2	9958.4 140.6	9691.1 136.8	8575.6 121.1	7113.2 100.4

Source: Mongolia Railway Statistics

Note: Upper column; Volume

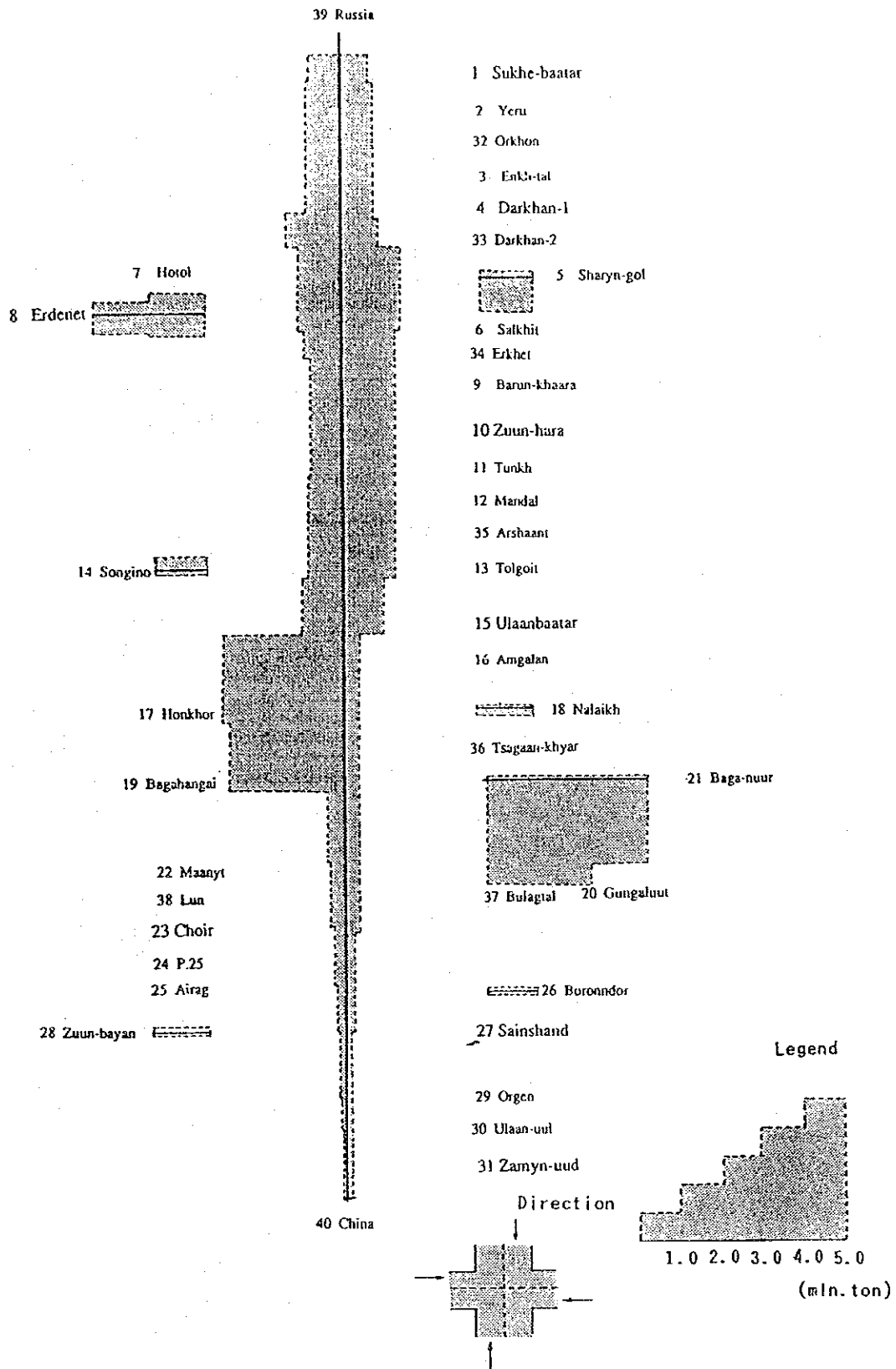
Lower column; Index standardized 1985

# Appendix 2-2-6 Shipping Freight Volume between Each Station (1990)





# Appendix 2-2-7 Shipping Freight Volume between Each Station (1991)



Appendix 2-2-8 Shipping Freight Volume between Each Station (1990) (thous. ton)

LINK	station (A)	station (B)	A	B	TOTAL
1	39 RUSSIA	1 SUKHE-BAATAR[68]	1885.30	2132.20	4017.50
2	1 YERU	2 YERU [32]	1981.31	2375.07	4356.38
3	32 ORKHON	3 ENKII-TAL [124]	2009.04	2322.07	4331.11
4	3 ENKII-TAL	4 DARKHAN-1 [23]	2011.35	2319.87	4331.22
5	4 DARKHAN-1	33 DARKHAN-2 [116]	2118.15	2304.47	4422.62
6	33 DARKHAN-2	5 SHARYN-COL [69]	2456.65	3079.49	5536.14
7	5 SHARYN-COL	6 SALKHIT [93]	8.70	1552.97	1561.67
8	6 SALKHIT	7 HOTOL [125]	3444.62	2523.19	5967.81
9	7 HOTOL	8 ERDENET [30]	988.52	1018.74	2007.26
10	8 ERDENET	34 ERKHET [45]	802.62	736.70	1539.32
11	34 ERKHET	9 BARUN-KHARA [13]	3146.86	2238.01	5384.87
12	9 BARUN-KHARA	10 ZUUN-HARA [75]	3144.46	2185.81	5330.27
13	10 ZUUN-HARA	11 TUNKII [78]	3115.16	2197.01	5312.17
14	11 TUNKII	12 MANDAL [76]	3209.86	2225.53	5435.39
15	12 MANDAL	35 ARSHAANT [53]	3201.06	2249.33	5450.39
16	35 ARSHAANT	13 TOLGOIT [84]	3180.61	2246.53	5427.14
17	13 TOLGOIT	14 SONGINO [3]	2618.93	1041.30	3660.23
18	14 SONGINO	15 ULANBATAR [95]	2426.16	2426.16	4852.32
19	15 ULANBATAR	16 ANGAN [53]	850.51	4802.11	5652.62
20	16 ANGAN	17 HONKHOR [14]	688.64	4794.52	5483.16
21	17 HONKHOR	18 NALAIKH [22]	17.37	201.40	218.77
22	18 NALAIKH	36 TSAGAAN-KHYAR [18]	660.94	4567.59	5228.53
23	36 TSAGAAN-KHYAR	19 BAGHANCAI [46]	644.14	4524.09	5168.23
24	19 BAGHANCAI	20 BULAGTAL [17]	170.30	3711.64	3881.94
25	20 BULAGTAL	21 GUNCALUUT [65]	170.30	3711.64	3881.94
26	21 GUNCALUUT	22 MAANYT [108]	134.70	3483.94	3618.64
27	22 MAANYT	23 LUN [134]	665.68	986.69	1652.37
28	23 LUN	24 P.25 [17]	559.48	860.96	1420.44
29	24 P.25	25 AIRAG [38]	551.48	841.96	1393.44
30	25 AIRAG	26 BOLONNOR [61]	462.00	675.86	1137.86
31	26 BOLONNOR	27 SAINSHAND [85]	568.10	630.56	1198.66
32	27 SAINSHAND	28 ZUUN-BAYAN [37]	197.50	207.51	405.01
33	28 ZUUN-BAYAN	29 ORCEN [85]	441.91	377.87	819.78
34	29 ORCEN	30 ULAAAN-UUL [37]	30.26	5.60	35.86
35	30 ULAAAN-UUL	31 ZAMYN-UUD [37]	257.41	255.50	512.91
36	31 ZAMYN-UUD	40 CHINA [37]	235.01	190.10	425.11
37	40 CHINA		154.61	35.30	189.91
38			94.12	10.80	104.92
39					

Appendix 2-2-9 Shipping Freight Volume between Each Station (1991) (thous. ton)

LINK	station (A)	station (B)	A - B	B - A	TOTAL
1	RUSSIA	SUKHIE-BAATAR [68]	1088.60	1194.00	2282.60
2	SUKHIE-BAATAR [32]	YERU [32]	1152.71	1354.19	2506.90
3	YERU	ORKHON	1176.61	1306.89	2482.50
4	ORKHON	ENKH-TAL [124]	1176.61	1304.49	2481.10
5	ENKH-TAL	DARKHAN-1 [23]	1242.51	1301.79	2544.30
6	DARKHAN-1	DARKHAN-2	1393.40	2003.21	3396.61
7	DARKHAN-2	SHARYN-GOL [116]	22.80	1307.94	1330.74
8	DARKHAN-2	SALKHIT [69]	2175.18	1499.11	3674.29
9	SALKHIT	HOTOL [93]	788.14	644.11	1432.25
10	HOTOL	ERDENET [125]	726.84	503.45	1230.29
11	SALKHIT	ERKHET	1813.49	1300.51	3114.00
12	ERKHET	BARUN-KHAARA [13]	1812.49	1250.51	3063.00
13	BARUN-KHAARA [13]	ZUUN-HARA [36]	1805.89	1240.71	3055.60
14	ZUUN-HARA	TUNKH [75]	1844.95	1206.12	3141.07
15	TUNKH	HANDAL [45]	1877.33	1301.22	3178.55
16	HANDAL	ARSHAANT [76]	1870.53	1319.92	3190.45
17	ARSHAANT	TOLGOIT [70]	1868.83	1315.42	3184.25
18	TOLGOIT	SONGINO [84]	35.60	541.50	577.10
19	SONGINO	ULAANBAYAR [3]	1457.56	1505.43	2962.99
20	ULAANBAYAR	ANGALAN [95]	586.12	4361.76	4947.88
21	ANGALAN	HONKHOR [53]	520.51	4338.21	4858.72
22	HONKHOR	NALAIKH [14]	14.50	139.10	153.60
23	HONKHOR	TSAGAAN-KHYAR [14]	502.86	4201.21	4704.07
24	TSAGAAN-KHYAR	BAGAHANGAI [22]	487.56	4137.81	4625.37
25	BAGAHANGAI	BULAGTAL [18]	123.96	3606.59	3730.55
26	BULAGTAL	GUNGALUUT [45]	123.96	3606.03	3729.99
27	GUNGALUUT	BACA-NUBR [108]	91.26	2882.85	2974.11
28	BACA-NUBR	HAANYT [131]	489.65	676.07	1165.72
29	HAANYT	LUN [1]	444.40	555.90	1000.30
30	LUN	CHOIR [134]	444.40	555.90	1000.30
31	CHOIR	P.25 [17]	364.06	459.80	813.86
32	P.25	ATRAC [66]	374.06	402.30	776.36
33	ATRAC	BORONNOR [38]	190.70	164.33	355.03
34	ATRAC	SAINSHAND [61]	279.49	261.90	541.39
35	SAINSHAND	ZUUN-BAYAN [85]	25.86	5.70	31.56
36	SAINSHAND	ORGEN [37]	194.68	230.16	424.84
37	ORGEN	ULAAN-UUL [85]	190.18	156.76	346.94
38	ULAAN-UUL	ZARYN-UUD [37]	177.98	88.36	266.34
39	ZARYN-UUD	CHINA [37]	142.20	81.21	223.41

Appendix 2-2-10 OD Table of Freight Volume (1990) (thous. ton)

station	(1) SUKHE-BA ATAR [68]	(2) YERU [32]	(3) ENKII-TAL [124] I	(4) DARKHAN- SHARYN-G [23] OL [116]	(5) SALKHIY [69]	(6) HOTOL [93]	(7) ENDENET [125] AARATIS A	(8) ZUUN-JIAR [36]	(9) TUNKII [75]	(10) MARDAL [45]	(11) TOTAL	(12) TOTAL
(1) SUKHE-BAATAR [68]	0	0	0	7.3	1	1.1	0	3.1	16.6	2	0	0
(2) YERU [32]	78.1	0	0	7.7	1	1.0	0	0	0	3	1	0
(3) ENKII-TAL [124]	3.5	11.9	0	18.3	1.1	12.1	2.6	3.7	5.5	11.0	9.5	0
(4) DARKHAN-1 [23]	29.4	2.5	0	546.0	0	3.4	14.5	21.6	28.9	1	0	0
(5) SHARYN-COL [116]	6.7	3.4	0	0	0	0	1	0	21.8	0	2	0
(6) SALKHIY [69]	8	5	0	5	2	0	0	0	1.0	1	4	0
(7) HOTOL [93]	3	0	0	105.0	1	0	0	0	0	0	0	0
(8) ENDENET [125]	6	1.2	0	25.3	1	7	1.1	0	14.7	0	0	0
(9) BARUN-KHAAKA [13]	0	0	0	1	0	0	0	0	1.2	0	0	0
(10) ZUUN-JIARA [36]	4.9	7	0	4.9	1.9	7.9	8	6.3	0	1	1.3	0
(11) TUNKII [75]	0	0	0	1	0	0	2	0	0	0	0	2
(12) MARDAL [45]	0	0	0	0	0	0	0	0	0	0	0	0
(13) TOLGOIT [76]	20.3	7	0	22.0	2	0	6.8	1.6	6.0	1.8	2.3	0
(14) SUNGINO [70]	0	0	0	0	0	0	0	0	0	0	1.1	0
(15) ULAMBAYAR [84]	4.3	2	0	11.7	3	2.2	0	2	8.8	6	3	0
(16) AIGALAN [31]	1.9	0	0	3.0	2	4	0	0	1.3	0	0	0
(17) HONKIDIR [95]	0	0	0	0	0	1	0	0	0	0	0	0
(18) NALAIKH [53]	0	0	0	0	0	1	0	0	0	0	0	0
(19) BAKHANGCAL [14]	0	0	0	0	0	0	0	0	0	0	2	0
(20) GUNCALUUT [22]	5.4	1	0	4.9	0	0	0	1	0	0	0	7
(21) BAGA-NUUR [18]	93.8	6.1	0	63.3	0	5.7	75.8	3.0	37.1	1.1	19.1	0
(22) HAANYT [46]	0	0	0	47.9	0	0	0	4	3	0	0	0
(23) CHUIR [108]	0	0	0	0	0	1	16.8	0	0	0	0	0
(24) P. 25 [134]	0	3.1	0	2	0	3.2	0	0	2.3	7.9	1.6	0
(25) AIRAG [11]	0	0	0	0	0	0	0	0	0	0	0	0
(26) BORONNDOR [17]	0	0	0	0	0	0	0	0	0	0	0	0
(27) SAINSHAND [66]	1	0	0	18.8	0	5	41.3	0	3	0	0	0
(28) ZUUN-BAYAN [38]	3	0	0	0	0	0	0	0	0	0	0	0
(29) OIGEN [61]	0	0	0	0	0	0	0	0	0	0	0	0
(30) ULAN-UUL [85]	0	0	0	0	0	0	0	0	0	0	0	0
(31) ZAKYR-UUD [37]	0	0	0	0	0	14.2	0	0	0	0	0	0
(32) OKKION [33]	0	0	0	0	0	0	0	0	0	0	0	0
(33) DAKHJIAN-2 [34]	0	0	0	0	0	0	0	0	0	0	0	0
(34) ERKIET [35]	0	0	0	0	0	0	0	0	0	0	0	0
(35) ARSIIAANT [36]	0	0	0	0	0	0	0	0	0	0	0	0
(36) TSAGAAN-KHIVAR [37]	0	0	0	0	0	0	0	0	0	0	0	0
(37) BULAGTAL [38]	0	0	0	0	0	0	0	0	0	0	0	0
(38) LUN [39]	0	0	0	0	0	0	0	0	0	0	0	0
(39) RUSSIA [40]	20.8	0	0	222.2	3.6	16.3	104.3	6.9	2.3	0	0	0
(40) CHINA [41]	.07	.00	.00	.12	.00	.60	.00	.42	.12	.00	.00	.00
(41) TOTAL	271.27	30.40	.00	1093.12	8.70	69.20	264.90	802.62	48.10	148.72	23.20	38.30

	(13) TOLGOIT [76]	(14) SONGINO [70] AR	(15) ULAANBAT [84] AR	(16) ANGALAN [3]	(17) HONKHOR [95]	(18) MALAIKH [53] AI	(19) BAGAHANG [14] T	(20) GUNGALUU [22] R	(21) BAGA-NUU [18] HAANYT	(22) HAANYT [46]	(23) CHUIR [108]	(24) P. 25 [134]
(1) SUKHE-BAATAR [68]	29.2	.0	25.7	2.6	1.0	.0	.3	.0	.1	.2	10.6	.0
(2) YERU [32]	10.4	.0	11.4	3.7	.0	.0	2.8	.5	.0	.0	.2	.0
(3) ENKH-TAL [124]	7.6	.0	11.0	3.7	.0	.0	10.1	.0	1.2	2.0	1.1	.0
(4) DAKHIAN-1 [23]	49.4	.0	337.0	9.6	3.8	.1	2.0	.0	10.0	1.6	16.3	.4
(5) SHAKYN-COL [116]	41.1	.0	670.0	1.2	.2	.2	.3	.4	.0	.0	.1	.0
(6) SALKHIT [69]	1.6	.0	1.4	2.1	.2	.0	.0	.0	.3	.0	.0	.0
(7) HOTOL [93]	1.1	.0	166.0	2.9	.0	.1	.0	.0	1.5	.0	.0	.0
(8) ERDENET [125]	32.9	.0	38.2	9.1	4.0	.0	13.1	23.2	21.4	1.2	1.3	.0
(9) BARUN-KHAAKA [13]	3.3	.0	.0	2.0	4.0	.1	.0	.1	.0	.0	1.1	.0
(10) ZUUN-IIARA [36]	29.6	.0	12.2	17.4	.7	.8	2.0	.4	.5	3.4	12.8	.4
(11) TUNKH [75]	14.1	.0	43.1	14.6	.0	.0	.6	.0	.0	.0	.1	.0
(12) MANDAL [45]	.2	.0	.0	.1	.0	.0	.8	.0	.0	.2	.2	.0
(13) TOLGOIT [76]	.0	.0	31.1	1.7	.0	.2	1.2	.1	18.9	2.3	4.3	.1
(14) SONGINO [70]	1032.0	.0	.0	.0	1.1	.0	1.0	.0	.0	1.1	.0	.0
(15) ULAANBATAR [84]	2.4	.0	.0	6.2	.4	.6	2.7	.0	1.9	4.0	10.0	.5
(16) ANGAN [3]	2.3	.0	4.0	.0	.0	.0	.2	.0	.0	.7	1.7	.1
(17) HONKHOR [95]	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(18) NALAIKH [53]	69.1	.7	103.0	.6	.0	.0	.2	.0	.0	.0	.1	.0
(19) BAGAHANGAI [14]	.0	.0	103.4	1.3	.0	.0	.0	1.5	.7	.0	1.2	.0
(20) GUNGALUUT [22]	10.7	.0	176.0	8.3	.5	.0	.6	.0	.0	2.1	4.1	.5
(21) BAGA-NUUR [18]	229.0	.0	2172.0	24.5	3	.0	6.0	.0	.0	18.1	5.6	7.7
(22) HAANYT [46]	2.2	.0	2.3	.0	.0	.0	.0	.0	.3	.0	.4	.1
(23) CHUIR [108]	9.4	.0	2.0	1.8	.2	.6	1.6	.8	2.2	.1	.0	.5
(24) P. 25 [134]	3.6	.0	1.1	1.2	.7	.6	.0	6.5	1.9	.0	6.0	.0
(25) AIRAG [11]	.1	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.2
(26) BORHONDOR [17]	.2	.0	.1	.0	.0	.0	.0	.0	1.1	.0	.0	.0
(27) SAINSHAND [66]	1.2	.0	2.0	.8	.0	.0	.3	.0	.0	.0	.5	.1
(28) ZUUN-BAYAN [38]	.4	.0	.7	2.8	.4	.0	.0	.0	.0	.0	.7	.0
(29) ORCEN [61]	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0
(30) ULAAN-UUL [85]	.0	.0	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0
(31) ZAMYN-UUD [37]	.2	.0	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0
(32) OKHIUN [32]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(33) DAKHIAN-2 [33]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(34) ERKHET [34]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(35) ARSHAANT [35]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(36) TSAGAAN-KHIYAR [36]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(37) BULAGTAL [37]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(38) LUN [38]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(39) RUSSIA [39]	462.0	.0	494.3	104.9	3.4	14.0	.2	.0	74.7	30.6	26.4	.0
(40) CHINA [40]	8.83	.00	8.65	.71	.00	.07	.00	.00	.00	.07	.00	.00
(41) TOTAL	2040.23	.70	4301.05	218.91	16.90	17.37	47.00	35.60	134.70	67.67	104.70	10.60

	(25) AIRAG [11 R	(26) BORONDO [17] O	(27) SAIRSHAN [66] O	(28) ZUUN-BAY [66] AN	(29) ORGEN [61] AN	(30) ULAAN-UUL [85] D	(31) ZAHYN-UUL [37] D	(32) ORKHON 2	(33) DARKHAN- 2	(34) ERKHET	(35) ARSHIANT KHAYAR	(36) TSAGAAN- KHAYAR
(1) SUKHE-BAATAR [68]	.2	0	10.4	.2	1	.4	1	.0	.0	.0	.0	.0
(2) YERU [32]	.0	.6	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
(3) ENKH-TAL [124]	3.0	0	3.0	.0	.0	3.1	.0	.0	.0	.0	.0	.0
(4) DARKHAN-1 [23]	1.8	1.4	23.7	1.6	1.8	3.2	.0	.0	.0	.0	.0	.0
(5) SHARYN-COL [116]	.0	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0
(6) SALKHIT [69]	.0	.0	5.8	.0	.0	1.1	2.0	.0	.0	.0	.0	.0
(7) HOTOL [93]	.0	1.0	1	.0	1	1.4	.0	.0	.0	.0	.0	.0
(8) ERDENET [125]	1.1	3.1	5.1	.3	2.4	3.9	.7	.0	.0	.0	.0	.0
(9) BAKUN-KHAKA [13]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(10) ZUUN-HAKA [36]	1.0	3.8	12.9	.2	.2	.4	.4	.0	.0	.0	.0	.0
(11) TUNKII [75]	.0	1.6	.5	.0	.0	5.1	.0	.0	.0	.0	.0	.0
(12) MANDAL [45]	.0	.0	1.2	1.3	.0	.2	.0	.0	.0	.0	.0	.0
(13) FOLGOLT [70]	.6	3.0	15.7	2.5	1.9	1.2	11.0	.0	.0	.0	.0	.0
(14) SONGINO [70]	.0	.0	3.5	.1	2.2	.0	1.2	.0	.0	.0	.0	.0
(15) ULAANBATAR [84]	.9	.6	22.5	.3	3.3	.2	5.1	.0	.0	.0	.0	.0
(16) AKALAN [3]	1	.2	3.5	2.6	1.2	1.2	.8	.0	.0	.0	.0	.0
(17) HONKHOR [95]	.0	.0	.8	1.2	.0	.0	.0	.0	.0	.0	.0	.0
(18) NALAIKH [53]	.0	.0	.7	.0	.0	.1	.1	.0	.0	.0	.0	.0
(19) BAGAHANGAI [14]	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
(20) GUNGALUUT [22]	.6	.0	2.3	1.2	.0	.0	.0	.0	.0	.0	.0	.0
(21) BAGA-UUJ [18]	4.7	64.5	22.2	9.8	1	.6	2.8	.0	.0	.0	.0	.0
(22) WAANY [46]	.0	19.6	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
(23) CHDIR [108]	.9	2.2	5.2	.8	.0	.2	.0	.0	.0	.0	.0	.0
(24) P 25 [131]	6.9	2.2	8.2	1.2	16.5	47.7	33.7	.0	.0	.0	.0	.0
(25) AIRAG [11]	.0	22.0	5.4	.0	.2	2.2	.0	.0	.0	.0	.0	.0
(26) BORRNDOR [17]	1	.0	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0
(27) SAINSHAND [60]	.5	.0	.0	1.4	1.0	7.3	1.8	.0	.0	.0	.0	.0
(28) ZUUN-BAYAN [38]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(29) OKGEN [61]	.0	65.0	.0	.0	.0	4.4	.0	.0	.0	.0	.0	.0
(30) ULAAN-UUL [85]	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
(31) ZAHYN-UUD [37]	.0	.0	.2	.0	.2	.3	.0	.0	.0	.0	.0	.0
(32) ORKHON	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(33) DARKHAN-2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(34) ERKHET	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(35) ARSHIANT	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(36) TSAGAAN-KHAYAR	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(37) BULAGTAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(38) LUN	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(39) RUSSIA	3.1	8.9	15.0	5.5	.1	1	3	.0	.0	.0	48.9	16.8
(40) CHINA	.01	.00	.07	.03	.00	.00	.00	.00	.00	.00	.00	.00
(41) TOTAL	25.51	197.50	168.87	30.26	27.00	80.70	60.60	.50	.00	2.40	48.90	16.80

	(37) BULAGTAL LUN	(38)	(39) RUSSIA	(40) CHINA	(41) TOTAL
( 1) SUKHE-BAATAR [68]	.0	.0	7.6	3.7	124.41
( 2) YERU [32]	.0	.0	5.3	.3	111.13
( 3) ENKH-TAL [124]	.0	.0	.0	.0	122.20
( 4) DARKHAN-1 [23]	.0	.0	37.7	.0	658.60
( 5) SHARYN-COL [116]	.0	.0	3.2	.3	1552.97
( 6) SALXIT [69]	.0	.0	7.8	.0	26.40
( 7) HOTUL [93]	.0	.0	6.0	.2	361.04
( 8) ERDENET [125]	.0	.0	626.5	6.5	736.70
( 9) BARUN-KHANA [13]	.0	.0	1.4	.0	7.60
(10) ZUUN-HARA [36]	.0	.0	9.6	19.0	157.50
(11) TUNKH [75]	.0	.0	.2	.0	80.60
(12) MANDAL [45]	.0	.0	1.5	.0	5.70
(13) TULCOIT [76]	.0	.0	70.0	12.8	258.32
(14) SONGINO [70]	.0	.0	.0	.0	1041.30
(15) ULAANBATAR [84]	.0	.0	58.0	6.8	156.68
(16) AKGALAN [ 3]	.0	.0	37.0	.5	64.63
(17) HONKHOR [95]	.0	.0	20.2	.0	32.10
(18) MALAIKH [53]	.0	.0	36.5	.0	201.40
(19) BAGAARGAI [14]	.0	.0	.0	.0	5.60
(20) GUNGALUUT [22]	.0	.0	.0	.0	227.70
(21) BAGA-NUUR [18]	.0	.0	459.3	8.8	3483.94
(22) HAANYT [46]	.0	.0	58.0	.0	146.20
(23) CHOIR [108]	.0	.0	138.0	.4	181.32
(24) P. 25 [134]	.0	.0	.0	.0	162.00
(25) AIRAG [ 1]	.0	.0	51.2	.0	81.60
(26) BOKONDOOR [17]	.0	.0	263.8	.3	267.61
(27) SAINSHAND [66]	.0	.0	50.7	3.0	131.90
(28) ZUUN-BAYAN [38]	.0	.0	.0	.0	5.50
(29) ORGON [61]	.0	.0	.0	.0	70.00
(30) ULAAN-UUL [85]	.0	.0	154.1	.0	155.10
(31) ZAHYN-UUD [37]	.0	.0	.0	.1	15.61
(32) OIKHON [  ]	.0	.0	2.2	2.8	5.01
(33) DARKHAN-2 [  ]	.0	.0	.0	.0	.00
(34) ENKHET [  ]	.0	.0	52.2	.0	52.20
(35) ARSHAANT [  ]	.0	.0	2.8	28.5	31.25
(36) TSAGAAN-KUYAR [  ]	.0	.0	43.5	.0	43.50
(37) BULAGTAL [  ]	.0	.0	.0	.0	.00
(38) LUN [  ]	.0	.0	19.0	.0	19.00
(39) RUSSIA [  ]	.0	8.0	.0	.0	1885.30
(40) CHINA [  ]	.00	.00	.00	.00	19.80
(41) TOTAL	.00	8.00	2132.20	94.12	12687.32

Appendix 2-2-11 OD Table of Freight Volume (1991) (thous. ton)

station	(1) SUKHE-BA AYAR(68)	(2) YERU [32]	(3) ENKHU-TAL [124] I	(4) DARKHAN- [23] OL	(5) SHARYN-G [116]	(6) SALKHIT [69]	(7) HUTOL [93]	(8) ERDENET [125] AARA	(9) BARUN-KH ZUUN-IIAR [36] A	(10) ZUUN-IIAR [36]	(11) TUNKH [75]	(12) MANDAL [45]
(1) SUKHE-BAATAR [68]	0	1	3.0	5.3	0	0	1	3.1	2.0	14.7	0	1.8
(2) YERU [32]	50.7	0	0	2.6	0	0	0	1.0	0	0	0	0
(3) ENKHU-TAL [124]	2.9	1.1	0	7.2	0	1.1	2.4	3.1	2.2	1.6	1.9	2.1
(4) DARKHAN-1 [23]	12.4	0	0	0	19.2	0.4	9.5	37.0	5.1	19.4	0	1.9
(5) SHARYN-GOL [116]	4.8	0	0	501.0	0	0	29.5	240.0	0	11.3	0	0
(6) SALKHIT [69]	1	0	0	1	0	0	0	0	0	4	0	1
(7) HUTOL [93]	2	0	0	81.1	0	0	0	49.0	0	4	0	0
(8) ERDENET [125]	1	0	0	12.4	2	0	1.6	0	1.6	1.8	2.0	0
(9) BARUN-KHAARAL [13]	0	0	0	0	0	0	0	1	0	7	1	7
(10) ZUUN-IIARA [36]	1.1	9	1	6.0	6	2.3	1	1.3	2.3	0	1.3	2.8
(11) TUNKH [75]	0	0	0	3	0	0	1	0	0	2	0	5
(12) MANDAL [45]	0	0	0	0	0	0	0	1	0	0	0	0
(13) TOLGOIT [76]	6.9	1	0	13.9	7	0	6.7	10.0	3	4.3	1.8	0
(14) SONGINO [70]	0	0	0	0	0	0	0	0	0	0	0	0
(15) ULANBATAR [84]	2.6	0	0	11.4	0	1.4	0	2.4	0	6.5	0	3
(16) ARGALAN [3]	0	0	0	5	1	0	0	5	6	0	0	0
(17) HONKHOR [95]	0	0	0	1	0	0	0	1	1	0	0	1
(18) HALAIKH [53]	0	0	0	0	0	0	0	0	0	0	0	0
(19) BAGAHANGAI [14]	0	0	0	0	0	0	0	0	2	0	0	0
(20) GUNGALUUT [22]	40.9	0	0	35.8	0	5.4	0	11.4	1.4	26.5	0	10.1
(21) BAGÄ-NUUR [18]	42.1	1	1	36.0	0	1.5	0	84.6	7	26.3	1.6	7.0
(22) MAANYT [46]	1	0	0	33.3	0	0	0	11.0	0	0	0	0
(23) CHOIR [108]	0	0	0	2.8	0	5.7	2.4	0	1	1	1	0
(24) P. 25 [131]	1.6	3.3	1.0	2.1	0	6	1.0	3	0	1.0	2.2	1.0
(25) AIRAG [1]	0	0	0	0	0	1	0	1	0	0	0	0
(26) BORONNOR [17]	0	0	0	2	0	0	2	8	1	0	0	0
(27) SAINSHAND [60]	0	0	0	16.0	0	1	3.5	1	0	1	0	0
(28) ZUUN-BAYAN [38]	0	0	0	2	3	0	0	9	0	0	0	0
(29) ORCEN [61]	0	0	0	0	0	0	0	0	0	0	0	0
(30) ULAAN-UUL [85]	0	0	0	0	0	0	0	0	0	0	0	0
(31) ZAHYN-UUD [37]	0	0	0	1	0	5.3	0	1	0	1	0	0
(32) ORKHON	0	0	0	0	0	0	0	0	0	0	0	0
(33) DARKHAN-2	0	0	0	0	0	0	0	0	0	0	0	0
(34) ERKHET	0	0	0	0	0	0	0	0	0	0	0	0
(35) ARSHAANT	0	0	0	0	0	0	0	0	0	0	0	0
(36) TSAGAN-KHIYAR	0	0	0	0	0	0	0	0	0	0	0	0
(37) BULACTAL	0	0	0	0	0	0	0	0	0	0	0	0
(38) LUN	0	0	0	0	0	0	0	0	0	0	0	0
(39) RUSSIA	20.1	0	0	156.7	1.6	4.2	55.5	169.4	9	1.4	2	0
(40) CHINA	1.29	60	0	1.12	0	2.16	0	34	0	51	0	0
(41) TOTAL	187.89	5.90	4.30	926.32	22.80	31.66	111.90	726.84	17.60	117.41	12.30	28.90

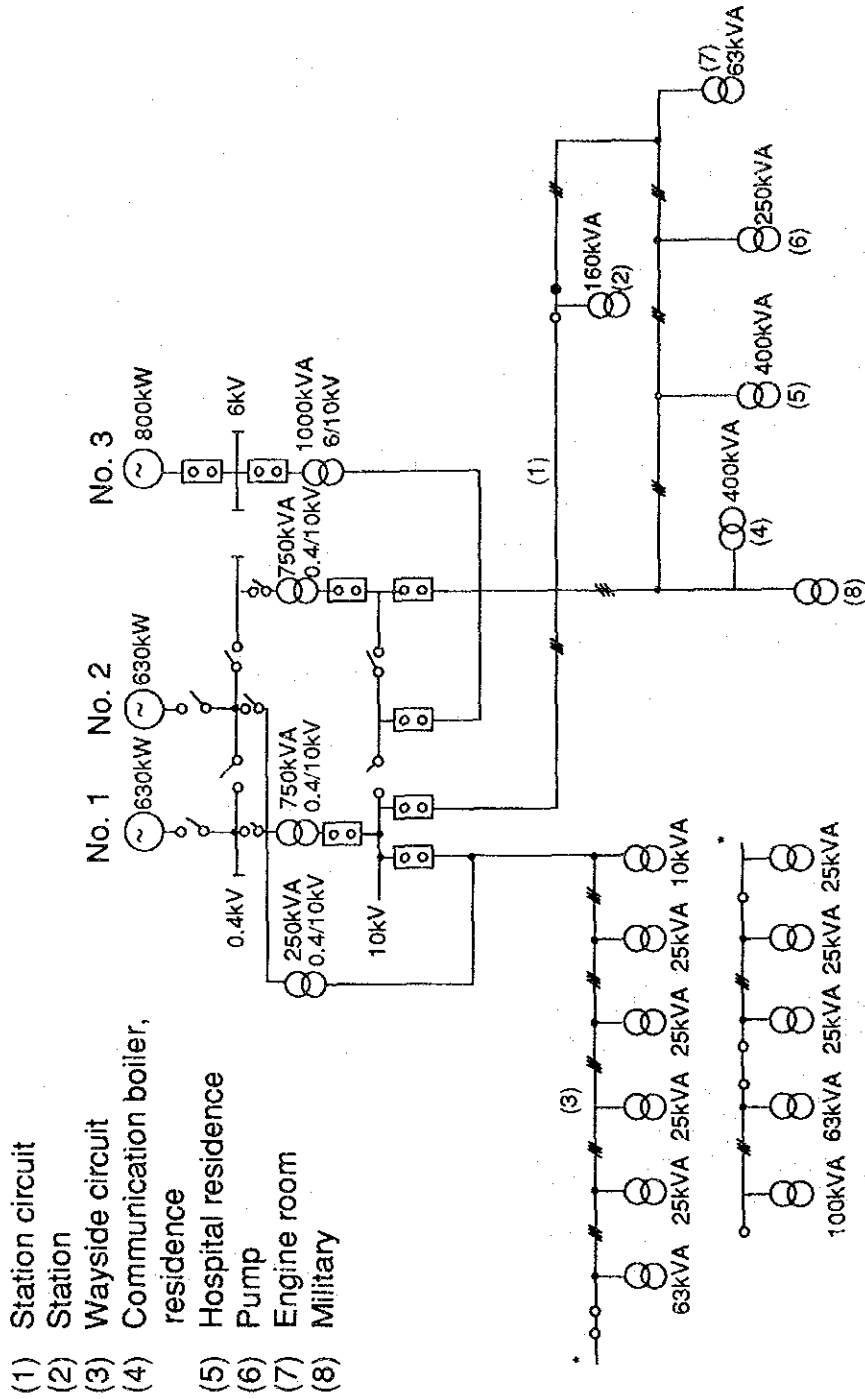


	(13) TOLGOIT [76]	(14) SONGINO [70]	(15) UULAANBAT AR [84]	(16) ANGALAN [3]	(17) HONKHOR [95]	(18) NALAIKH [53]	(19) BAGAHANG AI [14]	(20) GUNGALUU [22]	(21) BACA-NUU K [18]	(22) HAANYT [46]	(23) CHOIR [108]	(24) P.25 [134]
(1) SUKHE-BAATAR [58]	22.2	.0	10.4	2.9	3	1	.0	.0	.5	.0	2.0	.0
(2) YERU [32]	6.1	.0	9.6	4.1	.0	.0	.0	.0	.0	.0	.0	.0
(3) ENKH-TAL [124]	15.9	.9	2.0	1.2	1.0	.2	4.2	.0	2.1	2.1	10.5	2.5
(4) DARKHAN-1 [23]	34.0	.0	162.0	4.6	3.1	1.0	.0	.0	2.7	1.0	10.5	.0
(5) SHARYH-COL [116]	38.9	.0	475.7	3.3	.0	.0	.0	3.8	.0	.0	.0	.0
(6) SALKHIT [69]	4	.0	.0	1.0	.0	.0	.0	.0	1	1	6.1	.0
(7) HOTOL [93]	.0	.0	53.7	.5	.0	.0	.0	.0	1	.0	.0	.0
(8) ERJENET [125]	15.1	.0	30.3	4.7	.0	.6	.0	27.4	8.8	1	1.8	.0
(9) BARUN-KHAKARA [13]	2.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.5	.0
(10) ZUUN-HARA [36]	36.0	.0	14.7	9.8	1.0	.1	1.2	.0	.1	.5	5.2	.3
(11) TUNKH [75]	10.0	.0	19.7	3.4	1	1	.0	.0	4	.0	1.9	.0
(12) MANDAL [45]	.1	.0	.0	.0	.0	.0	.0	.0	1.9	.0	.0	.0
(13) TOLGOIT [76]	.0	34.7	3.0	.7	1	4	2.0	.0	5.9	6.5	8.4	.0
(14) SONGINO [70]	51.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(15) UULAANBAT [84]	4.8	.0	.0	.8	1	4	2.5	.0	4	1	3.5	.2
(16) ANGALAN [3]	.8	.0	1.4	.0	.0	.0	4.9	.0	.5	2	.4	.3
(17) HONKHOR [95]	4	.0	3	.0	.0	.0	.1	.0	.0	.0	.0	.0
(18) NALAIKH [53]	65.4	.0	71.0	.0	.0	.0	.0	.0	.0	.9	1.4	.0
(19) BAGAHANGAI [14]	.0	.0	.1	.1	.0	.0	.0	.0	7	.0	1.6	.0
(20) GUNGALUU [22]	67.6	.0	357.9	13.3	1	.0	2.1	.0	.5	4.4	7.9	.6
(21) BACA-NUUR [18]	89.6	.0	2440.8	13.3	4	.0	3.7	.0	.0	7.7	4.1	1.6
(22) HAANYT [46]	1.4	.0	.1	.0	.0	.0	.0	.0	.1	.0	.0	.0
(23) CHOIR [108]	.0	.0	2.8	1.1	.0	.0	.0	2.0	.1	.0	.0	.3
(24) P.25 [134]	2.6	.0	3.5	.0	.0	.0	.0	.0	.7	.9	36.6	.0
(25) AIRAG [11]	.2	.0	.2	.2	1	.0	.0	.0	.1	.0	.0	.0
(26) BORONDOOR [17]	1	.0	.2	.1	1	.0	.0	.0	.0	.0	.0	.0
(27) SAINSHAND [66]	1.2	.0	2.6	2.6	2	1	.0	.0	1	.0	.3	.0
(28) ZUUN-BAYAN [38]	.5	.0	.6	2.7	1	.0	.0	.0	.0	.0	.0	.0
(29) ORGEN [61]	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(30) ULAAN-UUL [85]	.2	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0
(31) ZAHYN-UUD [37]	.0	.0	.1	.1	.0	.0	.0	.0	.0	.0	.8	.0
(32) ORKHON [33]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(33) DARKHAN-2 [34]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(34) ERKHET [35]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(35) ARSHAANT [36]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(36) TSAGAAR-KHUYAR [37]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(37) BULAGTAL [38]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
(38) LUN [39]	305.2	.0	153.0	46.3	1.3	11.5	.1	.0	65.3	22.3	28.2	.0
(39) RUSSIA [40]	24.91	.0	29.33	.65	.00	.00	.00	.00	.00	20.03	.00	.00
(41) TOTAL	1287.21	35.60	3845.13	114.55	8.00	14.50	20.80	33.20	91.25	66.83	130.80	5.80

(25) AHRAG [ ] R	(26) BORONNDO [17] D	(27) SAINSHAN [65] AN	(28) ZUUN-BAY [38] AN	(29) ORGEN [61] L	(30) ULAAN-UU [85] D	(31) ZAHYN-UU [37] D	(32) ORKHON 2	(33) DARKHAN- ERKIET	(34) ERKIET	(35) AKSHAAKT	(36) TSAGAAN- KHAYAR
(1) SUKHE-BAYAR [68]	1	0	3.5	4	0	1.0	0	0	0	0	0
(2) YERU [32]	0	0	1	0	0	0	0	0	0	0	0
(3) ENKII-TAL [123]	0	2.2	0	0	0	1.5	0	0	0	0	0
(4) DARKHAN-1 [23]	1.1	1.0	6.6	8	1.3	1	0	0	0	0	0
(5) SHARYN-COL [116]	0	0	1	0	0	4	0	0	0	0	0
(6) SALKHIT [69]	0	0	1.4	0	0	2.6	0	0	0	0	0
(7) HOTUL [93]	0	1	0	0	1	0	0	0	0	0	0
(8) ERDENET [125]	1	7	4	9	0	1	0	0	0	0	0
(9) BARUN-KHAARA [13]	0	0	0	0	0	0	0	0	0	0	0
(10) ZUUN-IRAKHA [36]	6	3.4	5.0	1	1	1.3	0	0	0	0	0
(11) TUNKII [75]	1	9	2	0	0	0	0	0	0	0	0
(12) HANDAL [45]	0	1	1.0	0	0	0	0	0	0	0	0
(13) TOLGOIT [76]	9	5.0	14.0	1.9	1.0	0	0	0	0	0	0
(14) SONGINO [70]	0	0	0	0	0	0	0	0	0	0	0
(15) ULAANBAYAR [84]	8	1.3	8.7	1	2	1.7	0	0	0	0	0
(16) AKGALAN [3]	1	0	5	1.9	0	1	0	0	0	0	0
(17) HONKHUR [95]	0	0	1	0	0	0	0	0	0	0	0
(18) HALAIKH [53]	0	0	0	0	0	0	0	0	0	0	0
(19) BAGAHANGAI [14]	0	0	0	0	0	0	0	0	0	0	0
(20) GURCALUUT [22]	3.3	11.5	7.6	8.6	1	1.8	0	0	0	0	0
(21) BAGA-NUUR [18]	1.1	47.3	10.0	2.0	2	1.4	0	0	0	0	0
(22) NAANYT [46]	0	0	1	5	0	0	0	0	0	0	0
(23) CHOIR [108]	7	0	5	0	0	7	0	0	0	0	0
(24) P. 25 [131]	0	0	0	1.6	1.0	20.9	0	0	0	0	0
(25) AIRAC [1]	0	32.0	2	0	0	1	0	0	0	0	0
(26) BORONNOR [17]	0	0	0	0	0	0	0	0	0	0	0
(27) SAINSHAND [68]	8	0	0	1.1	3	5	0	0	0	0	0
(28) ZUUN-BAYAN [38]	0	0	3	0	0	0	0	0	0	0	0
(29) ORGEN [61]	1	72.8	0	0	0	0	0	0	0	0	0
(30) ULAAN-UUL [85]	0	0	2	0	0	0	0	0	0	0	0
(31) ZAHYN-UUD [37]	0	0	6	0	0	0	0	0	0	0	0
(32) ORKHON	0	0	0	0	0	0	0	0	0	0	0
(33) DARKHAN-2	0	0	0	0	0	0	0	0	0	0	0
(34) ERKHET	0	0	0	0	0	0	0	0	0	0	0
(35) AKSHAAKT	0	0	0	0	0	0	0	0	0	0	0
(36) TSAGAAN-KHAYAR	0	0	0	0	0	0	0	0	0	0	0
(37) BULAGTAL	0	0	0	0	0	0	0	0	0	0	0
(38) LUN	0	0	0	0	0	0	0	0	0	0	0
(39) RUSSIA	8	12.4	8.6	5.4	0	0	0	0	1.0	1.9	15.3
(40) CHINA	0	0	20	56	0	05	0	0	0	0	0
(41) TOTAL	10.70	190.70	70.30	25.86	4.50	12.20	37.65	0.00	1.00	1.90	15.30

	(37) BULACTAL LUN	(38)	(39) RUSSIA	(40) CHINA	(41) TOTAL
(1) SIKHIE-BAATAR (68)	.0	.0	7.6	10.6	91.81
(2) YEKU (32)	.0	.0	3.4	.5	78.10
(3) ENKH-TAL (124)	.0	.0	.0	.0	72.90
(4) DANKHAN-1 (23)	.0	.0	40.4	.3	375.79
(5) SHARYN-COL (116)	.0	.0	.3	1.7	1307.94
(6) SALKHIT (69)	.0	.0	.1	.0	12.60
(7) HOTOL (89)	.0	.0	5.9	.1	191.26
(8) ERDENET (125)	.0	.0	361.8	27.6	503.45
(9) BAKUN-KHARA (13)	.0	.0	6.5	.0	11.80
(10) ZHUN-HAKA (36)	.0	.0	4.6	6.5	110.06
(11) TUNKH (75)	.0	.0	.0	.7	39.58
(12) MANDAL (45)	.0	.0	.2	.0	3.40
(13) TOLGOIT (76)	.0	.0	24.6	25.5	180.03
(14) SONCIRKO (70)	.0	.0	.0	.0	541.50
(15) ULAANDATAR (84)	.0	.0	25.3	41.4	117.36
(16) AKALAN (3)	.0	.0	53.3	5.6	72.40
(17) HONKHOR (95)	.0	.0	.2	1.3	2.75
(18) HALAIKH (53)	.0	.0	.0	.0	139.10
(19) BAGAHANGAI (14)	.0	.0	.1	.1	2.00
(20) CUNCALUUT (22)	.0	.0	.0	4.3	723.68
(21) BAGA-NUUR (18)	.0	.0	49.8	9.1	2882.85
(22) RAANYT (46)	.0	.0	95.1	.1	141.75
(23) CHUR (168)	.0	.0	116.5	.5	136.66
(24) P. 25 (13)	.0	.0	.0	.0	83.30
(25) AIRAG (1)	.0	.0	49.3	.0	82.80
(26) BOKHONDOR (17)	.0	.0	161.8	.5	164.33
(27) SAINSHAND (66)	.0	.0	.1	2.7	37.39
(28) ZHUN-BAYAN (38)	.0	.0	.0	.0	5.70
(29) OKCEN (61)	.0	.0	.0	.0	73.40
(30) ULAAR-UUL (85)	.0	.0	67.6	.0	68.40
(31) ZHAYN-UUD (37)	.0	.0	.0	1.7	8.92
(32) ORKHON (32)	.0	.0	1.4	.0	1.40
(33) DAKHAN-2 (33)	.0	.0	.0	.7	.74
(34) ERKHET (34)	.0	.0	50.0	.0	50.00
(35) ARSHAANT (35)	.0	.0	4.5	.2	4.70
(36) TSAGAAN-KHIYAR (36)	.0	.0	63.4	.0	63.40
(37) BULACTAL (37)	.0	.0	.0	.6	.56
(38) LUN (38)	.0	.0	.0	.0	.00
(39) RUSSIA (39)	.0	.0	.0	.0	1088.60
(40) CHINA (40)	.00	.00	.00	.00	81.21
(41) TOTAL	.00	.00	1194.00	142.20	9553.61

Appendix 2-9-1 Electric Power Distribution System (present)



- (1) Station circuit
- (2) Station
- (3) Wayside circuit
- (4) Communication boiler, residence
- (5) Hospital residence
- (6) Pump
- (7) Engine room
- (8) Military

Appendix 3-2-1 Freight Volume of Export by Commodity in 2000 (Thous. ton)

Commodity	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	2000
Coal	226.6 100.0	301.6 133.1	602.5 265.9	1055.5 465.8	779.8 344.1	515.9 227.7	119.0 52.5	100.0 44.1	300 132.4	300.0 132.4	400.0 176.5	497.3 219.5
Oil	5.9 100.0	5.0 84.7	2.6 44.1	5.4 91.5	55.0 932.2	65.0 1101.7	2.4 40.7	2.0 33.9	3 50.8	4.0 67.8	4.0 67.8	5.0 84.7
Steel	59.9 100.0	91.8 153.3	83.9 140.1	80.4 134.2	92.7 154.8	80.6 134.6	25.5 42.6	10.0 16.7	12 20.0	13.0 21.7	20.0 33.4	24.9 41.6
Machine facility	18.2 100.0	12.6 69.2	13.4 73.6	16.1 88.5	11.0 60.4	69.5 381.9	19.1 104.9	13.0 71.4	15 82.4	17.0 93.4	18.0 98.9	22.4 123.1
Construction materials	74.8 100.0	120.3 160.8	151.4 202.4	125.9 168.3	118.4 158.3	106.7 142.6	131.3 175.5	100.0 133.7	110 147.1	115.0 153.7	120.0 160.4	149.2 195.5
Wheat and cereal	46.6 100.0	178.4 383.8	75.3 161.6	169.0 362.7	69.3 148.7	52.0 111.6	30.0 64.4	30.0 64.4	35 75.1	37.0 79.4	40.0 85.8	49.7 106.7
Raw foods	29.3 100.0	53.6 182.9	38.1 130.0	27.6 94.2	57.2 195.2	32.7 111.6	21.0 71.7	20.0 68.3	25 85.3	26.0 88.7	30.0 102.4	37.3 127.3
Livestock	18.5 100.0	19.6 105.9	17.5 94.6	14.7 79.5	14.3 77.3	13.3 71.9	8.8 47.6	9.0 48.6	10 54.1	11.0 59.5	12.0 64.9	14.9 80.5
Wool	17.8 100.0	15.8 88.8	14.1 79.2	15.7 88.2	18.2 102.2	10.2 57.3	2.6 14.6	3.0 16.9	5 28.1	6.0 33.7	10.0 56.2	12.4 69.7
Fluorite	783.6 100.0	571.1 72.9	537.3 68.6	653.9 83.4	686.0 87.5	632.4 80.7	356.8 45.5	300.0 38.3	320 40.8	330.0 42.1	350.0 44.7	425.1 55.5
Chemical materials	0.5 100.0	1.0 200.0	1.9 380.0	7.7 1540.0	1.5 300.0	14.4 2880.0	3.2 640.0	3.0 600.0	5 1000.0	6.0 1200.0	7.0 1400.0	8.7 1740.0
Fertilizer	0.0 100.0	0.0 0.0	0.0 0.0	0.0 0.0	5.3 100.0	24.2 456.6	39.3 741.5	30.0 566.0	35 660.4	38.0 717.0	48.5 735.8	48.5 915.1
Foods	13.8 100.0	5.3 38.4	10.1 73.2	12.7 92.0	12.4 89.9	6.5 47.1	1.6 11.6	5.0 36.2	6 43.5	7.0 50.7	8.0 58.0	9.9 71.7
Fuel	12.1 100.0	8.4 69.4	3.8 31.4	2.2 18.2	6.5 53.7	9.1 75.2	2.5 20.7	3.0 24.8	5 41.3	6.0 49.6	6.0 49.6	7.5 62.0
Wood	176.1 100.0	157.7 89.6	134.5 76.4	93.7 53.2	94.8 53.8	68.0 38.6	64.9 36.9	60.0 34.1	65 36.9	68.0 38.6	70.0 39.8	87.0 49.4
Copper concentration	408.0 100.0	397.1 97.3	398.7 97.7	406.7 99.7	517.7 126.9	557.1 136.5	450.7 110.5	400.0 98.0	425 104.2	450.0 110.5	460.0 112.7	571.9 140.2
Non-ferrous metal	1.3 100.0	1.8 138.5	2.6 200.0	2.8 215.4	3.8 292.3	4.5 346.2	5.5 423.1	3.0 230.8	4 307.7	5.0 384.6	5.0 384.6	6.2 476.9
Others	223.2 100.0	203.1 91.0	232.0 112.9	139.0 62.3	329.4 147.6	491.3 220.1	422.6 189.3	209.0 93.6	220 98.6	245.0 109.8	261.0 116.9	354.5 158.8
Total	2116.2 100.0	2144.2 101.3	2339.7 110.6	2829.0 133.7	2873.3 135.8	2753.4 130.1	1706.8 80.7	1300.0 61.4	1600.0 75.6	1684.0 79.6	1860.0 87.9	2312.5 109.3

Source: Mongolia Railway Statistics (1985 - 1991)

Note: Upper column; Volume

Lower column; Index standardized 1985

Appendix 3-2-2 Freight Volume of Import by Commodity in 2000 (Thous. ton)

Commodity	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	2000
Coal	333.2 100.0	496.6 140.9	398.5 119.6	349.9 105.0	287.1 86.2	180.1 54.1	198.2 59.5	50.0 15.0	50.0 15.0	50.0 15.0	50.0 15.0	62.2 18.7
Oil	1160.7 100.0	1081.4 93.2	1149.2 99.0	1174.7 101.2	1034.1 89.1	817.2 70.4	694.2 54.6	400.0 34.5	590.0 50.8	693.0 59.7	762.0 65.7	947.5 81.6
Steel	230.0 100.0	219.5 95.4	215.2 93.6	249.7 108.6	260.0 113.0	227.5 98.9	49.9 21.7	30.0 13.0	170.0 73.9	180.0 78.3	250.0 108.7	310.9 135.2
Machine facility	137.2 100.0	123.7 90.2	132.3 96.4	140.4 102.3	123.4 89.9	106.6 77.7	23.1 16.8	20.0 14.6	150.0 109.3	190.0 138.5	250.0 182.2	310.9 226.6
Construction materials	1455.6 100.0	1130.0 77.6	844.0 58.0	798.0 54.8	573.5 39.4	306.8 21.1	94.7 6.5	38.0 2.6	53.0 3.6	75.0 5.2	100.0 6.9	124.3 8.5
Wheat and cereal	70.9 100.0	61.0 86.0	56.0 79.0	55.7 78.6	72.8 102.7	50.7 71.5	92.2 130.0	20.0 28.2	30.0 42.3	35.0 49.4	40.0 56.4	49.7 70.2
Raw foods	55.1 100.0	66.1 120.0	54.6 99.1	62.8 114.0	49.7 90.2	34.0 61.7	12.4 22.5	15.0 27.2	18.0 32.7	20.0 36.3	23.0 41.7	28.6 51.9
Livestock	0.4 100.0	0.2 50.0	0.5 125.0	1.2 300.0	0.4 100.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
Wool	1.0 100.0	0.6 60.0	4.2 420.0	1.6 160.0	2.5 250.0	1.0 100.0	0.2 20.0	0.2 30.0	0.5 50.0	0.7 70.0	1.0 100.0	1.2 124.3
Fluorite	0.0 100.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
Chemical materials	109.8 100.0	98.5 89.7	109.2 99.5	120.7 109.9	91.8 83.6	64.8 59.0	23.1 21.0	10.0 9.1	40.0 36.4	50.0 45.5	60.0 54.6	74.6 67.9
Fertilizer	0.0 100.0	0.0 114.1	0.0 114.5	1.5 121.3	9.6 117.0	53.7 108.2	35.5 45.1	30.0 50.0	35.0 70.0	40.0 80.0	50.0 90.0	62.2 111.9
Foods	116.6 100.0	97.9 83.1	98.2 83.1	104.0 92.8	100.3 87.7	92.8 83.7	38.7 34.1	42.9 30.0	60.0 52.8	68.6 58.6	77.2 68.6	96.0 83.1
Fuel	20.5 100.0	30.1 146.8	17.5 85.4	12.1 59.0	12.2 59.5	8.3 40.5	4.1 20.0	20.0 97.6	26.0 126.8	30.0 146.3	34.0 165.9	42.3 206.2
Wood	75.4 100.0	86.0 114.1	69.9 92.7	57.9 76.8	40.1 53.2	19.0 25.2	9.7 12.9	10.0 13.3	14.0 18.6	17.0 22.5	20.0 26.5	24.9 33.0
Copper concentration	0.0 100.0	0.0 93.7	0.0 85.2	0.0 85.1	0.0 67.9	0.0 50.7	0.0 29.4	0.0 18.9	0.0 33.3	0.0 38.7	0.0 44.3	0.0 55.1
Non-ferrous metal	5.3 100.0	3.5 66.0	6.5 122.6	5.7 107.5	3.8 71.7	3.6 67.9	0.6 11.3	0.3 5.7	1.5 28.3	2.0 37.7	2.0 37.7	2.5 46.9
Others	584.3 100.0	596.2 102.0	539.2 92.3	555.8 95.1	341.7 58.5	228.3 39.1	58.2 10.0	130.4 22.3	202.4 34.6	224.3 38.4	198.0 33.9	246.2 42.1
Total	4356.0 100.0	4080.5 93.7	3711.3 85.2	3709.0 85.1	2959.7 67.9	2209.7 50.7	1281.2 29.4	824.0 18.9	1450.0 33.3	1687.0 38.7	1930.0 44.3	2399.9 55.1

Source: Mongolia Railway Statistics (1985 ~ 1991)

Note: Upper column: Volume  
Lower column: Index standardized 1985

Appendix 3-2-3 Demand Estimates for Domestic Freight Transport (Thous. ton)

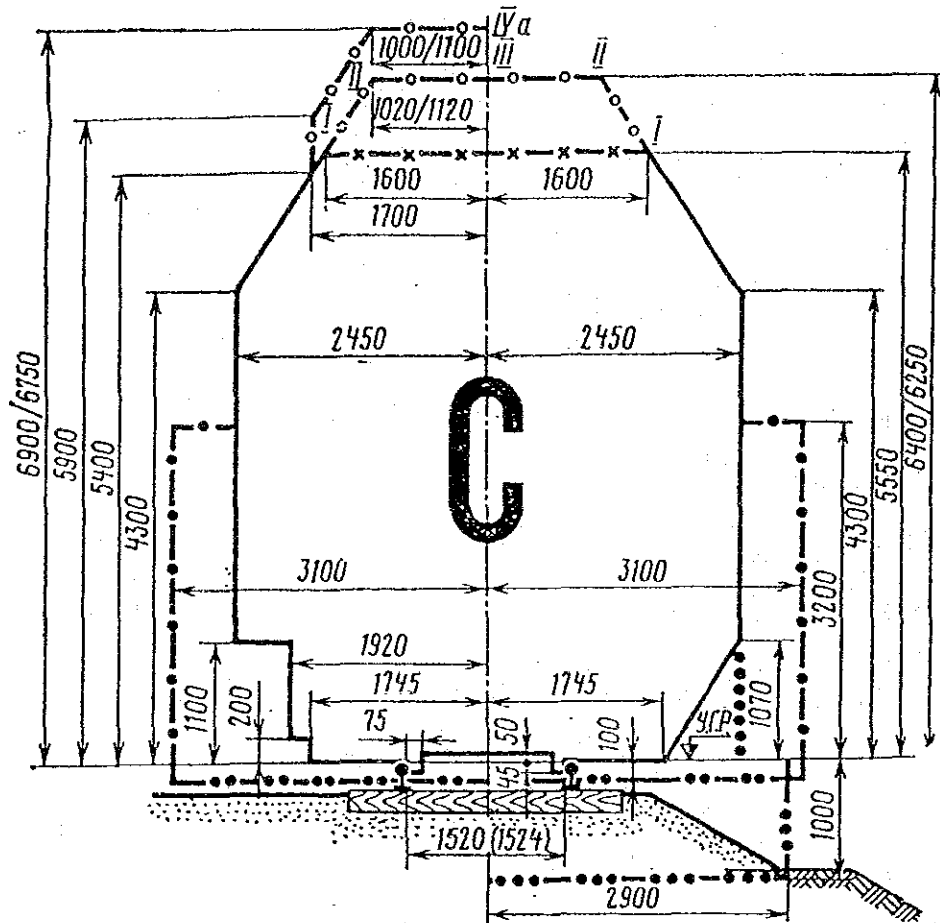
Commodity	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	2000
Coal	4046.9 100.0	4533.3 112.0	5023.0 124.1	5342.2 132.0	5073.7 125.4	4830.0 119.4	4910.1 121.3	5000 123.6	5000	5200	5500	6836.0 169.0
Oil	79.3 100.0	40.4 50.9	29.3 36.9	21.5 27.1	43.8 55.2	32.3 40.7	26.3 33.2	26 32.8	28 35.3	30 37.8	34 42.9	42.3 53.3
Steel	34.9 100.0	70.8 202.9	73.8 211.5	85.3 244.4	55.9 160.2	25.3 72.5	23.1 66.2	20 57.3	25 71.6	30 86.0	35 100.3	43.5 124.7
Machine facility	43.7 100.0	48.5 111.0	45.7 104.6	34.6 79.2	14.6 33.4	11.3 25.9	9.6 22.0	8 18.3	14 32.0	18 41.2	20 45.8	24.9 56.9
Construction materials	1563.1 100.0	1831.1 117.1	2564.7 164.1	3148.5 201.4	3301.4 211.2	2693.9 172.3	1414.5 90.5	1100 70.4	1200 76.8	1300 83.2	1500 96.0	1864.9 119.2
Wheat and cereal	81.6 100.0	82.7 101.3	67.1 82.2	89.4 109.6	91.5 112.1	66.0 80.9	45.5 55.8	30 36.8	35 42.9	40 49.0	45 55.1	55.9 68.6
Raw foods	27.9 100.0	12.2 43.7	21.6 77.4	15.5 55.6	11.3 40.5	10.3 36.9	6.9 24.7	6 21.5	7 25.1	8.5 30.5	9 32.3	11.2 40.1
Livestock	13.4 100.0	16.6 123.9	14.5 108.2	10.0 74.6	9.9 73.9	9.3 69.4	8.9 66.4	7 52.2	8 59.7	9 67.2	9 67.2	11.2 83.5
Wool	8.4 100.0	9.9 117.9	10.2 121.4	10.0 119.0	9.0 107.1	7.4 88.1	5.1 60.7	4 47.6	5 59.5	5 59.5	6 71.4	7.5 88.8
Fluorite	0.1 100.0	0.1 100.0	3.8 3800.0	78.6 78600.0	77.9 77900.0	105.5 105500.0	104.4 104400.0	100 100000.0	105 105000.0	110 110000.0	115 115000.0	143.0 142877.0
Chemical materials	4.5 100.0	4.2 93.3	4.2 93.3	6.0 133.3	3.6 80.0	10.6 235.6	2.1 46.7	2 44.4	4 88.9	5 111.1	7 155.6	8.7 193.4
Fertilizer	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0	0.9 100.0	1 111.1	1 111.1	2 222.2	3 333.3	3.7 414.4
Foods	31.3 100.0	44.9 143.5	29.1 93.0	47.9 153.0	49.9 159.4	39.7 126.8	24.9 79.6	20 63.9	23 73.5	25 79.9	26 83.1	32.3 103.3
Fuel	253.7 100.0	294.1 115.9	299.7 118.1	268.1 105.7	221.2 87.2	151.9 59.9	101.2 39.9	80 31.5	83 32.7	85 33.5	88 34.7	109.4 43.1
Wood	523.8 100.0	570.8 109.0	599.6 114.5	474.2 90.5	441.0 84.2	375.9 71.8	258.5 49.4	200 38.2	212 40.5	220 42.0	225 43.0	279.7 53.4
Copper concentrate	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0	0.0 100.0
Non-ferrous metal	0.0 100.0	0.0 100.0	0.4 100.0	1.3 325.0	0.6 150.0	0.3 75.0	0.7 175.0	0.5 125.0	1 250.0	2 500.0	3 750.0	3.7 932.5
Others	371.0 100.0	342.5 92.3	365.9 98.6	325.3 87.7	285.8 77.0	205.9 55.5	170.5 46.0	121.5 32.7	149 40.2	260.5 70.2	375 101.1	466.2 123.7
Total	7083.6 100.0	7902.1 111.6	9132.6 129.2	9938.4 140.6	9691.1 136.8	8375.6 121.1	7113.2 100.4	6726 95.0	6900 97.4	7350 103.8	8000 112.9	9946.2 140.4

Source: Mongolia Railway Statistics (1985 - 1991)

Note: Upper column: Volume

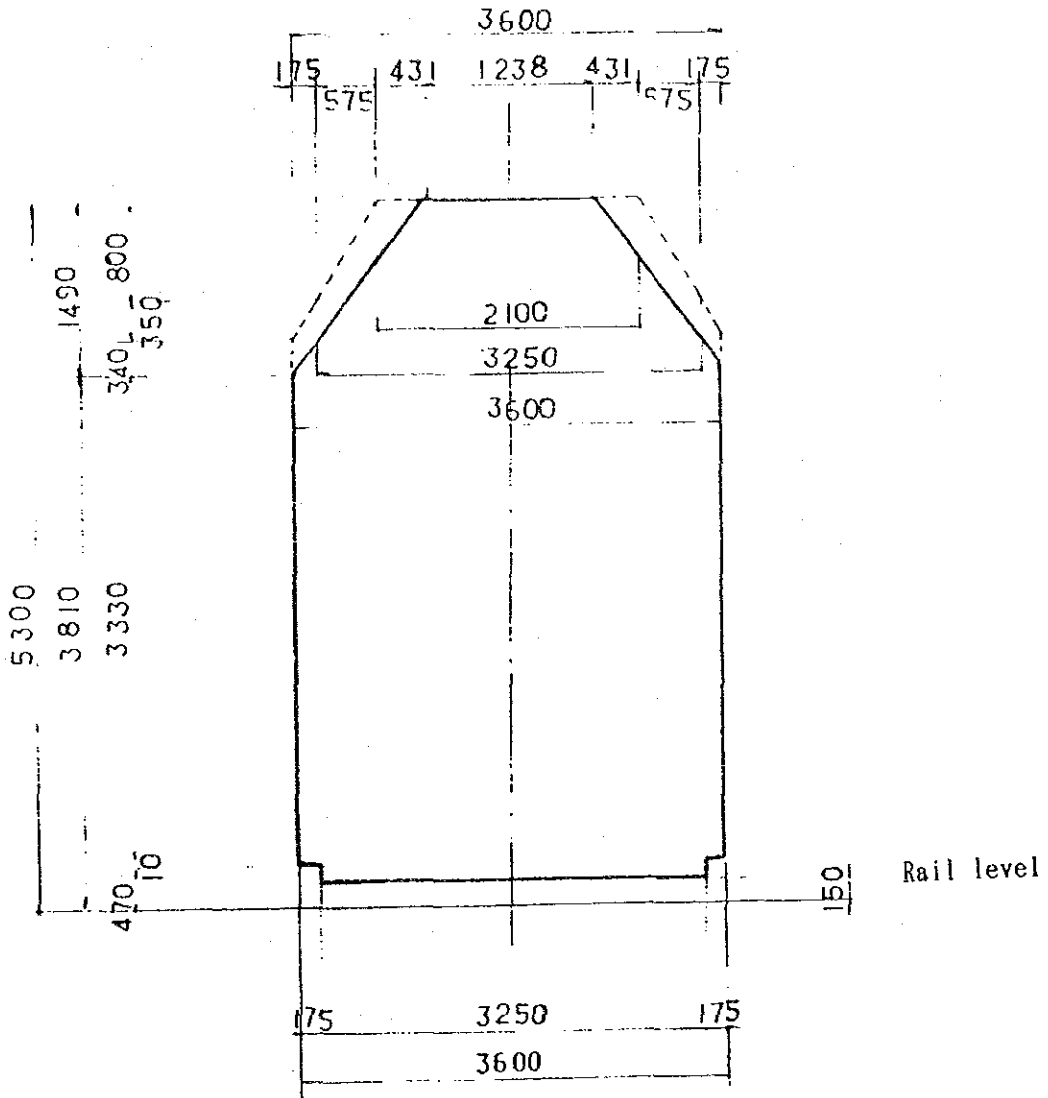
Lower column: Index standardized 1985

Appendix 4-3-1 Construction Gauge

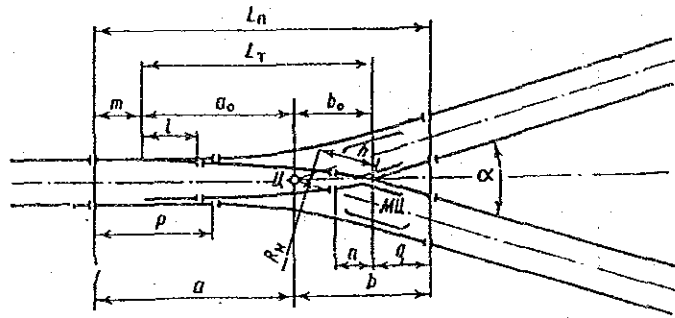
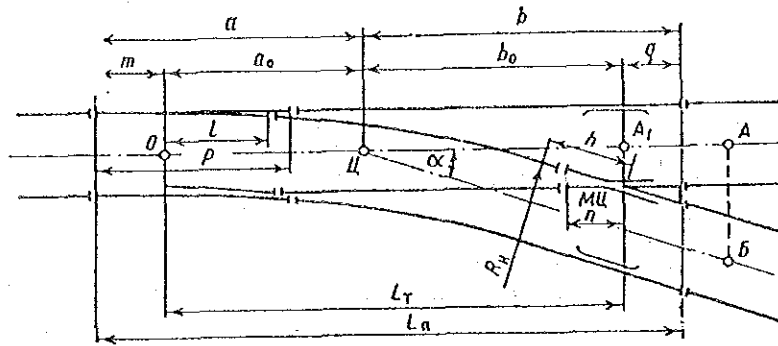




Appendix 4-3-2 Car Gauge



### Appendix 4-3-3 Turn Out Skelton

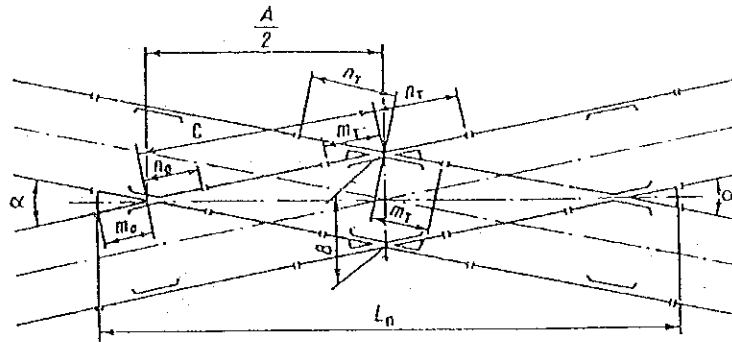


(Unit: m)

Rail	Size	l	p	m	$\alpha$	n	q	$a_0$
Simple								
P50	1/9	6.515	12.500	4.327	6°20'25"	2.055	1.880	11.132
P50	1/11	6.515	12.500	4.327	5°11'40"	2.650	2.300	10.148
Symmetrical								
P50	1/9	6.515	12.500	4.327	6°20'25"	2.055	1.880	11.431
P50	1/11	6.515	12.500	4.327	5°11'40"	2.650	2.300	9.764

Rail	Size	$b_0$	h	$R_H$	$L_H$
Simple					
P50	1/9	13.722	2.018	200.000	31.061
P50	1/11	16.754	3.537	297.259	33.529
Symmetrical					
P50	1/9	13.758	1.912	400.000	31.419
P50	1/11	16.799	5.139	500.000	33.210

Appendix 4-3-4 Main Size of Oblique-Angled Crossing

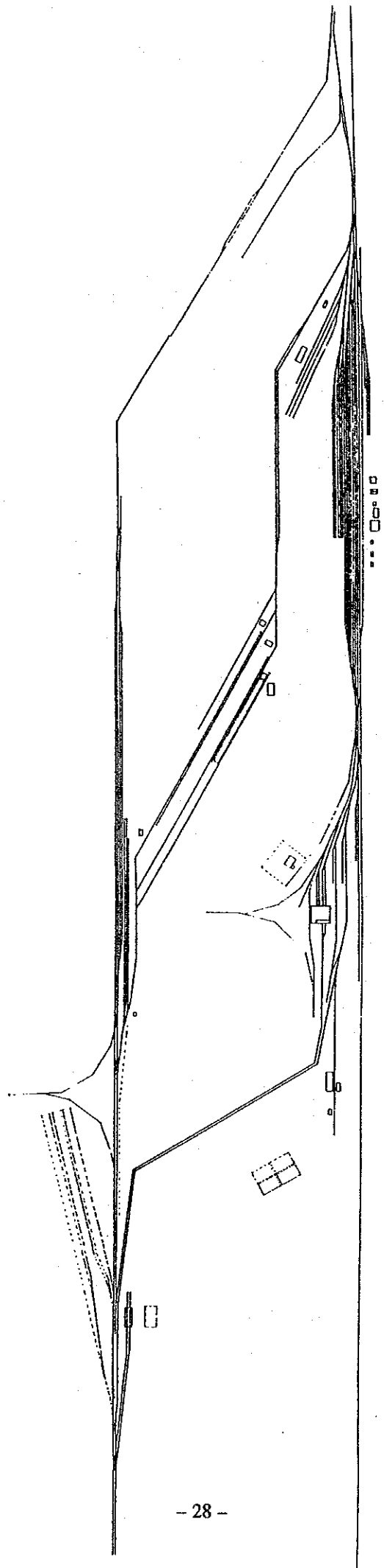


(Unit: m)

Rail	Size	$\alpha$	$n_o$	$m_o$	$n_T$	$m_T$	$\frac{A}{2}$	B
Simple P50	2/9	12°40'50"	2.083	1.035	1.245	1.237	6.900	1.533

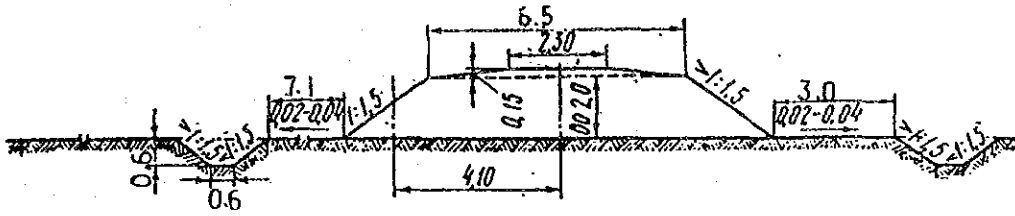
Rail	Size	c	$L_n$
Simple P50	2/9	6.943	15.857

Appendix 4-3-5 Track Layout

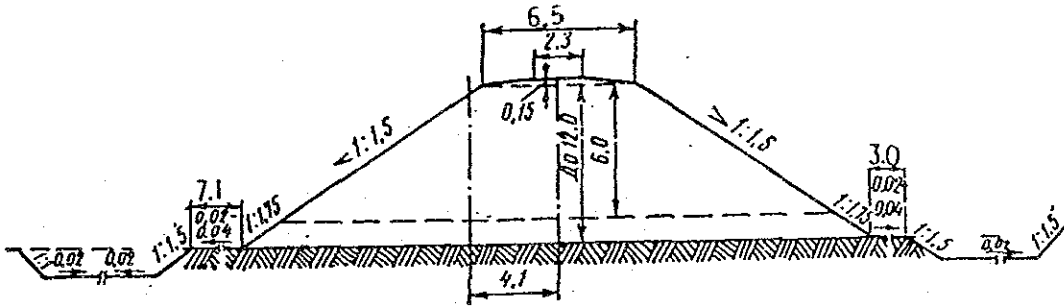


Appendix 4-3-6 Standard Section of Embankment (1,520mm)

$h \leq 2.0\text{m}$

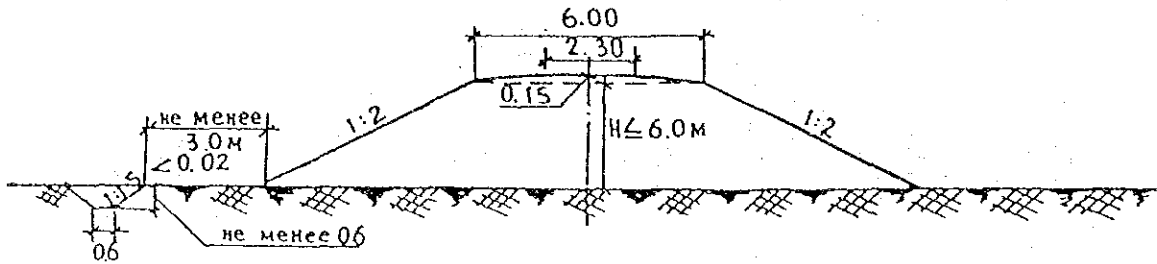


$h < 6.0\text{m}$

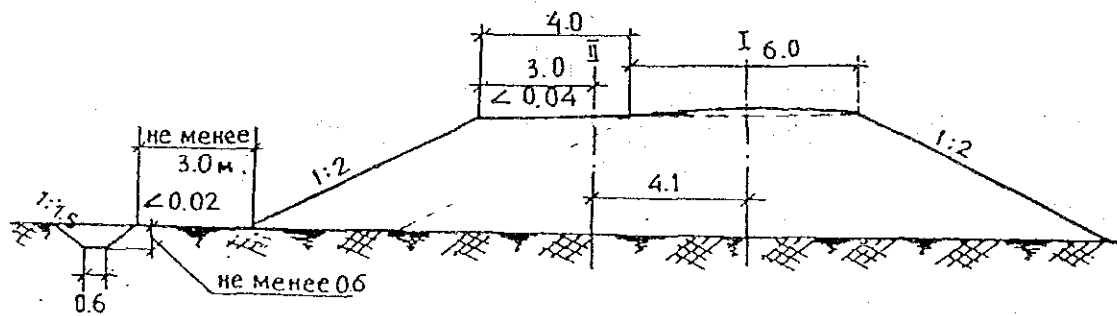


Appendix 4-3-7 Standard Section of Embankment (1,435mm)

Single track

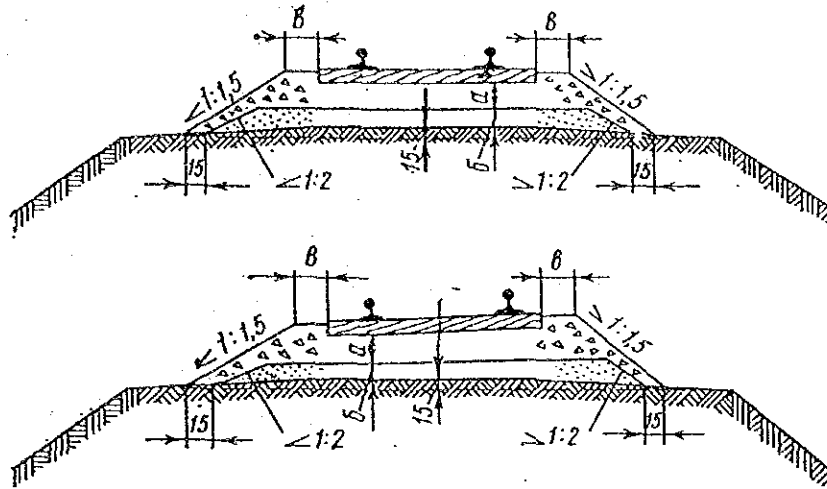


Double track

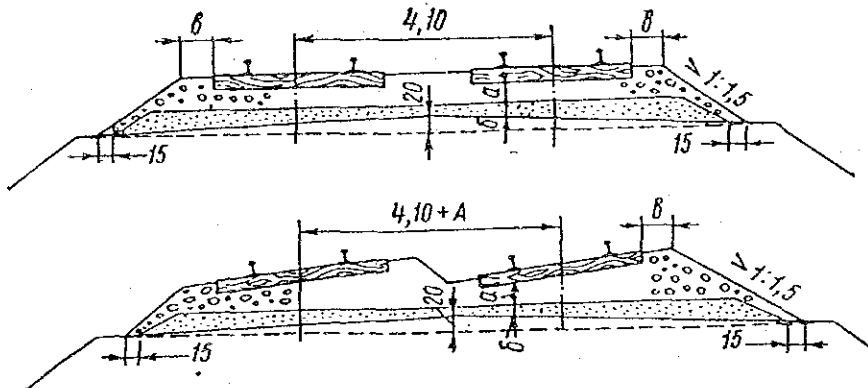


Appendix 4-3-8 Cross Section of Ballast Track (1,520mm)

Single track



Double track

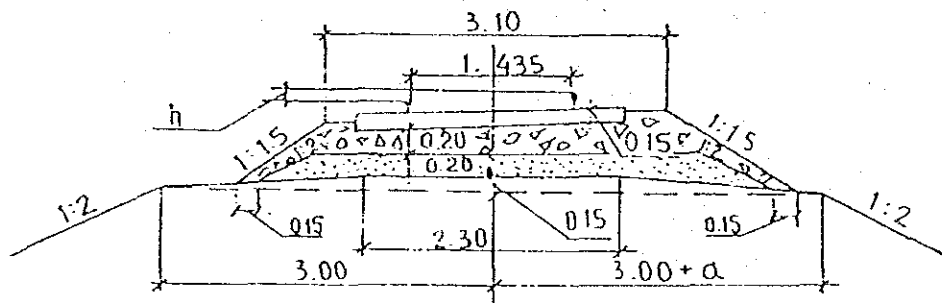
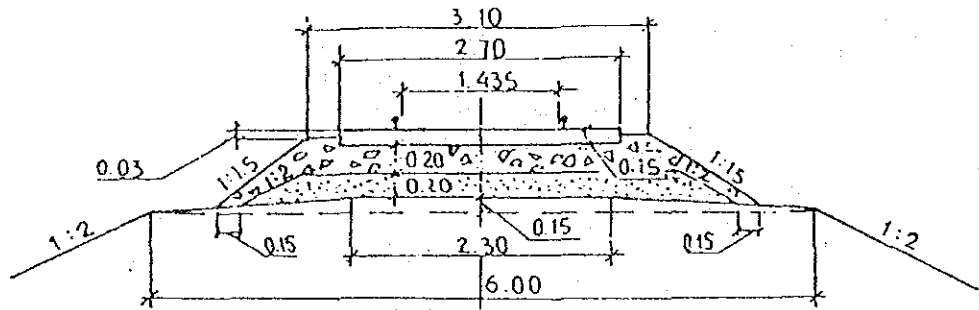


(Unit: cm)

Thickness of Ballast Layer			B
Road metal (a)	Sand cushion (b)	Total	
25	20	45	25

### Appendix 4-3-9 Cross Section of Ballast Track (1,435mm)

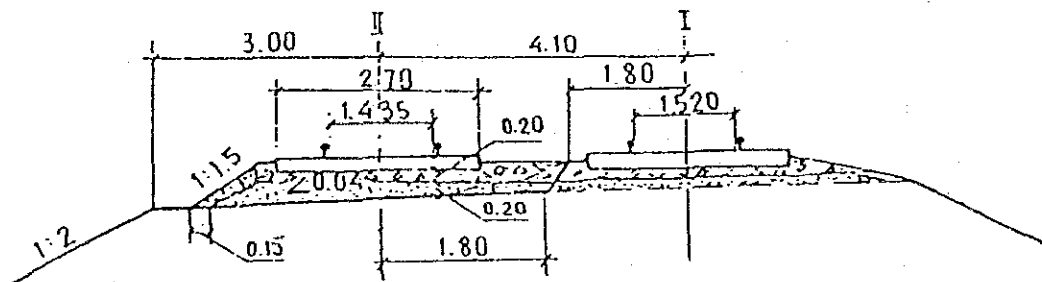
Single track



h- rising of outside rail

a- width of embankment

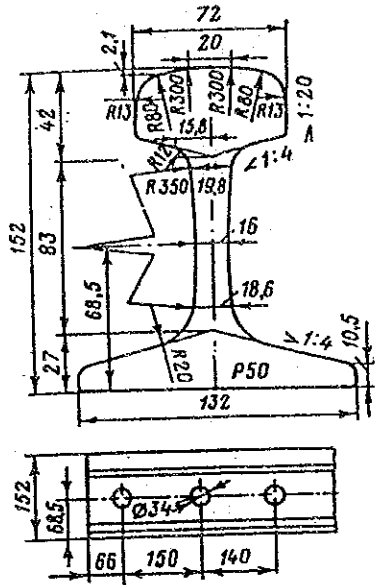
Double track



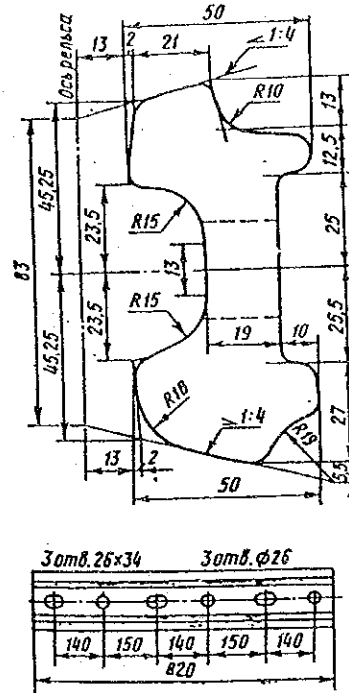


# Appendix 4-3-10 Track Materials

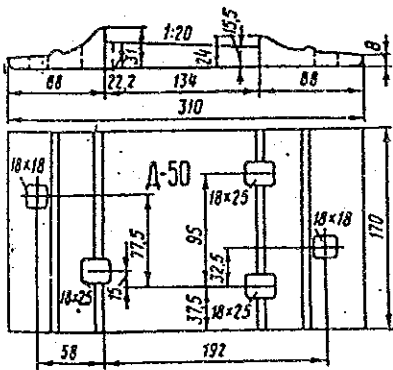
P 50 Rail



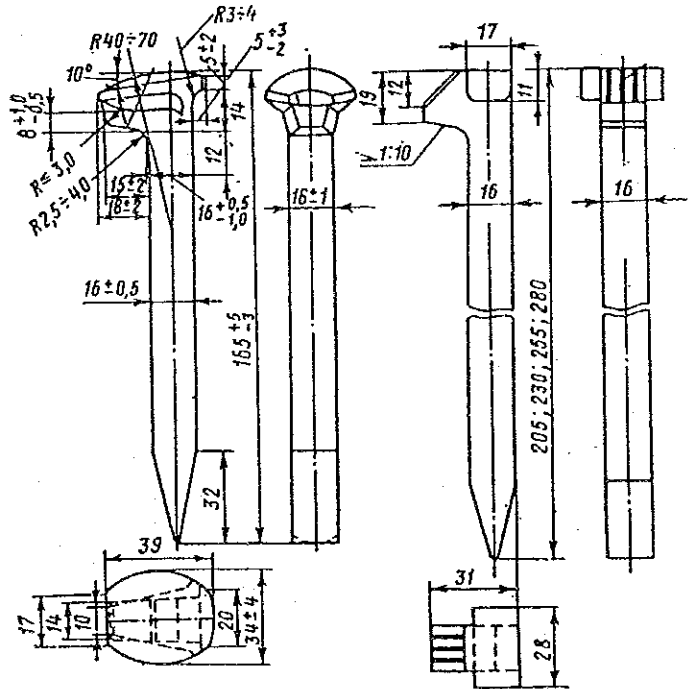
Rail joint plat



Tie-plate



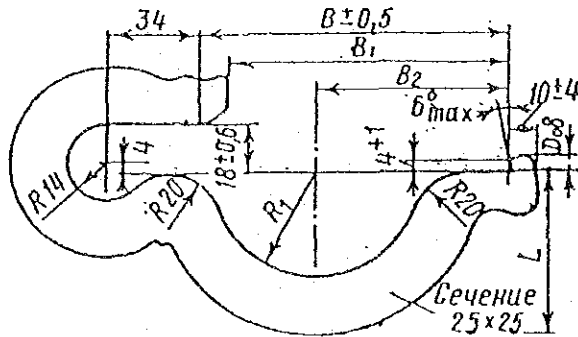
Spike



## Appendix 4-3-11 Track Materials

Anti-creeper

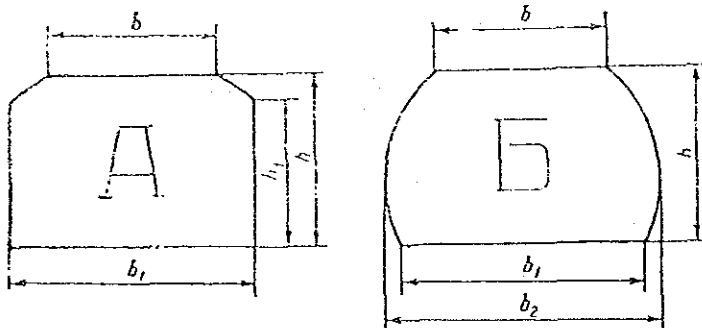
Size of Anti-creeper



(Unit: mm)

B	B1	B2	L	R1
92	82	59	53	30

Wooden sleeper



Size of Wooden Sleeper

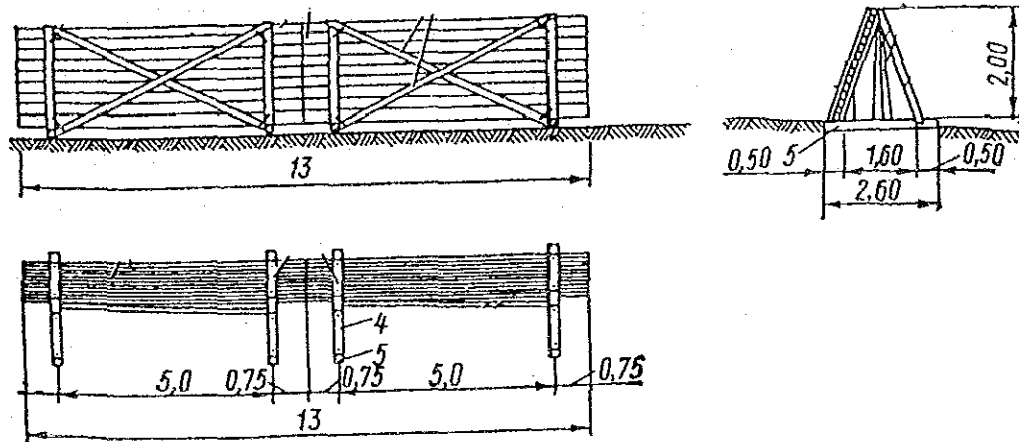
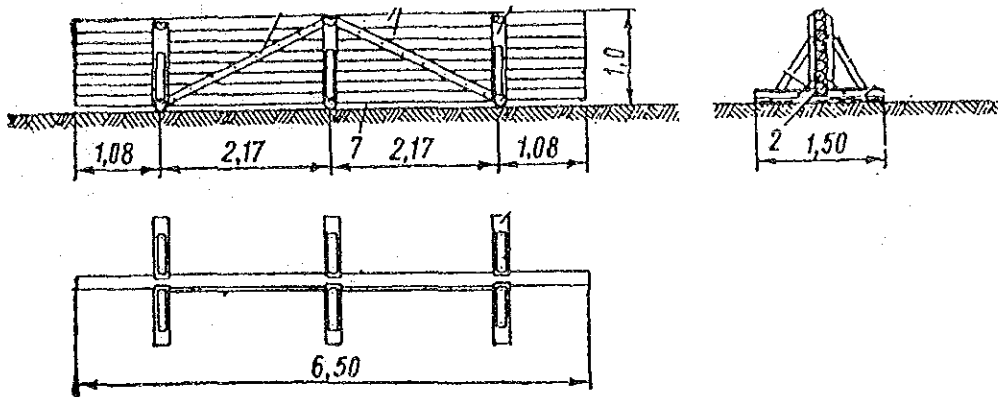
(Unit: mm)

Type	h	b	b <sub>1</sub>	b <sub>2</sub>	h <sub>1</sub>	Remarks
I	180	165	250	280	150	1,520mm I=275
II	160	160	230	260	130	1,435mm I=270
III	150	150	230	250	105	

(Unit: sleepers/km)

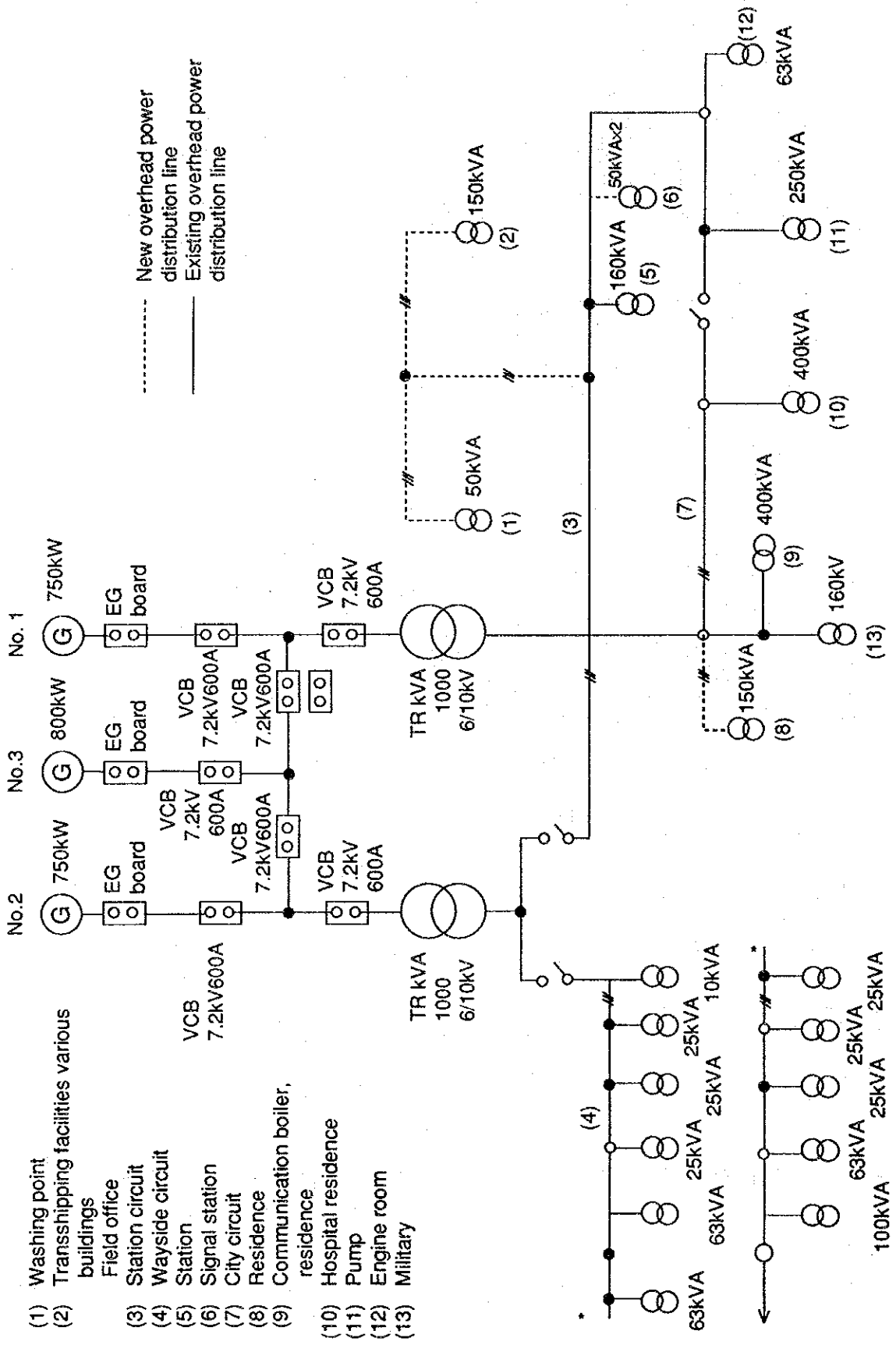
Track	1,520mm		1,435mm	
	Main	Straight or R ≥ 1200	1600	Straight or curved
	R < 1200	1850		
Receive-sending		1600		1600
Others		1440		1440

Appendix 4-3-12 Anti-sand and Snow Wall



Appendix 4-5-1 Electric Power Distribution System of 2000

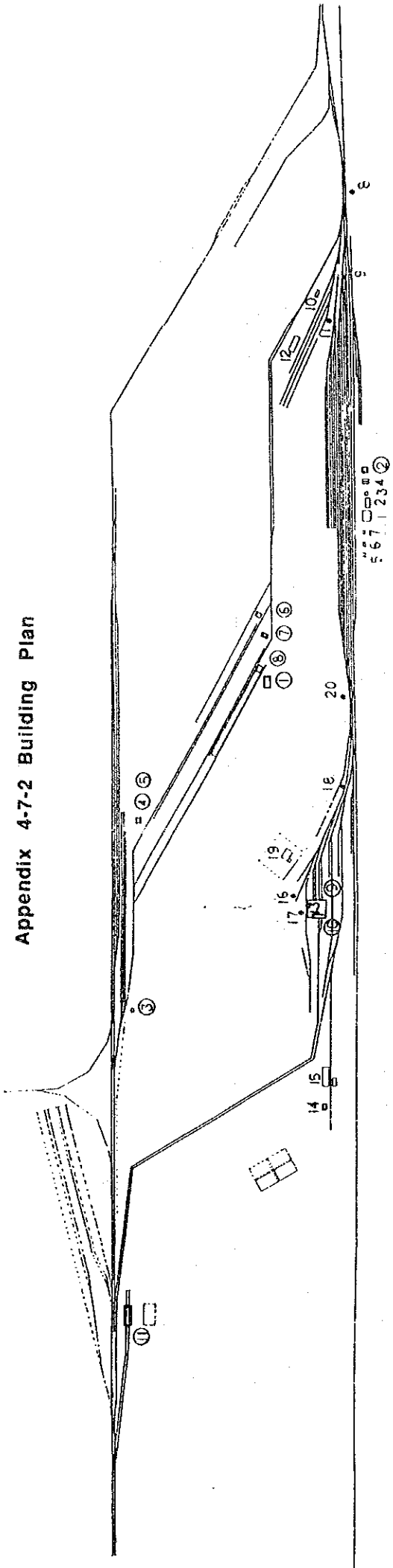
Appendix 4-5-1 Electric Power Distribution System of 2000



**Appendix 4-7-1 Existing Facilities**

No.	Name	Area (m <sup>2</sup> )	Possibility of utilization	Remarks	
1	Passenger house	581	Y	Y means reusable	
2	Customs office	296	Y		
3	Tower	69	Y		
4	Toilet	26	Y		
5	Customs warehouse	49	Y		
6	Baggage warehouse	93	Y		
7	Refrigerator room	5.2	Y		
8	Point operation center No. 3	9	Y		
9	Point operation center No. 1	7	Y		
10	Boiler room	122	Y		
11	Substation	18	Y		
12	Maintenance station	679	Y		
13	Locomotive shed	1,708	Y		To be remodelled
14	Fuel warehouse	23	Y		
15	Warehouse and roofed cargo platform	750	Y		
16	Oil filling bridge	—	Y		
17	Light oil tank	—	Y		
18	Point operation center No. 4	9	Y		
19	Power plant	437	Y		
20	Point operation center No. 2	9	Y		

### Appendix 4-7-2 Building Plan



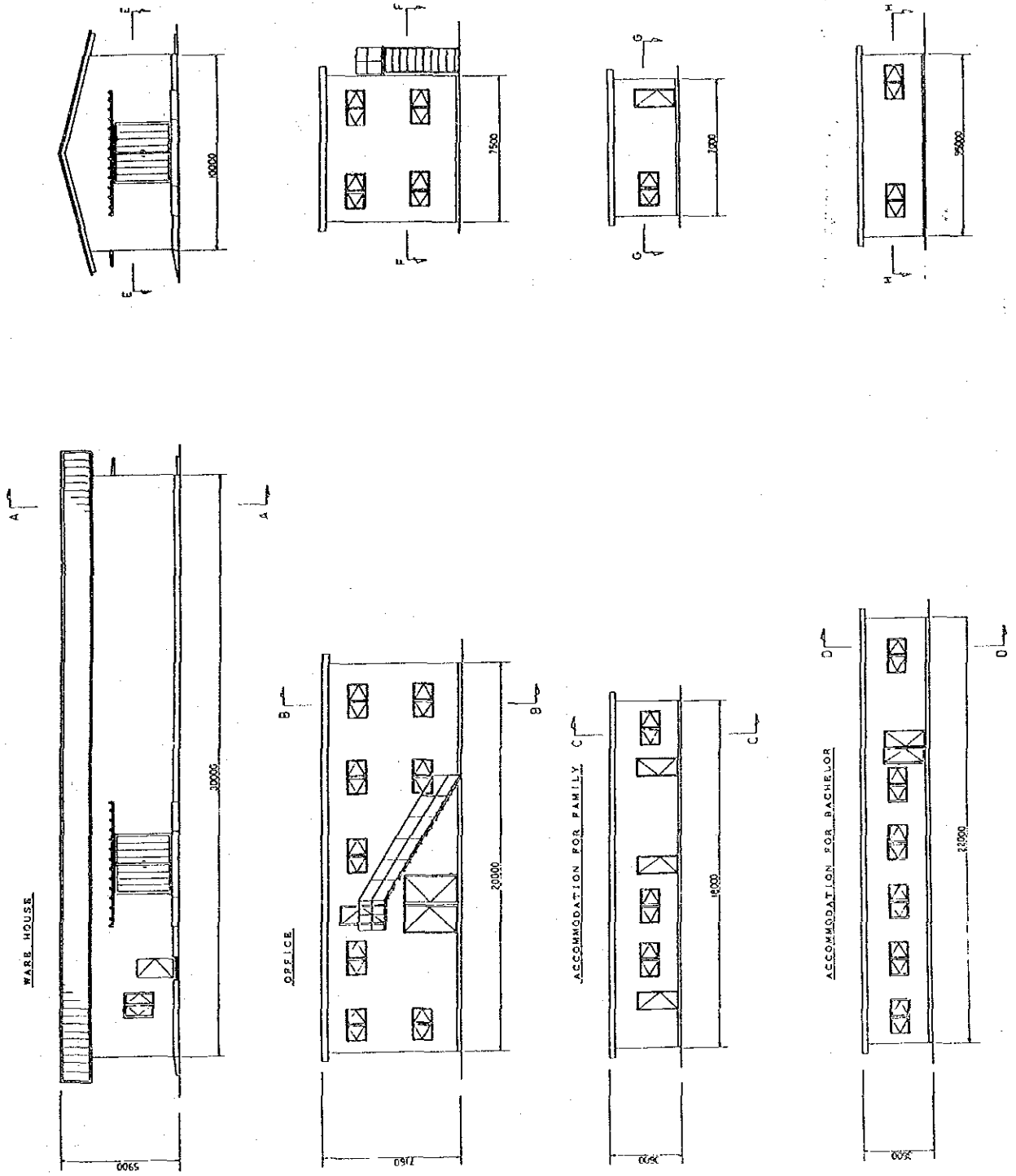
Existing buildings

No	Name	Area (m <sup>2</sup> )
1	Station main office	581
2	Customs office	296
3	Tower	69
4	Toilet	26
5	Customs warehouse	49
6	Baggage warehouse	93
7	Refrigerator room	5
8	Point operation center No. 3	9
9	Point operation center No. 1	9
10	Boiler room	122
11	Substation	18
12	Maintenance center	679
13	Locomotive shed	1,708
14	Oil storage house	23
15	Warehouse and roofed platform	750
16	Oil filling bridge	---
17	Diesel oil tank	---
18	Point operation center No. 4	9
19	Power plant	437
20	Point operation center No. 2	9

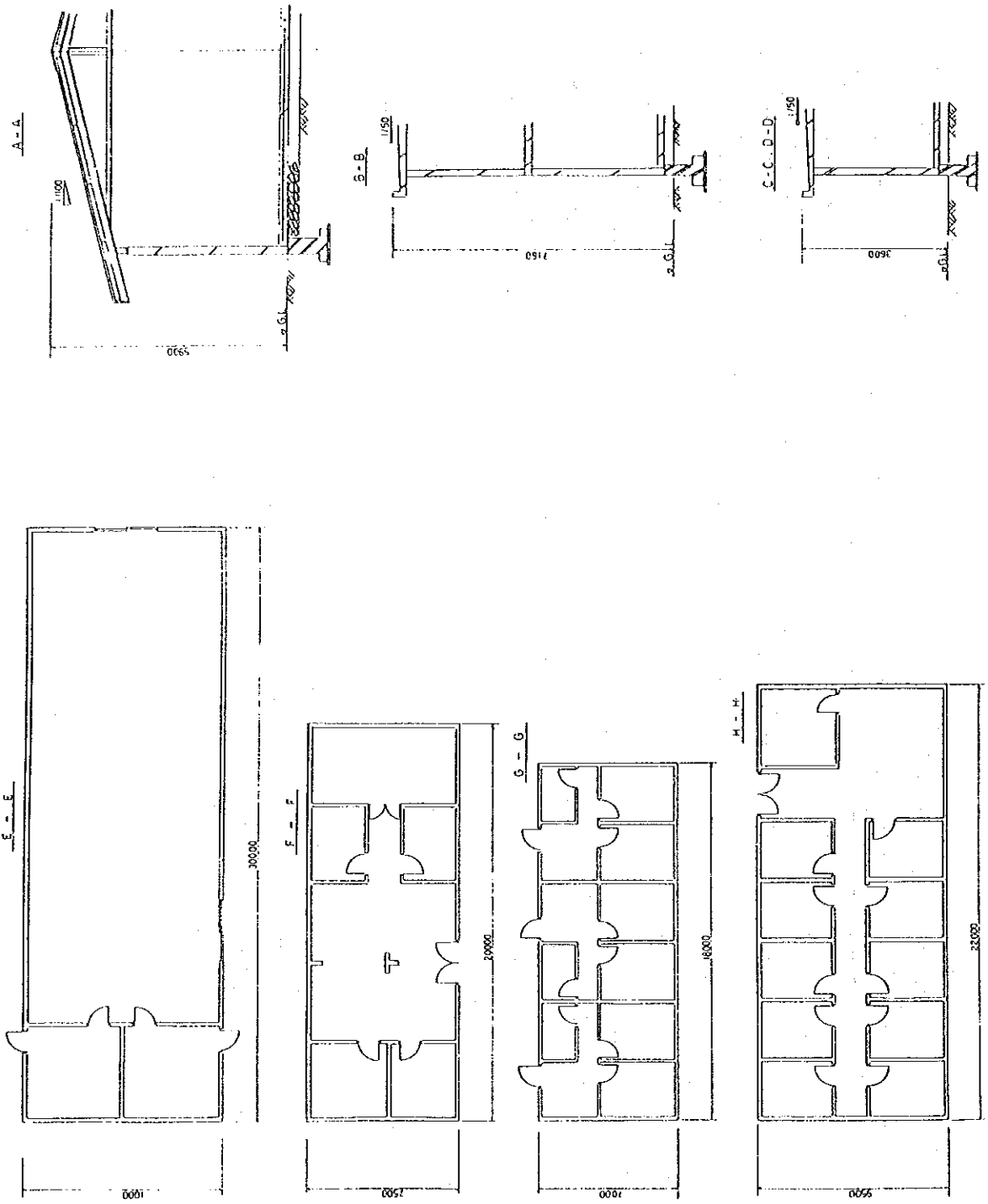
Buildings to be built or remodelled

No	Name	Area (m <sup>2</sup> )
1	Site office	600
2	Signal operation room	400
3	Signal equipment room (A)	30
4	Signal equipment room (B)	30
5	Site crew house	40
6	Garage for truck cranes	210
7	Garage for reach stackers	210
8	Cargo storage house	600
9	Depot (1,520 m <sup>2</sup> ) (to be remodelled)	1,708
10	Depot (1,435 m <sup>2</sup> )	300
11	Wagon cleaning shed	1,250

Appendix 6-1-1 Preliminary Design Drawings of Building (Front/Side View)  
for Plan 1/Plan-2



Appendix 6-1-2 Preliminary Design Drawings of Building (Layout/Cross Section)  
for Plan 1/Plan-2

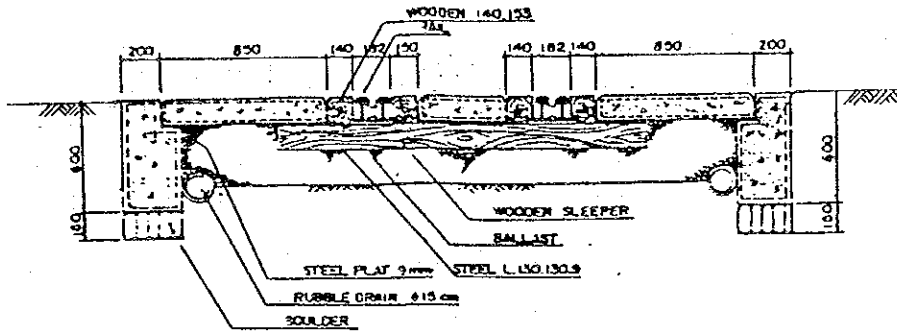




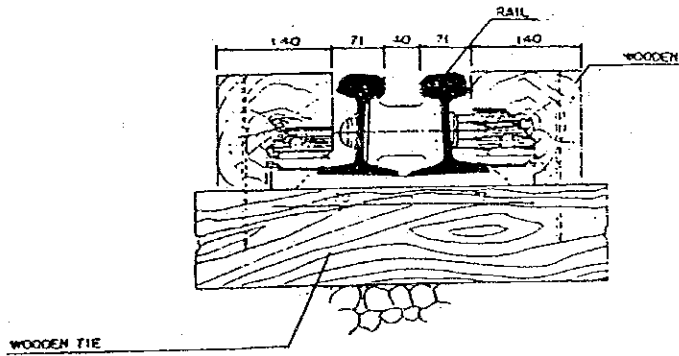
# Appendix 6-1-3 Level Crossing

## RAILWAY SURFACE ROAD

### STANDARD CROSS SECTION



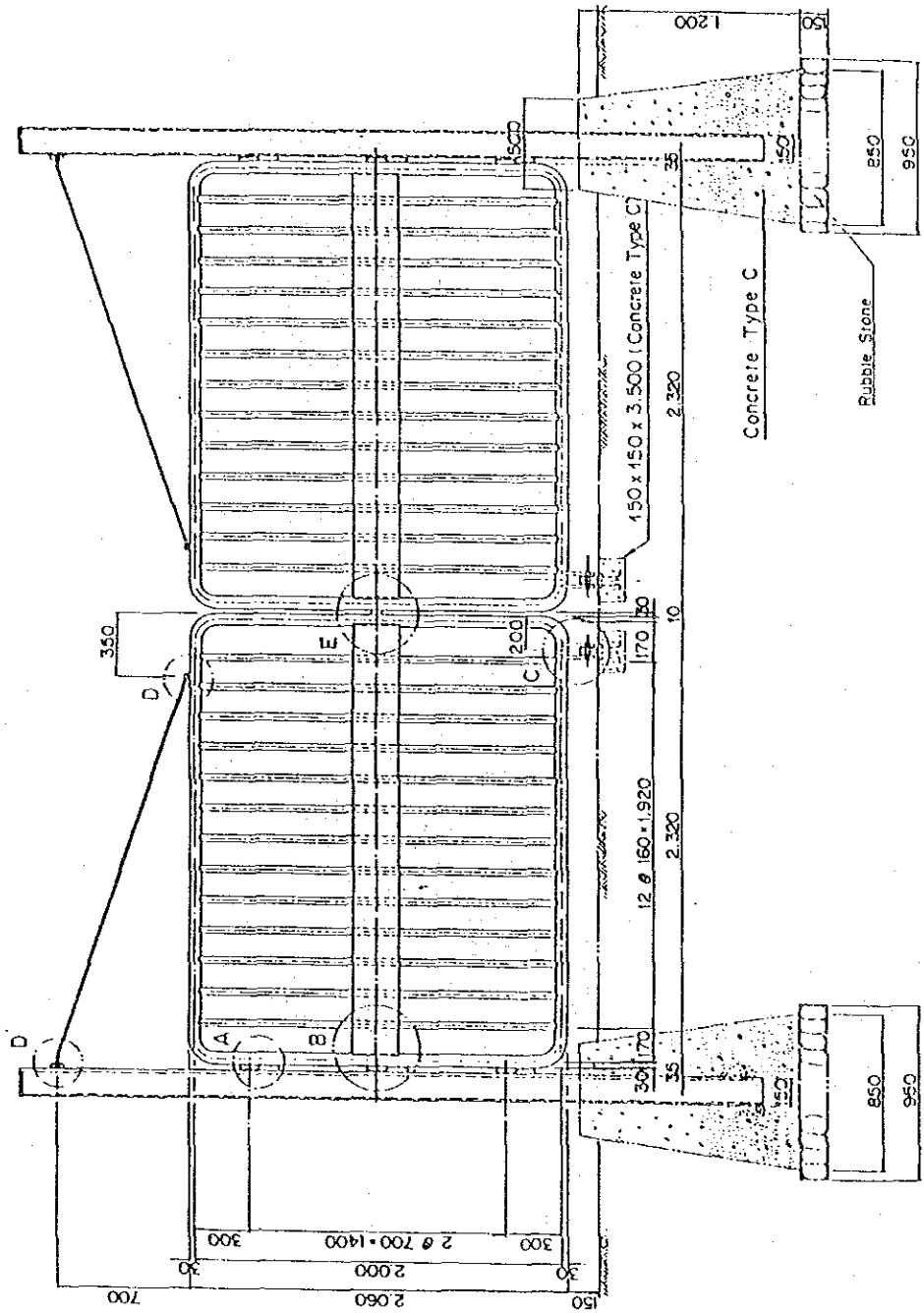
### DETAIL OF GUARD RAIL STRUCTURE



Appendix 6-1-4 Entrance Gate

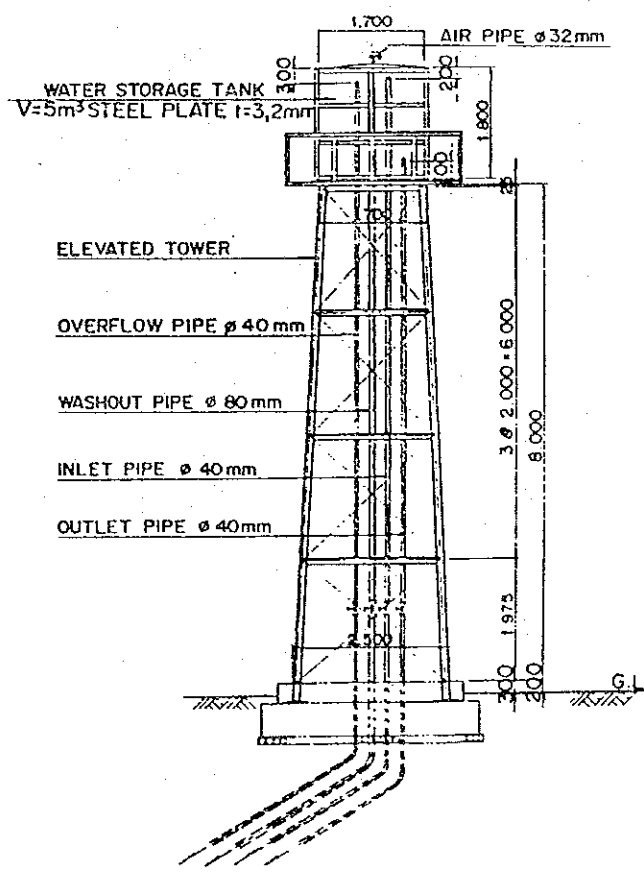
ENTRANCE GATE

FRONT ELEVATION



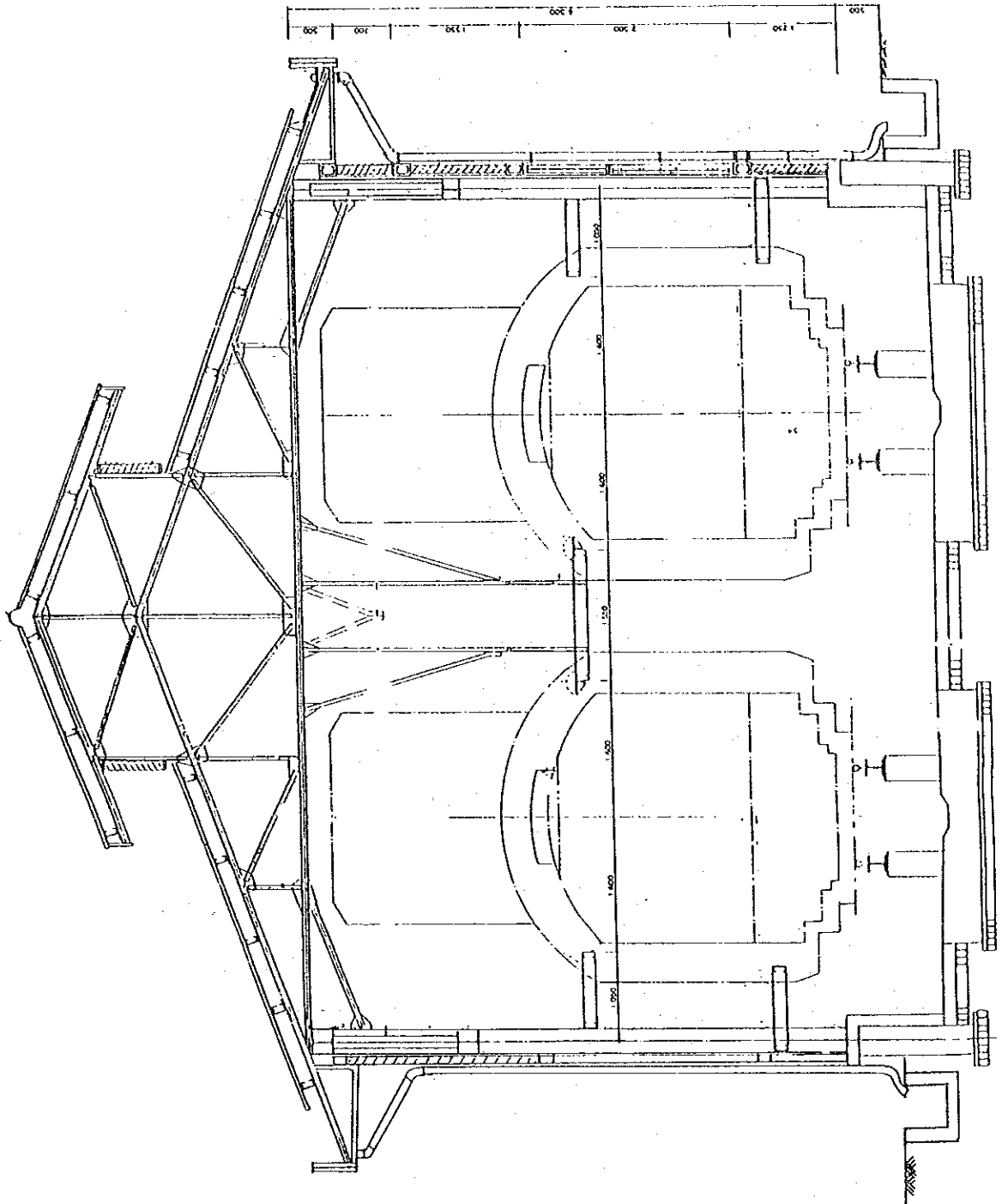
Appendix 6-1-5 Plumbing System

PLUMBING SYSTEM



Appendix 6-1-6 Inspection Shed

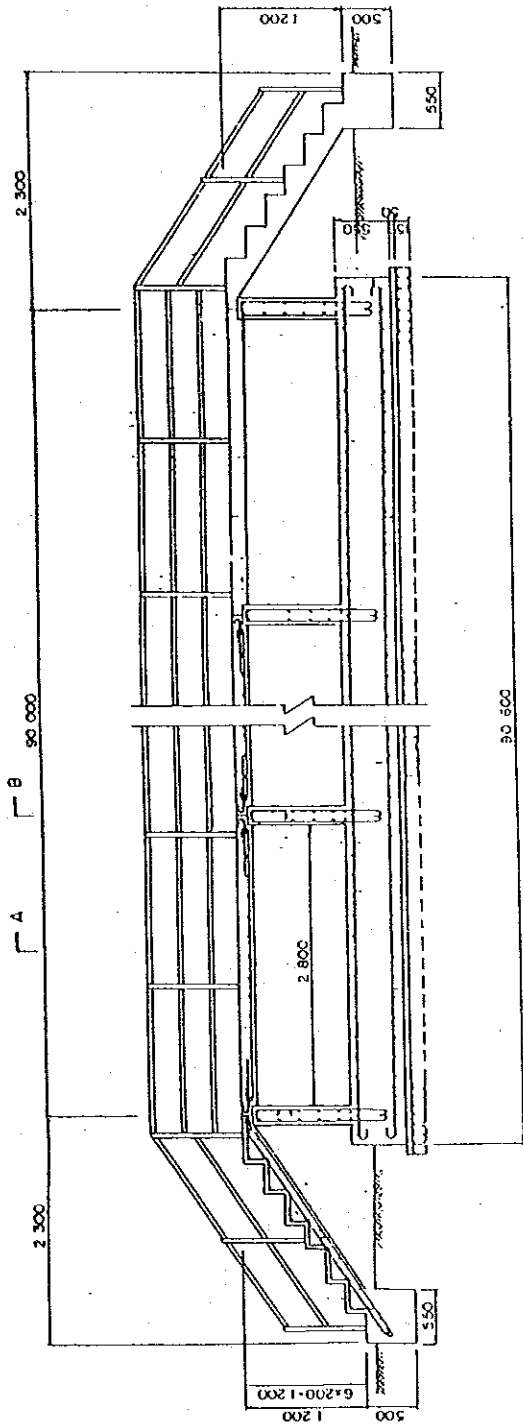
INSPECTION SHED



Appendix 6-1-7 Car Washing Stand

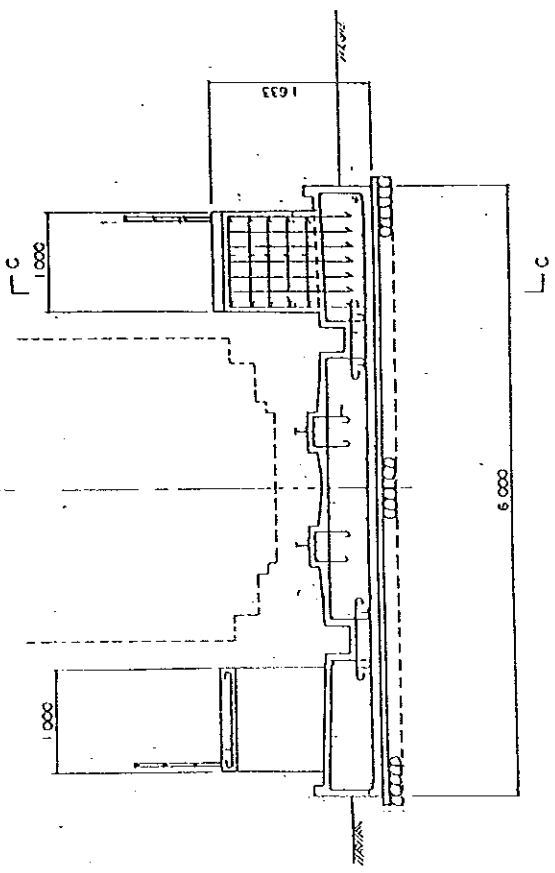
CAR WASHING STAND

SECTION C-C



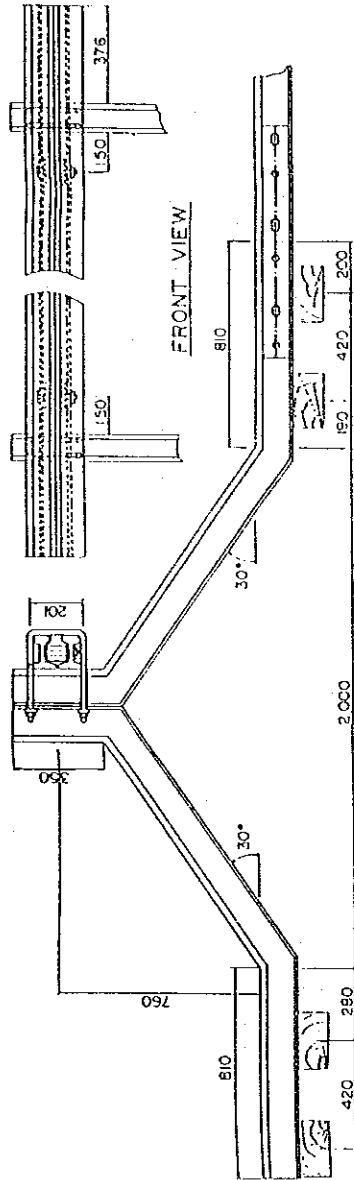
SECTION B-B

SECTION A-A

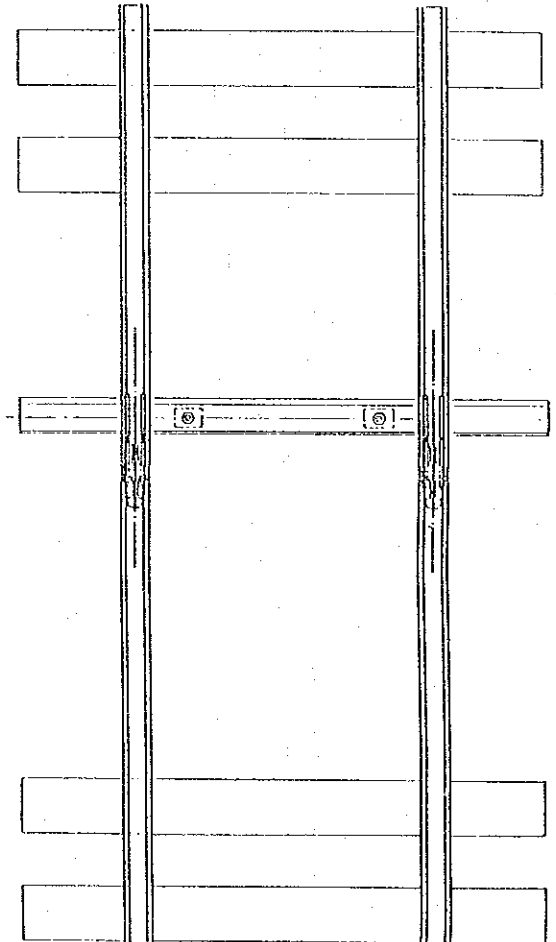


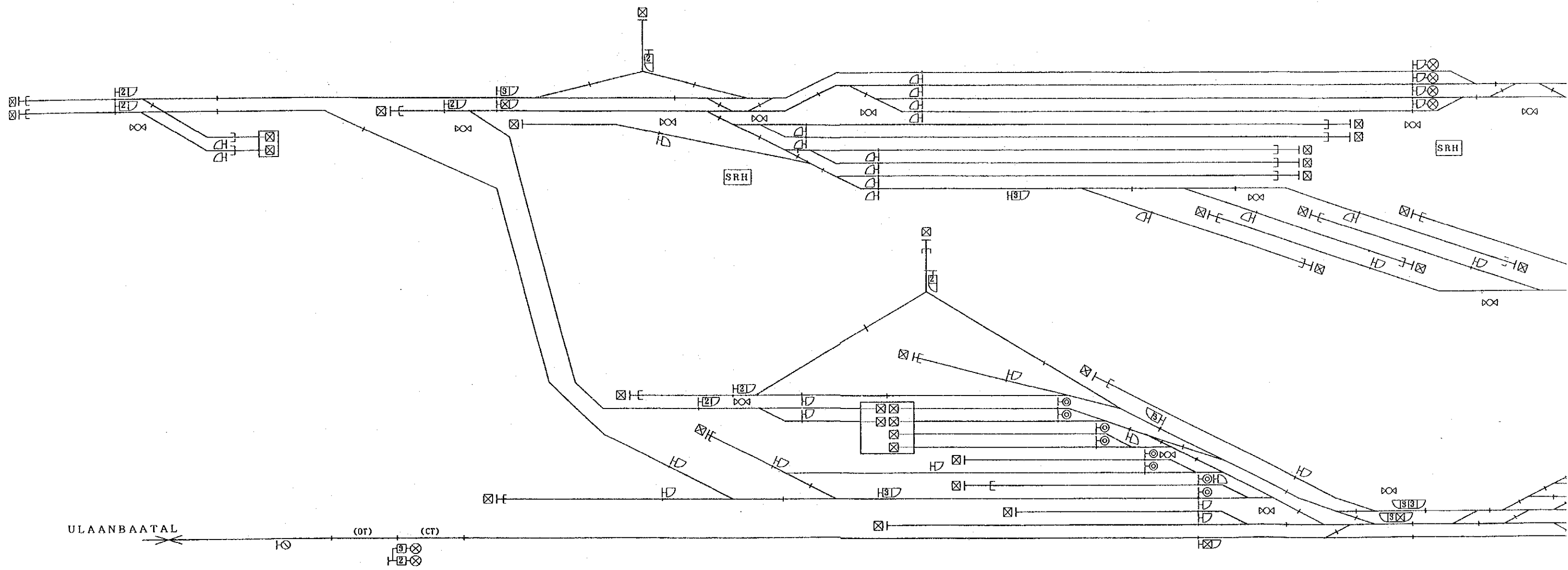
Appendix 6-1-8 Buffer Stop

BUFFER STOP

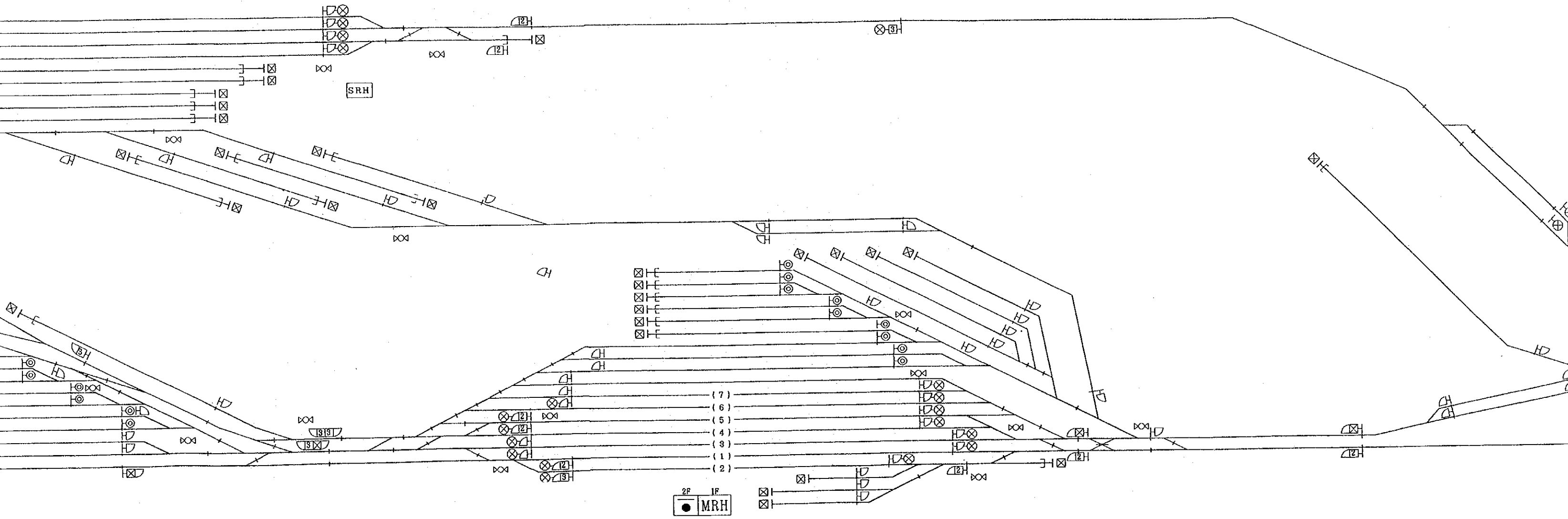


NOTE:  
IN FABRICATING BUFFER STOPS  
OLD RAILS SHALL BE UTILIZED



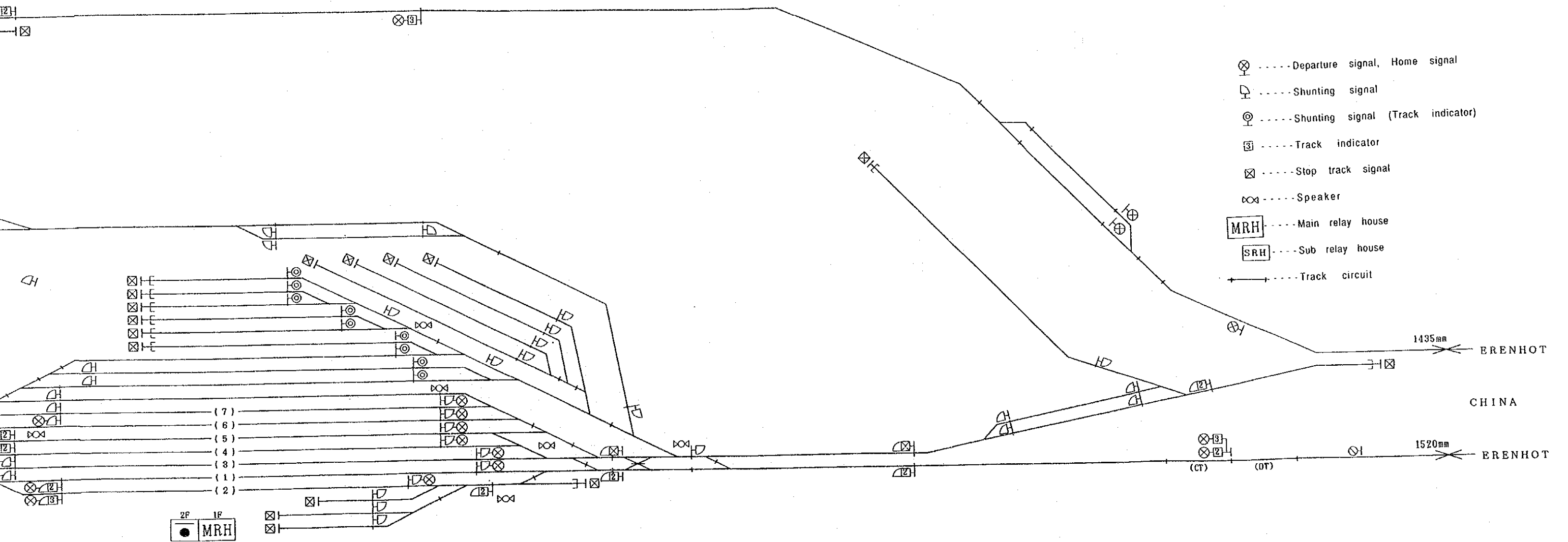


Appendix 6-3-1 Zamyn-Uud Station





Appendix 6-3-1 Zamyn-Uud Station

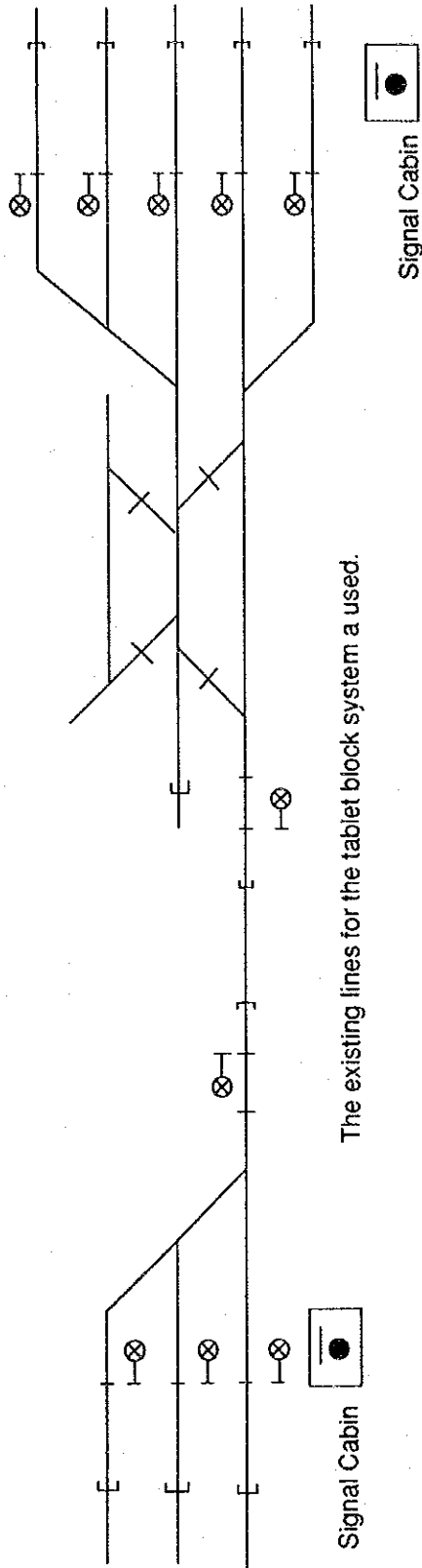




**Appendix 6-3-2 Special Automatic Block System**

P52

Zamyn-Uud



The existing lines for the tablet block system a used.

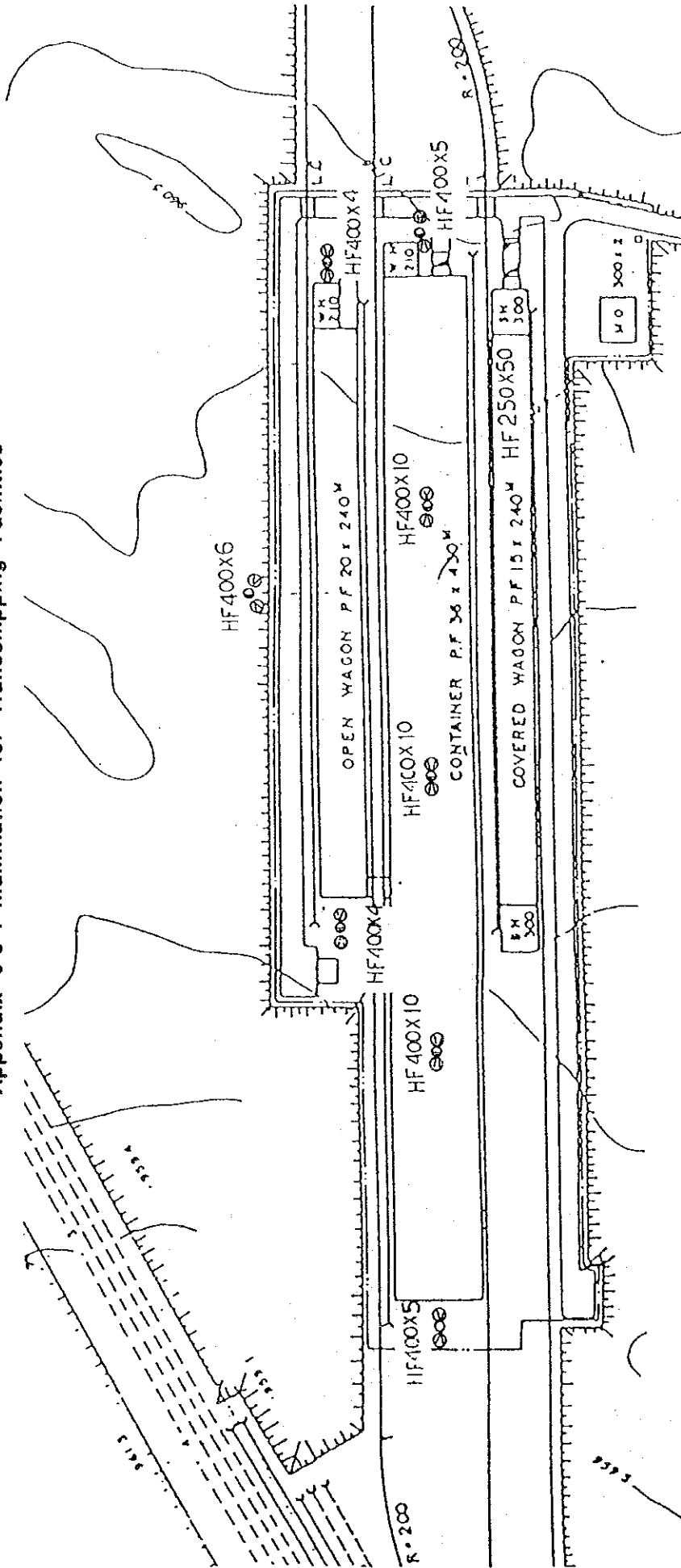
P52

Equipments	Q'ty
Starting Signal	3
Home Signal	1
Track Circuit	6
Motor Point	2
Interlock System	1
Items	Controller
	Relay
	Power Supply

Zamyn-Uud

Equipments	Q'ty
Starting Signal	5
Home Signal	1
Track Circuit	9
Motor Point	9
Interlock System	1
Items	Controller
	Relay
	Power Supply

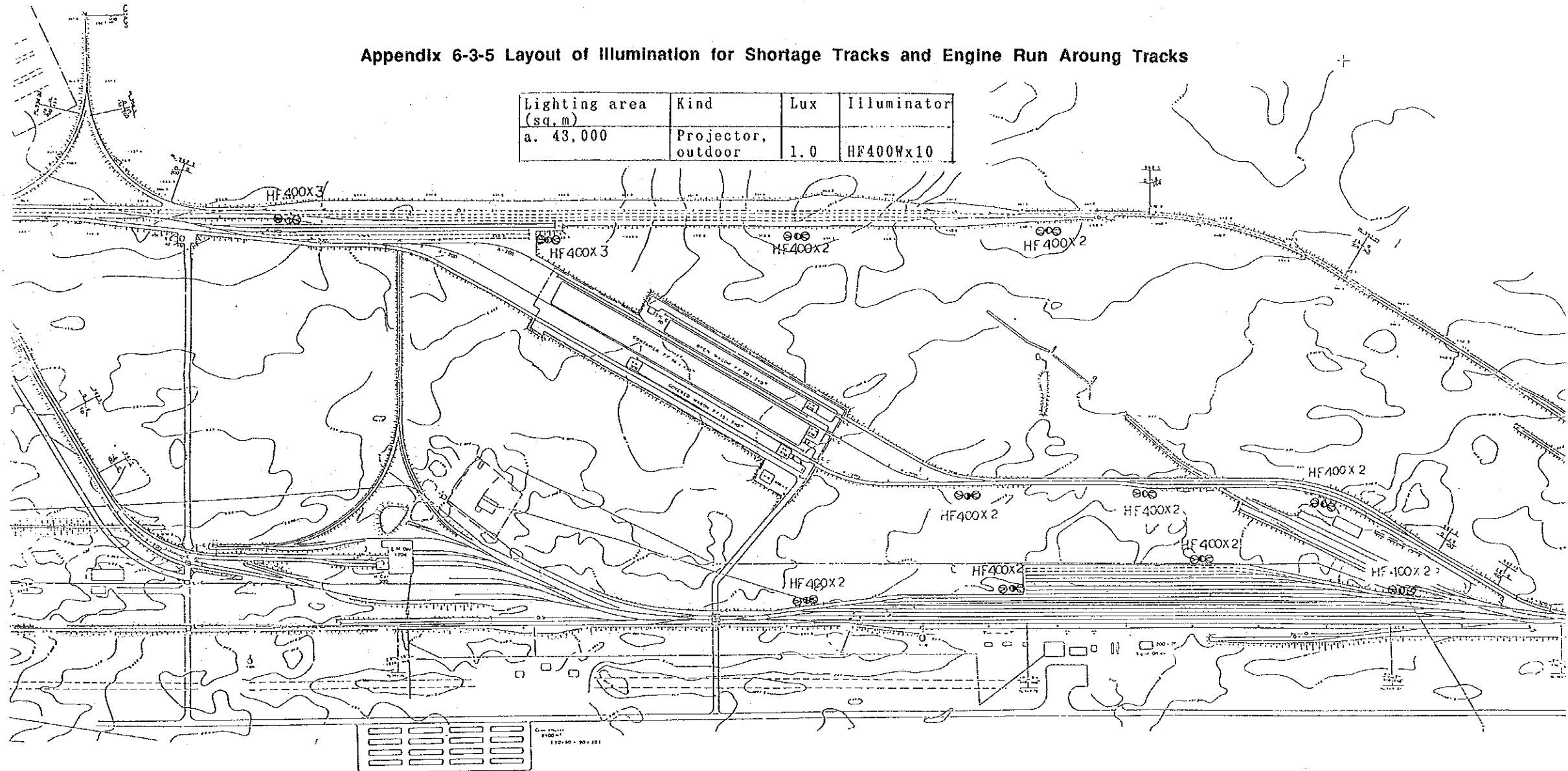
Appendix 6-3-3 Layout of Illumination for Transshipping Facilities  
 Appendix 6-3-4 Illumination for Transshipping Facilities



Platform	Lighting area (sq.m)	Kind	Lux	Lighting pole	Illuminator
Container	6,700	Mercury, outdoor	10	15m x 5	HF400x40
Covered car	3,600	Mercury, indoor	100		HF250Wx50
Open car	5,300	Mercury	10	15m x 3	HF400x14

Appendix 6-3-5 Layout of Illumination for Shortage Tracks and Engine Run Around Tracks

Lighting area (sq. m)	Kind	Lux	Illuminator
a. 43,000	Projector, outdoor	1.0	HF400Wx10



Lighting area (sq. m)	Kind	Lux	Illuminator
a. 78,000	Projector, outdoor	1.0	HF400Wx14



**Appendix 10-1-1 Economic Estimate (Plan 1 Thous. Tugrik)**

Year	Const. Cost	Main. Cost	Total	Benefits	Differences
1993	520,365	0	520,365	425,245	-95,121
1994	411,629	8,474	420,103	317,526	-102,577
1995	348,000	16,948	364,948	300,946	-64,002
1996	0	25,422	25,422	53,582	28,160
1997	0	25,422	25,422	62,575	37,153
1998	554	25,422	25,975	85,340	59,365
1999	3,170	25,422	28,592	59,386	30,794
2000	2,616	25,422	28,038	98,193	70,155
2001	103,718	25,422	129,140	94,942	-34,198
2002	67,086	25,422	92,508	60,877	-31,631
2003	80,286	25,422	105,707	157,605	51,898
2004	6,065	25,422	31,487	63,093	31,606
2005	8,127	25,422	33,549	73,237	39,688
2006	2,616	25,422	28,038	59,644	31,606
2007	0	25,422	25,422	95,576	70,155
2008	554	25,422	25,975	112,997	87,022
2009	104,272	25,422	129,693	69,513	-60,181
2010	69,029	25,422	94,451	62,820	-31,631
2011	17,550	25,422	42,971	65,437	22,465
2012	7,911	25,422	33,333	64,939	31,606
2013	153,771	25,422	179,193	221,101	41,909
2014	92,540	25,422	117,962	160,904	42,942
2015	88,635	25,422	114,056	144,433	30,376
2016	0	25,422	25,422	57,028	31,606
2017	106,334	25,422	131,756	71,575	-60,181
2018	70,256	25,422	95,678	93,480	-2,198
2019	13,544	25,422	38,966	61,431	22,465
2020	0	25,422	25,422	57,028	31,606
2021	0	25,422	25,422	103,658	78,237
2022	0	25,422	-227,630	-119,262	108,368
<b>Total</b>	<b>2,278,629</b>	<b>711,805</b>	<b>2,737,382</b>	<b>3,234,846</b>	<b>497,464</b>

**Residual**

Value	253,052
NPV	19,107 (1,000 Tugrik)
IRR	8.88 (%)
B/C	1.08

**Appendix 10-1-2 Economic Estimate (Plan 2 Thous. Tugrik)**

Year	Const. Cost	Main. Cost	Total	Benefits	Differences
1993	452,785	0	452,785	425,245	-27,540
1994	370,789	6,220	377,009	312,655	-64,354
1995	338,397	12,440	350,836	291,279	-59,557
1996	0	18,660	18,660	40,866	22,207
1997	0	18,660	18,660	49,404	30,744
1998	554	18,660	19,213	71,739	52,526
1999	3,170	18,660	21,830	45,353	23,524
2000	41,165	18,660	59,825	83,754	23,930
2001	29,832	18,660	48,492	80,504	32,012
2002	3,849	18,660	22,509	46,438	23,930
2003	71,145	18,660	89,804	143,167	53,363
2004	6,065	18,660	24,725	48,654	23,030
2005	8,127	18,660	26,787	58,799	32,012
2006	2,616	18,660	21,276	45,205	23,930
2007	38,549	18,660	57,208	81,138	23,929
2008	26,537	18,660	45,196	98,559	53,363
2009	4,403	18,660	23,063	55,074	32,012
2010	5,793	18,660	24,452	48,382	23,930
2011	8,409	18,660	27,069	50,998	23,930
2012	7,911	18,660	26,571	50,500	23,930
2013	153,646	18,660	172,306	206,663	34,357
2014	130,964	18,660	149,624	146,465	-3,158
2015	114,493	18,660	133,153	129,994	-3,158
2016	0	18,660	18,660	42,589	23,930
2017	6,466	18,660	25,125	57,137	32,012
2018	7,019	18,660	24,679	79,041	53,363
2019	4,403	18,660	23,063	46,992	23,930
2020	0	18,660	18,660	42,589	23,930
2021	38,549	18,660	57,208	89,200	32,011
2022	25,983	18,660	-215,287	-133,701	81,586
<b>Total</b>	<b>1,901,618</b>	<b>522,469</b>	<b>2,164,158</b>	<b>2,834,703</b>	<b>670,545</b>

Residual

Value 259,929

NPV 269,866 (1,000 Tugrik)

IRR 26.28%

B/C 1.33



( UNIT : THOUSAND TUGRIK )

APPENDIX 10-2-1

TOTAL INVESTMENT WITH CONTINGENCY PLAN 2

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
INVESTMENT TOTAL	548248	548248	548248	0	0	0	0	0	0	8649	106656	9715
FOREIGN TOTAL	434056	434056	434056	0	0	0	0	0	0	8649	106656	9715
LOCAL TOTAL	114192	114192	114192	0	0	0	0	0	0	0	0	0
CIVIL WORKS	331962	331962	331962	0	0	0	0	0	0	0	0	0
FOREIGN CURRENCY	218568	218568	218568	0	0	0	0	0	0	0	0	0
LOCAL CURRENCY	113395	113395	113395	0	0	0	0	0	0	0	0	0
LOADING MACHINERY	42283	42283	42283	0	0	0	0	0	0	8649	106656	9715
FOREIGN CURRENCY	42283	42283	42283	0	0	0	0	0	0	8649	106656	9715
LOCAL CURRENCY	0	0	0	0	0	0	0	0	0	0	0	0
SIGNAL EQUIPMENT	93945	93945	93945	0	0	0	0	0	0	0	0	0
FOREIGN CURRENCY	93332	93332	93332	0	0	0	0	0	0	0	0	0
LOCAL CURRENCY	613	613	613	0	0	0	0	0	0	0	0	0
TELECOMMUNICATION EQUIPMENT	14644	14644	14644	0	0	0	0	0	0	0	0	0
FOREIGN CURRENCY	14627	14627	14627	0	0	0	0	0	0	0	0	0
LOCAL CURRENCY	17	17	17	0	0	0	0	0	0	0	0	0
POWER GENERATOR	65413	65413	65413	0	0	0	0	0	0	0	0	0
FOREIGN CURRENCY	65245	65245	65245	0	0	0	0	0	0	0	0	0
LOCAL CURRENCY	169	169	169	0	0	0	0	0	0	0	0	0
SALVAGE VALUE ( - )	0	0	0	0	0	0	0	0	0	0	0	0

( UNIT : THOUSAND TUGRIK )

APPENDIX 10-2-1

TOTAL INVESTMENT WITH CONTINGENCY PLAN 2

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
INVESTMENT TOTAL	0	128746	0	8649	0	106656	0	9715	9631	8649	16606	128746
FOREIGN TOTAL	0	128526	0	8649	0	106656	0	9715	9612	8649	16556	128526
LOCAL TOTAL	0	220	0	0	0	0	0	0	19	0	50	220
CIVIL WORKS	0	0	0	0	0	0	0	0	0	0	0	0
FOREIGN CURRENCY	0	0	0	0	0	0	0	0	0	0	0	0
LOCAL CURRENCY	0	0	0	0	0	0	0	0	0	0	0	0
LOADING MACHINERY	0	0	0	8649	0	106656	0	9715	0	8649	0	0
FOREIGN CURRENCY	0	0	0	8649	0	106656	0	9715	0	8649	0	0
LOCAL CURRENCY	0	0	0	0	0	0	0	0	0	0	0	0
SIGNAL EQUIPMENT	0	0	0	0	0	0	0	0	9631	0	0	0
FOREIGN CURRENCY	0	0	0	0	0	0	0	0	9612	0	0	0
LOCAL CURRENCY	0	0	0	0	0	0	0	0	19	0	0	0
TELECOMMUNICATION EQUIPMENT	0	27326	0	0	0	0	0	0	0	0	16606	27326
FOREIGN CURRENCY	0	27326	0	0	0	0	0	0	0	0	16556	27326
LOCAL CURRENCY	0	0	0	0	0	0	0	0	0	0	50	0
POWER GENERATOR	0	101420	0	0	0	0	0	0	0	0	0	101420
FOREIGN CURRENCY	0	101200	0	0	0	0	0	0	0	0	0	101200
LOCAL CURRENCY	0	220	0	0	0	0	0	0	0	0	0	220
SALVAGE VALUE ( - )	0	0	0	0	0	0	0	0	0	0	0	0

( UNIT : THOUSAND TUGRIK )

APPENDIX 10-2-1

TOTAL INVESTMENT WITH CONTINGENCY PLAN 2

	2017	2018	2019	2020	2021	2022	2023	2024	2025	TOTAL
INVESTMENT TOTAL	106656	0	0	18364	0	0	0	106656	0	2418837
FOREIGN TOTAL	106656	0	0	18364	0	0	0	106656	0	2075752
LOCAL TOTAL	0	0	0	0	0	0	0	0	0	343086
CIVIL WORKS	0	0	0	0	0	0	0	0	0	995887
FOREIGN CURRENCY	0	0	0	0	0	0	0	0	0	655703
LOCAL CURRENCY	0	0	0	0	0	0	0	0	0	340184
LOADING MACHINERY	106656	0	0	18364	0	0	0	106656	0	617214
FOREIGN CURRENCY	106656	0	0	18364	0	0	0	106656	0	617214
LOCAL CURRENCY	0	0	0	0	0	0	0	0	0	0
SIGNAL EQUIPMENT	0	0	0	0	0	0	0	0	0	291466
FOREIGN CURRENCY	0	0	0	0	0	0	0	0	0	289509
LOCAL CURRENCY	0	0	0	0	0	0	0	0	0	1857
TELECOMMUNICATION EQUIPMENT	0	0	0	0	0	0	0	0	0	115190
FOREIGN CURRENCY	0	0	0	0	0	0	0	0	0	115091
LOCAL CURRENCY	0	0	0	0	0	0	0	0	0	99
POWER GENERATOR	0	0	0	0	0	0	0	0	0	399080
FOREIGN CURRENCY	0	0	0	0	0	0	0	0	0	398134
LOCAL CURRENCY	0	0	0	0	0	0	0	0	0	946
SALVAGE VALUE ( - )	0	0	0	0	0	0	0	0	0	409146

APPENDIX 10-2-2 \*\*\*\* FINANCIAL ANALYSIS FOR THE STUDY ON THE IMPROVEMENT PLAN  
FOR TRANSHIPMENT FACILITIES AT ZAMYN-UUD STATION IN MONGOLIA PLAN 2

( UNIT: THOUSAND TUGRIK ) BASIC CASE

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
=====												
PROFIT & LOSS STATEMENT	=====											
OPERATING REVENUE	0	19482	38868	63577	65855	68009	87704	90242	90242	112802	112802	112802
OPERATING COST	0	5873	11695	16322	16634	16928	17222	17500	17500	17500	17500	17500
PERSONNEL COST	0	1724	3423	4502	4663	4816	4968	5112	5112	5112	5112	5112
ENERGY COST	0	1603	3181	4185	4335	4478	4618	4752	4752	4752	4752	4752
MAINTENANCE COST	0	2545	5091	7636	7636	7636	7636	7636	7636	7636	7636	7636
DEPRECIATION	0	18079	36158	54237	54237	54237	54237	54237	54237	54237	54237	54237
OPERATING PROFIT	0	-4469	-9185	-6982	-5016	-3156	16245	18505	18505	41066	41066	41066
INTEREST	0	2284	4341	16086	15463	14787	14061	12933	11737	10517	9831	9886
NET PROFIT	0	-6753	-13526	-23068	-20478	-17943	2183	5572	5768	30549	31235	31180
ACCUMULATED NET PROFIT	0	-6753	-20279	-43347	-63825	-81769	-79586	-74014	-67245	-36696	-5461	25719
=====												

FINANCE PROGRAM

FINANCE IN FOREIGN CURRENCY

BORROWING	437311	440591	443895	0	0	0	0	0	0	0	0	0
REPAYMENT	0	0	0	0	0	0	0	0	0	0	44060	44060
LOAN BALANCE	437311	877902	1321798	1321798	1321798	1321798	1321798	1321798	1321798	1321798	1277738	1233678
INTEREST DURING CONSTRUCTION	3255	6535	9840	0	0	0	0	0	0	0	0	0
INTEREST	0	0	0	9913	9913	9913	9913	9913	9913	9913	9831	9500

FINANCE IN LOCAL CURRENCY

BORROWING	114192	102867	91560	0	0	0	0	0	0	0	19273	0
REPAYMENT	0	0	0	31169	33758	36293	56420	59809	61005	30165	0	19273
LOAN BALANCE	114192	217059	308620	277451	243693	207399	150979	91170	30165	0	19273	0
INTEREST	0	2284	4341	6172	5549	4874	4148	3020	1823	603	0	385

CASH FLOW STATEMENT

CASH FLOW	-548248	-534639	-521275	47254	49221	51081	70481	72742	72742	86654	-11354	85587
OPERATING PROFIT	0	-4469	-9185	-6982	-5016	-3156	16245	18505	18505	41066	41066	41066
DEPRECIATION	0	18079	36158	54237	54237	54237	54237	54237	54237	54237	54237	54237
INVESTMENT (-)	548248	548248	548248	0	0	0	0	0	0	8649	106656	9715
SALVAGE VALUE	0	0	0	0	0	0	0	0	0	0	0	0
FIRR	1.9108%											

( UNIT: THOUSAND TUGRIK )

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>PROFIT &amp; LOSS STATEMENT</b>												
OPERATING REVENUE	112802	112802	112802	112802	112802	112802	112802	112802	112802	112802	112802	112802
OPERATING COST	17500	17500	17500	17500	17500	17500	17500	17500	17500	17500	17500	17500
PERSONNEL COST	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112
ENERGY COST	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752
MAINTENANCE COST	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636
DEPRECIATION	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237
OPERATING PROFIT	41066	41066	41066	41066	41066	41066	41066	41066	41066	41066	41066	41066
INTEREST	9170	8840	9147	8179	7848	7518	7187	6857	6526	6196	5865	5535
NET PROFIT	31896	32226	31919	32987	33218	33548	33878	34209	34539	34870	35200	35531
ACCUMULATED NET PROFIT	57614	89841	121759	154646	187864	221412	255291	289499	324039	358909	394109	429640

<b>FINANCE PROGRAM</b>												
<b>FINANCE IN FOREIGN CURRENCY</b>												
BORROWING	0	0	0	0	0	0	0	0	0	0	0	0
REPAYMENT	44060	44060	44060	44060	44060	44060	44060	44060	44060	44060	44060	44060
LOAN BALANCE	1189618	1145558	1101498	1057438	1013378	969318	925258	881198	837138	793079	749019	704959
INTEREST DURING CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0
INTEREST	9170	8840	8509	8179	7848	7518	7187	6857	6526	6196	5865	5535

<b>FINANCE IN LOCAL CURRENCY</b>												
BORROWING	0	31902	0	0	0	0	0	0	0	0	0	0
REPAYMENT	0	0	31902	0	0	0	0	0	0	0	0	0
LOAN BALANCE	0	31902	0	0	0	0	0	0	0	0	0	0
INTEREST	0	0	638	0	0	0	0	0	0	0	0	0

<b>CASH FLOW STATEMENT</b>												
<b>CASH FLOW</b>												
OPERATING PROFIT	95302	-33444	95302	86654	95302	-11354	95302	85587	85672	86654	78697	-33444
DEPRECIATION	41066	41066	41066	41066	41066	41066	41066	41066	41066	41066	41066	41066
INVESTMENT (-)	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237
SALVAGE VALUE	0	128746	0	8649	0	106656	0	9715	9631	8649	16606	128746
FIRR	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX 10-2-2

( UNIT: THOUSAND TUGRIK )

	2017	2018	2019	2020	2021	2022	2023	2024	2025	TOTAL
<b>PROFIT &amp; LOSS STATEMENT</b>										
OPERATING REVENUE	112802	112802	112802	112802	112802	112802	112802	112802	112802	3231031
OPERATING COST	17500	17500	17500	17500	17500	17500	17500	17500	17500	539667
PERSONNEL COST	5112	5112	5112	5112	5112	5112	5112	5112	5112	157008
ENERGY COST	4752	4752	4752	4752	4752	4752	4752	4752	4752	145947
MAINTENANCE COST	7636	7636	7636	7636	7636	7636	7636	7636	7636	236712
DEPRECIATION	54237	54237	54237	54237	54237	54237	54237	54237	54237	1681339
OPERATING PROFIT	41066	41066	41066	41066	41066	41066	41066	41066	41066	1010025
INTEREST	5205	4874	4544	4213	3883	3552	3222	2891	2561	245739
NET PROFIT	35861	36192	36522	36853	37183	37513	37844	38174	38505	764287
ACCUMULATED NET PROFIT	465501	501693	538215	575067	612250	649764	687607	725782	764287	
<b>FINANCE PROGRAM</b>										
<b>FINANCE IN FOREIGN CURRENCY</b>										
BORROWING	0	0	0	0	0	0	0	0	0	1321798
REPAYMENT	44060	44060	44060	44060	44060	44060	44060	44060	44060	1013378
LOAN BALANCE	660899	616839	572779	528719	484659	440599	396539	352479	308419	30130401
INTEREST DURING CONSTRUCTION	0	0	0	0	0	0	0	0	0	19630
INTEREST	5205	4874	4544	4213	3883	3552	3222	2891	2561	211901
<b>FINANCE IN LOCAL CURRENCY</b>										
BORROWING	0	0	0	0	0	0	0	0	0	359794
REPAYMENT	0	0	0	0	0	0	0	0	0	359794
LOAN BALANCE	0	0	0	0	0	0	0	0	0	1691904
INTEREST	0	0	0	0	0	0	0	0	0	33838
<b>CASH FLOW STATEMENT</b>										
<b>CASH FLOW</b>										
OPERATING PROFIT	41066	41066	41066	41066	41066	41066	41066	41066	41066	1010025
DEPRECIATION	54237	54237	54237	54237	54237	54237	54237	54237	54237	1681339
INVESTMENT (-)	106656	0	0	18364	0	0	0	106656	0	2418837
SALVAGE VALUE	0	0	0	0	0	0	0	0	409146	409146
FIRR										
WEIGHTED AVERAGE INTERES 0.8165%										

APPENDIX 10-2-3 \*\*\*\*\* FINANCIAL ANALYSIS FOR THE STUDY ON THE IMPROVEMENT PLAN  
FOR TRANSHIPMENT FACILITIES AT ZAMYN-UUD STATION IN MONGOLIA PLAN 2

( UNIT: THOUSAND TUGRIK )	SENSITIVITY ANALYSIS (1)										10% UP	10% DOWN
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002		
=====												
PROFIT & LOSS STATEMENT												
=====												
OPERATING REVENUE	0	19482	38668	63577	65855	68009	87704	90242	90242	112802	112802	112802
OPERATING COST	0	5873	11695	16322	16634	16928	17222	17500	17500	17500	17500	17500
PERSONNEL COST	0	1724	3423	4502	4663	4816	4968	5112	5112	5112	5112	5112
ENERGY COST	0	1603	3181	4185	4335	4476	4618	4752	4752	4752	4752	4752
MAINTENANCE COST	0	2545	5091	7636	7636	7636	7636	7636	7636	7636	7636	7636
DEPRECIATION	0	19887	39774	59660	59660	59660	59660	59660	59660	59660	59660	59660
OPERATING PROFIT	0	-6277	-12800	-12406	-10439	-8580	10821	13082	13082	35642	35642	35642
INTEREST	0	2512	4803	17776	17187	16546	15855	14763	13603	12420	10862	12126
NET PROFIT	0	-8789	-17603	-30182	-27626	-25126	-5034	-1681	-521	23222	24780	23517
ACCUMULATED NET PROFIT	0	-8789	-26392	-56574	-84201	-109326	-114361	-116042	-116563	-93341	-68561	-45045
=====												
FINANCE PROGRAM												
=====												
FINANCE IN FOREIGN CURRENCY												
-----												
BORROWING	481042	484650	488285	0	0	0	0	0	0	0	0	0
REPAYMENT	0	0	0	0	0	0	0	0	0	0	0	48466
LOAN BALANCE	481042	965692	1453977	1453977	1453977	1453977	1453977	1453977	1453977	1453977	1403511	1357046
INTEREST DURING CONSTRUCTION	3581	7189	10824	0	0	0	0	0	0	0	0	0
INTEREST	0	0	0	10905	10905	10905	10905	10905	10905	10905	10814	10450
=====												
FINANCE IN LOCAL CURRENCY												
-----												
BORROWING	125612	114514	103441	0	0	0	0	0	0	0	81347	0
REPAYMENT	0	0	0	29478	32034	34535	54626	57979	59139	73369	0	24024
LOAN BALANCE	125612	240126	343567	314089	282054	247520	192894	134914	75775	2407	83754	59730
INTEREST	0	2512	4803	6871	6282	5641	4950	3858	2698	1516	48	1675
=====												
CASH FLOW STATEMENT												
=====												
CASH FLOW												
-----												
OPERATING PROFIT	0	-6277	-12800	-12406	-10439	-8580	10821	13082	13082	35642	35642	35642
DEPRECIATION	0	19887	39774	59660	59660	59660	59660	59660	59660	59660	59660	59660
INVESTMENT (-)	603073	603073	603073	0	0	0	0	0	0	9514	117322	10687
SALVAGE VALUE	0	0	0	0	0	0	0	0	0	0	0	0
FIRR	1.2581%											

APPENDIX 10-2-3

( UNIT: THOUSAND TUGRIK )

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>PROFIT &amp; LOSS STATEMENT</b>												
OPERATING REVENUE	112802	112802	112802	112802	112802	112802	112802	112802	112802	112802	112802	112802
OPERATING COST	17500	17500	17500	17500	17500	17500	17500	17500	17509	17500	17500	17500
PERSONNEL COST	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112
ENERGY COST	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752
MAINTENANCE COST	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636
DEPRECIATION	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660
OPERATING PROFIT	35642	35642	35642	35642	35642	35642	35642	35642	35642	35642	35642	35642
INTEREST	11282	10207	11943	10882	9990	8889	10113	9015	8109	7183	6452	6089
NET PROFIT	24361	25435	23699	24760	25652	26753	25529	26627	27533	28459	29190	29554
ACCUMULATED NET PROFIT	-20684	4751	28450	53210	78862	105615	131144	157771	185304	213763	242953	272507

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>FINANCE PROGRAM</b>												
<b>FINANCE IN FOREIGN CURRENCY</b>												
BORROWING	0	0	0	0	0	0	0	0	0	0	0	0
REPAYMENT	48466	48466	48466	48466	48466	48466	48466	48466	48466	48466	48466	48466
LOAN BALANCE	1308580	1260114	1211648	1163182	1114716	1066250	1017784	969318	920852	872386	823921	775455
INTEREST DURING CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0
INTEREST	10087	9723	9360	8996	8633	8269	7906	7543	7179	6816	6452	6089

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>FINANCE IN LOCAL CURRENCY</b>												
BORROWING	0	104991	0	0	0	79374	0	0	0	0	0	66981
REPAYMENT	35555	0	34893	26441	36847	0	36723	27135	28134	18366	0	0
LOAN BALANCE	24174	129166	94272	67831	30984	110358	73635	46500	18366	0	0	66981
INTEREST	1195	483	2583	1885	1357	620	2207	1473	930	367	0	0

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>CASH FLOW STATEMENT</b>												
<b>CASH FLOW</b>												
OPERATING PROFIT	35642	35642	35642	35642	35642	35642	35642	35642	35642	35642	35642	35642
DEPRECIATION	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660
INVESTMENT (-)	0	141621	0	9514	0	117322	0	10687	10594	9514	18266	141621
SALVAGE VALUE	0	0	0	0	0	0	0	0	0	0	0	0
CASH FLOW	95302	-46318	95302	85789	95302	-22019	95302	84616	84709	85789	77036	-46318



( UNIT: THOUSAND TUGRIK )

	2017	2018	2019	2020	2021	2022	2023	2024	2025	TOTAL
<b>PROFIT &amp; LOSS STATEMENT</b>										
OPERATING REVENUE	112802	112802	112802	112802	112802	112802	112802	112802	112802	3231031
OPERATING COST	17500	17500	17500	17500	17500	17500	17500	17500	17500	539667
PERSONNEL COST	5112	5112	5112	5112	5112	5112	5112	5112	5112	157008
ENERGY COST	4752	4752	4752	4752	4752	4752	4752	4752	4752	145947
MAINTENANCE COST	7636	7636	7636	7636	7636	7636	7636	7636	7636	236712
DEPRECIATION	59660	59660	59660	59660	59660	59660	59660	59660	59660	1849473
OPERATING PROFIT	35642	35642	35642	35642	35642	35642	35642	35642	35642	841891
INTEREST	7065	8252	7117	5959	5182	3985	3544	3181	2817	295708
NET PROFIT	28577	27390	28525	29683	30460	31657	32098	32462	32825	546184
ACCUMULATED NET PROFIT	301084	328474	356999	386682	417142	448799	480897	513359	546184	
<b>FINANCE PROGRAM</b>										
<b>FINANCE IN FOREIGN CURRENCY</b>										
BORROWING	0	0	0	0	0	0	0	0	0	1453977
REPAYMENT	48466	48466	48466	48466	48466	48466	48466	48466	48466	1114716
LOAN BALANCE	726989	678523	630057	581591	533125	484659	436193	387727	339261	33143441
INTEREST DURING CONSTRUCTION	0	0	0	0	0	0	0	0	0	21593
INTEREST	5725	5362	4998	4635	4271	3908	3544	3181	2817	233091
<b>FINANCE IN LOCAL CURRENCY</b>										
BORROWING	77550	0	0	0	0	0	0	0	0	753810
REPAYMENT	0	38584	39720	20677	41655	3894	0	0	0	753810
LOAN BALANCE	144530	105946	66226	45549	3894	0	0	0	0	3130856
INTEREST	1340	2891	2119	1325	911	78	0	0	0	62617
WEIGHTED AVERAGE INTERES 0.8570%										
<b>CASH FLOW STATEMENT</b>										
<b>CASH FLOW</b>										
OPERATING PROFIT	-22019	95302	95302	75102	95302	95302	95302	-22019	545363	480703
DEPRECIATION	35642	35642	35642	35642	35642	35642	35642	35642	35642	841891
INVESTMENT (-)	59660	59660	59660	59660	59660	59660	59660	59660	59660	1849473
SALVAGE VALUE	117322	0	0	20200	0	0	0	117322	0	2660721
FIRR	0	0	0	0	0	0	0	0	0	450060

APPENDIX 10-2-4 \*\*\*\*\* FINANCIAL ANALYSIS FOR THE STUDY ON THE IMPROVEMENT PLAN  
FOR TRANSHIPMENT FACILITIES AT ZAMYN-UUD STATION IN MONGOLIA PLAN 2

	SENSITIVITY ANALYSIS (2)										INVESTMENT REVENUE		0% UP		10% DOWN	
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004				
<b>PROFIT &amp; LOSS STATEMENT</b>																
OPERATING REVENUE	0	17534	34801	57219	59269	61208	78933	81218	81218	101522	101522	101522	101522	101522	101522	101522
OPERATING COST	0	5873	11695	16322	16634	16928	17222	17500	17500	17500	17500	17500	17500	17500	17500	17500
PERSONNEL COST	0	1724	3423	4502	4663	4816	4968	5112	5112	5112	5112	5112	5112	5112	5112	5112
ENERGY COST	0	1603	3181	4185	4335	4476	4618	4752	4752	4752	4752	4752	4752	4752	4752	4752
MAINTENANCE COST	0	2545	5091	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636
DEPRECIATION	0	18079	36158	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237
OPERATING PROFIT	0	-6418	-13051	-13340	-11601	-9957	7474	9481	9481	29786	29786	29786	29786	29786	29786	29786
INTEREST	0	2284	4380	16203	15709	15171	14588	13646	12644	11623	10265	11474	10265	11474	10265	11474
NET PROFIT	0	-8701	-17432	-29543	-27310	-25127	-7114	-4165	-3163	18163	19520	18311	19520	18311	19520	18311
ACCUMULATED NET PROFIT	0	-8701	-26133	-55676	-82986	-108114	-115228	-119393	-122556	-104393	-84873	-66562	-104393	-84873	-66562	-66562
<b>FINANCE PROGRAM</b>																
<b>FINANCE IN FOREIGN CURRENCY</b>																
BORROWING	437311	440591	443895	0	0	0	0	0	0	0	0	0	0	0	0	0
REPAYMENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOAN BALANCE	437311	877902	1321798	1321798	1321798	1321798	1321798	1321798	1321798	1321798	1321798	1321798	1321798	1321798	1321798	1321798
INTEREST DURING CONSTRUCTION	3255	6535	9840	0	0	0	0	0	0	0	0	0	0	0	0	0
INTEREST	0	0	0	9913	9913	9913	9913	9913	9913	9913	9913	9913	9913	9913	9913	9500
<b>FINANCE IN LOCAL CURRENCY</b>																
BORROWING	114192	104815	95466	0	0	0	0	0	0	0	0	0	0	0	0	0
REPAYMENT	0	0	0	24694	26926	29109	47123	50072	51073	63751	63751	63751	63751	63751	63751	18773
LOAN BALANCE	114192	219007	314474	289780	262853	233744	186622	136550	85476	21726	98685	79912	98685	79912	98685	79912
INTEREST	0	2284	4380	6289	5796	5257	4675	3732	2731	1710	435	1974	435	1974	435	1974
<b>CASH FLOW STATEMENT</b>																
<b>CASH FLOW</b>																
OPERATING PROFIT	-548248	-536587	-525142	40897	42635	44280	61711	63718	63718	75374	-22634	74307	-22634	74307	-22634	74307
DEPRECIATION	0	-6418	-13051	-13340	-11601	-9957	7474	9481	9481	29786	29786	29786	29786	29786	29786	29786
INVESTMENT (-)	0	18079	36158	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237
SALVAGE VALUE	548248	548248	548248	0	0	0	0	0	0	0	0	0	0	0	0	0
FIRR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1.0396%															

( UNIT: THOUSAND TUGRIK )

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>PROFIT &amp; LOSS STATEMENT</b>												
OPERATING REVENUE	101522	101522	101522	101522	101522	101522	101522	101522	101522	101522	101522	101522
OPERATING COST	17500	17500	17500	17500	17500	17500	17500	17500	17500	17500	17500	17500
PERSONNEL COST	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112
ENERGY COST	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752
MAINTENANCE COST	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636
DEPRECIATION	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237
OPERATING PROFIT	29786	29786	29786	29786	29786	29786	29786	29786	29786	29786	29786	29786
INTEREST	10768	9854	11496	10596	9852	8919	10101	9173	8421	7652	6849	6188
NET PROFIT	19017	19932	18289	19189	19934	20867	19685	20612	21364	22133	22937	23597
ACCUMULATED NET PROFIT	-47545	-27613	-9324	9866	29800	50666	70351	90963	112328	134461	157398	180995

<b>FINANCE PROGRAM</b>												
<b>FINANCE IN FOREIGN CURRENCY</b>												
BORROWING	0	0	0	0	0	0	0	0	0	0	0	0
REPAYMENT	44060	44060	44060	44060	44060	44060	44060	44060	44060	44060	44060	44060
LOAN BALANCE	1189618	1145558	1101498	1057438	1013378	969318	925258	881198	837138	793079	749019	704959
INTEREST DURING CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0
INTEREST	9170	8840	8509	8179	7848	7518	7187	6857	6526	6196	5865	5535

<b>FINANCE IN LOCAL CURRENCY</b>												
BORROWING	0	98638	0	0	0	75613	0	0	0	0	0	94972
REPAYMENT	29194	0	28466	20717	30111	0	29862	21074	21911	23661	16508	0
LOAN BALANCE	50717	149355	120889	100172	70061	145673	115912	94738	72827	49166	32658	127630
INTEREST	1598	1014	2987	2418	2003	1401	2913	2316	1895	1457	983	653

<b>CASH FLOW STATEMENT</b>												
<b>CASH FLOW</b>												
OPERATING PROFIT	29786	29786	29786	29786	29786	29786	29786	29786	29786	29786	29786	29786
DEPRECIATION	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237	54237
INVESTMENT (-)	0	128746	0	8649	0	106656	0	9715	9631	8649	16606	128746
SALVAGE VALUE	0	0	0	0	0	0	0	0	0	0	0	0
FIRR	84022	-44724	84022	75374	84022	-22634	84022	74307	74392	75374	67417	-44724

APPENDIX 10-2-4

( UNIT: THOUSAND TUGRIK )

	2017	2018	2019	2020	2021	2022	2023	2024	2025	TOTAL
<b>PROFIT &amp; LOSS STATEMENT</b>										
OPERATING REVENUE	101522	101522	101522	101522	101522	101522	101522	101522	101522	2907928
OPERATING COST	17500	17500	17500	17500	17500	17500	17500	17500	17500	539667
PERSONNEL COST	5112	5112	5112	5112	5112	5112	5112	5112	5112	157008
ENERGY COST	4752	4752	4752	4752	4752	4752	4752	4752	4752	145947
MAINTENANCE COST	7636	7636	7636	7636	7636	7636	7636	7636	7636	236712
DEPRECIATION	54237	54237	54237	54237	54237	54237	54237	54237	54237	1681339
OPERATING PROFIT	29786	29786	29786	29786	29786	29786	29786	29786	29786	686922
INTEREST	7757	8916	7964	6994	6371	5369	4347	3304	4374	293254
NET PROFIT	22028	20870	21821	22792	23414	24416	25439	26481	25412	393669
ACCUMULATED NET PROFIT	203023	223893	245714	268506	291920	316336	341775	368257	393669	
<b>FINANCE PROGRAM</b>										
<b>FINANCE IN FOREIGN CURRENCY</b>										
BORROWING	0	0	0	0	0	0	0	0	0	1321798
REPAYMENT	44060	44060	44060	44060	44060	44060	44060	44060	44060	1013378
LOAN BALANCE	660899	616839	572779	528719	484659	440599	396539	352479	308419	30130401
INTEREST DURING CONSTRUCTION	0	0	0	0	0	0	0	0	0	19630
INTEREST	5205	4874	4544	4213	3883	3552	3222	2891	2561	211901
<b>FINANCE IN LOCAL CURRENCY</b>										
BORROWING	74451	0	0	0	0	0	0	69998	0	805104
REPAYMENT	0	31047	31998	14605	33591	34593	35616	0	35589	750063
LOAN BALANCE	202081	171034	139036	124432	90841	56247	20632	90630	55041	4122691
INTEREST	2553	4042	3421	2781	2489	1817	1125	413	1813	81353
<b>CASH FLOW STATEMENT</b>										
<b>CASH FLOW</b>										
OPERATING PROFIT	29786	29786	29786	29786	29786	29786	29786	29786	29786	686922
DEPRECIATION	54237	54237	54237	54237	54237	54237	54237	54237	54237	1681339
INVESTMENT (-)	106656	0	0	18364	0	0	0	106656	0	2418837
SALVAGE VALUE	0	0	0	0	0	0	0	0	409146	409146
FIRR										
WEIGHTED AVERAGE INTERES 0.9004%										

APPENDIX 10-2-5 \*\*\*\*\* FINANCIAL ANALYSIS FOR THE STUDY ON THE IMPROVEMENT PLAN  
FOR TRANSHIPMENT FACILITIES AT ZAMYN-UUD STATION IN MONGOLIA PLAN 2

( UNIT: THOUSAND TUGRIK )

SENSITIVITY ANALYSIS (3)

INVESTMENT REVENUE  
10% UP  
10% DOWN

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
=====												
PROFIT & LOSS STATEMENT												
=====												
OPERATING REVENUE	0	17534	34801	57219	59269	61208	78933	81218	81218	101522	101522	101522
OPERATING COST	0	5873	11695	16322	16634	16928	17222	17500	17500	17500	17500	17500
PERSONNEL COST	0	1724	3423	4502	4663	4816	4968	5112	5112	5112	5112	5112
ENERGY COST	0	1603	3181	4185	4335	4476	4618	4752	4752	4752	4752	4752
MAINTENANCE COST	0	2545	5091	7636	7636	7636	7636	7636	7636	7636	7636	7636
DEPRECIATION	0	19887	39774	59660	59660	59660	59660	59660	59660	59660	59660	59660
OPERATING PROFIT	0	-8225	-16667	-18764	-17025	-15381	2050	4057	4057	24362	24362	24362
INTEREST	0	2512	4841	17893	17433	16929	16382	15476	14511	13527	12216	13732
NET PROFIT	0	-10738	-21509	-36657	-34458	-32310	-14332	-11418	-10453	10835	12146	10630
ACCUMULATED NET PROFIT	0	-10738	-32246	-68903	-103361	-135071	-150003	-161421	-171674	-161039	-148893	-138263
=====												

FINANCE PROGRAM

=====

FINANCE IN FOREIGN CURRENCY

=====

BORROWING	481042	484650	488285	0	0	0	0	0	0	0	0	0
REPAYMENT	0	0	0	0	0	0	0	0	0	0	0	0
LOAN BALANCE	481042	965692	1453977	1453977	1453977	1453977	1453977	1453977	1453977	1453977	1405511	1357046
INTEREST DURING CONSTRUCTION	3581	7189	10824	0	0	0	0	0	0	0	0	0
INTEREST	0	0	0	10905	10905	10905	10905	10905	10905	10905	10814	10450

FINANCE IN LOCAL CURRENCY

=====

BORROWING	125612	116463	107347	0	0	0	0	0	0	0	93981	0
REPAYMENT	0	0	0	23004	25202	27351	45329	48242	49207	60982	0	11137
LOAN BALANCE	125612	242074	349421	326418	301215	273863	228536	180293	131086	70104	164085	152948
INTEREST	0	2512	4841	6988	6528	6024	5477	4571	3606	2622	1402	3282

CASH FLOW STATEMENT

=====

CASH FLOW

=====

OPERATING PROFIT	0	-8225	-16667	-18764	-17025	-15381	2050	4057	4057	24362	24362	24362
DEPRECIATION	0	19887	39774	59660	59660	59660	59660	59660	59660	59660	59660	59660
INVESTMENT (-)	603073	603073	603073	0	0	0	0	0	0	9514	117322	10687
SALVAGE VALUE	0	0	0	0	0	0	0	0	0	0	0	0
FIRR	0.4262%											

APPENDIX 10-2-5

( UNIT: THOUSAND TUGRIK )

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>PROFIT &amp; LOSS STATEMENT</b>												
OPERATING REVENUE	101522	101522	101522	101522	101522	101522	101522	101522	101522	101522	101522	101522
OPERATING COST	17500	17500	17500	17500	17500	17500	17500	17500	17500	17500	17500	17500
PERSONNEL COST	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112	5112
ENERGY COST	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752	4752
MAINTENANCE COST	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636	7636
DEPRECIATION	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660
OPERATING PROFIT	24362	24362	24362	24362	24362	24362	24362	24362	24362	24362	24362	24362
INTEREST	13146	12334	14339	13551	12938	12122	13636	12834	12230	11612	10960	10469
NET PROFIT	11216	12028	10023	10811	11424	12240	10726	11528	12132	12750	13402	13892
ACCUMULATED NET PROFIT	-127047	-115020	-104996	-94185	-82761	-70521	-59795	-48267	-36135	-23385	-9982	3910
<b>FINANCE PROGRAM</b>												
<b>FINANCE IN FOREIGN CURRENCY</b>												
BORROWING	0	0	0	0	0	0	0	0	0	0	0	0
REPAYMENT	48466	48466	48466	48466	48466	48466	48466	48466	48466	48466	48466	48466
LOAN BALANCE	1308580	1260114	1211648	1163182	1114716	1066250	1017784	969318	920852	872386	823921	775455
INTEREST DURING CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0
INTEREST	10087	9723	9360	8996	8633	8269	7906	7543	7179	6816	6452	6089
<b>FINANCE IN LOCAL CURRENCY</b>												
BORROWING	0	118399	0	0	0	93887	0	0	0	0	0	116534
REPAYMENT	22410	0	21218	12492	22619	0	21920	12036	12733	14431	6331	0
LOAN BALANCE	130537	248936	227718	215226	192608	286495	264574	252538	239805	225374	219043	335577
INTEREST	3059	2611	4979	4554	4305	3852	5730	5291	5051	4796	4507	4381
<b>CASH FLOW STATEMENT</b>												
CASH FLOW	84022	-57599	84022	74509	84022	-33299	84022	73336	73429	74509	65756	-57599
OPERATING PROFIT	24362	24362	24362	24362	24362	24362	24362	24362	24362	24362	24362	24362
DEPRECIATION	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660	59660
INVESTMENT (-)	0	141621	0	9514	0	117322	0	10687	10594	9514	18266	141621
SALVAGE VALUE	0	0	0	0	0	0	0	0	0	0	0	0
FIRR												

( UNIT: THOUSAND TUGRIK )

	2017	2018	2019	2020	2021	2022	2023	2024	2025	TOTAL
<b>PROFIT &amp; LOSS STATEMENT</b>										
OPERATING REVENUE	101522	101522	101522	101522	101522	101522	101522	101522	101522	2907928
OPERATING COST	17500	17500	17500	17500	17500	17500	17500	17500	17500	539667
PERSONNEL COST	5112	5112	5112	5112	5112	5112	5112	5112	5112	157008
ENERGY COST	4752	4752	4752	4752	4752	4752	4752	4752	4752	145947
MAINTENANCE COST	7636	7636	7636	7636	7636	7636	7636	7636	7636	236712
DEPRECIATION	59660	59660	59660	59660	59660	59660	59660	59660	59660	1849473
OPERATING PROFIT	24362	24362	24362	24362	24362	24362	24362	24362	24362	518788
INTEREST	12437	13957	13162	12350	11927	11091	10238	9368	10827	400977
NET PROFIT	11925	10405	11200	12012	12435	13271	14124	14994	13535	117811
ACCUMULATED NET PROFIT	15835	26240	37440	49452	61887	75158	89283	104277	117811	
<b>FINANCE PROGRAM</b>										
<b>FINANCE IN FOREIGN CURRENCY</b>										
BORROWING	0	0	0	0	0	0	0	0	0	1453977
REPAYMENT	48466	48466	48466	48466	48466	48466	48466	48466	48466	1114716
LOAN BALANCE	726989	678523	630057	581591	533125	484659	436193	387727	339261	33143441
INTEREST DURING CONSTRUCTION	0	0	0	0	0	0	0	0	0	21593
INTEREST	5725	5362	4998	4635	4271	3908	3544	3181	2817	233091
<b>FINANCE IN LOCAL CURRENCY</b>										
BORROWING	94202	0	0	0	0	0	0	91133	0	957557
REPAYMENT	0	21599	22395	3006	23630	24466	25319	0	24729	581788
LOAN BALANCE	429779	408180	385785	382779	359150	334684	303365	400498	375769	8770079
INTEREST	6712	8596	8164	7716	7656	7183	6694	6187	8010	167886
WEIGHTED AVERAGE INTERES 1.0116%										
<b>CASH FLOW STATEMENT</b>										
<b>CASH FLOW</b>										
OPERATING PROFIT	24362	24362	24362	24362	24362	24362	24362	24362	24362	518788
DEPRECIATION	59660	59660	59660	59660	59660	59660	59660	59660	59660	1849473
INVESTMENT (-)	117322	0	0	20200	0	0	0	117322	0	2660721
SALVAGE VALUE	0	0	0	0	0	0	0	0	450060	450060
FIRR										
CASH FLOW	-33299	84022	84022	63822	84022	84022	84022	-33299	534083	157600







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