

**CRAFS® - CONTROL OUTLET**  
**USED AS CHECK DAM & INLET SEDIMENT TRAP**  
Heartis Senior Living - 936 W Linear Ave - Fayetteville, GA 30214  
May, 2017

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***CRAFS® - The Corrugated Retention and Filtration System for Sediment Control in  
Critical Spots with Trouble Conditions where Silt Fences Fail***  
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**GENERAL CONTRACTOR:**

Choate Construction Company ... 8200 Roberts Drive, Suite 600 - Atlanta, Georgia 30350  
678-892-1200 <http://www.choateco.com/about/company-overview/>  
Contact: Chris Davis / Project Superintendent ... **Chris Davis** <[cdavis@choateco.com](mailto:cdavis@choateco.com)>

**GRADING CONTRACTOR:**

Brent Scarbrough & Company – 155 Robinson Dr – Fayetteville, GA 30214  
866-464-8603 ... <http://www.brent.us/bs/Home.html>  
Contact: Brent Scarbrough ... **Brent Scarbrough** <[brent@brent.us](mailto:brent@brent.us)>  
Shane Waters ... **Shane Waters** <[shane@brent.us](mailto:shane@brent.us)>

**CIVIL ENGINEERING CONSULTANT** (for Erosion & Sediment Control Plan)

Integrated Science & Engineering - 1039 Sullivan Rd – Suite 200 – Newnan, GA 30265  
678-552-2106 ... <http://www.intse.com/index.html>  
Contact: Jason Walls, P.E. ... **Engineering** ... **Jason Walls** <[jwalls@intse.com](mailto:jwalls@intse.com)>

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**PROJECT DETAILS**

Construction of Heartis Senior Living in Fayetteville, GA required significant grading throughout the site for driveways, parking areas, and building foundations. And the sediment control plan had to deal with considerable grade changes throughout the site. Silt fences were installed around the entire project site and several sedimentation ponds and retention basins were required due to elevation changes from completed grade of the building foundations to the natural grade at project boundaries. The greatest elevation changes are on the project's Southside where a 2:1 earth slope that carries runoff from the parking lots down the hillside into the flow path of runoff from around the project's perimeter. Silt fence at that location had experienced multiple washout failures requiring re-installations.

**CRAFS® ALTERNATIVE**

To provide sediment control at that critical spot with trouble conditions where silt fences fail, Jason Walls / Integrated Science & Engineering suggested CRAFS® as a "check dam / inlet sediment trap" to intercept the flow path of sediment runoff before it enters a sediment pond located at one of the lower boundaries of the construction site.

The installation is located at the "toe-of-slope" upstream from a runoff retention basin that was constructed to collect excess runoff from the much larger sediment pond atop the slope that collected a major portion runoff from the entire project site. The CRAFS® was installed as a "check dam" to intercept runoff around the project perimeter upstream of a retention basin at low spot at the property boundary. (See Photos 1 & 2)

According to Walls, the woven monofilament filter fabric of CRAFS® meets the criteria for "Check Dams & Inlet Sediment Traps" per the GSWCC GREEN BOOK (Georgia Soil & Water Conservation Commission – 2016 Field Manual for Erosion and Sediment Control).

Chris Davis / Choate Construction Co and the grading contractor, Brent Scarbrough & Company agreed with Wall's recommendation and installed CRAFS® near the lowest elevation of the project site that collected runoff from the adjacent freshly graded earth slope as well as all that from the surrounding site's perimeter.

### **CRAFS® PERFORMANCE SINCE INSTALLATION**

CRAFS® was installed the first week of May, 2017 (See Photo 3). Multiple rainfall events occurred within the days immediately following its installation.

A quick glance from atop the slope above the "CRAFS® Check Dam" one month after installation reveals nothing but the system being intact, as originally installed. There is no obvious runoff held within the retention wedges of the structure, despite the multiple heavy rainfall events. Several of these were 1" per hour or greater. (See PHOTOS 4)

Photo 5 shows a closer view of the CRAFS® Check Dam-Inlet Sediment Trap that confirms the system's stability. Two weeks later after several more rainfall events, Photos 6 shows the build up of retained sediments against the CRAFS® filter fabric at the system's downstream vertexes. National Weather Service (<http://water.weather.gov/precip/>) reports 6" accumulated rainfall for the area since that installation.

The small retention pond downstream has received and retained the runoff that filtered through the CRAFS® structure, as well as any overflow from the large sediment pond atop the slope above the CRAFS®. The turbidity of the water in that small pond has not been measured, but it is visibly obvious that the turbidity level is very low, thanks to the rapid filtered seepage through the corrugated retention and filtration system.

Photo 7 shows CRAFS® installed upstream of the collection pond for sediment retention and filtration that cleans the runoff before it enters the pond. Note the low turbidity level in pond with the upstream protection provided by CRAFS®.

Photo 8 shows a second collection pond at same elevation and toe of same slope 150' away from the protected pond shown in PHOTO 7. Note the difference in turbidity levels of photos taken same day.

### **CRAFS® 3-D STRUCTURE FOR SEDIMENT RETENTION & FILTRATION**

CRAFS® three dimensional truss system provides structural stability to resist the destructive forces of sediment runoff and the debris it carries, and then support the load of sediment runoff retained within its structure.

The structure's upstream vertexes diverts the flow entering the system, eliminating any direct impact onto its vertical filter fabric structure. The corrugated structure divides and distributes the sediment runoff and retains it within its multiple of "retention wedges" that spans the runoff's flow path. These wedges provide a much greater surface area of filter fabric adjacent to the runoff than a conventional silt fence or other SRD. So retained runoff is filtered through the CRAFS® structure at a much faster rate. And the CRAFS® retention efficiency is greater than 90%.

A filter cake will eventually form on the CRAFS® filter fabric. But each new rainfall event washes off the filter cake as the retained runoff traverses along the filter fabric's surface towards each of the system's downstream vertexes. This filter cake cleansing rejuvenates the filtered seepage rate through the system. All these performance features combined are why CRAFS®, the corrugated retention and filtration system for sediment control (Patent #: 9677243) can deal with the "critical spots with troubled conditions where silt fences fail.



PHOTO 1 : CRAFS® upstream of catch basin after first rainfall event  
... both installed the day before the rain ([Photo ID: 100\\_0401 LoPix](#))



PHOTO 2 : View of CRAFS® looking upstream from catch basin ([Photo ID: 100\\_0403 LoPix](#))





PHOTO 3 : CRAFS® installed across runoff flow path upstream of catch basin (5-2-17) ([Photo ID:100-0381LoPix](#))



PHOTO 4 : Distant view of CRAFS® at toe of 3:1 fill slope in runoff flow path from the project's perimeter. ([Photo ID:100-0390 LoPix](#))



PHOTO 5 :  
Closer view shows CRAFS® system “in place” and stable after rainfall even  
Note the height of sediment deposits against adjacent silt fence fabric left of  
CRAFS®. Filtered seepage through CRAFS® is rapid, so sediment markings  
on CRAFS® filter fabric are low and hidden by the straw ground cover that’s  
washed against the retention wedges.  
(Photo ID: 100-0399 LoPix)



PHOTO 6 :  
Retained sediments are obvious within the CRAFS® “retention wedges”  
after one month in place and 6” rainfall accumulation. Note clarity of water  
in sediment pond downstream of CRAFS®. Rainfall per U.S. Weather Service.  
(6-2-17 Photo ID IMG-0023 LoPix)





PHOTO 7  
CRAFS® installed upstream of the retention pond to provide sediment retention and filtration before runoff enters the pond. Note the low turbidity level in pond maintained by CRAFS® upstream. (6-22-17) (IMG 0144 - LoPix)



PHOTO 8  
Second retention pond at same elevation and toe of same slope 150' away from CRAFS® protected pond (shown in PHOTO 7). (6-22-17) (IMG 0141 - LoPix)