City of Bellevue
Development Services Department
Land Use Staff Report

Proposal Name:	**Hidden Valley Park Osprey Nest Relocation**
Proposal Address:	**1901 112th Ave NE**
Proposal Description:	The applicant requests a Critical Areas Land Use Permit for the relocation of an osprey nest from existing ballfield lights to a new, free-standing nest platform structure.
File Number:	**09-118879-LO**
Applicant:	**Bret Wilson, Bellevue Parks & Community Services Department**
Decisions Included:	Critical Areas Land Use Permit (Process II. LUC 20.30P)
Planner:	**Kevin LeClair**, Senior Planner
State Environmental Policy Act Threshold Determination:	**Exempt per WAC 197-11-800 and BCC 22.02 Repair and Maintenance of Existing Facility**
Director's Decision:	**Approval with Conditions**

Carol V. Helland, Land Use Director
Development Services Department

Application Date:	June 26, 2009
Notice of Application Publication Date:	July 23, 2009
Decision Publication Date:	~~September 24, 2009~~ October 1, 2009
Project/SEPA Appeal Deadline:	~~October 8, 2009~~ October 15, 2009

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Comments on State Environmental Policy Act (SEPA) Determinations can be made with or without appealing the proposal within the noted comment period for a SEPA Determination. Appeal of the Decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

CONTENTS

Attachments

1. Excerpt from “Raptor Management Techniques Manual” published by National Wildlife Federation
2. Light Pole and Nest Platform and Pole Construction Plans

I. Proposal Description

The applicant is requesting a Critical Areas Land Use Permit for the installation of a new wooden pole to accommodate a relocated osprey nesting area. The existing nest is located atop one of the light clusters located along the third base line. The new pole with a nesting structure will be constructed solely as a nesting site for the osprey. Construction of the nest structure will follow Washington State Fish and Wildlife guidelines. The new nesting pole will be installed approximately 50 feet from the pole with the existing nest. The new nest pole will be installed prior to the removal of the existing nesting pole.

This project is anticipated to take place between October 1, 2009 and February 28, 2010. Before starting this project, the project manager will confirm that the osprey has vacated the nest for the winter season.

The Land Use Code (LUC), Critical Areas Overlay District Part 20.25H designates osprey (*Pandion haliaetus*) as a species of local importance. LUC 20.25H.150 specifies that habitat associated with species of local importance is a critical area. LUC 20.25H.155 specifies that uses allowed in the underlying land use district are allowed within habitat associated with species of local importance, so long as the development complies with the performance standards of LUC 20.25H.160. Compliance with this performance standard and the Critical Areas Land Use Permit decision criteria are discussed below in Sections III and VIII, respectively.

II. Site Description, Zoning, Land Use and Critical Areas

A. Site Description

The project is located at Hidden Valley Sport Park. The 17.31 acres park is located at 1901 112th Ave NE. The handicapped accessible park contains 3 softball fields (1 with lights), play and picnic areas, tennis courts, sports court, and restrooms at north & south end of park, handicapped accessible.

B. Zoning

The park property has two zoning designations. The majority of the site is zoned R-3.5. The balance of the park site is zoned R-2.5. The development project under this application is in the R-3.5 land use zoning district.

C. Land Use Context

The park site is bordered on the west and south by single-family residential districts that are also in the R-2.5 and R-3.5 land use districts respectively. The park is bordered to the east with a frontage on the public Right-of-Way of 112th Ave NE and an office district.

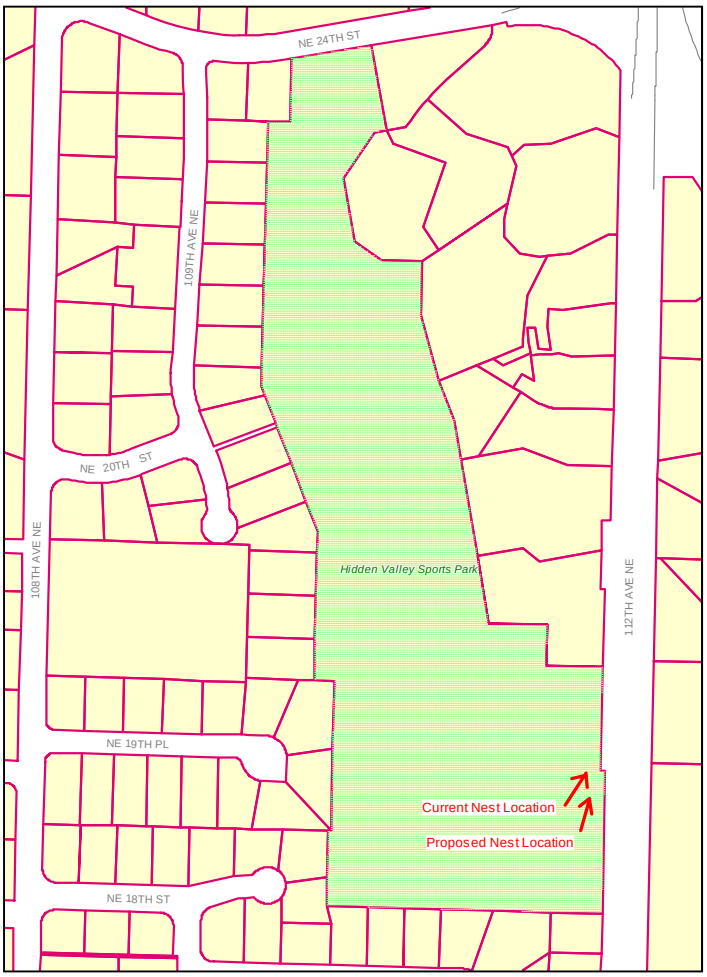

Figure 1: Project Location

D. Critical Areas Functions and Values

i. Habitat Associated with Species of Local Importance

Critical areas are portions of the landscape afforded special protection because they provide unique environmental functions that are difficult, if not impossible, to replace and to ensure public health, safety and welfare.

Habitat associated with species of local importance is a critical area by designation in the Critical Areas Overlay District in LUC 20.25H.150. These areas or features are protected because species of local importance are either listed as threatened and/or endangered as by the United States Department Fish and Wildlife or they are considered a priority species by the Washington State Department of Fish and Wildlife.

The protection of habitat associated with species of local importance serves multiple functions to the community. In addition to the intrinsic value in supporting all, or a portion of a species' lifecycle, the presence of habitat in the urban environment serves as an ecological indicator of environmental health that is vital in supporting a quality living environment for Bellevue's human inhabitants.

III. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements:

The site is located in the R-3.5 and R-2.5 zoning districts. The dimensional standards pertaining to this land use zoning district are not applicable to this project.

B. Critical Areas Requirements LUC 20.25H155:

The uses allowed in the underlying land use district are allowed within habitat associated with species of local importance, so long as the development complies with the performance standards of LUC 20.25H.160.

C. Consistency with Land Use Code Critical Areas Performance Standards:

Habitat associated with Species of Local Importance

20.25H.160 Performance Standards

If habitat associated with species of local importance will be impacted by a proposal, the proposal shall implement the wildlife management plan developed by the Department of Fish and Wildlife for such species. Where the habitat does not include any other critical area or critical area buffer, compliance with the wildlife management plan shall constitute compliance.

This project does not include any other critical areas or critical area buffers. Therefore, compliance with the management recommendations developed by the Department of Fish and Wildlife shall compliance with this performance standard.

The applicable management recommendation for osprey for this project include is to restrict human activities within 660 feet of any active osprey nest from April 1 to October 1. To comply with this recommendation, the new pole and nest platform will be installed after the birds have left the nest after October 1.

IV. Public Notice and Comment

Application Date:	June 26, 2009
Public Notice (500 feet):	July 23, 2009
Minimum Comment Period:	August 6, 2009

The Notice of Application for this project was published in the City of Bellevue weekly permit bulletin on July 23, 2009. It was mailed to property owners within 500 feet of the project site. No comments were received from the public as of the writing of this staff report.

V. Summary of Technical Reviews

Clearing and Grading:
The Clearing and Grading Division of the Development Services Department has reviewed the proposed development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development.

VI. State Environmental Policy Act (SEPA)

The environmental review indicates project work is exempt from SEPA threshold determination per Washington Administrative Code 197-11-800 and Bellevue City Code 22.02. Project is considered repair and maintenance of an existing facility because the light poles and osprey nest are will remain following the project.

VII. Changes to proposal as a result of City review

No changes were made to the proposal as a result of City review.

VIII. Decision Criteria

A. Critical Areas Land Use Permit Decision Criteria 20.30P

The Director may approve or approve with modifications an application for a critical areas land use permit if:

1. The proposal obtains all other permits required by the Land Use Code;

Finding: The proposed replacement of the light poles and construction the free-standing nest pole structure will require a building permit be reviewed and approved prior to construction.

2. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer;

Finding: The proposal for the construction of a free-standing nest pole structure is following specific wildlife habitat guidance and direction from Washington State Department of Fish and Wildlife.

3. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and ;

Finding: A discussed in Section III, the proposal is consistent with the performance

standards for habitat associated with species of local importance. The primary, applicable performance is to limit any disturbance to the period of the year from October 1 through April 1, when the birds leave the nest for the winter season.

4. The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;

Finding: The property is currently served by adequate public facilities. The proposal does not increase the need for public facilities.

5. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and

Finding: No mitigation is required as no new permanent disturbance is proposed. All temporary disturbance will be restored to preexisting condition which is primarily turf grass that supports the active recreational uses at the park.

6. The proposal complies with other applicable requirements of this code.

Finding: As discussed in Section IV & V of this report, the proposal complies with all other applicable requirements of the Land Use Code.

IX. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, SEPA, City Code and Standard compliance reviews, the Director of Planning and Community Development does hereby **approve with conditions** the proposal to relocate an osprey nest from existing ballfield lights to a new, free-standing nest platform structure.

Note- Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a Clearing and Grading Permit or other necessary development permits within one year of the effective date of the approval.

X. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

Applicable Ordinances	Contact Person
Land Use Code- BCC 20.25H	Kevin LeClair, 425-452-2928
Noise Control- BCC 9.18	Kevin LeClair, 425-452-2928

The following conditions are imposed under the Bellevue City Code or SEPA authority referenced:

1. Restoration for Areas of Temporary Disturbance: A restoration plan for all areas of temporary disturbance is required to be submitted for review and approval by the City of Bellevue prior to the issuance of the Building Permit. The plan shall include documentation of existing site conditions and shall identify the restoration measures to return the site to it's existing conditions per LUC 20.25H.220.H.

Authority: Land Use Code 20.25H.220.H
Reviewer: Kevin LeClair, Land Use Division

2. Noise Control: Noise related to construction is exempt from the provisions of BCC 9.18 between the hours of 7 am to 6 pm Monday through Friday and 9 am to 6 pm on Saturdays, except for Federal holidays and as further defined by the Bellevue City Code. Noise emanating from construction is prohibited on Sundays or legal holidays unless expanded hours of operation are specifically authorized in advance. Requests for construction hour extension must be done in advance with submittal of a construction noise expanded exempt hours permit.

Authority: Bellevue City Code 9.18
Reviewer: Kevin LeClair, Land Use Division

RAPTOR MANAGEMENT TECHNIQUES MANUAL

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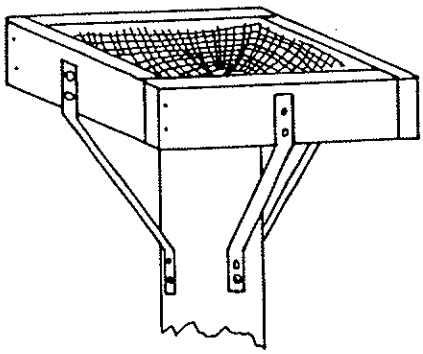
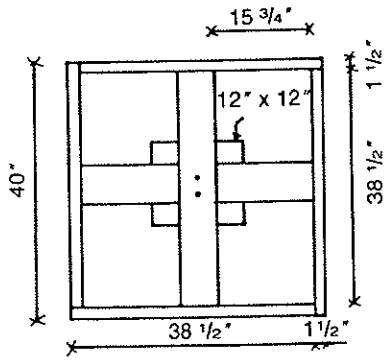
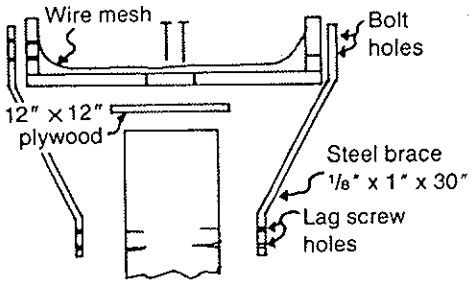
OSPREY NEST PLATFORM



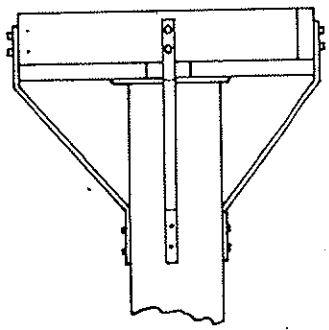
LUMBER: One 12″ x 12″ x ½″ exterior plywood
One 2″ x 6″ x 12′ cedar board
One 20′ or 30′ cedar support post
One 2″ × 6″ × 8′ cedar board



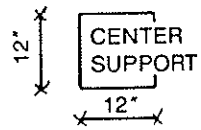
TOP VIEW

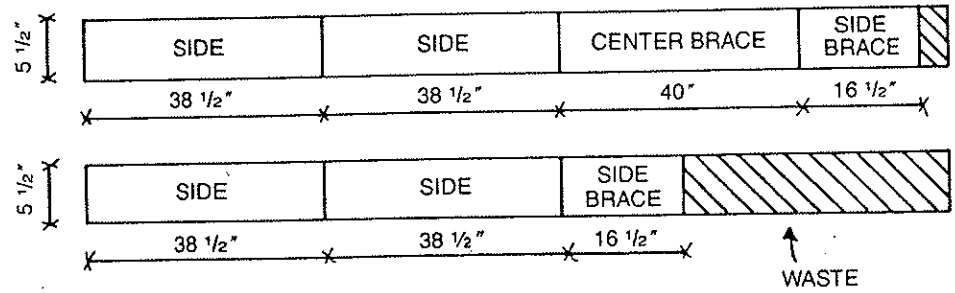


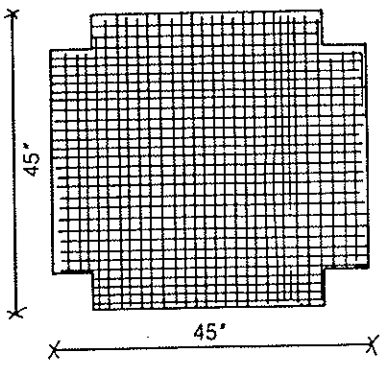
EXPANDED VIEW



SIDE VIEW

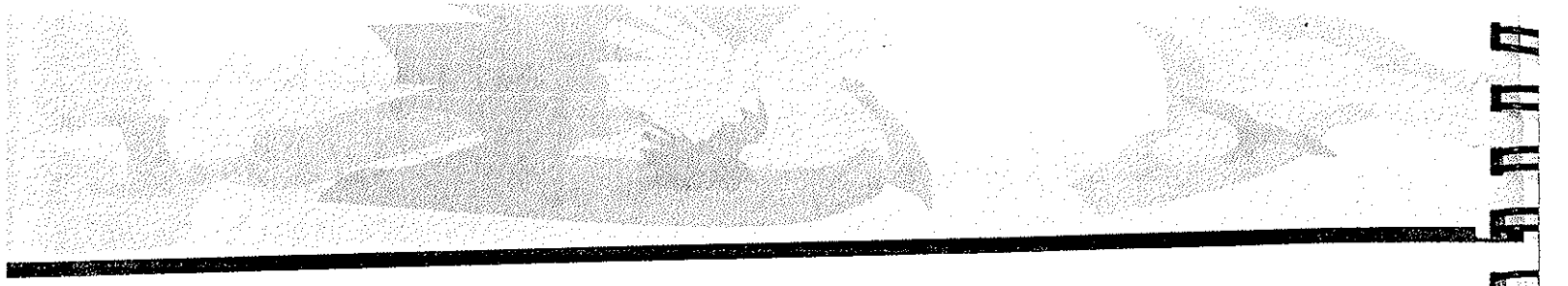






Welded wire, 2″ x 4″ mesh

Fig. 12.1. Diagram of an osprey nest platform. To construct the platform, the following materials are required: (1) 2″ × 6″ × 12′ cedar board; (1) 2″ × 2″ × 8′ cedar board; (1) 12″ × 12″ × 1/2″ exterior plywood; (1) 45″ × 45″ piece of heavy duty wire mesh; (20) galvanized 40D nails; (4) 1/8″ × 1″ × 30″ steel strapping; (8) 2 1/2″ × 1/2″ bolts with washers and nuts; (8) 4″ × 1/2″ lag screws; (1) 6″ or 8″ diameter cedar post, 20′ to 30′ long; and wood preservative and stain. To prevent splitting, predrill all nails and bolt holes. Treat the entire structure with wood preservative and stain brown. To encourage use by ospreys, wire several sticks into the nest. (Platform drawing by C.L. Henderson, J. Voigt-Englund, and M. Miller. This diagram and information appears in *Woodworking for Wildlife*, Henderson [1984]. Please see this publication for additional information on platform construction and placement.)



Additional copies of this book may be obtained through:

the Avian Power Line Interaction Committee
www.aplic.org

the Edison Electric Institute
www.eei.org

and

the California Energy Commission
www.energy.ca.gov

This book should be cited as follows:

Avian Power Line Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006.* Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C and Sacramento, CA.

Cover photos by Jerry and Sherry Liguori. Section header photos by Jerry and Sherry Liguori.

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Nets have been designed for trapping monk parakeets on distribution poles, but because monk parakeets are vigilant and astute, the trapping efficiency per nest is approximately 50% (Tillman et al. 2004). Trapping and nest removal are labor intensive and also have public acceptance issues. Trapping may be effective as a long-term strategy for reducing populations if these efforts are continued until all nesting ceases at a particular location (Newman et al. 2004). Passive trapping with a cage is somewhat effective for substations. Trapping techniques for transmission towers have not been developed.

Florida Power & Light has investigated a wide range of other strategies including physical, behavioral, chemical and biological controls. Presently, only one potential long-term control has been identified. In the laboratory, Diazacon, a chemical sterilant, has been effective in reducing the number of eggs laid. However, additional research is needed to determine if its use is practical and effective in the field.

NEST MANAGEMENT

ENCOURAGING BIRDS TO NEST IN DESIRED AREAS

Distribution Poles

Installing nest platforms in safe areas on or near utility structures is effective for both nest management and line maintenance. Of 88 utilities that responded to a survey regarding raptors nesting on their utility structures, 66% had raptor nest enhancement projects (Blue 1996). Artificial nest platforms were most commonly used (n=40) and 95% of these companies erected platforms for ospreys. Generally, there is a greater need for nest platforms on distribution poles than on transmission structures because the closer separation between distribution conductors increases the risk of electrocutions and outages.

An osprey nest structure erected above a power pole should have a well-supported platform with some nest material added to entice the birds to the new site (Figure 6.10). A perch, situated above the nest (Figure 6.11) or extending from the platform (Figures 6.12

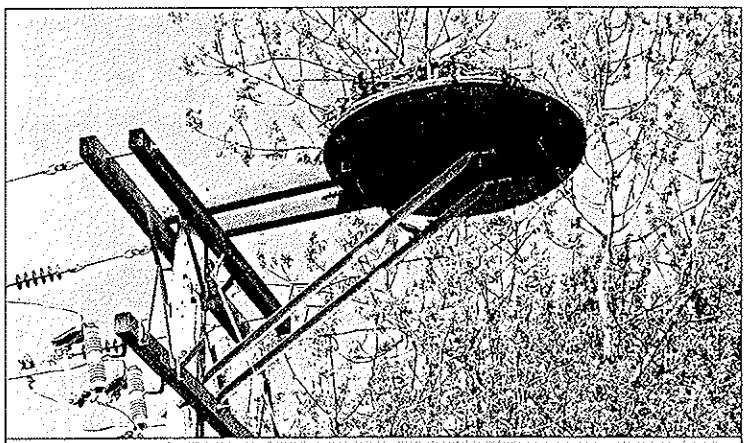

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FIGURE 6.10: Osprey nest platform design developed by Portland General Electric. The platform is constructed from the end of a 1.5-meter (m) (5-foot [ft]) diameter wooden cable spool with coated cable along the edge to contain nest material. Utilities should ensure energized parts and equipment below the nest are covered to prevent electrocution of birds or outages from nest material. Consumer's Power, Inc. retrofitted this pole to their avian-safe standards.

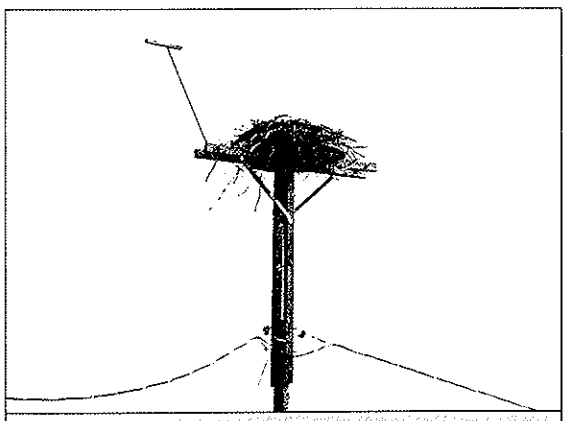

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FIGURE 6.11: A nest platform built atop a pole using crossarms to extend the platform above the conductors. This design also includes an optional elevated perch to attract ospreys. The perch should be perpendicular to the prevailing wind.

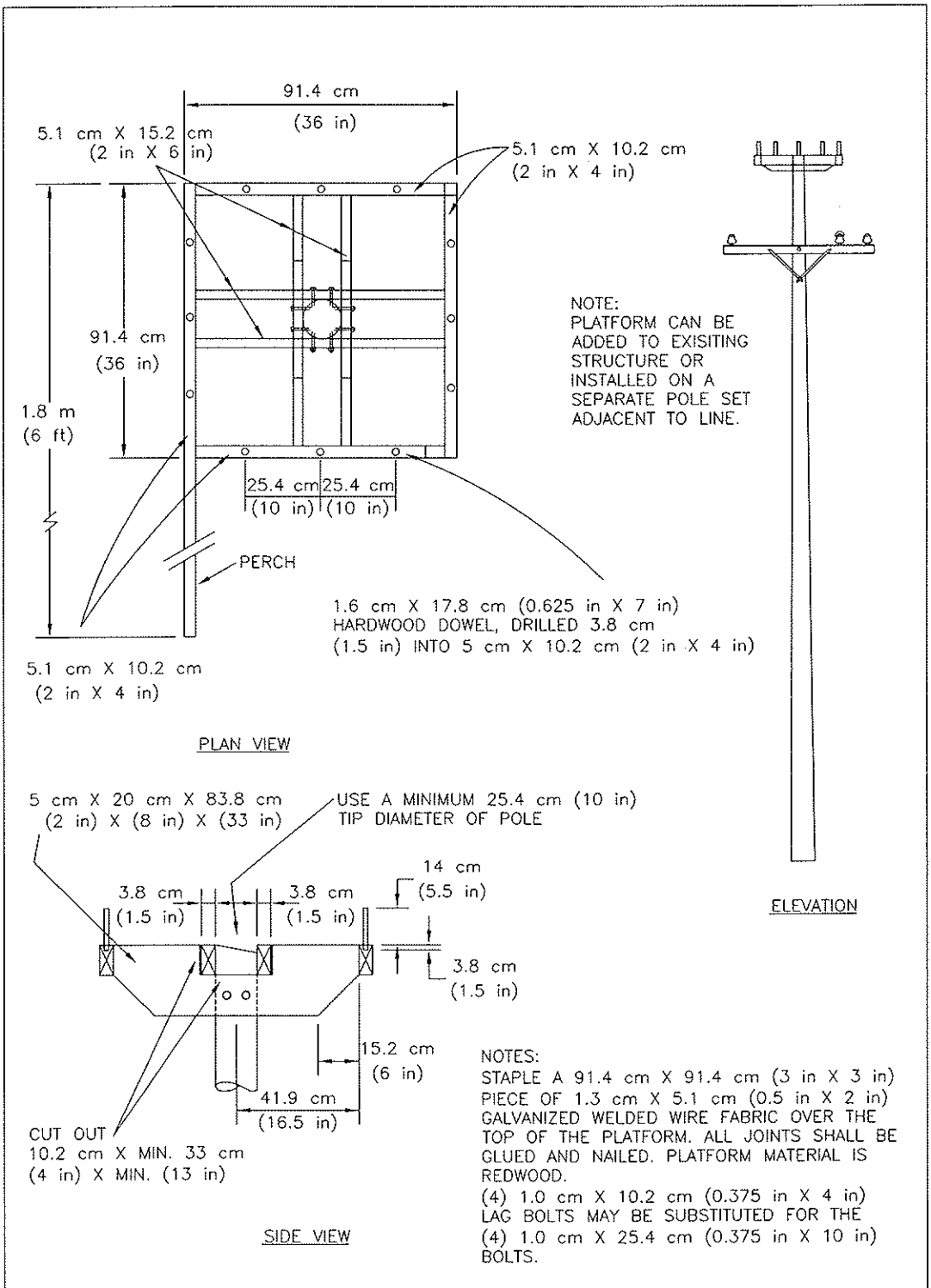

Figure 6.12: Osprey nest platform details (Idaho Power Company, PacifiCorp).

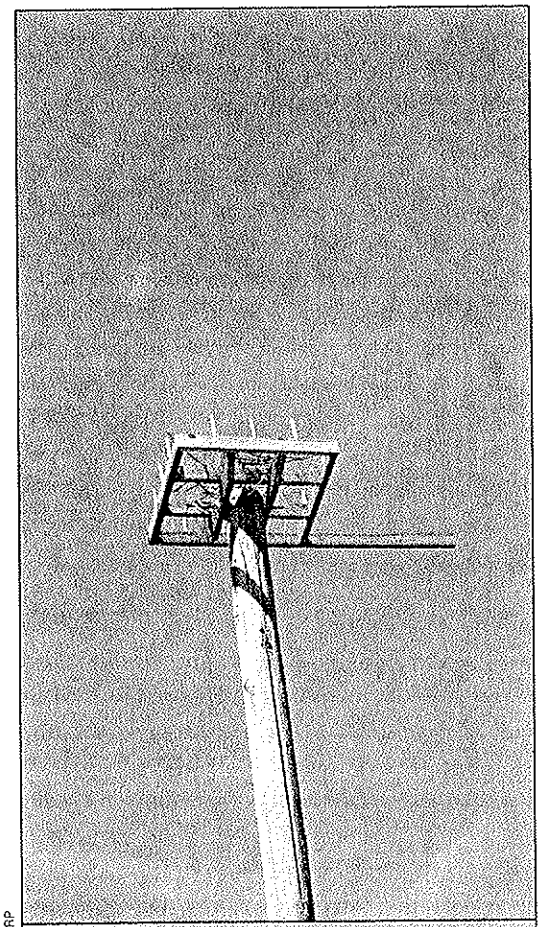

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FIGURE 6.13: Photo of nest platform depicted in Figure 6.12.

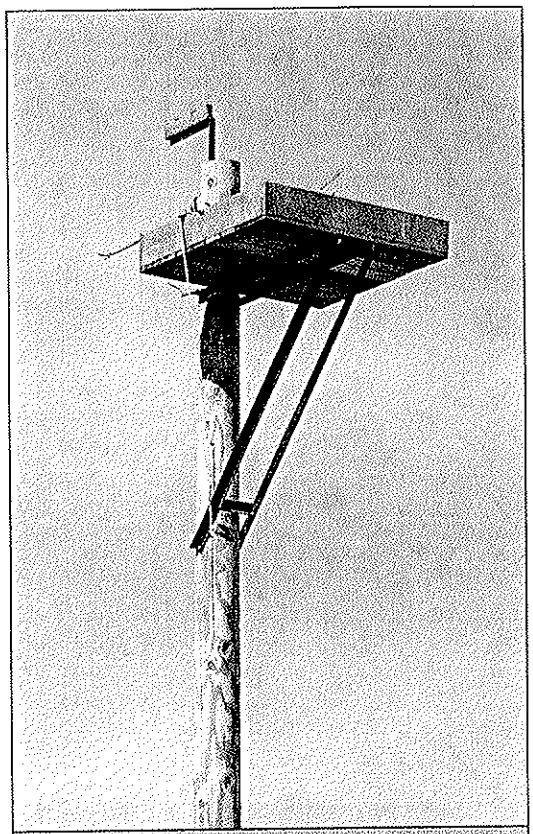

FIGURE 6.14: A simple and cost-effective offset nesting platform built for ospreys in Washington. Pallets can be used as platforms, providing ospreys with a flat nesting area.

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and 6.13) may increase its desirability. Perches should be perpendicular to the prevailing wind. Care should be taken to arrange sticks and other nest materials so they mimic the size and form of a natural nest. Various nest platform designs are used by utility companies throughout the United States, Canada, and Europe (van Daele et al. 1980; Ewins 1994).

Platforms made from discarded wooden cable spools have been used by nesting ospreys (Austin-Smith and Rhodenizer 1983) (see Figure 6.10). The offset-pallet-platform design developed in Ontario (Ewins 1994:13) is simple and cost-effective (Figure 6.14). Figure 6.15 depicts another nest platform design that may be used for some buteos and ospreys. Grubb (1995) provides a guide for eagle nest designs.

Osprey nest management may include building alternate nest platforms above power lines, installing a nearby taller non-energized pole with a nest platform, or leaving the nest intact but retrofitting the pole (Henny et al. 2003).[32] However, utilities should be aware that installing a nest platform above lines or leaving a nest on a crossarm may result in outages from nesting material, excrement, or

[32] See Chapter 5 for retrofitting recommendations.

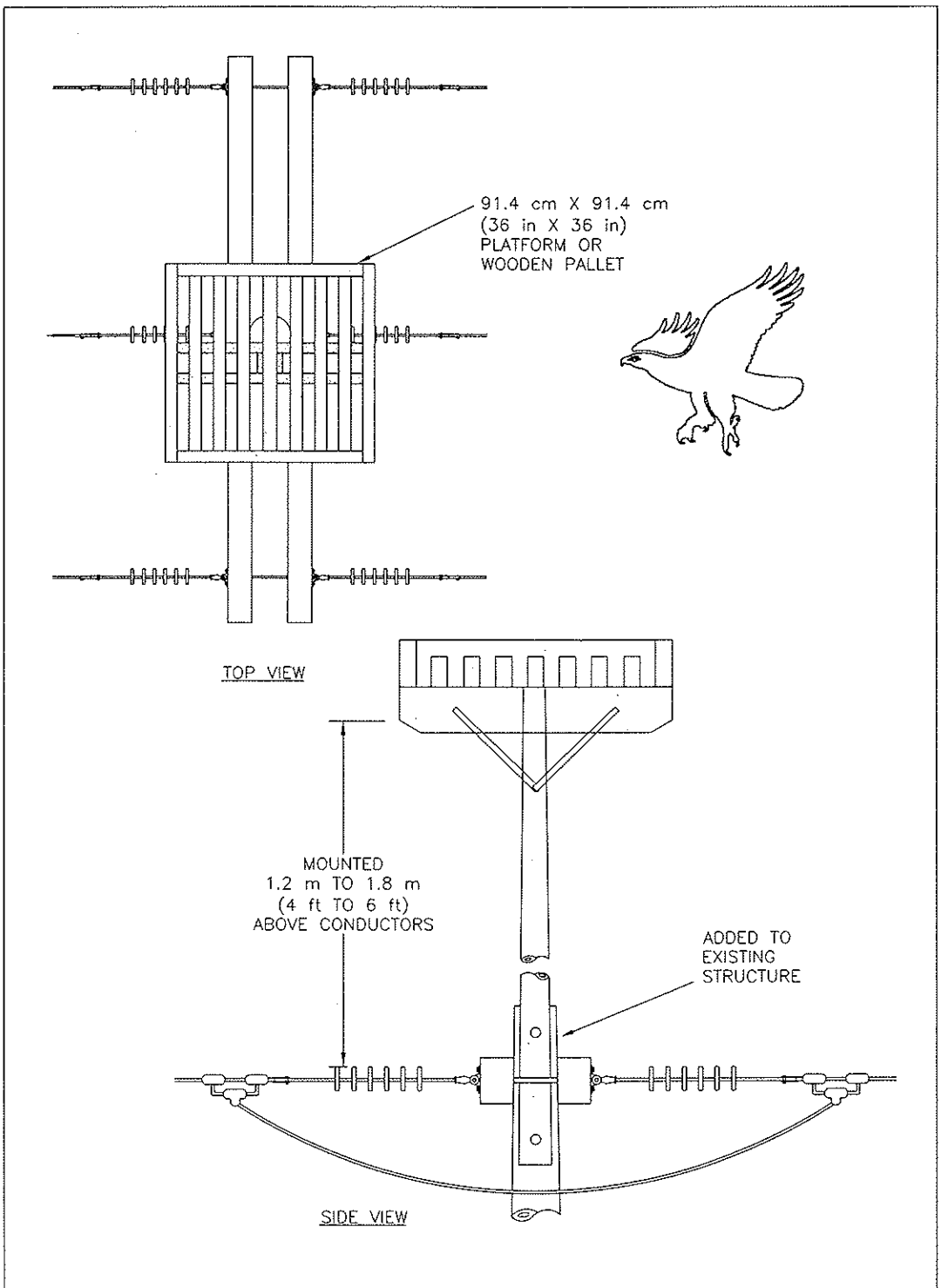

FIGURE 6.15: Raptor nest platform used by ospreys and some buteos (PacifiCorp). This design is recommended when a new nest pole cannot be erected.

prey remains dropping onto conductors or energized equipment (Figure 6.16). Installing a platform on a nearby non-energized pole reduces these risks.

Transmission Structures

The greater separation between conductors on transmission towers generally allows raptors and other birds room to nest without causing problems for electric operations (e.g., Hobbs and Ledger 1986). The latticework of some steel transmission towers provides adequate support for nests without the aid of platforms (Figure 6.17). However, a nest situated above insulator strings may cause equipment failures due to contamination with excrement, prey remains, or nest materials.

In Spain, 12 nesting platforms were placed on transmission towers, where they would not interfere with electrical operations, to draw white storks away from sites elsewhere on the towers (Janss 1998). The storks accepted the platforms, but the original nests remained in use as well.

The location of a nest platform can also influence roosting behavior, and either increase or decrease the risk of streamer-caused faults (C.S. van Rooyen, pers. comm.). In South Africa, outages caused by streamers from roosting martial eagles *(Polemaetus bellicosus)*, tawny eagles *(Aquila rapax)*, and Verreaux's eagles *(A. verreauxii)* were concentrated within a ten-transmission tower radius of active nests. These outages occurred on configurations that were both preferred for nesting and susceptible to streamer contamination (Jenkins et al. 2005). Conversely, eagles with nests located below phase conductors also roosted below conductors, reducing the outage incidence and risk.

Progress Energy reduced its osprey nest problem on double-crossarm structures by installing fiberglass nest platforms above the conductors (D. Voights, pers. comm.) (Figure 6.18).

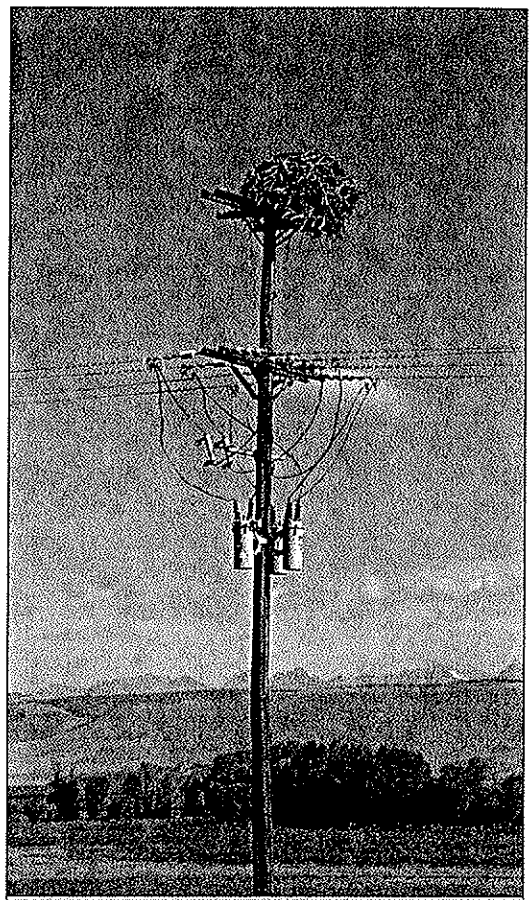

FIGURE 6.16: Osprey nest in Wyoming atop double dead-end pole. Nesting material that may drop onto the conductors or equipment poses fire, outage, and equipment damage risks.

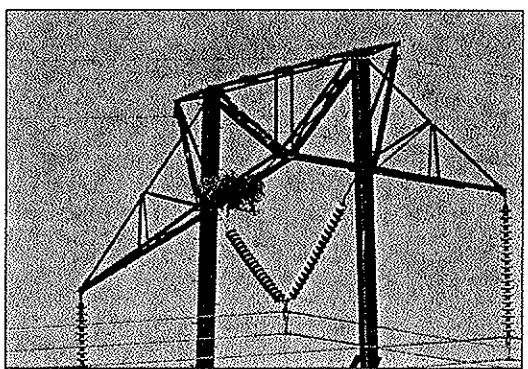

FIGURE 6.17: Golden eagle nest on transmission tower.

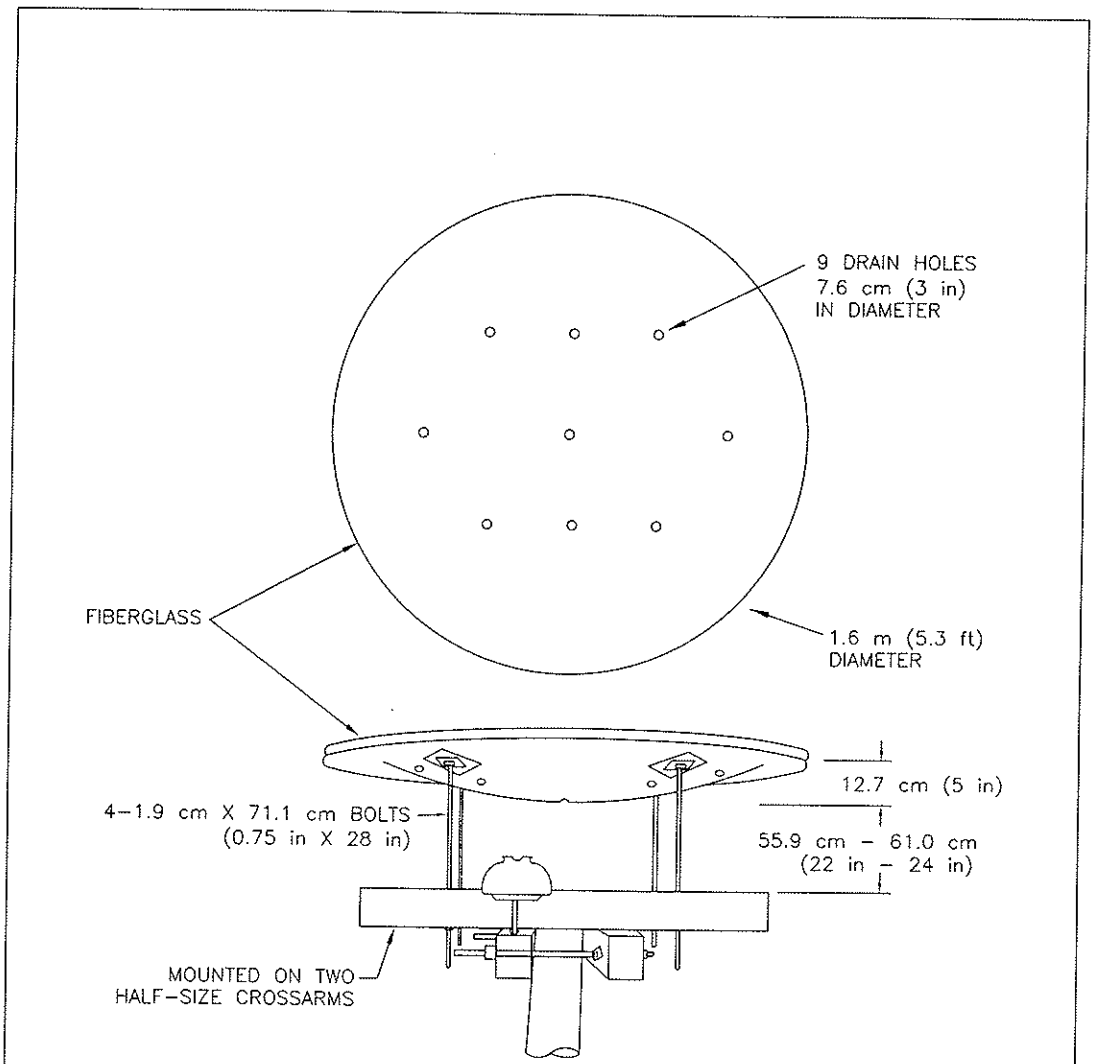

FIGURE 6.18: Osprey nest platform (Progress Energy).

Georgia Southern University and Georgia Power Company have erected nest boxes and tubes on transmission structures in Georgia for American kestrels (J. Parrish, pers. comm.). The nesting tubes were constructed of 30.5-cm (12-in) diameter, UV-resistant PVC pipe cut at lengths of either 46 or 91 cm (18 or 36 in). All tubes were drilled with drain holes in the bottom and vents on the sides, and lined with several inches of pine straw. The entrance of each nest tube was positioned to face east or south. The 91-cm (36-in) long tube included 30.5-cm (12-in) end caps with a 7.6-cm (3-in) hole cut in the middle of one of them (Figure 6.19). In 2003 and 2004, two of these tubes were mounted horizontally on transmission towers at a height of 30.5 m (100 ft). The tube mounted in 2003 was used in 2004, and both were used by nesting kestrels in 2005. The 46-cm (18-in) tube, which can be mounted either horizontally or vertically, includes a 7.6-cm (3-in) hole in either the end or the top of the tube (Figure 6.20). These tubes were installed both vertically and horizontally at a height of 4.5 m (15 ft). Kestrels used one of the four vertically mounted tubes in 2005, but did not use either of the horizontally mounted tubes that year.

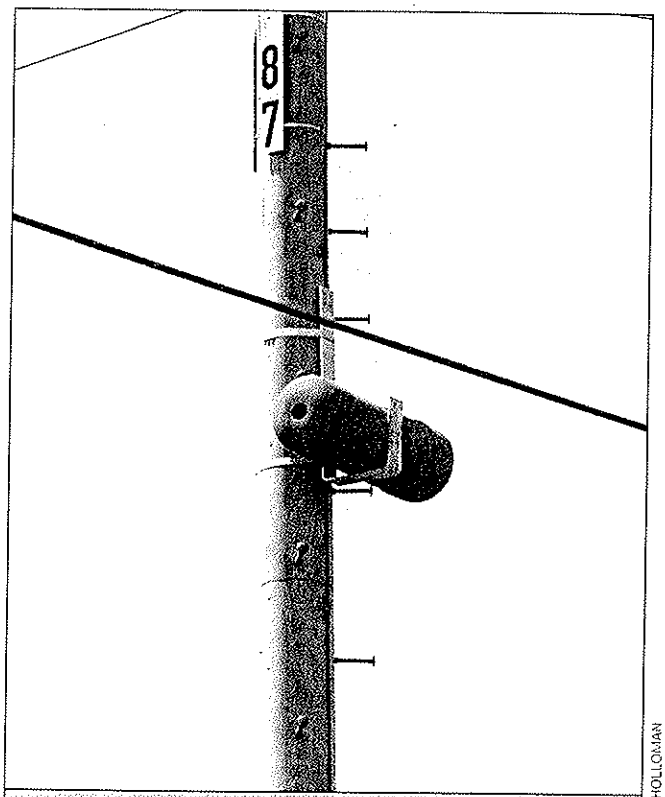

FIGURE 6.19: Kestrel nesting tube (91-cm [36-in] length) installed on transmission tower in Georgia.

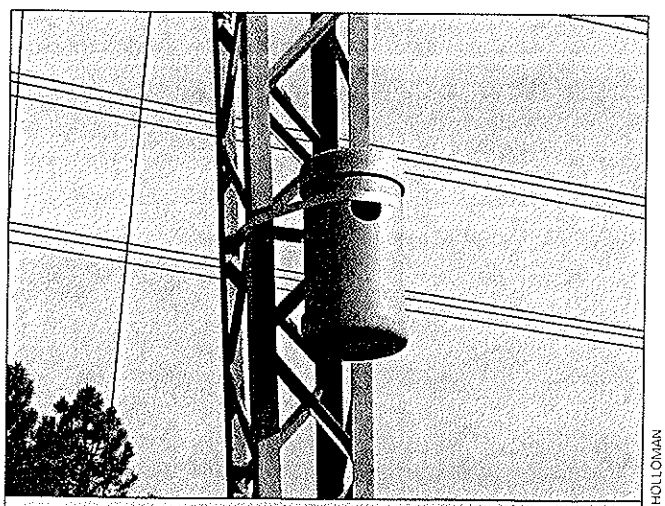

FIGURE 6.20 Kestrel nesting tube (46-cm [18-in] length) installed on transmission tower in Georgia.

30.5 cm TO 45.5 cm (12 in TO 18 in) PVC PIPE OR CORRUGATED DRAIN PIPE CUT IN HALF LENGTHWISE. WIDTH OF PIPE SHOULD BE AT LEAST AS WIDE AS BOTH CROSSARMS. PIPE CAN BE BOLTED OR STRAPPED TO CROSSARMS. IF STRAPPED, STAINLESS STEEL BANDING MATERIALS SHOULD BE USED.

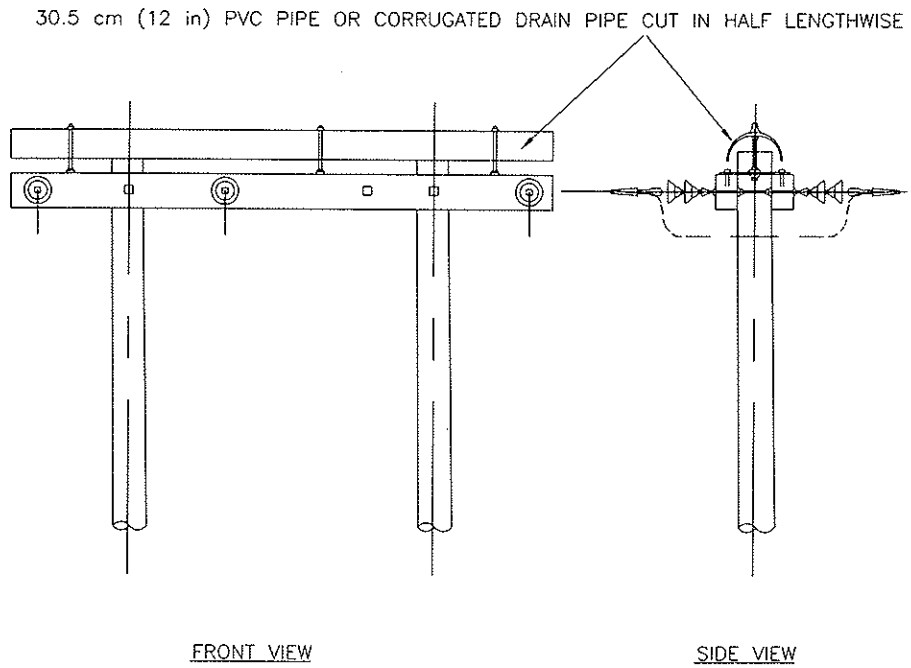

FIGURE 6.21: Nesting discourager (PacifiCorp).

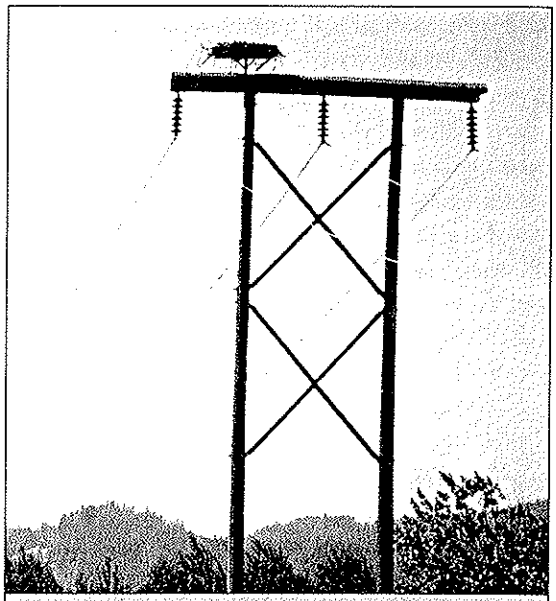

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FIGURE 6.22: This osprey nest was originally located on the crossarms above the center conductor where contamination from fallen nest material and excrement accumulated. It was relocated to the platform shown. A halved, corrugated pipe was installed to prevent re-nesting on the crossarms. Relocating a problem nest to a nest platform on an adjacent non-energized pole is preferred. However, if pole cost, rights-of-way restrictions, or limited access prevent installation of a new structure, it is best to install a safe nest platform on the existing structure.

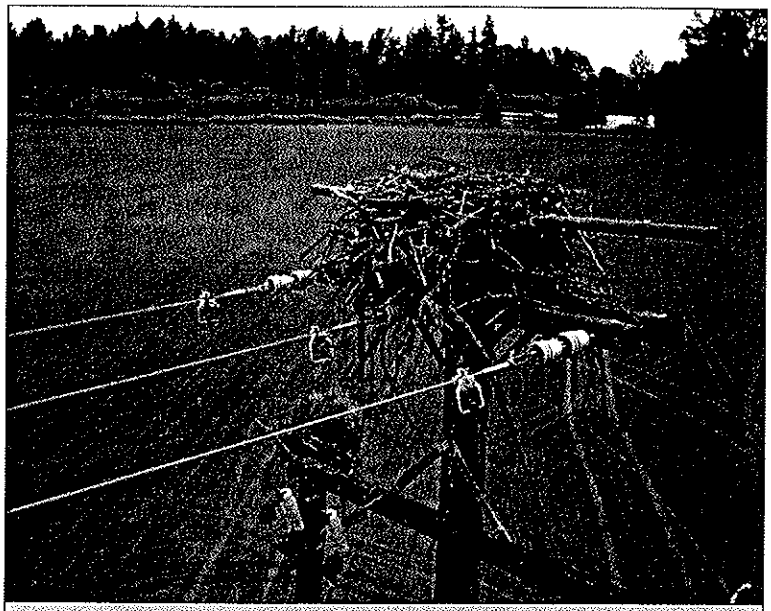

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FIGURE 6.23: A segment of plastic pipe was installed on a dead-end pole in Oregon to discourage osprey nesting. However, the osprey pair continued nest construction after the pipe was installed.

DISCOURAGING NEST CONSTRUCTION

Nesting should sometimes be discouraged due to the risks to people, nesting birds, or the power system. PVC pipe or corrugated drain pipe banded to the crossarms can prevent birds from nesting on "H" frame transmission structures (Figure 6.21). A nest platform can then be placed above the arm and away from the insulators (Figure 6.22) or on a nearby non-energized pole. To discourage nest rebuilding on distribution poles where nests have been removed, a large plastic pipe can be installed above the crossarm (van Daele et al. 1980). In Montana, this has been effective in deterring nesting ospreys (S. Milodragovich, pers. comm.). However, in other areas, this nest discourager has been ineffective (Figure 6.23). Poles with conductors and insulators above the crossarms require a more complicated design. A PVC tube positioned above and extending the length of the crossarm with diagonal tubes extending toward the crossarms can deter nesting (Figure 6.24) (Henny et al. 2003). Such nest

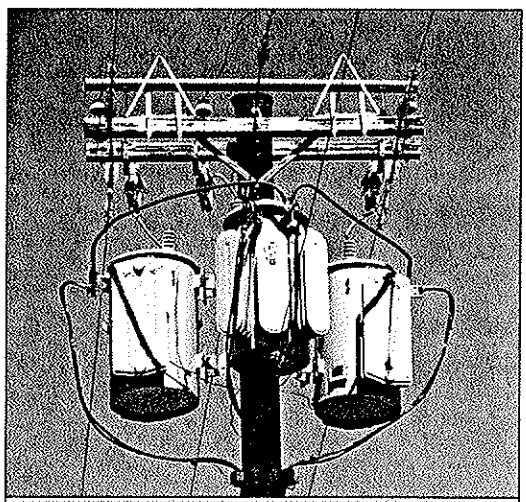

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FIGURE 6.24: A pipe mounted above the conductors can be used as a nest discourager on distribution poles with insulators mounted on the crossarm. The use of triangles is cautioned against, as they may aid in the accumulation of nesting material. This design may pose an electrocution risk if exposed equipment and conductors are not covered or adequately spaced.

discouragers should be installed close enough to the crossarm to prevent birds from nesting under them. They should be mounted securely on the arm, and should be installed so they do not reduce the BIL of the design.

Triangles, plastic owls, and small spikes have also been used to discourage nesting on power poles. However, these devices are often unsuccessful. For example, birds may nest in open spaces adjacent to triangles (Figure 6.25), birds may initially react to plastic owls, but over time they can become habituated to them (Figure 6.26), and plastic spikes may aid in the accumulation of nest material (Figure 6.27). As discussed in Chapter 5, materials placed on poles to discourage birds from perching or nesting degrade over time, particularly in areas with extreme weather conditions. Utilities should consult with their standards and engineering personnel to identify company-approved devices prior to installation.

RECOMMENDATIONS FOR DESIGNING AND INSTALLING NEST PLATFORMS

When designing and installing nest platforms, biologists, engineers, and line workers should consider the following:

- Platforms should be placed where conductors and energized equipment will not be fouled by dropped nest material, prey remains, or excrement.
- To prevent electrocutions, avian-safe designs and retrofitting materials and methods (see Chapter 5) should be applied to poles with or near nest platforms. However, the use of perch discouragers should be avoided near nests. If a nest fails, the pair may attempt to nest on a nearby

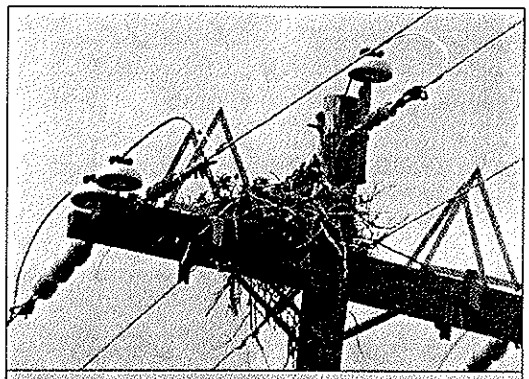


FIGURE 6.25: Red-tailed hawk nest on pole with triangle perch discouragers.

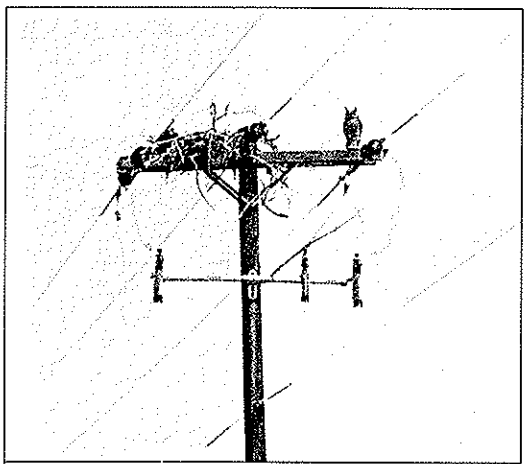


FIGURE 6.26: Osprey nest constructed on pole with plastic owl intended to haze birds.

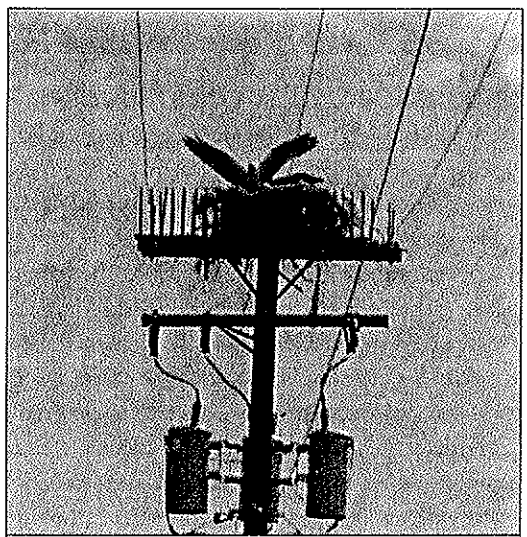


FIGURE 6.27: Osprey nest on pole with plastic spikes.

pole, possibly selecting a pole with perch discouragers because it more easily accumulates sticks (S. Milodragovich, pers. comm.).

- Platforms should be located in areas with adequate habitat and prey for the target species.
- Discretion should be used when placing nest platforms near sites with sensitive wildlife such as sage grouse, prairie chickens, or prairie dogs that may fall prey to nesting raptors.
- Nest platforms may not be needed on all types of transmission towers. For example, the metal latticework of certain steel towers and the double crossarms of H-frame construction typically provide adequate nest substrates (Lee 1980; Steenhof et al. 1993).
- If possible and appropriate, nesting platforms can be installed on decommissioned poles to draw nesting activity away from energized structures.
- For ospreys, a 1.2-m (4-ft) square or 1.5-m (5-ft) diameter platform (see Figure 6.18) can be more effective than a 0.9-m (3-ft) square platform (see Figures 6.12 and 6.15) in preventing nest material from sloughing off (J. Kaiser, pers. comm.). A lip or pegs along the edge several inches high also helps prevent nest sticks from falling off the platform. Carriage bolts, which may already be carried on line-trucks, can be used as alternative to a lip or pegs. The addition of sticks to a newly-constructed platform may help entice nesting birds. Birds may also be more likely to use a new nest platform if it is higher than adjacent substrates or a reasonable distance away from other alternative(s).
- The weight of a nest platform under wet or snowy conditions should be considered. If it is too heavy for an existing pole, the platform should be installed on a nearby, suitable pole.
- Federal and/or state permits are required for managing active nests of protected species (see Chapter 3). No active nests (nests with eggs or young) may be altered, moved, or destroyed without proper authorization from appropriate agencies. Nests of eagles and endangered species cannot be altered, moved, or destroyed at any time without proper authorization from appropriate agencies. Because of the biological/behavioral characteristics of some birds (e.g., colonial- and ground-nesting birds), destruction of an inactive nest could also result in a take (USFWS 2003).
- If platforms are used to relocate problem nests, relocation distances should not be excessive; success is directly related to proximity. Distances between 20 and 100 m (66 and 328 ft) are most common for ospreys (J. Kaiser, pers. comm.). Golden eagle nests have been successfully moved as far as 2.6 km (1.6 mi), but in incremental steps (Phillips and Beske 1982). The new location should be in line-of-sight to the old location. A biologist should be consulted to provide guidance, and appropriate permits must be obtained.
- On poles with platform nests, predator guards can be used to prevent raccoons and other predators from climbing to the nests. A commonly used device is a 1.5-m (5-ft) length of sheet metal wrapped completely and tightly around the pole at about 1 to 1.5 m (3 to 5 ft) above the ground. However, predator guards should not be used on poles that utility personnel are required to climb.
- Maintenance of platforms and platform supports will extend the life of the structures and will minimize future conflicts with utility operations. Maintenance activities should take place before the breeding season to avoid disturbing nest building efforts, eggs, or nestlings.

RELIABILITY CONCERNS

Unfortunately, despite the benefits utility structures provide nesting birds, there are some negative effects as well. For example, nesting material, electrocuted birds, streamers, or prey debris can cause interruptions and outages. During the nest building process, birds may drop sticks onto conductors causing flashovers (Ledger and Hobbs 1999). Likewise, nests located over exposed, energized equipment can cause flashovers or nest fires during wet conditions. Osprey nests in agricultural areas may contain bailing wire or twine that could cause power outages or entangle nestlings (Blem et al. 2002; PacifiCorp, unpubl. data). Dangling or falling prey can also contact energized wires (EDM International 2004).

Utility companies have dealt with bird-caused power reliability problems in a number of ways. One management concept is to maintain nests when they are in desirable locations (Henny et al. 2003; J. Kaiser, pers. comm.). Nest material can be trimmed away from conductors (Hobbs and Ledger 1986; Toner and Bancroft 1986). Occupied nests are well maintained by raptors, but abandoned nests may partially or completely collapse, thereby threatening electrical equipment (Ledger and Hobbs 1999). The use of perch or nest discouragers alone may not be effective in preventing nesting. In Florida, monk parakeets began using raptor perch discouragers as nest substrates in areas where they had not previously nested (J. Lindsay, pers. comm.). In the western United States, red-tailed hawks, ospreys, and common ravens have built nests around perch discouragers that were installed to discourage nesting on equipment or double dead-end poles (J. Burruss, pers. comm.) (see Figures 6.23, and 6.25 through 6.27).

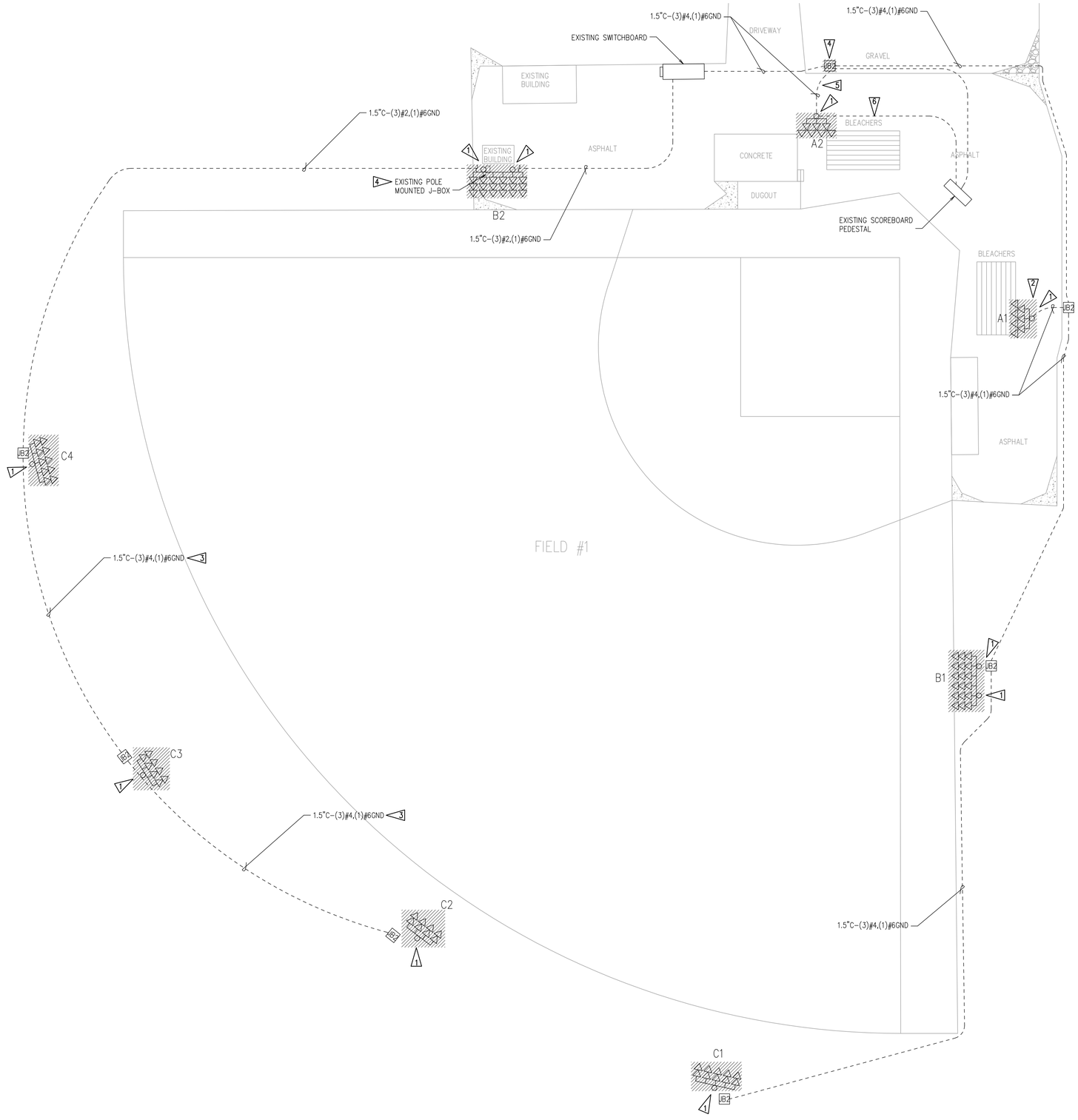
Suspending a vulture carcass or decoy by its feet in a tower was an effective means of ridding the structure of communally roosting black and turkey vultures for many months (Avery et al. 2002). However, before using a carcass for this, a utility must consult with federal and state wildlife resource agencies regarding permits, and should closely evaluate the public response. Shields attached below the latticework on transmission towers with roosting ravens have been used to prevent the accumulation of excrement on insulators (Engel et al. 1992a). In South Africa, high-density polyethylene (HDPE) welded rod bird guards have been effective in reducing line faults (Vosloo and van Rooyen 2001; van Rooyen et al. 2003).

BIRD-RELATED OUTAGES

Bird-related outages are a concern for many utilities. Although outages may occur as the result of an electrocution or collision, there are several other causes that do not result in avian mortality, for example:

- Nest material contact,
- Conductor-to-conductor contact caused by the line gallop started by a large flock of birds flushing,
- Prey falling on energized conductors or equipment,
- Bird streamers or contamination of equipment from accumulated bird feces, and
- Bird collisions with conductors that cause outages but do not kill the birds.

Bird electrocutions do not necessarily result in outages. Of eagle electrocutions in the western United States with known mortality dates (n=612), only 16% were associated with an outage (Harness and Wilson 2001). Likewise, only 16% of known bald eagle mortalities in western Washington from 2000 to 2005 (n=62) caused outages (M. Walters, pers. comm.). Less than 10% of raptor electrocutions documented in Arizona were associated with outages (Dwyer 2004). However, higher proportions of mortalities have been



GENERAL NOTES:

1. CONTRACTOR TO DISPOSE OF ALL MATERIALS IN APPROVED DISPOSAL SITE. SUBMIT DOCUMENTATION TO OWNER.
2. CONTRACTOR TO PATCH AND RESTORE ASPHALT WHERE REMOVED OR DAMAGED.

LEGEND:

- ○ EXISTING WOOD FLOODLIGHTING STANDARD
- ▷ EXISTING FLOODLIGHT, 1000 WATT MH, 480 VOLT, INTEGRAL BALLAST
- EXISTING UNDERGROUND CONDUIT
- JB2 EXISTING JUCTION BOX

FLAG NOTES:

1. DEMO EXISTING WOOD FLOODLIGHT POLE. ENTIRE LENGTH OF POLE TO BE REMOVED. PROVIDE CLEAN IMPORTED FILL INTO HOLE AND COMPACT. RAKE CLEAN AND MATCH EXISTING GRADE. DEMO EXISTING WIRE BACK TO ADJACENT JUNCTION BOX AND MAKE SAFE. MAINTAIN EXISTING CIRCUIT. DEMO EXISTING FLOODLIGHTS, BRACKETS, CONDUIT AND DISCONNECTS.
2. DO NOT DEMO POLE UNTIL EXISTING OSPREY NEST IS RELOCATED. CONTRACTOR TO COORDINATE WITH CITY. SEE SHEET E2.0
3. REMOVE EXISTING ATHLETIC FIELD WIRING FROM EXISTING CONDUIT. PROTECT EMPTY JUNCTION BOXES. EMPTY CONDUIT TO BE USED AS SPARE.
4. DEMO EXISTING JUNCTION BOX. MAINTAIN AND PROTECT EXISTING CIRCUITS.
5. DEMO WIRE FROM EXISTING CONDUIT. MAINTAIN AND PROTECT EXISTING CONDUIT.
6. MAINTAIN AND PROTECT EXISTING CONDUIT.
7. MAXIMUM QUANTITY OF FLOODLIGHTS ALLOWED FOR EACH POLE.

POLE AND FLOODLIGHT SCHEDULE:

POLE	LENGTH	TOTAL
A1	75'-0"	7
A2	75'-0"	7
B1	85'-0"	18
B2	85'-0"	18
C1	80'-0"	10
C2	80'-0"	8
C3	80'-0"	8
C4	80'-0"	10
TOTAL		86

MINIMUM REQUIRED INITAL LIGHTING LEVELS:

INFIELD
AVERAGE FC = 35.0 MIN.
MAXIMUM/MINIMUM = 2.5 MAX.
COEFFICIENT OF VARIATION = 0.21 MAX.

OUTFIELD
AVERAGE FC = 24.0
MAXIMUM/MINIMUM = 2.5 MAX.
COEFFICIENT OF VARIATION = 0.25 MAX.

ELECTRICAL SITE PLAN-DEMO
SCALE: AS INDICATED

0 10 20 40 60
1 inch plotted — Feet
If measurement is other than 1 inch then the plot is reduced.

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STAMP: CHRISTOPHER B. FREISE, STATE OF WASHINGTON, 31353, REGISTERED PROFESSIONAL ENGINEER, 6/11/09

REVISIONS

CHECKED:	SUBMITTAL:	DATE:
CBF	BID SET	06-02-09
DRAWN: WMW		

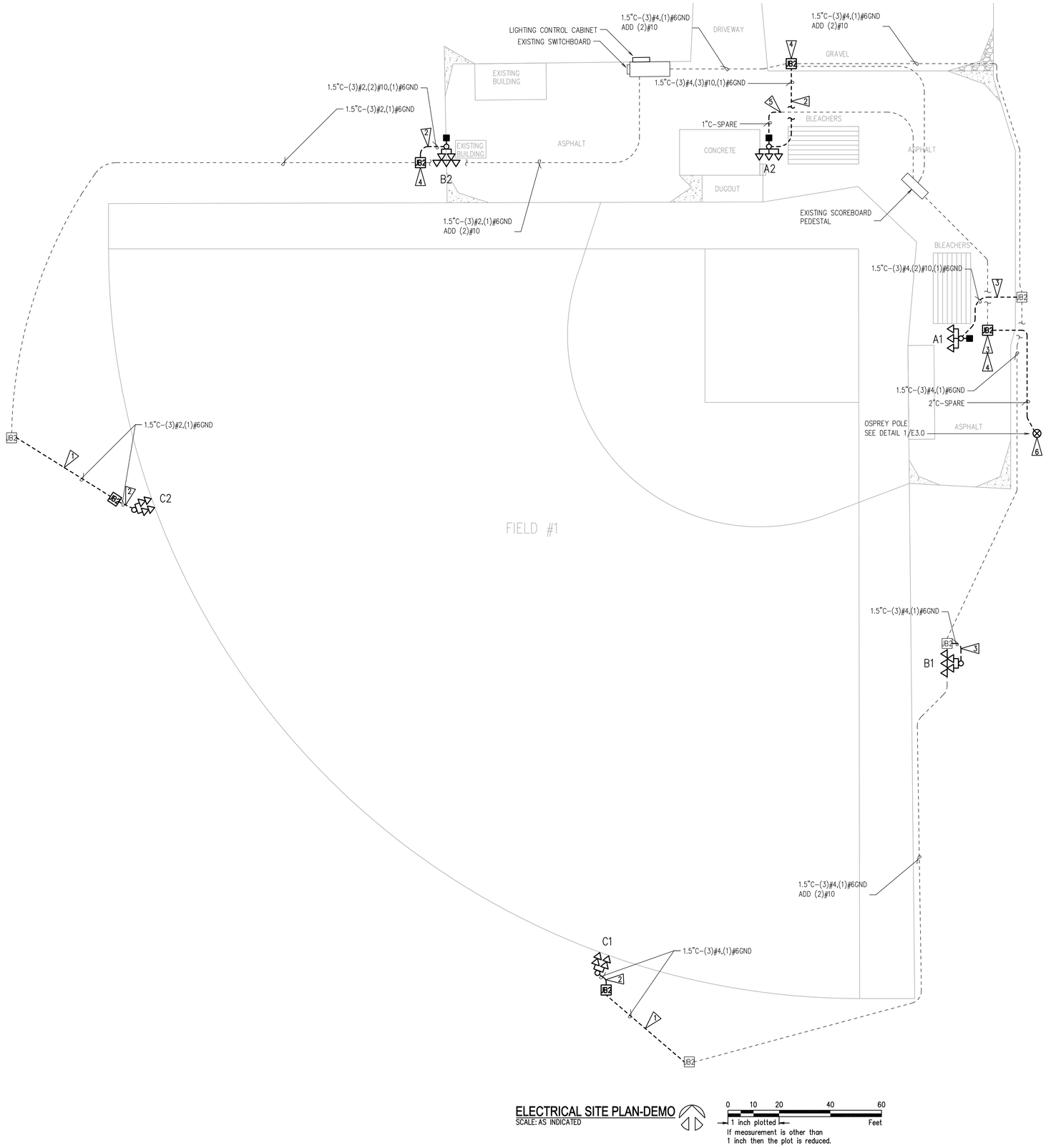
TITLE: ELECTRICAL SITE PLAN - DEMOLITION

OWNER: HIDDEN VALLEY PARK

PROJECT: SOFTBALL FIELD LIGHTING RENOVATION

SHEET: E1.0

J:\P15563\CAD\08\E10 Jun 01, 2009 12:53 PM By:WWARD



ELECTRICAL SITE PLAN-DEMO

SCALE: AS INDICATED

0 10 20 40 60

1 inch plotted Feet

If measurement is other than 1 inch then the plot is reduced.

LEGEND:

- STEEL FLOODLIGHTING STANDARD
- SHIELDED FLOODLIGHT, 1500 WATT REMOTE BALLAST, 480 VOLT
- SECURITY LIGHT, 150 WATT MH, 240 VOLT
- NEW UNDERGROUND CONDUIT
- EXISTING UNDERGROUND CONDUIT
- JB2 TYPE 2 JUNCTION BOX
- JB2 EXISTING JUNCTION BOX

FLAG NOTES:

1. EXTEND EXISTING CIRCUIT FROM EXISTING JUNCTION BOX TO NEW JUNCTION BOX AS SHOWN.
2. EXTEND EXISTING CIRCUIT FROM NEW JUNCION BOX TO FIELD LIGHT POLE AS SHOWN.
3. EXTEND EXISTING CIRCUIT FROM EXISTING JUNCTION BOX TO FIELD LIGHT POLE AS SHOWN.
4. INTERECEPT EXISTING RACEWAY AND SET NEW TYPE 2 JUNCTION BOX AS SHOWN.
5. INTERCEPT AND EXTEND EXISTING CONDUIT TO NE POLE LOCATION.
6. CONTRACTOR TO COORDINATE WITH CITY TO RELOCATE EXISTING OSPREY NEST. PROVIDE LIFT AND OPERATOR FOR EIGHT HOURS TO HAVE CITY PROVIDED SPECIALIST RELOCATE NEST.

POLE AND FLOODLIGHT SCHEDULE:

POLE	LENGTH	TOTAL
A1	60'-0"	3
A2	60'-0"	3
B1	70'-0"	5
B2	70'-0"	5
C1	60'-0"	4
C2	60'-0"	4
TOTAL		24

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REVISIONS

DRAWN: WMW CHECKED: CBF

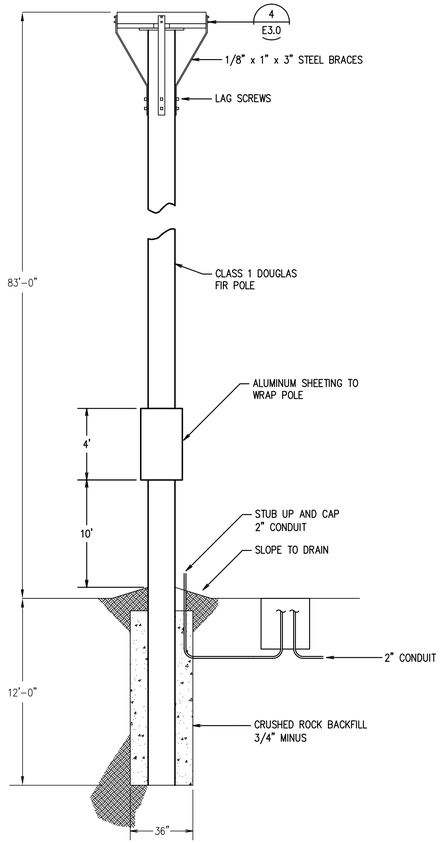
SUBMITTAL: BID SET

DATE: 06-02-09

TITLE: ELECTRICAL SITE PLAN

OWNER: HIDDEN VALLEY PARK SOFTBALL FIELD LIGHTING RENOVATION

SHEET: E2.0



1 E3.0 **OSPREY NEST POLE DETAIL**
SCALE: NONE

Sparling — Panel

Name A — 277/480V — 3 PH — 4W — 400A — Main lugs only — Type: Panelboard
Location — Surface Mounted — 22,000 AIC
Serves: — Single Lugs

#	Description	Load	CB	*	A	B	C	CB	*	Load	Description	#
1	Lighting West Ball Field Lights	0.00	90/3	CB	X			90/3	CB	0.00	Lighting East Ball Field Lights	2
3	-------West Ball Field Lights	0.00	-------	---		X		-------	---	0.00	-------East Ball Field Lights	4
5	-------West Ball Field Lights	0.00	-------	---			X	-------	---	0.00	-------East Ball Field Lights	6
7	Equip Concession Stand	0.00	50/3	CB	X			0/1	CB	0.00	Equip	8
9	-------Concession Stand	0.00	-------	---		X		50/2	CB	0.23	Panel B	10
11	-------Concession Stand	0.00	-------	---			X	-------	---	0.23	-------B	12
13	Space	0.00	0/1		X			0/1		0.00	Space	14
15	Space	0.00	0/1			X		0/1		0.00	Space	16
17	Space	0.00	0/1				X	0/1		0.00	Space	18

Rev: — PH A — PH B — PH C — * Circuit Breaker Code
Revised Ckts Marked * Existing Ckts Marked # — Connected KVA — 0.00 — 0.23 — 0.23 — G = GFCI H = HID Rated
B15563 — S = Shunt Trip C = HACR Rated
File: J:\B15563\design\sched\HV Panels.PNL — D = Switching Duty # = See Note
A = AFCI

Notes:

Load Type	Conn KVA	NEC Demand Factor	Dem. KVA	Dem. Amps	NEC Feed %	NEC Feed Amps
Lighting	0.45	x 100%	0.45	1	x 125%	1
	0.45	1 Amps	0.45	1		1

2 E3.0 **EXISTING PANEL SCHEDULES**
SCALE: NONE

Sparling — Panel

Name B — 120/240V — 1 PH — 3W — 100A — Main lugs only — Type: Panelboard
Location — Surface Mounted — 14,000 AIC
Serves: — Single Lugs

#	Description	Load	CB	*	A	B	CB		Load	Description	#
1	Equip Press Box	0.00	50/2	CB	X		0/1		0.00	Space	2
3	-------Press Box	0.00	-------	---		X	0/1		0.00	Space	4
5	Equip Scoreboard	0.00	20/1	CB	X		20/1	CB	0.00	Equip Irrigation Controller	6
7	Equip Time Clock	0.00	20/1	CB		X	20/1	CB	0.00	Equip Lighting Controller	8
9	Equip Parking Lot Lighting	0.00	20/2	CB	X		30/2	CB	0.00	Equip Scoreboard Control	10
11	------ Parking Lot Lighting	0.00	-------	---		X	-------	---	0.00	-------Scoreboard Control	12

Rev: — PH A — PH B — * Circuit Breaker Code
Revised Ckts Marked * Existing Ckts Marked # — Connected KVA — 0.23 — 0.23 — G = GFCI H = HID Rated
B15563 — S = Shunt Trip C = HACR Rated
File: J:\B15563\design\sched\HV Panels.PNL — D = Switching Duty # = See Note
A = AFCI

Notes:

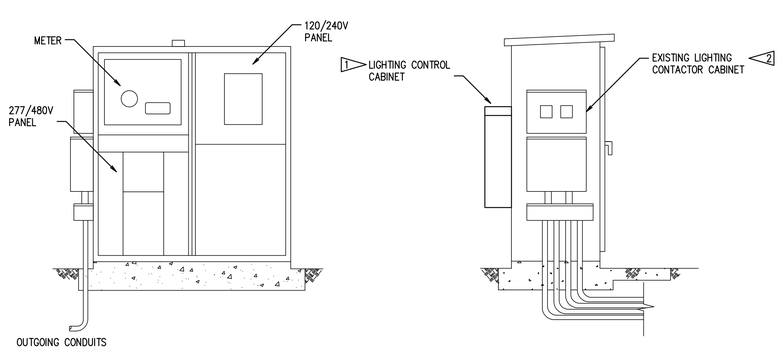
Load Type	Conn KVA	NEC Demand Factor	Dem. KVA	Dem. Amps	NEC Feed %	NEC Feed Amps
Lighting	0.45	x 100%	0.45	2	x 125%	2
	0.45	2 Amps	0.45	2		2

FLAG NOTES:

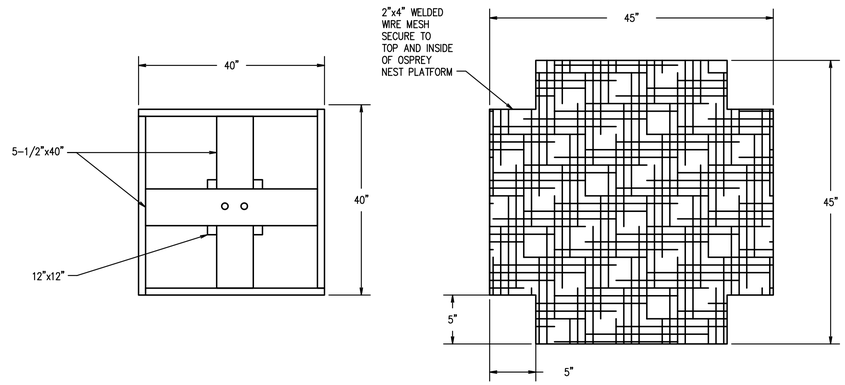
1. MOUNT NEW LIGHTING CONTROL CABINET TO BACK OF EXISTING PEDESTAL.
2. MAINTAIN AND PROTECT EXISTING LIGHTING CONTACTORS AND CIRCUITS. CONNECT NEW LIGHTING CONTROLLER TO THE TWO EXISTING 3P100A FIELD LIGHTING CONTACTORS. CONNECT NEW SECURITY LIGHTS TO EXISTING PARKING LOT LIGHTING CONTACTOR.

GENERAL NOTES:

1. OSPREY NEST SHALL BE CONSTRUCTED OF ALUMINUM OR STEEL. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL BY OWNER.



3 E3.0 **EXISTING PEDESTAL DETAIL**
SCALE: NONE



4 E3.0 **OSPREY NEST DETAIL**
SCALE: NONE

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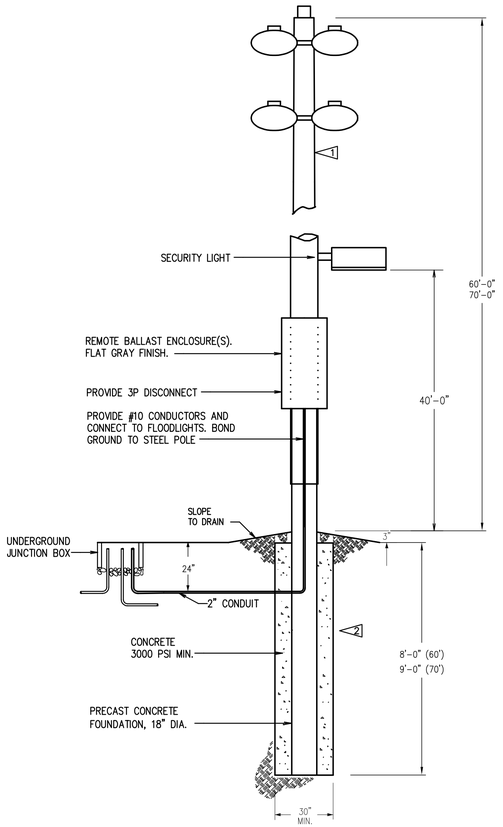
REVISIONS

CHECKED:	CBF
DRAWN:	WMW
SUBMITTAL:	BID SET
DATE:	06-02-09

TITLE: ELECTRICAL DETAILS

OWNER: HIDDEN VALLEY PARK
SOFTBALL FIELD LIGHTING RENOVATION

SHEET: E3.0



1 / E2.1 **STEEL POLE DETAIL**
SCALE: NONE

SHEET FLAG NOTES:

1. SUPPLIER OF GALVANIZED STEEL POLE TO PROVIDE STRUCTURAL CALCULATIONS FROM A LICENSED STRUCTURAL ENGINEER REGISTERED IN THE STATE OF WASHINGTON. CALCULATION TO INCLUDE WIND AND SEISMIC LOADS PER IBC 2003. SUBMIT WITH MANUFACTURER SHOP DRAWINGS DURING SUBMITTAL PHASE OF THE PROJECT.
2. THE PROJECT. CONTRACTOR TO REFER TO SOILS REPORT IN PROJECT MANUAL TO ASSESS CONDITIONS (POTENTIAL CAVING) AFFECTING DRILLING FOR INSTALLATION OF POLE FOUNDATIONS.

GENERAL NOTES:

1. STRUCTURAL CALCULATIONS PERFORMED BY KPFF ENGINEERS.

FOUNDATION NOTES

DESIGN LOADS

All design and construction shall conform to the requirements of the International Building Code, 2006 Edition, as amended by the City of Renton.

SEISMIC LOADS: Earthquake design is based on the equivalent lateral force procedure in IBC Section 1617.4 with the following factors:

Site Class C
Occupancy Category I
Seismic Design Category D

S_s = 1.33 g
S_1 = 0.45 g
S_{DS} = 0.89 g
S_{D1} = 0.41 g
I_e = 1.0

WIND LOADS: Wind load is determined using Chapter 6 of ASCE 7–05 in accordance with IBC Chapter 1609 with the following factors:

Exposure Category B I_w = 0.87 K_{zt} = 1.00
V_{3S} = 85 mph K_d = 0.95

Design wind pressures for determining forces on components and cladding shall be determined using Chapter 6 of ASCE 7–05 in accordance with IBC Chapter 1609 by the Washington State Registered Professional Engineer who is responsible for the design of such elements, unless noted otherwise on the drawings.

SOIL LOADS

Allowable Lateral Soil–Bearing Pressure — 250 psf (500 psf w/ factor of 2.0 increase for allowable movement of 1/2")

GENERAL NOTES

SUBMITTALS: Shop drawings shall be submitted to the Architect prior to any fabrication or construction for all foundation items.

If the shop drawings differ from or add to the design of the structural drawings, they shall bear the seal and signature of the Washington State Registered Professional Engineer who is responsible for the design.

DEFERRED SUBMITTALS: Per IBC Section 106.3.4.2, drawings and calculations for the design and fabrication of items that are designed by others shall bear the seal and signature of the Washington State Registered Professional Engineer who is responsible for the design and shall be submitted to the Architect and the building department for review prior to fabrication. Submitted calculations are for cursory review only and will generally not be returned. Deferred submittals include but are not limited to the following:

Prestressed Concrete
Precast Concrete
Steel Poles
Equipment Anchorage

INSPECTION: Special inspection, per IBC Chapter 17 and 1703 shall be performed by an approved testing agency as outlined in the Special Inspection Schedule. All prepared soil–bearing surfaces shall be inspected by the Geotechnical Engineer prior to placement of reinforcing steel. Soils compaction shall be supervised by an approved testing agency or Geotechnical Engineer.

SPECIAL CONDITIONS: Contractor shall verify all levels, dimensions, and existing conditions in the field before proceeding. Contractor shall notify the Architect of any discrepancies or field changes prior to installation or fabrication. In case of discrepancies between the existing conditions and the drawings, the Contractor shall obtain direction from the Architect before proceeding. Dimensions noted as plus or minus ( ) indicate unverified dimensions and are approximate. Notify Architect immediately of conflicts or excessive variations from indicated dimensions. Noted dimensions take precedence over scaled dimensions—DO NOT SCALE DRAWINGS. Dimensions of existing conditions may be based on record drawings and are to be field–verified by the Contractor.

Contractor shall verify all existing conditions before commencing any demolition. Contractor shall provide adequate shoring and bracing of all structural members, existing construction and soil excavations, as required, and in a manner suitable to the work sequence.

If shaft excavations extend below groundwater table, casing may be necessary to prevent soil flow. The Contractor shall take necessary precautions to prevent excessive soil movement during excavation.

Temporary shoring and bracing shall not be removed until all final connections have been completed in accordance with the drawings and materials have achieved design strength. No reinforcing bars in existing construction shall be cut unless directed to by the Architect or as shown on the drawings.

Contractor shall be responsible for all safety precautions and the methods, techniques, sequences or procedures required to perform the work.

SOILS: See the Geotechnical Report by Terracon, dated May 4, 2009, for more complete information. Earthwork material, backfill and compaction shall be in accordance with the recommendations of the Geotechnical Report.

Soft, organic soils shall not be used as bearing surface. Overexcavation may be required to reach competent soil noted in the Geotechnical Report. Length of foundation shaft noted on the drawings must bear laterally against competent soils.

CONCRETE

Concrete work shall conform to all requirements of Chapter 19 of the International Building Code. Water shall be removed from place of deposit before the concrete is placed unless a tremie is to be used.

CONCRETE MIXES: Concrete strength shall be verified by standard 28–day cylinder tests, unless approved otherwise. Concrete mixes shall conform to the following requirements:

Concrete strength at 28 days: 3,000 psi

Water–reducing admixtures may be incorporated in concrete mix designs, but shall conform to ASTM C 494, and be used in strict accordance with the manufacturer's recommendations. $CaCl_2$ or other water–soluble chloride admixtures shall not be used.

Water/cement ratio shall be measured by weight and shall be based on the total cementitious material. Water/cement ratio shall be determined by the supplier based on strength.

Field–measured slump shall conform to the submitted concrete mix design. Tolerance of slump shall conform to ASTM C 94.

An air–entraining agent conforming to ASTM C 260 shall be used in all concrete mixes for flatwork which is exposed to weather. The amount of entrained air shall be 5 percent ± 1 1/2 percent by volume. The amount of entrained air shall be measured in the field at the discharge end of the placing hose.

The Contractor shall submit concrete mix designs for approval 2 weeks prior to placing any concrete. The mix design shall be in conformance with IBC 1905. The submittal shall indicate where each concrete mix is to be used on the project, as well as the maximum aggregate size of each mix. Maximum aggregate size shall conform to the specifications.

CURING: If the air temperature will exceed 75 degrees F within 48 hours of placing concrete, a moist cure shall be applied to the concrete for a period of 36 hours after finishing concrete surfaces. Refer to the project specifications for curing requirements.

REINFORCING STEEL

Deformed Bars — ASTM A 615, Grade 60

Reinforcing shall be supported as specified by the project specifications and the CRSI Manual of Standard Practice, MSP–1. Reinforcing steel shall be detailed in accordance with "ACI Manual of Standard Practice for Detailing Reinforced Concrete Structures," ACI 315.

SPECIAL INSPECTION SCHEDULE
ESTABLISHED PER 2006 IBC SECTION 109 & CHAPTER 17

ITEM	CONTINUOUS INSPECTION	PERIODIC INSPECTION	COMMENTS
Soils			
Grading, excavation & fill			By Geotechnical engineer
Final foundation preparation			By Geotechnical engineer
Piling, drilled piers – driving & testing	X		By Geotechnical engineer
Concrete			
Reinforcing placement		X	
Anchor bolts & inserts		X	
Preparation of test specimens	X		
Concrete placement	X		
Curing		X	
Precast Concrete Erection		X	

INSPECTION SCHEDULE NOTES:

1. The items checked with an "X" shall be inspected in accordance with IBC Chapter 17 by a certified special inspector from an established testing agency. For material sampling and testing requirements, refer to project specifications, the foundation notes and the notes below. The testing agency shall send copies of all structural testing and inspection reports directly to the engineer, contractor and building official. Any materials which fail to meet the project specifications shall immediately be brought to the attention of the architect. Special inspection testing requirements apply equally to all bidder designed components.
2. Special inspection is not required for work performed by an approved fabricator per IBC Section 1704.2.2.
3. Continuous special inspection means that the special inspector is on the site at all times observing the work requiring special inspection (IBC 1702). Periodic special inspection means that the special inspector is on site at time intervals necessary to confirm that all work requiring special inspection is in compliance.
4. Inspection requirements for systems designed by others shall be defined by the registered design professional responsible for their design.

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STAMP: REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER B. FOSTER STATE OF WASHINGTON 31353 — 6/1/09

REVISIONS

DRAWN: WMW | CHECKED: CBF
SUBMITTAL: BID SET
DATE: 06–02–09

TITLE: STRUCTURAL DETAILS
OWNER: HIDDEN VALLEY PARK SOFTBALL FIELD LIGHTING RENOVATION

SHEET: E4.0