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GOVERNMENT OF FIJI
MINISTRY OF OVERSEAS DEVELOPMENT, LONDON

NAVUA PRE-INVESTMENT STUDY

VOLUME 3
MAPS AND DRAWINGS

DECEMBER 1969

HUNTING TECHNICAL SERVICES LTD.
Land Use & Agricultural Consultants,

SIR M. MACDONALD & PARTNERS.
Consulting Engineers,

**NAVUA PRE-INVESTMENT STUDY
MAPS AND DRAWINGS**

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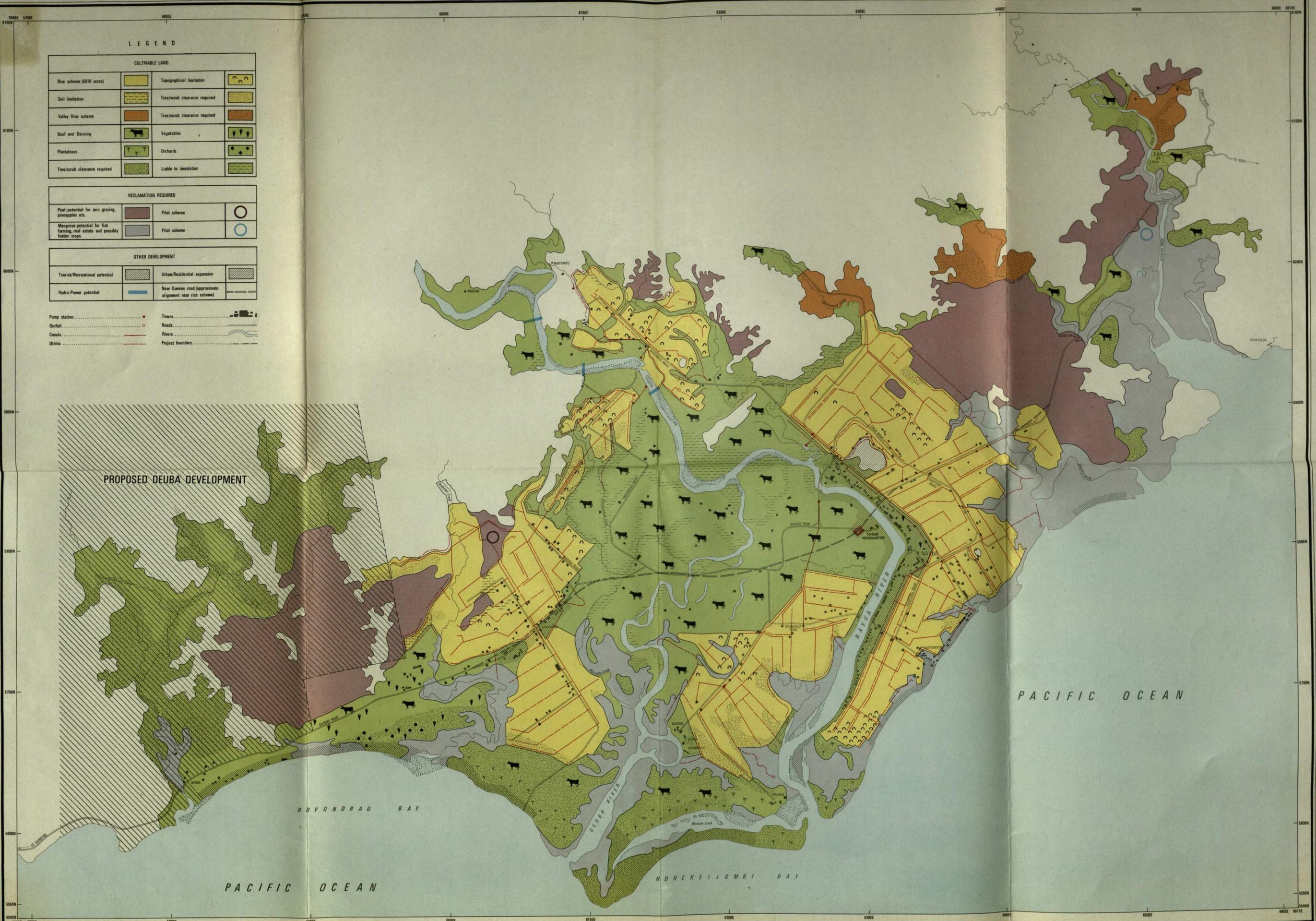
LEGEND

CULTIVABLE LAND			
Rice scheme (5016 acres)		Topographical limitation	
Soil limitation		Tree/scrub clearance required	
Valley Rice scheme		Tree/scrub clearance required	
Beef and Dairying		Vegetables	
Plantations		Orchards	
Tree/scrub clearance required		Liable to inundation	

RECLAMATION REQUIRED			
Peat potential for zero grazing, pineapples etc.		Pilot scheme	
Mangrove potential for fish farming, real estate and possibly fodder crops		Pilot scheme	

OTHER DEVELOPMENT			
Tourist/Recreational potential		Urban/Residential expansion	
Hydro-Power potential		New Queens road (approximate alignment near rice scheme)	

Pump station		Towns	
Outfall		Roads	
Canals		Rivers	
Drains		Project boundary	



PROPOSED DEUBA DEVELOPMENT

PACIFIC OCEAN

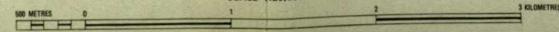
PACIFIC OCEAN

ROVONDRAU BAY

NDREKEILOMBI BAY

NAVUA RIVER

DEUBA RIVER

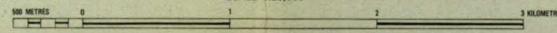


LEGEND

ORIGIN	RECENT ALLUVIUM		GLEYS		SALINE GLEYS	
	WELL	IMPERFECT	POOR	VERY POOR	E.C. < 5 mmbars top 40"	E.C. > 5 mmbars top 40"
Riverine alluvia of intermediate derivation	RW	TM	NA	TK		
	REWA	TAMANGUA	NAVUA	TOKOTOKO		
Alluvia of estuarine derivation				TG	SO	DO
				TOGUNA	SOSO	DOGO
Alluvia of marine coastal derivation	VU	WK	DU			
	VUNIBAU	WAKALOU	DEUBA			
Riverine alluvia overlying estuarine within 40" depth			NT			
			NATUNTONI			

PEAT	DEEP > 40"	SHALLOW < 40"
	underlain by fine textured alluvium	underlain by coarse textured alluvium
Mainly of sedge and reed derivation	ML	RU
	MELMELI	RUKU
		QANISOTA

- SOIL PHASES**
- Fine textured - clay, silty clay, sandy clay, clay loam F
 - Medium textured - sandy clay loam, heavy loam, heavy sandy loam (>15% clay) M
 - Coarse textured - light loam, light sandy loam, loamy sand, sand (<15% clay) C
 - Silty textured - silty clay loam, very fine sandy clay loam, silty loam, very fine sandy loam Z
 - Silty overlying medium textures within 40" depth Z
 - Silty overlying coarse textures within 40" depth Z
 - Medium textured overlying coarse textures within 40" depth Z
 - Peat < 20" deep 1
 - Peat 20 - 40" deep 2
 - Hills H
 - Standing water W
- Series boundary**
Phase boundary
 Sampled auger sites OR138
 Sampled pit sites OR001
 Permeability measurements CP
 Infiltration measurements IF
- Towns**
Roads
Rivers
Project boundary



LEGEND

GENERAL CAPABILITY		
CLASS	DEFINITION	MAPPING SYMBOL
I	Land suitable for a wide range of climatically adapted crops; moderate limitations	I
II	Land suitable for a narrow range of climatically adapted crops; severe limitations	II
IV	Marginally cultivable due to severe limitations restricting the range of climatically adapted crops	IV
V	Non cultivable in light of present knowledge; further investigation required	V
VI	Non-cultivable; may have value for grazing, fishing or real estate	VI

IRRIGATION CAPABILITY		
CLASS	DEFINITION	MAPPING SYMBOL
I	Suitable for irrigation; adapted to wide range of climatically suitable crops	I
II	Marginally suitable for irrigation due to severe limitations restricting the range of climatically adapted crops	II
IV	Land suitable for irrigation only for specific high value crops and capable of meeting high development and/or farming costs	IV
V	Lands not recommended for irrigation at present; further investigation required	V
VI	Lands that do not warrant irrigation	VI

Note: In annotations, general capability given first.

- SUB-CLASSES**
- Restriction due to adverse soil conditions s
 - Restriction due to adverse topography t
 - Restriction due to adverse drainage d
 - Restriction due to severe and frequent flooding l
- SPECIAL USE SUB-CLASSES**
- Fruit f
 - Vegetables v
 - Pasture p
 - Rice r
 - Hills h
 - Standing water w
- Towns [Symbol]
- Roads [Symbol]
- Rivers [Symbol]
- Project boundary [Symbol]

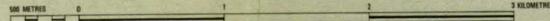


LEGEND

DESCRIPTION	MAPPING SYMBOL
Wet land padi	P
Dry land padi	Hatched P
Good quality grazing - good pasture maintenance	G
Poor quality grazing - poor pasture maintenance	Hatched G
Rough grazing	RG
Vegetables and fodder	V+F
Vegetables	V
Coconut plantation	C
Citrus plantation	D
Abandoned rubber plantation	AR
Mangrove and associated salt tolerant species	M
Dense trees and scrub	T
Open Scrub	Hatched T
Residential	RD
Tourist Development	TR

- Hills H
- Standing water W
- Towns [Symbol]
- Roads [Symbol]
- Rivers [Symbol]
- Project boundary [Symbol]

PRESENT LAND USE MAP (1988)



LEGEND

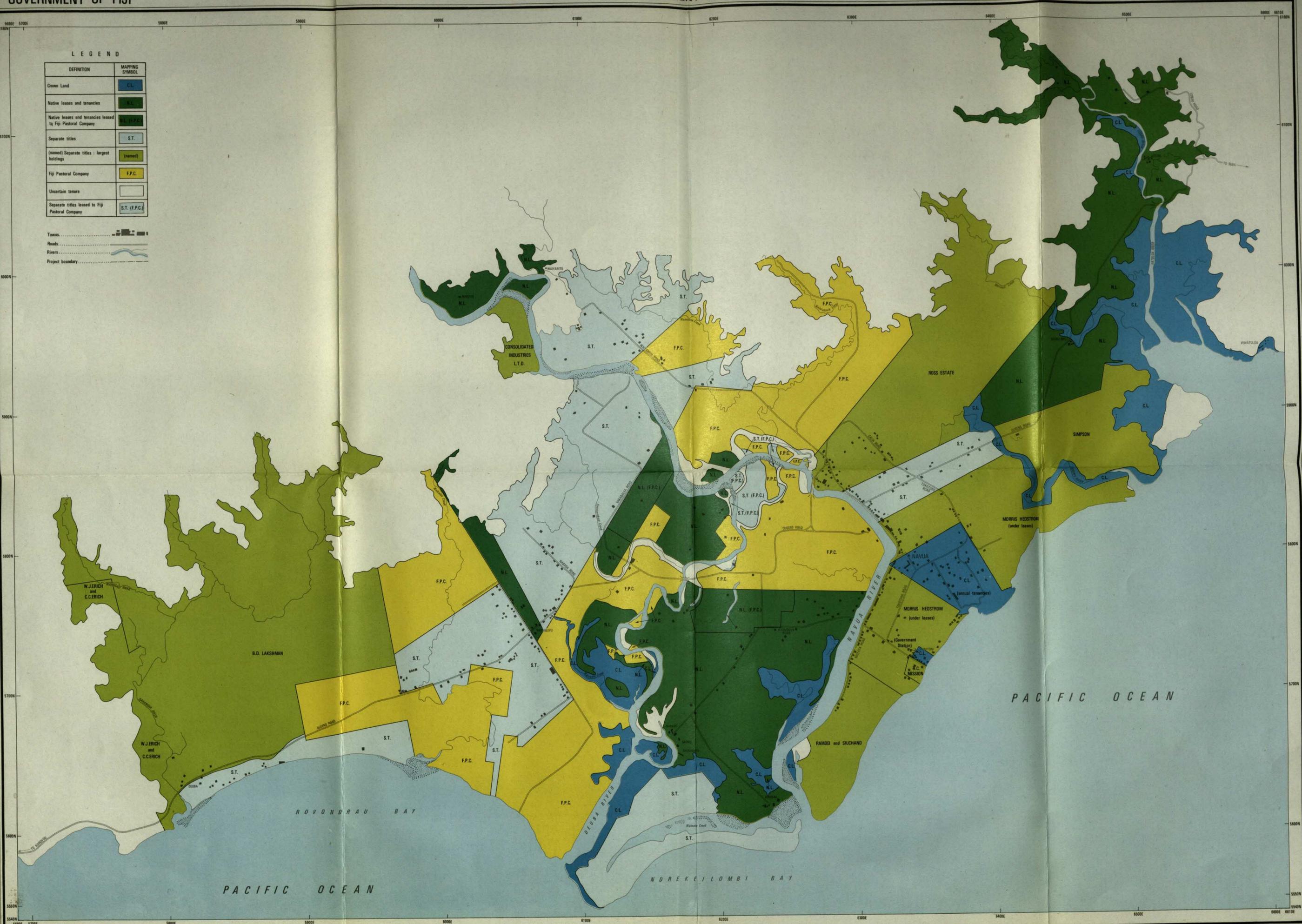
DEFINITION	MAPPING SYMBOL
Down Land	CL
Native leases and tenancies	N.L.
Native leases and tenancies leased to Fiji Pastoral Company	N.L. (F.P.C.)
Separate titles	S.T.
(named) Separate titles : largest holdings	(named)
Fiji Pastoral Company	F.P.C.
Uncertain tenure	
Separate titles leased to Fiji Pastoral Company	S.T. (F.P.C.)

Towns.....

Roads.....

Rivers.....

Project boundary.....



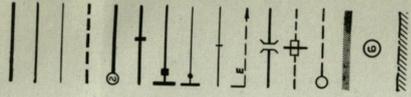
DESIGNED	<i>P. Chackravarty</i>
CHECKED	J. I. M. DEMBSTER
APPROVED	<i>I. S. G. Mathur</i> , 11/13/64



L E G E N D

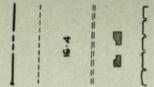
New Works

- Main Canal
- Distributary Canal
- Lateral
- Drain
- Pump Station
- Main Canal Cross Regulator
- Distributary Head Regulator
- Lateral Head Regulator
- Lateral Check
- Lateral Escape
- Culvert
- Underpass
- Outfall Structure
- Rotation Unit Boundary
- Rotation Unit Number
- Boundary of Irrigated Area



Existing Features

- Proposed Alignment of New Queen's Road
- Contour in metres
- Spot Height in feet
- Existing Road
- Buildings
- Boundary of High Land



SCALE
 FT. 1000 0 1000 2000 3000 FT.

MINISTRY OF NATURAL RESOURCES — GOVT. OF FIJI
 MINISTRY OF OVERSEAS DEVELOPMENT — GOVT. OF UNITED KINGDOM

NAVUA PRE-INVESTMENT STUDY

**PROPOSED IRRIGATION AND DRAINAGE SYSTEM LAYOUT
 EASTERN AND CENTRAL AREAS**

SCALE
 AS SHOWN

SERIAL No.

PRINTED NOVEMBER 1969

COMPILED SIR M. MACDONALD & PARTNERS
 & PARTNERS

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 LAND USE AND AGRICULTURAL CONSULTANTS
 6, ELSTREE WAY, BOREHAM WOOD,
 HERTS ENGLAND
 SIR M. MACDONALD & PARTNERS
 CONSULTING ENGINEERS
 HANOVER HOUSE, 73 HIGH HOLBORN,
 LONDON, W.C.1.

DESIGNED	G. Nickalls
CHECKED	J. M. DEMPSTER
APPROVED	<i>159 M. S. [Signature]</i>



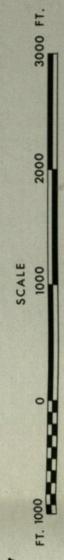
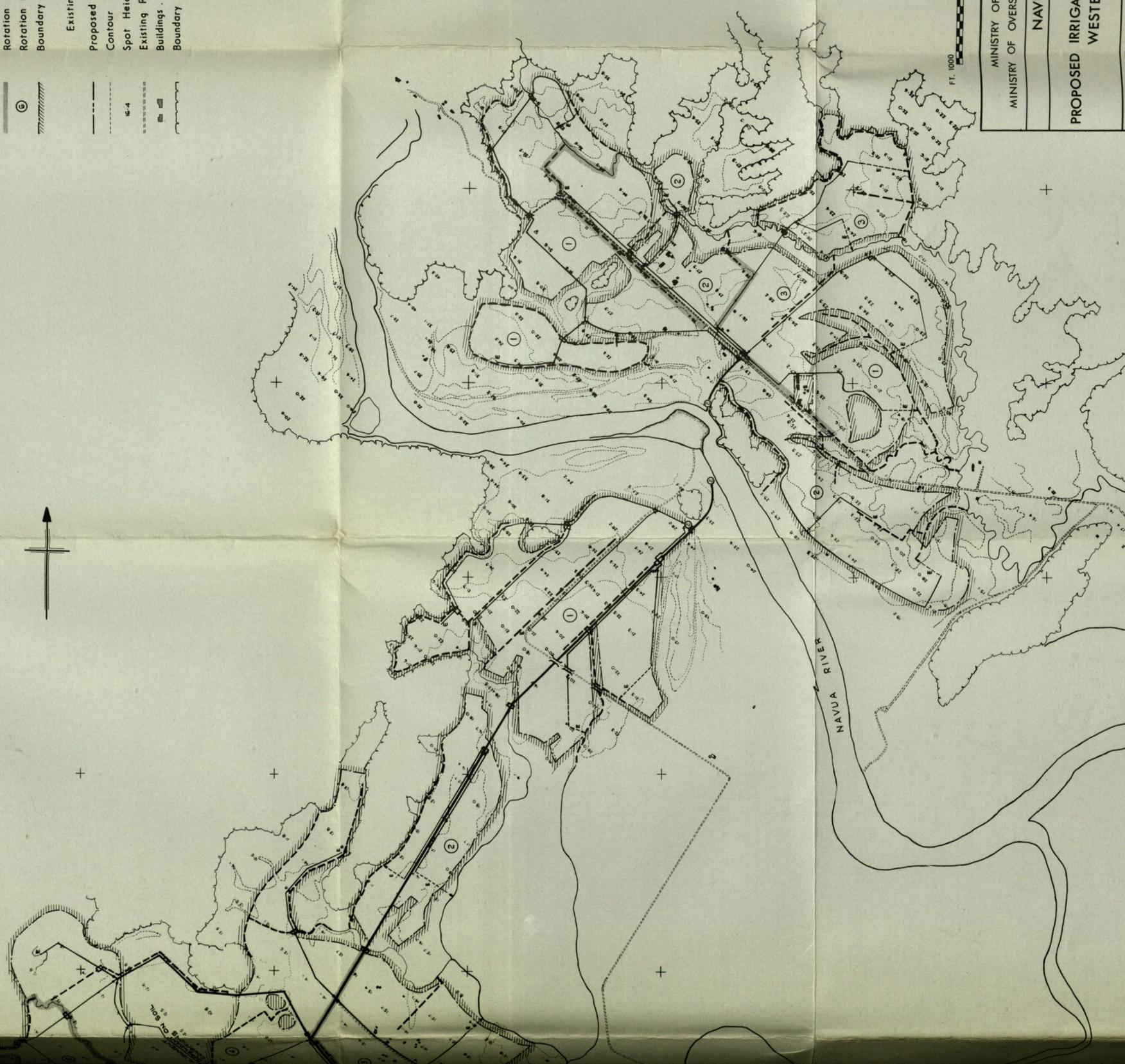
L E G E N D

New Works

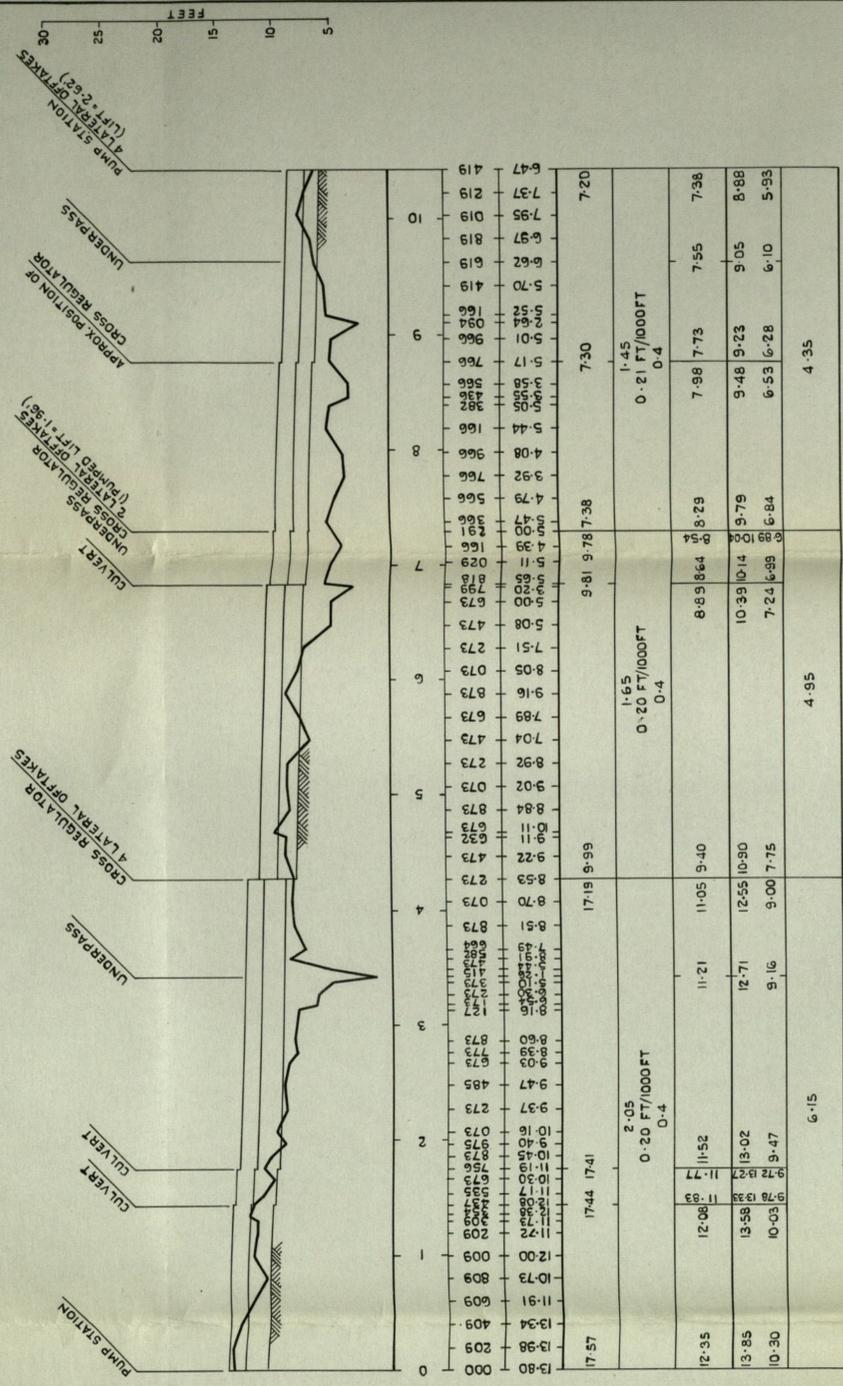
- Main Canal.
- - - Distributory Canal.
- - - Lateral.
- Drain.
- ⊙ Pump Station.
- Main Canal Cross Regulator.
- - - Distributory Head Regulator.
- - - Lateral Head Regulator.
- - - Lateral Check.
- - - Lateral Escape.
- - - Culvert.
- - - Underpass.
- Outfall Structure.
- - - Rotation Unit Boundary.
- ① Rotation Unit Number.
- ▨ Boundary of Irrigated Area.

Existing Features

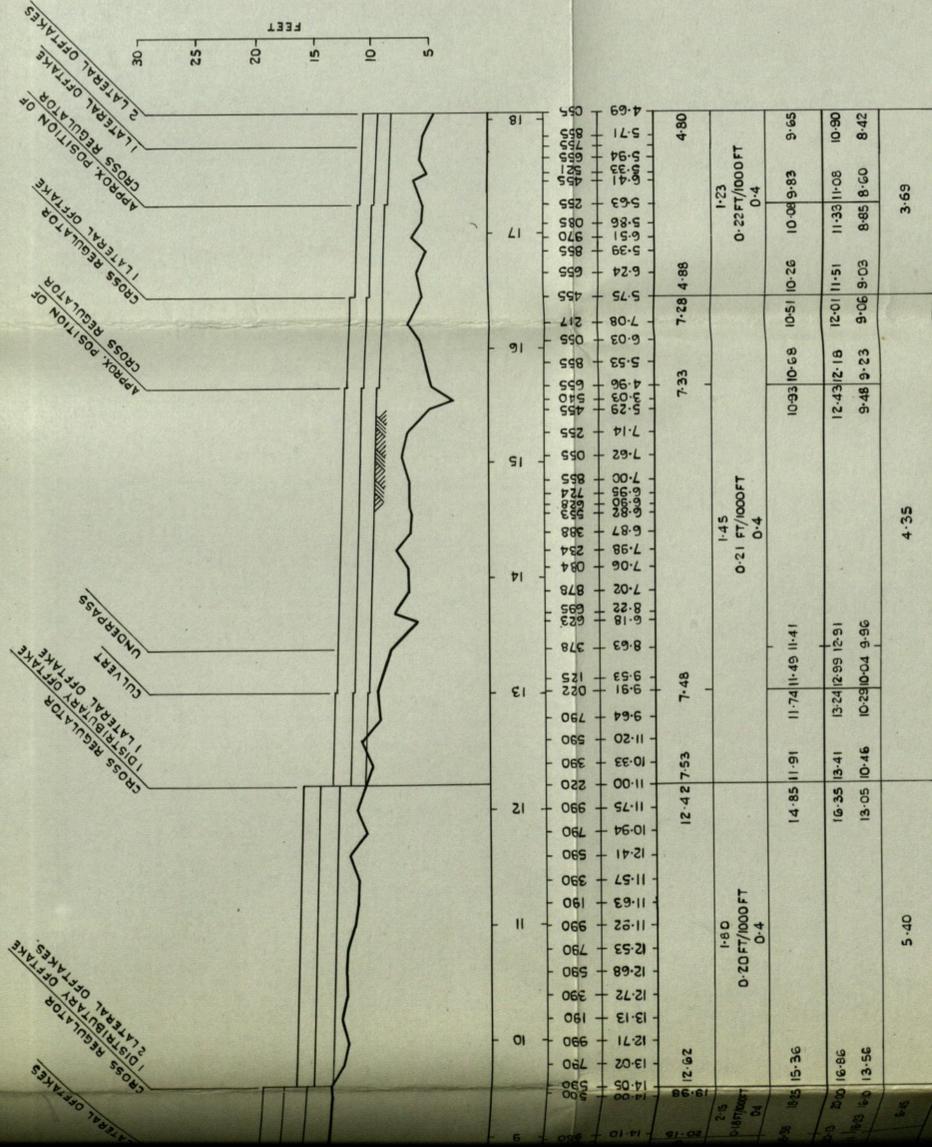
- - - Proposed Alignment of New Queen's Road.
- - - Contour in metres.
- - - Spot Height in feet.
- - - Existing Road.
- ▣ Buildings.
- - - Boundary of High Land.



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PROPOSED IRRIGATION AND DRAINAGE SYSTEM LAYOUT WESTERN AND NORTHERN AREAS	
SCALE AS SHOWN	
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CENTRAL CANAL



NOTATION
 D = DESIGN WATER DEPTH (DESIGN DISCHARGE)
 S_w = WATER SURFACE SLOPE
 f = SILT FACTOR (LACEY)
 B = BED WIDTH

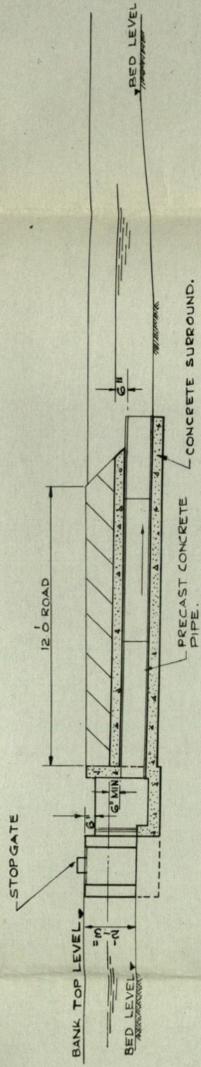
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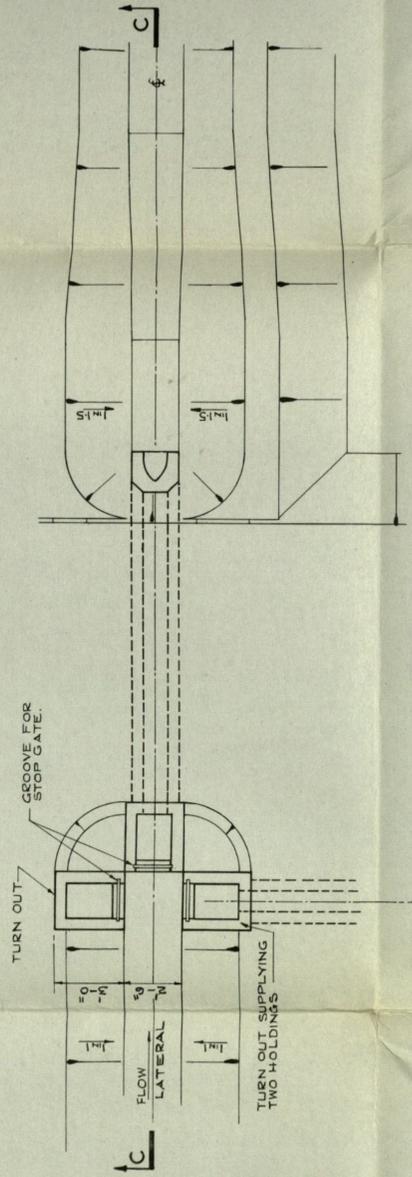
PROVISIONAL LONGITUDINAL SECTIONS OF
 PROPOSED MAIN CANALS

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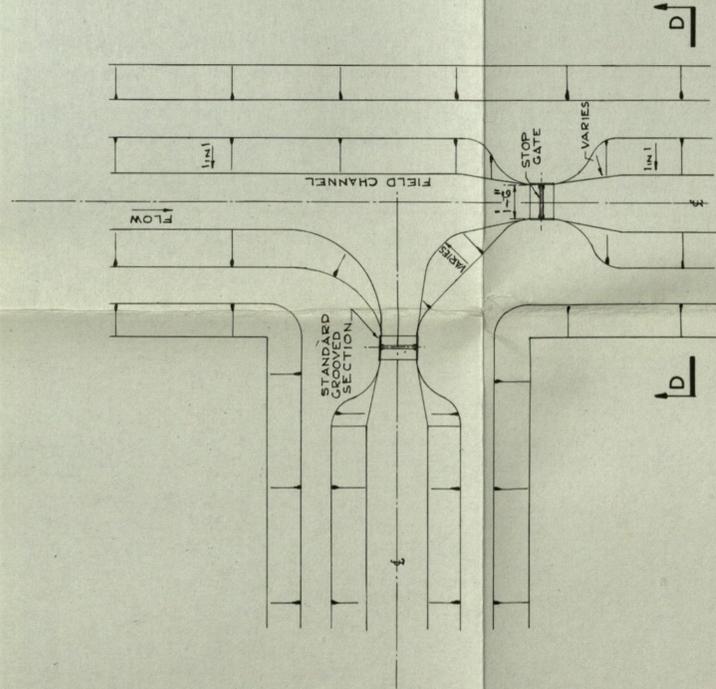


SECTION C-C



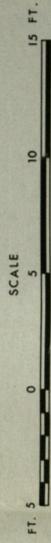
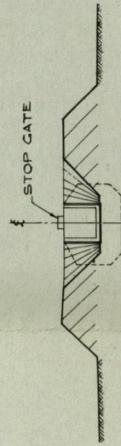
PLAN

LATERAL CHECK AND TURN OUTS



PLAN

SECTION D-D
FIELD CHANNEL DIVISION
(FOR TURNOUT SUPPLYING TWO HOLDINGS)



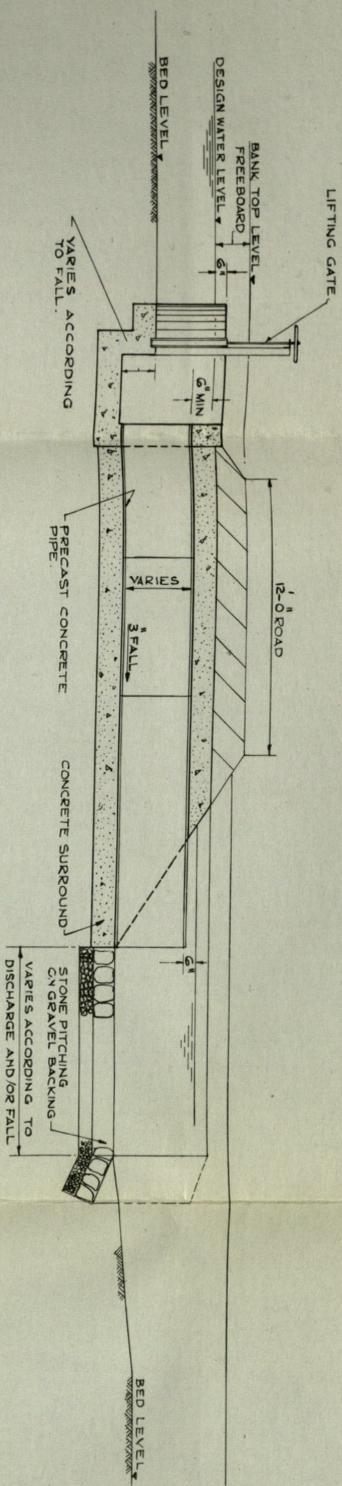
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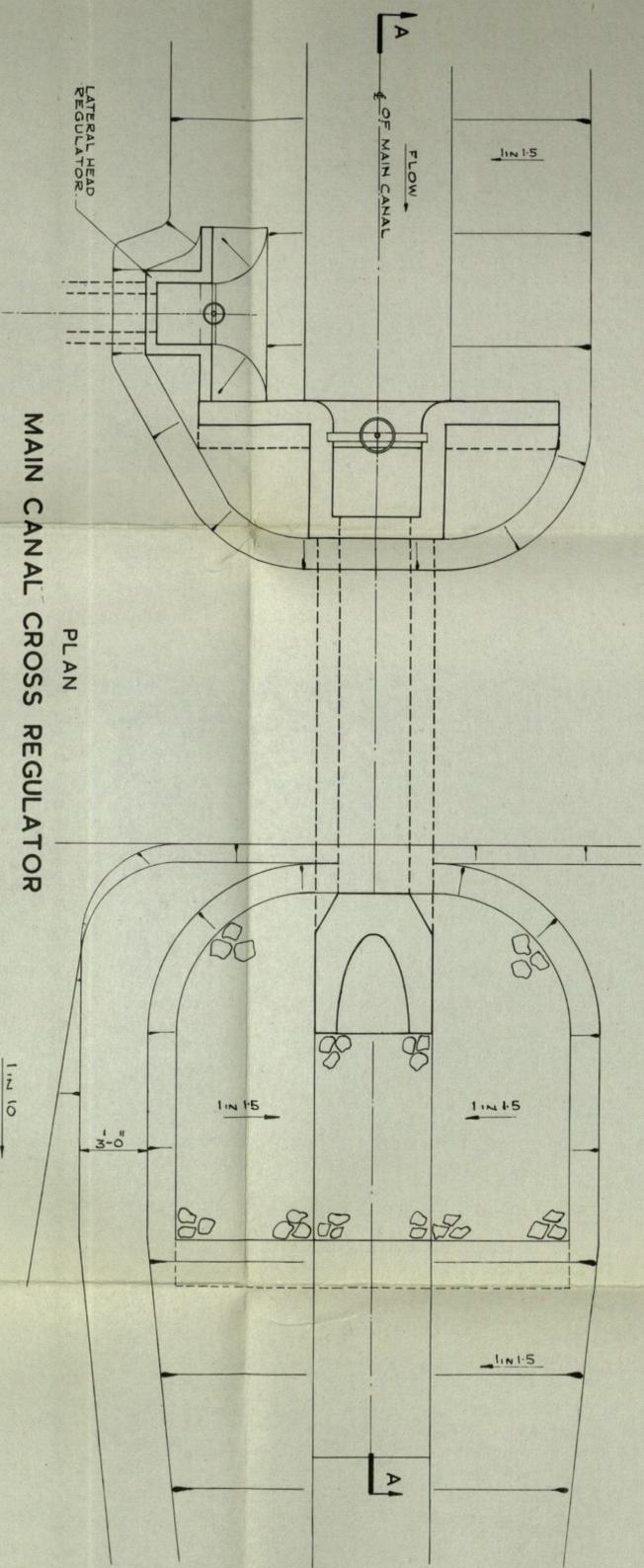
TYPICAL PROPOSED CANAL STRUCTURES

SCALE
AS SHOWN

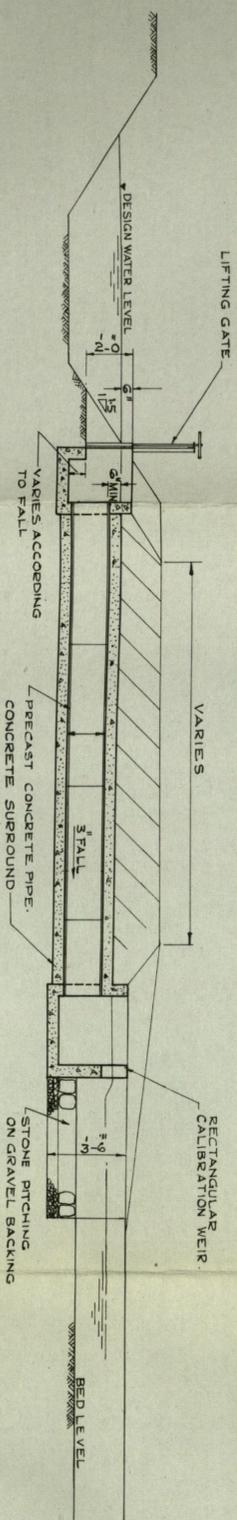
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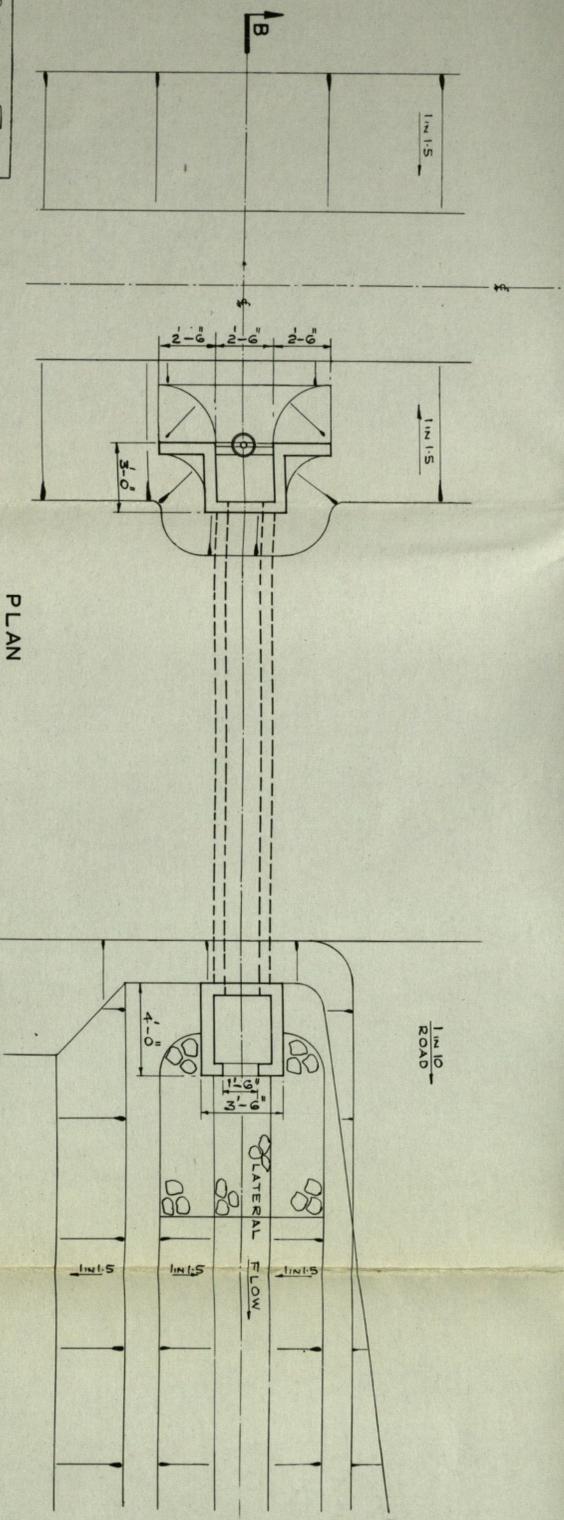
SECTION A-A



MAIN CANAL CROSS REGULATOR



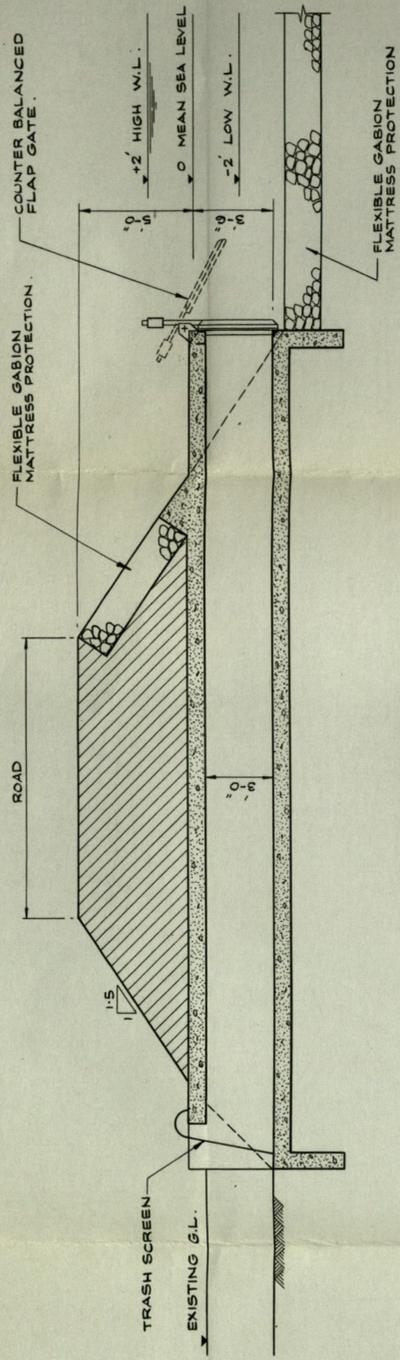
SECTION B-B



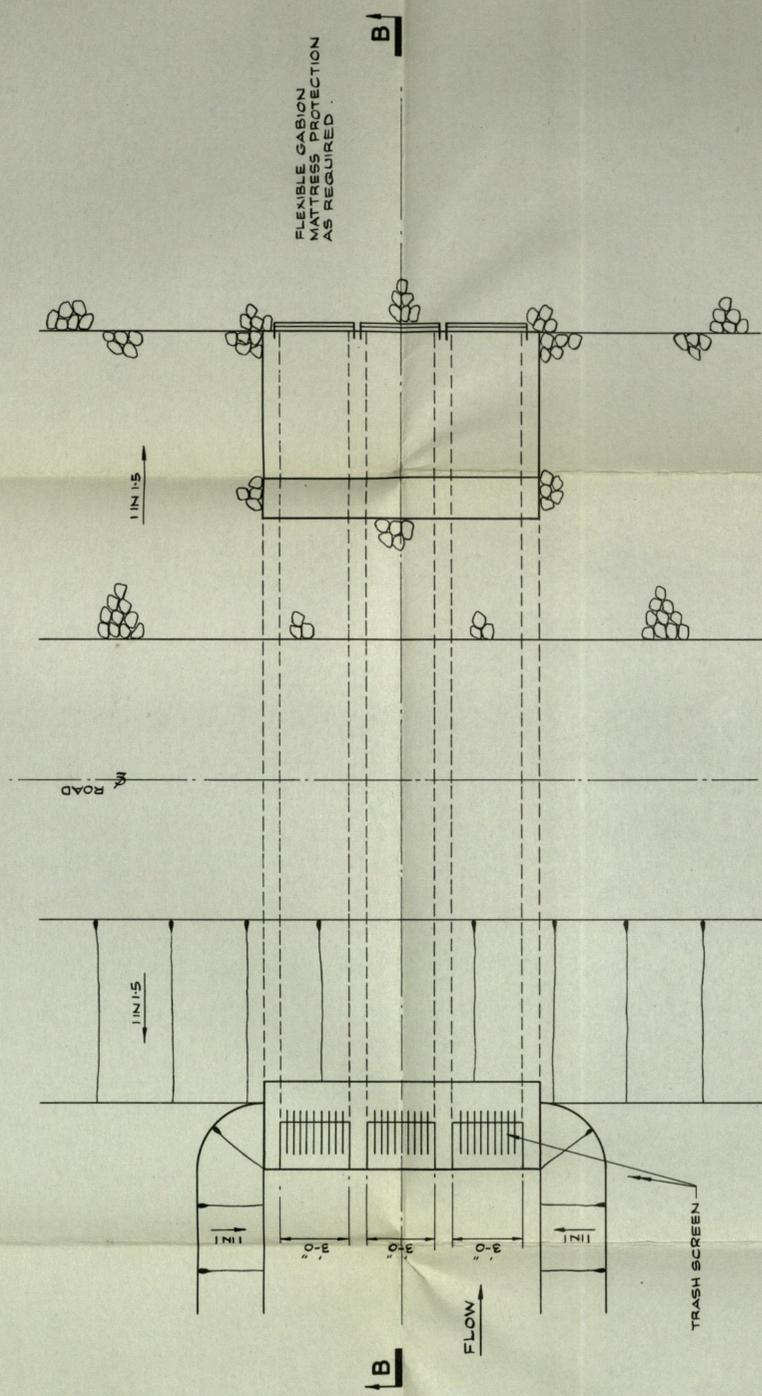
LATERAL HEAD REGULATOR

DESIGNED	P. Chatterjee
CHECKED	J. M. Dempster
APPROVED	I. S. G. M. S. (11/12/64)

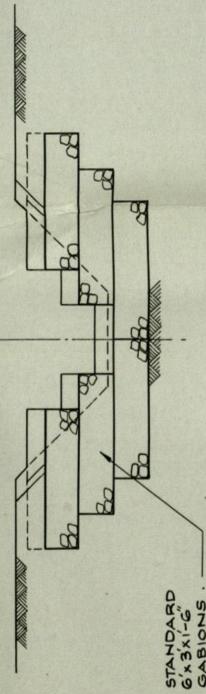
FIELD FOR TURN



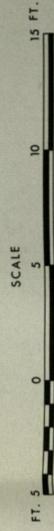
SECTION B-B



PLAN
FLAP GATE STRUCTURE



SECTION D-D



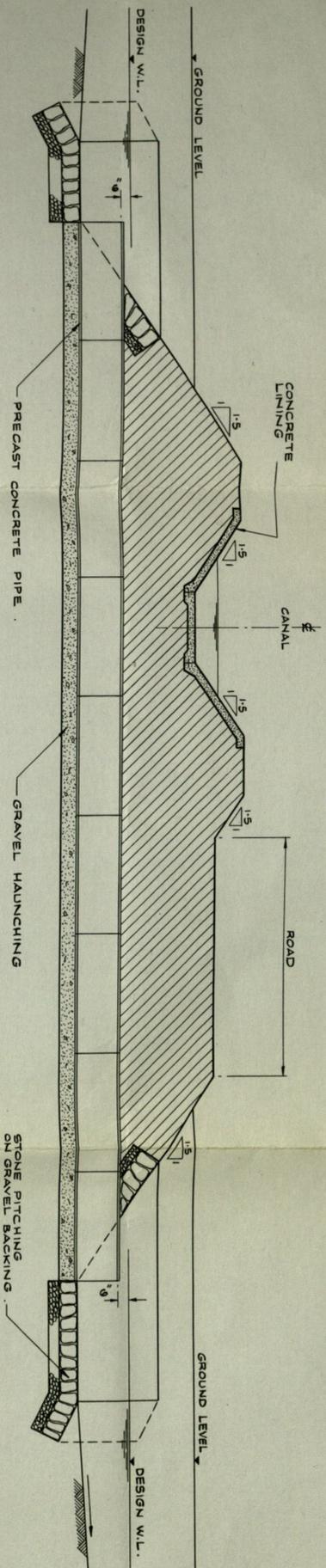
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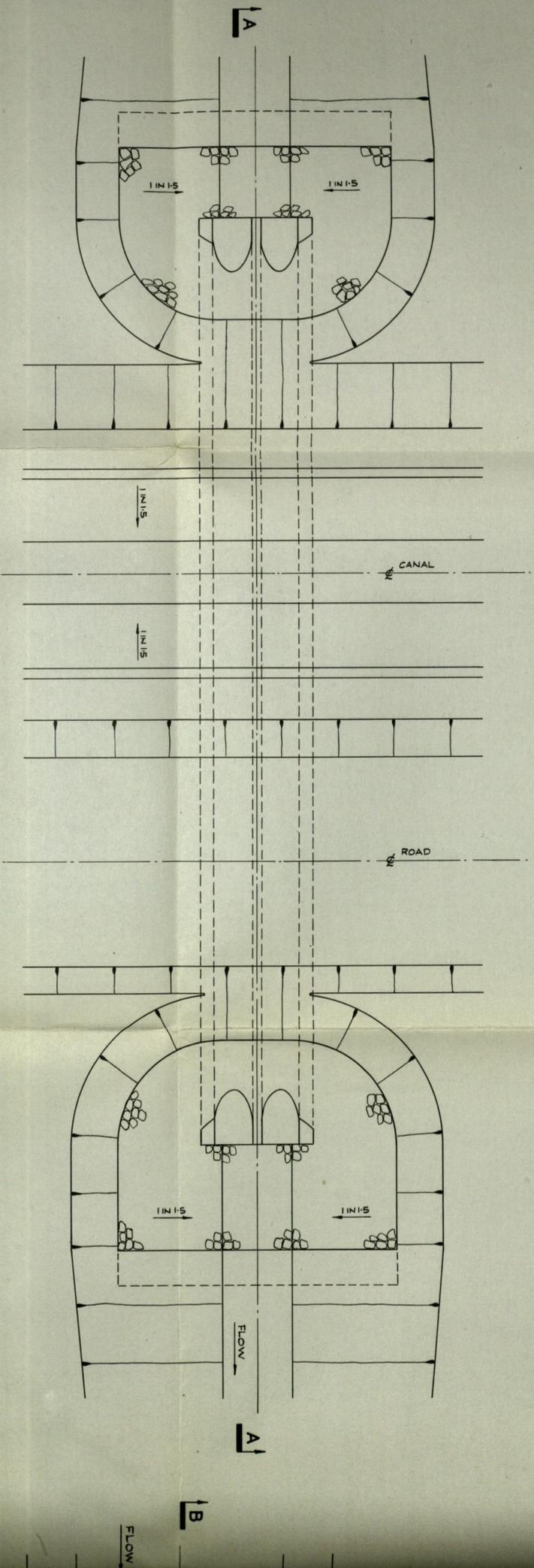
TYPICAL PROPOSED DRAIN STRUCTURES

SCALE
AS SHOWN

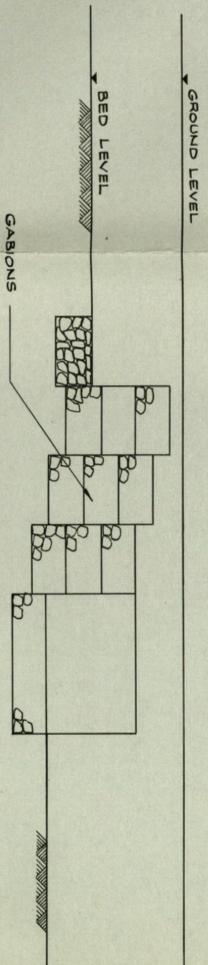
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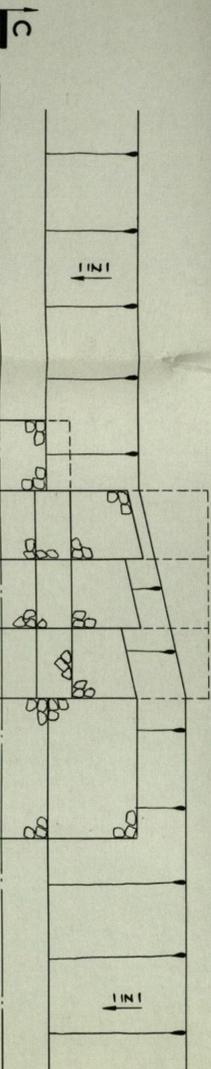
SECTION A-A



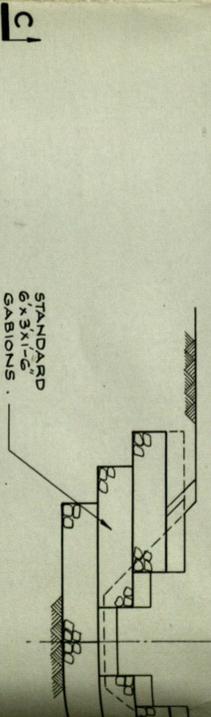
PLAN DRAIN UNDERPASS / CULVERT



SECTION C-C



PLAN GABION DRAIN FALL



SECTION D-D

DESIGNED	P. Mackenzie
CHECKED	J.L.M. DEMPSTER
APPROVED	I.S.G. MacMillan 11.12.68

DESIGNED	J. E. J. Remondy
CHECKED	J. I. M. Dempster
APPROVED	(Signature) 11.12.04

