

Initial Study

Project Information

Project Title: Point St. George Management Area Trail and Parking Lot Project

Lead Agency

County of Del Norte
Community Development Department
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Contact: Mr. Jay Sarina

Project Location

The project is located in the Point St. George Management Area, in an unincorporated area of Del Norte County, approximately 1.5 miles northwest of the City of Crescent City, California (Figure 1 in Appendix A; United States Geological Survey Crescent City 7.5-minute Quadrangles, Township 16 North, Range 2 West, Sections 13, 14 and 24, Humboldt Base Meridian). The project is located within lands owned by Tolowa Dunes State Park, California Department of Fish and Wildlife, and County of Del Norte.

General Plan Designation and Zoning: See Table 1.

Table 1 General Plan Designation and Zoning Point St. George Management Area Trail and Parking Lot Project				
Assessor's Parcel Number	Owner	Land Use	Zoning	Notes
110-010-08	State of California-California Department of Fish and Game	Public Facility (PF)	Public Facility (PF)	parking lot parcel
110-010-09	California Department of Parks and Recreation	Resource Conservation Area (RCA)	Public Facility, Coastal Area Combining District, subparts Access and Hazards (PF-C-[A][H])	
110-010-19	County of Del Norte	Reservation Ranch, Segmentation (area of deferred certification)	Reservation Ranch, Segmentation (area of deferred certification)	
120-020-01	County of Del Norte	Reservation Ranch, Segmentation (area of deferred certification)	Reservation Ranch, Segmentation (area of deferred certification)	
120-020-03	County of Del Norte	Agriculture General-5 (AG-5)	One-Family Residence District, B Combining District, Coastal Area Combining District, subparts Access and Hazards (R1-B6-C[A][H])	

<p align="center">Table 1 General Plan Designation and Zoning Point St. George Management Area Trail and Parking Lot Project</p>				
Assessor's Parcel Number	Owner	Land Use	Zoning	Notes
120-020-21	County of Del Norte	Reservation Ranch, Segmentation (area of deferred certification)	Reservation Ranch, Segmentation (area of deferred certification)	
120-020-22	County of Del Norte	Agriculture General- 5 (AG-5)	Agricultural General District- lot no less than twenty acres, Coastal Area Combining District, subparts Access and Hazards (A-20- C[A][H])	

Project Description

The County of Del Norte proposes to construct the Point St. George section of the California Coastal Trail and develop a paved parking lot with an Americans with Disabilities Act (ADA) compliant toilet to serve the trail. The proposed trail commences near the southern end of the Point St. George Management Area, adjacent to North Pebble Beach Drive, and terminates at the northwest corner of the existing parking lot (Figure 2; Appendix A). The proposed trail generally follows the bluff edge and is approximately 2 miles long.

Trail Construction

The pedestrian trail will be constructed by the California Department of Parks and Recreation (CDPR) using the trail construction methods described below. The trail will be approximately 4 to 6 feet wide with the trail layouts based on the typical sections shown in the CDPR Trail Handbook (CDPR, NR; Appendix B). The trail alignment has been selected by the CDPR through coordination with the California Coastal Conservancy, Elk River Rancheria, and Smith River Rancheria. In general, the trail has been designed to maximize views at the bluff and to avoid sensitive archaeological resources and rare plants found within the proposed trail corridor.

See Figure 3 in Appendix A for locations of the following project elements.

Vegetation Removal. Vegetation will be removed along the trail corridor using brush cutters and rakes. All vegetation will be removed down to the ground surface or as close to ground surface as practicable. The area cleared will be 8 feet to 10 feet wide. Cut material will be loaded into wheel barrows and transported to a nearby location and piled. Material may be burned if necessary.

Ground Preparation. Following vegetation removal, the remaining vegetation and root crowns will be removed using hand tools. Vegetative material will be chopped out using picks, Pulaskis, and McLeods. Excavation of the ground surface will be less than 4 inches deep. The area prepared will be 6 feet to 8 feet wide. Spoils will be scattered across nearby bare areas that were stripped of topsoil during past road building activities or will be used for rehabilitation of way-trails in the area. This will provide topsoil in areas with exposed mineral soils.

Trail Fill Placement. Aggregate base will be delivered and piled at several locations along the project area to facilitate efficient transportation along the trail route. Motorized wheel barrows will be used to transport material along the trail corridor to the necessary locations.

The following three methods will be implemented:

1. **Hardened Crown Construction.** Along crowned sections, the aggregate base will be shaped to facilitate sheet drainage off of the surface to both sides of the trail. The crown-to-edge cross-slope will be 3% to 5%. This profile will be applied in areas of flat terrain where side-hill construction methods are not feasible. No additional excavation will be required for this construction method beyond the ground preparation discussed above.
2. **Hardened Embankment Construction.** Hardened embankment construction will be used in areas of gentle slope where additional excavation is not desirable. Hardened embankment sections will be constructed solely of placed aggregate fill, so no cutting of the soil surface will be required. The aggregate base will be placed in 3-inch lifts and compacted until the desired profile is achieved. The trail surface cross-slopes in these areas will be 5% to 8%.
3. **Cut and Fill Construction.** Cut and fill construction will be used in areas with steeper cross-slopes. Soil will be cut from the inner half of the trail corridor and used to build up the outer half. This method will be used where excavation into the top 12 to 24 inches of soil is acceptable and terrain cross-slope exceeds 20%. The finished trail bench will be capped with 4 to 6 inches of aggregate base and compacted. The trail surface cross-slopes in these areas will be 5% to 8%.

Compaction. Aggregate will be compacted using small walk-behind vibratory rollers. Compaction will be applied to fill placed in maximum 3-inch lifts for all methods of construction. Depending on the moisture content of the aggregate, water may be sprayed onto the surface using fire hoses connected to a water truck.

Bridge Construction. Two bridges will be built across small drainages. Both will be founded on abutments set on aggregate fill. Fill will be placed on the prepared soil surface (see above), and will be leveled and compacted. Plastic wood sills will be set on leveled aggregate pads. A fiberglass truss bridge will be installed onto the plastic wood sills.

Floating Boardwalk. A floating boardwalk will be installed in the northern section of the project, using 1-foot-wide, 10-foot-long beams. The beams will be made from plastic wood and will be dark brown in color. They will rest level with the ground surface. A standard post and pier method will be used for installation. A bull railing or bumper 3 to 6 inches high will be installed around the perimeter of the decking to prevent wheelchairs from rolling off.

Soldier-Pile Wall. Soldier-pile walls will be used to support trail tread or retain backslope. The wall system will consist of a series of steel H piles that will be installed vertically in drill holes that will then be backfilled using concrete. Gaps between the H piles will be spanned with redwood or composite "planks." The planks would support the native or imported structural backfill that raises the grade behind the wall to the desired elevation.

Rock Retaining Walls. Rock retaining walls will be used to support trail tread or retain backslope. Selected rocks and stones shall be sound, durable, and have at least one good uniform surface (which can be used as an outside face). The rock shape should allow the rock to be laid with the bulk of the rock's weight set back into the wall. The header stone's length shall span the full thickness of the rock wall. Fifty percent of the stones in the wall shall be longer than one cubic foot.

All stones shall be laid with their greatest dimension extending into the wall. At least one quarter of the outer face rocks shall be header rocks spanning the thickness of the wall. In general, stones will decrease in size from the base of the wall to the top. See the attached CDPR Trails Handbook for additional specifications and typical details (Appendix B).

Puncheon Structures. Multiple puncheon structures will be installed across drainages or gullies. This could include a log or timber structure built to cross a drainage or gully. Puncheon structures usually consist of sills, stringers, and a log deck. Sills will typically be 10-inch by 10-inch redwood. Stringers will typically be 4-inch by 6-inch redwood. Decking will typically be minimum 3-inch by 12-inch by 4-foot rough split tread fastened using galvanized nails. See the attached CDPR Trails Handbook for typical plan view, cross section and end view (Appendix B).

Decommissioning of Existing Volunteer Trails. Existing volunteer trails will be decommissioned during construction. Methods include placing removed vegetation in these areas to reduce foot traffic. See Figure 4 in Appendix A for decommissioned trail locations.

Parking Lot Construction

The existing parking lot located at the northern end of the trail will be resurfaced and restriped to allow for 74 parking spaces plus bus parking. An ADA-compliant bathroom will also be installed. This will be a self-sustaining vault or septic facility. Once the final design has been selected, the appropriate permits will be obtained.

Signage

Signs along the trail corridor will indicate the locations of sensitive habitat and direct visitors to stay on the trail. See Figure 5 in Appendix A for sign locations. Signs that have already been developed for the project are shown as follows.



Cap and Closure of Archaeological Sites

Pursuant to the recommendations of the cultural resources investigation, the project proposes preventing naturally occurring erosion at several known archaeological sites (Far Western Anthropological Research Group, Inc., May 2011). The purpose is to protect and reduce the looting of sensitive archaeological resources in three identified stabilization areas.

Stabilization methods are proposed to be constructed in the following order:

1. Cap cultural deposits with a permeable geotextile fabric.
2. Return eroded areas to the natural grade of the dune using imported fill. (To maintain the soil's chemical and physical characteristics, on-site sand shall be used.)
3. Apply chain-link fencing to "armor" the site.
4. Apply 6 to 12 inches of additional fill over the "armored" area using the same material described above.
5. Replant vegetation. (Different methods for revegetation are proposed. This includes natural, local seed collection and propagation, and a combination of seeding and planting nursery-grown native plants.)
6. Cover with jute or equivalent erosion cloth.

Table 2 summarizes the material required for this activity.

Table 2 Summary of Required Materials Point St. George Management Area Trail and Parking Lot Project			
Measure	Area 1	Area 2	Area 3
Stabilization With Armoring			
Geotextile Fabric	255 square yards	None	8,815 square yards
Imported Fill	60 cubic yards	None	600 cubic yards
Chain-link fencing	1,225 square yards	4,250 square yards	7,350 square yards
12 inch Additional Fill	488 cubic yards	1,420 cubic yards	7,350 cubic yards
Erosion Netting	1,225 square yards	4,250 square yards	7,350 square yards
Stabilization Without Armoring			
Geotextile Fabric	250 square yards	None	525 square yards
Imported Fill	60 cubic yards	None	60 cubic yards
Chain-link fencing	None	None	None
12" Additional Fill	None	None	None
Erosion Netting	210 square yards	None	60 square yards
1. Source: "Table 16. Summary of Required Materials for each of the Three Stabilization Areas with or without Armoring," <i>Archaeological Boundary Testing and Site Stabilization Plan at the Point Saint George Management Area, Del Norte County, California</i> (Far Western Anthropological Research Group, Inc., May 2011).			

As described in the *Point Saint George Archaeological Site Stabilization Revegetation Plan* (unpublished data provided by CDPR), sand dune phacelia (*Phacelia argentea*) and short-leaved evax (*Hesperis matronalis*) have been documented growing in or near Stabilization Area 3. Short-leaved evax has been mapped near Stabilization Area 1 (Sustain Environmental Inc., 2011). As recommended in the *Point Saint George Archaeological Site Stabilization Revegetation Plan*, a qualified botanist shall conduct rare plant surveys in all areas of the proposed stabilization methods (including access areas) prior to implementation of any activities to identify species. Additionally, a site-specific revegetation plan should be prepared in consultation with CDPR and California Department of Fish and Game (CDFW; formerly California Department of Fish and Game) to address seed collection, plant relocation efforts, and monitoring plans (including nonnative removal).

Baseline Conditions: Surrounding Land Uses and Setting

The Point St. George Management Area is located immediately northwest of Crescent City, adjacent to the Del Norte County Airport/McNamara Airfield, approximately 15 miles south of the California-Oregon border, within the California Coastal Zone. It is within the Tolowa Dunes State Park and Del Norte County lands at the westernmost headland of a narrow coastal plain that extends along the shore of the Pacific Ocean in northern California.

As described in the *Point Saint George Management Plan*, this coastal headland “contains an impressive variety of natural and coastal resources...and contains a diverse assemblage of unusual habitats and an array of wetland types” (County of Del Norte, 2004). The majority of the Point St. George Management Area includes lands listed in the National Register of Historic Places as the “Point St. George Site” (NRHP Listing #76000481).

The *Point Saint George Management Plan* identifies this area as a proposed location for the California Coastal Trail. Current use of the Point St. George Management Area is limited mostly to pedestrian traffic by visitors who walk along a series of volunteer trails to access vista points and adjacent beaches. In the location of the proposed paved parking lot in the most northern section, an unpaved parking lot currently exists. The parking lot is used by visitors to the Point St. George Management Area and also by visitors to the former U.S. Coast Guard facility, located west of the parking lot, which is now in private ownership.

Other Public Agencies Whose Approval Is or May Be Required (permits, financing approval, or participation agreement): the California Department of Fish and Wildlife; California State Parks; California Coastal Commission; the State Coastal Conservancy; the County of Del Norte; the North Coast Unified Air Quality Management District; the Army Corps of Engineers; and the Regional Water Quality Control Board, North Coast Region.

Environmental Factors Potentially Affected: The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|---|--|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agricultural and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards/Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Utilities/Service |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic | |
| <input type="checkbox"/> Mandatory Findings of Significance | | |

Determination: On the basis of this initial evaluation:

- ☐ I find that the proposed project could not have a significant effect on the environment, and a Negative Declaration will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A Mitigated Negative Declaration will be prepared.
- ☐ I find that the proposed project may have a significant effect on the environment, and an Environmental Impact Report (EIR) is required.
- ☐ I find that the proposed project may have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An Environmental Impact Report is required, but it must analyze only those effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects a) have been analyzed adequately in an earlier EIR or Negative Declaration pursuant to applicable standards, and b) have been avoided or mitigated pursuant to that earlier EIR or Negative Declaration, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Environmental Checklist

Checklist and Evaluation of Environmental Impacts: An explanation for all checklist responses is included, and all answers take into account the whole action involved, including off site as well as on site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts. The explanation of each issue identifies a) the significance criteria or threshold, if any, used to evaluate each question; and b) the mitigation measure identified, if any, to reduce the impact to less than significance. In the **Checklist**, the following definitions are used:

"Potentially Significant Impact" means there is substantial evidence that an effect may be significant.

"Potentially Significant Unless Mitigation Incorporated" means the incorporation of one or more mitigation measures can reduce the effect from potentially significant to a less than significant level.

"Less Than Significant Impact" means that the effect is less than significant and no mitigation is necessary to reduce the impact to a lesser level.

"No Impact" means that the effect does not apply to the proposed project, or clearly will not impact nor be impacted by the project.

I. Aesthetics. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?				X

Thresholds of Significance:

This initial study considers whether the proposed project may have any significant effects on visual aesthetics because of: a) the short-term or long-term presence that would impact the vista points that provide views of or from the project area; b) permanent changes in physical features that would impact the visual character of the project area; c) project-related construction that would detract from the visual character of the Point St. George Management Area; or d) the presence of short-term, long-term, or continuous bright light, or operations occurring at night, that would detract from a project area that is otherwise generally dark at night or that is subject to low levels of artificial light.

Discussion:

(a-c) Less than Significant: The proposed project site is located within or adjacent to three view corridors as described in the Local Coastal Plan (LCP; County of Del Norte, 1983). The LCP also identifies three scenic viewpoints near the project: 1) Point St. George Public Fishing Access; 2)

Pebble Beach Drive turn-outs; and 3) Pebble Beach Public Fishing Access. The view corridors listed are 1) Radio Road (also known as the northern end of North Pebble Beach Drive); 2) Pebble Beach Drive; and 3) the Western End of Washington Boulevard (see Exhibit 1, below).

Additionally, viewshed characteristics noted in the LCP include views of the ocean, offshore rocks, and marine life. Radio Road, Pebble Beach Drive, and the western end of Washington Boulevard provide open scenic vistas of the ocean and surrounding landscape. No other listed scenic resource is within the project area and the project site is not within the vicinity of a scenic highway.

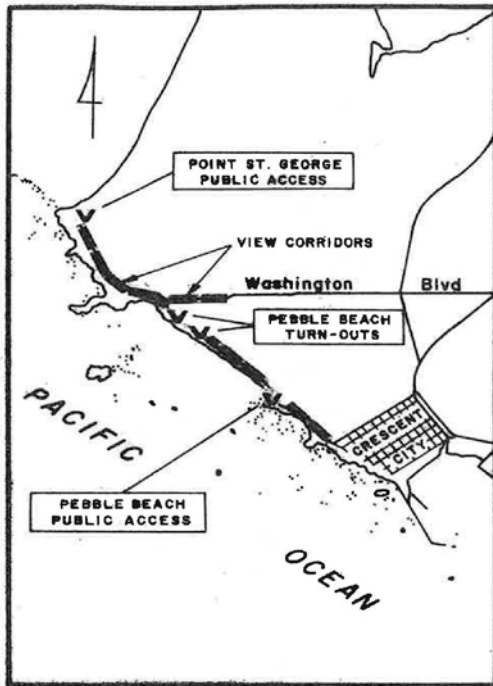


Exhibit 1. Viewpoints identified in the Del Norte County LCP.

The proposed trail and parking lot improvements will not directly diminish the visual resources listed above, but the project will occur near the vista points and view corridors themselves. Construction activities will temporarily impact or distract from the scenic vistas currently available. The majority of the proposed trail is located along existing volunteer trails. Thus, there will be only a minor change in the visual character from that the existing conditions with the exception of the southern project areas. The segment(s) of the trail from the beach access to the end will place a trail where one does not currently exist. However, the trail will be surrounded by existing vegetation that will not change the visual character currently observed from the surrounding areas.

The improvement of the existing gravel parking lot to a paved parking lot represents a permanent change, as does the improvement of the existing volunteer trails. Because the proposed project is consistent with the uses currently existing, it will not result in permanent impacts to the visual character. Rather, the proposed

project will improve public access to and enjoyment of these scenic viewpoints and visual resources.

(d) No Impact: The project does not include any lighting, so it would not create a source of substantial light or glare.

II. Agriculture and Forestry Resources. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

Thresholds of Significance:

This initial study considers to what degree the proposed project would: a) change the availability or use of agriculturally important land areas designated under one or more of the programs above, b) cause or promote change in land zoned for those uses, particularly lands designated as Agriculture Exclusive or under Williamson Act contracts, or c) change the availability or use of agriculturally important land areas for agricultural purposes.

Discussion:

(a-e) No Impact: Del Norte County does not participate in the Farmland Mapping and Monitoring Program of the California Resources Agency, therefore the project site has no "Farmlands." The project site has no lands currently used for commercial agricultural production, parcels subject to the

Williamson Act, or parcels within a timberland zone. While in private ownership, portions of the Point St. George headland property were used for cattle grazing as part of a ranching operation by Del Norte County in 2004. However, cattle grazing is not currently occurring at Point St. George and the proposed project will not convert grazing lands or preclude the possibility of future grazing. The project site is not forested, except in the southern project area. Only a few trees along the trail corridor will need to be removed. This will not convert this area from a forested area into a non-forested area.

The project will not have an impact on agricultural or forestry resources.

III. Air Quality. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?		X		
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X		
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?		X		
d) Expose sensitive receptors to substantial pollutant concentrations?				X
e) Create objectionable odors affecting a substantial number of people?				X

Thresholds of Significance:

This initial study considers to what degree the proposed project would a) interfere with air quality objectives established by the North Coast Unified Air Quality Management District (NCUAQMD), b) contribute pollutants that would violate an existing or projected air quality standard, c) produce pollutants that would in part contribute to cumulative effects of non-attainment for any air pollutant, d) produce pollutant loading near sensitive receptors that would cause locally significant air quality impacts, or e) release odors that would affect a number of receptors.

Discussion:

(a-c) Less than Significant with Mitigation Incorporated: NCUAQMD is responsible for monitoring and enforcing local and state air quality standards in the County of Del Norte. Air quality standards are set for emissions that may include but are not limited to visible emissions, particulate matter, and fugitive dust. The NCUAQMD is in attainment for all federal criteria air pollutants and for all state standards, except particulate matter less than 10 microns in size (PM-10). PM-10 air emissions include chemical emissions and other inhalable particulate matter with an aerodynamic diameter of less than 10 microns. Therefore, any use or activity that generates unnecessary airborne particulate matter may be of concern to the NCUAQMD. The project involves soil disturbance during construction activities and also includes burning of slash vegetation during vegetation removal.

Pursuant to Air Quality Regulation 1, Rule 104, Section 4.0–*Fugitive Dust Emissions*, the handling, transporting, or open storage of materials in a manner that allows or may allow unnecessary amounts of particulate matter to become airborne, shall not be permitted. Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including but not limited to: 1) covering open-bodied trucks when used for transporting materials likely to give rise to airborne dust; and 2) earth or other material that has been transported by trucking or earth moving equipment, erosion by water, or other means onto paved streets shall be promptly removed. Any burning of slash that occurs during the vegetation clearing stage will be governed by Air Quality Regulation 2, Rule 201–*General Prohibitions and Exemptions for Selected Open Burning*.

The NCUAQMD has advised that, generally, an activity that individually complies with the state and local standards for air quality emissions will not result in a cumulatively considerable increase in the countywide PM-10 air quality violation. NCUAQMD staff concludes that with the mitigation measure listed below, which requires compliance with NCUAQMD standards and regulations, the proposed project will not result in adverse air quality impacts or a cumulatively considerable increase in the PM-10 non-attainment.

Due to the small amount of dust and emissions anticipated during construction and compliance with Rule 104 and Rule 201 (Mitigation Measure No. 1), the project will not result in significant impacts to air quality.

(d) No Impact: Due to the nature of the project (a trail) and its construction, the project is not expected to generate pollutants; therefore, it will not expose sensitive receptors to substantial pollutant concentrations.

(e) No Impact: With regard to objectionable odors, the proposed project does not include construction techniques or other activities that would result in excess or permanent odors. Some temporary odors associated with construction-related materials may be present at the project site during construction activities, but are temporary.

Mitigation Measure No. 1. The applicant, at all times, shall comply with Air Quality Regulation 1, Rule 104 to the satisfaction of the NCUAQMD. This will require, but may not be limited to: 1) covering open-bodied trucks when used for transporting materials likely to give rise to airborne dust; and 2) earth or other material that has been transported by trucking or earth moving equipment, erosion by water, or other means onto paved streets shall be promptly removed.

The applicant, at all times, shall also comply with Air Quality Regulation 2, Rule 201, to the satisfaction of the NCUAQMD. This will require, but may not be limited to: 1) obtaining a burn permit as required by Rule 201; and 2) complying with NCUAQMD regulations regarding allowable burn days.

IV. Biological Resources. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		X		
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Thresholds of Significance:

This Mitigated Negative Declaration considers whether the proposed project would result in significant adverse direct or indirect effects to: (a) individuals of any plant or animal species (including fish) listed as rare, threatened, or endangered by the federal or state government, or effects to the habitat of such species; (b) more than an incidental and minor area of riparian habitat or other sensitive habitat (including wetlands) types identified under federal, state, or local policies; (c) more than an incidental and minor area of wetland identified under federal or state criteria; (d) key habitat areas that provide for continuity of movement for resident or migratory fish or wildlife, or (e) other biological resources identified in planning policies adopted by the County of Del Norte.

Discussion:

(a) Less than Significant with Mitigation Incorporated: SHN Consulting Engineers & Geologists, Inc. (SHN) completed a review of special-status species in the study area (SHN, 2013a; Appendix A and B). The results are described below.

Plants

There are 87 special-status animal species that have been recorded in the region consisting of the study area's quadrangle (Crescent City) and the surrounding topographic quadrangles (SHN, 2013a). Of the 87 special-status animal species, 28 species are considered to have a moderate or high potential to occur within the study area (SHN, 2013a).

SHN staff conducted field surveys of the study area on July 26, 2012, to survey for special status species. The botanical surveys were floristic and seasonally appropriate for a majority of the species potentially present except for species that bloom between April and June. If seasonally appropriate, all previous identifications were verified. No modifications to the previous surveys were necessary. The results of the CDPR 2009 surveys are shown on Figure 6, Appendix A. Table 3, below, summarizes the results of the field investigation with the potential impacts of the species. In addition to the special status species, Western Dog Violet (*Viola adunca*) was observed. This species is a host plant for the federally threatened Oregon silverspot butterfly (*Speyeria zerene hippolyta*).

Table 3
Special Status Plant Species Observed
Point St. George Management Area Trail and Parking Lot Project

Species Latin Name	Common Name	Status ¹ (Federal/ State/ CNPS)	Observation History	Observation Notes
<i>Chloropyron maritimus</i> ssp. <i>palustris</i>	Point Reyes bird's-beak	-/-/1B.2	SHN, 2012	Not observed within a salt marsh, but rather on top of bluff
<i>Lilium occidentale</i>	western lily	FE/SE/1B.1	Theiss, 1991 USFWS, 2012	Information provided by USFWS; yearly variation of plants observed (pers. comm. Dave Imper, 2012)
<i>Oenothera wolfii</i>	Wolf's evening- primrose	-/-/1B.1	Theiss, 1991 Mad River Biologists, 2003 SHN, 2012	Smaller population observed than reported by Mad River Biologists, 2003
<i>Oxalis suksdorfii</i>	Suksdorf's wood-sorrel	-/-/4.3	SHN, 2012	Not previously reported in project vicinity
<i>Phacelia argentea</i>	sand dune phacelia	-/-/1B.1	Theiss, 1991 Mad River Biologists 2003 SHN, 2012	Individuals and mats observed

<p align="center">Table 3 Special Status Plant Species Observed Point St. George Management Area Trail and Parking Lot Project</p>				
Species Latin Name	Common Name	Status¹ (Federal/ State/ CNPS)	Observation History	Observation Notes
<p>1. CNPS: California Native Plant Society “-“. No Status/Listing CNPS List 1B includes plants that are rare, threatened, or endangered in California and elsewhere. CNPS List 4 includes plants of limited distribution and should be documented as they are watch list species CNPS Threat Ranks: .1 - Seriously endangered in CA (over 80% of occurrence threatened/high degree and immediacy threat) .2 - Fairly endangered in CA (20-80 % occurrences threatened). .3-Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known) FE: Federally listed Endangered, pursuant to the Federal Endangered Species Act (FESA), as amended. This designation includes taxa that are in danger of extinction throughout all or a significant portion of their range. SE: State listed Endangered, pursuant to California Endangered Species Act (CESA). SE designation includes taxa that are in danger of extinction throughout all or a significant portion of their range.</p>				

The project has the potential to impact several special-status species both directly and indirectly. The following species will not be directly impacted during construction by the proposed project: Point Reyes bird’s-beak, black crowberry, Wolf’s evening-primrose, and Suksdorf’s wood-sorrel. These species will be avoided given the current location of the trail project. Placing fences around these species prior to and during construction will further protect them from any indirect or accidental impact during construction.

As confirmed during a site visit with Gary Falxa (USFWS) and Dave Imper (former USFWS), the project does not propose any direct impact to known occurrences of the Western Lily. However, the potential suitable habitat in the project area is not currently mapped, so the potential impact to suitable habitat is unknown. The Western Lily population has increasingly faced competition from other vegetation (Imper, 2012). Management strategies, including mowing and grazing goats in 2004, have been implemented (USFWS, 2009; Imper, 2012). The 5-year review prepared by USFWS in 2009 recommended a broad-scale burn for all suitable habitat, because the Smith River Rancheria and Elk River Valley Rancheria were concerned about grazing, which could damage archaeological resources (USFWS, 2009).

The project also proposes to replace an existing culvert near a wetland where known occurrences of Western Lily are documented. The culvert was proposed to be replaced in kind as part of the project, but was reconstructed in November 2012. It is unclear what effect this will have on the existing Western Lily population. Potential effects of the culvert replacement should be further evaluated with USFWS. Both Gary Falxa and Dave Imper recommended that a federal biological assessment be prepared in order to proceed with consultation with federal activities (i.e., U.S. Army Corps of Engineers [ACOE] 404 permit). In preparation of the biological assessment, a hydrological analysis of the culvert replacement should be conducted. This analysis should include evaluation of the existing conditions and provide recommendations such that the culvert replacement does not negatively impact the environmental conditions of the Western Lily habitat.

As shown in Table 4, several species have previously been observed or have potential habitat within the project area; however, floristic surveys were not conducted during the appropriate blooming period in 2012 to detect all of these species.

Table 4 Additional Botanical Surveys Point St. George Management Area Trail and Parking Lot Project					
Species Latin Name	Common Name	Status^{1,2} (Federal/State/ CNPS)	Previous Observations	Blooming Period	Suitable Habitat
<i>Castilleja affinis</i> <i>ssp. litoralis</i>	Oregon coast paintbrush	-/-/2.2	-	June	All areas onsite except dune habitats and parking lot
<i>Empetrum nigrum</i>	black crowberry	-/-/2.2	Theiss, 1991 CDPR, 2009	April-June	All areas onsite except dune habitats and parking lot
<i>Hesperoax sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	-/-/1B.2	CDPR, 2009	March- June	All areas onsite except the parking lot
<i>Montia howellii</i>	Howell's montia	-/-/2.2	-	March-May	Parking Lot and Gravel Roads
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	-/-/2.2	CDPR, 2009	May-July	All areas onsite except dune habitats and parking lot
<i>Romanzoffia tracyi</i>	Tracy's romanzoffia	-/-/2.3	Theiss, 1991	March-May	All areas onsite except dune habitats and parking lot
1. Based on information from the CDPR 2009 surveys. 2. CNPS: California Native Plant Society status: -: No Status/Listing CNPS List 1B includes plants that are rare, threatened, or endangered in California and elsewhere. CNPS List 2 includes plants that are rare, threatened, or endangered in California but more common elsewhere. CNPS Threat Ranks: .1 - Seriously endangered in CA (over 80% of occurrence threatened/high degree and immediacy threat) .2 - Fairly endangered in CA (20-80 % occurrences threatened). .3 - Not very threatened in California (<20% of occurrences threatened /low degree and immediacy of threat or no current threat known).					

In an effort to analyze and quantify the impacts from trail construction, the areas of known populations were compared to the area proposed for impact. The project proposes direct impacts to the short-leaved evax, seacoast ragwort, sand dune phacelia, and Siskiyou checkerbloom. Table 5 presents a summary of impacts.

Table 5
Botanical Area Impacts
Point St. George Management Area Trail and Parking Lot Project

Species Latin Name	Common Name	Status ¹ (Federal/State/ CNPS)	Total Area Observed (sq. ft.)	Impacted Area ² (sq. ft.)	Ratio of Impact
<i>Hesperervax sparsiflora</i> var. <i>brevifoli</i> ³	short-leaved evax	-/-/1B.2	33,850	15,821	47%
<i>Packera bolanderi</i> var. <i>bolanderi</i> ³	seacoast ragwort	-/-/2.2	2,410	249	10%
<i>Phacelia argentea</i> ³	Sand Dune Phacelia	-/-/1B.1	3,862	1,050	27%
<i>Sidalcea</i> sp. ⁴	checkerbloom	-/-/1B.2	280,949	17,557	6%

1. CNPS: California Native Plant Society status:
 -: No Status/Listing
 CNPS List 1B includes plants that are rare, threatened, or endangered in California and elsewhere.
 CNPS List 2 includes plants that are rare, threatened, or endangered in California but more common elsewhere.
 CNPS Threat Ranks:
 .1 - Seriously endangered in CA (over 80% of occurrence threatened/high degree and immediacy threat)
 .2 - Fairly endangered in CA (20-80 % occurrences threatened).
 .3 - Not very threatened in California (<20% of occurrences threatened /low degree and immediacy of threat or no current threat known).1.
2. Assumes a maximum 10-ft trail width. Actual impacts may be reduced.
3. Based on information from the CDPR 2009 surveys.
4. Includes all checkerbloom populations onsite.

Because the trail may not be constructed within one growing season, existing populations could expand beyond those previously documented. Therefore, floristic surveys should be conducted using CDFW's protocol prior to construction (Mitigation Measure No. 2). The surveys can be used to document current locations so that to the extent practical (moving the trail within a few feet), the trail will be constructed to avoid any direct impact to these species. Placing fences around plant populations prior to and during construction will further protect them from any indirect or accidental impact during construction. If these species cannot be avoided during construction, then a detailed relocation plan should be developed for relocation of onsite species and approved by the CDPR (only on CDPR property) and CDFW.

There could be potential impacts to special-status botanical species from trail users. Increased use of the area may result in increased litter and debris, and damage by pedestrians that do not stay on the trail. The CDPR has attempted to reduce off-trail impacts by designing the trail where users are likely to want to go. For example, creating overlook areas where ad hoc trails are likely to form. Additionally, signs have been incorporated into the project to reduce impacts from off-trail use.

Despite design and signage, special-status species may be impacted. Therefore, annual botanical surveys shall be conducted for 5 years following construction to determine the status of rare plants (Mitigation Measure No. 3). If there is evidence that existing populations of rare plants are declining, then fencing of these areas shall be designed and implemented as necessary.

Wildlife

There are 41 special-status animal species that have been recorded in the region consisting of the study area's quadrangle (Crescent City) and the surrounding topographic quadrangles (SHN, 2013a). Of the 41 special-status animal species, 9 species are considered to have a moderate or high potential to occur within the study area (SHN, 2013a).

Reconnaissance-level field surveys were conducted by SHN to evaluate the presence or absence of the habitat necessary for the special-status animal species. The assessment in the study area included an onsite inspection, conducted on foot on July 26, 2012. Additional site visits on August 16 and 17, 2012, September 7, 2012, and October 5, 2012 were conducted during a wetland delineation. The reconnaissance-level field surveys were adequate to provide a thorough inspection of the study area. In particular, the value of the site for its potential to attract and support the presence of native bird species that could use the site for nesting and/or foraging was evaluated.

Invertebrates

The host plant for the Oregon silverspot butterfly (*Speyeria zerene hippolyta*) is found onsite, but the Oregon silverspot butterfly has not been observed (Falxa, 2012). In order to proceed with the Federal Endangered Species Act (FESA) consultation, focused surveys are required (Mitigation Measure No. 4). In the absence of a specific protocol by USFWS, a site-specific protocol for surveys has been developed in coordination with USFWS. During these surveys all other butterflies, including the Yontocket ringlet butterfly, will be documented. If the Oregon silverspot butterfly is observed, consultation with USFWS will be conducted in compliance with the FESA.

There is the potential for the project to impact populations of the state special invertebrates Yontocket ringlet butterfly and Rocky coast Pacific sideband snail, which have been previously documented. However, no further coordination is recommended because these species do not have legal protective status. Any occurrence of the Yontocket ringlet butterfly (*Coenonymapha tullia yontockett*) or Rocky coast pacific sideband snail (*Monadenia fidelis pronotis*) is encouraged to be reported to CDFW. Voluntary actions help prevent further decline of species populations and help to avoid the potential need for future listing.

Amphibians

The project does not propose any direct impact to breeding habitat of the northern red-legged frog (*Rana aurora aurora*). However, during construction there could be impacts to this species due to water quality. Implementation and compliance with the general permit for stormwater discharges associated with construction and land disturbance activities (National Pollutant Discharge Elimination System Permit No. CAS000002, Order No. 2009-0009-DWQ) will reduce potential impacts to water quality.

Birds

The coastal shoreline and adjacent shrub and grasslands provide foraging and/or reproductive habitat for birds. Adjacent bluffs provide habitat for species including the American peregrine falcon (*Falco peregrinus*). Because birds could potentially nest within the grassland or nearby trees and shrubs that occur in and adjacent to the project area there is a potential for construction-related impacts to nesting birds, including migratory birds subject to the Migratory Bird Treaty Act, and

native birds protected under California Fish and Game Code (CFGF) Section 3503. Construction activities within the study area could cause nest abandonment and/or loss of eggs or young. Nests of native birds are protected under the CFGF (Section 3503) and destruction of an active nest or eggs would represent a significant impact. Disturbance that results in the abandonment of an active nest is also considered a significant impact. Avoiding the nesting season or implementing pre-construction nesting bird surveys would reduce potential impacts on nesting birds (Mitigation Measure No. 5).

(b) Less than Significant with Mitigation Incorporated: The following special-status natural communities that are included on the *List of Vegetation Alliances and Associations* (CDFW, 2010) are found within the project area (see Figure 7, Appendix A for locations):

- *Pinus contorta* ssp. *contorta* Forest Alliance–Beach Pine Forest
- *Abronia latifolia*–*Ambrosia chamissonis* Herbaceous Alliance–Dune Mat¹
- *Calamagrostis nutkaensis* Herbaceous Alliance–Pacific Reed Grass Meadows

Except for the portions of the site that include the old road bed, ruderal vegetation, and the parking lot, the entire site can be considered a special-status natural community or environmentally sensitive habitat area, as defined by the California Coastal Commission. This is due to the presence of special-status species that are located within and adjacent to the project area.

The existing special-status natural communities and onsite environmentally sensitive habitat area at the Point St. George site currently face threats from human activities and natural vegetative successional patterns. Human-related activities include volunteer footpaths, pillaging of archaeological resources, and unlawful use of off-road vehicles. Vegetative succession has been occurring that could result in less plant diversity. This is attributed to historical disturbance regimes that included grazing wildlife and fire.

Native grasses have also been displaced by changes in land use practices, such as land development, overgrazing, and disruption of the local fire regime (fire suppression or frequency of occurrence). The *Point St. George Management Plan* recognizes that without implementation of a historical ecological disturbance, sensitive species within early successional communities are threatened. Therefore, several management recommendations were included to manage the communities.

Implementation of these management actions and a focused plan to target specific areas and species shall be prepared (Mitigation Measure No. 3). A focused management plan for invasive species removal and management, and increased habitat quality for the Western Lily will offset the losses from the impacts to natural communities. These are consistent with the management recommendations in the *Point St. George Management Plan* (2004).

The project has the potential to impact the vegetation community by spreading invasive species. Implementation of Mitigation Measure No. 6, which requires the implementation of measures to minimize the spread of noxious weeds, shall reduce impacts to less than significant.

¹ These locations are not indicated on Figure 7, because they include sensitive cultural resource sites and are confidential.

(c) Less than Significant with Mitigation Incorporated: Wetlands regulated by ACOE and wetlands that meet the requirements of one parameter (either hydric soils or hydrology or hydrophytic vegetation) have been identified within the project area (SHN, 2013b; Appendix E). As a result of the project, impacts to coastal wetlands require mitigation to compensate for the loss of biologically significant natural resources.

Based on the preliminary jurisdictional wetland determination completed by SHN in January 2013 (SHN, 2013; Appendix E) the project will impact wetlands defined by the United States Army Corps of Engineers (ACOE) and wetlands delineated by hydrophytic vegetation (one-parameter). A summary of the permanent and temporary impacts is shown in Table 6.

Table 6 Wetland Impacts Point St. George Management Area Trail and Parking Lot Project		
Habitat Type	Permanent Impacts	Temporary Impacts
ACOE jurisdictional wetlands	4,940 sq. ft. (0.11 acres)	4,706 sq. ft. (0.11 acres)
One parameter wetlands	10,405 sq. ft. (0.24 acres)	5,245 sq. ft. (0.12 acres)
Total	15,345 sq. ft. (0.35 acres)	9,951 sq. ft. (0.23 acres)
Note: These impacts assume a possible 10-ft impact of temporary impacts from construction which maybe greater than actual extent.		

A conceptual wetland mitigation and monitoring plan has been developed for the project (Appendix G). To mitigate for the loss of wetlands as required by the National Policy “no net loss” of wetlands, full implementation of the conceptual wetland mitigation and monitoring program is required. The County of Del Norte shall submit for review and written approval to the permitting agencies (ACOE, RWQCB, CDFW, and CCC) a final detailed compensatory wetlands mitigation and monitoring program designed by a qualified wetland biologist for the construction and monitoring of compensatory wetlands mitigation site(s).

Impacts to one-parameter wetlands have been delineated by hydrophytic vegetation or criteria that meet the definition of riparian vegetation pursuant to the Del Norte County General Plan Coastal Element, Local Coastal Program. Therefore, the wetland mitigation and monitoring plan developed proposes to mitigate impacts to one-parameter wetlands to a different performance standard. This includes establishment of riparian species or hydrophytic vegetation.

Implementation of the conceptual wetland mitigation and monitoring plan reduces impacts to wetlands to less than significant (Mitigation Measure No. 7).

Additionally, an ACOE Clean Water Act (CWA) §404 permit and a RWQCB §401 Water Quality Certification will be obtained prior to fill placement in wetlands. A CDFW Streambed Alteration Agreement will be obtained for removal of vegetation or fill within riparian areas. A Coastal Development Permit (CDP) permit will be obtained from the County of Del Norte prior to construction involving fill of wetlands.

((d) Less than Significant: The proposed project is not likely to interfere with the movement of any native or migratory fish or wildlife species including wildlife corridors. See above discussion in (a) regarding migratory bird species. Mitigation Measure No. 5 (preconstruction nesting bird survey) will reduce potential impacts to migratory birds to less than significant.

(e) No impact: The project does not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) No Impact: The proposed project is consistent with the policies in the Del Norte County General Plan Coastal Element (1983) and Point St. George Management Plan (2004) and will not result in an impact to other biological resources protected by County of Del Norte ordinances.

Mitigation Measure No. 2. To avoid direct impacts, a botanical survey should be conducted prior to construction to verify documented occurrences of Point Reyes bird's-beak, black crowberry, Wolf's evening-primrose, Suksdorf's wood-sorrel, sand dune phacelia, black evening crowberry, and the Siskiyou checkerbloom. The surveys shall follow the CDFW protocol for conducting focused botanical surveys.

Once the locations of these species are determined, temporary construction fencing shall be placed around the population prior to the start of construction, and shall be maintained for the duration of construction. The temporary construction fencing shall be removed once construction is complete. If avoidance is not feasible, the County of Del Norte shall offset the loss of any species through establishment of a new population. Work shall be undertaken in accordance with a mitigation and monitoring plan to be reviewed and approved in advance by the CDFW.

At a minimum, the mitigation and monitoring plan shall include the following:

- description of agency responsibilities;
- definition of specific target success criteria;
- identification of suitable mitigation areas onsite;
- description of the planting plan, including site preparation activities and post-planting maintenance actions;
- an outline of the monitoring program; and
- identification of the timeline for completion of work.

Mitigation will involve relocation of impacted species to a suitable site in the project area, as approved by CDFW. Site selection criteria shall include proximity to the coast, soil conditions, and anticipated disturbance regimes. Monitoring success shall be conducted for three years or until the success criteria are met, unless a shortened monitoring period is approved by CDFW. Supplemental plantings or other remedial measures shall be undertaken by the County as needed to meet the established success criteria.

Mitigation Measure No. 3. Annual monitoring of special-status species and natural communities shall be conducted for a 5-year period following construction of each trail segment. The surveys should follow the USFWS and CDFW protocols. A report summarizing the results shall be submitted to the CDFW, CDPR, and USFWS. Yearly photo location monitoring shall also be included to assess impacts to natural communities. Photo locations shall be established prior to construction.

If there is evidence of an adverse impact, permanent fencing shall be considered and implemented, as necessary. If, at such time that populations of rare plants or natural communities recover, fencing shall be removed.

Mitigation Measure No. 4. To proceed with FESA consultation, a USFWS-approved biologist shall conduct four surveys during a single year for the Oregon silverspot butterfly between July 15 and August 25, with at least three surveys during the average peak flight period of July 25 to August 20. Each survey shall be separated from other surveys by at least six days.

Other standards are as follows:

- Each survey for Oregon silverspot butterfly shall include all areas within 100 meters of the project area (the area that includes any proposed activities that may alter vegetation or disturb the ground).
- Surveys should include all areas within 100 meters of the project area; however, particular attention should be directed to potential nectar sources, as well as areas in which the larval host plant, the early blue violet (*Viola adunca*), is found. Commonly used nectar plants in the Del Norte area include tansy ragwort (*Senecio jacobaea*), pearly everlasting (*Anaphalis margaritacea*), gumplant (*Grindelia stricta*), seaside daisy (*Erigeron glaucus*), California aster (*Aster chilensis*), thistles (*Cirsium* spp.), and yarrow (*Achillea millefolium*).
- Each survey shall be conducted for a minimum of 4 hours, between the hours of 10 a.m. and 4 p.m., under suitable environmental conditions, which are defined as:
 - Average wind speed less than 10 miles per hour
 - Air temperature at least 60 degrees Fahrenheit
 - Cloud cover less than 25% and no precipitation or fog present
 - Vegetation dry (does not wet shoes or clothing when walking through vegetation)
- The report on survey results shall include for each survey: 1) date, 2) observer name and qualifications, 3) time and environmental conditions at start and end of each survey or transect, 4) total survey time, 5) general survey method employed, and 6) all butterfly species observed.
- If an Oregon silverspot butterfly is detected, additional items recorded shall include the number of Oregon silverspot butterfly, the exact location of each Oregon silverspot butterfly (universal transverse mercator coordinates in the North American Datum, 1983) and activities observed (such as, foraging on specific nectar plants, direction of movements). Any Oregon silverspot butterfly detection shall be reported to the USFWS Arcata Field Office within 72 hours.
- A copy of the survey report shall be sent directly to the USFWS Arcata Field Office.

If any Oregon silverspot butterfly is detected during the surveys, the project proponent shall contact the USFWS Arcata Field Office to develop appropriate mitigation measures and to determine the steps needed to ensure compliance with the FESA.

Mitigation Measure No. 5. To avoid impacts to nesting birds and/or raptors, one of the following will be implemented. Either:

- 1) conduct vegetation removal and other ground disturbance activities associated with construction during mid-August through January, when birds are not nesting; or

- 2) conduct pre-construction surveys for nesting birds if vegetation removal or ground disturbing activity is to take place during the nesting season (February 1 to August 31 for most birds). These surveys shall be conducted within 14 days of vegetation removal or construction activities initiated during the nesting season. If an active nest is located during the preconstruction surveys, CDFW and/or USFWS shall be notified, as appropriate to the species and its status. If an active nest is found within the zone of influence (within 300 feet of the limits of work), grading and construction shall be prohibited within an adequate setback, as approved by a qualified biologist in consultation with CDFW. Work within the setback will have to be delayed until after the young have fledged, as determined during surveys by a qualified biologist.

Mitigation Measure No. 6. The potential for introduction and spread of noxious weeds shall be minimized as follows:

- A. Use only certified weed-free erosion control materials, mulch, and seed.
- B. Preclude the use of rice straw in riparian areas.
- C. Limit any import or export of fill to material known to be weed free.
- D. Require the construction contractor to wash all equipment thoroughly at a commercial wash facility before entering the County. If the equipment has most recently been used within the County, cleaning is not required.

Mitigation Measure No. 7. To mitigate for the loss of wetlands, full implementation of the conceptual wetland mitigation and monitoring program is required. The County of Del Norte shall submit for review and written approval of the permitting agencies (U.S. Army Corps of Engineers, North Coast Regional Water Quality Control Board, California Department of Fish & Wildlife, and California Coastal Commission) a final detailed compensatory wetlands mitigation and monitoring program designed by a qualified wetland biologist for the construction and monitoring of compensatory wetlands mitigation site(s). The final detailed compensatory wetlands mitigation and monitoring program shall at a minimum include provisions for the creation or restoration of a minimum area based on the functions and values assessed. The following should be used in determining a suitable mitigation site:

- a. An area having significant contiguous land base for undertaking the subject replacement wetlands mitigation, as contrasted with a series of smaller detached sites, where there is the greatest likelihood that the wetland values and functions being lost at the project site can be replicated at the mitigation site;
- b. An area having similar submerged, emergent, or near-surface saturated hydrologic conditions to those on the portions of the project site (i.e., non-tidally influenced, perched and/or seasonal shallow groundwater conditions);
- c. An area having similar wetland plant community composition to those on the wetlands portions of the project area to be filled; and
- d. An area having similar soil and substrate conditions to those on the wetlands portion of the project site to be filled (uplifted marine terrace with sand dune derived coarse soil clastics).

V. Cultural Resources. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?			X	

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?		X		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X
d) Disturb any human remains, including those interred outside of formal cemeteries?		X		

Thresholds of Significance:

This initial study considers to what degree the proposed project would cause a) physical changes in known or designated historical resources, or in their physical surroundings, in a manner that would impair their significance; b) physical changes in archaeological sites that represent important or unique archaeological or historical information; c) unique paleontological resource site or unique geologic feature; or d) disturbance of human burial locations.

Discussion:

(a) Less than Significant: There are two historical resources in the vicinity of Point St. George that are listed on the National Register of Historic Places. The *Brother Jonathan* shipwreck site (NHRP Listing #02000535) is located 4.5 miles west of Point St. George. The Saint George Reef Light Station (NHRP Listing #93001373) is located on Seal Rock, 8 miles from Point St. George. According to the *Point Saint George Management Plan*, the former Coast Guard station and barracks also have historical significance (Far Western Anthropological Research Group, Inc., May 2011).

The proposed project will have no effect on the *Brother Jonathan* shipwreck site or the Saint George Reef Light Station, due to the distance between the project and the listed resources, and because the project will not detract from the ability of the resources to be viewed from shore. The project will have a less than significant impact on the former Coast Guard residence and barracks because these structures will not be demolished, destroyed, relocated, or altered, and the project will not affect the facility's immediate surroundings such that the significance of the former Coast Guard residence and barracks would be materially impaired. Therefore, the project will have a less than significant impact on historical resources defined in California Environmental Quality Act (CEQA) §15064.5.

(b) Less Than Significant with Mitigation Incorporated: An archaeological boundary testing and site stabilization plan was developed in 2011 by Far Western Anthropological Research Group, Inc. to identify cultural resources within the Point Saint George Management Area in Del Norte County, California and to provide recommendations for future management and protection of those resources. Because cultural resource locations are confidential, as is information on the contents of these sites, the management plan is not available for public review. A public summary of the cultural resources management plan has been prepared that presents the management recommendations presented in the plan in an effort to make information available to the public without breaching the required confidentiality.

There are known archaeological sites in the Point St. George Management Area that comprise the Point Saint George Archaeological District, a geographically defined area possessing a concentration of associated, important sites. The district is officially listed on the National Register of Historic Places (NRHP Listing #76000481) and the California Register of Historical Resources as the Point St. George Site (Far Western Anthropological Research Group, Inc., May 2011).

The archaeological sites are associated with prehistoric use of the area, and findings from archaeological studies at the sites have been integral to the understanding of northwestern California prehistory and history. Any activities that could result in the destruction of cultural materials in the management area are considered adverse effects as defined under the National Historic Preservation Act and CEQA.

Construction of the proposed trail at Point St. George has the potential to disturb archaeological site resources, either directly (physical damage by construction and unauthorized collection or excavation) or through erosion within the trail corridor over time (Far Western Anthropological Research Group, Inc., May 2011). The public summary of the *Archaeological Boundary Testing and Site Stabilization Plan at the Point Saint George Management Area, Del Norte County, California* includes recommendations designed to avoid or minimize impacts to cultural resources, several of which are applicable to this project and are incorporated as mitigation measures. This includes designing the trail to minimize impacts, constructing viewing platform(s), and installing signs to inform the public about the need to protect cultural resources. Signs have already been installed at entrances to the trail. These are incorporated as Mitigation Measures No. 8, 9, and 10.

In addition to the potential for impacts to known archaeological sites, there is potential for accidental discovery of cultural resources during ground disturbing activities. Therefore, during ground disturbing activities, a cultural monitor from the Elk River Rancheria and Smith River Rancheria will be present. If archaeological resources are encountered during construction activities, CDPR will execute Mitigation Measure No. 11 by halting construction and coordinating with a professional archaeologist who meets the Secretary of the Interior's Standards and Guidelines and appropriate tribal representatives so resources can be evaluated so that there is not a substantial adverse change in the significance of an archaeological resource. By implementing Mitigation Measures No. 8, 9, 10, and 11, the potential for a significant impact to archaeological resources is mitigated to a less than significant level.

(c) No Impact: No unique paleontological, geologic, or physical feature is known to exist on the proposed project site; therefore, the project will not directly or indirectly destroy a unique paleontological resource, site, or unique geologic feature.

(d) Less Than Significant with Mitigation Incorporated: The project is not expected to disturb any human remains, including those interred outside of formal cemeteries. However, implementation of Mitigation Measure No. 12 has been included in the event that human remains are accidentally discovered during construction.

Mitigation Measure No. 8. Design trail to minimize impacts to archaeological resources. If the trail goes through any portion of a cultural resource, site protection shall be undertaken through construction of boardwalks or the use of gravel or wood chips to cover the trail bed. No excavation of the trail into native soil shall occur in these areas. Since any excavation within known site boundaries represents an adverse impact to the site, no signs or other trail markers shall be installed within recorded site boundaries.

Mitigation Measure No. 9. Construction of viewing platform(s). To lessen the potential for erosion of archaeological sites caused by visitor use and foot traffic, a viewing platform shall be constructed wherever the trail enters a site. The platforms shall be pre-fabricated and placed on top of sterile fill at the crest of the dune. The trail to such platforms shall be filled with gravel or wood chips to prevent additional erosion.

Mitigation Measure No. 10. The Elk River Rancheria and Smith River Rancheria will be on site during all ground disturbing activities. Forty-eight hour notice shall be provided prior to any ground disturbing activity. If cultural resources are encountered during construction operations, Mitigation Measure No. 11 shall be implemented to the satisfaction of local tribal interests, Native American Heritage Commission (NAHC), and the County. The costs incurred for the cultural monitor during construction operations are the responsibility of the County.

Mitigation Measure No. 11. If cultural resources, such as chipped or ground stone or bone are discovered during ground-disturbance activities, work shall be stopped within 20 meters (66 feet) of the discovery, as required by CEQA (January 1999 Revised Guidelines, Title 14 CCR 15064.5 (f)).

Work near the archaeological finds shall not resume until a professional archaeologist who meets the Secretary of the Interior's Standards and Guidelines and appropriate tribal representatives have evaluated the materials and offered recommendations for further action.

Mitigation Measure No. 12. If human remains are discovered during project construction, work will stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie human remains (Public Resources Code, Section 7050.5). The Del Norte County coroner will be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of Native American origin, it will be necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the NAHC (Public Resources Code, Section 5097). The coroner will contact the NAHC. The descendants or most likely descendants of the deceased will be contacted, and work will not resume until they have made a recommendation to the landowner or the person responsible for the excavation work for means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98. Work may resume if NAHC is unable to identify a descendant or the descendant failed to make a recommendation.

VI. Geology and Soils. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?			X	

Thresholds of Significance:

This initial study considers project-related effects that could involve: a) damage to project as a result of fault movement along a fault zoned by the State under the Alquist-Priolo Act or other known faults, strong seismic ground shaking, secondary seismic effects including liquefaction), or landslides; b) excessive soil erosion resulting from project; c) project-derived instability of earth materials that could subsequently fail, damaging structures or environmental resources on proposed development; d) location of project elements on expansive soils that may be damaging to existing structures; or e) have soils inadequate of supporting septic tanks or alternative wastewater disposal systems.

Discussion:

(a)

(i) No Impact: There is no known active fault passing through the project area, and there is no fault in Del Norte County that is zoned as active by the state according to the guidelines of the Alquist-Priolo Act (Questa Engineering Corporation, 1991). Therefore, there is no risk that the proposed project will be subject to surface fault rupture.

(ii) Less than Significant: Common to Del Norte County, the Crescent City area is subject to strong ground shaking from a variety of active seismic sources (Questa Engineering Corporation, 1991). Because the strong shaking hazard that could occur in the area is essentially consistent with the hazard throughout coastal Del Norte County, and because the proposed project will expose no additional structures or people to the shaking hazard, the potential impact associated with the project is less than significant.

(iii and c) Less than Significant: Because the project is located on young, unconsolidated alluvium, there is a potential liquefaction hazard that may occur during strong earthquakes. The adverse effects of liquefaction include local and regional ground settlement, ground cracking and expulsion of water and sand, the partial or complete loss of bearing and confining forces used to support loads, amplification of seismic shaking, and lateral spreading. Because the proposed project does not include structures the potential to expose people or structures to adverse effects associated with liquefaction is considered to pose a less than significant impact.

(iv and b) Less than Significant: SHN's geologists reviewed readily available geologic mapping and reports pertinent to the project area, and have conducted a time-series aerial imagery review from information available on Google Earth and the California Coastal Records Project (<http://www.californiacoastline.org/>). The following are the results of that investigation.

Coastal bluff exposures indicate the project area to be underlain by Jurassic to Cretaceous age Franciscan Complex bedrock, Pliocene age St. George formation, and Pleistocene age Battery formation (Division of Mines and Geology, 1982). Recent colluvial deposits composed of weathered slope wash debris derived primarily from Franciscan Complex rocks form aprons of talus along the base of the bluff exposures.

Franciscan Complex bedrock is present in the northern part of the project area and continues south to the northern end of Pebble Beach. Franciscan Complex bedrock consists of consolidated arkosic sandstone with some shale and minor amounts of chert, conglomerate, and greenstone; it is present at beach level and extends part way up the bluff face, where it is buried by Quaternary age marine sediments. Franciscan rocks are relatively resistant in the project area and generally underlie the areas of higher elevation. The resistance to erosion has resulted in an irregularly shaped coast line with small offshore islands and sea stacks. As a result, the rate of coastal bluff erosion is likely to be very low.

Overlying Franciscan Complex bedrock in the northern end of the project area and in the southern part of the area along Pebble Beach, is St. George Formation material consisting of consolidated massive marine siltstone and shale with thin beds of sand and scattered pebbles. Along the northern end of Pebble Beach, bedding attitudes strike northwestward and dip to the northeast, into the bluff face, from 8- to 15-degrees. The portion of coastal bluff underlain by St. George formation along Pebble Beach is characterized by a curvilinear sea cliff in plan view. Minor irregularities to the plan shape of the bluff edge are present where gully wash has resulted in discrete zones of bluff retreat on the order of ten feet or less.

Younger marine terrace deposits, locally referred to as the Battery Formation, overlie both Franciscan Complex bedrock and St. George Formation, and form the broad, low relief surface to the east of the project area. Battery Formation consists of unconsolidated medium-grained quartz sands alternating with silty clay and imbricated gravels, which were deposited in a nearshore marine environment. Overlying the entire sequence is a thin veneer of loose, eolian (wind blown) silt that varies in thickness from about 1 to 4 feet.

The beach and surf zone within the project area may be classified as a dissipative system, consisting of a low-angle beach face adjacent to a broad, low-gradient surf zone. Beach cusps are generally absent along the coastline in the project area, further supporting the classification as a dissipative nearshore system. In a dissipative system, wave energy is expended offshore, where energy is lost in turbulence as waves break over outer bars and sea stacks.

Due to the resistant nature of bedrock materials in the lower bluff face and the dispersive effect of offshore sea stacks (dampening wave energy), the potential for significant bluff retreat along the subject coastline is relatively low. Unlike other coastal bluffs in northern California that are subject to high retreat rates, bluff retreat in the environment within the project area is not primarily driven by "bottom up" erosion (that is, undercutting by waves at the bluff toe leads to an overhanging or oversteepened bluff face and collapse of the overlying terrace sediments). Rather, the bluff in the project area is subject to "top down" erosion driven by surface runoff and down-cutting where runoff becomes concentrated. "Top down" erosion typically occurs at a much slower rate, and can typically be mitigated by controlling the nature of surface runoff.

Based on SHN's review of Google Earth imagery spanning 1988 to 2010, and review of oblique aerial photographs available from the Coastal Records Project spanning 1972 to 2009, it appears that no significant change of the coastline position has occurred within the project area. Both the beach back edge and bluff edge positions have remained relatively stationary over the period assessed. The distance from the bluff edge to the existing undeveloped pedestrian trail, visible in the 1988 Google Earth imagery and 1972, appears to have remained relatively constant. Other distinct features, including prominent bedrock outcrops and the beach access roads to former quarry sites within the central portions of the project area have remained relatively unchanged. No evidence of coastal bluff undercutting, catastrophic slope failure, and/or episodic bluff retreat was observable, indicating that the coastal bluff system within the project area is generally associated with low retreat rates.

As currently proposed, the coastal bluff trail appears to be sited an adequate distance from the bluff edge so that it will not contribute to future bluff erosion over the design life of the new developments. In this case, design life is assumed 75 years based on the Coastal Commission memorandum about establishing development setbacks from coastal bluffs (California Coastal Commission, 2003). On the basis of the aerial imagery review, the rate of bluff erosion appears very low. Based on existing site conditions, any future erosion of the bluff edge will likely be localized consisting of minor sloughing and/or gully erosion where concentrated surface runoff is directed across the top of the bluff.

There is the potential for erosion and landslides if storm water is not addressed, but the conceptual design created by State Parks staff includes drainage lenses and soldier pile walls designed to manage erosion from storm water. With proper building techniques as described in the CDPR Trail Handbook and as designed by State Parks staff, any concern is minimized. Additionally, the project will not result in substantial erosion or loss of top soil or the creation of new unstable areas either on or off site due to physical changes in bluff configuration.

(d) No Impact: The proposed project is located in a geologic terrain lacking in expansive soils; therefore, expansive soils pose no impact to the site.

(e) Less than Significant: The project does involve the installation of a bathroom in the northern parking lot. The use of a septic or vault system will be used. The appropriate permit from the Del Norte County Environmental Division will be obtained if a septic system is installed. If the soils are not capable of supporting a septic system, then a vault system will be implemented.

VII. Greenhouse Gas Emissions. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Thresholds of Significance:

This initial study considers project-related effects that could involve: a) generate significant greenhouse gases that would significantly impact the environment damage; and b) conflict with an applicable plan, policy for the purposes of reducing emissions of greenhouse gases.

Discussion:

(a and b) Less than Significant: California has passed Assembly Bill 32, mandating a reduction in greenhouse gas (GHG) emissions and Senate Bill 97, evaluating and addressing GHG under CEQA. At this time, it is not clearly understood how to evaluate a project's production and contribution of GHG because thresholds have not been set by the California Air Resources Board or NCUAQMD. Nor has the County established thresholds of significance or adopted plans, policies, or regulations for the purpose of reducing GHG.

In an attempt to quantify this impact, project staff evaluated how the project would contribute to GHG emissions as a result of construction and long-term impacts. The construction of the proposed project and yearly maintenance would contribute temporary, short-term increases in air pollution from equipment usage and construction materials. However, the project does not propose the use of heavy equipment.

Transportation is easily one of the large contributors to GHGs in the state. However, the project does not propose a new use to the Point St. George Management Area. Post construction (operational) activities associated with the proposed project would not change from preconstruction conditions. Thus, existing traffic to the Point St. George will not change significantly and result in a permanent increase of GHG. Furthermore, Del Norte County is a rural county with approximately 28,659 people (United States Department of Commerce, 2012). Even if additional traffic occurs as a result of the project, it is not likely to contribute significantly to the state levels of GHG.

Because of the temporary nature of the GHG during construction, coupled with the modest quantity of emissions once construction is completed, the proposed project impacts to GHG emissions is less than significant.

VIII. Hazards and Hazardous Materials. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		X		
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		X		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			X	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			X	
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
g) Impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized area or where residences are intermixed with wildlands?			X	

Thresholds of Significance:

This initial study considers to what degree the proposed project would involve: a) potential storage or use, on a regular basis, of chemicals that could be hazardous if released into the environment; b) operating conditions that would be likely to result in the generation and release of hazardous materials; c) use of hazardous materials, because of construction-related activities or operations, within a quarter-mile of an existing or proposed school; d) being located on a site listed as hazardous pursuant to Government Code Section 65962.5; e) a project-related increase in use intensity by people within the boundaries of, or within two miles of, the Airport Planning Areas; f) a safety hazard for people working within and adjacent to a private airstrip; g) project-derived physical changes that would interfere with emergency responses or evacuations; or h) potential major damage because of wildfire.

Discussion:

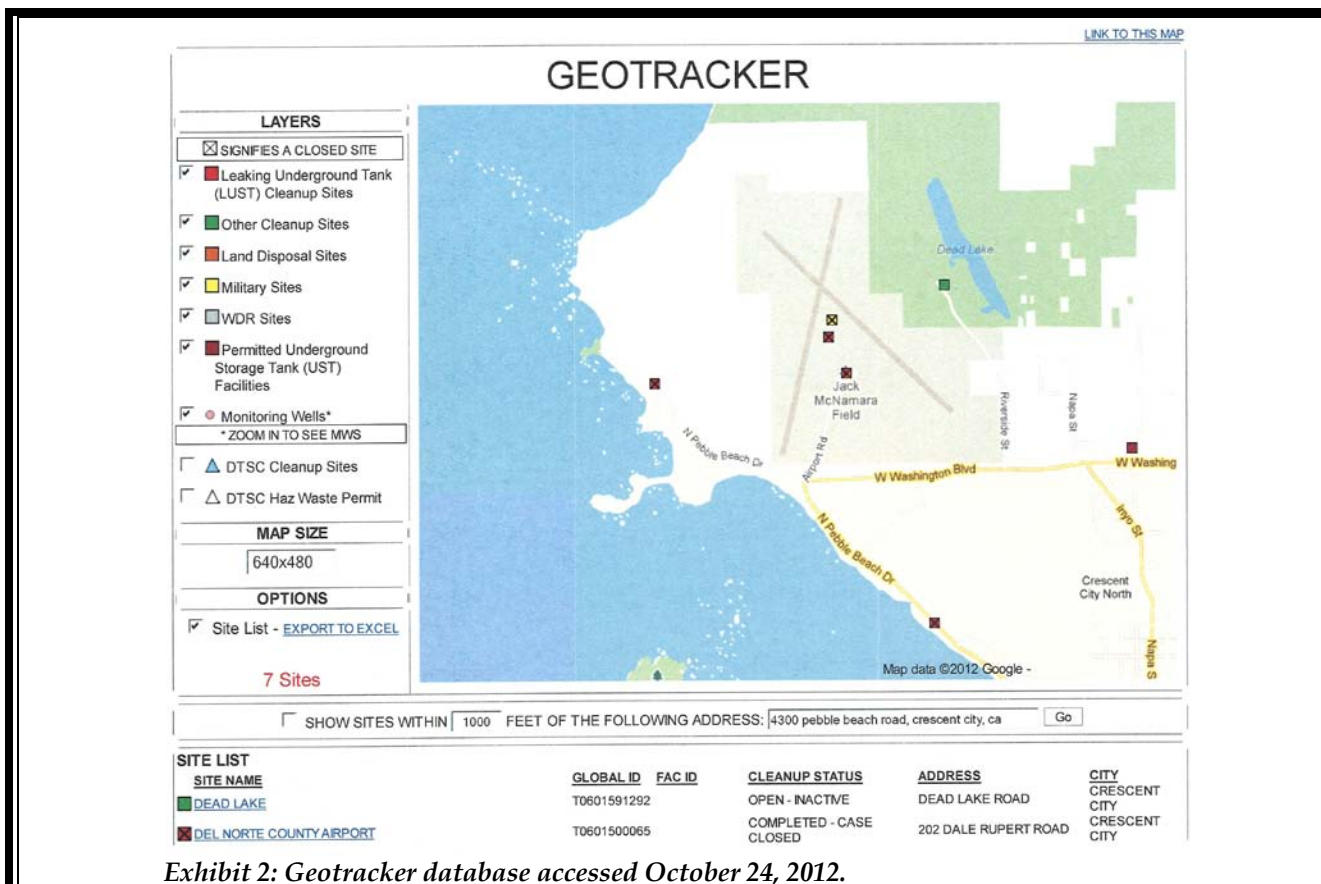
(a and b) Less than Significant with Mitigation Incorporated: The proposed project does include the use of regulated materials (such as, petroleum hydrocarbons, fuels, and lubricants) for the use of mechanized equipment during construction. A spill prevention control and countermeasure plan (SPCC Plan) will be developed and implemented throughout construction. As part of the SPCC Plan, absorbent materials will be stored on site and all jobsite employees will be trained to deal with spills in the event of an accidental release. The SPCC Plan will specify that fueling of construction equipment shall occur in designated areas, away from biological resources. By implementing Mitigation Measure No. 13, the potential for a significant impact resulting from the accidental release of a hazardous substance is mitigated to a less than significant level.

(c) No Impact: The project is not located within one-quarter mile of an existing or proposed school. Therefore the proposed project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

(d) Less Than Significant: The California Envirostor database was queried for hazardous materials sites pursuant to Government Code Section 65962.5 (<http://www.calepa.ca.gov/SiteCleanup/CorteseList/SectionA.htm>). The project is not located on a listed hazardous materials site; however a listed site is located adjacent to the project site within approximately 300 feet of the proposed trail corridor.

Del Norte Pesticide Storage is a 20-acre site, located approximately 450 feet from the trail corridor at 2650 W. Washington Blvd, Crescent City on APNs 110-010-22 and 120-020-36. Del Norte County operated a pesticide container storage facility from 1970 to 1981. The facility was intended to serve as a County-wide collection point for interim or emergency storage of pesticide containers generated by local agricultural and forestry related industries. From 1981 to 1983, the California Department of Health Services, Toxic Substances Control Division (predecessor to DTSC) and the California Regional Water Quality Control Board, North Coast Region (RWQCB) conducted inspections and investigations. RWQCB issued a Cleanup and Abatement Order in October 1981 and DTSC issued a letter of warning in March 1983, requiring the County to clean up the site. The U.S. Environmental Protection Agency (EPA) added the site to the Federal Superfund List in 1983 because of the County's inability to fund investigation and cleanup. The EPA assumed responsibility as the lead agency. All remedial work has been implemented and DTSC assumed lead agency status after 10 years of operations and maintenance activities. The Envirostor database listing notes that groundwater and soil may be potentially affected at the Del Norte Pesticide Storage Site. Certain land uses are restricted on the Del Norte Pesticide Storage Site; the site is currently a Hertz Rent a Car business. The proposed project site is located adjacent to the Del Norte Pesticide Storage Site, but is not itself located on a listed site, and the Envirostor database doesn't show any restrictions on adjacent sites. Therefore, implementation of the project will not create a significant hazard to the public or the environment.

The State Water Resources Control Board's GeoTracker website (<http://geotracker.waterboards.ca.gov/>) was queried. GeoTracker provides access to statewide environmental data and tracks regulatory data. GeoTracker did not report the Del Norte Pesticide Storage (2650 W. Washington Blvd) previously discussed. GeoTracker reported two leaking underground storage tank (LUST) cleanup sites and a military cleanup site at the airport (all closed) and a LUST cleanup site (closed) on Point St. George Road in the vicinity of the trail corridor (Exhibit 2). Because these sites are closed and the project does not propose ground disturbing activities in the vicinity of the reported LUST site, the project will not create a significant hazard to the public or the environment from hazardous materials during construction or use of the trail.



(e) Less than Significant: The project site is located within two miles of a public airport, being located directly adjacent to the Del Norte County Airport, also known as Jack McNamara Field. The airport has not adopted an airport land use plan (pers. comm. Heidi Kunstal, October 24, 2012). The project does not change the existing land use types or intensity, therefore the project will have a less than significant impact on a public airport or result in a safety hazard for people residing or working in the project area.

(f) No Impact: There is no private airstrip located within the vicinity of the proposed project, therefore the proposed project would not result in a safety hazard in regard to private airstrips.

(g) No Impact: The project will not impair the implementation, or physically interfere with, an adopted emergency response plan or emergency evacuation plan because the proposed project will not result in a delay or interruption in service.

(h) Less Than Significant: The proposed project does not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. There is the potential that prescribed burn will be implemented as part of the vegetation management strategies for mitigation to natural communities. There are only a few structures located near the parking lot in the project area that could be impacted by a prescribed burning. All burning will be conducted in accordance with NCAQMD regulations, which will require appropriate methods for fire control. This includes prescribed burning on certain air quality and wind speed days.

Mitigation Measure No. 13. In order to reduce the potential of accidental release of regulated materials, a spill prevention control and countermeasure plan (SPCC Plan) will be developed and implemented throughout construction. As part of the SPCC Plan, absorbent materials will be stored on site and all jobsite employees will be properly trained to deal with hazardous material spills in the event of an accidental release. All fueling will be conducted in designated areas.

IX. Hydrology and Water Quality. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?		X		
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?			X	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?			X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?				X
f) Otherwise substantially degrade water quality?		X		
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary of Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk or loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Result in inundation by seiche, tsunami, or mudflow?			X	

Thresholds of Significance:

This initial study considers to what degree the proposed project would involve: a) potential discharges, including sediment, that would violate basin plan standards or waste discharge requirements associated with NPDES permit; b) substantial change in groundwater movement,

potential uses, or quality; c) substantial increase in siltation or erosion from erosion from concentrated runoff; d) substantial increase in runoff with the potential for localized flooding; e) substantial increase in runoff that would cause drainage problems, or a runoff increase that could carry pollutants to surface waters; f) substantial degradation of water quality; g) project-related effects with placement of housing in a Federal Emergency Management Agency (FEMA)-designated 100-year flood hazard area; h) project facilities that would affect flood flows or be affected by flood flows; i) project-related effects that would involve flooding as the results of the failure of a levee or dam; and j) project-related effects that would result in inundation by seiche, tsunami, or mudflow.

(a) Less than Significant with Mitigation Incorporated: The proposed project includes land disturbance activities. During construction, storm water discharges associated with the proposed project will require coverage under the general permit for stormwater discharges associated with construction and land disturbance activities (NPDES Permit No. CAS000002, Order No. 2009-0009-DWQ). Construction and land disturbance activities are defined as clearing, grading, or excavating activities that disturb one or more acres of land, or activities that result in soil disturbances of less than one acre but are part of a larger common plan of development that encompasses one or more acres of land disturbance. Compliance with the general permit during construction activities will require developing and implementing a storm water pollution prevention plan (SWPPP) that specifies best management practices (BMPs) for preventing pollutants from contact with storm water and controlling erosion during construction activities. In the event a waiver from the general permit is granted, a SWPPP will not be necessary. However, due to the sensitivity of biological resources, an erosion and sediment control plan to protect water quality shall be developed and implemented, in the event a SWPPP is not prepared (Mitigation Measure No. 14).

Implementation of the SWPPP or erosion and sediment control plan during construction will ensure that storm water discharges from the project site are managed in accordance with existing waste discharge requirements and water quality standards for storm water discharges associated with construction activity.

(b) No Impact: The project does not include activities that would affect groundwater supply or recharge.

(c and d) Less Than Significant: The project does not propose to alter drainage patterns in the project area directly because no structures are proposed directly within drainages. Two clear span bridge crossings over small drainages, four puncheon structures across drainages or gullies, and a floating boardwalk in the wettest areas are proposed. These activities will avoid impacts to resources. The proposed trail corridor does include fill of wetlands identified as discussed in the biological resources section. Because the project includes fill material within a vegetated landscape, the result of flooding off site is limited.

(e) Less than Significant: The project will not create or contribute runoff that would exceed the capacity of an existing or planned drainage system. During construction, there is the potential for stormwater runoff to transport pollutants, such as, sediment or other constituents; however, implementation of Mitigation Measure No. 14 will ensure the project will not provide a source of polluted runoff.

(f) Less than Significant with Mitigation Incorporated: The proposed project is not expected to degrade water quality substantially, if project construction activities are covered under the general permit for stormwater discharges associated with construction and land disturbance activities, or alternatively, if an erosion and sediment control plan is implemented for the project (Mitigation Measure No. 14) and appropriate BMPs are implemented following project construction.

(g) No Impact: The project does not involve the placement of housing.

(h) No Impact: The project will not be located in a FEMA-designated floodplain area (Del Norte County, CA Community Panel No. 06015C0213 F; Del Norte County, CA Community Panel No. 06015C0195 E).

(i) No Impact: The project is not located in an area that would result in flooding from the failure of a levee or dam.

(j) Less than Significant: Portions of the proposed project are located within an established tsunami zone (CalEMA, 2009). The trail will not directly expose people to hazards associated with a tsunami event; however, there is the possibility of danger to people within the project area during an event. Evacuation plans have been developed by the County of Del Norte (County of Del Norte, 2010). This includes preparing for an evacuation response with sirens and location of evacuation routes. Tsunami impact to the area is essentially consistent with the hazard throughout coastal Del Norte County, and because the proposed project does not propose any structures, the potential impact associated with the project is less than significant.

A mudflow is an unlikely event in the project area due to the proposed location of the trail near the bluff. There is no potential for seiche in the project vicinity.

Mitigation Measure No. 14. Compliance with the general permit for construction and land disturbance activities (NPDES Permit No. CAS000002, Order No. 2009-0009-DWQ) is required by the State of California. In the event project activities qualify for an exemption, implementation of the erosion and sediment control plan is required to reduce potential impacts associated with water quality to a less than significant level. The applicant shall ensure that no construction materials, debris, or waste be placed or stored where it may be subject to dispersion by storm water. Any and all debris resulting from construction activities shall be immediately removed following completion of construction; concrete trucks and tools used for construction shall be rinsed at the specified wash-out area(s); and staging and storage of construction machinery and storage of debris shall not take place on any public street rights-of-way. Best management practices (BMPs) will ensure that any surface water runoff commingling with potential storm water contaminants will be minimized and prevented from entering storm water infrastructure.

X. Land Use and Planning. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X	
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

Thresholds of Significance:

This initial study considers to what degree the proposed project would a) divide an established community or conflict with existing land uses within the project's vicinity, such as, commercial establishments; b) conflict with the California Coastal Act, with Del Norte County designation, policies, and zoning ordinances, or with the *Point Saint George Management Plan*, which was prepared by the County of Del Norte and the State Coastal Conservancy; and c) conflict with applicable environmental plans and protection measures enforced by regulatory agencies that have jurisdiction over the project, such as sensitive species and biologically significant habitats.

Discussion:

(a) No Impact: Due to the nature of the proposed project, it would not divide an established community.

(b) Less than Significant: The project is located in the coastal zone and subject to the coastal development permit process of the California Coastal Commission, Del Norte County zoning and general plan requirements of the Del Norte County General Plan Coastal Element (1983). Additionally, the *Point Saint George Management Plan* was adopted by the County of Del Norte and the State Coastal Conservancy on January 27, 2004.

The following is a review of the proposed project with regard to the policies of the California Coastal Act, the Del Norte County General Plan Coastal Element, and the *Point Saint George Management Plan*.

California Coastal Act of 1976

Section 30233(a) of the Coastal Act specifies that,

...the diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:
...(7) Nature study, aquaculture, or similar resource-dependent activities.

And Section 30233(c) of the Coastal Act specifies that,

In addition to the other provisions of this section,... filling ... in existing... wetlands shall maintain or enhance the functional capacity of the wetland.... Any alteration of coastal wetlands identified by the Department of Fish and Game... shall be limited to very minor incidental public facilities, restorative measures, nature study... if otherwise in accordance with this division.

The project proposes to fill wetlands within the coastal zone, but the project fits within one of the allowable uses of fill under Section 30233(a) of the Coastal Act. The trail is intended for the enjoyment and study of nature by the public. The proposed trail corridor and route were developed in coordination with the CDPR, Coastal Conservancy, Elk River Rancheria, and Smith River Rancheria. Mitigation measures have been identified and incorporated into the project that will mitigate potentially significant effects to a less-than-significant level. The proposed mitigation plan to compensate for the filling of wetlands has been determined to maintain and enhance the functional capacity of the wetland. Therefore the project does not conflict with the existing California Coastal Act.

Del Norte County General Plan Coastal Element (1983)

The public access section of the LCP identifies planning issues and specific policy recommendations for Point St. George even though coastal permitting is conducted by the California Coastal Commission. Because the LCP addresses planning issues for the Point St. George Management Area a review of the proposed project consistency has been conducted.

The LCP section on Point St. George includes the following discussion of planning issues: *"Purchase of development rights is being considered for 760 acres in this area by U.S. Fish & Wildlife Service."*

Recommendations regarding the Point St. George area are as follows:

- (1) *Before costly improvements the County should await the outcome of acquisition in this area;*
- (2) *Due to the fragile nature of rocky habitats and bluff faces in this area access should be directed north towards the sandy beaches; and*
- (3) *The State should investigate the prescriptive rights issue for access points off Radio Road and, if feasible, acquire and maintain these for public use*
(County of Del Norte, 1983).

It is assumed that some of the lands within the Point St. George Management Area were privately owned in 1983 when the LCP was written. With the exception of APN 110-010-07, which is still privately owned and not a part of this project, the lands within the Point St. George Management Area are now owned by public agencies (CDPR, CDFW, and County of Del Norte). Therefore, recommendations 1 and 3 are deemed to be no longer applicable. The project is deemed not to conflict with recommendation 2 because the project does not direct access onto rocky habitats or bluff faces. Rather, access is directed along the top of the bluffs. Existing access toward sandy beaches is unaffected.

The "Visual Resources" section of the LCP identifies Point St. George as one of seven visual resource inventory areas. See "Section 1: Aesthetics" above for a discussion of the project's consistency with County policies on aesthetics.

The "Land Use" section of the LCP identifies a specific area recommendation that is applicable to this project:

(9) The State, the Bureau of Land Management and the County shall cooperate on establishing a limited walkway access westerly from the existing parking lot at Point St. George. The agricultural use of the lands may be continued on a lease basis. Should this agricultural use be discontinued, limited day use facilities may be considered.

The project does establish walkway access westward from the parking lot at Point St. George. The agricultural use of the lands has been discontinued, and the proposed trail and parking lot improvements represent limited day-use facilities. Therefore the proposed project is consistent with recommendation (9) above.

Point Saint George Management Plan

The *Point Saint George Management Plan* includes a variety of management actions that are intended to balance the protection of sensitive resources with the provision of public access (County of Del Norte, 2004). The proposed project itself is described as one of the management actions. The conceptual design is consistent with the management actions described in the *Point Saint George Management Plan*.

(c) No Impact: No habitat conservation plan or natural community conservation plan has been adopted for the area that encompasses the site, therefore no impact is anticipated and no mitigation is considered necessary.

XI. Mineral Resources. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Thresholds of Significance:

This initial study considers to what degree the proposed project would interfere with the extraction of commodity materials or otherwise cause any short-term or long-term decrease in the availability of mineral resources that would otherwise be available for construction or other consumptive uses.

Discussion:

(a and b) No Impact: On-site soils and geologic resources are not suitable as commodity materials that would be of value to the region or the state. The site is not designated as an important mineral resource recovery site by a local general plan, specific plan, or other land use plan.

XII. Noise. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Expose persons to or generate excessive ground borne vibration or ground borne noise levels?		X		
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			X	
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

Thresholds of Significance:

This initial study considers whether the proposed project would produce: a) sound-pressure levels contrary to County noise standards; b) long-term ground vibrations and low-frequency sound that would interfere with normal activities and is not currently present in the project area; c) changes in noise levels that are related to operations, not construction related, which will be perceived as permanent increased ambient or background noise in the project area; d) a substantial short-term increase in ambient sound pressure levels; e) exposure of persons within 2 miles of a public airport to excessive noise levels; or f) exposure of persons within the vicinity of a private airstrip to excessive noise levels.

Discussion:

(a) Less than Significant: Noises generated by the proposed project will result in temporary, but not permanent noise increases. The County of Del Norte does not have a general plan policy or ordinance that addresses construction noise.

(b) Less than Significant with Mitigation Incorporated: Noises generated by the proposed project will result in a temporary noise increase during construction. The proposed project will require the use of heavy equipment (excavator and backhoe) during construction. The construction does not include activities that would result in groundborne vibration (such as, pile driving). However, there is a residence within the vicinity of the project and incorporating Mitigation Measure No 15, limiting construction to daylight hours, Monday through Saturday will reduce the exposure of noise when it would be most annoying to the general public (evenings and weekends).

(c) Less than Significant: Noises generated during construction operations will be short-lived and temporary in nature. Given that the trail corridor is already used as a trail, the project is not likely to increase ambient noise levels. Additional pedestrian traffic may result, but this is not the type of activity that would create a substantial permanent increase in ambient noise above existing levels.

(d) Less than Significant with Mitigation Incorporation: The highest noise levels generated by the project would result from use of heavy machinery during construction activities; however, increase in noise levels will be temporary and will not be present after the completion of the project. Limiting the hours of operation to daylight hours can mitigate the potential impacts resulting from increased noise during construction, by reducing potential impacts to residential landowners in the vicinity who expect relative peace and quiet in the evenings and on weekends. Mitigation Measure No. 15 limits the hours of construction to daylight hours, Monday through Saturday. Although a temporary increase in ambient noise levels will occur in the project vicinity during construction periods, it will be reduced to a level considered less than significant when Mitigation Measure No. 15 is implemented.

(e) Less than Significant: The project site is located within two miles of a public airport, being located directly adjacent to the Del Norte County Airport, also known as Jack McNamara Field. The airport has not adopted an airport land use plan (pers. comm. Heidi Kunstal, October 24, 2012). The project does not change the existing land use types or intensity, therefore the project will have no impact on a public airport or expose people residing or working in the project area to excessive noise levels.

(f) No Impact: The project area is not located within the vicinity of a private airstrip. Therefore, any noise generated during construction will have no impact on people residing or working in the vicinity of a private airstrip.

Based on the discussion above and by implementing the mitigation measure below, the proposed project will not result in an adverse impact from noise.

Mitigation Measure No. 15. Hours of construction activities shall be limited to daylight hours, Monday through Saturday, from 6:00 a.m. to 6:00 p.m., with no work conducted during federal or state holidays unless prior approval is given by the County of Del Norte.

XIII. Population and Housing. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and/or businesses) or indirectly (e.g., through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

Thresholds of Significance:

This initial study considers to what degree the proposed project would result in or contributes to: a) population growth; b) displacement of housing units, demolition, or removal of existing housing units; or c) any project-related displacement of people from occupied housing.

Discussion:

(a–c) No Impact: The project does not involve residential or commercial development, or infrastructure that would support residential or commercial development. Therefore, the project would not induce substantial growth or displace existing housing or people that would necessitate replacement housing.

XIV. Public Services. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Fire protection?				X
b) Police protection?				X
c) Schools?				X
d) Parks?				X
e) Other public facilities?				X

Thresholds of Significance:

This initial study considers to what degree the proposed project would adversely affect: a) fire protection; b) police protection; c) schools, d) parks, and e) other public facilities

Discussion:

(a through e) No Impact: The proposed project consists of development of a trail. These changes do not induce population growth; therefore the project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for public services. The proposed project will not require any new neighborhood park, or expansions to an existing park or other public facility. The project as defined will not result in an adverse impact on public services.

XV. Recreation. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

Thresholds of Significance:

This initial study considers to what degree any aspect of the proposed project would be related to demand for a) recreational facilities, or b) increase use of existing recreational areas such that those areas are physically degraded, including secondary effects (such as, degradation through over-use of environmentally sensitive areas).

Discussion:

(a-b) Less than Significant: The proposed project will have no impact on the usage of neighborhood or regional parks, such that substantial physical deterioration of the facility would occur or be accelerated by the project. The proposed project is located partially on State Park property and will by its nature facilitate the public's use of the Point St. George Management Area in accordance with the area's intended purpose. The proposed project will not require the construction or expansion of any existing recreational facility that may pose adverse physical effects to the environment. Rather, it will replace the potentially environmentally damaging network of volunteer trails that currently exist with a well-planned trail network that has been designed and conditioned to minimize the effect on the environment and to protect natural and cultural resources. Primarily, the proposed trail will be used by Del Norte County residents and tourists. Due to the size of population within Del Norte County, the potential to impact existing facilities is less than significant.

XVI. Transportation/Traffic. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				X
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				X

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that result in substantial safety risks?				X
d) Substantially increase hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e) Result in inadequate emergency access?				X
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				X

Thresholds of Significance:

This initial study considers to what degree, if any, the proposed project would be associated with a) changes in traffic, circulation, or other changes that might be perceived as adverse traffic effects resulting from temporary construction-related changes; b) any project related changes in level-of-service on County or state roads or highways; c) safety risks associated with changes in air traffic patterns; d) hazards due to design features or incompatible uses; e) project-associated travel restrictions that would prevent emergency vehicles from reaching the location where they are needed; or f) conflicts with adopted policies, plans, or programs regarding public transportation, bicycle or pedestrian facilities, or with decreases in the performance or safety of such facilities.

Discussion:

(a and b) No Impact: Due to the nature of the project, there will be no increase in vehicular trips, therefore there would be no conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system or an applicable congestion management program.

(c) No Impact: The proposed project does not involve a change to air traffic, therefore there would be no impact to air traffic patterns.

(d) No Impact: The project does not include building a road, therefore the project will not increase hazards due to a design feature or incompatible uses. The parking lot improvements are in the same location as the existing one and will not create a hazard due to design features.

(e) No Impact: The project does include any change to emergency access currently received at the site. Emergency access is possible in several places along the trail corridor, if necessary.

(f) No Impact: The project would have no conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. If anything, the proposed trail and parking lot improvements will increase the safety of public users compared to the current facilities.

XVII. Utilities and Service Systems. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
d) Have insufficient water supplies available to serve the project from existing entitlements and resources (i.e., new or expanded entitlements are needed)?				X
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
f) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?				X
g) Violate any federal, state, and local statutes and regulations related to solid waste?				X

Thresholds of Significance:

This initial study considers impacts of the proposed project as follows: a) result in expansion of existing wastewater facilities or construction of new wastewater facilities and exceeding wastewater treatment requirements established by the RWQCB; b) result in environmental effects caused by the construction of any new storm water drainage; c) result in expansion of water entitlements due to insufficient supplies for the proposed project; d) exceed the capacity of the wastewater treatment provider and/or landfill provider, thus impacting their service commitments to other customers; or e) result in the violation of any federal, state, or local solid waste regulations.

Discussion:

(a) No Impact: The proposed project does not include any change to the existing wastewater system, therefore it will not result in any impacts related to wastewater treatment.

(b) No Impact: The project does not include development that requires construction of water or wastewater treatment facilities, and therefore would have no impact on existing facilities.

(c) No Impact: The project does not require or result in the construction of new storm water drainage facilities or the expansion of any existing facility the construction of which would cause significant environmental effects.

(d through g) No Impact: The proposed project does not include development that would require a change in water rights; existing wastewater treatment; landfill capacities; or conflict with any federal, state, and local statutes and regulations related to solid waste.

XVIII. Mandatory Findings of Significance.	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects).		X		
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?				X

Thresholds of Significance:

This initial study considers impacts of the proposed project as follows; a) significant if the proposed project reduced the habitat of a fish or wildlife species, or caused a fish or wildlife species to decline below a self-sustaining population size; b) Significant if the project, in combination with other recent, current, or foreseeable future projects, created a cumulatively considerable environmental effect for one or more of the environmental issue areas discussed in the checklist, even though the project itself did not and; c) Significant if an element of the proposed project could be found to have a demonstrable opportunity of causing harm to individual human beings or groups.

Discussion:

(a) Less than Significant with Mitigation Incorporated: The project has the potential to result in significant impacts related to air quality, biological resources, cultural resources, hazards and hazardous materials, hydrology and water quality and noise. However mitigation measures have been identified which serve to reduce those potential impacts to a less than significant level. See the air quality, biological resources, cultural resources, hazards and hazardous materials, hydrology and water quality, and noise sections of this document for the relevant mitigation measures.

(b) Less than Significant with Mitigation Incorporated: The Jack McNamara Field Del Norte County Regional Airport is adjacent to the project area to the east. A terminal replacement project is underway at the airport, for which a Final Environmental Assessment/Environmental Impact Report (EA/EIR) was certified in April 2009 (State Clearinghouse Number 2006112120). The terminal replacement project will have impacts to wetlands and biological resources. Mitigation measures have been developed in the EA/EIR which mitigated that project's impacts to wetlands and biological resources to a less than significant level. However, the incremental effects on

biological resources from the terminal replacement project must be considered in the cumulative impacts discussion of the Point St. George Management Area Trail and Parking Lot Project. Because both projects have mitigation measures incorporated that serve to reduce potential impacts to a less than significant level, it is determined that the cumulative impacts are not considerable and are less than significant with mitigation incorporated. See the Biological Resources section of this document for applicable mitigation measures.

(c) No Impact: Based on the project as proposed and discussed herein, it is not expected that the proposed project will have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

Earlier Analyses

- a) **Earlier Analyses Used.** The following document(s), which are available at the Del Norte County Community Development Department in Crescent City, have adequately analyzed one or more effects of the project. Earlier analysis may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (CEQA Guidelines Section 15063 (c)(3)(D)). **N/A**
- b) **Impacts Adequately Addressed.** The following effects from the above checklist were within the scope of and adequately analyzed in the document(s) listed above, pursuant to applicable legal standards. **N/A**
- c) **Mitigation Measures.** For effects that are "Less than Significant with Mitigation Incorporated," the following are mitigation measures that were incorporated or refined from the document(s) described above. **N/A**

List of Preparers

On behalf of the County of Del Norte, SHN Consulting Engineers & Geologists, Inc. has prepared this Initial Study. Authors include:

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- James Roscoe (Archaeologist)

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Proposed Mitigation Measures, Monitoring, and Reporting Program

Air Quality

Mitigation Measure No. 1. The applicant, at all times, shall comply with Air Quality Regulation 1, Rule 104 to the satisfaction of the NCUAQMD. This will require, but may not be limited to: 1) covering open-bodied trucks when used for transporting materials likely to give rise to airborne dust; and 2) earth or other material that has been transported by trucking or earth moving equipment, erosion by water, or other means onto paved streets shall be promptly removed.

The applicant, at all times, shall also comply with Air Quality Regulation 2, Rule 201, to the satisfaction of the NCUAQMD. This will require, but may not be limited to: 1) obtaining a burn permit as required by Rule 201; and 2) complying with NCUAQMD regulations regarding allowable burn days.

Timing for Implementation/Compliance: Throughout project construction and prior to burning

Person/Agency Responsible for Monitoring: County of Del Norte and NCUAQMD

Monitoring Frequency: Ongoing throughout project construction

Evidence of Compliance: Visual observations and obtaining permit (if necessary)

Biological Resources

Mitigation Measure No. 2. To avoid direct impacts, a botanical survey should be conducted prior to construction to verify documented occurrences of Point Reyes bird's-beak, black crowberry, Wolf's evening-primrose, Suksdorf's wood-sorrel, sand dune phacelia, black evening crowberry, and the Siskiyou checkerbloom. The surveys shall follow the CDFW protocol for conducting focused botanical surveys.

Once the locations of these species are determined, temporary construction fencing shall be placed around the population prior to the start of construction, and shall be maintained for the duration of construction. The temporary construction fencing shall be removed once construction is complete. If avoidance is not feasible, the County of Del Norte shall offset the loss of any species through establishment of a new population. Work shall be undertaken in accordance with a mitigation and monitoring plan to be reviewed and approved in advance by the CDFW.

At a minimum, the mitigation and monitoring plan shall include the following:

- description of agency responsibilities;
- definition of specific target success criteria;
- identification of suitable mitigation areas onsite;
- description of the planting plan, including site preparation activities and post-planting maintenance actions;
- an outline of the monitoring program; and
- identification of the timeline for completion of work.

Mitigation will involve relocation of impacted species to a suitable site in the project area, as approved by CDFW. Site selection criteria shall include proximity to the coast, soil conditions, and anticipated disturbance regimes. Monitoring success shall be conducted for three years or until the success criteria are met, unless a shortened monitoring period is approved by CDFW. Supplemental plantings or other remedial measures shall be undertaken by the County as needed to meet the established success criteria.

Timing for Implementation/Compliance: Prior to construction

Person/Agency Responsible for Monitoring: County of Del Norte and CDFW

Monitoring Frequency: As determined by the mitigation and monitoring plan

Evidence of Compliance: Monitoring reports

Mitigation Measure No. 3. Annual monitoring of special-status species and natural communities shall be conducted for a 5-year period following construction of each trail segment. The surveys should follow the USFWS and CDFW protocols. A report summarizing the results shall be submitted to the CDFW, CDPR, and USFWS. Yearly photo location monitoring shall also be included to assess impacts to natural communities. Photo locations shall be established prior to construction.

If there is evidence of an adverse impact, permanent fencing shall be considered and implemented, as necessary. If, at such time that populations of rare plants or natural communities recover, fencing shall be removed.

Timing for Implementation/Compliance: Prior to construction

Person/Agency Responsible for Monitoring: County of Del Norte and CDFW

Monitoring Frequency: As determined by the mitigation and monitoring plan

Evidence of Compliance: Monitoring reports

Mitigation Measure No. 4. To proceed with FESA consultation, a USFWS-approved biologist shall conduct four surveys during a single year for the Oregon silverspot butterfly between July 15 and August 25, with at least three surveys during the average peak flight period of July 25 to August 20. Each survey shall be separated from other surveys by at least six days.

Other standards are as follows:

- Each survey for Oregon silverspot butterfly shall include all areas within 100 meters of the project area (the area that includes any proposed activities that may alter vegetation or disturb the ground).
- Surveys should include all areas within 100 meters of the project area; however, particular attention should be directed to potential nectar sources, as well as areas in which the larval host plant, the early blue violet (*Viola adunca*), is found. Commonly used nectar plants in the Del Norte area include tansy ragwort (*Senecio jacobaea*), pearly everlasting (*Anaphalis margaritacea*), gumplant (*Grindelia stricta*), seaside daisy (*Erigeron glaucus*), California aster (*Aster chilensis*), thistles (*Cirsium* spp.), and yarrow (*Achillea millefolium*).
- Each survey shall be conducted for a minimum of 4 hours, between the hours of 10 a.m. and 4 p.m., under suitable environmental conditions, which are defined as:
 - Average wind speed less than 10 miles per hour
 - Air temperature at least 60 degrees Fahrenheit

- Cloud cover less than 25% and no precipitation or fog present
- Vegetation dry (does not wet shoes or clothing when walking through vegetation)
- The report on survey results shall include for each survey: 1) date, 2) observer name and qualifications, 3) time and environmental conditions at start and end of each survey or transect, 4) total survey time, 5) general survey method employed, and 6) all butterfly species observed.
- If an Oregon silverspot butterfly is detected, additional items recorded shall include the number of Oregon silverspot butterfly, the exact location of each Oregon silverspot butterfly (universal transverse mercator coordinates in the North American Datum, 1983) and activities observed (such as, foraging on specific nectar plants, direction of movements). Any Oregon silverspot butterfly detection shall be reported to the USFWS Arcata Field Office within 72 hours.
- A copy of the survey report shall be sent directly to the USFWS Arcata Field Office.

If any Oregon silverspot butterfly is detected during the surveys, the project proponent shall contact the USFWS Arcata Field Office to develop appropriate mitigation measures and to determine the steps needed to ensure compliance with the FESA.

Timing for Implementation/Compliance: Prior to construction

Person/Agency Responsible for Monitoring: County of Del Norte and USFWS

Monitoring Frequency: As determined by the mitigation and monitoring plan

Evidence of Compliance: Monitoring reports

Mitigation Measure No. 5. To avoid impacts to nesting birds and/or raptors, one of the following will be implemented. Either:

- 1) conduct vegetation removal and other ground disturbance activities associated with construction during mid-August through January, when birds are not nesting; or
- 2) conduct pre-construction surveys for nesting birds if vegetation removal or ground disturbing activity is to take place during the nesting season (February 1 to August 31 for most birds). These surveys shall be conducted within 14 days of vegetation removal or construction activities initiated during the nesting season. If an active nest is located during the preconstruction surveys, CDFW and/or USFWS shall be notified, as appropriate to the species and its status. If an active nest is found within the zone of influence (within 300 feet of the limits of work), grading and construction shall be prohibited within an adequate setback, as approved by a qualified biologist in consultation with CDFW. Work within the setback will have to be delayed until after the young have fledged, as determined during surveys by a qualified biologist.

Timing for Implementation/Compliance: Prior to construction

Person/Agency Responsible for Monitoring: County of Del Norte and CDFW

Monitoring Frequency: Prior to construction

Evidence of Compliance: Construction timing

Mitigation Measure No. 6. The potential for introduction and spread of noxious weeds shall be minimized as follows:

- Use only certified weed-free erosion control materials, mulch, and seed.
- Preclude the use of rice straw in riparian areas.

- Limit any import or export of fill to material known to be weed free.
- Require the construction contractor to wash all equipment thoroughly at a commercial wash facility before entering the County. If the equipment has most recently been used within the County, cleaning is not required.

Timing for Implementation/Compliance: During construction

Person/Agency Responsible for Monitoring: County of Del Norte

Monitoring Frequency: During construction

Evidence of Compliance: Visual Observations

Mitigation Measure No. 7. To mitigate for the loss of wetlands, full implementation of the conceptual wetland mitigation and monitoring program is required. The County of Del Norte shall submit for review and written approval of the permitting agencies (U.S. Army Corps of Engineers, North Coast Regional Water Quality Control Board, California Department of Fish & Wildlife, and California Coastal Commission) a final detailed compensatory wetlands mitigation and monitoring program designed by a qualified wetland biologist for the construction and monitoring of compensatory wetlands mitigation site(s). The final detailed compensatory wetlands mitigation and monitoring program shall at a minimum include provisions for the creation or restoration of a minimum area based on the functions and values assessed. The following should be used in determining a suitable mitigation site:

- a. An area having significant contiguous land base for undertaking the subject replacement wetlands mitigation, as contrasted with a series of smaller detached sites, where there is the greatest likelihood that the wetland values and functions being lost at the project site can be replicated at the mitigation site;
- b. An area having similar submerged, emergent, or near-surface saturated hydrologic conditions to those on the portions of the project site (i.e., non-tidally influenced, perched and/or seasonal shallow groundwater conditions);
- c. An area having similar wetland plant community composition to those on the wetlands portions of the project area to be filled; and
- d. An area having similar soil and substrate conditions to those on the wetlands portion of the project site to be filled.

Timing for Implementation/Compliance: Post construction

Person/Agency Responsible for Monitoring: County of Del Norte, RWQCB, ACOE, CCC

Monitoring Frequency: Post construction

Evidence of Compliance: Quantitative and qualitative measurements

Cultural Resources

Mitigation Measure No. 8. Design trail to minimize impacts to archaeological resources. If the trail goes through any portion of a cultural resource, site protection shall be undertaken through construction of boardwalks or the use of gravel or wood chips to cover the trail bed. No excavation of the trail into native soil shall occur in these areas. Since any excavation within known site boundaries represents an adverse impact to the site, no signs or other trail markers shall be installed within recorded site boundaries.

Timing for Implementation/Compliance: Prior to and throughout project construction

Person/Agency Responsible for Monitoring: County of Del Norte and CDPR

Monitoring Frequency: Prior to and throughout construction

Evidence of Compliance: Visible evidence

Mitigation Measure No. 9. Construction of viewing platform(s). To lessen the potential for erosion of archaeological sites caused by visitor use and foot traffic, a viewing platform shall be constructed wherever the trail enters a site. The platforms shall be pre-fabricated and placed on top of sterile fill at the crest of the dune. The trail to such platforms shall be filled with gravel or wood chips to prevent additional erosion.

Timing for Implementation/Compliance: Prior to and throughout project construction

Person/Agency Responsible for Monitoring: County of Del Norte and CDPR

Monitoring Frequency: Prior to and throughout construction

Evidence of Compliance: Visible evidence

Mitigation Measure No. 10. The Elk River Rancheria and Smith River Rancheria will be on site during all ground disturbing activities. Forty-eight hour notice shall be provided prior to any activity. If cultural resources are encountered during construction operations, Mitigation Measure No. 12 shall be implemented to the satisfaction of local tribal interests, Native American Heritage Commission (NAHC), and the County. The costs incurred for the cultural monitor during construction operations are the responsibility of the County.

Timing for Implementation/Compliance: Prior to and throughout project construction

Person/Agency Responsible for Monitoring: County of Del Norte and CDPR

Monitoring Frequency: Prior to and throughout construction

Evidence of Compliance: Visible evidence and reporting of any discovered cultural resources

Mitigation Measure No. 11. If cultural resources, such as chipped or ground stone or bone are discovered during ground-disturbance activities, work shall be stopped within 20 meters (66 feet) of the discovery, as required by CEQA (January 1999 Revised Guidelines, Title 14 California Code of Regulations (CCR) 15064.5 (f)).

Work near the archaeological finds shall not resume until a professional archaeologist who meets the Secretary of the Interior's Standards and Guidelines has evaluated the materials and offered recommendations for further action.

Timing for Implementation/Compliance: Throughout project construction

Person/Agency Responsible for Monitoring: County of Del Norte

Monitoring Frequency: Throughout construction

Evidence of Compliance: Visible evidence and reporting of any discovered cultural resources

Mitigation Measure No. 12. If human remains are discovered during project construction, work will stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie human remains (Public Resources Code, Section 7050.5). The Del Norte County coroner will be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of Native American origin, it will be necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the NAHC (Public Resources Code, Section 5097). The coroner will contact the NAHC. The descendants or most likely descendants of the deceased will be contacted, and work will not resume until they have made a recommendation to the landowner or the person responsible for the excavation work for means of treatment and disposition, with appropriate

dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98. Work may resume if NAHC is unable to identify a descendant or the descendant failed to make a recommendation.

Timing for Implementation/Compliance: Throughout project construction

Person/Agency Responsible for Monitoring: County of Del Norte and CDPR

Monitoring Frequency: Throughout construction

Evidence of Compliance: Visible evidence and reporting of any discovered human remains

Hazards and Hazardous Materials

Mitigation Measure No. 13. In order to reduce the potential of accidental release of regulated materials, a spill prevention control and countermeasure plan (SPCC Plan) will be developed and implemented throughout construction. As part of the SPCC Plan, absorbent materials will be stored on site and all jobsite employees will be properly trained to deal with hazardous material spills in the event of an accidental release. All fueling will be conducted in designated areas.

Timing for Implementation/Compliance: Prior to construction

Person/Agency Responsible for Monitoring: County of Del Norte

Monitoring Frequency: Throughout construction

Evidence of Compliance: Visible evidence

Hydrology and Water Quality

Mitigation Measure No. 14. Compliance with the general permit for construction and land disturbance activities (NPDES Permit No. CAS000002, Order No. 2009-0009-DWQ) is required by the State of California. In the event project activities qualify for an exemption, implementation of the erosion and sediment control plan is required to reduce potential impacts associated with water quality to a less than significant level. The applicant shall ensure that no construction materials, debris, or waste be placed or stored where it may be subject to dispersion by storm water. Any and all debris resulting from construction activities shall be immediately removed following completion of construction; concrete trucks and tools used for construction shall be rinsed at the specified wash-out area(s); and staging and storage of construction machinery and storage of debris shall not take place on any public street rights-of-way. Best Management Plans (BMPs) will ensure that any surface water runoff commingling with potential storm water contaminants will be minimized and prevented from entering storm water infrastructure.

Timing for Implementation/Compliance: Prior to construction

Person/Agency Responsible for Monitoring: County of Del Norte and RWQCB

Monitoring Frequency: Prior and during construction

Evidence of Compliance: Visual observations and reporting to RWQCB.

Noise

Mitigation Measure No. 15. Hours of construction activities shall be limited to daylight hours, Monday through Saturday, from 6:00 a.m. to 6:00 p.m., with no work conducted during federal or state holidays unless prior approval is given by the County of Del Norte.

Timing for Implementation/Compliance: Throughout project construction

Person/Agency Responsible for Monitoring: County of Del Norte

Monitoring Frequency: Throughout construction

Evidence of Compliance: Visible evidence

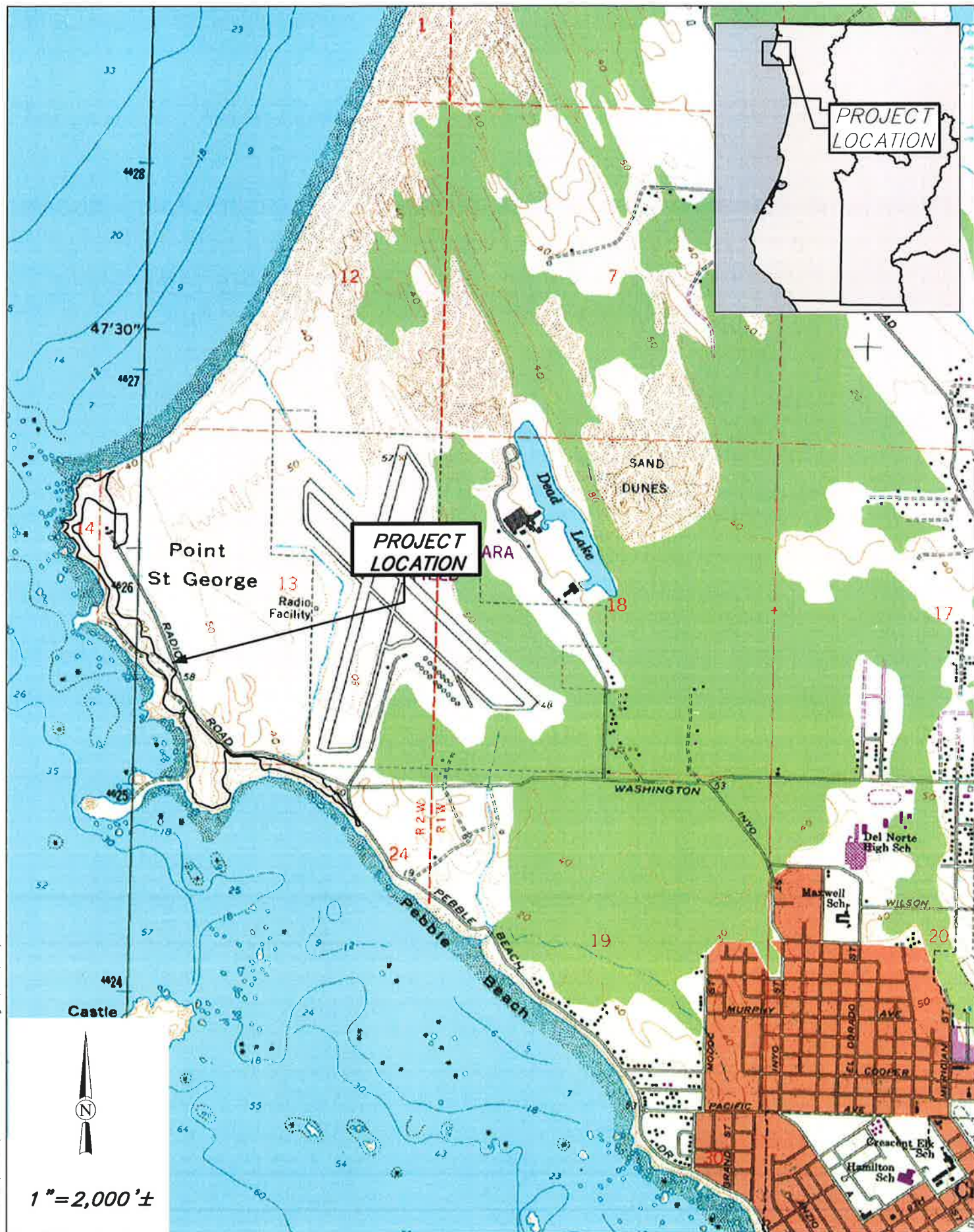
**California Department of Parks and Recreation
Trails Handbook Natural Resources Assessment**

**Public Summary of the Point Saint George
Cultural Resources Management Plan**

**Bluff Retreat Potential at the Point St. George
Management Area Trail Project**

Appendix G

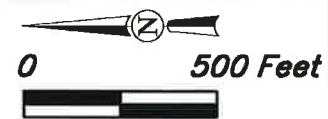
Conceptual Wetland Mitigation and Monitoring Plan



Path: Z:\2012\012150-PointStGeorge\GIS\Projects\TRAIL-WIDTH.mxd



EXPLANATION	
—	4 FT
—	5 FT
—	6 FT
□	AREA OF POTENTIAL EFFECTS



SHN
Consulting Engineers
& Geologists, Inc.

Point St. George Management Area Trail and Parking Lot Project Del Norte County, California		Trail Widths	
January 2013		SHN 012150	
TRAIL-WIDTH.mxd		Figure 2	



EXPLANATION

- | | |
|--------------------------|-----------------------------|
| — PROPOSED COASTAL TRAIL | — SOLDIER PILE WALL |
| — AGGREGATE | — STEPS |
| — BRIDGE | — HARDENED TRAIL |
| — PUNCHEON | — AREA OF POTENTIAL EFFECTS |
| — ROCK WALL | |



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& Geologists, Inc.

Point St. George Management Area
Trail and Parking Lot Project
Del Norte County, California

Trail Construction Methods

SHN 012150




January 2013

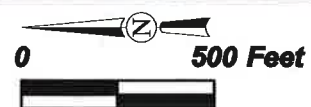
TRAIL-ACTIONTASK.mxd

Figure 3



EXPLANATION

-  **PROPOSED COASTAL TRAIL**
-  **DECOMMISSIONED TRAILS**
-  **AREA OF POTENTIAL EFFECTS**



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Point St. George Management Area
Trail and Parking Lot Project
Del Norte County, California

Decommissioned Trail Locations

SHN 012150

January 2013

RESTORED-TRAILS.mxd

Figure 4



EXPLANATION

● SIGNS

— PROPOSED COASTAL TRAIL

□ AREA OF POTENTIAL EFFECTS



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Point St. George Management Area
Trail and Parking Lot Project
Del Norte County, California

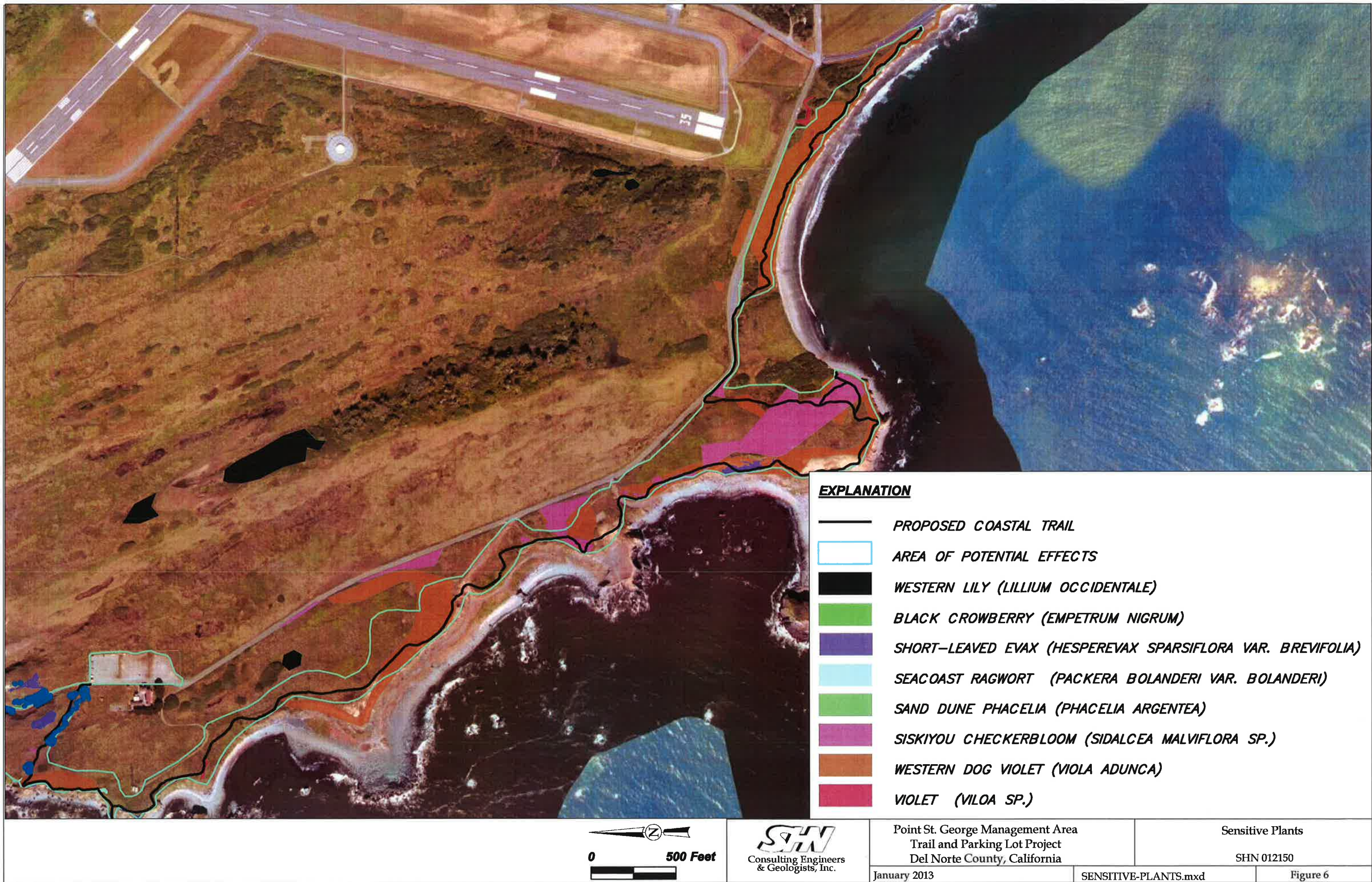
January 2013

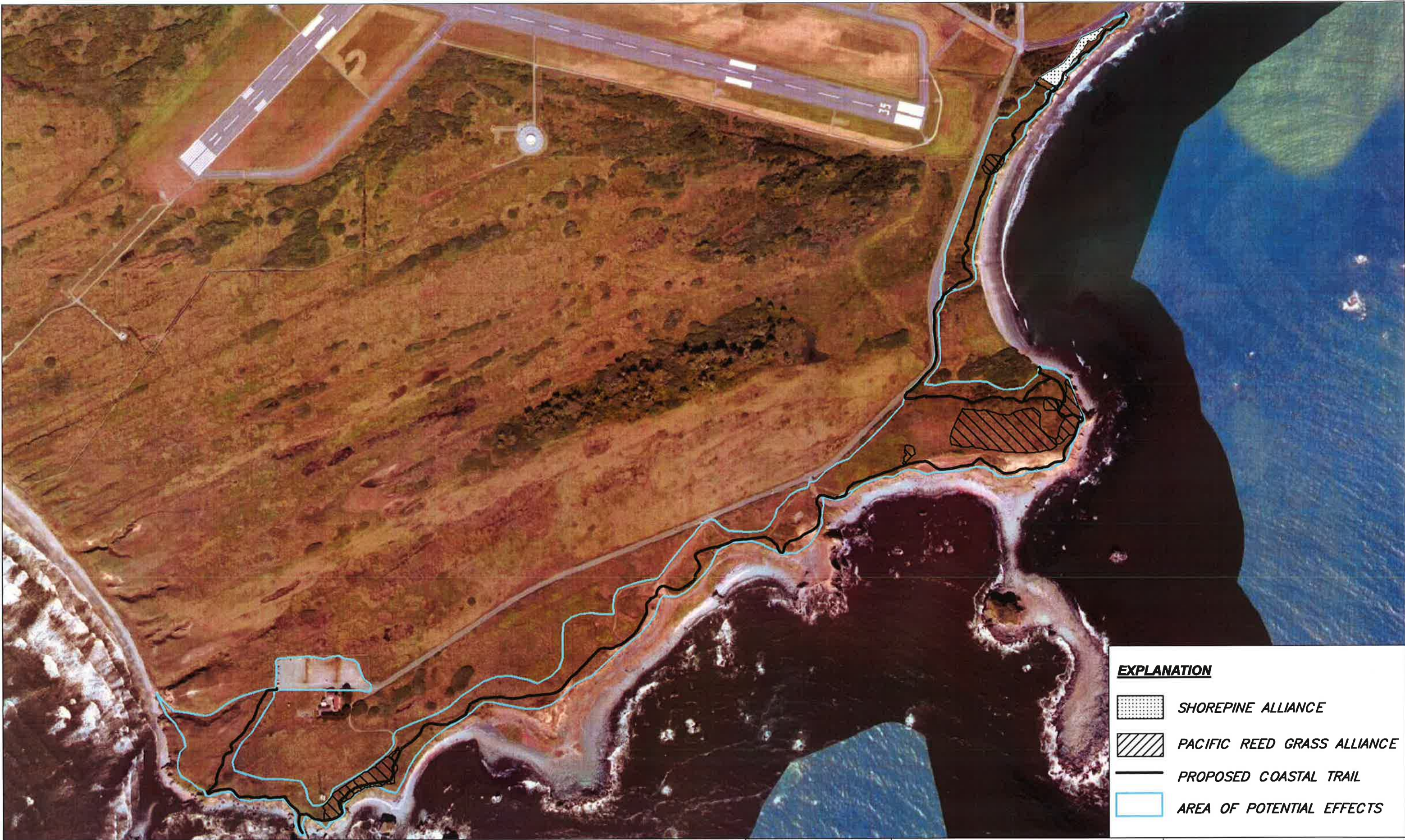
Sign Locations

SHN 012150





TRAIL-SIGNS.mxd

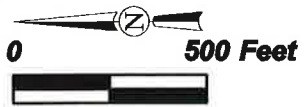
Figure 5





EXPLANATION

-  *SHOREPINE ALLIANCE*
-  *PACIFIC REED GRASS ALLIANCE*
-  *PROPOSED COASTAL TRAIL*
-  *AREA OF POTENTIAL EFFECTS*



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Trail and Parking Lot Project
Del Norte County, California

January 2013

Natural Communities

SHN 012150

NATURAL-COMMUNITES.mxd

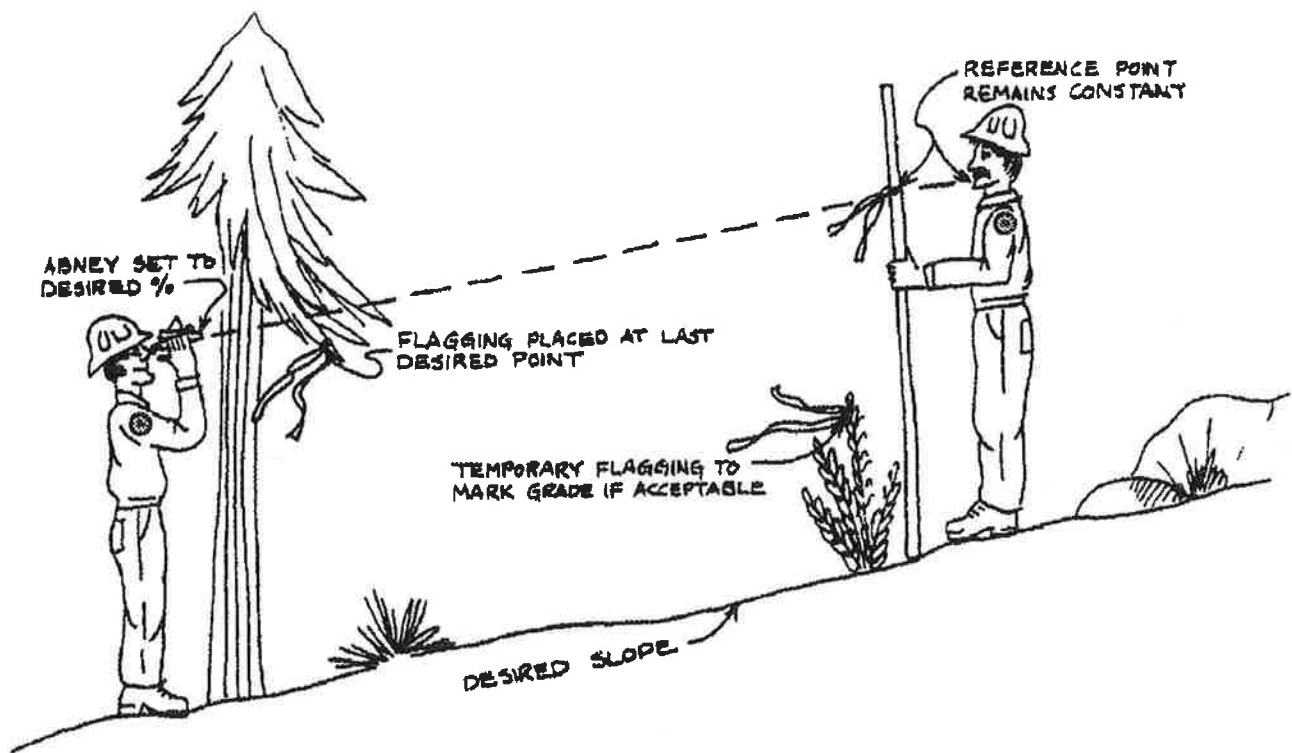
Figure 7

**California Department of Parks and Recreation
Trails Handbook Natural Resources Assessment**

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The Resources Agency
Department of Parks and Recreation

TRAILS HANDBOOK



GRAVEL SURFACED TRAIL TREAD FOR HIKING OR EQUESTRIAN TRAILS

8-7

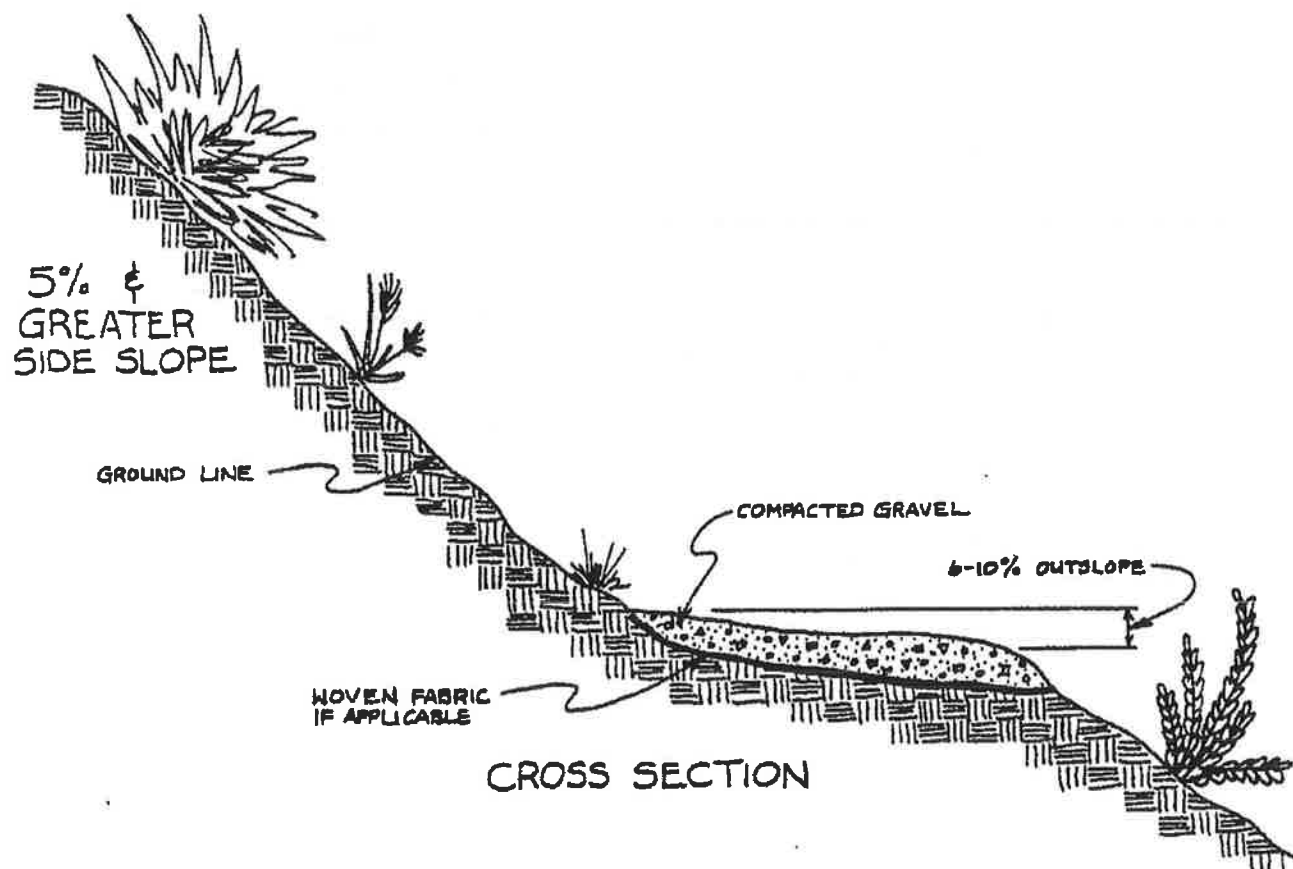
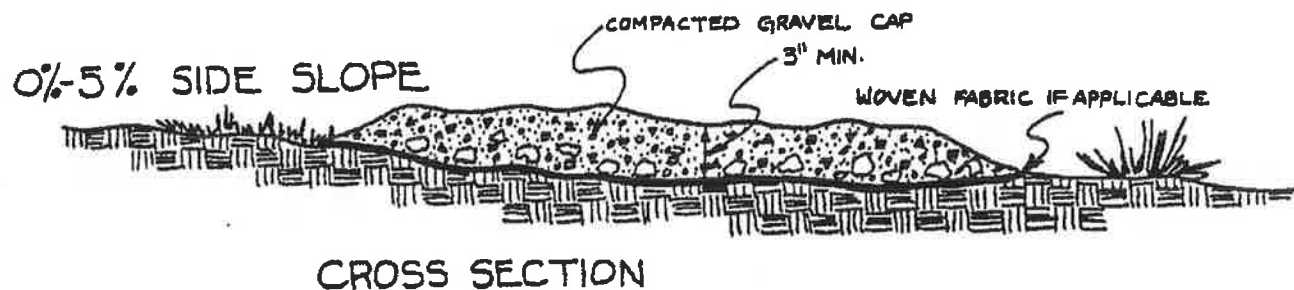
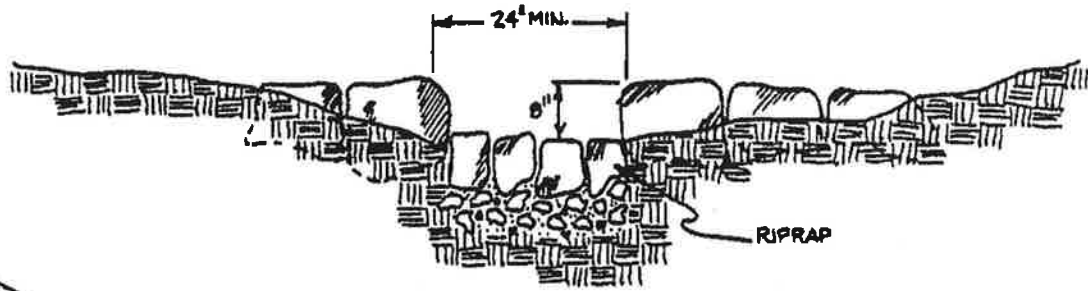


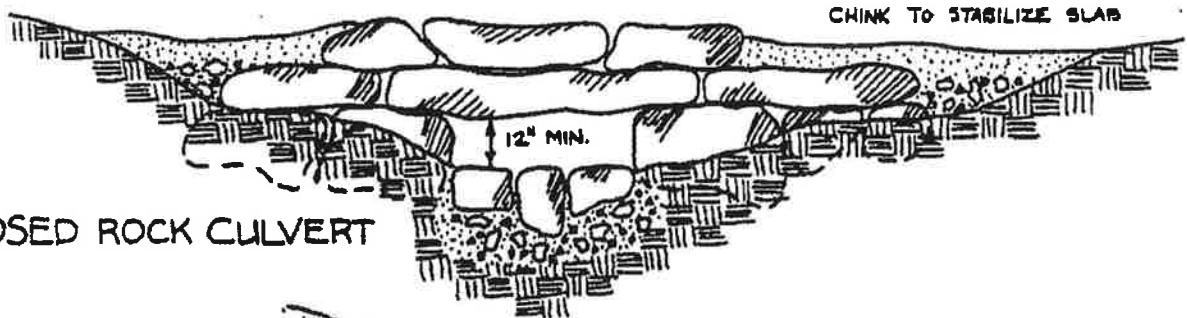
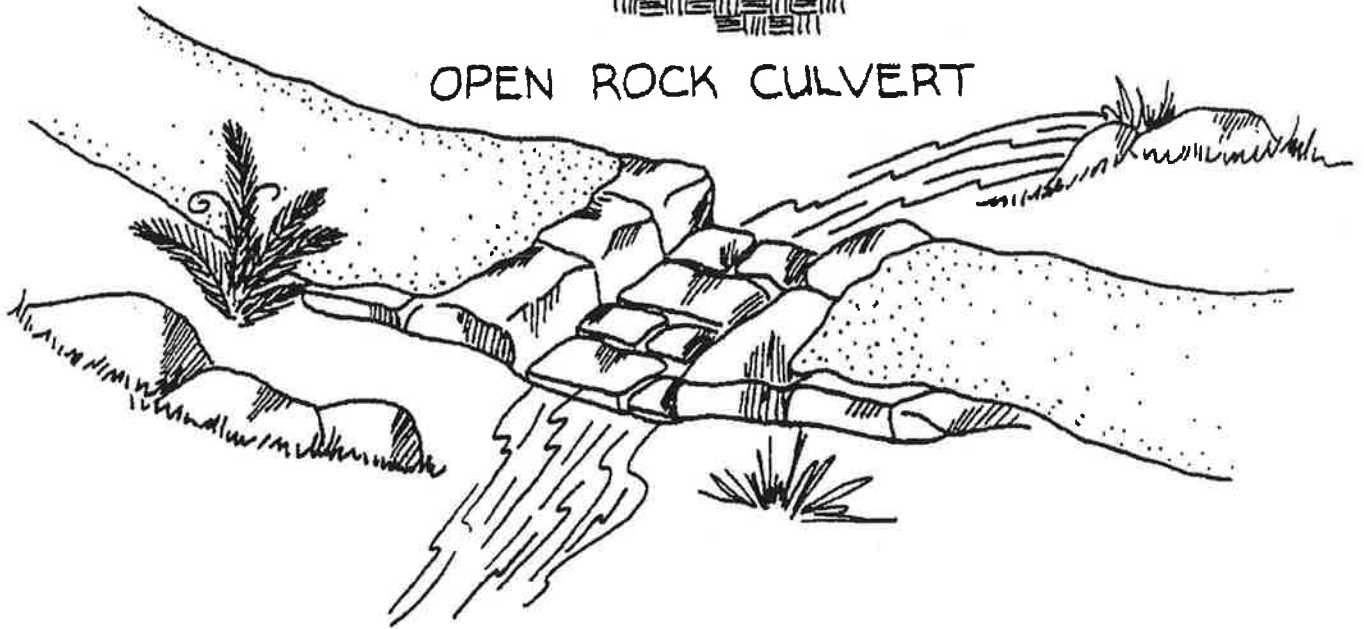
Figure 8.5

ROCK CULVERTS

NOT TO SCALE



OPEN ROCK CULVERT



CLOSED ROCK CULVERT

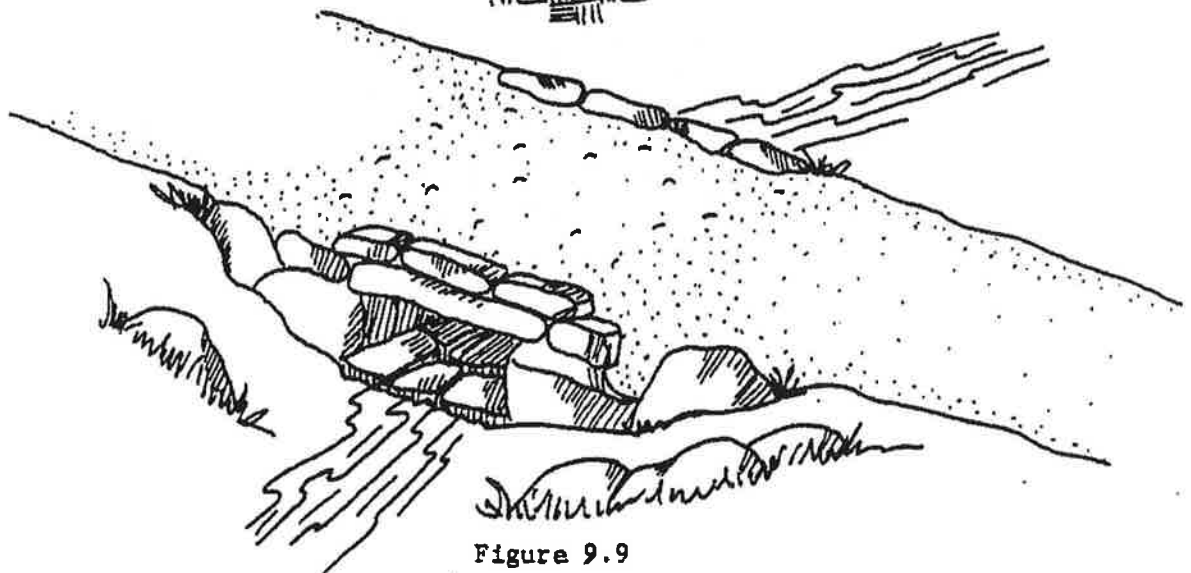
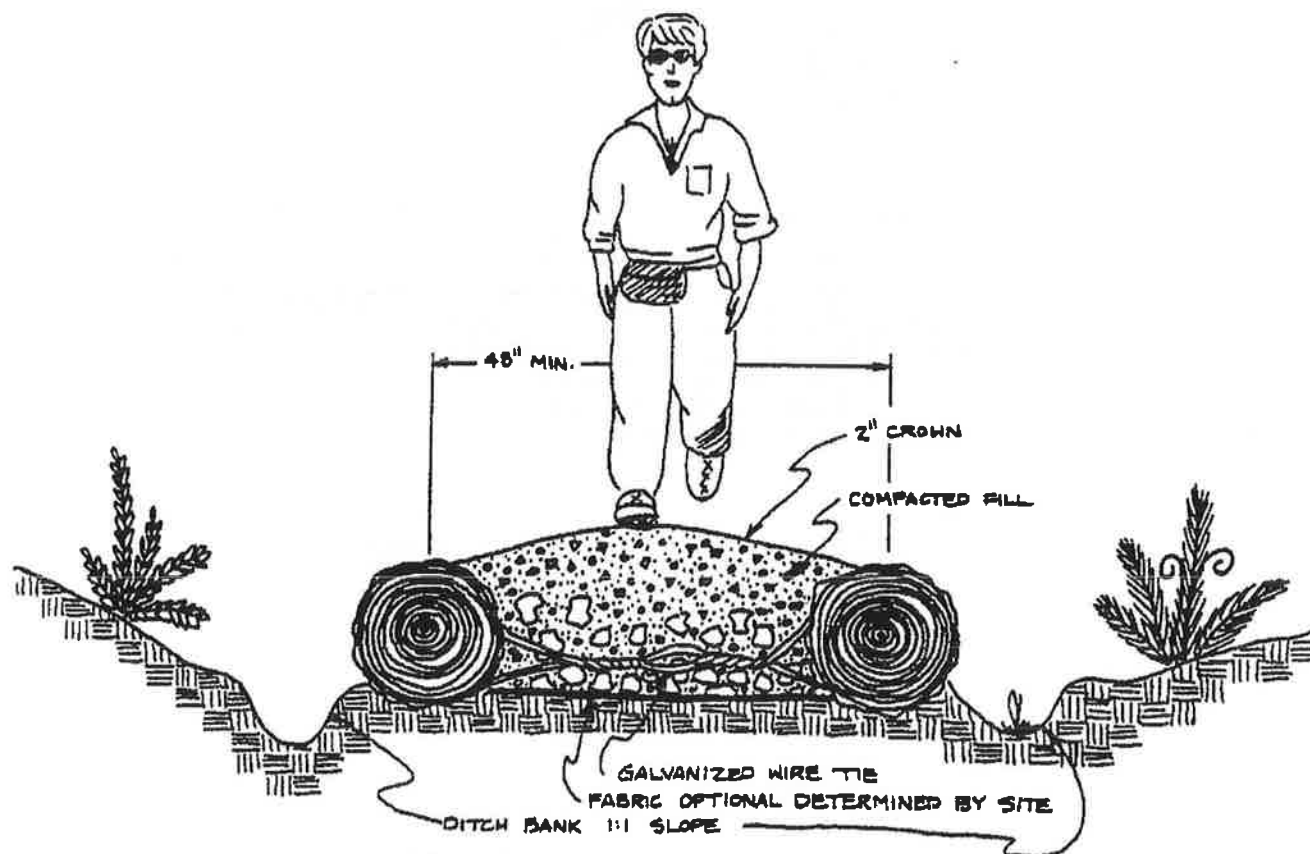
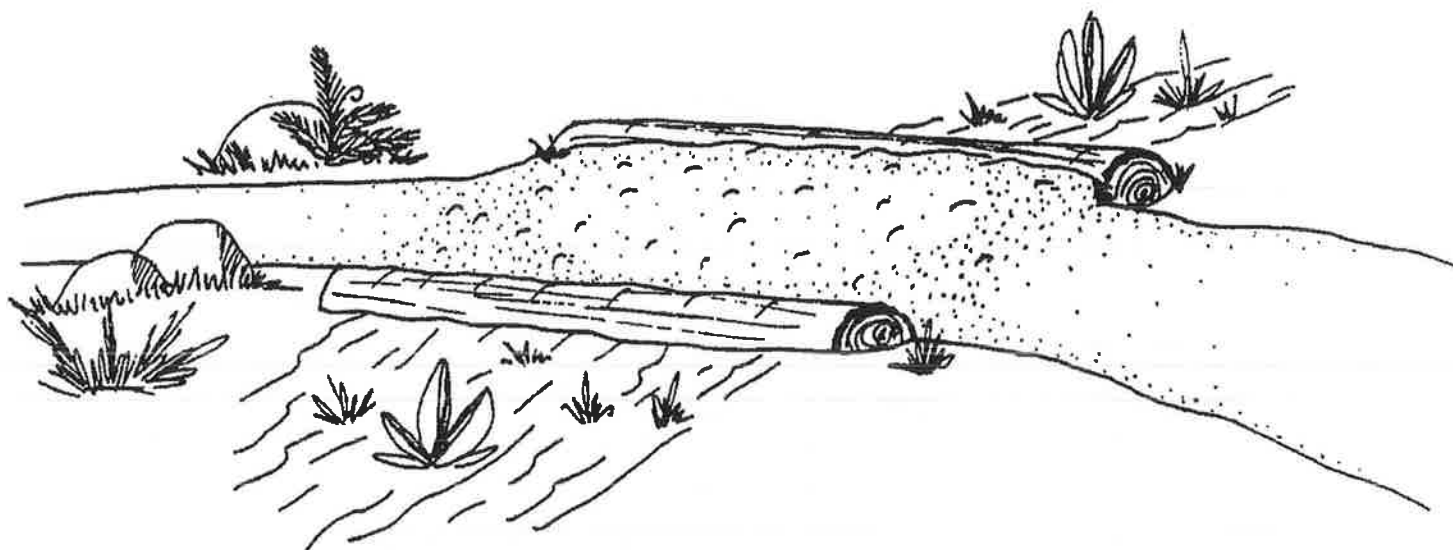


Figure 9.9

LOG TURNPIKE CONSTRUCTION

NOT TO SCALE



CROSS SECTION

Figure 9.10

CAUSEWAY

NOT TO SCALE

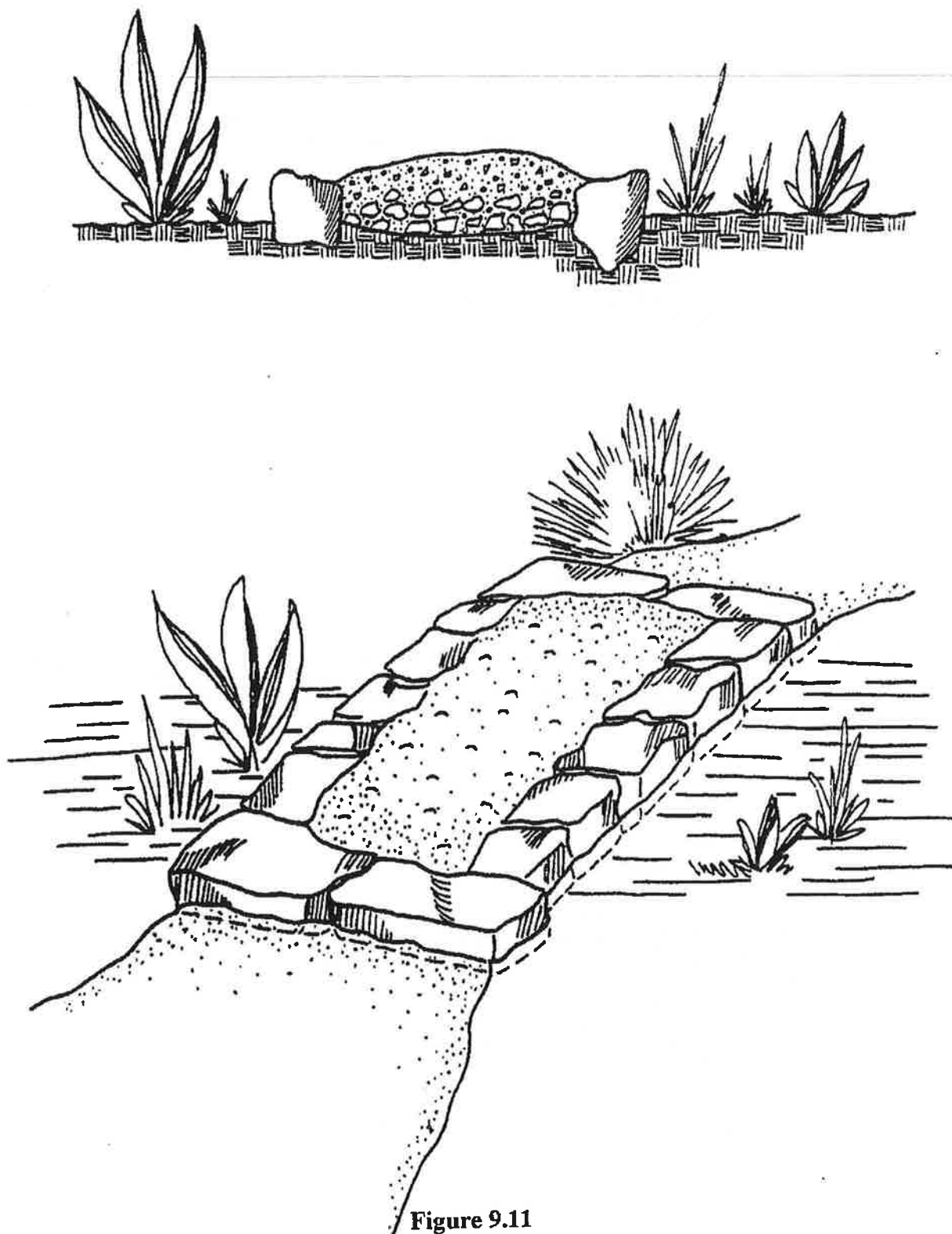


Figure 9.11

TYPICAL DRAINAGE LENSE

NOT TO SCALE

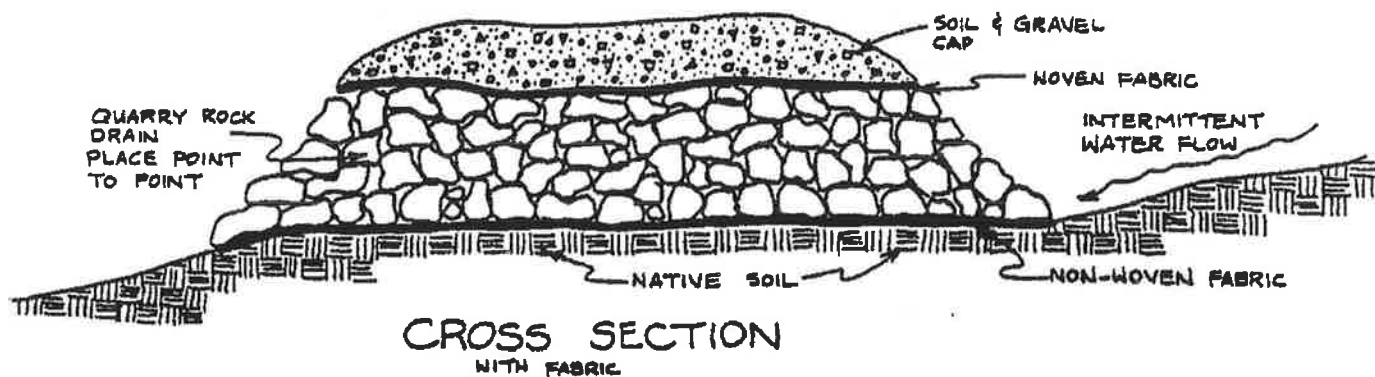
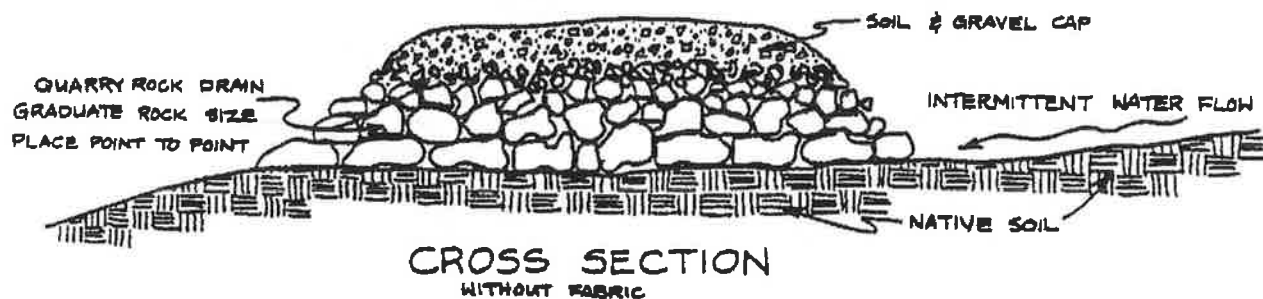
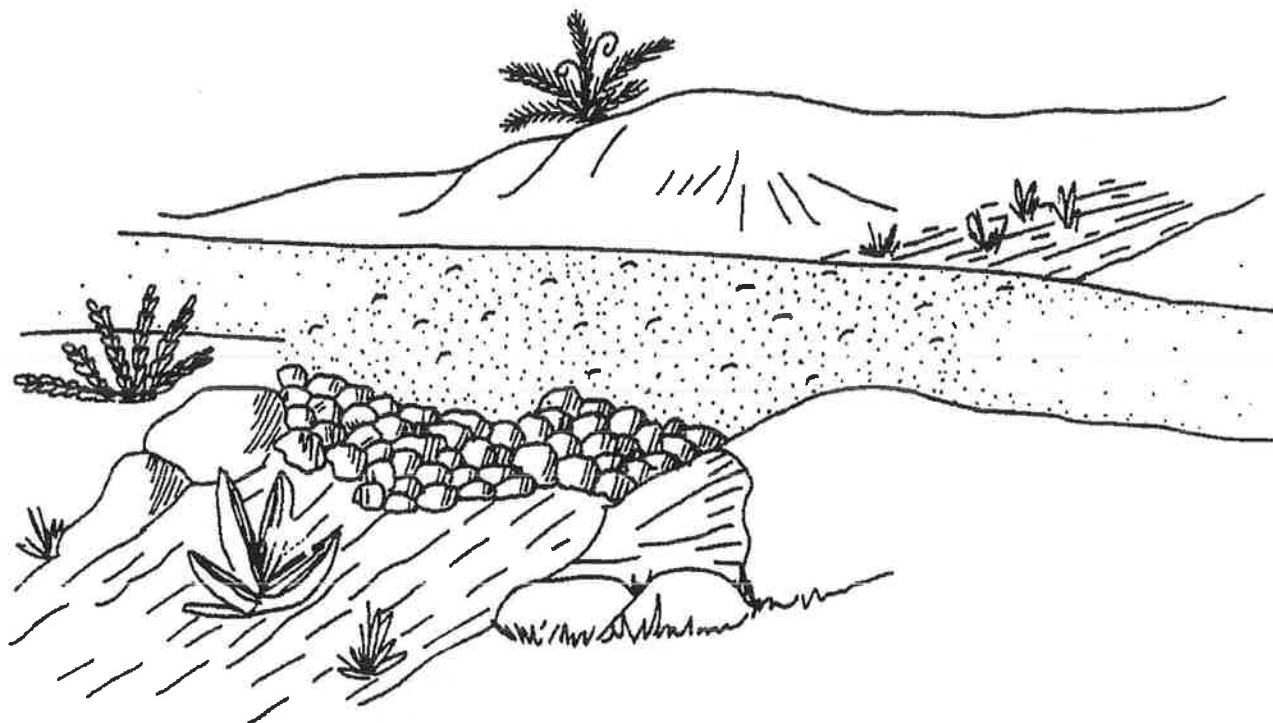
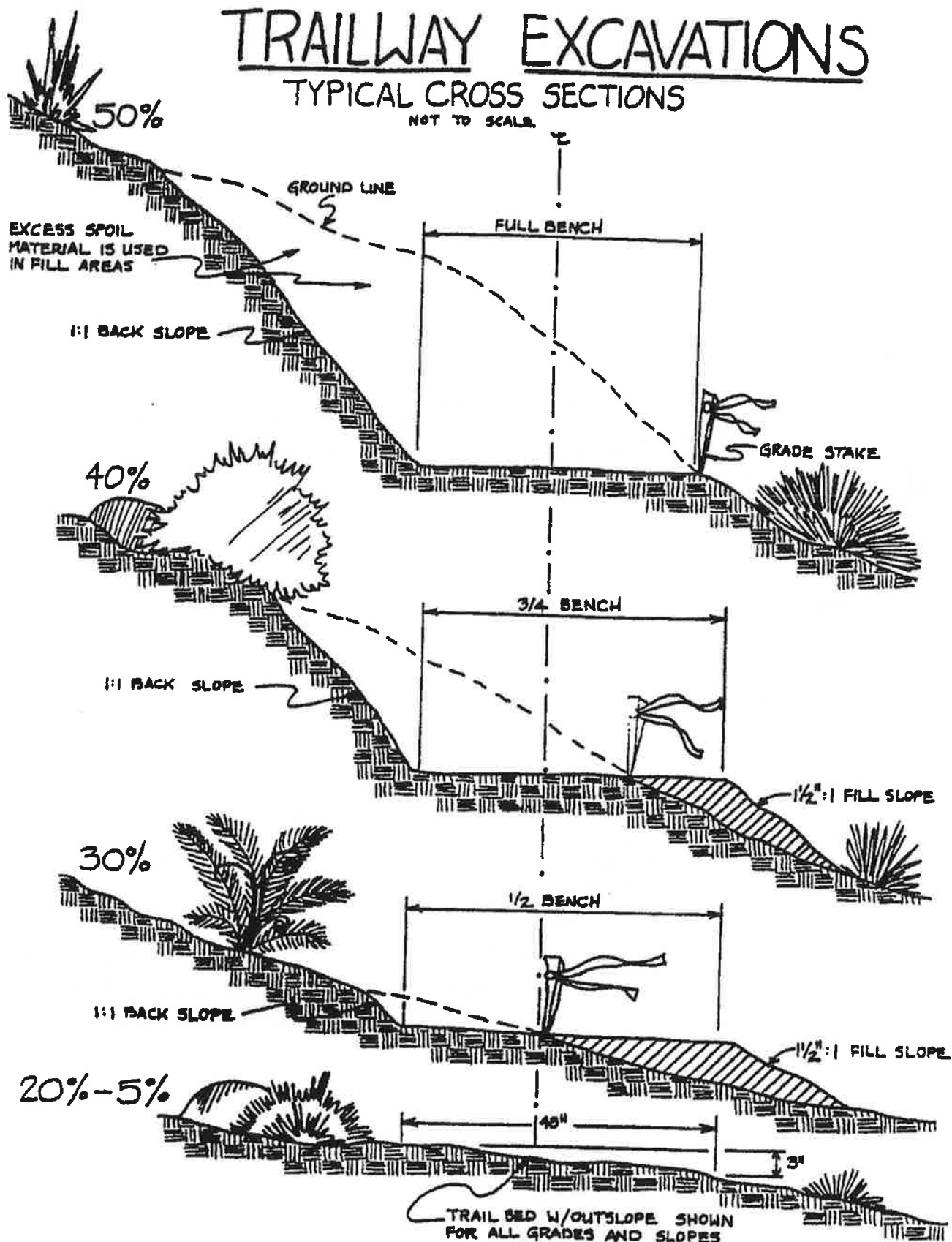


Figure 9.12

TRAILWAY EXCAVATIONS

TYPICAL CROSS SECTIONS

NOT TO SCALE



NOTE: AMOUNT OF BENCH VARIES LINEARLY W/% OF SIDE SLOPE. ALL GRADE STAKES INDICATE GRADE AT MINERAL SOIL. ALL FILL TO BE MINERAL SOIL W/NO VEGETATION DESIRS.

Figure 10.4

TRAILWAY EXCAVATION

TYPICAL CROSS SECTION

NOT TO SCALE

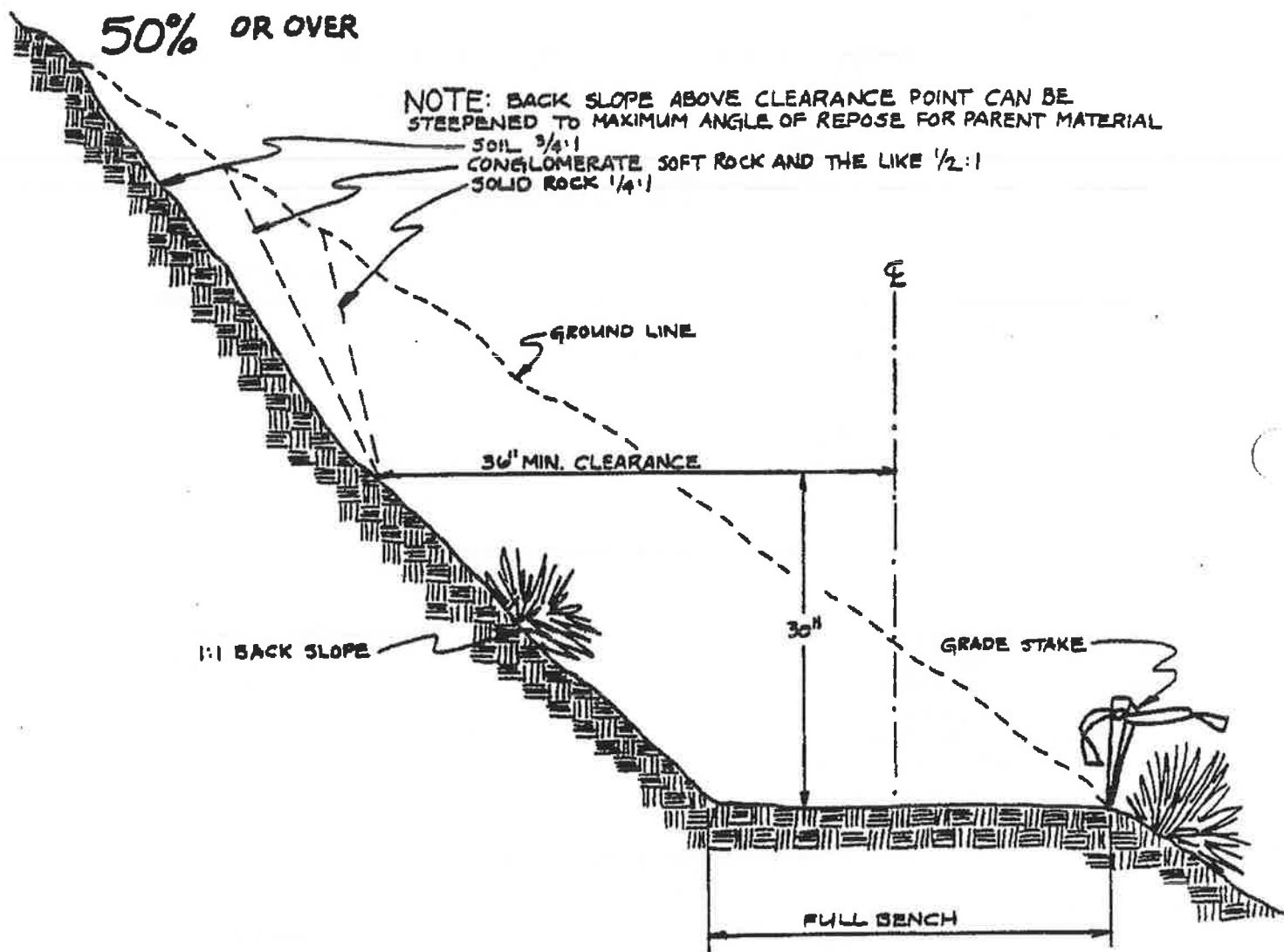


Figure 10.5

TYPICAL PUNCHEON DETAIL

NOT TO SCALE

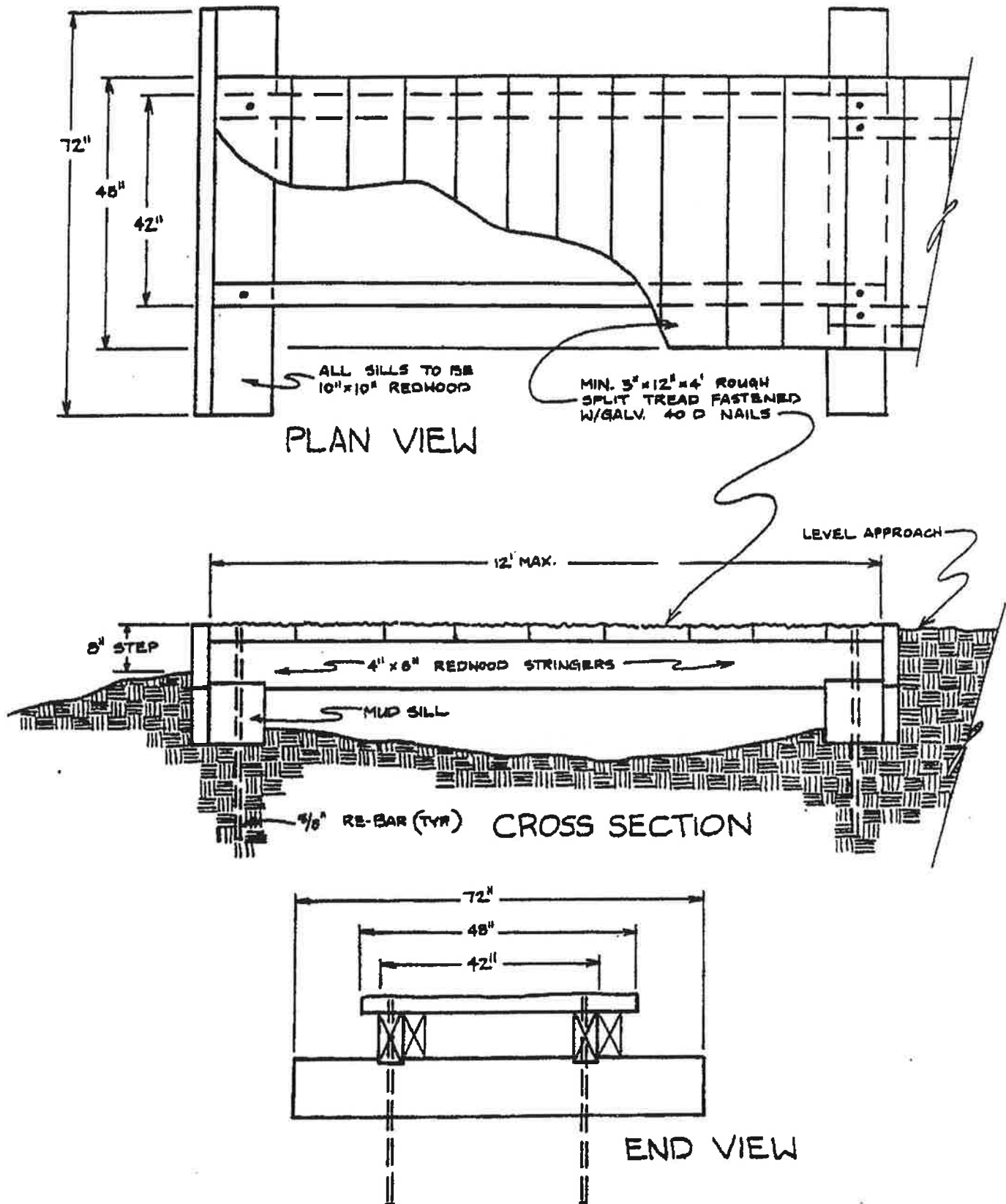
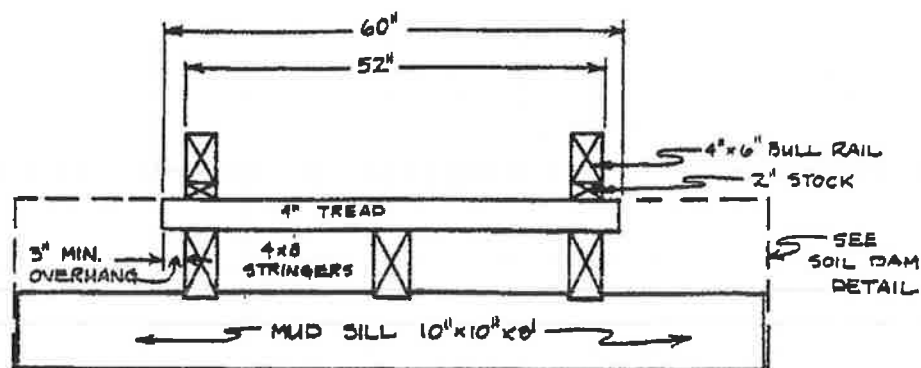
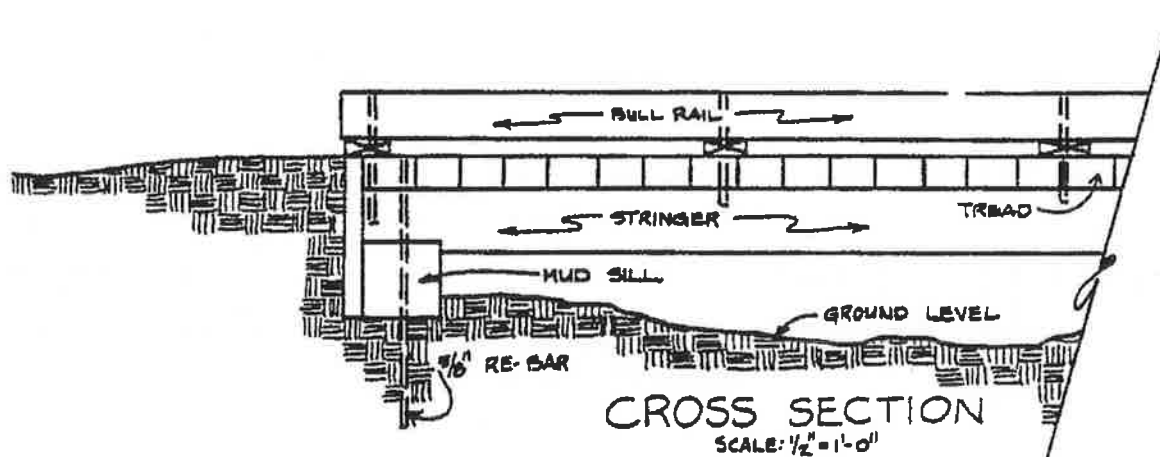


Figure 12.1

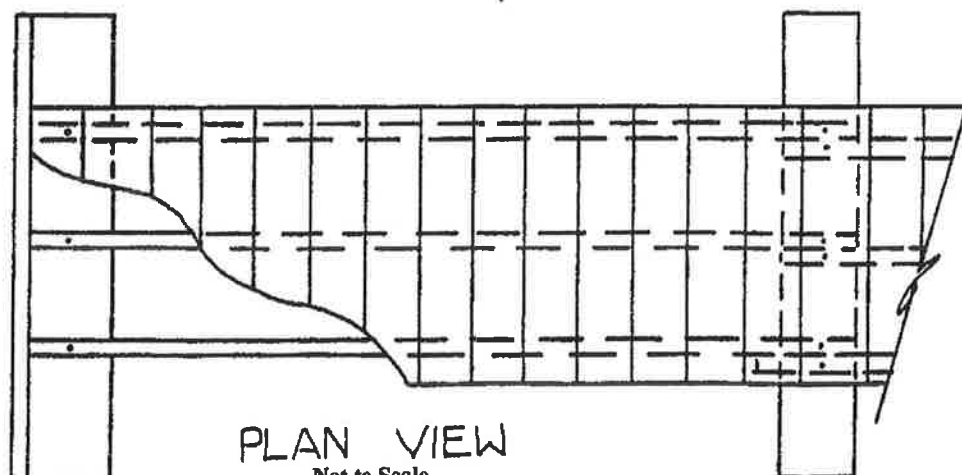
TYPICAL EQUESTRIAN PUNCHEON



END VIEW
NOT TO SCALE



CROSS SECTION
SCALE: 1/2" = 1'-0"



PLAN VIEW
Not to Scale
Figure 12.2

PUNCHEON MAINTENANCE

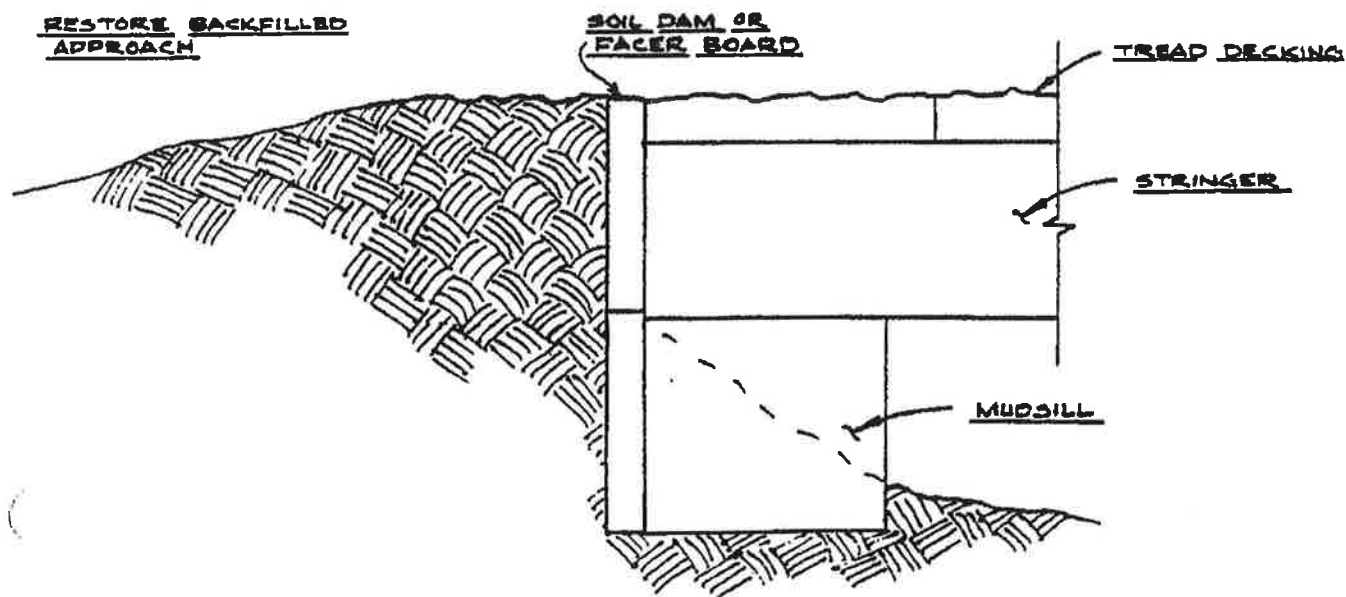
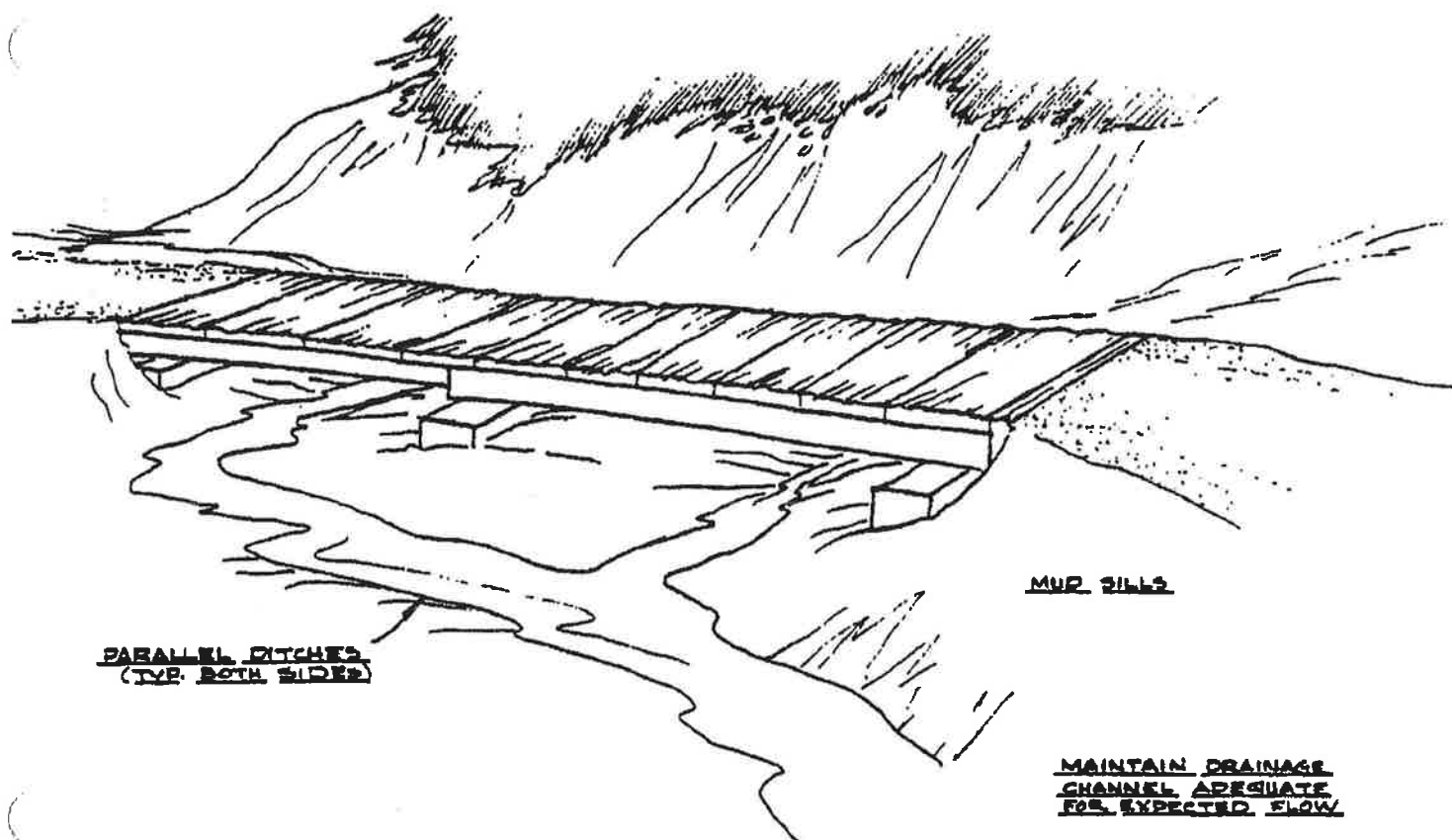


Figure 12.3

13 BRIDGE STRUCTURES

13.1 Definition

A structure, including supports, erected over a depression or stream and having a deck for carrying traffic. The structure may have hand railings along the side(s) of the deck.

13.2 General Considerations

Almost all trails, somewhere in their routing, cross one or more streams. In some cases, a stream is one of the major natural features of a trail route.

Whether or not any hiker aid is necessary at a stream crossing depends upon the type of use expected, the season of use, and the nature of the stream and crossing. Hiker safety is the primary consideration. Convenience may or may not be important. In a remote back country area, hopping from stone to stone and the possibility of getting wet feet are part of the experience. On the other hand, on an urban nature trail used by a wide variety of people, many in street shoes and with little hiking experience, convenience may be important. A trail crossing that does not require a bridge in the summer for hikers may need one in the winter. Requirements during normal low stream flows may be quite different from those during spring thaw. Some streams are also prone to unexpected flash floods with water levels and current changing dramatically; in such cases a bridge may be required.

Where possible, natural stream crossings or fords are best. These may be enhanced through the placement of step stones. This will work only where stream flow is low and does not fluctuate. Otherwise, the step stones will be washed away. Also, the stream bottom must be solid for this bridging method to be effective.

In general, the construction of most structures should be avoided if there are alternative solutions. Following initial construction, they become a major maintenance item and if not carefully maintained, they can be a hazard to hikers. Because of the uncertainty connected with the remaining life of structures such as bridge decking, handrails, log walls and the like, there is a tendency to worry over them and replace them short of their normal life so that the maintenance of structures is increased.

There are occasional special places in the terrain that most trail systems pass through that are wonderful opportunities for carefully designed structures so that certain vistas or natural features can be exhibited to their best. Bridges that span streams or deep gorges and afford special views are probably the most important, while overlook platforms, covered shelters, benches, special railings, or step structures are often used in this way in well designed trail systems. Bridges, step structures and special railings are generally the only structures that are actually part of the trail while other structures are subsidiary to the trail itself.

All of these structures can be used to help identify, in the mind of trail users, the one special place that they will remember in a symbolic "mental picture" representative of a larger territory through which the trail passes. This mental picture can come in part from the special orientation or restful scene that the structure relates to. It will also come in a large part because the trail user identifies this structure in their subconscious with "man" as a part of the natural scene and because the trail user enters and experiences this scene through the familiar "human frame" for the picture that is provided. Often a trail structure of this nature first just surprise a trail user to alertness because it is a new feature that they have not encountered in their trail travel. If it is the "right" structure in the "right" place, their footsteps will slow, the attractiveness of the vista or restful scene will come upon them and they will decide to linger awhile before moving on and when they do they will carry with them that special mental picture.

As the trail user gains experience, they may come to realize that such structures are an invitation from those fellow men that designed the trail for them, as a trail user, to enjoy a special place.

The properly used trail structure can become a major interpretive device but great care must be exercised in location to assure that the extra effort in construction and maintenance is justified.

It must be remembered that although structures of this nature are placed to get the trail user's special attention, it is not the structure itself that should capture their attention. The poorly designed trail structure utilizing novel construction methods and unusual materials occupies the curious examination of the trail user to such an extent that they often completely miss the vista and natural wonder to be seen. Trail structures designed to "frame" nature should be of familiar and humble construction that understates rather than overstates the purpose and should blend with their natural surrounding. This would also apply to completely functional trail structures such as retaining walls, containment fences, fence crossings, etc.

In the use of timber or logs in trail structure construction, the most important consideration is the separation of such members from the ground and ground moisture and elimination of water or moisture pockets where rot will set in. Generally, if a timber structure is worth building, the timber is worth protecting.

13.25 WOOD TRAIL BRIDGE NOTES

- 1. THE RAILS FOR THE TYPICAL WOOD BRIDGE DESIGN IN THIS MANUAL DO NOT MEET HANDICAP REQUIREMENTS. CONSULT THE HANDICAP DESIGN MANUAL FOR HANDICAP RAIL DESIGN IF HANDICAP DESIGN IS DESIRED.**
- 2. THE STRINGER SIZE'S VS. SPAN GRAFT WAS CALCULATED CONSIDERING THE WEIGHT OF THE WOOD (DEAD LOAD) PLUS 100 POUNDS PER SQUARE FOOT (LIVE LOAD-PEOPLE) ON THE BRIDGE.**

3. ***DUE TO THE FACT THIS WOOD BRIDGE IS A GENERAL DESIGN FOR PLACEMENT ANYWHERE IN THE STATE, WIND AND SEISMIC LOADS WERE NOT CONSIDERED IN THE DESIGN. CONSULT WITH A LICENSED CIVIL ENGINEER IF WIND AND SEISMIC LOADS ARE A CONSIDERATION IN THE DESIGN.***
4. ***IF MORE COMPLEX OR LONGER SPAN (LONGER THAN 40') TRAIL BRIDGES ARE BEING CONSIDERED OTHER THAN THE TYPICAL WOOD TRAIL BRIDGE IN THIS MANUAL PLEASE CONSULT WITH A LICENSED CIVIL ENGINEER.***

13.3 Placement

In locating bridge sites, the following points must be given careful consideration:

1. Availability of bridge material
2. Length of span
3. Character of banks
4. Range of high water
5. Alignment of stream bed
6. Accessibility of the site

The ideal site is one requiring little or no trail rerouting where there is an abundance of easily secured suitable material, the stream is narrow, the channel straight, the banks high, even and solid.

13.4 Designs

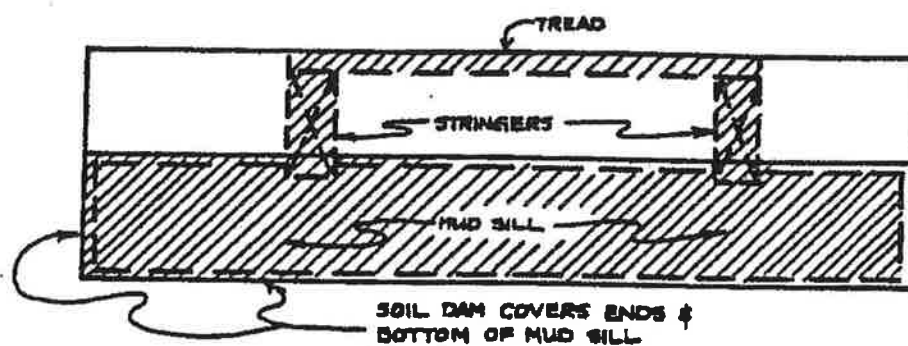
13.4.1 Soil Dams

All bridge designs will incorporate soil dams at the ends of the stringers. There are two types of dam applications, in the ground and out of the ground.

When a bridge approach is flush with trail grade, soil contact is separated from the bridge structure by the soil dam. Soil dams can be constructed of redwood, F.N.D. grade treated wood or concrete. They shall be constructed to provide a complete soil barrier between the mud sill, the bridge stringer and the decking. This will keep soil from sloughing onto the mud sill, stringers and bridge decking and causing premature damage. (See Figure 13.1 Soil Dam Detail and Figure 13.2 Concrete Abutment Detail.)

When a bridge approach is stepped up to stringers, a soil dam may be used to provide a kick plate on the face of stringer ends. Material for this type of soil dam should reflect type of bridge decking used.

SOIL DAM DETAIL



END VIEW

CROSS SECTION

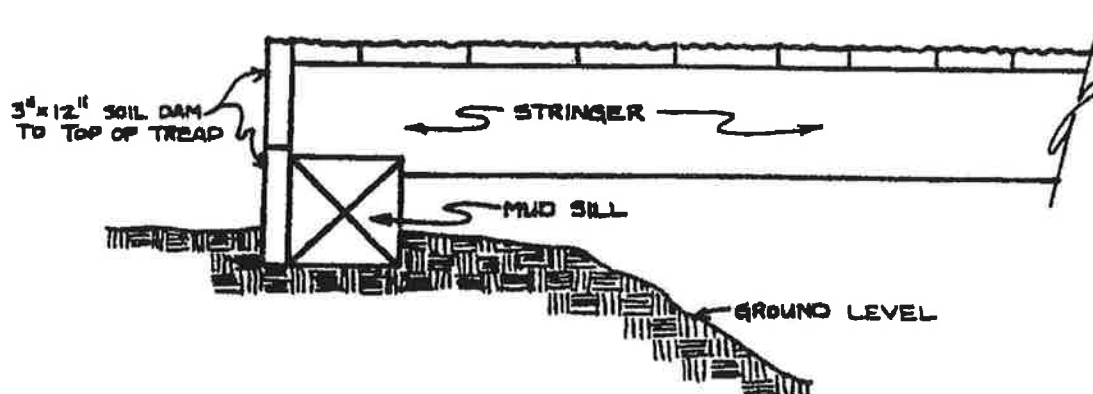


Figure 13.1

MILLED STRINGER TABLE
Doug Fir, Select Structural, Non Treated
Non-trussed Spans
Two Stringer Wood Trail Bridge

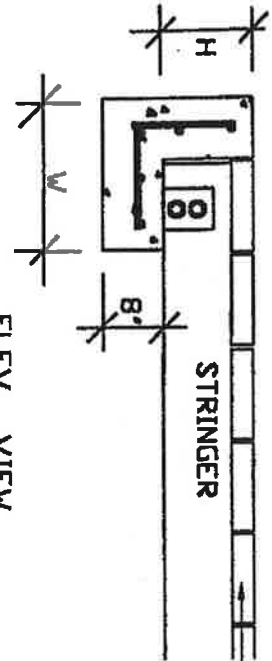
Maximum Span in Feet	Stringer Dimensions in Inches
<12	6X8
>12 & <13	8X8
>13 & <15	6X10
>15 & <17	8X10
>17 & <18	6X12 or 10X10
>18 & <20	8X12
>20 & <22	6X14 or 10X12
>22 & <24	8X14 or 12X12
>24 & <25	6X16
>25 & <26	10X14
>26 & <28	8X16 or 12X14
>28 & <29	14X14
>29 & <30	10X16
>30 & <32	6.75X18 Laminated Stringer
>32 & <34	6.75X19.5 Laminated Stringer
>34 & <37	6.75X21 Laminated Stringer
>37 & <40	6.75X22.2 Laminated Stringer

Notes:

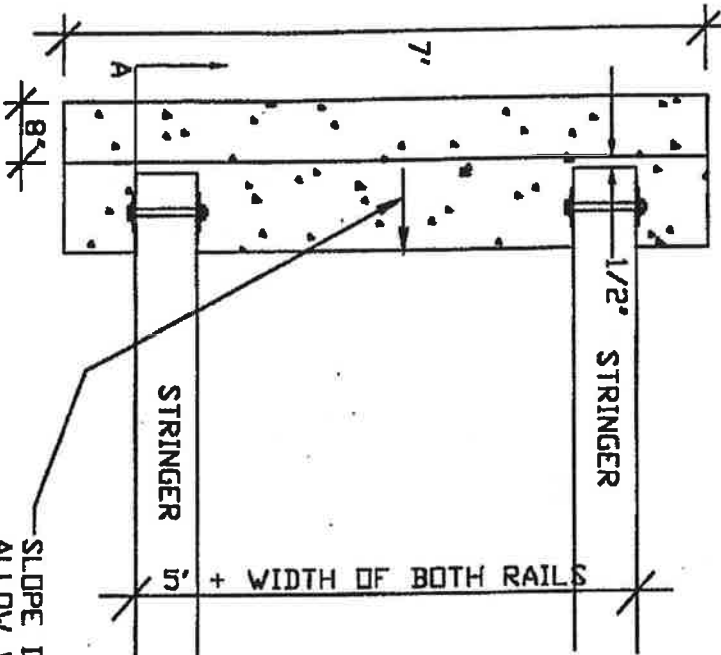
1. Maximum stock length for non-laminated stringer is 30 feet.
2. Stringer lengths over 30 feet require laminated stringers.
3. Consult with a Licensed Civil Engineer for complex or longer span trail bridges.
4. See Figure 13.3 for Stringer Span Graph.

13.4.2 Solid Stringer

Construction of a typical wood bridge will consist of placing sound, peeled, milled or split mud sills, minimum 14-inch by 14-inch by 8 feet long, set on a compacted abutment. (See Figure 13.4 Abutment Width Vs Span Graph.) The mud sills will be spanned by two sound stringers and decked as shown on Figure 13.5. Consult with a Licensed Civil Engineer for complex or trail bridges with lengths over 40 feet. Stringers will be fixed to the sills as shown of Figures 13.2 for pored concrete sills or Figure 13.5 for wood sills. The tread shall be secured to the stringers with an appropriate galvanized fastener.



ELEV. VIEW
X-SECTION A-A



PLAN VIEW

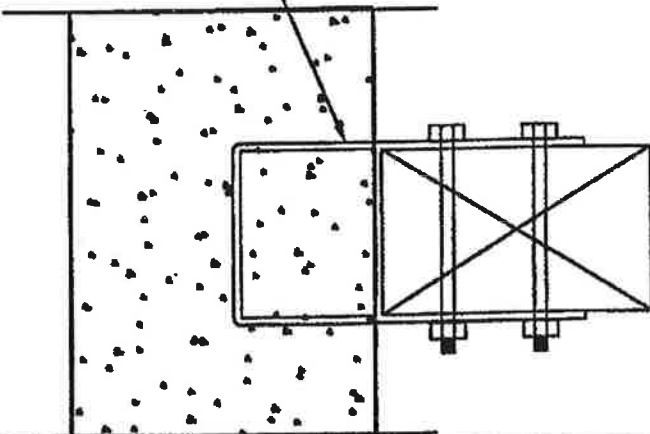
SLOPE DOWN SLIGHTLY TO
ALLOW WATER TO DRAIN OFF
CONCRETE.

PLACE #4 REBAR AS SHOWN IN THE
ELEV. VIEW. PLACE EVERY 12" ON
CENTER.

- NOTES:
- * H = ABUTMENT HEIGHT, ADD
STRINGER DEPTH PLUS 3" (FLOOR
BOARDS)
 - * FOR STRINGER SIZE SEE
STRINGER VS. SPAN GRAPH.
 - * V = ABUTMENT WIDTH SEE
ABUTMENT WIDTH VS. SPAN
GRAPH
 - * CONCRETE ABUTMENT REQUIRES
13 C.F. OF CONCRETE FOR 12'
BRIDGE SPAN, 17C.F. FOR 30'
BRIDGE SPAN AND 19C.F. FOR 40'
SPAN.
 - * SUGGEST TREATING THE PORTION
OF THE STRINGERS THAT SIT OVER
THE CONCRETE ABUTMENT WITH A
WOOD PRESERVATIVE.

ATTACH STRINGER TO CONCRETE
ABUTMENT WITH SILVER METAL
PRODUCTS (OR EQUAL) HBM SERIES
COLUMN BASE WITH TWO 3/4" DIA.
HEX BOLTS, HEX NUT AND LOCK
WASHER. THE HOLE FOR THE 3/4"
A BOLT SHALL ALLOW FOR STRINGER
EXPANSION.

STRINGER ATTACHMENT DETAIL
NO SCALE



TYPICAL WOOD TRAIL BRIDGE

CALIFORNIA PARKS AND RECREATION

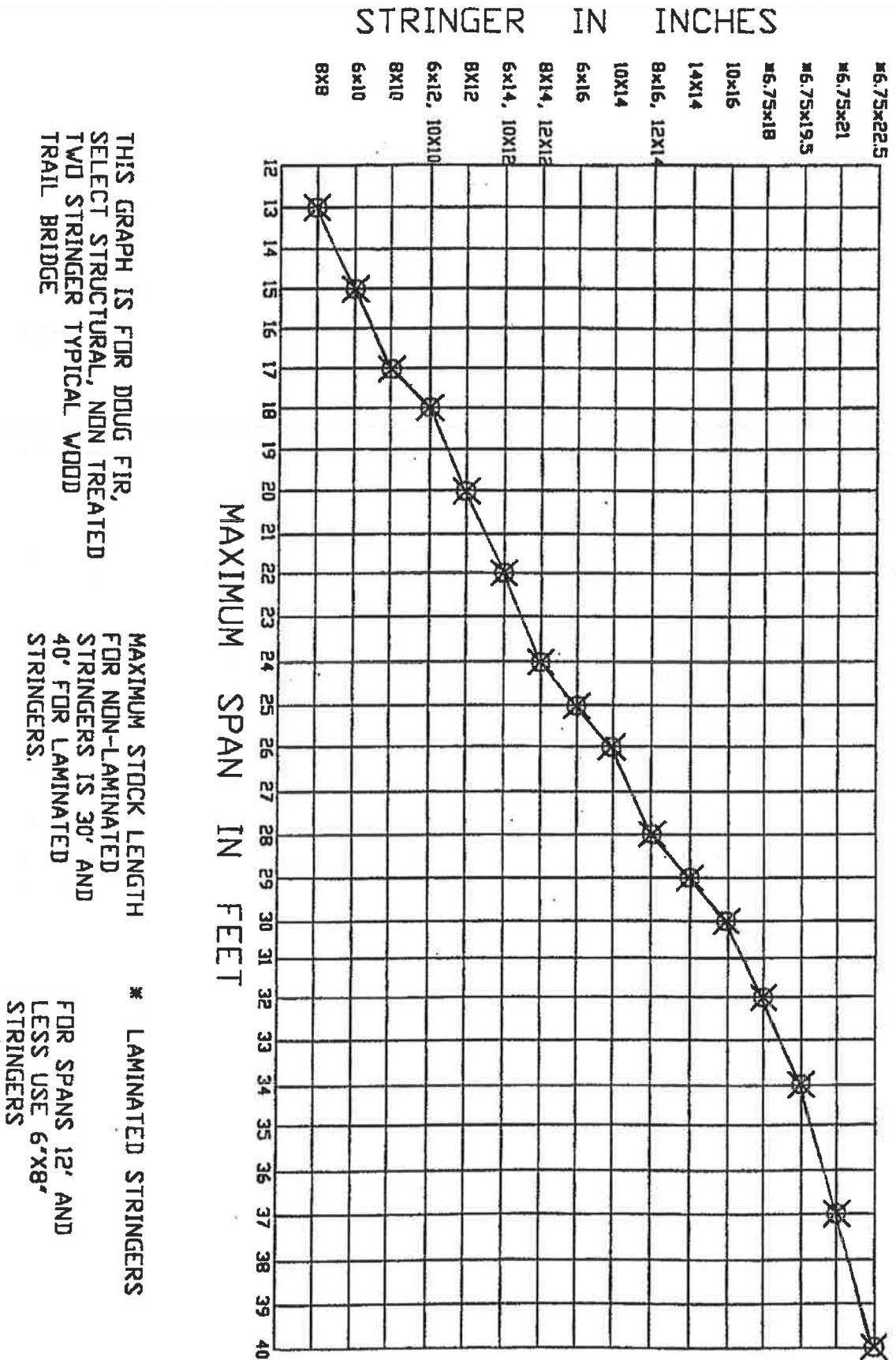
CONCRETE ABUTMENT DETAIL

RECEIVED MONEY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

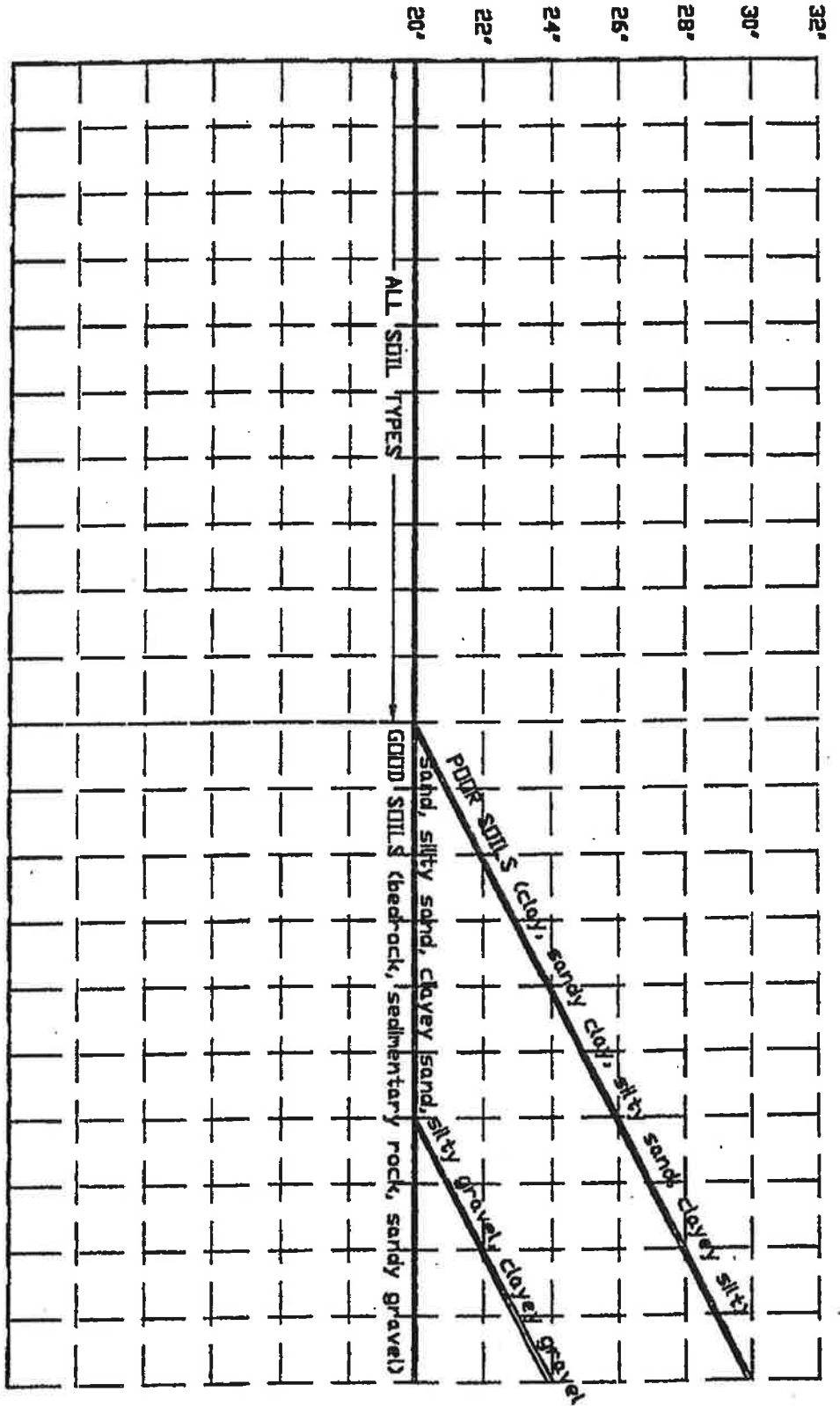
APPROVED _____ DATE _____

RECEIVED
A STOVICH
BROWN
B STOVICH
DECKER
BROWN

Figure 13-7



ABUTMENT FOOTING WIDTH (INCHES)



EXAMPLE 1: BRIDGE SPAN

IS 33' (HALF SPAN IS 33'/2=16.5'). SOIL TYPE IS SANDY CLAY.

ABUTMENT WIDTH FROM GRAPH IS 26.5", USE 27".

EXAMPLE 2: BRIDGE

SPAN IS 20' (HALF SPAN IS 20'/2=10'). SOIL TYPE IS ROCK. ABUTMENT

WIDTH FROM GRAPH IS 20"

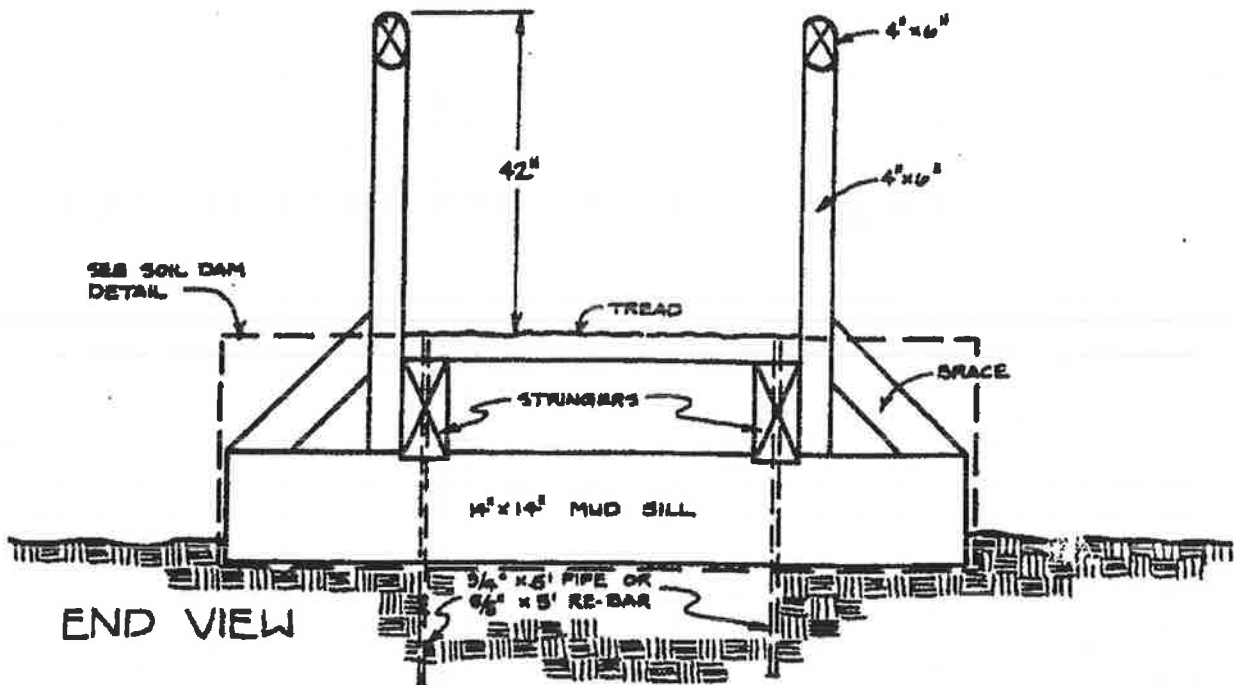
BRIDGE HALF SPAN (FEET)

NOTES:
IF WOOD IS SUBSTITUTED FOR THE CONCRETE ABUTMENT USE F.N.D. GRADE TREATED WOOD. THE WOOD SHOULD BE TREATED THE FULL LENGTH. DO NOT CUT WOOD ON SITE AND HAND TREAT.
IF SOIL TYPE IS QUESTIONABLE USE POOR SOILS OR HAVE THE SOIL TESTED BY A SOILS LAB.

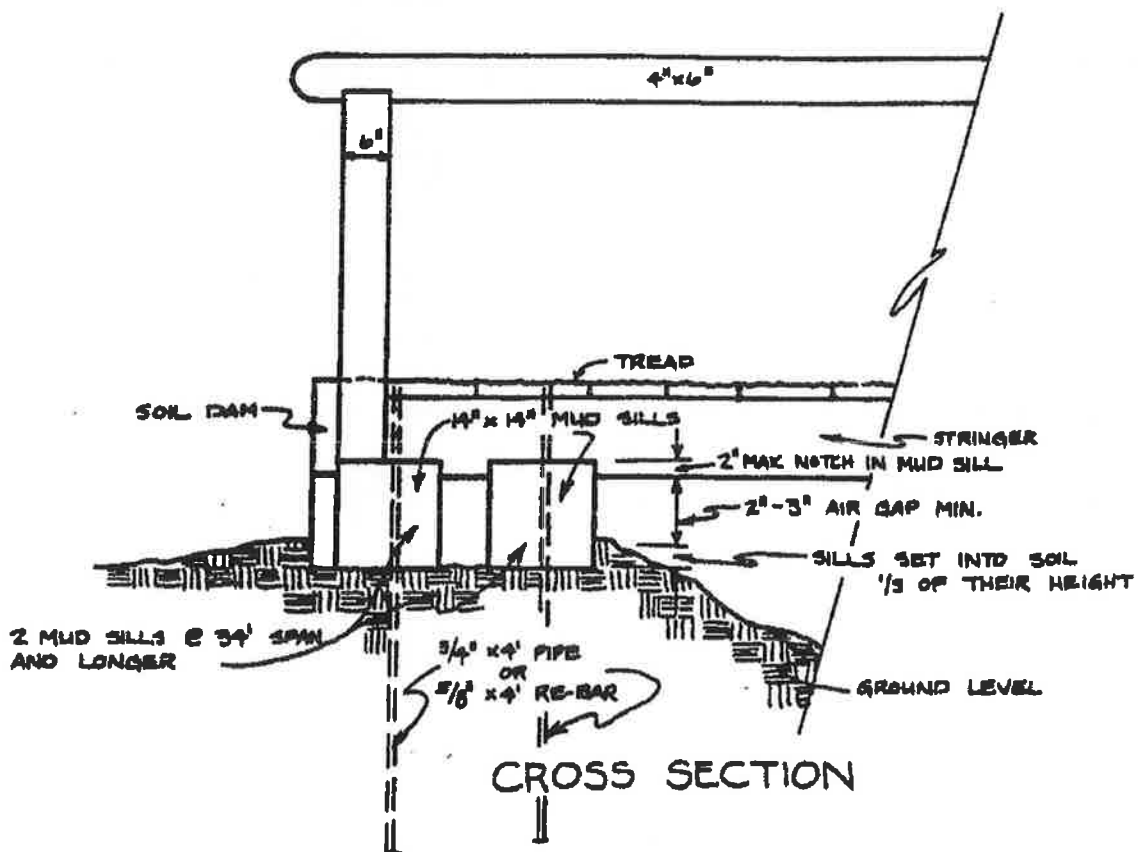
USE THIS GRAPH TO FIND THE WIDTH OF THE ABUTMENT. SEE SHEET FOR TYPICAL ABUTMENT DETAIL.

MUD SILL ASSEMBLY DETAIL

NOT TO SCALE



END VIEW



CROSS SECTION

Figure 13.5

Handrails shall be constructed by bolting an upright post to the stringer and toenailing it to the post sill. A top rail and lower diagonal will be placed as specified in Section 15 Safety Railings. Uprights and braces should be spaced not more than 10 feet apart. Handrail upright posts and brace diagonals and top rails will be at least 4 x 5 inches when skinned smooth.

Diagonal post braces shall be placed from the end of the post sill to above the tread. A 4 x 5 inch skinned smooth handrail, fixed to the uprights with #50 galvanized nails, will span the uprights. The top of the finished handrail will be 42 inches above the level of the bridge deck. (See Figures 13.6 and 13.7.)

Minimum stringer dimensions are specified in the Milled Stringer Table.

Stringers and rails will be placed to allow a deck width between rails of not less than 40 inches. Tread material will extend 3 inches beyond the deck width on each side and be not less than 3 inches thick.

Trail tread is to approach each end of the bridge with an 8 inch step and/or flush with the walking surface. The bridge tread will be level and uniform, with all knots and protruding edges hewn smooth.

LOG STRINGER TABLE
Doug Fir, #1 Highline
 Non-trussed Spans
 Three Stringer Log Trail Bridge

Maximum Span in Feet	Small End Diameter in Inches
<12	9
>12 & <15	10
>15 & <17	10 ½
>17 & <18	11
>18 & <20	12
>20 & <22	13
>22 & <24	14
>24 & <26	15
>26 & <28	16
>28 & <30	16 ½
>30 & <32	17
>32 & <34	17 ½
>34 & <36	18
>36 & <38	18 ½
>38 & <40	19

Notes:

1. Consult with a licensed Civil Engineer to verify load calculations.
2. Diameters are for the small end of the log stringers.

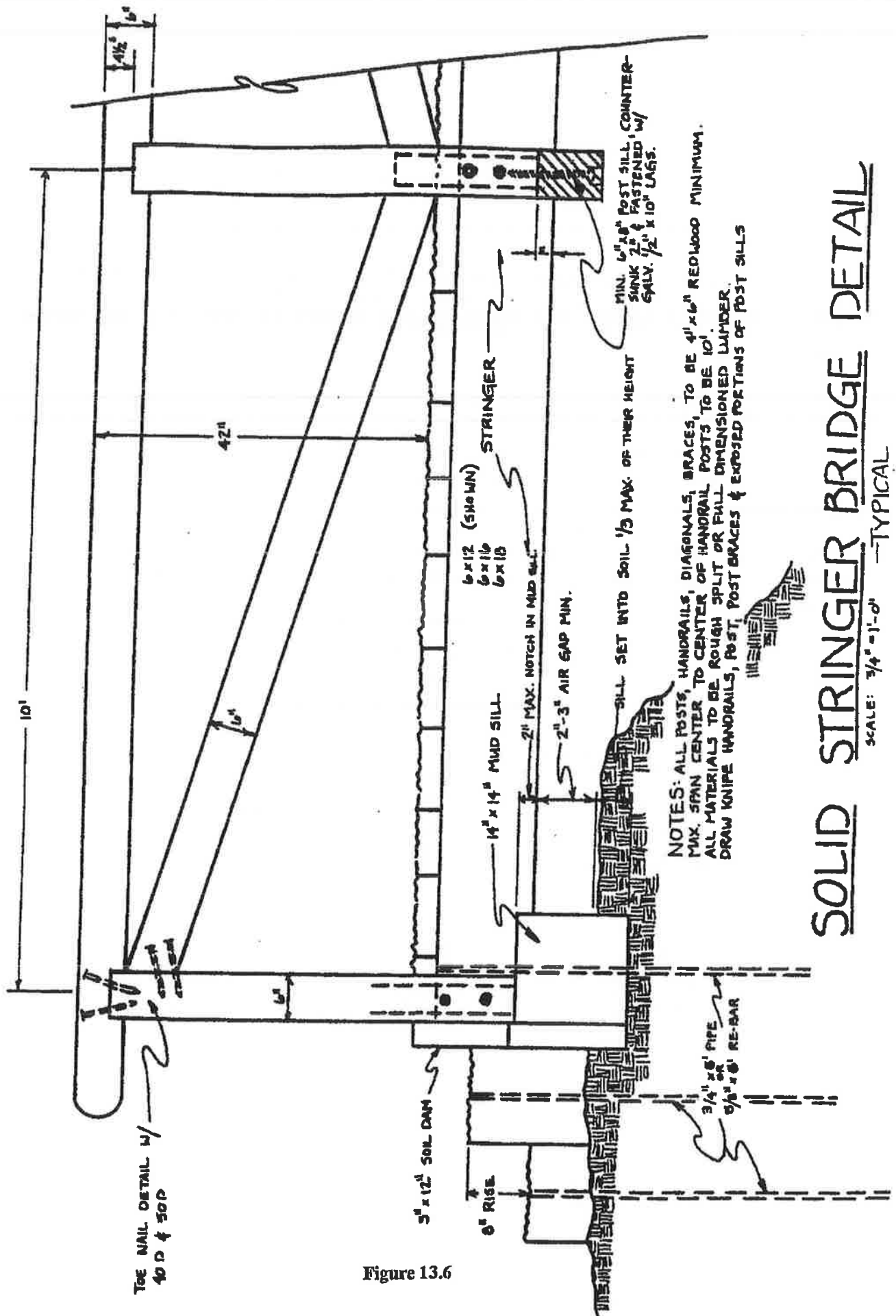


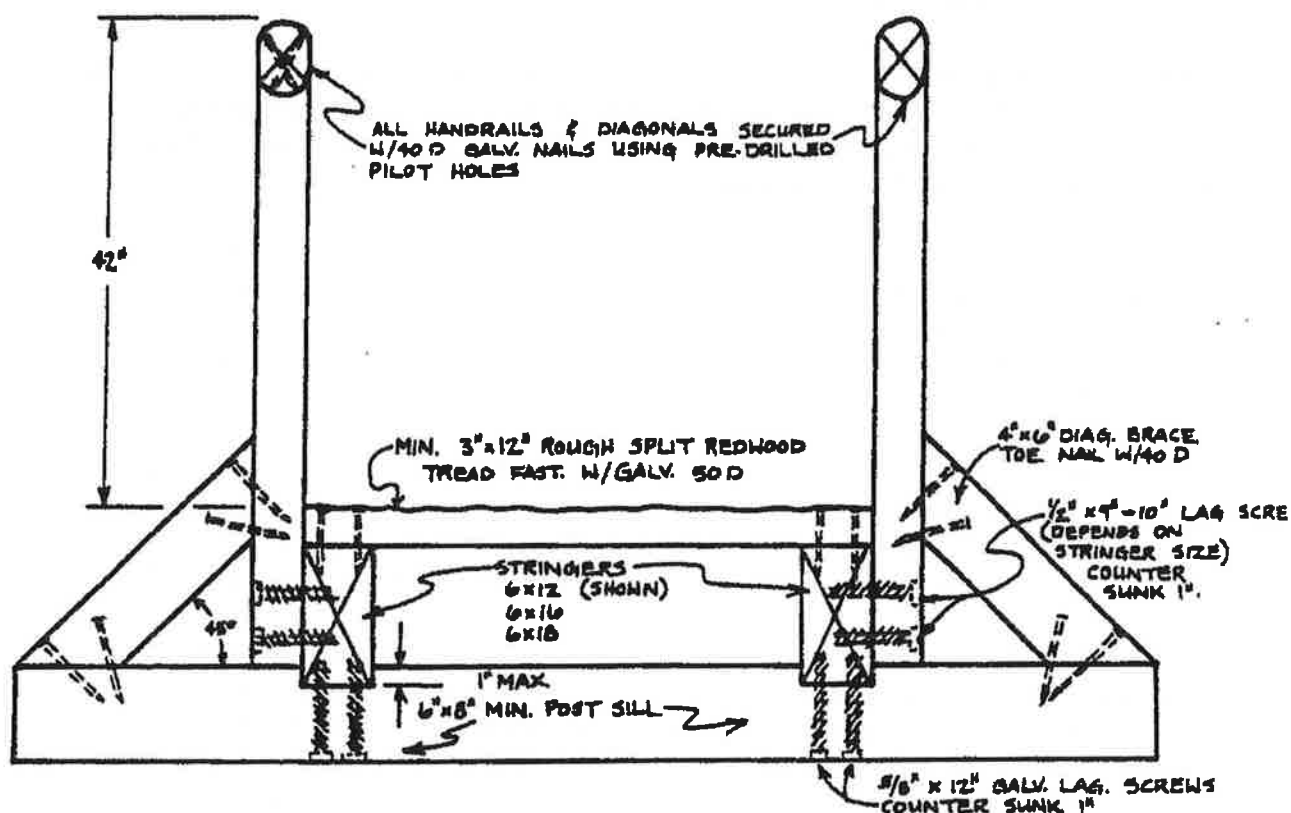
Figure 13.6

POST SILL ASSEMBLY DETAIL

STRINGER BRIDGE

END VIEW

SCALE: $\frac{3}{4}" = 1'-0"$



NOTE: ALL BARK & SAPWOOD TO BE REMOVED
FROM ALL STRINGERS, SILLS, POSTS, BRACINGS.
ALL HARDWARE & FASTENERS TO BE GALVANIZED.
MINIMUM OF 2" SPACING TO BE MAINTAINED
BETWEEN ALL STRUCTURAL STANDARDS FOR
STRINGER DIMENSIONS & NUMBER FOR NEEDED
SPANS.
END HANDRAIL POST TO BE LAG SCREWED TO
MUD SILLS & STRINGERS.

Figure 13.7

13.4.5 Trestle

In some areas, a single span bridge is inadequate to meet the requirements of the site. The span may be too great or the abutments may be grossly out of level. In these situations, a trestle may be employed. (See Figure 13.13.) This bridge design is more complex and Trail Coordinators should consult with a Licensed Civil Engineer when considering this bridge design. These specifications are provided as a resource and have been used successfully in the construction of trail bridges in California State Parks.

A number of variables such as distance and terrain determine the maximum length stringer that can be practicably transported to a given site. In extremely remote sites, grip hoisting in extremely long stringers might be prohibitively time consuming. Using a trestle would allow shorter length and smaller dimension stringers to be used.

Trail approaches or soil stability concerns may require the use of abutments that are far from level to each other. A trestle may be used on the lower abutment to allow a level crossing. This would eliminate the need to construct a massive cribbed abutment. From the trestle end of the bridge a cutout stringer stairway could be constructed to meet the trail at the lower abutment or an approach bridge could run level off the trestle to meet grade.

The trestle shall be constructed of con-heart grade redwood (see Section 13.7 Materials) and consist of three components: the mud sill, the columns and the trestle sill. Trestles provide elevated support of stringers, the same as a mud sill. If single free span exceeds 32 feet, a double trestle will be used to distribute the additional load weight (see Figures 13.14 and 13.15).

The mud sill shall be all heart redwood with 14 inches x 14 inches minimum end dimension. The length varies relative to the height of the trestle. The mud sill shall be notched to a depth of one inch at each location where an upright support column attaches to it. The trestle shall be set square to mud sill(s) on opposite bank and level. The length of mud sill shall be a minimum 8 feet long with a minimum of 24 inches longer than the distance between the outside of the outermost upright support columns. The support columns to attach to the mud sill using either 5/8 inch x 12 inches galvanized lag screws or through bolted with threaded stock. All bolt heads and/or nuts to be countersunk to provide for full contact of malleable iron timber washers.

The upright support column height will vary with the height of trestle needed. The column end dimension shall be a minimum of 8 inches x 12 inches. The upright support columns attach at the bottom of the trestle sill and the top of the mud sill at an angle of 70 degrees. If the height is greater than 3 feet, a third vertical 90 degree support column shall be placed in the middle. The outermost support columns shall attach to the bridge sill directly beneath the stringers of the longer span and extend downward at an angle 12 degrees outward from vertical, giving the structure an inverted V shape. This angle lends stability to the structure and also determines the length of the mud sill.

The trestle sill shall have a minimum end dimension of 12 inches x 12 inches with length not exceeding the length of the mud sill. The bottom of the bridge sill should be notched to a depth of one inch at each location where an upright support column attaches. The upright columns are fastened as described for mud sills. The top of the trestle sill is not to be notched in any fashion. The stringers may be attached by countersunk lag screws or through bolted. If the trestle is joining two spans with stringers of different dimensions, wooden blocks or fabricated metal supports may be placed beneath the smaller stringers to bring their top level to the top of the larger stringers. The trestle sills shall be positioned centered over mud sill with respect to both length and width.

Cross bracing of 4 inches x 8 inches dimension should be attached to either or both sides of the trestle to prevent rocking. Cross braces should extend from the top of the bridge sill to the opposite bottom of the mud sill diagonally. If the mud sill and bridge sill is of different dimensions, then the cross brace shall be notched to provide for full contact to both sills. Cross bracing shall be fastened to both sills with 5/8 x 12 inches galvanized lag screws. Cross braces shall be installed so they join the mud sill and bridge sill at approximately the same location at the outermost support columns. If both sides are cross braced, the cross braces shall run in opposite directions. Where possible, cross braces shall be fastened to the upright support columns as well.

When two trestles are being used, cross bracing shall also be installed to join the two trestles. In this instance, cross bracing shall be fastened to the top of one outside support column and to the bottom of the outside support column or the other trestle. Both sets of outside support columns shall be cross braced, braces running in opposite directions.

Abutments

The same concerns for soil stability apply to trestle abutments as to bridge abutments. However, there are additional concerns for trestle abutments. Trestles may be placed on the flood plain of a creek. If this is the case, then the trestle abutment must not be located in an area where it is likely to become eroded by the water or where it is likely to catch debris floating down the creek. For these reasons, trestle abutments shall be placed on the insides of meandering turns where possible. The installation of a cribbed retaining wall totally surrounding the mud sill, extending to a depth 18 inches below the bottom of the creek, may be required.

In areas of deposition, it may be necessary to remove deposited silt and import gravel to provide for a firm abutment. In areas outside of creek flood plains but where soil stability or bank stability is poor, a poured concrete slab may be required.

In any case, the mud sill must be securely attached to the abutment either by pounded in rebar or anchor bolts set into a concrete slab.

13.6 Fords

In some situations, fords are preferred to bridges for stream crossings, provided the velocity and depth of the water is acceptable during the normal use season. The use of fords eliminates the expensive construction and maintenance cost associated with bridges.

Fords are not normally constructed but are selected from natural crossings. Desirable natural features include: gentle approach grades (not more than 10%), firm stream bank soil (not susceptible to erosion), shallow low velocity flows (less than 24 inches depth) and stable, firm and even stream bottoms (no stones larger than 6 inches).

Modifications to these natural crossings may be required if all these criteria cannot be met. Prior to performing any work in the stream, the chosen location must be inspected thoroughly to determine what effects these modifications may have on the stream's morphology. Stream bank stability both upstream and downstream must be evaluated to ascertain what effects increased stream depth will have. Upstream banks and side slopes must also be evaluated to determine if landslide activity is present. Increased channel depth may adversely affect active or dormant slide areas. The streambed should also be evaluated to determine if it is actively changing grade, cutting or filling. Either of these conditions can effect the success of an established ford.

If the desired stream crossing is too swift, constructing a small stone dam just downstream from the crossing (see Figure 13.21) can reduce its velocity. This structure will increase the depth of the ford, reduce its velocity and catch and retain aggregate, producing a smooth and level ford tread. When constructing this dam, it should be keyed into the stream bank a minimum of 12 inches on both sides. The bottom course should be laid below the stream's known scour depth or 18 inches below the existing streambed if the scour depth is unknown. Rocks used in the dam should be no smaller than 12 inches in diameter. Stepping stones should also be incorporated into the dam for pedestrian use. These stones should be no smaller than 24 inches in diameter and be spaced no further apart than 24 inches. The tops of the stepping stones should be a minimum of 6 feet above the stream's high water mark.

The streambed at the ford crossing should have a minimum down stream slope of 3%. This will reduce the deposition of unwanted silts and excessive aggregates.

The approaches to the ford should have a minimum tread width of 36 inches, has a minimum length of 10 feet and a 10% down grade. The approaches should also have graveled surfaces. This will armor them so they maintain their shape and resist erosion. The prevailing trail grade should be a minimum of one foot above the high water mark where it joins the ford approaches.

EQUESTRIAN & HIKER STREAM FORD

13-33

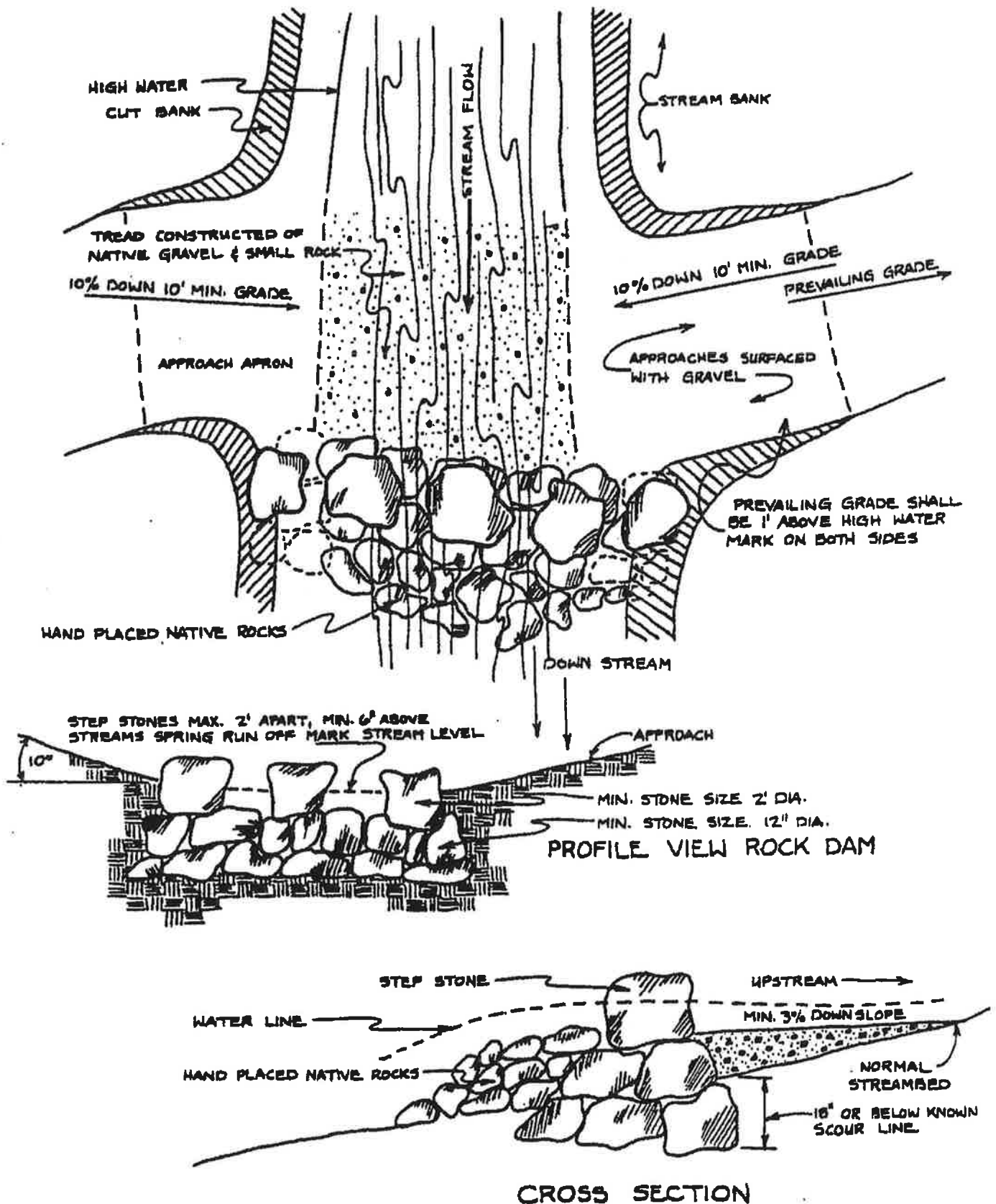


Figure 13.21

CREEK FORD

NOT TO SCALE

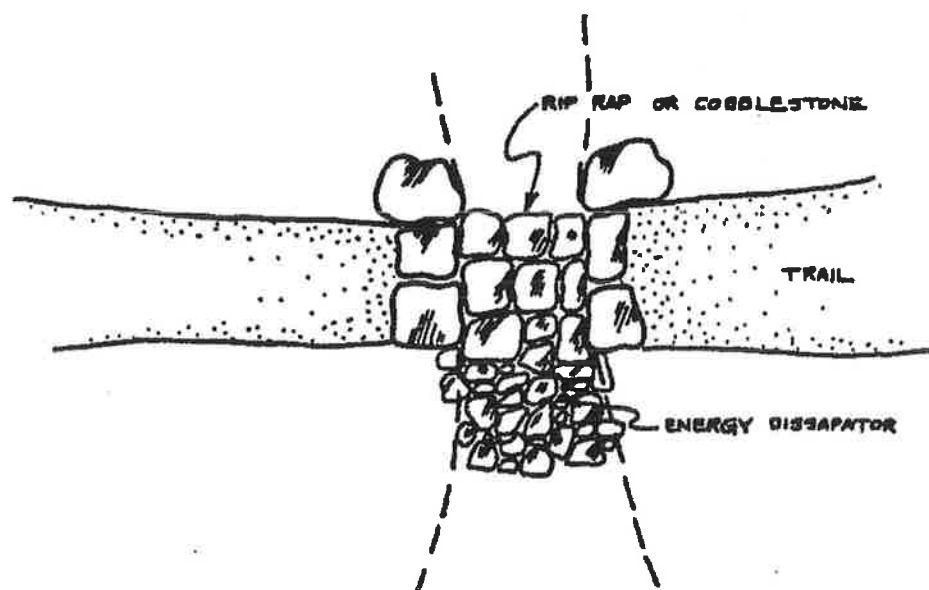
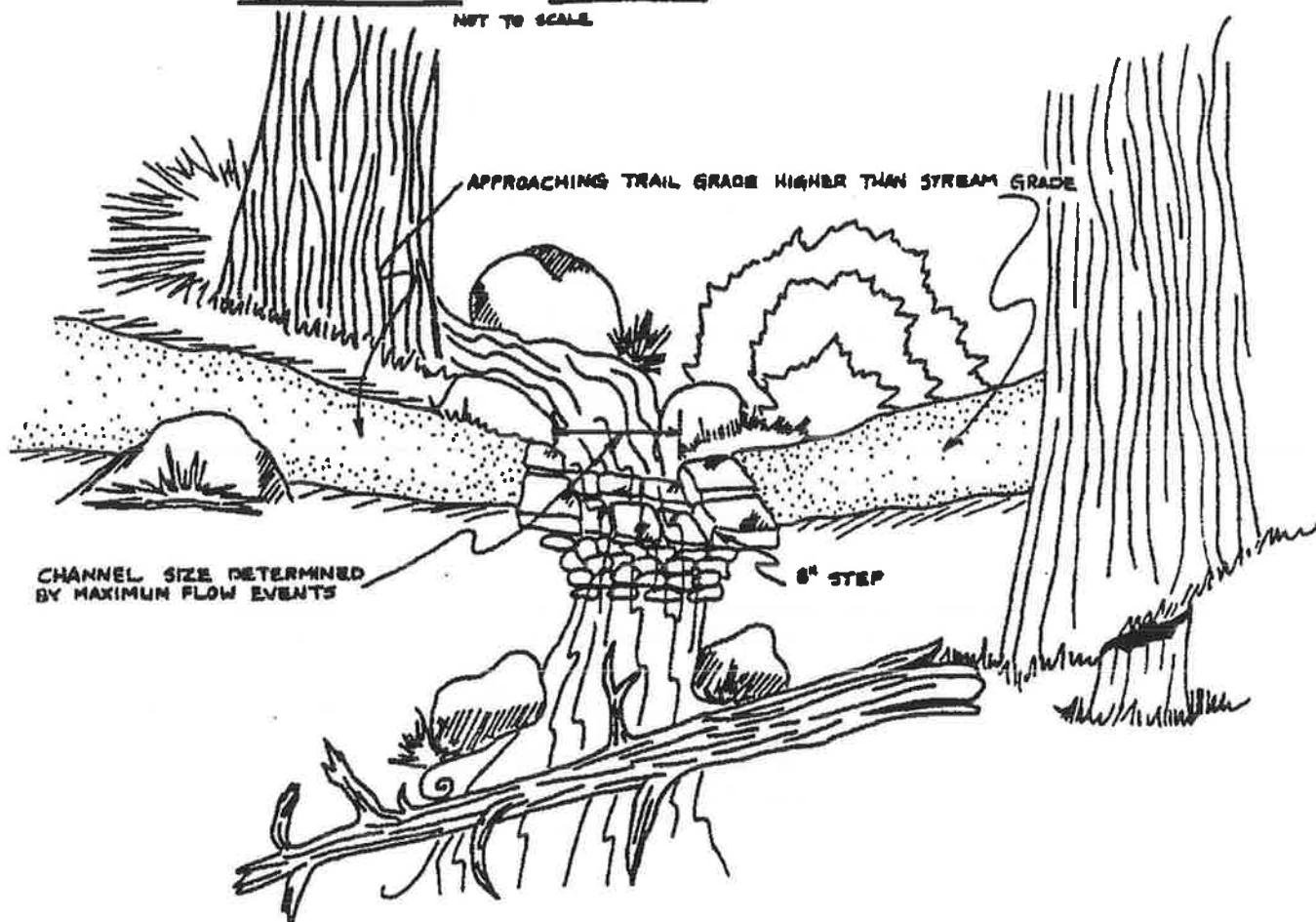


Figure 13.22

14 RETAINING STRUCTURES

14.1 Definition

Retaining structures are designed to contain or stabilize soil, gravel and rocks. This material may be upslope, within or downslope of the trail bed or within a structural component such as bridge abutments, ramps or cribbed steps.

14.2 Retaining Walls

Utilized to keep materials above or below the trail tread in place.

14.2.1 Log or Wood Structures

All wing, facer and tie logs will be all heart redwood or pressure treated Douglas Fir and will be 4 inches minimum thickness (if using logs, the minimum all heart diameter will be 6 inches) at the small end. Tie logs will be spaced not more than 8 feet apart and will be at least 48 inches long (see Figure 14.1). All components will be notched and may be fastened with 3/8 inch diameter spikes or drift pins. Facer and wing members will be fitted with one inch spaces between courses. Backfill material will not be allowed to sift out. Backfill will be tamped using aggregate soils or drain rock to promote drainage. Rocks larger than 4 inches shall not be used as backfill material.

Excavation of an adequate sized footing is the key to a stable wall. The footing width is slightly larger than the timber to be used for wall materials. The footing foundation shall be at least 8 inches below grade and, in stream side applications, 18 inches below the lowest point on the stream. Scour line or channel depth.

All ends of the retaining walls shall be keyed into native soil which is not experiencing mass movement.

Where the length of wall is greater than 12 feet and two retaining wall pieces are spliced together, additional anchor posts shall be placed on each side of the splice. If possible, the splice should be a lap joint splice or full notch instead of a butt joint splice.

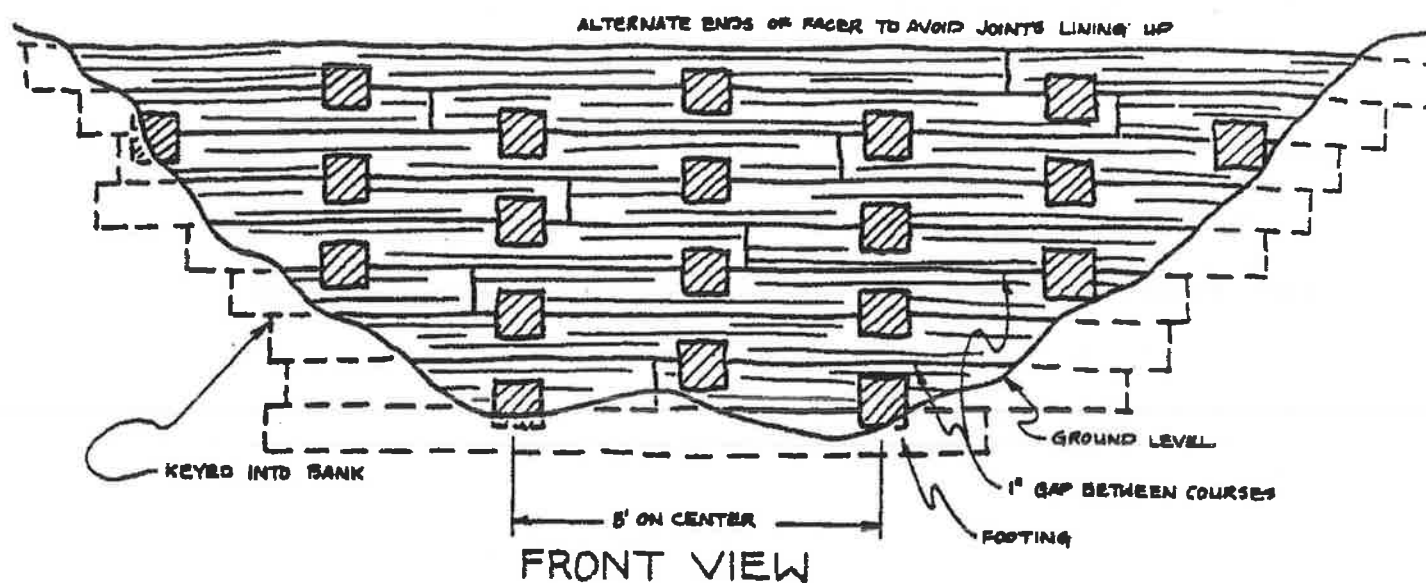
Tie logs are installed either by digging a trench to the necessary depth and length for the log or burrowing to the necessary length. Tie logs must be angled down approximately 10 degrees toward the fill side and firmly seated.

14.2.2 Rock Structures

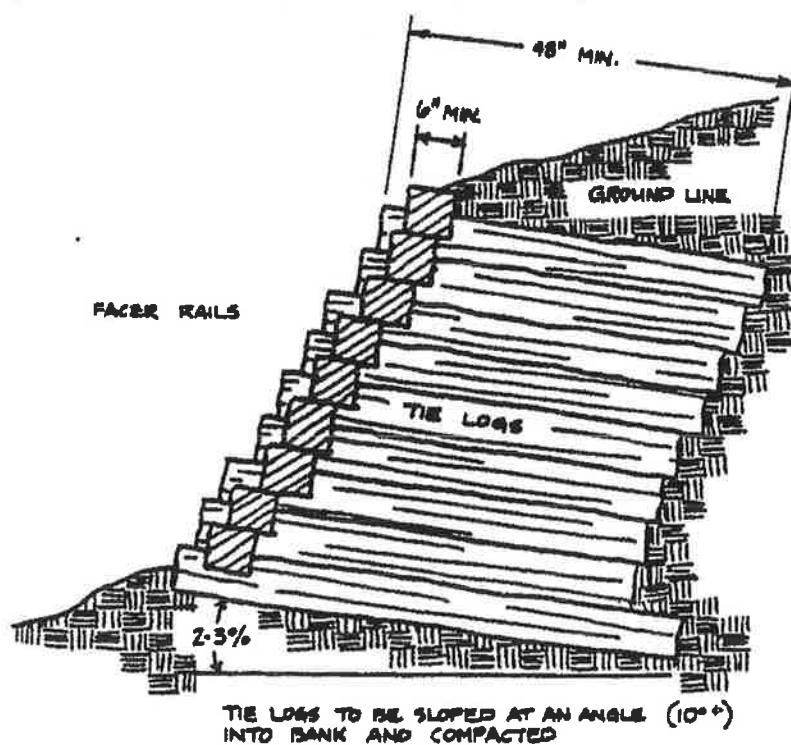
The retaining wall constructed of rock provides an aesthetically pleasing, long-term solution that will withstand the rigors of many winters as well as heavy use by hikers and stock. However, dry wall rock work (rock laid without mortar) takes time, experience and is labor intensive.

RETAINING WALL

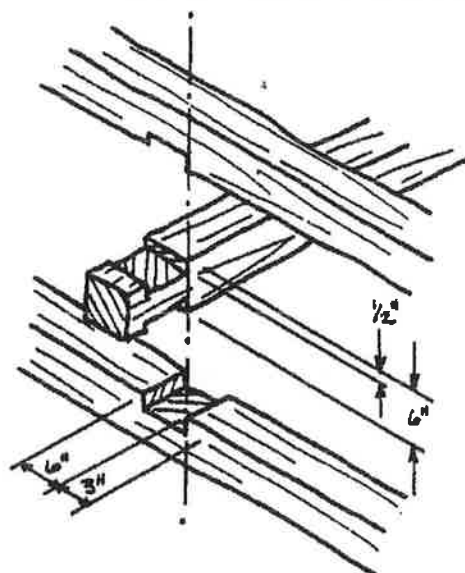
NOT TO SCALE



CROSS SECTION



NOTCHING DETAIL



NOTE: ALL RAILS & TIES TO BE 6"x6" MIN. STOCK W/NO SAP WOOD (CAN BE ROUND STOCK)

Figure 14.1

Planning a rock wall, as with other structures, requires taking into account natural features of the work site. Rocks and bedrock in place can be used as anchors and keystones. As with wood structures, a rough sketch of your wall will enable planning around natural features.

Selected rock and stones shall be sound, durable and have at least one or more good uniform surface (which can be used as an outside face). The rock shape should allow the rock to be laid with the bulk for the rock's weight set back into the wall. The header stone's length shall span full thickness of the rock wall. Fifty per cent of the stones in the wall shall be greater than one cubic foot.

Look for rocks of reasonable size; it is not worth the time and energy to move an excessively large rock. The same result can be achieved with two or more carefully selected and placed smaller rocks.

If the project is large and the number of rocks needed are many, they will unsafely jam up the work area and block the trail to hikers and stock. A rock stockpile which is too crowded with one rock on top of another is nothing more than potential injury, dangerous to be around and ultimately slows up production. Gather only the number of rocks that your stockpile area will comfortably hold yet still provide an adequate selection.

Excavation on an adequate sized footing is the key to a long lasting stable wall. The excavation for the foundation width should be 1-1/2 times the wall height. The entire footing shall be in undisturbed native soil. At least one third the wall height shall be below the ground line. Foundation rocks shall be laid with no overhang protruding beyond the footing. Each foundation rock shall be firmly set with a 3% batter into the wall. (See Figure 14.2.)

Begin laying rock at lowest point in wall. Continue to lay rocks in tiers of roughly equal height. All stones shall be laid with their greatest dimension extending into the wall. At least one quarter of the outer face rocks shall be header rocks (header rocks span thickness of wall). In general, stones should decrease in size from the base of the wall to the top. The top of the crib wall shall reflect the trail bed drainage design and have a minimum of 4 inch thick aggregate soil trail tread.

Make face to face contact on all rock to rock placement. Trim the rock, if practical to achieve adequate contact. Break the joints of the rocks on succeeding tiers similar to brick laying. Lay rock faces so their outer face does not overhang the wall surface. The wall face shall batter 3% back into the slope. Place the rock so its weight is transferred down into the wall. (See Figures 14.3 and 14.4.)

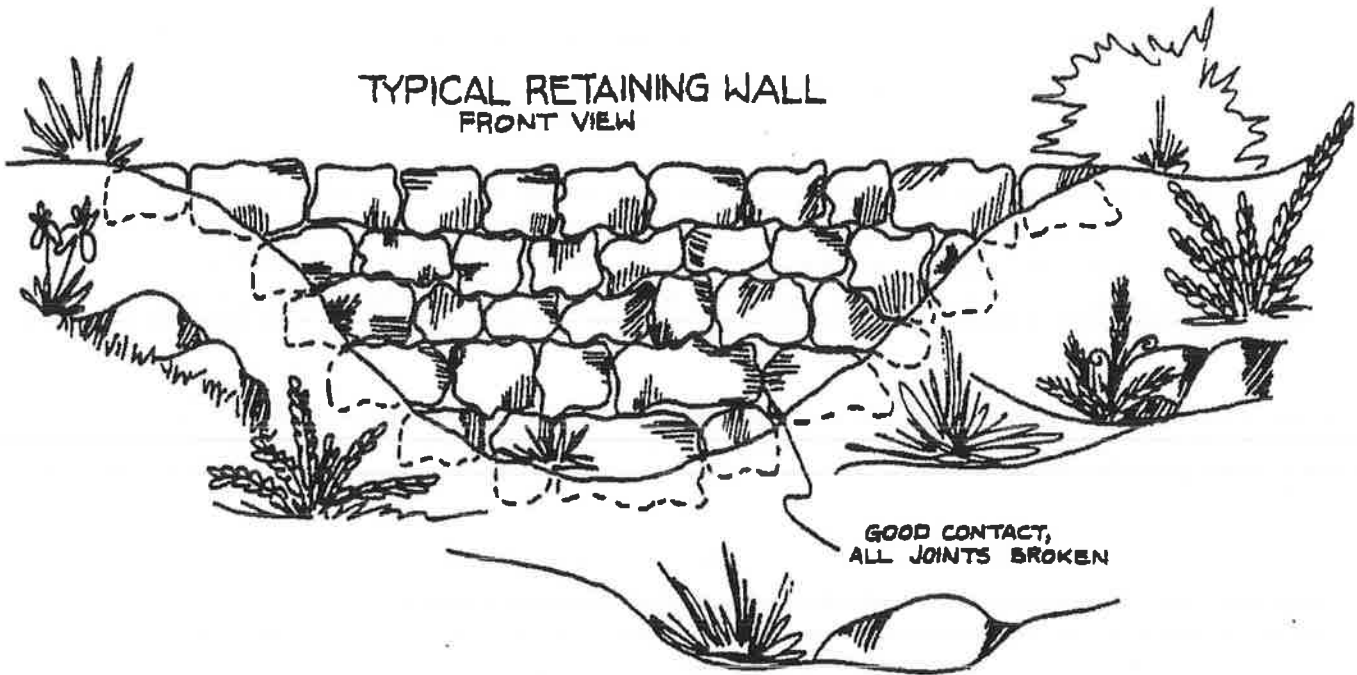
Once the rocks are laid in position, stuff spalls, small rocks and soil around each rock in the tier to strengthen its placement and secure it in position. Be sure that no air spaces remain for the rock and fill to shift to.

MULTI-TIER ROCK WALL

14-4

NOT TO SCALE

TYPICAL RETAINING WALL
FRONT VIEW



STEPPED BACK WALL
CROSS SECTION

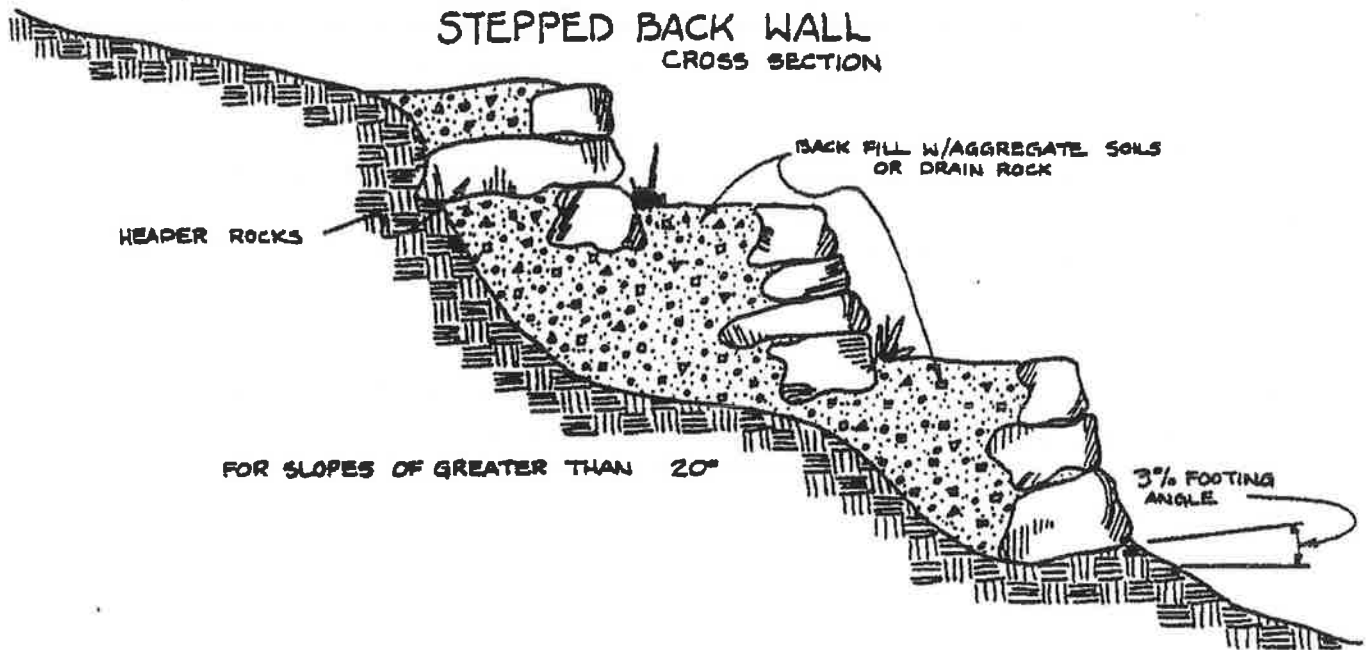
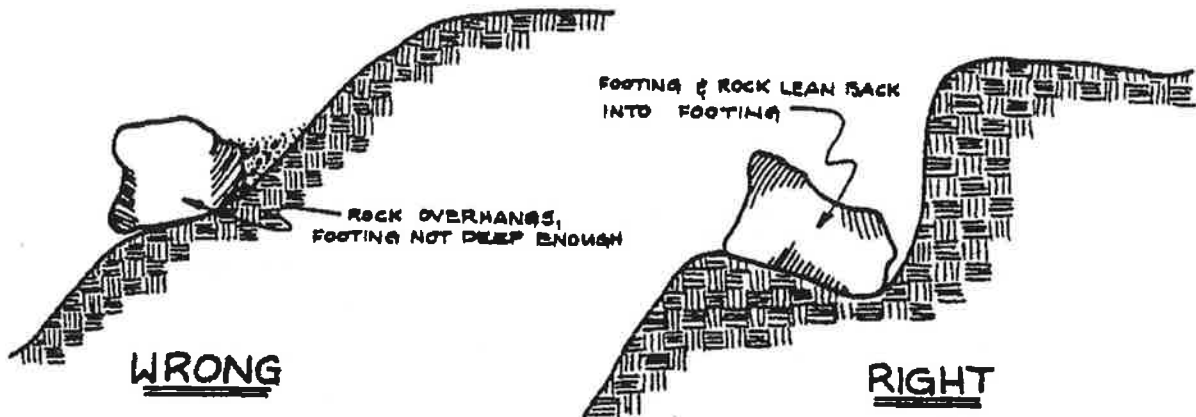


Figure 14.2

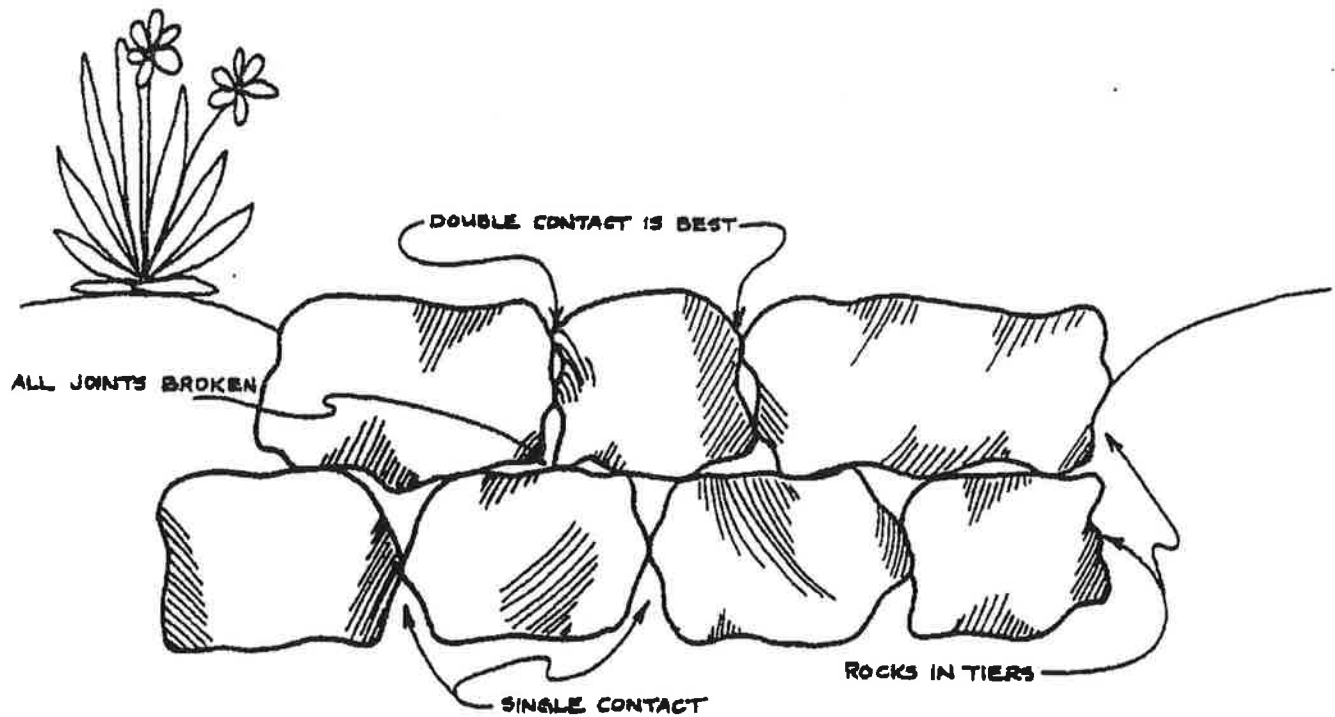
DRYWALL FUNDAMENTALS

NOT TO SCALE



DIG A GOOD, SOLID FOOTING, & LEAN ROCK BACK, INTO THE FOOTING

CROSS SECTION



MAKE GOOD CONTACT & BREAK ALL JOINTS

FRONT VIEW

Figure 14.3

LAYING ROCK

NOT TO SCALE

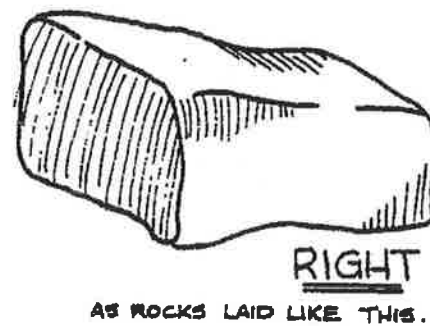
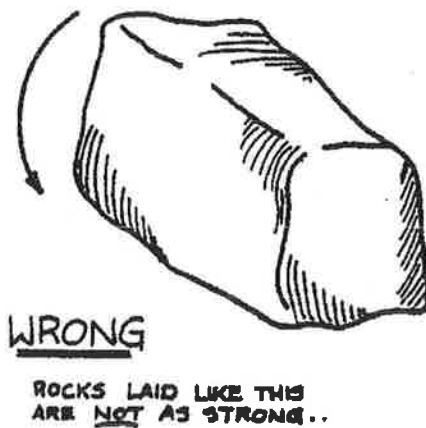
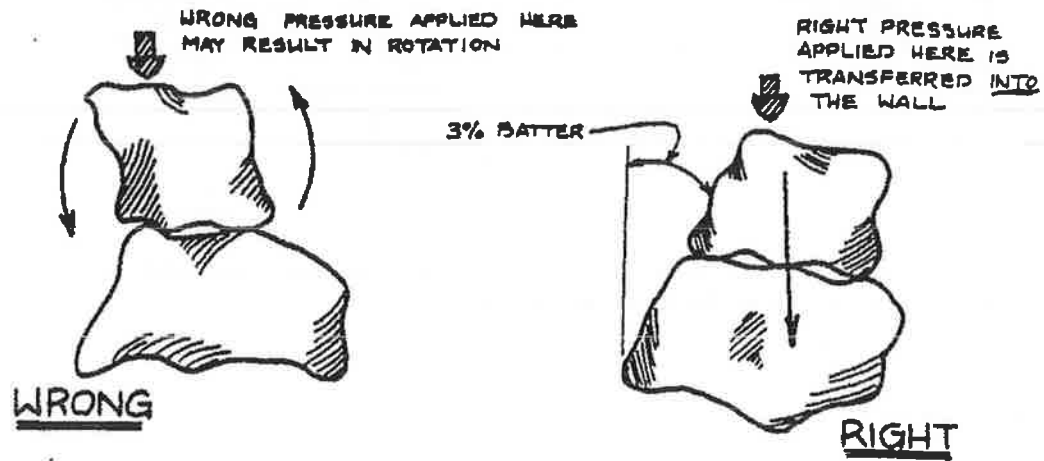


Figure 14.4

After the rocks are stuffed and chinked, backfill behind them with permeable aggregate fill. Fill each tier as the wall is built. Good face to face rock contact must be made between tiers.

14.2.3 Gabions

Gabions are wire mesh, box or mattress-shaped baskets that are normally filled on site with hard, durable rock. Square or rectangular panels which make up the single gabion unit may be fabricated from either welded or twisted wire mesh. Gabion units (square or rectangular) are fabricated of standard or custom designed sizes of various widths, depths and lengths. Gabions are primarily used for bank protection, erosion control and cribbing.

The style of mesh selected, the method used to join gabion panels to form a single unit and the method to join successive gabion units is the same in all applications. The minimum required wire tensile strength of individual wire is 60,000 psi and the minimum application of galvanizing is 0.80 ounce/square feet.

Gabion panels of the twisted mesh style or welded mesh style shall be manufactured from 11-gauge wires or 9-gauge wires depending on application. Tie wires shall be galvanized and no smaller than 13.5 gauge. Alternatively, galvanized spiral binders of the same gauge as the panels may be used with a 3 inch separation between loops.

Individual gabion units shall be divided into cells of equal length, no greater than 3 feet, by using diaphragms made of the same construction as the main panels. The wire mesh panels (base, ends, sides, diaphragms and lid) shall be assembled such that the strength and flexibility at connections is at least equal to that of a single panel.

Each style of gabion shall be assembled by the following method. Assembly shall consist of rotating the panels into position and joining the vertical edges. Welded wire panels shall be joined along all vertical edges with spiral binders or tied. (See Figure 14.5.) When tied, they shall be joined with the tie wire passing through each mesh opening along the joint and secured with a locked loop. Twisted wire panels shall be joined along the vertical edges with tie wire or spiral binders. When tied, they shall be joined with tie wire at 4 inch nominal spacing with alternating single and double-locked loops. The end of spiral binders shall be crimped to secure the spiral in place. There shall not be any openings greater than 4.75 inches (line dimension) along edges or at corners of tied or spiral bound gabions of either mesh style.

The empty gabions shall be set in place and each gabion shall be connected with tie wire to the adjacent gabion along the top and vertical edges. Each layer shall be tied to the underlying layer along the front, back and sides. The tying shall be done in the same manner as that specified for assembling the baskets.

Before filling each gabion with rock, all kinks and folds in the wire fabric shall be removed and all baskets shall be properly aligned.

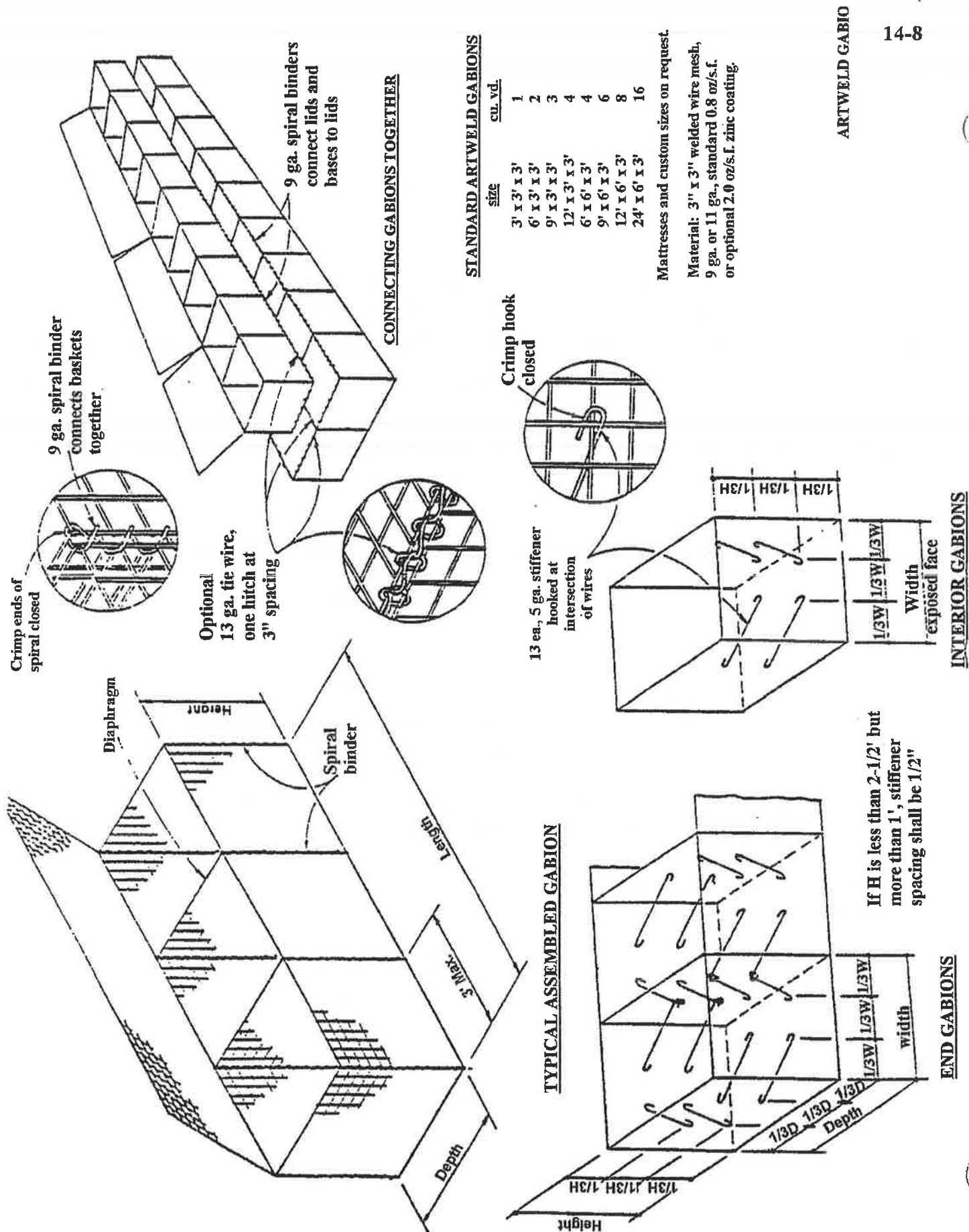


Figure 14.5

Rock for filling the gabions shall vary in size and conform to the following graduation:

<u>Borrow Pit</u>	<u>Percent Passing</u>
<u>Screen Size (inches)</u>	
10	100
8	95 - 100
4	0 - 5

Rock shall be carefully placed in the gabions to insure proper alignment, avoid bulges and provide a minimum of voids. All exposed rock surfaces shall have a reasonable smooth and neat appearance. No sharp edges shall project through the wire mesh.

Rock shall be placed in lifts to allow the placement of internal connecting wire. Internal connecting wire shall be used to maintain a relatively flat, smooth external surface on the outside of 3 foot high baskets. Internal connecting wires shall be galvanized, at least 13.5 gauge, and shall be fastened at the vertical 1/3 points as shown on the plans.

The top layer of rock shall completely fill the gabion so that the lid will bear on the rock when it is secured. The lid shall be secured to the sides, ends and diaphragms with the wire in the same manner as specified for joining the vertical edges.

Site preparation for gabion baskets shall conform to standards set forth in Section 14.2.1.

Filter fabric or cloth may be placed under the gabions and around all sides which come in contact with the soil. Filter cloth shall be non-woven, permeable and not act as a wicking agent. Filter fabric when used with gabions shall be wrinkle free and free of sharp protrusions.

14.3 Wood Cribbed Bridge Abutments (Footings)

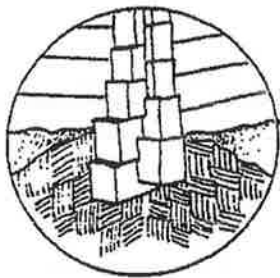
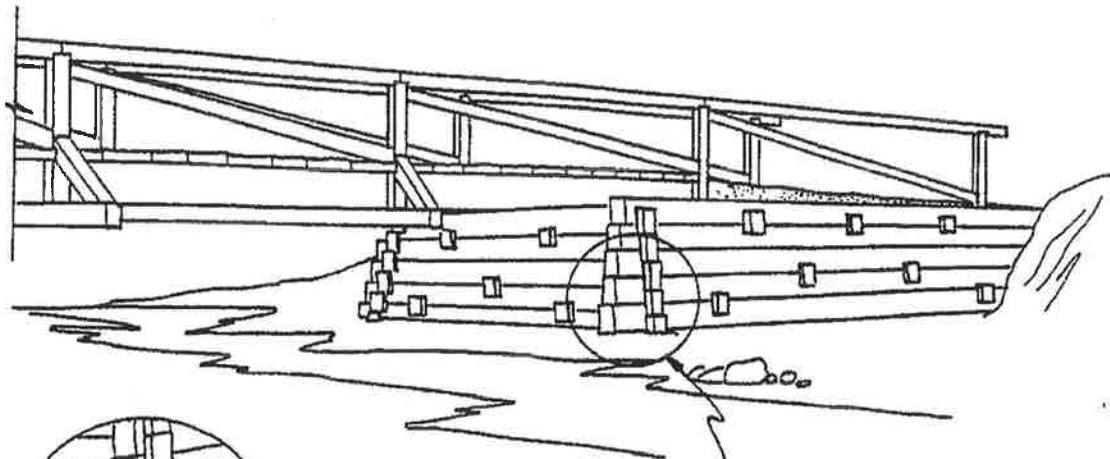
This unit pertains to the construction of aggregate filled wood cribbing to be used as abutments for trail bridges. In some cribbed abutments and footings, it may be necessary for stream bank stabilization to prevent undercutting.

Abutments consist of wood cribbing filled with aggregate. All fill will be compacted to minimize voids.

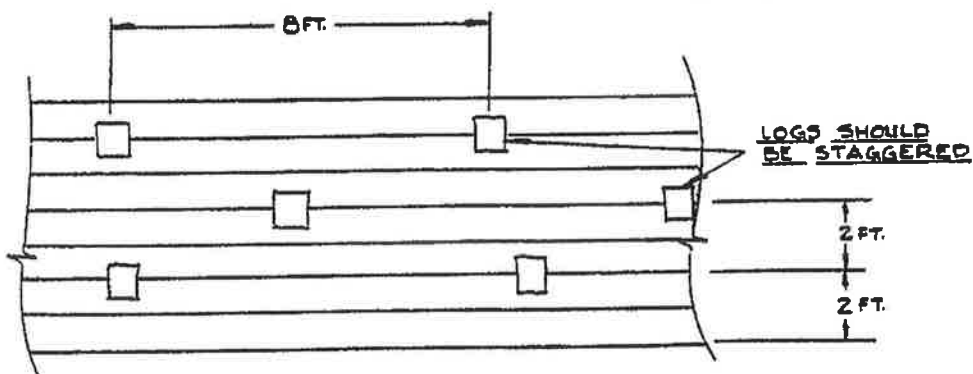
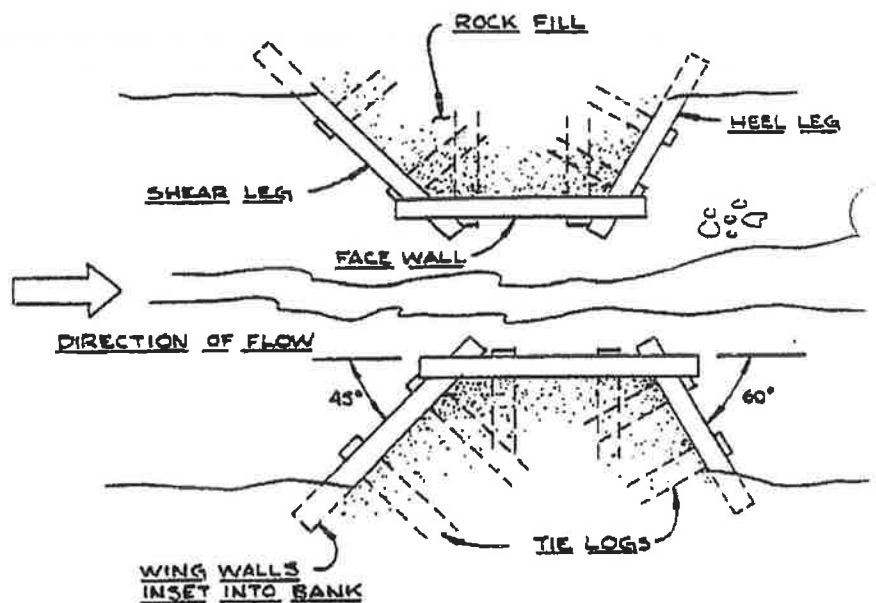
If placed in a stream bank, a footing excavation will be made so the bottom member of each cribbed wall will lie at least 18 inches below the lowest level of the stream scour line to prevent washing out or undercutting the structure. The face wall of the abutment will be laid parallel with the stream. The upstream wing wall (shear leg) will be laid at an angle of not more than 45 degrees from the line of stream current flow. The downstream wing wall (heel leg) will be laid at an angle of not more than 60 degrees from the line of current flow (see Figure 14.6). Wing walls

CRIBBED FOOTINGS

14-10



CRIB BOTTOM AT LEAST
12" BELOW STREAM BED



TIE LOG PLACEMENT (TYPICAL)

Figure 14.6

will be excavated not less than 48 inches into the stream bank to prevent washing action around the wail end at the bank. All abutments should be constructed to achieve a minimum stringer clearance of at least 4 feet above high water level. If it is not placed in the stream bed, see Figure 14.7.

Cribbing will be constructed of sound, all heart redwood or pressure treated timbers. Minimum end dimensions for cribbing timbers will meet or exceed specifications detailed in the table below:

Length of Cribbing Wall

	10 feet to 12 feet	14 feet to 16 feet	18 feet to 20 feet
Facer, wing and tie log diameter	6 inches	8 inches	10 inches
Drift pin size	3/8 inch x 10 inches	3/8 inch x 12 inches	1/2 inch x 14 inches

All wall timbers will be notched or squared at joints and may be fastened with drift pins meeting minimum specifications from the table above and/or 3/8 inch cable. Tie logs will be placed into wing walls at a maximum of 8 foot horizontal intervals and for each tier of rise and will have a minimum length of 4 feet (see Figure 14.1). All timber ends will be cut 6 inches to 10 inches from the face of the walls to prevent catchment of floating debris.

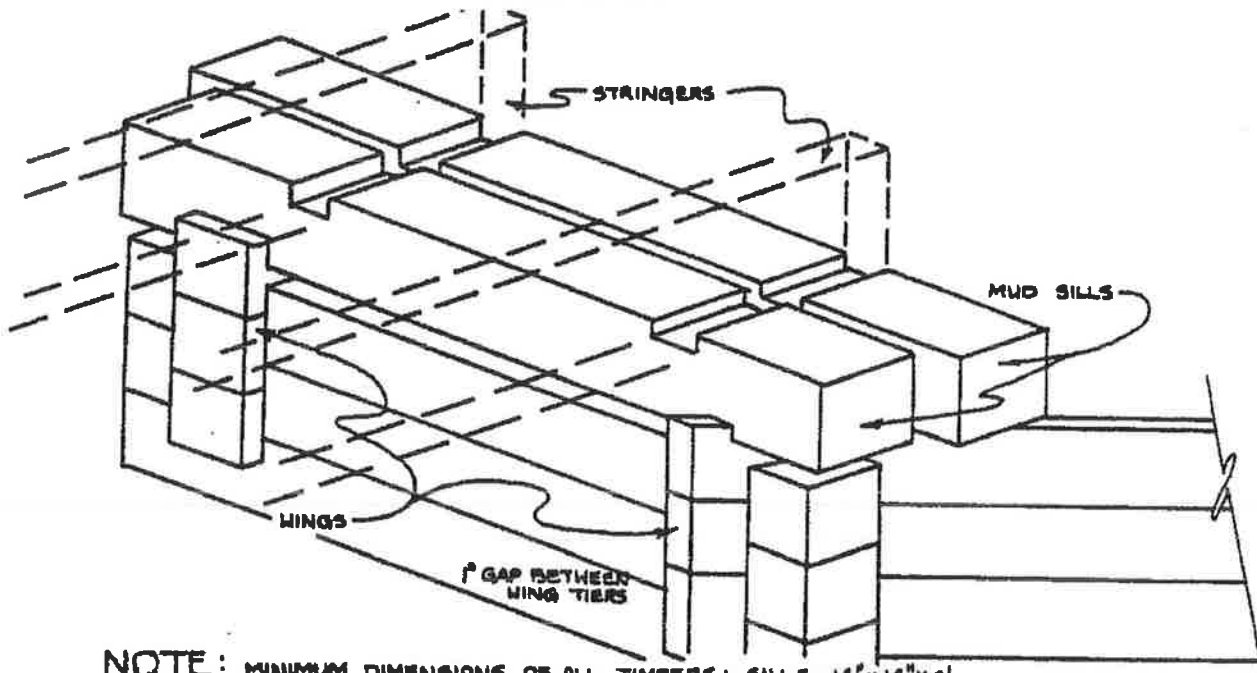
14.4 Wood Cribbed Approach Ramps

Wood cribbing in approach ramps to bridge ends will be constructed of wood members having a minimum diameter or height of 8 inches for rails and tie logs. Approach ramps will be constructed to the same standards as wood cribbed abutments and will be at least as wide as the bridge. The fill grade approaching the bridge will not exceed 10% and the height of the crib will be sufficient to assure the fill material rises to the level of the bridge deck surface. (See Figure 14.8.)

Fill material will be rock and/or mineral soil, the final 4 inches of fill being mineral soil and/or rock not larger, than 2 inches. All voids will be filled and material will be tamped and compacted. Rock may be used in lieu of wood at appropriate locations. (See Figure 14.9 and Section 14.2.2.)

TYPICAL BRIDGE ABUTMENT

NOT TO SCALE



NOTE: MINIMUM DIMENSIONS OF ALL TIMBERS: SILLS - 14" x 14" x 8'
FACE, WINGS & TIES - 10" x 10". ALL JOINTS FASTENED W/10" SPIKES.
ABUTMENT TO BE FILLED & TAMPED W/DRAIN ROCK.

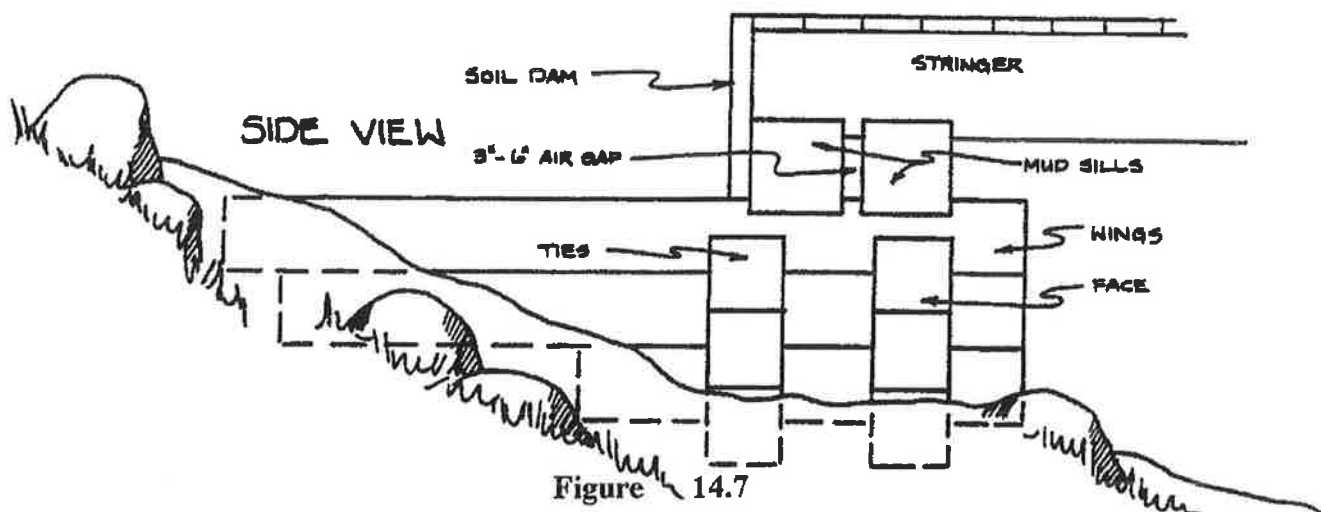
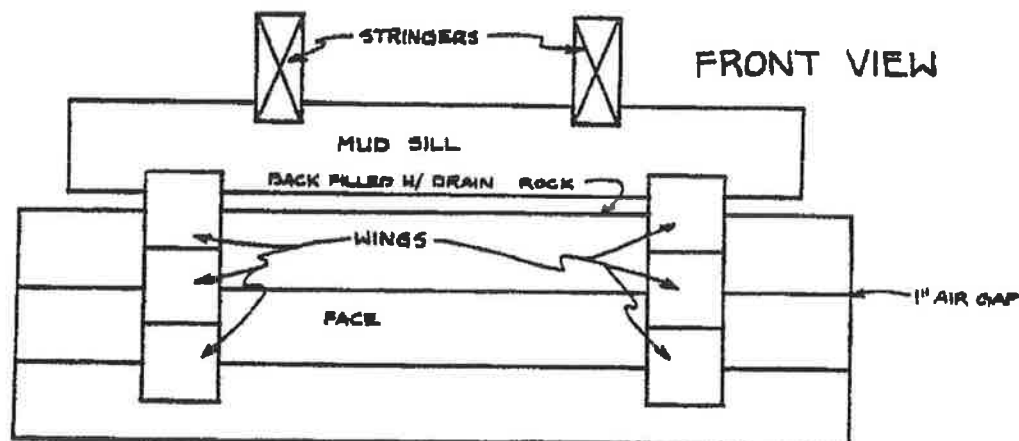


Figure 14.7

CRIBBED RAMP

14-13

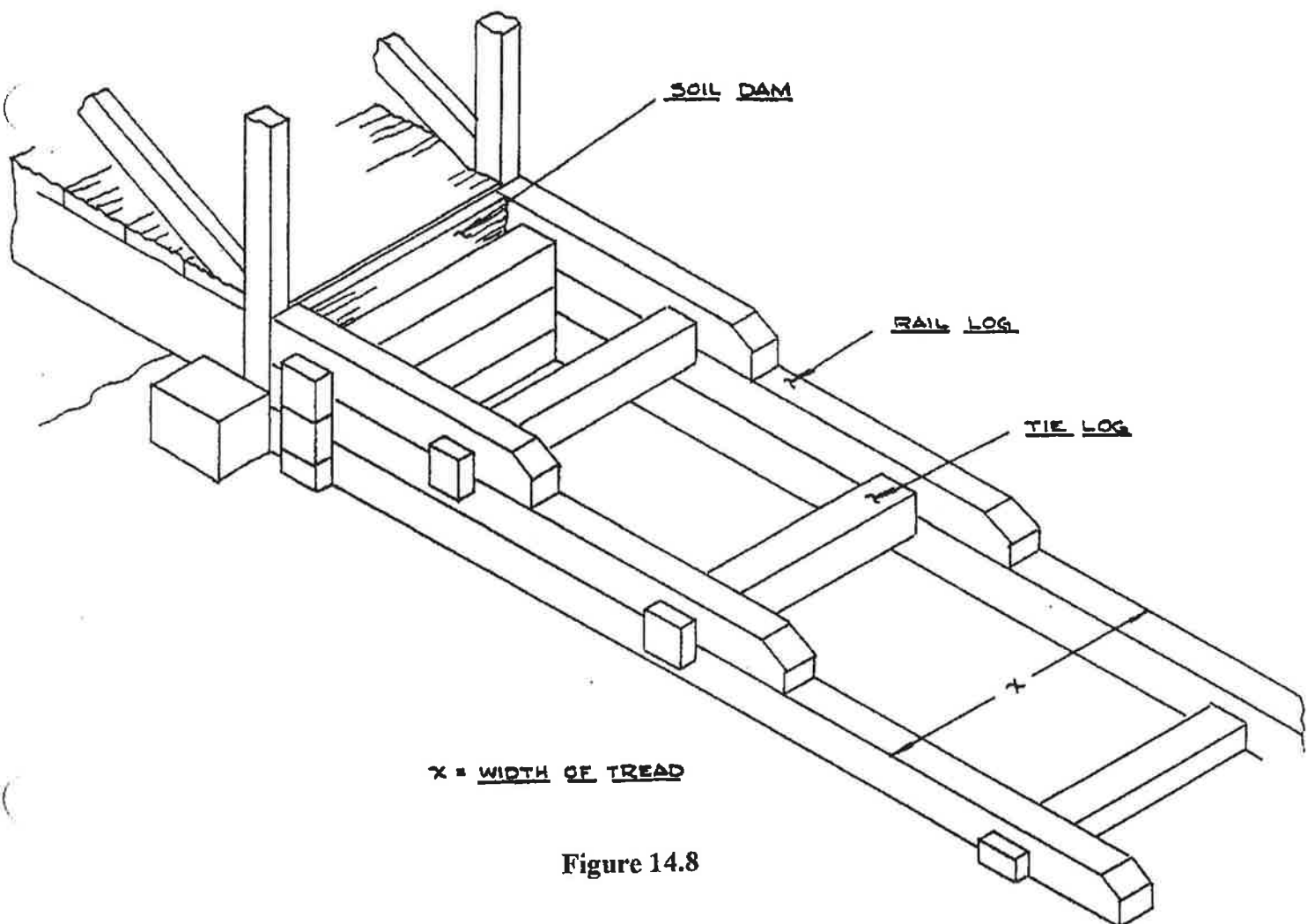
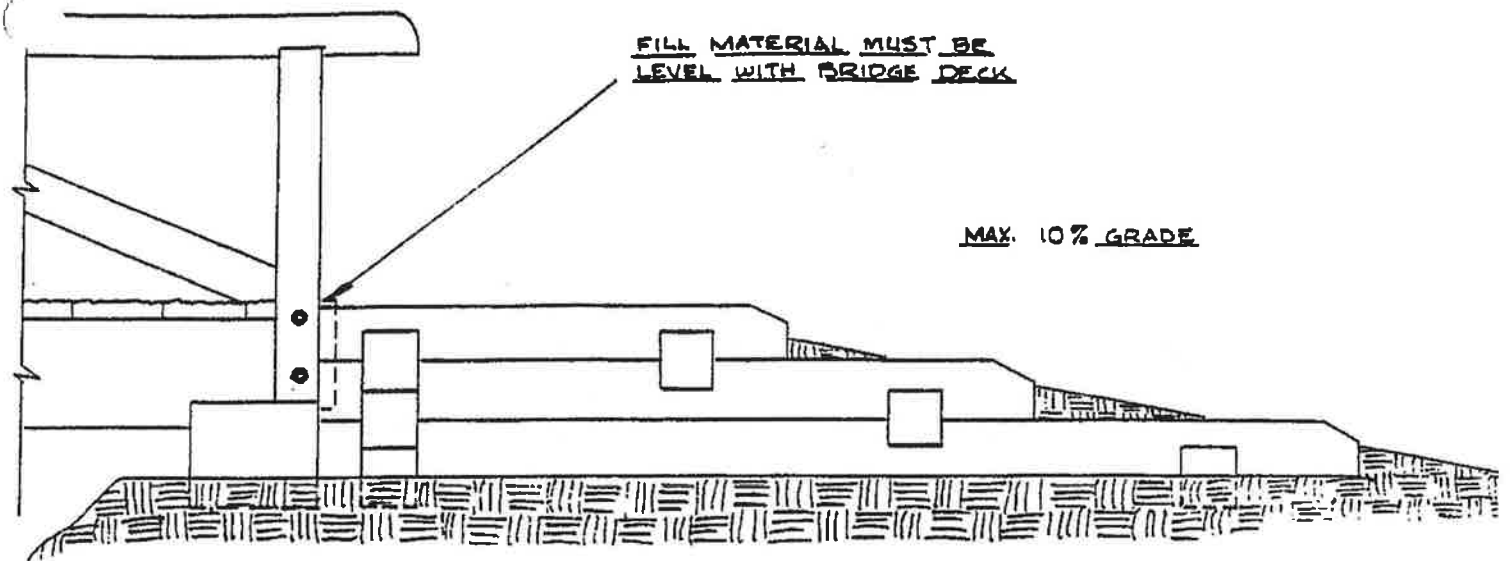
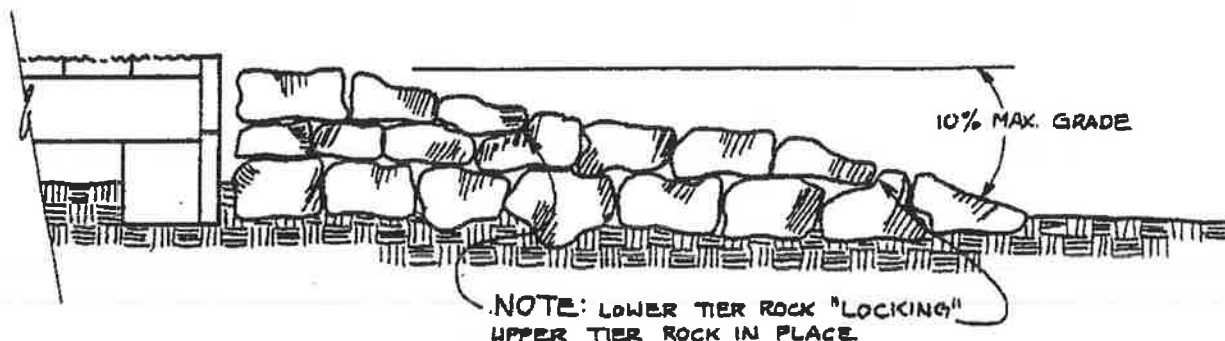


Figure 14.8

ROCK APPROACH RAMP

NOT TO SCALE



CROSS SECTION

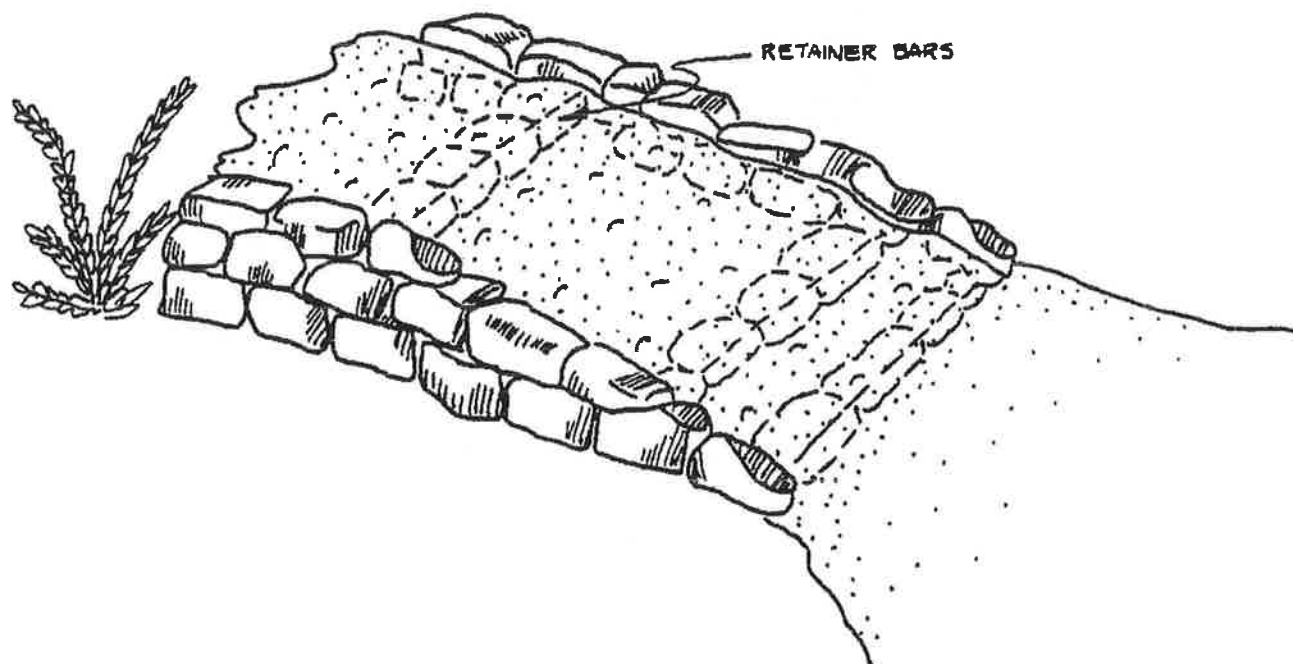


Figure 14.9

APPENDIX #1

Trail Glossary

Whenever the following terms or pronouns are used the intent and meaning shall be interpreted as follows:

ABUTMENT: Foundation at either extreme end of bridge that supports the mud sill and stringers.

BACK SLOPE: The bank along the uphill side of trail, usually sloped back a varying degree, depending on bank composition and slope stability.

BATTER: The angle which an abutment or rock wall is constructed off plumb (<90). Also referred to as "lay back".

BENT: Structural member or framework used for strengthening a bridge or trestle transversely.

BERM: The ridge of material formed on the outer edge of the trail which projects higher than the center of the trail tread.

BIRDCAGE: Wire rope that has begun to unwrap individual strands of wire.

BLOCK: A pulley or set of pulleys with a hook or shackle attached at one end.

BORROW: Soil, gravel or rock materials taken from approved locations away from the trail.

BRIDGE: A structure, including supports, erected over a depression or stream and having a deck for carrying traffic. May have railings.

BRUSHING: Removal of living and dead vegetation from trail

CABLE FLY ZONE: The hazardous area a cable can potentially move to when it comes under tension or is suddenly released from tension.

CABLE GRIPPER: A device which clamps onto a cable when tension is applied to the attachment point/jaws.

CABLE STRAP: A pre-cut length of wire rope that may have eyes on both ends which is used in rigging applications.

CHECK DAMS: Log, rock or wood barriers placed in deeply eroded trails or erosional channels to slow flow of water to allow accumulation of fine fill material behind it.

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CHOKER: A piece of wire rope with a pressed collet eye on one end, a pressed-on button on the other end, and a sliding collar/ bell in between. Can be placed around a load and tightens itself when brought under tension.

CLASSIFICATION: The designation indicating intended use and maintenance specifications for a particular trail.

CLEARING: Removal of windfall trees, uproots, leaning trees, loose limbs, wood chunks, etc. from trail.

CLEARING LIMITS: The outer edges or a clearing area as specified by trail class, shown on drawings or explained in class definition.

CLEVIS OR SHACKLE: A U-shaped metal piece with holes in each end through which a pin or bolt is run. Used to attach two objects together.

CLIMBING TURN: A turn which is constructed on a slope of 30 per cent or less when measured between the exterior boundaries of the turn and changes the direction of the trail 120 - 180 degrees.

COMPACTED: The degree of consolidation that is obtained by tamping with hand tools or by stomping mineral soil and small aggregate in successive layers not more than 6 inches in depth.

CRADLE TIMBER: A mid-span timber used to transfer the load of the bridge to the truss system.

CULVERT: A drainage structure composed of rock, metal or wood which is placed approximately perpendicular to and under the trail.

DRAINAGE DIP: A reverse in the grade of the trail bed accompanied by outslope which will divert water off the trail bed.

DUFF: A layer of decaying organic plant material deposited on the surface of the ground principally comprised of leaves, needles, woody debris and humus.

ENTRENCHED TRAIL: A cupping, rutting or trenching in the trail tread surface resulting from trampling, standing water, uncontrolled surface runoff or a combination of these factors.

FACER: Structural member in retaining walls and abutments that is placed at right angle to the structure or trail tread.

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FILL-SLOPE: Area of excavated material cast on the down slope side of trail cut (also called embankment).

FORD: A water level stream crossing constructed to provide a level surface for safe traffic passage.

FULL BENCH: Where the total width of the trail bed is excavated into slope and the trail bed width is not made of compacted fill slope.

GRIPHOIST: A brand name for a manually operated hoist which pulls in a cable at one end and expels it from the other end.

GRIPHOIST MAINLINE: Special wire rope supplied by griphoist manufacturer for use with a particular model griphoist.

HAZARDOUS TREE: An unstable tree 5 inches or greater in diameter at breast height which is likely to fall across the trail.

INSLOPE: Where the trail bed is sloped downward toward the backslope of the trail.

MINERAL SOIL: Soil or aggregate that is free from organic substance and contains no particles larger than 2 inches in greatest dimension.

MUD SILL: Foundation on which a bridge is built.

NYLON STRAP: Heavy duty woven strap of wide nylon with eyes sewn in both ends. May be set basket style or choker style. Used mainly as anchor ties for griphoists or blocks to live trees, as their wider load bearing surface does less bark damage and eliminates the need for the use of shims. Nylon straps should be cleaned and dried after use and not exposed to sunlight for long periods or to chemicals that may compromise the strength of the nylon fibers.

OUTSLOPE: The trail bed is sloped downward toward the embankment or daylight side of the trail.

PARALLEL DITCHING: A lateral drainage ditch constructed adjacent to the trail tread to catch surface water sheeting from the tread surface and divert it away from the trail. Generally this drainage system is utilized in low flat areas or areas where multiple entrenched trails have developed.

PIER: Intermediate bridge supports located between two adjacent bridge spans.

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PRE-FIELD: Performing a physical examination of the project work site in order to evaluate solutions to trail deficiencies, select the appropriate course of action, formulate the design and quantify the material, equipment and person hour requirements.

PROJECT SCHEDULE: A summary of quantities of work to be performed listed by individual trails.

PUNCHEON: A log or timber structure built to cross a swamp. Usually consists of sills, stringers and a log deck.

RETAINING WALL OR CRIB: Log or rock construction to support trail tread or retain back slope.

SAFETY HARNESS: A harness, usually made of nylon, for use by personnel working near steep drop-offs. Must be of approved construction and design, and in good repair, and attached to a secure anchor point with carabiners and approved climbing rope.

SAFETY RAILINGS: Safety railings are horizontal or diagonal structural members which are attached to vertical posts for the purpose of delineating trails, protecting vegetation, providing safety barriers for hikers at overlook areas and assisting hikers in negotiating trail structures such as bridges and steps.

SIDESLOPE: The natural slope of the ground measured at right angle to the center line of the trail.

SLIDE: Material which has slid onto the trailway from the back slope and possibly beyond in quantities sufficient to block the trail.

SLOUGH (SLUFF): That material from the back slope or the area of the back slope that has been deposited on the trail bed and projects higher than the center of the trail tread.

SLUMP: When the trail bed material has moved downward causing a dip in the trail grade.

SPECIFICATIONS: Standards to which trails and trail structures are built and maintained according to class.

STRINGER: Log or timber that rests on mud sill and spans water course, muddy area, etc. Supports tread surface.

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SWITCHBACK: A turn which is constructed on a slope of more than 30 per cent when measured between the exterior boundaries of the trail 120 to 180 degrees. The landing is the turning portion of the switchback. The approaches are the 20 foot trail sections upgrade and downgrade from the landing.

TIE LOG: Structural member notched into the horizontal facer and wing walls used to secure the facer and wings by utilizing the mass of the backfill.

TRAIL BED: The portion of trailway between hinge point of the back slope and the hinge point of the fill slope or daylight.

TRAIL HARDENING: The manual, mechanical or chemical compaction/firming up of the trail tread surface resulting in a hard and flat surface that sheets water effectively and resists the indentations that are created by trampling.

TRAIL INVESTMENT: Actual cost of trail including initial construction cost, replacement cost and total annual maintenance cost.

TRAIL LOG: An inventory of physical features along or adjacent to a trail. An item by item footage record of trail features and facilities or improvements on a specific trail.

TRAILWAY: That portion of the trail within the limits of excavation and embankment.

TRAVEL WAY OR CORRIDOR: Includes tread surface and clearing limits.

TRIO MAINTENANCE: Three step function of removing slough, berm and brushing maintenance. Called fire line trail maintenance.

TURNPIKE: Tread made stable by raising trail bed above wet, boggy areas by placing mineral soil between parallel side logs. Usually includes ditches alongside the trail.

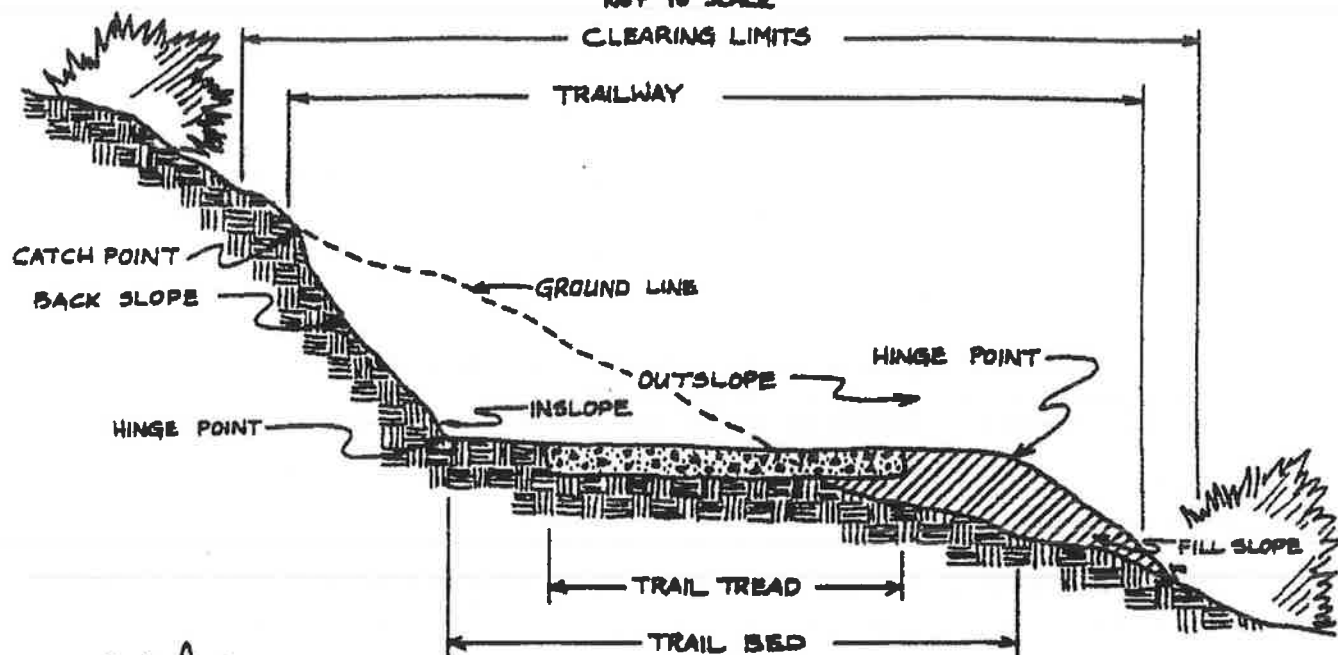
WATER BAR: A device used for turning water off the trail, usually made of logs or stones.

WATER COURSE: Any natural or constructed channel where water will collect and flow.

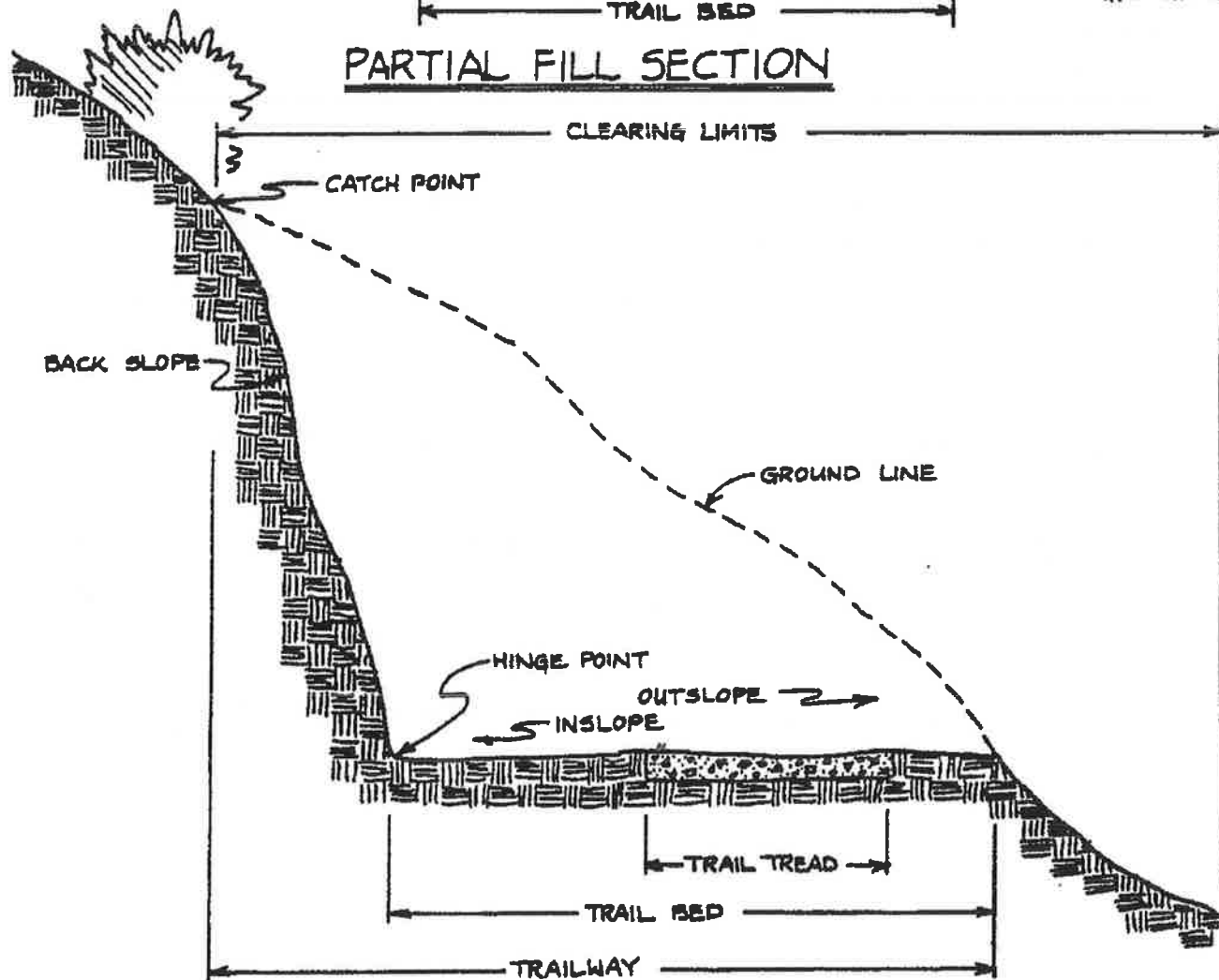
WING WALL: A structural component of a retaining wall which is interlocked with the facer or front of the wall. The wing generally intersects with the facer at a 45 degree angle but may be at an angle between 1 and 90 degrees. This component is anchored by tie logs and assists the facer in retaining the fill material.

DEFINITIONS DRAWING

NOT TO SCALE



PARTIAL FILL SECTION



FULL BENCH SECTION

**Public Summary of the Point Saint George
Cultural Resources Management Plan**

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APPENDIX C

PUBLIC SUMMARY OF THE POINT SAINT GEORGE CULTURAL RESOURCES MANAGEMENT PLAN

A Cultural Resources Management Plan was developed in 2008 to identify cultural resources within the Point Saint George Management Area in Del Norte County, California and to provide recommendations for future management and protection of those resources. Because cultural resource locations are confidential, as is information on the contents of these sites, the Management Plan is not available for public review. This document, therefore, summarizes management recommendations presented in the Plan in an effort to make information available to the public without breaching the required confidentiality. Since the Management Plan was written, the County of Del Norte has contracted Far Western Anthropological Research Group, Inc. to conduct further cultural resources studies in the Point Saint George Management Area. This work has fulfilled some of the recommendations in the Management Plan and changed the needs for others.

SUMMARY OF RESOURCES IN THE POINT SAINT GEORGE MANAGEMENT AREA

There are three known archaeological sites in the Management Area which make up the Point Saint George Archaeological District, a geographically defined area possessing a concentration of associated, important sites. This District is officially listed on the National Register of Historic Places and the California Register of Historical Resources, which is recognition by the government that the resource is worthy of preservation. All three sites are associated with prehistoric use of the area, and findings from archaeological studies at the sites have been integral to the understanding of northwestern California prehistory and history. As such, any activities that could result in the destruction of cultural materials in the Management Area are considered *adverse effects* as defined under the National Historic Preservation Act and the California Environmental Quality Act which require that potential environmental impacts of a proposed project be assessed, quantified, disclosed, minimized, and eliminated whenever possible. This can be done through avoidance, scientific study, public interpretation, or other means.

POTENTIAL IMPACTS TO CULTURAL RESOURCES

There are three types of possible adverse effects ("impacts") to archaeological resources in the District:

- Physical damage to resources from construction of a two-mile public recreation trail ("Coastal Trail");
- Unauthorized collection or excavation within an archaeological site; and
- On-going natural erosion.

Project-Related Impacts

Proposed construction of a public recreation trail at Point Saint George has the potential to disturb archaeological site deposits, either directly or through erosion of site deposits within the trail corridor over time. While no trail design is officially being considered at this time, the Management Plan is designed to minimize the potential impacts of trail construction.

Unauthorized Collection and Excavation

Under the Archaeological Resources Protection Act, it is illegal to collect archaeological specimens from cultural sites on public lands (Public Law 96-95; 16 U.S.C. 470aa-mm). Unfortunately, this has not prevented significant illegal collection and excavation at archaeological sites within the Management Area. This activity has taken place for at least 45 years and continues today.

Natural Erosion

Archaeological site constituents are lost each year from erosion of sand dunes and bluffs. Wind and rain have exposed cultural deposits in the seaward faces of several dunes in the Management Area, and coastal erosion of bluffs exposes cultural deposits on the bluff face and deposits them on the beach. Naturally exposed deposits are also subject to unauthorized collection and excavation, further damaging these fragile and irreplaceable resources.

MANAGEMENT RECOMMENDATIONS

The following recommendations are designed to avoid or minimize the three types of impacts to cultural resources. They include measures for physical protection, guidance for future planning and management, and means of public outreach and education.

Physical Protection of Cultural Resources

Recommendation 1: Design Trail to Minimize Impacts

The Management Plan recommends avoidance of impacts to cultural resources in the design of the Coastal Trail route. Several alternative trail designs have been considered:

- Preferred Coastal Trail
- Overlook Alternative—a small spur from the main trail to the northwestern corner of the Point. This alternative includes the installation of a pre-fabricated viewing platform at the terminus of the spur.
- Bluff Alternative—a short spur to the end of a narrow bluff, just west of the old Coast Guard station.
- Beach Alternative—an alternate route of the southern margin of the trail which would follow the beach rather than move east and continue south along the edge of Pebble Beach Drive.

The 2010 studies by Far Western indicate that the “Overlook” alternative is the one most likely to cause such impacts. If one of the other alternatives is chosen, the project will include only a small section of one resource.

The Management Plan also recommends that if the trail goes through any portion of a cultural resource, site protection should be undertaken through construction of boardwalks or the use of gravel or wood chips to cover the trail bed. No excavation of the trail into native soil would occur in these areas. It has also been recommended that measures be taken to keep hikers on the designated trail within cultural site boundaries. This might be done through the installation of low fences (which might, in and of themselves represent an adverse impact), vegetation, or other physical barriers. Since any excavation within known site boundaries represents an adverse impact to the site, no signs or other trail markers should be installed within recorded site boundaries.

Recommendation 2: Stabilize Cultural Sites

Several portions of one archaeological site are eroding out of seaward dune faces. This erosion damages the resource and has also led to increased looting of exposed archaeological deposits. To lessen this damage, the Management Plan proposes capping the site with sterile fill and re-vegetation of the filled area. This would stabilize the site deposits and make them less visible to possible looters. Far Western has developed a plan for site stabilization which would be implemented under this recommendation.

Recommendation 3: Construct a Viewing Platform

While site capping and re-vegetation are the least expensive methods for site stabilization, continued visitor use and foot traffic are likely to increase erosion of the archaeological sites. To lessen this impact, the Management Plan recommends construction of a viewing platform where the trail enters a site. The platform would be pre-fabricated and placed on top of sterile fill at the crest of the dune. The trail to this platform would be filled with gravel or wood chips to prevent additional erosion.

Recommendation 4: Increase Enforcement of Cultural Resources Protection Laws and Implement a Site Stewardship Program

This recommendation combines several specific measures for preventing unlawful excavation and collection of cultural materials within the Point Saint George Management Area:

- The Del Norte County Sheriff's Department and other law enforcement agencies with jurisdiction in the Point Saint George Management Area should develop a program of routine patrols to discourage looting and vandalism of archaeological resources.
- Local law enforcement personnel should receive continuing training on the laws protecting cultural resources (perhaps through development of a pamphlet).
- A volunteer site stewardship program should be developed in consultation with the Tribes, the Department of Parks and Recreation, the Coastal Conservancy, and Del Norte County. The California Archaeological Site Stewardship Program (<http://www.cassp.org>) offers training in such a program. Site stewards would monitor the cultural sites in the District on a regular basis to identify and report illegal excavation and other forms of vandalism.

Recommendation 5: Ensure Project Compliance with Regulations for Protection of Cultural Resources

Any project that involves public lands, permits, or funding must consider potential impacts to significant historical or archaeological resources. Any project proposed within the District must avoid impacts to such resources or develop measures to lessen those impacts. Such measures should be developed in consultation with the Tribes and a consulting archaeologist, and any archaeological studies should be conducted to the highest professional standard by a qualified archaeologist working cooperatively with the Tribes.

Any plans for natural restoration of the Management Area also should consider the potential effects to cultural resources. Specifically, any use of grazing to reduce the over-grown vegetation should require a vegetation plan reviewed by a qualified professional archaeologist. To minimize damage to cultural resources from grazing, protective fencing might be installed along site boundaries to keep livestock off archaeological deposits.

Future Project Planning and Management

Recommendation 1: Create a Management Team to Oversee Protection of Cultural Resources during Future Project Planning

Many entities have ownership of, or a traditional cultural interest in, the Point Saint George Management Area. These include the County of Del Norte, the California Department of Parks and Recreation, the Coastal Conservancy, the owners of the former Coast Guard house, and the Smith River and Elk Valley Rancherias. To ensure the active participations of and cooperation between these groups, a Management Team should be created from among them, to meet on a regular basis and discuss current projects. The primary goal of the Management Team would be to develop cooperative solutions to protect significant cultural resources.

Recommendation 2: Continue Consultations with Native American Tribes

The Point Saint George Management Area is of great traditional cultural value to local Tribes. The Management Plan calls for a formal agreement between the County, the Department of Parks and Recreation, and the Smith River and Elk Valley Rancherias. Such an agreement would outline a plan for involving the Tribes in future project plans and notifying the Tribes in cases of looting or accidental discovery of archaeological remains.

Recommendation 3: Consider Development of a Cultural Resources Conservation Easement

California Senate Bill 18 requires local governments to consult with Native American Tribes whenever a general plan is rewritten or amended. A provision of this law allows for important Traditional Tribal Places to be held as cultural conservation easements by the Tribes. The Management Plan recommends that the County of

Del Norte explore this possibility the next time it updates the General Plan. This recommendation would apply only to archaeological sites on County land, as the law does not apply to state or federally managed land.

Recommendation 4: Consider Designating Point Saint George a Traditional Cultural Property

The National Register of Historic Places defines a Traditional Cultural Property (TCP) as a place or object that is associated with the cultural practices or beliefs of a living community, and that is (a) rooted in that community's history and (b) important in maintaining the continuing cultural identity of that community. While Point Saint George is currently protected under cultural resources law as a National Register District, the importance of the area to Native Americans, and their desire for continued public use of the area for cultural practices, may merit its listing as a TCP, as well. Whether or not the District is determined to be a TCP, all future projects should recognize the importance of the area to continued traditional gathering and harvesting of resources by modern Tolowa people.

Public Outreach and Education

Recommendation 1: Install Signs to Inform the Public about the Need for Protection of Cultural Resources

Under this recommendation, signs would be installed within the Management Area (though not specifically at cultural sites) to identify and explain the regulations protecting cultural sites, and the penalties for breaking those regulations. Signs might be installed at the north parking area, an information kiosk (see below), and along fences throughout the Point Saint George Management Area. Signs should include information on how to report illegal or suspected illegal activity to the County Sheriff's office.

Recommendation 2: Provide Additional Public Interpretation and Education

Several recommendations have been made for providing the public with information about the cultural values within the Management Area:

- Install an information kiosk.
- Provide pamphlets, brochures, posters, or other interpretive and educational items.
- Construct a visitors' center and museum.

The most ambitious recommendation, the visitors' center and museum, could be modeled after existing State Parks or National Park Service facilities. It might include small exhibits on the cultural and natural history of the area, and could provide books, pamphlets, and other items to be given away or sold. The Smith River and Elk Valley Rancherias have suggested that the facility could also house a caretaker for the area, to discourage unauthorized excavation at the archaeological sites.

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**Bluff Retreat Potential at the Point St. George
Management Area Trail Project**

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Technical Memorandum

Reference: 012150.005
Date: January 24, 2013
To: Rosalind Litzky
From: Giovanni Vadurro, CEG
Subject: **Bluff Retreat Assessment, Point St. George Management Area Trail Project,
Crescent City, Del Norte County, California**

Introduction

The purpose of this preliminary technical memorandum by SHN Consulting Engineers & Geologists, Inc. (SHN) is to provide a qualitative assessment of bluff retreat potential relative to the proposed coastal bluff trail in support of the mitigated negative declaration planning document. We have reviewed readily available geologic mapping and reports pertinent to the project area, and have conducted a time-series aerial imagery review from information available on Google Earth and the California Coastal Records Project (<http://www.californiacoastline.org/>).

Geologic Setting

Coastal bluff exposures indicate that the project area is underlain by Jurassic to Cretaceous age Franciscan Complex bedrock, Pliocene age St. George formation, and Pleistocene age Battery formation (Davenport, 1982). Recent colluvial deposits composed of weathered slope wash debris derived primarily from Franciscan Complex rocks form aprons of talus along the base of the bluff.

Franciscan Complex bedrock is present in the northern part of the project area and continues south to the headland at the northern end of Pebble Beach. Franciscan Complex bedrock consists of consolidated arkosic sandstone with some shale and minor amounts of chert, conglomerate, and greenstone; it is present at beach level and extends part way up the bluff face, where it is buried by Quaternary age marine sediments. Franciscan rocks are relatively resistant in the project area and generally underlie the areas of higher elevation. The resistance to erosion has resulted in an irregularly shaped coast line with small offshore islands and sea stacks. As a result, the rate of coastal bluff erosion is likely to be very low.

Overlying Franciscan Complex bedrock in the northern end of the project area (at Pt. St. George), and in the southern part of the area along Pebble Beach, is St. George Formation material consisting of consolidated massive marine siltstone and shale with thin beds of sand and scattered pebbles. Along the northern end of Pebble Beach, bedding attitudes strike northwestward and dip to the northeast, into the bluff face, from 8- to 15-degrees. The portion of coastal bluff underlain by St. George formation along Pebble Beach is characterized by a curvilinear sea cliff in plan view. Minor irregularities to the plan shape of the bluff edge are present where gully wash has resulted in discrete zones of bluff retreat on the order of 10 feet or less.

Younger marine terrace deposits, locally referred to as the Battery Formation, overlie both Franciscan Complex bedrock and St. George Formation, and form the broad, low-relief surface to the east of the project area. Battery Formation consists of unconsolidated medium-grained quartz sands alternating with silty clay and imbricated gravels, which were deposited in a nearshore marine environment. Overlying the entire sequence is a thin veneer of loose, eolian (wind blown) silt that varies in thickness from about 1 to 4 feet.

Results

The beach and surf zone within the project area may be classified as a dissipative system, consisting of a low-angle beach face adjacent to a broad, low-gradient surf zone. Beach cusps are generally absent along the coastline in the project area, further supporting the classification as a dissipative nearshore system. In a dissipative system, wave energy is expended offshore, where energy is lost in turbulence as waves break over outer bars and sea stacks.

Due to the resistant nature of bedrock materials in the lower bluff face and the dispersive effect of offshore sea stacks (dampening wave energy), the potential for significant bluff retreat along the subject coastline is relatively low. Unlike other coastal bluffs in northern California that are subject to high retreat rates, bluff retreat in the environment within the project area is not primarily driven by “bottom up” erosion (that is, undercutting by waves at the bluff toe leads to an overhanging or oversteepened bluff face and collapse of the overlying terrace sediments). Rather, the bluff in the project area is subject to “top down” erosion driven by surface runoff and down-cutting where runoff becomes concentrated. “Top down” erosion typically occurs at a much slower rate, and often can be mitigated by controlling surface runoff.

Based on our review of Google Earth imagery spanning 1988 to 2010, and our review of oblique aerial photographs available from the Coastal Records Project spanning 1972 to 2009, it appears that no significant change of the coastline position has occurred within the project area. Both the beach back edge and bluff edge positions have remained relatively stationary over the period assessed. The distance from the bluff edge to the existing undeveloped pedestrian trail, visible in the 1988 Google Earth imagery and 1972, appears to have remained relatively constant. Other distinct features, including prominent bedrock outcrops and the beach access roads to former quarry sites within the central portions of the project area have remained relatively unchanged. No evidence of coastal bluff undercutting, catastrophic slope failure, and/or episodic bluff retreat was observable, leading us to conclude that the coastal bluff system within the project area is generally associated with low retreat rates.

As currently proposed, the coastal bluff trail appears to be sited an adequate distance from the bluff edge to account for future bluff erosion over the design life of the new developments. On the basis of our aerial imagery review, the rate of bluff erosion appears very low. Based on existing site conditions, any future erosion of the bluff edge will likely be localized, consisting of minor sloughing and/or gully erosion where concentrated surface runoff is directed across the top of the bluff.

Roz Litzky

Bluff Retreat Assessment, Point St. George Management Area Trail Project, Crescent City, Del Norte County, California

January 24, 2013

Page 3

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Appendix G

**Conceptual Wetland Mitigation
and Monitoring Plan**

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