APPENDIX A
(Small Force Mains List)

APPENDIX A

Small Force Mains
(<1.3 MGD Average Daily Flow)

Aala Drive
Alala Point
Aliamanu # 1
Aliamanu # 2
Alii Bluffs
Coconut Grove
Enchanted Lake
Ewa Gentry
Grandview
Halekou
Heeia
Homelani Acres
Kahaluu
Kahaluu Housing
Kahanahou
Kahawai Stream
Kahuku Effluent
Kaneohe Bay # 2
Kaneohe Bay # 3
Kaneohe Bay # 4
Kaneohe Bay South #5
Kemoo Farm
Kukanono
Kuliouou
Laie
Lakeview Circle
Leanani
Makakilo
Maunawili Estates
Maunawili Park
Mililani
Miomio
Moana Park
Nakula Street
Nanakuli
Ohai Place
Pacific Palisades
Paiko Drive
Public Baths
Punawai
Sand Island Industrial Park
Sand Island Parkway
Uwalu
Waiawa Industrial Park
Waikalua
Waikapoki
Waipio
West Beach Resort #1
West Beach Resort #2
West Loch Estates
West Loch Fairways

APPENDIX B
(Large Force Mains List)

APPENDIX B

Large Force Mains
(≥1.3 MGD Average Daily Flow)

Ahuimanu
Ala Moana
Awa Street
Beachwalk
Ewa Beach
Fort DeRussy
Halawa
Hart Street
Kahala
Kailua Heights
Kailua Road
Kamehameha Highway
Kaneohe Bay #1
Kaneohe-Kailua
Kunia
Lualualei
Niu Valley
Pearl City – East
Pearl City - West
Waimalu
Waipahu – East
Waipahu - West

APPENDIX C
(Site-Specific Spill Contingency Plan)

APPENDIX C

Site Specific Spill Contingency Plan

The purpose of the Spill Contingency Plan is to establish measures and procedures to respond to a force main spill event in order to minimize discharges to surface waters, to prevent public exposure to the spilled wastewater, and to return the force main to full service as rapidly as possible. The Spill Contingency Plan must be: (1) specific to the location; (2) prepared in accordance with good engineering practices; and (3) be readily accessible so that it is a source of usable information for employees or response personnel during an actual emergency.

The contents of the Spill Contingency Plan shall include: Force Main Information; Response Procedures; Equipment, Parts, and Supplies; and Plan Updates. The contents are described as follows:

Force Main Information

This section of the Spill Contingency Plan shall contain salient information about the force main, including, location, diameter, length, material, elevations, design flows and pressures, fittings, parallel force mains, location of storm drain inlets and waterways, and a vicinity map of the force main, including nearby gravity sewers and pump stations that may be used for diversion of flows in the event the force main is damaged.

Schematic diagrams shall be included, depicting all valves, access points, and fittings that may be used in an emergency response to contain or divert sewage from the damaged force main.

This section of the Plan shall also describe monitoring and/or alarms at the force main (or its associated pump station) including, but not limited to, SCADA that could serve to notify CCH of a potential spill.

Spill Response

This section of the Spill Contingency Plan shall include a list of the actions that CCH anticipates taking in the event of a force main spill -- including tankering and diversion of flows within the system using parallel force mains or other facilities. This section shall describe the personnel CCH will have available to deploy in the event of a force main spill, the staff notification procedures, and anticipated response times.

This section of the Plan shall include a list of steps that CCH anticipates taking to minimize discharges from the force main to surface waters including, but not limited to, procedures for shutting down pumps, diversion of sewage to parallel force mains or nearby gravity sewers, spill containment, tankering, emergency discharge locations (to be used only if no other practicable contingencies exist), and notification to industrial/ commercial dischargers and residential customers in the service area to minimize water usage.

This section of the Plan shall include the steps that CCH anticipates taking to notify impacted agencies and the public of the location and size of the force main spill. It shall also include plans for warning members of the public in order to prevent public exposure to spilled wastewater, including, but not limited to, posting procedures.

This section of the Plan shall include the methods CCH anticipates using to clean up and mitigate the impacts of the spill. Procedures for the decontamination of spills sites and disposal of contaminated water, soil, equipment, and supplies shall be included.

Equipment, Parts and Supplies

This section of the Plan shall include a list of the equipment, parts and supplies needed to support the Plan including response and repair equipment, spare parts, and supplies that can be used in the event of a force main failure. The response equipment shall include portable pumps, hose or piping, sand bags (or equivalent barrier/diversion devices) and pipe plugs. The supplies shall include replacement pipe, valves and repair kits. The list shall identify the location of all such equipment, parts, and supplies.

Plan Updates

CCH shall review the Spill Contingency Plan annually, and shall revise the Spill Contingency Plan as necessary to address any pertinent changed conditions and to ensure the functionality of the key components of the Plan; provided however, such revisions shall not eliminate any element of the Spill Contingency Plan required by this Appendix.

CCH shall provide a copy of any revised Spill Contingency Plan to EPA and DOH.

APPENDIX D
(Force Main Condition Assessment)

APPENDIX D

Force Main Condition Assessment

I. OBJECTIVES

A. Conduct assessments of a force main for the purpose of locating conditions that may cause pipe leakage, failure or interruption of service. In determining the appropriate assessment methods, cost alone is not a basis for rejecting or selecting an assessment method, but is a factor to be considered in selecting from among appropriate assessment methods.

B. Conduct inspections of all accessible valves, fittings, and appurtenances associated with the force main for the purpose of locating conditions that may cause pipe leakage, failure or interruption of service.

C. For each inspection, document the findings of each condition discovered.

D. Assess the risk of pipe failure associated with each condition discovered.

E. Gather sufficient information on the force main to determine the appropriate course of action so that the force main can continue to function (either as a primary or back-up force main) without a material risk of failure.

F. Provide a plan with schedules for addressing each condition that poses a material risk of pipe failure or service interruption. Follow-up actions may include monitoring the situation, preventative maintenance, repair, rehabilitation or replacement.

II. SCREENING/PRELIMINARY RISK ASSESSMENT

A. Evaluate Previous Failures – Evaluate past force main failures, determine the likelihood of repeat failures, and identify portions of the force main at risk for a repeat failure.

B. Prior Condition Assessments – Evaluate past condition assessments and identify portions of the force main at risk of failure or in need of further assessment.

C. High Risk Pipe Configuration – Review force main plans to identify piping configurations at increased risk of failure including connections, joints and bends.

D. Identify Corrosion Risks – Identify locations along each pipeline that are at risk for corrosion of the internal or external pipe walls. CCH shall employ the

best available screening methods suitable for the force main, including, but not limited to, the following:

1. Identification of pipeline high points.

2. Identification of locations with failed cathodic protection, if installed.

3. Measurements of pipe-to-soil electrical potential.

4. Soil resistivity testing.

5. Examination of force main discharge manholes for signs of corrosion indicating corrosive wastewater.

E. Right-Of-Way Inspection – Inspect pipeline right-of-ways to look for signs of pipe damage or physical changes that may affect the condition of the force main. Right-of-way inspections shall include, but not be limited to, the following:

1. Examination of soils adjacent to pipelines to look for wet spots, unusual vegetation growth or other indications of leakage.

2. Observations of recent construction or road repairs that may have affected the structural integrity of the force main.

3. Observations of land movements (slides, rock falls, sink holes, settling) that may have affected the structural integrity of the force main.

4. Observations of other conditions, such as unusual surface loads, that may have affected the structural integrity of the force main.

III. ASSESSMENTS

A. Valves, Fittings and Appurtenances – Inspect and conduct functional analyses of, to the extent practicable, all valves, air-relief valves, drains, connections, fittings and appurtenances associated with the force main. Identify each valve, fitting or appurtenance that is not fully functional or functioning as intended. Identify conditions that present a material risk of pipe failure or interruption of service of the force main.

B. Cathodic Protection – Evaluate the integrity and adequacy of all installed cathodic protection systems. Identify each location where the protection has failed or where protection is inadequate. If cathodic protection is not installed on a force main, evaluate whether conditions warrant the installation of cathodic protection.

C. External Pipe Inspections

1. Locations – The exterior of the force main shall be inspected at:

   a) Each location where the pipe is exposed; and

   b) Each location determined to present a material risk of failure or interruption of service based on the screening analyses pursuant to section II (excavation may be necessary to reach these locations).

2. Inspection Methods

   a) At each location identified pursuant to section III.C.1 above, the pipe exterior shall be visually inspected for structural damage and the integrity of protective coatings.

   b) Additional inspections shall be conducted as needed to locate and assess pipe conditions that present a material risk of pipe failure or interruption of service. Special attention shall be focused on locations determined, pursuant to section II.D above, to present a material risk of pipe corrosion.

   c) The exterior of the force main shall be inspected using visual inspection and/or the best proven technology that is suitable to the particular pipe to identify conditions such as cracks, corrosion, erosion, or coating damage/delamination that pose a material risk of pipe failure or interruption of service. Best proven technology may include ultrasonic examination of pipe walls or pipe wall samples, or other methods for determining the extent of pipe corrosion.

D. Internal Pipe Inspections – Internal pipe inspections shall utilize the best proven inspection technology that is suitable to the particular pipe to identify conditions, such as cracks, corrosion, erosion, coating de-lamination, joint deflections, pipe deformation and debris accumulation, that pose a material risk of pipe failure or interruption of service. Internal force main inspections shall be conducted on the length of pipe that is practically accessible with the selected inspection method. At a minimum, CCH shall inspect the portions of pipe necessary to identify or characterize conditions that pose a material risk of pipe failure or interruption of service, including, but not limited to, all high points in the pipes, to the extent practicable. Where practicable, CCH shall conduct evaluations in the vicinity of all access points (air relief valves, discharge manholes and other valves and fittings that provide access). If any portion of a force main is not subjected to internal inspection, CCH shall provide an explanation in the final assessment report.

E. Operating Pressure Evaluations – The City shall evaluate the operating and transient pressure for the force main. The purpose of the evaluation is to determine if the design, construction, and materials are sufficient to withstand the maximum predicted transient pressures that may be expected to occur under normal, peak flow, and emergency (shut-down and start-up) conditions. This evaluation shall include, but not necessarily be limited to, a review of available pressure sensor data (SCADA and strip chart_ to evaluate normal operating pressures, and an evaluation, using transient pressures models or actual pressure measurements, of the transient pressures that occur during the range of anticipated operating conditions. Any actual pressure measurements shall be limited to the range of operating conditions that is both prudent and practicable.

F. Leak Detection - The City shall follow up on observed conditions that are likely to be the source of leakage. The methodologies employed will be appropriate to the type of condition and location of the suspected leakage.

IV. CONDITION ASSESSMENT REPORTS AND -ACTION PLANS

A. Assessment Methods – Describe the method and extent of each assessment conducted under section III, including valve, fitting and appurtenance inspections; cathodic protection evaluations; external and internal pipe inspections; operating pressure evaluations and leak detection tests. Describe each external and internal pipe inspection method utilized and the locations, including the length of pipe, where each method was employed. Provide justifications for the selection of inspection methods and locations. In an appendix to the report, provide a copy of the original field data.

B. Assessment Results and Findings

1. Assessment Results

a) Describe the results of the screening/preliminary risk assessments conducted pursuant to section II, including a listing of the pipe segments identified as having a material risk of pipe failure or interruption of service based on corrosion potential or other factors.

b) Describe the results of each assessment conducted under section III, including valve, fitting and appurtenance inspections; cathodic protection evaluations; external and internal pipe inspections; operating pressure evaluations and/or leak detection tests.

2. Findings of Conditions - Identify and quantify (where practicable) observed or measured conditions that constitute a material risk of pipe failure or service interruption. In describing such conditions, characterize the nature of the risk of failure associated with the condition, the likelihood and imminence (to the extent practicable) of the failure risk and the consequences should such a failure occur. The conditions to be addressed in this report may include:

a) Pipe conditions: cracks, holes, corrosion, erosion, coating de-lamination, joint deflections, pipe deformation and debris accumulation;

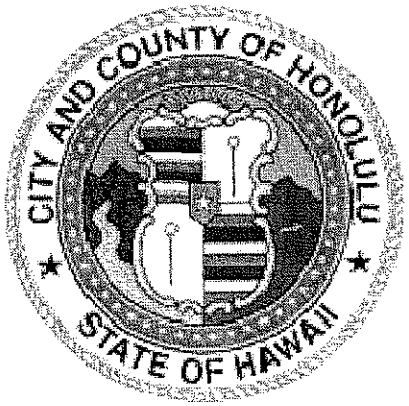
b) Valve, fitting and appurtenance conditions;

c) Cathodic protection system conditions; and

d) Leaks.

C. Follow-up Action Plan – Provide a proposed action plan to address conditions that constitute a material risk of pipe failure or service interruption as a primary or back-up force main. The action plan shall include, but not be limited to: 1) maintenance plan, 2) schedule for future assessments, 3) schedule for design and construction of repairs, rehabilitation, improvements or replacement as applicable. In developing the action plan, CCH shall consider what actions are necessary to achieve the objectives set forth above in Section I.

APPENDIX E
(Force Main Operation and Maintenance Program)



FORCE MAIN

OPERATION AND MAINTENANCE PLAN

May 11, 2010

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1. PURPOSE

The purpose of this Force Main Operation and Maintenance (O&M) Plan is to provide a listing of the programs and activities that CCH will employ to minimize the frequency and severity of SSOs that result from force main failures. Comprehensive details of the Performance Testing, Operational Inspections, and Predictive Maintenance are described in the individual pump station O&M manuals and the WTD Directives. This plan is subject to modification based on changes in field conditions and industry equipment standards. Inspection frequencies will increase or decrease depending on the equipment's condition when inspected.

2. ABBREVIATIONS

The following abbreviations are used in this plan.

CCH City and County of Honolulu
CSM Collection System Maintenance Division
DDC Department of Design and Construction
DPP Department of Planning and Permitting
ENV Department of Environmental Services
fps Feet per second
gpm Gallons per minute
MGD Million gallons per day
O&M Operation and Maintenance
SD Site Development Division
SRE Significant Rainfall Event
SSO Sanitary Sewer Overflow
WD Wastewater Division
WTD Division of Wastewater Treatment and Disposal

3. RESPONSIBILITIES

The responsibilities for implementing the elements of this plan are shown on Table 1.

Table 1: Responsibilities

Activity	Responsible Department/Division
Surface Marking	ENV/WTD
Trenching Permit Process	DPP/SD
Inspection during Construction	DDC/WD
Operation & Maintenance	ENV/WTD
Manage Outside Contractors during Emergency Maintenance and Repairs	DDC/WD
Manage Emergency Maintenance and Repairs	ENV/WTD
Support Emergency Maintenance and Repairs	ENV/CSM

4. O&M PROGRAM ELEMENTS

4.1. Surface Marking

The purpose of force main marking is to prevent inadvertent damage to force mains caused by excavation, drilling and other underground construction activities.

4.1.1. Buried Force Mains

The location of all buried force mains will be identified using surface markers at least every 100 feet. The markers will read:

- Caution
- Buried Sewage Pipe under Pressure.
- Call WTD Operations at (808) 847-8307 before digging

4.1.2. Underwater Force Mains

The entry and exit points for all underwater force mains will be identified using surface markers. The markers will read:

- Caution
- Submerged Sewage Pipe under Pressure
- Call WTD Operations at (808) 847-8307 before working in vicinity

4.1.3. Exposed Force Mains

The location of all exposed force mains will be identified using markers at least every 100 feet. The markers will read:

- Caution
- Sewage Pipe under Pressure
- Call WTD Operations at (808) 847-8307 if any problems

4.2. Location Information

4.2.1. Design Phase

CCH – DPP/Site Development Division will notify designers regularly working in the service area that Trenching Permits are required for any earthmoving, drilling, excavation, or other underground construction.

4.2.2. Construction Phase

Contractors are required to obtain a Trenching Permit from DPP for any earthmoving, drilling, excavation, or other underground construction. The contractor will notify DDC within seven days of permit approval of any nearby force main facilities.

4.2.3. Inspection during Construction

Drilling, excavation and underground construction activities that may impact the integrity of force mains will be inspected by DDC inspectors while the work is in progress to ensure that the contractor has implemented appropriate protection measures.

4.3. Performance Testing

Force main performance will be tested, as detailed in the WTD directives. The results of the performance testing will be compiled. Work orders will be issued to correct performance problems as appropriate. Back-up force mains identified, as "dry force mains" are not intended to need performance testing on a regular basis, and may remain dry without filling or pressurizing.

The data from the annual performance inspections will be maintained for use in evaluating changes in force main performance over time.

4.4. Operational Inspections

The purpose of operational inspections is to ensure that the force main facilities are operating normally.

A summary of operational inspections is shown in Table 2 and detailed in the WTD directives. Each of the operating inspections is discussed in greater detail below. Inspection of a "dry force main" is limited to the activities that can be done without filling or pressurizing the force main.

Records of operational inspections will be recorded in the computerized maintenance management system by asset.

Table 2: Summary of Force Main Operational Inspections and Frequencies

Force Main Feature	Inspection Activity	Frequency
Right-of-Way (buried and elevated)	Visually inspect right-of-way.	3 – 6 Months
Right-of-Way (underwater)	Visually inspect right-of-way (diver or remotely operated vehicle).	5 Years or following nearby underwater construction activities
Air/Vacuum Relief Valve	Inspect valves and piping for signs of corrosion, damage, leakage or odor. Observe valve operation during pump cycle.	Quarterly with further optimization of interval based on condition findings and equipment history.
Air/Vacuum Relief Valve	Flush Air/Vacuum relief valve assemblies.	Quarterly with further optimization of interval based on condition findings and equipment history.
Other Force Main Valves	Observe condition and exercise valves.	12 Months
Corrosion Protection (Impressed Current)	Measure potential and current readings.	3 Months
Corrosion Protection (Sacrificial Anode)	Measure pipe to soil potential.	3 Months
Electrolysis Test Stations	Measure pipe to soil potential.	12 Months
Force Main Pipe (external)	Visually inspect external pipe condition	12 Months

	where exposed.	
Force Main Pipe (internal)	Visually inspect internal pipe condition at discharge location.	12 months
Dissolved Sulfides in Force Main Effluent	Sample and analyze force main effluent for total dissolved sulfides or gaseous Hydrogen Sulfide.	12 Months
Pipe Protective Coating	Determine protective coating integrity by inspecting pipe visually and using a paint thickness gauge.	12 Months
	Analyze predictive maintenance data.	12 Months

4.4.1. Force Main Right-of-Way

The force main inspection consists of a detailed and methodical visual inspection of each force main right-of-way to identify loss of support, earth movement, condition of features (e.g., pressure manholes), nearby construction activities, early signs of leakage, vandalism or other conditions that could lead to a force main failure. The inspections will be conducted by walking the force main right-of-way for buried and elevated force mains and by a diver or remotely operated vehicle for underwater force mains. The results will be recorded in an inspection log that notes both locations and observations. Any significant or unusual situations will be recorded using photographs.

4.4.2. Air and Vacuum Relief Valves

The air and vacuum relief valve inspection will consist of a detailed and methodical visual and operational inspection to identify whether the valves are functioning, that they are not leaking, that they are in serviceable condition and that they are adequately protected from damage. The visual and operational inspection will include cycling the valves manually and observing the valves in operation during a normal pumping cycle (pump stop, idle time and start). The isolation valves that are used to shut off the air and vacuum relief valves will be operated at the time of the inspection to verify that they operate properly. See Table 2 for intervals.

The air relief valve discharge will be directed into a container when the valve is manually cycled to contain any sewage that may be discharged. The results will be recorded in an inspection log that notes both locations and observations. Any significant or unusual situations will be recorded using photographs.

The employee inspecting the valves would be in contact with an operator at the pump station who would cycle the pumps and communicate their status to the inspector.

The volume that is discharge when an air/vacuum relief valve is flushed is dependent on the size and type of valve. The volume for one flushing cycle is:

Size (inches)	Volume (gallons)
2	5
3	6
4	9
6	20

These quantities can be contained in one or more buckets. Alternatively, pressurized water can be applied to the valve to flush the contents of the valve body back into the force main in which case there is no discharge (see Figure 1)

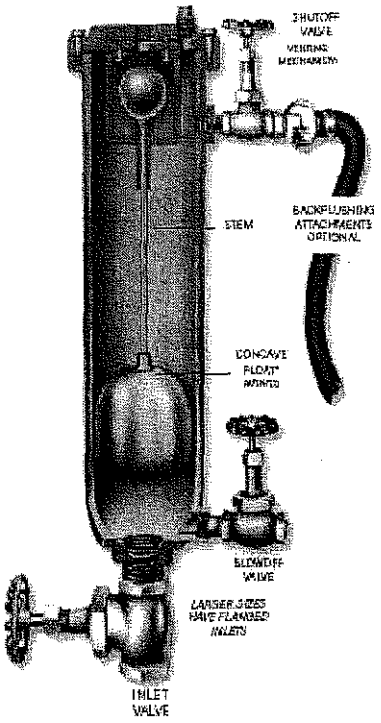

Figure 1: Air and Vacuum Relief Valve Assembly

CCH plans to have an inventory of air/vacuum relief valves and the field crews would have the small valves (2 and 3 inch) with them during the inspection/maintenance activities. The inspection crew can replace small valves. Larger valves are too heavy for a crew to replace and will require the use of a boom truck or other lifting device. The priority will be based on the time of year. Ideally, all air/vacuum relief valves should be operational before the wet weather season.

4.4.3. Isolation (Inlet) and Blow-Off Valves

The isolation and blow off valve inspection will consist of a detailed and methodical visual and operational inspection to determine the condition and operability of the valves. Valves will be exercised during this inspection. A tanker truck will be used to contain the sewage discharged from the blow off valves. See Table 2 for intervals.

The results will be recorded in an inspection log that notes both locations and observations. Any significant or unusual situations will be recorded using photographs.

4.4.4. Significant Rainfall Event

The significant rainfall event (SRE) inspections will be conducted by WTD Pump Station personnel and consist of a detailed and methodical visual inspection to determine the condition of force mains where their reliability may be impacted by saturated soil conditions and/or heavy surface runoff. SRE inspections will be focused on specific collection system facilities. A SRE is defined as a rainfall event associated with a Flood Warning announcement. These inspections will be conducted in areas where rainfall has occurred within 48 hours after the end of the rainfall event. The results will be recorded in an inspection log that notes both locations and observations. Any identified corrective actions required will be initiated through a Corrective Action Work request within the computerized maintenance management system.

4.4.5. Corrosion Protection

The potential for corrosion and the functioning of the corrosion protection systems will be inspected as per Table 2. Corrective actions such as adjusting current settings, activating spare anodes, repair, and corrosion protection system replacement will be performed under the WTD's material maintenance management program. The procedures for the inspections follow:

4.4.5.1. Electrolysis Test Stations

The pipe-to-ground potential for metallic force mains with electrolysis test stations will be measured according to Table 2.

The results will be recorded in an inspection log that notes both locations and observations. Any significant or unusual situations will be recorded using photographs. The results will be reviewed by a qualified engineer or technician or by a qualified corrosion-engineering consultant to evaluate the data.

4.4.5.2. Passive Corrosion Protection Systems

Passive corrosion protection systems employ sacrificial anodes. The pipe-to-ground potential will be measured according to Table 2.

The results will be recorded in an inspection log that notes both locations and observations. Any significant or unusual situations will be recorded using photographs. The results will be reviewed by a qualified engineer or technician or by a qualified corrosion-engineering consultant to evaluate the data.

4.4.5.3. Active Corrosion Protection Systems

Active corrosion protection systems employ impressed currents. The pipe-to-ground potential and the system current will be measured according to Table 2.

The results will be recorded in an inspection log that notes both locations and observations. Any significant or unusual situations will be recorded using photographs. The results will be reviewed by a qualified engineer or technician or by a qualified corrosion-engineering consultant to evaluate the data.

4.4.6. Pipe and Discharge Manhole/Structure Condition

The pipe and discharge manhole/structure inspection will consist of a detailed and methodical visual inspection to determine the condition of the exposed portions of the force main and the condition of the discharge manhole/structure. The inspection will be conducted either visually or with the aid of mirrors and/or down-hole camera systems. The inspection of the exposed portions of the force main will include observations on the condition of the coating system.

The results will be recorded in an inspection log that notes both locations and observations. Any significant or unusual situations will be recorded using photographs. The results will be reviewed by a qualified engineer or technician or by a qualified corrosion-engineering consultant to evaluate the data.

4.5. Pump Station/Force Main System Operations

The pump station/force main systems will be operated as described below.

4.5.1. Sulfide Monitoring

Force main effluent dissolved sulfides or effluent structure atmospheric hydrogen sulfide concentration will be measured as per Table 2.

The results will be recorded in a log that notes time, date, flow and total dissolved sulfide/atmospheric hydrogen sulfide concentration. The results will be reviewed by a qualified engineer or technician or by a qualified corrosion-engineering consultant to evaluate the data. Results will be recorded in the computerized maintenance management system by asset.

4.5.2. Pump Stations with Single Force Mains

Pump stations with single force mains will be operated in a manner to produce a high velocity to flush accumulated solids once per week. The desired flushing velocity is 3 feet per second (fps).

4.5.3. Pump Stations with Multiple Force Mains

Pump stations with multiple force mains will be operated in a manner to produce a high velocity to flush accumulated solids in the operational force main once per week (force mains are alternated periodically). The desired flushing velocity is 3 fps. Back-up force mains identified as "dry force mains" are not intended to need flushing or testing on a regular basis, and may remain dry without filling or pressurizing.

4.5.3.1. Dry Weather

During dry weather periods, these pump stations will normally be operated with one force main in service (if the force main capacity is adequate to handle dry weather flows). Force main operation will be alternated every week so each is flushed at least every other week. The transition from one force main to the other should be gradual in order to minimize potential downstream odor issues.

4.5.3.2. Wet Weather

During wet weather periods, all force mains may be operated when required to avoid collection system spills. During this situation, each of the force mains will be flushed once per week. During force main flushing, the flow will be diverted to one of the force mains for the day shift or as long as possible given the flow conditions at the time.

5. EMERGENCY OPERATIONS AND EMERGENCY RECOVERY FEATURES

Emergency operations will be undertaken in the event of a force main failure. The emergency operations may include some of the following activities as deemed appropriate and as may be more particularly described within site specific spill contingency plans or contained in individual pump station O&M manuals:

- Shut down the pump station and store flows in the wet well and upstream collection system;
- Transfer flows to parallel force main, if available;
- Drain the force main to minimize the quantity of the spill;
- Contain spilled sewage to the extent feasible;
- Effect emergency repairs using stored repair clamps and/or pipe sections;
- Employ specialty contractors to support CCH forces during the emergency;
- Employ pump truck operations to remove wastewater from the wet well and dispose of the wastewater at an appropriate location; and/or
- Pump around the force main break to convey the flow until repairs are complete.

In addition to these emergency operations activities, force mains will be provided with the following emergency recovery features:

5.1. All-Weather Access to Valves, Pressure Manholes and Discharge Manholes/Structures

Gravel or paved access within the City's right-of-way will be constructed where appropriative to allow O&M personnel and/or vehicles to have all-weather access to install temporary pumps and piping, to replace/repair valves and to repair exposed sections of the force main. Location maps are located in the respective individual pump station O&M manuals.

5.2. Pressure Manholes

Pressure manholes will be installed as needed on new and rehabilitated force mains approximately every 1,000 feet to allow for the installation of pump-around equipment and/or to provide access for internal inspection.

6. MAINTENANCE

The pump station/force main systems will be maintained as described below. Records of maintenance activities will be recorded in the computerized maintenance management system by asset.

6.1. Predictive Maintenance

The data from force main right-of-way inspections, pipe and discharge manhole/structure inspections and effluent sulfide monitoring will be used to focus the predictive maintenance program. Predictive maintenance will include periodic evaluations of pipe and structure coating systems and pipe wall thickness.

The results will be recorded in an inspection log that notes both locations and observations. Any significant or unusual situations will be recorded using photographs. The results will be reviewed by a qualified engineer or technician or by a qualified engineering consultant to evaluate the data.

Work orders will be issued to correct identified problems as appropriate.

6.2. Preventive Maintenance

The force main preventive maintenance program will include the following activities.

6.2.1. Air and Vacuum Relief Valves

The results of the air and vacuum relief valve operational inspections will be used to establish the appropriate preventive maintenance frequency for flushing and rehabilitating/replacing the valves. The initial inspection frequency is listed in Table 2 and the frequency adjusted based on the field data.

6.2.2. Isolation and Blow-off Valves

The results of the isolation and blow-off valve operational inspections will be used to identify valves that require maintenance, repair, rehabilitation or replacement.

6.2.3. Corrosion Protection System

The results from the corrosion protection system inspections will be used to establish the appropriate preventive maintenance frequency for the active corrosion protection systems and for replacing the anodes in the passive corrosion protection systems. The initial frequency will be 12 months for the active corrosion protection system.

The results from the pipe and discharge manhole/structure inspections will be used to establish the preventive maintenance frequency for the pipe and manhole/structure coating systems.

6.2.4. Force Main Cleaning

Force main cleaning will be accomplished using pigging, swabbing, or other appropriate methods.

Other methods of cleaning a force main include flushing with high flows or flushing with a high velocity sewer cleaner. The term swabbing includes forcing a loose fitting device through the force main (e.g. a coarse sand bag filled with ice). The term pigging includes forcing a pig through the force main.

The results from the Periodic Pump Station Performance Testing will be used to establish the preventive maintenance frequency for cleaning the force mains serving medium and large pump stations (medium pump stations are pump stations equal to or greater than 2 mgd but less than or equal 30 mgd in design capacity; large pump stations are pump stations that have a design capacity greater than 30 mgd). Force mains serving small pump stations with a rated capacity of less than 2 MGD will be cleaned every five years.

6.3. Corrective Maintenance

Planned repairs to force mains will be completed within the work order priority timeframe. Force mains that require frequent or significant repairs due to their condition will be considered for rehabilitation or replacement. Force main rehabilitation or replacement will be based on the repair history of the asset and will consider the replacement costs of the asset. Contractors will be employed to assist CCH staff when necessary to complete corrective maintenance.

The WTD priority system is:

- Priority 1 (Emergency/Regulatory Violation/Life Threatening/Safety
  - Emergency
  - Complete Immediately
  - Overtime is authorized
- Priority 2 (Urgent)
  - Emergency
  - Complete As-Soon-As-Practical with pre-approved work order
  - Overtime requires pre-approval
- Priority 3 (Predictive or Routine Maintenance)
  - Pre-determined frequency under work order system
  - Complete within 30 days
- Priority 4 (Corrective Maintenance)
  - Planned work order
  - Complete within 3 months
- Priority 5 (Special Projects/System Modifications)
  - Low priority maintenance or improvements
  - Complete within 1 year

6.4. Reactive Maintenance

Unplanned repairs to force mains will be completed within the work order priority timeframe as shown in Section 6.3. Corrective Maintenance. Contractors will be employed to assist CCH staff when necessary to complete unplanned repairs.

6.5 Spare Parts

Spare pipe, valves, and repair couplings will be stocked to support timely completion of maintenance, repairs, and emergency response. These spare parts, as per the O&M manual spare parts list, site specific spill contingency plans and pump station O&M manuals will be stocked at appropriate nearby locations and managed under the WTD material management program.

APPENDIX F
(Scope of the 1999 Final Sewer I/I Plan Projects)

Planning Project ID	Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
Subparagraph 18.b, Complete Construction no later than December 31, 2011					
SI-CS-05	Kalihi Valley Relief Sewer	05-0284	C1-Historic Wet Weather SSOs and/or Operational Problems	Kalihi/Nuuanu Area Sewer Rehabilitation - Medium and Low Priority Sewers (SI-CS-04p, SI-CS-05p, SI-CS-28p, SI-CS-29p, SI-CS-36p, SI-CS-39p, SI-CS-40p, SI-CS-42p, SI-CS-51Bp, SI-CS-52p, SI-CS-63ap	Structural and hydraulic rehabilitation of the existing deficient gravity sewers in the collection system of Lower Kalihi, Pacific Heights, Punchbowl and the Liliha area.
SI-CS-36	Lanakila Ave. Relief Sewer	08-0285	C2-Severe Hydraulic Deficiencies	Kalihi/Nuuanu Area Sewer Rehabilitation - CIPP Michels [IDIQ2]	Rehabilitate 6,634Lf of sewers by CIPP, 15 laterals, and 4 manholes by epoxy coating in the Kalihi/Nuuanu area. CIPP will be performed at Areas 1, 2.5, 3.1, 3.5, 4.1, 4.2, 4.3.
SI-CS-63A	Sand Island Basin Misc. Structural Rehabilitation - Phase 1	05-0284	B1-Severe Structural Deficiencies	Kalihi/Nuuanu Area Sewer Rehabilitation - Medium and Low Priority Sewers (SI-CS-04p, SI-CS-05p, SI-CS-28p, SI-CS-29p, SI-CS-36p, SI-CS-39p, SI-CS-40p, SI-CS-42p, SI-CS-51Bp, SI-CS-52p, SI-CS-63ap	Structural and hydraulic rehabilitation of the existing deficient gravity sewers in the collection system of Lower Kalihi, Pacific Heights, Punchbowl and the Liliha area.
Subparagraph 18.c, Complete Construction no later than December 31, 2013					
HN-CS-10B	Honouliuli Sewer Rehabilitation - 7D01C - Waimalu	09-0149	S1-Initiated in First 5-Year Block	Waimalu Sewer Rehabilitation Ph II, 7D01C (HN-CS-10B p)	HN-CS-13 Waimalu Sewer Rehab/Recon 7DOIC (aka Waimalu Sewer Rehab Phase II) reconstruct 920 LF of *' PVC sewer, 309 LF of 12 " PVC sewer & 7 sewer manholes along Hekaha and Kanuku Streets.
HN-CS-13	Waimalu Sewer Replacement	09-0149	C3-Moderate Hydraulic Deficiencies	Waimalu Sewer Rehabilitation Ph II, 7D01C (HN-CS-10B)	HN-CS-13 Waimalu Sewer Rehab/Recon 7DOIC (aka Waimalu Sewer Rehab Phase II) reconstruct 920 LF of *' PVC sewer, 309 LF of 12 " PVC sewer & 7 sewer manholes along Hekaha and Kanuku Streets.
HN-TP-01	Honouliuli WWTP Upgrade	03-0417	C1-Historic Wet Weather SSOs and/or Operational Problems	Honouliuli WWTP Upgrade Phase 1 (HN-TP-01)	Construction of eight items: grit/pre-aeration tank alterations, rehab IPS wet well MH and extend catwalks, overflow weir at splitter box, repair roadways, repair concrete on 5 existing bldgs, replace AC waterline, and irrigation system improvements.
KK-PS-01	Enchanted Lake WWPS Upgrade	02-1305	C1-Historic Wet Weather SSOs and/or Operational Problems	Enchanted Lake WWPS Upgrade (KK-PS-01)	The modifications under this project will increase the capacity of the existing Enchanted Lake WWPS. The Enchanted Lake WWPS Was found to be undersized based on hydraulic modeling, due to a high rate of infiltration and inflow in the tributary area.
SI-CS-51A	Nimitz Hwy-Awa Structural Rehabilitation-Phase 1	02-1304	B1-Severe Structural Deficiencies	Sewer Manhole And Pipe Rehabilitation At Various Locations - Phase 2 (SI-CS-51A)	Structural rehabilitation of 10 sewer manholes at Nimitz Highway. Proj limits extend from Pacific St. to Iwilei Rd
SI-CS-53	Auahi St. Structural Rehabilitation	05-0271	B1-Severe Structural Deficiencies	Ala Moana Blvd/Auahi St Sewer Rehabilitation (SI-CS-53, SI-CS-54, SI-CS-55)	Planning and design services to address hydraulic and/or structural defects in sewer lines along Ala Moana Boulevard between Ward Avenue and Keawe Street. Project includes rehabilitation 2080 ft of 24-inch and 1980 ft of 36-inch sewers.
SI-CS-53	Auahi St. Structural Rehabilitation	05-0653	B1-Severe Structural Deficiencies	East End Relief Sewer (Sec. A & C) Ala Moana Crossing	Sliplining existing box sewer with approx 400LF, 60-inch ID pipe and grout annular space.

Planning Project ID	Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
SI-CS-54	Ala Moana Blvd-24 Structural Rehabilitation	05-0271	B1-Severe Structural Deficiencies	Ala Moana Blvd/Auahi St Sewer Rehabilitation (SI-CS-53, SI-CS-54, SI-CS-55)	Planning and design services to address hydraulic and/or structural defects in sewer lines along Ala Moana Boulevard between Ward Avenue and Keawe Street. Project includes rehabilitation 2080 ft of 24-inch and 1980 ft of 36-inch sewers.
SI-CS-55	Ala Moana Blvd-36 Structural Rehabilitation	05-0271	B1-Severe Structural Deficiencies	Ala Moana Blvd/Auahi St Sewer Rehabilitation (SI-CS-53, SI-CS-54, SI-CS-55)	Planning and design services to address hydraulic and/or structural defects in sewer lines along Ala Moana Boulevard between Ward Avenue and Keawe Street. Project includes rehabilitation 2080 ft of 24-inch and 1980 ft of 36-inch sewers.
SI-CS-57	Ala Moana Blvd-16 Structural Rehabilitation	03-0412	B1-Severe Structural Deficiencies	Ala Moana Blvd Sewer Reconstruction Emergency Project (SI-CS-57, SCIP 16 portion)	Emergency design to address structural and hydraulic deficiencies in 16-inch diameter sewer line in Ala Moana Boulevard near Ala Moana Shopping Center.
SI-CS-59	Waikiki Structural Rehabilitation	04-1159	B1-Severe Structural Deficiencies	Waikiki Sewer Rehabilitation/Reconstruction (SI-CS-59)	Proj involves the rehab or replacement of approx 3,150 lineal ft of 16-30 " diameter pipe using cured-in-place pipe(CIPP) or open-cut construction. Consultant will evaluate whether trenchless technologies (*read current proj status for continuation)
SI-PS-14	Kuliouou WWPS Modification	08-0098	A1-Already Being Implemented	Kuliouou Sewer Rehabilitation and WWPS Modifications - WWPS Modification (SI-PS-14)	Construct new generator room for new 50kW generator. New 1,000 gal AST, ventilation system and 12-inch PVC FM with flow tube box.
WH-TP-01	Wahiawa WWTP Influent Pump Station Upgrade and Equalization Facility	02-1306	C1-Historic Wet Weather SSOs and/or Operational Problems	Wahiawa WWTP Influent Pump Station and Equalization Facility (WH-TP-01)	Installationof a new influent pump station with a new equalization basin in preparation for the installation of a MBR system
WM-CS-02	Waimanalo Sewer Rehabilitation	06-0354	S1-Initiated in First 5-Year Block	Waimanalo Sewer Rehabilitation (WM-CS-02 portion) [IDIQ1]	Rehabilitation of 11,415 Lf of 6, 8 and 12-inch sewer by CIPP and 178 laterals. Installation of 150 lf of new 6-inch PVC sewer pipe.
Subparagraph 18.d, Complete Construction no later than December 31, 2014					
HN-TP-02	Mililani WWPTF Storage and Headworks Upgrade	00-0564	C2-Severe Hydraulic Deficiencies	Mililani WWPTF Headworks Upgrade (HN-TP-02)	Install new grinder channels and grinders, new bar screens, new air diffusers, new blowers, generator, drying beds, yard piping and ancillary improvements.
SI-CS-09	School St. Relief Sewer	04-1147	C1-Historic Wet Weather SSOs and/or Operational Problems	Kahanu St (SI-CS-38), School St (SI-CS-09) & Umi St (SI-CS-37) Relief Sewers	Rehabilitate and replace approximately 10,800 L.F. of sewerline in three locations for hydraulic and structural deficiencies.
SI-CS-18	Kalanianaole Hwy Relief Sewer	04-1454	C1-Historic Wet Weather SSOs and/or Operational Problems	Kalanianaole Highway Sewer Relief & Rehabilitation (SI-CS-18, SI-CS-62)	Project will analyze hydraulic and structural problems in Kal Hwy between the Kahala WWPS and Kawaikui Beach Park. DDC# 02-1651 Elelupe Rd/Kal Hwy, SMPR 36 (1,764LF of 8 and 10-inch sewers and one lateral) was also added to this project.
SI-CS-37	Umi St. Relief Sewer	04-1147	C1-Historic Wet Weather SSOs and/or Operational Problems	Kahanu St (SI-CS-38), School St (SI-CS-09) & Umi St (SI-CS-37) Relief Sewers	Rehabilitate and replace approximately 10,800 L.F. of sewerline in three locations for hydraulic and structural deficiencies.

Planning Project ID	Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
SI-CS-37	Umi St. Relief Sewer	10-0037	C1-Historic Wet Weather SSOs and/or Operational Problems	Kahanu St (SI-CS-38), School St (SI-CS-09) & Umi St (SI-CS-37) Relief Sewers - Umi St, Kalihi Stream [IDIQ2]	Rehabilitation of 830 LF of 15-inch pipe with CIPP and 21 manholes.
SI-CS-38	Kahanu St. Relief Sewer	04-1147	C1-Historic Wet Weather SSOs and/or Operational	Kahanu St (SI-CS-38), School St (SI-CS-09) & Umi St (SI-CS-37) Relief Sewers	Rehabilitate and replace approximately 10,800 L.F. of sewerline in three locations for hydraulic and structural deficiencies.
SI-CS-38	Kahanu St. Relief Sewer	08-0890	C1-Historic Wet Weather SSOs and/or Operational	Kahanu St (SI-CS-38), School St (SI-CS-09) & Umi St (SI-CS-37) Relief Sewers - Kahanu St, Kalihi St, Dillingham Blvd [IDIQ2]	Rehabilitation of 571 LF of 8-inch, 930 LF of 10-inch, 490 LF of 12-inch, and 1,665 LF of 15-inch by CIPP. Rehabilitation of 12 manholes.
SI-CS-62	Kalanianaole Hwy Structural Rehabilitation	04-1454	B1-Severe Structural Deficiencies	Kalanianaole Highway Sewer Relief & Rehabilitation (SI-CS-18, SI-CS-62)	Project will analyze hydraulic and structural problems in Kal Hwy between the Kahala WWPS and Kawaikui Beach Park. DDC# 02-1651 Elelupe Rd/Kal Hwy, SMPR 36 (1,764LF of 8 and 10-inch sewers and one lateral) was also added to this project.
SI-PS-18	Aliamanu No.1 WWPS Upgrade	08-0729	C1-Historic Wet Weather SSOs and/or Operational Problems	Aliamanu WWPS No. 1 & 2 Upgrade, Phase 1	Install flood proof walls of each stations as well as other minor modifications to prevent storm water intrusion into pump station and wet wells.
SI-PS-17	Aliamanu No.2 WWPS Upgrade	08-0729	C1-Historic Wet Weather SSOs and/or Operational Problems	Aliamanu WWPS No. 1 & 2 Upgrade, Phase 1	Install flood proof walls of each stations as well as other minor modifications to prevent storm water intrusion into pump station and wet wells.
Subparagraph 18.e, Complete Construction no later than December 31, 2016					
HN-CS-04	Renton Road Sewer and Manhole Rehabilitation	pvt	B1-Severe Structural Deficiencies	Private Developer Project	Private Developer to replace eastern portion of trunk sewer
HN-CS-05B	Waipahu Manhole and Pipe Rehabilitation	06-0090	B2-Less Urgent Structural Deficiencies	Leeward Area Sewer & Manhole Rehabilitation (HN-CS-05B Waipahu, HN-CS-05C Ewa, SMPR 87p)	Proj. involves Cured-in-place Pipe(CIPP) rehab of approx. 181 lineal ft. of 24" diameter pipe & 63 lineal ft. of 30" diameter pipe. (*read below in current project status for more)
HN-CS-05C	Ewa Manhole Rehabilitation	06-0090	B2-Less Urgent Structural Deficiencies	Leeward Area Sewer & Manhole Rehabilitation (HN-CS-05B Waipahu, HN-CS-05C Ewa, SMPR 87p)	Proj. involves Cured-in-place Pipe(CIPP) rehab of approx. 181 lineal ft. of 24" diameter pipe & 63 lineal ft. of 30" diameter pipe.
HN-CS-10A	Honouliuli Sewer Rehabilitation - 7D01A - Waiau	06-0664	S2-Initiated in Second 5-Year Block	Waiau Area Sewer Rehabilitation/Reconstruction (HN-CS-10A)	The objective is to reduce WWI/I to minimize relief requirements downstream of this basin. Project will rehab 596' of 6", 5001' of 8", and 16' of 10" and replace 1591' of 8", 675' of 10", 615' of 12" and 479' of 18" pipes.
HN-CS-10C	Honouliuli Sewer Rehabilitation - 7F05 - Foster Village	05-0275	S2-Initiated in Second 5-Year Block	Foster Village Sewer Rehabilitation/Reconstruction (HN-CS-10C)	Rehabilitation of model basin 7F05 (66 acres) to reduce WWI/I. This project includes I/I source detection to rehabilitate and/or reconstruct 15,216 lf of sewerline and 95 manholes.
KK-CS-04	Oneawa St Structural Rehabilitation	05-0281	B2-Less Urgent Structural Deficiencies	Kailua/ Kaneohe Sewer Manhole And Pipe Structural Rehabilitation, Phase 1 (KK-CS-04, KK-CS-06, KK-CS-09 portion, KK-CS-12B portion)	Plan and design the sewer rehabilitation improvements. Project includes rehabilitation and replacement of approximately 1735 lf of pipe and 58 manholes.

Planning Project ID	Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
KK-CS-06	Kailua Beach Park Structural Rehabilitation	05-0281	B2-Less Urgent Structural Deficiencies	Kailua/ Kaneohe Sewer Manhole And Pipe Structural Rehabilitation, Phase 1 (KK-CS-04, KK-CS-06, KK-CS-09 portion, KK-CS-12B portion)	Plan and design the sewer rehabilitation improvements. Project includes rehabilitation and replacement of approximately 1735 lf of pipe and 58 manholes.
KK-CS-09	Kaneohe Bay Drive Structural Rehabilitation	08-0222	B2-Less Urgent Structural Deficiencies	Kailua/ Kaneohe Sewer Manhole and Pipe Structural Rehabilitation - Kaneohe Bay Drive 44-505 (KK-CS-09 portion) [IDIQ2]	Rehabilitate 1,572LF of 10 & 15-inch sewers by CIPP.
KK-CS-12B	Kailua-Kaneohe Manhole and Pipe Structural Rehabilitation-Phase 2	05-0281	B2-Less Urgent Structural Deficiencies	Kailua/ Kaneohe Sewer Manhole And Pipe Structural Rehabilitation, Phase 1 (KK-CS-04, KK-CS-06, KK-CS-09 portion, KK-CS-12B portion)	Plan and design the sewer rehabilitation improvements. Project includes rehabilitation and replacement of approximately 1735 lf of pipe and 58 manholes.
KK-CS-12B	Kailua-Kaneohe Manhole and Pipe Structural Rehabilitation-Phase 2	08-0455	B2-Less Urgent Structural Deficiencies	Sewer Manhole And Pipe Rehabilitation At Various Locations - Phase 3 (KK-CS-12A portion, KK-CS-12B portion)	Reconstruction of 334 ft of 21" sewer withing Bay View Golf Park. Proj will address maintenance issues due ti sags in existing pipe.
SI-CS-30	Date Street Relief Sewer	06-0092	C4-Minor Hydraulic Deficiencies	Moliili/Kapahulu Sewer Structural Rehabilitation/Reconstruction (SI-CS-30, SI-CS-58)	Rehabilitation of approx. 3,670Lf of pipe, 530Lf of pipeline replacement, and rehabilitation of 4 manholes. Existing 12" -24" sewer lines(approx. 3390 ft length) along Date St from Pumehano St to Kapiolani Blvd (*see current proj status for more)
SI-CS-43	North King Street Relief Sewer	06-0636	C2-Severe Hydraulic Deficiencies	Iwilei/Kalihi Kai Sewer Rehabilitation/Reconstruction (SI-CS-08, 43p, 51B, 52; SCIP 13B; SMPR 58, 70, 71, 72, 73p)	Rehab/replacement of 262 MH and 3,719 LF of 6-in, 18710 LF of 8-in, 3,015 LF of 10-in, 1,211 LF of 12-in, 1,685 LF of 18-in, 2,484 LF of 24-in, and 1,782 LF of 36-in sewer lines. *Subject to completion of CCTV.*
SI-CS-50	Airport Structural Rehabilitation	06-0063	B2-Less Urgent Structural Deficiencies	Airport Sewer Structural Rehabilitation/Reconstruction, Phase 1, 42-inch (SI-CS-50)	Rehabilitate approximately 1,850Lf of corroded and structurally deteriorated 42" pipe, from Kam Hwy WWPS to intersection of Lagoon Dr. & Aolele St.
SI-CS-50	Airport Structural Rehabilitation	09-0464	B2-Less Urgent Structural Deficiencies	Airport Sewer Structural Rehabilitation/Reconstruction, Phase 2, 36-inch	Investigate/analyze approx. 6500 lf of 36-inch RCP pipe on Aolele street, between Lagoon drive and Rodgers Blvd. design for rehab/recon per investigation results.
SI-CS-51B	Republican St-Nimitz Hwy-Awa Structural Rehabilitation-Phase 2	05-0284	B2-Less Urgent Structural Deficiencies	Kalihi/Nuuanu Area Sewer Rehabilitation - Medium and Low Priority Sewers (SI-CS-04p, SI-CS-05p, SI-CS-28p, SI-CS-29p, SI-CS-36p, SI-CS-39p, SI-CS-40p, SI-CS-42p, SI-CS-51Bp, SI-CS-52p, SI-CS-63ap	Structural and hydraulic rehabilitation of the existing deficient gravity sewers in the collection system of Lower Kalihi, Pacific Heights, Punchbowl and the Liliha area.
SI-CS-51B	Republican St-Nimitz Hwy-Awa Structural Rehabilitation-Phase 2	06-0636	B2-Less Urgent Structural Deficiencies	Iwilei/Kalihi Kai Sewer Rehabilitation/Reconstruction (SI-CS-08, 43p, 51B, 52; SCIP 13B; SMPR 58, 70, 71, 72, 73p)	Rehab/replacement of 262 MH and 3,719 LF of 6-in, 18710 LF of 8-in, 3,015 LF of 10-in, 1,211 LF of 12-in, 1,685 LF of 18-in, 2,484 LF of 24-in, and 1,782 LF of 36-in sewer lines. *Subject to completion of CCTV.*
SI-CS-52	Dillingham Blvd - Iwilei Structural Rehabilitation	05-0284	B2-Less Urgent Structural Deficiencies	Kalihi/Nuuanu Area Sewer Rehabilitation - Medium and Low Priority Sewers (SI-CS-04p, SI-CS-05p, SI-CS-28p, SI-CS-29p, SI-CS-36p, SI-CS-39p, SI-CS-40p, SI-CS-42p, SI-CS-51Bp, SI-CS-52p, SI-CS-63ap	Structural and hydraulic rehabilitation of the existing deficient gravity sewers in the collection system of Lower Kalihi, Pacific Heights, Punchbowl and the Liliha area.

Planning Project ID		Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
SI-CS-52		Dillingham Blvd - Iwilei Structural Rehabilitation	06-0636	B2-Less Urgent Structural Deficiencies	Iwilei/Kalihi Kai Sewer Rehabilitation/Reconstruction (SI-CS-08, 43p, 51B, 52; SCIP 13B; SMPR 58, 70, 71, 72, 73p)	Rehab/replacement of 262 MH and 3,719 LF of 6-in, 18710 LF of 8-in, 3,015 LF of 10-in, 1,211 LF of 12-in, 1,685 LF of 18-in, 2,484 LF of 24-in, and 1,782 LF of 36-in sewer lines. *Subject to completion of CCTV.*
SI-CS-58		Moiliili-Kapahulu Structural Rehabilitation	06-0092	B2-Less Urgent Structural Deficiencies	Moiliili/Kapahulu Sewer Structural Rehabilitation/Reconstruction (SI-CS-30, SI-CS-58)	Rehabilitation of approx. 3,670Lf of pipe, 530Lf of pipeline replacement, and rehabilitation of 4 manholes. Existing 12" -24" sewer lines(apprx. 3390 ft length) along Date St from Pumehano St to Kapiolani Blvd (*see current proj status for more)
SI-CS-60		Old Tunnel Structural Rehabilitation	08-0107	B2-Less Urgent Structural Deficiencies	Old Sewer Tunnel Rehabilitation (SI-CS-60)	Rehabilitate 13 deteriorated sewer manholes.
Subparagraph 18.f, Conduct Evaluation, Develop Recommendations and Submit Report four (4) years from Effective Date of CD						
HN-CS-07	*	Waimalu Wastewater System Relief	06-0667	C3-Moderate Hydraulic Deficiencies	Honouliuli/Waipahu/Pearl City Wastewater Facilities Plan	I/I Plan concept to construct 17,000LF of 48-inch trunk sewer from Halawa Heights to Newtown.
HN-CS-08	*	Pearl City Trunk Sewer Relief	06-0667	C4-Minor Hydraulic Deficiencies	Honouliuli/Waipahu/Pearl City Wastewater Facilities Plan	I/I Plan concept to expand the capacity of the Pearl City Trunk Sewer to 34 mgd.
HN-CS-09	*	Pacific Palisades Relief Sewer	09-0393	C3-Moderate Hydraulic Deficiencies	Pacific Palisades Relief Sewer (HN-CS-09)	Construction of 10,000 lf of 18" and 21" gravity sewer line from existing Pacific Palisades WWPS to existing Waiawa WWPS. Demolish existing Pacific Palisades WWPS.
HN-CS-14		Waipahu Sewer Replacement/Relief	03-0440	C1-Historic Wet Weather SSOs and/or Operational Problems	Waipahu Sewer Replacement/Relief (HN-CS-14, SMPR 87 portion)	Plan & design a replacement/relief line for Waipahu area, 3997 lf of 8"; 149 lf of 10"; 37 lt of 12"; The project area is along Awamoku St, Awaiki St, through a residential easement to Awanei St.
HN-PS-01		Waipio WWPS Upgrade	06-0669	C2-Severe Hydraulic Deficiencies	Waipio WWPS Upgrade (HN-PS-01)	The project expands the Waipio WWPS from 1.58 mgd to 4.3 mgd to accommodate both the current and future (2030) peak wet weather design flows
HN-PS-04	*	Pearl City WWPS Relief	06-0667	S2-Initiated in Second 5-Year Block	Honouliuli/Waipahu/Pearl City Wastewater Facilities Plan	I/I Plan concept to relocate the Pearl City WWPS and upgrading it to 46 mgd.
KK-CS-01	*	Kalaheo Ave Relief Sewer	08-0741	C3-Moderate Hydraulic Deficiencies	Kalaheo Avenue Relief Sewer (KK-CS-01)	This project includes approximately 1,870 LF of 48-inch relief sewer parallel to the existing 54-inch trunk sewer between Mokapu Blvd and Kainui Drive to accommodate future (2020) peak design flow.
KK-CS-13	*	Alii Shores Relief Sewer	03-0414	C2-Severe Hydraulic Deficiencies	Alii Shores Sewer Rehabilitation (KK-CS-10)	Rehabilitation of approx. 2,356 LF of 36" corroded pipe and 8 corroded manholes between Mahalani St. and Wena St., and Kulauni St. near Puohala Elem. School.
KK-CS-13	*	Alii Shores Relief Sewer	08-0095	C2-Severe Hydraulic Deficiencies	Kaneohe Sewer Relief/Rehabilitation, C2 Projects (KK-CS-13, 20, 21, 22, 23, 25)	Alii Shores (4200Lf 18-inch); Kaha St (470Lf 10", 1320Lf 12"); Kahuhipa St (440Lf 12", 5430Lf 15"); Namoku St (1060Lf 12"); Puohala (650Lf 10", 780Lf 12", 1710Lf 15"); Makahio St (760Lf 10", 1260Lf 12", 890Lf 21", 200Lf 24").

Planning Project ID		Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
KK-CS-15	*	Hele St Relief Sewer	09-0532	C3-Moderate Hydraulic Deficiencies	Hele Street Sewer Relief/ Rehabilitation; Kailua (KK-CS-15)	Solve hydr def in Hele St area that incl relief sewer to replace exist. 10" 900 lf on Kina St from Kuuna to Hele St. 10" 370 lf, 12" 590 lf, 15" 990 lf, and 18" 570 lf on Hele St from Loho St to Keolu Dr. 18" 740 lf on Keolu Dr from Hele to Nanialii St.
KK-CS-20	*	Kaha St Relief Sewer	08-0095	C2-Severe Hydraulic Deficiencies	Kaneohe Sewer Relief/Rehabilitation, C2 Projects (KK-CS-13, 20, 21, 22, 23, 25)	Alii Shores (4200Lf 18-inch); Kaha St (470Lf 10", 1320Lf 12"); Kahuhipa St (440Lf 12", 5430Lf 15"); Namoku St (1060Lf 12"); Puohala (650Lf 10", 780Lf 12", 1710Lf 15"); Makahio St (760Lf 10", 1260Lf 12", 890Lf 21", 200Lf 24").
KK-CS-21	*	Kahuhipa St Relief Sewer	08-0095	C2-Severe Hydraulic Deficiencies	Kaneohe Sewer Relief/Rehabilitation, C2 Projects (KK-CS-13, 20, 21, 22, 23, 25)	Alii Shores (4200Lf 18-inch); Kaha St (470Lf 10", 1320Lf 12"); Kahuhipa St (440Lf 12", 5430Lf 15"); Namoku St (1060Lf 12"); Puohala (650Lf 10", 780Lf 12", 1710Lf 15"); Makahio St (760Lf 10", 1260Lf 12", 890Lf 21", 200Lf 24").
KK-CS-22	*	Namoku St Relief Sewer	08-0095	C2-Severe Hydraulic Deficiencies	Kaneohe Sewer Relief/Rehabilitation, C2 Projects (KK-CS-13, 20, 21, 22, 23, 25)	Alii Shores (4200Lf 18-inch); Kaha St (470Lf 10", 1320Lf 12"); Kahuhipa St (440Lf 12", 5430Lf 15"); Namoku St (1060Lf 12"); Puohala (650Lf 10", 780Lf 12", 1710Lf 15"); Makahio St (760Lf 10", 1260Lf 12", 890Lf 21", 200Lf 24").
KK-CS-23	*	Puohala Relief Sewer	08-0095	C2-Severe Hydraulic Deficiencies	Kaneohe Sewer Relief/Rehabilitation, C2 Projects (KK-CS-13, 20, 21, 22, 23, 25)	Alii Shores (4200Lf 18-inch); Kaha St (470Lf 10", 1320Lf 12"); Kahuhipa St (440Lf 12", 5430Lf 15"); Namoku St (1060Lf 12"); Puohala (650Lf 10", 780Lf 12", 1710Lf 15"); Makahio St (760Lf 10", 1260Lf 12", 890Lf 21", 200Lf 24").
KK-CS-25	*	Makahio St Relief Sewer	08-0095	C2-Severe Hydraulic Deficiencies	Kaneohe Sewer Relief/Rehabilitation, C2 Projects (KK-CS-13, 20, 21, 22, 23, 25)	Alii Shores (4200Lf 18-inch); Kaha St (470Lf 10", 1320Lf 12"); Kahuhipa St (440Lf 12", 5430Lf 15"); Namoku St (1060Lf 12"); Puohala (650Lf 10", 780Lf 12", 1710Lf 15"); Makahio St (760Lf 10", 1260Lf 12", 890Lf 21", 200Lf 24").
KK-PS-02	*	Waikalua WWPS Upgrade	08-0115	C2-Severe Hydraulic Deficiencies	Waikalua WWPS Upgrade (KK-PS-02)	Expand the Waikalua WWPS from 0.36 mgd to 0.96 mgd in order to accommodate future (2020) peak flow.
KK-PS-10		Kahanahou Pump Station Upgrade	08-0734	C3-Moderate Hydraulic Deficiencies	Kahanahou WWPS Upgrade (KK-PS-10)	I/I Plan concept to expand the Kahanahou WWPS from 0.68 mgd to 1.29 mgd in order to accommodate future (2020) peak flow.
KK-PS-12		Waikapoki WWPS Upgrade	06-0102	C2-Severe Hydraulic Deficiencies	Waikapoki WWPS Upgrade (KK-PS-12)	I/I Plan concept to expand the Waikapoki WWPS from 1.30 mgd to 3.29 mgd in order to accommodate future (2020) peak flow.
KK-TP-01	*	Kailua WWTP Upgrade	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to expand the capacity of the Kailua WWTP to 35.6 mgd.
KK-TP-02	*	Kailua WWTP Area Storage	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept for construction of wet weather storage of 2.09 mg.
KK-TP-03		Kaneohe WWPTF Storage	06-0647	C2-Severe Hydraulic Deficiencies	Kaneohe WWPTF Improvements and Equalization Facility (KK-TP-03) & Kailua WWTP Solilds Dewatering system	I/I Plan concept for construction of wet weather storage of 2.09 mg.
SI-CS-01		Airport Relief Sewer	04-1139	C3-Moderate Hydraulic Deficiencies	Aliamanu WWPS No. 1 & 2 Upgrade (SI-PS-16, SI-PS-17) and Airport Relief Sewer (SI-CS-01)	Upgrade WWPS to accommodate hydraulic load and rehab/reconstruct 2250 lf of gravity sewerline on the discharge end of the WWPS.
SI-CS-08	*	Dillingham Blvd - Iwilei Relief Sewer	06-0636	C4-Minor Hydraulic Deficiencies	Iwilei/Kalihi Kai Sewer Rehabilitation/Reconstruction (SI-CS-08, 43p, 51B, 52; SCIP 13B; SMPR 58, 70, 71, 72, 73p)	Rehab/replacement of 262 MH and 3,719 LF of 6-in, 18710 LF of 8-in, 3,015 LF of 10-in, 1,211 LF of 12-in, 1,685 LF of 18-in, 2,484 LF of 24-in, and 1,782 LF of 36-in sewer lines. *Subject to completion of CCTV.*
SI-CS-10	*	College Walk - 30 Replacement Sewer	08-0083	C4-Minor Hydraulic Deficiencies	Chinatown Sewer Rehabilitation (SI-CS-10, SI-CS-22 portion, SCIP 09 portion, SCIP 10 portion, SMPR 59)	The project area includes an estimated 34,330 lineal feet of 6 to 30-inch sewers, 169 sewer manholes, and connected sewer laterals. CCTV will be completed under the ENV/CSM IDIQ3 contract.
SI-CS-15	*	Manoa Relief Sewer	08-0102	C2-Severe Hydraulic Deficiencies	Manoa Sewer Relief/Rehabilitation (SI-CS-15)	The project area includes an estimated 18,451 lineal feet of 8 to 36-inch sewers, 113 sewer manholes, one siphon, and connected sewer laterals. CCTV will be completed under the ENV/CSM IDIQ3 contract.

Planning Project ID		Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
SI-CS-17	*	Palolo Relief Sewer	08-0108	C2-Severe Hydraulic Deficiencies	Palolo Valley Sewer Rehabilitation (SI-CS-17)	The project area includes an estimated 16,037 lineal feet of 6 to 18-inch sewers, 88 sewer manholes, one siphon, and connected sewer laterals. CCTV will be completed under the ENV/CSM IDIQ3 contract.
SI-CS-22	*	River Street Relief Sewer	08-0083	C3-Moderate Hydraulic Deficiencies	Chinatown Sewer Rehabilitation (SI-CS-10, SI-CS-22 portion, SCIP 09 portion, SCIP 10 portion, SMPR 59)	The project area includes an estimated 34,330 lineal feet of 6 to 30-inch sewers, 169 sewer manholes, and connected sewer laterals. CCTV will be completed under the ENV/CSM IDIQ3 contract.
SI-CS-22	*	River Street Relief Sewer	08-0331	C3-Moderate Hydraulic Deficiencies	Kalihi/Nuuanu Area Sewer Rehabilitation Phase 1E (Area 5A - Lower Nuuanu)SI-CS-22	Structural and hydraulic rehabilitation of the existing deficient gravity sewers in the collection system of Lower Kalihi, Pacific Heights, Punchbowl and the Liliha area.
SI-CS-27	*	Waiomao Stream Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to install relief sewers between Waiomao Stream and Kipona Place.
SI-CS-28		Auwaiolimu St. Relief Sewer	05-0284	C4-Minor Hydraulic Deficiencies	Kalihi/Nuuanu Area Sewer Rehabilitation - Medium and Low Priority Sewers (SI-CS-04p, SI-CS-05p, SI-CS-28p, SI-CS-29p, SI-CS-36p, SI-CS-39p, SI-CS-40p, SI-CS-42p, SI-CS-51Bp, SI-CS-52p, SI-CS-63ap	Structural and hydraulic rehabilitation of the existing deficient gravity sewers in the collection system of Lower Kalihi, Pacific Heights, Punchbowl and the Liliha area.
SI-CS-29		Nuuanu Relief Sewer	05-0284	C3-Moderate Hydraulic Deficiencies	Kalihi/Nuuanu Area Sewer Rehabilitation - Medium and Low Priority Sewers (SI-CS-04p, SI-CS-05p, SI-CS-28p, SI-CS-29p, SI-CS-36p, SI-CS-39p, SI-CS-40p, SI-CS-42p, SI-CS-51Bp, SI-CS-52p, SI-CS-63ap	Structural and hydraulic rehabilitation of the existing deficient gravity sewers in the collection system of Lower Kalihi, Pacific Heights, Punchbowl and the Liliha area.
SI-CS-36		Lanakila Ave. Relief Sewer	05-0284	C2-Severe Hydraulic Deficiencies	Kalihi/Nuuanu Area Sewer Rehabilitation - Medium and Low Priority Sewers (SI-CS-04p, SI-CS-05p, SI-CS-28p, SI-CS-29p, SI-CS-36p, SI-CS-39p, SI-CS-40p, SI-CS-42p, SI-CS-51Bp, SI-CS-52p, SI-CS-63ap	Structural and hydraulic rehabilitation of the existing deficient gravity sewers in the collection system of Lower Kalihi, Pacific Heights, Punchbowl and the Liliha area.
SI-CS-39		Kalani Street Relief Sewer	05-0284	C2-Severe Hydraulic Deficiencies	Kalihi/Nuuanu Area Sewer Rehabilitation - Medium and Low Priority Sewers (SI-CS-04p, SI-CS-05p, SI-CS-28p, SI-CS-29p, SI-CS-36p, SI-CS-39p, SI-CS-40p, SI-CS-42p, SI-CS-51Bp, SI-CS-52p, SI-CS-63ap	Structural and hydraulic rehabilitation of the existing deficient gravity sewers in the collection system of Lower Kalihi, Pacific Heights, Punchbowl and the Liliha area.
SI-CS-42	*	Dowsett Highlands Relief Sewer	05-0284	C3-Moderate Hydraulic Deficiencies	Kalihi/Nuuanu Area Sewer Rehabilitation - Medium and Low Priority Sewers (SI-CS-04p, SI-CS-05p, SI-CS-28p, SI-CS-29p, SI-CS-36p, SI-CS-39p, SI-CS-40p, SI-CS-42p, SI-CS-51Bp, SI-CS-52p, SI-CS-63ap	Structural and hydraulic rehabilitation of the existing deficient gravity sewers in the collection system of Lower Kalihi, Pacific Heights, Punchbowl and the Liliha area.
SI-CS-42	*	Dowsett Highlands Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan Concept to install relief sewers Ewa side of Dowsett and Nuuanu.
SI-PS-01	*	Kamehameha Hwy WWPS Upgrade	09-0531	C3-Moderate Hydraulic Deficiencies	Kamehameha Highway WWPS Upgrade (SI-PS-01)	Evaluate and solve: required capacity of Kamehameha Highway Wastewater Pump Station for future wet weather storm flows, other needed improvements, and required capacity in the tributary and downstream areas.
SI-PS-04	*	Awa St WWPS Upgrade	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to expand the capacity from 8.17 mgd to 12.4 mgd.
SI-PS-06	*	Ala Moana WWPS Force Main No. 3	06-0065	S2-Initiated in Second 5-Year Block	Ala Moana WWPS Force Main No. 3 (SI-PS-06 portion)	Construct a new 78-inch diameter force main.
SI-PS-06	*	Ala Moana WWPS Upgrade to 2020 Peak Flow (SI-PS-06 portion)	08-0074	S2-Initiated in Second 5-Year Block	Ala Moana WWPS - Upgrade To 2020 Peak Flow (SI-PS-06 portion)	I/I Plan concept to expand the capacity to 189 mgd.

Planning Project ID		Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
SI-PS-16	*	Aliamanu No.1 WWPS Upgrade	04-1139	C1-Historic Wet Weather SSOs and/or Operational Problems	Aliamanu WWPS No. 1 & 2 Upgrade (SI-PS-16, SI-PS-17) and Airport Relief Sewer (SI-CS-01)	Upgrade WWPS to accommodate hydraulic load and rehab/reconstruct 2250 lf of gravity sewerline on the discharge end of the WWPS.
SI-PS-17	*	Aliamanu No.2 WWPS Upgrade	04-1139	C1-Historic Wet Weather SSOs and/or Operational Problems	Aliamanu WWPS No. 1 & 2 Upgrade (SI-PS-16, SI-PS-17) and Airport Relief Sewer (SI-CS-01)	Upgrade WWPS to accommodate hydraulic load and rehab/reconstruct 2250 lf of gravity sewerline on the discharge end of the WWPS.
WH-PS-02		Uwalu WWPS Upgrade	08-0113	C2-Severe Hydraulic Deficiencies	Uwalu WWPS Upgrade (WH-PS-02)	Plan and design pump station upgrade.

NOTES: * CCH shall submit, as part of the report, the proposed scope or a design alternatives report.

APPENDIX G
(List of Deferred Projects from Wet Weather I/I Assessment Update)

Planning Project ID	Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
Subparagraph 18.g, Deferred Projects considered by Wet Weather I/I Assessment Update					
Final Sewer I/I Plan, Block 3 Projects					
HN-CS-06	Honouliuli Relief Sewers	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers for Waipahu Trunk.
HN-CS-11	Halawa Relief Sewers	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers in Halawa.
HN-CS-12	Aiea Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers in Aiea Recreation Park.
HN-CS-15	Pearl City Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers near Pearl City Stream.
HN-CS-16	Mililani Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Makaimoimo Street.
HN-CS-17	Waipio Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Waimakua Drive.
HN-CS-18	Aiea Heights Relief Sewers	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Iliee Street and Alvah Scott Elem School.
KK-CS-08	Enchanted Lake Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Akumu Street.
KK-CS-19	Maunawili Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Auloa Road, Maunawili Loop and Aloha Oe Drive.

Planning Project ID	Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
Subparagraph 18.g, Deferred Projects considered by Wet Weather I/I Assessment Update					
KK-CS-26	Keaahala Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers between William Henry Rd and Waikapoki Rd.
KK-CS-27	Waikapoki Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Mahalani Circle.
KK-PS-14	Maunawili Estates WWPS Upgrade	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to expand capacity of Maunawili Estates WWPS from 0.79 mgd to 1.17 mgd.
KK-TP-04	Ahuimanu WWPTF Upgrade	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to expand the capacity of Ahuimanu WWPTF to 6.5 mgd.
KK-TP-05	Ahuimanu WWPTF Storage	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct wet weather basin of 1.70 mg.
SI-CS-03	Republican St. Relief Sewer	NONE	S3-Initiated in Third 5-Year Block		I/I Plan concept to construct relief sewers along Republican Street.
SI-CS-04	Auiki St. Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Auiki Street.
SI-CS-07	Nimitz Highway-Awa Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Nimitz Hwy.
SI-CS-12	Cooke St. Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Cooke Street.
SI-CS-13	Ward Ave Relief Sewer	NONE	S3-Initiated in Third 5-Year Block		I/I Plan concept to construct relief sewers along Ward Ave.
SI-CS-21	Nenue Street Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Nenue Street.

Planning Project ID	Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
Subparagraph 18.g, Deferred Projects considered by Wet Weather I/I Assessment Update					
SI-CS-24	Lowrey Avenue Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Lowrey Ave and Manoa Rd.
SI-CS-26	9th Avenue Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along 9th Ave.
SI-CS-29	Nuuanu Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers within Nuuanu area.
SI-CS-32	Kaimuki Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Olokele Ave.
SI-CS-33	Ahui St. Relief Sewer	PVT_KCI	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Ahui Street
SI-CS-45	Fort DeRussy Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers within the Fort DeRussy area.
SI-CS-46	Saratoga Road Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Saratoga Road.
SI-CS-47	Iolani Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers from Iolani School to Manoa Stream.
SI-CS-49	Waikiki Relief Sewer	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers within the Waikiki area.
SI-PS-13	Niu Valley WWPS Upgrade	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to expand the capacity of Niu Valley WWSP from 2.27 mgd to 3.62 mgd.

Planning Project ID	Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
Subparagraph 18.g, Deferred Projects considered by Wet Weather I/I Assessment Update					
SI-PS-15	Paiko Drive WWPS Upgrade	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to expand the capacity of Paiko Dr WWPS from 0.25 mgd to 0.42 mgd.
WH-CS-02	Whitmore Village Relief Sewers	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Ihiihi Ave and Uakanikoo Street.
WH-PS-01	Grandview WWPS Upgrade	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to expand the capacity of Grandview WWPS from 0.07 mgd to 0.1 mgd.
WN-TP-01	Waianae WWTP Influent Pump Station Upgrade	NONE	C3-Moderate Hydraulic Deficiencies		I/I Plan concept to increase the capacity of the IPS to 15.8 mgd.
Final Sewer I/I Plan, Block 4 Projects					
KK-CS-14	Lanikai Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Mokula Drive.
KK-CS-16	Iana St Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Auwinula Rd.
KK-CS-17	Akumu St Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Keolu Drive.
KK-CS-18	Pohakupu Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Kailua Road, Ulupii St and Ulupuni Street.
KK-PS-03	Aala WWPS Upgrade	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to expand the capacity of Aala WWPS from 0.72 mgd to 0.94 mgd.
KK-PS-08	Maunawili WWPS Upgrade	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to expand the capacity of Maunawili WWPS from 2.23 mgd to 2.46 mgd.
SI-CS-02	Salt Lake Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers within the Salt Lake area.

Planning Project ID	Planning Project Name	DDC Serial No.	EPA Sched Code	Project Title	Scope
Subparagraph 18.g, Deferred Projects considered by Wet Weather I/I Assessment Update					
SI-CS-14	Makiki Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Wilder Ave.
SI-CS-16	Lewers Street Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Lewers St and Ala Wai Blvd.
SI-CS-19	Niu Valley Shopping Center Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers within the Niu Valley Shopping Center area.
SI-CS-20	Pueo Street Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Pueo St.
SI-CS-23	Alakea St. Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Alakea Street.
SI-CS-25	Huapala Street Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Huapala St.
SI-CS-34	Mahiole Street Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Mahiole St.
SI-CS-44	Alewa Heights Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers within the Alewa Heights area.
SI-CS-48	Kalia Road Relief Sewer	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Kalia Rd.
SI-PS-07	Moana Park WWPS Upgrade	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to expand the capacity of Moana Park WWPS from 1.26 mgd to 1.63 mgd.
SI-PS-09	Fort DeRussy WWPS Force Main Replacement	NONE	C4-Minor Hydraulic Deficiencies		Remaining portion to be reevaluated. Portion along Kalakaua Ave from Ala Wai Canal to the East End Relief Sewer was completed in 2009.
WN-CS-02	Auyong Homestead Rd Sewer Replacement/Rehabilitation	NONE	C4-Minor Hydraulic Deficiencies		I/I Plan concept to construct relief sewers along Auyong Rd.

APPENDIX H
(Gravity Main Rehabilitation/Replacement Projects: Years One through Three)

APPENDIX H - GRAVITY MAIN PROJECTS YEARS 1-3

Capital Project List

Project Title	DDC Serial No.	I/I Plan No.	Contractor	New Gravity (miles)	Rehab Gravity (miles)
Alii Shores Sewer Rehabilitation	03-0414	KK-CS-10	Michels Corporation	0.0000	0.4335
Amelia Street Sewer Relief	05-0980	SI-CS-40	D & C Construction Inc	0.2697	0.0000
Fort Weaver Road Manhole and Pipe Rehabilitation	03-0415	HN-CS-03	Michels Corporation	0.1498	0.8379
Halona Street Relief Sewer, Kalihi	02-1300	SI-CS-41	Ideal Construction Inc	0.4545	0.3902
Houghtailing Street Area Sewer	04-1144	SI-CS-06	Ideal Construction Inc	0.5515	3.7519
Ilimalia Loop Mokapu Blvd Reconstructed Sewer	00-0534	KK-CS-02	Michels Corporation	0.0000	0.5714
Kailua/Kaneohe Sewer Rehabilitation - Ph 1	03-0418	KK-CS-09p	Frank Coluccio Construction	0.0816	2.1890
Kailuana Place Sewer Rehabilitation	02-1659	--	Civil Mechanical Contractor	0.0227	0.9205
Kalaheo Ave/ Mokapu Road/ Aikahi Loop Sewer Rehab	06-0083	KK-ZZ-02p	Insituform Technologies Inc	0.0000	0.6439
Kalakaua Ave Sewer Rehabilitation	02-1656	--	Ideal Construction Inc	0.2775	0.0000
Kalihi Valley Reconstructed Sewer	00-0550	SI-CS-05p	Ideal Construction Inc	0.2680	0.0000
Kalihi/Nuuanu Area Sewer Rehabilitation Phase 1A [Area 2A - Middle Kalihi]	06-0086	SI-CS-39p	RMY Construction Inc	1.5795	0.0000
Kalihi/Nuuanu Area Sewer Rehabilitation Phase 1B [Area 2B - Middle Kalihi]	08-0328	--	Frank Coluccio Construction	0.7917	0.0000
Kalihi/Nuuanu Area Sewer Rehabilitation Phase 1C [Area 3 - Upper Kalihi]	08-0329	SI-CS-05p	RMY Construction Inc	1.0720	0.0000
Kalihi/Nuuanu Area Sewer Rehabilitation Phase 1D [Area 4, 7, & 8 - Lanakila, Punchbowl South and Pacific Hts]	08-0330	SI-CS-36p	Integrated Construction Inc	0.2481	0.0000
Kalihi/Nuuanu Area Sewer Rehabilitation Phase 1E [Area 5A - Lower Nuuanu]	08-0331	SI-CS-22p	Ideal Construction Inc	0.3144	0.0000
Kalihi/Nuuanu Area Sewer Rehabilitation Phase 1F [Area 5B - Lower Nuuanu]	08-0332	--	MIRA Image Construction	0.3314	0.0000
Kalihi/Nuuanu Area Sewer Rehabilitation Phase 1G [Area 5C - Lower Nuuanu]	08-0333	--	Ron's Construction Corporation	0.5966	0.0000
Kalihi/Nuuanu Area Sewer Rehabilitation Phase 1H [Area 6 - Punchbowl North]	08-0334	--	MIRA Image Construction	0.3920	0.0000
Kalihi/Nuuanu Area Sewer Rehabilitation Phase 1I [Area 9 - Upper Nuuanu]	08-0335	--	Ron's Construction Corporation	0.2936	0.0000
Kaneohe Bay Drive Trunk Sewer Reconstruction	02-1286	KK-CS-09p	Frank Coluccio Construction	0.3466	0.2633
Kapiolani Area Revised Sewer System	00-0559	--	Frank Coluccio Construction	0.5244	0.3485
Kuliouou Sewer Rehabilitation and WWPS Modifications - Sewer Rehabilitation	00-0561	--	Frank Coluccio Construction Co	0.2212	2.9892
Peterson Lane and Pua Lane Sewer Rehabilitation	05-0457	--	RMY Construction Inc	0.7235	0.1070
Renton Road Sewer and Manhole Rehabilitation	03-0427	HN-CS-04p	Michels Corporation	0.0000	2.3616
Saint Louis Heights Sewer Rehabilitation	02-1284	SI-CS-31	Insituform Technologies Inc	0.0920	8.8733
Sand Island Basin Miscellaneous Sewer Rehabilitation, Phase 1 (SI-CS-63A, SI-CS-63B)	02-1301	SI-CS-63Ap, SI-CS-63B	Frank Coluccio Construction	0.0000	0.3402
Sewer Manhole And Pipe Rehabilitation At Various Locations	04-1994	HN-CS-05A, KK-CS-12Ap, KK-CS-12Bp, WH-CS-01, WN-CS-01p	Civil Mechanical Contractor	0.0000	0.0407

APPENDIX H - GRAVITY MAIN PROJECTS YEARS 1-3

Capital Project List

Project Title	DDC Serial No.	I/I Plan No.	Contractor	New Gravity (miles)	Rehab Gravity (miles)
Waimalu Sewer Rehabilitation Ph I, 7D01C	02-1299	HN-CS-10Bp, HN-CS-13p	Frank Coluccio Construction	1.1761	0.0000
Waimanalo Sewer Rehabilitation	03-0439	WM-CS-01p, WM-CS-02p	Ideal Construction Inc	0.3390	0.0000
Waipahu Street/Plantation Village Sewer Reconstruction	02-1287	--	James W Glover Ltd	0.3985	0.0000
Wanaao Road/Keolu Drive Reconstructed Sewer (KK-CS-07, KK-ZZ-03)	02-1557	KK-CS-07, KK-ZZ-03	Frank Coluccio Construction Co	1.6746	0.0000
Wilhelmina Rise Sewer Rehabilitation	00-0607	--	Parsons RCI Inc.	0.0644	8.1610
Ala Moana and Kapiolani Trunk Sewer Replace/Rehabilitation, Phase 1B,1C,1D - Kapiolani Blvd Water and Sewer System Improvements	00-0516	SI-CS-56	Board Of Water Supply	0.2614	0.9848
			Totals Capital Projects	13.5165	34.2078

Indefinite Delivery Indefinite Quantity (IDIQ) Work Order List

IDIQ Work Order Title	DDC Serial No.	I/I Plan No.	Delivery Order (DO)	New Gravity (miles)	Rehab Gravity (miles)
Beretania Street 1617 (SUB 7736, McCully) FY08-12-20	08-0459	--	DO-ENV-0801684	0.0000	0.1138
Foster Village (Aliamanu) FY08-02-24	09-0135	HN-CS-10Cp	DO-ENV-0902137	0.0000	2.2104
Halekoa Drive 1509 (SUB 5254, Waialae) FY08-09-06	08-0402	--	DO-ENV-0700662	0.0000	0.1141
Houghtailing, Area 1 (Liliha) FY07-10-01	08-0397	--	DO-ENV-0700895	0.0000	0.3379
Houghtailing, Area 2 (Liliha) FY07-10-01	09-0039	--	DO-ENV-0700896	0.0000	0.6489
Houghtailing, Area 3 (Liliha) FY07-10-01	08-0398	--	DO-ENV-0700904	0.0000	0.9715
Kahala / Pillaloha Place 1687 (Moanalua) FY 09-11-17	08-0982	--	DO-ENV-0900843	0.0000	0.1269
Kahala Avenue 4783 (SUB 5281, 5285, W aialae) FY07-05-29	05-0278	SI-CS-61	BB-5181	0.0000	0.2798
Kalihi Valley, Area 1 (Kalihi) FY 07-09-24	08-0396	--	DO-ENV-0700848	0.0000	1.2896
Kalihi Valley, Area 2 (Kalihi) FY 07-09-24	09-0040	SI-CS-05p, SI-CS-63Ap	DO-ENV-0700849	0.0000	0.5632
Kalihi Valley, Area 3 (Kalihi) FY 07-09-24	09-0041	SI-CS-05p	DO-ENV-0700850	0.0000	1.0969
Kalihi Valley, Area 4 (Kalihi) FY 07-09-24	09-0042	--	DO-ENV-0700851	0.0000	0.7713
Kalihi-Nuuanu, Area 1 F Y07-07-20	08-0285	SI-CS-36p	DO-ENV-0700462	0.0000	0.0571
Kalihi-Nuuanu, Area 2.1 F Y07-07-20	08-0297	--	DO-ENV-0700465	0.0000	0.2965
Kalihi-Nuuanu, Area 2.3 F Y07-07-20	08-0297	--	DO-ENV-0700471	0.0000	0.3138
Kalihi-Nuuanu, Area 2.4 F Y07-07-20	08-0297	--	DO-ENV-0700472	0.0000	0.2449
Kalihi-Nuuanu, Area 2.5 F Y07-07-20	08-0285	SI-CS-36p	DO-ENV-0700463	0.0000	0.0761
Kalihi-Nuuanu, Area 3.1 F Y07-07-27	08-0285	SI-CS-36p	DO-ENV-0700473	0.0000	0.2185
Kalihi-Nuuanu, Area 3.3 F Y07-07-27	08-0297	--	DO-ENV-0700620	0.0000	0.4330
Kalihi-Nuuanu, Area 3.4 F Y07-07-27	08-0297	--	DO-ENV-0700476	0.0000	0.2373
Kalihi-Nuuanu, Area 3.5 F Y07-07-27	08-0285	SI-CS-36p	DO-ENV-0700479	0.0000	0.0462
Kalihi-Nuuanu, Area 4.1 F Y07-07-31	08-0285	SI-CS-36p	DO-ENV-0700480	0.0000	0.2784
Kalihi-Nuuanu, Area 4.2 F Y07-07-31	08-0285	SI-CS-36p	DO-ENV-0700485	0.0000	0.3083
Kalihi-Nuuanu, Area 4.3 F Y07-07-31	08-0285	SI-CS-36p	DO-ENV-0700486	0.0000	0.2348
Kalihi-Nuuanu, Area 5.3 F Y07-08-01	08-0297	--	DO-ENV-0700495	0.0000	0.2213
Kalihi-Nuuanu, Area 6.2 F Y07-08-01	08-0297	--	DO-ENV-0700525	0.0000	0.1786
Kalihi-Nuuanu, Area 6.4 F Y07-08-01	08-0297	--	DO-ENV-0700532	0.0000	0.1443
Kalihi-Nuuanu, Area 7.2 F Y07-08-06	08-0297	--	DO-ENV-0700574	0.0000	0.2856
Kaneohe Bay Drive 44-505 (SUB 4267, 4268, 4270, 4271, Kaneohe) FY07-05-17	08-0222	KK-CS-09p	DO-ENV-0700439	0.0000	0.2978
Kaneohe Bay Drive Trunk Sewer, Sewerline B (Kaneohe) FY07-09-13	08-0394	--	DO-ENV-0700970	0.0000	0.3039
Kilani Avenue 211, Ilima Street 91 (SUB W186, Wahiawa) FY08-01-02	08-0460	--	DO-ENV-0801651	0.0000	0.0909

APPENDIX H - GRAVITY MAIN PROJECTS YEARS 1-3

Indefinite Delivery Indefinite Quantity (IDIQ) Work Order List					
IDIQ Work Order Title	DDC Serial No.	I/I Plan No.	Delivery Order (DO)	New Gravity (miles)	Rehab Gravity (miles)
Komo Mai Drive 1860 (SUB 2094, 2095, Pearl City) FY08-06-13	08-0462	--	DO-ENV-0802714	0.0000	0.2708
Leighton Street 815 (SUB 5114, 5116, Kuli ouou) FY08-06-18	08-0210	--	DO-ENV-0802727	0.0000	0.2561
Makalii Place 350, Kailua Road (SUB 4612, 4661, Kailua) FY07-05-17	08-0223	KK-CS-06p	BB-5183	0.0000	0.2129
Mikiola Drive / Alakai Street / Likeke Place (Kaneohe) FY-07-09-28	08-0395	KK-CS-09p	DO-ENV-0700906	0.0000	0.4053
Mulehu Street 94-436 (SUB 0446, Mililani) FY09-09-30	08-0981	HN-CS-05Bp	DO-ENV-0900556	0.0000	0.0396
Nanamoana Street 44- 121 (SUB 3994, Kaneohe) FY07-06-06	08-0260	--	BB-5188	0.0000	0.0212
Waialae Iki, Area 4 (Kuliouou) FY07-11-15	08-0408	--	DO-ENV-0701322	0.0000	0.5375
Waialae Iki, Area 5 (Kuliouou) FY07-11-15	09-0043	--	DO-ENV-0701323	0.0000	0.2962
Waialae Iki, Area 6 (Kuliouou) FY07-11-15	09-0044	--	DO-ENV-0701324	0.0000	0.2786
Waimalu Sewer Rehabilitation (Aiea) FY09-06-29	09-0653	HN-CS-10Bp, HN-CS-13p	DO-ENV-1000243	0.0000	0.4561
Waimanalo Sewers (SUB HAWN, PRIV, 2017, 2013, Waimanalo) FY07-10-05	08-0403	WM-CS-01p, WM-CS-02p	DO-ENV-0700963	0.0000	0.3705
Waipahu Depot Street, Farrington Highway (SUB 0887, Waipahu) FY09-09-30	08-0980	HN-CS-05Bp	DO-ENV-0900557	0.0000	0.0145
			Totals IDIQ	0.0000	15.9509
			Totals Capital Projects	13.5165	34.2078

Total Gravity Mains (miles)	**63.6751**

Note: p = portion of the project

APPENDIX I
(List of Currently Authorized Positions for CCH's Staffing Commitment)

APPENDIX I

CSM Required Staffing

Below are the currently funded positions to implement the duties of CCH's CSM program to operate and maintain the gravity sewer portion of CCH's Wastewater Collection System:

Non-Field Positions	20
Field Positions	134
Total	154

APPENDIX J
(Equipment Inventory)

APPENDIX J

CSM Required Equipment Inventory

EQUIPMENT	INVENTORY WITH 1 SPARE
VACTORS	10
CESSPOOL TRUCKS	5
RODDERS	8
CCTV VANS	4
TANKERS *	4

* Tankers are within the Division of Wastewater Treatment & Disposal

APPENDIX K
(Provisions of HAR Chapter 11-62 (as amended on April 15, 1997))

Appendix K

Hawaii Administrative Regulations Chapter 11-62, Appendix C
(As amended on April 15, 1997)

C.2.a. Applicability. Any wastewater spill which enters into state waters from . . . [CCH's] wastewater system.

C.4.a. Applicability. Any wastewater spill from . . . [CCH's] wastewater system onto the ground and that does not enter state waters but is in an area which is or may be accessible to the public.
(1) In this appendix, the public includes hotel, apartment, and condominium residents and guests, or condominium apartment owners at their own condominium, and management personnel and building or facility staff, unless the person is specifically an operator of the wastewater system or a manager of the property.
(2) In this appendix, areas inaccessible to the public include areas:
(a) Confined within a fenced or walled (six foot high with locked gate or door) area; and
(b) Contact with the spill is limited to wastewater system operating personnel and management personnel for the property owner or lessee.
(3) Exclusion. Spills of R-1 water provided the owner/agent demonstrates that the spill was of R-1 water and that BMPs as approved by the director were implemented.

C.5.a. Applicability. All wastewater spills from . . . [CCH's] wastewater system that does not enter state waters and are in areas inaccessible to the public.
(1) The public and inaccessibility are described in section 4.a.
(2) Exclusion. Spills of R-1 water provided the owner/agent demonstrates that the spill was of R-1 water and that BMPs as approved by the director were implemented.

C.5.c. Reporting. For spills of a thousand gallons or more, and for spills occurring more than twice within a 12 month period within the confines or fence line of . . . [CCH's] wastewater system, the owner/agent shall report to the WWB under section 9.a.

C.5.d. Recording. The owner/agent shall record and tabulate the date and time of the spill, the amount released, the cause(s) for the spill, clean up efforts, and remedial actions taken to prevent future spills for all spills greater than 50 gallons as they happen. The owner/agent shall keep the records and tabulations on site and make the records and tabulation available to the director for inspection and copying.