CITY COUNCIL

CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAIʻI

No. **21-267, CD1**

RESOLUTION

GRANTING A SPECIAL MANAGEMENT AREA USE PERMIT FOR THE PUNALUU STREAM RESTORATION PROJECT.

WHEREAS, on August 26, 2021, the Department of Planning and Permitting ("DPP") accepted the application (DPP Reference Number 2021/SMA-45) from the Kamehameha Schools (the "Applicant") for a Special Management Area ("SMA") Use Permit to allow for the restoration of the Punaluu Stream on an approximately 599-acre site zoned AG-2 General Agricultural District, Country District, and P-1 Restricted Preservation District, located in the Punaluu watershed on Oahu, and identified by Tax Map Keys 5-3-001:041 and 052, and 5-3-003:001, as depicted in Exhibits A through E attached hereto (the "Project"); and

WHEREAS, the restoration activity will occur on a 121-acre portion (the "Project site") of the 599-acre site, and 53.1 acres of the Project site are located within the SMA; and

WHEREAS, on October 15, 2021, the DPP held a public hearing that was attended by a representative of the Applicant (attending remotely), the Applicant's Agent, DPP staff members, and Department of Information Technology support staff. No member of the general public was in attendance in person, virtually over the phone, or online; therefore, no one provided oral testimony in person or virtually at the hearing; and

WHEREAS, on November 15, 2021, within 20 working days after the close of the public hearing, the DPP, having duly considered all evidence and the objectives, policies, and guidelines, as established in Sections 25-3.1 and 25-3.2, Revised Ordinances of Honolulu 1990 ("ROH"), and Sections 205A-2 and 205A-26, Hawaii Revised Statutes ("HRS"), completed its report and transmitted its findings and recommendation for approval to the City Council; and

WHEREAS, the City Council, having received the findings and recommendation of the DPP on November 18, 2021, by Departmental Communication 767 (2021), and having duly considered all of the findings and reports on the matter, desires to approve the subject application for an SMA Use Permit with the conditions enumerated below; now, therefore,

BE IT RESOLVED by the City Council of the City and County of Honolulu that an SMA Use Permit be issued to the Applicant for the Project, subject to the following conditions:

RESOLUTION

A. Construction must be in general conformity with the Project described in the DPP's findings and recommendations referenced above, and as depicted in Exhibits F through V attached hereto and incorporated herein by this reference. Any changes in the size or nature of the Project, which have a significant effect on coastal resources addressed in ROH Chapter 25 or HRS Chapter 205A, or both, will require a new application and SMA Use Permit. Any change that does not have a significant effect on coastal resources will be considered a minor modification and, therefore, permitted under this resolution, upon review and approval of the DPP Director.

B. If, during construction, any previously unidentified archaeological sites or remains (such as artifacts, shell, bone, or charcoal deposits, human burials, rock or coral alignments, pavings, or walls) are encountered, the Applicant shall stop work and contact the Department of Land and Natural Resources, State Historic Preservation Division ("SHPD"), immediately. Work in the immediate area shall be stopped until the SHPD is able to assess the impact and make further recommendations for mitigative activity.

C. Artificial light from exterior light fixtures, including but not necessarily limited to floodlights, uplights, or spotlights, used for decorative or aesthetic purposes, is prohibited if the light directly illuminates or is directed to project across property boundaries toward the shoreline and ocean waters, except as may otherwise be permitted pursuant to HRS Section 205A-71(b).

D. The Applicant shall coordinate with the U. S. Fish and Wildlife Service ("USFWS") to comply with all of the following conditions relating to flora and fauna mitigation measures:

1. Prior to the commencement of work on the Project site, a qualified biological monitor must conduct Hawaiian waterbird and Hawaiian waterbird nest surveys of the Project site. The USFWS must be notified of, and provided with the results of the preconstruction Hawaiian waterbird and Hawaiian waterbird nest surveys immediately prior to Project initiation.

2. During work on the Project site:

a. Any observed or documented Hawaiian waterbird nests or broods within the Project site must be reported to the USFWS within 48 hours of discovery;

b. A 100-foot buffer must be established and maintained around all active Hawaiian waterbird nests and broods until the chicks/ducklings have fledged. No potentially disruptive activities or habitat alternation may occur within this buffer;

c. If an endangered Hawaiian waterbird or Oahu Elepaio is observed within the Project site, or flies into the site while activities are occurring (within 100 feet), all potentially disruptive activities (including human activity, mechanical or construction disturbance) must be stopped until the observed bird voluntarily leaves the area;

d. A biological monitor must be present on the Project site during all construction or earth moving activities to ensure that Hawaiian waterbirds, Hawaiian waterbird nests, and the Oahu Elepaio are not adversely impacted; and

e. To minimize impacts to the Hawaiian hoary bat's habitat, woody plants greater than 15 feet in height shall not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15).

E. Approval of this SMA Use Permit does not constitute compliance with any other Land Use Ordinance ("LUO") or other governmental requirements, including but not limited to grading and grubbing permit approvals. They are subject to separate review and approval. The Applicant shall be responsible for ensuring that the final plans for the Project approved under this SMA Use Permit comply with all applicable LUO and other governmental provisions and requirements.

F. The Applicant shall obtain a development permit for the Project within two years after the effective date of this SMA Use Permit. Failure to obtain a development permit within this period will render this permit null and void; provided that this period may be extended as follows:

1. The Director of the DPP may extend this period if the Applicant demonstrates good cause, but the period may not be extended beyond one year from the initial deadline set by the City Council.

2. If the Applicant demonstrates good cause for an extension exceeding one year, the Director shall prepare and submit to the Council a report on the proposed extension, which report must include the Director's findings and recommendations thereon. The Council may approve the proposed

extension or an extension for a shorter or longer period, or deny the proposed extension, by adoption of a committee report or resolution.

3. If the Council fails to take final action on the proposed extension within the first to occur of: (a) 60 days after receipt of the Director's report; or (b) the Applicant's then-existing deadline for obtaining a development permit, the extension will be deemed to be denied.

RESOLUTION

BE IT FINALLY RESOLVED that copies of this resolution be transmitted to Joey Char, Land Asset Manager, Community Engagement and Resources Group, Kamehameha Schools, 567 South King Street, Suite 200, Honolulu, Hawaii 96813; Brendan Belby, ICF Project Manager, ICF, 980 9th Street, Suite 1200, Sacramento, California 95814; Dean Uchida, Director of Planning and Permitting, 650 South King Street, 7th Floor, Honolulu, Hawaii 96813; and Mary Alice Evans, Director of the Office of Planning and Sustainable Development, Attention: Coastal Zone Management Branch, P.O. Box 2359, Honolulu, Hawaii 96804.

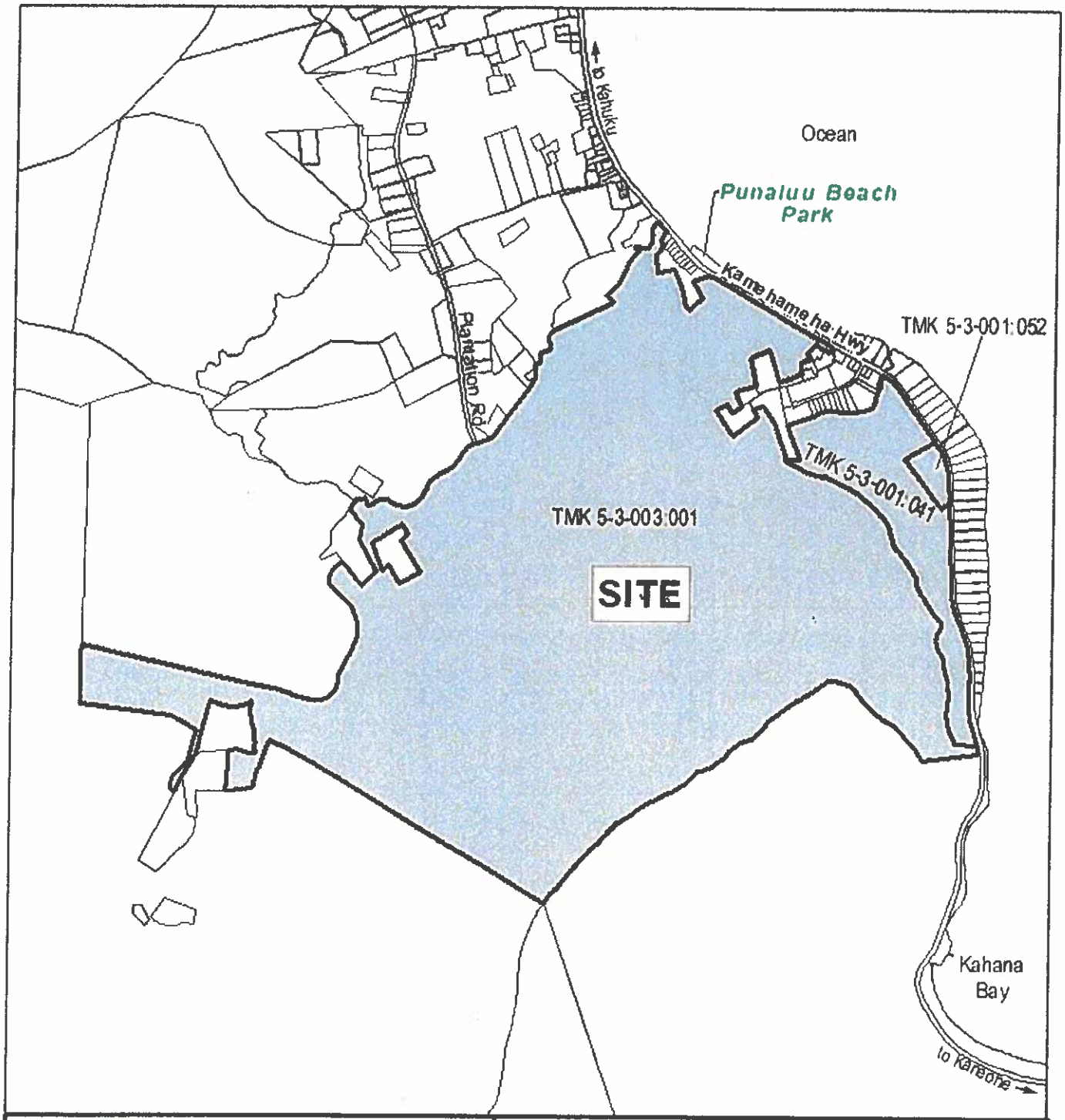
INTRODUCED BY:

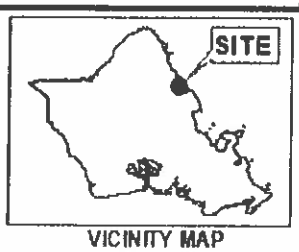
Tommy Waters (br)

DATE OF INTRODUCTION:

November 24, 2021
Honolulu, Hawaiʻi

Councilmembers





VICINITY MAP

1,500 750 0 1,500

Scale in feet

LOCATION MAP
PUNALUU

TAX MAP KEY(S): 5-3-001:041, 5-3-001:052, and 5-3-003:001

FOLDER NO.: 2021/SMA-45

Prepared by: Department of Planning & Permitting
City and County of Honolulu

EXHIBIT A

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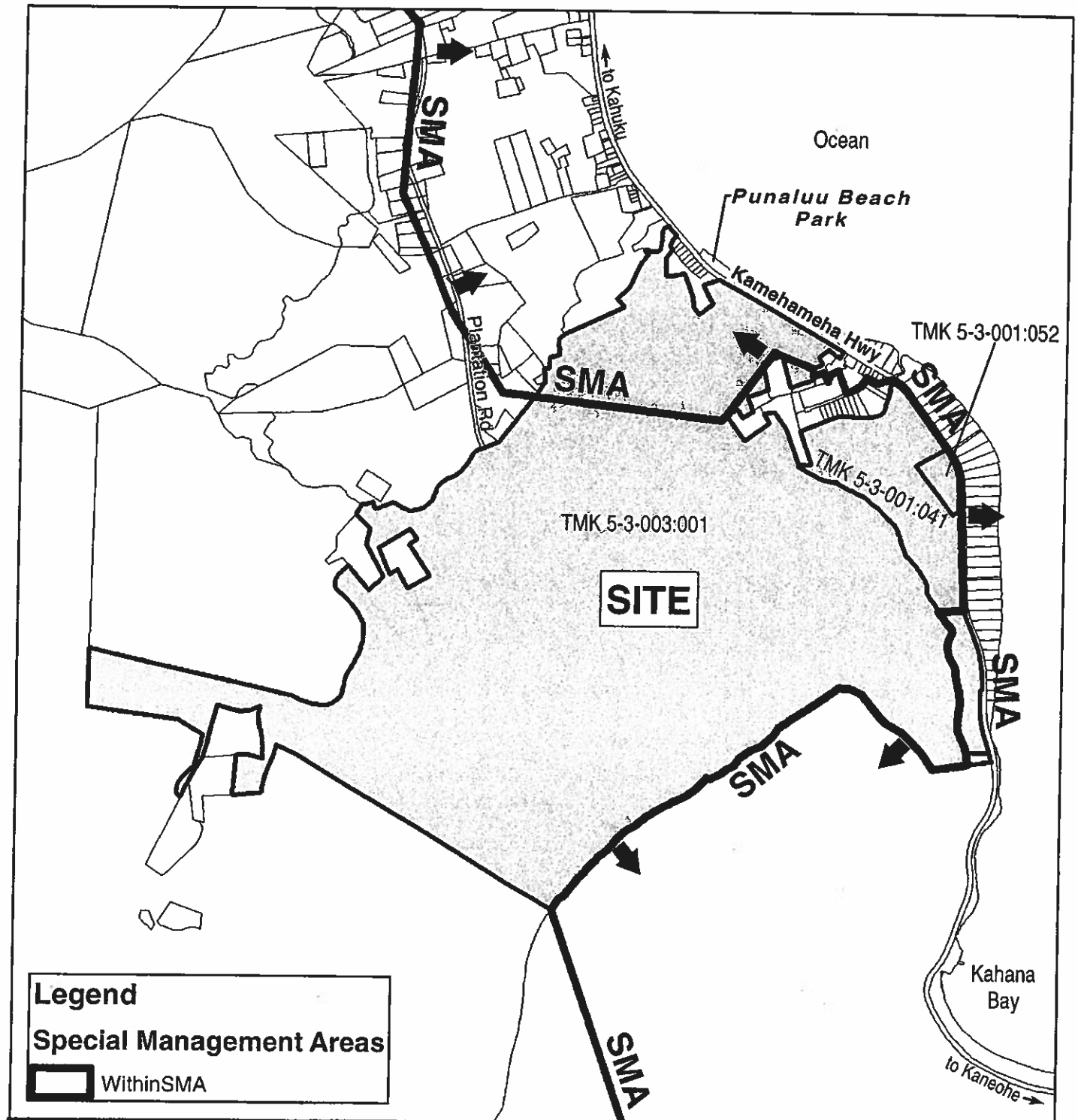

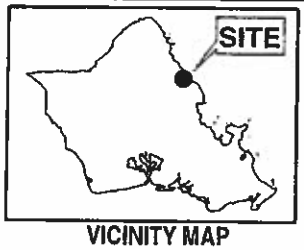

VICINITY MAP

1,500 750 0 1,500

Scale in feet

Special Management Area Map
PUNALUU

TAX MAP KEY(S): 5-3-001:041, 5-3-001:052, and 5-3-003:001

FOLDER NO.: 2021/SMA-45

Prepared by: Department of Planning & Permitting
City and County of Honolulu

EXHIBIT B

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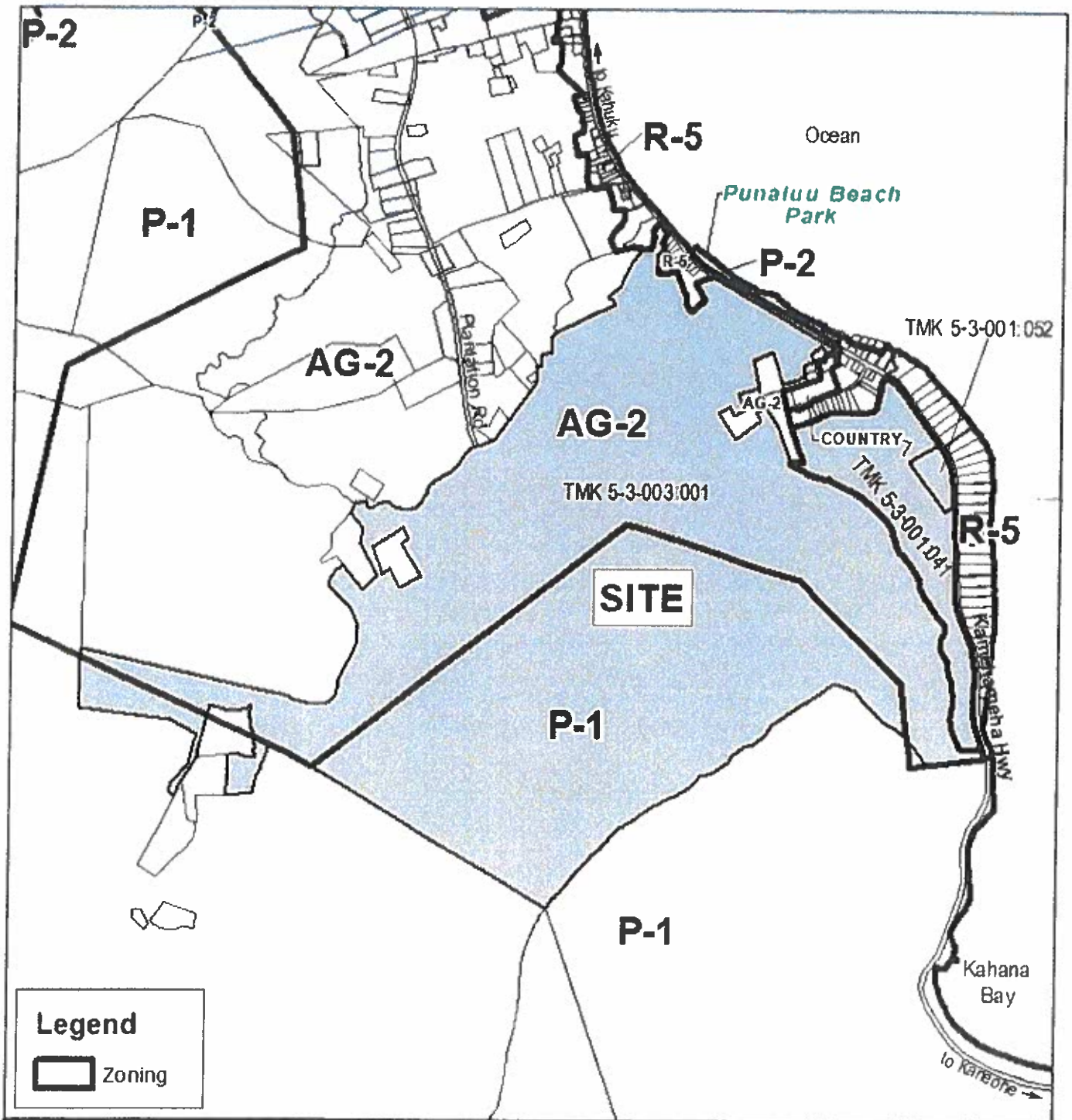

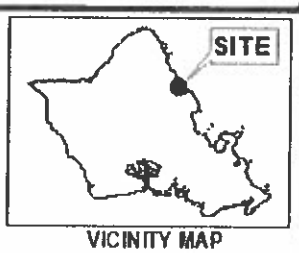

VICINITY MAP

1,500 750 0 1,500

Scale in feet

Portion of

EXISTING ZONING MAP

Hauula-Punaluu-Kaaawa

TAX MAP KEY(S): 5-3-001:041, 5-3-001:052, and 5-3-003:001

FOLDER NO.: 2021/SMA-45

Prepared by: Department of Planning & Permitting
City and County of Honolulu

EXHIBIT C

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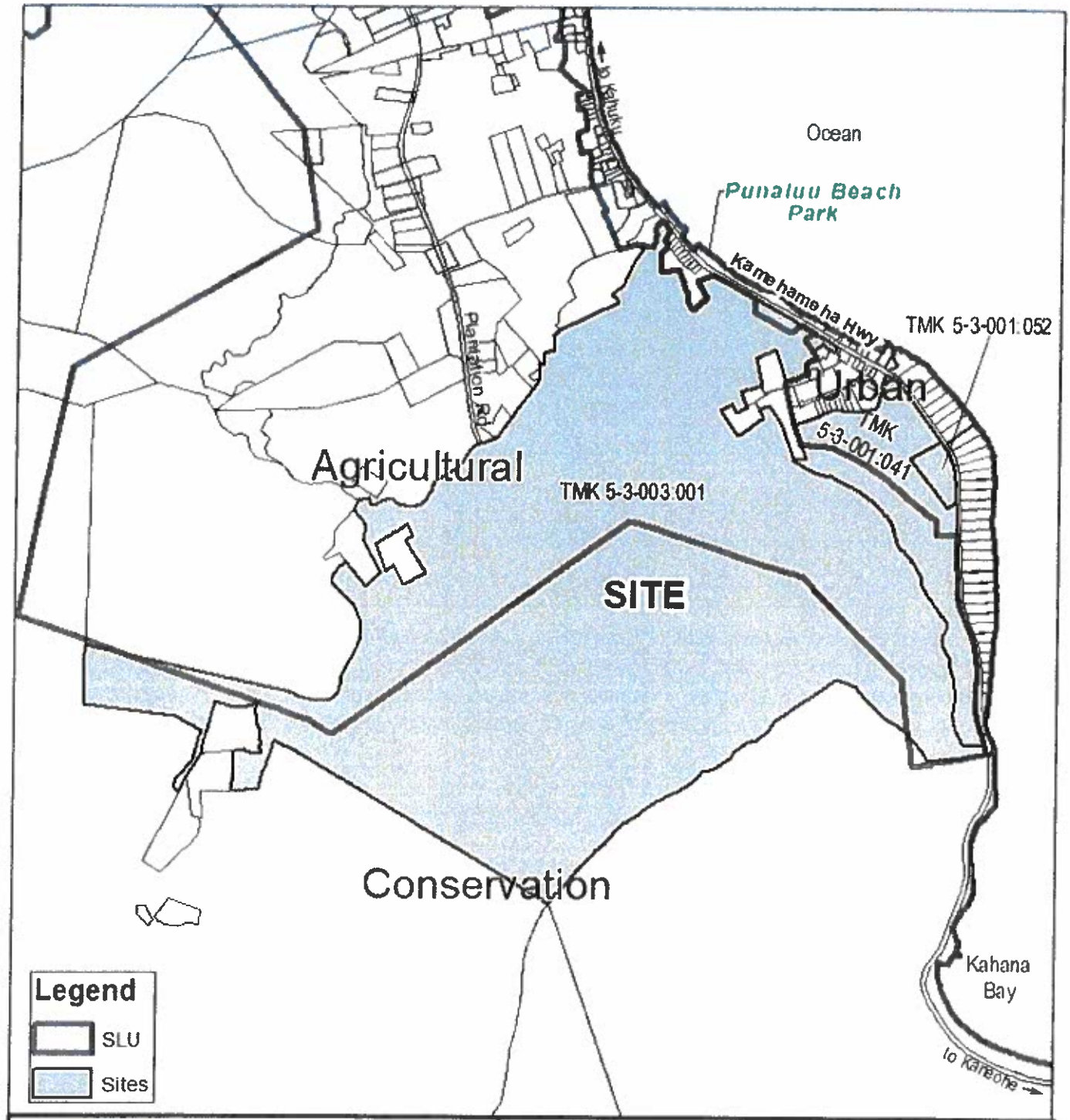

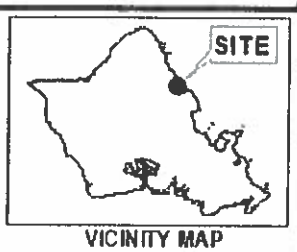

VICINITY MAP

1,500 750 0 1,500

Scale in feet

PORTION OF

STATE LAND USE PUNALUU

TAX MAP KEY(S): 5-3-001:041, 5-3-001:052, and 5-3-003:001

FOLDER NO.: 2021/SMA-45

Prepared by: Department of Planning & Permitting
City and County of Honolulu

EXHIBIT D

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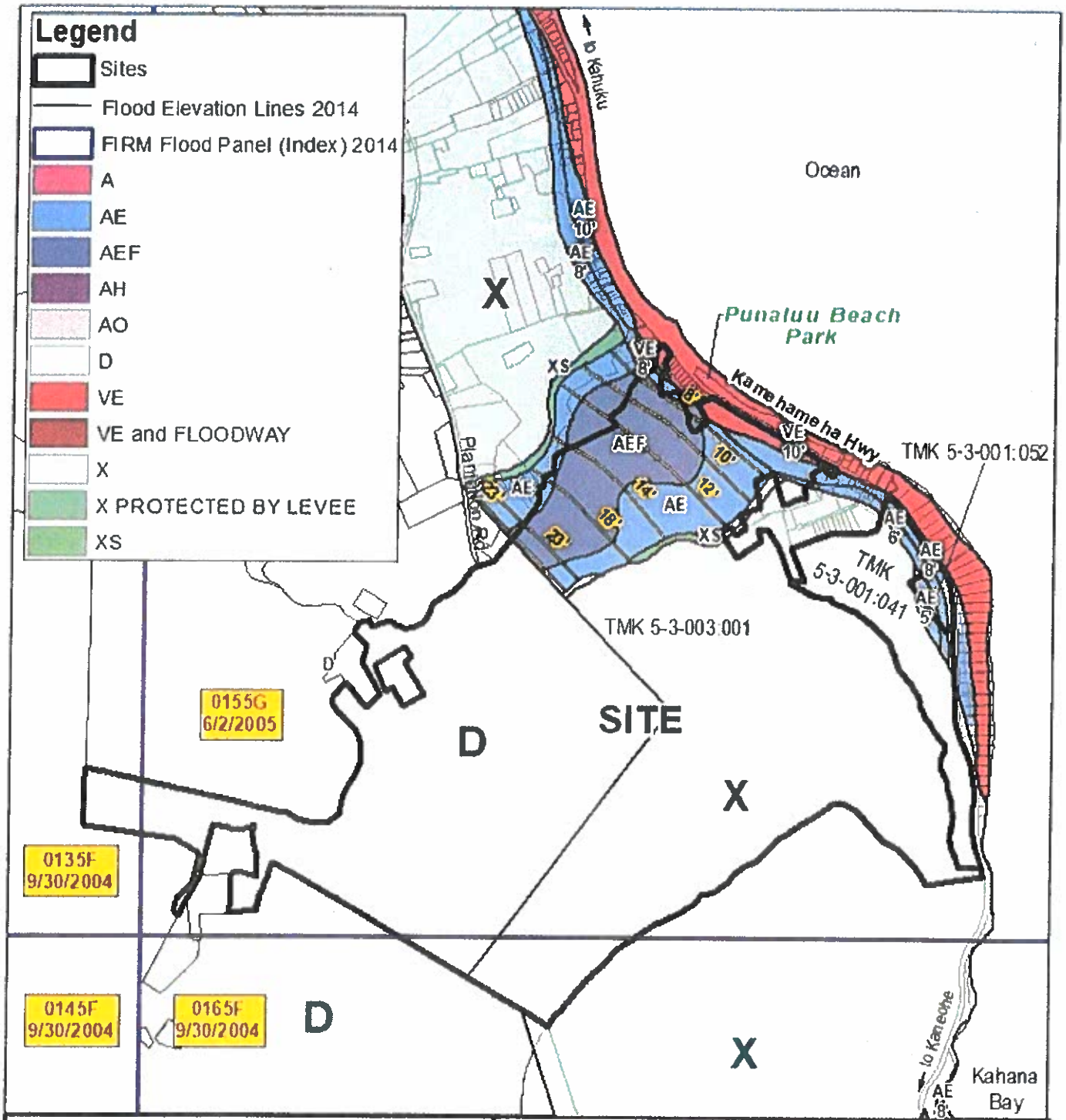

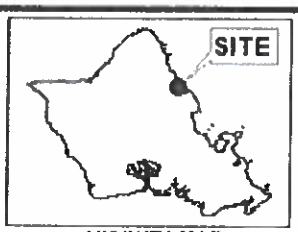

VICINITY MAP

1,500 750 0 1,500

Scale in feet

FLOOD HAZARD MAP
PUNALUU

TAX MAP KEY(S): 5-3-001:041, 5-3-001:052, and 5-3-003:001

FOLDER NO.: 2021/SMA-45

Prepared by: Department of Planning & Permitting
City and County of Honolulu

EXHIBIT E

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Exhibit 2-2. Punalu'u Flood Mitigation and Stream Restoration Project Elements

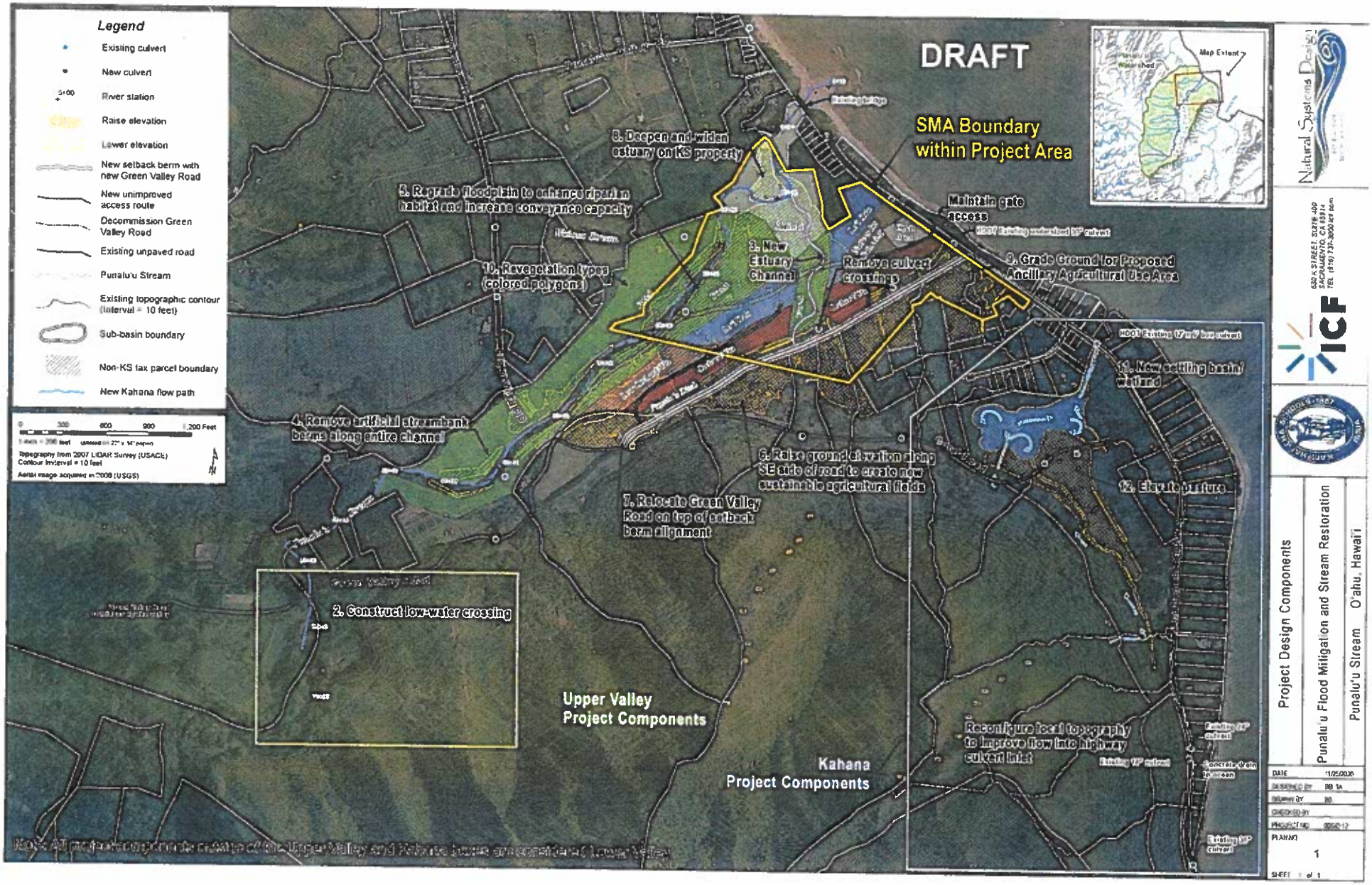
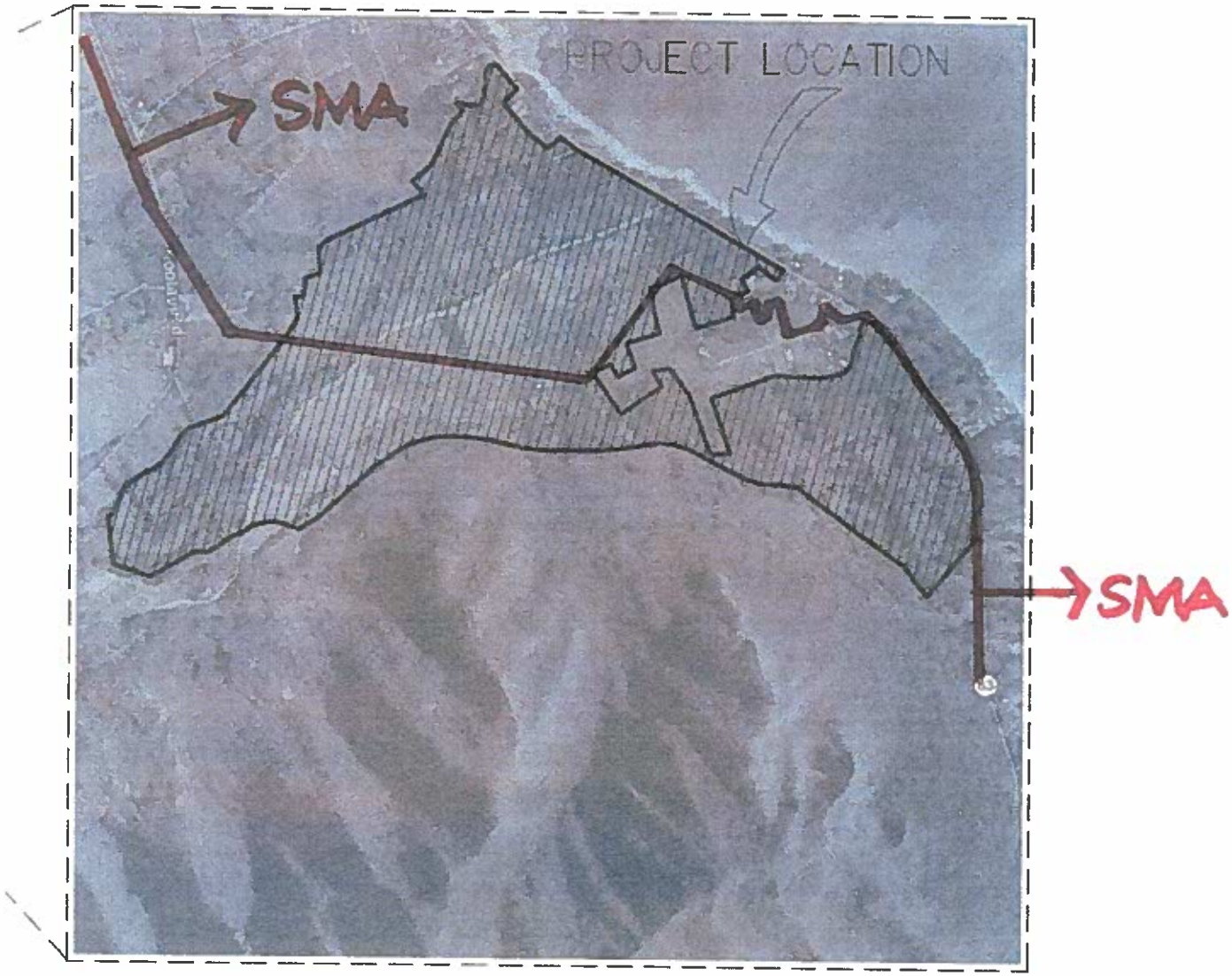
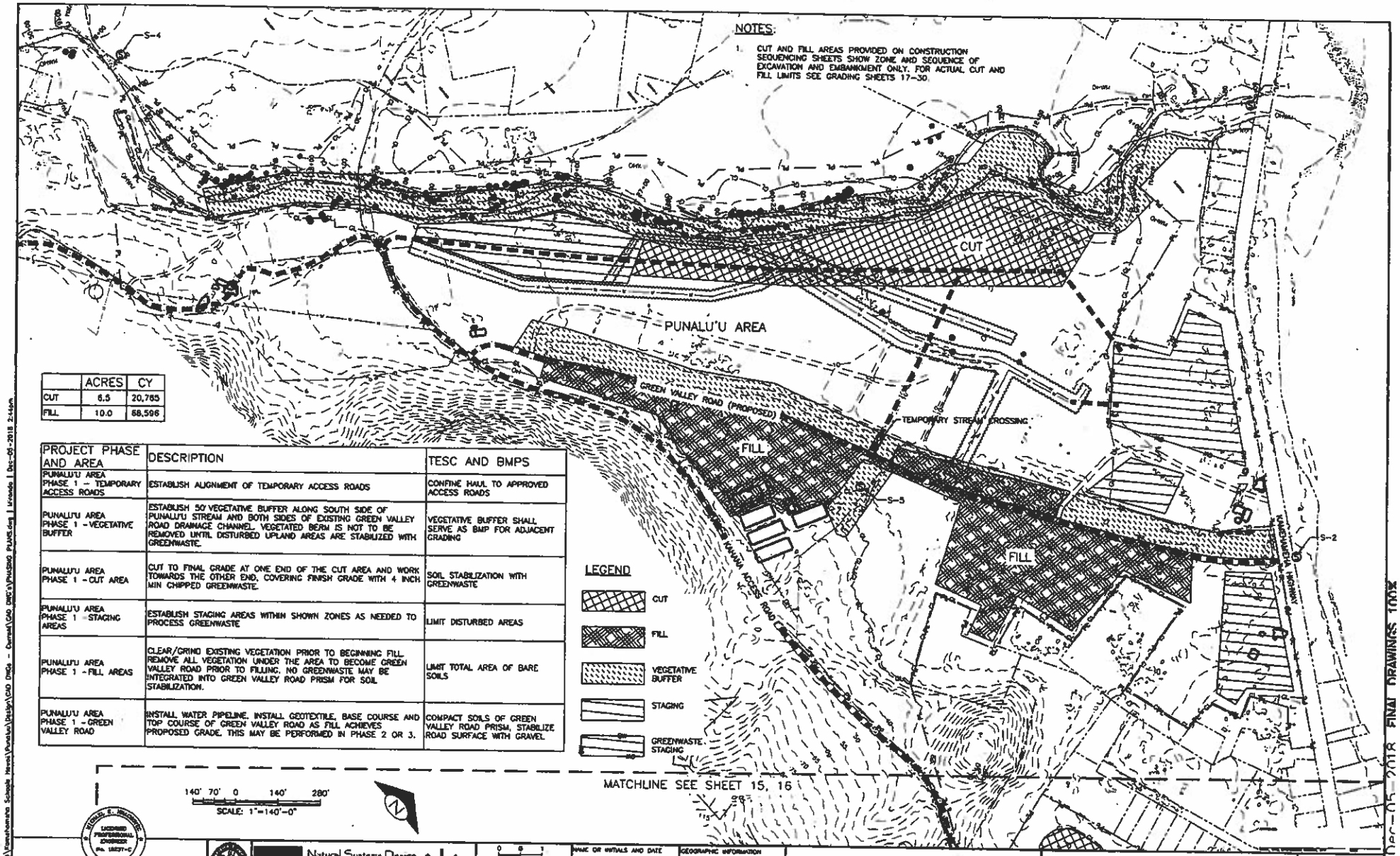


EXHIBIT F



PROJECT SITE

EXHIBIT G



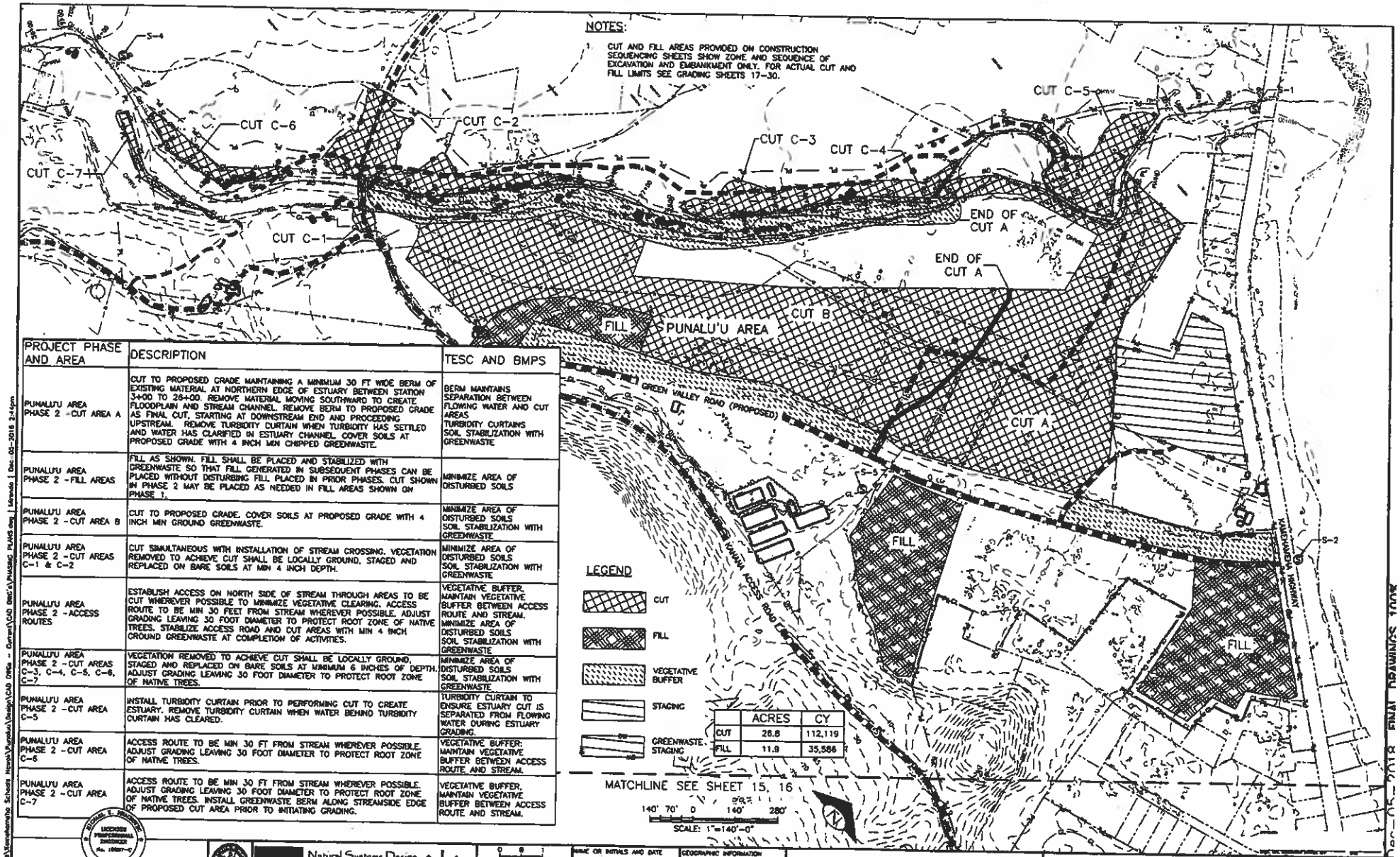
	ACRES	CY
CUT	6.5	20,785
FILL	10.0	68,596

PROJECT PHASE AND AREA	DESCRIPTION	TESC AND BMPS
PUNALU'U AREA PHASE 1 – TEMPORARY ACCESS ROADS	ESTABLISH ALIGNMENT OF TEMPORARY ACCESS ROADS	CONFINE HAUL TO APPROVED ACCESS ROADS
PUNALU'U AREA PHASE 1 – VEGETATIVE BUFFER	ESTABLISH 50' VEGETATIVE BUFFER ALONG SOUTH SIDE OF PUNALU'U STREAM AND BOTH SIDES OF EXISTING GREEN VALLEY ROAD DRAINAGE CHANNEL. VEGETATED BERM IS NOT TO BE REMOVED UNTIL DISTURBED UPLAND AREAS ARE STABILIZED WITH GREENWASTE.	VEGETATIVE BUFFER SHALL SERVE AS BMP FOR ADJACENT GRADING
PUNALU'U AREA PHASE 1 – CUT AREA	CUT TO FINAL GRADE AT ONE END OF THE CUT AREA AND WORK TOWARDS THE OTHER END, COVERING FINISH GRADE WITH 4 INCH MIN CHIPPED GREENWASTE.	SOIL STABILIZATION WITH GREENWASTE
PUNALU'U AREA PHASE 1 – STAGING AREAS	ESTABLISH STAGING AREAS WITHIN SHOWN ZONES AS NEEDED TO PROCESS GREENWASTE	LIMIT DISTURBED AREAS
PUNALU'U AREA PHASE 1 – FILL AREAS	CLEAR/GRIND EXISTING VEGETATION PRIOR TO BEGINNING FILL. REMOVE ALL VEGETATION UNDER THE AREA TO BECOME GREEN VALLEY ROAD PRIOR TO FILLING. NO GREENWASTE MAY BE INTEGRATED INTO GREEN VALLEY ROAD PRISM FOR SOIL STABILIZATION.	LIMIT TOTAL AREA OF BARE SOILS
PUNALU'U AREA PHASE 1 – GREEN VALLEY ROAD	INSTALL WATER PIPELINE. INSTALL GEOTEXTILE, BASE COURSE AND TOP COURSE OF GREEN VALLEY ROAD AS FILL ACHIEVES PROPOSED GRADE. THIS MAY BE PERFORMED IN PHASE 2 OR 3.	COMPACT SOILS OF GREEN VALLEY ROAD PRISM, STABILIZE ROAD SURFACE WITH GRAVEL

EXHIBIT H

NOTES:

1. CUT AND FILL AREAS PROVIDED ON CONSTRUCTION SEQUENCING SHEETS SHOW ZONE AND SEQUENCE OF EXCAVATION AND EMBANKMENT ONLY. FOR ACTUAL CUT AND FILL LIMITS SEE GRADING SHEETS 17–30.



	ACRES	CY
CUT	26.8	112,119
FILL	11.9	35,586

PROJECT PHASE AND AREA	DESCRIPTION	TESC AND BMPS
PUNALU'U AREA PHASE 2 -CUT AREA A	CUT TO PROPOSED GRADE MAINTAINING A MINIMUM 30 FT WIDE BERM OF EXISTING MATERIAL AT NORTHERN EDGE OF ESTUARY BETWEEN STATION 3+00 TO 26+00. REMOVE MATERIAL MOVING SOUTHWARD TO CREATE FLOODPLAIN AND STREAM CHANNEL. REMOVE BERM TO PROPOSED GRADE AS FINAL CUT, STARTING AT DOWNSTREAM END AND PROCEEDING UPSTREAM. REMOVE TURBIDITY CURTAIN WHEN TURBIDITY HAS SETTLED AND WATER HAS CLARIFIED IN ESTUARY CHANNEL. COVER SOILS AT PROPOSED GRADE WITH 4 INCH MIN CHIPPED GREENWASTE.	BERM MAINTAINS SEPARATION BETWEEN FLOWING WATER AND CUT AREAS TURBIDITY CURTAINS SOIL STABILIZATION WITH GREENWASTE
PUNALU'U AREA PHASE 2 -FILL AREAS	FILL AS SHOWN. FILL SHALL BE PLACED AND STABILIZED WITH GREENWASTE SO THAT FILL GENERATED IN SUBSEQUENT PHASES CAN BE PLACED WITHOUT DISTURBING FILL PLACED IN PRIOR PHASES. CUT SHOWN IN PHASE 2 MAY BE PLACED AS NEEDED IN FILL AREAS SHOWN ON PHASE 1.	MINIMIZE AREA OF DISTURBED SOILS
PUNALU'U AREA PHASE 2 -CUT AREA B	CUT TO PROPOSED GRADE. COVER SOILS AT PROPOSED GRADE WITH 4 INCH MIN GROUND GREENWASTE.	MINIMIZE AREA OF DISTURBED SOILS SOIL STABILIZATION WITH GREENWASTE
PUNALU'U AREA PHASE 2 -CUT AREAS C-1 & C-2	CUT SIMULTANEOUS WITH INSTALLATION OF STREAM CROSSING. VEGETATION REMOVED TO ACHIEVE CUT SHALL BE LOCALLY GROUND, STAGED AND REPLACED ON BARE SOILS AT MIN 4 INCH DEPTH.	MINIMIZE AREA OF DISTURBED SOILS SOIL STABILIZATION WITH GREENWASTE
PUNALU'U AREA PHASE 2 -ACCESS ROUTES	ESTABLISH ACCESS ON NORTH SIDE OF STREAM THROUGH AREAS TO BE CUT WHEREVER POSSIBLE TO MINIMIZE VEGETATIVE CLEARING. ACCESS ROUTE TO BE MIN 30 FEET FROM STREAM WHEREVER POSSIBLE. ADJUST GRADING LEAVING 30 FOOT DIAMETER TO PROTECT ROOT ZONE OF NATIVE TREES. STABILIZE ACCESS ROAD AND CUT AREAS WITH MIN 4 INCH GROUND GREENWASTE AT COMPLETION OF ACTIVITIES.	VEGETATIVE BUFFER. MAINTAIN VEGETATIVE BUFFER BETWEEN ACCESS ROUTE AND STREAM. MINIMIZE AREA OF DISTURBED SOILS SOIL STABILIZATION WITH GREENWASTE
PUNALU'U AREA PHASE 2 -CUT AREAS C-3, C-4, C-5, C-6, C-7	VEGETATION REMOVED TO ACHIEVE CUT SHALL BE LOCALLY GROUND, STAGED AND REPLACED ON BARE SOILS AT MINIMUM 6 INCHES OF DEPTH. ADJUST GRADING LEAVING 30 FOOT DIAMETER TO PROTECT ROOT ZONE OF NATIVE TREES.	MINIMIZE AREA OF DISTURBED SOILS SOIL STABILIZATION WITH GREENWASTE
PUNALU'U AREA PHASE 2 -CUT AREA C-5	INSTALL TURBIDITY CURTAIN PRIOR TO PERFORMING CUT TO CREATE ESTUARY. REMOVE TURBIDITY CURTAIN WHEN WATER BEHIND TURBIDITY CURTAIN HAS CLEARED.	TURBIDITY CURTAIN TO ENSURE ESTUARY CUT IS SEPARATED FROM FLOWING WATER DURING ESTUARY GRADING.
PUNALU'U AREA PHASE 2 -CUT AREA C-6	ACCESS ROUTE TO BE MIN 30 FT FROM STREAM WHEREVER POSSIBLE. ADJUST GRADING LEAVING 30 FOOT DIAMETER TO PROTECT ROOT ZONE OF NATIVE TREES.	VEGETATIVE BUFFER: MAINTAIN VEGETATIVE BUFFER BETWEEN ACCESS ROUTE AND STREAM.
PUNALU'U AREA PHASE 2 -CUT AREA C-7	ACCESS ROUTE TO BE MIN 30 FT FROM STREAM WHEREVER POSSIBLE. ADJUST GRADING LEAVING 30 FOOT DIAMETER TO PROTECT ROOT ZONE OF NATIVE TREES. INSTALL GREENWASTE BERM ALONG STREAMSIDE EDGE OF PROPOSED CUT AREA PRIOR TO INITIATING GRADING.	VEGETATIVE BUFFER, MAINTAIN VEGETATIVE BUFFER BETWEEN ACCESS ROUTE AND STREAM.

MICHAEL T. MORIMOTO LICENSED PROFESSIONAL ENGINEER No. 10807-C HAWAII, U.S.A.

April 30, 2020

Natural Systems Design

ICF

0 8 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.

NAME OR INITIALS AND DATE	
DESIGNED	JL MN 88
CHECKED	JL MN
DRAWN	KS CM
CHECKED	MN

GEOGRAPHIC INFORMATION	
LATITUDE	21°34'28"N
LONGITUDE	157°53'06"W
TM/RE/RC	-/-/-
DATE	10/29/18

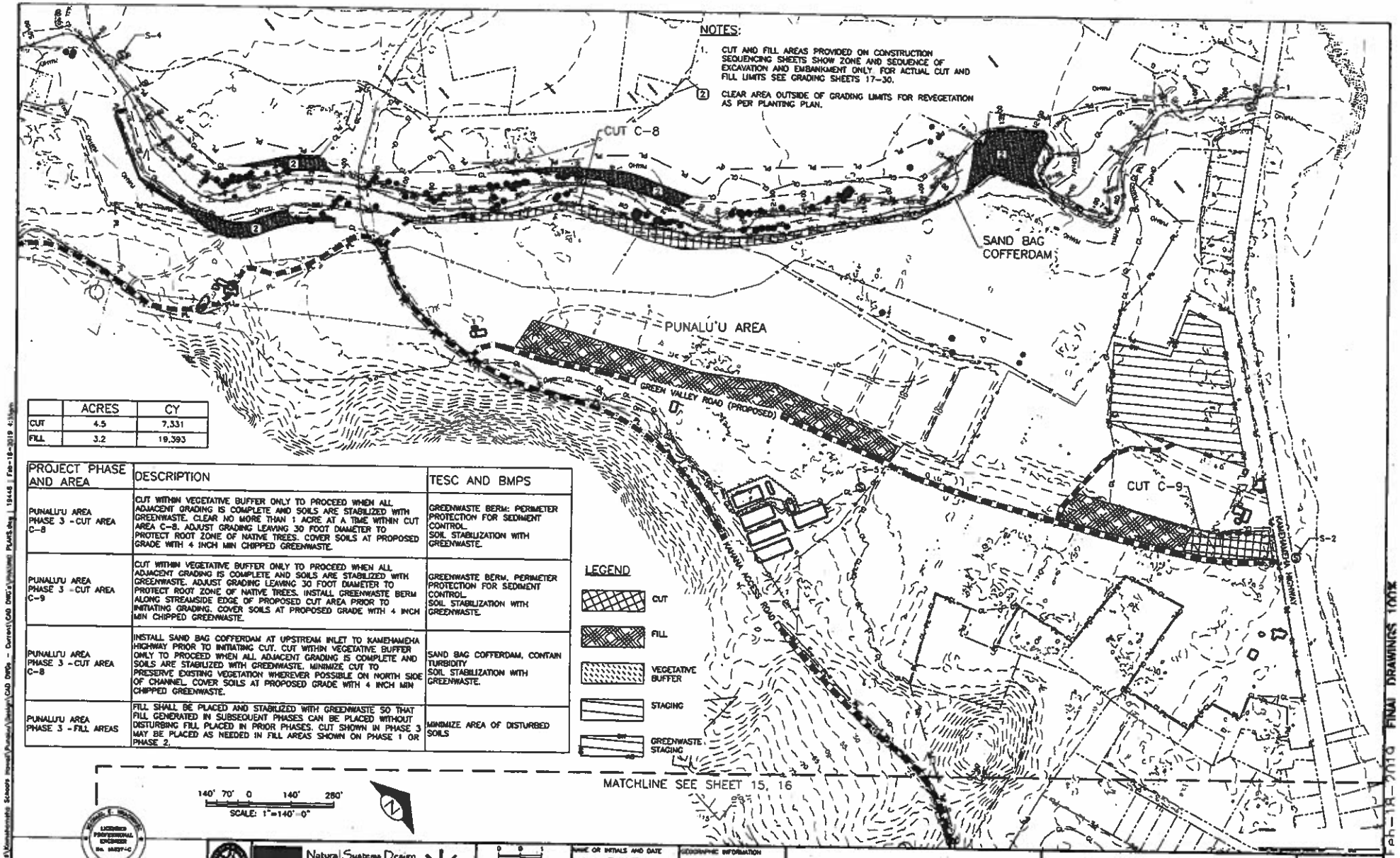
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION

PUNALU'U CONSTRUCTION SEQUENCING – PHASE 2

13

SHEET 13 OF 61

EXHIBIT I



	ACRES	CY
CUT	4.5	7,331
FILL	3.2	19,393

PROJECT PHASE AND AREA	DESCRIPTION	TESC AND BMPS
PUNALU'U AREA PHASE 3 - CUT AREA C-8	CUT WITHIN VEGETATIVE BUFFER ONLY TO PROCEED WHEN ALL ADJACENT GRADING IS COMPLETE AND SOILS ARE STABILIZED WITH GREENWASTE. CLEAR NO MORE THAN 1 ACRE AT A TIME WITHIN CUT AREA C-8. ADJUST GRADING LEAVING 30 FOOT DIAMETER TO PROTECT ROOT ZONE OF NATIVE TREES. COVER SOILS AT PROPOSED GRADE WITH 4 INCH MIN CHIPPED GREENWASTE.	GREENWASTE BERM: PERIMETER PROTECTION FOR SEDIMENT CONTROL. SOIL STABILIZATION WITH GREENWASTE.
PUNALU'U AREA PHASE 3 - CUT AREA C-9	CUT WITHIN VEGETATIVE BUFFER ONLY TO PROCEED WHEN ALL ADJACENT GRADING IS COMPLETE AND SOILS ARE STABILIZED WITH GREENWASTE. ADJUST GRADING LEAVING 30 FOOT DIAMETER TO PROTECT ROOT ZONE OF NATIVE TREES. INSTALL GREENWASTE BERM ALONG STREAMSIDE EDGE OF PROPOSED CUT AREA PRIOR TO INITIATING GRADING. COVER SOILS AT PROPOSED GRADE WITH 4 INCH MIN CHIPPED GREENWASTE.	GREENWASTE BERM. PERIMETER PROTECTION FOR SEDIMENT CONTROL. SOIL STABILIZATION WITH GREENWASTE.
PUNALU'U AREA PHASE 3 - CUT AREA C-8	INSTALL SAND BAG COFFERDAM AT UPSTREAM INLET TO KAMEHAMEHA HIGHWAY PRIOR TO INITIATING CUT. CUT WITHIN VEGETATIVE BUFFER ONLY TO PROCEED WHEN ALL ADJACENT GRADING IS COMPLETE AND SOILS ARE STABILIZED WITH GREENWASTE. MINIMIZE CUT TO PRESERVE EXISTING VEGETATION WHEREVER POSSIBLE ON NORTH SIDE OF CHANNEL. COVER SOILS AT PROPOSED GRADE WITH 4 INCH MIN CHIPPED GREENWASTE.	SAND BAG COFFERDAM, CONTAIN TURBIDITY SOIL STABILIZATION WITH GREENWASTE.
PUNALU'U AREA PHASE 3 - FILL AREAS	FILL SHALL BE PLACED AND STABILIZED WITH GREENWASTE SO THAT FILL GENERATED IN SUBSEQUENT PHASES CAN BE PLACED WITHOUT DISTURBING FILL PLACED IN PRIOR PHASES. CUT SHOWN IN PHASE 3 MAY BE PLACED AS NEEDED IN FILL AREAS SHOWN ON PHASE 1 OR PHASE 2.	MINIMIZE AREA OF DISTURBED SOILS

EXHIBIT J

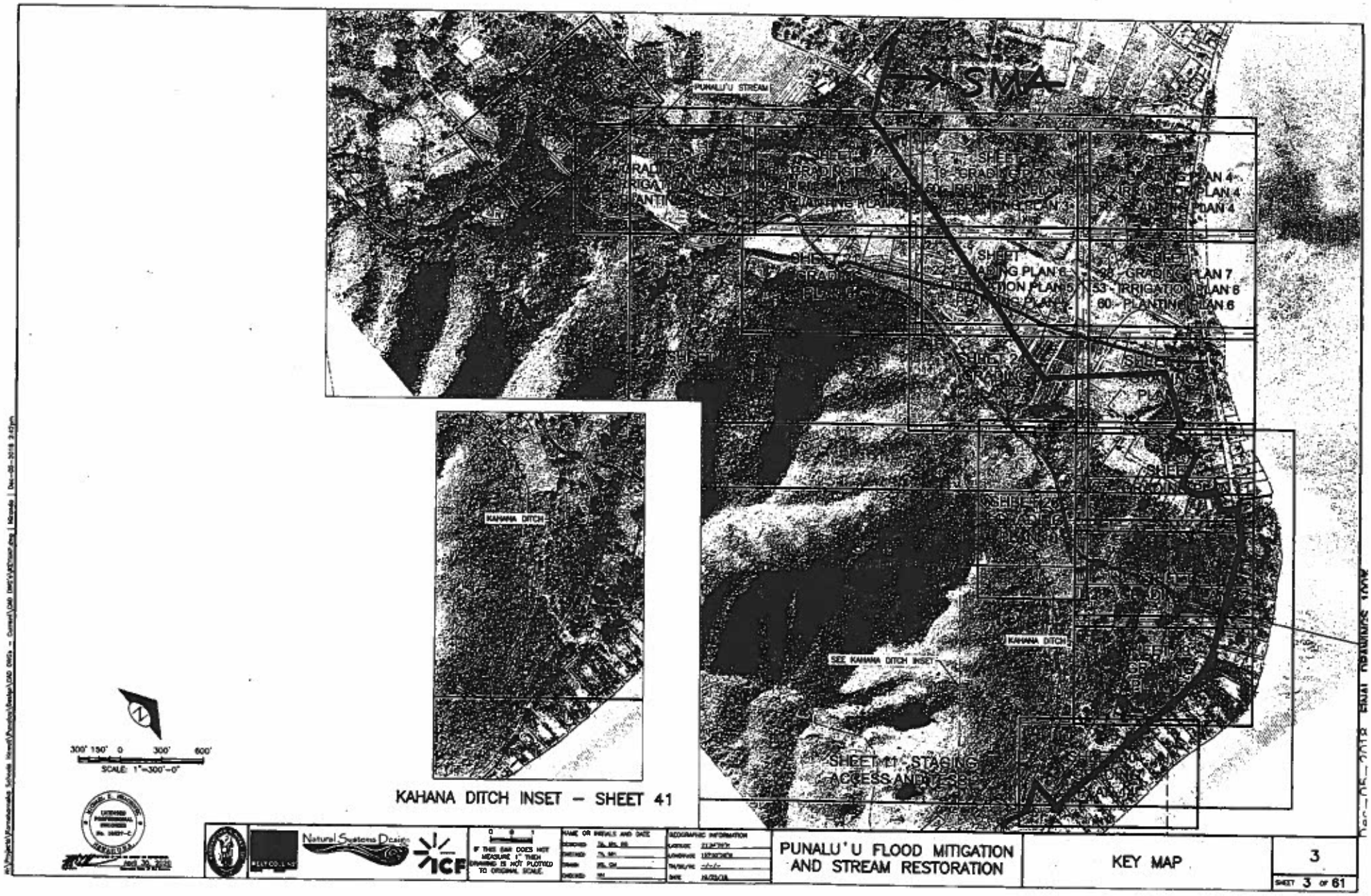

PUNALU'U STREAM
SMA
SHEET 18 - GRADING PLAN 3
60 - IRRIGATION PLAN 3
SHEET 19 - GRADING PLAN 4
60 - IRRIGATION PLAN 4
SHEET 20 - GRADING PLAN 5
60 - PLANTING PLAN 5
SHEET 38 - GRADING PLAN 7
53 - IRRIGATION PLAN 6
60 - PLANTING PLAN 6
KAHANA DITCH
SEE KAHANA DITCH INSET
SHEET 41 - STAGING ACCESS AND DITCH
300' 150' 0 300' 600'
SCALE: 1"=300'-0"
KAHANA DITCH INSET – SHEET 41
Natural Systems Design
ICF
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION
KEY MAP
3
SHEET 3 of 61

EXHIBIT K

GENERAL LEGEND

- PROPERTY/PARCEL LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING ACCESS ROAD
- TEMPORARY ACCESS ROAD
- OHWM — OHWM — EXISTING ORDINARY HIGH WATER MARK
- OHWM — OHWM — PROPOSED ORDINARY HIGH WATER MARK
- W — W — W — EXISTING WATER LINE
- W — W — W — PROPOSED WATER LINE
- PL — PL — PROJECT LIMIT
- GL — GL — GL — GRADING LIMIT
- GW — GREEN WASTE STAGING AREA
- SF — SF — SF — SILT FENCE OR GREENWASTE BERM
- T — T — T — TURBIDITY CURTAIN
- OH — OH — OH — EXISTING OVERHEAD POWER LINE
- > — > — > — PROPOSED DITCH CENTERLINE
- PROPOSED STREAM BYPASS
- TEMPORARY STREAM CROSSING
- DEMOLITION/REMOVAL AREA
- STAGING AREA/GREENWASTE PROCESSING AREA
- REVEGETATION AREA TO BE CLEARED OUTSIDE OF GRADING LIMIT
- PROPOSED CULVERT
- EXISTING STRUCTURE
- EXISTING CULTURAL AREA
- NATIVE TREE TO PROTECT
- NATIVE TREE TO RELOCATE
- S-# TURBIDITY MONITORING STATION AND NUMBER

DETAIL A

(

(T

(V

A

L

SECTION

SCALE: 1

EXHIBIT L

MICHAEL E. HRACHOVEC
LICENSED PROFESSIONAL ENGINEER
No. 15837-C
HAWAII U.S.A.

PREPARED BY ME OR UNDER MY SUPERVISION
April 30, 2020
Expiration Date of the License

BELT COLLINS

Natural Systems Design

ICF

0 8 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.

N:\Projects\Kamehameha Schools Hawaii\Punaluu\Design\CAD DWGs - Current\CAD DWG's\LEGEND.dwg | Mirando | Dec-05-2018 2:42pm

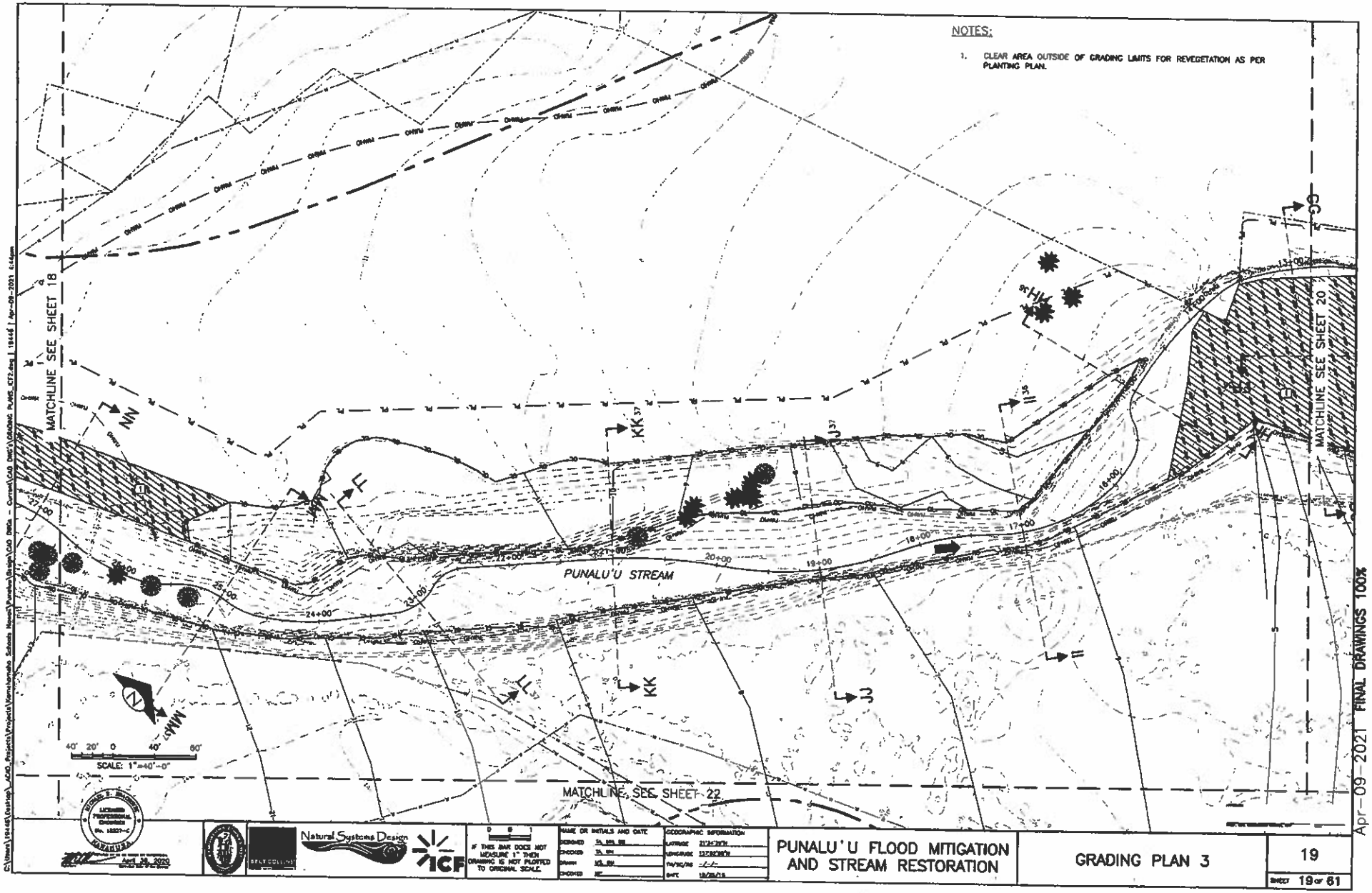

NOTES:
1. CLEAR AREA OUTSIDE OF GRADING LIMITS FOR REVEGETATION AS PER PLANTING PLAN.
MATCHLINE SEE SHEET 18
MATCHLINE SEE SHEET 20
MATCHLINE SEE SHEET 22
PUNALU'U STREAM
SCALE: 1"=40'-0"
Natural Systems Design
ICF
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION
GRADING PLAN 3
19
SHEET 19 OF 61
Apr-09-2021 FINAL DRAWINGS 100%

EXHIBIT M

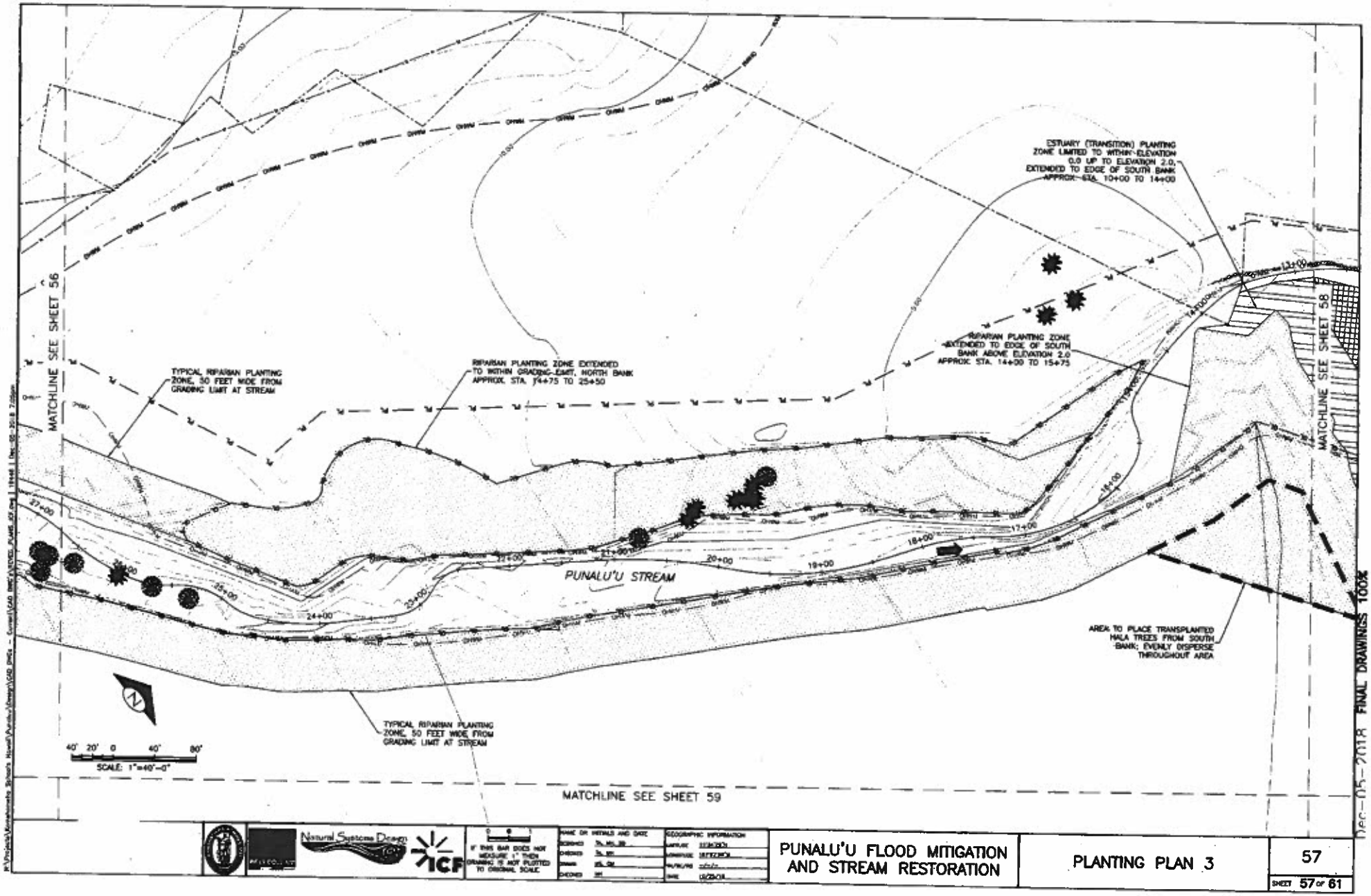

MATCHLINE SEE SHEET 56
MATCHLINE SEE SHEET 58
MATCHLINE SEE SHEET 59
TYPICAL RIPARIAN PLANTING ZONE, 50 FEET WIDE FROM GRADING LIMIT AT STREAM
RIPARIAN PLANTING ZONE EXTENDED TO WITHIN GRADING-LIMIT, NORTH BANK APPROX. STA. 14+75 TO 25+50
ESTUARY (TRANSITION) PLANTING ZONE LIMITED TO WITHIN ELEVATION 0.0 UP TO ELEVATION 2.0, EXTENDED TO EDGE OF SOUTH BANK APPROX. STA. 10+00 TO 14+00
RIPARIAN PLANTING ZONE EXTENDED TO EDGE OF SOUTH BANK ABOVE ELEVATION 2.0 APPROX. STA. 14+00 TO 15+75
PUNALU'U STREAM
AREA TO PLACE TRANSPLANTED HALA TREES FROM SOUTH BANK; EVENLY DISPERSE THROUGHOUT AREA
TYPICAL RIPARIAN PLANTING ZONE, 50 FEET WIDE FROM GRADING LIMIT AT STREAM
27+00
26+00
25+00
24+00
23+00
22+00
21+00
20+00
19+00
18+00
17+00
16+00
13+00
14+00
40' 20' 0 40' 80'
SCALE: 1"=40'-0"
Natural Systems Design
ICF
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE
NAME OR INITIALS AND DATE
GEOGRAPHIC INFORMATION
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION
PLANTING PLAN 3
57
SHEET 57 OF 61
Dec-05-2018 FINAL DRAWINGS 100%

EXHIBIT N

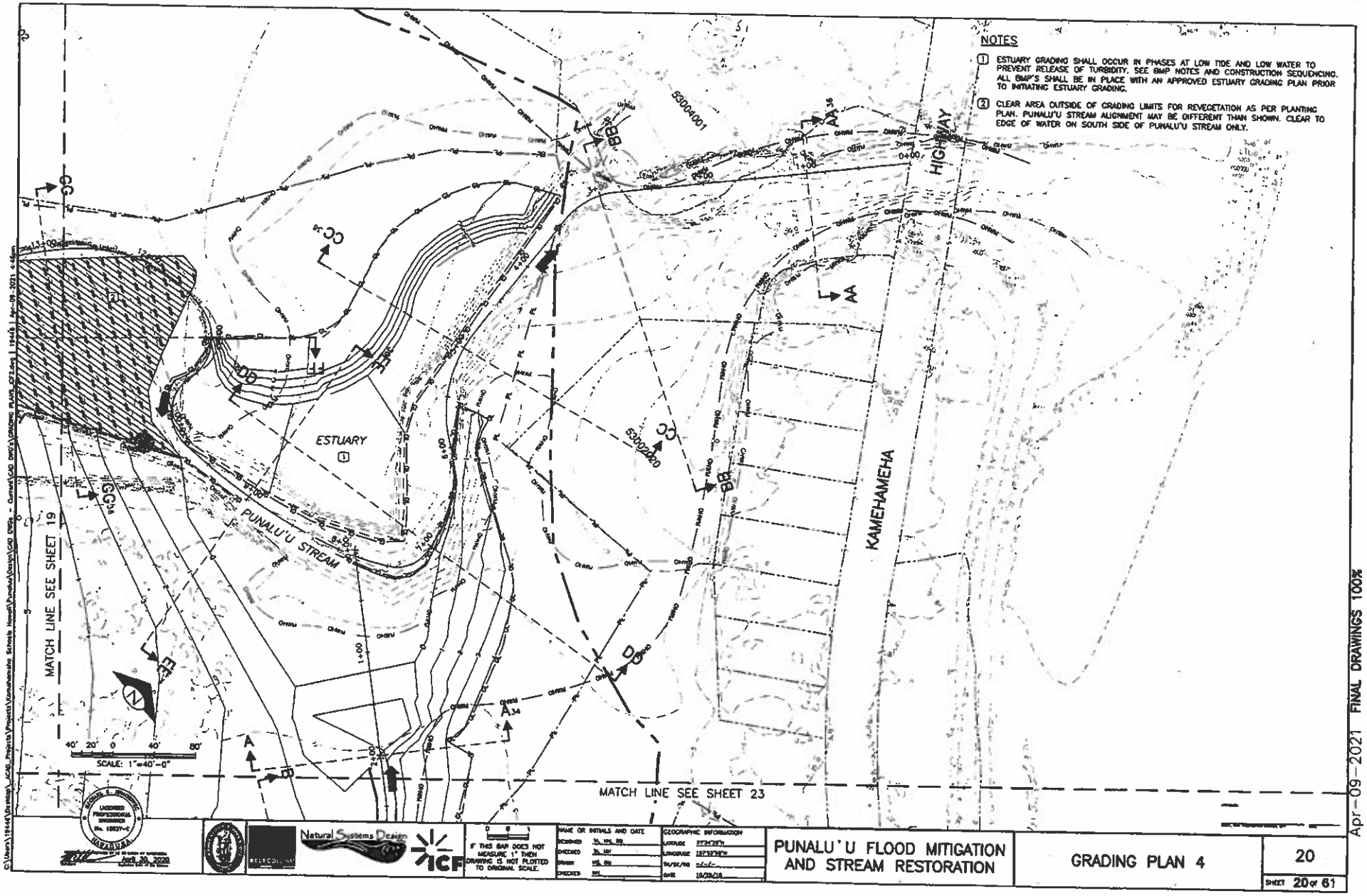

NOTES
1 ESTUARY GRADING SHALL OCCUR IN PHASES AT LOW TIDE AND LOW WATER TO PREVENT RELEASE OF TURBIDITY. SEE BMP NOTES AND CONSTRUCTION SEQUENCING. ALL BMP'S SHALL BE IN PLACE WITH AN APPROVED ESTUARY GRADING PLAN PRIOR TO INITIATING ESTUARY GRADING.
2 CLEAR AREA OUTSIDE OF GRADING LIMITS FOR REVEGETATION AS PER PLANTING PLAN. PUNALU'U STREAM ALIGNMENT MAY BE DIFFERENT THAN SHOWN. CLEAR TO EDGE OF WATER ON SOUTH SIDE OF PUNALU'U STREAM ONLY.
ESTUARY
PUNALU'U STREAM
KAMEHAMEHA HIGHWAY
MATCH LINE SEE SHEET 19
MATCH LINE SEE SHEET 23
SCALE: 1"=40'-0"
Natural Systems Design
ICF
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION
GRADING PLAN 4
20
SHEET 20 OF 61
Apr-09-2021 FINAL DRAWINGS 100%

EXHIBIT O

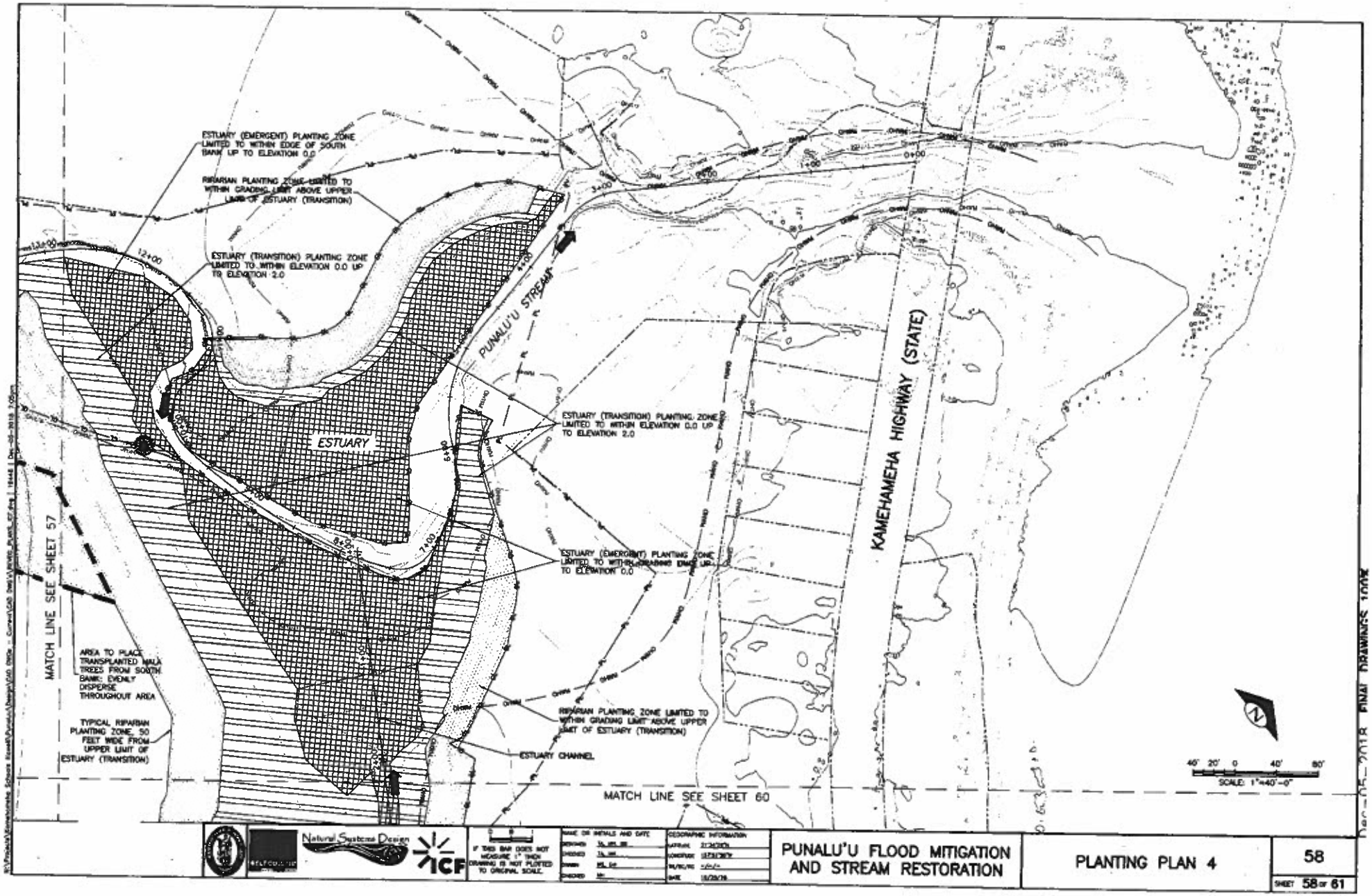

ESTUARY (EMERGENT) PLANTING ZONE LIMITED TO WITHIN EDGE OF SOUTH BANK UP TO ELEVATION 0.0
RIPARIAN PLANTING ZONE LIMITED TO WITHIN GRADING LIMIT ABOVE UPPER LIMIT OF ESTUARY (TRANSITION)
ESTUARY (TRANSITION) PLANTING ZONE LIMITED TO WITHIN ELEVATION 0.0 UP TO ELEVATION 2.0
PUNALU'U STREAM
ESTUARY
ESTUARY (TRANSITION) PLANTING ZONE LIMITED TO WITHIN ELEVATION 0.0 UP TO ELEVATION 2.0
ESTUARY (EMERGENT) PLANTING ZONE LIMITED TO WITHIN GRADING LIMIT UP TO ELEVATION 0.0
KAMEHAMEHA HIGHWAY (STATE)
MATCH LINE SEE SHEET 57
AREA TO PLACE TRANSPLANTED MALA TREES FROM SOUTH BANK; EVENLY DISPERSE THROUGHOUT AREA
TYPICAL RIPARIAN PLANTING ZONE, 50 FEET WIDE FROM UPPER LIMIT OF ESTUARY (TRANSITION)
RIPARIAN PLANTING ZONE LIMITED TO WITHIN GRADING LIMIT ABOVE UPPER LIMIT OF ESTUARY (TRANSITION)
ESTUARY CHANNEL
MATCH LINE SEE SHEET 60
SCALE: 1"=40'-0"
Natural Systems Design
ICF
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION
PLANTING PLAN 4
58
SHEET 58 OF 61

EXHIBIT P

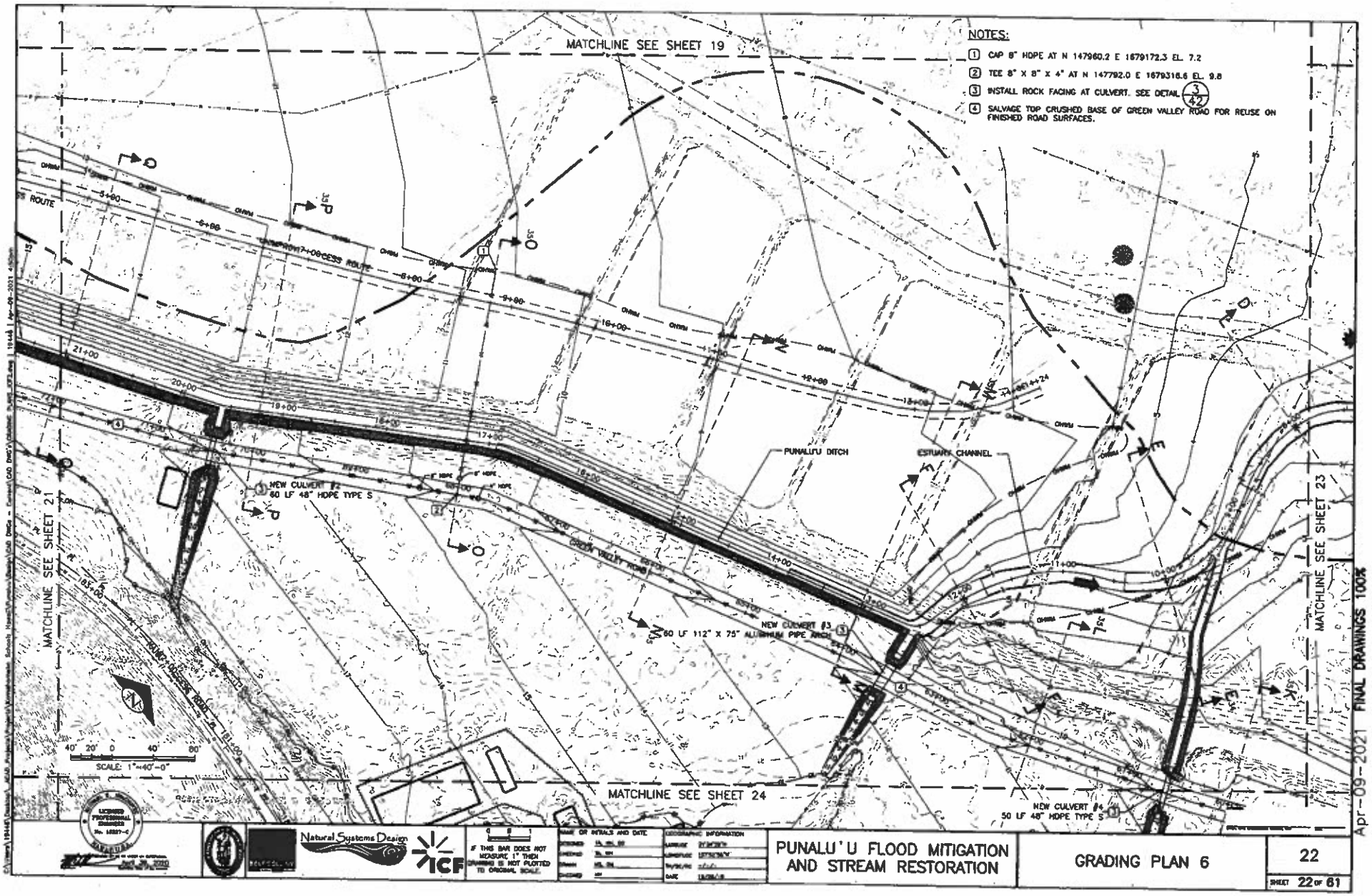

MATCHLINE SEE SHEET 19
NOTES:
1 CAP 8" HDPE AT N 147960.2 E 1679172.3 EL. 7.2
2 TEE 8" X 8" X 4" AT N 147792.0 E 1679316.6 EL. 9.8
3 INSTALL ROCK FACING AT CULVERT. SEE DETAIL 3/42
4 SALVAGE TOP CRUSHED BASE OF GREEN VALLEY ROAD FOR REUSE ON FINISHED ROAD SURFACES.
PUNALU'U DITCH
ESTUARY CHANNEL
NEW CULVERT #2
60 LF 48" HDPE TYPE S
NEW CULVERT #3
60 LF 112" X 75" ALUMINUM PIPE ARCH
NEW CULVERT #4
50 LF 48" HDPE TYPE S
MATCHLINE SEE SHEET 21
MATCHLINE SEE SHEET 23
MATCHLINE SEE SHEET 24
SCALE: 1"=40'-0"
Natural Systems Design
ICF
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION
GRADING PLAN 6
22
SHEET 22 OF 61
Apr-09-2021 FINAL DRAWINGS 100%

EXHIBIT Q

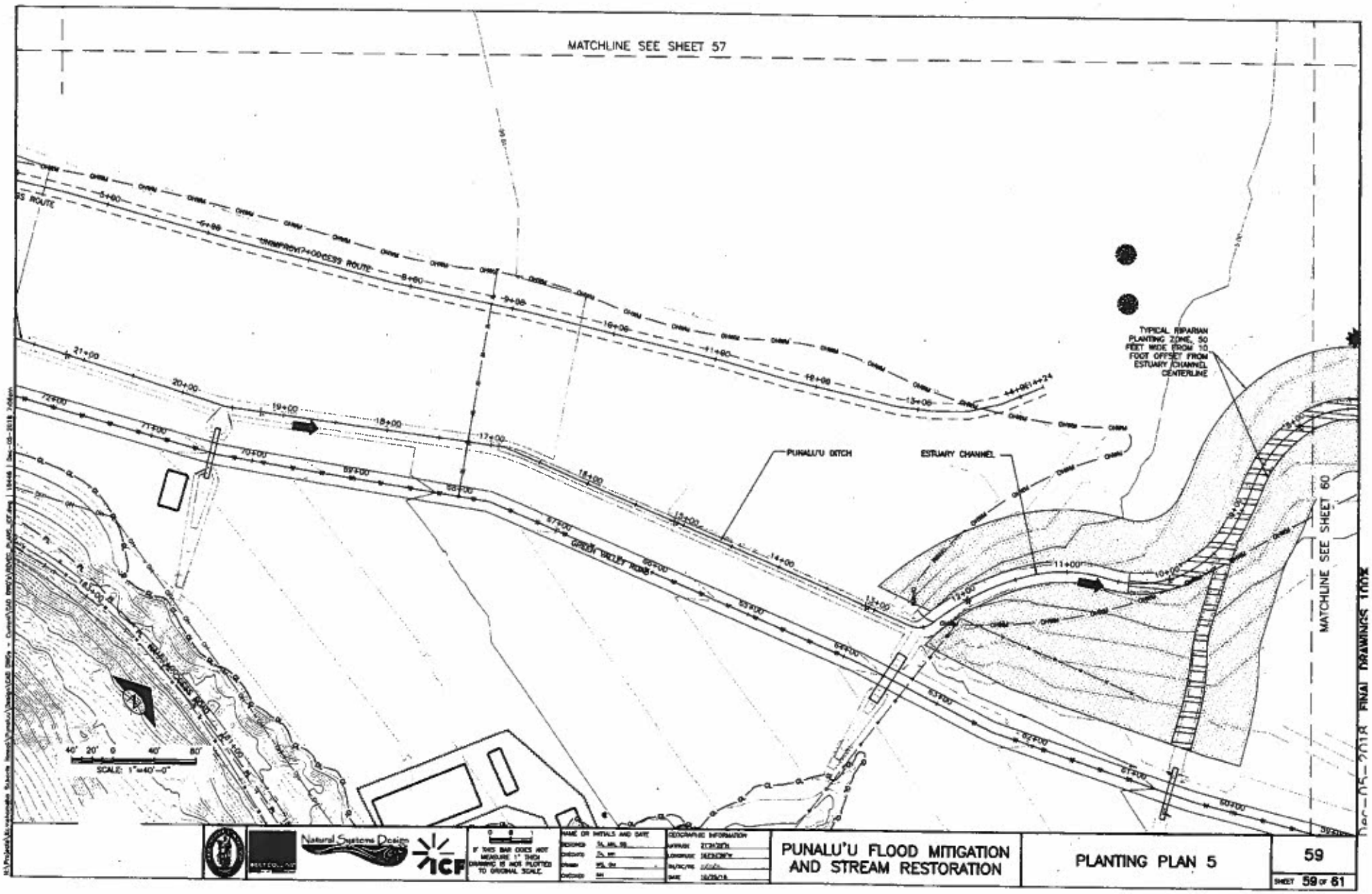

MATCHLINE SEE SHEET 57
MATCHLINE SEE SHEET 60
PUNALU'U DITCH
ESTUARY CHANNEL
TYPICAL RIPARIAN PLANTING ZONE, 50 FEET WIDE FROM 10 FOOT OFFSET FROM ESTUARY CHANNEL CENTERLINE
GREEN VALLEY ROAD
SCALE: 1"=40'-0"
Natural Systems Design
ICF
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION
PLANTING PLAN 5
59
SHEET 59 OF 61

EXHIBIT R

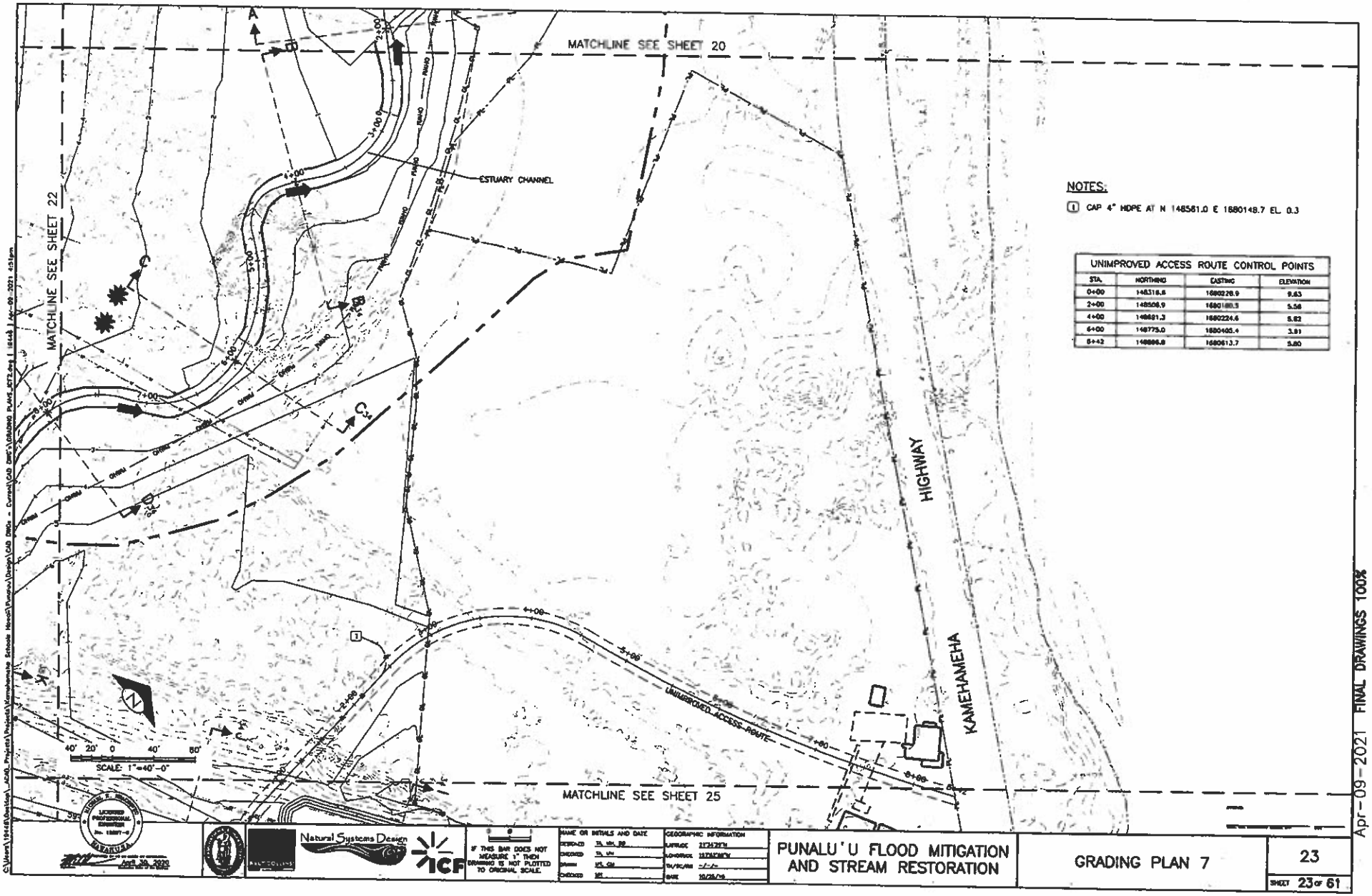

MATCHLINE SEE SHEET 20
MATCHLINE SEE SHEET 22
MATCHLINE SEE SHEET 25
ESTUARY CHANNEL
UNIMPROVED ACCESS ROUTE
KAMEHAMEHA HIGHWAY
SCALE: 1"=40'-0"
NOTES:
1 CAP 4" HDPE AT N 148561.0 E 1680148.7 EL 0.3
UNIMPROVED ACCESS ROUTE CONTROL POINTS
STA. NORTHING EASTING ELEVATION
0+00 148318.8 1680328.9 9.63
2+00 148506.9 1680180.5 5.58
4+00 148691.3 1680224.6 5.82
6+00 148775.0 1680405.4 3.91
8+42 148886.8 1680613.7 5.80
Natural Systems Design
ICF
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION
GRADING PLAN 7
23
SHEET 23 OF 61
Apr-09-2021 FINAL DRAWINGS 100%

EXHIBIT S

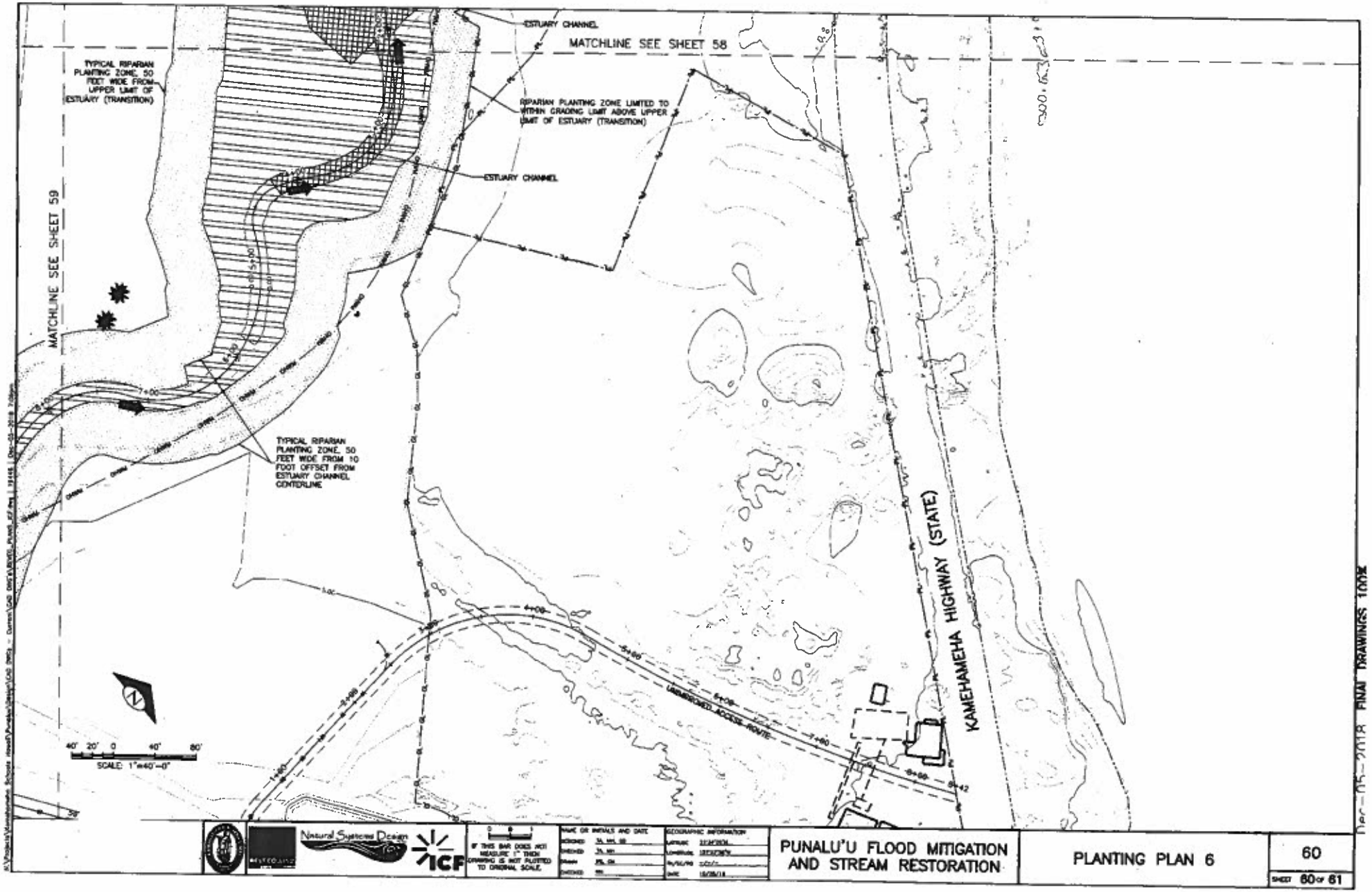

MATCHLINE SEE SHEET 58
MATCHLINE SEE SHEET 59
ESTUARY CHANNEL
ESTUARY CHANNEL
TYPICAL RIPARIAN PLANTING ZONE, 50 FOOT WIDE FROM UPPER LIMIT OF ESTUARY (TRANSITION)
RIPARIAN PLANTING ZONE LIMITED TO WITHIN GRADING LIMIT ABOVE UPPER LIMIT OF ESTUARY (TRANSITION)
TYPICAL RIPARIAN PLANTING ZONE, 50 FEET WIDE FROM 10 FOOT OFFSET FROM ESTUARY CHANNEL CENTERLINE
UNIMPROVED ACCESS ROUTE
KAMEHAMEHA HIGHWAY (STATE)
SCALE: 1"=40'-0"
Natural Systems Design
ICF
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION
PLANTING PLAN 6
60
SHEET 60 OF 61
FINAL DRAWINGS 100%

EXHIBIT T

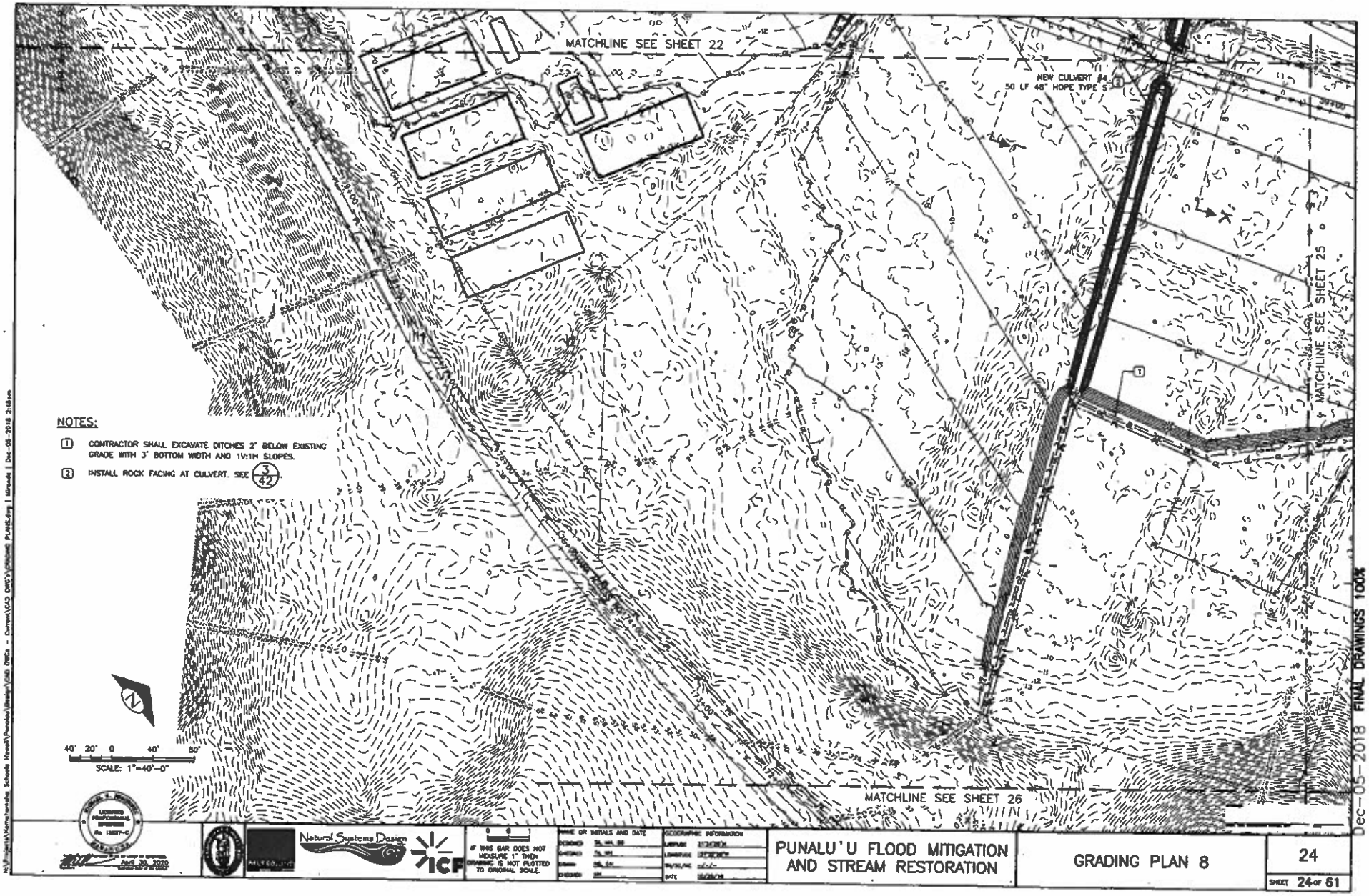

MATCHLINE SEE SHEET 22
NEW CULVERT #4
50 LF 48" HDPE TYPE 5
MATCHLINE SEE SHEET 25
MATCHLINE SEE SHEET 26
NOTES:
1 CONTRACTOR SHALL EXCAVATE DITCHES 2' BELOW EXISTING GRADE WITH 3' BOTTOM WIDTH AND 1V:1H SLOPES.
2 INSTALL ROCK FACING AT CULVERT. SEE 3/42.
40' 20' 0 40' 80'
SCALE: 1"=40'-0"
Natural Systems Design
ICF
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION
GRADING PLAN 8
24
SHEET 24 OF 61
Dec-05-2018 FINAL DRAWINGS 100%

EXHIBIT U

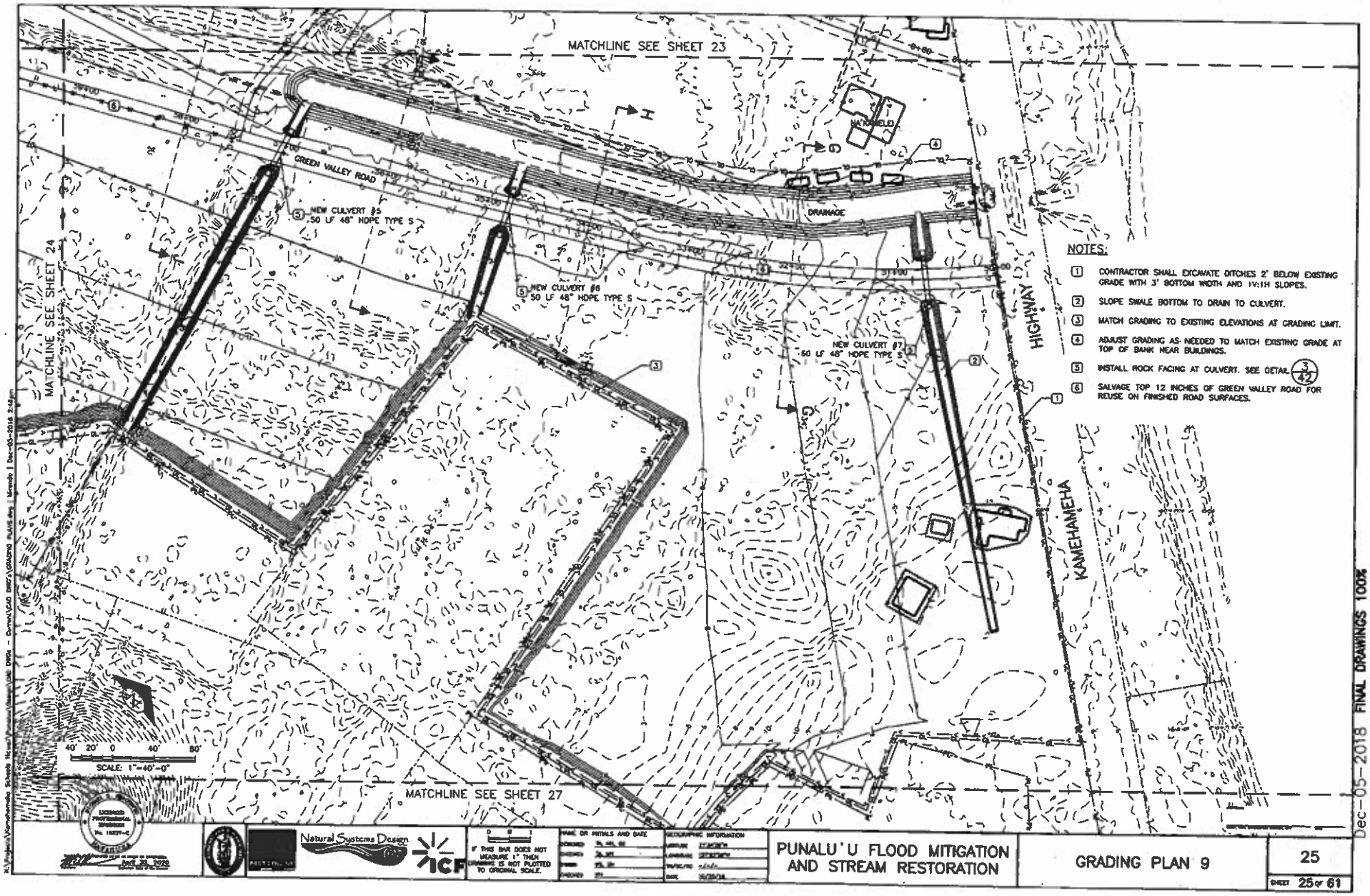

MATCHLINE SEE SHEET 23
MATCHLINE SEE SHEET 24
MATCHLINE SEE SHEET 27
GREEN VALLEY ROAD
NEW CULVERT #5
50 LF 48" HDPE TYPE S
NEW CULVERT #6
50 LF 48" HDPE TYPE S
NEW CULVERT #7
50 LF 48" HDPE TYPE S
DRAINAGE
HIGHWAY
KAMEHAMEHA
NOTES:
1 CONTRACTOR SHALL EXCAVATE DITCHES 2' BELOW EXISTING GRADE WITH 3' BOTTOM WIDTH AND 1V:1H SLOPES.
2 SLOPE SWALE BOTTOM TO DRAIN TO CULVERT.
3 MATCH GRADING TO EXISTING ELEVATIONS AT GRADING LIMIT.
4 ADJUST GRADING AS NEEDED TO MATCH EXISTING GRADE AT TOP OF BANK NEAR BUILDINGS.
5 INSTALL ROCK FACING AT CULVERT. SEE DETAIL 3/42
6 SALVAGE TOP 12 INCHES OF GREEN VALLEY ROAD FOR REUSE ON FINISHED ROAD SURFACES.
SCALE: 1"=40'-0"
Natural Systems Design
ICF
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.
PUNALU'U FLOOD MITIGATION AND STREAM RESTORATION
GRADING PLAN 9
25
SHEET 25 of 61
Dec-05-2018 FINAL DRAWINGS 100%

EXHIBIT V