



ELECTRICITY COMMISSION OF
NEW SOUTH WALES

ELECTRICITY TRANSMISSION LINE FROM LISMORE TO MULLUMBIMBY

SUMMARY

EIS/
ELEC

INTRODUCTION

This summary booklet has been prepared as an adjunct to the Environmental Impact Statement for the proposed Lismore to Mullumbimby 132 kV transmission line. Its purpose is to provide a brief overview of the impact statement by presenting some information from each of the chapters.

For a more comprehensive discussion of the need for the line, available planning options, the route selection process, the preferred route, safeguards incorporated into the design, and the likely environmental impact of the transmission line it will be necessary to make reference to the Environmental Impact Statement.

The copy of the newspaper advertisement on the back of this summary provides details of the exhibition period of the Environmental Impact Statement, locations where the document is available to be examined, the procedure for purchasing a copy and the address and closing date for written representations.

BACKGROUND TO THE PROPOSAL

The Electricity Commission of New South Wales is responsible for the generation and bulk transmission of electricity throughout the State. The Commission carries out development necessary to meet the growing demand for electric power throughout New South Wales.

The Far North Coast region of New South Wales is experiencing a substantial rate of growth, in terms of both population and economic activity. The consumption of electricity in the region has also been rapidly increasing at approximately 7% per annum over the last ten years, compared to a state-wide average of 3% per annum. The Commission has responded to this increasing power need with the formulation of a multi-stage program to ensure continuing adequate and reliable bulk supply of electricity to the region.

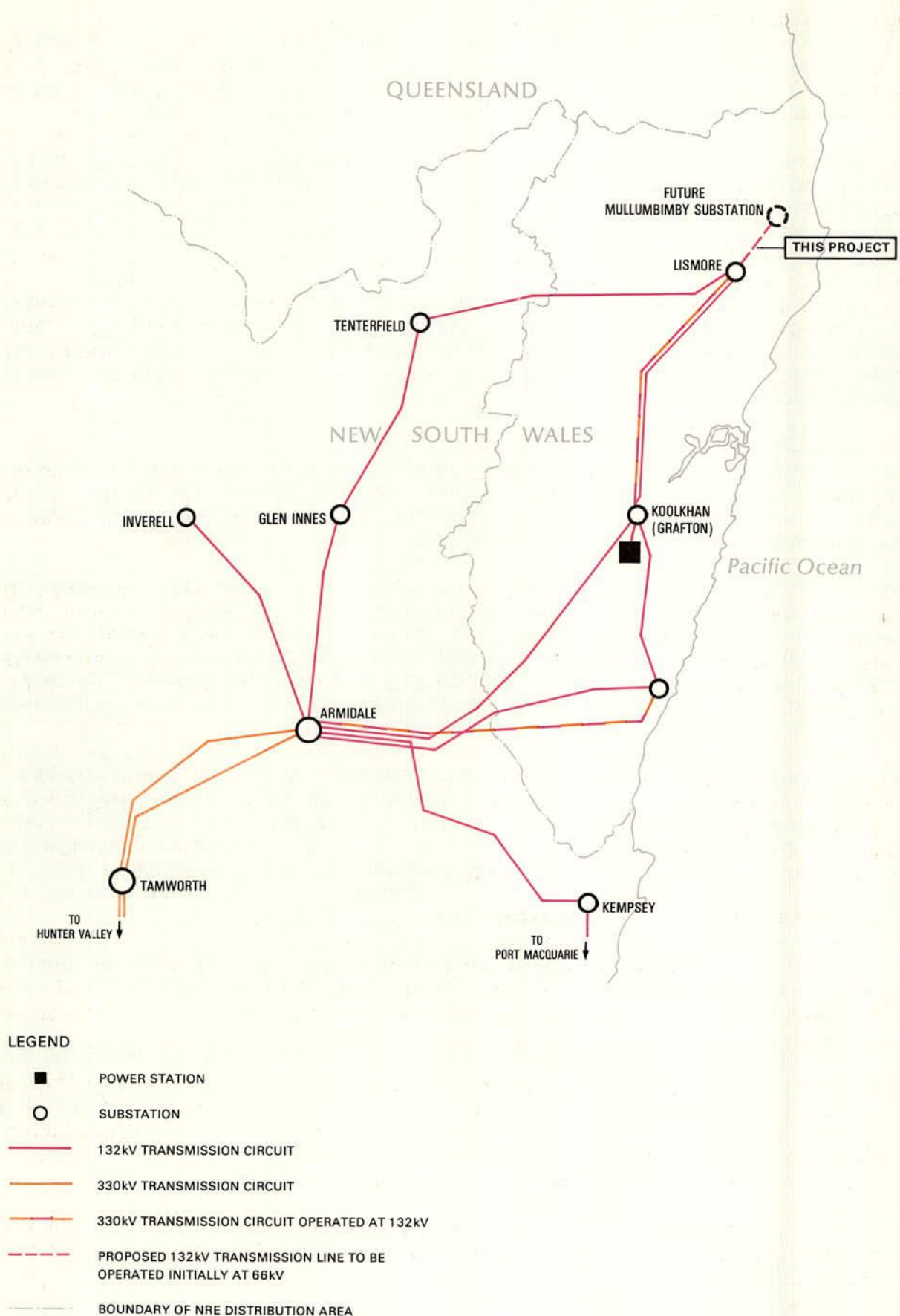
The proposed 132 kV transmission line between Lismore and Mullumbimby which is outlined and assessed in the Environmental Impact Statement (E.I.S.) is a component of this long term strategy for augmenting bulk electricity supply to the north east corner of the State. Other elements of the strategy are construction of a new 132/66 kV substation near Mullumbimby and a second Lismore to Mullumbimby 132 kV transmission line. The strategy is outlined in more detail in Section 1 of the EIS.

These works will be adequate to meet the expected long term electricity requirements of the Lismore, Ballina, Byron, and if necessary, Tweed local government areas.

The existing electricity supply system to the Far North Coast is illustrated in Figure 1.

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**EXISTING SUPPLY SYSTEM TO
NSW FAR NORTH COAST**

FIGURE 1

ENVIRONMENTAL IMPACT ASSESSMENT PROCEDURES

The Environmental Planning and Assessment (EPA) Act, 1979, as amended, specifies procedures which must be followed in public and private development projects in the assessment of environmental impact. State Environmental Planning Policy No. 4 permits certain public utility undertakings, including the construction of electricity transmission lines, to be carried out without development consent by Local Government Authorities in those areas where such land uses are permissible under the relevant environmental planning instrument.

Construction of the proposed transmission line consequently falls under Part V of the EPA Act. The Electricity Commission is the Determining Authority and is required under the Act to fully take into account the project's environmental consequences before making any decision to proceed. The Electricity Commission has decided that the preparation of an Environmental Impact Statement (E.I.S.) is desirable for the proposed transmission line. The Act requires that the E.I.S. be prepared in accordance with Clauses 57 and 58 of the Environmental Planning and Assessment Regulation.

The Electricity Commission has consulted with the Department of Environment and Planning concerning the form and content of the Environmental Impact Statement and the Director's requirements have been received and incorporated into this document.

The E.I.S. has been placed on public exhibition and advertised in the press to give the public notice of the exhibition. During this period any person may inspect or purchase the document and may make written representations to the Electricity Commission with respect to the proposal. Copies of all submissions received will be forwarded to the Department of Environment and Planning for that Department's consideration.

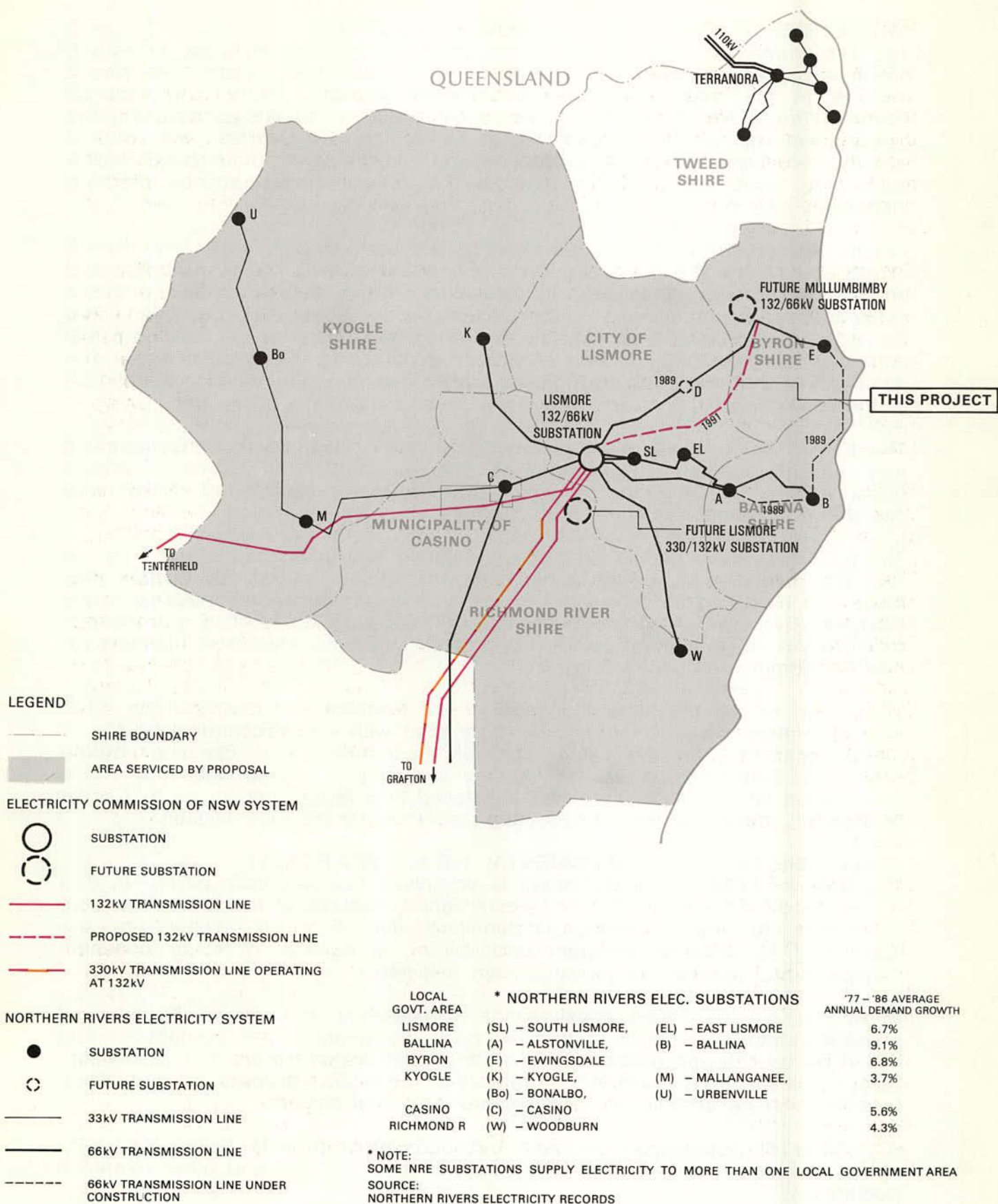
The Board of the Electricity Commission will examine and consider the E.I.S. and all matters raised in submissions, together with any subsequent advice or report received from the Department of Environment and Planning, before making a final decision as to whether the project should proceed. This examination and consideration will be detailed in a report, known as a "Clause 64 Report", which will be subsequently published by the Commission.

STRUCTURE OF THE ENVIRONMENTAL IMPACT STATEMENT

The Environmental Impact Statement is organised into two main parts. In Part A, the need for the development is established, features of the area described, constraints to route selection determined (including an account of the community consultation program undertaken), a number of route concepts evaluated and a preferred route concept selected.

In Part B, the proposed development is described in terms of its principal physical components and its nominal route alignment. The procedures that would be used in the determination of its precise alignment are also discussed. Safeguards that have been incorporated into the design process are described, together with an assessment of likely environmental impacts.

A number of Appendices are also included which provide technical details, specialist studies undertaken in the preparation of the EIS and other reference documents.



EXISTING SUPPLY SYSTEM TO NORTH-EAST CORNER OF NSW

FIGURE 2

PART A

THE NEED FOR THE LINE

The Far North Coast region has experienced considerable development in recent years. Over the past ten years there has been an average annual population growth in the region of 3.2% and a corresponding annual 7% increase in maximum electricity demand. The growth in demand for electricity in the City of Lismore, and the Ballina and Byron Shire areas is expected to remain relatively high in the future, though moderating to a slightly lower rate of about 5-6% per annum.

The predicted growth in the community's maximum electricity needs will soon render the existing power system deficient. An examination of alternative courses of action has revealed that a new 132 kV transmission line between Lismore and Mullumbimby (the proposed development) would provide the most satisfactory solution to current and future power supply needs. Alternatives considered in the Environmental Impact Statement include increased utilisation of renewable energy sources such as solar and hydro-electric energy, reconstruction of the existing Lismore to Ewingsdale 66 kV transmission line to 132 kV and construction of a new 132 kV line along the coastal strip.

If the proposed transmission line is not built, electricity restrictions are expected to become necessary in the City of Lismore and the Ballina and Byron Shires by about 1991, to avoid overloading and low voltage conditions.

The proposed line will initially be operated at 66 kV, to strengthen the Northern Rivers Electricity system between Lismore, Dunoon, Ballina and Mullumbimby. It will be reconnected for 132 kV operation when the proposed Mullumbimby 132/66 kV Substation is constructed. If this subsequent reconnection was not carried out in the mid 1990's, and no alternative action were to be taken, the electricity demand of all areas fed by the Lismore 132/66 kV substation would reach that substation's capacity limit and electricity restrictions or interruptions would then be unavoidable in the local government areas of Richmond River, Casino, Lismore, Kyogle, Ballina and Byron.

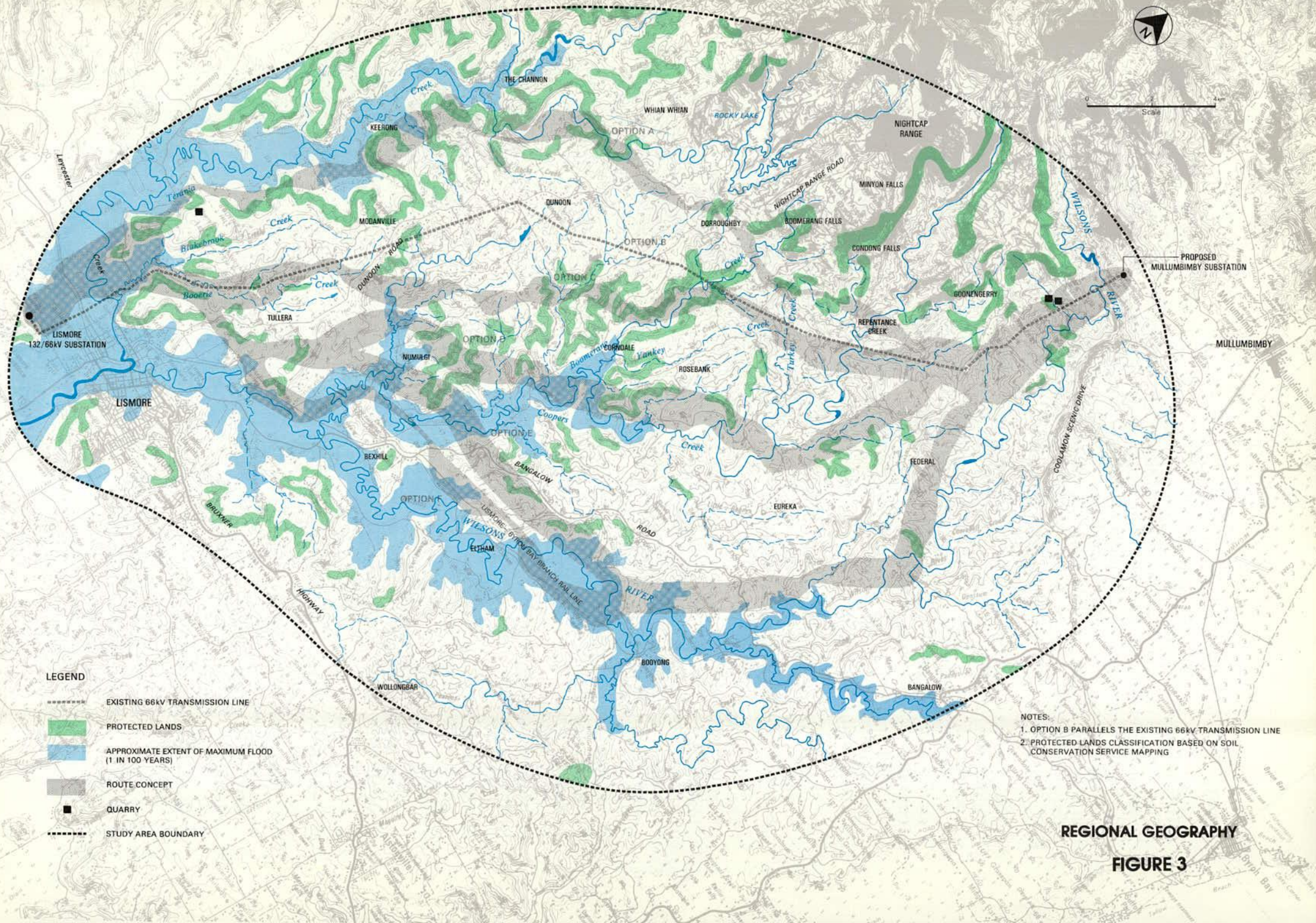
The existing supply systems to the north east corner of NSW is illustrated on Figure 2.

REGIONAL SETTING

The proposed development is located in the Far North Coast region of New South Wales and encompasses a locality commonly referred to as the 'Rainbow Region'. Dominant natural features in the area include the steep, forested slopes of the Nightcap Range, an incised plateau and the coastal escarpment. The area is also characterised by remnant stands of the 'Big Scrub' native forests.

The scenic quality, climate and proximity to the coast combine to create an extremely attractive area. Large numbers of retiring urban dwellers and 'new settlers' have migrated to the area in the past twenty years and it is now a relatively densely populated rural region. Traditional agricultural activities such as grazing and dairying have been supplemented by the widespread introduction of horticultural plantations.

Figure 3 is one of a seven maps in the EIS depicting various features of the region.



REGIONAL GEOGRAPHY

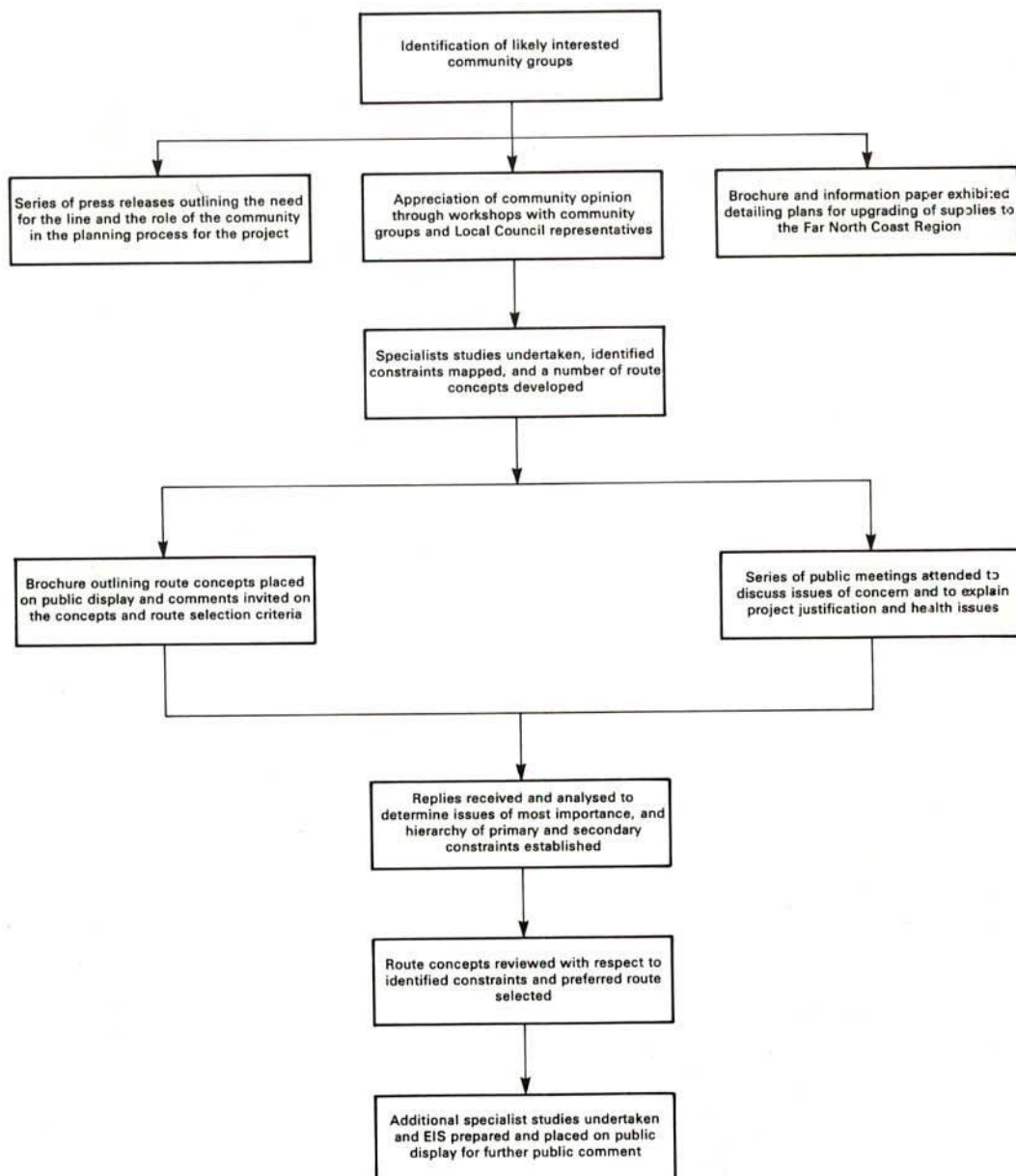
FIGURE 3

ROUTE SELECTION PROCESS

The Route Selection Process, illustrated diagrammatically below, included a community consultation program and detailed studies of the physical, biological and social environments to enable the constraints to transmission line location to be identified and mapped.

The consultation program was undertaken to involve the community in the planning process prior to the selection of a route alignment, and before preparation of the EIS had begun. A principal aim of the program was to gain an appreciation of community views and opinions as to the relative importance of the identified constraints to route selection. The hierarchy of constraints that was developed formed the basis for the selection of the preferred route alignment for the proposed transmission line. Other issues raised during the program were noted as requiring detailed coverage in this document. The program also enabled the community to be informed of the proposal, its planning justification and the planning process.

Major elements of the program were a series of workshops held with local community groups, exhibition of a Route Concepts brochure and provision of background planning information, release of a number of press statements, attendance at public meetings and demonstration measurements of existing electric and magnetic fields in the area.





CONSTRAINTS TO TRANSMISSION LINE LOCATION

Analysis of the physical, biological and social environments of the area, and conclusions drawn from the community consultation program, led to the establishment of a hierarchy of constraints to transmission line location. Primary constraints were identified as areas within foreground views of towns and villages, areas of existing horticulture and stands of undisturbed native vegetation. Areas of primary constraint are shown on Figure 4 and represent locations which the transmission line should avoid wherever possible. They constitute areas of highest constraint to transmission line location.

Secondary constraints are factors upon which the impact of the transmission line should be minimised and include areas within foreground views of rural dwelling clusters, dwellings within 250 metres of the nominal route alignment, ridgelines, stands of disturbed native vegetation, unstable areas with erosion potential, prime quality agricultural land and areas designated for future residential or horticultural uses.

All identified constraints were mapped and a number of route concepts developed which avoided areas of primary constraint. Options A, C, D and E shown on Figure 4 are based on the options that were shown in the publicity available Route Concepts brochure and generally conform to the above criteria. Option B is a route which parallels the existing Lismore to Mullumbimby 66 kV transmission line, while Option F was developed from the concept of a route which would parallel the Lismore to Bangalow railway line. Options B and F were both considered due to community requests.

ROUTE PREFERENCE

The relative performance of the various route options is indicated in Figure 5. Option B was rejected because it has considerable disadvantages with respect to both primary and secondary constraints. Option A exhibits some non-conformity with a primary constraint factor, as well as relative disadvantages with respect to a number of secondary constraints. In particular there would be a large number of residences within 250 m of the line if Option A were selected.

Option F would give the line middleground visibility from Bexhill and Eltham and create intrusion into several areas of secondary constraint, including prime agricultural land.

The remaining options, Options C, D and E all have a number of advantages and disadvantages. Option D has the advantage of substantially fewer residences in proximity to the line, a lesser exposure to rural dwelling clusters and planned rural residential areas.

Option E affects considerably more prime agricultural land, is longer, traverses an area of scenic preserve between Bangalow and Lismore, and is in proximity to more clusters of rural dwellings.

Option C while being slightly shorter, passes in proximity to a greater number of residences, and has substantially greater intrusion into areas zoned for future horticulture.

On balance Option D is considered to offer the superior alignment, especially with respect to existing land uses and potential impact on current residents. It has therefore been adopted as the preferred route concept.

	Ranking of Route Concepts - Primary Constraints		
Route concepts	Views from towns and villages	Disturbance to intense agricultural uses	Effect on undisturbed native vegetation
A	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■
B	■	■	■ ■
C	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■
D	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■
E	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■
F	■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■

	Ranking of Route Concepts - Secondary Constraints									
Route concepts	Visual amenity	Number of residences within 250 metres of the nominated line	Intrusion into prime quality agricultural land	Affect on disturbed vegetation	Disturbance to riparian vegetation	Compatibility with planning initiatives	Reafforestation potential	Length of line	Landform instability	Flooding
A	■ ■	■ ■	■ ■ ■ ■	■	■	■ ■ ■	■	■ ■ ■ ■	■	■ ■ ■ ■ ■ ■ ■ ■
B	■ ■ ■	■	■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■	■	■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■
C	■ ■ ■ ■ ■	■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■	■ ■	■ ■	■ ■ ■	■ ■ ■ ■ ■	■ ■ ■	■ ■ ■ ■ ■
D	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■
E	■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■	■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■	■ ■ ■	■ ■ ■
F	■	■ ■ ■ ■ ■	■	■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■	■ ■ ■ ■ ■ ■ ■ ■	■

NOTE : In these tables the route concepts have been compared and ranked in relation to each of the Primary and Secondary Constraints. Rankings vary from most favoured (■ ■ ■ ■ ■ ■ ■ ■) to least favoured (■). Primary Constraint rankings have been shown in large squares (■) to indicate their relative importance when compared to the Secondary Constraint factors (■).

ROUTE CONCEPT COMPARISON

FIGURE 5

PART B

THE PROPOSED DEVELOPMENT

The route alignment of the proposed transmission line runs from the existing Lismore Substation to the site of a new substation to be constructed near Lavertys Gap, approximately five kilometres south west of Mullumbimby. The line is located centrally in the study area, passing through predominantly open pasture in gently to steeply undulating terrain.

The preferred route concept avoids all primary constraints and minimises intrusion into areas of secondary constraint. It is generally removed from population centres and has the least number of residences in proximity to its nominal alignment. The proposed route avoids stands of undisturbed native vegetation, crosses a relatively minor length of prime quality agricultural land and minimises areas designated for possible future residential and horticultural uses.

The line would be approximately 40 kilometres long and would consist of twin pole supporting structures of concrete, wood or steel carrying conductors and earth wires. Figure 6 depicts a typical twin pole structure. The structures would be located within an easement predominantly 45 metres wide to permit construction, maintenance and safe operation of the line. The easement would not be fenced but certain land uses would be restricted or controlled by the Electricity Commission. The final alignment of the line would be determined until after detailed site surveys and discussion with affected landowners. This would take place when and if it is decided to proceed with construction of the line.

Figure 7 is a reduced size sample of one of the four detailed route maps in the EIS showing the nominal alignment of the proposed route.

ENVIRONMENTAL SAFEGUARDS

A number of environmental safeguards have been incorporated into the selection of the preferred route concept and nominal alignment. The line is generally removed from population centres and visual quality has been maintained by avoiding view catchments of towns and villages (a primary constraint), and minimising intrusion into view catchments of rural dwelling clusters, prominent ridgelines, stands of dense vegetation and areas designated as scenic preserves (secondary constraints).

Agricultural impacts have been safeguarded against by avoiding horticultural plantations (a primary constraint) and minimising intrusion into prime quality agricultural land. The ecological significance and value the local community places on native vegetation has also been recognised by excluding all areas of rainforest within the Nightcap Range from consideration of possible route alignments. Remnant stands of rainforest and undisturbed native vegetation (primary constraints) within the study area have also been avoided by the preferred alignment. Intrusion into areas of disturbed native vegetation (a secondary constraint) has been minimised.

Affected landowners will be consulted prior to determination of the final route alignment and landowner requests will be taken into account in the finalisation of the alignment. Design safeguards will ensure the safety of residents adjoining the line and the electric and magnetic fields generated by the line will comply with the recommendations of Australian and overseas Health Authorities. The process of easement acquisition and compensation would be undertaken in such a way as to safeguard the interests of affected landowners. These matters are expanded upon in the EIS.



FIGURE 6 : Typical concrete pole supports for 132kV transmission line.

Other safeguards that have been adopted into the route selection process will ensure the continuation of most current land use activities, minimise the potential for soil erosion and water quality impacts and maintain heritage and archaeological values. Local Government planning has also been considered in the selection of the preferred route alignment, as have local reforestation initiatives.

ENVIRONMENTAL IMPACTS

Construction of the proposed development would result in the following environmental impacts:

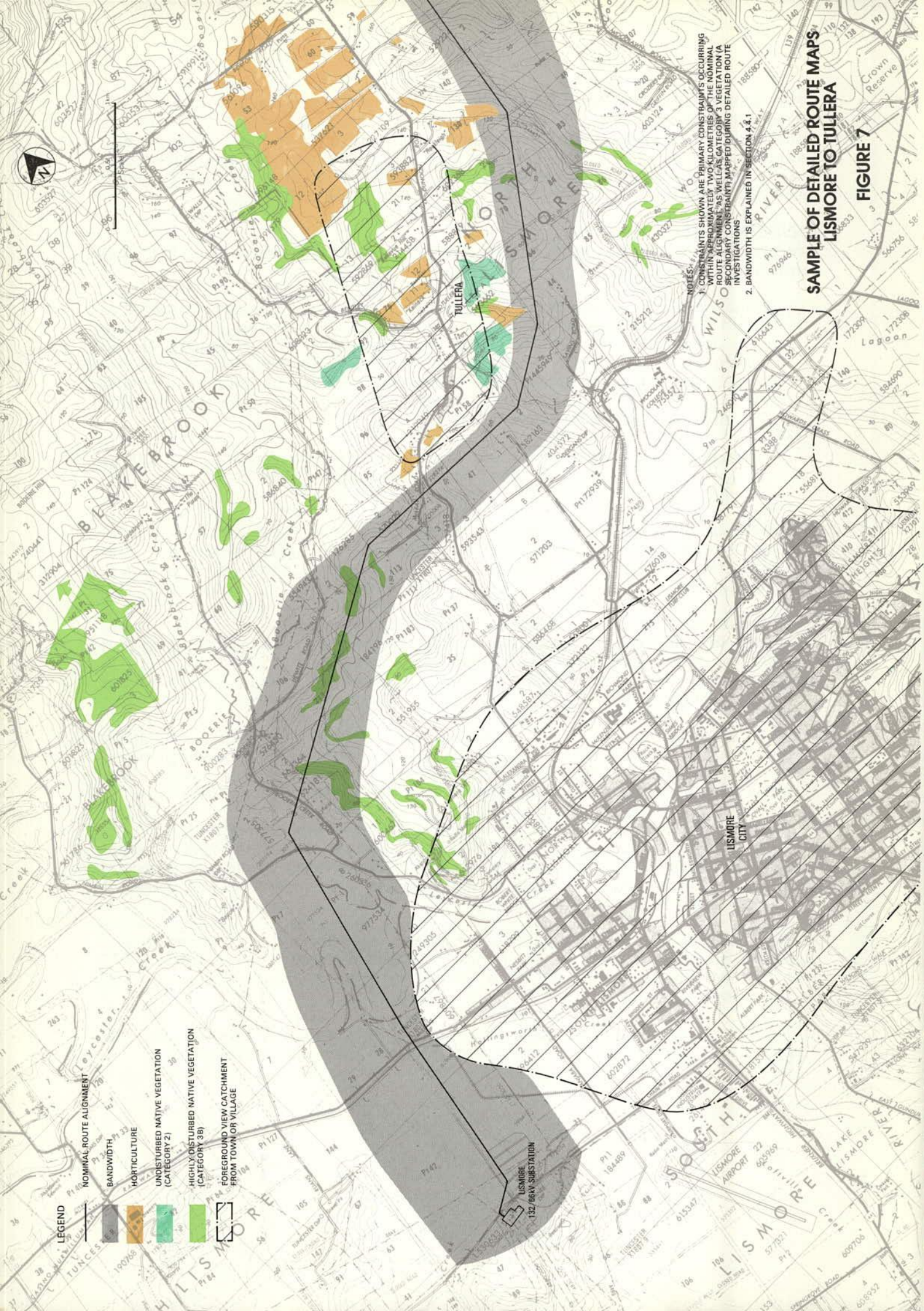
- . Visual Impacts - the line would pass in proximity to residential areas at South Lismore, Tullera, Numulgi, Federal and Goonengerry, and several rural dwelling clusters. A number of ridgelines and areas of dense vegetation would also be crossed. Visual amenity would not be significantly impaired at any of these locations and, bearing in mind the density of rural settlement in the region, and its topography, the impacts are assessed as being acceptable.
- . Agricultural Impacts - the route avoids existing horticultural plantations and construction of the line would not have significant effects on dairying, grazing or cropping activities.
- . Vegetation and Wildlife Impacts - the line has been sited to avoid undisturbed stands of remnant rainforest and to minimise intrusion into disturbed stands. Potential effects on rare and endangered species, riparian vegetation and wildlife conservation would not be significant.
- . Residential Amenity - design and construction safeguards would ensure that the impact on residential amenity would be minimised along the length of the proposed line. While some limitations would be placed on allowable activities within the easement, residential amenity would not be substantially impaired.

Impacts were assessed under a wide range of other categories including flooding, soil erosion, water quality, heritage and archaeology, Council planning initiatives and equity considerations. It was concluded that the impact potential of the proposed development is low in all these categories.

The safeguards incorporated into the planning and construction of the proposed transmission line would ensure that it would minimise adverse environmental impacts in the region. Impacts identified would generally represent marginal changes in the existing situation rather than the introduction of a significant new and inconsistent element.

As discussed in Part A of the EIS, the proposed development is considered best suited to providing for the power needs of the north east corner of the State, and its implementation would have beneficial implications for future growth and development in the region.

In this context, given that the safeguards described in the EIS will be observed, a basis is provided for approval of the proposed development.



ASSESSMENT OF ENVIRONMENTAL IMPACT OF ELECTRICITY TRANSMISSION LINE FROM LISMORE TO MULLUMBIMBY PUBLIC EXHIBITION

It is proposed to construct a 132kV pole transmission line from Lismore Substation to the site of a future substation adjacent to Mullumbimby Power Station.

The proposed transmission line is required to meet the rapidly growing demand for electricity in the Lismore, Ballina and Byron Council areas. The line forms part of a multi-stage program of works and will enable the establishment of a 132kV substation at Mullumbimby in the mid 1990s to provide an adequate and reliable electricity supply well into the future.

An Environmental Impact Statement has been prepared which examines the proposed transmission line and assesses its likely impact on the environment. Alternatives to the proposal have also been considered in the Environmental Impact Statement.

Arrangements have been made for copies of the Environmental Impact Statement to be placed on public exhibition during normal office hours for the period 4 November to 11 December 1987 at the following locations:

Bangalow:	Post Office	SYDNEY:	Electricity Commission of NSW, Ground Floor, Hyde Park Tower, Park and Elizabeth Streets.
Bexhill:	Post Office		Department of Environment and Planning, Ground Floor, Remington Centre, 175 Liverpool Street
Byron Bay:	Council Chambers		NSW Government Information Centre, 55 Hunter Street.
Clunes:	Post Office		NSW Environment Centre, 176 Cumberland Street.
Dunoon:	Post Office		
Eureka:	Post Office		
Federal:	Post Office		
Lismore:	Council Chambers City Library		
Mullumbimby:	Shire Council Library		
Rosebank:	Post Office		
The Channon:	Post Office		

To assist community appreciation of this proposal enquiries are welcomed and in particular, "information centres" have been established during the period of exhibition.

INFORMATION CENTRES

Displays of maps and photos have been established in the Lismore City Library, the Mullumbimby Library and in Sydney on the ground floor of the Hyde Park Tower, Park and Elizabeth Streets. Officers of the Electricity Commission will be available for private consultation by appointment at the Information Centres during the exhibition. Appointments may be made by phoning Tamworth (067) 65 8371 or Sydney (02) 268 6540. Officers may be consulted during normal office hours at the Hyde Park Tower information centre, without appointment.

PURCHASE OF ENVIRONMENTAL IMPACT STATEMENT

During the period of public exhibition copies of the Environmental Impact Statement may be purchased from the Electricity Commission of NSW for fifteen dollars (\$15) as follows:

- by application to the Regional Transmission Engineer, Goonoo Goonoo Road, South Tamworth (PO Box 526, Tamworth 2340);
- by application to the Contracts Superintendent, Shopping Level, Hyde Park Tower, Park and Elizabeth Streets, Sydney (GPO Box 5257, Sydney 2001).

A booklet summarising the Environmental Impact Statement, has also been prepared and is available by application to the two sources listed above.

SUBMISSIONS

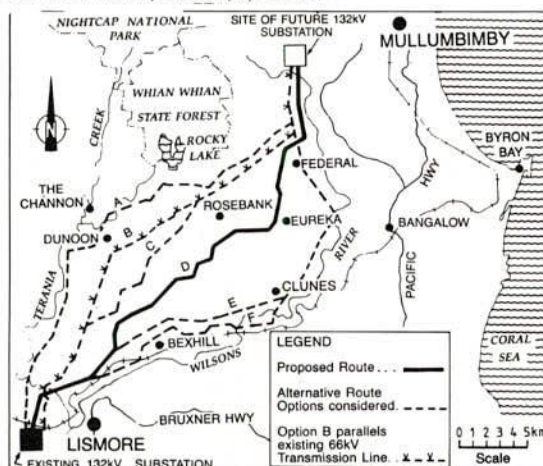
Any person or organisation wishing to make representations with respect to this activity is invited to do so in writing to:

**Chief Manager/Transmission,
Electricity Commission of New South Wales,
GPO Box 5257,
SYDNEY, NSW 2001.**

Representation should be received on or before 11 December, 1987.

The Commission will give consideration to all such representations and forward copies to the Secretary of the Department of Environment and Planning.

Further information is available from the Regional Transmission Engineer, Tamworth (067) 65 8371 or from the Project Officer (02) 268 6540.



**W. P. PRICE,
CHIEF MANAGER/TRANSMISSION.
Electricity Commission of New South Wales**



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