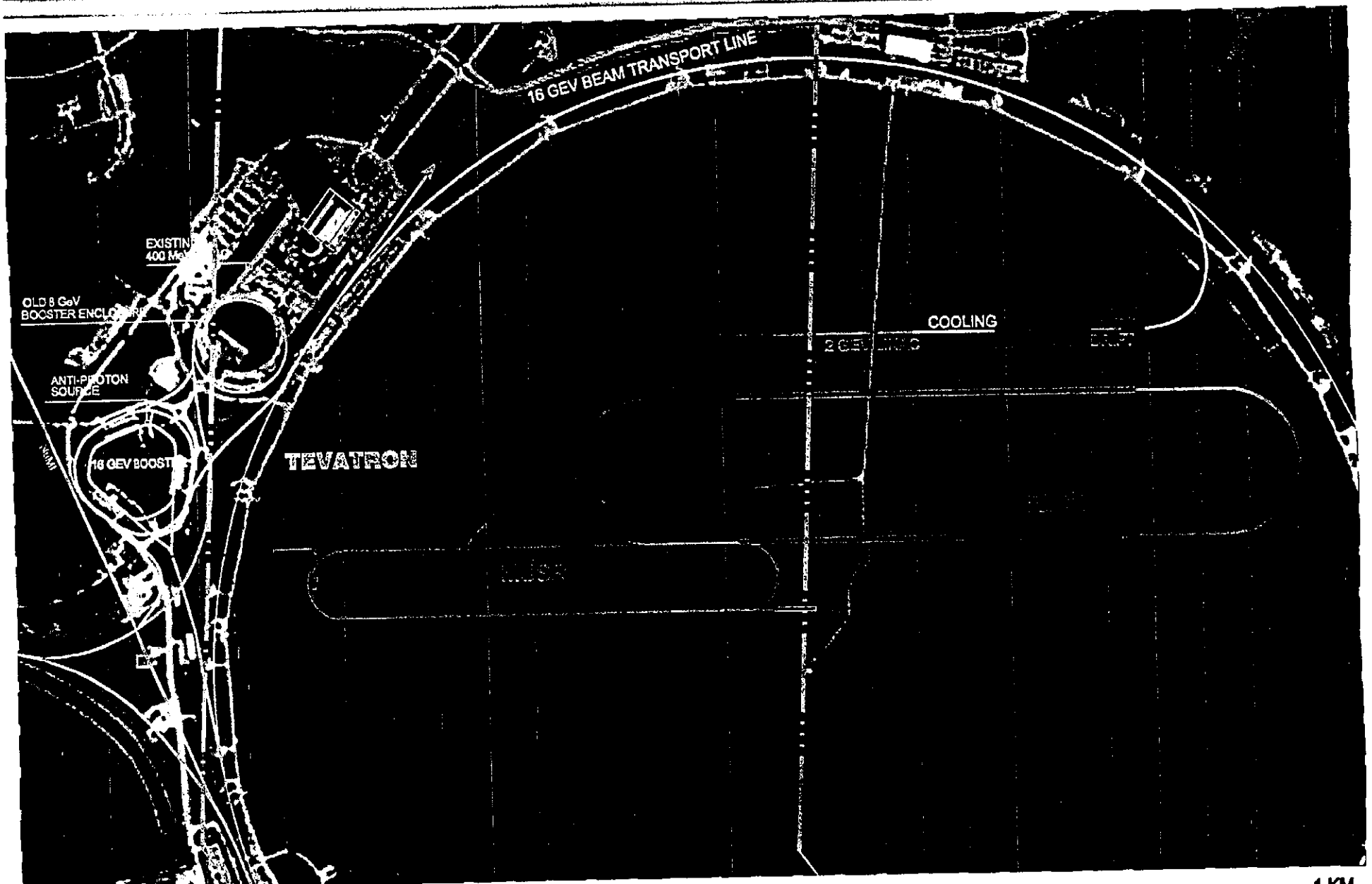
NEUTRINO SOURCE STUDY - FEBRUARY 15 AND 16TH 2000

JEFF SIMS - FESS/ENGINEERING GROUP

TOPICS:

1. SITE LAYOUT
   - UNDERGROUND FACILITIES
   - SURFACE BUILDINGS
2. DESIGN DEVELOPMENT
   - TARGET
   - COOLING CHANNEL
   - MuSR
3. WHAT WE STILL HAVE TO DO

NEUTRINO FACTORY - UNDERGROUND FACILITIES



FESS - ENGINEERING - 2-10-00 J. SIMS

SCALE: 0 1 KM

UNDERGROUND FACILITIES:

1. HOW DID WE GET THERE?

- FOLLOW LOGIC DIAGRAM
- TRIED TO STAY AWAY FROM EXISTING INFRASTRUCTURE
- MEET RADIATION REQUIREMENTS
- START AT THE EXISTING 400 MEV PROTON LINAC

2. THINGS TO NOTE:

- NEW BOOSTER AROUND THE EXISTING AP
- 16 GeV TRANSPORT IN THE EXISTING MAIN RING
- DIRECTION OF ~~Nu~~ P ON TARGET AND LEAVING MuSR ??
- RADIATION LIMITS SATISFIED
- EVERYTHING IS NEAR THE SURFACE (~15' BELOW GRADE) <u>EXCEPT MuSR</u>

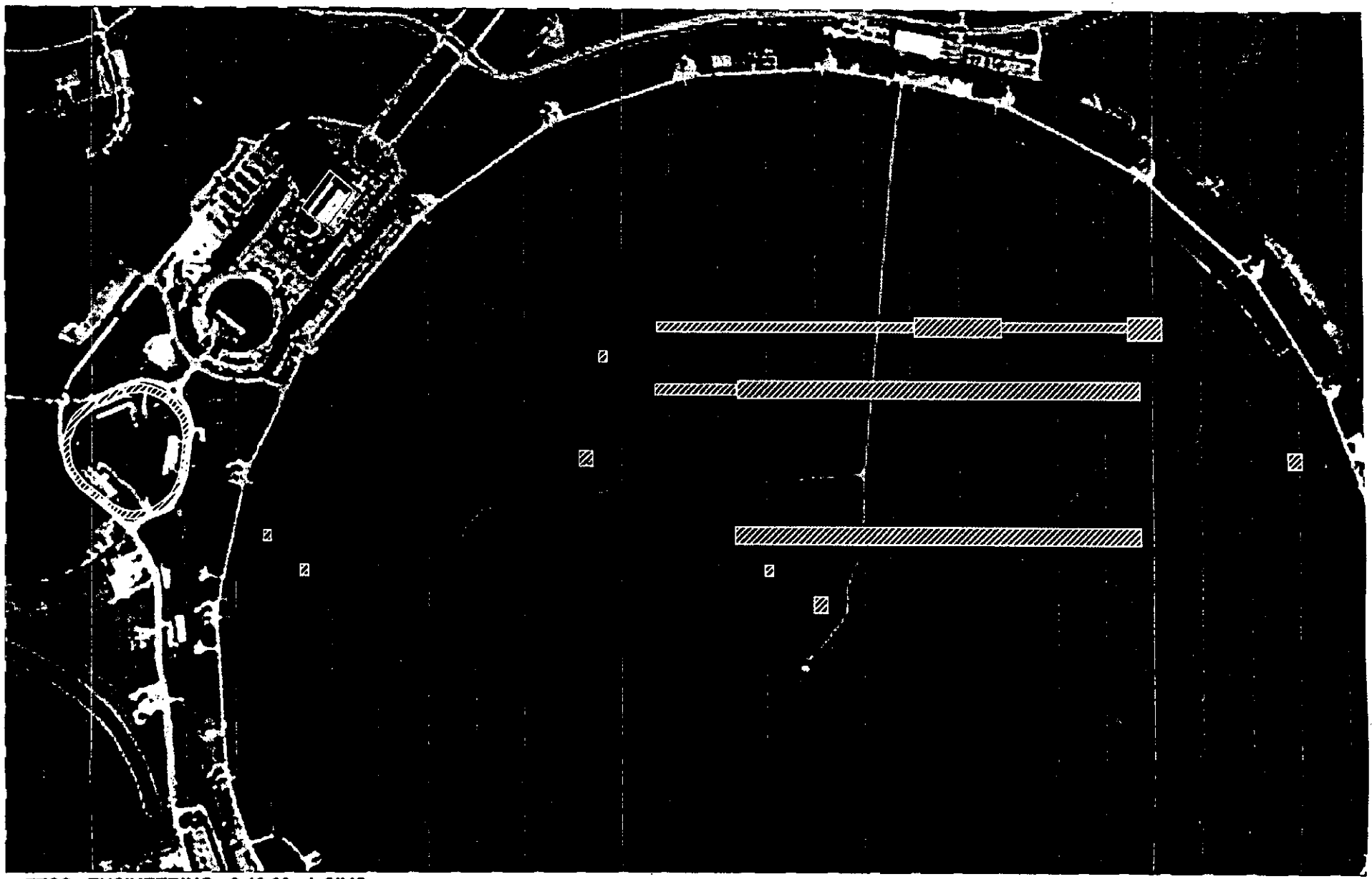
SURFACE BUILDINGS:

1. BASED ON UNDERGROUND FACILITIES

2. THINGS TO NOTE:

- APPROXIMATE TOTAL SQUARE FOOTAGE AS SHOWN IS 1,000,000
  REFERENCE: WILSON HALL TOTAL SQUARE FOOTAGE IS ~250,000
- A WORK IN PROGRESS AT THIS POINT

NEUTRINO FACTORY - SURFACE BUILDINGS

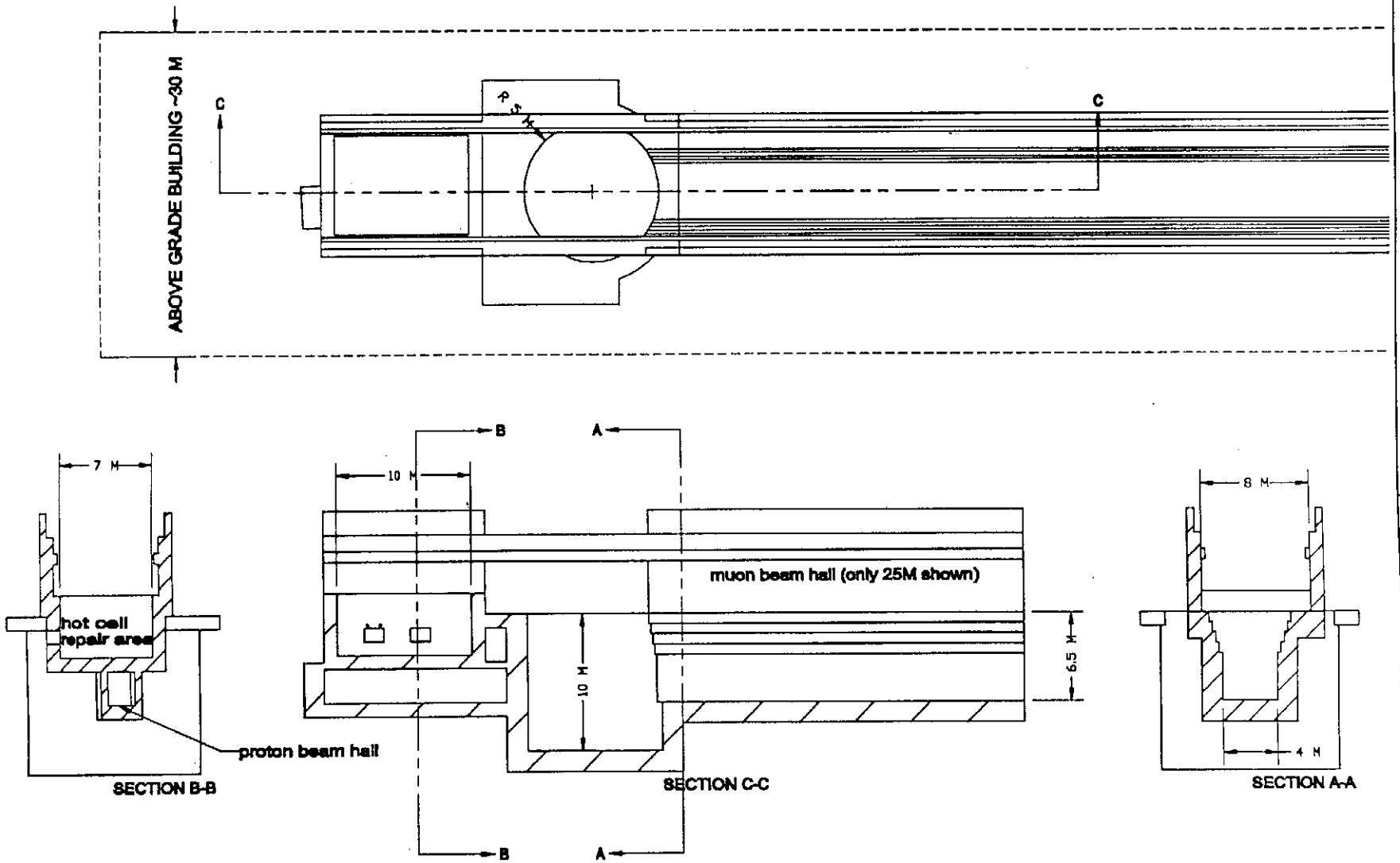


FESS - ENGINEERING - 2-10-00 J. SIMS

SCALE: 0 1 KM

DESIGN DEVELOPMENT:

TARGET
COOLING CHANNEL
MuSR



TARGET HALL

FERMI NATIONAL ACCELERATOR LABORATORY

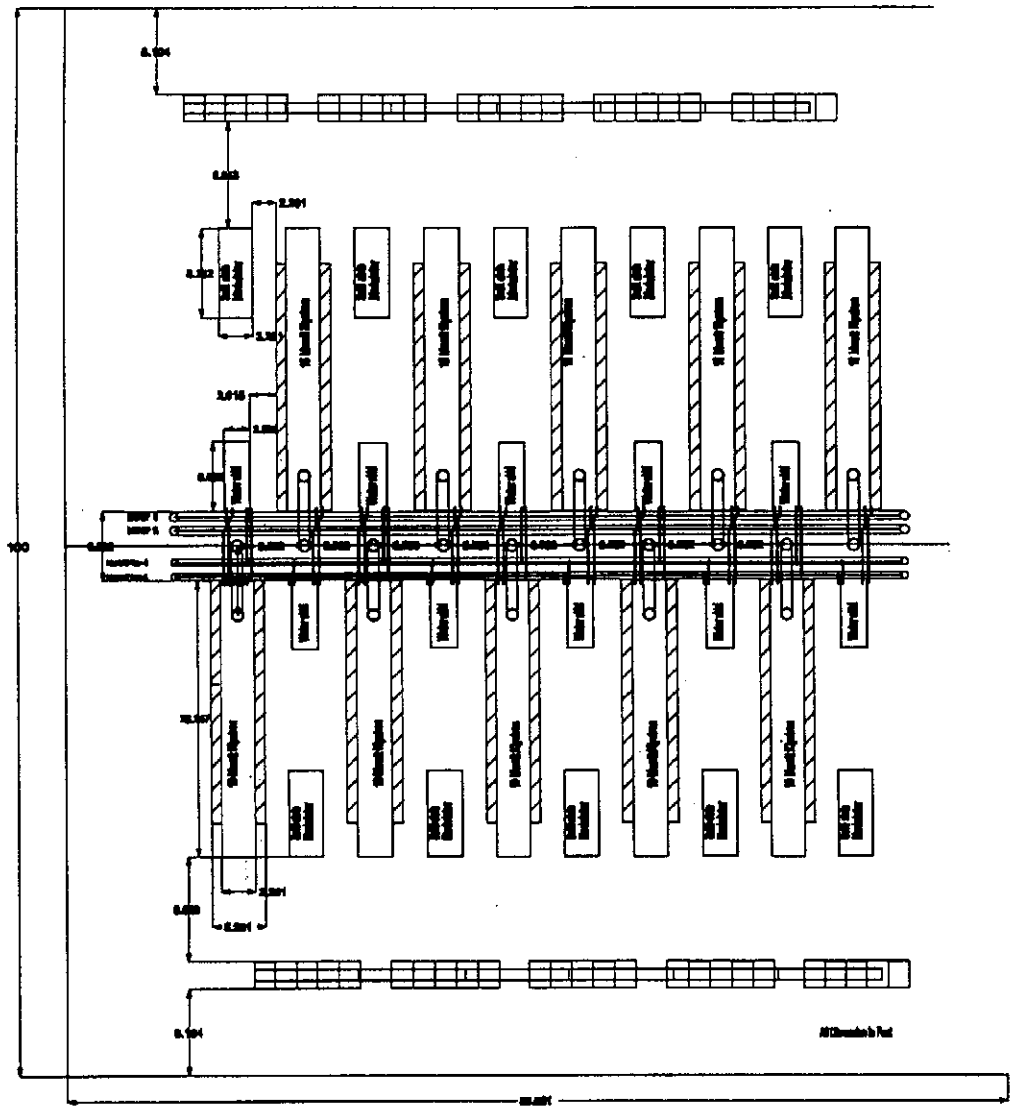
NEUTRINO FACTORY

TARGET HALL

S-1

Cooling Channel Linac Equipment Gallery Layout

Jan 2000



Sketch II

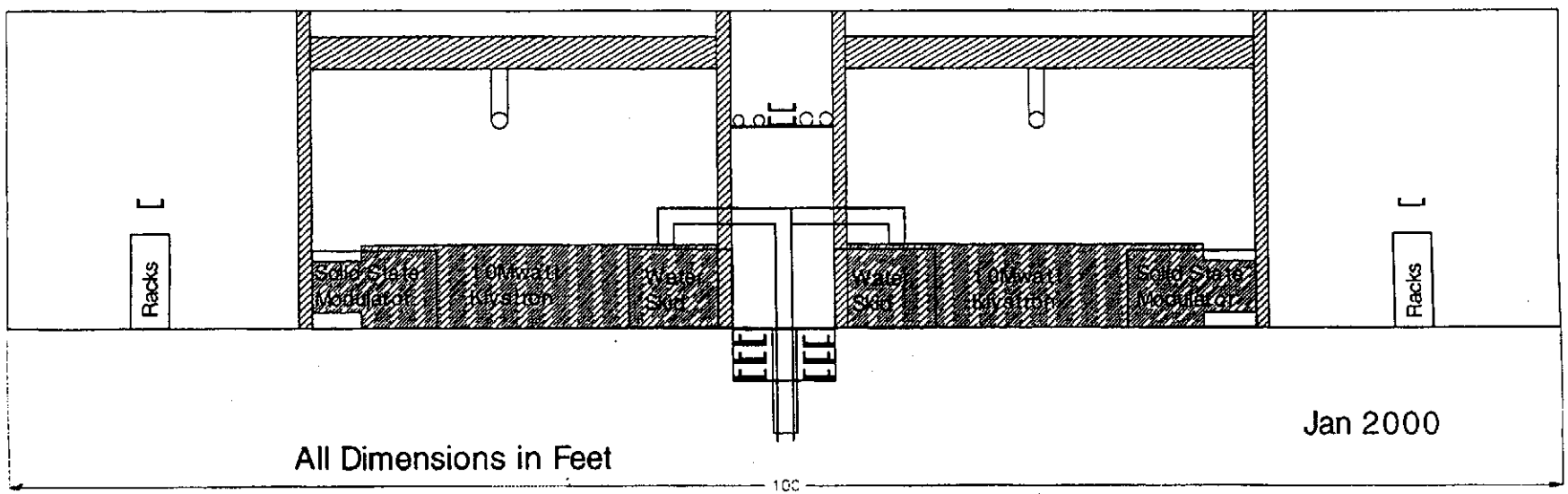
FERMI NATIONAL ACCELERATOR LABORATORY

NEUTRINO FACTORY

COOLING CHANNEL

A-1

Cross Section - Cooling Channel Linac
Equipment Gallery



Jan 2000

All Dimensions in Feet

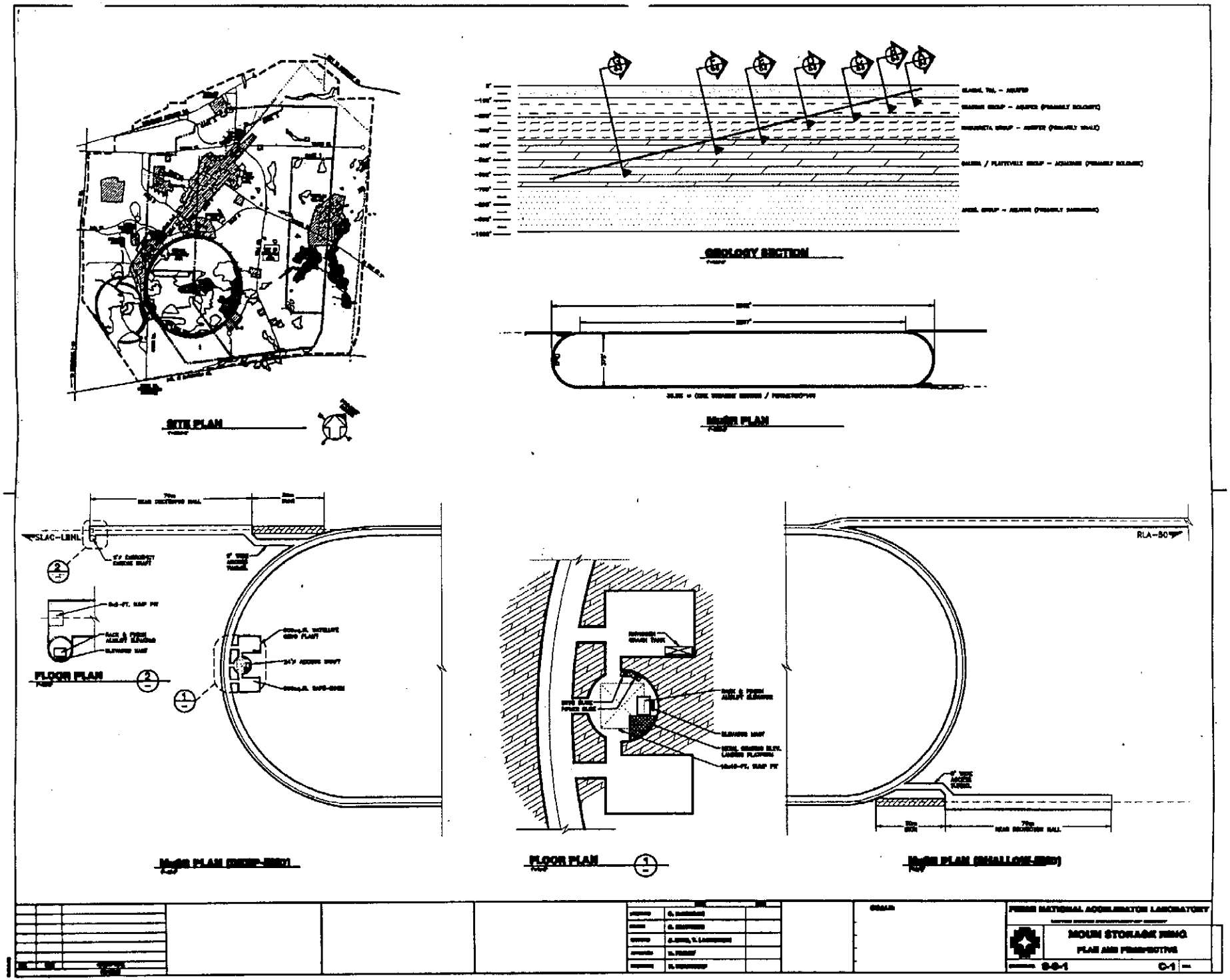
Sketch I

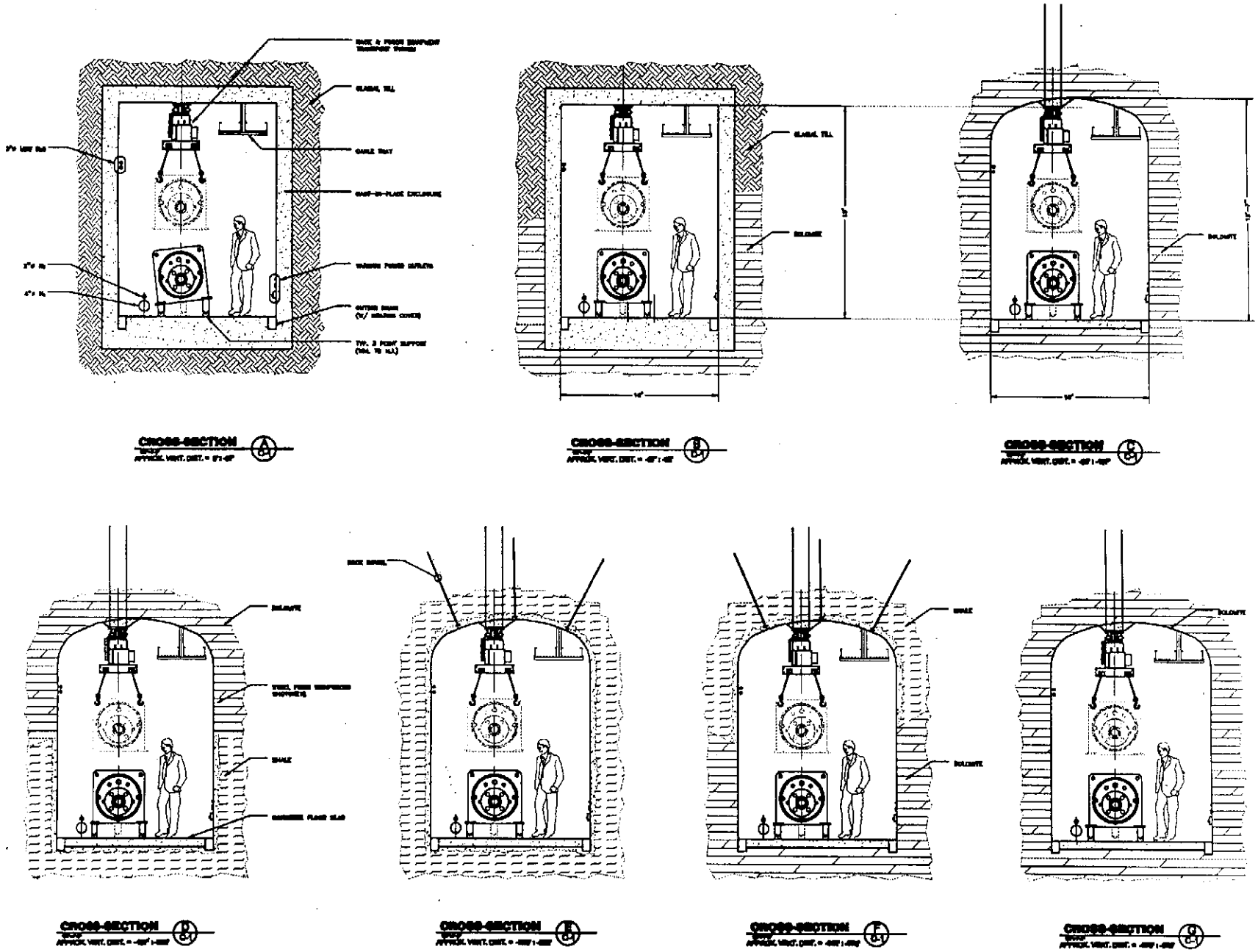
FERMI NATIONAL ACCELERATOR LABORATORY

NEUTRINO FACTORY

COOLING CHANNEL

A-1


SITE PLAN
GEOLOGY SECTION
MuSR PLAN
SLAC-LBNL
FLOOR PLAN
MuSR PLAN (DEEP-END)
FLOOR PLAN
RLA-50
MuSR PLAN (SHALLOW-END)
PERMI NATIONAL ACCELERATOR LABORATORY
MOUN STORAGE RING
PLAN AND PERSPECTIVE
C-1



FERMI NATIONAL ACCELERATOR LABORATORY

MOUN STORAGE RING

TUNNEL CROSS-SECTIONS

8-8-1

WHAT WE STILL HAVE TO DO:

1. DESIGN DEVELOPMENT

- REVISE THE EXISTING DESIGNS AS NECESSARY
- DEVELOP INFORMATION ON BEAM LINE ENCLOSURES FOR:

16 GeV BOOSTER
BEAM TRANSPORT
DRIFT
INDUCTIVE LINAC
BUNCHING
COOLING

2 GEV LINAC
RLA 1
RLA 2

- DEVELOP INFORMATION ON BEAM LINE SURFACE BUILDINGS FOR:

16 GeV BOOSTER
BEAM TRANSPORT
DRIFT
INDUCTIVE LINAC
BUNCHING

2 GEV LINAC
RLA 1
RLA 2

HELP!!!

2. ESTIMATE COSTS