

## **SPECIAL PROVISIONS**

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This section of the Contract Documents covers special conditions applicable to this project that are not covered by the General Notes on the plans. In case of conflict between the Special Provisions and the project plans, Special Provisions shall govern.

Work to be performed under the provisions of these specifications consists of furnishing all materials (except as noted in the Special Provisions), equipment, tools, and labor; the performance of all necessary installation and the construction complete, including all work appurtenant thereto, as detailed and specified herein.

Any subsequent addenda issued after these documents have been prepared shall supplement and/or supersede any article of the specifications.

**SP-1. PROJECT SAFETY:**

CONTRACTOR IS SOLELY RESPONSIBLE FOR PROJECT SAFETY AND ADHERENCE TO O.S.H.A. AND OTHER APPLICABLE SAFETY, HEALTH, AND SANITATION STANDARDS.

This requirement will apply 24 hours per day until acceptance of the work by Owner and shall not be limited to normal working hours.

**SP-2. ACCIDENTS:**

Contractor shall provide at the site such equipment and medical facilities as necessary to supply first aid service to anyone who may be injured in connection with the work.

Contractor must promptly report in writing to Owner all accidents arising out of, or in connection with, the performance of the work, whether on or adjacent to the site which caused death, personal injury, or property damages, giving full details, and statements of witnesses. In addition, if death or serious injury or serious damages are caused, the accident shall be reported immediately by telephone or messenger to Owner.

If any claim is made by anyone against Contractor or any Subcontractor on account of any accident, Contractor shall promptly report the facts in writing to Owner, giving full details of the claim.

**SP-3. PRE-CONSTRUCTION CONFERENCE:**

After award of the contract, a pre-construction conference will be held with the Owner and Engineer to clarify miscellaneous items of the contract to include contractor scheduling, contractor's responsibilities, utility conflicts, and general work and safety requirements.

**SP-4. PERMITS:**

Contractor shall secure all necessary permits. The contractor is required to obtain any necessary storm water permits and is responsible for all work and expense associated with obtaining and complying with the permits, including a General Permit for Storm Water Activity Associated with Construction Activity, preparation of the Notice of Intent (NOI), the Storm Water Pollution Prevention Plan (SWPPP), the Notice of Termination (NOT), and implementation of the SWPPP.

**SP-5. DUST CONTROL:**

The Contractor shall provide dust abatement for all roads and work areas and prevent dust from becoming a nuisance. There will be no separate payment for dust control including watering and shall be at the Contractor's expense. Non-conformance to dust abatement requirements may result in an Owner ordered shutdown of construction operations until dust conditions are brought under control. There will be no contract time granted for shutdowns to control dust.

**SP-6. UTILITIES:**

Locate all existing utility installations above and below ground, including service connections, in advance of the project by contacting **One Call System** prior to beginning work at **1-800-424-5555**, and if necessary, representatives of the utility companies that may be affected by construction activities.

No consideration will be given for additional cost for repair of damaged utilities or projects delays caused by failure to notify the One Call System or individual utilities (if warranted). The Owner will assume no responsibility for any costs associated with inaccurate or omitted utility locates for privately owned utilities.

**SP-7. SITE SUPERINTENDENT:**

Provide a 24-hour/seven-days a week telephone contact persons for the project. The contact shall have authority to make changes as directed by the Engineer or Owner. Superintendent shall be knowledgeable and qualified to evaluate quality of not only the general construction work but also the systems and installations of subcontract work. He/she shall:

1. Aggressively evaluate on a day-to-day basis and be responsible for the quality and acceptability of work.
2. Make the first determination as to the fitness and compliance of all work performed.
3. Be the initiator in regard to rejection of unfit work.
4. Not passively default or abdicate, in the first analysis, these duties to the Engineer or to the Owner.

**SP-8. SANITARY FACILITIES:**

Contractor shall provide and maintain on site sanitary facilities for use by construction personnel and subcontractors as may be necessary to comply with the requirements and regulations of the local and State Department of Health.

**SP-9. TOPSOIL STRIPPING AND PLACEMENT:**

The Contractor shall remove topsoil from the existing surface and perform stockpiling and re-spreading. There will be no separate payment for topsoil stripping, stockpiling and re-spreading. Costs associated with all topsoil removal and re-spreading shall be absorbed in the cost of other items. All finished grading must account for the placement of stockpiled topsoil to a minimum depth of 4 inches throughout the entire site. Payment will not be specifically made for topsoil stripping, stockpiling and re-spreading on this project.

**SP-10. INCIDENTAL WORK ITEMS:**

The cost for the following incidental work items will not be paid separately and shall be merged with applicable bid items. Incidental work includes but is not limited to:

- 1) Bonds and Insurance
- 2) Permits
- 3) Overhead and Profit
- 4) Cost of laboratory procedures for required submittals
- 5) Utility locating
- 6) Disposal of excess excavated material and unclassified excavated materials
- 7) Pipe bedding
- 8) Expenses related to storm water management including cost of materials, installation of BMPs, and removal of BMPs
- 9) Quality control testing
- 10) Surveying/staking/layout
- 11) Clean-up
- 12) Clearing and grubbing and tree/brush removal
- 13) Water for dust control and compaction
- 14) Topsoil stripping, stockpiling, hauling and replacement
- 15) Disposal of construction debris
- 16) Submittals
- 17) Temporary facilities
- 18) Record documents maintenance and submittal
- 19) Relocation of existing signs.

**SP-11. CORRECTION OF WORK:**

Contractor shall promptly remove from the premises all materials condemned by the Engineer or Owner as failing to conform to the Contract, whether incorporated in the work or not. The Contractor shall promptly replace and re-execute their own work in accordance with the Contract and without expense to the Owner and shall bear the expense of making good all work any other contractor destroyed or damaged by such removal or replacement.

**SP-12. CONSTRUCTION WATER:**

Contractor shall apply water at the locations, and in the amounts required to properly compact the work. Equipment used for watering shall be of ample capacity and of such design as to assure uniform application of water in the amounts required. Contractor shall also apply water during the course of the work to control dust and maintain all embankments and base courses in a damp condition. The Contractor shall take appropriate measures to ensure construction water and equipment transport no aquatic invasive species per MCA 80-7-1012. The cost of the water used for construction purposes is the Contractor's responsibility, will not be paid separately and shall be merged with applicable bid items.

**SP-13. WATER POLLUTION CONTROL:**

General Requirements: Contractor shall meet all requirements and applicable regulations of the Montana Department of Fish, Wildlife and Parks, Department of Environmental Quality, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers and other State or Federal regulations relating to the prevention or abatement of water pollution. Contractor shall conduct and schedule his operations to avoid muddying or silting river, streams, lakes or impoundments. Contractor's specific attention is directed to the Montana Water Pollution Control Act and the Montana Stream Preservation Act for requirements of the State of Montana's MPDES Discharge

Permit Program. Contractor shall be responsible for obtaining any required discharge permits associated with erosion control, groundwater dewatering, or other applicable permits. Contractor's responsibility shall include all cleanup and restoration of any detention or discharge areas. This requirement will apply 24 hours per day until acceptance of the work by Owner and shall not be limited to normal working hours.

For all other projects, Contractor shall implement project phasing to minimize disturbance and install and maintain effective Best Management Practices (BMP's) throughout the life of the project to prevent site erosion and discharges of pollution or sediment to rivers, streams, impoundments, and/or storm water conveyance(s). Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage, and other harmful wastes shall not be discharged into or alongside of rivers, streams, lakes impoundments, or into natural or manmade channels leading thereto.

Excavation Dewatering: Discharges to any natural outlet, or any other storm drain conveyance from temporary site dewatering wells or direct excavation de-watering are prohibited. Dewatering and trench dewatering activities shall be contingent upon: (a) obtaining the required Montana Pollutant Discharge Elimination System (MPDES) permit prior to discharge and (b) the discharged water and activities conducted by the Contractor are compliant with the applicable MPDES permit(s).

**SP-14. EQUIPMENT CLEANING:**

All equipment and vehicles to be utilized by the Contractor for this project must be cleaned prior to arrival on site. Cleaning shall comply with Bureau of Reclamation Technical Memorandum No. 86-68220-07-05 (*Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species*). The manual can be found at the following weblink:

<https://www.usbr.gov/mussels/prevention/docs/EquipmentInspectionandCleaningManual2012.pdf>

**SP-15. MEASUREMENT AND PAYMENT:**

The following description of work, measurement of pay quantities and method of payment shall govern payment to the Contractor under this Contract. Payment for these items shall be full compensation for the completed items of work furnished and installed and the cost of any incidental work or materials required to complete the item.

<b><u>BID ITEM</u></b>	<b><u>DESCRIPTION</u></b>
<b>1</b>	<b><u>Mobilization/Demobilization:</u></b> See Section 01450 – Mobilization/Demobilization, Part 4.
<b>2</b>	<b><u>Excavation and Embankment:</u></b> See addenda/edits to MPWSS Section 02230 – Street Excavation, Backfill and Compaction, Part 4.
<b>3</b>	<b><u>Separation Fabric:</u></b> See MPWSS Section 02110 – Geotextiles, Part 4.
<b>4</b>	<b><u>3" Minus Subbase Course:</u></b> See addenda/edits to MPWSS Section 02234 – Sub-Base Course, Part 4.

- 5                    **2-1/2” Minus Ballast:**  
See addenda/edits to MPWSS Section 02234 – Sub-Base Course, Part 4.
- 6                    **3/4” Minus Base Course:**  
See addenda/edits to MPWSS Section 02235 – Crushed Base Course, Part 4.
- 7                    **4” Reinforced Concrete Surfacing:**  
See addenda/edits to MPWSS Section 02529 – Concrete Sidewalks, Driveways, Approaches, Curb Turn Fillets, Valley Gutters and Miscellaneous New Concrete Construction, Part 4.
- 8                    **6” Reinforced Concrete Surfacing:**  
See addenda/edits to MPWSS Section 02529 – Concrete Sidewalks, Driveways, Approaches, Curb Turn Fillets, Valley Gutters and Miscellaneous New Concrete Construction, Part 4.
- 9                    **Riprap (CL. 1):**  
See Section 02240 – Riprap, Part 4.
- 10                   **12” RCP Culverts (Class 5):**  
See addenda/edits to MPWSS Section 02725 – Drainage Culverts, Part 4.
- 11                   **Precast Concrete Latrine:**  
See Section 03401 – Precast Concrete Vault Latrines, Part 7.
- 12                   **Precast Concrete Picnic Shelter:**  
See Section 03402 – Precast Concrete Picnic Shelters, Part 7.
- 13                   **Precast Concrete Picnic Table:**  
Measurement and Payment is made per each picnic table. Payment will be made at the contract unit price and shall include manufacturing, hauling, delivering and placing the picnic table and all labor, equipment and incidentals required to complete the item.
- 14                   **Prefabricated Metal Fire Ring:**  
Measurement and Payment is made per each fire ring. Payment will be made at the contract unit price and shall include manufacturing, hauling, delivering and installing the fire ring (including a utility shelf) and all labor, equipment and incidentals required to complete the item. Fire ring installation includes furnishing and constructing the three concrete footings and placement of course aggregate on the inside of the ring as shown in the specification details. The work shall also include the aggregate base course buffer around the perimeter of the fire rings placed within the concrete surfacing of the two ADA accessible sites. Fire rings shall be 18-inches high.

- 15                    **25.5 Foot Double Leaf Pipe Gate:**  
Measurement and Payment is made per each pipe gate. Payment will be made at the contract unit price for furnishing all labor, materials, equipment and all other incidentals required to complete the item. The work includes the tubular steel gate, excavation of post holes, steel gate posts, two steel gate stop posts, embedment of all posts in concrete, hinges, locking mechanism, barricade markers, object markers, chains and painting.
- 16                    **43 Foot Double Leaf Pipe Gate:**  
Measurement and Payment is made per each pipe gate. Payment will be made at the contract unit price for furnishing all labor, materials, equipment and all other incidentals required to complete the item. The work includes the tubular steel gate, excavation of post holes, steel gate posts, two steel gate stop posts, embedment of all posts in concrete, hinges, locking mechanism, barricade markers, object markers, chains and painting.
- 17                    **Single Post Stop Sign (Contractor Furnished Sign):**  
Measurement and Payment is made per each stop sign. Payment will be made at the contract unit price for furnishing all labor, materials, equipment and all other incidentals required to complete the item. The work includes furnishing and installing a single wood post, post embedment into the ground, the aluminum sign and the mounting bolts.
- 18                    **Single Post Sign (Owner Furnished Sign):**  
Measurement and Payment is made per each sign. Payment will be made at the contract unit price for furnishing all labor, materials, equipment and all other incidentals required to complete the item. The work includes furnishing and installing a single wood post, post embedment into the ground, mounting bolts and installation of the owner furnished aluminum sign.
- 19                    **Double Post Sign (Owner Furnished Sign):**  
Measurement and Payment is made per each sign. Payment will be made at the contract unit price for furnishing all labor, materials, equipment and all other incidentals required to complete the item. The work includes furnishing and installing two wood posts, post embedment into the ground, mounting bolts and installation of the owner furnished informational sign.
- 20                    **Pipe Bollard:**  
Measurement and Payment is made per each pipe bollard. Payment will be made at the contract unit price for furnishing all labor, materials, equipment and all other incidentals required to complete the item. The work includes furnishing and installing steel pipe and concrete, base excavation/augering, and painting of the pipe bollard.

- 21                    **Site Electrical:**  
Measurement and Payment shall be per Lump Sum for site electrical work. Payment will be made at the contract lump sum price for furnishing all labor, materials, equipment and all other incidentals required to complete the item. The work includes trenching and backfill, trench bedding, trench caution tape, conduit, wire, the meter base, the “CT” can, disconnects, equipment mounting posts and 11 RV electrical pedestals.
- 22                    **Seeding:**  
See Section 02910 – Seeding, Part 4.
- 23                    **Erosion Control Blanket:**  
See Section 02910 – Seeding, Part 4.

**END OF SECTION**

## TECHNICAL SPECIFICATIONS

### GENERAL

Contractor shall familiarize himself with the MPWSS and keep a reference copy at the work site at all times. Copies of the Montana Public Works Standard Specifications can be obtained from:

Montana Contractors' Association, Inc.  
1717 11th Avenue  
P. O. Box 4519  
Helena, Montana 59604

Telephone (406) 442-4162  
FAX (406) 449-3199

**Standard Construction Specifications referred to for this project shall be the "Montana Public Works Standard Specifications, Sixth Edition" (MPWSS), April 2010, including any Addenda thereto, are hereby incorporated into these contract documents by reference. Several non-MPWSS sections are also included. The sections include, but are not limited to, the following specification sections:**

### Specifications

#### Section

#### Description of Section

- 01010	Summary of Work (MPWSS)
- 01041	Project Coordination (MPWSS)
- 01050	Field Engineering (MPWSS)
- 01090	References (MPWSS)
- 01300	Submittals (MPWSS)
- 01400	Contractor Quality Control and Owner Quality Assurance (MPWSS)
- 01450	Mobilization/Demobilization (Non-MPWSS Specification)
- 01500	Construction and Temporary Facilities (MPWSS)
- 01700	Contract Closeout (MPWSS)
- 02110	Geotextiles (MPWSS)
- 02221	Trench Excavation and Backfill for Pipeline and Appurtenant Structures (MPWSS)
- 02230	Street Excavation, Backfill and Compaction (MPWSS)
- 02234	Sub Base Course (MPWSS)
- 02235	Crushed Base Course (MPWSS)
- 02240	Riprap (Non-MPWSS Specification)
- 02529	Concrete Sidewalks, Driveways, Approaches, Curb Turn Fillets, Valley Gutters and Miscellaneous New Concrete Construction (MPWSS)
- 02725	Drainage Culverts (MPWSS)
- 02910	Seeding (Non-MPWSS Specification)
- 03210	Reinforcing Steel (MPWSS)
- 03310	Structural Concrete (MPWSS)
- 03401	Precast Concrete Vault Latrines (Non-MPWSS Specification)
- 03402	Precast Concrete Picnic Shelter (Non-MPWSS Specification)
- 16000	General Provisions for Electrical Work (Non-MPWSS Specification)
- 16110	Raceway and Fittings (Non-MPWSS Specification)
- 16130	Conductors (Non-MPWSS Specification)
- 16220	Underground Electrical Service (Non-MPWSS Specification)
- 16710	Motors and Motor Controls (Non-MPWSS Specification)

## **ADDENDA/ EDITS TO THE SPECIFICATION SECTIONS LISTED ABOVE**

**Note: See the Special Provisions for Incidental Work Items and Measurement and Payment.**

### **SECTION 01010 – SUMMARY OF WORK**

#### **PART 1 – GENERAL**

##### **1.1 DESCRIPTION**

- A. *REPLACE WITH THE FOLLOWING:* The Invitation to Bid contains a general description of the project work to be performed under this Contract. The Special Provisions and other documents contain additional information necessary to perform the work.

##### **1.2 CONTRACT DOCUMENTS**

- A. *REPLACE WITH THE FOLLOWING:* Portions of the Contract Documents are written in the imperative mode. Except where specifically intended otherwise, the subject of all imperative statements is the Contractor. For example, “Furnish...” means “Contractor shall furnish...”, “Provide” means Contractor shall provide...”. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work.
- B. *REPLACE WITH THE FOLLOWING:* Contract Documents are defined in the General Conditions.
- C. *REPLACE WITH THE FOLLOWING:* The Contract Documents are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner. Specifications and Drawings included in these contract documents establish the performance, quality requirements, location and general arrangement of materials and equipment, and establish the minimum standards for quality of workmanship and appearance. Anything not expressly set forth but which is reasonably implied or necessary for proper performance of the project shall be included.

D. *REPLACE WITH THE FOLLOWING:* The various portions of the Contract Documents, of which these specifications are a part, are essential parts of the Agreement, and a requirement occurring in any portion or part is binding as though occurring in all. All portions are intended to be complementary and to describe and provide for a complete work. Unless specifically noted otherwise, in the case of discrepancy the following hierarchy shall be observed:

1. Addenda, which will govern over;
2. Construction Agreement, which will govern over;
3. Special Provisions, which will govern over;
4. Addenda (modifications) to MPWSS; which will govern over;
5. Project Drawings, which will govern over;
7. The MPWSS and Standard Drawings
8. Montana Department of Transportation Standard Specifications for Road and Bridge Construction.

### 1.3 WORK SEQUENCE

A. *REPLACE WITH THE FOLLOWING:* Comply with the contract schedule as submitted by the contractor and as outlined in the Construction Agreement.

D. *REPLACE WITH THE FOLLOWING:* Notify Engineer/Owner of existing conditions differing from those indicated on the drawings. Verify the existence and location of underground utilities along the route of the proposed work. Omission of an existing or previous abandoned utility location on the Drawings is not to be considered as its nonexistence. Inclusion of existing utility locations on the Drawings is not to be considered as its definite location. Do not remove or alter existing utilities without prior written approval.

### 1.4 CONTRACTOR USE OF PREMISES

A. *REPLACE WITH THE FOLLOWING:* Comply with the Contract Documents. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

C. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless the Owner and Engineer from and against all claims, costs, losses, and damages arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against the Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

**END OF SECTION**

## SECTION 01041 – PROJECT COORDINATION

### PART 1 – GENERAL

#### 1.2 COORDINATION WITH PUBLIC AND PRIVATE AGENCIES

- A. *REPLACE WITH THE FOLLOWING:* Carefully coordinate all work activities and work schedule with the Owner's project representatives and the Engineer. Work beyond normal working hours or non-work days due to adverse weather, or other conditions beyond the Contractor's control, shall be approved and coordinated with the Owner's Project Manager and the Engineer.

Contractor shall furnish the Engineer a construction schedule. The Engineer will review the schedule to determine whether or not it is appropriate for public convenience. Contractor shall make any necessary schedule adjustments and submit a final schedule to the Engineer.

- B. *REPLACE WITH THE FOLLOWING:* Existing utilities in the vicinity of the work are indicated on the plans to the extent such information has been made available to or discovered by the Engineer in preparing the plans. The accuracy or completeness of such information is not guaranteed, and all responsibility for the accuracy and completeness thereof is expressly disclaimed.

The Contractor shall be solely responsible for locating all existing utility installations above and below ground, including service connections, in advance of the project by contacting their respective owners and by exploratory excavation as needed. Any delay, additional work, or extra cost to the Contractor caused by existing utility installation shall not constitute a claim for extra work, additional payment, additional time, standby time, or damages. This includes crossing over, under, or parallel to the utility. Contact the **One Call System** prior to beginning work at **1-800-424-5555**. Permit utility companies to repair or replace their lines in the project limits.

- C. *REPLACE WITH THE FOLLOWING:*

1. Maintain a 24-hour per day telephone number for Contractor's job superintendent. The telephone number must be on file at the Engineer's Office prior to the start of construction. Superintendent shall be knowledgeable and qualified to evaluate quality of not only the general construction work but also the systems and installations of subcontract work. He/she shall:
  - Aggressively evaluate on a day-to-day basis and be responsible for the quality and acceptability of work.
  - Make the first determination as to the fitness and compliance of all work performed.
  - Be the initiator in regard to rejection of unfit work.
  - Not passively default or abdicate, in the first analysis, these duties to the Engineer or to the Owner.

2. Notify Engineer in writing a minimum of seventy-two (72) hours in advance of all roadway closures.
3. Notify the Engineer at least forty-eight (48) hours in advance, of plans to work overtime, or on weekends or holidays.

**END OF SECTION**

## SECTION 01050 - FIELD ENGINEERING

### **PART 1 – GENERAL**

#### **1.1 ENGINEERING SURVEYS**

- D. *REPLACE WITH THE FOLLOWING:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Special Provisions or on the Plans:
1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
  2. The cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
    - a. Reviewing and checking all such information and data;
    - b. Locating all Underground Facilities shown or indicated in the Contract Documents;
    - c. Coordination of the Work with the owners of such Underground Facilities during construction; and
    - d. The safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

#### **1.2 STREET MONUMENTS AND PROPERTY CORNERS**

- B. *REPLACE WITH THE FOLLOWING:* Use a licensed land surveyor to replace all property corners or other monuments that are disturbed or destroyed by the work. Cost for re-setting corners or monuments shall be the Contractor's responsibility.

### **PART 3 – EXECUTION**

#### **3.1 SURVEY CONTROL / CONSTRUCTION STAKING:**

- A. *ADD:* All work shall be done to the lines, grades, and elevations shown on the plans. Basic horizontal and vertical survey control points will be established or designated by the Engineer. The Engineer will also stake the centerline alignments and grades for the inspection station road centerline and the campground road centerline. This staking will be performed one time only. The Contractor shall control all construction from the survey control and the roadway centerline stakes and furnish all other staking required to construct the project as required. Contractor shall protect the staking and cooperate with the Engineer as specified in the General Requirements and Covenants.

**END OF SECTION**

## **SECTION 01090 – REFERENCES**

### **PART 1 – GENERAL**

#### 1.2 DEFINITIONS:

- B. *ADD:* Only Article 1 – Definitions and Terminology of EJCDC C-700 is included by reference. All other “Division 0” information from “Montana Public Works Standard Specifications” is not included as part of the Contract Documents.

#### 1.3 REFERENCES:

- B. *ADD:* Only Article 1 – Definitions and Terminology of EJCDC C-700 is included by reference. All other “Division 0” information from “Montana Public Works Standard Specifications” is not included as part of the Contract Documents.

**END OF SECTION**

## SECTION 01300 – SUBMITTALS

### **PART 1 – GENERAL**

#### **1.1 CONSTRUCTION SCHEDULES**

- A. *REPLACE WITH THE FOLLOWING:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the Special Provisions or the Agreement), Contractor shall submit to Engineer for timely review:
1. A preliminary Progress Schedule indicating the times (number of calendar days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
  2. A preliminary Schedule of Submittals;
- B. *DELETE:*
- C. *DELETE:*

#### **1.2 SHOP DRAWINGS**

- A. *REPLACE WITH THE FOLLOWING:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the Special Provisions or the Agreement), Contractor shall submit to Engineer for timely review, shop drawings for the Contractor, subcontractor(s), and supplier(s). Each submittal shall bear a stamp or specific written certification that Contractor has reviewed said submittal and that Contractor approves of said submittal. Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents.
- B. *REPLACE WITH THE FOLLOWING:* Before submitting each Shop Drawing or Sample, Contractor shall have:
1. Reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents
  2. Determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  3. Determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  4. Determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

- D. *REPLACE WITH THE FOLLOWING:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the Special Provisions or the Agreement), submit a complete list of products proposed for use, providing manufacturer's name, trade name, and model or catalog numbers, and manufacturer data. Submit the number of copies needed by the Contractor, plus two copies for Engineer use. Contractor shall submit to the Engineer a minimum four (2) copies of submittals for the following:
- 1) Project Schedule (Bar chart or CPM)
  - 2) Pipe Materials for Culverts
  - 3) Gradation, Density Moisture Reports (Proctor), Plasticity Index (PI), Liquid Limit (LL) and Fractured Faces Percentage for Sub-Base Course and Base Course Materials
  - 4) Gradation and Plasticity Index (PI) for Pipe Bedding Materials
  - 5) Density Moisture Reports (Proctors) for Representative Soil Samples from Work Zones
  - 6) Concrete Mix Design Including all Admixtures and Curing Agents
  - 7) Geotextile
  - 8) Picnic shelter, Latrines, Picnic Tables and Fire Rings. Provide concrete mix designs and admixtures along with the submittals for picnic shelter, latrines and picnic tables.
  - 9) Signs
  - 10) Gates
  - 11) Bollards
  - 12) Seeding Plan and Seed Mix
  - 13) Electrical conduit, wire, pedestals, meter, panels and miscellaneous appurtenances.

The Engineer will retain two (2) copies and the remaining copies will be returned to Contractor with review comments.

- F. *ADD:* Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of separate items as such will not indicate approval that the items are compatible with each other nor will it indicate approval that the items will function together.
- G. *ADD:* Submittals for all products and materials must be within a year of bid date. The submittals shall include all product data, descriptive literature, manufacturer's drawings, and manufacturer's equipment and installation manuals. Any work affected by the submittal items shall not proceed without such review. Submittals and their contents shall be properly prepared, identified, and transmitted as provided herein or as the Engineer may otherwise direct.

**END OF SECTION**

**SECTION 01400 – CONTRACTOR QUALITY CONTROL AND OWNER QUALITY ASSURANCE**

**PART 3 – EXECUTION**

3.1. GENERAL

- C. *REPLACE WITH THE FOLLOWING:* The Contractor is responsible for providing all quality assurance testing by an independent testing agency. The Contractor will pay for all quality assurance testing by an independent testing agency. The frequency of testing listed below provides general indication of the level of anticipated testing.
1. Standard Proctor Moisture/Density curves or equivalent for all subgrade, native or imported fill, aggregate sub base and base course.
  2. Laboratory Plasticity Index for each type of native or imported fill, aggregate sub base and base course.
  3. Field Density Testing for subgrade and fill shall include a minimum of one passing test per lift for each 15,000 SF of area.
  4. Field Density Testing for aggregate sub base and base course shall include a minimum of one passing test required at top of gravel grade for each 5,000 SF of area.
  5. Trench backfill density shall be verified and accepted by the Engineer.
  6. Contractor to provide all gradation, liquid limit, abrasion, and fracture tests for aggregate.
  7. Contractor to provide all job mix formulas for concrete.
  8. Concrete air, slump tests, and cylinder breaks (one set for each day's production or each 25 CY, whichever is more frequent).
  9. All laboratory and material test results shall be approved by the Engineer before placement of associated materials.
  10. Materials, compaction, densities, or other construction items which do not meet the requirements of these specifications shall be replaced and/or retested at the Contractor's expense.
  11. An independent testing laboratory shall be employed by the Contractor for all Contractor supplied tests.
  12. If applicable, the Contractor shall supply material samples as required for testing at no extra cost to the Owner.

**PART 4 – MEASUREMENT AND PAYMENT**

4.1. PAYMENT FOR TESTING

- A. *REPLACE WITH THE FOLLOWING:* The Contractor will pay for all quality control testing. The Contractor will pay for all quality assurance testing by an independent testing agency. The Contractor will pay for all associated re-testing efforts (both quality control and quality assurance). Testing will not be measured and paid for separately and the costs for testing shall be merged into the other applicable items of work.
- B. *DELETE*

4.2 RETESTING

- A. *DELETE*

**END OF SECTION**

## **SECTION 01450 - MOBILIZATION/DEMobilIZATION**

### **PART 1 - GENERAL**

#### **1.1 DESCRIPTION**

- A. This item shall consist of the preparatory work and operations necessary and performed by the Contractor for the movement of personnel, equipment, supplies, and incidentals to and from the work site. The work includes those actions necessary for obtaining necessary permits required for mobilization; for the establishment of all offices and facilities necessary to work on the project; for premiums on contract bonds; for insurance for the contract; and for other work on the various items on the project site. Mobilization costs for subcontracted work shall be considered to be included.
- B. Contractor's cost for administration, bonding, insurance, and site documents shall be included in mobilization and shall not be paid as a separate item.
- C. All equipment moved to the project sites shall be in good mechanical condition and free of fuel, oil, lubrication, or other fluid leaks. The Contractor shall immediately remove any equipment potentially or actually discharging environmentally damaging fluids.
- D. All equipment moved to the project sites shall be thoroughly cleaned before it is brought to the sites to prevent the introduction of weed seeds. Equipment removed from the sites may not be returned to the sites again until it is thoroughly cleaned again.
- E. Vessels and equipment collecting and transporting water from open water sources shall be cleaned to prevent transport of aquatic invasive species and in compliance with MCA 80-7-1012.

### **PART 2 - RODUCTS – NOT USED**

### **PART 3 - EXECUTION – NOT USED**

### **PART 4 - MEASUREMENT AND PAYMENT**

#### **4.1 MEASUREMENT**

- A. There will be no direct measurement of this item.

#### **4.2 PAYMENT**

- B. Partial payments for mobilization/demobilization will be made based on the lump sum bid price as follows:
  - 25% of the amount bid for mobilization/demobilization when the Contractor has moved on-site and begun construction activities.

- 50% of the amount bid for mobilization/demobilization when 25% of the contract amount (exclusive of mobilization/demobilization) has been completed.
- 75% of the amount bid for mobilization/demobilization when 50% of the contract amount (exclusive of mobilization/demobilization) has been completed.
- 100% of the amount bid for mobilization/demobilization when 75% of the contract amount (exclusive of mobilization/demobilization) has been completed.

**END OF SECTION**

## SECTION 01700 - CONTRACT CLOSEOUT

### **PART 1 – GENERAL**

#### **1.1 CLEANUP**

- A. *REPLACE WITH THE FOLLOWING:* Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies. Before final inspection execute the following:
1. The contractor shall be responsible for final clean up at the end of the project to a level satisfactory to the owner. All construction debris, no matter how small, shall be collected and removed from the site. All wheel ruts shall be filled in and be leveled to match the adjacent grade and material. Re-seeding or re-sodding, or other re-surfacing may be necessary to repair any construction related impacts or damage.
  2. All survey markings, stakes, temporary paint marks, flagging and other devices shall be removed regardless of who installed them. All excess pavement, concrete, gravel, soil, or other construction materials not intended for permanent use shall be removed.
  3. All final slopes shall be dressed manually to remove woody debris, accumulated trash and oversized material. Any new slope or topsoil surfaces shall be hand raked to provide a uniform appearance. The contractor shall dress all gravel, pavement and concrete edges to eliminate abrupt edges and provide a smooth transition. All construction related temporary sediment control devices shall be removed as soon as practical.

#### **1.2 RECORD DOCUMENTS**

- A. *REPLACE WITH THE FOLLOWING:* Contractor shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents will be available to Engineer for reference. Upon completion of the work, these record documents will be delivered to the Owner.

**END OF SECTION**

## SECTION 02110 – GEOTEXTILES

### **PART 1 – GENERAL**

#### 1.2 REFERENCES

B. ASTM Standards: *ADD THE FOLLOWING*

ASTM D4439	Terminology for Geotextiles
ASTM D4595	Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method
ASTM D4884	Standard Test Method for Strength of Sewn or Thermally Bonded Seams of Geotextiles
ASTM D5321	Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method
ASTM D6241	Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe
ASTM D6460	Standard Test Method for Determination of Erosion Control Blanket (ECB) Performance in Protecting Earthen Channels from Stormwater-Induced Erosion
ASTM D6459	Standard Test Method for Determination of Erosion Control Blanket (ECB) Performance in Protecting Hillslopes from Rainfall-Induced Erosion
ASTM D6525	Standard Test Method for Measuring Nominal Thickness of Rolled Erosion Control Products
ASTM D6706	Standard Test Method for Measuring Geosynthetic Pullout Resistance in Soil
ASTM D6818	Standard Test Method for Ultimate Tensile Properties of Turf Reinforcement Mats

### **PART 2 – PRODUCTS**

#### 2.1 PHYSICAL AND CHEMICAL REQUIREMENTS:

- B. *ADD:* Material shall be rot proof and resistant to soil, chemicals, acids, and alkalis within a pH range of 3 to 12. Unless otherwise specified, fabric shall be **nonwoven**, non-biodegradable, and not attacked by mold or mildew.

2.4 *ADD: SEPARATION FABRIC:*

A. At a minimum separation fabric shall have the following properties:

	Units	Test Method
Thickness	25 mils	ASTM D-5199
Grab Elongation	≥ 50	ASTM D-4632
Grab Strength	200 lbs.	ASTM D-4632
Sewn Seam Strength	180 lbs	ASTM D-4632
Trapezoidal Tear Strength	80 lbs.	ASTM D-4533
Puncture Strength	433 lbs.	ASTM D-6241
Apparent Opening Size	#30	ASTM D-4751
Permittivity	≥ 0.02 sec <sup>-1</sup>	ASTM D-4491
Ultraviolet Stability	≥50% after 500 hrs. exposure	ASTM D-4355

2.5 *ADD: STABILIZATION FABRIC:*

A. At a minimum stabilization fabric shall have the following properties:

	Units	Test Method
Thickness	25 mils	ASTM D-5199
Grab Elongation	≥ 50	ASTM D-4632
Grab Strength	200 lbs.	ASTM D-4632
Sewn Seam Strength	180 lbs	ASTM D-4632
Trapezoidal Tear Strength	80 lbs.	ASTM D-4533
Puncture Strength	433 lbs.	ASTM D-6241
Apparent Opening Size	#40	ASTM D-4751
Permittivity	≥ 0.10 sec <sup>-1</sup>	ASTM D-4491
Ultraviolet Stability	≥50% after 500 hrs. exposure	ASTM D-4355

2.6 *ADD: SUBSURFACE DRAINAGE FILTER FABRIC:*

A. At a minimum subsurface drainage fabric shall have the following properties:

	Units	Test Method
Grab Elongation	≥ 50	ASTM D-4632
Grab Strength	205 lbs.	ASTM D-4632
Trapezoidal Tear Strength	80 lbs.	ASTM D-4533
Puncture Strength	500 lbs.	ASTM D-6241
Apparent Opening Size	#80	ASTM D-4751
Permittivity	≥ 0.80 sec <sup>-1</sup>	ASTM D-4491
Ultraviolet Stability	≥50% after 500 hrs. exposure	ASTM D-4355

## **PART 3 – EXECUTION**

### **3.2 DRAINAGE, SEPARATION AND STABILIZATION APPLICATIONS**

- C. *REPLACE WITH THE FOLLOWING:* The geotextile material shall be protected from the sun until ready to be placed. Prior to placing the material, the prepared subgrade shall be clear of foreign objects such as branches, broken concrete and pavement, clods of dirt, etc. Place the geotextile smooth and free of tension, stress, or wrinkles. Fold and cut the geotextile to conform to curves. Overlap in the direction of construction. The geotextile shall be unrolled from the roll longitudinally with the road and provided with an eighteen-inch minimum overlap transversely and longitudinally. Do not place longitudinal overlaps below anticipated wheel loads. Hold the geotextile in place with pins, staples, or piles of cover material. Placement shall be in accordance with manufacturer's installation requirements. Material shall not lie uncovered for greater than 24 hours.

### **3.5 ADD: BIODEGRADABLE EROSION CONTROL PRODUCTS**

- A. Install and secure biodegradable erosion control blanket according to the manufacturer's specifications. Place the erosion control blanket to the lines and grades shown on the plans.

**END OF SECTION**

**SECTION 02221 – TRENCH EXCAVATION AND BACKFILL FOR PIPELINES &  
APPURTENANT STRUCTURES**

**PART 1 - GENERAL**

1.4 TESTING

- A. Field Density Testing
  - 1. *DELETE:*
  - 2. *DELETE:*
  - 3. *DELETE:*
  
- B. Laboratory Maximum Density and Optimum Moisture
  - 1. *DELETE:*
  
- C. Materials Submittals
  - 2. *DELETE:*
  - 3. *DELETE:*

**PART 2 – PRODUCTS**

2.2 TRENCH BACKFILL MATERIALS

- A. Materials from Trench Excavation
  - 1. *REPLACE WITH THE FOLLOWING:* Backfill material obtained from trench excavations must be free of cinders, ash, refuse, organic or frozen material, boulders, or other deleterious materials. Backfill materials and placement are further described in the Execution Section of this specification. Stones larger than 6 inches in their greatest dimension shall be excluded from the backfill and removed from the project site.
  
  - 2. *ADD:* Under this contract all excavated material will be used for backfilling unless otherwise specified by the Engineer. Contractor shall maintain a select backfill material stockpile as excavation progresses. If unsuitable material is encountered during excavation (beyond the above limits) it must be brought to the attention of the Engineer before imported material is used.

**PART 3 - EXECUTION**

3.1 PROTECTION OF EXISTING PROPERTIES

- E. Exploratory Excavation
  - 1. *REPLACE WITH THE FOLLOWING:* Exploratory Excavation may be necessary to determine the location, size, type, depth, etc. of existing utilities

and shall be considered as incidental work. Cost for exploratory excavation will not be paid separately but shall be merged with applicable bid items.

2. *DELETE:*

3. *DELETE:*

### 3.3 TRENCH EXCAVATION

D. *DELETE: Blasting is not permitted*

### 3.6 TRENCH FILLING AND BACKFILLING

#### B. Pipe Bedding Placement

##### 1. Type 1 Bedding

a. *REPLACE WITH THE FOLLOWING:* Place Type 1 Pipe Bedding, in maximum lifts of 6 inches, from 4 inches below the bottom of the pipe, around the pipe, and up to the springline of the pipe. Place in maximum lifts of 6 inches, using hand operated or other compaction methods without damaging or disturbing the pipe. Contractor shall compact Type 1 pipe bedding to minimum of 95 percent of the maximum dry density at optimum water content  $\pm 3$  percent in accordance to AASHTO T99 or ASTM 698. Use special care to assure compaction under the pipe haunches.

##### 2. Select Type 1 Bedding

a. *REPLACE WITH THE FOLLOWING:* Place Select Type 1 Bedding material from the springline to 6 inches over the pipe. Place in maximum lifts of 6 inches, using hand operated or other compaction methods without damaging or disturbing the pipe. Contractor shall compact Select Type 1 pipe bedding to minimum of 95 percent of the maximum dry density at optimum water content  $\pm 3$  percent in accordance to AASHTO T99 or ASTM 698.

##### 3. Type 2 Bedding

a. *REPLACE WITH THE FOLLOWING:* Use Type 2 Pipe Bedding described in PRODUCTS SECTION as specified or as directed by the Engineer to replace unsuitable material encountered in the trench bottom, placing it from the bottom of the Type 1 Bedding material to the depth required to adequately support the pipe. Contractor shall compact Type 2 pipe bedding to minimum of 95 percent of the maximum dry density at optimum water content  $\pm 3$  percent in accordance to AASHTO T99 or ASTM 698.

C. Trench Backfill

1. *REPLACE WITH THE LAST SENTENCE WITH THE FOLLOWING:* From the top of the Select Type 1 Pipe Bedding to 6 inches below the ground surface, or to the subgrade elevation, material containing rock up to 6 inches in the greatest dimension may be used.
2. *REPLACE WITH THE FOLLOWING:* **ALL** trench backfill is classified as **Type A** Trench Backfill.
7. *ADD:* The use of a roller-bucket or vibratory plate for backfill compaction is prohibited.

F. Detectible Buried Warning Tape

1. *REPLACE WITH THE FOLLOWING:* Detectible warning tape is required, and must not be relied on as the primary locating device. Provide warning tape as described in PRODUCTS Section 2.4. Bury tape a maximum 18 inches below finish surface grade.

**PART 4 – MEASUREMENT AND PAYMENT**

4.6 EXPLORATORY EXCAVATION

- A. *DELETE:*
- B. *DELETE:*
- C. *DELETE:*
- D. *DELETE:*

**END OF SECTION**

## **SECTION 02230 - STREET EXCAVATION, BACKFILL AND COMPACTION**

### **PART 1 – GENERAL**

#### 1.2 REFERENCES

A. *ADD THE FOLLOWING REFERENCES:*

ASTM D4253 Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

ASTM D4254 Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

#### 1.3 DENSITY CONTROL TESTING

A. Field Density Testing

2. *REPLACE WITH THE FOLLOWING:* In-place field density tests for quality assurance are at Contractor expense meeting AASHTO T310 (ASTM D6938) Nuclear Densometer Methods.

B. Laboratory Maximum Density and Optimum Moisture

1. *REPLACE:* “Engineer” with “Contractor”

C. Materials Submittals

2. *REPLACE WITH THE FOLLOWING:* Submit to the Engineer laboratory maximum-density and optimum moisture content results for soils and/or aggregates.

### **PART 3 – EXECUTION**

#### 3.4 EXCAVATION

B. *REPLACE WITH THE FOLLOWING:* Excavation made outside the specified construction limits is not measured for payment. Contractor shall be responsible for all costs associated with restoration work outside the construction limits.

1. Restore subexcavated areas as directed by the Engineer. Correct subgrade disturbance by removing the disturbed soil and replacing and compacting to 95 percent of the maximum dry density at optimum water content  $\pm 3$  percent in accordance to AASHTO T99 or ASTM 698.
2. Correct subgrade disturbance before placing overlying fill, backfill, base course or other courses. Disturbed soils may be replaced with imported material approved by the Engineer and compacted to 95 percent of the maximum dry

density at optimum water content  $\pm 3$  percent in accordance to AASHTO T99 or ASTM 698.

### 3.7 SUBGRADE PREPARATION AND COMPACTION

#### C. Compaction

1. *REPLACE WITH THE FOLLOWING:* Compact the upper 8-inches of the subgrade to a minimum of 95 percent of the maximum dry density at optimum water content  $\pm 3$  percent in accordance to AASHTO T99 or ASTM 698. Proof roll the subgrade surface for observation by the Engineer. Compact all soft, yielding or otherwise unstable areas to provide adequate support of construction equipment as determined by the Engineer. Also compact the subgrade to meet the specified density requirements. Remove and replace any unstable or otherwise unsuitable subgrade as specified under Section 3.9, Subexcavation/Replacement Below Subgrade.

### 3.9 SUBEXCAVATION/REPLACEMENT BELOW SUBGRADE

- E. *REPLACE WITH THE FOLLOWING:* Compact the replacement material to 95 percent of the maximum dry density at optimum water content  $\pm 3$  percent in accordance to AASHTO T99 or ASTM 698.

## **PART 4 – MEASUREMENT AND PAYMENT**

### 4.1 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

#### A. *REPLACE WITH THE FOLLOWING:*

#### EXCAVATION AND EMBANKMENT – LUMP SUM BASIS

1. Excavation and Embankment are measured and paid for by the lump sum. Payment will be made at the contract Lump Sum price and shall include the following items: furnishing all labor, materials, equipment, tools and incidentals necessary to accomplish all clearing, grubbing, topsoil stripping and stockpiling, hauling, disposal, excavation, placement of fill material (including any imported material necessary), grading, watering, compaction, testing and re-spreading of salvaged topsoil. Erosion and sediment control BMP's and storm water permitting will not be paid for separately and shall be included in the cost of Excavation and Embankment.

#### B. *DELETE:*

#### C. *DELETE:*

**END OF SECTION**

**SECTION 02234 – SUB BASE COURSE**

**PART 1 - GENERAL**

1.3 DENSITY CONTROL TESTING

A. Field Density Testing

2. *REPLACE WITH THE FOLLOWING:* In-place field density tests for quality assurance are at Contractor expense meeting AASHTO T310 (ASTM D6938) Nuclear Densometer Methods.

**PART 2 - PRODUCTS**

2.1 GENERAL

- A. *REPLACE WITH THE FOLLOWING:* Furnish sub-base material meeting the applicable aggregate quality requirements. No blended or recycled asphaltic concrete will be allowed.

2.4 GRADATION

- B. *ADD THE FOLLOWING:* Furnish ballast material for thickened aggregate sections at drainage crossings that meets the gradation below.

**TABLE OF GRADATIONS**

**PERCENTAGES BY WEIGHT PASSING SQUARE MESH SIEVES**

Passing	2-1/2"
2-1/2 Inch	100
2 Inch	90-100
1-1/2 Inch	60-90
1 Inch	10-35
¾ Inch	0-10
3/8 Inch	0-3

**PART 3 – EXECUTION**

3.1 PREPARATION

- B. *ADD:* Place separation geotextile fabric between compacted subgrade and sub-base course as shown on plans or as directed by the Engineer. Separation geotextile fabric shall conform to all applicable portions of Section 02110, GEOTEXTILE, meeting the property requirements for Separation Geotextile Fabric.

### 3.3 FIELD DENSITY REQUIREMENTS

- A. *REPLACE WITH THE FOLLOWING:* Furnish watering and rolling to obtain a minimum field density of 95 percent of the maximum dry density at optimum water content  $\pm$  3 percent in accordance to AASHTO T99 or ASTM 698. No separate compensation is made for rolling and watering the sub-base course other than the sub-base course bid item or items listed on the contract documents.

## **PART 4 – MEASUREMENT AND PAYMENT**

### 4.1 CUBIC YARD BASIS: SUB-BASE COURSE

- A. *REPLACE WITH THE FOLLOWING:* This item is measured and paid for by the cubic yards of uncrushed or crushed, sub-base course of the specified gradations, complete in place, at the contract unit price bid for 3" Minus Sub-Base Course, which constitutes full compensation for furnishing, loading, hauling, spreading, blending, shaping, watering, compacting and testing the sub-base course material, and for all tools, labor and incidentals necessary to complete this item.
- B. *REPLACE WITH THE FOLLOWING:* Payment is made under:
1. 3" Minus Sub-Base Course - per cubic yard

### 4.2 *ADD THE FOLLOWING:* CUBIC YARD BASIS: BALLAST

- A. This item is measured and paid for by the cubic yards of ballast of the specified gradation for drainage crossings, complete in place, at the contract unit price bid for 2-12" Minus Ballast, which constitutes full compensation for furnishing, loading, hauling, spreading, shaping and compacting the ballast material, and for all tools, labor and incidentals necessary to complete this item.
- B. Payment is made under:
2. 2-1/2" Minus Ballast - per cubic yard

**END OF SECTION**

## SECTION 02235 - CRUSHED BASE COURSE

### **PART 1 - GENERAL**

#### 1.3 DENSITY CONTROL TESTING

##### A. Field Density Testing

2. *REPLACE WITH THE FOLLOWING:* In-place field density tests for quality assurance are at Contractor expense meeting AASHTO T310 (ASTM D6938) Nuclear Densometer Methods.

### **PART 2 - PRODUCTS**

#### 2.1 GENERAL

- A. *REPLACE WITH THE FOLLOWING:* Furnish aggregate base material meeting the applicable aggregate quality requirements. No blended or recycled asphaltic concrete will be allowed.

#### 2.2 CRUSHED BASE MATERIAL

- A. *REPLACE WITH THE FOLLOWING:* Consists of both fine and coarse fragments of crushed stone or crushed gravel, and/or natural gravel, and when approved, blended with sand, finely crushed stone, crusher screenings, or other similar materials.

### **PART 3 – EXECUTION**

#### 3.3 FIELD DENSITY REQUIREMENTS

- C. *REPLACE WITH THE FOLLOWING:* Provide the watering and rolling required to place and compact crushed base course aggregate to a firm even surface at minimum 95 percent of the maximum dry density at optimum water content  $\pm$  3 percent in accordance to AASHTO T99 or ASTM 698, over the compacted subgrade to the finished grade. No separate compensation is made for rolling and watering the base course other than the base course bid item or items listed on the contract documents.

### **PART 4 – MEASUREMENT AND PAYMENT**

#### 4.1 CUBIC YARD BASIS: CRUSHED BASE COURSE

- A. *REPLACE WITH THE FOLLOWING:* This item is measured and paid for by the cubic yards of crushed base course of the gradations specified in the Contract documents, complete in place, at the contract unit price bid for "¾" Minus Crushed Base Course". Price and payment is full compensation for furnishing, crushing, loading, hauling, spreading, shaping, watering, compacting and testing the base course material, and for all tools, labor and incidentals necessary to complete this item.

B. *REPLACE WITH THE FOLLOWING*: Payment is made under:

1. 3/4" Minus Crushed Base Course - per cubic yard

**END OF SECTION**

**SECTION 02240 - RIPRAP**

**PART 1 - GENERAL**

1.1 DESCRIPTION

- A. The Contractor shall furnish natural or quarried stone meeting or exceeding the material properties specified herein and shall provide all labor, equipment, and materials required to prepare receiving ground and to place riprap erosion protection materials as specified herein and as shown on the Drawings.

**PART 2 – PRODUCTS**

2.1 GENERAL

- A. Rock for riprap shall consist of hard, dense, sound, and angular, natural or quarried rock fragments free from soil, shale, and organic matter. The stone shall be resistant to deterioration by moisture or alternate cycles of wetting and drying. It shall have a minimum specific gravity of 2.6. Shale or stone with discernible laminations, seams or cracks shall not be acceptable. Rounded cobbles, boulders, and streambed gravels shall not be acceptable as riprap. Neither breadth nor thickness of individual stones shall be less than one-third of their length.
- B. Each load of riprap shall be reasonably well-graded from the smallest to the largest size specified. Stones smaller than the specified ten percent (10%) size shall not be permitted in an amount exceeding ten percent by weight of each load.

GRADATION REQUIREMENTS:

Class	Weight of Individual Stone	Equivalent Spherical Diameter	Percent Smaller By Weight
I	100 lb	1.05 ft	100%
	60 lb	0.88 ft	70-90%
	25 lb	0.66 ft	40-60%
	2 lb	0.27 ft	0-10%

**PART 3 – EXECUTION**

3.1 GROUND PREPARATION

- A. Ground on which riprap is to be placed shall be excavated and shaped to receive the full thickness of the specified riprap and to accommodate the filter fabric anchorage and shall be approved by the Engineer. The ground shall be firm and stable and not steeper than the natural angle of repose of the riprap or foundation material, or as shown on the plans. Wherever possible, placement of riprap shall be on undisturbed material. Where this is not possible, the underlying material shall be compacted to at least 90% of maximum ASTM D698 density.

- B. One layer of filter fabric shall be placed below all riprap and placement shall be approved by the Engineer prior to commencement of riprap placement. Filter fabric shall meet the requirements of Section 02110 - Geotextiles. Placement of the fabric shall be per the manufacturer's recommendations.

### 3.2 RIPRAP PLACEMENT

- A. Riprap shall be placed by dumping from a backhoe bucket. Placement shall commence at the lower edge and proceed toward the upper limit of the riprapped zone.
- B. The Contractor shall limit the height of drop from the backhoe bucket and otherwise perform the riprap placement so that the filter fabric is not torn or punctured. It shall generally be unacceptable to shove or push stones into place after they have been dumped from the backhoe bucket.
- C. Filter fabric which is torn or ruptured during riprap placement shall be uncovered, replaced or repaired, and recovered as per the manufacturer's requirements. At the contractor's option, a 3 to 4 inch layer of well-graded, coarse gavel may be spread uniformly over the filter fabric prior to placement of riprap to reduce the likelihood of punctures and tears to the fabric. If the protective gravel blanket is used over the fabric, the subgrade surface shall be prepared correspondingly lower, such that the finished surface of the riprap blanket is at the finish elevation specified on the plans when the full specified riprap blanket thickness has been placed over the gravel blanket.
- D. The full specified thickness of the riprap blanket shall be placed in one operation. The largest individual stones shall be placed singly and directly on the receiving slope so as not to rest wholly on smaller stones.
- E. The riprap blanket shall have a dense, homogeneous consistency with no areas of predominately larger or smaller stones. Smaller stones and fragments shall be utilized to fill voids. The exposed face of the riprap blanket shall not vary more than approximately 0.5 feet from a plane surface.

## **PART 4 – MEASUREMENT AND PAYMENT**

### 4.1 RIPRAP

- A. Shall be measured per cubic yard to furnish and install riprap including, excavation, filter fabric, Type I riprap material, placing, and all work appurtenant to completion of this item.
- B. Payment for rip rap is made at the contract unit price bid per cubic yard for riprap which includes all materials, labor, tools, equipment, and incidental items necessary to complete this work item.

Payment shall be made under;

1. Riprap (Class I) – per cubic yard

**END OF SECTION**

**SECTION 02529 – CONCRETE SIDEWALKS, DRIVEWAYS, APPROACHES, CURB  
TURN FILLETS, VALLEY GUTTERS AND MISCELLANEOUS NEW CONCRETE  
CONSTRUCTION**

**PART 1 – GENERAL**

1.1 DESCRIPTION

- A. *REPLACE WITH THE FOLLOWING:* This work is the construction of concrete sidewalks/paths, RV pads, ADA parking pads at latrines, ADA campsite pads, concrete surfacing at the inspection station and all other miscellaneous new concrete construction complete in place.

**PART 2 – PRODUCTS**

2.4 GRAVEL BASE MATERIAL

- A. *REPLACE WITH THE FOLLOWING:* Furnish crushed base course material meeting applicable requirements of Section 02235, CRUSHED BASE COURSE, and meeting the gradation requirement for ¾” minus material.

**PART 3 – EXECUTION**

3.1 FOUNDATION PREPARATION

- B. *REPLACE WITH THE FOLLOWING:* Place and compact gravel base material below concrete surfacing to the thicknesses shown on the plans to a firm, even surface.

**PART 4 – MEASUREMENT AND PAYMENT**

*DELETE* sections 4.1, 4.2, 4.3, 4.4 and 4.5 and *REPLACE WITH THE FOLLOWING:*

1.1 4” REINFORCED CONCRETE SURFACING

- A. This item is measured and paid for by the square foot at the unit price bid. Price and payment is full compensation for all material, excavation, backfill, compaction, form work, steel reinforcement, joints, curing of concrete, testing, equipment, tools and labor, and for the performance of all work and incidentals necessary to complete this item. Base course below concrete surfacing will be measured and paid for separately.

Payment is made under;

1. 4” Reinforced Concrete Surfacing – per square foot

1.2 6” REINFORCED CONCRETE SURFACING

- B. This item is measured and paid for by the square foot at the unit price bid. Price and payment is full compensation for all material, excavation, backfill, compaction, form work, steel reinforcement, joints, joint sealant, curing of concrete, testing, equipment,

tools and labor, and for the performance of all work and incidentals necessary to complete this item. Base course below concrete surfacing will be measured and paid for separately.

Payment is made under;

1. 6" Reinforced Concrete Surfacing – per square foot

**END OF SECTION**

## **SECTION 02725 - DRAINAGE CULVERTS**

### **PART 3 – EXECUTION**

#### **3.1 PIPE INSTALLATION**

##### **A. Excavation and Backfill**

1. *REPLACE WITH THE FOLLOWING:* Excavate and backfill culverts in accordance with manufacturers specifications and Montana Department of Transportation Detailed Drawing No. 603-18.

**END OF SECTION**

## SECTION 02910 - SEEDING

### **PART 1 - GENERAL**

#### 1.1 DESCRIPTION

- A. This section includes ground surface preparation, furnishing and planting seed and rolled erosion control blanket.

#### 1.2 DEFFINITIONS

- A. Pure live seed (PLS) content: Weight of seed times percent purity times percent germination.

#### 1.3 SUBMITTALS

Submit the following in accordance with Section 01300 - Submittals.

- A. Seeding plan:
  - 1. Qualifying experience for person responsible for supervision of seeding, for approval.
  - 2. Names, addresses, and telephone numbers of references.
  - 3. Equipment.
- B. Seed Certifications:
  - 1. Name and address of seed suppliers.
  - 2. Origin of seed.
  - 3. Percent purity and germination.
  - 4. Prohibited and restricted weed seed content.

#### 1.4 DELIVERY STORAGE AND HANDLING

- A. Seed containers:
  - 1. Sealed, or by an alternate method approved by the Engineer.
  - 2. Labeled:
    - a. Identify seed origin on label.
      - 1) Intrastate shipping: In accordance with Montana State Seed Laws and Regulations.
      - 2) Interstate shipping: In accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act.

**PART 2 - PRODUCTS**

2.1 SEED

- A. Weed seeds classified by Montana Department of Agriculture:
  - 1. Prohibited noxious weeds: None
  - 2. Restricted weeds: 0.5 percent maximum, by weight.
- B. Seed mixture for disturbed natural areas:
  - 1. Purity, minimum: 85 percent.
  - 2. Germination, minimum: 85 percent.
    - a. Germination test: Less than 1 year old at time of seeding.
  - 3. Uniform mixture shown in table below:

Seed Mixture

Common Name	Broadcast Seeding Rate (Pounds pure live seed [PLS] per acre)
Pryor slender wheatgrass	4.0
Rosana western wheatgrass	6.0
Sodar streambank wheatgrass	8.0
Lodorm green needlegrass	4.0

- 4. Percent of pure live seed (%PLS) shall be determined by:
  - a.  $(\text{percent of Purity}) \times (\text{percent of Germination}) / 100$
  - b. Where Germination = % of seeds in a unit weight that are viable and Purity =  $100 - (\% \text{ trash} + \% \text{ weed seed})$ .

2.2 ROLLED EROSION CONTROL BLANKET

- A. Rolled erosion control blanket **Eronet S150®** Erosion control blanket double net Straw Blanket manufactured by North American Green, Evansville, Indiana; or approved equal, having the following essential characteristics:
  - 1. The short-term double net erosion control blanket shall be a machine-produced mat of 100% agricultural straw with a functional longevity of up to 12 months. *(NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation).*
  - 2. The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom sides with a lightweight photodegradable polypropylene netting having an approximate 0.5 x 0.5 inch (1.27 x 1.27 cm) mesh. The blanket shall be sewn together on 1.5 inch (3.81 cm) centers with degradable thread.

3. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.
4. The S150 shall meet Type 2.D specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17
5. The erosion control blanket shall be fumigated to kill noxious weed seeds, insects, fungi, and other invasive species, or utilize a comparable method.
6. The following list contains further physical properties of the erosion control blanket.

<b>Property</b>	<b>Test Method</b>	<b>Typical</b>
Thickness	ASTM D6525	0.32 in
Resiliency	ECTC Guidelines	80.5%
Mass per Unit Area	ASTM 6475	8.15 oz/square yard
Water Absorbency	ASTM D1117	370%
Swell	ECTC Guidelines	15%
Resistance Stiffness	ASTM D1388	6.06 oz-in
Light Penetration	ECTC Guidelines	12.4%
Smolder Resistance	ECTC Guidelines	Yes
Tensile Strength - MD	ASTM D6818	159.6 lbs/ft
Elongation -MD	ASTM D6818	31.7%
Tensile Strength - TD	ASTM D6818	93.6 lbs/ft
Elongation - TD	ASTM D6818	26.7 %
Biomass Improvement	ASTM D7322	371%

MD – Machine direction  
 TD – Transverse direction

### **PART 3 - EXECUTION**

#### **3.1 SEEDED PREPARATION**

- A. Complete prior to seeding or placing rolled erosion control blanket.
- B. Reserved topsoil: The Contractor shall strip and stockpile all topsoil to a depth of 4 to 6 inches prior to road, inspection area and campground construction and stockpile at a pre-determined location.
- C. Spread reserved topsoil evenly to a depth of 4 inches.
- D. Remove stiff clods, lumps, roots, litter, stones, and other foreign material greater than 4 inches in size from the surface. Dispose of removed materials in area designated by the Engineer in the Island area.
- E. Fill or smooth topsoil surface to remove rills, gullies and depressions.

- F. Protect prepared topsoil surfaces from erosion and washouts. Repair damaged surfaces as required.
- G. Scarify or harrow and rake topsoil to minimum depth of three inches no more than two days prior to seeding.

### 3.2 SEEDING

- A. Seed applied by:
  - 1. Broadcast seeding followed by installation of rolled erosion control blanket.
- B. Apply seed mixture at rate specified in Seed Mixture table.
- C. Seed only between October 15 and April 30 of each year. Seeding dates outside of this timeframe must be approved by the Engineer in writing and will require supplemental irrigation.
- D. Do not seed when the ambient temperature is below 38 degrees F.
- E. Do not seed when ground is snow covered.
- F. Do not seed when wind velocities prevent uniform application of materials or would drift materials.

### 3.3 BROADCAST SEEDING

- A. Mechanical broadcasting:
  - 1. Equipment:
    - a. Centrifugal type.
    - b. Pull type similar to fertilizer spreader.
  - 2. Designed and regulated to apply seed uniformly at proper rate per acre.
- B. Hand Broadcasting:
  - 1. By hand broadcaster.
  - 2. By hand.
  - 3. Uniformly applied.
- C. When hand broadcasting, cover seed with soil to a depth of ¼ to ½ inch immediately after broadcasting.
  - 1. Use hand rake or float.
  - 2. Do not use log chain or similar device.

### 3.4 ROLLED EROSION CONTROL BLANKET

- A. For slopes exceeding 4:1 slopes and greater than 25 feet in length, or in any drainageways, a rolled erosion control blanket will be substituted that is designed for the conditions.

- B. Rolled erosion control blanket will be required in all drainageways on the bottom and extending to the top of the upper slopes of the drainageway. The rolled erosion control blanket will be designed for the conditions.
- C. Rolled erosion control blanket installation shall be in accordance with manufacturer's recommendations. The rolled erosion control blanket used will be designed for the conditions.
- D. Install rolled erosion control blanket within 2 days after seeding.

## **PART 4 – MEASUREMENT AND PAYMENT**

### **4.1 GENERAL**

- A. Seeding will be measured and paid for by the acre for all labor, equipment, materials and incidentals required for the completion of the work, including seedbed preparation and seeding. Topsoil stripping, salvage and re-spreading is paid for under Excavation and Embankment.

Payment is made under;

- 1. Seeding – per acre

- B. Rolled Erosion Control Blanket is measured and paid for by the square yard on a plane parallel to the ground surface, excluding overlaps. Payment will be made at the contract unit price to include all labor, equipment, materials and incidentals required for the completion of the work.

Payment is made under;

- 1. Erosion Control Blanket – per square yard

**END OF SECTION**



## **SECTION 03401 – PRECAST CONCRETE VAULT LATRINES**

### **PART 1 - GENERAL**

#### **1.1 SCOPE OF WORK**

- A. This specification covers the construction and delivery of precast concrete vault unisex latrines for general public use. These latrines shall meet the minimum requirements, material specifications and design criteria listed in this document.

#### **1.2 GENERAL**

- A. The building shall be provided complete, ready for service with all doors, vents, and appurtenances as indicated in the drawings and this specification.

#### **1.3 CODES, PERMITS, AND COMPLIANCE**

- A. The building shall conform to all requirements of the current editions of the International Building Code (IBC), and all other codes, standards and ordinances applicable to work. In event of conflicts between these specifications and applicable codes or standards, the codes and standards shall govern.

#### **1.4 SPECIFICATIONS**

ASTM C33	Concrete Aggregates
ASTM C39	Method of Test for Compressive Strength of Cylindrical Concrete Specimens
ASTM C143	Method of Test for Slump of Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C192	Method of Making and Curing Test Specimens in the Laboratory
ACI 1211.1	Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete
PCI MNL 116	Quality Control for Plants and Production of Precast Prestressed Concrete Products
AWS D1.1	Structural Welding Code

#### **1.5 SUBMITTALS**

- A. After the bids are opened, the apparent low bidder will be required to submit a document that demonstrates that the buildings meet the listed salient requirements of these specifications. At a minimum, the submittal shall consist of the following categories:
  1. Stamped and engineered drawings with gross dimensions
  2. Concrete mix design(s)

3. Interior and exterior paint for concrete and steel
4. Caulking
5. Toilet riser
6. Grab bars
7. Toilet paper dispensers
8. Steel doors and frames
9. Door hinges
10. Lockset
11. Door louver
12. Doorstop
13. Double coat hook
14. Door sweep
15. Windows
16. Vault clean out cover
17. Vault size and coating
18. Exhaust pipe
19. Windscreen
20. Signage

- B. Submit the number of bound copies specified in Section 01300 - Submittals to the Engineer for review and approval.
- C. After contract award, the Provider shall submit a quality control plan that will detail, at a minimum, detailed plans, concrete mix design, concrete forming and placement, steel placement and welding, paint application, powder coat application, final assembly and handling and transport procedures and recommended maintenance practices. List all standards and testing that will be performed. Copies of test results shall be submitted to the Engineer.
1. The recommended maintenance practices manual shall contain, at a minimum, the following items.
    - a. General information on maintenance practices and intervals,
    - b. Sources for replacement parts,
    - c. Care and cleaning of painted surfaces,
    - d. Paint and caulk repair,
    - e. Concrete crack repair,
    - f. Tools and techniques for repair/replacement for vandal proof hardware.

## 1.6 MANUFACTURER CRITERIA

- A. The building manufacturer shall meet the following requirements at a minimum:
1. Manufacturing plant must be PCI certified at the time of the bid.
  2. Provider must not have defaulted on any contract within the last five years.
  3. Provider must provide stamped engineered drawings and calculations prior to acceptance.

## 1.7 DESIGN CRITERIA

- A. Design criteria are to ensure that the building not only will withstand the forces of nature listed below but to provide protection from vandalism and other unforeseen hazards.
1. Roof Snow Load
    - a. The building shall withstand a snow load of 250 pounds per square foot.
  2. Wind Load
    - a. The building shall withstand the effects of 120 mile per hour wind load (fastest mile) or 180 mph (3 second-gust) Exposure C.
  3. Earthquake
    - a. The building shall withstand the effects of a seismic design Category E earthquake.
  4. Additional Design Standards
    - a. The building shall be an all-concrete design with a double-pitched roof over an entry alcove, an enclosed toilet room and exterior vent stack and vault clean-out. Entry alcove shall have concrete partial height windscreens on two sides. Walls shall have a minimum 4" thickness, floor shall have a minimum 5" thickness, roof shall have a minimum 4 ½" thickness and slope shall be 3:12 minimum.
    - b. Toilet room shall have one window constructed of translucent polycarbonate in a painted steel frame. Bottom sill of window shall be at approximately 6' above finished floor. Top sill of window shall match roof slope.
    - c. Minimum vault capacity shall be 1000 gallons.
    - d. The building must be designed to meet the current requirements of the Americans with Disabilities Act as of the date of these specifications; including the sixty-inch turning diameter inside toilet room.
    - e. The building shall incorporate all design aspects of Sweet Smelling Technology as outlined by Briar Cook for the U.S. Forest Service. ("In Depth Design and Maintenance Manual for Vault Toilets" -July 1991 - Publication No. 9123 1601)
    - f. The building shall have a one-piece, full length and width vault unit to support the building, screen area and snow loads evenly. The building shall have a one piece prestressed floor unit with a 250 psf load capacity to withstand transportation and freeze/thaw stresses. Each toilet room may be served by individual vaults.
  5. Tolerances
    - a. Tolerances shall be within the limits as dictated by the PCI Quality Control and Assurance Manual.

## 1.8 WARRANTY

- A. A one year manufacturer's warranty is required against defects and workmanship for all components of the building. In addition all concrete components shall carry a warranty of 20 years. The warranty period shall begin on the date of substantial completion.

## PART 2 - PRODUCTS

### 2.1 GENERAL

- A. Concrete: The concrete mix design shall be designed to ACI 211.1 to produce concrete of good workability.

Mix #7.25 R - 1 cubic yard

cement 681 lbs.

water 232 lbs. (27.8 gal.)

w/c=.34

Course aggregate (SSD) 1,800 lbs.

Fine aggregate (SSD) 1,196 lbs.

Water Reducing Agent 34 oz. MB 322N

Air Entraining Agent 6 oz. MB AE-90 (4-7%)

Ave. 28 day strength 5,500 psi

1. Cement shall be low alkali type I-II or type III conforming to ASTM C-150.
2. Coarse aggregates used in the concrete mix design shall conform to ASTM C33 with the designated size of coarse aggregate #67.
3. Minimum water/cement ratio shall not exceed 0.40. Slump will not exceed 5" with normal water reducing agent or 7" with super plasticizer.
4. Air-entrained admixtures shall conform to ASTM C260. Water reducing admixtures shall conform to ASTM C494, Type A. Plasticizing admixtures shall conform to ASTM C 1017. Other admixtures will not be used without Engineer approval.

- B. Colored Concrete

1. Color additive shall conform to ASTM C979. A 6-inch x 12-inch x 2-inch color sample shall be made available for Owner approval.
2. The following shall contain colored concrete throughout:
  - a. Toilet building roof panels
  - b. Building walls
  - c. Screen panels
  - d. The sample brand and type of color additive shall be used throughout the manufacturing process.
  - e. All ingredients shall be weighed and the mixing operation shall be adequate to ensure uniform dispersion of the color.

- C. Cold Weather Concrete

1. Cold weather concrete placement shall be in accordance with ACI 306.
2. Concrete shall not be placed if ambient temperature is expected to be below 35 degrees Fahrenheit during the curing period unless heat is readily available to maintain the surface temperature of the concrete at least 45 degrees F.
3. Materials containing frost or lumps of frozen materials shall not be used.

- D. Hot Weather Concrete

1. The temperature of the concrete shall not exceed 80 degrees Fahrenheit at the time of placement and when the ambient temperature reaches 90 degrees Fahrenheit, the concrete shall be protected with moist covering.

- E. Concrete Reinforcement
1. All reinforcing steel shall conform to ASTM A615. All welded wire fabric shall conform to ASTM A185.
  2. All reinforcement shall be new, free of dirt, oil, paint, grease, loose mill scale and loose or thick rust when placed.
  3. Details not shown on drawings or specified will be to ACI 318.
  4. Steel reinforcement shall be centered in the cross-sectional area of the walls and shall have at least 1-inch of cover on the under surface of the floor and roof.
  5. The maximum allowable variation for center-center spacing of reinforcing steel shall be 1/2-inch.
  6. Full lengths of reinforcing steel shall be used when possible.
  7. Reinforcing bars shall be bent cold.
  8. Diagonal reinforcement shall be placed around all openings.
- F. Sealers and Curing Compounds
1. Curing compounds, if used, shall be colorless, complying with ASTM C309, type I or I-D.
  2. Weatherproofing sealer for exterior of building shall be clear, low gloss, water based acrylic sealer (Dayton-Superior J-24 or approved equal).
- G. Caulking, Grout, Adhesive and Sealer
1. All caulking shall remain flexible and non-sag at temperatures from -40 to 194 degrees Fahrenheit.
  2. Interior and exterior joints shall be caulked with a paintable polyurethane sealant
  3. Epoxy concrete adhesive shall be two component rigid, non-sag gel adhesive for bonding to dry or damp surfaces, moisture insensitive.
  4. Grout shall be non-shrink and shall be painted to match the color of surrounding concrete as closely as possible.
- H. Paint
1. All paints and materials shall conform to all Federal specifications or be similar "top-of-the-line-components". Paints shall not contain more than .06% by weight of lead.
  2. Type of paints for buildings:
    - a. Inside concrete surfaces
      - 1) Interior floors shall have two available options:
        - a) A two-part water based epoxy (AQUA TILE by INSL-X or approved equal). The color shall be gray.
        - b) A clear seal (Everclear by Euclid Chemicals or approved equal).
      - 2) Interior walls and ceilings shall be a modified acrylic, water repellent penetrating stain. The color shall be white followed by a clear anti-graffiti coating (Sherwin-Williams 1K Siloxane or approved equal).
    - b. Metal surfaces both inside and out
      - 1) Primer and enamel (Mirrorlac DP85XX by DEVOE / GLIDDEN or approved equal)

- c. Exterior concrete surfaces
  - 1) Exterior slab shall be clear sealer.
  - 2) Exterior walls and roof shall be a pure acrylic water repellent penetrating stain in the same color as the walls or roof followed by a clear anti-graffiti coating (Sherwin-Williams 1K Siloxane or approved equal).
  
- I. Grab bars
  - 1. Grab bars shall be 18 gauge, type 304 stainless steel with 1-1/2" clearance. Grab bars shall each be able to withstand 300 pounds of loading.
  - 2. In addition to back wall and side wall grab bars compliant with the current ADAAG, a vertical grab bar 18 inches minimum in length shall be mounted with the bottom of the bar located between 39 inches and 41 inches above the floor, and with the center line of the bar located between 39 inches and 41 inches from the rear wall bar (to meet the 2003 Edition of the ICC/ANSI A117.1, 604.5.1, current accessibility code adopted by the State of Montana, Department of Labor and Industry, Business Standards Division, Building Codes).
  
- J. Toilet Paper Dispenser
  - 1. Dispenser shall be constructed of 1/4" thick, type 304 stainless steel. Dispenser shall be capable of holding three (3) standard rolls of toilet paper. Toilet paper holder fastening system shall be able to withstand 300 pound top loading.
  - 2. 2 dispensers shall be installed, one above the other, and shall be compliant with the current ADAAG.
  - 3. Mounting screws shall be stainless steel 1/4"-20 security hex drive button head screws to prevent removal and vandalism.
  
- K. Toilet Riser
  - 1. Toilet riser shall have a smooth surface, meet current ADA standards, with heavy duty open-front seat and lid, and shall have high impact resistance at extremely cold temperatures.
  
- L. Steel Doors
  - 1. Doors shall be flush panel type 1-3/4-inch thick, minimum 16 gauge prime coated steel panels level 3 Extra Heavy-duty.
  - 2. Door frames shall be knockdown or welded type, single rabbet, minimum 16-gauge prime coated steel, prepared opening, bolted frame, width to suit wall thickness. Three (3) rubber door silencers will be provided on latch side of frame.
  - 3. Doors shall include a slide bar (National 151-118 Series B-832 or approved equal) with a 3/8 inch hole drilled in the bar for a standard pad lock. Slide bar shall be mounted on the exterior with 1/4 inch steel pop rivets approximately 6 feet above finished floor.
  
- M. Door Hinges
  - 1. Door hinges shall be 3 per door stainless steel 4-1/2-inch x 4-1/2-inch, adjustable tension, automatic-closing for each door (Stanley 2060R4.5"x4.5" 26D or approved equal).

- N. Lockset
1. Lockset will meet ANSI A156.2 Series 4000, Grade 1 cylindrical lockset for exterior doors (Schlage ND40S Rhodes Privacy 626 or approved equal).
  2. Lever handle, both inside and out.
  3. Either handle operates latch unless outside handle is locked by inside push-button.
  4. Push-button shall automatically release when inside lever handle is turned or door is closed.
  5. Emergency slot on exterior so door can be unlocked from the outside with a coin, screwdriver, etc.
  6. Inside lever always active.
  7. U.S. 26D finish
- O. Deadbolt
1. Cylindrical deadbolt shall be provided as additional optional item (at additional cost)
  2. Deadbolt shall be a Lori Lockset standard model with a double cylinder, 2 3/4" backset, and US26D finish. The cylinder shall be a standard 1 1/8" Schlage mortise cylinder with compression ring and 626 finish.
- P. Door Louvers
1. Door louver shall be fixed, inverted split Y, non-vision, 18 gauge cold rolled steel with a factory prime coat equal to FDLS series fastened to door with 3/16" aluminum pop rivets.
- Q. Doorstop
1. Door stop shall have a cast metal base, U.S. 26D finish with gray rubber 2-3/8" diameter bumper with a 1" projection.
- R. Double Coat Hook
1. Coat hooks shall be constructed of solid brass with a brushed chrome finish. Hooks shall be side by side "ram horn" style, installed on interior wall with tamper resistant mounting hardware, with minimal projection for safety.
- S. Door Sweep
1. Door sweep shall be provided at the bottom of door and shall be an adjustable brush type fastened to door with 3/16" aluminum pop rivets.
- T. Signage
1. Exterior signage
    - a. Signs shall have raised pictograms letters and Braille, to meet ADA requirements, to denote Unisex and Accessibility.
    - b. Sign colors and symbols shall be coordinated with the Owner.
    - c. Sign location shall have a 3/4" minimum recessed wall area with beveled edges and the sign shall be mounted with tamper proof mechanical fasteners to resist vandalism. Alternative methods for mounting may be proposed, and shall be evaluated based on resistance to tampering, theft and vandalism.
  2. Interior signage

- a. Interior sign shall read, "Please do not place trash in the toilet. It is extremely difficult and expensive to remove. Thank you."
  - b. Sign colors and symbols shall be coordinated with Owner.
  - c. Sign location shall have a ¾" minimum recessed wall area with beveled edges and the sign shall be mounted with tamper proof mechanical fasteners to resist vandalism. Alternative methods for mounting may be proposed, and will be evaluated based on resistance to tampering, theft and vandalism.
- U. Windows and Vault Cleanout Cover
- 1. Windows and cleanout cover frames shall be constructed from steel.
  - 2. Window glazing shall be 1/4" thick translucent pebble finished LEXAN polycarbonate.
  - 3. Plate for vault cleanout cover shall be 1/4" thick diamond plate steel. Lid shall be configured so that it can be locked with a padlock. Lid shall be designed to resist surface runoff penetration into the vault. A neoprene gasket shall be provided around the entire perimeter of the lid to provide an airtight seal.
- V. Vault Liner
- 1. Vaults shall be warranted against leaks or other failures for a period of 7 years.
- W. Vent Stack
- 1. Vent stack to be a minimum 12 inches in diameter and a minimum of 3 feet higher than the roof peak.
  - 2. Vent stack screen to be installed (Poo Poo Screen as supplied by Teton Raptor Center in Wilson, WY or approved equal).
- X. Solar Light
- 1. Provide a solar powered light package for each latrine.
  - 2. The light shall be installed inside the latrine and shall be motion activated.
  - 3. Provide the necessary solar panel, luminaire, wiring, motion detector, electrical boxes and mounting hardware.

## **PART 3 - BUILDING MANUFACTURING**

### **3.1 GENERAL**

- A. Mixing and Delivery of Concrete
- 1. Mixing and delivery of concrete shall be in accordance with ASTM C94, section 10.6 through 10.9 with the following additions.
    - a. Aggregate and water shall be adjusted to compensate for differences in the saturated surface-dry conditions.
    - b. Concrete shall be discharged as soon as possible after mixing is complete. This time shall not exceed 30 minutes.
- B. Placing and Consolidating Concrete

1. Concrete shall be consolidated by the use of mechanical vibrators. Vibrators shall be sufficient to accomplish compaction but not to the point that segregation occurs.
- C. Finishing Concrete
1. Interior floor and exterior slabs shall be floated and troweled until all marks are removed. A light broom finish shall be applied to the exterior slab for a non-slip finish.
  2. All exterior building walls and exterior screen walls shall be a barnwood texture, unless otherwise specified.
  3. All exterior surfaces of the roof panels shall be cast to simulate a cedar shake roof, unless otherwise specified. The underside of the overhang shall have a smooth finish.
- D. Cracks and Patching
1. Cracks in concrete components which are judged to affect the structural integrity of the building will be rejected.
  2. Small holes, depressions and air voids shall be patched with a suitable material. The patch shall match the color, finish and texture of the surrounding surface.
  3. Patching shall not be allowed on defective areas if the structural integrity of the building is affected.
- E. Curing and Hardening Concrete
1. Concrete surfaces shall not be allowed to dry out from exposure to hot, dry weather during initial curing period.
  2. Curing compounds shall not be used on interior walls as they will prevent paint adhesion.

## **PART 4 - FINISHING AND FABRICATION**

### **4.1 GENERAL**

- A. Structural Joints
1. All welding shall be by Certified Welders only (in accordance with AWS D1.1).
  2. Wall components shall be joined together with 2 welded plate pairs at each joint. Weld plates shall be anchored into the concrete panels and welded together with a continuous weld.
  3. Walls and roof shall be joined with weld plates, 2-1/2" x 5", at each building corner.
  4. The joint between the floor slab and walls shall be joined with a grout mixture on the inside and matching colored caulk on the outside with two weld plates 6" long per wall.
- B. Painting
1. Paint/Stain supplier recommendations shall be followed to ensure appropriate curing time before paint is applied to concrete.

2. Some applications may require acid etching. A 30% solution of hydrochloric acid shall be used, flushed with water and allowed to thoroughly air dry.
3. Painting shall not be done outside in cold, frosty or damp weather.
4. Painting shall not be done outside in winter unless the temperature is 50 degrees Fahrenheit or higher.
5. Painting shall not be done in dusty areas.
6. Schedule of finishes:
  - a. Inside Concrete Surfaces
    - 1) Inside floors shall be 2 coats of 2-part water based epoxy or clear sealer as identified per unit by Owner.
    - 2) Interior walls and ceilings shall be one coat primer/filler and 2 coats of white water based acrylic emulsion followed by 1 coat of clear anti-graffiti sealer.
  - b. Metal Surfaces both Inside and Out
    - 1) 1 coat primer and 2 coats of enamel
  - c. Exterior Concrete Surfaces
    - 1) Exterior slab shall be 1 coat of clear sealer.
    - 2) Stained enhanced exterior walls shall be 1 coat of pure acrylic water repellent penetrating stain in the same color as the walls or roof followed by 1 coat of clear anti-graffiti sealer.

## **PART 5 - QUALITY CONTROL AND INSPECTION**

### **5.1 GENERAL**

- A. Pre-pour inspection.
  1. Check all panel measurements including diagonals (must be within ¼ inch).
  2. Check rebar spacing and clearance
  3. Check location of all embeds.
- B. Concrete Testing
  1. The following tests shall be performed on concrete used in the manufacture of toilets. Testing shall only be performed by qualified individuals who have been certified ACI Technician Grade 1. Sampling shall be in accordance with ASTM C172.
    - a. The slump of the concrete shall be performed on the first batch of concrete in accordance with ASTM C143. This slump shall be in the 3"-5" range.
    - b. The air content of the concrete shall be checked per ASTM C231 on the first batch of concrete. The air content shall be in the range of 4%-6%.
    - c. The compressive strength of the cylinders shall be tested to ASTM C39.
    - d. Test cylinders shall be taken from every other batch.
      - 1) 1 cylinder shall be tested prior to removal of forms and must be at 2,500 psi or higher.
      - 2) 1 cylinder represents 7 day strength

- 3) 2 cylinders shall represent 28 day strength and must be 4,500 psi or greater.

- C. After Form Removal Inspection
  1. Recheck panel dimensions
  2. Verify that all embeds remained in place.
  3. Look for all cracks or blemishes that may cause rejection.
  4. Assure that panels are properly yarded and blocked.

## **PART 6 - INSTALLATION**

### **6.1 GENERAL**

- A. Work specified under this section includes excavation, gravel base, backfill and placement of precast concrete vault toilet.
  1. The Provider of the latrine shall be responsible for; loading, transportation, unloading and installation at each designated site and for compliance to the Montana Department of Transportation Load and Speed Limit Policy.
  2. At the time of delivery and installation, the latrine shall be free from dust and debris. If necessary, the Provider shall wash the latrine after installation to remove dirt, dust and debris accumulated during transit to the site. Alternatively, the latrine components shall be covered during transit as an option to washing.
  3. The Contractor shall be responsible for excavation, gravel base, leveling and backfill and shall clear or designate overhead and underground obstructions.
  4. The Contractor shall be responsible for final cleaning related to backfill and site grading.
- B. Materials
  1. Sealant between vault and toilet floor to be 1"x1" Butyl Rubber Sealant.
- C. Location and Access to the Site
  1. The Owner shall locate the vault toilet in an area that provides safe and reasonable access for trucks and equipment.
  2. If at the time of delivery, access conditions are hazardous or unsuitable for truck and equipment delivery due to weather, roadway constraints, alternative equipment for setting the latrine shall be the responsibility of the Owner.
- D. Toilet Vault, Structure and Accessories
  1. Apply Butyl rubber adhesive sealant to the top surface of the concrete vault before placing the structure on the vault.
  2. After exhaust pipe is installed Provider shall seal around pipe at top and underside of roof and at intersection of vent stack and slab with silicone caulk.
  3. Following latrine placement, Provider shall ensure latrine is clean, free of damage and fully functional. A checklist (Owner developed), shall be signed off on by provider and Owner personnel prior to payment. Checklist shall include (but not be limited to); door operation, access hatch operation, toilet lid

operation, verification of signage, coat hooks, and toilet paper dispensers, inspection of paint, concrete surface condition, molding, window, door handle, dead bolt, riser, caulking and cleanliness.

- E. Solar Light
  - 1. Install the solar panel, motion detector, interior light and appurtenances as recommended by the manufacturer.

## **PART 7 - MEASUREMENT AND PAYMENT**

### 7.1 GENERAL

- A. Measurement and payment for precast concrete latrines is made per each. Payment will be made at the contract unit price and shall include the following items: furnishing all labor, materials, equipment as necessary for manufacturing of the latrine and appurtenances (including a solar powered interior light), painting, hauling, unloading, topsoil stripping and stockpiling, excavation, gravel leveling pad, backfilling, topsoil re-spreading and all other incidentals required to complete the item.

### 7.2 PREFERENCE NOT APPLIED

- A. Montana resident and Montana-made products preferences will not be applied to this product because federal funds are involved.

**END OF SECTION**

## **SECTION 03402 – PRECAST CONCRETE PICNIC SHELTER**

### **PART 1 - GENERAL**

#### **1.1 SCOPE OF WORK**

- A. This specification covers the construction, delivery and installation of precast concrete picnic shelters for general public use. Shelters shall meet the minimum requirements, material specifications and design criteria listed in this document.

#### **1.2 GENERAL**

- A. The shelter shall be provided complete, ready for service with all appurtenances as indicated in this specification.

#### **1.3 CODES, PERMITS, AND COMPLIANCE**

- A. The shelter shall conform to all requirements of the current editions of the International Building Code (IBC), and all other codes, standards and ordinances applicable to work. In event of conflicts between these specifications and applicable codes or standards, the codes and standards shall govern.

#### **1.4 SPECIFICATIONS**

- ASTM C33 Concrete Aggregates
- ASTM C39 Method of Test for Compressive Strength of Cylindrical Concrete Specimens
- ASTM C143 Method of Test for Slump of Concrete
- ASTM C150 Standard Specification for Portland Cement
- ASTM C192 Method of Making and Curing Test Specimens in the Laboratory
- ACI 1211.1 Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete
- PCI MNL 116 Quality Control for Plants and Production of Precast Prestressed Concrete Products
- AWS D1.1 Structural Welding Code

#### **1.5 SUBMITTALS**

- A. After the bids are opened, the apparent low bidder will be required to submit a document that demonstrates that the shelters meet the listed salient requirements of

these specifications. At a minimum, the submittal shall consist of the following categories

1. Stamped and engineered drawings with gross dimensions
  2. Concrete mix design(s)
  3. Interior and exterior paint for concrete and steel
  4. Caulking
- B. Submit the number of bound copies specified in Section 01300 - Submittals to the Engineer for review and approval.
- C. After contract award, the Provider shall submit a quality control plan that will detail, at a minimum, detailed plans, concrete mix design, concrete forming and placement, steel placement and welding, paint application, powder coat application, final assembly and handling and transport procedures and recommended maintenance practices. List all standards and testing that will be performed. Copies of test results shall be submitted to the Engineer.
1. The recommended maintenance practices manual shall contain, at a minimum, the following items.
    - a. General information on maintenance practices and intervals
    - b. Sources for replacement parts,
    - c. Care and cleaning of painted surfaces,
    - d. Paint and caulk repair,
    - e. Concrete crack repair,
    - f. Tools and techniques for repair/replacement for vandal proof hardware.

## 1.6 MANUFACTURER CRITERIA

- A. The shelter manufacturer shall meet the following requirements at a minimum:
1. Manufacturing plant must be PCI certified at the time of the bid.
  2. Provider must not have defaulted on any contract within the last five years.
  3. Provider must provide stamped engineered drawings and calculations prior to acceptance.

## 1.7 DESIGN CRITERIA

- A. Design criteria are to ensure that the shelter not only will withstand the forces of nature listed below but to provide protection from vandalism and other unforeseen hazards.
1. Roof Snow Load
    - a. The shelter shall withstand a snow load of 250 pounds per square foot.
  2. Wind Load
    - a. The shelter shall withstand the effects of 120 mile per hour wind load (fastest mile) or 180 mph (3 second-gust) Exposure C.
  3. Earthquake
    - a. The shelter shall withstand the effects of a seismic design Category E earthquake.
  4. Additional Design Standards

- a. Exterior dimensions shall include a 12'x12' (minimum) overall floor slab dimension (floor slab, three walls, 2 steel columns and roof, no footings included).
- 5. Tolerances
  - a. Tolerances shall be within the limits as dictated by the PCI Quality Control and Assurance Manual.

## 1.8 WARRANTY

- A. A one year manufacturer's warranty is required against defects and workmanship for all components of the shelter. In addition all concrete components shall carry a warranty of 20 years. The warranty period shall begin on the date of substantial completion.

## PART 2 - PRODUCTS

### 2.1 GENERAL

- A. Concrete: The concrete mix design shall be designed to ACI 211.1 to produce concrete of good workability.  
 Mix #7.25 R - 1 cubic yard
  - cement 681 lbs.
  - water 232 lbs. (27.8 gal.)
  - w/c=.34
  - Course aggregate (SSD) 1,800 lbs.
  - Fine aggregate (SSD) 1,196 lbs.
  - Water Reducing Agent 34 oz. MB 322N
  - Air Entraining Agent 6 oz. MB AE-90 (4-7%)
  - Ave. 28 day strength 5,500 psi
  1. Cement shall be low alkali type I-II or type III conforming to ASTM C-150.
  2. Coarse aggregates used in the concrete mix design shall conform to ASTM C33 with the designated size of coarse aggregate #67.
  3. Minimum water/cement ratio shall not exceed 0.40. Slump will not exceed 5" with normal water reducing agent or 7" with super plasticizer.
  4. Air-entrained admixtures shall conform to ASTM C260. Water reducing admixtures shall conform to ASTM C494, Type A. Plasticizing admixtures shall conform to ASTM C 1017. Other admixtures will not be used without Engineer approval.
- B. Colored Concrete
  1. Color additive shall conform to ASTM C979. A 6-inch x 12-inch x 2-inch color sample shall be made available for Owner approval.
  2. The following shall contain colored concrete throughout:
    - a. Roof panels
    - b. Screen panels

- c. The sample brand and type of color additive shall be used throughout the manufacturing process.
  - d. All ingredients shall be weighed and the mixing operation shall be adequate to ensure uniform dispersion of the color.
  
- C. Cold Weather Concrete
  - 1. Cold weather concrete placement shall be in accordance with ACI 306.
  - 2. Concrete shall not be placed if ambient temperature is expected to be below 35 degrees Fahrenheit during the curing period unless heat is readily available to maintain the surface temperature of the concrete at least 45 degrees F.
  - 3. Materials containing frost or lumps of frozen materials shall not be used.
  
- D. Hot Weather Concrete
  - 1. The temperature of the concrete shall not exceed 80 degrees Fahrenheit at the time of placement and when the ambient temperature reaches 90 degrees Fahrenheit, the concrete shall be protected with moist covering.
  
- E. Concrete Reinforcement
  - 1. All reinforcing steel shall conform to ASTM A615. All welded wire fabric shall conform to ASTM A185.
  - 2. All reinforcement shall be new, free of dirt, oil, paint, grease, loose mill scale and loose or thick rust when placed.
  - 3. Details not shown on drawings or specified will be to ACI 318.
  - 4. Steel reinforcement shall be centered in the cross-sectional area of the walls and shall have at least 1-inch of cover on the under surface of the floor and roof.
  - 5. The maximum allowable variation for center-center spacing of reinforcing steel shall be 1/2-inch.
  - 6. Full lengths of reinforcing steel shall be used when possible.
  - 7. Reinforcing bars shall be bent cold.
  - 8. Diagonal reinforcement shall be placed around all openings.
  
- F. Sealers and Curing Compounds
  - 1. Curing compounds, if used, shall be colorless, complying with ASTM C309, type I or I-D.
  - 2. Weatherproofing sealer for exterior of shelter shall be clear, low gloss, water based acrylic sealer (Dayton-Superior J-24 or approved equal).
  
- G. Caulking, Grout, Adhesive and Sealer
  - 1. All caulking shall remain flexible and non-sag at temperatures from -40 to 194 degrees Fahrenheit.
  - 2. Interior and exterior joints shall be caulked with a paintable polyurethane sealant
  - 3. Epoxy concrete adhesive shall be two component rigid, non-sag gel adhesive for bonding to dry or damp surfaces, moisture insensitive.
  - 4. Grout shall be non-shrink and shall be painted to match the color of surrounding concrete as closely as possible.

- H. Paint
1. All paints and materials shall conform to all Federal specifications or be similar "top-of-the-line-components". Paints shall not contain more than .06% by weight of lead.
  2. Type of paints for shelters:
    - a. Metal surfaces both inside and out
      - 1) Primer and enamel (Mirrorlac DP85XX by DEVOE / GLIDDEN or approved equal)
    - b. Exterior concrete surfaces
      - 1) Exterior slab shall be clear sealer.
      - 2) Exterior walls and roof shall be a pure acrylic water repellent penetrating stain in the same color as the walls or roof followed by a clear anti-graffiti coating (Sherwin-Williams 1K Siloxane or approved equal).

### **PART 3 - SHELTER MANUFACTURING**

#### **3.1 GENERAL**

- A. Mixing and Delivery of Concrete  
Mixing and delivery of concrete shall be in accordance with ASTM C94, section
1. 10.6 through 10.9 with the following additions.
    - a. Aggregate and water shall be adjusted to compensate for differences in the saturated surface-dry conditions.
    - b. Concrete shall be discharged as soon as possible after mixing is complete. This time shall not exceed 30 minutes.
- B. Placing and Consolidating Concrete
1. Concrete shall be consolidated by the use of mechanical vibrators. Vibrators shall be sufficient to accomplish compaction but not to the point that segregation occurs.
- C. Finishing Concrete
1. Floor slab shall be floated and troweled until all marks are removed. A light broom finish shall be applied to the slab for a non-slip finish.
  2. All exterior shelter screen walls shall be a barnwood texture, unless otherwise specified.
  3. All exterior surfaces of the roof panels shall be cast to simulate a cedar shake roof, unless otherwise specified. The underside shall have a smooth finish.
- D. Cracks and Patching
1. Cracks in concrete components which are judged to affect the structural integrity of the shelter will be rejected.
  2. Small holes, depressions and air voids shall be patched with a suitable material. The patch shall match the color, finish and texture of the surrounding surface.
  3. Patching shall not be allowed on defective areas if the structural integrity of the shelter is affected.

- E. Curing and Hardening Concrete
  - 1. Concrete surfaces shall not be allowed to dry out from exposure to hot, dry weather during initial curing period.
  - 2. Curing compounds shall not be used on interior walls as they will prevent paint adhesion.

## **PART 4 - FINISHING AND FABRICATION**

### **4.1 GENERAL**

- A. Structural Joints
  - 1. All welding shall be by Certified Welders only (in accordance with AWS D1.1).
- B. Painting
  - 1. Paint/Stain supplier recommendations shall be followed to ensure appropriate curing time before paint is applied to concrete.
  - 2. Some applications may require acid etching. A 30% solution of hydrochloric acid shall be used, flushed with water and allowed to thoroughly air dry.
  - 3. Painting shall not be done outside in cold, frosty or damp weather.
  - 4. Painting shall not be done outside in winter unless the temperature is 50 degrees Fahrenheit or higher.
  - 5. Painting shall not be done in dusty areas.
  - 6. Schedule of finishes:
    - a. Metal Surfaces both Inside and Out
      - 1) 1 coat primer and 2 coats of enamel
    - b. Exterior Concrete Surfaces
      - 1) Exterior slab shall be 1 coat of clear sealer.
      - 2) Stained enhanced exterior walls shall be 1 coat of pure acrylic water repellent penetrating stain in the same color as the walls or roof followed by 1 coat of clear anti-graffiti sealer.

## **PART 5 - QUALITY CONTROL AND INSPECTION**

### **5.1 GENERAL**

- A. Pre-pour inspection.
  - 1. Check all panel measurements including diagonals (must be within ¼ inch).
  - 2. Check rebar spacing and clearance
  - 3. Check location of all embeds.
- B. Concrete Testing
  - 1. The following tests shall be performed on concrete used in the manufacture of the picnic shelter. Testing shall only be performed by qualified individuals who have been certified ACI Technician Grade 1. Sampling shall be in accordance with ASTM C172

- a. The slump of the concrete shall be performed on the first batch of concrete in accordance with ASTM C143. This slump shall be in the 3"-5" range.
- b. The air content of the concrete shall be checked per ASTM C231 on the first batch of concrete. The air content shall be in the range of 4%-6%.
- c. The compressive strength of the cylinders shall be tested to ASTM C39.
- d. Test cylinders shall be taken from every other batch.
  - 1) 1 cylinder shall be tested prior to removal of forms and must be at 2,500 psi or higher.
  - 2) 1 cylinder represents 7 day strength
  - 3) 2 cylinders shall represent 28 day strength and must be 4,500 psi or greater.

## **PART 6 - INSTALLATION**

### **6.1 GENERAL**

- A. Work specified under this section includes topsoil stripping and stockpiling, excavation for the base slab, gravel base, backfill around the slab, re-spreading of topsoil and assembly of the shelter.
  - 1. The Provider of the shelter shall be responsible for; loading, transportation, unloading and installation at each designated site and for compliance to the Montana Department of Transportation Load and Speed Limit Policy.
  - 2. At the time of delivery and installation, the shelter shall be free from dust and debris. If necessary, the supplier shall wash the shelter after installation to remove dirt, dust and debris accumulated during transit to the site. Alternatively, the shelter components shall be covered during transit as an option to washing.
  - 3. The Contractor shall be responsible for excavation, gravel base, leveling and backfill and shall clear or designate overhead and underground obstructions.
  - 4. The Contractor shall be responsible for final cleaning related to backfill and site grading.
- B. Location and Access to the Site
  - 1. The Owner shall locate the shelter in an area that provides safe and reasonable access for trucks and equipment.
  - 2. If at the time of delivery, access conditions are hazardous or unsuitable for truck and equipment delivery due to weather, roadway constraints, alternative equipment for setting the shelter shall be the responsibility of the Owner.
- C. Shelter Structure and Accessories
  - 1. Following shelter placement, Provider shall ensure shelter is clean, free of damage and fully functional. A checklist (Owner developed), shall be signed off on by provider and Owner personnel prior to payment. Checklist shall

include (but not be limited to); inspection of paint, concrete surface condition, molding, caulking and cleanliness.

## **PART 7 - MEASUREMENT AND PAYMENT**

### **7.1 GENERAL**

- A. Measurement and payment for the precast concrete picnic shelter is made per each. Payment will be made at the contract unit price and shall include the following items: furnishing all labor, materials, equipment as necessary for manufacturing of the picnic shelter, hauling, unloading, painting, topsoil stripping and stockpiling, excavation for the slab, base course pad (14 ft x 16 ft x 0.5 ft thick layer of compacted  $\frac{3}{4}$ " minus base), backfilling around the slab, topsoil re-spreading, shelter assembly and all other incidentals required to complete the item.

### **7.2 PREFERENCE NOT APPLIED**

- A. Montana resident and Montana-made products preferences will not be applied to this product because federal funds are involved.

**END OF SECTION**

## **SECTION 16000 - GENERAL PROVISIONS FOR ELECTRICAL WORK**

### **PART 1 - GENERAL**

#### **1.1 ALTERNATES**

- A. Take cognizance of any change required in the work and include the price deemed necessary to meet the requirements of the respective alternate.

#### **1.2 GENERAL**

- A. The Contractor shall provide labor, materials, equipment, items, articles, operations, and methods listed, shown, scheduled, or mentioned on the drawings, and/or specified, including all incidentals required for their completion.
- B. The Contractor shall refer to the General part of these specifications, such as Instructions to Bidders, Special Conditions and DIVISION 1 for restrictions covering time that work can be performed in certain areas, noisy and dusty operations, sequence of work, access to restricted areas and similar type of work and operations.

#### **1.3 MATERIALS, SUBSTITUTION AND APPROVAL**

- A. All items in this DIVISION are eligible for substitution in accordance with the General Conditions and Supplements thereto. The final decision as to acceptability rests with the Engineer.
- B. When the Engineer deems it necessary to assure satisfactory installation and compatibility with other equipment, piping, ductwork, electrical provisions and other appurtenances, the Contractor shall prepare scale drawings of the substitute item showing proposed location, connections, relation to other equipment and other pertinent data such as maintenance space requirements, electrical requirements, height and weight. Drawings must receive Engineer's approval before the substitution is made.
- C. It is the Contractor's responsibility that the substitute item shall fit into the space allocated and that the item can be installed and function as intended. Should changes in the work of any Contractor become necessary as a result of any substitute item under this DIVISION, such changes shall be arranged and paid for by this Contractor.

#### **1.4 CODES, REGULATIONS AND PERMITS**

- A. All materials and equipment shall be new, approved by the Underwriters' Laboratories, Inc., or by the local inspection authority, and be in new, undamaged condition when installed.
- B. Comply with the National Electrical Code, National Electrical Safety Code, State of Montana Electrical Code, International Building Code, State of Montana Energy Code, and all other applicable Federal, State, City and County Codes, regulations and ordinances.

- C. Obtain and arrange for all permits and approvals required for the execution of the work.

#### 1.5 INTENT OF DRAWINGS

- A. Risers and other diagrams are schematic only and not to scale. They are intended only to show sizes or relative arrangement of conduit and equipment shown elsewhere in plan view.

#### 1.6 WORKMANSHIP

- A. Work to be accomplished by workmen skilled in particular trade in conformance with best practices and to meet all applicable codes.
- B. The Engineer decides whether work is satisfactory. This Contractor shall replace materials or equipment not properly installed or finished without any increase in payment received.

#### 1.7 RESPONSIBILITY

- A. The Contractor is responsible for the installation of satisfactory and complete piece of work in accordance with true intent of drawings and specifications.
- B. Consult all drawings for project to predetermine work and equipment will fit as planned.
- C. Location of conduit to be coordinated with excavator.

#### 1.8 DELIVERY AND STORAGE OF MATERIALS

- A. Make provisions which are acceptable to the Owner and Engineer for delivery and storage of materials.
- B. Make provisions for introduction into the building of equipment furnished under the DIVISION.

#### 1.9 MANUFACTURER'S DIRECTIONS

- A. Manufactured materials and equipment applied, installed, connected, erected, used, cleaned and conditioned as recommended by manufacturer unless otherwise herein or on the drawings.

#### 1.10 CUTTING, PATCHING AND REPAIRING

- A. See requirements in the GENERAL and SPECIAL CONDITIONS.

#### 1.11 OPENINGS IN CONDUIT AND BOXES

- A. Openings in conduit, boxes, etc., kept closed during progress of work.
- B. This Contractor required to clean new systems found dirty to satisfaction of Engineer at no additional cost.

#### 1.12 CLEANUP

- A. Upon completion of work, remove materials, scraps, etc., relative to this work and leave premises in clean and orderly condition. This also includes unfinished spaces.
- B. Clean equipment of dirt and debris, including interior of cabinets.

#### 1.13 COMPLETION AND TESTING

- A. Complete and test each system and leave in proper operation, free of faults, shorts or unintentional grounds. Test all wiring and connections installed under this contract for continuity and grounds before energizing any system.
- B. At the time the Engineer directs, the Contractor shall conduct operating tests of equipment and systems. The equipment and systems shall be demonstrated to operate in accordance with the requirements of this specification and in the presence of the Engineer. The Contractor shall furnish all instruments and personnel required for the tests.
- C. Provide written report of test data when so specified (such as in Section 16130).

#### 1.14 GROUNDING

- A. Except where specifically indicated otherwise, all exposed noncurrent-carrying metallic parts of electrical equipment, metallic raceway systems and neutral conductor of the wiring system shall be grounded.
  - 1. Ground conduits and cabinets for auxiliary systems by bonding or by conduit interconnection with the electrical system or as otherwise specifically indicated on the drawings.
- B. The ground connection shall be made at the main service equipment and shall be connected to two driven ground rods (1/2" x 8' long copper-clad steel) connected to the service ground.

#### 1.15 TEMPORARY SERVICE

- A. See SPECIAL CONDITIONS.

#### 1.16 RECORD DRAWINGS

- A. Maintain a separate set of electrical drawings at the job at all times to be used as record

drawings. This set shall be kept up-to-date, with all changes and/or additions in the construction and/or electrical systems made thereon. Deliver to the Engineer at the completion of the job. This set of drawings shall be kept neat and clean.

#### 1.17 BROCHURE OF EQUIPMENT

- A. Upon completion of work, this Contractor shall prepare a Brochure of Equipment containing data pertinent to equipment and systems on job. Binders containing material shall be one or more 3-ring binders of sufficient number to hold all literature. Contained in the binders shall be: installation, maintenance and operating instructions for each piece of equipment, parts lists, wiring diagrams, and one copy of each shop drawing and literature submittals, temperature control diagrams and literature, etc.
- B. All literature clean, filed under divider heading corresponding to specifications.
- C. These brochures submitted and approved before authorization of final payment. Additions or changes made to satisfaction of the Engineer.

#### 1.18 SHOP DRAWINGS

- A. Provide manufacturer's literature and/or certified prints for items of equipment materials or systems where called for in following schedule. Shop drawings and literature complete, showing item used, size, dimensions, capacity, rough-in, etc., as required for complete check and installation.
  - 1. Manufacturer's literature shall include any and all restrictions on the application and installed service limitations of the product.
- B. Submit shop drawings for approval before ordering. Contractor check submittals for number of copies, adequate identification, correctness and compliance with drawings and specifications. Shop drawing submittals revised, changed, and/or resubmitted until acceptable and approved by the Engineer.
- C. Approval of shop drawings and literature shall not relieve Contractor from responsibility for deviations from drawings or specifications, nor shall it relieve him from responsibility for errors in shop drawings or literature.
- D. One copy each approved shop drawing retained by Contractor and bound in "Brochure of Equipment."
- E. Schedule of Shop Drawing Submittals

<u>Section</u>	<u>Items</u>
16000	Alternates and General Provisions
16110	Raceways and Fittings
16130	Conductors
16220	Underground Elec Serv. (Service Cabinets)
16710	Motors & Motor Con.

1.19 GUARANTEE-WARRANTY

- A. This Contractor shall and hereby does warrant and guarantee:
1. That all work executed under this DIVISION will be free from defects of materials and workmanship for a period of one year from the date of substantial completion of this work.
  2. The above party further agrees that he will, at his own expense, repair and replace all such defective materials and work and all other work damaged thereby, which becomes defective during the term of warranty.

**END OF SECTION**

## **SECTION 16110 - RACEWAYS AND FITTINGS**

### **PART 1 - GENERAL**

#### 1.1 DESCRIPTION

- A. Work included: Provide Raceways and fittings as required for installation of all line voltage conductors in separate raceway systems.

### **PART 2 - PRODUCTS**

#### 2.1 MATERIALS

- A. Conduit run underground shall be Schedule 40 PVC.

### **PART 3 - EXECUTION**

#### 3.1 INSTALLATION

- A. Raceways used throughout construction for all line voltage conductors.
- B. Installation of raceways to be coordinated with installation of other trades.

**END OF SECTION**

## SECTION 16130 – CONDUCTORS

### **PART 1 - GENERAL**

#### 1.1 WORK INCLUDED

- A. Provide copper conductors where indicated on plans and in specifications. Size all conductors as required by NEC 2017 to serve loads indicated.

### **PART 2 - PRODUCTS**

#### 2.1 MATERIALS

- A. Conductors shall be of American manufacture and made in accordance with the requirements of the N.E.C. 2017 edition and the Underwriters Laboratories.
- B. Conductors shall be copper up to #2 AWG, larger conductors may be aluminum.
- C. Type THW or THWN shall be used in wet locations. All underground cables shall be Tri-Plex URD with ground.
- D. Connectors
  - 1. Cable size #6 or larger, use lugs or approved connectors.
  - 2. Conductors #8 and smaller, use one of the following solderless connectors or approved equal:
    - Ideal Industries "Wing Nut"
    - 3M Co. "Scotchlok"
    - Buchanan steel splice cap with nylon insulator.

### **PART 3 - EXECUTION**

#### 3.1 INSTALLATION

- A. All conductors installed in raceways. Provide pull boxes as required so no one conductor pull will be more than 150'.
- B. Conductors to be sized in accord with the N.E.C. 2017 & as noted on Drawings.
- C. Color coded in accord with the National Electrical Code:

<u>System Voltage</u>	<u>Ground</u>	<u>Neutral</u>	<u>Phase A</u>	<u>Phase B</u>
120/240 Volts	Green	White	Black	Red

D. Feeders

1. Splices in feeders are not permitted.
2. Perform an insulation resistance test on all feeder conductors installed under this contract, including neutrals, using a megohmmeter. Apply 1,000 volts DC to each conductor and maintain for one minute. Minimum value for each conductor shall be 100 megohms at 60 degrees F. Furnish written report of test data to Engineer. (Insulation test to be made between conductors and between conductors and ground.)

**END OF SECTION**

## **SECTION 16220 - UNDERGROUND ELECTRICAL SERVICE**

### **PART 1 - GENERAL**

#### 1.1 DESCRIPTION

- A. Work included: Provide and install a complete underground electrical secondary system as indicated on plans and specified herein. The Contractor shall be responsible for the coordination of electrical service provisions with the Utility Company.

### **PART 2 - PRODUCTS**

#### 2.1 MATERIALS

- A. Primary service, including trenching, conduit, conductors and connections to transformers to be done by the Utility Company with any charges for this work paid for by the Owner.
- B. Provide meter socket and CT CAN where indicated, with conduit and conductors, all as required to accept the Utility Company meter.
- C. Ground rods to be copper-clad steel, 5/8" x 8' long with ground wire clamp.
- D. Concrete pad for transformers provided by the General Contractor.
- E. Secondary service system conduit provided by the Contractor. Conductors provided by the utility company.

### **PART 3 - EXECUTION**

#### 3.1 INSTALLATION

- A. Cooperate with the Utility Company in every way. Abide by their regulations.
- B. Any charges by Utility Company for their work shall be the responsibility of the Owner.
- C. Primary wiring and setting of transformers by Utility Company.
- D. Secondary wiring, meter wiring and CT wiring by Contractor.
- E. Current transformers installed where indicated. Furnished by Utility Company, installed by Contractor.
- F. Install ground rod, wiring and connections to ground transformer enclosure.
- G. Backfill and compaction shall be in accordance with DIVISION 2 - SITE WORK.

**END OF SECTION**

## **SECTION 16710 - MOTORS AND MOTOR CONTROLS**

### **PART 1 - GENERAL**

#### 1.1 DESCRIPTION

- A. Work included: Provide and install all disconnect switches as indicated on the plans and as specified herein.

### **PART 2 - PRODUCTS**

#### 2.1 MATERIALS

- A. Equivalent products to those specified as manufactured by Square-D, G.E., ITE, Westinghouse, Cutler-Hammer and Allen Bradley are acceptable.
- B. Disconnects
  - 1. Type and size as indicated on the drawings and/or as required by Code. NEMA enclosed to suit location.
  - 2. Safety switch type: Heavy duty type with number of blades, poles as required by the service. Switches to be fusible, unless noted otherwise, and with Bussman Fusetrons as required by equipment served. NEMA enclosure to suit location.
- C. Fuses
  - 1. Provide fuses in the disconnect as noted on Drawings.

### **PART 3 - EXECUTION**

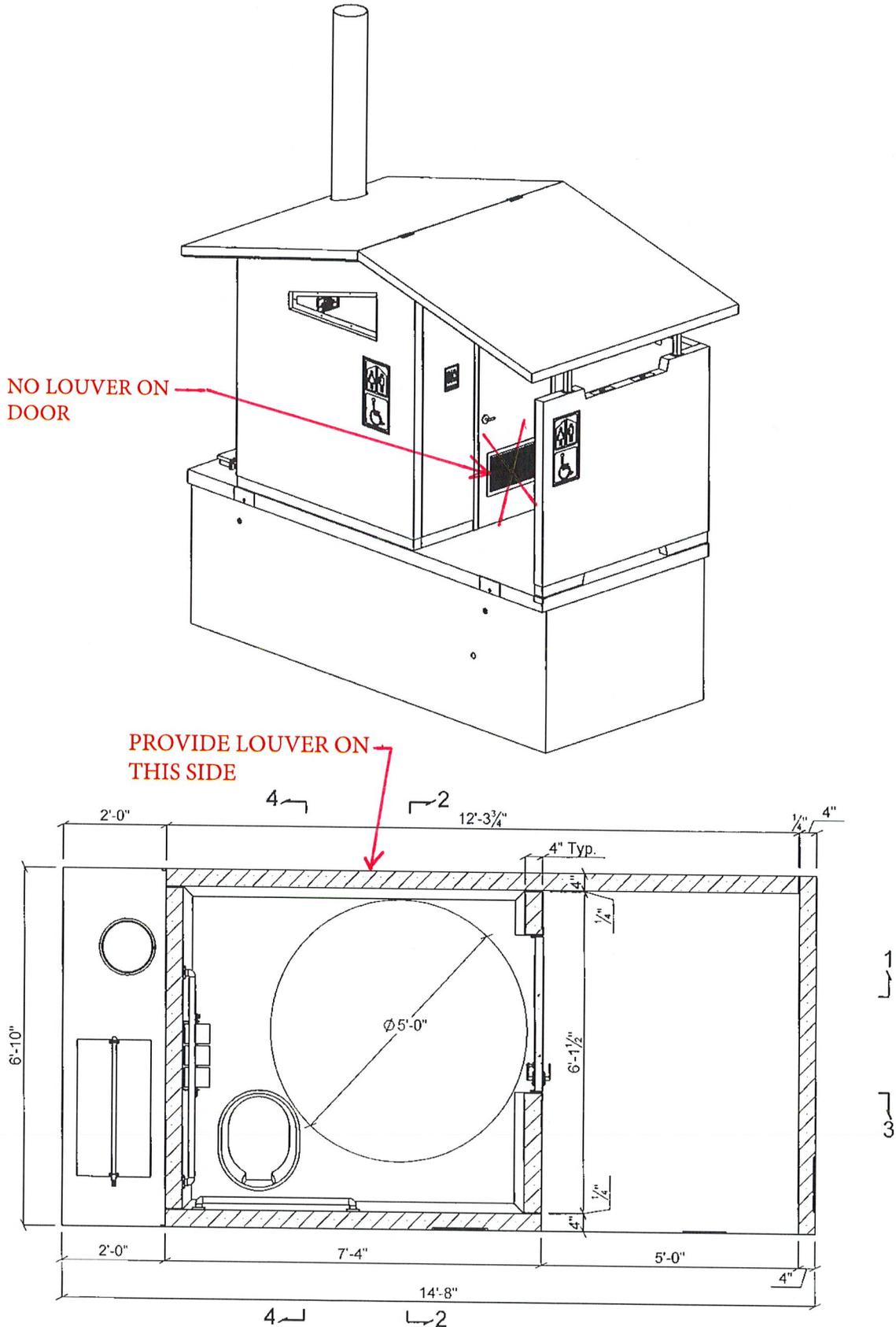
#### 3.1 INSTALLATION

- A. Rough-in for and connect up all electrical equipment.
- B. Identify all disconnects as to equipment served, voltage, phases, etc., using pressure-sensitive tape punched with tapewriter.

**END OF SECTION**

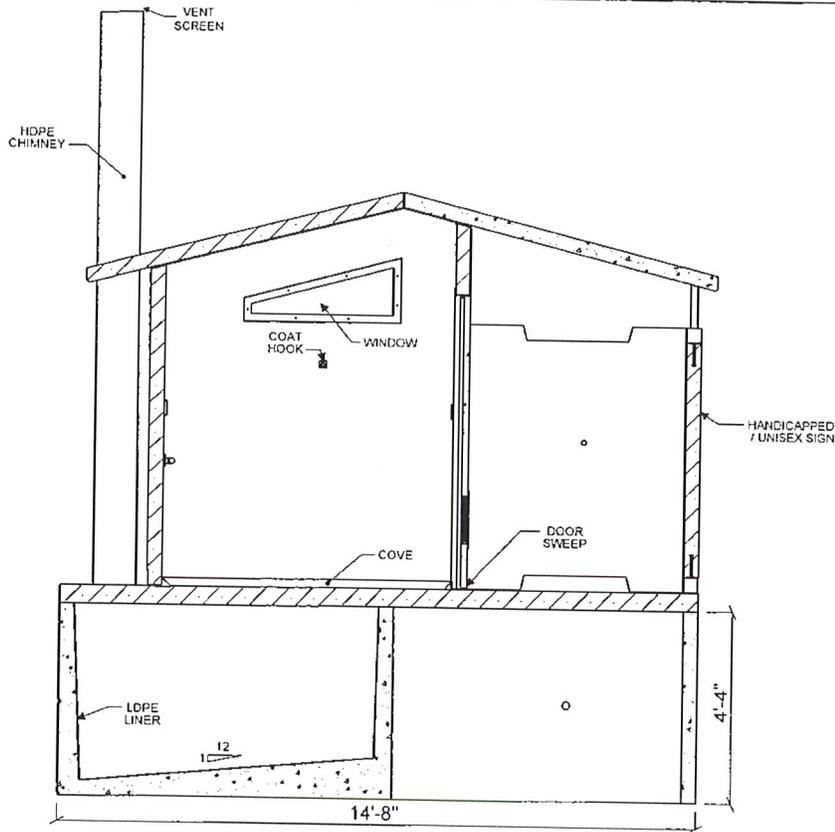
NO LOUVER ON  
DOOR

PROVIDE LOUVER ON  
THIS SIDE

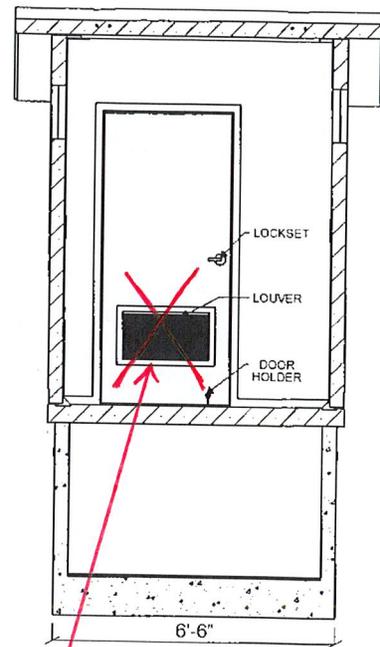


file:fwp\_right\_full\_3\_17

FWP		SHEET 1 OF 4
ASPEN VAULT TOILET		
RIGHT HAND		
FULL SCREEN		
3/2017		

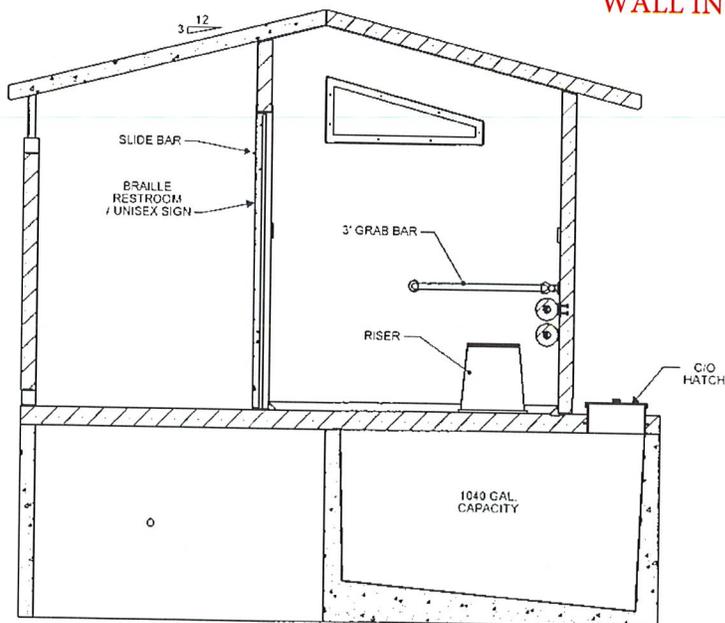


SECTION 1-1  
SCALE 1 : 48

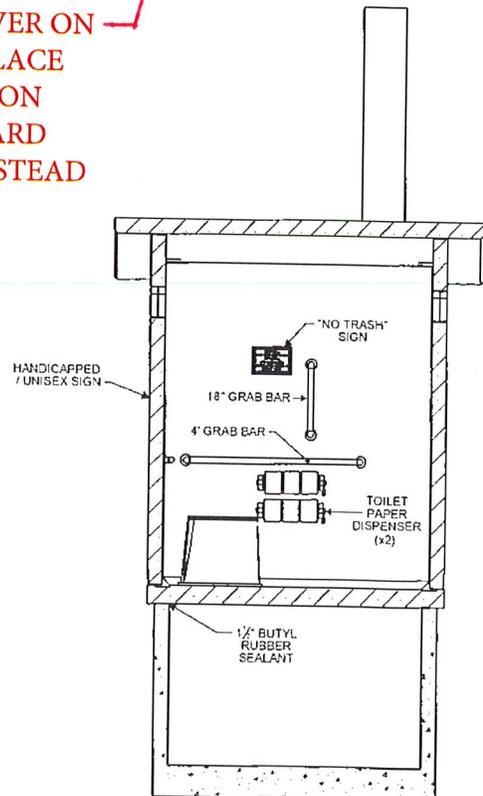


SECTION 2-2  
SCALE 1 : 48

NO LOUVER ON  
DOOR. PLACE  
LOUVER ON  
WINDWARD  
WALL INSTEAD



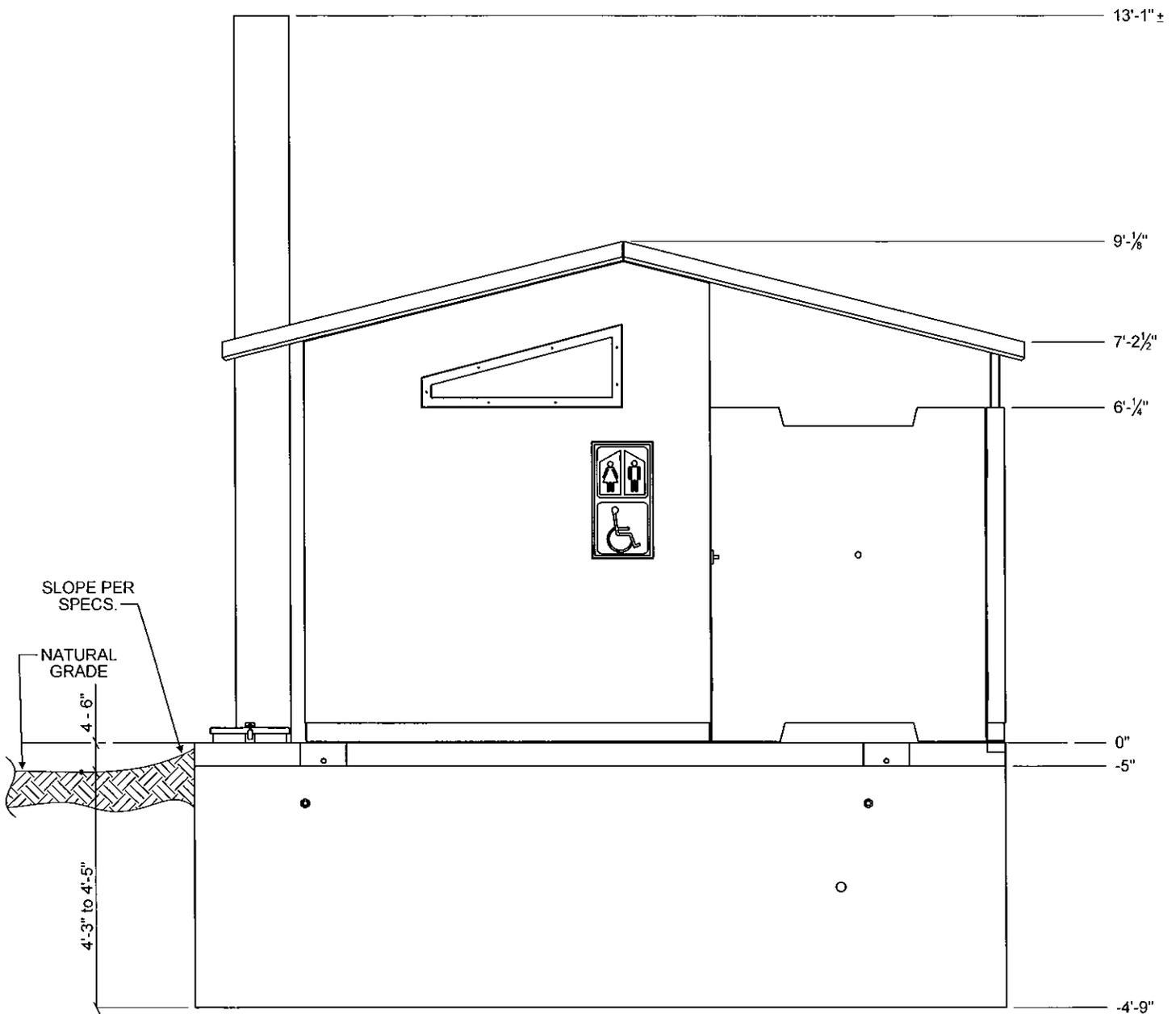
SECTION 3-3  
SCALE 1 : 48



SECTION 4-4  
SCALE 1 : 48



FWP	SHEET <b>2</b> OF <b>4</b>
ASPEN VAULT TOILET	
RIGHT HAND	
FULL SCREEN	
3/2017	



**WEIGHT:**

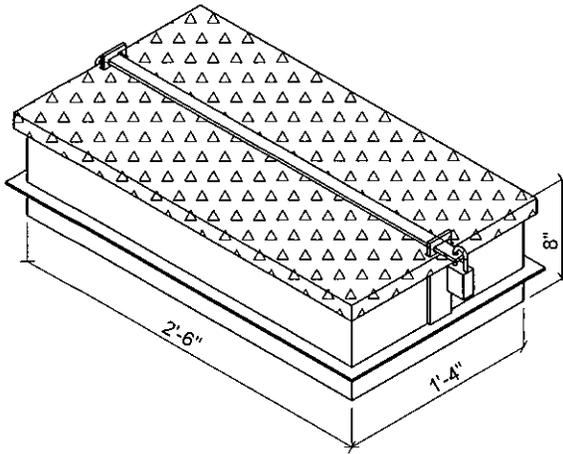
- Building - 24,000 lbs.
- Vault - 16,000 lbs.

**EXCAVATION:**

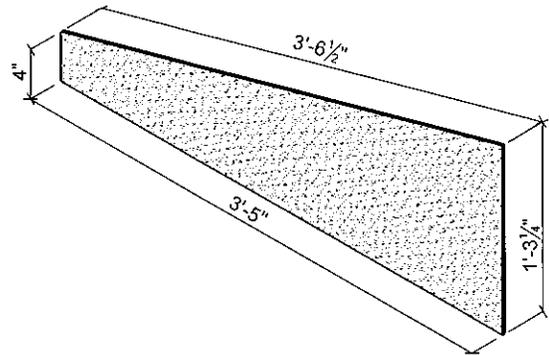
- Vault Hole - 8' wide x 16' long x 4'-9" below desired finish floor elevation
- See specifications for additional requirements.



FWP		SHEET <b>3</b> OF <b>4</b>
ASPEN VAULT TOILET		
RIGHT HAND		
FULL SCREEN		
3/2017		



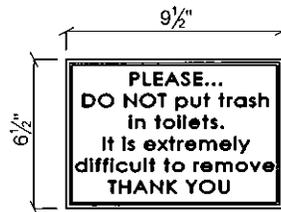
CLEANOUT HATCH



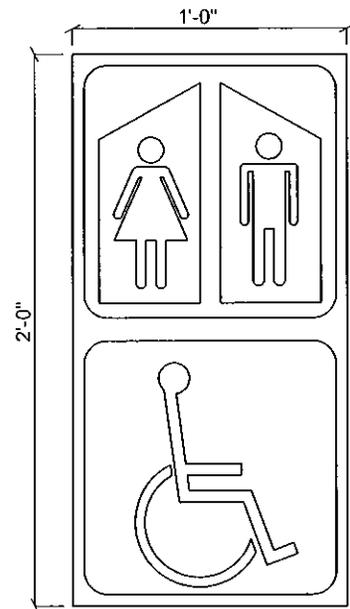
POLYCARBONATE WINDOW



BRILLE RESTROOM SIGN



"NO TRASH" SIGN



"HANDICAPPED / UNISEX" SIGN



**NOTES**

1) MIX DESIGN 7.25R

Concrete Aggregate to be state specification material supplied by JTL Group

--One CY

- Cement 650 lbs (Holcim Type III)
- Water 258 lbs. (31 gal.)
- Coarse Agg 3/4 Minus 1,950 lbs SSD
- Sand 1,100 lbs SSD
- MB Glenium 30/30 66 oz.
- MBAE 10 air ent. 6 oz. (4-6%)

.40 Cement / Water Ratio (Max.)  
Slump = 2.5-4"

Stripping Strength: 2,500 psi  
Final Strength: 4,000 psi

- 2) ALL REBAR IS GRADE 60 (ASTM A615)
- 3) REINFORCING WILL BE FASTENED WITH STANDARD WIRE TIES.
- 4) BARNWOOD TEXTURE - WALLS
- 5) SHAKE TEXTURE - ROOF
- 6) SHELTER IS DESIGNED TO ACCOMMODATE A ROOF SNOW LOAD OF 60 P.S.F.

Designed for Spring Meadow Lake  
State Park

**INSTALLATION :**  
**THE CONTRATOR IS RESPONSIBLE FOR**  
**PURCHASE AND INSTALLATION OF THE**  
**SHELTER. THE CONTRACTOR SHALL**  
**PERFORM ALL EARTHWORK AND GRAVEL**  
**BASE WORK. THE MANUFACTURER**  
**SHALL LOAD, TRANSPORT, UNLOAD AND**  
**ERECT THE SHELTER ON THE GRAVEL**  
**BASE PAD.**

**GENERAL NOTES**

Unless specified otherwise, the following general notes shall apply to all the precast erection drawings.

**GENERAL:**

It is the responsibility of the General contractor to provide any Field Measurements required on drawings.

It is the responsibility of the General contractor to coordinate Precast Shop drawings with all other trades. (Structural Foundation, Electrical, Steel)

Architect/Engineer approval indicates acceptance of the dimensions shown herein, exposed finishes, and conformance with aesthetic requirements imposed by the precast panels and connections.

Unless otherwise noted on the approved drawings, General Contractor approval indicates all building conditions (column centerlines, floor elevations, foundation walls and grade beams, and dimensions) are in accordance with the Contract Documents.

**TOLERANCES:**

Precast products will be fabricated to tolerances specified in section 5 of P.C.I. MNL-117 "Manual for Quality Control for Plants and Production of Precast Concrete Products."

**BOWING & MOVEMENT:**

This Prestressed structure is designed to move. Bowing due to temperature differential should be expected.

**JOINTS:**

All joints between pre cast members or between precast members and work by others are to be considered nominal dimensions only. Due to production, erection and general construction tolerance, these dimensions can vary.

**OPENINGS:**

Missoula Concrete Construction shall provide only those openings shown on their shop drawings. No opening shall be cut or drilled without MCC approval in writing.

**CONCRETE:**

It is the responsibility of the General Contractor to coordinate Precast Embed drawings with the Structural Foundation drawings.

**ERECTION:**

All field welding shall be E70XX.

All connections shall be completed as soon as possible following the precast member erection.

Construction stability of the precast structure during the erection is the responsibility of the precast erector.

Erector shall survey the site before erection and constantly examine the plumb and alignment of the precast member.

**ERECTION STEEL:**

Material supplied shall be as specified below unless otherwise noted in connection details and design.

Hot rolled steel: A36

Bolts: Grade 5

Threaded rods: Grade 2

Rebar: Grade 60

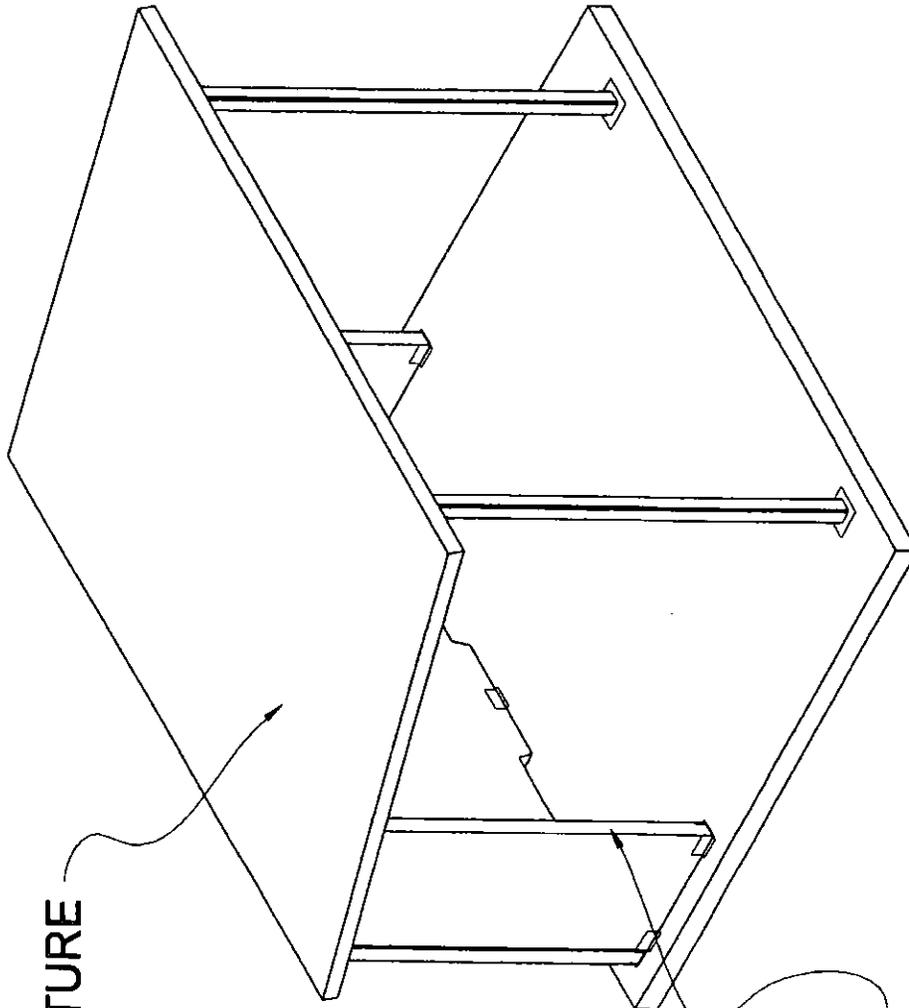
Coil rods: High Tensile

**FIELD DRILLED ANCHORS:**

No field drilled anchors shall be applied to any precast member without MCC written approval.

		www.missoulaconcrete.com Phone (406) 549-9852 • Fax (406) 549-9404 P. O. Box 10068 • Missoula, MT 59716-0068	
Project:	Picnic Shelter	Date:	2-28-08
Contractor:	MT, FWP	Revised:	A
Drawing:			A
<b>Specification Sheet</b>			
Drawn By:	Steve P. McStuana	Checked By:	
Scale:	No Scale	Revised for Fabrication:	
Sheet:	1	Of:	11

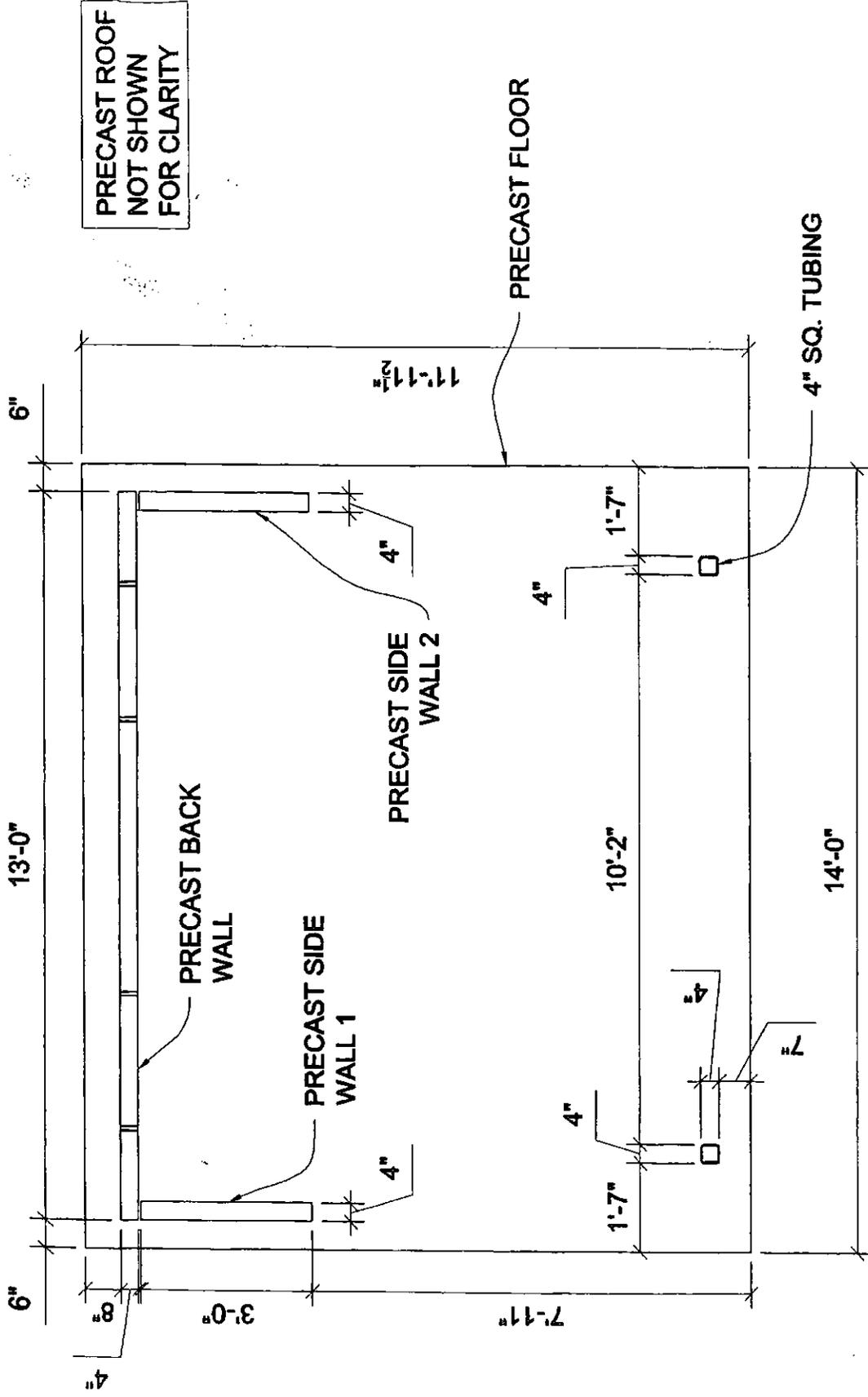
Specification Page



SHAKE TEXTURE

BARNWOOD TEXTURE

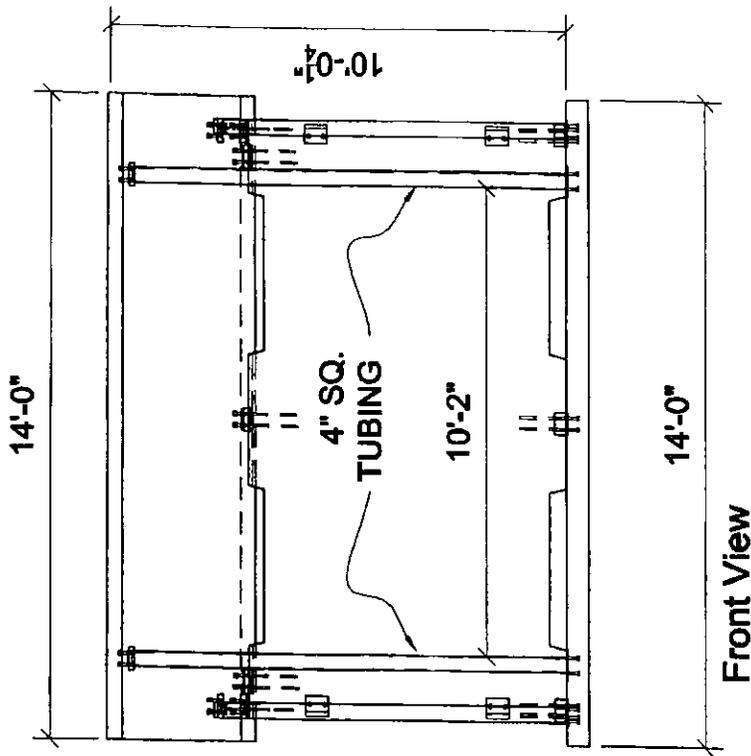
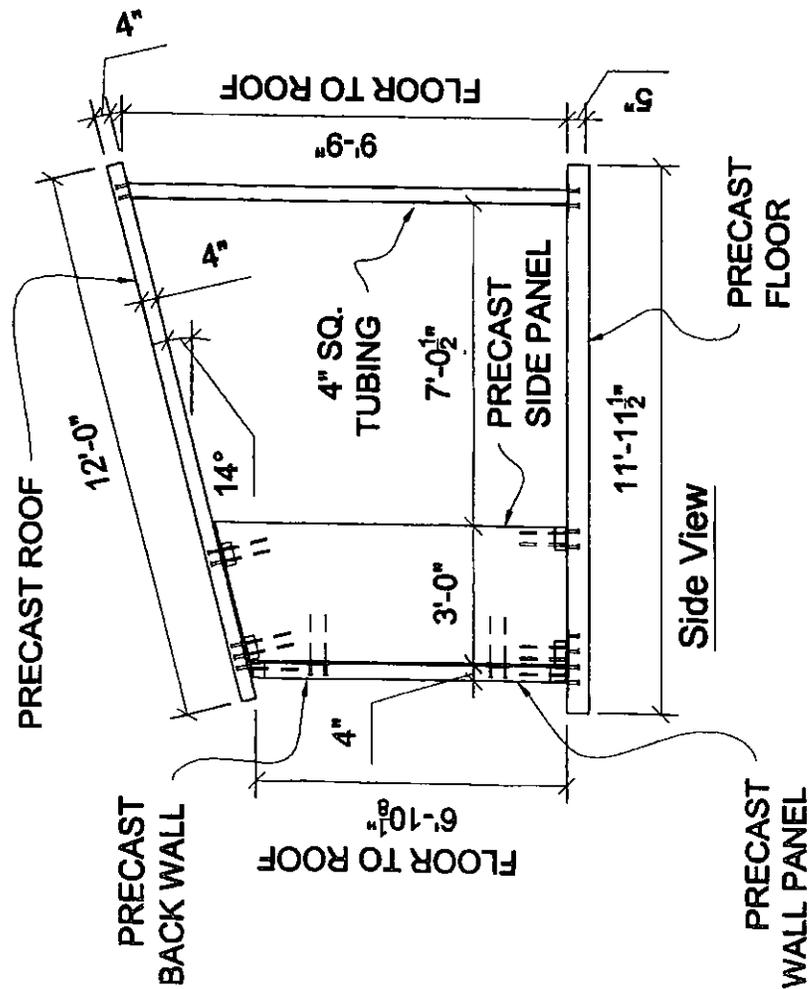
	<a href="http://www.missoinconstruction.com">www.missoinconstruction.com</a> Phone (408) 648-8882 - Fax (408) 648-6404 P. O. Box 18086 - Missoula, MT 59808-0088	
	Project: Picnic Shelter Contractor: MT, FWP Drawing:	Date: 2-28-08 Revision: A A A
Drawn By: Steve P. McShane Checked By: Released for Fabrication:		Sheet: 2 Of: 11
Scale: No Scale		



www.missoulaconcrete.com		Date: 2-28-08
Phone (408) 549-9832 - Fax (408) 549-6404		Revised: A
P. O. Box 16068 - Missoula, MT 59809-0068		Revised: A
Project: Picnic Shelter		Revised: A
Contractor: MT. FWP		Sheet: 3
Drawing:		Of: 11
Plan View		Checked By:
Drawn By: Steve P McShane		Released for Fabrication:
Scale:		

Plan View

SCALE: 1/4"=1'

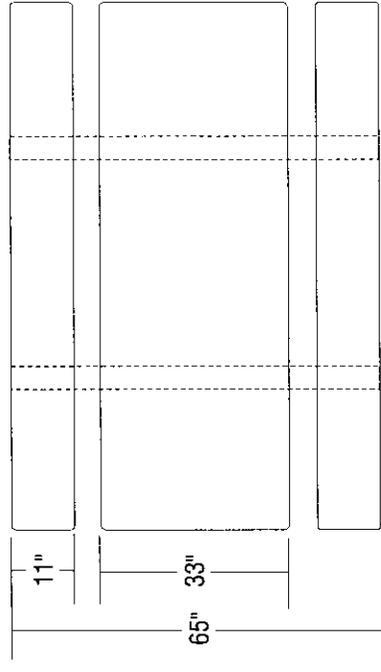
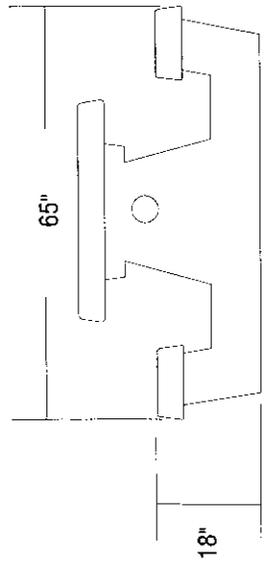
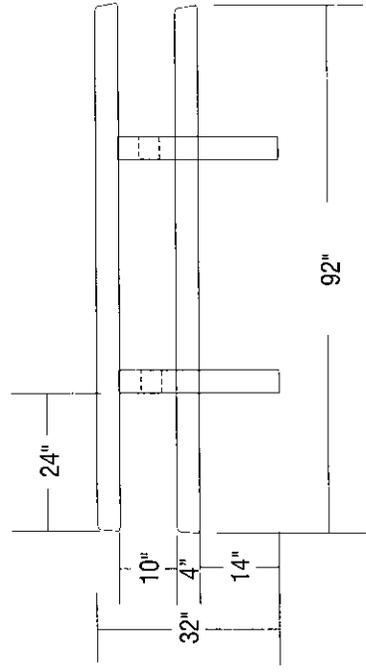


# Front and Side View

SCALE: 1/4"=1'

	www.missoulastructures.com Phone (406) 549-9882 • Fax (406) 549-6404 P. O. Box 18088 • Missoula, MT 59808-0088	
	Project: <b>Picnic Shelter</b>	Date: 2-28-08
Contractor: <b>MT FWP</b>	Revisions: A A A	
Drawing: <b>Front / Side View</b>		
Drawn By: <b>Steve P. McShane</b>	Checked By: _____	
Scale: _____	Sheet: 4	
Prepared for Fabricator: _____	Of: 11	

DATE:



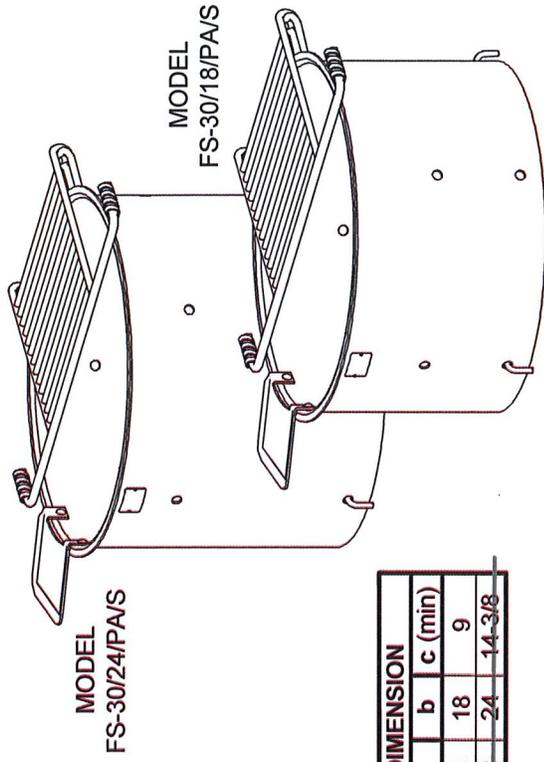
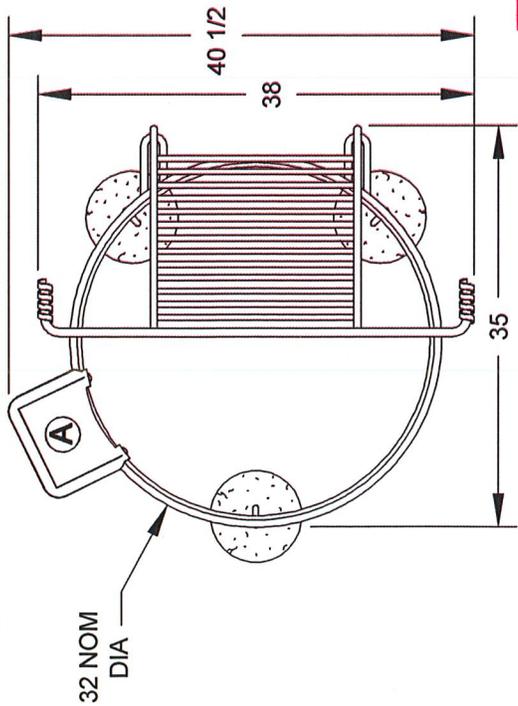
- NOTES:
1. Concrete mix design to include a mixture of Portland Cement, water, coarse and fine aggregates, pure mineral oxide coloring agents (when applicable) to yield a minimum compressive strength of 5000 psi.
  2. Final product shall be reinforced with #4 and #5 rebar grid.
  3. Product is cast in 1-piece with no assembly required.
  4. Hairline cracks may develop over time. These are not structural failures, but inherent characteristics of the material itself.
  5. Air pockets are a common occurrence in precast products. The frequency and size of air pockets are variable and to be expected, especially on vertical surfaces.
  6. Concrete corners and edges will chip if not handled according to guidelines. Patch kits are available but may not blend and can be variable.
  7. There is a level of care and maintenance associated with your product and is the responsibility of the end user. Choosing the right sealer can help minimize those costs.

WEIGHT: 2450 LBS  
 TEXTURE:  
 COLOR:  
 SEALER:



\* Wheelchair Accessibility available at both ends of table to meet A.D.A. Guidelines

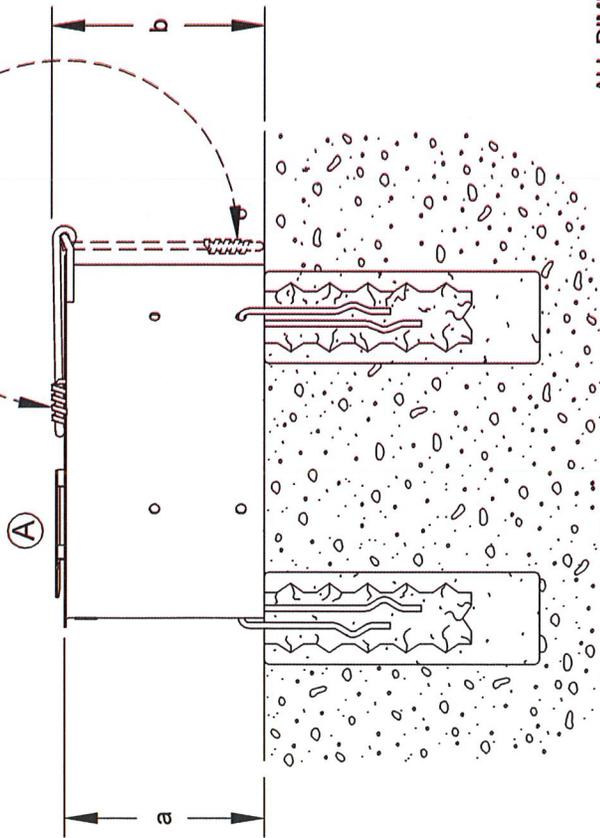
**OUTDOOR CREATIONS INC.**  
 2270 Barney Street  
 Anderson, CA 96007  
 (530) 365-6106  
 FAX (530) 365-5129



MODEL NUMBER	DIMENSION		
	a	b	c (min)
FS-30/18/PA	17-3/8	18	9
FS-30/24/PA	23-3/8	24	14-3/8

(A) OPTIONAL UTILITY SHELF  
- ADD /S TO MODEL NUMBER

FILL TO RECOMMENDED HEIGHT (c) ABOVE GROUND LEVEL WITH COARSE AGGREGATE FILL (CONFORMS TO ADA GUIDELINES OF MIN 9" HEIGHT ABOVE GROUND FOR FIRE BASE)



8" DIA. x  
24" DEEP  
(18" MIN)  
CONCRETE  
FOOTING  
RECOMMENDED

ALL DIMENSIONS IN INCHES

**RJThomas Mfg. Co., Inc.**  
P.O. Box 946 • Cherokee, IA 51012-0946

DRAWN BY  
**WWM**

TITLE **FS-30 SERIES WHEELCHAIR ACCESSIBLE CAMPFIRE RING WITH PIN ANCHORS;  
TWO MODELS WITH TWO SIDE HEIGHTS - SHOWN WITH OPTIONAL UTILITY SHELF**

DATE **9-17-08**

DWG. NO. **AI-1411**