



State of Utah

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

Department of Administrative Services

Kim Hood
Executive Director

Division of Facilities Construction and Management

David G. Buxton
Director

ADDENDUM

Date: 21 January 2010

To: Contractors

From: Brent Lloyd, DFCM – Project Manager

Reference: Otter Creek State Park Fish Cleaning Station
Division of Parks and Recreation
DFCM Project No. 09136510

Subject: **Addendum No. 1**

Pages	Cover Page	1 page
	<u>Addendum</u>	<u>24 pages</u>
	Total	25 pages

Note: This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

1.1 SCHEDULE CHANGES – No Schedule Change

1.2 GENERAL – See attached “Addendum No. 01”



January 20, 2010

DFCM Project Number: 09136510
Otter Creek State Park Fish Cleaning Station
Division of Parks and Recreation – Antimony, Utah

Addendum Number 1

General Addendum Items:

Questions:

1. There are no specifications for the following items: fencing, gas line, painting or striping, or asphalt.

Response: See attached specifications. Contractor to verify existing conditions of propane tank gas line and that new gas line piping is to match the exiting gas line.

2. On sheet A2.20, Section #2 there is no size on the footing and there is a 2" CMU cap shown is this correct?

Response: See attached revised trash enclosure drawings.

3. What is the thickness of the propane pad?

Response: See attached revised trash enclosure drawings.

4. On sheet A2.10, elevation the roof cap, roofing, and gutter are all called out as aluminum where as the spec. call for steel which is it?

Response: See attached revised pavilion elevation.

5. Pavilion warranty to be 10 years instead of 5 years identified in the specifications.

6. How far is it to the water connection?

Response: As indicated on Sheet A1.10, Site Plan, the water source is approximately 48' +/-.

7. Need details on the handicap stripping.

Response: The handicap parking space and access aisle are shown and dimensioned on Sheet A1.10, Site Plan. The international accessible symbol and signage are also illustrated on Sheet A1.10.



Attachments:

Specifications: Specification Sections –

02740 – Asphaltic Concrete Paving

02763 – Pavement Marking

02822 – Chain Link Fences and Gates

Drawings: AD1 – Trash and Propane Tank Enclosure

AD2 – Trash Enclosure Section

AD3 – Pavilion Elevation

AD4 – Pavilion Section

John Colton Sargent

Architect

SECTION 02740

ASPHALTIC CONCRETE PAVING

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Proof roll base course to reveal soft and yielding spots.
- B. Place and compact asphaltic concrete paving.
- C. Protection of newly placed pavement.

1.2 RELATED WORK

- A. Section 02220 – Backfill and Compaction
- B. Section 02763 – Pavement Marking

1.3 QUALITY ASSURANCE

- A. Do not place asphaltic concrete paving when the air temperature in the shade and/or the roadbed temperature are below 50° F, or during rain, when the base course surface is wet, or during other adverse weather conditions.
- B. Do not place tack coat when air temperature in the shade and the roadbase temperature are below 50° F, or during rain, fog, or other adverse weather conditions.
- C. All work shall be performed by experienced and qualified workmen with equipment standard with the industry.
- D. Approval by Engineer of sources of supply of materials shall be obtained prior to delivery of materials.
- E. Comply with federal, state and/or local codes and regulations.

1.4 REFERENCES

- A. American Society for Testing Materials (ASTM):
 - 1. D1557, "Tests for Moisture – Density Relationship of Soils using 10 lb (4.5 kg) Rammer in 18 inch (457 mm) Drop".
 - 2. D1559, "Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus".
 - 3. D2041, "Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures".
 - 4. D2170, "Kinematic Viscosity of Asphalts (Bitumens)".
- B. THE ASPHALT INSTITUTE (A.I.) Specification Series No. 2 (SS-2).
- C. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. Materials and compaction tests.
 - a. AASHTO T-180
- D. Utah Department of Transportation, "2005 Standard Specifications For Road and Bridge Construction".
 - 1. Section 02741 Hot Mix Asphalt (HMA).

1.5 SUBMITTALS

- A. An asphaltic concrete paving mix design prepared by a certified laboratory and materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements shall be submitted for review and approval at least one week prior to commencement of the work.
- B. Written certification of compliance for pavement marking paint.
- C. Product Data: Submit data for herbicide. Indicate compliance with applicable codes for environmental protection.

1.6 WARRANTY

- A. See General Conditions.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Asphaltic cement:

1. Viscosity Graded original, AC-10, conforming to requirements of ASTM D-3381 (AASHTO M-226, Table 2), and Section 02741 – Utah Department of Transportation, “2005 Standard Specifications For Road and Bridge Construction”.
2. Shall not foam when heated to 350° F.

B. Mineral Aggregate:

1. Shall consist of crushed stone, crushed gravel, or crushed slag, or a combination thereof; free of clay, silt, organic matter or other deleterious materials.
2. Gradation shall be in accordance with the following:
 - a. Asphaltic concrete surface course:

Sieve Size	Percent Passing by Weight
1/2”	100
3/8”	70 - 100
#4	50 - 78
#16	30 - 48
#50	18 - 31
#200	7 – 13

b. Asphaltic concrete base course:

Sieve Size	Percent Passing by Weight
3/4”	100
3/8”	75 – 91
#4	60 - 80
#16	28 - 38
#50	11 - 23
#200	5 – 9

3. Course aggregate, retained on the No. 4 sieve shall consist of clean, hard, rough, durable and sound fragments, with not less than 50 percent of particles by weight with at least one mechanically fractured face or clean angular face.
4. Fine aggregate passing the No. 4 sieve may be either a natural or manufactured product. The aggregate shall be clean, hard grained and moderately sharp, and shall contain not more than 2 percent by weight of vegetable matter or other deleterious substances.
5. That portion of the fine aggregate passing the No. 40 sieve be nonplastic when tested in accordance with ASTM D-424.
6. The weight of minus 200 mesh material retained in the aggregate, as determined by the difference in percent passing a No. 200 sieve by washing and dry sieving without washing, shall not exceed 6 percent of the total sample weight. That portion of the fine aggregate passing the No. 200 sieve shall be determined by washing with water in accordance with ASTM C-117.
7. The aggregate shall be of uniform density and quality and shall have a rodded weight of not less than 100 pounds per cubic foot when tested in accordance with ASTM C-29.
8. The aggregate shall have a percentage of wear not exceeding forty when tested in accordance with ASTM C-131 and C-535.
9. The aggregate shall have a weighted loss not exceeding 12 percent by weight when subject to five cycles of sodium sulfate and tested in accordance with ASTM C-88, D-1073, D-692.

2.2 ASPHALTIC CONCRETE PAVING MIXTURE

- A. Combine mineral constituents and asphalt cement in proportions per mix design at a central plant to produce an asphaltic concrete pavement mix.
- B. Mix design shall be based on the Marshall Method. The combined mineral aggregate plus any approved additives when mixed with the asphaltic cement in accordance with ASTM D-1559 shall conform to the following requirements:

<u>Requirement</u>	<u>Value</u>
Percentage of Wear:	40
Marshall Stability:	1200 lb. Minimum
Flow (0.01 inch):	10 -18
Air Voids:	1.5% to 3.0%
Retained Strength:	60% Minimum
Asphalt Cement Content:	4.0% to 6.0% by weight
- C. The asphaltic cement shall be heated at the mixing plant to a temperature at which it can be applied uniformly to the aggregate.
- D. Coarse and fine aggregate shall be stored separately at the mixing plant in a manner that will prevent intermingling.
- E. When it is necessary to blend aggregates from one or more sources to produce the combined gradation, each source or size of aggregate shall be stockpiled individually. Aggregate from the individual stockpiles shall be fed through separate bins to the cold elevator feeders. They shall not be blended in the stockpile.
- F. Cold aggregates shall be fed carefully to the plant so that surpluses and shortages will not occur and cause breaks in the continuous operation.
- G. The aggregate shall be dried and heated to provide a paving mixture temperature in conformance with placing conditions, but not to exceed 163°C (325°F).
- H. The heated and dried aggregates shall not contain enough moisture to cause the mixture to slump, the asphalt to foam, or the aggregate to segregate during hauling and placing.
- I. The shortest mixing time consistent with satisfactory coating of the aggregate shall be used. The mineral aggregate shall be considered satisfactorily coated with asphaltic cement when all of the particles passing the No. 4 sieve and 96 percent of the particles retained on the No. 4 sieve are coated with asphaltic cement. The required mixing time, as determined above, shall be in accordance with ASTM D-2489.
- J. If a dryer drum mixing process is used, the mineral aggregate shall be considered satisfactorily coated with asphaltic cement when all of the particles passing the No. 4 sieve and 98 percent of the particle retained on the No. 4 sieve are coated with asphaltic cement. The moisture content of the asphaltic cement sampled behind the laydown machine prior to compaction shall not exceed 1 percent by weight.

2.3 UDOT ASPHALTIC CONCRETE PAVING MIXTURE

- A. In accordance with UDOT 2005 standard specification.

2.4 TACK COAT

- A. Emulsified asphalt CSS-1H or SS-1H.

2.5 FABRICS – Not required.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean overlay area in accordance.
- B. Install risers for manholes, valves and cleanouts to match finished grade of asphalt surface course.
- C. Sawcut all asphalt edges to a clean straight line when patching.

3.2 TRANSPORTING THE ASPHALTIC CONCRETE PAVEMENT

- A. Transport time from the mixing plant to the job site shall not exceed 1 hour.

- B. Hauling truck shall have no direct frame contact with the paver or bear down on the paver during dumping operations.

3.3 TACK COAT

- A. Prior to placing pavement, tack coat shall be applied to the vertical edges of concrete and "cold" pavement (over ½ hour old) which will be in contact with new pavement. Tack coat shall extend 12 inches onto adjacent base course material. The tack coat shall be carefully applied at a rate of 0.15 gal/SY. Tack coat shall be applied uniformly at the same rate to the horizontal top surface of each lift of bituminous pavement prior to placing the next lift of bituminous pavement to promote a bond between the two courses of pavement. None of the material shall penetrate into the pavement and for this reason the application should be limited.
- B. Prior to applying the material, the surface to be treated shall be swept or flushed free of dust or other foreign material.
- C. Protect all surfaces not required to receive tack coat from any inadvertent application.
- D. The temperature range of the tack coat at the time of application shall be such that the viscosity will be between 50 and 100 centistokes as determined in accordance with ASTM Designation D-2170.
- E. Under no circumstances shall traffic be permitted to travel over the tacked surface. If detours cannot be provided, restrict operation to a width that will permit at least one-way traffic over the remaining portion of the roadbed. If one-way traffic is provided, the traffic shall be controlled in accordance with governing authority.
- F. After application of tack coat, sufficient time shall be given to allow for complete separation of asphalt and water before paving operations begin. The tack coat shall be applied on only as many surfaces as will be paved against in the same day.

3.4 PLACEMENT OF ASPHALTIC CONCRETE PAVEMENT

- A. Place asphalt pavement to provide a compacted depth as indicated on the plans. Placing the pavement shall be a continuous operation. The machine shall spread mixture and shall strike a finish that is smooth, true to cross section, uniform in density and texture, and free from hollows and other irregularities. If any irregularities occur, they shall be corrected before final compaction of the mixture. The paving machine shall be selfpropelled, equipped with hoppers, distributing screws, adjustable screeds and equalizing devices, capable of spreading hot asphaltic concrete paving mixture without tearing, shoving or gouging, and of producing a finished surface of specified quality. Place inaccessible and small areas by hand.
- B. Ensure asphalt pavement temperature is between 150 and 300 centistokes as determined with ASTM D-2170 when mixing with a pugmill, or between 220°F and 260°F when using the dryer-drum mixing process, immediately after placing and prior to initial rolling.
- C. Ensure joints made during paving operations are straight, clean, vertical and free of broken or loose material. Carefully make joints to insure a continuous bond between old and new pavement, or between successive day's work. A continuous bond between adjoining work is required.
- D. If more than ½ hour elapses between adjacent paving passes, the "cold joint" shall have tack coat applied to the "cold" pavement prior to placing the adjacent pass.

3.5 COMPACTION

- A. Roll and compact to specified density before temperature of the mixture drops below 180°F.
- B. Compact asphalt paving course to required density, with a steel wheeled tandem roller, steel three-wheeled roller, vibratory roller, or a pneumatic-tired roller, weighing not less than five tons. Start compaction as soon as pavement will bear equipment without checking or undue displacement. Speed of the roller shall be slow enough to avoid displacement of hot mixture, and any displacements occurring as a result of changing the direction of the roller, or from any other cause, shall at once be corrected by the use of rakes and of fresh mixture where required. Ensure each pass of roller overlaps previous

passes by at least ½ of the roller width to ensure smooth surface free of roller marks. Keep roller wheels sufficiently moist so as not to pick up material. Rolling shall continue until roller marks are eliminated and no further compression is possible. The finished compacted pavement shall have a density of 91% minimum, (no test less than 91% of the density determined in accordance with ASTM D-2041), as determined by ASTM D2170.

- C. Leave pavement with a uniform, dense surface.
- D. Perform hand tamping in areas not accessible to rolling equipment. Thorough compaction must be achieved, and joints between curbs, headers, manholes and similar structures must be effectively sealed.
- E. Do not allow vehicular traffic on newly paved areas until surface has cooled to atmospheric temperature.

3.6 SCHEDULE

A. Asphalt type and thickness:

- 1. Trench Patching – 4 inches minimum, Regular Asphaltic Surface Course

END OF SECTION

SECTION 02763

PAVEMENT MARKING

PART 1 - GENERAL

1.1. SUMMARY

A. Section Includes:

1. Pavement and curb markings.

1.2 QUALITY ASSURANCE

- A. Regulatory Requirements – Paint handicap spaces to conform to ADA Standards and local code requirements.

1.3. PROJECT/ SITE CONDITIONS

A. Environmental Requirements

1. Apply only on dry surfaces and during favorable weather, and when damage by rain, fog, or condensation not anticipated.
2. Latex Paint –
 - a. Atmospheric temperature above 50°F.
 - b. When temperature is not anticipated to drop below 50°F during drying period.
3. Alkyd or Chlorinated Rubber Paint.
 - a. Atmospheric temperature above 40°F.
 - b. When temperature is not anticipated to drop below 40°F during drying period.

PART 2 - PRODUCTS

2.1. MATERIAL

. Paint

1. State of Utah #780.
2. Colors.
 - a. Yellow – Parking stripes, crosswalk stripes, and safety markings.
 - b. Blue & White – Handicapped markings, Staff Parking Areas

PART 3 - EXECUTION

3.1. PREPARATION

- A. Do not apply acrylic latex systems until new paving has cured 7 days minimum. Do not apply alkyd or chlorinated rubber until paving has cured 3 months minimum.
- B. Surfaces shall be dry and free of grease and loose dirt particles. Scrape and wire brush chipped or damaged paint on existing curbs.
- C. Perform layout with chalk or lumber crayon only.

3.2. APPLICATION

A. Site tolerances

1. General – Make lines parallel, evenly spaced, and with sharply defined edges.
2. Line Widths -
 - a. Plus or minus ¼ inch variance on straight segments.
 - b. Plus or minus ½ inch variance on curved alignments.

B. Coat with coverage of 103-113 sq ft/gal.

C. Thickness – Minimum paint thickness 7 mil dry.

3.3. CLEANING

- A. Remove drips, overspray, improper markings, and paint material tracked by traffic by

sand blasting, wire brushing, or other method approved by Architect prior to performance.

END OF SECTION

SECTION 02822 – CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Chain Link Fences and Gates.

1.2 SITE VISIT: The site conditions are unique.

1.3 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions.

1.4 RELATED SECTIONS

- A. Division 1 Specification Sections including, but not limited to following:
 - 1. Section 01335 Shop Drawings, Product Data and Samples.
- B. Section 02200 Earthwork.
- C. Section 03300 Cast-In-Place Concrete.
- D. Section 02831 Horizontal Sliding Gate Operators.

1.5 SUBMITTALS

- A. Product data in form of manufacturer's technical data, specifications, and installation instructions for fence and gate posts, fabric, gates, and accessories.
- B. Shop drawings showing location of fence, gates, each post, and details of post installation, extension arms, gate swing, hardware, and accessories.
- C. NOT USED. Wiring diagrams from manufacturer for electrically operated gates.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Engage Installer with minimum 5 years' experience and has completed at least 5 chain link fence projects with same material and of similar scope to that indicated for this Project with successful construction record of in-service performance.
- B. Single-Source Responsibility: Obtain chain link fences and gates, including accessories, fittings, and fastenings, from single source. Fence installer and gate operator installer are responsible to provide a coordinated and completely operational sliding gate design and installation with selected horizontal gate operator and accessories and functionality requested.
- C. Engineering of cantilevered gate is responsibility of gate provider.

1.7 PROJECT CONDITIONS AND PREPARATION FOR FENCING

- A. Soil and Rock: See soils report (attached to specifications).
- B. Grubbing and Clearing: All vegetation and debris within 3 feet of the new fence line, on both sides, shall be removed by the Contractor. All roots will be removed in the top 10 inches of soil.
- C. Grading: A six-foot wide strip, centered on the new fence line, shall be smoothed and graded, so that no rocks will project above the plane surface more than 1 foot and no depressions will project below the plane surface more than one foot.

1.8 PREPARATION FOR FENCING

- A. Field Measurements: Verify layout information for fences and gates indicated on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

PART 2 - PRODUCTS

2.1 FABRIC

- A. Selvage: As indicated.
- B. Steel Chain-Link Fence Fabric: Fabricated in one-piece widths for fencing 12 feet and less in height to comply with Chain Link Fence Manufacturers Institute (CLFMIO) "Product Manual" and with requirements indicated below:
 - 1. Mesh and Wire Size: 2-inch mesh, 0.120-inch diameter (11 gage).
 - 2. Coating: ASTM A 817, Type 2, Class 1, zinc-coated (galvanized) applied after weaving.

2.2 FRAMING

- A. Round member sizes are given in actual outside diameter (OD) to nearest thousandth of inch. Round fence posts and rails are often referred to in ASTM standard specifications by nominal pipe sizes (NPS) or equivalent trade sizes in inches. Following indicates these equivalents all measured in inches:

Actual Outside Diameter (OD)	NPS Size	Trade Size
1.900	1-1/2	2
2.375	2	2-1/2
2.875	2-1/2	3
3.500	3	3-1/2
4.000	3-1/2	4

- B. Type I Round Posts: Standard weight (schedule 40) galvanized-steel pipe conforming to ASTM F 1083, according to heavy industrial requirements of ASTM F 669, Group 1A, with minimum yield strength of 25,000 psi, not less than 1.8 ounces of zinc per square foot. Type A coating inside and outside according to ASTM F 1234, as determined by ASTM A 90, and weights per foot as follows:

Actual Outside Diameter (OD)	Weight (pounds per foot)	NPS Size
1.900	2.72	1-1/2
2.375	3.65	2
2.875	5.79	2-1/2
3.500	7.58	3
4.000	9.11	3-1/2

- C. Roll-Formed Steel: Rolled form steel shapes (e.g., C section) produced from structural-quality steel conforming to ASTM A 570, grade 45, or ASTM A 446, grade D, galvanized, conforming to heavy industrial requirements of ASTM F 669, Group II, with minimum yield strength of 45,000 psi. Protective coating system according to ASTM F 1234, Type A, hot-dip galvanized with minimum of 2.0 ounces of zinc per square foot according to ASTM A 123, 4.0 ounces of zinc per square foot according to ASTM A 525; or Type C, minimum of 1.0 ounce of zinc – 5 percent aluminum-mischmetal alloy per square foot according to ASTM A 875.
- D. Roll-Formed Steel: Hot-rolled steel shape H section with minimum yield strength of 45,000 psi conforming to ASTM F 669, group III. Protective coating system according to ASTM F 1234, Type A, hot-dip galvanized with minimum of 2.0 ounces of zinc per square foot according to ASTM A 123, or 4.0 ounces of zinc per square foot according to ASTM A 525.
- E. Square Tubing: Cold-formed steel structural tubing conforming to ASTM A 500, Grade B with minimum yield strength of 42,000 psi and not less than 1.8 ounces of zinc per square foot Type A coating inside and outside according to ASTM F 1234, as determined by ASTM A 90.
- F. Bottom Rail: Manufacturer's longest lengths (17 to 21 feet) with swaged-end or expansion-type coupling. Approximately 6 inches long for joining. Provide rail ends or other means for attaching rail securely to each gate corner, pull, and end post. Bottom rail shall be 1.90-inch outside diameter Type I and II steel pipe.
- G. Steel posts for fabric heights up to (and including) 6 feet:
 - 1. Round Line or Intermediate posts: 3.5-inch outside diameter Type I or II steel Pipe.
 - 2. Round End, Corner, and Pull Posts: 4.0 inches outside diameter Type I or II steel pipe.
- H. Swing Gate Posts: Finish posts to support single gate leaf, or 1 leaf of double-gate installation, according to ASTM F 900, sized as follows for fabric up to and including 6 feet and gates up to 10' in width: 4.0 inch OD pipe weighting at least 8.65 pounds per foot.

2.3 FITTINGS AND ACCESSORIES

- A. Material: Comply with ASTM F 626. Galvanized iron or steel to suit manufacturer's standards.
 - 1. Steel and Iron: Unless specified otherwise, hot-dip galvanize pressed steel or cast-iron fence fittings and accessories with at least 1.2 ounces zinc per square

foot as determined by ASTM A 90.

- B. Post and Line Caps: Provide weather tight closure cap for each post. Provide line post caps with loop to receive tension wire.
- C. Post Brace Assembly: Manufacturer's standard adjustable brace. Use material specified below for brace, and truss to line posts with 3/8-inch diameter rod and adjustable tightener. Provide manufacturer's standard galvanized-steel, cast-iron or cast-aluminum cap for each end.
 - 1. Round Steel: 1.900-inch OD Type I or II steel pipe.
 - 2. Roll-Formed Steel: C section weighing minimum of 2.72 pounds per linear foot.
- D. Bottom (and Center Rail, if required): 1.900-inch OD Type I or II steel pipe. Provide manufacturer's standard galvanized-steel, cast-iron or cast-aluminum cap for each end.
- E. Tension or Stretcher Bars: Hot-dip galvanized steel with minimum length 2 inches less than full height of fabric, minimum cross section of 3/16 inch by 3/4 inch, and minimum of 1.2 ounces of zinc coating per square foot. Provide one bar for each gate and end post, and two for each corner and pull post, except where fabric is integrally woven into post.
- F. Tension and Brace Bands: 3/4 inch wide minimum hot-dip galvanized steel with minimum of 1.2 ounces of zinc coating per square foot.
 - 1. Tension Bands: 0.74 inch thick (14 gage) minimum
 - 2. Brace Bands: 0.1056 inch thick (12 gage) minimum
- G. Tension Wire: 0.177-inch-diameter metallic-coated tension wire conforming to ASTM A 824 with finish to match fabric.
 - 1. Coating Type II zinc in following class as determined by ASTM A 90: Class 2, with minimum coating weight of 1.20 ounce per square foot of uncoated wire surface.

2.4 CONCRETE

- A. Concrete: Provide concrete consisting of Portland cement per ASTM C 150, aggregate per ASTM C 33, and potable water. Mix materials to obtain concrete with minimum 28-day compressive strength of 3000 psi. Use at least four sacks of cement per cu. Yd., 1-inch maximum size aggregate, 3-inch maximum slump.

2.5 GATES

- A. Fabricate perimeter frames of gates from same material and finish as fence framework. Assemble gate frames by welding. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware, and accessories. Space frame members maximum of 8 feet apart unless otherwise indicated.
 - 1. Fabric: Same as for fence unless otherwise indicated. Secure fabric at vertical edges with tension bars and bands and to top and bottom of frame with tie wires.
 - 2. Bracing: Install diagonal cross-bracing consisting of 5/16-inch-diameter adjustable-length truss rods on gates to ensure frame rigidity without sag or twist.
 - 3. Barbed Wire: Extend end members of gate frames 12 inches above top

member and prepare to receive three strands of wire. Provide necessary clips for securing wire to extension.

B. Industrial Horizontal – Slide Gates

1. General: Comply with ASTM F 1184 for single slide gate types.
 - a. Classification: Type II Cantilever Slide, Class I with external roller assemblies.
 - b. Metal Pipe and Tubing: Galvanized steel. Comply with ASTM F 1184 for materials and protective coatings.
2. Frames and Bracing: Fabricate members from round galvanized steel tubing with outside dimension and weight according to ASTM F 1184 and the following:
 - a. Gate Fabric Height: 6 feet (1.83 m) .
 - b. Gate Opening Width: As indicated on drawings.
 - c. Frame Members: Tubular Steel: 1.90 inches (48 mm) round or greater as required structurally..
 - d. Bracing Members: Tubular Steel: 1.90 inches (48 mm) round or greater as required structurally.
3. Frame Corner Construction:
 - a. Welded frame with 5/16-inch- (7.9-mm-) diameter, adjustable truss rods for panels 5 feet (1.52 m) wide or wider.
4. Roller Guards: As required per ASTM F 1184 for Type II, Class 1 gates.
5. Hardware: Latches permitting operation from both sides of gate, and stops fabricated from galvanized steel. Fabricate latches with integral eye openings for padlocking; padlock accessible from both sides of gate. Provide female receiver(s) to secure gate in closed position.

C. Swing Gates: Comply with ASTM F 900.

1. Steel: Single-swing Gates up to 10 feet wide:
 - a. Up to and including 6 feet high: Fabricate perimeter frames of 1.900-inch minimum OD Type I and II steel pipe or 2-inch-square galvanized-steel tubing weighting 2.52 pounds per foot.
2. Gate Hardware: Provide galvanized hardware and accessories for each gate according to following:
 - a. Keeper: Provide keeper for vehicle gates that automatically engages gate leaf and holds it in open position until manually released.

PART 3- EXECUTION

3.1 INSTALLATION

- A. General: Install fence to comply with ASTM F 567. Do not begin installation and erection before final grading is completed, unless otherwise permitted.
- B. Excavation: Drill holes for posts to diameters and spacings indicated.
 - 1. Unless otherwise indicated, excavate hole depths approximately 3 inches lower than post bottom, with bottom of posts set not less than 36 inches below finish grade surface or greater if required to exceed frostline.
- C. Setting Posts: Center and align posts in holes 3 inches above bottom of excavation. Space maximum of 10 feet on center, unless otherwise indicated.
 - 1. Protect portion of posts above ground from concrete splatter. Place concrete around posts and vibrate or tamp for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.
 - a. Unless otherwise indicated, extend concrete footings 2 inches above grade and trowel to crown to shed water.
- D. Bottom Rails: Run rail continuously to line posts, bending to radius for curved runs and at other posts terminating into rail end attached to posts. Provide expansion couplings as recommended by fencing manufacturer. Bottom rail must be not more than 3" and not less than 1" above the soil. Localized grading by the contractor will be required to accomplish this.
- E. (Not Used) Center Rails:
- F. Brace Assemblies: Install braces at gate posts and at both sides of corner and pull posts. Locate horizontal braces at mid-height of fabric on gate (which has top rail) and at $\frac{3}{4}$ fabric height on both sides of corners. Install so posts are plumb when diagonal rod is under proper tension.
- G. Top Tension Wire: Install tension wire within 6 inches of top of fabric before stretching fabric and tie to each post with not less than same gage and type of wire. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch-diameter (11-gage) hog rings of same material and finish as fabric wire, spaced maximum of 24 inches on center.
- H. Fabric: Leave approximately 2 inches between finish grade and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on outside of security area, and anchor to framework so that fabric remains under tension after pulling force is released.
- I. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not over 15 inches on center.
- J. Tie Wires: Use wire or proper length to secure fabric firmly to posts and rails. Bend ends of wire to minimize hazard to persons or clothing.
 - 1. Maximum Spacing: Tie fabric to line posts 12 inches on center and to rails and

braces 24 inches on center.

- K. Fasteners: Install nuts for tension bands and carriage bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts for added security.

3.2 GATE INSTALLATION

- A. Install all gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary. Install gates according to manufacturer's instructions, plumb, level, and secure.

3.3 ADJUSTING

- A. Gates: After repeated operation of completed installation equivalent to 3 days' use by normal traffic, readjust gates for optimum operating condition and safety. Lubricate operating equipment and clean exposed surfaces. Return in six months for repeat adjustments.

END OF SECTION 02822

SECTION 15196

NATURAL GAS PIPING SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Perform excavation and backfill required for work of this Section.
 - 2. Furnish and install gas piping and fittings within building and from building to meter including connection to meter as described in Contract Documents.
- B. Related Sections:
 - 1. Section 15101: General Piping Requirements.

1.2 REFERENCES

- A. American Society For Testing And Materials:
 - 1. ASTM A 53-01, 'Standard Specification for Pipe, Steel and Hot-Dipped, Zinc-Coated, Welded and Seamless.'
 - 2. ASTM A 234-00a, 'Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperature Service.'
 - 3. ASTM D 2513-00, 'Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings.'

1.3 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Welders shall be certified and bear evidence of certification 30 days before commencing work on project. If there is doubt as to proficiency of welder, Owner's Representative may require welder to take another test. This shall be done at no cost to Owner. Certification shall be by Pittsburgh Testing Laboratories or other approved authority.
 - 2. Polyethylene pipe installers shall be properly trained and certified in procedure for joining polyethylene pipe.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Do not store polyethylene pipe so it is exposed to sunlight.

PART 2 - PRODUCTS

2.1 COMPONENTS

- A. Above-Ground Pipe And Fittings: Black carbon steel, butt welded, Schedule 40 pipe meeting requirements of ASTM A 53. Welded forged steel fittings meeting requirements of ASTM A 234 or standard weight malleable iron screwed.
- B. Below-Ground Pipe And Fittings: Polyethylene pipe and fittings meeting requirements of ASTM D 2513 with No. 14 coated copper trace wire.

2.2 MANUFACTURED UNITS

A. Valves:

1. 125 psi bronze body ball valve, UL listed.
2. Approved Products:
 - a. Apollo Series 80-100 by ConBraCo.
 - b. FIG-30-A by Jenkins Valves.
 - c. Model T-204 by Jomar International.
 - d. 3410 by McDonald Valves & Fittings.
 - e. BCI-100T (with tee handle) by Milwaukee Valve.
 - f. 'Red Cap' gas ball valve by PGL Corp.
 - g. Model B-6000-UL by Watts Regulator.

B. Cocks:

1. Gauge Cocks: Conbraco 41-560 bronze gauge cock.
2. Lubricated Balancing Cocks:
 - a. Square head type suitable for 175 psig wog at 150 deg F.
 - b. Wrench handle for each valve.
 - c. 2 inches And Smaller:
 - 1) Cast iron body with screwed connections.
 - 2) Approved Products:
 - a) Powell: 2200.
 - b) Walworth: 1796.
 - d. 2-1/2 to 5 inches:
 - 1) Cast iron body with flanged connections.
 - 2) Approved Products:
 - a) Powell: 2201.
 - b) Walworth: 1797F.
 - e. 6 inches And Larger:
 - 1) Cast iron body with flanged connections.
 - 2) Approved Products:
 - a) Powell: 2201.
 - b) Walworth: 1718F.

C. Flexible Connector:

1. Type 304 stainless steel corrugated tube coated for corrosion protection.
2. Approved Manufacturers and Models:
 - a. Dormont Series 41.
 - b. Brass Craft Procoat.

PART 3 - EXECUTION

3.1 INSTALLATION

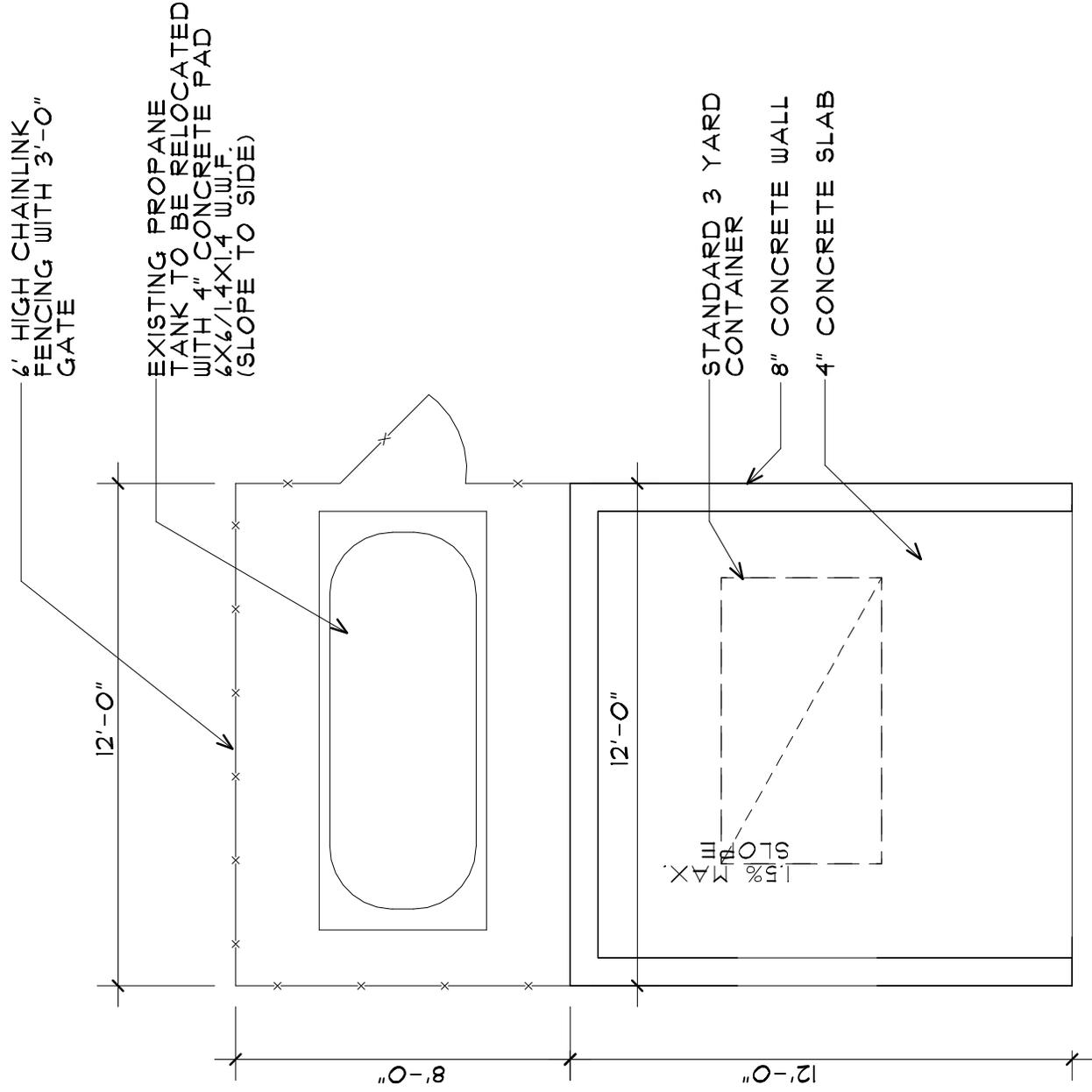
- A. Steel pipe installed through air plenums, in walls, and pipes 2-1/2 inches 63 mm and larger shall have welded fittings and joints. Other steel pipe may have screwed or welded fittings.
- B. Lay underground pipe in accordance with Manufacturer's recommendations and local gas utility company regulations and specifications.
 1. Provide 24 inch minimum steel pipe between vertical rise of riser and end of polyethylene line if anode-less riser is not used. Use plastic-to-steel transition or compression fitting between end of polyethylene line and steel meter riser. Provide cathodic protection for steel riser or use anode-less riser.
 2. Place tracer wire along side of polyethylene pipe from meter to point where pipe rises inside building.
 3. Place 4 inches of sand around gas line buried underground.
 4. Do not install gas piping under building floor slabs-on-grade.

- C. On lines serving gas-fired equipment, install gas cocks adjacent to equipment outside of equipment cabinet and easily accessible.
- D. Install 6 inch long minimum dirt leg, with pipe cap, on vertical gas drop serving each gas-fired equipment unit.
- E. Use fittings for changes of direction in pipe and for branch runouts.

3.2 FIELD QUALITY CONTROL

- A. Site Tests: Before pipes are buried or concealed from view, test systems in Architect's presence at 60 psig for 4 hours and show no drop in pressure.

END OF SECTION

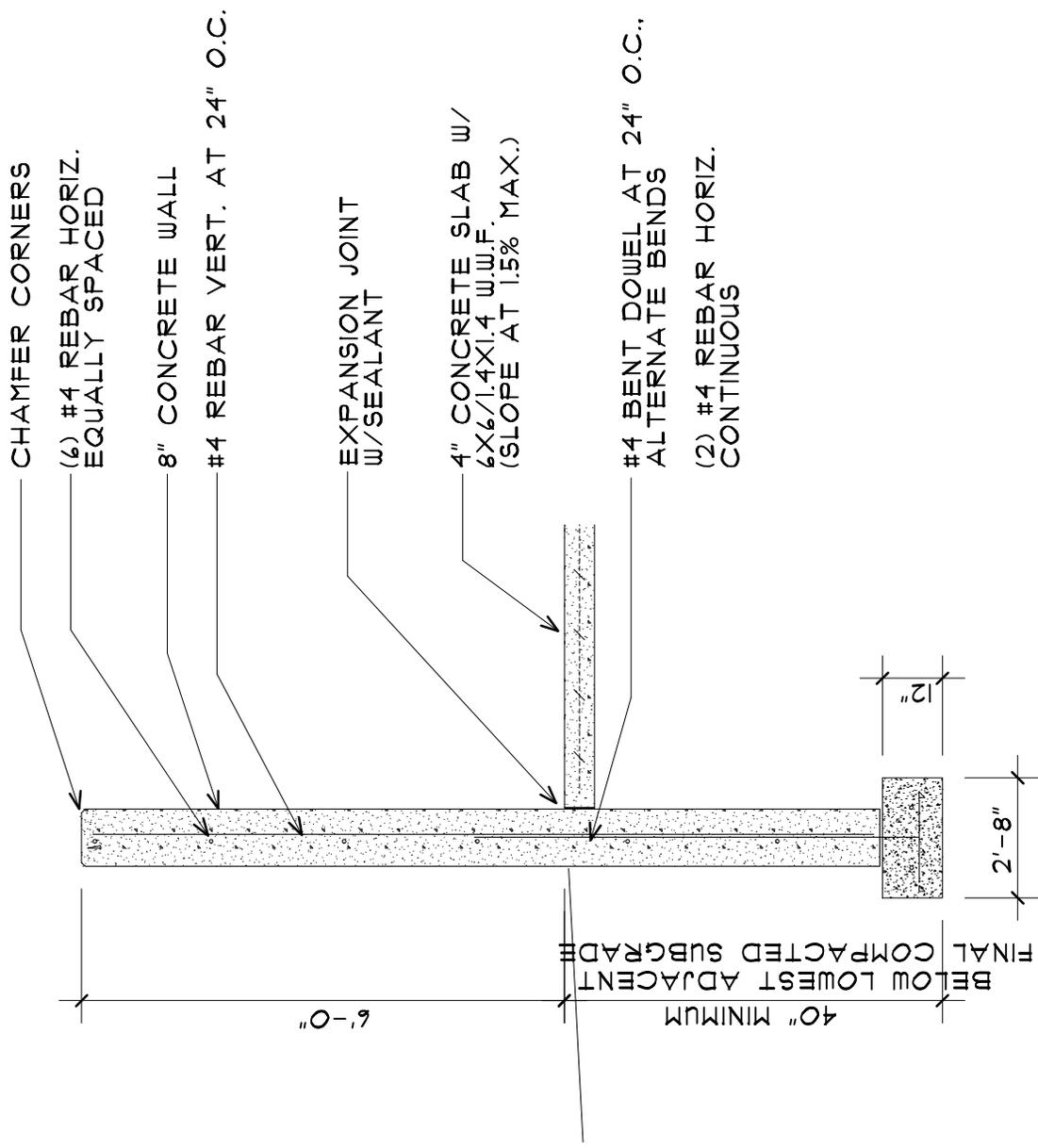


REINFORCING - VERTICAL #4 REBAR AT 24" O.C.
 HORIZONTAL (6) #4 REBAR EQUALLY SPACED.

PLAN

NOT TO SCALE

SARGENT DESIGN GROUP ARCHITECTURE PLANNING	SHEET TITLE: TRASH AND PROPANE TANK ENCLOSURE PLAN	SHEET NUMBER: <h1 style="font-size: 2em;">ADI</h1>
	SCALE: NOT TO SCALE	
36 N 300 WEST, SUITE B CEDAR CITY, UTAH 84720 OFFICE: (435) 586-8510 FAX: (435) 586-4873		



SECTION

2

NOT TO SCALE

SARGENT DESIGN GROUP
ARCHITECTURE | PLANNING

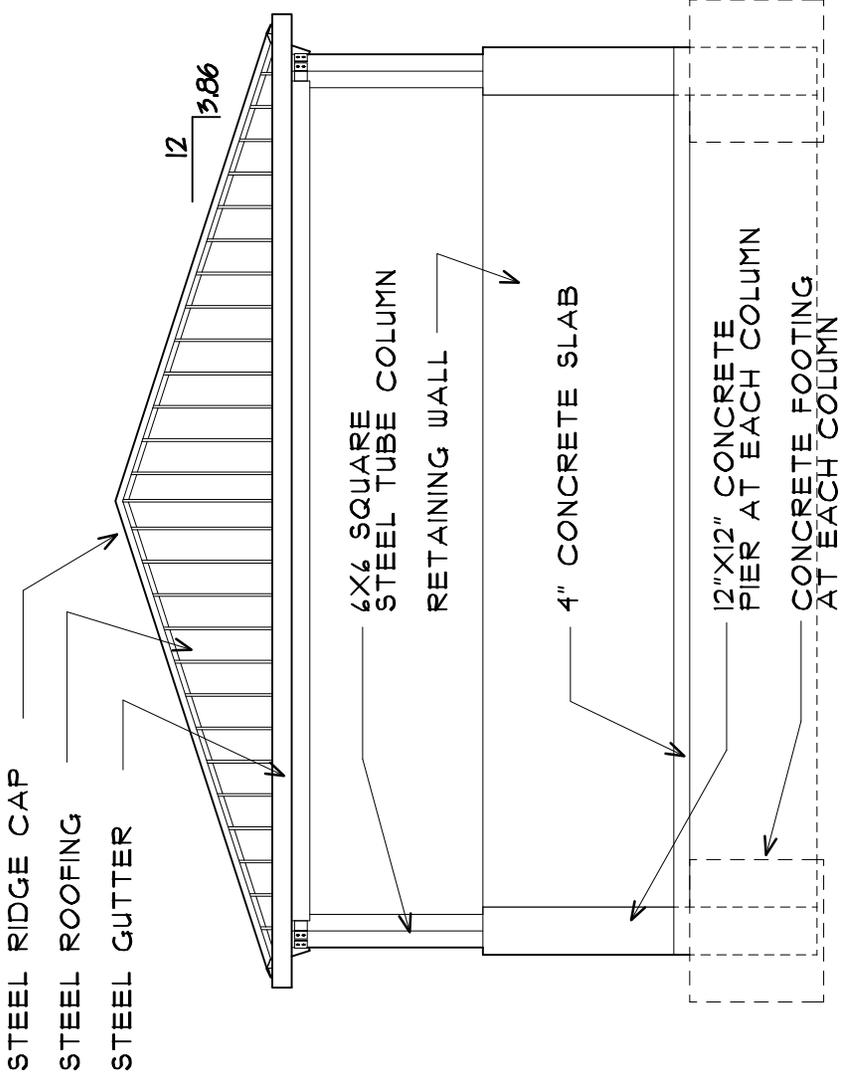
36 N 300 WEST, SUITE B
CEDAR CITY, UTAH 84720
OFFICE: (435) 586-8510 FAX: (435) 586-4873

SHEET TITLE:
TRASH ENCLOSURE SECTION

SCALE:
NOT TO SCALE

SHEET NUMBER:

AD2



CONTRACTOR TO SUPPLY A BUILDING FABRICATED BY A CERTIFIED FABRICATOR FROM THE LIST OF APPROVED FABRICATORS PROVIDED BY THE STATE BUILDING OFFICIAL.

ALL BUILDING COMPONENTS TO BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GUIDELINES.

PLAN OF THE BUILDING AND BUILDING STRUCTURAL CALCULATIONS MUST BE APPROVED BY THE STATE BUILDING OFFICIAL PRIOR TO COMMENCEMENT OF THE PROJECT.

ELEVATION

SCALE: 1/4"=1'-0"

SARGENT DESIGN GROUP
ARCHITECTURE | PLANNING

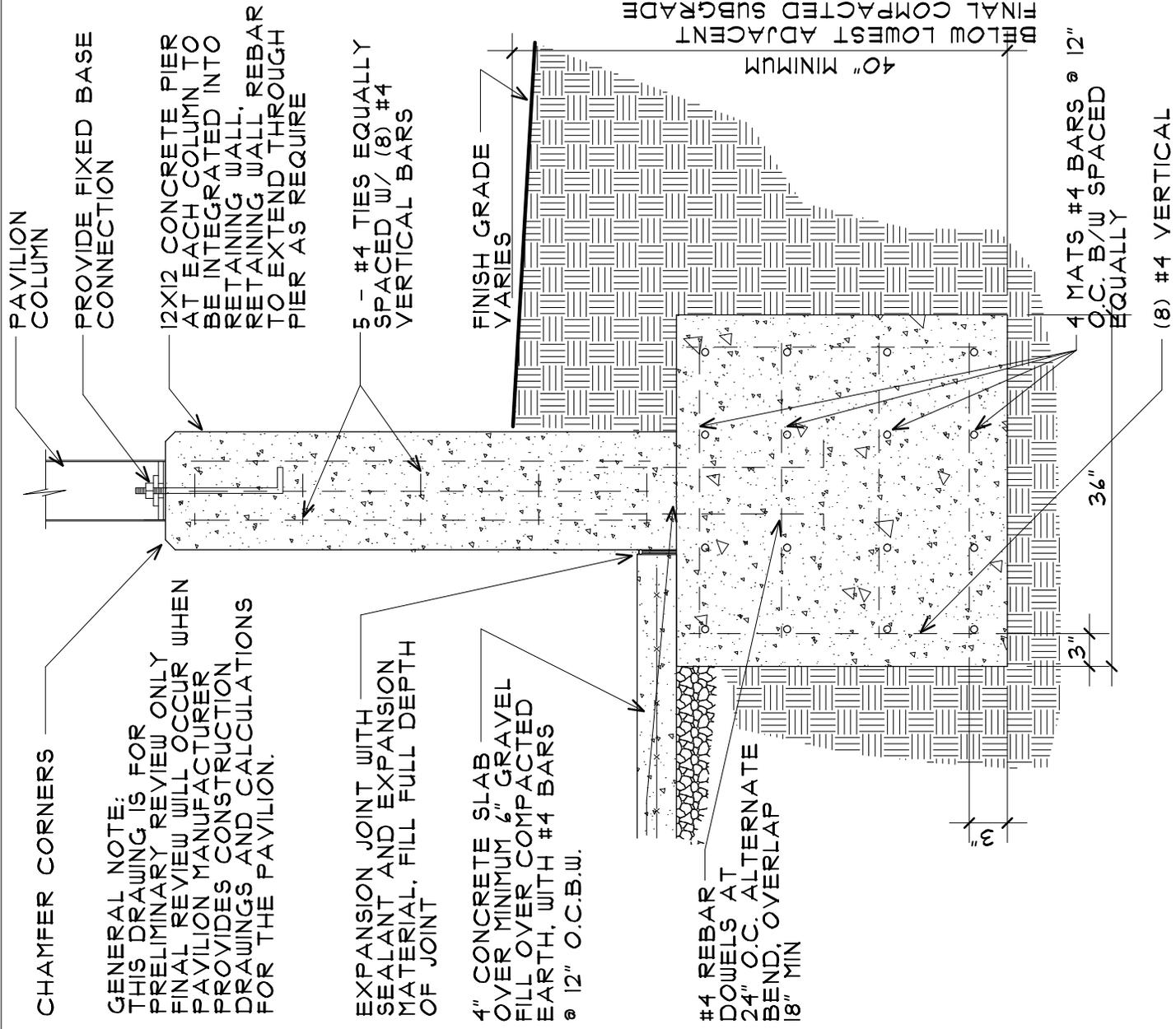
36 N 300 WEST, SUITE B
CEDAR CITY, UTAH 84720
OFFICE: (435) 586-8510 FAX: (435) 586-4873

SHEET TITLE:
PAVILION
ELEVATION

SCALE:
NOT TO SCALE

SHEET NUMBER:

AD3



SECTION

SCALE: 3/4"=1'-0"

SARGENT DESIGN GROUP <small>ARCHITECTURE PLANNING</small>	SHEET TITLE: PAVILION SECTION	SHEET NUMBER: AD4
	SCALE: NOT TO SCALE	

36 N 300 WEST, SUITE B
 CEDAR CITY, UTAH 84720
 OFFICE: (435) 586-8510 FAX: (435) 586-4873