AECOM
Rusten Corporate Park
100 Red Schoolhouse Road
Chestnut Ridge, New York 10977
www.aecom.com

845-425-4980 tel
845-425-4989 fax

June 19, 2014

Payson Long
Remedial Bureau D
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7013

Re: Multi Site G, WA D007626-17
Dzus Fasteners Site, 1-52-077
Sediment Sampling in Willetts Creek, April and November 2013

Dear Mr. Long:

Two rounds of sediment samples were collected in Willetts Creek to assess the extent of elevated cadmium concentrations in the samples collected during the 5-quarter long-term monitoring at the Site. A Site location map is provided in Figure 1.

The first round of sampling was conducted in April 2013. Surface samples were collected from the main channel of Willetts Creek at approximately 100 ft intervals from Union Boulevard south to Lake Capri; additional surficial samples were collected from adjacent wetland areas along the creek and near stormwater outfalls (Figure 2). This sampling effort was documented in a letter report dated June 28, 2013. Two areas of concern were found during this sampling effort: the wetland area behind the strip mall (SED-CR4 and SED-CR7A) and the portion of Willetts Creek adjacent to the high school athletic fields (CR9 through CR20).

A second round of sampling was proposed to assess the horizontal and vertical extent of cadmium contamination in these areas in a letter dated September 30, 2013. Upon approval of NYSDEC, sampling was conducted in November 2013 to assess these two areas. The proposed sampling protocol is shown on Figure 3.

Sample locations from the November 2013 sampling round are shown on Figure 4. A total of 147 samples were collected from Willetts Creek along 17 transects plus two background samples collected north of Orinoco Drive. The field crew noted a change in sediment type between transects 12 and 13 (more organic material) and an increase in the amount of vegetation in the creek. Transect 12/13 was added to collect samples from this transition area. The number of samples collected at each transect was based on the width of the creek as shown on Figure 3.

Samples were analyzed for cadmium by Hampton-Clarke Veritech Laboratories. The Willetts Creek samples are summarized on Table 1. The table includes all the samples collected in November 2013 and the main channel samples from the April 2013 sampling round.

As shown on Table 1 and Figures 2 and 5, the cadmium concentrations were assigned a color based on the lowest effects level (LEL) and highest effects level (HEL) levels as found in the NYSDEC Technical Guidance for Screening Contaminated Sediments (1999). The color codes are:

- Blue – not detected
- Light blue – less than 0.6 milligrams per kilogram (mg/kg) (LEL criterion)
- Green – 0.6 to 9 mg/kg (HEL criterion and Site cleanup criterion is 9 mg/kg)
- Yellow – 9 to 90 mg/kg
- Orange – 90 to 900 mg/kg
- Red – greater than 900 mg/kg

Two background samples were collected from Willetts Creek during this sampling effort, UP-1 and UP-1A. The two samples were collected in the creek north of Orinoco Drive as shown on Figure 5. The cadmium concentration in both samples was reported as not detected.

Transects CR5 through CR8 are located in a wide wetland area behind the strip mall on Union Boulevard. The bank to bank distances are typically greater than 100 ft. The wetland area soils tend to be very soft organic muck. As shown on Figure 5, the cadmium results from this portion of the creek indicate areas of elevated cadmium concentrations. Areas along each of these four transects indicate cadmium concentrations above 9 mg/kg (site cleanup criterion) with most of the exceedances in the wetland area west of the main channel (the location of the main channel is shown as a light blue dot on Figure 5). Thirty-six surface samples were collected along these four transects: 20 samples were less than 9 mg/kg; nine samples were between 9 and 90 mg/kg, three were between 90 and 900 mg/kg and four were above 900 mg/kg, with a maximum concentration of 8,200 mg/kg at CR8-W2S. Samples from the 1-foot below ground surface (ft bgs) interval indicate that the majority of the cadmium contamination is confined to the surficial sediments: 13 of 20 samples were below the detection limit, five samples were less than 9 mg/kg, one sample was in the 9 to 90 mg/kg range and one sample was greater than 900 mg/kg (CR8-W3D at 2,700 mg/kg).

The highest cadmium concentrations were found along transect CR8 in the wetland area behind the strip mall and immediately north of the high school athletic fields. Five samples along this transect were above 900 mg/kg (maximum 8,200 mg/kg), four were surface grabs and one was from the 1-ft bgs interval.

Transects CR9 through CR-18 are adjacent to the high school athletic fields. As shown on Figure 5, almost half of the samples in this portion of the creek (33 of 70 samples) were in the 90 to 900 mg/kg

range. Of these 33 samples, only five were from the 1-ft bgs interval. One surface sample concentration was greater than 900 mg/kg (2,600 mg/kg).

Thirty-two samples were collected from the 1-ft bgs interval in transects CR9 through CR-18. Five of these samples were in the 90 to 900 mg/kg range, 14 were in the 9 to 90 mg/kg range, ten were less than 9 mg/kg, and three were not detected.

Three samples were collected from the 2-ft bgs interval in transects CR-9 through CR-18. All three samples were less than 9 mg/kg.

Transects CR19 and CR20 are located south of the athletic fields. The April 2013 sampling had indicated that this was the southern extend of significant cadmium contamination. Sixteen samples were collected from these two transects, five surface grabs and three 1-ft bgs samples each. Of the ten surface grabs, one sample in each transect was in the 90 to 900 mg/kg range, both from the western side of the creek. Seven of the remaining surface grabs were in the 9 to 90 mg/kg range (less than 56 mg/kg) and one sample was less than 9 mg/kg. Of the six 1-ft bgs samples, one was in the 9 to 90 mg/kg range, three were less than 9 mg/kg and two were below the detection limit.

Very truly yours,

AECOM Technical Services Northeast, Inc.

Paul Kareth

Paul Kareth
Project Manager

Enclosures

TABLE 1
DZUS FASTENERS SITE (1-52-033)
WILLETTS CREEK SEDIMENT SAMPLE RESULTS - NOVEMBER 2013

Lab Sample ID	Client Sample ID	Depth	Result	Units
AC76776-001	UP-1	0.0 - 0.5"	ND	mg/Kg
AC76776-002	UP-1A	0.5 - 0.8"	ND	mg/Kg
AC75648-081	CR5-W1S	surface	3.2	mg/Kg
AC75648-077	CR5-W1D	1 ft	ND	mg/Kg
AC75648-090	CR5-W2S	surface	11	mg/Kg
AC75648-087	CR5-W3S	surface	47	mg/Kg
AC75648-088	CR5-W3D	1 ft	6.0	mg/Kg
AC75648-083	CR5-W4	surface	370	mg/Kg
AC75783-001	CR5-W42FT	2 ft	14	mg/Kg
AC75648-079	CR5-W5S	surface	110	mg/Kg
AC71997-006	SED-CR05	surface	ND	mg/Kg
AC75648-078	CR5-CS1FT	1 ft	ND	mg/Kg
AC75648-082	CR5-CD2FT	2 ft	ND	mg/Kg
AC75648-086	CR5-E3S	surface	ND	mg/Kg
AC75648-089	CR5-E31FT	1 ft	2.1	mg/Kg
AC75648-080	CR5-E32FT	2 ft	ND	mg/Kg
AC75648-085	CR5-E2	surface	4.4	mg/Kg
AC75648-084	CR5-E1S	surface	3.8	mg/Kg
AC75783-002	CR5-E1A	1 ft	5.2	mg/Kg
AC75648-049	CR6-W1S	surface	3.2	mg/Kg
AC75648-054	CR6-W1D	1 ft	ND	mg/Kg
AC75648-059	CR6-W2S	surface	5.8	mg/Kg
AC75648-050	CR6-W3S	surface	3.8	mg/Kg
AC75648-055	CR6-W4S	surface	15	mg/Kg
AC75648-053	CR6-W4D	1 ft	ND	mg/Kg
AC75648-056	CR6-W5S	surface	20	mg/Kg
AC75648-052	CR6-W6S	surface	47	mg/Kg
AC75648-060	CR6-W7D	1 ft	4.9	mg/Kg
AC75648-058	CR6-W7S	surface	230	mg/Kg
AC71997-007	SED-CR06	surface	ND	mg/Kg
AC75648-047	CR6-Channel	1 ft	11	mg/Kg
AC75648-057	CR6-E1S	surface	6.2	mg/Kg
AC75648-048	CR6-E1D	1 ft	ND	mg/Kg

ND	Not Detected
	<0.6 (LEL)
	0.6 - 9 (cleanup criterion)
	9 - 90
	91 - 900
	<900

TABLE 1
DZUS FASTENERS SITE (1-52-033)
WILLETTS CREEK SEDIMENT SAMPLE RESULTS - NOVEMBER 2013

Lab Sample ID	Client Sample ID	Depth	Result	Units
AC75648-040	CR7-W1S	surface	1.2	mg/Kg
AC75648-041	CR7-W1D	1 ft	ND	mg/Kg
AC75648-034	CR7-W2S	surface	1.8	mg/Kg
AC75648-036	CR7-W4S	surface	2.9	mg/Kg
AC75648-037	CR7-W41FT	1 ft	ND	mg/Kg
AC75648-042	CR7-W42FT	2 ft	ND	mg/Kg
AC75648-039	CR7-W5S	surface	2.8	mg/Kg
AC75648-035	CR7-W6S	surface	12	mg/Kg
AC75648-061	CR7-W6D	1 ft	ND	mg/Kg
AC75648-051	CR7-W6AS	surface	85	mg/Kg
AC75648-038	CR7-W7S	surface	86	mg/Kg
AC71997-008	SED-CR07	surface	1.2	mg/Kg
AC75648-043	CR7-C1FT	1 ft	ND	mg/Kg
AC75648-044	CR7-C2FT	2 ft	ND	mg/Kg
AC75648-046	CR7-E1S	surface	5.5	mg/Kg
AC75648-045	CR7-E1D	1 ft	ND	mg/Kg
AC75648-022	CR8-W1S	surface	960	mg/Kg
AC75648-021	CR8-W1D	1 ft	3.4	mg/Kg
AC75648-023	CR8-W2S	surface	8,200	mg/Kg
AC75648-024	CR8-W3S	surface	1,200	mg/Kg
AC75648-025	CR8-W3D	1 ft	2,700	mg/Kg
AC71997-010	SED-CR08	surface	3.4	mg/Kg
AC75648-033	CR8-C1FT	1 ft	ND	mg/Kg
AC75648-029	CR8-E5S	surface	9.5	mg/Kg
AC75648-028	CR8-E4S	surface	3.9	mg/Kg
AC75648-026	CR8-E3S	surface	1,200	mg/Kg
AC75648-027	CR8-E3D	1 ft	ND	mg/Kg
AC75648-030	CR8-E2S	surface	1.9	mg/Kg
AC75648-032	CR8-E1S	surface	3.7	mg/Kg
AC75648-031	CR8-E1D	1 ft	ND	mg/Kg
AC75648-106	CR9-W1S	surface	340	mg/Kg
AC75648-102	CR9-W1D	1 ft	56	mg/Kg
AC71997-011	SED-CR09	surface	460	mg/Kg
AC75648-101	CR9-C1FT	1 ft	1.3	mg/Kg
AC75783-003	CR9-2F.CHAN	2 ft	0.71	mg/Kg
AC75648-104	CR9-E1S	surface	76	mg/Kg
AC75648-105	CR9-E1D	1 ft	ND	mg/Kg
AC75648-066	CR10-W1S	surface	2,600	mg/Kg
AC75648-064	CR10-W1D	1 ft	120	mg/Kg
AC71997-012	SED-CR10	surface	190	mg/Kg
AC75648-063	CR10-C1FT	1 ft	24	mg/Kg
AC75648-065	CR10-C2FT	2 ft	6.6	mg/Kg
AC75648-067	CR10-E1S	surface	270	mg/Kg
AC75648-062	CR10-E1D	1 ft	160	mg/Kg

ND	Not Detected
	<0.6 (LEL)
	0.6 - 9 (cleanup criterion)
	9 - 90
	91 - 900
	<900

TABLE 1
DZUS FASTENERS SITE (1-52-033)
WILLETTS CREEK SEDIMENT SAMPLE RESULTS - NOVEMBER 2013

Lab Sample ID	Client Sample ID	Depth	Result	Units
AC75648-097	CR11-W1S	surface	400	mg/Kg
AC75648-094	CR11-W1D	1 ft	22	mg/Kg
AC71997-013	SED-CR11	surface	240	mg/Kg
AC75648-093	CR11-Channel	1 ft	39	mg/Kg
AC75648-092	CR11-E1S	surface	170	mg/Kg
AC75648-098	CR11-E1D	1 ft	14	mg/Kg
AC75648-074	CR12-W1S	surface	220	mg/Kg
AC75648-005	CR12-W1D	1 ft	10	mg/Kg
AC71997-014	SED-CR12	surface	370	mg/Kg
AC75648-075	CR12-C1FT	1 ft	ND	mg/Kg
AC75648-076	CR12-C2FT	2 ft	0.61	mg/Kg
AC75648-006	CR12-E1S	surface	3.2	mg/Kg
AC75648-004	RC12-E1D	1 ft	ND	mg/Kg
Transect 12/13				
AC75648-073	CR13-W1S	surface	340	mg/Kg
AC75648-070	CR13-W1D	1 ft	11	mg/Kg
AC75648-071	CR13-CS	surface	390	mg/Kg
AC75648-072	CR13-CD1FT	1 ft	12	mg/Kg
AC75648-069	CR13-E1S	surface	100	mg/Kg
AC75648-068	CR13-E1D	1 ft	3.9	mg/Kg
AC75648-114	CR13-W1S	surface	350	mg/Kg
AC75648-113	CR13-W1D	1 ft	90	mg/Kg
AC71997-015	SED-CR13	surface	5.5	mg/Kg
AC75648-116	CR13-Channel	1 ft	0.65	mg/Kg
AC75648-112	CR13-E1S	surface	120	mg/Kg
AC75648-115	CR13-E1D	1 ft	7.1	mg/Kg
AC75648-117	CR14-W1S	surface	240	mg/Kg
AC75648-118	CR14-W1D	1 ft	28	mg/Kg
AC71997-016	SED-CR14	surface	200	mg/Kg
AC75648-120	CR14- Channel	1 ft	470	mg/Kg
AC75648-119	CR14-E1S	surface	110	mg/Kg
AC75648-121	CR14- E1D	1 ft	1.3	mg/Kg
AC75648-124	CR15-W1S	surface	180	mg/Kg
AC75648-125	CR15-W1D	1 ft	7.4	mg/Kg
AC71997-017	SED-CR15	surface	250	mg/Kg
AC75648-126	CR15-Channel	1 ft	190	mg/Kg
AC75648-123	CR15-E1S	surface	210	mg/Kg
AC75648-122	CR15-E1D	1 ft	28	mg/Kg

ND	Not Detected
	<0.6 (LEL)
	0.6 - 9 (cleanup criterion)
	9 - 90
	91 - 900
	<900

TABLE 1
DZUS FASTENERS SITE (1-52-033)
WILLETTS CREEK SEDIMENT SAMPLE RESULTS - NOVEMBER 2013

Lab Sample ID	Client Sample ID	Depth	Result	Units
AC75648-002	CR16-W1S	surface	57	mg/Kg
AC75648-003	CR16-W1D	1 ft	1.4	mg/Kg
AC71997-018	SED-CR16	surface	130	mg/Kg
AC75648-001	CR16-CH	1 ft	18	mg/Kg
AC75648-009	CR17-W1S	surface	180	mg/Kg
AC75648-141	CR17-W1D	1 ft	0.71	mg/Kg
AC71997-019	SED-CR17	surface	250	mg/Kg
AC75648-139	CR17-Channel	1 ft	2.3	mg/Kg
AC75648-008	CR17-E2S	1 ft	160	mg/Kg
AC75648-140	CR17-E1S	surface	10	mg/Kg
AC75648-007	CR17-E1D	1 ft	210	mg/Kg
AC75648-131	CR18-W1S	surface	150	mg/Kg
AC75648-130	CR18-W1D	1 ft	27	mg/Kg
AC75648-128	CR18-W2	surface	440	mg/Kg
AC71997-021	SED-CR18	surface	150	mg/Kg
AC75648-127	CR18-Channel	1 ft	1.6	mg/Kg
AC75648-129	CR18-E2	1 ft	320	mg/Kg
AC75648-133	CR18-E1S	surface	56	mg/Kg
AC75648-132	CR18-E1D	1 ft	48	mg/Kg
AC75648-149	CR-19W1S	surface	22	mg/Kg
AC75648-150	CR19-W1D	1 ft	31	mg/Kg
AC75648-136	CR19-W2	surface	650	mg/Kg
AC71997-022	SED-CR19	surface	14	mg/Kg
AC75648-134	CR19-Channel	1 ft	ND	mg/Kg
AC75648-135	CR19-E2	1 ft	31	mg/Kg
AC75648-138	CR19-E1S	surface	27	mg/Kg
AC75648-137	CR19-E1D	1 ft	8.3	mg/Kg
AC75648-148	CR20-W1S	surface	56	mg/Kg
AC75648-147	CR20-W1D	1 ft	8.1	mg/Kg
AC75648-144	CR20-W2	surface	130	mg/Kg
AC71997-023	SED-CR20	surface	12	mg/Kg
AC75648-142	CR20-Channel	1 ft	ND	mg/Kg
AC75648-143	CR20-E2	1 ft	25	mg/Kg
AC75648-145	CR20-E1S	surface	2.7	mg/Kg
AC75648-146	CR20-E1D	1 ft	2.8	mg/Kg

ND	Not Detected
	<0.6 (LEL)
	0.6 - 9 (cleanup criterion)
	9 - 90
	91 - 900
	<900





USGS NY Bay Shore West Quadrangle

U.S.G.S. 1:24 000 SCALE TOPOGRAPHIC MAP

Copyright:© 2011 National Geographic Society i-cubed

Prepared by: AECOM

Prepared for: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Multi Site G
Operation, Maintenance & Monitoring

Site Location
Dzus Fasteners Site

Date:	Scale:	Figure No. :
January 2013	1 inch = 2,500 feet	1



Legend

Cadmium (mg/kg)

- ND
- <0.6 (LEL)
- 0.6 - 9.0 (Cleanup Criterion)
- 9.0 - 90
- 90 - 900
- >900

0 50 100 200 300 400 Feet

Source:
Aerials from 2010 Half Foot 4 Band Long Island Zone
New York Statewide Digital Orthoimagery Program

Prepared by: AECOM

Prepared for: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Multi Site G
Operation, Maintenance & Monitoring

Willetts Creek Sediment
April 2013 Cadmium Concentrations by Range
Dzus Fasteners Site

Date:	Scale:	Figure No. :
June 2014	As Shown	2

FIGURE 3
DZUS FASTENERS SITE - #1-52-033

PROPOSED SEDIMENT SAMPLING LOCATIONS IN WILLETTS CREEK

Legend

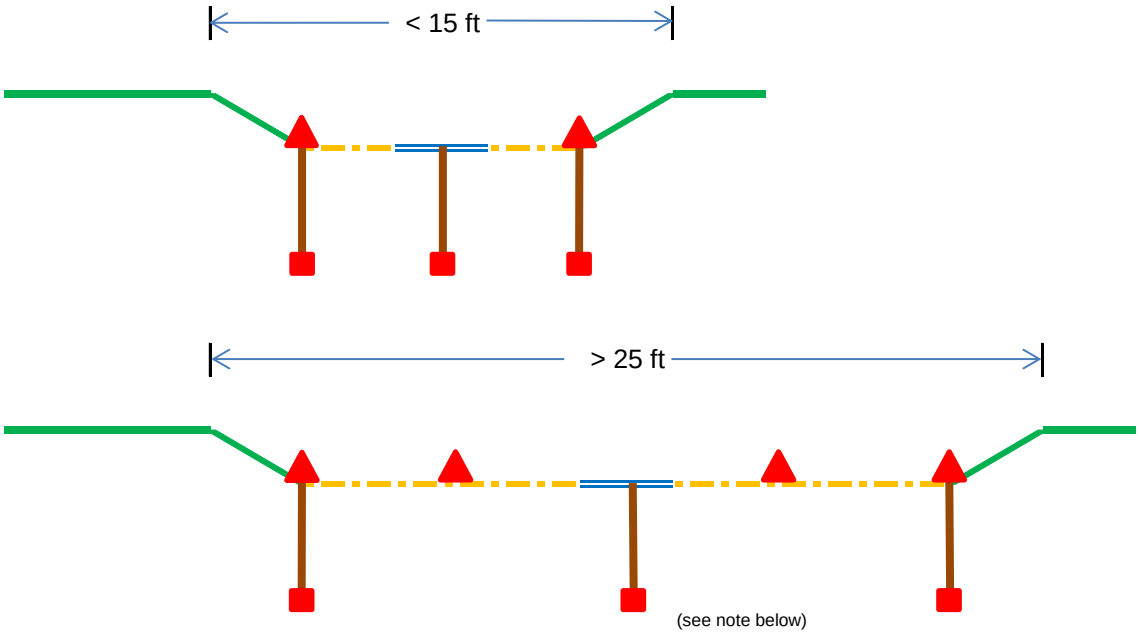
stream channel

wetland area

stream bank

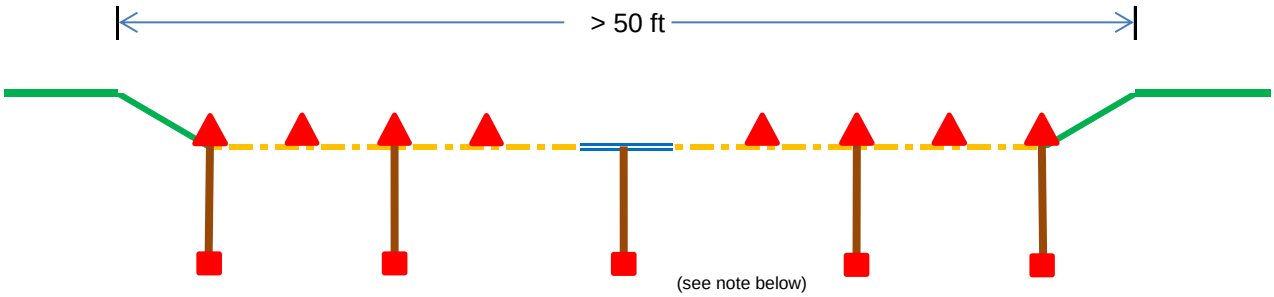
Surface grab location

Subsurface sample (1-ft bgs)



Note: At locations SED-CR9 and SED-CR12 an additional sample at two feet below the surface will be collected.

Wetland Transects CR5, CR6, CR7 and CR8



Note: At transects SED-CR5 and SED-CR7, an additional sample will be collected from two feet below the surface at two of the borings (an additional four samples).



0 25 50 100 150 200
Feet

Sources:
1. Sediment Locations, Handheld GPS Unit
2. Aerials, 2010 Half Foot 4 Band Long Island Zone New York Statewide Digital Orthoimagery Program

Prepared by: AECOM

Prepared for: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Multi Site G
Operation, Maintenance & Monitoring

Willetts Creek Surface Sediment Transects Locations
Dzus Fasteners Site

Date:	Page:	Figure No. :
June 2014	1 of 2	4



0 25 50 100 150 200
Feet

Sources:
1. Sediment Locations, Handheld GPS Unit
2. Aerials, 2010 Half Foot 4 Band Long Island Zone New York Statewide Digital Orthoimagery Program

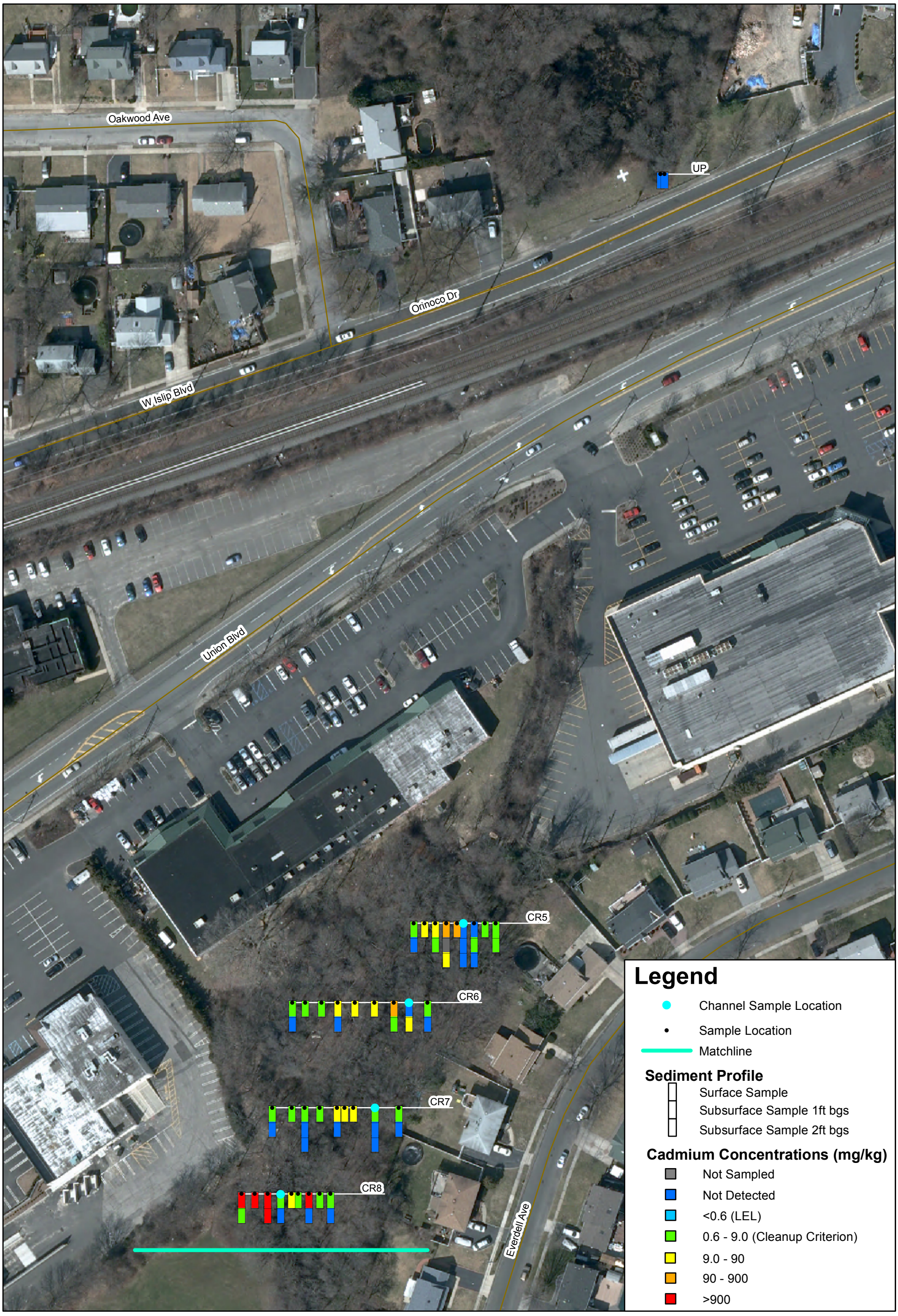
Prepared by: AECOM

Prepared for: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Multi Site G
Operation, Maintenance & Monitoring

Willetts Creek Surface Sediment Transects Locations
Dzus Fasteners Site

Date:	Page:	Figure No. :
June 2014	2 of 2	4



0 25 50 100 150 200
Feet

Sources:
1. Sediment Locations, Handheld GPS Unit
2. Aerials, 2010 Half Foot 4 Band Long Island Zone New York Statewide Digital Orthoimagery Program

Prepared by: AECOM

Prepared for: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Multi Site G
Operation, Maintenance & Monitoring

Willetts Creek Sediment Transects
November 2013 Cadmium Concentrations by Range
Dzus Fasteners Site

Date:	Page:	Figure No. :
June 2014	Page 1 of 2	5



0 25 50 100 150 200 Feet

Sources:
1. Sediment Locations, Handheld GPS Unit
2. Aerials, 2010 Half Foot 4 Band Long Island Zone New York Statewide Digital Orthoimagery Program

Prepared by: AECOM

Prepared for: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Multi Site G
Operation, Maintenance & Monitoring

Willetts Creek Sediment Transects
November 2013 Cadmium Concentrations by Range
Dzus Fasteners Site

Date:	Page:	Figure No. :
June 2014	2 of 2	5