

**Conservation Design and Open Space
Management Manual for Development
Projects in the Central Pine Barrens**

August 20, 2014

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Introduction

The Central Pine Barrens Joint Planning and Policy Commission has developed this manual to aid and guide developers, builders, planners, consultants, public officials and the general public in applying Conservation Design techniques, as well as other methods, to development projects in the Central Pine Barrens. The topic of Conservation Design principles is discussed in Chapter 5 of the Comprehensive Land Use Plan, particularly Section 5.3.3.6.2 entitled “*Open space requirement, unfragmented open space and habitat.*” This guide is intended to complement that chapter section.

Application and use of Conservation Design techniques is consistent with the requirements of the Long Island Pine Barrens Protection Act (the “Act”), Article 57 of the New York State Environmental Conservation Law. ECL Article 57, Section 57-0121, “Central Pine Barrens comprehensive land use plan; interim regulations,” states that the Central Pine Barrens Comprehensive Land Use Plan shall be designed to:

- *“...protect, preserve and enhance the functional integrity of the Pine Barrens ecosystem and the significant natural resources, including plant and animal populations and communities, thereof..”*
- *“...protect the quality of surface water and groundwater...”*
- *“...discourage piecemeal and scattered development...”*
- *“...accommodate development, in a manner consistent with the long term integrity of the Pine Barrens ecosystem and to ensure that the pattern of development is compact, efficient and orderly.”*

As noted above, the Act describes specific development criteria which encourage and promote the use of Conservation Design. It is important to note these criteria highlight development project design and configuration, with a particular emphasis on discouraging “piecemeal and scattered development” and encouraging development which is “compact, efficient and orderly.”

In a later portion of ECL Article 57, Section 57-0121, specific criteria are set forth for the compatible growth area where development is supposed to occur. Here, under paragraph 4, the Act states:

“4. The land use plan with respect to the compatible growth areas shall be designed to:

- (a) preserve and maintain the essential character of the existing Pine Barrens environment, including plant and animal species indigenous thereto and habitats therefor;*
- (b) protect the quality of surface and groundwaters;*
- (c) discourage piecemeal and scattered development;*
- (d) encourage appropriate patterns of compatible residential, commercial, agricultural, and industrial development in order to accommodate regional growth influences in an orderly way while*

protecting the Pine Barrens environment from the individual and cumulative adverse impacts thereof;

(e) accommodate a portion of development redirected from the preservation area. Such development may be redirected across municipal boundaries; and

(f) allow appropriate growth consistent with the natural resource goals pursuant to this title

Again, as before, the Act emphasizes avoidance of “piecemeal and scattered development” and encourages “appropriate” and “orderly” development patterns which also protect the Pine Barrens ecosystem and preserve its essential character and habitats. Again, these are criteria which are consistent with the elements of Conservation Design.

Finally, Section 57-0121, paragraph 6, declares that the land use plan must include and address the “identification and mapping of critical resource areas” (such as wetlands and other sensitive ecological resources), provide development standards including minimum lot sizes, clearing allowances and wetland setbacks and “land protection mechanisms” including conservation easements, clustering and planned unit development. Collectively, these elements support Conservation Design which in turn will ensure continued preservation of wildlife habitat, communities of natural vegetation and open space systems.

Preservation of Open Space, Open Space Configuration & Application of Conservation Design

As noted in Chapter 5 of the Central Pine Barrens Comprehensive Land Use Plan, Conservation Design is a system which promotes preservation of open space via preservation of the significant natural resources and environmental features of a site.

The Northeastern Illinois Planning Commission and Chicago Wilderness (2003) define Conservation Design as

“**Conservation design** is a design system that takes into account the natural landscape and ecology of a development site and facilitates development while maintaining the most valuable natural features and functions of the site. Conservation design includes a collection of site design principles and practices that can be combined to create environmentally sound development. The main principles for conservation design are:

1. flexibility in site design and lot size,
2. thoughtful protection and management of natural areas,
3. reduction of impervious surface areas, and
4. sustainable stormwater management.

Behan Planning Associates, LLC (2009) speaks of the creation of Conservation Subdivisions which are:

“... an alternative method of subdividing properties which allows natural areas of land to be preserved by constructing the same project in a smaller area. This allows more natural or undeveloped areas to remain undisturbed, reinforcing the surrounding beauty and acting as buffers to continued development. It also

encourages the preservation of certain areas of land or features to be conserved and showcased as part of a richer landscape design..."

Conservation Design prioritizes the preservation of natural, historic or other significant features of a development project site, including its natural landscape and ecology, while allowing other, more appropriate locations on the parcel to be developed.

Application of Conservation Design

When applying Conservation Design principles, one would first identify the significant natural resources of a site that should be preserved. This would include assets such as existing natural vegetation (including forest and woodland, old fields and successional habitats); habitats for rare, endangered, threatened or special concern wildlife; wetlands; rare ecological communities such as dwarf pine plains and pitch pine-scrub oak barrens; aesthetic resources such as scenic views and buffers; geological and topographical features such as kettleholes, swales, ridges, kames, drumlins and steep slopes; historic and cultural resources such as historic houses, cemeteries and Native American archaeological sites.

After addressing the significant natural resources on a site, an applicant would then seek to set aside such open space areas in as unfragmented fashion as possible while also seeking to link these preserved open space areas with existing open space areas or proposed future open space areas on adjacent parcels. This more regional view would help maximize the preservation of largest, least fragmented blocks of open space (and habitat) as possible. The end result would be that development would be situated on remaining areas of a site, away from the aforementioned area of higher environmental value, which would comprise the preserved open space of the project site.

It should be noted, however, that preservation of the significant natural resources on a project site (such as endangered species habitat or wetlands) should take precedence over the degree of open space fragmentation or linkage to adjacent open space.

In addition, on the area to be developed, other green methodologies should be applied to increase the sustainable nature of the project. This includes working with existing contours in place of significant excavation and grading, installing pervious surfaces where possible to reduce generation of stormwater and planting landscaping comprised of native plants to reduce fertilizer and irrigation requirements.

One of the simplest means of applying the required Conservation Design methodology is use of clustering in which, in the case of single-family residential development, residential lots are concentrated on a portion of a project site by allowing individual lots to be smaller than the required minimum lot size prescribed by the applicable zoning district. The remainder of the site is then preserved as open space.

Figure 1 below shows a conventional subdivision design with no separate or designated open space areas:

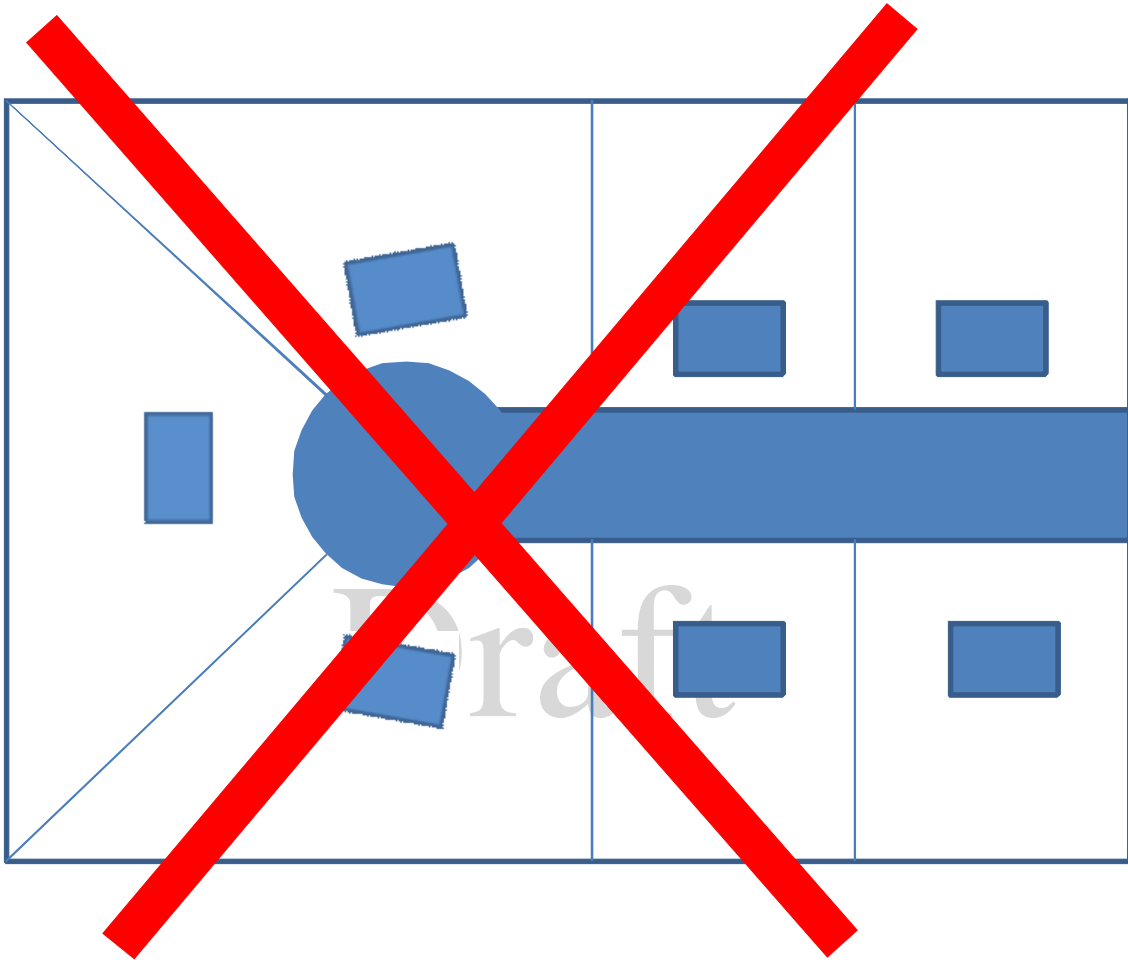


Figure 1 - Conventional Subdivision

In a traditional cluster, however, open space can be set aside in a separate parcel devoid of any development as noted in Figure 2 below:

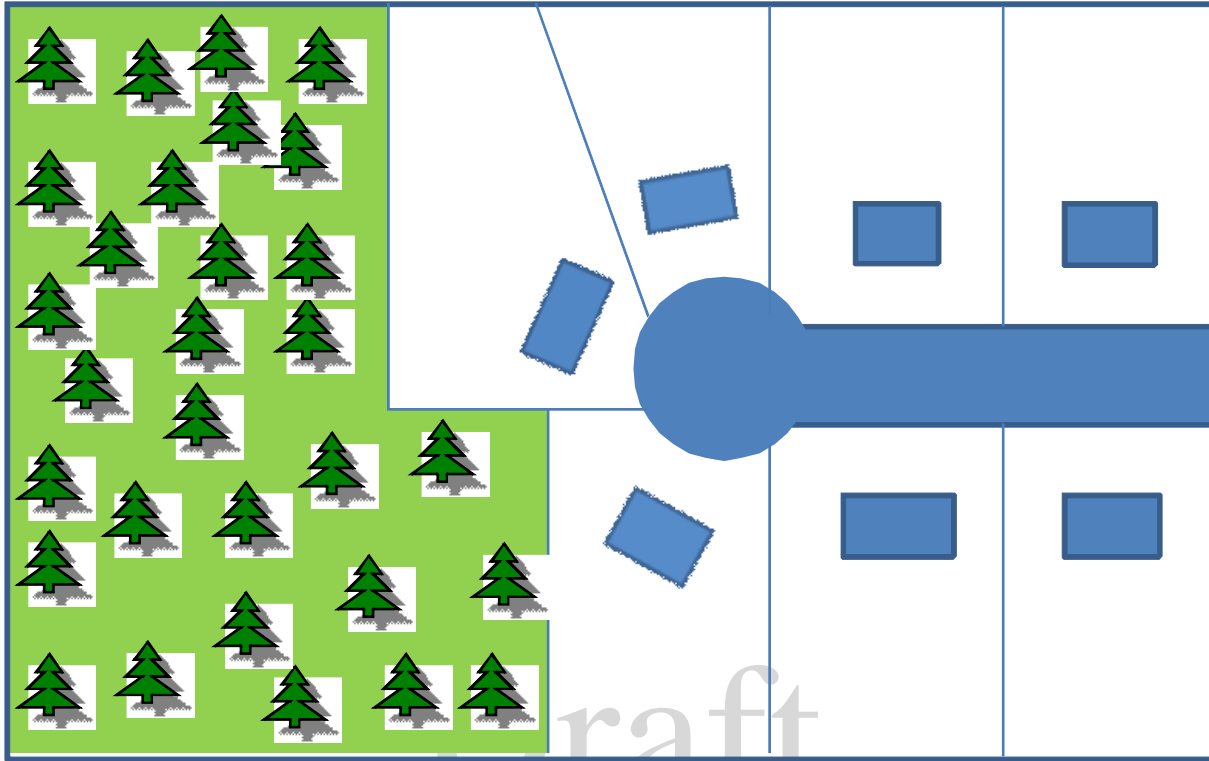


Figure 2 - Clustered Subdivision with Open Space in completely separate parcel

Other forms of clustering allow for open space to be incorporated into lots. One such example, as shown in Figure 3, is an agricultural reserve in which some large lots may be created which are partially developed with a residence with the remainder of the lot comprised of preserved, active farmland.

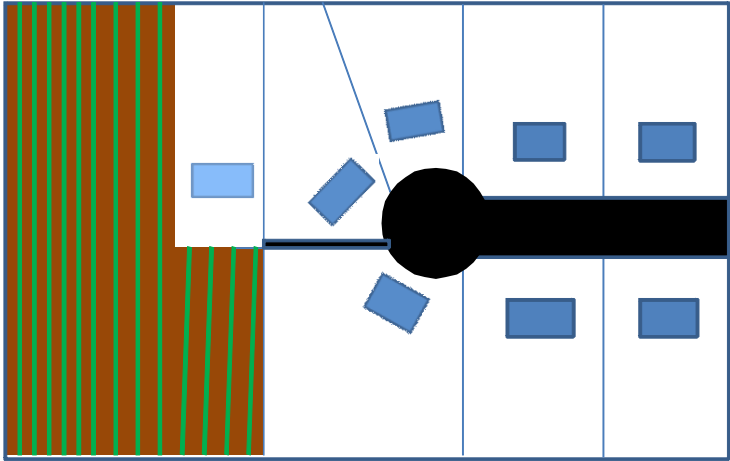


Figure 3 - Clustered Subdivision with Open Space within parcels

Reduced-density developments are design configurations which allow a significant reduction in density, well below that permitted by the applicable zoning category, and, in turn, allows for the construction of lots which are significant larger than the minimum lot size.

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Self Heal Implementation, Self Restoration or Auto Restoration

As defined in Chapter 4 of the CLUP, Self-Heal, Self Restoration or Auto Restoration is a process in which revegetation of a previously-disturbed site, such as one on which natural vegetation has been removed or degraded and which may have areas of bare soil and disturbed soil horizons, is allowed to occur without importation of plant material, active planting, transplanting of vegetation obtained from off-site or reseeding of vegetation. Instead, existing live seed banks, rhizomes, roots, etc. which remain beneath or adjacent to the disturbed area are permitted to re-colonize the disturbed area. Under this process, active monitoring is undertaken for a prescribed period of years to ensure that invasive plant species do not overtake the restoration and physical intervention to remove the invasive species may also be conducted. Continued maintenance and monitoring after the prescribed period is encouraged..

As noted in Chapter 5, Section 5.3.3.6.2 of the CLUP, the Self-Heal approach is to be utilized as the first technique for revegetation on previously cleared and/or disturbed portions of sites undergoing new development. The following is a detailed description of the procedures and criteria to be followed when implementing the Self-Heal method:

1. An applicant shall prepare a self-heal restoration plan, subject to review and approval by the approving agency, which includes both narrative and graphic elements and which describes the restoration project site and describes how the self-heal approach will be implemented on the site. The plan must include and implement a schedule for any preliminary work which must be undertaken to render the site receptive to self-healing such as removal of surface layers of debris. The plan must also provide for monitoring the re-emergence and re-colonization of native species, the frequent hand removal of invasive species to facilitate the re-emergence and re-colonization of native species and monitoring of invasive species over a period of 3 to 5 years, with the term prescribed by the approving agency. (Monitoring may be extended beyond the 3 to 5 year period by mutual consent of the approving agency and the applicant.) The plan must provide a detailed description of the number of personnel to implement the plan, the labor effort required, the number of man-hours required over the course of the self-heal restoration project, sampling points from which monitoring will be conducted, a photographic documentation effort which includes photographs of the self-heal area taken prior to project commencement, the qualifications of the personnel involved and other information deemed necessary.
2. In order to render the restoration site conducive to successful self-healing, the restoration site must be prepared, if warranted, so that it is receptive to self-healing. This may include the scraping or removal, from the surface, of foreign or related material, such as impermeable concrete or asphalt, thick layers of mulch or wood chips or piles of debris, that may retard or

impede self-heal, especially its rate of self-restoration. It may also be necessary to regrade and re-contour the restoration area prior to allowing the self-heal process to commence.

3. As part of the self-heal process, invasive species must be removed from the restoration area. Any invasive species present on the restoration site shall be removed by hand to allow the site to revert its natural state where it has the potential to recover on its own. Where invasives are present co-mingled with or alongside native species, the invasive species shall be removed selectively with the native species allowed to remain and survive. All invasive plants which have been removed shall be removed from the project site and disposed of in a lawfully-approved location and manner.
4. Invasive species shall be identified according to the inventory of unacceptable plants described in Commission's "General Planting Specification and List of Acceptable and Unacceptable Plants" and other widely-accepted lists of invasive plants.
5. The applicant shall employ the self-heal approach on the entire disturbed area within an area designated as open space area (with the exception of land to be preserved as active farmland).
6. A qualified professional who has expertise in identifying both native Long Island plant species and non-native and invasive species of plants, possesses the ability to identify native and non-native invasive plant species at different stages of their life cycles and who has demonstrated experience in undertaking similar types of ecological restoration projects at a minimum of 5 previous sites and over a minimum of at least 2 years, shall be required to prepare the self-heal restoration plan and supervise its implementation.
7. No less than once per year the applicant shall submit a written status report, which includes both a narrative and photographs, a description and listing of species of native plants which have re-colonized the area and a description and listing of invasive species which have been removed, on the progress of the self-heal area in achieving success.
8. Success of the self heal approach shall be determined by the approving authority three to five years after project commencement. The success of the self-heal effort may be affirmed prior to three years at any time when the self heal area appears to have restored itself naturally and/or reverts to native vegetation naturally without active planting. Success shall include revegetated areas covering a minimum of 85% of the self-heal restoration area and a minimum of 85% of the restoration area shall be comprised of native species.

If, after the expiration of the required monitoring period, the approving authority has determined that the self-heal effort has failed and has not produced clear and convincing evidence of recovery to the area's prior natural state (including a failure to achieve the minimum coverage percentages noted above and a confirmation that hand removal of

invasive species has failed to prevent them from dominating the site), then the applicant must notify the approving authority and prepare and submit, to the approving authority for its review, a restoration plan for active restoration. The active restoration plan must aim to replant the “self-heal” area with native species from either nursery stock and/or natural, native, healthy transplanted or salvaged plant material, which shall be sourced from other sites in the Central Pine Barrens that were cleared in preparation of site development. The active restoration plan must contain relevant information including, but not limited to, planting specifications, species, size, quantity, spacing, identification of the source(s) of material, a planting schedule, and a three year maintenance schedule. Planting activity must occur within the next available planting season after the self-heal approach has failed. A three year maintenance schedule is required to ensure survival and replacement of dead plantings. If dead plant material (e.g., trees, shrubs) is removed and replaced, the three year period is restarted for the replacement plantings. All plantings must be tracked accordingly. Since the self-heal or restoration area will be within the open space area, the self-heal or restoration area, as well as the open space of which it is a part, must be protected in accordance with Standard 5.3.3.6.6, “*Receiving entity and protection for open space areas.*” The self-heal area or restoration area shall be considered natural once it has become re-established as a naturally-vegetated area. This requirement shall not preclude other restoration requirements on the project site including, but not limited to landscaping, revegetation, and/or other active planting requirements.

References

Behan Planning Associates, LLC. *Design Guidelines for Conservation Subdivisions in the Town of Wallkill, NY*. Saratoga Springs, NY. December 2009. p. 4

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