Natural Resources - Performance

THE CROWN ESTATE

In the following pages we report more specifically on what we are doing, and how we are performing, with regard to:

- Climate Change
- Waste
- Water
- Ecology
- Environmental Incidents

Natural Resources

There are limited natural resources to supply increasing demand – this has an impact on cost and stretches our supply chains.

We recognise that we not only have responsibility for natural resources on our land but also that we are reliant upon natural resources in our supply chain, particularly for our development activity. We have mapped the natural resources we depend on, together with the functions they deliver in order to better understand specific risks and opportunities associated with their ongoing availability and value to us and to society.

In line with our Total Contribution approach we have initiated pilot projects to value the ecosystem services that are delivered by natural resources. We have extended our original work on the valuation of natural resources at Windsor and this was used in the Natural Capital Committee's Corporate Natural Capital Accounting project, which was published earlier this year. The work enabled us to show the wider societal value generated by the Windsor Estate from its natural resources so that we can better understand its total contribution above and beyond the purely financial. In addition, we worked with the Prince's Accounting for Sustainability (A4S) team to produce an introduction for finance teams on natural and social capital accounting and its influence in decision-making. Development of this work will continue over the coming year and we are one of the organisations piloting the development of the Natural Capital Protocol (being overseen by the Natural Capital Coalition) to help build consensus on a harmonised framework for natural and social capital accounting.

We have also driven a number of initiatives on a more practical level. Soil quality standards have been introduced into our agricultural leases in order to encourage good soil management practices. Building upon our own supply chain standards, we have, over the last year, developed guidance for occupiers of our buildings who are carrying out fit-out work to help them to make more informed decisions on the construction materials they use.

Climate Change

Climate change is a material issue as it presents physical, financial and regulatory risk and opportunity to our business.

CLIMATE CHANGE

Target of a further 50 per cent improvement in carbon emissions intensity from a 2012/13 baseline for property under our direct control

Climate change is a material issue for The Crown Estate as it presents physical, financial and regulatory risk and opportunity to our business. In response our focus is on mitigation, adaptation and enabling the development of low carbon economy.

We continue to reduce our impact by addressing climate change in our decision-making, using tools for investments, development and property fit-out. On our rural and coastal portfolio we address climate change adaptation in our forest resilience programmes and recognising and incentivising good soil management.

Regulatory Landscape

We are working to further reduce our carbon impact and achieve our carbon emissions intensity target. Through our managed improvement programme we are exceeding the Energy Savings Opportunities Scheme (ESOS) requirements by not only undertaking the required audits but implementing the recommendations from these.

With regard to Minimum Energy Efficiency Standards (MEES) we are anticipating forthcoming changes and identifying an agreed strategy across all business areas on addressing impacts on EPCs.

Carbon Emissions Intensity

Our carbon emissions intensity (kgCO2e/m2 weighted and indexed to baseline 2012/13) improved by 4 per cent over the past financial year.

Considerable improvements of 22 per cent have been made on our St James's portfolio, and we expect these to be accompanied by improvements on other parts of the Urban portfolio where there is huge potential with the roll-out of significant energy efficiency initiatives.

Our emissions intensity now stands at 94 index points against a 2012/13 baseline of 100. Our target is to reach 50 index points by 2022/23. Due to the fluid nature of our portfolio, our performance is measured against carbon emissions intensity rather than absolute carbon emissions.

We have invested in renewable technology with 4.6 GW offshore installed capacity.

In addition, renewable energy is generated on our portfolio through on-shore technologies:

Solar PV Panels - 784kwh
Fuel cell - 1,735 kwh
Biomass - 121 kwh
Combined Heat and Power (CHP): 999 MWh

Renewable energy is also generated onshore through heat pumps, which have been widely installed across the Windsor estate.

Global GHG Emissions

Our total gross Scopes 1, 2 and 3 emissions for 2014/15 were 35,986 tCO2e, compared to 31,138 tCO2e in 2013/14 representing an increase of approximately 16%.

Table 1: Global GHG emissions data - Scopes 1 and 2

Global GHG Emissions Data - 1 April 2014 - 31 March 2015	Emissions (tCO2e)		
	2012/13	2013/14	2014/15
Scope 1 Direct emissions from fleet and the heating of buildings	5,789	6169	**6,442**
Scope 2 Emissions from generated electrcitity usage	20,054	21,201	**13,548**
Gross scope 1 and scope 2 emissions	**25,843**	**27,370**[1]	**19,991**
Emissions intensity (weighted kg CO_2e)[2]	100	98	**94**

Data note: We have used the GHG Protocol Corporate Accounting and Reporting Standard to calculate our emissions. This includes reporting all sources of emissions that are under our operational control.

1. Improved data management identified over-reported Scope 1 emissions at Charles House (St Jame's) by 927 tCO2e in 2013/14. This is now restated.

2. We have updated our intensity calculation methodology this year. However, we have not restated our baseline (2012/13) or previous year (2013/14) due to the extent of change.

Our understanding and measurement of indirect Scope 3 emissions from energy used exclusively by our tenants has improved. As a result emissions previously classed in scope 1 and 2 have been moved into Scope 3. Overall Scope 3 emissions have increased from 3,768 tCO2e to 15,995 tCO2e. Scope 3 emissions also include business travel, car hire, electricity transmission and distribution losses. Therefore our total gross scope 1, 2 and 3 emissions for 2014/15 were 35,986 tCO2e compared to 31,138 tCO2e in 2013/14.

Scope 1 and 2 Emissions

Compared to 13/14, Scope 1 emissions have decreased by 9%.

This reduction is partly due to the over-reporting of Charles House gas in 2013/14. There was also a decrease in the use of burning oils across Urban and the data for 2013/14 was over-reported for Rural.

Compared to 13/14, there was a decrease of 36% in Scope 2 emissions due to an improvement in our understanding and measurement of indirect Scope 3 emissions from energy used exclusively by our tenants. As a result, emissions previously classed in Scope 1 and 2 (e.g. tenant usage at Quadrant 3) have been moved into Scope 3. Despite this overall decrease in Scope 2 emissions, there has been an increase in electricity usage, due to:

- Inclusion of void usage which resulted in an increase in electricity usage.
- An increase in usage at Quadrant 3, due to issues with the fuel cell.
- More joint ventures joined the portfolio in 2014/15 such as Fosse.
- 10 New Burlington Place came online at the beginning of 2014/15.

We will continue to find ways to reduce our direct impact but we recognise that most of the emissions from our estate are created by others and are therefore outside of our direct control.

Moreover, through our Total Contribution we are measuring the emissions produced, avoided through renewables and sequestered by trees and plants over our entire estate, to help identify action to improve our overall carbon budget.

Figure 1: *Absolute GHG Emissions by Scope (tCO2e)*

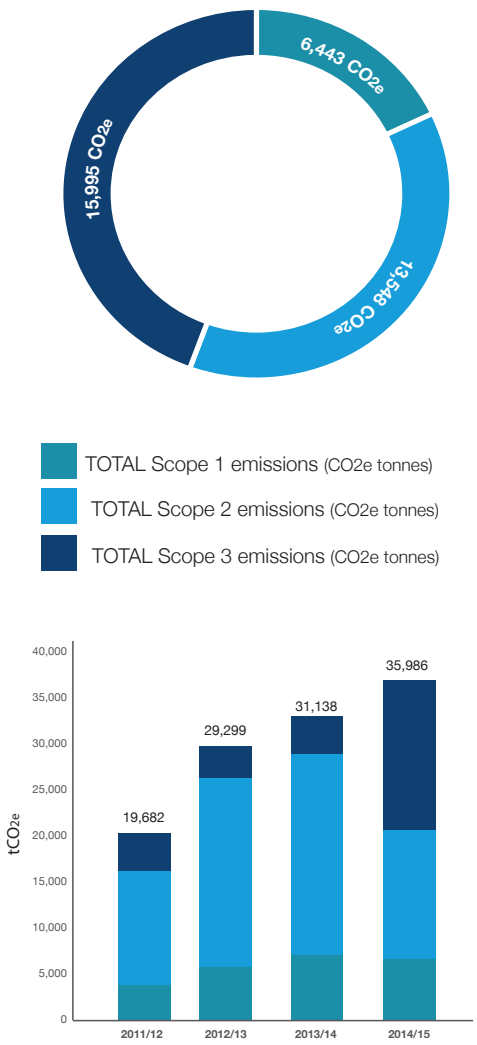


Table 2: Scope 1 energy consumption by primary energy source

Fuel Type (Gj)	Use	2010/11	2011/12	2012/13	2013/14	2014/15
Natural Gas	Consumed in buildings	76,419	60,593	98,522	103,145	112,991
Fuel Oil	Consumed in buildings	2,289	5,303	7,056	2,223	598
Petrol (gasoline)	Company fleet and machinery	136	704	60	44	334
Diesel	Company fleet and machinery	2,679	2,418	219	8,318	5,758
Diesel	Consumed at premises	-	-	417	672	13
Renewables	Consumed at premises	N/R	N/R	N/R	78	334
TOTAL		**81,523**	**69,018**	**106,274**	**114,480**	**120,028**

Data note: Lubricants have not been included in the direct energy consumption figures as it is not one of the fuels listed by the GRI performance indicator EN3 guidelines. Gas consumption that is burnt exclusively by the tenant has not been included as direct energy consumption since 2012/13 as under GHG Protocol rules it should be classed as indirect consumption. However, this distinction was not made in previous reporting years and all gas usage was classified as direct energy consumption.

Energy and Utilities

The following initiatives are proposed energy savings that are currently being planned or implemented at buildings within our urban portfolio.

Table 3: Energy savings initiatives at buildings within the Urban portfolio

Group	Action	Investment - £	Annual energy savings - Gigajoules	Annual emission reduction (tCO2e)	Being Implemented Planned or Implemented
Regional	LED Lighting Project	4,095	381	57	Being Implemented/ Planned
Regent Street	Lighting Project - Lighting Upgrade in Lift Car & Tenant Lighting Review	22,714	20	3	Being Implemented/ Planned
Regent Street	Light Project - New LED Lighting & Lighting Upgrade in Lift Car	50,162	111	15	Implemented
Regent Street	Building Management System (BMS) Upgrade	1,100	40	5	Being Implemented/ Planned
Regent Street	Variable Refrigerant Flow (VRF) Fancoils - Schedule and Operational Review	500	3	0	Implemented
Regent Street	Fresh Air Handling Unit (AHU) & Performance Review	2,200	39	5	Implemented
Regent Street	Electrical Supply Project - Tap Down Electrical Supply Voltage	3,003	241	33	Being Implemented/ Planned
Regent Street	Chiller Pumps Installation	14,722	17	2	Being Implemented/ Planned
Regent Street	Boiler System Control Optimization	4,650	14	2	Being Implemented/ Planned
Regent Street	2kWh Load Search - via on Site Surveys	800	5	1	Being Implemented/ Planned
Regent Street	Heating, Ventilating, and Air Conditioning System (HVAC) - Retro-commissioning and services survey	4,150	8	1	Being Implemented/ Planned
St James	Lighting Project - New LED Lighting	16	113	16	Implemented
St James	Lighting Project - Implement Presence Detector (PIR) in toilet areas	0	0	0	Being Implemented/ Planned
St James	Chiller Fans & VFD compressor optimization	1	7	1	Implemented
St James	Domestic Hot Water (DHW) optimization	0	3	0	Being Implemented/ Planned
St James	Fan Specification Review	0	1	0	Being Implemented/ Planned
St James	Building Management System (BMS) Upgrade	4	26	4	Being Implemented/ Planned
St James	Air Handling Unit (AHU) Controls Re-Commission	0	3	0	Being Implemented/ Planned

Table 4: Expenditure on utilities

Expenditure on utilities (£)	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Electricity	£2,571,972	£3,306,290	£3,425,902	£4,980,595	£5,122,156	£5,877,915
Gas	£314,640	£648,372	£556,756	£829,594	£1,126,245	£927,612
Oil	£13,667	£65,554	£77,347	£111,661	£18,696	£14,187
Diesel	N/R	£128,501	£-	£-	£-	£-
Total	**£2,900,279**	**£4,148,718**	**£4,060,005**	**£5,921,850**	**£6,267,097**	**£6,819,714**

This measure covers the expenditure on energy for the majority of buildings for which we purchase energy, therefore the figures do not relate exactly to those used to calculate carbon emissions. Expenditure on energy sources for business travel, fleet, equipment and non-directly managed buildings are not included in these figures.

Waste

This year we have achieved our target of diverting 100% of operational waste from landfill.

WASTE

Target to reuse or recycle 90 per cent of non-hazardous waste from all new build and major refurbishment projects.

Target for zero operational waste to landfill where we have control by 2016.

Operational Waste

On our Windsor estate our waste management programme has been so successful that we have been able to encourage some of our tenants to also use it.

This year, for the first time, we have achieved 100% diversion from landfill of operational waste (from properties where we have access to data). We are not able to collect data from all of our Urban properties, only those where we have been able to influence tenants to use our waste contractors.

Figure 2: *Operational Waste Generated (in tonnes) and Proportion Diverted from Landfill*

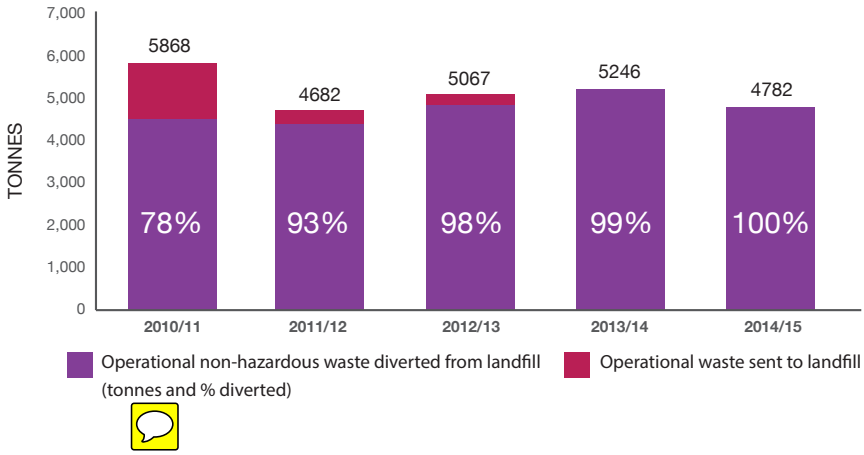


Table 5: Operational waste (tonnes) and percentage diverted from landfill

Operational waste (tonnes) and percentage diverted from landfill	2010/11	2011/12	2012/13	2013/14	2014/15
Waste generated from from buildings under our control (tonnes)	5,868	4,682	5,067	5,246	4,782
No. urban properties to which this data applies	37	31	34	39	26
No. of other properties to which this data applies	2	5	6	6	2
Non hazardous waste sent to landfill (tonnes)	1,380	333	96	68	-
Waste diverted from landfill (tonnes)	4,489	4,341	4,965	5,168	4,782
Hazardous waste (tonnes)	124	8	6	10	26
Percentage of non hazardous waste diverted from landfill	78%	93%	98%	99%	100%
Avoided landfill costs (£)	215,461	243,078	317,773	372,109	382,529
Landfill tax costs paid (£)	66,222	19,119	6,534	5,611	-
Total waste costs (£)	**572,328**	**460,147**	**519,830**	**772,296**	**616,348**

Data note: Prior to 2011/12, the operational waste sent to landfill category included hazardous waste sent to a hazardous waste treatment facility. In 2011/12 onwards, this is excluded from this category.
Total waste for the St James's portfolio on the urban estate has been unavailable sine 2012/13 onwards.

Table 6: Operational Waste - Total weight of waste by disposal method (tonnes)

Disposal Route	2010/11	2011/12	2012/13	2013/14	2014/15
Hazardous waste treatment facility	124	8	6	10	26
Landfill (Non-hazardous or inert)	1,256	333	96	68	-
Incineration off-site (with energy recovery)	560	645	1,062	844	662
MRF (Materials Recovery Facility)	2,941	2,516	2,816	3,401	3,636
Recycled (following on-site segregation)	793	998	532	266	216
Urban Composting (on/off) -site	194	161	449	596	227
Re-use off-site	-	21	107	62	-
Not specified	-	-	-	-	-
TOTAL	5,868	4,682	5,067	5,246	4,766
Composting on-site (Windsor estimate)	17,000	17,000	15,500	17,500	20,300

Data note: Costs are calculated on tonnage going to landfill and landfill costs applicable in each year.
Prior to 2011/12, the operational waste sent to landfill category included hazardous waste sent to a hazardous waste treatment facility. In 2011/12 onwards, this is excluded from this category.

Construction Waste

Significant amounts of waste are generated through our supply chain, particularly through construction. We are working with our contractors to minimise generation and to increase reuse and recycling using our Development Sustainability Principles.

Figure 3: *Construction waste (tonnes) generated and proportion diverted from landfill*

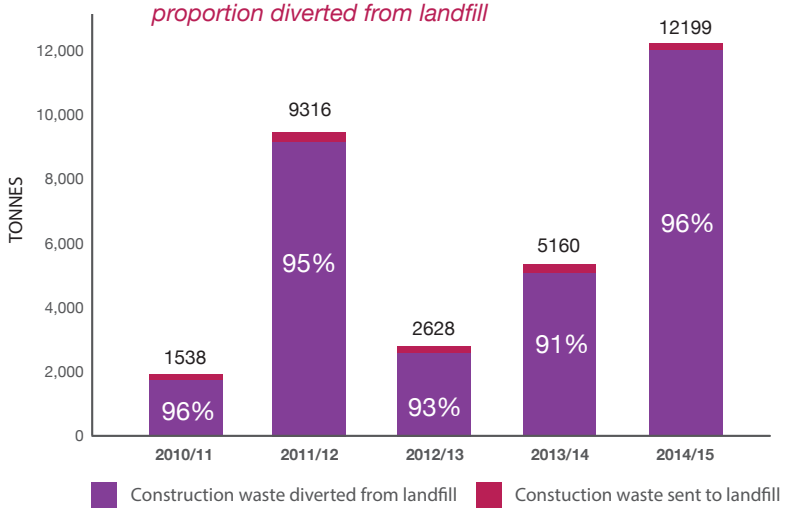


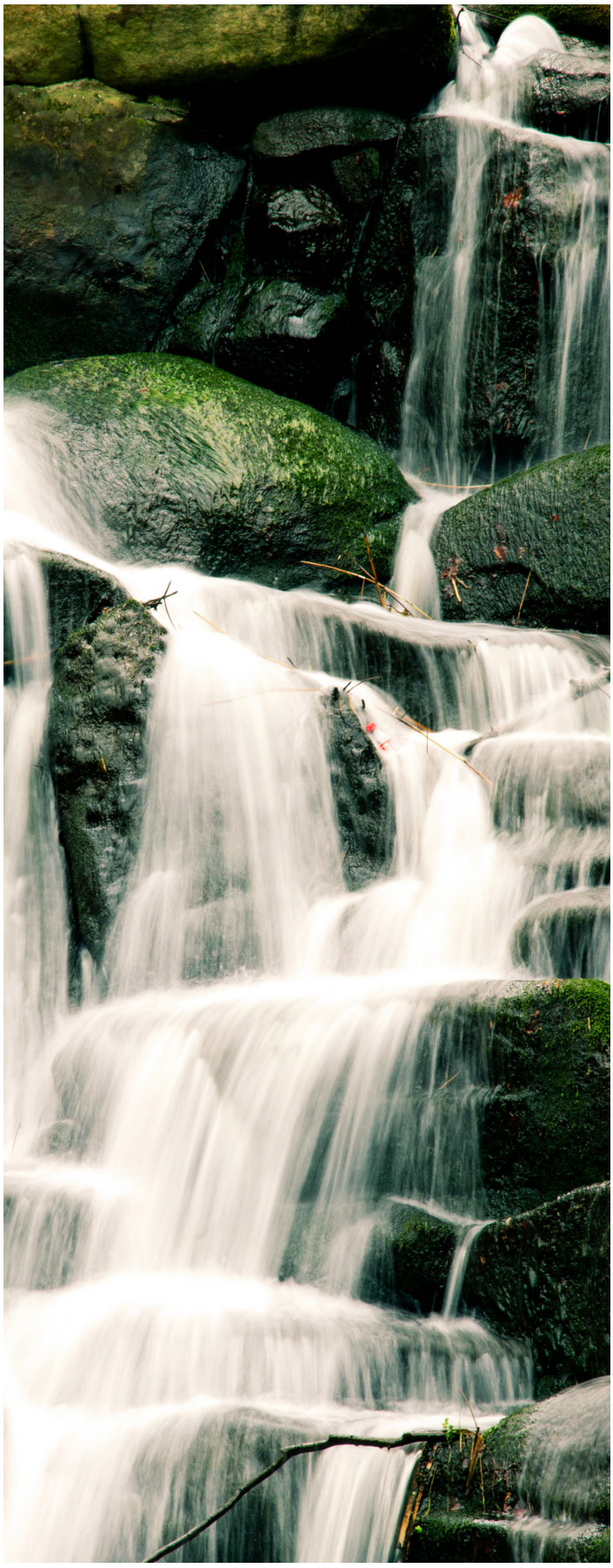
Table 7: Construction waste (tonnes) and percentage diverted from landfill

Construction waste (tonnes)	2010/11	2011/12	2012/13	2013/14	2014/15
Construction waste generated	1,538	9,316	2,628	5,160	12,199
Number of projects	6	7	5	6	9
Constuction waste sent to landfill	57	428	183	475	497
Construction waste diverted from landfill	1,481	8,888	2,445	4,685	11,701
% diverted from landfill	96%	95%	93%	91%	96%
Avoided landfill costs (£)	71,069	497,731	156,469	337,296	936,100
Landfill tax costs paid (£)	2,758	23,974	11,702	34,223	39,780

Table 8: Construction Waste - Total weight of waste by disposal method (tonnes)

Construction waste: total weight of waste by disposal method (tonnes)	2010/11	2011/12	2012/13	2013/14	2014/15
Hazardous waste treatment facility	21	0	-	225	-
Landfill (Non-hazardous or inert)	36	428	183	475	12
Incineration off-site (with energy recovery)	-	-	6	-	37
MRF (Materials Recovery Facility)	1,328	8,830	516	-	907
Recycled (following on-site segregation)	152	58	1,922	4,460	-
TOTAL	**1,538**	**9,316**	**2,628**	**5,160**	**956**
% diverted from landfill	98%	95%	93%	91%	99%
Number of projects	6	7	5	6	3

Data note: Costs are calculated on tonnage going to landfill and landfill costs applicable in each year. In 2014/15 the construction waste breakdown was only available for 3 of the 9 projects. These projects were Quadrant 2, Project Hilt and 21 Glasshouse St.



Water

Water consumption is a Key Performance Indicator.

WATER

We need to work collaboratively with our tenants, other landowners, utility companies and Government agencies to tackle the issues of flooding, drought and the availability of clean water.

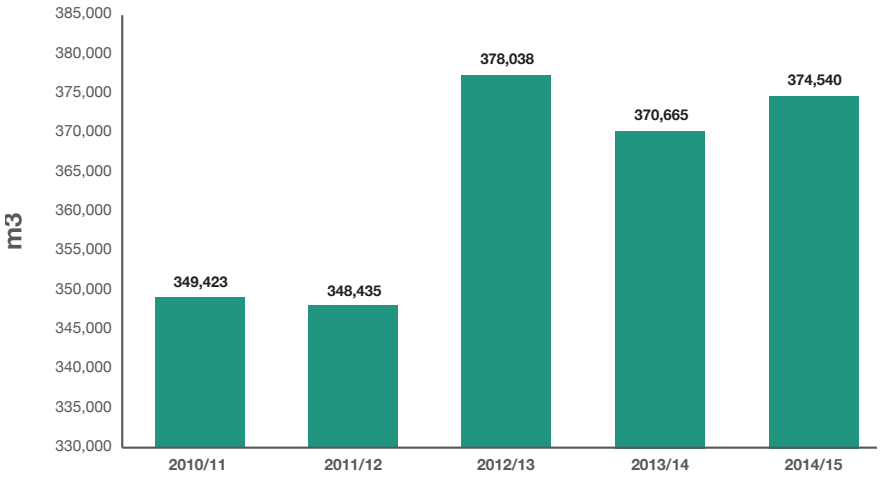
Water Consumption

The following data relates to our direct water consumption. The vast majority of the properties for which we have data contain office and retail space where water consumption is relatively minimal and comes from mains supplies. However, there is greater use on the Windsor estate.

Water efficient equipment is installed in line with refurbishment cycles and tenants are encouraged to specify water efficient sanitary fittings, identify and manage leaks and set targets for their operational consumption in the Fit Out guides that we have developed.

Following a programme of mains pipe renewal at Windsor a couple of years ago, we undertook a water meter mapping programme to better understand our water use there. As a result we have installed a system giving remote access to meter readings (saving time in manual reads across the estate), and enabling us to monitor water usage more accurattely and identify potential areas of leakage. Working with our suppliers we can now respond quickly to leakages and greatly reduce precious water losses across the estate.

Figure 4: Absolute Water Consumption (m3)



Data note: In our office in Scotland, water is charged via the rates bills, and since these are advanced payments we are unable to collect accurate data on consumption.

Table 9: Total water withdrawal by source (m^3)

Total water withdrawal by source (m3)	2010/11	2011/12	2012/13	2013/14	2014/15
Water from municipal water supplies	349,423	348,435	378,038	370,665	374,540
Water from surface water	N/R	N/R	N/R	N/R	N/R
Water from rainwater harvesting	19	80	190	740	2,543
Total water withdrawal	**349,442**	**348,515**	**378,228**	**371,405**	**377,082**

Data note: Rainwater harvesting data relates to the systems in place at Tennyson House (Cambridge Business Park), Crowngate Shopping Centre (Worcester), 16 New Burlington Place (Regent Street, London) and One Vine Street (Regent Street, London). In 2014/15 a rainwater harvestng system came into operation at One Vine Street adding 1,711 m^3 to that already collected..

Water Stress

We have mapped our entire estate against water stressed areas. Working with our managing agents we aim to understand our local impact more accurately. Focussing on areas of greatest impact we will develop action plans to mitigate our impact.

Table 10: Estates in water stressed and severely stressed areas

	Total No. estates	No. estates in stressed and severely stressed areas	% of estates in stressed areas
Urban	62	50	81%
Rural	55	36	65%
Windsor	1	1	100%
Total	**118**	**87**	**74%**

Ecology

Our ambitious Ecological Masterplan is set to develop an ecological corridor across the West End of London.

ECOLOGY

50% of SSSIs on the rural and Windsor estates in England (8,666 ha) will be in 'favourable' condition, while maintaining at least 95% in 'favourable or recovering' condition, in line with the Government target (2020).

Ecological Masterplan

We have developed an Ecological Masterplan for the West End of London. This exciting initiative is set to develop an ecological corridor connecting St James's Park with Regent's Park, along Regent Street and in St James's by implementing biodiversity-enhancing features within our new developments and existing assets where feasible. In order to increase the impact of this, and create greater value, we are working in partnership with adjacent landowners, and have consulted widely with a range of stakeholders at national, regional and local levels.

Sites of Special Scientific Interest

We continue to have a proactive programme for the good management of our natural resources. This includes working to bring 50 per cent of our 8,500 hectares (21,000 acres) of Sites of Special Scientific Interest (SSSIs) into 'favourable' condition by 2020, in line with the Government target.

Currently 42 per cent are in 'favourable' condition with 98 per cent being in 'favourable or recovering' condition.

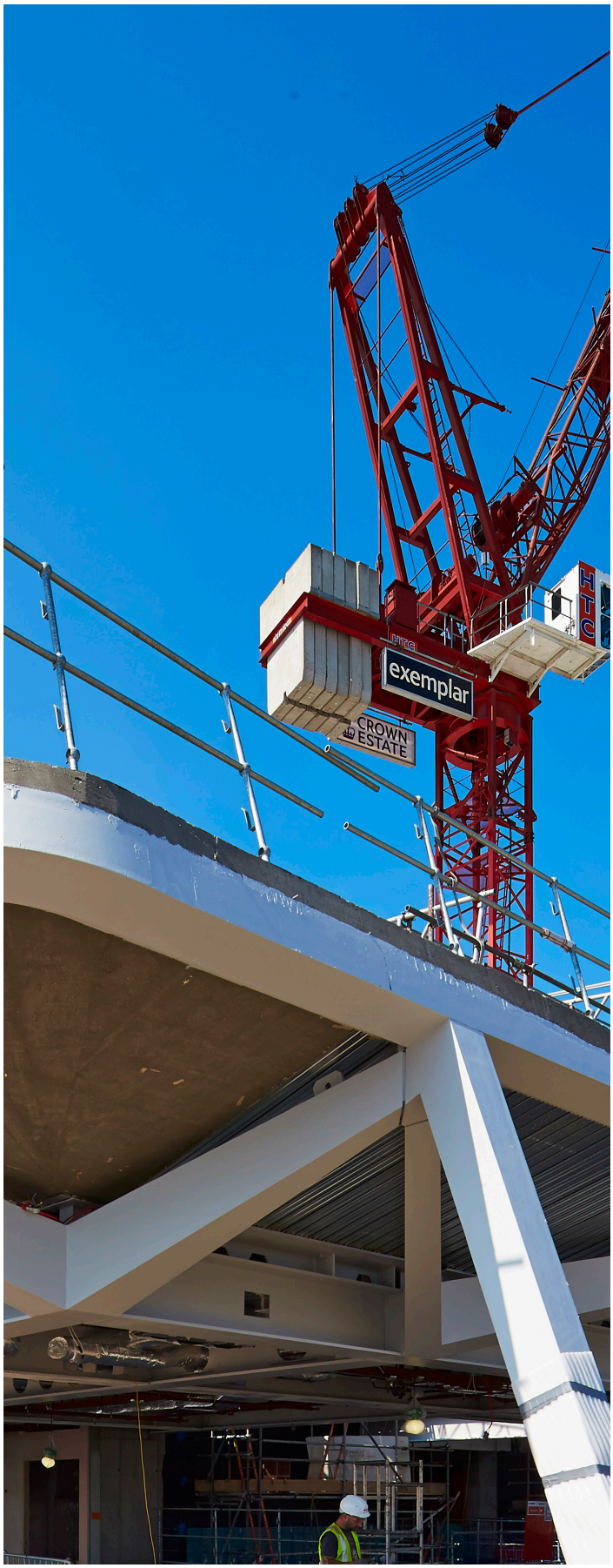
As part of this work we have cleared another 92 hectares (227 acres) of the invasive rhododendron at Windsor and Dunster and undertaken scrub control work on 15 hectares (37 acres) of Hopcott Common at Dunster to benefit the endangered heath fritillary butterfly.

Given the extensive improvement programme we have in place, Natural England expects us to exceed the 50 per cent target. Our 10,000 hectares (24,700 acres) of forestry is managed under a multi-purpose policy, integrating the conservation of wildlife, timber production and public access and all is Forestry Stewardship Council (FSC) certified.

Table 11: Proportion of SSSIs meeting Government targets

	2010/11	2011/12	2012/13	2013/14	2014/15
English rural portfolio (including the Windsor Estate)	98%	98%	98%	98%	98%
Percentage of SSSIs in favourable condition	41%	42%	41%	42%	42%
Percentage of SSSIs in recovering condition	57%	57%	57%	56%	56%

Data note: Data includes the English rural portfolio (including Windsor). Coastal SSSIs are excluded as these often span a number of ownerships apart from the strip of foreshore under The Crown Estate's control.



Environmental Incidents

We had no reportable environmental incidents in this reporting period.

ENVIRONMENTAL INCIDENTS

We believe it is important to track reportable and non-reportable environmental incidents to identify trends and make improvements.

Table 12: Environmental incidents

Environmental incidents	2010/11	2011/12	2012/13	2013/14	2014/15
Number of reportable incidents	0	0	0	2	0
Number of non-reportable incidents	5	7	2	9	2
Cost of environmental fines (£)	0	0	0	0	0

Data note: Reportable environmental incidents are those which are reportable to the Environment Agency.
Types of incidents which require reporting to the Environment Agency are outlined on the following Environment Agency webpage: https://www.gov.uk/report-an-environmental-incident

We have had no reportable environmental incidents again for the sixth year running. However we believe it is important to track non-reportable incidents to identify trends and make improvements. We have had two this year:

- A slow burning chimney fire which spread to the roof of the uninhabited cottage following a small gust of wind.
- An oil spillage in a car park in Harlow. No oil entered the sewage systems. Specialist contractors cleaned the area professionally.