U.S. DEPARTMENT OF ENERGY
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

PRESENTATION TO THE NUCLEAR WASTE TECHNICAL REVIEW BOARD

SUBJECT: ESF PRELIMINARY EXCAVATION PLAN

PRESENTER: BILL KENNEDY

PRESENTER'S TITLE AND ORGANIZATION: SENIOR MINING ENGINEER
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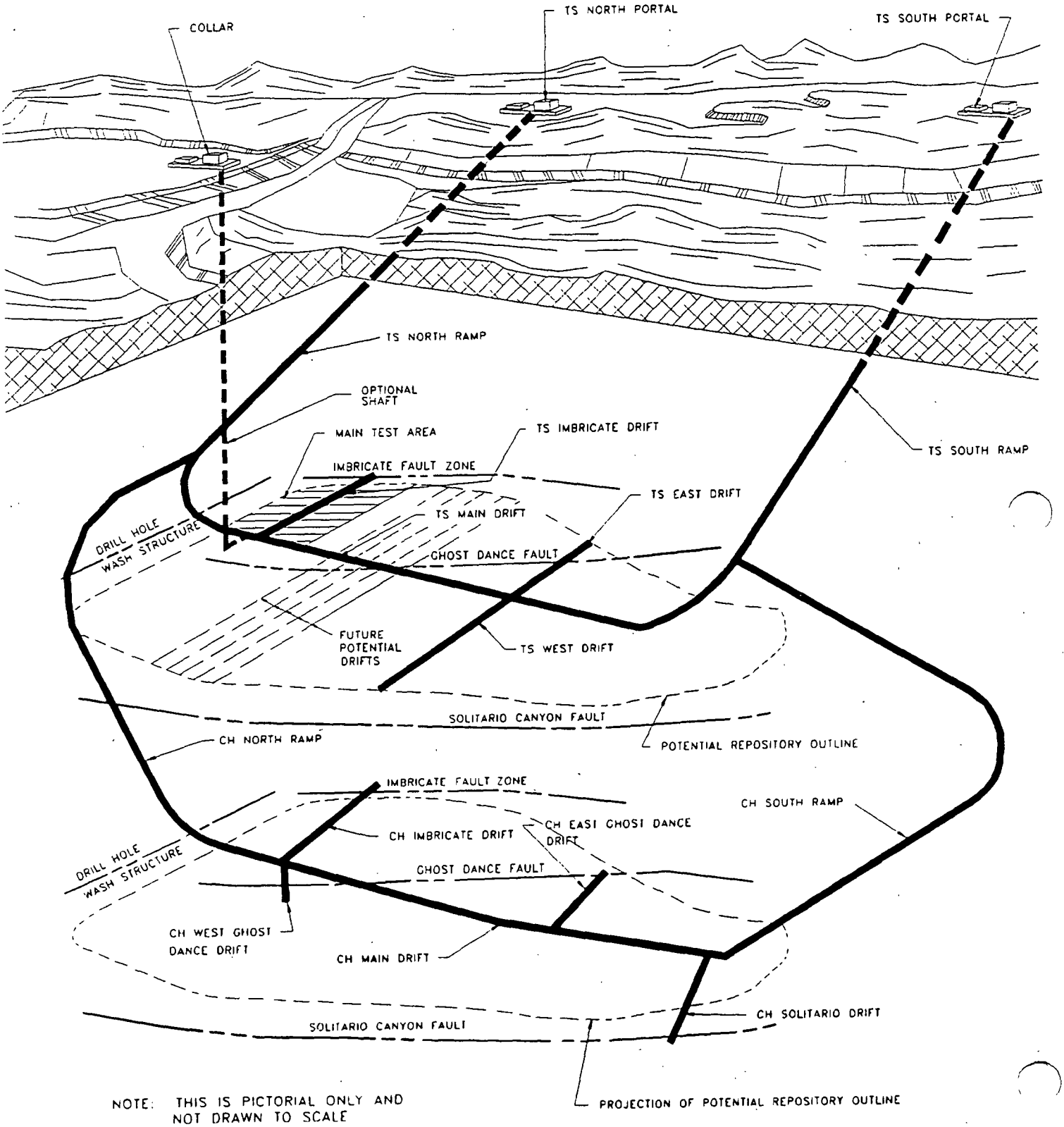
SEPTEMBER 18 - 19, 1991

PLAN BASIS

- CONFIGURATION/EXTENT OF EXPLORATORY DRIFTING BASED ON ESFAS REFERENCE DESIGN CONCEPT
- EXCAVATION METHODS: MECHANICAL METHODS WILL BE USED WHERE PRACTICAL AND FEASIBLE
- EXCAVATION SEQUENCE BASED ON TESTING PRIORITIES DEVELOPED IN ESFAS

ESF CONFIGURATION



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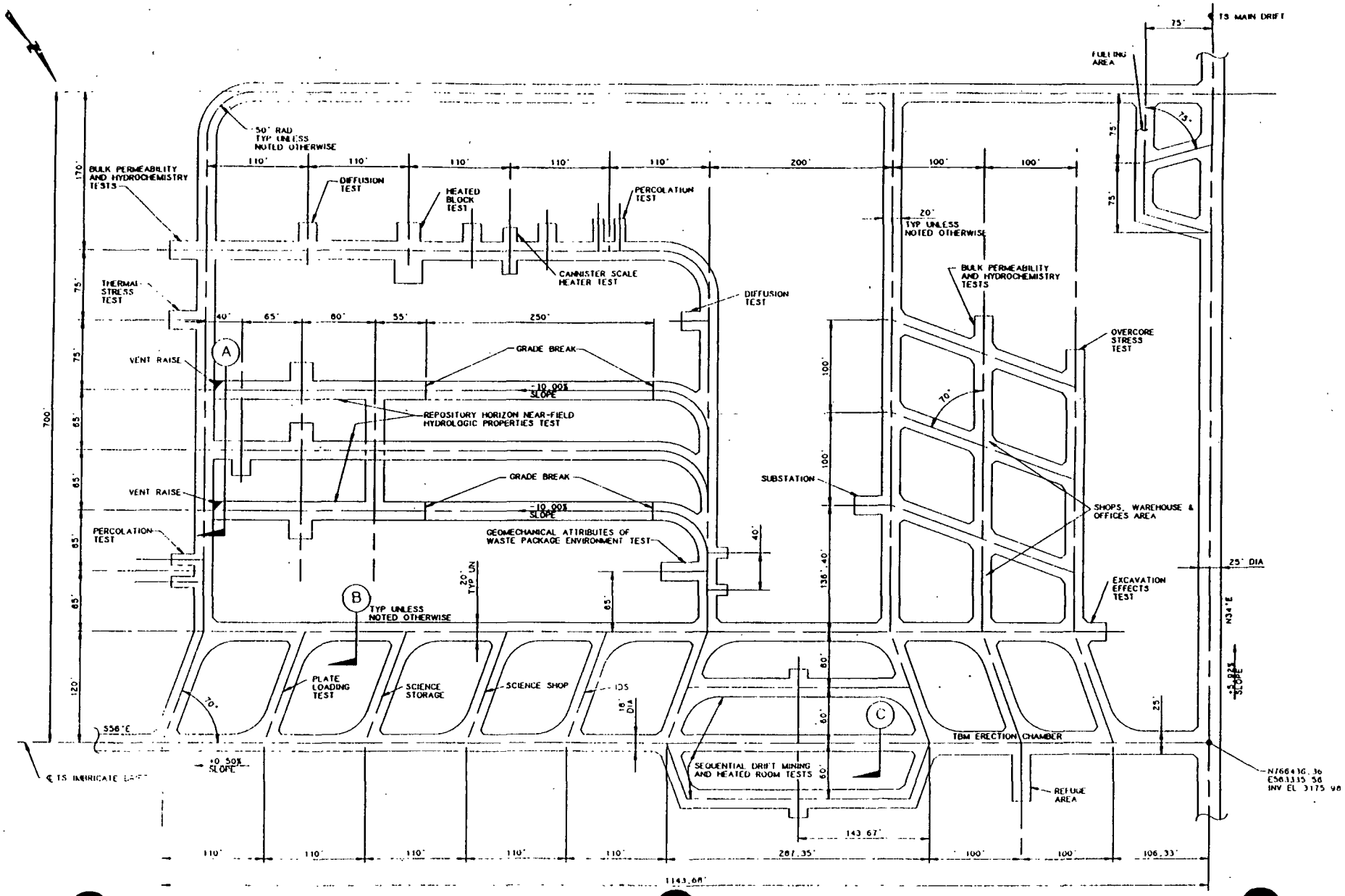
TS MAIN TEST AREA PLAN



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EXTENT OF DRIFTING

AREA	LINEAL FEET
TS NORTH RAMP	6,480
TS SOUTH RAMP	9,140
TS MAIN DRIFT	10,650
SUBTOTAL	26,270
CH NORTH RAMP	5,250
CH SOUTH RAMP	7,450
CH MAIN DRIFT	11,370
SUBTOTAL	24,070
TS IMBRICATE DRIFT	2,250
TS EAST DRIFT	3,220
TS WEST DRIFT	3,800
TS MAIN TEST AREA	9,350
SUBTOTAL	18,620
CH IMBRICATE DRIFT	2,160
CH WEST GHOST DANCE DRIFT	1,080
CH EAST GHOST DANCE DRIFT	1,520
CH SOLITARIO DRIFT	2,210
SUBTOTAL	6,970
TOTAL	75,930 (14.4 MILES)

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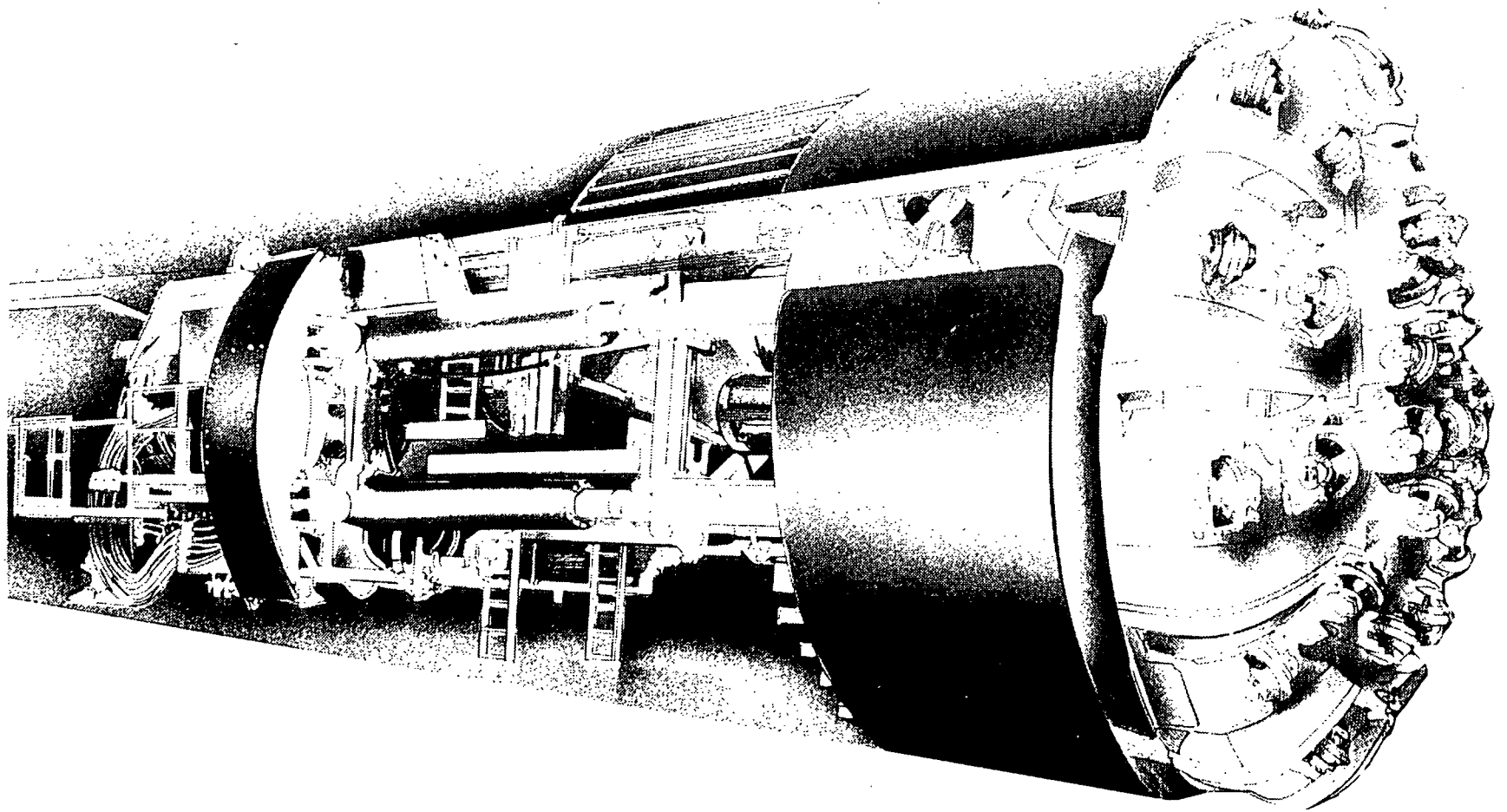
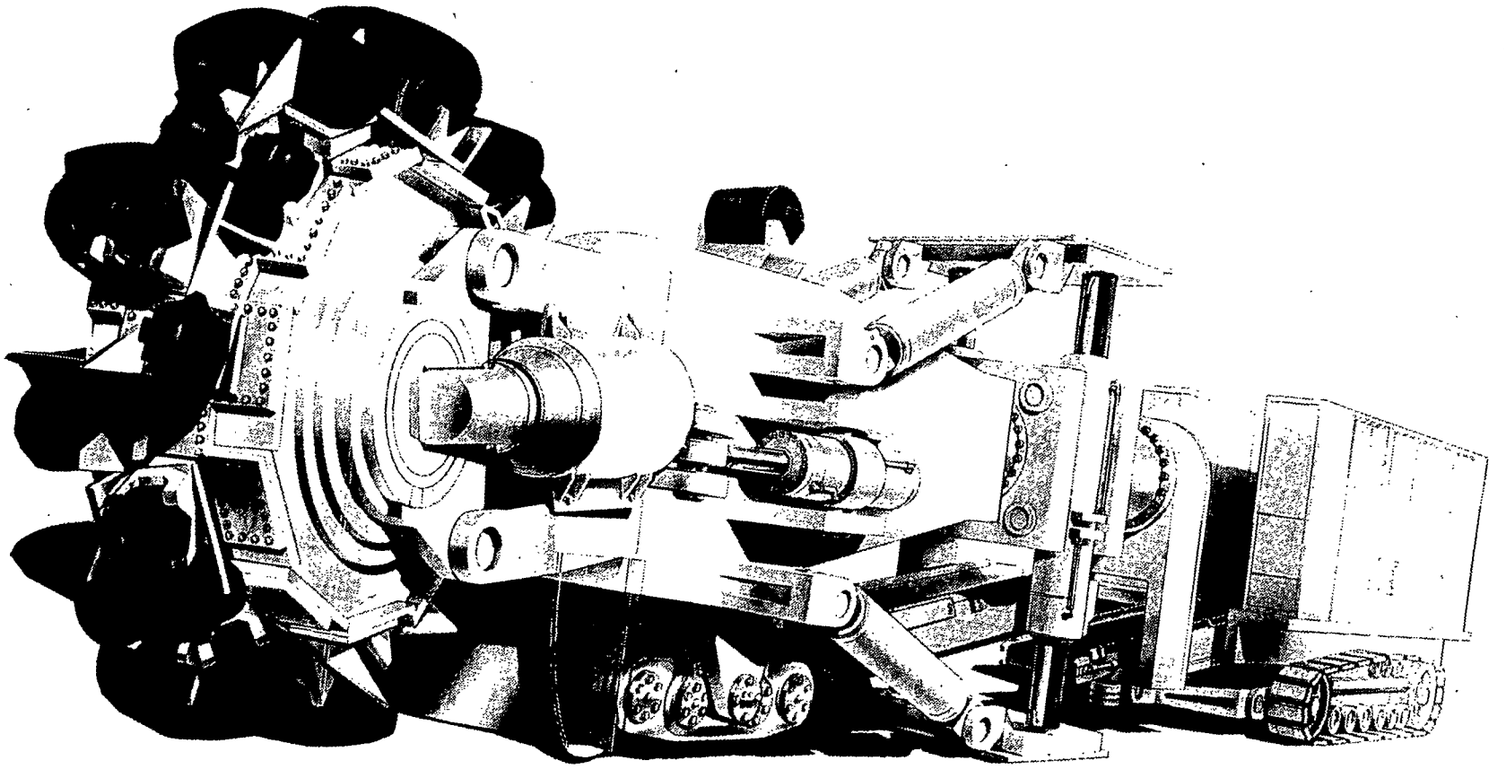
EXCAVATION METHODS

AREA	DESIGN BASIS	RECOMMENDATION
TS RAMPS/MAIN DRIFT	TBM	TBM
CH RAMPS/MAIN DRIFT	TBM	TBM
TS EXPLORATORY DRIFTS	MOBILE MINER/TBM	TRADE-OFF STUDY REQ'D (TS DRIFTING PKG.)
TS MAIN TEST AREA	MOBILE MINER	TRADE-OFF STUDY REQ'D (TS MTA DESIGN PKG)
CH EXPLORATORY DRIFTS	ROADHEADER	TRADE-OFF STUDY REQ'D (CH DRIFTING PKG)
MISC. TEST ALCOVES	MECH./D & B	TRADE-OFF STUDY REQ'D (1ST RAMP PKG)
OPTIONAL SHAFT	TBD	TRADE-OFF STUDY REQ'D (DURING TITLE II)

TUNNEL BORING MACHINE



MOBILE MINER



ROADHEADER

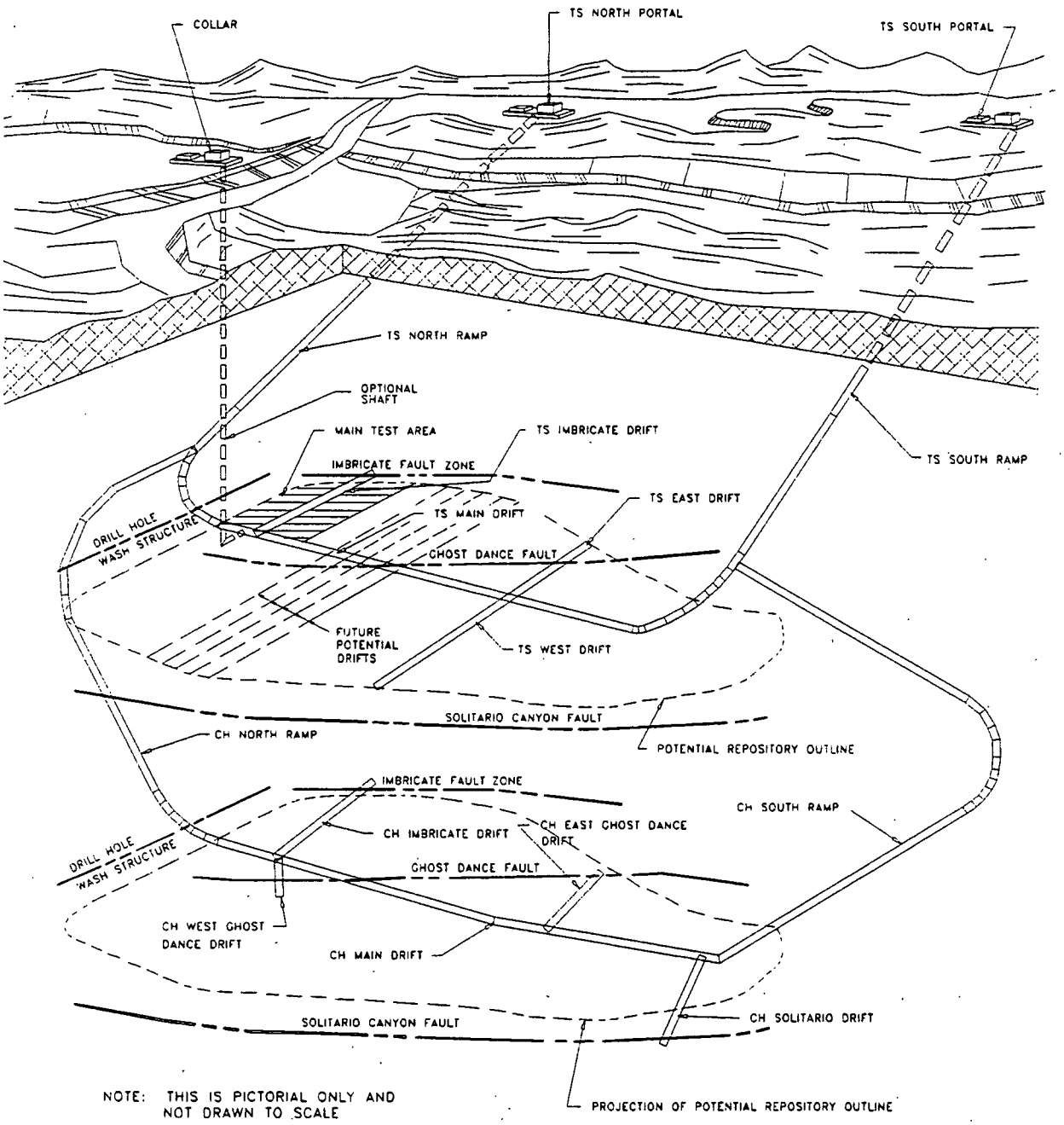
ESF EXCAVATION METHODS

TBM

MM

RH

TBD



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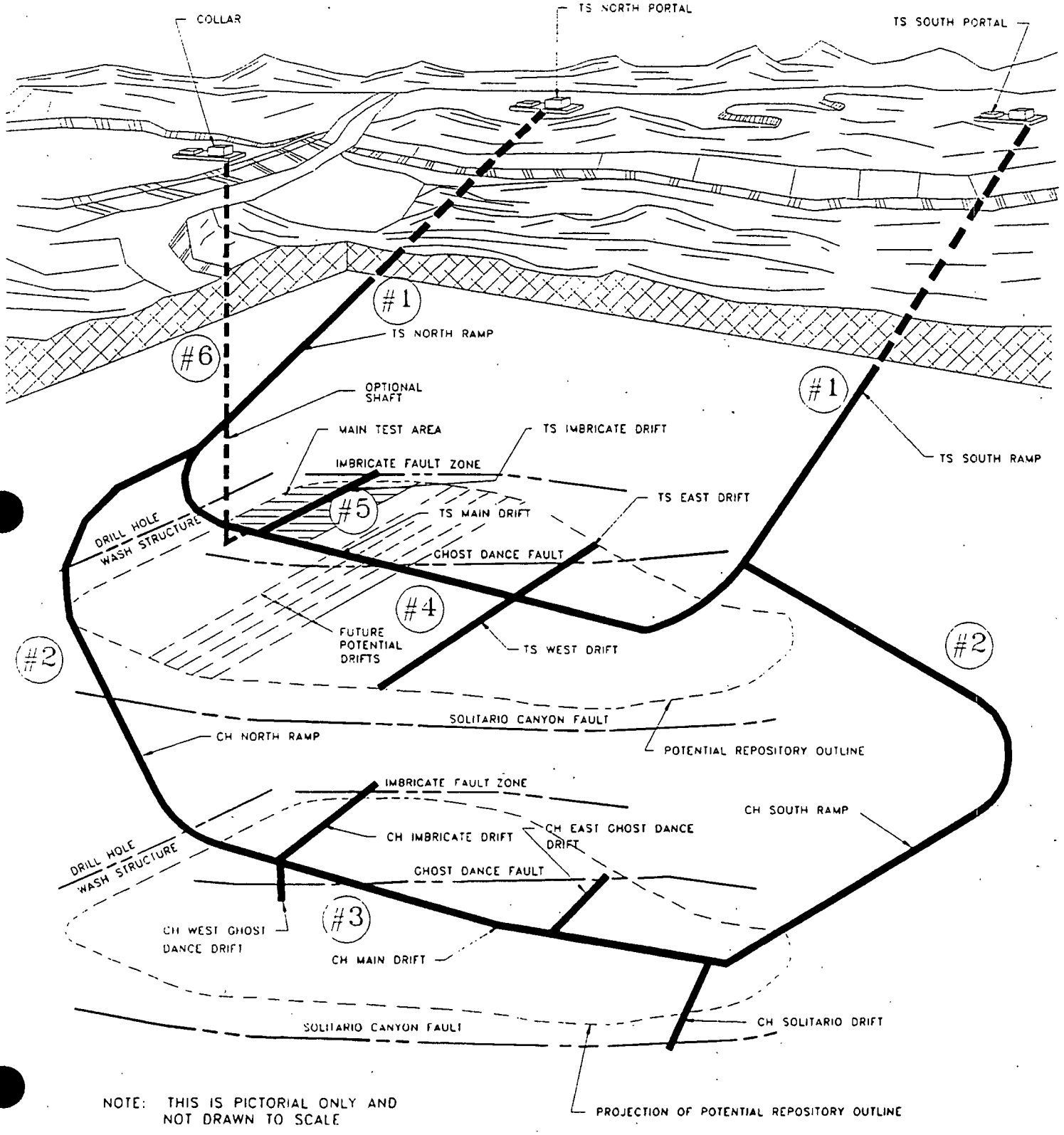
EXCAVATION PRIORITIES

1. TS RAMPS TO CH TAKE-OFFS, INCLUDING CRITICAL TEST ALCOVES
2. CH RAMPS, INCLUDING CRITICAL TEST ALCOVES
3. CH EXPLORATORY DRIFTING
4. TS EXPLORATORY DRIFTING
5. TS LEVEL CORE TEST AREA
6. DEFERRED TEST ALCOVES
7. OPTIONAL SHAFT (IF NECESSARY)

NOTE: CRITICAL TESTS ARE SITE SUITABILITY TESTS IN WHICH DATA ARE IRRETRIEVABLE IF NOT OBTAINED AS CONSTRUCTION EXPOSES THE AREAS TO BE TESTED

ESF EXCAVATION PRIORITIES (ESFAS)



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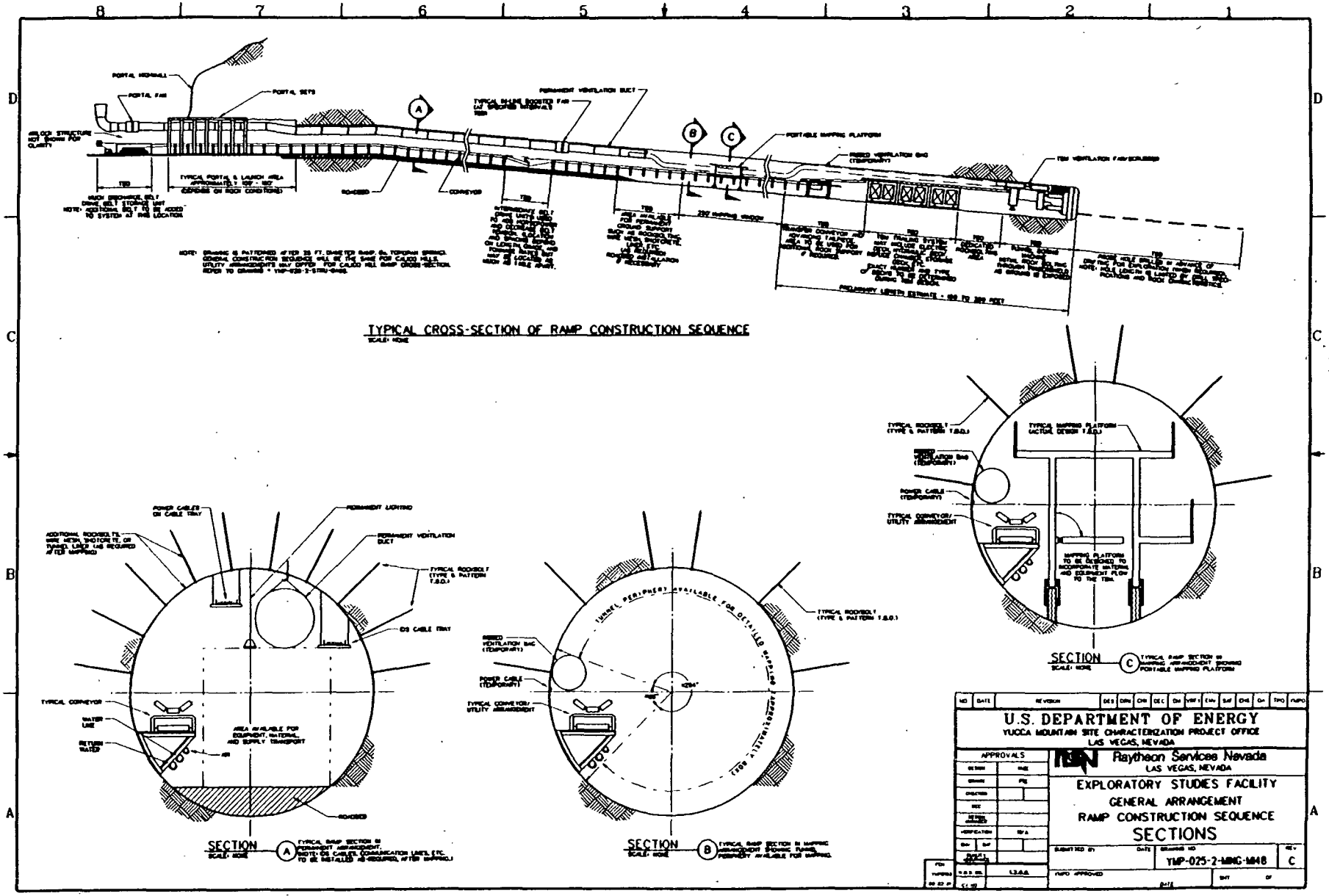
TBM CONSTRUCTION SEQUENCE

- INITIAL GROUND SUPPORT WILL OCCUR BEHIND TBM CUTTERHEAD AND BETWEEN THE TBM AND TRAILING GEAR
- GEOLOGIC MAPPING WILL OCCUR IN AN AREA IMMEDIATELY BEHIND THE TBM TRAILING GEAR
- TBM WILL STOP TO ALLOW FOR THE EXCAVATION OF HIGH-PRIORITY ALCOVES/ STATIONS BEHIND TBM
- PERMANENT GROUND SUPPORT AND UTILITIES WILL BE INSTALLED BEHIND DEDICATED MAPPING AREA

RAMP CONSTRUCTION SEQUENCE



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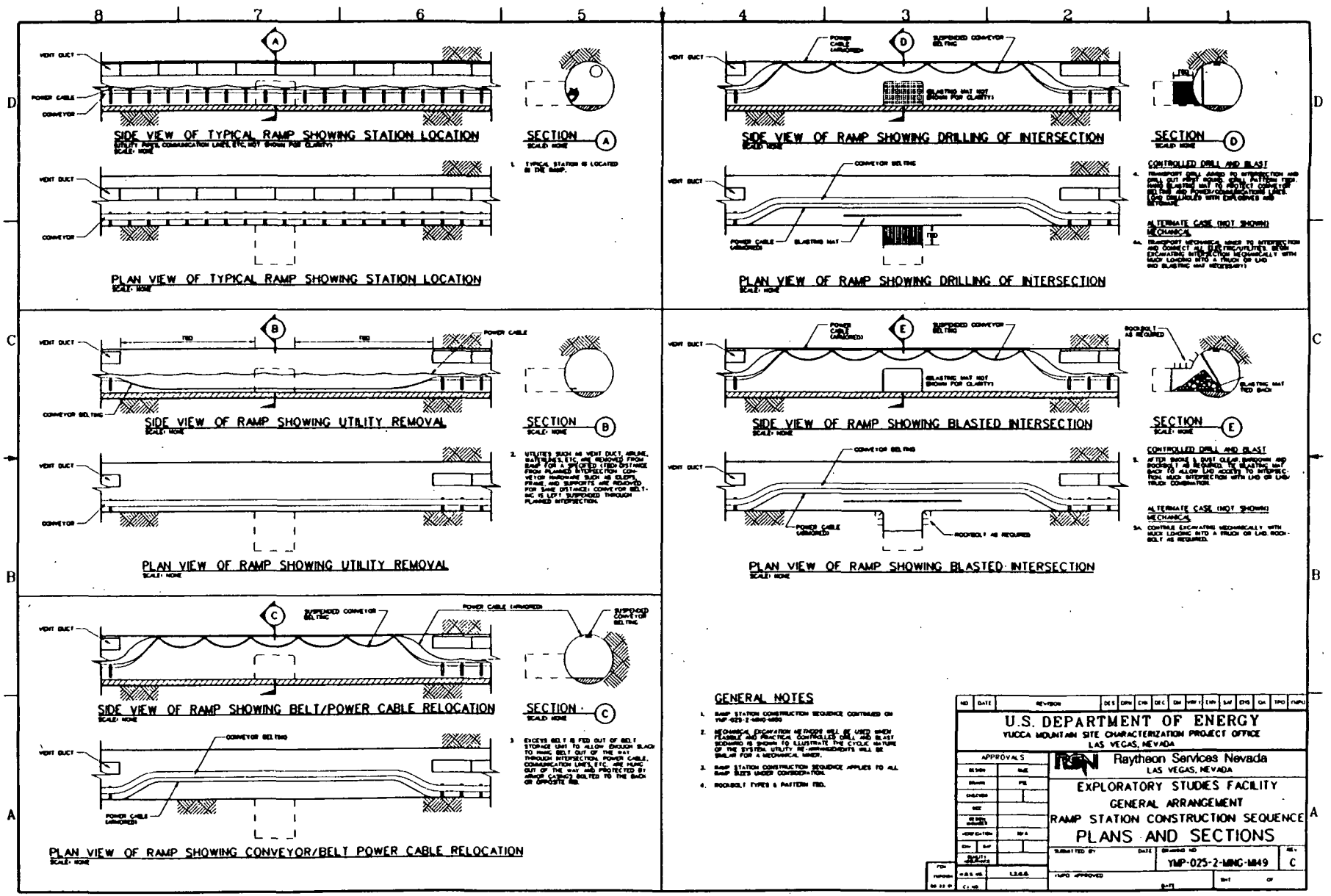
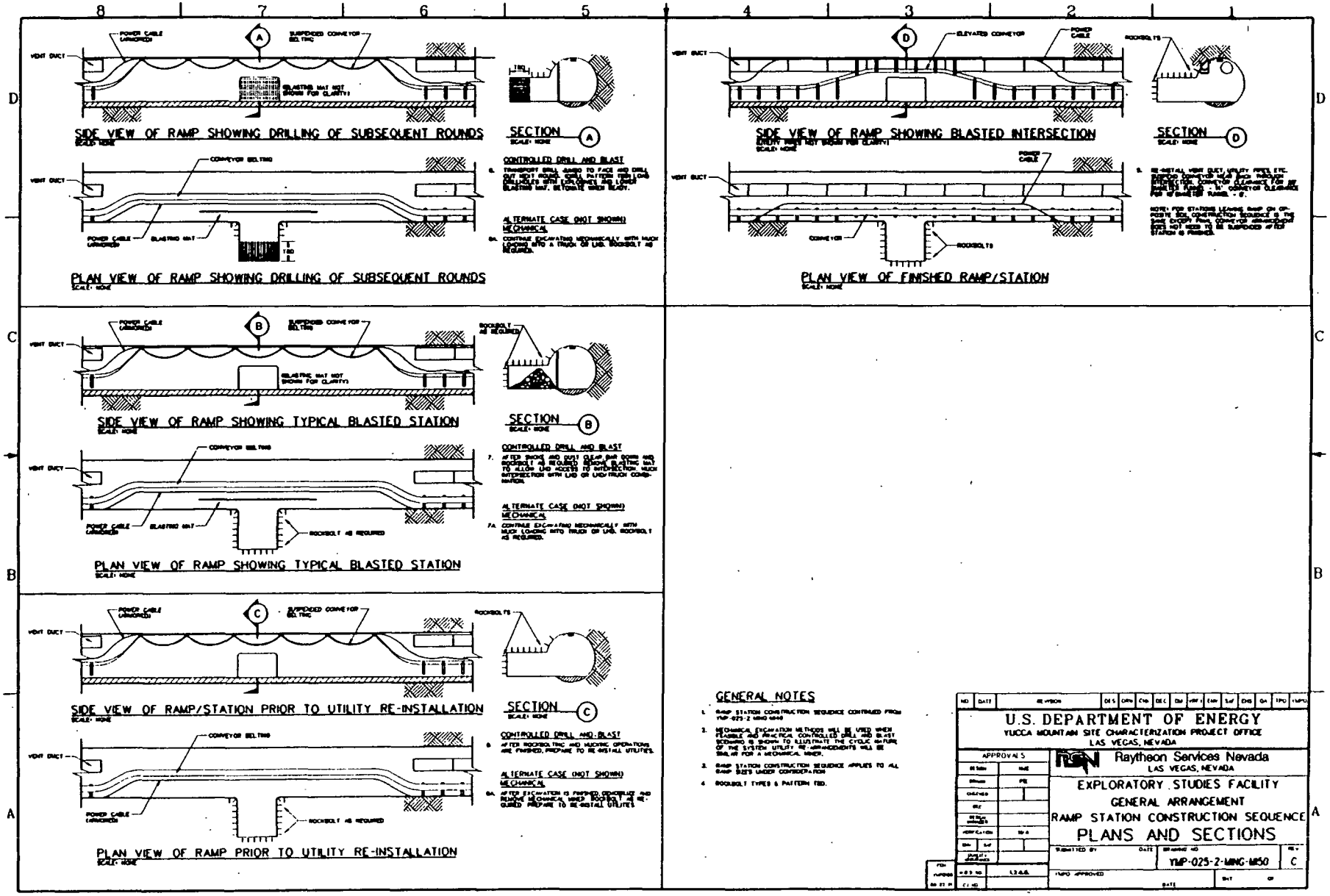
RAMP STATION CONSTRUCTION SEQUENCE



RAMP STATION CONSTRUCTION SEQUENCE



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SUMMARY

PLAN ELEMENT	TITLE I RESULTS	TITLE II DESIGN
ESF CONFIGURATION	ESTABLISHED EXTENT OF DRIFTING AND CONFIGURATION	REFINEMENTS: • NORTH RAMP AND ALIGNMENT • RAMP CURVE RADIUS • MTA LAYOUT
EXCAVATION METHODS	BASED ON ESFAS	TRADE-OFF STUDIES NEEDED TO ESTABLISH PREFERRED METHODS AND EQUIPMENT
EXCAVATION SEQUENCE AND SCHEDULE	PRIORITIES BASED ON ESFAS	TRADE-OFF STUDIES NEEDED FOR OPTIMUM SEQUENCE/SCHEDULE