

GROWING WASHINGTON'S PRISON LANDSCAPES

A Design & Construction Guidebook



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Washington Department of Corrections
Sustainability in Prisons Project

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INTENT

You hold in your hands a collection of illustrations, standards, photos and processes to inspire and support the creation of unique landscapes within prison environments in the state of Washington. This collection, or guidebook, as it will be referred to henceforth, takes the reader through the entire sequence of prison landscape creation, from idea to implementation. It has been assembled over the course of 18 months by an interdisciplinary team of 12 individuals that hail from across corrections as well as other professional and academic disciplines, including landscape architecture, criminal justice, environmental psychology, and sustainability.

The phrase “prison landscape” immediately brings to mind the concept of a prison garden, examples of which have been found in prisons throughout history. Despite their popularity, gardens are generally not the norm in prison environments, and should continue to be thought of as unique prison landscapes. However, this guidebook aims to expand the notion of unique prison landscapes to include a variety of landscape types and features beyond the garden, including those for passive and active recreation, environmental sustainability, tangible skill building, and personal growth. In short, this guidebook outlines the steps for creating nearly any type of prison landscape or landscape element, from a flower bed, to a ball field, to an artful storm drain.

The process of creation is inherently empowering. An explicit value of the Washington Department of Corrections (WDOC) is to support the ability for offenders and staff to grow and change. As such, this guidebook serves as a resource for the offenders and staff of WDOC to conceive and implement unique prison landscapes. After all, they are the people who spend the most time in Washington’s prison environments, and are uniquely positioned to shape these often underutilized spaces.

We also intend for this guidebook to be useful to additional audiences, including designers, builders, social justice advocates, academics and administrators. While the processes, standards and details described in the document are specific to WDOC, they can feasibly be adapted for use by other correctional jurisdictions. Ultimately, it is our hope that this guidebook is helpful to anyone that wants to help change a prison landscape, no matter their identity or role.

INTRODUCTION



Vegetable garden and picnic seating at Rhode Island's Women's Minimum Security Facility. Photo: Garden Time; Providence, RI

Introduction

PRISON LANDSCAPES TODAY

Within the perimeter, the majority of modern prison landscapes are immediate in their simplicity. Almost all prison grounds are composed of some assortment of fencing, concrete pathways, large lighting fixtures, and flat stretches of turf. More complex vegetation and other landscape elements are largely absent.

The standard layout of a prison landscape does provide for high functionality, which helps influence the safety of a facility. The preservation of sight lines, the ability to move people quickly, the potential for broad application of a maintenance technique, and the ability to reduce costs are just a few of the reasons that prison landscapes have evolved as they have.

Stafford Creek Corrections Center



Coyote Ridge Corrections Center



Monroe Correctional Complex

Amy Lindemuth



Washington Corrections Center For Women

Benj Drummond & Sarah Joy Steele



Introduction

HISTORIC PRISON LANDSCAPES

Conventional wisdom would lead one to believe that prisons are institutions that are mostly permanent and unchanging in nature. When viewed through a historical context, however, we see that prisons are in fact dynamic places whose typical layouts and spatial arrangements have changed significantly over time.

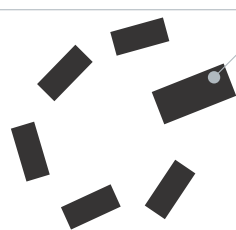
Since the inception of the US penitentiary system approximately 170 years ago, a strong self-sustaining ethic has guided programs and operations, a principal that still exists today. In the landscape, this drive for self-sufficiency resulted primarily in farms, gardens and constructed landscape features such as fences and walls. In many cases, offenders and prison staff collaborated in the design and construction phases of many of these landscape features.

TYPICAL PRISON LAYOUT PLANS THROUGHOUT HISTORY

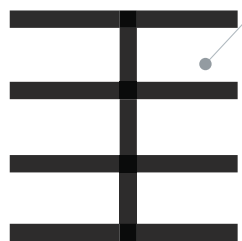
Diagrams inspired by Norman Johnson



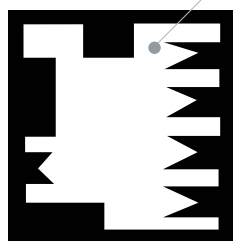
Radial, ca. 1820-1860



Fragment, ca. 1840-1920



Telephone Pole, ca. 1860-1955



Enclosed Campus, ca. 1950-present

Buildings

Landscape

Side Yard Gardens at Alcatraz Island, CA, 1869

Bill Noble



Prison Farm at Louisiana State Penitentiary, ca. 1900

Andrew Lytle



Rose Gardens at Sing Sing Correctional Facility, NY, ca. 1930

Lewis Lawes



Introduction

INNOVATIVE PRISON LANDSCAPES

Increasingly there are examples of prison landscapes from around the world that expand upon contemporary standards. Unique features like ponds, signage, trees, structures and seating are being incorporated into existing prison landscapes. These features preserve the functionality desired in contemporary prison landscape design, but add further value to the prison campus, be it aesthetic, ecological or recreational; or provide therapeutic benefit to its users.

Concern over site safety and facility operations, lack of landscape design and construction expertise, and inadequate funding for facility improvements are just a few reasons innovative landscapes aren't yet the norm at all prison facilities. With clear guidelines and processes outlined in these sections, the process of implementing innovative landscapes will be made easier and thus more accessible to all.

PROJECT	PARTNERS	DATES	FUNDING
West Kimberley Regional Prison	TAG Architects, Iredale Pedersen Hook Architects	2008- 2012	State revenues (\$122 million USD)
Iowa Correctional Institution for Women	Iowa State University Dept. of Landscape Arch.	2011- Present	Small grants & private donations
Rikers Island Jail	Horticultural Society of New York	1997- Present	Grants
Sustainability in Prisons Project	Washington Dept. of Corrections & The Evergreen State College	2003- Present	Grants, private donations, state revenues

Bench & wooden boardwalk at
West Kimberley Regional Prison, Australia

Peter Bennetts



Outdoor classroom at Iowa Correctional Institution For Women

Heather Ligler



Gazebo & water feature at Rikers Island Jail, New York

Hilda Krus



Production gardens & organic maintenance at Cedar Creek Corrections Center, Washington



Artful garden shed at Cedar Creek Corrections Center, Washington



Signage for sustainability features at Stafford Creek Corrections Center, Washington



Biodiverse, pollinator-friendly landscape planting at Stafford Creek Corrections Center, Washington

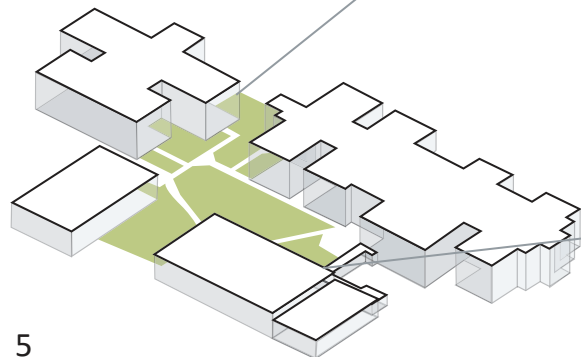


Introduction

WHY MODIFY & CONSTRUCT PRISON LANDSCAPES?

The modification of any built environment requires energy, financial resources and time. Even the smallest, most routine projects can demand a significant investment from the individuals involved. Because of the challenging realities inherent in modifying a prison landscape compared to other contexts (security factors, lack of available capital/expertise, etc.), the very reasonable question of “why bother at all?” can and will arise.

There are many beneficial outcomes of modifying and constructing prison landscapes. Technical training and increased biodiversity are just two examples of possible beneficial outcomes. These benefits are often complementary and non-exclusive, meaning that a single landscape project has the potential to result in multiple beneficial outcomes.



IMPROVE FACILITY SAFETY & SENSE OF CALM



The concept of a landscape inherently invokes natural components: vegetation, soil, stone, wood. Significant research has demonstrated that time spent in proximity to natural settings elicits calmness and mitigates physical and mental exhaustion from stress (Ulrich et al., 1991). Stress and tension are unfortunate realities of the prison experience, and can lead to compromised safety conditions (Conover, 2001). Landscape projects with natural elements can then contribute to calmer, safer conditions for all in a prison environment.

CREATE PROGRAM OPPORTUNITY



Amongst offenders, monotony & boredom are the most frequently identified negative aspects of the prison experience (Rhodes, 2004). Additional low cost programmatic opportunities allow prisons to provide more activities for offenders to engage in, reducing idleness and increasing facility safety.

Designed landscapes can provide space for specialized programs that require outdoor space, such as beekeeping or horticulture, or can provide unique, alternate settings for existing programs, such as outdoor classrooms and performance spaces.

ENHANCE ECOLOGICAL FUNCTIONALITY



Prisons are significant consumers of resources like energy and water, and provide little habitat value for critical wildlife species. A movement to “green” prisons is growing across corrections nationwide as a means to benefit both those incarcerated as well as the environment (Thigpen et al., 2011). Landscapes can be used as catalysts to achieve these goals, be it through a planting that encourages endangered pollinator species, a channel that conveys and infiltrates stormwater, or through a structure that serves as a base for solar panel infrastructure.

EDUCATE & DEVELOP MARKETABLE SKILLS



Vocational and other training opportunities are proven in reducing recidivism in offenders upon their release (Bouffard et al., 2000; Wilson et al., 2000). Furthermore, employers in the construction industry have demonstrated a unique willingness to hire ex offenders (Alexander, 2011). Designed landscapes require aptitude in a variety of construction techniques, from grading terrain to building a structure. Participation in crafting such spaces can leave offenders better prepared to enter the landscape and construction workforces upon release.

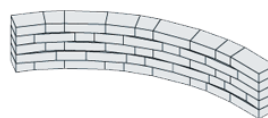
Pre-Design

ESTABLISHING PROJECT GOALS

The beginning of any prison landscape modification process should involve the primary parties interested in creating a designed landscape getting together and establishing common objectives. Goals can be both tangible (i.e. “the project must have vegetable gardens and seating areas”) and experiential (i.e. “project participants will learn to install drainage infrastructure”). Simply put, the project goals are what you and your team want to accomplish as an end result. When possible, project goals should strive to be mutually beneficial.

These fundamental decisions are critical guideposts during the design and construction processes, and ensure that the efforts being put forth meet their original intent. Establishing project goals also helps when communicating with other project stakeholders, including prison administration and external community groups, allowing them to understand your vision more quickly.

What follows is an example of initial project goals for a prison landscape design project at the Santa Rita Jail in Dublin, California.



MANY SEATING OPTIONS

Quiet, individual contemplation; one-on-one counseling sessions.



ACCESSIBILITY FOR ALL

ADA pathway materials; garden beds that can be reached from a wheelchair.



VEGETABLE GARDENS

Provide kitchens with produce; cultivate space for donating crops.



SENSORY AREAS

Appeal to touch and smell, attract pollinating insects; exhibit stark seasonal change.

Pre-Design

LIKELY SPACES FOR LANDSCAPE PROJECTS

It is important to understand what types of spaces exist within a prison landscape, and what types of projects those landscapes can reasonably afford. The areas described in this section are commonly understood across WDOC as being well suited for various landscape projects. Exploring how these sites can be modified to meet your project goals is a great place to start.

A variety of spaces exist within prison facilities across the state beyond those profiled here. Should your ideal site for meeting your project goals not fit one of these space types, talk with your Staff Sponsor (a WDOC staff person, often from custody, that acts as a Project Manager throughout a project's duration) about moving the project forward and see if special approval or exceptions can be arranged.

RECREATION YARDS

Recreation yards are the areas in prison landscapes where the most modification can occur. Because movement and activity within the site is controlled, they make great locations for a variety of site amenities, including custom built exercise features, benches, shelters, or simply some vegetation to "soften" these often "hard" sites.



James Davis



Roni Taylor



CORRIDORS

Corridors have been specifically identified as areas in need of landscape attention by WDOC. As these are areas in which movement is controlled, only certain projects are appropriate: those that do not require stopping and interaction. Decorative plantings and sustainability features that address water quality are good project options along corridors.



LARGE OPEN SPACES

Large open spaces are abundant in prison landscapes and are most frequently adapted for large scale landscape projects. Productive gardens, environmental restoration, and programming areas like outdoor classrooms are all well suited for these spaces. Large open spaces are also movement controlled, but allow for more design and activity flexibility than a corridor.

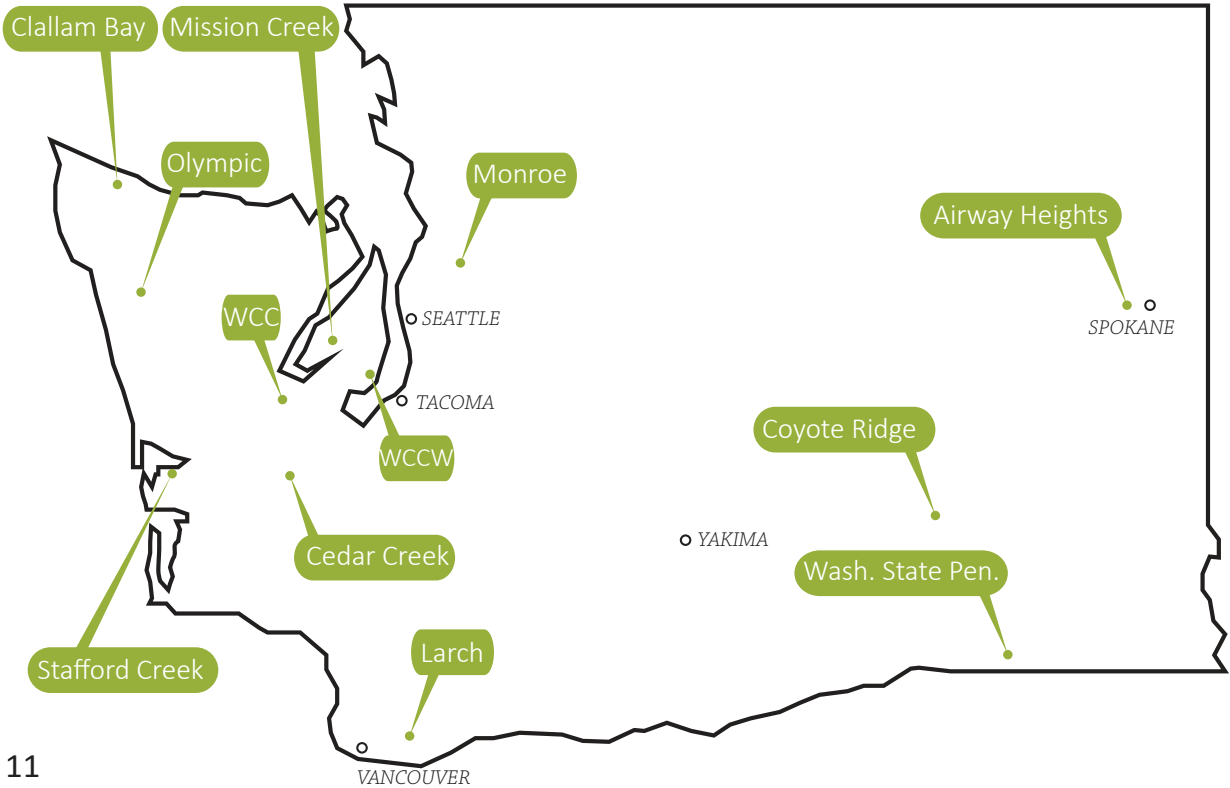


Pre-Design

CUSTODY LEVELS & PROJECT APPROPRIATENESS

The custody level of a prison facility is the primary factor in determining the feasibility of a particular landscape project. WDOC recognizes 4 unique custody levels: Minimum, Medium, Close and Maximum. Currently, this guidebook only addresses landscape project possibilities in the first three custody levels. Generally, as custody levels increase, so do restrictions on landscape project possibilities. This is primarily to preserve the functionality of the original prison landscape design: preserve sight lines, expedite movement, etc.; which all contribute strongly to the safety of the facility.

The matrix on the following page correlates a number of actual prison landscape projects (either currently in operation at a WDOC facility or in another innovative prison landscape) with its respective custody level. Intended to provide broad level inspiration and a means to quickly gauge the feasibility of a project idea, this matrix is not absolute. The Design Guidelines in the subsequent section will help you fine tune your project idea to its respective context.



FACILITY	MIN.	MED.	CLOSE
Airway Heights			
Cedar Creek			
Clallam Bay			
Coyote Ridge			
Larch			
Mission Creek			
Monroe			
Olympic			
Stafford Creek			
WCC			
WCCW			
Wash. State Pen.			

APPROPRIATE FOR
MINIMUM CUSTODY CONTEXTS

MEDIUM CUSTODY

CLOSE CUSTODY

- Boardwalks
- Bridges
- Compost Area
- Concrete Paths
- Courtyard Garden
- Game Tables
- Gazebos
- Greenhouses
- Group Seating Area
- In Ground Plantings
- Outdoor Classroom
- Paths (Non-Concrete)
- Patios
- Performance Area
- Picnic Tables
- Quiet / Reflective Area
- Rain Gardens
- Raised Plantings
- Remembrance Area
- Sculpture
- Seat Walls
- Sensory Gardens
- Sheds
- Signage
- Stage
- Trees
- Trellises
- Vegetable Gardens
- Visitation Area
- Water Features
- Wood Fences

- Bridges
- Compost Area
- Concrete Paths
- Courtyard Garden
- Game Tables
- Gazebos
- Greenhouses
- Group Seating Area
- In Ground Plantings

- Paths (Non-Concrete)

- Picnic Tables

- Rain Gardens
- Raised Plantings
- Remembrance Area

- Sensory Gardens
- Sheds
- Signage

- Trees
- Trellises
- Vegetable Gardens
- Visitation Area

- Wood Fences

- Compost Area
- Concrete Paths
- Courtyard Garden

- Gazebos
- Greenhouses

- In Ground Plantings

- Picnic Tables

- Sheds

- Trellises
- Vegetable Gardens
- Visitation Area

- Wood Fences

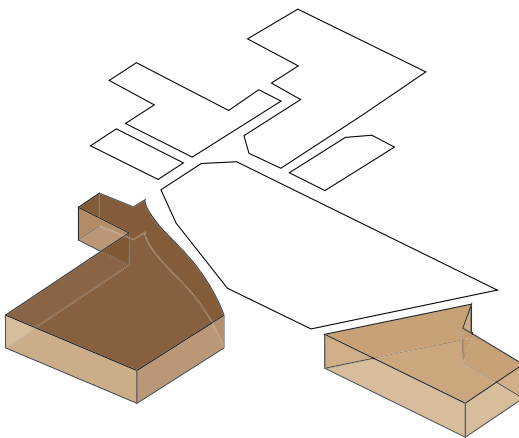
Pre-Design

SITE ANALYSIS

Site analysis is meant to help you evaluate the relative importance and influence of different factors on a site, and to reveal qualities about the space that might not be immediately visible. The information this process reveals can be used to compare different site options, and to provide design inspiration. For example, during your analysis you may find an especially warm area of the site that would be well suited for a vegetable patch, or you may find an area where people often socialize but that lacks comfort amenities, like seating.

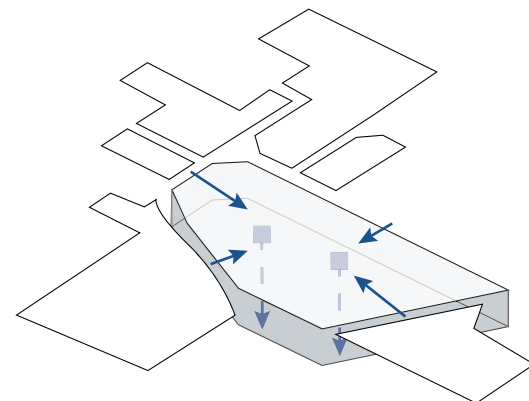
Record and organize your findings as you move through the process. Then, take the information that you gather and assign it different levels of importance. From there, communicate your most important findings to other project stakeholders and, as a group, consider how these important factors can work to support your project idea, or how they might need special attention during the design or construction phases.

The categories outlined here are merely a starting point. You may find the need to analyze additional criteria. Conversely, you may find that some factors you've analyzed have no influence on your project idea.



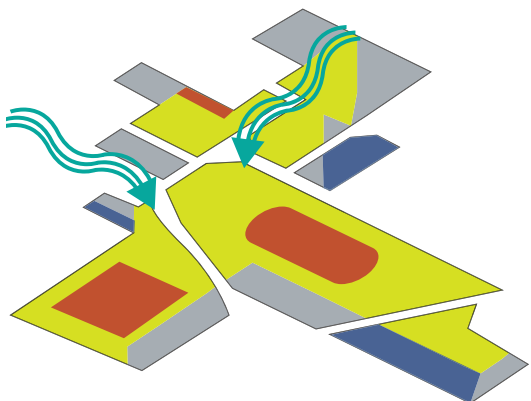
SOILS

Soils are the foundation of most any landscape project. With permission, begin by digging in and sampling the soil at your site. Is it light and loose or dense and compacted? Are there large rocks or is it all fine particles? Is the soil exactly the same 10 feet to the right or left of your sample area, or does it seem different? Are there many worms and bugs? Different soil types have different benefits. Plants like loose dark soils with lots of insects, while structures like to sit atop stable surfaces. Use your findings to inform your project idea.



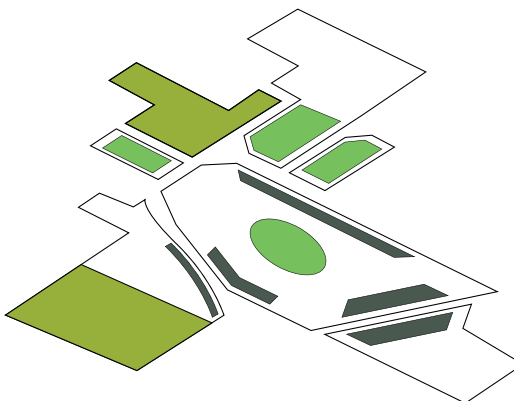
DRAINAGE

The way that water moves across and into a landscape is broadly referred to as drainage. Begin by noticing after a rain which areas do and do not stay saturated. Observe the direction water moves on the surface. Record any drain grates and pipes that are present. You most likely want water to move away from your project and for the surrounding area to remain dry. This analysis will reveal if the site's drainage is suitable or if some topography manipulation (berm or depression) or infrastructure (cistern, catch basin) will be required to convey and drain water adequately.



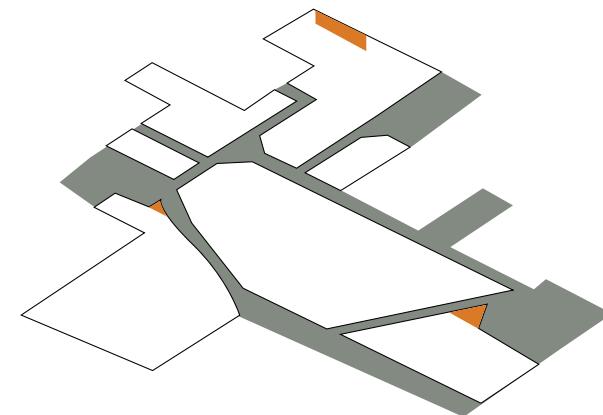
MICRO & REGIONAL CLIMATES

Although you might be familiar with a region's climate, you are probably unfamiliar with your site's microclimates. These are areas where climate differs from its greater context; the relative warmth of urbanized areas and coolness of spaces near water bodies are two examples. Note how wind moves through the site and areas where you feel particularly warm or cool. Record sunny and shady area boundaries at regular intervals in a day. These data will have significant influence on where you place landscape elements. For example, vegetable gardens will want at least 6 hours of sun in a day and generally warm conditions, while compost areas do well in the shade.



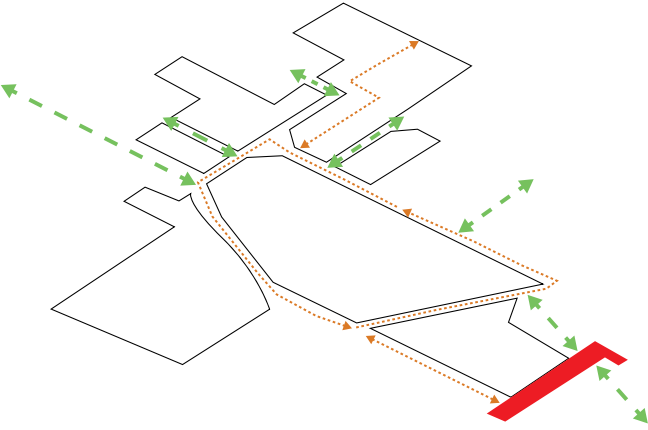
VEGETATION

Analyzing the existing vegetation on your site adds value to your soil, drainage and climactic findings, and begins to describe the site in more experiential rather than functional terms. Note vegetation types (lawn, flowers, shrubs, etc.) and their physical boundaries. Identify the species by consulting the library or facility's horticulture program. Record if the plants seem healthy or not. Specify if the plants receive any maintenance, and if so, what is done and how often. Research the likely age of the plants as well as their and expected lifespans so you can design for their eventual replacement.



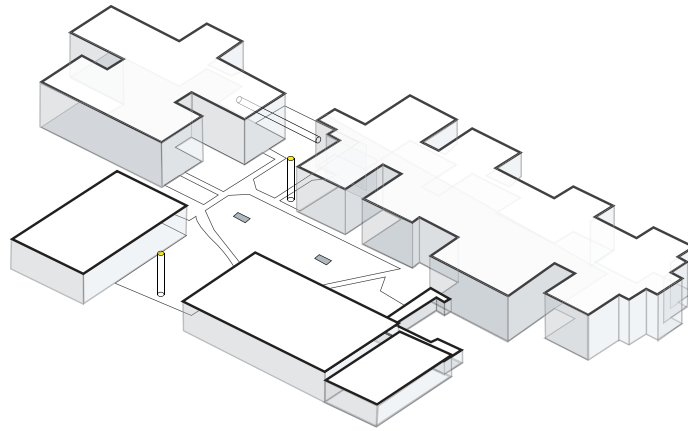
USERS

Record who is using the site and what they're doing. Like tracking sun and shade patterns, periodic observations are the best means to get this information. Are there areas that are specific to custody officers or offenders only? Where are the spaces that those groups share? What kind of use does this space currently permit, and what might it allow? A landscape for quiet contemplation is probably not well suited for an already highly trafficked area, but signage or picnic benches might be.



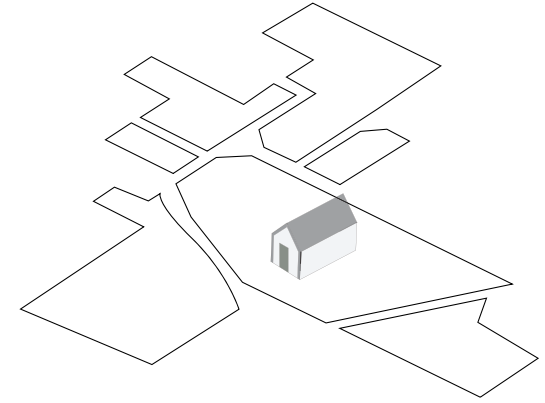
MOVEMENT

Observe how people move through your site. Are there any short cuts taken along “desire lines?” Where does movement stop and then start up again? Are some routes used more frequently than others? How will people get from common movement corridors to your project? Think of your “movement” analysis as a subset of “users” that adds more information to those findings. Analyzing movement addresses how elements in the landscape are connected, and where opportunities to make better connections may exist.



BUILDINGS & INFRASTRUCTURE

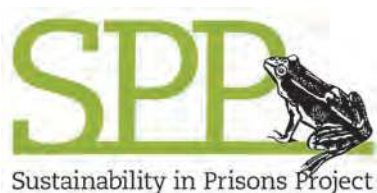
Take note of the “built” components in your site. Record buildings and other constructs like fences, lights, water fixtures and electrical outlets. Depending on your project idea, some of these elements will likely be advantageous and provide opportunity for irrigation, growing surfaces and other functionality. Observing and recording them now will help legitimize your final project siting decision. If possible, work with maintenance staff to learn of any below ground infrastructure that shouldn’t be disturbed by a potential landscape project.



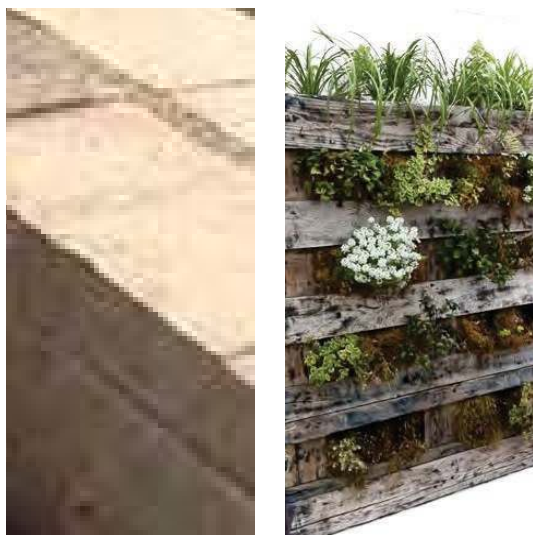
HISTORY

Prisons are often places with significant cultural histories. Spending some time exploring this topic can offer a trove of inspiration. Perhaps the prison site was a logged conifer forest, and you want to plant evergreens to acknowledge that past. Maybe you want to locate a garden shed where a barn used to sit. Perhaps you want a decorative element in the landscape to recall the art of indigenous peoples that inhabit and inhabited the region. Exploring history grounds you and your project to place, making the (new) site more rewarding for users.

Pre-Design SUSTAINABILITY



The Washington Department of Corrections operates under a self-imposed Sustainability Strategic Plan, which aims *to reduce the environmental, economic and human costs of prisons*. The design, construction & maintenance of landscapes is not always inherently sustainable. However, with some specific thought during the pre-design phase, creating a landscape that endures and gains value over time is very doable. Incorporating sustainability techniques and principals into a landscape project can not only help a prison reduce its impact on the environment and save money, but it provides opportunities to learn about new topics and receive green job training. The following is a quick primer on sustainability in the landscape. Connect with Sustainability in Prisons Project (SPP) personnel for additional technical expertise on any of these topics.



MATERIALS

Using **durable** and/or **recycled and re-purposed** materials ensures the project has a prolonged life cycle, which minimizes waste and reduces its embodied carbon footprint. Durable and recycled materials will also save money over time.



WATER

Shape your landscape to **reduce** its water use through drought tolerant plantings, hose timers and thick layers of mulch. Or, **capture** water in a cistern or rain barrel and reuse it on site.



VEGETATION

Native plants need little nutritional input, naturally resist pests and diseases, and require minimal water. **Food** plants can meet the daily needs of the prison population and the general public, if grown for donation.

Pre-Design

(POTENTIAL) PARTNERS & RESOURCES

Prisons are remarkably self-sufficient institutions and have many specialized resources available to help actualize landscape projects. By now you have likely identified some of your project's specific needs or technical challenges that you may face in getting it implemented. Approaching these partners for assistance and collaboration in the pre-design phase is advised to maximize the overall efficiency of implementing the project.

EDUCATIONAL PROGRAMS

Green Building | Art | Ecology



WDOC SUSTAINABILITY OPERATIONS

Recycling | Composting | Water Catchment



CORRECTIONAL INDUSTRIES (CI)

CAD Services (Drafting & Design)
CNC Machining (Fabrication & Craft)



SHOPS

Wood | Metal
Chair | Paint



CAPITAL PROGRAMS

Construction | Space Planning

MAINTENANCE

Carpentry | Grounds | Welding

HORTICULTURE & NATURE

Nurseries | Food Gardens | Restoration



WDOC & partner resources may be unable to provide support for a particular aspect of your project, and you may need to reach out for external support. A sampling of organizations providing technical assistance to communities are described below. Discuss with WDOC program staff how you can leverage the expertise of these groups, or others with similar missions, to support your project.



Architects Without Borders (AWB) is a national organization with particularly active chapters in Washington. Their mission is to collaborate with underserved communities to design and implement ecologically sensitive, culturally appropriate, and life-changing projects. AWB provides free and low-cost design services, such as conceptual design and construction drawing, for non-professionals.

An international, charitable organization devoted to constructing “simple, decent, and affordable” housing through volunteer labor, local Habitat For Humanity chapters in Washington have been involved in a number of “special” projects with scopes beyond housing. Reaching out to those programs in particular could yield assistance with site selection, construction and project management.



With 39 locations throughout the state, WSU Extension serves as the “front door” to the university’s College of Agricultural, Human and Natural Resource Sciences by building capacity of individuals and communities to find solutions for local issues. WSU Extension has expertise in food growing, low-impact development, composting and many other technical topics.

For project ideas with a strong environmental sustainability component, the Washington Department of Ecology provides a variety of technical assistance documents intended for the general public. WDOE’s Rain Garden Handbook, Stormwater Management Manuals and Low Impact Development Technical Guidance Manuals are just three examples. Search “Technical Resources” at www.ecy.wa.gov for access.



A professional society exists for nearly every specialized profession, many with local chapters and service based components of their programming. ASLA and ASCE are just two that might be of use for survey or drafting needs, but seeking similar groups from additional disciplines can help accomplish almost any specialized task.



GROWING WASHINGTON'S PRISON LANDSCAPES | PRE-DESIGN

depending on your project, all steps may not be necessary, and additional steps may be required.

DESIGNER

Offender and/or
any WDOC Staff Member



PROJECT MANAGER (PM)

Custody Staff and/or
Staff Sponsor



CONSTRUCTION MANAGER (CM)

Maintenance Staff



OWNER REPRESENTATIVE

Custody Unit Supervisor
(CUS), and/or
Capital Programs (HQ)



EXTERNAL PARTNER

Representative(s) from a
supporting agency



PRE-DESIGN

Establish Project Goals

Scout Site(s)

Site Analysis

Solicit Partners

Support Pre-Design*

Partner Coordination

* an underlined task indicates a
requirement before proceeding to
the next project phase.

** KITE is jargon within WDOC for a standardized
internal memo or form that offenders can use to
make suggestions (programmatic and otherwise)
to custody staff and custody unit supervisors.

Solicit Volunteer Opportunities

Complete Volunteer Protocols

Support Pre-Design

DESIGN

Secure Staff Sponsor (KITE**)

Conceptual Design & Program

Initial Maintenance Study

Submit Needed Work Requests

Partner Coordination

Obtain CUS Approval

Technical Design Support

Request Additional Drawings

Concept Design Review

Solicit HQ Assistance

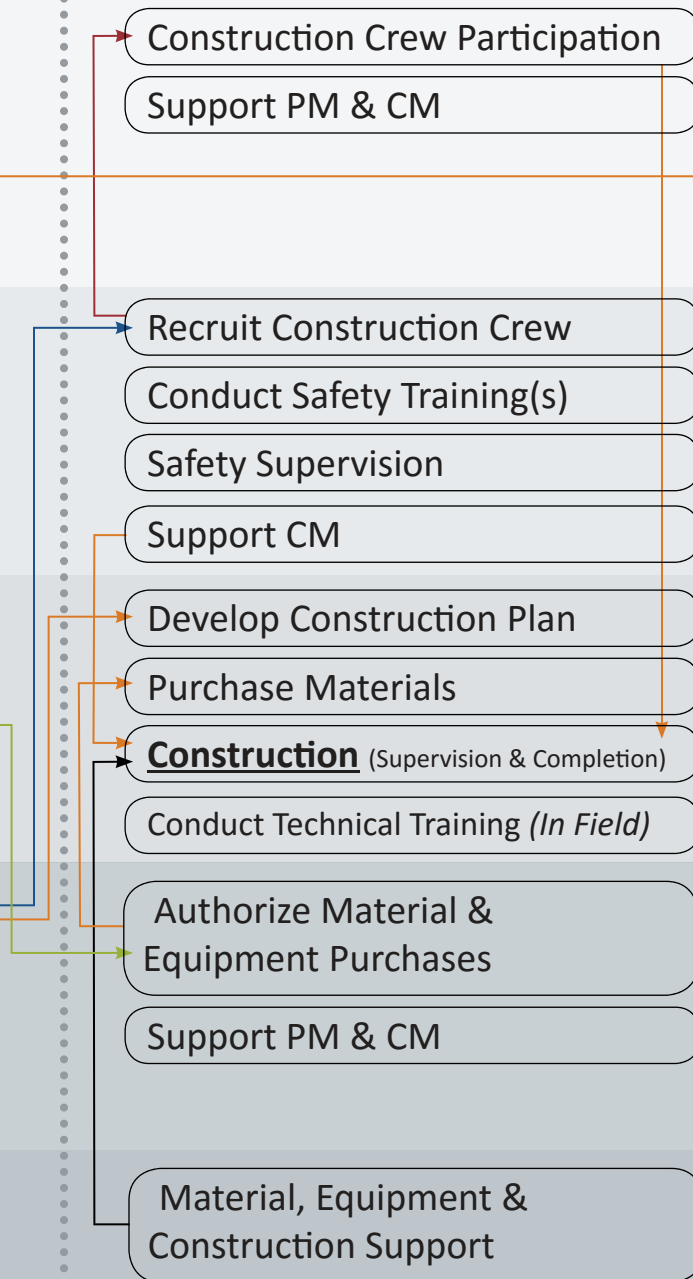
Technical Design Support

APPROVAL PROCESS & PROJECT SEQUENCING

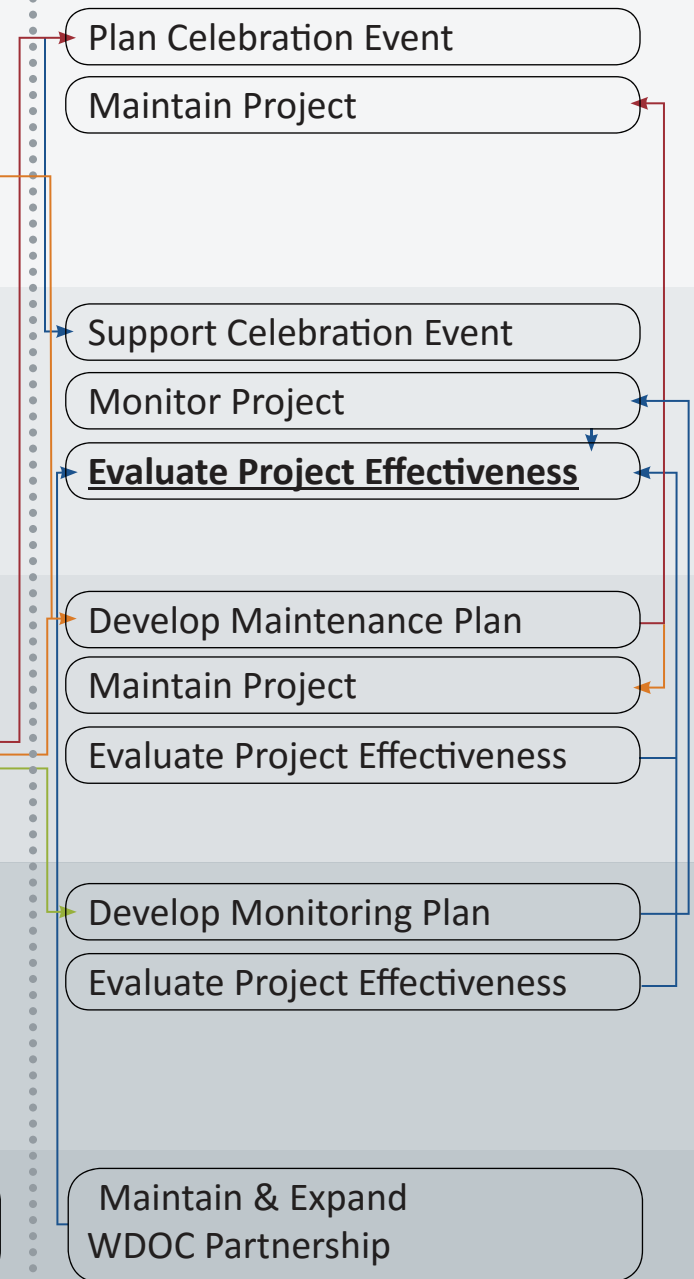
DEVELOPMENT



CONSTRUCTION



POST-CONSTRUCTION



DESIGN GUIDELINES

10,000 SQ FT
MAX FOOTPRINT

20' FENCE
BUFFER

VEGETATION
36" TALL

STRUCTURE
MAX FOOTPRINT
20' x 20'

Illustration of landscape features at HM Prison Whatton, Nottinghamshire, UK. Drawing: Katherine Cannella

WHAT ARE DESIGN GUIDELINES?

Design guidelines are modification standards that have been approved by an administrative body. In the case of guidelines for prison landscape projects, they exist to ensure that any modifications are safe, appealing, functional and feasible. Design guidelines are common in most every public design and construction effort. In our case, guidelines for prison landscape projects have been developed and approved by WDOC custody, maintenance, program and administrative staff, using information from successful innovative prison landscapes in WDOC facilities as well as from other prisons around the country.

HOW TO USE THESE GUIDELINES

These guidelines are most easily used in the early stages of the design process, which is covered in detail in the next section. It is helpful to get to know the guidelines now so that your design process can happen more efficiently by operating within the approved standards. Think of these guidelines as resources or opportunities rather than restrictions. Not only do guidelines ensure that ideas are possible and can be actualized (as opposed to remaining only ideas), but guidelines can often inspire creativity and innovation in ways that can surprise a project team.

Certified Wildlife Habitat Garden at Washington Correctional Institution For Women

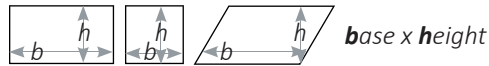
Benj Drummond & Sarah Joy Steele



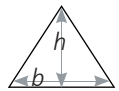
FOOTPRINTS

The overall footprint of a project helps dictate its scale within the greater prison landscape. Footprints are calculated in square feet (sq ft). Determine the footprint of your project by measuring key dimensions and calculating the area. Area calculations depend on the shape of your proposed intervention. The formulas for many common shapes are described below.

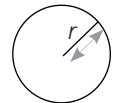
As long as your project footprint does not exceed the maximums described in the diagram on the right, your project meets the criteria for this guideline.



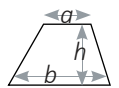
base x height



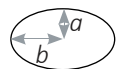
$1/2 \times \text{base} \times \text{height}$



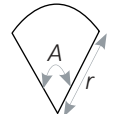
$3.14 \times \text{radius}^2$



$1/2 \times (a + b) \times \text{height}$



$3.14 \times a \times b$

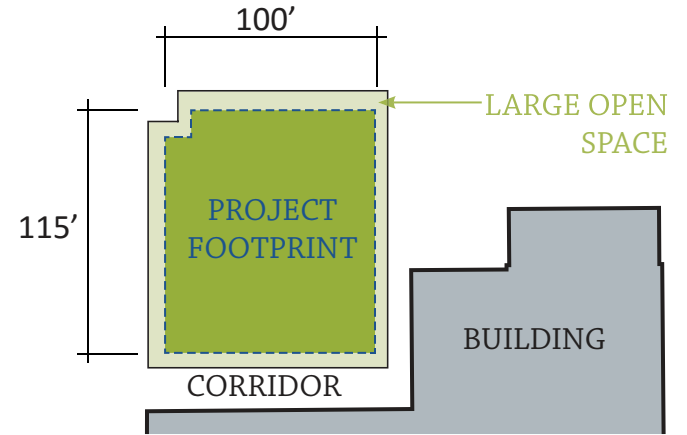


$1/2 \times \text{radius}^2 \times \text{Angle}$

MINIMUM **12,000 SQ FT MAXIMUM**

$$100' \times 115' = 11,500 \text{ sq ft}$$

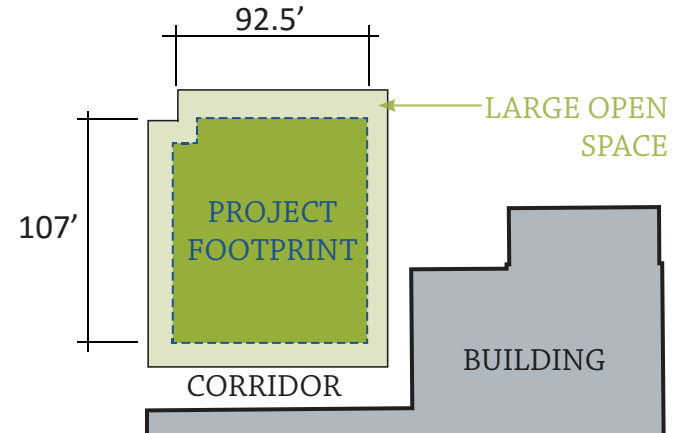
MEETS DESIGN GUIDELINES



MEDIUM **10,000 SQ FT MAXIMUM**

$$92.5' \times 107' = 9897.5 \text{ sq ft}$$

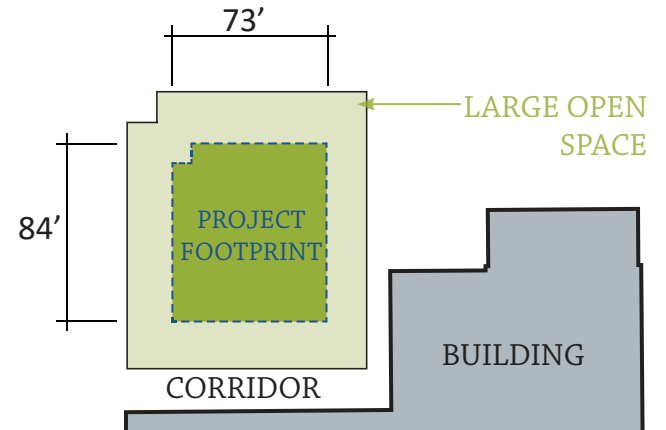
MEETS DESIGN GUIDELINES



CLOSE **6,500 SQ FT MAXIMUM**

$$73' \times 84' = 6,132 \text{ sq ft}$$

MEETS DESIGN GUIDELINES



BUFFERS

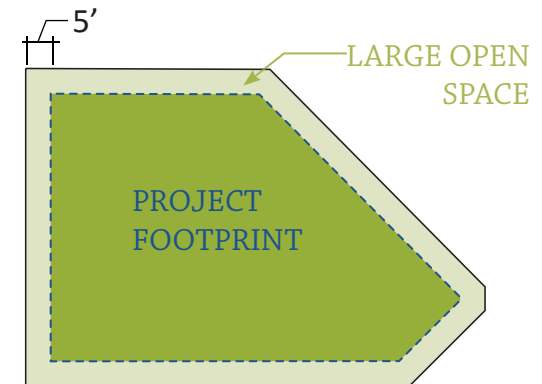
Buffers are utilized in prison landscape projects to ensure clear definitions of space, to concentrate activity, and to increase safety by preserving sight lines. Buffer spaces must be kept free of modification with the exception of modest access means (e.g. a path).

In the case of perimeter fences (“double fences”), a minimum 20’ buffer must be maintained. For interior fencing that divides and defines different spaces, it may be possible to modify right up to the fence edge. Begin by using a Minimum custody level buffer standard, and discuss with your Staff Sponsor the possibility of extending to an interior fence edge if necessary. See the annotated photos below for additional context.



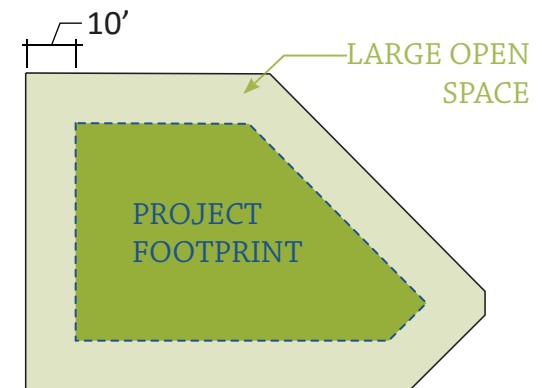
MINIMUM 5' MINIMUM

From Building & Path Edges



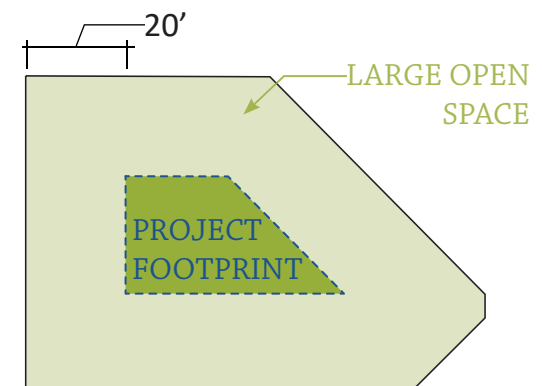
MEDIUM 10' MINIMUM

From Building & Path Edges



CLOSE 20' MINIMUM

From Building & Path Edges



VERTICAL ELEMENTS

Sight lines can be compromised with each insertion into the prison landscape. These guidelines illustrate best practices for scaling your project into space above the ground while maintaining safety and functionality. Guidelines for vertical elements are standard across custody levels.

APPLICABLE TO
**MINIMUM,
MEDIUM
& CLOSE**
CUSTODY LEVELS

CLOSED SIDED STRUCTURES **10' MAXIMUM HEIGHT**

If your project has walls or other vertical elements made from any opaque material (wood, metal, etc.), you must meet this guideline. Such structures could include sheds, greenhouses, and programmatic spaces such as bee box housing.

OPEN AIR STRUCTURES **12' MAXIMUM HEIGHT**

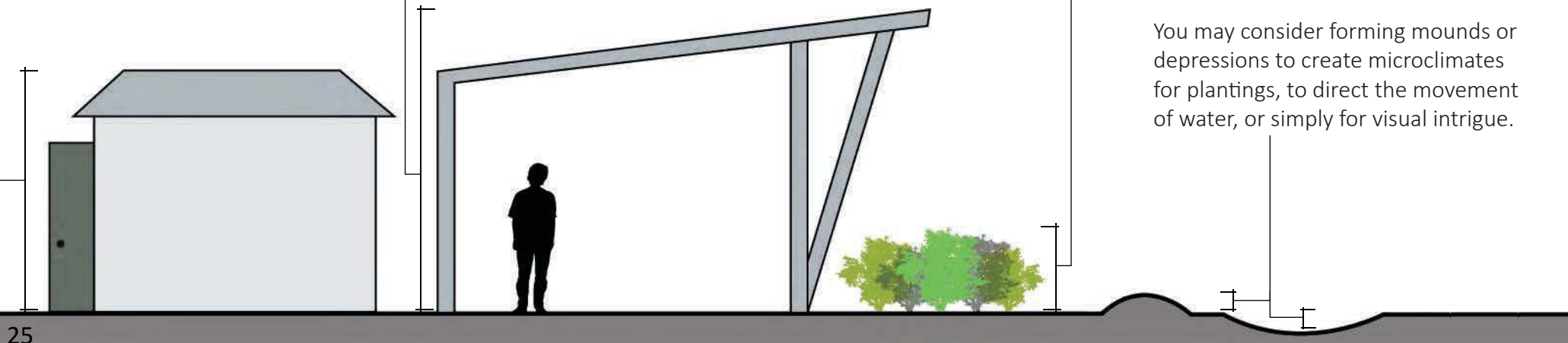
With translucent materials (glass, clear plastic), or no siding, you can extend a bit more into vertical space than you would with opaque materials. Gazebos, picnic coverings and trellises are some of the common forms that might meet this criteria and appear in a prison landscape project.

VEGETATION **36" MAXIMUM HEIGHT**

Plant forms at this size or smaller are perfectly suitable in any custody context. Note that if planting in a raised bed, the structure's height counts towards the 36" maximum. ADA guidelines recommend 18-24" high raised planting beds.

GROUND PLANE **12" MAXIMUM VARIATION**

You may consider forming mounds or depressions to create microclimates for plantings, to direct the movement of water, or simply for visual intrigue.



STRUCTURAL FOOTPRINTS

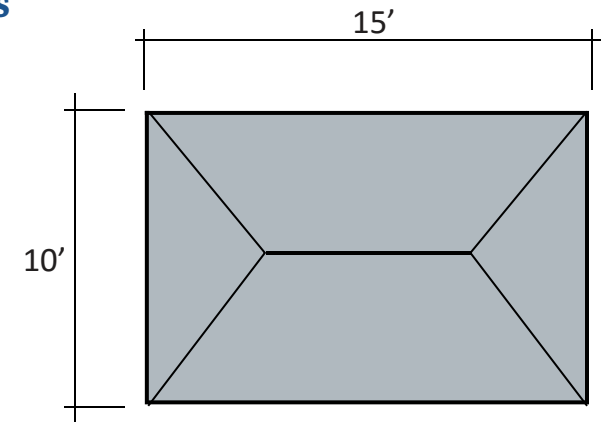
Now that you know the maximum vertical heights of any structural element you place in the landscape, it will be helpful to know the maximum footprints that structures can occupy.

You'll see that these footprints are much smaller than the total footprints described earlier. This is to ensure that structures do not dominate the landscape and that a character of openness in the greater prison landscape is preserved.

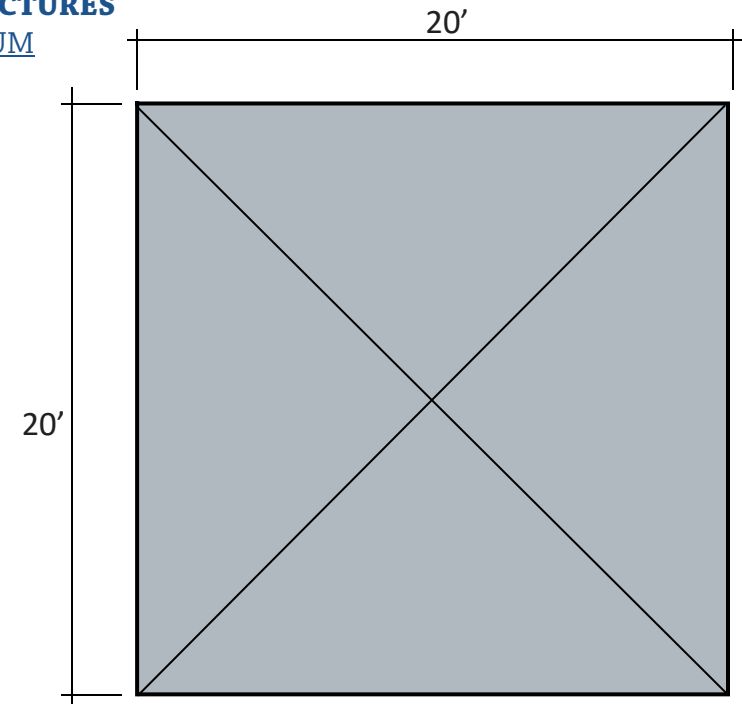
APPLICABLE TO MINIMUM, MEDIUM & CLOSE CUSTODY LEVELS



CLOSED SIDED STRUCTURES 150 SQ FT MAXIMUM



OPEN SIDED STRUCTURES 400 SQ FT MAXIMUM



Note: This diagram depicts roof plans to illustrate square footage, but the roofs of your structures do not have to conform to the shapes or pitch orientations illustrated here.

MATERIALS (GENERAL)

You’ve figured out how big your project can be and determined where it’s going to go. Now you can give some thought to the materials that you want to use in it.

In selecting materials it is important to strive for durability and weather resiliency. As discussed in the Pre-Design section, recycled or salvaged materials help enhance the overall sustainability of your project.

As you select materials, give some thought to the permanence of your project. We know that prison landscapes do change over time, so the more your project’s materials can be disassembled and repurposed if things need to change, the better.

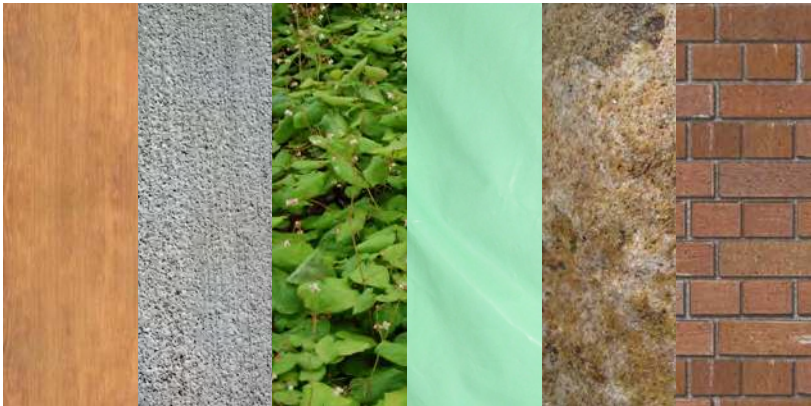
MINIMUM

- Wood
- Concrete
- Vegetation
- Plastic
- Stone
- Masonry
- Metal



MEDIUM

- Wood
- Concrete
- Vegetation
- Plastic
- Stone
- Masonry
- Metal



Metal can often be taken apart, which can present safety concerns.

CLOSE

- Wood
- Concrete
- Vegetation
- Plastic
- Stone
- Masonry
- Metal



Stone & masonry are both more difficult surfaces to travel over, and can present safety challenges because of their hardness, ability to be chipped, etc.

Metal can often be taken apart, which can present safety concerns.

PATHS

Paths are some of the best opportunities to balance aesthetic intrigue with functionality in a landscape. A well designed and constructed path encourages exploration of a landscape, allows people and other materials to move efficiently in and out of the space, and can be a canvas for patterns and ornamentation that provide visual interest.

Standards for path widths and materials in prison landscape projects vary slightly depending on custody contexts. As you design, consider how different materials and their arrangement can provide different experiences (think the way walking on gravel or brick feels compared to walking on concrete)

There is an infinite amount of artistic touches that can be applied to path materials. Scoring interesting patterns into concrete or creating mosaics from different stone types are just two examples. A sampling can be seen in the matrix below.

As you experiment with paths, remember that ornamentation or interesting design does not have to compromise functionality and accessibility.



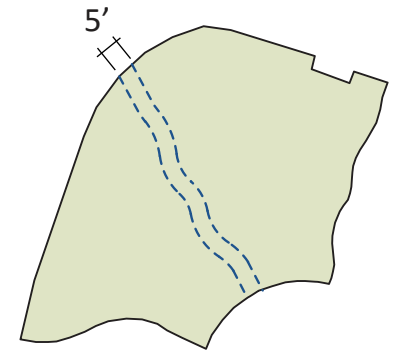
MINIMUM

5' MINIMUM

Path Width

MATERIALS

CONCRETE
STONE | GRAVEL
MASONRY



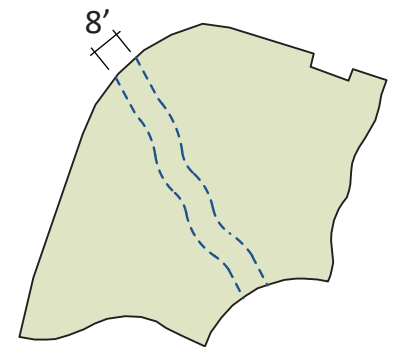
MEDIUM

8' MINIMUM

Path Width

MATERIALS

CONCRETE
STONE | GRAVEL



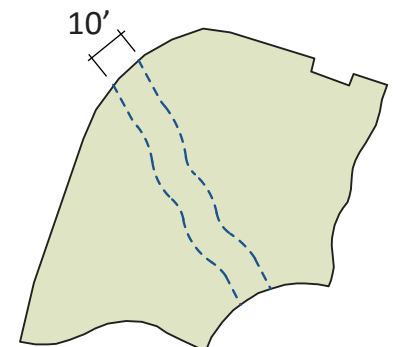
CLOSE

10' MINIMUM

Path Width

MATERIALS

CONCRETE



VEGETATION

Vegetation is one of the most common elements in any landscape, and is perhaps the most frequently used material in past prison landscape projects. Plants help “soften” spaces and make areas more inviting and pleasant.

Selecting plant materials can be a challenging process, and the combination of possibilities is infinite. Best practice guidelines are illustrated on the right. For additional assistance, consult with your facility's horticulture program, grounds staff, and library.

APPLICABLE TO
MINIMUM,
MEDIUM
& **CLOSE**
CUSTODY LEVELS

ACCEPTABLE



PLANT & CONTAINER HEIGHTS



PRESERVE TRANSPARENCY

twiggy growth, minimal leaves



MULTI-SEASON INTEREST



SENSORY VALUE

smell, touch, hear, taste (vegetables & herbs)



NATIVE & SUSTAINABLE

drought tolerant, habitat enhancing



REQUIRES PERMISSION



pruno-making potential



THORNED OR BARBED FOLIAGE



safety compromising potential



contraband hiding potential



TREES

Trees are some of the most difficult materials to work with in the prison landscape because of their size, but when thoughtfully considered, they can add incredible value to a space.

Design standards for trees in prison landscapes primarily relate to their totals (or concentration) within a defined space, and are based on analyses of existing WDOC landscapes and other unique prison landscapes. The diagrams on the right illustrate custody specific information for siting trees inside the security perimeter. Standards for trees beyond the security perimeter are not set, but are generally more flexible than the standards for within.

Equally important to tree concentration are their growth forms and habits. Species should be selected for transparency and upright character rather than umbrella-like growth forms. Birch, arborvitae, aspen and Japanese maples are just a few options that generally fit these criteria and are acceptable trees. As with smaller plants, consult with your facility's horticulture program, grounds staff or library for additional information and support.

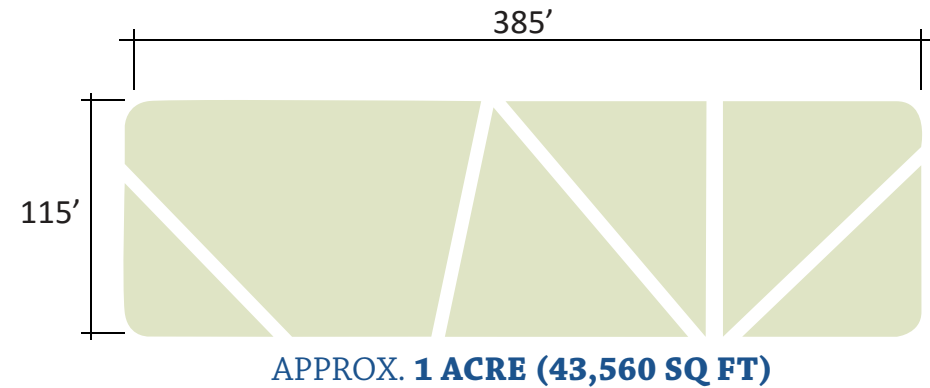
In all cases **trees and bushes will require special permission** from the project's Staff Sponsor. Be sure to secure this early in your process.



ACCEPTABLE

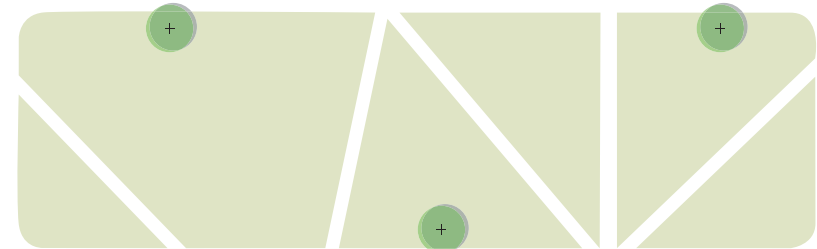


AVOID



MINIMUM

3 TREES MAXIMUM Per Acre



MEDIUM

2 TREES MAXIMUM Per Acre



CLOSE

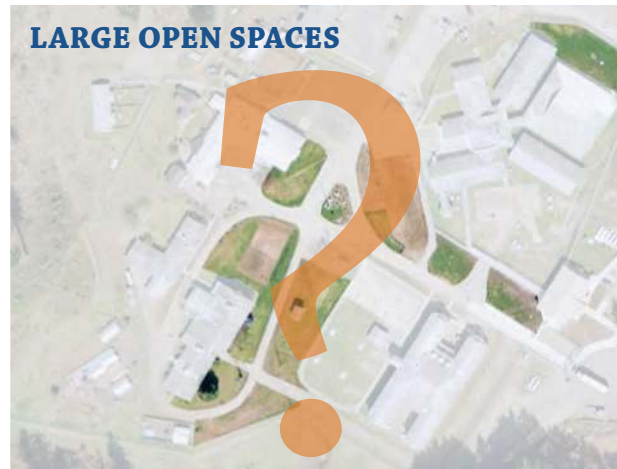
1 TREE MAXIMUM Per Acre



FURNITURE & INTERACTIVE ELEMENTS

Structural items that have a specialized purpose, such as benches, game tables and exercise equipment, can add both aesthetic intrigue and function to a landscape project. Bright colors and bold forms spark curiosity and encourage users to engage with the space. The key design guideline for these elements, aside from their not exceeding the structural footprint standards described earlier in this section, is their proper placement within a specific prison landscape type.

Existing recreation areas are very fit to accommodate furnishings and interactive elements. Large open areas are a bit more questionable for these items. In their current state(s), they are controlled movement areas. Provided the rest of the space is modified to accommodate a new type of program or activity, such as a garden space or outdoor visitation area, these elements can be accommodated. Furniture and interactive objects are not well suited for corridors or other specifically designated controlled movement areas.



DESIGN



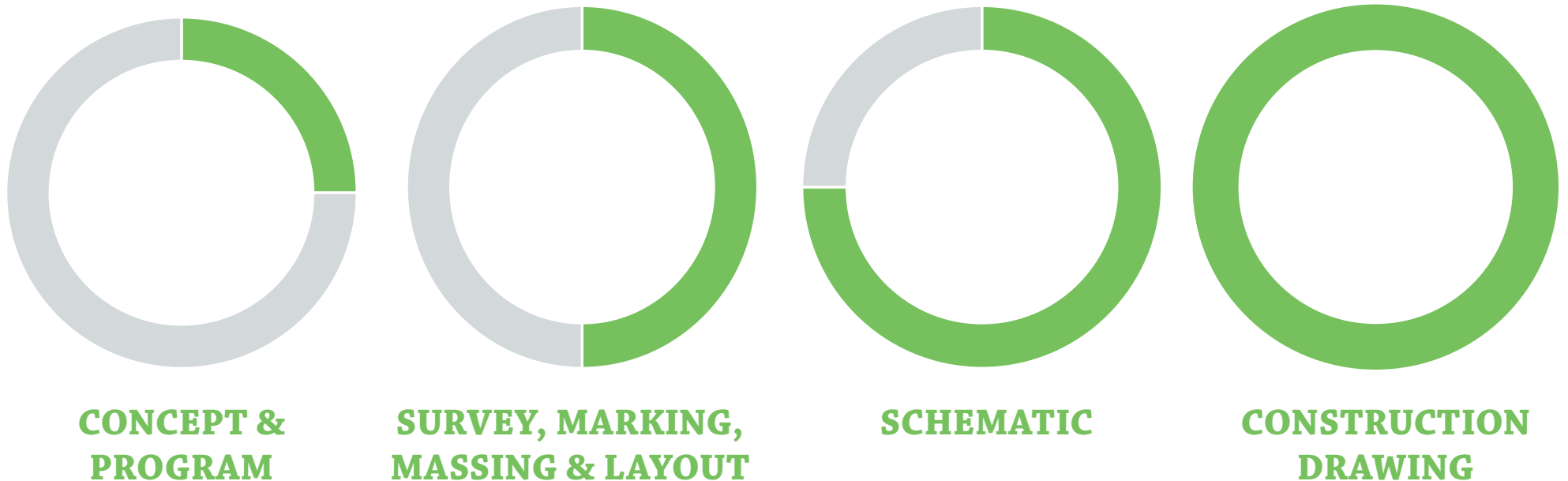
Offenders at Santa Rita Jail (CA) present their design for the Cherryland/Ashland re-entry campus. Photo: Deanna Van Buren (designingjustice.com)

Design PROCESS

Taking an idea for a landscape project into construction is a process of replication and overlap. This section will give a broad sense of all the steps that could possibly be needed to take a prison landscape project idea to implementation, along with documentation required and resources to help as you proceed. The diagram below holistically illustrates the sequence of the steps in the prison landscape design process, and each step is explained in greater detail later in this section.

While the idealized design process is composed of distinct phases in a linear sequence, in the real world the design process doesn't always work out exactly as is illustrated below. It is not uncommon for phases to require revision, or be deemed unnecessary and skipped entirely. Those determinations are to be made by the project's Staff Sponsor, the Project Manager, the Construction Manager and/or the Owner's Representative, rather than by the designer. Throughout the process, those individuals will provide feedback on what design steps are still needed before the project can move into construction.

Similarly, sometimes the phases of the design process all take an equal amount of time, and sometimes some phases go much more quickly than others. Allow yourself and the design the flexibility it needs to move forward.



Design

CONCEPT & PROGRAM

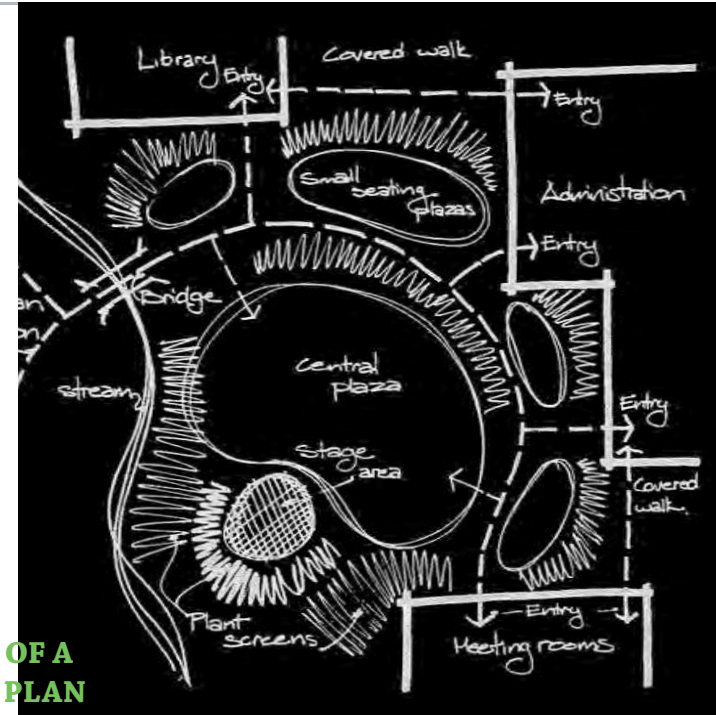


Concept design is an initial attempt at giving shape to your project goals while responding to prison landscape design guidelines. These drawings illustrate how landscape elements relate to one another in space and in function. Drawings at this stage are composed primarily in “plan” view, like a map.

Concept and program drawings do not need to be realistic or spatially accurate. The more they meet those criteria, the more you may be able to bypass subsequent design steps, but in many cases minimal markings, notes on the drawings, and bold abstracted forms work best. These markings show the core of your idea and help the project’s reviewers avoid getting immediately lost in other details that could arise.

At bare minimum, submission of a concept drawing is required for a landscape project at a WDOC facility to move forward. Use text to describe what your markings represent and indicate distances and dimensions when possible.

Three dimensional models from everyday materials are also effective items to work with during concept and program design. In some cases they may be able to be substituted for a concept plan drawing.



**EXAMPLE OF A
CONCEPT PLAN**

*Designer:
Grant Reid*



**PRISON LANDSCAPE
CONCEPT MODEL**

*Designers:
Santa Rita Jail (CA) offenders*

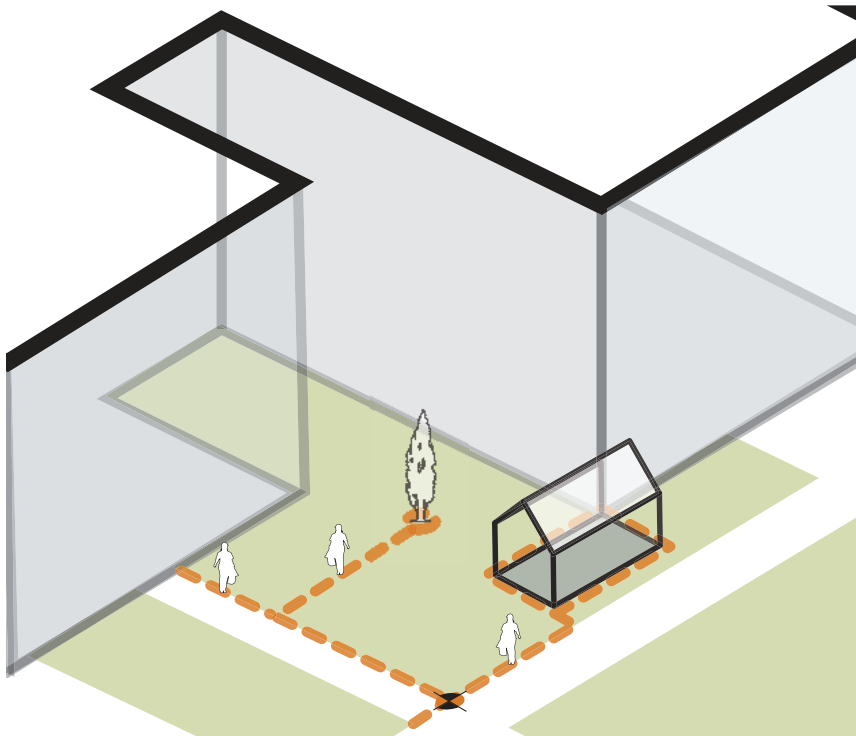
Design SURVEY



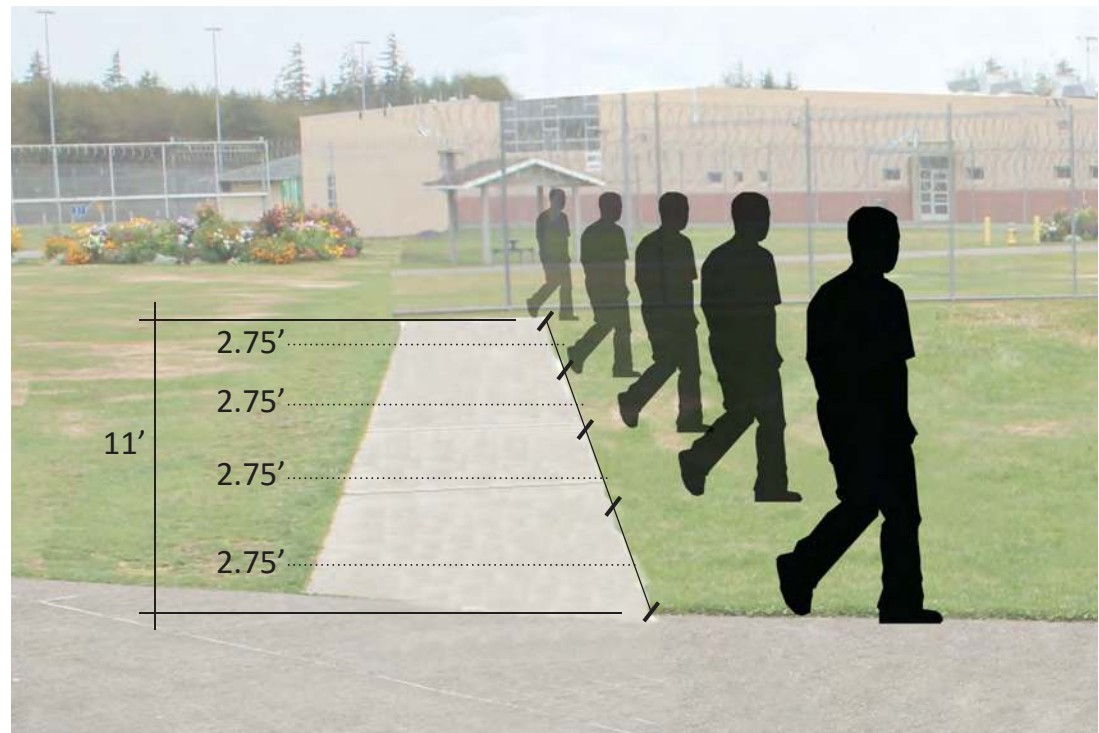
During or after completion of your concept & program drawings, you will need to record the site's dimensions in order to make precise design decisions, and to represent them accurately. Broadly, this concept is understood as “surveying” a site. Survey can even be completed prior to concept design, and often naturally compliments the process of Site Analysis as described in the Pre-Design section.

Site survey is most easily accomplished by “pacing” out on a site. An average pace is between 2.5' - 2.75', but begin by measuring your own pace prior to arriving on the project site. Count your paces from one point to another, do some quick conversion math and you'll soon have fairly accurate measurements. Record the distances and dimensions of all existing features in your site (paths, structures, utilities, plants, fences, etc.) from a “point of beginning,” or consistent reference point. Having a calculator available helps expedite the process. If you can access a measuring device, use it to double check your pacing calculations, but know that most commonly available tape measures are often too small to measure at the landscape scale. Be thorough & meticulous, taking good notes throughout the process. These efforts will make future design phases easier. In the present, this activity can help you make key design decisions that are still unaddressed at the concept stage.

ESTABLISHING A POINT OF BEGINNING



CALCULATING DISTANCE BY PACING



Design

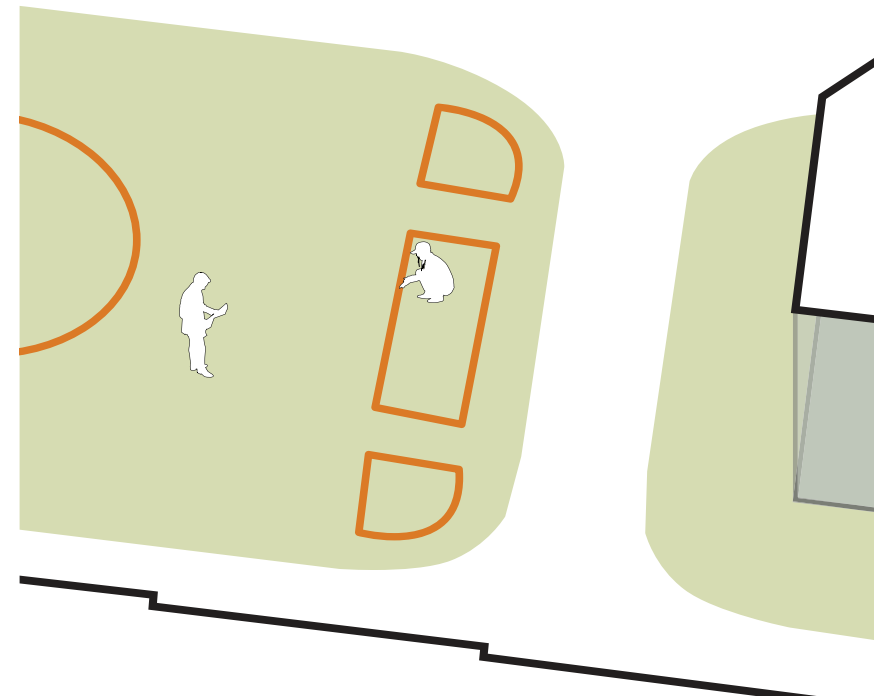
MARKING & MASSING



Massing & marking can be thought of as designing in place. The ultimate goal of this exercise is visualize the 2D and 3D realities of a proposed landscape project in the actual site. In the 2D realm, use grass chalk or marking paint to trace outlines of elements proposed in your project. Think of it as drawing a concept plan on the ground, but this time more true to scale and tied to place.

Massing is a similar activity but uses 3D elements to visualize the approximate volumes of proposed landscape elements. Any 3D object will work fine for massing. Most commonly used are plants in pots and overturned cardboard boxes to approximate for seating, tables and other structures.

Massings and markings are not intended to be permanent, and may need to be repeated during the construction phase to identify the work areas (this is particularly true of marking). Assume that clean up will be required shortly after completion of this activity, unless otherwise specifically permitted by the Project Manager.

MASSING WITH VEGETATION & OTHER 3D ITEMS**MARKING OFF A DESIGN IN A SITE**

Design SCHEMATICS



Depending on the “completeness” of your concept plans & models, as well as your massing and marking activity, your Project or Construction Managers may require a phase of schematic design. Schematic design drawings contain more information than concept drawings, and speak visually to the project’s materials, colors, and precise arrangements and size in space.

Schematics are done “to scale” and strive to achieve photorealism. Working from your survey notes, use an established scale to produce a plan drawing that is spatially accurate. 1’=16” works well with a standard ruler, as every 1/16 inch = 1 foot. Notes can be made on the drawing to explain details too small to depict graphically, as well as to describe the measurements of an element. You can also use a “key,” similar to those found on maps, to describe similar fine details in a way that minimizes the amount of text on the drawing.

Sections, or cut-through drawings, illustrate vertical relationships and depict the site at the scale of the human body rather than from above. Using 1/8” = 1’ and 1/4” = 1’ will help you zoom in to more easily draw those details.

Amazing artistry is not required for schematic design, but clear, lifelike graphics do help better illustrate ideas. Look to books in the library as well as any art-related educational programs at your facility to help your schematic efforts.

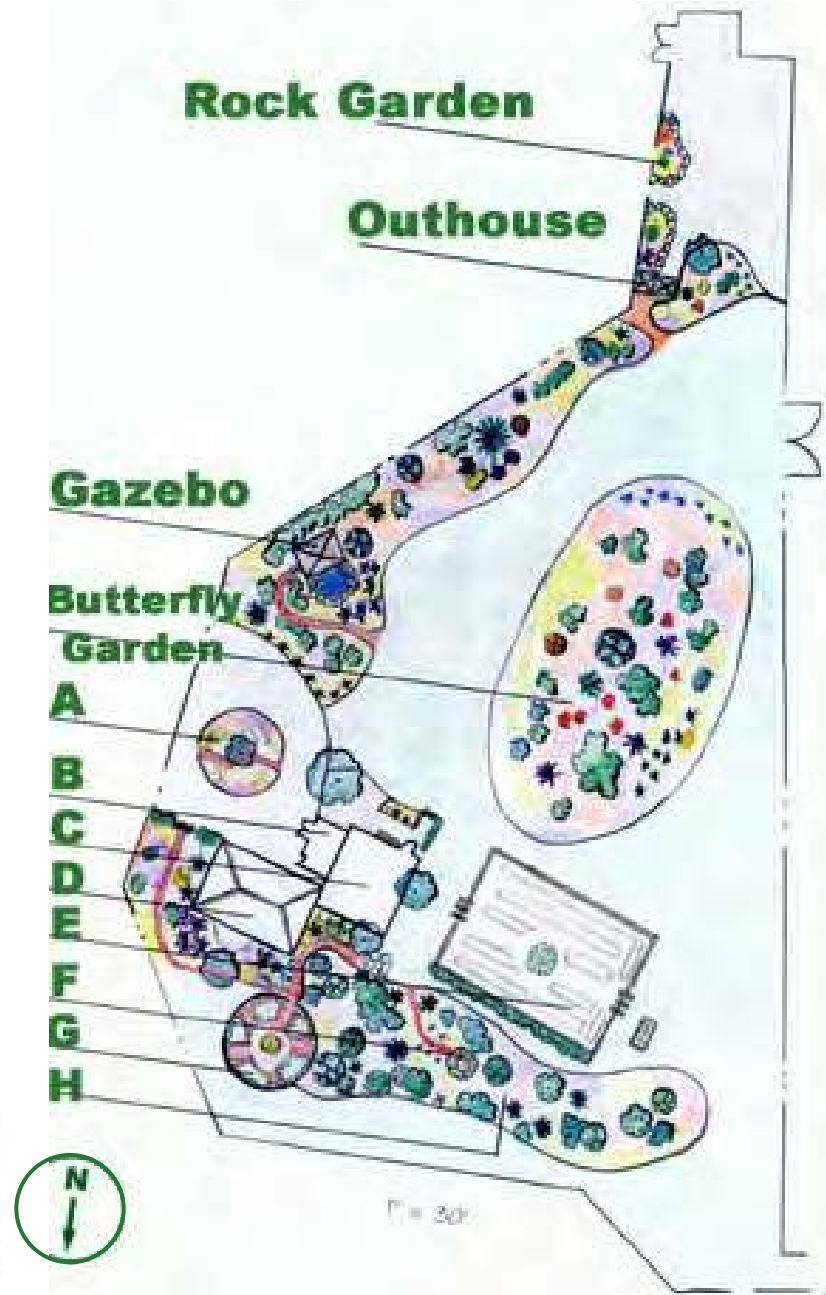
SECTION DRAWING OF OUTDOOR CLASSROOM AREA IOWA CORRECTIONAL INSTITUTION FOR WOMEN



Designers:
Garret Munch & Nicholas King

GREENHOUSE GARDEN SCHEMATIC PLAN RIKERS ISLAND JAIL

Designers:
Rikers Island Jail offenders



**SCHEMATIC DESIGN FOR SOU COURTYARD GARDEN
MONROE CORRECTIONAL COMPLEX**

*Designer:
Amy Lindemuth*



Design

CONSTRUCTION DRAWING



Depending on the complexity of your project, your managers may require construction drawings (CDs). The “final” stage of design, construction drawings communicate project details to those tasked with installing it. All forms and shapes should be completely spatially accurate, properly located and drawn to scale. Items, material types, and quantities should be noted in detailed annotations. Construction drawings are done in both plan and section. Oftentimes, construction drawing sections are zoomed in to illustrate only a single element. These drawings are also called “details.”

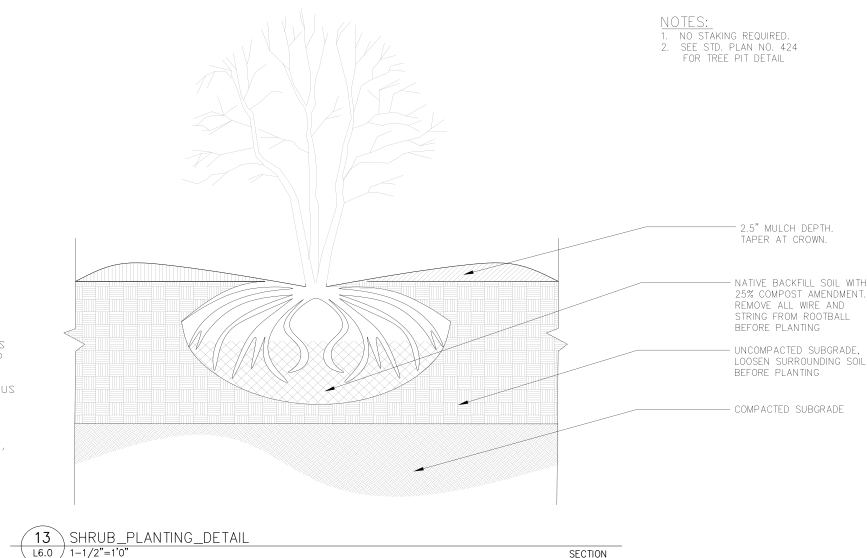
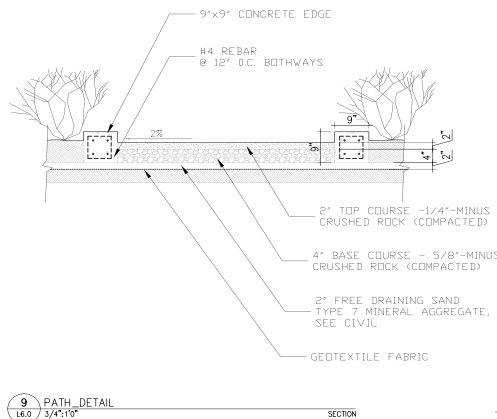
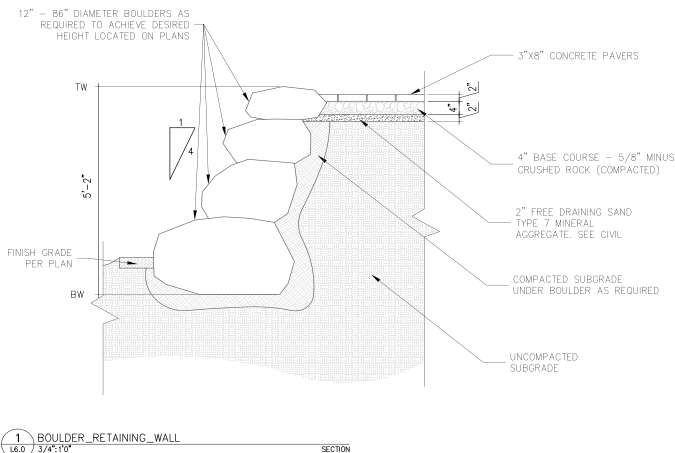
While highly accurate, construction drawings are also very diagrammatic, as they communicate technical information. You may have the chance to review past construction drawings for your site as part of your Site Analysis. This will likely require some interpretation, and you should work with your Project and Construction Managers to help you understand what the drawing is telling you.

WDOC has terrific construction drawing resources available in house. Correctional Industries offers Computer Aided Drafting (CAD) Services to the public to produce construction drawings. Collaboration with them will be necessary if your managers determine the need for CDs. Additionally, many of the groups addressed in the “(Potential) Partners & Resources” section are well equipped to assist non-professionals with construction drawing (see pages 17-18).

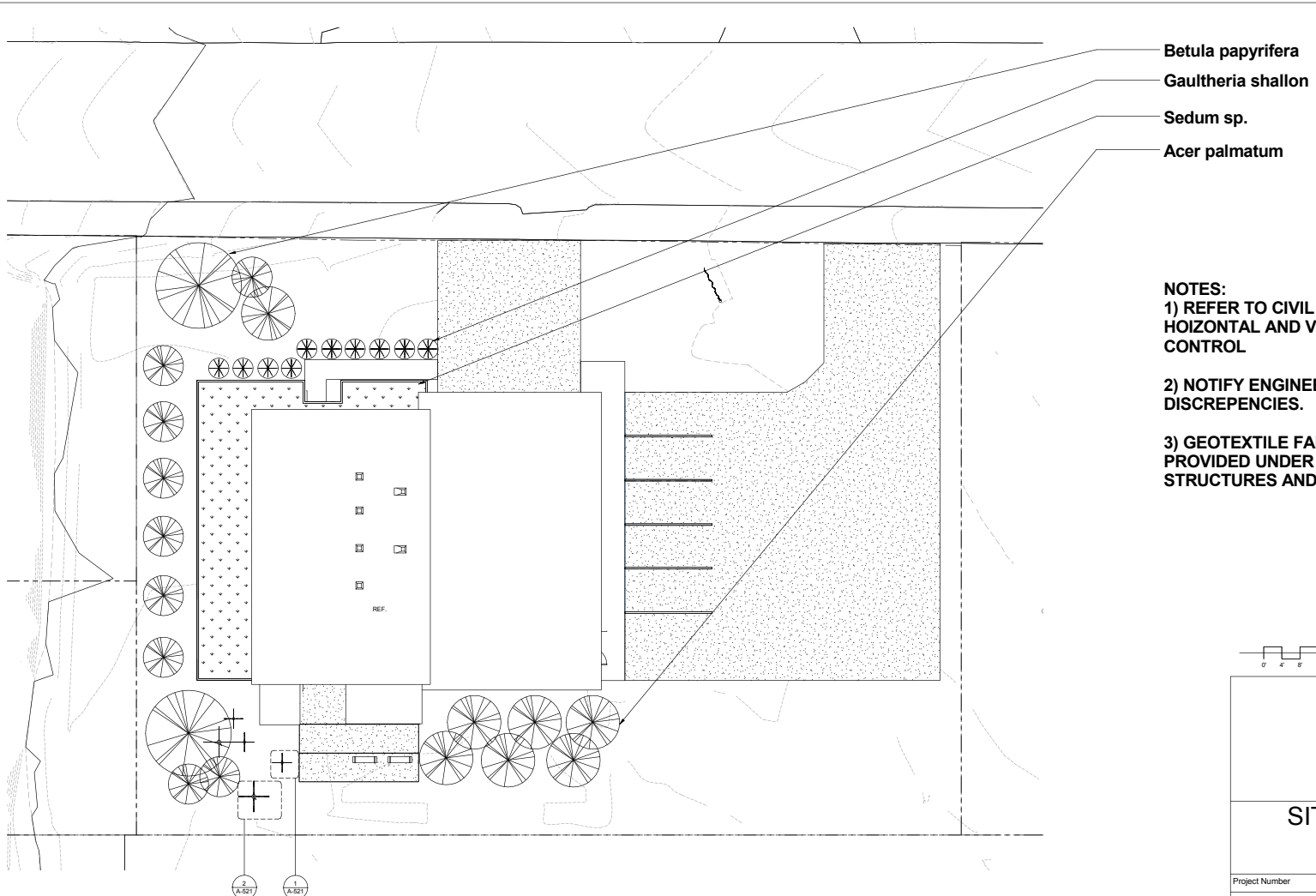
EXAMPLES OF CONSTRUCTION DETAILS

Designer:
Graham Golbuff

NOTES:
1. NO STAKING REQUIRED.
2. SEE STD. PLAN NO. 424
FOR TREE PIT DETAIL.

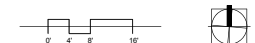


SITE PLAN CONSTRUCTION DRAWING EXAMPLE



- NOTES:**
- 1) REFER TO CIVIL DWGS FOR HOIZONTAL AND VERTICAL CONTROL
 - 2) NOTIFY ENGINEER OF LAYOUT DISCREPENCIES.
 - 3) GEOTEXTILE FABRIC SHALL BE PROVIDED UNDER PATHS, STRUCTURES AND LAWN.

1 SITE PLAN
1" = 10'-0"



SITE PLAN

Project Number	0800
Date	8/19/2014
Drawn By	GG, RM
Checked By	CR, JM
A-100	
Scale	1" = 10'-0"

9/20/2015 11:47:32 PM

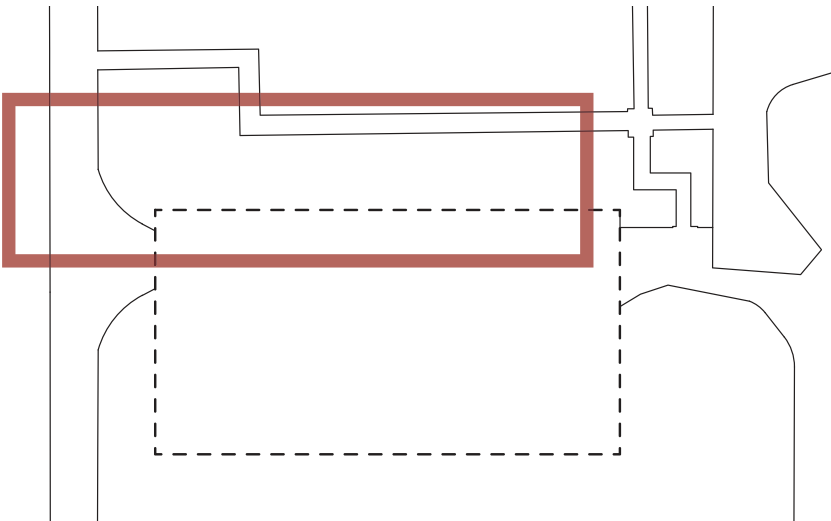
Design

VISUALIZATION: SUSTAINABILITY

Another useful tool in the design process is the perspective drawing. These are not “measured” drawings like plans and sections from which one can determine dimensions of various elements in the design; rather, perspectives evoke the character and ambiance of a place by placing the viewer in the scene.

Perspectives are excellent means to develop design ideas as well as to present them. They can be utilized at any point during the design process. Sketching ideas over photographic prints of existing conditions is a great way to begin conceptual design.

The following pages depict a number of visualizations of prison landscape interventions around a particular theme or concept. All images adhere to the Design Guidelines addressed earlier in these pages. They are intended to provide inspiration and give you a sense of what is possible in prison landscapes.



WATER CAPTURE (RAIN BARRELS)

RAISED BEDS FROM RECYCLED MATERIALS

FOOD GARDENING

WATER QUALITY IMPROVEMENT CHANNEL (BIOSWALE)





STONE
SEATING

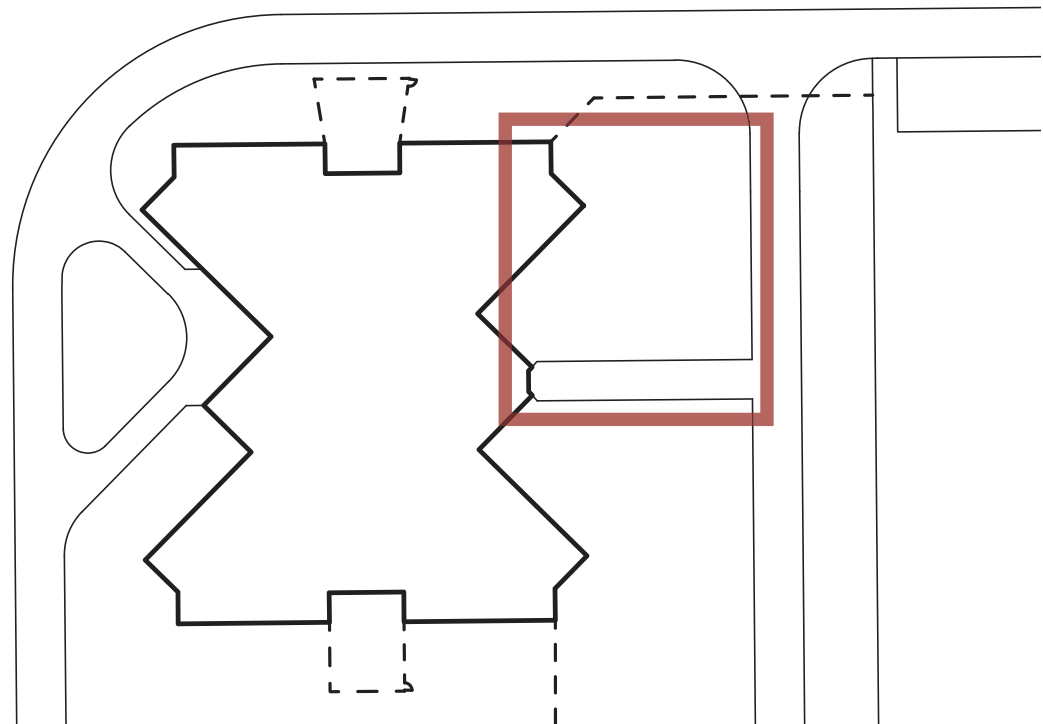
GEOMETRICALLY
ARRAYED
FLOWER
BEDS

STONE PATH

GRAVEL PATHS

VISUALIZATION: CUSTODY UNIT COURTYARD

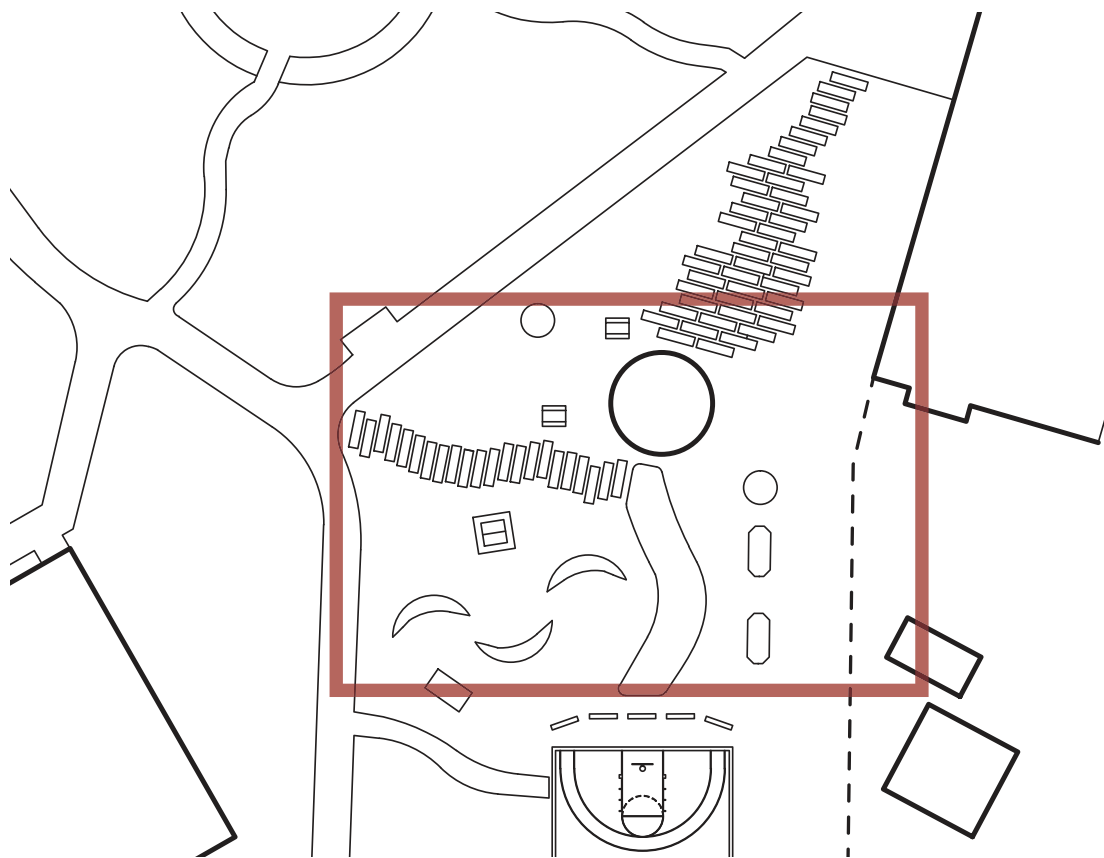
The forms of many custody units allow for small pockets of space that can be converted to create a sense of privacy and personalization. Custody unit courtyards add value to those who experience them directly (outside), as well as from within and can see the landscape through a window. They build community and become a common cause for offenders in a particular unit to rally behind and collaborate in together.



Design

VISUALIZATION: OUTDOOR RECREATION AREA

This concept attempts to take activities that have traditionally occurred inside, such as playing games or conversing, and creating space for them to occur outdoors. The scene depicted here allows for significant crafting and fabrication opportunities, which provide job skills, and help maximize opportunities for pro-social behavior among offenders.



IN GROUND
PLANTINGS

RAISED
BEDS

GAME
TABLE

TREES

PICNIC
TABLES

GAZEBO &
SEATING

STONE PATH



CONSTRUCTION



Construction team members installing raised beds for a plant nursery at Washington Corrections Center.

Construction

PREVENTATIVE PRE-PLANNING

Your idea has moved through the design phase and has been given approval for construction by the Project Manager, Construction Manager and Owner Representative.

Before any work starts, the Project Manager will need to recruit a construction team, ensure access to proper safety equipment and provide a preventative safety training to the crew.

Construction teams should be recruited through standard program and work placement channels that occur during offender intake processing (FMRT). A short list of universally applicable safety equipment for any job is depicted on the right. Because of their ubiquity, these items are perhaps the most frequently forgotten once the construction process begins, so extra effort and attention to ensure access to them is critically important.

The Project Manager should conduct general job safety training any time a new individual begins on the project crew. Training should cover standard work protocols such as how tools are handled and how crew members can properly enter and exit the job site. Broad level information from the US Occupational Safety and Health Administration (OSHA) and WDOC environmental health and safety personnel should also be included in these trainings. Equipment or technique specific training should be led by the Construction Manager on the job site on as needed bases prior to operating the equipment or performing the technique.

UNIVERSAL SAFETY “MUST HAVES”



Ear Protection



Eye Protection



Hard Hats



Sunscreen



Gloves



Drinking Water

INTRODUCTORY SAFETY TRAINING



Construction

SUPERVISION & CREW MANAGEMENT

When working on landscape scale projects in prison environments, there may be a need for supervision that exceeds standard protocols for other offender jobs or programs. The following scenarios have been established using a combination of best practices from past WDOC projects as well as other innovative prison landscape projects from around the country.

If a construction crew is composed of up to three offenders, only one supervisor needs to be present. This supervisor would usually come from the facility's maintenance department. It could be the project's Construction Manager, or simply another maintenance staffer. If the crew is between 4-10 offenders large, at least two supervisors need to be present. In addition to the maintenance staff member, a custody officer (CO) should be available to help provide oversight. The CO could be the Project Manager, or any officer.

The flexibility concerning "who" these supervisors must be allows for staffing flexibility and prevents the managers from being overworked.

As crew size increases, continue to increase supervision as per this framework (3 supervisors for 10-13 person crew, 4 supervisors for every 14-20 crew, etc.).



1 SUPERVISOR **(MAINTENANCE)**

For 3 person
construction crew



2 SUPERVISORS **(MAINTENANCE** **& CUSTODY)**

For up to 10 person
construction crew



Crew supervision at Iowa Correctional Institution For Women

Photo: Alison Weidemann



Construction

TOOL & MATERIAL MANAGEMENT

If the landscape project adheres to the supervision program addressed on the previous page, tool access for construction crew members is fairly unrestrictive. Two tools that can not be used by crew members however are box knives and hydrant keys. Supervisors should make all necessary cuts and provide water access when appropriate.

Tools should be inventoried at the beginning and conclusion of each work day, after crew members arrive on the site and before they leave. Project & construction managers should label all tool types with unique numbers. Throughout the day, supervisors should hold periodic “role calls,” asking for the location of, say, hammer 4 of 6. This will help cultivate a sense of sacredness around tools and improve overall facility safety. Tools should be stored in a controlled, monitored area. Only the necessary tools for the day’s work should be brought out to the job site each day. All other tools should remain in storage.

Coordinating the delivery of materials and stockpiling it on the job site is a complex endeavor for any construction project, but is especially difficult in prison settings. Construction Managers should lead this process and be sure to provide vendors with as detailed information as possible when arranging delivery of materials. Any materials stored on site should be in a secured area with no movement or activity outside of supervised landscape construction work.



Staging soil within a secured area at Washington Corrections Center



Construction

SEQUENCE & CONSIDERATIONS

The remainder of this section is meant to give a broad introduction to the general sequence of construction tasks on any landscape project, as well as to address considerations that are unique to prison contexts for that particular phase of construction.

Construction of Outdoor Classrooms at the Iowa Correctional Institution For Women

Bob Elbert



Construction

1) DEMOLITION

Most any landscape project begins with clearing a site of features that are not to remain. This helps improve the project's overall efficiency by allowing for materials to move more easily through the site, but can also be environmentally destructive if not considered wisely.

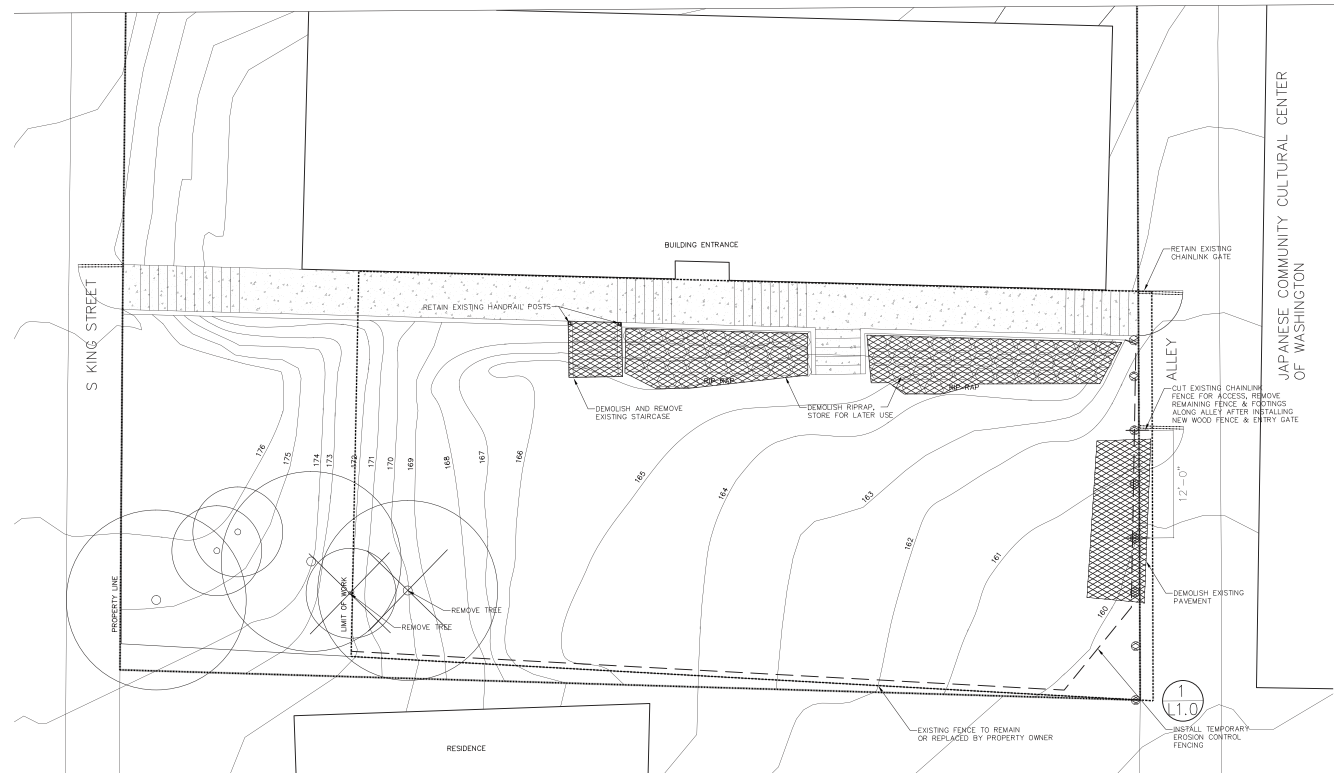
Items that are commonly demolished include structures, paths & vegetation. Trees should only be removed if absolutely necessary.

When possible, it is ideal to demolish by hand rather than by vehicular equipment, which helps reduce overall environmental impact. Tools used in this process include picks, digging bars, shovels, saws & hammers. Vehicular demolition equipment includes bulldozers & excavators.

Under supervision, offenders can participate in any manual demolition activity. They can not operate vehicular equipment, and should be assigned work in other project areas while those operations are occurring.

Example of a demolition plan in a construction drawing set.

Designer: UW Landscape Design/Build Studio



Construction

2) ROUGH GRADING

In creating landform or topographic variation, a site undergoes rough grading. Earth is “cut” to create depressions and low points, and “filled” to create mounds or high points. To maximize sustainability, rough grading aims to equalize the amount of earth that is cut and filled. This reduces the quantity of material that needs to be imported or exported from the site and minimizes overall disturbance. Calculating the equalization of cut and fill happens during the creation of construction documents.

Rough grading is typically accomplished by vehicular equipment like bulldozers and scrapers. As WDOC landscape design guidelines only permit a 12” topographic variation, rough grading for prison landscape projects can occur manually with shovels, digging bars and rakes.

Cutting & filling of earth on a job site during rough grading

Pacific Coast General Engineering



Construction

3) EXCAVATION

After your project's general topography has been established, any digging for trenches, foundations, footings, steps and other landscape features should be accomplished at this time. This step is broadly referred to as excavation.

Due to the precision that most excavated areas require, excavation is best completed manually. In addition to picks, shovels and digging bars, rototillers, sod cutters and augers may be helpful at this stage to loosen compacted areas.

After areas are excavated, they should be clearly marked with marking paint, caution tape, flags and other fluorescent materials.

Like the demolition stage, under supervision, offenders can participate in any manual excavation activity, even when potentially dangerous tools are involved.

Manual excavation to establish a reflecting pond



Rototiller



Sod Cutter



Auger



Construction

4) DRAINAGE

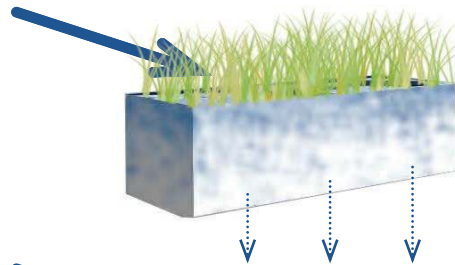
Drainage features may become part of your landscape project, particularly when renovating a field, installing a water feature or a bioswale. Drainage infrastructure construction typically involves both “built” components and natural features such as topography and soils. General site drainage strategies include infiltration (absorption by soils & other natural media), detention (collection and subsequent release), and retention (capture & storage). Many projects employ multiple drainage approaches at once.

After drainage feature areas have been excavated, infrastructure like piping and catch basins are placed for detention and retention approaches. For infiltration approaches, the excavated areas are amended with compost and other organic materials.

One type of drainage infrastructure that deserves special attention in a prison setting is an area drain. Found in both vegetated and paved areas in landscapes, area drains feature exposed grates that allow water to percolate into a pipe or basin for retention or detention. In prison landscapes, grates must be fastened to their below ground component rather than simply left in place and secured by their weight and gravity.

INFILTRATION

Bioswales, Rain Gardens,
Porous Paving



DETENTION

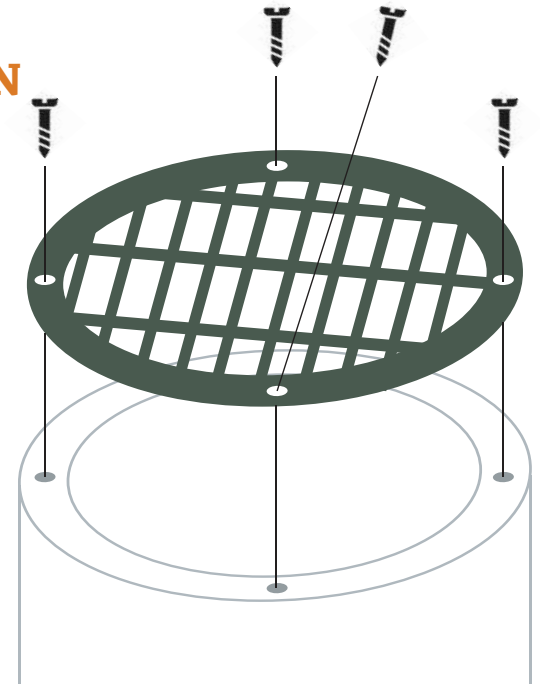
Catch Basins, Cisterns



RETENTION

Cisterns, Ponds,

SECURING AN AREA DRAIN



Construction

5) CONCRETE

The most widely used building material in the world, concrete is remarkably durable and versatile. In landscape contexts, concrete is primarily used as a material for a foundation or footing for a structure, as media for a path or floor, or in a functional or sculptural context, such as a bench or table. Under supervision, offenders can participate in all aspects of the concrete construction process.

Concrete is made by mixing cement, an aggregate (typically sand and/or crushed stone) and water. It is then poured into a wood, metal and plastic mold (“form”) and left to solidify (“cure”). Forms are then deconstructed, leaving behind only the concrete. In many cases, other materials such as rebar and metal brackets are set into the concrete after it’s been poured into a form to either improve the material’s tensile strength or as a means to connect other materials later on. Concrete is typically installed in excavated areas that have had a layer of crushed stone applied (“subbase”) and then compacted before the form is set into the excavated area and before concrete is poured into the form.

Concrete has remarkable thermal mass, meaning that it retains heat well. At the same time, concrete also requires significant thermal energy inputs to warm from ambient temperatures. Thus, concrete plays an important role in the creation of microclimates on a site. It is also an important consideration in specifying it as a material for functional purposes. If used as a bench and placed in direct sun, will it get too hot for people to sit on? Finally, concrete can be made artful and intriguing by the formwork itself, or by applying unique finishes and scoring patterns into the concrete while curing.



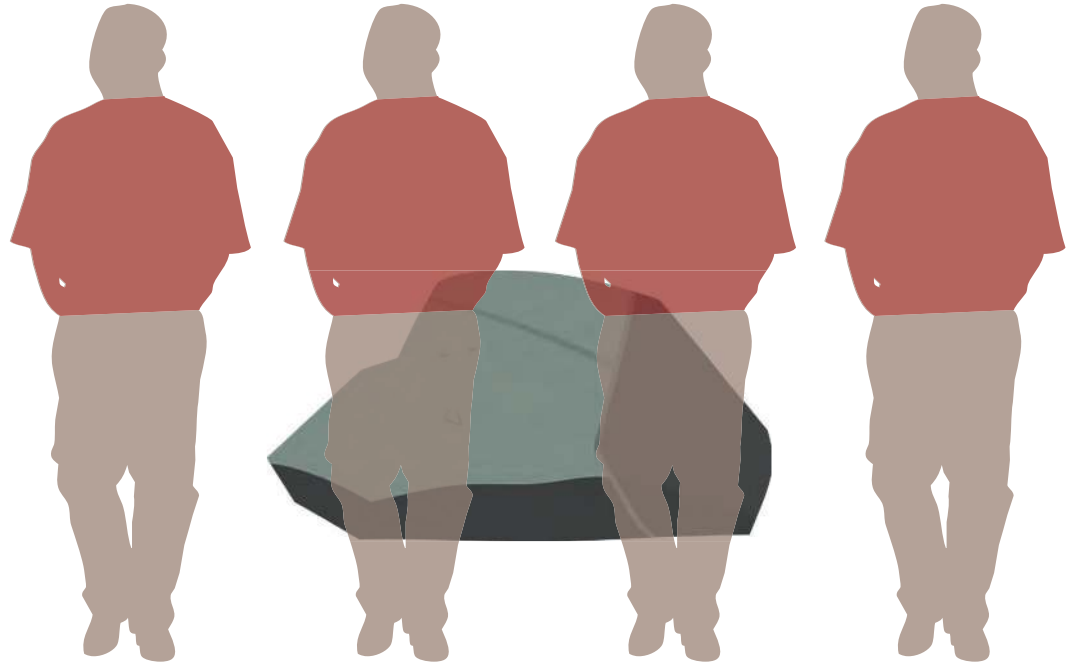
Construction

6) STONE & MASONRY

Stone & masonry units like bricks or pavers have a variety of applications in the landscape. Broadly, they can be used to make seating, paths, planting beds, and (when large enough) individual sculptural elements. Individual stone and masonry units (think “pieces”) can be assembled by “dry” (without a binding agent), or “wet” (with a binding agent, typically mortar) techniques. Which technique you’ll use will ultimately depend on your materials and desired feature or structure.

Individual stones are commonly measured by “men” units, that is, how many individuals it would generally take to move and place the unit. For individual, dry laid stones in prison landscapes, the units must be no smaller than 4-man. Stones of this size are best placed manually, using digging bars and wheelbarrows.

In assembling structures from smaller stone and masonry units, such as for seating or planting beds, epoxy has been found as an effective binding agent in prison landscapes. This reduces the need for mortar and accompanying training, which ultimately allows for more individuals to be involved in the construction and improve the project’s overall efficiency.



Epoxy & dispenser



Stone seating & planters

Bob Elbert



Construction

7) FINISH GRADING

At this point, all digging has been completed and the majority of heavy items that can shape topography by virtue of their mass, such as concrete and stone, have been placed. The next step in the sequence is to establish finished grade for final site modifications.

Finished grades are the intended, precise surface elevations across the entire project site. Unlike rough grading, finish grading is much more precise and is best achieved through manual means. Check elevations with a transit level and grading rod, and sculpt terrain accordingly with a landscape rake.

Finish grading a stair landing with a landscape rake



Shih-Chia Chiu

Checking final elevations

Shih-Chia Chiu



Transit Level & Grading Rod



Landscape Rake



Construction

8) CARPENTRY

Wood is a versatile material in the landscape, and due to its organic nature & human scale, it possesses an inherent warmth and inviting quality that few materials can match. It is also comparatively easy to work and allows for fine craftsmanship. Primarily a structural material, wood is typically used in structures and furnishings in prison landscapes. Sheds, garden beds, shelters, and specialty paths can all be constructed from wood in prison environments.

Many wooden landscape elements can and should be constructed off the job site in WDOC maintenance or educational program shops. In selecting woods for prison landscape projects, fir and cedar are recommended due to their local availability and inherently long lives through natural preservatives in their tissues.

Wooden bridge over pond at HM Prison Whatton, UK
prolandscapingmagazine.com



Artful trellis in garden at Halden Prison, Norway

Marte Aas



Carpentry shop in action at Crowley County Correctional Facility, CO

Cyrus McCrimmon



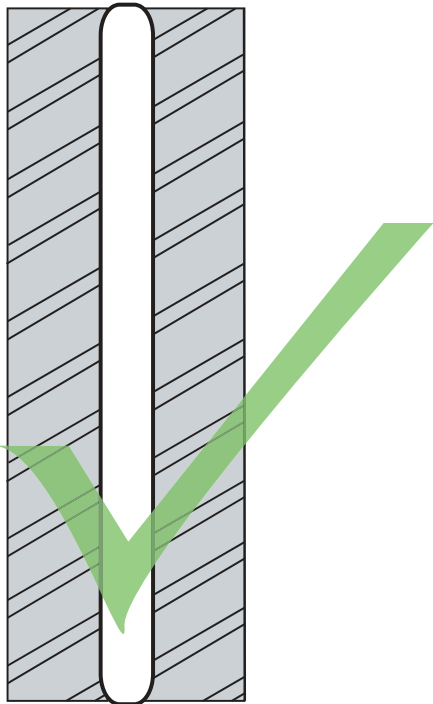
Construction

9) METAL WORK

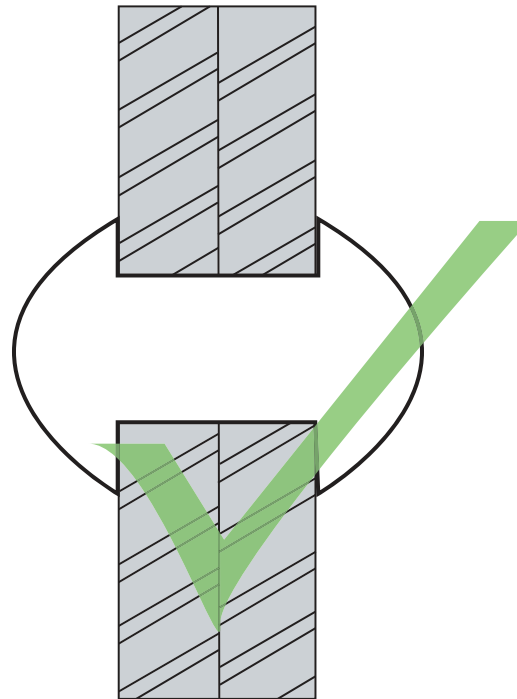
Though their fabrication can take place concurrently with any other phase of the construction sequence, metal elements are the final pieces that are installed in a prison landscape. In prison landscapes, metal is primarily used as a structural component or to connect different elements. Due to the inherently more technical nature of metal fabrication and construction compared to concrete, wood and stone, as well as related safety concerns, metal is generally discouraged in prison landscapes.

There may be times, however, when the use of metal is imperative, such as for a structural connection or a lighting fixture. In those cases, the key detail to working with this material in a prison landscape is to minimize the amount of connections that can be easily taken apart. This is to say that connections should be welded or riveted rather than assembled by traditional fasteners (bolts, screws, nuts, etc.).

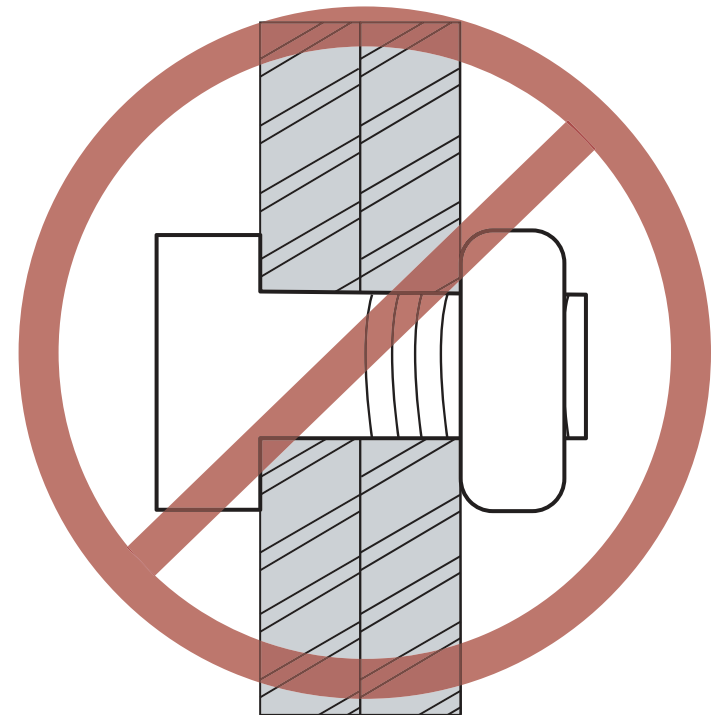
WELDED CONNECTION



RIVETED CONNECTION



BOLTED CONNECTION



Construction

10) PLANTING

Construction is nearly complete, and the project is beginning to look like a functional, enjoyable space. The last step to be completed in the construction sequence is planting. If possible, and if they haven't played a role in the project thus far, involve the grounds and/or horticulture programs at your facility to assist with or lead this activity. Hopefully they have some plant stock that they can contribute to the project.

General planting guidelines are as follows: Dig a hole that exceeds the plant's root ball diameter and loosen the soil on the sides and base of hole while maintaining its shape. Sprinkle some compost and worm tea or other organic fertilizer into the hole. Remove the plant from its container and rough up the root ball. Set the plant in the hole so that the plant's crown (where it emerges from the soil of the root ball) is level with the adjacent ground. Adjust the depth of the hole by filling in or digging out extra soil as needed. When the appropriate depth is set, place the plant and pack it down with light force to stabilize. Repeat the compost and worm tea application at the surface around the plant's crown, then lightly scratch it in as you did the root ball. Water the new planting "in" as soon as possible.

Under supervision, offenders can participate in all aspects of the planting phase.

Greenhouse planting at Cedar Creek Corrections Center



Watering in a new raised bed planting of Viola adunca at Washington Corrections Center



POST-CONSTRUCTION



Enjoying strawberry plants in a brick planter at Washington Corrections Center for Women

Post-Construction CELEBRATION

When your landscape project is complete, the first order of business is to celebrate and recognize your accomplishments! This is a great way to show gratitude to individuals, departments and programs at the facility that helped make the project possible. Having a celebratory or recognition event also helps build buzz for creating more enjoyable landscapes around a facility, resulting in an more positive environment for all.



Post-Construction MONITORING & EVALUATION

As lots of energy and effort went into the creation of your landscape project, it may be appropriate to assess the benefits that your project yielded over time.

It is first important to define what you wish to monitor. For this, revisit your initial project goals. If creating wildlife habitat was an objective, doing periodic insect and animal counts would be an appropriate way to assess the effectiveness of meeting that objective. If you wanted to create a space for socialization and gathering, tracking how often it was being used by offenders would be an effective way at getting that information. In short, your methods will be defined by what you want to monitor.

The “who” component of the monitoring question can vary. Offenders may be able to participate if interested, though they might not be able to have continual access to the landscape that staff would have, which could compromise the quality of data collected. Project Managers should work with other custody officers on duty during movement or other outdoor times to see if they can help the project collect information.

When sufficient monitoring data has been collected, the Project Manager should work with the Construction Manager and Owner Representative to analyze the data and evaluate the overall value of the project. Evaluations can be repeated periodically, and if a particular project returns regularly poor results, that information can be used as grounds to adapt the site for different use in the future.

Monitoring insect damage on leaves



Benj Drummond & Sarah Joy Steele

WDOC Project Managers evaluate landscape projects



Post-Construction
MAINTENANCE

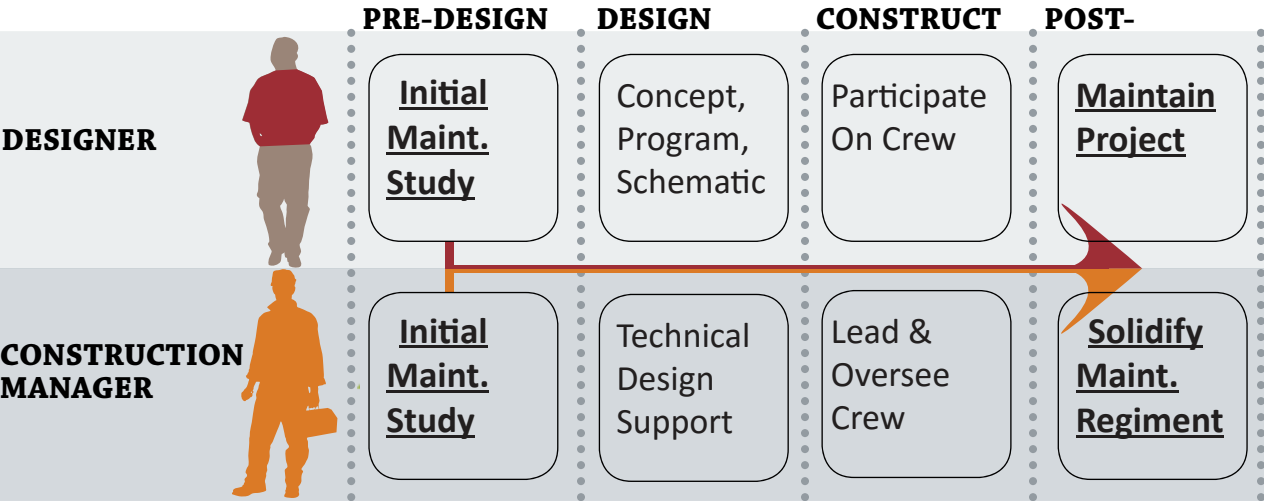
To ensure your project persists over time, a maintenance regiment should be established. Depending on what elements your project contains, maintenance could include painting, staining, washing, lubricating, sanding/grinding, compacting, pump cleaning, mulching, pruning, fertilizing and weeding.

The earlier in the process that the project considers the likely maintenance required, the better. This thinking ultimately helps inform design and construction decisions. Work first with your Construction Manager to establish a maintenance program & rate of recurrence.

The Project Manager should then reach out to specific maintenance teams (grounds, plumbing, hardscape, etc.) to ask if they’ll take on maintaining the project as part of their regular work. If not, the Project Manager can consider lobbying for the establishment of a new crew that specifically cares for the newly created landscape project.

Regardless of who maintains the project in the long run, once the maintenance program is established, it should be documented. Offenders can help draft a maintenance manual for the project that details the program established by the CM, and work with the Project Manager to ensure the manual is archived and shared appropriately. Finally, offenders can apply to work on crews that maintain the created landscapes. These jobs are rewarding and benefit individual offenders as well as the greater prison community.

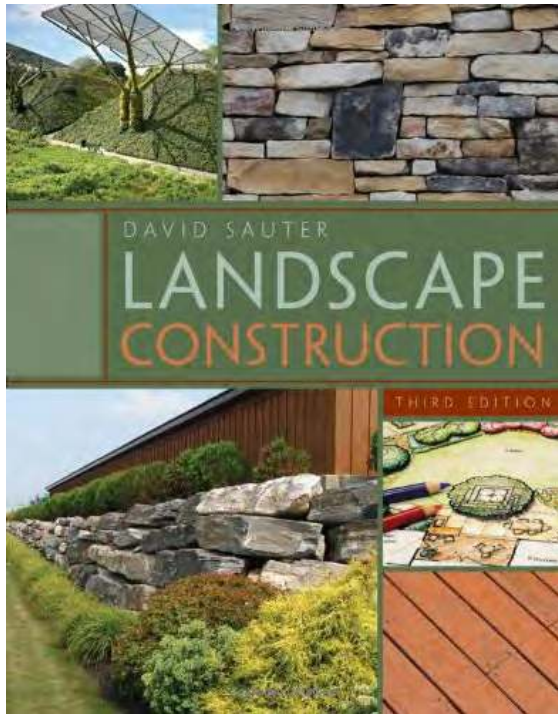
Routine garden maintenance at Washington Corrections Center for Women





GROWING WASHINGTON'S PRISON LANDSCAPES

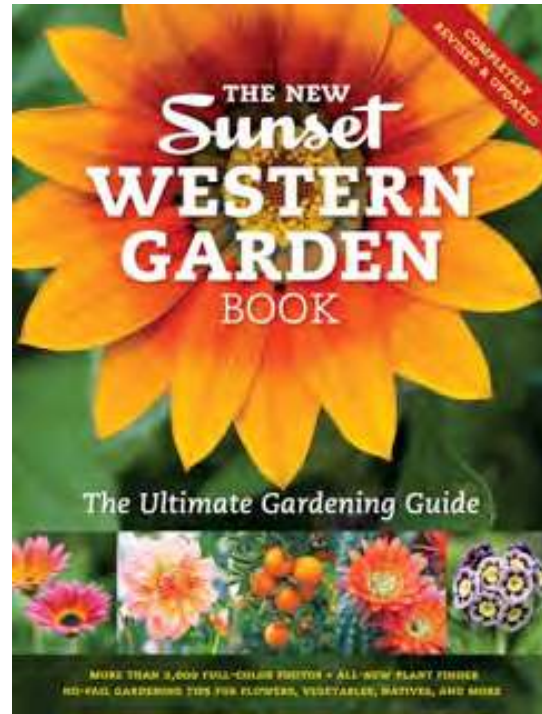
(invaluable) RESOURCES



Landscape Construction

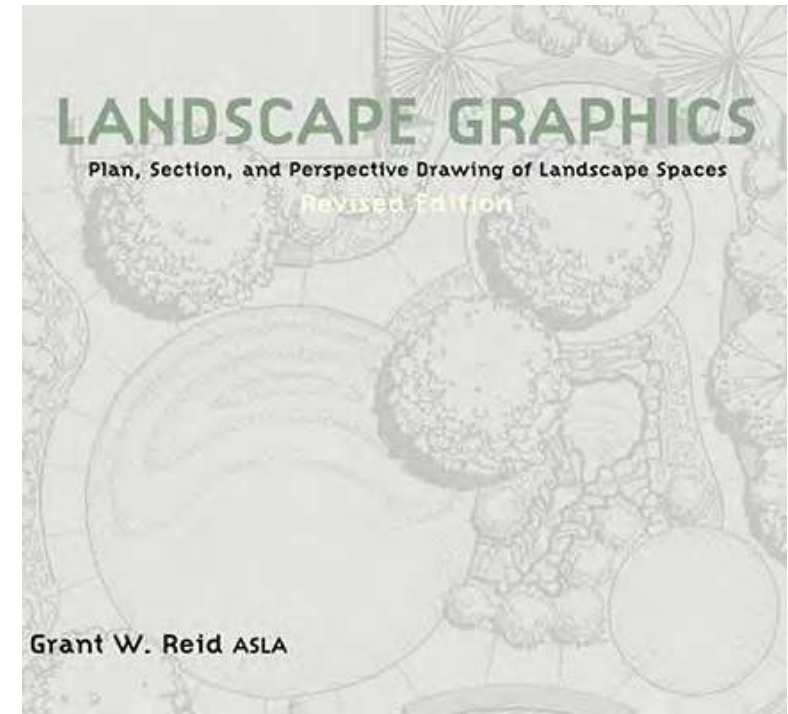
by David Sauter

detailing,
construction techniques,
material properties



The Sunset Western Garden Book

plant selection,
design inspiration,
maintenance requirements



Landscape Graphics

by Grant Reid

concept drawing,
schematic drawing,
graphic conventions

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