FLORIDA DEPARTMENT OF HEALTH

Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.24

C-HS2 Monitoring Sample Event Report No. 4

Progress Report

July 2012

4423-001

HAZEN AND SAWYER
Environmental Engineers & Scientists

In association with

SCHOOL OF MINES 1874 COLORADO

AET
Applied Environmental Technology

OTIS ENVIRONMENTAL CONSULTANTS, LLC

Florida Onsite Sewage Nitrogen Reduction Strategies Study

TASK C.24
PROGRESS REPORT

C-HS2 Monitoring
Sample Event Report No. 4

Prepared for:

Florida Department of Health
Division of Environmental Health
Bureau of Onsite Sewage Programs
4042 Bald Cypress Way Bin #A-08
Tallahassee, FL 32399-1713

FDOH Contract CORCL

July 2012

Prepared by:

HAZEN AND SAWYER
Environmental Engineers & Scientists

In Association With:

SCHOOL OF MINES
1874
COLORADO

C-HS2 Monitoring
Sample Event Report No. 4

1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. The Task C.5 QAPP documents the objectives, monitoring framework, sample frequency and duration, and analytical methods to be used at the field sites. The Task C.23 C-HS2 instrumentation report documents the field site layout, number and location of monitoring points, and preliminary field parameters from monitoring points for this field site located in the Wekiva Study area in Seminole County, Florida.

2.0 Purpose

This sample event report documents data collected from the fourth C-HS2 monitoring and sampling event conducted July 10 and 11, 2012. This monitoring event consisted of water use measurement from the household water meter, groundwater elevation measured within the standpipe piezometers, measurement of field parameters, and collection of groundwater samples and their analyses by a NELAC certified laboratory.

3.0 Materials and Methods

3.1 Project Site

The C-HS2 field site is located in Seminole County, FL in a neighborhood less than a mile from the Little Wekiva River. The onsite sewage treatment and disposal system (OSTDS) for the residence consists of a 1,050 gallon fiberglass baffled septic tank located adjacent to the drainfield mound and has a gravity fed standard bed mounded drainfield.

3.2 Monitoring and Sample Locations and Identification

A sampling grid for groundwater screening was developed downgradient of the OSTDS as depicted in Figure 1. A 10-foot by 40-foot grid was staked then locations surveyed (x,

o:\44237-001R004\Wpdocs\Report\Final

y, and z). Transect lines A through D were located perpendicular to the groundwater flow direction (southwest) and increase (higher letter identification) moving southward from the mound. Transect lines 0 through 15 were located parallel to the groundwater flow direction and increase moving from southeast to northwest. Groundwater monitoring points were installed in June and July 2011. One type of monitoring point was installed using either hand or drilling methods: standpipe piezometers. Standpipe piezometers consist of either ¾-inch or 2-inch diameter PVC with a 1-foot, 2-foot, or 4-foot screen (0.010-inch slots) and riser extending to the ground surface (refer to the Task C QAPP and Task C.23 C-HS2 Instrumentation Report for additional detail).

Each monitoring location was assigned a unique identification indicating grid location (self explanatory), and depth below ground surface (bottom of the drive point or well screen in feet). For example A09-7 is a standpipe piezometer sampler located on the grid at A09 at 7-feet below ground surface. A schematic of the C-HS2 monitoring network is shown in Figure 1. A complete list of all installed standpipe piezometers and sample identification is included in Appendix A.

Following the third sample event, the property owners completed landscaping renovations in the front and backyard. During the fourth sample event the nested set of piezometers at locations A-09, B-15, C-00, D-04, D-07, and BKG-07 as well as the single piezometers BKG-03 and BKG-04 could not be located; it is likely that the piezometers were destroyed during the new landscape installation. A total of 45 specific monitoring locations were sampled during this fourth C-HS2 sampling event.

o:\44237-001R004\Wpdocs\Report\Final

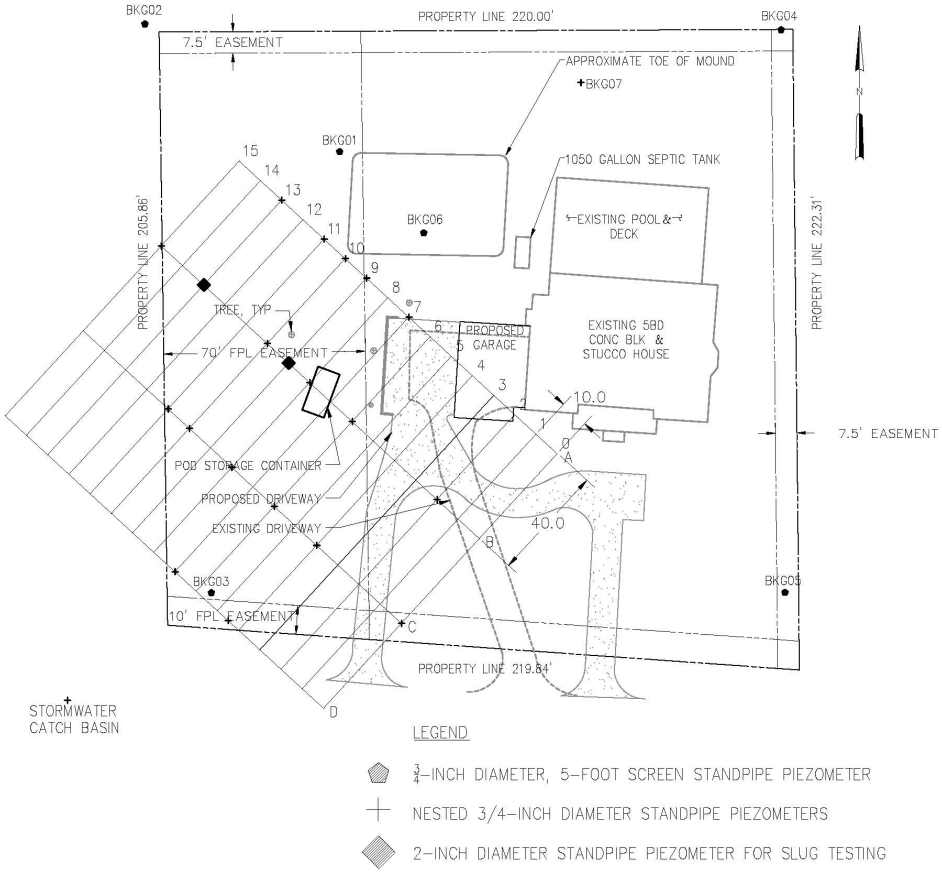

Figure 1
C-HS2 Monitoring Network

3.3 Operational Monitoring

The water meter for the house site was read and recorded. The residence has a garden with irrigation thus the actual wastewater flow can only be estimated. A weather station (Sheffield in the Crossings, Longwood, FL) is located approximately 5 miles from the site. Data from this weather station is available at the following website: http://www.wunderground.com.

3.4 Groundwater Elevation Measurements

Groundwater level measurements are used to determine hydraulic gradients and directions of flow. Groundwater levels were measured using a flat tape water level meter graduated in feet (measurement accuracy is 0.01 feet). The groundwater level within all the sampled standpipe piezometers was measured for this sampling event.

o:\44237-001R004\Wpdocs\Report\Final

3.5 Water Quality Sample Collection and Analyses

Groundwater and septic tank effluent (STE) were collected July 10 and 11, 2012 for water quality analysis. A sample was collected from the septic tank outlet filter to represent the effluent delivered to the drainfield. A peristaltic pump was used to collect STE directly into the analysis-specific containers. Groundwater samples were obtained using a peristaltic pump, which was attached directly to dedicated standpipe piezometer tubing. Samples were collected after sufficient purging (the sample was clear and pH and conductivity readings had stabilized) had occurred. Field parameters were then recorded. Stormwater samples were obtained from the stormwater catch basin located southwest of the property using a sampling pole. The C-HS2-SW-6-inch sample refers to the sample collected directly from the 6-inch PVC pipe that appears to collect storm-water from the property. The C-HS-SW-M sample refers to the sample collected directly from the bottom of the catch basin (see Figure 2).

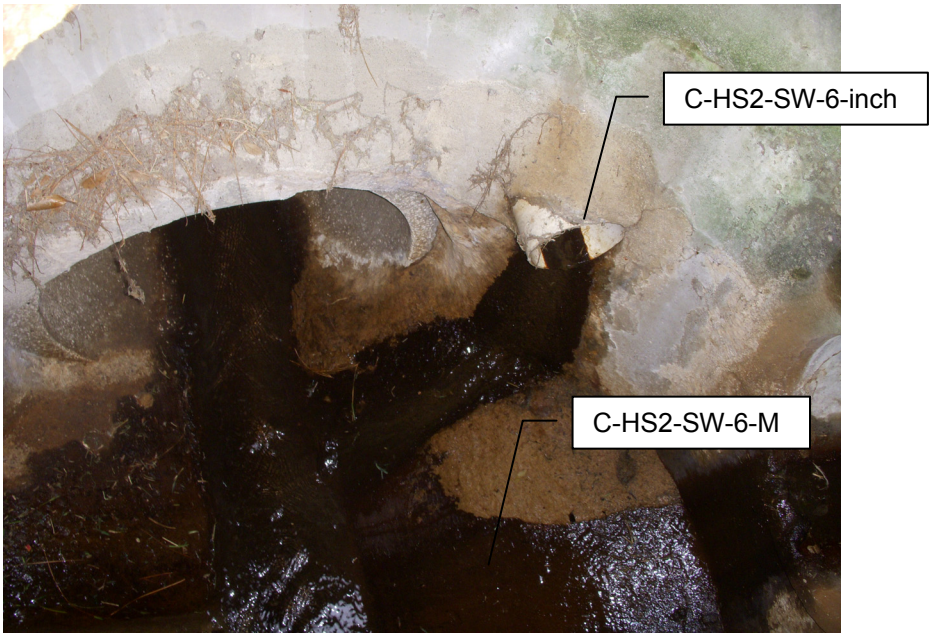

Figure 2
Photo of Stormwater Catch Basin Southwest of Property

The analysis-specific containers were supplied by the analytical laboratory and contained appropriate preservatives. The analysis-specific containers were labeled, placed in coolers and transported on ice to the analytical laboratory. Each sample container was secured in packing material as appropriate to prevent damage and spills, and was recorded on chain-of-custody forms supplied by the laboratory. Chain of custody forms, provided in Appendix B, were used to document the transfer of samples from field personnel to the analytical laboratory.

o:\44237-001R004\Wpdocs\Report\Final

In addition, field sample duplicates were collected immediately subsequent to the regular samples. The field duplicate samples taken include:

- C-HS2-STE
- C-HS2-A10-9
- C-HS2-B08-5
- C-HS2-C06-10
- C-HS2-C08-5

Field parameters (pH, specific conductance, temperature (Temp), and dissolved oxygen (DO)) were measured using portable electronic probes with probe tips placed in an overflowing plastic beaker as groundwater was being pumped. All samples were analyzed by the laboratory for: total alkalinity, chemical oxygen demand (COD), total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH_3-N), nitrate/nitrite nitrogen (NO_X-N), and chloride (CL). At some of the locations with elevated nitrogen in previous preliminary sampling events, anions, cations, total organic carbon (TOC) and dissolved organic carbon (DOC) were included. Additionally, for the STE sample carbonaceous biological oxygen demand ($CBOD_5$), fecal coliform (fecal), and *E-coli* were included. All analyses were performed by an independent and fully certified analytical laboratory (Southern Analytical Laboratory). Table 1 lists the analytical parameters, analytical methods, and detection limits for these analyses.

o:\44237-001R004\Wpdocs\Report\Final

Table 1
Analytical Parameters, Method of Analysis, and Detection Limits

Analytical Parameter	Method of Analysis	Method Detection Limit (mg/L)
Total Alkalinity as $CaCO_3$	SM 2320B	2 mg/L
Chemical Oxygen Demand (COD)	EPA 410.4	10 mg/L
Carbonaceous BOD ($CBOD_5$)	SM 5210B	2 mg/L
Total Kjeldahl Nitrogen (TKN-N)	EPA 351.2	0.05 mg/L
Ammonia Nitrogen (NH_3-N)	EPA 350.1	0.005 mg/L
Nitrate/Nitrite Nitrogen (NO_X-N)	EPA 300.0	0.02 mg/L
Dissolved Organic Carbon (DOC)	SM 5310B	0.5 mg/L
Total Organic Carbon (TOC)	SM 5310B	0.5 mg/L
Fecal Coliform (fecal)	SM9222D	1 ct/100mL
Anions		
Fluoride	EPA 300.0	0.01 mg/L
Chloride	EPA 300.0	0.05 mg/L
Nitrate-N	EPA 300.0	0.01 mg/L
Nitrite-N	EPA 300.0	0.01 mg/L
Orthophosphate-P	EPA 300.0	0.01 mg/L
Sulfate	EPA 300.0	0.20 mg/L
Cations		
Boron	EPA 200.7	0.05 mg/L
Calcium	EPA 200.7	0.01 mg/L
Iron	EPA 200.7	0.02 mg/L
Magnesium	EPA 200.7	0.01 mg/L
Manganese	EPA 200.7	0.001 mg/L
Potassium	EPA 200.7	0.01 mg/L
Sodium	EPA 200.7	0.01 mg/L

4.0 Results

Once analytical results are obtained from the laboratory, the C-HS2 Data Summary Report No. 4 (Task C.25) will be prepared describing the results from this sampling event.

4.1 Operational Monitoring and Site Conditions

Table 2 summarizes the water meter readings and average daily water use for the residence at site C-HS2.

o:\44237-001R004\Wpdocs\Report\Final

Table 2
Water Meter Readings and Water Usage for C-HS2

Residence	Date and Time Read	Meter Reading	Gallons/day
C-HS2 Residence	7/13/2011 14:45	5,302,677.9	
	7/20/2011 17:50	5,304,207.8	215
	7/26/2011 15:19	5,305,257.9	178
	10/27/2011 15:19	5,327,920.4	244
	11/30/2011 8:00	5,355,610.4	822[1]
	3/13/2012 8:10	5,378,780.2	223
	7/10/2012 16:15	5,453,899.3	629

[1]Homeowner refilled swimming pool between readings.

Monthly recorded meteorological data is provided in Appendix C. Table 3 provides the daily averages leading up to and during the sample event.

Table 3
Meteorological Data Daily Averages Measured July 1, 2012 – July 11, 2012

Date	Temperature (°F)			Humidity (%)	Wind (mph)	Rain Total (inches)
	High	Avg	Low	Avg	Avg	Sum
7/1/2012	97	89	71	58	2	0.00
7/2/2012	96	89	75	57	2	0.00
7/3/2012	91	87	76	62	0	0.00
7/4/2012	94	86	74	64	1	0.03
7/5/2012	87	87	87	60	0	0.00
7/6/2012	95	87	76	64	2	0.00
7/7/2012	97	88	75	60	1	0.00
7/8/2012	97	90	75	57	1	0.00
7/9/2012	97	86	76	65	1	0.00
7/10/2012	97	84	73	67	2	0.00
7/11/2012	84	80	74	80	1	0.61

o:\44237-001R004\Wpdocs\Report\Final

4.2 Groundwater Levels

Water levels were measured at all standpipe piezometers sampled on July 10 and 11, 2012 for this sampling event as summarized in Table 4. Figures 3 through 6 illustrate the surficial groundwater contours as measured within the standpipe piezometers on July 27, 2011 (Figure 3), November 30, 2011 (Figure 4), March 13, 2012 (Figure 5), and July 10, 2012 (Figure 6) during each of the sample events. As discussed in Section 3.2, several monitoring locations were buried or cut prior to this sample event. Therefore, the surficial groundwater contour map for sample event 4 (Figure 6) provides the western side yard measured elevations rather than the full property provided in prior sample events. As depicted, the groundwater elevations have been found to fluctuate due to periods of dry weather and/or heavy precipitation; however, the general flow-path does not change significantly.

o:\44237-001R004\Wpdocs\Report\Final

Table 4
Standpipe Piezometer Groundwater Levels
Measured on July 10, 2012

Identification	Water Table Elevation (feet)	Identification	Water Table Elevation (feet)
C-HS2-PZ01	93.51	C-HS2-B08-5	92.99
C-HS2-PZ02	93.34	C-HS2-B08-7	93.01
C-HS2-PZ06	95.73	C-HS2-B08-10	92.99
C-HS2-A07-6	93.32	C-HS2-B10-5	93.09
C-HS2-A07-8	93.31	C-HS2-B10-7	93.11
C-HS2-A07-11	93.35	C-HS2-B10-10	93.10
C-HS2-A10-7	93.38	C-HS2-C04-5	92.52
C-HS2-A10-9	93.47	C-HS2-C04-7	92.49
C-HS2-A10-12	93.45	C-HS2-C04-10	92.48
C-HS2-A11-5	93.45	C-HS2-C06-5	92.53
C-HS2-A11-7	93.42	C-HS2-C06-7	92.48
C-HS2-A11-10	93.47	C-HS2-C06-10	92.44
C-HS2-A13-5	93.44	C-HS2-C08-5	92.42
C-HS2-A13-7	93.44	C-HS2-C08-7	92.39
C-HS2-A13-10	93.45	C-HS2-C08-10	92.37
C-HS2-B02-6	92.80	C-HS2-C10-6	92.64
C-HS2-B02-8	92.80	C-HS2-C10-8	92.61
C-HS2-B02-11	92.77	C-HS2-C10-11	92.58
C-HS2-B06-6	92.91	C-HS2-C11-5	92.69
C-HS2-B06-8	92.91	C-HS2-C11-7	92.37
C-HS2-B06-11	92.93	C-HS2-C11-10	92.35

o:\44237-001R004\Wpdocs\Report\Final

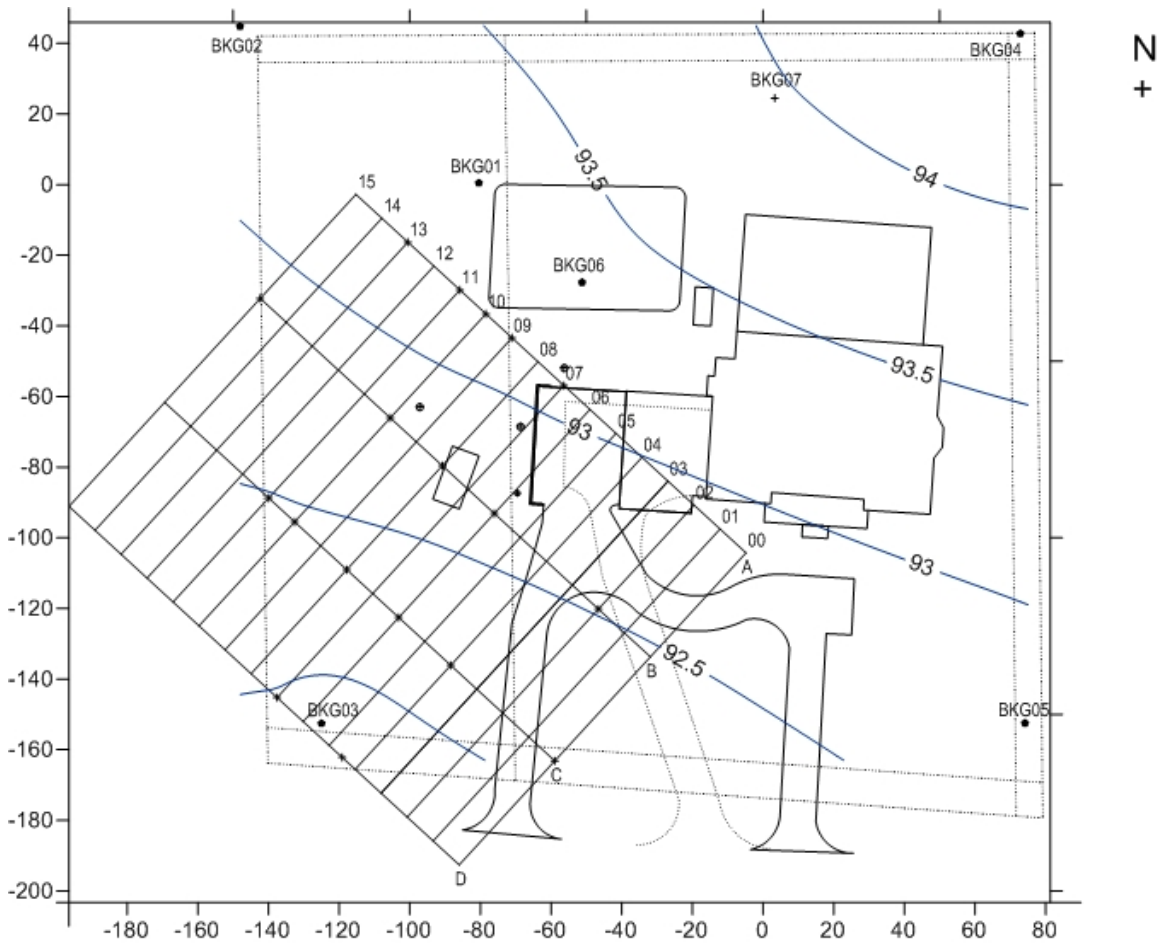

Figure 3
Surficial Groundwater Contours July 27, 2011

o:\44237-001R004\Wpdocs\Report\Final

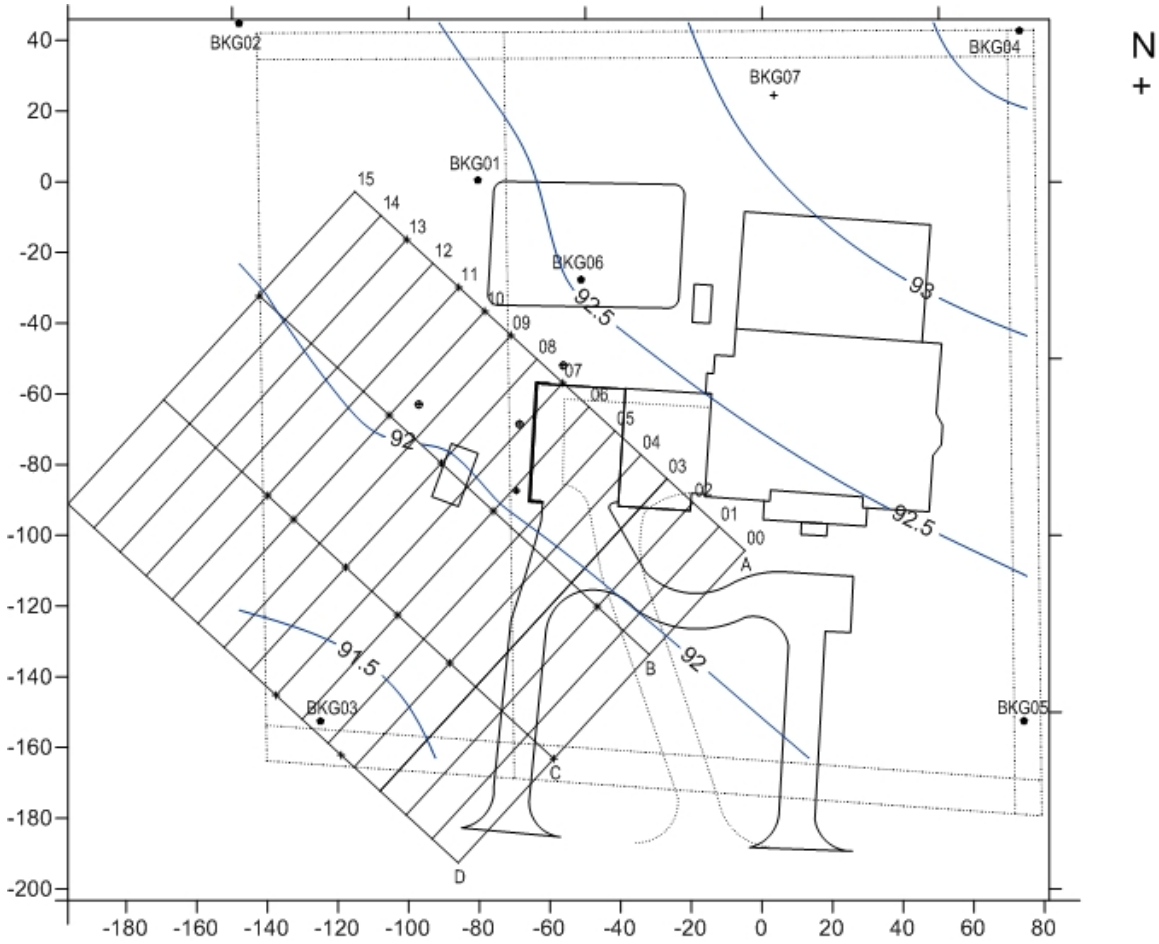

Figure 4
Surficial Groundwater Contours November 30, 2011

o:\44237-001R004\Wpdocs\Report\Final

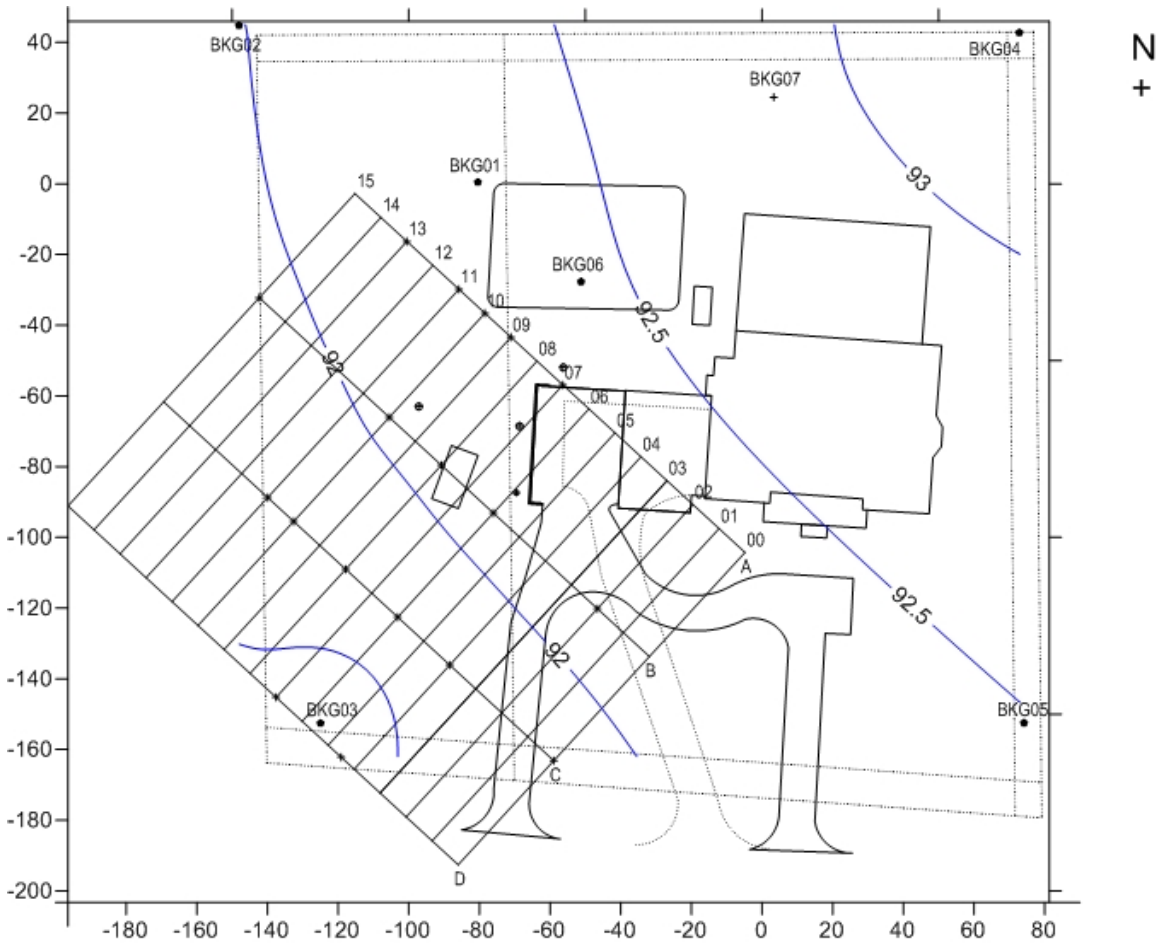

Figure 5
Surficial Groundwater Contours March 13, 2012

o:\44237-001R004\Wpdocs\Report\Final

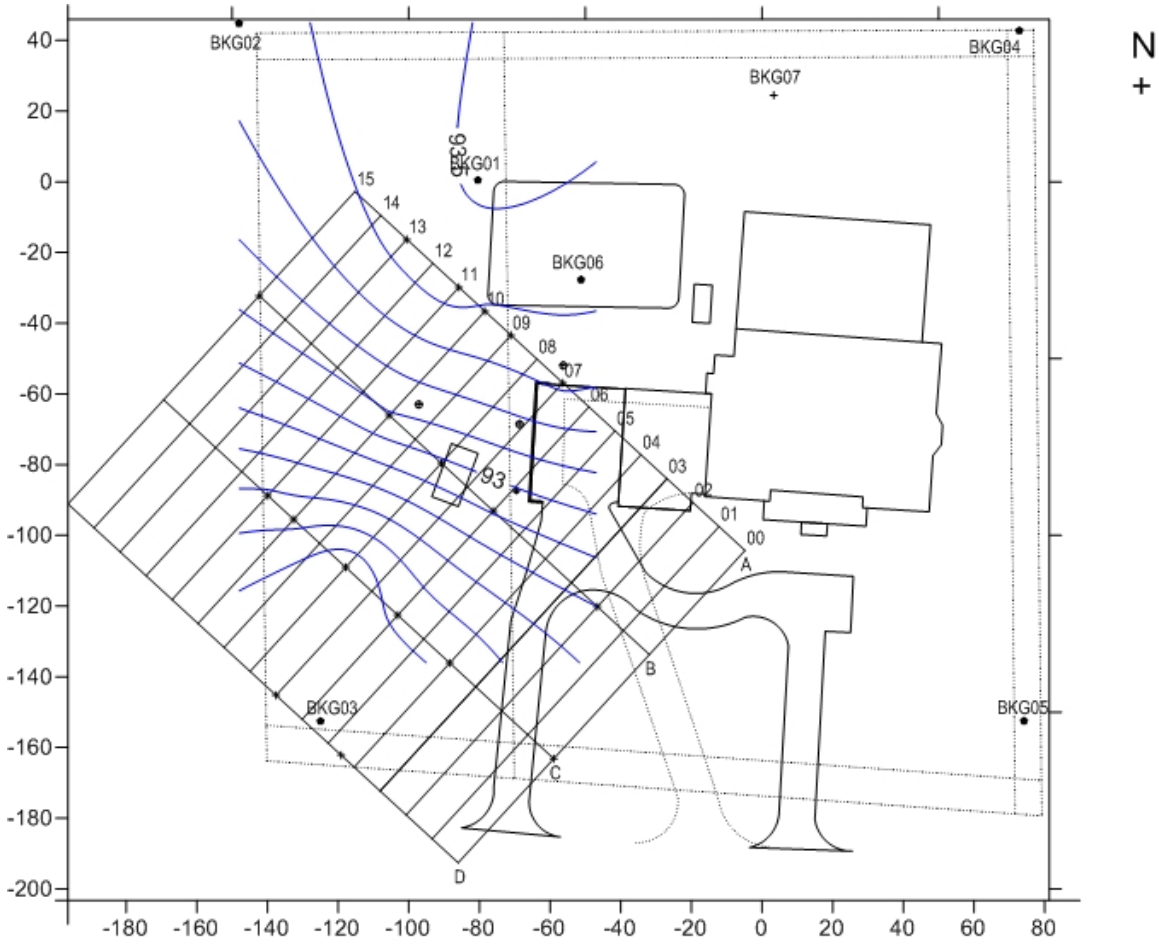

Figure 6
Surficial Groundwater Contours July 10, 2012

4.3 Water Quality

Field parameters were measured prior to sample collection and are listed in Appendix D. Once analytical results are obtained from the laboratory, C-HS2 Data Summary Report No. 4 (Task C25) will be prepared describing the results from this sampling event.

o:\44237-001R004\Wpdocs\Report\Final

Appendix A: C-HS2 Sample Identification

Table A.1

C-HS2 Sample Identification

	Sample ID	Type of Monitoring Point	Original Survey		Re-measured Survey	
			Surface Elevation (ft)	Bottom Elevation (ft)	Surface Elevation (ft)	Bottom Elevation (ft)
1	STE	Wastewater	N/A	N/A	N/A	N/A
2	C-HS2-SW-6 inch	Storm sewer catch basin southwest of home	N/A	N/A	N/A	N/A
3	C-HS2-SW-M	Storm sewer catch basin southwest of home	N/A	N/A	N/A	N/A
4	C-HS2-BKG01-7	3/4" Standpipe Piezometer, 5' screen	96.11	88.93	96.13	88.95
5	C-HS2-BKG02-6	3/4" Standpipe Piezometer, 5' screen	94.48	88.20	94.48	88.20
6	C-HS2-BKG03-7	3/4" Standpipe Piezometer, 5' screen	93.52	86.56	NR	NR
7	C-HS2-BKG04-7	3/4" Standpipe Piezometer, 5' screen	96.00	88.94	NR	NR
8	C-HS2-BKG05-8	3/4" Standpipe Piezometer, 5' screen	95.21	87.26	NR	NR
9	C-HS2-BKG06-12	3/4" Standpipe Piezometer, 5' screen	99.55	87.93	NR	NR
10	C-HS2-A07-6	3/4" Standpipe Piezometer, 2' screen	97.33	91.67	97.33	91.67
11	C-HS2-A07-8	3/4" Standpipe Piezometer, 1' screen	97.34	89.69	97.29	89.64
12	C-HS2-A07-11	3/4" Standpipe Piezometer, 1' screen	97.33	86.78	97.34	86.79
13	C-HS2-A09-7	3/4" Standpipe Piezometer, 2' screen	98.23	91.34	98.23	91.34
14	C-HS2-A09-9	3/4" Standpipe Piezometer, 1' screen	98.22	89.01	98.23	89.02
15	C-HS2-A09-12	3/4" Standpipe Piezometer, 1' screen	98.22	86.47	98.22	86.47
16	C-HS2-A10-7	3/4" Standpipe Piezometer, 2' screen	97.63	90.76	97.63	90.76
17	C-HS2-A10-9	3/4" Standpipe Piezometer, 1' screen	97.65	88.84	97.65	88.84
18	C-HS2-A10-12	3/4" Standpipe Piezometer, 1' screen	97.65	85.65	97.65	85.65
19	C-HS2-A11-5	3/4" Standpipe Piezometer, 2' screen	96.45	91.46	96.46	91.47
20	C-HS2-A11-7	3/4" Standpipe Piezometer, 1' screen	96.45	89.63	96.45	89.63
21	C-HS2-A11-10	3/4" Standpipe Piezometer, 1' screen	96.45	86.59	96.46	86.60
22	C-HS2-A13-5	3/4" Standpipe Piezometer, 2' screen	95.76	90.77	95.76	90.77
23	C-HS2-A13-7	3/4" Standpipe Piezometer, 1' screen	95.76	88.78	95.76	88.78
24	C-HS2-A13-10	3/4" Standpipe Piezometer, 1' screen	95.77	86.03	95.76	86.02
25	C-HS2-B02-6	3/4" Standpipe Piezometer, 2' screen	95.85	90.29	NR	NR

o:\44237-001\Wpdocs\Report\Draft

Table A.1

C-HS2 Sample Identification

	Sample ID	Type of Monitoring Point	Original Survey		Re-measured Survey	
			Surface Elevation (ft)	Bottom Elevation (ft)	Surface Elevation (ft)	Bottom Elevation (ft)
26	C-HS2-B02-8	3/4" Standpipe Piezometer, 1' screen	95.85	88.06	NR	NR
27	C-HS2-B02-11	3/4" Standpipe Piezometer, 1' screen	95.85	85.12	NR	NR
28	C-HS2-B06-6	3/4" Standpipe Piezometer, 2' screen	95.85	90.17	95.82	90.14
29	C-HS2-B06-8	3/4" Standpipe Piezometer, 1' screen	95.85	88.03	95.77	87.95
30	C-HS2-B06-11	3/4" Standpipe Piezometer, 1' screen	95.84	85.08	95.79	85.03
31	C-HS2-B08-5	3/4" Standpipe Piezometer, 2' screen	95.38	90.41	95.38	90.41
32	C-HS2-B08-7	3/4" Standpipe Piezometer, 1' screen	95.40	88.62	95.39	88.61
33	C-HS2-B08-10	3/4" Standpipe Piezometer, 1' screen	95.42	85.52	95.39	85.49
34	C-HS2-B09-15	2" Standpipe Piezometer, 5' screen	95.37	80.20	NR	NR
35	C-HS2-B10-5	3/4" Standpipe Piezometer, 2' screen	95.40	90.42	95.30	90.32
36	C-HS2-B10-7	3/4" Standpipe Piezometer, 1' screen	95.40	88.60	95.31	88.51
37	C-HS2-B10-10	3/4" Standpipe Piezometer, 1' screen	95.40	85.55	95.30	85.45
38	C-HS2-B13-15	2" Standpipe Piezometer, 5' screen	95.34	80.12	NR	NR
39	C-HS2-B15-5	3/4" Standpipe Piezometer, 2' screen	95.28	90.43	95.26	90.41
40	C-HS2-B15-7	3/4" Standpipe Piezometer, 1' screen	95.28	88.78	95.25	88.75
41	C-HS2-B15-10	3/4" Standpipe Piezometer, 1' screen	95.26	85.60	95.25	85.59
42	C-HS2-C00-5	3/4" Standpipe Piezometer, 2' screen	94.50	89.81	NR	NR
43	C-HS2-C00-7	3/4" Standpipe Piezometer, 1' screen	94.50	87.69	NR	NR
44	C-HS2-C00-10	3/4" Standpipe Piezometer, 1' screen	94.51	84.66	NR	NR
45	C-HS2-C04-5	3/4" Standpipe Piezometer, 2' screen	94.61	89.91	94.62	89.92
46	C-HS2-C04-7	3/4" Standpipe Piezometer, 1' screen	94.60	87.79	94.61	87.80
47	C-HS2-C04-10	3/4" Standpipe Piezometer, 1' screen	94.61	84.76	94.62	84.77
48	C-HS2-C06-5	3/4" Standpipe Piezometer, 2' screen	94.53	89.55	94.53	89.55
49	C-HS2-C06-7	3/4" Standpipe Piezometer, 1' screen	94.53	87.74	94.52	87.73
50	C-HS2-C06-10	3/4" Standpipe Piezometer, 1' screen	94.53	84.68	94.52	84.67
51	C-HS2-C08-5	3/4" Standpipe Piezometer, 2' screen	95.18	90.21	95.17	90.20
52	C-HS2-C08-7	3/4" Standpipe Piezometer, 1' screen	95.25	88.47	95.17	88.39
53	C-HS2-C08-10	3/4" Standpipe Piezometer, 1' screen	95.20	85.33	95.17	85.30
54	C-HS2-C10-6	3/4" Standpipe Piezometer, 2' screen	95.77	90.12	95.76	90.11

o:\44237-001\Wpdocs\Report\Draft

Table A.1

C-HS2 Sample Identification

	Sample ID	Type of Monitoring Point	Original Survey		Re-measured Survey	
			Surface Elevation (ft)	Bottom Elevation (ft)	Surface Elevation (ft)	Bottom Elevation (ft)
55	C-HS2-C10-8	3/4" Standpipe Piezometer, 1' screen	95.78	88.00	95.76	87.98
56	C-HS2-C10-12	3/4" Standpipe Piezometer, 1' screen	95.78	84.01	95.77	84.00
57	C-HS2-C11-5	3/4" Standpipe Piezometer, 2' screen	95.30	90.63	95.29	90.62
58	C-HS2-C11-7	3/4" Standpipe Piezometer, 1' screen	95.30	88.51	95.29	88.50
59	C-HS2-C11-10	3/4" Standpipe Piezometer, 1' screen	95.31	85.46	95.30	85.45
60	C-HS2-D04-5	3/4" Standpipe Piezometer, 2' screen	93.98	89.09	93.92	89.03
61	C-HS2-D04-7	3/4" Standpipe Piezometer, 1' screen	93.98	87.14	93.89	87.05
62	C-HS2-D04-10	3/4" Standpipe Piezometer, 1' screen	94.00	84.31	93.90	84.21
63	C-HS2-D07-6	3/4" Standpipe Piezometer, 2' screen	95.41	89.43	95.39	89.41
64	C-HS2-D07-8	3/4" Standpipe Piezometer, 1' screen	95.39	87.53	95.37	87.51
65	C-HS2-D07-11	3/4" Standpipe Piezometer, 1' screen	95.43	84.59	95.40	84.56
66	C-HS2-BKG07-5	3/4" Standpipe Piezometer, 2' screen	96.01	91.36	96.02	91.37
67	C-HS2-BKG07-7	3/4" Standpipe Piezometer, 1' screen	96.01	89.43	96.01	89.43
68	C-HS2-BKG07-10	3/4" Standpipe Piezometer, 1' screen	96.01	86.40	96.01	86.40

[1]NR = no reading was taken

[2]Benchmark used is garage floor elevation which was assigned an arbitrary value of 100 ft.

o:\44237-001\Wpdocs\Report\Draft

Appendix B: Chain of Custody Forms

o:\44237-001\Wpdocs\Report\Draft

1206553

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
01	C-HS2-STE	07/1/12	0915	GW		X	1	1	2	1							1.04	7.0	28.4	1276
02	C-HS2-STE-Dup	07/1/12	0920	GW		X	1	1	2	1							1.04	7.0	28.4	1276
03	C-HS2-SW-6"	07/01/12	0830	GW		X					1	1					3.40	6.5	27.8	318.9
04	C-HS2-SW-M	07/01/12	0825	GW		X					1	1					3.31	6.8	26.9	352.2
05	C-HS2-BKG01-7	07/1/12	0841	GW		X					1	1					0.28	5.8	25.7	347.9
06	C-HS2-BKG02-6	07/1/12	0820	GW		X					1	1					0.14	6.0	24.4	245.3
07	C-HS2-BKG03-7	—	—	GW		X					1	1					—	—	—	—
08	C-HS2-BKG04-7	—	—	GW		X					1	1					—	—	—	—
09	C-HS2-BKG06-12	07/1/12	0905	GW		X					1	1					0.86	5.8	25.4	681
10	C-HS2-BKG07-5	—	—	GW		X					1	1					—	—	—	—
11	C-HS2-BKG07-7	—	—	GW		X				1			1	1	2	1	—	—	—	—
12	C-HS2-BKG07-10	—	—	GW		X					1	1					—	—	—	—

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	6-21-12 11:25		1125 06/21/12
Relinquished:	Date/Time: 1155 07/1/12	Received: K Nudmark	Date/Time: 1155 7/1/12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N (N/A)
Samples intact upon arrival?	(Y) N N/A
Received on ice? Temp_____	(Y) N N/A
Proper preservatives indicated?	(Y) N N/A
Rec'd within holding time?	(Y) N N/A
Volatiles rec'd w/out headspace?	Y N (N/A)
Proper containers used?	Y N (N/A)

Instructions / Remarks:

1206553

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

1206553

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes:
DW-Drinking Water WW-Wastewater
SW-SurfaceWater SL-Sludge SO-Soil
GW-Groundwater SA-Saline Water O-Other
R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
13	C-HS2-A07-6	07/10/12	1440	GW		X					1	1					0.23	5.9	26.3	242
14	C-HS2-A07-8	07/10/12	1510	GW		X				1			1	1	2	1	0.17	6.0	25.5	466
15	C-HS2-A07-11	07/10/12	1535	GW		X					1	1					0.32	4.8	25.0	179.4
16	C-HS2-A09-7	—	—	GW		X					1	1					—	—	—	—
17	C-HS2-A09-9	—	—	GW		X					1	1					—	—	—	—
18	C-HS2-A09-12	—	—	GW		X					1	1					—	—	—	—
19	C-HS2-A10-7	07/10/12	1325	GW		X					1	1					0.41	6.7	29.5	950
20	C-HS2-A10~~9 Dup~~	07/10/12	1355	GW		X					1	1					0.30	6.4	27.7	717
21	C-HS2-A10-9	07/10/12	1350	GW		X					1	1					0.30	6.4	27.7	717
22	C-HS2-A10-12	07/10/12	1410	GW		X					1	1					0.24	4.8	26.0	168.2
23	C-HS2-A11-5	07/10/12	1157	GW		X				1			1	1	2	1	0.25	6.5	29.3	679
24	C-HS2-A11-7	07/10/12	1250	GW		X					1	1					0.35	6.1	26.4	447

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	6-21-12 11:27	[signature]	1127 06/21/12
Relinquished: [signature]	Date/Time: 1155 07/11/12	Received: K Mudman	Date/Time: 7/11/12 1155
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N N/A
Samples intact upon arrival?	Y N N/A
Received on ice? Temp_____	Y N N/A
Proper preservatives indicated?	Y N N/A
Rec'd within holding time?	Y N N/A
Volatiles rec'd w/out headspace?	Y N N/A
Proper containers used?	Y N N/A

Instructions / Remarks:

1206553

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

1206553

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
25	C-HS2-A11-10	071011	1302	GW		X					1	1					0.30	4.9	26.3	166.4
26	C-HS2-A13-5		1355	GW		X					1	1					0.26	5.4	28.6	185.6
27	C-HS2-A13-7		1608	GW		X					1	1					0.14	4.7	27.3	218.3
28	C-HS2-A13-10		1621	GW		X					1	1					0.61	4.7	25.3	160.5
29	C-HS2-B02-6		0925	GW		X				1			1	1	2	1	0.06	6.2	27.0	472.5
30	C-HS2-B02-8		0938	GW		X					1	1					0.05	6.6	26.5	516
31	C-HS2-B02-11		0956	GW		X					1	1					0.23	6.1	25.3	224.9
32	C-HS2-B06-6		1106	GW		X					1	1					0.42	5.7	26.1	353
33	C-HS2-B06-8		1120	GW		X					1	1					0.10	5.3	25.6	219
34	C-HS2-B06-11		1135	GW		X					1	1					0.26	5.0	24.7	153.9
35	C-HS2-B08-5		1000	GW		X				1			1	1	2	1	0.55	5.6	25.9	579
36	~~C-HS2-B08-5-Dup~~			GW		X				1			1	1	2	1	—			—

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	6-21-12 11:27		1127 06 21 12
Relinquished:	Date/Time: 1155 071112	Received: K Nudmark	Date/Time: 7/11/12 1155
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N (N/A)
Samples intact upon arrival?	(Y) N N/A
Received on ice? Temp_____	(Y) N N/A
Proper preservatives indicated?	(Y) N N/A
Rec'd within holding time?	(Y) N N/A
Volatiles rec'd w/out headspace?	Y N (N/A)
Proper containers used?	(Y) N N/A

Instructions / Remarks:

1206553

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

1206553

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
37	C-HS2-B08-7	071012	1025	GW		X					1	1					0.73	5.9	24.9	442
38	C-HS2-B08-10		1045	GW		X					1	1					0.17	4.8	24.4	144
39	C-HS2-B10-5		0905	GW		X					1	1					0.17	6.2	26.4	649
40	C-HS2-B10-7		0920	GW		X					1	1					0.16	5.87	25.5	419
41	C-HS2-B10-10		0945	GW		X					1	1					0.25	4.4	24.4	141.7
42	C-HS2-B15-5			GW		X					1	1								
43	C-HS2-B15-7			GW		X					1	1								
44	C-HS2-B15-10			GW		X					1	1								
45	C-HS2-C00-5			GW		X					1	1								
46	C-HS2-C00-7			GW		X					1	1								
47	C-HS2-C00-10			GW		X					1	1								
48	C-HS2-C04-5	071012	1014	GW		X					1	1					0.08	6.1	25.4	330.2

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	6-21-12 12:17		1217 062112
Relinquished:	Date/Time: 1155 07/11/12	Received:	Date/Time: 1155 7/11/12
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N N/A
Samples intact upon arrival?	Y N N/A
Received on ice? Temp_____	Y N N/A
Proper preservatives indicated?	Y N N/A
Rec'd within holding time?	Y N N/A
Volatiles rec'd w/out headspace?	Y N N/A
Proper containers used?	Y N N/A

Instructions / Remarks:

1206553

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

1206553

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
49	C-HS2-C04-7	071012	1026	GW		X					1	1					0.10	~~24.9~~ 6.55	24.9	209.3
50	C-HS2-C04-10		1044	GW		X					1	1					0.12	5.7	24.3	153.5
51	C-HS2-C06-5		1121	GW		X					1	1					0.01	6.1	25.5	423.1
52	C-HS2-C06-7		1138	GW		X					1	1					0.19	6.3	24.8	225.2
53	C-HS2-C06-10		1155	GW		X					1	1					0.14	5.7	24.0	145.7
54	C-HS2-C06-10-Dup		1200	GW		X					1	1					0.14	5.7	24.0	145.7
55	C-HS2-C08-5	071012	1304	GW		X					1	1					0.19	6.3	27.2	319.4
56	C-HS2-C08-5-Dup	071012	1309	GW		X					1	1					0.19	6.3	27.2	319.4
57	C-HS2-C08-7	071012	1322	GW		X				1			1	1	2	1	0.21	6.5	25.8	499
58	C-HS2-C08-10	071012	1343	GW		X					1	1					0.12	5.9	25.0	159.6
59	C-HS2-C10-6	071012	1416	GW		X					1	1					0.23	6.0	27.0	200.7
60	C-HS2-C10-8	071012	1427	GW		X					1	1					0.16	5.8	25.7	233.6

Containers Prepared/ Relinquished: J. Chambers	Date/Time: 6-21-12 12:23	Received:	Date/Time: 1223 062112
Relinquished:	Date/Time: 1155 071112	Received: K Muelmach	Date/Time: 7/11/12 1155
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N (N/A)
Samples intact upon arrival?	(Y) N N/A
Received on ice? Temp_____	(Y) N N/A
Proper preservatives indicated?	(Y) N N/A
Rec'd within holding time?	(Y) N N/A
Volatiles rec'd w/out headspace?	Y N (N/A)
Proper containers used?	(Y) N N/A

Instructions / Remarks:

1206553

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

1206553

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name	Contact / Phone:
Hazen and Sawyer	
Project Name / Location: Seminole County C-HS2 SE #4	
Samplers: (Signature) [signature]	

Matrix Codes:
DW-Drinking Water WW-Wastewater
SW-SurfaceWater SL-Sludge SO-Soil
GW-Groundwater SA-Saline Water O-Other
R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
61	C-HS2-C10-12	071012	1448	GW		X					1	1					0.13	5.5	25.1	142.4
62	C-HS2-C11-5	071012	1608	GW		X					1	1					0.17	5.4	27.9	167.0
63	C-HS2-C11-7	071112	0735	GW		X					1	1					0.22	5.0	25.0	222.5
64	C-HS2-C11-10	071112	0753	GW		X					1	1					0.18	4.7	24.3	152.3
65	C-HS2-D04-5	—	—	GW		X					1	1					—	—	—	—
66	C-HS2-D04-5-Dup	—	—	GW		X					1	1					—	—	—	—
67	C-HS2-D04-7	—	—	GW		X					1	1					—	—	—	—
68	C-HS2-D04-10	—	—	GW		X					1	1					—	—	—	—
69	C-HS2-D07-6	—	—	GW		X				1			1	1	2	1	—	—	—	—
70	C-HS2-D07-8	—	—	GW		X					1	1					—	—	—	—
71	C-HS2-D07-11	—	—	GW		X					1	1					—	—	—	—
72	FB-Tap	071012	0745	DW		X					1	1					1.28	7.2	24.8	215.9

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	6-21-12 12:23	[signature]	1233 062112
[signature]	1155 071112	K Nudmeuh	7/11/12 1155

Seal intact?	Y N N/A
Samples intact upon arrival?	Y N N/A
Received on ice? Temp_____	Y N N/A
Proper preservatives indicated?	Y N N/A
Rec'd within holding time?	Y N N/A
Volatiles rec'd w/out headspace?	Y N N/A
Proper containers used?	Y N N/A

Instructions / Remarks:

1206553

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

1206553

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: Seminole County C-HS2 SE #4

Samplers: (Signature)

Matrix Codes:
DW-Drinking Water WW-Wastewater
SW-SurfaceWater SL-Sludge SO-Soil
GW-Groundwater SA-Saline Water O-Other
R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	1LP, Cool Total Alkalinity, Cl, CBOD, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 TKN, NH_3, NOx,	125mL P, $Na_2S_2O_3$ FC-MF	250mL P, HNO_3 B, Ca, Fe, Mg, K, Na, Mn	1LP, Cool Total Alkalinity, Cl	250mL P, H_2SO_4 COD, TKN, NH3, NOx	1LP, Cool Alkalinity, Cl, F, NO_3, OP, SO_4, NO_2	250mL P, H_2SO_4 COD, TKN, NH_3, NOx	40mLaV, HCl TOC	250mLaG, Cool DOC	Field DO	Field pH	Field Temperature	Field Conductivity
73	FB-DI	07/10/12	0735	R		X					1	1					2.35	7.9	24.4	2.9
74	EB		0740	R		X					1	1					2.35	7.9	24.4	2.9

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J. Chambers	6-21-12 12:23		1223 06/21/12
Relinquished:	Date/Time: 1155 07/11/12	Received:	Date/Time: 7/11/12 1155
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N (N/A)
Samples intact upon arrival?	(Y) N N/A
Received on ice? Temp_____	(Y) N N/A
Proper preservatives indicated?	(Y) N N/A
Rec'd within holding time?	(Y) N N/A
Volatiles rec'd w/out headspace?	Y N (N/A)
Proper containers used?	(Y) N N/A

Instructions / Remarks:

1206553

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

Appendix C: Weather Station Data

o:\44237-001\Wpdocs\Report\Draft

Table C.1
Monthly Recorded Meteorological Data
Sheffield in the Crossings, Longwood, FL

Period	Temp high (°F)	Temp avg (°F)	Temp low (°F)	Humidity high (%)	Humidity avg (%)	Humidity low (%)	Wind high (mph)	Wind avg (mph)	Rain max (in)	Rain total (in)
Jan-10	65	52	41	90	73	48	18	5	0.61	2.31
Feb-10	64	53	42	92	73	49	19	5	0.94	3.52
Mar-10	72	60	49	93	71	43	20	6	3.43	7.22
Apr-10	84	71	59	95	73	44	17	4	1.45	3.34
May-10	91	78	69	93	76	50	16	4	1.82	3.88
Jun-10	95	82	73	95	79	50	18	3	0.97	5.15
Jul-10	94	82	75	96	80	56	15	3	1.29	4.26
Aug-10	94	84	76	96	80	56	79	3	2.23	4.37
Sep-10	92	80	72	97	81	53	17	3	0.79	3.35
Oct-10	87	72	61	95	72	40	15	3	0.00	0.00
Nov-10	77	64	54	94	78	53	15	3	1.10	2.09
Dec-10	63	49	37	89	70	44	18	5	0.47	0.62
Jan-11	68	57	45	92	74	48	19	4	1.27	4.18
Feb-11	76	62	52	95	76	49	17	4	1.27	1.78
Mar-11	80	66	55	94	73	46	16	4	3.61	5.57
Apr-11	88	74	62	95	71	41	17	4	0.55	0.65
May-11	92	77	65	94	68	38	18	3	0.58	1.21
Jun-11	92	80	71	96	77	51	15	2	1.99	6.50
Jul-11	95	86	76	95	68	50	15	2	2.65	3.99
Aug-11	95	84	76	96	78	53	17	3	1.28	6.02
Sep-11	92	80	72	97	80	51	15	2	1.71	7.19

Period	Temp high (°F)	Temp avg (°F)	Temp low (°F)	Humidity high (%)	Humidity avg (%)	Humidity low (%)	Wind high (mph)	Wind avg (mph)	Rain max (in)	Rain total (in)
Oct-11	81	70	62	94	78	54	16	3	5.37	7.90
Nov-11	76	66	57	94	79	57	16	3	0.13	0.27
Dec-11	75	63	54	95	80	57	15	3	0.12	0.37
Jan-12	72	58	46	92	72	44	15	2	0.04	0.13
Feb-12	76	65	56	93	76	51	16	3	0.65	1.33
Mar-12	83	70	60	93	71	45	19	4	0.33	0.96
Apr-12	86	72	61	91	65	36	17	3	0.70	1.43
May-12	89	76	68	94	74	46	17	3	1.06	3.37
Jun-12	88	81	69	94	70	57	15	2	0.48	1.51

Source: www.wunderground.com

Appendix D: Field Parameter Analyses

Table D.1
Field Parameter Results
(July 10 and 11, 2012)

Sample Identification	Temperature (°C)	pH	Specific Conductance (µS)	Dissolved Oxygen (mg/L)
C-HS2-STE	28.4	7.0	1,276	1.0
C-HS2-STE-DUP	28.4	7.0	1,276	1.0
C-HS2-SW-6 inch	27.8	6.5	319	3.4
C-HS2-SW-M	26.9	6.8	352	3.3
C-HS2-BKG01-7	25.7	5.8	348	0.3
C-HS2-BKG02-6	24.4	6.0	245	0.1
C-HS2-BKG06-12	25.4	5.8	681	0.9
C-HS2-A07-6	26.3	5.9	242	0.2
C-HS2-A07-8	25.5	6.0	466	0.2
C-HS2-A07-11	25.0	4.8	179	0.3
C-HS2-A10-7	29.5	6.7	950	0.4
C-HS2-A10-9	27.7	6.4	717	0.3
C-HS2-A10-9-DUP	27.7	6.4	717	0.3
C-HS2-A10-12	26.0	4.8	168	0.2
C-HS2-A11-5	29.3	6.5	679	0.3
C-HS2-A11-7	26.4	6.1	447	0.4
C-HS2-A11-10	26.3	4.9	166	0.3
C-HS2-A13-5	28.6	5.4	186	0.3
C-HS2-A13-7	27.3	4.7	218	0.1
C-HS2-A13-10	25.3	4.7	161	0.6
C-HS2-B02-6	27.0	6.2	473	0.1
C-HS2-B02-8	26.5	6.6	516	0.1
C-HS2-B02-11	25.3	6.1	225	0.2
C-HS2-B06-6	26.1	5.7	353	0.4
C-HS2-B06-8	25.6	5.3	219	0.1
C-HS2-B06-11	24.7	5.0	154	0.3

o:\44237-001\Wpdocs\Report\Draft

Sample Identification	Temperature (°C)	pH	Specific Conductance (µS)	Dissolved Oxygen (mg/L)
C-HS2-B08-5	25.9	5.6	579	0.6
C-HS2-B08-7	24.9	5.9	442	0.7
C-HS2-B08-10	24.4	4.8	144	0.2
C-HS2-B10-5	26.4	6.2	649	0.2
C-HS2-B10-7	25.5	5.9	419	0.2
C-HS2-B10-10	24.4	4.4	142	0.3
C-HS2-C04-5	25.4	6.1	330	0.1
C-HS2-C04-7	24.9	6.0	209	0.1
C-HS2-C04-10	24.3	5.7	154	0.1
C-HS2-C06-5	25.5	6.1	423	0.0
C-HS2-C06-7	24.8	6.3	225	0.2
C-HS2-C06-10	24.0	5.7	146	0.1
C-HS2-C06-10-DUP	24.0	5.7	146	0.1
C-HS2-C08-5	27.2	6.3	319	0.2
C-HS2-C08-5-DUP	27.2	6.3	319	0.2
C-HS2-C08-7	25.8	6.5	499	0.2
C-HS2-C08-10	25.0	5.9	158	0.1
C-HS2-C10-6	27.0	6.0	201	0.2
C-HS2-C10-8	25.7	5.8	234	0.2
C-HS2-C10-12	25.1	5.5	142	0.1
C-HS2-C11-5	27.9	5.4	167	0.2
C-HS2-C11-7	25.0	5.0	223	0.2
C-HS2-C11-10	24.3	4.7	152	0.2
FB-Tap	24.8	7.2	216	1.3
FB-DI	24.4	7.9	3	2.4
EB	24.4	7.9	3	2.4

o:\44237-001\Wpdocs\Report\Draft