Weekly Field Report Week: 03-09-14 through 03-15-14 New Bedford Harbor Lower Harbor CAD Cell (LHCC)

This Weekly Field Report was prepared to serve as a summary of field activities conducted throughout the week for Phase I dredging of the New Bedford Harbor Lower Harbor CAD Cell (LHCC) in New Bedford, Massachusetts.

1. Introduction:

The weekly field report describes the activities carried out by the Contractor (Cashman/Tripp Marine), the Owner's Representative (Apex Companies, LLC), and any subcontractors completing work within the scope of the project requirements.

This Weekly Field Report represents the nineteenth Report associated with Phase I dredging of the LHCC in New Bedford Harbor, and the associated handling and disposal of dredged materials at CAD cells within the Harbor, and at designated open-water disposal sites approved for this Project.

This 19th Report for the LHCC dredging activities includes:

- Daily Inspection Reports from the dredging oversight performed during the week of March 9th through March 15th, 2014. These reports include notes on the equipment used on site, and a summary of contractor activities. (See Attachment 1);
- Water Quality Monitoring Forms completed for the week of March 9th through March 15th, 2014, (Attachment 2) summarizing monitoring survey data recorded during active dredging. Included with the attached forms is Figure 1 Lower Harbor CAD Cell Phase I Water Quality Monitoring Plan, which shows the locations of the water quality monitoring events conducted during this reporting period. Per the approved Water Quality Monitoring Plan and associated performance standards for the dredging efforts being conducted during this reporting period, Apex has:
 - Conducted water quality monitoring a minimum of one day per week
 - Performed visual inspections of dredged materials before the disposal of a scow for any visible debris or other items that could potentially become a hazard to navigation prior to the scow's departure for the offshore disposal site.

Summary:

The Contractor, Cashman Dredging and Marine Contracting, Co. LLC (Cashman) conducted dredging at the LHCC on March 10th, 11th, 12th, 13th, 14th, and 15th. Dredging operations focused on the removal of Phase I Bottom of CAD Cell sediments. During this reporting period, dredging operations were conducted using a conventional digging bucket, with dredged materials being disposed offshore at the Rhode Island Sound Disposal Site (RISDS). Cashman was observed conducting these activities during the authorized operational window of 7AM until sunset, utilizing a single dredge plant - the Bobby D; two tugs - Ellsea and Lucinda Smith; a 2800 cubic yard split Eddie scow Carroll; and two small utility boats. A 1500 cubic yard pocket scow, SEI 2000, was used in a trial period from March 14th to March 15th as part of its Dredging Quality Management (DQM) certification process. The pocket scow was cleared on March 14th for dredging of Bottom of CAD material at the LHCC following its Disposal Quality inspection for offshore disposal at the RISDS. Apex is still waiting on the DQM Certification of the SEI 2000. With time of year restrictions now in place (January 15th through June 15th) all dredging activities were conducted within a silt curtained perimeter surrounding the LHCC.

2. Operational Notes:

Dredging:

Dredging of LHCC Phase I Bottom of CAD sediments continued during the week. Apex conducted one day of water quality monitoring on March 11th while dredging was being performed to ensure that this activity did not result in an exceedance of any project-specific water quality standards.

Offshore Disposal:

Offshore disposal for LHCC Phase I Bottom of CAD sediments is scheduled and permitted for the Rhode Island Sound Disposal Site. Three offshore disposal events, using the split scow Eddie Carroll, were recorded during the week and occurred on March 11th, 12th, and 14th.

Table 1 – Cumulative Dredging Progress

Period of Activity	Volume (cy)
Approximate Top of CAD Volume Dredged to Date*	24,890
Approximate Bottom of CAD Volume Dredged this Reporting Period	4,800
Approximate Bottom of CAD Volume Dredged to Date*	19,900

^{*} Dredge volume quantities are estimated based on observed scow draft marks and an assumed density of the materials dredged. Given the uncertainty in the density of a composite mix of sediments being dredged, all volumes are confirmed and adjusted as necessary using bathymetric survey data.

3. Monitoring Summary

There were no water quality exceedances observed during this reporting period related to dredging operations. No water quality samples were collected.

Prepared by:

Apex Companies, LLC

John B. McAllister, P.E. Senior Project Engineer

Attachment 1 Daily Inspection Reports



Inspector:	Kaios Ryan	, Adam Hart		-	Dat	e : 03/09/20:	14
Contractor:	Cashman			Foreman/Supt:		No Captain	
Weather	AM: PM:	Cloudy Clear	0.04	Temperature	AM: PM:	39 25	
Tides	High Low	0158 0954	AM AM	<u>1526</u> 2029	PM PM		
Contractor Ac	Engineer Operators Mate Deckhand Captains tivities: (Att on site. 071	0 @ _ 0 @ _ 0 @ _ @ _ ach Additional 2 no activity or activity on site	Hrs Hrs Sheets as Ne site; Bobby 1130 Lucind	D. is in dredge a	Bobby D. Eddie Ca Lucinda S area and to Eddie Ca	rroll Smith the Eddie Cal	Hrs0 Hrs1 Hrs Hrs Hrs Hrs Troll is located at the the 1115 bridge
Problems/Issu	ies or Action	ı Items:					
Visitors:					_		
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			Inspect	ion Report			
Inspector:	Kaio	s Ryan, Adam F	Hart		Date	e: <u>03/10/20</u>	14
Contractor:	Cash	man Dredging ar	nd Marine Co	ntracting	Foreman	/Supt:	Micah Bowes
Weather	AM: PM:	Snow Cloudy		Temperature	AM: PM:	43 33	
Tides	High _ Low _	0359 1047	AM AM	1627 2141	PM PM		
Manpower O	nsite			Equipment Or	nsite		
Other:	Operators Mate Deckhand Captains	1@ 1@ 1@ 1@ 	10 Hrs 10 Hrs 10 Hrs 10 Hrs 10 Hrs Hrs Hrs	Description:	Eddie Car Ellsea Lucinda S Red Skiff		Hrs. 10 Hrs. 3 Hrs. 2 Hrs. 10 Hrs. 10 Hrs. 2
Contractor Ac	tivities: (Atta	ch Additional S	heets as Ne	cessary)			
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Environmental Technician

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Inspector:	Kaios Ryan	, Brett Young			Date:	03/11/201	L4	_
Contractor:	Cashman			Foreman/Supt:	Michah Bo	wers		_
Weather	AM: PM:	Cloudy Clear		Temperature	AM: PM:	57 36		
Tides	High Low	0503 1127	AM AM	1726 2245	PM PM			
Manpower O	nsite			Equipment Onsite	e			
Other:	Engineer Operators Mate Deckhand Captains	1@_		Description:			Hrs.	10 12
	tivities: (Att	ach Additional S		ressary)			1113	
Lucinda Smith tie The Bobby D. stil a little to the we Bobby D. stops dresumes dredgin 1439- The Bobby and begins dredginto the Eddie Cathe Ellsea assists The Bobby D. stod drafting; bow-9.	es up by Cad Il dredging in st at cut 6 st Iredging; Ells ig into the E / D. moves a ging into the arroll at cut (s in pushing ops dredging 5' stern- 11'.	cell # 3. 0718- nto the Eddie Cation 5 + 82. 10 sea helps with riddie Carroll at cand begins dred Eddie Carroll at 6 station 5+36. the Eddie Carrol g. 1725- The Edd.	The Bobby Darroll at cut 6 024- The Bob moving the Bob cut 6 station 4 ging into the at cuts 6&7 st 1645- The Bob oll back up ag die Carroll is i ain is opened	redge area and ties of begins dredging is station 6 + 09. 102 by D. resumes dredobby D. and the Ed 4 + 82. 1400- The Eddie Carroll at cutation 4+95. 1619- The Bobby D. stops dredgainst the Bobby D. inspected and clear and the Lucinda State 1815 bridge of the 1815 bridge of	nto the Edd 18- The Bob dging into th die Carroll t Eddie Carrol t 6 station 5 The Bobby I ging to move 1705- The E red for offsh mith enters	ie Carroll d by D. stops he Eddie Ca o the west. Il is drafting s+12. 1523 D. moves ar e and snaps Bobby D. re nore dispos	rafting and dredging rroll. 12! 1330- But a light section in the Both section in the B	t 4'. 0836- g and moves 50- The obby D. . stern 8.5'. oby D. moves dredging v line. 1650- redging. 1722- Carroll
	miscommur ff opens the	nication betwee silt curtain gat	e while the B	e captain and tug ca obby D. is dredging close the gate.				
Visitors:								
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Inspector:	Kaios Ryan,	Adam Hart			Date: 03/12/20)14	
Contractor:	Cashman/W	Veeks		Foreman/Supt:	Micah Bowers		
Weather	AM: _ PM: _	Cloudy Cloudy		Temperature	AM: 52 PM: 22	- -	
Tides	High Low	558 1201	AM AM		PM PM		
Manpower O	nsite			Equipment On	site		
	Engineer _	108	8 <u>.5</u> Hrs	Description:	Bobby D.	Hrs. 9.5	
			3.5 Hrs		Eddie Carroll	Hrs. 9.5	
			8.5 Hrs	_	Ellsea	Hrs. 1	
	_	1 @ 8		_	Lucinda Smith	Hrs. 2	
	Captains	1@8		-	Survey 4	Hrs. 3.5	
Other:			Hrs	-	Survey !	Hrs.	
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						Bobby D still dredging	
						f excavator, the whole	
		-		=	the excavator with t		•
	-				y D. resumes dredgii	=	
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•		•				bound. 1729 Tug boat	
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Dreuge plant Bo	DDy D. Clew C	onsite, no site at	ctivity.				
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Inspector:	Mark Martin	nho, Brett Yo	ung	-	Date:	03/13/201	14	_
Contractor:	Cashman			_Foreman/Supt:		Steve B	aynes, Micah Bower	<u>'S</u>
Weather	AM: PM:	Snow Snow		Temperature	AM: PM:	21		
Tides	High _	0626	AM	1846	PM			
	Low _	Х	AM	1256	PM			
Manpower O	nsita			Equipment Or	nsita			
Manpower O		1 @	13 Uma				Uma 13	
	Engineer _	1@.	12 Hrs	Description:			Hrs12	
	Operators _	1@.	12 Hrs	,	Eddie Carro	OII	Hrs12	
	Mate _	1@.	12 Hrs		Ellsea	. :41-	Hrs12	
	Deckhand _	1@_	12 Hrs	•	Lucinda Sm	nitn	Hrs6	
Other:	Captains _	2@.	12 Hrs		Red Skiff		Hrs12	
Other.		@	Hrs				Hrs	
Contractor Ac	<u> </u>							
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Inspector:	Chris Stillma	an, Brett Young			Date:	3/14/20	014	_
Contractor:	Cashman			Foreman/Supt:	Mica	h Bowers, J	lunior Mitchel, Dave Norton	
Weather	AM: PM:	Clear Clear	-	Temperature	AM: PM:	35 34		
Tides	High Low	0722 1232	AM AM		PM PM			
Manpower O	nsite			Equipment Ons	ite			
Foreman	Micah Dave Junior	@ 12 @ 12 @ 6	Hrs Hrs Hrs	Description:		oll	Hrs. Hrs. Hrs.	10 3 10
Operators Deck Hands	Tommy Davey	@ 6 @ 12 @ 12	Hrs	-	Lucinda Sr SEI 2000	nith	Hrs.	3 8
Engineer	Josh Dwight	@ <u>12</u> @ <u>12</u>	Hrs Hrs	-			Hrs.	
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1555- Apex cont	tacted Micah	Bowers and informe			•	_	ng activities were immediately s	
	closed. Curta	ain was open for 10 m	ninute	es while dreaging	; occurea.	No visidie t	urbidity was seen exiting the silt	curtain.
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Inspection Report

			Ins	spect	ion Report					
Inspector:	Mike Tumo	lo, Adam Har	t			Date	: 03/15/20	14		
Contractor:	Cashman/\	Neeks			Foreman/Supt:	Dave Nort	on			
Weather	AM:	Partly Clo			Temperature	AM:	32			
	PM:	Clear	•			PM:	57			
Tides	High	756		_AM	2013	PM				
	Low	113		AM	1339	PM				
Manpower O	nsite				Equipment Or	nsite				
	Engineer	1@	10	_ Hrs	Description:			Hrs	_10_	
	Operators	1@	10	Hrs		Eddie Carı	roll	Hrs.	6	
	Mate	1@	10	_ Hrs		Ellsea		Hrs	_1	
	Deckhand	1@	<u>10</u>	_ Hrs		Lucinda Sı	mith	Hrs	_2	
	Captains	1@	10	_ Hrs		SEI 2000		Hrs	4	_
Other:	_ Welder	<u> </u>	9	_ Hrs		Red Skiff		Hrs	_10	
Contractor Ad	tivities: (Att	ach Additiona	l Sheet	s as Ne	ecessary)					
Dredging Start Time 815 Dredging stops Scow SEI 2000 is fillt Richie Barber. 1155 repositions and beg Dredge Plant Bobby Bobby D. resumes dalong side the Bobb Dredge plant Bobby Ellsea pushes the dr 2000 to make repair Norton and deckhar 2000 to finish repair and cleared for offs go for a disposal too the scow Eddie Carrout of the silt curtai Eddie Carroll to the activity stopped, all	to clean up a med, draft of 9'-1 Tug boat Lucinins dredging into D. tries raising lredging. 1345 By D. so the crew D's spud motoredge plant Bobrs. 1640 Oil leakend. 1712 Dredgers. 1755 Tug bobhore disposal. 1649, decision wiroll. 1842 Scown, tug boat Luc scow Winslow	ainor oil leak on oil. 11'. Compartmer da Smith brings to the scow Eddi spuds, but port excavator on the vocan use the tor or is over heating by D. south. 160 from the Bobby D. at Ellsea ties to the 1830 Bobby D. fill be made on 3/Eddie Carroll is uinda Smith pulls	deck of the scown the scown e Carroll spud is hobby Erch. 1435, cannot declare the declare the declare the scown the	he dred, and 5 are Eddie C, draft on aving m D. places E lift spuing result motor, s dredging plant ow Eddi 1837 Thom the C v Eddie C	ge plant Bobby D. 8 e empty. 1125- Tug Carroll to the dredg f 3.5'-4'. 1251 Scove chanical issues. 1 bucket on deck, cre Plant Bobby D. results 1546 Dredge plames. 1605 Red skiff crew is working on 1727 The red skiff crew is working on the Carroll, draft of 7 e red skiff opens the dredge plant Bobby Carroll from the silt	320 Dredging to boat Lucinda to plant Bobb to SEI 2000 wa 330 Port spurew beings re- sumes dredg ant Bobby D. a f brings Capta a repairing it. kiff brings Capta into deeper v 2.5'-6'. (Cashi a e silt curtain to D. Tug boat t curtain. 190	resumes into a Smith brings by D. 1233 Dre as cleared for d begins lifting pairing pin. 1 ling into the so attempts at lifting in Norton and 1650 Red skill ptain Norton water. 1815 Soman is not sur. 1640 Tug bo Ellsea pushed Do Tug boat Lu	the scow sthe scow odge plant offshore of g. 1337 D 350 Tug b cow Eddie fting port d a deckh ff returns and deckh cow SEI 20 re if the Ed at Lucinda d the scow ucinda Sm	SEI 2000. 1 SEI 2000 to Bobby D. disposal. 13 redge Plan oat Ellsea Carroll. 15 spud, tug to and to the with Capta nand to the with Capta nand to the didle Carroll a Smith ties the didle Carroll to the didle Carroll t	1100 to the 325 t pulls 512 coat SEI cin e SEI ected I will s to rroll
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Attachment 2 Water Quality Monitoring Forms

PROJECT: New Bedford Harbor Lower Harbor CAD Ce	PROJECT:	New	Bedford Harbor	Lower	Harbor	CAD	Ce
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JOB NUMBER: 6724

3/11/2014 DATE:

MONITORS: Kyle Miller, Mark Martinho

WEATHER CONDITIONS: High: 57 Low: 36

WIND:
PRIOR STORM EVENTS:
DREDGE UPDATE:

TYPE OF WATER QUALITY MONITORING EVENT: TOP CAD Dredging / BTM CAD Dredging / Disposal TIDE High:0503/1726 Low: 1127/2245



					UP-CURRE	NT_			
Monitoring ID #	NORTHING/ EASTING	TIME	TOTAL WATER DEPTH (ft)	SAMPLE DEPTH (ft)	TURBIDITY (NTUs)	GPS FILE NAME	TIDAL STAGE	TYPE OF WQM & DISTANCE FROM LOCATION	NUMBER OF HOUR DREDGING
31114-00-1-1		752		1	1.76				
31114-00-1-4.5 31114-00-1-9	814979, 2696570	754 756	9.6	4.5 9	1.97 2.76	apex wqm 031114	Ebbing	200' S of Dredge	00
31114-00-1-9	814979, 2090370	730	AVERAGE T	ŭ	2.16		Lbblig	200 3 of Dieage	00
31114-02-1-1		930		1	1.31				
31114-02-1-3	4	932	7.3	3	1.71	apex wqm			
31114-02-1-6	815057, 2697225	934	AVERAGE T	6 URBIDITY:	2.92 1.98	031114	Ebbing	200' N of Dredge	02
31114-04-1-1		1100		1	1.68				
31114-04-1-4	╡	1102	9.3	4	1.89	apex wqm			
031114-04-1-8	814915, 2697142	1104	AVERAGE T	8 URBIDITY:	1.97 1.85	031114	Ebbing	200' N of Dredge	04
031114-06-1-1		1310	<u> </u>	1	3.49				
031114-06-1-5	┥	1312	11.8	5	2.91	apex wqm	-	2006 :- :	
031114-06-1-10	815070, 2696153	1314	AVERAGE T	10 URBIDITY:	3.59 3.33	031114	Flooding	200' S of Dredge	06
)31114-08-1-1		1520		1	3.52				
31114-08-1-5		1522	11	5	2.88				
31114-08-1-10		1524	AVERAGE T	10	6.02 4.14 Down-Curre	031114	Flooding	200' S of Dredge	08
31114-08-1-10 Monitoring ID #	NORTHING/ EASTING	1524		10	6.02 4.14	031114	Flooding TIDAL STAGE	200' S of Dredge DISTANCE FROM DREDGE/SILT CURTAIN	
Monitoring ID # 031114-00-9-1	NORTHING/ EASTING	TIME 745	AVERAGE T	10 URBIDITY: SAMPLE DEPTH (ft)	6.02 4.14 Down-Curre TURBIDITY (NTUs) 1.55	031114 ent GPS FILE NAME		DISTANCE FROM DREDGE/SILT	NUMBER OF HOUR
Monitoring ID # 031114-00-9-1 031114-00-9-3.5	NORTHING/ EASTING 815269, 2697185	TIME	AVERAGE T	10 URBIDITY: SAMPLE DEPTH (ft)	6.02 4.14 Down-Curre TURBIDITY (NTUs)	031114 ent GPS FILE NAME	TIDAL STAGE	DISTANCE FROM DREDGE/SILT CURTAIN	NUMBER OF HOUR
Monitoring ID # 031114-00-9-1 031114-00-9-3.5		TIME 745 747	AVERAGE T	SAMPLE DEPTH (tt) 1 3.5 7 URBIDITY:	Down-Curre TURBIDITY (NTUs) 1.55 2.24	O31114 ent GPS FILE NAME apex wqm 031114		DISTANCE FROM DREDGE/SILT	NUMBER OF HOUR DREDGING
Monitoring ID # 0311114-00-9-1 0311114-00-9-3.5 0311114-00-9-7		TIME 745 747 749	TOTAL WATER DEPTH (ft) 7.2 AVERAGE T TURBIDITY I	SAMPLE DEPTH (ft) 1 3.5 7 URBIDITY: URBIDITY: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6.02 4.14 Down-Curry (NTUs) 1.55 2.24 5.27 3.02 0.86	O31114 ent GPS FILE NAME apex wqm 031114	TIDAL STAGE	DISTANCE FROM DREDGE/SILT CURTAIN	NUMBER OF HOUR DREDGING
Monitoring ID # 031114-00-9-1 031114-00-9-3.5 031114-00-9-7	815269, 2697185	745 747 749 940 942	TOTAL WATER DEPTH (ft) 7.2 AVERAGE T	SAMPLE DEPTH (ft) 1 3.5 7 URBIDITY: URBIDITY: 1 3.5 7 URBIDITY: 1 3 3	6.02 4.14 Down-Curre TURBIDITY (NTUs) 1.55 2.24 5.27 3.02 0.86 7.97 6.28	O31114 ent GPS FILE NAME apex wqm 031114 apex wqm	TIDAL STAGE Ebbing	DISTANCE FROM DREDGE/SILT CURTAIN 200' N of Dredge	NUMBER OF HOUR DREDGING 00
Monitoring ID # 031114-00-9-1 031114-00-9-3.5 031114-00-9-7		TIME 745 747 749	TOTAL WATER DEPTH (ft) 7.2 AVERAGE T TURBIDITY I	SAMPLE DEPTH (tt) 1 3.5 7 URBIDITY: NCREASE: 1 3 66 URBIDITY:	6.02 4.14 Down-Curry (NTUs) 1.55 2.24 5.27 3.02 0.86	O31114 OBS FILE NAME apex wqm O31114	TIDAL STAGE	DISTANCE FROM DREDGE/SILT CURTAIN	NUMBER OF HOUR DREDGING
Monitoring ID # 0311114-00-9-1 0311114-00-9-3.5 0311114-00-9-7 0311114-02-9-1 0311114-02-9-66	815269, 2697185	745 747 749 940 942 944	TOTAL WATER DEPTH (ft) 7.2 AVERAGE T TURBIDITY I 6.5 AVERAGE T TURBIDITY I	SAMPLE DEPTH (ft) 1 3.5 7 URBIDITY: LAMBIDITY: 1 3.6 66 URBIDITY: NCREASE: 1 3 66 URBIDITY: NCREASE:	6.02 4.14 Down-Curry (NTUs) 1.55 2.24 5.27 3.02 0.86 7.97 6.28 4.61 6.29 4.31	apex wqm 031114	TIDAL STAGE Ebbing	DISTANCE FROM DREDGE/SILT CURTAIN 200' N of Dredge	NUMBER OF HOUR DREDGING 00
Monitoring ID # 031114-00-9-1 031114-00-9-3.5 031114-00-9-7 0311114-02-9-1 0311114-02-9-66 0311114-04-9-1 0311114-04-9-1	815269, 2697185 815177, 2696554	TIME 745 747 749 940 942 944 1110 1112	TOTAL WATER DEPTH (ft) 7.2 AVERAGE T TURBIDITY I 6.5 AVERAGE T TURBIDITY I	SAMPLE DEPTH (ft) 1 3.5 7 URBIDITY: NCREASE: 1 3 66 URBIDITY: NCREASE: 1 3 3 66 URBIDITY: NCREASE:	6.02 4.14 Down-Curre TURBIDITY (NTUs) 1.55 2.24 5.27 3.02 0.86 7.97 6.28 4.61 6.29 4.31	ent GPS FILE NAME apex wqm 031114 apex wqm 031114	TIDAL STAGE Ebbing Ebbing	DISTANCE FROM DREDGE/SILT CURTAIN 200' N of Dredge 200' S of Dredge	NUMBER OF HOUR DREDGING 00
Monitoring ID # 031114-00-9-1 031114-00-9-3.5 031114-00-9-7 0311114-02-9-1 0311114-02-9-66 0311114-04-9-1 0311114-04-9-1	815269, 2697185	745 747 749 940 942 944	TOTAL WATER DEPTH (ft) 7.2 AVERAGE T TURBIDITY I 6.5 AVERAGE T TURBIDITY I	SAMPLE DEPTH (th) 1 3.5 7 URBIDITY: NCREASE: 1 3 66 URBIDITY: NCREASE: 1 3 060 URBIDITY: NCREASE:	6.02 4.14 Down-Curry (NTUs) 1.55 2.24 5.27 3.02 0.86 7.97 6.28 4.61 6.29 4.31	ent GPS FILE NAME apex wqm 031114 apex wqm 031114 apex wqm 031114	TIDAL STAGE Ebbing	DISTANCE FROM DREDGE/SILT CURTAIN 200' N of Dredge	NUMBER OF HOUR DREDGING 00
Monitoring ID # 0311114-00-9-1 1311114-00-9-3.5 0311114-02-9-1 0311114-02-9-3 0311114-02-9-66 0311114-04-9-1 0311114-04-9-3 0311114-04-9-6	815269, 2697185 815177, 2696554	TIME 745 747 749 940 942 944 1110 1112	AVERAGE T TOTAL WATER DEPTH (ft) 7.2 AVERAGE T TURBIDITY I 6.5 AVERAGE T TURBIDITY I 7.7 AVERAGE T TURBIDITY I	SAMPLE DEPTH (th) 1 3.5 7 URBIDITY: NCREASE: 1 3 66 URBIDITY: NCREASE: 1 3 060 URBIDITY: NCREASE:	6.02 4.14 Down-Curre TURBIDITY (NTUS) 1.55 2.24 5.27 3.02 0.86 7.97 6.28 4.61 6.29 4.31 4 4.3 3.68 3.99	apex wqm 031114 apex wqm 031114 apex wqm 031114	TIDAL STAGE Ebbing Ebbing	DISTANCE FROM DREDGE/SILT CURTAIN 200' N of Dredge 200' S of Dredge	NUMBER OF HOUR DREDGING 00
Monitoring ID # 031114-00-9-1 031114-00-9-3.5 031114-00-9-7 031114-02-9-1 031114-02-9-66 031114-04-9-1 031114-04-9-6 031114-04-9-1 031114-06-9-1 031114-06-9-2	815269, 2697185 815177, 2696554 815026, 2696555	TIME 745 747 749 940 944 944 1110 1112 1114	AVERAGE T TOTAL WATER DEPTH (ft) 7.2 AVERAGE T TURBIDITY I 6.5 AVERAGE T TURBIDITY I 7.7 AVERAGE T TURBIDITY I	SAMPLE DEPTH (th) 1 3.5 7 URBIDITY: NCREASE: 1 3 66 URBIDITY: NCREASE: 1 3 060 URBIDITY: NCREASE:	6.02 4.14 Down-Curre TURBIDITY (NTUs) 1.55 2.24 5.27 3.02 0.86 7.97 6.28 4.61 6.29 4.31 4 4.3 3.68 3.99 2.15	ent GPS FILE NAME apex wqm 031114 apex wqm 031114 apex wqm 031114	Ebbing Ebbing	DISTANCE FROM DREDGE/SILT CURTAIN 200' N of Dredge 200' S of Dredge	NUMBER OF HOUR DREDGING 00 02
Monitoring ID # 31114-00-9-1 31114-00-9-3.5 31114-00-9-7 31114-02-9-1 31114-02-9-66 31114-04-9-1 31114-04-9-3 31114-04-9-6	815269, 2697185 815177, 2696554	745 747 749 940 942 944 1110 1112 1114	AVERAGE T TOTAL WATER DEPTH (#) 7.2 AVERAGE T TURBIDITY I 6.5 AVERAGE T TURBIDITY I 7.7 AVERAGE T TURBIDITY I 5.1	SAMPLE DEPTH (ft) 1 3.5 7 URBIDITY: NCREASE: 1 3 66 URBIDITY: NCREASE: 1 3 4 URBIDITY: NCREASE: 4 URBIDITY: NCREASE:	6.02 4.14 Down-Curry (NTUs) 1.55 2.24 5.27 3.02 0.86 7.97 6.28 4.61 6.29 4.31 4 4.3 3.68 3.99 2.15 2.97 3.82 4.7	apex wqm 031114 apex wqm 031114 apex wqm 031114 apex wqm 031114	TIDAL STAGE Ebbing Ebbing	DISTANCE FROM DREDGE/SILT CURTAIN 200' N of Dredge 200' S of Dredge	NUMBER OF HOUR DREDGING 00
Monitoring ID # 31114-00-9-1 31114-00-9-3.5 31114-00-9-7 31114-02-9-1 31114-02-9-66 31114-04-9-1 31114-04-9-3 31114-04-9-6	815269, 2697185 815177, 2696554 815026, 2696555	TIME 745 747 749 940 944 944 1110 1112 1114	AVERAGE T TOTAL WATER DEPTH (#) 7.2 AVERAGE T TURBIDITY I 7.7 AVERAGE T TURBIDITY I 7.7 AVERAGE T TURBIDITY I	SAMPLE DEPTH (ft) 1 3.5 7 URBIDITY: NCREASE: 1 3 66 URBIDITY: NCREASE: 1 3 4 URBIDITY: NCREASE: 4 URBIDITY: NCREASE:	6.02 4.14 Down-Curre TURBIDITY (NTUS) 1.55 2.24 5.27 3.02 0.86 7.97 6.28 4.61 6.29 4.31 4.3 3.68 3.99 2.15 2.97 3.82 4.7	apex wqm 031114 apex wqm 031114 apex wqm 031114 apex wqm 031114	Ebbing Ebbing	DISTANCE FROM DREDGE/SILT CURTAIN 200' N of Dredge 200' S of Dredge	NUMBER OF HOUR DREDGING 00 02
Monitoring ID # 131114-00-9-1 131114-00-9-3.5 131114-00-9-7 131114-02-9-1 131114-02-9-66 131114-04-9-1 131114-04-9-6 131114-04-9-6 131114-06-9-1 131114-06-9-2 131114-06-9-4	815269, 2697185 815177, 2696554 815026, 2696555	TIME 745 747 749 940 942 944 1110 1112 1114 1320 1322 1324	AVERAGE T TOTAL WATER DEPTH (ft) 7.2 AVERAGE T TURBIDITY I 6.5 AVERAGE T TURBIDITY I 5.1 AVERAGE T TURBIDITY I	SAMPLE DEPTH (ft) 1 3.5 7 URBIDITY: NCREASE: 1 3 66 URBIDITY: NCREASE: 1 4 URBIDITY: NCREASE: 1 4 URBIDITY: NCREASE: 1 1 2 4 URBIDITY: NCREASE:	6.02 4.14 Down-Curre TURBIDITY (NTUs) 1.55 2.24 5.27 3.02 0.86 7.97 6.28 4.61 6.29 4.31 4 4.3 3.68 3.99 2.15 2.97 3.82 4.7 3.83 0.5	### O31114	Ebbing Ebbing	DISTANCE FROM DREDGE/SILT CURTAIN 200' N of Dredge 200' S of Dredge	NUMBER OF HOUR DREDGING 00 02
Monitoring ID # 031114-00-9-1 031114-00-9-3.5 031114-00-9-7 031114-02-9-1 031114-02-9-66 031114-02-9-66 031114-04-9-3 031114-04-9-6 031114-06-9-1 031114-06-9-2 031114-06-9-4	815269, 2697185 815177, 2696554 815026, 2696555	745 747 749 940 942 944 1110 1112 1114 1320 1322 1324	AVERAGE T TOTAL WATER DEPTH (#) 7.2 AVERAGE T TURBIDITY I 6.5 AVERAGE T TURBIDITY I 7.7 AVERAGE T TURBIDITY I 5.1	SAMPLE DEPTH (ft) 1 3.5 7 URBIDITY: NCREASE: 1 3 66 URBIDITY: NCREASE: 1 2 URBIDITY: NCREASE: 1 4 URBIDITY: NCREASE:	6.02 4.14 Down-Curre TURBIDITY (NTUs) 1.55 2.24 5.27 3.02 0.86 7.97 6.28 4.61 6.29 4.31 4 4.3 3.68 3.99 2.15 2.97 3.82 4.7 3.83 0.5	ent GPS FILE NAME apex wqm 031114 apex wqm 031114 apex wqm 031114 apex wqm 031114	Ebbing Ebbing	DISTANCE FROM DREDGE/SILT CURTAIN 200' N of Dredge 200' S of Dredge	NUMBER OF HOUR DREDGING 00 02
Monitoring ID # 031114-08-1-10 Monitoring ID # 031114-00-9-1 031114-00-9-3.5 031114-00-9-7 031114-02-9-1 031114-02-9-66 031114-04-9-1 031114-04-9-6 031114-06-9-1 031114-06-9-2 031114-06-9-4 031114-08-9-1 031114-08-9-1 031114-08-9-1 031114-08-9-1 031114-08-9-9	815269, 2697185 815177, 2696554 815026, 2696555 815164, 2697025	TIME 745 747 749 940 942 944 1110 1112 1114 1320 1322 1324	AVERAGE T TOTAL WATER DEPTH (ft) 7.2 AVERAGE T TURBIDITY I 6.5 AVERAGE T TURBIDITY I 5.1 AVERAGE T TURBIDITY I	SAMPLE DEPTH (ft) 1 3.5 7 URBIDITY: NCREASE: 1 3 66 URBIDITY: NCREASE: 1 2 4 URBIDITY: NCREASE: 1 5 9 URBIDITY:	6.02 4.14 Down-Curre TURBIDITY (NTUS) 1.55 2.24 5.27 3.02 0.86 7.97 6.28 4.61 6.29 4.31 4.3 3.68 3.99 2.15 2.97 3.82 4.7 3.83 0.5	031114 ent GPS FILE NAME apex wqm 031114 apex wqm 031114 apex wqm 031114 apex wqm 031114	Ebbing Ebbing Flooding	DISTANCE FROM DREDGE/SILT CURTAIN 200' N of Dredge 200' S of Dredge 200' S of Dredge	NUMBER OF HOUR DREDGING 00 02 04

* Turbidity Increase = Down-Current Average Turbidity - Up-Current Average Turbidity

Figure 1 Lower Harbor CAD Cell Phase I – Water Quality Monitoring

