DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

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October 8, 2002

CDD-A 02-0206

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawaii
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Finding of No Significant Impact for Kokokahi Place Drainage Improvements, TMK: 4-4, Kaneohe, Oahu, Hawaii

The Department of Design and Construction has reviewed the comments received on the draft environmental assessment during the 30-day public comment period which began on February 8, 2002. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the October 23 Environmental Notice.

A completed OEQC Bulletin Publication Form and four copies of the Final EA are attached. Please contact Mr. Albert Miyashiro at 527-5155 if you have any questions.

Very truly yours,

RAE M. LOUI, P.E.
Director

AM:TS:pto

Attach.

98

2002-10-23-OA-FEA-

Final
Environmental Assessment

KOKOKAHI PLACE DRAINAGE IMPROVEMENTS KANEOHE, OAHU

City & County of Honolulu
Department of Design & Construction

GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, HI 96817
808-524-0355

October, 2002
97-820A

Applicant:	Department of Design & Construction City and County of Honolulu
EA Preparer:	GKO & Associates 680 Iwilei Road, Suite 410 Honolulu, Hawaii 96817
	Contact: Robert W. Purdie, Jr. Phone: (808) 524-0355
Approving Agency:	Department of Design & Construction City & County of Honolulu
	Contact: Albert Miyashiro Phone: (808) 527-5155
	Project Location: Kokokahi Place Kaneohe, Hawaii
	Tax Map Key: 4-5
	Zoning: R-5 Residential

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EXECUTIVE SUMMARY

Introduction

This Final Environmental Assessment and Finding of No Significant Impact has been prepared pursuant to Chapter 343, Revised Statutes, and Title 11, Chapter 200, Hawaii Administrative Rules, Department of Health, State of Hawaii. This document assesses the potential environmental impacts of a proposed agency action for improvements to the drainage system at Kokokahi Place in Kaneohe, and identifies measures to mitigate these potential impacts.

The purpose of this project is to alleviate flooding in this area. The proposed improvements include the installation of:

1. New drain inlets and a 24-inch (transitioning to a 3'x2' box drain and then to a 4'x2' box) drain line extending from the Kokokahi Place cul-de-sac down to Malulani Street.

2. A new 7'x3' box drain and transition structure parallel to the existing box drain onto the YWCA property below Kaneohe Bay Drive.

List of Impacted Properties

Properties affected by this project are as follows:

TMK No.
4-5-31:1
4-5-31:2
4-5-31:4
4-5-31:5
4-5-31:10
4-5-31:11
4-5-31:85
4-5-31:86
4-5-31:88
4-5-31:92
4-5-31:105
4-5-31:113
4-5-31:118
4-5-104:45
4-5-104:46
4-5-104:55

Alternatives Considered

There is only one feasible configuration for the Kokokahi Place cul-de-sac drainage improvements. At the request of the community (as expressed at the June 1, 2002 meeting), an investigation was conducted to determine the feasibility of realigning the proposed drainage system. The realignment would follow the alignment of an existing drainage ditch (that wraps

along Parcels 2 and 118) and an existing 24" drainline (underneath Parcel 86), discharging into the existing box drain beneath the private driveway. This alternative was found to be infeasible due to the substantial disturbance to private properties, the increased disruption to residents and increased construction costs due to a lengthier construction time and the resulting increase in restoration of private improvements.

However, two alternatives were considered for the area makai of Kaneohe Bay Drive. In addition to the parallel box drain, the use of a detention basin to store flow exceeding the capacity of the existing 4'x3' box drain was studied. As downstream components are emptied, the basin would return flow back into the system.

This alternative was deemed impractical and eliminated because the excessive quantity of flow requiring storage results in an enormously large detention basin that cannot be accommodated by the existing site.

Potential Impacts and Mitigation Measures

Soil Erosion - A management plan to control soil erosion will be developed before construction of the drainage improvements is undertaken. As noted in Chapter 1, an NPDES permit for construction activities will be required because the area of disturbance will exceed one acre. However, because of the steep terrain, there is a potential for loss of soils along the alignment from the cul-de-sac at Kokokahi Place down to Malulani Street, even with best management practices in effect.

In the long term, there should be a reduction in soil erosion as runoff currently moving as sheet flow is funneled into drainage channels.

Water Quality - During construction, there may be an increase in soil erosion. Drainage improvements from the Kokokahi Place cul-de-sac downhill may result in soil loss despite the application of best management practices because of the steepness of the terrain. Construction of the parallel box drain below Kaneohe Bay Drive may also result in a short-term negative impact on water quality.

The total quantity of water will not be increased by the proposed drainage improvements. However, the flow rate of the water discharged during storm events will increase. This may have some adverse effect on nearshore waters during and after storm events.

Terrestrial Flora and Fauna - There will be destruction of

vegetation in the area of construction. The area does not support any native plant-dominated vegetation types. There are no threatened, endangered or rare flora in the project area. A concern has been expressed that the endangered Kauai thrush (puaiohi) may visit the area during the winter. Since construction will take place in the summer, it is unlikely the thrush will be present.

Aquatic Flora & Fauna - This portion of Kaneohe Bay has generally poor water quality and few aquatic fauna. The nearshore reef flat has little discernible permanent habitat for marine or estuarine species and demonstrates extremely low biological diversity. Improvements to the drainage facilities are expected to neither improve nor worsen this situation.

The Division of Aquatic Resources of the State Department of Land and Natural Resources concurs that no significant long-term impact to aquatic resources is expected (see letter). The NPDES permit for construction activities will be the mechanism to ensure that the appropriate best management practices are utilized to control erosion and minimize potential adverse impacts to the aquatic environment. In addition, the project will be timed to be constructed during the times of minimum rainfall in the area.

Archaeological, Historic, and Cultural Resources - The Historic Preservation Division has assessed the project site and concluded that because the proposed improvements will occur in areas that have been previously disturbed by the existing underground concrete storm drain and effluent force main within the area, there will be no effect on significant historic sites.

Should a previously unidentified historic or archaeological resource (including burials) be discovered during construction, all work in the affected area will stop and the State Historic Preservation Division will be informed and consulted on the appropriate treatment measures.

Land Use Plans - The Koolaupoko Sustainable Communities Plan recommends the use of on-site retention systems to manage storm water flows wherever feasible. Unfortunately, this option is not possible within this older subdivision. It should be noted that the volume of surface runoff will not be changed, only the flow pattern. There will be no increase in the quantity of storm water discharging into Kaneohe Bay.

Traffic - Kokokahi Place and Malulani Street will be disturbed temporarily during construction. The private driveway used by residents in the vicinity will also be affected. These temporary

disruptions will be severe. Negative impacts cannot be avoided but will be planned in cooperation with local residents, the City's Department of Transportation Services and the Honolulu Police Department to minimize disruptions as much as possible. The Contractor shall, at a minimum, use standard Construction Methods to ensure residents maximum access. Pedestrian access shall be maintained at all times. The driveway access to Parcel 1 will not be accessible while construction activities are taking place for the drainline installation. However, all trenches will be covered with steel plates to provide access during non-working hours.

Kaneohe Bay Drive will not be disturbed. A construction staging area will be established for the project. If it is off-site, this may result in more impacts to traffic. If material is stockpiled within the City's right-of-way, adequate and safe pedestrian travel ways and appropriate sight distances for both vehicles and pedestrian traffic will be provided at all times.

Since this project is still at the conceptual stage, the location of a site for the construction staging area has not been determined and impacts on traffic are conjectural. The site will be chosen in consultation with the Department of Transportation Services to ensure that traffic impacts are minimized.

Air Quality - Construction activities will generate exhaust products and fugitive dust emissions from vehicles and equipment used to build the new structures. Air quality effects will be short-term in nature. Workers will be scheduled to arrive and depart the site during non-peak traffic hours. The Contractor will be required to comply with HAR Chapter 11-60.1-33 Fugitive Dust to control dust emissions during the various phases of construction.

Noise - Intermittent elevated noise levels from specific construction activities are unavoidable, but are expected to be short-term and minor. Typical heavy construction equipment noise levels are within the decibel range identified for a daytime, noisy urban environment. It is recognized that the project area is in a quiet, suburban neighborhood and that these decibel levels will seem excessive to residents. However, there is no known cost-effective way to construct the project quietly. To reduce nearby residential noise exposure to the extent possible, construction activities will be conducted on weekdays and in daytime hours in accordance with HRS 342-F-1.

Utilities - Two 6-inch waterlines crossing Malulani Street cannot be avoided while maintaining the required capacity of the drain line. Since water lines operate under a pressure system, and the

drainage system operates under gravity, the 6-inch waterlines will need to be relocated during construction. Kokokahi Place cul-de-sac water meters and water laterals may also be affected in the final design of drainage structures. Construction activity will be planned and coordinated with the Honolulu Board of Water Supply. Any necessary relocation will be done prior to installation of the drain. There will be a temporary cessation of services during the relocation, which cannot be avoided. However, after relocation is completed, water service shall operate as normal.

No other utilities are expected to be affected by the project. During construction, utility poles will be properly braced as necessary.

Miscellaneous Private Structures - The project is not expected to affect any miscellaneous private structures (i.e. walls and hedges). However, should they be disturbed, they will be either restored or appropriate compensation made.

The existing box drain that crosses beneath the private driveway is not expected to be disturbed. However, should the Contractor elect to remove the existing box drain to facilitate construction, it will be reconstructed.

The construction of the drainage improvements through Parcel 45 (YWCA property) may affect some of the new work currently being undertaken by the YWCA's Capital Improvement Plan. Any new work that is impacted by the drainage improvements will be completely replaced rather than being patched.

Permits and Approvals Required

Permits and approvals required for the project are:

Special Management Area Permit

Shoreline Setback Variance

NPDES General Permit for Construction Activities

A Department of the Army permit may be required if it is determined at the time of design that construction of the box drain will extend into the high tide line.

Determination

The proposed action has been reviewed and analyzed pursuant to

the "Significant Criteria" established in 11-200-12, HAR, environmental impact assessment process. Potential adverse impacts can be mitigated and are short-term in nature. Based on this Finding of No Significant Impact (FONSI), an environmental impact statement is not required.

CHAPTER 1
INTRODUCTION

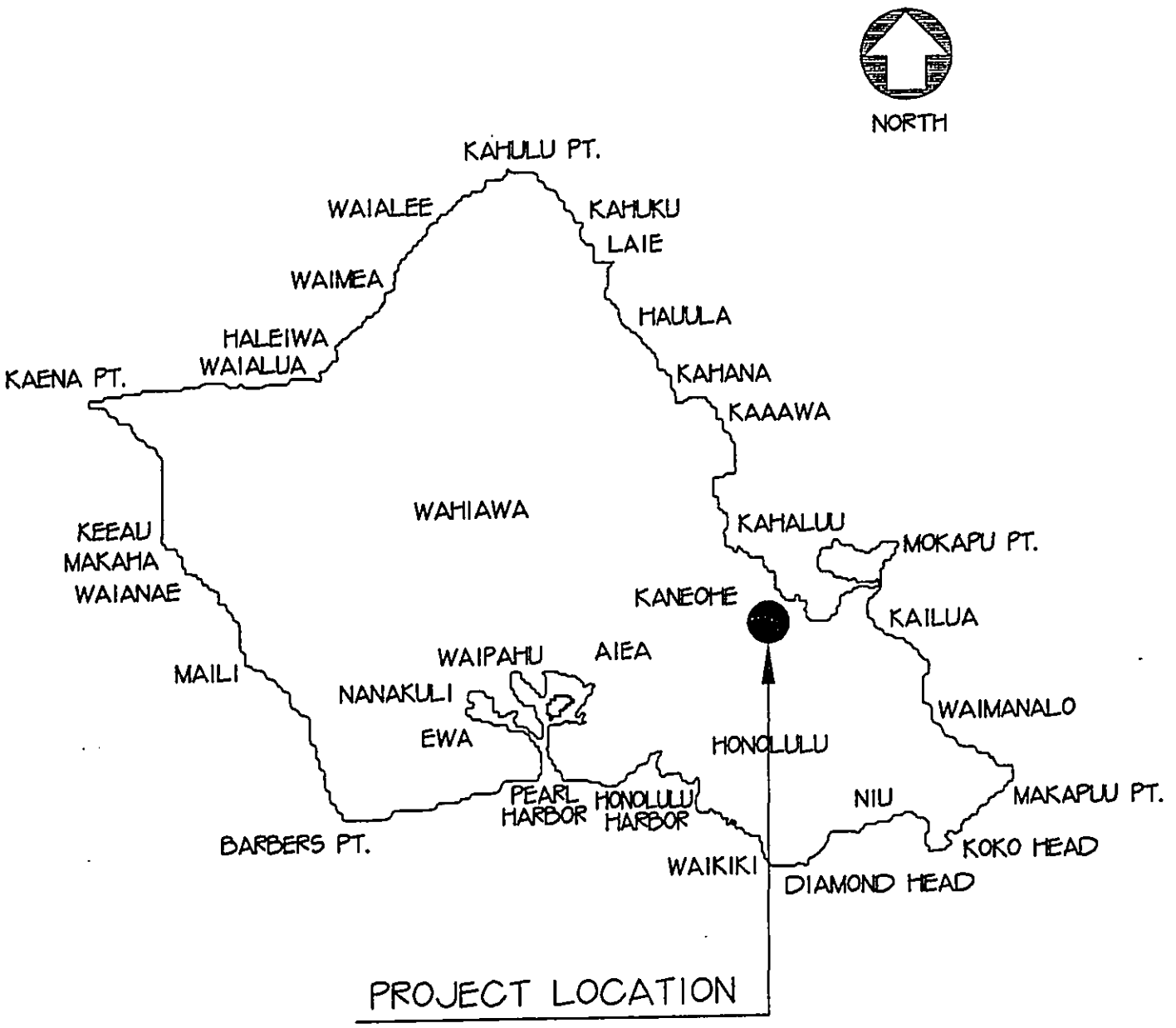
1.1 Purpose of This Document

This Final Environmental Assessment and Finding of No Significant Impact has been prepared pursuant to Chapter 343, Revised Statutes, and Title 11, Chapter 200, Hawaii Administrative Rules, Department of Health, State of Hawaii. This document assesses the potential environmental impacts of a proposed agency action for improvements to the drainage system at Kokokahi Place in Kaneohe, and identifies measures to mitigate these potential impacts.

1.2 Location and Background

The Kokokahi Place Drainage Improvements project is situated in Kaneohe, on the windward side of the island of Oahu (**Figure 1**). Kokokahi Place begins at Kaneohe Bay Drive, gently slopes upward to Malulani Street, then begins a steep ascent up to a crest in the roadway near the property located at 45-235 Kokokahi Place. From this point, the street begins to steeply slope down to the cul-de-sac shown on **Figure 2**. The street has been designed and constructed such that it does not disrupt the natural slope of the valley. Thus homes that have been developed on the perimeters of Kokokahi Place are situated at elevations higher than the roadway, while homes developed on the inside edges of Kokokahi Place are situated at elevations lower than the roadway, inside the valley. Kokokahi Place, above Malulani Street to the cul-de-sac, is a non-standard City roadway. The street is nominally 14 feet wide, but without a curb and gutter system or subsurface drainage structures. Instead, low 3" asphalt concrete (ac) curbs have been added to segments of the roadway to maintain the flow on the roadway. Several residents have added trench drains along the edges of their driveways to prevent the flow from draining onto their properties. Upon discharge from the driveway trench drains, the drainage continues down the road as sheet flow. Once the water reaches the bottom of the Kokokahi Place cul-de-sac, the water continues flowing its natural course down through developed and undeveloped lower properties until it reaches a 5' wide concrete ditch, shown on **Figure 3**. The ditch eventually collects the flow from the entire drainage basin, and conveys it down through a 4'x3' box drain into Kaneohe Bay.

Residents involved in the Kokokahi Community Association have filed several complaints with the City & County of Honolulu regarding the drainage problems they've experienced in their



VICINITY MAP

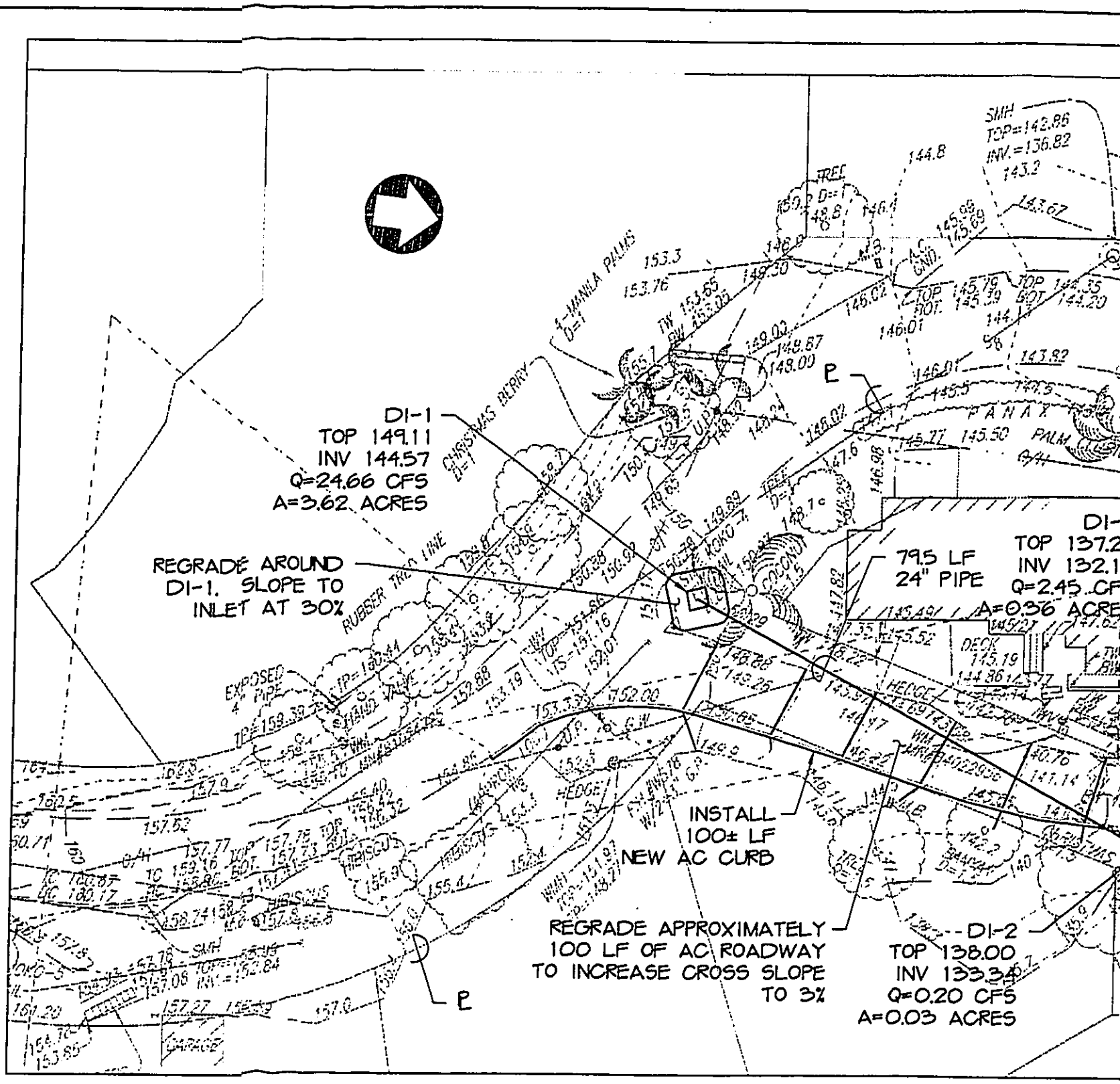
NOT TO SCALE

CITY & COUNTY OF HONOLULU — DEPARTMENT OF DESIGN & CONSTRUCTION

GKO & ASSOCIATES
KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT
KANEOHE, OAHU, HAWAII

OCTOBER 2002
GKO JOB NO. 97-820A

FIGURE 1



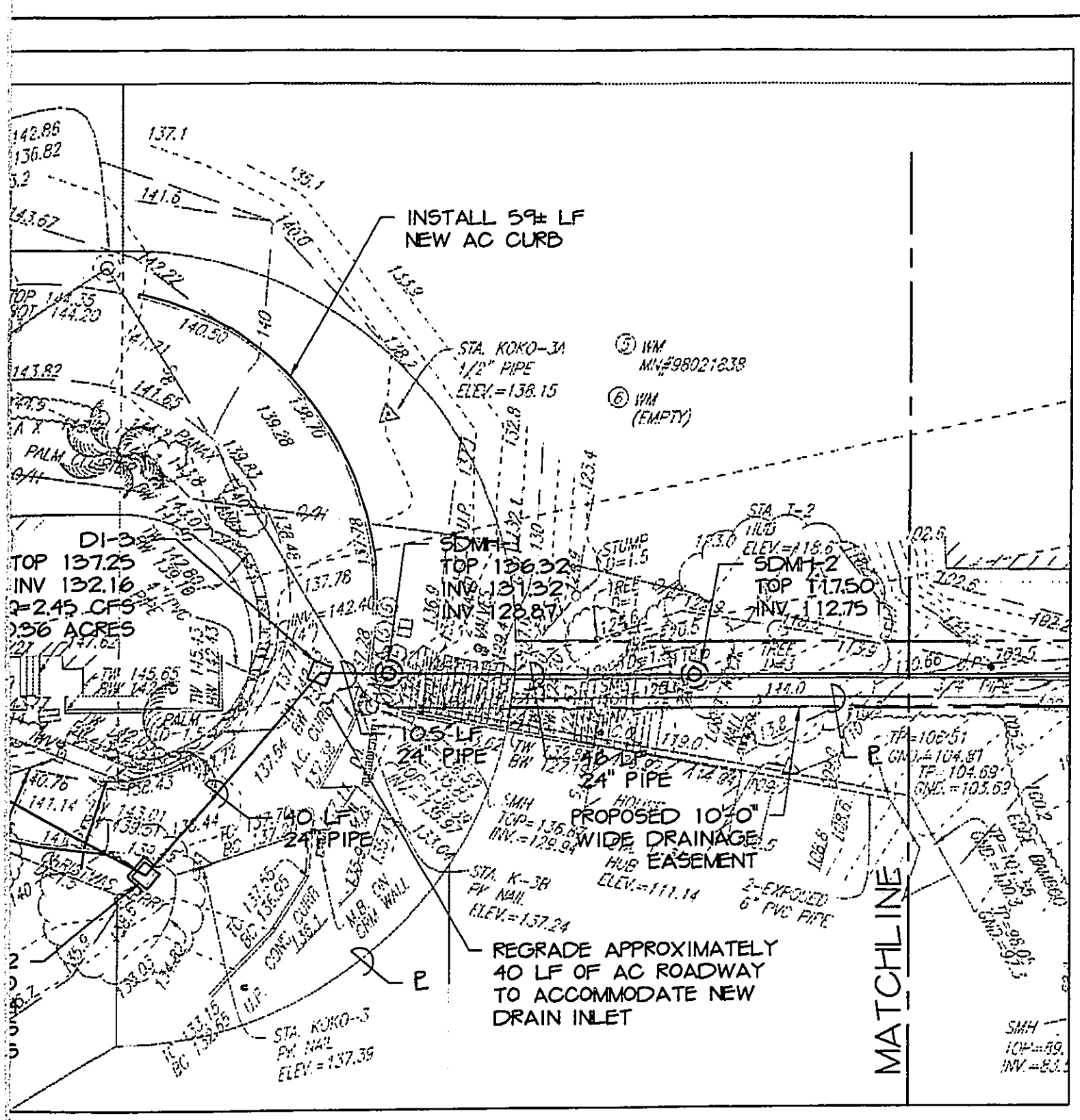
KEY MAP

NOTE:
DESIGN AND INSTALLATION OF
NEW CURBS SHALL ACCOMMODATE
EXISTING DRIVEWAY ACCESS.

SCA

CIT
GKO
KOK
ENVI
KANE

DOCUMENT CAPTURED AS RECEIVED



KOKOKAHI PLACE CUL-DE-SAC

SCALE: 1" = 20'-0"

CITY & COUNTY OF HONOLULU	DEPARTMENT OF DESIGN & CONSTRUCTION
GKO & ASSOCIATES KOKOKAHI PLACE DRAINAGE IMPROVEMENTS ENVIRONMENTAL ASSESSMENT KANEOHE, OAHU, HAWAII	OCTOBER 2002 GKO JOB NO. 97-820A FIGURE 2

community. Residents report that there is inadequate drainage along the west leg of Kokokahi Place, which results in the properties below the street being inundated with water.

In October 1990, the Kokokahi Community Association submitted a letter to the City & County of Honolulu discussing their concern about the safety of the steep and narrow Kokokahi Place. The Department of Public Works, Division of Engineering responded to the Association concerns of two items relating to drainage issues by: 1) filling in a low spot in the roadway at the bottom of Kokokahi Place and 2) explaining to the owner that reported ac driveway cracking was due to aging and the area thought to be eroding was actually a built-in swale.

In November 1990, the resident living at 45-020B Malulani Street noted that the recent roadway surfacing project substantially increased the amount of surface runoff experienced. Resurfacing had prompted the resident living at the bottom of the Kokokahi Place cul-de-sac to install a trench drain along the edge of his driveway, with the flow routed through two exposed 6" PVC pipes. The water routed through the two pipes flowed directly into the properties below. The City reported that the resurfacing project had not altered the drainage basin, and thus did not affect the runoff quantities.

In August 1994, the Kokokahi Community Association sent the City a letter concerning further problems with runoff. The Department of Wastewater Management had recently worked on the sewer mains running from the Kokokahi Place cul-de-sac down to Malulani Street. The Association requested that a drainage channel be designed to take care of the runoff. A response was provided in September 1994. The City noted that the drainage problems were a result of the unimproved roadway condition of Kokokahi Place. In order to improve the drainage conditions, the City recommended that the roadway be upgraded to meet the current standards under the City's Improvement District Program. However, a project of this undertaking requires much community commitment, and the initiation of an improvement district project by their Council Member. The City noted that they would also evaluate and consider the possibility of including a relief drain project for the cul-de-sac area in the City's 6-year Capital Improvement Program.

In July 1997, due to another runoff concern, the City installed 40± linear feet of 3" high asphalt concrete (ac) berm at 45-285 Kokokahi Place. The berm was designed to minimize the drainage flowing directly into the resident's property. However without a collection system to accept the flow, once the water surface elevation exceeds the berm height, the flow will overtop the berm

and continue downstream.

An engineering study was contracted to GKO & Associates, as an element of the City's Capital Improvement Program, to determine drainage improvements necessary to alleviate flooding problems experienced by the residents of the Kokokahi area. Initially, the project focused on the portion of the system above Kaneohe Bay Drive, more specifically, minimization of flooding of the properties at the bottom of the Kokokahi Place cul-de-sac. Upon investigation of the existing drainage system, it was found that portions of the system downstream of Kaneohe Bay Drive are radically deficient in capacity. The capacity of this lower drain segment, which is the sole outlet to discharge drainage into Kaneohe Bay, is critical to the overall performance of the system. Thus, the scope of this drainage study was expanded to include the area from the Kokokahi Place cul-de-sac down to the bay. Analysis of these existing conditions indicated that the two main areas of concern in the system are at the Kokokahi Place cul-de-sac and the 4'x3' box drain located makai of Kaneohe Bay Drive. Several Malulani Street residents have since expressed concern regarding flooding in the area mauka of Malulani Street. However, the flooding of these properties is considered a private matter, and not within the scope of the project. **Figure 3** presents the boundary limits of the study.

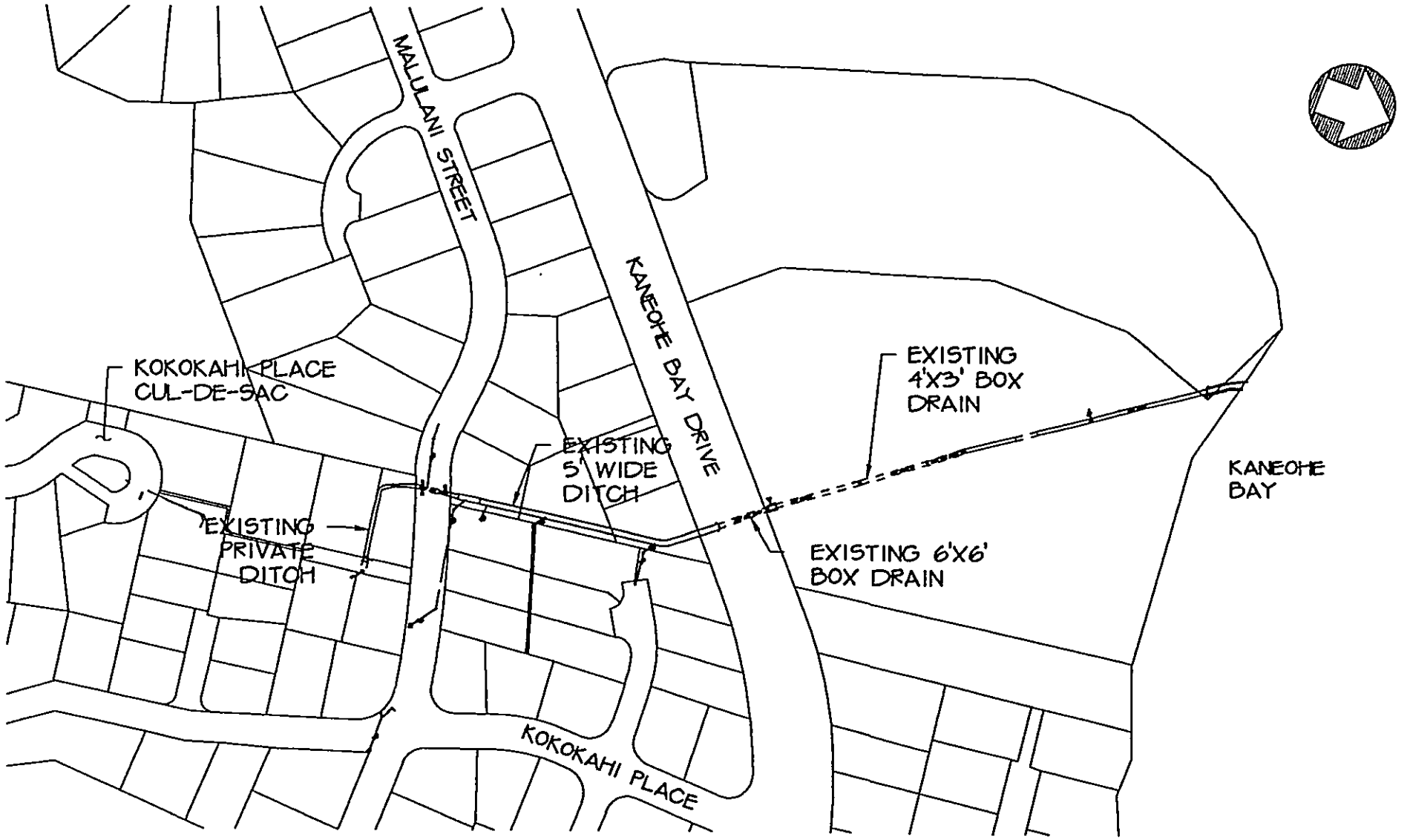
1.3 Project Objectives

The intent of the Kokokahi Place drainage improvements is to alleviate the flooding experienced by those residents occupying properties at the bottom of the cul-de-sac. The general concept for this improvement is to take the drainage currently flowing overland, route it through pipes down to Malulani Street and discharge at some point back into the existing system. The primary beneficiaries of these improvements will be those properties that currently receive runoff from Kokokahi Place, Parcels 1 and 2. For the area below Kaneohe Bay Drive, the intent is to add another drainage structure that has the required capacity to immediately convey the expected overflow resulting from the 10-year design storm.

1.4 Permits and Approvals

Permits and approvals that will be required for the project include a Special Management Area Permit and Shoreline Setback Variance, both from the City and County of Honolulu.

An NPDES permit is not needed at this time because there will be no wastewater discharge and the proposed construction activity



EXISTING DRAINAGE SYSTEM

NOT TO SCALE

CITY & COUNTY OF HONOLULU — DEPARTMENT OF DESIGN & CONSTRUCTION

GKO & ASSOCIATES
KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT
KANEOHE, OAHU, HAWAII

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FIGURE 3

will disturb less than five acres. However, since the project construction is not yet funded, it is unlikely to be built before March 10, 2003, when the new rule reducing the disturbance area to one acre will be in effect. Therefore, an NPDES permit will be required for construction.

A Department of Army permit for discharge of fill material may be required. All work will be accomplished mauka of the sandy beach. However, there is some question on the exact location of the shoreline and high tide line. When this is decided, a determination on the need for a permit will be made.

CHAPTER 2
PROJECT DESCRIPTION

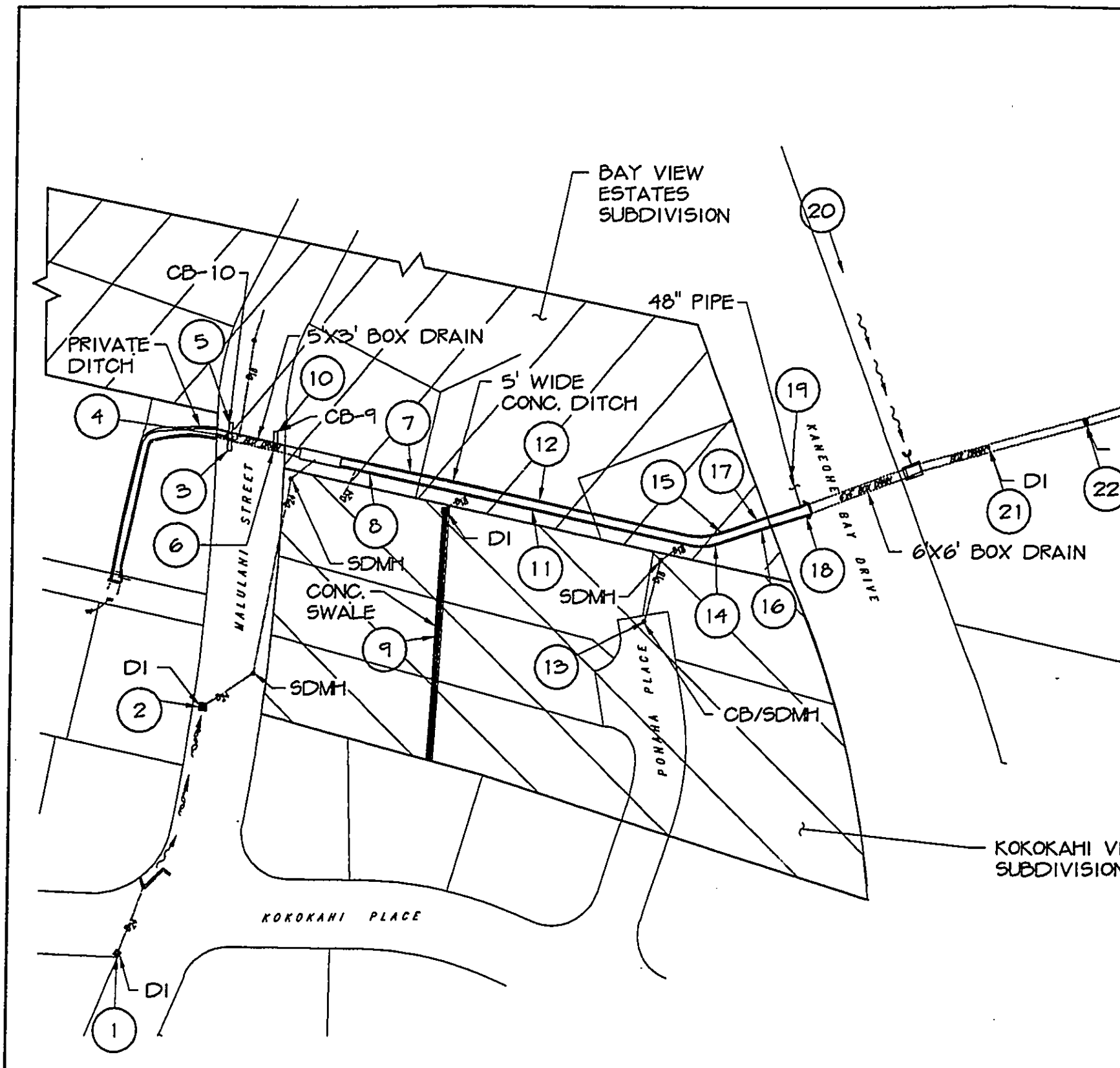
2.1 Hydrologic and Hydraulic Conditions

The hydrologic characteristics of the existing drainage system were determined and used in conjunction with the City and County of Honolulu Storm Drainage Standards to calculate the quantities of contributing flows. Under the Storm Drainage Standards, the City & County of Honolulu allows using a 10-year recurrence interval for drainage areas of 100 acres or less to determine the rainfall intensity. The drainage systems of the two subdivisions below Malulani Street, Bay View Estates and Kokokahi Vista, were both designed based on this assumption. Since the existing drainage system only has adequate capacity for the 10-year storm, the drainage improvements at Kokokahi Place were similarly based on the 10-year recurrence interval. The Kokokahi Box Drain plans do not indicate which recurrence interval the box drains were designed to carry. However, based on preliminary calculations, the 4'x3' box drain does not have adequate capacity for the 10-year storm. Since the part of the system above Kaneohe Bay Drive was designed for the 10-year storm, if a storm of higher magnitude strikes, these drainage components will overflow before the additional flow will reach the 4'x3' box drain. Thus, the alternatives that were studied to alleviate the flooding problem below Kaneohe Bay Drive also used flows resulting from a 10-year storm.

The Storm Drainage Standards and additional data were used to calculate flow quantities for the study area. The project drainage basin areas were defined using a variety of resources. The Final Engineering Report (FER) identifies 23 drainage areas that contribute flow to the existing system. The descriptions of the basins as well as the drainage system components are described in detail in the FER and briefly identified below. Catch basins (CB), drain inlets (DI) and storm drain manholes (SDMH) are identified in **Figure 4.**

Drainage Area 1 flows down the east side of the Kokokahi valley, into a drain inlet at the southeast corner of the Kokokahi Place and Malulani Street intersection. A 24-inch pipe transports the flow under Kokokahi Place to a grassy/ac swale.

Drainage Area 2 flows down the east side of the Kokokahi valley into another drain inlet fronting 45-020 Malulani Street. This flow merges with the Area 1 flow, and a series of 24-inch pipes carry the combined flow across Malulani Street to the 5-foot wide



SCAL

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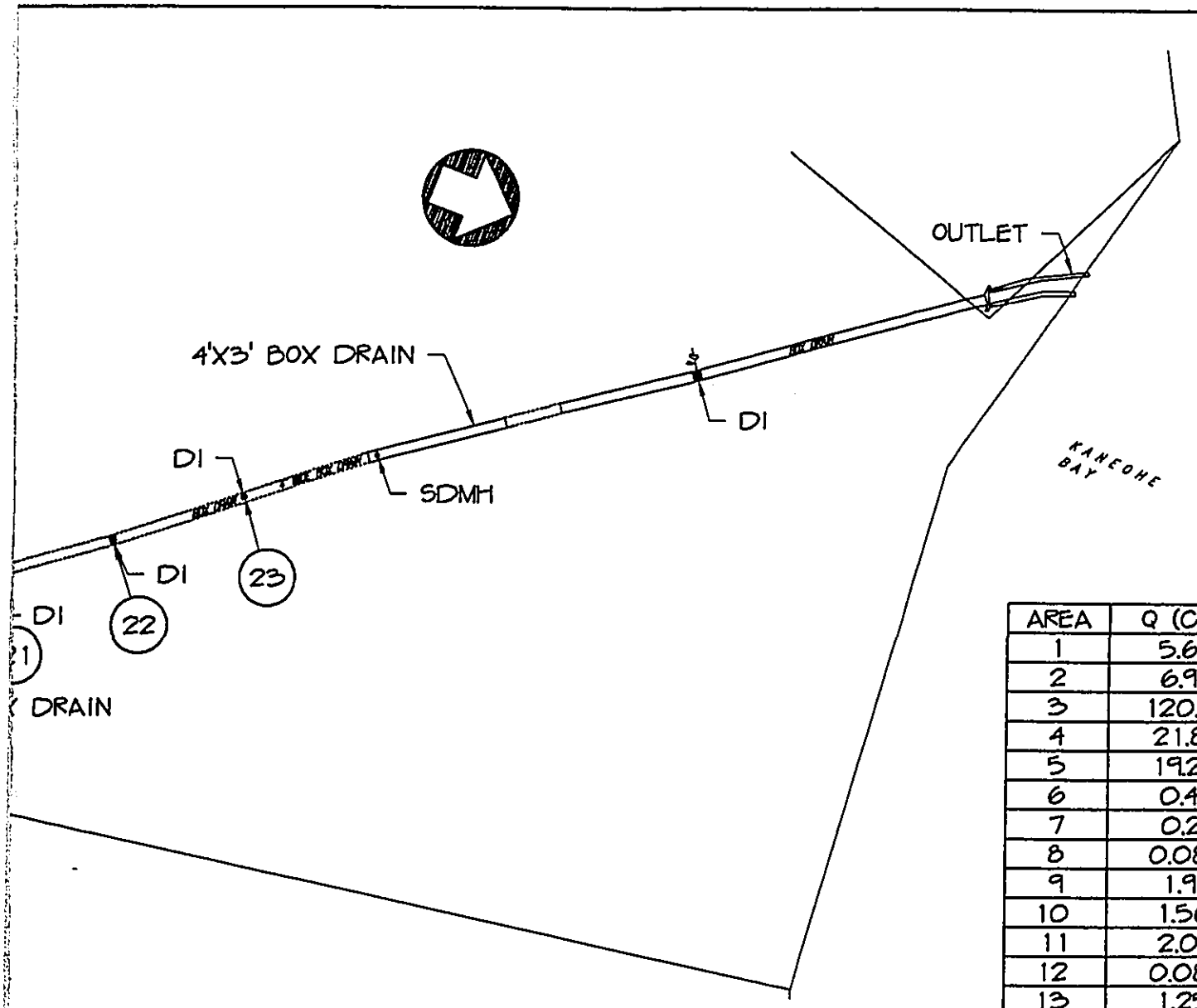

AREA	Q (CFS)
1	5.60
2	6.90
3	120.97
4	21.85
5	19.28
6	0.46
7	0.29
8	0.083
9	1.91
10	1.56
11	2.08
12	0.088
13	1.25
14	0.23
15	0.021
16	0.19
17	0.028
18	0.003
19	124.18
20	1.61
21	2.10
22	1.21
23	1.43

OKOKAHI VISTA
UBDIVISION

ABBREVIATIONS

CB	CATCH BASIN
DI	DRAIN INLET
SDMH	STORM DRAIN MANHOLE
~~	SWALE

KOKOKAHI DRAINAGE SYSTEM
EXISTING LAYOUT

SCALE: 1" = 80'-0"

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OCTOBER 2002
GKO JOB NO. 97-820A

FIGURE 4

concrete ditch.

Drainage Areas 3 and 4 define the remainder of the overland flow coming down the hillside through the valley (Area 4 accounts for the drainage flowing along the Kokokahi Place roadway from the crest down to the cul-de-sac). This flow enters the system via both a private ditch and sheet flow into the 5'x3' box drain running across Malulani Street. (The private ditch is not a City and County of Honolulu drainage structure; it has been installed by the property owner to prevent flooding of his property. The Headwall B detail from the Bay View Estates Project Sheet 17 reveals that the sheet flow coming off the hillside was conveyed into the 5'x3' box ditch via an earthen ditch. However, the Kokokahi Drainage Improvement project topo reveals that the earthen ditch has since been removed and replaced by the private ditch. Because the ditch is privately owned, it was not included in the drainage system hydraulic model. However, the flow carried by the ditch was included in the analysis. A quick check of the approximate capacity of the private ditch was performed to ensure that it can handle the expected flow.)

Drainage Area 5 flow was taken off the Bay View Estates Project Sheet 4 (Unit A of the Bay View Estates drains into this drainage system; the other Units contribute to other drainage systems). This drainage enters CB-10, via both sheet flow and a 18-inch pipe, which discharges into the 5'x3' box drain.

Drainage Area 6 accounts for flow falling on Malulani Street between the upstream drain inlet and the box drain. Drainage Area 10 flow was taken off the Bay View Estates Project Sheet 4, which includes sheet flow from the street. The total flow enters the system at CB-9 and is deposited into the 5-foot wide concrete ditch.

At this point in the system, the flow from Drainage Areas 1 through 6 and Area 10 have been collected and routed into the 5-foot wide concrete ditch.

Drainage Areas 7 and 8 include drainage flowing into the upper section of the 5' wide concrete ditch. The rainfall falling on the upper third of the Kokokahi Vista Subdivision, indicated by Drainage Area 9, flows into the concrete swale and through a 18-inch pipe down to the concrete ditch.

The rainfall falling on the middle section of the Kokokahi Vista Subdivision is included in Drainage Areas 11 and 12. This flow travels overland to the concrete ditch.

Drainage Area 13 includes the flow coming from a portion of

Ponaha Place. This flow is captured at the end of the street by a catch basin and carried by 18-inch pipes into the concrete ditch.

The flow from the lower section of the Kokokahi Vista Subdivision travels overland into the concrete ditch, and is accounted for by Drainage Areas 14, 15, 16, 17 and 18.

Drainage Area 19 flow was taken off the Bay View Estates Project Sheet 4. A 48-inch RCP pipe conveys the flow from the residential area into the 5-foot wide concrete ditch. Immediately downstream of this point of connection, the concrete ditch transitions to a 6'x6' box drain.

The total flow from Drainage Areas 1 through 19 travels through the 6'x6' box drain under Kaneohe Bay Drive. After crossing the road, the box discharges the flow into an open ditch.

Makai (north) of Kaneohe Bay Drive, most of the rainfall flows overland to the various collection points. A grassed swale running along the northern edge of Kaneohe Bay Drive carries the flow from Drainage Area 20 to the open ditch. This flow combines with the Kokokahi valley flow and together continues to flow down into a 4'x3' box drain. The box drain runs the length of the YWCA property to its discharge point into Kaneohe Bay.

Drainage Area 21, the small parking lot adjacent to the YWCA Kokokahi Camp office, flows into a drain inlet in the lot. This inlet deposits the flow directly into the box drain.

Drainage Areas 22 and 23 include the flow traveling overland from the campground site into the two drain inlets spaced along the 4'x3' box drain. The area below the camp buildings is relatively flat, and it has been assumed that flow from this area does not contribute to the drainage system. Instead, the water from this area tends to pond in the grassy field, and either slowly infiltrates into the ground, or when provided with adequate head, is driven to flow overland toward the bay.

At approximately 150 feet upstream of the outlet channel, another drain inlet frame and cover has been installed in the box drain. Due to the lack of a sufficient ground slope, it does not seem likely that any flow will enter the drain inlet at this location. The topographic survey shows a 4-inch line discharging into the box drain at the inlet. However, a source for the 4-inch line could not be found during a field visit. This drain inlet seems to serve as a relief outlet for the box drain during high flows.

2.2 Hydraulic Analysis

Once all of the drainage structures and contributing flows were identified, they were analyzed based on the City and County of Honolulu Storm Drainage Standards.

The existing system was analyzed by sections, starting at the lowest point of flow and continuing upstream. Based on the expected flows, flow depths in each of the sections were calculated, along with friction losses and manhole losses compute the hydraulic grade line.

2.2.1 Collection System Inputs

The hydraulic characteristics of the system were first determined by reviewing existing plans obtained from the City for the Kokokahi Vista Subdivision, the Bay View Estates Subdivision, the Kokokahi Tract, and the Kokokahi Box Drain. Based on these plans, the limits of topographic survey were determined and submitted to the project surveyor. The surveyor (ControlPoint Surveying, Inc.) field verified the inverts of the existing drain inlets, catch basin, storm drain manholes, swales, ditches, and box drains. In addition, the surveyor performed a detailed topographic survey of Kokokahi Place and along the proposed drain line alignment. The field data were compiled to create the project topographic survey. Using the topographic survey, the hydraulic characteristics of the system were confirmed and identified in terms of their inverts, lengths, size. The existing system was divided into sections, bounded by manholes, catch basins, drain inlets, and breaks in slope.

2.2.2 Flow Inputs

Based on the City and County Storm Drainage Standards, the rational method was used to determine the quantities of flow contributing to each section of the existing drainage system.

2.2.3 Analysis Results/Problem Areas

The drainage system was analyzed under the existing conditions. The hydrologic flows that were routed through the drainage structures were compared with their capacities. The hydraulic capacities of the pipes, swales, ditches, box drains and concrete lined outlet channel were calculated for a d/D value equal to 0.90.

The results indicate that the major problem areas that exist under the current conditions happen below Kaneohe Bay Drive. The overflow of the 5' concrete ditch immediately below Malulani

Street has cause for concern. The rerouting of flow from Kokokahi Place to the ditch can be implemented in such a way to try to minimize this flooding problem. The 4'x3' box drain, on the other hand, is grossly undersized for the 10-year storm flows. This problem has been confirmed by discussions with staff of the Kokokahi YWCA, which revealed that the large grassy field above the box drain, does indeed pond, even under the lower frequency storms. The proposed drainage system addresses both the box drain deficiency makai of Kaneohe Bay Drive and the flooding problems of the residents below the Kokokahi Place cul-de-sac.

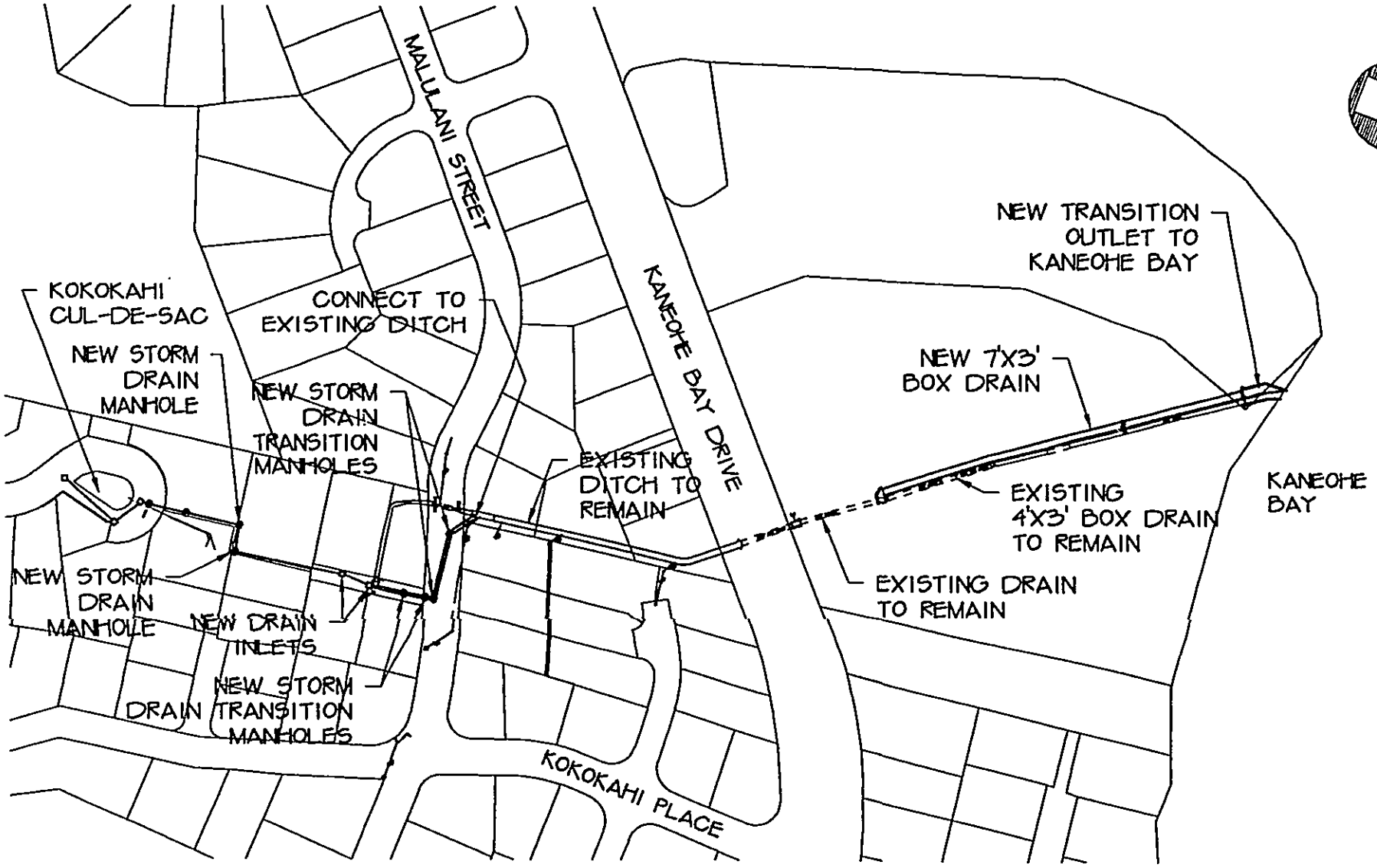
2.3 Recommended Project

The recommended project addresses the two main areas of concern in the system: the Kokokahi Place cul-de-sac and the 4'x3' box drain located makai of Kaneohe Bay Drive. The intent of the Kokokahi Place drainage improvements is to alleviate the flooding experienced by those residents occupying properties at the bottom of the cul-de-sac. The general concept for this improvement is to take the drainage currently flowing overland, route it through pipes down to Malulani Street and discharge at some point back into the existing system. For the area below Kaneohe Bay Drive, the intent is to add another drainage structure that has the required capacity to immediately convey the expected overflow resulting from the 10-year storm. Figure 5 presents the proposed drainage system.

2.3.1 Kokokahi Place Cul-de-Sac Improvements

As noted earlier, the complaints filed by Kokokahi residents indicate that there is a flooding problem below the Kokokahi Place cul-de-sac. Due to the steep nature of the existing ground and the lack of subsurface drainage, water from this area flows overland until reaching a point of entry into the existing drainage system on Malulani Street. The path of flow crosses through the properties located between the cul-de-sac and Malulani Street. The proposed drainage improvements will alleviate this problem by rerouting a portion of the overland flow into pipes that take the drainage down to Malulani Street and into the existing system.

The design concepts include: 1) adding drain inlets at the bottom of the cul-de-sac to catch the flow coming down along Kokokahi Place, 2) laying pipe from the cul-de-sac down to Malulani Street, taking into account utility interferences and cover requirements, 3) adding drain inlets along the existing private driveway to catch flows from areas below the cul-de-sac, and 4) connecting to the existing drainage system at a location so as to



PROPOSED DRAINAGE SYSTEM

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CITY & COUNTY OF HONOLULU — DEPARTMENT OF DESIGN & CONSTRUCTION

GKO & ASSOCIATES
KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT
KANEOHE, OAHU, HAWAII

OCTOBER 2002
GKO JOB NO. 97-820A

FIGURE 5

not exacerbate any existing problems.

The topography, existing utilities, structures and existing homes allow for only one configuration of drainage improvement in this area. **Figures 6 through 8** show the proposed plan for the new line, while **Figures 9 through 11** show the proposed profile for the new line.

Figure 6 identifies the layout and inverts of the new line proposed near the Kokokahi Place cul-de-sac. To ensure that the three drain inlets intercept the sheet flow coming down the roadway, a portion of the east side of the street needs to be regraded to increase the cross slope of the roadway to approximately 3%. A small section of the roadway around drain inlets #1 and #3 also need to be regraded to create low spots at the inlets. In addition, approximately 159 linear feet of new ac curb needs to be installed along the outside edges of the roadway to direct the flow into the new drain inlets. Where the new AC curb crosses existing driveways, provisions will be made to the curb design to accommodate the vehicular accesses.

Figure 7 presents the plan for the middle section of the new drain line. To maintain a horizontal clearance from the existing 8-inch sewer line running along the easement, the new drain line must be located outside the existing easement boundaries, and new easements obtained. The installation of Drain Inlets 4 and 5 has been proposed in the flat areas along the private driveway to collect the flow coming from areas below the cul-de-sac. These inlets will lessen the amount of drainage flowing into the private ditch rounding the property located at 45-024 Malulani Street. Approximately halfway up the private driveway, there is an existing ditch that crosses beneath the roadway. The proposed drainage line will run underneath the existing ditch. The actual methods of construction have not yet been determined, but the flow within the ditch will not be affected.

The final segment of the new drainage line is shown on **Figure 8**. The matching invert elevation at the point of connection to the 5-foot wide concrete ditch was interpolated from topographic survey data. The connecting line was aligned to point downstream at a 45-degree angle to the ditch. Three transition manholes were used to bring the line across Malulani Street without interfering with existing utilities. Transition manhole structures must be designed at locations where the 4'x2' box drain interfaces with the 3'x2' box drain, and at changes in the horizontal alignment.

The new drain line profile is shown in **Figures 9 through 11**. In

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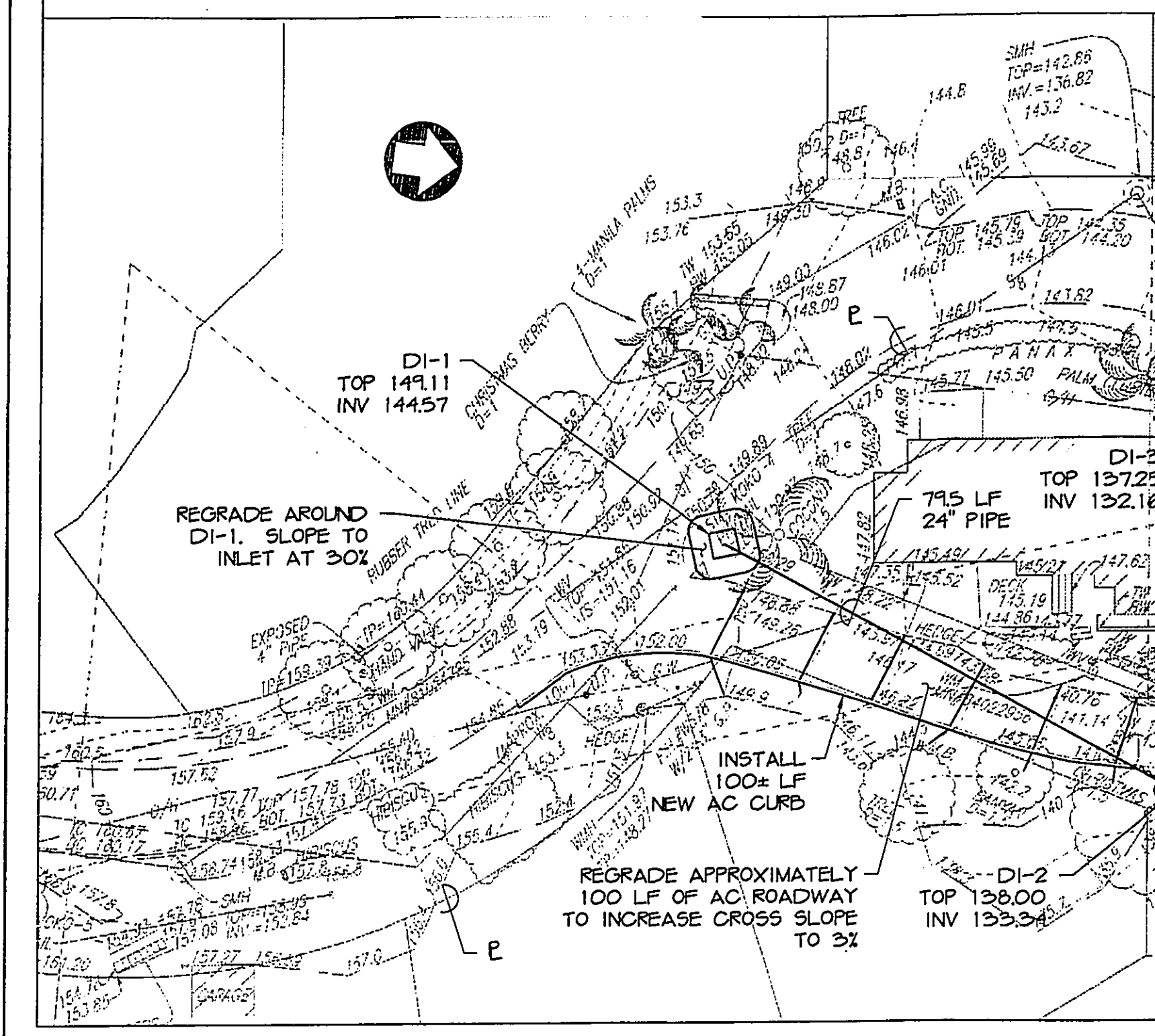

KEY MAP

NOTE:
DESIGN AND INSTALLATION OF
NEW CURBS SHALL ACCOMMODATE
EXISTING DRIVEWAY ACCESS.

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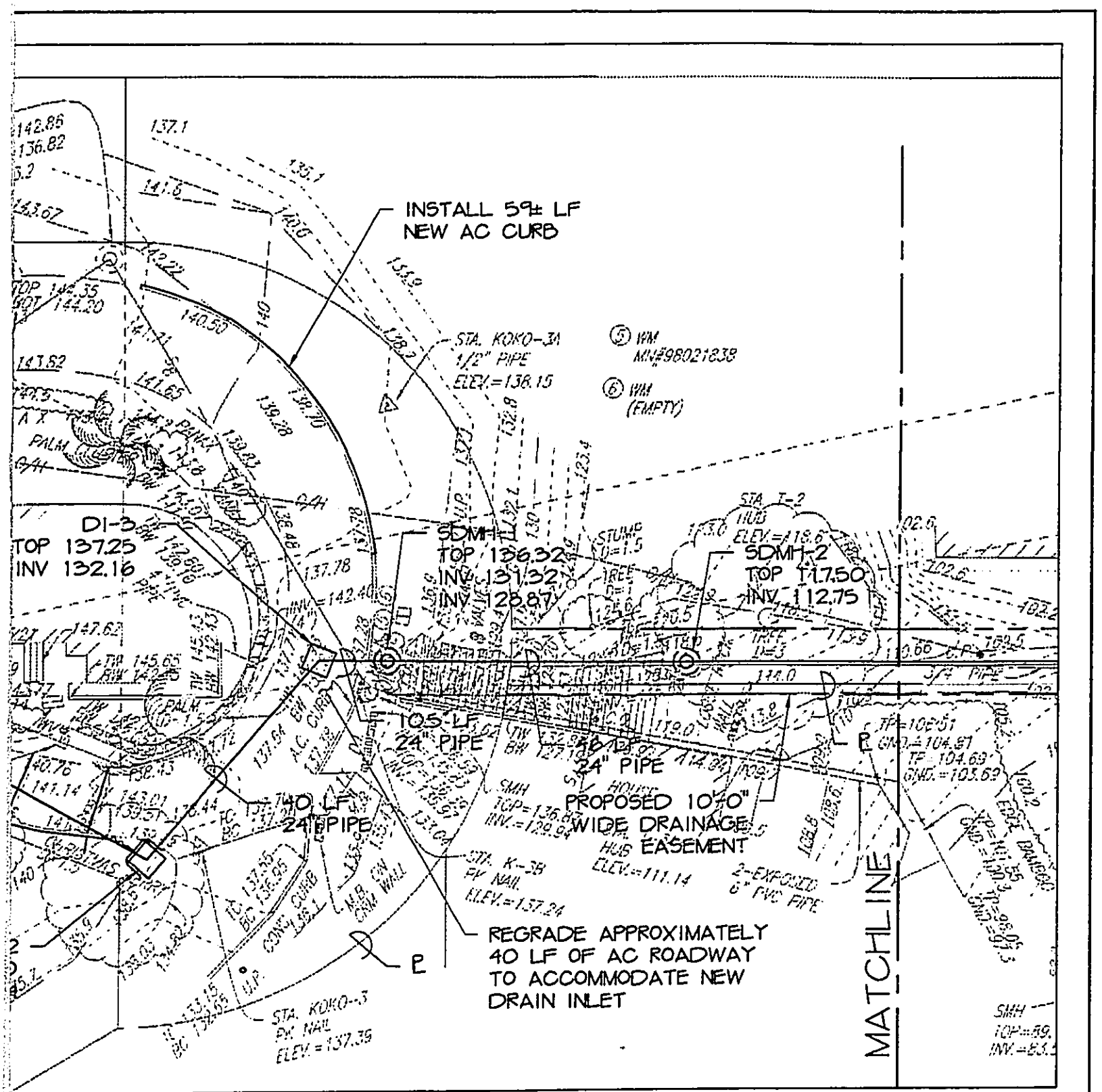
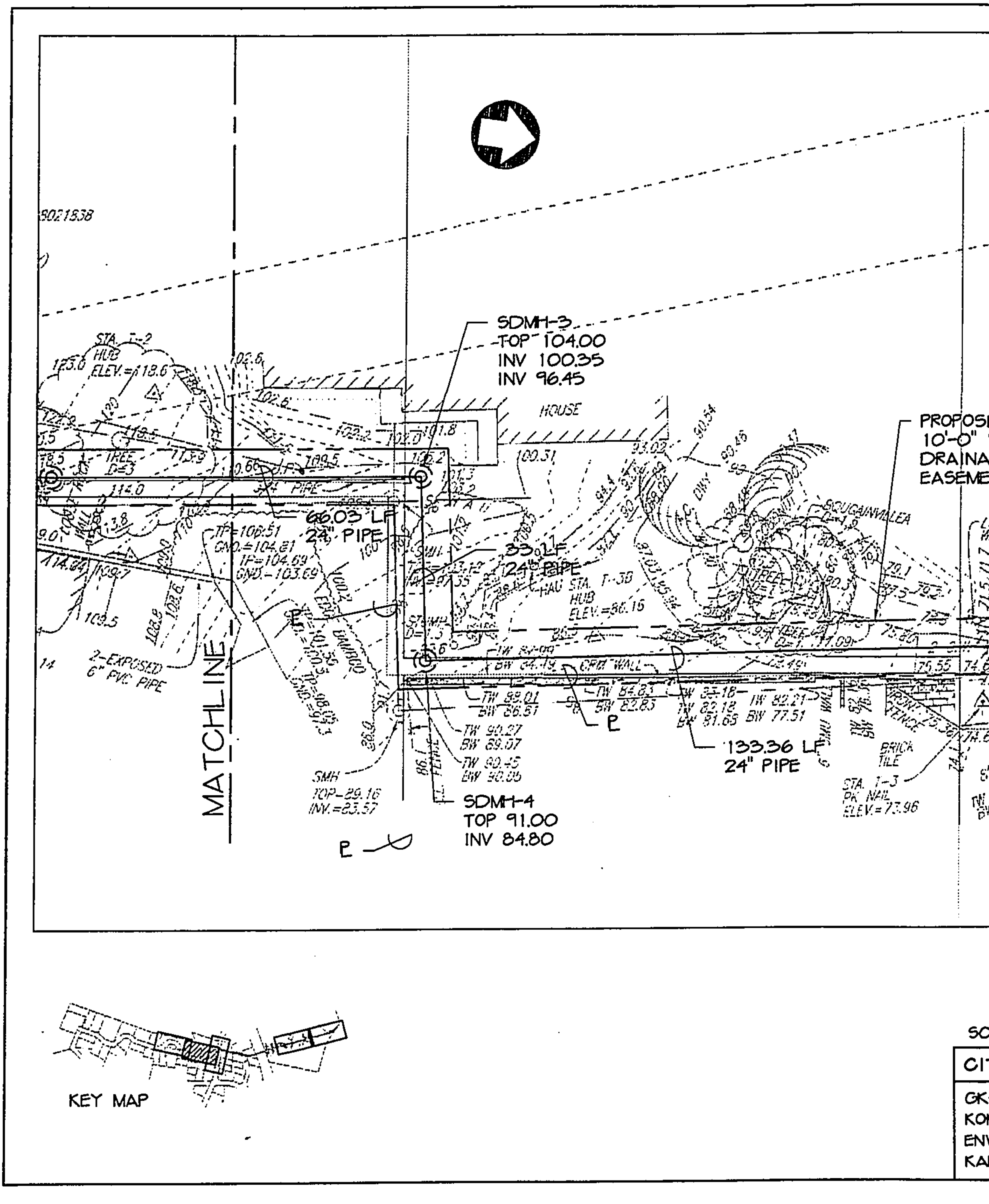


PROPOSED DRAINLINE ALIGNMENT FROM KOKOKAHI PLACE

SCALE: 1" = 20'-0"

CITY & COUNTY OF HONOLULU	DEPARTMENT OF DESIGN & CONSTRUCTION
GKO & ASSOCIATES KOKOKAHI PLACE DRAINAGE IMPROVEMENTS ENVIRONMENTAL ASSESSMENT KANEOHE, OAHU, HAWAII	OCTOBER 2002 GKO JOB NO. 97-820A FIGURE 6



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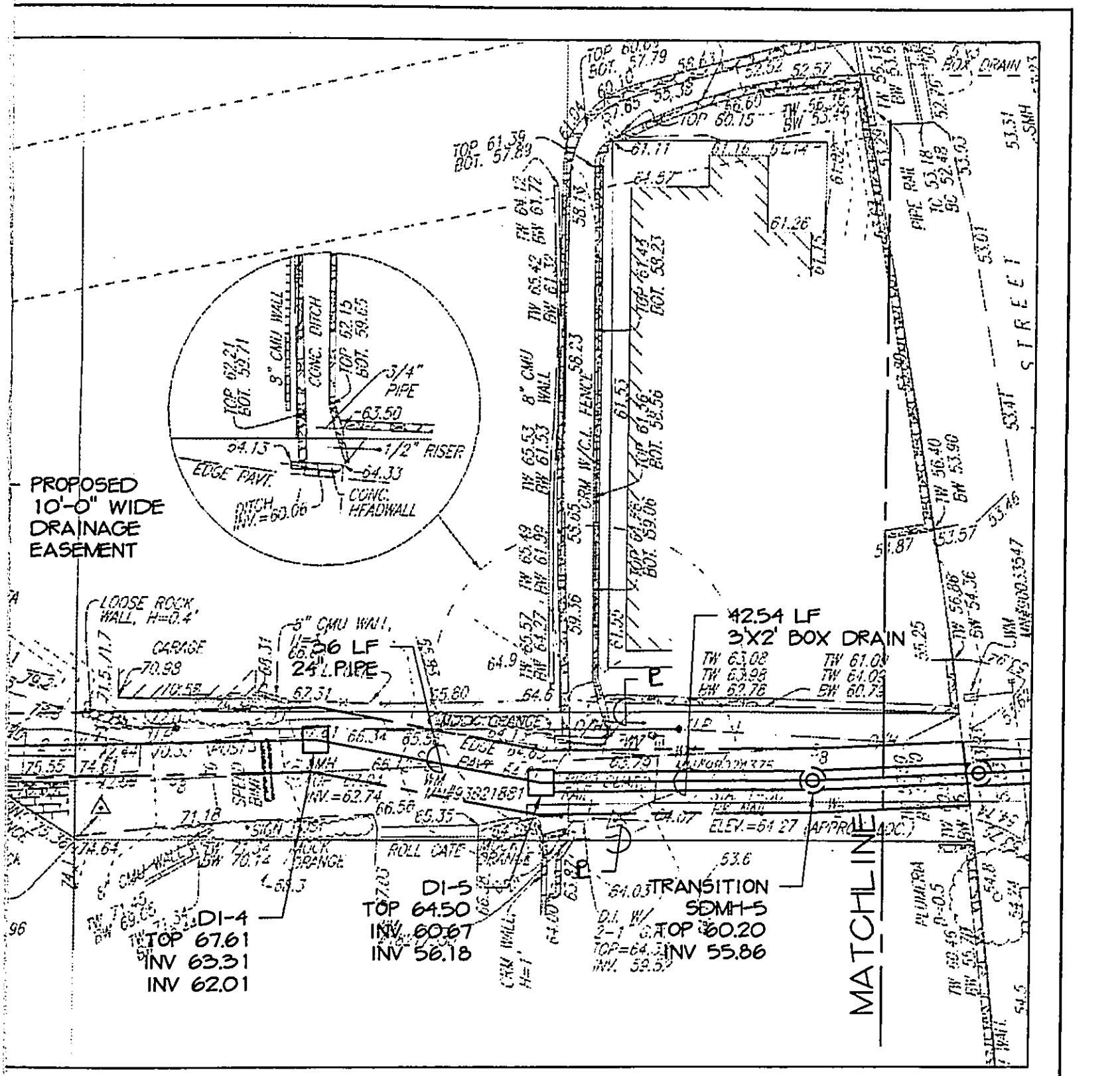

PROPOSED DRAINLINE ALIGNMENT FROM KOKOKAHI PLACE

SCALE: 1" = 20'-0"

CITY & COUNTY OF HONOLULU	DEPARTMENT OF DESIGN & CONSTRUCTION
GKO & ASSOCIATES KOKOKAHI PLACE DRAINAGE IMPROVEMENTS ENVIRONMENTAL ASSESSMENT KANEOHE, OAHU, HAWAII	OCTOBER 2002 GKO JOB NO. 97-820A FIGURE 7

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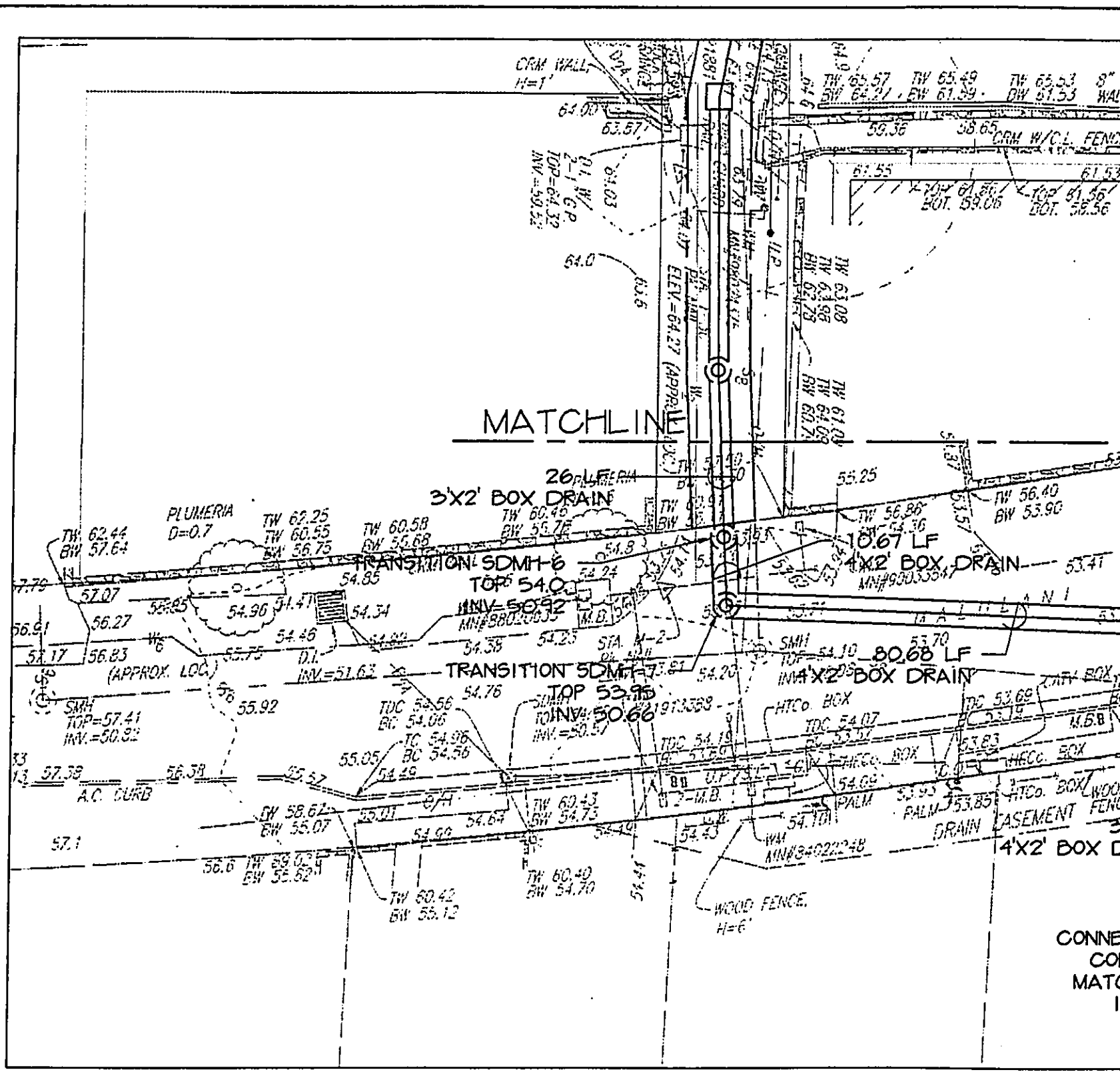

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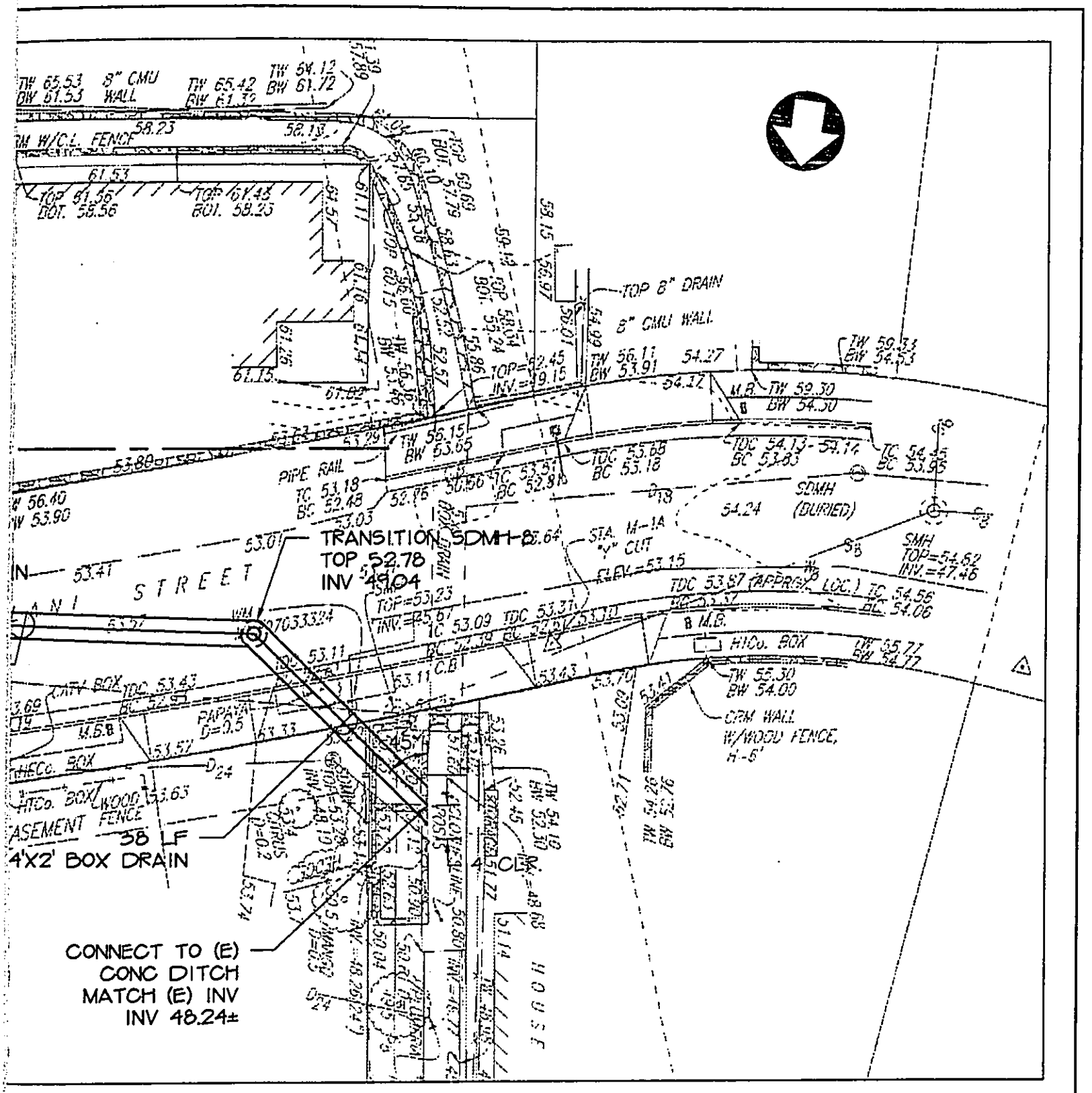
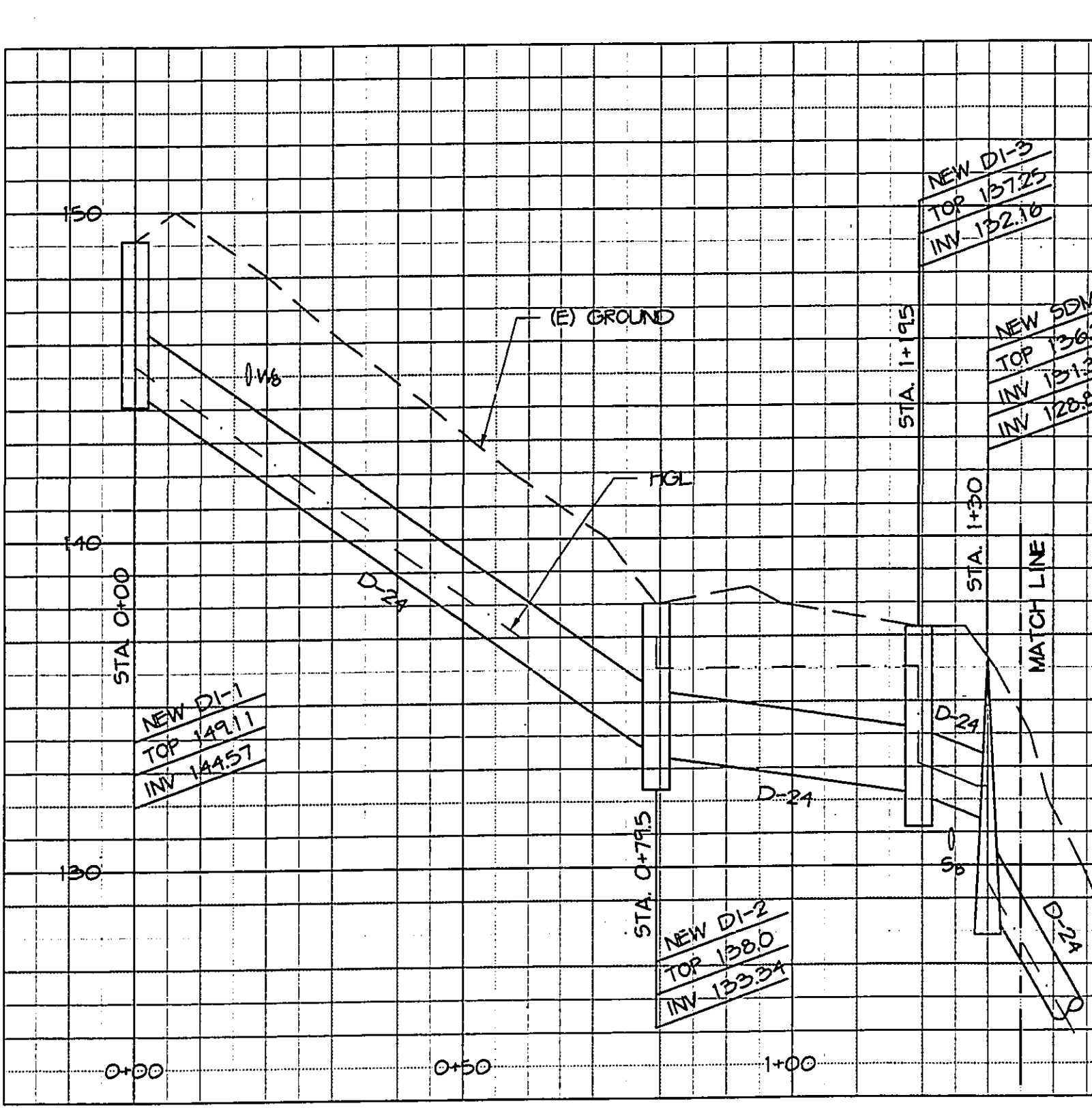


PROPOSED DRAINLINE ALIGNMENT FROM KOKOKAHI PLACE

SCALE: 1" = 20'-0"

CITY & COUNTY OF HONOLULU	DEPARTMENT OF DESIGN & CONSTRUCTION
GKO & ASSOCIATES KOKOKAHI PLACE DRAINAGE IMPROVEMENTS ENVIRONMENTAL ASSESSMENT KANEOHE, OAHU, HAWAII	OCTOBER 2002 GKO JOB NO. 97-820A FIGURE 8



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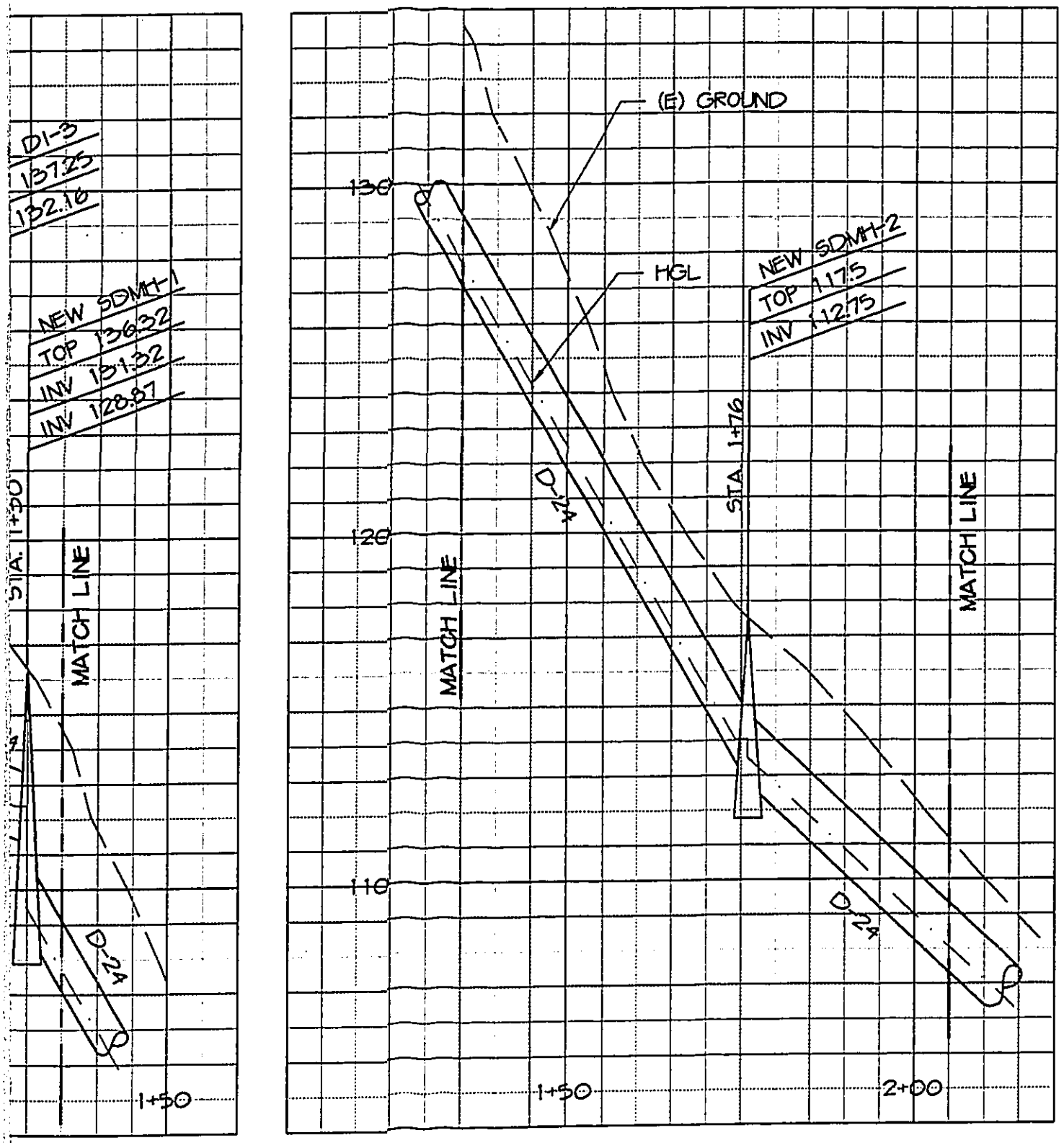
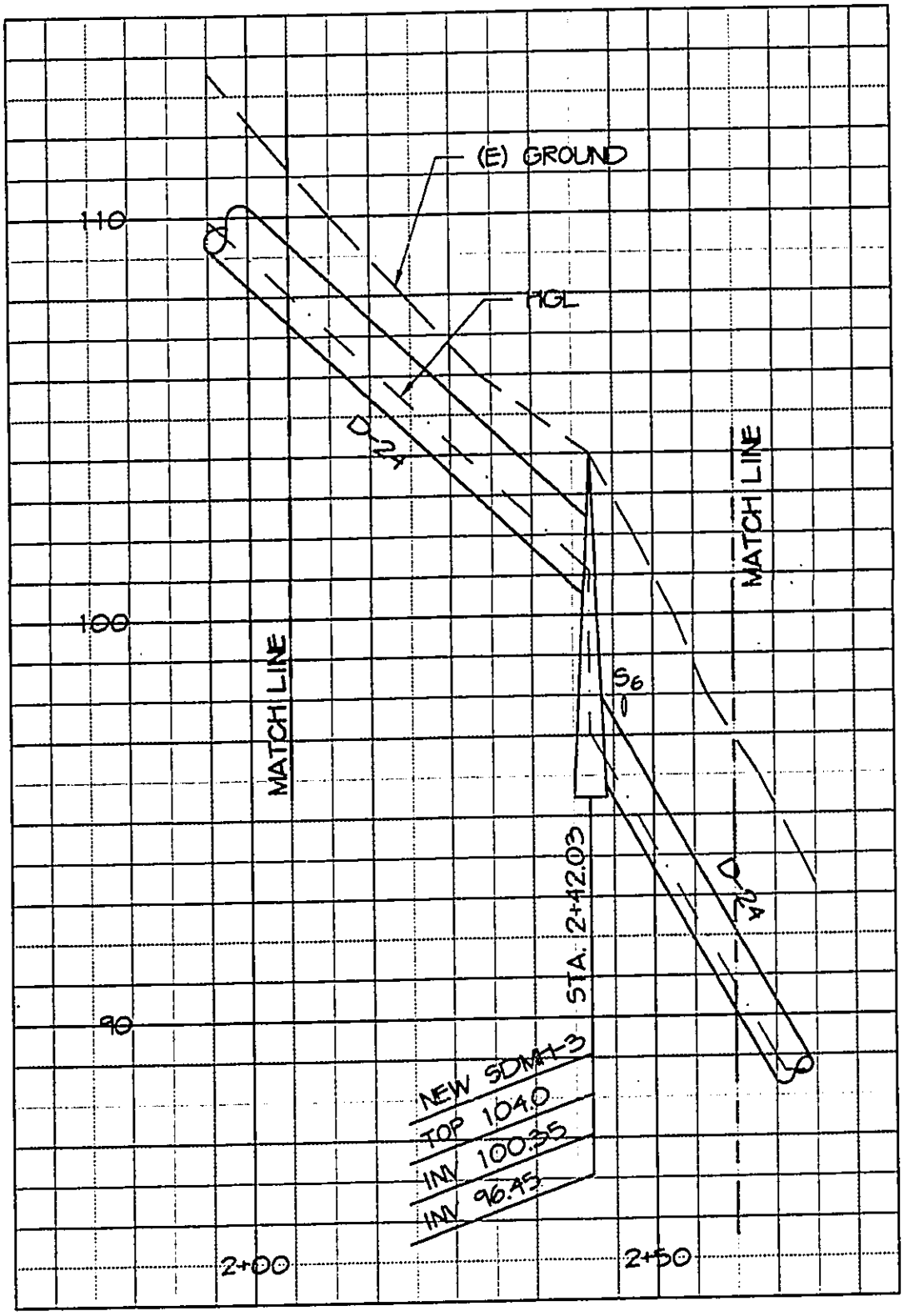
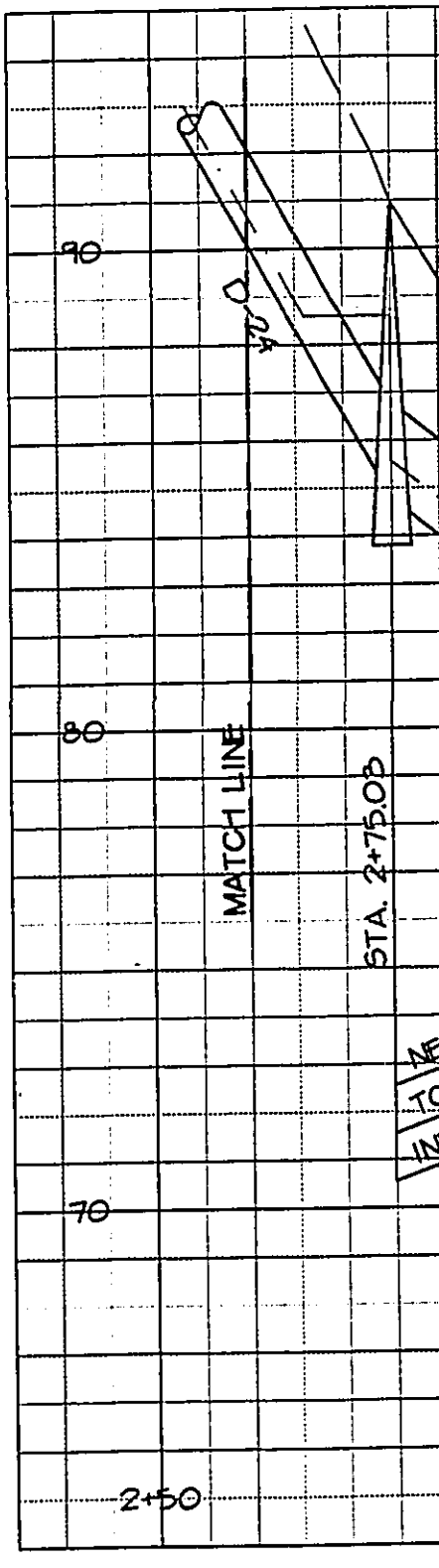


PROPOSED KOKOKAHI PLACE DRAINLINE PROFILE

SCALE: HORIZ. 1" = 20'-0"
VERT. 1" = 4'-0"

CITY & COUNTY OF HONOLULU	DEPARTMENT OF DESIGN & CONSTRUCTION
GKO & ASSOCIATES KOKOKAHI PLACE DRAINAGE IMPROVEMENTS ENVIRONMENTAL ASSESSMENT KANEOHE, OAHU, HAWAII	OCTOBER 2002 GKO JOB NO. 97-820A FIGURE 9





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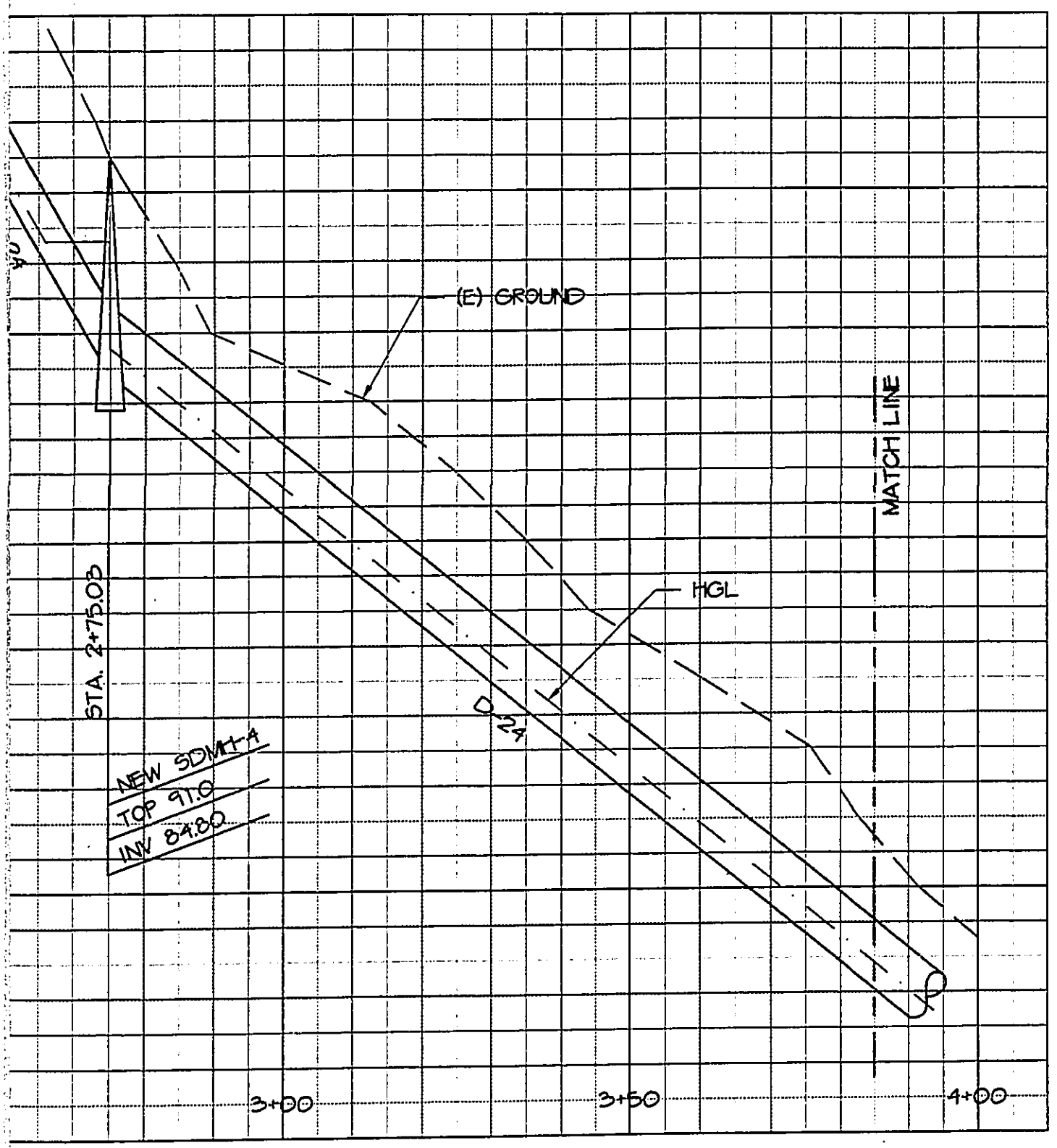
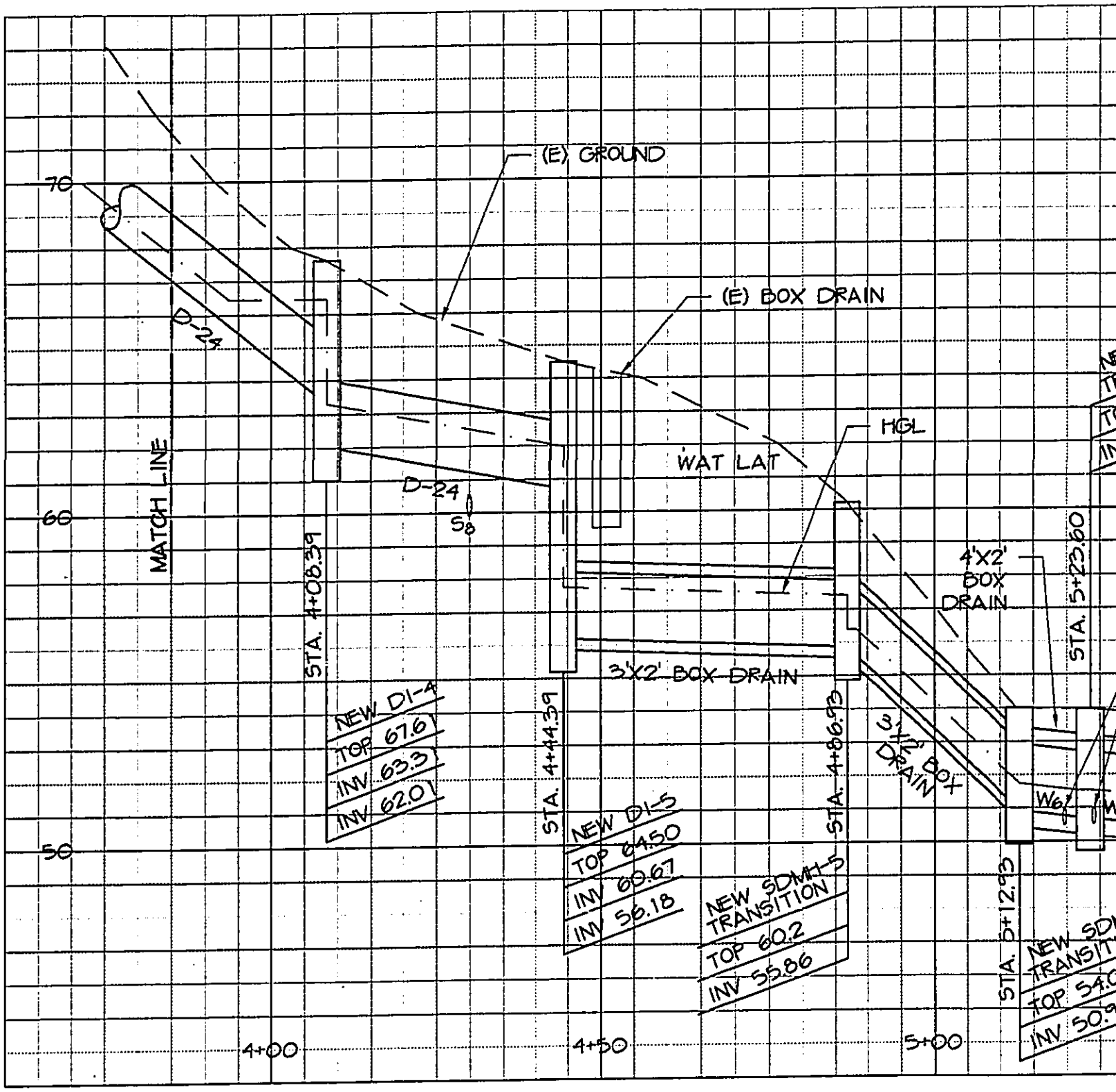


PROPOSED KOKOKAHI PLACE DRAINLINE PROFILE

SCALE: HORIZ. 1" = 20'-0"
VERT. 1" = 4'-0"

CITY & COUNTY OF HONOLULU	DEPARTMENT OF DESIGN & CONSTRUCTION
GKO & ASSOCIATES KOKOKAHI PLACE DRAINAGE IMPROVEMENTS ENVIRONMENTAL ASSESSMENT KANEOHE, OAHU, HAWAII	OCTOBER 2002 GKO JOB NO. 97-820A FIGURE 10



NOTE:
WHERE COVER IS LESS THAN 2'-0", BUT MORE THAN 1'-0" OVER PIPELINE, USE RCP (REINFORCED CONCRETE PIPE) CLASS V.

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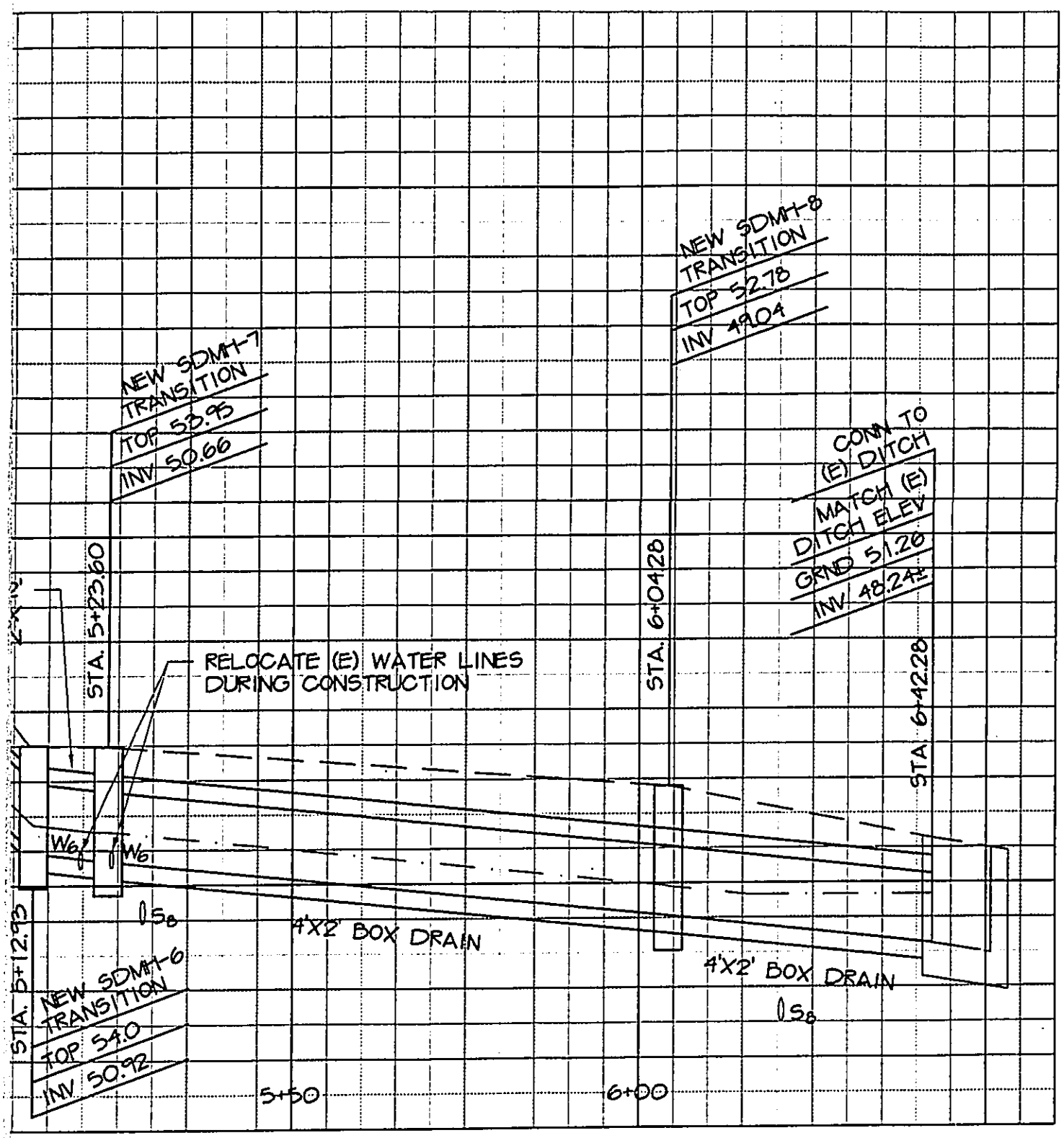

PROPOSED KOKOKAHI PLACE DRAINLINE PROFILE

SCALE: HORIZ. 1" = 20'-0"
VERT. 1" = 4'-0"

CITY & COUNTY OF HONOLULU	DEPARTMENT OF DESIGN & CONSTRUCTION
GKO & ASSOCIATES KOKOKAHI PLACE DRAINAGE IMPROVEMENTS ENVIRONMENTAL ASSESSMENT KANEOHE, OAHU, HAWAII	OCTOBER 2002 GKO JOB NO. 97-820A FIGURE 11

finalizing the profile, the City's minimum cover requirement was met along the entire length of the pipe. Where the cover is less than 2'-0", but more than 1'-0" over the pipeline, RCP (reinforced concrete pipe) Class V should be installed. Two 6-inch waterline crossings near Station 5+20 cannot be avoided while maintaining the required capacity of the drain line. Since water lines operate under a pressure system, and the drainage system operates under gravity, the 6-inch waterlines will need to be relocated during construction.

2.3.2 Improvements Below Kaneohe Bay Drive

The existing drainage system analysis indicated that the box drain located makai of Kaneohe Bay Drive is significantly undersized for the 10-year storm flow. The limiting segment of the box drain spans about 150 feet, measured from the outlet upstream. Due to the flat slope of the existing ground, the capacity of this segment at a 90% flow depth is approximately 122 cfs. (Assuming a 90% flow depth results in approximately one foot of freeboard). The design flow that comes down the drain is about 319 cfs, which means that the existing drain is deficient by approximately 197 cfs. An even longer portion of the box drain, about 460 feet upstream of the outlet, is also deficient in capacity, although by smaller quantities. The study for this portion of the drainage system focused on two alternatives to eliminate this capacity problem: 1) construction of a new box drain and modified ocean discharge structure parallel to the existing box drain; and 2) construction of a detention basin to store excess flow until the downstream segments are drained and available to transport additional flow. The recommended box drain and associated structures are discussed below. The alternative is described in Section 3.

2.3.2.1 Parallel Box Drain

During the construction of any drainage improvements below Kaneohe Bay Drive, the existing 4'x3' box drain must remain in operation since it is the sole drainage structure carrying flow away from the Kokokahi valley. The top of the existing box drain also serves as a sidewalk for the campgrounds, spanning from the cabins down to the outlet. In addition, several drain inlets spaced along the existing box serve as inflow points to the system. Instead of being demolished or removed, the box drain will be left in place as is. The proposed project is the addition of a parallel box drain with the capacity to handle the expected overflow.

Since the YWCA will remain operational during construction and the box drain bifurcates their property, it was deemed infeasible

to include major regrading work near the existing buildings. Consequently, the top elevations of the new parallel box were set to match the existing ground conditions as closely as possible. The existing grade of the ground naturally divides the new box drain into three segments, each lessening in slope traveling toward the outlet. At the outlet, however, the invert of the new box drain must match that of the existing box drain so that they can simultaneously discharge into the existing outlet channel, and into the bay. These two constraints together limit the new box depth to a maximum of 3 feet (inside depth). An existing sewer manhole near the outlet limits the box to a maximum width of about 8 feet.

Initial calculations found that the inside dimensions of the drain required to provide the necessary capacity was 7 feet wide by 3 feet deep. The last segment of the box drain, with the flattest slope, was used to size the drain since it would have the least capacity. The two segments upstream have more capacity. As the intent is to build the box drain using precast concrete sections, maintaining the same box dimensions for the entire length was assumed. The excess capacity of the drain will help to ensure that no upstream flooding in the system will occur.

Figures 12 and 13 show the alignment for the proposed parallel 7'x3' box drain. **Figures 14 and 15** show the preliminary profile for the proposed box drain. The existing box drain segment that the parallel 7'x3' box drain will connect to has CRM walls. Since there are not plans available for this older section of the box drain, it was assumed that the CRM walls are 1 foot thick. The clearance between the two drains has thus been shown as 1 foot. Caution should be taken if increasing the clearance between box drains due to an existing sewer manhole near the outlet. The parallel drain walls are 8 inches thick which locates the proposed centerline offset 10'-2" west of the existing centerline. As noted earlier, the design intent for the new box drain is to use precast concrete tongue and groove sections. Access manholes along the box drain, spaced at about 100 feet, will be required to allow entry into the drain for maintenance purposes. Since the inverts of both box drains at the outlet must match, the top elevation of the proposed box rises slightly above the existing ground. Approximately 90 linear feet of land will need to be regraded to match the new top elevations of the proposed box drain to mitigate impacts of the new drain. Two sewer easements near the outlet carry a 24-inch gravity line and a 54-inch effluent force main. The invert elevation of the force main is currently unknown. For simplicity purposes, its invert was assumed to be at the same elevation as the gravity line. The actual invert needs to be verified to

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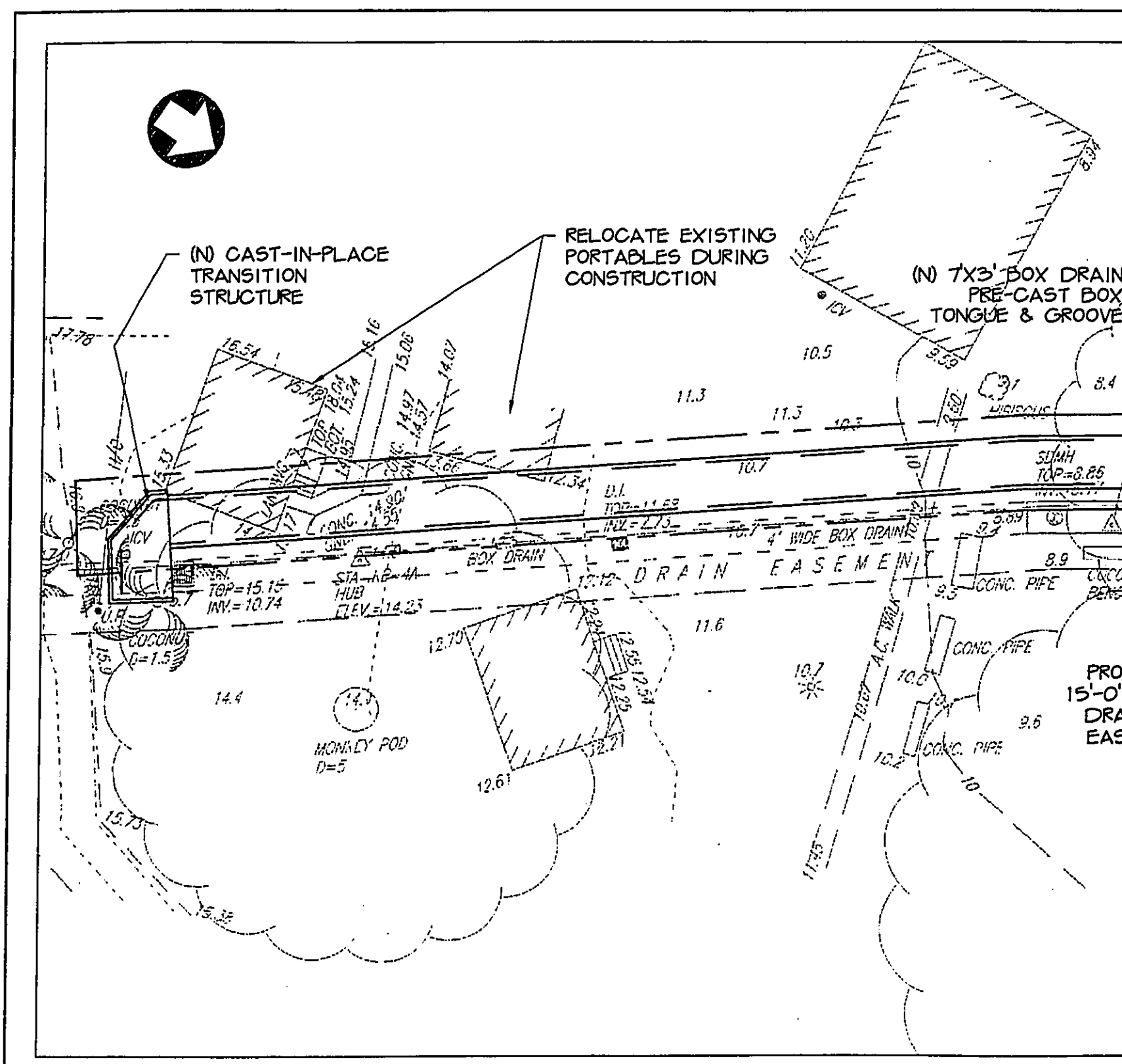

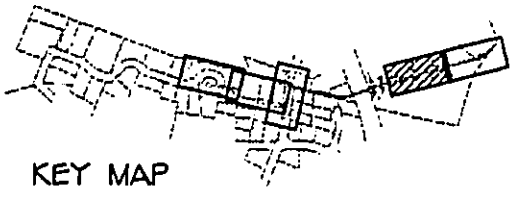

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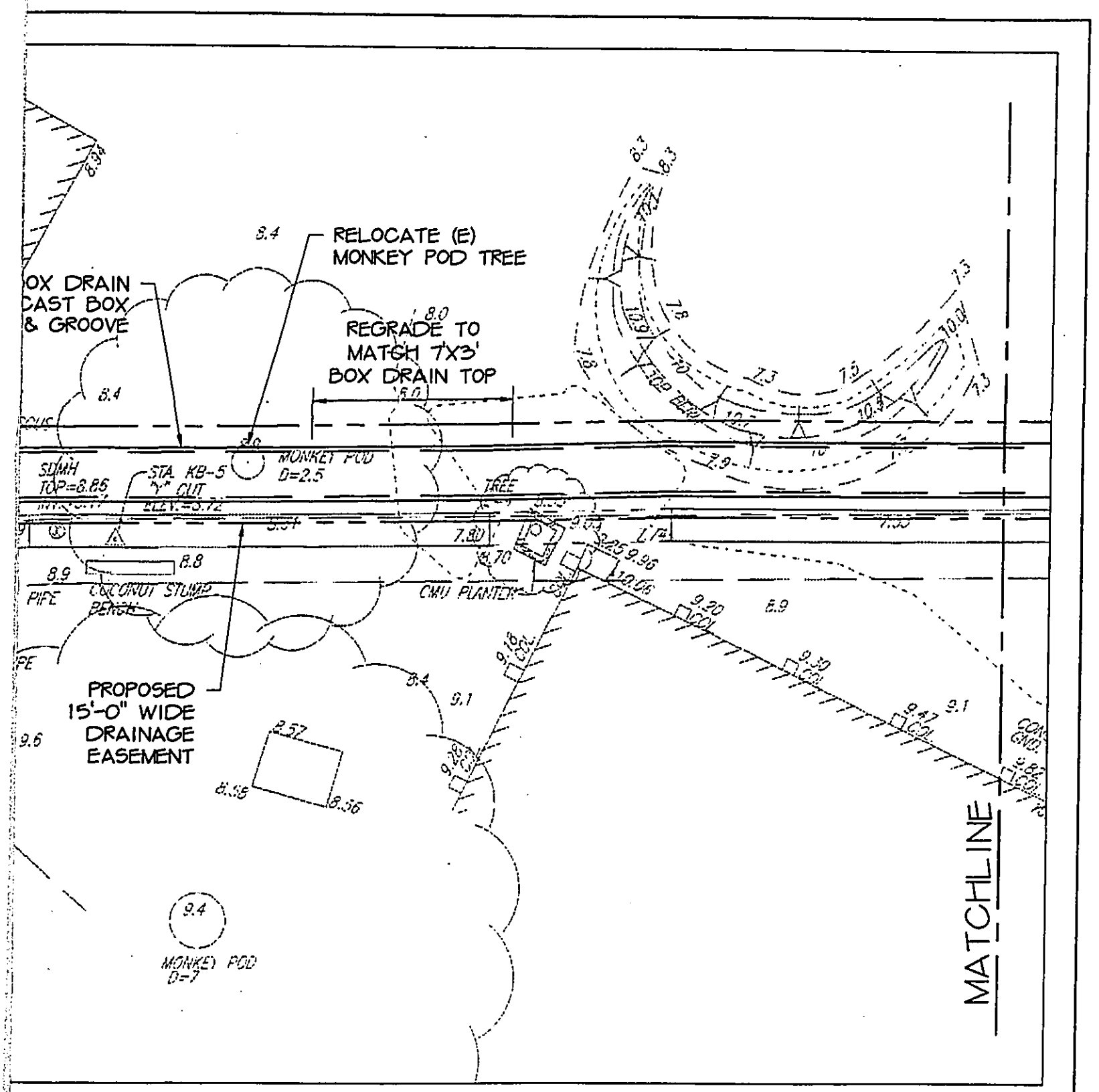
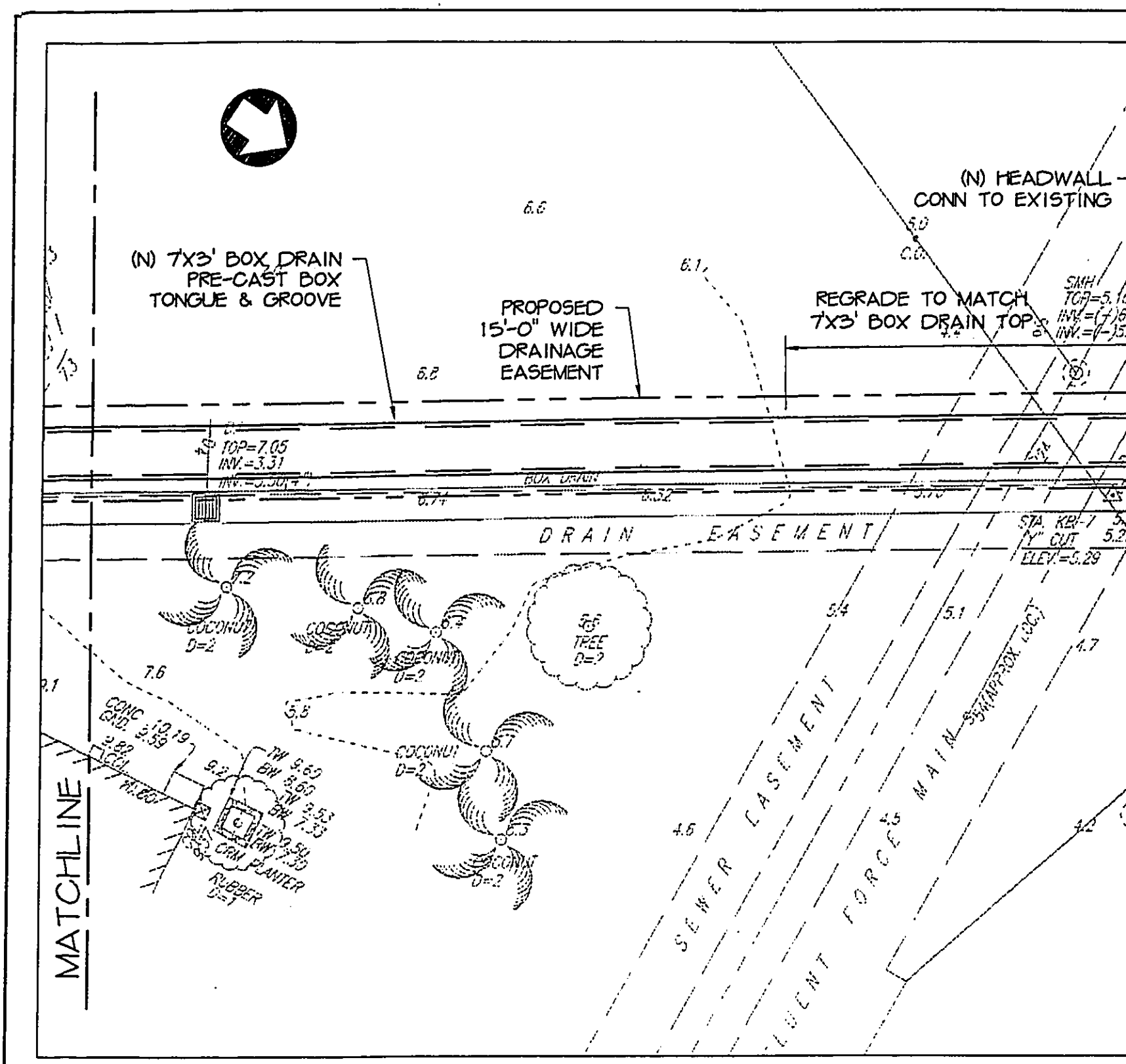


PROPOSED DRAINLINE ALIGNMENT
PARALLEL 7'X3' BOX DRAIN

SCALE: 1" = 20'-0"

CITY & COUNTY OF HONOLULU	DEPARTMENT OF DESIGN & CONSTRUCTION
GKO & ASSOCIATES KOKOKAHI PLACE DRAINAGE IMPROVEMENTS ENVIRONMENTAL ASSESSMENT KANEOHE, OAHU, HAWAII	OCTOBER 2002 GKO JOB NO. 97-820A FIGURE 12



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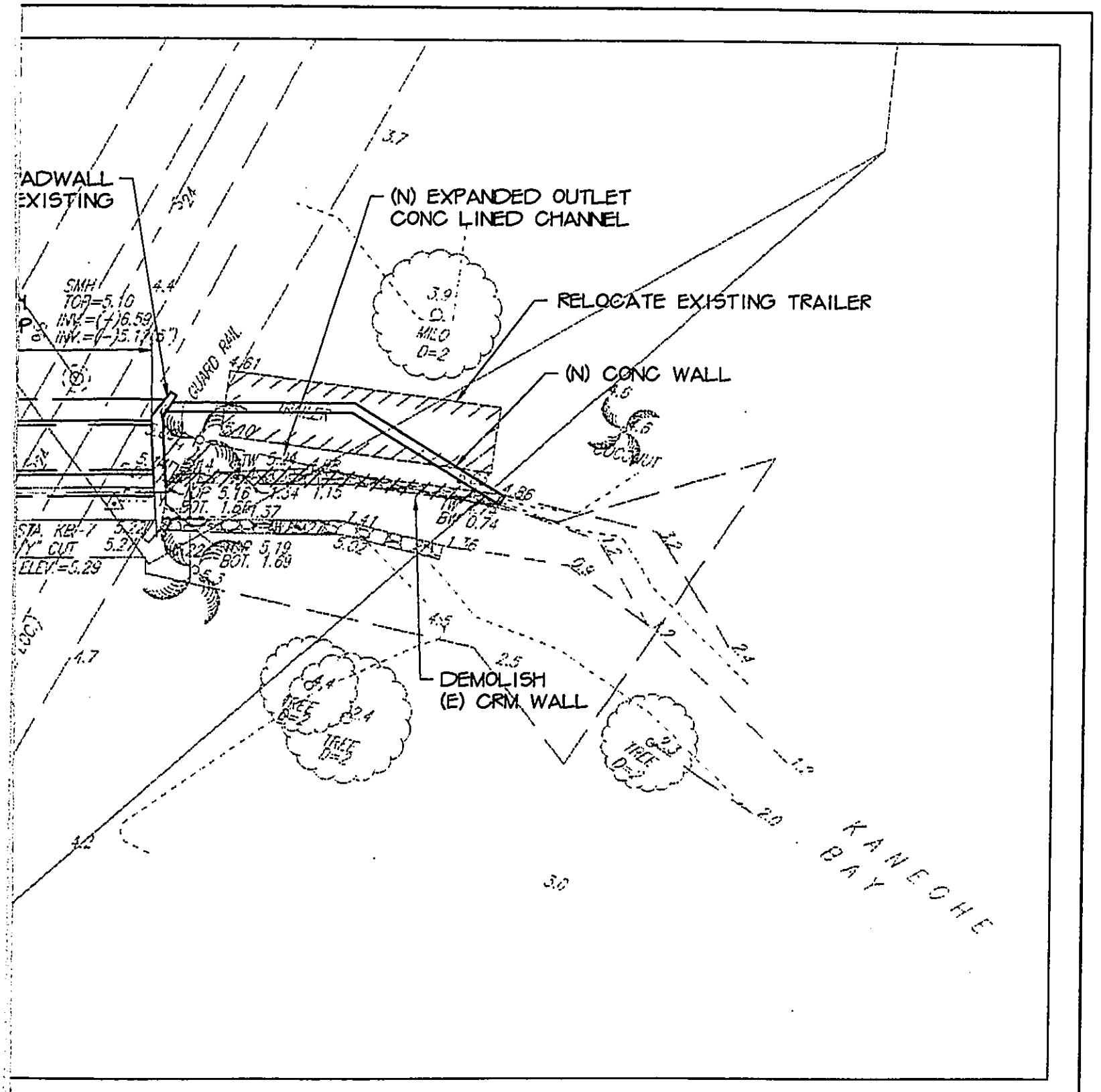
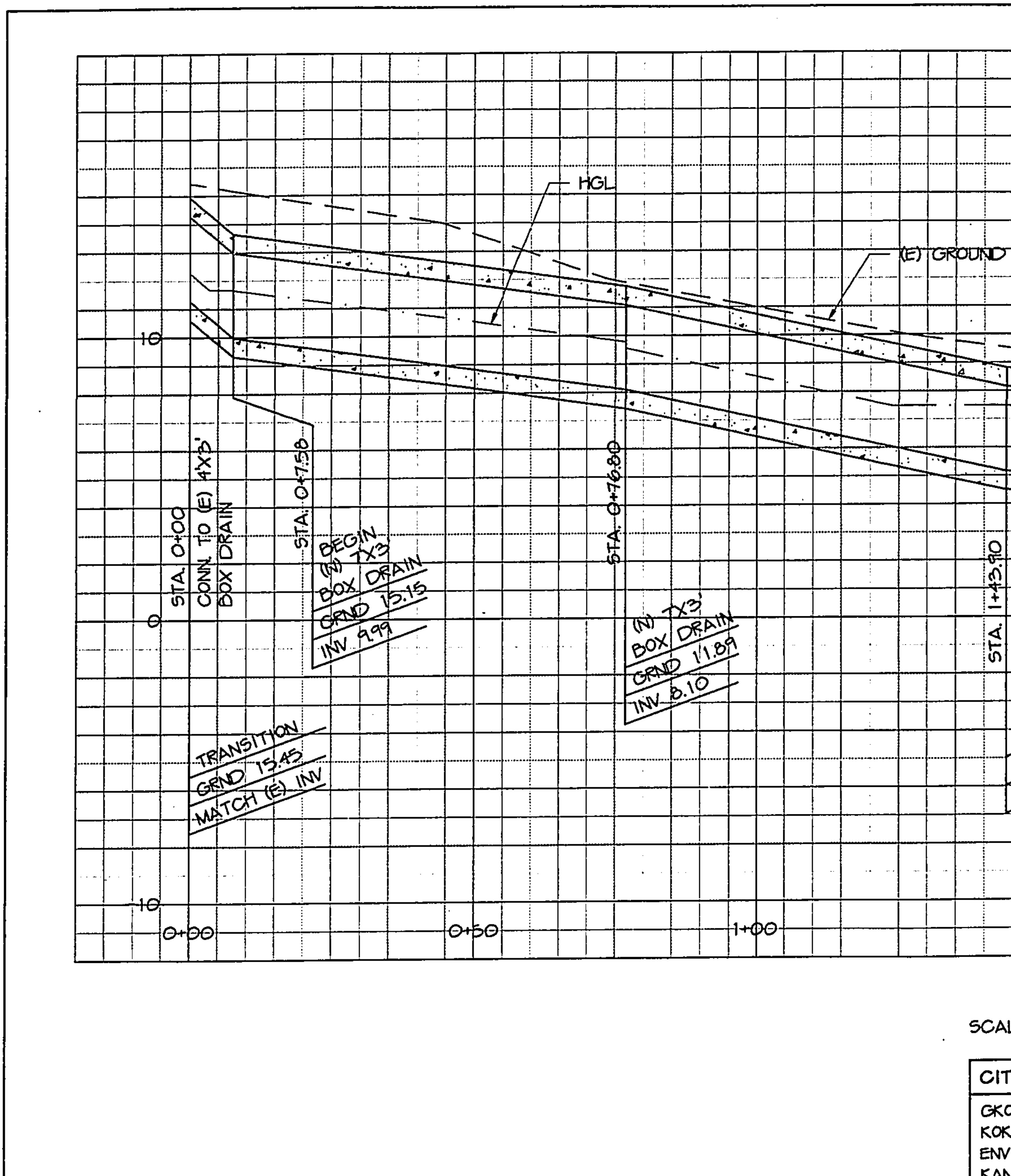


PROPOSED DRAINLINE ALIGNMENT
PARALLEL 7'X3' BOX DRAIN

SCALE: 1" = 20'-0"

CITY & COUNTY OF HONOLULU	DEPARTMENT OF DESIGN & CONSTRUCTION
GKO & ASSOCIATES KOKOKAHI PLACE DRAINAGE IMPROVEMENTS ENVIRONMENTAL ASSESSMENT KANEOHE, OAHU, HAWAII	OCTOBER 2002 GKO JOB NO. 97-820A FIGURE 13


HGL
(E) GROUND
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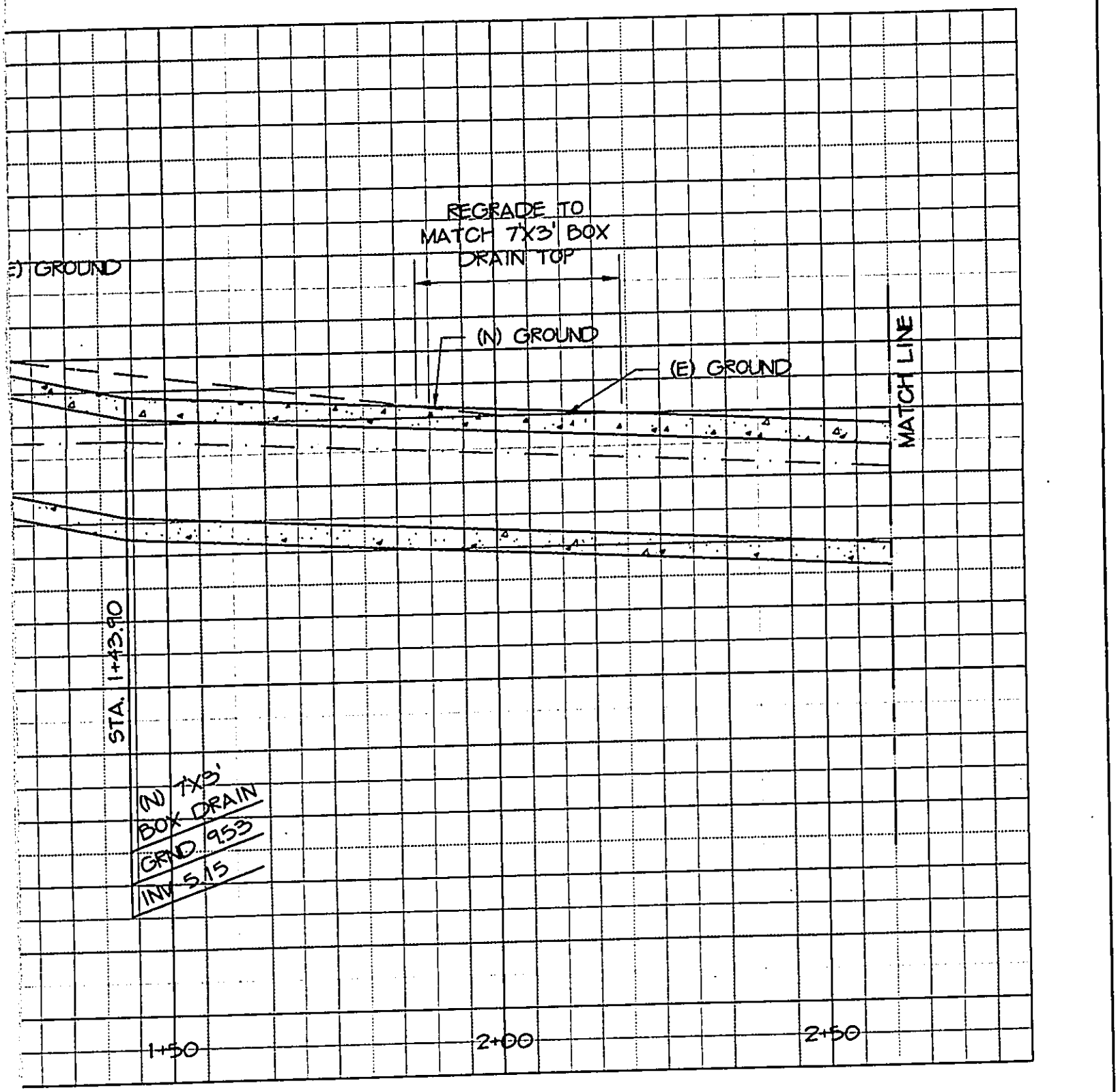
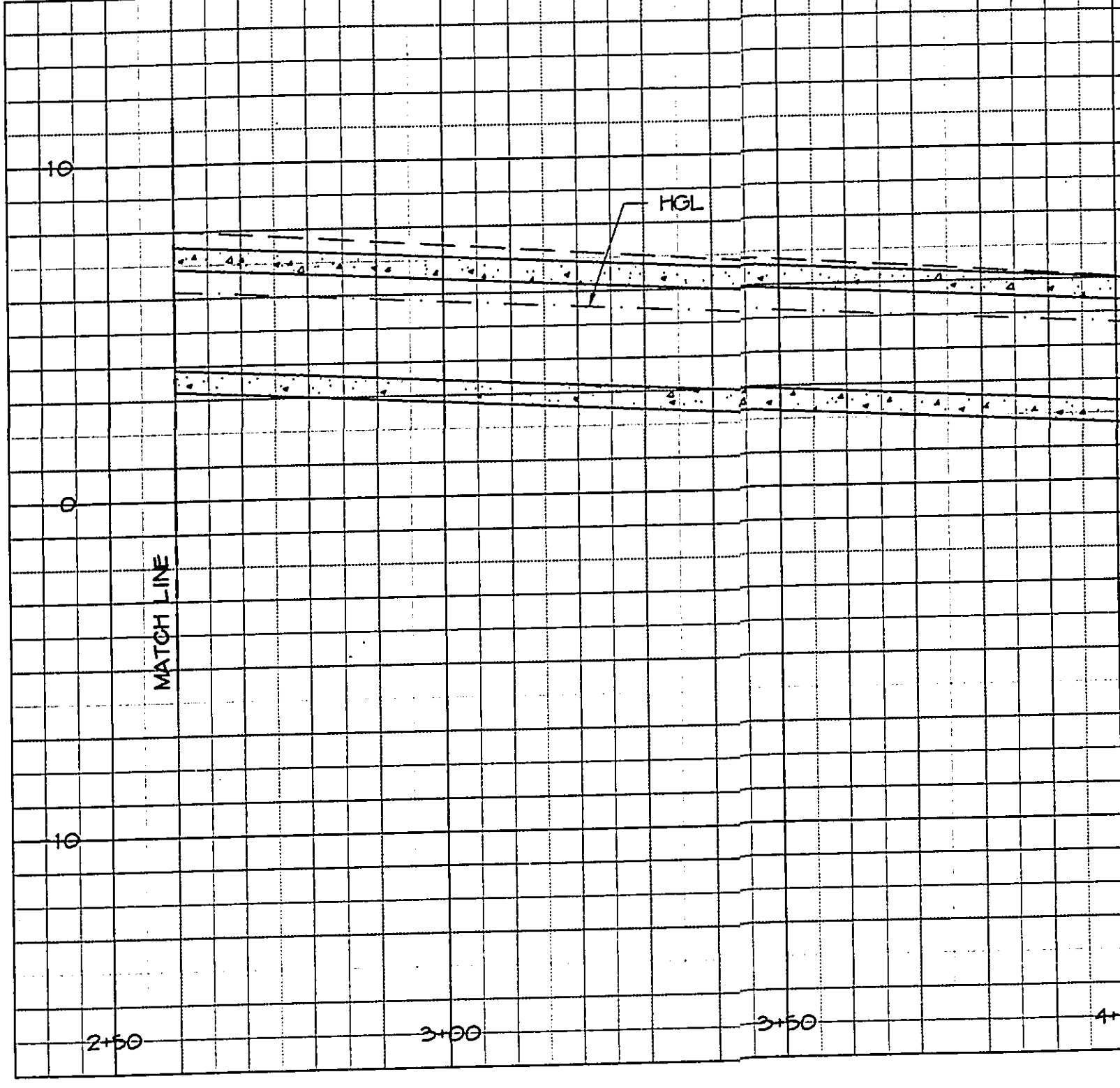
0
10
STA. 0+00
CONN. TO (E) 4'X3' BOX DRAIN
STA. 0+07.58
BEGIN (N) 7'X3' BOX DRAIN
GRND 15.15
INV 9.99
STA. 0+76.80
(N) 7'X3' BOX DRAIN
GRND 11.89
INV 8.10
STA. 1+43.90
TRANSITION
GRND 15.45
MATCH (E) INV
0+00
0+50
1+00



PROPOSED 7'X3' BOX DRAIN PROFILE

SCALE: HORIZ. 1" = 20'-0"
VERT. 1" = 4'-0"

CITY & COUNTY OF HONOLULU	DEPARTMENT OF DESIGN & CONSTRUCTION
GKO & ASSOCIATES KOKOKAHI PLACE DRAINAGE IMPROVEMENTS ENVIRONMENTAL ASSESSMENT KANEOHE, OAHU, HAWAII	OCTOBER 2002 GKO JOB NO. 97-820A FIGURE 14



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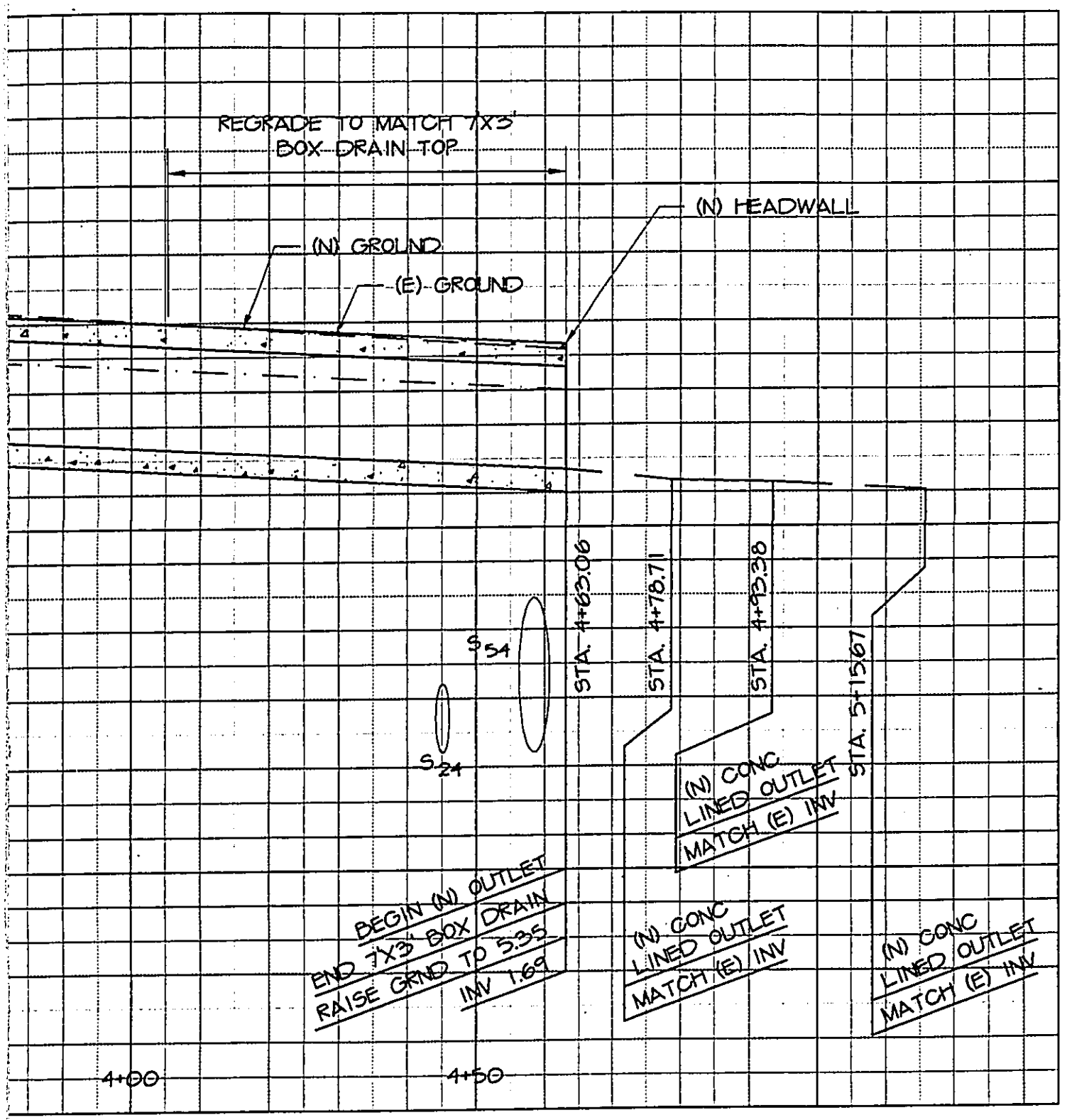

PROPOSED 7'X3' BOX DRAIN PROFILE

SCALE: HORIZ. 1" = 20'-0"
VERT. 1" = 4'-0"

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OCTOBER 2002
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FIGURE 15

ensure adequate clearance from the box drain.

2.3.2.2 Revised Outlet

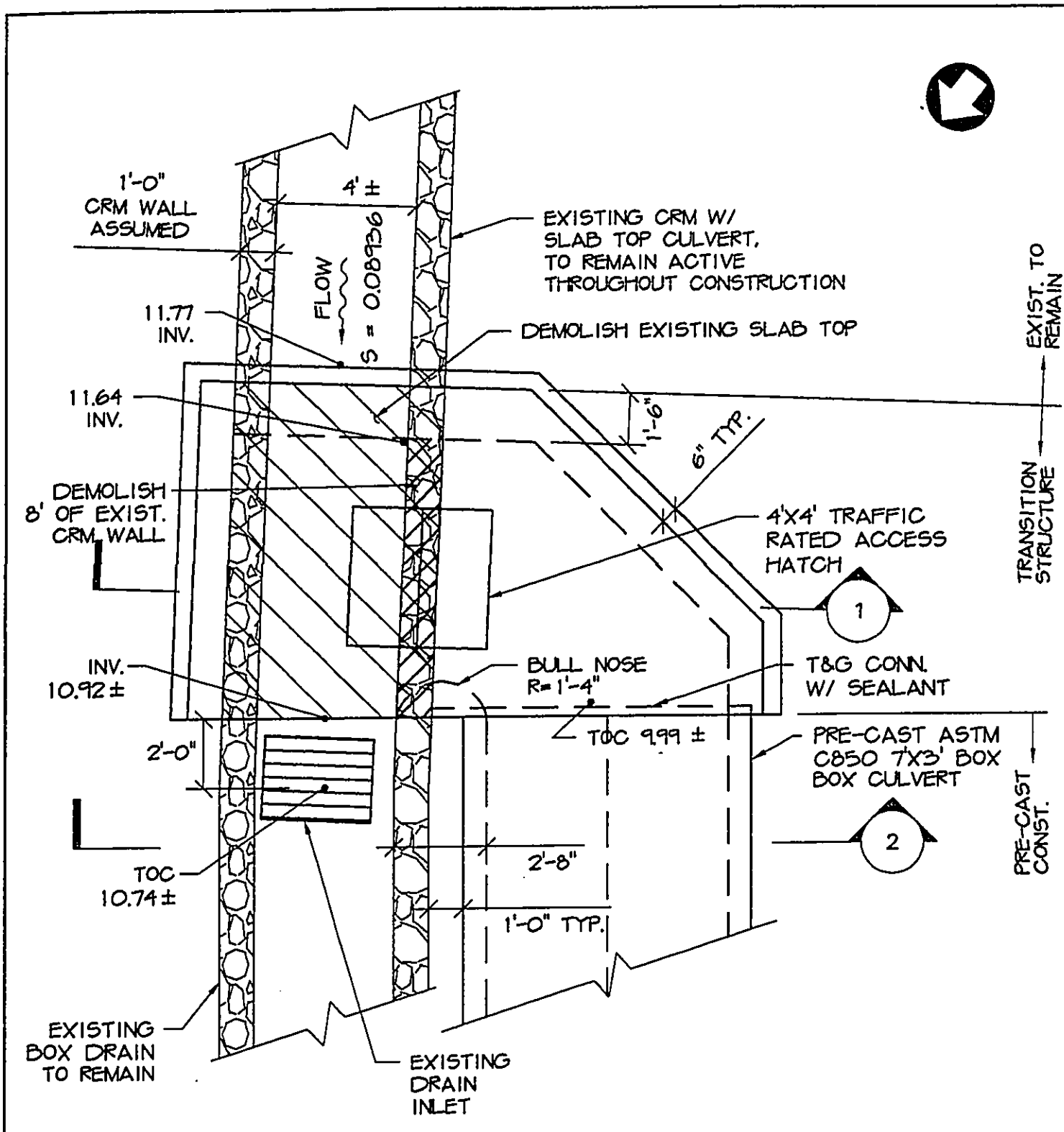
To accommodate the parallel box drain, the existing headwall and the concrete lined channel outlet will need to be expanded nearly eleven feet. A new headwall will be constructed and connected to the existing headwall. The CMU wall bordering the existing channel will be demolished, the existing ground excavated and a new reinforced concrete wall added along the west side of the new channel. Due to the existing capacity of the outlet, and to limit the amount of excavation required, the entire length of channel does not need to be uniformly wide. The wall will taper such that its end at the discharge point will be located at the same location as the existing CMU wall. This results in the outlet width at the point of discharge into the bay remaining the same. However, in order to expand the channel, an existing trailer will require relocation.

2.3.2.3 Transition Structure

The transition between the existing CRM box drain and the proposed box drain will be a cast-in-place structure, as shown in **Figures 16 and 17**. The transition structure will connect the existing 4'x3' CRM box drain to the new 7'x3' precast concrete box drain. No plans are available for the existing box drain; thus its walls and foundation conditions are unknown. For the conceptual design of the transition structure, it was assumed that the CRM walls are 1 foot thick, and the box drain has an earthen bottom. To ensure a watertight connection, and also to help carry the load of the new box drain top, the transition was designed to envelop the existing box drain walls.

A plan view of the transition structure is shown in **Figure 16**. The two drains will be connected by a short segment of box drain that serves to divert flow from the existing drain into the proposed drain. The new segment will allow for the full-height removal of an 8 foot section of the existing box drain CRM wall, thus allowing drainage to flow into the new box.

The existing 4'x3' box drain slab top, at the new transition structure, will be demolished, and replaced with a slab top integral with the transition structure top. In addition, a new concrete bottom slab will be placed along the invert of the existing box drain, integral with the transition bottom, to allow for a smooth transition for the diverted flow. Because of the unknown conditions of the existing CRM box drain walls, additional loading from the new concrete slab top will be carried by the transition structure alone.



PROPOSED KOKOKAHI DRAINAGE SYSTEM
TRANSITION STRUCTURE PLAN

SCALE: 1/4" = 1'-0"

CITY & COUNTY OF HONOLULU — DEPARTMENT OF DESIGN & CONSTRUCTION

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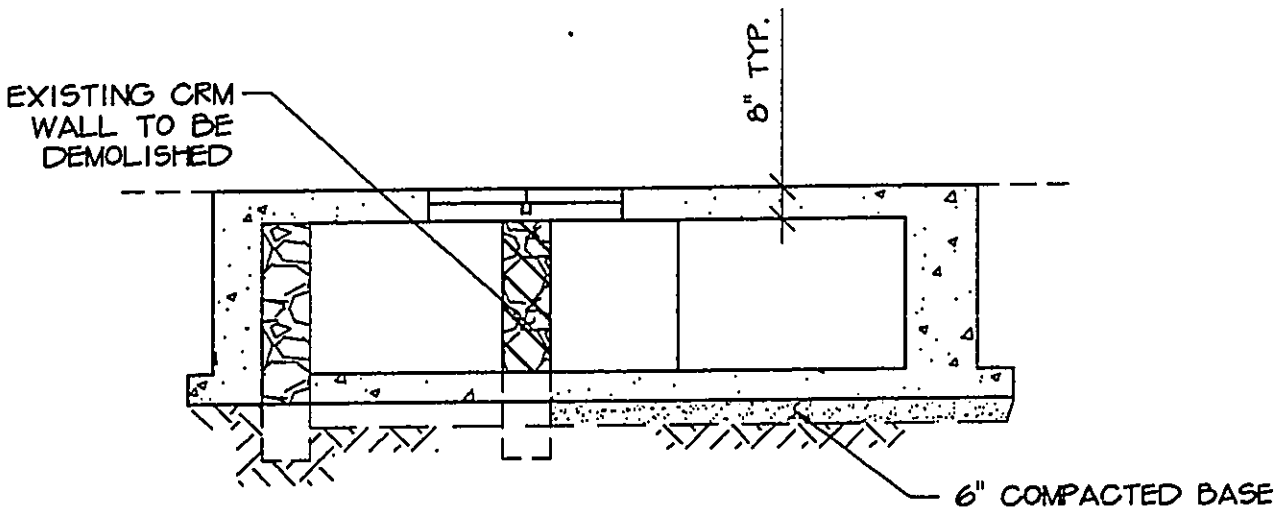
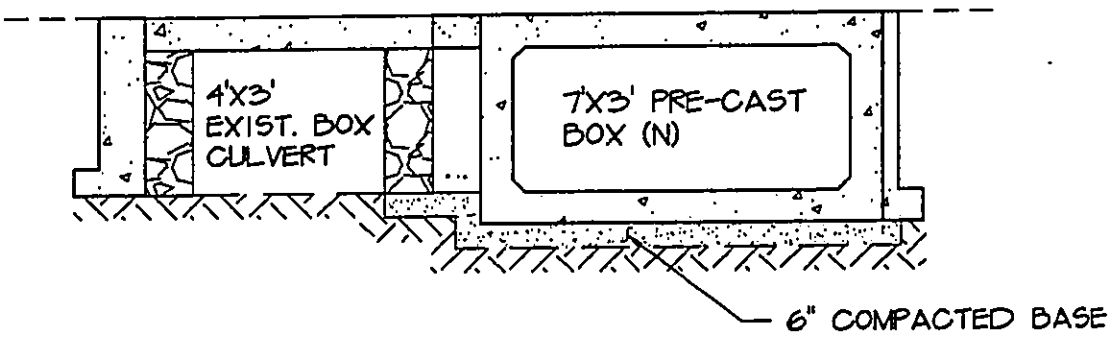
KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT
KANEOHE, OAHU, HAWAII

OCTOBER 2002
GKO JOB NO. 97-820A

FIGURE 16



1 TRANSITION STRUCTURE SECTION



2 TRANSITION STRUCTURE SECTION

PROPOSED KOKOKAHI DRAINAGE SYSTEM
TRANSITION STRUCTURE ELEVATION & SECTIONS

SCALE: 1/4" = 1'-0"

CITY & COUNTY OF HONOLULU — DEPARTMENT OF DESIGN & CONSTRUCTION

GKO & ASSOCIATES
KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT
KANEOHE, OAHU, HAWAII

OCTOBER 2002
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FIGURE 17

2.4 Project Costs

The preliminary construction cost estimate for the proposed drainage improvements at the Kokokahi Place cul-de-sac are $216,890. A detailed breakdown of the costs is shown in Table 1. The estimated cost of constructing the parallel box drain is $409,040. Details of this cost estimate are shown in Table 2.

The total estimated cost for the recommended project is $633,010 shown in Table 3. This total includes a 15% project contingency, and assumes land costs for construction, maintenance and permanent easements. Pricing is current as of the fourth quarter of 2001, and should be escalated to the midpoint of project construction, when that is established.

Kokokahi Place Drainage Improvements

Table 1
Preliminary Cost Estimate
Drainage Improvements at Kokokahi Place (Cul-de-sac)

Description	Quantity	Units	Unit Cost	Total Cost
Mob/Demob	1	ls	$1,500.00	$1,500
Clear & Grub	0.1	acre	$5,000.00	$500
Erosion Control	1	ls	$3,000.00	$3,000
24" Pipe				
Trench Excavation	337	cy	$30.00	$10,110
Pipe Cushion	33	cy	$20.00	$660
Backfill	252	cy	$20.00	$5,040
Excess Excavation Disposal	85	cy	$10.00	$850
24-inch Pipe	444	lf	$42.00	$18,650
Drain Inlets	4	ea	$2,500.00	$10,000
Transition Drain Inlet	1	ea	$6,000.00	$6,000
Standard Manholes	3	ea	$3,200.00	$9,600
Drop Manholes	2	ea	$4,500.00	$9,000
3'x2' Box Drain				
Trench Excavation	89	cy	$30.00	$2,670
Base Course	7	cy	$25.00	$180
Backfill	57	cy	$20.00	$1,140
Excess Excavation Disposal	32	cy	$10.00	$320
Pre-cast 3'x2' Box Drain Sections	69	lf	$75.00	$5,180
Transition MH	1	ea	$4,000.00	$4,000
4'x2' Box Drain				
Trench Excavation	146	cy	$30.00	$4,380
Base Course	16	cy	$25.00	$400
Backfill	58	cy	$20.00	$1,160
Excess Excavation Disposal	88	cy	$10.00	$880
Pre-cast 4'x2' Box Drain Sections	129	lf	$185.00	$23,870
Transition MH	3	ea	$4,000.00	$12,000
Connection to 5' wide concrete ditch	1	ls	$3,000.00	$3,000
New AC Curb	159	lf	$4.00	$640
Restore AC Roadway (2" AC, 6" Base Course)	125	sy	$70.00	$8,750
Relocate 6" waterline	2	ea	$3,000.00	$6,000
Restore AC Curb	4	lf	$10.00	$40
Restore Concrete Curb & Gutter	7	lf	$20.00	$140
Restore Concrete Sidewalk	1	cy	$300.00	$270
Restore Planter Wall	40	lf	$40.00	$1,600
Permanent Easement (10'-0" wide)	3002	sf	$10.00	$30,020
Construction Easement (6 months)	1763	sf/yr	$4.00	$7,050
Subtotal				$188,600
Contingency (15%)				$28,290
Estimated Total				**$216,890**

Notes:
1. Costs are current 4th quarter 2001.
2. Totals should be escalated to the mid-point of construction, when that is established.
3. Land costs for construction, maintenance and permanent easements are assumed and must be negotiated at the time of construction.
4. Construction duration is assumed to be six months.

Kokokahi Place Drainage Improvements

Table 2
Preliminary Cost Estimate
Alternative #1 Parallel Box Drain

Description	Quantity	Units	Unit Cost	Total Cost
Mob/Demob	1	ls	$1,500.00	$1,500
Clear & Grub	0.25	ac	$5,000.00	$1,250
Erosion Control	1	ls	$3,000.00	$3,000
Trench Excavation	1206	cy	$30.00	$36,180
Crushed Rock Backfill	223	cy	$50.00	$11,150
Backfill	392	cy	$20.00	$7,840
Excess Excavation Disposal	814	cy	$10.00	$8,140
Pre-cast 7'x3' Box Drain Sections - 8' Long	456	lf	$350.00	$159,600
Cast-in-place Transition Structure	1	ls	$10,000.00	$10,000
Access Manhole Frame & Covers	6	ea	$1,700.00	$10,200
Extend Headwall & Connect to Existing	15	lf	$200.00	$3,000
New Concrete-lined Channel (8" thick)	51	sy	$65.00	$3,320
Concrete Retaining Wall @ Outlet (avg. d=6.5)	56	lf	$175.00	$9,800
Guardrail/Fence	49	lf	$20.00	$980
Grading & Restoration	1	ls	$4,000.00	$4,000
Relocation of Camp Portables	1	ls	$3,500.00	$3,500
Relocation of Trailer	1	ls	$500.00	$500
Relocation of Monkeypod Tree	1	ea	$750.00	$750
Permanent Easement (15'-0" wide)	6780	sf	$10.00	$67,800
Construction Easement (6 months)	6589	sf/yr	$4.00	$13,180
Subtotal				$355,690
Contingency (15%)				$53,350
Estimated Total				**$409,040**

Notes:
1. Costs are current 4th quarter 2001.
2. Totals should be escalated to the mid-point of construction, when that is established.
3. Land costs for construction, maintenance and permanent easements are assumed and must be negotiated at the time of construction.
4. Construction duration is assumed to be six months.

Kokokahi Place Drainage Improvements

Table 3
Proposed Drainage System Preliminary Cost Estimate

Description	Quantity	Units	Unit Cost	Total Cost
New Drainline from Kokokahi Place Cul-de-sac to 5' Wide Concrete Ditch				
Mob/Demob	1	ls	$1,500.00	$1,500
Clear & Grub	0.1	acre	$5,000.00	$500
Erosion Control	1	ls	$3,000.00	$3,000
24" Pipe				
Trench Excavation	337	cy	$30.00	$10,110
Pipe Cushion	33	cy	$20.00	$660
Backfill	252	cy	$20.00	$5,040
Excess Excavation Disposal	85	cy	$10.00	$850
24-inch Pipe	444	lf	$42.00	$18,650
Drain Inlets	4	ea	$2,500.00	$10,000
Transition Drain Inlet	1	ea	$6,000.00	$6,000
Standard Manholes	3	ea	$3,200.00	$9,600
Drop Manholes	2	ea	$4,500.00	$9,000
3'x2' Box Drain				
Trench Excavation	89	cy	$30.00	$2,670
Base Course	7	cy	$25.00	$180
Backfill	57	cy	$20.00	$1,140
Excess Excavation Disposal	32	cy	$10.00	$320
Pre-cast 3'x2' Box Drain Sections	69	lf	$75.00	$5,180
Transition MH	1	ea	$4,000.00	$4,000
4'x2' Box Drain				
Trench Excavation	146	cy	$30.00	$4,380
Base Course	16	cy	$25.00	$400
Backfill	58	cy	$20.00	$1,160
Excess Excavation Disposal	88	cy	$10.00	$880
Pre-cast 4'x2' Box Drain Sections	129	lf	$185.00	$23,870
Transition MH	3	ea	$4,000.00	$12,000
Connection to 5' wide concrete ditch	1	ls	$3,000.00	$3,000
New AC Curb	159	lf	$4.00	$640
Restore AC Roadway (2" AC, 6" Base Course)	125	sy	$70.00	$8,750
Relocate 6" waterline	2	ea	$3,000.00	$6,000
Restore AC Curb	4	lf	$10.00	$40
Restore Concrete Curb & Gutter	7	lf	$20.00	$140
Restore Concrete Sidewalk	1	cy	$300.00	$270
Restore Planter Wall	40	lf	$40.00	$1,600
Permanent Easement (10'-0" wide)	3002	sf	$10.00	$30,020
Construction Easement (6 months)	1763	sf/yr	$4.00	$7,050
New Parallel 7'x3' Box Drain				
Mob/Demob	1	ls	$1,500.00	$1,500
Clear & Grub	0.25	ac	$5,000.00	$1,250
Erosion Control	1	ls	$3,000.00	$3,000
Trench Excavation	1206	cy	$30.00	$36,180
Crushed Rock Backfill	223	cy	$50.00	$11,150
Backfill	392	cy	$20.00	$7,840
Excess Excavation Disposal	814	cy	$10.00	$8,140
Pre-cast 7'x3' Box Drain Sections - 8' Long	456	lf	$350.00	$159,600
Cast-in-place Transition Structure	1	ls	$10,000.00	$10,000
Access Manhole Frame & Covers	6	ea	$1,700.00	$10,200
Extend Headwall & Connect to Existing	15	lf	$200.00	$3,000
New Concrete-lined Channel (8" thick)	51	sy	$65.00	$3,320
Concrete Retaining Wall @ Outlet (avg. d=6.5)	56	lf	$175.00	$9,800
Guardrail/Fence	49	lf	$20.00	$980
Grading & Restoration	1	ls	$4,000.00	$4,000
Relocation of Camp Portables	1	ls	$3,500.00	$3,500
Relocation of Trailer	1	ls	$500.00	$500
Relocation of Monkeypod Tree	1	ea	$750.00	$750
Permanent Easement (15'-0" wide)	6780	sf	$10.00	$67,800
Construction Easement (6 months)	6589	sf/yr	$4.00	$13,180
Additional Improvements				
Install 6"x4' wide concrete swale at south edge of Maluiani Street	125	lf	$30.00	$3,750
Tie-in existing 6" PVC private drains with 8" PVC drain	40.00	lf	$60.00	$2,400
Subtotal				$550,440
Contingency (15%)				$82,570
Estimated Total				$633,010

Notes:
1. Costs are current 4th quarter 2001.
2. Totals should be escalated to the mid-point of construction, when that is established.
3. Land costs for construction, maintenance and permanent easements are assumed and must be negotiated at the time of construction.
4. Construction duration is assumed to be six months.

CHAPTER 3
ALTERNATIVES

3.1 No Action

If no action is taken, flooding problems will continue along Kokokahi Place.

3.2 Alternate Alignment at Kokokahi Place Cul-de-sac

At the request of the community (as expressed at the June 1, 2002 meeting), an investigation was conducted to determine the feasibility of realigning the proposed drainage system. The realignment was suggested to follow the alignment of an existing drainage ditch (that wraps along Parcels 2 and 118), and an exiting 24" drainline (underneath Parcel 86), discharging into the existing box drain beneath the private driveway. This realignment was suggested to minimize the construction impacts to the private driveway and also to help alleviate the private flooding issues experienced by Parcel 86.

As confirmed during a site investigation, the 24" drainline starts from the existing box drain beneath the common driveway (Parcel 105) at the northwest corner of Parcel 86. It crosses diagonally across Parcel 86 and goes beneath a retaining wall separating Parcels 86 and 118. It then connects to an open ditch on the other side of the wall. This ditch is part of a private drainage system that collects water from the upstream mauka properties.

Based on these existing conditions, it is not feasible to follow the realignment route. There will be substantial disturbance to private properties, increased disruption to residents, and higher construction costs due to lengthier construction time and the added restoration of private improvements removed for the construction, including two retaining walls. It would also require the City to analyze, design and have maintenance responsibilities for a private drainage system. The City should not incur any liability for a private system.

The preliminary design shows the installation of a drain inlet fronting Parcel 86. The property owner can, at his own expense, construct a drainage system to direct any overflow of the private system into this inlet.

3.3 Detention Basin

As noted earlier, there is only one feasible configuration for the Kokokahi Place cul-de-sac drainage improvements. However, an alternative was considered in addition to the parallel box drain for the area makai of Kaneohe Bay Drive. This alternative is the use of a detention basin to store flow exceeding the capacity of the existing 4'x3' box drain. As downstream components are emptied, the basin would return flow back into the system.

A detention basin was considered east of the existing 4'x3' box drain within private property, under easement. The basin would serve as storage for flow in excess of the existing box drain's hydraulic capacity and would not act to improve discharged water quality. At a point in time when the downstream box drain has drained such that the HGL is lower than that in the basin, the stored flow will drain back into the box. Since the section of the box drain that is first lacking in capacity is at ID 32, the detention basin will be connected just upstream of this section.

Based on the hydraulic run for the existing drainage system condition, the peak flow rate exiting the system is about 319 cfs. Two existing drain inlets located downstream of the detention basin point of connection collect a total of 2.64 cfs from Drainage Areas 22 and 23. Thus the quantity of flow expected in the system immediately upstream of the detention basin is about 316 cfs. The final segment of the existing box drain currently has the least carrying capacity at 122 cfs.

The volume of storage required was determined using an inflow/outflow hydrograph. During a storm event, the time required for the peak flow rate of 316 cfs to reach the box drain section 32 was conservatively determined to be 17.76 minutes. Assuming a storm duration of one hour, at an intensity equal to the 10 year recurrence interval storm (2.8 inches/hour) a hydrograph was developed, with the peak flow rate of 316.14 cfs occurring at 17.76 minutes. The hydrograph approximated the required storage volume to be 213,736 cubic feet, or 4.91 acre-feet. The existing site conditions limit a detention basin size to about 100 feet by 100 feet, which, by inspection, cannot accommodate the required storage. Given that the required storage results in a detention basin of enormous size, the existing (YWCA) site usage prohibits large open bodies of water this alternative was deemed impractical and the alternative was eliminated.

CHAPTER 4
DESCRIPTION OF THE AFFECTED ENVIRONMENT

4.1 Topography

The Kokokahi drainage basin is enclosed at the top by a peak and bounded on either side by ridges in the Koolau mountain range forming a valley. The slope of the hillside from the peak down to the valley is steep, ranging from about 16 to 35%. The land within the basin is also highly vegetated, except where homes have been built. Steep basin areas drain entirely via sheet flow. The valley flattens out just north of Malulani Street. The area bordered by Malulani Street, Kokokahi Place and Kaneohe Bay Drive has been fully developed into a residential community, with a subsurface drainage system that conveys flow to Kaneohe Bay.

As part of the engineering study, a surveyor (*ControlPoint* Surveying, Inc.) was retained to field verify the inverts of the existing drain inlets, catch basins, storm drain manholes, swales, ditches, and box drains. In addition, the surveyor performed a detailed topographic survey of Kokokahi Place and along the proposed drainline alignment. The field data were compiled to create the project topographic survey, found in the Final Engineering Report.

4.2 Soils

According to the Soil Survey of Islands of Oahu, Kauai, Maui, Molokai and Lanai, the soils of the upper portion of the project site are classified as Kaneohe silty clay (KgC). This soil type consists of silty clay, 8 to 15 percent slopes. On this soil, runoff is medium and the erosion hazard is moderate. The lower part of the site below Kaneohe Bay Drive is classified as Hanalei silty clay (HnA). This soil type consists of dark gray and very dark gray silty clay. Permeability is moderate, runoff is very slow, and the erosion hazard is slight.

4.3 Surface Water

The existing Kokokahi drainage basin is enclosed at the top by a peak and on either side by ridges in the Koolau mountain range. There are no defined streams. All of the drainage from this valley flows north and discharges into Kaneohe Bay. The area south of Malulani Street, as well as part of the Bay View Estates discharges into a 5'x3' box drain, and into a 5-foot wide concrete ditch that runs almost perpendicular to Kaneohe Bay

Drive. The Kokokahi Vista Subdivision drains, via a 1-foot wide concrete swale and overland, toward the 5-foot wide concrete ditch. The lower section of the Bay View Estates is piped via a 48" RCP into the 5-foot concrete ditch. All of this drainage flows under Kaneohe Bay Drive through a 6'x6' box drain, and down to Kaneohe Bay through a series of 4'x3' box drains. Part of the drainage from the YWCA property, from the parking lot to the cabin area, flows into drain inlets spaced along the 4'x3' box drain. The remainder of the drainage flow, primarily from the flat grassy area, ponds and eventually ends up finding its way to Kaneohe Bay. **Figure 3** presents the general layout of the existing drainage system.

4.4 Flood and Tsunami Hazards

The Oahu Civil Defense Agency Tsunami Evacuation Map 7 (Kailua to Kaneohe Bay) indicates that the project site is not located within an evacuation area.

According to the Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM), the project site is located in Zone X, an area determined to be outside of the 500-year flood plain. However, local flooding does occur, the reason for the proposed project.

4.5 Terrestrial Flora and Fauna

The proposed project site follows the existing sewer alignment which was installed in 1994 within a fully-developed area, dominated by introduced or alien species. This site does not support any remnant native plant-dominated vegetation types. No threatened or endangered species or species of concern have been identified from this area. A concern has been expressed that the endangered Kauai thrush (puaiohi) may visit the area during the winter. Since construction will take place in the summer, it is unlikely the thrush will be present.

4.6 Aquatic Environment

The nearshore waters of Kaneohe Bay consist of the intertidal zone along the shoreline and the fringing reef. Most of the shoreline of the southeast portion of the bay has been heavily modified. Agriculture, urbanization, and stream bed channelization have increased freshwater runoff rates causing sedimentation and pollution. The semi-enclosed southeast area of the bay where most of the urbanization has occurred and where circulation is sluggish has been most affected (Jokiel 1991).

Fringing reefs occur along most of Kaneohe Bay's land perimeter and average less than 1 m (3.3 ft) in depth. These reefs are shallow quiet-water reefs that generally extend outward for 300-750 m (1000-2500 ft) (AECOS, 1981). Fringing reefs along the south basin were extensively dredged and filled for seaplane runways in the late 1930's and the World War II era. Fine, land-derived sediments occur prominently along the shoreline and grade into marine sediments toward the seaward edge on shallow surface portions of the reef known as the reef flat. In the SE portion, where urbanization, runoff, and sedimentation is greatest and circulation is sluggish, coral development is poor (Jokiel, 1991).

The nearshore reef flat has little discernible permanent habitat for marine or estuarine species and demonstrates extremely low biological diversity (Pacific Atlas, 1990).

4.7 Archaeological, Historic, and Cultural Resources

The proposed project site is within a fully-developed area. No archaeological, historic, or cultural resources are anticipated to be encountered during construction of the proposed drainage improvements. This has been confirmed by a field visit by staff of the State Historic Preservation Division on March 29, 2001.

4.8 Planning, Land Use and Zoning

The project site is located in the State Land Use Commission Urban District and the City and County of Honolulu's Koolaupoko District. It is zoned R-5. It is also within the Special Management Area.

The Koolaupoko Sustainable Communities plan, adopted by the City in February 2000, includes seven general policies and three planning principles to guide the maintenance and improvement to Koolaupoko's drainage systems.

The general policies are:

- Promote drainage system design that emphasizes control and minimization of non-point source pollution and the retention of storm water on-site and in wetlands.

- A comprehensive study of local flooding and drainage problems should be developed and should include a phased plan for improvements.

- Modifications for flood protection should be designed and constructed to maintain habitat and aesthetic values, and

avoid and/or mitigate degradation of stream, coastline and nearshore water quality.

- To the extent possible, planned drainageway improvements should be integrated into the regional open space network by providing access for pedestrians and bicyclists.

- View storm water as a potential irregular source of water that should be retained for recharge of the aquifer rather than quickly moved to coastal waters.

- Select natural and man-made vegetated drainageways and retention basins as the preferred solution to drainage problems wherever they can promote water recharge, help control non-source pollutants, and provide passive recreation benefits.

- Keep drainageways clear of debris to avoid the flooding problems that have occurred in the past.

The planning principle to guide the maintenance and improvement of Koolaupoko's drainage systems applicable to the proposed project area is:

- Retention and Detention. Emphasize retaining or detaining storm water for gradual release into the ground as the preferred strategy for management of storm water.

4.9 Roads and Traffic

Roadways affected by the proposed project include Kaneohe Bay Drive, Kokokahi Place and Malulani Street and the private driveway (Parcel 105).

4.10 Utilities

Water

Water for the Kokokahi area is provided by the Honolulu Board of Water Supply. The system includes a 30-inch transmission line and 12-inch and 20-inch distribution mains along Kaneohe Bay Drive. Only two local 6-inch waterlines will be affected by the proposed drainage improvements.

Wastewater Facilities

Wastewater generated by houses on Kokokahi Place, Malulani Street and Kaneohe Bay Drive is collected by a gravity sewer system for eventual treatment at Kaneohe Wastewater Treatment Plant. An 8-

inch sewer line, with incoming branch lines, runs parallel to the route of the proposed drainage improvements from Kokokahi Place to Malulani Street. There is also a 27-inch gravity sewer line and a 42-inch force main that intersects the proposed route along the Kaneohe Bay shoreline.

Electrical and Telephone Services

Power and telephone service is provided by overhead lines along Kaneohe Bay Drive. The project is not expected to affect any of the overhead utility line poles. However, if necessary, the poles will be properly braced during construction.

Solid Waste

Solid waste generated within the project area is collected by the City and County of Honolulu.

CHAPTER 5
POTENTIAL IMPACTS AND MITIGATION MEASURES

5.1 Soil Erosion

A management plan to control soil erosion will be developed before construction of the drainage improvements is undertaken. As noted in Chapter 1, a NPDES permit for construction activities will be required because the area of disturbance will exceed one acre. However, because of the steep terrain, there is a potential for loss of soils along the alignment from the cul-de-sac at Kokokahi Place down to Malulani Street even with the best management practices in effect.

In the long term, there should be a reduction in soil erosion as runoff currently moving as sheet flow is funneled into drainage channels.

5.2 Water Quality

During construction, there may be an increase in soil erosion. As noted above, drainage improvements from the Kokokahi Place cul-de-sac downhill may result in soil loss despite the application of best management practices because of the steepness of the terrain. Construction of the parallel box drain below Kaneohe Bay Drive may also result in a short-term negative impact on water quality.

The total quantity of water will not be increased by the proposed drainage improvements. However, the flow rate of the water discharged during storm events will increase. This may have some adverse effect on nearshore waters during and after storm events.

5.3 Flood Hazard

The major purpose of the proposed drainage improvements is to alleviate local flooding problems.

5.4 Terrestrial Flora and Fauna

There will be destruction of vegetation in the area of construction. As noted earlier, the area does not support any remnant native plant-dominated vegetation types. There are no threatened, endangered or rare flora in the project area. A concern has been expressed that the endangered Kauai thrush (puaiohi) may visit the area during the winter. Since construction will take place in the summer, it is unlikely the

thrush will be present.

5.5 Aquatic Flora and Fauna

This portion of Kaneohe Bay has generally poor water quality and few aquatic fauna. As noted earlier, the nearshore reef flat has little discernible permanent habitat for marine or estuarine species and demonstrates extremely low biological diversity. Improvements to the drainage facilities are expected to neither improve nor worsen this situation.

The Division of Aquatic Resources of the State Department of Land and Natural Resources concurs that no significant long-term impact to aquatic resources is expected (see letter). The NPDES permit for construction activities will be the mechanism to ensure that the appropriate best management practices are utilized to control erosion and minimize potential adverse impacts to the aquatic environment. In addition, the project will be timed to be constructed during the times of minimum rainfall in the area.

5.6 Archaeological, Historic, and Cultural Resources

The Historic Preservation Division has assessed the project site and concluded that because the proposed improvements will occur in areas that have been previously disturbed by the existing underground concrete storm drain and effluent force main within the area, there will be no effect on significant historic sites.

Should a previously unidentified historic or archaeological resource (including burials) be discovered during construction, all work in the affected area will stop and the State Historic Preservation Division will be informed and consulted on the appropriate treatment measures.

5.7 Land Use Plans

The Koolaupoko Sustainable Communities Plan recommends the use of on-site retention systems to manage storm water flows wherever feasible. Unfortunately, this option is not possible within this older subdivision. It should be noted that the volume of surface runoff will not be changed, only the flow pattern. There will be no increase in the quantity of storm water discharging into Kaneohe Bay.

5.8 Traffic

Kaneohe Bay Drive is the major roadway serving the Kokokahi area.

Kokokahi Place and Malulani Street are used for local traffic. Malulani Street will be most affected by construction. The private driveway used by residents in the vicinity will also be affected. These temporary disruptions will be severe. Negative impacts cannot be avoided but will be planned in cooperation with local residents, the City's Department of Transportation Services and the Honolulu Police Department to minimize disruptions as much as possible. The Contractor shall, at a minimum, use Standard Construction Methods to ensure residents maximum access. Pedestrian access shall be maintained at all times. The driveway access to Parcel 1 will not be accessible while construction activities are taking place for the drainline installation. However all trenches will be covered with steel plates to provide access during non-working hours.

Kaneohe Bay Drive will not be disturbed. A construction staging area will be established for the project. If it is off-site, this may result in more impact to traffic. If material is stockpiled within the City's right-of-way, adequate and safe pedestrian travel ways and appropriate sight distances for both vehicular and pedestrian traffic will be provided at all times.

Since this project is still at the conceptual stage, the location of a site for a construction staging area has not been determined and impacts on traffic are conjectural. The site will be chosen in consultation with the Department of Transportation Services to ensure that traffic impacts are minimized.

5.9 Air Quality

Construction activities will generate exhaust products and fugitive dust emissions from vehicles and equipment used to build the new structures. Air quality effects will be short-term in nature. Workers will be scheduled to arrive and depart the site during non-peak traffic hours. The Contractor will be required to comply with HAR Chapter 11-60.1-33 Fugitive Dust to control dust emissions during the various phases of construction.

5.10 Noise

Intermittent elevated noise levels from specific construction activities are unavoidable, but are expected to be short-term and minor. Typical heavy construction equipment noise levels are within the decibel range identified for a daytime, noisy urban environment. It is recognized that the project area is in a quiet, suburban neighborhood and that these decibel levels will seem excessive to residents. However, there is no known cost-effective way to construct the project quietly. To reduce nearby

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

Kokokahi Place and Malulani Street are used for local traffic. Malulani Street will be most affected by construction. The private driveway used by residents in the vicinity will also be affected. These temporary disruptions will be severe. Negative impacts cannot be avoided but will be planned in cooperation with local residents, the City's Department of Transportation Services and the Honolulu Police Department to minimize disruptions as much as possible. The Contractor shall, at a minimum, use Standard Construction Methods to ensure residents maximum access. Pedestrian access shall be maintained at all times. The driveway access to Parcel 1 will not be accessible while construction activities are taking place for the drainline installation. However all trenches will be covered with steel plates to provide access during non-working hours.

Kaneohe Bay Drive will not be disturbed. A construction staging area will be established for the project. If it is off-site, this may result in more impact to traffic. If material is stockpiled within the City's right-of-way, adequate and safe pedestrian travel ways and appropriate sight distances for both vehicular and pedestrian traffic will be provided at all times.

Since this project is still at the conceptual stage, the location of a site for a construction staging area has not been determined and impacts on traffic are conjectural. The site will be chosen in consultation with the Department of Transportation Services to ensure that traffic impacts are minimized.

5.9 Air Quality

Construction activities will generate exhaust products and fugitive dust emissions from vehicles and equipment used to build the new structures. Air quality effects will be short-term in nature. Workers will be scheduled to arrive and depart the site during non-peak traffic hours. The Contractor will be required to comply with HAR Chapter 11-60.1-33 Fugitive Dust to control dust emissions during the various phases of construction.

5.10 Noise

Intermittent elevated noise levels from specific construction activities are unavoidable, but are expected to be short-term and minor. Typical heavy construction equipment noise levels are within the decibel range identified for a daytime, noisy urban environment. It is recognized that the project area is in a quiet, suburban neighborhood and that these decibel levels will seem excessive to residents. However, there is no known cost-effective way to construct the project quietly. To reduce nearby

residential noise exposure to the extent possible, construction activities will be conducted on weekdays and in daytime hours in accordance with HRS 342-F-1.

5.11 Utilities

Water

Two 6-inch waterlines crossing Malulani Street cannot be avoided while maintaining the required capacity of the drain line. Since water lines operate under a pressure system, and the drainage system operates under gravity, the 6-inch waterlines will need to be relocated during construction. Kokokahi Place cul-de-sac water meters and water laterals may also be affected in the construction of drainage structures. Construction activity will be planned and coordinated with the Honolulu Board of Water Supply. Any necessary relocation will be done prior to the installation of the drain. There will be a temporary cessation of services during the relocation, which cannot be avoided. However, after relocation is completed, water service shall operate as normal.

Wastewater Facilities

The proposed improvements will not affect any of the wastewater lines.

Electrical and Telephone Services

The proposed improvements will not affect electrical and telephone transmission lines. During construction, utility poles will be properly braced as necessary.

Solid Waste

The proposed improvements will not affect solid waste collection.

5.12 Public Safety

Police

The Police Department will be notified in advance of construction activities that may affect traffic. Construction activities will be planned to minimize adverse effects on both local and through traffic.

Fire

Fire apparatus access will be maintained throughout the

construction sites for the duration of the project. The Fire Communications Center will be notified of any interruption in the existing fire hydrant service system as a result of relocating the two 6-inch waterlines.

5.13 Miscellaneous Private Structures

The project is not expected to affect any miscellaneous private structures (i.e. walls and hedges). However should they be disturbed, they will be either restored or appropriate compensation made.

The existing box drain that crosses beneath the private driveway is not expected to be disturbed. However, should the Contractor elect to remove the existing box drain to facilitate construction, it will be reconstructed.

The construction of the drainage improvements through Parcel 45 (YWCA property) may affect some of the new work currently being undertaken by the YWCA's Capital Improvement Plan. Any new work that is impacted by the drainage improvements will be completely replaced rather than being patched.

CHAPTER 6
FINDINGS AND DETERMINATION

6.1 Significance Criteria

Chapter 200 (Environmental Impact Statement Rules) of Title 11 Hawaii Administrative Rules of the State Department of Health specifies criteria for determining if an action may have a significant effect on the environment. The relationship of the proposed project to these criteria is discussed below.

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

The proposed drainage improvements will result in the destruction of natural resources only in the area of construction. There will be no off-site loss of natural or cultural resources.

(2) Curtails the range of beneficial uses of the environment;

The range of beneficial uses of the environment will not be curtailed. Reduction of the negative impacts of potential future flooding will be beneficial to the neighborhood

(3) Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, Hawaii Revised Statutes, and any revisions thereof and amendments thereto, court decisions or executive orders;

The proposed project is consistent with the State environmental policies established in HRS 344.

(4) Substantially affects the economic or social welfare of the community or state;

The proposed action will not substantially affect economic and social welfare of the community or state. Mitigation of the negative impacts of potential future flooding will be beneficial to the neighborhood.

(5) Substantially affects public health;

There will be no threat to public health from the proposed drainage improvements. There should be a benefit to public health when flooding is alleviated.

(6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

The project does not involve substantial secondary impacts such as population changes or effects on public facilities.

(7) Involves a substantial degradation of environmental quality;

There will be minimal environmental impacts of a short-term nature. Environmental quality will not be significantly degraded.

(8) Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The proposed action does not involve a commitment for a larger action nor does it result in significant adverse effects upon the environment.

(9) Substantially affects a rare, threatened or endangered species, or its habitat;

The project area comprises public streets and developed private property. There are no rare, threatened, or endangered species (plant or animal) known from these parcels.

(10) Detrimentally affects air or water quality or ambient noise levels;

Impacts on air or water quality will be minimal and short-term. Noise associated with construction will also be short-term.

(11) Affects or is likely to suffer damage by being located in an environmentally sensitive are such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

The proposed action does not affect any environmentally sensitive area.

(12) Substantially affects scenic vistas and viewplanes identified in county or state plans or studies;

The proposed use will have no effect on scenic vistas or viewplanes.

(13) Requires substantial energy consumption;

The proposed use will not require substantial energy consumption.

6.2 Determination

Based on these significance criteria, it has been determined that the proposed drainage improvement will not have a significant effect on the environment. Potential impacts can be mitigated and are short-term in nature. Based on this Finding of No Significant Impact (FONSI), an environmental impact statement is not required.

CHAPTER 7
CONSULTATION

As part of the consultation process letters seeking comments and suggestions for areas to be addressed in the draft environmental assessment were sent to the following elected officials, agencies, organizations, and individuals.

Federal

U.S. Army Corps of Engineers

State of Hawaii

Office of Environmental Quality Control
Land Management Division, Department of Land and Natural Resources
Historic Preservation Division, DLNR
Office of Planning, Department of Planning, Economic Development and Tourism
Department of Health
Honorable Bob Hogue, 24th Senatorial District
Honorable Ken Ito, 48th Representative District

City and County of Honolulu

Department of Planning and Permitting
Board of Water Supply
Fire Department
Police Department
Council Member Steve Holmes
Kaneohe Neighborhood Board No. 30

Organizations

Kokokahi Community Association
Kokokahi YWCA
Kailua Bay Advisory Council
Kaneohe Bay Regional Council
Kama`aina Kids

Individuals

Bob Aiken
Lee Caldwell
Rodney and Judy Fukunaga
Carol Porter
Donna Rewick

Lee Sichter
Maggie Sodergren
George Tahara

Letters with substantial comments were answered and their suggestions incorporated into the Draft Environmental Assessment (DEA). The DEA was sent to responders and agencies and individuals who expressed interest. Their comment letters on the DEA were also answered. In addition, an information meeting was held at the Kokokahi YWCA on June 1, 2002 to address concerns raised in some of the letters.

Copies of all letters and responses, as appropriate, are attached to the end of this document in Appendix A. The agenda, minutes and list of attendees at the June 1 meeting are also included.

This Final Environmental Assessment is being sent to all responders with substantial comments and attendees of the June 1, 2002 meeting.

REFERENCES

AECOS, Inc. 1981. Hawaii Coral Reef Inventory: Island of Oahu.

City & County of Honolulu. 2000. Koolaupoko Sustainable Communities Plan.

Clean Air Act. 42 U.S.C.A. 7409, National Primary and Secondary Ambient Air Quality Standards.

GKO & Associates. 2001. Final Engineering Report Kokokahi Place Drainage Improvements Kaneohe, Oahu. Honolulu. December.

International Conference of Building Officials (ICBO). 1997. Uniform Building Code. Volume I and II. April.

Jokiel, P.L., R.H. Titgen and A.A. Chun Smith. 1991. Guide to the Marine Environment of Kaneohe Bay, Oahu.

Pacific Atlas (Hawaii). 1990. Final Environmental Impact Statement: Bayview Golf Course Expansion.

University of Hawaii-Hilo (UH-H). Department of Geography. 1998. Atlas of Hawaii. Third Edition. University of Hawaii Press.

U.S. Department of Agriculture - Soil Conservation Service (USDA-SCS). 1972. Soil Survey of Islands of Kauai, Oahu, Molokai, and Lanai, State of Hawaii. Soil Conservation Service.

APPENDIX A

Environmental Communications

Letters Received During Agency/Community Consultation

7.-520A

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
JANET E. KAWELO
LINNEL NISHIOKA

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

April 6, 2001

Robert W. Purdie, Jr. P. E.
GKO Consulting
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

LOG NO: 27202
DOC NO: 0103EJ13

Dear Mr. Purdie:

SUBJECT: Chapter 6E-8 Historic Preservation Review – Pre Environmental Assessment (EA) for the Department of Design and Construction, Division of Infrastructure Design and Engineering for the Proposed Kokokahi Place Drainage System
Kane`ohe, Ko`olaupoko, O`ahu
TMK: 4-5-104:045; 4-5-101; 4-5-031; various

Thank you for the opportunity to provide comment for the EA for the proposed Kokokahi Place Drainage System. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division. A field visit of the YWCA parcel was also conducted by SHPD staff on March 29, 2001.

The City and County of Honolulu proposes drainage improvements to alleviate flooding in this area of Kaneohe. The proposed improvements include the installation of new drain inlets and an 18-inch (transitioning to a 24-inch) drain line extending from the Kokokahi Place cul-de-sac, down to Malulani Street. Also a new 8' by 4' box drain and transition structure parallel to an existing box drain on the YWCA property will be installed. A review of our records shows that there are no known historic sites within the *mauka* sections of the proposed project; we believe that the proposed improvements in these areas will have "no effect" on significant historic sites. At the shoreline the project area is adjacent to Keana fishpond (State Site No. 350), which was filled in the 1950s. Because the proposed improvements will occur in areas that have been previously disturbed by the existing underground concrete storm drain and by the existing underground effluent force main within this area, we believe that these improvements will have "no effect" on significant historic sites.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

97-820A

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

March 14, 2001

Mr. Robert W. Purdie, Jr.
GKO & Associates
650 Iwilei Road #410
Honolulu, Hawaii 96817

Re: Proposed Improvements To The Kokokahi Place Drainage System In Kaneohe

Dear Mr. Purdie,

We have reviewed the description of the subject project provided by your letter dated February 22, 2001, and suggest that the EA address the following:

1. Traffic impacts to the area during construction.
2. Mitigation measures to be taken to assure run-off to other areas.
3. Early consultation with the neighborhood in the proposed project area.

We have no further comments to offer at this time, but will reserve further comments when the documents are submitted.

Should you have any questions, please feel free to call our office at 586-4185.

Sincerely,

Genevieve Salmonson
Director

91-8204

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

March 12, 2001

Mr. Robert W. Purdie, Jr., P.E.
GKO and Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Subject: Your Letter of February 22, 2001 *Requesting Pre-Consultation* Comments for the Draft Environmental Assessment for the Kokokahi Place Drainage Improvements Project

Thank you for the opportunity to provide pre-assessment comments on the proposed Kokokahi Place drainage improvements project.

We have the following comments:

1. The location of existing Board of Water Supply waterlines should be indicated on the construction plans and addressed in the Draft Environmental Assessment (EA) to ensure the protection and integrity of our water system. The enclosed distribution map indicates our existing waterlines in the proposed project area.

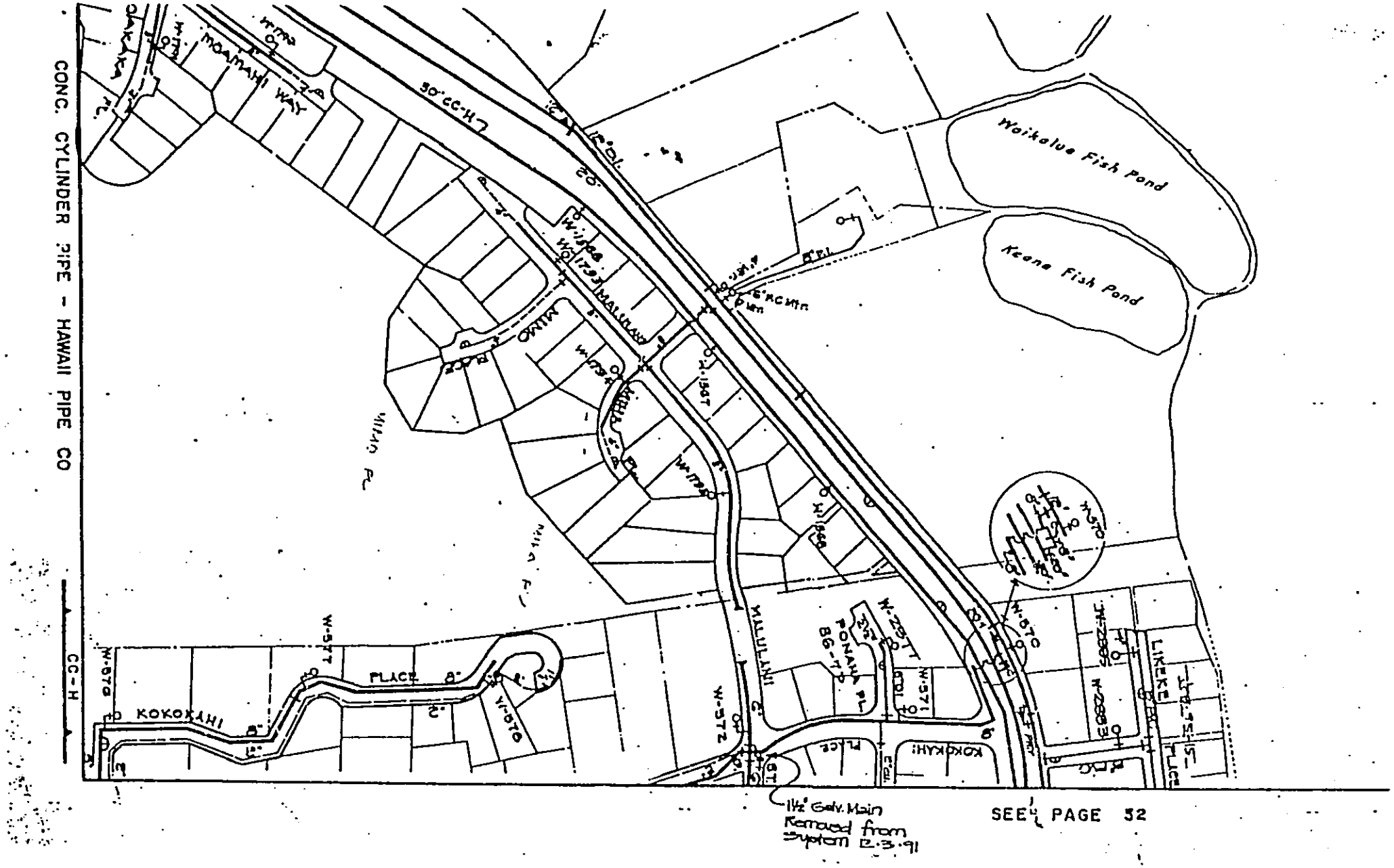
2. The Draft EA and construction plans should be submitted for our review.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

for CLIFFORD S. JAMILE
Manager and Chief Engineer

Attachment



CONC. CYLINDER PIPE - HAWAII PIPE CO

CC-H

97-8204
pmp

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
ACTING DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

CDED-A 01-0034

February 26, 2001

Mr. Robert W. Purdie, Jr.
Honolulu Office Manager
GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Subject: Kokokahi Place Drainage Improvements
Contract No. F 62328

Thank you for your submittal of the Prefinal Engineering Report and Drainage Study for the Kokokahi Place Drainage Improvements, Kaneohe, Oahu, and faxed submittal of the proposed preassessment notification letter to be sent out to the various agencies for the environmental assessment. We are continuing to review the Prefinal Engineering Report and Drainage Study and will be providing you with our comments by mid-March.

The proposed preassessment notification letter is acceptable and may be sent to the various agencies.

If you have any questions, please call Tyler Sugihara of the Civil Design and Engineering at 523-4932.

Very truly yours,

for RAE M. LOUI, P.E.
Acting Director

97-820A
/ VSH
— File

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RANDALL K. FUJIKI, AIA
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

2001/CLOG-829(RY)

March 29, 2001

Mr. Robert W. Purdie, Jr., P.E.
GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Subject: Environmental Assessment Pre-Consultation for Kokokahi Place Drainage Improvements, Kaneohe Bay, Oahu

We have no comments to offer at this time on the above project.

For your information, there are existing sewer facilities along and intersecting the proposed project. An 8-inch sewer line, with incoming branch lines, runs parallel to the route of the proposed drainage improvements from Kokokahi Place to Kaneohe Bay Drive. There is also a 27-inch gravity sewer line and a 42-inch force main that intersects the proposed route along the Kaneohe Bay shoreline.

If you have any questions, please contact Raymond Young of our staff at 527-5839.

Sincerely yours,

for RANDALL K. FUJIKI, AIA
Director of Planning and Permitting

RKF:lh

81829

97-8204

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425 • HONOLULU, HAWAII 96819-1869
TELEPHONE: (808) 831-7761 • FAX: (808) 831-7750 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

March 21, 2001

Mr. Robert W. Purdie, Jr., P.E.
GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Subject: Kokokahi Place Drainage Improvements
Environmental Assessment
Kaneohe Bay, Oahu, Hawaii

We received your letter dated February 22, 2001, regarding the above-mentioned project. We have reviewed the documents and have no objections to the project.

The Honolulu Fire Department requests that the following be complied with:

1. Maintain fire apparatus access throughout the construction site for the duration of the project.

2. Notify the Fire Communications Center (523-4411) of any interruption in the existing fire hydrant system during the project.

Should you have any questions, please call Battalion Chief Kenneth Silva of our Fire Prevention Bureau at 831-7778.

Sincerely,

Attilio K. Leonardi

ATTILIO K. LEONARDI
Fire Chief

AKL/KS:jo

97-820A

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org
www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF

MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

OUR REFERENCE CS-LS

March 5, 2001

Mr. Robert W. Purdie, Jr., P.E.
GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Thank you for the opportunity to review the Environmental Assessment for Kokokahi Place Drainage Improvements, GKO job number 97-820A.

We have no comment to offer at this time, but may have as more information is received.

If there are any questions, please call Carol Sodetani of the Support Services Bureau at 529-3658.

Sincerely,

LEE D. DONOHUE
Chief of Police

By
EUGENE UEMURA, Assistant Chief
Support Services Bureau

71-8204

LEE WILLIAM SICHTER
Senior Planner and Project Manager

E :LT COLLINS
680 ALA MOANA BOULEVARD
FIRST FLOOR
HONOLULU, HAWAII 96813-5406
TEL: 808 521-5361, FAX: 808 538-7819
EMAIL: lsichter@beltcollins.com
WEBSITE: www.beltcollins.com

NNING · ENGINEERING · LANDSCAPE ARCHITECTURE · ENVIRONMENTAL CONSULTING

45024-1 Malulani Street
Kaneohe, Hawaii 96744
February 27, 2001

Mr. Robert Purdie, Jr.
GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Kokokahi Drainage Improvements
Environmental Assessment

Thank you for your letter of February 22, 2001 concerning the above project. My wife, Dr. Carol L. Nowak, and I own and reside on a lot identified as Tax Map Key 4-5-31:85. We also own an undivided interest in a roadway lot which abuts our property and provides our only access to Malulani Street. The roadway lot is identified as TMK 4-5-31:105. It is a privately owned roadway.

It appears from the maps contained in your letter that the proposed alignment of the drainage improvements will impact the entire length of parcel 105. By this letter, I request to be included as a Consulted Party in the Environmental Assessment scoping and review process. I wish to be provided copies of all relevant documentation for this project, including the drainage study that identified the need for this project, and of course the draft and final environmental assessments and any related studies. Further, if you haven't done so already, I request that you please notify the other property owners who share an undivided interest in the roadway parcel.

I look forward to participating in the assessment process. If you wish to discuss the project with me, I can be reached during the day at 539-1313, or at home in the evenings at 236-2836.

Very truly yours,

Lee William Sichter

cc: OEQC
DPP:DIDE

GKO Consulting Engineers
& ASSOCIATES

March 5, 2001
97-820A

Mr. Lee W. Sichter
45024-1 Malulani Street
Kaneohe, HI 96744

Re: Kokokahi Pl. Drainage Improvements EA

Dear Mr. Sichter:

Thank you for your letter of February 27, 2001 concerning the Kokokahi Place Drainage Improvements Environmental Assessment. Per your request, you will be included as a consulted party in the EA consultation and review.

Regarding your request for relevant documentation for the project, the December 2000 Prefinal Engineering Report and Drainage Study, prepared by GKO & Associates for the project, is currently under review by the City and County of Honolulu Department of Design and Construction. The Department of Design and Construction has been notified by GKO of your request for the project report and upon its completion, can make a copy available to you. We are not aware of studies or other relevant documents, reports or assessments which have been created for the project. If you would care to discuss GKO's scope of work for this project, please do not hesitate to call me personally and directly.

Thank you for your suggestion that other property owners of the roadway parcel TMK 4-5-31:105 be notified of the project. We will review those who have been notified and include all with interest in the subject roadway and project alignment.

Sincerely,

Robert W. Purdie Jr.

Robert W. Purdie, Jr.
EA Coordinator

680 Iwilei Road, Suite 410 ■ Honolulu, HI 96817 ■ 808.524.0355 ■ fax 808.524.2446 ■ gkohi@gkoassociates.com
CIVIL ■ STRUCTURAL ■ MARINE ■ ENVIRONMENTAL ■ CONSTRUCTION MANAGEMENT
124 Beale Street, 3rd Floor, San Francisco, CA 94105 ■ 180 Grand Avenue, Suite 225, Oakland, CA 94612

Letters Received In Response To Draft Environmental Assessment

97-E20A
Pur
VP
VSH

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

02-027/epo

February 15, 2002

Mr. Robert Purdie, Jr.
GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Subject: Draft Environmental Assessment (DEA)
Kokokahi Place Drainage Improvement Project, Kaneohe, Hawaii

Thank you for the opportunity to review and comment on the subject proposal. The DEA was routed to the various branches of the Environmental Health Administration. We have the following comments:

Clean Water Branch (CWB)

1. The applicant should contact the Army Corps of Engineers to identify whether a federal permit (including a Department of Army permit) is required for this project. A Section 401 Water Quality Certification is required for "Any applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...", pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act");

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following discharges to waters of the State:

   a. Discharge of storm water runoff associated with industrial activities, as define in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi);

   b. Discharge of storm water runoff associated with construction activities that involve the disturbance of five (5) acres or greater, including clearing, grading, and excavation;

   c. Discharge of treated effluent from leaking underground storage tank remedial activities;

d. Discharge of once through cooling water less than one million gallons per day;

e. Discharge of hydro-testing water;

f. Discharge of construction dewatering effluent;

g. Discharge of treated effluent from petroleum bulk stations and terminals; and

h. Discharge of treated effluent from well drilling activities.

Any person requesting to be covered by a NPDES general permit for any of the above activities should file a Notice of Intent with the Department of Health, Clean Water Branch (CWB) at least thirty (30) days prior to commencement of any discharges to State waters;

3. If construction activities involve the disturbance of one acre or greater, including clearing, grading, and excavation, and will take place or extend after March 10, 2003, an NPDES general permit coverage is required for discharges of storm water runoff into State waters; and

4. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters.

If you have any questions, please contact the Clean Water Branch at (808) 586-4309.

Clean Air Branch (CAB)

There is a significant potential for fugitive dust to be generated during all phases of construction activities. In addition, construction activities would occur in close proximity to existing residential establishments and a major thoroughfare, thereby exacerbating potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses activities having a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of the project is warranted.

Fugitive Dust Control:

All construction activities must comply with the provisions of Hawaii Administrative Rules, Chapter 11-60.1-33 on Fugitive Dust. The contractor should provide adequate means to control dust from road areas and during the various phases of construction activities, including but not limited to:

a. Planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing material transfer points and on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;

b. Providing an adequate water source at site prior to start-up of construction activities;

c. Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;

d. Controlling of dust from shoulders, project entrances, and access roads; and

e. Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities.

If you have any questions, please contact the Clean Air Branch at 586-4200.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

c: CWB
CAB

G K O
& ASSOCIATES
Consulting Engineers

August 21, 2002
97-820A

Mr. Gary Gill, Deputy Director
Hawaii State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Subject: Kokokahi Place Drainage Improvements Draft Environmental Assessment, Kaneohe Bay, Oahu

Thank you for your comments on the Draft Environmental Assessment. Our response is as follows:

Clean Water Branch

1. Department of Army permit. The Army Corps of Engineers has responded to our request for a determination on whether a permit is needed for this project. All work will be accomplished mauka of the sandy beach. However, there is some question on the exact location of the shoreline and high water. When this is decided, a determination on the need for a permit will be made.

2. A NPDES permit is not needed at this time because there will be no wastewater discharge and the proposed construction activity will disturb less than five acres. Since the project is not yet funded, it is unlikely to be built before March 10, 2003, when the new rule reducing the disturbance area to one acre will be in effect. Therefore, an NPDES permit will be required for construction.

Clean Air Branch

We are aware of the requirements for controlling fugitive dust. The contractor will be required to comply with HAR Chapter 11-60.1-33 Fugitive Dust to control dust emissions during the various phases of construction.

If you have any additional comments or questions, please do not hesitate to contact me at 524-0355.

Sincerely,

Robert W. Purdie, Jr., P.E.
Project Manager

680 Iwilei Road, Suite #410, Honolulu, HI 96817 Tel: 808.524.0355 Fax: 808.524.2446
www.gkoassociates.com

97-E20A
pnr VSH
JP

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
ERIC T. HIRANO
LINNEL NISHIOKA

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BLVD., ~~ROOM 555~~
KAPOLEI, HAWAII 96707

February 11, 2002

Robert W. Purdie, Jr. P. E.
GKO Consulting
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

LOG NO: 29150
DOC NO: 0202EJ01

Dear Mr. Purdie:

SUBJECT: Chapter 6E-8 Historic Preservation Review – Draft Environmental Assessment (DEA) for the Department of Design and Construction, Division of Infrastructure Design and Engineering for the Proposed Kokokahi Place Drainage System
Kane`ohe, Ko`olaupoko, O`ahu
TMK: 4-5-104:045; 4-5-101; 4-5-031; various

The DEA correctly incorporates our earlier comments that the proposed drainage improvements will occur in areas that have been previously disturbed and that we believe that these improvements will have "no effect" on significant historic sites. Our complete comments are included in Appendix A.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

~~2002/ED-14-3156~~
3002/DOC-30

MAR 14
CKO-HONOLULU

RECEIVED
'02 MAR 11 8 51 AM

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

February 19, 2002

MAR 11 2002
GDED

02400436

LD-NAV
Ref.: HOKOKAHIDRAIN.RCM
LOG-448/869/756/560/662

Honorable Randall K. Fujiki, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

SUBJECT: Review: *Draft Environmental Assessment (DEA)*
Applicant: City and County of Honolulu
Consultant: CKO & Associates
Project: Kokokahi Place Drainage Improvements
Authority: Dept. of Design and Construction C&CoH
Location: Kaneohe Bay, Island of Oahu, Hawaii
TMK: 1st/ 4-5-104: 45; 4-5-101; 4-5-31 various

Thank you for the opportunity to review and comment on the subject matter. A copy of the document (DEA) covering the proposed project was transmitted to the following Department of Land and Natural Resources' Divisions for their review and comment:

- Division of Aquatic Resources
- Division of Forestry & Wildlife
- Commission on Water Resource Management
- Land Division Engineering Branch
- Land Division Oahu District Land Office
- Land Division Planning and Technical Services

Attached herewith is a copy of the Division of Aquatic Resources and Land Division Engineering Branch comment.

The Department of Land and Natural Resources has no other comment to offer at this time.

Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 587-0438.

Very truly yours,

HARRY M. YADA
Acting Administrator

C: Oahu District Land Office

DLNR-LAND DIVISION
ENGINEERING BRANCH

LD-NAV/LOG448
Ref.: HOKOKAHIDRAIN.COM

COMMENTS

We confirm that the project sites, according to FEMA Community Panel Number 15003 C 0270 E (November 20, 2000), is located in Zone X (Not Shaded). This is an area determined to be outside the 500-year flood plain.

However, if further studies determined that the project site is within the flood zone, the proposed improvements must comply with rules and regulations of the National Flood Insurance Program (NFIP) and all applicable County Flood Ordinances. If there are questions regarding the NFIP, please contact the State Coordinator, Sterling Yong, of the Department of Land and Natural Resources at 587-0248. If there are questions regarding flood ordinances, please contact applicable County representative.

M:\WLD\MAKAI\SUZIE\OAHU\Hohokahi.DEA.Oahu.154.doc

SUSPENSE DATE: February 15, 2002

STATE OF HAWAII
Department of Land and Natural Resources
Division of Aquatic Resources

MEMORANDUM

To: William Devick, Administrator WD
From: Richard Sixberry, Aquatic Biologist RS
Subject: Comments on Draft Environmental Assessment

Comments Requested By: Harry Yada - Land Division

Date of Request: 1/30/02 Date Received: 1/30/02

Summary of Project

Title: Kokoahi Place Drainage Improvements

Proj. By: C&C

Location: Kanehoe, Oahu

Brief Description:

The applicant plans to improve the drainage system at Kokoahi Place by installing new drain inlets and box drains to alleviate flooding in this area of Kaneohe.

Comments:

No significant long-term impact to aquatic resources is expected, although some temporary disturbance to the environment may occur during construction. The applicant should provide adequate measures to mitigate potential impacts adverse to the aquatic environment.

We suggest that construction activities be restricted to periods of minimal rainfall and areas denuded of vegetation which could be susceptible to wind or water erosion are appropriately stabilized. Further, precautionary measures should include preventing construction materials, petroleum products, debris and especially eroded soil from entering the Kaneohe Bay.

Richard Sixberry
Aquatic Biologist

GKO
& ASSOCIATES
Consulting Engineers

August 21, 2002
97-820A

Harry M. Yada, Acting Administrator
Land Division
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Subject: Kokokahi Place Drainage Improvements Draft Environmental Assessment, Kaneohe Bay, Oahu

Thank you for your comments on the Draft Environmental Assessment.

We agree with the analysis of the Division of Aquatic Resources that no significant long-term impact to aquatic resources is expected. It is anticipated that an NPDES permit for construction activities will be required. This will be the mechanism to ensure that the appropriate best management practices are utilized to control erosion and minimize potential adverse impacts to the aquatic environment. In addition, the project will be timed to be constructed during the times of minimum rainfall in the area.

If you have any additional comments or questions, please do not hesitate to contact me at 524-0355.

Sincerely,

Robert W. Purdie Jr.

Robert W. Purdie, Jr., P.E.
Project Manager

680 Iwilei Road, Suite #410, Honolulu, HI 96817 Tel: 808.524.0355 Fax: 808.524.2446
www.gkoassociates.com

CD 418CCA

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

DEPT OF DESIGN & CONSTR
CITY & COUNTY OF HONOLULU
02 MAR 13 PM 2:44

RECEIVED
MAR 14 9 25 AM '02

STATE OF HAWAII
OFFICE OF ENVIRONMENT QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

March 8, 2002

MAR 13 2002
CDED

02-L-0052

Ms. Rae M. Loui, Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Ms. Loui:

Subject: Draft Environmental Assessment for the Kokokahi Drainage Improvements, Oahu

Thank you for the opportunity to review the subject document. We have the following comments.

1. Please add the following language to the mitigation section of the environmental assessment, "Should a previously unidentified historic or archaeological resources (including burials) be discovered during construction, all work in the affected area will stop and the SHPD will be informed and consulted on the appropriate treatment measures."

2. Please list all federal, state and county permits and approvals that are required for this project.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185. Mahalo.

Sincerely,

Genevieve Salmonson
Director

c: GKO & Associates

RECEIVED
MAR 22 2002

G K O
& ASSOCIATES
Consulting Engineers

August 21, 2002
97-820A

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Subject: Kokokahi Place Drainage Improvements Draft Environmental Assessment, Kaneohe Bay, Oahu

Thank you for your comments on the Draft Environmental Assessment.

We will add the suggested language to the mitigation section of the FEA. We will also add a list of all federal, state and county permits and approvals that will be required for this project.

If you have any additional comments or questions, please do not hesitate to contact me at 524-0355.

Sincerely,

Robert W. Purdie Jr.

Robert W. Purdie, Jr., P.E.
Project Manager

680 Iwilei Road, Suite #410, Honolulu, HI 96817 Tel: 808.524.0355 Fax: 808.524.2446
www.gkoassociates.com

97-P20 Ltr

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD02/400

February 4, 2002

Mr. Robert Purdie, Jr.
GKO & Associates
680 Iwilei Road – Suite 410
Honolulu, HI 96817

SUBJECT: KOKOKAHI PLACE DRAINAGE IMPROVEMENTS – KANEOHE BAY
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

Dear Mr. Toyama:

Thank you for the opportunity to review the above reference DEA that will involve the construction of improvements to the Kokokahi Place Drainage system in Kaneohe.

The Office of Hawaiian Affairs (OHA) has no comments at this time. If you have any questions, please contact Jerry B. Norris at 594-1847 or email him at jerryn@oha.org.

Sincerely,

Colin C Kippen

Colin C. Kippen, Jr.
Deputy Administrator
Hawaiian Rights Division

cc: OHA Board of Trustees
Clyde W. Namu'o, OHA Administrator

97-270 A EA

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

February 13, 2002

Mr. Robert Purdie, Jr.
GKO and Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Subject: Your Transmittal of the Draft Environmental Assessment for the Kokokahi Place Drainage Improvements, Kaneohe, TMK: Vicinity of 4-4

Thank you for the opportunity to review and comment on the subject document for the proposed drainage project.

We have no objections to the proposed project. Our pre-assessment comments of March 12, 2001 have been addressed. We understand that the construction plans will be coordinated and submitted for our review and approval to minimize any impacts to our water system facilities.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

for Clifford S. Jamile
Manager and Chief Engineer

97-820A
PMP V
VSH ___
JP ___

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR · HONOLULU, HAWAII 96813
Phone: (808) 523-4414 · Fax: (808) 527-6743

JEREMY HARRIS
MAYOR

RANDALL K. FUJIKI, AIA
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

FEB 27

February 26, 2002

2002/ELOG-253
(dnk)

Mr. Robert Purdie, Jr.
GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Kokokahi Place Drainage Improvements
Draft Environmental Assessment

We have reviewed the subject Draft Environmental Assessment and have no additional comments to our previous letter of March 29, 2001.

Our technical review of the project will be completed when the construction plans and related documents are submitted to our Department for plan approval.

Should you have any questions, please contact Ms. Dawn Kimura of our Site Development Division at (808) 523-4968.

Sincerely yours,

RANDALL K. FUJIKI, AIA
Director of Planning and Permitting

RKF:ky
[141527]

97-820A EA

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP1/02-00333R

March 18, 2002

Mr. Robert Purdie, Jr.
GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Subject: Kokokahi Place Drainage Improvements

In response to the letter from KRP Info Services, the draft environmental assessment (EA) for the subject project was reviewed. The following comments are the result of this review:

1. The draft EA should address the project's traffic impacts during construction within the City's right-of-way on Malulani Street, Kaneohe Bay Drive and Kokokahi Place.

2. If there are any plans to stockpile material within the City's right-of-way, adequate and safe pedestrian travel ways should be provided at all times. In addition, appropriate sight distances for both vehicular and pedestrian traffic should be provided at all times.

3. On Pages 2, 3 and 25 of the draft EA, statements are made that a construction staging area will be established for the project and that if this staging area is off-site, more traffic impacts may result. All traffic impacts due to the project should be described in the EA. The staging area should not be within the City's right-of-way to minimize neighborhood traffic impacts.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

CHERYL D. SOON
Director

GKO
& ASSOCIATES
Consulting Engineers

August 21, 2002
97-820A

Ms. Cheryl D. Soon, Director
Department of Transportation Services
711 Kapiolani Blvd., Suite 1300
Honolulu, Hawaii 96813

Subject: Kokokahi Place Drainage Improvements Draft Environmental Assessment, Kaneohe Bay, Oahu

Thank you for your comments on the Draft Environmental Assessment. Our response is as follows:

1. The final EA will address the project's traffic impacts during construction within the City's right-of-way on Malulani Street, Kaneohe Bay Drive and Kokokahi Place.

2. If material is stockpiled within the City's right-of-way, adequate and safe pedestrian travel ways and appropriate sight distances for both vehicular and pedestrian traffic will be provided at all times.

3. Since this project is still at the conceptual stage, the location of a site for a construction staging area has not been determined and impacts on traffic are conjectural. The final EA will state that the site will be chosen in consultation with the Department of Transportation Services to ensure that traffic impacts are minimized.

If you have any additional comments or questions, please do not hesitate to contact me at 524-0355.

Sincerely,

Robert W. Purdie Jr.

Robert W. Purdie, Jr., P.E.
Project Manager

680 Iwilei Road, Suite #410, Honolulu, HI 96817 Tel: 808.524.0355 Fax: 808.524.2446
www.gkoassociates.com

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF

June 13 2002

Regulatory Branch

Ms. Jaqueline A. Parnell, AICP
KRP Info Services
1314 King Street, Suite 951
Honolulu, Hawaii 96814-1944

Dear Ms. Parnell:

This letter is written regarding comments to the Draft Environmental Assessment for the Kokokahi Drainage Improvements project located in Kaneohe, Hawaii. The project involves the rerouting of existing overland flow from Malulani Street into newly installed pipes which will be directed into an existing 4'x3' box drain located below Kaneohe Bay Drive. The box drain exits into Kaneohe Bay.

It does not appear that the upper drainage improvements will involve the discharge of fill material into waters of the U.S., however it is unclear whether improvements at the outlet located below the high tide line in Kaneohe Bay will be performed. Therefore, it is not possible to reach a conclusive determination regarding Department of the Army (DA) permit requirements at this time. For your information, the proposed work will ***not*** require a DA permit as long as all work at the outlet into Kaneohe Bay is conducted above the high tide line which is the limit of jurisdiction for the discharge of fill material under Section 404 of the Clean Water Act. A final determination regarding DA permit requirements for this project will be made after your office has submitted additional information on work proposed at the outlet structure located at Kaneohe Bay.

Thank you for the opportunity to review a copy of the draft EA. File Number 200200318 is assigned to this project. Please refer to this number in any future correspondence with our office. Should you need additional information, please feel free to contact Ms. Lolly Silva of my staff at (808) 438-7023, or FAX 438-4060.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

97-220A

YWCA
O'ahu

RECEIVED
MAR 21

March 11, 2002

Committed to the empowerment of women and girls and the elimination of racism

Mr. Robert Purdie, Jr.
GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, Hawai'i 96817

Re: Kokokahi Place Drainage Improvements
Draft Environmental Assessments, Kaneohe Bay, O'ahu

Dear Mr. Purdie:

The YWCA of O'ahu has asked its consultants to review the Draft Environmental Assessment (EA) prepared by the City & County of Honolulu Department of Design & Construction and dated January 2002 for Drainage Improvements to Kokokahi Place. Since the improvements are traversing our Camp Kokokahi property, these improvements are of great interest to the YWCA. While the YWCA supports the intention of improving the drainage conditions in the surrounding area, we have some concerns about the report submitted to us.

1. The Preliminary Engineering Report (PER), including any hydraulic analysis, was not attached to the draft EA. The YWCA would like to receive a copy of the PER for further review by our consultants.

2. The YWCA is in the process of implementing a Capital Improvement Plan that includes improvements to Camp Kokokahi. Included in the work currently underway are newly paved parking access roads and parking lots, new handicap ramps and pathways and improvements to various buildings. Therefore, any new work being affected by the drainage improvements should be completely replaced rather than being patched. One of the monekeypod trees being relocated is a large tree and may not survive relocation. The YWCA would like additional details on how, to where and for how long it is proposed that three of its structures will be relocated.

3. The YWCA serves a diverse cross-section of the population, including a large number of children. The YWCA would like to see a detailed construction plan and schedule that explain how the YWCA's operations will be affected and how its users will be protected.

YWCA OF O'AHU
100 YEARS OF *Empowering You*

Lanlakea Center/ Executive Offices
1040 Richards St.
Honolulu, HI 96813
Ph (808) 538-7061
Fax (808) 545-2832

Camp Kokokahi
45-035 Kaneohe Bay Dr.
Kaneohe, HI 96744
Ph (808) 247-2124
Fax (808) 247-2125

Housing Program
1566 Wilder Avenue
Honolulu, HI 96822
Ph (808) 941-2231
Fax (808) 949-0266

4. The YWCA has some concerns that the new drainage system will increase the amount of runoff across the YWCA property. We would like to be kept abreast of the progress of the design and be given the opportunity to continue to review the plans.

Thank you for providing us with a copy of the draft EA and an opportunity to comment on it.

Sincerely,

Cheryl Ka'uhane
President and Chief Executive Officer

cc: Cindy Thompson, Thompson Matheny
Anne Mapes, President, Belt Collins

GKO
& ASSOCIATES
Consulting Engineers

August 21, 2002
97-820A

Ms. Cheryl Ka`uhane
YWCA of Oahu
1040 Richards Street
Honolulu, Hawaii 96813

Re: Kokokahi Place Drainage Improvements
Draft Environmental Assessment

Dear Ms. Ka`uhane:

Thank you for your letter of March 11, 2002 concerning the Kokokahi Place Drainage Improvements Draft Environmental Assessment.

In response to your concerns,

1. A copy of the Final Engineering Report has been provided to the YWCA's Facilities Committee Representative, Ms. June Nakamura, of Engineering Solutions, for her further review.

2. We understand that the YWCA is in the process of implementing CIP projects for Camp Kokokahi, and any of the new work being affected by the drainage improvements should be completely replaced rather than being patched. Currently we only have a drainage study, but the City is aware of your request and will make sure that the design consultant will take your issues into consideration. Regarding the monkeypod tree and trailer relocation, a site visit on May 31, 2002, revealed that the monkeypod tree and trailer have already been removed and/or relocated. There are two portables requiring relocation during construction, and they may be moved back to their original locations after construction, if desired.

3. The designer and/or contractor can provide the YWCA with the construction plans and schedule. The contractor will be required to coordinate his operations with the YWCA, and please know that the users of the YWCA will be absolutely protected at all times.

4. The proposed drainage improvements will not increase the amount of runoff across the YWCA property. Hydraulic calculations for the existing drainage structures crossing the property revealed that a large portion of the 4'x3' box drain is grossly deficient in

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capacity. The proposed 7'x3' parallel box drain will remedy the deficiency makai of Kaneohe Bay Drive. The City and Design Consultant will be kept abreast of both design and construction activities.

Please feel free to contact us if you have any additional questions or concerns.

Sincerely,

Robert W. Purdie Jr.

Robert W. Purdie, Jr., P.E.
Project Manager

97-E20A

Rod Fukunaga
45-284 Kokokahi Pl.
Kaneohe, Hawaii 96744

March 16, 2002

Mr. Robert Purdie, Jr.
GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Subject: Kokokahi Place Drainage Improvements

Environmental Assessment

Kaneohe Bay, Oahu, Hawaii

I received your note and copy of the Draft Environmental Assessment for the Kokokahi Place Drainage Improvements Kaneohe, Oahu. I would like to thank you for this assessment and for providing me with the opportunity to provide some feedback. I apologize for my late reply since your note indicated that the deadline for comments was March 11, 2002. I hope that you will be able to accept or consider my feedback regarding the subject since I live at 45-284 Kokokahi Pl., which is referred to several times in this assessment as the "Kokokahi Place cul-de-sac". My location at this cul-de-sac results in my property being the ultimate recipient of all of the runoff, debris and water that is described in the referenced assessment.

After reviewing the subject assessment several times, I would like to submit my feedback regarding the report and some inaccuracies or seeming mis-representations in this assessment.

1. Chapter 1, Section 1.2, Page 5, paragraph 2 states that I installed a trench drain along the edge of my driveway and that this drain is also connected to my garage roof gutter. This paragraph is incorrect. The two 6" pipes referenced in this paragraph are both from my driveway. There is no garage gutter that feeds these 6" pipes. Therefore, these two 6" driveway drainage pipes receive the majority of the runoff ending in the Kokokahi Place cul-de-sac. The fact remains that two 6" pipes in my driveway are unable to handle the runoff that occurs during heavy rain resulting in my garage being flooded at least once each and every year.

2. The cover photo of the report/assessment shows a picture of the East leg of the Kokokahi Place cul-de-sac. The actual problem of excess runoff occurs "along the west leg of Kokokahi Place....." as stated at the top of page 5 of this assessment. I believe that this picture mis-represents the area of the 'problem'.

3. Chapter 2, Section 2.2.3, Page 10, " Analysis Results/Problem Areas", last paragraph states: "results indicate that the major problem areas.....happen below Kaneohe Bay Drive." This statement seems to ignore the fact that flooding exists at the Kokokahi Place cul-de-sac, and, if the cul-de-sac flooding is not properly handled, may even exacerbate the "4' X 3' box drain..." being grossly undersized if the magnitude of the cul-de-sac runoff has been underestimated due to item # 1 above.

4. Chapter 2, Section 2.3, Page 11 "Recommended Project": states that the intent of the project is " to alleviate the flooding experienced by those residents.....immediately below the cul-de-sac." This statement also seems to ignore the fact that severe flooding is occurring at the cul-de-sac.

5. Chapter 2, Section 2.3.1 Page 11 "Kokokahi Place cul-de-sac Improvements": also notes that the complaints are filed by Kokokahi residents located below the kokokahi Place cul-de-sac. This also seems to ignore/minimize the fact that complaints also have been filed/reported for flooding at the cul-de-sac.

6. Overall Concern: All indications appear to indicate that 'something' will be placed at the Kokokahi Place cul-de-sac. I am concerned that if this 'something' is a simply a drain with a grate covering it to catch debris, that at the first heavy rain, this 'grated drain' will be covered by leaves, branches, and whatever else flows freely down Kokokahi Place and will render this drain inoperative, resulting in continued flooding of my home and garage.

I look forward to further discussions and hope that my above indicated items will be addressed or explained to my satisfaction. I appreciate the opportunity that you have provided me for input and feedback.

Sincerely,

Rod Fukunaga

Rod Fukunaga

GKO
& ASSOCIATES
Consulting Engineers

August 21, 2002
97-820A

Mr. Rod Fukunaga
45-284 Kokokahi Place
Kaneohe, Hawaii 96744

Re: Kokokahi Place Drainage Improvements
Draft Environmental Assessment

Dear Mr. Fukunaga:

Thank you for your letter of March 16, 2002 concerning the Kokokahi Place Drainage Improvements Draft Environmental Assessment.

In response to your concerns,

1. We apologize for mis-stating the status of the drainage appurtenances on your property. The two 6" pipes and the trench drain along the driveway edge are both visible from the roadway. We will revise the report to eliminate the reference to the garage roof gutter. The intent of the proposed drainage improvements is to mitigate this flooding you experience.

2. The cover photo of the Draft Environmental Assessment was intended to show the general project area, not necessarily to identify the problem.

3. The project does not ignore the fact that flooding exists at the Kokokahi Place cul-de-sac. The original scope of the project was to alleviate flooding at the cul-de-sac only. Preliminary calculations revealed that the existing 4'x3' box drain, below Kaneohe Bay Drive, has less than half the capacity required for the expected flow. Being that the box drain is the sole outlet for the drainage into Kaneohe Bay, it does not seem prudent to fix drainage problems upstream, without fixing the problems downstream as well. The proposed drainage improvements are meant to both alleviate flooding at the cul-de-sac, and increase the capacity of the existing system below Kaneohe Bay Drive.

4. The description "those residents...immediately below the cul-de-sac" was meant to refer to your and your neighbor's properties, those located below the roadway elevation. Again, the project's main intent is to alleviate the severe flooding occurring at the cul-de-sac. The proposed drain inlets along Kokokahi Place should catch the storm run-off before it reaches your property.

5. The improvements discussed in the Draft Environmental Assessment are a result of a drainage study. They should not be considered a final construction design. Once the city

680 Iwilei Road, Suite #410, Honolulu, HI 96817 Tel: 808.524.0355 Fax: 808.524.2446
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& ASSOCIATES
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allocates funds in the budget for the project, they will hire a consultant to complete the design.

We have proposed using drain inlets to catch the flow before it reaches the properties downhill. That flow will then be routed through drainage pipes and drain boxes to discharge into the existing system below Malulani Street. The drain inlets are proposed to be of the grated type, typical of City & County drains for non-standard roadways. You are correct, debris may get caught and collect in the grate. However, the grate has been sized to handle the estimated flow with a 75% clear opening. It will be up to the City maintenance crew to monitor the debris and clean the accumulated debris as necessary.

Please feel free to contact us if you have any further questions or concerns.

Sincerely,

Robert W. Purdie Jr.

Robert W. Purdie, Jr., P.E.
Project Manager

6/3/02 **Kokokahi Pl. Drainage Study and Environmental Assessment** 1
RESIDENT RESPONSE

FROM: Robert H. Kai Sr.
45-265 Kokokahi Pl.
Kaneohe, HI 96744
TO : Robert W. Purdie, Jr.
GKO & Associates (Consultant)
680 Iwilei Road, Ste. 410
Honolulu, HI 96817
(808) 524-0355
(808) 524-2446 FAX
rpurdie@gkoassociates.com
VIA : Albert Miyashiro
City & County of Honolulu
Department of Design & Construction
650 S. King Street, 15th floor
Honolulu, HI 96813
(808) 527-5155

SUBJ : Resident Response to Kokokahi Pl. Drainage Study/Environmental Assessment

REF : (a) 1 June 02 subj. discussions

ENCL: (1) Historic Hawaiian River Outlet Filter, Diagram w/notes.
(2) Additional concern.

Hauoli Aloha!

1. In response to reference (a), enclosures (1) and (2), herein, express my concerns. They, perhaps should also apply to all Oahu and other islands, regarding drainage discharge into rivers and ocean.

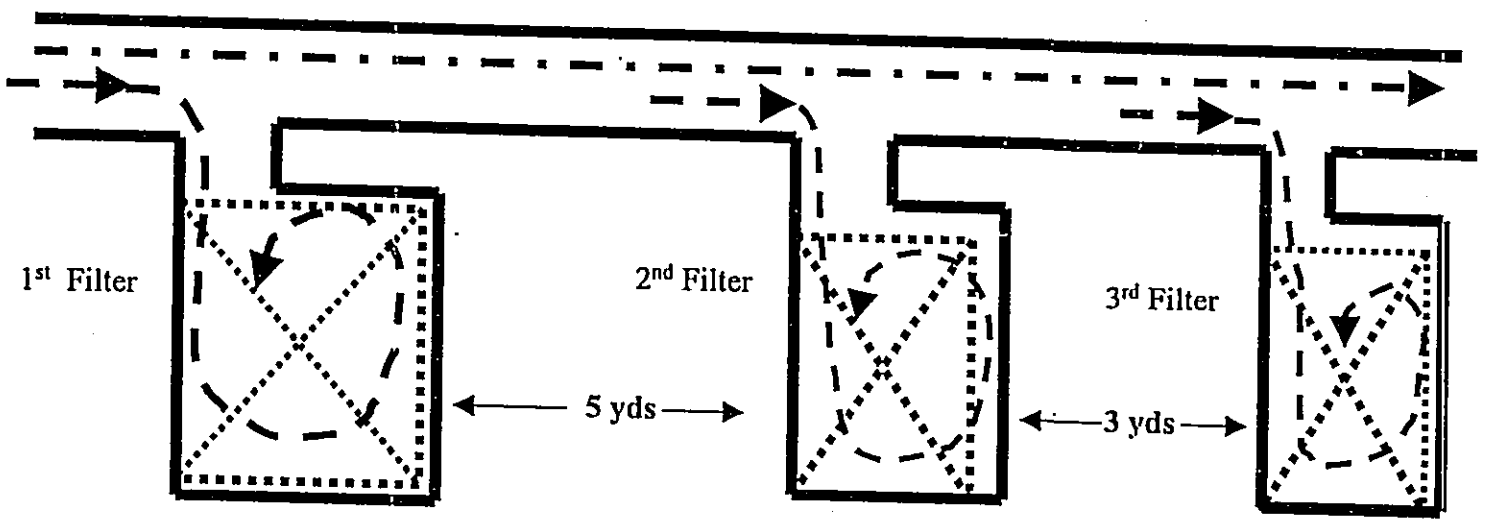
   a. Enclosure (1) illustrates a solution to:
      1) Preclude violation of Environmental Regulations; and
      2) Prevent sediment/debris discharge into our ocean.
   b. Enclosure (2) express my concerns on government projects that apply excuses for justifications.

2. Expanding on enclosure (1)

   a.. Distance between filters may vary;
   b. Size of filters may vary.
   c. Distance and size varies with average velocity of flow and volume.
      1) The size of conduit or flow channel determines size of filter. That shown is for 24" conduit.
      2) The velocity of flow determines distance between filters. That shown is for moderate velocity. Distance should increase with velocity.

CC to Mayor Jeremy Harris

Historic Hawaiian, River Outlet Filter



Legend:

= Drainage Duct

= Filtered Water Flow

= Under Tow

= Fibre-glass door access

Filter dimensions may vary.

1st Filter = 4x4x4 ft

2nd Filter = 3x3x3 ft.

3rd Filter = 2x2x2 ft.

Notes:

1. Filter system should be placed where flow velocity is greatest and past last drain box exiting to Kaneohe Bay. However, it would appear that the greatest velocity would be at the bottom of descent between Kokokahi Pl. and Maunalani St..
2. Historically, Hawaiians merely dug ditches near the outlets of rivers and built stone walls on the ocean side of the ditch. This created an undertow which held sediment and debris. Clear water passed over the stone walls into the ocean. Annually, or as necessary, villagers cleaned out the filter system and hauled the sediment/debris to fill in farm land for their crops (sweet potatoes, breadfruit, etc.).
3. The modified system shown above allows residents to collect sediment and debris from the system by opening levered fibre-glass doors (shown), after rains and storms have passed. Residents at Kokokahi Pl. can use this collection to fill-in eroded areas on their property or fill areas for vegetable gardens.

Additional concern:

PRELUDE:
The Historic Hawaiian River Outlet Filter System was a Kapu system to prevent sediment and debris from destroying ocean life near shorelines. Hawaiians knew that sediment could easily suffocate ocean life and coral which sea creatures feed on. A Kapu system was established to prevent this. Each village in the area was responsible for rivers and sea life. As a result each village built Filter systems based on the same principle shown above. Each village took personal interest in the protection of their food supplies.

FACT:
Your report on present conditions of storm discharge and poor water quality caused by discharge into Kaneohe Bay is no reason to continue the years of destruction caused by neglect. The near-shore reef flats ruined by years of neglect should not be ignored because of prior governmental ignorance. We can put a stop to it and do what is right.
When we stop our torture of nature by responsible behavior, the life that was once destroyed by others, will return and serve us, like it did my ancestors. It is true that ignorance of others can deprive God given life of the innocent. But the innocent is the reason why life can be rejuvenated. That life can rise out of nowhere, when the actions of responsibility are revived.

IGNORANCE:
The excuse to continue with errors simply because more of it will not change anything, is the mark of stupidity and ignorance which seems to permeate our government. The wheel may have already been invented. But ignorance is still ignorance when the ignorant think that a box is a wheel.
"Destroying nature because it appears dead is not the solution to reviving it." We live on an island that was once thriving with life and beauty. We need nature to continue surviving. Killing it, kills us.

GKO
& ASSOCIATES
Consulting Engineers

August 21, 2002
97-820A

Robert H. Kai, Sr.
45-265 Kokokahi Place
Kaneohe, HI 96744

Subject: Kokokahi Place Drainage Improvements Draft Environmental Assessment, Kaneohe Bay, Oahu

Thank you for your letter relating to the June 1, 2002 discussions on how to improve the drainage system for Kokokahi Place.

Although a lack of sufficient land area prevents this approach from being used in Kokokahi, we believe it deserves serious consideration for other areas. We have taken the liberty of forwarding a copy of your letter to the Kailua Bay Advisory Council which provides grants for projects that can significantly improve water quality within the Kailua watershed.

If you have any additional comments or questions, please do not hesitate to contact me at 524-0355.

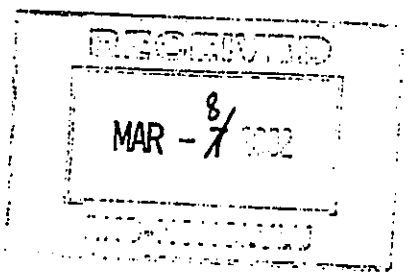
Sincerely,

Robert W. Purdie, Jr., P.E.
Project Manager

680 Iwilei Road, Suite #410, Honolulu, HI 96817 Tel: 808.524.0355 Fax: 808.524.2446
www.gkoassociates.com

97820A

45024-1 Malulani Street
Kaneohe, Hawaii 96744
March 4, 2002



Mr. Robert Purdie, Jr.
GKO & Associates
680 Iwilei Road, Suite 410
Honolulu, Hawaii 96817

Dear Mr. Purdie:

Kokokahi Place Drainage Improvements
Draft Environmental Assessment

Thank you for providing me a copy of the Draft EA for the above project. My wife and I own the residential property at 45024-1 Malulani Street and an undivided interest in the abutting roadway which provides vehicular and pedestrian access to our home. I am writing to provide comments on the Draft EA. I have shared this letter with my neighbors, whose properties will also be impacted by the proposed project, and they have asked to be added as co-signers.

Please pardon my use of underlining. It is provided to assist you in identifying my specific requests for revisions or additions to the EA.

General

Please note that the summary table in the Draft EA does not include TMK 4-5. Please include in the Draft EA tax key maps of the impacted properties and a new table listing the tax map key numbers of the properties impacted by the proposed project.

Section 2.1

Paragraph two references the Final Engineering Report as the source of data presented in the Draft EA, but the report is not provided as an appendix. I have now reviewed the FER and find that your discussion of the regional drainage basins in the Draft EA could be greatly improved by including relevant information from the FER. It would be helpful to include a figure in the Draft EA depicting the existing drainage basins, as presented in Figure 4 of the FER. However, Figure 4 of the FER is extremely difficult to read. Please revise Figure 4 of the FER by using an aerial photo of the area, overlaid with the drainage basin information, and include the revised figure in the EA. (Perhaps you might consider reviewing sheet number 576-84 of R.M.Towill's aerial survey of O'ahu conducted for the City and County Planning Department in the 1960s as a possible base map, and determine if there is a more recent update available.) Also please add a discussion of the relationship between the regional drainage basins discussed in the FER and the proposed drainage improvements. I ask for these revisions because the Draft EA does not appear to include a comprehensive discussion of flooding in the area mauka of Malulani Street. As a point of fact, a drainage pipe crossing the property identified as TMK 4-5-31:86 empties into the private ditch briefly discussed on page 8 of the Draft EA. Figure 4 of the Draft EA depicts a small portion of the pipe at the extreme left center of

the figure, but does not appear to provide any description of it or the volume of storm runoff it contributes to the private ditch. Where does this pipe begin? Which drainage basins identified in the FER contribute flow to this pipe and how much? How much of the storm runoff volume estimated to flow through the private ditch is attributable to the drainage pipe that crosses parcel 86?

I have confirmed with Dr. James Bibb that his existing home on parcel 86 has flooded on at least two occasions in the past 10 years due to surface flow entering the property at its south eastern corner. What is the source of this flow? Has it been accounted for in the drainage analysis conducted for the project? Will the proposed project alleviate it or prevent it from recurring during a flood event?

The brief discussion of the private ditch in the first paragraph on page 8 of the Draft EA is inadequate. The private ditch separates my property from parcel 04. Neither I nor the owner of parcel 04 was ever contacted to discuss the origin of this ditch or how the proposed project might affect it. The origin of this ditch and its existing physical character is directly relevant to the proposed project.

Kyunojo and Sadako Matsuno purchased a property from the Richards Trust on May 4, 1945. In 1962, they subdivided their property into two lots (now 85 and 04). Their original house was located on my property (parcel 85). It is my understanding that a stream ran across the property. The private ditch discussed in the Draft EA was constructed to channelize that stream and prevent flooding. I am advised by Mr. George Tahara, the former owner of parcel 01, which abuts the south side of my property, that there used to be a pond and a waterfall on the property now identified as parcel 118. Parcel 118 was subdivided from Tahara's property and subsequently filled and developed.

I offer this information because it appears that the private ditch channelized a stream which provided an outlet for waters from the pond. What was the extent of the stream channelization project and how did the drainage pipe across parcel 86 tie into it? Does this information affect the conclusions of the flood study presented in the FER?

The parentheses in the middle of paragraph one on page 8 of Draft EA about the presumed origin and purpose of the ditch suggests that more information is needed about Kokokahi's historic drainage patterns. This needs to be resolved in the EA.

The last two sentences of paragraph one on page 8 of the Draft EA state that because the ditch is privately owned, it was not included in the drainage model. However, the contents of the Draft EA indicate that the ditch is the source of flooding that appears to impact the entire project area makai of Malulani Street. How is it possible to determine the capacity of future drainage improvements if the potential volume of storm water to be accommodated by those improvements is only partially estimated? Please revise the drainage study and the EA to accurately assess the regional flood conditions, including the waters that are conveyed by the private ditch.

Section 2.3.1

The methodology of dismissing the relationship of private property to the proposed project in Section 2.1 appears to extend to Section 2.3.1. Parcel 105 is a privately owned road that provides the sole vehicular and pedestrian access to parcels 01, 05, 85, 86, and 118. The road is owned by four of these five property owners (01,85, 86, and 118): each sharing an undivided interest The drainage improvements proposed below the Kokokahi cul-de-sac extend down the length of parcel 105.

I cannot determine if Figures 10 and 11 in the Draft EA adequately address the physical character of the location where the private ditch and parcel 105 intersect. However, it appears to me that the Draft EA does not consider the fact that the intersection of the private drive and the private ditch consists of a concrete slab across the open ditch. In other words, the entire width of parcel 105 at the point where it intersects the ditch is actually a bridge. Please address the following questions in the EA. Will the drainage line proposed to be constructed within parcel 105 extend beneath (under) the bottom of the existing ditch or through it? If the drainage line extends through the ditch walls under the bridge, won't that create an obstacle to water flowing into the ditch from the underground drainage pipe that feeds it, resulting in potential flooding, not to mention potential damage to the bridge by water undermining it from beneath if obstructed by the drainage pipe and forced upward? Please discuss in the EA how drainage into and through the private ditch will be impacted by the excavation of the trench for the drainage line and installation of the drainage line and box drain in proximity to the ditch.

In reviewing Figure 7, it is also difficult to understand how the proposed drainage easement may impact existing structures in its immediate vicinity. For example, the proposed easement appears to include most of an existing CMU wall that forms the western property boundary of parcel 118. Will the proposed project require either partial or total removal of the wall? If removed, will it be replaced? There is an existing utility pole identified in the area immediately fronting the stand-alone garage on parcel 85. Based upon the scale of Figure 7, it appears that the utility pole is approximately 2.5 feet from the centerline of the proposed 24-inch pipe. Will excavation for the drainage line require temporary removal of the utility pole? How will the pole be impacted by construction? How will electricity, telephone, and cable TV service be provided to the properties that rely upon this utility pole, should it be impacted by construction activities?

I understand that these are engineering questions and that they might be dismissed with the response that they cannot be addressed at this time. However, Tables 1 and 3 of the Draft EA appear to present rather detailed information pertaining to the cost of the proposed project. Therefore, please indicate where the costs related to the CMU wall and the utility pole appear in Tables 1 and 3. If the aforementioned items are not already included in Tables 1 and 3, please add them and revise the cost estimates as needed and provide a discussion of the impacts and potential mitigations in the appropriate sections of the EA.

Section 4.9

As discussed above, parcel 105 although privately owned is the only pedestrian and vehicle access to parcels 4-5-31:01, 05, 85, 86, and 118. The heading of Section 4.9 does not distinguish between publicly and privately owned roadways. Please add parcel 105 as a roadway that will be affected by the proposed project.

Section 5.1

I am troubled by the statement concerning potential soil erosion due to the steep terrain and, when taking into consideration the content of Sections 5.2 and 5.5, the apprarent dismissal of this impact because of the already degraded quality of the bay in this area. I agree that a Best Management Practices Plan discussing in detail how soil erosion will be controlled is necessary, and I request that it be included as an appendix to the EA. I do not believe that the proposed Finding of No Significant Impact can be issued without first evaluating the methods that will be employed to mitigate potential impacts to the water quality of Kane'ohe Bay. If the proposed mitigation measures are determined to be effective, then the accepting agency will be in a much better position to render its FONSI. However, the EA should disclose the BMP plan to assist consulted parties in evaluating the project's impacts.

Section 5.4

I note that while a section on terrestrial flora is provided, the EA provides no discussion of terrestrial fauna or avifauna, either here or in Chapter 4. I raise this point because over the past several years, we have been visited during the winter by a pair of birds which I have been advised are mountain thrushes. I am told that they are very rare on O'ahu. If these birds are in fact the endangered Kauai thrush (*puaiohi*), then they are considered to be endangered by the U.S. Fish & Wildlife Service. I do not know if their presence for only a portion of the year would result in the area of Kokokahi being considered a habitat, but I think it would be prudent to investigate their presence. Please add a discussion of terrestrial fauna and avifauna to Chapter 4 and an analysis of the project's impacts on terrestrial fauna and avifauna to Chapter 5, including mountain thrushes, if applicable.

I am curious about how the determinations were made in the EA concerning terrestrial flora and aquatic flora and fauna in the absence of field work. The document's references cite a 1990 EIS for the Bayview Golf Course project, a 1991 guide to the Kane'ohe Bay marine environment, and the 1998 Atlas of Hawaii, but include no inventory surveys specific to the project. The EA appears to assume that because a project is located in a residential area, the environment is considered to have been disturbed to the point where it no longer contains potentially significant environmental resources. While this may be true for some residential areas in urban Honolulu, the assumption is faulty when applied to the Kokokahi community. A review of an aerial photo will reveal that the Kokokahi community in the vicinity of Malulani Street is actually a relatively narrow strip

of residential development that separates Kane'ohe Bay from the immense undeveloped Kaneohe Forest Reserve that extends inland. Thus, from a regional perspective, the presence of the homes may be inconsequential to the flight patterns and habitats of birds in the forest reserve. Therefore, I do not agree with the characterization of the area in Sections 4.5 and 4.7 as a "fully developed area" and I request that a more accurate description of the area be provided, including an evaluation of its immediate proximity to the Kane'ohe Forest Reserve.

With regard to the bay, there has been a considerable amount of information gathered since the 1991 study referenced in the EA. I recommend reviewing environmental documentation prepared in the last few years in conjunction with on-going development activities at the Kane'ohe Marine Corps Base, since it is situated in proximity to the south end of the bay. As a point of fact, a quick search on the internet of local planning documents yielded twenty-four different environmental studies conducted for areas within Kane'ohe Bay since 1991, including the May 1992 Kane'ohe Bay Master Plan and a 1996 nearshore area study of the southern portion of the bay. Of particular concern is whether there has been any observed improvement to the degraded condition of the south bay over the past decade.

With regard to the Bayview Golf Course EIS, I would note that the golf course is located nearly a mile west of Kokokahi Place and is surrounded by residential development and a sewage treatment plant. Using it as the source of information about the Kokokahi environment may not be appropriate. I therefore request that the EA be revised to include a discussion of how the assessment concerning terrestrial and aquatic flora and fauna was made, and that the document clearly disclose the basis for determining that no significant habitats or species are impacted when, in fact, no inventories or field work appears to have been conducted.

Section 5.8

As discussed above, parcel 105 provides the only pedestrian and vehicular access to TMK parcels 4-5-31: 01, 05, 85, 86, and 118. Therefore, I cannot agree with the statement that Malulani Street will be most affected by construction. It appears to me that by excavating a trench down the entire length of parcel 105, our private road will easily be the most affected by construction. Naturally, we are quite concerned about how these impacts on parcel 105 will be mitigated. The EA states that the project will take up to six months to complete. Does this mean that vehicles will be unable to use our road for up to six months? How will this impact be mitigated? Please address this matter in the EA. In addition, it appears that excavation of a trench for a 24-inch drainage line, together with the box drain, within a 10-foot wide easement that crosses diagonally over a 20-foot wide roadway may have serious impacts on pedestrian traffic as well. Please address the impacts of the proposed project on pedestrian use of parcel 105 and discuss how these impacts will be mitigated.

In light of my comments on Section 2.3.1 above, I request that the EA discuss how

the project will impact the concrete slab that forms a bridge over the private ditch that intersects parcel 105, and how the impact will be mitigated. I recommend that Tables 1 and 3 of the EA also be revised to address the cost of mitigating the impacts to vehicular and pedestrian access. Please explain in the EA what alternatives will be employed to provide pedestrian and vehicular access to parcel 105 during the time that the concrete slab over the ditch is removed. Do Tables 1 and 3 include the cost of restoring the bridge? It should be noted that a hedge has been cultivated on the western side of the bridge to function as a protective barrier. Removal of the concrete slab will also require removal of the hedge. Will restoration of the bridge include a railing to replace the destroyed hedge?

Section 5.10

While typical heavy construction equipment noise levels may be within the decibel range identified for a daytime, noisy urban environment, the neighborhood around the proposed project is not a noisy urban environment. It is, in fact, an extremely quiet setting due in large part to its proximity to the Kane'ohe Forest Reserve. I request that the content of this section be revised to evaluate the noise impacts of construction upon the area, including possible bird habitats, and that the best management practices plan which I have requested as an appendix to the EA also include mitigation measures for noise impacts.

Section 5.11

In light of the anticipated impacts of the project upon parcel 105, and the fact that our water lines and meters and utility lines are situated within parcel 105, please revise this section to address the specific impacts of the project on the provision of water and utilities to each of the private residential properties abutting parcel 105, and present measures that address how the impacts will be mitigated.

Chapter 6

Page 15 of the OEQC guidebook for the State Environmental Review Process states, "The EA should discuss the project impacts in relation to each of these [significance] criteria in detail. It is not sufficient to simply state that a project does not have any significant impacts or to just restate each criteria in its negative form." However, this is exactly what the EA does in Chapter 6. Please revise Chapter 6 in its entirety to conform with the intent of the OEQC guidebook on this matter. Please include under each significance criteria, an explanation of how a determination was made that the project will not have a significant impact. In particular, please provide a detailed discussion under item 2 (curtails use of the environment), item 7 (degradation of the environment), item 9 (endangered species habitat), and item 10 (air and noise quality), in light of the comments contained in this letter.

Consultation Process

In talking about this project with each of my neighbors and the YWCA, I learned that no one was contacted by the City or its consultants, which appears to be in direct conflict with the commitment made to me by Robert Purdie in his response to my letter of February 27, 2001 requesting to be a consulted party and requesting that my neighbors be notified.

Summary

I believe that the EA is deficient in its treatment and discussion of the existing conditions, its methodology for the flood study, the project's anticipated impacts upon parcel 105 and the surrounding Kokokahi community, and in identifying measures to mitigate impacts including viable alternatives for pedestrian and vehicular access to parcel 105.

The project appears to have a significant effect under Section 11-200-12(b)(2) Hawaii Administrative Rules, which states that an action shall be deemed to have a significant effect on the environment if it "...curtails the range of beneficial uses of the environment." As proposed, the project may prevent access and utility service to our homes by excavating parcel 105 for up to six months. Paragraph b-2 makes no mention of time period or short-term vs. long term impacts. The loss of access and utility service to our homes during the construction period would deny us the beneficial use of our properties. Thus, the proposed finding of no significant impact may be premature until the matters presented in this letter are fully addressed.

If you wish to discuss the project with me, I can be reached during the day at 539-1313, or at home in the evenings at 236-2836.

Very truly yours,

Lee William Sichter,
Co-owner of TMK 4-5-31:85 and an
undivided interest in 4-5-31:105

Carol Lynn Nowak Sichter

Carol Lynn Nowak Sichter,
Co-owner of TMK 4-5-31:85 and an
undivided interest in 4-5-31:105

-over-

Dr. James L. Bibb,
Co-owner of TMK 4-5-31:86 and an
undivided interest in 4-5-31:105

Dr. Margo Peter,
Co-owner of TMK 4-5-31:86 and an
undivided interest in 4-5-31:105

William Birmingham,
Owner of TMK 4-5-31:118 and an
undivided interest in 4-5-31:105

cc: OEQC
DDC

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& ASSOCIATES
Consulting Engineers

August 21, 2002
97-820A

Mr. Lee W. Sichter
45024-1 Malulani Street
Kaneohe, Hawaii 96744

Re: Kokokahi Place Drainage Improvements
Draft Environmental Assessment

Dear Mr. Sichter:

Thank you for your letter of March 4, 2002 concerning the Kokokahi Place Drainage Improvements Draft Environmental Assessment.

In response to your concerns,

1. *Include tax maps and a new table listing the tax map key numbers of the properties impacted by the proposed project.*

   Agreed, tax maps and a table indicating TMK numbers of the impacted properties will be included in the Final Environmental Assessment.

2. *Revise Figure 4 of the FER in the Draft EA. Review sheet 576-84 of R.M. Towill's aerial survey of Oahu conducted for the City & County Planning Department. Add a discussion of the relationship between the regional drainage basins and the proposed drainage improvements. Include discussions of flooding in the area mauka of Malulani Street, the drainage pipe leading to private ditch and the volume of storm runoff it contributes.*

   R.M. Towill's aerial survey is the resource that was used to create Figure 4 of the Final Engineering Report. It is not necessary to include the drainage basin maps in the Environmental Assessment. The maps were prepared to determine the total flow contributing to the system, but the main objective of this project is to remove water from the Kokokahi Place cul-de-sac only. The flooding of the properties mauka of Malulani Street is considered a private matter, and not within the scope of the project. The flow through the drain pipe and private ditch have been accounted for in the hydrologic analysis. The exact flow through each is unknown, but will not impact the overall drainage calculations, nor the proposed improvements under the current scope of work. An analysis of the private ditch showed that it has adequate capacity for the expected flow.

3. *Parcel 86 has experienced flooding. What is the source of this flow? Has it been accounted for in the drainage analysis? Will the proposed project alleviate or prevent it*

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from recurring during a flood event?

The drainage improvements will not significantly improve the drainage problems experienced by the properties between Kokokahi Place and Malulani Street, but will not worsen the problems either. The primary beneficiaries of these drainage improvements will be those properties that currently receive runoff from Kokokahi Place, Parcels 1 and 2.

4. *Expand on the discussion of the private ditch located within Parcel 4. How did the drainage pipe across Parcel 86 tie into the ditch? Does this information affect the conclusions of the study?*

The ditch channelization project was a private project. Regardless of how the drainage pipe ties into it, the ditch does not affect the current drainage improvements project.

5. *The Draft EA states that because the ditch is privately owned, it was not included in the drainage model. However, it also indicates that the ditch is the source of flooding that appears to impact the entire project area makai of Malulani Street. Revise the study and the EA to accurately assess the regional flood conditions, including those waters conveyed by the private ditch.*

The potential source of flooding for the existing system referred to in the draft EA is the five foot wide concrete lined ditch that runs perpendicular to Malulani Street and Kaneohe Bay Drive, not the private ditch in Parcel 4.

The private ditch was not included in the hydraulic analysis, because it is not a part of the City's system. However, the flow carried by the ditch was included in the system analysis.

6. *Will the drainage line proposed to be constructed within Parcel 105 extend beneath the bottom of the existing ditch or through it? Discuss in the EA how the private ditch will be impacted by the project.*

Figure 11 shows that the drain line will go beneath the existing ditch. We have not determined at this time how construction will take place, but whatever is decided should not affect the flow within the ditch. Should the Contractor elect to remove the existing box drain to facilitate construction, it will be reconstructed.

7. *Will the project affect the wall along Parcel 118 and the utility pole fronting Parcel 85?*

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Include related costs as needed to relocate and/or restore these structures in Tables 1 and 3. Provide a discussion of the impacts and potential mitigations in the EA.

The project is not expected to affect any of these structures. The proposed easement shown is a typical 10 foot wide easement reserved for maintenance purposes. It is not an indication that any structure will be affected. The utility pole will be properly braced during construction and should not be impacted. The cost estimate tables provided in the EA are preliminary, at best. A more accurate cost estimate can and will be developed during the actual design phase. However, a discussion of the impacts and mitigations will be added to the EA.

8. *Add the driveway, Parcel 105, as a roadway that will be affected by the project.*

Concur, will add the driveway as an affected roadway.

9. *Include a Best Management Practices Plan as an appendix to the EA.*

A BMP plan is not normally included in the EA. It is construction related and will be prepared prior to construction as part of the permitting process. Kaneohe Bay is Class AA water and environmental controls will be stringent.

10. *Add a discussion of terrestrial fauna and avifauna to Chapter 4 and an analysis of the project's impacts on terrestrial fauna and avifauna to Chapter 5, including mountain thrushes, if applicable.*

We should be concerned only along the proposed alignment, which closely follows an existing sewer easement. Since the sewer construction seemingly had no problems, we had assumed that the storm drain construction should not either. Further, as with typical City drainage projects, construction will take place during summer months, so the winter thrushes should not be affected.

11. *Request for a more accurate characterization of the area, including an evaluation of its immediate proximity to the Kaneohe Forest Reserve. Does not agree with the characterization that it is a "fully developed area".*

The work in the mauka areas will be within a City street, one private property and one driveway. This has the appearance of being fully developed.

12. *Review environmental documentation prepared in the last few years; has there been any*

observed improvement to the degraded condition of the south bay? Revise EA to include discussion of how the assessment concerning terrestrial and aquatic flora and fauna was made.

There is no money in the budget to perform site specific field work. We used the best resources available. It appears to be irrelevant to expand the EA to include surrounding areas, since there will be no impact other than in the vicinity of the disturbed areas.

13. *Address impacts on Parcel 105 (private driveway). What will happen to the concrete slab that forms a bridge over the private ditch? What will become of the hedge adjacent to the bridge?*

Agreed, will include Parcel 105 as a roadway affected by the project, and address impacts and mitigations. Total construction time should be approximately 6 months; the time to install the drain line down the private driveway should be about 2 weeks. Pedestrian access through the driveway will always be maintained. Vehicular access during non-working hours will always be maintained, via steel plates, or similar. However, during working hours, there will be times when portions of the driveway may be inaccessible.

The proposed drain will go underneath the ditch. We have not gone into the final design phase to determine whether the ditch will be removed and reconstructed, or if the improvements can be installed without disturbing the ditch.

The hedge will not be affected. As with any City construction project, all improvements will be restored or appropriate compensation will be made.

14. *Revise Section 5.10 to evaluate the noise impacts of construction upon the area. Include noise mitigation measures in BMP plan.*

The Contractor will minimize noise impacts. There will be some noise; it cannot be avoided. However, the City can limit the times during which construction can take place.

15. *Include the impacts of the project on water and utility services to those properties abutting Parcel 105.*

Any necessary utility relocation will be done prior to the installation of the drain. There will be a temporary cessation of services which cannot be avoided.

16. *Revise Chapter 6 to conform with the intent of the OEQC guidebook. Include under each*

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significance criteria an explanation of how a determination was made that the project will not have a significant impact.

Other EAs have been done in this fashion. The impact is insignificant, so this is adequate.

17. *Claims that community was not consulted regarding the project.*

In June of 2001, the proposed drainage project was presented at the Kaneohe Neighborhood Board meeting. In January 2002, the draft Environmental Assessment was mailed out to the community. The June 2002 meeting to discuss the community's issues regarding the project is also another means through which consultation has occurred. As requested at the June 2002 meeting, the City and future Design Consultant will work with the community during the design phase of the project.

We appreciate your comments, and will work on revising the Environmental Assessment to address your issues. Please feel free to contact us if you have any further questions or concerns.

Sincerely,

Robert W. Purdie Jr.

Robert W. Purdie, Jr., P.E.
Project Manager

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& ASSOCIATES
Consulting Engineers

September 23, 2002
97-820A

Mr. William S. Birmingham
45020-B Malulani Street
Kaneohe, Hawaii 96744

Re: Kokokahi Place Drainage Improvements
Draft Environmental Assessment

Dear Mr. Birmingham:

Thank you for your letter of March 4, 2002 concerning the Kokokahi Place Drainage Improvements Draft Environmental Assessment. Please find attached a copy of the response provided to Mr. Lee Sichter.

Please feel free to contact us if you have any further questions or concerns.

Sincerely,

Robert W. Purdie, Jr., P.E.
Project Manager

680 Iwilei Road, Suite #410, Honolulu, HI 96817 Tel: 808.524.0355 Fax: 808.524.2446
www.gkoassociates.com

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& ASSOCIATES
Consulting Engineers

September 23, 2002
97-820A

Dr. James L. Bibb & Dr. Margo Peter
45020-A Malulani Street
Kaneohe, Hawaii 96744

Re: Kokokahi Place Drainage Improvements
Draft Environmental Assessment

Dear Drs. Bibb & Peter:

Thank you for your letter of March 4, 2002 concerning the Kokokahi Place Drainage Improvements Draft Environmental Assessment. Please find attached a copy of the response provided to Mr. Lee Sichter.

Please feel free to contact us if you have any further questions or concerns.

Sincerely,

Robert W. Purdie, Jr., P.E.
Project Manager

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www.gkoassociates.com

June 1, 2002 Community Meeting
Agenda and Minutes

AGENDA

Meeting on

KOKOKAHI PLACE DRAINAGE IMPROVEMENTS

Kokokahi YWCA, Kaneohe, Hawaii

June 1, 2002

10AM - Noon

1. Introduction of Attendees
2. Presentation of Project
3. Issues Raised in Comments on Draft Environmental Assessment
4. Questions and Discussion
5. Future of Project

ISSUES

KOKOKAHI PLACE DRAFT ENVIRONMENTAL ASSESSMENT

June 1, 2002

1. Need to discuss regional drainage basin and relationship of the proposed project.

2. Effect of project on flooding currently experienced in the following parcels:

   - Parcel 02, 45-284 Kokokahi Place
   - Parcel 86, 45-020/A Malulani St

3. Need to address Kokokahi's historic drainage patterns.

4. Need to include Parcel 105 (private driveway) in project description and discuss impacts.

5. Impacts on existing utilities, walls, hedges.

6. Need to prepare and include a BMP (Best Management Practices Plan) for soil erosion in Final EA.

7. Need to describe existing terrestrial fauna & avifauna and provide more information on the aquatic environment.

8. Need more discussion on noise impacts and mitigation measures.

9. Effects on YWCA properties.

KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
DRAINAGE STUDY AND ENVIRONMENTAL ASSESSMENT
CITY & COUNTY OF HONOLULU

- The City & County of Honolulu is undertaking a drainage study, preliminary design and environmental assessment of drainage improvements for the Kokokahi Place cul-de-sac area and portions of existing City drainage features makai of Kaneohe Bay Drive within the YWCA properties. The project is completing the environmental assessment. Your input into the project development is welcomed and desired.

- Proposed drainage improvements include:

  Minor pavement berming along Kokokahi Place to direct drainage to three new drain inlets. Regrading a portion of Kokokahi Place at the cul-de-sac to ensure positive drainage to drain inlets.

  Installation of a new drainage line (24-inch transitioning to a 3'x2' box drain, and then to a 4'x2' box drain) extending from the Kokokahi Place cul-de-sac to Malulani Street.

  New 7' wide by 3' deep box drain to parallel the existing drain makai of Kaneohe Bay Drive to the existing discharge outlet at Kaneohe Bay.

  The proposed project alignment and arrangement are attached in the figure.

- Project design storm: 50 year storm recurrence interval per City and County of Honolulu drainage standards for the Kokokahi Place cul-de-sac, and 10 year storm recurrence interval per City and County of Honolulu drainage standards elsewhere.

- Project issues and possible mitigation:

  Soil Erosion: A management plan to control soil erosion will be developed before construction of the drainage improvements is undertaken. However, because of the steep terrain, there is a potential for loss of soils along the alignment from the cul-de-sac at Kokokahi Place down to Malulani Street, even with best management practices in effect.

  In the long term, there should be a reduction in soil erosion as runoff currently moving as sheet flow is funneled into drainage channels.

  Water Quality: During construction, there may be an increase in soil erosion. Drainage improvements from the Kokokahi Place cul-de-sac downhill may result in soil loss despite the application of best management practices because of the steepness of the terrain. Construction of the parallel box drain below Kaneohe Bay Drive may also result in a short-term negative impact on water quality.

The total quantity of water will not be increased by the proposed drainage improvements. However, the flow rate of the water discharged during storm events will increase. This may have some adverse effect on nearshore waters during and after storm events.

Terrestrial Flora: There will be destruction of vegetation in the area of construction. The area does not support any native plant-dominated vegetation types. There is no threatened, endangered or rare flora in the project area.

Aquatic Flora & Fauna: This portion of Kaneohe Bay has generally poor water quality and few aquatic fauna. The nearshore reef flat has little discernible permanent habitat for marine or estuarine species and demonstrates extremely low biological diversity. Improvements to the drainage facilities are expected to neither improve nor worsen this situation.

Archaeological Historic & Cultural Resources: The Historic Preservation Division has assessed the project site and concluded that because the proposed improvements will occur in areas that have been previously disturbed by the existing underground concrete storm drain and effluent force main within the area, there will be no effect on significant historic sites.

Land Use Plans: The Koolaupoko Sustainable Communities Plan recommends the use of on-site retention systems to manage storm water flows wherever feasible. Unfortunately, this option is not possible within this older subdivision. It should be noted that the volume of surface runoff will not be changed, only the flow pattern. There will be no increase in the quantity of storm water discharging into Kaneohe Bay.

Traffic: Kokokahi Place and Malulani Street will be disturbed temporarily during construction. Activities will be planned in cooperation with local residents and the Honolulu Police Department to minimize disruptions. Kaneohe Bay Drive will not be disturbed. A construction staging area will be established for the project. If it is off-site, this may result in more impacts to traffic.

Air Quality: Construction activities will generate exhaust products and fugitive dust emissions from vehicles and equipment used to build the new structures. Air quality effects will be short-term in nature. Workers will be scheduled to arrive and depart the site during non-peak traffic hours.

Noise: Intermittent elevated noise levels from specific construction activities are unavoidable, but are expected to be short-term and minor. Typical heavy construction equipment noise levels are within the decibel range identified for a daytime, noisy urban environment.

Utilities: Two 6-inch waterlines crossing Malulani Street cannot be avoided while maintaining the required capacity of the drain line. Since water lines operate under a pressure system, and the drainage system operates under gravity, the 6-inch waterlines

will need to be relocated during construction. Kokokahi Place cul-de-sac water meters and water laterals may also be affected in the final design of drainage structures. Construction activity will be planned and coordinated with the Honolulu Board of Water Supply.

No other utilities will be affected by the project.

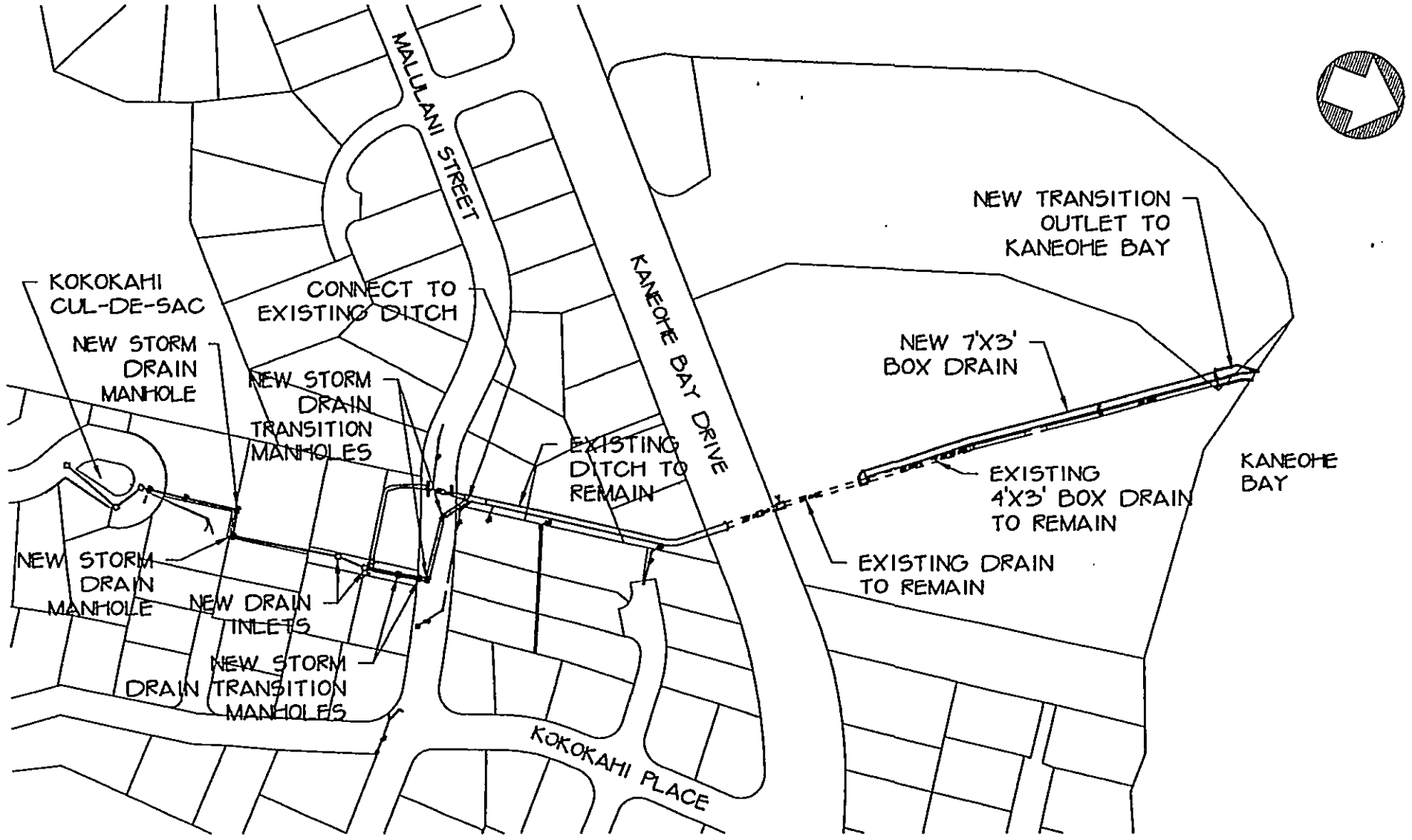
- Permits and Approvals Required

Permits and approvals anticipated for the project:
Special Management Area (SMA) Permit
Shoreline Setback Variance
U.S. Army Corps of Engineers Permit

You can help us understand the community needs and concerns for this project and help determine the project outcome. Please forward your interest and comments to:

Robert W. Purdie, Jr.
GKO & Associates (Consultant)
680 Iwilei Road, Ste. 410
Honolulu, HI 96817
808-524-0355, 808-524-2446 fax
e-mail: rpurdie@gkoassociates.com

Albert Miyashiro
City & County of Honolulu
Department of Design & Construction
650 S. King Street, 15th Floor
Honolulu, HI 96813
808-527-5155



PROPOSED DRAINAGE SYSTEM

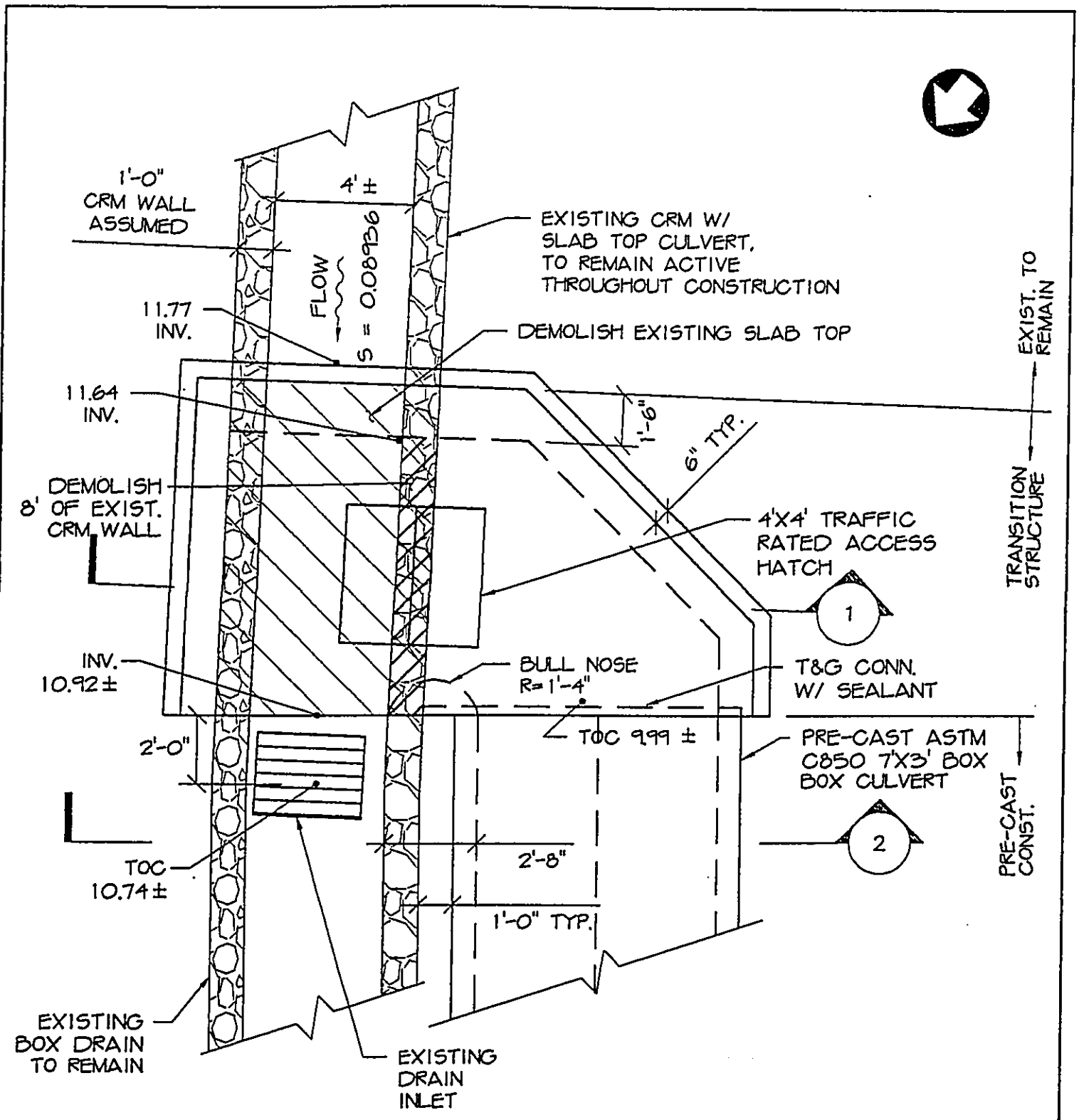
NOT TO SCALE

CITY & COUNTY OF HONOLULU — DEPARTMENT OF DESIGN & CONSTRUCTION

GKO & ASSOCIATES
KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
DRAINAGE STUDY
KANEOHE, OAHU, HAWAII

DECEMBER 2001
GKO JOB NO. 97-820A

FIGURE 5



PROPOSED KOKOKAHI DRAINAGE SYSTEM
TRANSITION STRUCTURE PLAN

SCALE: 1/4" = 1'-0"

CITY & COUNTY OF HONOLULU — DEPARTMENT OF DESIGN & CONSTRUCTION

GKO & ASSOCIATES
KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
DRAINAGE STUDY
KANEOHE, OAHU, HAWAII

DECEMBER 2001
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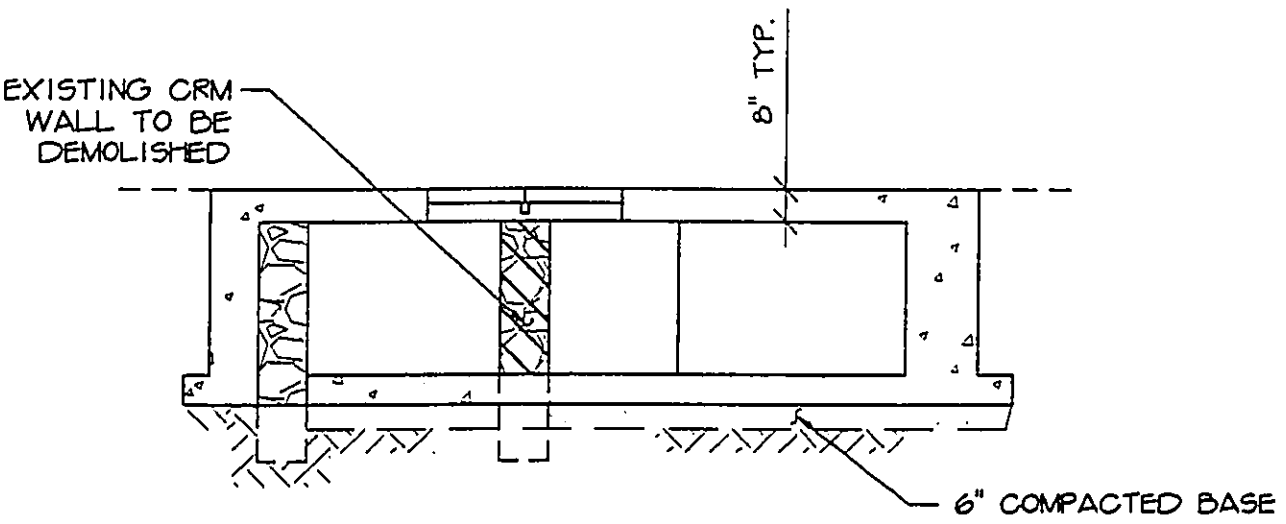
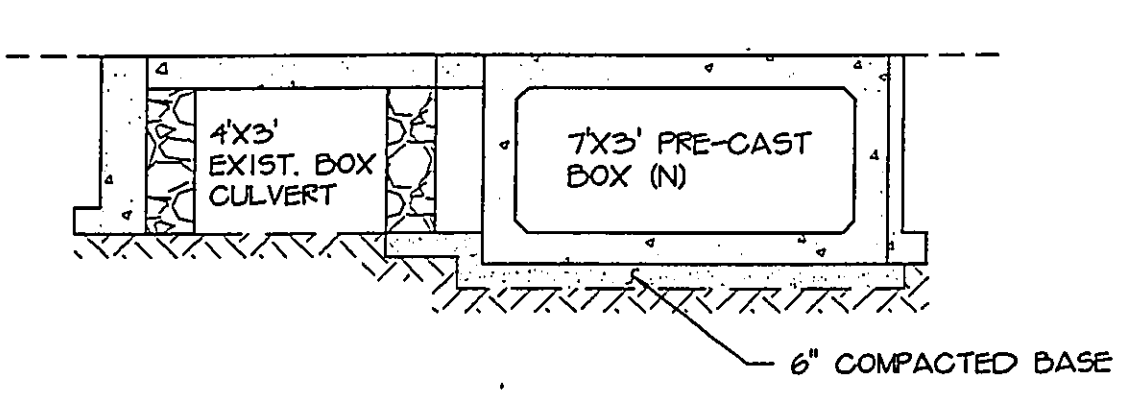
FIGURE 26



1 TRANSITION STRUCTURE SECTION



2 TRANSITION STRUCTURE SECTION

PROPOSED KOKOKAHI DRAINAGE SYSTEM
TRANSITION STRUCTURE ELEVATION & SECTIONS

SCALE: 1/4" = 1'-0"

CITY & COUNTY OF HONOLULU — DEPARTMENT OF DESIGN & CONSTRUCTION

GKO & ASSOCIATES
KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
DRAINAGE STUDY
KANEOHE, OAHU, HAWAII

DECEMBER 2001
GKO JOB NO. 97-820A

FIGURE 27

Kokokahi Place Drainage Improvements
Draft Environmental Assessment
Community Meeting Minutes
Kokokahi YWCA Atherton Hall
June 1, 2002
10:00 am-12:00 pm
Amended July 31, 2002

Attendees: John Bay, Kamakau School; James Bibb; William Birmingham; Dorothy Deimel; Bill Fiddler; Melvin Foster; Stanley Gibbs; Richard Hey; Albert Matsuno; June Nakamura, YWCA; Jane Nakazaki; Roy & Sharon Nihei; Daisy Payton; Lee Sichter; Ronald White.
City & County of Honolulu: Albert Miyashiro
GKO Associates: Robert Purdie, Jr.; Valerie Hirano
KRP InfoServices: Jacqueline Parnell

Jackie Parnell of KRP InfoServices opened the meeting explaining that the draft Environmental Assessment had been prepared and sent out for comments. Based on the responses we received, it seemed like the community had concerns with the project. This meeting was organized to discuss any issues that the community has, and to ultimately determine if the project has their support.

She introduced GKO and C&C representatives, and asked those around the room to introduce themselves.

Bob Purdie of GKO & Associates presented a brief background of the project, then proceeded to discuss some issues that were raised in the draft EA comments.

The following questions raised by community members were discussed.

1) **Mr. John Bay** (Principal of Kamakau School, soon to relocate to Kokokahi YWCA site) is concerned about the relocation of two existing portables and the impacts it might have on his school. He was wondering if the location of the transition structure is required as shown, or can it be moved along the existing drain.

The location of the transition structure will be in the close proximity where shown in the draft EA. It may move a few feet up or downstream.

2) **Mr. Bill Birmingham** (owner of 45-020 B Malulani Street, co-owner of Parcel 105) asked if there are going to be more detailed drawings of the drain line, especially in the private driveway.

GKO's scope of work includes a drainage study only. Plans and cost estimates as included in the draft EA are preliminary, and subject to revision during the design phase.

3) **Ms. June Nakamura** (Engineering Solutions, Inc., YWCA Facilities Committee) questioned why a 50-year storm was used at the Kokokahi Place cul-de-sac, while only a 10-year storm was used elsewhere.

The cul-de-sac may be considered a sump area, thus a 50-year storm was used to calculate the expected flow, based on City & County storm drainage standards.

4) **Mr. Lee Sichter** (owner of 45-024-1 Malulani Street, co-owner of Parcel 105) wanted to clarify his and his neighbors' (co-signers of his letter) position on the drainage project. The comments made on the draft EA were not intended to stop the project. They do want to know all of the construction impacts that the project will have on Parcel 105 (private driveway fronting Malulani Street), as well as the mitigation measures. He advised that two of the four property owners, who co-own the private driveway, have legal licensed home offices on site that would be severely impacted by the construction. They want to ensure that pedestrian and vehicular access will be maintained.

Again, it was clarified that the effort was for a drainage study, so it is premature to establish what specific mitigation measures will be applied. It will be up to the designer and contractor and the City, however standard construction methods, if not better, will be used.

5) **Mr. Roy Nihei** (co-owner of 45-024A Malulani Street, Parcel 1) was concerned that he, his wife, and mother-in-law were not sent a copy of the draft EA or informed of the meeting. Also was concerned about the impacts this project would have to his driveway access. The access to his property is at the top of the private driveway. His driveway is extremely steep, and also at an angle; due to a health condition, his mother-in-law cannot walk up the driveway, she must be driven. Will his driveway always be accessible?

The driveway will not be accessible while construction activities are taking place for the drainline installation. However, all trenches will be covered with steel plates to provide access during non-working hours.

6) **Mr. Sichter** was concerned about an existing box drain that crosses beneath the private driveway.

The existing drain will not be disturbed. The proposed drain line will cross beneath the existing drain. However, should the Contractor elect to remove the existing box drain to facilitate construction, it will be reconstructed.

7) Various residents expressed concerns regarding the drainage problems on their or their neighbors' properties (esp. Dr. Bibb's property, Parcel 86).

We explained that this project was started due to complaints filed by the Kokokahi Community Association, on behalf of Mr. Fukunaga (owner of Parcel 2). The drainage improvements were to alleviate flooding experienced at the cul-de-sac. Preliminary calculations of the existing system revealed that the system downstream of Kaneohe Bay Drive is grossly deficient in capacity. The scope of the project was expanded to increase the capacity of the system across the YWCA property.

Mr. Miyashiro explained that the City can only address "City" water, that is water that falls or drains to City roadways. The City does not address private waters. The primary beneficiaries of this project should be the Parcels 1 and 2.

8) **Dr. Jim Bibb** (owner of 45-020A Malulani Street, co-owner of Parcel 105), whose property has flooded twice in the past 10 years due to "private" water, asked what other recourse does he have, if the City will not take responsibility for his flooding?

As this is a private drainage system, Dr. Bibb has to hire his own engineer and construct improvements at his expense.

9) **Mr. Bay** asked about the timing of the construction. And also expressed his concerns regarding the relocation of the portables and the monkeypod tree, the location of the transition structure, and wondered if any other alternatives were studied for the YWCA property.

Mr. Miyashiro replied that the exact timing for the construction is unknown. Mr. Purdie said that optimistically, it would begin in 5-10 years. He also explained that a detention basin alternative was studied to take the flow in excess of the existing box drain capacity. However, the large quantity of flow requiring storage results in a large detention basin, impractical for the site.

10) **Mr. Nihei** asked if any other alternative alignment was studied for the Kokokahi Place area. He relayed his discussion with Dr. Bibb, who believes that there's an existing drainage easement that wraps along Parcels 2, 118, and a 24" drain line cuts through Parcel 86 that discharges into the private ditch. He thinks that this alignment would help Dr. Bibb's flooding problem, be easier to construct, and be less disruptive to all.

Mr. Purdie explained that another alternative was not studied at the Kokokahi Place cul-de-sac. The City's original scope was limited to the current alignment. The intent was to follow the alignment of the existing sewer easement.

11) **Mr. Birmingham** stated that if rescoping the project will kill it, he is against rescoping.

12) **Dr. Bibb** asked what will happen if we rescope the project to include all of their concerns.

Mr. Miyashiro replied that the City would need to adjust GKO's contract. It also would result in revisions to both the Engineering Report and the EA.

13) **Ms. Dorothy Deimel** (owner or 45-020 Malulani Street, co-owner of Parcel 105) asked Mr. Miyashiro what the City's sees as their responsibility concerning water run-off.

Mr. Miyashiro replied that it has always been the City's position that if the water comes from private

property, it is not their responsibility. However, once it touches the roadway, then the City may take care of it.

14) **Mr. Sichter** requested that the scope be expanded to include the study of an alternate alignment as Mr. Nihei pointed out. If it turns out that this other alternative is not feasible, that's fine; they just want to know that other options were studied, before deciding upon an alignment.

Mr. Miyashiro requested that the residents write a letter to the City, expressing their concerns as discussed in this meeting. With the letter in hand, he will see what the City will allow.

No letter was received. However, an investigation was conducted to determine the feasibility of realigning the proposed drainage system to follow the alignment of the existing 24" drainline (see Item 10).

The 24" drainline starts from the existing box drain beneath the common driveway (Parcel 105) at the northwest corner of Parcel 86 (Dr. Bibb's property). It crosses diagonally across Parcel 86 and goes beneath a retaining wall separating Parcels 86 and 118. It then connects to an open ditch on the other side of the wall. This ditch is part of a private drainage system that collects water from the upstream mauka properties.

It is not feasible to follow the alignment of the existing 24" drainline. There will be substantial disturbance to private properties, increased disruption to residents, and construction costs will be higher due to lengthier construction time and restoration of private improvements removed for the construction, including two retaining walls. It would also require the City to analyze, design and have maintenance responsibilities for a private drainage system. The City should not incur any liability for a private system.

The preliminary design shows the installation of a drain inlet fronting Parcel 86. The property owner can, at his expense, construct a drainage system to direct any overflow of the private system into this inlet.

15) **Mr. Sichter** expressed concern regarding a utility pole, walls, and any other structures that seem to conflict with the alignment of the proposed drainage improvements. Why aren't the costs for these relocations included in the cost estimate? How will these interferences be mitigated? How will the drain line alignment affect the properties along the private driveway?

Mr. Purdie replied that we can add contingency costs, to account for relocations, restorations, etc., to the cost estimate. But we need to understand that the cost estimate provided in Drainage Report is for the study purposes only. While it does account for some escalation of costs, it was not intended to be the actual construction cost.

16) **Ms. Nakamura** commented that this study is probably a 10% design. The design, as well as cost estimate, can and will be refined by the actual designer. She asked if the City has any funds already designated for the design and construction of this project.

Mr. Miyashiro replied that no, this project is not in the current City budget.

17) **Mr. Sichter** was concerned that this draft EA comment period is the only time the community can be involved.

Ms. Nakamura responded that on some of the projects that she's worked on in the past, the communities have been very involved. It all depends upon the designer and the City's project manager.

The community should request that they be involved during the design phase.

18) Other issues discussed regarding the EA

a) Request to include the BMP in the EA document.

Typically, the designer prepares the BMP. Mr. Sichter requested that the co-owners of Parcel 105 all be provided a copy of the BMP after it's written.

b) Expand the description on the existing terrestrial fauna and avifauna. Discussion of the winter thrushes that some residents have seen flying above.

We should be concerned only along the proposed alignment, which closely follows an existing sewer easement. We had assumed that since the sewer construction seemingly had no problems, the storm drain construction should not either. In addition, as with typical City projects, construction will take place during summer months, so the winter thrushes should not be affected.

c) Mr. Sichter asked how can we conclude that there will be a FONSI, if we have no substantial evidence to back it up. He requested that the EA explicitly explain the reasons that would lead to a finding of no significant impact.

Ms. Parnell replied that we don't have the budget to perform site specific field studies. We used the best resources that we have available. However, we will add more language addressing mitigation measures that the Contractor will be provided to use.

19) **Mr. Sichter** asked what type of phasing is planned for this project. The residents that depend on the private driveway are concerned as to how they will be impacted. They can't afford to have their

driveway torn up for a 6 month period. If the contractor could use cut and cover methods and trench only a small section at a time, then that would minimize the disruption.

At this moment, we don't know. The designer will determine the phasing.

20) **Mr. Sichter** asked the following questions. What are the noise impacts and their mitigation measures? How will the noise affect the two home businesses? Please revise EA so that Parcel 105 is included as an affected roadway. Also address access, noise mitigation, etc. for Parcel 105.

The Contractor will minimize noise impacts. There will be some noise; it cannot be avoided. However, the City can limit the times during which construction can take place. Pedestrian access will absolutely always be provided. The contractor will have to do his best to provide vehicular access to the properties. There may be some times during which access may be blocked for part of the day, but after hours, all trenches will be covered by steel plates.

21) **Ms. Nakamura** sits on the YWCA facilities committee, and wants the City to understand their position on the project. They want to be a good neighbor, and are willing to allow the box drains if it will better the community. However, they have just invested a lot of money into making improvements to the site. They would appreciate being kept abreast of all construction activities associated with the box drain. The City should coordinate with the YWCA concerning construction schedules. She also would like a copy of the Final Engineering Report.

22) **Mr. Sichter** commented that the EA mentions the need for a Contractor staging area, but the location is not identified. Would it be on Malulani Street?

Mr. Miyashiro replied that the staging area should be relatively small. It will be up to the contractor to determine the staging site. All of the box drains will be precast off site, and brought in for installation, which will decrease the staging area required.

23) **Mr. Sichter** questioned the resurfacing of Parcel 105. When the sewer line was installed, the contractor merely patched the trench, resulting in an uneven terrain. They don't want to have another patch over the new drain line. They would prefer if the entire driveway were resurfaced.

Mr. Miyashiro replied that he doesn't see why the entire driveway could not be resurfaced. It is a relatively small area, and shouldn't cost too much.

24) **Mr. Nihei** asked how long would it take to install the drain line within Parcel 105. He is concerned about the access to his driveway at the top of the private driveway.

The installation of the drain line within the private driveway should be completed in a couple of weeks.

In summary, the following items need to be addressed:

- Study the feasibility of revising alignment of the drain line between Kokokahi Place and Malulani Street. Instead of following existing sewer easement, look into the 24" drain line and culverts that the residents have seen behind Parcel 86.

  Investigation conducted, see response to Item 14.

- Residents are to write a letter to the City explaining their concerns about the project.

- Revise the draft EA to include Parcel 105 as an affected roadway. Include a discussion of mitigation measures for noise and access. Provide better explanations as to how a FONSI determination may be reached.

- Provide YWCA Facilities Committee representative, June Nakamura, with a copy of the Final Engineering Report.

- Keep YWCA abreast of design & construction activities.

Attachments: Attendance List

KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
DRAFT ENVIRONMENTAL ASSESSMENT

Please Print

June 1, 2002 Kokokahi YWCA Kaneohe, Hawaii		
Name: JACKIE PARNELL	Address: 1314 S. KING ST HNL 96814	Representing: KRP INFO SERVICES
Phone:	Fax:	E-Mail
Name: ALBERT MATSUNO	Address: 45-024 Malulani St.	Representing: Self
Phone: (808) 247-2268	Fax:	E-Mail
Name: LEE SICHTER	Address: 45-024-1 MALULANI ST.	Representing: SELF
Phone: 846-3313	Fax: 538-7819	E-Mail
Name: Wm S. Birmingham	Address: 45-020 B Malulani St	Representing: Self
Phone: 236-0275	Fax:	E-Mail bham@hawaii.rr.com
Name: Roy & Sharon Nikei	Address: 3606 Alani Dr. HNL 96822	Representing: Self (Parcel 1)
Phone: 988-5727	Fax:	E-Mail
Name: Melvin Foster	Address: 45137A Kokokahi	Representing: Self
Phone: 2475288	Fax: MrFos@aol.com	E-Mail

KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
DRAFT ENVIRONMENTAL ASSESSMENT

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June 1, 2002 Kokokahi YWCA Kaneohe, Hawaii		
Name: June Nakamura	Address: Engineering Solutions, Inc	Representing: YWCA
Phone: 488-0477	Fax: 488-3776	E-Mail
Name: John Bay	Address: 926 Kaipii Kuhua	Representing: Kamakau School
Phone: 225-6784	Fax: 262-8175	E-Mail ~~jbo~~ jbay@hawaii.rr.com
Name: Richard Hey	Address: 45-232 Kokokahi	Representing: self
Phone: 956-8972	Fax:	E-Mail
Name: Bill Fiddler	Address: 45 092 Pounhn Pl.	Representing: Self
Phone: 808 592-0233	Fax: 808 592-0236	E-Mail BILL@FIDDLERS.NET
Name: Jan Kill	Address: 45-020A Manulani St	Representing: Self
Phone: 235-4421	Fax: 808-235-6622	E-Mail JLBIRD@HAWAII.RR.COM
Name: Ronald White	Address: 45-020A Manulani St.	Representing: Jane Nakazoki.
Phone: 235-7802	Fax:	E-Mail

KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
DRAFT ENVIRONMENTAL ASSESSMENT

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June 1, 2002 Kokokahi YWCA Kaneohe, Hawaii		
Name: Daisy T. Paxton	Address: 45-279 Kokokahi Pl.	Representing: Kokokahi Community Assoc.
Phone:	Fax:	E-Mail
Name: Jane Nakazaki	Address: PO Box 1697, Kaneohe	Representing: Self
Phone: 247-9462	Fax:	E-Mail
Name: Robert Purdie, Jr.	Address:	Representing:
Phone: 524-0355	Fax:	E-Mail
Name: Stan Gibbs	Address: 44-023 Kaneohe Pl	Representing: Self
Phone: 247-3865	Fax: 242-7872	E-Mail
Name: Albert Miyashiro	Address: DOC - C&C	Representing: C&C
Phone: 527-5155	Fax:	E-Mail
Name: Valerie Hirano	Address:	Representing:
Phone: 524-0355	Fax:	E-Mail

KOKOKAHI PLACE DRAINAGE IMPROVEMENTS
DRAFT ENVIRONMENTAL ASSESSMENT

Please Print

June 1, 2002 Kokokahi YWCA Kaneohe, Hawaii		
Name: Dorothy Devinel	Address: 45-020 Mahulani St.	Representing: Home owner on Driveway
Phone: 247-3216	Fax:	E-Mail
Name:	Address:	Representing:
Phone:	Fax:	E-Mail
Name:	Address:	Representing:
Phone:	Fax:	E-Mail
Name:	Address:	Representing:
Phone:	Fax:	E-Mail
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Name:	Address:	Representing:
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APPENDIX B
TMK Maps

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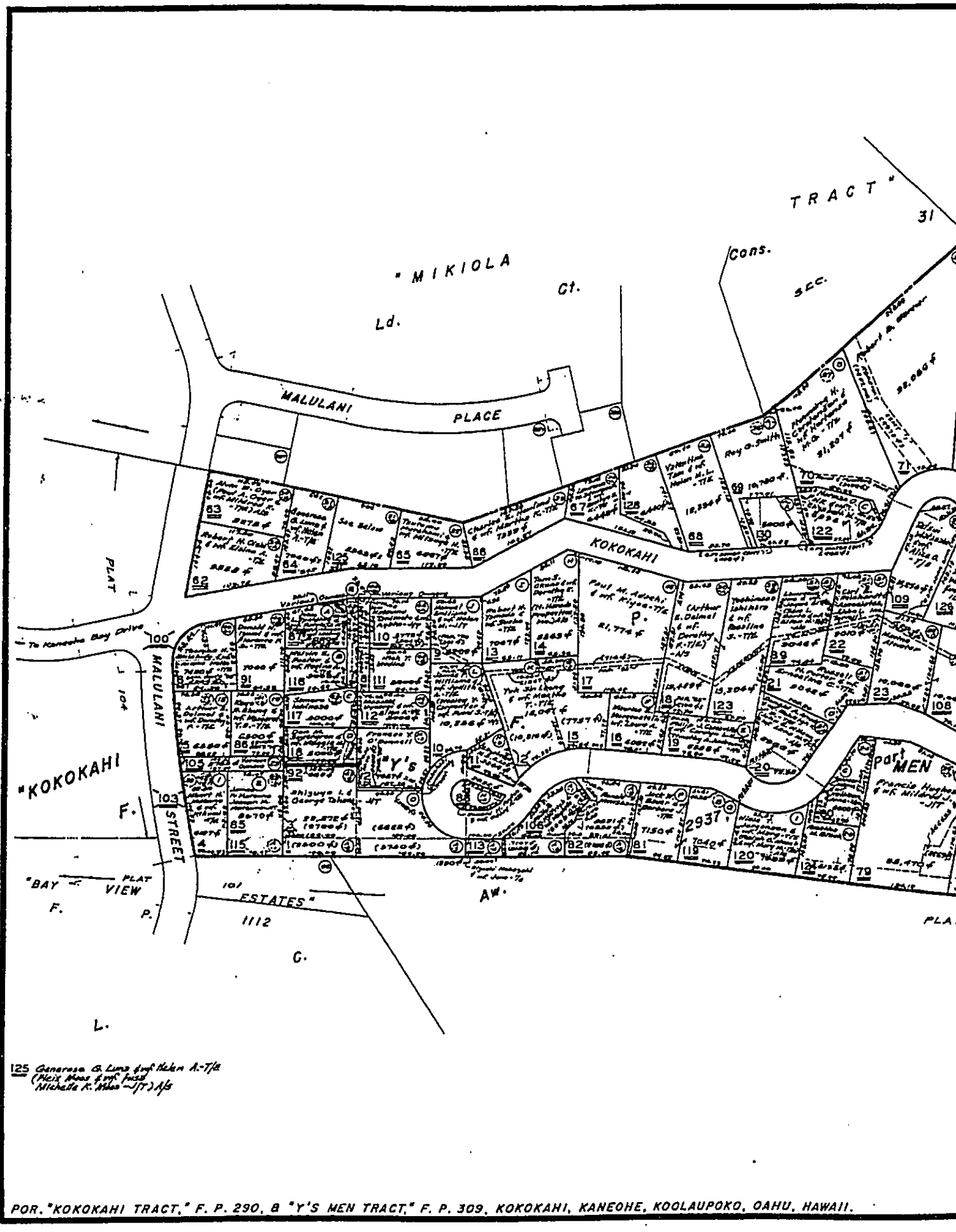

POR. "KOKOKAHI TRACT," F. P. 290, & "Y'S MEN TRACT," F. P. 309, KOKOKAHI, KANEOHE, KOOLAUPOKO, OAHU, HAWAII.

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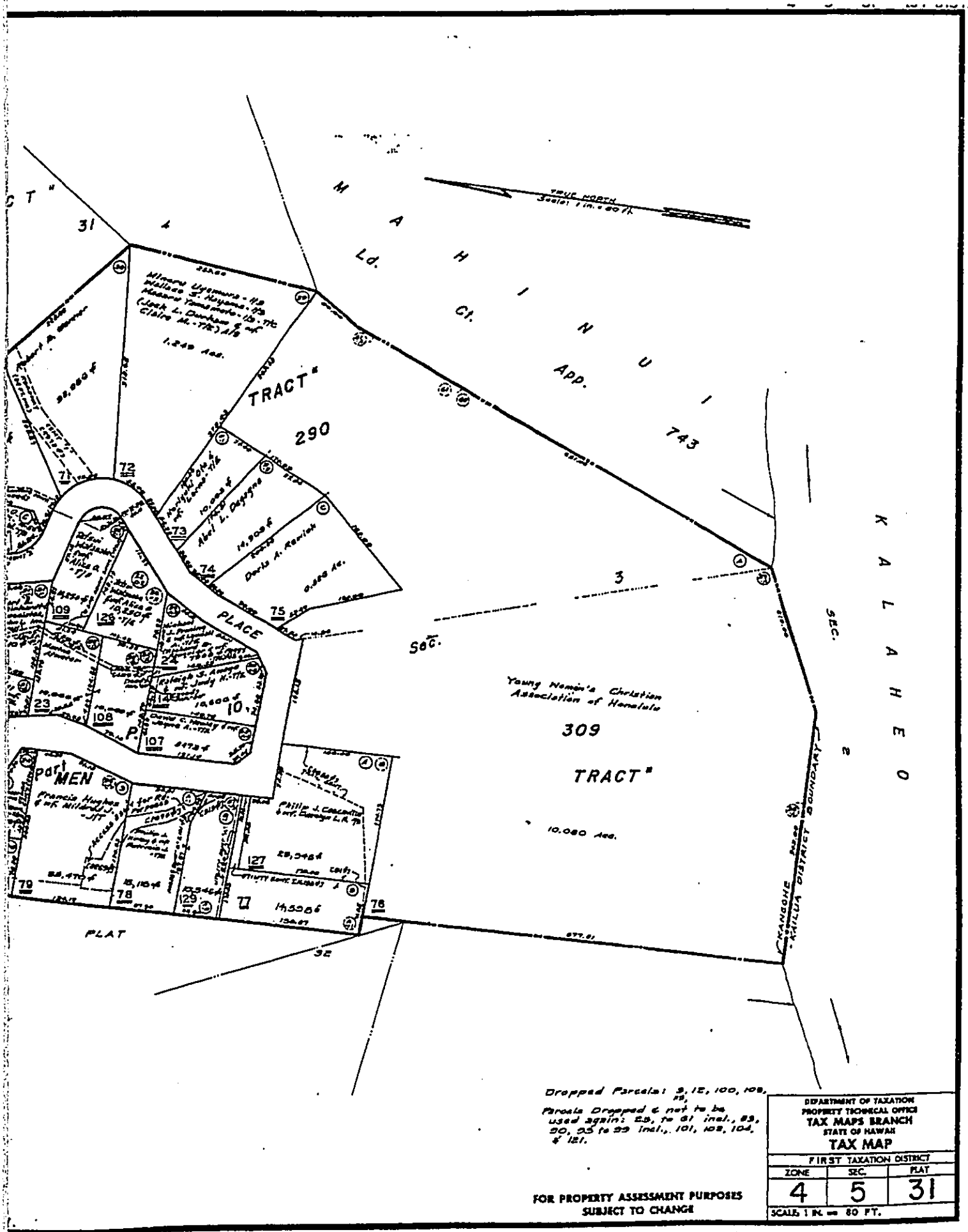

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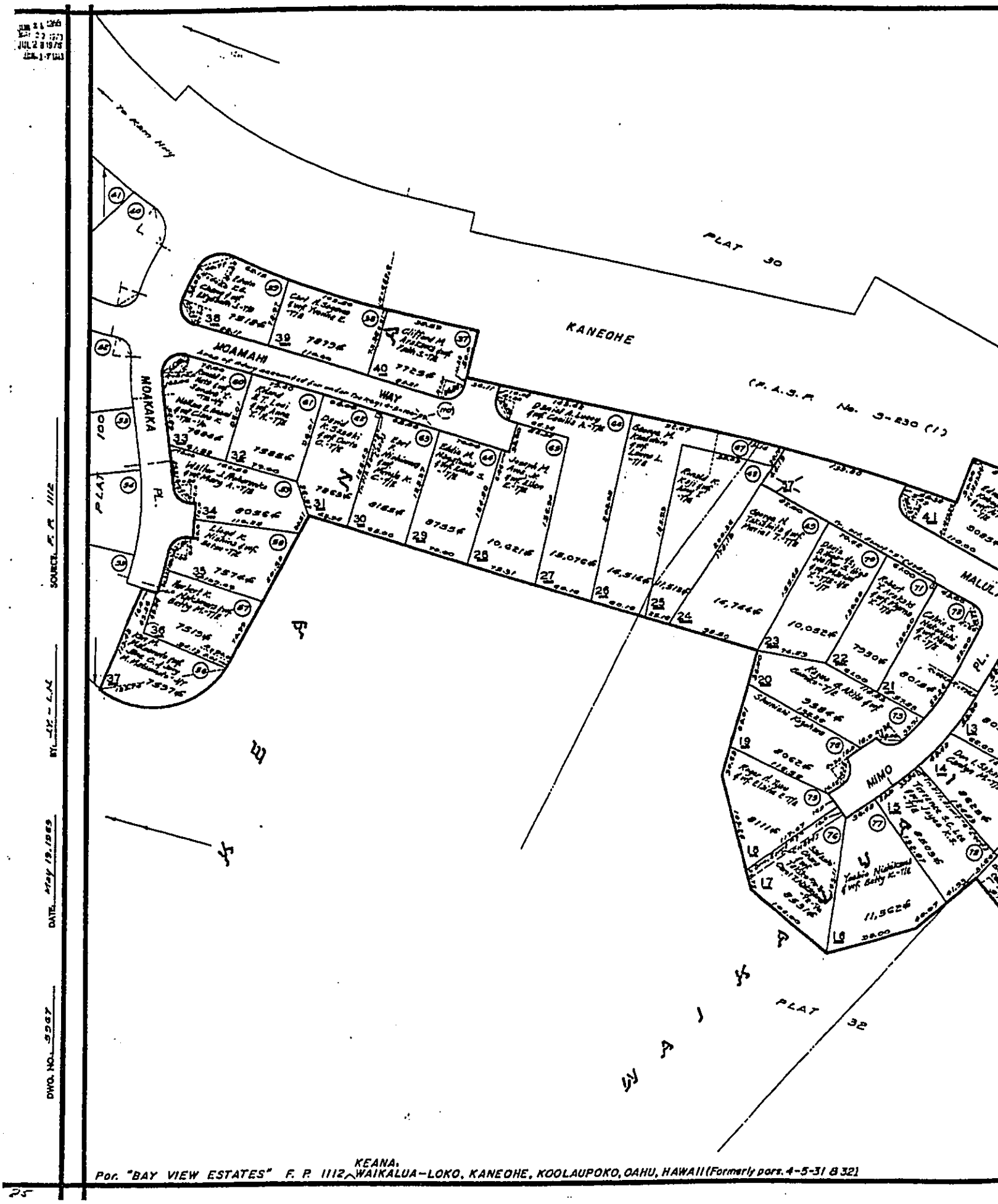

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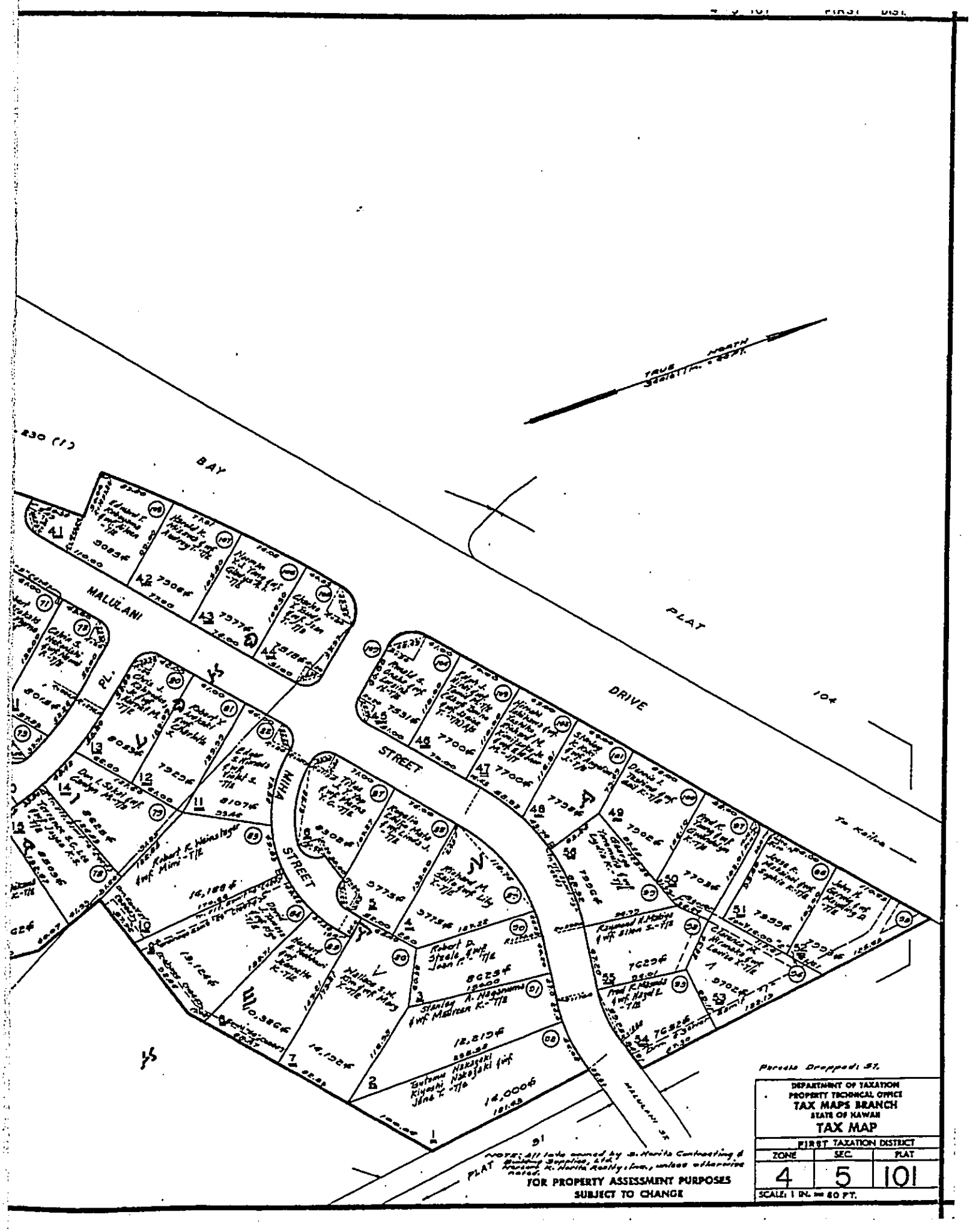

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