



SRC Aggregates to Host Sand and Gravel Plant Demonstration Days

SRC Aggregates will hold open days at their site at Highwood Quarry, Great Dunmow, to demonstrate how their washing plant is successfully processing natural sand and gravel from clay contamination.

The demonstration days will take place from 17th-19th September 2013 and visitors from all over Europe will attend the event. “We have had significant interest from companies all over the UK and across Europe and look forward to welcoming them to Highwood Quarry. We are eager to showcase the plant and demonstrate its processing capabilities to our international visitors” says David Hunter, Director at SRC. The 150tph washing plant from CDE Global was installed in September 2012 and includes an EvoWash 151 sand washing plant, an AggMax 151 integrated scrubbing system and an AquaCycle A400 thickener. The plant is processing natural sand and gravel from clay contamination and producing 4 sand and aggregate products which are supplied to both major aggregate companies and smaller independent businesses in Essex.

Essex County Council granted planning permission in March 2011 for the extraction of sand and gravel at Highwood Quarry on the Easton Park Estate. The Easton Park Estate is of great historical interest as it was owned by the Earl and Countess of Warwick in the nineteenth century and was used as an American airbase during World War II. Prior to planning permission being granted in 2011, Highwood Quarry had long been identified as being suitable

to contribute to the mineral needs of Essex. It is of vital importance for the UK to utilise locally produced mineral resources to ensure an adequate supply of aggregates to the construction industry.

Highwood Quarry will operate a phased extraction of sand and gravel over a period of approximately 15 years. The process of “progressive restoration” at the quarry will minimise the size and impact of the operational area at any given time. Once the extraction process in each phase comes to an end, it will be returned to farmland, both arable and pasture, in keeping with the character of the surrounding landscape. The site restoration scheme has been devised in conjunction with the RSPB, Natural England and the Essex Wildlife Trust. The operation at HighWood Quarry will create 10 new jobs and provide raw materials for the construction of new homes, schools, roads and hospitals county wide.

Visitors to the SRC open days will have the opportunity to take a tour of the CDE plant and observe the washing process starting from the clay contaminated raw material to the final washed products. There will be representatives from both SRC and CDE onsite to answer questions about the washing process and SRC’s experience with the plant in the year since its

installation.

The Process

Material is delivered to the plant via an underground L35 Hopper. The Hopper is situated below ground and is one of only two that CDE have installed in this way. “The drive-over Hopper ensures reduced fuel costs as our wheel loaders do not use extra fuel climbing a ramp before they tip” says SRC Site Manager John Hilton. “We have taken several measures to comply with planning permission and reduce the impact of the operation in the local area, including new access roads to the site to avoid heavy vehicle traffic, installing the plant in an excavated area to minimise visibility and adding 3m high bunds around the extraction area to screen local views of the quarry. The underground Hopper is also more compact than one at ground level ensuring that we are further meeting our planning requirements by reducing the footprint of the washing plant.”

From the Hopper, the material travels up a 34m feed conveyor before it enters the AggMax 151. The AggMax system allows for the primary screening and high attrition scrubbing of claybound material and is used in CDE projects where significant clay contamination is present. Material is discharged to the ProGrade P2-75 double deck pre-screen. The top deck removes the +40mm oversize material which is stockpiled using a 4m wing conveyor. 5-40mm material passes through to the lower deck and is transferred to the RotoMax logwasher. Meanwhile the -5mm particles are transferred to the EvoWash sand washing plant for further processing.

The 5-40mm washed aggregate enters the RotoMax where two counter rotating spiral shafts scrub the claybound material. This attrition liberates more -5mm material and, along with lightweight contaminants, this is floated off at the rear of the unit. The lightweight contaminants which include plastics and wood are discharged into a bay away from the commercial products. The -5mm material is pumped to the EvoWash sand washing plant to ensure that quality fines are recovered. The washed aggregate is discharged from the RotoMax at a rate of 75tph to a ProGrade P3-42 screen for final rinsing and sizing. Three aggregate products are produced at this stage, a 5-10mm, 10-24mm and 24-40mm, and are stockpiled by 20m conveyors. The -5mm is pumped to the sand washing stage.

The EvoWash 151 sand washing plant is fed with the fines from the ProGrade P2-75 pre-screen and



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the P3-75 rinsing screen. HydroCyclone technology facilitates highly accurate separation of silts and clays from the final washed sand product. The fine sand fraction is discharged via the underflow from the twin cyclones to the rubber lined feedbox which distributes the material evenly onto the EvoWash dewatering screen. This sand product is then stockpiled from the fourth 20m conveyor. Meanwhile the -63micron fraction overflows the HydroCyclones and is transferred along with the waste water to the next stage of processing.

Excess fines are passed to the AquaCycle A400 water treatment system which allows high rate settlement of the fine particles to the bottom of the thickener tank. The AquaCycle comes complete with an automatic



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polyelectrolyte dosing station. This FlocStation acts as the delivery system for polyelectrolyte to the AquaCycle to facilitate settlement of sludge. Sludge settles at the bottom of the tank where a set of rakes ensure that the sludge is maintained at an even consistency before it is discharged to ponds. Clean water overflows the thickener and recycles to the AquaStore W372 water tank. The AquaStore is a complete water storage and pumping system for the recycling of recovered water around the washing plant. The AquaCycle water treatment system reduces the volume of fresh water required to feed the plant by up to 90%. David Hunter says, "The AquaCycle thickener complies with the environmental requirements of planning authorities who want to see us making efforts to recycle water and reduce environmental impact where possible. From the start



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we have taken measures to ensure that the washing plant complies with all planning regulations and has minimal impact for local residents. The AquaCycle has reduced the requirement for extensive ponds and has minimised the overall footprint of the plant." Commenting on the overall success of the project, Mr Hunter says "We are an Essex based company and take our responsibilities to the local community seriously. We believe that the washing plant at Highwood Quarry has had an extremely positive impact on the local economy, enabling the creation of 10 new jobs and helping us to meet the needs of the construction industry in Essex."

Plant Open Days



Clean water overflows the thickener and recycles to the AquaStore W372 water tank.

Highwood Quarry is open from 17th to 19th September 2013 as SRC Aggregates and CDE Global combine to host plant demonstration days. Further information on this event can be found at www.cdeglobal.com/events where you can also register to attend. More information on SRC Aggregates can be found at srcaggregates.co.uk.

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