FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	269	295

Landscape Demolition Notes:

1. *All grading, clearing & grubbing and demo work shall be done in accordance with Chapter 14, Articles 13, 14, 15 and 16 as related to grading, soil erosion and sediment control of the revised ordinances of Honolulu, 1990, as amended.*
2. *This plan is diagrammatic and based off best available information. Contractor to verify location and depth of all existing utilities, mechanical equipment and signage prior to demolition operations. All items designated as existing to remain shall be protected throughout construction operations. Any existing items or landscape damaged due to construction activities shall be repaired/replaced at Contractor's expense.*
3. *The limits of the area to be cleared and demolished shall be flagged before the commencement of the work and confirmed by the contracting officer.*
4. *Contractor to demolish and remove existing groundcovers, shrubs, trees & palms only as indicated on the plans.*
5. *The items to be removed and/or relocated shall be verified with the contracting officer before the commencement of demolition work.*
6. *Items indicated to be demolished and removed shall be removed to their full extent, unless otherwise accepted by the contracting officer.*
7. *Contractor to coordinate with contracting officer regarding removal/replacement of any pest control devices located within demolition area.*
8. *Contractor to repair/replace any lawn and landscape area damaged due to construction activities.*
9. *All voids and cavities created by the removal shall be backfilled and compacted in maximum 8-inch lifts with fill material to match existing surrounding soils and grades.*
10. *Finish grade shall be adjusted to remain below adjacent sidewalk elevations. Existing soil shall be removed to a final finish grade elevation acceptable to contracting officer.*

Irrigation Demolition Notes:

1. *This plan is diagrammatic. all existing irrigation equipment locations are derived from the best available information and onsite inspection.*
2. *Contractor shall avoid any conflict between any structures and underground utilities. Contractor shall be responsible for locating and protecting all existing utilities.*
3. *Irrigation system shall remain fully operational for the duration of construction. Refer to new irrigation plans.*
4. *Any equipment and/or materials damaged by demolition or construction operations shall be repaired or replaced at no additional cost to the owner.*
5. *Contractor to remove existing irrigation spray-head bodies and abandon lateral lines in all areas designated for demolition.*
6. *Any existing irrigation equipment deemed damaged or unusable shall be replaced with equipment of same manufacturer and model. If not available contractor shall replace equipment with make/model acceptable to owner.*

Tree Disposition Notes:

1. *The trees that need to be relocated during construction shall be placed in a protected fenced on-site holding area and maintained until ready for final planting. The rootball shall be wire caged or boxed, and the tree stored upright. Landscape contractor shall install temporary irrigation to water these trees.*
2. *The trees that are not in the way of building activity shall remain in their present location. Landscape contractor shall set up a temporary irrigation system to water and maintain them until they are ready to be relocated to their final location. These trees shall be surrounded and protected during construction.*
3. *All palms/trees to removed and relocated shall be reviewed by certified arborist prior to construction.*
4. *Landscape contractor shall verify new location of all relocated palms/trees with Engineer prior to planting.*
5. *All relocated palms/trees to be automatically irrigated.*
6. *Protect/repair existing irrigation in construction area.*
7. *Trees to remain and be protected see detail sheet LD-04.*
8. *Prune up all low limbs below 6ft in height.*
9. *Demolition of trees and palms includes removal of rootball, buttress roots, and surrounding roots 1-1/2" and larger to minimum depth of 18" below grade. Unless otherwise specified, surrounding roots shall be removed to a minimum depth of 12" below adjacent ground level.*
10. *Remove roots only where removal does not damage existing structures, pavements, or utilities to remain. If investigation indicates that roots to be removed may affect or surround such features to remain, expose the roots by hand excavation, air-spade pneumatic excavator, or similar. Do not rip out roots with a backhoe or similar equipment. The roots shall then be cut and removed, being careful not to damage the features to remain.*

ORIGINAL PLAN
NOTE BOOK
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Landscape & Irrigation Demolition Notes

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LD-01 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	270	295

Victoria Ward Park
(Makai)

Victoria Place

Existing irrigation equipment to remain fully operational during construction activities. Contractor to field verify locations of all irrigation equipment to remain and make necessary adjustments to relocate outside limits of new grading and ensure full and adequate irrigation coverage of existing landscape areas to remain. Refer to sheets EC-7 and EC-8 for limits of grading.

Existing 2" mainline to remain fully operational during construction activities. Connect existing mainline to relocated 2" mainline. See sheet LI-02.

Existing Shut Off Valve and Valve Box To Be Relocated. See Sheet LI-02.

Existing Backflow Preventer To Be Relocated. See Sheet LI-02.

Existing 2" mainline to remain fully operational during construction activities. Connect existing mainline to relocated 2" mainline. See sheet LI-02 for new location. Contractor shall install relocated mainline during demolition activities to maintain continuous system operation.

Existing gate valve and valve box to remain.

Existing water meter to remain for irrigation purposes.

Existing irrigation equipment in median to remain fully operational during construction activities. Contractor to field verify locations of all irrigation equipment, including mainline and lateral lines to remain and make necessary adjustments to ensure full and adequate irrigation coverage of existing landscape areas to remain.

(5) Ea. existing irrigation heads to be replaced with new equipment and remain fully operational for the duration of construction activities. Reconnect to new relocated remote control valve (See sheet LI-03).

Ala Moana Boulevard

Existing irrigation equipment to remain fully operational during construction activities. Contractor to field verify locations of all irrigation equipment to remain and make necessary adjustments to ensure full and adequate irrigation coverage of existing landscape areas to remain.

Cut And Cap Irrigation Lateral. See sheet LI-03 for notes to existing system modifications.

Existing 2" mainline to remain fully operational during construction activities. Connect existing mainline to relocated 2" mainline. See sheet LI-03 for new location. Contractor shall install relocated mainline during demolition activities to maintain continuous system operation.

Existing 2" mainline and sleeve to remain and be fully operational during construction activities.

(3) Ea. existing 1-1/2" battery operated remote control valves to be replaced by new equipment and relocated outside of construction zone (see sheet LI-03 for new locations and sheet LI-04 for new valve models). Connect new valves to relocated 2" mainline. Contractor shall verify existing irrigation equipment associated with each valve reconnect existing equipment to new valves. Ensure existing system remains fully operational during construction activities. Contractor shall make necessary adjustments to ensure full and adequate irrigation coverage of existing landscape areas to remain.

Kewalo Basin Boat Harbor

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Legend:

▨	Existing Irrigation System Equipment To Be Demolished.

Existing Irrigation Disposition Plan

Scale: 1"=16'

NORTH

0 16 32 64 feet

SCALE: 1" = 16'

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HIGHWAYS DIVISION

Existing Irrigation Disposition Plan

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LD-02 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	271	295

Legend

- Existing Trees To Remain And Be Protected During Construction Operations
- Existing Trees To Be Demolished And Disposed Of Off Site
- MP — Existing Trees To Be Removed And Relocated (See Sheet LP-03) Denotes Tree Type (MP=Monkeypod, C=Coconut Palm, SP=Singapore Plumeria)
- Existing Hedge To Be Demolished And Disposed Of Off Site (Typical Symbol)

Victoria Ward Park (Makai)

Limits of Work (See Sheets EC-7 and EC-8)

Victoria Place

(3) Existing Trees To Be Demolished And Disposed Of Off Site (Typical Symbol)

(1) Existing Coconut Palm To Be Demolished And Disposed Of Off Site (Typical Symbol)

(5) Existing Coconut Palms To Be Demolished And Disposed Of Off Site (Typical Symbol)

Existing Hedge To Be Demolished And Disposed Of Off Site (Typical Symbol)

(3) Existing Coconut Palm To Be Removed And Relocated (See Sheet LP-03 For Location), (Typical Symbol)

(2) Existing Singapore Plumeria To Be Removed And Relocated (See Sheet LP-03 For Location), (Typical Symbol)

(2) Existing Coconut Palm To Be Removed And Relocated (See Sheet LP-03 For Location), (Typical Symbol)

Existing Water Meter to Remain For Irrigation Purposes.

(1) Existing Singapore Plumeria To Be Removed And Relocated (See Sheet LP-03 For Location), (Typical Symbol)

(1) Existing Monkeypod Tree To Be Removed And Relocated (See Sheet LP-03 For Location), (Typical Symbol)

Ala Moana Boulevard

(9) Ea. Fish Sculpture Artwork on Post Supports: Disassemble, Remove, Clean And Return to The Howard Hughes Corporation - Ward Village. Demolish and Remove Any Footings to Fullest Extent Possible.

Limits of Work (See Sheet EC-9)

(1) Existing Tree To Be Demolished And Disposed Of Off Site (Typical Symbol)

(10) Existing Coconut Palms To Be Demolished And Disposed Of Off Site (Typical Symbol)

(1) Existing Monkeypod Tree To Be Removed And Relocated (See Sheet LP-03 For Location), (Typical Symbol)

Existing Hedge To Be Demolished And Disposed Of Off Site (Typical Symbol)

Existing Naupaka Hedge To Remain And Be Protected During Construction (Typical Symbol)

Kewalo Basin Boat Harbor

Existing Landscape Disposition Plan

Scale: 1"=16'

NORTH

0 16 32 64 feet

SCALE: 1" = 16'

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Existing Landscape Disposition Plan

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LD-03 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	272	295

TREE PROTECTION ZONE:

1. All trees identified on the plans to be protected. All trees 24" caliper or greater (as measured at 4½ feet height) shall be protected. If trees other than those designated for removal are damaged beyond survival condition as determined by the Engineer, the Contractor shall remove such trees and replace with a tree of the same species and size and maintain them for the duration of the construction or 12 months whichever is greater at no cost to the State.

2. The recommended tree protection zone should be located at the outer drip line of the canopy of the tree. However, the minimum protection zone around a tree should be at least 10 feet from the external surface of the tree's trunk. For all palms, the minimum protection zone should be at least 10 feet from the external surface of the palm's trunk. Fence location may be adjusted as directed by the Engineer.

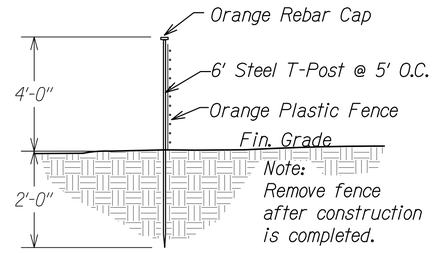
3. All underground utilities and irrigation lines should be routed outside of the tree protection zone.

4. All protected trees shall be listed on the demolition, landscape, grading and utilities plans. If there is a discrepancy with the plans, Contractor shall contact Engineer immediately.

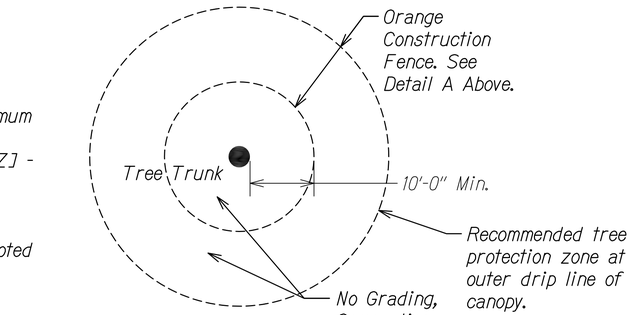
5. Protective fences shall be erected around trees identified on plan to remain and/or trees with a trunk diameter greater than 24 inches (as measured at a height of 4 ½ feet.) Protective fence shall be 4 feet high orange plastic mesh or approved equivalent supported on steel T-post a minimum of 6 feet long. Protective fence shall surround tree at a minimum of 10 feet from tree trunk with steel T-post at a minimum of 5 feet on center. Fence shall be installed prior to any demolition work and shall remain in place until site work is completed. Signs shall be posted on all four sides to read "TREE PROTECTION ZONE [TPZ] - NO GRADE CHANGE, STORAGE OR EQUIPMENT PERMITTED WITHIN TPZ."

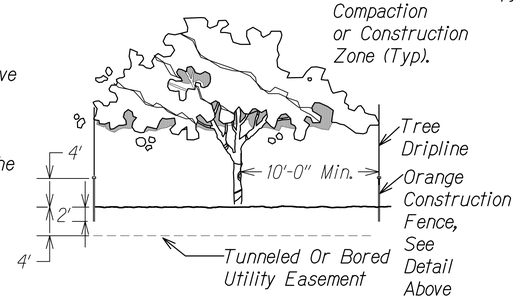
6. For the duration of construction within the drip line of the trees to remain there must be:
   - No changes, alteration or disturbance to the grade by adding fill, excavating or scraping except as noted on plans;
   - No storage on construction materials or equipment;
   - No stockpiling of any construction materials or excavated materials;
   - No disposal of any liquids (e.g. concrete slurry, gas, oil, paint);
   - No vehicular traffic, equipment er excessive pedestrian traffic;
   - No attachment of any wires, ropes, lights or any other such attachment other than those of a protective nature to any tree to be preserved; and
   - No cleaning of equipment or material under the canopy of any tree or group of trees to be preserved

7. Auger tunneling, not trenching, shall be used where possible for utility placement within the drip line of the tree. If trenching is necessary it shall be hand dug within the drip line of the tree.



DETAIL A - ORANGE CONSTRUCTION FENCE
NOT TO SCALE





TREE PROTECTION
Scale: Not to Scale

1
LD-04 LD-04

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Tree Protection Details

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LD-04 OF 5 SHEETS

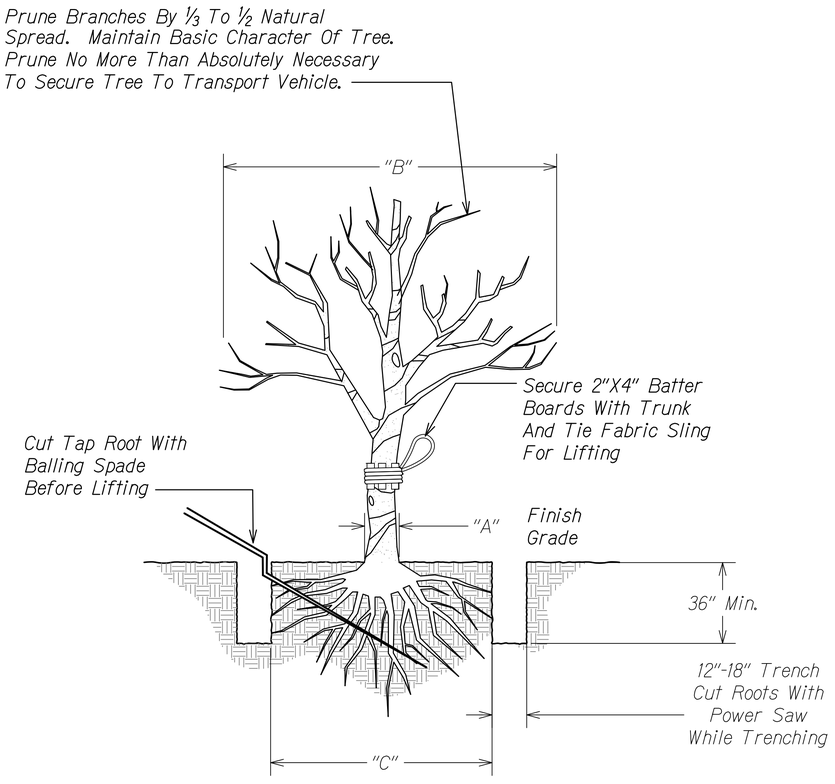
272

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	273	295

NOTES:

1. To reduce shock, prune roots and branches of trees minimum three months in advance of moving, or as early as possible.

2. All relocation and pruning work shall be done under the supervision of an experienced and licensed arborist.

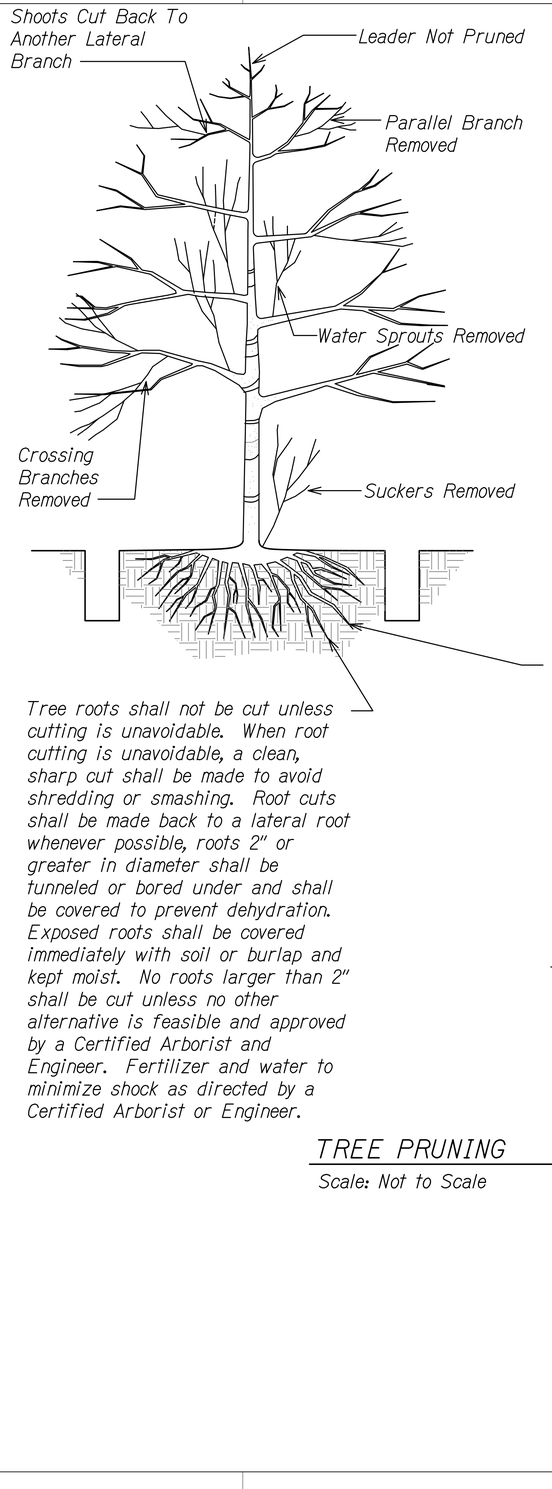


"A"	"B"	"C"
Caliper Size	Spread (Side)	Rootball Size
2"-6"	14"-26"	15"-24"
6"-8"	30"-48"	30"-36"
18"-30"	60"-96"	36"-96"
30" And Over	120"-144"	120"-240"

TREE TRANSPLANTING

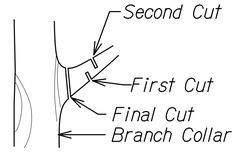
Scale: Not to Scale

1 LD-05 LD-05



NOTES:

1. Positions of first and second cuts may be reversed in some cases, particularly when cutting a large branch with a chainsaw.
2. Do not make flush cuts or leave stubs.
3. Do not paint cuts.
4. Remove dead, broken or malformed branches.
5. Remove all vines entwined in the tree or around its trunk.
6. All pruning shall be completed using clean sharp tools. All cuts shall be clean and smooth, with the bark intact with no rough edges or tears.
7. Dispose of all cuttings outside of right of way.
8. Retain the normal shape of the plant.



TYPICAL BRANCH REMOVAL

TREE PRUNING

Scale: Not to Scale

2 LD-05 LD-05

ORIGINAL PLAN

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Tree Transplanting And Tree Pruning Details

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LD-05 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	274	295

Irrigation General Notes

1. This plan is diagrammatic. Irrigation system is subject to field adjustments, with approval of Engineer, due to unanticipated site conditions. Locate all mainlines, laterals, valves and sprinkler heads within planting areas, unless otherwise noted. Place mainline in planting areas where no sleeves are shown. Avoid any conflict between underground utilities, structures and plantings. The Contractor shall be responsible for locating and protecting all existing utilities. Bury pressure mainlines 24" deep minimum and lateral lines 12" deep minimum when installed in landscape planting areas. Provide all work necessary to meet the design intent of the drawings.

2. Contractor shall install all irrigation equipment (ie. irrigation lines, control wires, valves, heads, etc.) per industry standards and manufacturer's written instructions. Existing gate valves, point of connection, electrical power, etc. are derived from the best available information and on-site inspection. The Contractor shall verify those points of connection noted and report any discrepancies to the Engineer.

3. The irrigation system was designed to perform with a minimum static pressure of 85 PSI and minimum water flow of 65 GPM at the Point Of Connection (P.O.C.) The Contractor shall be responsible for verifying these requirements through onsite testing and shall report the findings to the Engineer at least thirty (30) days prior to start of construction on the irrigation system.

4. Contractor shall secure all necessary permits and observe all local codes and regulations. the Contractor shall confirm all site dimensions and conditions, and report any discrepancies to the Engineer.

5. Landscape Contractor shall coordinate with Site Contractor the installation of all sleeves, conduits, mainlines and laterals under pavement and through walls. Contractor shall ensure that these items are laid out prior to placement of pavement or wall structures.

6. Scale head locations from drawings and lay out irrigation system per current industry standards to meet the design intent shown. Locate and install all sprinkler heads 6" from sidewalks, curbs, driveways, buildings and walls unless otherwise noted. Flex tubing shall be installed on all sprinkler heads along sidewalks, driveways, and parking spaces. Adjust all sprinkler heads and flow control for maximum coverage and minimum overthrow and misting. Operate only one valve at a time per controller, unless otherwise noted.

7. Contractor shall adjust all sprinkler heads as required to accommodate any vertical obstructions that may occur, including but not limited to light poles, fire hydrants, etc. Verify all sprinkler head layout with the Engineer prior to commencing work.

8. Submit for the Engineer's acceptance six (6) copies of detailed scaled drawings and wiring diagrams for permanent and temporary irrigation systems. No proposed deviations from the Contract. Submit these items no later than 60 days before of the start of construction on the irrigation system.

9. Submit for the Engineer's acceptance product data for each type of product indicated on Drawings. include rated capacities, operating characteristics, electrical characteristics, furnished specialties, and accessories.

10. Substitutions of any equipment or materials specified or indicated will not be considered unless the Engineer deems the substitution to be of equal or greater quality and for which a cost savings is offered.

11. Do not backfill irrigation trenches until hydrostatic testing in the presence of the Engineer has been completed and accepted. Center load backfill over pipes, leaving all joints exposed until the installation has been inspected, tested, and accepted by the Engineer.

12. Perform hydrostatic test as specified in the presence of the Engineer. Notify the Engineer at least ten (10) working days in advance of test. If leaks develop, remake joints and repeat tests until the entire system has proven watertight and is accepted by the Engineer. Do not backfill until there is no further sign of leakage.

13. Perform operability test as specified in the presence of the Engineer. Notify the Engineer at least ten (10) working days in advance of test. After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.

14. Perform coverage test as specified in the presence of the Engineer. Notify the Engineer at least ten (10) working days in advance of test. Upon completion of the sprinkler system and prior to planting of shrubs, ground cover or turf, perform a coverage test to determine that irrigation coverage for all planting areas is complete and provides head-to-head coverage. Adjust sprinkler heads as required to ensure adequate coverage to all planting areas. Contractor shall furnish materials and perform work required to correct any inadequacies of coverage. Reschedule and perform additional coverage test with Engineer for acceptance.

15. Locate valve boxes so that the outer edges are no closer than five feet to roadway or pedestrian pavement or as directed by Engineer. Group valve boxes as feasible. Install valves/valve boxes in ground cover areas unless otherwise noted or as directed by the Engineer. Installation of valves/valve boxes in lawn areas is not acceptable and will be rejected.

16. If plans do not specify depth of excavation, provide minimum cover to finish grade as follows:

    a. 24 inches for irrigation mainline
    b. 12 inches for irrigation lateral
    c. 24 inches for sleeve or conduit under landscape/walkway pavement
    d. 36 inches for sleeve or conduit under roadway/vehicular pavement
    e. For controller wires and conduits in unpaved areas, depth equal to that of mainline pipe.

17. After installation of irrigation, landscape contractor shall provide as-built mark-up information showing all changes and deviations from the original plans as specified for acceptance by the Engineer. As-Built drawings shall include all substituted materials and equipment, as well as dimensions of each pipe from buildings, control points, and/or fixed features; include exact location of each valve, elbow, tee, and sprinkler zone located in the field. Provide one (1) reproducible copy documenting these 'As-Built' conditions, to the Engineer upon completion of irrigation installation work or thirty (30) days before final inspection, whichever is sooner. As-Built mark-ups shall be done at full size, at the same scale as the original drawings, clearly legible and reproducible. Contractor is solely responsible for the accuracy and completeness of As-Built mark-ups.

18. Contractor shall make all wire splices inside of valve boxes or control wire pull boxes.

19. Incidental parts which may not be specified or indicated on drawings, but are required to complete the irrigation system shall be furnished and installed of no additional cost to the State.

20. Valve station numbering is for identification purposes and not an indication of valve operation sequence. Coordinate programming of the controller with the engineer to best sequence the valves. Operate drip system last.

21. Except when required for initial plant establishment, operate irrigation systems during "off peak" evening hours unless directed otherwise by the engineer.

22. Maintain a current set of drawings on site. Note field changes and deviations as they occur. Submit record drawings at the end of the contract.

ORIGINAL PLAN

NO.	DATE

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Irrigation Notes

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LI-01 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	275	295

Note:
1. This plan is diagrammatic. Irrigation system is subject to field adjustments due to unanticipated site conditions. Locate all mainlines, laterals, valves and sprinkler heads within planting areas, unless otherwise noted. Place mainline in planting areas where no sleeves are shown. Avoid any conflict between underground utilities, structures and plantings.

Victoria Ward Park
(Makai)

Area of temporary irrigation, (typ. sym.): Contractor shall install temporary surface irrigation to remain operational until commencement of future Victoria Ward Park construction.

Victoria Place

Install new conduit under pathway for future use.

Install new sleeve and conduit under pathway for temporary irrigation.

Existing irrigation equipment to remain (See sheet LD-02). Connect to relocated 2" mainline.

Relocated mainline connect to existing 2" irrigation mainline.

Irrigation controller 2: Locate and connect to new 120-v power in waterproof j-box. See electrical plans for exact location.

Install new conduit under pathway for future use.

Conduit, Typ. Sym.

Sleeve, Typ. Sym.

Gate Valve, Typ. Sym.

C1-1 1" 9

C1-2 1" 3

C1-3 1" 8

C1-4 1" 3

C1-5 1" 3

C1-6 1" 4

C1-7 1" 2

C1-8 1" 2

C1-9 1" 7

C1-10 1" 3

C1-11 1" 3

C1

SM

BF

M

Connect To Existing Gate Valve in Valve Box.

Existing 2" Water Meter to Remain For Irrigation Purposes.
M/N: 10070257
PID: 0731379909

Relocated Board of Water Supply Approved Reduced Pressure Principle Backflow Prevention Assembly After the Water Meter Prior to Any Tees or Branches Per BWS Standard Detail V-9. Contractor to Verify.

Relocated Existing Shut Off Valve and Valve Box.

Flow Sensor, Typ. Sym.

Master Valve, Typ. Sym.

Submeter, Typ. Sym.

Ala Moana Boulevard
(State)

Existing Irrigation Heads

Relocated irrigation mainline connect to existing irrigation system outside limits of work.

New Irrigation Mainline for new bridge landscaping, Typ. Sym.

Contractor to extend existing median irrigation system to provide full and adequate coverage of expanded landscape area. Contractor to provide schematic layout of proposed changes to Engineer for approval prior to installation.

MATCHLINE - SEE SHEET LI-03

Irrigation Plan – 1
Scale: 3/32"=1'

NORTH

0 8 16 32 feet
SCALE: 3/32"=1'

ORIGINAL PLAN
NOTE BOOK
SURVEY PLOTTED BY DATE
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY

RUSSELL Y.J. CHUNG
LICENSED PROFESSIONAL LANDSCAPE ARCHITECT
No. 6076
HAWAII, U.S.A.

LICENSE EXPIRES 4/30/22

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Irrigation Plan - 1

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LI-02 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	276	295

Note:

1. *This plan is diagrammatic. Irrigation system is subject to field adjustments due to unanticipated site conditions. Locate all mainlines, laterals, valves and sprinkler heads within planting areas, unless otherwise noted. Place mainline in planting areas where no sleeves are shown. Avoid any conflict between underground utilities, structures and plantings.*

Contractor to extend existing median irrigation system to provide full and adequate coverage of expanded landscape area. Contractor to provide schematic layout of proposed changes to Engineer for approval prior to installation.

MATCHLINE - SEE SHEET LI-02

Ala Moana Boulevard (State)

Relocated irrigation mainline connect to existing irrigation system outside limits of work.

New Irrigation Mainline, Typ. Sym.

Conduit, Typ. Sym.

Sleeve, Typ. Sym.

Connect To Existing Irrigation Lateral Line

Gate Valve, Typ. Sym.

C2-16	C2-15	C2-14	C2-7	C2-6	C2-5	C2-4	C2-3	C2-2	C2-1
1½" -	1½" -	1½" 23	1" 3	1" 5	1" 3	1" 4	1" 5	1" 4	1" 10

C2-8	C2-9	C2-10	C2-11	C2-12	C2-13
1" 2	1" 4	1" 2	1" 7	1" 6	1" 5

Existing electrical equipment

(3) ea. New remote control valves C2-14, C2-15, C2-16 to replace battery operated remote control valves. Reconnect each valve to the existing irrigation equipment associated with the battery operated valve that was replaced. Valves shall remain fully operational for duration of construction activity. Connect new valves to irrigation controller 2 when controller is operational.

Flow Sensor, Typ. Sym.

Master Valve, Typ. Sym.

Submeter, Typ. Sym.

Irrigation controller 1: Locate and connect to new 120-v power in waterproof j-box. See electrical plans for exact location.

Connect To Existing 2" Irrigation Mainline

Kewalo Basin Boat Harbor

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Irrigation Plan – 2
Scale: 3/32"=1'

NORTH

0 8 16 32 feet

SCALE: 3/32"=1'

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Irrigation Plan - 2

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown *Date: July 2021*

SHEET No. *LI-03* OF *8* SHEETS

IRRIGATION SCHEDULE

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	277	295

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
Q T H F	Rain Bird 1804-U-SAM-PRS U8 series Turf Spray 4.0" pop-up sprinkler with co-molded wiper seal. 1/2" NPT female threaded inlet with seal-a-matic check valve. Pressure regulating.
Q T H F	Rain Bird 1804-U-SAM-PRS U10 series Turf Spray 4.0" pop-up sprinkler with co-molded wiper seal. 1/2" NPT female threaded inlet with seal-a-matic check valve. Pressure regulating.
Q T H TT TQ F	Rain Bird 1804-U-SAM-PRS U12 series Turf Spray 4.0" pop-up sprinkler with co-molded wiper seal. 1/2" NPT female threaded inlet with seal-a-matic check valve. Pressure regulating.
08HE-VAN 12HE-VAN 10HE-VAN 15HE-VAN	Rain Bird 1804-U-SAM-PRS HE-VAN series Turf Spray 4.0" pop-up sprinkler with co-molded wiper seal. 1/2" NPT female threaded inlet with seal-a-matic check valve. Pressure regulating.
LST SST RST	Rain Bird R-VAN-STRIP 1804-SAM-P45 Turf Rotary, 5'X15' (LCS AND RCS), 5'X30' (SST) hand adjustable multi-stream rotary w/ 1800 turf spray body on 4.0" pop-up, with check valve and 45 psi in-stem pressure regulator. 1/2" NPT female threaded inlet.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
35	Rain Bird 5004-PL-PC, FC-MPR-SAM-R Turf Rotor, 4.0" pop-up, plastic riser, with flow shut-off device. Matched precipitation rotor (MPR nozzle), arc and radius as per symbol. 25 ft-red, 30 ft-green, 35 ft-beige. With seal-a-matic check valve, and in-stem pressure regulator.

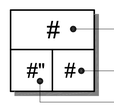
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Rain Bird XCZ-100-PRB-LC Wide Flow Drip Control Kit, for commercial applications. 1" ball valve with PESB valve and 1" pressure regulating 40 PSI quick-check basket filter. 0.3 GPM TO 20 GPM. Install in rectangular valve box.
	Pipe Transition Point in Valve Box Pipe transition point from below grade PVC lateral to 1" at-grade PVC supply manifold with riser in 6" round valve box.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
F	Flush Valve 1" PVC ball valve plumbed to low end of dripline PVC exhaust manifold (1"). Install in 10" round valve box.
	Area to Receive Dripline Rain Bird XFS-CV-04-12 XFS-CV on-surface landscape dripline with a heavy-duty 4.3 PSI check valve. 0.4 GPH emitters at 12" O.C., dripline spaced at 12" apart, with emitters offset for triangular pattern. Connect to 1" PVC supply header and 1" PVC exhaust header, typ. Secure to grade with approved dripline anchors and cover with 2" layer mulch.

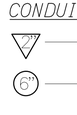
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Rain Bird PESB 1", 1-1/2", 2" Plastic Industrial Valves. Low flow operating capability, globe configuration. With pressure regulating module, and scrubber technology for reliable performance in dirty water irrigation applications.
	Rain Bird 44-LRC 1" Brass Quick-Coupling Valve, with corrosion-resistant stainless steel spring, thermoplastic rubber cover, and 2-piece body. HARCO quick coupler anchor product #82201. Contractor shall provide four (4) valve keys (44-KA), four (4) hose swivels (SH-1), four (4) cover keys (2049 cover key).
	Existing Shut Off Valve
	NIBCO T-113 Class 125 Bronze Gate Shut Off Valve With Wheel Handle, same size as mainline pipe diameter at valve location. Size range - 1/4" - 3"
M	Buckner-Superior 3300 2" Normally Open Brass Master Valve that provides dirty water protection and no minimum flow feature, which ensures reliable opening and closing of the valve in extreme high or low flow scenarios. 2" size, or equal acceptable to officer-in-charge. Install in BWS Type X concrete valve box with cast iron cover.
BF	Existing Reduced Pressure Backflow Preventer, 1-1/2"

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
C1 C2	Rain Bird ESP12LXMEF with (01) ESPLXMSM12 24 Station Commercial Controller with flow sensing in plastic valve box. Mount controller inside NEMA 3R rated stainless steel enclosure with thermostatically controlled fan assembly and matching stainless steel pedestal (V.I.T. Strongbox SB-24SS and PED-24DSS, and Opt-Fan, or equal acceptable to engineer). Locate and connect to new 120-Volt power inside waterproof J-box by electrical (See electrical plans for exact location). Ensure controller is grounded to less than 10-ohms and as required by the manufacturer, whichever is lower.
FS	Rain Bird FS-100-B 1" Flow Sensor for use with Rain Bird ESP-LXMEF Irrigation Controller. Connect Flow Sensor to FSM-LXME Flow Smart Module. Brass model. Suggested operating range of 2 GPM TO 40 GPM.
SM	Submeter 2" Badger Meter Model 170 2"
M	Existing Water Meter, 2"
———	Irrigation Lateral Line: PVC Class 200 SDR 21
——— ———	Irrigation Mainline: PVC Schedule 40
——— ———	Relocated Irrigation Mainline
——— ———	Pipe Sleeve: PVC Schedule 40
- - - - - - - - - -	Control Wire Conduit: PVC Schedule 80 UL approved typical conduit for irrigation control wire. Conduit size shall allow for irrigation control wire to easily slide through conduit material. Extend sleeves 18 inches beyond edges of paving or construction.

VALVE CALLOUT



CONDUIT & SLEEVE CALLOUT



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HIGHWAYS DIVISION

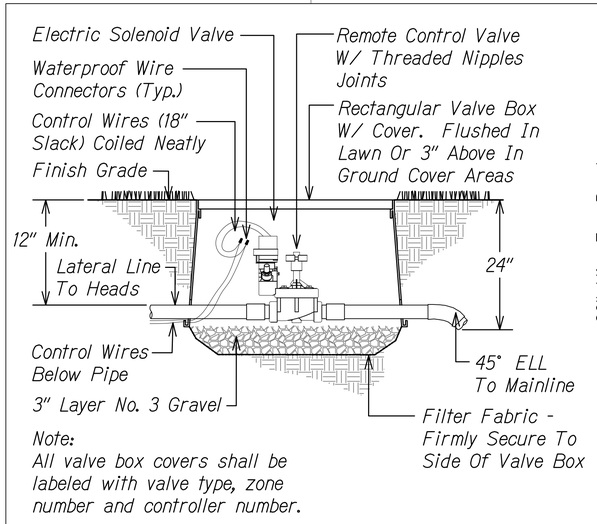
Irrigation Schedule

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LI-04 OF 8 SHEETS

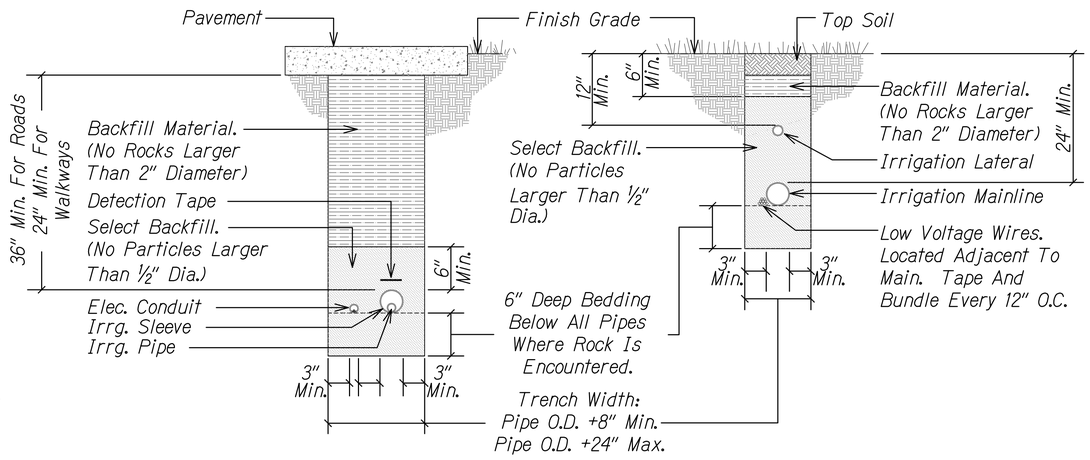
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	278	295



REMOTE CONTROL VALVE

Scale: Not to Scale

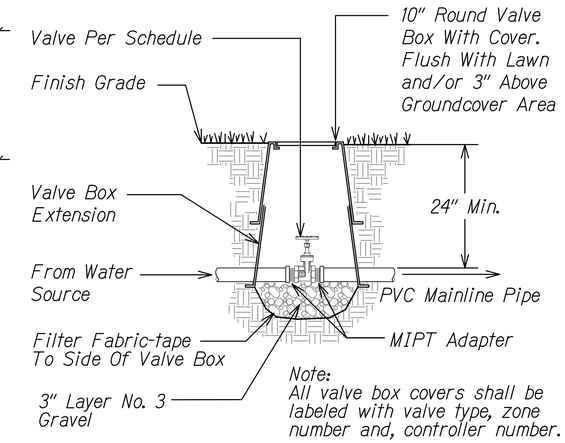
1 LI-05|LI-05



IRRIGATION TRENCHING DETAIL

Scale: Not to Scale

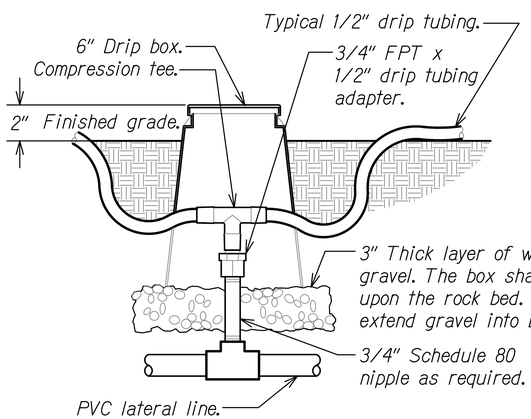
3 LI-05|LI-05



GATE VALVE

Scale: Not to Scale

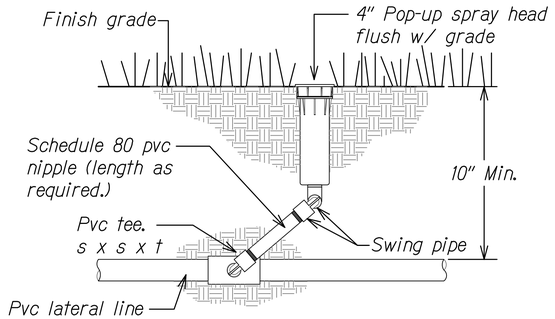
5 LI-05|LI-05



ZONE CONTROL

Scale: Not to Scale

2 LI-05|LI-05



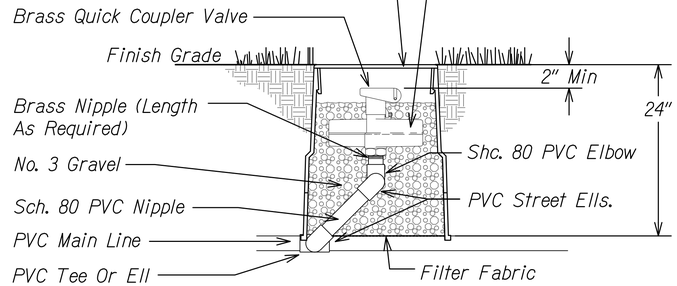
Notes:
Kbi or lasco swing joints may be used upon approval by engineer.

Install part circle pop-up heads 6" from edge of paved areas.

4" POP-UP SPRINKLER HEAD

Scale: Not to Scale

4 LI-05|LI-05



Note:
1. KBI or LASCO swing joints upon approval by engineer.
2. All valve box cover shall be labeled with valve type, zone number and, controller number.

REMOTE CONTROL VALVE

Scale: Not to Scale

5 LI-05|LI-05

ORIGINAL PLAN
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HIGHWAYS DIVISION

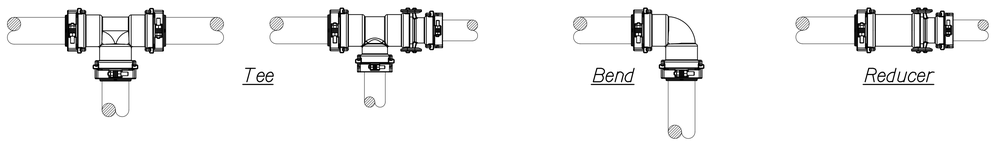
Irrigation Details - 1

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

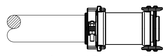
Scale: As Shown Date: July 2021

SHEET No. LI-05 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	279	295

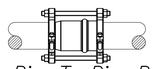


Fitting bells 4" and below: Harco fitting to pipe restraint series 60-100-xx or 82xx10 fitting bells 6" and above: Harco fitting to pipe restraint series 82xx11



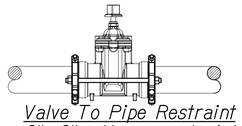
Cap/Dead End

Ductile iron IPS cap



Pipe To Pipe Restraint

Harco restraint series 82xx15



Valve To Pipe Restraint

3"- 8": Harco restraint series 82xx26

2"- 2½" & 10"- 12": Harco restraint series 82xx25

Minimum Restrained Length Requirements For Each Fitting/Valve Bell

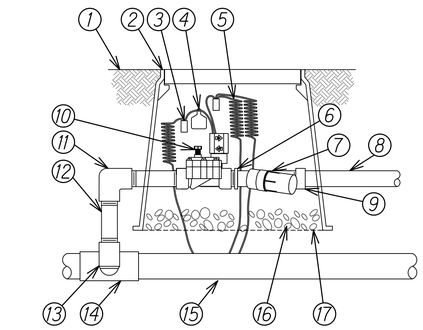
- -	90 33/64 Bend	45 33/64, 22½ 33/64, 11¼ 33/64 Bend	Tee	Reducer	Cap/Dead End	Valve	Coupling/Service Tee (See Note 3)
4" & Smaller	20'	20'	20'	40'	60'	60'	None
6" & Larger	40'	20'	20'	60'	80'	80'	None

1. *Each fitting & valve bell must be restrained to the length of pipe noted in the table using fitting to pipe restraint, valve to pipe restraint, and pipe to pipe restraint as required.*
2. *Pipe joints within the restrained length requirement must be restrained with pipe to pipe restraints.*
3. *Service tees and couplings within the restrained length requirement must be restrained with fitting to pipe restraints.*
4. *The restraint schemes are for system pressures up to 125 psi. call for higher system pressures all fitting & valve bells shall be restrained as shown*

JOINT RESTRAINT FITTINGS DETAIL

Scale: Not to Scale

1 LI-06 | LI-06

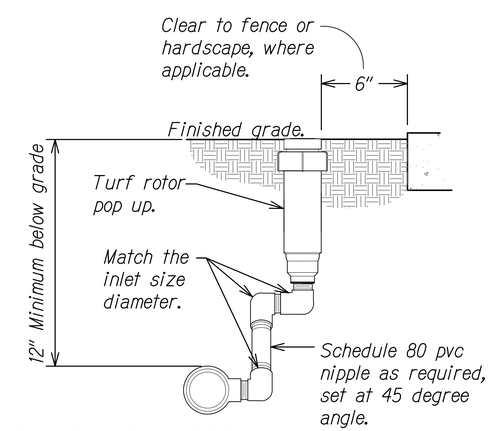


1. *Finish grade*
2. *Round valve box with cover*
3. *3M dbyr6 waterproof connection or equal exception to engineer*
4. *Valve ID tag*
5. *30-Inch linear length of wire, coiled*
6. *1" x ¾" reducing coupling*
7. *Pressure regulating filter*
8. *Lateral pipe*
9. *Pvc sch 40 female adaptor or reducer*
10. *Remote control valve*
11. *Pvc sch 40 ell*
12. *Pvc sch 80 nipple (length as required)*
13. *Pvc sch 80 nipple (2-inch length, hidden) and pvc sch 40 ell)*
14. *Pvc sch 40 tee or ell*
15. *Pvc mainline*
16. *3-Inch minimum depth of 3/4-inch washed gravel*
17. *Filter fabric*

1" LOW FLOW DRIP VALVE DETAIL

Scale: Not to Scale

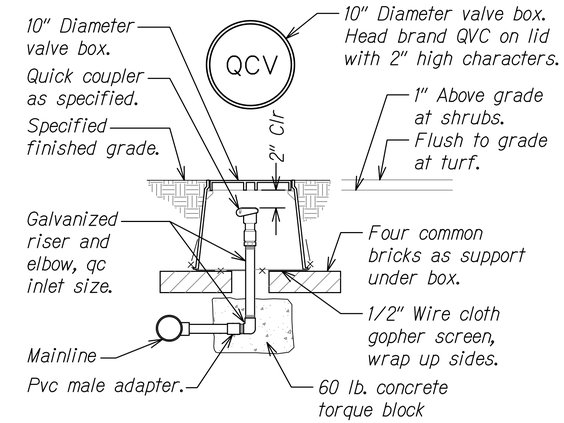
2 LI-06 | LI-06



TURF ROTOR DETAIL

Scale: Not to Scale

3 LI-06 | LI-06



QUICK COUPLING VALVE IN BOX

Scale: Not to Scale

4 LI-06 | LI-06

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Irrigation Details - 2

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown *Date: July 2021*

SHEET No. LI-06 OF 8 SHEETS

ORIGINAL PLAN
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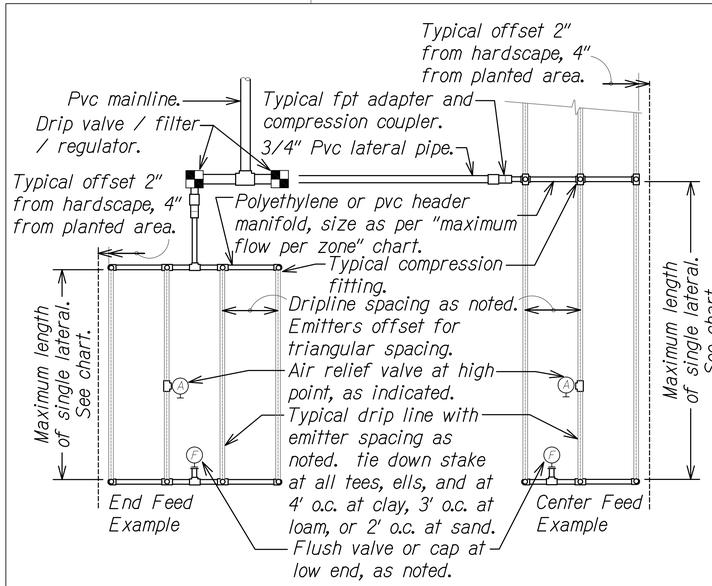


Maximum Lateral Length (Feet)						
	Emitter Flow Rate GPH					
	12" Spacing		18" Spacing		24" Spacing	
Psi	0.6	0.9	0.6	0.9	0.6	0.9
10	125	96	175	135	218	171
20	249	191	350	171	442	340
30	307	236	434	333	550	422
40	350	268	495	380	627	171
50	125	96	175	135	218	171
60	125	96	175	135	218	171

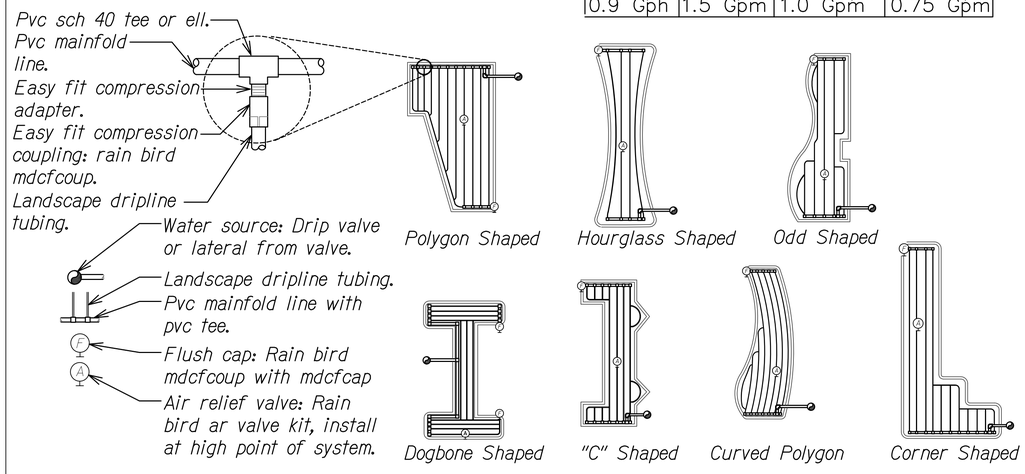
Maximum Flow Per Zone		
Max Gpm		Psi Loss
Schedule 40 Pvc Header Size		
1/2"	4.7 GPM	7.7 PSI
3/4"	8.3 GPM	5.6 PSI
1"	13.5 GPM	4.2 PSI
1-1/2"	33.9 GPM	2.9 PSI
2"	52.4 GPM	1.9 PSI
Poly Pipe Header Size		
1/2"	4.7 GPM	8.8 PSI
3/4"	8.3 GPM	6.3 PSI
1"	13.5 GPM	4.8 PSI
1-1/2"	31.8 GPM	2.9 PSI
2"	52.4 GPM	2.2 PSI

Sloped Condition Note:

1. *Dripline laterals should follow the contours of the slope whenever possible.*
2. *Install air relief valve at highest point.*
3. *Normal spacing within the top 2/3 of slope.*
4. *Install dripline at 25% greater spacing at the bottom 1/3 of the slope.*
5. *When elevation change is 10 ft or more, zone the bottom 1/3 on a separate valve.*

Grid Precipitation Rates (In/Hr)			
Emitter Spacing	Lateral Spacing	Emitter Flow Rate 0.6	0.9
12	12	0.96	1.44
18	18	0.69	1.03
24	24	0.28	0.41

Lateral Flow Per 100 Ft (Gpm)			
Emitter Flow	12" Spacing	18" Spacing	24" Spacing
0.6 Gph	1.0 Gpm	0.67 Gpm	0.50 Gpm
0.9 Gph	1.5 Gpm	1.0 Gpm	0.75 Gpm

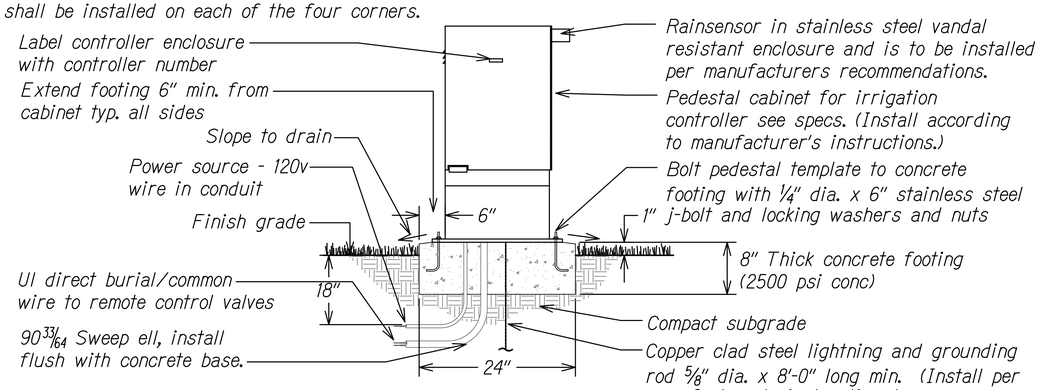


TYPICAL RAIN BIRD DRIPLINE REQUIREMENTS

1 LI-07|LI-07

Scale: Not to Scale

Note:
All wiring to be installed as power local code. See manual for mounting instructions. Seal conduits w/expanding sealant to protect against insects and moisture. Controller enclosure shall be located in an area well protected from vehicles. If the controller is located in an unprotected area, then one 6" pipe bollard filled with concrete shall be installed on each of the four corners.



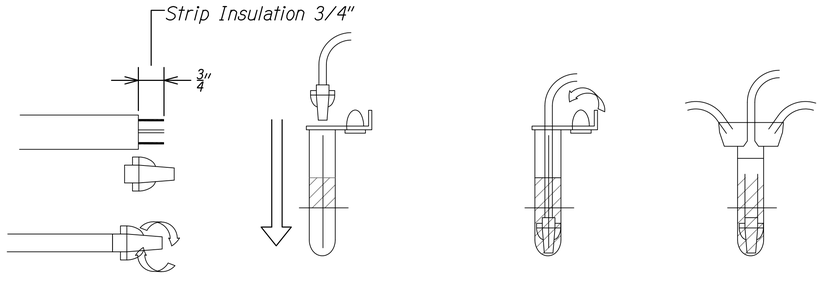
PEDESTAL MOUNT IRRIGATION CONTROLLER

2 LI-07|LI-07

Scale: Not to Scale

Notes:

1. *Waterproof wire splice shall be UL listed for wet environments, direct burial use, and rated for 600-volts.*
2. *Waterproof wire splice kits shall consist of twist-on type wire connector and high impact, UV resistant tube pre-filled with moisture resistant grease.*



WATERPROOF WIRE SPLICE

3 LI-07|LI-07

Scale: Not to Scale

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Irrigation Details - 3

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Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LI-07 OF 8 SHEETS

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | NOTE BOOK | DATE | No.

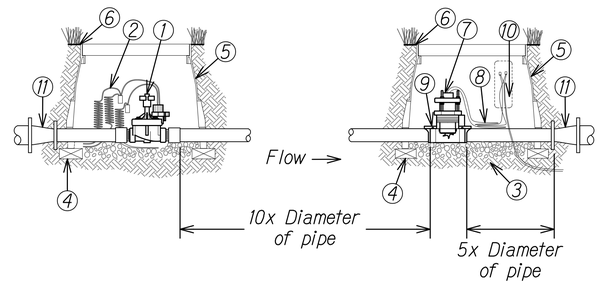
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	281	295

1. PE-Cable (36-Inch Loop)
2. Preformed Super Serviseal Waterproof Wire Splice Kit
3. 3M UAL Connectiors (Splice All Wire Pairs)
4. Splice Box With Cover
5. Brick (1 Of 2, 2 Min. To Stabilize Valve Box)
6. Finish Grade

PRE-WIRE SPLICE

Scale: Not to Scale

1
LI-08|LI-08

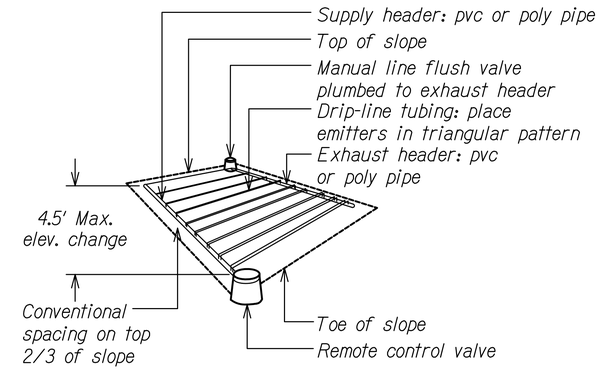


1. Normally open master valve(s)
2. 36-Inch length of coiled wire to satellite controller spare station
3. 3-Inch minimum depth of 3/4-inch washed gravel
4. Brick (1 of 4, 4 min. to stabilize valve box)
5. Valve box with cover - 12-inch size
6. Finish grade
7. Insertion style flow sensor
8. 36-Inch length of coiled pe-cable to flow sensing equipment at ccu/satellite controller assembly
9. Double-strap saddle
10. See pre-wire splice detail.. see flow sensor detail for wiring diagram.
11. Concentric reducer

MASTER VALVE W/ FLOW SENSOR

Scale: Not to Scale

3
LI-08|LI-08

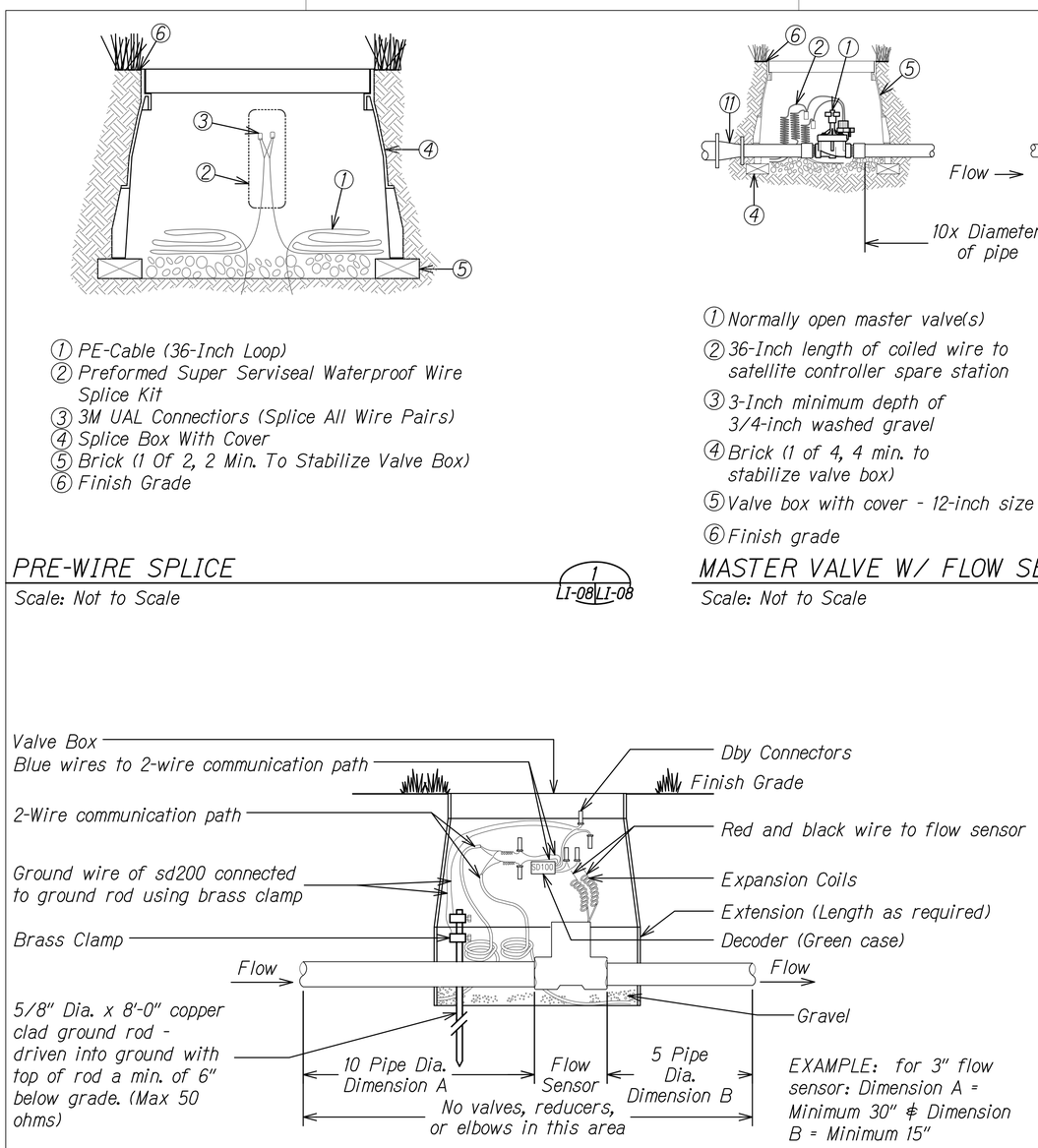


Note:
Align dripline laterals parallel to the contours of the slope

DRIPLINE SLOPE FEED LAYOUT

Scale: Not to Scale

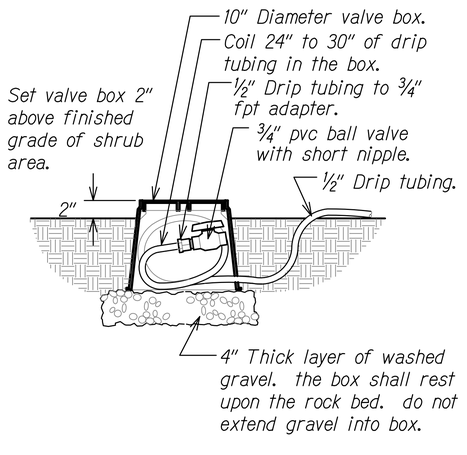
5
LI-08|LI-08



FLOW SENSOR INSTALLATION DIAGRAM

Scale: Not to Scale

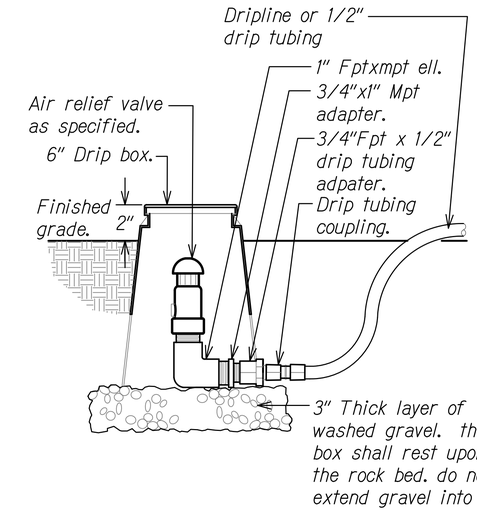
2
LI-08|LI-08



DRIP FLUSH VALVE

Scale: Not to Scale

4
LI-08|LI-08



DRIP AIR RELIEF VALVE IN BOX

Scale: Not to Scale

6
LI-08|LI-08

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

RUSSELL Y.J. CHUNG
LICENSED PROFESSIONAL LANDSCAPE ARCHITECT
No. 6076
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Irrigation Details - 4

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LI-08 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	282	295

PLANTING NOTES:

1. Contractor shall field verify all plant quantities and dimensions prior to installation. Contractor shall determine quantities of plant materials to be provided. In all cases, Contractor shall install plant material on all areas affected by construction.

2. Contractor shall be responsible for locating and protecting existing utilities.

3. Do not perform planting operations until ground has been prepared and site is neat, orderly, and the Engineer accepts site for planting.

4. Notify Engineer of any discrepancies in plant locations.

5. The Contractor's submission of a bid shall constitute certification of availability of plants of the required type, size, and quantity. Engineer shall inspect and approve plants at time of delivery and acceptance. Plants shall meet size indicated and shall be undamaged, sound, healthy, vigorous and free of disease and insect infestation. Plants not conforming to these requirements on delivery to the project and at the end of the plant establishment period will be rejected.

6. Contractor shall be solely responsible for the complete removal and damages resulting from planting any plant species listed on the Hawaii Department of Agriculture 'Noxious Weed Rules' as defined in the statute, Hawaii Administrative Rules 4:68:1 or the 'Federal Noxious Weed List' as defined in Title 7 of the Code of Federal Regulations (CFR), parts 360 and 361.

7. All tree work must adhere to American National Standard Institute (or ANSI) - a300 Tree Care Standards and ANSI-z133 safety standards for tree work. Work shall be contracted to arborists that have been certified in good standing as an ISA Certified Arborist for at least 10 continuous years to assure that tree work is performed properly and trees are not damaged by practices such as topping, flush cuts, over-thinning, or climbing with spikes. Contractor shall submit a copy of the ISA arborist certification of good standing of 10 years to the Engineer a minimum of 7 days prior to tree pruning. The cost for arborist services shall be considered part of Specification Section 642 - Landscape Maintenance.

8. Representative samples of soil from project site shall be submitted to Crop Nutrient Solutions Inc., the University of Hawaii Agricultural Extension Service, or laboratory acceptable to the Engineer for analysis of required soil amendments, fertilizers, application rates, and application schedules. Collect soil samples of existing soils inside the project limits for each of the individual project sites. Soil sample shall consist of a composite sample of 1 gallon of soil collected from a minimum of 5 holes to a depth of 6-inches from each individual site. Sample hole locations shall be spread evenly throughout the individual site to prove a more accurate representation of the soil present on the site. Contractor shall keep soils from each individual site separate and shall not intermix soils from different sites. The label for the composite sample from each individual site shall correspond to the individual project site from which it was taken. Samples shall only be collected in accordance with the procedures described by the "Methods of Soil Analysis" by the Soil Science Society of America. A separate soil analysis and recommendations shall be provided for each individual site. Soil analysis shall be performed in accordance with the "Methods of Soil Analysis" by the Soil Science Society of America. The soil analysis for each site shall include particle size analysis, percentage organic carbon, chemical analysis, moisture content, Cation Exchange Capacity (CEC) per EPA Method 9081, Bulk Density, and soluble salts, sieve analysis per ASTM D422M, total nitrogen per ASTM D3590-17 and EPA Method 353.2, total phosphorus per EPA Method 365.3, and major cations (K^+, Ca^{++}, and Mg^{++}) per EPA Method 6010. The soil analysis results shall also include a summary of the findings and recommendations to correct soil deficiencies including, but not limited to, types of amendment and fertilizers to be added, application rates for amendments and fertilizers, and a schedule for applying amendments and fertilizers at pre-planting, planting, and plant establishment periods. Recommendations to correct soil deficiencies shall be specific to each individual site. The list of proposed amendments and recommendations for correcting soil deficiencies shall be limited to those which can be applied to the soil surface without tilling for sloped areas of all sites where tilling is not allowed. Test results and fertilization schedule shall be presented to the Engineer for review and acceptance before placing planting soil or amending existing soil. Uniformly distribute fertilizer and amendments over planting areas as recommended by the soil analysis report. For slopes flatter than 3H:1V, loosen soil by turning to depth of 18-inches and till top 6-inches of soil to evenly incorporate fertilizer and amendments. For slopes steeper than 3H:1V, no tilling is required. Refer to Specification Section 617 - Soil Preparation for additional requirements for soil analysis and site preparation.

9. For the duration of construction within the drip line of trees to remain there must be: no changes, alterations or disturbance to the grade by adding fill, excavating or scraping except as noted on plans; no storage of construction material or equipment; no stockpiling of any construction material or any excavated material no disposal of any liquids (e.g. concrete slurry, gas, oil, paint); no vehicular traffic, equipment or excessive pedestrian traffic, no attachment of any wires, ropes, lights, or any other such attachment other than those of protective nature to any tree to be preserved; and no cleaning of equipment or material under the canopy of any tree or group of trees to remain.

10. Guy wires, flagging, stakes, windbreakers, etc. shall be maintained and replaced if necessary by the Contractor until acceptance by Engineer. The Contractor shall remove and dispose of these items at the end of plant establishment period.

11. Provide water for all plant material for the duration of the project, including plant establishment period. Water trees, shrubs, ground cover and all grassed areas. Water for planting shall not cause erosion damage to the slopes. The Contractor shall be responsible for repairing any damage cause by the watering of plants.

12. Temporary irrigation shall be provided and installed by the Contractor for the duration of the project. Temporary irrigation system shall be considered incidental to Specification Section 641 - Hydro-Mulch Seeding. Refer to Specification Sections 641.03(C), 641.03(D), and 641.03(E). The Contractor shall be responsible for locating, determining, and establishing the water source and delivery method of the water to the project site. Contractor shall be responsible for obtaining and maintaining all necessary permits and agreements for the source of water for the irrigation system as well as ensuring water is delivered to the site for the duration of the project. Replace watering equipment that cause erosion or runoff. Water will be considered an incidental cost to the project. The Contractor shall provide and maintain all equipment required to deliver water to the project site. Contractor shall also be responsible for obtaining all necessary permits and agreements for the source of water for the temporary irrigation system. Contractor shall remove and dispose of temporary irrigation system components upon final acceptance or as directed by the Engineer.

13. Contractor shall be responsible for weeding throughout the 9-month plant establishment period. All removed weeds shall be immediately placed in plastic bags to minimize the spread of weed seeds. Contractor shall keep all new planting areas at least 90 percent free of weeds and grass considered undesirable by the Engineer. Keeping new planting areas at least 90 percent free of weeds and grass considered undesirable by the Engineer is required as a condition of acceptance for the planting period, plant establishment period, and final acceptance. Refer to Specification Sections 641.03(D), 641.03(E) and 641.03(F).

14. Tree roots greater than 2 inches in diameter shall not be disturbed. Cutting of trees roots larger than 2 inches in diameter must be approved by an ISA Certified Arborist with a minimum of 10 years of continuous licensure and experience, and, accepted by the Engineer. Contractor shall submit arborist's qualifications and a tree root assessment report to the Engineer for approval prior to cutting tree roots. Root pruning shall be done in conformance with ANSI a300 (Part 8) latest edition. Root pruning shall take place under the supervision of the approved arborist at all times. The cost for arborist services shall be considered part of Specification Section 642 - Landscape Maintenance.

15. The Contractor may procure plant material after Contract Award and prior to the agreed Notice To Proceed with approval of the Engineer. The Contractor shall present the list of plant material for procurement to the Engineer for review and acceptance before procuring plants. Plants not conforming to contract document requirements will be rejected.

16. Any planting that obstructs sight distance, signs, or traffic lights shall be pruned, relocated, or removed as determined by the Engineer, at no expense to the State.

NO.	DATE	REVISION	BY

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY

RUSSELL Y.J. CHUNG
LICENSED PROFESSIONAL LANDSCAPE ARCHITECT
No. 6076
HAWAII, U.S.A.

LICENSE EXPIRES 4/30/22

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Planting Notes

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LP-01 OF 8 SHEETS

282

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	283	295

Limits of Work, (Typ. Sym.)

Victoria Ward Park (Makai)

Property Line

Victoria Place

STA. 77
HUB
ELEV.=9.54

4" Layer Imported Screened Topsoil, (Typ. Sym.)

A L A M O A N A B O U L E V A R D (STATE)

FAP NO. NH-092-1(27)

STA. 78
MAG NAIL
ELEV.=4.95

Ala Moana Boulevard

Light Weight Soil Mix: Install to Finish Grades Per Civil Plans (Typ. Sym.)

Limits of Work, (Typ. Sym.)

Kewalo Basin Boat Harbor

STOP

Planting Soils Plan
Scale: 1"=16'

NORTH

0 16 32 64 feet
SCALE: 1" = 16'

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAFTED BY	
	TRACED BY	
	DESIGNED BY	
NOTE BOOK	QUANTITIES BY	
	CHECKED BY	
No.		

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Planting Soils Plan

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LP-02 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	284	295

Victoria Ward Park
(Makai)

Temporary Grassing:
Zoysia 'El Toro',
(Typ. Sym.)

Limits of Temporary
Grassing

Property Line

Victoria Place

Naupaka,
(Typ. Sym.)

Lauae Fern,
(Typ. Sym.)

Pohinahina,
(Typ. Sym.)

Dwarf Hau,
(Typ. Sym.)

Coconut Palm,
(Typ. Sym.)

Areca Palm,
(Typ. Sym.)

Loulu Palm,
(Typ. Sym.)

Relocated
Singapore
Plumeria,
(Typ. Sym.)

Relocated
Coconut Palm,
(Typ. Sym.)

Monkeypod,
(Typ. Sym.)

Beach Heliotrope,
(Typ. Sym.)

Ala Moana Boulevard

Queen Emma Spider Lily,
(Typ. Sym.)

Recycled Composite Header,
(Typ. Sym.)

Zoysia 'El Toro' Grass,
(Typ. Sym.)

Existing Monkeypod to Remain,
(Typ. Sym.)

Green Spider Lily,
(Typ. Sym.)

Root Barrier,
(Typ. Sym.)

Relocated Monkeypod,
(Typ. Sym.)

MATCHLINE - SEE SHEET LP-04

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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NOTE BOOK	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Planting Plan - 1

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LP-03 OF 8 SHEETS

Planting Plan – 1
Scale: 3/32"=1'

NORTH

0 8 16 32 feet
SCALE: 3/32"=1'

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	285	295

Contractor Shall Expand Existing Median Grassing Into Extended Median Area.

MATCHLINE - SEE SHEET LP-03

Root Barrier, (Typ. Sym.)

Ala Moana Boulevard

Green Spider Lily, (Typ. Sym.)

Beach Heliotrope, (Typ. Sym.)

Relocated Monkeypod, (Typ. Sym.)

Rhapis Palm, (Typ. Sym.)

Relocated Singapore Plumeria, (Typ. Sym.)

Monkeypod, (Typ. Sym.)

Lauae Fern, (Typ. Sym.)

Coconut Palm, (Typ. Sym.)

Loulu Palm, (Typ. Sym.)

Naupaka, (Typ. Sym.)

STOP

Zoysia 'El Toro' Grass, (Typ. Sym.)

Recycled Composite Header, (Typ. Sym.)

Pohinahina, (Typ. Sym.)

Variegated Hau, (Typ. Sym.)

'Queen Emma' Spider Lily, (Typ. Sym.)

Contractor Shall Adjust Grades And Extend Berm Toward Relocated Tree for Greater Soil Depth. Install Tree At Elevation +/-9.5

Root Barrier, (Typ. Sym.)

Dwarf Hau, (Typ. Sym.)

Provide Seamless Transition to Existing Naupaka Hedge

Kewalo Basin Harbor

ORIGINAL PLAN
NOTE BOOK
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
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DATE
No.

Planting Plan – 2

Scale: 3/32"=1'

NORTH

0 8 16 32 feet

SCALE: 3/32"=1'

RUSSELL Y.J. CHUNG
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HIGHWAYS DIVISION

Planting Plan - 2

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LP-04 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	286	295

PLANT SCHEDULE:

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	HEIGHT	REMARKS
	3	Samanea Saman	Monkeypod Tree	Field Stock	12" Cal. Minimum		
	5	Tournefortia Argentea	Beach Heliotrope	Field Stock	2" Min. Cal.	6'-8' Ht.	Bushy; Well-Branched

PALMS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	HEIGHT	REMARKS
	12	Cocos Nucifera	Coconut Palm	Field Stock		15'-25' Brown Trunk Height	
	3	Dypsis Lutescens	Areca Palm	30 Gal.			Bushy
	9	Pritchardia Hillebrandii	Loulu Palm	Field Stock		6'-8' Clear Trunk Height	
	6	Rhapis Excelsa	Rhapis Palm	10 Gal			Bushy; 4 Canes Per Pot Min.

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
	53	Crinum Amabile	Greem Spider Lily	3 Gal	As Shown	Bushy, Free Of Rust
	61	Crinum Augustum 'Queen Emma'	Queen Emma Spider Lily	3 Gal	As Shown	Bushy, Free Of Rust
	42	Hibiscus Tiliaceus 'Dwarf'	Dwarf Hau	5 Gal	48" O.C.	Bushy
	11	Hibiscus Tiliaceus 'Tricolor'	Variegated Hau	15 Gal	As Shown	Bushy; Well-Branched

SHRUB AREAS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
	530	Scaevola Taccada	Beach Naupaka	1 Gal	36" O.C.	Bushy, Triangular-Spacing

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
	1,400 SF	Microsorum Grossum	Lauae Fern	6" Pots	12" O.C.	Triangular Spacing
	4,500 SF	Vitex Rotundifolia	Pohinahina	6" Pots	18" O.C.	Triangular Spacing

GRASS	QTY	BOTANICAL NAME	COMMON NAME	SIZE
	22,150 SF	Zoysia Japonica 'El Toro'	El Toro Zoysia Grass	Hydrosprig

RELOCATED TREES AND PALMS SCHEDULE:

RELOCATED TREES AND PALMS	QTY	BOTANICAL NAME	COMMON NAME
	2	Samanea Saman	Monkeypod Tree
	3	Plumeria Obtusa	Singapore Plumeria
	5	Cocos Nucifera	Coconut Palm

MISC. LANDSCAPE MATERIALS SCHEDULE:

SYMBOL	DESCRIPTION	QTY
— — —	1"X6" Recycled Composite Landscape Edging: Trex or approved equal.	200 LF
———	24" Wide Root Barrier: Deeproot UB 24-2 or approved equal.	960 LF
	4" Layer Imported Screened Topsoil: See planting soils plan for location.	375 CY
	Lightweight Soil Mix: 30" Depth Min. See planting soils plan for location. Bank up toward retaining walls per civil grading plans.	800 CY
	2" Layer Bark Mulch: Install over all shrub and groundcover areas.	80 CY

ORIGINAL PLAN
NOTE ROOT
SURVEY PLOTTED BY
DRAWN BY
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QUANTITIES
CHECKED BY
DATE
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RUSSELL Y.J. CHUNG
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HIGHWAYS DIVISION

Landscape Schedules

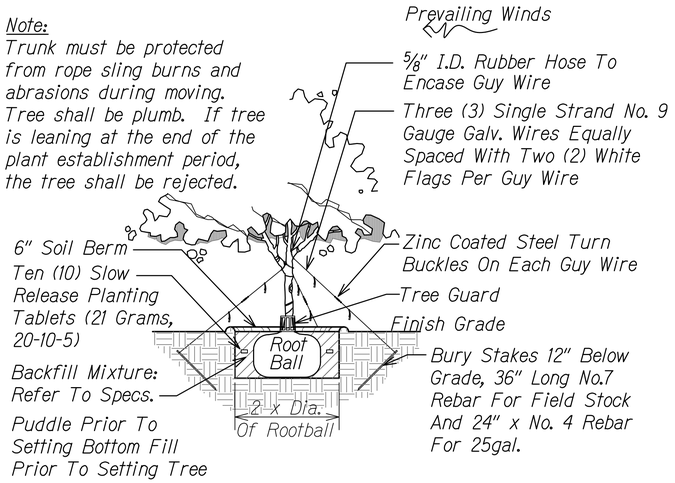
ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LP-05 OF 8 SHEETS

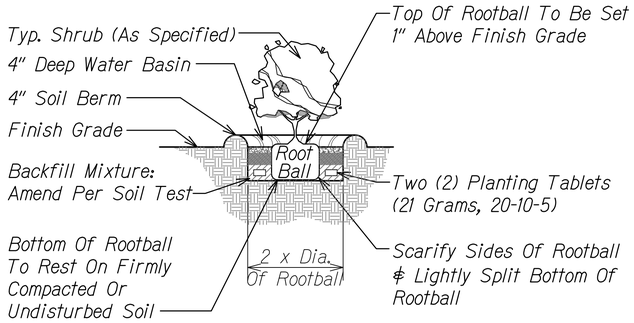
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	287	295

Note:
Trunk must be protected from rope sling burns and abrasions during moving. Tree shall be plumb. If tree is leaning at the end of the plant establishment period, the tree shall be rejected.



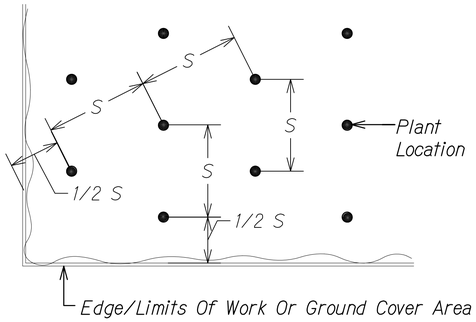
TREE PLANTING AND GUYING — 1 LP-06|LP-06
Scale: Not to Scale

Notes:
1. Single stem shrubs shall be plumb. If shrub is leaning at the end of the plant establishment period, it shall be replaced at the contractor's expense.
2. Immediately after planting, water heavily to ensure soil settles around roots.



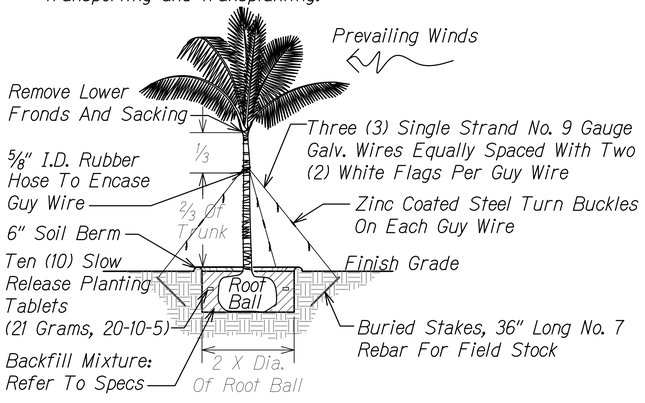
SHRUB PLANTING — 3 LP-06|LP-06
Scale: Not to Scale

Notes:
1. S = Spacing, (refer to plant list for spacing).
2. Use spacing layout for shrubs, ground covers, and annuals.



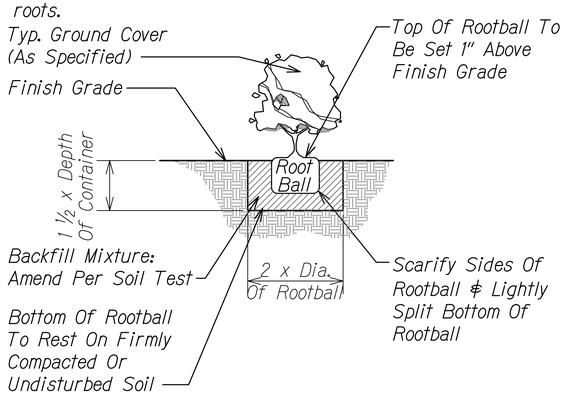
TRIANGULAR SPACING — 5 LP-06|LP-06
Scale: Not to Scale

Notes:
1. Trunk must be protected from rope sling burns and abrasions during moving.
2. Protect heart and tip from damage and breakage during transporting and transplanting.



PALM PLANTING — 2 LP-06|LP-06
Scale: Not to Scale

Notes:
1. Ground covers shall be plumb. If ground cover is leaning at the end of the plant establishment period, it shall be replaced at the contractor's expense.
2. Immediately after planting, water heavily to ensure soil settles around roots.



GROUND COVER PLANTING — 4 LP-06|LP-06
Scale: Not to Scale

Hydro-Mulch:
Shall Be Specifically Processed Fiber Containing No Growth Or Germination Inhibiting Factors. It Shall Be Such That After Addition And Agitation In The Hydraulic Equipment With Seeds/Sprigs, Fertilizer, Water, Geobinders, And Other Additives Not Detrimental To Plant Growth, The Fibers Will Form A Homogeneous Slurry When Hydraulically Sprayed On The Soil. The Fibers Shall Form A Blotter-like Ground Cover Which Readily Absorbs Water And Allows Infiltration. Complete Coverage Of The Surface Shall Be Attained.

HYDRO-MULCHING DETAIL — 6 LP-06|LP-06
Scale: Not to Scale

ORIGINAL PLAN
No. NOTE BOOK
SURVEY PLOTTED BY DATE
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY

RUSSELL Y.J. CHUNG
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

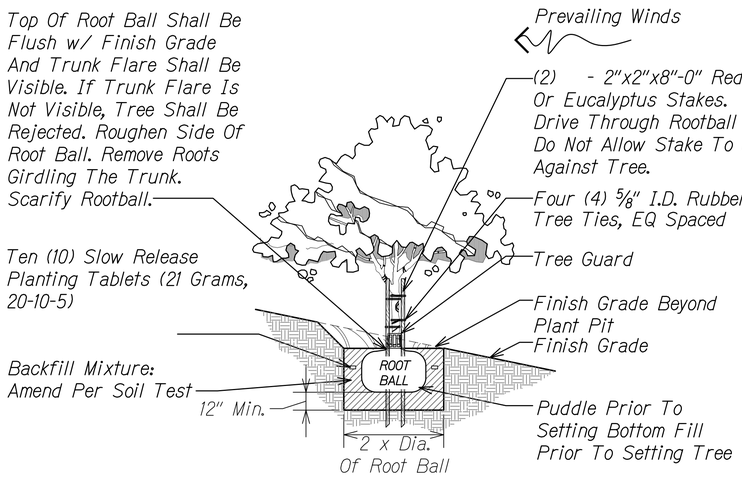
Planting Details - 1

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown Date: July 2021

SHEET No. LP-06 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	288	295



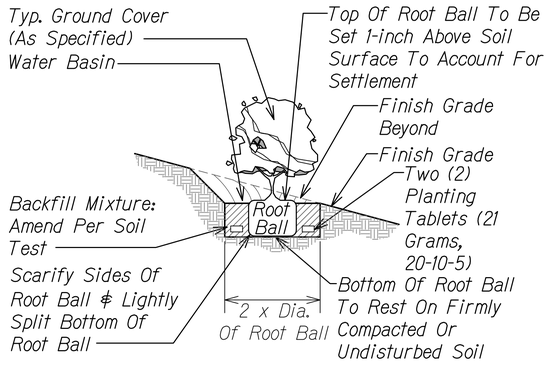
Note:
Trunk must be protected from rope sling burns and abrasions during moving. tree shall be plumb. If tree is leaning at the end of the plant establishment period, the tree shall be replaced at the Contractor's expense.

TREE PLANTING ON SLOPE

1 LP-07|LP-07

Scale: Not to Scale

Notes:
1. Ground covers shall be plumb. If ground cover Is leaning at the end of the plant establishment period, it shall be replaced at the contractor's expense.
2. Immediately after planting, water heavily to ensure soil settles around roots.

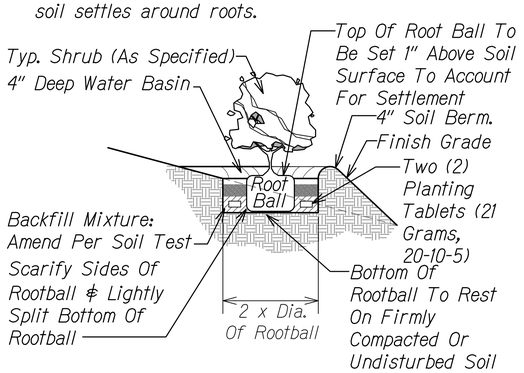


GROUND COVER PLANTING ON SLOPE

3 LP-07|LP-07

Scale: Not to Scale

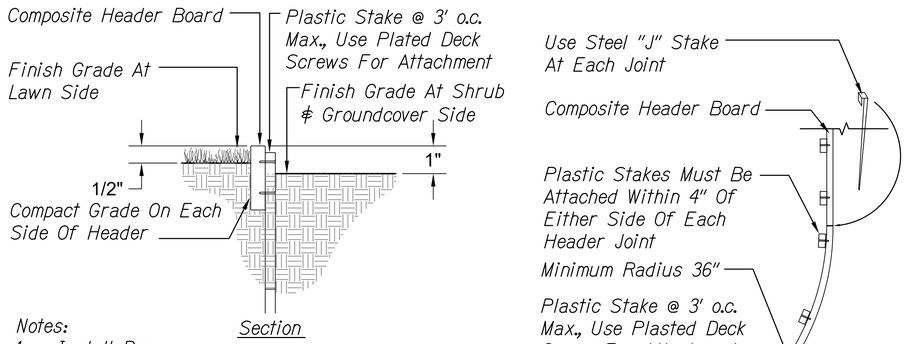
Notes:
1. Single stem shrubs shall be plumb. If shrub is leaning at the end of the plant establishment period, it shall be replaced at the Contractor's expense.
2. Immediately after planting, water heavily to ensure soil settles around roots.



SHRUB PLANTING ON SLOPE

2 LP-07|LP-07

Scale: Not to Scale



Notes:
1. Install Per Manufacturer's Instructions.
2. Color To Be Chosen By Landscape Architect From Manufacturer's Full Line Of Colors.

HDR. SIZE	ACTUAL DIMENSIONS	MINIMUM RADIUS POSSIBLE
1X6	5-7/16"x9/16"x20'	36"

RECYCLED COMPOSITE HEADER

4 LP-07|LP-07

Scale: Not to Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTS BOOK	DRAWN BY	
	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

RUSSELL Y.J. CHUNG
LICENSED PROFESSIONAL LANDSCAPE ARCHITECT
No. 6076
HAWAII, U.S.A.

LICENSE EXPIRES 4/30/22

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Planting Details - 2

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

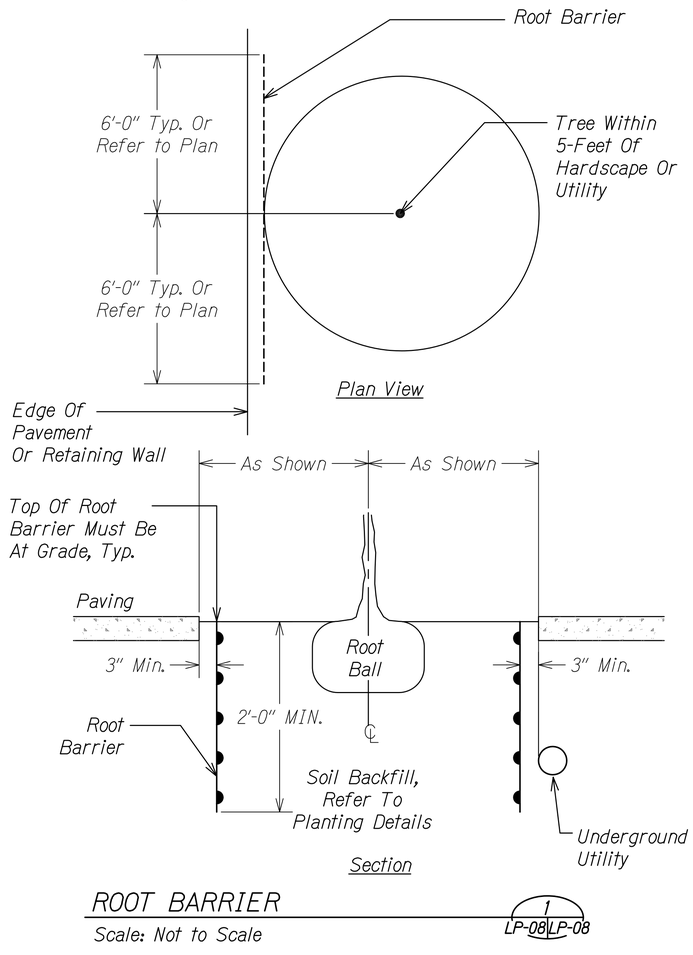
Scale: As Shown Date: July 2021

SHEET No. LP-07 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BLD-092-1(029)	2021	289	295

Notes:

1. *Place top edge of plastic root barrier at finish grade and secure w/ manufacturer provided pins.*
2. *Seams shall have minimum 3" overlap. Refer to manufacturer instructions for bonding the seam.*
3. *Do not allow gaps in barrier during installation or backfilling.*
4. *Refer to planting plan for tree locations.*



ROOT BARRIER

1 LP-08|LP-08

Scale: Not to Scale

ORIGINAL PLAN	NOTE BOOK	SURVEY PLOTTED BY	DATE
		DRAWN BY	
		TRACED BY	
		DESIGNED BY	
		QUANTITIES BY	
		CHECKED BY	
	No.		

RUSSELL Y.J. CHUNG
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Planting Details - 3

ALA MOANA BOULEVARD
ELEVATED PEDESTRIAN WALKWAY
Federal Aid Project No. BLD-092-1(029)

Scale: As Shown *Date: July 2021*

SHEET No. LP-08 OF 8 SHEETS