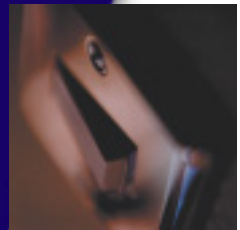


Taylor Woodrow Construction

Jade Hunt - Environmental Manager

Site Waste Management Plans

24 January 2008



Introduction to Taylor Woodrow

- Public including Health & Education
- Complex Residential & Offices
- Retail
- Rail
- Airports
- Energy
- Facilities Management



Environmental Management

- Achieved accreditation to ISO14001 in 2001
- Certified by LRQA
- Environment & Community Management Plan including Waste Management Plan
- Annual waste volume objectives since 2004



Original Site Waste Management Plan

Waste Generator	Types of Waste Created	Waste Category (EWC)	Waste Owner on Site	Waste Management Strategy	Waste Contractor	Carrier License No.	End Point Name & License No.	Waste included on End Point Schedule?
TWC	Canteen / office	Non-haz 20 03 01	TWC	Placed in wheelie bins	Amber Services	SEW 697610	Dyffryn EAWML / 30239	Yes
TWC	Sanitary waste	Non-haz 20 03 01	Secretary	Waste removed to suitably licensed facility	Phs Group plc	SEW 698036	Eurocare Environmental (Sterile Tech. Ltd) EAWML34185	Yes
CGC	Concrete	Inert 17 01 01	Supervisor	Crushed and re-used on site	Churrgold Construction	WML exemption & IPPC permit apply	N/A	N/A
CGC	Scrap metal	Non-haz 17 04 07	Supervisor	Segregated and removed from site for recycling	Sims Metal UK or	BLS 345141/ CB	Rover Way 94/04	Yes
					E W Gardener & Grandson (for Sims)	AVN 026331/ CB	Rover Way 94/04	Yes
CGR	Hydrocarbon contaminated soils	Haz 17 05 03	Supervisor	Bio-remediated and re-used on site	Churrgold Remediation	Management License no. EAWML26051	N/A	N/A
CGR	Asbestos contaminated soils	Haz 17 05 03	Supervisor	Removed to suitably licensed landfill	Biffa Waste Services	TWE672683/ CB	Trecatti No. 930127	Yes

Original Site Waste Management Plan (2)

- Format in use since 2001
- Minimum requirements:
 - Description of waste minimization activities including materials storage, re-use, segregation & recycling
 - Project-specific waste target (volume & cost)
- Additional information:
 - Forecast of waste quantities over programme
 - Duty of Care information
- Waste data monitored via SMARTStart for new-build waste



Implementation of SWMPs

- Project Manager responsible for development of Environmental Plan & Waste Plan
- Environmental training
- Project support from Environment & Sustainability Team
- Monitoring against target at project & company level
- Internal environmental audits



Recent Changes

- SWMP Regulations
 - More detail required
 - Requirement to develop during design stage
 - Prediction of quantities of different waste streams
 - Legal Responsibilities
- MCG waste monitoring requirements
 - Percentage waste diverted from landfill
 - Inclusion of demolition & excavation waste



Response to changes

- New format & procedure for SWMPs
- CIWM Waste Awareness Certificate (Construction)
 - Taylor Woodrow staff trained to deliver course internally & externally
 - Construction Managers as priority: mandatory training
 - Roll out to wider teams including:
 - Estimating & Planning Team
 - Supply Chain
 - Client Teams
 - Other Project staff e.g. Project Managers, Design Managers etc

Embedding the SWMP process (1)

- Presentation to Directors
 - Current waste performance
 - Proposed SWMP Regulations
 - Proposed CIWM Waste Awareness Certificate training
 - Waste Awareness 'launch' via internal newsletters
 - Internal support to projects



Embedding the SWMP process (2)

- Waste Awareness Certificate training launched in November 2007
- Training completed for:
 - 20 Construction Managers
 - 10 Project Managers
 - 11 Engineers
 - 19 others (60 in total)
- Six more courses due by end March 2008
- Includes delegates from Skanska, Lafarge & Premier Waste

Embedding the SWMP process (3)

- New SWMP template & procedure available via intranet
- Online guidance on waste management
- Support from Environment & Sustainability Team
- Waste Advisory Service
- Environmental Added Value tool
 - Emphasizing cost benefits
- Environmental & Safety audits to check implementation
- Project Manager's Incentive Scheme used to encourage implementation



Success of SWMP implementation

- Previous format had variable success influenced by:
 - Client aspiration
 - Project team attitude
 - Incentivisation
- Production of SWMP – successful
- Attention to waste monitoring – variable



Case Study - Cardiff International Sports Village Remediation

- 70,000m³ hydrocarbon contaminated soils
- 12,000m³ Japanese Knotweed contaminated soils
- 2,500m³ bentonite impacted soils
- 50,000m³ material required for dynamic compaction mat
- Cut & fill to historical landfill
- Sheet pile anchor system required 4690m steel anchors

- Project target for off-site waste disposal **3805m³**



Case Study - Cardiff International Sports Village Remediation (2)

- The SWMP as a tool to aid consideration of alternative methods of waste management, e.g.
 - In-situ & ex-situ bioremediation of hydrocarbon contamination (£1m compared to £7m for off-site disposal which was not viable)
 - On-site treatment of JK soils (£45k compared to £500k for off-site disposal)
 - WMLE for re-use of bentonite material
 - Progressive re-use of 15,000m³ site-won demolition material for DC mat
 - WMLE for cut & fill of landfill
 - Surplus steel oil pipes sourced for sheet pile anchors, saving 4690m of new steel production



Case Study - Cardiff International Sports Village Remediation (3)

- Project target for off-site disposal
 - 3805m³
- Actual volume of off-site disposal
 - 3500m³ (including 850m³ unforeseen waste)



Summary

- Previous performance satisfactory
- New emphasis on SWMPs and waste awareness
 - Significant drive to improve performance
 - Backing from top management to become industry leaders
 - Incentivisation via bonus scheme
 - League table of project performance – promote competition!

