UK Nirex Ltd

DOWNGRADED TO
UNCLASSIFIED
WITH EFFECT FROM
10th JUNE 2005

DEEP REPOSITORY PROJECT

Site Selection

Planning & Non-nuclear Environmental Appraisal

Pieda
Planning, Economic and Development Consultants

COPY No..7... OF 16

[redacted]

DOWNGRADED TO NO PROTECTIVE MARKING BY ROY MILLARD, NIREX ON 31 JAN 05

UK NIREX LTD

DEEP REPOSITORY PROJECT

SITE SELECTION

Planning & Non-Nuclear Environmental Appraisal

Draft Report
December 1988

Appendices

Pieda
Planning, Economic and Development Consultants

10 Chester Street
EDINBURGH
EH3 7RA

Tel: 031-225 5737
Fax: 031-225 5196

52 Queens Road,
READING,
RG1 4AU

Tel: 0734 500157
Fax: 0734 503759

CONTENTS

		Page
	PREFACE	
APPENDIX 1	ALTNABREAC	1.1
APPENDIX 2	BRADWELL	2.1
APPENDIX 3	DOUNREAY	3.1
APPENDIX 4	FUDAY	4.1
APPENDIX 5	KILLINGHOLME	5.1
APPENDIX 6	POTTON ISLAND	6.1
APPENDIX 7	SANDRAY	7.1
APPENDIX 8	SELLAFIELD A & B	8.1
APPENDIX 9	STANFORD	9.1
APPENDIX 10	OFFSHORE WEST & EAST	10.1

Pieda

Preface

This volume of Appendices contains the background information and maps for the potential repository sites subject to the evaluation using the multi-attribute decision analysis.

The information has been gathered from published sources (e.g. local and structure plans), with no discussion between the consultants and local authorities or government agencies. As many of the details for the development have not been decided at this stage, assumptions were made regarding location, scale, transport etc. The evaluation has been made on the basis of these assumptions and the available data.

Each Appendix contains information and comment on the site characteristics, development proposals, community, local economy and natural environment around the land-based repository sites and the ports allocated for the offshore sites. The sites and ports considered are:

Altnabreac
Bradwell
Dounreay
Fuday
Killingholme
Potton Island
Sandray
Sellafield A & B
Stanford
Offshore West: Hunterston
Offshore East: Redcar/Teesmouth

APPENDIX 1

Altnabreac

CONTENTS

SECTION		Page
1.0	SITE CHARACTERISTICS	1.1
2.0	DEVELOPMENT PROPOSALS	1.2
3.0	COMMUNITY	1.3
4.0	LOCAL ECONOMY	1.5
5.0	NATURAL ENVIRONMENT	1.8

Following Text:

- 1:250,000 Location Map
- 1: 50,000 map with overlays showing
  - development proposals
  - designated areas and planning policy areas
- 1:100,000 map of population statistical areas
- 1: 50,000 map showing location of cross section and photographs
- cross section diagram
- photographs

Pieda

1.0 SITE CHARACTERISTICS

Location: **Highland Region**
Caithness District
Size: **1,620 hectares (4,000 acres)**
Ownership: **Private**
Land Use: **Peat bog and forestry (in "flow country")**
Topography: **flat/gently undulating**
Grid Reference: **ND 0650**

1.1 The potential repository site near Altnabreac is situated in a remote part of Caithness some distance from any road or settlement but near the railway line (see maps). Most of the land is on blanket peat bog, with the numerous small lochans characteristic of the "flow country".

1.2 Some of the land in the area has been planted with trees, either by private companies or the Forestry Commission. The Commission owns an area of land - Braehour - just east of the potential site and land - Carn Nam Muc - east of Loch More. The latter, which is 5km from the site, had a planting application blocked in June 1988 by the Secretary of State for Scotland on nature conservation grounds.

1.3 The B870 road from Westerdale to the A895 at Mybster is single track with passing places. From Mybster, it is approximately 20km south to the A9(T) at Latheron.

1.4 The site is adjacent to the single track Highland rail line from Inverness to Thurso and Wick. About 14km up the line is Georgemas Junction, from where single track lines go to Thurso and Wick. Scotscalder station is some 7km up the line from the site.

1.5 The nearest harbour facilities are at Scrabster and Wick. Both these are limited in extent and subject to restricted access by weather conditions. Both are fishing ports. Scrabster is the terminal for the Caledonian MacBrayne ferry to Stromness, in Orkney.

2.0 DEVELOPMENT PROPOSALS

Assumptions

Land Take:	**60ha surface workings** **43ha road link**
Infrastructure:	**new 8.5km road link** **3.5km road upgraded** **rail spur and passing loops**
Waste Transport:	**rail - 497 trains pa**
Spoil Disposal:	**1m tonne on site** **12.9m te over 50 years - rail to central Scotland (approx 300 trains pa)**

2.1 The surface workings have been located adjacent to the rail line and south of Lochan Dubh a'Chracairnie (see 1:50,000 map and red overlay).

2.2 A short rail spur would link the site to the Highland rail line. A new road access would be needed. The route identified by JMP Consultants lies to the east; bypassing Westerdale and linking with the B870, upgraded to its junction with the A895 at Mybster.

2.3 Construction materials and some transport of the workforce is likely to be by rail, with the remainder by road. JMP estimate 300 vehicles per day. Waste delivery and spoil removal would be by rail - amounting to about 2 trains per day.

2.4 The estimated annual labour requirements are:

Construction:	310 (9 years)
Operation:	330 (50 years)
De-commissioning:	50 (8 years)

3.0 COMMUNITY

Dwellings within 2km of site centre: None
Estimated population within 9km of site centre: 200
Estimated population density within 9km: 0.01 ppha
District population density: 0.15 ppha (1981)

Settlements	Approx Population
7km to Westerdale	30 (estimate)
11km to Halkirk	880
18km to Thurso	8830

3.1 Based on the 1981 census resident population by civil parish, the population within 9km of the site centre was estimated. As the map shows, there are few settlements within 9km. The estimate was calculated as follows:

Parish	Resident Population Total	Estimated within 9km
Halkirk	1866	150
Reay	655	20
		170
		(rounded to 200)

3.2 The West Caithness Local Plan (adopted in 1987) states that the population (at the 1981 Census) in the Halkirk -Altnabreac area (including Halkirk, Roadside, Spittal, Westerdale and Altnabreac) was just under 1,600. The nearest dwellings to the site are Strathmore Lodge (4.5km to the south east) and at Dorrery (4.5km to the north).

3.3 Halkirk is the local service centre, with shops, school, hotels and some light industry. There has been a recent upsurge in residential development, which the Regional Council attribute to "ready availability of serviced land and demand displaced from Thurso" (Local Plan). There are still a number of areas within Halkirk which have consent for housing development but the Council does not expect growth to be at the same level as in recent years. To-date the pattern of development has been somewhat haphazard and the Local Plan aims to impose greater control "to safeguard future opportunities and enhance amenity".

3.4 The communities around Westerdale, Mybster and Olgrinmore comprise a few houses close together and a scattering of houses and farmsteads.

3.5 Thurso, 18km from the potential site, is the main centre for the area. It has a secondary school and technical college, hospital, swimming pool, sports centre, council offices, library, job centre and shopping centre. The technical college has training links with the Dounreay Nuclear Establishment.

Disturbance from Development

3.6 The repository surface works would be visible from the north (Dorrery) and north east (Braehour, Olgrinbeg) but not from Westerdale, which is lower-lying behind Achlibster Hill. Both visual and noise impacts will be likely but the dwellings in question are several kilometres away (see cross sections and photographs).

3.7 The proposed road access will have a greater impact on the community around Westerdale. Visual, noise and severance impacts are likely to affect the village. JMP estimate some 300 vehicles per day, one third using the B870 to the north and the rest using the A895. On the latter, this implies a 20% increase in traffic.

3.8 From present information, neither the repository nor road access appear to affect any archaeological sites.

Local Nuclear Experience

3.9 The community near Altnabreac has some experience of the nuclear industry from the Dounreay Establishment, which dominates the Caithness economy and thereby influences the local community.

4.0 ECONOMY

Travel to Work Area (TTWA): Thurso
Unemployment (in TTWA): 11.6% 803 people
Employment in Manufacturing sector (in Highland Region): 11,930
Economy: local - based on primary industries
area - dominated by Dounreay

4.1 The local economy in the Halkirk-Altnabreac part of Caithness is based on the primary sector. Agriculture, forestry, peat working and quarrying are the main sources of local employment, although there is some manufacturing in Halkirk. In recent years large-scale forestry planting has taken place in the area, often on land previously used for sporting purposes.

4.2 The Macaulay Institute Land Capability for Agriculture (LCA) classification puts the land around Altnabreac in class 6.3 - the lowest category, where land has severe limitations on agricultural production and is usually compromised of blanket bog or other such terrain.

4.3 The land on and around the potential site is identified in the West Caithness Local Plan as an area of high quality peat deposits. The Regional Council considers the peat reserves in West Caithness to be of national importance, with technological advances in extraction and utilisation making the potential as a fuel source even greater. The Local Plan policy (para 2.26) states:

> "The Council will seek to ensure that high quality peat deposits in the area are not sterilised by inappropriate development".

4.4 Three categories of reserves are delineated, with Category 1 being "Deposits with a strong presumption against land use change/conservation designation". Dale Moss (near Westerdale) and East Altnabreac are Category 1 areas and specifically mentioned as "core areas to be vigorously safeguarded" (see 1:50,000 map overlay).

4.5 The Local Plan states that "some 990 and 1709ha of land at Lochdhu and Altnabreac have been cleared for private commercial forestry" (para 5.7). This includes the land east of the repository site over which the proposed access road is routed. In view of the recent changes in tax allowances and increased attention to nature conservation issues in the "flow country" the land given over to forestry is unlikely to rise at the rapid rate of the past decade.

4.6 There are limited sand and gravel reserves remaining at Dirlot and Knockdoo. Working has been unauthorised and haphazard but the Council plan to regularise the working and issue temporary consents subject to appropriate reinstatement measures.

4.7 In the wider area, the economy is dominated by the Dounreay Nuclear Establishment, with its workforce of some 2,100 (about 20% of employment in Caithness). Dounreay accounts for the high proportion (over 40%) of employment being in the professional and related services. Distribution, manufacturing and construction make up another 40%, with HMS Vulcan, adjacent to Dounreay, being one of the largest employment sources in manufacturing.

4.8 In July 1988 the Government announced a withdrawal of funding for the research programme at Dounreay. It is expected that employment will fall, as a result, to about 1,600 by the mid-1990's and to 500 by 1998. This substantial job loss will have a marked impact on both economy and community in the area.

Local Economic Benefit

4.9 From the level of information available, the Caithness area would be able to make some contribution towards the workforce required at a repository, particularly during operation with the possibility of recruiting local staff with experience in the nuclear industry.

4.10 The run down at Dounreay will mean that unemployment levels will rise. Depending on the skill levels present (and required), a workforce with appropriate knowledge and experience should be available. In an area where there are few other opportunities for employment, the local economic benefit could be significant.

Blight

4.11 The land around Altnabreac and the potential repository site is peat moorland, at present used for some forestry but predominantly very low intensity use - game shooting and/or grazing land with a poor carrying capacity. There is fishing in some of the lochs (eg Loch More) and the River Thurso.

4.12 The upper reaches of the River Thurso have been identified in the Local Plan as being a potential location for a salmon smolt production unit on the basis of the quality of the water. The repository surface works site drains to a tributary of the River Thurso and the land crossed by the proposed road access also drains to the River Thurso. Some blight effect is therefore possible.

Resource Sterilisation

4.13 A repository development could sterilise the high quality peat deposits but, alternatively, excavation could easily be promoted as part of the site preparations or at least permitted on land not directly used by the repository workings.

4.14 The land take for the road access will also involve removal of some peat deposits (particularly crossing the edge of Dale Moss, near Westerdale). The access is routed across land expected (in the Local Plan) to be used for commercial forestry.

5.0 NATURAL ENVIRONMENT

Designations: **Proposed AGLV at Dirlot Gorge (6km SE)**
NNR - Blar Nam Faoileog (6.5km SE)
SSSI - Dirlot Gorge (6km SE)
- Bad Nam Bo (1km)
- Lambsdale Leans (2.5km N)
- Ben Dorrery (3.5km N)
- Loch Olginery (7.5km NE)
- Blar Geal (4km E)

(distance from repository site; see 1:50,000 map overlay)

5.1 There are no National Scenic Areas near Altnabreac. The Regional Council intends to designate 22ha at Dirlot Gorge as an Area of Great Landscape Value. Here, management policies are to maintain "historic attractiveness and ensure the access, safety and enjoyment by the public" (para 2.46).

5.2 There is one National Nature Reserve in the area:

Blar Nam Faoileog (4,500ha) biological

This, together with Dirlot Gorge (geological interest) and Bad Nam Bo (biological interest), are considered to be of national or international importance.

5.3 Bad Nam Bo is a range of peatlands and open waters of international importance for breeding waders and wildfowl. Lambsdale Leans is peatland swamp and fen vegetation valuable for nesting and wintering wildfowl and waders. Ben Dorrery is an important example of Caithness montane vegetation. Blar Geal and the land to the west of Loch More are of biological interest.

Disturbance

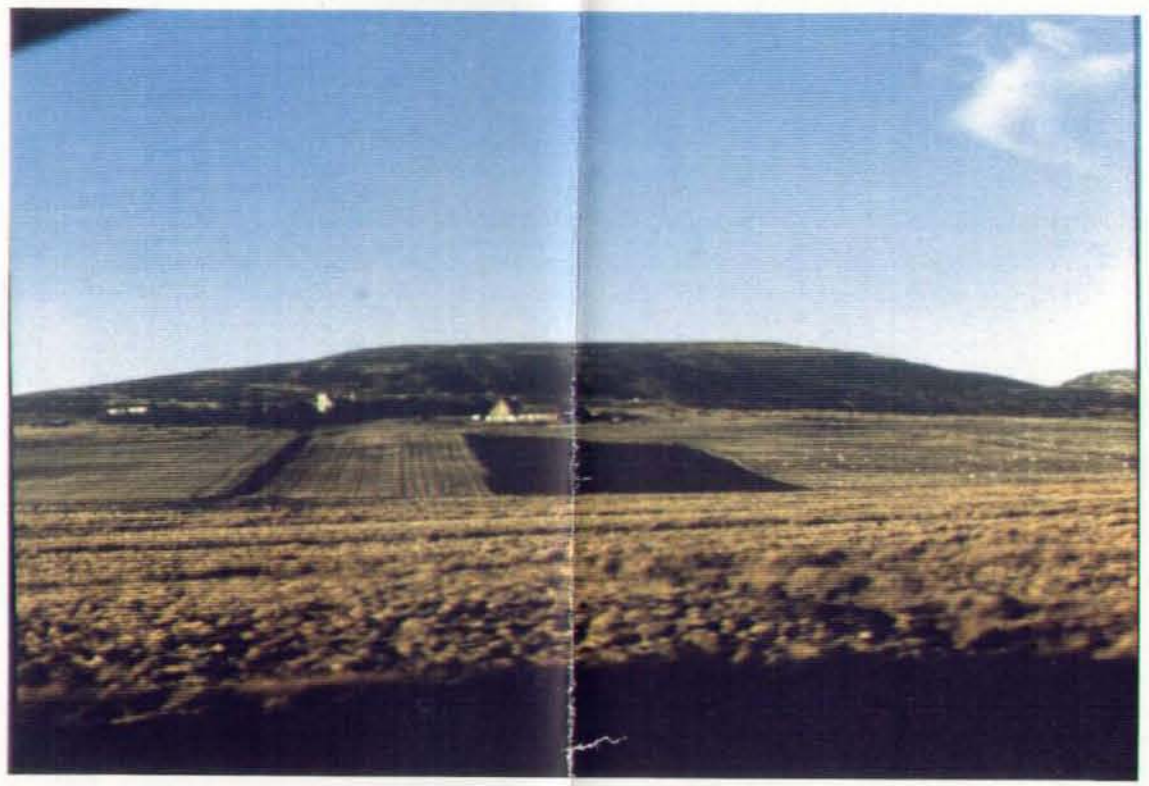
5.4 There are a number of sites of nature conservation value in the vicinity of the potential repository site and road link. However, providing special care is taken during construction and operation, the sites should remain protected from undue disturbance. The exception to this is the Blar Geal SSSI, which would be severely damaged by the access road on the route proposed.

5.5 Further details and advice would need to be sought to clarify the nature conservation aspects of a major development in the "flow country". The nature conservation issue has been brought to the fore in recent months. In June 1988, for example, the Secretary of State for Scotland refused to permit planting by the Forestry Commission on land at Carn Narm Muc (east of Loch More) on the grounds of the area's high conservation value in the heart of the flows.

DORRERY FROM SOUTH

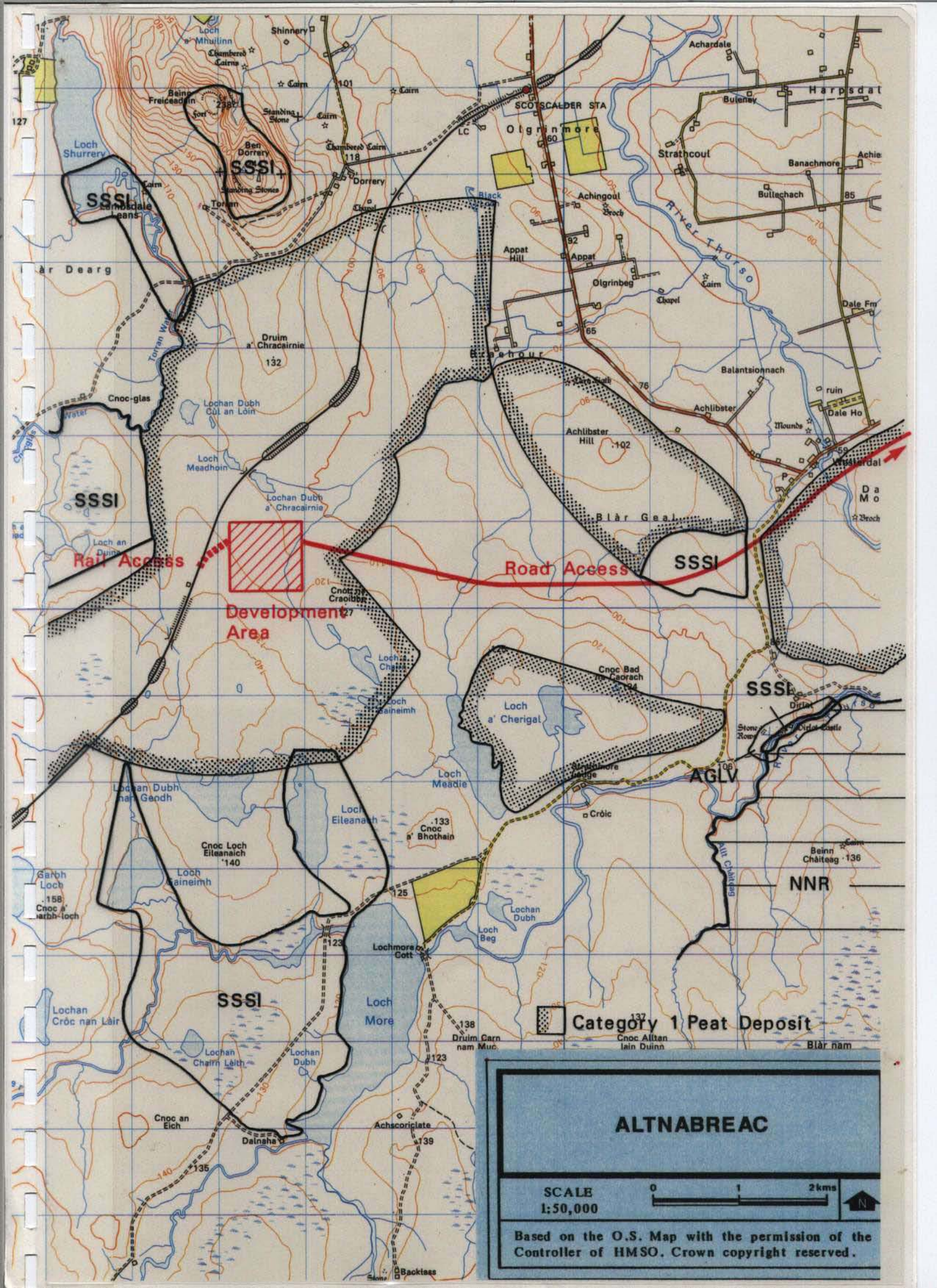
HALKIRK

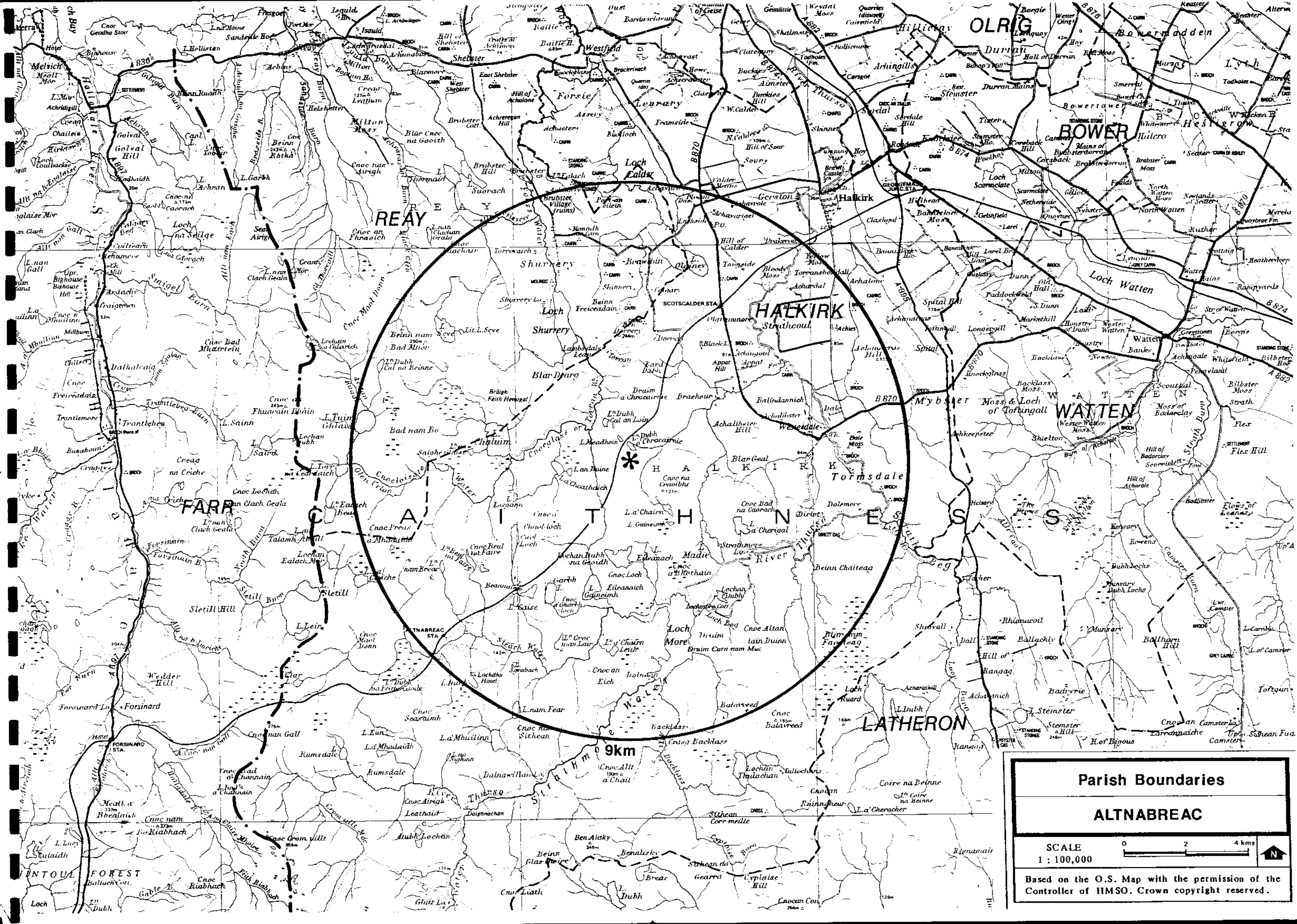
DORRERY FROM SOUTH

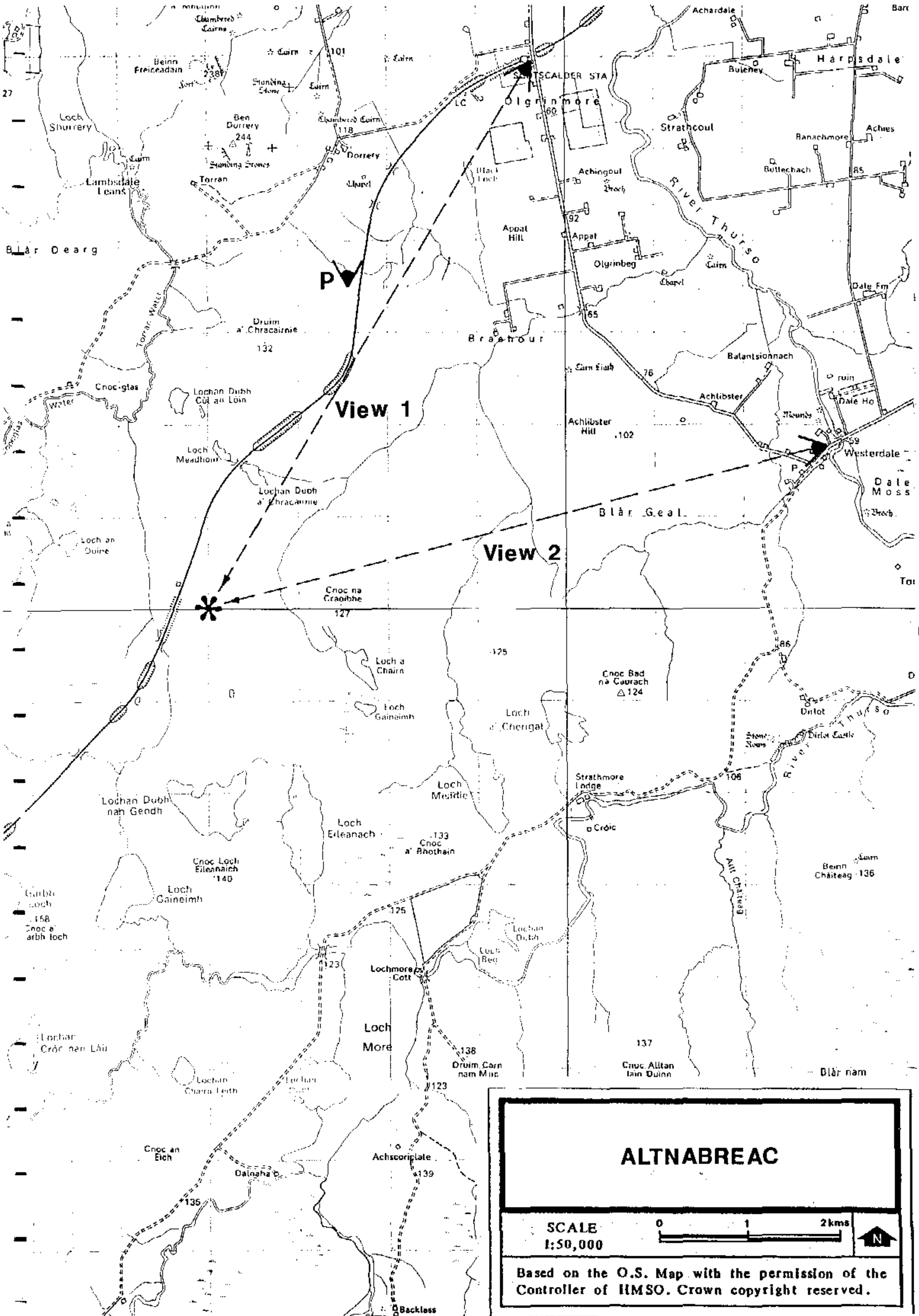


EAST ALTNABREAC "FLOW COUNTRY" TERRAIN

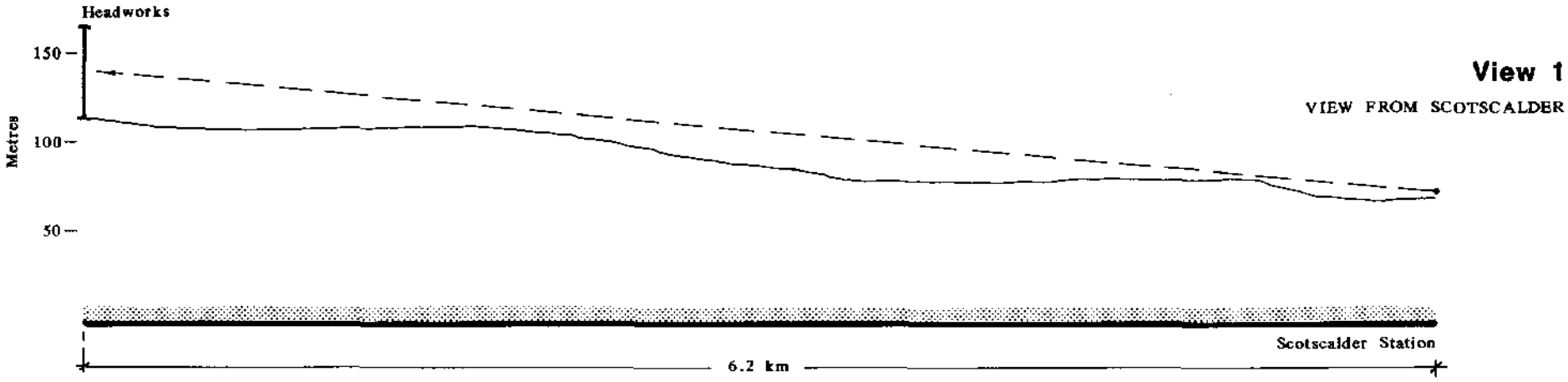
ALTNABREAC
SCALE
1 : 250,000
0
5
10 kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
SCRABSTER to
Stromness 2 hrs
Seasonal
Thorshavn (Faroes) 13 hrs
STRATHY POINT
DUNNET HEAD
Brims Ness
Spear Head
Holborn Head
Clardon Head
DUNNET BAY
Thurso Bay
The Spur
Briga Head
The Thirl
Dounreay Nuclear Power Development Establishment
Port Allt a' Mhuilinn
Strathy Bay
Melvich Bay
Red Point
Sandside Bay
Kirtomy Point
Ardmore Point
Armadale Bay
Armadale Burn
Strathy Forest
Loch Meadie
Loch Buidhe Mor
Loch Meala
Loch Mor na Caorach
Loch nan Clach
Loch Strathy
Loch na Sabhaidhe
Loch nam Breac
Loch Crocach
Loch Druim an Chiabhain
Loch nan Clar
Loch Badanloch
Loch an Alltan Fhearna
Loch an Ruathair
Loch Achnamoine
Loch Arichlinne
Loch Akran
Loch Baligill
Loch na Seilge
Loch Calder
Loch Olginey
Loch Scye
Loch Shurrery
Loch Toftingall
Loch Meadie
Loch Eileanach
Loch More
Loch Ruard
Loch Rangag
Loch Dubh
Loch Breac
Loch Sand
Lochan Dubh nan Geodh
Lochan Thulachan
Lochan a' Mhuilinn
Loch Rumsdale
Loch Calum
Loch Tuim Ghlais
Loch Scarmclate
Loch Scarmclate Burn
Strath Halladale
River Halladale
River Naver
River Thurso
Little River
Dunbeath Water
Berriedale Water
Langwell Water
Rumsdale Water
Glutt Water
Sleach Water
Forsinain Burn
Smiggel Burn
Sandside Burn
Achvarasdal Burn
Allt Finsbeg
Allt Finsbeycye Water
Allt Loch a' Chuil
Allt Achvarasdal
Allt Dubhaig
Allt Garbh
Allt Achrigh an Eilein
Allt Dubhaig
Allt Loch a' Chuil
Strathy Forest
Achentoul Forest
Badanloch Forest
Langwell Forest
Rumster Forest
Strath of Kildonan
Strath Ullie
Kildonan Burn
Suisgill Burn
Berriedale Burn
Burn of Houstry
Kinbrace Burn
Glen Sletdale
Glen Loth
Strath Gainemh Mhor
Strath Beag
Strathy Point
Kirtomy Point
Ardmore Point
Totegan
Kirtomy
Brawl
Aultiphurst
Baligill
Portskerra
Melvich
Bighouse
Strathy
Armadale
Lednagullin
Swordly
Farr
Bowside Lodge
Beinn Ruadh
Beinn nam Bo
Skelpick
Rhifail
Beinn Rifa-gil
Achiemore
Craigtown
Dalhalvaig
Tranlemore
Cnoc Badaireach na Gaoithe
Cnoc Bad Mhairtein
Cnoc an Fhuarain Bhain
Forsinain
Forsinard Hotel
Slethill Hill
Altnabreac Sta
Lochdhu Hotel
Cnoc Creas a' Mhadaidh
Cnoc nan Tri-chidh
Ben Griam Beg
Ben Griam Mor
Hotel
Glutt Lodge
Dalnawillan Lodge
Ben Alisky
Knockfin Heights
Lochside
Achentoul
Badanloch Lodge
Kinbrace
Cnoc Loch Mhaodh
Cnoc Coire na Fearna
Cnoc an Eireannaich
Morven
Maiden Pap
Scaraben
Meall na Caorach
Creag Scalabsdale
Kildonan Lodge
Beinn Dubhaich
Beinn Dhorain
Cnoc na Maoile
Wag
Aultibea
Braemore
Berriedale
Dunbeath
Dunbeath Bay
Dunbeath Castle
Knockally
Ramscraigs
Borgue
Newport
An Dùn
Ceann Leathad nam Bò
Boch-ailean
Dunstale
Latheronwheel
Smerral
Houstry
Cnocan Conachreag
Crofts of Benachielt
Achavanich
Hill of Rangag
Steenster Hill
Caire na Beinne
Beinn Chaiteag
Strathmore Lodge
Lochmore Cott
Tormsdale
Westerdale
Altnabreac
Spittal
Backlass
Mybster
Harpsdale
Scotscalder Sta
Olgrinmore
Dorrery
Shurrery Lodge
Shurrery
Broubster
Halkirk
Braal Castle
Georgemas Junc Sta
Bannisskirk Ho
Roadside
Clayock
Stemster
Stemster Ho
Knockdee
Sortale
Achingill
Dirlot
Mirkle
Castletown
Castlehill
Clardon
Thurso
Olrig Ho.
Weydale
Hillclay
Buckies
Lieurary
Forsie
Westfield
Shebster
Achreamie
Bridge of Forss
Forss Ho
Crosskirk
Chapel
Scrabster
Isauld
Achvarasdal
Sandside Ho
Freswick
Bridge
Newlands of Geise
Cairnaa
Dounreay
Drum Hollistan
Beinn Rath
Golval
Strathy Point
A836
A897
A9(T)
A895
A882
A99
B870
B874
B871
B876
B855
B8055
B8056
B8057
B8058
B8059
B8060
B8061
B8062
B8063
B8064
B8065
B8066
B8067
B8068
B8069
B8070
B8071
B8072
B8073
B8074
B8075
B8076
B8077
B8078
B8079
B8080
B8081
B8082
B8083
B8084
B8085
B8086
B8087
B8088
B8089
B8090
B8091
B8092
B8093
B8094
B8095
B8096
B8097
B8098
B8099
B8100
B8101
B8102
B8103
B8104
B8105
B8106
B8107
B8108
B8109
B8110
B8111
B8112
B8113
B8114
B8115
B8116
B8117
B8118
B8119
B8120
B8121
B8122
B8123
B8124
B8125
B8126
B8127
B8128
B8129
B8130
B8131
B8132
B8133
B8134
B8135
B8136
B8137
B8138
B8139
B8140
B8141
B8142
B8143
B8144
B8145
B8146
B8147
B8148
B8149
B8150
B8151
B8152
B8153
B8154
B8155
B8156
B8157
B8158
B8159
B8160
B8161
B8162
B8163
B8164
B8165
B8166
B8167
B8168
B8169
B8170
B8171
B8172
B8173
B8174
B8175
B8176
B8177
B8178
B8179
B8180
B8181
B8182
B8183
B8184
B8185
B8186
B8187
B8188
B8189
B8190
B8191
B8192
B8193
B8194
B8195
B8196
B8197
B8198
B8199
B8200
B8201
B8202
B8203
B8204
B8205
B8206
B8207
B8208
B8209
B8210
B8211
B8212
B8213
B8214
B8215
B8216
B8217
B8218
B8219
B8220
B8221
B8222
B8223
B8224
B8225
B8226
B8227
B8228
B8229
B8230
B8231
B8232
B8233
B8234
B8235
B8236
B8237
B8238
B8239
B8240
B8241
B8242
B8243
B8244
B8245
B8246
B8247
B8248
B8249
B8250
B8251
B8252
B8253
B8254
B8255
B8256
B8257
B8258
B8259
B8260
B8261
B8262
B8263
B8264
B8265
B8266
B8267
B8268
B8269
B8270
B8271
B8272
B8273
B8274
B8275
B8276
B8277
B8278
B8279
B8280
B8281
B8282
B8283
B8284
B8285
B8286
B8287
B8288
B8289
B8290
B8291
B8292
B8293
B8294
B8295
B8296
B8297
B8298
B8299
B8300
B8301
B8302
B8303
B8304
B8305
B8306
B8307
B8308
B8309
B8310
B8311
B8312
B8313
B8314
B8315
B8316
B8317
B8318
B8319
B8320
B8321
B8322
B8323
B8324
B8325
B8326
B8327
B8328
B8329
B8330
B8331
B8332
B8333
B8334
B8335
B8336
B8337
B8338
B8339
B8340
B8341
B8342
B8343
B8344
B8345
B8346
B8347
B8348
B8349
B8350
B8351
B8352
B8353
B8354
B8355
B8356
B8357
B8358
B8359
B8360
B8361
B8362
B8363
B8364
B8365
B8366
B8367
B8368
B8369
B8370
B8371
B8372
B8373
B8374
B8375
B8376
B8377
B8378
B8379
B8380
B8381
B8382
B8383
B8384
B8385
B8386
B8387
B8388
B8389
B8390
B8391
B8392
B8393
B8394
B8395
B8396
B8397
B8398
B8399
B8400
B8401
B8402
B8403
B8404
B8405
B8406
B8407
B8408
B8409
B8410
B8411
B8412
B8413
B8414
B8415
B8416
B8417
B8418
B8419
B8420
B8421
B8422
B8423
B8424
B8425
B8426
B8427
B8428
B8429
B8430
B8431
B8432
B8433
B8434
B8435
B8436
B8437
B8438
B8439
B8440
B8441
B8442
B8443
B8444
B8445
B8446
B8447
B8448
B8449
B8450
B8451
B8452
B8453
B8454
B8455
B8456
B8457
B8458
B8459
B8460
B8461
B8462
B8463
B8464
B8465
B8466
B8467
B8468
B8469
B8470
B8471
B8472
B8473
B8474
B8475
B8476
B8477
B8478
B8479
B8480
B8481
B8482
B8483
B8484
B8485
B8486
B8487
B8488
B8489
B8490
B8491
B8492
B8493
B8494
B8495
B8496
B8497
B8498
B8499
B8500
B8501
B8502
B8503
B8504
B8505
B8506
B8507
B8508
B8509
B8510
B8511
B8512
B8513
B8514
B8515
B8516
B8517
B8518
B8519
B8520
B8521
B8522
B8523
B8524
B8525
B8526
B8527
B8528
B8529
B8530
B8531
B8532
B8533
B8534
B8535
B8536
B8537
B8538
B8539
B8540
B8541
B8542
B8543
B8544
B8545
B8546
B8547
B8548
B8549
B8550
B8551
B8552
B8553
B8554
B8555
B8556
B8557
B8558
B8559
B8560
B8561
B8562
B8563
B8564
B8565
B8566
B8567
B8568
B8569
B8570
B8571
B8572
B8573
B8574
B8575
B8576
B8577
B8578
B8579
B8580
B8581
B8582
B8583
B8584
B8585
B8586
B8587
B8588
B8589
B8590
B8591
B8592
B8593
B8594
B8595
B8596
B8597
B8598
B8599
B8600
B8601
B8602
B8603
B8604
B8605
B8606
B8607
B8608
B8609
B8610
B8611
B8612
B8613
B8614
B8615
B8616
B8617
B8618
B8619
B8620
B8621
B8622
B8623
B8624
B8625
B8626
B8627
B8628
B8629
B8630
B8631
B8632
B8633
B8634
B8635
B8636
B8637
B8638
B8639
B8640
B8641
B8642
B8643
B8644
B8645
B8646
B8647
B8648
B8649
B8650
B8651
B8652
B8653
B8654
B8655
B8656
B8657
B8658
B8659
B8660
B8661
B8662
B8663
B8664
B8665
B8666
B8667
B8668
B8669
B8670
B8671
B8672
B8673
B8674
B8675
B8676
B8677
B8678
B8679
B8680
B8681
B8682
B8683
B8684
B8685
B8686
B8687
B8688
B8689
B8690
B8691
B8692
B8693
B8694
B8695
B8696
B8697
B8698
B8699
B8700
B8701
B8702
B8703
B8704
B8705
B8706
B8707
B8708
B8709
B8710
B8711
B8712
B8713
B8714
B8715
B8716
B8717
B8718
B8719
B8720
B8721
B8722
B8723
B8724
B8725
B8726
B8727
B8728
B8729
B8730
B8731
B8732
B8733
B8734
B8735
B8736
B8737
B8738
B8739
B8740
B8741
B8742
B8743
B8744
B8745
B8746
B8747
B8748
B8749
B8750
B8751
B8752
B8753
B8754
B8755
B8756
B8757
B8758
B8759
B8760
B8761
B8762
B8763
B8764
B8765
B8766
B8767
B8768
B8769
B8770
B8771
B8772
B8773
B8774
B8775
B8776
B8777
B8778
B8779
B8780
B8781
B8782
B8783
B8784
B8785
B8786
B8787
B8788
B8789
B8790
B8791
B8792
B8793
B8794
B8795
B8796
B8797
B8798
B8799
B8800
B8801
B8802
B8803
B8804
B8805
B8806
B8807
B8808
B8809
B8810
B8811
B8812
B8813
B8814
B8815
B8816
B8817
B8818
B8819
B8820
B8821
B8822
B8823
B8824
B8825
B8826
B8827
B8828
B8829
B8830
B8831
B8832
B8833
B8834
B8835
B8836
B8837
B8838
B8839
B8840
B8841
B8842
B8843
B8844
B8845
B8846
B8847
B8848
B8849
B8850
B8851
B8852
B8853
B8854
B8855
B8856
B8857
B8858
B8859
B8860
B8861
B8862
B8863
B8864
B8865
B8866
B8867
B8868
B8869
B8870
B8871
B8872
B8873
B8874
B8875
B8876
B8877
B8878
B8879
B8880
B8881
B8882
B8883
B8884
B8885
B8886
B8887
B8888
B8889
B8890
B8891
B8892
B8893
B8894
B8895
B8896
B8897
B8898
B8899
B8900
B8901
B8902
B8903
B8904
B8905
B8906
B8907
B8908
B8909
B8910
B8911
B8912
B8913
B8914
B8915
B8916
B8917
B8918
B8919
B8920
B8921
B8922
B8923
B8924
B8925
B8926
B8927
B8928
B8929
B8930
B8931
B8932
B8933
B8934
B8935
B8936
B8937
B8938
B8939
B8940
B8941
B8942
B8943
B8944
B8945
B8946
B8947
B8948
B8949
B8950
B8951
B8952
B8953
B8954
B8955
B8956
B8957
B8958
B8959
B8960
B8961
B8962
B8963
B8964
B8965
B8966
B8967
B8968
B8969
B8970
B8971
B8972
B8973
B8974
B8975
B8976
B8977
B8978
B8979
B8980
B8981
B8982
B8983
B8984
B8985
B8986
B8987
B8988
B8989
B8990
B8991
B8992
B8993
B8994
B8995
B8996
B8997
B8998
B8999
B9000
B9001
B9002
B9003
B9004
B9005
B9006
B9007
B9008
B9009
B9010
B9011
B9012
B9013
B9014
B9015
B9016
B9017
B9018
B9019
B9020
B9021
B9022
B9023
B9024
B9025
B9026
B9027
B9028
B9029
B9030
B9031
B9032
B9033
B9034
B9035
B9036
B9037
B9038
B9039
B9040
B9041
B9042
B9043
B9044
B9045
B9046
B9047
B9048
B9049
B9050
B9051
B9052
B9053
B9054
B9055
B9056
B9057
B9058
B9059
B9060
B9061
B9062
B9063
B9064
B9065
B9066
B9067
B9068
B9069
B9070
B9071
B9072
B9073
B9074
B9075
B9076
B9077
B9078
B9079
B9080
B9081
B9082
B9083
B9084
B9085
B9086
B9087
B9088
B9089
B9090
B9091
B9092
B9093
B9094
B9095
B9096
B9097
B9098
B9099
B9100
B9101
B9102
B9103
B9104
B9105
B9106
B9107
B9108
B9109
B9110
B9111
B9112
B9113
B9114
B9115
B9116
B9117
B9118
B9119
B9120
B9121
B9122
B9123
B9124
B9125
B9126
B9127
B9128
B9129
B9130
B9131
B9132
B9133
B9134
B9135
B9136
B9137
B9138
B9139
B9140
B9141
B9142
B9143
B9144
B9145
B9146
B9147
B9148
B9149
B9150
B9151
B9152
B9153
B9154
B9155
B9156
B9157
B9158
B9159
B9160
B9161
B9162
B9163
B9164
B9165
B9166
B9167
B9168
B9169
B9170
B9171
B9172
B9173
B9174
B9175
B9176
B9177
B9178
B9179
B9180
B9181
B9182
B9183
B9184
B9185
B9186
B9187
B9188
B9189
B9190
B9191
B9192
B9193
B9194
B9195
B9196
B9197
B9198
B9199
B9200
B9201
B9202
B9203
B9204
B9205
B9206
B9207
B9208
B9209
B9210
B9211
B9212
B9213
B9214
B9215
B9216
B9217
B9218
B9219
B9220
B9221
B9222
B9223
B9224
B9225
B9226
B9227
B9228
B9229
B9230
B9231
B9232
B9233
B9234
B9235
B9236
B9237
B9238
B9239
B9240
B9241
B9242
B9243
B9244
B9245
B9246
B9247
B9248
B9249
B9250
B9251
B9252
B9253
B9254
B9255
B9256
B9257
B9258
B9259
B9260
B9261
B9262
B9263
B9264
B9265
B9266
B9267
B9268
B9269
B9270
B9271
B9272
B9273
B9274
B9275
B9276
B9277
B9278
B9279
B9280
B9281
B9282
B9283
B9284
B9285
B9286
B9287
B9288
B9289
B9290
B9291
B9292
B9293
B9294
B9295
B9296
B9297
B9298
B9299
B9300
B9301
B9302
B9303
B9304
B9305
B9306
B9307
B9308
B9309
B9310
B9311
B9312
B9313
B9314
B9315
B9316
B9317
B9318
B9319
B9320
B9321
B9322
B9323
B9324
B9325
B9326
B9327
B9328
B9329
B9330
B9331
B9332
B9333
B9334
B9335
B9336
B9337
B9338
B9339
B9340
B9341
B9342
B9343
B9344
B9345
B9346
B9347
B9348
B9349
B9350
B9351
B9352
B9353
B9354
B9355
B9356
B9357
B9358
B9359
B9360
B9361
B9362
B9363
B9364
B9365
B9366
B9367
B9368
B9369
B9370
B9371
B9372
B9373
B9374
B9375
B9376
B9377
B9378
B9379
B9380
B9381
B9382
B9383
B9384
B9385
B9386
B9387
B9388
B9389
B9390
B9391
B9392
B9393
B9394
B9395
B9396
B9397
B9398
B9399
B9400
B9401
B9402
B9403
B9404
B9405
B9406
B9407
B9408
B9409
B9410
B9411
B9412
B9413
B9414
B9415
B9416
B9417
B9418
B9419
B9420
B9421
B9422
B9423
B9424
B9425
B9426
B9427
B9428
B9429
B9430
B9431
B9432
B9433
B9434
B9435
B9436
B9437
B9438
B9439
B9440
B9441
B9442
B9443
B9444
B9445
B9446
B9447
B9448
B9449
B9450
B9451
B9452
B9453
B9454
B9455
B9456
B9457
B9458
B9459
B9460
B9461
B9462
B9463
B9464
B9465
B9466
B9467
B9468
B9469
B9470
B9471
B9472
B9473
B9474
B9475
B9476
B9477
B9478
B9479
B9480
B9481
B9482
B9483
B9484
B9485
B9486
B9487
B9488
B9489
B9490
B9491
B9492
B9493
B9494
B9495
B9496
B9497
B9498
B9499
B9500
B9501
B9502
B9503
B9504
B9505
B9506
B9507
B9508
B9509
B9510
B9511
B9512
B9513
B9514
B9515
B9516
B9517
B9518
B9519
B9520
B9521
B9522
B9523
B9524
B9525
B9526
B9527
B9528
B9529
B9530
B9531
B9532
B9533
B9534
B9535
B9536
B9537
B9538
B9539
B9540
B9541
B9542
B9543
B9544
B9545
B9546
B9547
B9548
B9549
B9550
B9551
B9552
B9553
B9554
B9555
B9556
B9557
B9558
B9559
B9560
B9561
B9562
B9563
B9564
B9565
B9566
B9567
B9568
B9569
B9570
B9571
B9572
B9573
B9574
B9575
B9576
B9577
B9578
B9579
B9580
B9581
B9582
B9583
B9584
B9585
B9586
B9587
B9588
B9589
B9590
B9591
B9592
B9593
B9594
B9595
B9596
B9597
B9598
B9599
B9600
B9601
B9602
B9603
B9604
B9605
B9606
B9607
B9608
B9609
B9610
B9611
B9612
B9613
B9614
B9615
B9616
B9617
B9618
B9619
B9620
B9621
B9622
B9623
B9624
B9625
B9626
B9627
B9628
B9629
B9630
B9631
B9632
B9633
B9634
B9635
B9636
B9637
B9638
B9639
B9640
B9641
B9642
B9643
B9644
B9645
B9646
B9647
B9648
B9649
B9650
B9651
B9652
B9653
B9654
B9655
B9656
B9657
B9658
B9659
B9660
B9661
B9662
B9663
B9664
B9665
B9666
B9667
B9668
B9669
B9670
B9671
B9672
B9673
B9674
B9675
B9676
B9677
B9678
B9679
B9680
B9681
B9682
B9683
B9684
B9685
B9686
B9687
B9688
B9689
B9690
B9691
B9692
B9693
B9694
B9695
B9696
B9697
B9698
B9699
B9700
B9701
B9702
B9703
B9704
B9705
B9706
B9707
B9708
B9709
B9710
B9711
B9712
B9713
B9714
B9715
B9716
B9717
B9718
B9719
B9720
B9721
B9722
B9723
B9724
B9725
B9726
B9727
B9728
B9729
B9730
B9731
B9732
B9733
B9734
B9735
B9736
B9737
B9738
B9739
B9740
B9741
B9742
B9743
B9744
B9745
B9746
B9747
B9748
B9749
B9750
B9751
B9752
B9753
B9754
B9755
B9756
B9757
B9758
B9759
B9760
B9761
B9762
B9763
B9764
B9765
B9766
B9767
B9768
B9769
B9770
B9771
B9772
B9773
B9774
B9775
B9776
B9777
B9778
B9779
B9780
B9781
B9782
B9783
B9784
B9785
B9786
B9787
B9788
B9789
B9790
B9791
B9792
B9793
B9794
B9795
B9796
B9797
B9798
B9799
B9800
B9801
B9802
B9803
B9804
B9805
B9806
B9807
B9808
B9809
B9810
B9811
B9812
B9813
B9814
B9815
B9816
B9817
B9818
B9819
B9820
B9821
B9822
B9823
B9824
B9825
B9826
B9827
B9828
B9829
B9830
B9831
B9832
B9833
B9834
B9835
B9836
B9837
B9838
B9839
B9840
B9841
B9842
B9843
B9844
B9845
B9846
B9847
B9848
B9849
B9850
B9851
B9852
B9853
B9854
B9855
B9856
B9857
B9858
B9859
B9860
B9861
B9862
B9863
B9864
B9865
B9866
B9867
B9868
B9869
B9870
B9871
B9872
B9873
B9874
B9875
B9876
B9877
B9878
B9879
B9880
B9881
B9882
B9883
B9884
B9885
B9886
B9887
B9888
B9889
B9890
B9891
B9892
B9893
B9894
B9895
B9896
B9897
B9898
B9899
B9900
B9901
B9902
B9903
B9904
B9905
B9906
B9907
B9908
B9909
B9910
B9911
B9912
B9913
B9914
B9915
B9916
B9917
B9918
B9919
B9920
B9921
B9922
B9923
B9924
B9925
B9926
B9927
B9928
B9929
B9930
B9931
B9932
B9933
B9934
B9935
B9936
B9937
B9938
B9939
B9940
B9941
B9942
B9943
B9944
B9945
B9946
B9947
B9948
B9949
B9950
B9951
B9952
B9953
B9954
B9955
B9956
B9957
B9958
B9959
B9960
B9961
B9962
B9963
B9964
B9965
B9966
B9967
B9968
B9969
B9970
B9971
B9972
B9973
B9974
B9975
B9976
B9977
B9978
B9979
B9980
B9981
B9982
B9983
B9984
B9985
B9986
B9987
B9988
B9989
B9990
B9991
B9992
B9993
B9994
B9995
B9996
B9997
B9998
B9999
B10000


Rail Access
Road Access
Development Area
SSSI
AGLV
NNR
Category 1 Peat Deposit
ALTNABREAC
SCALE 1:50,000
0 1 2kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.


REAY
FARR
HALKIRK
LATHERON
WATTEN
BOWER
OLRIG
Loch Calder
Loch Watten
Loch Shurrery
Loch More
Halkirk
Watten
Brubster Village (ruins)
Brubster Hill
Achavarial
Hill of Calder
Braewalin
Shurrery
Forsie
Lenrary
Westfield
Shebster
Milton Reay
Blar Cnoc na Gaoith
Beinn Freiceadain
Blar Dearg
Beinn nam Bad Mhor
Cnoc Bad Mhairtein
Cnoc Mael Donn
Cnoc an Fhuaich
Cnoc Freiceadain
Cnoc Fhuarain Bhain
Bad nam Bo
Creag na Criche
Cnoc Lochan
Cnoc Grom Uillt
Cnoc nam Fiabhach
Cnoc Riabhach
Cnoc Liath
Cnoc Allt a'Chait
Cnoc Bad na Caorach
Cnoc Altan Iain Duinn
Cnoc an Eich
Cnoc Bad a'Ghobhainn
Cnoc na Graoibhe
Cnoc Ruadh
Cnoc an Camster
Druim a'Chracairtie
Druim Carn nam Muc
Braehoun
Balindannich
Achalibster Hill
Weaveddle
Tormsdale
Blar Geal
Achingills
Durran
Bowertower
Mybster
Moss & Loch of Tofingall
Moss of Badanclay
Scoutbal
Flex Hill
Hillcro
Heslegrow
Ratter
Lyth
Bowermadden
Loch Scarmclate
Loch Ruard
Loch Beg
Loch Thurso
Loch Watten
Loch Calder
Loch More
Loch Shurrery
Loch Toftingall
Loch Scarmclate
Loch Ruard
Loch Beg
Loch Thurso
Loch Watten
Loch Calder
Loch More
Loch Shurrery
Loch Toftingall
Thurso River
Forss Water
Allt na Caillich
Allt nan Each
Allt Mhuilinn
Allt a'Chnoc nan Gall
Allt Thurvill
Allt na h-Imrich
Allt a'Chnoc Moire
Allt Riabhach
Allt Mhuilinn
Sinigel Burn
Trantlebeg Burn
Trantlemore Burn
Sletill Burn
Forsinain Burn
Smoo Burn
Strath Burn
Cnoc Geodha Stor
Cnoc Mael Donn
Cnoc an Fhuaich
Cnoc Bad Mhairtein
Cnoc Freiceadain
Cnoc Fhuarain Bhain
Cnoc Grom Uillt
Cnoc nam Fiabhach
Cnoc Riabhach
Cnoc Liath
Cnoc Allt a'Chait
Cnoc Bad na Caorach
Cnoc Altan Iain Duinn
Cnoc an Eich
Cnoc Bad a'Ghobhainn
Cnoc na Graoibhe
Cnoc Ruadh
Cnoc an Camster
Druim a'Chracairtie
Druim Carn nam Muc
Braehoun
Balindannich
Achalibster Hill
Weaveddle
Tormsdale
Blar Geal
Achingills
Durran
Bowertower
Mybster
Moss & Loch of Tofingall
Moss of Badanclay
Scoutbal
Flex Hill
Hillcro
Heslegrow
Ratter
Lyth
Bowermadden
Loch Scarmclate
Loch Ruard
Loch Beg
Loch Thurso
Loch Watten
Loch Calder
Loch More
Loch Shurrery
Loch Toftingall
Thurso River
Forss Water
Allt na Caillich
Allt nan Each
Allt Mhuilinn
Allt a'Chnoc nan Gall
Allt Thurvill
Allt na h-Imrich
Allt a'Chnoc Moire
Allt Riabhach
Sinigel Burn
Trantlebeg Burn
Trantlemore Burn
Sletill Burn
Forsinain Burn
Smoo Burn
Strath Burn
Cnoc Geodha Stor
9km
Parish Boundaries
ALTNABREAC
SCALE
1 : 100,000
0
2
4 kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.



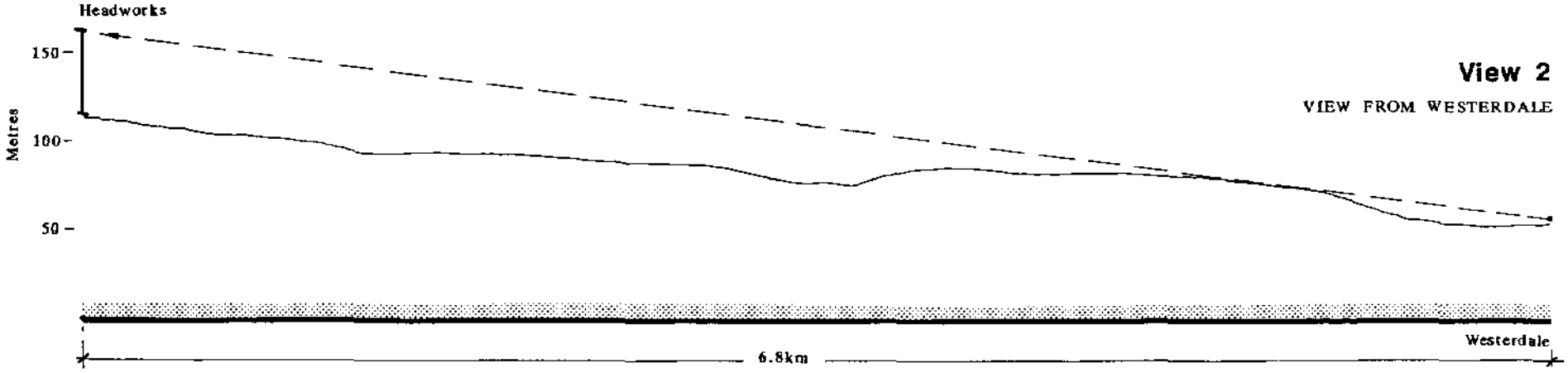
ALTNABREAC
SCALE
1:50,000
0
1
2kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
View 1
View 2
P
Scotscalder Sta
Olgrinmore
Harpsdale
Achardale
Buleney
Strathcoul
Banachmore
Achies
Buttlechach
River Thurso
Achingoul
Appat Hill
Appat
Olgrinbeg
Braehour
Dale Fm
Balantsionnach
Achlibster
Achlibster Hill
Westerdale
Dale Ho
Dale Moss
Blàr Geal
Beinn Freiceadain
Loch Shurrery
Ben Dorrery
244
Standing Stones
Torran
Dorrery
Lambsdale Leans
Black Loch
Blàr Dearg
Torran Water
Druim a' Chracairnie
132
Cnoc-glas
Lochan Dubh Cùl an Lòin
Loch Meadhoin
Lochan Dubh a' Chracairnie
Loch an Duire
Cnoc na Craoibhe
127
Loch a Chairn
Loch Gaineimh
125
Cnoc Bad na Caorach
124
Loch a' Cherigat
Dirlot
Dirlot Castle
Strathmore Lodge
Cròic
Loch Meadie
Lochan Dubh nan Geadh
Loch Eileanach
Cnoc a' Bhothain
133
Cnoc Loch Eileanaich
140
Loch Gaineimh
Garbh Loch
158
Beinn Chàiteag
136
Allt Chàiteag
Lochmore Cott
Loch More
Loch Beg
Lochan Dubh
138
Druim Carn nam Muc
137
Cnoc Alltan Iain Duinn
Blàr nam
Lochan Cròc nan Làir
Cnoc an Eich
Dalnaha
Achscoriclate
139
135
123
Backlass



View 1

VIEW FROM SCOTSCALDER

ALTNABREAC



View 2

VIEW FROM WESTERDALE

APPENDIX 2

Bradwell

CONTENTS

SECTION		Page
1.0	SITE CHARACTERISTICS	2.1
2.0	DEVELOPMENT PROPOSALS	2.3
3.0	COMMUNITY	2.4
4.0	LOCAL ECONOMY	2.7
5.0	NATURAL ENVIRONMENT	2.9

Following Text:

- 1:250,000 Location Map
- 1: 50,000 map with overlays showing
  - development proposals
  - designated areas and planning policy areas
- 1:100,000 map of population statistical areas
- 1: 50,000 map showing location of cross section and photographs
- cross section diagram
- photographs

1.0 SITE CHARACTERISTICS

Location:	**Essex County Maldon District**
Size:	**210 hectares**
Ownership:	**CEGB**
Land Use:	**Power Station, Agricultural Land**
Grid Reference:	**TM 0008**

1.1 The Bradwell site is adjacent to Bradwell nuclear power station on the southern side of the lower Blackwater Estuary. The site is opposite the small town of West Mersea, 4km away across the estuary on Mersea Island.

1.2 The relief of the area is flat and low lying, the coastline and the estuary requiring extensive protective dyking. Inland from Bradwell on Sea the land undulates between 15 and 40 metres.

1.3 Local access to the site would be from the same route as to the nuclear power station - off a minor unclassified road from the B1021. The route west to a major road is long and difficult with numerous right angle bends. Even if a lorry route were able to avoid the built-up areas of Chelmsford or Maldon, the route would still pass through numerous villages including several conservation areas.

1.4 There is no rail access to the site. The nearest railhead is at Southminster approximately 12.5km to the south of the site. The Blackwater Estuary has a deep water channel which enables ships to come relatively close inshore. A jetty with a travelling crane lies just offshore from the nuclear power station.

1.5 The land beyond the power station is in agricultural use, the land quality is predominantly Grade 3 with an area of Grade 2 in the south west of the site. There are numerous drains on the lower part of the site. The slightly higher ground, on the south west section, is part of a former airfield. Weymarks Farm lies in the centre of the site, just east of the disused runway area.

1.6 The Blackwater Estuary is a popular recreation area, particularly for sailing, caravaning and bird watching. Bradwell Waterside is one of the principal sailing areas with a marina, sailing school and yacht club. There are several caravan sites in the area mainly for static caravans.

2.0 DEVELOPMENT PROPOSALS

Assumptions

Landtake: **Repository 60 hectares**
Road Improvements - 32.75 hectares

Infrastructure: **Port beside repository**
3 by-passes of local villages

Waste Transport: **ship- 75 ships pa**

Spoil Disposal: **used locally for sea defences or disposed at sea**

2.1 It has been estimated that approximately 60 hectares of land will be required. Further land will also be needed to construct the proposed road improvements to roads giving access to the site.

2.2 The repository will be located to the east of the power station adjacent to the coast. It is proposed to bring the waste by ship requiring 75 ship deliveries per annum. It is assumed that 50% of the spoil produced by the site would be used locally as part of the work to enhance sea defences, the remainder would be disposed of at sea.

2.3 The labour requirements of the development are listed below:

Construction:	310
Operational:	330
De-commissioning:	50

It has been assumed that this workforce could be recruited locally.

3.0 COMMUNITY

District population density - Maldon District 1.34 ppha

Surrounding Settlements

Distance	Settlement	Approx Population
2km	Bradwell	770
4km	West Mersea	5,550
5km	Tillingham	910
9km	Southminster	3,210
15km	Colchester	87,500

Dwellings within 2km of the site centre: Approx 40

3.1 The population within 9km of the centre of the site has been calculated using 1981 census parish populations and the relevant settlements are listed below:

	Estimated Proportion within 9km	Population in Parish	Estimated Population within 9km
Bradwell on Sea	100%	769	769
Tillingham	100%	914	914
St Lawrence	100%	425	425
Steeple	50%	457	229
Tolleshurst D'arcy	90%	1,106	995
Tollesbury	100%	2,485	2,485
Salcott	100%	212	212
Virley	100%	60	60
Great & Little Wigborough	100%	251	251
Peldon	90%	516	464
West Mersea	100%	5,545	5,545
East Mersea	100%	1,898	1,898
Langenhoe	30%	299	90
Dengie	90%	111	100
Asheldham	100%	130	130
Total			14,567

3.2 The urban focus of the area is Chelmsford, a sub-regional centre some 45km to the west, Maldon 30km to the west serves as a minor centre. Colchester to the north is also a sub-regional centre, but although it is only 15km away across the estuary, the distance by road through Maldon is four times as great.

3.3 The area has many old established attractive villages including, nearest the Bradwell site, Bradwell on Sea which dates from the later middle ages and Tillingham.

3.4 Although there are no major settlements close to the site, it is surrounded by a number of villages. Further expansion of Bradwell and Tillingham is severely restricted by the Nuclear Safeguard Zone around Bradwell Power Station.

3.5 The settlement policy for the area contained in the 1982 Structure Plan is essentially one of regional restraint of development, with Chelmsford the only designated (medium) growth area. The Coastal Protection Policy virtually restricts all new development near the coast to existing built up areas.

3.6 Within Maldon District there is an allocation of 4,200 new dwellings for the period 1977-91. The average rate of building during the first five years of this period conformed to this projection.

3.7 The historical character and attractiveness of the villages around Bradwell are reflected in the number of designated Conservation Areas including Bradwell on Sea and Tillingham which is designated an Outstanding Conservation Area.

3.8 Under the Structure Plan, Opportunity Areas for Countryside recreation have been identified along the coast from Bradwell Waterside east to St. Peters Chapel, from Steeple Creek to St. Lawrence Bay and along most of the north of the estuary in the area under consideration.

Disturbance

3.9 The nuclear power station dominates the landscape of the headland. The main buildings have not been screened but the switching station is hidden, at least from the south and west, by mounding and tree screens.

3.10 The visual impact of the proposed development will be mitigated by the presence of the existing power station but it is likely that the headworks will still be seen from West Mersea across the River Blackwater and from parts of Tillingham and Bradwell to the south. The development would be hidden to a large extent from the west by the existing power station buildings.

3.11 The recreational use of the River Blackwater could be restricted by the additional shipping movements and the development of the port.

3.12 The use of the local roads for access to the site could detrimentally affect the environment of the settlements along the routes. JMP have proposed several road improvement schemes and by-passes to ameliorate this impact but these in turn could present other social and environmental difficulties.

3.13 The surrounding population have experience of nuclear establishments in the form of Bradwell Power Station.

Local Nuclear Establishment

4.0 LOCAL ECONOMY

Travel to Work Area: **Southend**
Unemployment in TTWA: **8.4% 21,277 (April 1988)**
Employment in manufacturing in county: **169,105**
Major employers **Agriculture**
Manufacturing centred in Maldon and Heybridge Commuting to Southend and Chelmsford

4.1 In 1977 38% of all employment in Maldon District was in manufacturing, 33% in the service sectors and the balance in agriculture, quarrying, construction and public utilities.

4.2 Half of all the jobs were concentrated in Maldon and Heybridge, where mechanical and electrical engineering, professional and scientific services, timber and furniture and food processing together provided almost 45% of all employment in the town. The majority of jobs in the local area around Bradwell are provided by agriculture and the nuclear power station.

4.3 Essex County Council policy is to concentrate industrial and office development in the larger settlements. Of 70 acres allocated to Maldon District for the Structure Plan period (1977-91), 38 acres are in Maldon/Heybridge and 11 acres are in Burnham. The District Council is against the principle of allocating greenfield sites to high technology industry.

Local Economic Benefit

4.4 There is a large number of unemployed people in the Southend travel to work area which could provide a labour force for the proposed repository although Bradwell is 50 km by road from Southend. The development of the repository will only produce limited local economic benefit for the surrounding communities because the area already has a substantial level and range of economic activity.

Blight

4.5 The blight effect of a repository is likely to be very limited. Agriculture, recreation and farming along the coastline have all been identified as sensitive activities, but these are unlikely to be affected by the development.

Pieda

Resource Sterilisation

4.6 The repository would be located on part vacant site, part agricultural land. The land quality is predominantly Grade 3 with an area of Grade 2 in the south west of the site. The proposed road improvements will require additional agricultural land. The relatively high quality of agricultural land has been considered to be a regionally important resource likely to be sterilised but this only affects part of the site.

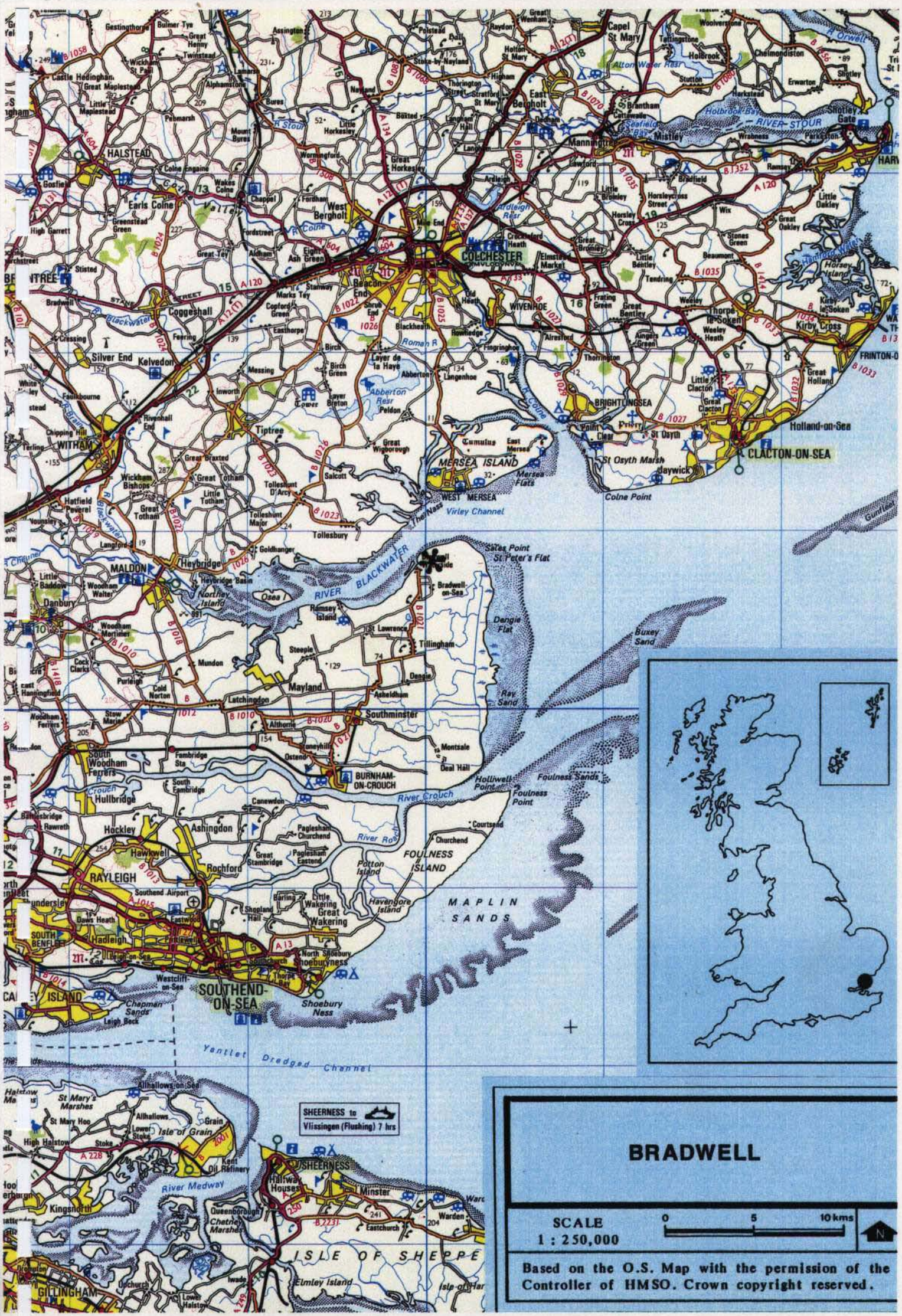
5.0 NATURAL ENVIRONMENT

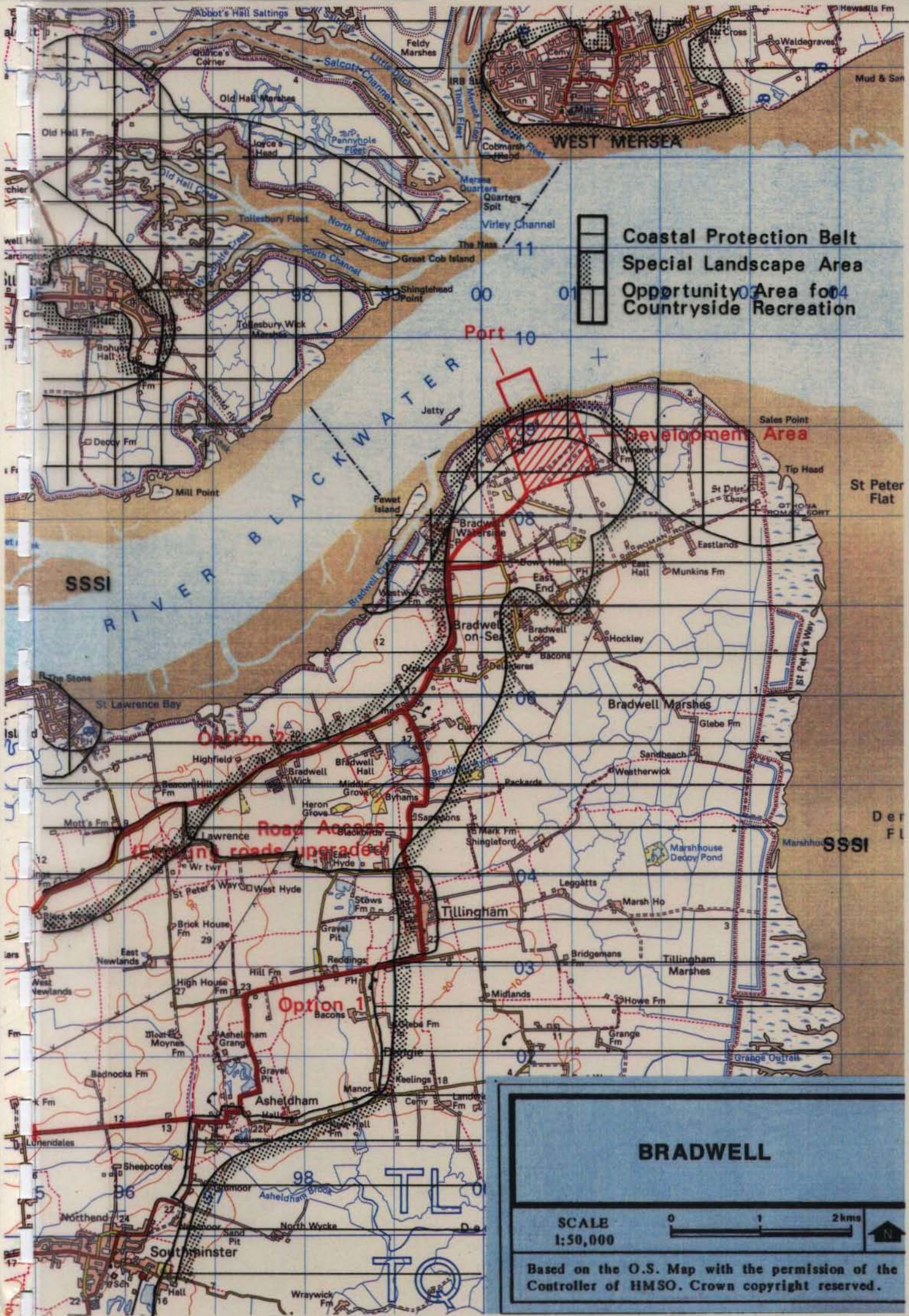
Designations: **National Nature Reserves at the Blackwater Estuary and Dengie**
Grade 1 SSSI at Blackwater Estuary
Special Landscape Area
Coastal Protection Belt

5.1 The area under consideration forms part of a much larger area including the Colne Estuary and the Foulness and Maplin Sands which are of great wildlife and landscape significance, especially for the overwintering of wildfowl and waders. For example, roughly half the world population of Brent Geese overwinter in Britain and of these, half are found in Essex.

5.2 The site is located adjacent to the Blackwater Estuary NNR and SSSI, but the impact on these is likely to be limited given the development will be located beside the existing power station. The proposed development will result in some loss of habitat but this will not be significant compared to the overall size of the NNR and SSSI.

5.3 Detailed studies have resulted in the designation of a Nature Conservation Zone and a Special Landscape Area. The Nature Conservation Zone is designed to protect the Grade 1 SSSI covering the whole Blackwater Estuary. The Special Landscape Area is one of several in Essex considered particularly valuable; the policy states that any development in these areas must accord with their character.


BRADWELL
SCALE
1 : 250,000
0
5
10 kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
SHEERNESS to
Vlissingen (Flushing) 7 hrs
COLCHESTER
CLACTON-ON-SEA
BRIGHTLINGSEA
Holland-on-Sea
HALSTEAD
MALDON
WITHAM
WIVENHOE
Tiptree
Kelvedon
Coggeshall
Silver End
Earls Colne
West Bergholt
Mistley
Manningtree
Harwich
MERSEA ISLAND
WEST MERSEA
Colne Point
Virley Channel
Mersea Flats
St Osyth Marsh
Jaywick
St Osyth
Point Clear
Holland Haven
Thorpe Bay
Southminster
BURNHAM-ON-CROUCH
Foulness Sands
Foulness Point
Holliwell Point
FOULNESS ISLAND
Potton Island
Havengore Island
MAPLIN SANDS
Shoebury Ness
SOUTHEND-ON-SEA
Chapman Sands
Leigh Beck
Yantlet Dredged Channel
RAYLEIGH
Southend Airport
Hadleigh
Leigh-on-Sea
Rochford
Hockley
Ashingdon
Hullbridge
South Woodham Ferrers
Maldon
Heybridge
Danbury
Chelmsford
Braintree
Colchester
Clacton
Harwich
Ipswich
Sheerness
Isle of Grain
Kingsnorth
Gillingham
ISLE OF SHEPPEY
Minster
Queenborough
Halfway Houses
Eastchurch
Warden
Elmley Island
Kent Oil Refinery
River Medway
River Crouch
River Roach
River Blackwater
River Colne
River Stour
Holbrook Bay
Seafield Bay
Alton Water Rear
Ardleigh Rear
Abberton Rear
Roman R
Ray Sand
Buxey Sand
Dengie Flat
Gunfleet
Colne Point
Salcott
Tollesbury
Goldhanger
Bradwell-on-Sea
Tillingham
Dengie
Mayland
Latchingdon
Althorne
Stansted Airport
Great Dunmow
Saffron Walden
Bishop's Stortford
Harlow
Epping
Brentwood
Basildon
Canvey Island
Southend
Rochford
Maldon
Chelmsford
Braintree
Colchester
Clacton
Harwich
Ipswich
Sheerness
Isle of Grain
Kingsnorth
Gillingham
ISLE OF SHEPPEY
Minster
Queenborough
Halfway Houses
Eastchurch
Warden
Elmley Island
Kent Oil Refinery
River Medway
River Crouch
River Roach
River Blackwater
River Colne
River Stour
Holbrook Bay
Seafield Bay
Alton Water Rear
Ardleigh Rear
Abberton Rear
Roman R
Ray Sand
Buxey Sand
Dengie Flat
Gunfleet
Colne Point
Salcott
Tollesbury
Goldhanger
Bradwell-on-Sea
Tillingham
Dengie
Mayland
Latchingdon
Althorne
Stansted Airport
Great Dunmow
Saffron Walden
Bishop's Stortford
Harlow
Epping
Brentwood
Basildon
Canvey Island
Southend



BRADWELL

SCALE 1:50,000

0 1 2 kms

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.

Bradwell
Marks Tey
COLCHESTER DISTRICT
Stanway
Wivenhoe
Frating
Thorpe-le
Copford
Marks Tey (det)
Feering
East Donyland
Alresford
Great Bentley
Weeley
Birch
Silver End
Kelvedon
Layer-de-la-Haye
Abberton
Fingringhoe
Thorrington
Little Clacton
Messing-cum-Inworth
Abberton Reservoir
Brightlingsea
Rivenhall
Layer Marney
Layer Breton
Langenhoe
Faulkbourne
Tiptree
Peldon
St Osyth
Great Braxted
Great and Little Wigborough
Tolleshunt Knights
MERSEA
East Mersea
CLACTON-ON-SEA
Witham
Virley
West Mersea
Salcott
Little Braxted
Tolleshunt Major
Little Totham
Wickham Bishops
Great Totham
Tollesbury
Tollesbury
Goldhanger
Ulting
Langford
SOUTH COLCHESTER AND MALDON CC
Woodham Walter
Tolleshunt D'Arcy (Part of)
Bradwell-on-Sea
MALDON
MALDON DISTRICT
Woodham Mortimer
Hazeleigh
Mundon
Steeple
St Lawrence
Tillingham
Asheldham
Purleigh
Mayland
Dengie
Cold Norton
Latchingdon
Southminster
Woodham Ferrers
Stow Maries
Althorne
North Fambridge
Burnham-on-Crouch
BURNHAM-ON-CROUCH
FOULNESS SANDS
RIVER CROUCH
Hullbridge
Canewdon
9km

Parish Boundaries

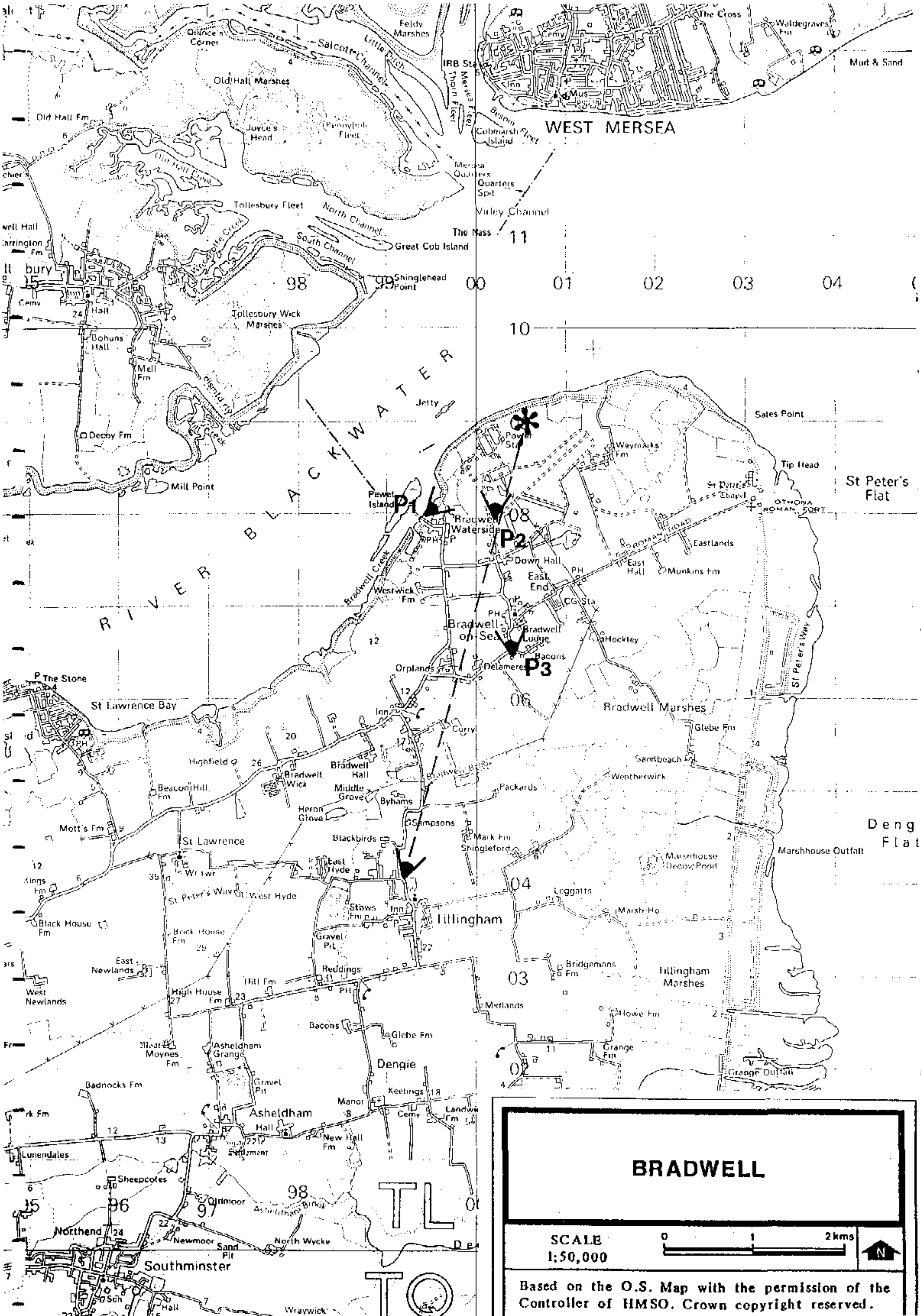
BRADWELL

SCALE 1 : 100,000

0 2 4 kms

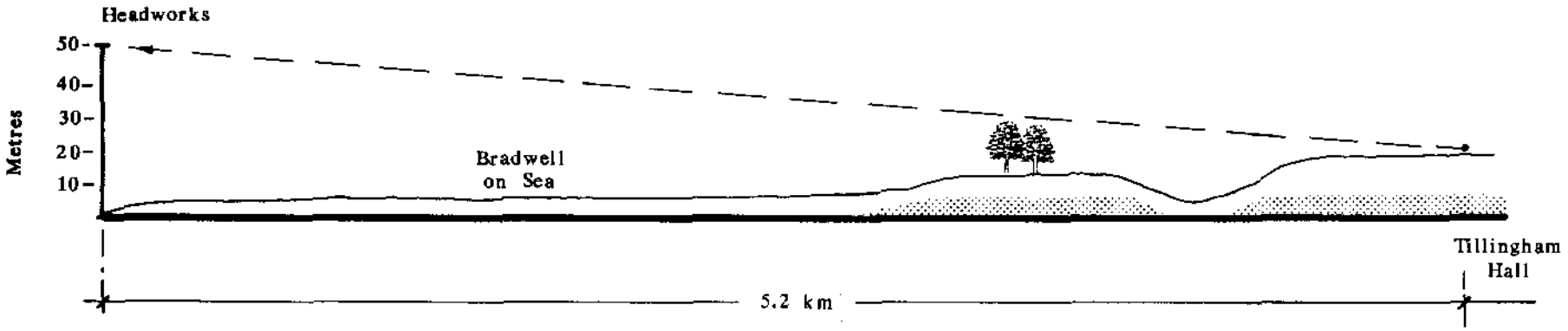
N

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.



BRADWELL
SCALE
1:50,000
0
1
2 kms
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
WEST MERSEA
RIVER BLACKWATER
P1
P2
P3
TL
TQ
Feldy Marshes
Quince's Corner
Salcott Channel
Old Hall Marshes
Old Hall Fm
Joyce's Head
Tollesbury Fleet
North Channel
South Channel
Great Cob Island
Shinglehead Point
Mersea Quarters
Quarters Spit
Virley Channel
The Nass
The Cross
Waldegraves Fm
Mud & Sand
Cobmarsh Island
Tollesbury Wick Marshes
Bohuns Hall
Mell Fm
Decoy Fm
Mill Point
Jetty
Pewet Island
Power Sta
Bradwell Waterside
Weymarks Fm
Sales Point
Tip Head
St Peter's Flat
St Peter's Chapel
OTHONA ROMAN FORT
Eastlands
Down Hall
East End
East Hall
Munkins Fm
Bradwell Creek
Westwick Fm
Bradwell on Sea
Bradwell Lodge
Hockley
Bacons
Delameres
Orplands
CG Sta
St Peter's Way
Bradwell Marshes
Glebe Fm
The Stone
St Lawrence Bay
Curry
Highfield
Bradwell Hall
Bradwell Wick
Sandbeach
Weatherwick
Packards
Beacon Hall Fm
Middle Grove
Byhams
Heron Grove
Sampsons
Mott's Fm
St Lawrence
Blackbirds
Mark Fm
Shingleford
Marshhouse Decoy Pond
Marshhouse Outfall
Dengie Flat
Kings Fm
East Hyde
West Hyde
Leggatts
Black House Fm
Brick House Fm
Stows Fm
Tillingham
Marsh Ho
Gravel Pit
East Newlands
West Newlands
Reddings
Hill Fm
Bridgemans Fm
Tillingham Marshes
High House Fm
Midlands
Howe Fm
Bacons
Glebe Fm
Asheldham Grange
Moynes Fm
Grange Fm
Grange Outfall
Dengie
Badnocks Fm
Gravel Pit
Keelings
Manor
Asheldham
Hall
Cemy
Landwick Fm
New Hall Fm
Lunendales
Sheepcotes
Oldmoor
Northend
Newmoor
Sand Pit
North Wycke
Southminster
Wraywick

VIEW FROM TILLINGHAM



BRADWELL

POWER STATION FROM BRADWELL WATERSIDE

P1

BRADWELL POWER STATION AND AIRFIELD

P2

BRADWELL ON SEA

P3

APPENDIX 3

Dounreay

CONTENTS

SECTION		Page
1.0	SITE CHARACTERISTICS	3.1
2.0	DEVELOPMENT PROPOSALS	3.2
3.0	COMMUNITY	3.3
4.0	LOCAL ECONOMY	3.6
5.0	NATURAL ENVIRONMENT	3.9

Following Text:

- 1:250,000 Location Map
- 1: 50,000 map with overlays showing
  - development proposals
  - designated areas and planning policy areas
- 1:100,000 map of population statistical areas
- 1: 50,000 map showing location of cross section and photographs
- cross section diagram
- photographs

1.0 SITE CHARACTERISTICS

Location:	**Highland Region (Planning Authority) Caithness District**
Size:	**450 hectares (1,115 acres)**
Ownership:	**UKAEA**
Land Use:	**Agriculture**
Grid Reference:	**NC 9766**

1.1 Dounreay is located on the north coast of Scotland approximately 12 km to the west of Thurso (see maps).

1.2 The Dounreay Nuclear Establishment (DNE) was set up in the 1950s to research the fast reactor system. In 1976, a 250 MW fast reactor was commissioned, with the aim of developing the technology to build commercial reactors. In 1985 UKAEA and BNFL applied for outline planning permission for a European Demonstration Fast Reactor Fuel Reprocessing Plant (EDRP) east of the DNE. Following a 95 day public inquiry in 1986, the decision from the Secretary of State for Scotland is still awaited.

1.3 In July 1988 the Government announced the withdrawal of funding for research into the commercial fast reactor. By 1988 employment at Dounreay will be a quarter of current levels.

1.4 The Dounreay NE is a prominent land use and clearly visible from the A836 but not from most of the village of Reay, although the village is only 2km away. The surrounding land is used for agriculture - both arable and pasture.

1.5 The site is adjacent to the A836, 12 km from the A882(T) at Thurso. The A882(T) joins the A9(T) at Wick. Alternatively, the A895 branches from the A882(T) to joint the A9 at Latheron, 37km from Thurso. Whilst these are trunk roads, they are both narrow and of poor alignment in places.

1.6 The nearest railwayline is the Thurso/Inverness line approximately 14 km to the east at Thurso. The EDRP planning application included provision for a rail link to Dounreay. The preferred option was for an 18.7 km line from the plant, joining the BR North Highland line near Scotscalder station.

Pieda

2.0 DEVELOPMENT PROPOSALS

Assumptions

Land Take: **60 ha surface working**
83-97ha rail link

Infrastructure: new rail link 16.5-19.5km

Waste Transport:rail - 497 trains pa

Spoil Disposal: 1m tonne on site
12.9m te over 50 years - rail to central Scotland (approx 300 trains pa)

2.1 The potential repository surface workings have been located immediately adjacent to the Dounreay Nuclear Establishment, close to the coastal edgeof the UKAEA land (see red overlay on 1:50,000 Map 1).

2.2 A short access road would link to the existing access to the Dourneay NE. Port facilities would not be provided.

2.3 A rail link would be constructed to the British Rail North Highland line near Scotscalder station. JMP Consultants have put forward two principal options: the East and West Routes, with a connection between the two near Westfield giving a third option.

2.4 The West Route passes close to Shebster, Broubster and Brawbin; the East Route is close to Upper Dounreay, Westfield and alongside Loch Calder and Loch Olginery (see overlays to maps 1 and 2).

2.5 JMP Consultants estimate approximately 320 vehicles per day will use the A836 from the site at Dounreay.

2.6 The annual workforce is estimated to be as follows:

Construction	310	under land (9 years)
	290	under sea (10 years)
Operation	330	
De-commissioning	50	under land (8 years)
	55	under sea (8 years)

3.0 COMMUNITY

Dwellings within 2km of site centre: approx 40
Estimated population within 9km of site centre: 700
Estimated population density within 9km of site centre: 0.03 ppha
District Population density: 0.15 p.p.ha.

Surrounding settlements	Population
1 km to Reay	**250 (estimate)**
13 km to Thurso	**8,828**

3.1 In the Environmental Impact Assessment for the EDRP, it was stated that the population within 1.6km of the Dounreay NE was 41 and within 4.8km it was 556.

3.2 Based on the 1981 census data for resident population in civil parishes, the population within 9km of the site centre was estimated as follows: (see 1:100,000 map for parish boundaries):

Parish	Resident Population Total	Population est within 9km
Reay	655	635
Farr	1,113	20
Thurso	9,234	30
Halkirk	1,866	30
		715
		(rounded to 700)

3.3 Reay is the nearest settlement to the proposed repository site. The main part of the village is to the west, 2km from the potential repository site. There are several new houses in the village including a small estate under construction at the east end (see map overlay). There is a small shop, a garage, a primary school and a community hall in the village.

3.4 There are a number of Listed Buildings in the village and one at the harbour in Sandside Bay. Along both possibly rail routes there are brochs and chambered cairns. There are also a number of standing stones near the West Route.

Pieda

3.5 Thurso is the major centre for the area, providing primary and secondary schools and a technical college, hospital, swimming pool, job centre, council offices and a variety of shops. The technical college has teaching links with Dounreay.

3.6 At the 1981 Census, 75% of all occupied housing in the West Caithness Local Plan area was rented accommodation, most of it owned either by the District Council or UKAEA.

3.7 The West Caithness Local Plan estimates distribution of new housing in the period 1986-91 to be 26 hectares (300 dwellings) in Thurso and 11 hectares (80 dwellings) in the landward area. Outline planning permission has been granted for a residential development on 16 hectares on the south-eastern side of Thurso. A further 18 hectares are to be safeguarded for longer term development. The provision of housing land is presently substantially greater than the average level of completions in the previous few years. Demand for housing is likely to diminish with the run-down of the Dounreay Nuclear Establishment.

Disturbance

3.8 The possible visual impact of the repository surface workings in illustrated by the section drawings and photographs. The development would be partially visible from Reay (and New Reay). As with the existing Nuclear Establishment, it would be clearly visible from the A836. Noise from the working may be heard in Reay.

3.9 Both possible rail routes pass close to a member of houses (see map overlays). The West Route runs near Shebster and through the scattered dwellings of Brawlbin. The East Route is close to Upper Dounreay, Westfield and houses east of Loch Calder. The railway construction would have an impact on these dwellings and during use there would be visual and noise inputs in an otherwise quiet rural area.

3.10 Care would need to be taken in order to prevent damage to the numerous historical remains along the routes. Amendments at the detailed routing stage couldensure that both dwellings and historical sites are avoided.

3.11 Thurso has a large and diverse community infrastructural base that should be able to absorb the additional demand from construction workers and permanent repository workers and their families. It is anticipated that a proportion of local people would be employed which will reduce the number and therefore impact of incoming workers.

Local Nuclear Experience

3.12 The Dounreay Nuclear Establishment has been a major influence on the local community for over 30 years. Many local people (including from Reay itself) work there at present.

4.0 LOCAL ECONOMY

Travel to Work Area (TTWA): Thurso
Employed in TTWA: 6,922 (April 1988)
Travel to Work Area
Unemployment (in TTWA) : 11.6% 803 people (April 1988)
Major employer: Dounreay (employs 2,100)

4.1 At the 1981 Census, the employment structure of the 11,200 people living and in employment in Caithness was:

	%
Primary	9.3
Manufacturing	11.5
Construction	9.5
Distribution/catering	19.5
Transport	6.9
Professional and related services	43.4

4.2 The economy of the area is dominated by Dounreay which directly employs 20% of the workforce of Caithness. The West Caithness Local Plan states that the Establishment at Dounreay expects to lose about 150 jobs, by natural wastage, over the duration of the Local Plan period (1986-91). This is contrasted with the possible requirement for about 600 workers during the construction phase of the European Demonstration Fast Reactor Fuel Reprocessing Plant (EDRP). The Local Plan acknowledges that "local economic performance over the next 5-10 years hinges fundamentally upon Government decisions on the future of Dounreay".

4.3 In July 1988 this dependence of the local economy on Dounreay came to the fore with the announcement that the Government would be withdrawing funding for the research programme for commercial fast reactors. Employment at Dounreay is expected to fall from 2,100 to about 1,600 by the mid-1990's and to some 500 by 1998.

4.4 The Highlands and Island Development Board (HIDB) has instigated work to examine the likely impact of the run-down and assess the options to bring alternative employment to the area.

4.5 One of the largest employers in the manufacturing sector is also at Dounreay - HMS Vulcan - a spin-off of the UKAEA development. Elsewhere the main centres for employment are Thurso and Wick.

Pieda

4.6 The natural resources of fishing, agriculture, forestry and peat are all important to the local economy, particularly in the rural areas. Tourism is also regarded as an important employment source. It is focused on John O'Groats, together with the area's natural attractions of cliffs, sandy beaches and recreational fishing and Scrabster's role as the ferry terminal to the Orkney Islands.

4.7 The major economic policies of the Regional Council involve supporting the existing employment base, including Dounreay, and allocating land for future development. For example, Murkle Bay adjacent to The Spur in Dunnet Bay, has been earmarked for major industry requiring sea access. The Regional Council continue to consider the site appropriate for oil-related development, acknowledging that particular care would be needed to safeguard the surrounding area, which is important for agriculture and tourism.

4.8 At April 1988, there were 803 people unemployed (a rate of 11.6%) in the Thurso TTWA and 820 people (15.5%) in the Wick TTWA.

Local Economic Benefit

4.9 It is likely that the Caithness area could provide much of the labour supply for the construction and operation of a repository. During operation there could be a good skill match with the existing workforce, utilising training links with the College in Thurso. The imminent run-down of the Dounreay NE will result in high levels of unemployment in thearea,with many of the people having experience of nuclear-related work or appropriate construction and maintenance skills.

4.10 The manufacturing base in Caithness is not particularly strong and would be unlikely to be able to provide inputs, other than labour, to the proposed repository.

4.11 With the narrow economic base in the local area and the lack of specific features (location, resources etc) there is probably very little scope to attract significant new economic activities into the area.

Blight

4.12 Around Dounreay the activities most likely to be affected by a repository development are fishing along the Coast, agriculture and tourism. However, it is considered that the existing presence of the nuclear estalishment would substantially reduce any blighting effect of the repository. Blight is therefore not regarded as being a particular problem in this area.

Resource Sterilisation

4.13 The repository surface working would involve loss of about 60ha (150 acres), which is predominately grade 4.2 land quality (Macaulay Institute Land Capability for Agriculture classification). The new rail link would involve a substantial land take, most of which is moorland but some is cultivated or lowland grazing. JMP Consultants estimate a land take of 83-97 ha, depending on the route. The 83ha of the West Route involves about 15ha of grade 4 land, in contrast to the 97 ha of the East Route, which takes up some 59 ha. Locally, this grade 4 land is an important resource.

5.0 NATURAL ENVIRONMENT

Designations: Proposed AGLV - Sandside Bay
SSSI - Sandside Bay
- Red Point Coast
- Westfield Bridge
- Broubster Leans
- Loch Olginey
- Ben Dorrery

5.1 There are no National Scenic Areas near Dounreay. The coast from Sandside Bay to the west is identified as part of a Preferred Conservation Zone in the Scottish Development Department Coastal Planning Guidelines (1974). This zone is based on both nature conservation and landscape value. Highland Regional Council have a 'development restraint' policy (Local Plan para 2.50) covering Sandside Bay and the coastline to the west (see map overlay).

5.2 Highland Regional Council proposes to designate 61 ha at West Sandside Bay as an Area of Great Landscape Value.

5.3 The dunes and links of Sandside Bay are a designated SSSI (approx 77 ha) and Red Point Coast, west of Sandside Bay, is an SSSI nationally important as a breeding ground for seabirds.

5.4 South-east of Dounreay, alongside the proposed rail link routes, there are SSSIs at Westfield Bridge, Loch Olginey and Broubster Leans. The first is a rich wet meadow and the second a eutrophic loch important for its flora and winter wildfowl. Broubster Leans is a mire of national importance as a wetland habitat and for ornithology.

Disturbance from Development

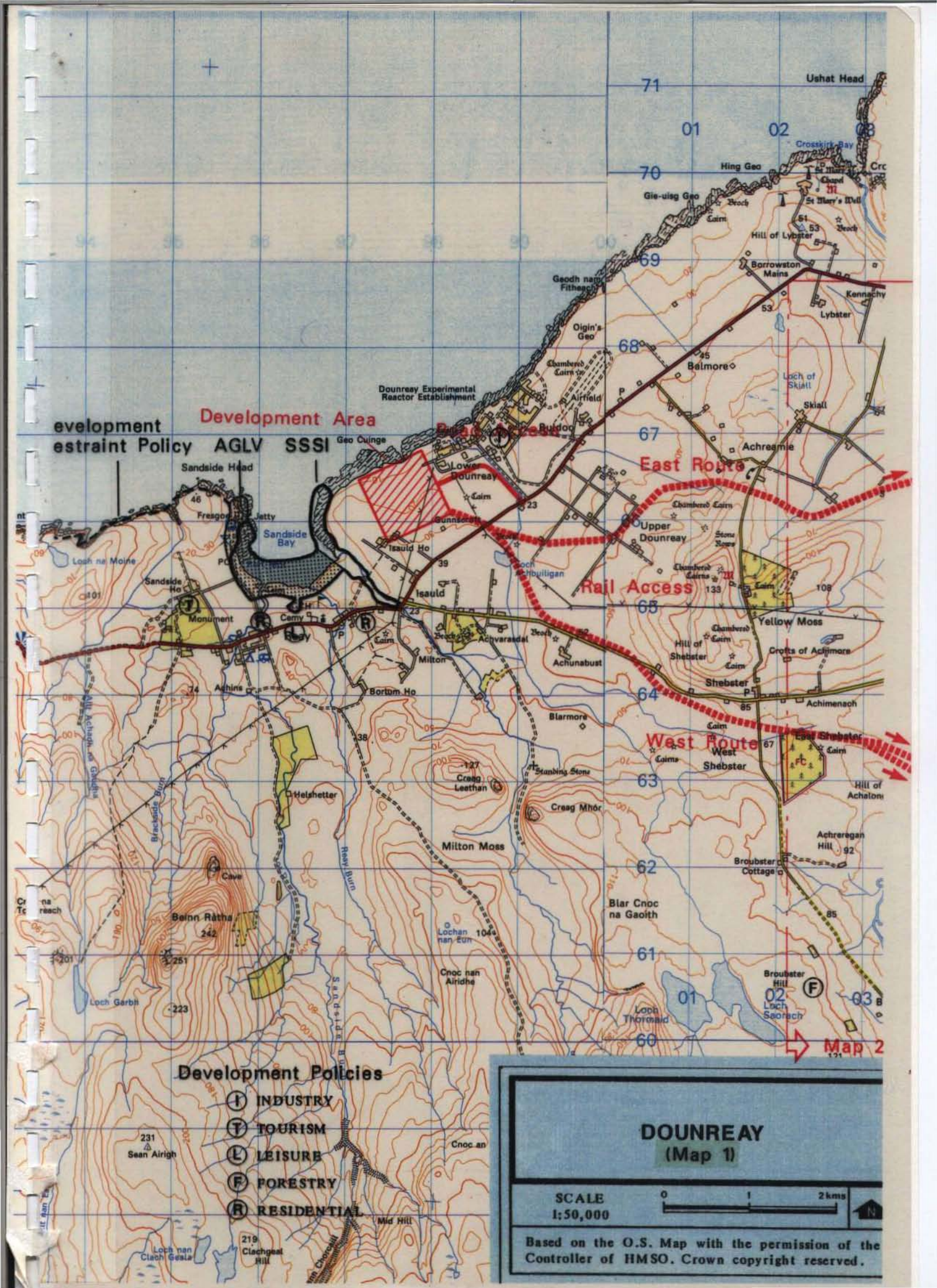
5.5 The potential site of the repository does not appear to pose special problems from a landscape or nature conservation view. Careful design and screening would mitigate the visual intrusion, which would be lessened by the juxta position with the existing Dounreay NE. Sandside Bay should be unaffected.

5.6 Particular care would need to be taken during the construction of the railway line to avoid disturbance of the SSSIs nearby. This is pertinent whichever route is

selected but particularly relevant to the West Route, which at present is close to Broubster Leans (see map overlays). Both rail routes would be intrusive in the moorland landscape.

5.7 The East Route for the rail link passes adjacent to Loch Calder, which is the main water supply source for Caithness District (apart from Wick and Dounreay). Particular care would need to be exercised to prevent its pollution during construction of the line.

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.

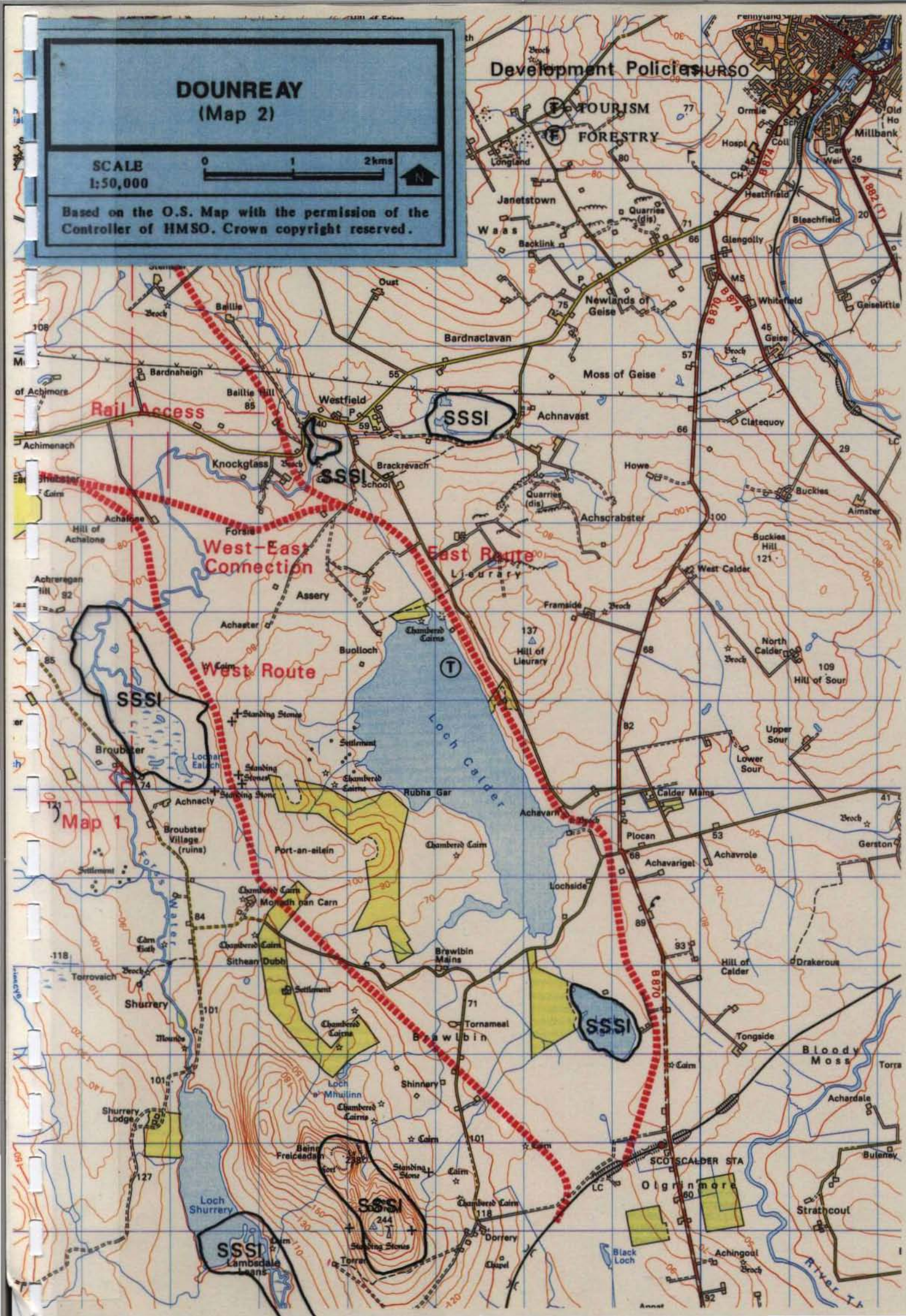


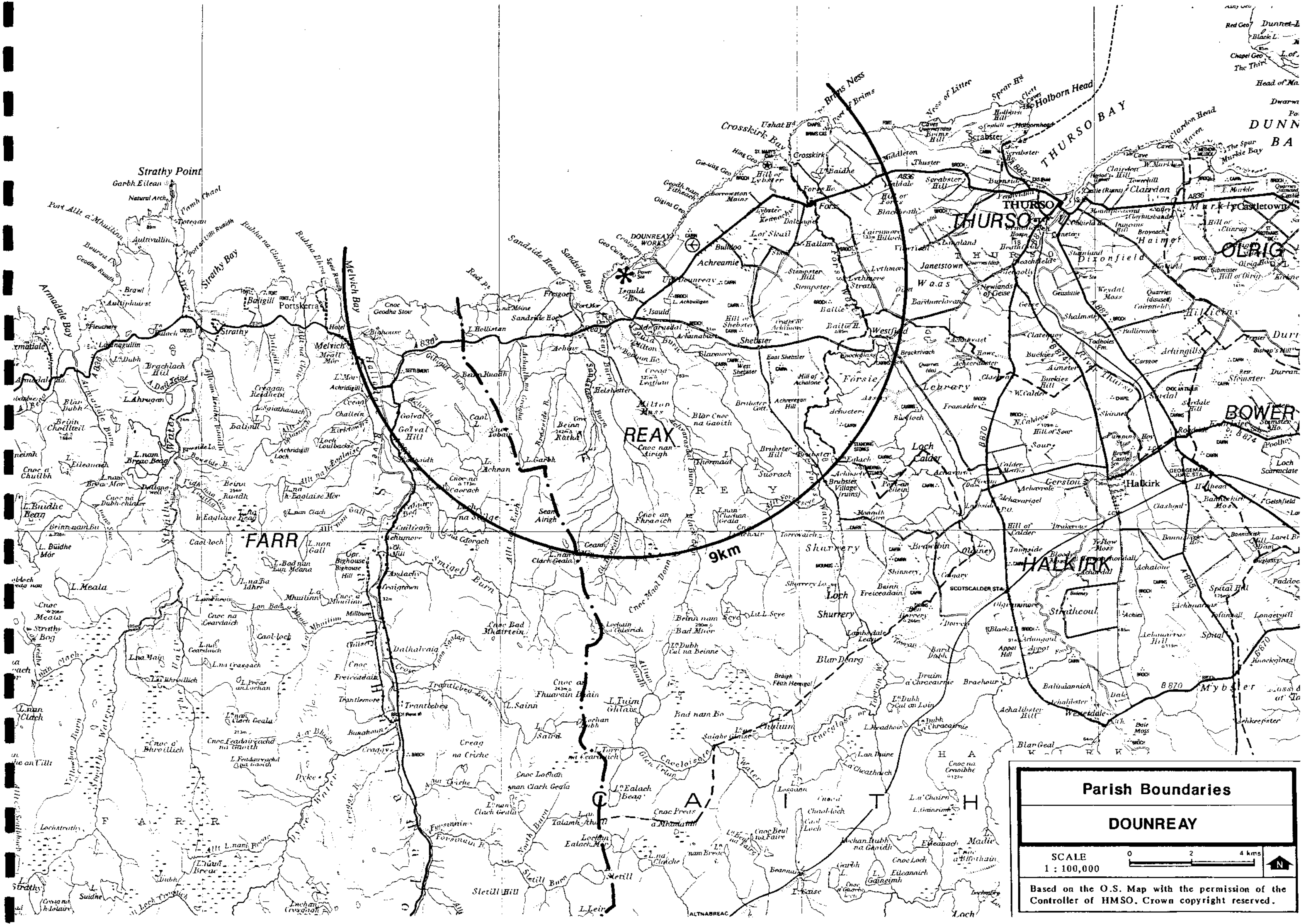
DOUNREAY
(Map 1)

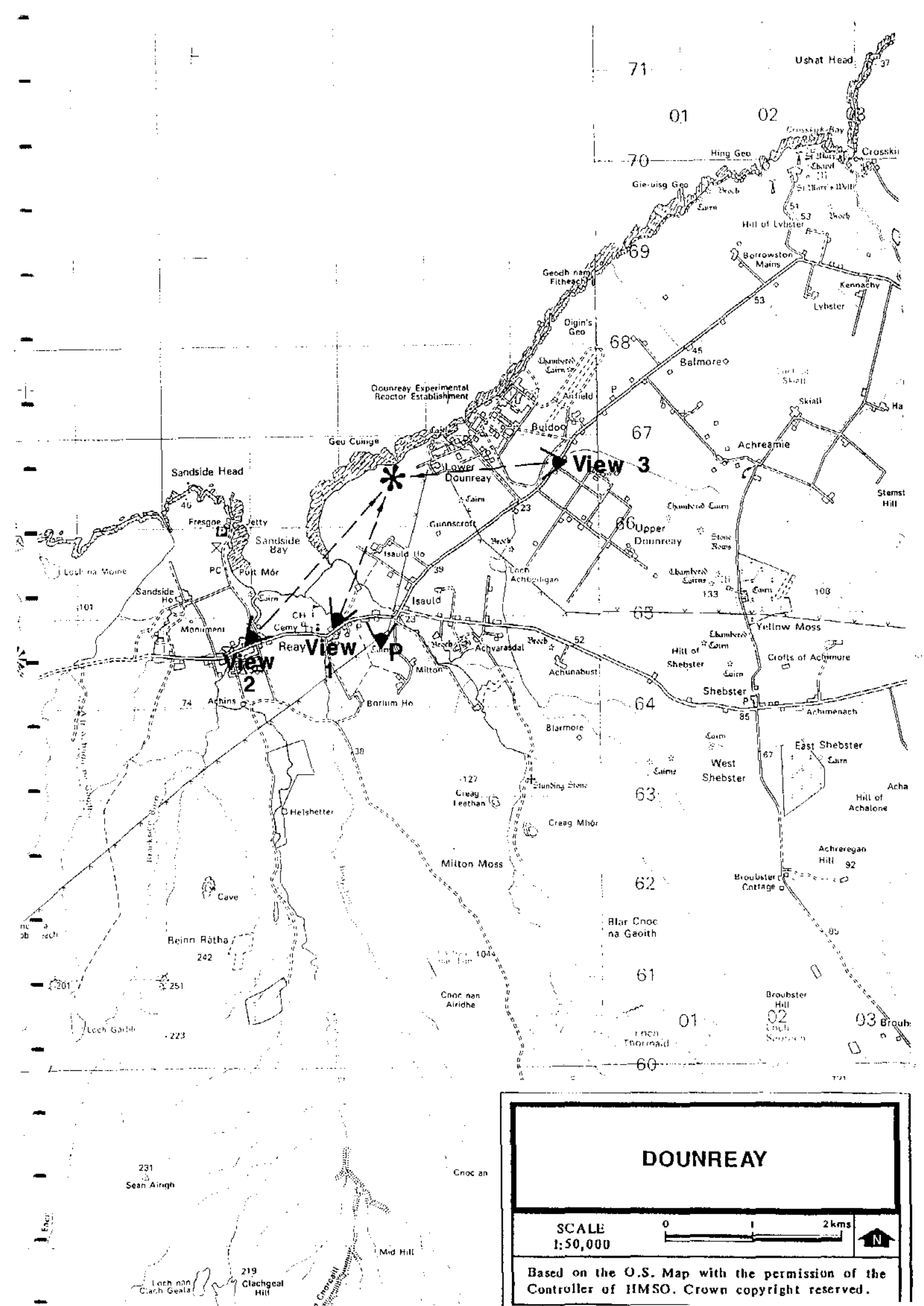
SCALE 1:50,000

0 1 2 kms

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.


DOUNREAY
(Map 2)
SCALE
1:50,000
0
1
2kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
Development Policies
THURSO
TOURISM
FORESTRY
Rail Access
West-East Connection
East Route
West Route
Map 1
SSSI
Loch Calder
Loch Shurrery
Loch a' Mhuilinn
Bardnaclavan
Moss of Geise
Achnavast
Westfield
Knockglass
Brackravach
Achscrabster
Lieurary
Assery
Achaster
Buolloch
Hill of Lieurary
Hill of Sour
Upper Sour
Lower Sour
Calder Mains
Achavarn
Plocan
Achavrole
Achavarigel
Lochside
Rubha Gar
Port-an-eilein
Monadh nan Carn
Sithean Dubh
Brawlbin Mains
Tornameal
Brawlbin
Shinnery
Shurrery
Shurrery Lodge
Torrovaich
Broubster
Achnacly
Broubster Village (ruins)
Forss Water
Achimenach
Achalone
Hill of Achalone
Achreregan
Bardnaheigh
Baillie Hill
Baillie
Oust
Newlands of Geise
Janetstown
Waas
Backlink
Longland
Quarries (dis)
Glengolly
Whitefield
Geiselittle
Bleachfield
Heathfield
Millbank
Ormlie
Hospl
Coll
Geise
Clatequoy
Howe
Buckies
Aimster
Buckies Hill
West Calder
Framside
North Calder
Hill of Sour
Upper Sour
Lower Sour
Gerston
Drakerous
Hill of Calder
Tongside
Bloody Moss
Achardale
Buleney
Strathcoul
Achingoul
Black Loch
Dorrery
Chapel
Torran
Lambsdale Loans
Beinn Freiceadain
Standing Stones
Chambered Cairns
Settlement
Cairn
Mounds
Torra
SCOTSCALDER STA
Olgrinmore
River Th
B 874
B 870
A 882 (T)


Strathy Point
Garbh Eilean
Natural Arch
Tamh Chaol
Port Allt a' Mhuilinn
Aultivullin
Port of Ulli/ Ruadh
Rubha na Gluiche
Rubha Bhrid
Sgeir Ruadh
Bourva
Geodha Ruadh
Brawl
Aultiphurst
Strathy Bay
Armadale Bay
Fleuchers
Lochnagullin
Armadale
Strathy
Portskerra
Melvich Bay
Melvich
Hotel
Bighouse
Sandside Head
Sandside Bay
Red Pt
Fresgoe
Cnoc Geodha Stoir
L. Hollistan
Sandside Hse
Fort Mor
Reay
Reay Burn
Gilligal Burn
Beinn Ruadh
Achins
Achridigill
Creagan Reidheit
Chailein
Kirktown
Golval Hill
Golval B.
Loch Coulbackie
Achridigill Loch
Bowside Lo.
Bowside B.
Beinn Ruadh
Cnoc na Dubh-chlaise
Beinn nam Bo
Cnoc Meal Donn
Cnoc Bad Mhairtein
Dalhalvaig
Trantlebeg
Trantlemore
Freiceadain Hill
Cnoc a' Mhuilinn
Millbourne
Smigel Burn
Smigel
Caol-loch
Loch Caol-loch
Loch Ceardaich
Loch Grassach
Loch Meala
Loch Buidhe Mor
Loch Buidhe Beag
Loch Suidhe
Loch Strathy
Loch Strathy Bog
Loch Naver
Loch Coire Dhomhnuill
Loch Craggie
Loch Forsinain
Loch Sletill
Loch Leir
Loch Calder
Loch Shurrery
Loch Olney
Loch Scarmclate
Loch Heilen
Loch Watten
Loch Toftingall
Loch Mybster
Loch Knockglass
Loch Lee
Loch Caolain
Loch Eileanach
Loch Gainneimh
Loch Eileanaich
Loch Madie
Loch Ealach Beag
Loch Ealach Mor
Loch Coulbackie
Loch Tobaic
Loch Achran
Loch Garbh
Loch Tuim Ghlais
Loch Fearnach
Loch Feadan-each-na-Gaoith
Loch Feadan-each-Caol-Gaoith
Loch Fhuarain Bhain
Loch Sainn
Loch Saird
Loch Dubh
Loch Lochain nan Clach Geala
Loch Talamh-Thuim
Loch Eilean Mor
Loch Eilean Beag
Loch Lochain Dubh na Gaoith
Loch Lochain Dubh
Loch Lochain Dubh na Beinne
Loch Lochain Dubh Cul na Beinne
Loch Lochain Dubh Cul an Loin
Loch Lochain Dubh a' Chracairnie
Loch Lochain Uaine
Loch Lochain Uaine na Cleathaich
Loch Lochain Uaine Cnoc na Craoibhe
Loch Lochain Uaine L. a' Chairn
Loch Lochain Uaine L. Gainneimh
Loch Lochain Uaine Cnoc Loch
Loch Lochain Uaine Cnoc a' Gharbh Loch
Loch Lochain Uaine Cnoc Preas a' Mhuilinn
Loch Lochain Uaine Cnoc Beul na Faire
Loch Lochain Uaine Lochan Dubh na Gaoith
Loch Lochain Uaine Lochan Dubh
Loch Lochain Uaine Lochan Uaine
Loch Lochain Uaine Lochan Eilean Mor
Loch Lochain Uaine Lochan Eilean Beag
Loch Lochain Uaine Lochan Cnoc Preas a' Mhuilinn
Loch Lochain Uaine Lochan Cnoc Beul na Faire
Loch Lochain Uaine Lochan Cnoc Loch
Loch Lochain Uaine Lochan Cnoc a' Gharbh Loch
Loch Lochain Uaine Lochan Cnoc Eileanaich
Loch Lochain Uaine Lochan Cnoc Gainneimh
Loch Lochain Uaine Lochan Cnoc Eileanaich
Loch Lochain Uaine Lochan Cnoc Madie
Loch Lochain Uaine Lochan Cnoc a' Mhuilinn
Loch Lochain Uaine Lochan Cnoc Meal Donn
Loch Lochain Uaine Lochan Cnoc Bad Mhairtein
Loch Lochain Uaine Lochan Cnoc Fhuarain Bhain
Loch Lochain Uaine Lochan Cnoc Sainn
Loch Lochain Uaine Lochan Cnoc Saird
Loch Lochain Uaine Lochan Cnoc Dubh
Loch Lochain Uaine Lochan Cnoc Clach Geala
Loch Lochain Uaine Lochan Cnoc Talamh-Thuim
Loch Lochain Uaine Lochan Cnoc Eilean Mor
Loch Lochain Uaine Lochan Cnoc Eilean Beag
Loch Lochain Uaine Lochan Cnoc Preas a' Mhuilinn
Loch Lochain Uaine Lochan Cnoc Beul na Faire
Loch Lochain Uaine Lochan Cnoc Loch
Loch Lochain Uaine Lochan Cnoc a' Gharbh Loch
Loch Lochain Uaine Lochan Cnoc Eileanaich
Loch Lochain Uaine Lochan Cnoc Gainneimh



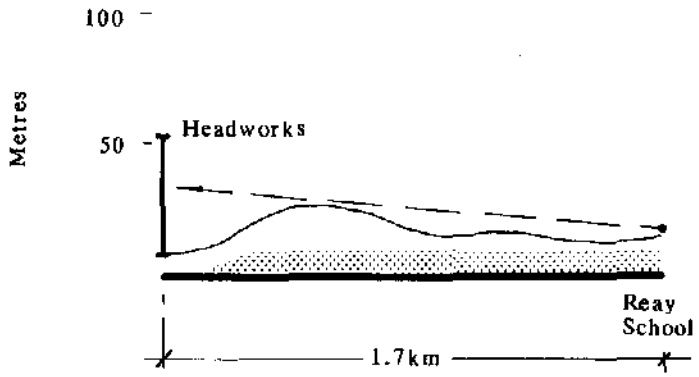
DOUNREAY

SCALE 1:50,000

0 1 2kms

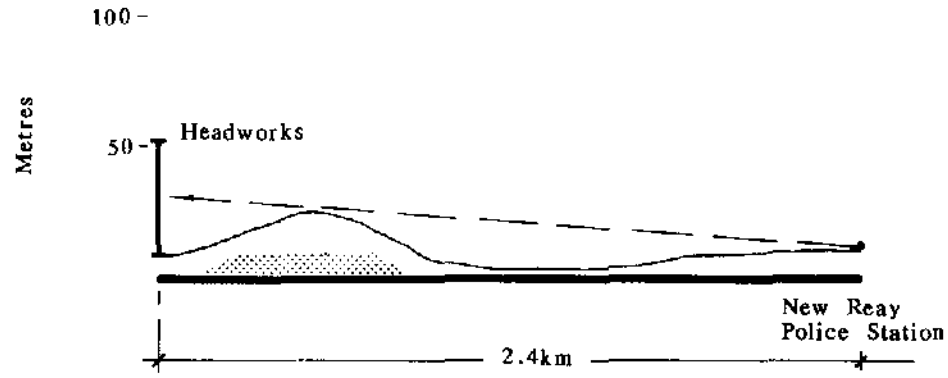
N

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.



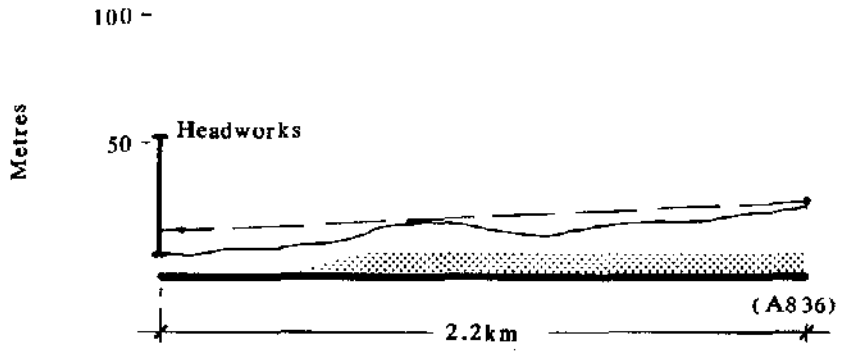
View 1

VIEW FROM REAY



View 2

VIEW FROM NEW REAY



View 3

VIEW FROM EAST

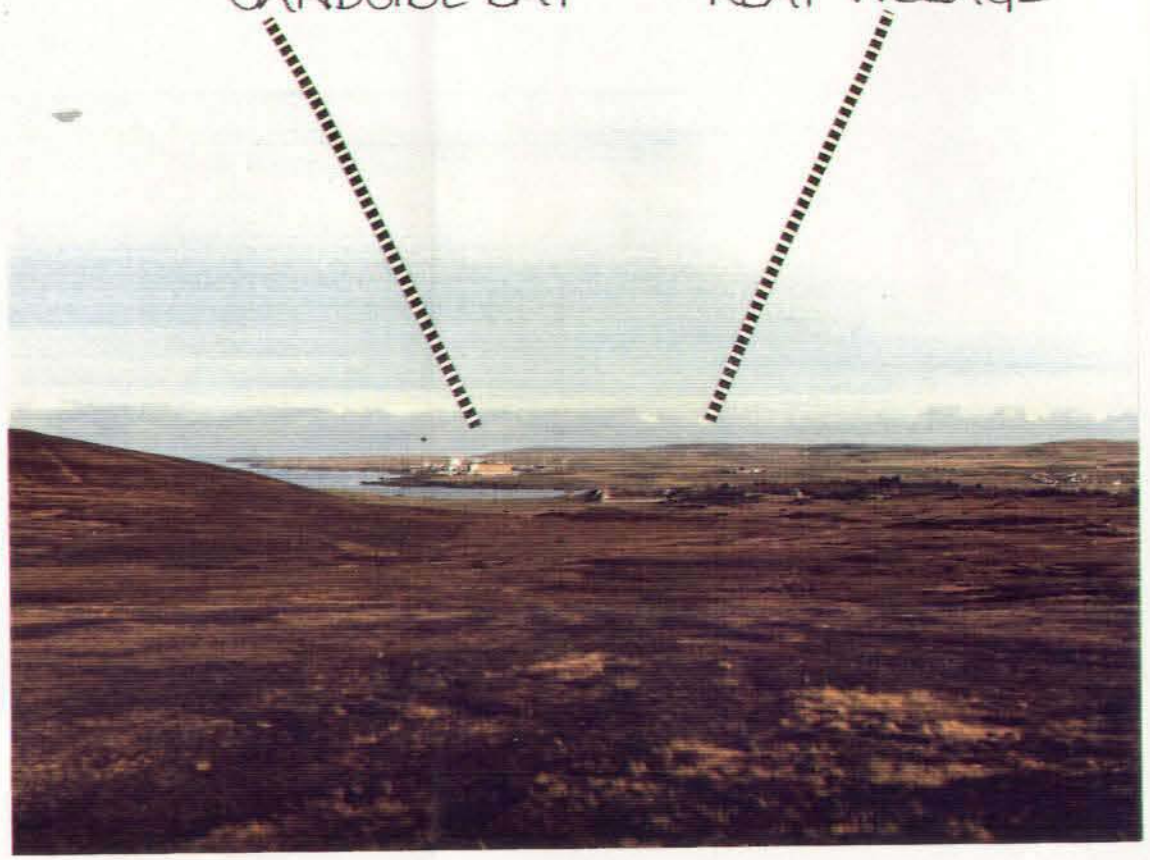
(Grid ref.995667)

DOUNREAY

DOUNREAY FROM WEST

SANDSIDE BAY

REAY VILLAGE



LISTED BUILDINGS AND HARBOUR

SANDSIDE BAY

SANDSIDE BAY

REAY VILLAGE

PROPOSED SITE

DOUNREAY

APPENDIX 4

Fuday

CONTENTS

SECTION		Page
1.0	SITE CHARACTERISTICS	4.1
2.0	DEVELOPMENT PROPOSALS	4.2
3.0	COMMUNITY	4.3
4.0	LOCAL ECONOMY	4.6
5.0	NATURAL ENVIRONMENT	4.8

Following Text:

- 1:250,000 Location Map
- 1: 50,000 map with overlays showing
  - development proposals
  - designated areas and planning policy areas
- 1:100,000 map of population statistical areas
- 1: 50,000 map showing location of cross section and photographs
- cross section diagram
- photographs

1.0 SITE CHARACTERISTICS

Location Region:	**Western Isles**
Size:	**250 hectares (approx)**
Ownership:	**Secretary of State for Scotland**
Grid Reference:	**NF 7308**

1.1 Fuday is located just off the north east of Barra. It is situated between Barra, South Uist and Eriskay. The island is used for grazing cattle which are shipped out from Eoligarry on Barra. There are no roads or built port facilities on Fuday. The use of port facilities at Eoligarry jetty is restricted by rocks and sandbanks at low tide.

1.2 The island is gently sloping on the west side with a sweeping sandy beach backed by dunes. The east coastline has steeper slopes and a rocky coastline. The island is lowlying and rises to only 89 metres. There are a couple of small streams which drain into the sea.

1.3 The nearest inhabited island is Barra. The crofting township of Eoligarry is located on the northern tip of Barra approximately 1.5 km to the west of Fuday. The agricultural land around Eoligarry is probably one of the best farming areas on Barra. The land is used for grazing cattle and growing some crops.

Pieda

2.0 DEVELOPMENT PROPOSALS

Assumptions

Landtake: **250 hectares (whole island)**

Infrastructure: **Port facilities on Fuday**
Causeway between Eoligarry and Fuday
Extension to airfield

Waste transport: **ship - 75 ship pa**

Spoil Disposal: **13.9m tonnes to be disposed at sea**

2.1 It is proposed to use the whole island (250 hectares) and to construct a port on the south east coast with the repository adjacent to the port. A construction camp will be required to house the construction labour force and it is proposed to locate this at Eoligarry on Barra and to construct a causeway link between Barra and Fuday. It is also proposed to upgrade and extend the existing airstrip onto the mainland of Barra.

2.2 The waste would be transported to Fuday by ship. JMP estimate that this would involve 75 return journeys a year. In addition, spoil would be removed by barge for sea dumping or tipped into the sea immediately offshore. The latter option may not be desirable considering the shallow depth of the sea in the area and the proximity of fish farms.

2.3 The estimated labour requirements are:

Construction:	320 for 10 years
Operational:	380 for 50 years
De-commissioning:	60 for 9 years

It has been assumed that 50% of the employees would live in married/family accommodation constructed on Barra and the remaining staff would be employed on a 2 week on/2 week off basis and would live in a construction camp.

3.0 COMMUNITY

District population density. 0.11 pp hectare (Western Isles)

Surrounding settlements

Distance	Settlement	Approx Population
1.5 km	**Eoligarry/Brevig area**	**508**
6 km	**Eriskay - Total population on island**	**197**
	Kilpheder - South Glendale S Uist	**609**
	Barra - Total population on island	**1,257**

(Source: Western Isles Structure Plan and 1981 Census)

Number of properties within 2 km of the Centre of the site: Approx 20

3.1 The population with 9km of the centre of the site was calculated and the relevant Local Plan statistical areas (SA) are listed below:

	Statistical Area	Total Population	Estimated Population within 9km
SA	7.6 Kilpheder - South Glendale	609	300
	7.7 Eriskay	197	197
	8.1 Eoligarry + Brevig	508	508
	8.2 Castlebay - Cliad	749	50
	Total		1,055

There are therefore approximately 1,100 people within 9 km of the site, with parts of the islands of Barra, Eriskay and South Uist all in the area (see 1:100,000 map).

3.2 The island of Fuday is uninhabited. The nearest settlement is Eoligarry on Barra approximately 1.5 km to the west. There are only a limited number of community facilities in the area including a school and a church.

3.3 The main settlement on Barra is Castlebay approximately 12 km to the south west of Fuday. This is the islands' administrative and service centre. The remainder of the population is dispersed in townships on or near the coastal road and on the coastal strip in the north. The hilly interior of the island is uninhabited.

3.4 Housing in the Western Isles is closely linked with the crofting system. There is little movement between the crofting sector and the non-crofting private sector and therefore little mobility between house types, sites and locations within crofting townships. The crofting system, in particular the difficulty of releasing land for development can have a significant effect on the location of new housing. Contrary to immediate impressions the amount of land suitable for housing, other than croft housing, and which is acceptable in both physical and planning terms is fairly limited. This is the case in Castlebay.

3.5 Castlebay offers a range of facilities including the newly constructed community school which contains a library, a swimming pool and facilities for a theatre. There is also a small hospital (5 beds) and old peoples home. Castlebay has five shops, a bank and a post office, but there is no baker or butcher. The inhabitants are dependent on the ferry for most foodstuffs. There is little evidence of self sufficiency in vegetables etc. Mobile shops, bank and library operate from Castlebay.

3.6 The Western Isles as a whole are heavily dependent on their transport links with the Scottish Mainland. Caledonian MacBrayne operate a vehicle ferry between Oban, Castlebay and Lochboisdale, with three crossings per week in winter and four crossings per week in the summer. Castlebay has no roll on/roll off facilities although there are plans to provide this in the near future. There are also 2 small passenger ferries, between Castlebay and Vatersay and between Eoligarry and Ludag (South Uist), both these ferries appear to be well used. There is a daily air service between Barra, Tiree and Glasgow and a twice weekly service between Stornoway, Benbecula and Barra.

3.7 The only public transport on Barra is provided by the Post Bus and the privately operated school bus. Most residents have access to a car and at certain times ie just before school or a flight arriving the single track roads can be congested.

3.8 Planning policy is based on a recognised settlement hierarchy which helps in the assessment of competing needs and the allocation of council resources in a rational manner. Castlebay is classified as a "level 2" settlement providing service and administrative functions to the whole island. Stornoway has been identified as the only "level one" settlement. Eoligarry is classified as a "level 4" settlement ie with few community facilities.

3.9 The Western Isles Council has a general policy against development in remote areas, Policy C21 states:

> "The Council will not permit new development in very remote locations and an uninhabited island except:
>
> (a) if the development is of a particularly hazardous nature and cannot be located elsewhere; or
>
> (b) in the case of resource based developments where such development is not possible or is unsuitable or environmental grounds in a more accessible area.

Disturbance

3.10 The islands of South Uist and Eriskay are approximately 5 km to the north and east of Fuday. Both these islands are inhabited and and a large proportion of the housing on Eriskay and several townships on South Uist look out over Fuday. The proposed repository, and in particular the causeway, would inflict considerable visual and noise impacts on the surrounding communities.

3.11 The construction phase of the proposed repository would probably require a residential camp for workers, the best location for this would be on Fuday. In the long run it would be desirable from an operational viewpoint to house the permanent workers on Barra. Eoligarry could not support a large influx of people, it has very few facilities at the moment. The alternative location of Castlebay is a considerable distance away and this would involve workers travelling the whole length of Barra on single track roads or alternatively a lengthy sea journey from Castlebay to Fuday.

3.12 Even then the impact on Castlebay would be severe. It could involve the virtual doubling of its population which whilst helping to support some services could overload the provision of others such as medical facilities. Purpose built housing would have to be provided and the availability of land may mean that this is isolated from the main settlement. Barra is a gaelic speaking area and the schools are bi-lingual, a large influx of non-gaelic speakers would alter the balance of the community.

Local Nuclear Experience

3.13 There are no nuclear establishments in the Western Isles.

4.0 LOCAL ECONOMY

Travel to Work Area: **Western Isles**
Unemployment: **20.8% 2,050**
Employment in manufacturing in region: 2,036
Major employment: Crofting, fishing, tourism

4.1 Crofting and fishing are the major economic activities at Eoligarry on Barra. There is also a school, a small haulage business and three chalets providing tourist accommodation.

4.2 The employment structure on Barra is centred on job pluralism, that is many people have a number of part time jobs such as crofting, fishing and providing tourist accommodation. In addition, the local services and transport are major employers. There are very few manufacturing employers, the major two are Barra Shell (concrete block manufacture) and Barra atlantic fish processing factory. The labour force of the latter varies considerably. Both these factories are located towards the northern end of Barra.

4.3 The 1981 employment survey also identified a large number of people who work away from Barra; it was estimated that 40 were working in the North Sea Oil industry and a further 40 were in the merchant navy.

4.4 The local labour supply from the immediate area for development on Fuday would be very limited. Even major construction projects on Barra, such as the community school had to import some of the workforce because the work involved heavy machinery and required suitably experienced labour.

4.5 Whilst labour supply on Barra is limited the Western Isles as a whole could offer greater potential. Heavy steel fabrication was introduced to the Western Isles in 1976 with the setting up of Lewis Offshore Ltd at Arnish Point, Stornoway. Its labour force reached a peak of almost 1000 in 1978, many of the employees were local. Its workload has dropped considerably and its workforce now numbers less than 100. This suggests that suitable workers many be available in Stornoway.

4.6 The economy of Eriskay is centred on fishing because the physical nature of the island does not encourage crofting. In 1982 the fleet consisted of 6 boats with a total crew of 32 and two lobster boats with a crew of four.

4.7 The existing economic policy is based on concentrating on and developing the existing economic and employment base and skills of the islands. In particular, attention is given by the Western Isles Council to the encouragement of economic development outside the established settlements of Stornoway and Balivarich, where up to now most development has been concentrated.

Local Economic Benefit

4.8 The local economic benefit of the construction and operation of a repository on Sandray could be relatively large. There will be employment benefit in the surrounding community because there is little local employment, the range of existing job opportunities is very limited and the scope to introduce new types of economic activity is also very limited. The only constraint is that the number of people to benefit from the employment opportunities will be small, particularly in the immediate area of Vatersay and Barra.

Blight

4.9 The existing economic activities in the communities around Fuday could be threatened by blight because there is a high proportion of sensitive economic activities such as farming, fishing and tourism. The cockle beach landstrip is one of the major tourist attractions on Barra and this will be severely affected by the proposal to extend the airstrip. In addition, the Western Isles are heavily dependent on these activities.

Resource Sterilisation

4.10 Fuday is used for grazing cattle which are shipped out from Eoligarry on Barra. The agricultural land around Eoligarry is probably one of the best farming areas on Barra, the land is used for grazing cattle and growing some crops. The development of Fuday would result in the loss of grazing land and the development of a construction camp at Eoligarry would require more agricultural land.

5.0 NATURAL ENVIRONMENT

Designations: ESA adjacent on Barra
NSA on South Uist
Preferred Conservation Zone

5.1 No nature conservation or landscape designations have been identified on Fuday. Much of the west coast of South Uist has been designated a National Scenic Area (NSA). The area covers the machair and stretches from Stillgarry in the north to Ludag in the south. Parts of this machair dune system is also designated as a SSSI.

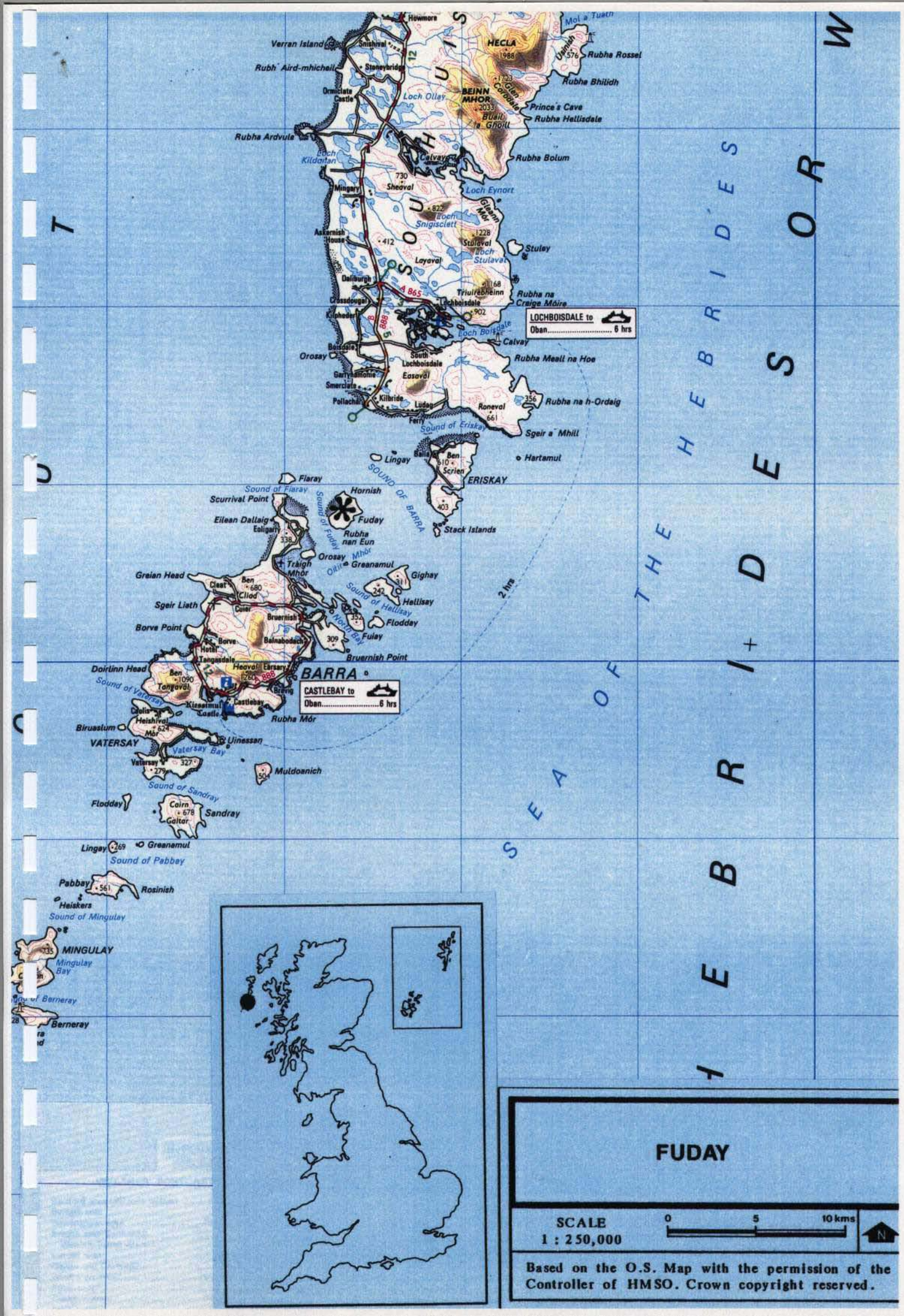
Disturbance

5.2 The construction of the port, repository and causeway will result in the loss of natural habitat. Much of the Eoligarry peninsular has been designated an Environmentally Sensitive area (ESA) and the quality of this environment could be severely affected by the proposed construction camp at Eoligarry.

5.3 The proposed extension of the airport onto Barra will have a significant effect on the natural environment. It will destroy much of the cockle beach and machair areas which are both important features providing habitats for a number of fauna and flora. This area is also a major tourist attraction on Barra.

5.4 The quality of the natural environment is an important resource in the Western Isles; for crofting, fishing, recreation and tourism.

5.5 The location of Fuday nestled between Barra, Eriskay and South Uist would mean that its proposed use as a repository would be very visible from these islands and also by visitors arriving by air.



FUDAY

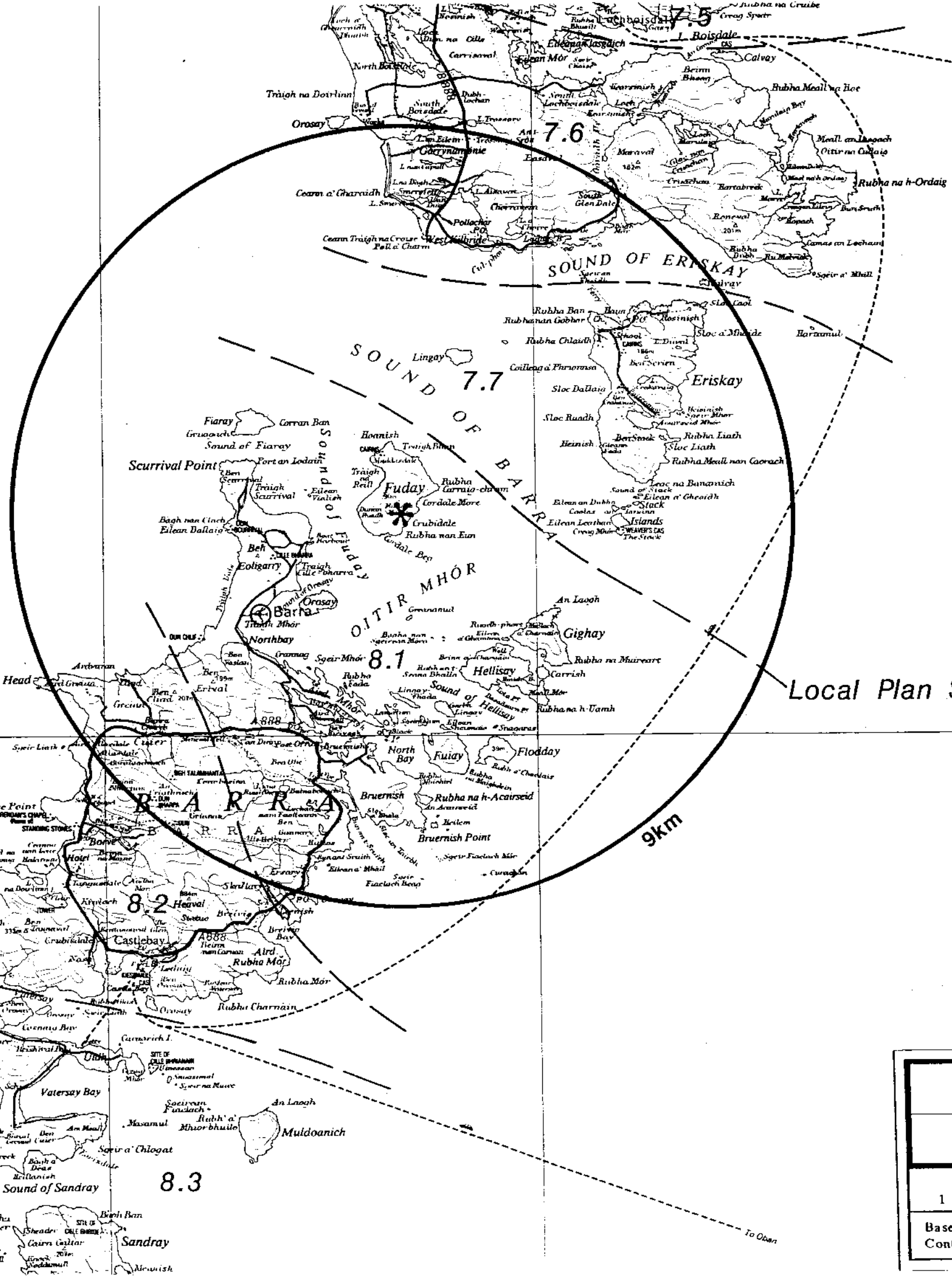
SCALE
1 : 250,000

0 5 10 kms

N

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.

National Scenic Area
Development Area
Causeway
Port
Airfield Extension & Improvement
Environmentally Sensitive Area
FUDAY
SCALE 1:50,000
0 1 2kms
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
SOUND OF BARRA
Sound of Fiaray
Sound of Orosay
Ferry P
Loch na Bagh
Smerclate
Ceann a' Gharaidh
Loch an Duin
Loch Assavat
Chorravein
Easaval
West Kilbride
Loch a' Choire
Ceann Tràigh na Croise
East Kilbride
Lingay
Fiaray
Gruagach
Corran Bàn
Scurrival Point
Port an Lodain
Ben Scurrival
Tràigh Scurrival
Eilean Vialish
Bàgh nan Clach
Eilean Dallaig
Settinish
Eoligarry
Eoligarry Jetty
Cille-bharra
Ben Eoligarry
Cemy
Tràigh Cille-bharra
Tràigh Eais
Dunes
Orosay
Tràigh Mhòr
Factory
Airfield
Crannag
Sgeir Mhòr
Ben Vaslain
Ben Erival
Ardgheiltinish
Rubha Fada
Ardmhòr
Bàgh Hullavagh
Aidveanish
Lamalum
Linga
Bàgh Hirivagh
Bayherivagh
Black Islands
Ben Obe
North Bay
Bruernish
Bogach
Loch Obe
Dun
Loch nic Ruaidhe
Balnabodach
Lochan nam-
Hornish
Tràigh Bhàn
Cairns
Maddasdale
Traillisker
Tràigh na Reill
Dunes
Dunan Ruadh
Mullach Naachet
Cordale Mór
Cordale Beag
Rubha nan Eun
Rubha Carraig-chrom
Greanamul
Bogha nan Sgeirean Mòra
Eilean a' Ghamhna
Mullach a' Charnain
GIGHAY
Beinn a' Charnain
Rubha na Muireart
An Laogh
Ruadh-phort
Rubha Bà
Rubha Chlai
Stoc Ruad
Heinish
Stack Isla
Creag
Coil
Phr
Gro
Bu
Ludag
Saltavig Bay
Jetty
Loch an Duin
Loch nan Cartadh
Cora-bheinn
Rubha an t-Seana Bhaile
Coillag
Ruadh-phort



Statistical Areas

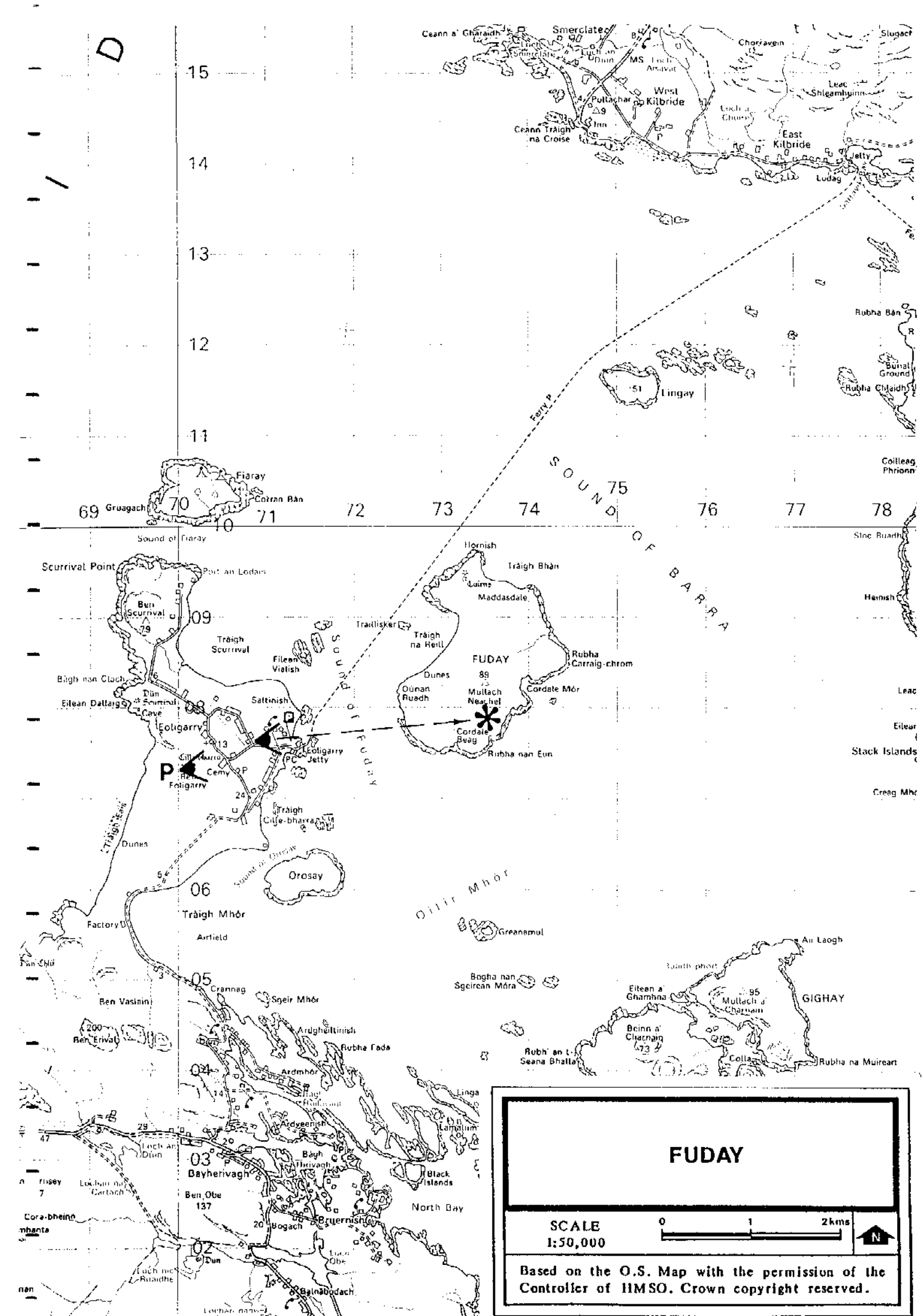
FUDAY

SCALE
1 : 100,000

0 2 4 kms

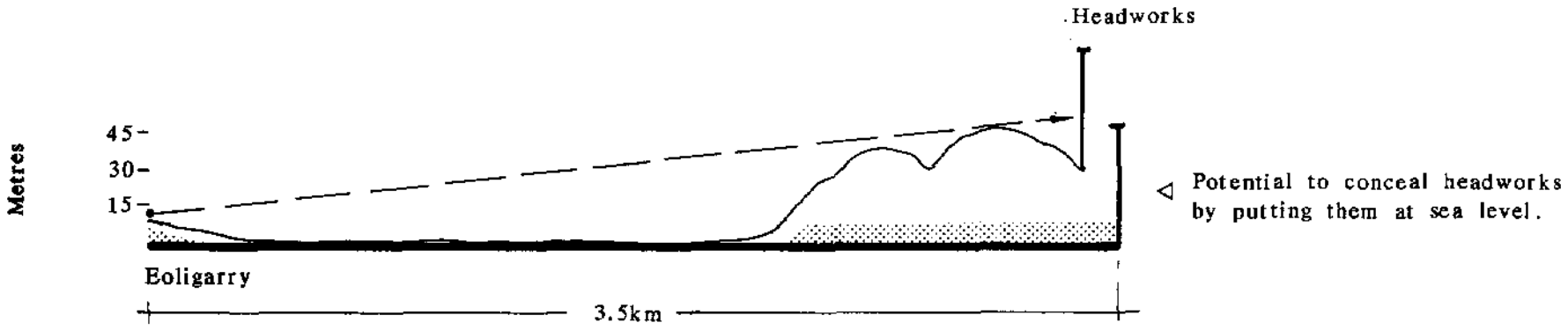
N

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.


FUDAY
SCALE
1:50,000
0
1
2kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
SOUND OF BARRA
Sound of Fuday
Ferry P
Scurrival Point
Ben Scurrival
Tràigh Scurrival
Eilean Vialish
Eoligarry
Eoligarry Jetty
Tràigh Cille-bharra
Dunes
Orosay
Tràigh Mhòr
Airfield
Factory
Ben Vaslain
Ben Eriva
Crannag
Sgeir Mhòr
Ardheiltinish
Rubha Fada
Ardmhòr
Ardveenish
Bayherivagh
Bàgh Thrivagh
Ben Obe
137
Bogach
Bruernish
North Bay
Black Islands
Lamalum
Linga
Balnabodach
Traillisker
Tràigh na Reill
Hornish
Tràigh Bhàn
Maddasdale
Dunes
Dùnan Ruadh
Mullach Neachel
Cordale Mór
Cordale Beag
Rubha Carraig-chrom
Rubha nan Eun
Greanamul
Bogha nan Sgeircan Móra
Eilean a' Ghamhna
Mullach a' Charnain
Beinn a' Charnain
Rubh' an t-Seana Bhalla
Rubha na Muireart
GIGHAY
Ceann a' Ghàraidh
Smerclate
Pollachar
West Kilbride
Ceann Tràigh na Croise
East Kilbride
Ludag
Lingay
Rubha Bàn
Rubha Chlaidh
Fiaray
Corran Bàn
Gruagach
Sound of Fiaray
Sloc Ruadh
Hamish
Stack Islands
Creag Mhò
Coilleag Phrionn
Eilean Dallarg
Bàgh nan Clach
Saltinish
Cille-bharra
Tràigh Eais
Pan Chlò
Loch an Dùin
Loch nic Ruaidhe
Cora-bheinn
Ben Obe
137
Ben Eriva
200
Ben Vaslain
Ben Scurrival
79
Lingay
51
Fuday
89
Orosay
Eilean a' Ghamhna
Mullach a' Charnain
Beinn a' Charnain
Rubha na Muireart
Colla
Rubh' an t-Seana Bhalla
Bogha nan Sgeircan Móra
Greanamul
Oitir Mhòr
Sound of Orosay
Sound of Fuday
Ferry P
Pier
Jetty
Inn
Cemy
Chapel
PC
Burial Ground
Rubha Chlaidh
Rubha Bàn
Coilleag Phrionn
Sloc Ruadh
Hamish
Stack Islands
Creag Mhò
Eilean
Leac
Leac Shleamhuinn
Slugach
Chorravein
MS Loch Arivaig
Loch a' Chuirn
Salt Water Loch
Ferry P
Port an Lodair
Tràigh Bhàn
Luirns
Maddasdale
Tràigh na Reill
Traillisker
Dunes
Dùnan Ruadh
Mullach Neachel
Cordale Mór
Cordale Beag
Rubha Carraig-chrom
Rubha nan Eun
Tràigh Cille-bharra
Dunes
Sound of Orosay
Orosay
Oitir Mhòr
Greanamul
Tràigh Mhòr
Airfield
Factory
Pan Chlò
Ben Vaslain
Ben Eriva
200
Crannag
Sgeir Mhòr
Ardheiltinish
Rubha Fada
Ardmhòr
Ardveenish
Bayherivagh
Bàgh Thrivagh
Ben Obe
137
Bogach
Bruernish
North Bay
Black Islands
Lamalum
Linga
Balnabodach
Loch an Dùin
Loch nic Ruaidhe
Cora-bheinn
Eilean a' Ghamhna
Mullach a' Charnain
95
Beinn a' Charnain
73
Rubh' an t-Seana Bhalla
Colla
Rubha na Muireart
GIGHAY
Bogha nan Sgeircan Móra
Greanamul
Oitir Mhòr
Sound of Fuday
Sound of Orosay
Ferry P
Pier
Jetty
Inn
Cemy
Chapel
PC
Burial Ground
Rubha Chlaidh
Rubha Bàn
Coilleag Phrionn
Sloc Ruadh
Hamish
Stack Islands
Creag Mhò
Eilean
Leac
Leac Shleamhuinn
Slugach
Chorravein
MS Loch Arivaig
Loch a' Chuirn
Salt Water Loch
Ferry P
Port an Lodair
Tràigh Bhàn
Luirns
Maddasdale
Tràigh na Reill
Traillisker
Dunes
Dùnan Ruadh
Mullach Neachel
Cordale Mór
Cordale Beag
Rubha Carraig-chrom
Rubha nan Eun
Tràigh Cille-bharra
Dunes
Sound of Orosay
Orosay
Oitir Mhòr
Greanamul
Tràigh Mhòr
Airfield
Factory
Pan Chlò
Ben Vaslain
Ben Eriva
200
Crannag
Sgeir Mhòr
Ardheiltinish
Rubha Fada
Ardmhòr
Ardveenish
Bayherivagh
Bàgh Thrivagh
Ben Obe
137
Bogach
Bruernish
North Bay
Black Islands
Lamalum
Linga
Balnabodach
Loch an Dùin
Loch nic Ruaidhe
Cora-bheinn
Eilean a' Ghamhna
Mullach a' Charnain
95
Beinn a' Charnain
73
Rubh' an t-Seana Bhalla
Colla
Rubha na Muireart
GIGHAY
Bogha nan Sgeircan Móra
Greanamul
Oitir Mhòr
Sound of Fuday
Sound of Orosay
Ferry P
Pier
Jetty
Inn
Cemy
Chapel
PC
Burial Ground
Rubha Chlaidh
Rubha Bàn
Coilleag Phrionn
Sloc Ruadh
Hamish
Stack Islands
Creag Mhò
Eilean
Leac
Leac Shleamhuinn
Slugach
Chorravein
MS Loch Arivaig
Loch a' Chuirn
Salt Water Loch
Ferry P
Port an Lodair
Tràigh Bhàn
Luirns
Maddasdale
Tràigh na Reill
Traillisker
Dunes
Dùnan Ruadh
Mullach Neachel
Cordale Mór
Cordale Beag
Rubha Carraig-chrom
Rubha nan Eun
Tràigh Cille-bharra
Dunes
Sound of Orosay
Orosay
Oitir Mhòr
Greanamul
Tràigh Mhòr
Airfield
Factory
Pan Chlò
Ben Vaslain
Ben Eriva
200
Crannag
Sgeir Mhòr
Ardheiltinish
Rubha Fada
Ardmhòr
Ardveenish
Bayherivagh
Bàgh Thrivagh
Ben Obe
137
Bogach
Bruernish
North Bay
Black Islands
Lamalum
Linga
Balnabodach
Loch an Dùin
Loch nic Ruaidhe
Cora-bheinn

VIEW FROM WEST

(grid ref. 706074)



FUDAY

FUDAY AND EOLIGARRY, BARRA

FISH FARM CAGES OF BARRA

FUDAY FROM SOUTH

APPENDIX 5

Killingholme

CONTENTS

SECTION		Page
1.0	SITE CHARACTERISTICS	5.1
2.0	DEVELOPMENT PROPOSALS	5.2
3.0	COMMUNITY	5.3
4.0	LOCAL ECONOMY	5.6
5.0	NATURAL ENVIRONMENT	5.8

Following Text:

- 1:250,000 Location Map
- 1: 50,000 map with overlays showing
  - development proposals
  - designated areas and planning policy areas
- 1:100,000 map of population statistical areas
- photographs

1.0 SITE CHARACTERISTICS

Location:	**Humberside County Glanford District**
Size:	**260 Hectares**
Ownership:	**CEGB**
Grid Reference:	**TA 1519**

1.1 The proposed site is located near River Humber approximately half way between Kingston Upon Hull to the north west and Grimsby to the south east. The CEGB also own land adjacent to the estuary.

1.2 The site is situated between the oil terminal and Chase Hill Wood and the village of East Halton. The two CEGB sites extend to approximate 260 hectares.

1.3 The surrounding landuse is industrial, an oil refinery and to the north agriculture. The agricultural land is relatively good grade 3 quality. The site is presently in agricultural use.

1.4 The site is approximately 5km from the recently constructed M180. The connecting roads in particular the A160 are designed to take lorries to Immingham dock area. There is already a system of lorry routes in force to prevent heavy vehicles travelling through residential areas. The site is close to and would be clearly visible from the village of East Halton. In contrast the eastern site would be visually screened from the nearest settlements of East Halton, South Killingholme and North Killingholme by the existing oil refinery.

2.0 DEVELOPMENT PROPOSALS

Assumptions

Land take:	**repository - 60 hectares**
	rail link - 11 hectares
Infrastructure:	**2.2km of new rail link**
Waste transport:	**train, 497 trains p.a.**
Spoil disposal:	**train to disused brickworks, Bedfordshire; 310 trains p.a.**

2.1 It is estimated that 60 hectares will be required for the surface workings of the repository, a further 11 hectares will be required to construct the railway link.

2.2 It is proposed to bring the waste to the site by train, this would involve 497 train journeys per year. The major part of the spoil produced at the site would be disposed of in the disused brick workings around Bedfordshire, this would involve the movement of 310 trains a year. A small amount of spoil would stay on the site for local landscaping.

2.3 Construction materials will be bought to the site by road by approximately 28 lorries per day.

2.4 The following workforce will be required:

Construction:	260	for 10 years
Operation:	420	for 50 years
Decommissioning:	65	for 9 years

3.0 COMMUNITY

District Population Density: Glanford 1.14 ppha

Surrounding Settlements

Distance	Settlement	Approx Population
0.6 km	East Halton	705
3 km	South Killingholme	1,316
2 km	North Killingholme	309
6 km	Immingham	11,506
11 km	Hull	319,400
15 km	Grimsby/Cleethorpes	136,600

Number of properties within 2km of centre of site: Approx 250 west site

3.1 The population within 9km of the centre of the site has been estimated using 1981 Census Parish populations. The relevant parishes are listed below:

Parish	Estimated Proportion within 9km	Population in Parish*	Estimated Population within 9km
Goxhill	100%	1,513	1,513
East Halton	100%	705	705
North Killingholme	100%	309	309
South Killingholme	100%	1,316	1,316
Immingham	100%	11,506	11,506
Haborough	100%	69	69
Ulceby	100%	1,433	1,433
Paull	100%	747	747
Thorngumbald	25%	2,984	746
Brocklesby	80%	133	106
Keelby	50%	2,030	1,015
Stallingsborough	80%	960	768
Kirmington	10%	356	36
Barrow upon Humber	80%	2,502	2,002
Woodton	90%	400	360
Croxton	50%	47	24
Thornton Curtis	70%	308	440
Total			23,095

* 1981 Census Present Population

3.2 The proposed site at Killingholme is close to the village of East Halton. The village has a number of small lanes running down towards the site which provide access to housing and outbuildings. Community facilities provided in the village include a shop, a primary school, a village hall and a public house.

3.3 North Killingholme is a small and attractive village centred around the church. South Killingholme is a larger settlement with a small range of shops. The A160 has been upgraded to provide access to the refinery and dock area and although by-passing the centre of the village it passes very close to the edge of the housing area.

3.4 Thornton Abbey, approximately 4km to the west of the site is a scheduled ancient monument.

3.5 Immingham is the largest settlement within the immediate area. It serves the surrounding smaller villages providing swimming pool and sports hall and a small shopping centre. Immingham has developed largely as a result of the industrial development in the area. Much of the housing is relatively modern and of low value.

3.6 The Humberside Structure Plan has designated Immingham as an urban centre which essentially means that Immingham has priority over the villages in the provision of services and new housing development. The future expansion of Immingham is constrained by a shortage of suitable housing land. On one side it is bounded by the potentially hazardous industry and on the other by good quality agricultural land.

3.7 Goxill and Ulceby have been classed as selected settlements with capacity for a reasonable amount of development. New housing in the villages of East Halton, North Killingholme and South Killingholme is constrained by the Structure Plan Policy (policy 5.10) to prevent new housing being near the Estuary Related Industry Area on the South Humber Bank. This policy seeks to protect people who may be affected by an accident at a proposed potentially hazardous plant and to avoid any substantial increase in the number of people near such plants.

Disturbance

3.8 The proposed site is close to and would be clearly visible from the village of East Halton. The site would probably also be visible from North Killingholme. Both villages would be likely to experience noise disturbance. There are a number of large industrial land uses in the area which generate a considerable amount of heavy traffic. The impact of the repository on the surrounding area is therefore likely to be notably less than a repository development in open countryside.

Local Nuclear Experience

3.9 There are no nuclear establishments within 25km of the site.

4.0 LOCAL ECONOMY

Travel to Work Area: Grimsby
Unemployment: 12.9% 10,562 people
Employment in manufacturing in county: 94,917
Major employers: Oil, chemcial and petrochemical
Fishing
Bulk cargo transportation
Food production and processing

4.1 The economic activity of the usually resident population of the site urban areas within the 10km travel time area of Killingholme is summarised in the table below:

	% of employed residents
Agriculture	1.7
Energy & Water	2.8
Manufacturing	30.4
Construction	7.1
Distribution & Catering	21.1
Transport	11.2
Other services	24.6
Total	46,961 people

Source: OPCS Key Statistics for Urban Areas, the North 1981 Census

4.2 The economic activity within the area is varied. The development of the deep water channels of the Humber has made its banks valuable sites for major industries. Oil storage and distribution depots, refineries and other major chemical factories have been established.

4.3 Although Grimsby is a major fishing port it is no longer totally dependent on this as a means of employment and income. Other industrial outlets have been developed, notably the processing and freezing of foodstuffs. Immingham is one of the top bulk cargo ports and has four specialised river jetties to deal with the variety of goods that are handled at the port. As well as storage and warehouse facilities and crane handling, dry dock facilities are also available.

4.4 Moving away from the banks of the Humber and further into Glanford District agriculture and food production became an important part of the local economy.

4.5 The area to the north of Immingham has been developed and designated as an area for 'special industries' which are 'not compatible with normal urban development.' and caters specifically for those industries which include the storage or use of hazardous materials and processes.

Local Employment Benefit

4.6 The local economic benefit of a repository in the area is likely to be limited because there is already a high level of economic activity and opportunities to extend the range of existing economic activity.

4.7 The labour supply for the construction and operation of the repository could primarily come from the local area. Over 10,500 people in the Grimsby TTWA were registered as unemployed in April 1988. Killingholme is on the boundary of several TTWA's and the total number unemployed in the area is much higher.

Blight

4.8 Concern was expressed by Humberside County Council about the possible effect of blight from the near surface repository proposals. However, there are only a limited number of sensitive activities in the area. Agriculture and food processing at Grimsby are unlikely to be affected.

Resource Sterilisation

4.9 The site is part of an area designated for special industry with the particular asset of having access to a deep water estuary. This resource is considered to be of regional importance.

5.0 NATURAL ENVIRONMENT

Designations: No SSSI's in immediate vicinity
SSSI in the Humber Estuary

5.1 Killingholme is located on a flat coastal area, views across the site, particularly the eastern site, are limited by the bulk of the oil refinery and small wooded areas. The oil refinery is the most prominent feature in the area.

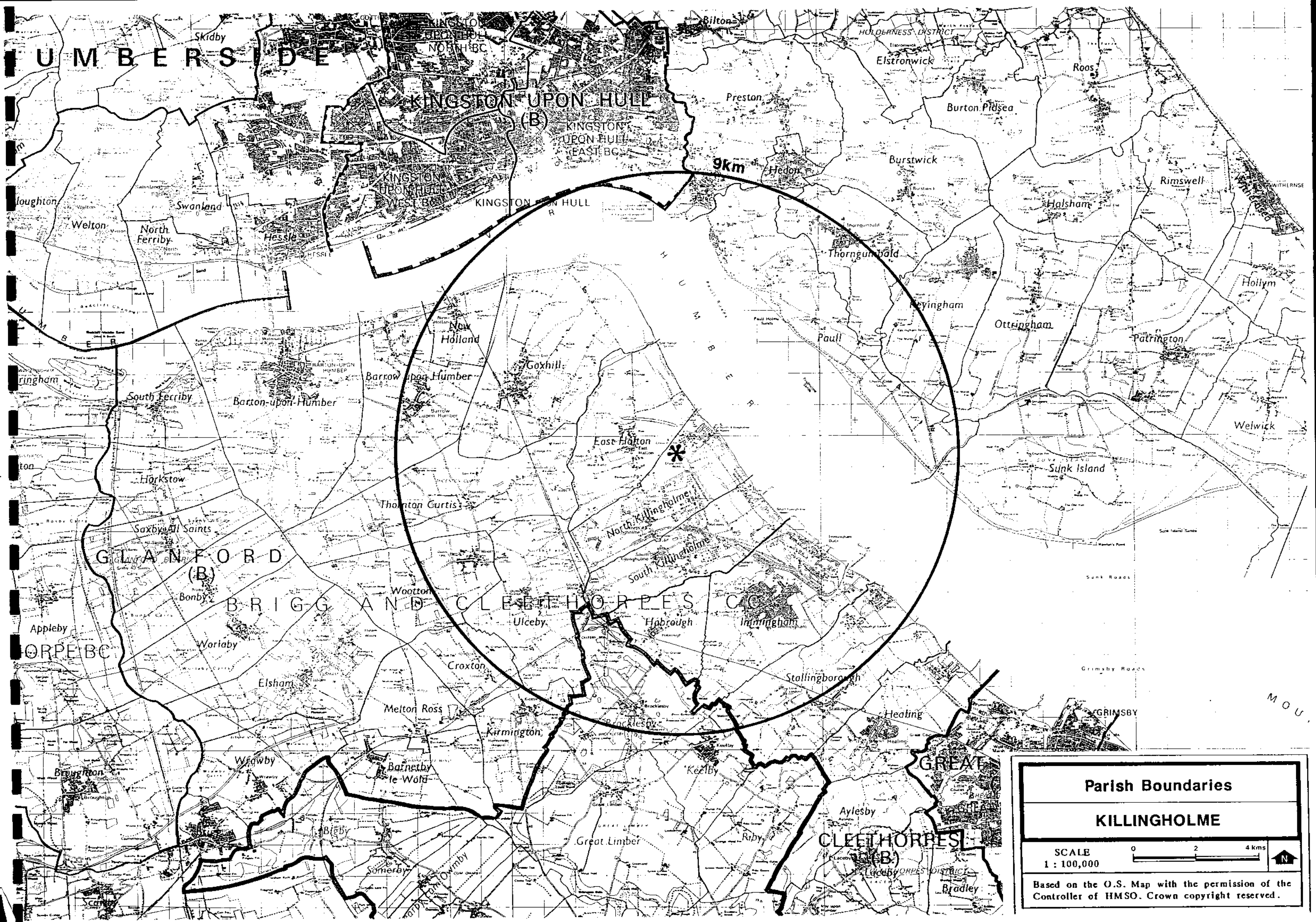
5.2 Although there are no official landscape or nature designations covering the site the area of water to the east beside North Killingholme Haven is of local interest for wildlife.

Disturbance

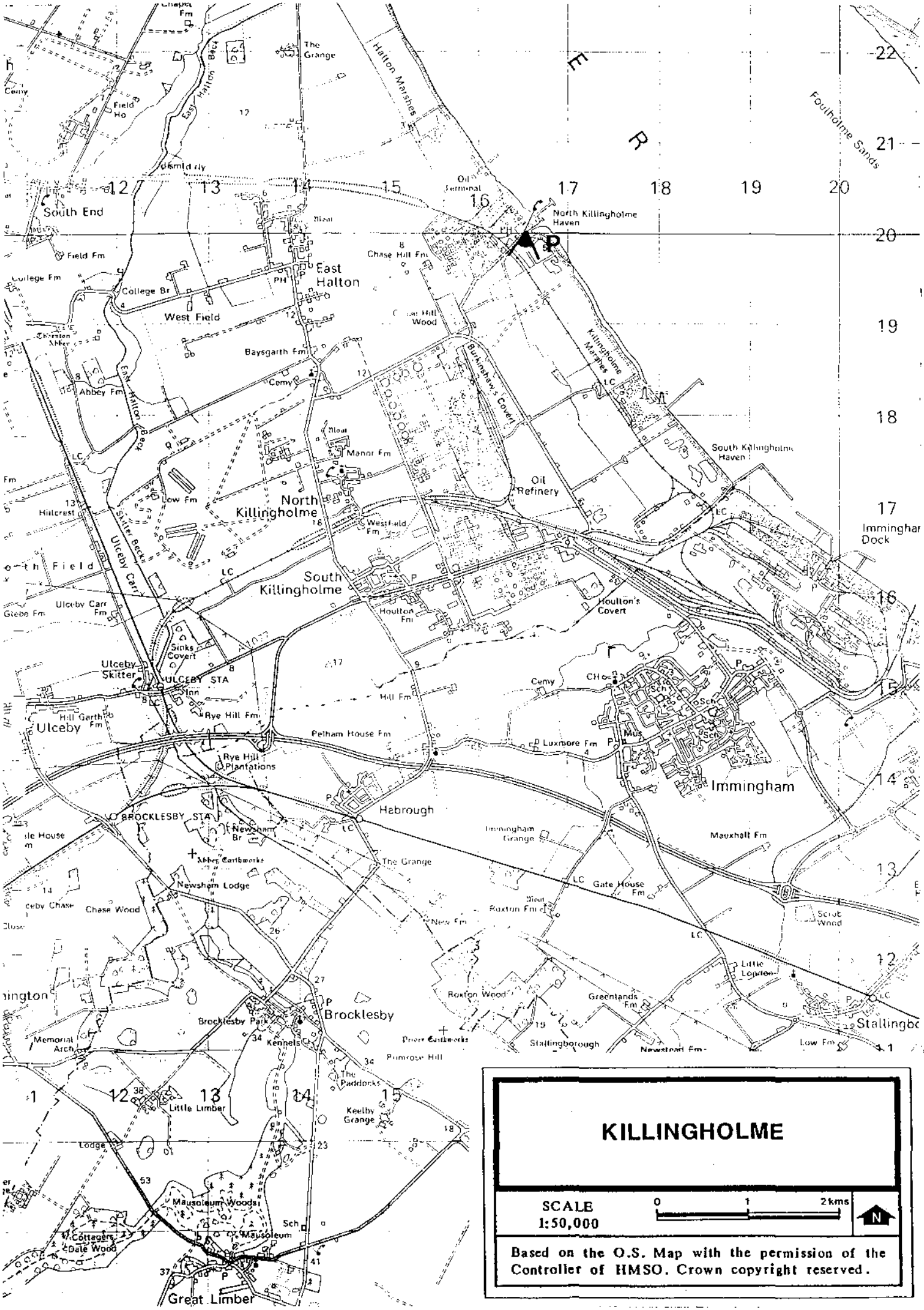
5.3 The proposed development would cause minimal disturbance to the natural environment.

KINGSTON UPON HULL
COTTINGHAM
HESSLE
BARTON-UPON HUMBER
SCUNTHORPE
BRIGG
GRIMSBY
CLEETHORPES
HEDON
WITHERNSEA
MARKET RASEN
LOUTH
CAISTOR
RIVER HUMBER
KILLINGHOLME
SCALE
1 : 250,000
0
5
10 kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.

KILLINGHOLME
SCALE
1:50,000
0
1
2kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
Development Area
Road Access
Rail Link
Land for Estuary-Related Industry
Deep Water Estuary
Strategic Industrial Location
Strategic Industrial Location
Strategic Industrial Location
Road Access
Foulholme Sands
North Killingholme Haven
South Killingholme Haven
Halton Marshes
Killingholme Marshes
Oil Terminal
Oil Refinery
Immingham Dock
East Halton
North Killingholme
South Killingholme
Immingham
Habrough
Brocklesby
Ulceby
Ulceby Skitter
ULCEBY STA
BROCKLESBY STA
Stallingborough
Little London
Little Limber
Brocklesby Park
Mausoleum Woods
Mausoleum
Chase Wood
Roxton Wood
Scrub Wood
Houlton's Covert
Sinks Covert
Rye Hill Plantations
A 160
A 1077
A 180(T)
A 1173
B 1210
B 1211



UMBERSIDE
KINGSTON UPON HULL (B)
KINGSTON UPON HULL NORTH BC
KINGSTON UPON HULL EAST BC
KINGSTON UPON HULL WEST BC
KINGSTON UPON HULL
9km
Skidby
Bilton
HOLDERNESS DISTRICT
Elstronwick
Roos
Preston
Burton Pidsea
Burstwick
Hedon
Rimswell
Halsham
Swanland
Welton
North Ferriby
Hessle
Thorngumbald
Hollym
Keyingham
Ottringham
Paull
Patrington
New Holland
Goxhill
Barrow upon Humber
South Ferriby
Barton-upon-Humber
Welwick
East Halton
Sunk Island
Horkstow
Thornton Curtis
North Killingholme
South Killingholme
Saxby All Saints
GLANFORD (B)
Bonby
Wootton
BRIGG AND CLEETHORPES CC
Ulceby
Habrough
Immingham
Appleby
Worlaby
Croxton
Stallingborough
Elsham
Melton Ross
Healing
GRIMSBY
Kirmington
Brocklesby
Wrawby
Barnetby le Wold
Keelby
GREAT
Aylesby
Bigby
Great Limber
Riby
CLEETHORPES (B)
Somerby
Bradley
Parish Boundaries
KILLINGHOLME
SCALE 1 : 100,000
0 2 4 kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.



KILLINGHOLME

SCALE 1:50,000

0 1 2kms

N

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.

EAST SITE FROM NORTH KILLINGHOLME HAVEN

EAST HALTON VILLAGE

APPENDIX 6

Potton Island

CONTENTS

		Page
SECTION		
1.0	SITE CHARACTERISTICS	6.1
2.0	DEVELOPMENT PROPOSALS	6.2
3.0	COMMUNITY	6.3
4.0	LOCAL ECONOMY	6.6
5.0	NATURAL ENVIRONMENT	6.8

Following Text:

- 1:250,000 Location Map
- 1: 50,000 map with overlays showing
  - development proposals
  - designated areas and planning policy areas
- 1:100,000 map of population statistical areas
- photographs

Pieda

1.0 SITE CHARACTERISTICS

Location:	**Essex County Rochford District**
Size:	**368**
Ownership:	**MOD**
Land use:	**Royal armament R & D establishment**
Grid Reference:	**TQ 9591**

1.1 Potton Island is located approximately 8km to the north east of Southend on Sea (see accompanying map).

1.2 A large proportion of the surrounding marsh land is used by the Ministry of Defence. There are also areas of agricultural land, mainly to the west and south of Potton Island. The land is poorer quality grade 3 and 4 on Potton Island and the surrounding marshland but further south near Little Wakering and Southend on Sea there is a large area of good quality (Grade 1) agricultural land.

1.3 The site is approximately 5km to the A13 on the B1017 and a further 4km on the A1159 to the A127T. Access to Potton Island is poor along tracks and the B1017 is only of poor to moderate standard. The A1159 is a good standard road but carries heavy traffic. There are no routes between the site and the A13T road that avoid passing through settlements and the A1159 passes very close to the Southend on Sea urban area.

1.4 The nearest railway line is the army line to Foulness to the south east of the site across MOD Marshland. It has been concluded that it would be very difficult to construct a rail line to Potton Island.

1.5 The site adjoins the River Roach. The coastline is approximately 3km to the south east again across MOD Marshland.

2.0 DEVELOPMENT PROPOSALS

Assumptions

Landtake: repository - 60 hectares
road link - 15 hectares

Infrastructure: new port
3km of new road

Waste Transport: ship - 75 ships pa

Spoil Disposal: disposed of locally, probably on Potton Island

2.1 It has been estimated that approximately 60 hectares of land would be required for the surface works. A further 15 hectares would be required to construct the road link.

2.2 A new road link has been proposed to Potton Island from the south east. This preferred route avoids the high quality agricultural land (Grade 1).

2.3 It is proposed to locate the port at the north east corner of the island with the repository adjacent to it. Waste will be transported to the site by ship, this will involve approximately 75 return journeys per annum. It has been assumed that all of the spoil material will be disposed of locally, probably on the island and there will be no need for extra transport.

2.4 The labour requirements of the development are listed below:

Construction:	310
Operational:	330
De-commissioning:	50

It has been assumed that the workforce to construct and operate the site could be recruited from the adjacent areas of Southend and Shoeburyness.

3.0 COMMUNITY

District population density: Rochford 4.37 ppha

Surrounding Settlements	Approximate Population
1.0 km Paglesham	250
3.5 km Great Wakering	5,150
5.0 km Barling/Stonebridge	1,400
8.0 km Southend on Sea	262,300

Approximate number of houses within 2km of site centre: Approx 100

3.1 The population within 9km of the centre of the site has been calculated using 1981 census parish populations, the parish boundaries are shown on the accompanying map, and the relevant settlements are listed below:

	Estimated Proportion within 9km	Population in Parish	Estimated Population within 9km
Burnham on Crouch	100%	6,308	6,308
Dengie	30%	111	33
Southminster	90%	3,206	2,885
Althorne	50%	976	488
Carnewden	100%	1,460	1,460
Ashingdon	30%	2,933	880
Rochford	100%	7,251	7,251
Sutton	100%	147	147
Stambridge	100%	562	562
Paglesham	100%	246	246
Foulness	100%	203	203
Barling Magna	100%	1,384	1,384
Great Wakering	100%	5,139	5,139
Southend on Sea	40%	157,083	62,833
Total			89,819

3.2 Southend on Sea, including the eastern suburb of Shoeburyness, is a large popular seaside town. Whilst the population of Southend Borough dropped slightly between 1971 and 1981 the population of the surrounding settlements increased.

3.3 Great Wakering on the western edge of the site is a small rapidly expanding town. Its population grew by almost 20% between 1971 and 1981. The population of Barling Magna Parish also increased by approximately 5%. Paglesham is a scattered community located across Paglesham reach. Its small population dropped by almost 10% between 1971 and 1981.

3.4 Although the site is located on open marshland, the population in the surrounding area is relatively high. It is beside a number of villages and is clsoe to the major settlement of Southend.

3.5 There is a substantial demand for housing in Essex, it is estimated that 37,000 additional dwellings would be required in the 1990s. The definition of Green Belt boundaries fundamentally influences the location of future development in the county. The settlement policy for Rochford District is for housing development to be limited to committed land, small sites and safeguarded sites identified in the Rochford District Plan.

3.6 Housebuilding in Southend Borough is also limited to the development of committed land, small sites and recycled urban land within the built up area. The Secretary of State for the Environment, in approving the current Structure Plan, concluded that Southend had reached the limit of its potential for development. In addition to Green Belt considerations, there is also high grade agricultural land and the coastal protection belt abutting the built up area.

3.7 The River Roach is a popular pleasure sailing area and the area is also popular for bird watching area. Southend on Sea offers a whole range of recreational and tourist facilities. The development of a repository, in particular the port facilities could affect the recreation potential of the River Roach area although access is already limited by the MOD.

3.8 The County Council has general policies to encourage the development of tourist and recreational facilities in the major settlements. The Structure Plan states that "the development or expansion of major water recreation facilities will not be permitted on the rural coastline but would be encouraged in those coastal towns where there would be no detriment to townscape and nature conservation ....." (Policy 19).

3.9 An area at Maplin Sands has been safeguarded for a number of years for a possible seaport. There was uncertainty in the late 1970's as to whether it would be needed and it is the County Councils view that there is now no justification for its continued safeguarding.

Disturbance

3.10 The proposed development will be visible from all directions although the views across the site will be limited becase the landscape is so flat and more distant views will be obscurred by the surrounding settlements.

3.11 The provision of an access road to the site will increase traffic on some local roads leading to the construction sites.

Local Nuclear Experience

3.12 There are no nuclear establishments within the surrounding area.

4.0 LOCAL ECONOMY

Travel to Work Area: Southend on Sea
Unemployment: 8.4% 21,277 people
Employment in manufacturing in county: 169,105
Major employers: Oil refineries on Canvey Island
Offices
Tourism at Southend
Substantial Commuting to London

4.1 The employment structure of the Southend urban area at the 1981 census was as follows:

	% of employed residents
Agriculture	0.6
Energy & Water	2.4
Manufacturing	22.8
Construction	7.6
Distribution & Catering	18.6
Transport	7.8
Other services	39.6

4.2 In Essex there has been a fall in the number of jobs available and an increasing potential labour supply; this has led to an increase in commuting out of the county and also in the levels of unemployment which are high compared to other areas in the South East.

4.3 The employment policies for the county are centred on the expansion of existing firms and the introduction of new employment to be concentrated in the major settlements. There is a shortage of industrial land within the Southend urban area because the land on the outskirts of the town is primarily good quality grade 1 and 2 agricultural land. There are also competing demands for the available industrial land from retail and leisure uses.

4.4 The Structure Plan states that industrial and commercial development outside the major settlements will only be permitted if the development is not detrimental to local amenity and character.

4.5 The Structure Plan also identifies Southend as being suitable for large office development.

Local Economic Benefit

4.6 The Southend Area has a wide pool of labour and industries available to service a proposed repository on Potton Island. The development of the repository will only produce limited local economic benefit for the surrounding communities because the area already has a substantial level and range of economic activity.

Blight

4.7 Although tourism and agriculture are "sensitive" activities in the area, any blight impact is likely to be limited. These activities form only a small proportion of a range of economic activities in the area, in addition, the MOD have been operating from Potton Island for a considerable length of time, restricting public access into the area.

Resource Sterilisation

4.8 The proposed repository is located on MOD owned land and low quality agricultural land. Resource sterilisation is therefore not considered to be a particularly important factor in this site.

5.0 NATURAL ENVIRONMENT

Designations: **SSSI on MOD land from Foulness Island to Shoeburyness**

Part of Coastal Protection Belt

Part of Special Landscape Area

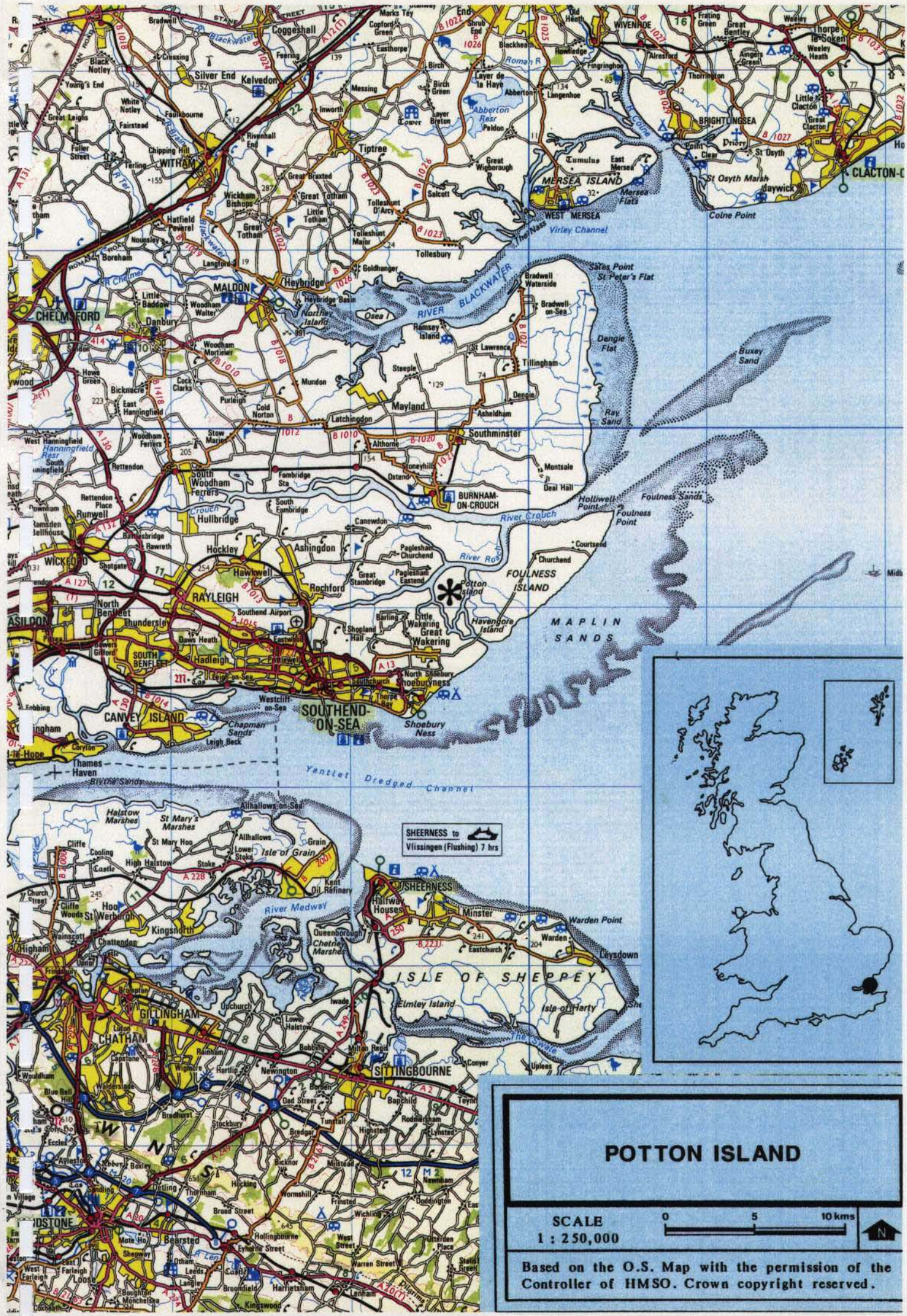
5.1 The coastal area between Shoeburyness and Foulness is flat and lowlying, most of it less than 10 metres above sea level. The area is divided by numerous streams and tidal creeks. The coastal area is characterised by salt marshes and extensive sand flats.

5.2 This coastline is important for waders and wildfowl particularly on its extensive saltings, marshes and mudflats. The site is part of a large SSSI.

5.3 The Structure Plan contains a number of policies to protect good quality agricultural land, open countryside and the coastline. There is a general presumption against development in these areas. The County Council have identified a coastal protection Belt and Special Landscape areas where particular consideration should be given to the landscape, character and natural habitats of the area. The repository is within and the proposed new road would cross these designated areas. These conservation policies cover a large area of the coastline restricting developments to the coastal towns.

Disturbance

5.4 The repository, port and new road link would result in the loss of habitat and disturbance to the SSSI. Although this impact would be locally severe it's significance is diminished because the SSSI covers a very large area and the development would only affect a small part of this area.



POTTON ISLAND

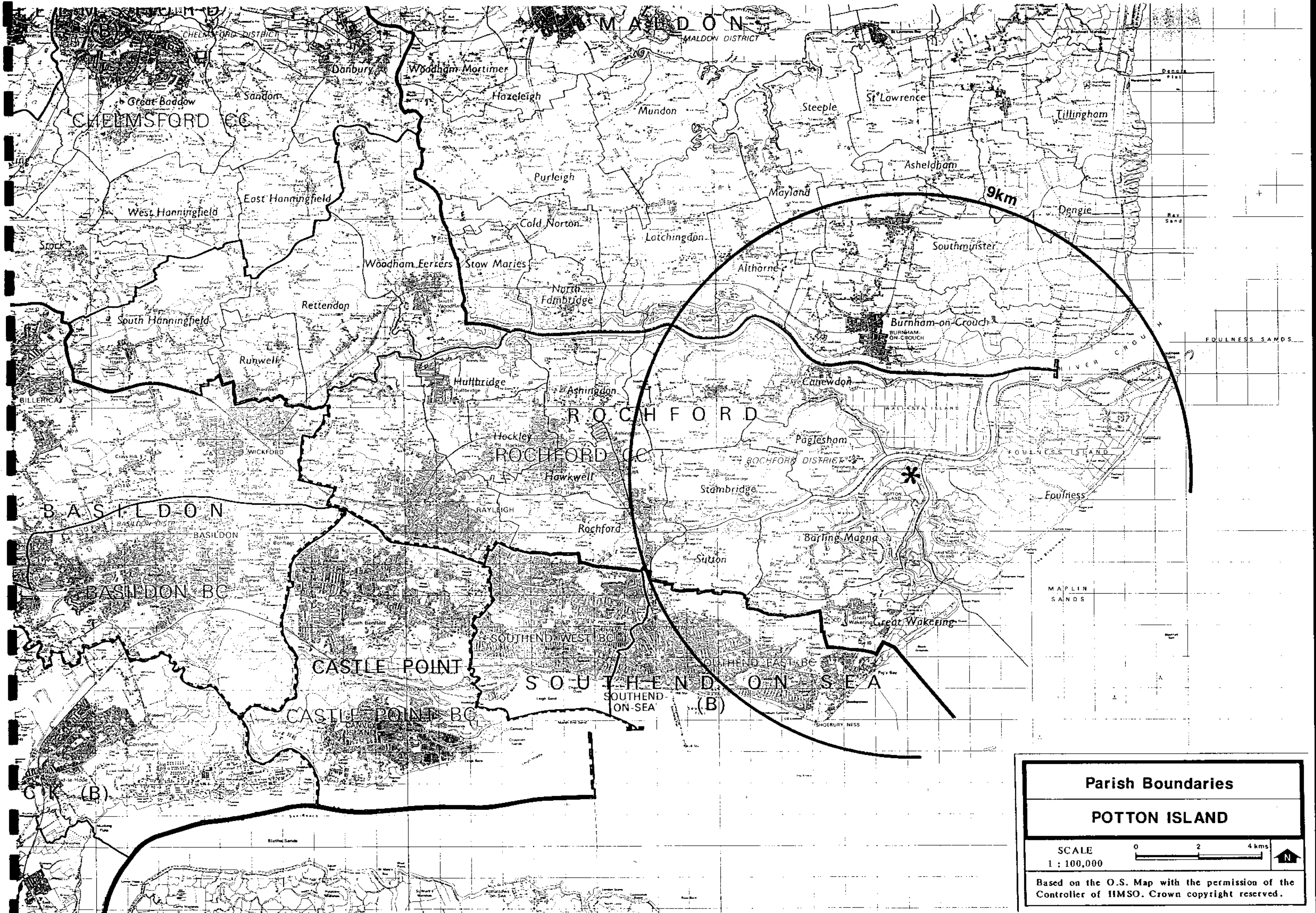
SCALE 1 : 250,000

0 5 10 kms

N

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.

BURNHAM-ON-CROUCH
WALLASEA ISLAND
ROCHFORD DISTRICT
FOULNESS
POTTON ISLAND
HAVENGORE ISLAND
SHOEBURY NESS
RIVER CROUCH
RIVER ROACH
Development Area
Road Access (Option 1)
Road Access (Option 2)
New Rail Access
New Road
Upgrade existing road
Port
Danger Area
Coastal Protection Belt
Special Landscape Area
Foulness SSSI
POTTON ISLAND
SCALE 1:50,000
0 1 2kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.



Parish Boundaries

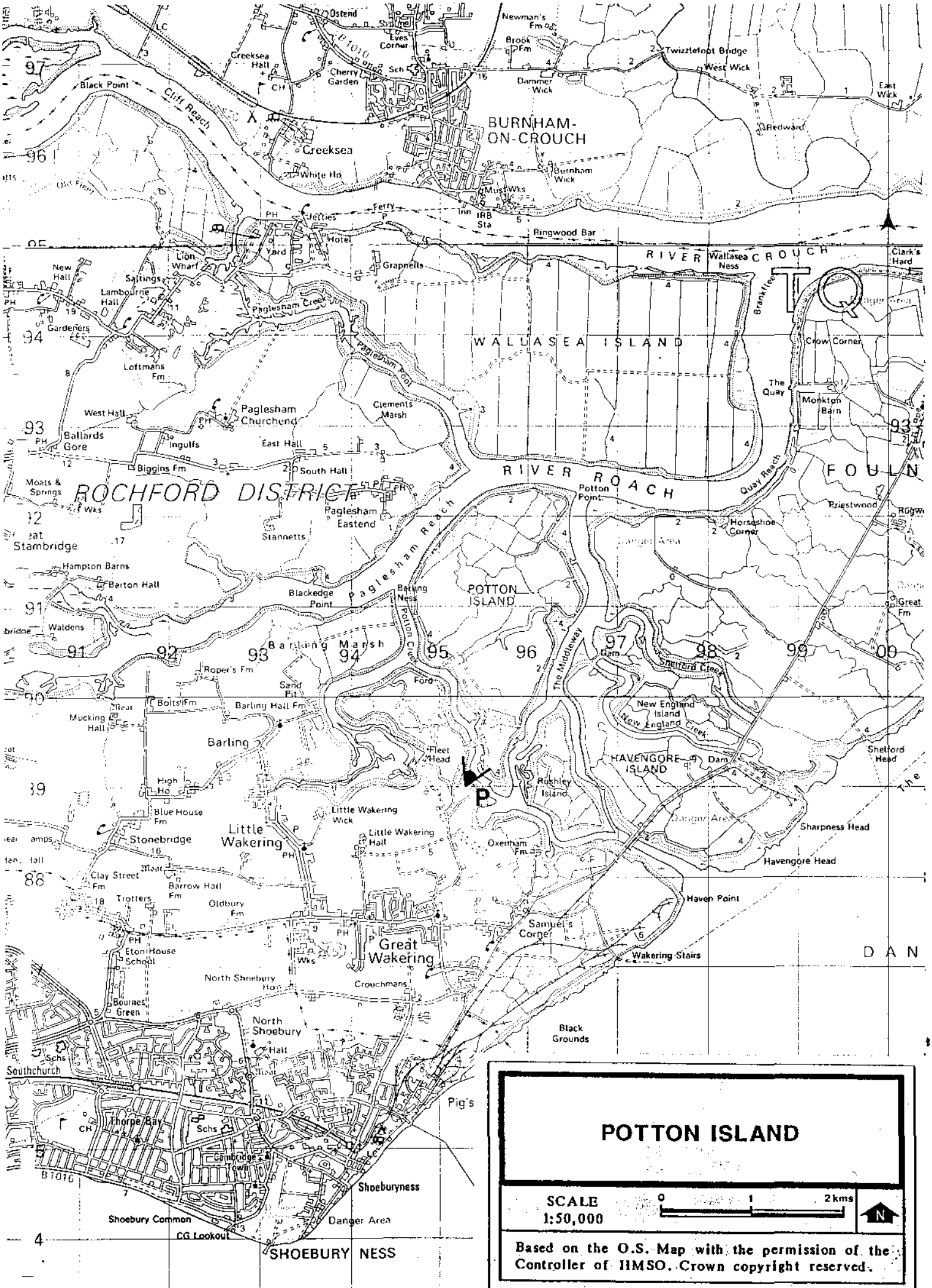
POTTON ISLAND

SCALE
1 : 100,000

0 2 4 kms

N

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.


POTTON ISLAND
SCALE 1:50,000
0 1 2kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
BURNHAM-ON-CROUCH
WALLASEA ISLAND
ROCHFORD DISTRICT
POTTON ISLAND
HAVENGORE ISLAND
RIVER ROACH
RIVER CROUCH
Great Wakering
Little Wakering
Barling Marsh
SHOEBURY NESS
Shoeburyness
Danger Area
Pig's
Black Grounds
Haven Point
Havengore Head
Sharpness Head
Shelford Head
Wakering Stairs
Samuel's Corner
Oxenham Fm
Rushley Island
New England Island
Potton Point
Horseshoe Corner
Crow Corner
Clark's Hard
Wallasea Ness
Ringwood Bar
Jetties
Ferry
Creeksea
Burnham Wick
Dammer Wick
Twizzlefoot Bridge
West Wick
East Wick
Redward
Brook Fm
Newman's Fm
Ostend
Eves Corner
Cherry Garden
Creeksea Hall
Black Point
Cliff Reach
Old Fleet
White Ho
Must Wks
IRB Sta
Inn
Hotel
Yard
Lion Wharf
Grapnells
New Hall
Saltings
Lambourne Hall
Gardeners
Paglesham Creek
Paglesham Pool
Loftmans Fm
Clements Marsh
West Hall
Paglesham Churchend
Ballards Gore
Ingulfs
East Hall
South Hall
Biggins Fm
Moats & Springs
Paglesham Eastend
Stannetts
Stambridge
Hampton Barns
Barton Hall
Blackedge Point
Paglesham Reach
Barling Ness
Potton Creek
Waldens
Roper's Fm
Sand Pit
Ford
Bolts Fm
Barling Hall Fm
Mucking Hall
Barling
Fleet Head
High Ho
Blue House Fm
Little Wakering Wick
Little Wakering Hall
Stonebridge
Clay Street Fm
Barrow Hall Fm
Oldbury Fm
Trotters
Eton House School
North Shoebury Ho
Bournes Green
North Shoebury Hall
Crouchmans
Southchurch
Thorpe Bay
Cambridge Town
CG Lookout
Shoebury Common
The Middleway
Shelford Creek
New England Creek
Dam
Quay Reach
The Quay
Monkton Barn
Priestwood
Great Fm
Branklee
Moat

POTTON ISLAND

PAGLESHAM EASTEND

LITTLE WAKERING

APPENDIX 7

Sandray

CONTENTS

SECTION		Page
1.0	SITE CHARACTERISTICS	7.1
2.0	DEVELOPMENT PROPOSALS	7.2
3.0	COMMUNITY	7.3
4.0	LOCAL ECONOMY	7.6
5.0	NATURAL ENVIRONMENT	7.8

Following Text:

- 1:250,000 Location Map
- 1: 50,000 map with overlays showing
  - development proposals
  - designated areas and planning policy areas
- 1:100,000 map of population statistical areas
- 1: 50,000 map showing location of cross section and photographs
- cross section diagram
- photographs

Pieda

1.0 SITE CHARACTERISTICS

Location:	**Western Isles**
Size:	**406 hectares (1000 acres)**
Ownership:	**Secretary of State for Scotland**
Grid Reference:	**NL 6491**

1.1 Sandray is located at the southern end of the Western Isles. It is the most northerly of a group of uninhabited islands lying to the south of Barra.

1.2 Although it is now uninhabited, the island was used for rough sheep grazing up until the 1930s. Sandray has a predominantly rocky coastline and rises to a height of just over 200 metres, much of the island comprises steep slopes. There is an area of dunes at the eastern end. There are several burns draining the hill and a small loch is located in the south west of the island. There are no roads or landing facilities on Sandray.

1.3 The nearest inhabited island is Vatersay approximately 1 km across the Sound of Sandray. This has a population of just over 100 located in three small crofting townships. Crofting and fishing are the major activities on the island.

2.0 DEVELOPMENT PROPOSALS

Assumptions

Landtake: **repository - 406 hectares (whole island)**

Infrastructure: **port on Sandray**

Waste Transport: **ship - 75 ships pa**

Spoil Disposal: **13.9m te over 50 years - offshore disposal**

2.1 The harbour would be located on the east coast of Sandray with the repository adjacent to it. It is anticipated that an accommodation camp will be required during the construction and operation of the port and repository facilities and this would also be located on Sandray. The location of these facilities is shown on the 1:50,000 map overlay. The surface workings will only cover a small proportion of the island.

2.2 The waste would be transported to Sandray by ship. It has been estimated that this would involve 75 return journeys per annum. In addition, spoil would be removed either by barge for sea dumping or tipped into the sea immediately offshore. Some of the rock spoil will be required to construct the sea breakwater.

2.3 The estimated labour requirements are:

Construction:	320
Operational:	380
De-commissioning:	60

It is likely that most of the workforce will come from mainland Scotland.

3.0 COMMUNITY

Western Isles population density: 0.11 pp hectare

Surrounding settlements	Population
3 km Vatersay	107
7 km Castlebay	500 (est)
Total population of Barra and Vatersay	1,364

(Source: Western Isles Structure Plan and 1981 Census)

Number of properties within 2 km of the centre of the site: 0

3.1 The population within 9km of the centre of the site was calculated and the relevant Local Plan Statistical Areas (SA) are listed below:

Statistical Area	Total Population	Assumed Population Within 9km
SA 8.2 Castlebay - Cliad	749	600
8.3 Vatersay	107	107
Total		707

There are therefore approximately 700 people within 9km of the site. This very low figure reflects the fact that Sandray is an isolated and uninhabited island.

3.2 Although the population of Vatersay was 107 at the 1981 Census, more recent information suggests that the island has experienced a rapid decline in population. Newspaper articles in 1988 state that the population is now approximately 60.

3.3 The island of Vatersay comprises three small townships, Vatersay township is the nearest to Sandray. The island has a post office, a shop run by the Vatersay Community Co-op and a 2 teacher primary school. There are no specific facilities for tourists.

3.4 The main settlement on Barra is Castlebay which is the island's administrative and service centre. The remainder of the population is dispersed in townships on or near the coastal road and on the coastal strip in the north. The hilly interior of the island is uninhabited.

3.5 Housing in the Western Isles is closely linked with the crofting system. There is little movement between the crofting sector and the non-crofting private sector and therefore little mobility between house types, sites and locations within crofting townships. It is difficult to buy a house due to the small size of the market. The crofting system, in particular the difficulty of releasing land for development can have a significant effect on the location of new housing. Contrary to immediate impressions the amount of land suitable for housing, other than croft housing, and which is acceptable in both physical and planning terms is fairly limited. This is the case in Castlebay.

3.6 Castlebay offers a range of facilities including the newly constructed community school which contains a library, a swimming pool and facilities for a theatre. There is also a small hospital (5 beds) and old peoples home. Castlebay has five shops, a bank and a post office, but there is no baker or butcher. The inhabitants are dependent on the ferry for most foodstuffs. There is little evidence of self sufficiency in vegetables etc. Mobile shops, bank and library operate from Castlebay.

3.7 The Western Isles as a whole are heavily dependent on their transport links with the Scottish Mainland. Caledonian MacBrayne operate a vehicle ferry between Oban, Castlebay and Lochboisdale, with three crossings per week in winter and four crossings per week in the summer. Castlebay has no roll on/roll off facilities although there are plans to provide this in the near future. There are also 2 small passenger ferries, between Castlebay and Vatersay and between Eoligarry and Ludag (South Uist), both these ferries appear to be well used. There is a daily air service between Barra, Tiree and Glasgow and a twice weekly service between Stornoway, Benbecula and Barra.

3.8 The only public transport on Barra is provided by the Post Bus and the privately operated school bus. There is a community minibus on Vatersay.

3.9 Planning policy is based on a recognised settlement hierarchy which helps in the assessment of competing needs and the allocation of council resources in a rational manner. Castlebay is classified as a "level 2" settlement providing service and administrative functions to the whole island. Stornoway has been identified as the only "level one" settlement.

3.10 The Western Isles Council has a general policy against development in remote areas, Policy C21 states:

> "The Council will not permit new development in very remote locations and an uninhabited island except:
>
> (a) if the development is of a particularly hazardous nature and cannot be located elsewhere; or
>
> (b) in the case of resource based developments where such development is not possible or is unsuitable or environmental grounds in a more accessible area".

Disturbance from Development

3.11 Whilst Sandray is a remote, uninhabited island it is clearly visible from Castlebay over low lying Vatersay and a large proportion of houses in Castlebay look over Vatersay and Sandray. It is unlikely that the construction camp would be visible from Castlebay but the headworks would be partially visible.

3.12 Although it is likely that much of the servicing of a repository on Sandray would be from mainland Scotland there is likely to be some social impact on the community on Barra, particularly Castlebay.

Local Nuclear Experience

3.13 There is no nuclear establishment in the Western Isles.

4.0 LOCAL ECONOMY

Travel to Work Area: Western Isles
Unemployment: 20.8% 2,050 people
Employment in manufacturing in region: 2,036
Major employment: Crofting, Fishing, Tourism

4.1 Crofting is the main economic activity on Vatersay, the other major activity is the provision of local services. In 1981 the number of jobs on Vatersay was estimated to be 18 full time and 1 part time. A further 8 people were unemployed, these were predominantly male and young.

4.2 The employment structure in Barra is more diverse. Many people have a number of part time jobs such as crofting, fishing and providing accommodation. In addition to these activities the local services are major employers. There are very few manufacturing employers, the major two are Barra Shell and Barratlantic fish processing factory. The labour force of the latter fluctuates considerably.

4.3 The 1981 employment survey also identified a large number of people who work away from Barra; it was estimated that 40 were working in the North Sea Oil industry and a further 40 were in the merchant navy.

4.4 The local labour supply from the immediate area for development on Sandray would be very limited. Even major construction projects on Barra, such as the community school, have imported some of the workforce because the work involved heavy machinery and required suitably experienced labour.

4.5 Whilst labour supply on Barra and Vatersay is limited the Western Isles as a whole could offer greater potential. Heavy steel fabrication was introduced to the Western Isles in 1976 with the setting up of Lewis Offshore Ltd at Arnish Point, Stornoway. Its labour force reached a peak of almost 1000 in 1978, many of the employees were local. Its workload has dropped considerably and its workforce now numbers less than 100. This suggests that suitable workers may be available in Stornoway.

4.6 The existing economic policy is based on concentrating on and developing the existing economic and employment base and skills of the islands. In particular, attention is given by the Western Isles Council to the encouragement of economic development outside the established settlements of Stornoway and Balivanich, where up to now most development has been concentrated.

Local Economic Benefit

4.7 The local economic benefit of the construction and operation of a repository on Sandray could be relatively large. There will be employment benefit in the surrounding community because there is little local employment, the range of existing job opportunities is very limited and the scope to introduce new types of economic activity is also very limited. The only constraint is that the number of people to benefit from the employment opportunities will be small particularly in the immediate area of Vatersay and Barra.

Blight

4.8 The communities around Sandray are considered to be threatened by blight because there is a hig proportion of sensitive economic activities namely farming, fishing, and tourism and the Western Isles is heavily dependent on these activities.

Resource Sterilisation

4.9 No mineral resources have been identified on Sandray. At present mining and quarrying play a limited part in the economy of the Western Isles, providing material wholly, with the exception of Barra Harl, for local use. The island of Sandray would appear to be unused and therefore the potential resource sterilisation is very limited.

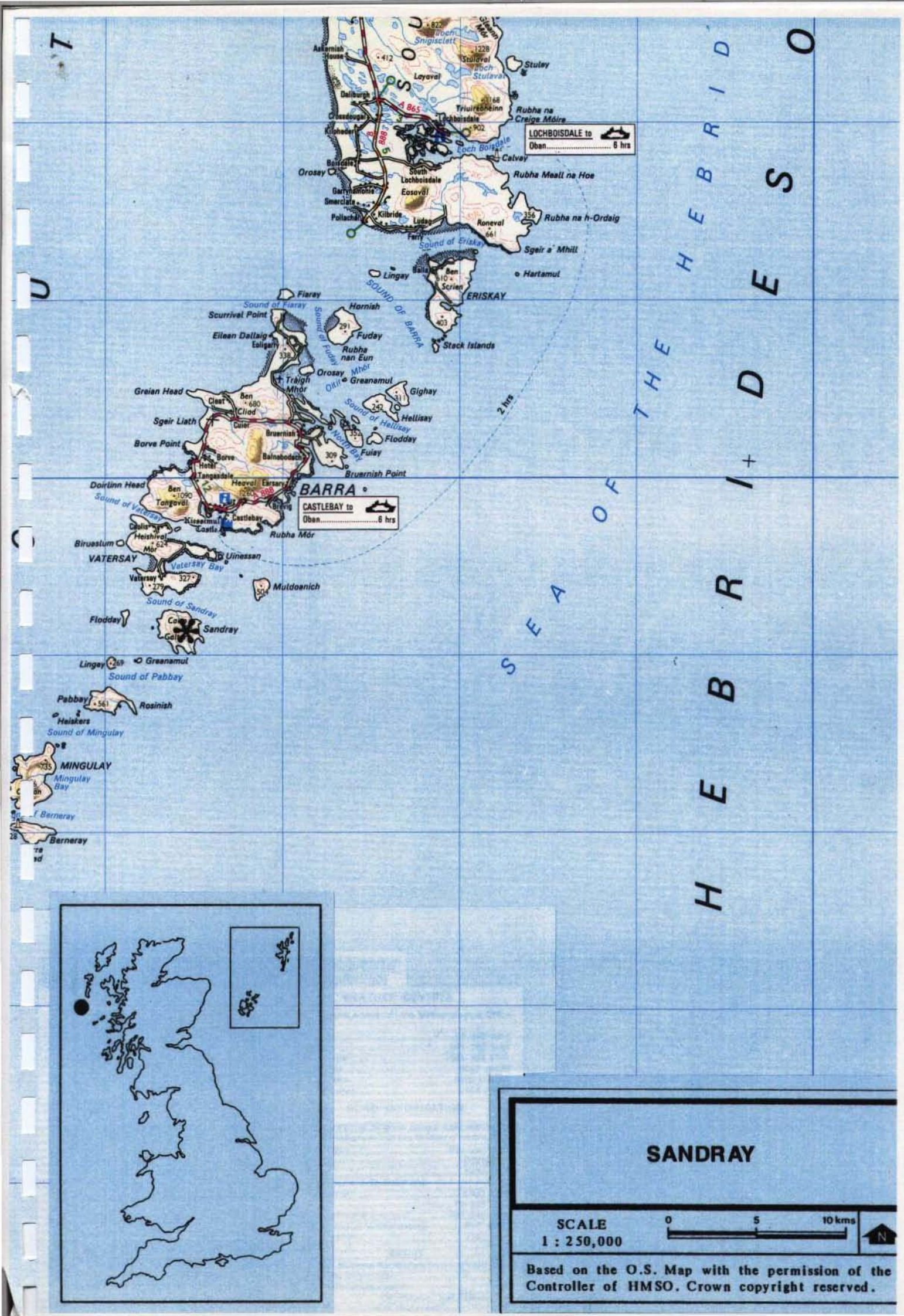
5.0 NATURAL ENVIRONMENT

Designations: ESA on parts of Barra and Vatersay
Preferred Conservation Zone

5.1 The machair land of Barra and Vatersay have been designated Environmentally Sensitive Areas, this includes much of the southern part of Vatersay.

5.2 The quality of the natural environmental is an important resource in the Western Isles; both for crofting, fishing, and also for recreation and tourism.

5.3 Sandray is an integral part of the Western Isles, clearly visible from Vatersay and Barra. The unspoilt appearance and natural habitat would be severely affected by the proposed development . The ESA on Vatersay is unlikely to be affected.



SANDRAY

SCALE 1 : 250,000

0 5 10 kms

N

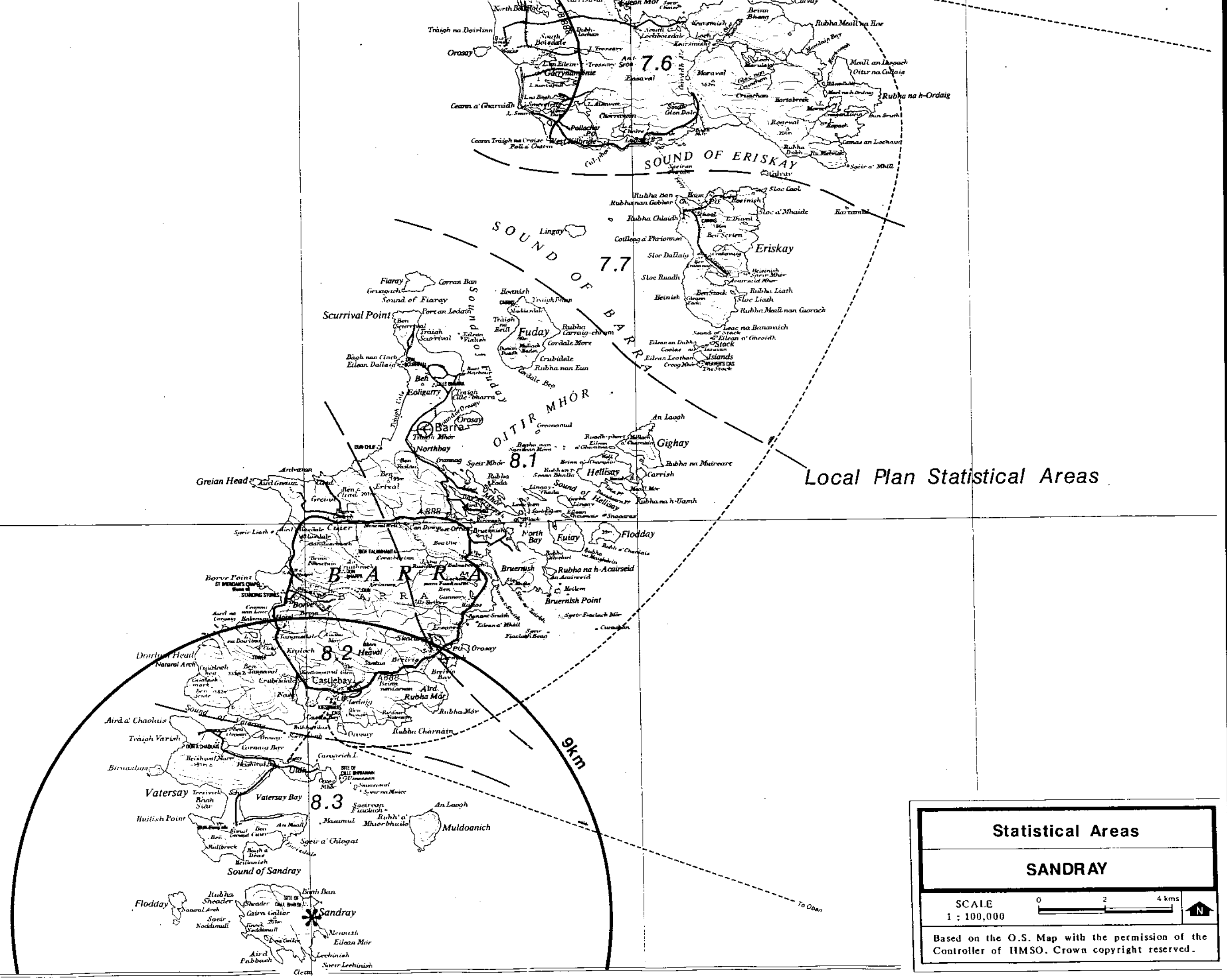
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.

SANDRAY

SCALE 1:50,000

0 1 2 kms

N



Statistical Areas

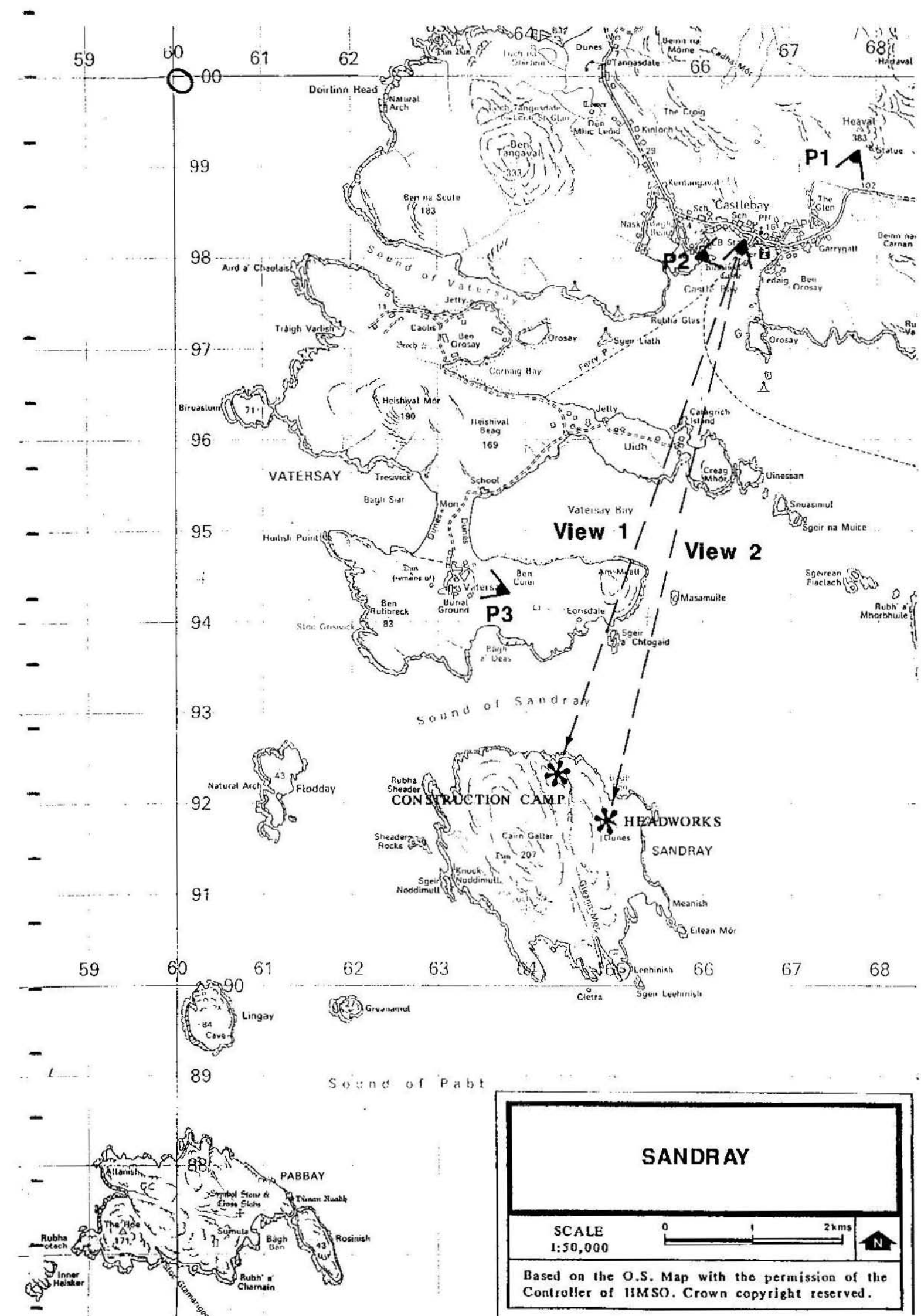
SANDRAY

SCALE
1 : 100,000

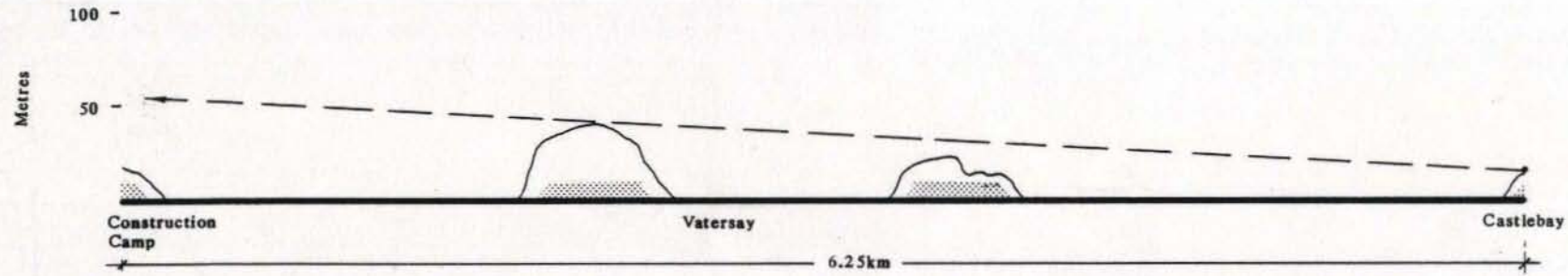
0 2 4 kms

N

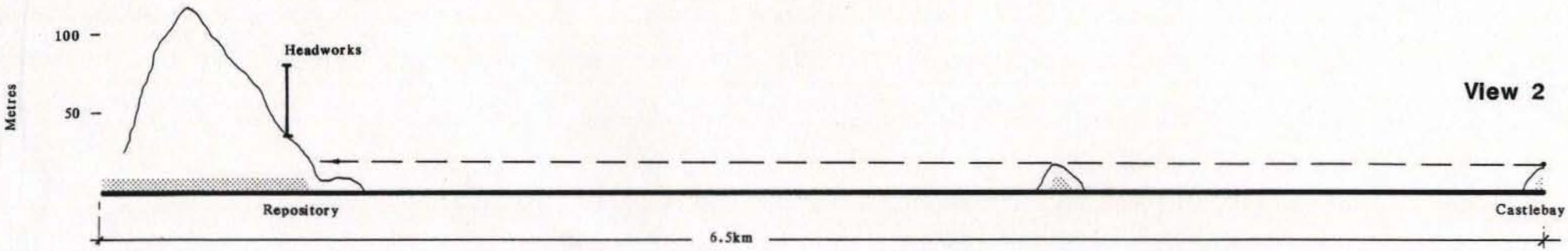
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.



SANDRAY
SCALE
1:50,000
0
1
2kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
P1
P2
P3
View 1
View 2
CONSTRUCTION CAMP
HEADWORKS
SANDRAY
VATERSAY
Sound of Vatersay
Sound of Sandray
Sound of Pabb
Castlebay
Vatersay Bay
Doirlinn Head
Natural Arch
Ben Tangaval
Ben na Scute
Aird a' Chaolais
Traigh Vatish
Biruaslum
Heishival Mór
Heishival Beag
Jetty
Orosay
Sgeir Liath
Rubha Glas
Uidh
Uinessan
Snuasimul
Sgeir na Muice
Masamuile
Sgeirean Fiaclach
Rubh' a' Mhorbhuile
Eorisdale
Sgeir a' Chtogaid
Ben Cuier
Burial Ground
Ben Rutibreck
Stoc Grisivick
Bagh a' Deas
Natural Arch
Flodday
Rubha Sheader
Sheader Rocks
Cairn Galtar
Knock Noddimull
Sgeir Noddimull
Meanish
Eilean Mór
Leehinish
Sgeir Leehinish
Cletta
Lingay
Cave
Greanamul
Attanish
PABBAY
Symbol Stone & Cross Slabs
Timan Ruabh
The Hoe
Sumula
Bagh Ban
Rosinish
Rubha Cotach
Inner Helsker
Rubh' a' Charnain
Stoc Glamarigen
Dunes
Tangasdale
Kintoch
The Croig
Heaval
Statue
Ben Orosay
Garrygall
Ledaig
Ben Orosay
Cornaig Bay
Ferry P
Caolis
Ben Orosay
Jetty
Heishival Beag
Tresivick
School
Bagh Siar
Mon
Dunes
Huilish Point
Am-Meall
Dunes
Cadha Mór
Beinn na Mòine
Beinn na Carnan
Hartaval



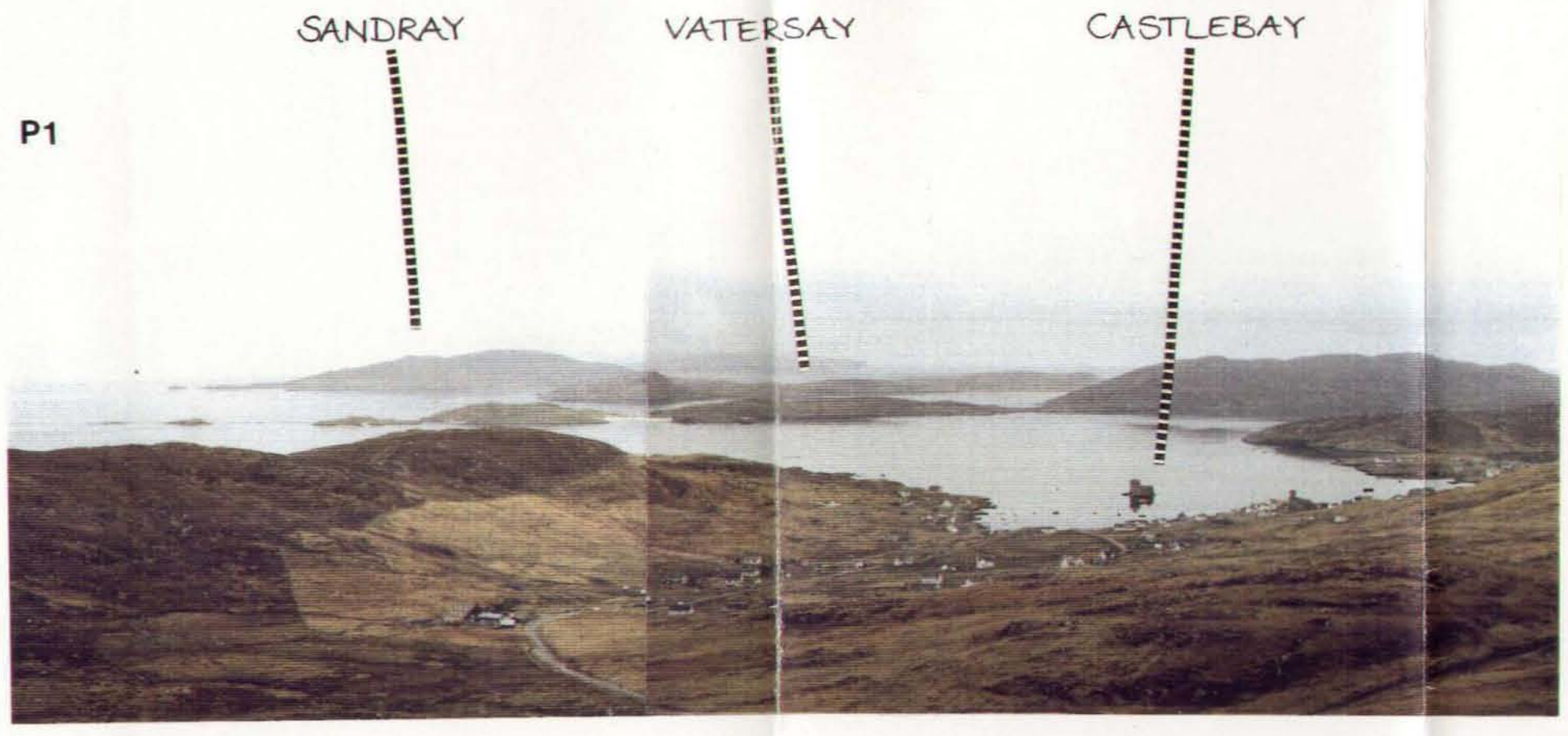
View 1



View 2

SANDRAY

P1



CASTLEBAY, BARRA

P2

MAIN SETTLEMENT ON VATERSAY

P3

APPENDIX 8

Sellafield A & B

CONTENTS

SECTION		Page
1.0	SITE CHARACTERISTICS	8.1
2.0	DEVELOPMENT PROPOSALS	8.3
3.0	COMMUNITY	8.4
4.0	LOCAL ECONOMY	8.7
5.0	NATURAL ENVIRONMENT	8.9

Following Text:

- 1:250,000 Location Map
- 1: 50,000 map with overlays showing
  - development proposals
  - designated areas and planning policy areas
- 1:100,000 map of population statistical areas
- 1: 50,000 map showing location of cross section and photographs
- cross section diagram
- photographs

Pieda

1.0 SITE CHARACTERISTICS

Location:	**Cumbria County**
	Copeland District
Size:	**Not known**
Ownership:	**BNFL?**
Land use:	**Agriculture/parkland/unused**
Topography:	**Gently rolling coastal plain**
Grid Reference:	**NY 0202 & NY 0305**

1.1 The Sellafield site lies on the Cumbrian coast 16km south of the centre of Whitehaven. The Sellafield Works are on the coastal plain, with the fells of the Lake District National Park rising a few kilometres to the east. The Park boundary is 3km from the coast at Sellafield, running alongside the A595(T) between Calder Bridge and Gosforth. (See 1:250,000 and 1:50,000 maps.)

1.2 The extent of the BNFL ownership at Sellafield is not known. For the purpose of this appraisal, the potential repository site, Sellafield A, has been located on the southern side of the Sellafield Works. An inland site, Sellafield B, has been included to permit appraisal of a repository in the Borrowdale volcanics. The headworks for the Sellafield B option have been nominally located at Pelham House School, where it is known that BNFL own some land.

1.3 The potential repository site are partly in agricultural use. It and the surrounding agricultural land is classified as Grade 3 by MAFF. To the east, beyond the A595(T), the land quality drops to Grades 4 and 5 as the land rises to the fells.

1.4 Immediately adjacent is the Sellafield Works, comprising the nuclear reprocessing plant of Windscale and the nuclear power station of Calder Hall. Reprocessing work has been undertaken at Sellafield since 1952, with the present plant coming on stream in 1964. Construction is underway on a plant to handle AGR and LWR oxide fuel pins from the UK and other countries. This Thermal Oxide Reprocessing Plant (THORP) is due to be completed in 1991. Low level radioactive waste is disposed of in the site at Drigg, 4km down the coast.

1.5 A new access road from the A595(T) to Sellafield has recently been completed. The junction with the A595 is a roundabout near Blackbeck, North of Calder Bridge. This road gives easy access to the northern side of Sellafield where the THORP development is located.

1.6 A new access road has also been constructed to Calder Hall, on the southern side of Sellafield. This road is from the B5344 towards Seascale.

1.7 There is an existing spur into the Sellafield site from the adjacent British Rail Cumbrian Coast line.

1.8 At present, some of the nuclear material is delivered to Sellafield by sea to the port at Barrow and then transported by rail to Sellafield.

2.0 DEVELOPMENT PROPOSALS

Assumptions

	Sellafield A
Land take:	surface works 60 ha (150 acres)
	road/rail -
Infrastructure:	none
Waste transport	rail - 261 trains p.a.
Spoil disposal:	1m tonne on site
	17.2m te over 50 years
	(rail to Lancashire)

	Sellafield B
Land take:	surface works 80 ha (200 acres)
	road/rail 10 ha
Infrastructure:	internal rail & road link & access road
Waste transport	as 'A'
Spoil disposal:	1m te on site
	12.9m te over 50 years rail to Lancashire

2.1 The two red overlays for the 1:50,000 map illustrate the layout and location of the Sellafield options. Ownership details are not known so the site locations are assumed for the purpose of this appraisal.

2.2 Sellafield A (for a repository in the coastal anhydrite deposits) is on the south side of the existing Works and north of Newmill Beck. Sellafield B (for a repository in the Borrowdale volcanics inland) is split beween the coastal site (as 'A'), for the reception facilities, and inland, for the headworks.

2.3 A rail and road link would be required between the two parts of the Sellafield B site and a new road access from the A595. No new transport facilities would be required for the Sellafield A site.

2.4 JMP Consultants estimate approximately 340 vehicles per day for 'A' and 320 vpd for 'B; using the A595.

2.5 The annual workforce is estimated to be as follows:

	'A'	'B'
Construction:	310 (11 years)	340 (9 years)
Operation:	340 (50 years)	330 (50 years)
Decommissioning:	70 (8 years)	60 (8 years)

3.0 COMMUNITY

Dwellings within 2km of site centre: **A - approx 550**
B - approx 600

Estimated population with 9km of site centre:
A - 14,000
B - 17,600

Estimated population density within 9km of site centre:
A - 0.55 ppha
B - 0.69 ppha

District population density: Copeland 0.99 ppha

Settlement	Distance (km) A	Distance (km) B	Approx Population
Seascale	1.5	3.5	2,038
Calder Bridge	3.0	0.5	100 (est)
Gosforth	3.5	3.0	1,256
Beckerment	4.0	2.0	843
Egremont	8.0	5.5	7,947
Whitehaven	16.0	15.0	27,512

3.1 Based on the 1981 Census data for resident population is civil parishes, the population within 9km of the sites was estimated as follows (se 1:100,000 map for parish boundaries):

Parish	Total	% parish	No.	% parish	No.
St Bees	1,611	10	161	40	644
Egremont	7,996	80	6,397	90	7,196
Lonside Quarter	392	100	392	100	392
St Johns Beckermet	2,009	100	2,009	100	2,009
Haile	226	100	226	100	226
St Bridget Beckermet	501	100	501	100	501
Ponsonby	164	100	164	100	164
Netherwasdale	265	10	27	75	133
Gosforth	1,272	100	1,272	100	1,272
Seascale	2,038	100	2,038	100	2,038
Drigg & Carleton	488	100	488	100	488
Irton with Stanton	498	50	249	50	249
Muncaster	272	30	82	-	-
Cleator	7,371	-	-	30	2,211
Ennerdale & Kinniside	288	-	-	20	58
			14,007		17,581

3.2 There are a number of villages and small towns in the vicinity of Sellafield. Beckermet, Calder Bridge and Gosforth are on the lower land of the river valleys and, particularly the latter two, are surrounded by deciduous trees. Views of the Sellafield Works from these villages are limited.

3.3 Seascale is a larger village just to the south of the works. Intervening higher ground affords some screening but further extensive landscape bunds are being created on the southern side.

3.4 The Sellafield Works is a dominant industrial complex set in the agricultural land of the coastal plain. The towers and sphere of the old Windscale works and the cooling towers of Calder Hall are all distinctive features visible from some distance. (In due course, the windscale sphere and towers are to be dismantled.)

3.5 Sellafield dominates the local communities by its physical presence and its role as the major source of employment. Many of the residents of the settlements work at Sellafield. The overall impression of the area is of an attractive rural location, particularly north towards St. Bees Head and east towards the Lake District. The centre of Beckermet is designated as a Conservation Area. There are also a number of historical sites in the countryside, including a stone circle near Seascale which is a scheduled ancient monument.

3.6 Land at Beckermet and Seascale has planning permission for residential development. At Beckermet 40 dwellings are expected to be developed by 1996. There is little demand for private sector housing in Seascale so development on one site is to be reduced to 40 rather than 70 dwellings for the period to 1996. Both villages have primary schools.

3.7 Egremont is the local services centre for the area (e.g. secondary school) with Whitehaven providing a wider range of shopping and community facilities.

Disturbance from Development

3.8 Development of a repository at Sellafield A is close to a village of Seascale. However, the surface buildings, including the headworks, would be seen against the backdrop of the existing Sellafield Works. With careful landscape schemes, the bulk of the development could be screened. Landscaping could also reduce noise impact.

3.9 The development of the Sellafield B option splits the headworks from the reception buildings. The latter, on the coastal site, could be treated as the Sellafield A development and screened from the south. The headworks are close to Calder Bridge but separated by the woodland. This woodland would obscure or prevent close views but the works would be visible from the south and east, noise could cause disturbance in Calder Bridge.

3.10 As the new transport infrastructure for both Sellafield A and B is minimal, the visual and noise disturbance would also be minmal. However, there will be increased traffic levels on the local roads, particularly during construction. There may also be noise disturbance from transport between the reception and headworks in the Sellafield B option.

Local Nuclear Experience

3.11 with the dominance of the existing Sellafield Works in the local economy and community, many of the residents in the vicinity will have direct experience of the nuclear industry.

4.0 LOCAL ECONOMY

Travel to Work Area: Whitehaven
Unemployment (in TTWA): 9.3% 3,062 people (April 1988)
Employment in manufacturing in Cumbria: 64,457
Economy: dominated by Sellafield Works; rural area: agriculture

4.1 The economy of the Mid Copeland Local Plan area, and the wider area of West Cumbria in general, is dominated by the role of the Sellafield Works. The total employment at Sellafield is around 11,000, including an estimated 920 (35% of the workforce) in the Local Plan area, which extends from Drigg to St. Bees but excludes Egremont.

4.2 BNFL acknowledge the importance of providing job opportunities to the local population and require contractors recruiting specifically for Sellafield work to taken on people usually resident in West Cumbria (subject to them having the appropriate skill level). In 1986 about 70% of the contracted workforce was local to West Cumbria (Local Plan para 2.6).

4.3 After Sellafield, agriculture is the most important sector of the local economy, accounting for about 11% of the workforce. The remaining employees (including a high proportion of professional people) commute to the urban areas of West Cumbria, particularly Whitehaven.

4.4 The District Council has expressed some concern over the dependence of the local economy of West Cumbria on Sellafield and is encouraging diversification where possible. Poor strategic access and the absence of government financial assistance are seen as the two key constraints to attracting new industry to the area. Local employment initiatives, therefore, are seen as perhaps offering the greatest potential.

4.5 Tourism plays a minor role in the local economy but the local authorities have recently launched a programme to improve its facilities and attract more visitors. Sellafield itself is now promoting visits to the Works and has recently completed a £5 million visitor centre designed to cope with some 150,000 visitors a year. There are holiday cottages along the coast north of Sellafield and St. Bees Head is a particularly popular area.

Local Economic Benefit

4.6 The number unemployed in the local Travel to Work Area and the proximity of population centres of Whitehaven and, further north, Workington (with 3,593 unemployed in the TTWA in April 1988) means that the workforce could be recruited largely from West Cumbria, both during construction and operation. The latter may be helped by the presence of the existing Works.

4.7 The demise of the traditional industries in West Cumbria (mining, iron and steel) has not been counteracted by the introduction of other industries, including the nuclear industry. The peripheral location of West Cumbria and the resultant distance from the markets of the Midlands have meant that it is difficult to create new employment opportunities or attract new major employers.

Blight

4.8 Sensitive activities in the area of Sellafield comprise agriculture and some tourism. In the case of the latter, the Sellafield Visitor Centre is the major tourist attraction in West Cumbria and therefore appears to benefit rather than blight tourism. The presence of the existing Sellafield works should reduce any blight effect of a repository development.

Resource Sterilisation

4.9 Both Sellafield A and B options would result in the loss of agricultural land, which is classed as grade 3 by MAFF. Part of 'A' site is allocated in the Local Plan for extension to the Works (see map overlay). Part of 'B' is allocated in the Local Plan for 'prestige industrial use'. BNFL intended to use this for offices but now has plans to develop a business park on the site.

5.0 NATURAL ENVIRONMENT

Designations: **Lake District National Park - 3km**
Heritage Coast - St. Bees Head 10km
AGLV - adjacent
SSSI - Drigg 10km
- Braystones Tarn 8km
- St. Bees Head 10km
Local - Sellafield coast

5.1 St. Bees Head is a designated Heritage Coast, where the District Council "will support proposals to manage and develop the stretch of coastline as a national recreational and wildlife resource" (Policy 6m).

5.2 The coastal strip, excluding Sellafield, was designated in the old Country Development Plan as an Area of Great Landscape Value. The current Structure and Local Plans retains the designated area and have policies to "protect the landscape from non essential and inappropriate development". (See map overlay.)

5.3 The provisional route of the Cumbrian Coastal Footpath lies to the west of the railway line, except next to Sellafield, where it crosses to the east of the line. The footpath is still being developed and promoted as a recreational resource.

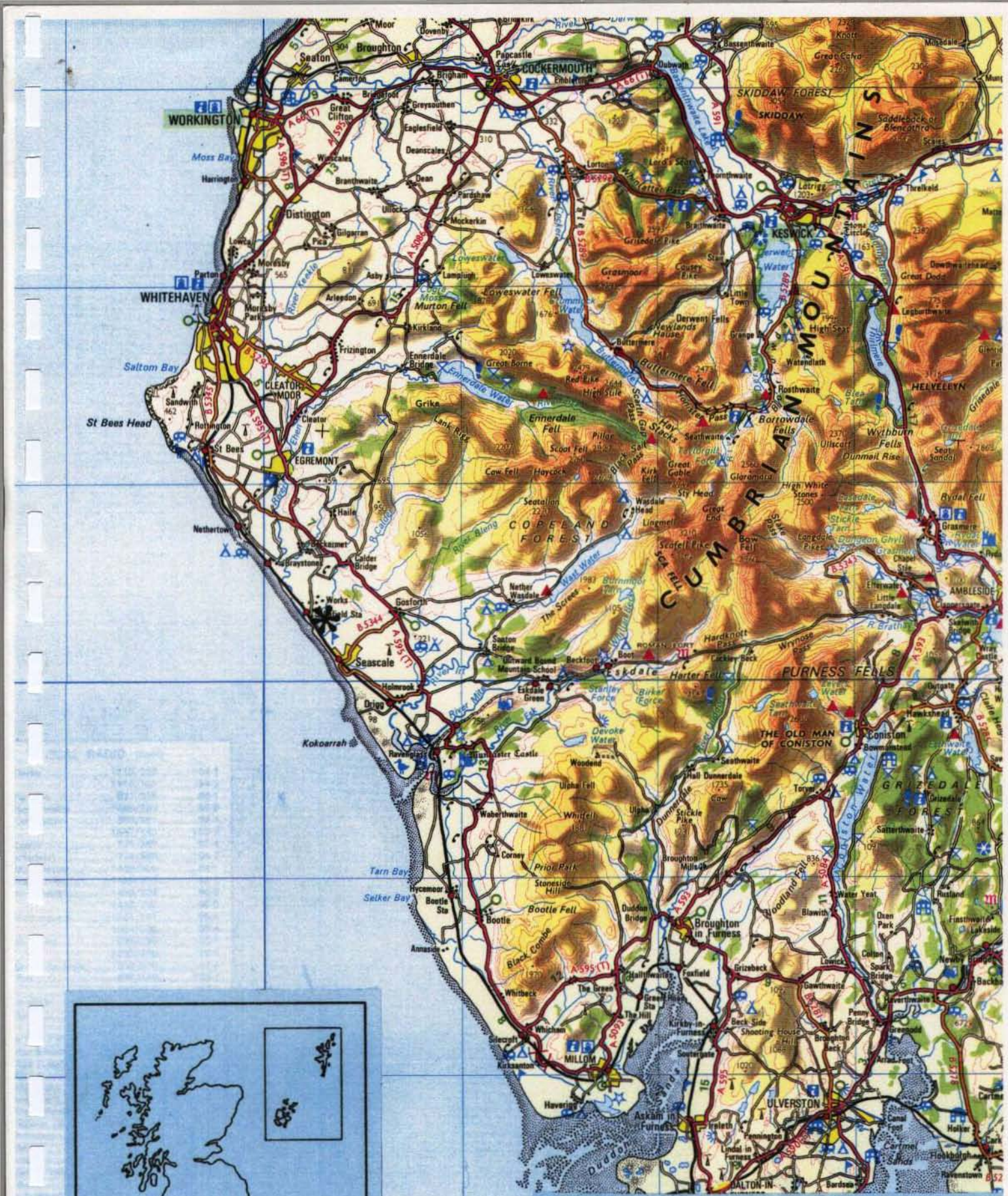
5.4 The sand dunes, single, saltmarsh and dune heath at Drigg is a designated SSSI for the importance of the coastal wildlife species. Braystones Tarn, to the north, is of interest for the fen vegetation. St. Bees Head is designated for its geological, botanical and ornithological value.

5.5 A narrow stretch of the coastline adjacent to Sellafield has been identified as being of wildlife importance although not SSSI value.

Disturbance

5.6 The Sellafield Works dominate the local landscape so the intrusion from a repository development would not be significant. However, the Sellafield B site would reslt in a greater impact by locating the headworks away from the existing industrial area into the rural area towards the National Park.

5.7 Nature conservation interests are not likely to be significantly affected by development or transport implications of either site. Again, Sellafield B would have a greater impact by involving more land and a transport link.



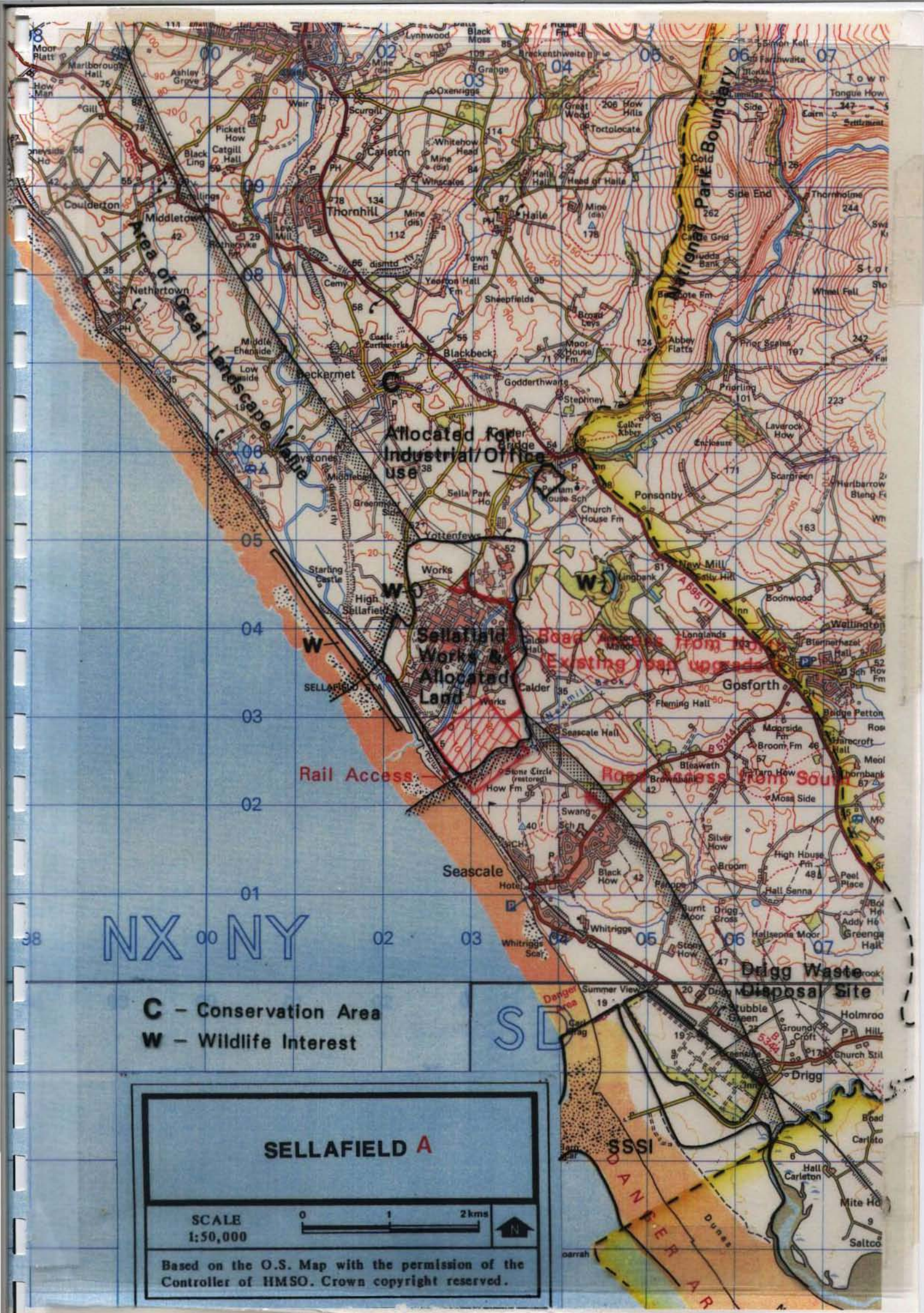
SELLAFIELD

SCALE
1 : 250,000

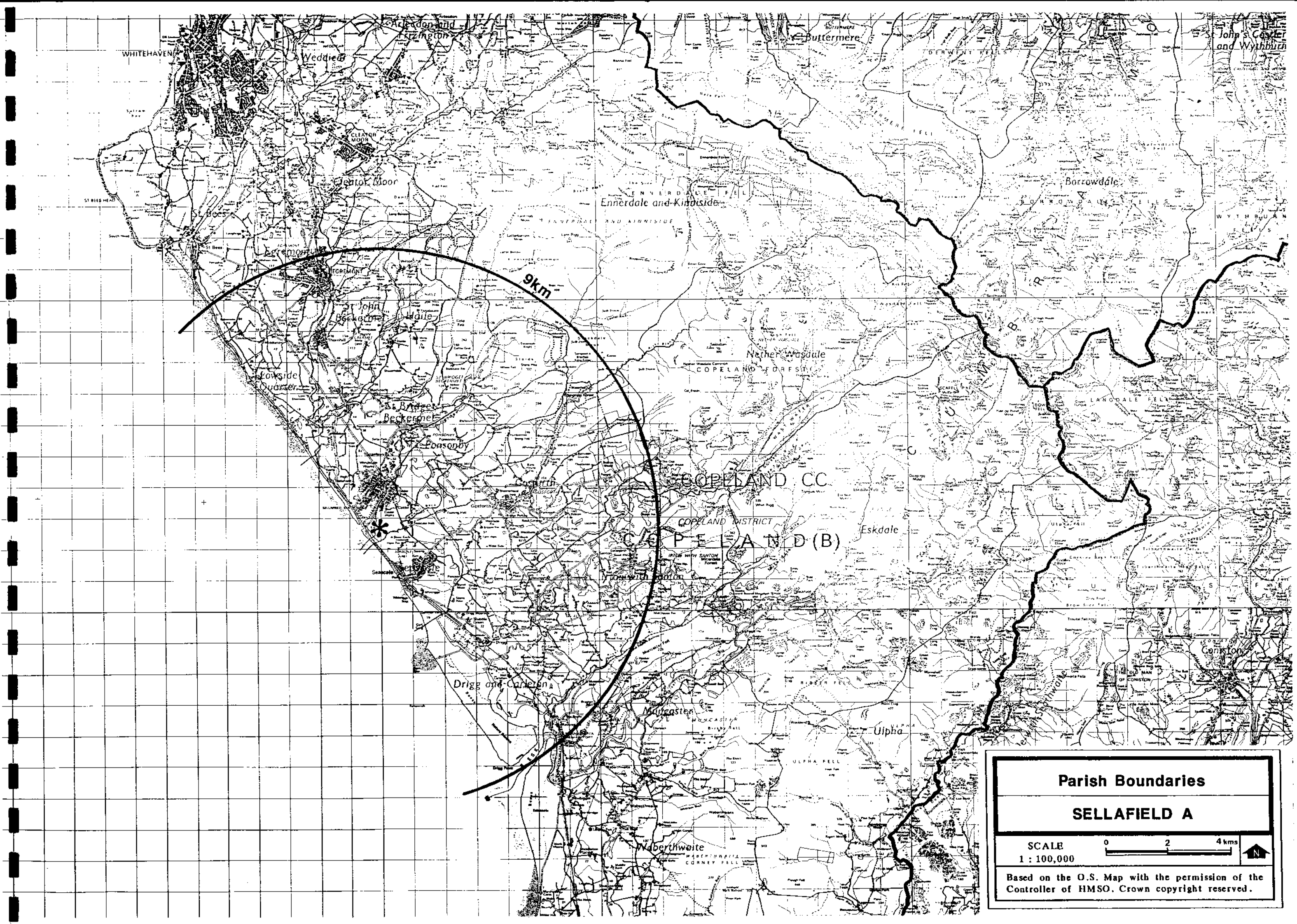
0 5 10 kms

N

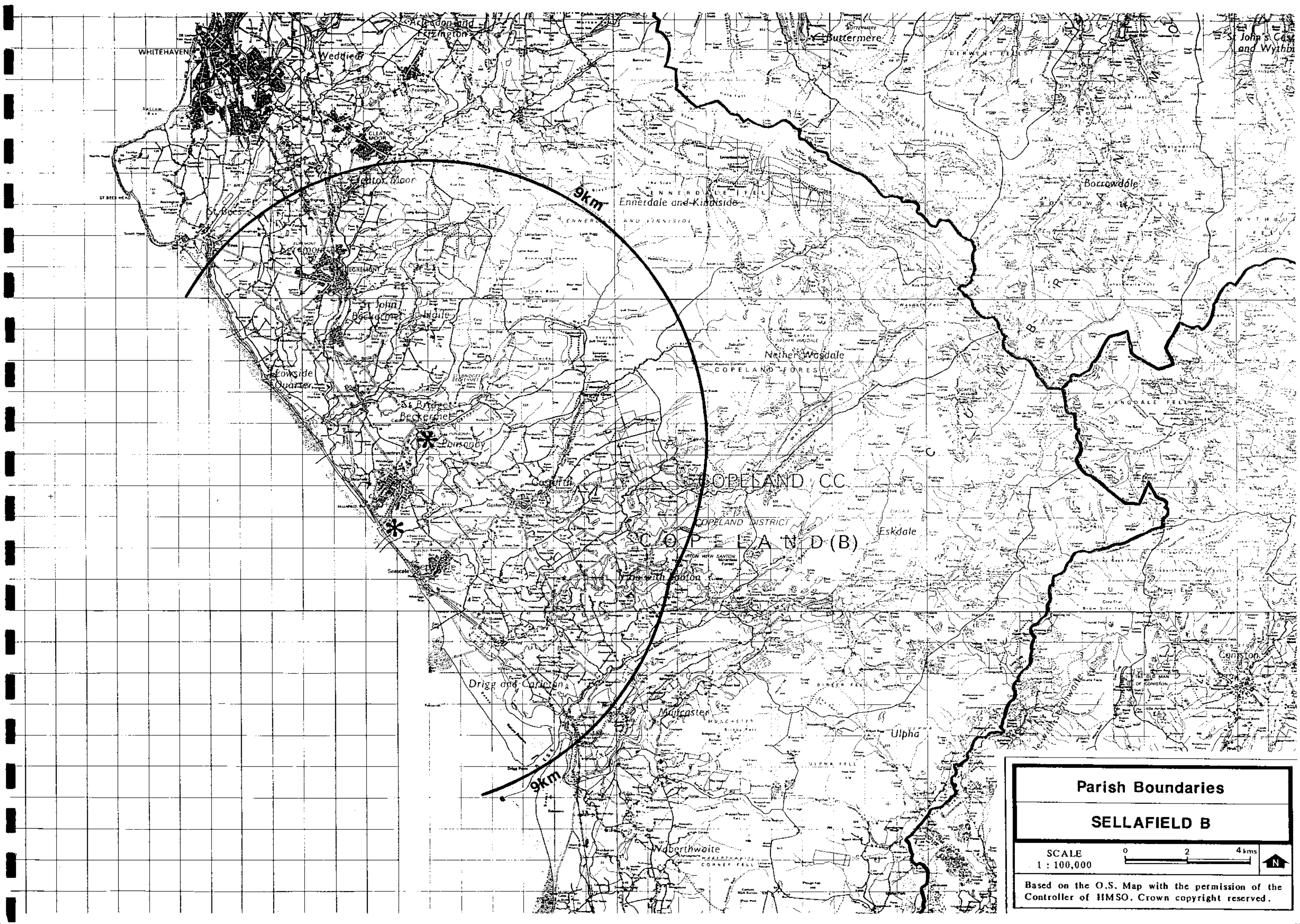
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.


Area of Great Landscape Value
National Park Boundary
Allocated for Industrial/Office use
Sellafield Works & Allocated Land
Road Access from North (Existing) to be upgraded
Road Access from South
Rail Access
Drigg Waste Disposal Site
SSSI
C – Conservation Area
W – Wildlife Interest
SELLAFIELD A
SCALE 1:50,000
0 1 2kms
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.

Allocated for Industrial/Office use
Road Access (existing road upgraded)
Headworks Area
Sellafield Works & Allocated Land
Extensions to Rail Spur
Road Link (existing road upgraded)
Reception Area
Drigg Waste Disposal Site
Area of Great Landscape Value
National Park Boundary
Seascale
Gosforth
Drigg
Thornhill
Beckermet
Blackbeck
Yottenfews
Calder
Ponsonby
Sellafield
Nethertown
Coulderton
Middletown
Carleton
Haile
Wellington
Holmrook
Saltcoats
NX
NY
SD
SSSI
C – Conservation Area
W – Wildlife Interest
SELLAFIELD B
SCALE 1:50,000
0
1
2 kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.



Parish Boundaries
SELLAFIELD A
SCALE
1 : 100,000
0
2
4 kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
9km
WHITEHAVEN
Weddicar
Arlecdon and Frizington
Buttermere
St John's Castle and Wythburn
Cleator Moor
St Bees
Egremont
Ennerdale and Kinniside
Borrowdale
St John Beckermet
Haile
Nether Wasdale
Lowside Quarter
St Bridget Beckermet
Ponsonby
Gosforth
COPELAND CC
COPELAND DISTRICT
COPELAND (B)
Eskdale
Drigg and Carleton
Muncaster
Ulpha
Waberthwaite
Coniston



Parish Boundaries

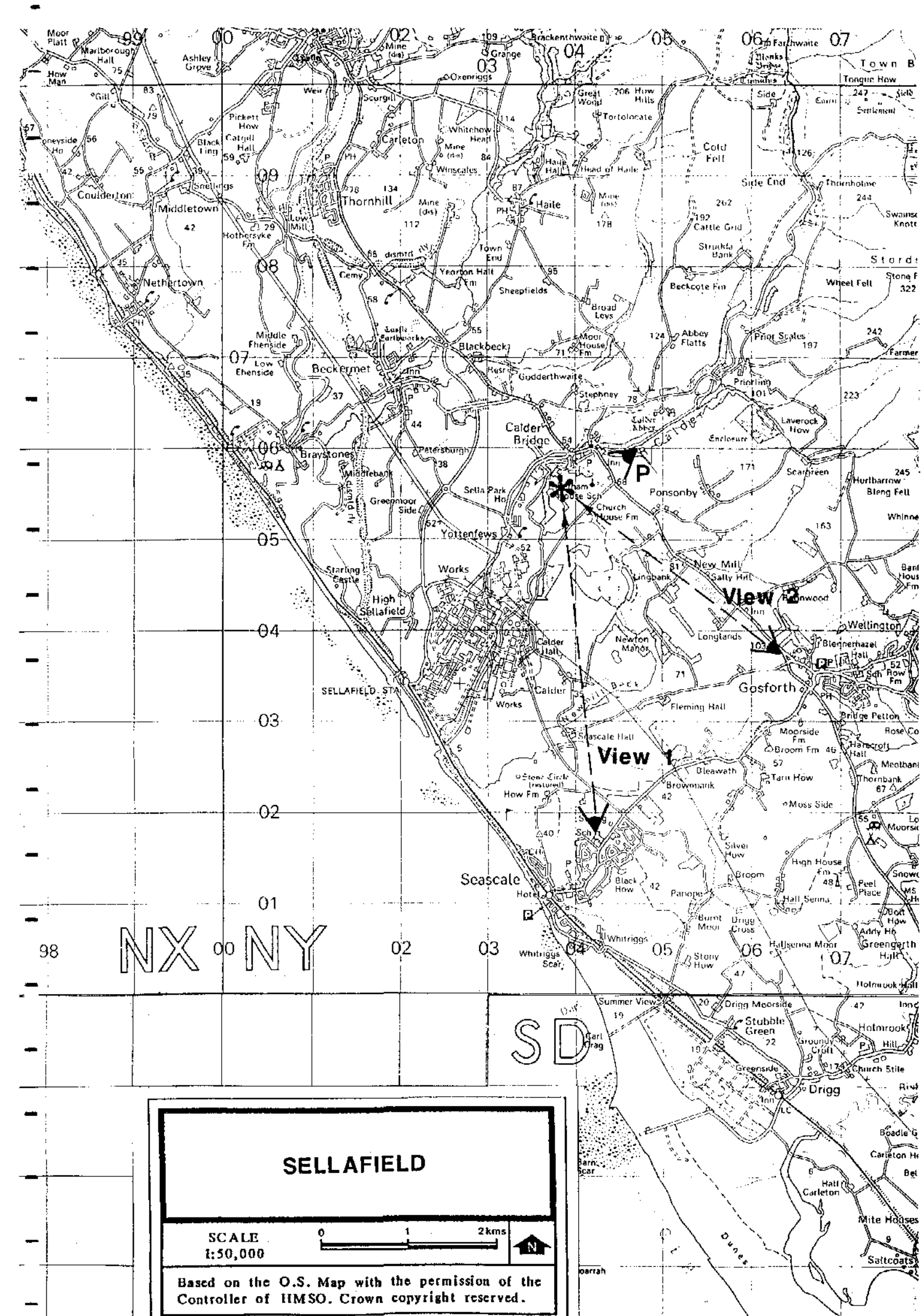
SELLAFIELD B

SCALE
1 : 100,000

0 2 4 kms

N

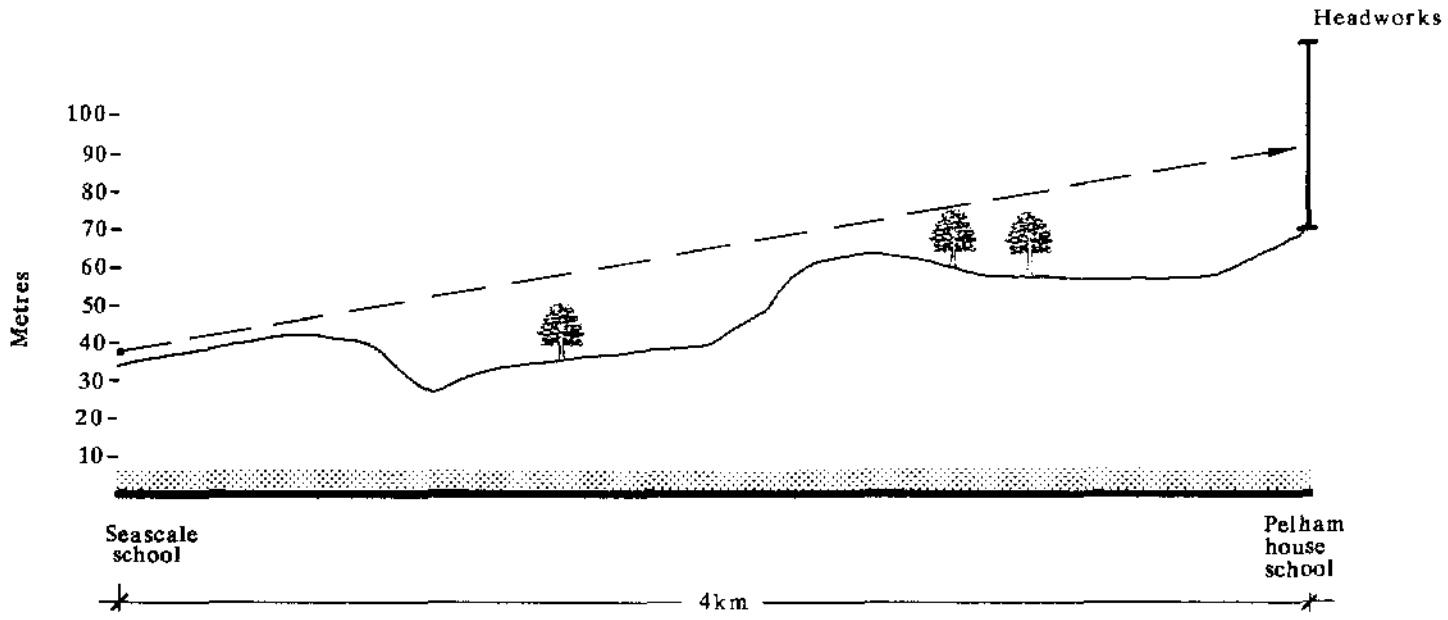
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.



SELLAFIELD
SCALE
1:50,000
0
1
2kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.
View 1
View 2
P
NX
NY
SD
Seascale
Gosforth
Calder Bridge
Ponsonby
Beckermet
Thornhill
Haile
Carleton
Drigg
Braystones
Nethertown
Yottenfews
Sellafield
Wellington
Stubble Green
Holmrook
Saltcoats

View 1

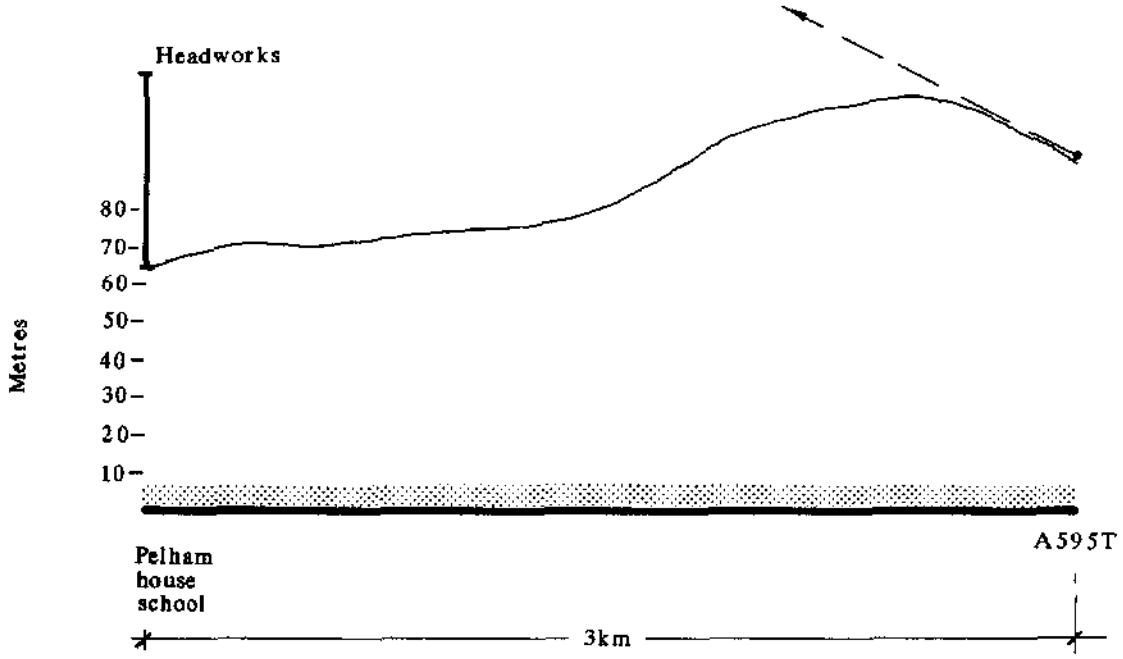
VIEW FROM SEASCALE SCHOOL



SELLAFIELD – B

View 2

VIEW FROM A595T WEST OF GOSFORTH
(Grid ref .063038)



SELLAFIELD - B

CALDERBRIDGE

VIEW FROM EAST OF CALDERBRIDGE

APPENDIX 9

Stanford

CONTENTS

		Page
SECTION		
1.0	SITE CHARACTERISTICS	9.1
2.0	DEVELOPMENT PROPOSALS	9.3
3.0	COMMUNITY	9.4
4.0	LOCAL ECONOMY	9.7
5.0	NATURAL ENVIRONMENT	9.9

Following Text:

- 1:250,000 Location Map
- 1: 50,000 map with overlays showing
  - development proposals
  - designated areas and planning policy areas
- 1:100,000 map of population statistical areas
- 1: 50,000 map showing location of cross section and photographs
- cross section diagram
- photographs

Pieda

1.0 STANFORD

Location:	**Norfolk County Breckland District**
Size:	**7,048 ha**
Ownership:	**MoD**
Land use:	**Mod training area**
Grid Reference:	**TL 8693**

1.1 Stanford is located 12km to the north of the town of Thetford within the Thetford forest area (see map accompanying).

1.2 The site is relatively flat varying between 30 and 50 metres above sea level. A small stream crosses the site and there are several areas of standing water, the largest being Stanford Water.

1.3 The site is used for military training and the surrounding land uses are predominantly forestry. A large part of the forests are promoted for recreational uses and there are a number of forest walks and picnic sites in the area. The Pedars Way Long Distance footpath passes just to the east of the site.

1.4 Access to the various ranges and training areas is gained through private military roads. The local roads in the area of a reasonably high standard. The site is approximately 15km from the A11 trunk road. A by-pass of Thetford is under construction.

1.5 There is no rail access to the site, the nearest railway is approximately 8km to the south west of the site. The site is approximately 40 km inland and therefore no ports have been proposed.

2.0 DEVELOPMENT PROPOSALS

Assumptions

Landtake: **repository - 60 hectares**
rail link & upgraded road link - 69 hectares

Infrastructure: **8.5km of new rail link**
5.3km of upgraded road

Waste Transport: **train- 497 trains pa**

Spoil Disposal: **train to disused brickworks Bedfordshire**
- 292 trains pa

2.1 It is estimated that the proposed repository will require 60 hectares, in addition, more land will be required for the construction of the railway to connect the site to the existing network and for land over the underground vault.

2.2 It is proposed to bring the waste to the site by train, this would involve 497 train journeys per year. The major part of the spoil produced at the site would be disposed of in the disused brick workings around Bedfordshire, this would involve the movement of 292 trains a year. A small amount of spoil would stay on the site for local landscaping.

2.3 The proposed raillink will cross forestry land, farmland and MOD land before reaching the site. It is proposed to upgrade an existing, partially asphalted road to provide road access to the site. The increase in road traffic on the existing roads is estimated to be of the order of 160 vehicles a day, 20 of which are likely to e lorries.

2.4 The labour requirements of the site are listed below:

Construction:	310 for 10 years
Operational:	330 for 50 years
De-commissioning:	50 for 9 years

It is anticipated that this labour force can be obtained locally, in particular from the Thetford area.

3.0 COMMUNITY

District population density: Breckland 0.74 ppha

Surrounding settlements

Distance	Settlement	Approx Population
5 km	Thompson	309
5 km	Lynford	50
6 km	Wretham	283
7 km	Mundford	1,082
8 km	Great Hockham	541
10 km	Thetford	19,500

Number of houses within 2km of centre of site: 0

3.1 The population within 9km of the centre of the site has been estimated using the 1981 Census Parish Populations. The parish boundaries are shown on the map. The relevant settlements are listed below:

	Estimated Proportion within 9km	Population in Parish	Estimated Population within 9km
Mundford	100%	1,082	1,082
Lynford	100%	182	182
Stanford	100%	7	7
Sturston	100%	0	0
Tottington	100%	0	0
Thompson	100%	309	309
Merton	100%	144	144
Little Cressingham	100%	191	191
Ickburgh	100%	174	174
Hilborough	90%	121	109
Didlington	75%	49	37
Cranwich	80%	37	29
Weeting & Broomhill	20%	1,619	324
Thetford	5%	19,593	980
Croxton	95%	311	295
Kilverstone	30%	74	25
Wretham	90%	283	255
Hockham	20%	541	108
Stow Bedon	50%	275	138
Griston	10%	322	32
Watton	60%	4,790	2,874
Soham Toney	30%	1,262	379
Ashill	5%	1,371	69
Great Cressingham	90%	260	234
Santon Downham	80%	237	190
Total			8,167

3.2 There are very few settlements in the immediate vicinity and very few dwellings within 5km of the site.

3.3 The major town in the area is Thetford approximately 10km to the south of the site. Thetford has experienced the most rapid growth rate of any part of Norfolk. It population has more than tripled since 1961. Much of this growth has been as a result of the Town Expansion Scheme agreement with the then Greater London Council. The town has developed a youthful age structure with over 28% of the population under the age of 16 in 1981. The Town Expansion Scheme agreement ceased in the mid 1970s.

3.4 Other than Thetford there are a number of small towns and villages within 15km of the site. Generally the population of the smaller villages has tended to decline but the larger settlements have experienced considerable growth. For example between 1971 and 1981 the populations of Mundford and Hockham both increased by over 50%. Conversely the population of Wretham decreased by over 40% this is likely to have been a result of MoD policy because there is a small military camp located on the edge of the village.

3.5 The Structure Plan settlement policy has been based on a hierarchy of settlements from growth centres, these tend to be the market towns, down to small villages where new housing will only be permitted where evidence of "local need" can be shown. Applications for residential buildings outside villages will only be permitted where they replace existing dwellings or in exceptional circumstances.

3.6 Thetford is identified as an employment growth area where residential development will be permitted and the present Town Map allows for considerable growth. Watton has been identified as a centre for services, residential and limited industrial development but development will only be permitted on the existing allocated land. Mundford is identified as a location for limited residential development and considerable new housing development has already taken place.

Disturbance

3.7 Much of the site is hidden from public view by forests and extensive tree belts and the site can only be seen from local roads through the woodlands. Therefore the site is unlikely to be visible to the local population given the amount of tree cover and the considerable distance to the nearest villages.

3.8 The proposed rail link could have a greater environmental impact than the actual development. There will be 160 houses within 1km of the railway line, although for over half its length the railway will be in cutting which will reduce it noise and visual impact.

3.9 There are no nuclear establishments within 25 km of the site.

4.0 LOCAL ECONOMY

Travel to Work Areas: Thetford
Unemployment: 6.4% 1,609 people
Employment in manufacturing county: 69,184
Major Employers: Forestry Commission and MoD in Local Areas. Industrial Estates at Thetford

4.1 Employment in Thetford has grown rapidly over the past two decades. The status of Thetford being a Town Development Scheme has led to the establishment of many new manufacturing businesses on industrial estates in the town.

4.2 A large proportion of people are employed in the manufacturing industries. 55% in 1981 and consequently a lower proportion are employed in distribution and services although attempts are being made to icrease the number and variety of service jobs avilable. Despite Thetford's assocation with the forest only a small proportion of the total working population are employed in agriculture and forestry. Although small in overall terms thi is an important source of employment in the local area.

4.3 Because of the initial difficulties experienced by firms in obtaining adequate labour, the level of commuting into Thetford from the surrounding rural areas has grown, and commuters account for a considerable proportion of the industrial workforce.

Local Economic Benefit

4.4 Whilst the surrounding area will experience local economic benefit this is not so important because the area, in particular Thetford, has been shown to be capable of attracting a range of economic activities.

Blight

4.5 There are few economic activities in the immediate area. The recreational use of Thetford Forest and surrounding agriculture are sensitive activities but they are unlikely to be affected by the proposed development.

Resource Sterilisation

4.6 The site is presently used for military training and the surrounding land uses are forestry and agriculture. The proposal development will result in a resource of local importance being sterilised.

5.0 NATURAL ENVIRONMENT

Designations: **Within Breckland ESA**
Area of attractive and important landscape. Important wildlife conservation zone.
12.5km from Brettenham Heath NNR
15 km from Thetford Heath NNR

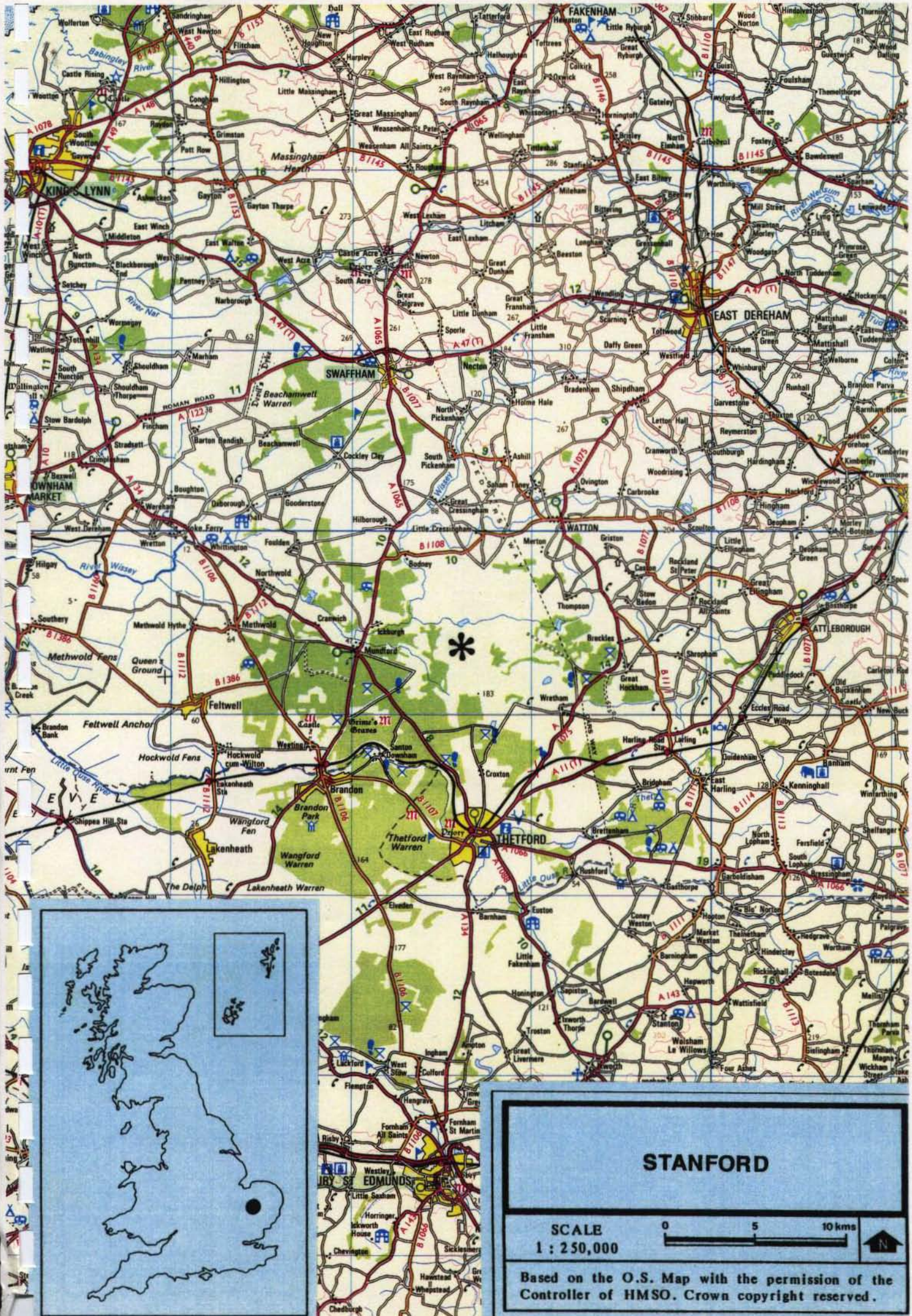
5.1 The proposed site is located within the Breckland area of Norfolk which is considered to be of national importance and contain wildlife resources of particular significance. Part of this area has been designated in ESA.

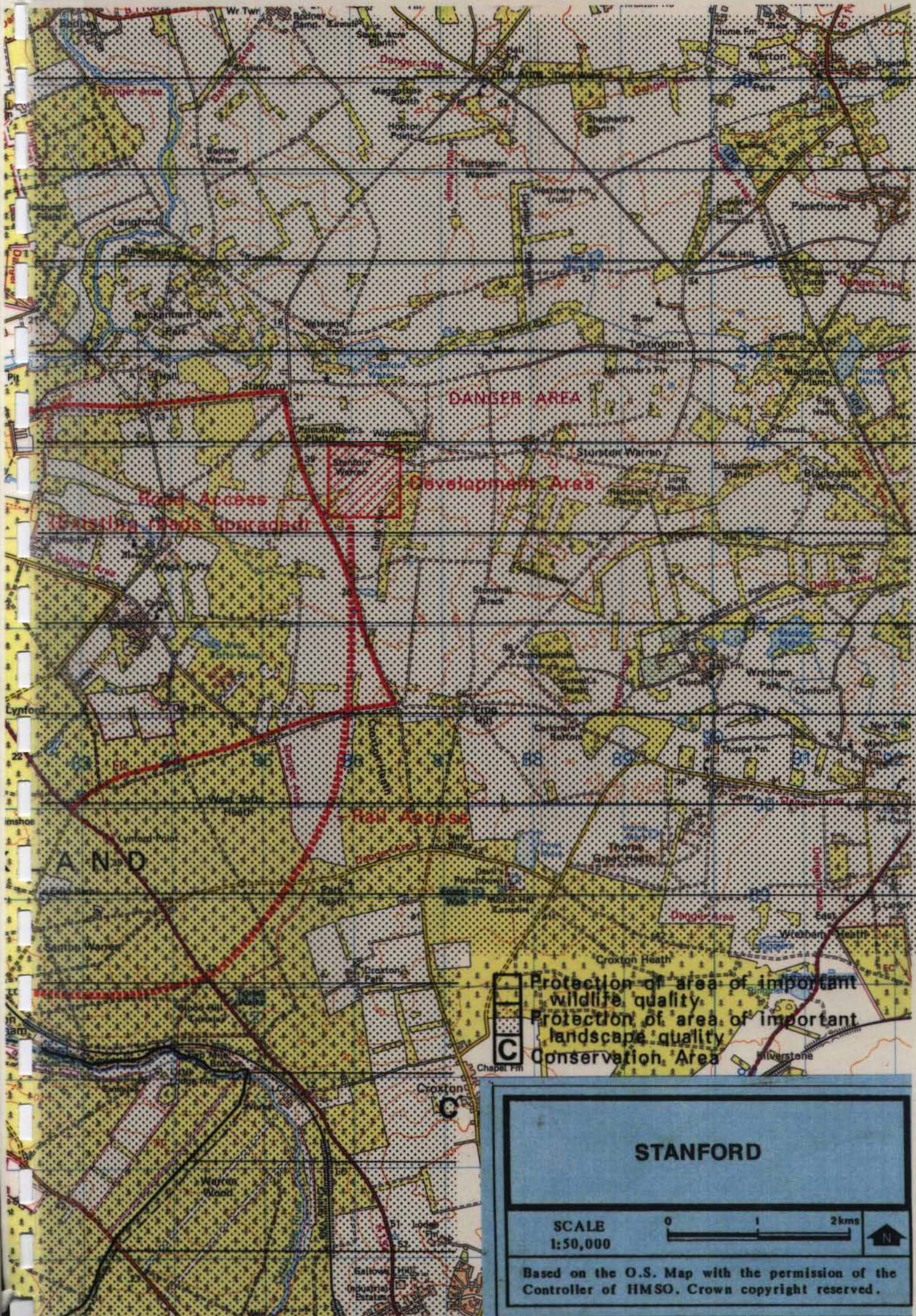
5.2 The site is part of an area of attractive and important landscape identified in the Norfolk Structure Plan, which covers the whole of the Brecklands including Thetford Forest and the River Waveney Valley. Other areas of attractive and important landscape include the Norfolk Broads and the north Norfolk Coast. A smaller proportion of these areas have also been identified as important wildlife Conservation Zone by the Nature Conservancy Council. The Council will be consulted on any application for development within the zones that is likely to affect wildlife.

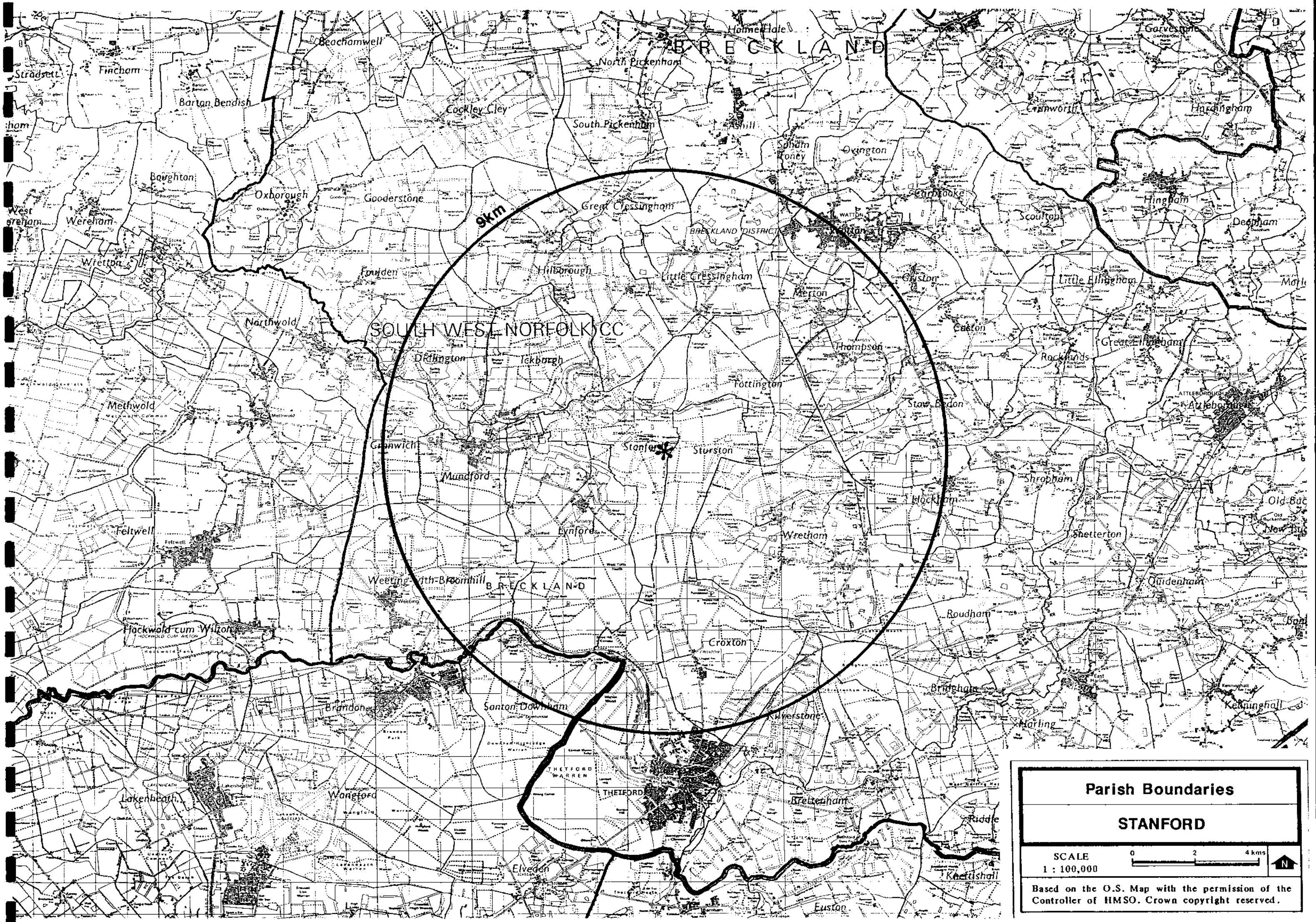
5.3 Thetford Forest is an important recreational resource and the Forestry Commission have developed a number of facilities including information centres, signposted walks and informal picnic sites.

5.4 There are two National Nature Reserves within 15km of the site, but it is not known if there are any SSSI in the vicinity.

5.5 Although the proposed repository and rail link are located in areas designated important for landscape and nature, the disturbance to these areas is likely to be minimal given the scale of the designated areas and the fact that the MOD are already active on the site.


STANFORD
SCALE
1 : 250,000
0
5
10 kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.


DANGER AREA
Development Area
Road Access
(Existing roads upgraded)
Rail Access
Protection of area of important wildlife quality
Protection of area of important landscape quality
C
Conservation Area
STANFORD
SCALE
1:50,000
0
1
2kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.



Parish Boundaries

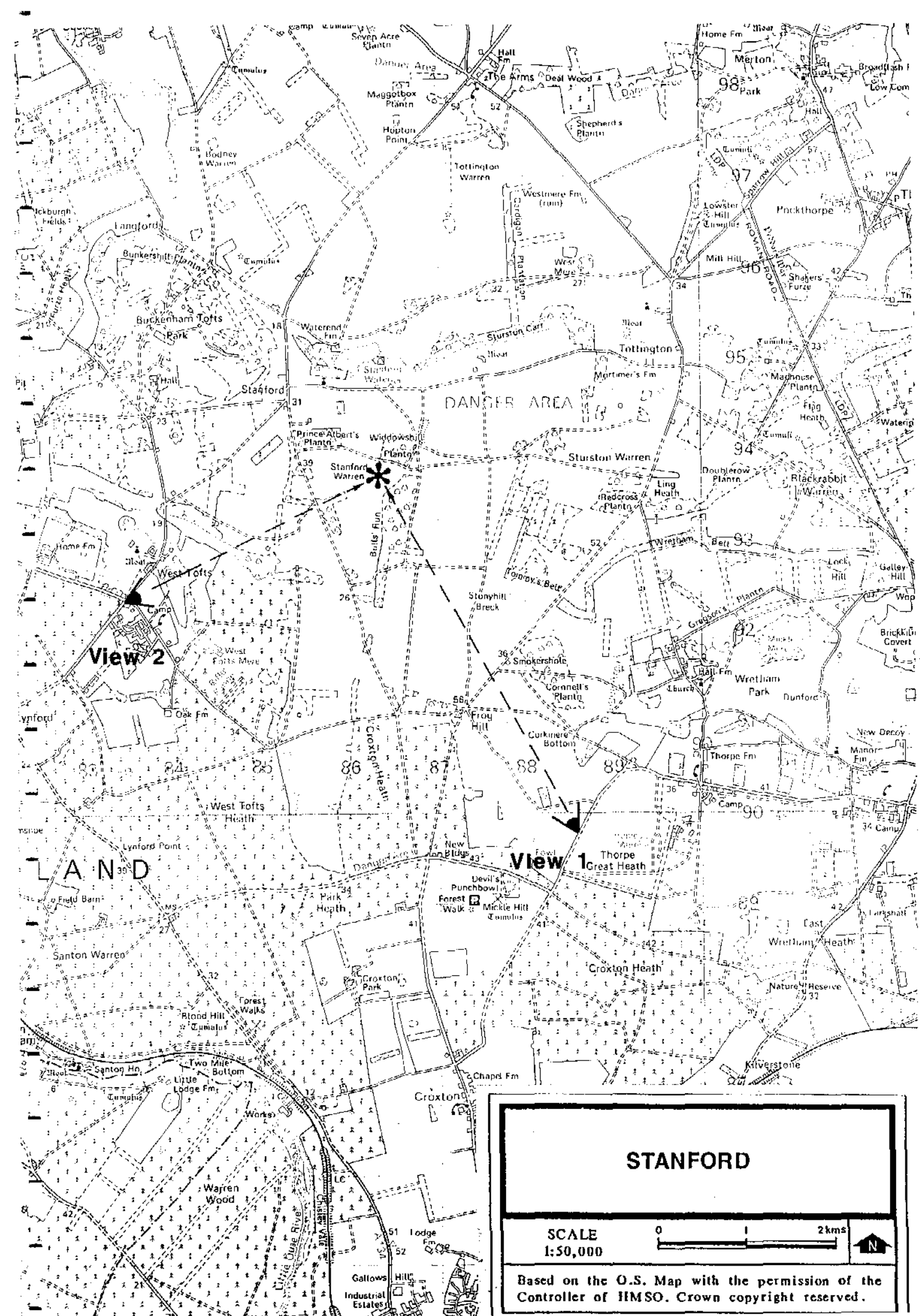
STANFORD

SCALE
1 : 100,000

0 2 4 kms

N

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.



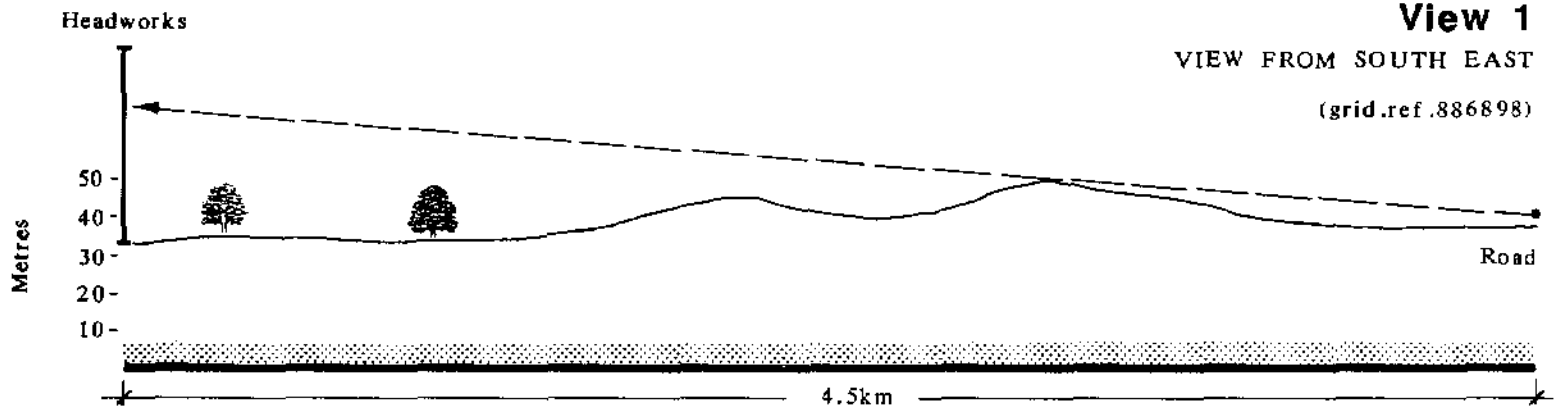
STANFORD

SCALE 1:50,000

0 1 2kms

N

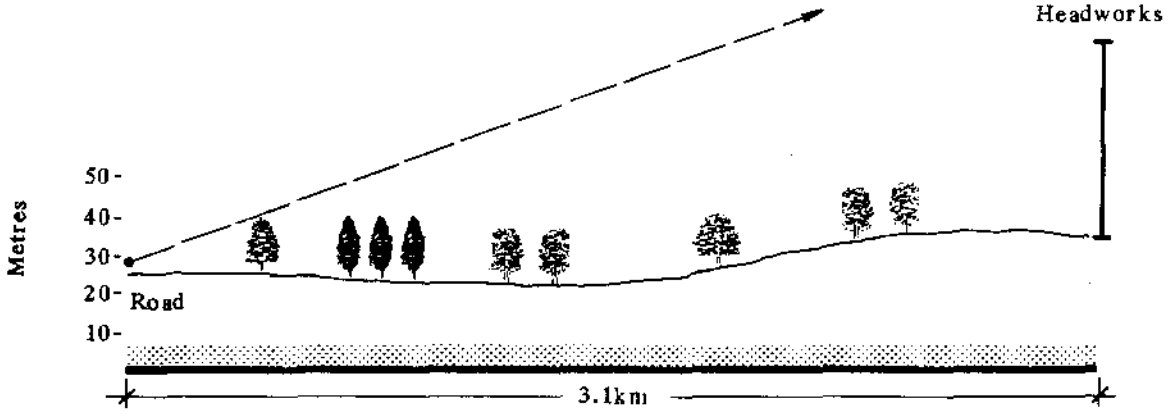
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.



View 1

VIEW FROM SOUTH EAST

(grid.ref.886898)



View 2

VIEW FROM WEST

(grid.ref.834924)

STANFORD

TYPICAL ROAD THROUGH FOREST

WRETHAM

MOD LAND

MUNDFORD

APPENDIX 10

Offshore
West & East

CONTENTS

SECTION		Page
1.0	INTRODUCTION	10.1
2.0	HUNTERSTON	10.2

- site characteristics & proposals
- community
- local economy
- natural environment

3.0	REDCAR/TEESMOUTH	10.3

- site characteristics & proposals
- community
- local economy
- natural environment

Following Text:

- Hunterston 1:250,000 location map

  1:50,000 map with overlays sharing
  - development proposals
  - designated areas & planning policy area

- Redcar/ Teesmouth 1:250,000 location map

  1:50,000 map with overlays showing
  - development proposals
  - designated areas & planning policy areas

Pieda

1.0 INTRODUCTION

1.1 One of the design concepts for a repository is for disposal offshore, underground with access from a structure (similar to an oil rig). The waste would be transported to the site by a semi-submersible crane vessel (SSCV). Waste from all sources would be assembled at one port on the mainland for transport to the site.

1.2 Two sites have been identified for appraisal at this stage of the selection process. These are design options in different rock environments and have not been allocated to specific locations but both would be some distance from the mainland (i.e. outside the coastal waters). The general locations are:

Offshore West (in hard rock): between Inner Hebrides and Northern Ireland

Offshore East (in sedimentary rock): North Sea

1.3 The sites for this repository option are very different in nature from the land-based sites, making accurate and meaningful comparison extremely difficult. Offshore sites are outwith the UK planning jurisdiction and will therefore pose legal as well as engineering problems.

1.4 As far as possible the Offshore sites have been included in the evaluation procedure. In all sites, the emphasis has been placed on the repository area itself, so with no 'local community', the Offshore sites will have no direct disturbance impact on people.

1.5 With the transport arrangements focused on one point on the mainland (which is not the case with the small islands sites) greater attention is given to the port facilities. The following sections summarise the features of the two port sites identified:

Offshore West site: port at Hunterston
Offshore East site: port at Redcar/Treesmouth

2.0 HUNTERSTON

Site Characteristics and Proposals

Location: Strathclyde Region
Cunninghame District
Land Use: disused construction yard
Grid Reference: NS 1852

2.1 Hunterston is on the west coast of Scotland, south west of Glasgow. The site identified for the port facilities is the unused platform construction yard lying between the Hunterston nuclear power station (SSEB) and the ore terminal (which serves the Ravenscraig steel mills) (see 1:250,000 and 1:50,000 maps).

2.2 The site is part of an area of land allocated, by the Secretary of State for Scotland, for "industrial development requiring the unique facilities of the site, in particular deep water capable of accommodating the very largest vessels" (North Coast & Cumbraes Local Plan, Aug 1987, p63).

2.3 Hunterston is on the Firth of Clyde. It is overlooked by the town of Millport on the island of Great Cumbrae and the hills inland to the east. The construction yard itself, designed for platform construction for the oil industry but unused, is situated on the seaward side of the Hunterston Sands. It is reached by a Causeway, with the access road joining the A78 trunk road adjacent to the ore terminal.

2.4 The proposed port facilities would be located on the site of the construction yard. Details of facilities and layout are not known. A new rail link would be provided from the port to the British Rail line to the east (approximately 3km) (see map overlay).

Community

2.5 The town of Fairlie (pop 1,350 1981) lies 3km to the north east Millport, (pop 1,220 1981) to 3km to the north west. Ardrossan and Saltcoats are south of Hunterston, along the coast. Largs (pop 6,978 1981) is 6.5km to the north.

Pieda

2.6 Hunterston House and a number of individual houses and farms to the east overlook the site and proposed rail link. The views from Millport and Fairlie would be partially obscured by intervening land or existing development.

Local Economy

2.7 The port site lies within an area zoned in 1971 for industrial purposes. The land is also covered by a Direction from the Secretary of State for Scotland which requires that all applications for planning permission for industrial development are to be referred to him for determination (see map overlay for Direction area). It is identified as a major industry site in the National Planning Guidelines.

2.8 The Local Plan sets out specific policies for the Hunterston area. The northern part (reference 1 on overlay) is for industrial development (policy HUN 2):

> "Development for industrial purposes (including steel production, port and related development and oil related development) within the northern part of the site shall accord with the Local Plan where it meets the following criteria:
>
> (a) it requires Hunterston's deep water access;
>
> (b) it confers a major and lasting net benefit on the Scottish economy particularly in terms of employment created;
>
> (c) it is properly planned, together with other projects, to make the most effective use of the site as a whole, including a satisfactory scheme for the reclamation of the foreshore;
>
> (d) it is carried out in such a way as to minimise environmental damage and contribute to the leisure and recreational use of adjoining areas eg the remaining part of Southannam Sands. For major new developments an environmental impact analysis will be required and the developer will be required to define the measures they will take to overcome any problems identified; and
>
> (e) it is able to operate acceptably beside the nuclear power station" (Local Plan p67-68).

2.9 The southern part of the area (reference 2 on the overlay) is to remain in its present, mainly agricultural use, unless specifically required for use in line with the National Planning Guidelines (ie industrial). Tourist development and environmental protection policies apply to the area.

2.10 Development proposals for any part of the Direction area would be subject to careful scrutiny to ensure appropriate design etc in order to minimise the environmental impact.

2.11 Hunterston is within the Largs employment exchange area (EEA) and Irvine travel to work area (TTWA). In 1978, the breakdown of employment in the Large EEA was:

Primary	-
Manufacturing	163
Construction	213
Services	2128
Total	2504

2.12 In April 1988, the unemployment rate in the Irvine TTWA was 20.9%, amounting to 9,980 people. If construction workers were recruited in the area for the repository development offshore, it is likely that much of the employment needs could be met locally. This would depend on the skills required and available.

2.13 In the area around Hunterston, it is apparent that alternative sources of employment are difficult to find and there is little scope to attract new economic activities.

Natural Environment

2.14 The map overlay shows the landscape and nature conservation designations in the area. The hills to the east are part of the Renfrew Hills Regional Scenic Area, designated by Strathclyde Regional Council. Hunterston Sands is an SSSI for its geological features and variety of seashore habitats (for plants, wildfowl and waders). There are also Listed Wildlife Sites at:

Glen Burn: ornithological, entomological and botanical interest

Hunterston-Portencross/Goldenberry Hill: woodland, heath and coastal communities

Farland Point, Great Cumbrae: raised beach grassland and marsh area.

2.15 During construction and operation of the port, measures would have to be taken to ensure the nature conservation interest were safeguarded, particularly the SSSI along the shoreline. The construction of the rail link may affect this but damage should be restricted to the causeway area.

3.0 REDCAR

Site Characteristics

Location: **Cleveland County**
Langbaurgh District

Grid Reference: **NZ 5524**

3.1 The site is located adjacent to the River Tees between the Teeside Steelworks and the oil refinery. (See 1:250,000 and 1:50,000 maps.)

3.2 The surrounding land uses are predominantly heavy industrial and the River Tees is a major port with numerous jetties and berthing facilities.

3.3 As well as the river access the site is well served by rail and road, only short new stretches of rail and road would be required to link the proposed part to the existing rail and road network.

3.4 The proposed port is approximately 5km west of Redcar and 8km north east of Middlesbrough.

Community

3.5 Although the landuses immediately around the site are industrial the site is located on the edge of Middlesbrough which has a population of approximately 150,000. The population of Langbaurgh District is approximately 150,000 which gives a population density of 6.25 persons per hectare.

3.6 In the Cleveland Draft Structure Plan the land is zoned for industry. The site has deepwater riverside access and therefore priority will be given to port related industrial development.

3.7 The port development is unlikely to create noticeable visual and noise disturbance because it will be located among other industrial uses which comprise large buildings and structures. There is also considerable industrial traffic on the existing road and rail network and therefore the additional traffic generated by the proposed port will have minimal impact on the environment.

3.8 Hartlepool nuclear power station is located approximately 3km to the North West of the proposed port.

Local Economy

3.9 The local economy is still very dependent on the chemicals, steel and heavy engineering industries although these industries have been declining in recent years. Growth of light industry has not compensated for the decline in the traditional industrial base and Cleveland has a relatively small service sector.

3.10 The site is in the Middlesbrough TTWA. Almost 24,000 people were unemployed in the TTWA in April 1988. The local economic benefit of the port is limited because although there are a large number of unemployed the site has potential to attract alternative economic activities.

3.11 There are very few economic activities that would be sensitive to blight in the area and these are unlikely to be affected by the development particularly considering the number of refineries and chemical industries etc already in the immediate area.

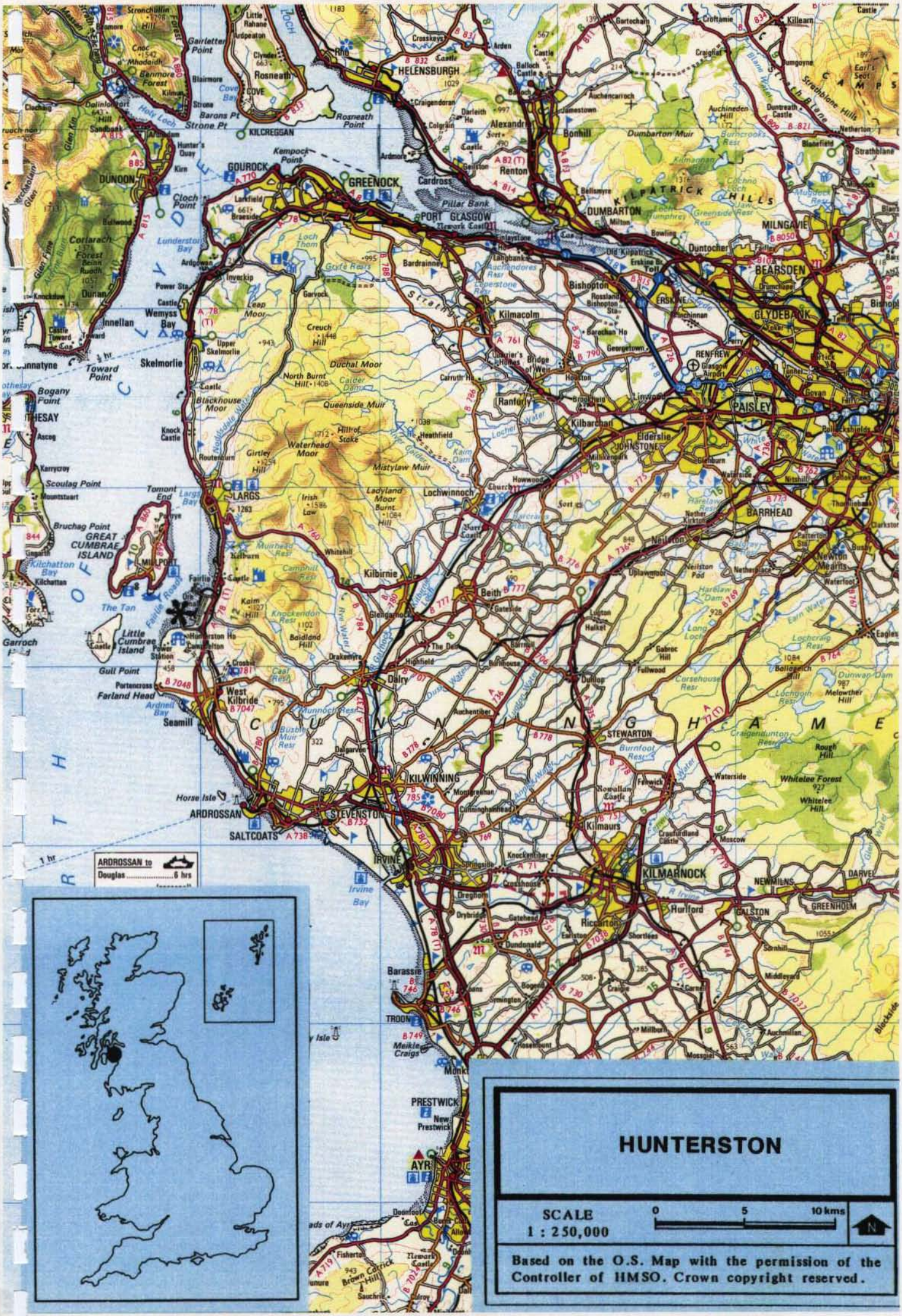
3.12 The proposed site is zoned for port facilities therefore the development of a port will result in the utilisation of a recognised resource.

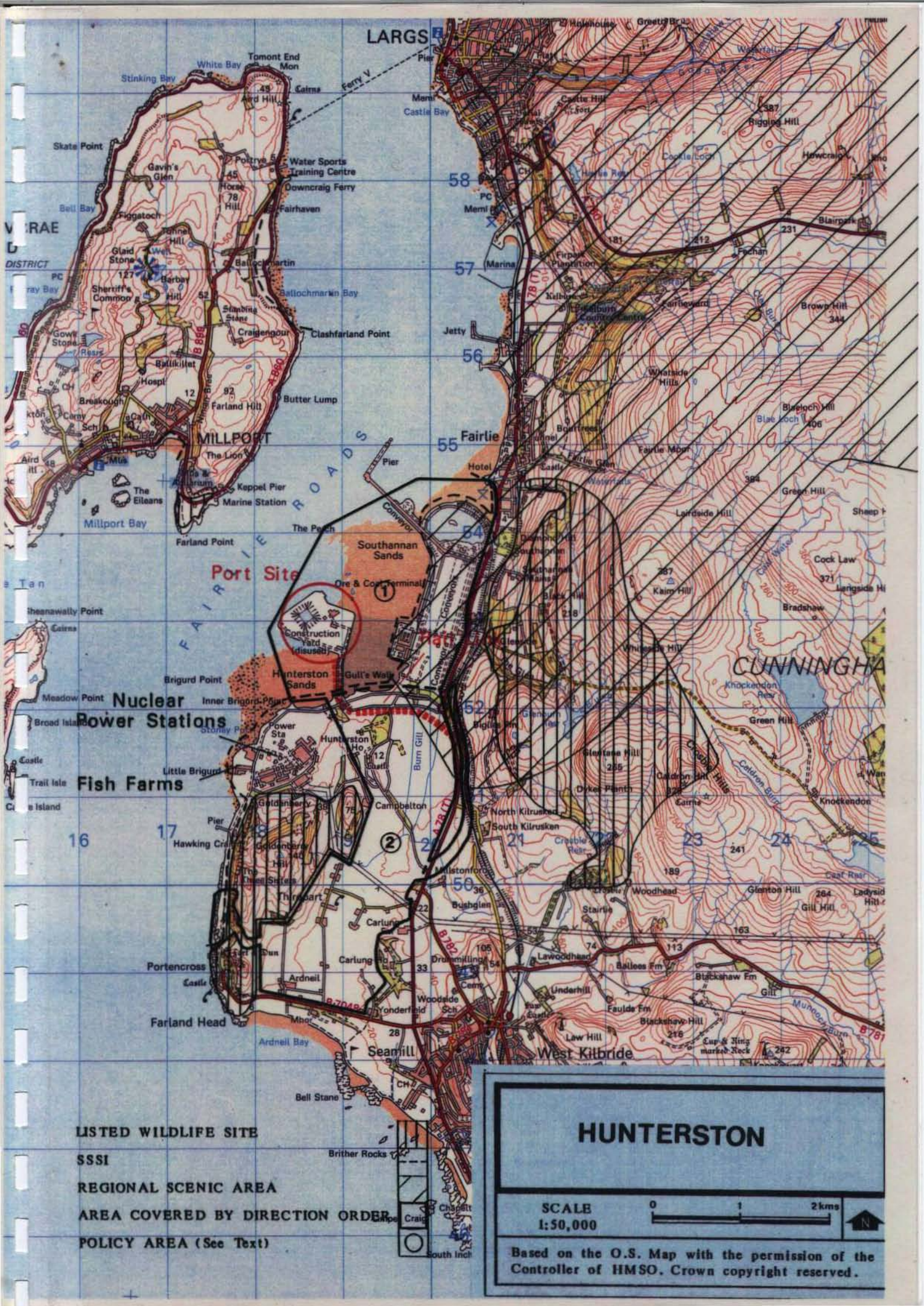
Natural Environment

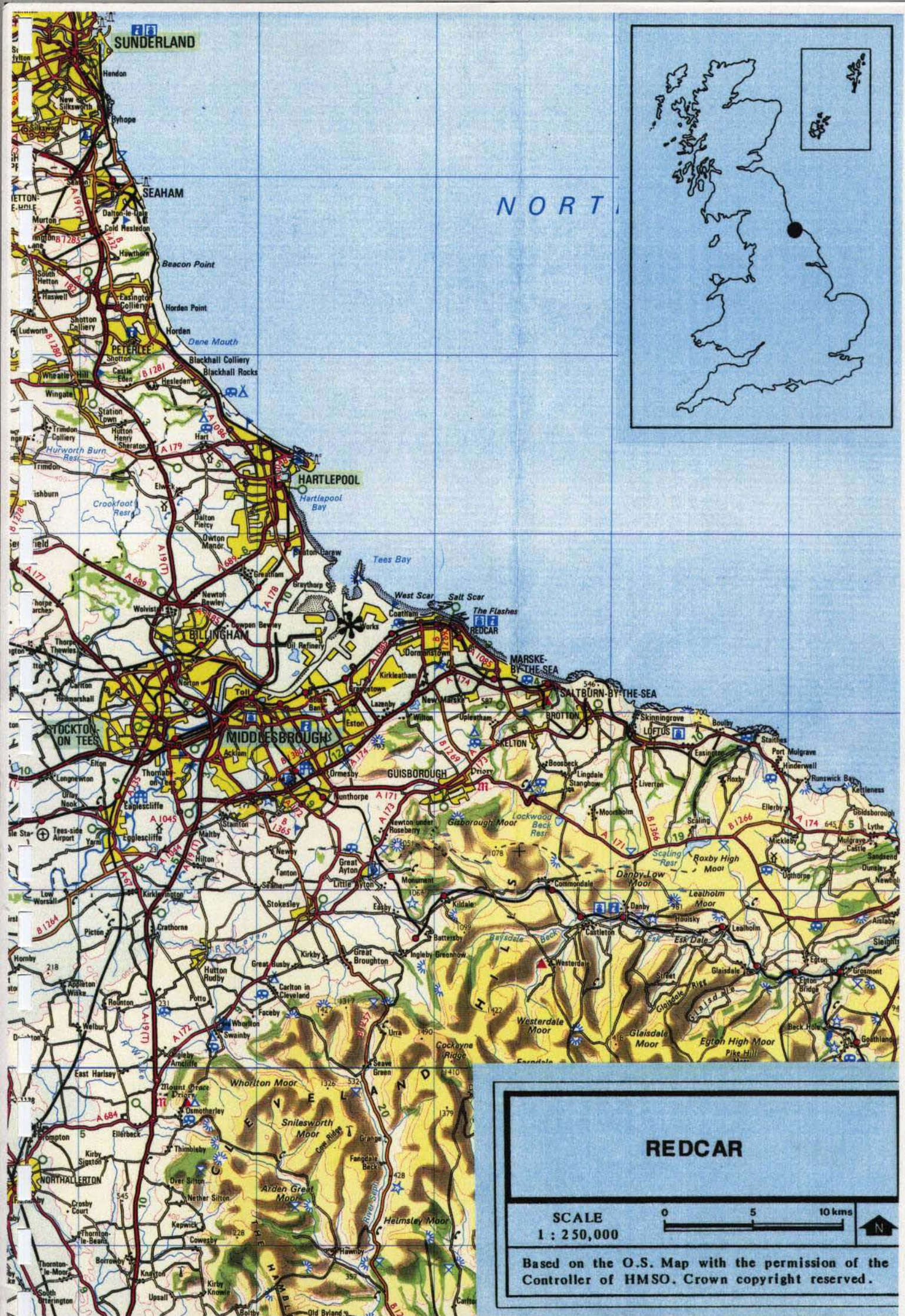
3.13 Although the area is predominantly industrial in nature the land either side of the mouth of the River Tees has been designated an SSSI.

3.14 The land at Seal Sands and Bran Sands was originally allocated for industry but this designation has been removed in the latest Cleveland Draft Structure Plan.

3.15 The River Tees subject plan proposes that environmental upgrading, including demanding a high standard of new development, should be promoted along the banks of the River Tees adjacent to the proposed site.


HELENSBURGH
KILCREGGAN
GOUROCK
GREENOCK
DUNOON
PORT GLASGOW
DUMBARTON
BEARSDEN
MILNGAVIE
CLYDEBANK
RENFREW
PAISLEY
JOHNSTONE
BARRHEAD
KILMACOLM
Bishopton
Ranfurly
Kilbarchan
Lochwinnoch
LARGS
Skelmorlie
Wemyss Bay
Innellan
Toward
Dunoon
Kilbirnie
Beith
Dalry
West Kilbride
Seamill
STEWARTON
KILWINNING
ARDROSSAN
SALTCOATS
STEVENSTON
IRVINE
KILMARNOCK
Hurlford
GALSTON
NEWMILNS
GREENHOLM
Kilmaurs
Dunlop
Barassie
TROON
PRESTWICK
New Prestwick
AYR
Monkton
Dundonald
Riccarton
Auchinleck
Cumnock
Mauchline
Catrine
Sorn
Muirkirk
Douglas
Coalburn
Lesmahagow
Forth
Lanark
Carluke
Wishaw
Motherwell
Hamilton
East Kilbride
Strathaven
Stonehouse
Larkhall
Newmains
Cambuslang
Rutherglen
Glasgow
Glasgow Airport
Clydebank
Dumbarton
Helensburgh
Cumbrae Islands
Great Cumbrae Island
Little Cumbrae Island
Millport
Isle of Arran
Holy Loch
Loch Long
Gare Loch
Loch Lomond
Firth of Clyde
Firth of Forth
Ardrossan to Douglas ..... 6 hrs
HUNTERSTON
SCALE 1 : 250,000
0 5 10 kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.


LARGS
MILLPORT
Fairlie
Port Site
Nuclear
Power Stations
Fish Farms
Hunterston Sands
Southannan Sands
Farland Head
Seamill
West Kilbride
CUNNINGHA
FAIRLIE ROADS
LISTED WILDLIFE SITE
SSSI
REGIONAL SCENIC AREA
AREA COVERED BY DIRECTION ORDER
POLICY AREA (See Text)
HUNTERSTON
SCALE
1:50,000
0
1
2kms
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.


SUNDERLAND
SEAHAM
PETERLEE
HARTLEPOOL
Hartlepool Bay
Tees Bay
BILLINGHAM
STOCKTON-ON-TEES
MIDDLESBROUGH
GUISBOROUGH
REDCAR
MARSKE-BY-THE-SEA
SALTBURN-BY-THE-SEA
LOFTUS
NORTHALLERTON
Beacon Point
Horden Point
Dene Mouth
Blackhall Colliery
Blackhall Rocks
Hurworth Burn Resr
Crookfoot Resr
West Scar
Salt Scar
The Flashes
Gisborough Moor
Lockwood Beck Resr
Roxby High Moor
Danby Low Moor
Lealholm Moor
Westerdale Moor
Glaisdale Moor
Egton High Moor
Whorlton Moor
Snilesworth Moor
Arden Great Moor
Helmsley Moor
Cockayne Ridge
Mount Grace Priory
Tees-side Airport
NORT
REDCAR
SCALE
1 : 250,000
0
5
10 kms
N
Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.

REDCAR

SCALE 1:50,000

0 1 2kms

N

Based on the O.S. Map with the permission of the Controller of HMSO. Crown copyright reserved.