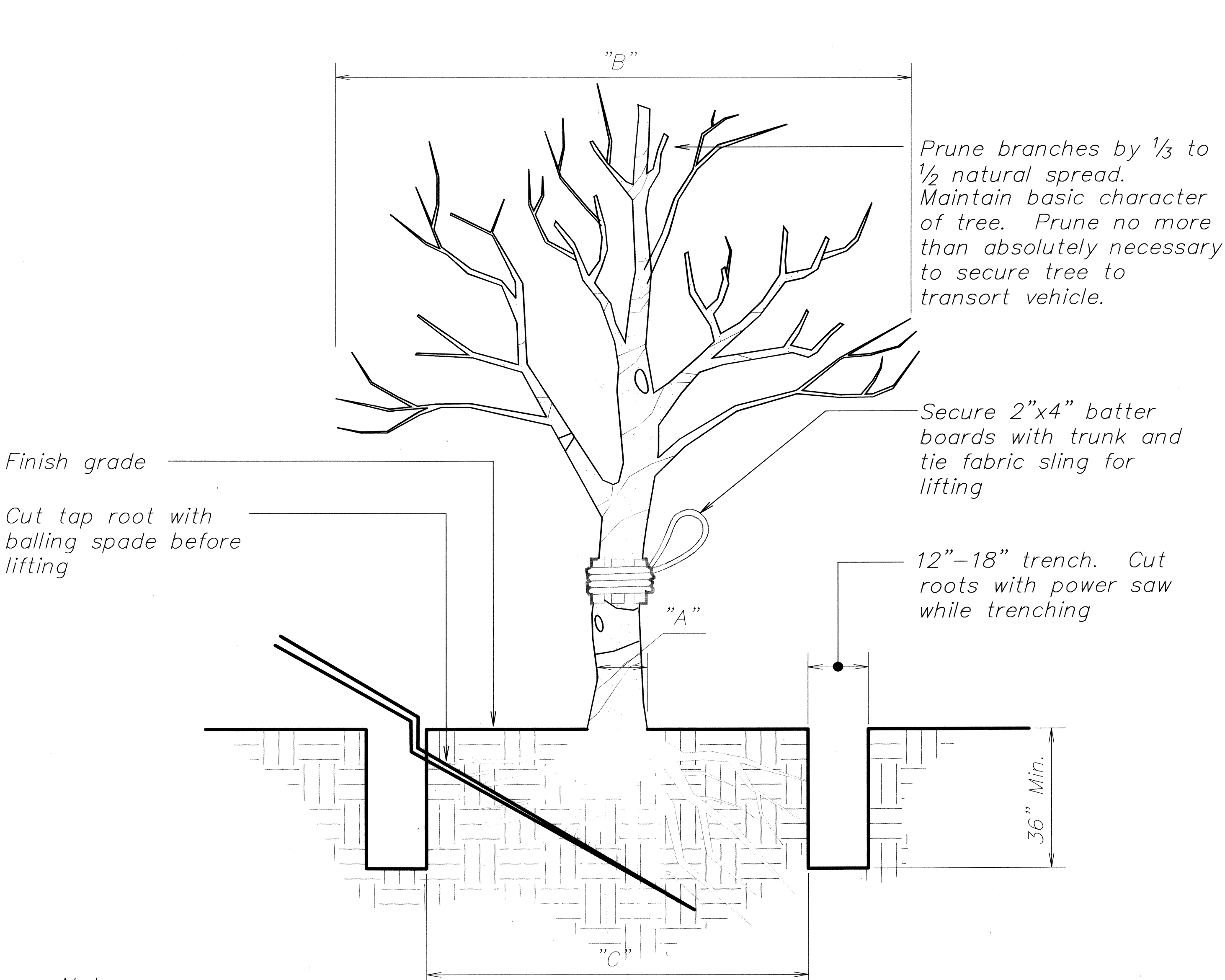


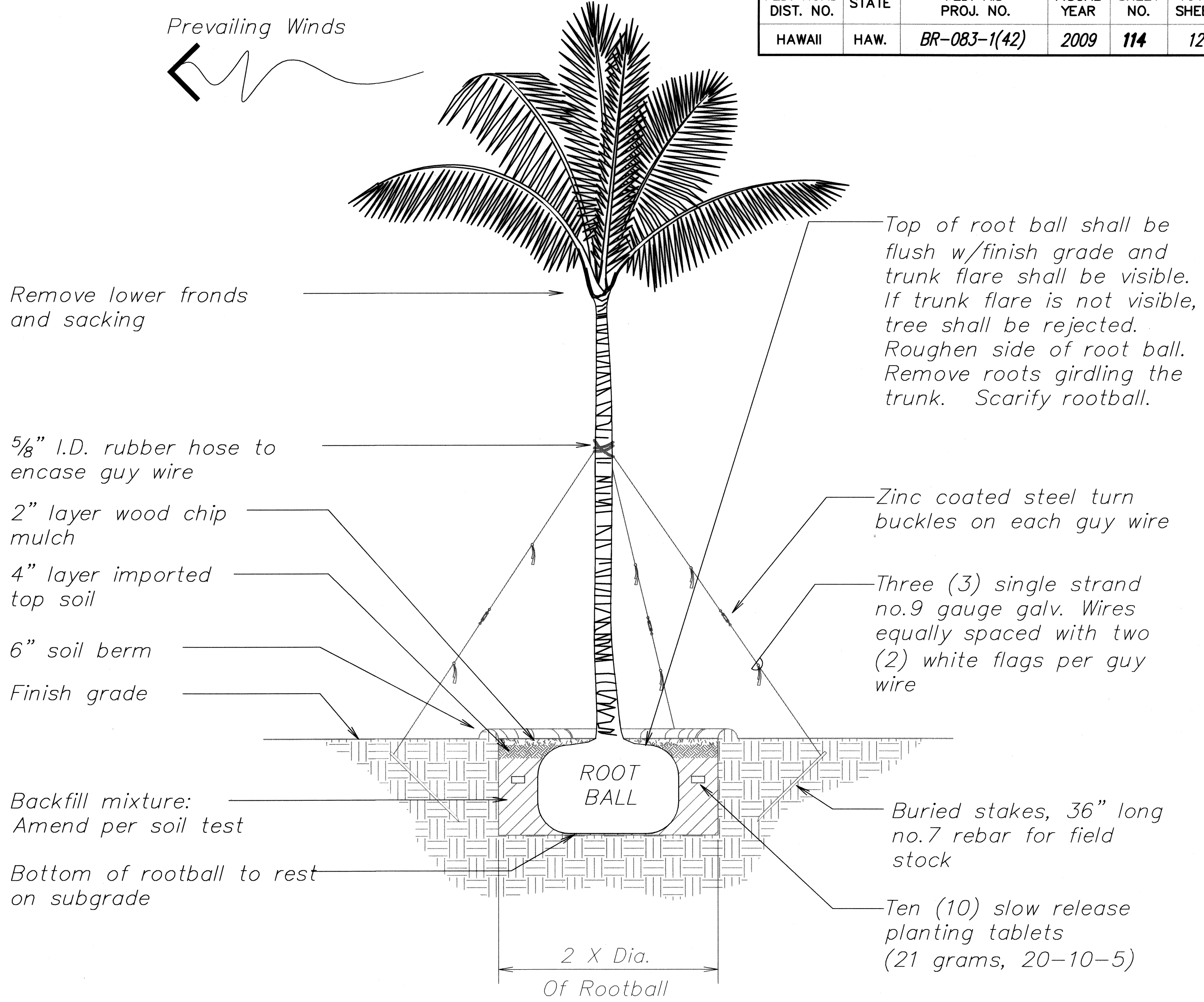
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(42)	2009	114	121



- Notes:**
- 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)	30"-48" (750-1200mm)	30"-36" (750-900mm)
18"-30" (450-750mm)	60"-96" (1.5-2.4M)	36"-96" (900-2400mm)
30" (750mm) And Over	120"-144" (3.0-3.6M)	120"-240" (3.0-6.0M)

1 Tree Transplanting Detail
Not To Scale



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

2 Palm Planting Detail
Not To Scale

ORIGINAL PLAN	SURVEY PLATTED BY	DATE
	DRAWN BY	
	DESIGNED BY	
	NOTED BY	
NOTE BOOK	QUANTITIES BY	
	CHECKED BY	
No.		

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Russell Y.J. Ching

EXPIRATION DATE OF LICENSE: 4/30/10

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

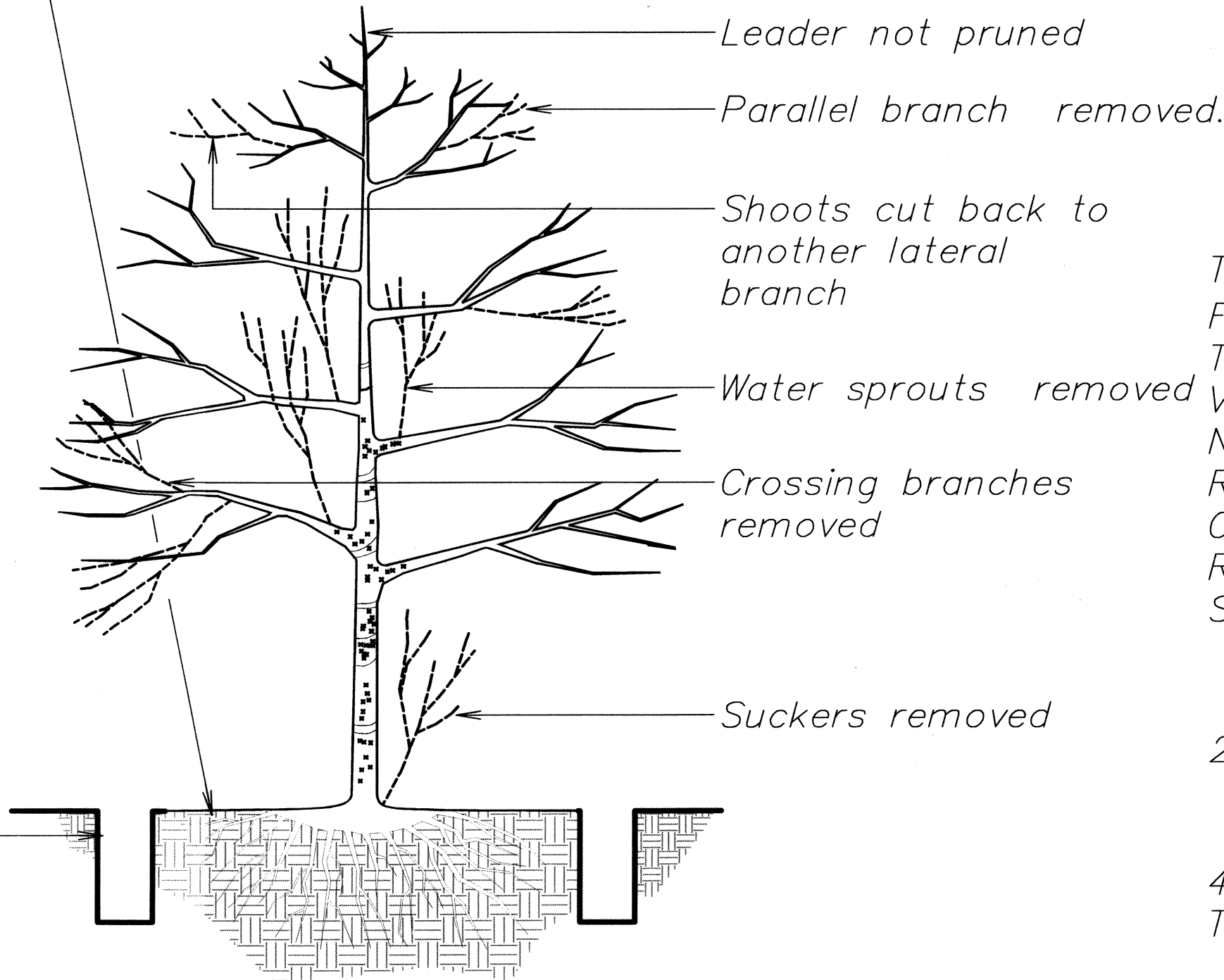
**KAMEHAMEHA HIGHWAY – REPLACEMENT
OF SOUTH PUNALUU STREAM BRIDGE**
Federal Aid Project No. BR-083-01(42)

Scale: As Shown Date: May 2009

SHEET No. **L-2** OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(42)	2009	115	121

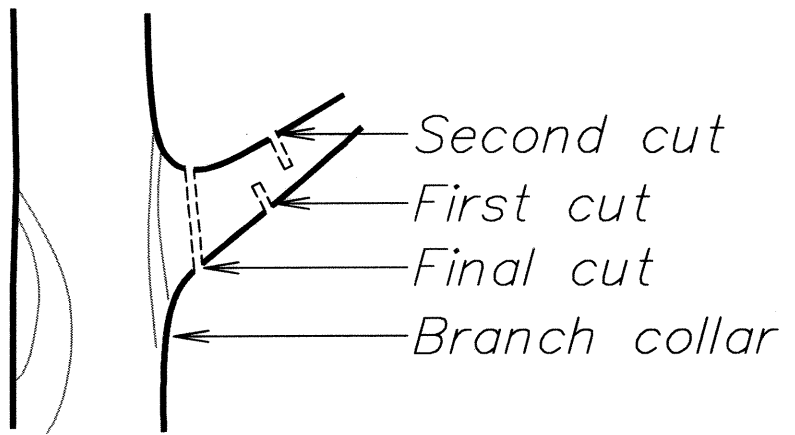
Tree roots shall not be cut unless cutting is unavoidable. When root cutting is unavoidable, a clean, sharp cut shall be made to avoid shredding or smashing. Root cuts shall be made back to a lateral root whenever possible, roots 2" or greater in diameter shall be tunneled or bored under and shall be 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:

- Positions of first and second cuts may be reversed in some cases, particularly when cutting a large branch with a chainsaw.
- Do not make flush cuts or leave stubs.
- Do not paint cuts.
- Remove dead, broken or malformed branches.
- Remove all vines entwined in the tree or around its trunk.
- 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.
- Dispose of all cuttings outside of right of way.
- Retain the normal shape of the plant.



Typical Branch Removal

Top Of Root Ball Shall Be Flush w/Finish Grade And Trunk Flare Shall Be Visible. If Trunk Flare Is Not Visible, Tree Shall Be Rejected. Roughen Side Of Root Ball. Remove Roots Girdling The Trunk. Scarify Root Ball.

2" Layer Wood Chip Mulch

4" Layer Imported Top Soil

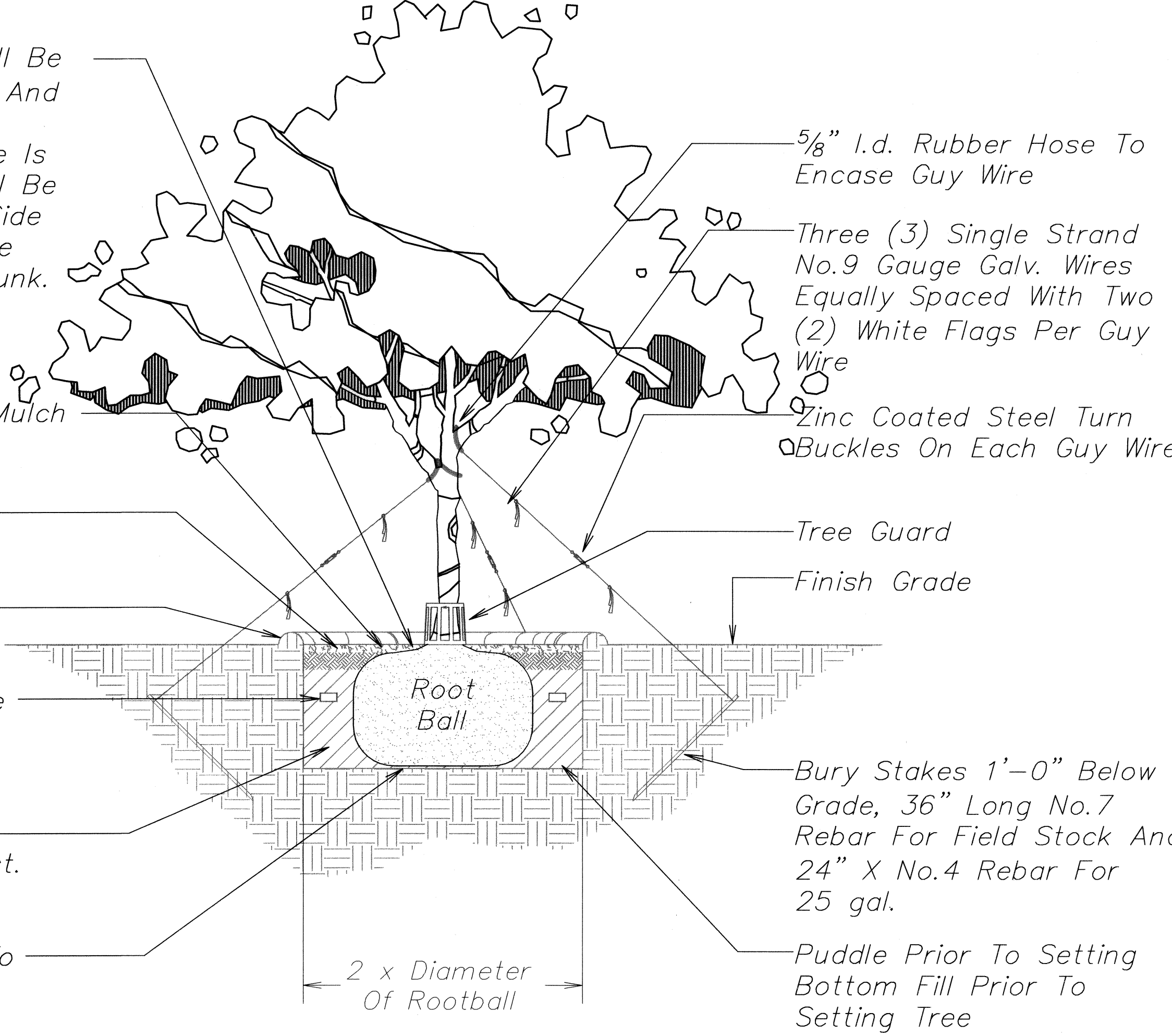
6" Soil Berm

Ten (10) Slow Release Planting Tablets. (21 Grams, 20-10-5)

Backfill Mixture: Ammend Per Soil Test.

Bottom Of Rootball To Rest On Subgrade

Prevailing Winds

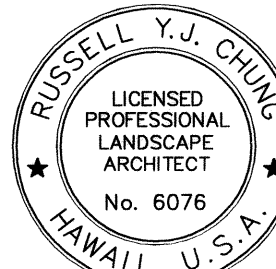


Note: Trunk Must Be Protected From Rope Sling Burns And Abrasions During Moving. tree Shall Be Plumb. If Tree Is Leaning At The End Of The Plant Establishment Period, The Tree Shall Be Rejected.

1 Tree Pruning Detail
Not To Scale

2 Container Tree Planting Detail
Not To Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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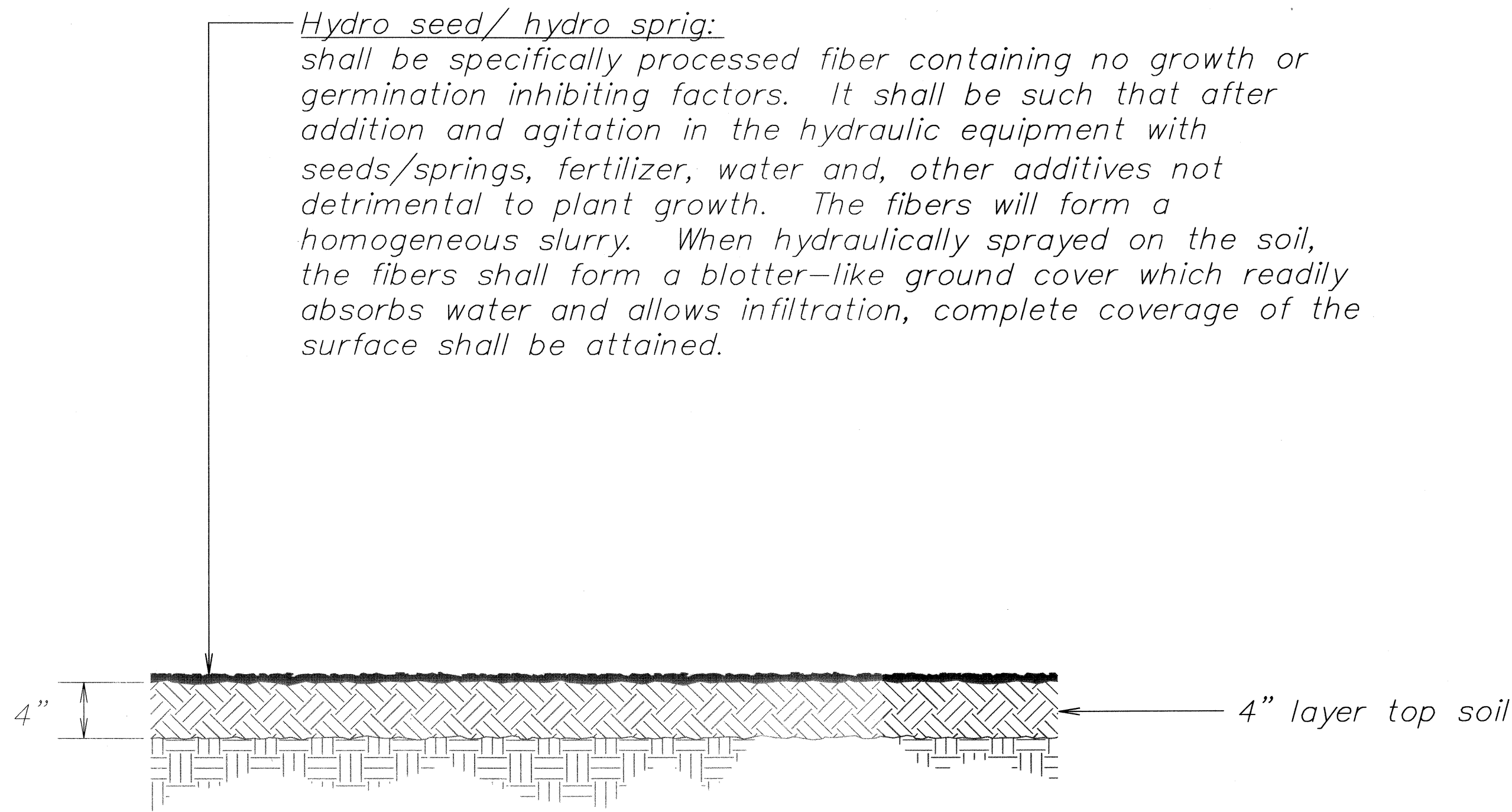
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LANDSCAPE DETAILS

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

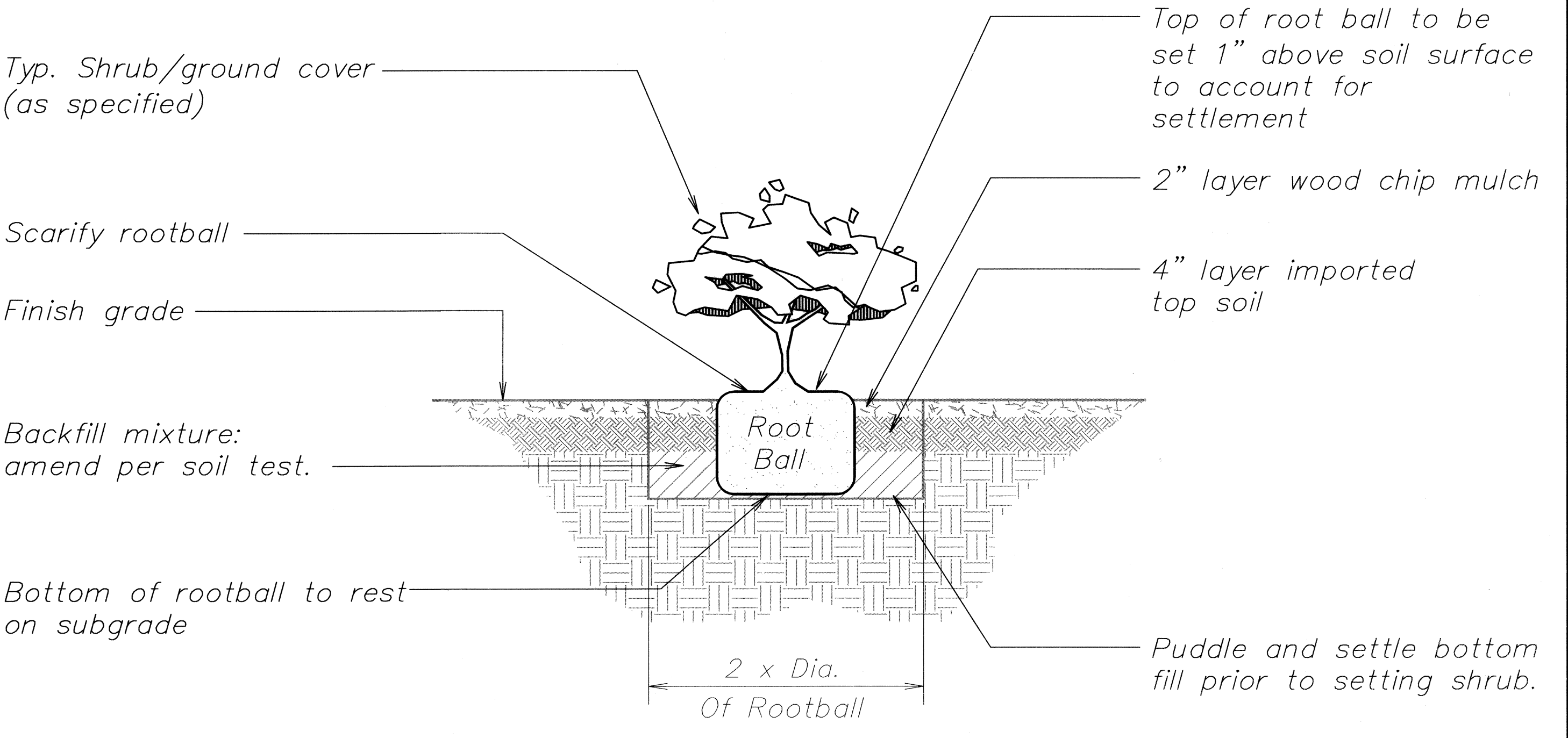
Scale: As Shown Date: May 2009

SHEET No. L-3 OF 9 SHEETS

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

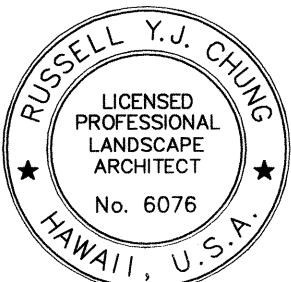


1 Hydroseed/Sprig Detail
Not To Scale



2 Groundcover Planting Detail
Not To Scale

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ORIGINAL PLAN	
NOTE BOOK	
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STATE OF HAWAII
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HIGHWAYS DIVISION
**LANDSCAPE
DETAILS**

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

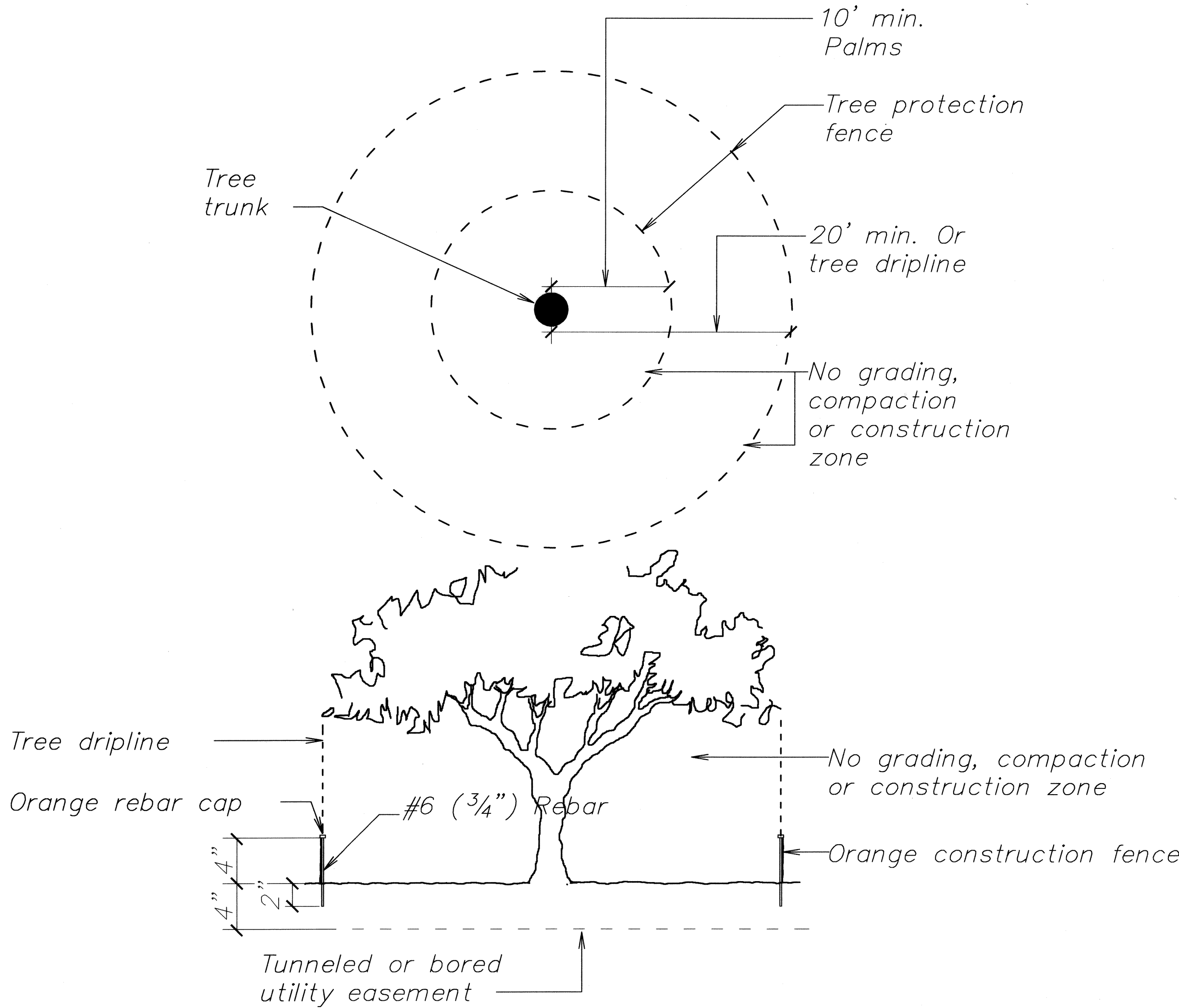
Scale: As Shown Date: May 2009

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

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

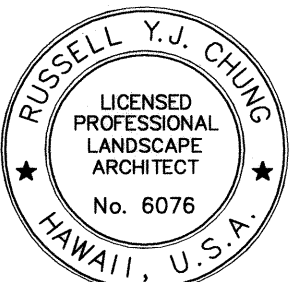
Tree Protection Zone:

- 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.
- 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.
- 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.
- 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.
- 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 1/2 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 permitted within TPZ."
- 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 equipment;
 - 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 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
- 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.



Tree/Palm Protection Zone (TPZ) Detail
Not To Scale

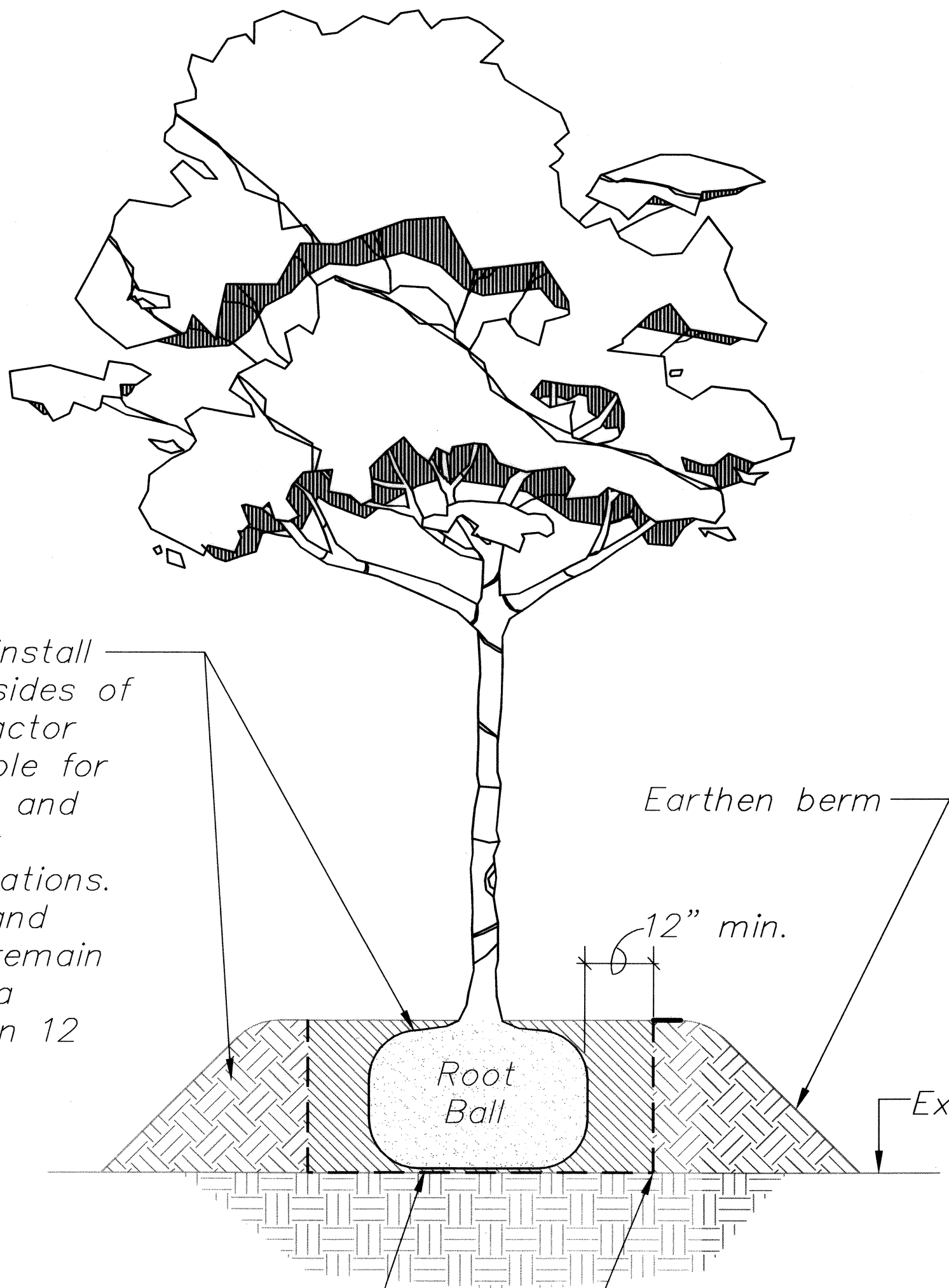
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION LANDSCAPE DETAILS
KAMEHAMEHA HIGHWAY - REPLACEMENT OF SOUTH PUNALUU STREAM BRIDGE Federal Aid Project No. BR-083-01(42)
Scale: As Shown Date: May 2009
SHEET No. L-6 OF 9 SHEETS



Contractor shall install topsoil to cover sides of root ball. Contractor shall be responsible for maintaining trees and palms throughout construction operations. Relocated trees and palms shall not remain above grade for a period longer than 12 months.

Bottom of rootball to rest on grade

9 gauge galvanized wire basket with burlap liner

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

1 Tree Stockpiling Detail
Not To Scale

Plant List For South Punaluu Bridge

Quantity	Common Name	Botanical Name	Size	Height	Remarks
Relocated Trees And 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 Groundcovers					
48	Beach Naupaka	Scaevola sericea	1 Gal.	2'-4'	Bushy
2,450 S.F.	Beach Morning Glory	Ipomoea pes-caprae	Rooted Cuttings		1'-0" o.c. Tri. Spacing
Grasses					
25,000 S.F.	Seashore Paspalum	Paspalum vaginatum	Seeded		
Miscellaneous					
27,450 C.Y.	Soil Amendments	1" Layer			
370 C.Y.	Screened Topsoil	4" Layer			

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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	QUANTITIES BY	
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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
**LANDSCAPE PLANT LIST
AND DETAILS**

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

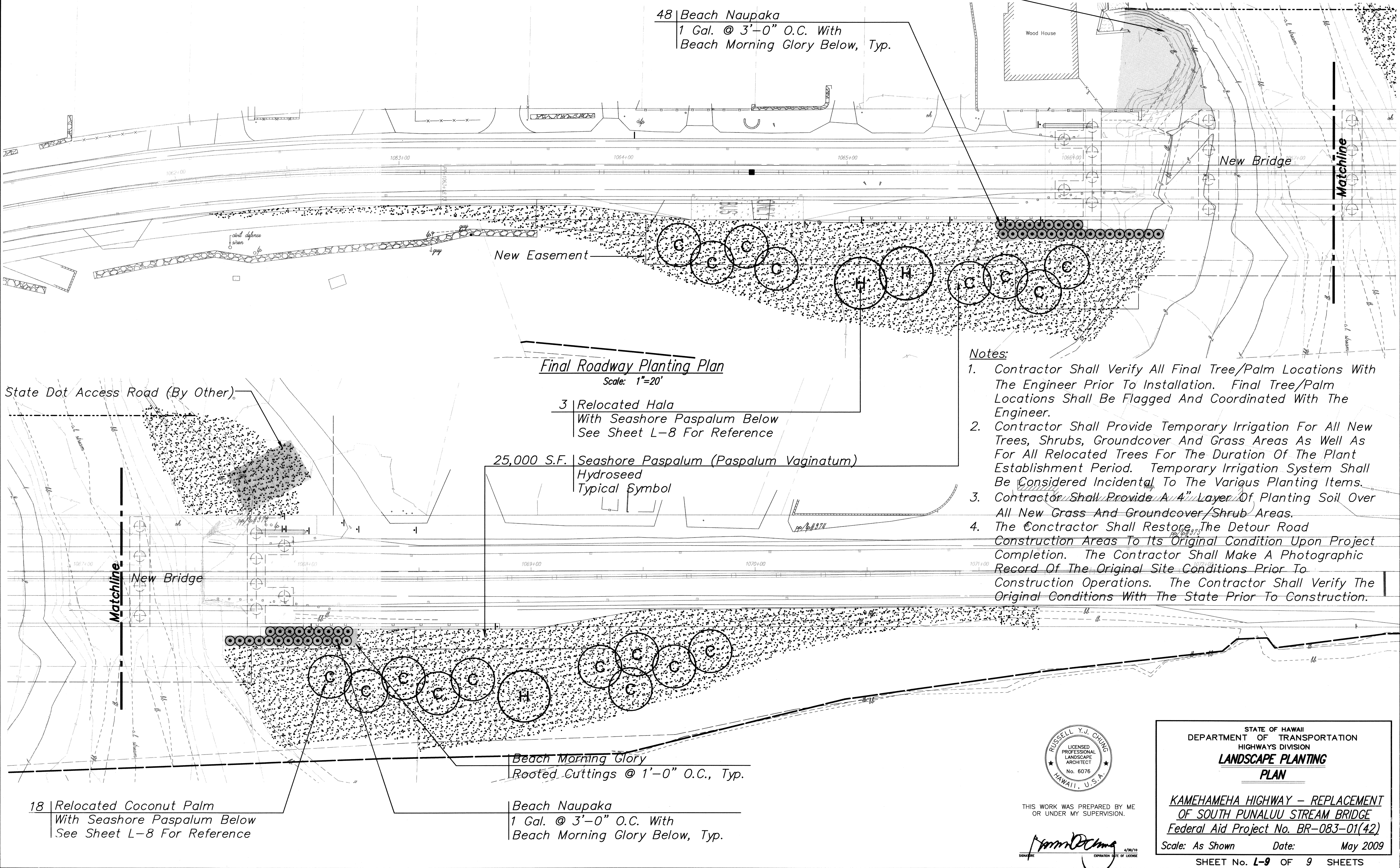
Scale: As Shown Date: May 2009

SHEET No. L-7 OF 9 SHEETS

2,450 S.F. | Beach Morning Glory
Rooted Cuttings @ 1'-0" O.C., Typ.

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

48 | Beach Naupaka
1 Gal. @ 3'-0" O.C. With
Beach Morning Glory Below, Typ.



Final Roadway Planting Plan
Scale: 1"=20'

3 | Relocated Hala
With Seashore Paspalum Below
See Sheet L-8 For Reference

25,000 S.F. | Seashore Paspalum (*Paspalum Vaginatam*)
Hydroseed
Typical Symbol

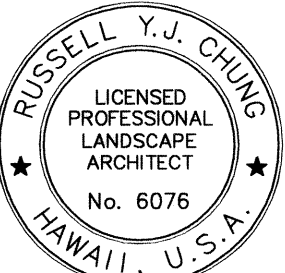
- Notes:
1. Contractor Shall Verify All Final Tree/Palm Locations With The Engineer Prior To Installation. Final Tree/Palm Locations Shall Be Flagged And Coordinated With The Engineer.
 2. Contractor Shall Provide Temporary Irrigation For All New Trees, Shrubs, Groundcover And Grass Areas As Well As For All Relocated Trees For The Duration Of The Plant Establishment Period. Temporary Irrigation System Shall Be Considered Incidental To The Varigus Planting Items.
 3. Contractor Shall Provide A 4" Layer Of Planting Soil Over All New Grass And Groundcover/Shrub Areas.
 4. The Contractor Shall Restore The Detour Road Construction Areas To Its 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 | Relocated Coconut Palm
With Seashore Paspalum Below
See Sheet L-8 For Reference

Beach Morning Glory
Rooted Cuttings @ 1'-0" O.C., Typ.

Beach Naupaka
1 Gal. @ 3'-0" O.C. With
Beach Morning Glory Below, Typ.

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LANDSCAPE PLANTING PLAN
KAMEHAMEHA HIGHWAY - REPLACEMENT OF SOUTH PUNALUU STREAM BRIDGE
Federal Aid Project No. BR-083-01(42)
Scale: As Shown Date: May 2009
SHEET No. L-9 OF 9 SHEETS