National Forest Foundation

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Missoula, Montana 59804
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Request for Proposals

Forest Wide Vault Toilet Replacement

Medicine Bow-Routt National Forests and Thunder Basin National Grassland (MBRTB), Colorado and Wyoming

Background and Statement of Work: The Great American Outdoor Act (GAOA) established the National Parks and Public Land Legacy Restoration Fund (LRF) to address overdue maintenance needs. Many of the existing toilets on the USFS Medicine Bow Routt National Forest and Thunder Basin National Grassland (MBRTB) are outdated. Replacement will enhance visitor experience and reduce deferred maintenance costs. The National Forest Foundation, in partnership with the USFS MBRTB, are seeking proposals to complete demolition of existing toilets and installation of new toilets, enhancing visitor and recreational experiences on the MBRTB.

Information Requested

If interested in submitting a bid for this project, please provide a proposal for the above statement of work by providing:

- technical approach
- work experience, including experience with similar projects
- cost
- capacity for this project

Specific requirements are detailed below.

I. PROJECT OVERVIEW AND REQUIREMENTS

General Specifications

(a) Description of Work – This Request for Proposals is for demolition and installation of single and double vault toilets across Medicine Bow-Routt National Forests and Thunder Basin National Grassland, including the following:

1. Pumping, decommissioning, and removal of 16 single vault toilets and structures and 18 double vault toilets and structures. Crush in place and fill concrete vaults.
2. Delivery, placement, and installation of 34 new vault toilets and structures, including 12 Single Vault and 22 Double Vault toilets and structures.

See Appendix A for specific locations of each toilet for demolition and new toilet installation.

(b) General Requirements –

1. Each site must always have a working toilet throughout the duration of the project.
    i. The selected contractor will provide a plan and schedule for available toilets per site for the duration of construction.
    ii. The exceptions to this are toilets required to be placed/replaced in the existing excavated vault hole.
2. Open excavated holes will not be left overnight without approval from NFF, and an approved barrier must clearly block public access to the open excavated hole.
3. The selected contractor will notify NFF 2 weeks prior to any mobilization, decommissioning, site preparation or installation. Contractor will provide an access plan per site.
4. No installation will be allowed on holidays or weekends without prior approval, due to concerns with access and impacts to heavy recreational use sites.
5. All equipment shall be cleaned to remove mud/dirt and noxious weeds and inspected prior to mobilization to the USFS sites.

(c) Requirements for Decommissioning Toilets –

1. Each site requires vault to be pumped empty and processed with lye consistent with industry standards for sanitation and remediation prior to decommissioning.
2. Old structures and/or vaults must be removed from the USFS site within 5 days of the new toilet being installed.
3. Old concrete vaults being crushed in place will be filled in and compacted with native soil 3 inches above ground level the same day vaults are crushed in place.
4. The general average vault size is 500 Gallons per hole, although some sites may vary based on location.
5. Each site may contain metal and/or plastic features to remove. Variations in site conditions may exist.
6. Most of the concrete vaults can be crushed in place. All other materials from decommissioning must be removed and deposited in a proper location off USFS land.

(d) Requirements for Installation of New Toilets –

1. Installation locations will be marked on the ground prior to the contractor's arrival.
2. Toilets will be installed per manufacturer's recommendations.
3. Before new installations are approved, the contractor must recharge each toilet with 50 gallons of water within 5 days of installation.
4. If a hole can't be dug due to bedrock, an alternate location will be assessed.
5. All toilet vaults and buildings will be concrete.
6. Buildings must be fully accessible.
7. Precast concrete buildings shall be delivered in a completed state with minimal fieldwork required to place and complete installation on the site.
8. No painting except for touch-up may be completed at the site.
9. No concrete work shall be allowed at the site.
10. Site approaches shall meet accessibility standards and regulations for a minimum of 6-10 feet based on site conditions (gravel path to entrance of new building).
11. The preferred building exterior would have a roof of simulated wood shakes, with board and batten walls with appropriate signage for accessibility and Forest Service Brown, FEDST 20059 in color.

12. An additional 4 roll toilet paper holder with a lockable bar will be installed in each unit.
13. All single vault toilets will have an entry way vestibule to block wind or snow. Substitutions may be made with NFF approval.
14. All doors will have the same key lock.
15. All restroom signs will be unisex.

The Contractor shall identify what they can supply in terms of materials, labor, equipment, supplies, supervision, quality control, and incidentals required to complete the work described. The Contractor shall perform all work in a safe and conscientious manner.

(e) Project Locations – See Attachment A - Site Locations
   1. Toilets are located in the following counties:
      i. WY- Albany, Carbon, Converse.
      ii. CO - Jackson, Routt

(f) Site Maps - See Attachment A - Site Locations

(g) Work Schedule – Work will occur no earlier than May 1, 2025, and no later than September 1, 2027. Contractor will submit a draft schedule as part of this proposal. This schedule should include a list of factors that will impact timelines such as weather restrictions, recreational use, holidays, seasonal closures.

Other Project Requirements and Specifications

(a) CXT or Equivalent Specifications - See Appendix C

(b) Single and Double Vault Specifications - See Appendix D

(c) Utilities – In many locations there will be no or limited sanitation, water, electrical or housing services available. The Contractor shall make its own arrangements for temporary facilities if needed.

Insurance Requirements

Upon selection of the winning bid, the Contractor agrees that it has and shall maintain the following insurance coverage indicated below. The effective date of all coverage shall precede the start of any work.

a. State minimum workers' compensation insurance coverage for its employees, if any.

b. Broad form general liability, property damage, and automotive liability insurance in the minimum amount of $1,000,000 for bodily injury, death, or damage to property of any person and $2,000,000 for bodily injury, death, or damage to property of more than one person. The Contractor shall name NFF an Additional Named Insured and provide NFF with a certificate of insurance evidencing such coverages, prior to the initiation of the Scope of Services.

c. If the Scope of Services includes professional services as identified herein, Contractor shall also provide professional errors and omissions liability insurance.

Professional services for purposes of this section include, but are not limited to performing architecture, engineering, landscape architecture, land surveying or planning, preparation and signing or stamping of drawings, maps, surveys or construction specifications, or design and development of computer software, programs or websites by the Contractor or by subcontractors on behalf of the Contractor, for which professional liability insurance would typically be required. The minimum coverage limits required are $1,000,000 for each claim and $1,000,000 annual aggregate.

Prohibited Telecommunications Services and Equipment

The Contractor is responsible for compliance with the prohibition on certain telecommunications and video surveillance services or equipment identified in 2 CFR 200.216.

Payment/Performance Security

Contractor shall post cash, a letter of credit, bond, or other financial security that is easily convertible into cash in a form acceptable to the NFF, in its sole determination, to assure completion of the work required under any subsequent agreement and payment of all amounts lawfully due to all persons supplying or furnishing to the Contractor or Contractor's subcontractors with labor, laborers, materials, rental machinery, tools or equipment used or to perform the work. Contractors may incorporate required associated costs into mobilization costs or other approved expenses.

a. Work that is classified as construction in accordance with the Miller Act or Little Miller Act or if required per conditions of the funding source, payment and performance bonding will be required in the full amount of any Agreement. For the purposes of this Request for Proposal, construction is defined as "any contract greater than $100,000 for the construction, alteration, or repair of any public building or public work where the federal government is the owner", or

b. If Contractor is not self-performing at least 85% of the total contract value or if the cost of materials is in excess of the larger of $100,000 or 50% of the contract total, payment and performance bonding will be required in the full amount of the agreement, or

c. If the value of the agreement is in excess of $250,000, Contractor will be required to post financial security in a form acceptable to the NFF in the amount of 5% of the total agreement value up to $250,000 in total financial security.

Federal Exclusion Verification

The selected Contractor will be required to affirm that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

Federal Flowdown Provisions

Flowdown Requirements: Any Agreement associated with this RFP may be subject to flowdown requirements under associated federal or state funding agreements, which are included and attached as Appendix B.

II. REQUIRED COMPONENTS

Technical Proposal

Please provide a detailed technical approach to the work described in the Description of Work Section and Appendix A "Site Locations." Please include an overall draft schedule and project plan to complete the demolition and installation for each location. Include toilet specifications for single and double vault toilets.

Contractor Qualifications

(a) Past Experience – Please provide a brief explanation of previous work experience on similar projects with land management agencies.

(b) References – Please provide three professional references that can speak to past performance.

Pricing Schedule

Contractor shall price work according to the schedule below. Prevailing wages are required per conditions of funding sources.

The Pricing Schedule is a general listing of Scope of Work items and may not be fully inclusive of the specified Scope of Work. It is the Contractor's responsibility to separately enumerate all Scope of Work items that are excluded from their Proposal. All work items will be awarded at the discretion of the NFF, as budgetary obligations allow. Note that NFF typically requires a 2-year warranty in the standard service contract for construction projects.

Ranger District	Location	Decommission	Existing Toilet Type	Decommission Unit Cost EA	Installation	Installation Unit Cost EA
Yampa	Trout Creek RA	1 Single Vault	Stick		1 Single Vault	
Yampa	Crosho Lake RA	1 Double Vault	Stick		1 Single Vault	
Yampa	Rock Creek	1 Single Vault	Stick		1 Single Vault	
Yampa	Lynx Pass CG	1 Double Vault	Compost		1 Single Vault	
Parks	Pines CG	1 Double Vault	Romtec		1 Double Vault	
Parks	Hidden Lakes CG	1 Double Vault	unknown		1 Double Vault	

Ranger District	Location	Decommission	Existing Toilet Type	Decommission Unit Cost EA	Installation	Installation Unit Cost EA
Parks	Teal Lake Day Use Area	1 Single Vault	Stick		1 Single Vault	
Hans Peak/ Bears Ears	Dry Lake Trailhead	1 Double Vault	Concrete		1 Double Vault	
Hans Peak/ Bears Ears	Summit Lake CG	2 Double Vaults	Stick		1 Double Vault	
Hans Peak/ Bears Ears	Dumont Lake Parking	2 Double Vaults	Stick		2 Single Vaults	
Hans Peak/ Bears Ears	Hahns Peak Lakes ES	1 Double Vault	Stick/Compost		1 Double Vault	
Hans Peak/ Bears Ears	Fish Creek Falls PG	1 Double Vault	Stick		1 Double Vault	
Hans Peak/ Bears Ears	Meadows CG	4 Double Vaults	Stick		4 Double Vaults	
Laramie	Brooklyn Guard Station	NONE	no building		1 Single Vault	
Laramie	Happy Jack RA	1 Double Vault	1964 concrete		1 Double Vault	
Laramie	Chimney Park TH	1 Single Vault	Stick		1 Single Vault	
Laramie	Green Rock Parking	1 Single Vault	Stick		1 Single Vault	
Laramie	Rob Roy CG	1 Double Vault	Stick		1 Double Vault	

Ranger District	Location	Decommission	Existing Toilet Type	Decommission Unit Cost EA	Installation	Installation Unit Cost EA
Douglas	Esterbrook CG	2 Single Vaults	Romtec		2 Single Vaults	
Douglas	Friend Park CG	1 Single Vault	Romtec		2 Single Vaults	
Brush Creek/ Hayden	Mirror Lake Parking	NONE	no building		1 Double Vault (This site could involve removal of bedrock. No alternate location available.)	
Brush Creek/ Hayden	Silver Lake CG	NONE	no building		1 Double Vault	
Brush Creek/ Hayden	Lake View Parking	1 Double Vault	Romtec		1 Double Vault	
Brush Creek/ Hayden	Lincoln Park CG	2 Single Vaults	1 Romtec and 1 Stick		1 Double Vault	
Brush Creek/ Hayden	Hog Park West Parking	1 Single Vault	Stick		1 Double Vault	
Brush Creek/ Hayden	Hog Park CG	2 Single Vaults	Stick		2 Double Vaults	
Brush Creek/ Hayden	Bow River CG	2 Single Vaults	Romtec		1 Double Vault	
Brush Creek/ Hayden	Routt Access	1 Single Vault	Romtec		1 Single Vault	
					Total Bid:	

III. SUBMISSION, EVALUATION, AND CONTACTS

Contractor Selection Process

This is a request for proposals only and bids furnished are not offers from the National Forest Foundation. This request does not commit the National Forest Foundation to pay any costs incurred in the preparation or submission of the proposal or to contract for supplies or services.

The NFF will use the Evaluation Factors below to review each submitted bid. Based on the outcomes of that selection process, the NFF will notify successful and unsuccessful bidders by January 8, 2025 and will prepare a separate contract document.

Evaluation Factors and Relative Importance

The following criteria will be used in the evaluation of submitted proposals, ordered from highest weighting (level 3) to lowest weighting (level 1).

Level 3 Criteria
- Price / cost
- Equipment and contractor capability
- Timing of when contractor can begin and/or finish the project
- Past performance, references, and USFS feedback

Level 2 Criteria
- Technical proposal / proposed approach to project
- Overall strategic benefits to meeting NFF goals and grant needs, requirements, and timelines

Level 1 Criteria
- Benefits to the local community
- Relationship to local community

Point of Contact

Please submit any questions about the project in writing to the Point of Contact.

Jim Fried
National Forest Foundation
Medicine Bow Routt National Forest Program Coordinator
Jfried@nationalforests.org

Responses will be shared with known interested parties by email or otherwise posted at https://www.nationalforests.org/rfp.

Bid Submission

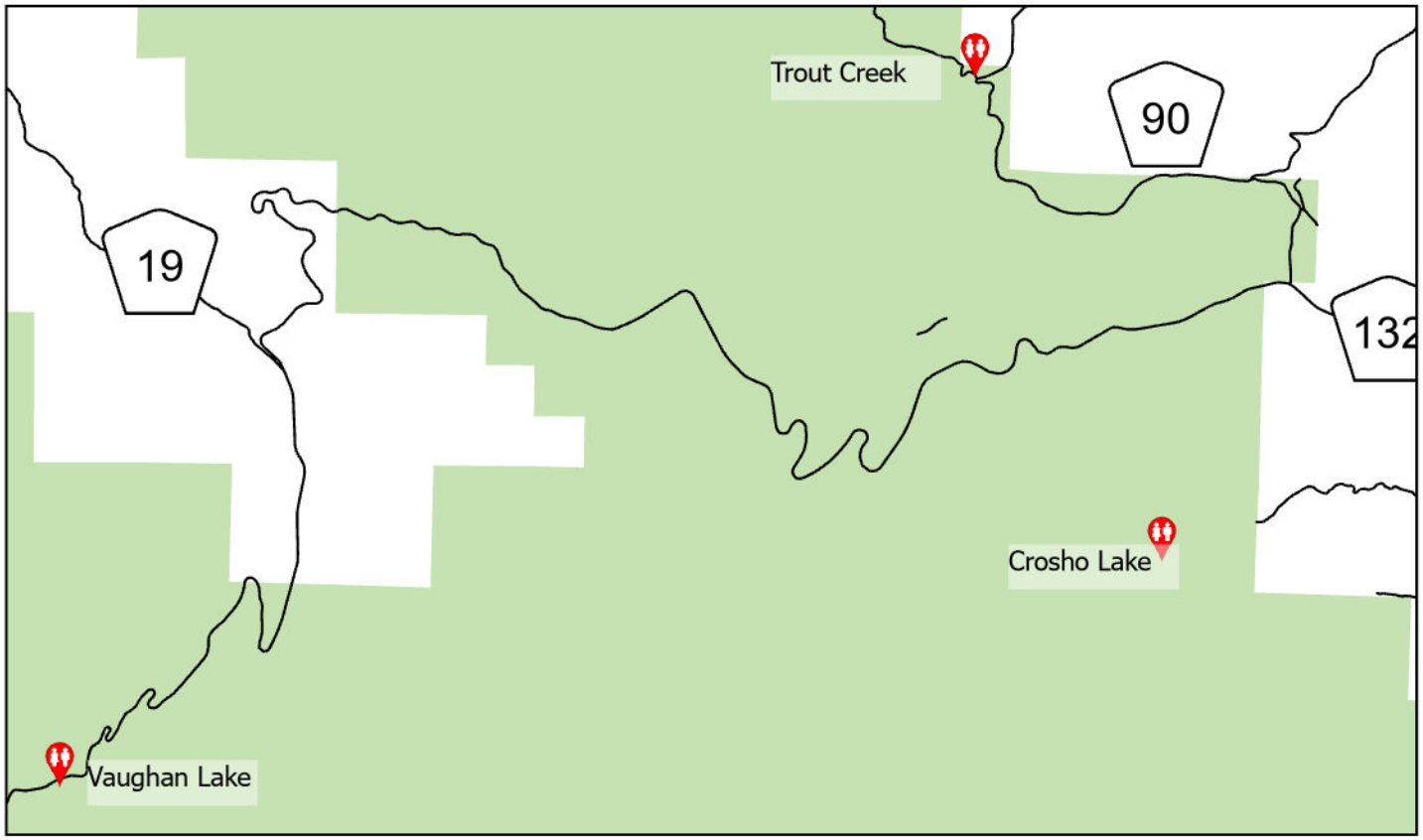
Submit bids via email to Jfried@nationalforests.org by December 20, 2024.

Equal Opportunity Provider

In accordance with Federal law and U.S. Department of Agriculture policy, the National Forest Foundation is prohibited from discriminating on the basis of race, color, national origin, sex, age, religion, political beliefs, or disability.

APPENDIX A

Ranger District: Yampa



Sites Top-to-Bottom:
Trout Creek - Closest Community: Oak Creek, CO, 1 single to 1 single, 107.0929949°W 40.2386530°N

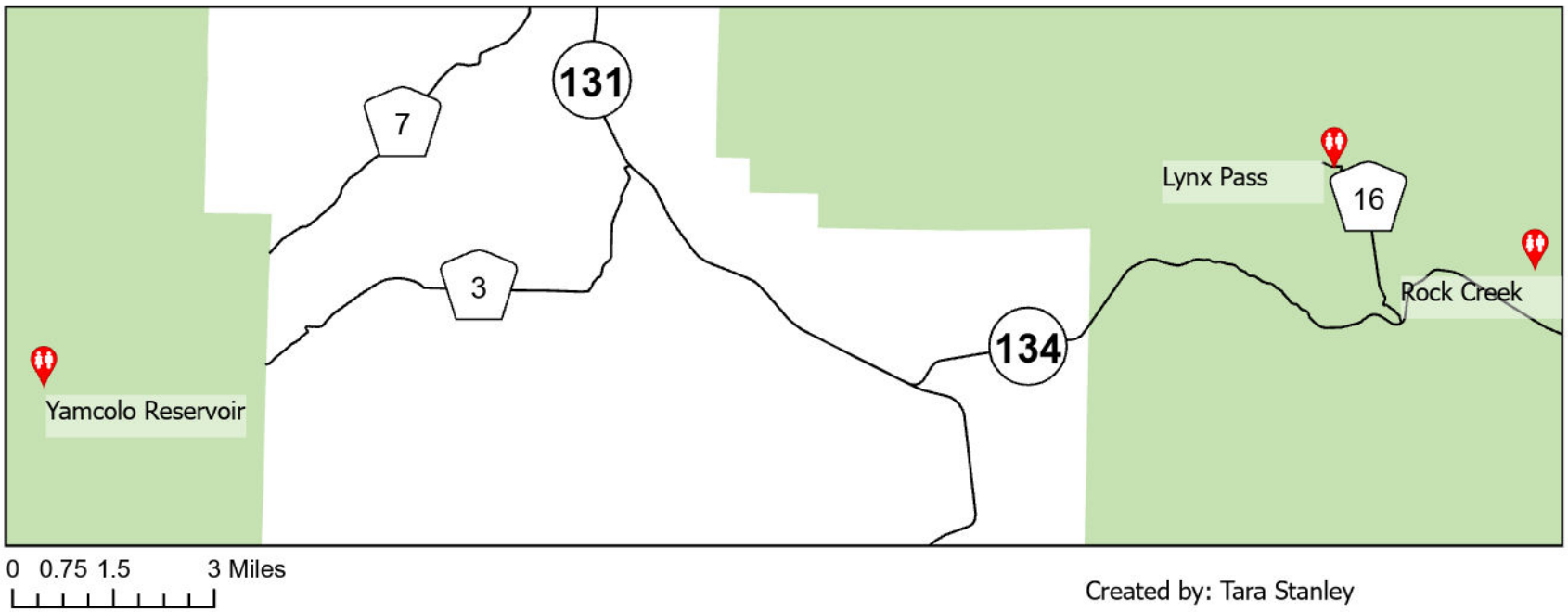
Crosho Lake - Closest Community: Yampa, CO, 1 double to 1 single, 107.0558119°W 40.1696586°N

Vaughan Lake - Closest Community: Yampa, CO, 1 single to 1 single, 107.2615143°W 40.1333709°N

Left-to-Right
Yamcolo Reservoir - Closest Community: Yampa, CO, 1 single to 1 single, 107.0435490°W 40.0527277°N

Lynx Pass - Closest Community: Yampa, CO, 1 double to 1 single, 106.6824767°W 40.1057725°N

Rock Creek - Closest Community: Yampa, CO, 1 double to 1 single, 106.6255628°W 40.0845960°N



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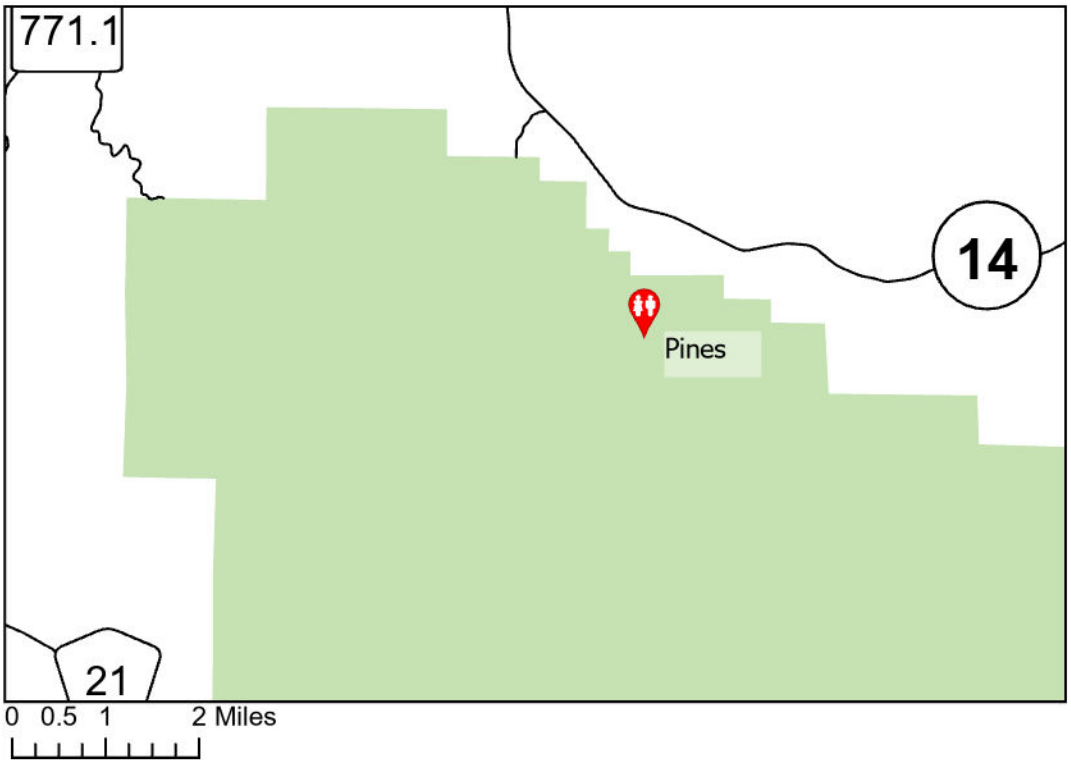
Ranger District: Parks



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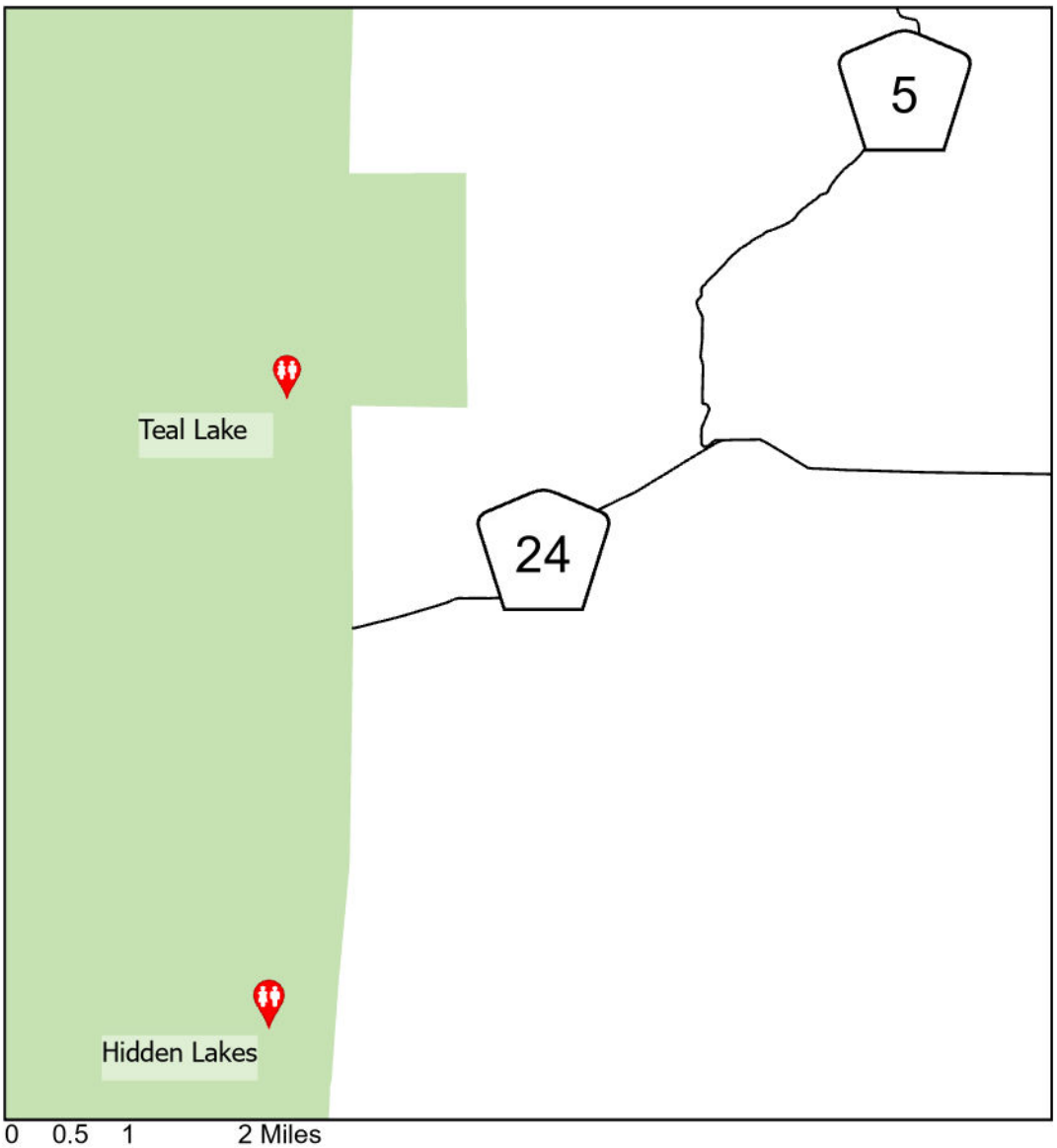
Pines - Closest Community: Walden, CO, 1 double to 1 double, 106.6255628°W 40.0845960°N



Teal Lake- Closest Community: Walden, CO, 1 single to 1 single, 106.6073271°W 40.5852742°N

Hidden Lakes - Closest Community: Walden, CO, 1 double to 1 double, 106.6083957°W 40.5068312°N

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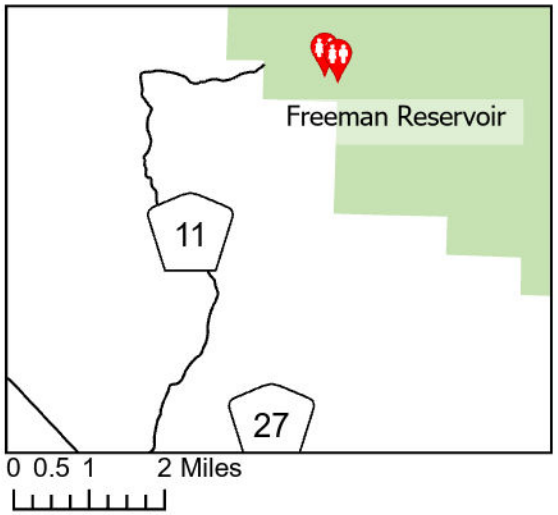
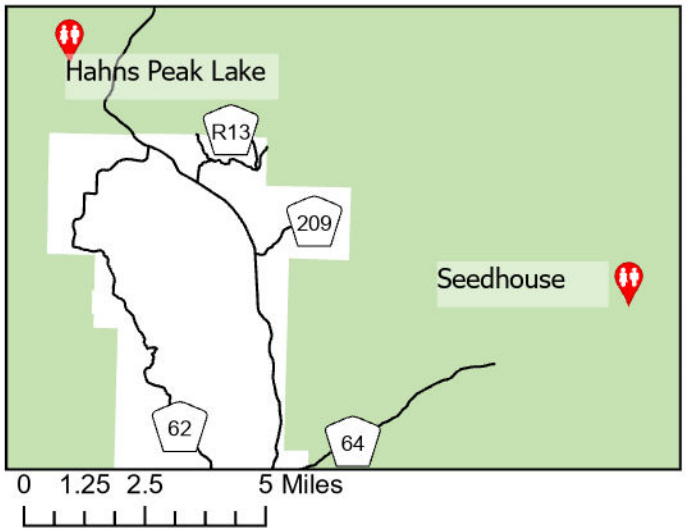
Ranger District: Hahns Peak/Bears Ears



Freeman Reservoir – Closest Community: Craig, CO, 2 double to 1 double, 107.4226565°W 40.7629004°N, 107.4192873°W 40.7617777°N

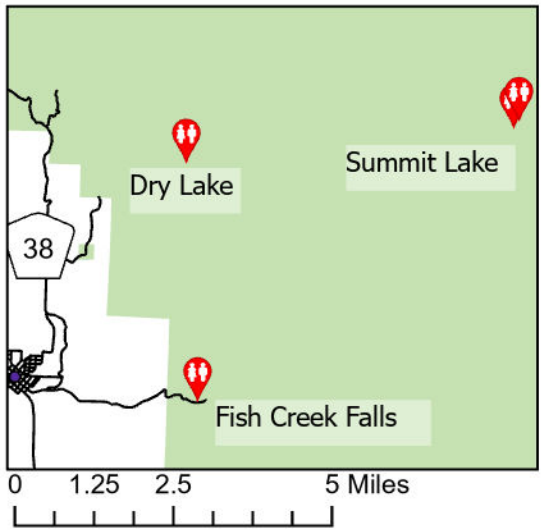
N



Left-to-Right

Hahns Peak Lake - Closest City: Steamboat Springs, CO, 1 double to 1 double, 106.9956970°W 40.8400164°N

Seedhouse - Closest City: Steamboat Springs, CO, 1 double to 1 double, 106.7728616°W 40.7708709°N

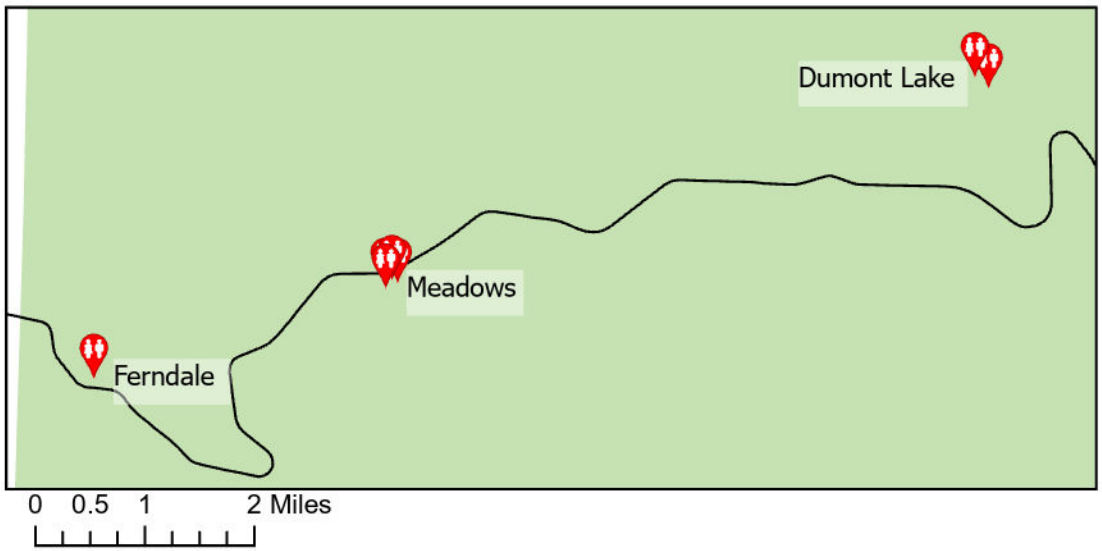


Left-to-Right

Dry Lake – Closest City: Steamboat Springs, CO, 1 double to 1 double, 106.7821895°W, 40.5360223°N

Fish Creek Falls – Closest City: Steamboat Springs, CO, 1 double to 1 double, 106.7773841°W 40.4816015°N

Summit Lake – Closest City: Steamboat Springs, CO, 2 double to 1 double, 106.6843178°W 40.5454127°N, 106.6827863°W 40.5470655°N



Top-to-Bottom

Dumont Lake – Closest City: Steamboat Springs, CO, 2 double to 2 single, 106.6233703°W 40.4034159°N, 106.6209692°W 40.4019542°N

Meadows – Closest City: Steamboat Springs, CO, 4 double to 4 double, 106.7249098°W 40.3746986°N, 106.7226608°W 40.3747007°N, 106.7236460°W 40.3750823°N, 106.7247113°W 40.3739449°N

Ferndale – Closest City: Steamboat Springs, CO, 1 double to 1 double, 106.7749301°W 40.3612218°N

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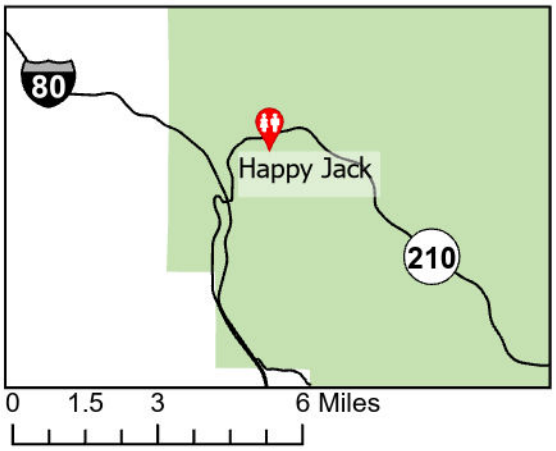
Ranger District: Laramie



Happy Jack – Closest City: Laramie, WY, 1 double to 1 double, 105.4215914°W 41.2545762°N

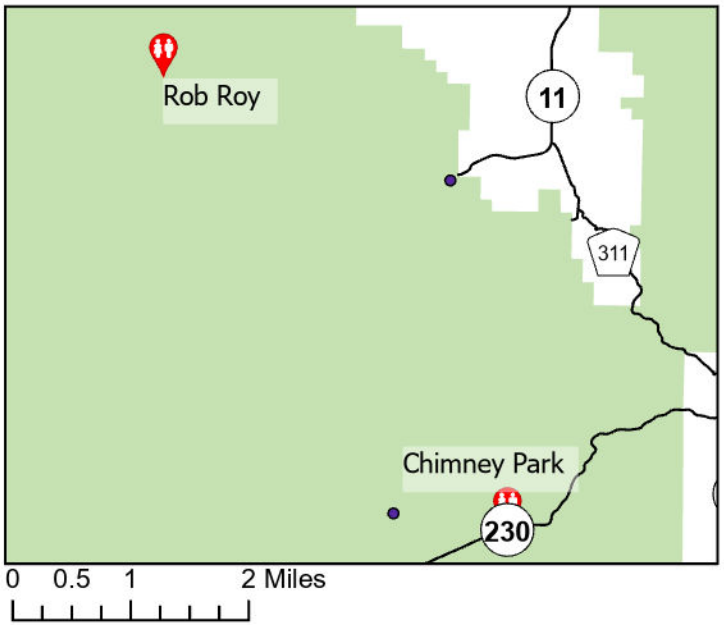
N

Left-to-Right

Brooklyn Guard Station – Closest Community: Centennial, WY, install 1 single, 106.2445323°W 41.3640781°N

Green Rock – Closest Community: Centennial, WY, 1 single to 1 single, 106.2166413°W 41.3484559°N

North Fork – Closest Community: Centennial, WY, 3 single to 3 single, 106.1732702°W 41.3617628°N, 106.1692172°W 41.3560213°N, 106.1696304°W 41.3570664°N



Left-to-Right

Rob Roy – Closest Community: Albany, WY, 1 double to 1 double, 106.2505139°W 41.2149239°N

Chimney Park – Closest Community: Fox Park, WY, 1 single to 1 single, 106.1051143°W 41.0739595°N

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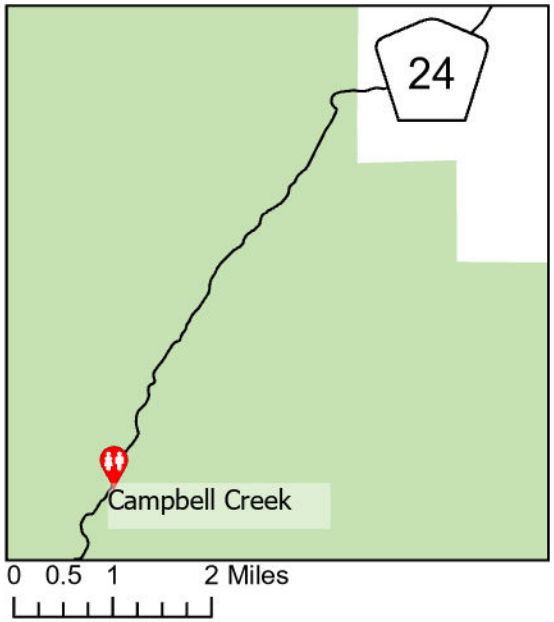
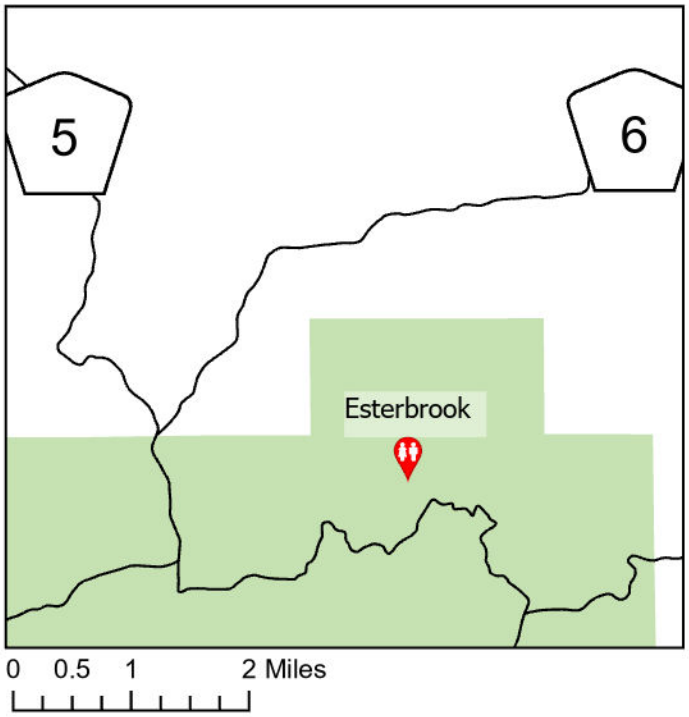
Ranger District: Douglas



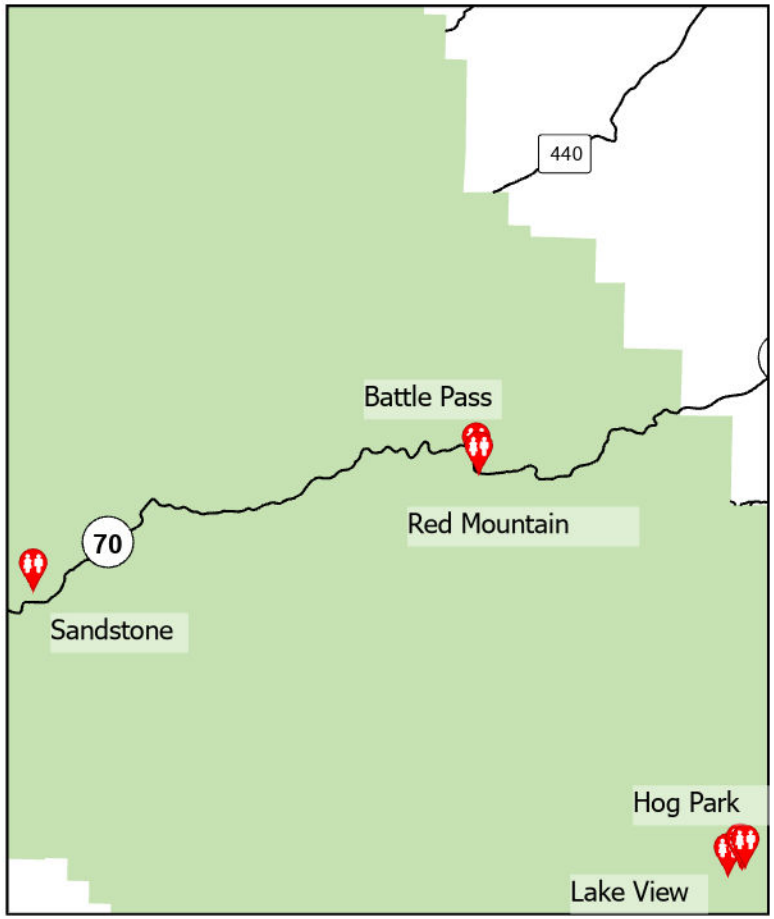
Campbell Creek – Closest City: Douglas, WY, 1 single to 1 single, 105.8358416°W 42.4549835°N

Friend Park - Closest City: Douglas, WY, 2 singles to 2 singles 105.4846119°W 42.2562093°N



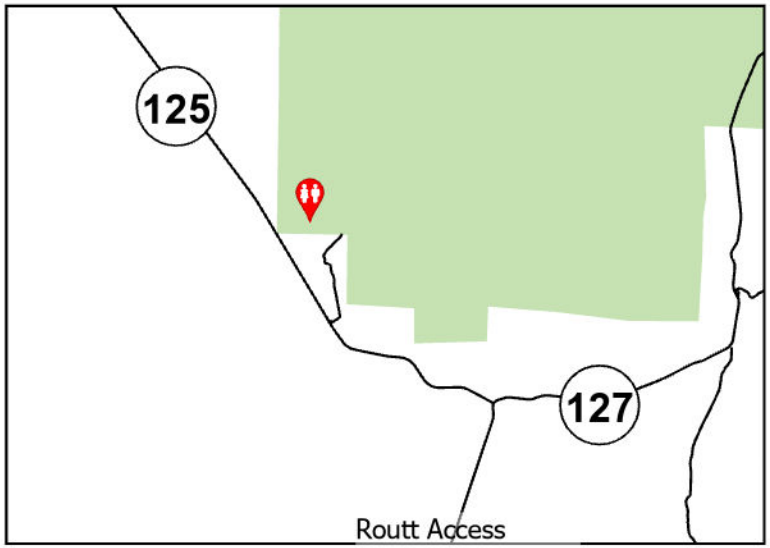
Esterbrook – Closest Community: Esterbrook, WY, 2 single to 2 single, 105.3243953°W 42.4254878°N

Ranger District: Brush Creek - Hayden (1 of 2)



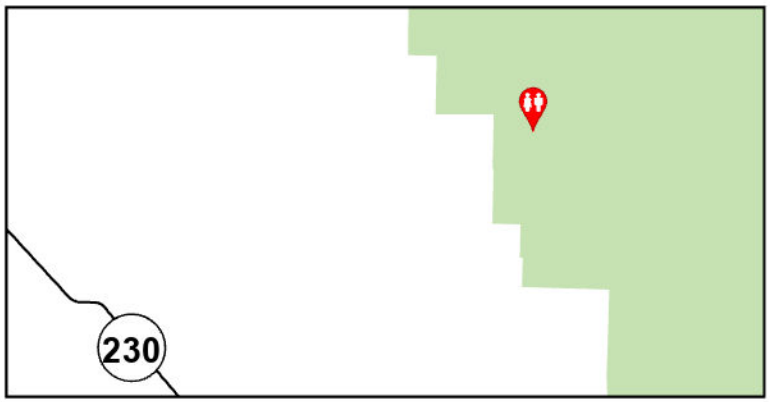
0 1.5 3 6 Miles

Left-to-Right
Sandstone – Closest Community: Encampment, WY, install 1 single, 107.1722500°W 41.1113837°N
Battle Pass - Closest Community: Encampment, WY, 1 double to 1 double, 106.9818277°W 41.1560643°N
Red Mountain - Closest Community: Encampment, WY, 1 double to 1 single, 106.9806052°W 41.1531885°N
Lake View - Closest Community: Encampment, WY, 1 double to 1 double, 106.8689587°W 41.0235464°N
Hog Park - Closest Community: Encampment, WY, 2 single to 2 double, 106.8639114°W 41.0267943°N, 106.8630250°W 41.0258088°N
Hog Park - Closest Community: Encampment, WY, 1 single to 1 double, 106.8616115°W 41.0263676°N



0 1 2 4 Miles

Routt Access - Closest Community: Walden, CO, 1 single to 1 double, 106.3432353°W 40.9520110°N



0 1 2 4 Miles

Routt Access - Closest Community: Encampment, CO, install 1 single, 106.4812346°W 41.2299703°N

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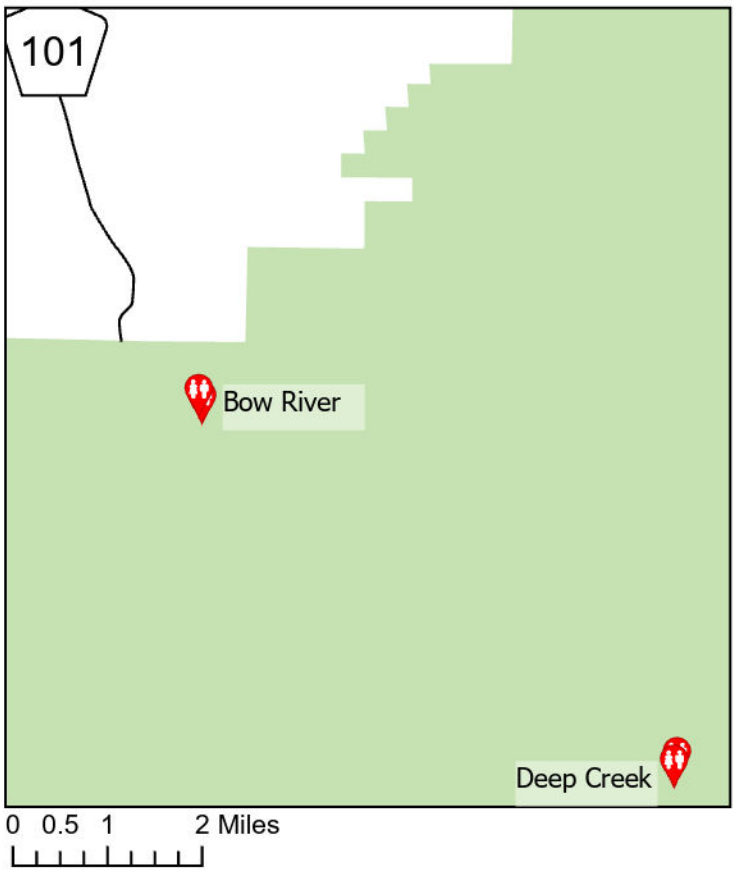
Ranger District: Brush Creek - Hayden (2 of 2)

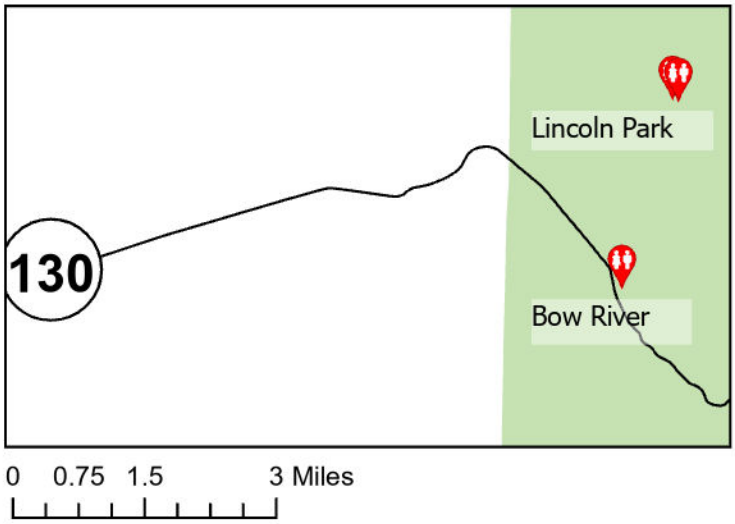


N

Top-to-Bottom

Bow River - Closest Community: Arlington, WY, 2 single to 1 double, 106.3711842°W 41.5139530°N, 106.3704835°W 41.5129210°N

Deep Creek - Closest Community: Arlington, WY, 2 single to 1 double, 106.2726036°W 41.4594224°N, 106.2731443°W 41.4582590°N



Top-to-Bottom

Lincoln Park - Closest Community: Saratoga WY, 2 single to 1 double, 106.5144435°W 41.3740341°N, 106.5131787°W 41.3737355°N

Bow River – Closest Community: Saratoga WY, 1 single to 1 double, 106.5248431°W 41.3426791°N

Top-to-Bottom

Mirror Lake – Closest Community: Centennial, WY, install 1 double, 106.3224898°W 41.3376130°N

Silver Lake – Closest Community: Centennial, WY, install 1 double, 106.3593730°W 41.3115148°N

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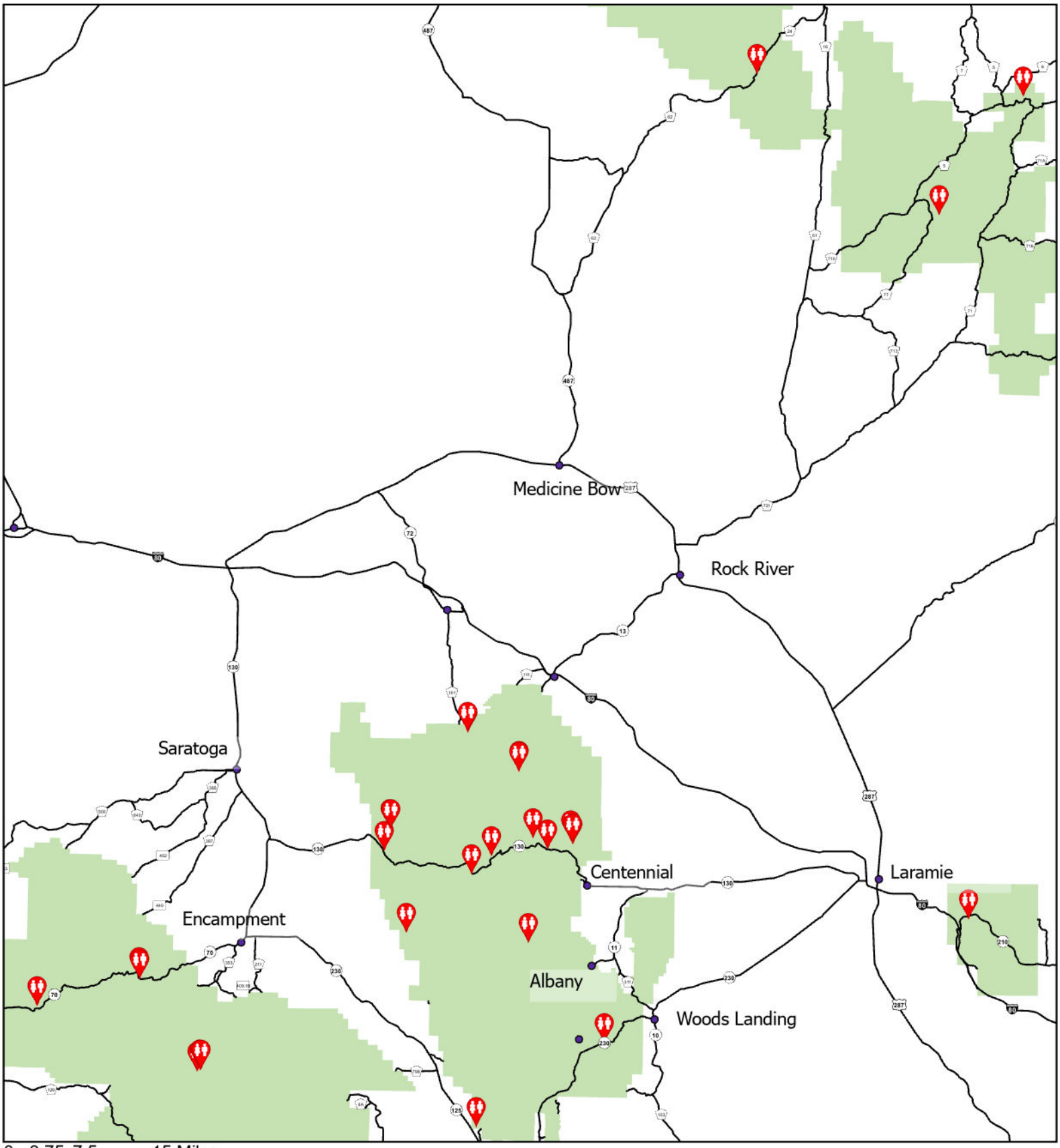
Wyoming Toilet Locations



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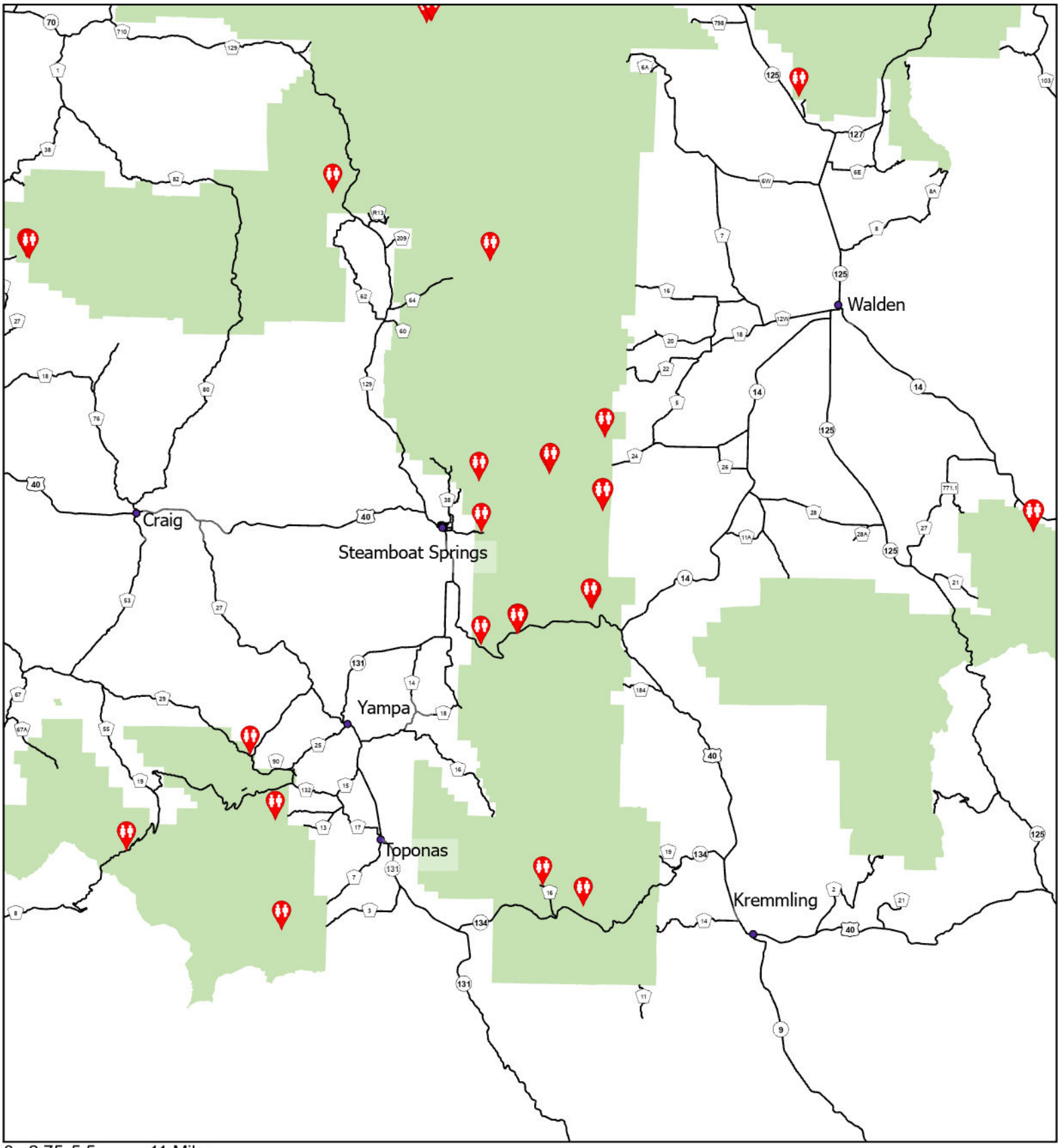
Colorado Toilet Locations



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Appendix B
Flowdown Provisions

NFF Funding Code: 1593110
NFF Funding Name: CCS Forest Wide Vault Toilet Replacement

Funder Agreement ID: 23-CS-11020600-021

DAVIS BACON WAGES FOR CONSTRUCTION.

Following the requirement in Section 41101 of the Bipartisan Infrastructure Law, P.L. 117-58, Davis-Bacon wage rates must be applied for all laborers and mechanics employed by contractors or subcontractors in the performance of construction, alteration, or repair work on a project assisted in whole or in part by funding made available under this Act. Laborers and mechanics shall be paid wages at rates not less than those prevailing on similar projects in the locality, as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code (commonly referred to as the ‘‘Davis-Bacon Act’’).

U.S. FOREST SERVICE ACKNOWLEDGED IN PUBLICATIONS, AUDIOVISUALS AND ELECTRONIC MEDIA.

Award Recipient or Contractor shall acknowledge U.S. Forest Service support in any publications, audiovisuals, and electronic media developed as a result of this agreement.

COPYRIGHTING.

Award Recipient or Contractor is/are granted sole and exclusive right to copyright any publications developed as a result of this agreement. This includes the right to publish and vend throughout the world in any language and in all media and forms, in whole or in part, for the full term of copyright and all renewals thereof in accordance with this agreement. No original text or graphics produced and submitted by the U.S. Forest Service must be copyrighted. The U.S. Forest Service reserves a royalty-free, nonexclusive, and irrevocable right to reproduce, publish, or otherwise use, and to authorize others to use the work for Federal Government purposes. This right must be transferred to any sub-agreements or subcontracts.

This provision includes:

- The copyright in any work developed by Award Recipient or Contractor under this agreement.
- Any right of copyright to which Award Recipient or Contractor purchase(s) ownership with any Federal contributions.

PROHIBITION AGAINST INTERNAL CONFIDENTIAL AGREEMENTS.

All non federal government entities working on this agreement will adhere to the below provisions found in the Consolidated Appropriations Act, 2016, Pub. L. 114-113, relating to reporting fraud, waste and abuse to authorities:

1. The recipient may not require its employees, contractors, or subrecipients seeking to report fraud, waste, or abuse to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting them

from lawfully reporting that waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

2. The recipient must notify its employees, contractors, or subrecipients that the prohibitions and restrictions of any internal confidentiality agreements inconsistent with paragraph (a) of this award provision are no longer in effect.

3. The prohibition in paragraph (a) of this award provision does not contravene requirements applicable to any other form issued by a Federal department or agency governing the nondisclosure of classified information.

4. If the Government determines that the recipient is not in compliance with this award provision, it:

    a. Will prohibit the recipient's use of funds under this award, in accordance with sections 743, 744 of Division E of the Consolidated Appropriations Act, 2016, (Pub. L. 114-113) or any successor provision of law; and

    b. May pursue other remedies available for the recipient's material failure to comply with award terms and conditions.

Appendix C

SECTION 13120
PRECAST VAULT TOILET
(11/25/2024)

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work of this section consists of prefabrication, on-site delivery, off loading and placement of one-unit and two-unit precast concrete vault toilets at a prepared site.

B. This section includes specifications for the construction of precast concrete vault toilet buildings.

1.2 DESIGN REQUIREMENTS

A. Vault Toilet Design
   1. The units shall conform to the design criteria for vault toilets as described by the U.S.D.A. Forest Service in their publication, "In Depth Design and Maintenance Manual for Vault Toilets" (July 1991 – Publication No. 9123 1601), by the San Dimas Technology and Development Center, 444 East Bonita Avenue, San Dimas, California 91773. Contractors may request an electronic copy of the publication by contacting the CO.

B. Structural Live Loads – Buildings shall be designed to meet the following load requirements in accordance with the International Building Code (IBC).
   1. Snow Load – 250 psf
   2. Wind Load – 120 mph (fastest mile) or 140 mph (3-second gust), Exposure C
   3. Earthquake – Maximum considered ground motion shall be 175 (0.2 second spectral response acceleration) and 125 (1.0 second spectral response acceleration), Site Class D. Design requirements associated with Uniform Building Code (UBC) Zone 4 are acceptable.
   4. Floor – 50 psf

C. Other Loads
   1. Vault(s) shall be designed to support the building, screen area and structural loadings evenly.
   2. Contractor is responsible for adding reinforcement as needed to facilitate handling, assembling building components and transporting without incurring structural damage or cracking of the building components.

D. Accessibility
   1. Prefabricated vault toilet buildings shall conform to the requirements of the "Uniform Federal Accessibility Standards" (UFAS) and the "Americans with Disabilities Act Accessibility Guidelines" (ADAAG).
   2. Buildings shall have full 60-inch turning diameter in each interior and entry area.

E. Standard Design Options:
   1. Roof Textures – Simulated wood shake, ribbed metal and exposed aggregate.
   2. Wall Exterior Textures – Simulated barn wood, stone, lap siding, board and batten, exposed aggregate and split face block.
   3. Screen Options – Full screen, open screen and through screen
   4. Door size: 3'-0" x 6'-8".
   5. Door Orientation – Right-hand entry or left-hand entry
   6. Signs – Men, Women, Unisex and Accessible Symbols
   7. Vault size: 1,000 gallons nominal capacity.
   8. Vault access cover – Locking cover with water tight gasket seal.
   9. Vault Vent Pipe Screen –Optional bird screen to be installed on top of vault vent pipes with approximately 0.50" by 1.0" opening size.

F. Tolerances
   1. Precast concrete panels shall be cast within ¼" of dimensions shown on shop drawings.

1.3 QUALITY ASSURANCE

A. Reference Standards
   1. ASTM C33 – Concrete Aggregates
   2. ASTM C39 – Method of Test for Compressive Strength of Cylindrical Concrete Specimens
   3. ASTM C143 – Method of Test for Slump of Concrete
   4. ASTM C150 – Standard Specification for Portland Cement
   5. ASTM C192 – Method of Making and Curing Test Specimens in the Laboratory
   6. ASTM C 595 Standard Specification for Blended Hydraulic Cements
   7. ASTM C 618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
   8. ASTM 1211.1 – Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete.
   9. PCI MNL 116 – Quality Control for Plants and Production of Precast Prestressed Concrete Products
   10. AISC - Specification for the Design, Fabrication and Erection of Structural Steel Buildings
   11. AWS D1.1 – Structural Welding Code

B. Minimum Contractor Requirements
   1. Precast concrete manufacturing plant shall be Precast/Prestressed Concrete Institute (PCI) certified.
   2. Welders shall be currently qualified according to AWS D1.1.

C. Testing
   1. The Contractor shall be responsible for all sampling and concrete testing.
   2. Sampling and testing shall be conducted by an independent testing laboratory, unless otherwise approved.

3. All testing shall be performed by qualified individuals who have been certified ACI Technician Grade 1.
4. Sampling shall be in accordance with ASTM C172.
5. The following test shall be performed for first batch poured each day.
    a. Slump, ASTM C143
    b. Air content, ASTM C231
    c. Compressive strength, ASTM C39
        1) 1 cylinder at 7 days
        2) 1 cylinder at 28 days
    d. Contractor shall provide copies of test results to the agency upon request.

D. Water Tightness Test
1. Contractor shall certify that the vault liner was tested at the plant and is watertight.
2. The vault must be filled with potable water and allowed to sit for 48 hours. If leakage is observed or measured the vault liner shall be repaired or replaced and retested.
3. At Contractor option the vault liner may be tested at the site after placement of the vault but prior to backfilling.
4. The Ordering Unit may require the Contractor to conduct additional tests at the site if the water tightness of the vault is in question.
5. All costs to conduct onsite water tightness tests, or to repair or replace a leaking vault will be the responsibility of the Contractor.

1.4 SUBMITTALS

A. After award of contract and before starting work, the Contractor shall provide written certification that all materials incorporated into the work complies with this section and the Toilet Building will meet the design specified in this section.

B. Submit construction documents including floor plans and elevations, dimensions, identification and location of all parts and accessories.

C. Building installation manual.

1.5 DELIVERY AND HANDLING

A. OFFLOADING AND ASSEMBLY
1. The Contractor is responsible for unloading and assembling all components of the precast concrete vault toilet.
2. The Contractor shall notify the Ordering Unit 10 days prior to the anticipated delivery date and 2 days (48 hours) prior to the exact date of delivery.
3. Deliveries shall only be made between the hours of 8:00 a.m. and 4:30 p.m. (local time), Monday through Friday, unless otherwise approved by the Ordering Unit.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Manual
   1. Provide three copies of the operation and maintenance manual to the Ordering unit at the time of delivery.
   2. Operation and Maintenance Manual should include, but not limited to, start-up procedures; recommended types of cleaners and cleaning tools that should be used; instructions on when and how to pump the vault; plus any additional information needed to ensure a properly functioning and odor free toilet.

1.7 WARRANTY

A. Special Warranty on Building and Accessories: Written warranty, signed by Contractor agreeing to repair or replace building and/or accessories that fail or are damaged within the specified warranty period as a result of normal use and/or typical weather conditions. Items in this item include precast concrete building in its entirety, and all caulking, sealant, grout, adhesive, mortar, primer, paint, penetrating stain, concrete sealer, windows, wall vents, vault toilet risers, grab bars, toilet paper dispensers, doors, locksets, deadbolts, door louvers, door sweep, door stops, coat hooks, vault cleanout covers, signs, and vault vent pipes,
   1. Warranty Period: 1 years from date of Acceptance

B. Special Warranty on Water Tightness of Vault Liner: Written warranty, signed by Contractor agreeing to repair or replace vault liners or entire vaults that fail to remain watertight within the specified warranty period.
   1. Warranty Period: 1 years from date of Acceptance

PART 2 – PRODUCTS

2.1 PRECAST CONCRETE FORMWORK

A. Forms shall be constructed of plywood, lumber, or steel sheets or plates free of defects, which could cause blemishes. Forms must be removable without injuring the concrete and must be constructed to maintain tolerances between mating surfaces of buildings components.

B. Form liners shall be used to provide the desired exterior appearance.
   1. Stone texture shall be similar in appearance to cultured stone texture “Napa Valley Fieldstone” manufactured by Cultured Stone Corp., 800-225-1727, or as approved.

C. Form coating shall be non-staining type that will not leave residual matter on surface of concrete or adversely affect proper bonding of subsequent coatings, caulking, grout, or adhesive applied to concrete surfaces.
   1. Use form release agent or coating as recommended by manufacturer of the form liner.
   2. Coatings containing mineral oils or other nondrying ingredients are not permitted.

2.2 CONCRETE REINFORCEMENT

A. Reinforcing steel shall meet the requirements of ASTM A615, grade 60.

B. Welded wire fabric shall meet the requirements of ASTM A185**.**

2.3 CONCRETE MIX REQUIREMENTS

A. Concrete shall be supplied by a ready-mix or precast concrete products firm regularly engaged in the business.

B. Concrete shall meet the following requirements:
   1. Aggregate size shall be Course No. 67 or fine aggregate (see Table 2, ASTM C33, or Table 1, ASTM C33) as approved.
   2. Minimum cement content: 6.5 sacks per cubic yard.
   3. Cement type: ASTM C150 Type II, IIA, III, V (sulfate resistant) or ASTM C-595 Type IP (sulfate resistant) for building and vault.
   4. Maximum water-cement ratio: 0.45.
   5. Slump: 3 to 5 inches by ASTM C143.
   6. Air content: 4.0 to 7.0 percent by ASTM C231.
   7. Minimum concrete strength: 4,500 psi at 28 days.
   8. Water shall be potable.
   9. Admixtures:
      a. Air-entrainment, ASTM C260.
      b. Water reducing agent, ASTM C494, Type A.
      c. Use of other admixtures is subject to approval.

2.4 COLORED CONCRETE

A. The following components shall be precast with integrally colored concrete:
   1. Toilet building roof panels
   2. Toilet building wall and screen panels

B. Color additive shall conform to ASTM C979.
   1. The same brand and type of color additive shall be used throughout the manufacturing process.
   2. All ingredients shall be weighed and be mixed adequately to ensure uniform dispersion of the color.
   3. Color additive shall be the color specified on the delivery order.
   4. Color additive shall be as provided by Davis Colors 800-356-4848, or approved equal. Recommended colors include:
      a. “Dune”, “Mocha” or “Rustic Brown” - Davis Color No. 6058.
      b. “Pebble”, “Sequoia Sand”, “Yosemite Brown”, or “Flagstone Brown” – Davis Color No. 641.
      c. “Adobe” – Davis Color No. 61078.
      d. “Silversmoke”, “Light Gray” or “Dark Gray” – Davis Color No. 8084

2.5 CONCRETE PANEL THICKNESS

A. Minimum thickness of concrete panels shall be as indicated.
   1. Vault wall - 4”
   2. Floor and porch slabs - 5” if reinforcement steel is prestressed or post tensioned or 6” without prestressed or post tensioning reinforcement.
   3. Vertical walls and screens - 4” for uniform panels or as shown below for tapered panels.

Top/	Mid-Height	Bottom
3 inches/	4 inches	5 inches
3 1/2 inches/	4 inches	4 1/2 inches

   4. Roof slab – 5”

2.6 CONCRETE CURING COMPOUND

A. Curing compound shall be colorless, complying with ASTM C-309, type I or I-D.

2.7 STRUCTURAL STEEL

A. Steel angles and plate connectors, ASTM A36

B. Filler metals for welding: ASTM A233, E70XX Series welding electrodes.

2.8 CAULKING, SEALANT, GROUT, ADHESIVE AND MORTAR

A. Caulking and sealant shall remain flexible and non-sag at temperatures from - 50° to + 140° Fahrenheit.
   1. Exterior joints at roof ridge, roof/wall connection, and wall panel joints: 100% silicone caulk, clear or colored to match concrete, GE Silicone II, 800-626-2000, or approved equal.
   2. Interior joints: Paintable Latex Caulk, GE Speedpaint 35-Year Siliconized Acrylic Latex caulk, 800-626-2000, or approved equal.

B. Grout shall be non-shrink type and shall match color of surrounding concrete as nearly as possible.

C. Epoxy concrete adhesive shall be two component, rigid, non-sag gel adhesive for bonding to dry or damp surfaces, moisture insensitive. Color to match surrounding concrete as nearly as possible.

D. Portland cement mortar shall consist of one part Portland cement, three parts sand, and enough water to make a workable mixture. Bonding agent may be added to mixture in lieu of separate application of adhesive to panel.

2.9 CONCRETE PAINT AND PIGMENTED SEALER

A. Paint, pigmented sealer, and accessory materials shall conform to Federal Specifications or be similar "top-of-the-line" products of the manufacturers listed below. The Government reserves the right to reject "top-of-the-line" products, which in its opinion are not comparable to the Federal Specification requirements.
   1. Products used shall not contain more than 0.06 percent (six hundredths of one percent) by weight of lead.

B. Exterior concrete surfaces
   1. Walls and roof
      a. Water-based, acrylic, penetrating pigmented sealer with water repellent properties, same color as the walls or roof, followed by a clear acrylic anti-graffiti sealer.
         1) Canyon Tone Stain "W" as manufactured by United Coatings, 800-541-4383, or approved equal.
   2. Concrete porch slab
      a. Clear acrylic sealer.

C. Interior concrete surfaces
   1. Walls and ceiling
      a. One or two-part water based epoxy paint as manufactured by Sherwin-Williams Company, 800-321-8194, or approved equal.
         1) Primer/block filler as recommended by paint manufacturer and as approved.
      b. Water based, acrylic, penetrating pigmented sealer with water repellent properties, color white, followed by a clear acrylic sealer.
         1) Canyon Tone Stain "W" as manufactured by United Coatings, 800-541-4383, or approved equal.
   2. Concrete floor slab
      a. One or two-part, water based epoxy paint with a silica sand suspension to provide a non-slip uniform texture, as manufactured by Sherwin-Williams Company, 800-321-8194, or approved equal.
         1) Primer/block filler as recommended by paint manufacturer and as approved.

D. Metal surfaces
   1. Metalastic DTM acrylic modified enamel paint, semi-gloss, as manufactured by Sherwin-Williams Company, 800-321-8194, or approved equal.
   2. Primer as recommended by paint manufacturer and as approved.

E. Paint colors shall be as follows:
   1. Concrete walls and ceiling, inside building: White.
   2. Concrete floor and cove, inside building: Gray.
   3. Metal window and doorframes, louvered vents, and doors, interior and exterior: Dark Brown.
   4. Metal vault access lids and frames, exterior: Dark Brown.
   5. Metal bar-type toilet paper dispenser (unless stainless steel): White.

F. Items under this section shall be included in the extended warranty for the building as described in Part 1.

2.10 WINDOWS

A. The window area for each room in the toilet building (except the chase) shall provide natural lighting and shall be at least 10 percent of the floor area.

B. Window glazing shall be ¼ inch thick pebble finish (or clear sandblasted on both sides) colorless LEXAN polycarbonate. Window frame and glazing shall be removable from the interior.

2.11 WALL VENTS

A. Frames shall be C3 x 4.1 channel steel.

B. Louver shall be inverted split Y, non-vision, and 18 gauge-galvanized steel with factory prime coat, FDLS series, as manufactured by Anemostat Door Products, 310-835-7500**,** or approved equal.

C. Each vent shall have an exterior insect screen on or attached to the louver.

2.12 VAULT TOILET RISER

A. Toilet riser shall be constructed of seamless cross-linked polyethylene, complete with molded plastic heavy-duty open-front seat and cover assembly, designed to fit hole in floor slab. Color: White or off-White. Top of toilet seat must be 18" above the floor, ± ½". Heavy duty seat and cover assembly as manufactured by Romtec, Inc., 18240 N. Bank Road, Roseburg, Ore. 97470, 541-496-3541, or approved equal.

2.13 GRAB BARS

A. Stainless steel tubing, 1-1/2 inch outside diameter mounted 1-1/2 inches from wall, 18 gauge, type 304 Stainless steel concealed screw-mounting flanges, Bobrick series B-6806, 888-610-8889, or approved equal.

2.14 TOILET PAPER DISPENSER

A. Bar-type toilet paper dispenser shall be constructed of stainless steel with satin finish or steel with glossy white enamel finish with neoprene sleeve, designed to hold three standard rolls of toilet paper. Holder shall not prevent the free turning of the paper rolls. The dispenser shall be manufactured by Romtec Inc., 18240 N. Bank Road, Roseburg, Oregon 97470, 541-496-3541 or approved equal.

2.15 STEEL DOORS

A. Doors

1. Flush panel type, 1-3/4-inch thick, minimum 16 gauge prime-coated steel reinforced-core door, with minimum 20 gauge internal stiffeners and fiberglass insulation, 747 Series, as manufactured by Curries Company, 800-377-3948**,** or approved equal.

B. Door Frames
   1. Door frames, shall be knock-down or welded type, single rabbet, minimum 16 gauge galvanized prime-coated steel. Width to suit wall thickness, as manufactured by Curries Company**,** 800-377-3948, or approved equal.
   2. Provide three rubber door silencers on latch side of frame.

C. Door Frame Anchors
   1. Provide three anchors per jamb located approximately at same level as hinge locations.
   2. Use anchor type suitable for fastening to precast concrete and designed for future removal of frame.
   3. Anchors may be omitted if frame is cast in panel.

D. Door Hinges
   1. Door hinges shall be 3 per door, 4-1/2" x 4-1/2", U.S. 26D finish (dull chrome) with adjustable tension (adjusted to a 5 lb maximum pull) and automatic closing as manufactured by the Stanley Company, 800-337-4393, or approved equal.

E. Lockset
   1. ANSI A156.2 Series 4000, Grade 1 cylindrical lockset for exterior door.
   2. Lever handle inside and outside.
   3. Either handle operates latch unless outside handle is locked by push-button inside.
   4. Push-button automatically releases when inside lever handle is turned or door is closed.
   5. Emergency slot on exterior so door can be unlocked from outside with a coin, screwdriver, etc.
   6. Inside lever handle always active.
   7. U.S. 26D finish (dull chrome).
   8. Model No. 5402LN as manufactured by Yale Security Group, 800-438-1951, or approved equal.

F. Deadbolt
   1. Mortised type, operated by key from outside only, which will receive a No. 1152, 1-1/8", 5-pin cylinder as manufactured by Yale Security Group, 800-438-1951, or approved equal**.**
   2. If provided by the Forest Service, install Government-provided cylinder.

G. Door Louver (if provided)
   1. Louver shall be fixed, inverted split Y, non-vision, and 18 gauge-galvanized steel with factory prime coat, FDLS series, as manufactured by Anemostat Door Products, 310-835-7500**,** or approved equal.

2. Door louvers will not be acceptable on any models with exterior screen walls or models with other types of obstructions that will prevent proper venting of the toilet facility.
3. Vent shall have an exterior insect screen on or attached to the louver.

H. Door sweep shall be provided at bottom of door and shall be an adjustable brush type.

I. Door Stop
1. Door stop shall have a cast metal base, U.S. 26D finish, with convex gray rubber 2 3/8" diameter bumper with a 1" projection, suitable for installation on concrete.

2.16 DOUBLE COAT HOOK

A. Stainless steel formed construction with a satin finish and nail in anchor. Upper hook shall extend at least 2/1/2 inches from wall. Lower hook shall extend at least 1 ¼ inches from wall. Mounting height above floor to centerline of coat hook shall be a maximum of 48 inches. Both hooks shall be curved or angled to hold items securely.

2.17 VAULT CLEANOUT COVER

A. Plate for vault cleanout cover lid shall be ¼ inch thick diamond plate steel. Cleanout coverlid shall be hinged and configured so that it can be locked with a padlock and held in the open position when cleaning the vault. The vault cleanout shall have a steel angle frame cast into the concrete and the entire assembly slightly raised to allow water to drain away from the opening. The hatch and frame shall be primed and painted on the interior and exterior.

B. A neoprene sheet (full width x length) shall be adhered to the entire bottom surface of cover lid to provide an airtight seal.

C. Provide gasket between frame and cover for water tight seal.

2.18 SIGNS (SYMBOLS)

A. With each order, the Contractor shall be notified as to the number of toilet signs MEN'S, WOMEN'S, OR UNISEX. The required signs shall be mounted on the exterior wall of the toilet building adjacent to the latch side of the door.

B. Handicapped accessibility signs, unisex signs, Men's and Women's signs shall be ADA compliant and shall conform to the following:
1. Signs shall be fabricated out of fiberglass and shall be suitable for exterior mounting.
2. International symbols and text shall be raised 1/32 of an inch. Lettering shall be typestyle Standard Medium and a minimum of 5/8" high.
3. Grade 2 Braille shall be shown below text.
4. All signs shall be white text and symbols on brown background.

5. Signs shall be BEST Standard Word & Picture signs as manufactured by BEST Sign Systems, 800-235-2378, or approved equal.

C. An interior sign reading "PLEASE DO NOT PUT TRASH IN TOILETS. IT IS EXTREMELY DIFFICULT TO REMOVE – Thank you" shall be installed above the each toilet riser.

2.19 SIGN HARDWARE

A. Sign fastening hardware shall be tamper-proof stainless steel or galvanized steel.

2.20 VAULT VENT PIPE

A. Vault vent pipe shall be on the exterior of the structure to allow proper solar heating and full length polyethylene (PE) plastic pipe, 12" nominal size, 12.75" outside diameter, minimum 0.392" wall thickness, 32.5 standard dimensional ratio (SDR), PE 3408 high density, black color, UV stabilized, Driscopipe 1000 as manufactured by CP Chem Performance Pipe, 800-527-0662, or approved equal.

2.21 VAULT LINER

A. One-piece, seamless liner, suitable for wastewater applications.
1. Acrylonitrile/butadiene/styrene copolymers (ABS), 752 virgin plastic, initial sheet thickness 0.375", and final stamped thickness a minimum 0.25".
2. Low Density Polyethylene (LDPE), minimum uniform thickness of 0.25".
3. Other materials for vault liners may be submitted for approval.
4. Liners shall be attached to the concrete walls and the bottom of the vault. Penetration through the liner to attach to the concrete walls will not be permitted.
5. Vault liners shall be provided with an extended warranty as described in Part 1.

PART 3 – EXECUTION

3.1 CONCRETE FORMWORK

A. Support and brace forms sufficiently to prevent distortion of forms due to pressure of the concrete during concrete placement, vibrating of concrete, and curing.

B. Vertical grooves in form liner pattern shall be continuous except for openings for doors, windows, and vents.
1. Horizontal butt joints between form liner panels will not be allowed.
2. Vertical butt joints between form liner panels shall be made at vertical groove in liner pattern except at outside corners.
3. Vertical grooves in form liner pattern shall be arranged so that there is equal space between vertical window or doorframe edges and the adjacent vertical grooves at each opening.

C. Form ties will not be allowed.

D. Remove all snow, ice, dirt, sawdust, shavings, or other debris within the forms before placing concrete.

3.2 CONCRETE REINFORCEMENT

A. Detail reinforcement in accordance with ACI 318.

B. Steel reinforcement shall be centered in the cross-section area of the walls and shall have at least one inch of concrete cover on the under surface of roof and floor. Provide diagonal reinforcement at openings.

C. Accurately place and adequately support steel reinforcing or strand in final position prior to starting placement of concrete. The maximum allowable variation for center-to-center spacing of reinforcing steel is ½ inch.

D. Use full lengths of reinforcing steel whenever possible and keep the number of splices to a minimum. When splices are necessary on long runs, splices shall be alternated from opposite sides of the component for adjacent steel bars. Lap bars No. 4 or smaller, a minimum of 12 inches. Lap bars larger than No. 4, a minimum of 24 bar diameters.

E. Bend bars cold unless otherwise approved. No bars partially embedded in concrete shall be field bent except as approved.

3.3 COLD WEATHER CONCRETE

A. Cold weather concrete placement shall be in accordance with ACI 306.

B. Do not place concrete if ambient temperature is expected to be below 35°F during the curing period unless heating is provided to maintain the concrete surface temperature of at least 45°F.

3.4 HOT WEATHER CONCRETE

A. The temperature of the concrete shall not exceed 80°F at time of placement, and when the ambient temperature reaches 90°F, the concrete shall be protected with moist covering or other methods approved.

3.5 MIXING AND DELIVERY OF READY MIX CONCRETE

A. Mixing and delivery shall be accomplished in accordance with ASTM C94, sections 9, 10, and 11 as appropriate for manufacturer.

B. Aggregate and water will be adjusted to compensate for differences in the saturated surface-dry condition.

3.6 PLACING AND CONSOLIDATING CONCRETE

A. Concrete shall be discharged as soon as possible after mixing and time shall not exceed 30 minutes.

B. Avoid segregation. Place in layers not more than 24 inches deep. Do not move concrete with vibrators or tampers.

C. Consolidate concrete with suitable mechanical vibrators operating within the concrete or attached to steel forms. Vibrate at any point sufficiently to accomplish compaction, but do not prolong to a point where segregation occurs.

D. Floor of building shall be one-piece to prevent separation of panels as a result of freeze/thaw.

E. Vault
   1. Concrete shall be placed around the inverted liner forming one integral piece.

3.7 FINISHING CONCRETE

A. Interior Floor and Exterior Slab: Strike flush to within 1/8-inch variation in 6 feet. Float and trowel slabs smooth until no marks remain. Apply a final light broom finish to exterior slabs only.

B. Interior Wall Surfaces, Interior Screen Wall Surfaces, and Ceiling:
   1. Finish shall be that provided by smooth steel form, or smooth trowel finish with no trowel marks.
   2. All lifting points on screens shall be on panel edge. Plug with bolts or caulking after erection.

C. Exterior Textured Surfaces:
   1. Building Walls and Exterior Screen Walls
      a. Finish shall be as indicated on the delivery order using an approved form liner.
   2. Roof Panels
      a. All exterior surfaces of the roof panels shall be as indicated on the delivery order using an approved form liner. The underside of the overhang shall have a smooth finish.

D. Cracks and Patching:
   1. Cracks in concrete components caused by contractor fabrication, shrinkage during curing, handling, shipping, and installation shall be cause for rejection if the Government determines that the crack affects the serviceability or structural integrity of the component.
   2. Fill small holes, depressions, and air or rock pockets in all surfaces with non-shrink Portland cement based patching material while concrete is still green and within one day of form removal. Patch shall match the color, finish, and texture of surrounding surface.
   3. Patching will not be allowed on any component with holes, ships, or exposed reinforcement totaling more than 18 cubic inches or with any defects more than

2 inches deep. Those components will be rejected and must be replaced at Contractor's expense.

3.8 CURING AND HARDENING CONCRETE

A. Keep all concrete surfaces wet for at least six days after being placed. Acceptable methods include ponding, wet burlap, curing paper, plastic sheets, and membrane curing compound. Other methods are subject to approval.

3.9 COLORED CONCRETE

A. The following concrete components shall be integrally colored.
   1. Toilet building roof.
   2. Toilet building exterior walls.
   3. Toilet entrance screen.

B. The same type and brand of cement, coloring agent, aggregates, and other additives shall be used throughout. In addition as far as is reasonably practicable, all ingredients shall be from the same lot or manufacturing process. Aggregates shall be from the same source.

C. All volumes of concrete shall be uniform in all respects to ensure consistency of the color of the finished concrete. All ingredients shall be weighed. Add color by weight as recommended by the manufacturer of the concrete color. The mixing operation shall be adequate to uniformly disperse the color throughout each batch.

D. Wash and thoroughly clean the mixer and transporting equipment before mixing colored concrete. Repeat each time a change is made to a different color to avoid any carry-over.

3.10 STRUCTURAL JOINTS

A. Joining details other than those described below will not be allowed unless approved prior to manufacture of the buildings.

B. Wall components shall be joined together with epoxy concrete adhesive and two welded plate pairs at each joint. Each weld plate shall be a minimum of 6 inches long and located one pair in the top quarter and one pair in the bottom quarter of the seam. Weld plates shall be anchored into concrete panels and welded together with a continuous weld. Welds shall be thoroughly cleaned prior to application of caulk or paint. Adhesive shall be applied for the entire length of the seam. Seal interior seams with paintable caulk. Seal exterior joints with caulk to match building color or clear. Linseed oil shall be applied under silicone sealant on brown integrally colored components only, where such treatment is necessary to prevent brown color from appearing pinkish.

C. Walls and roof shall be joined with weld plates, minimum 2 ½" x 5" at each building corner. Where the owner determines that the joint between wall panels and the joint

between walls and roof shall be gas-tight, seal with silicone caulk. Where the joint between the walls and roof is not true enough to prevent point loading, the joint shall be grouted with approved rigid non-shrink grout that distributes the weight of the roof evenly around the perimeter of the building walls.

D. The joint between the floor slab and walls shall be joined together with epoxy concrete adhesive and two weld plates pair for each wall component, one near each end of each wall panel, or each corner on each side, whichever is greater. Each weld plate shall be a minimum of 6 inches long. Weld plates shall be anchored into concrete panels and welded together with a continuous weld. Adhesive shall be applied for the entire length of the seam. Grout formed keyway to provide smooth cove between walls and floor.

E. The joint between building and vault shall be sealed gas-tight with continuous butyl tape or flexible joint material such as neoprene rubber, Ram-Nek, and sealant.

3.11 PAINTING AND STAINING

A. Apply materials in strict accordance with manufacturer's recommendations.

B. Examine work to ensure all surfaces are properly prepared to receive finish.
   1. Allow a minimum of 14 days curing time for concrete before paints are applied to concrete. Allow longer curing time when recommended by paint manufacturer.
   2. If needed to insure uniform application, prepare concrete surface for application of paints by acid etching with a 30 percent solution of hydrochloric acid. Flush with water and allow to thoroughly dry.

C. Painting shall NOT be done under the following condition:
   1. Outside in cold, frosty, foggy, or damp weather.
   2. In winter, unless temperature is 50°F or over and surfaces are dry and hard.
   3. In dusty areas.

D. Apply coats, additional to those shown in the Schedule of Finishes, when undercoats or other conditions show through final coat of paint, until paint film is of uniform finish, color, and appearance.

E. Gray concrete epoxy paint on the floor shall also cover the cove at the junction between wall and floor. The line between the gray floor and the white wall shall be straight and parallel to the floor.

F. Schedule of Finishes:
   1. Metalwork: Steel doors, door vents and frames, window frames, vault access lids and frames, and roof posts.
      a. One coat metal primer.
      b. Two coats enamel.
   2. Interior concrete surfaces

a. Walls and ceiling of building: 1 coat latex block filler and minimum 2 coats paint/pigmented sealer. Pigmented sealer shall be followed by 1 coat of clear sealer.
b. Interior floor: Primer coat and minimum 2 coats of epoxy paint.

3. Exterior slab: 1 coat of clear penetrating sealer.
4. Exterior surfaces of building walls, roof, and screens, which will not be painted: 2 coats stain followed by 1 coat sealer.
   a. Seal colored concrete as recommended by the manufacturer of the concrete color, if different from above.

G. Cleanup: Repair all defects and remove all paint spatters, etc.

H. Protect interior painted surfaces from direct exposure to sunlight and weather during manufacture, assembly, and installation.

3.12 ACCESSORIES

A. Attach grab bars and toilet paper holder to walls at the heights required for ADA. Fastening system must be able to withstand 300 pound loading of each grab bar and on top of toilet paper holder.

B. Install coat hook a maximum of 48" above the floor.

3.13 METAL DOORS AND FRAMES

A. Install steel door and frame in accordance with manufacturer's recommendations. Fit-door accurately in frame. Mount louvers on door, if required, with cadmium-or zinc-plated corrosion resistant Phillips head metal screws

B. Install hardware in accordance with hardware manufacturer's instructions after finish paintwork is completed. Install a sweep on bottom of door and adjust so it contacts the floor when door is closed. Install door bumper on vestibule wall to meet door handle.

C. Adjust hinge tension after building is installed so that the maximum force necessary for pushing or pulling the door open is 5 pounds and the door takes at least three seconds to move from 70 degrees open to within three inches of the latch. Verify smooth operations of door and hardware. Adjust as necessary to provide smooth operation and required hinge tension.

3.14 WINDOWS

A. Exterior steel frame shall be installed in concrete panel using headed anchor studs.

B. Install glazing and interior steel frame using tamper proof screws.

3.15 VAULT CLEANOUT COVERS

A. After paint on lid has completely cured, install full length/width neoprene gasket seal to cleanout cover lid to assure gas-tight seal when lid is locked in place. Do not stretch seal material during application. Damaged, degraded, or non-air tight seals are not acceptable and must be replaced at the Contractor's expense.

3.16 SIGNS

A. Install signs in cast-in recesses on toilet building walls using tamper-proof masonry anchors at each corner.

END OF SECTION 13120

SECTION 13129
INSTALLATION OF PRECAST VAULT TOILET BUILDINGS

PART 1 - GENERAL

4.1 DESCRIPTION

A. The work of this section consists of installing precast vault toilet buildings including clearing and grubbing, excavating, backfilling, site grading and cleanup.

4.2 QUALITY ASSURANCE

A. Ensure that water on the floor slab drains towards the door.

4.3 SUBMITTALS

A. Certification from supplier that bedding material meets the gradation specified.

B. If blasting is required for excavation, submit blasting plan.

C. Building installation manual.

4.4 DELIVERY AND HANDLING

A. Contractor shall coordinate with the building manufacturer for the delivery and placement of the precast vault building. Refer to Sections 13120.

B. The Ordering Unit shall provide detailed directions and a map for each delivery site.

C. Roads and bridges shall be rated for highway loads along the access route.

D. Building shall be installed according to the manufacturer's installation instructions.

4.5 STAGING AREA AND SAFETY

A. The Contractor shall be allowed to store materials at the project site(s) in locations(s) approved by the agency. The Contractor is responsible for the loss of or damage to any materials or equipment stored on the project site(s).

4.6 SITE CLEANUP AND DISPOSAL

A. When working in an area open to public use, the Contractor shall clean and maintain the work site to minimize hazards to the public. At the end of work in each area, the Contractor shall collect all refuse, garbage, rubbish, solid wastes and liquid wastes from the Contractor's camping, parking, and equipment maintenance areas, and the project area, and dispose of them at a State-approved disposal site.

B. Motor and gear oil from Contractor's equipment shall not be drained on the ground. Used oils are considered liquid wastes and must be disposed of off site in accordance with State Disposal regulations.

4.7 USE OF GOVERNMENT FACILITIES

A. Sanitary facilities: Sanitary facilities shall be available to the extent of existing vault toilets at some locations.

B. Electric Power: Government-furnished electricity is not available at the sites.

PART 2 – PRODUCTS

5.1 SOIL CLASSIFICATION

A. Excavation shall be unclassified as to materials and shall include all materials that are encountered in the required excavation.

5.2 BACKFILL MATERIAL

A. Backfill material shall be sandy clay, sand, gravel, soft shale, or other suitable material free from brush, organic material, dirt clods, stone or boulders larger than six inches in greatest dimension or frozen material.

B. Backfill within six inches of concrete shall contain no stone larger than two inches and no stone two inches or larger shall lie closer than six inches to the ground surface.

C. Backfill material shall be excavated material whenever it meets specification requirements. Whenever excavated material contains less than 10 percent of oversized material, the Contractor shall remove boulders larger then 6" from the excavated material at no additional compensation and utilize it as backfill material. Whenever material meeting the specification requirements is not available from excavation, the Contractor shall import material from a designated or approved source.

5.3 SELECT BORROW

A. When excavated soil does not meet the requirements for backfill, Contractor shall backfill with select borrow obtained from a source identified by the Ordering Unit.

5.4 BEDDING MATERIAL

A. Bedding material shall be washed sand or 3/8" minus crushed or screened aggregate from a private or commercial source. Sand or aggregate shall be used as a leveling course beneath the concrete vault or slab.

5.5 SEALANT

A. For vault toilet buildings, use 100% silicone caulk, clear for vent pipe and toilet riser. GE Silicone II, 800-626-2000, or approved equal.

PART 3 - EXECUTION

6.1 STAKING

A. The Government will establish the finish floor elevation and approximate corners of the building prior to the Contractor beginning work.

6.2 CLEARING AND GRUBBING

A. Clearing and grubbing shall be confined to designated areas and only marked trees may be removed. Maximum clearing and grubbing shall be confined to an area 20 feet beyond the back and sides of the building and 30 feet in front of the building. Construction work shall disturb a minimum of the existing terrain and plant life adjacent to the cleared and grubbed area. The Contractor shall exercise care to not damage unmarked trees and shrubbery. Skinned or barked trees shall be repaired with an application of black asphalt emulsion especially formulated for such use.

B. Trees shall be felled within the clearing limits, usually towards the center, so as to prevent damage to the trees that are to be left standing. When necessary to prevent damage to structures, adjacent trees, property, or to minimize danger to traffic, trees shall be cut in sections from the top downward.

C. All trimming of trees shall be done in accordance with approved horticultural practices. Branches shall be saw cut flush with the trunk. Stumps within the clearing limit but out of the excavation area shall be cut not more than 6 inches above the ground.

D. Trees and limbs larger than 4 inches in diameter shall be cut in 8-foot lengths and stockpiled as directed by the Ordering Unit.

6.3 TOPSOIL

A. Topsoil shall be removed from the area to be excavated and from the area where excavated material shall be piled prior to excavating. Topsoil shall be kept separate from excavated material. Topsoil shall be reused on those areas from which it came after backfilling is complete.

6.4 SAFETY, SHORING, AND PROTECTION

A. The Contractor shall meet OSHA safety rules and regulations. Walls of excavations 4’ or more in depth shall be supported by bracing, shoring, or other methods, unless the walls are sloped to a safe angle from the bottom. If shored, the excavation shall be of proper dimensions to accommodate shoring and bracing, as required to keep walls from collapsing and to allow for proper installation of the work. All existing

improvements, either on public or private property, shall be fully protected from damage. All supports shall be removed after construction is completed, and shall be withdrawn in a manner that will prevent the collapse of the sides of the excavation. All openings in the ground, caused by the removal of supports, shall be filled with suitable material properly compacted.

B. All excavations left open overnight shall be fenced with wire or plastic mesh secured to steel posts all around the excavation.
   1. The bottom of the fence shall follow the contour of the ground
   2. Maximum spacing of the steel posts shall be 10 feet.
   3. Minimum height of the fence shall be 36 inches.

6.5 REMOVAL OF WATER

A. The Contractor shall provide and maintain, at all times during construction, ample means and devices with which to promptly remove and properly dispose of all water entering the excavations or other parts of the work without damage to adjacent property. All excavations shall be kept free from standing water. The Contractor at his own expense shall repair any damage caused by water in the excavation.

6.6 EXCAVATION, BACKFILL, AND SITE GRADING

A. Coordination with the Building Manufacturer
   1. Contractor shall coordinate with the manufacturer of the precast concrete building to accommodate installation at the time of delivery. The Contractor shall be responsible to obtain installation instructions from the manufacturer and perform the excavation, backfill, and site grading in accordance with those instructions. The excavation shall be over excavated two feet (horizontal measurement) on each side of the vault or slab to allow for compaction and minor adjustments in orientation. The Contractor must have excavation complete prior to delivery of the precast concrete building. The building delivery shall be coordinated with the contractor to provide adequate lead time for site preparation. Also, the Contractor must be on site at the time of delivery to perform the backfill operation as soon as the precast concrete building is in place.

B. Excavation
   1. Excavation shall be performed by any method approved by the Ordering Unit. Stockpile excavated material away from the excavation to facilitate crane and delivery truck access. The crane and delivery truck typically need to be side-to-side during placement.
   2. Compact the natural ground at the bottom of the vault excavation with a minimum of three passes with an approved whacker-type mechanical tamper.

C. Bedding
   1. The Contractor shall place a leveling course prior to placement of the vault or building. Compact leveling course with one pass of an approved whacker-type

mechanical tamper. Grade leveling course so there will be no high spots in the middle. Compact with a second pass with a tamper. Slope the top of the bedding one percent from back to front of building.

a. Minimum compacted leveling course for vault shall be 4 inches.
b. Minimum compacted leveling course for building slab shall be 6 inches.

D. Building Placement

1. Place building as staked on the ground and directed by the COR.

E. Backfill

1. Backfill shall be permitted only after the work to be covered has been approved by the Ordering Unit. Backfill shall be placed in 8" thick (loose measurement) lifts and compacted with three complete passes of an approved vibratory compactor.

6.7 START-UP PROCEDURES

A. Vault Toilet

1. Vault Preparation
   a. Add approximately 80 gallons of potable water to cover the floor of the vault(s).
2. Vent Pipe Installation
   a. Install vent pipe plumb and seal around pipe at top and underside of roof with silicone sealant. Seal around pipe at top of slab with silicone sealant.
3. Toilet Riser Installation
   a. Apply silicone sealant between toilet riser flange and concrete floor before the riser is installed.

6.8 FINISH GRADING

A. All surfaces and slopes shall be shaped to blend with the original ground line, mounded over or smoothed off, and raked, and left in a uniform and neat condition. Stockpiled topsoil shall be smoothly distributed over disturbed areas and hand raked to blend with ground line. Final grade shall be flush with top of front slab to provide accessibility. Surface drainage shall be diverted so that it will not enter into the area.

6.9 CLEANUP

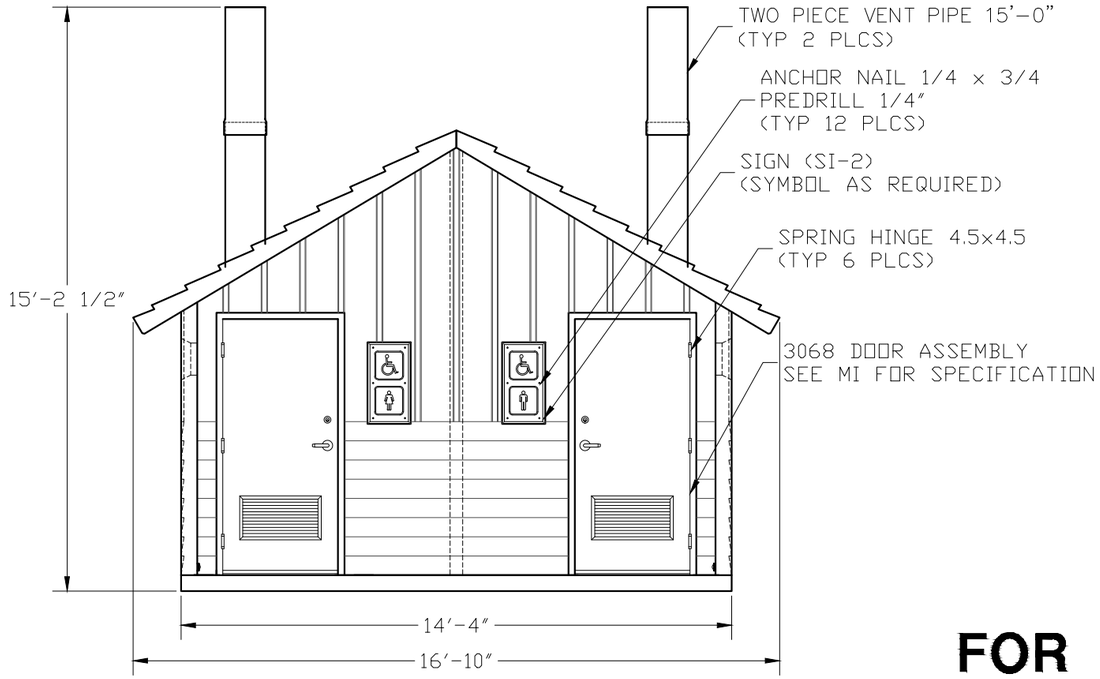
A. After backfilling and grading has been completed, the disturbed area shall be finished to present as near a natural appearance as possible and cleaned up by removing all debris and materials not utilized.

B. Clean building walls, floors, and roof using soapy water.

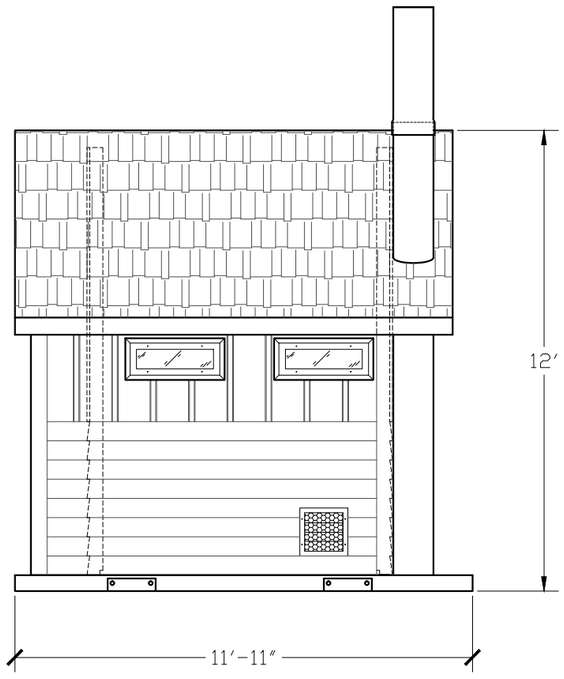
6.10 DISPOSAL

A. All unsuitable excavated material, oversize boulders, stumps, small limbs, brush, sod and other construction refuse shall be disposed of off-site at a State-approved disposal site.

END OF SECTION 13129

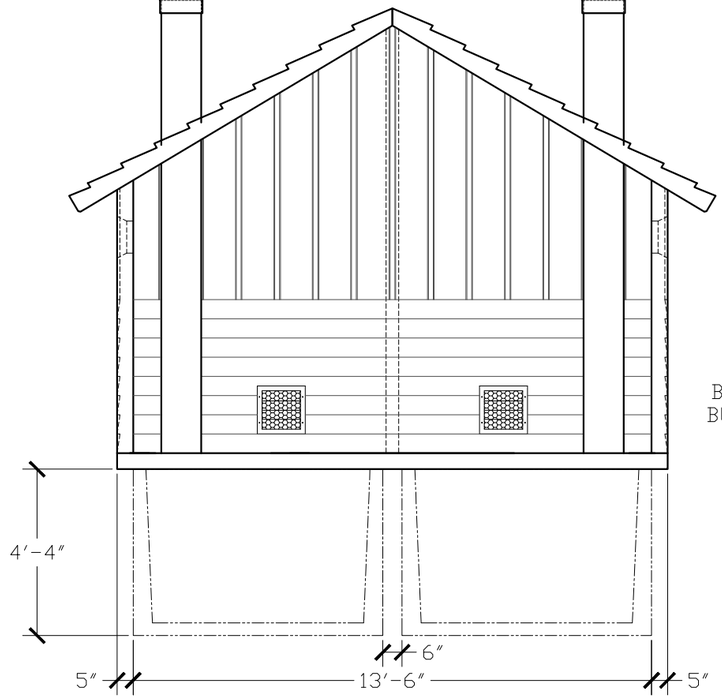


FRONT ELEVATION

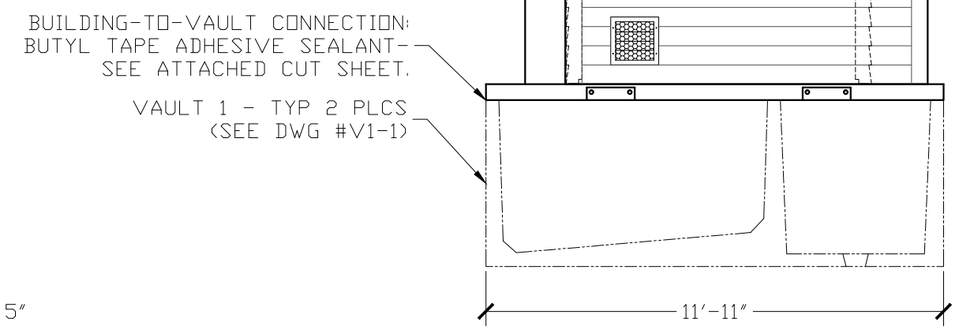


RIGHT SIDE ELEVATION

FOR REFERENCE ONLY



REAR ELEVATION



LEFT SIDE ELEVATION

EMBEDDED MATERIALS			
ITEM	QTY	ITEM	QTY
SI-2	2		
VENT PIPE 12'-0"	2		
3068 DOOR ASSEMBLY	2		
ANCHOR NAIL 1/4x3/4	12		
SPRING HINGE 4.5x4.5	6		
VENT PIPE 3'-0"	2		

CU. FT. CONC.	SQ. FT. W.W.F.	APPROXIMATE WEIGHT

CXT Precast Products

PROJECT TITLE

DOUBLE CASCADIAN

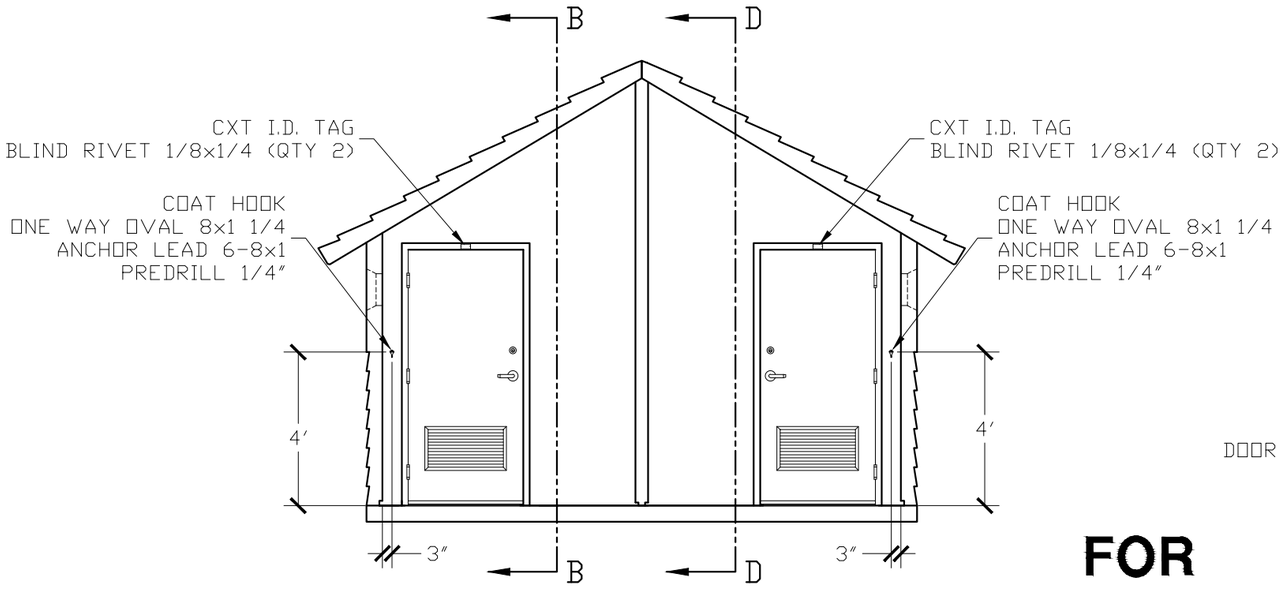
CXT STANDARD BUILDING

REV.	DESCRIPTION	APPROVAL	DATE

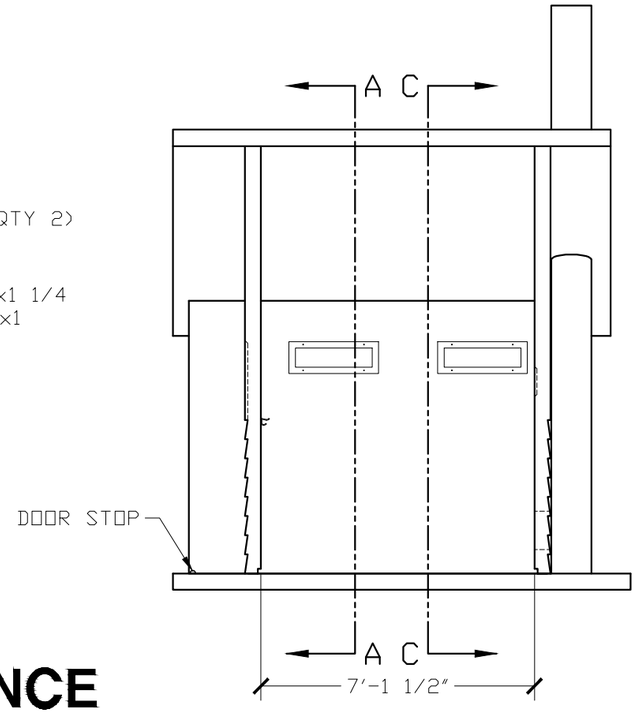
SCALE	1/4"=1'-0"	DATE	07-19-16
DRAWN		FILE NO.	PD-DC02
CHECKED		PLOT	24

BUILDING ELEVATIONS

DWG NO.	SHEET	REV.
DC-02		

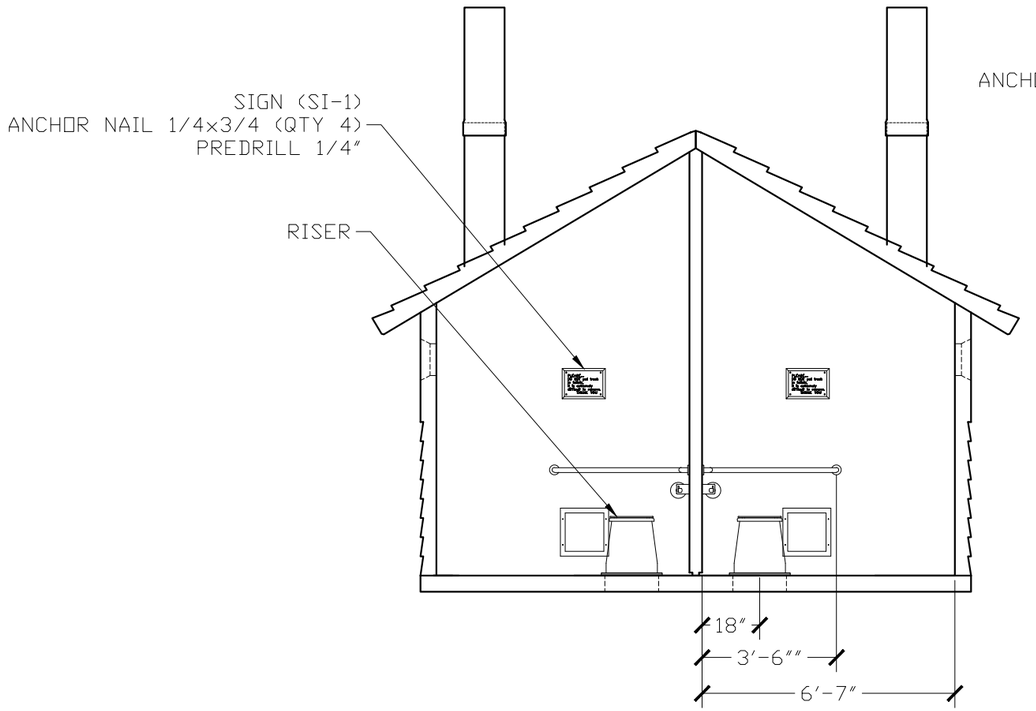


SECTION A – A

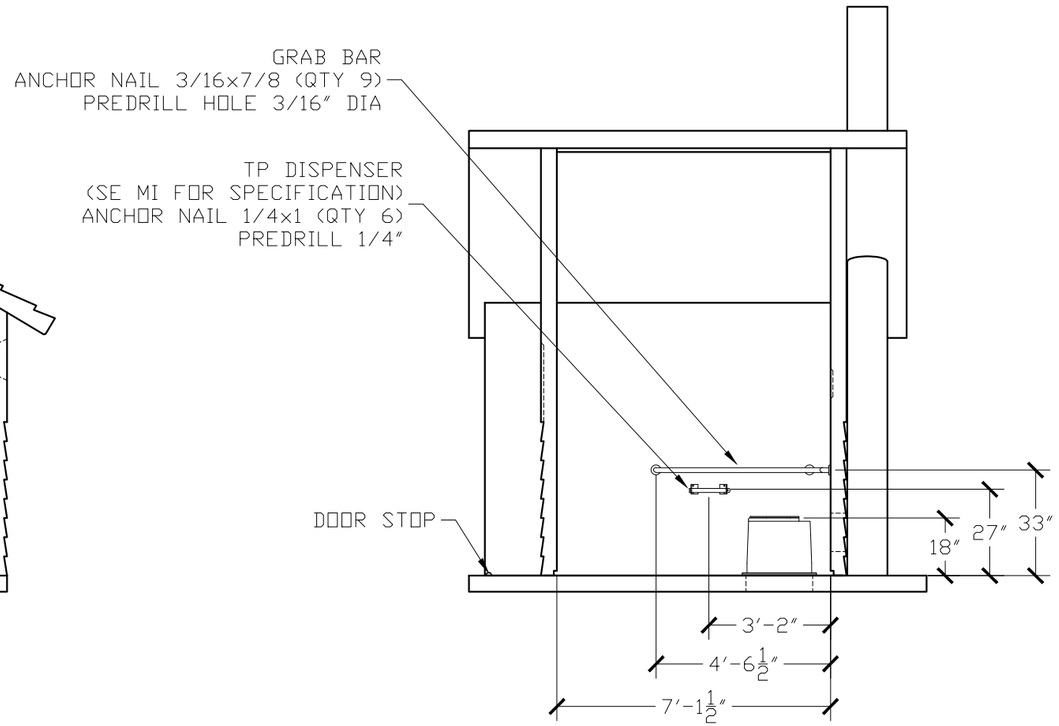


SECTION B – B

FOR REFERENCE ONLY



SECTION C – C



SECTION D – D

EMBEDDED MATERIALS			
ITEM	QTY	ITEM	QTY
RISER	2	ONE WAY OVAL 8x1 1/4	4
GRAB BAR	2	ANCHOR LEAD 6-8x1	4
TP DISPENSER	2		
TOILET PAPER ROLL	4-6		
COAT HOOK	2		
DOOR STOP	2		
SI-1	2		
BLIND RIVET 1/8x1/4	4		
CXT I.D. TAG	2		
ANCHOR NAIL 1/4x1	12		
ANCHOR NAIL 1/4x3/4	8		
ANCHOR NAIL 3/16x7/8	18		
CU. FT. CONC.	SQ. FT. W.W.F.	APPROXIMATE WEIGHT	

CXT Precast Products

PROJECT TITLE

DOUBLE CASCADIAN

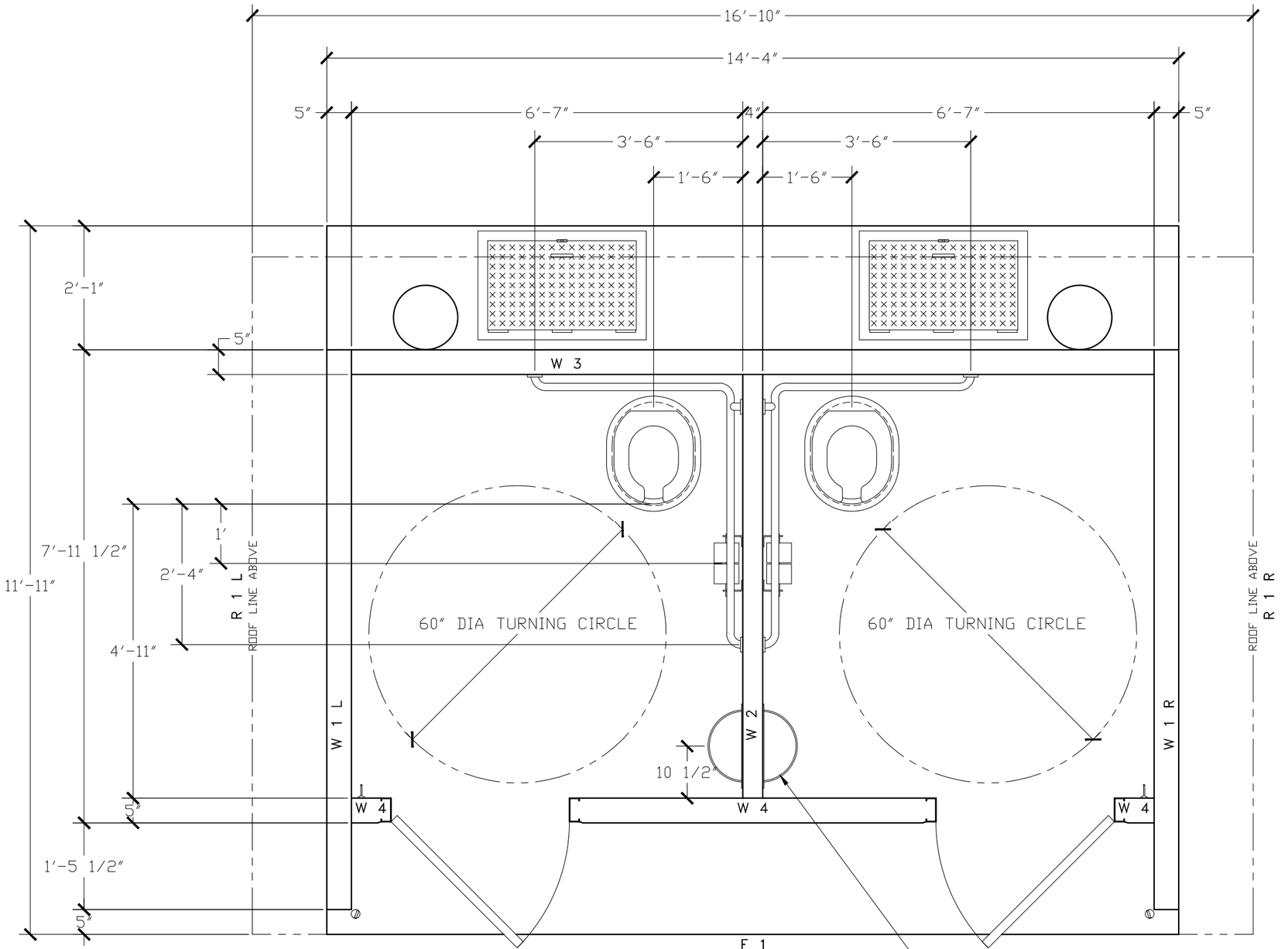
CXT STANDARD BUILDING

REV.	DESCRIPTION	APPROVAL	DATE

SCALE	1/4"=1'-0"	DATE	07-19-16
DRAWN		FILE NO.	PD-DC03
CHECKED		PLOT	48

INTERIOR ELEVATIONS

DWG NO.	SHEET	REV.
DC-03		



FOR REFERENCE ONLY

CXT Precast Products

PROJECT TITLE

DOUBLE CASCADIAN

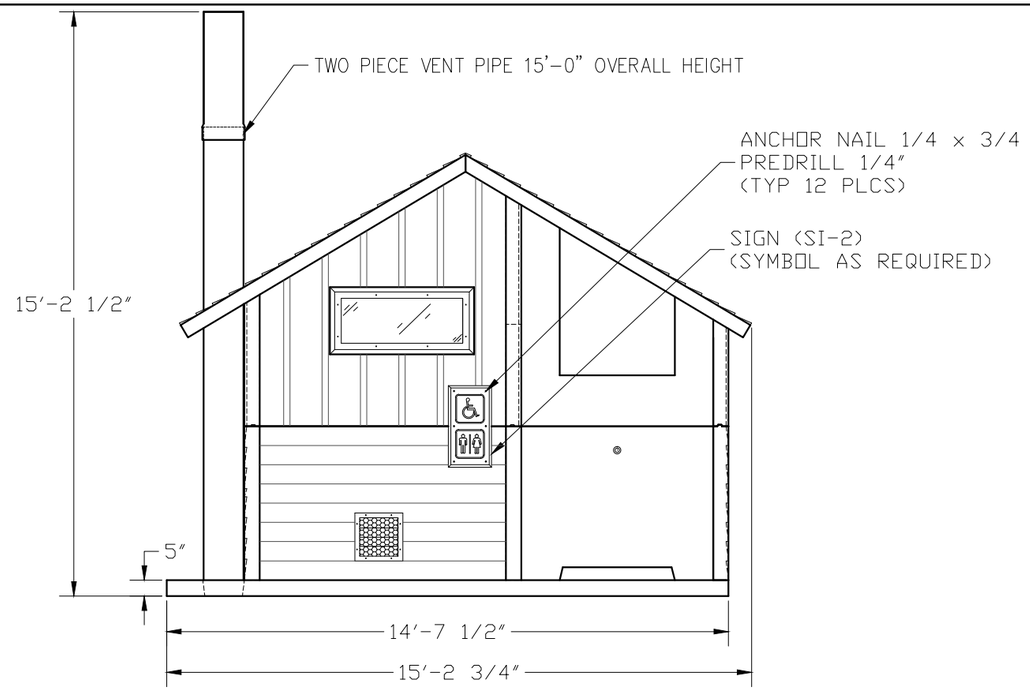
CXT STANDARD BUILDING

REV.	DESCRIPTION	APPROVAL	DATE

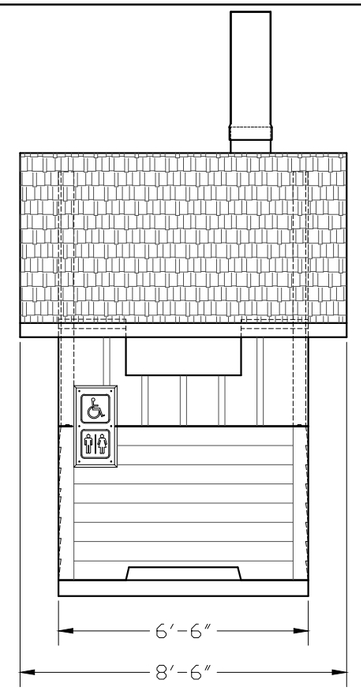
SCALE	1/2"=1'-0"	DATE	07-19-16
DRAWN		FILE NO.	PD-DC04
CHECKED		PLOT	24

FLOOR PLAN

DWG NO.	SHEET	REV.
DC-04		

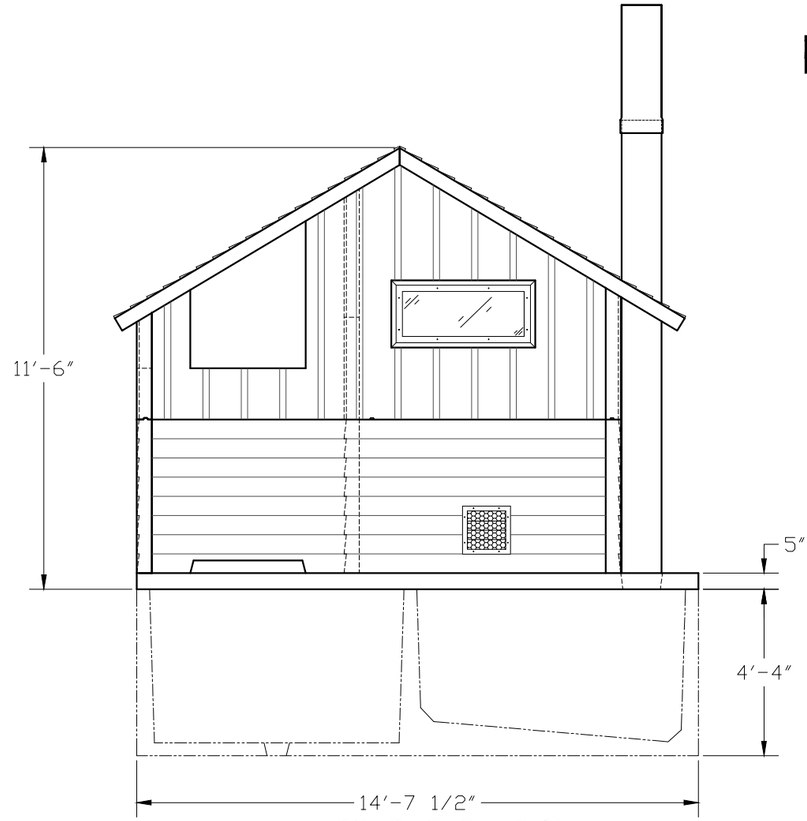


FRONT ELEVATION

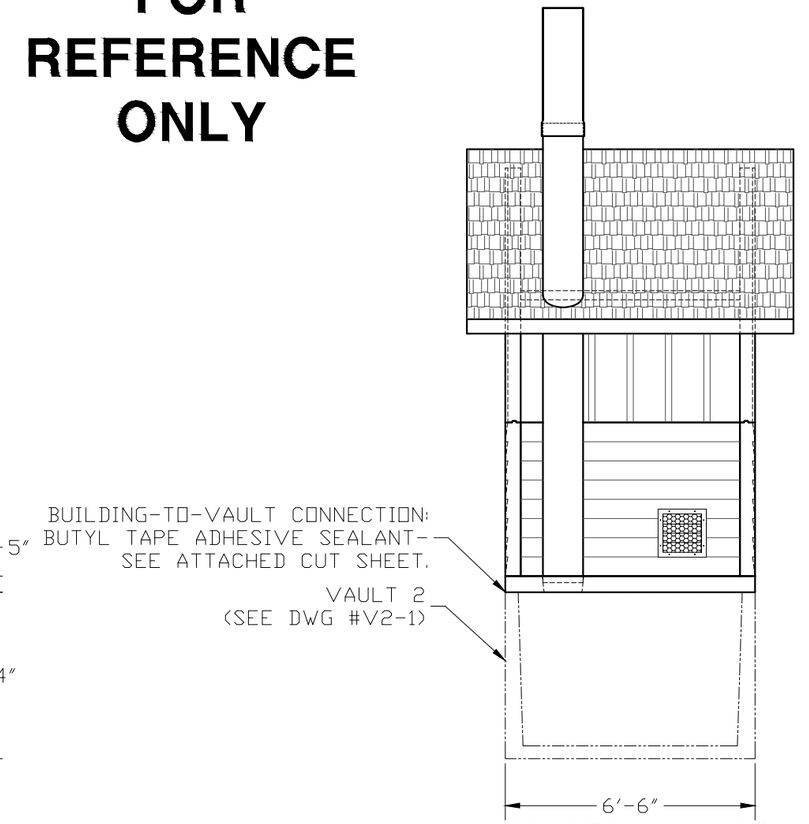


RIGHT SIDE ELEVATION

FOR REFERENCE ONLY



REAR ELEVATION



LEFT SIDE ELEVATION

EMBEDDED MATERIALS			
ITEM	QTY	ITEM	QTY
SI-2	2		
VENT PIPE 12'-0"	1		
ANCHOR NAIL 1/4x3/4	12		
VENT PIPE 3'-0"	1		

CU. FT. CONC.	SQ. FT. W.W.F.	APPROXIMATE WEIGHT

CXT Precast Products

PROJECT TITLE

CASCADIAN RIGHT HAND

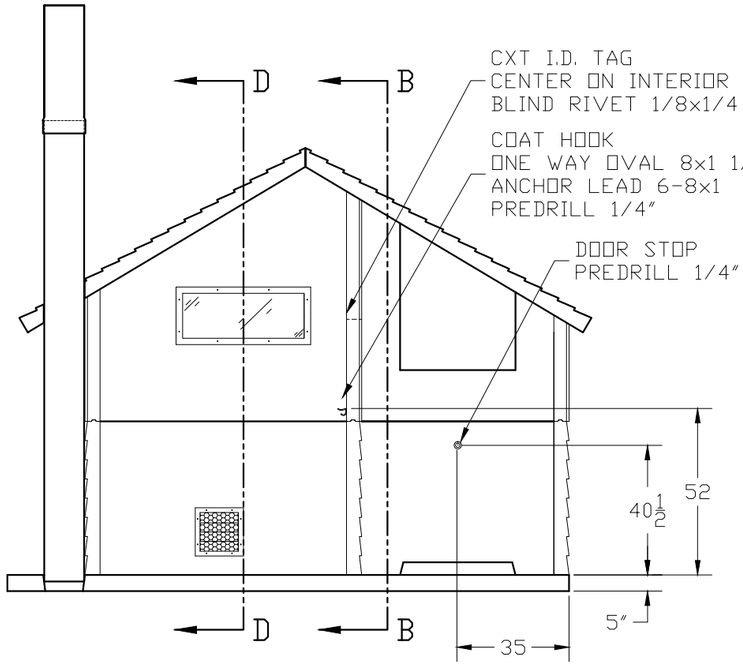
CXT STANDARD BUILDING

REV.	DESCRIPTION	APPROVAL	DATE

SCALE	1/4"=1'-0"	DATE	07-19-16
DRAWN		FILE NO.	PD-C02
CHECKED		PLOT	48

BUILDING ELEVATIONS

DWG NO.	SHEET	REV.
C-02		



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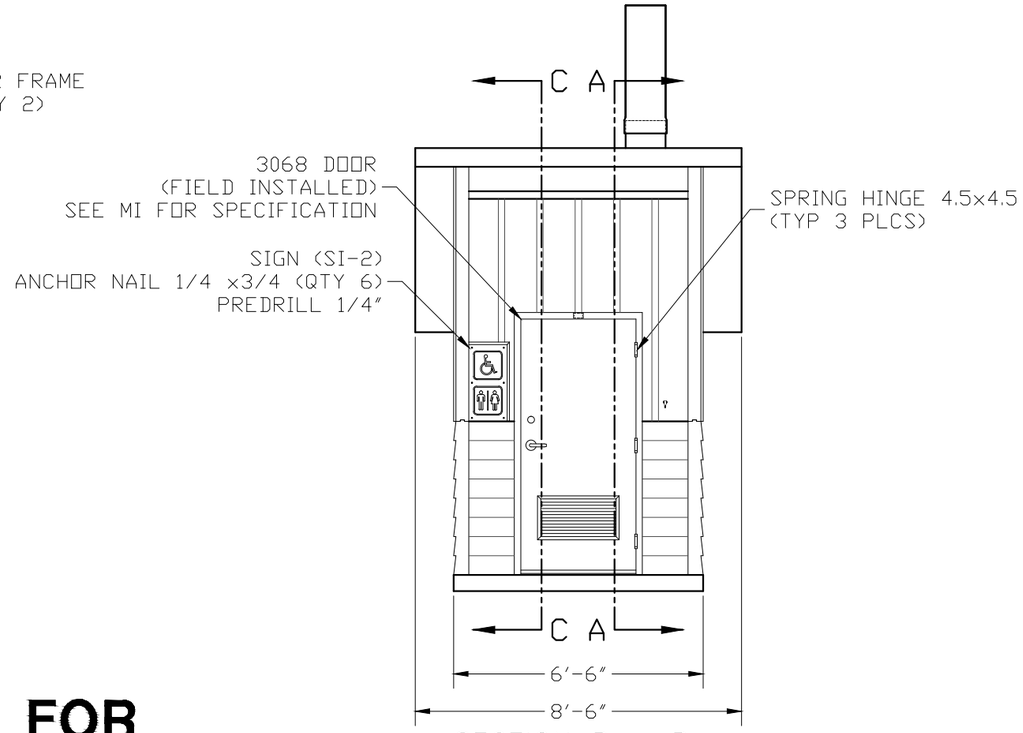
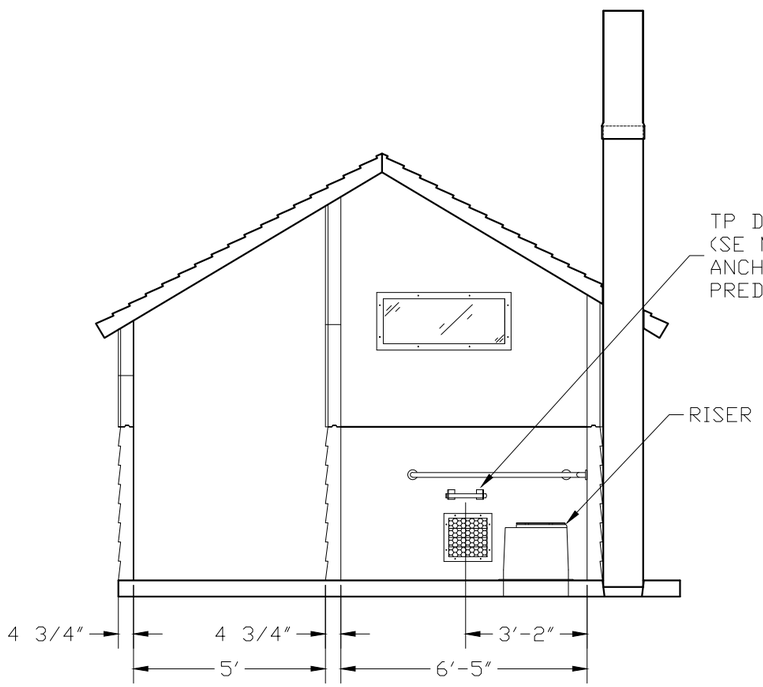


SECTION B – B

FOR REFERENCE ONLY



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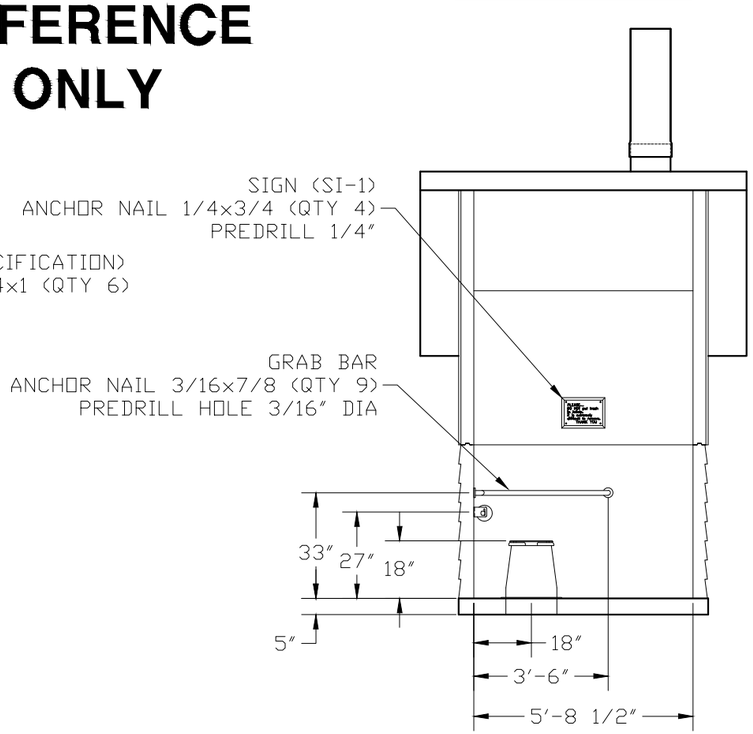


SECTION D – D

EMBEDDED MATERIALS			
ITEM	QTY	ITEM	QTY
RISER	1	ONE WAY OVAL 8x1 1/4	2
GRAB BAR	1	ANCHOR LEAD 6-8x1	2
TP DISPENSER	1	BLIND RIVET 1/8x1/4	2
TOILET PAPER ROLL	2-3	3068 DOOR ASSEMBLY	1
COAT HOOK	1	SPRING HINGE 4.5x4.5	3
DOOR STOP	1		
SI-1	1		
SI-2	1		
CXT I.D. TAG	1		
ANCHOR NAIL 1/4x1	6		
ANCHOR NAIL 1/4x3/4	10		
ANCHOR NAIL 3/16x7/8	9		
CU. FT. CONC.	SQ. FT. W.W.F.	APPROXIMATE WEIGHT	

CXT Precast Products

PROJECT TITLE

CASCADIAN RIGHT HAND

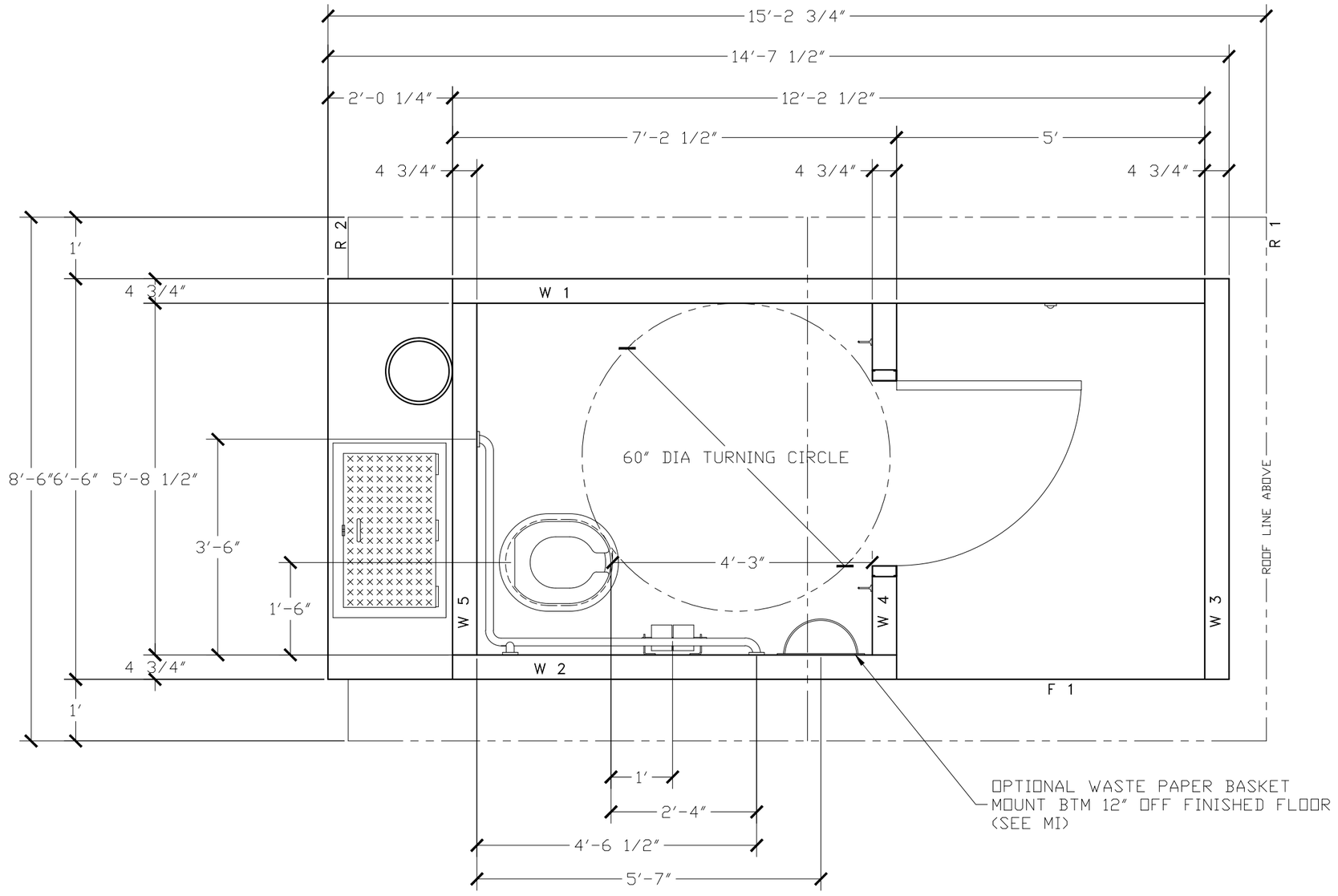
CXT STANDARD BUILDING

REV.	DESCRIPTION	APPROVAL	DATE

SCALE	1/4"=1'-0"	DATE	07-19-16
DRAWN		FILE NO.	PD-C03
CHECKED		PLOT	48

INTERIOR ELEVATIONS

DWG NO.	SHEET	REV.
C-03		



FOR REFERENCE ONLY

Precast Products

PROJECT TITLE

CASCADIAN RIGHT HAND

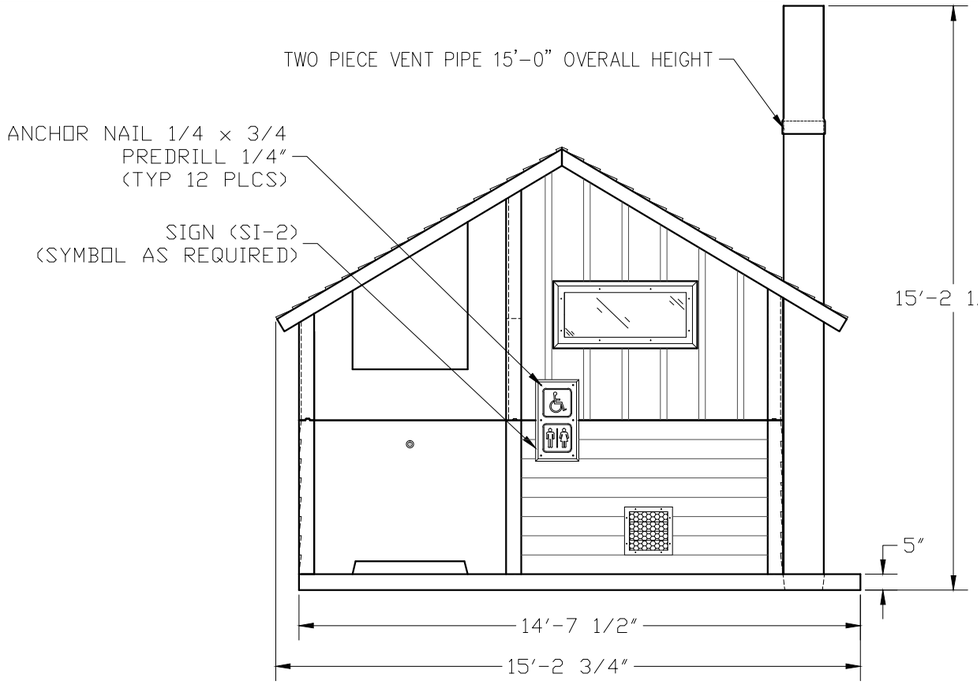
CXT STANDARD BUILDING

REV.	DESCRIPTION	APPROVAL	DATE

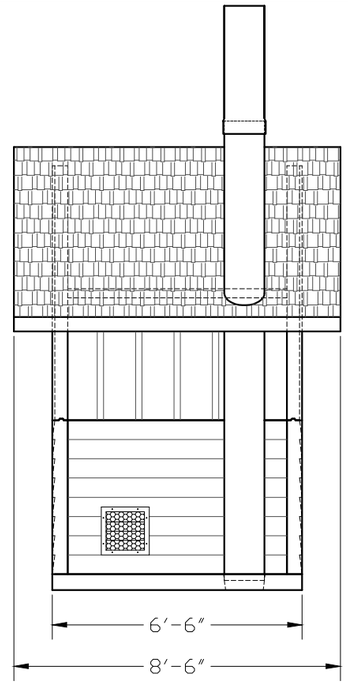
SCALE	1/2″=1′-0″	DATE	07-19-16
DRAWN		FILE NO.	PD-C04
CHECKED		PLOT	24

FLOOR PLAN

DWG NO.	SHEET	REV.
C-04		

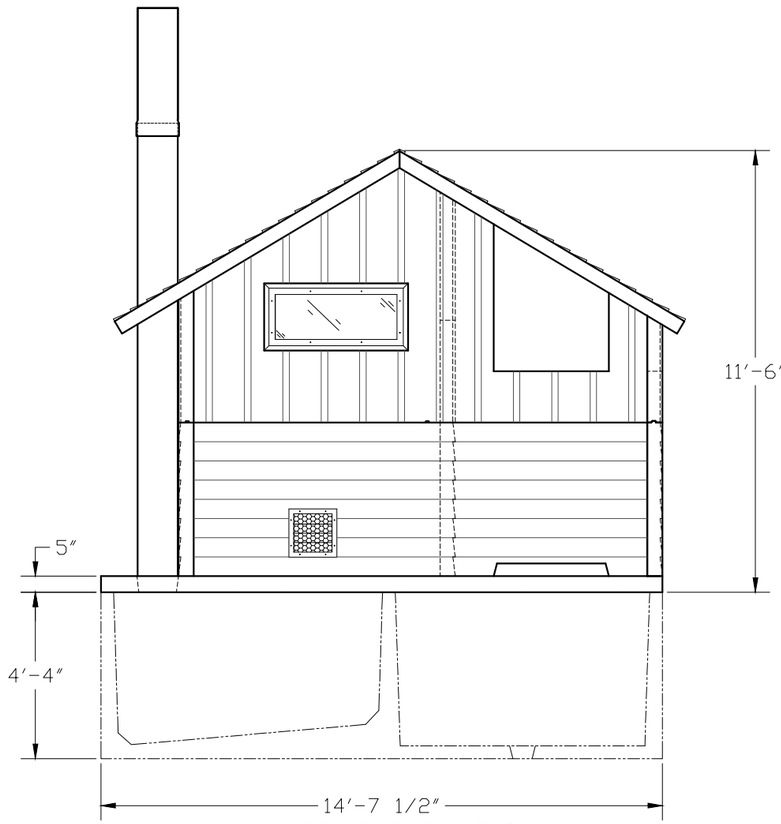


FRONT ELEVATION

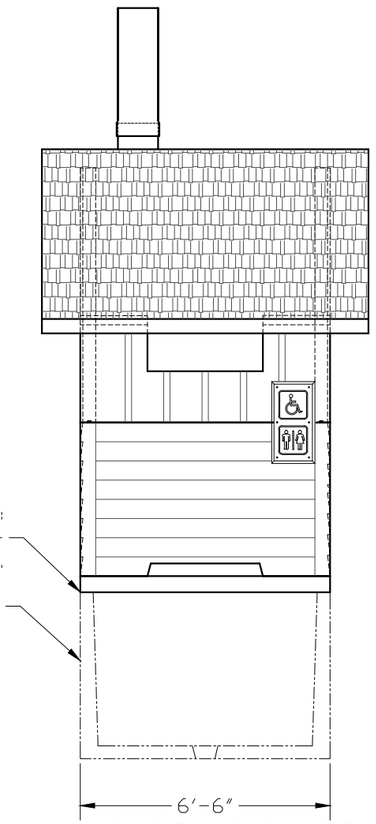


RIGHT SIDE ELEVATION

FOR REFERENCE ONLY



REAR ELEVATION



LEFT SIDE ELEVATION

EMBEDDED MATERIALS			
ITEM	QTY	ITEM	QTY
SI-2	2		
VENT PIPE 12'-0"	1		
ANCHOR NAIL 1/4x3/4	12		
VENT PIPE 3'-0"	1		

CU. FT. CONC.	SQ. FT. W.W.F.	APPROXIMATE WEIGHT

CXT Precast Products

PROJECT TITLE

CASCADIAN LEFT HAND

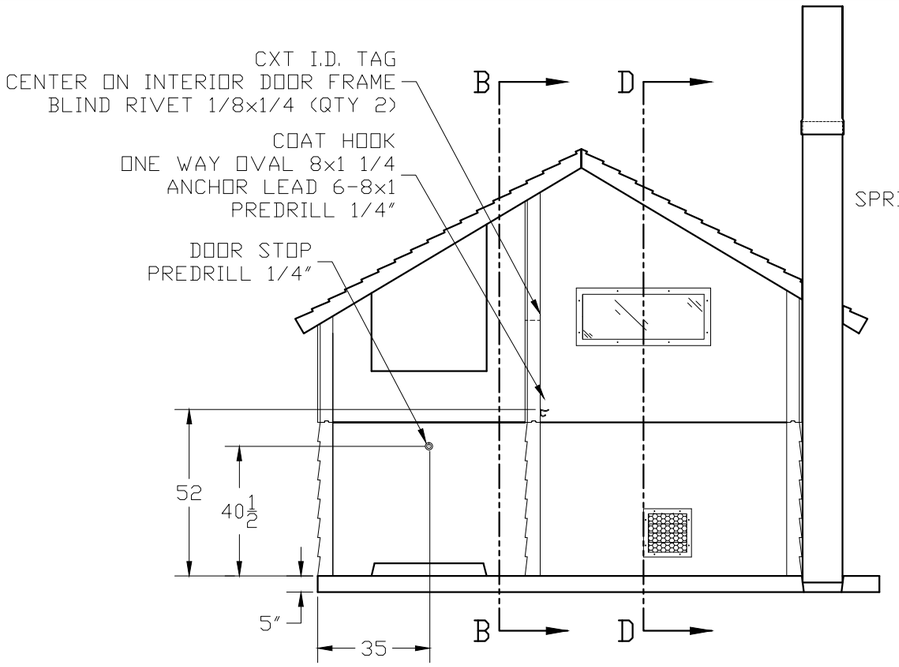
CXT STANDARD BUILDING

REV.	DESCRIPTION	APPROVAL	DATE

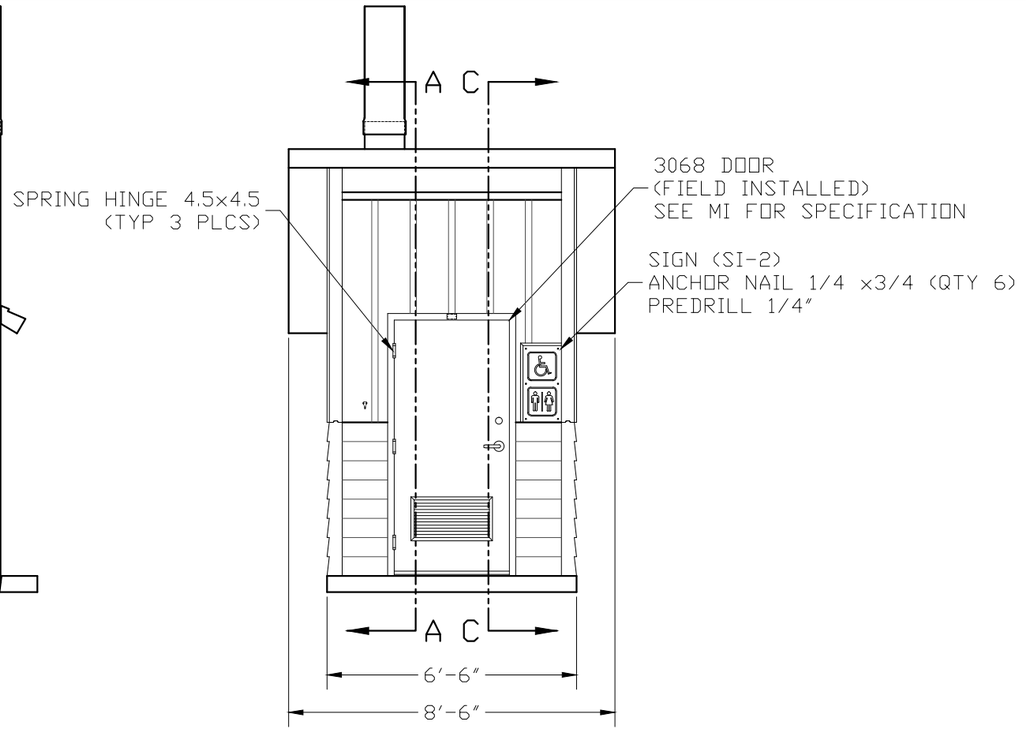
SCALE	1/4"=1'-0"	DATE	07-19-16
DRAWN		FILE NO.	PD-C02
CHECKED		PLOT	48

BUILDING ELEVATIONS

DWG NO.	SHEET	REV.
C-02		

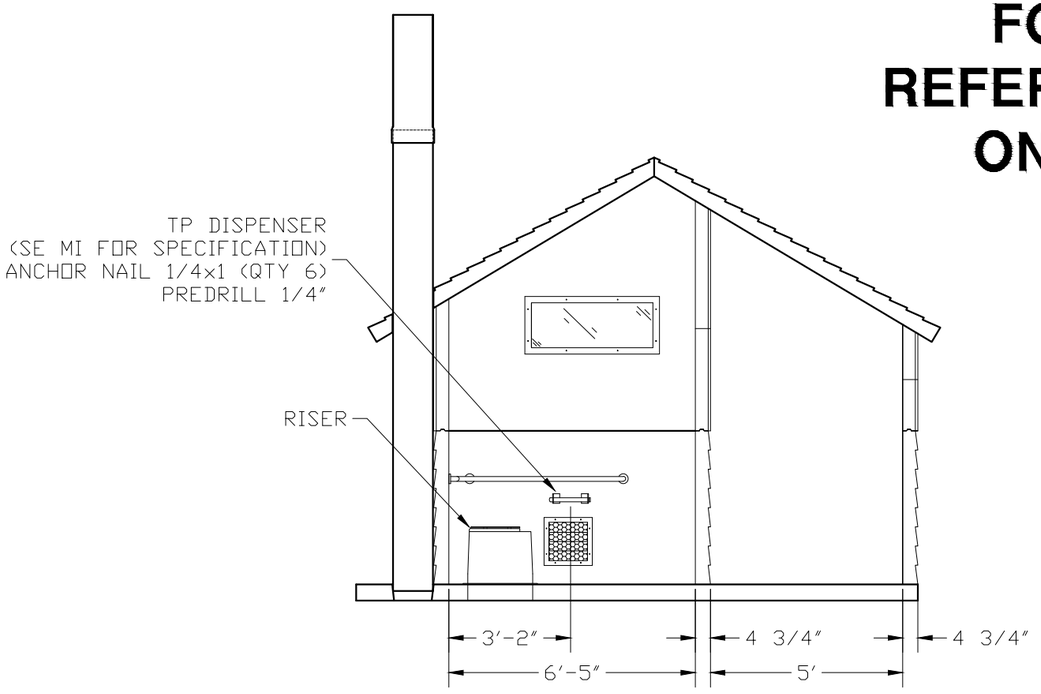


SECTION A – A

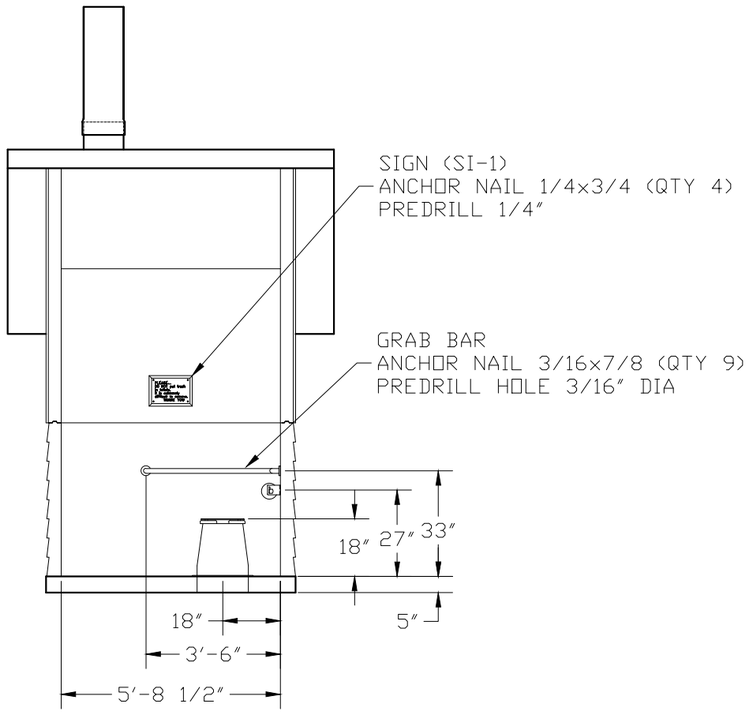


SECTION B – B

FOR REFERENCE ONLY



SECTION C – C



SECTION D – D

EMBEDDED MATERIALS			
ITEM	QTY	ITEM	QTY
RISER	1	ONE WAY OVAL 8x1 1/4	2
GRAB BAR	1	ANCHOR LEAD 6-8x1	2
TP DISPENSER	1	BLIND RIVET 1/8x1/4	2
TOILET PAPER ROLL	2-3	3068 DOOR ASSEMBLY	1
COAT HOOK	1	SPRING HINGE 4.5x4.5	3
DOOR STOP	1		
SI-1	1		
SI-2	1		
CXT I.D. TAG	1		
ANCHOR NAIL 1/4x1	6		
ANCHOR NAIL 1/4x3/4	10		
ANCHOR NAIL 3/16x7/8	9		
CU. FT. CONC.	SQ. FT. W.W.F.	APPROXIMATE WEIGHT	

CXT Precast Products

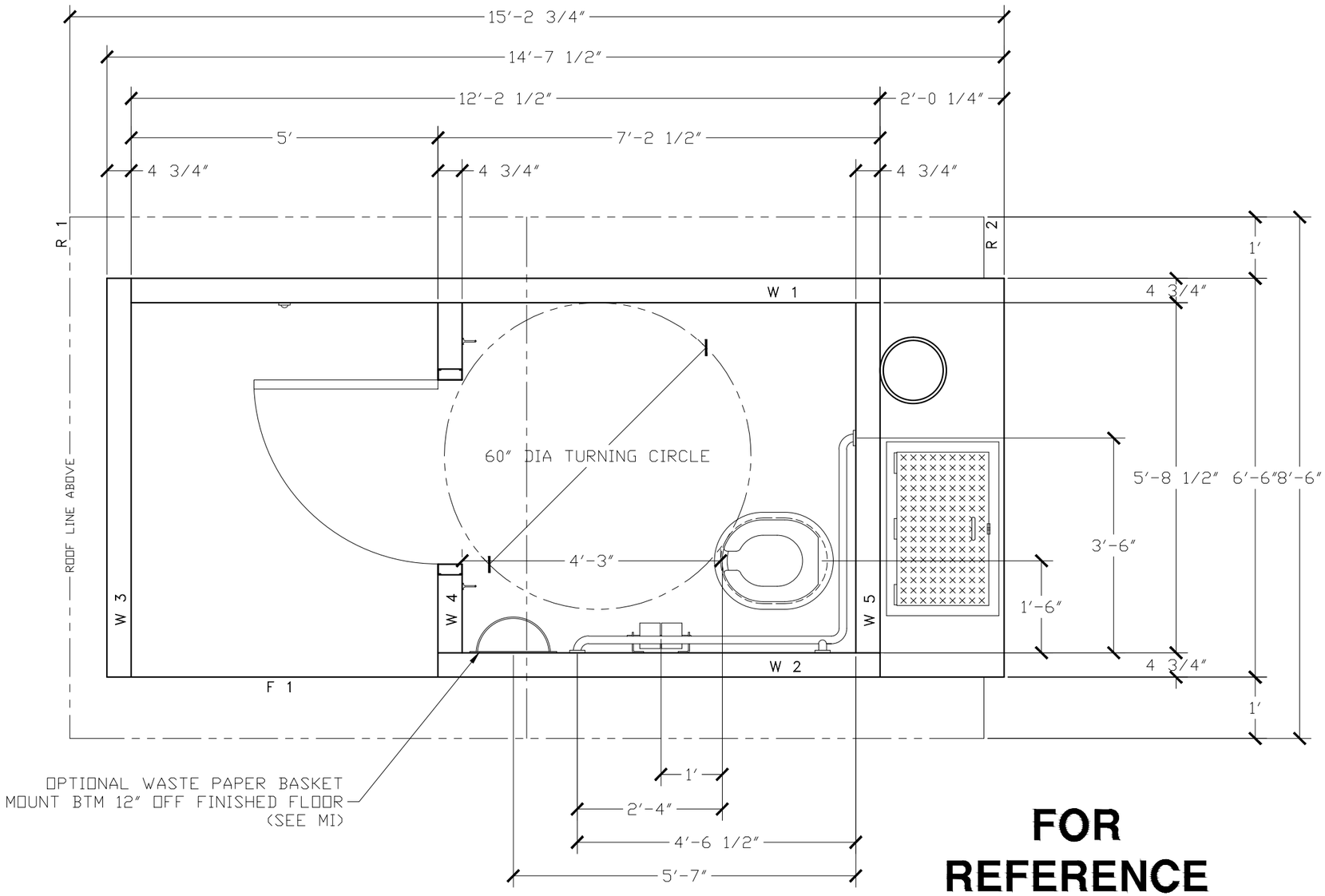
PROJECT TITLE
CASCADIAN LEFT HAND
CXT STANDARD BUILDING

REV.	DESCRIPTION	APPROVAL	DATE

SCALE	1/4"=1'-0"	DATE	07-19-16
DRAWN		FILE NO.	PD-C03
CHECKED		PLOT	48

INTERIOR ELEVATIONS

DWG NO.	SHEET	REV.
C-03		



FOR REFERENCE ONLY

Precast Products

PROJECT TITLE

CASCADIAN LEFT HAND

CXT STANDARD BUILDING

REV.	DESCRIPTION	APPROVAL	DATE

SCALE	1/2″=1′-0″	DATE	07-19-16
DRAWN		FILE NO.	PD-C04
CHECKED		PLOT	24

FLOOR PLAN

DWG NO.	SHEET	REV.
C-04		