

ECBP APPENDIX B
Action Plan to Address Erosional Outfalls

ACTION PLAN TO ADDRESS EROSIONAL OUTFALLS

US ARMY GARRISON, HAWAII
SEPTEMBER 2014

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REQUIREMENT

In accordance with the US Army Garrison, Hawaii (USAG-HI) Municipal Separate Storm Sewer System (MS4) Permit Number HI S000090 effective April 7, 2014, Part D.1.f.(3)(iv), USAG-HI is required to developed the following Action Plan to address erosion at storm drain system outlets in their existing MS4. The MS4 Permit requirements are as follows:

Erosion Control BMPs Program Plan D.1.f.(3)(iv)

“Provide the DOH with an Action Plan to address erosion at its storm drain system outlets with significant potential for water quality impacts to be completed within one (1) year of the effective date of this permit, which shall identify outfalls to be addressed, explanation on the basis for their selection and an implementation schedule. The implementation schedule shall cover a five (5) year period. A status report on implementation of the plan shall be included in the Annual Report. The Permittee shall install velocity dissipators or other BMPs to reduce erosion at locations identified by periodic required inspections”

SELECTION OF EROSIONAL OUTFALL REPAIR SITES

The purpose of the Action Plan to Address Erosional Outfalls is to reduce erosion at USAG-HI’s MS4 outfalls on the island of Oahu that have the significant potential for water quality impacts by implementing appropriate and cost-effective outfall repairs. Potential erosional outfall repair sites were selected through a combination of two existing reports. The first was the latest (2014) *Illicit Discharge Detection and Elimination Survey* conducted by the Environmental Health Engineering Division, Public Health Command Region-Pacific (PHCR-Pacific). In this survey, PHCR-Pacific identified potential storm water problem areas by surveying and sampling various storm water outfalls throughout USAG-HI’s MS4. The second were the *Storm Water Asset Assessment* reports conducted by Colorado State University (CSU) contractors. CSU contractors assessed the conditions of all storm water related infrastructures in USAG-HI’s MS4. The following criteria were used to determine the final erosional outfall repair sites and the action plan’s five year implementation schedule:

- 1) Developed initial list of potential erosional outfall repair sites with data from the Illicit Discharge Detection and Elimination Survey.
- 2) Cross referenced initial list with data from the Storm Water Asset Assessment reports to add or remove potential outfall repair sites.
- 3) Narrowed list down to focus only on *major* outfalls. Major outfalls are defined by USAG-HI’s Storm Water Management Plan (SWMP):

IDE#2- Field Screening of Outfalls Part D.1.c.(2):

“Major Outfall: Point where storm water discharges off installation boundary, or ultimately to stream or gulch. Major Outfalls do not include points within open conveyances connecting segments of the same MS4 or stream (e.g. culverts under roads or highways). All Major Outfalls are High Priority and will be inspected annually.”

- 4) Implementation sites were determined by the outfall’s construction and maintenance accessibility.

SUMMARY OF EROSIONAL OUTFALL REPAIR SITES

41 erosional outfalls repair sites were identified for proposed remediation and/or reconstruction within the required five-year implementation period. Majority of the outfall’s locations are unknown. Initial focus will be on locating them and providing temporary or permanent remediation in this five-year implementation period. **Table 1** provides a summary of proposed outfall repair sites along with their five-year implementation schedule. The implementation year is the year in which the proposed outfall repair is scheduled to be completed; however, this schedule is subject to change due to funding availability, permitting delays, or other unforeseen circumstances. Changes to the implementation schedule will be provided in the Annual Report. A description of each proposed erosional outfall repair site is provided in **Attachment 1**.

Table 1. Proposed Erosional Outfall Repair Sites and Implementation Schedule					
Erosional Outfall Site	Outfall PID	Outfall Type	Receiving Waterbody	Watershed	Implementation Year
Wheeler Army Airfield (WAAF)					
1	DP-WAAF-002	Concrete Headwall	Waikele Stream	Waikele	2019
2	DP-WAAF-098	Unknown	Waikele Stream	Waikele	2015
3	DP-WAAF-103	Unknown	Waikele Stream	Waikele	2015
4	DP-WAAF-157	Unknown	Waikele Stream	Waikele	2015
Schofield Barracks (SB)					
5	DP-SB-419	Concrete Headwall	Waikele Stream	Waikele	2016
6	DP-SB-420	Concrete Headwall	Waikele Stream	Waikele	2017
7	DP-SB-424	Concrete Headwall	Waikele Stream	Waikele	2018
8	DP-SB-402	Unknown	Waikele Stream	Waikele	2015
9	DP-SB-481	Unknown	Waikele Stream	Waikele	2015
10	DP-SB-449	Unknown	Waikele Stream	Waikele	2015
11	DP-SB-482	Unknown	Waikele Stream	Waikele	2015
12	DP-SB-483	Unknown	Waikele Stream	Waikele	2015
13	DP-SB-484	Unknown	Waikele Stream	Waikele	2015
14	DP-SB-559	Unknown	Waikele Stream	Waikele	2015
15	DP-SB-542	Unknown	Waikele Stream	Waikele	2016
16	DP-SB-546	Unknown	Waikele Stream	Waikele	2016

Table 1. Proposed Erosional Outfall Repair Sites and Implementation Schedule					
Erosional Outfall Site	Outfall PID	Outfall Type	Receiving Waterbody	Watershed	Implementation Year
17	DP-SB-555	Unknown	Waikele Stream	Waikele	2016
18	DP-SB-452	Unknown	Waikele Stream	Waikele	2016
19	DP-SB-543	Unknown	Waikele Stream	Waikele	2016
20	DP-SB-545	Unknown	Waikele Stream	Waikele	2016
21	DP-SB-550	Unknown	Waikele Stream	Waikele	2016
22	DP-SB-551	Unknown	Waikele Stream	Waikele	2016
23	DP-SB-552	Unknown	Waikele Stream	Waikele	2016
24	DP-SB-560	Unknown	Waikele Stream	Waikele	2016
25	DP-SB-104	Unknown	Waikele Stream	Waikele	2017
26	DP-SB-448	Unknown	Waikele Stream	Waikele	2017
27	DP-SB-464	Unknown	Waikele Stream	Waikele	2017
28	DP-SB-454	Unknown	Waikele Stream	Waikele	2017
29	DP-SB-465	Unknown	Waikele Stream	Waikele	2017
30	DP-SB-469	Unknown	Waikele Stream	Waikele	2017
31	DP-SB-450	Unknown	Waikele Stream	Waikele	2018
32	DP-SB-353	Unknown	Waikele Stream	Waikele	2018
33	DP-SB-428	Unknown	Waikele Stream	Waikele	2018
34	DP-SB-352	Unknown	Waikele Stream	Waikele	2018
35	DP-SB-367	Unknown	Waikele Stream	Waikele	2018
36	DP-SB-512	Unknown	Waikele Stream	Waikele	2018
37	DP-SB-565	Unknown	Waikele Stream	Waikele	2018
38	DP-SB-547	Unknown	Waikele Stream	Waikele	2019
39	DP-SB-489	Unknown	Waikele Stream	Waikele	2019
40	DP-SB-467	Unknown	Waikele Stream	Waikele	2019
41	DP-SB-635	Unknown	Waikele Stream	Waikele	2019

REFERENCES

1. US Army Garrison, Hawaii Municipal Separate Storm Sewer System Permit Number HI S000090, effective April 7, 2014.
2. Illicit Discharge Detection and Elimination Survey, dated July 7-17, 2014.
3. Stormwater Asset Assessment , Wheeler Army Airfield, dated 2013-2014
4. Stormwater Asset Assessment, Schofield Army Airfield, dated 2014 (DRAFT)

ATTACHMENT 1

EROSIONAL OUTFALL REPAIR SITE DESCRIPTIONS



			A5	A6	A7		A9	A10	A11		A13
		B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
C2	C3	C4	C5	C6	C7						
D2	D3	D4			D7						
E2	E3	E4			E7						
F1	F2	F3	F4	F5	F6	F7					
G1	G2	G3	G4	G5	G6	G7	G8				
		H3	H4	H5	H6	H7	H8				
		I3	I4	I5	I6	I7	I8				
		J4	J5	J6	J7	J8					
				K6	K7						
				L6	L7						
			M5	M6							
			N5	N6							

Wheeler Army Airfield Stormwater System Assessment

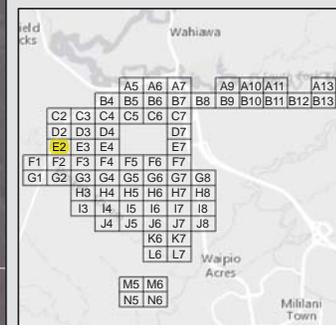
E2

Page 28 of 71

Access Assessment

- WAAF_Discharges**
 - ▲ Accessed_Inspected
 - ▲ Not included in assessment
 - ▲ Other
 - ▲ Unable_To_Access
- WAAF_Manholes**
 - Accessed_Inspected
 - Other
 - Unable_To_Access
- WAAF_Inlets**
 - Accessed_Inspected
 - Not included in assessment
 - Other
 - Unable_To_Access
- WAAF_Conduits**
 - Accessed_Inspected
 - Not included in assessment
 - Other
 - Unable_To_Access
 - REMOVED
- WAAF_Open_Drainage
- WAAF_LIDs

1:1,250



Installation

Map_Grid

ObjectID

Name

Type

Survey_Date

Access

Access_Note

Obstruction

Obst_Type

Obst_Notes

Structural

Struct_Typ

Srstruct_Note

Haz_Materi

HazMat_Type

Erosion

Erosion_Note

Other_Note

Rim_Elv

Invert_Elv

STODCRG_ID

ID



Photo 1

Photo 2

Displaying

Maintenance_Date

Maintenance_Action

Installation
Map_Grid
ObjectID
Name
Type
Survey_Date
Access
Access_Note
Obstruction
Obst_Type
Obst_Notes
Structural
Struct_Typ
Srstruct_Note
Haz_Materi
HazMat_Type
Erosion
Erosion_Note
Other_Note
Rim_Elv
Invert_Elv
STODCRG_ID
ID



Photo 1
Photo 2

Maintenance_Date

Maintenance_Action



Wheeler Army Airfield Stormwater System Assessment

H8

Page 52 of 71

Access Assessment

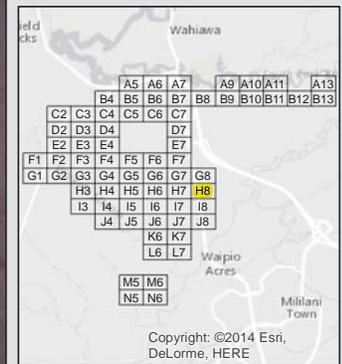
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- ▲ Accessed_Inspected
 - ▲ Not included in assessment
 - ▲ Other
 - ▲ Unable_To_Access
- WAAF_Manholes**
- Accessed_Inspected
 - Other
 - Unable_To_Access
- WAAF_Inlets**
- Accessed_Inspected
 - Not included in assessment
 - Other
 - Unable_To_Access
- WAAF_Conduits**
- Accessed_Inspected
 - Not included in assessment
 - Other
 - Unable_To_Access
 - REMOVED

----- WAAF_Open_Drainage

● WAAF_LIDs



1:1,250



Installation
Map_Grid
ObjectID
Name
Type
Survey_Date
Access
Access_Note
Obstruction
Obst_Type
Obst_Notes
Structural
Struct_Typ
Srstruct_Note
Haz_Materi
HazMat_Type
Erosion
Erosion_Note
Other_Note
Rim_Elv
Invert_Elv
STODCRG_ID
ID



Photo 1
Photo 2

Maintenance_Date
Maintenance_Action

Wheeler Army Airfield Stormwater System Assessment

14

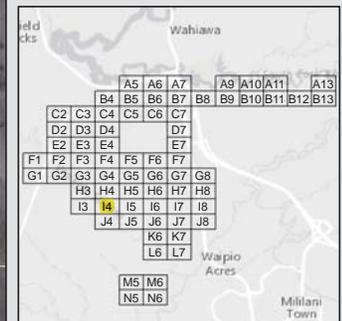
Page 54 of 71

Access Assessment

- WAAF_Discharges**
- ▲ Accessed_Inspected
 - ▲ Not included in assessment
 - ▲ Other
 - ▲ Unable_To_Access
- WAAF_Manholes**
- Accessed_Inspected
 - Other
 - Unable_To_Access
- WAAF_Inlets**
- Accessed_Inspected
 - Not included in assessment
 - Other
 - Unable_To_Access
- WAAF_Conduits**
- Accessed_Inspected
 - Not included in assessment
 - Other
 - Unable_To_Access
 - REMOVED
- WAAF_Open_Drainage
- WAAF_LIDs



1:1,250



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Installation
Map_Grid
ObjectID
Name
Type
Survey_Date
Access
Access_Note
Obstruction
Obst_Type
Obst_Notes
Structural
Struct_Typ
Srstruct_Note
Haz_Materi
HazMat_Type
Erosion
Erosion_Note
Other_Note
Rim_Elv
Invert_Elv
STODCRG_ID
ID

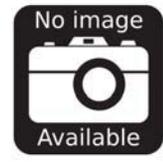
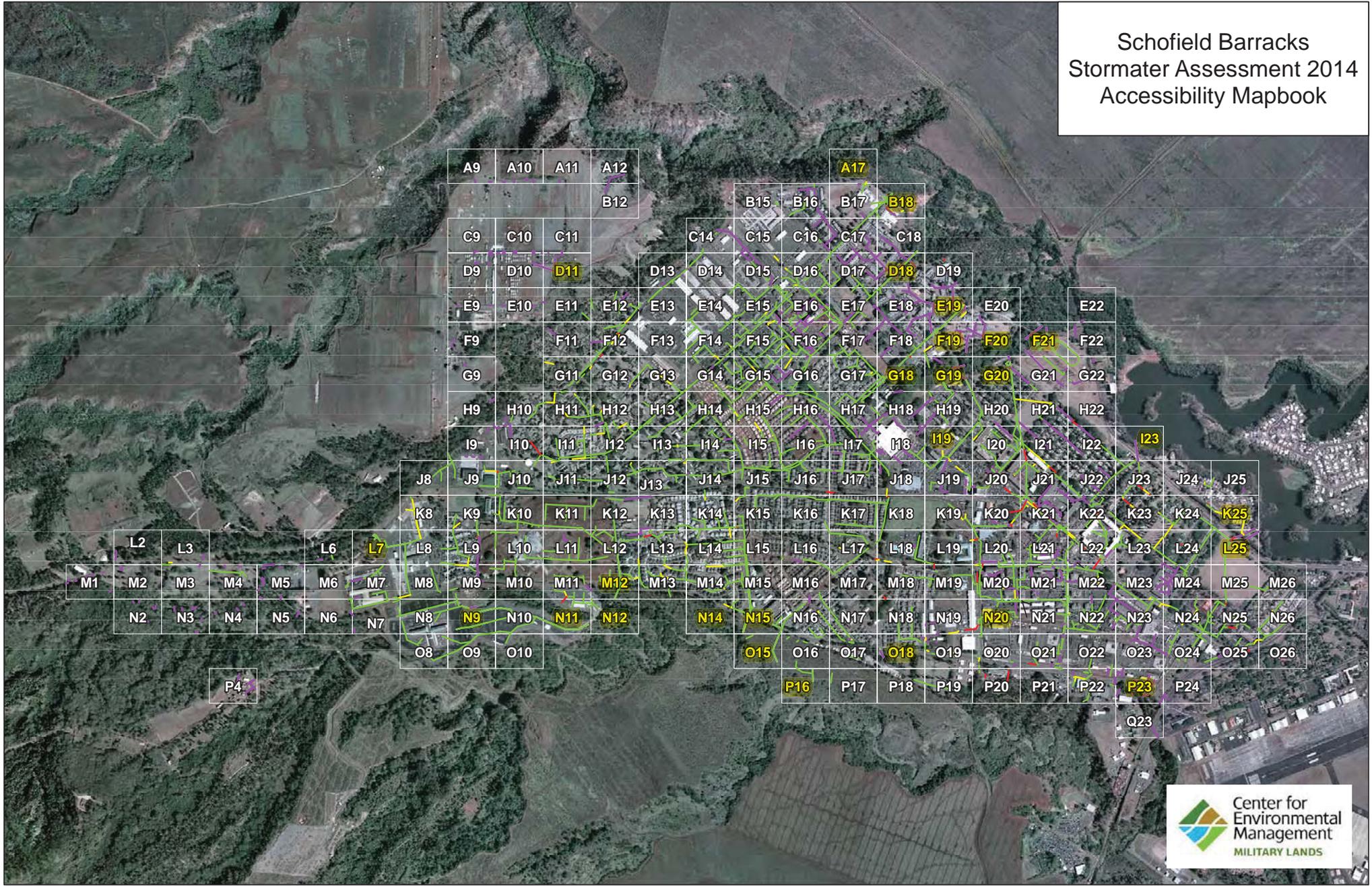


Photo 1
Photo 2

Maintenance_Date
Maintenance_Action

Schofield Barracks Stormwater Assessment 2014 Accessibility Mapbook





Accessibility

- Discharge Points**
 - Unable to Access (purple triangle)
 - Other (red triangle)
 - Accessed Inspected (green triangle)
- Manholes**
 - Unable to Access (purple circle)
 - Other (orange circle)
 - Accessed Inspected (green circle)
- Inlets**
 - Unable to Access (purple square)
 - Other (red square)
 - Accessed Inspected (green square)
- Conduits**
 - Unable to Access (purple line)
 - Other (red line)
 - Accessed Inspected (green line)

Additional Features

- LIDs (orange star)
- Streams (blue line)
- Open Drainage (light blue dashed line)
- Buildings (tan rectangle)

1:750



ID

Map Grid

Type

Invert Elv

Survey Date

Access

Access Note

Obstruction

Obstruction Type

Obstruction Notes

Structural

Structural Type

Structure Note

Haz Material

HazMat Type

Erosion

Erosion Note

Other Note



Photo 1

Photo 2

Maintenance Date

Maintenance Action



Accessibility

- Discharge Points**
- ▲ Unable to Access
 - ▲ Other
 - ▲ Accessed Inspected
- Manholes**
- Unable to Access
 - Other
 - Accessed Inspected
- Inlets**
- Unable to Access
 - Other
 - Accessed Inspected
- Conduits**
- Unable to Access
 - Other
 - Accessed Inspected

- Additional Features**
- ★ LIDs
 - Streams
 - Open Drainage
 - Buildings



1:750

ID

Map Grid

Type

Invert Elv

Survey Date

Access

Access Note

Obstruction

Obstruction Type

Obstruction Notes

Structural

Structural Type

Structure Note

Haz Material

HazMat Type

Erosion

Erosion Note

Other Note



Photo 1

Photo 2

Maintenance Date

Maintenance Action

ID

Map Grid

Type

Invert Elv

Survey Date

Access

Access Note

Obstruction

Obstruction Type

Obstruction Notes

Structural

Structural Type

Structure Note

Haz Material

HazMat Type

Erosion

Erosion Note

Other Note



Photo 1

Photo 2

Maintenance Date

Maintenance Action



Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings

B16

McMahon Rd

B17

McMahon Rd

IN-SB-2730

DP-SB-402

IN-SB-2763

L-SB-3273

L-SB-3277

L-SB-3279

L-SB-3278

IN-SB-2740

B18

1:750



ID DP-SB-402

Map Grid A17

Type

Invert Elv 876.52

Survey Date Feb 28, 2014, 2:03 PM

Access Unable_To_Access

Access Note Fence

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

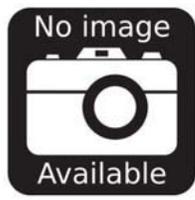


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Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.

A17

B17

C17



Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings

1:750





ID

Map Grid

Type

Invert Elv

Survey Date

Access

Access Note

Obstruction

Obstruction Type

Obstruction Notes

Structural

Structural Type

Structure Note

Haz Material

HazMat Type

Erosion

Erosion Note

Other Note

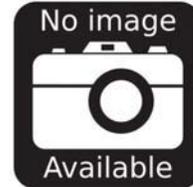


Photo 1

Photo 2

Maintenance Date

Maintenance Action

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings





ID

Map Grid

Type

Invert Elv

Survey Date

Access

Access Note

Obstruction

Obstruction Type

Obstruction Notes

Structural

Structural Type

Structure Note

Haz Material

HazMat Type

Erosion

Erosion Note

Other Note

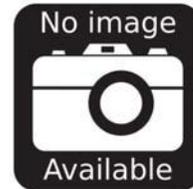


Photo 1

Photo 2

Maintenance Date

Maintenance Action



Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings

1:750





ID

Map Grid

Type

Invert Elv

Survey Date

Access

Access Note

Obstruction

Obstruction Type

Obstruction Notes

Structural

Structural Type

Structure Note

Haz Material

HazMat Type

Erosion

Erosion Note

Other Note

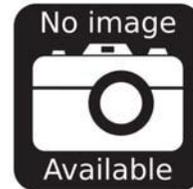


Photo 1

Photo 2

Maintenance Date

Maintenance Action

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings



1:750





ID DP-SB-483

Map Grid E19

Type UNKNOWN

Invert Elv 861.97

Survey Date Jun 12, 2014, 11:01 AM

Access Unable_To_Access

Access Note Fenced

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

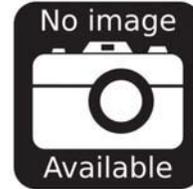


Photo 1 noimage.jpg

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Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.



ID DP-SB-484

Map Grid E19

Type UNKNOWN

Invert Elv 860.04

Survey Date Jun 12, 2014, 11:00 AM

Access Unable_To_Access

Access Note Fenced

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

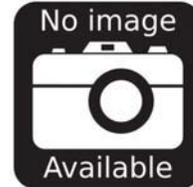


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.



ID

Map Grid

Type

Invert Elv

Survey Date

Access

Access Note

Obstruction

Obstruction Type

Obstruction Notes

Structural

Structural Type

Structure Note

Haz Material

HazMat Type

Erosion

Erosion Note

Other Note

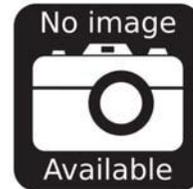


Photo 1

Photo 2

Maintenance Date

Maintenance Action



Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

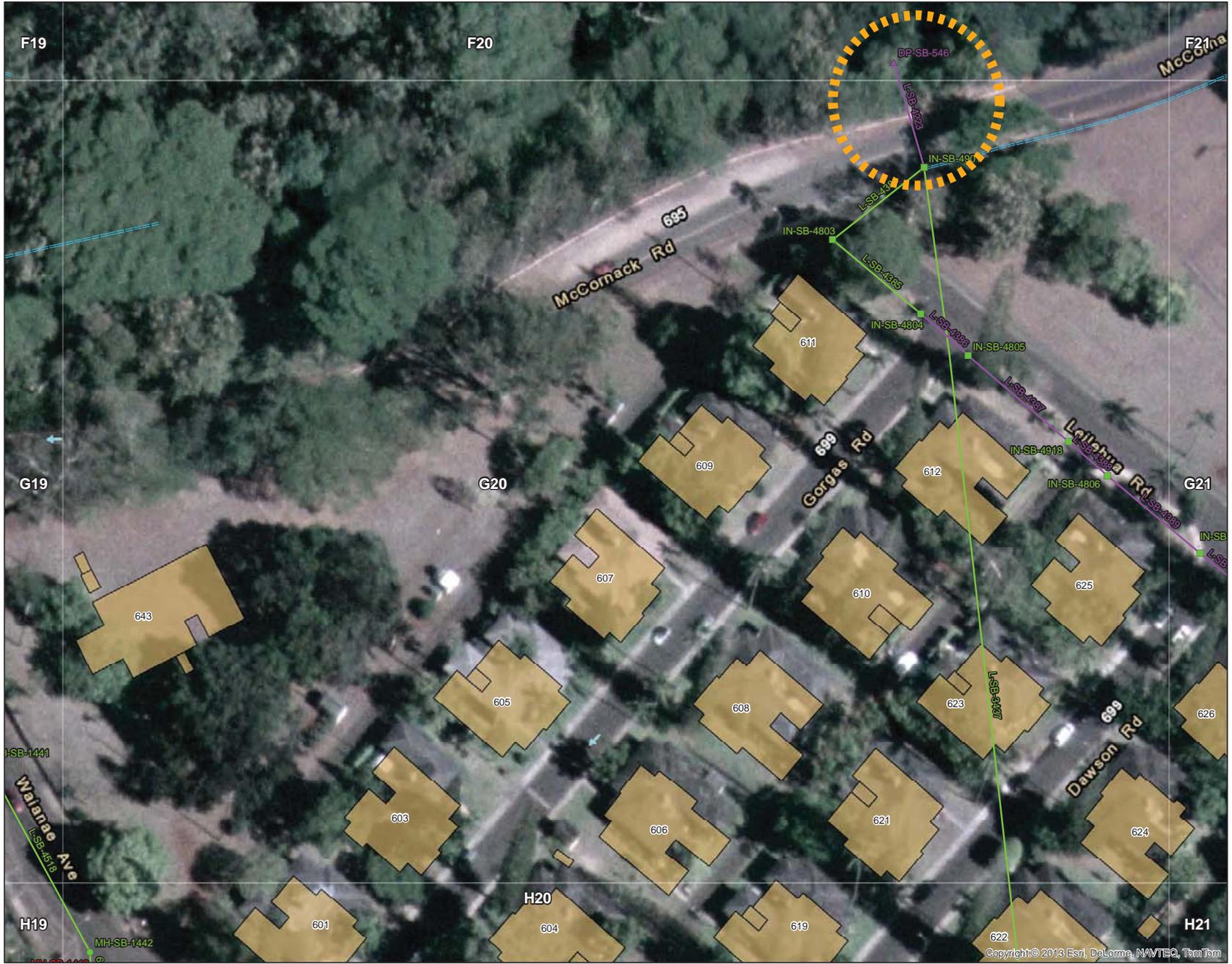
- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- - - Open Drainage
- Buildings

1:750





Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings

1:750



ID DP-SB-542

Map Grid F20

Type

Invert Elv 865.63

Survey Date Mar 29, 2014, 1:42 PM

Access Unable_To_Access

Access Note Construction area, hard hat area

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found. Research location of outfall.

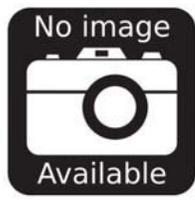


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.



ID DP-SB-546

Map Grid F20

Type

Invert Elv 825.90

Survey Date Apr 1, 2014, 12:32 PM

Access Unable_To_Access

Access Note Fenced

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

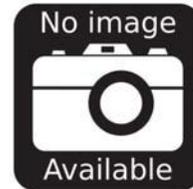


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings



1:750





ID DP-SB-555

Map Grid F21

Type CONC_HEADWALL

Invert Elv 0.00

Survey Date Feb 28, 2014, 2:38 PM

Access Unable_To_Access

Access Note Fence, terrain

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of
outfall.



Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action **Locate, clear, and temporarily remediate.**

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings





ID DP-SB-452

Map Grid G18

Type

Invert Elv 872.23

Survey Date Jun 17, 2014, 10:02 AM

Access OTHER

Access Note Terrain, no access

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

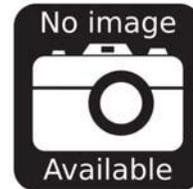


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.

ID DP-SB-543

Map Grid G18

Type

Invert Elv 869.18

Survey Date Mar 28, 2014, 10:49 AM

Access Unable_To_Access

Access Note Overgrown

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

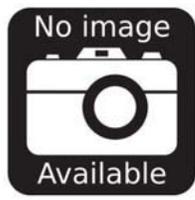


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings

1:750





ID DP-SB-545

Map Grid G19

Type

Invert Elv 831.50

Survey Date Mar 30, 2014, 10:08 AM

Access Unable_To_Access

Access Note Danger

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of
outfall.

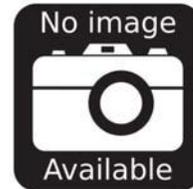


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily
remediate.



ID DP-SB-550

Map Grid G19

Type

Invert Elv 866.40

Survey Date May 5, 2014, 9:11 AM

Access Unable_To_Access

Access Note Terrain, no access

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

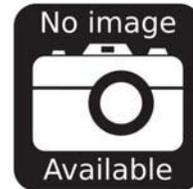


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.



ID

Map Grid

Type

Invert Elv

Survey Date

Access

Access Note

Obstruction

Obstruction Type

Obstruction Notes

Structural

Structural Type

Structure Note

Haz Material

HazMat Type

Erosion

Erosion Note

Other Note

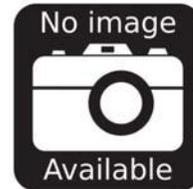


Photo 1

Photo 2

Maintenance Date

Maintenance Action



ID

Map Grid

Type

Invert Elv

Survey Date

Access

Access Note

Obstruction

Obstruction Type

Obstruction Notes

Structural

Structural Type

Structure Note

Haz Material

HazMat Type

Erosion

Erosion Note

Other Note

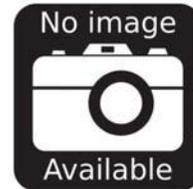


Photo 1

Photo 2

Maintenance Date

Maintenance Action



ID DP-SB-560

Map Grid G19

Type

Invert Elv 858.74

Survey Date Jun 12, 2014, 9:16 AM

Access Unable_To_Access

Access Note Fence, terrain

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

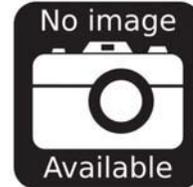


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

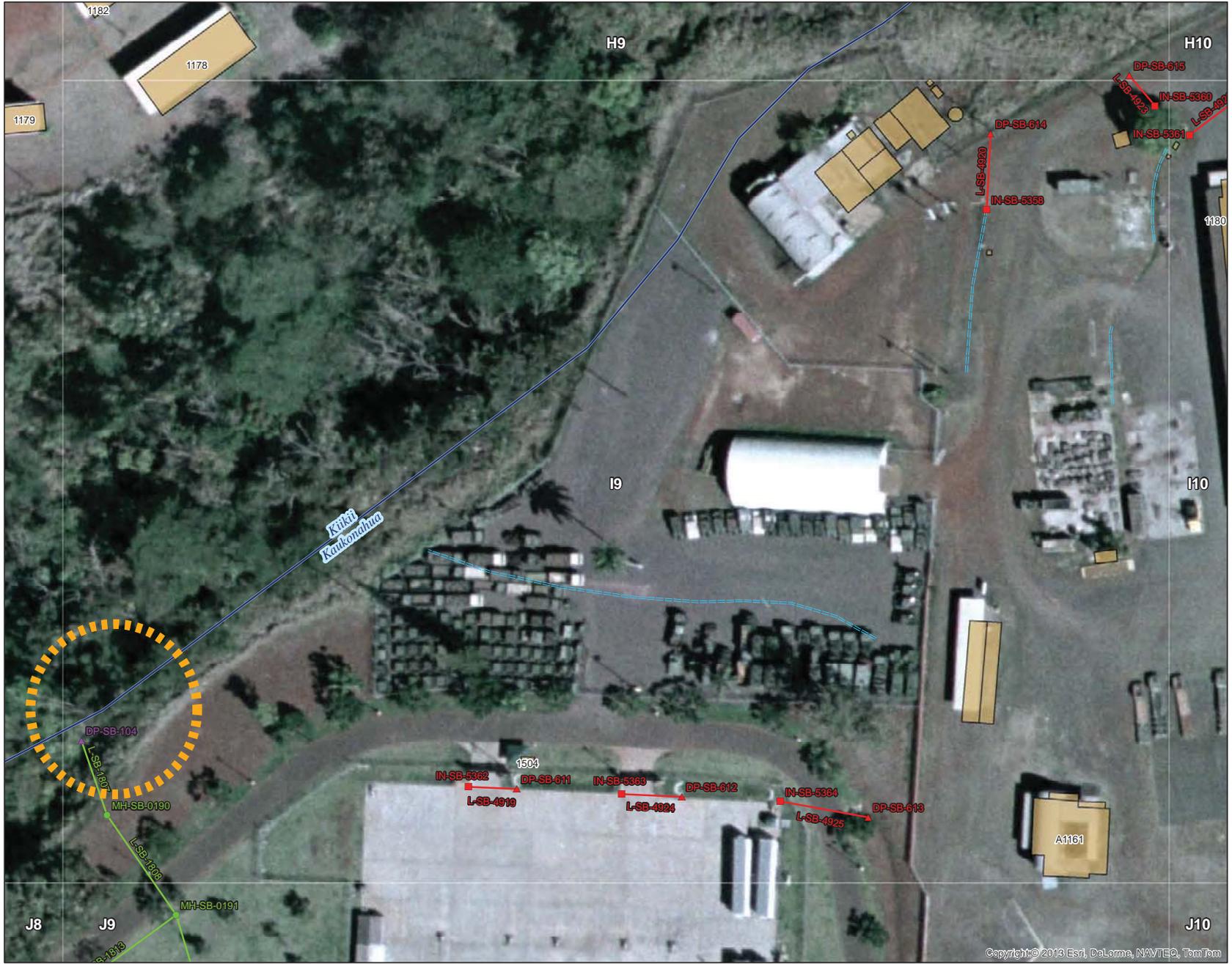
- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings





ID DP-SB-104

Map Grid I9

Type

Invert Elv 984.25

Survey Date Jan 14, 2014, 9:16 AM

Access Unable_To_Access

Access Note Deep veg

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

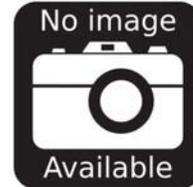


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

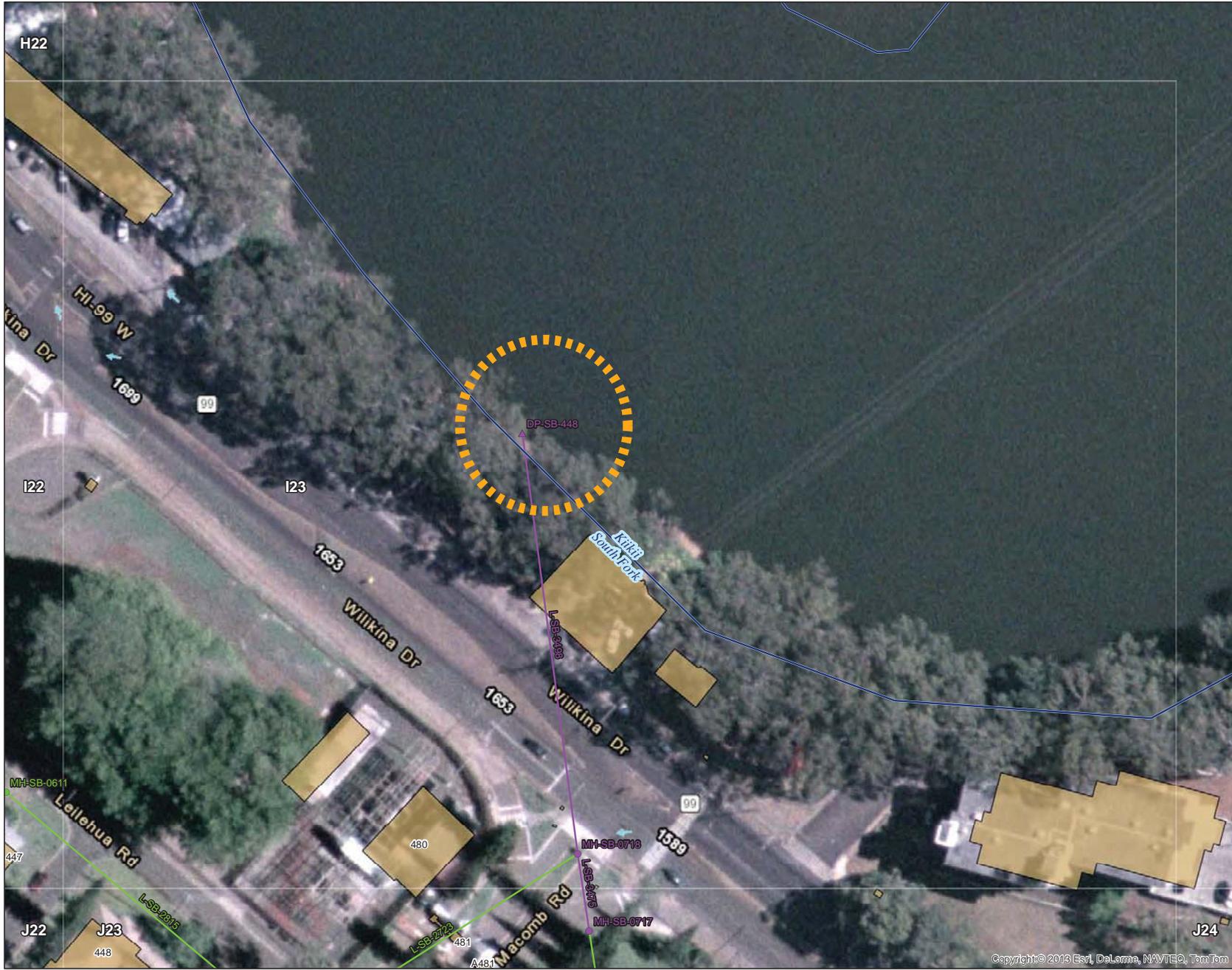
- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings





ID DP-SB-448

Map Grid I23

Type

Invert Elv 849.86

Survey Date Jun 13, 2014, 12:52 PM

Access Unable_To_Access

Access Note Fenced

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of
outfall.

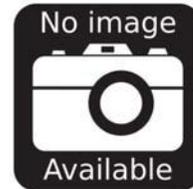


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily
remediate.

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings



1:750



ID DP-SB-464

Map Grid K25

Type

Invert Elv 837.70

Survey Date Jun 13, 2014, 12:51 PM

Access Unable_To_Access

Access Note Fenced

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

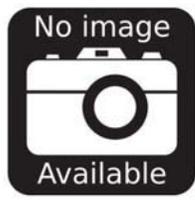


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.



Accessibility

- Discharge Points**
- ▲ Unable to Access
 - ▲ Other
 - ▲ Accessed Inspected

- Manholes**
- Unable to Access
 - Other
 - Accessed Inspected

- Inlets**
- Unable to Access
 - Other
 - Accessed Inspected

- Conduits**
- Unable to Access
 - Other
 - Accessed Inspected

- Additional Features**
- ★ LIDs
 - Streams
 - Open Drainage
 - Buildings

1:750





ID DP-SB-454

Map Grid L7

Type

Invert Elv 1019.21

Survey Date Jun 13, 2014, 9:02 AM

Access Unable_To_Access

Access Note Fenced

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

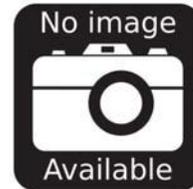


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

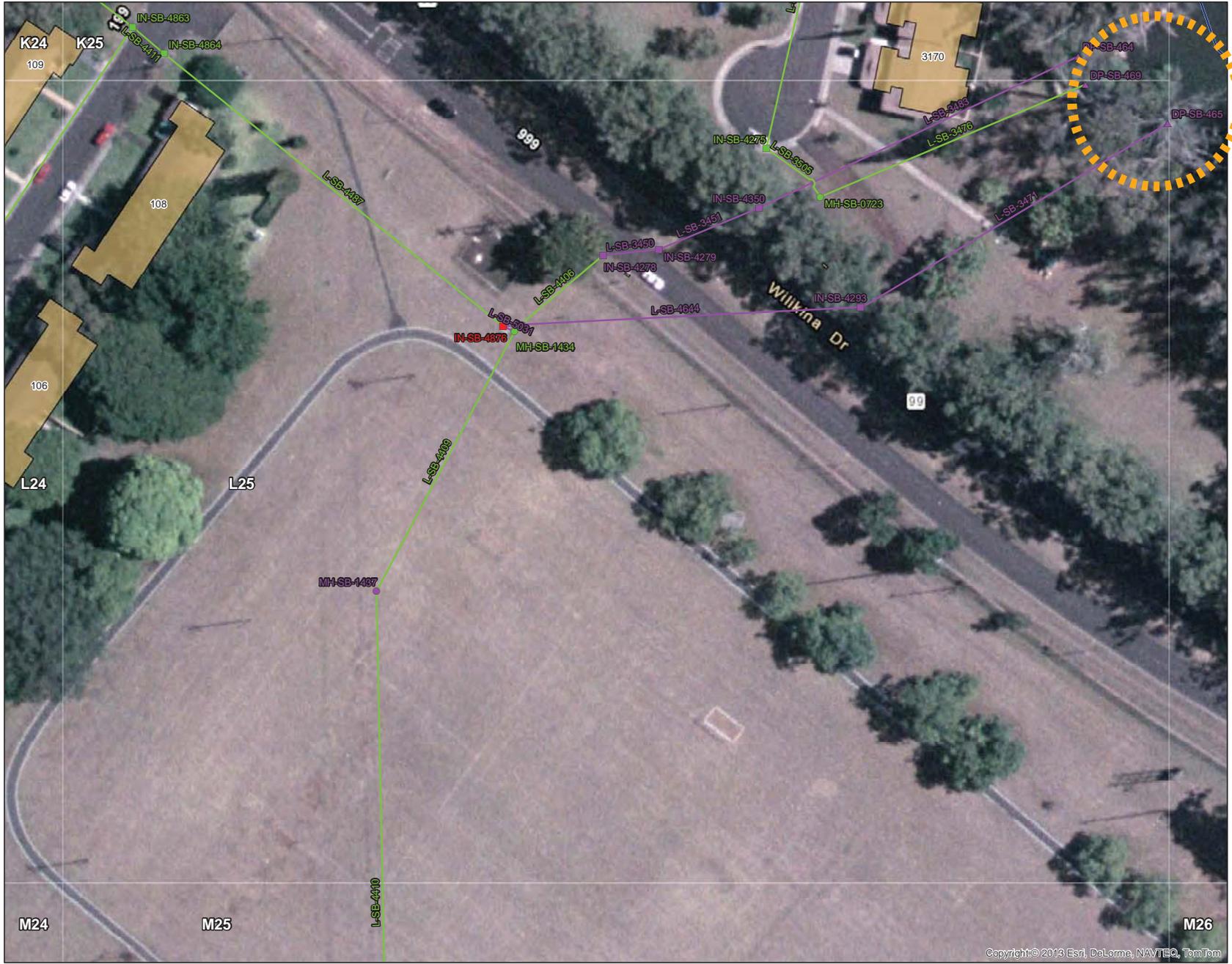
- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings





ID

Map Grid

Type

Invert Elv

Survey Date

Access

Access Note

Obstruction

Obstruction Type

Obstruction Notes

Structural

Structural Type

Structure Note

Haz Material

HazMat Type

Erosion

Erosion Note

Other Note

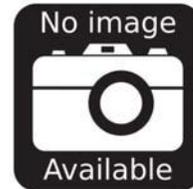


Photo 1

Photo 2

Maintenance Date

Maintenance Action



ID DP-SB-469

Map Grid L25

Type

Invert Elv 841.23

Survey Date Jun 13, 2014, 12:51 PM

Access Unable_To_Access

Access Note Fenced

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

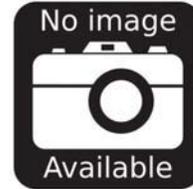


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings



1:750



ID DP-SB-450

Map Grid M12

Type

Invert Elv 934.18

Survey Date Jun 13, 2014, 9:56 AM

Access Unable_To_Access

Access Note Fenced

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

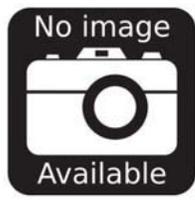


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.



Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings

1:750





ID DP-SB-353

Map Grid N9

Type

Invert Elv 977.95

Survey Date Feb 24, 2014, 10:21 AM

Access Unable_To_Access

Access Note Fence

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

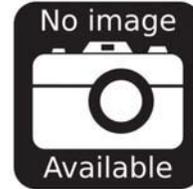


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

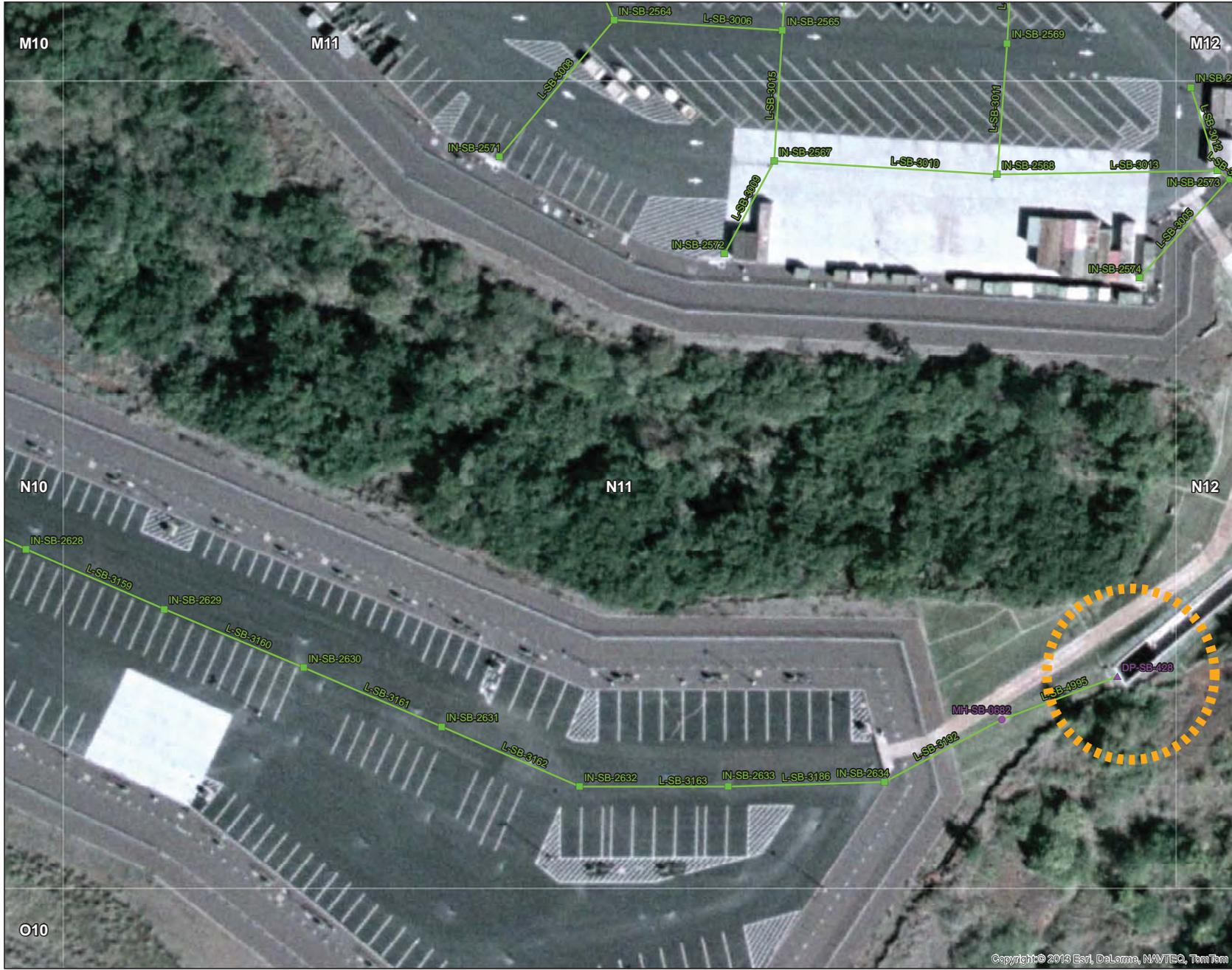
- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings



ID DP-SB-428

Map Grid N11

Type

Invert Elv 938.10

Survey Date Feb 24, 2014, 9:25 AM

Access Unable_To_Access

Access Note Fenced, Discharge to OWS system

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found. Research location of outfall.

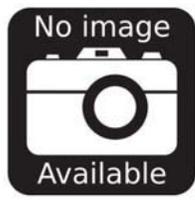


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.



Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings

1:750





ID DP-SB-352

Map Grid N12

Type

Invert Elv 935.04

Survey Date Feb 24, 2014, 3:47 PM

Access Accessed_Inspected

Access Note Viewed from upstream manhole

Obstruction No_Obstruction

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material No_HazMat

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found. Research location of outfall.

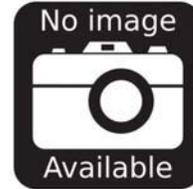


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.

Accessibility

- Discharge Points**
- ▲ Unable to Access
 - ▲ Other
 - ▲ Accessed Inspected

- Manholes**
- Unable to Access
 - Other
 - Accessed Inspected

- Inlets**
- Unable to Access
 - Other
 - Accessed Inspected

- Conduits**
- Unable to Access
 - Other
 - Accessed Inspected

- Additional Features**
- ★ LIDs
 - Streams
 - Open Drainage
 - Buildings



1:750





ID DP-SB-367

Map Grid N15

Type

Invert Elv 889.32

Survey Date Feb 19, 2014, 12:09 PM

Access Unable_To_Access

Access Note Steep bank, thick growth

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

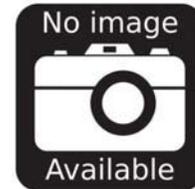


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings





ID DP-SB-512

Map Grid O18

Type

Invert Elv 877.12

Survey Date May 10, 2014, 8:56 AM

Access Unable_To_Access

Access Note Construction

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of
outfall.

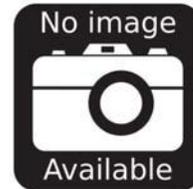


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily
remediate.

Accessibility

Discharge Points

- ▲ Unable to Access
- ▲ Other
- ▲ Accessed Inspected

Manholes

- Unable to Access
- Other
- Accessed Inspected

Inlets

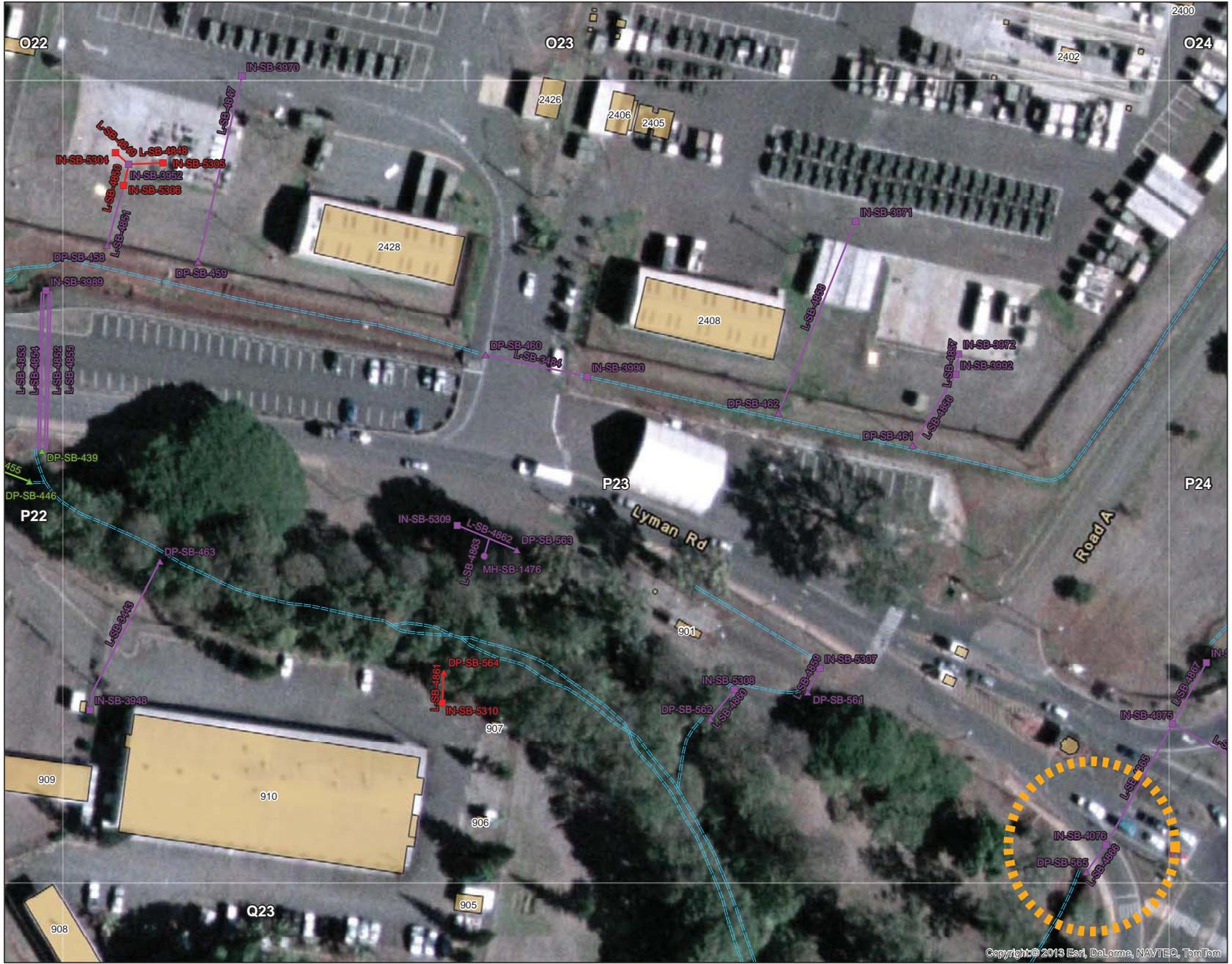
- Unable to Access
- Other
- Accessed Inspected

Conduits

- Unable to Access
- Other
- Accessed Inspected

Additional Features

- ★ LIDs
- Streams
- Open Drainage
- Buildings





ID DP-SB-565

Map Grid P23

Type

Invert Elv 833.46

Survey Date Jun 17, 2014, 3:00PM

Access Unable_To_Access

Access Note Highway, security gate

Obstruction -None Selected-

Obstruction Type -None Selected-

Obstruction Notes

Structural -None Selected-

Structural Type -None Selected-

Structure Note

Haz Material -None Selected-

HazMat Type -None Selected-

Erosion -None Selected-

Erosion Note

Other Note Outfall not found.
Research location of outfall.

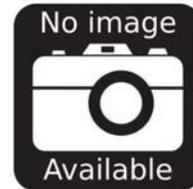


Photo 1 noimage.jpg

Photo 2 noimage.jpg

Maintenance Date

Maintenance Action Locate, clear, and temporarily remediate.