

AREA BUSINESS PLAN

1995/96

NRA THAMES REGION

NORTH EAST AREA



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National Rivers Authority
Information Centre
Head Office
Case No
Accession No ARRA.....

PROJECT MANAGEMENT GROUP

SECTOR PLAN 1995/96

Purpose and Aims

- To propose a programme of capital works.
- To ensure that all projects are technically, environmentally, and economically sound.
- To undertake effective management of individual projects and the full north East Area capital programme.
- To achieve the programme of works to required quality and safety specifications, budgets, and timescales.
- To monitor achievement of the planned programme of works and review the programme to allow rescheduling of work when appropriate.
- To communicate information on the capital programme and provide all functions with opportunities to nominate potential schemes.

SECTION OBJECTIVES

1. Capital expenditure:

- i) Achieve the Area Flood Defence capital programme. The draft programme for 1995/96 is listed in Appendix A (provisional programme value £7.148 million). Ensure that all expenditure is achieved within PIN requirements and meet the following targets (to within +5%) for external expenditure (subject to Regional confirmation):

£2.5 million by 30.9.95.
£5.0 million by 31.3.96.
- ii) Achieve planned expenditure on Water Resources capital schemes.
 - Agree projects for which Area has responsibility and set expenditure targets by 30.6.95.
 - Ensure that all expenditure is achieved within PIN requirements and meet the agreed targets (to within +5%) for external expenditure.
 - Works to be progressed on schemes 1951 (River Beane Improvements) and 1952 (River Beane Hydrometry) and agreed expenditure targets (minimum £113k and maximum £206k) to be met.

- iii) Achieve planned expenditure on N900 revenue operating schemes. Ensure that all expenditure is achieved within PIN requirements and meet the following targets (to within +/- 5%) for external expenditure:

£75k by 30.9.95.

£150k by 31.3.96.

2. Guaranteed minimum income:

- i) Ensure that expenditure on the Halcrow-Thames contract meets the guaranteed minimum workload. Meet the following targets (to within +/- 5%) for Area expenditure on the contract:

£644k by 31.8.95.

£290k by 28.2.96.

- ii) Place orders for at least £120k-worth of work with Thames Engineering Group (target assumes multiplier of 2.9 applies).

3. Programme management:

- i) Monitor and review progress in achieving the capital programme and capital expenditure, and the N900 programme and planned revenue expenditure, so as to ensure that works are completed and approved expenditure is optimised. Prepare monthly reports on expenditure and advise the Area Manager on a quarterly basis of actions which will be undertaken to ensure that expenditure is achieved.

- ii) Identify and nominate projects for inclusion in the Area capital programme and the N900 revenue operating programme. Prepare programmes for 1996/97 by 31.12.95.

- iii) Monitor achievement of revenue works and revenue expenditure in support of the Operations Group.

- Agree role of Project Management Group in revenue monitoring by 30.6.95.
- Subject to resource availability, appoint a programme monitoring assistant by 30.9.95.
- Ensure monthly reports on expenditure are prepared from 30.9.95 onwards.

4. Scheme viability: Assist the Area Manager in devising means for demonstrating the viability of urban flood alleviation schemes where the economic case is not clear. Undertake agreed actions to standards and timescales agreed with the Area Manager.

5. Area project management issues:

- i) Clarify the role of the Project Management Group and address long term project management issues relating to the following initiatives:

- Catchment Management Plan implementation (report to Area Management Team and implement new arrangements by 30.9.95).
- Circular 30/92 flood risk surveys.
- Water level management plan preparation.
- Work underway in the Lower Lee.

Role to be defined by 30.12.95 unless otherwise stated.

- ii) Identify the optimal role for the Project Management Group to play in managing and implementing North East Area initiatives which are long-term or strategic in nature by 30.12.95.

6. Heathrow Airport Terminal 5: Manage the project to ensure that the water environment is protected from the Heathrow Airport Terminal 5 development.

- Ensure success criteria and fallback options are identified by 31.8.95.
- Ensure RMB is advised by 31.8.95 as to whether participation in the public inquiry will be needed to achieve success criteria. Identify costs and if appropriate gain RMB approval for full participation in the public inquiry.
- Ensure RMB and statutory committees are advised on the outcome of the inquiry hearings by 31.3.96 and evaluate whether success criteria are likely to be achieved.

7. Liaison:

- i) Provide technical advice on flood defence and capital project issues to assist with preparation of the Lower Lee; Brent and Crane; and Roding, Ingrebourne, and Beam Catchment Management Plans. Input and timetables to be agreed with project manager.
- ii) Complete actions programmed for 1995/96 for which the Project Management Group has responsibility arising from the Catchment Action Plans for the Upper Lee, Middle Lee, and Lower Lee. Provide a quarterly update on any problems anticipated in achieving action plan commitments.
- iii) Provide technical advice on flood defence and capital project issues necessary to protect the water environment from the impacts of Heathrow Airport Terminal 5, the Channel Tunnel Rail Link, road building schemes, and other large scale developments. Input and timetables to be agreed with project managers.
- iv) Provide technical advice on flood defence and capital project issues to other NRA departments and NRA customers. Respond to external enquiries to meet

National standards of service (immediate response by telephone, written response within 10 days of receiving letter or 5 days of receiving an MP's letter).

8. **Market testing:** Provide advice and information required to market test capital programme management so as to meet deadlines and standards agreed with Regional project manager. Implement relevant recommendations arising from market testing in accordance with Regional implementation timetable.
9. **CDM regulations:** Identify the role which the Project Management Group will play in implementing the CDM regulations. Identify steps and resources required to fulfil this role by 30.9.95.
10. **Post-project appraisal:**
 - i) Identify a suitable project from the Lower Colne Improvement Scheme by 30.6.95 for post-project appraisal by MAFF. Provide information and assistance requested by MAFF in line with agreed standards and timescales.
 - ii) Identify relevant actions arising from the post-project appraisal of Crane Contracts 1 and 2 and implement by 31.3.96.
11. **Flood monitoring:** Operate the Area's flood monitoring and recording service in line with emergency procedures.

OUTPUT AND PERFORMANCE MEASURES

Measure	Q1	Q2	Q3	Q4	Annual Target
External capital expenditure (£k):	1250	2500	3750	5000	5000
- Flood Defence	*	*	*	*	*
- Water Resources					
N900 revenue expenditure (£k)	38	75	113	150	150
Halcrow-Thames contract expenditure (£k)	537	644	193	338	644 (by P5)

* Target yet to be confirmed

Table 1: Project Management Group Performance Measures 1995/96

Performance measures to be used in monitoring progress in achieving Area targets are shown in Table 1.

The following measures required by Head-Office will be requested on an annual basis (to be collected by Regional Technical Department):

Length of new / improved flood defences constructed (km):

- Fluvial defences
- Tidal defences

No. of HEs protected by capital schemes:

- Fluvial defences
- Tidal defences

APPENDIX A

FLOOD DEFENCE CAPITAL PROGRAMME 1995/96

Draft programme as at 15.5.95

Ref	File: CPH95_IC	Total	Pre95	95/96	96/97	97/98	98/99	99/00	00/01	Blnce	Mgr
2004	BRICKENDON BK/R.LEE FLOOD RELF	140	0	0	0	0	10	130	0	0	BJI
2012	SALMONS BROOK	462	452	7	3	0	0	0	0	0	BJI
2034	RIVER RODING; CHANNEL - STAGE 2	171	1	0	0	10	160	0	0	0	GDC
2037	MILLERS GREEN BROOK CULVERT	109	36	68	5	0	0	0	0	0	MJP
2063	R.COLNE ROOKERY MILL	117	0	11	106	0	0	0	0	0	ATP
2080	LEE BRIDGE SLUICE	170	0	0	0	10	160	0	0	0	MJP
2089	KINGSBRIDGE SLUICE - REMEDIALS	394	392	2	0	0	0	0	0	0	DSG
2163	NE; RES'R ACT:WASHLANDS	41	41	0	0	0	0	0	0	0	MJP
2189	MOSELLE BROOK CULVERT	805	58	30	217	500	0	0	0	0	DSG
2192	SPITAL BROOK FAS	75	0	16	59	0	0	0	0	0	BJI
2193	RAGS BROOK; DRAGONTEETH	48	18	13	17	0	0	0	0	0	BJI
2225	KIDDS MILL,MEREWAY & MILL ROAD WEIRS	287	176	111	0	0	0	0	0	0	DSG
2229	NE TELEM; OTHER THAN CONTROL STRUCS	62	62	0	0	0	0	0	0	0	MJD
2231	R.COLNE - PARK LANE; COLNEY HEATH	104	49	41	14	0	0	0	0	0	BJI
2237	STRUC REFURB; ROMAN CLOSE PENSTOCK	69	68	1	0	0	0	0	0	0	MJP
2240	HOUNSDEN GUTTER; W. ENFIELD STRG TNK	15	7	8	0	0	0	0	0	0	TBC
2242	SMALL RIVER LEE BANK REPAIRS	131	113	18	0	0	0	0	0	0	DSG
2279	STANFORD HALL BROOK FEASIBILITY	161	33	10	112	6	0	0	0	0	BJI
2280	R RODING EROSION CONTROL	250	0	0	0	0	0	0	0	0	GDC
2281	DICKER MILL ISLAND	5	4	1	0	0	0	0	0	0	MJP
2282	COBBINS BROOK ACCESS RAMP	79	0	12	67	0	0	0	0	0	MJP
2283	EDGWARE BROOK REVETMENT	94	2	14	78	0	0	0	0	0	MJP
2285	CRIPSEY BROOK FEASIBILITY	128	41	18	66	1	2	0	0	0	BJI
2287	WARE FAS; GLEN FABA LANDS	14	1	13	0	0	0	0	0	0	GDC
2290	EDMONDSEY ACCESS ROAD	88	13	75	0	0	0	0	0	0	MJP
2293	LEE FLD CHL;ASBESTOS CONTAMINATION	1622	44	837	741	0	0	0	0	0	MJP
2294	R.INGREBOURNE;FLOODPLAIN RESTORATION	34	22	12	0	0	0	0	0	0	MJP
2301	HORNSMILL WEIR REFURBISHMENT	5	5	0	0	0	0	0	0	0	DMH

CAPITAL PROGRAMME 1995/96 - 1900/01

[illegible]

Ref	File: CPN95_IC	Total	Pre95	95/96	96/97	97/98	98/99	99/00	00/01	BInce	Mgr
3062	PASSINGFORD	321	91	90	140	0	0	0	0	0	MJP
3064	OSTERLEY PARK	97	93	4	0	0	0	0	0	0	MJP
3065	CRANE MEAD FOOTBRIDGE	95	90	5	0	0	0	0	0	0	MJP
3066	CHIGWELL RD. FOOTBRIDGE REPLACEMENT	62	60	2	0	0	0	0	0	0	MJP
3067	STANSTEAD MILL STREAM FOOTBRIDGE	50	49	1	0	0	0	0	0	0	MJP
3068	TIMBER FOOTBRIDGES	174	21	147	6	0	0	0	0	0	MJP
3070	COBBINS BROOK										
3110	MIMMSHALL BROOK FAS										
3111	MIMMSHALL BROOK; FEAS & DESIGN	2454	117	74	1717	522	22	2	0	0	BJI
3130	COLLEGE BROOK										
3230	HARTSBOURNE STREAM (STAGE 2)										
3232	HARTSBOURNE; CONTRACT 1	705	675	27	3	0	0	0	0	0	BJI
3233	OXHEY; CONTRACT 1	0	0	0	0	0	0	0	0	0	BJI
3342	R.CRANE ST 2; CONTRACT 1	800	800	0	0	0	0	0	0	0	DSG
3344	R.CRANE ST 2; CONTRACT 2	1587	1568	18	1	0	0	0	0	0	DSG
3412	LEE FLD CHNL; EDMONDSEY RADIAL GATES	205	133	72	0	0	0	0	0	0	MJP
3420	LEE FLD CHNL; STILLING BASIN IMPS										
3423	STILLING BASIN; EDMONDSEY & MEADGATE	297	295	2	0	0	0	0	0	0	MJP
3424	ST. BASIN; FIELDS & RICHARD WHITE	253	233	20	0	0	0	0	0	0	MJP
3425	STILLING BASIN; RAMMEY & NAZEING	766	761	5	0	0	0	0	0	0	MJP
3426	STILLING BASIN; KIORA	295	260	35	0	0	0	0	0	0	MJP
3427	HOLYFIELD WEIR	361	32	329	0	0	0	0	0	0	MJP
3428	STANSTEAD SLUICE	182	2	27	153	0	0	0	0	0	MJP
3429	SB; HARDMEAD RADIAL GATE	250	25	150	75	0	0	0	0	0	MJP
3430	LEE AREA ACCESS IMPROVEMENTS										
3433	TURKEYS BROOK	99	99	0	0	0	0	0	0	0	MJP
3460	NE AREA; OPERATIONAL MODS										
3461	HORNS MILL WEIR REURBISHMENT	232	232	0	0	0	0	0	0	0	MJD

Ref	File: CPN95_IC	Total	Pre95	95/96	96/97	97/98	98/99	99/00	00/01	BInce	Mgr
3590	TIDAL RIVER CRANE FAS										
3592	TIDAL R.CRANE; CONTRACT 1	2609	2583	19	7	0	0	0	0	0	DSG
3593	TIDAL R.CRANE; CONTRACT 2	9	9	0	0	0	0	0	0	0	DSG
3601	RLFRC PILING; WARE FEASIBILITY	92	0	46	46	0	0	0	0	0	TBC
3690	NE AREA HEALTH & SAFETY FENCING										
3691	NE AREA. SAFETY IMPROVEMENTS	85	85	0	0	0	0	0	0	0	MJD
3692	NE AREA FENCING	27	27	0	0	0	0	0	0	0	MJD
3693	NE AREA - CULVERT ACCESS IMPS	12	12	0	0	0	0	0	0	0	MJD
3694	NE TIDAL SLUICES; MINOR IMPS.	59	59	0	0	0	0	0	0	0	MJD
3701	TOTTENHAM MARSH & WALTHAMSTOW	91	78	13	0	0	0	0	0	0	DSG
3702	GLENFABER & FEILDES WEIR BRIDGES	91	17	74	0	0	0	0	0	0	DSG
3703	OVAL ROAD FOOTBRIDGE	109	16	91	2	0	0	0	0	0	DSG
3710	NE --RADIAL GATE IMPROVEMENTS										
3713	KIORA & RICHARD WHITE (IMPS 93/4)	207	205	2	0	0	0	0	0	0	MJP
3714	R LEE; RADIAL GATES MODS (4 SITES)	98	0	1	10	87	0	0	0	0	MJP
3780	SILK STREAM FAS										
3781	SILK STREAM; PRELIMINARIES	411	371	40	0	0	0	0	0	0	MJP
3800	R STORT CATCHMENT MANAGEMENT PLAN										
3802	UPPER STORT VALLEY (L,C,M,)	315	124	25	156	10	0	0	0	0	MJP
3807	BISHOPS STORTFORD	310	4	85	16	200	5	0	0	0	MJP
3811	LOWER STORT VALLEY(S,H,R, SPELLBROOK)	802	2	0	50	150	300	300	0	0	MJP
3815	UGLEY BROOK	70	0	20	50	0	0	0	0	0	MJP
3821	RADLETT BROOK; FEASIBILITY STUDY	120	106	14	0	0	0	0	0	0	MJP
3822	KITSWELL BROOK WORKS	136	132	4	0	0	0	0	0	0	MJP
3823	RADLETT BROOK: CONTRACT 1	495	0	40	455	0	0	0	0	0	MJP
3850	LOWER LEE IMPS; D/S TOTTENHAM										
3851	L.LEE PRELIMINARIES	51	51	0	0	0	0	0	0	0	GDC

Ref	File: CPN95 IC	Total	Pre95	95/96	96/97	97/98	98/99	99/00	00/01	Since	Mgr
4201	LCIS; OVERALL ASPECTS	270	245	15	10	0	0	0	0	0	ATP
4202	LCIS; APPRAISAL	91	79	12	0	0	0	0	0	0	ATP
4203	LCIS; OPERATIONS MANUALS	49	33	16	0	0	0	0	0	0	ATP
4214	LCIS; CHESHAM WALL	31	31	0	0	0	0	0	0	0	MJP
4215	LCIS; GRAND UNION CANAL	145	144	1	0	0	0	0	0	0	MJP
4224	LCIS; SHIRE DITCH WORKS	811	201	596	14	0	0	0	0	0	ATP
4229	LCIS; ROCKINGHAM ROAD	134	14	116	4	0	0	0	0	0	ATP
4231	LCIS; COLNE BROOK REPROFILING	201	36	160	5	0	0	0	0	0	ATP
4235	LCIS; OLD MILL HOUSE	222	58	20	144	0	0	0	0	0	SJT
4236	LCIS; HUNTSMOOR WEIR	313	310	3	0	0	0	0	0	0	SJT
4237	LCIS; LITTLE BRITAIN DEFENCES	175	171	4	0	0	0	0	0	0	SJT
4238	LCIS; TROUT LANE FLOOD CARRIER	806	121	28	630	27	0	0	0	0	ATP
4240	LCIS; 40-45 ISOL. PROP. PHASES	87	31	56	0	0	0	0	0	0	SJT
4251	LCIS; W.DRAYTON DIVERSION CHANNEL	1672	992	300	380	0	0	0	0	0	ATP
4252	LCIS; EMBANKMENTS	257	26	217	14	0	0	0	0	0	ATP
4253	LCIS; UPP. WRAYSBURY AREA DEFS	548	61	250	234	3	0	0	0	0	BJI
4255	LCIS; HARMONDSWORTH DEFENCES	139	48	89	2	0	0	0	0	0	ATP
4258	LCIS; ACCOMODATION LANE	146	51	40	55	0	0	0	0	0	ATP
4260	LCIS; STANWELL DIVERSION	2153	347	104	122	1370	200	10	0	0	SJT
4262	LCIS; SILVERBECK WEIR	247	246	1	0	0	0	0	0	0	SJT
4265	LCIS; WRAYSBURY OFFTAKE	306	299	7	0	0	0	0	0	0	SJT
4266	LCIS; WRAYSBURY DIVERSION	829	825	4	0	0	0	0	0	0	SJT
4267	LCIS; WRAYSBURY SUBSTATION	87	85	2	0	0	0	0	0	0	SJT
4271	LCIS; TANHOUSE FARM	433	430	3	0	0	0	0	0	0	SJT
4273	LCIS; COLNE BROOK REGRADING	48	44	4	0	0	0	0	0	0	SJT
4274	LCIS; HORTON MILL SLUICE	385	381	4	0	0	0	0	0	0	SJT
4275	LCIS; LWR HORTON CHANNEL WORKS	1113	874	39	200	0	0	0	0	0	SJT
4276	LCIS; WRAYSBURY MILL & WEIR	458	452	5	1	0	0	0	0	0	SJT

Ref	File: CPN95_1C	Total	Pre95	95/96	96/97	97/98	98/99	99/00	00/01	BInce	Mgr
4284	LCIS; STAINES BY-PASS CHANNEL	2139	737	1300	102	0	0	0	0	0	ATP
4286	LCIS; POUND MILL DEFENCES	394	382	12	0	0	0	0	0	0	ATP
4288	LCIS; STAINES - MOORMEDE	324	311	13	0	0	0	0	0	0	ATP
4291	LCIS; STAINES - LIND MILL	388	33	345	10	0	0	0	0	0	ATP
4296	LCIS; HYTHE END WEIR GATE	47	43	4	0	0	0	0	0	0	SJT
4297	LCIS; STANWELL MOOR	118	102	16	0	0	0	0	0	0	SJT
4500	NE AREA MINOR WORKS	3	3	0	0	0	0	0	0	0	BJI
7144	NAZEING BROOK	311	311	0	0	0	0	0	0	0	BJI
7351	RIVER BRENT SCHEME	5900	5900	0	0	0	0	0	0	0	WJH
Schedule Total		50125	26759	7148	8832	4649	1568	689	230	0	

FLOOD DEFENCE OPERATIONS

SECTOR PLAN 1995/96

Purpose and Aims

- To maintain effective defence for people and property against flooding from fluvial and tidal watercourses.
- To identify and promote improvements in existing defence standards.
- In so doing to further the interests of conservation.
- To provide a customer interface for the Flood Defence function within the Area.
- To provide an effective emergency response capability.

SECTION OBJECTIVES

Heavy Maintenance / Environmental Enhancement

1. **Scheme completion:** Complete appropriate priority schemes from those listed in the Area heavy maintenance and environmental enhancement programme. The programme as at 1.4.95 is listed in Appendix A. Ensure that all expenditure is achieved within PIN requirements and meet the following targets (to within +/- 5%) for expenditure on cost centre N255:

£321 k by 30.9.95.

£564 k by 31.3.96.

- i) Complete environmental enhancement schemes at 14 sites by 31.3.96.
- ii) Ensure that Fisheries, Conservation, and other sections as appropriate are consulted on all heavy maintenance schemes so as to minimise environmental damage and identify scope for opportunistic habitat improvement work.
- iii) Monitor on-site works to ensure that work is completed to meet scheme timetable, cost, specification, and environmental requirements.

2. **Programme management:**

- i) In consultation with the Area Liaison Group, maintain and update the programme for heavy maintenance and environmental enhancement schemes. Ensure that viable schemes identified from statements of need are incorporated into the programme.

- ii) Monitor and review progress in achieving the heavy maintenance and environmental enhancement programme. Provide the Flood Defence and Engineering Manager and the Area Liaison Team on a monthly basis with updated copies of the programme showing actual, budget, and forecast expenditure on schemes.

Structures maintenance

3. Completion of unplanned works:

Complete appropriate priority jobs from those included in the Area programmes for maintenance of structures, culverts, and outstanding reservoir works. Expenditure on each business area is shown in Table 1 and outstanding unplanned works as at 03.05.95 are listed in Appendix B. Achieve all expenditure within PIN requirements and control limits agreed with Finance. Meet the following targets (to within +/- 5%) for expenditure on unplanned works (cost centre N201):

£230 k by 30.9.95.

£465 k by 31.3.96.

- i) Monitor on-site works to ensure that work is completed to meet job timetable, cost, specification, and environmental requirements.
- ii) Encourage riparian owners and asset owners to undertake structures maintenance work where appropriate.

4. Planned preventative maintenance programme management:

- i) Implement and manage maintenance programmes for existing structures, culverts, and reservoirs. Ensure that new capital schemes are incorporated into the maintenance programme. Achieve all expenditure within PIN requirements and control limits agreed with Finance. Meet the following targets (to within +/- 5%) for expenditure on planned works (cost centre N201):

£434 k by 30.9.95.

£868 k by 31.3.96.

- ii) Monitor and review progress in achieving programmes for structures, culverts, and reservoirs. Provide the Flood Defence and Engineering Manager on a monthly basis with updated copies of the programme showing actual, budget, and forecast expenditure on business areas.

- 5. **Post-project appraisal:** Undertake a formal external post-project appraisal of work done to date in developing the Area structures maintenance programme. Prepare a strategy for further development of the 'Planet' asset management system to meet future market testing, work programming, and data analysis requirements.

- i) Prepare strategy and project plan by 31.12.95.
 - ii) Implement plan so as to meet project milestone target dates.
6. **Culvert maintenance and repair:** Review options and priorities for undertaking culvert maintenance work in the Area. Prepare an Area culvert maintenance strategy.
- i) Prepare strategy and project plan by 30.9.95.
 - ii) Implement plan so as to meet project milestone target dates.
7. **Statutory reservoirs:** Ensure statutory reservoirs for which the Area has responsibility are maintained in accordance with all legal requirements. Undertake appropriate works in accordance with the reservoirs maintenance programme.

Hand maintenance

8. **Scheme completion:** Complete priority jobs included in the Area hand maintenance programme. The programme as at 15.5.95 is listed in Appendix C (provisional programme value £2140k). Ensure that all expenditure is achieved within PIN requirements and meet the following targets (to within +/-5%) for expenditure:

Hand Maintenance Balancing Fund: (Cost centre N202)	£92 k by 30.9.95 £183 k by 31.3.96
Northern District (Cost centre N210):	£180 k by 30.9.95. £359 k by 31.3.96.
Eastern District (Cost centre N220):	£244 k by 30.9.95. £487 k by 31.3.96.
Central District (Cost centre N240):	£288 k by 30.9.95. £575 k by 31.3.96.
Western District (Cost centre N250):	£264 k by 30.9.95. £528 k by 31.3.96.

Monitor on-site works to ensure that work is completed to meet scheme timetable, cost, specification, and environmental requirements.

9. **Programme management:**
- i). Maintain and update the programme for hand maintenance jobs. Undertake a programme of inspections and ensure that viable schemes identified from inspections are incorporated into the programme.

- ii) Monitor and review progress in achieving the hand maintenance programme. Provide the Flood Defence and Engineering Manager on a monthly basis with updated copies of the programme showing actual, budget, and forecast expenditure on business areas.
10. **Other inspections:** Conduct other planned inspections (eg asset inspections, site inspections for consent enforcement) as agreed with Area staff. Report any activities or incidents which may have an untoward effect on the water environment to the appropriate Area officer.

General

11. **In House Workforce market testing:**

- i) Provide advice and information required to define Area maintenance requirements to allow preparation of tender documentation for market testing of the in house workforce. Meet deadlines and standards agreed with Regional project managers.
- ii) Define and implement post-tender interim arrangements and work transfer procedures necessary to establish the contract for maintenance work.
- iii) Transfer work to the contractor in line with specified procedures and ensure work is completed to meet job specifications. Report on contract costs and problems to the Area Manager on a monthly basis.

12. **Emergencies:**

- i) Direct the Area response to flood emergencies.
- ii) Expand the Operations emergency duty rota to four people in accordance with Regional requirements. Identify suitable personnel for the duty by 30.6.95 and complete all necessary training by 30.9.95.
- iii) Prepare basic criteria for operating key structures in the event of an emergency in accordance with the SPACE risk assessment process by 31.3.96.
- iv) Contribute to the Area flood monitoring and recording service.

13. **Value for money:** Devise means for evaluating and demonstrating the value for money of flood defence revenue works. Advise the Area Manager of value for money criteria for use in prioritisation of revenue schemes by 31.3.96.

14. **British Waterways operating agreement:** In consultation with other relevant sections, formally agree an operating agreement with British Waterways to cover specification of works, costs, standards, environmental requirements, and billing arrangements relating to work carried out on behalf of the Area by 31.12.95.

15. Liaison:

- i) Provide technical advice on flood defence and operational issues to assist with preparation of the Lower Lee; Brent and Crane; and Roding, Ingrebourne, and Beam Catchment Management Plans. Input and timetables to be agreed with project managers.
- ii) Complete actions programmed for 1995/96 for which the Flood Defence Operations section has responsibility arising from the Catchment Action Plans for the Upper Lee, Middle Lee, and Lower Lee. Provide a quarterly update on any problems anticipated in achieving action plan commitments.
- iii) Provide technical advice on flood defence and operational issues necessary to protect the water environment from the impacts of Heathrow Airport Terminal 5, the Channel Tunnel Rail Link, road building schemes, and other large scale developments. Input and timetables to be agreed with project managers.
- iv) Provide technical advice on flood defence and operational issues to other NRA departments and NRA customers. Respond to the following matters in line with National standards of service:

- External enquiries (immediate response by telephone, written response within 10 days of receiving letter or 5 days of receiving an MP's letter).

OUTPUT AND PERFORMANCE MEASURES

Performance measures to be used in monitoring progress in achieving Area targets are shown in Table 1.

The following measures required by Head Office will also be requested on an annual basis (to be collected by Regional Technical Department):

Length of flood defences maintained (km):

- Fluvial
- Tidal

Total length of defences:

- Fluvial
- Tidal

Number of HEs benefitting from maintenance works:

- Fluvial defences
- Tidal defences

Measure	Q1	Q2	Q3	Q4	Annual target
Heavy Maintenance:					
Expenditure on environmental enhancement schemes (£k)	25	50	75	100	250
Expenditure on heavy maintenance schemes (£k)	72	123	12	1.7	208.7
Number of environmental enhancement schemes completed	2	3	4	5	14
- of which external collaboration involved	2	3	4	5	14
Structures Maintenance:					
Planned expenditure:					
System operation / emergency response (£k)	42.5	43	43	43	171.5
Mandatory essential improvements (£k)	0	0	0	0	0
Routine maintenance (IBU contract) (£k)	174.1	174.1	174.1	174.1	696.4
Standard of service improvements (£k)	0	0	0	0	0
Unplanned expenditure:					
System operation / emergency response (£k)	0	0	0	0	0
Mandatory essential improvements (£k)	0	0	0	0	0
Periodic maintenance (£k)	115	115	115	120	465
Standard of service improvements (£k)	0	0	0	0	0
Hand Maintenance:					
Planned expenditure (Priority 1, 2, and 3 jobs and rotas) (£k)	421.2	421.2	421.2	421.2	1684.9
Unplanned expenditure (£k)	121.2	121.2	121.2	121.2	484.9

Table 1: Flood Defence Operations Performance Measures 1995/96.

APPENDIX A
HEAVY MAINTENANCE
AND
ENVIRONMENTAL ENHANCEMENT PROGRAMME

The following tables show the Area heavy maintenance and environmental programme as at 3.5.95. The programme is flexible and will be adjusted regularly over the course of the year as necessary to reflect changing priorities.

FLOOD DEFENCE SCHEMES
N255 REVENUE JOB SCHEDULE

15-May-95

River	Description	Comment	Lead	Job No.
R. Misbourne	Chal. St. Peter	Surveyed	MDJ	D001
Cradle End Brook	House Farm	With contractor awaiting bid	MDJ	D002
R. Lee, Brocket Lake	Brocket Hall	Lagoon to be spread	DT	D003
R. Ver	Lea Environmental	Gravels to be placed	MDJ	D005
Whittings Sewer	Jenkins Lane	Stage 1 ready	DT	D008
Silk Stream	Rushgrove Park	Out to tender	DT	D010
Pudding Mill River	Newham	With contractor awaiting bid	MDJ	D011
R. Ver	Pre Saw Mill to Shafford Mill	Original scheme to be progressed	SL	D018
R. Ash	Albury - Hadham	Surveyed	SL	D020
R. Ingrebourne	Downstream of Hacton Lane	Preparation	MDJ	D024
Millers Green Brook	Tributary of R. Roding	Stage 2	SL	D026
Turkey Brook	Newbury Avenue	Preparation	DT	D027
Stanstead Mill Stream	Stanstead Abbots	Surveyed. PG to establish WL	SL	D028
Kitwells Brook	Radlett	Completed	SL	D029
Hampton Hall Ditch	Rickmansworth	Awaiting contractors bid	SL	D030
R. Ver	Redbourn	Preparation	MDJ	D033
Alders Brook	Downstream of Ilford Golf Course	To survey	DT	D034
R. Frays	Frays Avenue	Preparation	DT	D035
Small River Lee	Upstream length	Await clearance from LVPA	DT	D036
R. Mimram	Whitwell	Completed	SL	D040
Spelbrook	Sawbridgeworth	Preparation	DT	D043
River Colne	Tollgate Road, N. Mimms	Preparation	MDJ	D044
R. Lee	Kingfisher Close		DT	D045
Mimmshall Brook	Saffron Green		DT	D062
R. Brent	Blackbird Hill, Neasden	Inspected	DT	D063
R. Colne	London Colney	Biology sampling site	SL	D064
Bounds Green Brook	Bowes Road		SL	D065
R. Ver	Markyate and downstream		MDJ	D066
R. Colne	Colney Heath		SL	D067
R. Rib	Buntingford and downstream	Biology sampling site	SL	D068

River	Description	Comment	Lead	Job No.
R. Quin	Hare Street	To survey	SL	D069
Sandon tributary	Sandon Lane	Channel clearance	SL	D070
Farnham Bourne	At oil depot		SL	D071
Ugley Brook	Stanstead Mont	Transfer – 'Projects' scheme	DT	D072
Brickenden Brook	Brickenden Lane, Hertford		MDJ	D073
Windmill Lane Ditch	Delamare Road, Cheshunt	Preparation	DT	D074
Buzzards Mouth	Sewer length		DT	D075
R. Crane Millstream	Hounslow Heath Golf Course		SL	D076
Alder Bourne	Fulmer House Farm	To survey	SL	D077
R. Chess	Bois Mill Culvert	With contractor awaiting bid	MDJ	D078
R. Mimram	Singlers Marsh		MDJ	D079
R. Lee	Dredging study	Contract agreed	DT	D080
R. Ver	Corvel Mill	Fishpass?	SL	D081
R. Roding	Abridge		DT	D083
Radlett Brook	Oakridge Avenue, Radlett	Dredging	DT	D084
R. Ash	Ferneux Pelham	Regrade to brewery	SL	D085
R. Stort	Lower Langley Green	Culvert removal and bank protection	MDJ	D090

ENVIRONMENTAL ENHANCEMENT SCHEMES
N255 REVENUE JOB SCHEDULE

15-May-95

River	Description	Comment	Lead	Job No.
R. Lee, Amwell Magna	Ware	Phragmites to be planted	SL	F004
R. Ingrebourne	Upstream Of Hacton Lane	Reed bed/ORSU deferred	SL	C006
R. Ingrebourne	Upstream of Hacton Lane	Channel improvement	SL	C007
R. Mimram	Tewinwater School	To survey. Weir alteration	MDJ	C009
R. Beane	Stapleford	Tree planting scheme	CC	C012
Brent Res.	Reed bed	Deferred	SL	C013
Brent Res.	Wader scrape	Surveyed	SL	C014
R. Chess	Weir modification	On site	SL	C015
R. Chess	Channel improvement	Completed	SL	C016
R. Ingrebourne	Marsh wetland reinstatement	Halcrows survey team on site	SL	C017
R. Lee	Fallow Fields	Management plan recommendations	DT	C019
R. Rib	Weir to be modified	To survey	DT	C021
R. Roding	Redbridge	Await contractors bid for weir mod.	SE	F022
Belmont School Pond	Mill Hill	on site	SL	F023
Stockers Lake Ditch	Rickmansworth	Completed	SL	C025
Mimmshall Brook	Swallow Holes	Design and preparation	MDJ	C031
R. Chess	Broadwater Bridge to MRL	To survey. Historic building off. to advise	SL	C032
Bullrush Pond	Woodford New Road	On site	MDJ	C037
R. Ver	Flamstead wetland	Surveyed. Await cons advice	SL	C038
Manifold Ditch	Kingsmead Wetland	Stage 2 in Autumn	SL	C039
R. Mimram	Rose Farm	Surveyed. Preparation	SL	C041
Small River Lee	Turkey Brook	Received fisheries outline plan	DT	F042
Tykeswater	Outfall section to R. Colne	Channel works - instream features (Bio)	SL	B046
R. Rib	Westmill to A10	Weir alteration	MDJ	B047
R. Rib	Below Standon	Deferred	MDJ	B048
R. Lee	Hornsmill, Mill Stream	Sluice adjusted to regenerate flow (Fish)	DT	F049
R. Stort	Harlow ORSU	Reeded pond near A414 (Fish)	SE	F050
R. Mimram	Rye End Farm	Continuation of Rose Farm (Fish)	SL	F051
R. Lee	Broxbourne Mill Stream	Narrowing and sluice to modify (Fish)	DT	F052
R. Roding	Loughton to Ongar	Selective dredging	DT	F053

River	Description	Comment	Lead	Job No.
R. Roding	ORSU	3/4 acre site	SL	F055
R. Rib	Upstream of Standon	(Bio)	SL	B056
R. Quin	Braughing	Deflectors (Bio)	SL	B057
R. Mimram	At R. Lee confluence	Tree planting scheme (Cons)	CC	C058
R. Misbourne	?	Deferred	MDJ	F059
R. Lee Navigation	Rye House Key	Reed bed - canal (Fish)	DT	F060
R. Ash	Little Hadham	Blockstone weir. Materials supply?	SL	F061
R. Ver	Moor Mill, Smug Oak Lane	To survey. Fish pass and weir modification	SL	C082
R. Gade	Piccotts End	Weir removal	SL	C086
R. Chess	Bois Mill	Lower weir and fish pass	SL	C087
Manifold Ditch	Kingsmead Wetland	Regrading & formation of channels	SL	C088
Old River Lee	Desilting	With contractor awaiting bid	SL	F089

APPENDIX B

STRUCTURES MAINTENANCE PROGRAMME

OUTSTANDING UNPLANNED WORKS

The following table shows outstanding unplanned works in the Area structures maintenance programme as at 3.5.95. The programme is flexible and will be adjusted regularly over the course of the year as necessary to reflect changing priorities.

Job No.	Site/Asset Name	Work Description	Priority	Cost (£)
System Operation and Emergency Response				
95000042	David Stoker Radial Gates	Telemetry trans.relo.	2	200.00
95000238	Feildes weir	Gate Controls	2	200.00
Mandatory Essential Improvements				
95000043	Crane tidal gates	Navigation depth boards	3	150.00
95000051	Meadgate sluices	Latchway installation	3	2000.00
95000237	Sele Mill siphon	Fencing alterations	3	250.00
95000241	David Stoker Radial Gates	Site security imps	2	2500.00
95000242	David Stoker Radial Gates	Safety equipment + signs	2	500.00
95000246	Cedar Close weir	Safety signs	2	1000.00
95000247	Courtino tidal flap valve	Screen safety imps	3	10000.0
Periodic Maintenance				
95000218	Hardmead Radial Gate	Marker Boom repairs	3	1000.00
95000219	Nazeing Labyrinth Weir	Marker Boom repairs	3	1000.00
95000220	Holyfield Weir	Marker Boom repairs	3	1000.00
95000222	Meadgate Sluices	Marker Boom repairs	3	1000.00
95000413	Wennington Main Sluice	Dam Board repair	2	250.00
95000414	Nazeing Labyrinth Weir	Lockable safety clips	2	500.00
95000461	Coldharbour Lane Penstock	Walkway improvements	A	800.00
95000034	Ramney Marsh Sluices	U/S Seal replacement	2	1000.00
95000035	Ramney Marsh Sluices	New manhole cover	3	1500.00
95000036	Meadgate Sluices	New manhole cover	3	1500.00
95000037	Newmans Sluices	U/S Seal replacement	2	2000.00
95000038	Horton Mill Sluices	New trash boom	3	3000.00
95000039	Security fencing	Security improvement	A	1500.00
95000040	Timber post & rail fence	Fence replacement	A	3500.00
95000041	Richard White Radial Gate	New friction blocks	3	1500.00
95000050	Meadgate Sluices	Soil erosion	3	500.00
95000052	Meadgate Sluices	Painting of metalwork	3	10000.00
95000053	Newbury Ave Access Ramp	Anti-rat fencing	2	500.00
95000054	Ware lock weir and syphon	Fence replacement	2	2500.00

Job No.	Site/Asset Name	Work Description	Priority	Cost (£)
95000058	Field End weir and bypass	Erosion control	3	300.00
95000059	Watney's weir	General refurbishment	3	10000.00
95000060	Harmondsworth point weir	Silt clearance	3	500.00
95000233	LCCB Contract 8	Fence repairs	2	800.00
95000236	Ching Brook trash screen	Screen repairs	2	500.00
95000239	Romford Depot	Roof repairs	3	1000.00
95000240	South Mill Weir	Bridge II/R repairs	2	300.00
95000243	Blake Avenue FSA	Sign installation	3	50.00
95000244	Roding Improvement Scheme	Revetment repairs	4	3000.00
95000245	Ware lock weir and syphon	Marker boom repairs	3	1000.00
95000248	A13 booms	Boom replacement	3	1000.00
95000249	Washlands statutory reservoir	Boom replacement	3	1000.00
95000250	LCCB Contract 23	Channel repairs	3	2500.00
95000251	Churchfields WR / silt trap	Erosion repairs	3	1500.00
95000252	Alders Brook barrage	Penstock refurbishment	2	5000.00
95000257	Nazeing labyrinth weir	Fencing repairs	2	2000.00
95000258	LCCB Contract 17	Flood wall repairs	3	9000.00
	Standard of service improvements			
95000253	Horseshoe Corner tidal sluice	Tidal flap replacement	3	40000.00
Estimated Total Cost of Outstanding Works				£130800

APPENDIX C

HAND MAINTENANCE PROGRAMME

The following table shows expenditure (£k) within each business area for the Area hand maintenance programme as at 15.5.95. The programme is flexible and will be adjusted regularly over the course of the year as necessary to reflect changing priorities.

Business Area	Northern District (N210)	Eastern District (N220)	Central District (N240)	Western District (N250)	Total
Priority One jobs	56.3	120.9	94.9	41.2	313.3
Priority Two jobs	46.5	143.5	133.6	281.7	605.3
Priority Three jobs	10.2	48.2	105.6	11.3	175.3
Rota points	132.7	172.3	203.2	82.8	591.0
Unplanned work	82.5	113.4	135.8	123.2	454.9
Total:	328.2	598.3	673.1	540.2	2139.8
Budget:	328.2	453.7	543.2	492.8	1817.9

Expenditure for the Hand Maintenance office fund (N202) is allocated to the following business areas:

Standby	£102.0 k
Depots	£14.5 k
Unplanned work	<u>£38.8 k</u>
Total	155.3 k

**FISHERIES AND CONSERVATION
SECTOR PLAN 1995/96**

Purpose and Aims

- Maintain, develop, and improve fisheries and conservation interests within the North East Area.
- Uphold the NRA's conservation duty by liaising with and advising external agencies and all NRA functions on conservation matters.
- Develop expertise to become an integrated environmental centre of excellence within the North East Area.
- Undertake firm but fair enforcement of fisheries legislation.
- Provide a courteous and efficient service to all fisheries and conservation customers.

SECTION OBJECTIVES

1. **Conservation function:** Develop the Area Conservation role so as to improve operational efficiency within the Area.
 - i) Appoint Assistant Conservation Officer and define key result areas for the position by 30.6.95.
 - ii) Identify areas where there is scope for amalgamating fisheries, conservation, and biology operational activity to give rise to efficiency savings and / or improved quality of outputs. Possible examples include response to planning application consultations and on-site monitoring of works. Prepare an action plan by 30.9.95 and implement plan to meet project milestones.
2. **Environmental enhancement:** Advise on preparation of environmental enhancement schemes through the Area Liaison Team.
 - i) Prepare specifications for all schemes submitted to date by 31.7.95, and provide specifications for all schemes subsequently identified when project initiation form is submitted.
 - ii) Nominate schemes to the liaison team when opportunities arise.
 - iii) Advise on programme priorities for environmental enhancement schemes.

- iv) Provide fisheries and conservation advice on all flood defence capital and heavy maintenance schemes to advise on opportunities to enhance the river habitat and minimise environmental damage. All inputs to meet timetable and standards agreed with project manager.
3. **Rod licence enforcement:** Vigorously enforce fisheries byelaws to protect fisheries, deter potential offenders, and maintain fisheries income.
- i) Check 15000 rod licences by 31.3.96 through deployment of bailiffs in targeted areas. Ensure that all offence reports are passed on to the Regional Technical Department within one month of offence.
 - ii) Adopt and utilise new methodology for recording multiple licence checks.
 - iii) Complete the national address validation pilot project to meet the requirements of the National Head of Fisheries function.
4. **Fisheries surveys:** Survey 158 km (55 sites) of riverine and stillwater fisheries according to the Area programme:
- Baseline surveys: Ash (Herts) to be completed by 31.5.95.
 Crane / Duke of Northumberland to be completed by 31.7.95.
 Ingrebourne to be completed by 30.9.95.
 Rom / Beam to be completed by 30.9.95.
- Issue surveys: Cornmill Stream and Old River Lee to be completed by 30.11.95.
 Chess to be completed by 31.10.95.
 Colne to be completed by 31.10.95.
 Colne (Blackbirds STW) to be completed by 31.10.95.
 Roding to be completed by 31.10.95.
 Ver to be completed by 30.9.95.
 Harlow ponds to be completed by 31.3.96.
- All reports to be completed and statements of need submitted for all habitat enhancement opportunities identified as a result of survey work by 31.3.96.
5. **Water level management plans:** Provide information needed to prepare water level management plans for approximately 10 high priority sites. All information to be provided to the contractor by 30.11.95 to meet standards and timetables agreed with the project manager.
6. **Fish rescues:** Undertake planned and emergency fish rescues to meet National standards of service (emergencies to be attended / ameliorative measures to be taken within two hours during working hours).
7. **East London Rivers Initiative:** Subject to provision of funding, provide fisheries and conservation inputs necessary to complete the first year of post-project appraisal

work for 1994/95 grant in aid funded reed bed schemes by 31.3.96. Determine funding availability and decide whether work will go ahead by 30.4.95.

8. **NRA site management:** Assess data which has been gathered during ecological surveys of NRA sites. Identify priority sites and prepare a plan for establishment of an Area site management programme by 31.12.95. Prepare highest priority site management plans in accordance with the programme.
9. **Cormorant predation:** Represent the Area on the Project Board of the national pilot project on cormorant predation. Provide inputs, including fisheries monitoring and advice on scheme design, to meet standards and timetables agreed with the project manager.
10. **Liaison activities:** Provide technical advice to other NRA departments and NRA customers so as to ensure fisheries and conservation interests are protected. Respond to the following matters in line with section standards of service:

- Planning application consultations (90% to be returned within 14 days of receipt from planning liaison).
- Consultation on flood defence maintenance schemes (100% within agreed deadline).
- Fisheries consents (100% within 20 working days of receipt).
- Requests for fisheries or conservation advice (considered response or site visit within 20 working days of receipt).
- External enquiries (immediate response by telephone, written response within 10 days of receiving letter or 5 days of receiving an MP's letter).

11. Catchment Management Plans:

- i) Provide technical advice on fisheries and conservation issues to assist with preparation of the Lower Lee; Brent and Crane; and Roding, Ingrebourne, and Beam Catchment Management Plans. Input and timetables to be agreed with project managers.
- ii) Complete actions programmed for 1995/96 for which the Fisheries and Conservation section has responsibility arising from the Catchment Action Plans for the Upper Lee, Middle Lee, and Lower Lee. Provide a quarterly update on achievements and any problems anticipated in achieving action plan commitments.

12. **Development Control:** Provide technical advice on water quality and water resources issues necessary to protect the water environment from the impacts of:

Heathrow Airport Terminal 5
Channel Tunnel Rail Link
Rainham Riverside
Roding Barrage

Road building schemes
Lower Colne Improvement Scheme
Lower Lee Improvement Scheme,

and other large scale developments. Input and timetables to be agreed with project managers.

13. **Market Testing:** Provide advice and information, including timesheet records, required to assist in market testing of habitat improvement, conservation operational advice, and conservation scheme promotion. Provide inputs to meet deadlines and standards agreed with project managers. Implement recommendations arising from market testing of these activities in accordance with Regional implementation timetable.

OUTPUT AND PERFORMANCE MEASURES - FISHERIES

Measure	Q1	Q2	Q3	Q4	Annual target
Regulation and Enforcement					
No. of consent applications dealt with in target time (20 working days)					450
No. of consent applications received					450
No. of rod licence checks made (excluding multiple checks)					13000
No. of rod licence checks made (including multiple checks)					15000
No. of failures to produce a valid rod licence					1050
No. of locations visited (rod licence enforcement)					500
No. of reports of illegal fishing actioned within target time					36
No. of reports of illegal fishing					36
Monitoring and Survey Work					
River length constituting Monitored Fisheries (km)					1000
Length of river surveyed (km)					158
No. survey sites completed:					
- netting					0
- electro fishing					55
- hydroacoustic / boom boat					0
No. of survey reports completed within six months					9
No. of survey reports required					11
Improvement					
No. of physico-chemical improvement schemes completed					16
No. of physico-chemical schemes planned					16
(nb: to include phases)					

Measure	Q1	Q2	Q3	Q4	Annual target
Stocking					
No. of fish stocked (unplanned, eg cropping)					20000
Fish Kills and Rescues					
No. fish kills (incidents) due to:					
- Pollution					15
- Natural causes					10
- Other (unknown)					5
No. incidents attended by Fisheries staff					25
No. fish killed					6000
No. of reported fish mortalities actioned by Fisheries staff in target time (2 hrs / 4 hrs of notification)					23
No. of reported fish mortalities where attendance necessary					25
No. of emergency fish rescues initiated in target time (2hrs / 4 hrs of notification)					15
No. of emergency fish rescues					15
Planning and Development Control					
No. of referrals received by Fisheries for consideration:					
- No. of local authority consultations					250
- No. of NRA consent applications					35
- No. of NRA works					100
No. of referrals responded to by deadline requested:					
- No. of local authority consultations					225
- No. of NRA consent applications					32
- No. of NRA works					90
Promotion and Advisory Services					
No. of requests for advice responded to in target time (20 working days)					180
No. of requests for fishery advice					200

OUTPUT AND PERFORMANCE MEASURES - CONSERVATION

Measure	Q1	Q2	Q3	Q4	Annual target
Site Management No. of site management plans implemented					2
Operational Appraisal Length of river corridor (km) surveyed (reactive) No. of river habitat survey (RHS) sites completed					120 26
Promotion and Advisory Services No. of completed conservation projects involving external collaboration Total no. of conservation projects completed No. of requests for conservation advice No. of requests for conservation advice responded to in target time (20 working days)					4 16 15 14

Measure	Q1	Q2	Q3	Q4	Annual target
Planning and Development Control					
No. of referrals received by Conservation for consideration:					
- No. of local authority consultations					250
- No. of NRA consent applications					20
- No. of NRA works					100
No. of referrals responded to by deadline requested					333
No. of NRA planned capital works schemes (all functions) screened for conservation implications or opportunities					60
No. of NRA planned capital works schemes (all functions)					60
No. of NRA new capital schemes incorporating conservation work					-
No. of Flood Defence maintenance works					20
No. of Flood Defence maintenance works assessed by Conservation for environmental impact on rivers estuaries and coastline					20
No. of Flood Defence maintenance works audited					40
No. of Flood Defence maintenance works complying with agreed specification					2
					2
Improvement					
No. of completed conservation projects (capital, revenue, and collaborative)					16

ENVIRONMENTAL SERVICES

SECTOR PLAN 1995/96

Purpose and Aims

- Enforce water quality and water resources legislation.
- Respond to emergencies so as to alleviate the effects of pollution.
- Provide pollution prevention advice so as to minimise pollution risk.
- Monitor the status of the water environment.

SECTION OBJECTIVES

1. **Emergency response:** Provide an appropriate response to pollution emergencies. Enforce NRA policies relating to pollution incidents (PIN SC/EQ/001). Attend or respond to all pollution incidents to meet National standards of service (two hours within working hours and four hours outside working hours).
2. **Pollution prevention:**
 - i) Target pollution prevention activity and conduct site visits at the following locations by 31.3.96:

Brentwood industrial areas.
Feltham industrial areas.
Perivale industrial areas.
Essex schools.
Timber treatment sites.
 - ii) Undertake a programme of pollution prevention site visits. 750 sites to be visited by 31.3.96 (525 programmed visits, 225 unprogrammed visits).
3. **Enforcement:**
 - i) Enforce NRA policies relating to discharge consents (PIN SC/CC/001).
 - ii) Enforce NRA policies relating to abstraction licences (PIN TD/WR/005). Complete at least 563 licence inspections, including 8 Category 1 and 441 Category 2 licence inspections. Demonstrate at least five cases where remedial action has resulted from policing of abstractors by 31.3.96.

- iii) Pass on reports of all category 1 and 2 pollution incidents to the Regional Prosecutions Panel so as to meet deadlines for the next suitable panel meeting after the incident. Pass on all prosecution files to the Legal Department within seven weeks of a panel decision to prosecute. Successfully complete at least 25 pollution prosecutions by 31.3.95.
- 4. **Lower Lee investigations:** Establish a plan of action and a project management structure for conducting further water quality investigations in the Lower Lee by 30.6.95. Advise North East Area Management team of agreed proposals by 31.7.95. Undertake water quality investigations and further actions according to project timetable.
- 5. **AMP2:** Take action to ensure that TWUL deliver the agreed AMP2 investment programme.
 - i) Ensure AMP2 commitments are correctly represented in CMPs and discussed during CMP consultation.
 - ii) Establish arrangements for quarterly Area liaison on AMP2 and operational issues with TWUL.
 - iii) Report any problems and cases of non-compliance with implementation of the AMP2 programme to RMB on a quarterly basis for referral to RAB / Head Office as appropriate.
- 6. **Water quality monitoring:** Complete the Area formal monitoring programme for controlled waters and effluents. By 31.3.96 take:
 - 1908 consented discharge samples.
 - 1020 statutory sampling programme samples (rivers and canals).
 - 696 national surveillance sampling programme samples (rivers and canals).
 - 1838 permissive sampling programme samples (rivers and groundwater).
 - 500 non-routine samples (reactive and investigative).

Ensure that samples are passed on to the National Laboratory Service in accordance with Regional procedures. Enter all sampling results onto the Regional archive or undertake appropriate follow-up action.
- 7. **Water Resources:**
 - i) Take an initiative in developing the Area Water Resources role.
 - Identify five specific areas of Water Resources activity suitable for transfer from Regional Technical Department to the Area. Advise the Area Manager of these activities by 31.12.95 and identify means of developing Area expertise in such activities.

Identify five specific initiatives to optimise working arrangements with other sections within North East Area so as to bring about an increased quality of output. Advise the Area Manager of these activities by 31.12.95.

- ii) Review abstraction licences within the Area and advise Regional Technical Department of the 'worst ten' licences with conditions which are unenforceable by 30.9.95. Agree a timetable for varying licence conditions with Regional Technical Department by 31.12.95.
- iii) Advise the Hydrological Services group on the development and maintenance of hydrometric monitoring within the Area. Ensure that all programmed hydrometric monitoring is carried out and that the ensuing data is stored, utilised, and reported to relevant customers.
- iv) Undertake a desk-top study to prepare estimates of flows in all channels of the Lower Colne for winter and summer periods by 31.3.96.
- v) Act as a contact point to deal with all Water Resources matters raised within or referred to the Area.

8. Pollution incident recharges:

- i) Represent the North East Area on the zap team implementing policy on pollution incident recharges. Input and timetables to be agreed with zap team leader.
- ii) Ensure that polluters are recharged for remedial action in accordance with PIN requirements.
- iii) If requested, participate in a compliance audit to ensure that requirements of the PIN on incident recharges are being met. Provide information and advice to meet timetables and standards agreed with the auditor.

9. East London Rivers Initiative: Subject to provision of funding, direct a project to complete the first year of post-project appraisal work for 1994/95 grant-in-aid funded reed bed schemes by 31.3.96. Determine funding availability and decide whether work will go ahead by 30.4.95.

10. Planning Applications:

- i) Meet the following targets at the end of each quarter for responding to planning application consultations:

East and West sub-Areas: 50% returned within 7 days and 90% within 14 days.
Groundwater: 45% returned within 7 days and 75% within 14 days.

- ii) Simplify the process for responding to planning application consultations by ensuring that number of applications passed on to Environmental Services for consultation is reduced by at least 50% by 30.9.95.

11. Liaison:

- i) Provide technical advice on water quality and water resources issues to assist with preparation of the Lower Lee; Brent and Crane; and Roding, Ingrebourne, and Beam Catchment Management Plans. Input and timetables to be agreed with project managers.
- ii) Complete actions programmed for 1995/96 for which the Environmental Services section has responsibility arising from the Catchment Action Plans for the Upper Lee, Middle Lee, and Lower Lee. Provide a quarterly update on any problems anticipated in achieving action plan commitments.
- iii) Provide technical advice on water quality and water resources issues necessary to protect the water environment from the impacts of Heathrow Airport Terminal 5, the Channel Tunnel Rail Link, road building schemes, and other large scale developments. Input and timetables to be agreed with project managers.
- iv) Provide technical advice on water quality and water resources issues to other NRA departments and NRA customers. Respond to the following matters in line with section standards of service:
 - Discharge consents (95% of inputs to be made to meet deadlines specified in consent processing system).
 - HMIP authorisations (95% within 14 days).
 - Abstraction licences (95% within deadline requested by Technical Department).
 - Waste disposal licences (80% within waste regulation authority deadline).
 - Waste disposal plans (in cases where a response is appropriate, all responses to meet waste regulation authority deadline).
 - External enquiries (immediate response by telephone, written response within 10 days of receiving letter or 5 days of receiving an MP's letter).

12. Health and Safety: Comply with approved health and safety procedures and safe systems of work in all operational situations. All staff to have completed appropriate training by 30.9.95.

13. Market Testing: Provide advice and information required to assist in market testing of routine water quality sampling and abstraction inspections so as to meet deadlines and standards agreed with project managers. Implement recommendations arising from market testing of these activities in accordance with Regional implementation timetable.

OUTPUT AND PERFORMANCE MEASURES

Measure	Q1	Q2	Q3	Q4	Annual Target
WATER QUALITY					
Pollution Prevention					
No. of site inspections:					
- Programmed					525
- Non-programmed					225
No. of campaigns					4
Pollution Incidents					
No. of reported pollution incidents					1300
No. of pollution incident reportees provided with feedback					1215
No. of pollution incident reportees targeted for provision of feedback					1350
No. of pollution incidents by category:					
- Category 1					1
- Category 2					75
- Category 3					612
- Category 4					612
No. of Category 1 incidents attended in target time					1
No. of Category 2 incidents attended in target time					75
Number of warning letters sent (directly from Area, ie not via Legal section)					130

Measure	Q1	Q2	Q3	Q4	Annual Target
Pollution Incidents: source and type					
No. of Category 1 incidents by source of pollution:					
- industrial and commercial					0
- agricultural					1
- water utility company					0
- other					0
No. of Category 2 incidents by source of pollution:					•
- industrial and commercial					19
- agricultural					10
- water utility company					26
- other					20
No. of Category 3 incidents by source of pollution:					
- industrial and commercial					117
- agricultural					12
- water utility company					143
- other					340
No. of Category 1 incidents by type of pollutant:					
- agricultural					0
- oil					0
- chemical					0
- sewage					1
- other					0
No. of Category 2 incidents by type of pollutant:					
- agricultural					7
- oil					23
- chemical					11
- sewage					18
- other					16
No. of Category 3 incidents by type of pollutant:					
- agricultural					12
- oil					275
- chemical					61
- sewage					135
- other					129

Measure	Q1	Q2	Q3	Q4	Annual Target
Fish Mortalities					
No. of fish kills (incidents) resulting from:					
- Pollution					-
- Natural causes					-
- Other (unknown)					-
No. of incidents attended					-
No. of fish killed					-
No. of reported fish mortalities actioned in target time					-
No. of reported fish mortalities					-
Waste Disposal					
No. of waste disposal licences received					100
No. of waste disposal licences processed within deadline					80
WATER RESOURCES					
Enforcement:					
Highly Critical Licences:					
- No. of licences in force					4
- No. of inspections required by NRA policy					8
- Actual No. of inspections made					8
Critical Licences:					
- No. of licences in force					349
- No. of inspections required by NRA policy					441
- Actual No. of inspections made					441
Less Critical Licences:					
- No. of licences in force					571
- No. of inspections required by NRA policy					114
- Actual No. of inspections made					114

CATCHMENT PLANNING

SECTOR PLAN 1995/96

Purpose and Aims

- Protect and enhance the water environment by influencing land use policies and controlling development through co-operation with local planning authorities and use of statutory powers.
- Promote sustainable development.
- Integrate NRA functions through preparation of Catchment Management Plans.

SECTION OBJECTIVES

1. **Development Control:** Advise and negotiate with developers to protect rivers and their floodplains and enhance the aquatic environment.
 - i) Negotiate some form of improvement for at least 50% of achievement report schemes dealt with during the year. Ensure that no development proposals are agreed which result in the destruction of critical environmental assets. Ensure that no proposals are agreed which result in overall loss of a net length of river through culverting by 31.3.96.
 - ii) Recommend determination of all land drainage consent applications so as to allow their issue within the statutory period.
 - iii) In consultation with other Areas and bearing in regard resource availability, identify criteria for undertaking enforcement action to ensure compliance with land drainage legislation by 30.9.95. Undertake enforcement action in line with these criteria by 31.3.96.
2. **Planning applications:**
 - i) Meet national targets for responding to planning application consultations from 30.6.95 onwards. 50% response to be made within 14 days, 75% response to be made within 21 days, and 95% response to be made within 28 days of receipt from local authority.
 - ii) Simplify and streamline procedures for internal consultation on planning applications within the Area. Achieve a 10% reduction in number of consultations circulated to internal consultees by 30.9.95.

3. Emergency arrangements:

- i) Update Area multifunctional emergency procedures as necessary and ensure that the Area incident room remains equipped and maintained in a state of readiness.
- ii) Assist the Regional Technical Planning Department in arranging an emergency exercise in the North East Area. Exercise to have taken place and post project review to be undertaken by 30.9.95 and all actions identified through the review to have been implemented by 31.3.96, subject to funding availability.

4. Catchment Management Plan preparation:

- i) Complete the Action Plan for the Middle Lee by 30.4.95.
- ii) Complete the Action Plan for the Lower Lee by 30.12.95.
- iii) Complete the Consultation Report for the Brent and Crane by 31.10.95, and the Action Plan by 31.5.96.
- iv) Commence work on the Roding, Ingrebourne, and Beam Consultation Report by 31.3.95.

5. Catchment Management Plan implementation:

- i) In consultation with the Project Management Group and Business Planning section, determine arrangements for project managing implementation of catchment action plans to ensure all actions are completed. Implications of CMP implementation in Envage to be considered. Arrangements to be reported to Area Management Team and implemented by 30.9.95.
- ii) Prepare Annual Review for the Upper Lee catchment action plan by 30.9.95.
- iii) Prepare Annual Review for the Middle Lee catchment action plan by 30.4.96.

6. Forward planning: Pro-actively influence land use planning by encouraging the uptake of NRA promoted land use guidance policies by local planning authorities and by evaluating all development plans to ensure NRA interests are protected.

Provide advice on NRA policies so as to meet local authority deadlines for submissions. Plans which the Area expects to be consulted on during 1995/96, with targets for policy uptake, are as follows:

South Bucks District Council consultation draft:	60%
Herts County Council waste plan consultation draft:	70%
Essex County Council structure plan consultation draft:	60%
Herts County Council structure plan deposit draft:	88%

Welwyn Hatfield District Council deposit draft:	70%
Chiltern District Council deposit draft:	75%
Essex County Council waste plan deposit draft:	75%

7. Heathrow Airport Terminal 5: Direct the NRA project to achieve NRA objectives with respect to the Heathrow Airport Terminal 5 development.

- i) Identify success criteria by 31.8.95.
- ii) Advise RMB whether participation in the public inquiry will be needed to achieve success criteria and if appropriate, provide costs and gain approval for full participation in the public inquiry by 31.8.95.
- iii) Report to RMB and statutory committees on the outcome of the inquiry hearings and whether success criteria are likely to be achieved by 31.3.96.

8. Channel Tunnel Rail Link: Ensure that the water environment is protected from the Channel Tunnel Rail Link development.

- i) Ensure that the Parliamentary Bill contains adequate protective provisions to satisfy NRA interests before Royal Assent is granted.
- ii) Agree a phased timetable for consultation on technical documentation with Union Rail and their contractors. Reply to consultation in line with the timetable and ensure that all scheme proposals meet the requirements of all functions before approval is granted. Ensure that the value of environmental enhancement and mitigation works undertaken is maximised.
- iii) Provide monthly reports on project progress and actual and forecast project costs to the Project Board. Advise the Project Board on any risks which may adversely affect NRA interests.

9. Lower Lee initiative: Having regard to the Lower Lee catchment management plan, develop a strategy for funding and undertaking environmental enhancement work in collaboration with external agencies by 31.3.96.

10. Circular 30/92:

- i) Provide Regional Technical Department with information required to obtain RFDC approval for commencing priority survey work for preparation of Circular 30/92 flood risk maps. All submissions to be made to meet deadlines and standards agreed with Regional project manager.
- ii) Assuming RFDC approval is gained, undertake further actions required to undertake priority survey work to meet deadlines and standards agreed with Regional project manager.

11. Transportation term consultancy: Direct the RKL transportation term consultancy to ensure that consultants concentrate on priority schemes and that the contract is used in a cost-effective manner.

- i) Use the transportation database to forecast future expenditure on the contract and report on a monthly basis to the Regional Technical Planning manager on forecast and actual contract costs.
- ii) Ensure that quarterly expenditure on the contract does not exceed control targets agreed with Regional Technical Planning Manager.

12. Liaison:

- i) Provide technical advice on forward planning, development control, and planning liaison issues to assist with preparation of the Lower Lee; Brent and Crane; and Roding, Ingrebourne, and Beam Catchment Management Plans. Input and timetables to be agreed with project managers.
- ii) Complete actions programmed for 1995/96 for which the Catchment Planning section has responsibility arising from the Catchment Action Plans for the Upper Lee, Middle Lee, and Lower Lee. Provide a quarterly update on any problems anticipated in achieving Action Plan commitments.
- iii) Provide technical advice on planning liaison and land drainage matters in support of the Heathrow Airport Terminal 5 project and the Channel tunnel Rail Link project. Input and timetables to be agreed with project managers.
- iv) Provide technical advice on forward planning, development control, and planning liaison issues to other NRA departments and NRA customers. Respond to the following matters in line with section standards of service:
 - Planning application consultations (Development Control group to respond to 75% of consultations within 7 days and 90% of applications within 14 days of receipt from Planning Liaison).
 - External enquiries (immediate response by telephone, written response within 10 days of receiving letter or 5 days of receiving an MP's letter).

13. Market testing: Provide advice and information, including timesheet records, required to market test Catchment Management Planning so as to meet deadlines and standards agreed with project managers. Implement recommendations arising from market testing of these activities in accordance with Regional implementation timetable.

14. Collaborative funding opportunities:

- i) Identify opportunities for directing funding from large scale regeneration projects towards improvement of the water environment. Advise the Area

Management Team of any viable opportunities and ensure project management responsibilities are assigned for such schemes which the Area Management Team decide to pursue.

- ii) Provide appropriate input into projects agreed by the Area Management Team to ensure that the appropriate level of NRA commitment is given and that the proportion of funding spent on the water environment is maximised.

- 15. **National Projects:** Provide advice and information in support of National Research and Development projects and the National Catchment Management Planning project so as to meet deadlines and standards agreed with project managers.

OUTPUT AND PERFORMANCE MEASURES

Measure	Q1	Q2	Q3	Q4	Annual Total
Planning Liaison					
Number of planning applications processed					1500
Number processed within 1-14 days of receipt					750
Number processed within 1-21 days of receipt					1125
Number processed within 1-28 days of receipt					1425
Number processed within >28 days of receipt					75
Number of planning application responses which meet quality criteria					Audit
Number of planning applications of concern to NRA on planning list					Audit
Number of planning applications passed on for consultation by LPA					Audit
For each internal consultee:					
Number of planning applications passed on for comment					-
Number returned to planning liaison within 7 days					-
Number returned to planning liaison within 14 days					-
Total number of planning applications on LPA planning lists					Not req'd
Number of requested conditions incorporated satisfactorily in decision notices by LPA					-
Number of conditions recommended by LPA					-
Number of satisfactory decision notices issued by LPA					-
Total number of decision notices issued by LPA					-

Measure	Q1	Q2	Q3	Q4	Annual Total
Planning Liaison (continued)					
Number of cases where objection made					
Number of cases subsequently resolved through negotiation and/or receipt of acceptable amended proposals					
Number of refusals issued by LPA on the basis of NRA objection					
Total number of objections made by NRA, excluding those subsequently withdrawn					
Number of written enquiries received					
Number of written enquiries processed within 1-5 working days					
Number of written enquiries processed within 1-10 working days					
Number of appeals at which NRA represented:					
- written representations made					
- inquiries attended					
of which:					
- major					
- standard					

Measure	Q1	Q2	Q3	Q4	Annual Total
Development Control					
Number of written consent related enquiries received					-
Number of replies within 1-14 days of receipt					-
Number of replies within 1-21 days of receipt					-
Number of replies within 1-28 days of receipt					-
Number of replies within > 28 days of receipt					-
Number of responses to consent related enquiries which meet quality criteria					-
					250
Number of consents determined					
Number of consents positively determined within statutory period (2 months)					250
Number of consents determined which meet quality criteria					Audit
Total number of development schemes dealt with					-
Number of schemes for which enhancements achieved					-
Total costs of water-related elements of schemes dealt with					-
Total costs of benefits generated: tangible works					-
Total costs of benefits generated: technical information					-
Total costs of work avoided					-
Length of enhancement generated					-
Length of watercourse saved from culverting					-
Length of river corridor saved from development					-
Length of tidal foreshore saved from encroachment					-

Measure	Q1	Q2	Q3	Q4	Annual Total
Forward Planning					
Number of pre-consultation stage draft plans received					-
Number of pre-consultation stage draft plans replied to within LPA deadline					-
Number of issues raised in pre-consultation stage draft plan					-
Number of issues promoted to LPA					-
Number of consultation stage draft plans received					3
Number of consultation stage draft plans replied to within LPA deadline					3
Number of policies included by LPA (consultation draft stage)					-
Number of policies promoted to LPA					-
Number of deposit draft plans received					4
Number of deposit draft plans replied to within LPA deadline					4
Number of policies included by LPA (deposit draft stage)					-
Number of policies promoted to LPA					-
Number of adoption stage plans received					3
Number of adoption stage plans replied to within LPA deadline					3
Number of categories for which NRA interests are adequately covered					-
Total numbers of categories of NRA interest					-
Number of non-statutory plans received					-
Number of non-statutory plans replied to within LPA deadline					-

**ADMINISTRATION AND
CUSTOMER SERVICES**

SECTOR PLAN 1995/96

Purpose and Aims

- Provide administration support to operational and technical staff.
- Promote NRA activities in the North East Area.
- Maintain and manage buildings at Rickmansworth and Waltham Cross.

SECTION OBJECTIVES

1. Administration duties:

- i) Provide a full range of administration functions in line with standards of service and response times specified in the 'Levels of Service for Administration Services' agreement to all Area staff and to Regional staff based at the Waltham Cross office.
- ii) In discussion with section managers for client groups, identify administration activities and sections where improvements can be made. Identify improvements required and prepare an action plan for undertaking such actions. by 31.7.95. - Implement all actions planned to bring about improvements by 31.3.96.

2. National administration efficiency review:

- i) Provide information and advice required to assist with the National administration efficiency review. All submissions to meet deadlines and standards agreed with Regional contact officer.
- ii) Implement actions arising from the review in accordance with Regional implementation timetable.
- iii) Reduce 1996/97 budgets by 10% in comparison with 1994/95 costs.

3. Health and Safety:

- i) Ensure that Health and Safety procedures are complied with and co-operate with the Regional Health and Safety Advisor to advise staff on Health and Safety issues.
- ii) Prepare and circulate Area level local Health and Safety arrangements and ensure compliance with the arrangements in accordance with PIN requirements by 30.9.95.

4. **Purchasing:** Undertake purchasing for the North East Area in line with the Procurement PIN and the Scheme of Delegation / Financial Memorandum.
5. **Environmental Policy:** Ensure that all NRA environmental policy requirements are fulfilled in the North East Area.
 - i) Monitor energy and water consumption and quantities of paper recycled. Provide monitoring information to Office and Building Services Manager at Reading on a quarterly basis to meet agreed deadlines.
 - ii) Reduce annual energy consumption in NRA buildings when compared with usage in 1994/95.
 - iii) Implement findings from pollution risk audit of NRA client sites in NE Area by 30.9.95.
 - iv) Reduce annual expenditure on paper and stationery by 5% compared with 1994/95. Ensure that only environmentally-friendly core-list items are purchased and that purchases are made only from Chapmans.
 - v) In line with guidance and timetables agreed with the Regional Environmental Strategy Group, implement initiatives for procurement and recycling of materials as necessary to meet National Environmental Policy targets.
 - vi) Attend all meetings of the Regional Environmental Strategy Group and undertake all actions requested by the group to meet agreed deadlines and standards.
6. **Compliance with Customer Charter:** Meet service standards as published in the Customer Charter in responding to general enquiries, telephone calls, and complaints.
 - i) Make an initial response to external complaints received within five working days for 95% of cases. Pass on copies of all complaints received to the PR department within five working days of receipt.

Respond to external enquiries in line with national standards of service (immediate response by telephone, written response within ten working days of receiving letter or within 5 days of receiving MP's letter).
 - ii) Attend all meetings of the Regional Customer Liaison group and undertake all actions requested by the group to meet agreed deadlines and standards.
7. **Building Management:**
 - i) Undertake day-to-day management of NRA buildings and offices within the Area. Ensure compliance with leases and maintain good relationships with landlords.
 - ii) Identify maintenance needs for NRA buildings within the Area. Issue contracts for maintenance work and ensure compliance with contracts.

8. **Personnel strategic repositioning:** Make all arrangements necessary to allow the new Area personnel officer to commence work at Rickmansworth by . Identify administration duties suitable for execution by the personnel officer by and transfer responsibility of these duties to the personnel officer by
9. **Area promotion:** In liaison with the Regional Public Relations department and North East Area section managers, undertake public relations initiatives and pro-actively promote the role of the NRA in the North East Area.
 - i) Ensure that the North East Area is represented at at least six external promotional events (eg environmental fairs, shows, and community forums).
 - ii) Co-ordinate meetings of the Area Publicity Group and ensure that all actions agreed by the group are implemented.
 - iii) Advise the Regional Public Relations Manager on a monthly basis of forthcoming Area activities which will require support from the PR department.
10. **Regional Administration Group:** Participate on behalf of the North East Area in the Regional Administration Group. Contribute to Regional administration initiatives as agreed by the group.

OUTPUT AND PERFORMANCE MEASURES

Measure	Q1	Q2	Q3	Q4	Annual Target
Customer Relations Number of complaints received Number of complaints responded to in: - 1-5 working days of receipt - 6-10 working days of receipt - More than 10 working days of receipt Number of commendations received Number of MPs letters received Number of MPs letters responded to in: - 1-5 working days of receipt - 6-10 working days of receipt - More than 10 working days of receipt					

Measure	Q1	Q2	Q3	Q4	Annual Target
Environmental Performance					
Electricity consumption (kWh):					
- Rickmansworth					
- Waltham Cross					
- Broadmeads					
Gas consumption (kWh):					
- Rickmansworth					
- Waltham Cross					
- Broadmeads					
Fuel oil consumption (litres):					
- Rickmansworth					
- Waltham Cross					
- Broadmeads					
Solid fuel consumption (tonnes):					
- Rickmansworth					
- Waltham Cross					
- Broadmeads					
Water consumption (m3):					
- Rickmansworth					
- Waltham Cross					
- Broadmeads					
Electricity costs (£k):					
- Rickmansworth					
- Waltham Cross					
- Broadmeads					
Gas costs (£k):					
- Rickmansworth					
- Waltham Cross					
- Broadmeads					
Fuel oil costs (£k):					
- Rickmansworth					
- Waltham Cross					
- Broadmeads					
Solid fuel costs (£k):					
- Rickmansworth					
- Waltham Cross					
- Broadmeads					
Water costs (£k):					
- Rickmansworth					
- Waltham Cross					
- Broadmeads					
Paper recycled (kg):					
- Rickmansworth					
- Waltham Cross					

**CATCHMENT MANAGEMENT PLAN
IMPLEMENTATION:**

**ACTION PLAN TARGETS
FOR UPPER AND MIDDLE LEE**

The tables on the following pages relate to targets published in the Catchment Action Plans for the Upper and Middle Lee catchments. Progress in achieving these targets will be monitored and reported to the public in Annual Reviews for each catchment.

FLOOD DEFENCE AND ENGINEERING TARGETS

Upper Lee

Issue No.	Objective	Action	Published/ actual completion date	Forecast // actual completion date	Comment on progress / outcome
FD/UL/S/1	Establish a more natural hydrological regime in the River Lee by minimising flood flows and increasing dry weather flows. Contact: Mike Pomfrett	Undertake technical analysis of river flows in Luton to ascertain potential benefits of storage for flood defence purposes. [Output - Report and Computer Model]	28.2.96		
FD/UL/S/2	Implement justifiable flood defence works in and downstream of Luton	Implement flood defence works at New Bedford Road, Luton. [Output - Construction works] Contact: Mike Pomfrett Consider flood defence works at Hyde Mill Farm, Batford, Harpenden. [Output - Construction works] Contact: Brian Izzard Implement flood defence works at Wheathampstead. [Output - Construction works] Contact: Brian Izzard	31.3.98 31.3.97 30.6.96		

Issue No.	Objective	Action	Published/ actual completion date	Forecast / actual completion date	Comment on progress / outcome
FD/UL/S/7	<p>Implement justifiable action to restore river flows in the Beane capable of sustaining a range of ecological uses by 2010.</p> <p>Contact: Dak Gor</p>	<p>Assess feasibility of implementing a programme of works to overcome the detrimental environmental effects of water abstraction in the Beane Valley. [Output - Report covering environmental benefits and economic costs of potential actions and computer groundwater model]</p> <p>Undertake ground and surface water monitoring programmes to provide information to support and develop work covered in previous action. [Output - Report]</p> <p>Construct additional ground (8/9 boreholes) and surface water monitoring sites (1 gauging station) to provide information to support previous action [Output - Construction works]</p>	<p>30.8.95</p> <p>31.3.97</p> <p>31.7.95</p>		

Issue No.	Objective	Action	Published/ actual completion date	Forecast / actual completion date	Comment on progress / outcome
FD/UL/S/9	<p>Implement integrated flood defence and environmental works in the Beane Valley.</p> <p>Contact: Dak Gor</p>	<p>Assess feasibility of flood alleviation works for Walkern, Watton-at-Stone, Waterford, Stapleford, and Bengoe. [Output - Report]</p> <p>Undertake data collection in support of previous actions (eg topographical survey, land searches, flood damage survey by loss adjusters). [Output - Report]</p> <p>Develop operating objectives for optimal flood attenuation, amenity and ecological use of Stevenage water meadows. [Output - Report]</p>	<p>31.10.95</p> <p>31.12.94</p> <p>31.3.96</p>		
FD/UL/S/13	<p>Manage, protect, and enhance the environmental quality of the Mimram Valley.</p> <p>Contact: Martin Japes</p>	<p>Undertake environmental enhancement works at Digswell. [Output - Conservation works on banks and bed of river]</p> <p>Undertake environmental enhancement work at Tewinwater School. [Output - Conservation works on banks and bed of the river]</p> <p>Undertake flood defence and environmental enhancement work at Singlers Marsh / Fulling Mill Lane. [Output - conservation and flood defence works]</p>	<p>30.9.94</p> <p>31.3.95</p> <p>30.9.94</p>		

Issue No.	Objective	Action	Published/ actual completion date	Forecast / actual completion date	Comment on progress / outcome
FD/UL/S/18	Implement action to protect and improve the water environment. Contact: Martin Japes	Undertake dredging work at Brocket Hall Park Lake. [Output - Construction works] Undertake dredging work on Essendon Brook at confluence with River Lee to reduce flood risks. [Output - Construction works] Undertake dredging works on River Lee below A1(M) near Stanborough to reduce flood risks and reduce risk of footpath flooding. [Output - Construction works]	30.6.95 31.3.95 30.11.94		

Middle Lee

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
FD/ML1	To minimise the number of people and properties at risk of flooding, with due regard for the environment. Contact: Mike Pomfrett	Undertake flood alleviation works at Clavering subject to MAFF approval of economic viability of works.	31.3.98		
		Undertake flood alleviation works at Manuden subject to MAFF approval of economic viability of works.	31.3.98		
		Undertake flood alleviation works at Ugley Brook subject to MAFF approval of economic viability of works.	31.12.96		
		Complete middle reach phase of review of flood risks on the Stort (Bishop's Stortford to Sawbridgeworth).	31.3.96		
		Carry out lower reach phase of review of flood risks on the Stort (Harlow to River Lee).	31.12.96		
FD/ML/3	To manage operations and maintenance procedures on the navigation to ensure all needs are met where possible, without compromising the environment. Contact: Mike Dicker	NRA and BW to work together on the operational programme for forthcoming work on the Stort Navigation.	31.3.96		

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
FD/ML/10	To improve and maintain important structures on the River Lee system. Contact: Mike Pomfrett	Repair work to be done at Hardmeads. Repair work to be done at Stansted. Review of options for improvements to be undertaken at Dicker Mill.	31.3.96 31.3.97 31.3.96		
FD/ML/14	To use "set aside", "Countryside Stewardship", and other appropriate schemes to improve the environment along the river corridor by creating buffer strips. Contact: Ian Davis	Work with farmers at two riverside sites promoting set-aside and the Stewardship scheme along the river corridor. Monitor progress and report back. Expand the project if successful and report progress.	31.3.97 31.3.98 31.3.99		

FISHERIES AND CONSERVATION TARGETS

Upper Lee

Issue No.	Objective	Action	Published/ actual completion date	Forecast / actual completion date	Comment on progress / outcome
FC/UL/S/4	Protect and enhance green space adjacent to the watercourse in Luton and Dunstable and progressively restore natural riverine features. Contact: Chris Catling	Undertake improvement works at Leagrave Common adjacent to the River Lee. [Output - Conservation and amenity works] Undertake improvement works at Croda Colloids site. [Output - conservation and amenity works]	31.3.95 31.3.95		
FC/UL/S/5	Increase community awareness of the River Lee to minimise detrimental activity and increase local stewardship.	Undertake activity (eg guided walks, leaflets, local conservation groups) directly aimed at involving local people and reducing activities such as litter disposal in the rivers. [Output - Leaflets, walks, conservation management work] Contact: Chris Catling	Ongoing		
FC/UL/S/9	Implement integrated flood defence and environmental works in the Beane Valley.	Undertake tree planting at Stapleford. [Output - Conservation works] Contact: Chris Catling	31.3.95		
FC/UL/S/14	Develop and maintain a conservation strategy for the Upper Lee catchment covering ecological, fisheries and landscape interests. Contact: Mark Pilcher	Prepare in conjunction with all relevant parties a strategy for making the best use of public, voluntary, and private sector resources. [Output - Strategy]	30.9.95		

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
FC/UL/S/15	Record, manage, protect and enhance the environmental qualities of the water environment in the Upper Lee. Contact: Mark Pilcher	Undertake Fisheries Survey of the River Beane. [Output - Report]	30.6.94		

Middle Lee

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
FC/ML/4	To balance the recreational use and conservation interests of the backloops of the Stort Navigation. Contact: Chris Catling	Limit the number of moorings in sensitive areas as planning applications are submitted. Identify sites for moorings to encourage recreation without detrimental environmental impact.	Ongoing 31.3.97		

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
FC/ML/5	<p>To manage the flood lagoon at Spellbrook in order to safeguard its SSSI status without compromising its flood storage capability.</p> <p>Contact: Chris Catling</p>	<p>Implement works highlighted in the interim SSSI management plan.</p> <p>Long-term programme of tree pollarding and bank raising.</p> <p>Preparation of a Water Level Management Plan in accordance with MAFF guidelines.</p> <p>Assess the effectiveness of enhancement works carried out and report back.</p> <p>If successful, promote the site management techniques as best practice.</p>	<p>31.3.97</p> <p>Ongoing</p> <p>31.3.96</p> <p>31.3.98</p> <p>31.3.98</p>		
FC/ML/7	<p>To protect and improve the important conservation interests of Kings Mead through coordinated management.</p> <p>Contact: Chris Catling</p>	<p>Ensure implementation of the management plan for the Kings Mead site recently published by HMWT and HCMS.</p> <p>Improve operation of sluices and channels.</p> <p>Monitor biodiversity and any changes that occur due to works carried out through the management plan.</p>	<p>31.3.97</p> <p>31.3.96</p> <p>31.3.98</p>		
FC/ML/8	<p>To restore the Amwell Manga loop without compromising flood defence interests.</p> <p>Contact: Nick Buck</p>	<p>Complete scheduled environmental enhancement works at the site.</p> <p>Monitor enhancements and biodiversity (fisheries and biology) and report back.</p> <p>Monitor flow through the loop to ensure it is adequate for the fishery.</p> <p>Make changes to flow regime if required.</p>	<p>31.3.96</p> <p>31.3.97</p> <p>31.3.97</p> <p>31.3.99</p>		

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
FC/ML/12	To improve habitat quality and diversity on the catchment.	Review and report on progress of the otter habitat project .	31.3.97		
		Contact: Chris Catling (for HMWT)			
		Enhance potential sites identified in the otter habitat survey.	Ongoing		
		Contact: Chris Catling			
		Protect potential sites from development pressures.	Ongoing		
		Contact: Chris Catling			
		Investigate improving eel populations on the catchment and report back.	31.3.97		
		Contact: Mark Pilcher			
		Undertake environmental enhancements between Wadesmill and the A10 on the River Rib.	31.3.96		
		Contact: Mark Pilcher			
		Undertake environmental enhancements at Little Hadham on the River Ash.	31.3.96		
		Contact: Mark Pilcher			
		Undertake environmental enhancement work on the River Stort at Harlow to improve fisheries.	31.3.96		
		Contact: Mark Pilcher			

ENVIRONMENTAL SERVICES TARGETS

Upper Lee

Issue No.	Objective	Action	Published/ actual completion date	Forecast / actual completion date	Comment on progress / outcome
ES/UL/S/3	Reduce the risk of pollution from surface water overflows and other sources in Luton and Dunstable.	<p>Agree extent and scope of complementary river water quality monitoring programmes to maximise information base. [Output - Report]</p> <p>Contact: Nigel Copelin</p> <p>Undertake pollution prevention activity at Luton Airport. [Output - Visits to local industry]</p> <p>Contact: Pete Rudd</p> <p>Undertake improvement works to stormwater overflows. [Output - Priority listing for action]</p> <p>Contact: Nigel Copelin</p>	<p>30.4.95</p> <p>31.3.95</p> <p>31.12.94</p>		
ES/UL/S/10	<p>Protect and enhance green space adjacent to the watercourses in Stevenage.</p> <p>Contact: Nigel Copelin</p>	<p>Agree extent and scope of complementary river water quality monitoring programmes to maximise information base. [Output - Report]</p>	30.4.95		

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
FC/ML/15	<p>To locate and map out the presence of invasive plant species, in order to assess the feasibility of an eradication programme.</p> <p>Contact: Chris Catling (for HMWT)</p>	<p>Map out the presence of invasive plants to assess present situation.</p> <p>Review and report on options to pursue management programme on a pilot tributary.</p>	<p>30.9.97</p> <p>31.3.99</p>		

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
ES/UL/S/11	Monitor and review status of the Mimram Valley through integrated environmental monitoring activities. Contact: Bob Walker	Monitor and report on the quality and quantity of ground and river flows. [Output - Report]	30.9.95		
ES/UL/S/17	Raise awareness and understanding of groundwater issues. Contact: Carla Sealey	Hold technical seminar for local authority staff and other interested parties. [Output - Seminar]	31.3.95		

Middle Lee

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
ES/ML/16	Minimise the threat of pollution from towns and industry in the catchment. Contact: Julian Arikans	Continue to give advice on new development through the land use planning system. Carry out a pollution prevention campaign at Stansted Airport. Carry out a pollution prevention campaign at schools in Essex.	Ongoing 31.3.96 31.3.96		

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
ES/ML/24	To investigate perceived low river flows on the catchment in response to public concern, and to rectify the situation where possible to minimise their impact.	<p>Monitor water levels on the Stort Navigation and establish an agreement to ensure a balance between conservation and navigation interests.</p> <p>Contact: Di Butcher</p> <p>Inhibit the use of locks when water levels fall below minimum levels as indicated in above agreement.</p> <p>Contact: Di Butcher (for BW)</p> <p>Assess the overall impact of some major abstractions on the River Stort and report back.</p> <p>Contact: Mike Owen</p> <p>Monitor water levels on the River Ash and report back.</p> <p>Contact: Di Butcher</p>	<p>31.3.96</p> <p>Ongoing</p> <p>31.3.96</p> <p>31.3.97</p>		

CATCHMENT PLANNING TARGETS

Upper Lee

Issue No.	Objective	Action	Published/ actual completion date	Forecast / actual completion date	Comment on progress / outcome
CP/UL/S/1	<p>Establish a more natural hydrological regime in the River Lee by minimising flood flows and increasing dry weather flows.</p> <p>Contact: Craig Woolhouse</p>	<p>Review options for achieving an integrated programme of works to alleviate low flow / flood flow problems and improve watercourse quality. Aspects to be considered include: local (e.g. soakaways) and strategic (e.g. storage ponds) source control measures to increase groundwater recharge, minimise flood flows and reduce siltation; improvements to storm water overflows; impacts of lower volume storm flows and improved water quality on downstream reaches (inc. Luton Hoo lakes); data collection and modelling requirements; technical and financial feasibility. [Output - Report]</p> <p>Undertake technical analysis of surface water sewerage flows. [Output - Report and Computer Model]</p>	<p>31.1.95</p> <p>31.3.96</p>		

Issue No.	Objective	Action	Published/ actual completion date	Forecast / actual completion date	Comment on progress / outcome
CP/UL/S/4	Protect and enhance green space adjacent to the watercourse in Luton and Dunstable and progressively restore natural riverine features.	<p>Utilise local authority Town and Country Planning, NRA Land Drainage Consents and other relevant statutory controls to influence development decisions. [Output - Developments constructed which contribute to overall aim]</p> <p>Contact: John Meekings</p> <p>Assess opportunities for environmental enhancements (and flow reduction) of Houghton Brook in association with M1 widening work. [Output - Report]</p> <p>Contact: James Burstow</p>	<p>Ongoing</p> <p>31.3.95</p>		
CP/UL/S/6	Integrate voluntary, public and private sector initiatives to restore the River Lee.	<p>Prepare quarterly bulletin detailing proposed activities of public, private, and voluntary sectors to improve opportunities for joint working. [Output - Activity Programme]</p> <p>Contact: Craig Woolhouse</p> <p>Identify common ground between linked initiatives (eg Luton Nature Conservation Strategy, local plans, catchment plan). [Output - Report]</p> <p>Contact: Stuart Reilly</p> <p>Establish an annual forum to review progress and maintain impetus. [Output - Meeting]</p> <p>Contact: Craig Woolhouse</p>	<p>Ongoing</p> <p>31.3.95</p> <p>30.9.95</p>		

Issue No.	Objective	Action	Published/ actual completion date	Forecast / actual completion date	Comment on progress / outcome
CP/UL/S/8	Extend the range of informal recreation opportunities in the lower Beane Valley. Contact: Craig Woolhouse	Assess feasibility of developing a Beane Valley Way walk from Stevenage to Hertford and negotiating limited access for canoeing to lower Beane Valley. [Output - Report]	30.6.95		
CP/UL/S/10	Protect and enhance green space adjacent to the watercourses in Stevenage. Contact: John Meekings	Utilise local authority Town and Country Planning, NRA Land Drainage Consents, and other relevant statutory controls to influence development decisions. [Output - developments constructed which contribute to overall aim]	Ongoing		
CP/UL/S/12	Ensure land use change is not to the detriment of environmental qualities of the Mimram Valley.	Utilise local authority Town and Country Planning, NRA Land Drainage Consents, and other relevant statutory controls to influence development decisions. [Output - Developments constructed which contribute to overall aim] Contact: John Meekings Prepare land use planning policy to protect and enhance the valley from direct and indirect effects of urban and rural land use change. [Output - Policy statement for use by relevant authorities] Contact: Stuart Reilly	Ongoing 30.6.95		
CP/UL/S/19	Improve liaison and consultation between key partners involved in managing the water environment. Contact: Craig Woolhouse	Establish a formal liaison link between the NRA, local authority land use planners and key government agencies to pursue integrated land and water use management. [Output - Catchment Liaison Group meetings]	Ongoing		

Issue No.	Objective	Action	Published/ actual completion date	Forecast / actual completion date	Comment on progress / outcome
CP/UL/S/20	Develop and implement the principles of sustainable development. Contact: Stuart Reilly	Support work by local authorities on Local Agenda 21 actions (eg environmental audits, sustainability indicators) and land use / natural resource plans and strategies [Output - reports and data]	Ongoing		

Middle Lee

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
CP/ML/6	To influence and encourage sustainable development along the river corridor. Contact: Stuart Reilly	Produce an integrated land and water use strategy for the Stort corridor (Stansted Mountfitchet to River Lee).	31.3.97		
CP/ML/11	Ensure satisfactory flood protection is being offered by the Lee Flood Relief Channel to properties in Hertford, Ware and downstream to Feildes weir. Contact: Craig Woolhouse	Hydraulic studies to evaluate standards of flood protection achieved.	31.3.97		

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
CP/ML/22	To improve communications with external interested parties. Contact: Judith Gannon	Prepare and provide Annual Review of progress on CMP Action Plan. NRA Project Managers to liaise with archaeology section of County Council on significant works along river banks. NRA work programme to be made more widely available. NRA and British Waterways to hold quarterly liaison meetings.	31.3.97 Ongoing Ongoing Ongoing		
CP/ML/23	To encourage the development of integrated land and water use management. Contact: Craig Woolhouse	Establish a formal liaison link between the NRA, local authority land use planners and key government agencies to pursue integrated land and water management. Support work by local authorities on Local Agenda 21 actions and other natural resource plans and strategies.	Ongoing Ongoing		

REGIONAL SCIENTIFIC DEPARTMENT TARGETS

Upper Lee

Issue No.	Objective	Action	Published/ actual completion date	Forecast / actual completion date	Comment on progress / outcome
SCI/UL/S/11	Monitor and review status of the Mimram Valley through integrated environmental monitoring activities. Contact: Dave Leeming	Monitor and report on changes in the flora and fauna of the valley. [Output - Report] Prepare annual monitoring report covering the environmental status of the valley in order to identify areas requiring remedial action. [Output - Annual Monitoring Report]	30.9.95 30.6.95		
SCI/UL/S/16	Implement the NRA's Policy for the Protection of Groundwater. Contact: Ian Davey	Prepare and promote 1:100 000 maps showing aquifers to be protected and detailed maps showing areas associated with key boreholes which need protection. [Output - maps] Assess contamination at public supply sources and relate to land uses. Consider actions needed to prevent deterioration of groundwater and practicability of remedial action. [Output - Report] Prepare plan for the acceptable use of soakaways in urban areas. [Output - report and maps]	31.3.96 31.1.97 30.6.96		
SCI/UL/S/18	Implement action to protect and improve the water environment. Contact: Derek Tinsley	Undertake improvement works at Kimpton STW (River Mimram) to improve effluent quality. [Output - Construction works]	31.12.2000		

Middle Lee

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
SCI/ML/13	To assess the feasibility of re-establishing the native "white-clawed" crayfish. Contact: Dave Leeming	Look at the feasibility of reintroduction on the Rivers Rib and Ash. Work with fish farms to ensure isolation of non-native species.	31.3.97 31.3.98		
SCI/ML/17	To investigate the contribution to eutrophication from certain sewage treatment works. Contact: Dave Leeming	Assess and report on the eutrophic impact of Bishop's Stortford STW. Assess and report on the eutrophic impact of Buntingford STW.	31.3.96 31.3.98		
SCI/ML/18	To ensure all river reaches in the catchment consistently achieve their Short-Term River Quality Objectives. Contact: Derek Tinsley	Complete improvements at Hatfield Heath STW.	31.12.99		
SCI/ML/19	To consider the need for long-term River Quality Objectives in the catchment. Contact: Derek Tinsley	Obtain the views of the public and organisations with interest in the water environment through the Annual Review for the CMP.	31.3.97		
SCI/ML/21	To ensure protection of groundwater and public water supplies in the areas north of Hereford and Ware, where mineral extraction sites are to be restored by landfilling with wastes. Contact: Ian Davey	Discuss the way forward for these sites. Report back on decisions made. Carry out a risk assessment for the sites.	31.3.96 31.3.97 31.3.99		

REGIONAL TECHNICAL DEPARTMENT TARGETS

Upper Lee

Issue No.	Objective	Action	Published/ actual completion date	Forecast / actual completion date	Comment on progress / outcome
RTD/UL/S/15	Record, manage, protect and enhance the environmental qualities of the water environment in the Upper Lee. Contact: Richard Copas	Undertake Landscape Assessment of the River Lee. [Output - Report]	31.3.95		
RTD/UL/S/20	Develop and implement the principles of sustainable development. Contact: Hugh Howes	Evaluate the environmental capacity of the Herts sand and gravel belt. [Output - Report]	30.6.95		

Middle Lee

Issue No.	Objective	Action	Published / actual completion date	Forecast / actual completion date	Comment on progress / outcome
RTD/ML/2	Evaluate improvements to the flood monitoring network in order to improve the flood warning service provided by the NRA. Contact: Bryony May	Installation of telemetry in upper reaches of Pincey Brook and between Bishop's Stortford and Roydon. Carry out computer modelling to enable flood flow forecasting at Sheering Hall on the Pincey Brook.	31.12.99 31.3.96		
RTD/ML/9	To seek the most effective mechanism whereby the NRA may help to promote improved provision for a wide range of water-related recreational pursuits within the Lee Valley. Contact: Andrew Graham	Collate existing information on the recreational demand and provision/opportunity on the waterways and on gravel pits of the Lee Valley. Review past, current and planned recreational developments and assess need for co-ordinating role between the bodies involved in order to establish a strategy for initiatives. Evaluate the environmental capacity of the Herts sand and gravel pits.	31.3.96 31.3.97 31.3.96		
RTD/ML/20	To minimise the adverse impacts of surface water disposal on the water environment. Contact: Dave Rylands	Prepare a report on the preferred method of surface water disposal in different parts of the catchment.	31.3.97		