ORIGINAL

0031106

Rockwell Hanford Operations

SUPPORTING DOCUMENT

PROGRAM: Waste Management	Number: SD- 434-CDR-001	Rev. Ltr./Chg. No.: 0-0	Page 1 of Total Pages 67
Document Title: Conceptual Design Report Operations Support Facility - 200 West Project B-434	Baseline Document ☐ Yes ☒ No		
	WBS No. or Work Package No.: WB-666		
Key Words: Facility, operations, support compactor, centralization	Prepared by (Name and Dept. No.): G. C. Shirey 65420		Date: May 1983
	See reverse side for additional approvals		

Abstract

This project provides a centralized operations support facility for 200 West, based on the 272-AW facility design for 200 East, with the addition of a low level solid waste compactor in a detached building. This Conceptual Design Report (CDR) provides a basic description of the facilities to be provided and contains the approved project cost estimate and schedule. The facility will consolidate and integrate some 90 personnel in 200 West into a modern and efficient, permanent location. This will increase efficiency and coordination, as demonstrated by 272-AW (Tank Farm Operations Support Facility) in 200 East. The facility's mission will be to ensure the presence of essential 200 West operations and support groups. The adjacent compactor building will house a low level solid waste compactor for locally generated, non-transuranic solid waste, for compliance with DOE Order 5820.2. These facilities will be located near the south end of the 218-W-5 Burial Ground, and will utilize utilities already provided to the nearby BWIP Exploratory Test Shaft. The project is funded from Line Item AR-82-N-103, at a total estimated cost of $2,350,000 and will be constructed under a fixed price contract.

*	Distribution Name	Mail Address
	U. S. Department of Energy Richland Operations Office	
*	R. W. Brown (3)	Federal/700
*	R. D. Izatt	Federal/700
*	R. D. Larson	Federal/700
*	J. J. Schreiber (2)	Federal/700
*	J. J. Sutey (2)	Federal/700
	Kaiser Engineers Hanford Company	
*	B. R. Estey	Federal/700
*	G. W. Hahn	Federal/700
	Rockwell Hanford Operations	
*	J. F. Albaugh	2750E/200E
	J. W. Patterson	2750E/200E
	G. T. Dukelow	2750E/200E
	K. A. Gasper	2750E/200E
*	E. J. Jones	2750E/200E
	M. R. Kasper	2750E/200E
*	C. A. Lorenzen	2750E/200E
*	R. J. Murkowski	2750E/200E
*	A. L. Ramble	2750E/200E
	J. H. Roecker	2750E/200E
*	G. C. Shirey	2750E/200E
*	G. F. Williamson	2750E/200E
	D. D. Wodrich	2750E/200E
*	R. A. Zinsli	2750E/200E
*	Document Control (6)	2750E/200E
*	Project Files (2)	2750E/200E

(Continued on reverse side)

*COMPLETE DOCUMENT (No asterisk, title page/summary of revision page only)

THIS DOCUMENT IS FOR USE IN PERFORMANCE OF WORK UNDER CONTRACTS WITH THE U.S. DEPT. OF ENERGY BY PERSONS OR FOR PURPOSES WITHIN THE SCOPE OF THESE CONTRACTS. DISSEMINATION OF ITS CONTENTS FOR ANY OTHER USE OR PURPOSE IS EXPRESSLY FORBIDDEN.

Release Stamp

OCT 1993 RECEIVED EDMC

1983 MAY 31 PM 2:48

Prepared By: _____

Used By: _____

7

SD-434-CDR-001

CONCEPTUAL DESIGN REPORT

OPERATIONS SUPPORT FACILITY

PROJECT B-434

Prepared for

ROCKWELL HANFORD OPERATIONS

May 1983

For the U.S. Department of Energy
Contract DE-AC06-82RL10367

Prepared by

KAISER ENGINEERS HANFORD COMPANY
Richland, Washington

KEH R-82-77
R448BO
CK3065

CONCEPTUAL DESIGN REPORT

OPERATIONS SUPPORT FACILITY

PROJECT B-434

Prepared by

ROCKWELL HANFORD OPERATIONS

for the

UNITED STATES DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
RICHLAND, WASHINGTON

Prepared by: Gary C. Shirey 2-1-83
Date

Contractor Approval:

K. A. Gasper 2/1/83
K. A. Gasper, Manager
Process Design Department
Date

G. F. Williamson 3-21-83
G. F. Williamson, Manager
Waste Management Program Office
Construction Projects
Date

J. T. Green for 3/29/83
R. A. Zinsli, Program Manager
Radioactive Waste Operations
Date

Department of Energy Approval:

Ron R. Fisher 5/6/83
Construction Division
Date

TABLE OF CONTENTS

		Page
I.	INTRODUCTION	1
	A. General	1
	B. Summary	1
II.	JUSTIFICATION	2
III.	PROJECT SCOPE	3
	A. Improvements to Land	3
	B. Buildings	4
	C. Other Structures	5
	D. Special Facilities	5
	E. Utilities	5
	F. Standard Equipment	6
	G. Transferred Capital Property or Equipment	7
	H. Research and Development	7
IV.	PERFORMANCE REQUIREMENTS	7
	A. Architectural	7
	B. HVAC	10
	C. Electrical	11
V.	APPLICABLE CODES AND STANDARDS	12
	A. National	12
	B. Department of Energy	13
	C. Hanford Plant Standards	14
	D. Rockwell Hanford Operations	15
VI.	SCHEDULE	15
VII.	METHODS OF PERFORMANCE	15
	A. Work Planned for the Operating Contractor	15
	B. Fixed Price Construction	15
	C. Cost Plus Award Fee Construction Contract Work	15
	D. Off-Site Architect-Engineer Work	15
	E. On-Site Architect-Engineer Work	16
	F. Procurement Strategy	16

TABLE OF CONTENTS (Cont'd)

		Page
VIII.	REQUIREMENTS AND ASSESSMENTS	16
	A. Safeguards and Security	16
	B. Safety	16
	C. Energy Conservation	17
	D. Environment	17
	E. Decontamination and Decommissioning	18
	F. Provisions for Fallout Shelters	18
	G. Quality Assurance Levels	18
	H. Maintenance Requirements	18
	I. Communications Requirements	19
IX.	ATTACHMENTS	19
	Appendix A. Cost Estimate	
	Appendix B. BA/BO Schedule	
	Appendix C. Schedule	
	Appendix D. Work Breakdown Structure	
	Appendix E. Outline Specifications	
	Appendix F. Energy Conservation Report	
	Appendix G. Environmental Evaluation	
	Appendix H. Physically Handicapped Assessment	
	Appendix I. Drawings	
X.	REFERENCES	19
	A. Documents	19
	B. Drawings	19

CONCEPTUAL DESIGN REPORT

OPERATIONS SUPPORT FACILITY

I. INTRODUCTION

A. General

Tank farm personnel currently work out of several offices located throughout the 200 West Area. A single office would enhance personnel coordination and overall tank farm operations.

Kaiser Engineers Hanford Company (KEH) performed the conceptual design "Operations Support Facility," Project B-434, for Rockwell Hanford Operations (Rockwell), Richland, Washington, under the authority of work order number CK3065. This report recommends a single site for, and defines the capabilities of, the Operations Support Facility in the 200 West Area.

The total estimated cost of this project is $2,350,000. (Refer to Appendix A.)

B. Summary

The 200 West Burial Ground Expansion Site at the Hanford Reservation was chosen as the site for the Operations Support Facility (OSF). This facility will support tank farm operations and surveillance, including low level solid waste compaction, in the 200 West Area.

The facility consists of two single-floor buildings: the 15,500-square-foot main building and the 576-square-foot waste compactor building. The main building provides occupancy for 90 people. It includes offices, a lunch room, a conference area, change rooms, supply and storage rooms, maintenance shops, a garage and a decontamination room. The waste compactor building consists of an entry room, a compactor room, and a package inspection room. The waste compactor can compact 100 cubic feet of uncompacted waste per hour.

The structure of both buildings will be pre-engineered, with rigid frames for the main building and self-framing with wind bracing for the compactor building.

Utilities to the facility will be extended from existing utilities that supply the Rockwell Exploratory Shaft Test Facility (ESTF). A new contaminated waste line will be routed to drain from the waste compactor facility and decontamination room to a new retention tank.

Radioactive environmental protection will include HVAC interlocks, multiple HEPA filter stages, air monitoring, and administrative controls (e.g. operating procedures). To prevent radioactive emission to the atmosphere, slight negative air pressure will be maintained in the change rooms, shops, garages and the waste compactor building. The compactor room will have a continuous air monitor, and HEPA filters will be provided for the compactor and compactor room exhausts.

II. JUSTIFICATION

Tank farm personnel offices are presently located at various sites in the 200 West Area. This makes tank farm operations and personnel coordination difficult. In addition, one of these sites must be vacated for PUREX start-up activities. An interim site has been found for temporary relocation of this tank farm personnel group.

This project proposes a new permanent operations facility at the 200 West Burial Ground Expansion Site, which will centralize and provide for coordination of personnel and waste management activities. This facility will provide a common base of operations where craft personnel, supervisors, and management can better support assignments in solid waste storage, disposal, and surveillance operations. In addition to improving efficiency, a single location will also reduce costs of the tank farm operations. This cost benefit has been demonstrated at the 272-AW facility in the 200 East Area.

Present waste handling operations will be expanded because of new Transuranic Waste Certification requirements. New methods which are being adopted for

waste storage will also require expansion of present waste handling operations. One of these new developments is the waste compactor. The proposed facility will include a waste compactor to receive and compact nontransuranic, contact-handled low-level solid waste generated at the Hanford facilities. Use of this compactor will improve worker safety when engaged in storage and disposal activity. It will also reduce net disposal expenses by reducing the volume of low-level solid waste now being buried by 20 to 30%.

The trend in industrial waste surveillance is reduced tank farm monitoring as waste tank stabilization is achieved, and increased emphasis on waste storage and disposal. These monitoring, storage, and disposal operations can best be coordinated at a centralized location. The 200 West Burial Ground Expansion Site will satisfy the support requirements for waste monitoring, storage, and disposal.

III. PROJECT SCOPE

A. Improvements to Land

The proposed site for Project B-434 is north of extended 19th Street (N40380) and approximately 500 feet west of Dayton Avenue (W78140). This site is outside of the existing 200 West interior protected area perimeter fence, and inside of the recently installed exterior limited area perimeter fence.

The extension of 19th Street to the proposed site will create a boundary line on the south.

The site is unimproved desert typical of the Hanford Reservation. The natural slope is slightly downward from northeast to southwest.

The proposed construction will not interfere with existing utilities. The power and water to ESTF are located south of 19th Street extension and will be used to supply power and water to the proposed facility.

Drawing SK-2-57254 in Appendix I shows the proposed orientation of the facility. The northeast corner of the main building is located at coordinates N40520 and W78660. A parking lot is located at the east end of the building. The west end of the building terminates with the maintenance shop loading dock. Entrances from the 19th Street extension will serve the parking lot and loading dock.

B. Buildings

Sketches detailing building requirements are contained in Appendix H.

The main building plan is a rectangle 82 feet wide and approximately 190 feet long. The waste compactor building is a rectangle 16 feet wide and 36 feet long. The entire floor of both buildings is on one level.

Kaiser Engineers Hanford Company recommends that the basic structure of the main building be a pre-engineered rigid frame. The structural framing members will be beam-column type requiring a centerline support of pipe columns. The waste compactor building will be a pre-engineered, self-framing metal building with wind bent. Both buildings will be set on reinforced concrete floors and footings.

The exterior walls for both buildings will be made up of metal wall panels backed by insulated 24-gauge flush-face liner panels. The inside and outside surfaces will be factory prefinished. Glass fiber batts provide added insulation value to the panels. The roof will be made up of panels with a factory aluminized finish. The roof insulation and vapor barrier will be R19 glass fiber batts, vinyl faced. All panels will have a Factory Mutual Class 1 fire hazard rating.

Exterior doors, frames, for both buildings and window wall units for the main building will be standard with the building manufacturer. Interior doors and frames will be pressed metal.

Partitions will be 5/8-inch-thick gypsum board on metal studs. Fire-rated partitions will be provided where required. Metal panels will also

be used for ceilings and partitions in the compactor building. The metal panels used in the interior walls will be 22-gauge, flush face.

Suspended acoustical tile ceiling will be provided in main building office areas and lunch room. A suspended gypsum board ceiling will be provided for the change room areas. The garage, shop, and supply areas will have no ceiling.

The office areas, lunch room, and corridors will have vinyl tile floor finish with rubber base. Locker rooms will have sheet vinyl floor finish. Toilet rooms, shower areas, and decontamination room will have ceramic tile floors. Toilet rooms will have 4-foot-high ceramic tile wainscot while the decontamination room will have full height ceramic tile wall finish. Unfinished concrete floors in the shop area will be sealed.

Both buildings will have fire sprinklers, which will trigger fire alarms and signal the fire department when activated.

The physically handicapped assessment is contained in Appendix H.

C. Other Structures

Not applicable.

D. Special Facilities

Not applicable.

E. Utilities

The proposed facility will be served by a 4-inch sanitary water line extended from the sanitary water line that currently serves the Exploratory Shaft Test Facility (ESTF) site. A dedicated 10-inch sanitary water line to serve the fire protection system will be extended from the same line. Isolation valves and backflow preventers will be installed where necessary. Freeze protection will be provided if necessary.

New contaminated waste lines will be routed to drain from the waste compactor facility and decontamination room to a new retention tank. The new sanitary sewer will extend northward from the building to a new septic tank and tile field.

Electrical power will be extended to the facility by tying into the 13.8 kV line C8L9 that will run from substation 251 to the ESTF site. The power supplied is 480V ac three phase.

From the nearest pole, an underground duct bank will run under 19th Street (extended) to the new transformer located just south of the main building. From the transformer, underground duct banks will extend to locally mounted control panels. The power supplied is 480V ac three phase.

F. Standard Equipment

The waste compactor will be a "dry-waste" compactor capable of compacting 100 cubic feet of uncompacted waste per hour. This compactor will be conducive to manual loading and waste package removal, and will accept most of the solid low-level waste being generated at the Hanford site. Noncompactable waste will be direct buried.

The main building will contain equipment necessary to support personnel involved in waste maintenance, surveillance, planning, and supervision.

The maintenance shop will house equipment and work space for personnel involved in instrumentation, electrical, and mechanical disciplines. Equipment will be provided by the building occupants. This equipment will include storage facilities, workbenches, and equipment enclosures.

An overhead traveling hoist, provided by this project, will run from an exterior loading dock to a mechanical shop workbench and a welding enclosure. Exhausts will be provided for welding and grinding enclosures. The maintenance shop will have a sink for clean-up, and a drinking fountain.

The lunchroom will provide eating facilities for 90 people. It will also include limited kitchen provisions such as cabinets, counters, stoves, refrigerators, and vending machines. A sink and drinking fountain will be provided.

G. Tranferred Capital Property or Equipment

Not applicable.

H. Research and Development

Not applicable.

IV. PERFORMANCE REQUIREMENTS

The Operations Support Facility (OSF) will provide space for occupancy of 51 Tank Farm Surveillance and Operations personnel, and 39 Plant and Facilities maintenance personnel. Facilities will be provided for the total occupancy load and will include offices, a lunch room, a conference area, change rooms, supply and storage rooms, maintenance shops, garage, and decontamination room.

The waste compactor facility will be provided in a separate building.

A. Architectural

1. Circulation

The expected personnel flow through the building will start from either the north or south entries nearest the east end, through corridors to either the mens' or womens' locker rooms. Personnel working in Special Work Procedure (SWP) areas will use lockers in the SWP change rooms and proceed directly to the garage, compactor building, the tank farms, or 200 West area burial grounds. Personnel coming from SWP areas will be monitored for contamination before access to clean areas is permitted.

Visitors will be directed to the east entrance door which provides access to the reception area.

2. Shop Area

The shop area consists of maintenance, electrical, mechanical, instrument, and welding shops. A one-ton monorail will serve the mechanical and welding shops. Welding and grinding work will be done in exhausted enclosures for control of airborne particles. The individual shop areas will be provided with compressed air, service air, and welding bottles piped to the welding areas. The grinding areas will be acoustically insulated. Office space for shop supervisors will be provided.

3. Special Work Procedure Change Room (White Uniform Change Room)

Personnel will enter the SWP change rooms from the blue uniform change room and from the monitoring vestibule adjacent to the garage. These change rooms will open directly to the decontamination room. Both change rooms will have racks for soiled laundry bags.

4. Offices

The offices, including the reception-clerical area, will be grouped together at the east end of the building. Eight single-occupancy and two multi-occupancy offices are provided. All offices will have windows.

5. Lunchroom

The lunchroom is designed to accommodate 90 people. It will be located near the center of the building to conveniently serve the shop, office and field personnel. Two sets of kitchen sinks, counters and cabinets will be provided. Space will also be provided for two sets of kitchen appliances and a series of vending machines. Doors will be arranged for efficient traffic flow.

6. Conference Room

The conference room is designed to accommodate 20 people. A movable partition will provide two separate meeting areas when needed. All walls will be acoustically insulated. A chalkboard and rolldown

projection screen will be provided on the west wall. Audio-visual equipment and other materials will be stored in a closet at the east end of the room.

7. Garage

The garage is designed to house four panel trucks used by surveillance workers. Facilities will be provided for maintenance of truck-mounted instruments including a dry well for test calibration of tank farm dry well instruments.

For ease of decontamination, the interior walls of the garage will be finished with special protective coating on metal panels. The interior partitions are required to be of 2-hour fire-rated construction. This requirement will be met by placing two layers of 5/8-inch type-X gypsum board between panels in a design which meets requirements of Underwriters Laboratories Fire Resistance Index Design, U-609. Doors penetrating the 2-hour fire rated partition will be 1-1/2-hour fire-rated doors meeting Underwriters Laboratories or Factory Mutual requirements. Sectional overhead doors will be provided with emergency stops.

The garage floor will slope to two floor drains connected to the retention tank. Garage doors will be insulated, metal, sectional overhead doors with insulating window panels at eye level.

8. Decontamination Room

The decontamination room will be located next to the monitoring vestibule. The room will contain two showers, a movable curtain, a sink and cabinets for storage of decontamination supplies. The sink and the showers will drain to the retention tank located north of the building.

9. Supply Rooms

Two separate storage areas are required: the maintenance shop supply room and the support supply room.

The 800-square-foot maintenance shop supply room will be used by maintenance shop personnel. It will be a controlled area with a counter for the issue of supplies and the issue and return of tools.

The support supply room will be used for storage of supplies which are used in the tank farms. The total area of the support supply room will be 1172 square feet.

10. Personnel Change Rooms (Blue Uniform Change Room)

The change rooms will be equipped with showers and open directly to the restrooms. The rooms will also open directly into the SWP change rooms. Facilities for the handicapped will be provided.

11. Waste Compactor Building

The waste compactor facility will have an area of 576 square feet. The building will be divided into an entry room, a compactor room, and a package inspection room. All rooms will have washdown capability to facilitate decontamination. Drainage will be to the retention tank. The entry room will have an area of 64 square feet and be furnished with personnel contamination-monitoring equipment and an airlock leading into the compactor room. The compactor room will have an area of 320 square feet with personnel doors opening inward from the entry room and package inspection room. The room will house the waste compactor and be equipped with a continuous air monitor (CAM). The walls between the compactor room and package inspection room, and between the package inspection room and the outside of the building will be equipped with roll-up metal doors large enough to accommodate a forklift. The package inspection room will have an area of 192 square feet and be accessible from the compactor room and from outside of the building.

B. HVAC

1. Operations Support Facility

The proposed Operations Support Facility HVAC system will be zoned into four areas: office area, lunchroom, change rooms, and shops.

Each zone will have 100 percent outside air economizer capability with a minimum of 5 cubic feet per minute (cfm) per person ventilation air provided during periods of heating or mechanical cooling.

The change rooms, shops, and garages will be exhausted in accordance with Hanford Standard Design Criteria SDC-5.1. Sufficient outside air will be conditioned as make-up to these areas to provide a slight negative pressure. A carbon monoxide exhaust system with retractable hoses will be provided for the garage area. A separate exhaust system will be provided for the grinding and welding areas.

A heat pipe thermal recovery system will be provided to reduce heating and cooling energy consumption. (Refer to the energy conservation report contained in Appendix F.)

2. Waste Compactor Building

The waste compactor and waste compactor room will be exhausted to maintain negative pressure relative to atmospheric pressure at all times. The pressure differential will be maintained to ensure that air will flow into areas of higher levels of potential contamination. High efficiency air particulate (HEPA) filters will be provided for the waste compactor room and compactor exhausts. Two HEPA filters will be provided for the compactor and one HEPA filter will be provided for the room. Filters will be in bag-out type filter housings located inside the waste compactor building. Sampling and monitoring equipment will be provided to ensure that exhausted air conforms to standards set forth in RHO-MA-139.

C. Electrical

The OSF will include the following systems:

1. Power Distribution

Power will be supplied to the facility by extending an underground feed from the 13.8 kV line which will run past the south side of the facility to the ESTF site. A pad-mounted transformer will supply 480V three-phase power to the building.

2. Lighting

Mercury vapor or low sodium fixtures will be provided for exterior lighting. Fluorescent fixtures will be used for all interior lighting.

3. Emergency Power

Emergency power will be provided by rechargable battery units for emergency lighting evacuation alarm system, and fire alarm systems. A back-up power-bus will be available for emergency power to the continuous air monitors.

4. Alarms

A fire alarm system will be provided in conjunction with a wet-pipe sprinkler system. It will be connected to the 200 Area fire alarm loop. An evacuation alarm system will be tied into the fire alarm system. The evacuation alarm will be audible throughout the facility, emitting three steady blasts from a siren.

5. Communication

A system of conduits and outlet boxes will be installed in the facility for installation of a telecommunications system. A communications switch gear room will be provided near the office area.

V. APPLICABLE CODES AND STANDARDS

A. National

1. American Concrete Institute

ACI 318-77	Building Code Requirements for Reinforced Concrete

2. National Fire Protection Association

NFPA 13-1980 (Vol. 2)	Standard for the Installation of Sprinkler Systems

NFPA 24-1981 (Vol. 2)	Standard for the Installation of Fire Service Mains and their Appurtenances
NFPA 70-1981 (Vol. 6)	National Electrical Code, 1981 Edition
NFPA 101-1981	Life Safety Code

3. American Institute of Steel Construction

November, 1978	Specification for the Design, Fabrication and Erection of Structural Steel for Buildings

4. American National Standards Institute

ANSI-A117.1	American Standards and Specifications for Building and Facilities Accessible to, and Usable by, the Physically Handicapped
ANSI-N13.1-1969	American National Standard Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities
ANSI-N13.10	Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents
ANSI-N101.1-1972	American National Standard Efficiency Test of Air Cleaning Systems Containing Devices for Removal of Particles
ANSI-N510-1980	American National Standard Testing of Nuclear Air Cleaning Systems

5. Occupational Safety and Health Association

29 CFR (Part 1910)	Occupational Safety and Health Standards

B. Department of Energy

DOE Order 6430	Department of Energy Design Criteria Manual
DOE Order 5480.1A	Environmental Protection, Safety and Health Protection Programs for DOE Operations

. Chapter I	Environmental Protection, Safety, and Health Protection Standards
. Chapter II	Quality Assurance in Support of Environmental Protection, Safety, and Health Protection
. Chapter III	Safety Requirements for Packaging of Fissile and Other Radioactive Materials
. Chapter IV	Nuclear Criticality Safety
. Chapter V	Safety of Nuclear Facilities
. Chapter VII	Fire Protection
. Chapter IX	Construction Safety and Health Programs
. Chapter XI	Requirements for Radiation Protection
. Chapter XII	Prevention, Control, and Abatement of Environmental Pollution
RL Order 5484.1	Environmental Protection, Safety, and Health Protection Information Requirements
. Chapter III	Effluent and Environmental Monitoring
RL Order 5700.1	Quality Assurance
RL Order 5700.2	Project Management Systems
RL Appendix 0550, Annex D	Cross Connection Control
DOE/EV/1830-TS	A Guide to Reducing Radiation Exposure As Low As Reasonably Achievable

C. Hanford Plant Standards

HWS 10278	In Place Testing of Gaseous Effluents HEPA Filter Systems
SDC 5.1	Heating, Ventilating, and Air Conditioning

D. Rockwell Hanford Operations

RHO-QA-PL-1	Project Quality Requirement Plan
RHO-CD-138	Containment Barrier Criteria
RHO-MA-139	Environmental Protection Standard
RHO-MA-220	Radiological Control
RHO-MA-221, Vol. 1, Std. No. 35	Cross Connection Control Standard
RHO-MA-222	Hanford Radioactive Solid Waste Packaging, Storage, and Disposal Requirements
RHO-CD-870	Design Criteria for Common Components of a Stack Supply and Airborne Radiation Monitor

VI. SCHEDULE

The design, procurement, and construction schedules are found in the Project Master Schedule, which is contained in Appendix C.

VII. METHODS OF PERFORMANCE

A. Work Planned for the Operating Contractor

Rockwell will provide project management. Rockwell will also perform the final electrical tie-in and final air balance, and provide the waste compactor unit.

B. Fixed Price Construction

All construction work, including water tie-ins, will be performed by fixed price contract.

C. Cost Plus Award Fee Construction Contract Work

J. A. Jones Construction Services Company will administer fixed-price subcontracts, and perform the daily in-process inspection.

D. Off-Site Architect-Engineer Work

Not applicable.

E. On-Site Architect-Engineer Work

Kaiser Engineers Hanford Company (KEH) will provide definitive design and field engineering services.

F. Procurement Strategy

Items that will not be provided by the subcontractor, such as the waste compactor, will be identified during definitive design. The need for early procurement of this equipment will be evaluated at that time.

VIII. REQUIREMENTS AND ASSESSMENTS

A. Safeguards and Security

The new facility will be located within the existing 200 West Area's limited area security perimeter. No new security measures or modification of existing security systems are required.

B. Safety

1. Construction

During the construction period, contractors will be required to take all reasonable precautions in the performance of their work to protect the health and safety of their employees, subcontractors, operating contractors and DOE personnel. Compliance with all applicable national, state, DOE, WHC and RHO health, safety, and fire protection regulations is required. The construction area must remain accessible for emergency vehicles and must readily accommodate emergency personnel evacuation at all times.

2. Operation

The OSF is designed to meet fire rating exit and structural safety requirements of the 1982 Uniform Building Code. Existing Rockwell Administrative and Operational Health and Safety policies and Procedures for Industrial Safety will be implemented at this facility.

Three prime areas of safety concern exist during the operation of this facility:

- Prevention of contamination of, or injury to, operating personnel.
- Uncontrolled release of radioactivity to the environment.
- Damage to the facility or equipment within the facility.

Preventative actions for personnel safety will include HVAC interlocks to assure proper functioning of exhaust systems, administrative controls to limit levels of contamination in the facility, and compliance with codes and standards previously mentioned.

Measures to prevent uncontrolled release of radioactivity to the environment will include:

- HVAC interlocks to assure proper functioning of exhaust systems and maintenance of proper air balance.
- Use of multiple HEPA filter stages.
- Monitoring of differential pressures and air exhausted to the environment.
- Administrative controls, such as development of an operating procedure to implement periodic dioctyl phthalate (DOP) tests to prevent utilization of faulty filters.

Damage to the facility and equipment within the facility will be prevented by incorporation of administrative controls to provide preventative maintenance and by strict adherence to previously mentioned codes and standards. Prevention of damage to the waste compactor may require the development of operating procedures to ensure that only nondestructive materials are allowed to be compacted.

C. Energy Conservation

The Energy Conservation Report is contained in Appendix E.

D. Environment

The Environmental Evaluation is contained in Appendix F.

E. Decontamination and Decommissioning

The possibility of contamination will be limited to the decontamination room, the regulated area of garage, and the waste compactor building. Potentially contaminated areas pose no unusual decontamination and decommissioning problems.

F. Provisions for Fallout Shelters

Not applicable.

G. Quality Assurance Levels

Piping and exhaust systems carrying potentially contaminated materials, the stack monitor, the waste compactor, and the HVAC controls will be Quality Assurance Level I.

The HVAC alarms on the continuous air monitors and the fire alarms will be Quality Assurance Level II.

All other portions of this project will be Quality Assurance Level III.

The generic Quality Assurance Requirements are covered by the Project Quality Assurance Plan (RHO-QA-PL-1) dated October 1981. Additional project requirements may be added by Letters of Instruction, Project Management Plans, or other controlling documents.

Kaiser Engineers Hanford Company will establish the specific Quality Assurance Requirements for construction during definitive design.

H. Maintenance Requirements

All equipment, piping, filters, lights, etc., contained within potentially contaminated areas or other restricted areas will be capable of receiving contact maintenance and being removed with minimal personnel exposure. Surfaces of the waste compaction area will be capable of being readily decontaminated. This facility will be designed to function throughout the intended useful life of the building, equipment, and appurtenances with routine testing and maintenance. Adequate clearance and maintenance space will be provided in the waste compaction area.

I. Communication Requirements

Telephone service and connection with the 200 Area fire alarm system will be required.

IX. ATTACHMENTS

Appendix A. Cost Estimate
Appendix B. BA/BO Schedule
Appendix C. Schedule
Appendix D. Work Breakdown Schedule
Appendix E. Outline Specifications
Appendix F. Energy Conservation Report
Appendix G. Environmental Evaluation
Appendix H. Physically Handicapped Assessment
Appendix I. Drawings

X. REFERENCES

A. Documents

Functional Design Criteria, Tank Farm Operations Support Facility--200 West, SD-434-FD-001, prepared by G. C. Shirey and C. E. Wilson, November 1982.

B. Drawings

SK-2-57254	Civil and Electrical/Site Plan and Drawing List
SK-2-57255	Architectural/Floor Plan
SK-2-57256	Architectural/Elevations, Sections, and Details
SK-2-57257 Sh 1 and 2	HVAC/Plan and Air Flow Diagrams
SK-2-57258	HVAC/Plumbing Plan and Diagrams

APPENDIX A

Cost Estimate

KAISER ENGINEERS HANFORD

PROJECT COST ESTIMATE SUMMARY

Title	Prepared For	Prepared By	Checked By	Project No.	Date
Operations Support Facility	Rockwell	A. Jones	A. Dove	B-434	3/24/83

	DEFINITIVE DESIGN	CONSTRUCTION ENGR/INSP	DEFINITIVE DESIGN	CONSTRUCTION ENGR/INSP	$ TOTAL
A. ENGINEERING					
Architect - Engineer			124,000	86,400	210,400
Escalation	-0- %	14.0 %	-0-	12,100	12,100
Contingency	10.0 %	10.0 %	12,400	9,900	22,300
Subtotal			136,400	108,400	244,800
Other (specify) J. A. Jones Constructibility Review			1,300	-0-	1,300
Escalation	8.0 %	-0- %	100	-0-	100
Contingency	15.0 %	-0- %	200	-0-	200
Subtotal			1,600	-0-	1,600
Operating Contractor					
Total A					246,400

B. CONSTRUCTION			
(1) Improvements To Land			(1)
(2) Buildings			(2)
Building No. _____ _____ sq. ft.	Fixed Price Contractor	1,350,000	
Building No. _____ _____ sq. ft.			
(3) Other (Detached Structures)			(3)
(4) Special Construction (Facilities & Installation)			(4)
(5) Utilities	Utilities Tie-In - CPAF Contractor	5,300	(5)
(6) Procurement	Waste Compactor - RHO	79,800	(6)
(7) Operating Expense Charges			(7)
(8) Other (Specify)			(8)
(9) Contract Administration		162,000	(9)
(10) Bid Package			(10)
(11) Reconciliation Adjustment			(11)
Subtotal		1,597,100	
Escalation 12.62 %		201,500	
Contingency 17.0 %		305,000	
Total B		2,103,600	
C. STANDARD EQUIPMENT			
TOTAL PROJECT ESTIMATE		$ 2,350,000	

PROPOSED FUNDS ALLOCATION

FUNDS PURPOSE	OPER. CONTR.	DOE-RL
Engineering	211,700	
Procurement	79,800	
Construction	1,517,300	
Escalation	213,700	
Contingency	327,500	
Total	2,350,000	

Type of Estimate: Conceptual, Revision 2

Approvals: Date 3-24-83

Architect-Engineer

Operating Contractor 3-24-83

REMARKS: Revision 2 reduces engineering but uses same schedule as previous estimates.

Estimate Sheet _____ of _____

KEH-18 (6-82)

SU-434-CDR-001

KAISER ENGINEERS
HANFORD

PROJECT COST ESTIMATE

PROJECT NO.	TITLE	DATE PREPARED
B-434	Operations Support Facility	3/15/83

WORK PERFORMED BY FIXED PRICE CONTRACTOR

CODE	DESCRIPTION	TOTAL
01	GENERAL REQUIREMENTS	61,500
02	SITE WORK	166,200
03	CONCRETE	82,800
04	MASONRY	
05	METALS	6,600
06	WOOD AND PLASTICS	
07	THERMAL AND MOISTURE PROTECTION	3,400
08	DOORS AND WINDOWS	35,400
09	FINISHES	95,800
10	SPECIALITIES	38,300
11	EQUIPMENT	11,400
12	FURNISHINGS	
13	SPECIAL CONSTRUCTION	195,100
14	CONVEYING SYSTEMS	10,900
15	MECHANICAL	317,600
16	ELECTRICAL	178,000
SUBTOTAL		1,203,000
CONTRACTOR OVERHEAD AND PROFIT and Bond		147,000
TOTAL FIXED PRICE CONTRACTOR COST		1,350,000

OF ____ /

DOE Richland, WA

KEH-113 (3-82)

KAISER ENGINEERS
HANFORD

PROJECT COST ESTIMATE

PROJECT NO.	TITLE	TYPE ESTIMATE	DATE PREPARED
B-434	Operations Support Facility	Conceptual	3/15/83

COST CODE	DESCRIPTION	LABOR	MATERIAL	EQUIPMENT USAGE	SUB-CONTRACT	TOTAL
	WORK DIRECTED BY CPAF CONSTRUCTION SERVICE CONTRACTOR					
01	TECHNICAL SERVICES		900			900
01	GENERAL REQUIREMENTS	600		200		800
02	SITE WORK	2,900				2,900
03	CONCRETE					
04	MASONRY					
05	METALS					
06	WOOD AND PLASTICS					
07	THERMAL & MOISTURE PROTECTION					
08	DOORS AND WINDOWS					
09	FINISHES					
10	SPECIALTIES					
11	EQUIPMENT					
12	FURNISHINGS					
13	SPECIAL CONSTRUCTION					
14	CONVEYING SYSTEMS					
15	MECHANICAL					
16	ELECTRICAL					
	SUB TOTAL "A"	3,500	900	200		4,600
	____ %					
	SUB TOTAL "B"	3,500				
703	SMALL TOOLS		% X SUBTOTAL "B"			
751	CONTRACTOR INDIRECT AND FEE		%			
752	RADIATION & HEALTH PROTECTION		%			
			19.75% x 3,500			700
	SUBCONTRACT ADMINISTRATION FEE ____ % X TOTAL CONTRACTS					
	TOTAL ESTIMATED DIRECT AND OVERHEAD COST					5,300

DOE Richland WA

KAISER ENGINEERS HANFORD

PROJECT COST ESTIMATE

PROJECT NO	TITLE	DATE PREPARED
B-434	Operations Support Facility	3/15/83

WORK PERFORMED BY OPERATING CONTRACTOR

CODE	DESCRIPTION	LABOR	MATERIAL	TOTAL
11	Stock Equipment Company Dry Waste Compactor		79,800	79,800
(1) SUBTOTAL DIRECT COST				79,800
(2) OTHER DIRECT COSTS				
(3) INDIRECT COSTS (____ % OF LABOR – ITEM 1)				
(4) TOTAL OPERATING CONTRACTOR'S COST				79,800

DOE Richland, WA

KEH-20 (3-82)

KAISER ENGINEERS
HANFORD

ESTIMATE BASIS

TITLE Operations Support Facility DATE 3/24/83

KEH JOB # R448B0

CLIENT PROJECT/WORK ORDER # B-434

1 DOCUMENTS AND DRAWINGS

DOCUMENTS Draft of Conceptual Design Report B-434
Draft of Outline Specifications

DRAWINGS SK-2-57254, 255, 256, 257 (Sheets 1 and 2), and 258

2 MATERIAL PRICES

UNIT COSTS REPRESENT CURRENT PRICES FOR SPECIFIED MATERIAL. VENDOR QUOTES WERE OBTAINED FOR metal buildings, hydraulic waste compactor and electric hoist.

3 LABOR RATES

CURRENT BASE RATES AS ISSUED BY KEH (ISSUE # 7,Rev.3, DATED 12/14/82) INCLUDE FRINGE BENEFITS, LABOR INSURANCES AND TAXES, AND TRAVEL WHERE APPLICABLE.

4 ESCALATION

ESCALATION IS CALCULATED AT 12.93 % ON THE ACCRUAL BASED PROJECTED FROM THE ATTACHED SCHEDULE NOTING THE MID-POINT OF CONSTRUCTION. PROCUREMENT IS CALCULATED AT 6.53 % PER THE ATTACHED SCHEDULE. 12.62% represents a composite figure for construction and procurement.

5 CONTINGENCY

CALCULATED AT 17.0 % OF THE ESTIMATED CONSTRUCTION PER THE ATTACHED CONTINGENCY ANALYSIS.

6 REMARKS

A. Contour lines and finish floor elevations were unavailable, so an allowance was made under rough grading.
B. Fire portection assumed normal risk for operations building and medium risk for compactor building.
C. Cost for metal building was based on standard module size of 190 x 80 and adjusted to plan size.
D. Revision 1: Main building length is decreased by 40 feet - this length reduction occurs in the open bay area.
E. Revision 2: Engineering is reduced.

AMJ:ad

KEH-318 (4-82)

KAISER ENGINEERS HANFORD

ESCALATION ANALYSIS SCHEDULE

PROJECT NO./WORK ORDER NO. B-431 / R-1350

TITLE OPERATIONS SUPPORT FACILITY

REQUESTED BY [illegible]

PREPARED BY ZRE / AMJ

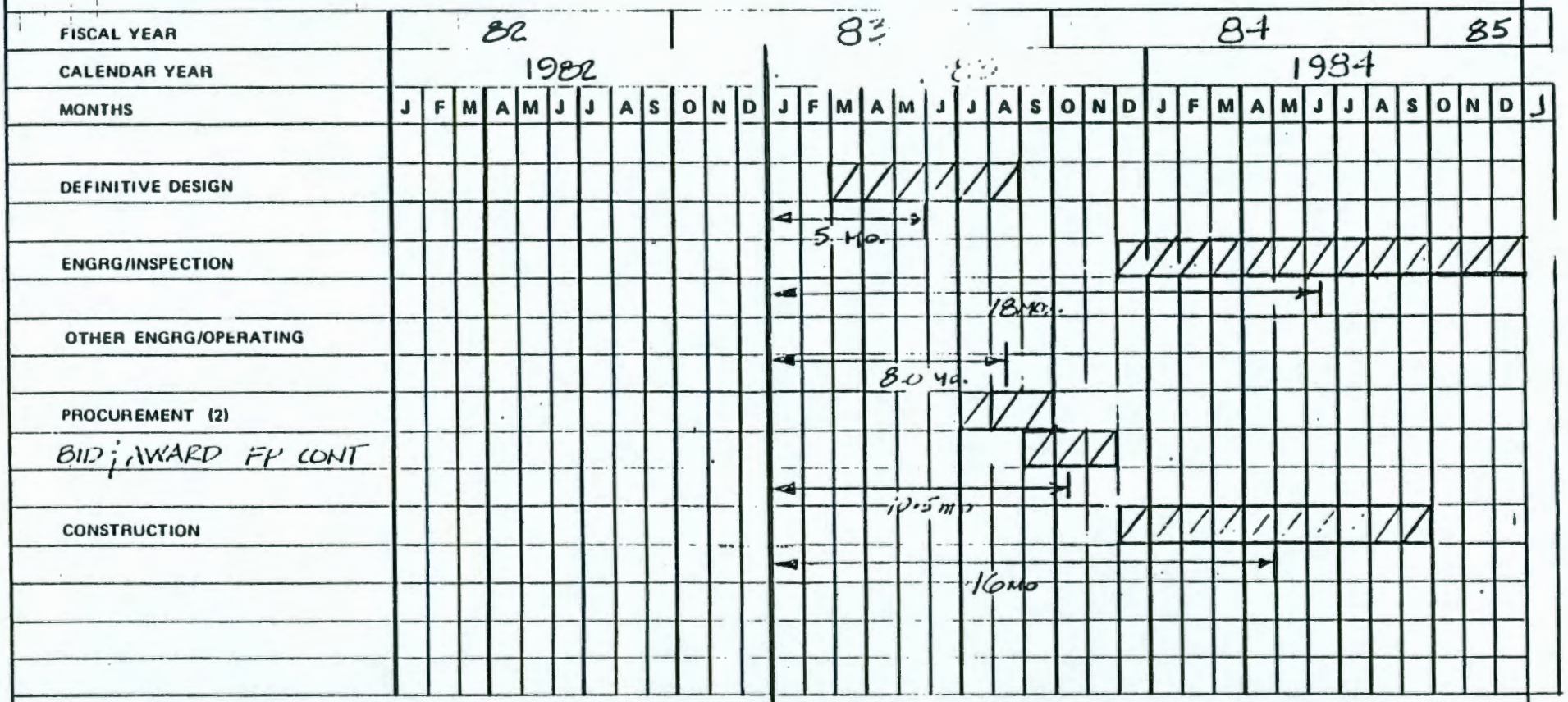
DATE 1-10-83

APPROVED BY

DATE

Δ 3-11-83

Tasks are shown as forecasted work and do not represent approved schedules nor manpower assignments.



ENGINEERING ESCALATION (1)

DL: 5 [illegible] .817% = 4%

175 [illegible] .817% 14%

JAJ REVIEW 1.5 [illegible] .31 = 8%

(1) **CONSTRUCTION AND PROCUREMENT ESCALATION**

PROCUREMENT PER SCHEDULE = 6.53%

CONSTRUCTION PER SCHEDULE = 12.62%

(1) To be provided by Estimating Department.

(2) May/May Not be required to be broken out separately

KEH-291 (6-82)

KAISER ENGINEERS HANFORD

Date 3-16-83

Work By [ ] L.S. [ ] Eng. Contr. [ ] CPAF

Type Estimate: [ ] STUDY [ ] FINAL [X] CONCEPTUAL [ ] PRELIM [ ]

CONTINGENCY ANALYSIS

Proj/Wo. No. B-434

Proj. Title TANK FARM OPERATIONS SUPPORT FACILITY

Prepared By AMJ

Checked By A-

CSI DIV. NO.	DESCRIPTION	DIRECT COST	ESCALATION Percent	ESCALATION Dollars	SUBTOTAL	CONTINGENCY Percent	CONTINGENCY Dollars	TOTAL
02	Sitework	166200	12.93	21500	187700	20	37500	225200
03	Concrete	82800		10700	93500	10	9400	102900
04	Masonry							
05	Metals	6600		900	7500	10	800	8300
06	Wood and Plastics							
07	Thermal and moisture protection	3400		400	3800	15	600	4400
08	Doors and Windows	35400		4600	40000	15	6000	46000
09	Finishes	95800		12400	108200	10	10800	119000
10	Specialties	38300		5000	43300	10	4300	47600
11	Equipment	11400		1500	12900	15	1900	14800
12	Furnishings							
13	Special Construction	195100		25200	220300	15	33000	253300
14	Conveying Systems	10900		1400	12300	15	1800	14100
15	Mechanical	317600		41100	358700	20	71700	430400
16	Electrical	178000		23000	201000	20	40200	241200
	Direct Cost Totals	1141500		147700	1289200	16.91	218000	1,507,200
01	General Requirements	61500		8000	69500	16.91	11800	81300
01	Technical Services							
	Overhead and Profit & BOND	147000		19000	166000	16.91	28100	194100
	Construction Cost Totals	1350000		174700	1524700	16.91	257900	1782600
	Contract Administration / Construction Management 12%	162000		20900	182900	16.91	30900	213800
	ADJUSTMENT	-		-	-		800	800
	CPAF Work - TIE INS	5300	12.93	700	6000	16.91	1000	7000
	Procured Equipment	79800	6.53	5200	85000	16.91	14400	99400
	TOTALS	1,597,100	12.62	201500	1798600	16.96	305000	2,103,600

DOE Richland, WA

KEH-242 (6-82)

KAISER ENGINEERS
HANFORD

TYPE ESTIMATE: [X] Conceptual [ ] Final [ ] Study [ ] Preliminary [ ]

ESTIMATE WORK SHEET

PROJ WO. NO.	CSI DIV	DESCRIPTION	DATE	WORK BY	TAKE-OFF/PRICED	CHECKED	SHEET
B-434	00	JAJ CONSTRUCTIBILITY	12-4-82	CPAF	AMJ		12

DESCRIPTION	QUANTITY	UNIT	MANHOURS UNIT MH	MANHOURS TOTAL	MANHOURS $/MH	UNIT COST MTL $	TOTAL COST LABOR	TOTAL COST MATERIAL	TOTAL COST EQUIPMENT USAGE	TOTAL COST SUB-CONTR	TOTAL COST TOTAL
TIE-INS ASSUME 1-DRAWING											
DISTRIBUTION	1	EA	1	1							
FIELD REVIEW	1	EA	3	3							
DOCUMENTS	6B			8							
ESTIMATING	1	EA	6	6							
FIELD TRIP	1	EA	8	8							
K.O. MEETING	1	EA	8	8							
				34	37.00		1258				1258
						24-1	1300	-	-	-	1300

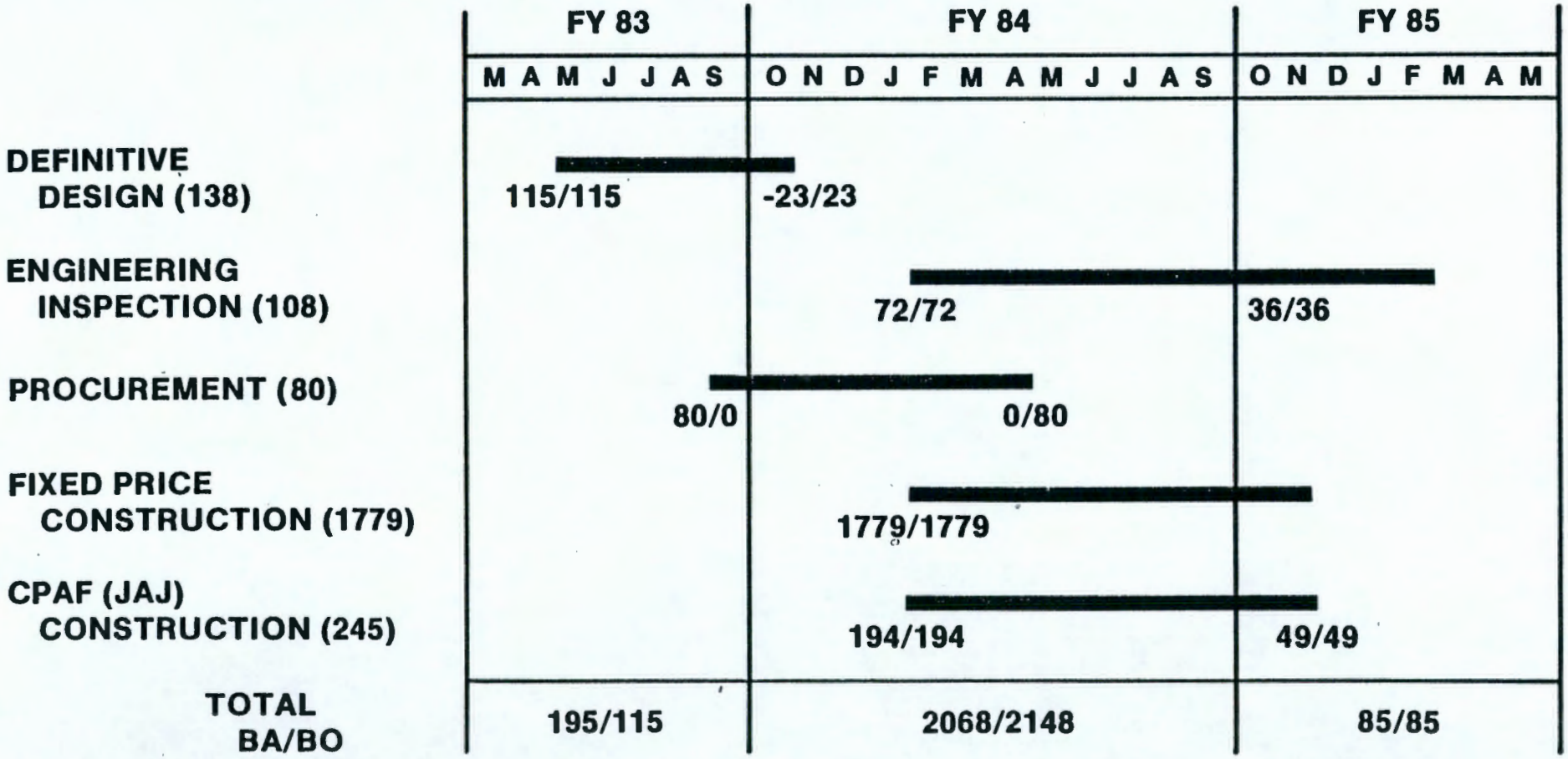
DOE Richland, WA

KEH-26.1 (6-82)

APPENDIX B

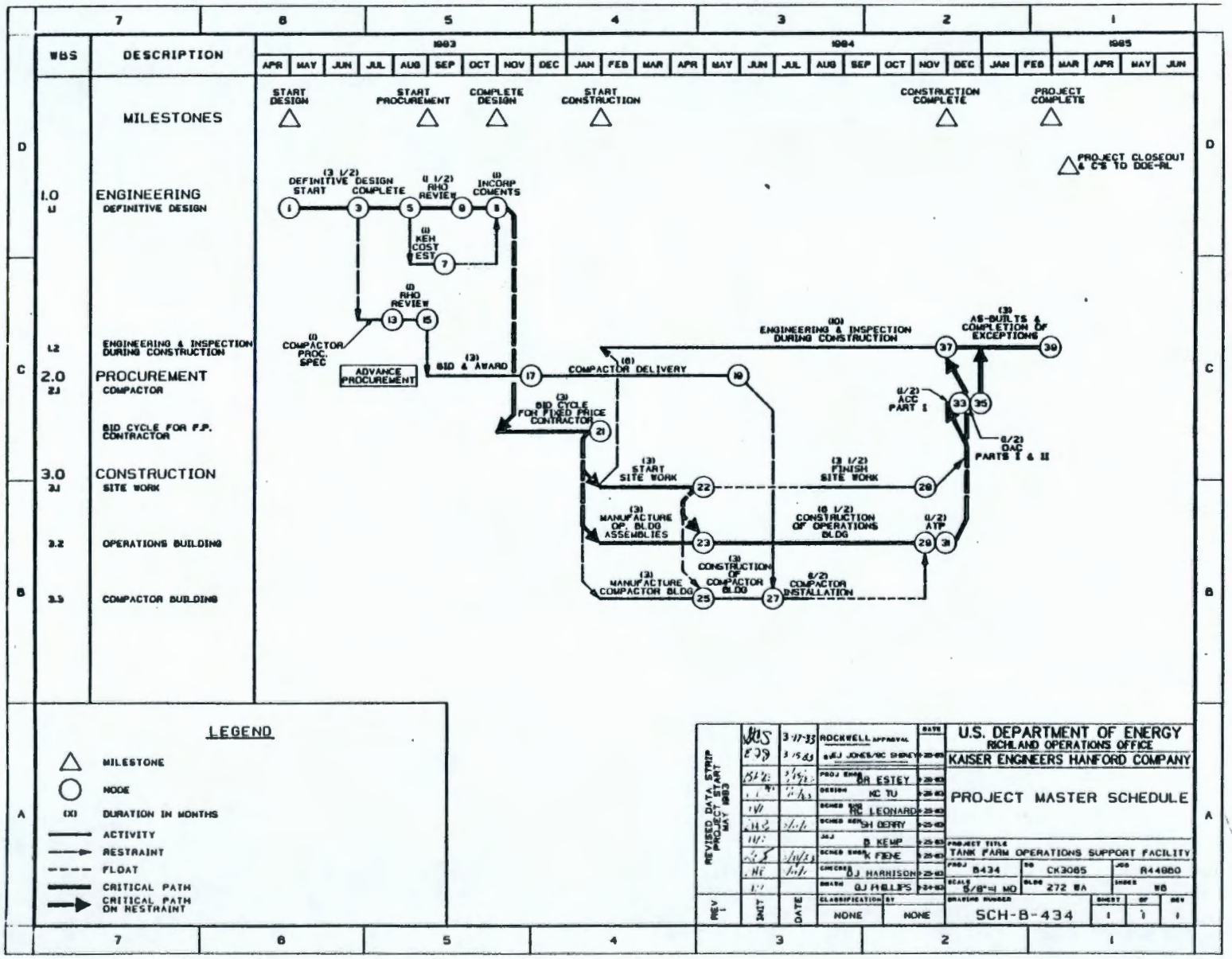
BA/BO Schedule

B-434 BA/BO SCHEDULE



APPENDIX C

Schedule


WBS
DESCRIPTION
1983
1984
1985
APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN
MILESTONES
START DESIGN
START PROCUREMENT
COMPLETE DESIGN
START CONSTRUCTION
CONSTRUCTION COMPLETE
PROJECT COMPLETE
PROJECT CLOSEOUT & C'S TO DOE-RL
1.0 ENGINEERING
DEFINITIVE DESIGN
(3 1/2) DEFINITIVE DESIGN START
DESIGN COMPLETE
(1 1/2) RHO REVIEW
(1) INCORP COMENTS
(1) KEH COST EST
(1) RHO REVIEW
(1) COMPACTOR PROC. SPEC
ADVANCE PROCUREMENT
1.2 ENGINEERING & INSPECTION DURING CONSTRUCTION
2.0 PROCUREMENT
2.1 COMPACTOR
BID CYCLE FOR F.P. CONTRACTOR
(3) BID & AWARD
(6) COMPACTOR DELIVERY
(3) BID CYCLE FOR FIXED PRICE CONTRACTOR
(10) ENGINEERING & INSPECTION DURING CONSTRUCTION
(3) AS-BUILTS & COMPLETION OF EXCEPTIONS
(1/2) ACC PART I
(1/2) OAC PARTS I & II
3.0 CONSTRUCTION
3.1 SITE WORK
(3) START SITE WORK
(3 1/2) FINISH SITE WORK
3.2 OPERATIONS BUILDING
(3) MANUFACTURE OP. BLDG ASSEMBLIES
(6 1/2) CONSTRUCTION OF OPERATIONS BLDG
(1/2) ATP
3.3 COMPACTOR BUILDING
(3) MANUFACTURE COMPACTOR BLDG
(3) CONSTRUCTION OF COMPACTOR BLDG
(1/2) COMPACTOR INSTALLATION
LEGEND
MILESTONE
NODE
(X) DURATION IN MONTHS
ACTIVITY
RESTRAINT
FLOAT
CRITICAL PATH
CRITICAL PATH ON RESTRAINT
REVISED DATA STRIP PROJECT START MAY 1983
ROCKWELL APPROVAL
U.S. DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
KAISER ENGINEERS HANFORD COMPANY
PROJECT MASTER SCHEDULE
PROJECT TITLE
TANK FARM OPERATIONS SUPPORT FACILITY
PROJ B434
DO CK3085
JOB R44980
BLDG 272 BA
SHEET W8
SCALE 5/8"=1 MO
DRAWING NUMBER SCH-B-434
SHEET 1 OF 1 REV 1
CLASSIFICATION NONE
NONE

APPENDIX D

Work Breakdown Schedule

WORK BREAKDOWN STRUCTURE

1.0 ENGINEERING

- 1.1 Definitive Design
  - 1.1.1 Operations Building
  - 1.1.2 Compactor Building
- 1.2 Field Engineering and Inspection

2.0 PROCUREMENT

- 2.1 Compactor
- 2.2 Miscellaneous Hardware (CAM's Sample System, HEPA, etc.)

3.0 CONSTRUCTION

- 3.1 Operations Building
  - 3.1.1 Site Work and Foundation
  - 3.1.2 Utilities
  - 3.1.3 Erect Building
  - 3.1.4 Mechanical Installation
  - 3.1.5 Electrical
  - 3.1.6 ATP
- 3.2 Compactor Building
  - 3.2.1 Site Work and Foundation
  - 3.2.2 Utilities
  - 3.2.3 Erect Building
  - 3.2.4 Mechanical Installation
  - 3.2.5 Electrical
  - 3.2.6 ATP

APPENDIX E

Outline Specifications

OUTLINE SPECIFICATIONS

DIVISION 2 - SITEWORK

Section 02200 Earthwork

1. Loadbearing backfill, compacted.
2. Nonloadbearing backfill, compacted.
3. Sand cushion for underground pipe, compacted.
4. Plastic sheet marker for buried piping.

Section 02434 Culverts

1. Culverts: Corrugated, galvanized in accordance with FS WW-P-405.

Section 02444 Chain Link Fences and Gates

1. Security fencing.

Section 02530 Hot-Laid Asphaltic Concrete Pavement

1. Base course (ballast), leveling course, asphalt material, aggregates and mineral filler.
2. Gravel surfacing.

Section 02700 Piped Utilities

1. Sanitary water distribution system: PVC pipe.
2. Sanitary sewer pipe: ABC or PVC pipe.
3. Carbon steel seamless pipe.
4. 3,000 gallon septic tank and drain field.

Section 02717 Fire Water Systems

1. Exterior water piping and valves.
2. Post indicator valves, supervised.
3. Thrust restraints at all tees, plugs, caps and bends.

DIVISION 3 - CONCRETE

Section 03300 Cast-In-Place Concrete

1. Concrete, minimum strength: 3000 psi at 28 days.
2. Reinforcing steel bars: ASTM A 615, deformed, grade 60.
3. Welded wire fabric: ASTM A 185.
4. Nonshrink grout, nonmetallic type.
5. Concrete forms.

Section 03420 Prestressed Concrete

1. Concrete, minimum strength: 3500 psi at transfer of prestress and 5000 psi at 28 days.
2. Prestressing strands: ASTM A 416.
3. Reinforcing bars: ASTM A 615.
4. Welded wire fabric: ASTM A 185.

DIVISION 5 - METALS

Section 05120 Structural Steel

1. Structural steel: ASTM A 36.

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

Section 07200 Insulation

1. Glassfiber batt and blanket insulation, unfaced and vinyl faced.
2. Polyethylene sheet vapor barrier.

Section 07212 Rigid Insulation

1. Foam glass perimeter insulation board.

Section 07600 Flashing and Sheet Metal

1. 24 gage galvanized sheet metal flashing and gutters.

Section 07920 Sealants and Calkings

1. Polysulfide sealant with nonstaining primer.
2. Premolded bituminous expansion joint filler.

DIVISION 8 - DOORS AND WINDOWS

Section 08100 Metal Doors and Frames

1. Doors: Hollow metal, flush type with 18 gage face sheets and vision lites. Insulated for exterior installation.

2. Frames: Hollow metal, 16 gage.

Section 08360 Overhead Doors

1. Motorized, insulated metal sections with glass view panels. Double weather stripped.

DIVISION 9 - FINISHES

09250 Gypsum Wallboard

1. Gypsum wallboard 5/8 inch thick standard, fire-retardant and water-resistant types.

2. Metal studs, galvanized.

3. Suspended drywall ceiling system.

Section 09310 Ceramic Tile

1. Ceramic tile: Glazed and unglazed, thin set type.

Section 09500 Acoustical System

1. Suspended acoustical tile ceiling: 2 foot by 4 foot mineral board on exposed metal tee grid.

2. Sound attenuation: 12 inch square acoustical tiles, adhesive applied.

Section 09650 Resilient Flooring

1. Vinyl floor tile.

2. Rubber base.

Section 09805 Special Protective Coating

1. Amercoat 90 coating.

Section 09900 Painting

1. Acrylic epoxy coating for gypsum wallboard.

2. Gloss enamel paint for metal.

3. Acrylic latex for gypsum wallboard.

DIVISION 10 - SPECIALITIES

Section 10160 Toilet Partitions and Urinal Screens

1. Enameled metal toilet partitions, shower and dressing compartment, and urinal screens.

Section 10500 Lockers

1. Metal lockers, double tier 12 inches wide x 15 inches deep with sloping top.

Section 10670 Storage Shelving

1. Metal storage shelving.

DIVISION 13 - SPECIAL CONSTRUCTION

Section 13120 Pre-engineered Structures

1. Pre-engineered beam and column type steel building, with gable roof and supported rigid structure; 24 gage factory finished roof, wall and insulated metal liners; manufacturer's standard doors, window walls, gutters, flashing and facia.

2. Pre-engineered self-framing all steel gable roof type structure; 24 gage factory finished roof, panels, and metal liners; standard doors; noninsulated.

DIVISION 15 - MECHANICAL

Section 15370 Process Piping Systems

1. Waste collection tank, carbon steel with coal tar wrap.

Section 15500 Fire Protection

1. Wet and dry pipe automatic sprinkler protection systems in accordance with NFPA13.

Section 15800 Heating, Ventilating and Air Conditioning

1. Centrifugal fans: Rated in accordance with AMCA Standard 210.

2. Electric motors.

3. Air conditioning equipment: Rated in accordance with applicable ARI Standards.

4. Standard air filters: Rated in accordance with ASHRAE Standard 52-76.

5. HEPA filters.

6. Exhaust ductwork: Fabricated from ASTM A 36 carbon steel.

7. Supply ductwork: Fabricated from ASTM A 527 galvanized steel.

8. Ductwork and equipment supports: Fabricated with ASTM A 36 carbon steel.

DIVISION 16 - ELECTRICAL

Section 16100 Electrical

1. Service and distribution.

   a. Pad mounted outdoor type and indoor distribution transformers.

   b. Motor control centers.

   c. Potential and current transformers.

   d. Panelboards.

   e. Kilowatt-hour meters.

2. Circuit breakers.

   a. Circuit breakers shall be bolt-on type with thermal magnetic trips. Interrupt capacity shall be:

240V AC breakers	18,000 RMS Symm Amps
480V AC breakers	14,000 RMS Symm Amps

3. Automatic transfer switches: Circuit breaker type.

4. Lighting: Fluorescent, low pressure sodium vapor and mercury vapor.

5. Exit light fixtures: 120V AC units with battery.

6. Emergency lighting fixtures: 120V AC units with 12V DC battery.

Section 16721 Fire Alarm and Detection Systems

1. Evacuation alarm: Solid state modular signaling device operating on 120V AC power.

2. Fire alarm system.

APPENDIX F

Energy Conservation Report

ENERGY CONSERVATION REPORT

Summary

The Tank Farm Operations Support Facility is a new building located in the 200 West area. The facility will contain change rooms, supervisory facilities, a lunchroom and maintenance shops. Energy conservation features outlined in DOE Order 6430 will be incorporated in the design. The DOE-2.1a Building Energy Analysis Program was used in calculating annual energy consumption. Results of computer analysis show a 5.4 percent reduction in total building energy usage as compared to typical 1975 construction, using the same type of equipment and lighting.

HVAC Heat Recovery

Exhaust air from the shop and change room areas will be circulated through heat reclaim coils to reduce the outside air ventilation loads. Dampers will be provided to allow 100 percent outside ventilation air for cooling during times of moderate ambient air temperatures.

Solar Systems

Solar systems were not evaluated. The building will be the same as the 272-AW Facility which does not have a solar system, as the functional design criteria has stated. Solar systems were evaluated for the 272-AW Facility and determined not to be cost effective.

Building Envelope

The building will be a metal frame structure with insulation in the walls and roof. This construction yields a "U" value of 0.045 for the roof and .084 for the walls. The windows are only 1.3 percent of the wall area, therefore fenestration loads have been ignored.

Lighting will utilize mercury vapor fixtures in the high-roof areas and fluorescent fixtures for all other interior lighting. Lighting levels will comply with ANSI Standard A-132.1 for office areas and ANSI-A11.1 for interior and exterior industrial areas.

Building Systems

Four independent heating and cooling systems will be provided to cover each of the four zones with the same configuration of the 272-AW Facility located in the 200 East Area. Electrical resistance heating will be provided on all four zones as either the primary source or supplemental heat. Cooling will be provided through either heat pumps for the office areas or evaporative coolers for the shop areas. Exhaust air will be circulated through heat reclaim coils to reduce the outside air ventilation loads.

Automatic and Supervisory Control Features

Heating and cooling will be automatically controlled by thermostats centrally located in each zone. Zones using heat pumps will have night set-back capability. Zones using evaporative coolers will be drained during winter months.

Total Annual Energy Use Rates

The building annual energy usage was calculated using the DOE-2.1a Building Energy Analysis Program. This program performs dynamic energy flow analysis which takes into account storage effects of the insulated structure. Two analyses were performed, one using the building envelope and systems as designed, and the other using typical 1975 building construction design guidelines.

The estimated overall energy consumption from the computer study is 1157.5 MBtu/year. For 1975 typical construction, the overall energy consumption would be 1223.9 MBtu/year.

The DOE guidelines for energy reduction established 45 percent reduction of energy consumption over a 1975 building design, as a program objective. The increase in wall and ceiling insulation shows a 46.2 percent energy savings over 1975 building design, but the overall energy savings shows only a 5.4 percent reduction.

APPENDIX G

Environmental Evaluation

ENVIRONMENTAL EVALUATION FOR OPERATIONS SUPPORT FACILITIES, PROJECT B-434

1. SUMMARY

This environmental evaluation (EE) addresses the potential for environmental impacts resulting from planned construction and operational activities associated with the proposed Tank Farm Operations Support Facility. The facility will be located in an extension of the 200 West Area and will be designed to service the entire Hanford Site (see Figure 1).

In the operational phase of the project, the facility will be in compliance with the U. S. Department of Energy - Richland Operations Office (DOE-RL) Order 5820.2, "Radioactive Waste Management", which describes a "technically and economically practicable" approach in dealing with radioactive solid waste. The proposed action does not constitute a major federal action significantly affecting the quality of the human environment within the context of the National Environmental Policy Act, U. S. C., et seq. It is, therefore, recommended that no additional documentation, including an environmental assessment, be prepared.

2. DESCRIPTION OF THE PROPOSED ACTION

The proposed facility will consist of:

- a building to house 200 West Tank Farm Surveillance and Operations and West Area Maintenance,
- a separate building to house the compaction operation, and
- a low-level solid waste compactor.

The administration and support building will house offices, a conference room, lunchroom, storage areas, records storage areas, restrooms, change rooms, personnel decontamination area, shop area, and a garage for dry well monitoring vans. The only areas of the building subject to contamination are the Special Work Permit (SWP) change rooms, decontamination room and garage.

The SWP change rooms will provide space for changing into and out of SWP clothing, for storage of used SWP clothing and for monitoring equipment. The decontamination room will provide showers and decontamination supplies. Shower and floor drains will be routed to a waste retention tank. The garage will enable maintenance work on instruments and will contain a dry well for calibration of truck mounted surveillance equipment. These areas of the building will be designed to be readily decontaminated.

The function of the compaction operation is to compact and package low-level non-transuranic radioactive dry solid waste suitable for burial. Uncompacted waste in cartons or bags will be placed in covered metal bins at the point of origin and the bins will be delivered by truck to the compactor facility. The bins will be placed on a pad to be held until enough waste has accumulated to economically operate the compactor. The bins will be taken inside the compactor building and the waste transferred to the compactor to be compacted and sealed in steel drums, rigid boxes or bales. If bales are produced, they will be sealed in plastic as they are loaded out of the compactor. The packaged waste will then be lifted into a covered van that is equipped with a forklift, and transported to the burial ground.

The waste compactor considered is a Stock Equipment Company drum compactor equipped with control and ventilation systems for handling solid radioactive waste. The compactor will be capable of compressing 100 ft^3 per hour of uncompacted waste to achieve a 9 to 10 volume reduction factor. Packaging will be in steel drums, rigid boxes or in strapped bales. Wastes will be sorted at their point of generation to assure that non compactable material and hazardous chemicals do not go into the compactor.

Maximum surface radiation exposure reading on packages accepted by the facility will comply with as low as reasonably achievable (ALARA) and DOE regulations for handling low-level non-transuranic dry solid waste. (Potential radiation exposure is discussed in Section 4 of this evaluation). The design life of the compactor building is 20 years, and the compactor itself, 10 years.

SD-434-FDC-001, elaborates on physical design parameters, particularly for safety features for the compactor facility. General utility requirements for the project are also included in the Functional Design Criteria Document.

3. AFFECTED ENVIRONMENT

The site tentatively chosen for the Tank Farm Operations Support Facility is within an extension of the 200 West fenced area. (See Figure 2 for approximate location).

Vegetation in this area is dominated by desert shrubs (sagebrush, Russian thistle, antelope bitterbrush), and grasses (Sandberg bluegrass, cheatgrass). Amphibians and reptiles are uncommon. The variety of birds inhabiting the area is moderate, with semiannual peaks in variety and abundance occurring during migration. Small mammals are relatively abundant. The habitats of species considered rare and endangered will not be affected by this action.

Additional information concerning the environment of the Hanford Site may be obtained from ERDA-1538, "Final Environmental Statement, Waste Management Operations, Hanford Reservation, Richland, Washington, December 1975.

The proposed action will be located above the 100-500 year floodplain. There are no archeological sites or districts within the 200 Areas. The nearest population center is the City of Richland, a distance of over 20 miles.

4. POTENTIAL ENVIRONMENTAL IMPACTS

Heavy equipment will be used during construction causing exhaust emissions, noise, dust, and minor traffic inconvenience, mainly limited to the 200 West Area. Noise levels will also increase during the actual operation of the compactor. Dust control during construction will be accomplished through appropriate measures in accordance with local pollution control standards for fugitive particulate material. This guidance is provided in General Regulation 80-7 of the Benton-Franklin-Walla Walla counties air pollution control authority.

The ventilation system for the compactor will be designed so that low-level solid waste can be handled without release of airborne contamination to the room. Radiological content will be controlled through monitoring of packages at their point of origin and when loaded into the compactor. Should any of the facility systems fail (ventilation, waste package, or contamination above permissible limits) personnel will be warned of airborne contamination with constant air monitor (CAM) units located in the room.

Potential radiation exposure from the packages will be controlled through hand-monitoring. Periodically, radiation readings will be made during compaction operation. If surface exposure approaches the permitted level, waste loading will be discontinued. The waste package will then be sealed and removed from the compactor. Exposure of compactor operating personnel will be controlled to "as low as reasonably achievable" (ALARA), not to exceed 1 Rem/yr. Exposure will be maintained at less than 0.5 mrem/hr to personnel in other areas. The overall design will assume safe handling of waste packages with contact dose rates as high as 200 mrem/hr.

Hazardous chemicals and plutonium bearing waste will not be thrown into the compactable Mixed Fission Products (MFP) waste, however the compactor will feature corrosion resistant materials in the event that hazardous chemicals or waste containing plutonium is inadvertenly compacted. Some of the waste will contain process chemicals, cleaning solvents or other chemicals that are potentially hazardous. As received, these will be in boxes or bags that will prevent their release prior to compaction. The fumes from these chemicals will be prevented from entering the building atmosphere by maintaining a negative air pressure in the compactor.

To assure contamination control, the compactor room and waste truck unloading area will be designated as SWP areas. Controls for radioactive materials will include an integral filtered ventilation system consisting of pre-filter and high-efficiency particulate air (HEPA) filters, in addition to a compactor ventilation system.

Sewage and waste that are normal for an office/packaging facility that is occupied and operating will be produced. These will be handled with a sanitary sewer and waste disposal service, respectively.

An analysis was made of the impacts resulting from complete failure of the compactor filter system assuming the worst credible conditions. The assumptions upon which the analysis was made are shown in Appendix A along with the calculated dose rates. This analysis showed that doses to people either in the operations building or at the adjoining waste dump would be below allowable limits. Further analysis showed that soil deposition resulting from such a failure would be below the contamination limits set in RHO-MA-139. Radiological Engineering recommends that, as a minimum, a single stage HEPA filter be installed in the compactor exhaust system. Recommended administrative control is a weekly check of the HEPA filter housing external reading once a week or more often depending upon the volume of waste compacted. The filter would be changed when the filter housing reading is 100 mr/hr or more.

5. COORDINATION WITH FEDERAL, STATE, AND LOCAL PLANS

No known conflicts exist from this project with Federal, State, or local agencies or their environmental plans.

Regulatory guidance pertaining to this project is referenced in the Functional Design Criteria (SD-434-FDC-001).

6. NO ACTION ALTERNATIVE

Compaction of waste is economically justifiable from the standpoint of reducing burial costs. This project will provide such a service for the entire Hanford Site and enhance the safety of persons handling low-level waste.

By not meeting the need to decrease the volume of radioactive solid waste at Hanford, the guidelines established in DOE-RL Order 5820.2 cannot be fully complied with.

7. PERSONS/AGENCIES CONTACTED

Rockwell Hanford Operations

E. J. Jones - CPM
A. C. Rutz - HS&E
G. C. Shirey - Proc. Design
J. A. Bates - HS&E
C. J. Hall - RPD

8. PERMITS/APPROVALS

None required for this project.

9. ENVIRONMENTAL EVALUATION CHECKLIST

B-434 Waste Compactor Facility

ENVIRONMENTAL IMPACTS

(Explanations of all "yes" answers are required)

	CONSTRUCTION Yes	CONSTRUCTION No	OPERATION Yes	OPERATION No
(1) Air. Will the Project:				
(a) Violate State/County Emissions Standards? (Particulates, Opacity, Dust, etc.)		X		X
(b) Violate Ambient Air Quality Standards? (CO, Hydrocarbons, Particulates, etc.)		X		X
(c) Release Hazardous Air Pollutants? (Asbestos, Beryllium, Mercury, etc.)		X		X
(d) Release Airborne Radioactivity?		X		X
*(e) Cause any other atmospheric disturbance?	X			X
(f) Require PSD or other permits?		X		X
(2) Water. Will the Project:				
(a) Violate State Water Quality Standards? (COD, BOD, TOC, DO, TDS, pH, temperature, etc.)		X		X
(b) Require NPDES[1] or Corps of Engineers Permits?		X		X
(c) Require shoreline modifications (Hydraulic Modification Permit[2])?		X		X
*(d) Increase volume of sewage or process waste for disposal?		X	X	
(e) Affect groundwater?		X		X
(f) Affect any source of drinking water?		X		X
(g) Discharge radioactive waste water?		X		X
(h) Discharge hazardous water pollutants?		X		X
(i) Require an Oil or Chemical Spill Control and Prevention Plan?		X		X

1. NPDES--National Pollution Discharge Eliminiation System
2. Obtained by RL as a matter of comity.

*(e) - Refer to Section 4.

	CONSTRUCTION Yes	CONSTRUCTION No	OPERATION Yes	OPERATION No
(3) Land Use. Will the Project:				
(a) Conflict with existing zoning or land use plans?		X		X
(b) Be located on wetlands or the 100 year or 500 year flodplain?		X		X
*(c) Contribute to volumes of solid waste for disposal		X	X	
i. Nonradioactive?		X		X
ii. Hazardous?		X		X
iii. Radioactive?		X	X	
(d) Require licensing as a hazardous waste storage, treatment or disposal site?		X		X
(e) Cause erosion?		X		X
(f) Be located on ALE[3]?		X		X
(g) Conflict with NERP[4] activities?		X		X
(h) Require installation of wells?		X		X
(4) General. Will the Project:				
*(a) Increase noise levels?	X		X	
(b) Impact archaeological or historic sites?		X		X
(c) Require use of carcinogens, pesticides or toxic substances?		X	X	
(d) Impact wildlife or habitat?		X		X
(e) Effect endangered species or critical habitat?		X		X
(f) Require long-term commitment of non-renewable resources?		X		X
*(g) Require new utilities or modifications to existing utilities?	X			X
(h) Increase offsite radiation dose?		X		X
(i) Impair recreation?		X		X
(j) Require modifications to the site-wide Environmental Surveillance Program?		X		X

3. ALE--Arid Lands Ecology Reserve; contact Dr. M.L. Warner, PNL.

4. NERP--National Environmental Research Park, contact Dr. W.H. Fickard, PNL.

*3(c) - See Section 2 *4(g) - Section 2

*4(a) - Section 4

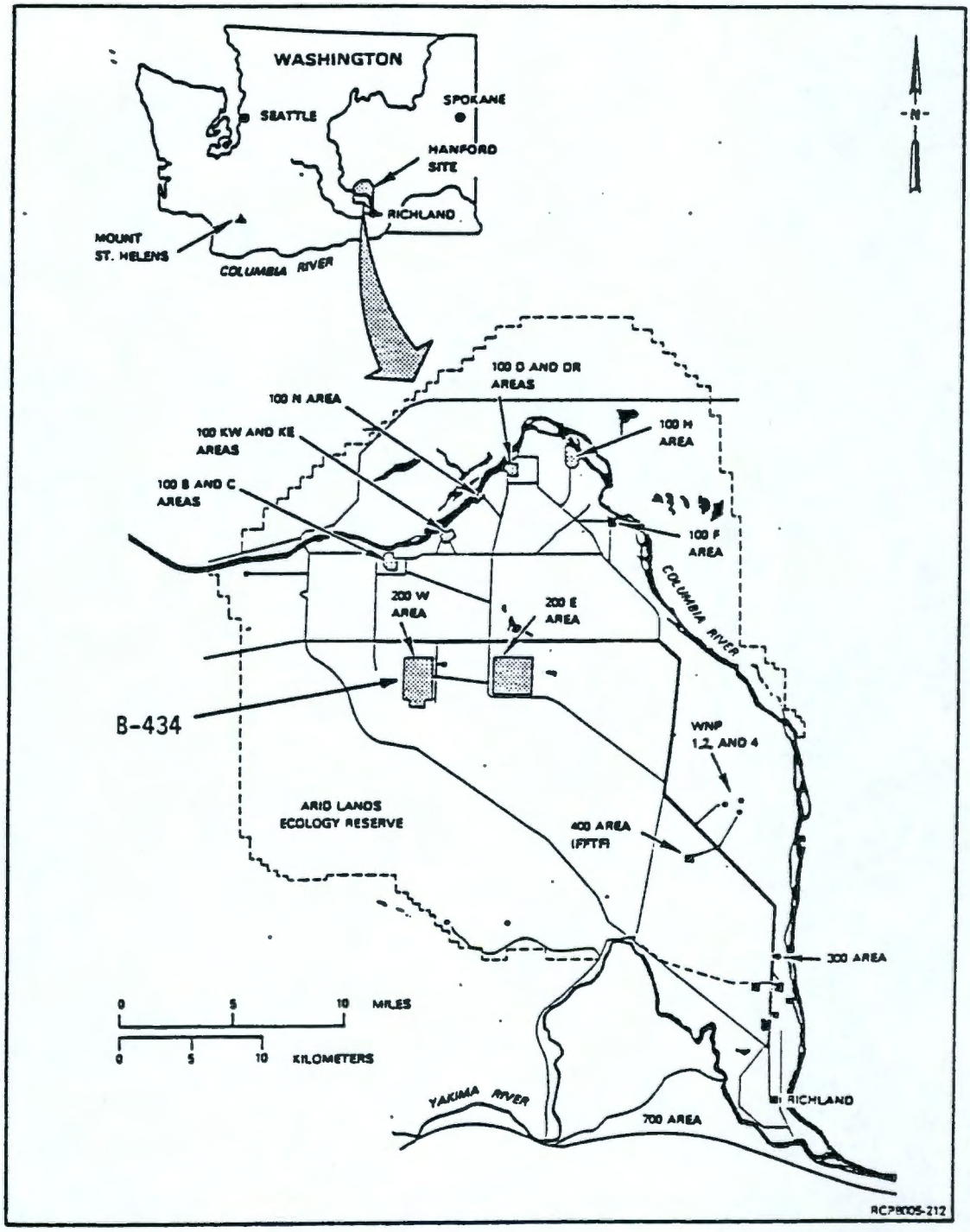


Figure 1. Hanford Site

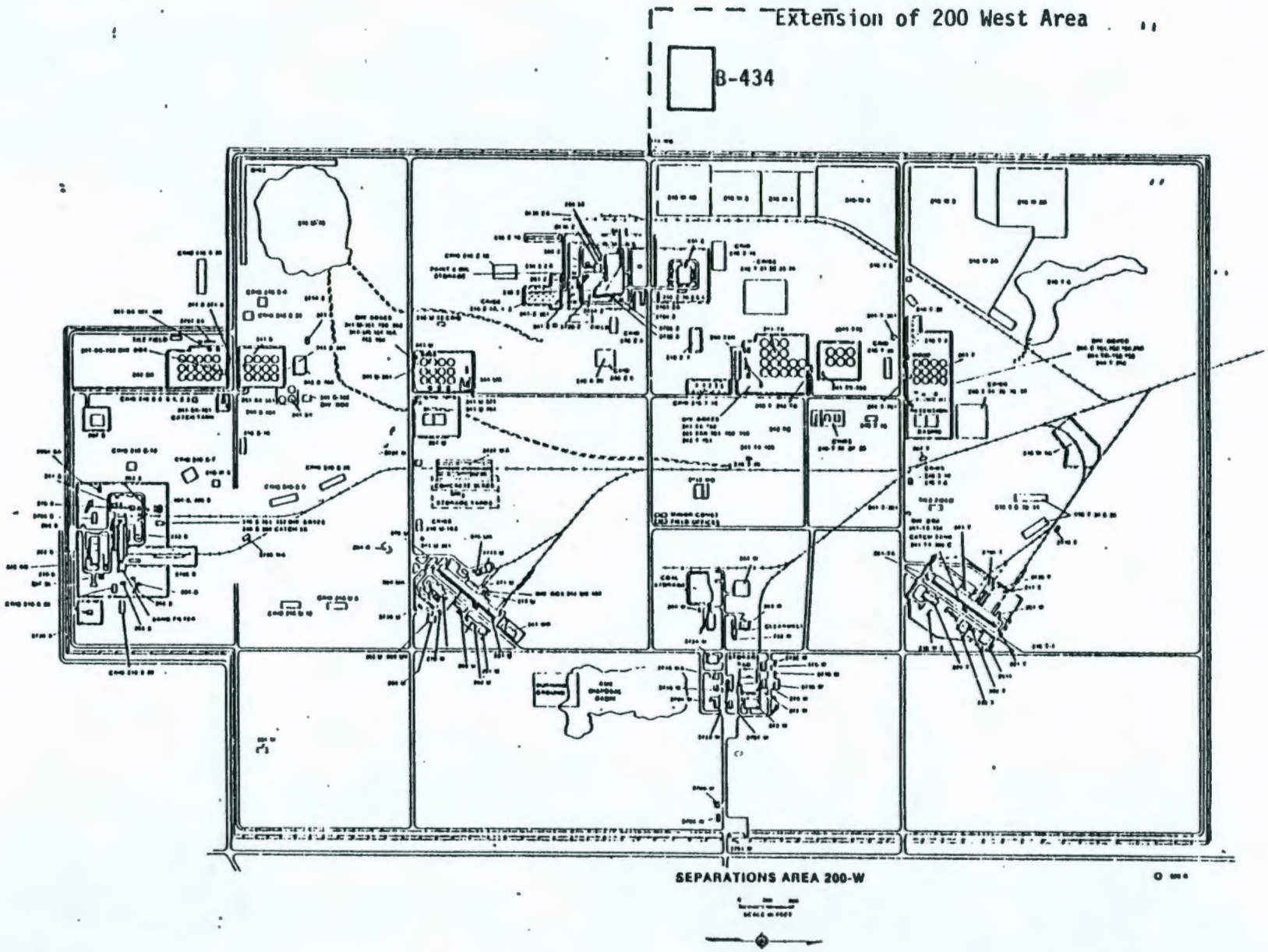


Figure 2. 200 West Area Showing Approximate location of B-434 RCP7909-19

APPENDIX H

Physically Handicapped Assessment

GSA 2974A (RL/1-79)

RECORD KEEPING/DOCUMENTATION ON ACCOMMODATIONS OF PHYSICALLY HANDICAPPED IN THE DESIGN, CONSTRUCTION OR ALTERATION OF BUILDINGS AND FACILITIES

PROJECT: NO. B-434 TITLE Tank Farm Operations Support Facility

LOCATION: AREA 200 West BUILDING NO. & NAME 200 West Tank Farm Operations Support Facility (272-WA)

TYPE OF PROJECT

- [X] NEW BUILDING (OR BUILDING ADDITION)
- [ ] BUILDING ALTERATION
- [ ] LEASED BUILDING
- [ ] BUILDING FINANCED IN WHOLE OR IN PART BY FEDERAL GRANT OR LOAN
- [ ] SITE DEVELOPMENT (GRADING, WALKS, PARKING LOTS)

APPLICATION OF STANDARDS

- [X] ANSI A117.1(R 1971) STANDARDS ARE APPLICABLE TO AND HAVE BEEN OR WILL BE INCORPORATED IN THE DESIGN, CONSTRUCTION, OR ALTERATION.
  - [ ] ALL STANDARDS
  - [X] LIMITED APPLICATION (REMARKS ON STANDARDS TO BE INCORPORATED):

    Occupancy by the physically handicapped will be limited to the administrative areas only.

EXCEPTIONS

- [ ] THE PROJECT IS WITHIN ONE (OR MORE) OF THE EXCEPTIONS SET OUT IN FPMR SUBPART 101-19.604 AS SHOWN BELOW:
  - [ ] EXCEPTION (a) NOT INTENDED FOR OCCUPANCY OR USED BY THE HANDICAPPED
  - [ ] EXCEPTION (b) ALTERATION NOT INVOLVING EXISTING STAIRS, DOORS, ELEVATORS, TOILETS, ETC.
  - [ ] EXCEPTION (c) NOT STRUCTURALLY POSSIBLE

GENERAL COMMENTS

PREPARED BY A F Shand DATE 12/8/82

APPROVED BY R J Morris DATE 12/8/82

REFERENCES:

FPMR SUBPART 101-19.6, (AMENDMENT D-47, JUNE 1974) "ACCOMMODATIONS FOR THE PHYSICALLLY HANDICAPPED."

ANSI 117.1(R1971). "AMERICAN STANDARD SPECIFICATIONS FOR MAKING BUILDINGS AND FACILITIES ACCESSIBLE TO AND USABLE BY THE PHYSICALLY HANDICAPPED."

GSA 974A (RL/1-79)

RECORD KEEPING/DOCUMENTATION ON ACCOMMODATIONS OF PHYSICALLY HANDICAPPED IN THE DESIGN, CONSTRUCTION OR ALTERATION OF BUILDINGS AND FACILITIES

PROJECT: NO. B-434 TITLE Tank Farm Operations Support Facility

LOCATION: AREA 200 West BUILDING NO. & NAME Low Level Waste Compactor Facility (213-W)

TYPE OF PROJECT

- [X] NEW BUILDING (OR BUILDING ADDITION)
- [ ] BUILDING ALTERATION
- [ ] LEASED BUILDING
- [ ] BUILDING FINANCED IN WHOLE OR IN PART BY FEDERAL GRANT OR LOAN
- [ ] SITE DEVELOPMENT (GRADING, WALKS, PARKING LOTS)

APPLICATION OF STANDARDS

- [ ] ANSI A117.1(R 1971) STANDARDS ARE APPLICABLE TO AND HAVE BEEN OR WILL BE INCORPORATED IN THE DESIGN, CONSTRUCTION, OR ALTERATION.
  - [ ] ALL STANDARDS
  - [ ] LIMITED APPLICATION (REMARKS ON STANDARDS TO BE INCORPORATED):

EXCEPTIONS

- [X] THE PROJECT IS WITHIN ONE (OR MORE) OF THE EXCEPTIONS SET OUT IN FPMR SUBPART 101-19.604 AS SHOWN BELOW:
  - [X] EXCEPTION (a) NOT INTENDED FOR OCCUPANCY OR USED BY THE HANDICAPPED
  - [ ] EXCEPTION (b) ALTERATION NOT INVOLVING EXISTING STAIRS, DOORS, ELEVATORS, TOILETS, ETC.
  - [ ] EXCEPTION (c) NOT STRUCTURALLY POSSIBLE

GENERAL COMMENTS

PREPARED BY [signature] DATE 12/8/82

APPROVED BY [signature] DATE 12/8/82

REFERENCES:

FPMR SUBPART 101-19.6, (AMENDMENT D-47, JUNE 1974) "ACCOMMODATIONS FOR THE PHYSICALLLY HANDICAPPED."

ANSI 117.1(R1971). "AMERICAN STANDARD SPECIFICATIONS FOR MAKING BUILDINGS AND FACILITIES ACCESSIBLE TO AND USABLE BY THE PHYSICALLY HANDICAPPED."

APPENDIX I

Drawings

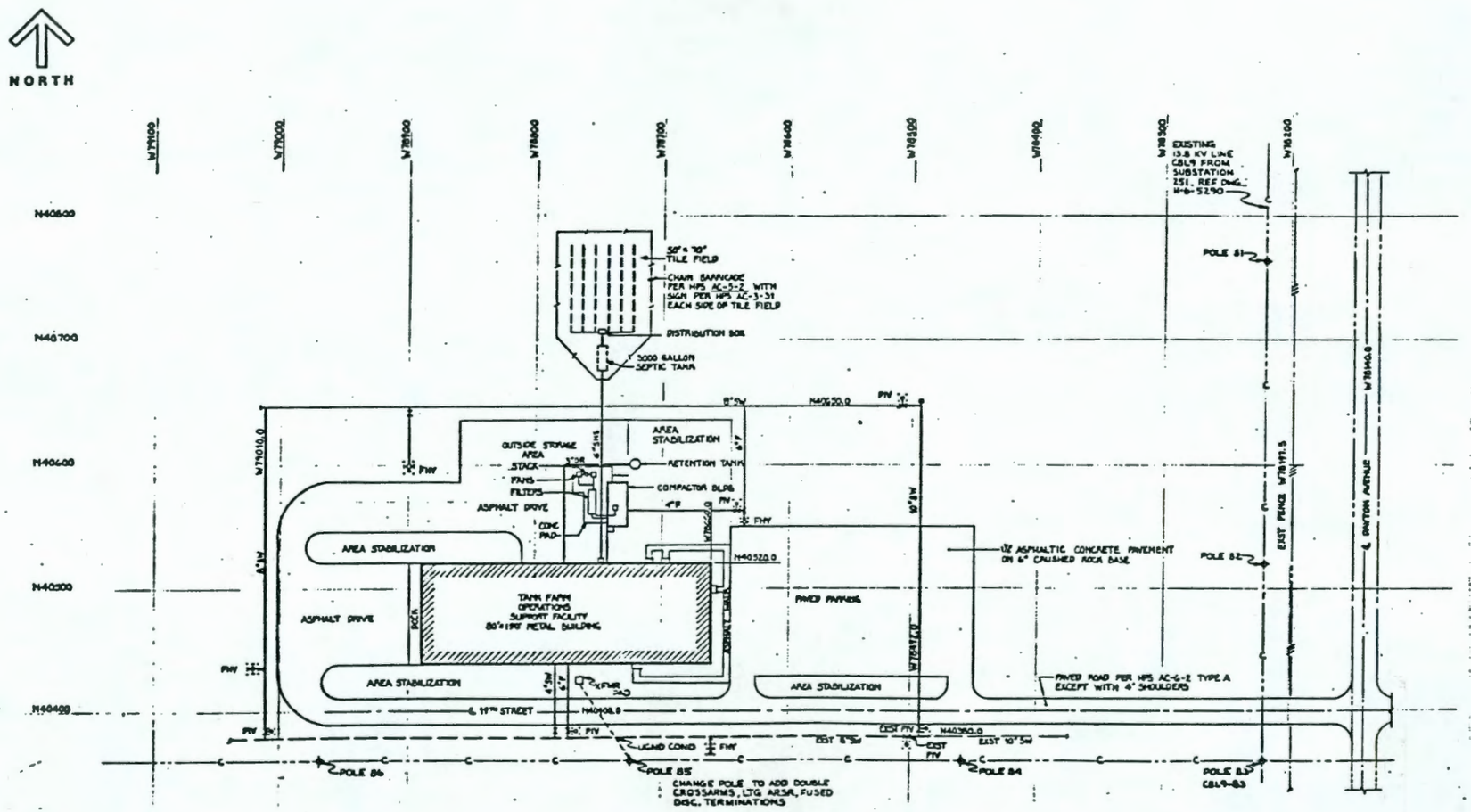
SK-2-57254
SK-2-57255
SK-2-57256
SK-2-57257, Sh. 1 and 2
SK-2-57258

DRAWING LIST

DRAWING NUMBER	INDEX NUMBER	DRAWING TITLE
SK-2-57254	0000, 0110 & 0001	CIVIL & ELECTRICAL/ SITE PLAN & DRAWING LIST
SK-2-57255	0500	ARCHITECTURAL/FLOOR PLAN
SK-2-57256	0501	ARCHITECTURAL/ELEVATIONS, SECTIONS AND DETAIL.
SK-2-57257 SH 1 & 2	8400	HVAC/PLAN & AIR FLOW DIAGRAMS
SK-2-57258	8508, 8540	HVAC/PLUMBING PLAN & DIAGRAMS

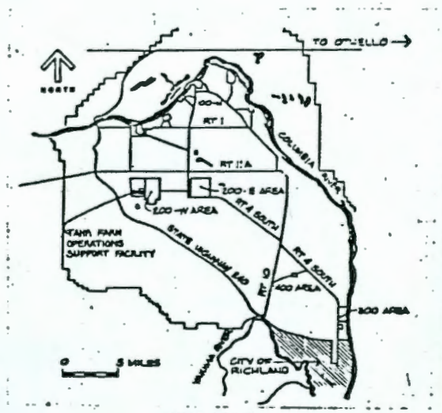
LEGEND

DR	DRAIN LINE
F	FIRE PROTECTION WATER
SW	SANITARY WATER
SWS	SANITARY SEWER
PIV	POST INDICATOR VALVE (SUPERVISED)
FHY	FIRE HYDRANT
C	DENOTES 13.8KV 3ϕ 3WIRE CKT
PIV	POST INDICATOR VALVE (UNSUPERVISED)
	GATE VALVE W/ STD VALVE BOX
	POST BARRICADES PER HPS AC-5-4 (FHY OR PIV)



SITE PLAN

SCALE: 1" = 40'-0



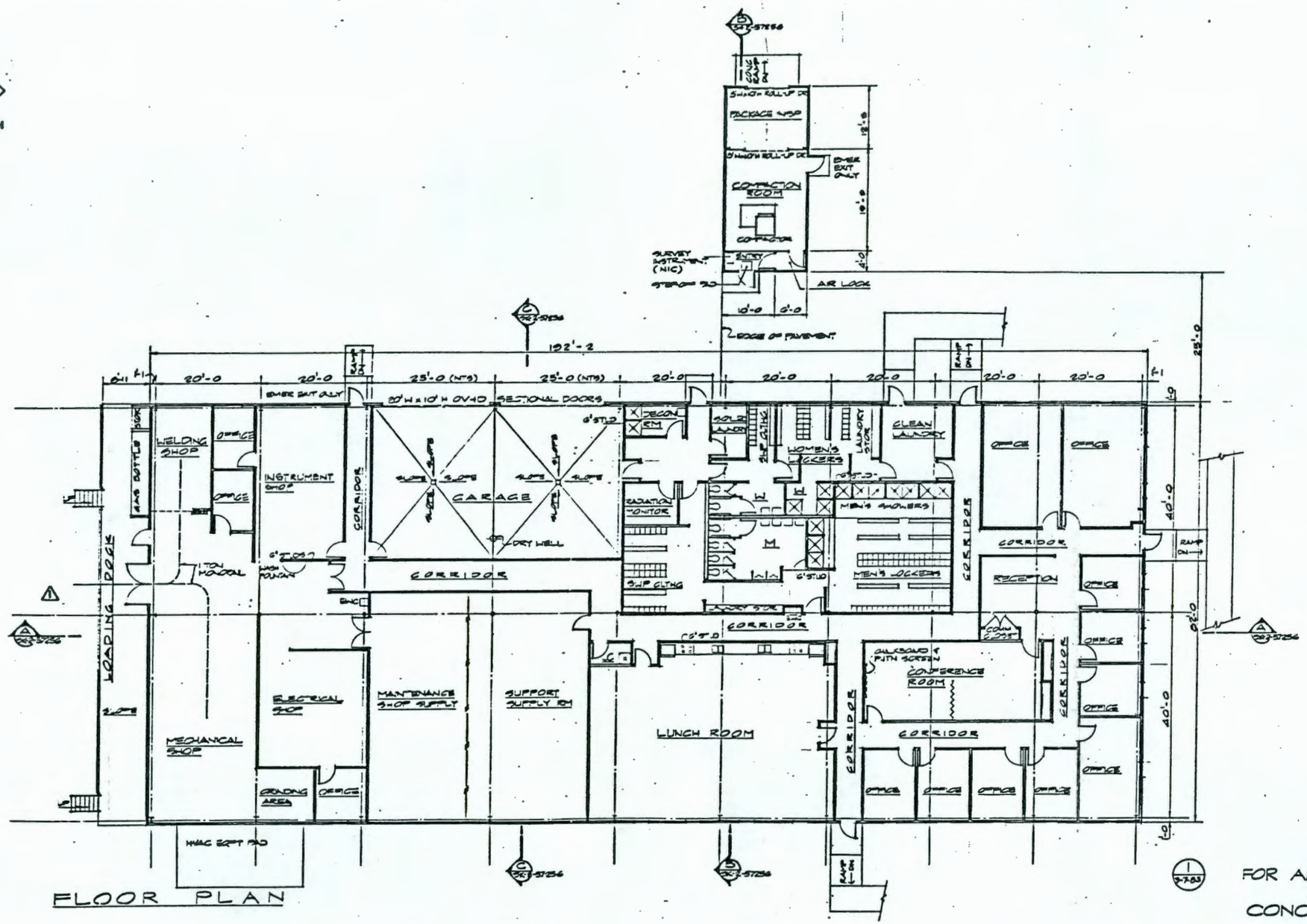
KEY MAP

CONCEPTUAL

AC-3-4	HPS POST BARRICADE
AC-6-2	HPS INTER-AREA ROADWAY
AC-3-31	HPS SIGNS FOR UG MATERIAL
AC-5-2	HPS MARKER BARRICADE
H-6-52790	ELECT POLE LINE PLAN
———	DRAWING LIST
NUMBER	TITLE
REFERENCES	
NEXT USED ON	

RHO APPROVAL BY	DATE 1/14/93	U. S. DEPARTMENT OF ENERGY Richland Operations Office	
		KAISER ENGINEERS HANFORD COMPANY	
DRAWN BY	1/6/93	CIVIL & ELECTRICAL SITE PLAN AND DRAWING LIST	
	1/11/93		
	1/14/93		
	1/14/93		
	1/14/93		
DESIGNED BY D. LIEM	1/14/93	PROJECT TITLE TANK FARM OPERATIONS SUPPORT FACILITY	
CHECKED BY J. CONLEY	1/14/93		
DRAWN BY A. J. LIEM	12/14/92	FORM D-434	SYM CA 3065
DESIGNED BY K. C. TU	1/14/93	SCALE 1" = 40'-0	SIZE 272-WA
CLASSIFICATION BY NONE	POST 4210	DRAWING NUMBER SK-2-57254	REV 0

BY DATE	BY DATE	REV DATE	DESCRIPTION	REF
KEN APPROVAL				
REVISIONS				
COMMENT REVIEW				



FLOOR PLAN

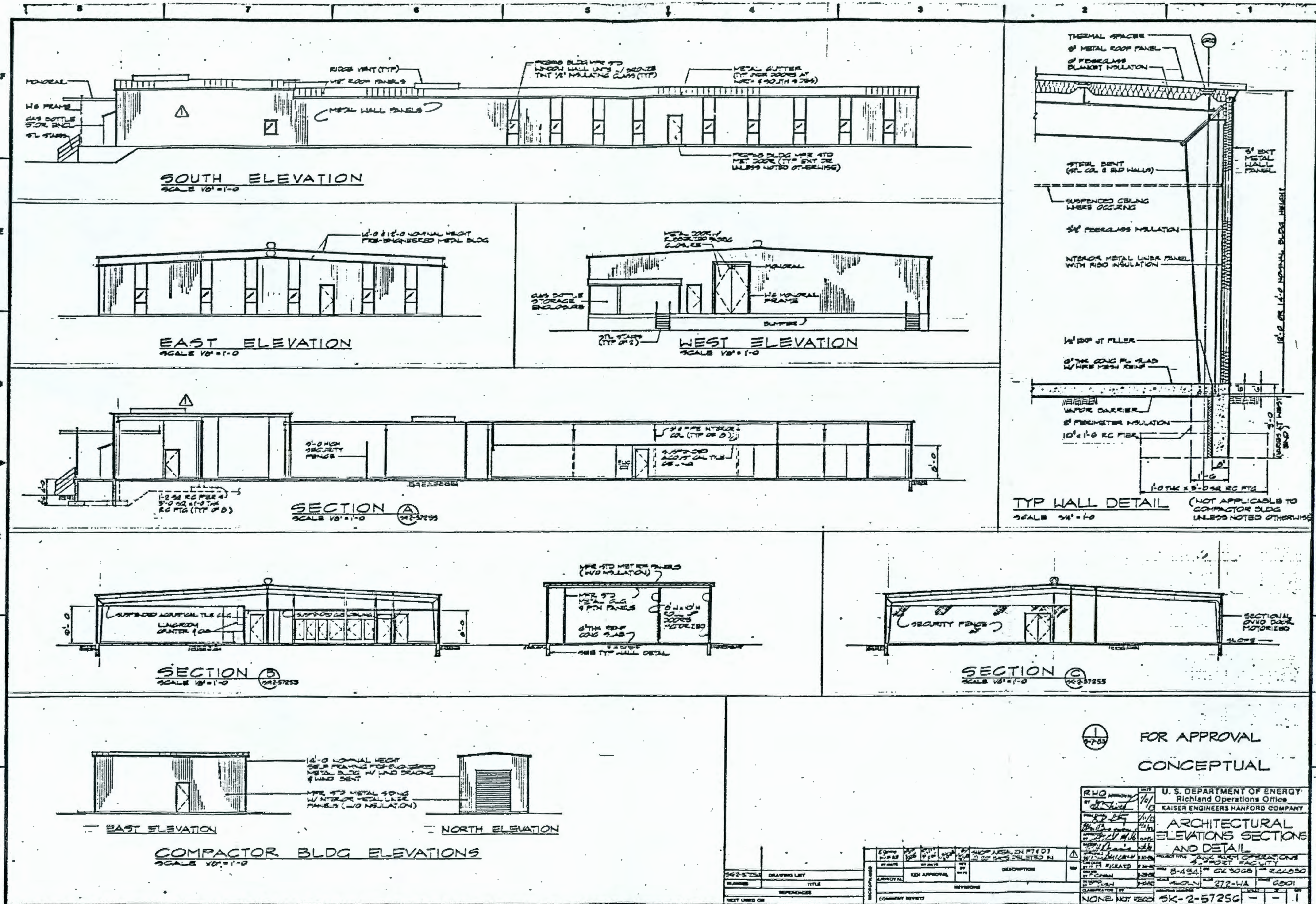
PARTITION LEGEND

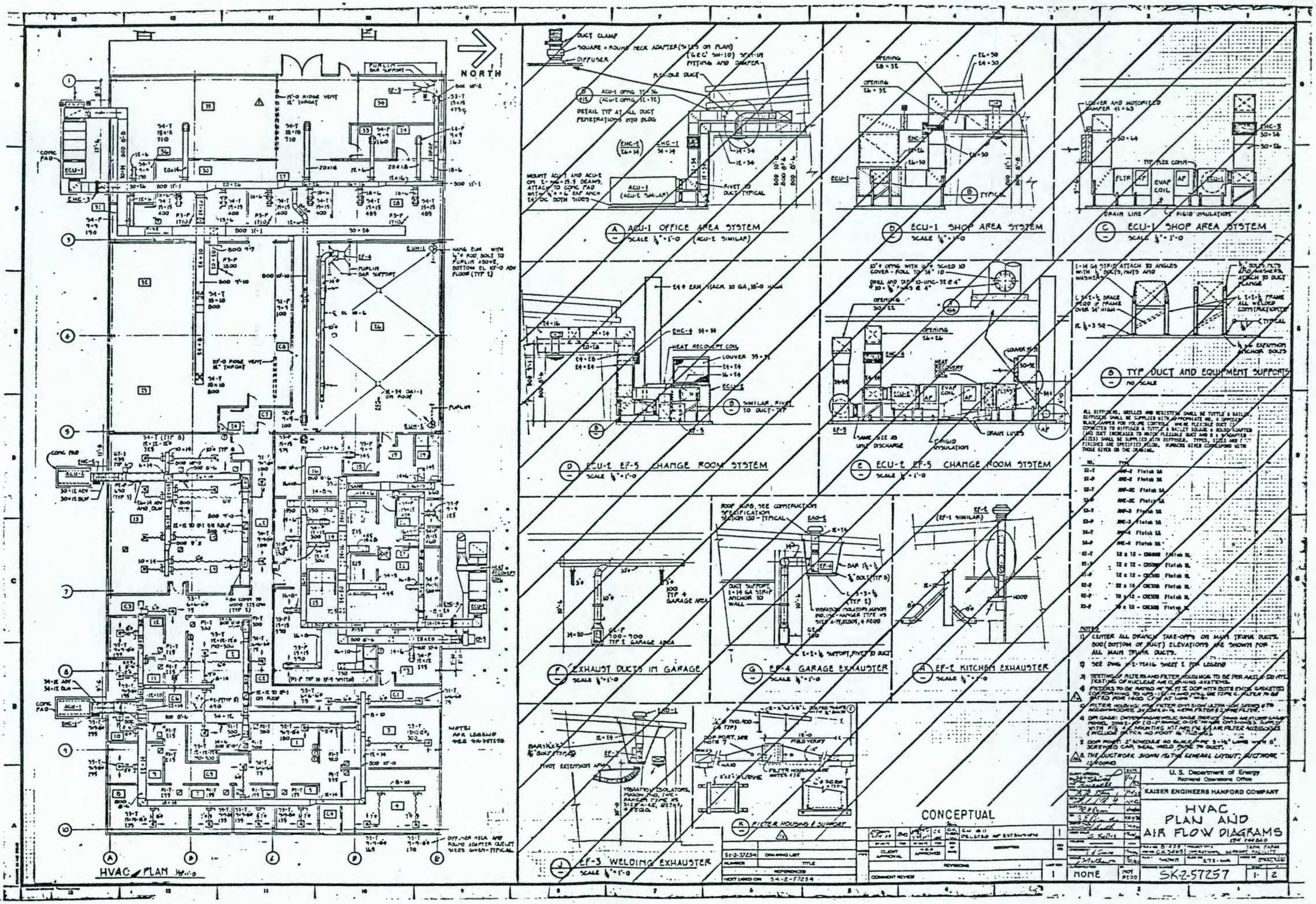
- 2 LAYERS 5/8" GYB TYPE X EA SIDE ON 3 5/8" (OR AS NOTED) STUDS TO FLOOR STRUCTURE
- 5/8" GYB EA SIDE ON 3 5/8" (OR AS NOTED) STUDS TO ROOF STRUCTURE
- 5/8" GYB EA SIDE ON 3 5/8" (OR AS NOTED) STUDS TO CEILING
- PIPE CHASE WALL - 5/8" GYB ON 6 1/4" STUDS EA SIDE TO CEILING

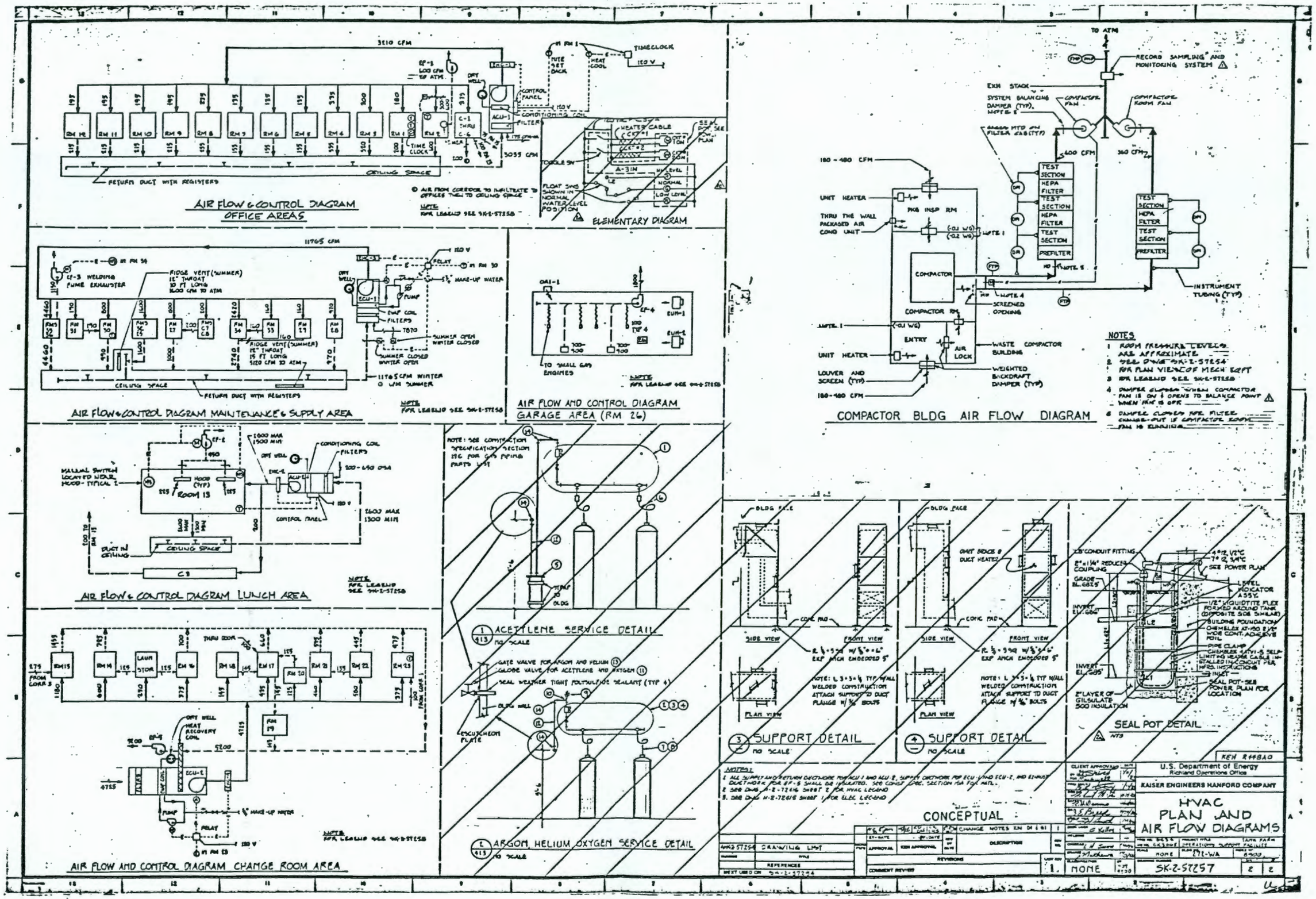
SK-2-57256	DRAWING LIST
ISSUED	TITLE
	REFERENCES
NEXT USED ON	

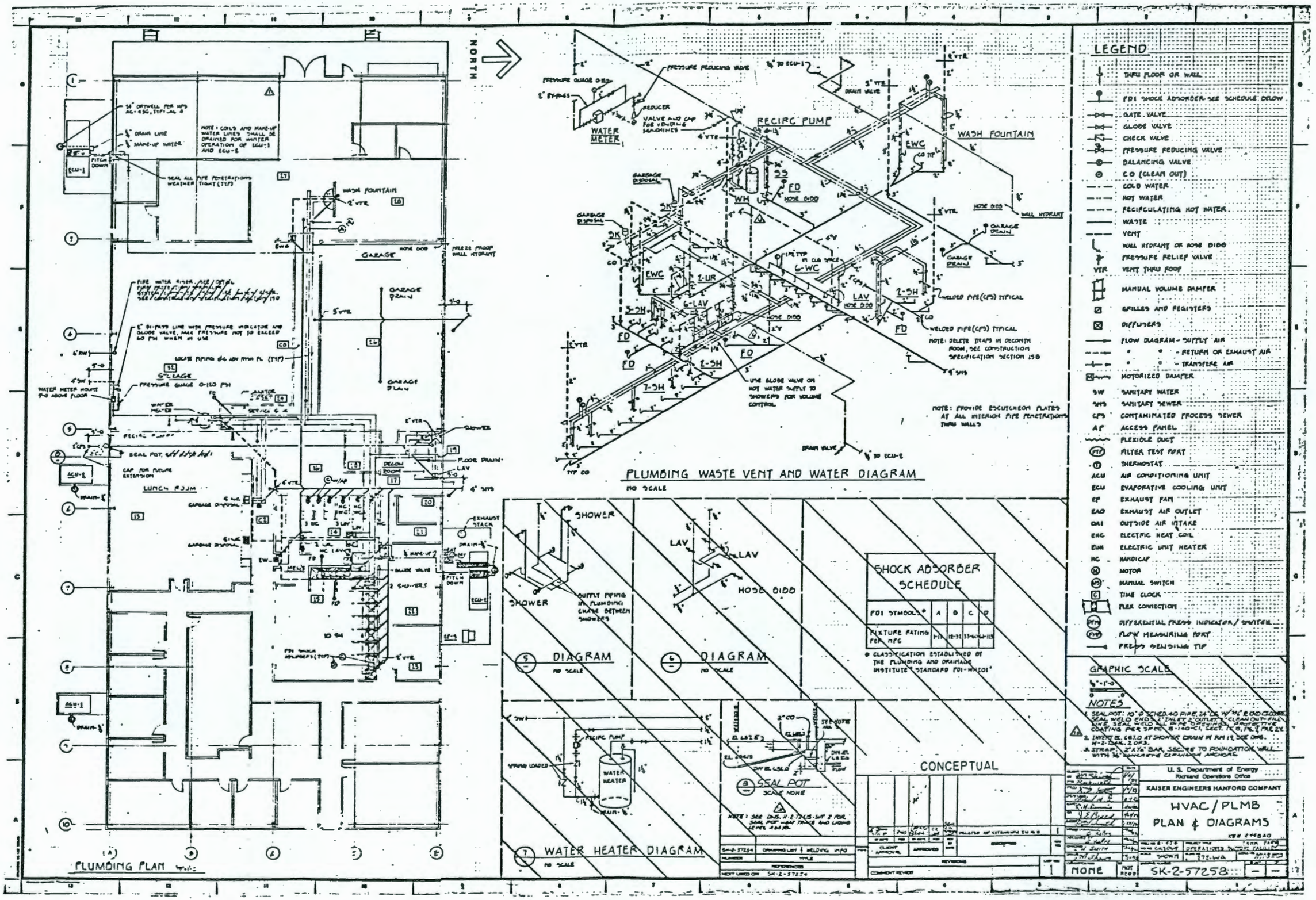
4	5/8/83	R.D.	R.D.		SHOP AREA IN CT ADD SAFETY SHOWER
	BY DATE	BY DATE			DESCRIPTION
APPROVAL		FOR APPROVAL			REVISIONS
		COMMENT REVIEW			

RHO APPROVAL	DATE	U. S. DEPARTMENT OF ENERGY Richland Operations Office
BY		KAISER ENGINEERS HANFORD COMPANY
		ARCHITECTURAL FLOOR PLAN
		PROJECT TITLE: FAST FARM OPERATIONS SUPPORT FACILITY
DRAWN BY: R. RICHARD	3-6-84	FOR CK 3005 / FOR R44030
DESIGN BY:		
SCALE: 1/8"=1'-0	SCALE: 272-WA	SHEET: 0800
CLASSIFICATION: NONE	NOT REQD	DRAWING NUMBER: SK-2-57255


SOUTH ELEVATION
SCALE 1/8" = 1'-0
EAST ELEVATION
SCALE 1/8" = 1'-0
WEST ELEVATION
SCALE 1/8" = 1'-0
SECTION A
SCALE 1/8" = 1'-0
TYP WALL DETAIL
SCALE 3/4" = 1'-0
(NOT APPLICABLE TO COMPACTOR BLDG UNLESS NOTED OTHERWISE)
THERMAL SPACER
METAL ROOF PANEL
STEEL BENT
SUSPENDED CEILING WHERE OCCURING
VAPOR BARRIER
SECTION B
SCALE 1/8" = 1'-0
SECTION C
SCALE 1/8" = 1'-0
SECTIONAL OVHD DOOR MOTORIZED
SECURITY FENCE
EAST ELEVATION
NORTH ELEVATION
COMPACTOR BLDG ELEVATIONS
SCALE 1/8" = 1'-0
FOR APPROVAL
CONCEPTUAL
U. S. DEPARTMENT OF ENERGY
Richland Operations Office
KAISER ENGINEERS HANFORD COMPANY
ARCHITECTURAL ELEVATIONS SECTIONS AND DETAIL
TANK FARM OPERATIONS SUPPORT FACILITY
B-494
272-WA
NONE
SK-2-57256


NORTH
HVAC PLAN
A ACU-1 OFFICE AREA SYSTEM
B TYP DUCT AND EQUIPMENT SUPPORTS
C ECU-1 SHOP AREA SYSTEM
D ECU-2 EF-5 CHANGE ROOM SYSTEM
E ECU-2 EF-5 CHANGE ROOM SYSTEM
F EXHAUST DUCTS IN GARAGE
G EF-4 GARAGE EXHAUSTER
H EF-2 KITCHEN EXHAUSTER
J EF-3 WELDING EXHAUSTER
K FILTER HOUSING & SUPPORT
CONCEPTUAL
U.S. Department of Energy
Richland Operations Office
KAISER ENGINEERS HANFORD COMPANY
HVAC
PLAN AND
AIR FLOW DIAGRAMS
SK-2-57257


AIR FLOW & CONTROL DIAGRAM OFFICE AREAS
ELEMENTARY DIAGRAM
AIR FLOW & CONTROL DIAGRAM MAINTENANCE & SUPPLY AREA
AIR FLOW AND CONTROL DIAGRAM GARAGE AREA (RM 26)
COMPACTOR BLDG AIR FLOW DIAGRAM
AIR FLOW & CONTROL DIAGRAM LUNCH AREA
AIR FLOW AND CONTROL DIAGRAM CHANGE ROOM AREA
ACETTLENE SERVICE DETAIL
ARGON, HELIUM OXYGEN SERVICE DETAIL
SUPPORT DETAIL
SUPPORT DETAIL
SEAL POT DETAIL
NOTES
CONCEPTUAL
U.S. Department of Energy
Richland Operations Office
KAISER ENGINEERS HANFORD COMPANY
HVAC PLAN AND AIR FLOW DIAGRAMS
SK-2-57257


NORTH
PLUMBING PLAN
GARAGE
LUNCH ROOM
DECON ROOM
WASH FOUNTAIN
PLUMBING WASTE VENT AND WATER DIAGRAM
NO SCALE
RECIRC PUMP
WATER METER
PRESSURE REDUCING VALVE
PRESSURE GAUGE 0-150
REDUCER
VALVE AND CAP FOR WASHING MACHINES
WASH FOUNTAIN
EWC
WH
FD
HOSE BIBB
WALL HYDRANT
GARAGE DISPOSAL
GARAGE DRAIN
6-WC
2-UR
6-LAV
LAV
2-SH
3-SH
7-SH
WELDED PIPE (CPS) TYPICAL
NOTE: DELETE TRAPS IN DECONTM ROOM, SEE CONSTRUCTION SPECIFICATION SECTION 15D
USE GLOBE VALVE ON HOT WATER SUPPLY TO SHOWERS FOR VOLUME CONTROL
NOTE: PROVIDE ESCUTCHEON PLATES AT ALL INTERIOR PIPE PENETRATIONS THRU WALLS
DRAIN VALVE
TO ECU-1
TO ECU-2
LEGEND
THRU FLOOR OR WALL
FDI SHOCK ABSORBER - SEE SCHEDULE BELOW
GATE VALVE
GLOBE VALVE
CHECK VALVE
PRESSURE REDUCING VALVE
BALANCING VALVE
C.O (CLEAN OUT)
COLD WATER
HOT WATER
RECIRCULATING HOT WATER
WASTE
VENT
WALL HYDRANT OR HOSE BIBB
PRESSURE RELIEF VALVE
VTR VENT THRU ROOF
MANUAL VOLUME DAMPER
GRILLES AND REGISTERS
DIFFUSERS
FLOW DIAGRAM - SUPPLY AIR
- RETURN OR EXHAUST AIR
- TRANSFERE AIR
MOTORIZED DAMPER
SW SANITARY WATER
SNS SANITARY SEWER
CPS CONTAMINATED PROCESS SEWER
AP ACCESS PANEL
FLEXIBLE DUCT
FILTER TEST PORT
THERMOSTAT
ACU AIR CONDITIONING UNIT
ECU EVAPORATIVE COOLING UNIT
EF EXHAUST FAN
EAO EXHAUST AIR OUTLET
OAI OUTSIDE AIR INTAKE
EHC ELECTRIC HEAT COIL
EUH ELECTRIC UNIT HEATER
HC HANDICAP
M MOTOR
MS MANUAL SWITCH
C TIME CLOCK
FLEX CONNECTION
DPI DIFFERENTIAL PRESS INDICATOR / SWITCH
FMP FLOW MEASURING PORT
PRESS SENSING TIP
SHOCK ABSORBER SCHEDULE
FDI SYMBOLS* | A | B | C | D
FIXTURE RATING FOR NPC | 1-11 | 12-32 | 33-60 | 61-113
* CLASSIFICATION ESTABLISHED BY THE PLUMBING AND DRAINAGE INSTITUTE STANDARD PDI-WH201
SHOWER
LAV
HOSE BIBB
OUTLET PIPING IN PLUMBING CHASE BETWEEN SHOWERS
DIAGRAM
NO SCALE
WATER HEATER
RECIRC PUMP
STRAP LOADED
WATER HEATER DIAGRAM
SEAL POT
SCALE NONE
CONCEPTUAL
GRAPHIC SCALE
NOTES
1. SEAL POT: 10" Ø SCHED 40 PIPE, 24" LG. W/ 3/8" Ø BOTTOM CLOSURE SEAL WELD ENDS. 2" INLET 2" OUTLET 2" CLEAN OUT - FILL WITH SEAL WELD ALL OF THE OUTSIDE SURFACE. PROTECTIVE COATING PER SPEC. 8-140-C1, SECT. 1C-8, PG. 3 PARA. 2X
2. INVERT EL. 681.0 AT SHOWER DRAIN IN RM 19, SEE DWG. H-2-[illegible], 2 OF 3.
3. STRAP: 2" X 1/4" BAR, SECURE TO FOUNDATION WALL WITH 3/8" DIAMETER EXPANSION ANCHOR.
U.S. Department of Energy
Richland Operations Office
KAISER ENGINEERS HANFORD COMPANY
HVAC / PLMB
PLAN & DIAGRAMS
NONE
SK-2-57258