

Your ref:

Our ref: 5127695/Cornwall Drive/Volumetric /001

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8th Jan 2014

Dear Paul

Cornwall Drive: Volumetric Stockpile Survey

As outlined within the Atkins fee proposal ref: Waste Volume, Type Assessment and Air Emissions, issued on the 12th December 2013, this letter report provides the Environment Agency with the details associated with the volumetric survey, undertaken by Atkins sub-consultant: Warner land Surveys Ltd. (WLSL).

The aim was to topographically survey the site (waste stockpile) to determine volume of waste residing within the limits of the site boundary. Two surveys are to be undertaken, this being the first. The second is estimated to take place in February 2014. Based on the fee proposal the scope of work is outlined below.

Scope

WLSL will send a two man survey team to the site with the aim of scanning the waste stockpile within the site boundary.

From the scanner point cloud (used to survey the stockpile), WLSL will ascertain the individual stockpile volumes and tabulate their findings on an AutoCAD drawing. The results of the survey will be placed on to an Ordnance Survey (OS) base map.

The 2D 1:200 contoured plan of the site will show the site boundary, location of site office and a grid of levels across the site at 15 m intervals.

As an additional quality assurance check, WLSL will produce a minimum of one section through the stockpile and present this as part of the deliverable. All site levels will be related to OS Datum using GPS. A minimum of two permanent control points will be left on site in a suitable location for future measurements. WLSL will laser scan the area using a Leica high definition laser scanner. This will produce a rich point cloud containing all data visible from the scanner position; a number of scans may be taken from different locations to capture all detail. These point clouds (once geo-referenced and 'tied' together) will be used to create the final drawing.

Site Works

The survey was undertaken on the 19th December 2013 by WLSL, also in attendance was the Environment Agency (Paul Clark and Nina Smith) and Atkins (Gareth Williams, Jacqueline Fitzgerald and Jonathan Evans).

Prior to the works it was noted that whilst there was good access to the majority of the stockpile, access and more importantly line of sight for the equipment was restricted on the stockpile's eastern face. However, as can be seen from the output of the survey, a number of points were obtained in order to provide an estimated volume.

Results

Following the survey, the data collected is contoured and the volume calculated. In order to ascertain a volume an assumption had to be made that the base of the stockpile is on a flat and level base. The level of the land immediately surrounding the stockpile was recorded at 32.80 m above ordnance datum (AOD). The results of the survey are as follows:

- Stockpile area: 3,085 m²; and
- Volume of stockpile: 20,100 m³.

The completed topographic survey and cross section (along with a record of the data issued) is presented in Appendix A.

Following the second survey, anticipated to be in February 2014, an updated letter report and volumes shall be provided. In the meantime, should you have any queries, please do not hesitate to contact me.

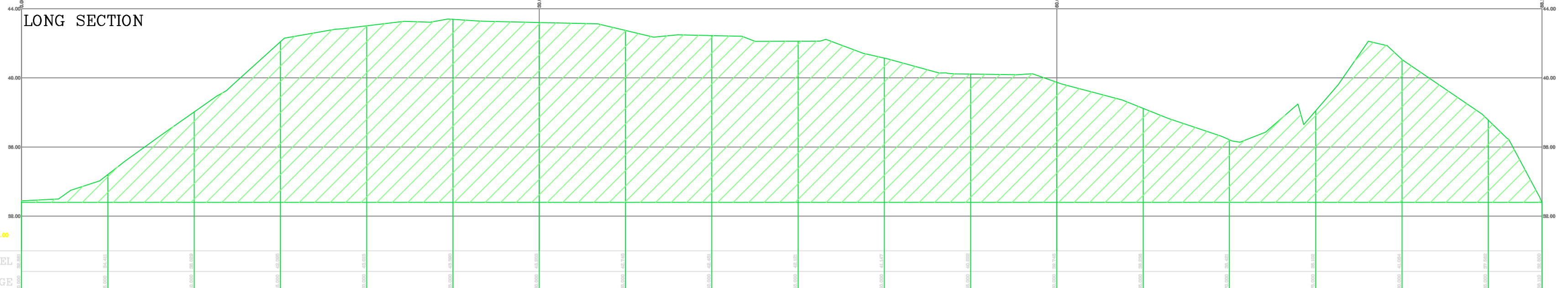
Yours sincerely

Jonathan Evans
Principal Consultant

Appendix A

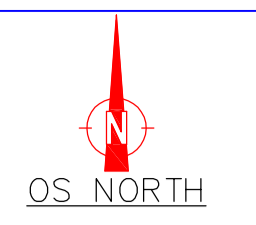
Drawings

|



Scales:
 Horiz. 1:100
 Vert. 1:100

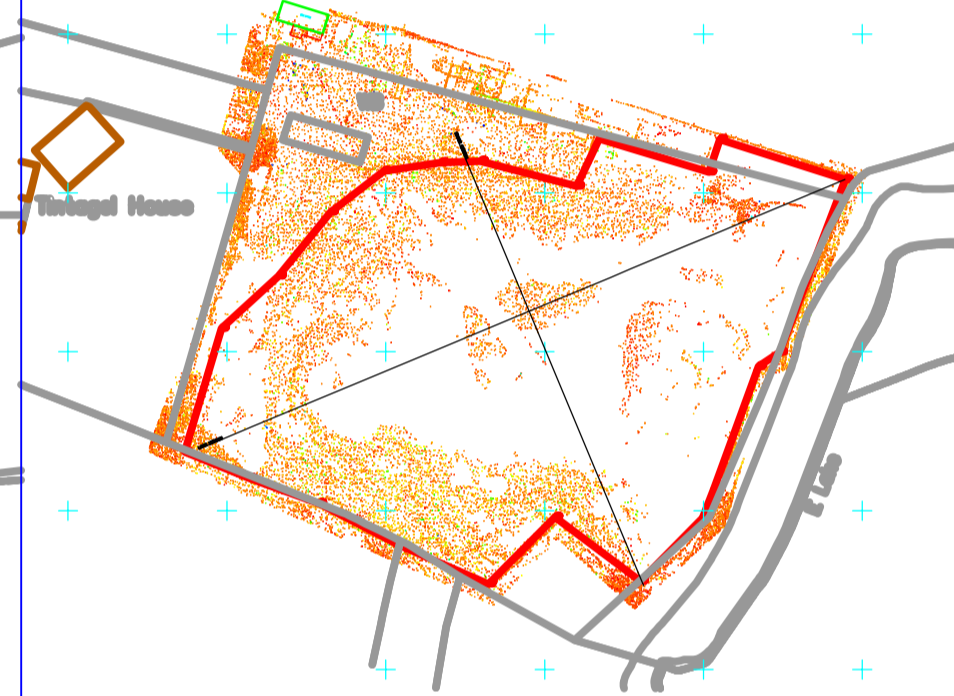
DELTA 00.00
 LEVEL
 CHAINAGE



Topographical Abbreviations

A/R	Assumed Route	MKR	Marker
BH	Borehole	MT	Mercury Telecom Cover
BOL	Bollard	OHC	Overhead Cable
BT	British Telecom Cover	OHP	Overhead Pipe
BW	Barbed Wire Fence	OSEB	Ordnance Survey Bench Mark
BWK	Brickwork	PB	Post Box
CATV	Cable TV Cover	PGM	Permanent Ground Marker
CB	Close Boarded Fence	PR	Post & Rail Fence
CCTV	Closed Circuit TV	PWF	Post & Wire Fence
CHLK	Chainlink Fence	PWM	Post & Wire Mesh Fence
CHPL	Chestnut Paling Fence	RE	Rodding Eye
CL	Cover Level	RG	Road Gully
CM	Cable Marker	RN	Road Name
CP	Catch Pit	RS	Road Sign
CPL	Catch Pit Base Level	RW	Retaining Wall
DIA	Diameter	RWP	Rain Water Pipe
DK	Drop Kerb	SAP	Sapling
DP	Down Pipe	SC	Stop Cock
EJB	Electricity Junction Box	SPR	Spread
EC	Electricity Cover	STA	Traverse Station
EP	Electricity Pole	SV	Stop Valve
ER	Earthing Rod	SVP	Soil Vent Pipe
FH	Fire Hydrant	SW	Storm Water
FIG	Feed Into Ground	TB	Telephone Box
FW	Foul Water	TBM	Temporary Bench Mark
G	Gully	TFR	Taken From Records
GV	Gas Valve	TJB	Telephone Junction Box
HT	Height	TPT	Trial Pit
IC	Inspection Cover	TL	Traffic Light
IL	Invert Level	TP	Telephone Pole
IR	Iron Rolling Fence	UTL	Unable To Lift
KO	Kerb Outlet	UTT	Unable To Trace
LB	Litter Bin	VP	Vent Pipe
LC	Lamp Column	WKH	Water Key Hole
LP	Lamp Post	WM	Water Meter
MH	Manhole	WV	Water Valve

Scanned Survey Points (blank areas show parts that we could not scan due to lack of visibility)
 Not to Scale



Notes
 The Grid is related to OS using GPS.
 All Levels are related to OS using GPS.
 — Extent of Heap Volume
 BASE LEVEL for Volume Taken as 32.80m across whole area
 Fill Area = 3,085 sq m
 Fill Volume = 20,100 cu m

5	-	-	-
4	-	-	-
3	-	-	-
2	-	-	-
1	SGW	Sections Added	07/01/2014
0	SGW	First Complete Issue	06/01/2014
Prelim	-	Preliminary - Not Complete	-
Rev	QA Check	Description	Date

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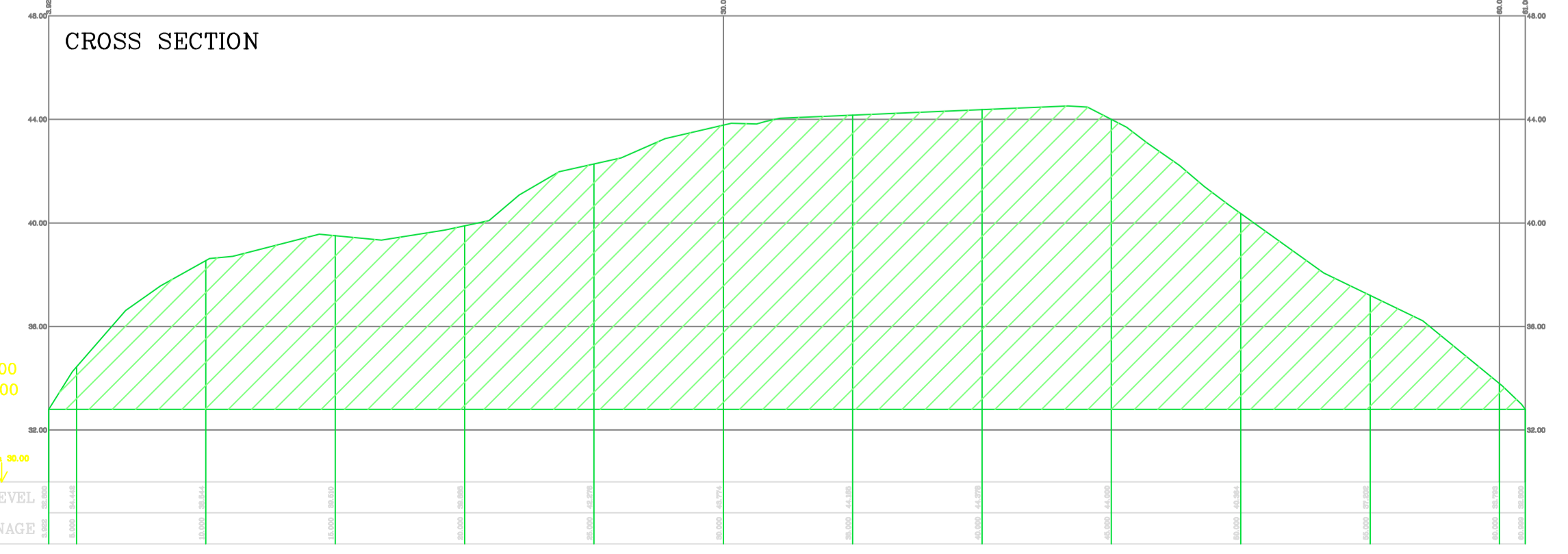
SURVEYED	WLSL	Atkins Global
DRAWN	WLSL	
SCALE	1:200	

Waste Transfer Stn, Cornwall Dr, Orpington

VOLUME SURVEY

JOB No	DRAWING NUMBER
S913/0374	S913/0374/P/0001

A1 Sheet - 841mm X 594mm



Scales:
 Horiz. 1:100
 Vert. 1:100

DELTA 00.00
 LEVEL
 CHAINAGE

