

3-3-4 Basic Design Drawing

(1) General Plan

G-1 Site Layout

G-2 Finishing Schedule and Door & Window Schedule

(2) Workshop Plan

Architectural

WB-1 Workshop 1st Floor Plan

WB-2 Workshop 2nd Floor Plan

WB-3 Workshop Elevation & Section

Maintenance and Repair Equipment

WW-1 Equipment Layout

Electrical Facility

WE-1 Outdoor Cabling Plan

WE-2 Oneline Diagram

Building Service

WM-1 Outdoor Piping Plan

WM-2 System Diagram for Hot Water

WM-3 System Diagram for Ventilation

(3) Car Washing Facility Plan

CW-1 Bus Washing House (Plan)

CW-2 Bus Washing House (Section)

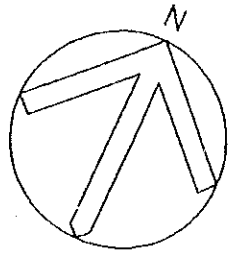
CW-3 System Diagram for Washing Water Reclaim

CW-4 Water Treatment House (Plan)

CW-5 Water Treatment House (Section)

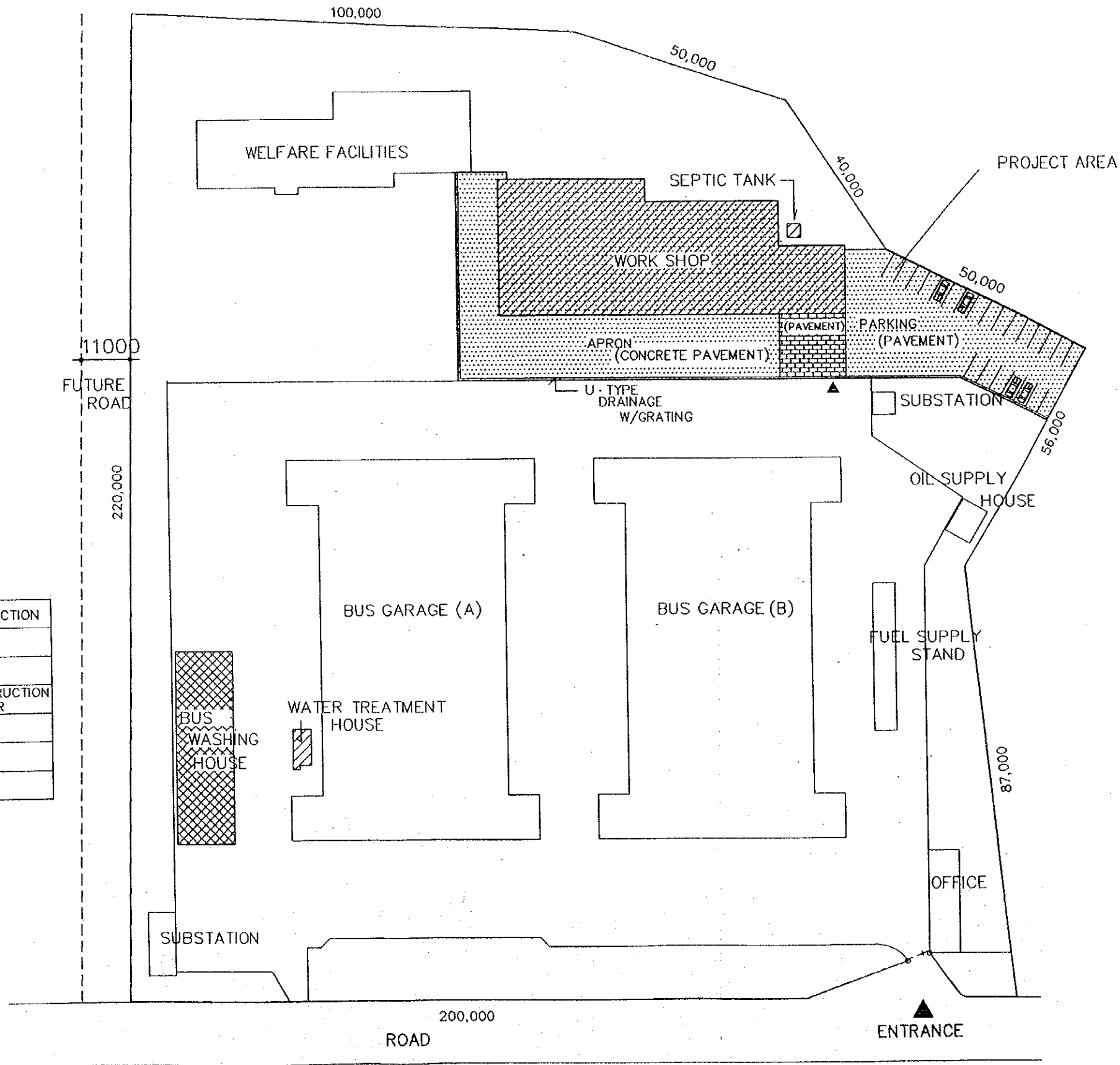
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- EXISTING
- PROJECT AREA**
- NEW BUILDING
- RENOVATION
- EXTERNAL WORK



BUILDING	FLOOR AREA	CONSTRUCTION
WORK SHOP (1F)	1,965.0 M ²	NEW
(2F)	375.0 M ²	NEW
BUS WASHING HOUSE	432.0 M ²	RECONSTRUCTION OF FLOOR
WATER TREATMENT HOUSE	36.0 M ²	NEW
TOTAL	2,808.0 M ²	

SITE PLAN S=1/1000



G - 1

SITE LAYOUT

EXTERIOR FINISH SCHEDULE

ROOF: DOUBBLE SKIN-ROOF (SHELL ROOF BOLTLESS TYPE-II)
 TOP-LIGHT : TRANSLUCENT PANEL (DOUBLE LAYER)
 VENTILATOR (GRAVITY TYPE)

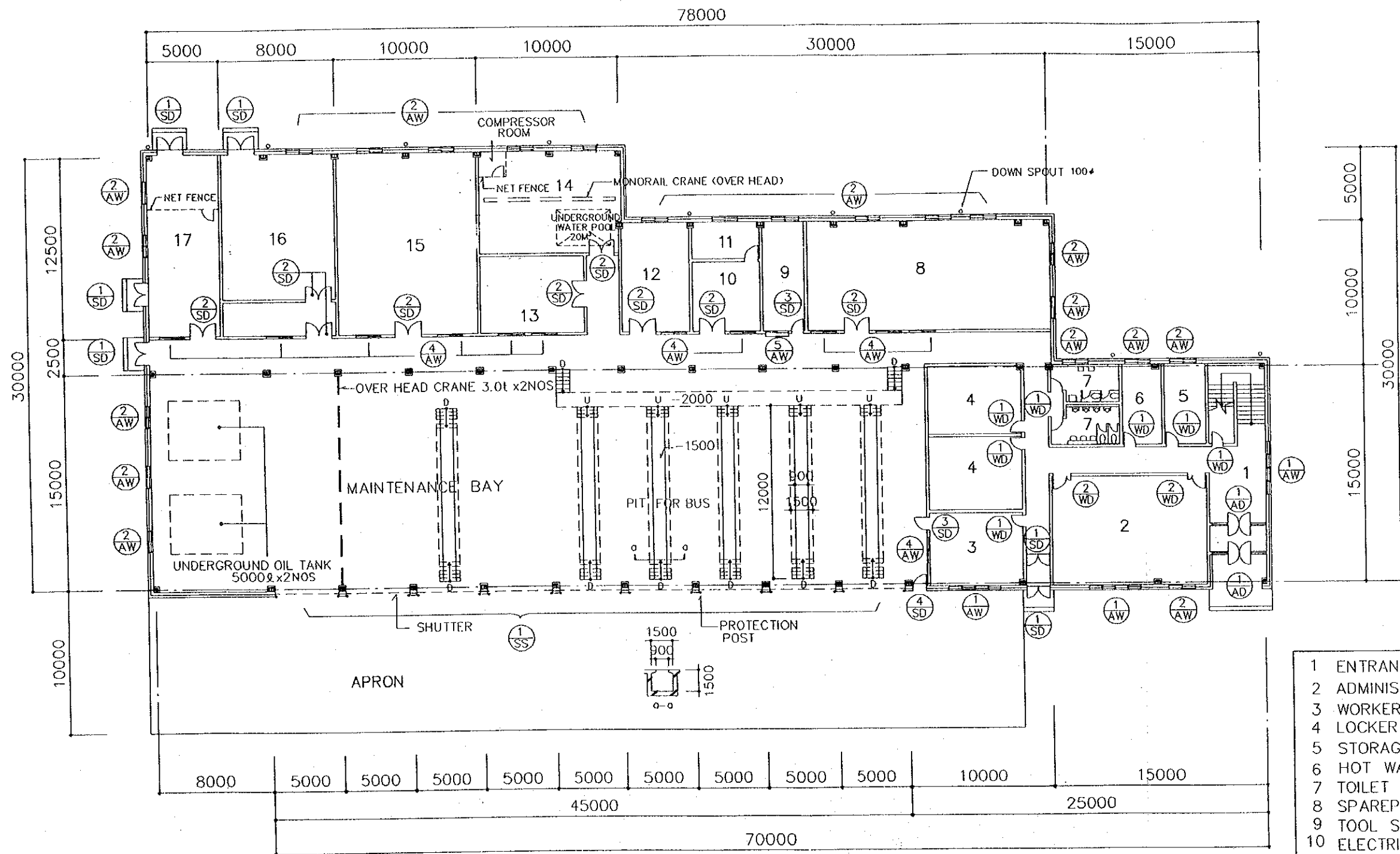
WALL: HEAT INSULATED COMPOSIT PANEL T45 + INSULATION T100
 + CONCRETE BLOCK T200

INTERIOR FINISH SCHEDULE

ROOM	FLOOR	WALL	CEILING
MAINTENANCE BAY, WORKSHOP AND STORAGE	CONC. TROWEL	BLOCK (t=200mm) + PLASTER W/PAINT	NONE
ENTRANCE HALL ADMINISTRATION WORKER'S OFFICE LOCKER ROOM	LOCAL MARBLE	DITTO	GYPSUMBOARD (t=9mm) W/PAINT LGS CEILING SYSTEM W/GLASSWOOL INSULATION (t=300mm) H=2,500
HOT WATER CORNER TOILET	CERAMIC TILE	CERAMIC TILE (100x100x2mm)	CEMENT BOARD (t=6mm) W/PAINT LGS CEILING SYSTEM W/GLASSWOOL INSULATION (t=300mm) H=2,400
2FL ADMINISTRATION SECTION	LOCAL MARBLE	BLOCK (t=200mm) + PLASTER W/PAINT	ACOUSTIC (t=12mm) + GYPSUMBOARD (t=9mm) W/PAINT LGS CEILING SYSTEM W/GLASSWOOL INSULATION (t=300mm) H=2,400

DOOR & WINDOW SCHEDULE

No,	W x H	DESCRIPTION	ACCESSORIES/HARDWARE	
AW 1	3,600x1,200	ALUMI. DOUBLE SASH	DOUBLE SLIDING	
AW 2	1,800x1,200	DITTO	SLIDING	
AW 3	900x1,000	DITTO	DITTO	
AW 4	1,800x1,400	ALUMI. SASH	DITTO	
AW 5	1,500x1,000	DITTO	DITTO	
AW 6	4,000x1,000	DITTO	DOUBLE FIXED	
SD 1	1,800x2,100	STEEL DOOR W/PANE	DOUBLE SWING	HINGE, DOOR CHECK
SD 2	1,800x2,100	STEEL FLUSH DOOR	DITTO	DITTO
SD 3	900x2,100	DITTO	SINGLE SWING	DITTO
SD 4	900x2,100	DITTO	DITTO	DITTO
AD 1	4,000x2,500	ALUMI. DOOR W/SIDE PANEL	DOUBLE SWING	FLOOR HINGE, DOOR CHECK
SS 1	4,200x4,000	STEEL ROLL-UP DOOR W/INSULATION	VERTICAL MANUAL	HEAD COVER GUIDE RAIL (STAINLESS MADE)
WD 1	800x2,100	WOOD FLUSH DOOR	SINGLE SWING	HINGES
WD 2	1,200x2,100	DITTO	DOUBLE SWING	DITTO

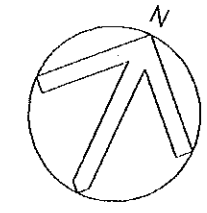
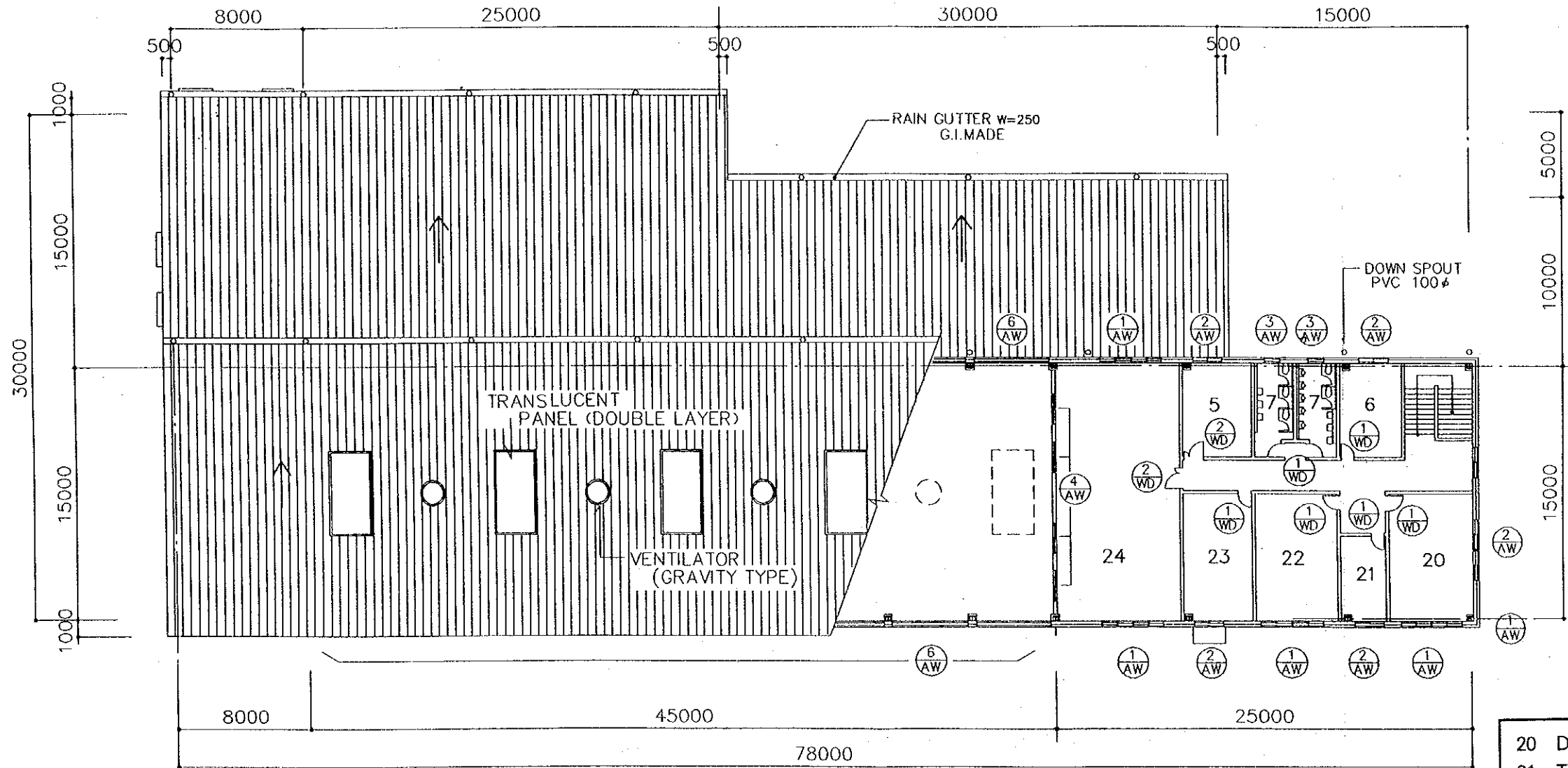


- 1 ENTRANCE HALL
- 2 ADMINISTRATION
- 3 WORKER'S OFFICE
- 4 LOCKER ROOM
- 5 STORAGE
- 6 HOT WATER CORNER
- 7 TOILET
- 8 SPAREPARTS STORAGE
- 9 TOOL STORAGE
- 10 ELECTRICAL ROOM
- 11 BATTERY ROOM
- 12 INJECTION PUMP TEST ROOM
- 13 ENGINE REPAIR ROOM
- 14 ENGINE TEST ROOM
- 15 MACHINE SHOP
INSPECTION &
FABRICATION AREA
- 16 MECHANICAL ROOM
- 17 POWER & GENERATOR HOUSE

1ST FLOOR PLAN 1,965.0m² S=1/300



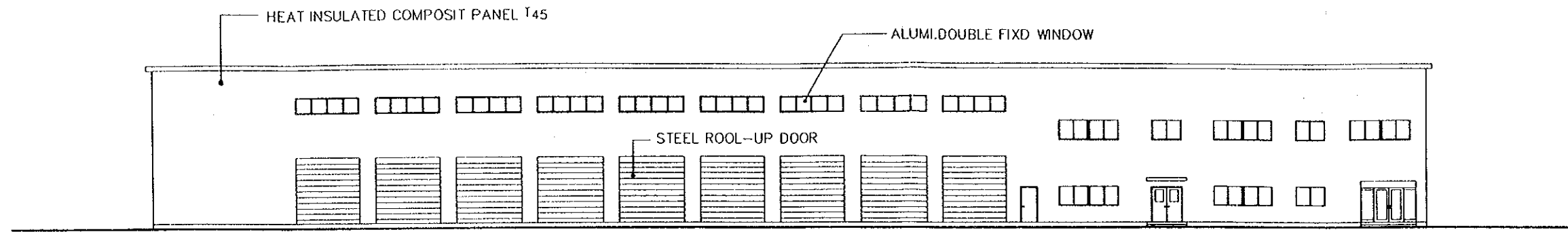
WB - 1 WORKSHOP - 1ST FLOOR PLAN



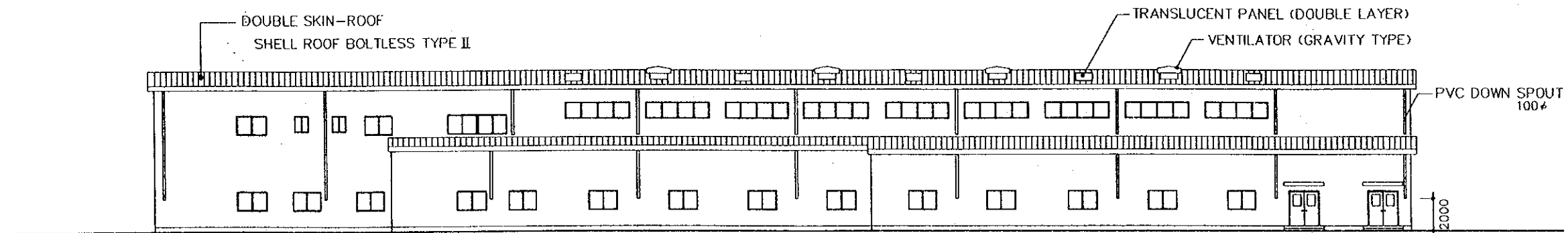
- 20 DIRECTOR'S ROOM
- 21 TYPE · PHOTOCOPY ROOM
- 22 ADMINISTRATION ROOM
- 23 EXPERT'S ROOM
- 24 MEETING ROOM PRACTICE ROOM



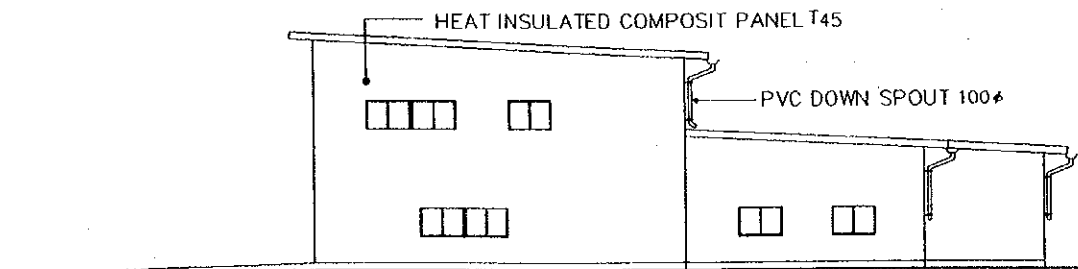
2ND FLOOR PLAN 375.0m² S=1/300



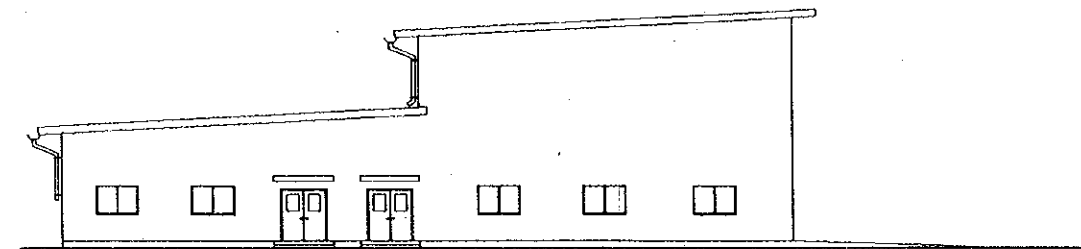
SOUTH-ELEVATION S=1/300



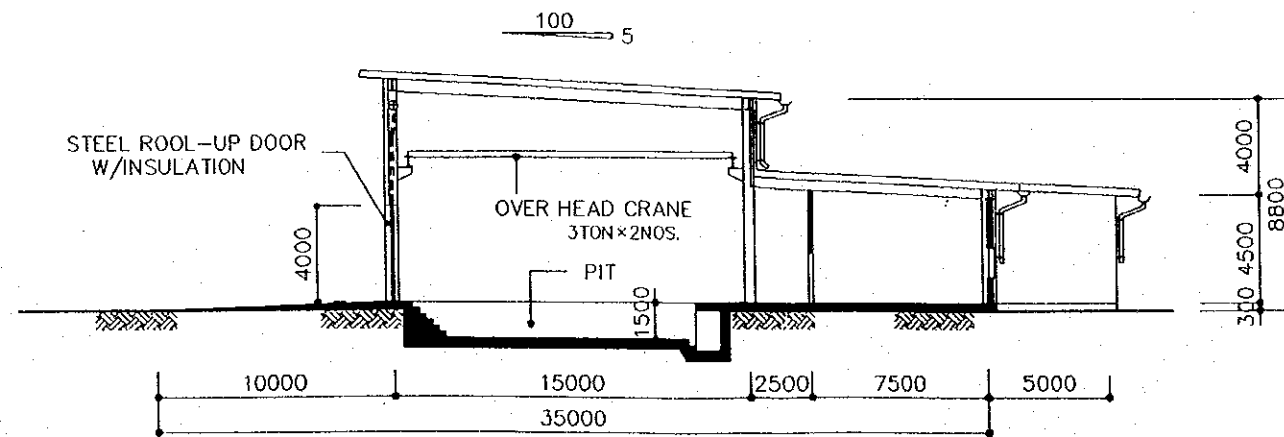
NORTH-ELEVATION S=1/300



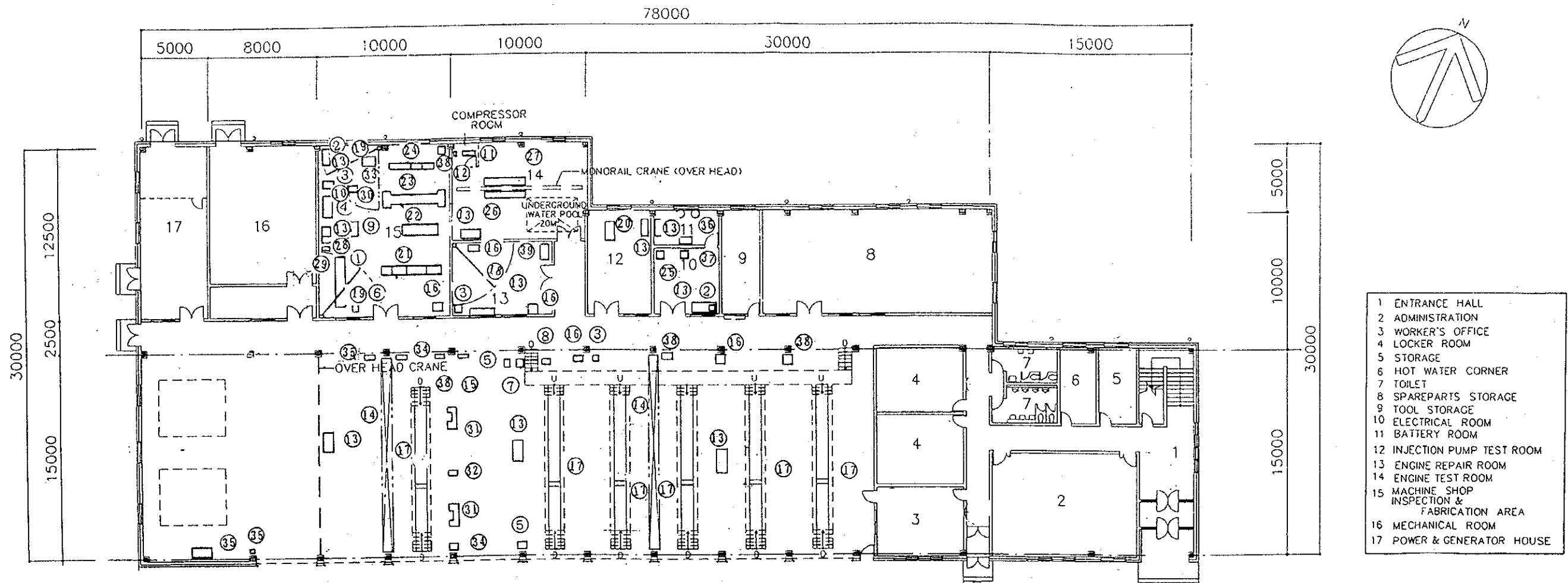
EAST-ELEVATION S=1/300



WEST-ELEVATION S=1/300



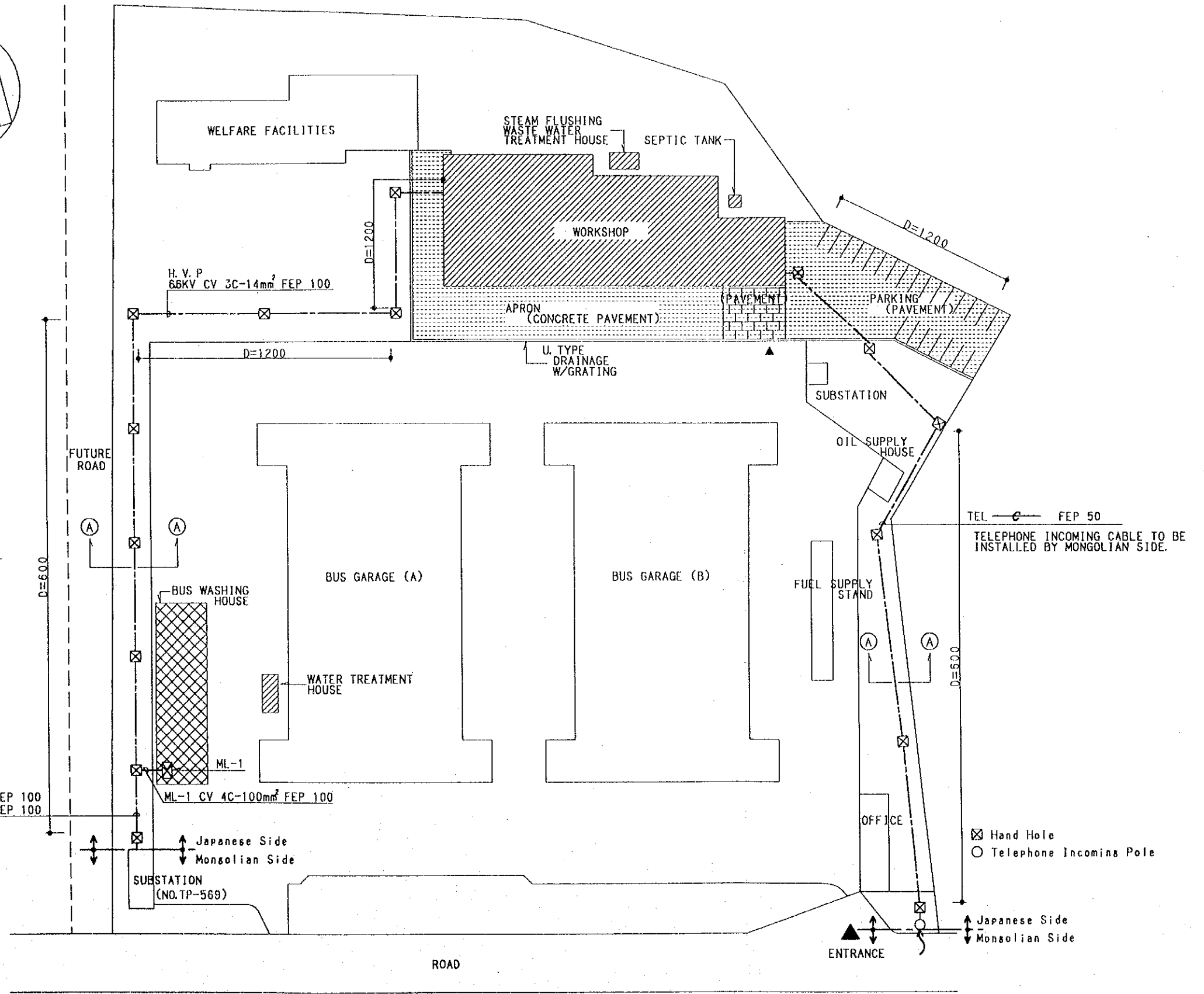
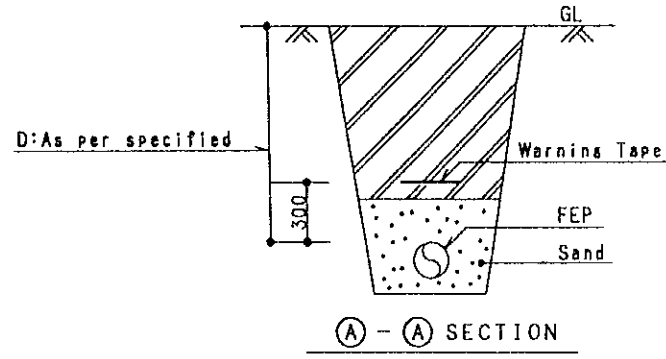
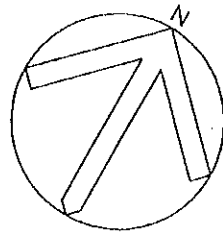
SECTION S=1/300



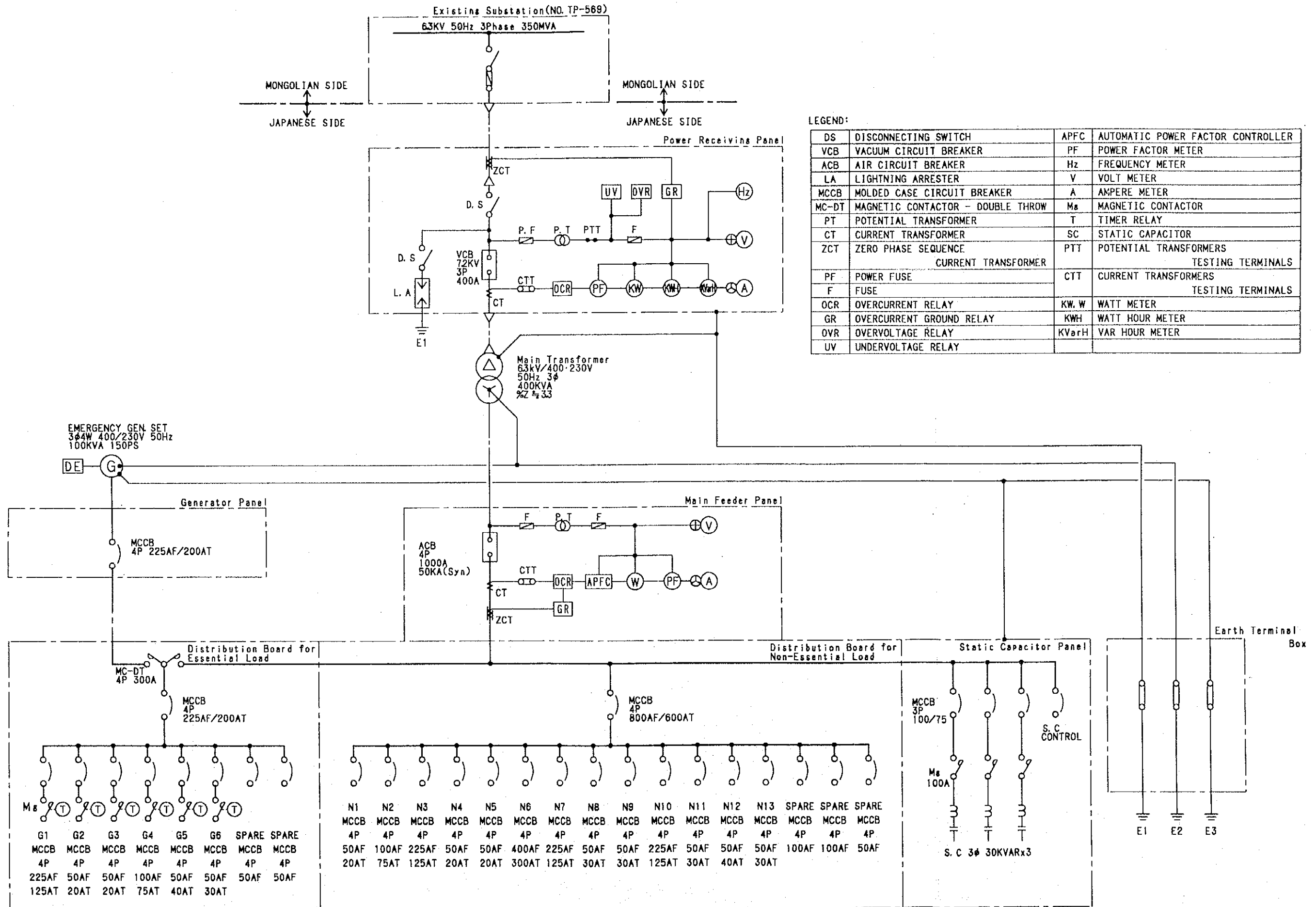
No	Item	Description	Qty
1	1-1	CRANKSHAFT GRINDER	1
2	1-2	BENCH DRILL	2
3	1-3	BENCH GRINDER	3
4	1-5	LATHE MACHINE	1
5	1-6	ARC WELDER	2
6	1-7	HIGH SPEED CUT OFF MACHINE	1
7	1-8	SPOT WELDER	1
8	1-9	GAS WELDER SET	1
9	1-10	UNIVERSAL MILLING MACHINE	1
10	1-11	HACK SAWING MACHINE	1
11	2-1-1	AIR COMPRESSOR	1
12	2-1-2	AIR RECIVER TANK	1
13	2-4	WORK BENCH	10

No	Item	Description	Qty
14	2-21	OVERHEAD CRANE 3ton	2
15	2-22	HYDRAULIC PRESS	1
16	2-23	PARTS CLEANER	5
17	2-28	PIT LIFT	6
18	2-96	JIB CRANE 2ton	1
19	2-97	JIB CRANE 1ton	2
20	3-11	INJECTION PUMP TESTER	1
21	3-15	TURNING RADIUS GAUGE	1
22	3-16	SIDESLIP TESTER	1
23	3-17	BRAKE TESTER	1
24	3-29	HEAD LIGHT TESTER	1
25	3-30	ALTERNATOR TESTER	1
26	3-55	ENGINE DYNAMOMETER	1

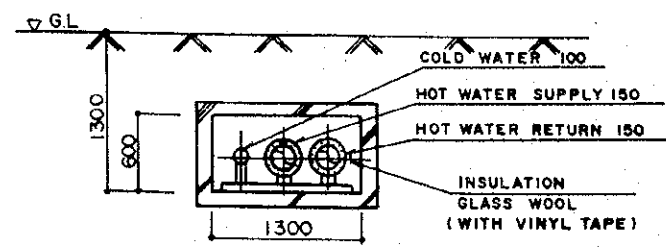
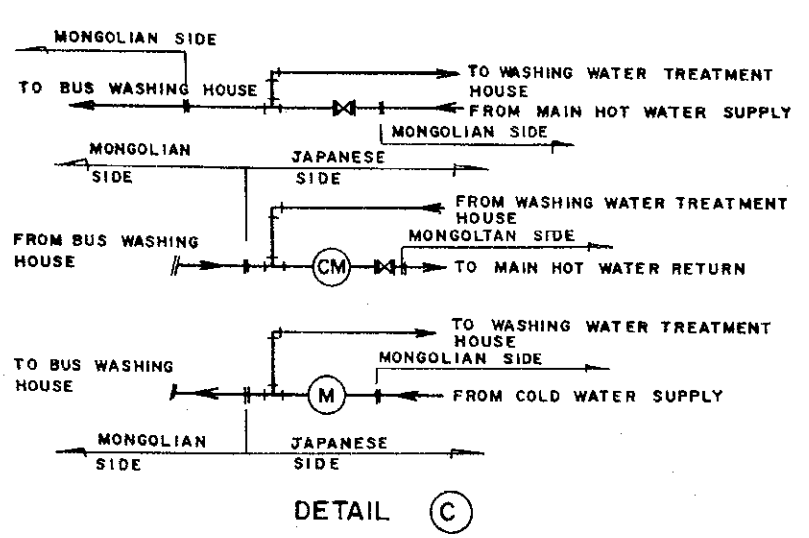
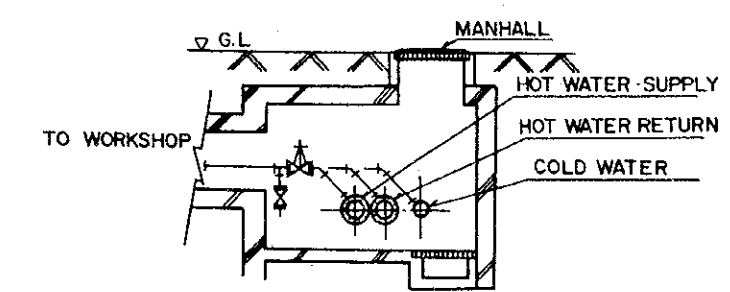
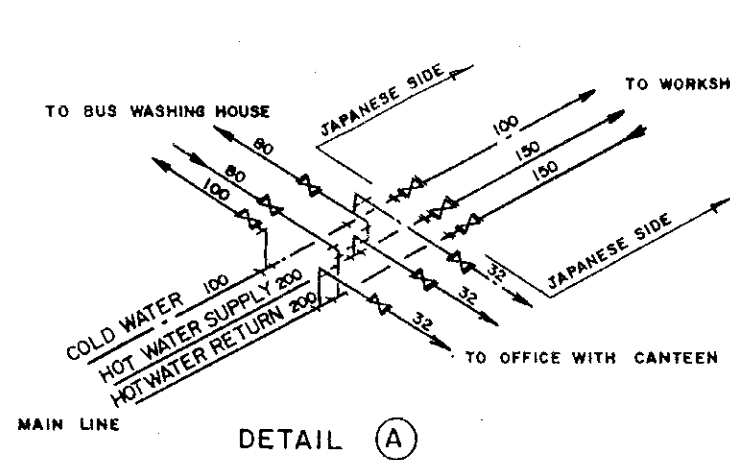
No	Item	Description	Qty
27	3-56	MONO-RAIL HOIST 1ton	1
28	4-8	VALVE REFACTOR	1
29	4-19	BRAKE LINING RIVETTER	1
30	4-20	BRAKE DRUM LATHE	1
31	4-24	TIRE CHANGER	2
32	4-25	WHEEL BALANCER	1
33	4-27	BORING & SUREFACE GRINDING	1
34	4-43	TIRE INFLATOR	2
35	4-47	CONCENTRATE LUBRICATION	2
36	6-5	WATER PURIFIER	2
37	6-6	WIRE WINDING MACHINE	1
38	8-5	EXHUST GAS COLLECTIVE	4
39	8-4	STEAM CLEANER	1



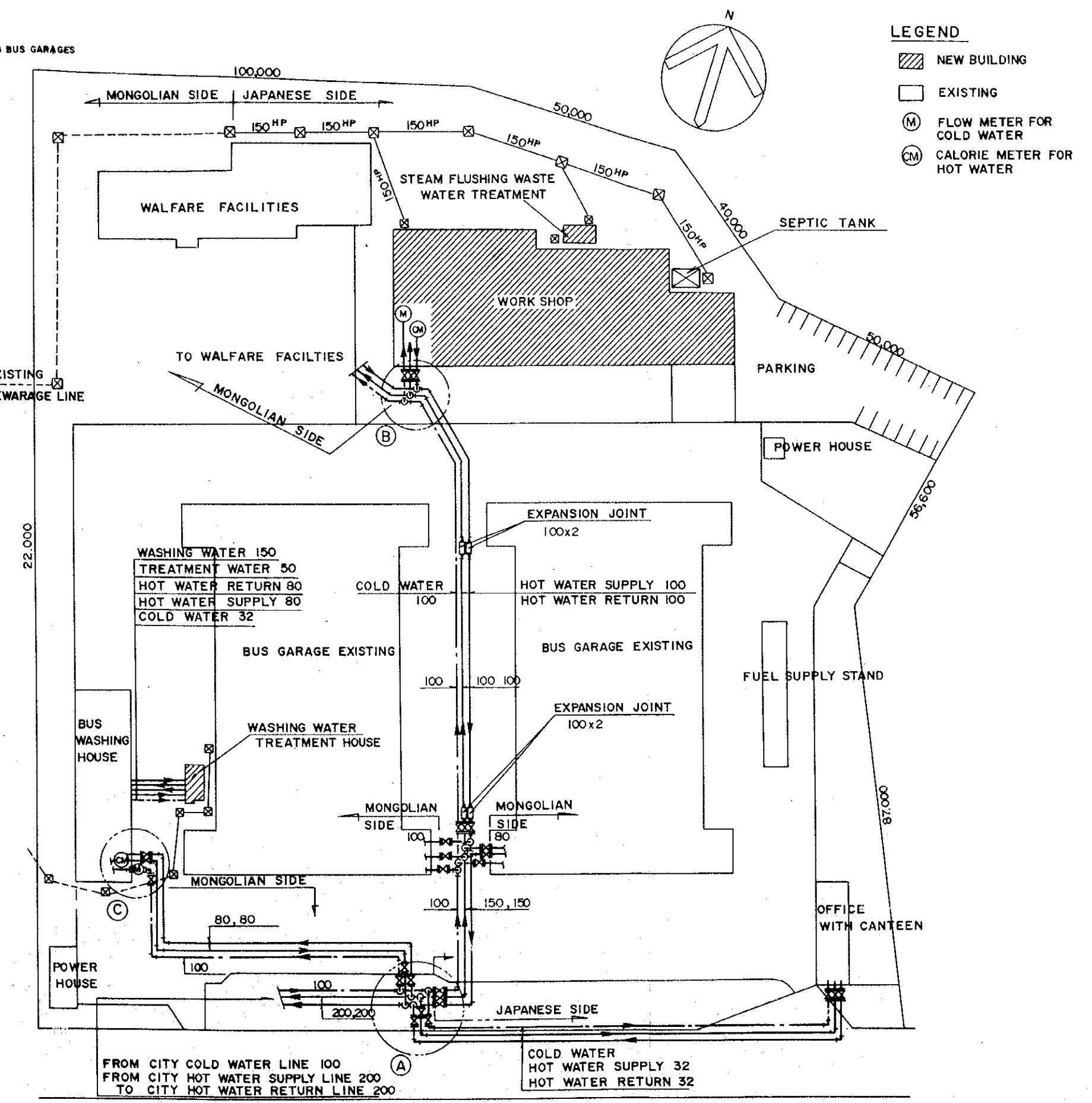
WE-1 OUTDOOR CABLING PLAN



WE-2 ONELINE DIAGRAM
















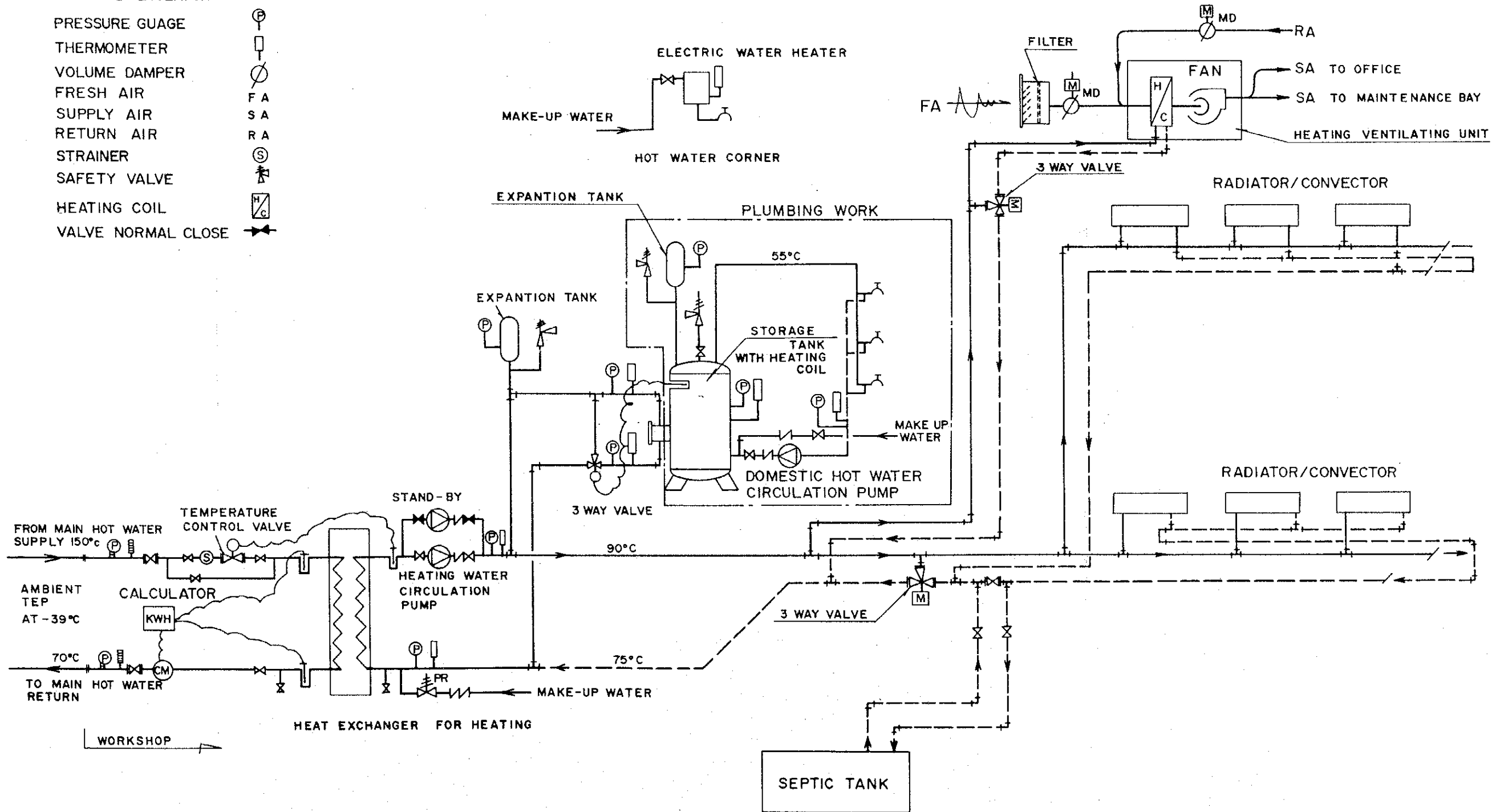
TYPICAL ARRANGEMENT OF PIPE TRENCH



WM-1 OUTDOOR PIPING PLAN

LEGEND:

- CALORIE METER 
- PUMP 
- PRESSURE REGULATOR 
- PRESSURE GAUGE 
- THERMOMETER 
- VOLUME DAMPER 
- FRESH AIR 
- SUPPLY AIR 
- RETURN AIR 
- STRAINER 
- SAFETY VALVE 
- HEATING COIL 
- VALVE NORMAL CLOSE 

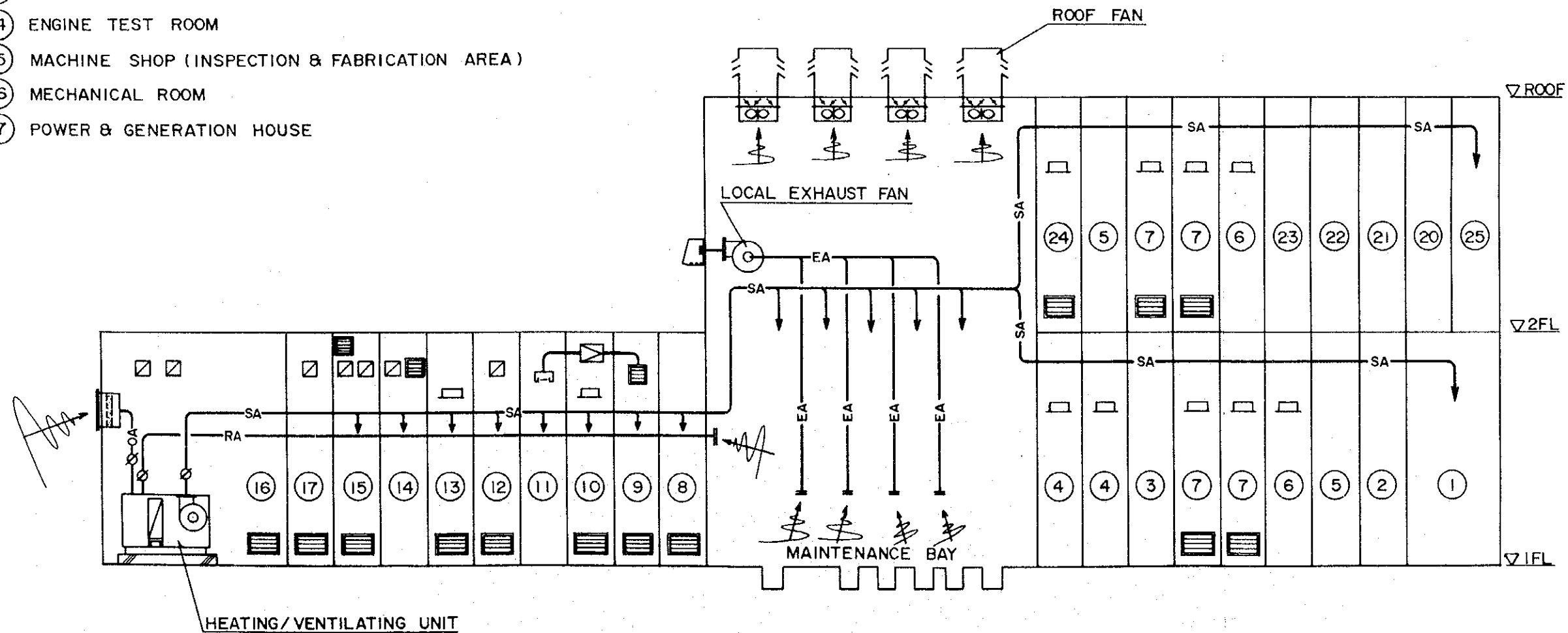


WM-2 SYSTEM DIAGRAM FOR HOT WATER

- | | |
|--|---------------------------------|
| ① ENTRANCE HALL | ②① DIRECTOR'S ROOM |
| ② ADMINISTRATION | ②② TYPE-PHOTOCOPY ROOM |
| ③ WORKER'S OFFICE | ②③ ADMINISTRATION ROOM |
| ④ LOCKER ROOM | ②④ EXPERT'S ROOM |
| ⑤ STORAGE | ②⑤ MEETING ROOM & PRACTICE ROOM |
| ⑥ HOT WATER CORNER | ②⑥ CORRIDOR |
| ⑦ TOILET | |
| ⑧ SPARE PARTS STORAGE | |
| ⑨ TOOL STORAGE | |
| ⑩ ELECTRICAL ROOM | |
| ⑪ BATTERY ROOM | |
| ⑫ INJECTION PUMP | |
| ⑬ ENGINE REPAIR | |
| ⑭ ENGINE TEST ROOM | |
| ⑮ MACHINE SHOP (INSPECTION & FABRICATION AREA) | |
| ⑯ MECHANICAL ROOM | |
| ⑰ POWER & GENERATION HOUSE | |

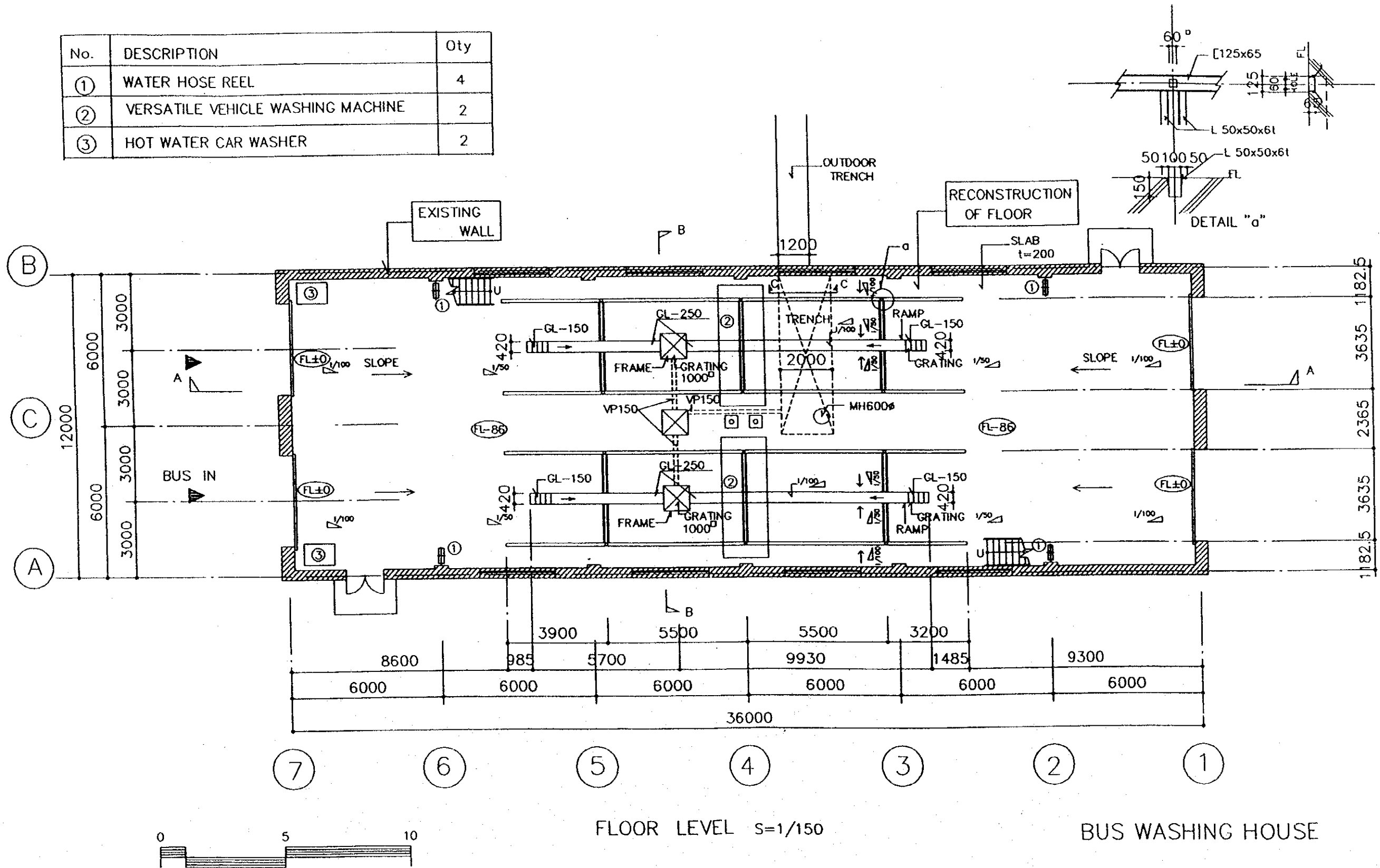
LEGEND:

- ☐ EXHAUST FAN (EF)
- ☐ CEILING FAN (CF)
- ⊗ MOTER DAMPER (MD)
- ▨ RETURN GRILLE WITH DAMPER
- ▩ IN-LINE FAN (OR CENTRIFUGAL FAN)



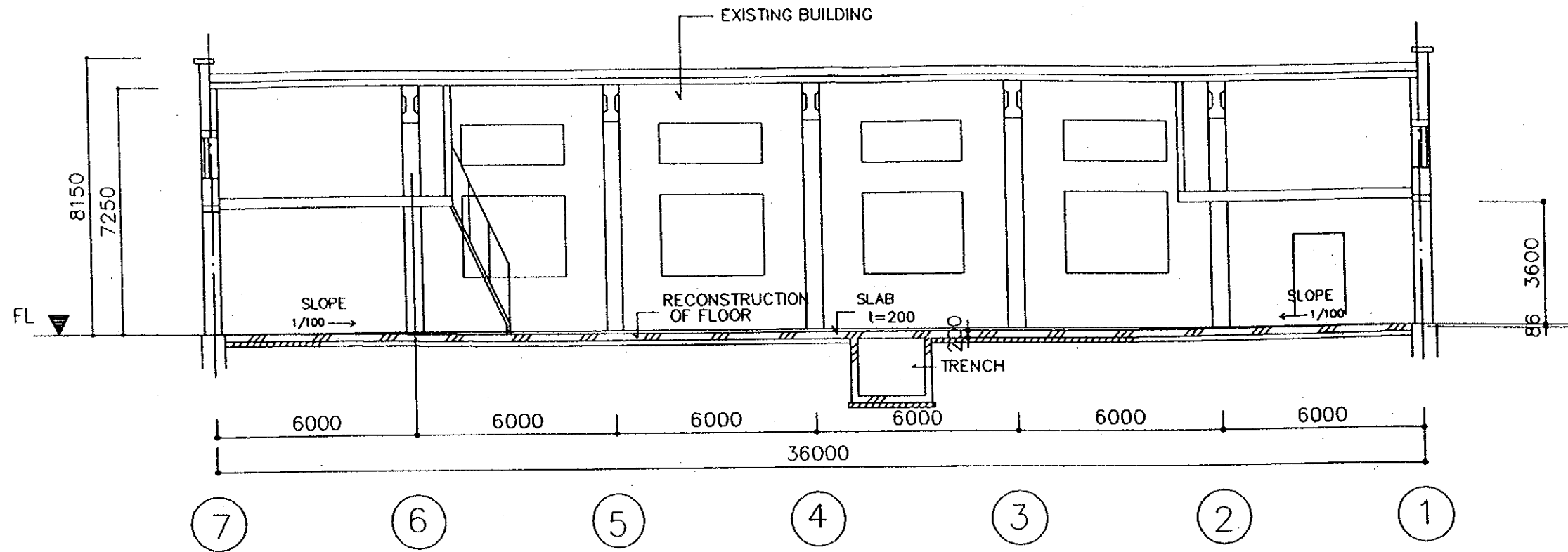
AIR FLOW DIAGRAM

No.	DESCRIPTION	Qty
①	WATER HOSE REEL	4
②	VERSATILE VEHICLE WASHING MACHINE	2
③	HOT WATER CAR WASHER	2

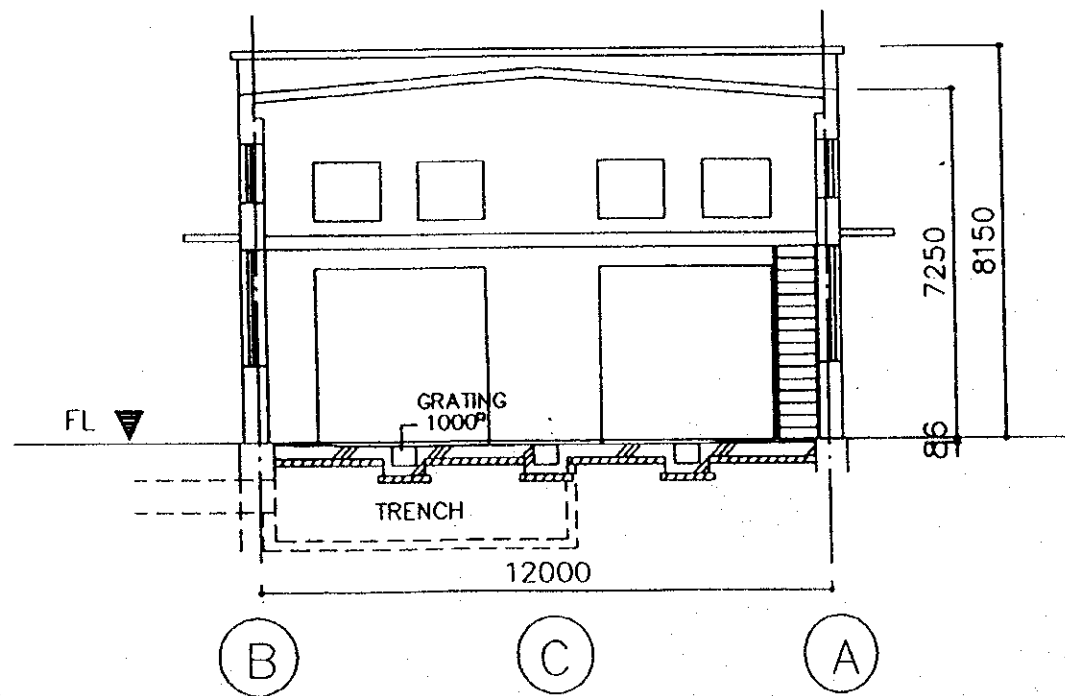


CW-1

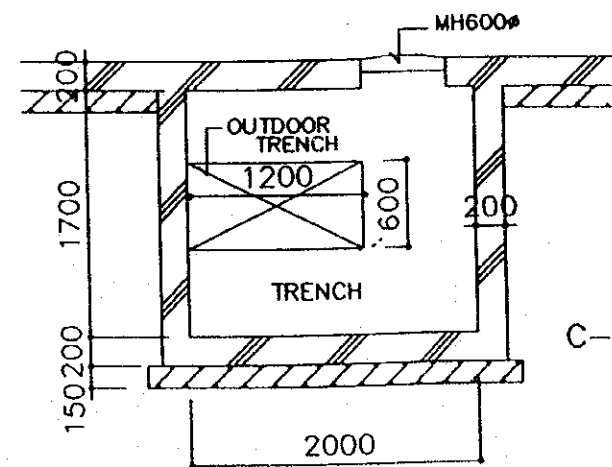
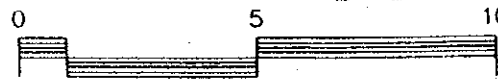
BUS WASHING HOUSE (PLAN)



A-A SECTION S=1/150



B-B SECTION S=1/150

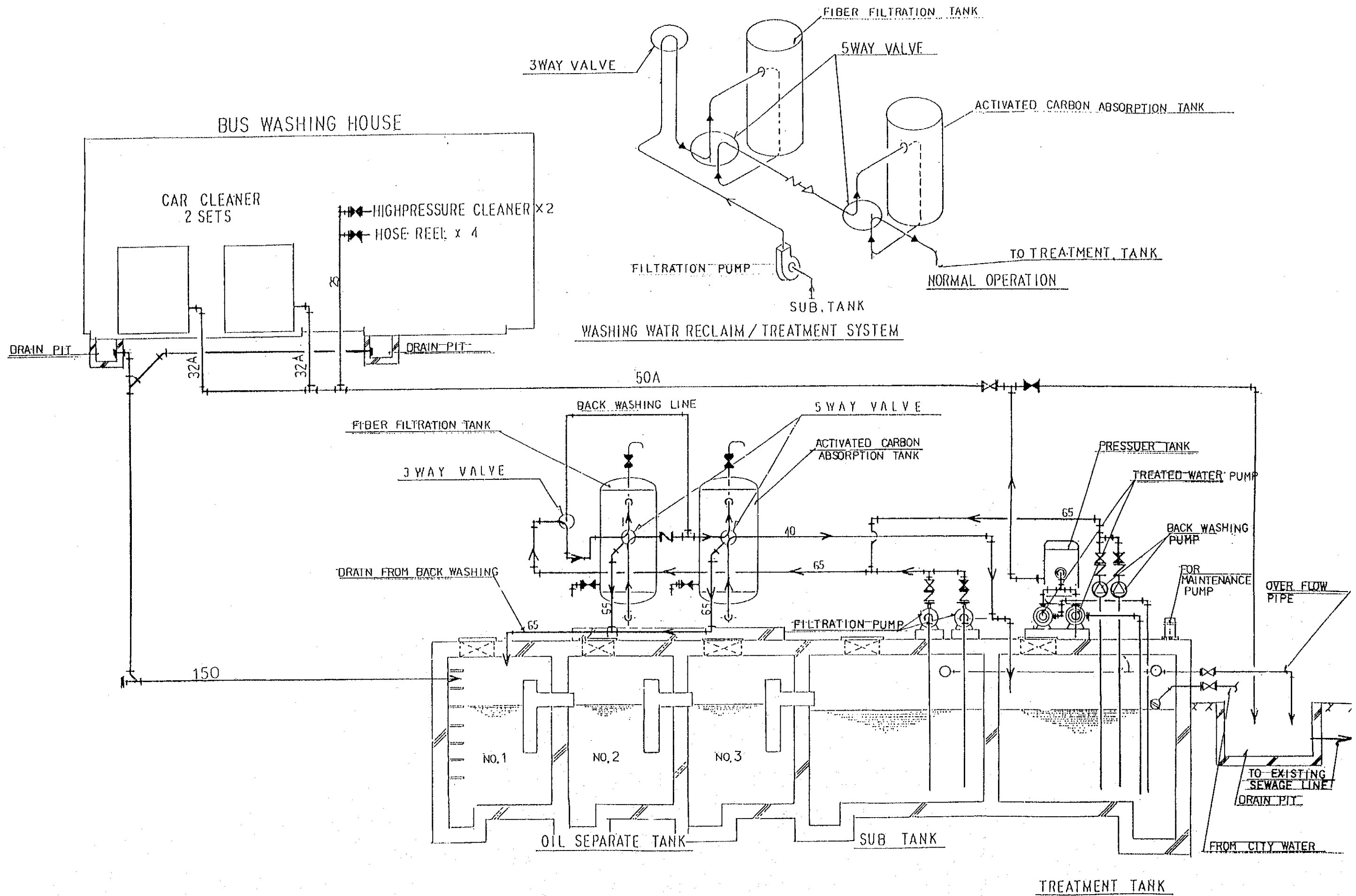


C-C SECTION

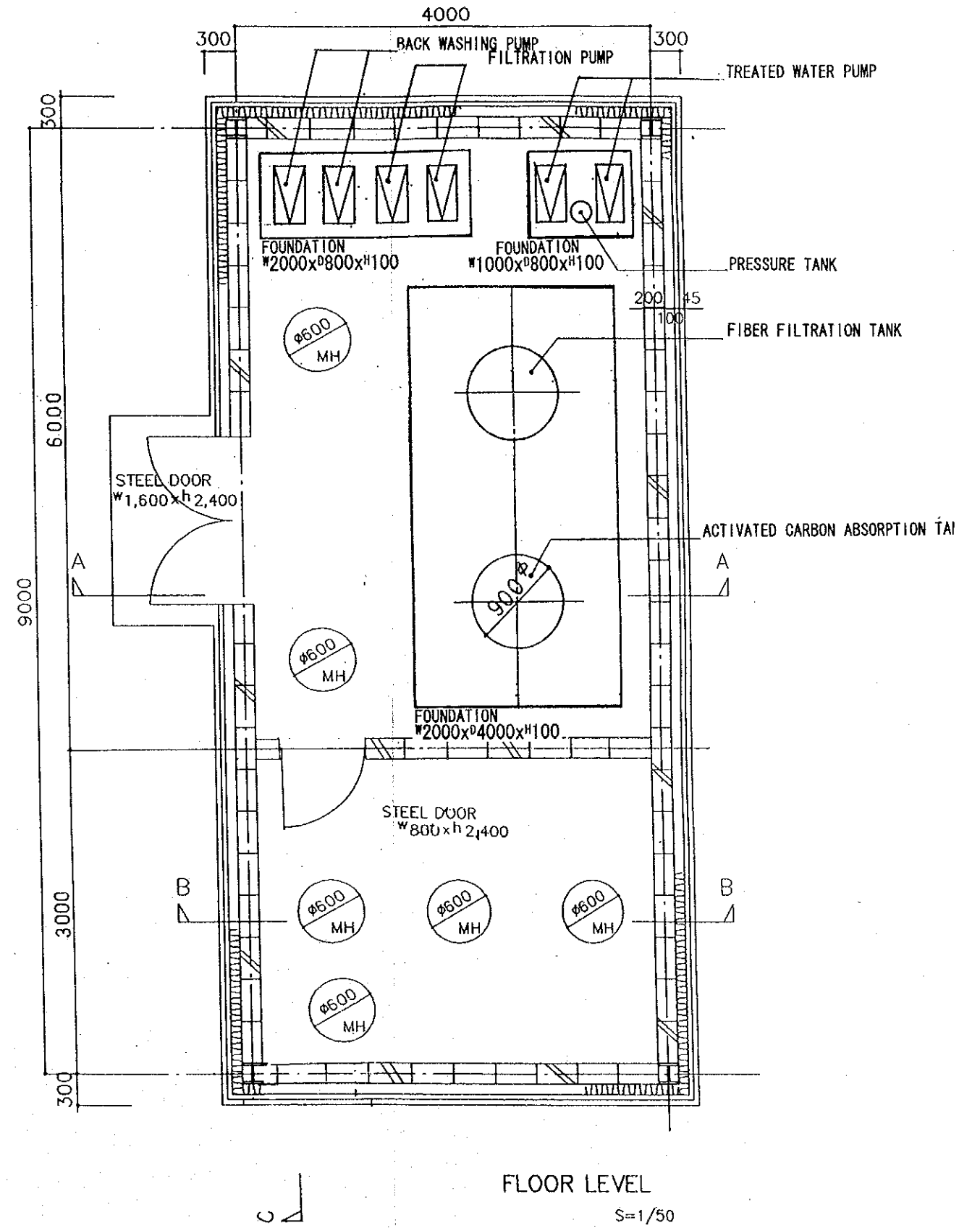
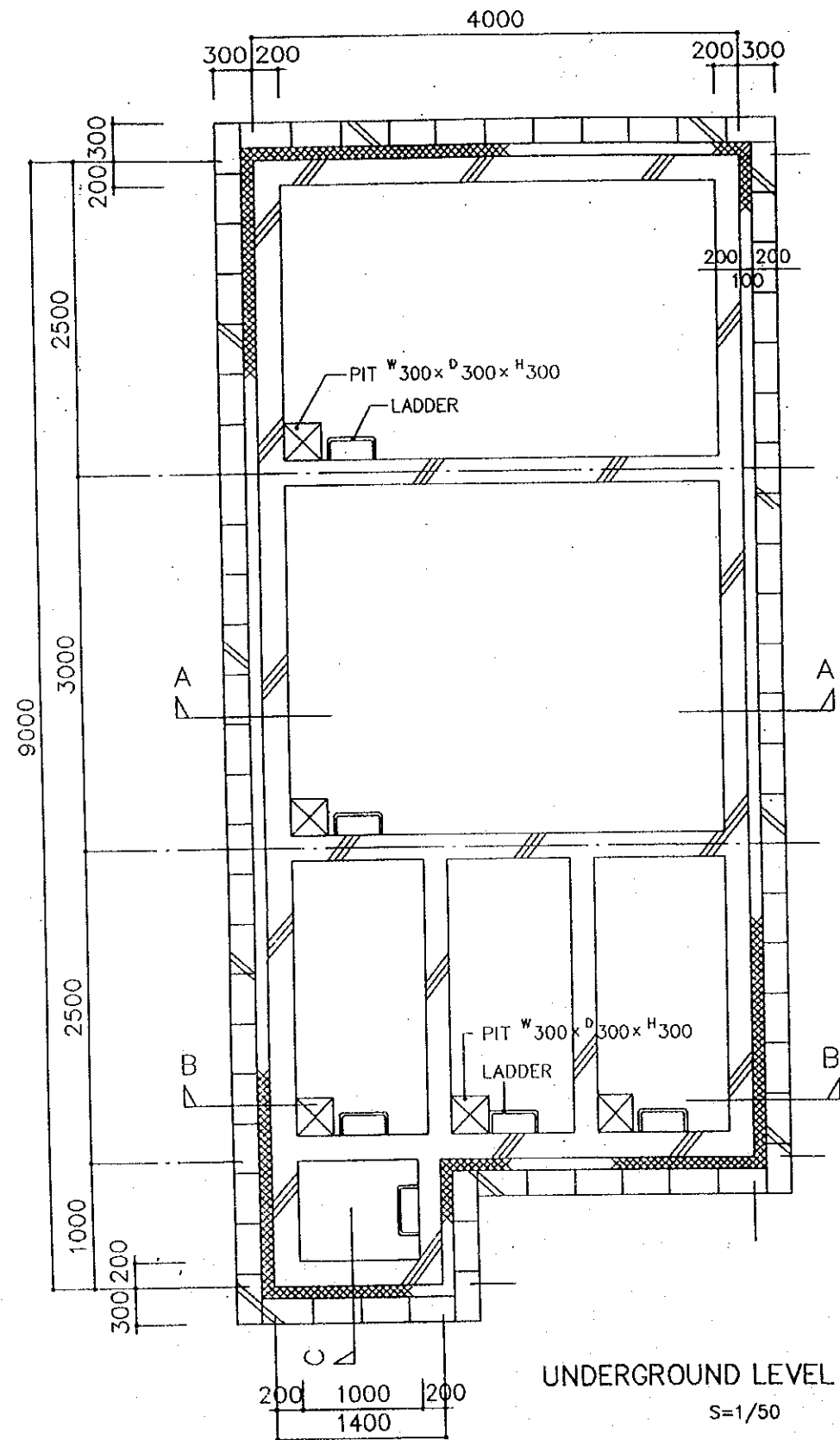
BUS WASHING HOUSE

CW-2

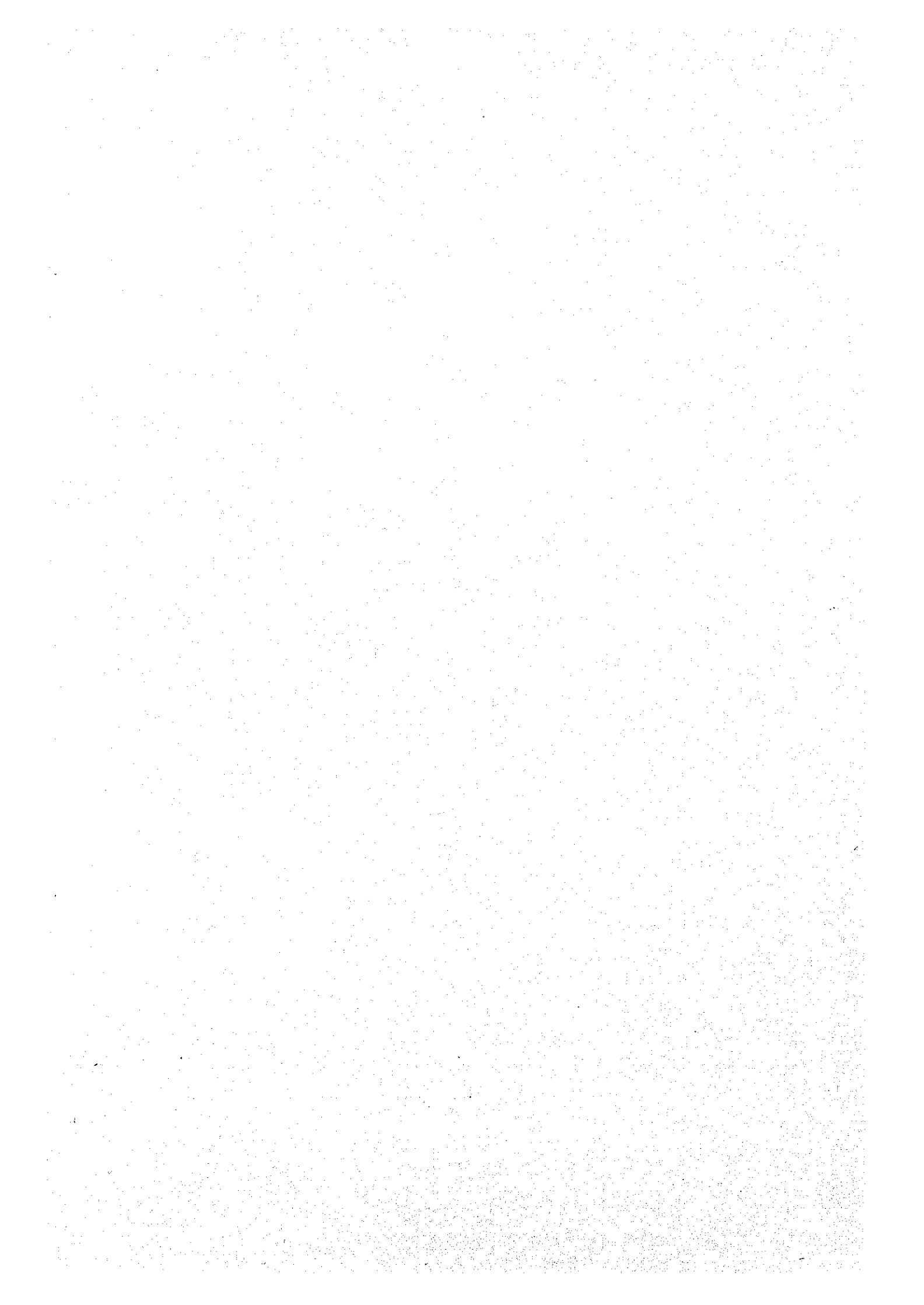
BUS WASHING HOUSE (SECTION)



CW-3 SYSTEM DIAGRAM FOR WASHING WATER RECLAIM



CW-4 WATER TREATMENT HOUSE (PLAN)



3-4 Implementation Plan

3-4-1 Construction Condition

The Project will be conducted within the guidelines of grant aid cooperation projects of the Government of Japan. The Project will be implemented after recognition by both governments and the signing of the E/N. Thereupon the Government of Mongolia will select a Japanese consulting firm to draft plans for the actual project. On completion of the project plans, the project will be put to tender and the successful Japanese contractor will commence the procurement of equipment or construction of facilities. The fundamental categories and points which require special consideration during the implementation of the Project are as follows.

(1) Project Implementation Body

The supervising and responsible body for the Project for the Government of Mongolia shall be the Ministry of Infrastructure Development while the implementing body shall be the Transport Department of Ulaan Baatar city. For the Transportation Department, the Chairman and Deputy chairman will be in charge of the implementing the Project. To ensure the smooth progression of construction and procurement within this plan, the government of Mongolia should appoint a project manager responsible for keeping close contact and holding meeting with the Japanese consultant and contractor.

(2) Consultant

The Government of Mongolia and the Japanese consultant will sign a planning and supervision agreement to prepare detailed designs and supervise construction and procurement activities of this grant aid cooperation project. Further, the consultant will prepare tender documents and be responsible for implementing the tendering process.

(3) Contractor

The Japanese contractor selected in the public tendering process will be responsible for constructing facilities and procuring machinery and materials, in accordance to the rules of Japan's grant aid projects.

The contractor is responsible for the procurement of buses and workshop machinery and materials, and as the contractor will also be responsible for the

supply of spare parts and after-service including response to breakdowns, it is necessary to consider a means of communication with Japan.

(4) Necessity of Dispatch of Technical Experts

During the construction of the Project, special techniques are necessary for the specifications of the workshop in the Project. As it is difficult to secure technicians who are familiar with these special technologies in Mongolia, it is necessary to send technical experts from the equipment makers who are well versed in operation and regulation of the machinery.

(5) Points to Note During Implementation

Based on the long distance the materials will have to be transported, the fact that the workshop will be built within an existing bus yard, Mongolian winters are severe reaching a minimum of -40°C , and the fact that the Project is being conducted as a grant aid project, it is necessary to pay special attention to the following factors.

- 1) As materials used in the Project will be shipped 1,700km by rail from the Chinese port of Xingang (Tienjing), consideration must be given to the packing methods and time required for shipping.
- 2) Consideration must be given to the construction method and the selection of construction equipment so that no damage is brought about to facilities within the existing bus yard.
- 3) Temporary facilities shall be placed in areas where they do not disrupt the operation of existing facilities.
- 4) As winter (November to March) temperatures fall to -40°C , outside work during this period is impossible, and making the proper selection of construction materials and methods, and construction schedule vital.
- 5) All efforts shall be made to use and employ local construction materials and labor when domestic procurement is judged possible, as it will effect the industrial development, economic revival, and employment situation in Mongolia.

3-4-2 Implementation Method

Local subcontractors should be able to carry out the construction work for the buildings planned under the Project to a satisfactory standard as discussed in 3-1-3. Nevertheless, special attention should be paid to the following points.

- (1) All Mongolian laws and regulations must be abided by throughout the entire construction period.
- (2) Careful consideration must be given to preventing any negative impact by the construction work, i.e., noise, vibration, wastewater, etc., on the surrounding area.
- (3) The work schedule must take the local labor customs into consideration.
- (4) The transportation of machinery and equipment (particularly construction machinery) must not cause any damage to the existing roads and structures.
- (5) Due attention must be paid throughout the construction period to the safety of vehicles and pedestrians using the road in front of the Project site.
- (6) Given the proximity of the anticipated construction sites to existing buildings, every care must be taken to avoid damage to these buildings.
- (7) Normal business will be conducted at the existing buildings, including the garage, on the Project site throughout the construction period. Every care must be taken to prevent any accident or damage to third parties.

3-4-3 Construction and Supervisory Plan

(1) Basic Principles of Work Supervision

Assuming that the Project is implemented with Japan's grant aid cooperation, the following requirements must be noted in carrying out the detailed design and work supervision.

- Thorough understanding of the background of the Project.
- Thorough understanding of the contents of the Basic Design Study Report.
- Thorough understanding of the grant aid cooperation system.

- Proper understanding of the contents of the E/N signed by both the Japanese and Mongolian governments.
- Compatibility of the Project with the technical cooperation project if experts are to be dispatched to provide technical assistance.

Assuming that the above requirements are met, the contents of and points to note in regard to the detailed design and work supervision are outlined below.

1) Scope of Consulting Work

Following the signing of the E/N, the consultant will enter into a consultancy agreement with the Government of Mongolia within the scope determined by the E/N. The scope of the consulting work is given below.

① Detailed Design

- Preparation of detailed design and tender documents.
- Securing of approval of tender documents by the Government of Mongolia.
- Organization of tender, evaluation of tender results and reporting of tender results to the Government of Mongolia. Witnessing of construction agreement.
- Confirmation of the scope and progress of the work to be undertaken by the Government of Mongolia prior to the commencement of Project-related construction work.

② Work Supervision

- Issue of notice to commence the work.
- Preparation of pre-work report.
- Discussions with parties involved in construction work prior to the commencement of the work.
- Securing of official approval for the work schedule plan and holding of work schedule meetings.
- Securing of official approval for work drawings.
- Witnessing of the inspection of materials/equipment, witnessing of construction work and the issue of relevant instructions as and when deemed necessary.
- Inspection of interim progress of the work. Inspection for final handing-over and issue of final acceptance certificates.

- Preparation of monthly progress reports throughout the construction period.
- Conducting of all necessary work for final handing-over.
- Preparation of final report and implementation of project completion procedure.

2) Important Points to Note

① Detailed Design

(a) Reconfirmation of Equipment Procurement Conditions

Reconfirmation of the procurement conditions of the construction and service equipment, identified at the basic design stage, is necessary. As the construction materials and equipment will be procured locally where possible, it is important to check whether or not they meet the requirements/specifications set by the basic design.

(b) Preparation of and Briefing on Order Documents

The contents of the order documents must comply with the objectives of the grant aid cooperation and must be thoroughly examined by both parties during the field survey for the basic design so that they can be authorized as official tender documents together with the detailed design drawings.

② Work Supervision

(a) Progress Control

The work schedule shown in Fig. 3-4-2 is currently understood to be the most likely schedule for the Project. Since the Project will be implemented under Japan's grant aid cooperation system, the actual work schedule to be prepared as part of the detailed design must reflect certain conditions attached to this system. It is needless to say that the work must be completed as planned. The progress of the work can be seriously affected by the timing of the delivery of equipment, etc., to be imported. Strict progress control must be conducted on the manufacture and import of machinery/equipment, and also on the delivery of domestically procured materials/equipment.

(b) Quality Control

The materials and equipment to be procured in Mongolia may not be of uniform quality, forcing some alterations of the specifications relating to materials which are established as part of the detailed design. In the case of alterations, proper quality control of the new materials must be conducted to ensure that the original design requirements are met.

(c) Supervisors

Supervisors should arrive at the Project site as soon as the notice to proceed is issued to the contractor. At least one full-time supervisor responsible for building construction must be on-site throughout the construction period. Supervisors in such special fields as machinery, building services and electrical equipment will be dispatched in accordance with a request by the on-site supervisor to conduct specific supervisory work.

Japanese experts will also be required to conduct the factory inspection of equipment procured in Japan prior to shipment to Mongolia.

3-4-4 Procurement Plan

(1) Material and Equipment Sources

The materials and equipment to be used in the Project will be procured in Mongolia as long as such conditions as availability in sufficient quantity, good quality, punctual delivery, low cost, etc., are met. It appears that some 20 percent - 30 percent of the materials and equipment required will be procured locally. However, it will be necessary to import equipment for building service work and for equipment of maintenance and repair for buses. This is because most building service equipment and maintenance/repair equipment currently available in the local market are foreign products due to the absence of the relevant manufacturing industries in Mongolia.

Table 3-4-1 Material and Equipment Sources

	Local Supply	Import from Japan
Building Construction	aggregates, cement concrete, marble, bricks, formwork, paint, wooden doors and windows	structural steels, metal doors and windows, finishing hardware, glass, shutters, long corrugated steel sheets, heat insulation materials, specially machined products, etc.
Air-Conditioning	—	radiators, ventilation fans, pipes, etc.
Plumbing	—	pumps, pipes, shower units, sanitary fixtures, etc.
Electrical Installation	—	transformer, emergency generator set, distribution panel, telephone switchboard, lighting equipment, etc.
Equipment to be Provided	—	buses, maintenance and repair equipment for buses

3-4-5 Implementation Schedule

(1) Scope of Work

When the Project is conducted with Japan's grant aid, first, exchange notes (E/N) between the two countries are signed, then the Project is carried out in the following three steps: i) production of the detailed design; ii) tender and construction contract; iii) procurement of materials and/or construction. The summaries of each step are as follows. Fig. 3-4-1 shows the work schedule.

1) Detailed Design

Immediately after the signing of the E/N the Japanese consultant will, sign a contract with the Government of Mongolia and start making the detailed design.

Based on the confirmation of the basic construction survey, and detailed design survey, tender documents (specifications, detailed plans) will be prepared. During the beginning and the last two steps of the detailed planning stage, detailed meetings shall be conducted with Mongolian bodies, and the tendering process shall be commenced after their approval is obtained.

Time required for the detailed design is estimated as follows.

- First Phase (Phase I): about 2 months
- Second Phase (Phase II): about 3 months
- Third Phase (Phase III): about 2 months

2) Tender and Construction Contract

The consultant shall, representing the Government of Mongolia, make public the tender, receive applications for tender, conduct examinations, hold tender information meetings and distribute tender documents. After receiving the bidding prices and tender documents the consultant shall examine the results and promote the signing of the construction contract between the Government of Mongolia and the Japanese contractor.

The bidding process shall be witnessed by those involved, and the contractor with the lowest priced bid provided the contents of the tender are judged proper for the Project, shall be the successful contractor and sign the construction contract with the government of Mongolia.

It is estimated that the first and second stages of the bidding process from receiving of tenders to the signing of the construction contract will take 1.5 months each.

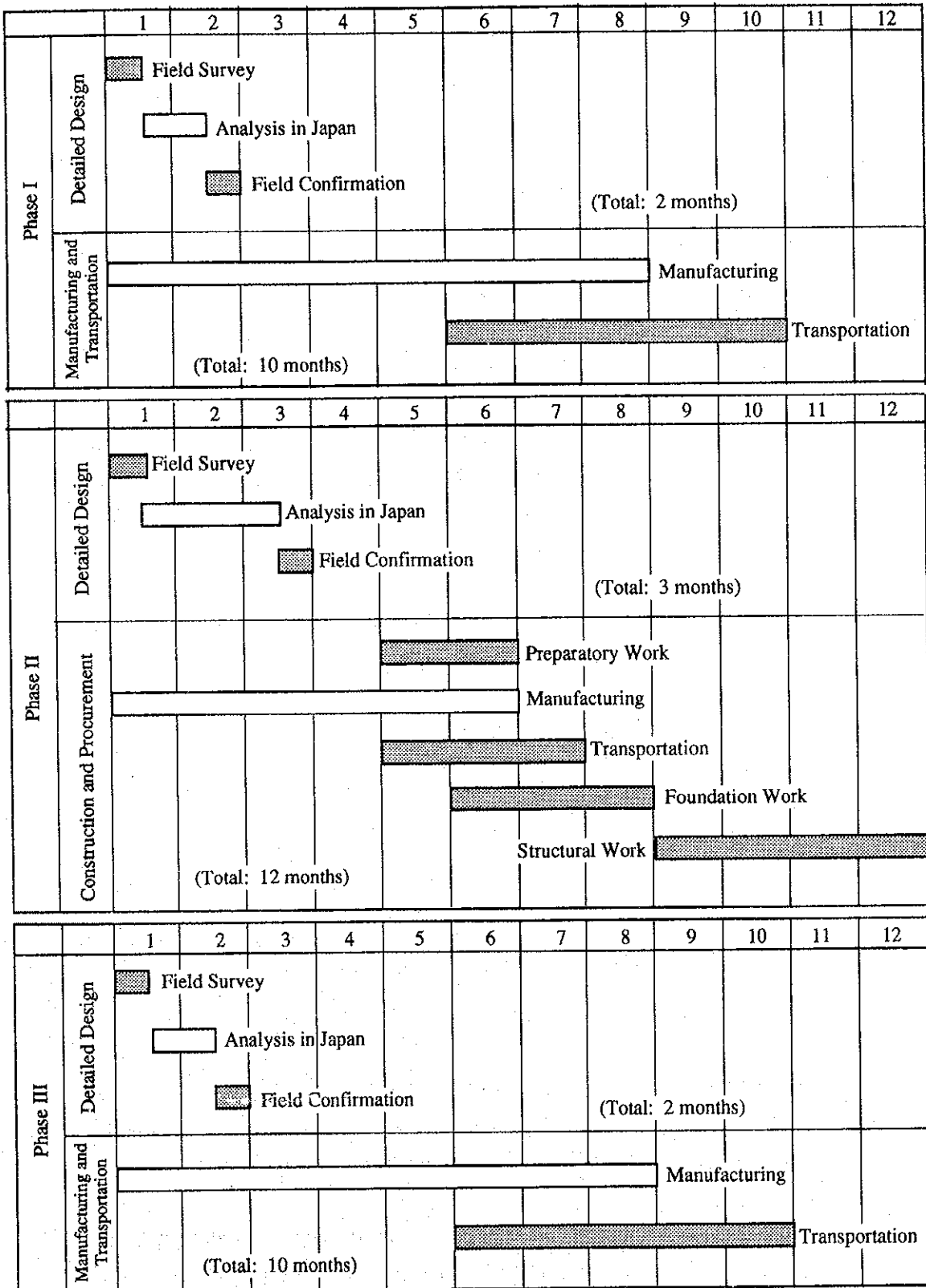
3) Construction and Procurement of Materials

Following signing of the construction contract, actual construction shall be commenced after certification by the Government of Japan. Judging from the size of the Project and type of building to be constructed, if the procurement of construction materials progresses, and the construction to be done by the Mongolian side progresses smoothly, then the period required for the procurement of materials and construction are estimated as follows.

- | | |
|----------------------------|-----------|
| - First Phase (Phase I): | 10 months |
| - Second Phase (Phase II): | 12 months |
| - Third Phase (Phase III): | 10 months |

Before commencement of construction, the consultant shall meet with the contractor to give guidance and management in transport of material within Mongolia, construction method, scale of construction and other items. It will also manage the progress and control the quality of the work to ensure that the work will be completed within the period designated in the E/N.

Table 3-4-2 Project Implementation Schedule



Work in Japan
 Work in Mongolia

3-4-6 Scope of Work

(1) Work Assignment

The Governments of Japan and Mongolia will undertake the following work to complete the Project.

1) Work to be Undertaken by the Government of Japan

- ① To procure buses
- ② To construct the workshop

2) Work to be Undertaken by the Government of Mongolia

- ① To secure, clear and level the site for the Project prior to the commencement of the construction to be done under the Grant Aid Program, including temporary land for a construction liaison office, warehouse, stockyard, etc.
- ② To provide following and other incidental facilities to the Project site prior to commencement of the works.
 - (a) Electricity distribution line to the site
 - (b) Water supply line to the site
 - (c) Drainage and sewage line from the site
 - (d) Telephone trunk line to the main distribution panel to be installed in a building
 - (e) General furniture such as carpets, curtains, tables, chairs, etc.
 - (f) Hot water line to the site
- ③ To bear advising commission of Authorization to Pay (A/P) and payment commission to a Japanese foreign exchange bank for the banking services based on the Banking Arrangement (B/A)
- ④ To ensure prompt unloading, tax exemption, customs clearance and prompt internal transportation of the materials and products provided under the Grant.

- ⑤ To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such as may be necessary for their entry to Mongolia and stay therein for the execution of the Project.
- ⑥ To exempt Japanese nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Mongolia with respect to the supply of the products and services under the verified contract.
- ⑦ To provide necessary permissions, licenses and other authorizations for carrying out the Project.
- ⑧ To bear all the expenses, other than those covered by the Grant, necessary for the construction of the facilities as well as for the transportation and the installation of the equipment.
- ⑨ To coordinate and solve any matters related which may arise with third party and inhabitants living in the Project area during implementation of the Project.
- ⑩ To provide necessary data and information for detailed design.
- ⑪ To give permission required for boring and topographic survey at the Project site, if necessary.
- ⑫ To take necessary actions to expedite the approval for executions of the Project by the authorities concerned in Mongolia.
- ⑬ To witness and confirm by the authorities concerned when site test are carried out at the time of construction.
- ⑭ To take necessary measures for inhabitant's cooperation and traffic control, if necessary.
- ⑮ To provide disposal places of the soil, water, etc., discharged during the construction period.
- ⑯ To provide a bench mark at the construction site.

- ⑰ To ensure that the facilities constructed and the products purchased under the Grant be maintained and used properly and effectively for the execution of the Project.

(2) Cost to be borne by the Government of Mongolia:

approx. 3.2 million Tg (For Phase II) (see Appendix 6)

The work to be done by the Mongolian side are as follows:

- 1) Connection of utilities (hot water and cold water line)
- 2) Procurement of furniture and curtain
- 3) Customs clearance charge
- 4) Bank commissions charge

Estimate Conditions

- 1) Estimate Time : November, 1994
- 2) Exchange Rate : 1 US\$ = ¥99.00
1 Tg = ¥0.24
- 3) Construction Period : The schedule for the detailed design and construction (including material procurement) periods are as shown in the Project Implementation Schedule.
- 4) Others : The Project shall be executed under the regulation of Japan's Grant Aid.

CHAPTER 4
PROJECT EVALUATION AND CONCLUSION

10/10/2023

10/10/2023

CHAPTER 4 PROJECT EVALUATION AND CONCLUSION

4-1 Project effects

Current Situation and Problems	Improvement Measure(s) Under the Project	Positive Effects and Improvement by the Project
In Ulaan Baatar, the temperature in December and January recorded as low as -48°C. The mean daytime temperature is -26°C, resulting in a severe living environment. Although the scheduled bus interval at peak times in the morning and evening is set at 6 - 9 minutes, the actual waiting time is much longer due to the decline of the number of serviceable buses due to breakdowns and non-stopping at bus stops due to a full load, etc.	Provision of large buses capable of carrying some 90 passengers and construction of a workshop to maintain new buses.	The provision of buses to meet the peak passenger demand will significantly ease the pain of waiting passengers during the severe winters. The present passenger load will be improved from 2,500 persons/bus/day to 1,500 persons/bus/day while the maximum congestion rate will be eased from 240% to 125%. The waiting time at peak hours will be improved by 30% from the present 7.1 minutes to 4.9 minutes.
Although the current bus fare of 30 Tg is 1/27th of the standard urban bus fare in Japan, the bus fare level in Mongolia vis-a-vis its GDP per capita is more than 3 times that in Japan. The inclusion of the total initial investment under the Project in the operation cost for recovery through passenger fares will push up the relative level of passenger fares to more than 3 times that in Japan.	Provision of large buses capable of carrying some 90 passengers.	The provision of grant aid for buses means that the relevant investment cost will not constitute part of the operating cost. Consequently, the passenger fare level will be reduced to approximately half of the level under the case without grant aid.
At present, maintenance work mainly consists of the repair of actual mechanical failures, resulting in a very low rate of serviceable vehicles of some 62%.	A workshop will be constructed to conduct preventive maintenance.	The preventive maintenance system will make it possible to discover any failures or problems prior to a serious breakdown or accident. With a regular maintenance and repair schedule, stable operation will become a reality with the rate of serviceable vehicles improved from the present 62% to 88%.
The existing equipment mainly consists of repair equipment and maintenance equipment is either non-existent or hardly used, resulting in a low rate of serviceable vehicles.	A workshop will be constructed and equipment for preventive maintenance will be provided.	The level of maintenance will be greatly improved.

4-2 Conclusion

As described elsewhere, public transportation in Ulaan Baatar shows chronic congestion due to the low availability of its public bus fleet which is the only means of public transportation in the capital due to the deterioration of buses and maintenance/repair facilities and the difficulty of obtaining spare parts. The low bus

service level in the severe winters when the average temperature drops below -20°C causes unbearable pain on the part of Ulaan Baatar's citizens and seriously disrupts civic life as well as industrial activities.

The Government of Mongolia has prepared the 3 Year Economic Development Plan (1993-1995) and, in the transport sector, the Plan aims at renewing passenger buses and constructing a workshop to properly maintain the bus fleet along with the World Bank project which envisages the provision of 60 new buses for Ulaan Baatar. Even if the World Bank project is successfully completed, however, there will still be a large gap between the passenger demand and the transportation capacity of the available buses. Consequently, an appropriate bus service vis-a-vis the actual demand cannot be achieved.

Despite this critical situation, the tight financial situation of the Government of Mongolia makes it impossible to purchase new buses. Furthermore, the bus companies cannot make an independent decision to increase the bus fare, which is the basis for their business operation, as the bus fare is considered to be a public utility charge affecting all citizens. As a result, the balance sheet of all the bus companies is in the deficit being compensated for by a government subsidy.

The Project intends the provision of new buses which are urgently required to reduce the chronic congestion to a more acceptable level (target: 1,500 persons/bus/day) and the construction of a workshop which is essential to provide appropriate maintenance for these new buses. All these Project components are in line with the principal objectives of the 3 Year Plan.

The Ulaan Baatar Passenger Transport Bus - 1 Company has sufficient manpower and technical ability to conduct the proper operation and maintenance of the new buses, equipment and workshop to be provided under the Project. The Project should not create any environmental problems as the new buses, equipment and workshop meet the environmental regulations in force in Mongolia.

Given the above-described benefits of the Project, the Project's implementation with grant aid provided by the Government of Japan appears highly significant in terms of the future good relationship between Japan and Mongolia and the Project is judged to be highly suitable in the light of the spirit of Japan's grant aid system.

4-3 Recommendations

As the Project intends to improve part of the important social infrastructure in Ulaan Baatar, the Government of Mongolia is required to implement the following measures to maintain the functions of the new buses, equipment and workshop in a healthy state for a long period of time.

- (1) In addition to preparing a medium to long-term plan to secure public transport for the citizens of Ulaan Baatar, the Government of Mongolia should also introduce budgetary and other measures to ensure the future renewal of old buses and sound bus services to meet the increasing demand. In this context, a further request to the Government of Japan for technical cooperation, particularly the dispatch of a bus operation expert, may well be on the agenda in the near future.
- (2) The Mongolian side should appoint engineers responsible for the operation and maintenance of the workshop and these engineers should participate in OJT to be organized under the Project in view of the achievement of the Project objectives with the proper implementation of all its components.
- (3) The Mongolian engineers assigned to undergo the said OJT should learn the operation and maintenance skills from the Japanese engineers dispatched to assist the implementation of the Project and should continue learning under their own motivation following the completion of the OJT to continuously improve their skills.
- (4) Having undergone OJT, the Mongolian engineers should transfer their newly acquired skills to other Mongolian engineers who did not have the opportunity to participate in the said OJT in order to improve the level of general skills among Mongolian engineers.
- (5) In order to maximise the effective utilisation of the maintenance and repair equipment installed in the workshop, the Mongolian side should request the Government of Japan to dispatch experts for the transfer of a wide range of maintenance and repair technologies, including those related to the efficient use of equipment and the preparation of a maintenance/repair programme, etc.

APPENDIX 1
MEMBER LIST OF STUDY TEAM

1. **ADMINISTRATIVE**
2. **FINANCIAL STATEMENTS**

MEMBER LIST OF STUDY TEAM

1. Basic Design Study Team

Name	Assignment	Position
Mr. Masao Takai	Leader	Director of Second Basic Design Study Division, Grant Aid Study and Design Department, JICA
Mr. Tsuneo Kobayashi	Operation and Management Planner	Sub-Chief, Bus Administration Section, Bus Service Department, Sapporo City Transportation Bureau
Mr. Minoru Goko	Workshop Equipment Planner	JICA Expert
Mr. Katsunori Uehara	Project Coordinator	Welfare and Labor Relations Division, Personnel Department, JICA
Mr. Tetsuo Kawamura	Chief of Consultant	Yachio Engineering Co., Ltd.
Mr. Shigemichi Namiki	Bus Fleet Planner	Katahira & Engineers International Ltd.
Mr. Takayasu Kase	Architect	Yachio Engineering Co., Ltd.
Mr. Masatsugu Komiya	Equipment Designer	Yachio Engineering Co., Ltd.
Mr. Yutaka Takahashi	Procurement and Cost Estimator	Yachio Engineering Co., Ltd.
Ms. Atsuko Henmi	Interpreter	Japan International Cooperation Center

2. Draft Report Explanation Team

Name	Assignment	Position
Mr. Hiroyasu Murakashi	Leader	Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Mr. Tsuneo Kobayashi	Operation and Management Planner	Sub-Chief, Bus Administration Section, Bus Service Department, Sapporo City Transportation Bureau
Mr. Tetsuo Kawamura	Chief of Consultant	Yachio Engineering Co., Ltd.
Mr. Takayasu Kase	Architect	Yachio Engineering Co., Ltd.
Mr. Masatsugu Komiya	Equipment Designer	Yachio Engineering Co., Ltd.
Ms. Atsuko Takehara	Interpreter	Japan International Cooperation Center

APPENDIX 2
SURVEY SCHEDULE

11/11/2023

SURVEY SCHEDULE

1. Basic Design Study Team

No.	Date	Weather	Movement	Accommodation	Activities
1	Sept. 27, 1994 (Tue)	Fine	Leave Tokyo for Beijing (JL781)	Beijing	Departure
2	Sept. 28 (Wed)	Fine	Beijing to Ulaan Baatar (OM224)	Ulaan Baatar	Arrive in Ulaan Baatar
3	Sept. 29 (Thu)	Fine		Ulaan Baatar	Courtesy call and discussion at the Embassy of Japan in Mongolia Courtesy call and discussion with Department of Transport, Ministry of Infrastructure Development Courtesy call and discussion with Transport Department of Ulaan Baatar City
4	Sept. 30 (Fri)	Fine		Ulaan Baatar	Explanation of the Inception Report Proposal and explanation of bus specifications Courtesy call the the JOCV Office Meeting with consultant for World Bank Survey of BUS-1 and BUS-2 company facilities
5	Oct. 1 (Sat)	Cloudy		Ulaan Baatar	Inspection of Passenger Transport Bus Company
6	Oct. 2 (Sun)	Cloudy		Ulaan Baatar	Survey of the State of the Ulaan Baatar Transportation System
7	Oct. 3 (Mon)	Cloudy		Ulaan Baatar	Meeting about inception with Department of Transport, Ministry of Infrastructure Development and Transport Department of Ulaan Baatar City
8	Oct. 4 (Tue)	Fine		Ulaan Baatar	Ditto
9	Oct. 5 (Wed)	Fine		Ulaan Baatar	Ditto Explanation and discussion of Minutes of Discussion (M/D)
10	Oct. 6 (Thu)	Fine		Ulaan Baatar	Signing of M/D and report to the Embassy of Japan and JOCV office
11	Oct. 7 (Fri)	Fine	Leave Ulaan Baatar for Beijing (CA902, Government members)	Ulaan Baatar	Explanation of Questionair to Department of Transport, Ministry of Infrastructure Development and Transport Department of Ulaan Baatar City Confirmation of schedule
12	Oct. 8 (Sat)	Fine	Beijing to Tokyo (JL782, Gov. members)	Ulaan Baatar	Ulaan Baatar Transportation Survey Courtesy call to private bus company Site survey, Market survey
13	Oct. 9 (Sun)	Fine		Ulaan Baatar	Study of collected data
14	Oct. 10 (Mon)	Fine		Ulaan Baatar	Ulaan Baatar Transportation Survey Collection of data from the Passenter Transport Bus Company of Ulaan Baatar Survey of Ulaan Baatar infrastructure (heating, electricity) Visit to private automobile sales companies and facilities Site survey, Market survey
15	Oct. 11 (Tue)	Fine		Ulaan Baatar	Ulaan Baatar Trasit Survey Bus Co. data collection Survey of Ulaan Baatar infrastructure (visit Thermo Power Plant No. 4) Site survey, Market survey

No.	Date	Weather	Movement	Accommodation	Activities
16	Oct. 12 (Wed)	Fine		Ulaan Baatar	Ulaan Baatar Transit Survey Bus Co. data collection Survey of Ulaan Baatar infrastructure (heating, electricity, fire protection) Site survey, Market survey
17	Oct. 13 (Thu)	Cloudy		Ulaan Baatar	Ulaan Baatar Transit Survey Bus Co. data collection Survey of Ulaan Baatar infrastructure (heating) Courtesy call to oil company Site survey, Market survey
18	Oct. 14 (Fri)	Cloudy		Ulaan Baatar	Ulaan Baatar Transportation Survey Survey of Ulaan Baatar infrastructure (electricity) Visit to private automobile sales companies and facilities Site survey, Market survey
19	Oct. 15 (Sat)	Cloudy		Ulaan Baatar	Ulaan Baatar Transit Survey Bus Co. data collection Survey of Ulaan Baatar infrastructure (heating) Courtesy call to the Thermo Power Plant No. 3 Site survey, Market survey
20	Oct. 16 (Sun)	Fine		Ulaan Baatar	Organization of collected data
21	Oct. 17 (Mon)	Fine	Ulaan Baatar to Beijing (Mr. Uehara of JICA)	Ulaan Baatar	Ulaan Baatar Transit Survey Bus Co. data collection Survey of Ulaan Baatar infrastructure (water supply, sewers, steam) Market survey
22	Oct. 18 (Tue)	Fine	Beijing to Tokyo (JL782 Mr. Uehara of JICA)	Ulaan Baatar	Ulaan Baatar Transit Survey Bus Co. data collection Courtesy call to oil company Courtesy call to Ulaan Baatar City Administration
23	Oct. 19 (Wed)	Fine		Ulaan Baatar	Ulaan Baatar Transit Survey Bus Co. data collection Writing of Field Report Market survey
24	Oct. 20 (Thu)	Fine		Ulaan Baatar	Ulaan Baatar Transit Survey Bus Co. data collection Market survey
25	Oct. 21 (Fri)	Fine		Ulaan Baatar	Explanation and discussion of Field Report with Ulaan Baatar City and MID Market survey
26	Oct. 22 (Sat)	Fine		Ulaan Baatar	Ditto, Visit private tire retreading facility Bus Co. data collection Market survey
27	Oct. 23 (Sun)	Fine		Ulaan Baatar	Organization of collected data
28	Oct. 24 (Mon)	Fine		Ulaan Baatar	Report to the JOCV office Courtesy call to the Dept. of Transport, MID and Transport Dept. of Ulaan Baatar City Market survey
29	Oct. 25 (Tue)	Fine	Ulaan Baatar to Beijing (CA 902 Consultants)	Ulaan Baatar	Consultants leave Mongolia
30	Oct. 26 (Wed)	Fine	Beijing to Tokyo (JL782 Consultants)	Ulaan Baatar	Consultants arrive in Japan

2. Draft Report Explanation Team

No.	Date	Weather	Movement	Accommodation	Activities
1	Jan. 8, 1995 (Sun)	Fine	Leave Tokyo for Beijing (NH905)	Beijing	Departure
2	Jan. 9 (Mon)	Fine	Beijing to Ulaan Baatar (OM224)	Ulaan Baatar	Arrive in Ulaan Baatar
3	Jan. 10 (Tue)	Fine		Ulaan Baatar	Courtesy call and discussion at the Embassy of Japan in Mongolia and JOCV office. Explanation and discussion on Draft Final Report with Ministry of Infrastructure Development and Transport Department of Ulaan Baatar City
4	Jan. 11 (Wed)	Fine		Ulaan Baatar	Explanation and discussion on Draft Final Report and Minutes of Discussions (Draft) with Ministry of Infrastructure Development and Transport Department of Ulaan Baatar City.
5	Jan. 12 (Thu)	Fine		Ulaan Baatar	Site survey
6	Jan. 13 (Fri)	Fine		Ulaan Baatar	Signing of M/D and report to the Embassy of Japan and JOCV office.
7	Jan. 14 (Sat)	Fine	Ulaan Baatar to Beijing (OM223)	Ulaan Baatar	Leave Mongolia
8	Jan. 15 (Mon)	Fine	Beijing to Tokyo (NH906)	Ulaan Baatar	Arrive in Japan

APPENDIX 3
MEMBER LIST OF PARTY CONCERNED IN MONGOLIA

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MEMBER LIST OF PARTY CONCERNED IN MONGOLIA

International Development Association (IDA) Office for Transport Rehabilitation Project:

Mr. Wilfred G. Mackie Representative of IDA office

Ministry of Trade and Industry (MTI):

Mr. Narangua Director
Department of International Trade and Cooperation

Mr. Enebish Deputy Director
Department of International Trade and Cooperation

Mr. P. Ganhunyag Assistant of Director
Economy and Foreign Trade Policy Department

Ms. L. Nasanbuyan Assistant of Director
Economy and Foreign Trade Policy Department

Ministry of Infrastructure Development (MID):

Mr. Rasdak Sandalkhan Minister of Infrastructure Development

(Department of Transport)

Mr. Ts. Manlajav General Director

Mr. Enebish Senior Advisor Economist

Mr. Dugerjavin Gotov Senior Officer of International Relations

(Department of Architect, Urban Development and Housing Public Service)

Mr. Batkhuyag Batjav General Director

Mr. Ts. Khasbatar Electrical Engineer

Mr. A. Tsogt Heating and Utility Engineer

Ms. Enkhbayar Structural Engineer

Mr. Zulzugabaatar Geological Engineer

Mr. Batkhuyag General

Transport Research Institute:

Eng. Lursaugyn Tudeu Director

Dr. Yomdonsuren Researcher

Mrs. Tumur Researcher

Ministry of Population Policy and Labor:

Mr. Ochirjavyn Dashnyam Chief of Bureau for Overseas Employment and Foreign
Organizations and Citizens

Ulaan Baatar City Office:

Mr. Damdinsurenglin Biambaa Deputy Mayor of Ulaan Baatar City

(City Administration)

Mr. Tsenden Ishiin Boldsaikhan Chief Executive of UB city Administration

Mr. Choindongin Demid Advisor of Transport Section

Ms. Trenchliemaa Advisor of Housing, Social and Industry Section

(Transport Department)

Mr. Shagdaryn Dashtseren Chairman of Transport Department

Mr. Namsrain Nyamdavaa Deputy Chairman of Transport Department

Mr. Demid Chief of Transport Section

(Town Planning Department)

Mr. Gochoogin Bold Chief of Department

Mr. Mendbayar Architect

(Department of District Heating System)

Mr. Sereeteriin Ayuresed Director

Mr. Sharaviin Baasanjav Chief Engineer

(Department of Electricity supply)

Mr. L. Darambazar Director

Mr. Balgan Chief Engineer

(Water Supply and Exploitation Board)

Mr. Osryn Erdenebaatar Chairman

Mr. Purebjab Chair Engineer

Ms. Narantuya Sewerage Engineer

Passenger Transport Bus Company of Ulaan Baatar City:

(Passenger Transport BUS -1 Company)

Mr. N. Zorig General Director
Mr. N. Sumiya Chief Engineer
Mr. Damdindorji Section Chief of Mechanical Group
Mr. Nyangerel Construction Engineer

(Passenger Transport BUS -2 Company)

Mr. Sengedorjiin Tumurbat General Director
Mr. Haltar Deputy General Director
Mr. Bayarbaatar Chief of Workshop
Mr. Dandobudon Mechanic

(Passenger Transport BUS -3 Company)

Mr. Enfubaasan Deputy General Director
Mr. Yadamu Suren Chief Engineer

(Transport Service (Electro Transport) Company)

Mr. Negui Dahidondoku General Director
Mr. Tumendenberel Chief Engineer

Fire Protection Department of Ulaan Baatar City

Mr. Batch Chief of Inspection Section

Termo Power Plant No.3

Mr. Bat-Ochir Ganbaatar Chief Engineer
Mr. Bara Senior Engineer for Steam Supply
Mr. Magmar Inspector
Ms. Tseno Ayush Inspector

Termo Power Plant No.4

Mr. Ts. Bayarbaatar Director

NIC-TOS Co., LTD.

Mr. B. Sukhbaatar	Director
Mr. Mendlbayal	Accountant
Ms. Chuluuna	Manager of Oil Supply Section
Ms. Narantuya Kh.	Lubricant Trade Manager

State Statistical Office of Mongolia

Mr. Oidovdanzan Enkhariunaa	Statistician of Macro Economic Department
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URGAMAL Co., LTD.

Mr. Jadamba Bayambanorov	General Director
Mr. Dahilichen	Deputy General Director

MONGOLITER SERVICE Co., LTD.

Mr. Anotoli V. Kovalenko	Director General
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MONGOL MACHINE COOPERATION

Mr. A. Purejav	General Director
Mr. Badil	Chief of Tire Retreading Section

IKH UUSGEL Company

Mr. Magsariin Myagmarjav	General Director
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Embassy of Japan in Mongolia

Mr. Yoshinori Hasumi	Ambassador
Mr. Takuo Kidokoro	Councilor
Mr. Keizo Kagawa	First Secretary
Mr. Hiromitsu Hino	Second secretary

JOCV Mongolian Office

Mr. Yukio Sasaki	JOCV Representative
Mr. Tatsuo Ono	JOCV Coordinator