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Staff: Robert S. Merrill
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Hearing Date: August 12, 2011
Commission Action:

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.:	**1-10-028**
APPLICANTS:	City of Arcata & Resident Owned Parks, Inc.
PROJECT LOCATION:	Sandpiper Mobile Home Park at 115 South G Street, Arcata, Humboldt County (APN 503-224-046)
PROJECT DESCRIPTION:	Rehabilitate an existing mobile home park by (1) demolishing and removing existing facilities including a 968-square-foot building, walkways, utilities, and landscaping; (2) placing 922 cubic yards of fill material over the site to raise the elevation 1.5 feet; (3) construction of a 2,139-square-foot building to house an office, laundry, and three efficiency apartments; (4) placement of 16 manufactured home utility pedestals; (5) paving approximately 8,530 square feet of area for a driveway and parking spaces; (6) installation of 16 manufactured homes; (8) replacement of gas, electric, and water utility lines; (8) landscaping approximately 11,000 square feet of area; and (10) replacing and modifying existing sidewalks.

GENERAL PLAN DESIGNATION:	Residential Medium Density (R-M)
ZONING DESIGNATION:	Residential Medium Density (R-M)
OTHER APPROVALS RECEIVED:	Department of Housing and Community Development, Mobilehome and Special Occupancy Parks Programs Permit to Construct
OTHER APPROVALS REQUIRED:	None
SUBSTANTIVE FILE DOCUMENTS:	(1) City of Arcata Local Coastal Program

SUMMARY OF STAFF RECOMMENDATION:

Staff recommends approval with conditions of the coastal development permit application for the proposed project on the basis that, as conditioned by the Commission, the project is consistent with the Chapter 3 policies of the Coastal Act.

The proposed development is located within the "South of Samoa" area of the City of Arcata at 115 South G Street and involves rehabilitating an existing mobile home park by: (1) demolishing and removing existing facilities including a 968-square-foot building, walkways, utilities, and landscaping; (2) placing 922 cubic yards of fill material over the site to raise the elevation 1.5 feet; (3) construction of a 2,139-square-foot building to house an office, laundry, and three efficiency apartments; (4) placement of 16 manufactured home utility pedestals; (5) paving approximately 8,530 square feet of area for a driveway and parking spaces; (6) installation of 16 manufactured homes; (8) replacement of gas, electric, and water utility lines; (8) landscaping approximately 11,000 square feet of area; and (10) replacing and modifying existing sidewalks.

The soils report prepared for the development indicates the site is at risk of liquefaction during earthquakes which could lead to differential settlement endangering the proposed structures and tenants. The soils report recommends certain design recommendations primarily involving foundation design measures to mitigate these hazards. Staff recommends that the Commission attach Special Condition No. 1 to ensure that the final construction plans incorporate these design recommendations.

The subject property is also subject to risk of flooding. Portions of the flat site are within the FEMA-mapped 100-year flood zone and are subject to flooding. In addition, the subject property, along with many others around Humboldt Bay, is shown on the maps of the Planning Scenario of a Great Earthquake on the Cascadia Subduction Zone (CSZ) as being within the zone of potential inundation by a tsunami. If the region were to suffer a

major earthquake along the CSZ, a local tsunami could arrive within minutes. Staff recommends Special Condition No. 7, which would require the applicants to provide evidence of a Flood Elevation Certificate approved by the City of Arcata Building Department as being adequate to demonstrate that the finished floor elevations of the manufactured homes and new building would be at least one foot above the Base Flood Elevation. Staff believes that the flood risk from tsunami wave run-up at the site cannot be fully mitigated since construction of new residences at a design elevation high enough to minimize the hazard of tsunami wave run-up (i.e., above 30 feet) would not be permissible given the 35-foot height limitation applicable to the area and would be glaringly out of character with the surrounding area. Nevertheless, staff believes the proposed development minimizes the risk of flood hazard consistent with Section 30253 of the Coastal Act with the inclusion of Special Condition Nos. 8 and 5. Special Condition No. 8 would require the landowner to assume the risks of flooding hazards to the property and waive any claim of liability on the part of the Commission. Special Condition No. 5 would require the applicants to record a deed restriction that imposes the special conditions of the permit as covenants, conditions, and restrictions on the use of the property.

Construction activities will increase erosion and sedimentation impacts. In addition, although the development will reduce the amount of impervious surfaces on the site from 100% to 68%, primarily because of the vehicle usage associated with the proposed use of the site, hydrocarbon and other contaminants will become entrained in stormwater runoff that ultimately discharges to Butcher's Slough and Arcata Bay. To reduce these impacts, the applicant has proposed the installation of stormwater runoff treatment facilities. Runoff from all roofs, driveways, parking spaces, walkways, and other impervious surfaces on the site would be collected in drains and conveyed to underground stormwater pollution control filters installed within catch basins that would treat the runoff through filtration prior to its discharge off-site (See Exhibit 8) into storm drains that lead to Butcher's Slough. As depicted in the runoff control plan submitted with the application, at least one FloGard LoPro Matrix Filter would be utilized to treat runoff from the western half of the property and at least three Bio-Clean Hydrocarbon Type Flume Filters would be utilized to treat runoff from other portions of the site. The system would be designed to treat or filter stormwater runoff from each storm, up to and including the 85th percentile, 24-hour storm event. To ensure that these treatment facilities are installed and maintained and that erosion and sedimentation impacts are addressed so that the development does not contribute to cumulative significant adverse impacts to coastal waterways, staff recommends that the Commission attach Special Condition Nos. 3 and 9. These recommended conditions would require that: (1) all construction related debris associated with the demolition / site preparation phase of the project be promptly removed from the site and taken to an appropriate disposal facility licensed to receive construction wastes; (2) an erosion and final runoff control plan be submitted for the review and approval of the Executive Director that includes the proposed stormwater treatment facilities and certain water quality best management

practices to be used both during construction and during the life of the project to minimize impacts to coastal water quality.

As conditioned, staff believes the proposed project is consistent with the Chapter 3 policies of the Coastal Act and recommends approval of the project with the above-described special conditions.

The Motion to adopt the Staff Recommendation of Approval with Conditions is found on pages 4-5 below.

STAFF NOTES

1. Standard of Review.

The proposed project is located within the city limits of the City of Arcata within the developed and urbanized "South of Samoa" neighborhood. The City of Arcata has a certified Local Coastal Program, but the proposed project is within an area shown on State Lands Commission maps over which the state retains a public trust interest. Filled former tidelands subject to the public trust are within the Commission's retained coastal development permit jurisdiction. Therefore, the standard of review that the Commission must apply to the project is the Chapter 3 policies of the Coastal Act.

I. MOTION, STAFF RECOMMENDATIONS, & RESOLUTIONS:

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve Coastal Development Permit No. 1-10-028 pursuant to the staff recommendation.

Staff Recommendation of Approval:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution to Approve Permit:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act.

Approval of the permit complies with the California Environmental Quality Act because either: (1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment; or (2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS: See Attachment A.

III. SPECIAL CONDITIONS:

1. Minimization of Geologic Hazards

A. All recommendations of the geologic hazard report titled "Soils and Foundation Report, Sandpiper Mobile Home Park, 115 South G Street, Arcata, California, Assessor's Parcel Number 503-224-46," prepared for Winzler & Kelly by LACO Associates and dated May 13, 2010 shall be adhered to including recommendations for (i) foundation design specifying the use of isolated pier foundations for the manufactured homes and the use of a shallow foundation design consisting of a structural mat supported on a 2.0-foot-thick minimum section of controlled structural fill for wood frame structures (Option 1), (ii) moisture control for concrete slab foundations,(iii) allowable soil bearing pressure, (iv) seismic design parameters, (v) site preparation, (vi) temporary excavations, (vii) subgrade preparation, (viii) structural fill, (ix) compaction standard, (x) utility trenches, (xi) pavement, (xii) drainage, and all other recommendations. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit, for the Executive Director's review and approval, evidence that an appropriate licensed professional has reviewed and approved all final design, construction, grading, and drainage plans and certified that each of those final plans is consistent with all of the recommendations specified in the above-referenced soils and foundation report.

B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

2. State Lands Commission Review

PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director, for review and approval, a written determination from the State Lands Commission that:

A. No State or public trust lands are involved in the development; or

B. State or public trust lands are involved in the development and all permits required by the State Lands Commission for the approved project as conditioned by the Commission have been obtained; or

C. State or public trust lands may be involved in the development, but pending a final determination, an agreement has been made with the State Lands Commission for the approved project as conditioned by the Commission to proceed without prejudice to that determination.

3. Erosion and Run-Off Control Plans

A. **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-09-036**, the applicant shall submit, for review and approval of the Executive Director, final plans for erosion and run-off control.

1. EROSION CONTROL PLAN

(a) The erosion control plan shall demonstrate that:

(1) During construction, erosion on the site shall be controlled to avoid adverse impacts on adjacent properties and coastal resources from ground disturbance-related sedimentation;

(2) The following temporary erosion control measures, as described in detail within in the "California Storm Water Best Management Commercial-Industrial and Construction Activity Handbooks, developed by Camp, Dresser & McKee, et al. for the Storm Water Quality Association (http://www.cabmphandbooks.com/), shall be used during construction: Structure Construction and Painting (CA3), Material Delivery and Storage (CA10), Scheduling (ESC1), Mulching (ESC11), Stabilized Construction Entrance (ESC24), Silt Fences (ESC50), Straw Bale Barriers (ESC51), and Storm Drain Inlet Protection (ESC53);

(3) Following construction, erosion on the site shall be controlled to avoid adverse impacts on adjacent properties and coastal resources associated with entrainment of nonpoint-source pollutants from roofs, pavement, sidewalks, and other impervious surfaces; and

(4) The following permanent erosion control measures, as described in detail within in the "California Storm Water Best Management Construction Activity Handbook, developed by Camp, Dresser & McKee, et al. for the Storm Water Quality Association (http://www.cabmphandbooks.com/), shall be utilized: Seeding and Planting (ESC10).

(b) The plan shall include, at a minimum, the following components:

(1) A narrative report describing all temporary run-off and erosion control measures to be used during construction and all permanent erosion control measures to be installed for permanent erosion control.
(2) A site plan showing the location of all temporary erosion control measures.
(3) A schedule for installation and removal of the temporary erosion control measures.
(4) A site plan showing the location of all permanent erosion control measures.
(5) A schedule for installation and maintenance of the permanent erosion control measures.

2. RUN-OFF CONTROL PLAN

(a) The run-off control plan shall demonstrate that:

(1) Runoff from the project shall not increase sedimentation into coastal waters;
(2) Runoff from all roofs, driveways, parking spaces, walkways, and other impervious surfaces on the site shall be collected and treated in underground stormwater pollution control filters prior to discharge off-site consistent with the stormwater runoff control plan and accompanying calculations and specifications submitted with the application prepared by Winzler & Kelly and attached as Exhibit 8 to the staff report. As depicted in the runoff control plan, at least one FloGard LoPro Matrix Filter shall be utilized to treat runoff from Subbasin 1 and at least three Bio-Clean Hydrocarbon Type Flume Filters shall be utilized to treat runoff from Subbasins 2, 3, and 4. The system shall be designed to treat or filter stormwater runoff from each storm, up to and including the 85th percentile, 24-hour storm event.
(3) The stormwater runoff control system shall be maintained by the applicants and maintenance shall include, but not be limited to (*a*)cleaning out sidewalk trench drains and flumes at least twice

annually, (*b*) cleaning and removing debris from the Bio-Clean Hydrocarbon Type Flume Filters a minimum of four times per year and replacing the hydrocarbon booms from these units a minimum of twice per year in accordance with the manufacturer's maintenance specifications contained in Exhibit 9 of the staff report, and (*c*) servicing each FloGard LoPro Matrix Filter at least three times per year and replacing the filter inserts and fossil rock filter medium pouches a minimum of once per year in accordance with the manufacturer's maintenance specifications contained in Exhibit 9 of the staff report.

(4) The following temporary runoff control measures, as described in detail within in the "California Storm Water Best Management Commercial-Industrial and Construction Activity Handbooks, developed by Camp, Dresser & McKee, et al. for the Storm Water Quality Association (http://www.cabmphandbooks.com/), shall be used during construction: Paving Operations (CA2), Structure Construction and Painting (CA3), Material Delivery and Storage (CA10), Solid Waste Management (CA20); Hazardous Waste Management (CA21), Concrete Waste Management (CA23), Sanitary/Septic Waste Management (CA24), Vehicle and Equipment Cleaning (CA30), Vehicle and Equipment Fueling (CA31), and Employee/Subcontractor Training (CA40); and

(5) The following permanent runoff control measures, as described in detail within in the "California Storm Water Best Management Commercial-Industrial and Construction Activity Handbooks, developed by Camp, Dresser & McKee, et al. for the Storm Water Quality Association (http://www.cabmphandbooks.com/), shall be installed: Non-Stormwater Discharges to Drains (SC1), Buildings and Grounds Maintenance (SC10), Employee Training (SC14), Material Use (CA11), and Spill Prevention and Control (CA12).

(b) The plan shall include, at a minimum, the following components:

(1) A narrative report describing all temporary runoff control measures to be used during construction and all permanent runoff control measures to be installed for permanent runoff control;

(2) A site plan showing the location of all temporary runoff control measures;

(3) A schedule for installation and removal of the temporary runoff control measures;

(4) A site plan showing the location of all permanent runoff control measures;

(5) A schedule for the installation and maintenance of the sidewalk trench drains, catch basins, flumes, FloGard LoPro Matrix Filters, Bio-Clean Hydrocarbon Type Flume Filters, and culverts; and

(6) A site plan showing finished grades (at 1-foot contour intervals) and drainage improvements.

B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

4. <u>Landscaping Plan</u>

A. **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-10-028**, the applicants shall submit for the review and written approval of the Executive Director, final landscaping plans for the development. The plan shall be prepared by a licensed landscape architect.

1. The plan shall be consistent with the other conditions of this permit and demonstrate that:

a. Only native plant species obtained from local genetic stocks shall be planted as part of the project landscaping. If documentation is provided to the Executive Director prior to planting that demonstrates that native vegetation from local genetic stock is not available, native vegetation obtained from genetic stock outside of the local area may be used;

b. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California, shall be employed or allowed to naturalize or persist on the site. No plant species listed as a "noxious weed" by the governments of the State of California or the United States shall be planted within the property;

c. Rodenticides containing any anticoagulant compounds, including, but not limited to, Bromadiolone or Diphacinone shall not be used;

d. All planting will be completed within 60 days after completion of construction; and

e. All required plantings will be maintained in good growing conditions through-out the life of the project, and whenever necessary, shall be

replaced with new plant materials to ensure continued compliance with the landscape plan.

2. The plan shall include, at a minimum, the following components:

a. A map showing the type, size, and location of all plant materials that will be on the developed site, the irrigation system, topography of the developed site, and all other landscape features, and

b. A schedule for installation of plants, requiring the use of native plants only and specifically prohibiting the installation of plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California;

c. Provisions for on-going maintenance and replacement of plants as may be needed from time-to-time; and

d. Prohibitions against the use of rodenticides containing any anticoagulant compounds, including, but not limited to, Bromadiolone or Diphacinone; and

B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to the coastal development permit unless the Executive Director determines that no amendment is legally required.

5. <u>Deed Restriction Recordation of Permit Conditions</u>

PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-10-028, the applicant shall submit to the Executive Director for review and approval documentation demonstrating that the applicant has executed and recorded against the parcel(s) governed by this permit a deed restriction, in a form and content acceptable to the Executive Director: (1) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject property, subject to terms and conditions that restrict the use and enjoyment of that property; and (2) imposing the Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the Property. The deed restriction shall include a legal description of the entire parcel or parcels governed by this permit. The deed restriction shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the terms and conditions of this permit shall continue to restrict the use and enjoyment of the subject property so long as either this permit or the development it

authorizes, or any part, modification, or amendment thereof, remains in existence on or with respect to the subject property.

6. Tsunami Safety Plan.

A. **PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-10-028,** the applicants shall submit, for the review and approval of the Executive Director, a plan for mitigating the hazards associated with tsunamis.

1) The plan shall demonstrate that: (a) the existence of the threat of tsunamis from both distant and local sources will be adequately communicated to all employees and residents, (b) information will be made available regarding personal safety measures to be undertaken in the event of a potential tsunami event in the area, (c) efforts will be provided to assist less physically mobile employees and residents in seeking evacuation from the site during a potential tsunami event, and (d) staff will be adequately trained to carry out the safety plan.

2) The plan shall include, at a minimum, the following components:

- Tsunami Information Component, detailing the provision of informational materials to residential tenants and the posting of placards, flyers, or other materials at conspicuous locations within each occupied manufactured home and within the laundry room building, provided in an appropriate variety of languages and formats explaining tsunami risks, the need for evacuation if strong earthquake motion is felt or alarms are sounded, and the location of evacuation routes;
- Tsunami Evacuation Assistance Component, detailing the efforts to be undertaken by property management staff to assist the evacuation of physically less mobile persons during a tsunami event; and
- Staff Training Component, detailing the instruction to be provided to all property management staff to assure that the Tsunami Safety Plan is effectively implemented.

B. The permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

7. Flood Elevation Certificate

The finished floor elevations of the residential units and the building housing the office, three efficiency apartments and laundry shall be constructed at least one foot (1′) above

the Base Flood Elevation. **PRIOR TO COMMENCEMENT OF CONSTRUCTION,** the applicant shall provide to the Executive Director a copy of a Flood Elevation Certificate, prepared by a qualified, registered land surveyor, engineer, or architect, and approved by the City of Arcata Building Department demonstrating that the finished floor elevations of the residential units and the building housing the office, three efficiency apartments and laundry would be at least one foot above the Base Flood Elevation. The applicant shall inform the Executive Director of any changes to the project required by the City of Arcata Building Department. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

8. Assumption of Risk, Waiver of Liability and Indemnity

By acceptance of this permit, the applicant acknowledges and agrees: (i) that the site may be subject to hazards from flooding, tsunami inundation, liquefaction, subsidence, and earth movement; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

9. Construction Responsibilities and Debris Removal

The permittee shall comply with the following construction-related requirements:

A. No construction materials, debris, or waste shall be placed or stored where it may be subject to entering waters of Butchers Slough or Humboldt Bay; and

B. All construction debris, including general wastes from the demolition of the commercial buildings and excavated asphaltic-concrete paving at the site, shall be removed and disposed of in an upland location outside of the coastal zone or at an approved disposal facility.

10. Landscaping Restrictions

A. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from

time to time by the State of California, shall be employed or allowed to naturalize or persist on the site. No plant species listed as a "noxious weed" by the governments of the State of California or the United States shall be utilized within the property that is the subject of CDP No. 1-09-036.

B. No rodenticides of any kind shall be utilized within the property that is the subject of CDP No. 1-09-036.

11. Area of Archaeological Significance

A If an area of cultural deposits is discovered during the course of the project all construction shall cease and shall not recommence except as provided in subsection (B) hereof; and a qualified cultural resource specialist shall analyze the significance of the find.

B A permittee seeking to recommence construction following discovery of the cultural deposits shall submit a supplementary archaeological plan for the review and approval of the Executive Director.

1. If the Executive Director approves the Supplementary Archaeological Plan and determines that the Supplementary Archaeological Plan's recommended changes to the proposed development or mitigation measures are de minimis in nature and scope, construction may recommence after this determination is made by the Executive Director.

2. If the Executive Director approves the Supplementary Archaeological Plan but determines that the changes therein are not de minimis, construction may not recommence until after an amendment to this permit is approved by the Commission.

IV. FINDINGS AND DECLARATIONS:

The Commission hereby finds and declares as follows:

A. Site Description

The applicants propose to rehabilitate a mobile home park within the "South of Samoa" neighborhood area of the City of Arcata between G and H Streets, at 115 South G Street. The site is located at the end of South H Street where South H Street curves eastward to intersect with South G Street. The neighborhood includes a mix of residential, commercial, and industrial uses and the subject property is designated Coastal Residential Medium Density (C-R-M) under the City's certified LCP. The site is bordered by (a) residences to the north, (b) South G Street and additional residences beyond South G Street to the east, (c) the southern end of South H Street and a commercial building

beyond South H Street to the south, and (d) South H Street and the Arcata Marsh and Wildlife Sanctuary beyond South H Street to the west. (See Exhibit Nos. 1-3.).

Much of the eight block area that makes up the portion of Arcata lying south of State Route 255 (Samoa Boulevard) is situated on former tidelands that made up the northern fringes of the Arcata Bay lobe of Humboldt Bay prior to its reclamation in the late 1800s. The former salt marshes in this area adjoining Butcher's Slough, the channel conveying flows from the Jolly Giant Creek watershed, were filled beginning in 1870. (See Exhibit No. 2.) Butcher's Slough, which becomes Jolly Giant Creek, is located approximately 90 feet west the project site, across South "H" Street. Butcher's Slough was the subject of an extensive stream restoration and enhancement project undertaken by the City in 2002 (see CDP No. 1-02-020).

The project site is situated on a relatively flat ±0.7-acre trapezoidal-shaped parcel lying between South "G" and "H" Streets, at an elevation of approximately 6-10 feet above mean sea level (see Exhibit No. 2). The subject property was previously developed prior to the Coastal Act with an 18-unit mobile home park and the surface of the site was filled with 0.5 to 1.5 feet of imported and well graded sand and gravel. Portions of the project site are located within a mapped flood hazard zone extending from Butcher's Slough, as indicated on FEMA Flood Insurance Rate Maps. The Flood Elevation has been determined to be 6.5 feet above mean sea level (NGVD 29 datum).

The project site was originally developed for an 18-unit mobile home park. Most of the original mobile homes have been removed from the site. The existing mobile home park contains a gravel driveway, mobile home spaces, a variety of aging utility infrastructure, minor landscaping, and two small one-story adjoining buildings totaling 968 square feet in size on the southwest corner of the property which formerly housed an office, laundry, and a rental apartment that is currently vacant. Each mobile home space within the park contains a gravel pad to support the mobile home and a pedestal that provides utility connections for the mobile home (See Exhibits 4-5).

The site is currently vegetated with (a) approximately 16 native and non-native trees with trunks ranging in diameter at breast height from six inches to 18 inches along the northern property line, (b) ornamental shrubs and other plants along the rest of the perimeter of the site, and (c) ruderal grasses growing up through the gravel surface of the vacated mobile home park. There are no wetlands, special-status plant or animal habitat, or other environmentally sensitive habitat areas within the previously developed project area itself, except for an approximately 1-3-foot-wide drainage ditch along the west side of the subject parcel flanked by an approximately 5-8-foot-wide upland strip vegetated with ruderal grasses, all occupying a strip between an existing sidewalk and South H Street. This drainage ditch wetland contains water much of the year and a scattering of wetland plants, but does not constitute an Environmentally Sensitive Habitat Area (ESHA).

A pathway entry to the Butcher's Slough Restoration Area / Arcata Marsh and Wildlife Sanctuary exists directly to the west across South "H" Street, providing coastal access and recreational amenities for hiking, cycling, bird-watching, and boating. The trailhead is served by two off-street public access parking spaces. The Arcata Marsh Interpretative Center is located approximately 1/4-mile to the south along South G Street.

B. Project Description

The proposed project involves the rehabilitation of the Sandpiper Mobile Home Park. To facilitate the use of the park for low income housing, the City of Arcata assisted the co-applicant, Resident Owned Parks, Inc., a non-profit entity, in acquiring the property in 2007, and is assisting in rehabilitating the mobile home park. First Time Homebuyer Assistance would be provided to low-income borrowers to purchase some of the 16 new manufactured homes that would occupy the park. The project includes demolition and removal of existing facilities and site preparation work, the installation of utilities and other new infrastructure, construction of a new approximately 2,139-square-foot building housing an office, laundry, and three efficiency apartments, installing 16 Champion park model manufactured homes, and landscaping. (See Exhibit No. 6)

Demolition of Existing Facilities and Site Preparation Work

In preparation for the construction of new facilities and the installation of the new residential units, the two existing buildings on the site that formerly housed an office, laundry, and rental apartment totaling 968 square feet would be demolished. In addition, an old sidewalk along the west side of the property, the existing utility pedestals that formerly served the old mobilehomes, and old utility lines will be removed. The debris is proposed to be taken to an authorized disposal site. Other site preparation development includes removing approximately 16 trees and other vegetation from the site and placing approximately 922 cubic yards of earthen fill material over the property in a layer approximately 1.5 feet deep to create a uniform finished grade and to allow for positive drainage toward G and H Streets.

Installation of New Utilities and Other Infrasturture.

Once the site preparation work has been completed, a variety of new infrastructure facilities would be installed to serve the mobile home park. A new 192-foot-long and approximately 5-foot-wide sidewalk would be installed along the west side of the property adjacent to, but not within, the wetland ditch adjacent to South H Street. The sidewalks along South G Street and the portion of South H Street adjoining the south side of the property would be modified to include roller curbs for access to driveways. A new asphalt driveway with two visitor parking spaces to serve the interior of the mobile home park with access off of South G Street would be paved. A total of approximately 16 concrete slabs providing an off-street parking space for one car each would be installed

adjacent to each future mobile home space. The off-street parking spaces serving the new manufactured home units along the south side of the property and two new residential units along the east side of the property would be accessed directly off of South H Street and South G Street respectively. The off-street parking spaces for the other units would be accessed off of the new driveway. A handicapped access space would be provided off of South H Street in the northwest portion of the site. Four concrete walkways would connect the manufactured homes to be installed along the west side of the property with South H Street.

Each mobile home space would also be provided with a new utility connection pedestal. New gas, water, and electric utilities lines to serve the mobile home park would be installed underground.

As proposed, the development includes the installation and use of a stormwater pollution control system. Runoff from all roofs, driveways, parking spaces, walkways, and other impervious surfaces on the site would be collected in drains and conveyed to underground stormwater pollution control filters installed within catch basins that would treat the runoff through filtration prior to its discharge off-site (See Exhibit 8) into storm drains that lead to Butcher's Slough. As depicted in the runoff control plan submitted with the application, at least one FloGard LoPro Matrix Filter shall be utilized to treat runoff from the western half of the property and at least three Bio-Clean Hydrocarbon Type Flume Filters would be utilized to treat runoff from other portions of the site. The system would be designed to treat or filter stormwater runoff from each storm, up to and including the 85th percentile, 24-hour storm event.

Construction of New Office, Laundry, and Apartment Building

The proposed project includes the construction of a new 2,139-square-foot two-story building that will house the mobile home park office, a laundry, and three efficiency apartments. The building would be constructed on a structural mat foundation on a two-foot thick (minimum) section of controlled (structural fill).

Installation of Manufactured Homes

A total of 16 manufactured homes would be installed within the park. These 16 units would be Champion park model manufactured homes that are approximately 40 feet long, 13.25 feet wide, and 12.25 feet high. The units would be towed to the site and then installed on isolated pier footing foundations. Each Champion park model manufactured home contains a master bedroom, kitchen, great room, bathroom, and a 6-foot-wide porch.

Landscaping

Approximately 11,000 square feet of the interior of the park not occupied by the aforementioned above ground facilities would be landscaped. A landscape island of approximately 189 square feet in size would be installed along a portion of the South G Street side of the development between the sidewalk and the street.

C. New Development

Summary of Coastal Act Provisions

Section 30250(a) of the Coastal Act states in applicable part that:

> *New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.*

The intent of this policy is to direct development toward areas where community services are provided and potential impacts to resources are minimized.

Consistency Analysis

The proposed development is situated within a multi-family residential zoning district where mobile home parks are allowed as a conditionally-permitted use. The City indicates the project meets all zoning requirements and needs no local permits. The project is located in a developed area that is adequately served with water, sewer, public road infrastructure and other municipal services. In addition, electrical, natural gas, and telecommunication public utilities are available to serve the mobile home park.

Based on the above conditions, the proposed development is consistent with Coastal Act Section 30250(a) to the extent that it is located in a developed area with adequate water, sewer, utility, transportation, and other public service capabilities, and as conditioned herein, will not have significant adverse effects, either individually or cumulatively, on coastal resources. Therefore, Commission finds that the proposed project is consistent with Section 30250 of the Coastal Act.

D. Geologic Hazards

Summary of Coastal Act Policies:

Coastal Act Section 30253 states in applicable part:

New development shall do all of the following:

(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

Consistency Analysis:

Coastal Act Section 30253 requires in applicable part that new development minimize risks to life and property in areas of high geologic, flood, and fire hazard and neither create nor contribute significantly to erosion or geologic instability.

The project site is located approximately half a mile north of the current shoreline of the Arcata Bay lobe of Humboldt Bay. The flat property gently slopes with a gradient of less than two percent toward Butcher Slough and Arcata Bay. The site is situated at an elevation of approximately 6-10 feet above mean sea level on a broad, low-relief alluvial surface. As discussed above, the site is on filled former tidelands near the tidal slough reaches of Jolly Giant Creek / Butcher's Slough.

A geologic investigation of the site was performed by LACO Associates which prepared a soils and foundation report dated May 13, 2010 (See Exhibit 7). The soils and foundation report indicates that the project site is underlain by unconsolidated Holocene alluvial deposits composed of fine-grained bay margin sediments that include clays, silts, and fine sands. Based on the morphology of the slopes in the vicinity, the report indicates the bay margin sediments may extend several hundred feet deep below ground surface and overlie ;poorly cemented alluvium. The Franciscan Formation bedrock lies at even greater depth. The report indicates the bay margin sediments are capped by a relatively thin layer (0.5 to 1.5 feet thick) of imported fill soils composed of "river run" well graded sand with gravel overlying less than a foot of silty sand and sandy clay. Based on observed saturation in backhoe test pits and the gleyed appearance of the soil, groundwater is anticipated to remain within 4.5 feet of the existing ground surface year round.

The soil investigation evaluated potential geologic and soil hazards. As the project site is relatively flat, the site is not subject to bluff retreat or landsliding. The report indicates the site is also not located within an Alquist-Priolo Earthquake fault zone and based on the distance between the project site and the nearest fault trace, the potential for surface fault rupture to occur within the boundaries of the property is low. The soils report indicates that the primary geologic and soil hazards which may adversely affect the proposed development include settlement, seismic shaking, liquefaction, and dynamic settlement.

Liquefaction is of particular concern for the site. The report notes that based on California Division of Mines and Geology and City of Arcata maps, the site is in an area with a high susceptibility to liquefaction. Liquefaction is the loss of soil strength, resulting in fluid mobility through the soil. Liquefaction typically occurs during

earthquakes when uniformly-sized, loose, saturated sands or silts that are subjected to repeated shaking in areas where the groundwater is less than 50 feet below grade surface. A liquefaction event could lead to dynamic settlement of the soils underlying the buildings.

The soils report indicates that although the risks of seismic shaking, liquefaction, and dynamic settlement are high and have the potential to cause structural damage if left unmitigated, the risks are typical of the Humboldt Bay and North Coast region and are assumed by other developments in the area. The report includes a number of recommendations to reduce the potential consequences of the identified geologic hazards.

The recommendations address site grading, soil compaction, structural fills, foundation design, seismic design parameters, site preparation, temporary excavations, compaction standards, utility trenching, pavement design, and site drainage. The recommendations are found in pages 11-17 of the soils and foundation report, which is included as Exhibit 7 of the staff report. The principal recommendations concern foundation design. With regard to the proposed building, the report recommends two options for foundation design at the site, including (1) a shallow foundation design consisting of a structural mat supported on a 2.0-foot-thick section of controlled (structural) fill, or (2) a reinforced concrete mat foundation supported on a deep foundation to reduce the risk of slab deformation, settling, and/or tilting during a liquefaction event. The City indicates in a letter to staff dated June 16, 2001 that the building will utilize the first option in developing the foundation for the proposed building.

The report indicates that mobile homes may be founded on isolated pier footings provided (1) the footings are founded on a firm and unyielding surface free of organic debris and or trash, (2) the mobile home can accommodate potential differential settlement up to 1-inch associated with loading the undocumented fill materials, (3) the developers and/or residents can accept the potential for differential settlement, and (4) the footings are distributed to provide similar bearing loads at each location. The final project description involves the use of park model manufactured homes rather than standard mobile homes. The geotechnical engineer who prepare the soils and foundation report indicates that differential settlement concerns are not as great for the park model manufactured homes as they are for standard mobile homes because the proposed manufactured homes to be installed at the site are supported on two I-beams that run the length of the home, which prevents structural damage from differential settlement. The geotechnical engineer indicates the use of isolated pier foundations for the park model manufactured homes would be appropriate.

To ensure that the proposed residential structures are developed consistent with the foundation and other recommendations of the geotechnical report to mitigate potential geologic hazards affecting the site, the Commission attaches Special Condition No. 1, which requires that the final construction plans for the development adhere to the design recommendations specified in the geotechnical report. In addition, the condition requires

the applicant submit evidence that an appropriate licensed professional has reviewed and approved all final design, construction, grading, and drainage plans and certified that each of those final plans is consistent with all of the recommendations specified in the above-referenced geologic report.

Special Condition No. 8 requires the landowner to assume the risks of extraordinary erosion and geologic hazards of the property and waive any claim of liability on the part of the Commission. Given that the applicants have chosen to implement the project despite these risks, the applicants must assume the risks. In this way, the applicants are notified that the Commission is not liable for damage as a result of approving the permit for development. The condition also requires the applicants to indemnify the Commission in the event that third parties bring an action against the Commission as a result of the failure of the development to withstand hazards.

The Commission thus finds that the proposed development, as conditioned, is consistent with Section 30253 of the Coastal Act as the development as conditioned will minimize risks to life and property of geologic hazards. Only as conditioned is the proposed development consistent with Section 30253 of the Coastal Act.

E Flood Hazards

Summary of Coastal Act Policies:

Coastal Act Section 30253 states in applicable part:

> *New development shall do all of the following:*
>
> *(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*

Consistency Analysis:

Coastal Act Section 30253 requires, in applicable part, that new development minimize risks to life and property in areas of high flood hazard and neither create nor contribute significantly to erosion or geologic instability.

The LACO Associates soils and foundation report (see Exhibit 7) described above indicates that the site may be subject to flooding from Butcher's Slough/Jolly Giant Creek and tsunami inundation. Portions of the flat site are within the FEMA-mapped 100-year flood zone and will be subject to flooding from nearby Butcher's Slough/Jolly Giant Creek, located 90 feet to the west of the site across South H Street. In addition, the subject property, along with many others around Humboldt Bay, is shown on the maps of the Planning Scenario of a Great Earthquake on the Cascadian Seduction Zone (CSZ, CDMG, 1995, Map S-1) as being within the zone of potential inundation by a tsunami. If the region were to suffer a major earthquake along the Cascadian Seduction Zone, a local tsunami could arrive within minutes.

The primary way to minimize flooding risks from high flows from Butcher's Slough/Jolly Giant Creek would be to raise the structure above flood elevations. According to the Final Notice and Public Explanation of a Proposed Activity in a 100-Year Floodplain published by the City on May 11, 2010, the 100-year Base Flood Elevation (BFE) in the area as established by the Federal Emergency Management Agency's National Flood Insurance Program is estimated to be +6.5 feet NGVD 1929 datum. In implementing the federal flood protection program, the City's Land Use and Development Guide requires that new residences to have a finished floor elevation at least one-foot above Base Flood Elevation. The City requires the applicant to provide a Flood Elevation Certificate prepared by a registered land surveyor, engineer, or architect in accordance with Federal Emergency Management Agency (FEMA) guidelines demonstrating that the finished foundation would be constructed at least one foot above the Base Flood Elevation prior to issuance of the County building permit. To ensure that the proposed residence is designed to minimize flooding risks from extreme high tides as required by Coastal Act Section 30253, the Commission attaches Special Condition No**.** 7. This condition requires the applicants to provide evidence of a Flood Elevation Certificate approved by the City of Arcata Building Department as being adequate to demonstrate that the finished foundation would be at least one foot above the Base Flood Elevation.

Inundation from a tsunami could result in significant property damage, and, unless warning and evacuation actions are undertaken in a timely manner, possible loss of human life. The primary way to ensure that the proposed development would be safe from tsunami wave run-up would be to require that the habitable living spaces be positioned only above tsunami inundation levels. However, it would not be feasible to design a residence in this location that would position the habitable living spaces above tsunami inundation levels. Studies conducted for the Samoa area across the bay to the southwest project 30 feet above mean sea level as the safe level for constructing homes above tsunami inundation levels.

The subject property is located within a residential subdivision approved many years prior to the enactment of coastal development permit requirements. The subdivision is composed mostly of relatively small lots at an elevation of just a few feet above MSL. The multi-family residential zoning district that covers the subject property and much of the surrounding South of Samoa community is subject to a 35-foot maximum height limitation, and the densely developed area has been built-out with one and two-story residential structures that on average are much lower than the 35-foot maximum height limit. Construction of a new residence at a design elevation high enough to minimize the hazard of tsunami wave run-up (i.e., above 30 feet) would not be permissible given the 35-foot height limitation applicable to the area and would be glaringly out of character with the surrounding area. Therefore, the Commission finds that the flood risk from tsunami wave run-up at the site cannot be fully mitigated.

Nevertheless, to minimize risks to life and property from tsunami inundation, the Commission attaches Special Condition No. 6. Special Condition No. 6 requires that prior to issuance of the coastal development permit, the applicants submit for the review and approval of the Executive Director, a tsunami safety plan. The plan must detail the provision of informational materials to tenants within each occupied manufactured home and within the laundry room building, provided in an appropriate variety of languages and formats explaining tsunami risks, the need for evacuation if strong earthquake motion is felt or alarms are sounded, and the location of evacuation route. In addition, the plan must detail the efforts to be undertaken by property management staff to assist the evacuation of physically less mobile persons during a tsunami event. Finally the plan must include a staff training component, detailing the instruction to be provided to all property management staff to assure that the Tsunami Safety Plan is effectively implemented.

Furthermore, the Commission finds that if the applicants and future landowners receive notification of the flood risks associated with the property, then the applicants and future landowners of the property can decide whether to implement development on the site despite the risks. Therefore, the Commission attaches Special Condition Nos. 8 and 5. Special Condition No. 8 requires the landowner to assume the risks of flooding hazards to the property and waive any claim of liability on the part of the Commission. Given that the applicant has chosen to implement the project despite flooding risks, the applicant must assume the risks. In this way, the applicant is notified that the Commission is not liable for damage as a result of approving the permit for development. The condition also requires the applicant to indemnify the Commission in the event that third parties bring an action against the Commission as a result of the failure of the development to withstand hazards. To ensure that all future owners of the property are aware of the flood hazard present at the site, the Commission's immunity from liability, and the indemnity afforded the Commission, Special Condition No. 5 requires recordation of a deed restriction that imposes the special conditions of the permit as covenants, conditions, and restrictions on the use of the property.

Therefore, the Commission finds that the proposed project, as conditioned, will minimize risk to life and property from flood hazards consistent with Section 30253 of the Coastal Act.

F. Protection of Environmentally Sensitive Habitat Areas (ESHA), Marine Resources & Coastal Water Quality

Summary of Coastal Act Policies:

Coastal Act Section 30107.5 defines "environmentally sensitive habitat area" as:

> *…any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.*

Coastal Act Section 30240 states in part that:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Coastal Act Section 30230 states the following:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Coastal Act Section 30231 states the following:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Consistency Analysis:

Section 30240(a) of the Coastal Act limits activities within environmentally sensitive habitat areas (ESHAs) to only uses that are dependent on the resources of the ESHA. In addition, ESHA must be protected against any significant disruption of habitat values. Section 30240(b) requires that development in areas adjacent to ESHA shall be sited and designed to prevent impacts which would significantly degrade the ESHA, and that development shall be compatible with the continuance of the adjacent ESHA. Sections 30230 and 30231 of the Coastal Act require, in part, that the maintenance of the biological productivity and quality of marine resources, coastal waters, streams, wetlands, and estuaries necessary to maintain optimum populations of all species of marine organisms and for the protection of human health.

As noted above, there are no wetlands, special-status plant or animal habitat, or other environmentally sensitive habitat areas within the previously developed project area itself, except for an approximately 1-3-foot-wide drainage ditch along the west side of the subject parcel flanked by an approximately 5-8-foot-wide upland strip vegetated with ruderal grasses, all occupying a trip between an existing sidewalk and South H Street. This drainage ditch wetland contains water much of the year and a scattering of wetland plants, but does not constitute ESHA. The project as approved will not include development within the wetland and the adjoining vegetated upland area, although the adjoining sidewalk will be replaced.

Although there is no ESHA on the project site itself, the Arcata Marsh and Wildlife Sanctuary is located directly across South H Street to the west of the project site and many parts of the sanctuary constitute ESHA, including Butcher's Slough. Butcher's Slough, which becomes Jolly Giant Creek, is located approximately 90 feet west the project site.

Jolly Giant Creek / Butcher's Slough drains approximately 1.7 square miles of rural and urban landscape and is Arcata's primary watershed. Originating east of the city in the Arcata Community Forest, the watercourse flows for six miles before discharging into Arcata Bay. The stream has undergone significant realignment and other modifications as the area was developed as a mining supply port and later a lumber production hub beginning in the 1850s. The majority of the creek past the Humboldt State University campus, beneath Highway 101, and through the City's urbanized core is culverted and enclosed below street level. Such confined streams typically exhibit declining water quality because of their lack of exposure to air, sunlight, soil, and vegetation to filter and process entrained pollutants.

The vegetation along the Jolly Giant Creek / Butchers Slough watercourse in the Western Project Area vicinity is comprised of a mixture of ruderal species that are generally found along disturbed streams, including salt grass (*Distichlis spicata*), Himalayan blackberry (*Rubus discolor*), creeping buttercup (*Ranunculus repens*), coyote brush (*Baccharis pilularis*), pampas grass (*Cortaderia jubata*), and rushes (*Juncus* sp.). Given the dominance of invasive pioneering plant species and the relatively low level of fish and wildlife species use of the stream as compared to other coastal streams of this size, the habitat value of this streambank area can be considered to be severely degraded. Notwithstanding this degraded condition, Jolly Giant Creek/Butcher's Slough provides cover and forage to a variety of fish species such as the *coho* salmon (*Oncorhynchus kisutch*), a federally-listed endangered species, listed as endangered federally, threatened in California, steelhead (*Oncorhynchus mykiss*) a state-listed threatened species, the federally-listed tidewater goby (*Eucyclogobius newberryi*), and coastal cutthroat trout (*Oncorhynchus clarki*).

Since, 1991 there have been several efforts made to restore the stream and remedy the damage from its urbanization. To date, over 570 feet of surface channel upstream of the

Western Project Area has been "day-lighted" and/or has had bank and in-stream restoration work performed on it to improve water quality. In addition, beginning in the early-2000s, the Jolly Giant / Butcher's Slough Enhancement Project reestablished over-bank and floodplain areas lost to channelization, returned hydrologic complexity to the stream by increasing channel sinuosity on artificially straightened reaches creating off-channel refugia alcoves, replaced large wood vegetation cover elements within the stream channel and along the banks, and re-established the native riparian corridor vegetation on denuded reaches or those dominated by invasive, exotic plants along a reach of the stream beginning approximately 825 feet south the Western Project Area (see Coastal Development Permit No. 1-02-020, City of Arcata, Applicant).

As the slough enters the Arcata Marsh and Wildlife Sanctuary, where the watercourse winds around a restored freshwater log pond, before passing through a series of railroad underdrains and entering Arcata Bay between the City's municipal wastewater treatment plant and the tertiary treatment ponds of the marsh complex. Comprising some 307 acres of bayfront marshes, mudflats, and grasslands, combination of treated, fresh, and saltwater marshes provide habitat to over 270 species of birds throughout the year, including visitations by hundreds of migratory waterfowl.

The proposed project is located within an existing developed neighborhood and is separated from Butcher's Slough by South H Street and some adjoining upland area. Therefore, the human activity and vehicle traffic associated with the development will not create visual and noise disturbances that will have significant adverse impacts on wildlife usage of Butchers Slough and the Arcata Marsh and Wildlife Sanctuary in general. However, runoff from the site which discharges to Butcher's Slough via a culvert under South H Street could adversely affect water quality and biological productivity within the ESHA if not adequately treated. The proposed development would impact the water quality of these water bodies both during construction and after project completion. In addition, with the close proximity of the project site to the marsh and wildlife sanctuary, any invasive exotic species introduced to the site through the development could easily spread to the ESHA, displacing native vegetation and habitat.

Water Quality Impacts

Demolition and grading to prepare the site for rehabilitation of the mobile home park would expose demolition debris and loosened soil to stormwater runoff. Stormwater runoff flowing across the site could entrain loose soil materials that could in turn drain into Butchers Slough and Arcata Bay, adversely affecting water quality.

Therefore, the Commission attaches Special Condition Nos.9 and 3. Special Condition No. 9 requires that efforts be taken to ensure that in the handling and storage of construction materials, demolition debris, and other wastes no such materials be allowed to enter the waters of Butchers Slough or Humboldt Bay. Special Condition No. 9 further requires that all debris and waste be removed for the project site and disposed of in an

upland location outside of the coastal zone or at an approved disposal facility. Special Condition No. 3 requires approval of final erosion and runoff plans prior to permit issuance, incorporating various erosion and runoff control measures. The plans are required to ensure that appropriate best management practices (BMPs) to control runoff and prevent spills are implemented in light of expected precipitation events or construction mishaps. These BMPs include such measures as timing the construction to occur during times with low probability of storm events, use of earthen diking, straw bales and debris fencing barriers to intercept and divert any stormwater runoff that may occur away from the excavation area, mulching and re-seeding the area upon completion of demolition- and construction-related ground disturbing activities, and training of employees in the use of BMPs.

Currently, although very little of the site is currently paved, almost the entire area of the site that is not covered by buildings or sidewalks is covered in compacted gravel essentially making the site almost 100% impervious. Site drainage that does not otherwise infiltrate into unpaved portions of the site sheet-flows to a catch basin along the site's "H" Street frontage. As noted above, these flows then flow through a culvert under South "H" Street before being discharged into a channel of Butchers Slough.

Pollutants within stormwater runoff from multi-family residential uses have the potential to degrade the water quality of the aquatic environment. Parking areas contain pollutants such as heavy metals, oil and grease, and polycyclic aromatic hydrocarbons that deposit on these surfaces from motor vehicle traffic. In addition, outdoor maintenance equipment, routine washing, re-painting, and carpet steam-cleaning have the potential to contribute metals, oil and grease, solvents, phosphates, and suspended solids to the stormwater conveyance system.

Upon completion of construction, impervious coverage of the 29,356-square-foot parcel would be reduced from virtually the entire parcel to 19,904-square-feet or from roughly 100% to approximately 68% of the site by conversion of much of the compacted gravel area to landscaping. Although the amount of runoff from the site after project construction will be slightly reduced because of the small reduction in impervious surfaces, the development will support continued use of the site by a number of vehicles and consequently the amount of hydrocarbon and other contaminants that will become entrained in the runoff from the impervious surfaces of the subject property.

For development projects other than single-family residences where the project improvements would result in stormwater runoff that has the potential to contain entrained pollutants that could adversely impact coastal waters, the Commission generally attaches a special condition to the coastal development permit requiring the permittee to provide appropriate best management practices in the form of on-site infiltration interceptors or retention basins to prevent impacts to coastal water quality.

As proposed, the development includes the installation and use of a stormwater pollution control system. Runoff from all roofs, driveways, parking spaces, walkways, and other impervious surfaces on the site would be collected in drains and conveyed to underground stormwater pollution control filters installed within catch basins that would treat the runoff through filtration prior to its discharge off-site (See Exhibit 8) into storm drains that lead to Butcher's Slough. As depicted in the runoff control plan submitted with the application, at least one FloGard LoPro Matrix Filter shall be utilized to treat runoff from the western half of the property and at least three Bio-Clean Hydrocarbon Type Flume Filters would be utilized to treat runoff from other portions of the site. The system would be designed to treat or filter stormwater runoff from each storm, up to and including the 85th percentile, 24-hour storm event.

Special Condition No. 3 requires approval of final runoff control plans prior to permit issuance to insure that the development incorporates these proposed stormwater runoff treatment facilities. The special condition also requires other appropriate runoff control measures including a requirement that the applicant clean and maintain the catch basins, filters, and other filtering media several times per year in accordance with the manufactures specifications for each filter (See Exhibit 9).

The Commission finds that as conditioned, the project is consistent with Section 30231 as the biological productivity and quality of coastal waters will be maintained.

Protection of Native Vegetation and Raptor Wildlife Resources

The Commission finds that the ESHA located near the site could be adversely affected if non-native, invasive plant species were introduced in landscaping at the site. Introduced invasive exotic plant species could physically spread into the ESHA and displace native wetland vegetation, thereby disrupting the values and functions of the ESHAs. To ensure that the ESHA near the site is not significantly degraded by any future landscaping that would contain invasive exotic species, the Commission attaches Special Condition No. 4 and 10. Special Condition No. 10 specifically prohibits the planting of invasive or otherwise problematic plant species on the site. Special Condition No. 4 requires the applicant prior to issuance of the coastal development permit to prepare and submit for the review and approval of the Executive Director a final landscaping plan. The plan is required to limit landscape plantings to native species obtained, whenever feasible, from locally derived genetic stocks. In addition, Special Condition No. 4 requires that the landscaping plan include specific prohibitions against certain bio-accumulating rodenticides to prevent their uptake by raptor predators in the area.

Conclusion

The Commission finds that as conditioned, all feasible mitigation measures have been provided to minimize adverse environmental effects consistent with Sections 30230, 30231, 30232, and 30240 of the Coastal Act. In addition, The Commission finds that as

conditioned to require: (1) submittal of a final sedimentation and runoff control plan, hazardous materials management plan, and debris disposal plan; and (2) submittal of a final landscaping plan specifying the use of native, locally obtained plants together with prohibitions on the use of bio-accumulating rodenticides, the proposed development is consistent with Coastal Act Sections 30230, 30231, 30232, and 30240.

G. Visual Resources

1. Summary of Coastal Act Provisions

Section 30251 of the Coastal Act states that the scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance, and requires in applicable part that permitted development be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to restore and enhance where feasible the quality of visually degraded areas, and to be visually compatible with the character of surrounding areas.

2. Discussion.

The project is located within an urbanized neighborhood one city-block inland from the closest (coastal stream) shoreline. The surrounding area is developed with a mixture of single- and multi-family residential, general-commercial, professional office, and public facility uses. Structures housing these uses range in size and bulk from single-story homes of approximately 1,000 square-feet to two-story apartment buildings with several thousand square-feet of floor area. Building styles are similar diverse, consisting of an assortment of wood-frame and metal structures topped by flat, gabled, and hip roofs with a variety of exterior finishes. The subject property was previously developed in the early 1950's with a mobile home park that included two small one-story buildings and spaces for 18 mobile homes. The old mobile homes have all been removed and the park area has been overgrown with ruderal vegetation. The two small buildings are vacant, and as a result of the age of the buildings, their present state of upkeep, and their shuttered status, the site has somewhat of a blighted appearance compared to other portions of the South of Samoa neighborhood area.

The project involves the rehabilitation of the mobile home park by the demolition and removal of existing facilities and site preparation work, the installation of utilities and other new infrastructure, construction of a new approximately 2,139-square-foot building housing an office, laundry, and three efficiency apartments, installing 16 Champion park model manufactured homes, off-street parking, and landscaping. The proposed 23-foot-tall wood-framed office/laundry/apartment building would be constructed with batten boards over hardipanel siding on the upper story and hardiplank lap-board siding on the lower floor with board trim, and topped with architectural-grade asphalt-composite shingles (see Exhibit No. 6). The 16 Champion park model manufactured homes to be

installed at the park are 40 feet long, 13.25 feet wide, and 12.25 feet tall with fiberboard lap-board siding with board trim and composition shingle peaked roof (see Exhibit Nos. 6). The mobile home park surface would be raised approximately 1.5 to 2 feet by the placement of imported earthen materials, but would remain generally flat with slight grades for drainage.

The project would be in keeping with the approximate scale and bulk of other development in the immediate area. Construction of the site improvements would involve minimal alteration of natural landforms, only raising the grade 1.5 to 2 feet as noted above. Further, as the proposed project would result in new residential units of a contemporary design and appearance that would match that of more recent nearby development, the project would incrementally improve the overall look of the surrounding area. In addition, given the variety of building types and styles in the South of Samoa neighborhood, the character of the surrounding area could best be described as "eclectic." The Commission therefore finds that as: (1) views to and along the ocean have been protected through the project being located well inland of the coast; (2) natural landform alteration would be minimized; (3) the quality of visually degraded areas would be restored and enhanced where feasible; and (4) the new development would be visually compatible with the character of surrounding areas, the proposed project as conditioned is consistent with Coastal Act Section 30251.

H. Protection of Archaeological Resources

1. Applicable Coastal Act Policies and Standards

Coastal Act Section 30244 states:

> *Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

2. Consistency Analysis

The proposed project area is located within the ethnographic territory of the Wiyot Indians, who lived almost exclusively in villages along the protected shores of Humboldt Bay and near the mouths of the Eel and Mad Rivers. The relatively larger and sedentary populations of these villages engaged in an economy of salmon fishing, marine-mammal hunting, shellfish gathering, and seasonal excursions inland for acorns. Several archaeological sites have been discovered within the city limits of the City of Arcata. However, archaeological or paleontological resources are not common in the area around the project site.

The environmental assessment prepared for the project indicates that there are no known

archaeological or paleontological features on the site. The entirety of the development will occur within the previously developed mobile home park and adjoining sidewalk areas. Any archaeological or paleontological resources that might have previously existed on the site would likely have been disturbed when the original mobile home park was developed. Nonetheless, it is possible that buried resources could be encountered during the proposed redevelopment of the site.

To ensure protection of any cultural resources that may be discovered at the site during construction of the proposed project, and to implement the recommendation of the archaeologist, the Commission attaches Special Condition No. 11. This condition requires that requires that if an area of cultural deposits is discovered during the course of the project, all construction must cease, and a qualified cultural resource specialist must analyze the significance of the find. To recommence construction following discovery of cultural deposits, the applicant is required to submit a supplementary archaeological plan for the review and approval of the Executive Director to determine whether the changes are *de minimis* in nature and scope, or whether an amendment to this permit is required.

Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Coastal Act Section 30244, as the development will not adversely impact archaeological resources.

I. Public Trust Lands.

As former tidelands, the project site is located in an area subject to the public trust. Therefore, to ensure that the applicant has the necessary authority to undertake all aspects of the project on these public lands, the Commission attaches Special Condition No. 2, which requires that the project be reviewed and where necessary approved by the State Lands Commission prior to the issuance of a permit.

J. California Environmental Quality Act

The City of Arcata was the lead agency on the project for the purposes of CEQA review. On February 22, 2010, the City determined that the development was categorically exempt from the need to prepare an Environmental Impact Report. In addition, the City prepared an Environmental Assessment of the project for the purposes of NEPA review dated April 22, 2010 and determined that the proposed project is not a major Federal action significantly affecting the quality of the human environment.

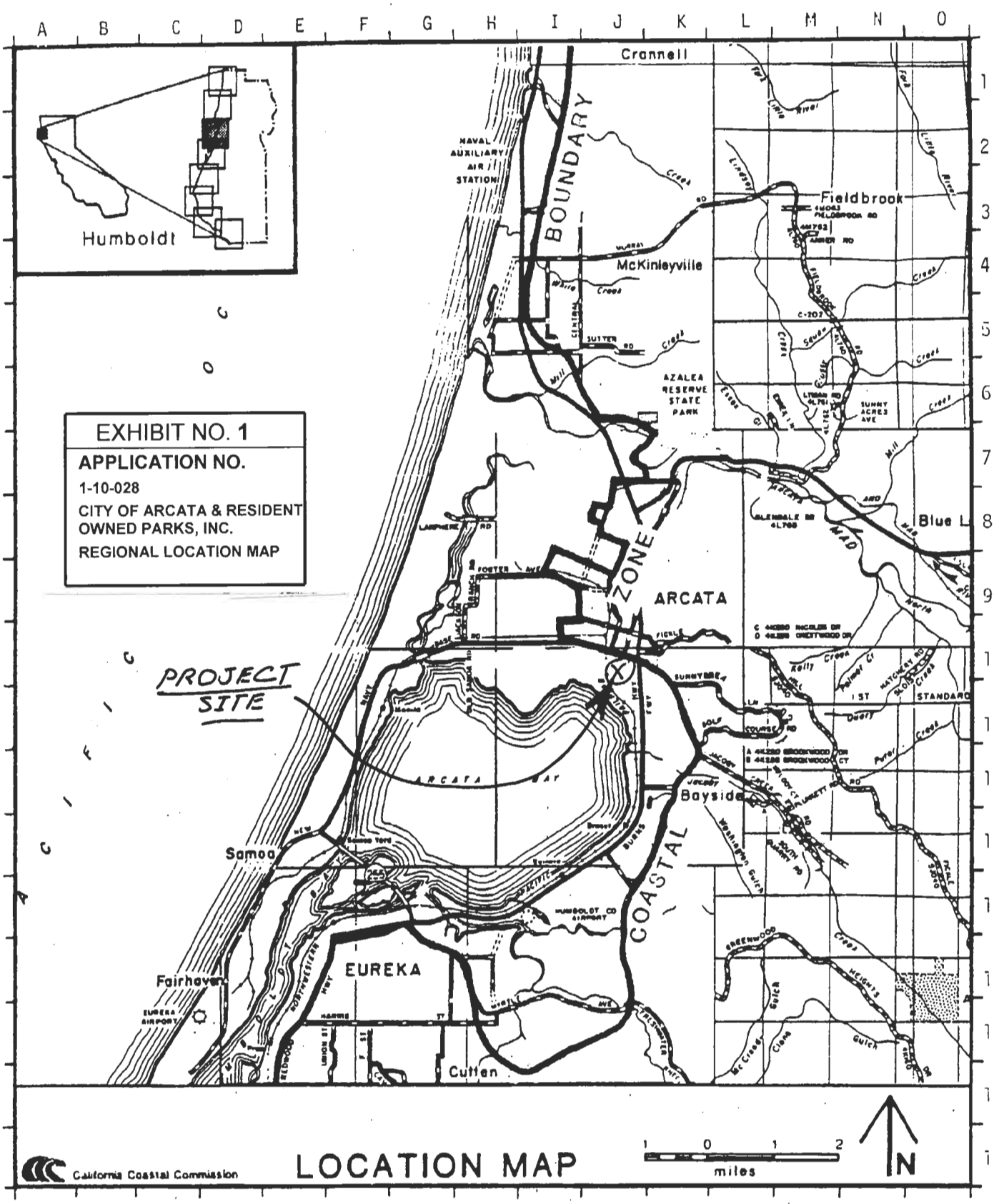
Section 13906 of the Commission's administrative regulation requires Coastal Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being

approved if there are any feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effect the proposed development may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. Those findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. As specifically discussed in these above findings, which are hereby incorporated by reference, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impacts, which the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act and to conform to CEQA.

EXHIBITS:

1. Regional Location Map
2. Vicinity Map
3. Assessor's Parcel Map
4. Site Photos
5. Existing Conditions Plan
6. Project Plans
7. Soils Report
8. Stormwater Runoff Treatment Plan
9. Runoff Filter Maintenance Specifications



County of Humboldt

PROJECT SITE

EXHIBIT NO. 2

APPLICATION NO.

1-10-028

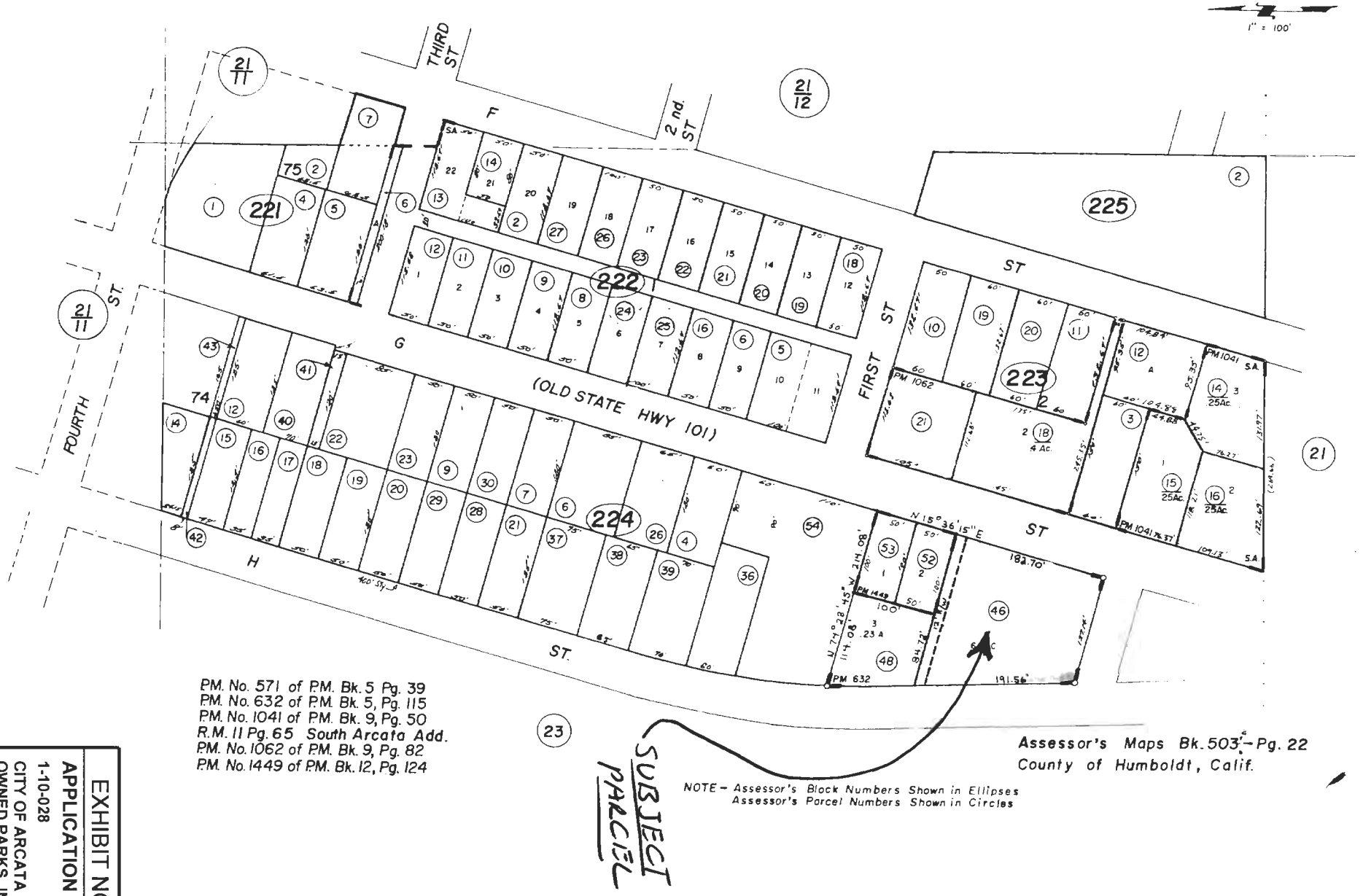
CITY OF ARCATA & RESIDENT OWNED PARKS, INC.

VICINITY MAP

POR. SW 1/4 OF NE 1/4 SEC 32, T6N, R1E

503-22

1" = 100'



P.M. No. 571 of P.M. Bk. 5 Pg. 39
P.M. No. 632 of P.M. Bk. 5, Pg. 115
P.M. No. 1041 of P.M. Bk. 9, Pg. 50
R.M. 11 Pg. 65 South Arcata Add.
P.M. No. 1062 of P.M. Bk. 9, Pg. 82
P.M. No. 1449 of P.M. Bk. 12, Pg. 124

SUBJECT PARCEL

NOTE - Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles

Assessor's Maps Bk. 503 - Pg. 22
County of Humboldt, Calif.

EXHIBIT NO. 3

APPLICATION NO.
1-10-028
CITY OF ARCATA & RESIDENT OWNED PARKS, INC.
ASSESSOR'S PARCEL MAP

Sandpiper Mobile Home Park Existing Conditions

Existing Road Surface

EXHIBIT NO. 4
APPLICATION NO.
1-10-028
CITY OF ARCATA & RESIDENT OWNED PARKS, INC.
SITE PHOTOS (1 of 3)

Existing Buildings

Sandpiper Mobile Home Park Existing Conditions

Existing Site Layout

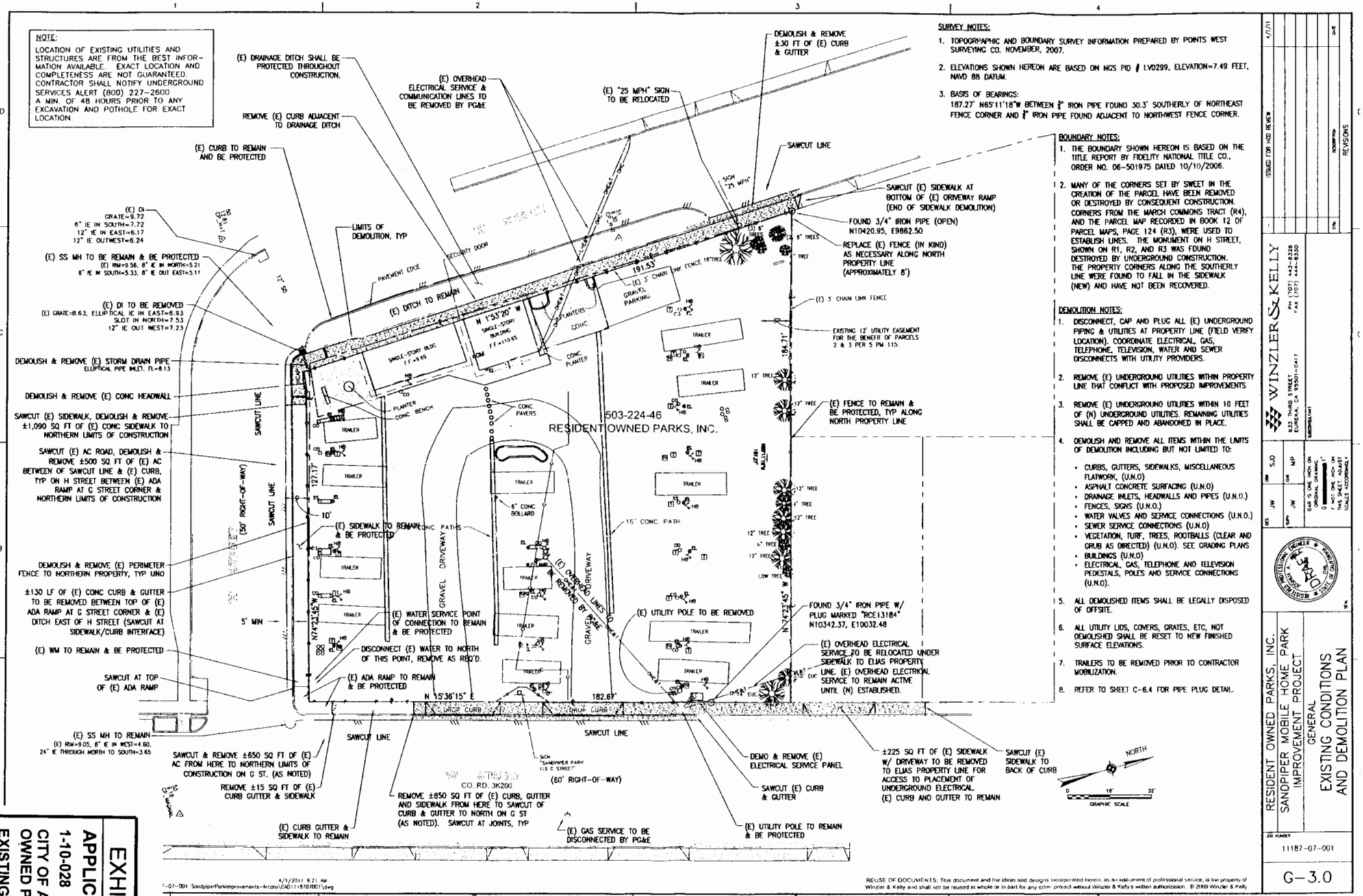
Existing Mobile Home Spaces

Sandpiper Mobile Home Park Existing Conditions

Site Panorama 1

Site Panorama 2

3 of 3

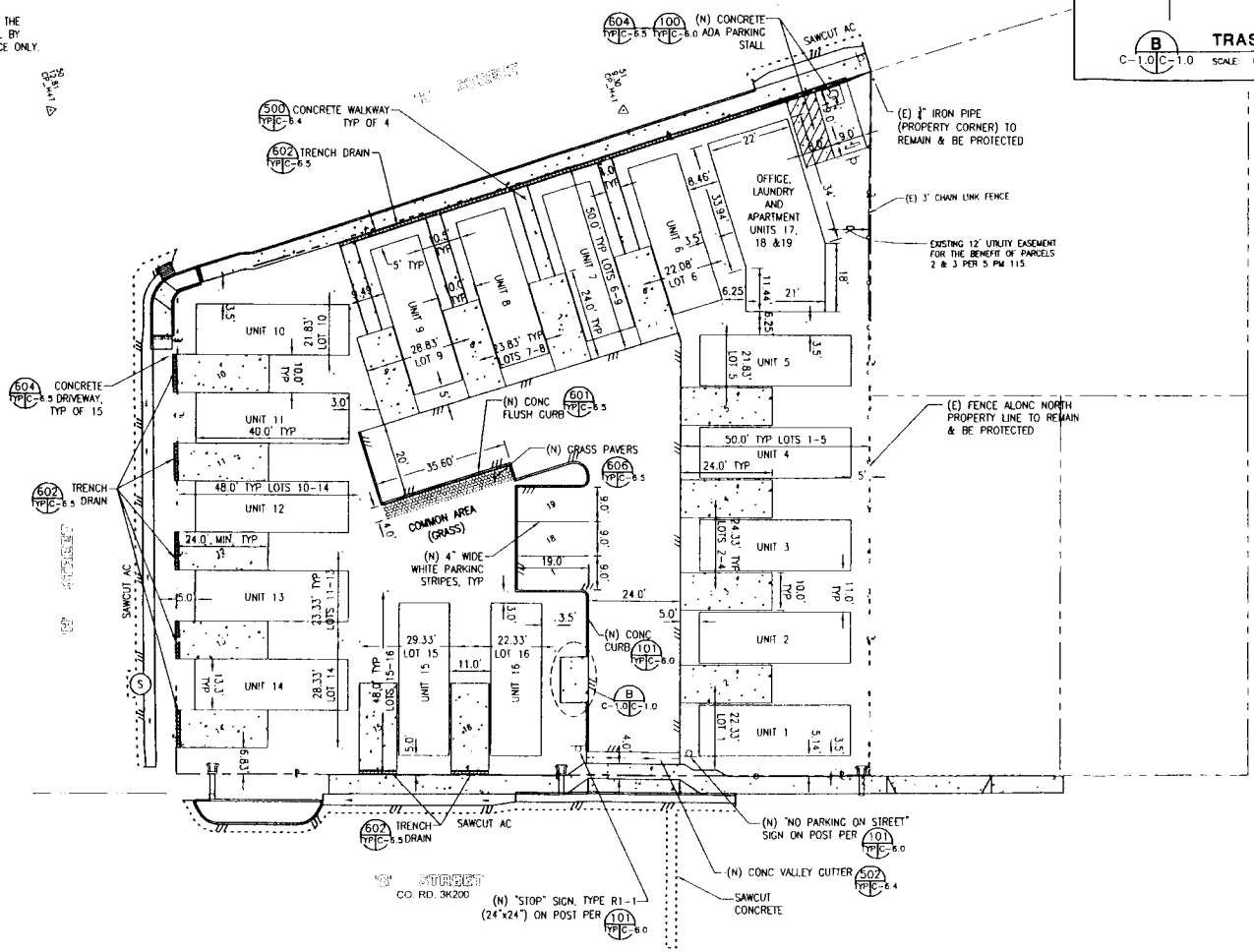


NOTES:

1. ALL LOTS SHALL BE DEFINED BY PERMANENT CORNER MARKERS. CORNER MARKERS SHALL BE VISIBLE AT GRADE AND SHALL BE INSTALLED IN A MANNER THAT DOES NOT CREATE A HAZARD.
2. PERMANENT CORNER MARKERS SHALL BE HOT DIPPED GALVANIZED METALLIC PIPE OR RODS, AND DRIVEN INTO THE GROUND A DEPTH OF AT LEAST 18 INCHES OR DRIVEN INTO THE GROUND TO A DEPTH OF AT LEAST 6 INCHES WHEN SURROUNDED BY A CONCRETE PAD AT LEAST 4 INCHES IN DIAMETER AND AT LEAST 6 INCHES IN DEPTH.
3. ALL LOTS SHALL BE IDENTIFIED BY LETTERS, NUMBERS OR STREET ADDRESS NUMBERS. THE LOT IDENTIFICATION SHALL IN A CONSPICUOUS LOCATION FACING THE ROADWAY.
4. ALL PAVEMENT MARKINGS AND STRIPES SHALL BE PAINTED CONFORMING TO THE CALTRANS STANDARD SPECIFICATIONS (MAY 2006) SECTION 84.
5. THE PROPOSED LAUNDRY/OFFIC/APARTMENT BUILDING IS OUTSIDE THE JURISDICTION OF HCD AND IS SUBJECT TO REVIEW AND APPROVAL BY THE CITY OF ARCATA. BUILDING FOOTPRINT SHOWN FOR REFERENCE ONLY.
6. SEE SHEET C-1.1 FOR IMPROVEMENTS WITHIN THE PUBLIC RIGHT-OF-WAY.
7. QUANTITIES SHOWN ARE APPROXIMATE.

LEGEND:

- PROPERTY BOUNDARY LINE
- LOT LINE BOUNDARY
- LIMITS OF CONSTRUCTION
- LANDSCAPE AREAS (PROVIDE 4" TOPSOIL IN COMMON AREAS; PROVIDE 24" TOPSOIL IN PLANTERS)
- ASPHALT PAVING SECTION (301 TYP C-8.2)
- CONCRETE WALKWAY (500 TYP C-6.4) OR VEHICULAR CONCRETE PAVING (604 TYP C-6.5)
- GRASS PAVERS (606 TYP C-6.5)



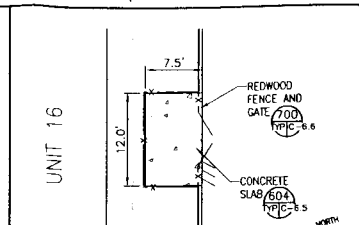


EXHIBIT NO. 6
APPLICATION NO.
1-10-028
CITY OF ARCATA & RESIDENT OWNED PARKS, INC.
PROJECT PLANS (1 of 14)

ISSUED FOR HCD REVIEW 6/8/11

WINZLER & KELLY
633 THIRD STREET
EUREKA, CA 95501-0417
PH (707) 443-8326
FAX (707) 444-8330

RESIDENT OWNED PARKS, INC.
SANDPIPER MOBILE HOME PARK
IMPROVEMENT PROJECT
CIVIL

PLOT PLAN - ONSITE

JOB NUMBER 11187-07-001

C-1.0

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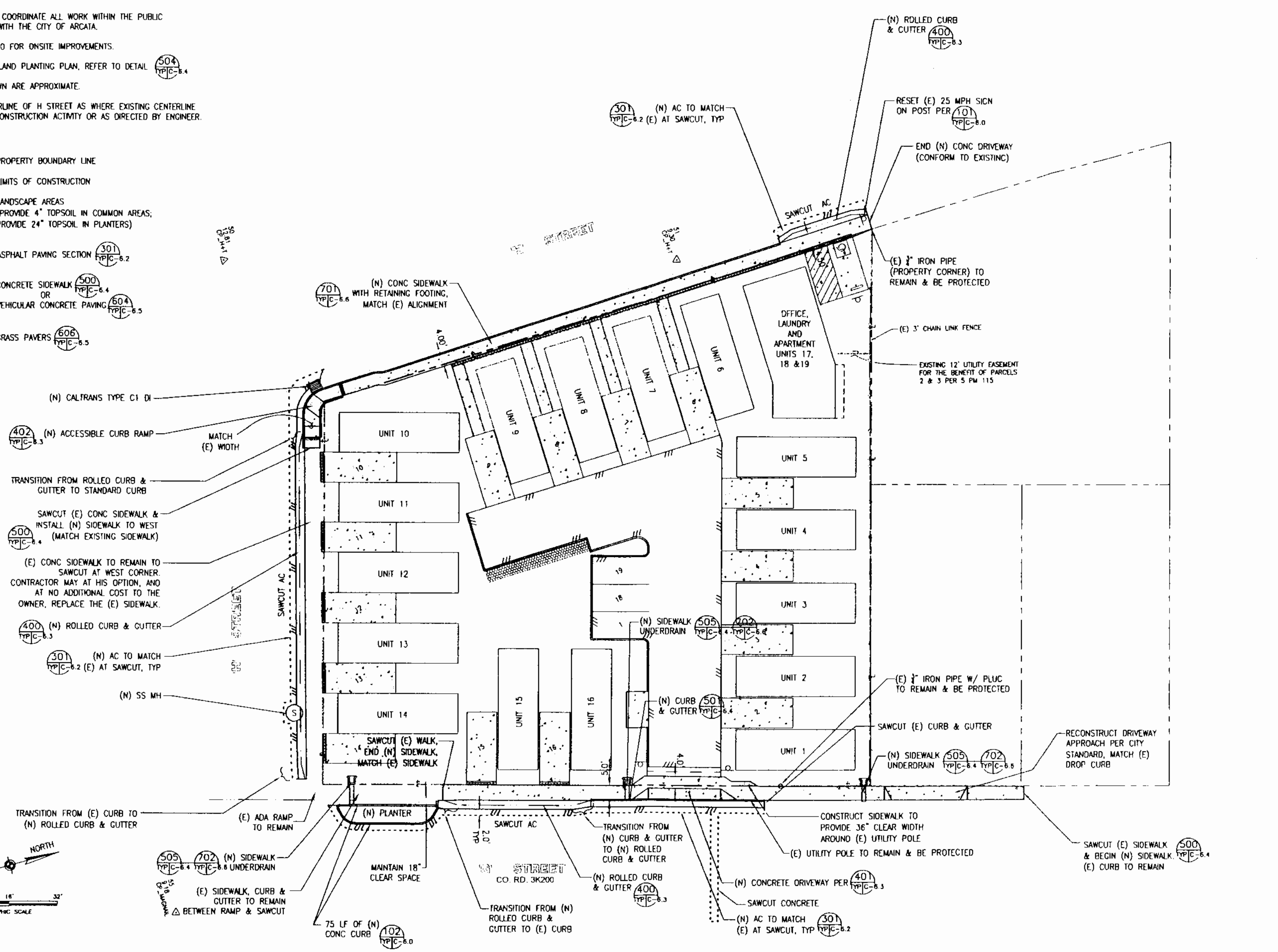
NOTES:

1. CONTRACTOR TO COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY WITH THE CITY OF ARCATA.
2. SEE SHEET C-1.0 FOR ONSITE IMPROVEMENTS.
3. FOR PLANTER ISLAND PLANTING PLAN, REFER TO DETAIL 504 TYP C-6.4
4. QUANTITIES SHOWN ARE APPROXIMATE.
5. RESTRIPE CENTERLINE OF H STREET AS WHERE EXISTING CENTERLINE DISTURBED BY CONSTRUCTION ACTIVITY OR AS DIRECTED BY ENGINEER.

LEGEND:

- PROPERTY BOUNDARY LINE
- LIMITS OF CONSTRUCTION
- LANDSCAPE AREAS (PROVIDE 4" TOPSOIL IN COMMON AREAS; PROVIDE 24" TOPSOIL IN PLANTERS)
- ASPHALT PAVING SECTION 301 TYP C-6.2
- CONCRETE SIDEWALK 500 TYP C-6.4 OR VEHICULAR CONCRETE PAVING 604 TYP C-6.5
- GRASS PAVERS 606 TYP C-6.5



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REVISIONS		
SYM	DESCRIPTION	DATE
1	ISSUED FOR HCD REVIEW	6/13/11

WINZLER & KELLY
633 THIRD STREET
EUREKA, CA 95501-0417
PH (707) 443-8326
FAX (707) 444-8330

DES JW | DRN SJD | SUPV JW | CK MP

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

RESIDENT OWNED PARKS, INC.
SANDPIPER MOBILE HOME PARK IMPROVEMENT PROJECT
CIVIL

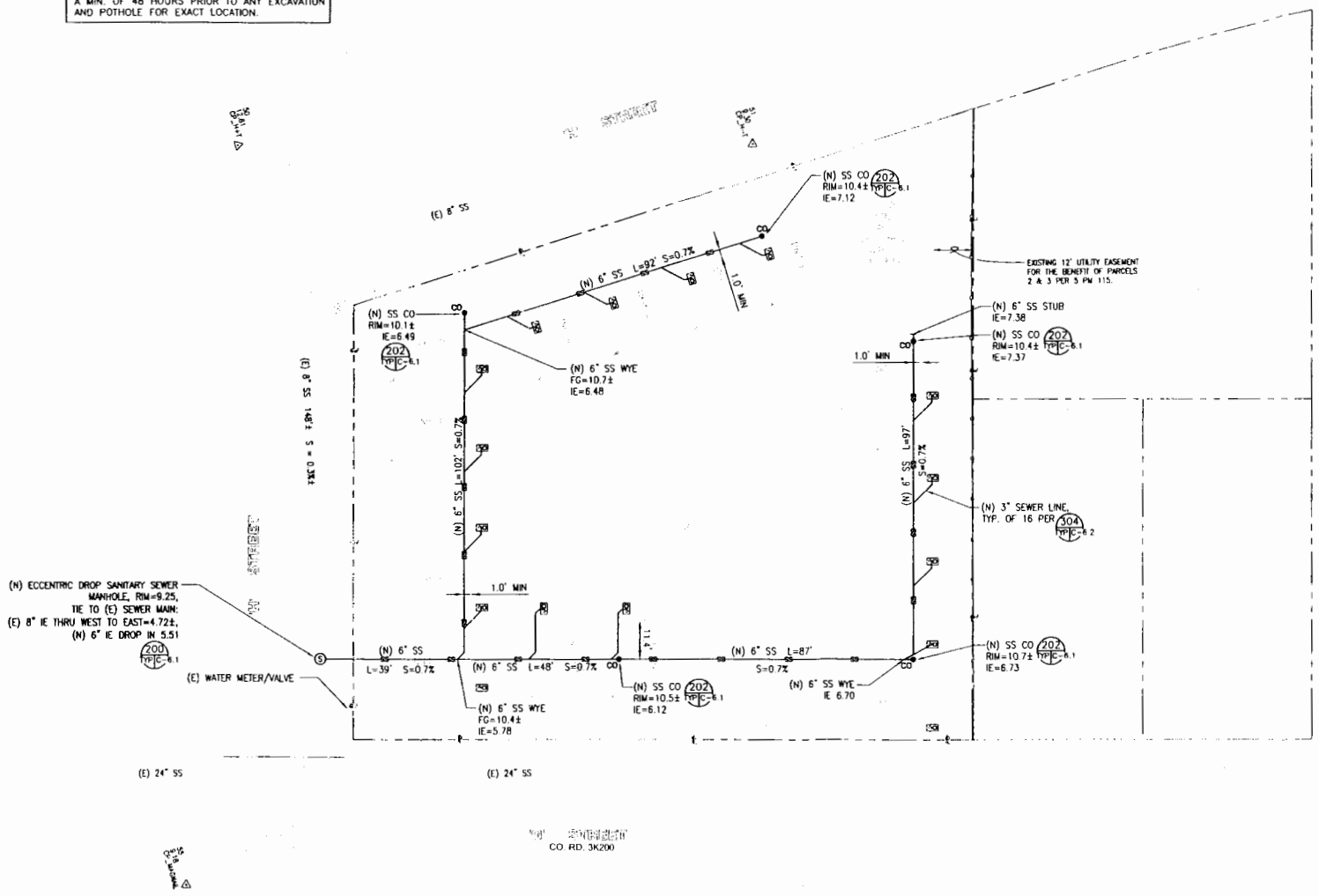
PLOT PLAN – OFFSITE

JOB NUMBER 11187-07-001

C-1.1

2 of 14

NOTE:
LOCATION OF EXISTING UTILITIES & STRUCTURES ARE FROM THE BEST INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT (800) 227-2600 A MIN. OF 48 HOURS PRIOR TO ANY EXCAVATION AND POTHOLE FOR EXACT LOCATION.



NOTES:
1. CONTRACTOR TO COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY WITH THE CITY OF ARCATA.
2. CONTRACTOR TO FIELD VERIFY ALL TIE-IN LOCATIONS AND ELEVATIONS TO EXISTING SEWER MAIN & SERVICE PIPES, CLEANOUTS & MANHOLES, PRIOR TO CONSTRUCTION.
3. ALL (N) SS PIPES AND FITTINGS SHALL BE PVC WITH SDR-35 RATING PER ASTM D3034-73.
4. ALL SEWER PIPES SHALL BE CONSTRUCTED TO THE MINIMUM SLOPES REQUIRED PER 25 CCR, TABLE 1268-2.
5. INSTALL UTILITY TRENCHES PER DETAIL (104 TYP C-6.0)

NO.	DESCRIPTION	DATE
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WINZLER & KELLY
CONSULTANT
633 THIRD STREET
EUREKA, CA 95501-0417
PH (707) 443-8326
FAX (707) 444-8330

DES. JW DRN. SJD
SUP. JW CHK. MP

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RESIDENT OWNED PARKS, INC.
SANDPIPER MOBILE HOME PARK IMPROVEMENT PROJECT
CIVIL
SEWAGE DISPOSAL SYSTEM PLAN

JOB NUMBER 11187-07-001

C-4.0

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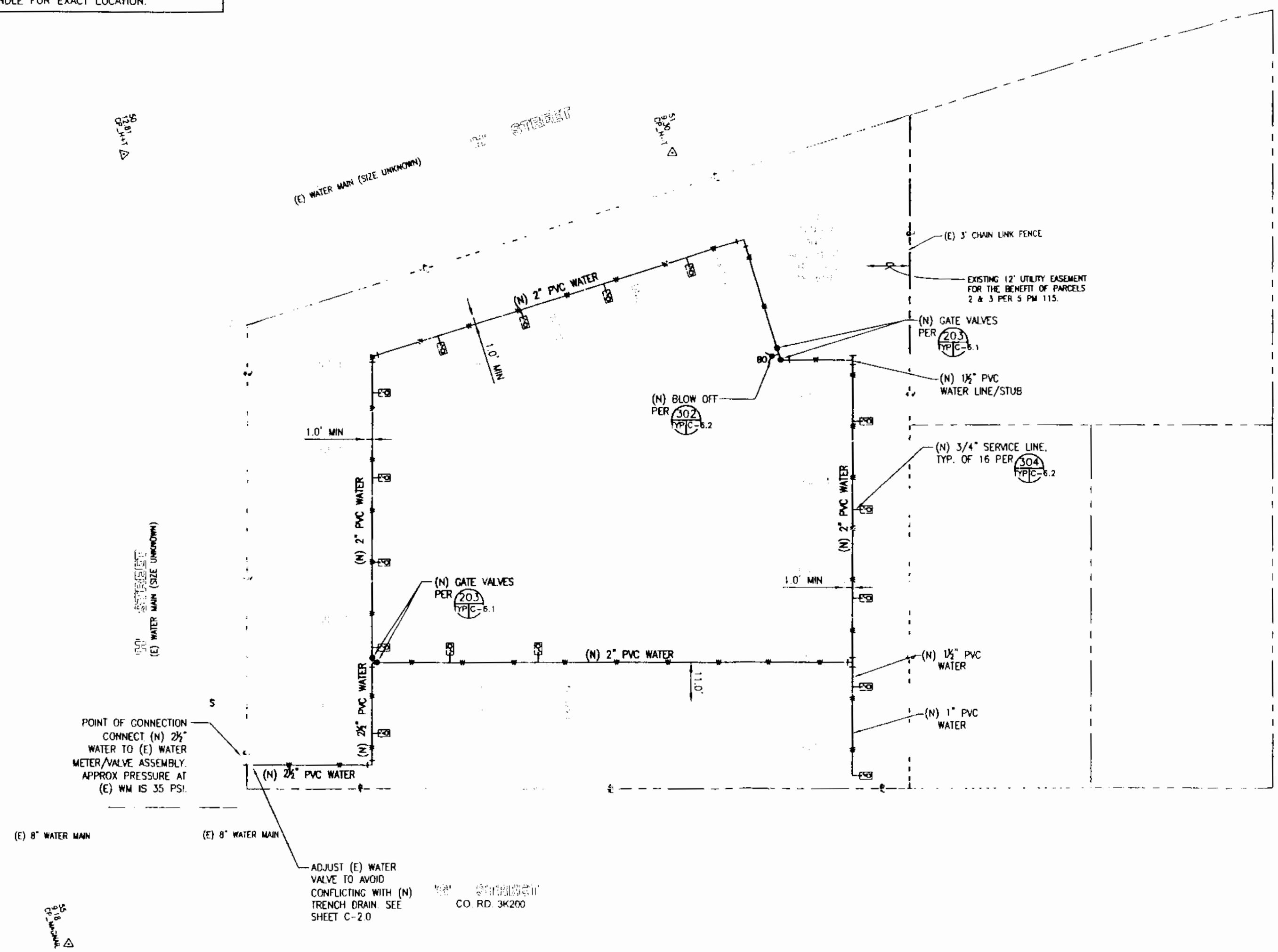
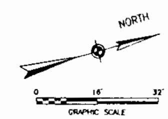
3 of 11

NOTE:
LOCATION OF EXISTING UTILITIES & STRUCTURES ARE FROM THE BEST INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT (800) 227-2600 A MIN. OF 48 HOURS PRIOR TO ANY EXCAVATION AND POTHOLE FOR EXACT LOCATION.



NOTES:

1. CONTRACTOR TO COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY WITH THE CITY OF ARCATA.
2. CONTRACTOR TO FIELD VERIFY ALL TIE-IN LOCATIONS AND ELEVATIONS TO EXISTING WATER METER & VALVE PRIOR TO CONSTRUCTION.
3. PROVIDE A MINIMUM OF 1 FEET OF HORIZONTAL SEPARATION BETWEEN SEWER LINES AND WATER SERVICE LINES IN ACCORDANCE TO THE 2010 CPC.
4. ALL WATER LINES SHALL BE DISINFECTED ACCORDING TO AWWA C601-81 BEFORE BEING PLACED IN SERVICE AS DESCRIBED IN THE SPECIFICATIONS.
5. ALL WATER LINES SHALL HAVE 30" MINIMUM COVER TO FC.
6. ALL (N) SMALL DIAMETER WATER PIPES AND FITTINGS (<4") SHALL BE SCHEDULE 80 PVC PER ASTM D1785.
7. INSTALL UTILITY TRENCHES PER DETAIL 104 TYP C-5.0



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-	ISSUED FOR HCD REVIEW	6/13/11

REVISIONS

WINZLER & KELLY
633 THIRD STREET
EUREKA, CA 95501-0417
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FAX (707) 444-8330

DES JW | DRN SJD | SUPV JW | CHK MP

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RESIDENT OWNED PARKS, INC.
SANDPIPER MOBILE HOME PARK
IMPROVEMENT PROJECT
CIVIL
WATER DISTRIBUTION SYSTEM PLAN

JOB NUMBER 11187-07-001

C-5.0

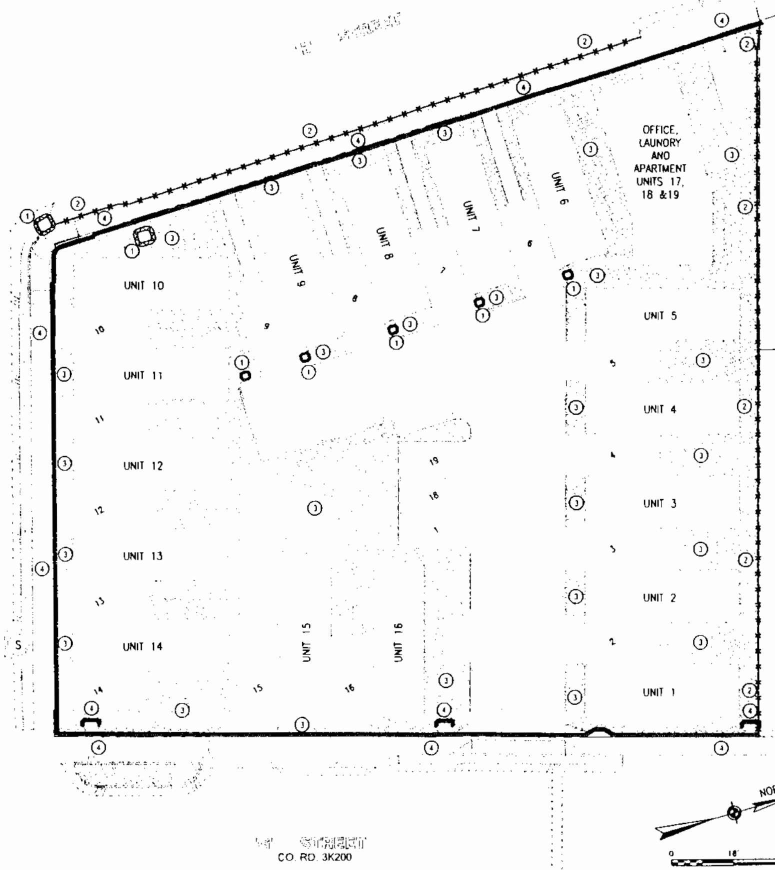
4 of 14

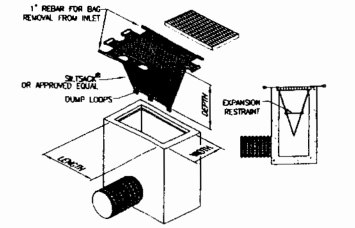
EROSION & SEDIMENT CONTROL NOTES:

1. SUFFICIENT EROSION CONTROL SUPPLIES SHALL BE AVAILABLE ON-SITE AT ALL TIMES TO DEAL WITH AREAS SUSCEPTIBLE TO EROSION DURING RAIN EVENTS.
2. THE CONTRACTOR SHALL MAKE ADEQUATE PREPARATIONS, INCLUDING TRAINING & EQUIPMENT, TO CONTAIN SPILLS OF OIL AND OTHER HAZARDOUS MATERIALS.
3. ACTIVITIES SUCH AS VEHICLE WASHING ARE TO BE CARRIED OUT AT AN OFF-SITE FACILITY WHEREIN THE WATER IS DISCHARGED INTO A SANITARY SEWER.
4. THE CONTRACTOR SHALL PROVIDE COVERED WASTE RECEPTACLE FOR COMMON SOLID WASTES AT CONVENIENT LOCATIONS ON THE JOB SITE AND PROVIDE REGULAR COLLECTION OF WASTES.
5. THE CONTRACTOR SHALL PROVIDE SANITARY FACILITIES OF SUFFICIENT NUMBER AND SIZE TO ACCOMMODATE CONSTRUCTION CREWS AND ENSURE ADEQUATE ANCHORAGE OF SUCH FACILITIES TO PREVENT THEM FROM BEING TIPPED BY THE WEATHER OR VANDALISM.
6. APPROPRIATE STORAGE AND DISPOSAL OF WATER FROM DEWATERING OPERATIONS SHALL BE EXERCISED IN THE EVENT THAT ACCUMULATED WATER MUST BE REMOVED FROM A WORK LOCATION.
7. COVERED AND SECURED STORAGE AREAS FOR POTENTIALLY TOXIC MATERIALS SHALL BE PROVIDED. ALL HAZARDOUS MATERIAL CONTAINERS SHOULD BE PLACED IN SECONDARY CONTAINMENT.
8. VEHICLE AND EQUIPMENT & MAINTENANCE SHOULD BE PERFORMED OFF-SITE WHENEVER PRACTICAL.
9. SOIL STOCKPILES SHALL BE COVERED, AND LOCATED AT LEAST 50 FEET AWAY FROM DRAINAGE CHANNELS AND STORMWATER SYSTEMS.
10. CONTRACTOR MUST ENSURE THAT THE CONSTRUCTION SITE IS PREPARED PRIOR TO THE ONSET OF ANY STORM. CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE FOR THE WINTER MONTHS PRIOR TO OCTOBER 15.
11. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED. CHANGES TO THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE MADE TO MEET FIELD CONDITIONS ONLY WITH THE APPROVAL OF OR AT THE DIRECTION OF THE OWNERS REPRESENTATIVE.
12. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS. VARIATIONS MAY BE MADE TO THE PLAN IN THE FIELD SUBJECT TO THE APPROVAL OF OR AT THE DIRECTION OF THE OWNERS REPRESENTATIVE.
13. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE SWEPT AT THE END OF EACH WORKING DAY OR AS NECESSARY.
14. SEED MIXTURE FOR FINAL STABILIZATION SEED SHALL BE SUBJECT TO APPROVAL BY OWNER. SUBMIT PROPOSED SEED MIXTURE PRIOR TO USE.

BMP LEGEND:

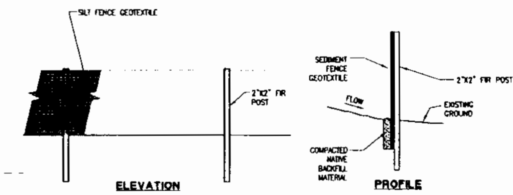
- ① INLET PROTECTION — 1 / TYP C-7.0
- ② SILT FENCE — 2 / TYP C-7.0
- ③ FINAL STABILIZATION SEEDING.
- ④ STRAW WATTLE SEDIMENT BARRIER — 3 / TYP C-7.0





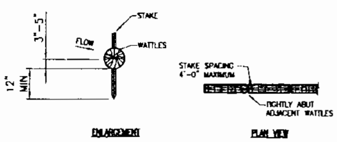
NOTES:
1. THE INLET FILTER SHALL BE MANUFACTURED FROM UV RESISTANT POLYPROPYLENE, NYLON, POLYESTER, OR ETHYLENE FABRIC WITH A MINIMUM TENSILE STRENGTH OF 50 LBS. PER LINEAL FOOT. AN EQUIVALENT OPENING SIZE NOT GREATER THAN A 20 SIEVE AND WITH A MINIMUM FLOW RATE OF 40 GALLONS / MINUTE / SQ. FT.
2. THE INLET FILTER MAY BE SUSPENDED FROM OR HELD IN PLACE BY THE EXISTING INLET GRATE (OR OTHER APPROVED METHOD), PROVIDING NO MODIFICATION OR DAMAGE SHALL BE DONE TO THE INLET GRATE OR FRAME. THE INLET GRATE SHALL NOT BE CAUSED TO REST MORE THAN 1/2" ABOVE THE INLET FRAME.
3. FLOWS SHALL NOT BE ALLOWED TO BYPASS THE INLET FILTER. THE INLET FILTER OR IT'S FRAME SHALL CATCH FLOWS AT ALL SIDES OF THE INLET, EXCEPT FOR FLOOD RELEASE.
4. INLET FILTERS SHALL BE INSPECTED WEEKLY AND AFTER EACH RAINFALL DURING THE WET SEASON AND MONTHLY DURING THE DRY SEASON. SEDIMENT AND DEBRIS SHALL BE REMOVED BEFORE ACCUMULATIONS HAVE REACHED ONE THIRD THE DEPTH OF THE BAG. BAGS SHALL BE REPAIRED OR REPLACED AS SOON AS DAMAGE OCCURS.

1 / TYP C-7.0 INLET PROTECTION
NTS



NOTES:
1. FILTER FABRIC SHALL BE INSTALLED IN A CONTINUOUS ROLL TO AVOID THE USE OF JOINTS. WHERE JOINTS ARE NECESSARY SPLICE FABRIC TOGETHER ONLY AT A SUPPORT POST WITH A MINIMUM 6" OVERLAP. SECURELY FASTEN BOTH ENDS TO THE POST.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6' APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 12".
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4" WIDE AND 6" DEEP ALONG THE LINE OF POSTS UPHILL FROM THE BARRIER. TRENCH SHALL FOLLOW THE CONTOUR.
4. TRENCH SHALL BE BACKFILLED WITH NATIVE MATERIAL.
5. INSPECT AND REPAIR AFTER EACH RAINFALL. INSPECT DAILY DURING PROLONGED RAINFALL.
6. REMOVE SEDIMENT WHEN IT REACHES APPROXIMATELY ONE THIRD THE HEIGHT ABOVE GROUND PORTION OF THE FENCE.
7. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE FILTER FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE AND SEEDED.

2 / TYP C-7.0 SILT FENCE
NTS



NOTES:
1. CONTRACTOR SHALL INSPECT WATTLES WEEKLY AND AFTER EACH RAINFALL. REPLACE WATTLES WHEN THEY HAVE DECOMPOSED, COLLAPSED, OR BEEN DAMAGED. REMOVE SEDIMENT FROM BEHIND THE WATTLE WHEN IT REACHES ONE INCH OF DEPTH.
2. THE DIRECTION OF RUNOFF FLOW TO THE WATTLES SHOULD BE PERPENDICULAR TO THE STAKED WATTLE LOCATION.
3. REMOVE WHEN IT HAS SERVED ITS USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

3 / TYP C-7.0 STRAW WATTLE SEDIMENT BARRIER
NTS

NOTE:
THE PROPOSED EROSION CONTROL MEASURES ARE A MINIMUM BEST MANAGEMENT PRACTICE. THE CONTRACTOR MAY BE REQUIRED TO TAKE ADDITIONAL EROSION CONTROL MEASURES TO ENSURE THAT NO SEDIMENT LADEN WATER EXITS THE SITE OR ENTERS THE STORMWATER SYSTEMS. BMPS ARE TO BE EMPLOYED AS APPROPRIATE TO MINIMIZE EROSION AND PREVENT SEDIMENT DISCHARGE FROM THE SITE IN THE EVENT OF SUMMER RAINSTORMS. WHEN RAINFALL IS FORECAST, OR AT THE LATEST BY OCTOBER 15TH AND UNTIL APRIL 15TH.

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REVISIONS		
⚠	DESCRIPTION	DATE
1	ISSUED FOR HCD REVIEW	6/13/11

WINZLER & KELLY
633 THIRD STREET
EUREKA, CA 95501-0417
PH (707) 443-8326
FAX (707) 444-8330

DES	JW	DRW	SJD
APP	JW	CHK	MP

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAFT — REGISTERED PROFESSIONAL ENGINEER, STATE OF CALIFORNIA (SEAL)

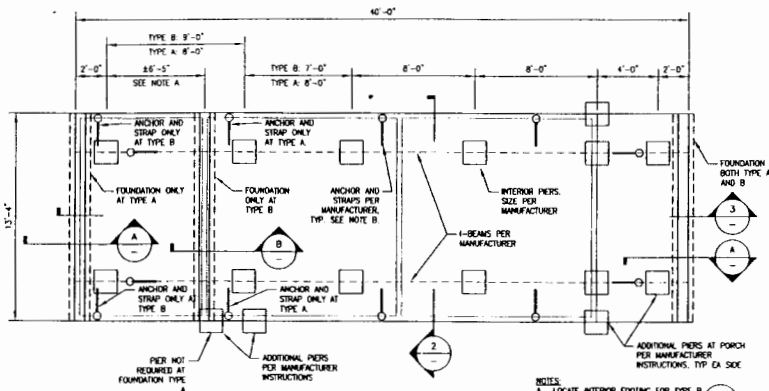
RESIDENT OWNED PARKS, INC.
SANDPIPER MOBILE HOME PARK IMPROVEMENT PROJECT
CIVIL

EROSION & SEDIMENT CONTROL PLAN

JOB NUMBER 11187-07-001

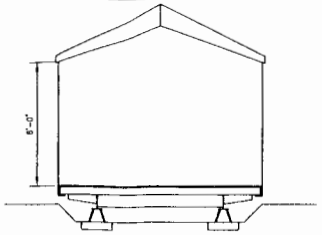
C-7.0

5 of 14

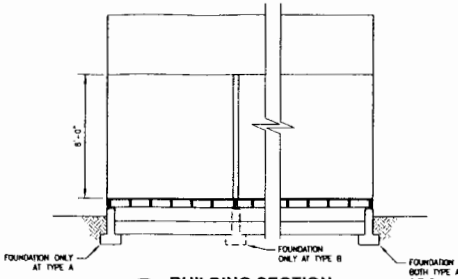


1 FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

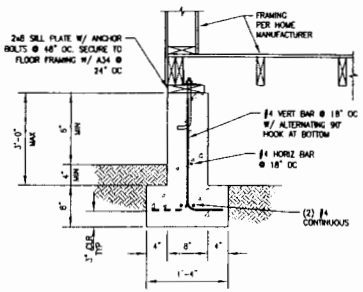
NOTES:
A. LOCATE INTERIOR FOOTING FOR TYPE B FOUNDATION AT INTERIOR WALL SEE (B)
B. PERMANENT FOUNDATIONS ARE TO BE USED IN CONJUNCTION WITH ANCHORS AND STRAPS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. SIDE WALL ANCHORS AND STRAPS NOT REQUIRED AT LOCATION OF FOUNDATIONS AS SHOWN.



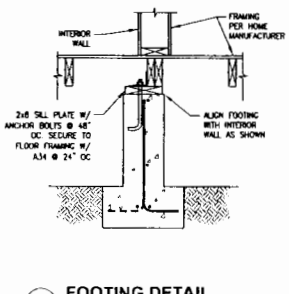
2 BUILDING SECTION
SCALE: 1/4" = 1'-0"



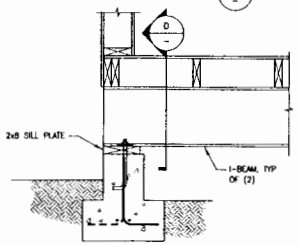
3 BUILDING SECTION
SCALE: 1/4" = 1'-0"



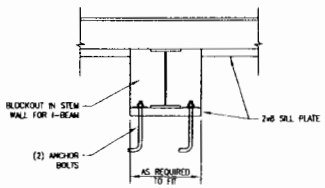
A FOOTING DETAIL
SCALE: 1" = 1'-0"
FOR FOUNDATION AT I-BEAM SEE (C)



B FOOTING DETAIL
SCALE: 1" = 1'-0"
FOR INFORMATION NOT SHOWN SEE (A)



C FOOTING DETAIL
SCALE: 1" = 1'-0"
FOR INFORMATION NOT SHOWN SEE (A)



D FOOTING DETAIL
SCALE: 1" = 1'-0"
FOR INFORMATION NOT SHOWN SEE (A)

DESIGN BASIS AND GENERAL NOTES

1. THIS PLAN IS FOR THE LATERAL RESISTANCE OF THE FOUNDATION ONLY. BUILDING LATERAL DESIGN AND VERTICAL DESIGN PER MANUFACTURER. PERMANENT FOUNDATIONS ARE TO BE USED IN CONJUNCTION WITH ANCHORS AND STRAPS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. SIDE WALL ANCHORS AND STRAPS NOT REQUIRED AT LOCATION OF FOUNDATIONS AS SHOWN
2. THIS FOUNDATION HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2010 CBC THAT INCLUDES THE ICC 2009 INTERNATIONAL BUILDING CODE "IBC 2009" AND THE AMERICAN SOCIETY OF CIVIL ENGINEERS SEI/ASCE 7-05 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"
3. FOUNDATION TYPES:
   TYPE A FOR UNITS 6 - 16
   TYPE B FOR UNITS 1 - 5
4. BUILDING CATEGORY = II
5. STRUCTURE DESIGNED FOR WIND LOADS BASED ON THE FOLLOWING PARAMETERS:
   BASIC WIND SPEED, V = 85 MPH (3 SEC. GUST)
   EXPOSURE CATEGORY = C
   IMPORTANCE FACTOR, IW = 1.0
6. STRUCTURE DESIGNED FOR SEISMIC LOADS BASED ON THE FOLLOWING PARAMETERS:
   SITE CLASS = D (REFERENCE GEOTECHNICAL REPORT)
   MAX. 0.2 SEC. SPECTRAL RESPONSE ACCELERATION, SS = 2.37D
   MAX. 1.0 SEC. SPECTRAL RESPONSE ACCELERATION, S1 = 0.81G
   IMPORTANCE FACTOR, IE = 1.0
   SEISMIC DESIGN CATEGORY = E
   RESPONSE MODIFICATION FACTOR, R = 6.5
7. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION
8. ALL SECTIONS, DETAILS, NOTES, DIMENSIONS AND CONDITIONS ARE APPLICABLE AT ANY OTHER LOCATION WHERE CONDITIONS AND DETAILS ARE SIMILAR BUT ARE NOT SPECIFICALLY NOTED AS SUCH OR ARE NOT SHOWN
9. SPECIAL INSPECTIONS PER CALIFORNIA BUILDING CODE 2010 CHAPTER 17 AND CITY OF ARCATA

FOUNDATION NOTES

1. TYPE A FOUNDATION TO BE CONSTRUCTED FOR UNITS #6 - 16
2. TYPE B FOUNDATION TO BE CONSTRUCTED FOR UNITS #1 - 5
3. SOIL BEARING CAPACITY USED IN THE DESIGN OF FOUNDATIONS: 1,500 psf AS RECOMMENDED BY LACO ASSOCIATES IN THEIR GEOTECHNICAL REPORT DATED MAY 13, 2010. REFER TO THIS REPORT FOR ALL GEOTECHNICAL INFORMATION AND RECOMMENDATIONS.
4. ALL FOOTINGS TO BEAR ON NATURAL UNDISTURBED SOIL OR COMPACTED STRUCTURAL HAVING MINIMUM BEARING CAPACITY AS INDICATED.
5. PLACEMENT OF ALL COMPACTED FILL AND COMPACTION OF SUBGRADE SHALL BE UNDER FULL TIME DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER. CONCRETE SLABS AND FOOTINGS SHALL NOT BE PLACED UNTIL FILL AND SUBGRADE HAVE BEEN CHECKED IN PLACE AND APPROVED BY THE GEOTECHNICAL ENGINEER

CONCRETE NOTES

1. ALL WORK TO CONFORM TO THE REQUIREMENTS OF ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318-LATEST EDITION) AND "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" (ACI 315-LATEST EDITION).
2. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS 2500 PSI (NORMAL WEIGHT)
3. ALL BAR REINFORCING FOR CONCRETE TO CONFORM TO ASTM A 615 GRADE 40 (DEFORMED)
4. UNLESS OTHERWISE SHOWN, LOCATE REINFORCING BARS WITH FOLLOWING CLEAR DIMENSION TO FACE OF CONCRETE.
   CONCRETE ON GROUND: 3" CLEAR
   EXTERIOR EXPOSED SURFACES OR SURFACES AGAINST EARTH:
   2" CLEAR FOR #6 AND GREATER
   1-1/2" CLEAR FOR #5 AND SMALLER
5. LAP ALL BAR REINFORCING IN CONCRETE ELEMENTS WITH 24" LAP

WOOD NOTES

1. ALL WORK TO CONFORM TO THE REQUIREMENTS OF THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" (ANSI/WFCPA NDS-2005) AS RECOMMENDED BY THE AMERICAN FOREST & PAPER ASSOCIATION
2. SILL PLATES SHALL BE PRESERVATIVE TREATED
3. FOR CONVENIENCE FRAMING CONNECTIONS BY THE SIMPSON COMPANY, SAN ALEJANDRO, CA. ARE CALLED OUT ON THE DRAWINGS. EQUIVALENT CONNECTIONS OF OTHER MANUFACTURERS HAVING THE SAME CAPACITY AND HAVING ICBO APPROVAL MAY BE USED. PROVIDE FULL NAILING OR BOLTING OF CONNECTIONS AS PUNCHED USING MANUFACTURER'S NAILS OR SPECIFIED BOLTS
4. NAILS WILL BE COMMON WIRE TYPE UNO, GALVANIZED IN EXTERIOR LOCATIONS & AT PT SILL
5. ANCHOR BOLTS SHALL BE 5/8" DIA. A307 UNO, WITH SIMPSON BP 5/8" INSTALLED AT 1'-0" MAX FROM EA PLATE END, (2) MIN PER PLATE

WINZLER & KELLY
633 THIRD STREET
EUREKA, CA 95501-0417
PH (707) 443-8326
FAX (707) 444-8330

NO	DESCRIPTION	DATE
1	ISSUED FOR HCD REVIEW	4/7/11

DES SDG | DRN SDG | CHK MP | SUPV JW

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

RESIDENT OWNED PARKS, INC.
SANDPIPER MOBILE HOME PARK
IMPROVEMENT PROJECT
STRUCTURAL
FOUNDATION PLAN

JOB NUMBER 11187-07-001

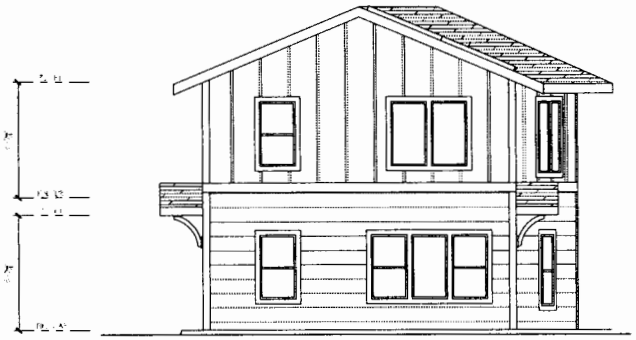
S-1.0

11187\07001-21-S-1.0-FOUNDATION
P:\2005 & Beyond\11187 Resident Owned Parks Inc\11187-07-001 SandpiperParkImprovements-Arcata\CAD\11187\07001.dwg
4/5/2011 2:14 PM

NORTH ELEVATION

EAST ELEVATION

SOUTH ELEVATION



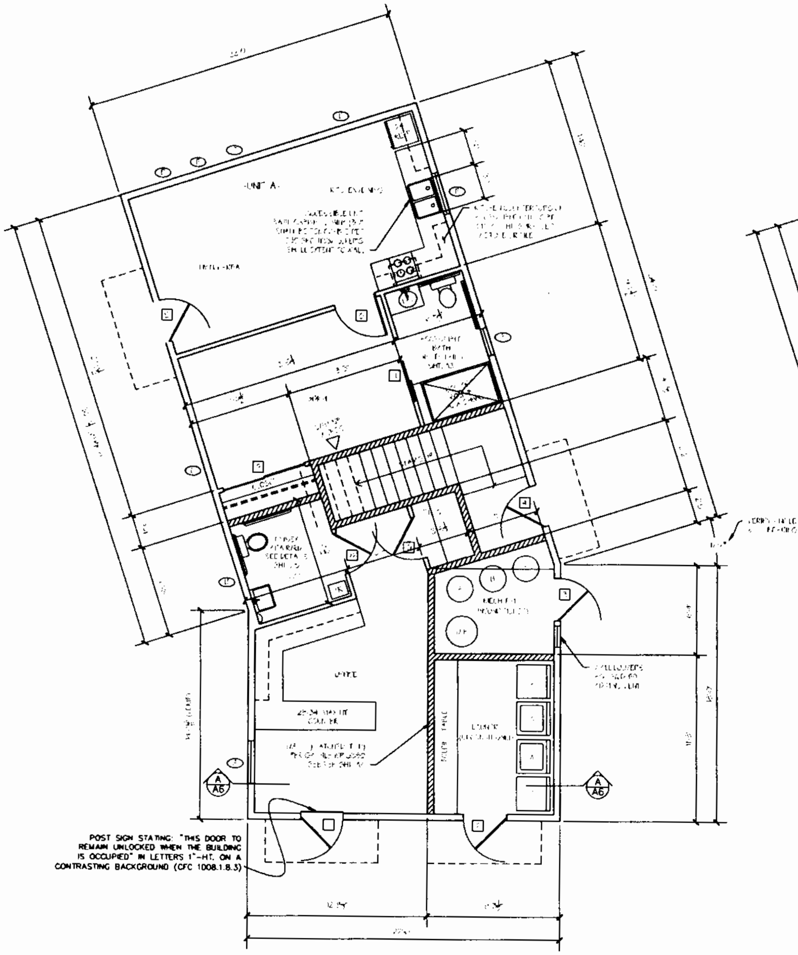
WEST ELEVATION

REVISIONS	BY
06/29/11	SJA

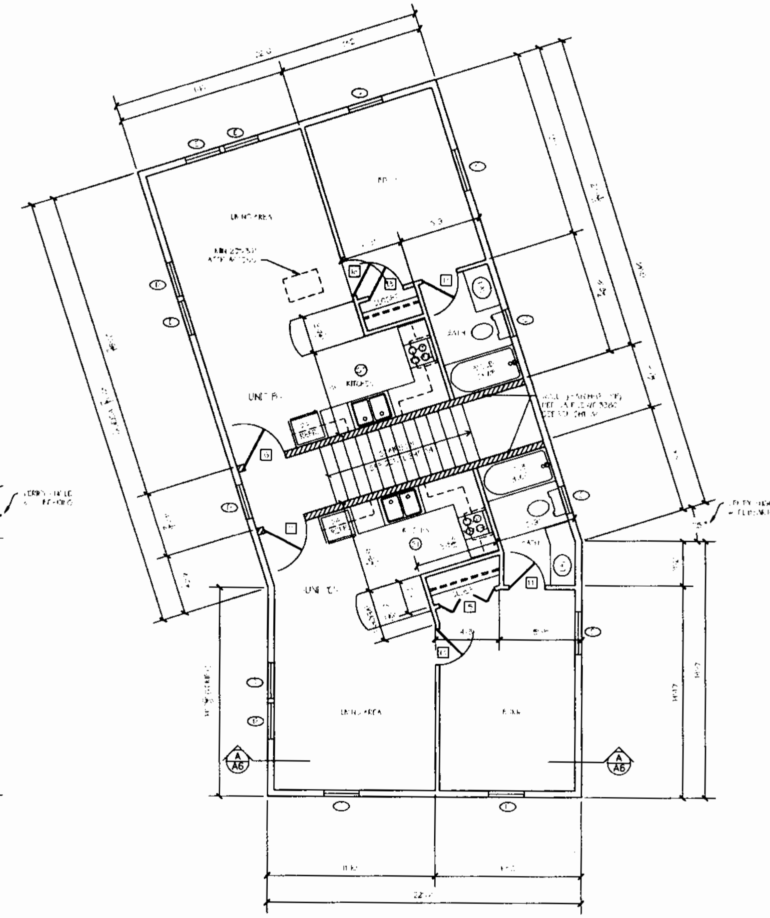
Atkins Drafting ~ Sarah J. Atkins
1125 16th STREET STE. 203 ARCATA, CA 95521
PH. (707) 822-1100 RnSatkins@sbcglobal.net

SANDPIPER PARK
APN 503-221-048
115 'G' STREET ARCATA, CA
PROPOSED TRIPLEX w/ OFFICE
ELEVATIONS
FOR: RESIDENT OWNED PARKS, INC. PH. (916) 399-4993

Date	JUNE 02, '11
Scale	AS NOTED
Design	SJA
Drawn	SJA
Job	
Sheet	A2



FIRST
FLOOR PLAN



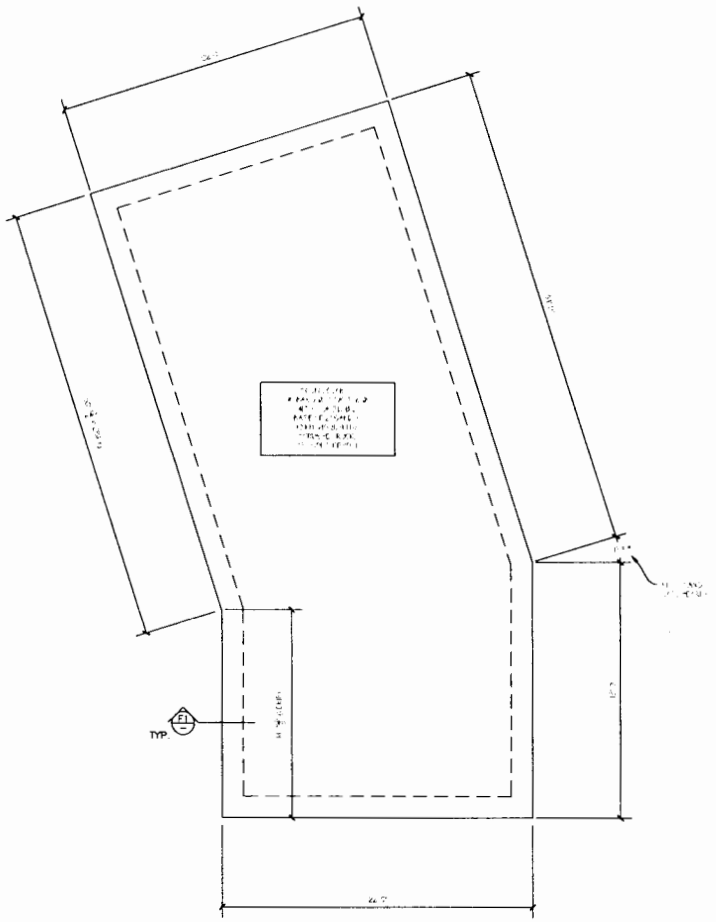
SECOND
FLOOR PLAN

REVISIONS	BY
06/29/11	SJA

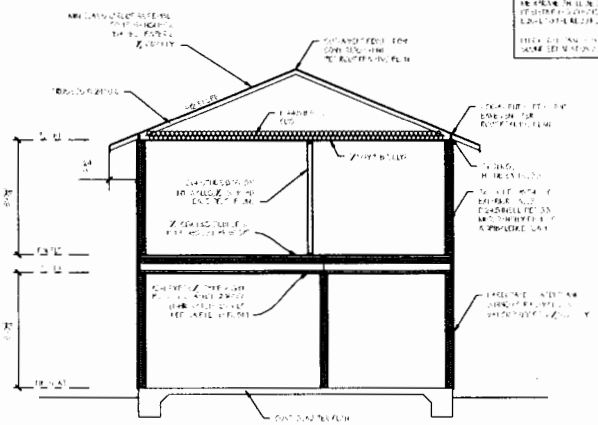
SJA
Atkins Drafting ~ Sarah J. Atkins
1125 16th STREET STE. 203 ARCATA, CA 95521
PH. (707) 822-1100 RnSatkins@sbcglobal.net

SANDPIPER PARK
115 'G' STREET ARCATA, CA APN 503-224-046
PROPOSED TRIPLEX w/ OFFICE
FIRST & SECOND FLOOR PLANS
FOR: RESIDENT OWNED PARKS, INC. PH. (916) 399-4993

Date	JUNE 02, '11
Scale	AS NOTED
Design	SJA
Drawn	SJA
Job	
Sheet	A3



FOUNDATION PLAN



A SECTION

F1 FOUNDATION DETAIL

REVISIONS	BY
06/29/11	SJA

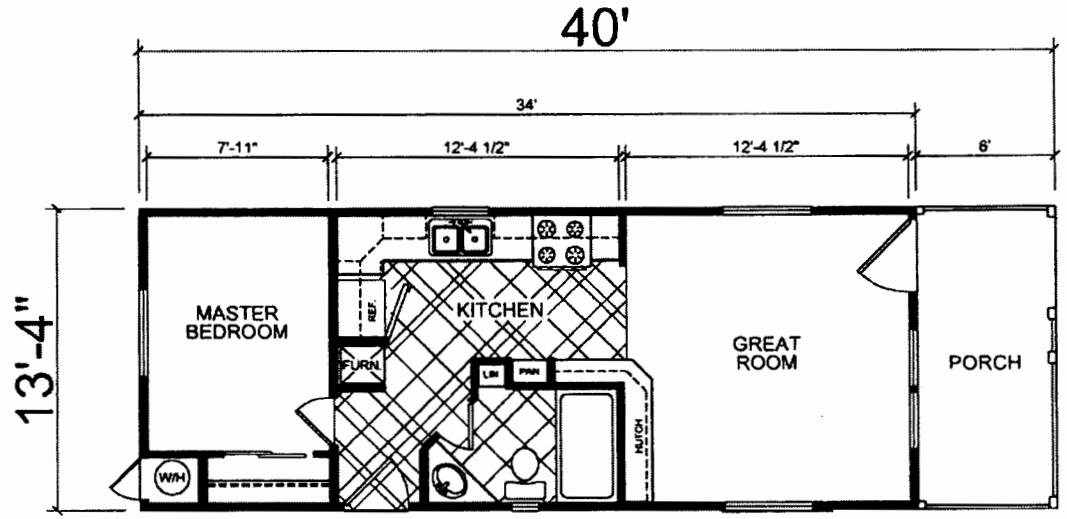
Atkins Drafting ~ Sarah J. Atkins
1125 16th STREET STE. 203 ARCATA, CA 95521
PH. (707) 822-1100 RnSatkins@sbcglobal.net

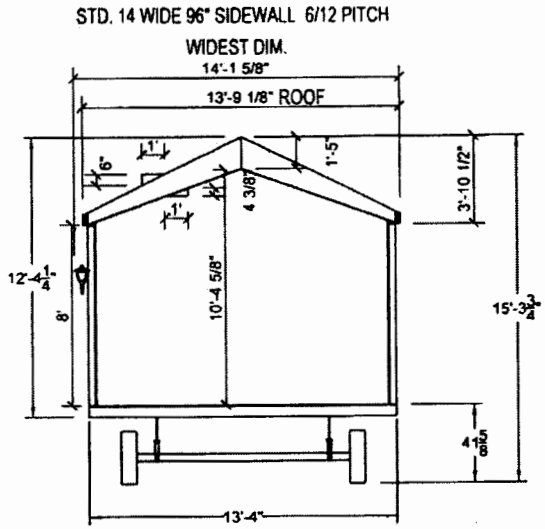
SANDPIPER PARK
115 'G' STREET ARCATA, CA APN 503-224-048

PROPOSED TRIPLEX W/ OFFICE
FOUNDATION PLAN & SECTION

FOR: RESIDENT OWNED PARKS, INC. PH.: (916) 399-1893

Date	JUNE 02, '11
Scale	AS NOTED
Design	SJA
Drawn	SJA
Job	
Sheet	A6





ALL DRAWINGS AND DIMENSIONS ARE APPROXIMATE, AND MAY BE SUBJECT TO CHANGES BY CHAMPION HOME BUILDERS CO. LINDSAY, CA

CHAMPION

840 PALM AVE. P.O. BOX 429 LINDSAY, CA 93247

DAPIA SEAL

MODIFICATIONS

PROPRIETARY AND CONFIDENTIAL
THESE DRAWINGS AND SPECIFICATIONS ARE ORIGINAL, PROPRIETARY AND CONFIDENTIAL MATERIALS OF CHAMPION.

MODEL: 000-000

TITLE: LITERATURE PLAN

DRAWN BY: J.SERPAS

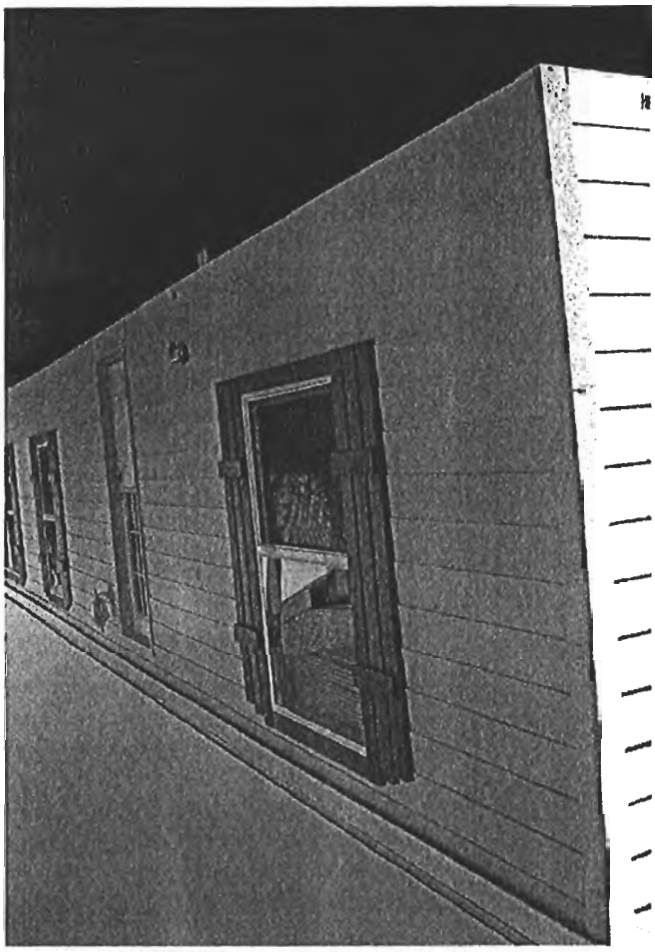
DATE: 10/5/10

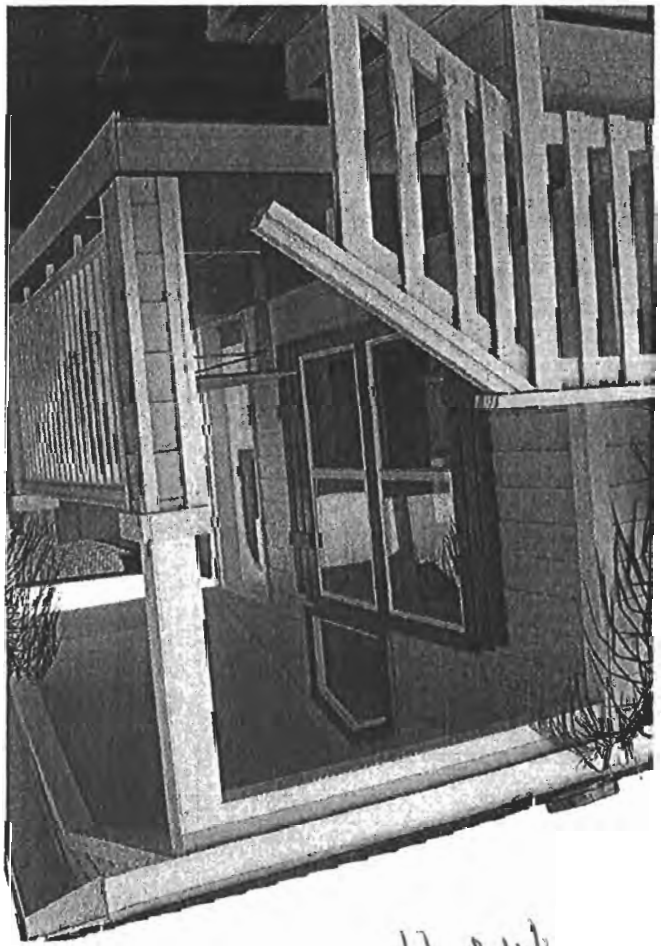
SCALE: 3/16" = 1'-0"

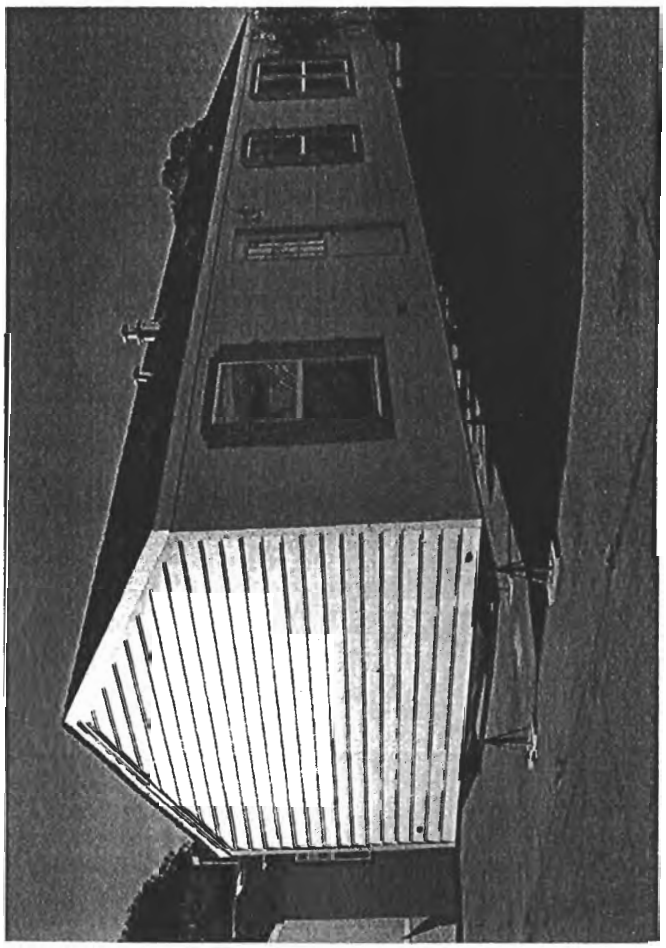
CRAFTSMAN

SHEET: L-101

1 BEDROOM, 1 BATH
ACTUAL SIZE: 13'-4" x 40'
TOTAL LIVING AREA: 453 SQ. F
PORCH NOT INCLUDED







11 of 14

Champion Home Builders, Inc.
840 West Palm Avenue
P. O. Box 429
Lindsay, CA 93247
Phone: 559.562.4951
Fax: 559.562.1463

THE NEW CHAMPION

Brand: CABANA SERIES
Model No.: CB-2341L
Construction Type: HUD

HUD APPROVED MANUFACTURED HOMES FOR PLACEMENT AT SANDPIPER PARK, 115 G STREET, ARCATA, CALIFORNIA

Feature	Option	Variant	Description	Quantity	Ext. Price
			Construction		
ROOFLOAD	OP008003		20# ROOF	1	
ROOFINS	OP008053		R-30 INSULATION	1	
WALLINS	OP100088		R-13 INSULATION	1	
FLOORINS	OP100137		R-22 INSULATION	533	
ROOFPITCH	OP100313		6/12 SHINGLED ROOF	1	
FLOORJST	OP100129		2x6 FLOOR JOISTS 16" ON CENTER	1	
FRAME	OP100270		2X4 TOP PLATES	1	
HITCH	OP008002		DETACHABLE HITCHES	1	
PORCH	OP100592		6 FT COVERED PORCH 1 SECTION	1	
PORCH			CRAFTSMAN TRIM AND TREATMENT	1	
SIDEWALHTH	OP100301		96" SIDEWALL HEIGHT	1	
EAVES	OP100259		FRONT 12" EAVE	1	
CLGTYPE	OP100314		CATHEDRALCEILING W/96"SIDEWALL	1	
EXTWALLS	OP008004		2x4 EXTERIOR WALL	1	
			Exterior		
FRONTDOOR	OP000413		36" INSWING STEEL DOOR	1	
FRTDRLIGHT	OP001230		DLX PORCH LIGHT	1	
REARDOOR	OP003784		9 LITE COTTAGE DOOR	1	
REARDRLGT	OP001230		DLX PORCH LIGHT	1	
SHINGLES	OP003727	SELECT VARIANT	ARCHITECTURAL SHINGLES	1	
SIDING	OP100317	SELECT VARIANT	CEMENT FIBERBOARD EXT SIDING	1	
TRIM	OP003739	SELECT VARIANT	CHOICE TRIM FACIA	1	
TRIM	OP100093	SELECT VARIANT	TRIM WINDOWS T/O	1	
			Windows		
OTHER	OP003755		LOW "E" WINDOWS T/O	1	
			Interior		
CLOSETSHLV	OP003779		WOOD ROD & SHELVES T/O	1	
CABINETDR	OP100692		2" ALDER SHAKER CABINETS	1	
CARPET	OP100228	SELECT VARIANT	NEW DAY CARPET	1	
CARPETPAD	OP002064		REBOND CARPET PAD	1	
DRYWALL	OP100200		SHEETROCK WALL & CEILING T/O	1	
WINCOVER	OP008016	SELECT VARIANT	VALANCES PER FLOOR PLAN	1	
WINTREAT	OP003694		METAL MINI BLINDS T/O	1	
WINDOWSILL	OP100247	SELECT VARIANT	T&T FINISHED WINDOW SILLS	1	
OTHER	OP100271		TV & PHONE JACK IN L/R	1	
OTHER	OP100272		FAN W/LIGHTS & DBL SWITCHES	1	
OTHER	OP100318		DRAPE SIDEPANEL	1	

12914

Interior Continued...

Feature	Option	Variant	Description	Quantity
			Appliances	
RANGE	OP000285	SELECT VARIANT	DLX. RANGE	1
REFER	OP008025	SELECT VARIANT	18' CF FROST FREE REFRIGERATOR	1
MICROWAVE	OP002354	SELECT VARIANT	SPACESAVER MICROWAVE	1
GARBDISP	OP000329		GARBAGE DISPOSAL INSTALLED	1
RNGHOOD	OP008027	SELECT VARIANT	30" LIGHTED RANGE HOOD VENT	1
			Kitchen	
FLRCOVER	OP100760	SELECT VARIANT	VINYL FLOORING	1
CTRTOP	OP100009	SELECT VARIANT	LAMINATE COUNTERTOP	1
BCKSPL	OP008123		TILE BACKSPLASH	1
EDGE	OP003695	SELECT VARIANT	CERAMIC TILE EDGE-KITCHEN	1
TILEACCENT	OP100520	SELECT VARIANT	CAP ON BACKSPLASH	1
SINK	OP008028		DEEP STAINLESS STEEL KIT SINK	1
FAUCET	OP008031		SINGLE CONTROL KITCHEN FAUCET	1
CEILINGLT	OP100166		CEILING LIGHT	1
CABCRNMOLD	OP000731		DLX CABINET MOLDING	1
OTHER	OP100190		INTERIOR GFI OUTLET	1
OTHER	OP100197		FIRE EXTINGUISHER	1
			Utility Room	
FLRCOVER	OP100760	SELECT VARIANT	VINYL FLOORING	1
			Plumbing/Heating	
HEATSYS	OP008036		GAS FORCED AIR FURNACE	1
WH	OP100611		INSTANT WATER HEATER	1
SHUTOFFS	OP000279		SHUTOFF VALVES	1
			Electrical	
MAINPANEL	OP100161		100 AMP SERVICE	1
PHONEJACKS	OP000035		PHONE JACK PREP W/CONDUIT ONLY	1
TV JACKS	OP000036		CABLE TV PREP W/CONDUIT ONLY	1
CEILINGLT	OP000550		RECESSED CAN LIGHT	2
CEILINGLT	OP000955		BEDROOM/DEN CEILING LIGHTS	1
DRYER	OP000325		ELECTRIC DRYER -WIRE & VENT	1
OTHER	OP100211		SMOKE DETECTOR	1
SWITCHES	OP100033		DBL SWITCHES PER FAN PREP	1
SWITCHES	OP100210		ROCKER SWITCHES	1
RECEP	OP000525		EXTERIOR GFI RECEPTACLE	1
			Hall Bath	
FLRCOVER	OP100760	SELECT VARIANT	VINYL FLOORING	1
CTRTOP	OP100009	SELECT VARIANT	LAMINATE COUNTERTOP	1
BCKSPL	OP002072	SELECT VARIANT	CERAMIC TILE BACKSPLASH	1
EDGE	OP003697	SELECT VARIANT	CERAMIC TILE EDGE-G/BATH	1
TILEACCENT	OP100520	SELECT VARIANT	CAP ON BACKSPLASH	1
SINK	OP000546		PORCELAIN BATH SINK	1
SINKFAUCET	OP100173		MOEN SINGLE LEVER FAUCET	1

Feature	Option	Variant	Description	Quantity
Hall Bath Continued...				
TUB	OP001314		1 PC FIBERGLASS TUB/SHOWER	1
TOILET	OP100215		ENLONGATED STOOL	1
VANITYLT	OP002073		BAR LIGHT OVER MIRROR	1
VENTFAN	OP008048		EXHAUST FANS	1
SHWRFAUCET	OP008050		SGL LEVER METAL SHWR DIVERTER	1
MEDCAB	OP001208		MEDICINE CABINET	1
OTHER	OP100190		INTERIOR GFI OUTLET	1
			Master Bedroom	
CEILINGLT	OP100166		CEILING LIGHT	1
CLSTDR	OP003674		MIRROR WARDROBE DOORS IN M/BED	1
OTHER	OP100205		POCKET DOOR	1
OTHER	OP100268		UNDERCLOSET DRAWERS	1
OTHER	OP100319		VALANCE	1

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SOILS AND FOUNDATION REPORT

Sandpiper Mobile Home Park
115 South G Street
Arcata, California

Assessor's Parcel Number 503-224-46

Prepared for:
Winzler & Kelly
633 Third Street
Eureka, California 95501

EXHIBIT NO. 7
APPLICATION NO.
1-10-028
CITY OF ARCATA & RESIDENT OWNED PARKS, INC.
SOILS REPORT (1 of 20)

Prepared by:
LACO Associates
21 W. 4th Street
Eureka, California 95501

PROFESSIONAL GEOLOGIST
BRYAN E. DUSSELL
No. 7947
Exp: 6/30/11
STATE OF CALIFORNIA

Bryan E. Dussell, PG 7947, Exp. 6/30/11

REGISTERED PROFESSIONAL ENGINEER
NATHAN KOHLER TOEWS
No. 70251
Exp. 9/30/10
5-14-10
CIVIL
STATE OF CALIFORNIA

Nathan K. Toews, RCE 70251, Exp. 9/30/10

LACO ASSOCIATES
CONSULTING ENGINEERS
21 W. 4th St. · PO 1023 · Eureka, CA 95502 · 707.443.5054

May 13, 2010
LACO Project No. 7261.01

Attachment B

SOILS AND FOUNDATION REPORT

Sandpiper Mobile Home Park
115 South G Street, Arcata, California
Assessor's Parcel Number 503-224-46
LACO Project No. 7262.01

INTRODUCTION

Site and Project Description

This report presents the results of a Soils and Foundation Investigation conducted to support redevelopment of the Sandpiper mobile home park in Arcata, California. The site is located near the center of Section 32, T6N, R1E, Humboldt Baseline and Meridian, of the United States Geological Survey (USGS) Arcata South 7.5 Minute Series Topographic Quadrangle (Figure 1).

Pertinent project site location information is listed in Table 1 below.

Table 1. Project Location Information

Latitude	40.8619°
Longitude	-124.0887°
USGS 7.5-minute quadrangle	Arcata South

As currently proposed, redevelopment of the Sandpiper Mobile Home Park will involve complete removal of the existing improvements and replacement with a new mobile home park. The new mobile home park will include 18 mobile homes and one wood framed structure to house an office, laundry facility, and two apartments. A new asphalt access road and parking lot will traverse the center of the development (Figure 2). Community water and sewer services are available.

Included in this report is an assessment of the potential geologic hazards associated with the proposed development and recommendations to mitigate the potential effects of such hazards.

Scope

LACO Associates (LACO) was retained to investigate and characterize subsurface soil conditions, assess potential geologic hazards to the site, provide recommended foundation design criteria to be utilized for design and construction of the new developments, and to prepare this report. The specific scope of this investigation included the following:

- Review published geologic maps pertinent to the site and available unpublished geologic reports of this and nearby sites.
- Conduct a field exploration program consisting of geotechnical test pit excavations within the proposed development area.
- Collect undisturbed soil samples from foundation load bearing depths.
- Conduct a laboratory testing program of selected soil samples in the LACO materials testing laboratory to characterize relevant soil properties.

- Prepare this Soils and Foundation Report to meet the permit requirements of the City of Arcata, document the subsurface conditions, and provide foundation and earthwork recommendations to support development of the site with mobile homes and the wood framed building.

Specifically excluded from our Scope of Work were a quantitative liquefaction analysis and an environmental assessment for the presence or absence of any hazardous, toxic, or corrosive materials. Although we have explored subsurface conditions as part of this investigation, we have not conducted any analytical laboratory testing of samples obtained for the presence of hazardous material.

LIMITATIONS

This report has been prepared for the exclusive use of Winzler & Kelly (W&K), their contractors and sub consultants, and appropriate public authorities for specific application to development of the site. LACO has endeavored to comply with generally accepted geotechnical engineering standard of care common to the local area. LACO makes no other warranty, express or implied.

The analyses and recommendations contained in this report are based on data obtained from subsurface explorations. The methods used indicate subsurface conditions only at specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Samples cannot always be relied upon to accurately reflect stratigraphic variations that commonly exist between sampling locations, nor do they necessarily represent conditions at any other time. Results of any analysis of samples obtained during this project will be retained on file in our office. Unless directed otherwise by our client, collected samples will be discarded after 30 days following the issuance of this report.

The recommendations included in this report are based, in part, on assumptions about subsurface conditions that may only be tested during earthwork. Accordingly, the validity of these recommendations is contingent upon LACO being retained to provide a complete professional service. LACO cannot assume responsibility or liability for the adequacy of the recommendations when they are applied in the field unless LACO is retained to observe construction. We will discuss the extent of such observations required to provide assurance of the validity of our recommendations upon request.

Do not apply any of this report's conclusions or recommendations if the nature, design, or location of the project is changed. If changes are contemplated, LACO should be consulted to review their impact on the applicability of the recommendations in this report. Also note that LACO is not responsible for any claims, damages, or liability associated with any other party's interpretation of

3920

the subsurface data or reuse of this report for other projects or at other locations without our express written authorization.

FIELD EXPLORATION AND LABORATORY TESTING

Field Exploration Program

To assess the *in-situ* soil conditions within the proposed development area, LACO performed an investigation of the soils to a depth of approximately 8.5 feet below ground surface (bgs) on April 23, 2010. The investigation utilized backhoe test pits to visually assess the soil profile and collect soil samples for laboratory analysis. Locations of the backhoe pits are indicated on Figure 2.

Soils were logged in the field in general accordance with ASTM D 2488 Visual-Manual Procedures. Soil samples were delivered to the LACO materials testing laboratory for analysis. Soil profile logs are included as Attachment 1. Where applicable, LACO follows the recommendations provided by Southern California Earthquake Center (SCEC) for the implementation of CDMG Special Publication 117 (SCEC, 2002).

Laboratory Testing

Soil samples collected from the site were submitted to LACO's materials testing laboratory for analysis. The intent of the laboratory analysis was to determine representative index properties of the site soils. The laboratory tests conducted for this investigation included:

- *In situ* moisture/density (ASTM D-2216 / D-2937)
- Atterberg Limits (ASTM D-4318)
- Consolidation (ASTM D-2435)
- R-Value (Caltrans 301)

A summary of the results of LACO's materials testing is presented in Table 2. Laboratory test results are included as Attachment 1.

4 of 20

Table 2. Summary of Materials Testing and Results

Sample Location		Test					
Boring	Depth (feet bgs)	Material Type (USCS)	Percent Moisture (ASTM D 2216)	Dry Density (ASTM D 2937)	Atterberg Limits (ASTM D 4318)	Consolidation (ASTM D 2435)	R-Value (Caltrans 301)
BP-1	1.5'-2.5'	CL-ML	34.7	80.3		C_r=0.025 C_c=0.240 P_c=2000	
BP-1	3.5'-4.5'	ML-CL	35.6	102.3	LL=21.5 PL=18.9 PI=2.6		
BP-5	2.8'-3.8'	ML	35.6	81.2			
RV-1	25.0-26.5	CL-ML					

C_r = Rebound coefficient
C_c = Compression index
P_c = Preconsolidation pressure (psf)
LL = Liquid limit
PL = Plastic limit
PI = Plastic index

LACO will archive all samples collected for this project for 30 days following the issuance of this report. Unless directed otherwise by our client, all samples will be discarded after the 30 day archive period.

SITE AND SUBSURFACE CONDITIONS

Topography and Site Conditions

The site is situated on a low gradient (less than 5%) surface between South G and H Streets in Arcata, California. As mapped by U.S. Geologic Survey, the site is situated at an elevation of approximately 10 feet. Slopes ascend gradually into the foothills of Fickle Hill approximately 2,500 feet northeasterly of the site. The slopes descend gradually into the Arcata Marsh complex located less than 500-feet westerly of the site. Humboldt Bay is located approximately 2,500 feet southwesterly of the site.

Geologic Setting

As noted above, the site is situated on the edge of a large low gradient surface adjacent to Humboldt Bay. Prior to development in the area and the construction of dikes, the low lying soils in the vicinity were tidally influenced and subject to periodic flooding. Based on a review of the site and published geologic maps (CDMG, 1984; McLaughlin *et al*, 2000), the site is underlain by unconsolidated Holocene alluvial deposits. The alluvium is primarily composed of fine grained bay margin sediments that include clays, silts, and fine sands. Coarser deposits of sand and gravel are present in isolated areas as discontinuous lenses within the otherwise fine grain deposits.

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At unknown depth, the alluvial deposits unconformably overlie poorly cemented alluvial deposits of the early to middle-Pleistocene Falor Formation. Based on the morphology of the slopes in the vicinity, the contact between the unconsolidated bay margin sediments and underlying poorly cemented alluvium is likely several hundred feet bgs. At even greater depth, the Falor Formation unconformably overlies the Jurassic to Cretaceous age Franciscan Formation bedrock.

Seismicity

This site is not located within a "Fault Rupture Hazard Zone" (Bryant and Hart, 2007) or within an area currently designated as a "Seismic Hazard Zone" by the State. However, the site is located within a seismically active region which is subject to frequent moderate to large earthquakes. North of the Mendocino Triple Junction, the regional tectonic framework is controlled by the Cascadia Subduction Zone (CSZ) wherein oceanic crust of the Juan de Fuca/Gorda plate is being actively subducted beneath the leading edge of the North American plate. The CSZ in its entirety extends from the Mendocino triple junction to British Columbia. Plate convergence along the Gorda segment of the CSZ is occurring at a rate of approximately 30 to 40 millimeters per year (mm/yr) (Heaton & Kanamori, 1984). Rupture along the entire CSZ boundary has the potential to produce an earthquake with a maximum moment magnitude (M_w) of 9.0 or greater (Satake, 2003).

Upper plate crustal deformation associated with the subduction of the Gorda plate is expressed as a 90-kilometer (km) wide fold and thrust belt that comprises the accretionary complex along the North American plate margin (Carver, 1987). Faults associated with the offshore and onshore portions of the CSZ fold and thrust belt include the Little Salmon fault and Mad River fault zone.

The site is situated near the southern end of the Mad River fault zone. The Fickle Hill fault is located approximately 2,500 feet northwesterly of the site (Figure 1), and is the closest recognized active fault to the project site (CDMG, 2000). The Little Salmon fault, another active fault, is located less than 10 miles south of the site. Both the Fickle Hill and Little Salmon faults are northwest-striking, northeast-dipping, low-angle thrust faults. The upper-bound earthquakes considered likely to occur on the Fickle Hill and Little Salmon faults have an estimated M_w of 6.9 and 7.0, respectively (Petersen et al., 1999).

Based on the record of historical earthquakes (approximately 150 years), faults within the plate boundary zone and internally deforming Gorda Plate have produced numerous small-magnitude and several moderate to large (i.e. magnitude greater than 6) earthquakes affecting the local area. Several active regional seismic sources in addition to the CSZ, Fickle Hill, and Mad River faults are proximal to the project site and have the potential to produce strong ground motions. These seismic sources include the following:

- The northern segment of the San Andreas transform fault that represents the boundary between the stable North American plate and the northwest-migrating Pacific plate.

- The Mendocino fault, an offshore, high-angle, east-west-trending, right-lateral strike-slip fault that forms the boundary between the Gorda and Pacific plates.
- Faults within the internally-deforming Gorda plate consisting of high-angle, northeast-trending, left-lateral, strike-slip faults.

SUBSURFACE CONDITIONS

Native Site Soils

Review of unpublished geotechnical investigations previously conducted in the vicinity of the project site (LACO, 2000; BGC, 2005; LACO, 2008) and the subsurface data obtained during the current site investigation (Figure 2) indicate that the shallow soils underlying the site primarily consist of geologically young, unconsolidated, fine-grain bay margin sediments capped by a relatively thin layer of imported fill soils.

The fill soils across the surface of the site are primarily composed of 0.5 to 1.5 feet of imported "river run" well graded sand with gravel that overlie less than a foot of silty sand and sandy clay. In general, the imported fill materials have dense/stiff consistency and do not contain a significant volume of organic debris.

Beneath the fill soils are an undetermined thickness of soft, saturated silts and clays. Samples collected from the field indicate that the dry density of the subsoils soil ranges from 80 pcf to 102 pcf. Results from consolidation testing of the native soils at a depth of 2.5 feet bgs indicate that the subsoils enter into virgin compression at approximately 2,000 psf.

Detailed descriptions of the soils exposed in the geotechnical borings are provided on the soil logs included as Figures 3 through 7.

Groundwater Conditions

All five of the backhoe test pits recorded saturated conditions at depths of 2.8 to 4.5 feet bgs. The saturated soils were gleyed (reduced), indicating that they are saturated for most of the year. Based on the observed saturated conditions and gleyed appearance of the soil, groundwater is anticipated to remain within 4.5 feet of the existing ground surface year round.

GEOLOGIC AND SOIL HAZARDS

Potential geologic and soil hazards assessed for the site include seismic ground shaking, surface fault rupture, liquefaction and related phenomena, settlement, flooding and high groundwater, and swelling or shrinking soils. The assessments for these potential hazards are presented below.

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Seismic Ground Shaking

As noted above, the site is situated within a seismically active area and multiple seismic sources exist in the vicinity that are capable of producing moderate to strong ground motions. Given the proximity of significant active faults (the Fickle Hill fault to the north, Little Salmon fault to the south, and the Cascadia subduction zone offshore), as well as other active faults within northern California, this site will experience ground shaking of some magnitude during the economic life span of any development on the site. The risk of ground shaking at the site is high. According to the California Geologic Survey, there is a 10 percent chance that site will experience ground shaking of 0.64g or more, within the next 50 years (CGS, 2008).

Site specific spectral response accelerations are presented in the recommendations section of the report (Table 3).

Surface Fault Rupture

The Fickle Hill fault is located approximately 2,500 feet northwest of the site (Figure 1), and is the closest recognized active fault to the proposed development (CDMG, 1983 and 2000). However, the site is not located within an Alquist-Priolo earthquake fault zone and does not require a trench-based fault rupture hazard evaluation. Based on the distance between the site and the closest active fault, the potential for surface fault rupture to occur within the site is low.

Liquefaction

Liquefaction is the loss of soil strength, resulting in fluid mobility through the soil. Liquefaction typically occurs when uniformly-sized, loose, saturated sands or silts that are subjected to repeated shaking in areas where the groundwater is less than 50-feet bgs. In addition to the necessary soil and groundwater conditions, the ground acceleration must be high enough, and the duration of the shaking must be sufficient, for liquefaction to occur. Performing a quantitative liquefaction analysis was specific excluded from our scope of work for this project.

As presented on Map S-1 of Special Publication 115 (CDMG, 1995), the project site is located in an area with a high liquefaction potential. Similarly, the Hazards Map compiled by the City of Arcata (City of Arcata, 2000) also indicates that the site is in an area with a high susceptibility to liquefaction. Recent quantitative liquefaction analysis in the vicinity confirms high liquefaction potential of subsurface soils (LACO, 2000; BGC, 2005; LACO, 2008).

In the absence of a site-specific liquefaction analysis, we assume that the risk of liquefaction at this site is high. The consequence of liquefaction at this site will likely be dynamic settlement.

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Settlement

The site is covered with up to 2-feet of densely compacted, imported river-run gravel. Approximately 1.5 to 2 feet of additional aggregate base rock fill will be imported to portions of the site to create a uniform finished grade and to allow for positive drainage toward G and H Streets.

Static Settlement

Static settlement is the result of compressive deformation of soil beneath an applied load. The compressive deformation generally results from a reduction in voids within the soil. In dry or granular soils, the compression of the soil occurs relatively rapidly. However, the compressive deformation in fine grain soils occurs very slowly.

To evaluate the settlement potential of the native fine grain soils beneath the site, one representative sample was selected for one-dimensional consolidation testing (ASTM 2435). The following parameters were determined by the laboratory test:

From Consolidation Curve (Attachment 1)

BP-1 at 2.5 feet bgs	
Compression Index (Cc)	**0.240**
Recompression Index (Cr)	**0.025**
Preconsolidation Pressure (Pc)	**2,000 psf**

The consolidation test data indicate that the shallow fine grain subsoils (located below the imported granular fill) at the site are sensitive to loads in excess of 2,000 psf. Beyond 2,000 psf the shallow soils enter into virgin compression.

Using an allowable foundation bearing pressure of 1,500 psf, estimated settlements for a 24-inch by 24-inch square footing founded entirely on the fine grain native soils is approximately 1/3 of an inch.

Predicted static settlement in the existing granular fills soils that cover the site is estimated to be less than ¼ inch at 1,500 psf under the lightly loaded mobile homes. The static settlement of the granular soils is anticipated to occur relatively quickly during the construction phase of the project as the soils are loaded.

Differential Settlement

The shallow soils at this project site are primarily composed of granular fill soils over fine grain in-place native materials. Within the area of individual building sites, the subsurface stratigraphy is anticipated to be relatively uniform. Provided all load bearing structural elements are founded on

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similar materials of similar thickness and foundations are distributed such that they carry similar loads, the risk of differential settlement is low.

Slope Instability/Landsliding

Lateral spreading, which is the lateral displacement of surficial soils, is usually associated with liquefaction of the underlying soils. The potential liquefaction hazard at the site is considered to be moderate to high based on available published data. However, due to the lack of relief in the area the potential for liquefaction induced lateral spreading to occur is low.

The project site is located on a nearly level surface. The closest slopes to the site are the gradually ascending foothill slopes of Fickle Hill. According to the Humboldt County Community Development Service, the low gradient slopes on which the site is located is considered "Relatively Stable" (HCCDS, 2004). Additionally, geomorphic mapping of the area by the State indicates that there are no active or dormant landslides in the immediate vicinity of the site (CDMG, 1984).

Based on the lack of relief in the vicinity of the site and the absence of features indicative of slope instability, the potential for slope instability to pose a hazard to the new development at this site is negligible.

Flooding, Tsunami, and High Groundwater

100-Year Flood Zone

The Arcata General Plan 2020 Hazards Map (City of Arcata, 2000) indicates that the site is not within the 100-year flood zone. However, the neighboring properties to the west at similar elevation are mapped within the 100-year flood zone. Based on the lack of relief between the site and the neighboring properties, the risk of flooding from a 100-year event at the site is high. Estimating the potential hazard of a flood event with a return interval greater than 100 years is beyond the scope of this investigation, and is typically not considered significant in the design and permitting process.

Tsunami

Tsunami hazard mapping by the City of Arcata (2000) indicates that the site is not within a predicated run-up zone. However, recent tsunami hazard maps by the State (CGS, 2009) indicate that the site is within a predicated tsunami run-up zone.

Based on the tsunami hazard map by published by the state of California, the risk of tsunami inundation at the site is high.

High Groundwater

As noted above, groundwater at the site is located within 5 -feet of the ground surface. Therefore, the risk of high groundwater is high.

Dam Failure Inundation

Based on dam inundation maps prepared by the Humboldt County Community Development Service, the site is not located within the modeled inundation zone associated with failure of the Mathews Dam (Ruth Lake). Therefore, the risk of flood associated with failure of the Mathews Dam is negligible.

Soil Swelling or Shrinkage Potential

Expansive soils represent a significant structural hazard to buildings founded on clayey soils where site conditions cause a seasonal fluctuation in soil moisture. An atterburg limit test of the clayey subsoils at this site indicates a plasticity index of (PI) of 2.6 (see Appendix 1). Soils with a plasticity index less than 15 generally have a "low" expansion potential, therefore, the risk of expansive soils at this site is considered low.

CONCLUSIONS AND DISCUSSION

1) The proposed development site is underlain by relatively young, poorly consolidated, fine grain soils.
2) A qualitative assessment of the potential for liquefaction to occur at this site, based on available published mapping, soil type, the depth-to-groundwater, and the review of previous subsurface investigations in the vicinity, indicate that there is a high risk of liquefaction associated with the design basis earthquake. Coincident with a liquefaction event is the potential for dynamic settlement of the soils underlying the area to be developed.
3) The closest recognized active fault is the Fickle Hill fault. The active zoned segment of the Fickle Hill fault is located approximately 2,500 feet northeast of the site. The risk of fault surface rupture at the site, however, is low.
4) Based on the results of our investigation, geologic and soil hazards which may adversely affect the proposed development include settlement, seismic shaking, liquefaction, and dynamic settlement. Although the risks of these hazards are high and have the potential to incur structural damage if left unmitigated, they are typical of the Humboldt Bay and north coast region and are assumed by other developments in the area. The recommendations included in this report are intended to reduce the potential consequences of the identified hazards.
5) The level of mitigation to reduce the consequences resulting from the dynamic settlement and liquefaction hazards associated with strong earthquake ground shaking is at the discretion of the developer. Mitigation for a liquefaction hazard can range from minor structural improvements to extensive site preparation and specialized foundation design.

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RECOMMENDATIONS

Foundation Design

The development plan for this site includes both mobile homes and a standard wood framed structure. As proposed, the mobile homes will be founded on isolated pier footings while the wood framed structure will be founded on either a concrete slab or concrete perimeter footing.

Mobile Homes

Based on the relatively light loads of the mobile homes and generally high quality of the existing undocumented fill soils observed across the site, the foundations for the mobile homes may be supported on the existing undocumented fill provided:

1. The footings are founded on a firm and unyielding surface free of organic debris and/or trash.
2. The mobile home can accommodate potential differential settlements up to 1-inch associated with loading the undocumented fill materials.
3. The developers and/or residents of the mobile homes can accept the potential for the above noted settlements and the liquefaction hazard of the site. Minor foundation settlement of mobile homes can usually be readily corrected. Large settlements due to liquefaction may require reconstruction of the foundation.
4. The footings are distributed to provide similar bearing loads at each location.

If the above conditions can not be met or accepted, the mobiles homes must be founded on foundations that are designed in accordance with the following recommendations for "*Wood Framed Structures*".

Wood Framed Structures

The following foundation recommendations assume a two story multi-family residential non-critical structure. The foundation design alternatives depend on the risk tolerance of the project site owner and economic considerations.

Due to the presence of seasonally high groundwater, soft to poorly consolidated soils, and the assumed high liquefaction hazard, a standard "code" foundation design is not appropriate for wood framed buildings on this site. An engineered solution is recommended to mitigate the identified hazards. A typical method for mitigating these hazards is to design a structural slab foundation that is either supported by a mat of structural fill, deep piers/piles, or a combination of both. The intent behind the structural slab foundation is to reduce the potential for excessive differential and total settlement, and to reduce the potential for complete structural failure following a liquefaction event.

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Utilization of a deep pile or pier foundation is intended to minimize settlements and preserve the functionality and utility of the structure following seismically induced liquefaction. Ultimately, the appropriate foundation design depends on the development team's decision on whether or not continued use of the structure following a liquefaction event is worth the additional cost of a deep foundation system.

LACO recommends two foundation design alternatives to mitigate the potential consequences of liquefaction to wood framed structure at this site.

- **Option 1** is a shallow foundation design consisting of a structural mat supported on a 2.0-foot thick (minimum) section of controlled (structural) fill.
- **Option 2** is a reinforced concrete mat foundation supported on a deep foundation to reduce the risk of slab deformation, settling, and/or tilting during a liquefaction event.

*Structural Mat Foundation on Structural Fill (**Option 1**)*

To mitigate the hazards from settlement, high groundwater and liquefaction-induced structural damage, a structural slab foundation supported on a structural fill may be utilized. It is recommended that the perimeter foundation and slab on grade be poured monolithically. Foundation elements should be designed to resist bending forces due to differential settlement associated with potential liquefaction events. Isolated foundation elements supporting structural loads should be tied together with grade beams or the structural slab to reduce the magnitude of differential dynamic settlement and the potential for structural collapse.

Due to the soft consistency of the site soils, the structural fill should rest on a geotextile fabric (such as Propex 2019 or equivalent), that in turn rests on either undisturbed native subsoil or the existing granular fill soils. To construct the structural fill, excavate out any existing organic debris, topsoils, or soft/loose existing fill soils to a minimum depth of 24 inches below foundation bearing depth. Proof roll the resulting surface prior to placement of the geotextile. The limits of the structural fill should extend a minimum of 5 feet outside the perimeter of a proposed structure.

The thickness of the structural fill should be sufficient to provide a minimum of 2.0 feet of compacted structural fill between the base of the footing and the geotextile fabric.

Be advised that this type of foundation design may not preserve the function and utility of the structure following a liquefaction event as well as a deep foundation system (Option 2).

*Mat Foundation Supported on Piers/Piles (**Option 2**)*

To maximize the potential for continued use following a liquefaction event, support the foundation with either reinforced concrete piers or driven wooded piles that are tied together with grade beams. To resist liquefaction at this site, the piers must gain support from competent sediments below the

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liquefiable materials. Additional subsurface exploration and a site specific liquefaction analysis is recommended to determine the depth of liquefiable soils and provide design details for a deep foundation system.

Where continued use of the development is desired following a liquefaction event, flatwork areas outside of the deep foundation supported structure should be designed to accommodate settlements and/or allow for repair. Flexible utility lines and utility line connections are recommended where underground utilities enter the building.

Moisture Control for Concrete Slab Foundations

All concrete slabs intended for habitable space should be underlain by at least 8-inches of compacted fill consisting of 6-inches of Class 1, Type A permeable material (per Caltrans), to act as a capillary moisture break. To reduce the possibility of moisture migration through any floor slab-on-grade, a 10 mil plastic membrane (vapor retarder) should be placed on the prepared gravel subgrade. To protect the membrane during steel and concrete placement, and to provide for a better concrete finish, cover the membrane within at least 2-inches of clean sand. The sand layer over the vapor barrier is primarily intended to protect the barrier from puncture during construction. The sand layer may be omitted if a puncture resistant vapor barrier, such as VaporBlock 15 by Raven Industries (or equivalent), is used. If the sand layer is omitted from the design, extra care must be taken during construction to avoid puncturing the VaporBlock.

Be advised that LACO's recommendations for concrete slab moisture barriers are not intended to eliminate potential slab moisture problems. Rather, the recommendations are intended to reduce to the potential for moisture to infiltrate through the concrete. Flooring consultants and/or flooring manufactures should be consulted for slab design where finishes require stringent moisture control.

Allowable Soil Bearing Pressures

The undisturbed native subsoils are primarily soft silts and clays. Based on the results of consolidation testing of the shallow site soils (see "Settlement" section of report) and our experience with similar soils, all load-bearing foundation elements should be designed with an allowable foundation bearing pressure of 1,500 psf or less, for dead load and long-term live load. An increase of one-third is permitted (in Section 1605.3.2, 2007 CBC), when using alternate load combinations that include wind or earthquake loads.

Load-bearing foundation elements founded on the compacted structural fill with a minimum thickness of 2-feet below the base of the foundation may be designed with an allowable foundation bearing pressure of 2,000 psf or less, for dead load and long-term live load. An increase of one-third is permitted (in Section 1605.3.2, 2007 CBC), when using alternate load combinations that include wind or earthquake loads.

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At minimum, all footings should be designed and sized in accordance with the 2007 CBC. Where necessary, lateral soil pressures and sliding resistance shall be based on the more conservative of an engineering analysis performed to the standard of care or values presented in the 2007 CBC.

Seismic Design Parameters

Based on the 2007 CBC, the project site is classified as a Site Class D consisting of a "Stiff soil profile" (Section 1613.5.2, CBC, 2007). The following parameters are based on this classification and were determined using ASCE Standard 7-05, Minimum design loads for buildings and other structures (USGS, 2010).

Table 3. Spectral Response Accelerations

Site Information	Latitude	40.8618°
	Longitude	-124.0887°
	Occupancy Category	II
	Seismic Design Category	E
	Site Class	D
Site Coefficients	F_a	0.9
	F_v	2.4
Response Accelerations	S_{MS}	2.131
	S_{M1}	1.957
	S_{DS}	1.421
	S_{D1}	1.305

Site Preparation

The area proposed for development is currently developed with an existing mobile home park. Any asphalt concrete pavement, concrete foundations, building rubble, sod, topsoil, and any other debris encountered at, or below the existing ground surface, should be removed from areas supporting structural loads. All earthwork, including, but not limited to, site clearing, grubbing, and stripping should be conducted during dry weather conditions. Failure to comply with these recommendations could result in excessive rutting and mixing of organic debris with the underlying soils.

Temporary Excavations

All construction slopes should be designed and excavated in compliance with applicable local, state, and federal regulations, including the current OSHA Excavation and Trench Safety Standards.

Construction equipment, building materials, excavated soil, vehicular traffic, and other similar loads should not be allowed near the top of any un-shored or un-braced excavation. Where the stability of adjoining buildings, walls, pavements, or other similar improvements may be endangered by excavation operations, support systems such as shoring, bracing, or underpinning may be required to provide structural stability and to protect personnel working in the excavation.

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Since excavation operations are dependent on construction methods and scheduling, the contractor shall be solely responsible for the design, installation, maintenance, and performance of all shoring, bracing, underpinning, and other similar systems. Under no circumstances should any comments provided herein be inferred to mean that LACO assumes any responsibility for temporary excavations, or the safety thereof, nor does LACO assume any responsibility for the design, installation, maintenance, and performance of shoring, bracing, underpinning, or similar systems.

Cut and Fill Slopes

The current development plan does not include permanent un-retained cut or fill slopes. In the event that un-retained cut and/or fill slopes greater than 3-feet high are required, they should be constructed in accordance with the Humboldt County Grading Ordinance and Appendix J (or equivalent) of the current building code.

Subgrade Preparation

Areas to receive fill should be cleared of any existing asphalt concrete pavement, concrete foundations, building rubble, sod, topsoil, and any other debris. The subgrade surface should be sloped at 10 percent or less. Vertical sides or steps may necessary in some situations to achieve the required maximum slope. The exposed subgrade should be prepared in one of the following two manors:

1. Scarify and recompact the upper 6-inches to a minimum of 90 percent of the maximum relative dry density as determined by ASTM D1557 method; OR
2. Proof roll under the supervision of the project engineer or their representative. Proof rolling should be conducted with a fully loaded 10 yard dump truck with a minimum rear axel load of 8 tons or equivalent. The subgrade surface should provide a firm and unyielding surface under the load of the dump truck. Unsuitable soils identified during proof rolling should either be removed and replaced or addressed through supplemental recommendations from the Project Engineer.

Structural Fill

Structural fill materials used to support foundations, floor slabs, sidewalks, and pavements should be composed of non-expansive, low plasticity material free of organic material, debris, and other deleterious material. Structural fills should be placed on a prepared subgrade as specified above. The material should contain no rocks larger than 3-inches in greatest dimension, nor more than 15 percent larger than 2-inches. Additionally, the material should meet the following specifications:

Plasticity index:	<12
Liquid Limit:	<30
Percent passing No. 200 sieve:	50 maximum, 5 minimum

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The native soils beneath this site are not suitable for reuse as a structural fill.

Compaction Standard

Unless directed otherwise the Project Engineer or their representative, structural fill should be compacted to a minimum of 90 percent of the maximum relative dry density as determined by ASTM D1557 method. A qualified field technician should be present to observe fill placement and perform field density tests per ASTM D-6938 at random locations throughout each lift to verify that the specified compaction is being achieved by the contractor. The structural fill should be placed on a prepared subgrade as specified above in loose lifts less than 8-inches thick.

Utility Trenches

Utility trench excavations should anticipate encountering soft saturated soils at depths less than 5-feet below the existing grade. Utility lines should be designed to accommodate the soft saturated conditions. Additionally, trench dewatering may be necessary.

Where trenches closely parallel a footing and the trench bottom is within a two horizontal to one vertical plane, projected outward and downward from any structural element, concrete slurry should be utilized to backfill that portion of the trench below this plane. The use of slurry backfill is not required where a narrow trench crosses a footing at or near a right angle.

Pavement

Pavement Design

The pavement structural section should be designed by a qualified design professional to withstand the anticipated traffic loads over the design life of the facility. A flexible paving system may be used for this site consisting of asphalt concrete (AC) placed over compacted Class 2 Aggregate Base (AB) which in turn rests on a prepared subgrade.

R-Value

An R-value test conducted on a composite sample of the native fine grain soils located at a depth of 1.5 to 2.5 feet bgs indicates an R-value of 10 with an expansion pressure of 100 psf (Attachment 1).

Pavement Subgrade Preparation

The surface of the site is covered with undocumented imported granular fill soils. Where investigated, the granular fill soils are generally quality materials that are suitable for reuse as a road subgrade provided that all existing asphalt concrete pavement, concrete foundations, building rubble, sod, topsoil, and any other debris are removed.

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To reuse the existing granular fill as a road subgrade, grade the surface to the desired elevation then scarify and recompact the upper 6-inches of the subgrade to 95 percent relative density per CalTrans test methods Cal 216/231. Soft spots or areas that do not meet the required compaction standard may have to be over-excavated and replaced with structural fill that is placed, compacted, and tested as recommended in this report.

Structural fills and Class 2 base rock (or equivalent) used beneath pavement sections should be compacted to 95 percent relative density per CalTrans test methods Cal 216 and 231 within 30-inches of the finished surface. Structural fills deeper than 30-inches below finish grade may be compacted to 90 percent relative compaction.

Compaction testing may be performed using ASTM methods provided the specified relative densities noted in the preceding paragraphs are maintained.

Drainage

The site should be graded to provide positive drainage away from foundations. A minimum gradient of three percent should be maintained for all hardscaped areas. A five percent gradient should be maintained for landscaped areas within 10-feet of a structure. The grading or landscaping design and construction should be such that no water is allowed to pond on the site, nor to migrate beneath any structure. Runoff from hardscaped areas, roofs, patios, and other impermeable surfaces should be contained, controlled, and collected, and tight-lined to the storm drainage system.

Observation and Testing

To assure conformance with the specific recommendations contained within this report, and that assumptions made in the preparation of this report are valid, LACO should be retained for the following:

- Monitor site grading and inspect exposed subgrade prior to placement of structural fills and/or pavement sections.
- Observe foundation excavations prior to placement of any forms or reinforcing steel.
- Monitor the placement of structural fill, and test all structural fill to verify the required relative compaction is achieved.

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REFERENCES

Bryant W. A. and Hart, E. W., 2007, Fault-rupture hazard zones in California: California Division of Mines & Geology Special Publication 42, 42 p.

BGC [Busch Geotechnical Consultants], 2005, Geologic Hazards Evaluation and Foundation Soils Report for the Proposed Katz Minor Subdivision, 288 "F" Street, Arcata, California APN 021-067-010]. Unpublished client report. 39 pp., including appends.

CBC (California Building Code), 2007 edition.

California Division of Mines and Geology, (1983), State of California Special Studies Zones, Arcata South 7.5' Quadrangle, Humboldt County, California.

California Division of Mines and Geology, (1984), OFR 84-39, Geology and Geomorphic Features related to Landsliding, Arcata South 7.5' Quadrangle, Humboldt County, California.

California Division of Mines and Geology, (1995), Planning Scenario in Humboldt and Del Norte Counties, California, for a Great Earthquake on the Cascadia Subduction Zone, SP 115.

California Division of Mines and Geology, (2000), Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California, Northern and Eastern Region.

CGS (California Geologic Survey), (2009), Tsunami Inundation Map for Emergency Planning, State of California~County of Humboldt, Arcata South Quadrangle, June 2009.

Carver, G. A., 1987, Late Cenozoic tectonics of the Eel River basin region, coastal northern California. In H. Schymiczek and R, Suchland, eds., Tectonics, sedimentation, and evolution of the Eel River and other coastal basins of northern California: San Joaquin Geological Society Misc. Publication 37, p. 61-72.

City of Arcata, (2000), Arcata General Plan: 2020 and local coastal land use plan, dated October 2000.

Heaton, T. H., Kanamori, H., (1984), Seismic potential associated with subduction in the northwestern United States, Bulletin of the Seismological Society of America; June 1984; v. 74; no. 3; p. 933-941.

HCCDS [Humboldt County Community Development Service], 2004, Humboldt 21st Century, Natural Resources and Hazards, online report to the Humboldt County Community Development Service (Planning) Department; http://co.humboldt.ca.us/planning/gp/meetings/natl_res/figs/10-4.pdf

LACO Associates, 2000, R-1 Soils Report "Proposed Plaza Shoe Shop" 699 G Street, Arcata, California: APN 021-114-12 & 13. Unpublished client report.

LACO Associates, 2008, Soils and Foundation Report, Proposed Apartment Complex, Union Street and Samoa Boulevard, Assessor's Parcel Number 503-202-003. Unpublished client report. 137 pp., including appends.

McLaughlin, R. J., S. D. Ellen, M. C. Blake Jr., A. S. Jayko, W. P. Irwin, K. R. Aalto, G. A. Carver, and S. H. Clarke, Jr., (2000), Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern Part of the Hayfork 30x 60 Minute Quadrangles and Adjacent Offshore Area, Northern California.

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Petersen, M. D., D. Beeby, W. Bryant, C. Cao, C. Cramer, J. Davis, M. Reichle, G. Saucedo, S. Tan, G. Taylor, T. Toppozada, J. Treiman, and C. Wills, (1999), Seismic Shaking Hazard Maps of California. Division of Mines and Geology, Map Sheet 48

Satake, K., Wang, K., Atwater, B., (2003), Fault slip and seismic moment of the 1700 Cascadia earthquake inferred from Japanese tsunami descriptions. Journal of Geophysical Research. Vol. 108, No. B11, 2535

SCEC (Southern California Earthquake Center), (2002), recommended procedures for implementation of DMG Special Publication 117 Guidelines for analyzing and mitigating landslide hazards in California. pp. 110 + 1 app

USGS (United States Geologic Survey), (2010), Seismic Design Values for Buildings, website, URL: http://earthquake.usgs.gov/research/hazmaps/design/index.php

LIST OF FIGURES AND ATTACHMENT

Figure 1: Location/Geologic Map
Figure 2: Site Plan
Figure 3: Excavation Log for BP-1
Figure 4: Excavation Log for BP-2
Figure 5: Excavation Log for BP-3
Figure 6: Excavation Log for BP-4
Figure 7: Excavation Log for BP-5

Attachment 1: Laboratory Test Results

BED:tmc

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20920

WINZLER & KELLY

633 Third Street, Eureka, CA 95501-0417
(707) 443-8326

By JWolf Date 4/1/11 Client Resident Owned Parks, Inc Sheet No. 1 of 2

Subject Sandpiper Mobile Home Park – Stormwater Runoff Calculations Job No. 1118707001

STORMWATER RUNOFF CALCULATIONS FOR:
SANDPIPER MOBILE HOME PARK
Arcata, California

Rational Equation:

WQF=CiA

Where:

WQF = Water Quality Flow (cfs)
I = 85% Hourly Rainfall Intensity (in/hr)
A = Contributing Drainage Area (ac)

Rainfall Intensity

California Stormwater BMP Handbook Approach:
85% Rainfall Intensity (Woodley Island Rainfall Station) = 0.091 in/hr [1]
2 X Safety Factor
Modified 85% Rainfall Intensity = 0.181 in/hr [1]

[1] California State University Sacramento, *Basin Sizer Version 1.45*, 2007

Contributing Drainage Areas:

Total Pervious Area (Grass/Landscape) = 9,452 sq-ft
Total Impervious Area (Asphalt, Concrete, Roofs) = 19,904 sq-ft
Total Area = 29,356 sq-ft

EXHIBIT NO. 8
APPLICATION NO.
1-10-028
CITY OF ARCATA & RESIDENT OWNED PARKS, INC.
RUN OFF TREATMENT PLAN (1 of 11)

Rational Coefficients:

Pervious Areas: C = 0.37 [2]
Impervious Areas: C = 0.75 [2]
Composite Coefficient: C= 0.63

[2] Mays, Larry W. *Water Resources Engineering*, New York, 2001

Subbasin 1:
C=0.63
I = 0.181 in/hr
A = 0.31 ac
WQF = CiA = (0.63)(0.181)(0.31) = 0.035 cfs

Use KriStar FloGard LoPro Matrix Filter (FP-M1818) with treatment flow rate of 0.10 cfs.

Subbasin 2:
C=0.63
I = 0.181 in/hr
A = 0.16 ac
WQF = CiA = (0.63)(0.181)(0.16) = 0.018 cfs

Use Bio-Clean Hydrocarbon Type Flume Filter (16" wide) with treatment flow rate of 0.35 cfs.

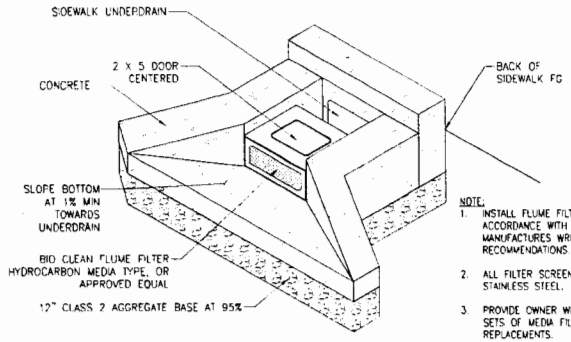
Subbasin 3:
C=0.63
I = 0.181 in/hr
A = 0.13 ac
WQF = CiA = (0.63)(0.181)(0.13) = 0.015 cfs

Use Bio-Clean Hydrocarbon Type Flume Filter (16" wide) with treatment flow rate of 0.35 cfs.

Subbasin 4:
C=0.63
I = 0.181 in/hr
A = 0.21 ac
WQF = CiA = (0.63)(0.181)(0.08) = 0.009 cfs

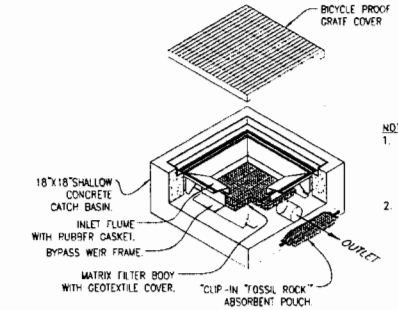
Use Bio-Clean Hydrocarbon Type Flume Filter (16" wide) with treatment flow rate of 0.35 cfs.

2 of 11



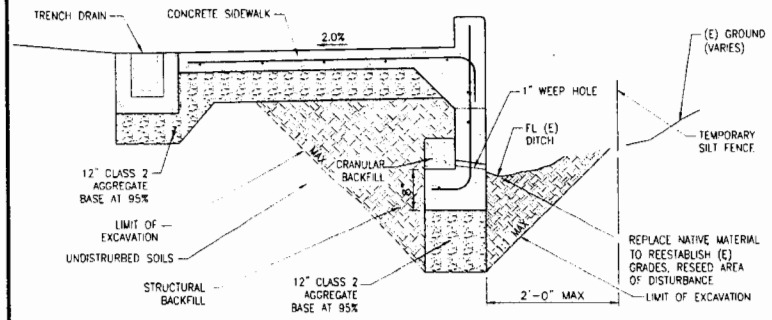
A FLUME FILTER ASSEMBLY

SCALE: NTS



B SHALLOW CATCH WITH BASIN FILTER

SCALE: NTS

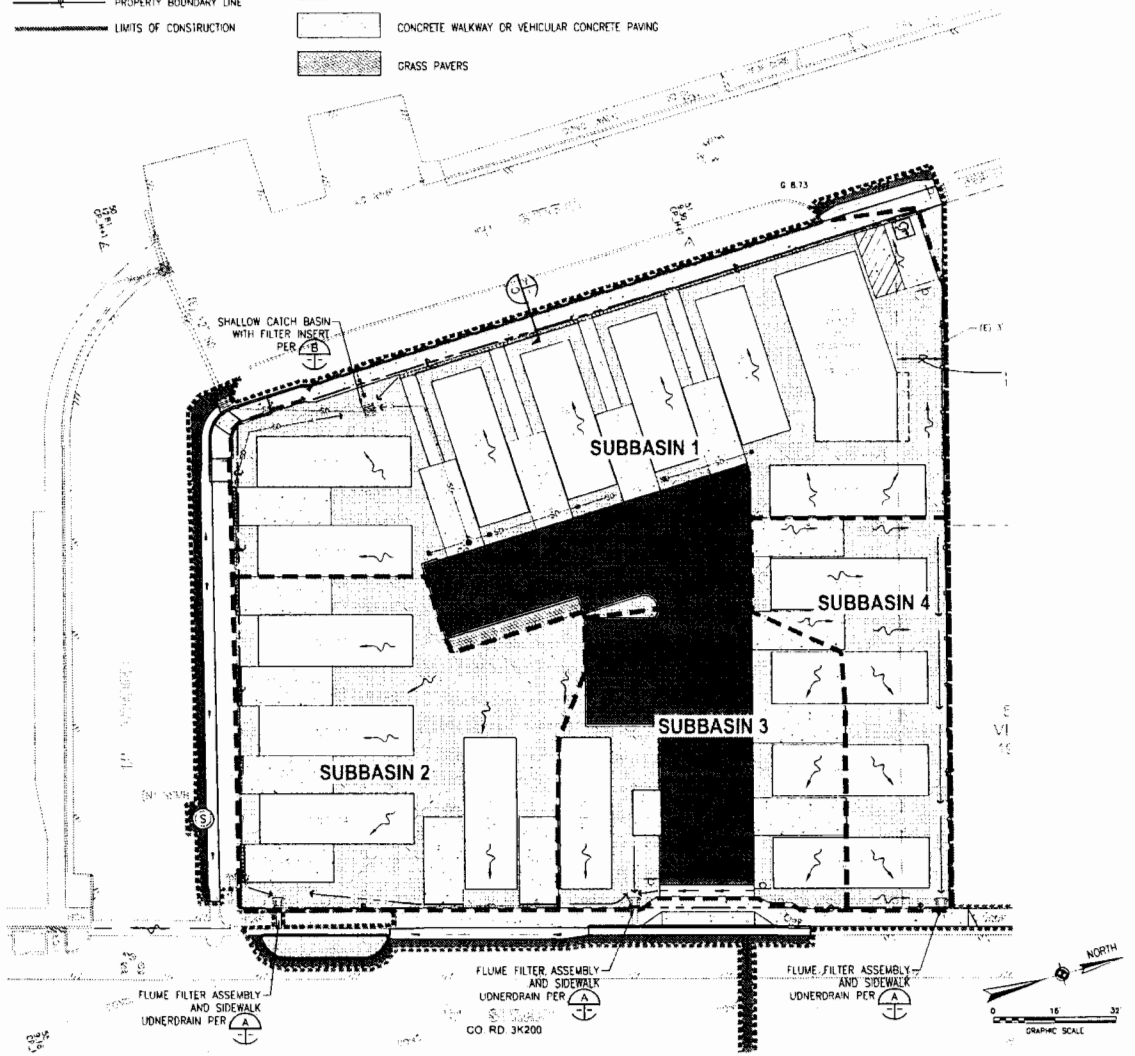


C SIDEWALK WITH RETAINING FOOTING

SCALE: NTS

LEGEND:

- SUBBASIN BOUNDARY
- STORMWATER RUNOFF DIRECTION
- PROPERTY BOUNDARY LINE
- LIMITS OF CONSTRUCTION
- LANDSCAPE AREAS
- ASPHALT PAVING SECTION
- CONCRETE WALKWAY OR VEHICULAR CONCRETE PAVING
- GRASS PAVERS



STORMWATER RUNOFF PLAN

SCALE: SEE SCALE BAR

STORMWATER RUNOFF PLAN

SANDPIPER MOBILE HOME PARK, ARCATA CA

RESIDENT OWNED PARKS, INC

WINZLER & KELLY

3 of 3

Project: Sandpiper Mobile Home Park

Latitude: 40.919
Longitude: -124.078

Stations
Name: EUREKA WFO WOODLEY IS
Distance: 14.56
Elevation: 6
Years of data: 57

Water Quality Volumes

California Stormwater BMP Handbook Approach
Drawdown Time (Hours) 48
Runoff Coefficient 0.80
Capture (% Runoff) 85
Unit Basin Storage Volume (in) 0.73

Urban Runoff Quality Management Approach (ASCE)
Drawdown Time (Hours) 48
Watershed Imperviousness Ratio 85
Runoff Coefficient 0.66
Unit Basin Storage Volume (in) 0.79

Water Quality Flows

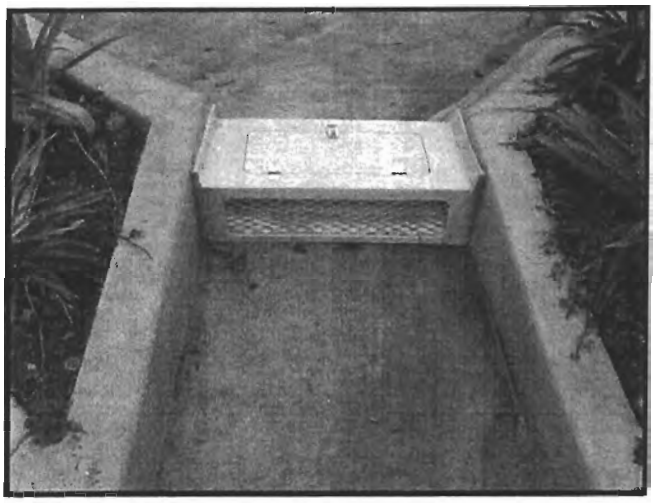
California Stormwater BMP Handbook Approach
Percentile 85%
Safety Factor x2
Rainfall Intensity (in/hr)** 0.091
Modified Intesnity (in/hr) 0.181

** The rainfall intensity must be multiplied by a safety factor (usually 2) to get the design rainfall intensity.

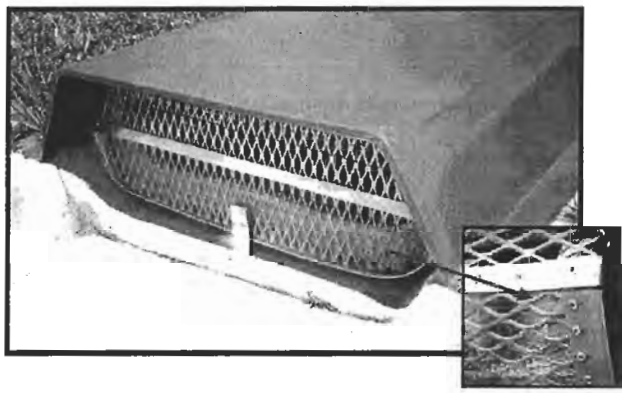
FLUME FILTER

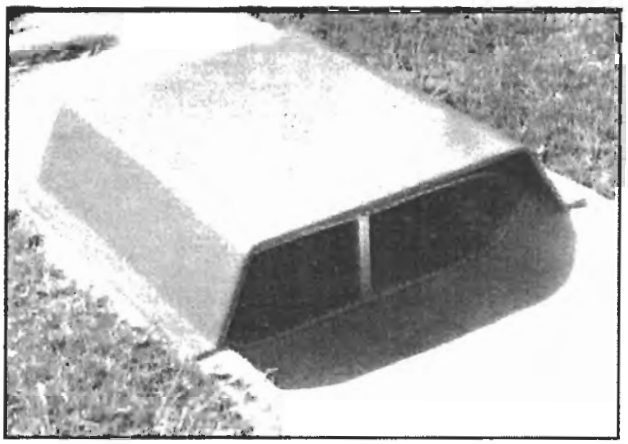
A Stormwater Pollution Control Device

FLUME FILTER - Hydrocarbon Type

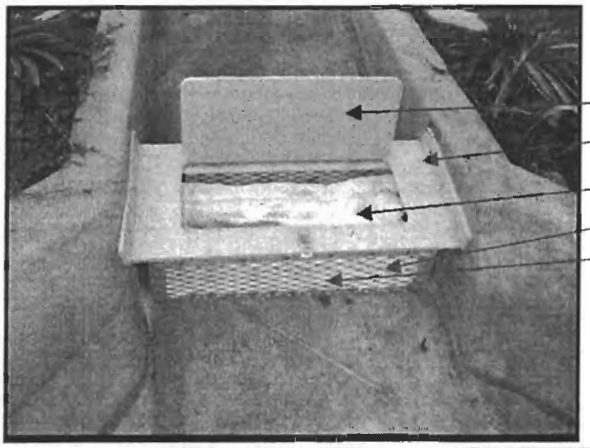


FLUME FILTER - Trash Type





- Captures Trash & Litter
- Captures Hydrocarbons
- Captures Grass & Leaves
- Various Sizes Available
- Custom Configurations
- Easy to Maintain
- Heavy Duty Construction



- Easy Access for Cleaning
- Durable- Fiberglass for Strength
- Storm Booms – For Filtering Hydrocarbons
- Mesh Screen – For Filtering out Sediments
- Diamond Plate for Strength and Filtering Large Debris

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BIO CLEAN ENVIRONMENTAL SERVICES, INC.

P O Box 869, Oceanside, CA 92049
(760) 433-7640 • Fax (760) 433-3176
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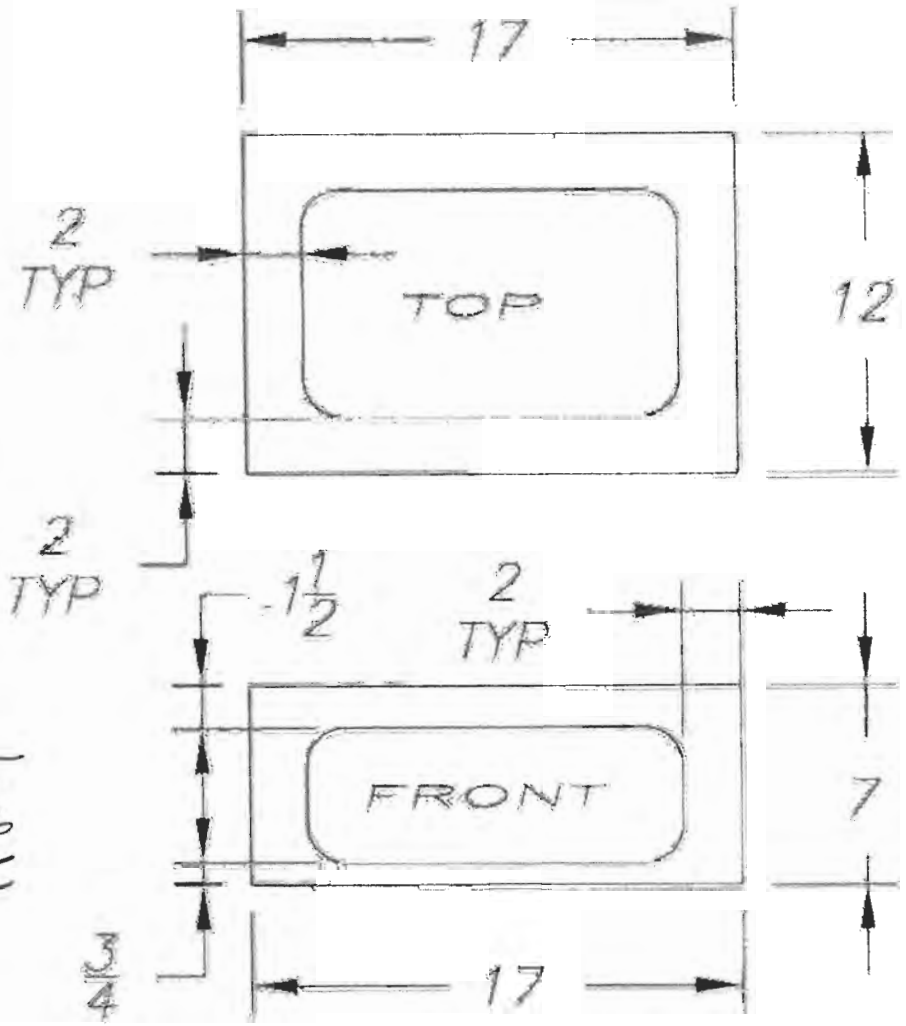
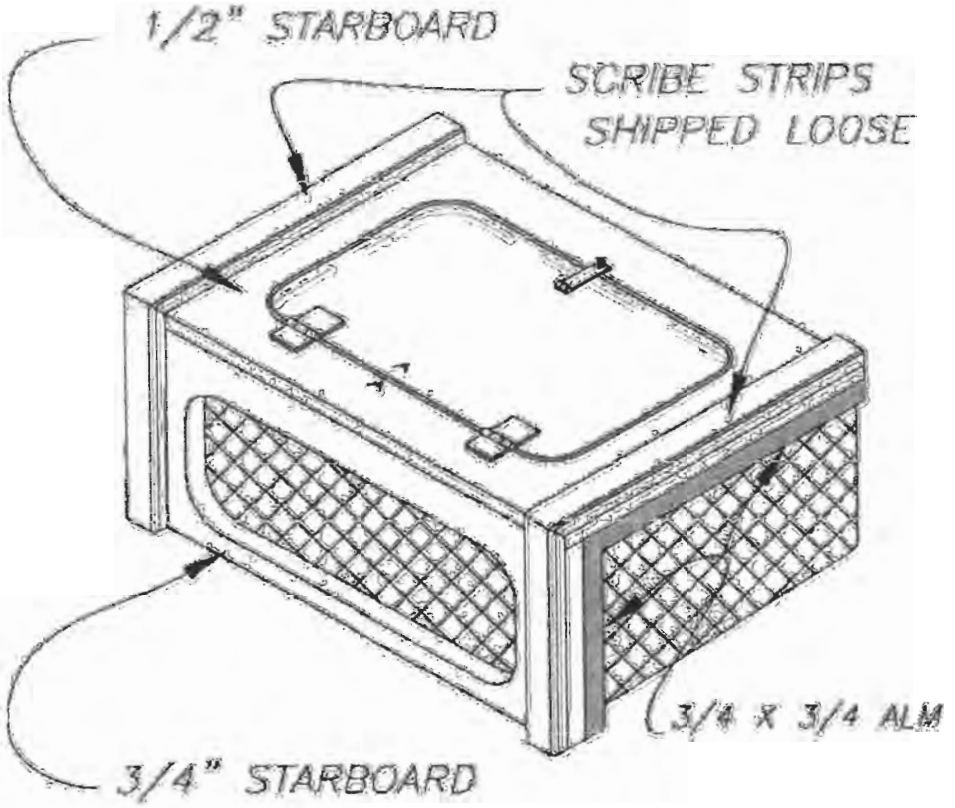
"The Stormwater Standard"

Bio Clean Environmental Services, Inc.

FLUME, BOOM BASKET & COVER





FLUME BASKET COVER

Manufactured for Suntree Technologies

Treatment Flow Rate - 0.26 CFS per Linear Foot
(Assumes 50% Screen Blockage)

NOTE:

PLACE UNIT IN FLUME AND MARK CONCRETE FOR MOUNTING ANGLES. INSTALL ANGLES, THEN PLACE UNIT ON MOUNTING ANGLES AND INSTALL WITH 2" X #8 SCREWS, THEN INSTALL SCRIBE STRIPS, IF NECESSARY, TO COVER GAPS.

This Filter is Available in Sizes ranging from 12" to 60"

SPECIFICATIONS

Flume Filter/Boom Box

I. Specifications

Coverage: The Flume Filter provides full coverage of flume such that all influent, at rated flows, is conveyed to the filter. The filter will retain all windblown and swept debris entering the flume or channel.

Non-Corrosive Materials: All components of the filter system, including mounting hardware, fasteners, support brackets, filtration material, and support frame are constructed of non-corrosive materials: 316 stainless steel, aluminum and starboard. Fasteners are stainless steel. Primary filter screen is ¾" flattened expanded aluminum metal and 316 stainless steel welded 10 x 10 mesh screen.

Durability: The Flume Filter is constructed of an all starboard frame and stainless steel screens backed by ¾" flattened expanded aluminum metal. Filter (excluding oil absorbent media) and support structures are of proven durability, with an expected service life of 10 to 15 years. The filter and mounting structures are of sufficient strength to support water, sediment, and debris loads when full without breaking, or tearing. All filters are warranted for a minimum of five (5) years.

Oil Absorbent Media: The Flume Filter is fitted with an absorbent media for removal of petroleum hydrocarbons from influent, and so placed in the filter assembly to treat influent at rated flow. Absorbent media is easily replaceable in the filter, without the necessity of removing fixed mounting brackets or mounting hardware. Hydrocarbon media is placed in the bottom of the filter unit. The hydrocarbon media encompasses the total bottom area of the unit and lie horizontal for maximum absorption. No polypropylene, monofilament netting or fabrics shall be used in the product.

Overflow Protection: The Flume Filter is designed so that it does not inhibit storm flows entering the flume/channel or obstruct flow through the flume/channel during peak storm flows.

Filter Bypass: Water will not bypass the filter at low flows, nor bypass through contact surfaces(hydrocarbon boom) at low flows.

Pollutant Removal Efficiency: The Flume Filter is designed to capture high levels of trash and litter, grass and foliage, sediments, hydrocarbons, grease and oil. The filter has a multistage filtration system, which incorporates durable screen and steel mesh filtering.

Filter Maintenance: The Flume filter is readily serviceable without removing. To service, open the top hatch, clean and inspect and/or replace hydrocarbon booms.

II. Installation

Installation: The Flume Filter will be securely installed within the flume/channel, with contact surfaces sufficiently joined together so that no filter bypass can occur at low flow. All anchoring devices and fasteners are installed within the interior of the flume/channel.

Installation Notes:

1. Bio Clean Environmental Services, Inc. Flume Filter shall be installed pursuant to the manufacturer's recommendations and the details on this sheet.
2. Flume Filter shall provide coverage of entire flume/channel opening to direct all flow through the filter.
3. Attachments to flume/channel walls shall be made of non-corrosive hardware.
4. Place filter in flume/channel, attach the scribe strips to the filter with pop rivets, and then attach the same scribe strips with concrete drive pins to the side of the flume/channel.
5. Place hydrocarbon booms in bottom of unit in a horizontal manner.
6. Close lid and latch when applicable.

III. Maintenance

Maintenance: The Flume filter is readily serviceable without removing. To service, open the top hatch, clean and inspect and replace hydrocarbon booms as per the following procedure:

7911

Maintenance Notes:

1. Bio Clean Environmental Services, Inc. recommends cleaning and debris removal maintenance a minimum of four times per year, and replacement of hydrocarbon booms a minimum of twice per year.
2. Following maintenance and/or inspection, the maintenance operator shall prepare a maintenance/inspection record. The record shall include any maintenance activities performed, amount and description of debris collected, and condition of filter.
3. The owner shall retain the maintenance/inspection record for a minimum of five years from the date of maintenance. These records shall be made available to the governing municipality for inspection upon request at any time.
4. Remove all trash, debris, organics, and sediments collected in front of the filter, then open the lid and remove trash and debris within the filter.
5. Evaluation of the hydrocarbon boom shall be performed at each cleaning. If the boom is filled with hydrocarbons and oils it should be replaced. Remove hydrocarbon booms and replace.
6. Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.
7. The hydrocarbon boom is classified as hazardous material and will have to be picked up and disposed of as hazardous waste. Hazardous material can only be handled by a certified hazardous waste trained person (minimum 24-hour hazwoper).

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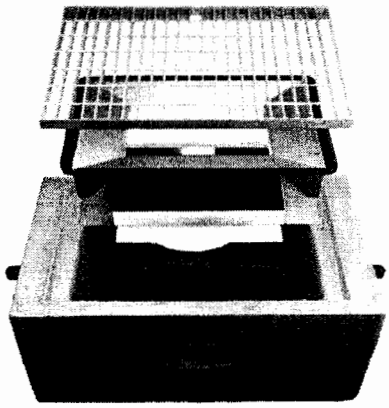
8 of 11



FloGard® LoPro Matrix Filter

The FloGard® LoPro Matrix Filter is a modular filter designed to collect particulates, debris, metals and petroleum hydrocarbons from stormwater runoff. It includes a UV-resistant woven geo-textile wrapped around a perforated core encapsulating an adsorbent which is easily replaced, providing for flexibility, ease of maintenance, and economy.

For urban sites with shallow drainage, particularly at property perimeters or across entrance driveways, the FloGard® LoPro Matrix Filter provides an effective solution to comply with stormwater runoff issues. The units perform as an effective filtering device at low flows ("first flush") and, because of the built-in high flow bypass, will not impede the drainage system's maximum design flow.

FloGard® LoPro Matrix Filters are available in sizes to fit common catch basin sizes, or are available as complete packaged "plug and play" units including filter integrated with a precast concrete catch basin with traffic-rated grate.

MODEL	CATCH BASIN ID	SOLIDS STORAGE CAPACITY CUBIC FEET	FILTERED FLOW CUBIC FEET /SECOND	TOTAL BYPASS CAPACITY CUBIC FEET /SECOND
FG-M1818	18" X 18"	0.1	0.1	1.0
FG-M2424	24" X 24"	0.3	0.3	1.7
FG-M2436	24" X 36"	0.4	0.5	2.3
FG-M3636	36" X 36"	0.8	0.9	4.1
FG-M3648	36" X 48"	1.1	1.3	4.6
FG-M4848	48" X 48"	1.6	1.8	6.6

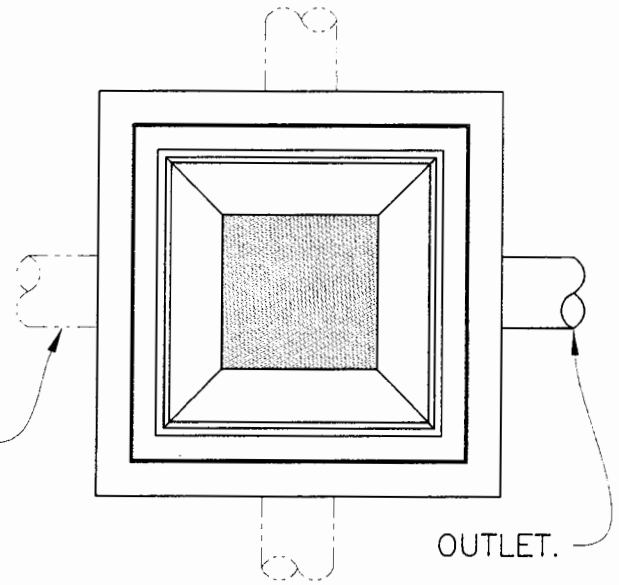
Questions? Contact Kristar at (800) 579-8819.

04/07

9911

FG-LP-000

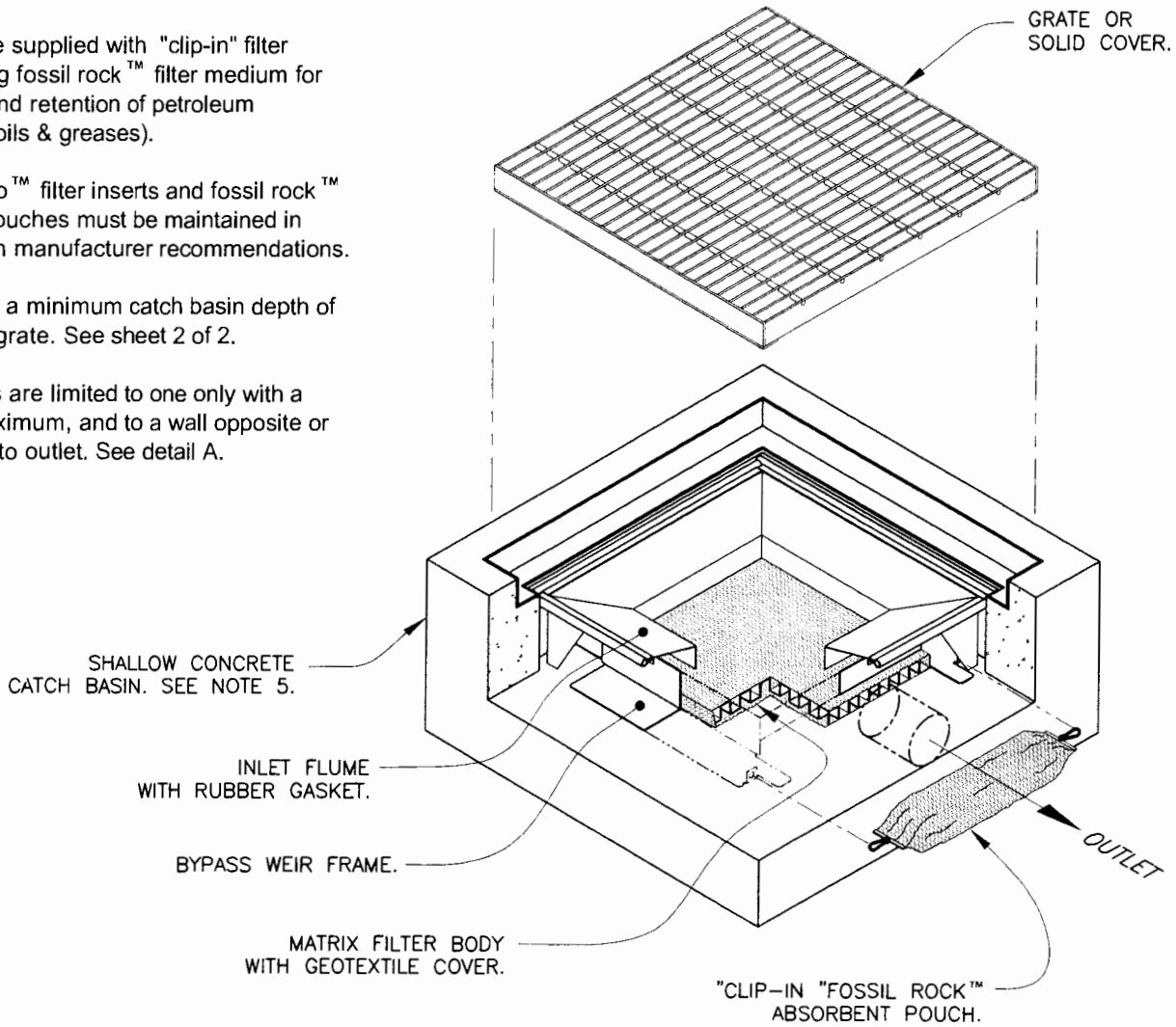
SPECIFIER CHART				
MODEL	CATCH BASIN ID	SOLIDS STORAGE CAPACITY CUBIC FEET	FILTERED FLOW CUBIC FEET / SECOND	TOTAL BYPASS CAPACITY CUBIC FEET /SECOND
FG-M1818	18" X 18"	0.1	0.1	1.0
FG-M2424	24" X 24"	0.3	0.3	1.7
FG-M2436	24" X 36"	0.4	0.5	2.3
FG-M3636	36" X 36"	0.8	0.9	4.1
FG-M3648	36" X 48"	1.1	1.3	4.6
FG-M4848	48" X 48"	1.6	1.8	6.6



DETAIL A
ADDITIONAL INLETS
SCALE: 1X

NOTES:

1. Inlet flume & bypass weir frame shall be constructed from stainless steel Type 304.
2. Matrix filter element is constructed from durable polypropylene woven monofilament geotextile surrounding a polypropylene matrix skeleton. Filter element shall not allow the retention of water between storm events.
3. Filter inserts are supplied with "clip-in" filter pouches utilizing fossil rock ™ filter medium for the collection and retention of petroleum hydrocarbons (oils & greases).
4. FloGard® LoPro ™ filter inserts and fossil rock ™ filter medium pouches must be maintained in accordance with manufacturer recommendations.
5. Device requires a minimum catch basin depth of 6.50" beneath grate. See sheet 2 of 2.
6. Additional inlets are limited to one only with a 6" diameter maximum, and to a wall opposite or at a right angle to outlet. See detail A.



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TITLE

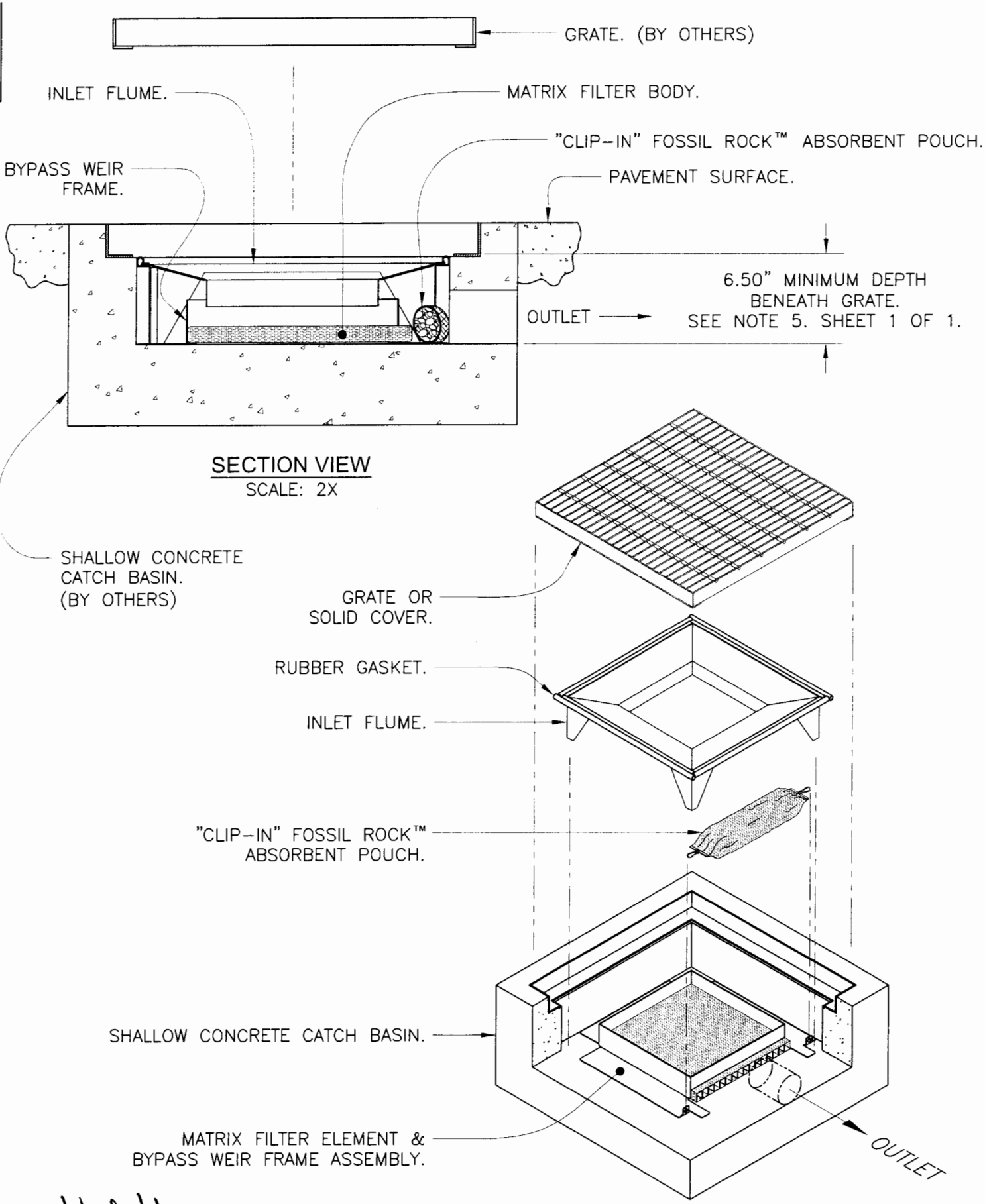
FloGard® LoPro™

SHALLOW CATCH BASIN
FILTER INSERT

KriStar Enterprises, Inc.
360 Sutton Place, Santa Rosa, CA 95407
Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com

DRAWING NO.	REV	ECO	DATE	SHEET
FG-LP-0001	C	0059 JPR 12/30/08	JPR 12/18/06	1 OF 2

FG-LP-000



11 of 11

TITLE

FloGard® LoPro™

SHALLOW CATCH BASIN FILTER INSERT

KriStar Enterprises, Inc.

360 Sutton Place, Santa Rosa, CA 95407

Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com

DRAWING NO	REV	ECO	DATE	SHEET
FG-LP-0001	C	0059 JPR 12/30/08	JPR 12/18/06	2 OF 2

SPECIFICATIONS

Flume Filter/Boom Box

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Non-Corrosive Materials: All components of the filter system, including mounting hardware, fasteners, support brackets, filtration material, and support frame are constructed of non-corrosive materials: 316 stainless steel, aluminum and starboard. Fasteners are stainless steel. Primary filter screen is ¾" flattened expanded aluminum metal and 316 stainless steel welded 10 x 10 mesh screen.

Durability: The Flume Filter is constructed of an all starboard frame and stainless steel screens backed by ¾" flattened expanded aluminum metal. Filter (excluding oil absorbent media) and support structures are of proven durability, with an expected service life of 10 to 15 years. The filter and mounting structures are of sufficient strength to support water, sediment, and debris loads when full without breaking, or tearing. All filters are warranted for a minimum of five (5) years.

Oil Absorbent Media: The Flume Filter is fitted with an absorbent media for removal of petroleum hydrocarbons from influent, and so placed in the filter assembly to treat influent at rated flow. Absorbent media is easily replaceable in the filter, without the necessity of removing fixed mounting brackets or mounting hardware. Hydrocarbon media is placed in the bottom of the filter unit. The hydrocarbon media encompasses the total bottom area of the unit and lie horizontal for maximum absorption. No polypropylene, monofilament netting or fabrics shall be used in the product.

Overflow Protection: The Flume Filter is designed so that it does not inhibit storm flows entering the flume/channel or obstruct flow through the flume/channel during peak storm flows.

Filter Bypass: Water will not bypass the filter at low flows, nor bypass through contact surfaces(hydrocarbon boom) at low flows.

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Filter Maintenance: The Flume filter is readily serviceable without removing. To service, open the top hatch, clean and inspect and/or replace hydrocarbon booms.

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5. Place hydrocarbon booms in bottom of unit in a horizontal manner.
6. Close lid and latch when applicable.

III. Maintenance

Maintenance: The Flume filter is readily serviceable without removing. To service, open the top hatch, clean and inspect and replace hydrocarbon booms as per the following procedure:

Maintenance Notes:

1. Bio Clean Environmental Services, Inc. recommends cleaning and debris removal maintenance a minimum of four times per year, and replacement of hydrocarbon booms a minimum of twice per year.
2. Following maintenance and/or inspection, the maintenance operator shall prepare a maintenance/inspection record. The record shall include any maintenance activities performed, amount and description of debris collected, and condition of filter.
3. The owner shall retain the maintenance/inspection record for a minimum of five years from the date of maintenance. These records shall be made available to the governing municipality for inspection upon request at any time.
4. Remove all trash, debris, organics, and sediments collected in front of the filter, then open the lid and remove trash and debris within the filter.
5. Evaluation of the hydrocarbon boom shall be performed at each cleaning. If the boom is filled with hydrocarbons and oils it should be replaced. Remove hydrocarbon booms and replace.
6. Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.
7. The hydrocarbon boom is classified as hazardous material and will have to be picked up and disposed of as hazardous waste. Hazardous material can only be handled by a certified hazardous waste trained person (minimum 24-hour hazwoper).

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GENERAL SPECIFICATIONS FOR MAINTENANCE OF *FLOGARD® LOPRO MATRIX FILTERS*

SCOPE:

Federal, State and Local Clean Water Act regulations and those of insurance carriers require that stormwater filtration systems be maintained and serviced on a recurring basis. The intent of the regulations is to ensure that the systems, on a continuing basis, efficiently remove pollutants from stormwater runoff thereby preventing pollution of the nation's water resources. These Specifications apply to the FloGard® LoPro Matrix Filter.

RECOMMENDED FREQUENCY OF SERVICE:

Drainage Protection Systems (DPS) recommends that installed FloGard® LoPro Matrix Filters be serviced on a recurring basis. Ultimately, the frequency depends on the amount of runoff, pollutant loading and interference from debris (leaves, vegetation, cans, paper, etc.); however, it is recommended that each installation be serviced a minimum of three times per year, with a change of filter medium once per year. DPS technicians are available to do an on-site evaluation, upon request.

RECOMMENDED TIMING OF SERVICE:

DPS guidelines for the timing of service are as follows:

1. For areas with a definite rainy season: Prior to, during and following the rainy season.
2. For areas subject to year-round rainfall: On a recurring basis (at least three times per year).
3. For areas with winter snow and summer rain: Prior to and just after the snow season and during the summer rain season.
4. For installed devices not subject to the elements (wash racks, parking garages, etc.): On a recurring basis (no less than three times per year).

SERVICE PROCEDURES:

1. The catch basin grate(s) or cover shall be removed and set to one side.
2. The service shall commence with collection and removal of sediment and debris (litter, leaves, papers, cans, etc.) .
3. The catch basin shall be visually inspected for defects and possible illegal dumping. If illegal dumping has occurred, the proper authorities and property owner representative shall be notified as soon as practicable.
4. Using an industrial vacuum, the collected materials shall be removed from the filter liner and interior of the catch basin. (Note: DPS uses a truck-mounted vacuum for servicing FloGard® LoPro Matrix Filters.)
5. When all of the collected materials have been removed, the filter assembly shall be removed from the drainage inlet. The outer filter liner shall be removed from the filter assembly and filter medium pouches shall be removed by unsnapping the tether from the stainless steel hooded outlet cover and set to one side. The filter liner, PVC body and fittings shall be inspected for continued serviceability. Minor damage or defects found shall be corrected on the spot and a notation made on the Maintenance Record. More extensive deficiencies that affect the efficiency of the filter (torn liner, etc.), if approved by the customer representative, will be corrected and a quote submitted to the representative along with the Maintenance Record.
6. The filter liner and filter medium pouches shall be inspected for defects and continued serviceability and replaced as necessary and the pouch tethers re-attached to the stainless steel hooded outlet cover assembly.
7. The grate(s) or cover shall be replaced.

REPLACEMENT AND DISPOSAL OF EXPOSED FILTER MEDIUM AND COLLECTED DEBRIS

The frequency of filter medium pouch exchange will be in accordance with the existing DPS-Customer Maintenance Contract. DPS recommends that the medium be changed at least once per year. During the appropriate service, or if so determined by the service technician during a non-scheduled service, the filter medium pouches will be replaced with new pouches. Once the exposed pouches and debris have been removed, DPS has possession and must dispose of it in accordance with local, state and federal agency requirements.

DPS also has the capability of servicing all types of catch basin inserts and catch basins without inserts, underground oil/water separators, stormwater interceptors and other treatment devices. All DPS personnel are highly qualified technicians and are confined space trained and certified. Call us at (888) 950-8826 for further information and assistance.

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