Appendix C-4: Survey Sheet of Pump Station (KSA)

- (i) Greenwich
- (ii) Nanse pen
- (iii) Darling Street
- (iv) Red Hills Road
- (v) Glendale
- (vi) Seaview Gardens

Survey Sheet of Pump Station

	Items	Specification				
Name of Pum	p Station	G	reenwich Town	Pump	Station	
Construction	Year / Month	yea	r :		month	
Location (nar	ne of street / avenue)	Spanish Town Roa	ad			
Design capac	ity				m3/min	
Amount of el	ectricity consumption				kWh/day	
Inlet Sewer	Diamete of inlet pipe				by Gravity / Pressure	
	Material of pipe	Reinfroced Concret	te / <u>Steel</u> / Cast Iro	on / PVC	C / GRP / PE(HDPE)	
	Invert level of inlet pipe		m MSL			
Pump Unit	Number of units units in service					
	Units out of service					
	Type of pump	Self Priming Cent	rifugal Pump			
	Manufacturer of pump / Model	Gorman Rupp				
	Bore diameter of pump unit					
	Design capacity per unit (m3/min)					
	Design head of pump (m)					
	Back up generator	Ves Yes	🗖 No		Generator for Screens.	
Pump	Operation Hour	NO PUMPS				
Operation	Control Method	🔲 by Unit /		by S	Z	
	Mode of control	Automatic leve	el switch / 🔲	Othe	NO PUMPS	
	On - Off level 1st pump start level		m MSL		Ŭ	
	2nd pump start leve	el	m MSL		Ap	
	3rd pump start leve	1	m MSL		Ň	
	Pump stop level		m MSL			
Maintenance	Regular Maintenance / Inspection	Ves Yes	🗖 No			
Record		(If yes, how frequen	ncy Daily			
	Repair / replacement of pump unit	T Yes	✓ No		NO PUMPS, only chan	
		(If yes, in which ye	ar:			
	Replacement of consumable parts	Ves Yes	🗖 No			
		(If yes, how frequen	Maathla			

Present Issue

The preliminary screens are broken, so most of the debris continues into the channels.



The General overview of the abandoned treatment plant facilities at the greenwhich plant now pumping statior



The above picture depicts the inlet point where influent from New port west to the newly installed soapberry channel



The above picture depicts the water channel installed which leads to the inlet pipes the soapberry



The above pictures displays the flow meters and the inlet to the 700mm pipe line used at the greenwich pumpi

Survey Sheet of Pump Station

	Items	Specification				
Name of Pum	p Station	Nanse Pen Pump Station				
Construction	Year / Month	year : month				
Location (nar	ne of street / avenue)	Spanish Town Road/Nanse Pen Drive				
Design capac	ity	m3/min				
Amount of el	ectricity consumption	kWh/day				
Inlet Sewer	Diamete of inlet pipe	762 mm by <u>Gravity</u> / Pressure				
	Material of pipe	Reinfroced Concrete / Steel / Cast Iron / PVC / GRP / PE(HDPE)				
	Invert level of inlet pipe	m MSL				
Pump Unit	Number of units units in service 3	Three				
	0 Units out of service	Three				
	Type of pump	Wet/Dry Submersible Pump				
	Manufacturer of pump / Model	Grundfos				
	Bore diameter of pump unit					
	Design capacity per unit (m3/min)					
	Design head of pump (m)					
	Back up generator	Ves No				
Pump	Operation Hour	24 hrs				
Operation	Control Method	✓ by Unit /				
	Mode of control	Automatic level switch / Conter method				
	On - Off level 1st pump start level	m MSL				
	2nd pump start leve	el m MSL				
	3rd pump start leve	l m MSL				
	Pump stop level	m MSL				
Maintenance	Regular Maintenance / Inspection	Ves No				
Record		(If yes, how frequency Daily				
	Repair / replacement of pump unit	TYes Vo No				
		(If yes, in which year:				
	Replacement of consumable parts	Ves 🗖 No				
		(If yes, how frequenc: Pump only 18 months old				

Present Issue



The general over view the facility at the Nanse Pen



The inlet point at the facility of the Nanse Pen



The Screens at the inlet point at the Nanse Pen Pumping station







The wet welll at the facilitity and the route it take to the outlet point







The above images showing the pumps & the 14" outlet pipe which channels to the soapberry

Survey Sheet of Pump Station

	Items	Specification				
Name of Pum	p Station	Darling Street Pump Station				
Construction	Year / Month	year : month				
Location (nar	ne of street / avenue)	Darling Street Pump Station				
Design capac	ity	m3/min				
Amount of el	ectricity consumption	kWh/day				
Inlet Sewer	Diamete of inlet pipe	254 mm by <u>Gravity</u> / Pressure				
	Material of pipe	Reinfroced Concrete / Steel / Cast Iron / PVC / GRP / PE(HDPE)				
	Invert level of inlet pipe	m MSL				
Pump Unit	Number of units units in service 2	Тwo				
	0 Units out of service	Two				
	Type of pump	Self Priming Centrifugal Pump				
	Manufacturer of pump / Model	Gorman Rupp				
-	Bore diameter of pump unit					
	Design capacity per unit (m3/min)					
	Design head of pump (m)					
	Back up generator	Ves No (Not in Service)				
Pump	Operation Hour	24 hrs				
Operation	Control Method	✓ by Unit / by Speed				
	Mode of control	Automatic level switch / C Other method				
	On - Off level 1st pump start level	l m MSL				
	2nd pump start leve	el m MSL				
	3rd pump start leve	el m MSL				
	Pump stop level	m MSL				
Maintenance	Regular Maintenance / Inspection	Ves No				
Record		(If yes, how frequency Daily				
	Repair / replacement of pump unit	TYes No				
		(If yes, in which year:				
	Replacement of consumable parts	Ves No				
		(If yes, how frequency Monthly				

Present Issue

Preparation Survey for Kingston Sewerage Development Project

Photographs

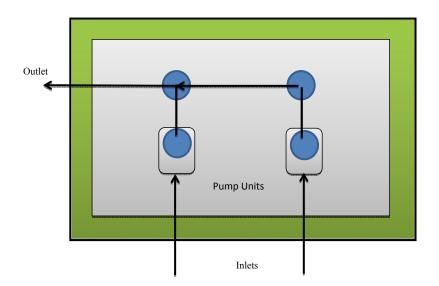
General view of PS (2~3 shots) Pump unit (general, front view, side view, tag) Control panel (general view of control room, front view on panal) Other (generator etc)



The general over view of the Darling St. Pumping Station



The pumping unit, wet well and the automatic level switch at the Darling St. facility



Survey Sheet of Pump Station

	Items	Specification					
Name of Pum	p Station	Red Hills Road Pump Stat	ion				
Construction	Year / Month	year :	month				
Location (nan	ne of street / avenue)	Red Hills Road					
Design capaci	ty	m3/	'min				
Amount of ele	ectricity consumption	kWł	h/day				
Inlet Sewer	Diamete of inlet pipe	254 mm by <u>C</u>	Gravity / Pressure				
	Material of pipe	Reinfroced Concrete / Steel / Cast Iron / PVC / C	GRP / PE(HDPE)				
	Invert level of inlet pipe	m MSL					
Pump Unit	Number of units units in service	1 One					
	1 Units out of set	vice One					
	Type of pump	Self Priming Centrifugal Pump	Self Priming Centrifugal Pump				
	Manufacturer of pump / Model	Gorman Rupp					
-	Bore diameter of pump unit						
	Design capacity per unit (m3/min)					
	Design head of pump (m)						
	Back up generator	Ves No (Not	t in Service)				
Pump	Operation Hour	24 hrs					
Operation	Control Method	✓ by Unit /	ed				
	Mode of control	Automatic level switch / C Other me	ethod				
	On - Off level 1st pump start	level m MSL					
	2nd pump star	level m MSL					
	3rd pump start	level m MSL					
	Pump stop leve	el m MSL					
Maintenance	Regular Maintenance / Inspection	n 🔽 Yes 🔽 No					
Record		(If yes, how frequency Daily					
	Repair / replacement of pump un	it 🔽 Yes 🔽 No					
		(If yes, in which year:					
	Replacement of consumable part	s 🔽 Yes 🗖 No					
		(If yes, how frequency Monthly					

Present Issue

There is an anaerobic sulfur odor that rises from the wet well and leaves a terrible stench in the site.

During power surges, the pump fails to retrun to power and in turn the stench remains stagnant in the compound.



The above picture depicts the overall veiw of the much smaller Red Hills Rd. pumping station



The above picture depicts the general piping network at the Red Hills Rd pumping station



The above picture depicts the general condition of the back up generator inside the building housing them

Survey Sheet of Pump Station

Items			Specification					
Name of Pum	p Station				Glendale Pu			
Construction	Year / Month			V	ear :	1	month	
Location (nan	ne of street / avenu	ie)	Gle	ndale Drive				
Design capaci	ity					m3/min		
Amount of ele	ectricity consumpt	ion				kWh/day		
Inlet Sewer	Diamete of inlet	pipe	101	.6 mm		by <u>Gravity</u> /1	Pressure	
	Material of pipe		Rei	nfroced Conci	rete / <u>Steel</u> / Cast Ir	ron / PVC / GRP / PE(HDPE)	
	Invert level of inlet pipe				m MSL			
Pump Unit	Number of units	units in service 2	Two	D				
	0 Units out of service			0				
	Type of pump			Self Priming Centrifugal Pump				
-	Manufacturer of	pump / Model	Goi	man Rupp				
	Bore diameter of	pump unit						
	Design capacity p	ber unit (m3/min)						
	Design head of p	ump (m)						
	Back up generato	r	2	Yes	🗖 No	(Not in Servi	ce)	
Pump	Operation Hour		24 I	nrs				
Operation	Control Method			by Unit /		by Speed		
	Mode of control		~	Automatic le	evel switch / 🔲	Other method		
	On - Off level	1st pump start level			m MSL			
		2nd pump start leve	l		m MSL			
		3rd pump start level	1		m MSL			
		Pump stop level			m MSL			
Maintenance	Regular Maintena	ance / Inspection		Yes	🗖 No			
Record			(If y	es, how frequ	iency Daily			
	Repair / replacem	nent of pump unit		Yes	🔽 No			
			(If y	ves, in which	year:			
	Replacement of c	onsumable parts	2	Yes	🗖 No			
			(If y	les how frequ	iency Monthly			

Present Issue

The present issue that this site faces is the security fences being in disrepair.

I



The above pivture gives the general overview of the building which houses the pump units and thegenerator



The Above picture displays the back up generator at the facility which is currently out of service



The above picture displays the Piping network and the pumping units at the Glendale Pumping station

Survey Sheet of Pump Station

	Items	Specification					
Name of Pum	p Station	Seaview Gardens Pump Station					
Construction	Year / Month	year :	month				
Location (nan	ne of street / avenue)	East Road					
Design capac	ity	m3/min					
Amount of el	ectricity consumption	kWh/day					
Inlet Sewer	Diamete of inlet pipe	254 mm by <u>Gravity</u> /	Pressure				
	Material of pipe	Reinfroced Concrete / Steel / Cast Iron / PVC / GRP / PE(H					
	Invert level of inlet pipe	m MSL					
Pump Unit	Number of units units in service 3	Three					
	1 Units out of service	e One					
	Type of pump	Self Priming Centrifugal Pump					
	Manufacturer of pump / Model	Gorman Rupp					
	Bore diameter of pump unit						
	Design capacity per unit (m3/min)						
	Design head of pump (m)						
	Back up generator	✓ Yes	ice)				
Pump	Operation Hour	24 hrs					
Operation	Control Method	✓ by Unit /					
	Mode of control	✓ Automatic level switch / □ Other method					
	On - Off level 1st pump start level	m MSL					
	2nd pump start leve	m MSL					
	3rd pump start level	el m MSL					
	Pump stop level	m MSL					
Maintenance	Regular Maintenance / Inspection	Ves No					
Record		(If yes, how frequency Daily					
	Repair / replacement of pump unit	Ves No					
		(If yes, in which year:					
	Replacement of consumable parts	Ves 🔽 No					
		(If yes, how frequency Monthly					

Present Issue

The current issue that this pump station faces is the fact that one of the pumps are currently undergoing seal problem

Photographs

General view of PS (2~3 shots) Pump unit (general, front view, side view, tag) Control panel (general view of control room, front view on panal) Other (generator etc)



The above picttures depicts the 700mm Fibre glass main line from greenwich to seaview pump station



The above pictures displays the general over view of the seaview pump station and the mian level



The above pictures displays inside on the lower level of the seaview pump

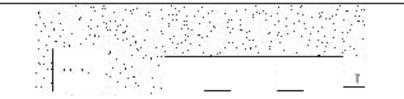






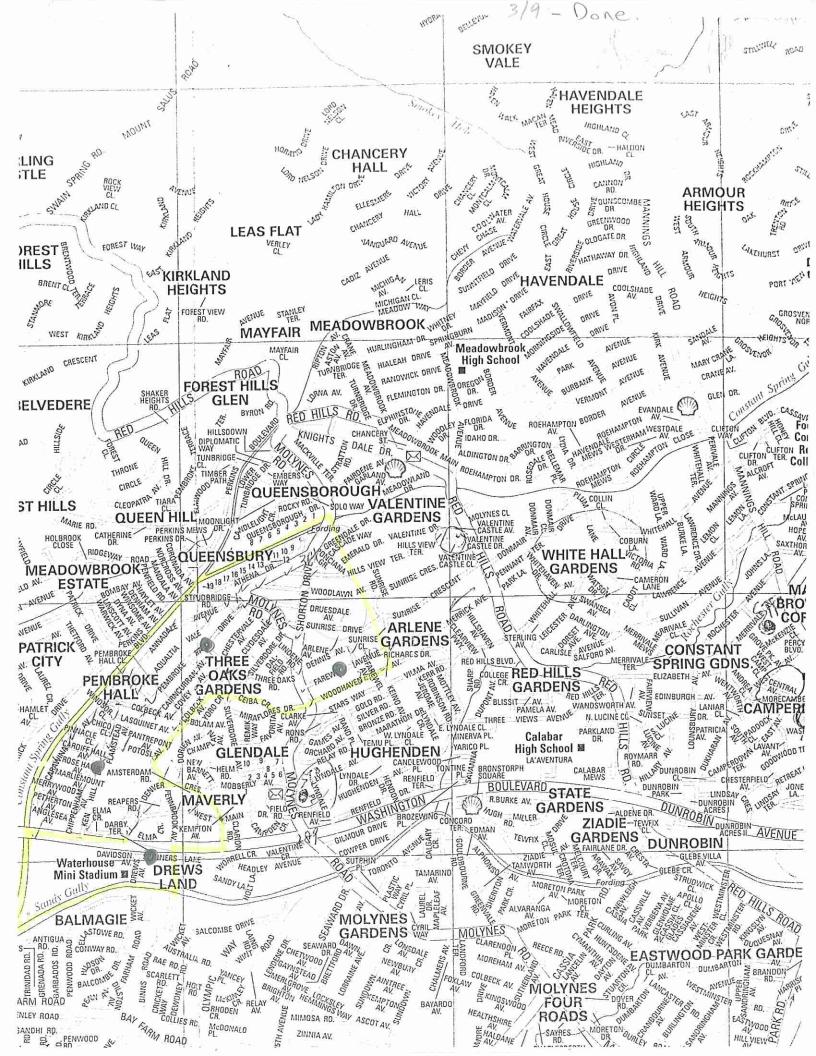


The above pictures displays the pipe line that transport the effluent from Nanse Pen and the seaview pumping station



Appendix C-5: Survey Sheet of Septic tank (KSA)

- (i) Pembroke Hall 4 samples
- (ii) Havendale 7 samples
- (iii) Birdsucker 3 samples
- (iv) Hope Pastures 7 samples



Survey Date: 2009/2/9

	Items	Specification					
Parish		St. Andrew	St. Andrew				
Address		10 Farewell Avenu	ie				
House	Number of inhabitants	Adult: 3	persons	Children: 3	persons		
Information	Occupation of household head	Retired					
	Number of Restroom	One	Two	Three	None		
	Number of Bathroom	One	Two	Three			
Water Use	Average consumprion of piped water	28	m3/month				
	Average expenditure for piped water	3000	JA\$/month				
	Purchase of bottled water for potable us	Yes	No				
		(If yes, how many r	number:	2 gallons/week	os per week / month)		
To∏∍t	Type of toilet	Flush Toilet	Pit latline	Other type			
•	Use of septic tank	Yes	No				
	Frequency of sludge removal	Once every	7	year	Never		
	Cost of sludge removal		JA\$/time				
Willingness	Condition after sewer connection	You have to install he	ouse sewer collectors	by your expense and pay	sewerage charge		
to sewer		permanently. But you	will be free from main	intenance of septic tank,	offensive odor from		
connection		toilet. Sanitary environment in/around your house will be improved after connection to					
		public sewerage syste	m.				
•	Willingness to sonnect to sewer	Yes	No	How much?	JMD/month		
		If Yes, what is majo	or reason				
		If No, what is majo The extra cost that		ted with implementat	ion.		
Sketch of sep Following p checked - Septic tanl - Toilet - Bathroom - Kitchen - Laundry R	k L	Pit H K	B1 B2	1			
	Street / Avenue			7	m		

Survey Date: 2009/2/9

	Items		Specification					
Parish			St. Andrew					
Address			22 Pembrook H	Hall Dr.				
House	Number of inhabi	tants	Adult: 3	persons	Children: 0	persons		
Information	Occupation of ho	usehold head	Mechanic					
	Number of Restro	oom	One	Two	Three	None		
	Number of Bathro	oom	One	Two	Three			
Water Use	Average consump	prion of piped water	18	m3/month				
		ure for piped water	1500	JA\$/month				
		ed water for potable us	Yes	No				
			(If yes, how ma	ny number:	2 gallons/week	os per week / month)		
Torr	Type of toilet		Flush Toi		Other type			
	Use of septic tank	5	Yes	No				
-	Frequency of sluce			very One (1)	year			
	Cost of sludge ren	-	7,000	JA\$/time	-			
Willingness	Condition after se		· ·	ll house sewer collectors b	y your expense and pay	sewerage charge		
to sewer				you will be free from main				
connection			toilet. Sanitary environment in/around your house will be improved after connection to					
			public sewerage system.					
	Willingness to so	nnect to sewer	Yes	No	How much? 700	JMD/month		
			If Yes, what is r		110.0 1100	01112711101111		
				cost associated with re	moval, would be reli	navished.		
			The recurring		lioval, voula be reli	iquisiteu.		
			If No, what is m	naior reason				
Sketch of sen	otic tank position							
	position to be							
checked				Pit 1	-			
- Septic tan	k							
- Toilet			II					
- Bathroom		В	House	B1				
- Kitchen		1						
- Laundry F	Poom							
- Launury I	Koom			35 n	٦ _.			
				1/				
				К				
		Street / Ar			<u> </u>	<u> </u>		
		Street / Avenue			10)		

Survey Date: 2009/2/9

	Items			Spe	ecification		
Parish			St. Andrew				
Address			52 Davidson Spinner Lane				
House	Number of inhab	bitants	Adult: 1	persons	Children: 0	persons	
Information	Occupation of ho	busehold head	Labourer				
	Number of Restr	oom	One	Two	Three	None	
	Number of Bathr	coom	One	Two	Three		
Water Use	Average consum	prion of piped water	18	m3/month			
		ture for piped water	1500	JA\$/month			
~	Purchase of bottl	ed water for potable us	s Yes	No			
			(If yes, how many r	number:	2 gallons/week	os per week / month	
Tott	Type of toilet		Flush Toilet	Pit latline	Other type		
•	Use of septic tan	k	Yes	No			
	Frequency of slu		Once every	/	year	Never	
	Cost of sludge re	- C		JA\$/time	5		
Willingness	Condition after s		You have to install he	ouse sewer collectors l	by your expense and pay	sewerage charge	
to sewer					intenance of septic tank,		
connection			toilet. Sanitary environment in/around your house will be improved after connection to				
			public sewerage system.				
V	Willingness to so	onnect to sewer	Yes	No	How much?	JMD/month	
			If Yes, what is majo	or reason			
			,				
			If No, what is majo	r reason			
					the monthly bills is the	maior deterrent.	
Sketch of ser	otic tank position						
	position to be						
checked				Pit 🔨	-		
- Septic tan	k						
- Toilet			House				
- Bathroom	1	В	House	B1			
- Kitchen	<u>i</u>	1					
- Laundry I	Doom						
- Launary I	Koom			27	m		
				Υ.			
				К			
					1		
		Street / Avenue				m	

Survey Date: 2009/2/9

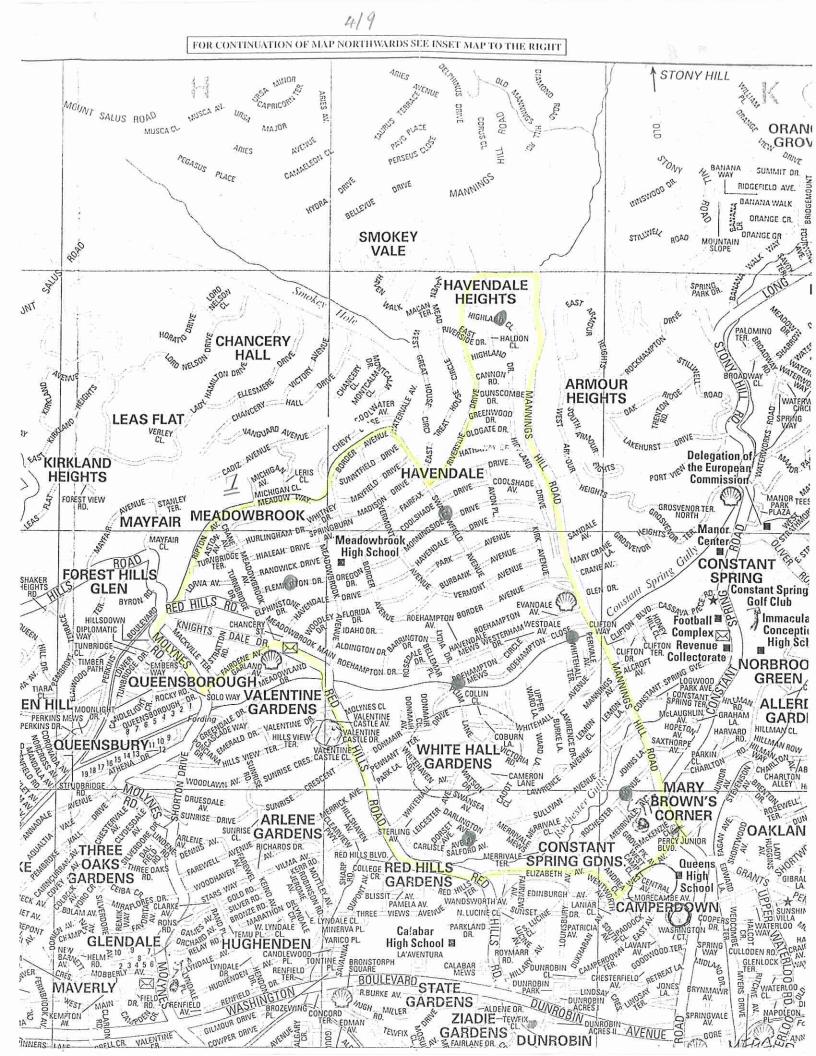
	Items			Spe	cification	
Parish			St. Andrew			
Address			143 Ken Hill D	Prive		
House	Number of inhab	itants	Adult: 4	persons	Children: 2	persons
Information	Occupation of ho	usehold head	Retired			
	Number of Restro	oom	One	Two	Three	None
	Number of Bathr	oom	One	Two	Three	
Water Use	Average consum	prion of piped water	33	m3/month		
	Average expendit	ture for piped water	3500	JA\$/month		
	Purchase of bottle	ed water for potable us	Yes	No		
			(If yes, how ma	ny number:	5 gallons/week	os per week / month)
T₀,t	Type of toilet		Flush To	ilet Pit latline	Other type	
•	Use of septic tank	ζ.	Yes	No		
	Frequency of slue	lge removal	Once e	very Two (2)	year	
	Cost of sludge rea	moval	2,000	JA\$/time		
Willingness	Condition after se	ewer connection	You have to insta	Il house sewer collectors b	y your expense and pay s	sewerage charge
to sewer			permanently. But	you will be free from main	ntenance of septic tank, o	ffensive odor from
connection			toilet. Sanitary er	vironment in/around your	house will be improved a	after connection to
			public sewerage	system.		
	Willingness to so	nnect to sewer	Yes	No	How much? 1000	JMD/month
			If Yes, what is	major reason		
			Avoiding the inc	convenience of cesspool tr	uck coming to residence	e to remove sludge.
			Reducing the co	ntamination in the groun	d water table.	
			If No, what is r	najor reason		
Sketch of sep	tic tank position					
Following p						
checked						
- Septic tan	k	L				
- Toilet			House			
- Bathroom			House			
- Kitchen		B1				
- Laundry F	Room					
5						
		k				
				Pit		
					15 m	
		Street / Avenue				
					<u> </u>	n

Preparation Survey for Kingston Sewerage Development Project

Photographs General view of septic tank



View of open Soak Away Pit



Survey Date: 2009/2/9

	Items	Specification					
Parish		St. Andrew					
Address		1 Lydia Drive					
House	Number of inhabitants	Adult: 2	persons	Children: 0	persons		
Information	Occupation of household head	Retired					
	Number of Restroom	One	Two	Three	None		
	Number of Bathroom	One	Two	Three			
Water Use	Average consumprion of piped water	14	m3/month				
	Average expenditure for piped water	1300	JA\$/month				
	Purchase of bottled water for potable us	Yes	No				
		(If yes, how many n	umber:	5 gallons/week	os per week / month)		
T()t	Type of toilet	Flush Toilet	Pit latline	Other type			
	Use of septic tank	Yes	No				
	Frequency of sludge removal	Once every		year	Never in 25 years.		
	Cost of sludge removal		JA\$/time				
Willingness	Condition after sewer connection	You have to install ho	use sewer collectors b	y your expense and pay	sewerage charge		
to sewer		permanently. But you	will be free from main	ntenance of septic tank, o	offensive odor from		
connection		toilet. Sanitary environment in/around your house will be improved after connection to					
		public sewerage system	m.				
	Willingness to sonnect to sewer	Yes	No	How much? 500	JMD/month		
		If Yes, what is major reason					
		The removal of the	awful smell that is	s associated with the	pit.		
		If No, what is major	reason				
Sketch of sep	tic tank position						
Following p	osition to be						
checked		Pit	\wedge	-			
- Septic tan	k L						
- Toilet			B1				
- Bathroom		К	DI				
- Kitchen							
- Laundry F	Room						
	B2		40 m				
	Street / Avenue			5	m		
			V				

Survey Date: 2009/3/9

	Items	Specification					
Parish		St. Andrew					
Address		6 Carlisle Drive					
House	Number of inhabitants	Adult: 2	persons	Children: 1	persons		
Information	Occupation of household head	Freight Worker					
	Number of Restroom	One	Two	Three	None		
	Number of Bathroom	One	Two	Three			
Water Use	Average consumprion of piped water	26	m3/month				
	Average expenditure for piped water	4000	JA\$/month				
	Purchase of bottled water for potable us	Yes	No				
		(If yes, how many r	number:	5 gallons/week	os per week / month)		
T₀_rt	Type of toilet	Flush Toilet	Pit latline	Other type			
•	Use of septic tank	Yes	No				
	Frequency of sludge removal	Once every	7	year	Not in 2 years.		
	Cost of sludge removal		JA\$/time				
Willingness	Condition after sewer connection	You have to install ho	ouse sewer collectors b	y your expense and pay	sewerage charge		
to sewer		permanently. But you	will be free from main	tenance of septic tank,	offensive odor from		
connection		toilet. Sanitary environment in/around your house will be improved after connection to					
		public sewerage syste	m.				
V	Willingness to sonnect to sewer	Yes	No	How much?	JMD/month		
		If Yes, what is majo	or reason				
		If No, what is majo The additional cos		by joining the system	m.		
Sketch of sep	tic tank position						
Following p	osition to be						
checked		Pit					
- Septic tan	k						
- Toilet		Herese					
- Bathroom		1 · · · · ·					
- Kitchen							
- Laundry F	Koom K	В	45 m				
	Street / Avenue			5 n	n		

Survey Date: 2009/2/9

	Items		S	Specification			
Parish		St. Andrew	St. Andrew				
Address		9 Roehampton	Close				
House	Number of inhabitants	Adult: 5	persons	Children: 0	persons		
Information	Occupation of household head	General Worke	r				
	Number of Restroom	One	Two	Three	None		
	Number of Bathroom	One	Two	Three			
Water Use	Average consumprion of piped water	58	m3/month				
	Average expenditure for piped water	10000	JA\$/month				
\checkmark	Purchase of bottled water for potable	us Yes	No				
		(If yes, how man	y number:		nos per week / month		
Tſ ∏ ;t	Type of toilet	Flush Toil	et Pit latline	e Other type			
\checkmark	Use of septic tank	Yes	No				
	Frequency of sludge removal	Once ev	very Five (5)	year			
	Cost of sludge removal	4,000	JA\$/time				
Willingness	Condition after sewer connection	You have to instal	l house sewer collector	s by your expense and pay	sewerage charge		
to sewer		permanently. But	you will be free from n	naintenance of septic tank,	offensive odor from		
connection		toilet. Sanitary env	vironment in/around yo	our house will be improved	after connection to		
		public sewerage sy	/stem.				
	Willingness to sonnect to sewer	Yes	No	How much? 500	JMD/month		
		If Yes, what is m	najor reason				
		The beneficial eff	ect that it has on the	environment when the slu	ıdge is no longer		
		entering the grou	nd.				
		If No, what is ma	ajor reason				
Sketch of sep	otic tank position						
Following p	position to be						
checked			Pit 1	<u>\</u>			
- Septic tan	k						
- Toilet		House					
- Bathroom		К	L				
- Kitchen							
- Laundry H	Room	B2	B1				
-			25	m			
	Street / Avenue			/ <u> </u>	m		
				<u></u>			

Survey Date: 2009/2/9

	Items	Specification				
Parish		St. Andrew				
Address		14 Highland Cl	ose			
House	Number of inhabitants	Adult: 3	persons	Children: 2	persons	
Information	Occupation of household head	Housewife				
	Number of Restroom	One	Two	Three		
	Number of Bathroom	One	Two	Three	Four	
Water Use	Average consumprion of piped water	23	m3/month			
	Average expenditure for piped water	2500	JA\$/month			
v	Purchase of bottled water for potable	us Yes	No			
		(If yes, how man	ny number:		nos per week / month)	
T₀_rt	Type of toilet	Flush Toil	et Pit latline	Other type		
>	Use of septic tank	Yes	No			
	Frequency of sludge removal	Once ev	very Five (5)	year		
	Cost of sludge removal	5,000	JA\$/time			
Willingness	Condition after sewer connection	You have to instal	l house sewer collectors	by your expense and pay	sewerage charge	
to sewer		permanently. But	you will be free from ma	aintenance of septic tank,	offensive odor from	
connection		toilet. Sanitary env	vironment in/around you	Ir house will be improved	after connection to	
		public sewerage sy	ystem.			
	Willingness to sonnect to sewer	Yes	No	How much? 500	JMD/month	
		If Yes, what is n	najor reason			
		The savings that	is made when connecte	ed to the system as oppos	ed topaying for frequent	
		sludge removal b	y the trucks.			
		If No, what is m	ajor reason			
Sketch of sep	tic tank position	•				
Following p	osition to be					
checked			Pit 1	_		
- Septic tan	k 🔤	L				
- Toilet						
- Bathroom		К	B1			
- Kitchen			Ы			
- Laundry F	Room	B4				
-		33	50 r	n		
			B2			
	Street / Avenue			<u></u>	m	
			<u></u>			

Survey Date: 2009/3/9

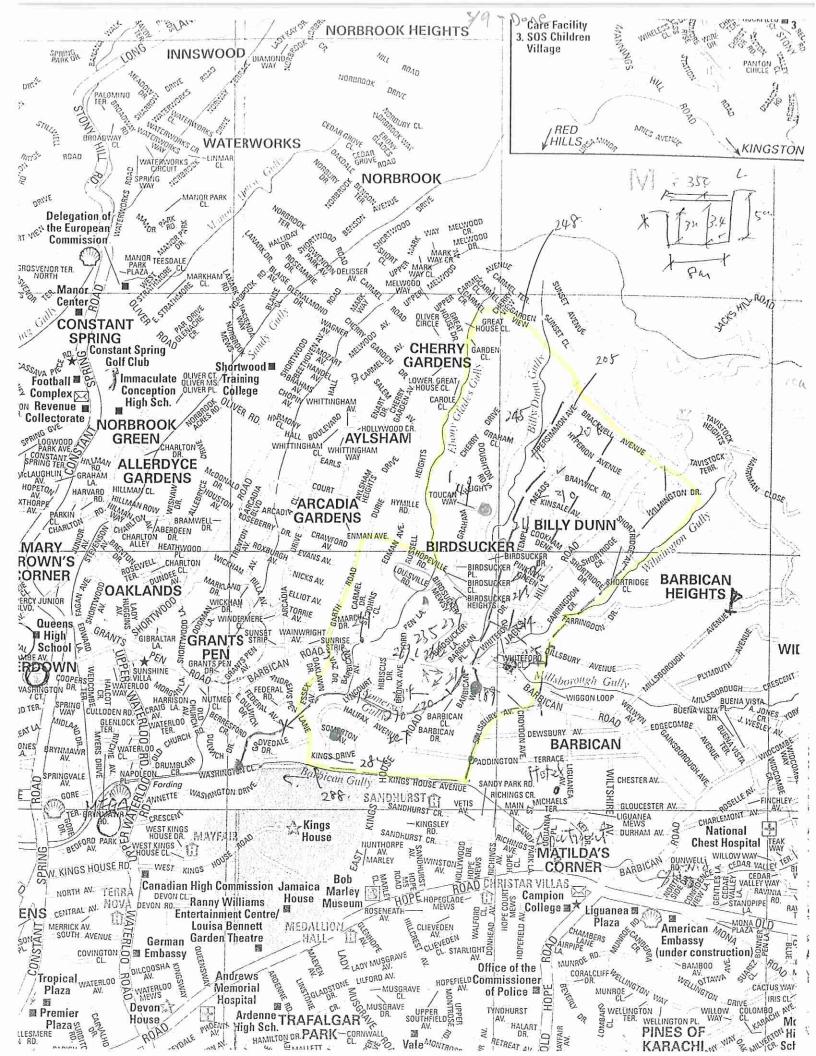
	Items			Sp	pecification		
Parish			St. Andrew				
Address			18 Rochester Ave	nue			
House	Number of inhabit	ants	Adult: 5	persons	Children: 0	persons	
Information	Occupation of hou	sehold head	Tailor				
	Number of Restro	om	One	Two	Three		
•	Number of Bathro	om	One	Two	Three		
Water Use	Average consumption	rion of piped water	35	m3/month			
	Average expenditu	are for piped water	3000	JA\$/month			
	Purchase of bottle	d water for potable us	Yes	No			
			(If yes, how many	number:	2 gallons/week	os per week / month)	
Torit	Type of toilet		Flush Toilet	Pit latline	Other type		
V	Use of septic tank		Yes	No			
	Frequency of slud	ge removal	Once even	у	year	Never	
	Cost of sludge ren			JA\$/time			
Willingness	Condition after sev		You have to install h	ouse sewer collectors	by your expense and pay	sewerage charge	
to sewer					aintenance of septic tank,		
connection					r house will be improved		
			public sewerage system.				
V	Willingness to son	nect to sewer	Yes	No	How much?	JMD/month	
			If Yes, what is major reason				
			,				
			If No, what is maj	or reason			
					the monthly bills is the	major deterrent.	
						0	
Sketch of ser	tic tank position						
	osition to be						
checked			Pit	\wedge	—		
- Septic tan	k						
- Toilet			House				
- Bathroom		к	Tiouse				
- Kitchen							
- Laundry I	Room	L		B1			
Luunury			В3	47	m		
		B 1					
	I			I			
		Street / Avenue				m	

Survey Date: 2009/3/9

	Items		Specification					
Parish	Parish			St. Andrew				
Address			26 Flemington	n Drive				
House	Number of inhabit	tants	Adult: 7	persons	Children: 5	persons		
Information	Occupation of hou	sehold head	Contractor					
	Number of Restro	om	One	Two	Three	None		
	Number of Bathro	om	One	Two	Three	Five		
Water Use	Average consump	rion of piped water	95	m3/month				
	Average expenditu	ure for piped water	13500	JA\$/month				
	Purchase of bottle	d water for potable us	Yes	No				
			(If yes, how m	any number:	2 gallons/week	os per week / month)		
Torr	Type of toilet		Flush To	oilet Pit latline	Other type			
v	Use of septic tank		Yes	No	••			
	Frequency of sludge removal		Once	every Thirty-Two (32) year			
	Cost of sludge ren		7,500	JA\$/time	•			
Willingness	Condition after se		You have to inst	all house sewer collectors	by your expense and pay	sewerage charge		
to sewer			permanently. Bu	t you will be free from ma	aintenance of septic tank,	offensive odor from		
connection			toilet. Sanitary environment in/around your house will be improved after connection to					
			public sewerage system.					
V	Willingness to sonnect to sewer		Yes	No	How much?	JMD/month		
			If Yes, what is major reason					
			If No, what is	major reason				
			The recurring	cost that will be added to	the monthly bills is the	major deterrent.		
						-		
Sketch of sep	otic tank position							
	oosition to be							
checked		Pit		\wedge	—			
- Septic tan	ık							
- Toilet								
- Bathroom		В	L K	В				
- Kitchen	•		В					
- Laundry I	Room		K	К				
Eauliary			1999 - 1999 -	47	m			
		В		B4				
		D						
					1			
		Street / Avenue				m		

Survey Date: 2009/3/9

	Items	Specification				
Parish		St. Andrew				
Address		40 Morningside Drive				
House	Number of inhabitants	Adult: 2	persons	Children: 0	persons	
Information	Occupation of household head	Engineer				
	Number of Restroom	One	Two	Three	None	
	Number of Bathroom	One	Two	Three		
Water Use	Average consumprion of piped water	12	m3/month			
	Average expenditure for piped water	4500	JA\$/month			
V	Purchase of bottled water for potable u	s Yes	No			
		(If yes, how many	number:		nos per week / month)	
Torit	Type of toilet	Flush Toilet	Pit latline	Other type		
	Use of septic tank	Yes	No			
	Frequency of sludge removal	Once ever	ry	year	Never since 1979	
	Cost of sludge removal	3,500	JA\$/time	-		
Willingness	Condition after sewer connection	You have to install h	nouse sewer collectors b	y your expense and pay s	sewerage charge	
to sewer		permanently. But yo	u will be free from main	tenance of septic tank, o	ffensive odor from	
connection		toilet. Sanitary envir	onment in/around your	house will be improved a	after connection to	
		public sewerage system.				
	Willingness to sonnect to sewer	Yes	No	How much? 700	JMD/month	
		If Yes, what is ma	jor reason			
		The benefit that it gives to the environment is the major reason.				
			0			
		If No, what is maj	or reason			
		, ,				
Sketch of ser	tic tank position					
	osition to be					
rononingp						
checked	k					
checked - Septic tan	k	Ценее				
checked - Septic tan - Toilet		Hease				
checked - Septic tan - Toilet - Bathroom		Herese	В			
checked - Septic tan - Toilet - Bathroom - Kitchen			В			
checked - Septic tan - Toilet - Bathroom						
checked - Septic tan - Toilet - Bathroom - Kitchen	Room K		B			
checked - Septic tan - Toilet - Bathroom - Kitchen						
checked - Septic tan - Toilet - Bathroom - Kitchen	Room K					
checked - Septic tan - Toilet - Bathroom - Kitchen	Room					
checked - Septic tan - Toilet - Bathroom - Kitchen	Room					
checked - Septic tan - Toilet - Bathroom - Kitchen	Room				_	



Survey Date: 2009/3/9

Items				Spe	cification		
Parish			St. Andrew				
Address			1 Somerton Aven	ue			
House	Number of inhabita	ants	Adult: 3	persons	Children: 2	persons	
Information	Occupation of hour	sehold head	Film-maker				
	Number of Restroc	om	One	Two	Three	None	
v	Number of Bathroo	om	One	Two	Three		
Water Use	Average consumpr	ion of piped water	41	m3/month			
	Average expenditu	re for piped water	4000	JA\$/month			
	Purchase of bottled	l water for potable us	Yes	No			
			(If yes, how many	number:	8 gallons/week	os per week / month	
T(∏)t	Type of toilet		Flush Toilet	Pit latline	Other type		
v	Use of septic tank		Yes	No			
	Frequency of sludge removal		Once ever	y One (1)	year		
	Cost of sludge rem		3,000	JA\$/time			
Willingness	Condition after sev		You have to install h	ouse sewer collectors b	y your expense and pay	sewerage charge	
to sewer			permanently. But yo	u will be free from mai	ntenance of septic tank, o	offensive odor from	
connection			toilet. Sanitary envir	onment in/around your	house will be improved a	after connection to	
			public sewerage syst	•	*		
П	Willingness to som	nect to sewer	Yes	No	How much? 500	JMD/month	
			If Yes, what is ma	or reason			
			-		n reducing the amoun	nt of sludge removal.	
			If No, what is majo	or reason			
Sketch of ser	ptic tank position						
	ptic tank position						
Following p	ptic tank position			Pit A	-		
Following p checked	position to be			Pit 1	-		
Following p checked - Septic tan	position to be			Pit 1	-		
Following p checked - Septic tan - Toilet	position to be	B	2 House	Pit A	-		
Following p checked - Septic tan - Toilet - Bathroom	position to be	B	2 House		-		
Following p checked - Septic tan - Toilet - Bathroom - Kitchen	position to be	B	2 House	B1	-		
Following p checked - Septic tan - Toilet - Bathroom	position to be		2 House		-		
Following p checked - Septic tan - Toilet - Bathroom - Kitchen	position to be	B. B 3	2 House	B1	-		
Following p checked - Septic tan - Toilet - Bathroom - Kitchen	position to be	В	2 House	B1			
Following p checked - Septic tan - Toilet - Bathroom - Kitchen	position to be	В	2 House	B1	-		
Following p checked - Septic tan - Toilet - Bathroom - Kitchen	position to be	В	2 House	B1	-		
Following p checked - Septic tan - Toilet - Bathroom - Kitchen	position to be	В	2 House	B1			
Following p checked - Septic tan - Toilet - Bathroom - Kitchen	bosition to be ik n Room	В	2 House	B1			

Survey Date: 2009/3/9

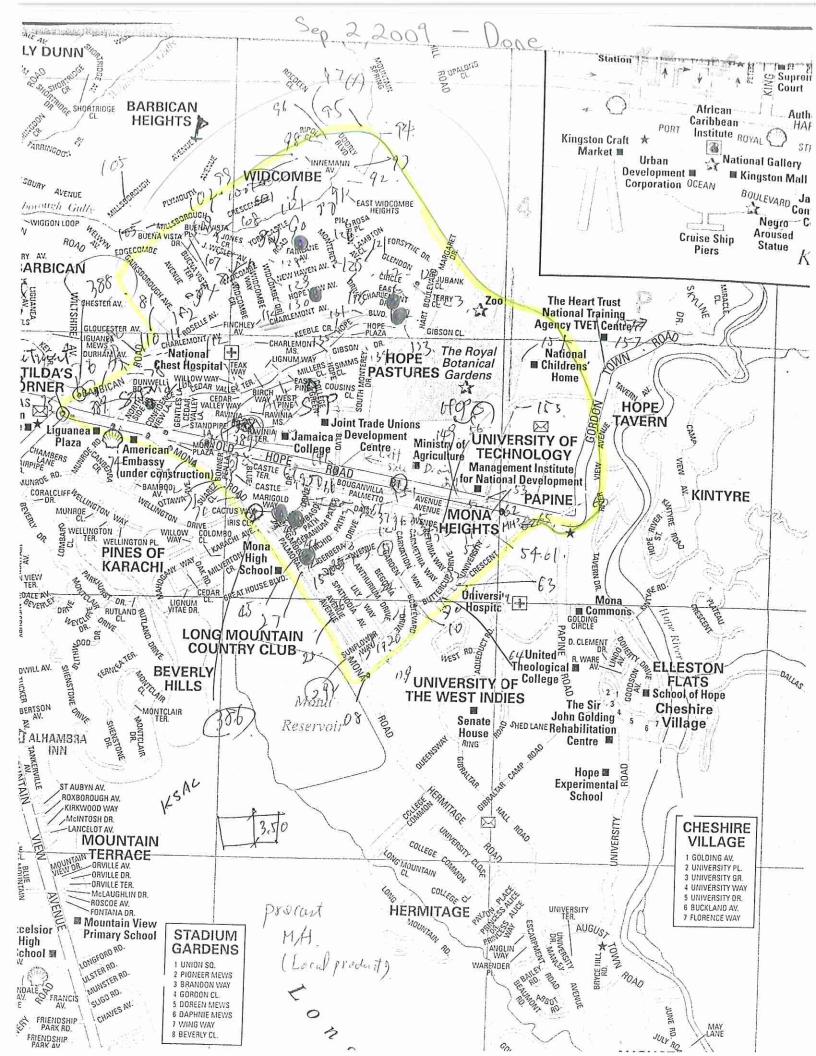
	Items			Sp	ecification		
Parish			St. Andrew				
Address			8 Braywick Road	l			
House	Number of inhab	itants	Adult: 3	persons	Children: 0	persons	
Information	Occupation of ho	usehold head	Artist				
	Number of Restr	oom	One	Two	Three		
	Number of Bathr	Number of Bathroom		Two	Three	Four	
Water Use	Average consum	prion of piped water	25	m3/month			
	Average expendi	ture for piped water	2000	JA\$/month			
	Purchase of bottle	ed water for potable us	Yes	No			
			(If yes, how many	number:	5 Gallon/week	os per week / month)	
T₀ >t	Type of toilet		Flush Toilet	Pit latline	Other type		
~	Use of septic tan	k	Yes	No			
	Frequency of slue	dge removal	Once even	ry	year	Never	
	Cost of sludge re	moval		JA\$/time			
Willingness	Condition after se	ewer connection	You have to install h	nouse sewer collectors	by your expense and pay	sewerage charge	
to sewer			permanently. But yo	u will be free from ma	intenance of septic tank,	offensive odor from	
connection			toilet. Sanitary envir	onment in/around your	r house will be improved	after connection to	
			public sewerage system.				
V	Willingness to sonnect to sewer		Yes	No	How much?	JMD/month	
			If Yes, what is may	jor reason			
			The cost of implementation is the only deterrent.				
			If No, what is maje	or reason			
Sketch of sep	tic tank position						
	position to be						
checked			Pit	\wedge	-		
- Septic tan	k						
- Toilet			Н				
- Bathroom	l		11 B2	B1			
- Kitchen			D				
- Laundry H	Room	k					
			K 45 m				
		Street / Avenue				m	
		Succi / Avenue			5	111	

Survey Date: 2009/2/9

	Items			Sp	ecification		
Parish			St. Andrew				
Address			11 Toucan Way				
House	Number of inhab	itants	Adult: 2	persons	Children: 3	persons	
Information	Occupation of ho	ousehold head	Businessman				
	Number of Restr	oom	One	Two	Three		
	Number of Bathr	oom	One	Two	Three	Four	
Water Use	Average consum	prion of piped water	65	m3/month			
		ture for piped water	3000	JA\$/month			
	Purchase of bottl	ed water for potable us	Yes	No			
			(If yes, how many	number:	10 gallons/week	os per week / month)	
Torr	Type of toilet		Flush Toilet	Pit latline	Other type	-	
•	Use of septic tan	k	Yes	No			
	Frequency of slu		Once even	y Four (4)	year		
	Cost of sludge re		4,000	JA\$/time	y		
Willingness	Condition after s			ouse sewer collectors	by your expense and pay	sewerage charge	
to sewer					intenance of septic tank, of		
connection					r house will be improved a		
			public sewerage syst	-	1		
	Willingness to so	onnect to sewer	Yes	No	How much? 500	JMD/month	
			If Yes, what is ma				
					nove sludge by way of	trucks.	
				8			
			If No, what is maj	or reason			
Sketch of sen	otic tank position						
	position to be						
checked				Pit 1	-		
- Septic tan	k						
- Toilet			Hanaa				
- Bathroom			B2 House	L			
- Kitchen	L.						
- Laundry F	Doom		B4				
- Launury r	Xoom		К	47 m	n		
			B3	B1			
		Street / Avenue			7		

Survey Date: 2009/3/9

	Items			Sp	ecification		
Parish			St. Andrew				
Address			12 Barbican Way				
House	Number of inhabitan	ts	Adult: 2	persons	Children:	persons	
Information	Occupation of house	hold head	Retired				
	Number of Restroom	1	One	Two	Three	None	
V	Number of Bathroom		One	Two	Three		
Water Use	Average consumprion of piped water		16	m3/month			
	Average expenditure	for piped water	1000	JA\$/month			
•	Purchase of bottled v	vater for potable us	Yes	No			
			(If yes, how many i	number:		nos per week / month)	
T₀∏∍t	Type of toilet		Flush Toilet	Pit latline	Other type		
•	Use of septic tank		Yes	No			
	Frequency of sludge	removal	Once every	y	year	Never in 11 years	
	Cost of sludge remov	val		JA\$/time			
Willingness	Condition after sewe	r connection	You have to install he	ouse sewer collectors	by your expense and pay	sewerage charge	
to sewer			permanently. But you	will be free from ma	intenance of septic tank,	offensive odor from	
connection			toilet. Sanitary enviro	onment in/around you	r house will be improved	after connection to	
			public sewerage system.				
	Willingness to sonne	ect to sewer	Yes	No	How much? 500	JMD/month	
-			If Yes, what is maje	or reason			
			The convenience o	of not having to ren	nove sludge by way of	f trucks.	
			If No, what is majo	r reason			
Sketch of sep	tic tank position						
Following p	osition to be				_		
checked			Pit	↑			
- Septic tan	k			L .			
- Toilet		B2	House	B1			
- Bathroom							
- Kitchen							
- Laundry H	Room						
			k	20 n	n		
		В3					
	Str	reet / Avenue				m	



Survey Date: 2009/2/9

Items				Spec	cification	
Parish	St. Andrew					
Address			6 Hope Blvd.			
House	Number of inhabitants	5	Adult: 3	persons	Children:	persons
Information	Occupation of househ	old head	Administrator			
	Number of Restroom		One	Two	Three	None
	Number of Bathroom		One	Two	Three	Four
Water Use	Average consumprion of piped water		40	m3/month		
	Average expenditure		4000	JA\$/month		
	Purchase of bottled w	ater for potable us	Yes	No		
			(If yes, how many	y number:		nos per week / month)
Torr	Type of toilet		Flush Toile	et Pit latline	Other type	
V	Use of septic tank		Yes	No		
	Frequency of sludge removal		Once eve	ery 5	year	
	Cost of sludge remova		10,000	JA\$/time	•	
Willingness	Condition after sewer		You have to install	house sewer collectors by	your expense and pay	sewerage charge
to sewer			permanently. But y	ou will be free from main	tenance of septic tank,	offensive odor from
connection				ironment in/around your h		
			public sewerage sys			
	Willingness to sonnec	t to sewer	Yes	No		
			If Yes, what is ma	ajor reason		
				ot having to pay for sl	udge removal.	
				<u> </u>	0	
			If No, what is ma	jor reason		
				-		
Sketch of sep	tic tank position					
	osition to be	<	22 m	\rightarrow		
checked			22 m	Dit		
- Septic tan	k	_≪ 7 m ≽		Pit		
- Toilet	Γ		House			
- Bathroom		Hope Blvd	House	B1		
- Kitchen						
- Laundry F	Room		B3 B2	2		
		B4				
	Stre	et / Avenue				
	Suc					

Preparation Survey for Kingston Sewerage Development Project

Photographs General view of septic tank



View of Closed Soak-Away Pit

Survey Date: 2009/2/9

Items			Specification				
Parish			St. Andrew				
Address			9 Cactus Way				
House	Number of inha	bitants	Adult: 2	persons	Children: 3	persons	
Information	Occupation of h	ousehold head	Businessman				
	Number of Rest	room	One	Two	Three		
	Number of Bath	room	One	Two	Three		
Water Use	Average consun	nprion of piped water	31	m3/month			
	Average expend	liture for piped water	3000	JA\$/month			
V	Purchase of bott	tled water for potable us	Yes	No			
			(If yes, how many	number:		nos per week / month	
Torit	Type of toilet		Flush Toilet	Pit latline	Other type		
V	Use of septic tar	nk	Yes	No			
	Frequency of sludge removal		Once ever	y	year	Never in 12 years.	
	Cost of sludge removal			JA\$/time	-		
Willingness	Condition after	sewer connection	You have to install h	ouse sewer collectors	by your expense and pay	sewerage charge	
to sewer			permanently. But you will be free from maintenance of septic tank, offensive odor from				
connection					r house will be improved		
			public sewerage syste	em.			
	Willingness to s	sonnect to sewer	Yes	No			
			If Yes, what is maj	or reason			
			If No, what is majo	r reason			
			_		to remove sludge, in o	over 12 years.	
Sketch of sen	tic tank position						
	position to be						
checked							
- Septic tan	k			L			
- Toilet	ik						
			House	B1			
- Bathroom	1	Pit Pit					
- Kitchen		B2					
- Laundry H	Room		-				
				- E			
		17					
	5 m 💧						

Photographs General view of septic tank



General View of Open Pit

4Hope_9 Cactus Way Septic Tank

Survey Date: 2009/2/9

Items			Specification					
Parish	rish			St. Andrew				
Address			11 Fairlane Avenu	le				
House	Number of inhab	itants	Adult: 3	persons	Children: 2	persons		
Information	Occupation of ho	ousehold head	Businessman					
	Number of Restr	oom	One	Two	Three	None		
	Number of Bathr	room	One	Two	Three	Four		
Water Use	Average consum	prion of piped water	29	m3/month				
	Average expendi	ture for piped water	3000	JA\$/month				
	Purchase of bottle	ed water for potable us	Yes	No				
			(If yes, how many r	number:	5 gallons/week	os per week / month)		
T₀;t	Type of toilet		Flush Toilet	Pit latline	Other type			
>	Use of septic tan	k	Yes	No				
	Frequency of slue	dge removal	Once every	y .	year	Never in 25 years.		
	Cost of sludge re	ost of sludge removal		JA\$/time				
Willingness	Condition after se	ewer connection	You have to install ho	ouse sewer collectors b	by your expense and pay	sewerage charge		
to sewer			permanently. But you	will be free from mai	ntenance of septic tank,	offensive odor from		
connection			toilet. Sanitary enviro	Sanitary environment in/around your house will be improved after connection to				
			public sewerage syste	em.				
	Willingness to so	onnect to sewer	Yes	No	How much?	JMD/month		
			If Yes, what is majo	or reason				
			If No, what is majo	r reason				
			The additional cos	ts that would be as	sociated with implen	nentation.		
Sketch of sep	tic tank position							
Following p	position to be							
checked			Dit					
- Septic tan	k							
- Toilet			House					
- Bathroom	l	E	B					
- Kitchen								
- Laundry I	Room			К				
				28.5				
		В						
				B4				
		Street / Avenue			<u> </u>			
		Succi / Avenue		\vee	С – –			

Photographs

General view of septic tank



Distant view of the Soak-away pit.

Survey Date: 2009/2/9

Items			Specification				
Parish			St. Andrew				
Address			15 Charlemon	t Drive			
House	Number of inhat	oitants	Adult: 3	pe	ersons	Children:	persons
Information	Occupation of he	ousehold head	Retired				
	Number of Restr	room	One		Two	Three	None
	Number of Bath	room	One		Two	Three	Four
Water Use	Average consum	prion of piped water	19	m	3/month		
	Average expend	iture for piped water	1600	JA	\$/month		
v	Purchase of bott	led water for potable us	Yes		No		
			(If yes, how ma	ny num	ber:		nos per week / month)
T₀∏∍t	Type of toilet		Flush To	ilet	Pit latline	Other type	
v	Use of septic tan	k	Yes		No		
	Frequency of slu			Once		year	Never since 1975.
	Cost of sludge removal		0	JA	A\$/time	•	
Willingness		sewer connection	You have to insta	all house	sewer collectors by	your expense and pay	sewerage charge
to sewer						tenance of septic tank,	
connection			toilet. Sanitary environment in/around your house will be improved after connection to				
			public sewerage				
V	Willingness to so	onnect to sewer	Yes		No		
1.			If Yes, what is	major re	ason		
			,	5			
			If No, what is r	najor rea	ison		
			The cost of cor	nectior	is the biggest d	eterrent.	
Sketch of sep	tic tank position						
	osition to be				\frown		
checked		Pit			Pit -		
- Septic tan	k		B1				
- Toilet			House				
- Bathroom			House		3		
- Kitchen							
- Laundry F	Room				B		
, and a g					55	5 m	
		B -			_		
				K			
		Street / Avenue				🔟 🗘 15 m	

Photographs General view of septic tank



View of Grease trap

Survey Date: 2009/2/9

Number of inhabitants Occupation of household head Number of Restroom Number of Bathroom Average consumprion of piped water Average expenditure for piped water Purchase of bottled water for potable of Type of toilet Use of septic tank Frequency of sludge removal Cost of sludge removal Condition after sewer connection	Executive Director One One 17 1 1500 J us Yes (If yes, how many nur Flush Toilet Yes Once	Two Two M3/month JA\$/month No mber: Pit latline No JA\$/time	Children: Three Three Other type	persons None nos per week / month)	
Occupation of household head Number of Restroom Number of Bathroom Average consumprion of piped water Average expenditure for piped water Purchase of bottled water for potable Type of toilet Use of septic tank Frequency of sludge removal Cost of sludge removal	Adult: 2 p Executive Director One One 17 1500 1 us Yes (If yes, how many nur Flush Toilet Yes Once	Two Two M3/month JA\$/month No mber: Pit latline No JA\$/time	Three Three Other type	None	
Occupation of household head Number of Restroom Number of Bathroom Average consumprion of piped water Average expenditure for piped water Purchase of bottled water for potable Type of toilet Use of septic tank Frequency of sludge removal Cost of sludge removal	Executive Director One One 17 1 1500 J us Yes (If yes, how many nur Flush Toilet Yes Once	Two Two m3/month JA\$/month No nber: Pit latline No JA\$/time	Three Three Other type	None	
Number of Restroom Number of Bathroom Average consumprion of piped water Average expenditure for piped water Purchase of bottled water for potable of Type of toilet Use of septic tank Frequency of sludge removal Cost of sludge removal	One One 17 1500 us Yes (If yes, how many nur Flush Toilet Yes Once	Two m3/month JA\$/month No mber: Pit latline No JA\$/time	Three Other type		
Number of Bathroom Average consumprion of piped water Average expenditure for piped water Purchase of bottled water for potable of Type of toilet Use of septic tank Frequency of sludge removal Cost of sludge removal	One 17 n 1500 1 us Yes (If yes, how many nur Flush Toilet Yes Once	Two m3/month JA\$/month No mber: Pit latline No JA\$/time	Three Other type		
Average consumprion of piped water Average expenditure for piped water Purchase of bottled water for potable Type of toilet Use of septic tank Frequency of sludge removal Cost of sludge removal	17 n 1500 1 us Yes (If yes, how many nur Flush Toilet Yes Once	m3/month JA\$/month No nber: Pit latline No JA\$/time	Other type	nos per week / month	
Average expenditure for piped water Purchase of bottled water for potable of Type of toilet Use of septic tank Frequency of sludge removal Cost of sludge removal	1500 1 us Yes (If yes, how many nur Flush Toilet Yes Once	JA\$/month No nber: Pit latline No JA\$/time		nos per week / month	
Purchase of bottled water for potable Type of toilet Use of septic tank Frequency of sludge removal Cost of sludge removal	us Yes (If yes, how many nur Flush Toilet Yes Once	No nber: Pit latline No JA\$/time		nos per week / month	
Type of toilet Use of septic tank Frequency of sludge removal Cost of sludge removal	(If yes, how many nur Flush Toilet Yes Once	nber: Pit latline No JA\$/time		nos per week / month	
Use of septic tank Frequency of sludge removal Cost of sludge removal	Flush Toilet Yes Once	Pit latline No JA\$/time		nos per week / month	
Use of septic tank Frequency of sludge removal Cost of sludge removal	Yes Once	No JA\$/time			
Use of septic tank Frequency of sludge removal Cost of sludge removal	Once	JA\$/time			
Frequency of sludge removal Cost of sludge removal	J	1.1.1	year		
Cost of sludge removal		1.1.1		Never in 8 years.	
	You have to install hous				
		e sewer collectors by	your expense and pay	sewerage charge	
	permanently. But you with	ill be free from maint	enance of septic tank,	offensive odor from	
	toilet. Sanitary environment in/around your house will be improved after connection to				
	public sewerage system.				
Willingness to sonnect to sewer	Yes	No			
	If Yes, what is major	reason			
	If No, what is major re	eason			
	The cost of implement	ntation is the bigge	est deterrent.		
c tank position					
]		
	Dit				
	r n	\uparrow			
	House				
	L House K				
oom		25m			
E	31	25111			
	P2 P1				
	DZ B:	3			
Street / Avenue					
		permanently. But you w toilet. Sanitary environn public sewerage system. Willingness to sonnect to sewer Yes If Yes, what is major r If No, what is major r The cost of implement to tank position osition to be C B1 B2 B2 B2 B3	permanently. But you will be free from maint toilet. Sanitary environment in/around your h public sewerage system. Willingness to sonnect to sewer Yes No If Yes, what is major reason If No, what is major reason The cost of implementation is the bigge ic tank position oom Pit B1 B2 B3 B2 B3	permanently. But you will be free from maintenance of septic tank, toilet. Sanitary environment in/around your house will be improved public sewerage system. Willingness to sonnect to sewer Yes No If Yes, what is major reason If No, what is major reason The cost of implementation is the biggest deterrent. ic tank position oom Pit House K B1 B2 B3 25m 25m	

Photographs General view of septic tank



View of Closed Soak-Away Pit

Survey Date: 2009/2/9

Items			Specification					
Parish	arish			St. Andrew				
Address			29 Gardenia Av	enue				
House	Number of inhat	oitants	Adult: 3	persons	Children: 2	persons		
Information	Occupation of he	ousehold head	Attorney					
	Number of Restr	room	One	Two	Three	None		
	Number of Bath	room	One	Two	Three			
Water Use	Average consum	prion of piped water	39	m3/month				
	Average expend	iture for piped water	4000	JA\$/month				
	Purchase of bott	led water for potable us	Yes	No				
			(If yes, how man	y number:	5 gallons/week	os per week / month		
T(Type of toilet		Flush Toil	et Pit latline	Other type			
	Use of septic tan	ık	Yes	No				
	Frequency of slu	idge removal	Once ev	very Two (2)	year			
	Cost of sludge re	emoval	7,500	JA\$/time				
Willingness	Condition after s	sewer connection	You have to instal	l house sewer collectors b	by your expense and pay s	sewerage charge		
to sewer			permanently. But	you will be free from mai	ntenance of septic tank, o	ffensive odor from		
connection			toilet. Sanitary env	vironment in/around your	house will be improved a	fter connection to		
			public sewerage system.					
	Willingness to so	onnect to sewer	Yes	No	How much? 1000	JMD/month		
			If Yes, what is m	najor reason				
				-	uck coming to residence	e to remove sludge.		
					-			
			If No, what is m	ajor reason				
Sketch of ser	otic tank position							
	position to be							
checked								
- Septic tan	ık			Pit				
- Toilet								
- Bathroom	1		B1	В				
- Kitchen				2				
- Laundry I	Room			L				
				К	13 m			
		Street / Avenue						

Photographs General view of septic tank





Pictures displaying the new septic tank being constructed and the outlet nine from the bethroom

Survey Date: 2009/2/9

Items			Specification					
Parish			St. Andrew					
Address			Aralia Drive/Cac	tus Way				
House	Number of inhal	bitants	Adult: 3	persons	Children: 3	persons		
Information	Occupation of h	ousehold head	Students					
	Number of Rest	room	One	Two	Three	None		
	Number of Bath	room	One	Two	Three			
Water Use	Average consum	nprion of piped water	39	m3/month				
	Average expend	liture for piped water	4000	JA\$/month				
~	Purchase of bott	led water for potable us	Yes	No				
			(If yes, how many	number:	10 gallons/week	os per week / month		
T₀>t	Type of toilet		Flush Toilet	Pit latline	Other type			
~	Use of septic tar	ık	Yes	No				
	Frequency of sludge removal		Once even	ry Three (3)	year			
	Cost of sludge removal		10,000	JA\$/time				
Willingness		sewer connection	You have to install h	ouse sewer collectors by	your expense and pay s	ewerage charge		
to sewer				permanently. But you will be free from maintenance of septic tank, offensive odor from				
connection			toilet. Sanitary envir	onment in/around your l	nouse will be improved a	fter connection to		
			public sewerage syst	em.	_			
	Willingness to s	onnect to sewer	Yes	No	How much? 1000	JMD/mont		
				jor reason				
			-		ewage would be erad	icated.		
					0			
			If No, what is maj	or reason				
Sketch of ser	ptic tank position							
	position to be				7			
checked								
- Septic tan	ık			LR				
- Toilet			K se					
- Bathroom	1		K SC					
- Kitchen		Pit						
- Laundry F	Room							
		B1		B2				
		DI						
		16 m						
		10 111						
	5.5 m	Street / Avenue				_		

Appendix C-6: Survey Sheet of Commercial / Industrial / Institutional Sewerage Flows

- (i) **Portmore area** 778 samples
- (ii) KSA 117 samples



Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	Portmore		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Christain Pen Health Centre	Gergory Park			\checkmark
Christian Pen Plaza	Gergory Park			~
Oaklaoma Grocery	Gergory Park			<i>✓</i>
TWR	Gergory Park			 ✓
NSL Lumber	Gergory Park			 Image: A start of the start of
Unipet Gas Station	Gergory Park			 ✓
Mel Rose Farm Outlet	Gergory Park			✓
Cedar Crest Plaza	Gergory Park			v
Synergy Plaza	Gergory Park			_
New Testement School of Excellence	Gergory Park		1	
Shell Gas Station	Passage Fort			✓
Caymanas Track	Passage Fort			✓
Passage Fort health Centre	Passage Fort			_

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	Portmore		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Hughes Pharmacy	Passage Fort			✓
Carlton Plaza	Passage Fort			 ✓
K& M Wholesale	Passage Fort			 Image: A start of the start of
Western Mart	Passage Fort			
Waterford Police station	Waterford			
Waterford Fire station	Waterford			_
Waterford Branch Library	Waterford		1	
Parts Plus	Waterford			_
G-Kad Auto Parts	Waterford			✓
Hi-Tech Medical Centre	Waterford			v
Child Care	Waterford			
Caymanas Track	Waterford			
Passage Fort health Centre	Waterford			

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	Portmore		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
St. John's College	Waterford		\checkmark	
Southboro Primary	Waterford		 	\checkmark
Good Value Wholesale	Waterford			 ✓
Orridge Pharmacy	Waterford			
Heart School	Edge Water			
РСС	Edge Water		v	
LGR Electrical	Edge Water			
Portmore Town Centre	Edge Water			✓
Portmore Mall	Edge Water			✓
Palms Plaza	Edge Water			✓
NCB	Edge Water			Image: A start of the start
Churches Credit Union	Edge Water			v
Buger King	Edge Water			Image: A start of the start

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	Portmore		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Mc Castle	EdgeWater			\checkmark
Captain Bakery	EdgeWater			 ✓
McMaster Centre	EdgeWater			\checkmark
Tastee's	EdgeWater			\checkmark
Sangster's Book Shop	EdgeWater			
Courts	EdgeWater			
PetCom Gas Station	EdgeWater			
Mega Mart	EdgeWater			_
Portmore Day Care Centre	Westport			v
Portmore Youth development Centre	Westport		v	
Bright Spark Learning Centre	Westport		v	
Portmore Medical Centre	Westport			✓
Cumberland Meat Centre	Cumberland			✓

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

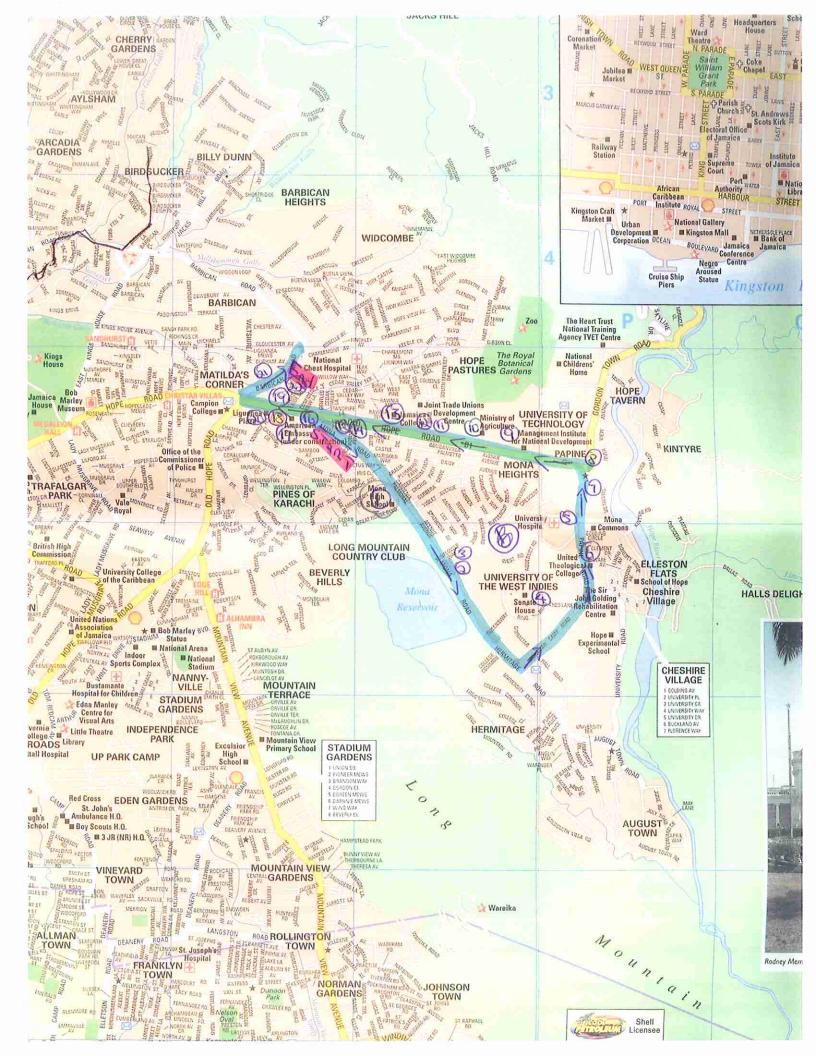
Survey Date: 09/09/2009

Study Area:	Portmore		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Green's Grocery	Cumberland			\checkmark
Westchester Basic School	Cumberland		7	
PGA Prep	Cumberland			 Image: A start of the start of
Smart Kids Basic	Cumberland		√	
Portmore Central Plaza	Naggo Head			 Image: A set of the set of the
Peart Medical Centre	Naggo Head			 Image: A start of the start of
E-services	Naggo Head			v
Portmore Lions Civic Centre	Naggo Head			 ✓
Hair Care Institution	Naggo Head		√	
Kings Medical Centre	Bridgeport			✓
Bridge port High Shool	Bridgeport		√	
Portmore Misionary Prep	Bridgeport		v	
Kenz Plaza	Bridgeport			_

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	Portmore		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Genius Pharmacy	Bridgeport			✓
Port henderson Plaza	Port Henderson			<u> </u>
Rapid True Value	Port Henderson			 Image: A set of the set of the
PetCom	Port Henderson			<u>√</u>
New City Plaza	Port Henderson			v
Portmore Lube Centre	Port Henderson			v
C & M Block Factory	Port Henderson			v
Good News Plaza	Port Henderson			v
Tyre Ware House	Port Henderson			_
Shell Gas Station	Port Henderson			_
Hill Side Plaza	Port Henderson			_





FOR CONTINUATION OF MAP NORTHWARDS SEE INSET MAP TO THE RIGHT STONY HILL G The state MOUNT SALUS ROAD SUISCA . QUEENSBOROUGH Uns. & QUEENSBURY ORAN MUSCAC ROCK 20 WILLIAM PL 11 APHRODITE PL PAR HALL GRO 2 EDWARD PL 12 HERMES PL PERSEUS C PEGASUS STONY 3 DAVID PL 4 SHEILA PL DAILS 10 EROS PL 14 ARES PL SUMMER DR 5 ELENA PL 6 ANDREA PL 15 ZEUS PL 16 DEMETER PL RIDGENELD AVE 100.00 7 DEANNA PL 17 ARTEMIS PL DANAMA WALK 8 MALCOLM PL 9 NEPHRITE PL 15 HERA PL 13 ATHENA PL DRANGE CR 10 APOLLO PL SMOKEY MOUNTAIN STOPE VALE Las 395 1200DC HAVENDALE S GROVE 30 MOUNT HEIGHTS BOAD Stark. PEAK 13.57 PARIONS MIGHLAND C WESSEE DR. STERLING CHANCERY - HALDO TOM'S CASTLE HALL HIGHLANO 28 HILL KON DE CATENON 37 ARMOUR BURNSIDE TILLS UTOTT ngap UNGO HEIGHTS VALLEY RECVEDENCE RED HILLS LEAS FLAT SHEENWOOD FOREST VERLEY VANEULAR OLDGATEOR * TEANY & HILLS TAXAN DR KIRKLAND PITCAIRN Delegation of Distar TRIVI HEIGHTS the European VALLEY HAVENDALE Commission STANMORE MOSQUITO DPA Car. FOREST VIEW STORUE STANLE ULL THE VALLEY WEST KINS MEADOWBROOK. NORTH TEA MAYFAIR CEDAR VALLEY 10 De Manor 9 CRESCENT MAYFAIR Meadowbrook Center 2 KINCANO ROAD ANS AVENUE UNITAH GARNET AL High School -they 101 CAOR RANDWICK DED E. CONSTANT HEFTS CHESCO FOREST HILLS STOLA AV SPRING BELVEDERE GLEN 2 GLEL DR Constant Spring INVRON' RED HILLS Golf Club SCUITH ON KNIGHTS PLANTATION Football Immacula PLOMATIC IDAMO DR Concepti Complex HEIGHTS PARKE AVEN DAte Se VERIDGE High Scl Revenue 10 PLANTATION Collectorate EVERSY do NORBROO BELVEDEN TIBU QUEENSBOROUGH GREEN FOREST HILLS SULOPATRS ADLDER CONS WAY VALENTINE (CC)CHA QUEEN HILL MARTE RO. GARDENS ALLER PERKING DR stole oran 511.TIV 000 CATHERINE -Met Auffricht HOLBROOK antic GARD RIDGERAN HILLMAN PS STOR QUEENSBURY DERITAND SHULT CHADSTONE MEADOWBROOK WHITE HALL TIELD AV ESTATE GARDENS trus BROWN'S A117 DRIVESUALE AV. SUNTAIST TRICE DRAYE DRAW SWIFT WAY ARLENE CORNER DDIV RAIDWINWA PATRICK LONGFELLOW W 100 REACCONTIELD GARDENS OAKLANI CITY BUNCTADI CR. INREE FUCHARDS DR. **JUNIOR** CONSTANT SALLOND RED HILLS BLVD COLLEGE RED HILLS MERRIN OAKS NEW HAVEN PEMBROKE SPRING GDNS. DUHANEY Quot GLENDALE GARDENS PARK Hiok GARDENS E I DARY/DOD AN Line School JANICE PATH / AV C. 81 DEPWELINN PATH CAMPERDOWN N. LUCINE ERROL PATH VHDALL V. LYNDALE BEVERLEY PATH PARKLAND Calabar DUNIERMLINE HYACINTH PATH 7 KINGSLEY PATH GLENDALE GHENDEN YARICO PL High School I 58, CELIEZER AV LA AVENTURA AITTA AND ROYMARE GLENDALE DR.
 GORDON PATH TONTINE 2 HARRAD HILL SOUNDERN CREATLOT AV HOLLAND GROSLOND AV. TER BOULEVARD RO CHESTERFIELD RETREAT BERWYNI AV 10 CARLENE WAY BOLIVAR AN REAPER MAVERLY PARK REURKE AV GARDENS UNDER JONES LETON AN & AUBURN AV ERYNIAAM CONTRADUS DR SAV AURISRN TER \$7.57 MAIN In MANDELA HIGHWAY WASHINGTON MUGH MULLER BOUIL EVARD TONCL OZEWINC ZIADIE-TEWFOO SIX SPANISH TEVATS AVENUE GARDENS MILES DROLDEY AV CORDNA CR DUNROBIN Waterhouse BOB MARLEY CHUDLEIGH AV MANSFIELD AV. Mini Stadium 🔳 👰 DREWS "LAQUE GLEDE VILLA WARLINSTER SAL TAMARIN SANDY LA GARFIELD AV LAND WES in the second DARLEY CRES. CHOVEY AV WASHINGTON Parish of Si ALL REAL BALMAGIE GARDENS Parish of St W. KINGS HOUSE BD MOLYNES 120 WE CARDIGAN -JSTOWERD. CYNIL 2 GARDENS MOLYNES LINDALE AV MORANT AV Cana NORTH AV. WAY RD CALLALLO S MSDALF SUQUESTIA. 8 BOSTND AV DEVON I MEADOWS EASTWOOD PARK GARDENS CENTRAL AN

120

100

00

COOREVILLE GARDENS

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	KSA1		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Mona High School	Mona		✓	
Total Gas Station	Mona			~
Mona Driving School	Mona		1	
University of the West Indies	Mona		1	
University of the West Indies Hospital	Mona			v
St. Micheal Theology School	Mona		7	
Papine Plaza	Papine			v
Supermarket	Papine			✓
Papine Comercial Complex	Papine			_
University Of Technology	Hope Road		I	
Ministry of Agriculture	Hope Road			_
SRC	Hope Road			v
Mona Prep. School	Hope Road			

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	KSA1		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Shady Grove Basic	Hope Road		 ✓ 	
JPS Substation	Hope Road	✓		
RBC (Royal Botanical Gardens)	Hope Road			 ✓
Rural Planning	Hope Road			
Jamaica College	Hope Road		1	
Chinese Benevolent Association	Hope Road		1	
KFC	Hope Road			
Watts New	Hope Road			
ShoppErs Fair Super Market	Hope Road			
Waterfalls Night Club	Hope Road			✓
American Embassy	Hope Road		v	
Liguane Laundromat	Hope Road			✓
North Side Plaza	Hope Road			

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	KSA1		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Shell Gas Station	Hope Road			\checkmark
FCB (First Caribbean Bank)	Hope Road			\checkmark
SCOTIA BANK	Hope Road			
Liguanea Plaza	Hope Road			 ✓
Soveriegn Centre	Hope Road			 ✓
Courts Shopping Centre	Hope Road			\checkmark
Burger King	Hope Road			
Orchid Village	Hope Road			 ✓
Sandhusrt Basic School	Barbican		7	
Техасо	Barbican			✓
HILO Super Market	Barbican			✓
Meat Mart	Barbican			
Barbican Centre	Barbican			

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	KSA1		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Irea Hardware	Barbican			\checkmark
AZ Mart	Hope Road			 Image: A start of the start of
Bell's Pharmacy	Hope Road			 Image: A start of the start of
Техасо	Mannings Hill Road			\checkmark
Isreal Used Car dealers & Services	Mannings Hill Road			 Image: A set of the set of the
Rockwell Trucking Services	Mannings Hill Road			 ✓
Bakery	Mannings Hill Road			 Image: A set of the set of the
Quest Prep School	Mannings Hill Road		√	
Mannings Hill Plaza	Mannings Hill Road			_
Mannings Hill Pharmacy	Mannings Hill Road			<u>√</u>
Whitehall Park Centre	Mannings Hill Road			✓
Midway mall	Mannings Hill Road			
Havendale Basic School	Mannings Hill Road			<u>√</u>

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	KSA1		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Super Value	Mannings Hill Road			\checkmark
Shell Gas Station	Mannings Hill Road			\checkmark
Family Pride Mall	Mannings Hill Road			\checkmark
City Island Seafood	Mannings Hill Road			\checkmark
Price rite Super Market	Redhills Road			\checkmark
Post office	Redhills Road			 Image: A start of the start of
Shell Gas Station	Redhills Road			
Total Gas Station	Redhills Road			 ✓
Meadow Vale Basic School	Redhills Road			
Meadow Brook Church of Christ Basic	Redhills Road		✓	
Meadow Brook High School	Redhills Road		 	
Bakers delight	Redhills Road			_
Meadow Brook Pharmacy	Redhills Road			_

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	KSA1		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Price Mart	Redhills Road			\checkmark
Red Hills Road Plaza	Redhills Road			 Image: A start of the start of
Family Pride Mall	Redhills Road			 Image: A start of the start of
Jack & Jill Wholesale	Redhills Road			 ✓
Roberts Wholesale	Redhills Road			
Whilby's Hardware	Redhills Road			 ✓
Red Hills Pub	Redhills Road			 Image: A start of the start of
Turn Table Plaza	Redhills Road			 Image: A start of the start of
St. Richards Primary School	Redhills Road		1	
KFC	Redhills Road			_
Sunrise Plaza	Redhills Road			
Nu-Look Dry Cleaners	Redhills Road			✓
Sunrise Supermarket	Redhills Road			<u>√</u>

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	KSA1		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Access Medical	Redhills Road			\checkmark
Sudines Hardware	Redhills Road			~
Merrick Highway Plaza	Redhills Road			 Image: A set of the set of the
Red Hills Mall	Redhills Road			 ✓
Lloyds Hardware	Redhills Road			v
Real Deal Wholesale	Redhills Road			v
Patrice salon	Redhills Road			✓
Bowlers Garage	Redhills Road			\checkmark
St. Patricks Plaza	Redhills Road			v
Main Plaza	Redhills Road			✓
Duco Mix	Redhills Road			✓
Debco Cleaners	Redhills Road			_
Big Taste Food	Redhills Road			_

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	KSA1		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Galaxy Leisure Tour	Redhills Road			\checkmark
3 View Pharmacy	Redhills Road			~
3 View Texaco	Redhills Road			<i>✓</i>
Burger King	Redhills Road			 Image: A set of the set of the
Lees Food Fair	Redhills Road			 Image: A set of the set of the
petes Complex	Redhills Road			 Image: A set of the set of the
lee Mason Funeral Home	Redhills Road			 Image: A start of the start of
Logic one Cable Company	Redhills Road			
Dina's Truck Parts and Serv	Whitehall			v
Norma's Resturant	Whitehall			v
Swallow Field Allage School	Whitehall			
Bowings Tailoring	Whitehall			
Lushan Beauty Salon	Washinton Blvd			

Survey Sheet of Commercial/Industrial/Institutional Sewerage Flows

Survey Date: 09/09/2009

Study Area:	KSA1		Sewerage Flows	
Name	Location	Industrial	Institutional	Commercial
Total Gas Station	Washington Blvd			\checkmark
Boulevard Super Center	Washington Blvd			 Image: A set of the set of the
Diary Industry	Washington Blvd			
JPSCo. Ltd	Washington Blvd			
Pembrook Hall High	Washington Blvd		~	
Total Hardware	Washington Blvd			 Image: A start of the start of
Pembrook Hall Plaza	Washington Blvd			 Image: A start of the start of
Pembrook Hall Community Centre	Washington Blvd			
New Dawn Learning Centre	Washington Blvd		1	
Pembrook Hall Square Plaza	Washington Blvd			_
Hughen Plaza	Washington Blvd			✓
Hughenden Park Plaza	Washington Blvd			
Pete's Bakery	Washington Blvd			✓