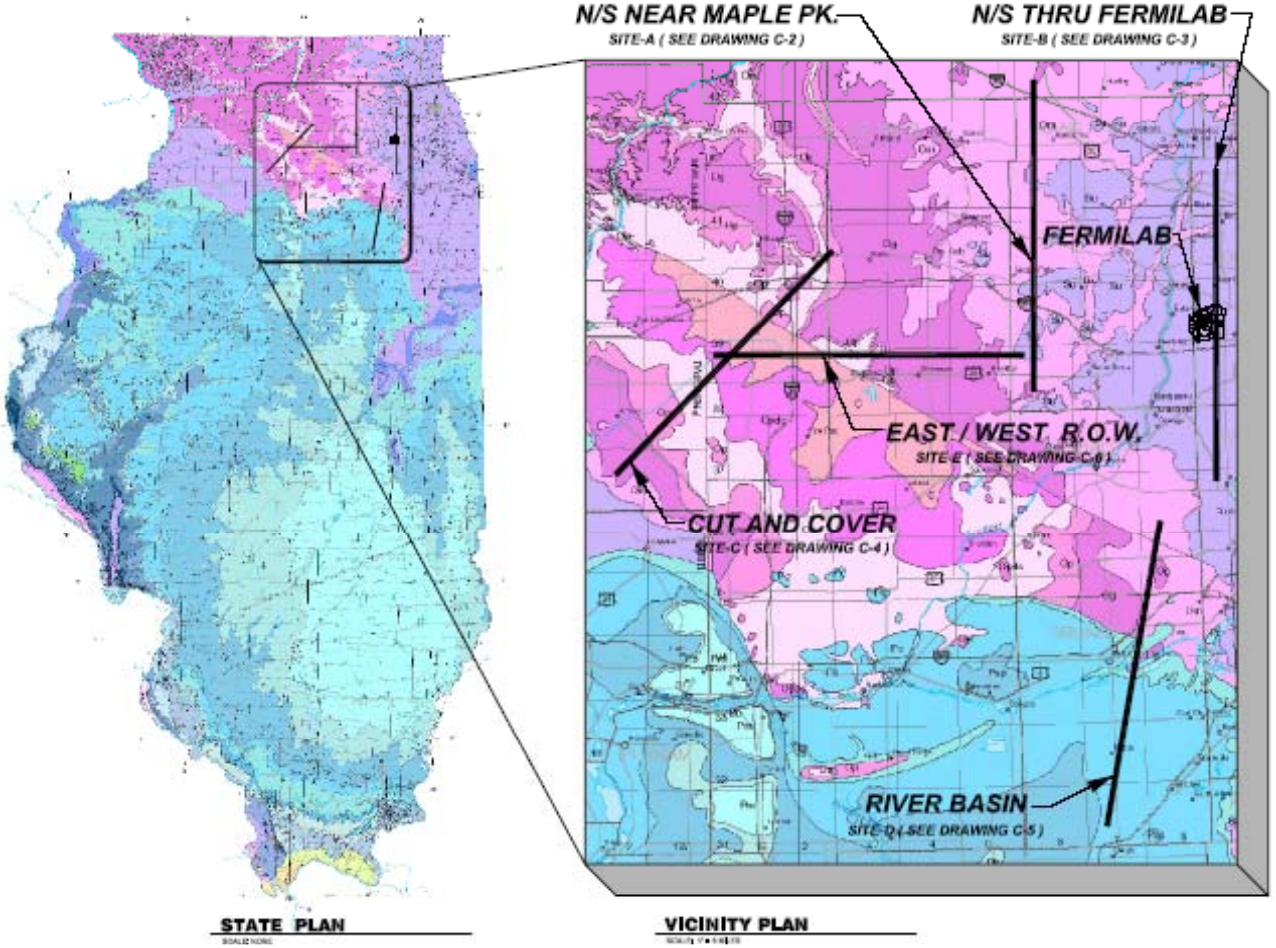
FNAL SITES

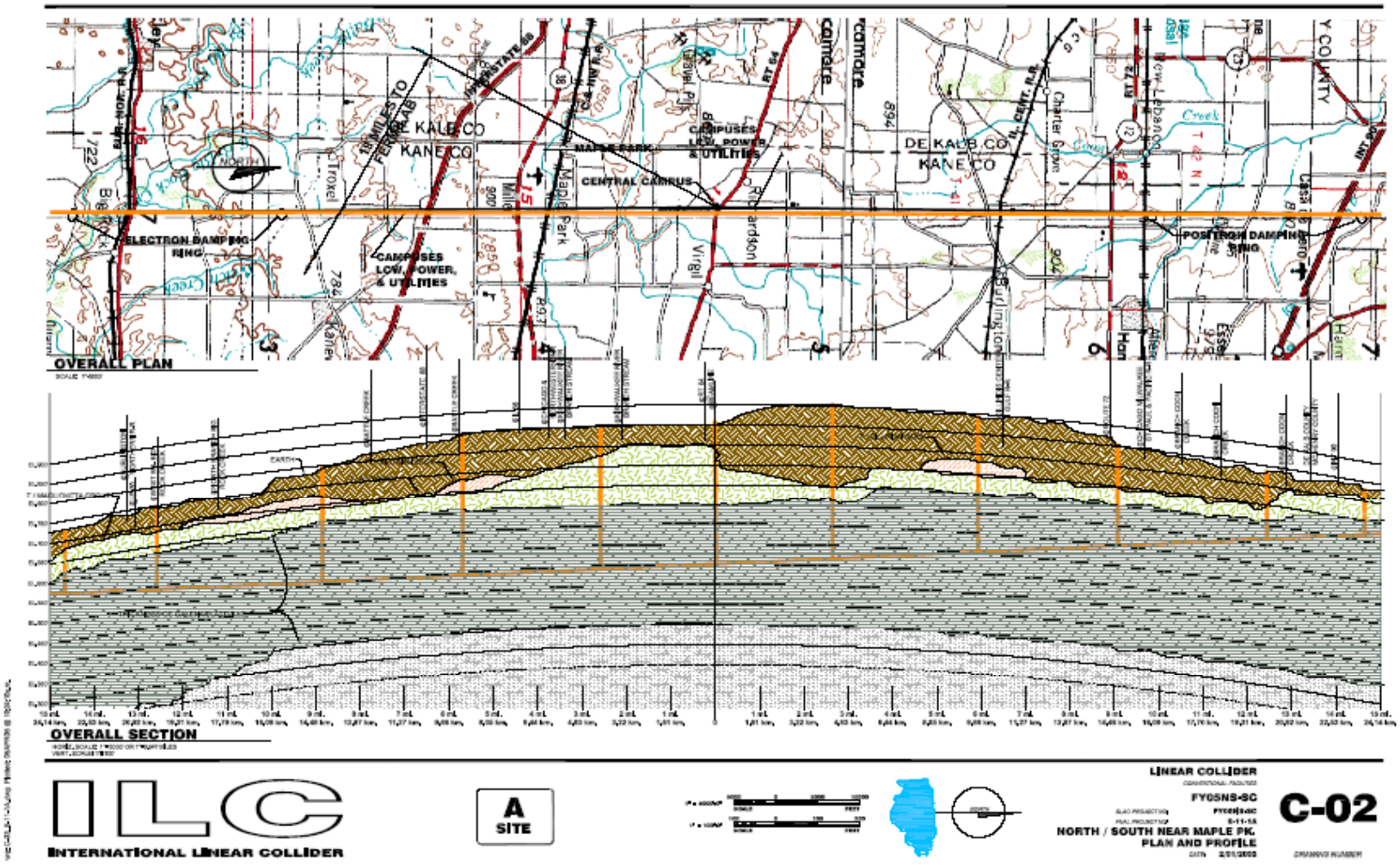
Conventional Facilities and Siting Group Americas Region

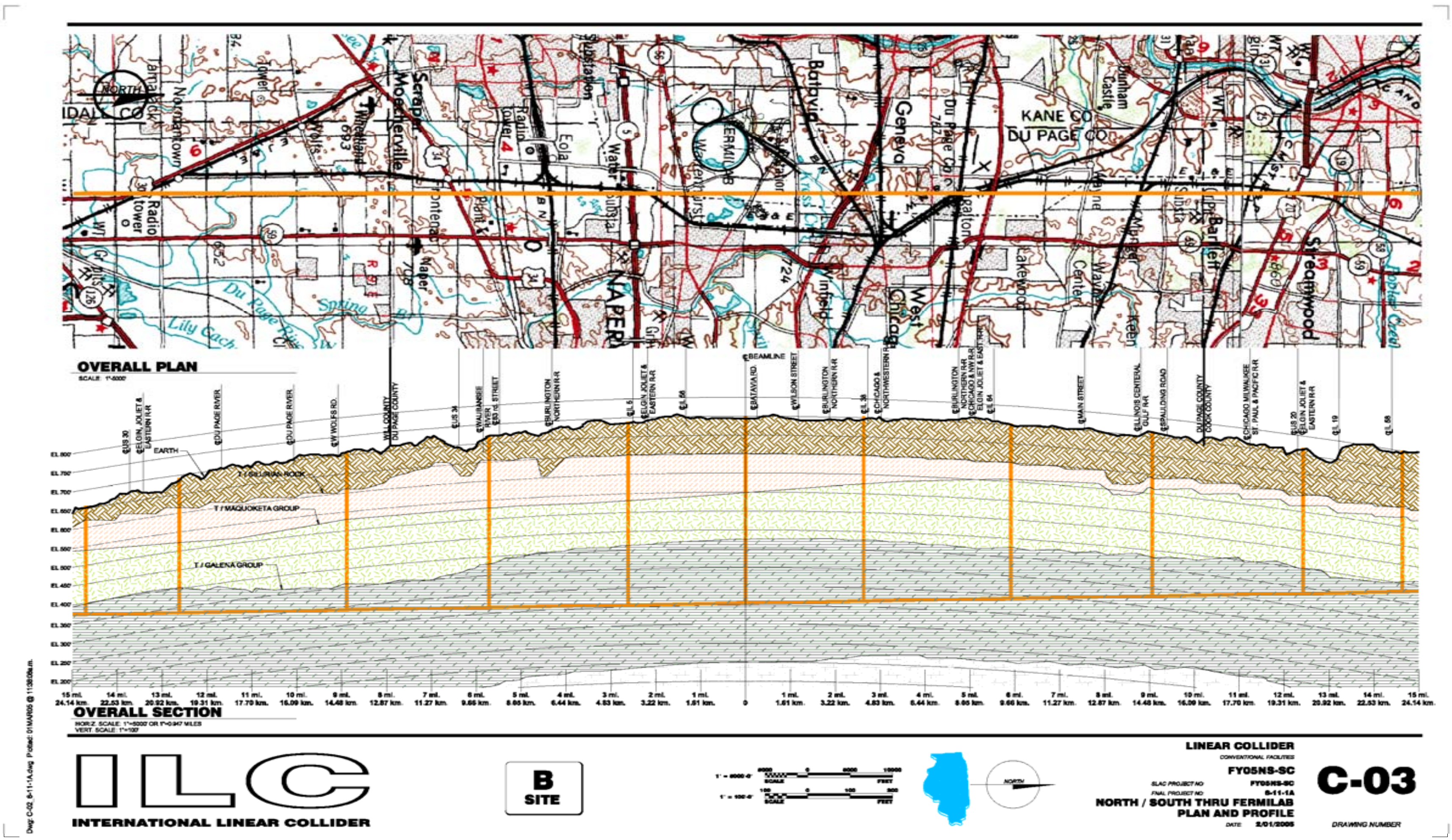
V. Kuchler

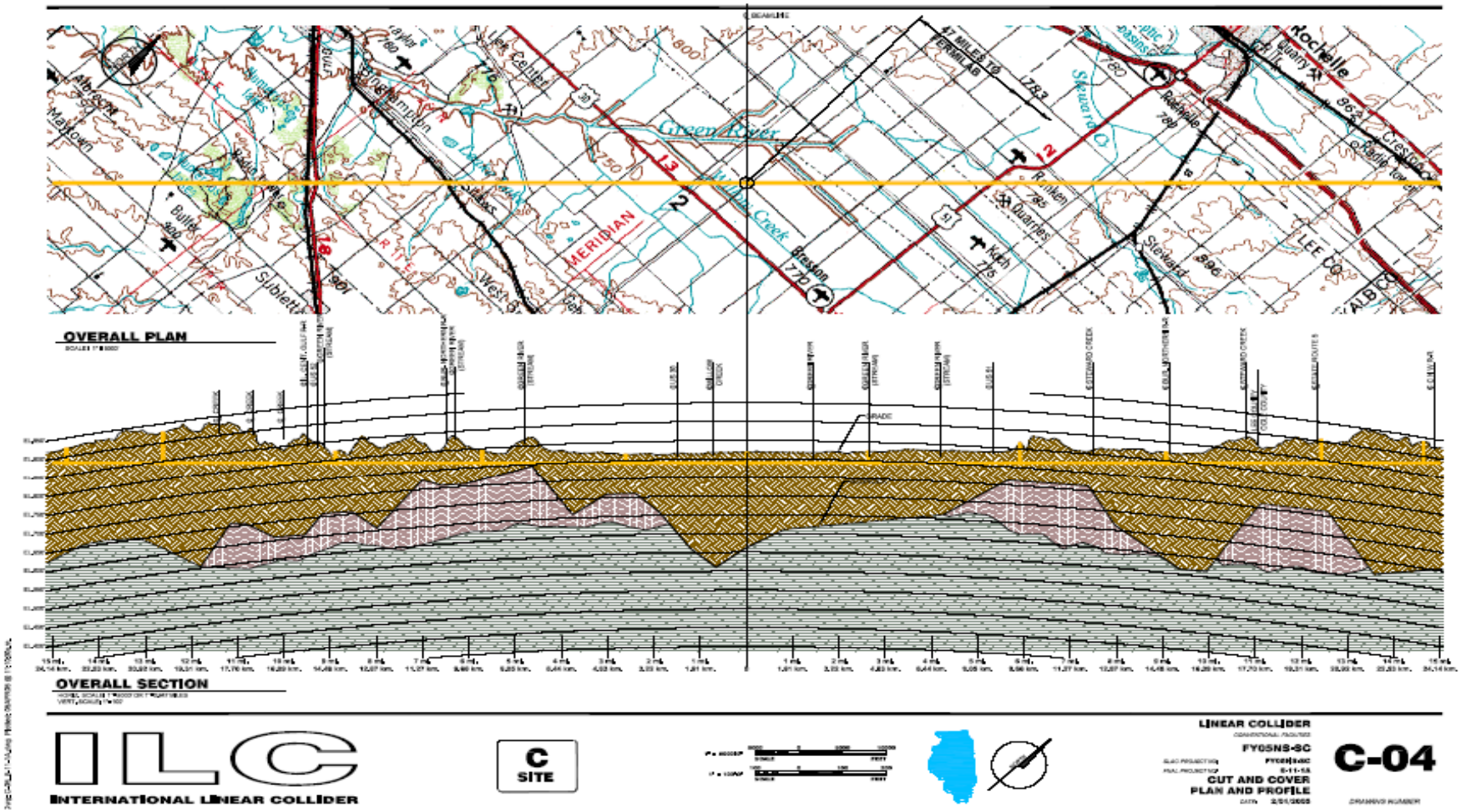
Parameters Used to Identify FNAL Sites

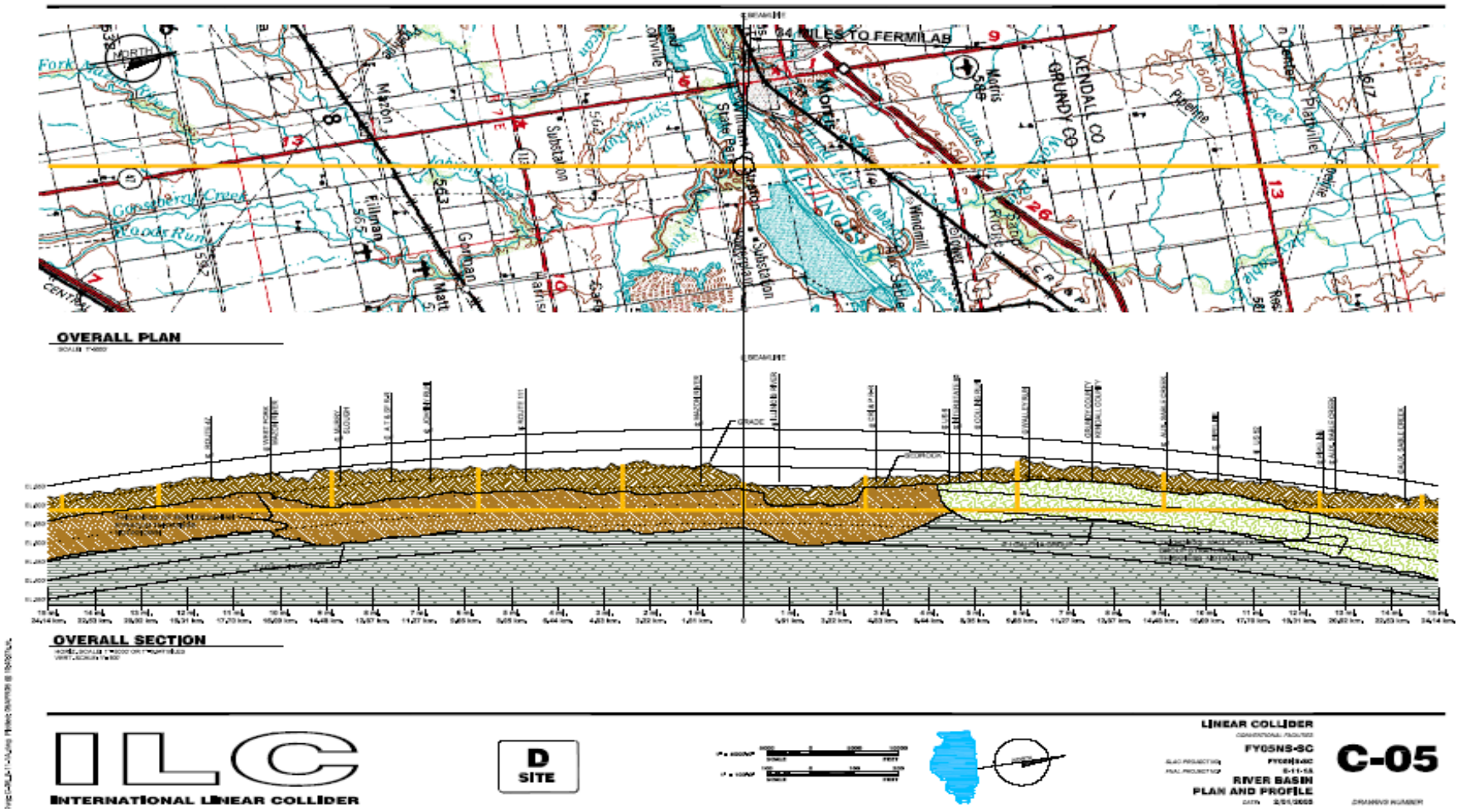
- Sites Were Selected to be "At or Near" the Existing Fermilab Site
- Potential Deep Tunnel and "Near Surface" Sites Were Identified
- Potential Deep Tunnel and "Near Surface" Sites Were Also Identified in California
- It was Also Noted that the ILC 1 TEV Footprint Could be Constructed Within the Boundaries of the Existing Hanford Laboratory Site In Washington State
- Primary Criteria Included:
  - Laser Straight Alignment
  - Consideration of Topographical Conditions
  - Consideration of Geologic Conditions
  - Electrical Power Availability
  - Location with Respect to the Existing FNAL Site

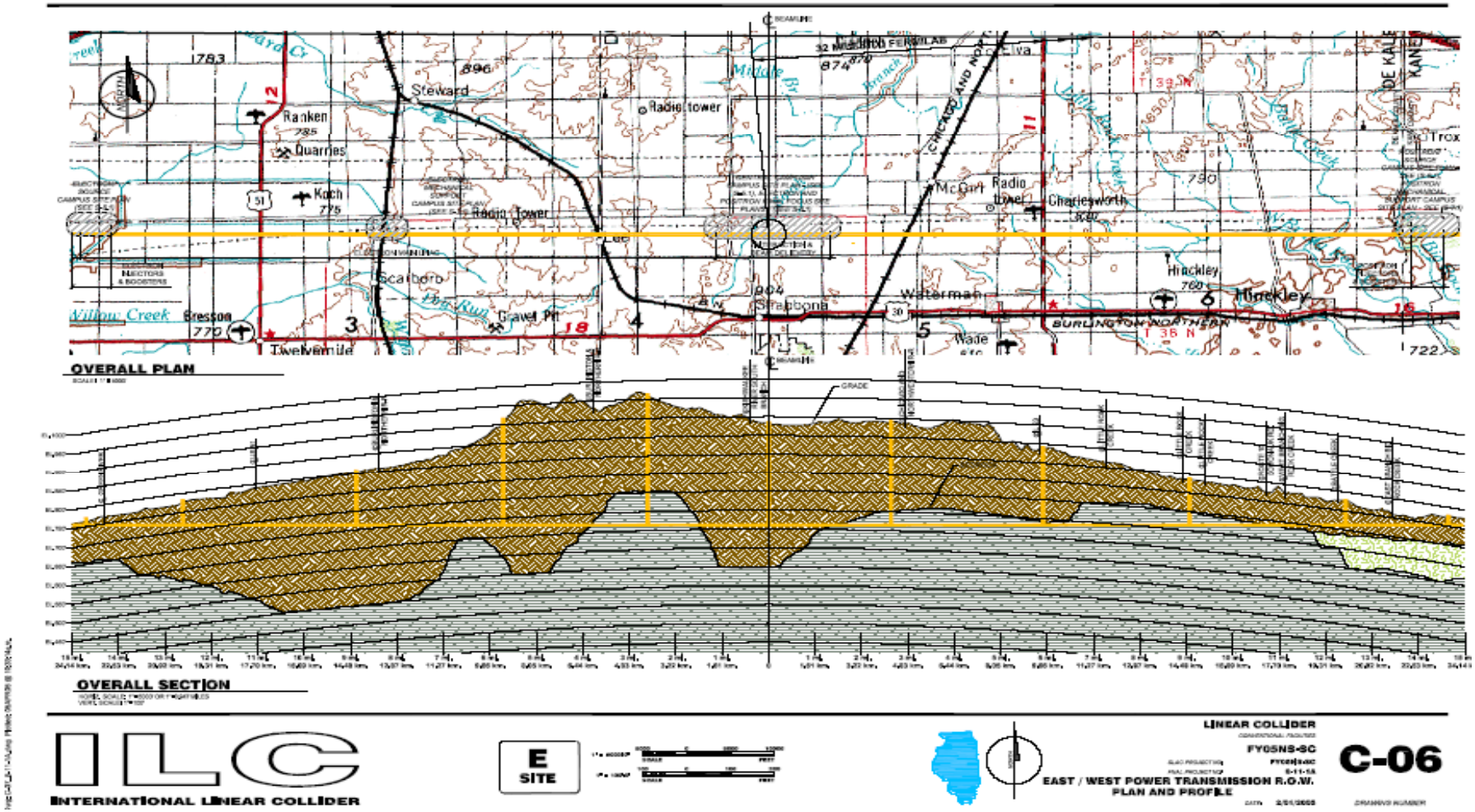

N/S NEAR MAPLE PK.
SITE-A (SEE DRAWING C-2)
N/S THRU FERMILAB
SITE-B (SEE DRAWING C-3)
FERMILAB
EAST / WEST R.O.W.
SITE-E (SEE DRAWING C-6)
CUT AND COVER
SITE-C (SEE DRAWING C-4)
RIVER BASIN
SITE-D (SEE DRAWING C-5)
STATE PLAN
VICINITY PLAN

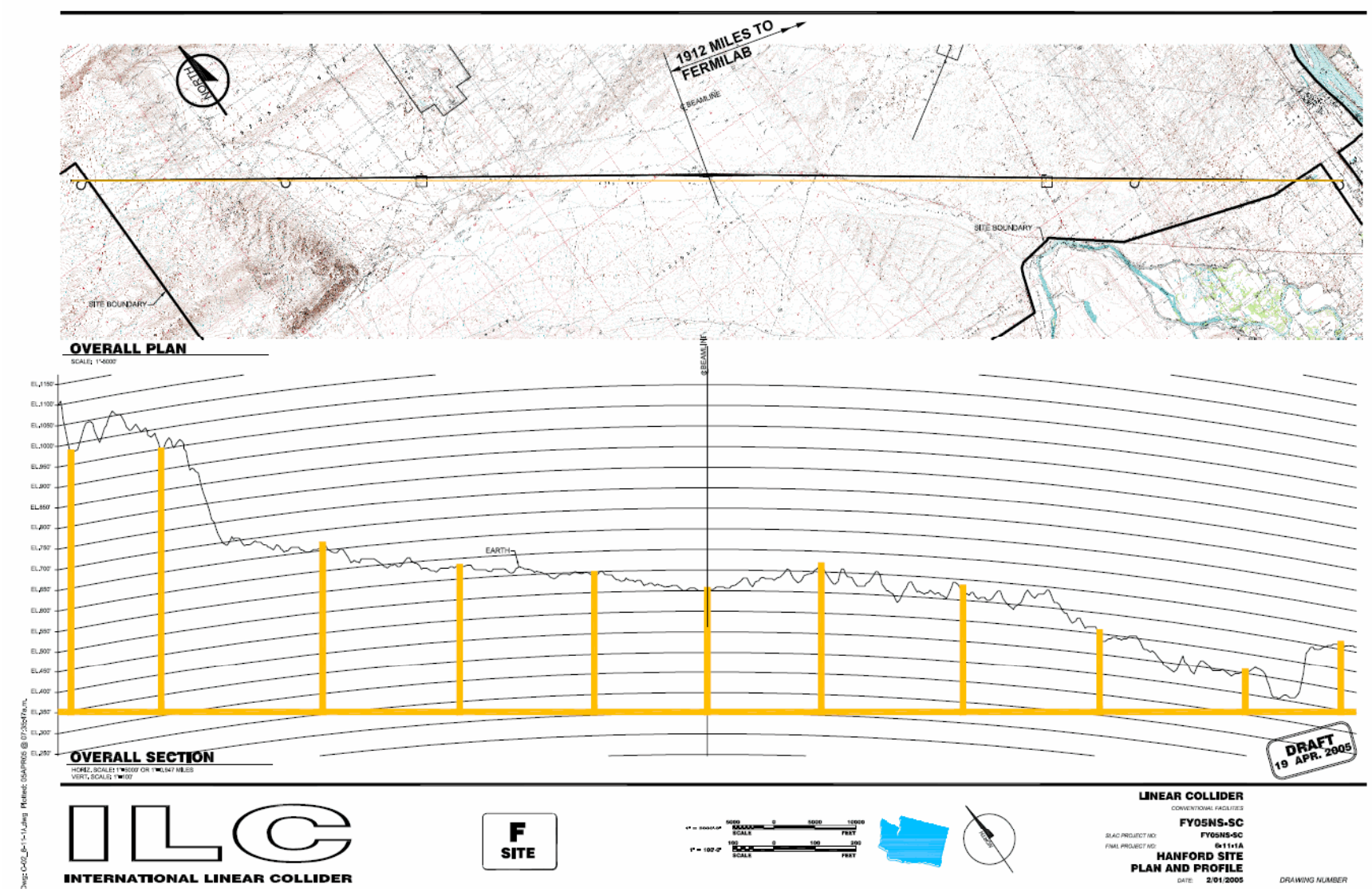

OVERALL PLAN
DE KALB CO
KANE CO
CAMPUSES LCW, POWER, & UTILITIES
CENTRAL CAMPUS
ELECTRON DAMPING RING
POSITRON DAMPING RING
OVERALL SECTION
ILC
INTERNATIONAL LINEAR COLLIDER
A SITE
LINEAR COLLIDER
FY05NS-SC
NORTH / SOUTH NEAR MAPLE PK.
PLAN AND PROFILE
C-02


OVERALL PLAN
OVERALL SECTION
EARTH
T / SILURIAN ROCK
T / MAQUOKETA GROUP
T / GALENA GROUP
INTERNATIONAL LINEAR COLLIDER
B SITE
LINEAR COLLIDER
FY05NS-SC
NORTH / SOUTH THRU FERMILAB
PLAN AND PROFILE
C-03
DRAWING NUMBER


OVERALL PLAN
OVERALL SECTION
ILC
INTERNATIONAL LINEAR COLLIDER
C SITE
LINEAR COLLIDER
FY05NS-SC
CUT AND COVER
PLAN AND PROFILE
C-04


24 MILES TO FERMILAB
OVERALL PLAN
OVERALL SECTION
ILC
INTERNATIONAL LINEAR COLLIDER
D
SITE
LINEAR COLLIDER
FY05NS-SC
RIVER BASIN
PLAN AND PROFILE
C-05


OVERALL PLAN
OVERALL SECTION
ILC
INTERNATIONAL LINEAR COLLIDER
E
SITE
LINEAR COLLIDER
FY05NS-SC
EAST / WEST POWER TRANSMISSION R.O.W.
PLAN AND PROFILE
C-06
Steward
Ranken
Quarries
Koch
Radio Tower
Scarborough
Bresson
Twelvemile
Gravel Pit
Streator
Waterman
Wade
McCart
Radio tower
Charlesworth
Hinckley
Trox
Willow Creek
Indian Creek
Rock Creek
Middle Br
CHICAGO AND NORTH WESTERN
BURLINGTON NORTHERN
T 39 N
T 38 N


1912 MILES TO FERMILAB
NORTH
SITE BOUNDARY
SITE BOUNDARY
OVERALL PLAN
SCALE: 1"=5000'
EARTH
OVERALL SECTION
DRAFT
19 APR. 2005
ILC
INTERNATIONAL LINEAR COLLIDER
F
SITE
LINEAR COLLIDER
FY05NS-SC
HANFORD SITE
PLAN AND PROFILE
2/01/2005
DRAWING NUMBER

Current Status

- The RDR Identified One Sample Site from Each of the Three GDE "Regions"
- Each Sample Site was a Deep, Twin Tunnel Configuration
- The JINR/Dubna Site is a "Near Surface" Single Tunnel Configuration
- The DESY/TESLA Site can Also be Considered a "Near Surface" Single Tunnel Configuration
- The RDR CFS Design Solution Represented a Consensus Solution Driven Primarily by the Technical Criteria Provided
- The Dubna Site Solution and the Tesla and XFEL Design Work will Provide Valuable Information for Alternatives to the Deep, Twin Tunnel RDR Design
- Some of Those Criteria have Either Changed, Are Under Discussion or Will be Challenged in the Coming Months

So How To Proceed

RDR Design Solution

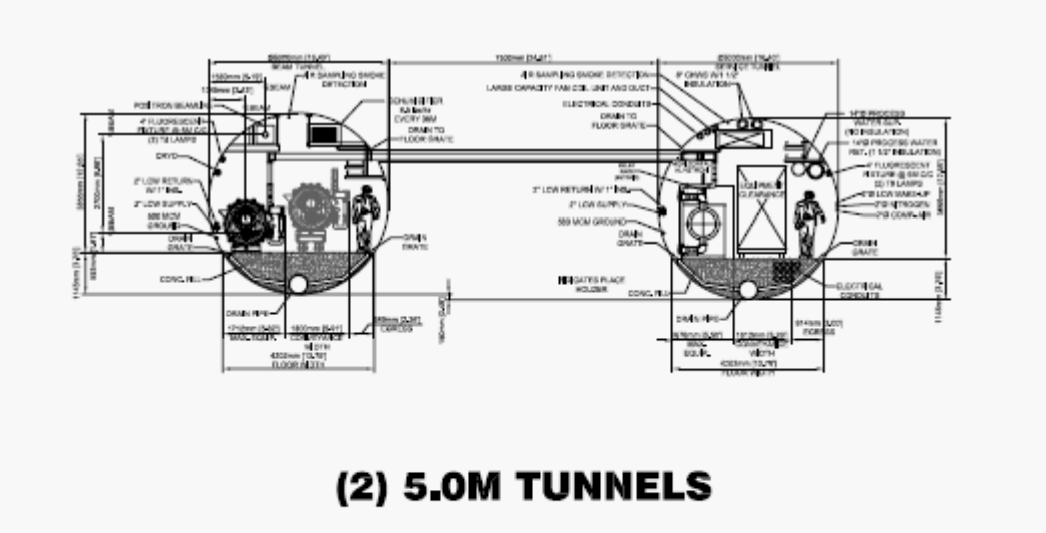
RDR CFS Cost Estimate

Value Engineering and Technical Criteria Review

New Design Solution Optimized to Specific Parameters (In This Case, Cost)

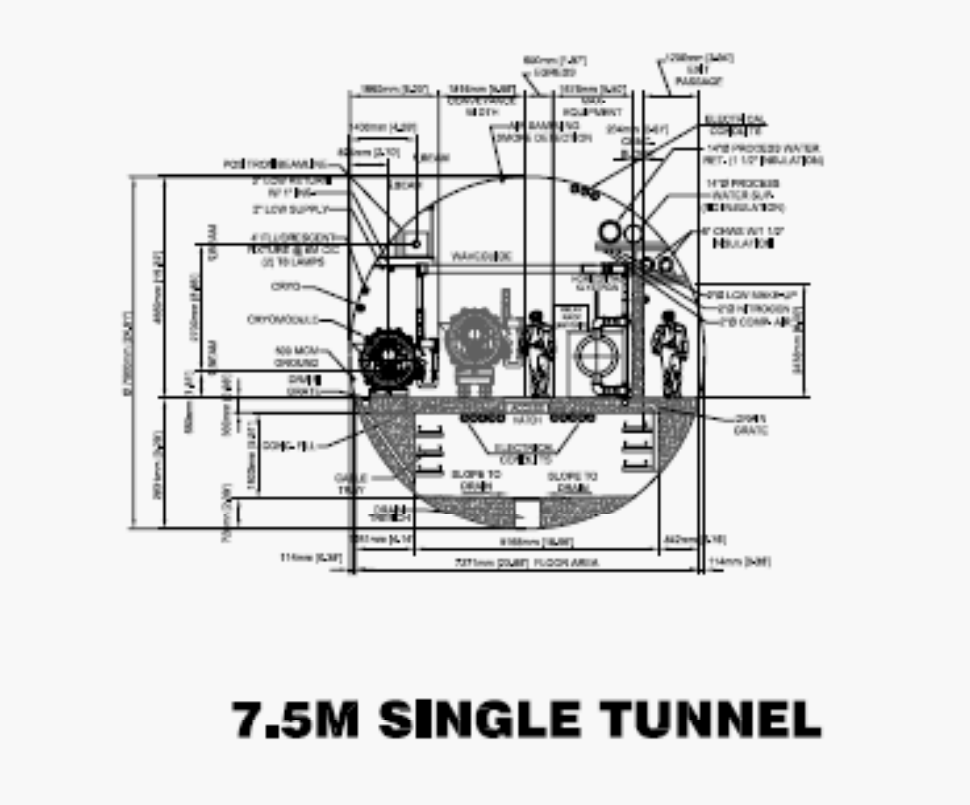
So What is an Optimized Design Solution

- Solution will not be Necessarily Site Specific
- It will Involved a Review of Existing Criteria and the Development of Alternative Configurations with Criteria Adjusted to Provide a More Straightforward and Cost Effective Tunnel Configuration, Mechanical Support System etc.
- The Combination of Individual Value Engineered Design Components will Provide a New Design Solution Optimized to the Parameter(s) Selected
- For the CFS Group Specific Priorities have been Identified:
  - Tunnel Configuration
  - Underground Space
  - Process Cooling Water Systems
  - Electrical Distribution



RDR Design Solution

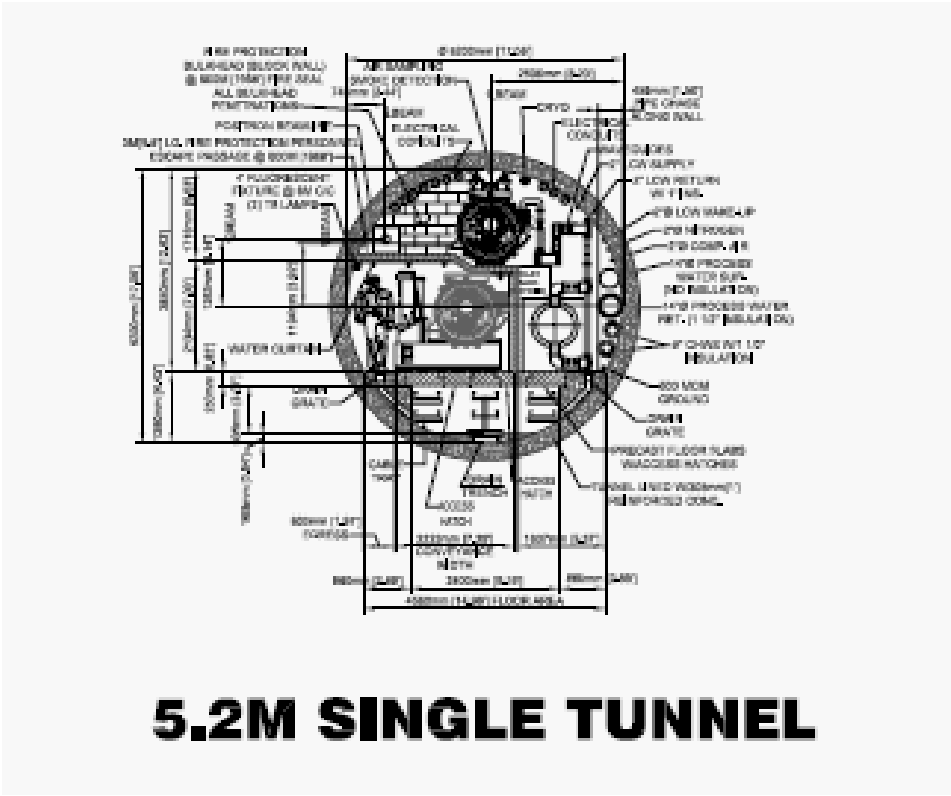
- Stability/Vibration +
- Egress +
- Proximity of Equipment +
- Maintenance and Reliability +
- Installation +
- Cabling +
- Water Inflow +
- Wave Guide –
- Cost –
- Enclosure Access –



7.5M SINGLE TUNNEL

1 Tunnel Solution A

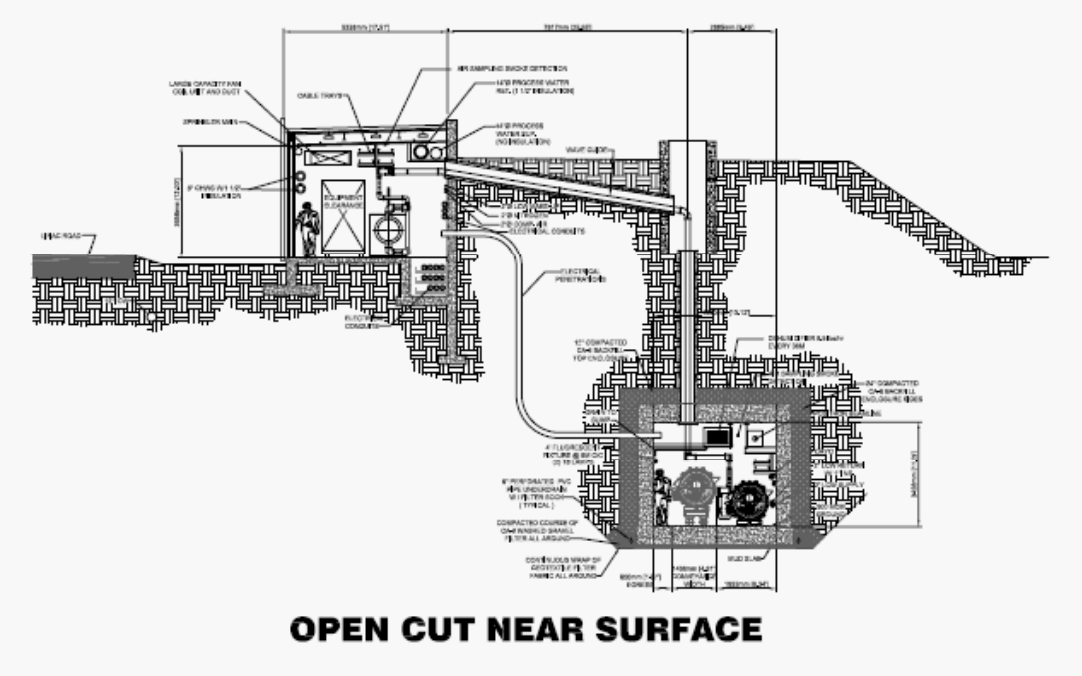
- Stability/Vibration ?
- Egress +
- Proximity of Equipment -
- Maintenance and Reliability -
- Installation +
- Cabling -
- Water Inflow ?
- Wave Guide +
- Cost ?
- Enclosure Access –



5.2M SINGLE TUNNEL

1 Tunnel Solution B

- Stability/Vibration ?
- Egress -
- Proximity of Equipment -
- Maintenance and Reliability -
- Installation -
- Cabling -
- Water Inflow ?
- Wave Guide +
- Cost +
- Enclosure Access –



Cut/Cover Solution

- Stability/Vibration -
- Egress +
- Proximity of Equipment +
- Maintenance and Reliability +
- Installation +
- Cabling +
- Water Inflow -
- Wave Guide –
- Cost ?
- Enclosure Access +

The Path Forward for CFS

- Three Aspects Form the CFS Equation
  - Amount of Work to be Completed
  - Time Constraints and/or Guidance
  - Resources Available
- Evaluate the Current and Near-Term Resource Profile at FNAL, SLAC, KEK, CERN and JINR
- Develop a Prioritized Value Engineering Plan
- Develop Viable Alternate Design Configurations and Adjusted Technical Design Criteria for Review and Approval
- Take Full Advantage of the Opportunities Provided by the Collaboration with the CLIC Project and the Experience Gained in the Construction of the XFEL
- Agree on a Timeframe that Allows for the Completion of a Comprehensive Alternative Design Solution and an Effective ILC Siting Strategy