Plant Notes:

E....

ORIGINAL PLAN NOTE BOOK No.

- 1. Landscape Contractor shall field verify all plant quantities and dimensions prior to installation. Quantities shown on plant list are for reference only, verify actual quantities as shown on plan. If there is a discrepancy, the planting plan shall take precedence.
- 2. Landscape Contractor shall be responsible for locating and protecting existing utilities.
- 3. Prior to tree and shrub hole excavation, all planting locations shall be staked out by contractor for approval by Engineer. Do not plant until ground has been prepared and free of stones greater than $\frac{1}{2}$ " dia., site is neat, orderly, and the Engineer accepts site for planting.
- 4. Notify Engineer of any discrepancies in plant locations or insufficient plant quantities due to difference in plans and actual field conditions.
- 5. Notify Engineer 30 days prior to planting operations for approval of all plant material at place of growth. All plant material not approved by the Engineer will be subject to rejection.
- 6. The Engineer will inspect plants at the place of growth and after the delivery to the project. Each tree shall be tagged by the Engineer with a consecutively numbered plastic tamper-resistant and self-locking seal. Seals shall remain on trees and only be removed by the Engineer at the completion of the plant establishment period. Trees delivered to the project without Engineer's seal will be rejected.
- 7. Plants shall meet size indicated by minimum height and spread. Plants shall be straight and uniformly shaped, unless unique or special characteristics are specified, 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.
- 8. 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
- 9. 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 standings as an ISA certified arborist for at least 5 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 5 years to the Engineer minimum 7 days prior to tree pruning.
- 10. All relocated trees shall be maintained in good health by the Contractor throughout the construction period, inclusive but not limited to, watering and fertilizing. Trees identified as being relocated shall not remain above grade for a period longer than 12 months. While being stored, relocated trees shall be grouped together and topsoil shall be placed around the root balls to protect from damage and drying.

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	BR-083-1(42)	2009	113	121

- 11. 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 sleuth, 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.
- 12. If trees other than those specifically designated for removal are damaged beyond survival conditions as determined by engineer, the contractor shall remove such trees and replace the tree with a same species and size and maintain for the duration of construction or 12 months (whichever is greater) at no cost to the State.
- 13. Provide even four-inch layer of planting soil over all planting areas. Representative samples of soil from project site shall be submitted to the University of Hawaii Agricultural Extension service or laboratory acceptable to the Engineer for analysis of types and quantities of required soil amendments. Test results and fertilization schedule shall be presented to the Engineer for review and acceptance before placing planting soil. Uniformly distribute fertilizer and amendments over planting areas as recommended by the soil analysis report. Rototill top four-inches of soil to evenly incorporate fertilizer and amendments. After completion of soil amendments, retest to meet soil analysis. Continue amending until test meets soil test recommendations. Provide copy of all soil tests to Engineer.
- 14. Guy wires, flagging, stakes, windbreakers, etc. Shall be maintained and replaced if necessary by the Contractor until the tree or shrub is able to stand by itself. The Contractor shall remove and dispose at the end of plant establishment period.
- 15. Any planting that obstructs sight distance, signs or traffic lights shall be relocated or removed as determined by the Engineer.
- 16. Contractor shall verify the limits of topsoil and soil amendment application with the Engineer. The contractor shall not install new topsoil or new soil amendments on open beach areas. The contractor shall provide and install all necessary erosion control screening and/or devices to prohibit soil run-off into the adjacent stream and/or ocean.
- 17. The Contractor shall restore the detour road construction areas to their original condition upon project completion. The contractor shall make a photographic record of the original site conditions prior to construction operations. The contractor shall verify the original conditions with the State prior to construction.
- 18. The Contractor shall maintain and provide water to all relocated trees and newly planted areas for the duration of the project, including the plant establishment and maintenance period. The Contractor shall gradually decrease the amount of water to the plant material 8 weeks period to the final inspection to allow plant material to adjust prior to project completion. The Contractor shall remove any equipment used for watering upon final acceptance of the project by the State.

19. The Contractor's method of watering shall not cause erosion of existing or new planting areas. The Contractor shall immediately repair any areas damaged due to the watering method at no cost to the State. STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION

KAMEHAMEHA HIGHWAY — REPLACEMENT OF SOUTH PUNALUU STREAM BRIDGE Federal Aid Project No. BR-083-01(42)

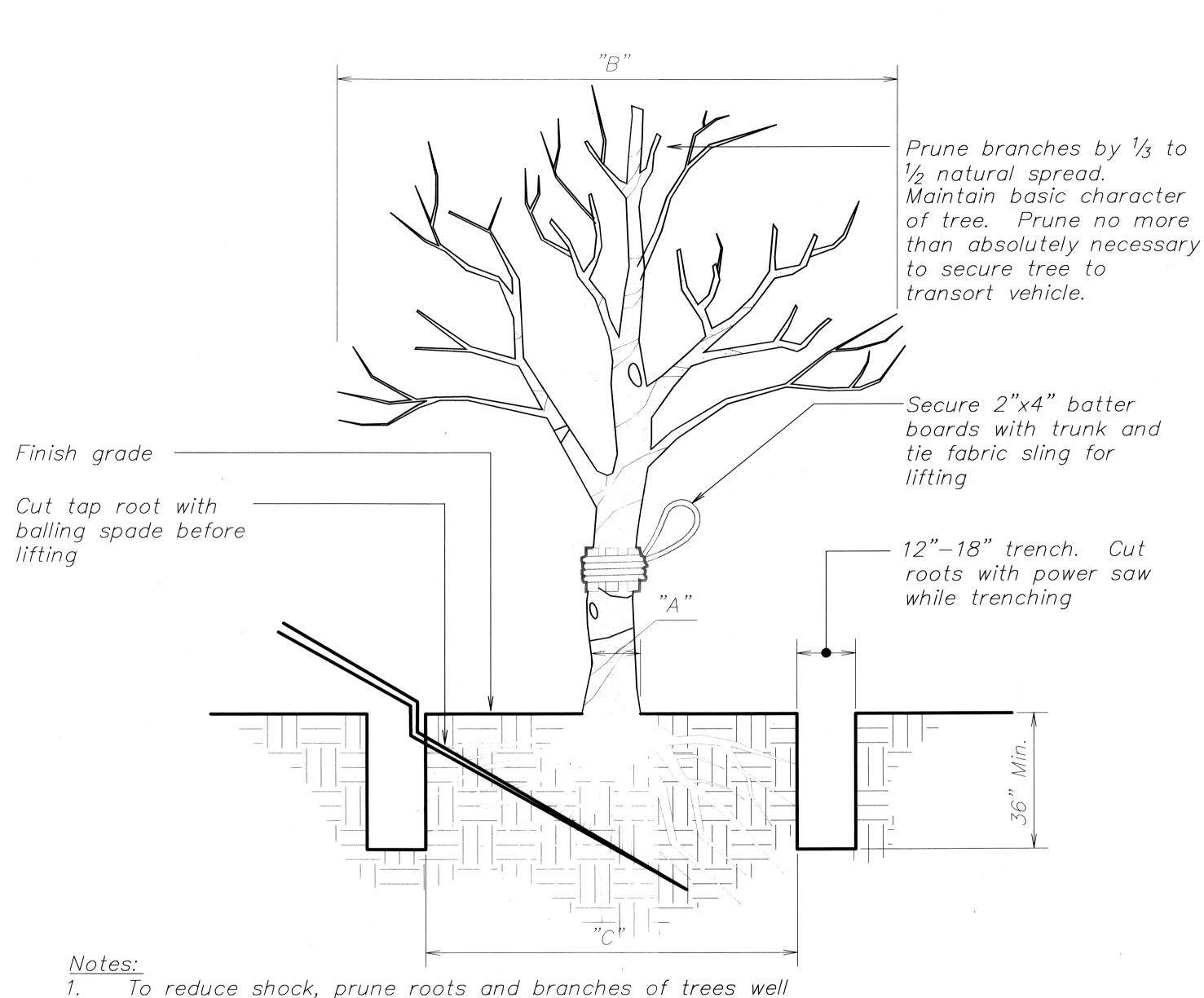
HIGHWAYS DIVISION

LANDSCAPE

NOTES

Scale: As Shown

May 2009 Date: SHEET No. L-1 OF 9 SHEETS

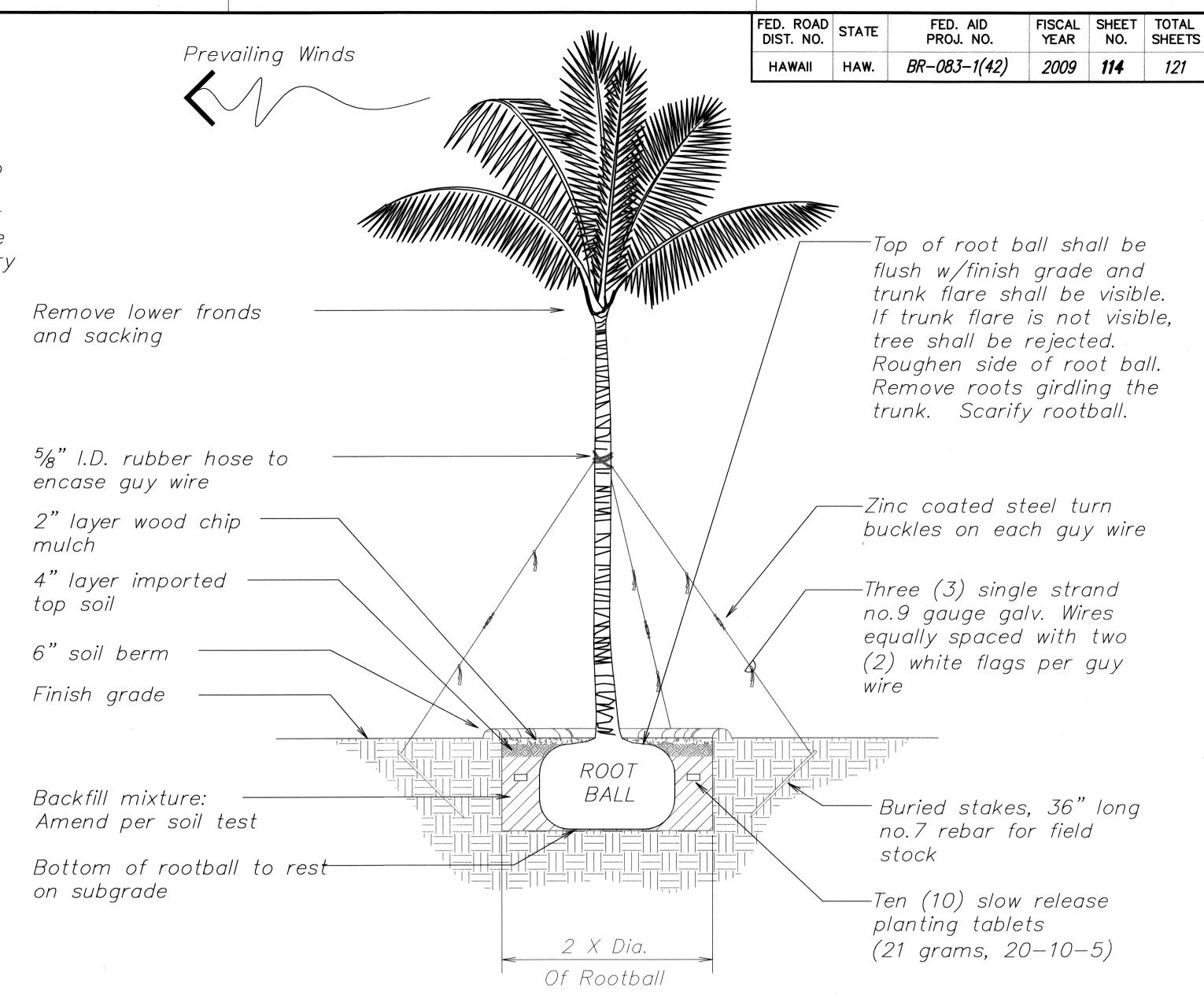


To reduce shock, prune roots and branches of trees well in advance of moving. (preferably during dormant season.)

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

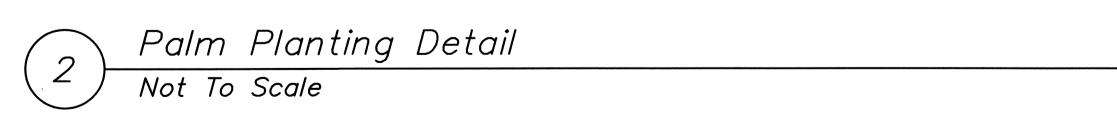
"A "	"B"	"C"
Caliper Size	Spread (Side)	Rootball Size
2"-6" (50-150mm)	14"-26" (350-650mm)	15"-24" (375-600mm)
6"-8" (150-200mm)	<i>30"-48" (750-1200mm)</i>	<i>30"-36" (750-900mm)</i>
18"-30" (450-750mm)	60"-96" (1.5-2.4M)	<i>36"-96" (900-2400mm)</i>
30" (750mm) And Over	120"-144" (3.0-3.6M)	120"-240" (3.0-6.0M)

Tree Transplanting Detail Not To Scale



Notes:

- 1. Trunk must be protected from rope sling burns and abrasions during moving.
- 2. Water heavily to insure soil settles around roots.
- 3. Tree shall be plumb, if there is leaning at the end of the plant establishment period, the tree shall be rejected.
- 4. Protect heart and tip from damage and breakage during transporting and transplanting.





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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION **LANDSCAPE** DETAILS

KAMEHAMEHA HIGHWAY - REPLACEMENT OF SOUTH PUNALUU STREAM BRIDGE Federal Aid Project No. BR-083-01(42)

Date:

Scale: As Shown SHEET No. **L-2** OF 9 SHEETS

SAMPURE SIGNATURE

May 2009

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

Tree roots shall not be cut unless cutting is unavoidable. When root cutting is unavoidable, a clean, sharp cut shall be made to avoid shredding or smashing. Root cuts shall be made back to a lateral root whenever possible, roots 2" or greater in diameter shall be tunneled or bored under and shall be covered to prevent dehydration. Exposed roots shall be covered immediately w/soil or burlap and kept moist. No roots larger than 2" shall be cut unless no other alternative is feasible and approved by a certified arborist and Engineer. Fertilizer and water to minimize shock as directed by a certified arborist or Engineer.

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.

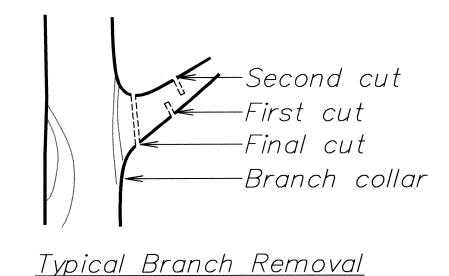
Notes:

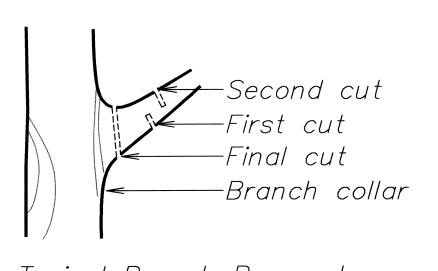
- 1. Positions of first and second cuts may be reversed in some cases, particularly when cutting a large branch with a chainsaw.
- 2. Do not make flush cuts or leave stubs.
- 3. Do not paint cuts.
- 4. Remove dead, broken or malformed branches.
- 5. Remove all vines entwined in the tree or around its 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.

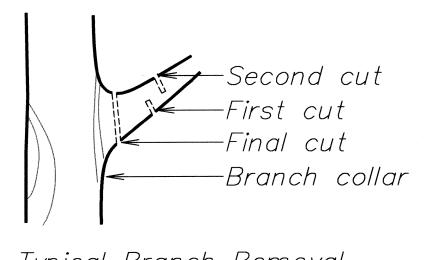
Tree Pruning Detail

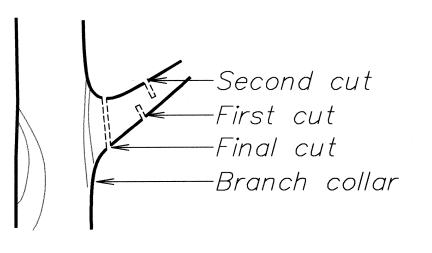
8. Retain the normal shape of the plant.

Not To Scale









-Leader not pruned

Shoots cut back to

another lateral

-Crossing branches

-Suckers removed

branch

removed

-Parallel branch removed.

2" Layer Wood Chip Mulch 4" Layer Imported Top Šoil 6" Soil Berm Ten (10) Slow Release Planting Tablets. (21 Grams, 20-10-5)Backfill Mixture: -Ammend Per Soil Test. _2 x Diameter _> FED. ROAD STATE FED. AID PROJ. NO. FISCAL SHEET TOTAL YEAR NO. SHEETS BR-083-1(42) 2009 **115** 121 HAWAII HAW.

> -5/8" I.d. Rubber Hose To Encase Guy Wire -Three (3) Single Strand No.9 Gauge Galv. Wires Equally Spaced With Two (2) White Flags Per Guy

—Zinc Coated Steel Turn □Buckles On Each Guy Wire

-Tree Guard

—Finish Grade

Root Ball

Prevailing Winds

Bottom Of Rootball To ----Rest On Subgrade

Top Of Root Ball Shall Be

Flush w/Finish Grade And

Not Visible, Tree Shall Be

Roots Girdling The Trunk.

Rejected. Roughen Side

Of Root Ball. Remove

Scarify Root Ball.

Trunk Flare Shall Be

-Water sprouts removed Visible. If Trunk Flare Is

-Bury Stakes 1'-0" Below Grade, 36" Long No.7 Rebar For Field Stock And 24" X No.4 Rebar For 25 gal.

Puddle Prior To Setting Bottom Fill Prior To Setting Tree

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.

Container Tree Planting Detail Not To Scale



Of Rootball

DETAILS

KAMEHAMEHA HIGHWAY - REPLACEMENT OF SOUTH PUNALUU STREAM BRIDGE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

LANDSCAPE

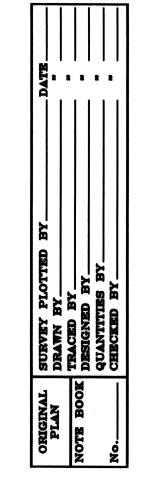
Scale: As Shown

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Federal Aid Project No. BR-083-01(42) Date:

SHEET No. L-3 OF 9 SHEETS

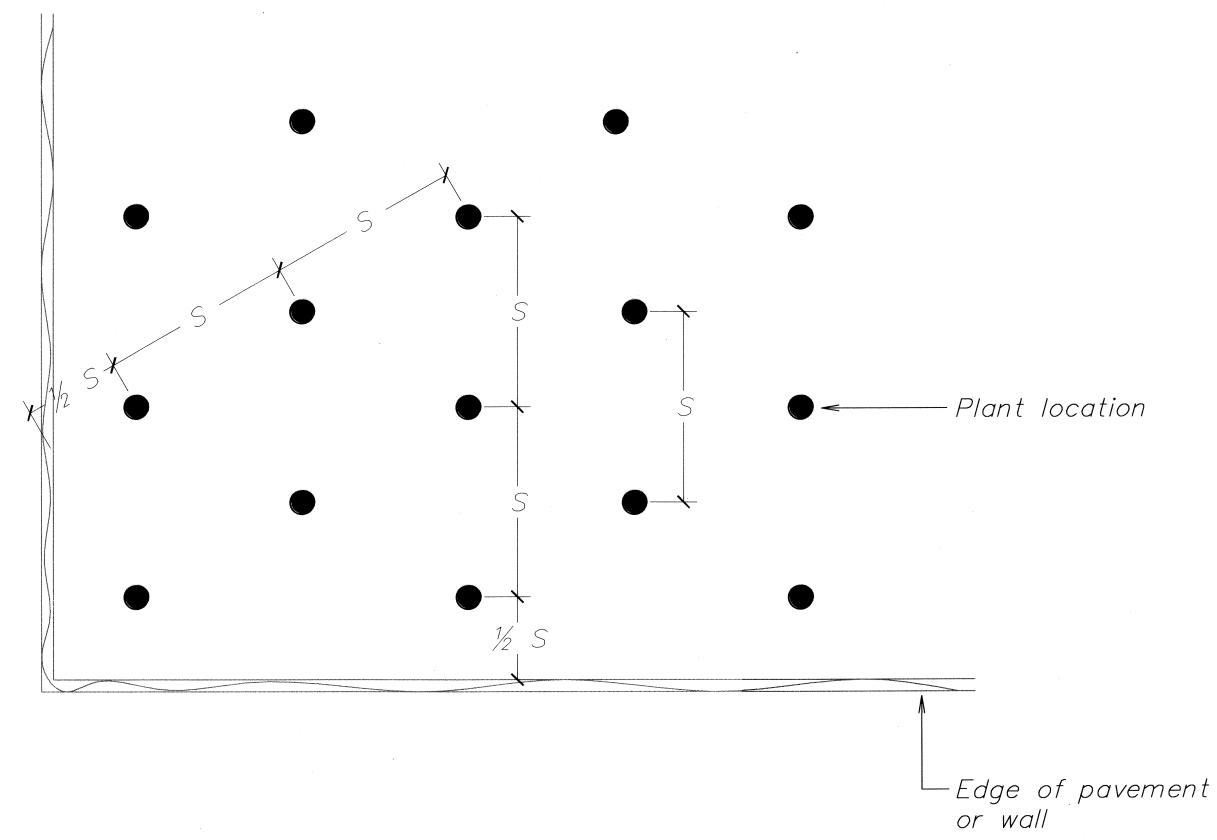
May 2009

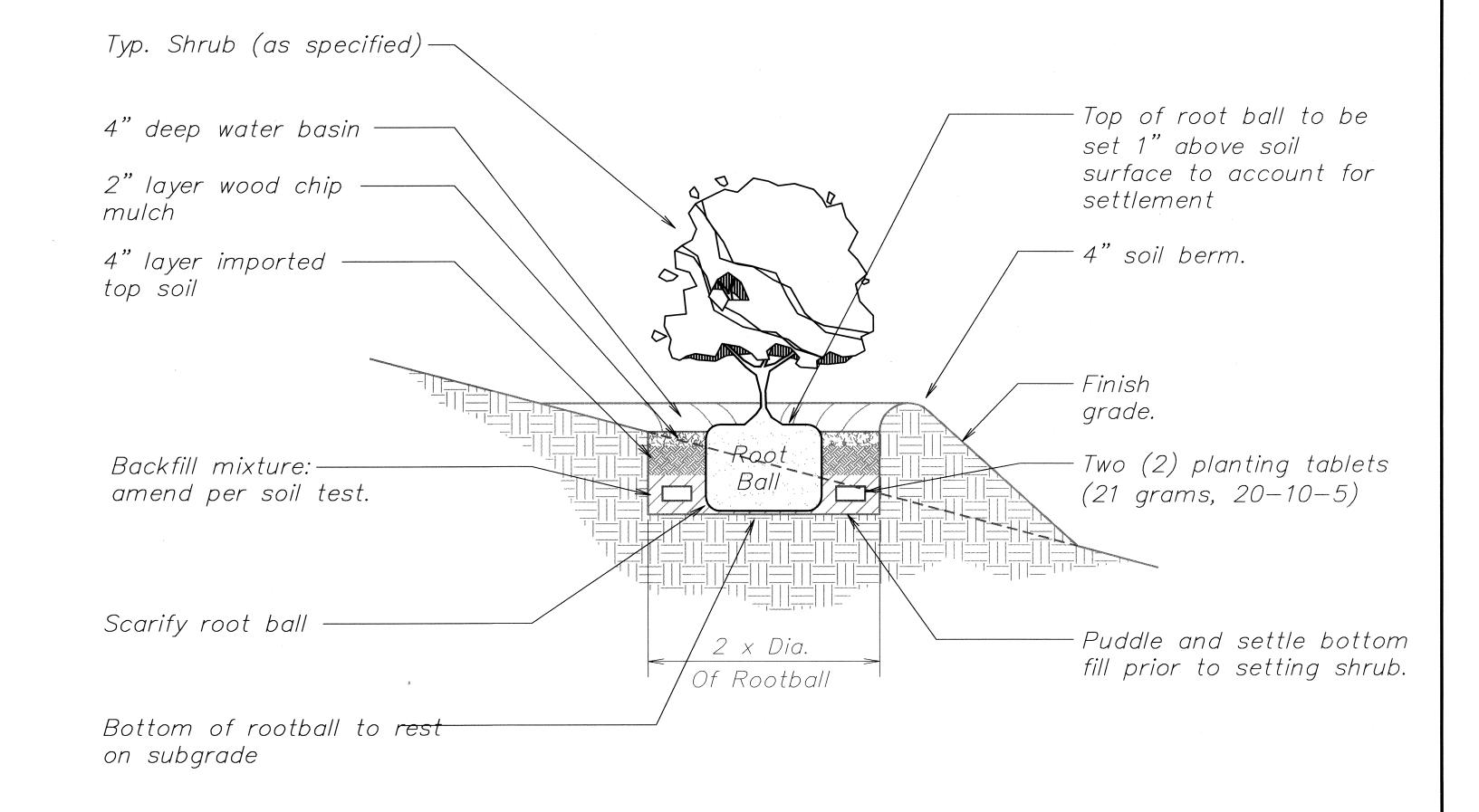


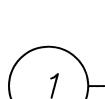
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(42)	2009	116	121

Notes:

- S = spacing, (refer to plant list for amount of spacing.)
- 2. Use spacing layout for shrubs, ground covers and annuals.







Triangular Plant Spacing Detail Not To Scale

Shrub Planting on Slope Not To Scale



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SIGNA URE

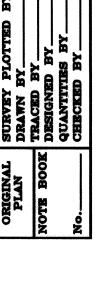
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

LANDSCAPE DETAILS

KAMEHAMEHA HIGHWAY - REPLACEMENT OF SOUTH PUNALUU STREAM BRIDGE Federal Aid Project No. BR-083-01(42)

Scale: As Shown

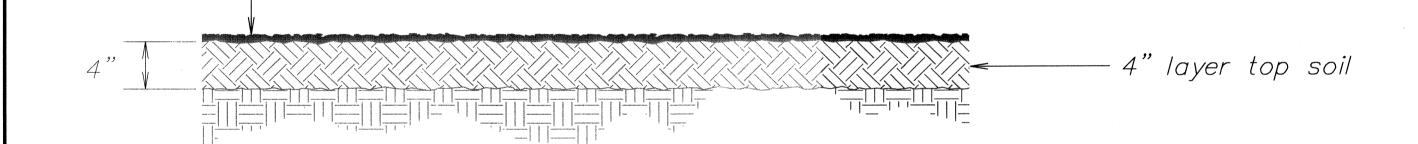
May 2009 SHEET No. L-4 OF 9 SHEETS

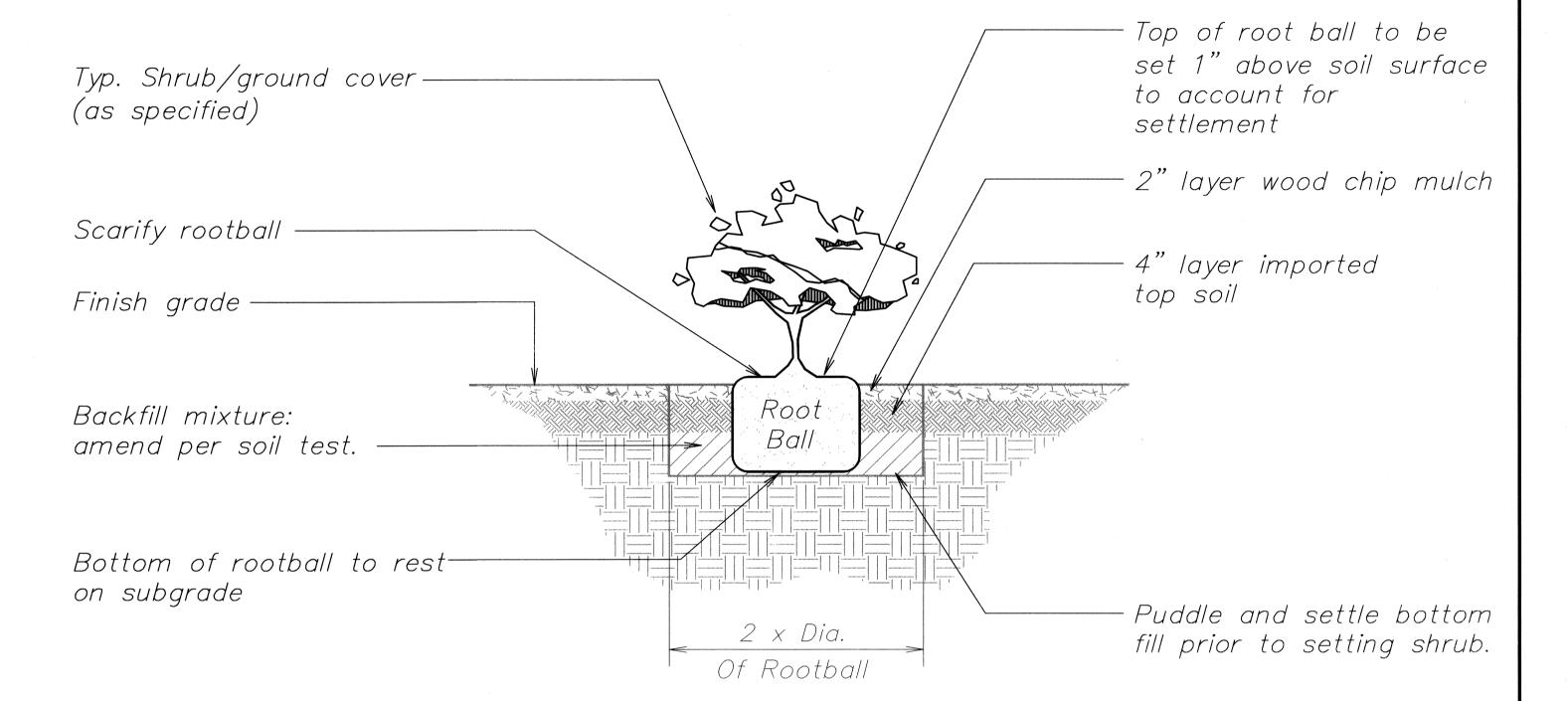


FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	BR-083-1(42)	2009	117	121

-<u>Hydro seed/ hydro sprig:</u>

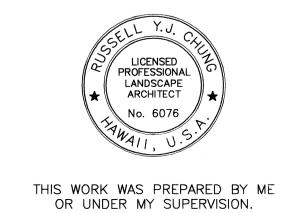
shall be specifically processed fiber containing no growth or germination inhibiting factors. It shall be such that after addition and agitation in the hydraulic equipment with seeds/springs, fertilizer, water and, other additives not detrimental to plant growth. The fibers will form a homogeneous slurry. 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.





Hydroseed/Sprig Detail
Not To Scale

Groundcover Planting Detail Not To Scale



LANDSCAPE DETAILS

KAMEHAMEHA HIGHWAY - REPLACEMENT OF SOUTH PUNALUU STREAM BRIDGE Federal Aid Project No. BR-083-01(42)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

Scale: As Shown

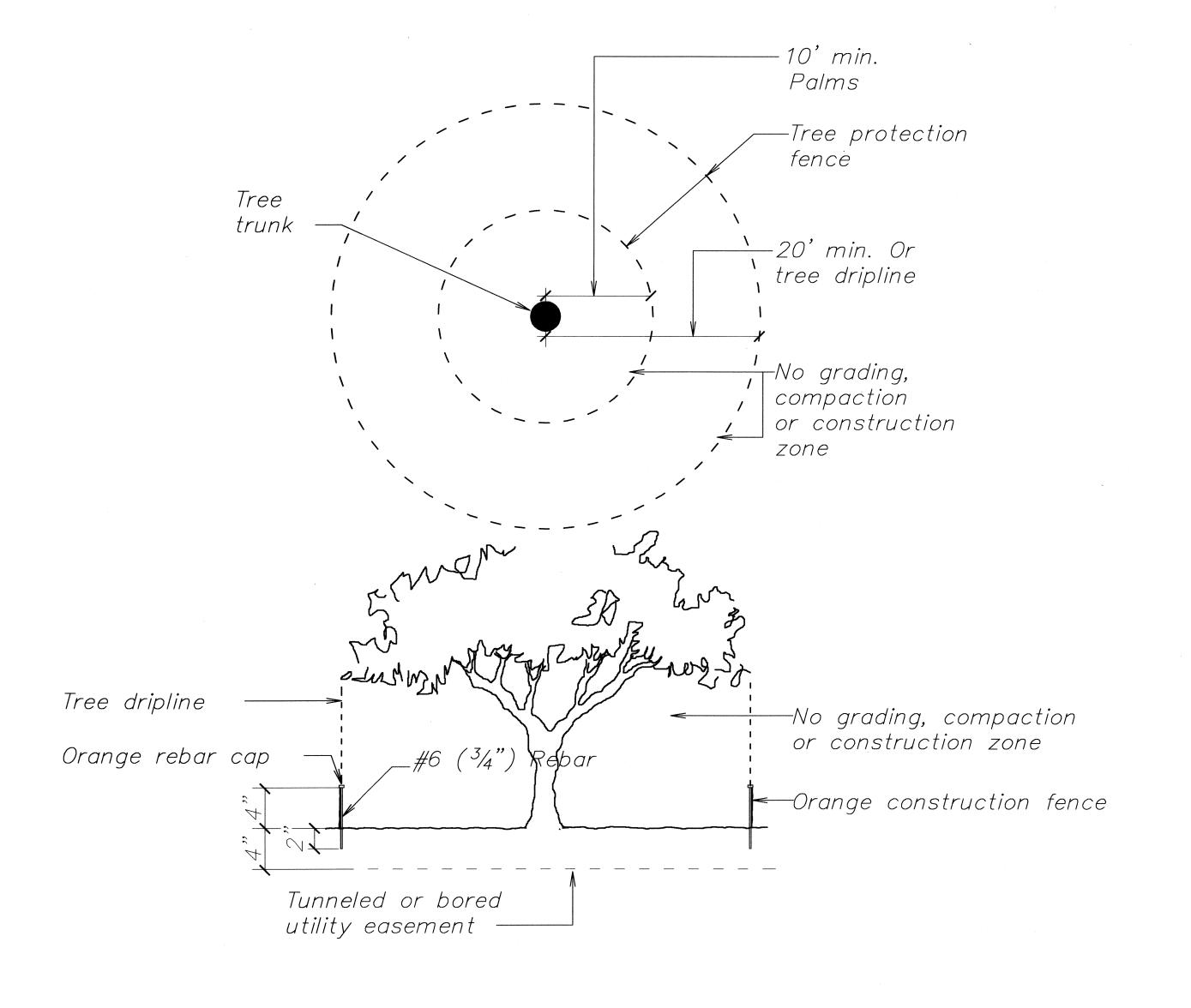
SHEET No. **L-5** OF 9

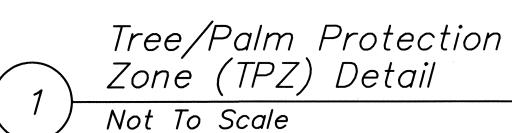
May 2009

Tree Protection Zone:

- All trees identified on the plans to be protected. All trees 24" caliper or greater (as measured at $4^{1}/_{2}$ 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 specie and size and maintain 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 20 feet from the external surface of the tree's trunk. For all palms, the minimum protection zone should be at least 10 feet.
- 3. All underground utilities and irrigation lines should be routed outside of the tree protection zone. If utilities must traverse the tree protection zone, they shall be tunneled or bored at a depth of 4 feet or greater within the tree protection zone.
- 4. All trees shall remain unless shown for removal. All protected trees shall be listed on the demolition, landscape, grading and utilities plans. If there is a discrepancy with all plans, contractor shall contact Engineer immediately.
- 5. Protective fences shall be erected around trees identified on plan 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 and approved by landscape architect or engineer 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 permited 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 of construction materials or equpment;
- no stockpiling of any construction materials or excavated materials;
- no disposal of any liquids (e.g. Concrete sleuth, gas, oil, paint);
- no vehicular traffic, equipment or excessive pedistrian 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.

FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	BR-083-1(42)	2009	118	121







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NATURE EXPIRATION DATE OF LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

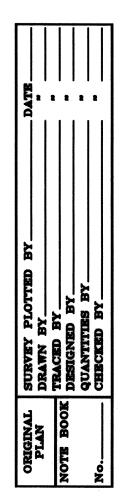
LANDSCAPE

DETAILS

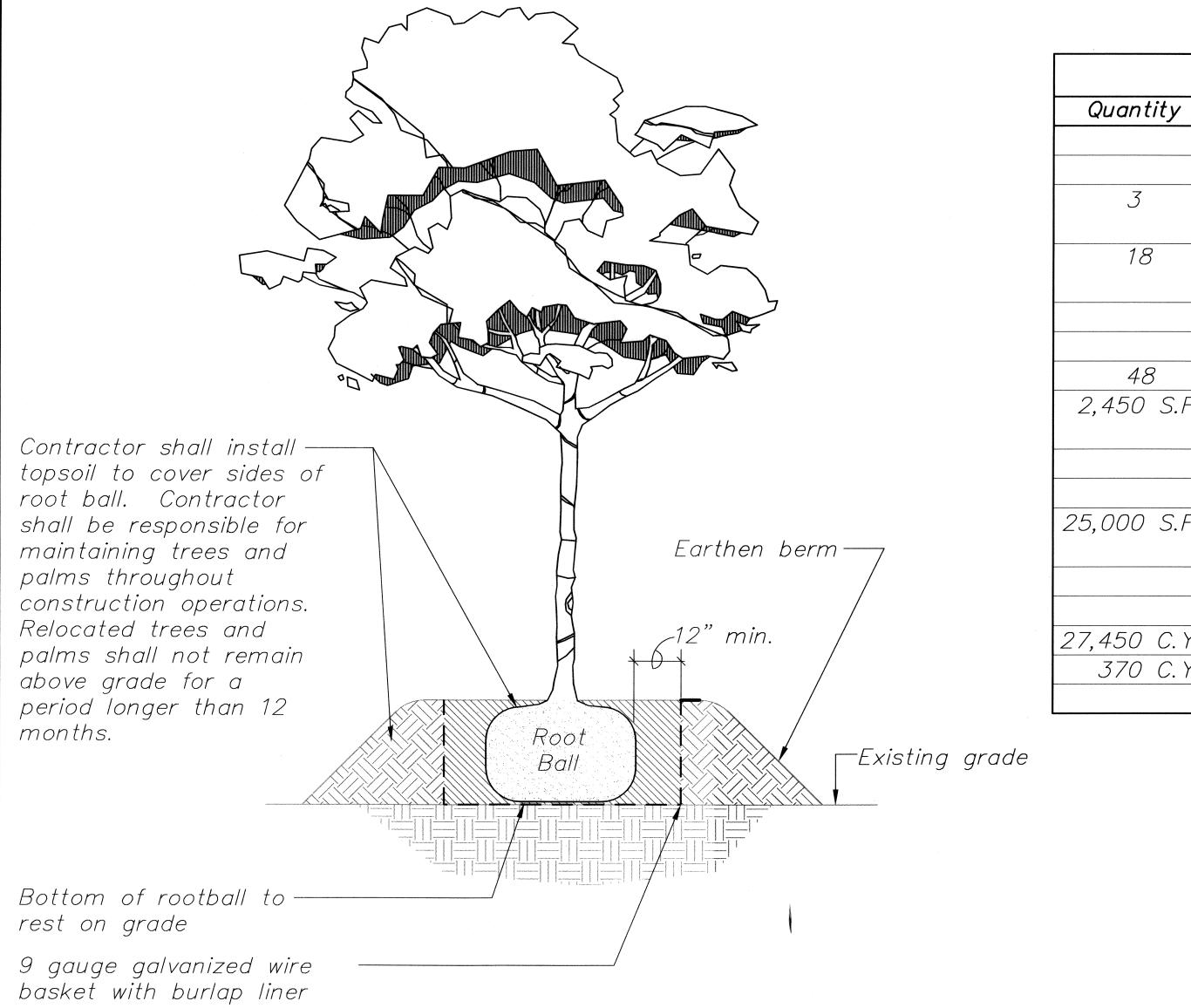
KAMEHAMEHA HIGHWAY — REPLACEMENT OF SOUTH PUNALUU STREAM BRIDGE Federal Aid Project No. BR-083-01(42)

Scale: As Shown

As Shown Date: May 2009
SHEET No. **L-6** OF 9 SHEETS



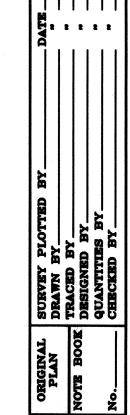
FED. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIST. NO.		PROJ. NO.	YEAR	NO.	SHEETS
HAWAII	HAW.	BR-083-1(42)	2009	119	121



Quantity	Common Name	Botanical Name	Size	Height	Remarks
quartity	Common Ivanie	Botamedi Name	0.20	Troigire	TOTTOTAS
	Relocated Trees An	d Palms			
3	Hala	Pandanus odoratissimus	F.S.		Tree Shall Not Remain Above Grade For Longer Than 12 Months
18	Coconut	Cocos nucifera	F.S.		Tree Shall Not Remain Above Grade For Longer Than 12 Months
	Shrubs And Grounde	covers			
48	Beach Naupaka	Scaevola sericea	1 Gal.	2'-4'	Bushy
2,450 S.F.	Beach Morning	lpomoea pes-caprae	Rooted		1'-0" o.c. Tri. Spacing
	Glory		Cuttings		
	Grasses				
25,000 S.F.	Seashore	Paspalum vaginatum	Seeded		
	Paspalum				
	Miscellaneous				
27,450 C.Y.	Soil Amendments	1" Layer			
, , , , , , , , , , , , , , , , , , ,	Screened Topsoil	4" Layer			

Note: tree shall be plumb and secured while being stored.







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SIGNATURE A/30/10 EXPIRATION DITE OF LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LANDSCAPE PLANT LIST

AND DETAILS

<u>KAMEHAMEHA HIGHWAY — REPLACEMENT</u> <u>OF SOUTH PUNALUU STREAM BRIDGE</u> <u>Federal Aid Project No. BR-083-01(42)</u>

Scale: As Shown

SHEET No. L-7 OF 9 SHEETS

May 2009

