STRUCTURAL GENERAL NOTES

GOVERNING CODE: 2018 INTERNATIONAL BUILDING CODE (IBC) AND ALL LOCAL AMENDMENTS.

DESIGN LOADS:

RISK CATEGORY: II, Standard
ROOF LIVE LOADS:
- Roof Live Load: 20 psf
- Ground Snow Load (p_g): 116 psf
- Flat Roof Snow Load (p_f): 90 psf
- Snow Exposure Factor (C_e): 1.0
- Snow Load Importance Factor (I_s): 1.0
- Thermal Factor (C_t): 1.1
- Slope Factor (C_s): 1.0
- Snow Drifting and Unbalanced Loads: In accordance with ASCE 7-16 and as depicted on the roof plans.

FLOOR LIVE LOADS:
- Occupancy or Use:
- Storage Areas: 125 psf
- Vault Lid Total Live Load: 450 psf (includes 258 psf SnowCAT load + 192 psf additional snow load

ROOF AND FLOOR DEAD LOADS:
- Roof - Metal Roof Deck: 20 psf
- Roof - M/E/P: 5 psf
- Floor - Concrete Topping: Varies with thickness
- Floor - M/E/P: 3 psf

Vault, Concrete Lid: 175 psf (14" thick normal weight concrete)

WIND LOADS (ASCE 7-10):
- Ultimate Wind Speed, 3-second gust (V_{ult}): 115 mph
- Allowable Stress Design Wind Speed (V_{asd}): 90 mph
- Occupancy Risk Category: II
- Internal Pressure Coefficient (GC_{pi}): +/-0.18
- Wind Exposure: C

COMPONENTS AND CLADDING DESIGN WIND PRESSURES (PSF) (ASCE 7-16):
- Wall Zone (Fig. 30.3-1): USING TRIBUTARY AREA OF 50 SF
  - 5 Within 3'-0" of corners: +17.1 psf, -21.5 psf
  - 4 Internally: +17.1 psf, -18.7 psf
- Roof Zone (Fig. 30.3-2A): USING TRIBUTARY AREA OF 25 SF
  - 3 Within 3'-0" of corners: +16.0 psf, -52.3 psf
  - 3' Overhangs within 3'-0" of corners and ridges: +16.0 psf, -47.8 psf
  - 2 Within 3'-0" of edges and ridges: +16.0 psf, -40.1 psf
  - 2' Overhangs: +16.0 psf, -35.7 psf
  - 1 Internally: +16.0 psf, -30.3 psf

Note: All Component and Cladding pressures are Ultimate pressures. To convert to Allowable Stress Design pressures, multiply Ultimate pressures by 0.6.

SEISMIC LOADS:
- Occupancy Risk Category: II, Standard
- Seismic Importance Factor (I_E): 1.0
- Spectral Response Acceleration Coefficients
  - One Second S_{D1}:0.133g S_{DS}:0.333g
- Soils Site Class: D
- Seismic Design Category: C per local Amendment
- Basic Seismic-Force-Resisting System(s): Ordinary reinforced masonry shear walls
- Design Base Shear: 25 kips factored (17.5 kips service)
- Seismic Response Coefficient(s) (C_S): 0.17
- Response Modification Factor(s) (R): 2.0
- Analysis Procedure: Equivalent Lateral Force Procedure

FOUNDATION DESIGN:

Foundation design is in accordance with recommendations contained in soils investigation Report Number 20-12047 prepared by NWCC dated December 18, 2020

Soil conditions shall be verified by the Geotechnical Engineer prior to placement of formwork or concrete. If different soil conditions exist the structural engineer shall be notified to re-evaluate the foundation design at additional expense to the owner.

FOOTINGS:

Footings, selected by the owner shall bear on the natural undisturbed soils or approved compacted structural fill.

Exterior footings shall bear below frost depth; minimum frost depth shall be 4'-0" below adjacent exterior finished grade.

Design of footings is based on:
- Maximum allowable bearing pressure: 3500 psf assuming on site soil
- Minimum dead load pressure: 1100 psf at Non-retaining wall elements

EARTH RETAINING STRUCTURES:

Earth equivalent fluid lateral pressure:
- Walls restrained at top (at rest): 60 pcf assuming on site soil
- Cantilevered walls (active): 50 pcf assuming on site soil
- Passive resisting: 275 pcf assuming on site soil
- Coefficient of sliding friction: 0.4

REINFORCED CONCRETE:

Concrete design is based on the American Concrete Institute "Building Code Requirements for Reinforced Concrete" (ACI 318) and shall be constructed in accordance with the "Standard Specifications for Structural Concrete" (ACI 301).

STRUCTURAL CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES (normal weight concrete unless noted otherwise):

Minimum 28 day compressive strength (f'_c) as follows:
- Cement Type: I/II
- Maximum Aggregate Size: 3/4"
- Footings: 3,000 psi (Max W/C Ratio 0.52); Entrained Air 1.5% (± 1.5%); Slump 5 inches (± 1")
- 3 Walls: ~~4,000 psi (Max W/C Ratio 0.50); Entrained Air 3.0% (± 1.5%); Slump 4 inches (± 1")~~
- Exposed Walls and Vault walls: 4,500 psi (Max W/C Ratio 0.45); Entrained Air 6.0% (± 1.5%); Slump 4 inches (± 1")
  Maximum 28-day shrinkage = 0.05% per ASTM C157
- Structural Bridge Slab: 4,500 psi (Max W/C Ratio 0.50); Entrained Air 6.0% (+/- 1.5%); Slump 4 inches (+/-1")
- Structural Slab on Deck: 3,500 psi (Max W/C Ratio 0.50); Entrained Air 3.0% (± 1.5%); Slump 4 inches (± 1")
- Exterior Wear Slab at Bridge and Vaults: 5,000 psi (Max W/C Ratio 0.40); Entrained Air 6.0% (± 1.5%); Slump 4 inches (± 1")
- Interior Slabs-on-Grade: 3,500 psi (Max W/C Ratio 0.50); Entrained Air 3.0% (± 1.5%); Slump 4 inches (± 1")

Reinforcing steel shall be fabricated and placed in accordance with ACI 315 "Details and Detailing of Concrete Reinforcement."

When cold weather conditions exist, place and cure concrete in accordance with ACI 306.

Welded wire fabric shall conform to ASTM A185.

Deformed reinforcement shall be domestic new billet steel conforming to ASTM A615, Grade 60 including stirrups and ties, except that reinforcing which is required to be welded shall conform to ASTM A706.

Unless otherwise noted on the structural drawings, lap bars 50 diameters (50" Bar Diameter minimum).

Epoxy coated reinforcing bars shall conform to ASTM A775.

Zinc coated (galvanized) reinforcing bars shall conform to ASTM A767.

Unless otherwise noted on the structural drawings, lap bars per lap splice schedule.

Reinforcing at all abutting concrete (including footings) shall be continuous through or around all corners and intersections OR use matching corner bars of equal size and spacing to reinforcing in the abutting members.

Install 2-#5 bars (minimum) around all sides of all openings in concrete and extend 2'-0" past edges of openings, unless otherwise noted.

In continuous members, splice top bars at mid-span between supports and splice bottom bars over supports.

Form intermittent shear keys at all construction joints and as shown on the structural drawings.

Unless otherwise noted on the drawings, minimum concrete cover over reinforcing shall be as follows:
- Unformed surface cast against and permanently exposed to earth: 3"
- Formed surface exposed to earth or weather:
  - #6 through #18 bars 2"
  - #5 bar, w31 or d31 wire, and smaller 1-1/2"
- Formed surface not exposed to weather or in contact with ground:
  - Slabs, walls, joists: #11 bars and smaller 3/4"
  - Beams and columns:
    - Primary reinforcement 1-1/2"
    - Stirrups, ties, spirals 1-1/2"

Install chairs, bolsters, additional reinforcement, and accessories necessary to support reinforcement at position shown on drawings. Support of reinforcement on wood, brick, or other unacceptable materials shall not be permitted.

Keep reinforcement clean and free of dirt and oil. Oil forms prior to placing reinforcement.

Fiber admixture shall be 100% virgin polypropylene, fibrillated fibers, type 111 4.1.3, performance level one, per ASTM C1116.

Properly place, accurately position and maintain securely in place all embedded items prior to and during concrete placement.

Anchor bolts and rods for beam and column-bearing plates shall be placed with setting templates.

Unless otherwise shown in the architectural drawings, provide 3/4" chamfers at all column, wall, slab or beam edges that are exposed to view in the finished structure.

STRUCTURAL STEEL:

Structural steel shall be detailed, fabricated and erected in accordance with the "Specification for Structural Steel Buildings" (AISC 360) and the "Code of Standard Practice for Steel Buildings and Bridges" (AISC 303) by the American Institute of Steel Construction (AISC).

All structural steel shall conform to the ASTM Standards and grades indicated below, unless noted otherwise on the drawings or details.
- Structural steel wide flange beams and WTs: ASTM A992, 50 ksi yield
- Rolled steel floor plates: ASTM A786, Commercial grade
- Other rolled shapes, including plates, channels, and angles: ASTM A36, 36 ksi yield.
- Hollow structural section (HSS) rectangular shapes: ASTM A500, Grade B, 46 ksi yield
- HSS round shapes: ASTM A500, Grade B, 42 ksi yield
- Pipe shapes: ASTM A53, Grade B, 35 ksi yield.
- Adjustable pipe columns:
  - 3" diameter 11 gauge, shall be certified by the manufacturer for a safe load capacity of 13,500 lbs at 7'-6".
  - 3" diameter "Heavy Duty" schedule 40 shall be certified for a safe load capacity of 28,000 lbs at 7'-6".

Unless otherwise noted, framed beam connections shall be bearing-type with 3/4" diameter, snug tight, ASTM F3125, Grade A325 bolts, detailed in conformance with the structural drawings and the "Steel Construction Manual" by the AISC, 14th edition. Install bolts in accordance with AISC's "Specification for Structural Joints Using High-Strength Bolts".

All beams shall have full depth web stiffeners each side of webs above and below columns (1/4" plate or as noted).

Anchor rods shall conform to ASTM F1554, Grade 55 as noted on the structural drawings with weldability supplement S1.

Headed anchor studs (HAS) shall conform to ASTM A108 and shall be connected to structural steel with equipment approved by the stud manufacturer according to the stud manufacturer's recommendations.

Welding shall be done by a certified welder in accordance with the AISC documents listed above, the American Welding Society (AWS) D1.1: 2010 Structural Welding Code, and the recommendations for use of E70XX electrodes. Where not specifically noted, minimum weld shall be 3/16" fillet by length of contact edge.

All post-installed anchors shall have current International Code Council Evaluation Service (ICC-ES) reports and shall be installed in accordance with the manufacturer's requirements.

Expansion anchors shall be approved "wedge" type unless specifically noted to be "sleeve" type as noted on the structural drawings.

Chemical anchors shall be approved epoxy or similar adhesive type as appropriate for installation in solid and non-solid base materials.

Grout beneath column base and beam bearing plates shall have a minimum 28-day, compressive strength of <7,500><5,000> psi and shall be non-shrink, non-metallic, and tested in accordance with ASTM C1107.

See S0.02 for Special Inspection requirements. QA inspections are permitted to be waived if steel fabricator or erector is AISC certified or the Authority Having Jurisdiction approves. At completion of fabrication, fabricator shall submit certificate of compliance stating materials supplied and work performed is in accordance to the Construction Documents.

STEEL DECKING:

Steel roof, non-composite floor (or 'form'), and composite floor deck shall be manufactured and erected in accordance with the standard deck specifications and the "Manual of Construction with Steel Deck" (SDI No. MOC1) as prepared by the Steel Deck Institute (SDI).

Roof deck shall be connected to supporting members and interconnected to develop the diaphragm shears and net uplift pressures due to lateral forces as noted on the structural drawings.

Non-composite and composite floor deck shall be connected to supporting members and interconnected as required to satisfy SDI minimum requirements except as noted on the structural drawings.

Welding patterns, screw patterns, and details shall be indicated on the deck supplier's shop drawings.

SHOP DRAWINGS:

The structural drawings are copyrighted and shall not be copied for use as erection plans or shop details. Use of Anthem's electronic files as the basis for shop drawings requires prior approval by Anthem, a signed release of liability by the general contractor and/or his subcontractors, and deletion of Anthem's name and logo from all sheets so used.

The general contractor shall submit in writing any requests to modify the structural drawings or project specifications.

All shop and erection drawings shall be checked and stamped (after having been checked) by the general contractor prior to submission for structural engineer's review; shop drawing submittals not checked by the general contractor prior to submission to the structural engineer will be returned without review.

Furnish two (2) prints of shop and erection drawings to the structural engineer for review prior to fabrication for:
- reinforcing steel,
- structural steel,
- steel form, floor, and roof deck,
- CMU product data, unit strength testing,

Submit in a timely manner to permit 10 working days for review by the structural engineer.

Shop drawings submitted for review do not constitute "request for change in writing" unless specific suggested changes are clearly marked, in any event, changes made by means of the shop drawing submittal process become the responsibility of the one initiating the change.

FIELD VERIFICATION OF EXISTING CONDITIONS:

The general contractor shall thoroughly inspect and survey the existing structure to verify conditions that affect the work shown on the drawings.

The general contractor shall report any variations or discrepancies to the architect and structural engineer before proceeding.

STRUCTURAL ERECTION AND BRACING REQUIREMENTS:

The structural drawings illustrate and describe the completed structure with elements in their final positions, properly supported, connected, and/or braced.

The structural drawings illustrate typical and representative details to assist the general contractor. Details shown apply at all similar conditions unless otherwise indicated. Although due diligence has been applied to make the drawings as complete as possible, not every detail is illustrated and not every exceptional condition is addressed.

All proprietary connections and elements shall be installed in accordance with the manufacturers' recommendations.

All work shall be accomplished in a workmanlike manner and in accordance with the applicable codes and local ordinances.

The general contractor is responsible for coordination of all work, including layout and dimension verification, materials coordination, shop drawing review, and the work of subcontractors. Any discrepancies or omissions discovered in the course of the work shall be immediately reported to the architect and structural engineer for resolution. Continuation of work without notification of discrepancies relieves the architect and structural engineer from all consequences.

Unless otherwise specifically indicated, the structural drawings do not describe methods of construction.

The general contractor, in the proper sequence, shall perform or supervise all work necessary to achieve the final completed structure, and to protect the structure, workmen, and others during construction. Such work shall include, but not be limited to temporary bracing, shoring for construction equipment, shoring for excavation, formwork, scaffolding, safety devices and programs of all kinds, support and bracing for cranes and other erection equipment.

Do not backfill against basement or retaining walls until supporting slabs and floor framing are in place and securely anchored, unless adequate temporary bracing is installed.

Temporary bracing shall remain in place until all floors, walls, roofs and any other supporting elements are in place.

The architect and structural engineer bear no responsibility for the above items, and observation visits to the site do not in any way include inspections of these items.

These plans have been engineered for construction at one specific building site. Builder assumes ALL responsibility for use of these plans at ANY OTHER building site. Plans shall not be used for construction at any other building site without specific review by the engineer.

STRUCTURAL MASONRY:

Design is based on ACI 530/ASCE 5/TMS 402, "Building Code Requirements for Masonry Structures,"

Masonry work shall conform to ACI 530.1/ASCE 6/TMS 602 "Specification for Masonry Structures".

Compressive strength of masonry assembly used for design is 2000 psi (f'm = 2000 psi), based on net-bedded area.

Except at masonry lintels using standard lintel units, bond beam units shall be produced from standard vertically voided units with pre-cut knockout cross walls.

Hollow load-bearing concrete masonry units (CMU) shall be lightweight, 85 to 105 pcf density, conforming to ASTM C90, with a minimum compressive strength of 2,800 psi based on average net area.

Facing brick shall conform to ASTM C216 Grade SW.

Building brick shall conform to ASTM C62-04 Grade SW.

Hollow brick shall conform to ASTM C652 Grade SW.

Mortar shall be type "S" conforming to ASTM C270. Mortar SHALL NOT be substituted for grout.

Masonry cement shall not be used unless part of a pre-packaged mortar or grout mix approved by the structural engineer.

Provide full shoved mortar in all head and bed joints.

Admixtures shall not be used unless approved by the architect and/or structural engineer.

Grout used in masonry walls and block cells shall be coarse grout, as defined by ASTM C476, with a minimum cube strength = 2,000 psi or 3,000 psi concrete using 3/8" diameter aggregate and placed by vibrating unless an approved self-consolidating mix is used.

'Low-Lift' grouting shall not exceed 5 feet in height unless ACI 530.1 'high-lift' grouting procedures are reviewed and approved by the architect and structural engineer.

Vertically space continuous horizontal joint reinforcing at 16" maximum in all CMU walls. Joint reinforcing shall be welded type with 9 gage side rods and 9 gage trussed or ladder cross rods.

In exterior walls, joint reinforcement shall be stainless steel or hot-dip galvanized.

All other joint reinforcement shall be mill galvanized, hot-dip galvanized, or stainless steel. Horizontal joint reinforcing shall be lapped no less than 6" all splices.

Wire ties for veneer shall be 9 gage diameter for cavity widths 2" or less.

Where nominal cavity width exceeds 2 inches, veneer ties shall be 1/4" diameter. Ties shall be spaced a maximum of 16" in each direction.

Reinforcing bars shall be as for reinforced concrete except as noted.

Unless otherwise noted on the structural drawings, lap bars 50 diameters (50"Bar Diameter minimum) at splices.

Reinforcement shall be secured against displacement prior to grouting by wire bar locators or other suitable devices at intervals not exceeding 200 bar diameters or 10 feet.

Reinforce and fully grout vertical cells at corners, ends of walls, jambs of openings, each side of vertical control joints, and at spacing shown on drawings.

Vertical reinforcing bars shall have a minimum clearance of 3/4" from masonry.

Foundation dowels shall match vertical reinforcing, unless otherwise noted on the drawings.

Where noted on the drawings, provide clearance between masonry and structural elements, or wrap steel with polyethylene film.

Locate vertical control joints in all masonry walls as shown on the architectural drawings, structural drawings, or spaced horizontally at 25'-0" maximum spacing where not shown.

Cold weather construction shall conform to guide specifications from the International Masonry Industry All-Weather Council (IMIAWC), latest version.

LOOSE LINTELS:

Unless noted otherwise, provide loose lintels as follows: (one angle for each 4" of wall thickness to bear 4" minimum each end)

Opening	Angle
0'-8" to 4'-0"	L3 1/2x3 1/2x1/4
4'-1" to 5'-4"	L5x3 1/2x1/4 (LLV)
5'-5" to 10'-0"	L6x3 1/2x5/16 (LLV)

PRECAUTIONARY NOTES ON STRUCTURAL BEHAVIOR:

Interior architectural finish detailing must accommodate the relative differential movements of supporting structural elements.

Where the roof framing element spans are long, applied loading will naturally cause substantial deflection. Interior elements hung from the roof structure will deflect with the roof.

The floor is a floating concrete slab-on-grade and may experience movements independent of the structural foundations. Interior elements supported on the slab-on-grade floor will move with the floor. Interior elements supported on foundations and columns will not experience similar or measurable movements.

Exterior/perimeter wall assemblies hung from the edge of the building structure will be directly affected (to some degree) by changes in external temperature and floor deflection.

Exterior/perimeter and interior architectural finish details should allow for relative movements between elements with different support conditions.

The foundation design shown assumes that the owner/builder is aware of the presence of expansive soils, and that he has read the previously referenced soils report. Use of these plans is indication that the owner/builder accepts the risks associated with building on this site, especially those related to slab on grade construction in finished areas. Anthem, LLC will not be held liable for damages caused by slab movement.

DEFERRED SUBMITTALS:

Portions of the structure have elements of proprietary design and fabrication, which shall be submitted by the supplier for approval after award of contract.

These items shall conform to the load, capacity, size, geometry, connection, and support criteria noted on the structural drawings.

Shop drawings and calculations shall be prepared by an engineer registered in the State of Colorado. Final shop drawing submittals shall be stamped and signed.

Submittals will be reviewed by the structural engineer of record for compliance with the specified design requirements, stamped as "Reviewed," and forwarded to the local building authority for review as required.

Final issue of the building permit may, at the approval authority's option, be contingent on its approval of the deferred submittal documents.

Deferred submittal items shall not be installed until their design calculations and drawings have been reviewed by the architect, structural engineer, and/or local building authority as required.

LETTERS OF CONSTRUCTION COMPLIANCE:

The general contractor shall determine from the local building authority, at the time the building permit is obtained, whether any letters of construction compliance will be requested from the structural engineer.

The contractor shall notify the structural engineer of all such requirements in writing prior to the start of construction.

Two day advance notice shall be given when requesting site visits necessary as the basis for the compliance letter.

The general contractor shall provide copies of all third-party testing and inspection reports to the architect and structural engineer a minimum of one week prior to the date that the compliance letter is needed.

SPECIAL INSPECTIONS (valid for IBC 2018):

The following Special Inspections and Testing shall be performed by a qualified Special Inspector, retained by the Owner, in accordance with the following sections of IBC Chapter 17:
- Section 1704
  - 1704.2.5 Special inspections of fabricated items and fabricators
- Section 1705 Special inspections and the following sub-sections:
  - 1705.2 Steel Construction including 1705.2.1 Structural Steel, 1705.2.2 Cold-formed steel deck
  - 1705.3 Concrete Construction including 1705.3.1 Welding of reinforcing bars, 1705.3.2 Material tests
  - 1705.4 Masonry Construction, level B
  - 1705.6 Soils
  - 1705.10 Fabricated items
- Section 1705.12 Special Inspections for seismic resistance with the following sub-sections:
  - 1705.12.1 Structural Steel
  - 1705.12.1.1 Seismic force-resisting system
  - 1705.12.1.2 Structural steel elements (struts, collector, chords and foundation elements)
  - 1705.12.4 Designated seismic systems
  - 1705.12.5 Architectural components
  - 1705.12.6 Plumbing, mechanical and electrical components
- Section 1705.13 Structural Testing for Seismic Resistance and the following sub-sections:
  - 1705.13.1 Structural Steel
  - 1705.13.1.1 Seismic force-resisting systems
  - 1705.13.1.2 Structural steel elements (struts, collectors, chords and foundation elements)
  - 1705.13.2 Nonstructural components
  - 1705.13.3 Designated seismic systems
- Section 1706 Design Strengths of Materials
- Section 1707 Alternative Test Procedures
- Section 1708 In-Situ Load Tests
- Section 1709 Preconstruction Load Tests

The Special Inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the building official, for inspection of the particular type of construction or operation requiring special inspection.

Duties and responsibilities of the Special Inspector shall be to inspect and/or test the work outlined above and within the Statement of Special Inspections in accordance with Chapter 17 of the IBC for conformance with the approved construction documents. All discrepancies shall be brought to the immediate attention of the contractor for correction.

Per section 1704.2.4 the Special Inspector shall furnish regular reports to the building official and the structural engineer. Progress reports for continuous inspection shall be furnished weekly. Individual reports of periodic inspections shall be furnished within one week of inspection dates. The reports shall note uncorrected deficiencies, correction of previously reported deficiencies, and changes to the approved construction documents authorized by the Structural Engineer of Record.

The Special Inspector shall submit a final signed report within 10 days of the final special inspection stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved construction documents and the applicable workmanship provisions of the IBC. Work not in conformance shall be noted in the report.

The contractor shall submit a statement of responsibility to the building official and the owner prior to the commencement of work on a main wind- or seismic-force-resisting system, designated seismic system or a wind- or seismic-resisting component listed in the Statement of Special Inspections per section 1704.5.

Except as noted, the special inspections outlined above are in addition to, and beyond the scope of, periodic Structural Observations as defined in section 1704.6. Structural Observations are included in the structural engineering design and construction administration services provided by the structural engineer.

ABBREVIATIONS KEY

AB	Anchor Rod (Bolt)	E-E	End to End	LVL	Laminated Veneer Lumber (generic)	RMO	Rough Masonry Opening
ADDL	Additional	EF	Each Face	LW	Light Weight	RO	Rough Opening
AFF	Above Finished Floor	EJ	Expansion Joint	MASY	Masonry	SC	Slip Critical
ALT	Alternative	EL	Elevation	MATL	Material	SCH	Schedule
AMT	Amount	EN	Edge Nailing	MAX	Maximum	SDST	Self Drilling Self Tapping
APPROX	Approximate	ENGR	Engineer	MECH	Mechanical	SECT	Section
ARCH	Architect, Architectural	EQ	Equal	MEZZ	Mezzanine	SF	Square Feet
ASD	Allowable Stress Design	EQUIP	Equipment	MFR	Manufacture, -er, -rd	SHT	Sheet
AVG	Average	EQUIV	Equivalent	MIN	Minimum	SHTG	Sheathing
BC	Bottom of Concrete	ES	Each Side	MTL	Metal	SIM	Similar
BL	Brick Ledge	EST	Estimate	<N>	"New"	SL	Sloped
BLK	Block	E-W	East to West	NIC	Not In Contract	SOG	Slab On Grade
BLKG	Blocking	EXC	Excavate	N-S	North to South	SP	Space,-s
BM	Beam	EXP	Expansion	NTS	Not to Scale	SPEC	Specifications
BOT	Bottom	EXT	Exterior	OD	Outside Diameter	SQ	Square
BRG	Bearing	FDN	Foundation	OF	Outside Face	STD	Standard
CANT	Cantilever	FF	Finished Floor	OH	Opposite Hand	STL	Steel
CF	Cubic Foot	FIG	Figure	OPNG	Opening	STIFF	Stiffener
CFS	Cold Form Steel	FL	Flush	OPP	Opposite	STRUCT	Structure (Structural)
CIP	Cast In Place	FLR	Floor	OSB	Oriented Strand Board	SY	Square Yard
CJ	Construction Joint (Control Joint)	FP	Full Penetration	PAF	Powder Actuated Fastener	SYM	Symmetrical
CLG	Ceiling	FTG	Footing	PC	Precast	T&B	Top and Bottom
CLR	Clear	GA	Gage (Gauge)	PE	Pre-engineered (trusses)	T&G	Tongue and Groove
CMU	Concrete Masonry Unit	GALV	Galvanized	PEN	Penetration	TB	Top of Beam
COL	Column	GC	General Contractor	PERP	Perpendicular	TC	Top of Concrete
COM	Common	GEN	General	PKT	Pocket	TJ	Top of Joist
CONC	Concrete	GL	Glue Laminated (Glu-lam)	PL	Property Line	TL	Total Load, Top of Ledge
CONN	Connection	GR	Grade	PLF	Pounds per Linear Foot	TM	Top of Masonry
CONT	Continue (Continuous)	GT	Girder Truss	PSF	Pounds per Square Foot	T.O	Top of
CONSTR	Construction	GYP BD	Gypsum Board	PSI	Pounds per Square Inch	TRANS	Transverse
COORD	Coordinate, Coordination	HAS	Headed Anchor Stud	PSL	Parallel Strand Lumber (generic)	TYP	Typical
CS	Countersink	HNGR	Hanger	PT	Pressure Treated	ULT	Ultimate
CTR	Center	HORIZ	Horizontal	P.T	Post Tensioned	UNO	Unless Noted Otherwise
CY	Cubic Yard	HT	Height or Heavy Timber	PV	Photovoltaic	VERT	Vertical
DAB	Deformed Anchor Bar	ID	Inside Diameter	QTY	Quantity	VIF	Verify In Field
DIAG	Diagonal	INT	Interior	<R>	To be Removed	WA	Wedge Anchor
DIM	Dimension	K	Kip (1,000 lbs)	R	Radius	WF	Wide Flange
DL	Dead Load	LGS	Light Gage Stud	RE	Reference (refer to)	WP	Work Point
DN	Down	LL	Live Load	RECT	Rectangle	WT	Weight
DP	Drilled Pier	LLH	Long Leg Horizontal	REINF	Reinforcement	WWF	Welded Wire Fabric
DWG	Drawing	LLV	Long Leg Vertical	REQ	Required	XS	Extra Strong
<E>	Existing	LSH	Long Side Horizontal	REQMT	Requirement	XSECT	Cross Section
EA	Each	LSV	Long Side Vertical	RET	Retaining Wall	XXS	Double Extra Strong
ECC	Eccentric	LT	Light	RM	Room		

LEGEND

XK, YT	"X" King studs, "Y" Trimmer studs, studs to match wall thickness		CMU
C	Indicates column continuous through level shown		Concrete
B	Indicates bottom of column at level shown, see next level framing plan for size; install squash blocking in floor cavity of equal size and equal column size below to foundation - unless noted otherwise		Earth fill
XXXX, STUB	Indicates top of column and type below framing level STUB indicates shorter column that extends vertically between beams		Porous fill (i.e. gravel)
XX'-XX"	Indicates top of concrete slab or wood subfloor elevation		Interior wood bearing wall below framing
	Indicates step in floor elevation		Wood shear wall below framing
SLOPE	Indicates direction of slope		Structural wall above framing
FD	Indicates floor drain	WXXXX	Indicates Wood Stud wall type, see schedule
(XX'-XX") (XX'-XX")	Indicates top of footing or pier elevation Indicates minimum pier penetration into bedrock	BWX	Indicates Building Wall type, see schedule
FXX	Continuous spread footing. See schedule for size and reinforcing	SWX	Indicates shear wall. See schedule for sheathing type and nailing
FX.X	Isolated pad footing. See schedule for size and reinforcing	HDX	Indicates holdown. See schedule for description
TC=XX'-XX" BC=XX'-XX"	Indicates top of concrete elevation Indicates bottom of concrete elevation		Joist, or Truss bears on wall or beam below
STEP BC	Indicates step in bottom of concrete elevation		Beam, Joist, or Truss connected to support with metal hanger
TL=XX'-XX"	Indicates top of concrete ledge elevation		Beam, Joist, or Truss connected to support with concealed hanger
PKT XxYxZ XX'-XX"	Indicates beam pocket in concrete wall (X=width, Y=height, Z= ledge depth in inches) with bottom of pocket elevation		Indicates steel deck or concrete slab span direction
	Indicates step in top of concrete wall or ledge elevation. Arrow points toward lower elevation	[XX'-XX"]	Indicates top of steel beam elevation
	Indicates shoring		Indicates location of bend in bent beam
(E)	Indicates 'existing'	BX	Indicates braced frame
(N)	Indicates 'new'		Indicates brace location
(R)	Indicates 'to be removed'	MFX	Indicates rigid frame
BPX	Indicates Baseplate		Moment connection

SHEET LIST

SHEET NUMBER	SHEET NAME
S 0.01	STRUCTURAL COVER SHEET
S 0.02	SPECIAL INSPECTIONS
S 1.01	FOUNDATION PLAN
S 1.02	MAIN AND ROOF LEVEL FRAMING PLAN
S 1.03	BURGESS CREEK BRIDGE PLAN
S 1.04	VAULT
S 5.01	TYPICAL DETAILS
S 5.02	DETAILS
S 5.03	DETAILS AND SCHEDULES

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NOTICE: DUTY OF COOPERATION

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REVISIONS

No.	Description	Date
	PERMIT SET	3-5-2021
2	ADDENDUM #2	3-26-2021
3	ASI #1	4-20-2021

STEAMBOAT GONDOLA RELOCATION
STEAMBOAT SPRINGS, CO

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Job Number:	20034
Date:	3/5/2021
Drawn By:	KLM
Checked By:	CBR

Project Phase
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Sheet Title
STRUCTURAL COVER SHEET

Sheet Number
S 0.01

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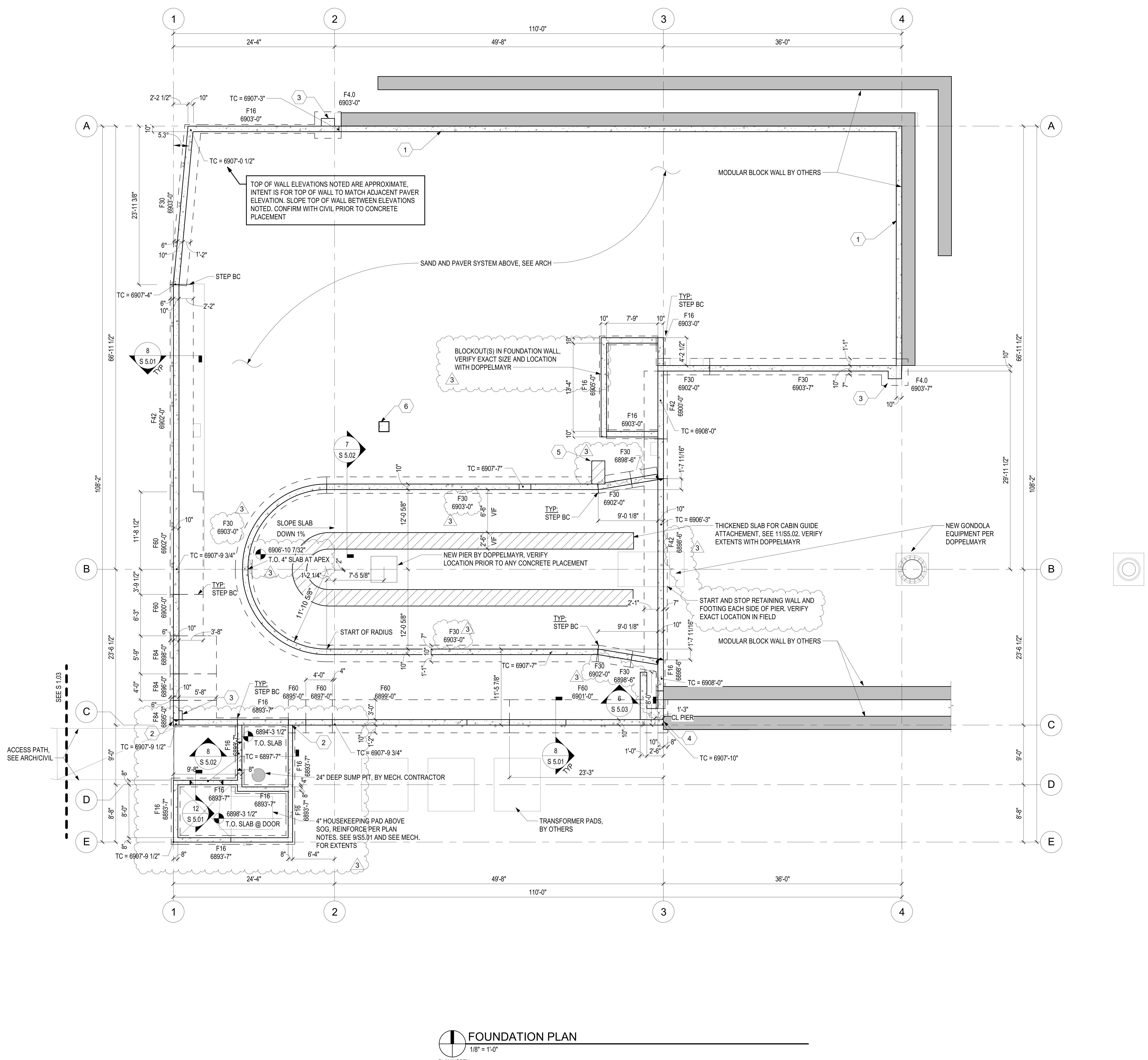

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FOUNDATION PLAN NOTES:

1. SEE S0.01 FOR GENERAL STRUCTURAL NOTES, ABBREVIATIONS AND LEGEND
2. SEE S5.01 FOR TYPICAL DETAILS
3. SEE S5.03 FOR SCHEDULES
4. CONCRETE FOUNDATION GRADE WALL (UNO):
   - 8" THICK CONCRETE WALLS REINFORCED WITH #5 @ 18" EACH WAY CENTERED IN WALL. ALSO INSTALL (2) #5 BARS TOP AND BOTTOM.
   - 10" RETAINING WALLS, SEE SCHEDULE AND 8/S5.01 FOR WALL REINFORCING.
   - 12" THICK CONCRETE WALLS REINFORCED WITH #4 @ 18" VERT EACH FACE AND #4 @ 16" HORIZ EACH FACE.
5. CONCRETE SLAB ON GRADE: 5" THICK CONCRETE SLAB ON PREPARED SUB-GRADE PER SOILS REPORT. REINFORCE WITH #4 @18" EA WAY PLACED AT MID-DEPTH. SAWCUT OR TOOLED 1/8"x1" CONTROL JOINTS @ 10'-0" MAX EACH WAY. INSTALL (3) #4 x 5'-0" DIAGONAL BARS AT MID-DEPTH OF SLAB AT ALL RE-ENTRANT CORNERS
6. INDICATES MODULAR BLOCK RETAINING WALL TO BE DESIGNED BY OTHERS, SEE ARCH
7. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF RAMPS, SLAB SLOPES, AND OTHER INFORMATION NOT SHOWN.

FOUNDATION PLAN KEYNOTES

X	DESCRIPTION
1	10" WIDE x 24" DEEP CONCRETE BORDER WALL. REINFORCE W/#4 BARS @ 12" EACH WAY CENTERED IN WALL. PLACE WALL TIGHT TO MODULAR BLOCK WALL.
2	PROVIDE #5 HORIZONTAL CORNER BARS @ 6" OC CENTERED IN WALL AT THIS CORNER PER DETAIL 2/S5.01. EXTEND EACH LEG OF CORNER BAR MINIMUM OF 4'-0" EACH WAY.
3	24"x24" CONCRETE PIER FOR LIGHT POLE CAST INTEGRAL W/ WALL W/ (8) #6 VERTICALS; #4 TIES AT 12" ,(3) TIES @ 3" TOP. SEE ELECTRICAL FOR ANCHOR BOLTS AND CONDUIT LAYOUT
4	30"x30" CONCRETE PIER FOR SPUR RAIL SUPPORT CAST INTEGRAL W/ WALL W/ (12) #8 VERTICALS; #4 TIES AND CROSSTIES AT 12" ,(3) TIES @ 3" TOP. SEE DOPPELMAYR FOR ANCHOR BOLT LAYOUT
5	12" THICKENED SLAB FOR PARKING RAIL SUPPORT, REINFORCE W/ #4 @ 12" EACH WAY TOP AND BOT OF SLAB. SEE DOPPELMAYR FOR EMBED IN TOP
6	MIN 12"x12" CONCRETE PIER W/(4)-#5 VERT AND #3 TIES @ 12"; (3) TIES @3" TOP. COORDINATE LOCATION WITH DOPPELMAYER. MIN DEPTH = 4'-0".

CONCRETE FOOTING SCHEDULE (CONT)

MARK	WIDTH	THICKNESS	REINFORCEMENT
F16	1'-4"	1'-0"	(2) #5's BOT
F20	1'-8"	1'-0"	(3) #4 CONT
F28	2'-4"	1'-0"	(4) #4 CONT
F30	2'-6"	1'-0"	SEE 8/S5.01
F42	3'-6"	1'-0"	SEE 8/S5.01
F60	5'-0"	1'-0"	SEE 8/S5.01
F84	7'-0"	1'-0"	SEE 8/S5.01

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	PERMIT SET	3-5-2021
1	ADDENDUM #1	3-12-2021
2	ADDENDUM #2	3-26-2021
3	ASI #1	4-20-2021

STEAMBOAT GONDOLA RELOCATION
STEAMBOAT SPRINGS, CO

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Job Number:	20034
Date:	3/5/2021
Drawn By:	KLM
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Project Phase: CONSTRUCTION DOCUMENTS

Sheet Title: FOUNDATION PLAN

Sheet Number: S 1.01

CONSTRUCTION SET 03/29/2021

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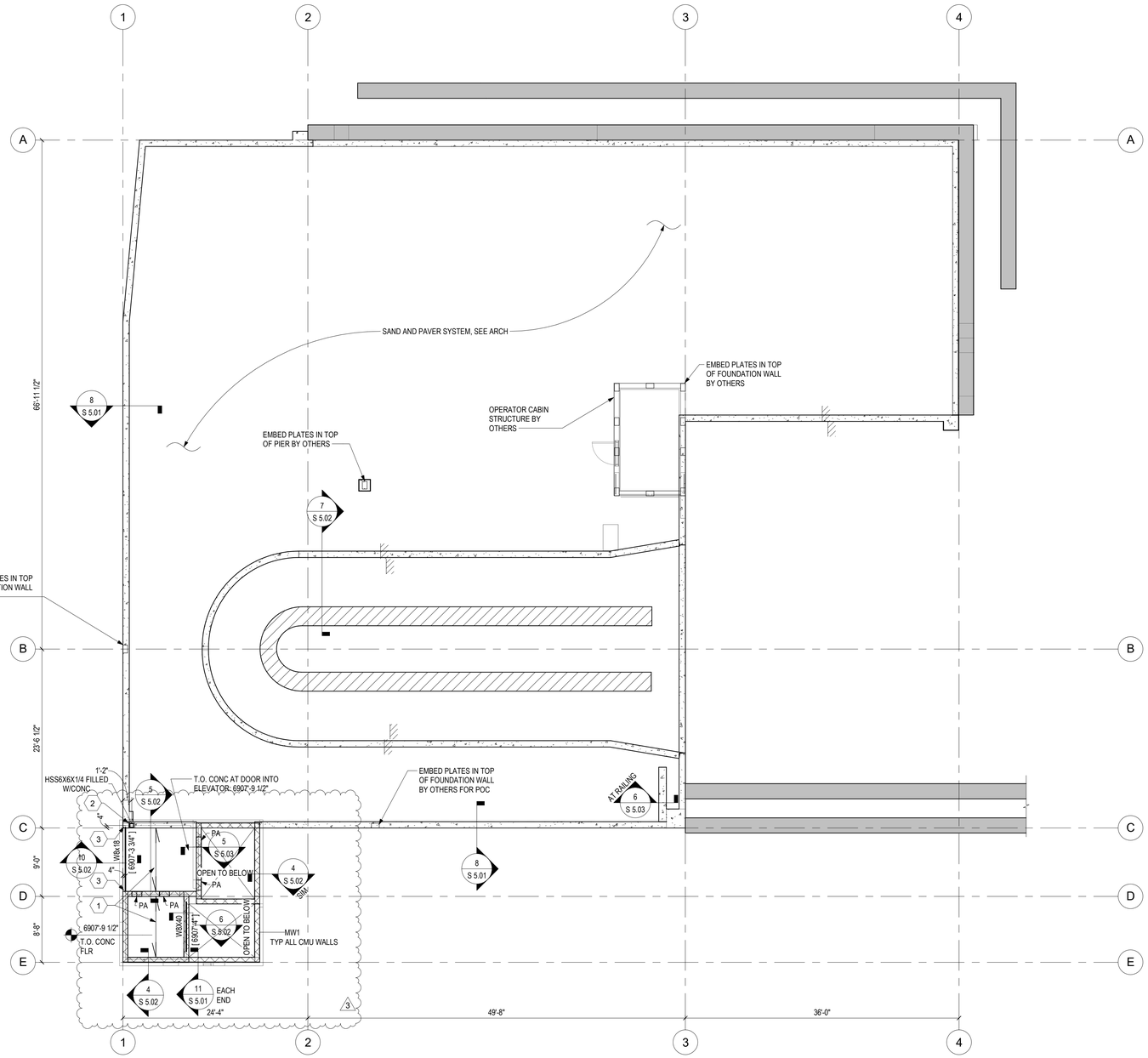
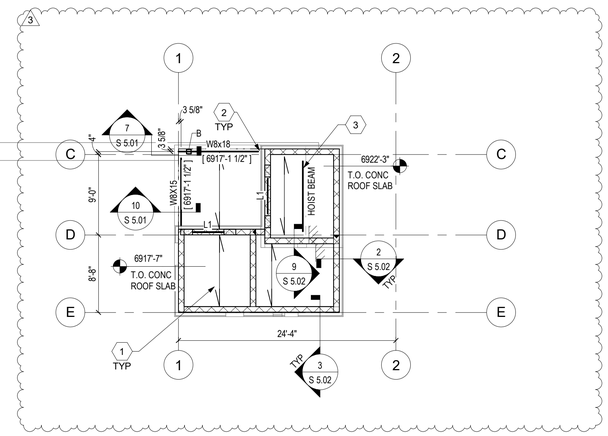


MAIN LEVEL FRAMING PLAN

1/8" = 1'-0"

PLAN NORTH

MAIN LEVEL PLAN NOTES:
1. SEE S0.01 FOR GENERAL STRUCTURAL NOTES, ABBREVIATIONS AND LEGEND
2. SEE S5.01 FOR TYPICAL DETAILS AND S5.03 FOR CMU WALL, PIER AND LINTEL SCHEDULES
3. SEE S1.01 FOR TOP OF FOUNDATION WALL ELEVATION.
4. TYPICAL CMU WALL IS 8" CMU WITH 'MW1' REINFORCING PER S5.03. PROVIDE 5'-0" DOWELS AT TOP OF CONCRETE FOUNDATION WALL TO MATCH MASONRY WALL REINFORCING SIZE AND SPACING. PROJECT 30" ABOVE TOP OF FOUNDATION WALL.
5. UNLESS NOTED OTHERWISE, TYPICAL TOP OF SLAB = 6907'-9 1/2"



ROOF FRAMING PLAN

1/8" = 1'-0"

PLAN NORTH

ROOF PLAN NOTES:
1. SEE S0.01 FOR GENERAL STRUCTURAL NOTES, ABBREVIATIONS AND LEGEND
2. SEE S5.01 FOR TYPICAL DETAILS AND S5.03 FOR CMU WALL, PIER AND LINTEL SCHEDULES
3. AT ROOF DRAINS, ACCEPTABLE TO CORE DRILL MAXIMUM 8" HOLE THROUGH COMPOSITE ROOF DECK. NOTIFY ANTHEM IF LARGER OPENING IS REQUIRED PRIOR TO POURING DECK.
4. LOCATE MECHANICAL OPENINGS IN WALLS MIN. 1'-4" FROM BEAM BEARING LOCATIONS. PROVIDE 'L1' LINTEL OVER MECHANICAL OPENINGS UP TO 6'-0" IN LENGTH.
5. UNLESS NOTED OTHERWISE, TYPICAL T/SLAB = 6917'-7".

MAIN LEVEL FRAMING PLAN KEYNOTES

X	DESCRIPTION
1	2"x18GA COMPOSITE STEEL DECK (VULCRAFT VLI OR EQUIV) W/3-1/2" NORMAL WEIGHT CONCRETE TOPPING (5-1/2" TOTAL THICKNESS). REINFORCE WITH 4LBS/CUBIC YARD MACRO FIBER REINFORCING OR #4 BARS @18" EACH WAY CENTERED IN SLAB. WELD DECK TO STEEL SUPPORT WITH 5/8" PUDDLE WELD AT 36/4 PATTERN. FASTEN SIDE LAPS W/#10 TEK SCREWS @ 18". SEE DETAILS FOR CONNECTION TO WALLS.
2	10"x1/2"x0'-10" EMBED PLATE W/(4)-1/2"Øx5"HEADED STUDS @ 8" GAGE CAST INTO TOP OF CONCRETE WALL. WELD COLUMN TO EMBED PLATE W/ 3/16" FILLET ALL AROUND.
3	PROVIDE EMBED PLATE IN CONCRETE WALL PER 11/S5.01 FOR BEAM CONNECTION.

ROOF FRAMING PLAN KEYNOTES

X	DESCRIPTION
1	2"x18GA COMPOSITE STEEL DECK (VULCRAFT VLI OR EQUIV) W/3-1/2" NORMAL WEIGHT CONCRETE TOPPING (5-1/2" TOTAL THICKNESS). REINFORCE WITH 4LBS/CUBIC YARD MACRO FIBER REINFORCING OR #4 BARS @18" EACH WAY CENTERED IN SLAB. WELD DECK TO STEEL SUPPORT WITH 5/8" PUDDLE WELD AT 36/4 PATTERN. FASTEN SIDE LAPS W/#10 TEK SCREWS @ 18". SEE DETAILS FOR CONNECTION TO WALLS.
2	SEE 1/S5.02 FOR BEAM BEARING PLATE REQUIREMENTS IN CMU WALL
3	MIN. W8x15 ELEVATOR HOIST BEAM. COORDINATE LOCATION AND ELEVATION WITH ELEVATOR SUPPLIER.

CONSTRUCTION SET 03/29/2021

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PROFESSIONAL ENGINEER

REVISIONS

No.	Description	Date
	PERMIT SET	3-5-2021
1	ADDENDUM #1	3-12-2021
2	ADDENDUM #2	3-26-2021
3	ASI #1	4-20-2021

STEAMBOAT GONDOLA RELOCATION
STEAMBOAT SPRINGS, CO

ERIC SMITH ASSOCIATES, P.C.
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Job Number:	20034
Date:	3/9/2021
Drawn By:	KLM
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Project Phase
CONSTRUCTION DOCUMENTS

Sheet Title
MAIN AND ROOF LEVEL FRAMING PLAN

Sheet Number
S 1.02

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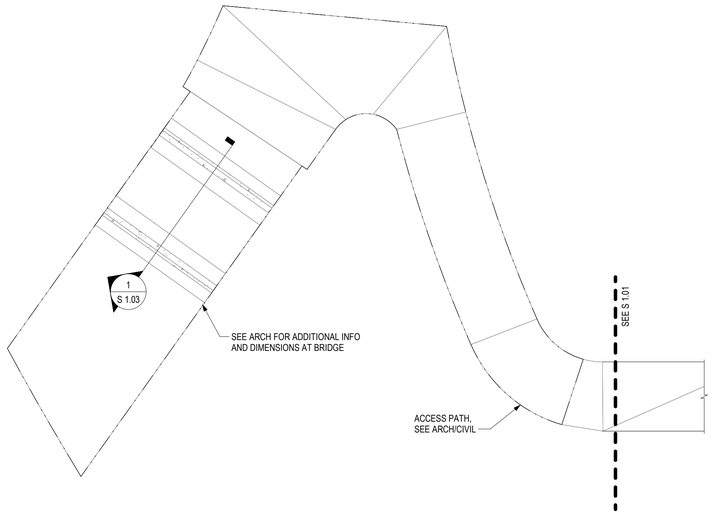
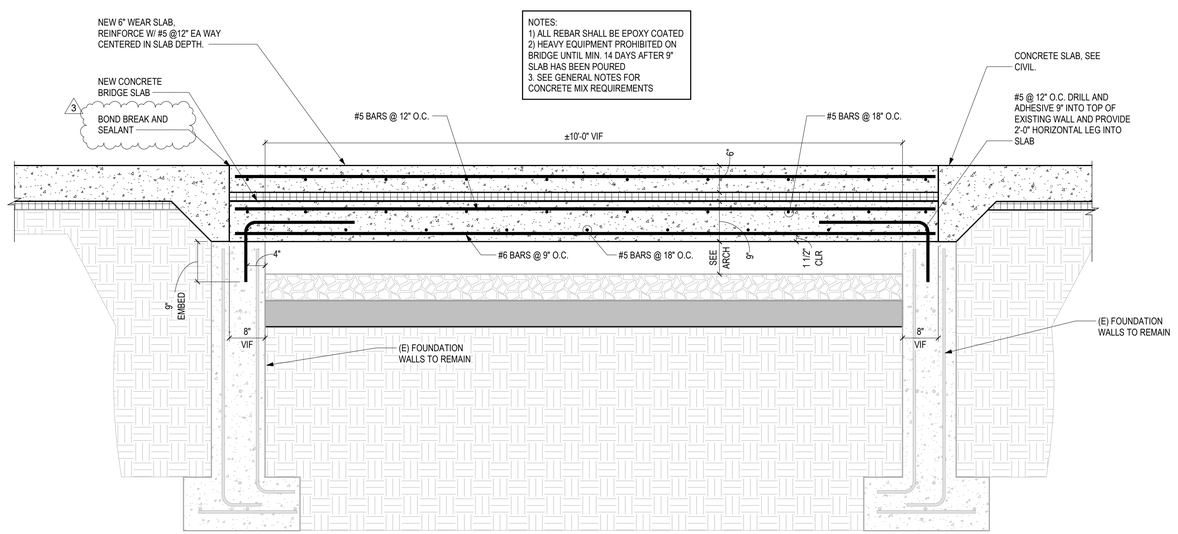
Anthem Job #20-163



BURGESS CREEK BRIDGE PLAN
1/8" = 1'-0"
PLAN NORTH



1 BURGESS CREEK BRIDGE
NOT TO SCALE

CONSTRUCTION SET 03/29/2021

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REVISIONS

No.	Description	Date
	PERMIT SET	3-5-2021
2	ADDENDUM #2	3-26-2021
3	ASI #1	4-20-2021

STEAMBOAT GONDOLA RELOCATION

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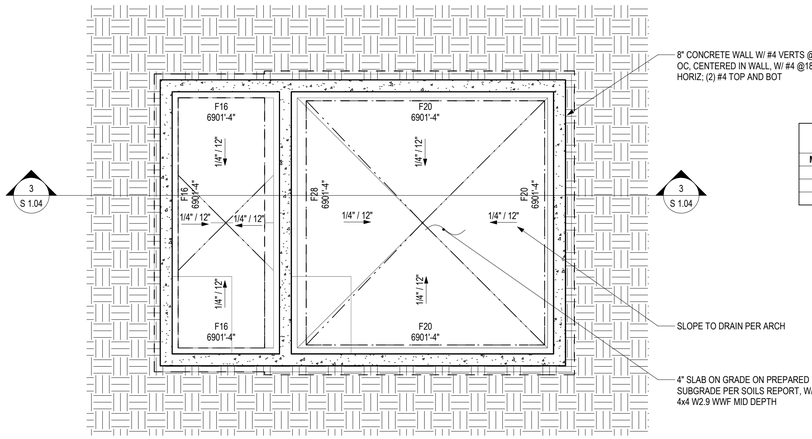
Project Phase
CONSTRUCTION DOCUMENTS

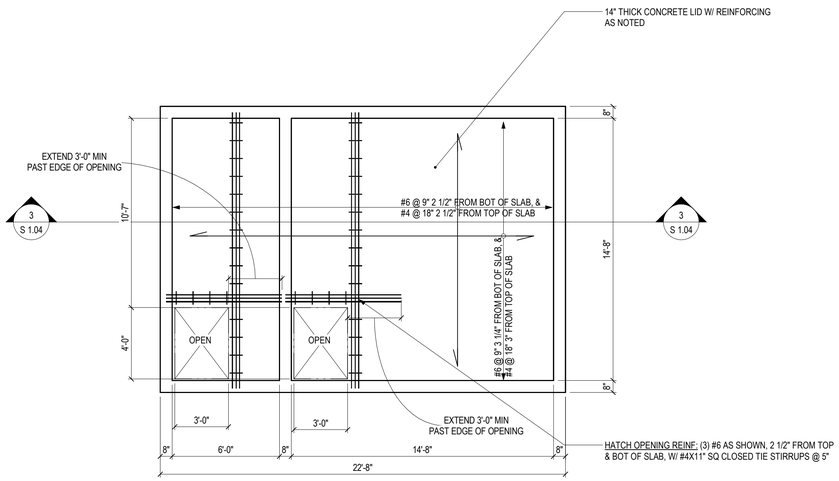
Sheet Title
BURGESS CREEK BRIDGE PLAN

Sheet Number
S 1.03



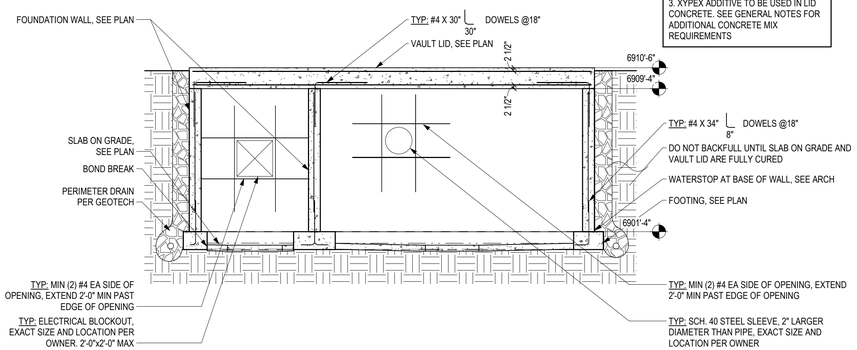
CONCRETE FOOTING SCHEDULE (CONT)VAULT				
MARK	WIDTH	THICKNESS	REINFORCEMENT	TRANS REINF
F16	1'-4"	1'-0"	(2) #5's BOT	N/A
F20	1'-8"	1'-0"	(3) #4 CONT	N/A
F28	2'-4"	1'-0"	(4) #4 CONT	N/A

1 VAULT FOUNDATION PLAN
1/4" = 1'-0"



2 VAULT LID PLAN
1/4" = 1'-0"

NOTES:
1) ALL REBAR SHALL BE EPOXY COATED
2) HEAVY EQUIPMENT PROHIBITED ON LID UNTIL MIN. 28 DAYS AFTER LID SLAB HAS BEEN POURED
3. XYPEX ADDITIVE TO BE USED IN LID CONCRETE. SEE GENERAL NOTES FOR ADDITIONAL CONCRETE MIX REQUIREMENTS



3 VAULT SECTION
1/4" = 1'-0"

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PROFESSIONAL ENGINEER

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No.	Description	Date
3	ASI #1	4-20-2021

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Job Number:	20034
Date:	3/5/2021
Drawn By:	JES
Checked By:	KLM

Project Phase
CONSTRUCTION DOCUMENTS

Sheet Title
VAULT

3
Sheet Number
S 1.04

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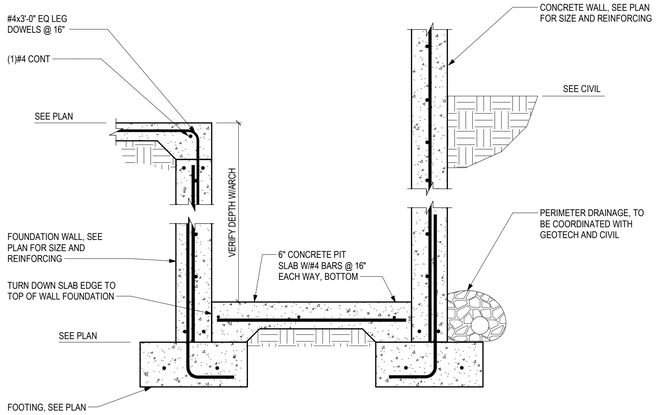
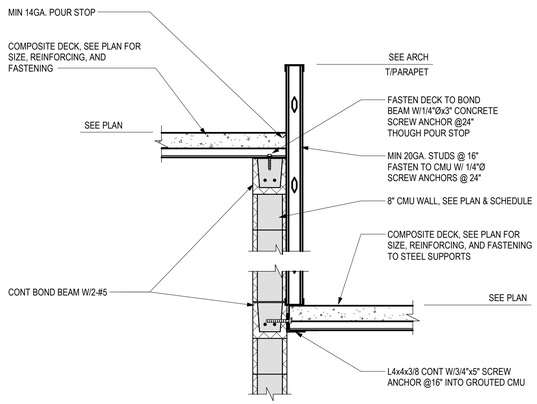
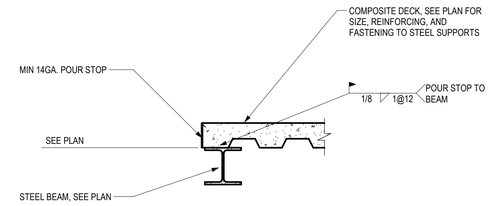


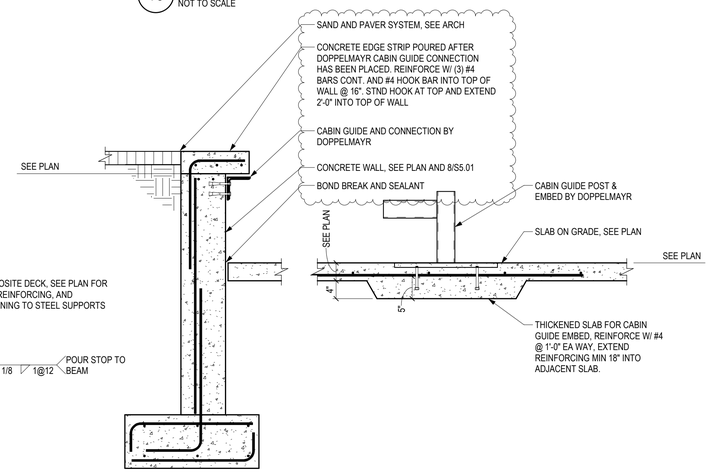
8 ELEVATOR PIT
NOT TO SCALE

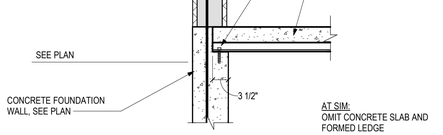


9 ROOF DECK AT CMU
NOT TO SCALE

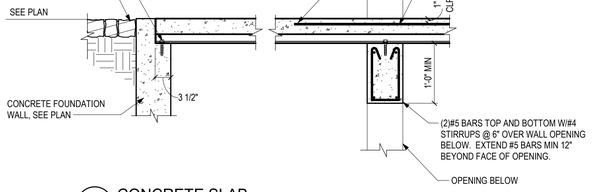


10 DECK EDGE WITH RAILING
NOT TO SCALE

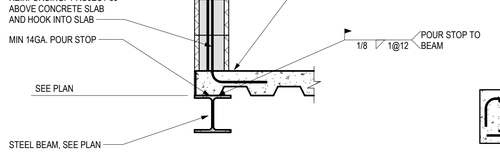




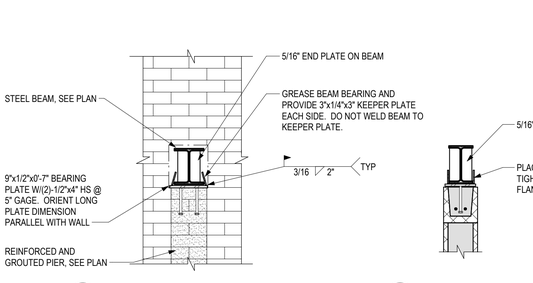
4 CMU TO CONCRETE
NOT TO SCALE



5 CONCRETE SLAB
NOT TO SCALE

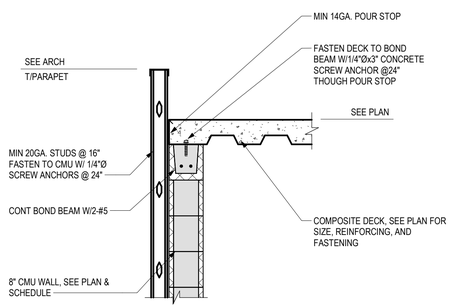


6 WALL ON BEAM
NOT TO SCALE

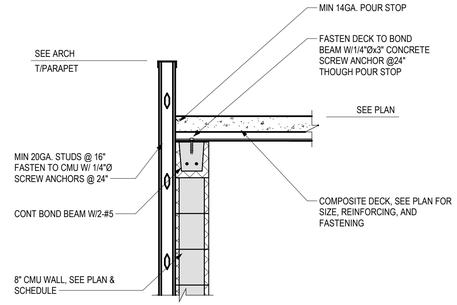


NOTES:
1) WHERE BEAM BEARS ON CMU EACH END, PROVIDE SLIPPED CONNECTION TO BEARING PLATE PER DETAILS A OR B. FASTEN OPPOSITE END OF BEAM PER DETAIL C.
2) DO NOT WELD BEAM TO BEARING PLATE AT SLIPPED CONNECTION (DETAIL A OR B)

1 TYPICAL BEARING PLATE
NOT TO SCALE



2 ROOF DECK AT CMU
NOT TO SCALE



3 ROOF DECK AT CMU
NOT TO SCALE

REVISIONS

No.	Description	Date
	PERMIT SET	3-5-2021
2	ADDENDUM #2	3-26-2021
3	ASI #1	4-20-2021

STEAMBOAT GONDOLA RELOCATION
STEAMBOAT SPRINGS, CO

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Job Number:	20034
Date:	3/5/2021
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Project Phase
CONSTRUCTION DOCUMENTS

Sheet Title
DETAILS

Sheet Number
S 5.02

CONSTRUCTION SET 03/29/2021

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