DocuSign Envelope ID: 666C6B8B-267F-464E-8EBE-5ABDEF27B224

CITY OF SANDPOINT
Infrastructure & Development Services
CONTRACT CHANGE ORDER

Date: 9/27/2023

Travers Park Ph 1- CM/CG

Change Order No: **2**

Contractor: **Ginno Construction, Inc.**

Project No: **A23-5300-5**

This change order shall be full payment and final settlement of all claims for Contract time and for all costs of any kind, including costs of delays and inefficiency, related to any Work either covered or affected by the change, including all direct, indirect, impact, reduced productivity, costs due to extended schedule duration and any other claim by Contractor. By signing this change order, the Contractor waives any additional entitlement to additional compensation or schedule extension.

The following changes to the contract documents are issued:

Item	*Description*	*Change In Contract Price*
1	***Scope:***	
	Legacy Building Solutions: Building Fabrication and Installation	**$2,073,915.00**
1.A	***Justification:*** Legacy Building Solutions to provide building materials as identified in the attached drawing packages and specifications documents. Legacy construction team to erect building following the completion of the required earthwork and site foundation. This work is to be completed as part of the construction scope of work with the services as identified in Ginno's contract for CM-GC.	
1.B	Legacy Building Solutions required anchor bolts for structure.	**$22,119.00**
2	***Scope:***	
	Bid Package #1: Site Improvement Permit Set (reference letters and drawings)	$1,858,910.00
	Justification: Ginno has completed the public bidding portion for the Bid Package #1. The lowest bidders with a complete package have been selected. This work is to be completed as part of the construction scope of work with the services as identified in Ginno's contract for CM-GC.	
3	***Scope:***	
	Phase 1 Ginno Construction, Inc. Construction Fee	$235,056.00
	Justification: This work is to be completed as part of the scope of work for the construction phase with the services as identified in Ginno's contract for CM-GC.	

Original Contract Amount:	*$20,000.00*
Prior Approved Change Order #1:	*$26,500.00*
Current Change Order Price:	**$4,190,000.00**
New Contract Price:	**$4,236,500.00**

Time provided for completion in the contract is:

*[**X**] unchanged, [ ] increased, [ ] decreased by **0** calendar days.*

*The Substantial Completion date for this contract is **October 30, 2024**.*

This document will become an amendment to the contract and all provisions of the contract will apply hereto.

Accepted By: DocuSigned by: Rich Wells 7E1A19A6080F45F 9/21/2023

Contractor (Ginno Construction Co.) Date

Rich Wells President

DocuSign Envelope ID: 666C6B8B-267F-464E-8EBE-5ABDEF27B224

Recommended By: DocuSigned by: Maeve Nevins-Lantar BCC4A4CFDB784B3 — 9/21/2023

City of Sandpoint, Project Manager — Date

Approved By: DocuSigned by: — 9/21/2023

City of Sandpoint, City Administrator — Date

Approved By: — 9/28/2023

Administrator or Mayor *(if required)* — Date

Reviewed By:

Finance Director	Date 9.22.23
Grants Administrator	Date 9-28-23

Ginno Construction Company
3893 North Schreiber Way
Coeur d'Alene, Idaho 83815
Phone: (208) 667-5560

Project: 23-10 - Travers Park Reno: Phase 1
2016 Pine Street
Sandpoint, Idaho 83864

Prime Contract Change Order #002: Owner Change Order #2

TO:	**City of Sandpoint** 1123 Lake St. Sandpoint, Idaho 83864	**FROM:**	**Ginno Construction Company** 3893 North Schreiber Way Coeur d'Alene Idaho 83815
DATE CREATED:	9/ 18 /2023	**CREATED BY:**	Matt Gray **(Ginno Construction Company)**
CONTRACT STATUS:	Pending - Proceeding	**REVISION:**	0
DESIGNATED REVIEWER:	Matt Gray **(Ginno Construction Company)**	**REVIEWED BY:**	
DUE DATE:		**REVIEW DATE:**	
INVOICED DATE:		**PAID DATE:**	
SCHEDULE IMPACT:	240 days	**EXECUTED:**	No
CONTRACT FOR:	1:Travers Park Reno: Phase 1	**TOTAL AMOUNT:**	$ 4,190,000.00

DESCRIPTION:
Owner Change Order #2

Bid Package #01

- Includes the following documentation:
  - Bid Proposal Letter
  - Bid Tab Summary of all bids received
  - Copy of all winning bids

ATTACHMENTS:

POTENTIAL CHANGE ORDERS IN THIS CHANGE ORDER:

PCO #	Title	Schedule Impact	Amount
002	Bid Package #01	240 days	4,190,000.00
		TOTAL:	**$ 4,190,000.00**

CHANGE ORDER LINE ITEMS:

PCO # 002 : Bid Package #01

#	Cost Code	Description	Type	Amount
1	01-1000 - General Requirements	Bid Package #01	OTHER	$ 4,190,000.00
			Subtotal:	$4,190,000.00
			Grand Total:	**$4,190,000.00**

The original (Contract Sum)	$ 20,000.00
Net change by previously authorized Change Orders	$ 26,500.00
The contract sum prior to this Change Order was	$ 46,500.00
The contract sum would be changed by this Change Order in the amount of	$ 4,190,000.00
The new contract sum including this Change Order will be	$ 4,236,500.00

The contract time will be increased by this Change Order by 240 days

GINNO CONSTRUCTION CO.

SANDPOINT

Rustin Hall (ALSC Architects)
203 N. Washington Suite 400
Spokane Washington 99201

SIGNATURE **DATE**

City of Sandpoint
1123 Lake St.
Sandpoint Idaho 83864

SIGNATURE **DATE**

Ginno Construction Company
3893 North Schreiber Way
Coeur d'Alene Idaho 83815

9/20/2023

SIGNATURE **DATE**

September 20, 2023

City of Sandpoint
Attn: Maeve Nevins-Lavtar (Project Manager)
1123 Lake Street
Sandpoint, Idaho 83864

Project: Travers Park Renovations, Phase I
Re: Bid Package #01

Maeve,

Ginno Construction is pleased to submit lump sum value pricing for the above referenced project. Our estimate is based on the following documents:

- ALSC Bid Package #1 Drawings and Specifications dated 08.25.2023
- ALSC Addendums 01 & 02
- Geotechnical Report dated 09.08.2022
- Geotechnical Supplemental Report dated 12.16.2022
- Geotechnical Plan Review Letter dated 08.17.2023
- Ginno Construction Bid Package Letter

Estimate:

- Base Estimate – Bid Package #01..... $ 4,190,000

Inclusions:

- Full time access to a project manager and superintendent
- Idaho State Use Tax on material / Commercial Liability Insurance

General exclusions include:

- Architecture and engineering, hazardous material testing or removal if required
- Development fees, utility hookup charges, assessments, building permit/plan review fee, cap fees, traffic mitigation fees or any other fees from any government agency or utility company
- Cost of utilities used during construction, builder's risk/course of construction insurance as it is assumed to by Owner

We look forward to the opportunity to work with you on this project.

Sincerely,

Ginno Construction Co.
Matt Gray
Director of Project Delivery
Senior Project Manager

3893 N. Schreiber Way, Coeur d'Alene ID 83815
Ph: 208-667-5560 Fax: 208-665-0471

TRAFFICORP
TRAFFIC MANAGEMENT PROFESSIONALS

(208) 665-4683 - OFFICE
5077 N. BUILDING CENTER DRIVE
COEUR D'ALENE, ID 83815

BID/SALES QUOTE

DATE	ESTIMATE NO.
9/11/2023	3990

QUOTE IS GOOD FOR 30 DAYS!

Pricing not commited within 30 days is subject to review.

TO:

GINNO CONSTRUCTION
3893 N SCHREIBER WAY
COEUR D ALENE, ID 83815

Idaho Public Works# C-14803-AA-4
Washington Contractors# TRAFF**857BL
DBE # D2F0019831

ITEM #	DESCRIPTION	Unit	Est. Qty	Unit Cost	EST TOTAL
	TRAVERS PARK 2016 PINE ST SANDPOINT, ID				
	ONE LANE - TWO WAY FLAGGING STANDARD RATES				
	BASED ON 1 - 8 HR DAY				
TCP	TRAFFIC CONTROL PLAN	EA	1	125.00	125.00
TTC-EQ	TCVEH W/ STANDARD FLAGGING SERIES SIGNS INCLUDES: SIGNS, STANDS, & CONES TY 2 BARRICADES W/SIDEWALK CLOSURE SIGNS	DY	1	279.00	279.00
TCS/L	TC SUPERVISOR / TC LEAD 1 @ 10 HRS	HR	10	44.00	440.00
FLAG	FLAGGERS 2 @ 8 HRS	HR	16	42.00	672.00
	NOTES: 1) 48 HOUR LEAD TIME FOR NON-EMERGENCY CALL OUTS. 2) THERE IS A FOUR (4) HOUR MINIMUM FOR ALL CALL OUTS. 3) 12-HOUR CANCELLATION NOTICE REQUIRED OR 4-HR MINIMUM PER PERSON WILL APPLY. 4) OVERTIME PREMIUM OF $16.00 PER OT HR 5) TIME STARTS AT CDA SHOP.				
	Sales Tax			6.00%	0.00

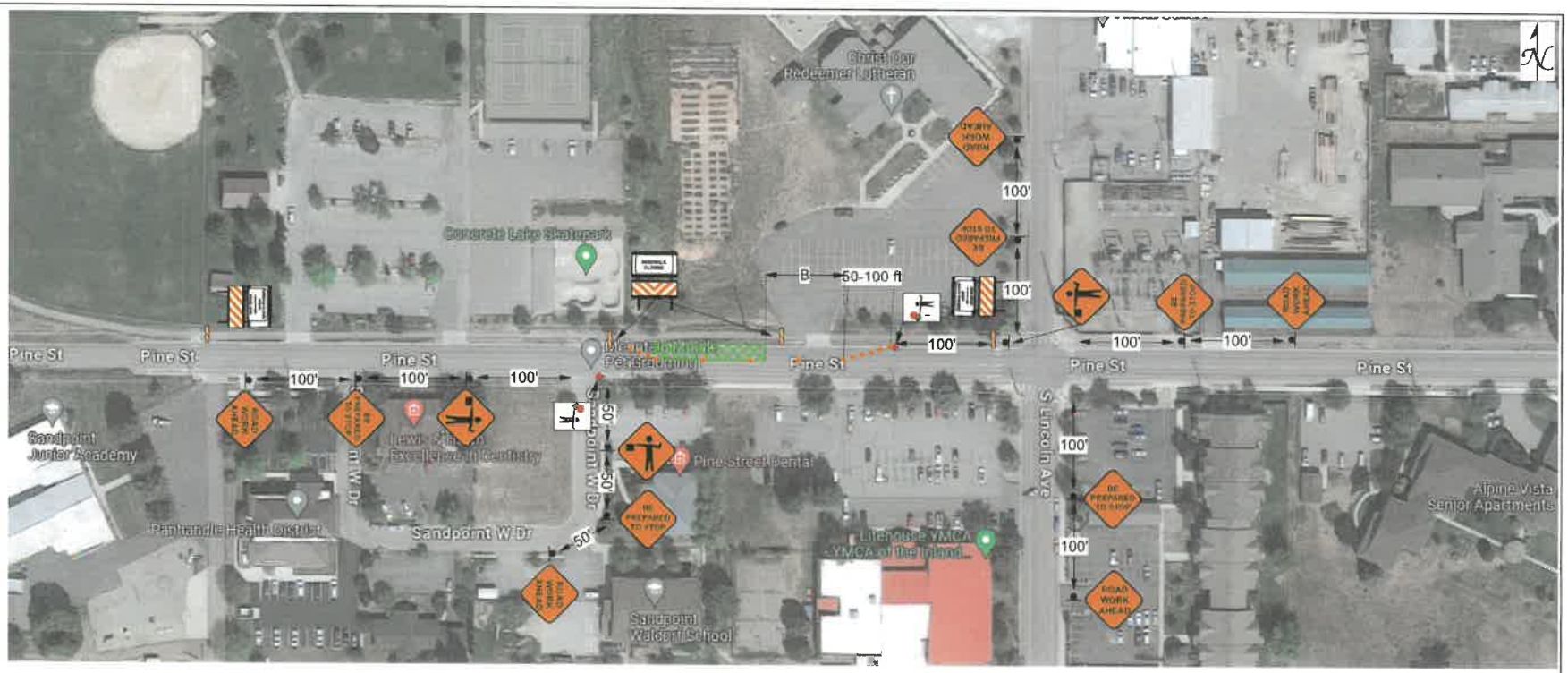
Standard Clarifications:
****Prime to Stake & Locate for Post-Mount Signs**
****Overtime due to Prime Schedule will be Prime's Responsibility.**
****All TC hours not paid by Owner will be Prime's Responsibility.**
****4 HR Minimum for all Traffic Control call-outs.**
****This Quote, in it entirety, shall be included in any contractural agreement between TraffiCorp and Prime Contractor.**
****All Quantities are Estimates ONLY. Actual Quantities will be billed.**
****Contractor will be responsible for replacement cost of lost, stolen, or destroyed equipment.**

ESTIMATED BID TOTAL $1,516.00

DBE / WBE CERTIFIED IN WASHINGTON & IDAHO
LIABILITY INSURANCE - 1M WITH 2M AGG
TRAFFICORP IS AN OPEN SHOP CONTRACTOR

Kim Mullenberg - (208) 661-9191
kim@trafficorp.us

AN EQUAL OPPORTUNITY EMPLOYER



BUFFER DATA										
BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (FT)	155	200	250	305	360	425	495	570	645	730
ROLL AHEAD STOPPING DISTANCE ASSUMES DRY PAVEMENT										
* A PROTECTIVE VEHICLE IS RECOMMENDED AND SHALL BE STRATEGICALLY LOCATED IN THE FIELD TO SHIELD WORKERS AND NO ROLL AHEAD DISTANCE IS SPECIFIED.										

SIGN SPACING = X		
FREEWAYS / EXPRESSWAYS	60 / 70 MPH	1000/1500/2640
RURAL ROADS/ HWYS	45 / 55 MPH	500' +/-
RURAL / URBAN ARTERIALS	35 / 40 MPH	350' +/-
RURAL / URBAN / RESIDENTIAL & BUSINESS DISTRICTS	25 / 30 MPH	200' +/- (1)
URBAN STREETS	25 MPH or LESS	100' +/- (1)

(1) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS
(2) ALL SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.

CHANNELIZING DEVICE SPACING (FEET) (SL = SPEED LIMIT)	
FLAGGER TAPER	TANGENT
50-100 ft 6 CONE MINIMUM	2(SL)

LEGEND:

- TEMP. SIGN
- 28" TRAFFIC CONE
- WORK ZONE
- FLAGGER STATION

NOTES:

1) ALL TRAFFIC CONTROL SIGNS & EQUIPMENT SHALL MEET CURRENT MUTCD STANDARDS AS ADOPTED BY THE STATE.
2) SIGNS ARE CONVENTIONAL ROAD SIZED
3) PEDESTRIANS / SIDEWALKS WILL BE IMPACTED AS SHOWN.
4) NOT TO SCALE

TRAFFICORP
5077 N. BUILDING CENTER DRIVE
COEUR D'ALENE, ID 83815
(208) 665-4683

Date: 09/11/23 **Author:** STEPHEN PAUL BURT / TCS

Comments:

TRAFFIC CONTROL PLAN

2016 PINE ST - SANDPOINT, ID

TEMPORARY ONE LANE FLAGGING

PINE ST

GINNO CONSTRUCTION CO.
3893 N Schreiber Way
Coeur d'Alene, ID 83815

CERTIFIED
STEPHEN
BURT
TCS - 867796
EXP: 05/25
TRAFFIC CONTROL PLAN

BARTLETT TREE EXPERTS

SCIENTIFIC TREE CARE SINCE 1907

Client:

Ginno Construction
Attn: Matt Gray
3893 N Schreiber Way
Coeur d' Alene, ID 83815
Mobile Phone: (208) 967-2663

Printed on: 9/18/2023
Created on: 9/18/2023

Bartlett Tree Experts
Joe Zubaly - Representative
11120 East Empire Avenue
Suite 3
Spokane Valley, WA 99206
Mobile Phone: 208-640-6401
E-Mail Address: jzubaly@bartlett.com

Proposal For Tree Care Services

Travers Park, Sandpoint, Coeur d' Alene, ID 83815

NOTICE TO CLIENT:

Bartlett Tree Experts has entered this property for the specific purpose of writing this proposal, pursuant to the owner's request. Bartlett Tree Experts makes no warranties and accepts no responsibility regarding the potential risks involving any trees on this property. Bartlett Tree Experts recommends having a qualified arborist inspect your property periodically to assist you in identifying potential risks or hazardous conditions related to your trees and shrubs. THIS IS NOT AN INVOICE.

Tree and Shrub Work:

Removal

Remove selected group to the following specifications:

Remove 18 trees and 1 existing stump as noted on Plan set C100.

Remove resulting debris.

Amount: $22,060.00

Stump Grinding

Grind the selected stumps located at the Construction site to approximately 12 inches below existing grade. Leave mulch.

Arborist Notes:

- Grind 18 resulting stumps,

Amount: $5,640.00

Natural Pruning

Client: Ginno Construction
Attn: Matt Gray

Printed on: 9/18/2023
Created on: 9/18/2023

Species
selected

Location
Construction site

Goals:

- Clearance
- Develop branch structure

Specifications:

- Remove all dead branches, 1 inch diameter cut(s), entire canopy
- Reduce and/or remove any and all branches as needed, 0-4 inch diameter cut(s), for structure, aesthetics and clearance
- Remove all debris

Arborist Notes:

- Pruning of selected trees on job site. Schedule of tree pruning to be part of submittals.

Amount: $2,650.00

Tree Preservation

Perform the following services to protect trees during construction:
Install Tree Protection Zones as per plan set C100 and specifications.

Amount: $9,180.00

Root Pruning

Root prune selected group located at the Construction site to reduce the risk of root damage and subsequent decay within the critical root zone. Roots will be pruned by excavating soil with an air-tool and severing roots with a saw at a distance of approximately 8 feet from the stem to a depth of approximately 16 inches in depth. Trenches will be backfilled with soil.

Arborist Notes:

- Root pruning of trees as needed. Billed @ $150/man hour. Price above represents 4 trees and scope of work will be determined on site following Prejob tree meeting.

Amount: $3,000.00

Total Amount: $42,530.00

Quote: 1116 / Date: 9/20/2023

White Diamond Concrete LLC
1869 E Seltice Way #526
Post Falls, ID
83854, US
+12089675660

Prepared By:
Clarence Wayman

clarence@whitediamondconcrete.com

Project: Travers Park Recreation Center

Scope of Work

Cast In Place Concrete and Concrete Reinforcing

Building Concrete

ID PW # 048181

	Total Cost
Continuous Footings	$ 25,200.00
Spread Footings	$ 43,200.00
Concrete Grade Beams	$ 43,450.00
Concrete Piers	$ 5,400.00
Concrete Foundation Walls	$ 50,400.00
4" Concrete Slab on Grade	$ 25,930.52
Concrete Pumping	$ 8,606.00
	$ 202,186.52

Rebar Yes
MVD

Trench Drain

	Total Cost
Trench Drain Install and Concrete	$ 7,600.00
	$ 7,600.00

Excluded(-)

1. Excavation and Backfill
2. Rigid Insulation
3. Construction Permits
4. Vapor Barrier
5. Concrete Washout
6. Supply and assembly of templates for steel columns

WHITE DIAMOND CONCRETE

Excluded(-)

7. Joint Sealant
8. Material Testing
9. Water Curing of Slabs
10. Subgrade Prep
11. Surveying and Staking
12. Foundation Waterproofing
13. Any Demolition
14. Column Grouting
15. Layout for Any Other Contractors
16. Bollards
17. Clean outs
18. Site Concrete
19. Supply of Trench Drain
20. All Concrete Outside Building Footprint
21. Winterization, Concrete blanketing, ground thaw machine etc...
22. Any items that are not listed on this proposal as a line item are specifically excluded.

Notes

Bid acknowledges addenda 01

Summary

Subtotal	$ 209,786.52
Taxes	$ 6,293.60

$ 216,080.11

Accepted By .....

Date .....

Northwest Playground Equipment, Inc.
PO Box 2410, Issaquah, WA 98027-0109
Phone (425) 313-9161 FAX (425) 642-8117
Email: sales@nwplayground.com

QUOTE

Quote # CB-9192023-00003428
Date: 09-19-2023
Quote Name: Travers Park relocate playground

To: Ginno Construction
Re: travers park- sandpoint

Bill To: 3893 N. Schreiber Way
Coeur d' Alene, ID 83815

Site Address:

Name: Cole Bitnoff
Email: cole@ginnoconstruction.com

Phone: 208-967-2026
Cell:

Item #	Qty	Description	Price	Total Price
		EQUIPMENT		
		Special Order		
General Product	1	budget for footers and posts- we anticipate that the footings for the climbing boulders and slides will need to be replaced.	$5,500.00	$5,500.00
			Equipment Subtotal (less tax):	$5,500.00
		FREIGHT		
			Equipment Total (less tax):	$5,500.00
		CERTIFIED INSTALLATION		
Deluxe Install	1	removal and re-installation of the existing playground per drawing L2 and phase 1 concept. We assume that we will remove the playground in one mobilization and installation in another.	$21,025.64	$21,025.64
		Standard	**Installation Total:**	$21,025.64
		Performance Bond (If Required):	3.0%	
		Credit Card Fee (If Required):	3.5%	
Location Code:		Resale Certificate Required for Tax Exemption: Tax:	%	$0.00
			ORDER TOTAL:	$26,525.64

Acceptance of Proposal:

(Please be sure you have read, signed, initialed and understand the Terms and Conditions on Page 2 of this Quote)
The items, prices and conditions listed herein are satisfactory and are hereby accepted.

Christopher Brummett
Sales Rep

Customer Signature

Date

Thank you for considering Northwest Playground Equipment, Inc for your Park, Playground, Shelter and Sports Equipment requirements

Northwest Playground Equipment, Inc.
PO Box 2410, Issaquah, WA 98027-0109
Phone (425) 313-9161 FAX (425) 642-8117
Email: sales@nwplayground.com

Project Name: travers park- sandpoint Quote # CB-9192023-00003428

TERMS AND CONDITIONS

QUOTE CONDITIONS AND ACCEPTANCE:

This quote is only valid for 30 days.

Orders placed or requested for delivery after 30 days are subject to Steel and Material price increases and Surcharges.

***_____(Pls Initial) It is the Buyer's responsibility to verify quantities and description of items quoted.

Once your order has been placed, any changes including additions, deletions or color changes, will delay your shipment.

EXCLUSIONS: Unless specified, this quote specifically ***excludes*** all of the following:

Required Permits
Performance/Payment Bonds
Site work and landscaping
Unloading; Receiving of inventory or equipment; Storage of equipment
Safety surfacing; Borders or drainage requirements
Landscaping Repairs DUE to poor access or in climatic weather

FREIGHT AND DELIVERY:

Shipping is FOB Origin. A 24-hr Call Ahead is available at additional cost.
Delivery is currently 5+ weeks after order submittal. Unless otherwise noted, all equipment is delivered unassembled.
***_____(Pls Initial)**Buyer is responsible to meet and provide a minimum of 2 ADULTS to unload truck**
A Check List, detailing all items shipped, will be mailed to you and a copy will be included with the shipment.
Buyer is responsible for ensuring the Sales Order and Item Numbers on all boxes and pieces match the Check List.
***_____(Pls Initial)Shortages or damages must be noted on the driver's delivery receipt. Shortages or damages not noted become the buyers financial responsibility.
Damaged Freight must be refused. Please notify Northwest Playground Equipment immediately of any damages.
Shortages and Concealed Damage must be reported to Northwest Playground Equipment within 10 days of delivery.
A reconsignment fee will be charged for any changes made to delivery address after order has been placed.

TAXES:

All orders delivering in Washington are subject to applicable sales tax unless a tax exemption or Reseller Permit is on file at the time the order is placed.

PAYMENT TERMS: An approved Credit Application is required for new customers. 50% down payment is due at time of order with balance due upon delivery, unless other credit terms have been approved. Interest may be charged on past due balances at an annual rate of 18%. A 3% charge will be added to all credit card orders.

RESTOCKING: Items canceled, returned or refused will be subject to a minimum 25% restocking fee. All return freight charges are the responsibility of the Buyer.

MAINTENANCE/WARRANTY:

Manufacturer's standard product warranties apply and cover equipment replacement and freight costs only; labor is not included. Northwest Playground Equipment offers no additional warranties.
Maintenance of the equipment and safety surfacing is the responsibility of the customer.
Any unauthorized alterations or modifications to the equipment (including layout) will void your warranty.

INSTALLATION: (if applicable)

A private locate service for underground utilities must be completed before your scheduled installation.
Site must be level and free of loose debris (this includes ground cover/chips).
A minimum 6 foot opening with good access must be available to the site for delivery trucks and tractor.
An onsite dumpster must be provided for disposal of packaging materials.
Arrangements must be made in advance for the disposal of dirt/rocks from within the installation area.
Arrangements must be made in advance for the removal/disposal of existing equipment.
Additional charges may apply if large rocks or concrete are found beneath the surface.
Access to power and water must be available.
Site supervision is quoted in 8-hour days.

Acceptance of Terms & Conditions:

Acceptance of this proposal, made by an authorized agent of your company, indicates agreement to the above terms and conditions.

Christopher Brummett
Sales Rep

Customer Signature

Date

Thank you for considering Northwest Playground Equipment, Inc for your Park, Playground, Shelter and Sports Equipment requirements

Matt Gray <matt@ginnoconstruction.com>

Re: Travers park

Cole Bitnoff <cole@ginnoconstruction.com> Tue, Sep 19, 2023 at 3:36 PM
To: Chris Brummett <chrisb@nwplayground.com>
Cc: Karen Weiser <KarenW@nwplayground.com>, Matt Gray <matt@ginnoconstruction.com>

Thanks Chris

On Tue, Sep 19, 2023 at 3:35 PM Chris Brummett <chrisb@nwplayground.com> wrote:

> Cole,
>
> Please find the attached quote for the playground relocation at Travers Park. Please note that we have not changed any costing, just date on quote. As previously discussed, we might need to have posts or climbers ordered to replace what is going to be re-installed. It will depend on how well they come out of the ground when removing the structure. I have provided a budget number for some replacement parts, but we will not know what is needed until removal. I apologize for only having a budget number for the replacement parts (if needed at all), but it can vary too much to try and get you a hard quote for that. Please let me know if you have any questions or how I can be of further help.
>
> Regards,
>
> Chris Brummett
>
> Parks Consultant – E. Washington, Idaho, Montana
>
> 509.520.6053 | Direct
>
> 425.313.9161 | Office
>
> ***Building Community Through Play!***

--
Cole Bitnoff
Project Engineer
208-967-2026
cole@ginnoconstruction.com

GINNO

Matt Gray <matt@ginnoconstruction.com>

Travers Park Playground Mulch

David Minick <david@dewdropnw.com> Wed, Sep 20, 2023 at 1:04 PM
To: Justin Cooper <justin@ginnoconstruction.com>
Cc: Matt Gray <matt@ginnoconstruction.com>

Matt,

180' poly edging
3850 sf weed fabric
150 cy of Playground Chips
Equipment & Labor
$13,000

David J Minick

President/Owner
11827 E. Trent Ave
Spokane Valley, WA 99206
Office: 509-922-7168
Mobile: 509-840-0871
david@dewdropnw.com
www.dewdropnw.com
null

> On Sep 20, 2023, at 11:17 AM, Justin Cooper <justin@ginnoconstruction.com> wrote:
>
> [Quoted text hidden]
> <Travers Park Playground Mulch.pdf>

LEGACY
BUILDING SOLUTIONS

Final Proposal | **Q22-0302 Ginno** 9/8/20

138 ' W by 272 ' L | Tennis

All pricing in this document is subject to change upon site investigation and as project parameters are more clearly delineated. This initial proposal is based on the following parameters:

Sandpoint, ID 83864

Snow Load:	**56**	Seismic Zone:	**C**	Exposure:	**Partially**
Wind Load:	**104**	Collateral:	**5**	Occupancy:	**II-Normal**
Wind Exp:	**C**	Enclosure:	**Enclosed**	Code:	**IBC 18**

The design criteria used is accurate to the best of our knowledge. All criteria will need to be verified by local official, and, or customer prior to final design and issuance of sealed drawings

As proposed below, ExxoTec Elite 28 oz exterior fabric carries a 25-year pro-rated limited warranty.

FOUNDATION & FRAME

- **138 ' W by 272 ' L 37,559 sq. ft** Legacy Building Structure
- Grey Primer 28 Day pro-rated limited frame finish warranty
- See Drawings for Clearance Details and Foundation Layouts
- Foundations supplied by others

FABRIC & WALLS

- Patented bolted-keder rail fabric attachment system; individual panels of fabric attached to each frame
- As proposed below, ExxoTec Elite 28 oz exterior fabric carries a 25-year pro-rated limited warranty.
- Fabric End Walls: Engineered Flat Gable Enclosed End Walls: See drawings for door openings sizes and locations
- Inclusive Roof Tensioning Eave system with Mesh Soffit Ventilation - No Ratchets/Straps
- Interior Liner ExxoTec Pro 19 oz
- R-30 Insulation, Roof, Ends and Sides

VENTILATION & DOOR OPENINGS

- 28 ARV-2000 Roof Ventilators

INSTALLATION SERVICES

- Legacy Building Solutions project management will provide installation services which includes: supervision, non-prevailing & non-union labor, equipment and all specialty hand tools necessary to install the above structure and main proposal scope of work on an approved foundation (foundation and anchors supplied by others). Buyer is responsible for obtaining all necessary permits and/or licenses at buyer's cost. Labor is estimated based on 1 mobilization, unlimited site access, 20' flat, solid, and level clearance on all sides, and interior free from obstructions. Any deviations may result in additional charge.

ENGINEERING

- Stamped Building Drawings and Calculation Package

DELIVERY

- Delivery to Site included

ALSO INCLUDED

- lot Thermal break
- Lot Ice Breakers 4" tall, 24" oc
- Lot Gutters & Downspouts
- 1 Pucks required for liner penetrations, mounting locations
- 1 Wood templates
- 1 PP Bond
- 1 Does include extra framing for lights, HVAC duct work, fire supression of all items to this point

1

LEGACY BUILDING COMPONENTS & INSTALLATION SERVICES:

$ 55.22 per sf

Labor $556,639
Materials $1,465,083
Tax $ 52,193

Total cost $2,073,915
Taxes Included (Estimated)
Pricing Valid for 30 days unless otherwise indicated

ADDITIONAL CONSIDERATIONS / OPTIONS

Description	Qty	Total

Standard Terms and Exclusions

TERMS

- LOI has been signed for $25,000 engineering deposit
- 40% of Contract upon order, 40% of Contract upon Delivery of Material, 20% upon substantial completion.

TIMING

- Delivery of Legacy Building Solutions product to your site will vary subject to product availability and client needs.

FOUNDATIONS / ANCHORAGE

- Legacy Building Solutions will provide all reaction data necessary for connection of the Legacy base-plate to the footing/foundation design. The footing/foundation design and type of anchorage of the base-plate is the responsibility of the client.

NOT INCLUDED / EXCLUSIONS

Not included in Legacy's scope of work, supply or pricing, unless specifically included above:

- Additional framing or materials for items including, but not limited to: lighting and electrical packages, HVAC equipment, fire-suppression systems or additional items to be supported by the Legacy structure.
- Any costs for permits.
- Sitework, Foundations and Anchors - supplied by others per Engineered drawings
- Builders Risk insurance, unless specifically included in our stated scope of work.
- Any additional costs related by personnel and/or traffic to access site/security clearance.
- Legacy takes no responsibility for life safety issues or codes, these are solely the responsibility of the owner or architect of record.
- Legacy providing sealed drawings on our building system does not make us the engineer of record.
- Any penetrations by other sub-trades.
- Electrical (Lighting, Communication, Security, etc)
- HVAC Equipment and /or labor
- Plumbing
- Conveying Equipment and/or labor
- Any site security or site fire protection.
- Any safety items not specifically related to OSHA manpower protection issues.
- Any other items or issues not specifically listed in this scope of work

GINNO

Matt Gray <matt@ginnoconstruction.com>

Anchor Bolt estimate

Shannon Humbert <shumbert@legacybuildingsolutions.com> Wed, Sep 13, 2023 at 12:11 PM
To: "matt@ginnoconstruction.com" <matt@ginnoconstruction.com>, Troy Jurek <tjurek@legacybuildingsolutions.com>

Matt,

Here is estimate only based on what we can see in current drawings.

Let me know if you have any questions.

Thanks

Shannon

The estimate below could change based upon what the final anchor bolt schedule stipulates.

Total estimated price is $22,119.

This includes:

Plain bolts/nuts/washers—(104) 1 ¼" and (48) ¾"

Fabrication of (4) corner embed plates

One plywood template per baseplate type (4 total) (this part is included in Legacy proposal)

Freight to site

This does not include:

Assembly of the anchor bolt assemblies (this is just a supply of boxed individual components)

Welding or striking of threads at the bottom nut/anchor rod

Supply or install of plate washers—this because they are not indicated as required on the drawings (so, I only bring this up because this is a very high-dollar item if required in final design)

LEGACY ISO

image001.png
18K

INW EARTHWORKS

31

Bid for Civil Work on Travers Park, Quote G2-200

Overview		
1	$6,688	Mobilization and Demobilization
2	$20,800	Erosion control-Silt Fences, Filter Fabric for inlet protection, Construction Entrance with street cleaning and dust control.
3	$16,380	Asphalt parking Removal, Median with bushes and dirt w/ wood perimeter removal, asphalt sidewalk removal/ bollard removal. Asphalt and curb removal for utility trenching in Pine Street with east and west asphalt removal of parking lot entrances.
4	$5,425	Concrete Removal which includes path, playground perimeter and gazebo concrete
5	$41,605	Excavation of Organics and fill dirt around park
6	$15,487	Tree Removal and Disposal
7	$18,115	Prep for Gravel Pathway
8	$28,622	Prep for New Concrete Sidewalk and Curb, with prep for concrete in front of facility
9	$17,695	Prep for new Asphalt
10	$105,083	Storm Drain System Installation (80901 HD Fowler quote including trench Drain)
11	$66,520	Water Services installation including fire hydrant and fire suppression lines. (On C140 Note (9) the size and location of water vault is not determined and will be determined by city of Sandpoint. The actual cost of the vault and installation of the vault will be a pass-through cost to the developer or G.C.)
12	$86,620	Sewer installation (including street work for new Manhole with connection to the main and pot holing as per addendum 1).
TOTAL		**$429,040**

-Idaho Contractors license #RCE-65475
-Idaho Public Works License#066821-D-1-2

Exclusions: Removal and relocation of playground, batting cages, gazebo and park chairs. (to be done by others), permits surveying, service connection fees, and rock excavation or breaking of any kind. We can negotiate site development of new playground area once design is finalized.

INW Earthworks LLC acknowledges Addendum #1.

BASE ROCK PLAY GROUND
4,000

PEDESTRIAN
LIGHT/HEAVY DUTY PATHS... YES!

Rob DuRette
Owner
INW Earthworks, LLC
https://inwearthworks.com/
Cell: 907-254-6601
Email: rdurette@icloud.com

Gus Coonradt
Independent Sales Representative
INW Earthworks, LLC
https://inwearthworks.com/
Cell: 303-501-2829
Work: 208-503-6105
Email: gus.inwearthworks@gmail.com

31

Wood's CRUSHING & HAULING, INC.

Serving the great northwest since 1975.

ROCK • ASPHALT • CONCRETE

Sandpoint, ID • 208-263-4800

To:	Ginno Construction	**Contact:**	
Address:	3893 N. Schreiber Way	**Phone:**	(208) 667-5560
	Coeur D' Alene, ID 83815	**Fax:**	(208) 665-0471
Project Name:	Travers Park Bid Package #1	**Bid Number:**	23307
Project Location:		**Bid Date:**	9/20/2023

We are pleased to submit the following estimate for your consideration

Item Description	Estimated Quantity	Unit	Unit Price	Total Price
Mobilization	1.00	LS	$3,500.00	$3,500.00
			Total Price for above Items:	**$3,500.00**
1. Path - Fire Lane				
Place And Compact 3/4 Minus Gravel 6" In Depth	370.00	TON	$52.00	$19,240.00
2 1/2" Hot Mix Asphalt	170.00	TON	$137.00	$23,290.00
			Total Price for above 1. Path Items:	**$42,530.00**
2. Parking Lot				
Place And Compact 3/4 Minus Gravel 6" In Depth	135.00	TON	$52.00	$7,020.00
3" Hot Mix Asphalt	75.00	TON	$137.00	$10,275.00
			Total Price for above 2. Parking Lot Items:	**$17,295.00**
3. Utility Trench Patching				
Grade And Compact Existing Material	11,775.00	SF	$1.20	$14,130.00
3"-4" Hot Mix Asphalt	300.00	TON	$139.00	$41,700.00
			Total Price for above 3. Utility Trench Patching Items:	**$55,830.00**
4. Interior Asphalt				
Grade And Compact Existing Material	37,950.00	SF	$0.18	$6,831.00
Place And Compact 3/4 Minus Gravel 8" In Depth	1,750.00	TON	$46.00	$80,500.00
3 1/2" Hot Mix Asphalt	845.00	TON	$142.00	$119,990.00
			Total Price for above 4. Interior Asphalt Items:	**$207,321.00**

Total Bid Price: $326,476.00

Notes:

- For Concrete Questions please call Chris at 208-290-7437
- Excludes any surveying or grade staking
- Excludes any compaction testing
- Due to fluctuating costs of fuel and asphalt oil any increase in price will be passed on to the customer
- It is understood that the above is an estimate of the quantities to be done and that the payment shall be made at the stated unit prices on the actual quantities of work performed by the company as determined upon completion of work
- ITD Public Works: 11242-AAA-4
  WA Contractor # WOODSCH121DQ
  MT Contractor # 14219
  Construction Contracting Business: RCE-1911
- Prices may be withdrawn if not accepted within 15 days of receiving this proposal

Payment Terms:

Payment is due within 30 days upon receiving invoice

ACCEPTED:	CONFIRMED:
The above prices, specifications and conditions are satisfactory and are hereby accepted.	**Wood's Crushing And Hauling Inc.**
Buyer: _____	
Signature: _____	**Authorized Signature:** _____
Date of Acceptance: _____	**Estimator:** Scott Wood

A.E. Goodrick Company
Products for Construction and Industry

10 Creekwood Lane SW Lakewood, WA 98499
(253) 301-1080 FAX (253) 588-4230
candler@comcast.net

Subject: Travers Park Recreation Center, Sheet C140; Trench Drain
Date: 6/26/23
Pages: Four (Including this page)

Following please find the:

1. Intended lay-out for the specified Zurn Trench Drain System on this project.
2. Proposal to supply the product
3. Data sheet on the product

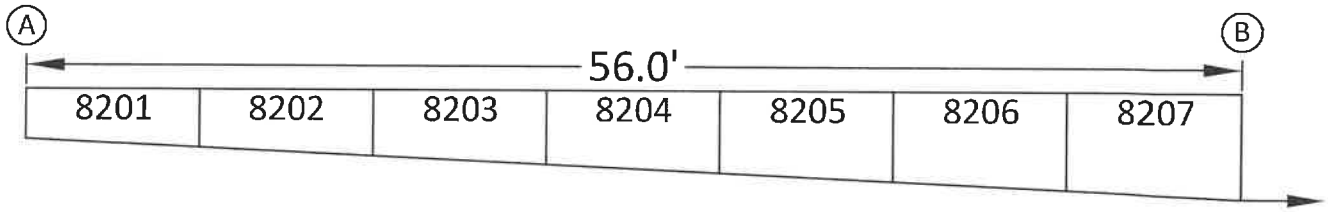
The proposal that we are sending is what we were able to determine was on this project. It is the responsibility of the contractor to verify the quantities.

If you have any questions, please call.

Sincerely,

Paul Candler, P.E.

TRAVERS PARK RECREATION CENTER
TRENCH DRAIN LAYOUT



ZURN Z-882-HD-DGC 12" HDPE CHANNELS, HEAVY DUTY FRAMES, SLOTTED DUCTILE IRON GRATES (CLASS C)

(A) E1 CLOSED END CAP
IE=-6.25"

(B) E6 NO-HUB END OUTLET
IE=-13.25"

A.E. GOODRICK COMPANY		PROJECT NAME: TRAVERS PARK RECREATION CENTER	DATE: 6/26/23
			SCALE: N.T.S.
		PLAN REFERENCE: SHEET C140	SHEET 1 OF 1

AE Goodrick Company

10 Creekwood Lane SW
Lakewood, WA 98499

22

Proposal

Date	Estimate #
6/23/2023	2902

Name / Address
Traver's Park Recreation Center Sheet C140; Trench Drain

Project

Item	Description	Qty	Rate	Total
Z-882-HD-DGC	Zurn 882 Channel, Heavy Duty Frame, Z-882-DGC Slotted DI Grate, 8'	7	1,098.90	7,692.30
Z-882-E1	Zurn 882 Flat End Cap	1	37.60	37.60
Z-882-E6	Zurn 882 End Cap with 6" NH Outlet	1	37.60	37.60
	Channels 1 EA #8201-#8207			

FOB Ontario, CA. Estimated freight ~ $400. Actual freight charges will be ppd & added to invoice.

Total $7,767.50

Phone #	Fax #	E-mail
(253) 581-2198	(253) 588-4230	candler@comcast.net

Z882

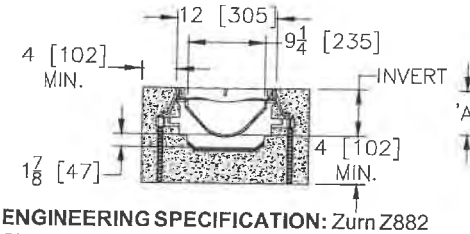
12 [305] WIDE REVEAL TRENCH DRAIN SYSTEM WITH STEEL FRAME

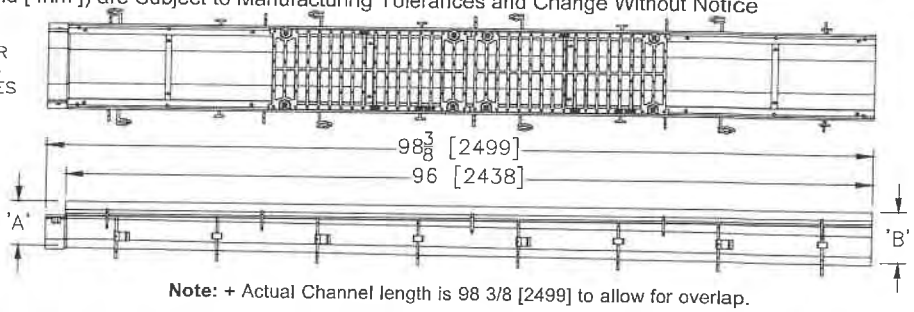
SPECIFICATION SHEET

TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice

SPECIFYING ENGINEER IS RESPONSIBLE FOR CONCRETE ENCASEMENT AND REINFORCING BASED UPON APPLICATION AND LOCAL CODES





Note: + Actual Channel length is 98 3/8 [2499] to allow for overlap.

ENGINEERING SPECIFICATION: Zurn Z882
Channels shall be 96" [2438mm] long, 12" [305mm] wide reveal and have a 9-1/4" [235mm] throat. Modular channel sections shall be made of 0% water absorbent High Density Polyethylene (HDPE). Shall have a positive mechanical connection between channel sections that will not separate during the installation and shall mechanically lock into the concrete surround every 12" [305mm]. Channels shall weigh less than 5.05 lbs. [2.29kg] per linear foot, have a smooth, 3" [76mm] radiused self cleaning bottom with a Manning's coefficient of 0.009 and 1.04% or neutral 0% built in slope. Channels shall have rebar clips standard to secure trench in its final location. Shall be provided with standard DGC grates that lock down to frame. Zurn 12" [305mm] wide reveal ductile iron slotted grate conforming to ASTM specification A536-84, Grade 80-55-06. Ductile iron grate is rated class C per the DIN EN1433 top load classifications. Supplied in 24" [608mm] nominal lengths with 13/16" [21mm] wide slots, and 1-1/2" [38mm] bearing depth. Grate has an open area of 80.8 sq. in per ft. [171,027 sq. mm per meter]. The 1/4" [6mm] thick heavy-duty carbon steel frame assembly conforms to ASTM specification A36 with 10 - 4" [102mm] long concrete anchors per 96" [2438mm]. Grate lockdown bars are to be integral to the frame. The frame is supplied with a powder coated finish. All welds must be performed by a certified welder per ASTM standard AWS D1.1. Frames Shall be produced in the U.S.A.

PREFIX OPTIONS (Check/specify appropriate options)

_x_ Z Eight-foot High Density Polyethylene (HDPE) Channel, Heavy-Duty Frame with Anchor Studs.*

SUFFIX OPTIONS (Check/specify appropriate options)

Outlet Adapters Add/Each

_x_ -E1 Closed End Cap
___ -E4 4 [102] No-Hub End Outlet
_x_ -E6 6 [152] No-Hub End Outlet
___ -E8 8 [203] No-Hub End Outlet
___ -U4 4 [102] No-Hub Bottom Outlet
___ -U6 6 [152] No-Hub Bottom Outlet
___ -U8 8 [203] No-Hub Bottom Outlet

Grate Options (Load Classifications are per DIN EN1433)

___ -BDC Black Acid Resistant Epoxy Coated Ductile Grate - Class C
___ -BDE Black Acid Resistant Epoxy Coated Ductile Grate - Class E
___ -BDF Black Acid Resistant Epoxy Coated Ductile Grate - Class F
___ -DC Ductile Iron Solid Cover - Class E
_x_ -DGC Ductile Iron Slotted Grate - Class C *
___ -DGE Ductile Iron Slotted Grate - Class E
___ -DGF Ductile Iron Slotted Grate - Class F
___ -GDC Galvanized Ductile Slotted Grate - Class C
___ -GDE Galvanized Ductile Slotted Grate - Class E
___ -GDF Galvanized Ductile Slotted Grate - Class F
___ -GHPD Galvanized Heel-Proof Ductile Grate - Class B
___ -GHPDE Galvanized Heel-Proof Ductile Slotted Grate - Class E
___ -HPD Heel-Proof Ductile Slotted Grate - Class B
___ -HPDE Heel-Proof Ductile Slotted Grate - Class E
___ -HPDE Heel-Proof Ductile Slotted Grate - Class E
___ -RFGC Reinforced Slotted Galvanized Grate - Class C
___ -RPGC Reinforced Perforated Galvanized Grate - Class C
___ -RPGRC Reinforced Perforated Galvanized Reverse Punch Grate - Class C

Trench No.	'A' Shallow Inv.	'B' Deep Inv.	Flow (cfs)	Flow (gpm)	Flow (lps)
8201	6.25 [159]	7.25 [184]	1.241	557	35
8202	7.25 [184]	8.25 [210]	1.725	774	49
8203	8.25 [210]	9.25 [235]	2.226	999	63
8203N	9.25 [235]	9.25 [235]	-	-	-
8204	9.25 [235]	10.25 [260]	2.745	1232	78
8205	10.25 [260]	11.25 [286]	3.271	1468	93
8206	11.25 [286]	12.25 [311]	3.808	1709	108
8206N	12.25 [311]	12.25 [311]	-	-	-
8207	12.25 [311]	13.25 [337]	4.347	1951	123
8208	13.25 [337]	14.25 [362]	4.893	2196	139
8209	14.25 [362]	15.25 [387]	5.443	2443	155
8209N	15.25 [387]	15.25 [387]	-	-	-
8210	15.25 [387]	16.25 [413]	5.996	2691	170
8211	16.25 [413]	17.25 [438]	6.551	2940	186
8212	17.25 [438]	18.25 [464]	7.106	3189	202

___ -RFSC Reinforced Slotted Stainless Steel Grate - Class C
___ -RPSC Reinforced Perforated Stainless Steel Grate - Class C
___ -RPSRC Reinforced Perforated Stainless Steel Reverse Punch Grate - Class C

Miscellaneous Options

___ -CBF Black Acid Resistant Coated Top Frame
___ -JC Joint Connector
___ -SW Sidewall Extensions - 11 [279] High
___ -SW2 Double Sidewall Extensions - 22 [559] High
___ -VP Vandal-Proof Lockdown

MADE in the U.S.A.

___ -ADA-USA Meets Americans with Disabilities Act Requirements - Class C
___ -BG Galvanized Steel Bar Grate - Class D
___ -DGC-USA Ductile Iron Slotted Grate - Class C
___ -DGE-USA Ductile Iron Slotted Grate - Class E
___ -FG Fabricated Galvanized Steel Slotted Grate - Class A
___ -FS Fabricated Stainless Steel Slotted Grate - Class A
___ -GADA-USA Galvanized Ductile ADA Slotted Grate - Class C
___ -GDC-USA Galvanized Ductile Slotted Grate - Class C
___ -GDE-USA Galvanized Ductile Slotted Grate - Class E
___ -GHPDE-USA Galvanized Ductile Slotted Grate - Class E
___ -HPDE-USA Heel-Proof Ductile Slotted Grate - Class E
___ -GG Fiberglass Grate - Class A
___ -PG Perforated Galvanized Steel Grate - Class A
___ -PS Perforated Stainless Steel Grate - Class A
___ -SBG-L Stainless Steel Bar Grate - Class C

Miscellaneous Options

___ -DB Bottom Dome Strainer

* Regularly furnished unless otherwise specified.

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA U.S.A. 16502 · Ph. 855-663-9876, Fax 814-454-7929
In Canada | **Zurn Industries Limited**
3544 Nashua Drive, Mississauga, Ontario L4V 1L2 · Ph. 905-405-8272, Fax 905-405-1292
www.zurn.com

Rev. G
Date: 12/15/17
C.N. No. 139333
Prod. | Dwg. No. Z882

ALSC ARCHITECTS



Travers Park Recreation Center
City of Sandpoint

BID PACKAGE 1

AUGUST 25, 2023

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Not used

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SECTION 01 25 13

PRODUCT SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Contractor's Options

B. Substitutions

C. Architect's Options

D. After Contract Award

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following sections:

1. Section 01 33 00 – Submittal Procedures

1.3 CONTRACTOR'S OPTIONS

A. For products specified only by reference standards, select any product meeting standards, by any manufacturer.

B. For products specified by naming several products or manufacturers, select any product and manufacturer named.

1.4 SUBSTITUTIONS

A. During the subcontractor buy-out process, the Architect will consider written requests from bidders for substitutions only when received in triplicate on the form provided in Section 01 25 13. No request will be considered unless received at least ten (10) days prior to the Bid date. Requests for substitutions after the bid date will be only considered if in conformance to specified section 01 25 13 Paragraph 1.06.

B. In connection with the use of any substitute item approved by the Architect, it shall be in the Contractor's responsibility to see that such items meet all space requirements, and that any alterations to connecting items necessitated by use of the alternate items are properly made, at no increase in cost to the Owner.

C. Specific reference in the specifications to any article, device, product, materials, form or type of construction, etc., by name, make or catalog number, shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition.

D. In making request for substitution, the Contractor and Bidder/Subcontractor represents:

1. It personally investigated proposed product or method, and determined that it is equal or superior in all respects to that specified.
2. It will provide the same guarantee for substitution as for product or method specified.
3. It will coordinate installation of accepted substitution into Work, making such changes as may be required for Work to be complete in all respects at no additional cost to Owner.
4. It waives all claims for additional costs or time extensions related to the substitution which consequently becomes apparent.
5. It will reimburse Owner for review or redesign services associated with re-approval by authorities.

E. In order to allow the fullest competition, consistent with the Owner's interests, the Architect will give consideration, prior to submission of proposals, to requests for approval of products and materials competitive with and similar to those specified by proprietary name.

F. To be considered and in order to facilitate review of requests for approval of substitutions for specified products or materials, all such requests shall be made in writing on the form included as a part of this section, and shall be signed by a Contractor/Bidder.

G. Should any proposed product substitution require any redesign work by the Architect or the Architect's consultants to accommodate the substitute product, costs for such re-design work shall be included in the Bid amount and shall be paid to the Architect at the Architect's usual rates for the time expended in the required re-design work.

1.5 ARCHITECT'S OPTIONS

A. Architect will be the judge of acceptability of any proposed substitution, subject to the Owner’s approval.

B. Only approved substitutions may be used on Contract Work.

C. Each request for substitution approval shall include:

1. Identity of product for which substitution is requested; include specification page and paragraph number.
2. Identity of substitution; include complete product description, drawings, photographs performance and test data, and any other information necessary for evaluation.
3. Quality comparison of proposed substitution with specified product.
4. Changes required in other work because of substitution.
5. Effect on construction progress schedule.
6. Cost comparison of proposed substitution with specified product.
7. Any required license fees or royalties.
8. Availability of local maintenance service.
9. Source of replacement materials.

1.6 AFTER CONTRACT AWARD

A. Approval will be granted only when:

1. Specified product cannot be delivered without Project delay, or
2. Specified product has been discontinued, or
3. Specified product has been replaced by superior product, or
4. Specified product cannot be guaranteed as specified, or
5. Product will not perform properly, or
6. Specified product will not fit within designated space, or
7. Specified product does not comply with governing Codes or regulations, or
8. Substitution determined by the Owner to be in its best interest.

B. The Contractor shall follow all applicable substitution procedures in this section, including the attached form, for all substitutions requested during the Submittals process.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 25 13

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SUBSTITUTION REQUEST FORM

TO _____

PROJECT _____

1. We hereby submit for your consideration the following product instead of the specified item for the above project:

Section	Page	Line/Paragraph	Specified Item

2. Proposed Substitution: _____

3. Reason for Substitution: _____

4. Attach complete technical data, including laboratory tests, if applicable.

5. Include complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

6. Does the substitute affect dimensions shown on Drawings? _____

6a. If so, how? _____

7. Will the undersigned pay for changes to the building and systems design, including engineering and detailing costs caused by the requested substitution? _____

8. Describe the effect substitution has on other trades: _____

_____

9. Differences between proposed substitution and specified item: _____

_____

10. Manufacturer's guarantees of proposed and specified items are: ☐ Same ☐ Different (explain on attachment)

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

SUBMITTED BY:

_____
Signature

_____
Firm

_____
Mailing Address

_____
City State Zip

_____
Telephone

_____
Date

☐ Please check if there are attachments.

FOR USE BY REVIEWER:

☐ Accepted ☐ Accepted as Noted

☐ Not Accepted ☐ Received Too Late

☐ Approved for Bidding subject to review and approval of Submittals.

By _____

Date _____

Remarks _____

_____

_____

_____

_____

***** Answer all questions ***** Fill in all blanks ***** Use back of form & attachments as needed *****

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related Sections include the following:

1. Division 1 Section 01 25 13 Product Substitution Procedures, for administrative procedures for handling requests for substitutions made after contract award.

1.2 SUMMARY

A. This section specifies administrative and procedural requirements for handling and processing Contract Modifications, including use of the Owner's cloud-based project management software.

1.3 CHANGE PROPOSAL (CP)

A. The Construction Project Manager will issue a Change Proposal which includes a detailed description of a proposed change with supplementary of revised Drawings and specifications, may include a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time which the requested price will be considered valid. Contractor will prepare and submit a detailed proposal within (14) fourteen days. All CP's and responses will be transmitted through the Owner's cloud-based project management software.

1.4 REQUESTS FOR INFORMATION (RFI)

A. Contractor to submit all questions for interpretation to the Architect on an electronic RFI form. RFI's will be accepted from the Contractor only. RFI's from any other party such as subcontractors will not be accepted. Contractor shall be responsible for maintaining the RFI log, and providing the Architect and Owner an electronic copy weekly. All RFI's and responses will be transmitted through the Owner's cloud-based project management software.

1.5 CONSTRUCTION CHANGE DIRECTIVE (CCD)

A. Owner will issue a Construction Change Directive and Change Proposal Request per the provisions of Section 00 72 00, General Conditions. The Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order via a Change Proposal Request. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time, if any. All CCD's will be transmitted through the Owner's cloud-based project management software.

1.6 CHANGE ORDER (CO)

A. On Owner's approval of a Change Proposal(s) cost, Owner will issue a Change Order, per the provisions of A201-General Conditions, as modified, and the General Requirements. This form will be provided electronically at the Preconstruction Meeting.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 ELECTRONIC MANAGEMENT AND CONTROLS SYSTEM.

A. The Owner will provide access to a cloud-based project management software for the use of the primary project participants. All contract modifications procedures will be transmitted, recorded, and archived through this site. When required for manual signature, paper documents will be scanned to file.

B. Access protocol

1. Contractor: Provide to the Owner the full name, title, and email address of each contractor's employee for which access is requested, along with level of access (read, write, download, upload) requested.

END OF SECTION 01 26 00

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Architect's Administration

B. Owner and Owner's Project Manager's Administration

C. Commissioning Agent's Administration

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Drawings and other Division-1 Specification Sections, apply to this Section.

B. Make particular reference to the following sections:

1. Section 01 11 00 - Summary of Work
2. Section 01 31 13 - Project Coordination
3. Section 01 31 19 - Meetings
4. Section 01 33 00 – Submittal Procedures
5. Section 01 32 00 – Construction Progress Documentation
6. Section 01 50 00 – Temporary Facilities and Controls
7. Section 01 25 13 – Product Substitution Procedures
8. Section 01 77 00 - Contract Closeout

1.3 THE ARCHITECT'S ADMINISTRATION

A. The Architect shall at all times have access to the Work whenever it is in preparation or progress. The Contractor shall provide safe facilities for such access so the Architect may perform its functions under the Contract Documents.

B. The Architect will not be responsible for or have control or charge of the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect will not be responsible for the acts or omissions of the Contractor, any Subcontractors, or any of their agents or employees, or any other persons performing any of the Work.

C. As required, the Architect will render, within a reasonable time, interpretations or clarifications of requirements of the Drawings and Specifications. Unless in special circumstances where a longer time is warranted or where the contractor requests a shorter period and the owner agrees, fourteen days shall be deemed a reasonable time. The Architect will make all interpretations consistent with the intent of, and reasonably inferable from the Contract Documents. The Architect's decisions in matters

relating to artistic effect shall be final if consistent with the intent of the Contract Documents.

D. If the Owner terminates the employment of the Architect, the Owner may appoint a new Architect. Status of the new Architect under the Contract Documents shall be that of the former Architect.

E. The Architect is not bound to define the limits of any subcontract, and will not enter into disputes between the Contract and its employees, including subcontractors. Notwithstanding any provisions of the Contract Documents to the contrary, all decisions, order and certificates of Architect are advisory only and not binding upon Owner until approved by Owner.

1.4 THE OWNER AND OWNER'S PROJECT MANAGER'S ADMINISTRATION

A. The Owner and the Owner's Project Manager shall at all times have access to the Work whenever it is in preparation or progress. The Contractor shall provide safe facilities for such access.

B. The Owner and the Owner's Project Manager shall not be responsible for or have control or charge of the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

C. The Owner and Owner's Project Manager will not be responsible for the failure of the Contractor to plan, schedule and execute the Work in accordance with the approved schedule or the failure of the Contractor to meet the Contract completion dates or the failure of the Contractor to schedule and coordinate the Work of his/her own employees and Subcontractors or to coordinate and cooperate with other separate Contractors.

D. The Owner's Project Manager shall have the authority and discretion to call, schedule and conduct job meetings and other special meetings to be attended by the Contractor, representatives of its Subcontractors and the Architect, to discuss such matters as procedures, progress, problems and scheduling.

E. The Owner's Project Manager will establish procedures to be followed for processing all shop drawings, catalogs, requests for information and other Project reports and other documentation, test reports and maintenance manuals.

F. The Owner's Project Manager has authority to disapprove, condemn or reject work on behalf of the Owner when, in the Owner's Project Manager's opinion, the Work does not conform to the Contract Documents. Whenever in the Owner's Project Manager's reasonable opinion it is considered necessary or advisable to ensure the proper implementation of the intent of the Contract Documents, the Owner's Project Manager will have the authority to require special inspection or testing of any Work in accordance with the provisions of the Contract Documents whether or not such Work be then fabricated, installed or completed.

1.5 THE COMMISSIONING AGENT'S ADMINISTRATION

A. A "Commissioning Agent" has been hired by the Owner to develop the Commissioning Plan and to monitor the work of the Test Engineer in the development implementation and execution of the System Commissioning (see 01 91 00, Divisions 22, 23, 26 and 27).

B. The Commissioning Agent shall at all times have access to the Work whenever it is in preparation or progress. The Contractor shall provide safe facilities for such access so the Commissioning Agent may perform its functions under the Contract Documents.

C. The duties of the Commissioning Agent include:

1. Develop the Commissioning Plan.
2. Review the Contractor's systems startup plans.
3. Review the Contractor's system and inter-systems functional performance test procedures.
4. Witness and verify satisfactory completion of equipment component and systems and inter-systems functional performance tests.
5. Review specified documentation.
6. Monitor testing, adjusting and balancing work.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 31 00

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SECTION 01 31 13

PROJECT COORDINATION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Construction Organization and Start-up

B. Coordinating Subcontractors' Work

C. Coordinating Utilities

D. Closeout Duties

E. Owner's Notice

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following Division One sections:

1. Section 01 11 00: Summary of Work
2. Section 01 73 29: Cutting and Patching
3. Section 01 31 00: Project Management and Coordination
4. Section 01 31 19: Project Meetings
5. Section 01 32 00: Construction Progress Documentation
6. Section 01 33 00: Submittal Procedures
7. Section 01 50 00: Temporary Facilities and Controls
8. Section 01 81 19: Indoor Air Quality Requirements
9. Section 01 77 00: Closeout Procedures
10. Section 01 74 00: Cleaning and Waste Management
11. Section 01 80 00: General Commissioning Requirements
12. Section 01 91 00: Commissioning

1.3 CONSTRUCTION ORGANIZATION AND START-UP

A. Comply with procedures for intra-project communications established by the Construction Manager including:

1. Submittals
2. Reports and records
3. Recommendations
4. Coordination drawings
5. Schedules
6. Resolution of conflicts
7. Meetings
8. Change requests and Change Orders
9. Requests for Information

B. Contract Documents Interpretation:

1. Consult with Architect to obtain interpretation.

2. Assist in resolution of questions and conflicts which may arise.
3. Transmit written interpretations to Subcontractors, and to other concerned parties.
4. Permits and Approvals: Verify in writing to Architect within thirty (30) days after Notice to Proceed that Subcontractors have obtained required permits and inspections for work and for temporary facilities.

C. Control Use of Site:

1. Supervise field engineering and Project layout.
2. Allocate field office and storage space and work and storage area for use of each Subcontract or Contractor.

1.4 COORDINATING SUBCONTRACTORS' WORK

A. The Contractor shall provide detailed coordination drawings and resolve conflicts prior to fabrication of ductwork, procurement of equipment and installation of pipe; submit coordination drawings for review. Minimum trades involved for coordination drawings are fire protection, plumbing, HVAC, electrical, fire alarm, security, communication systems and structural. Coordination drawings shall include plan views and sections incorporating all trades listed herein. Areas to be covered include, but not limited to, mechanical equipment spaces, shafts, and spaces above finish ceilings in rooms and corridors. If existing structures are present in these areas the Contractor is to field verify locations. The Contractor is required to work out all space conflicts prior to submission of these coordination drawings. Drawing scale must be 1/8 inch = 1'-0" or larger. Coordinate the Work of all Subcontractors and make certain that, where the Work of one trade is dependent upon the Work of another trade, the Work first installed is properly placed, installed, aligned, and finished as specified or required to properly receive subsequent materials applied or attached thereto.

B. The Contractor shall be responsible for coordination of all utilities to be installed for service to the project and shall cooperate with all utility agencies. Utilities may include, but are not limited to, natural gas, water, sanitary sewer and storm sewer, telephone, electrical, and cable television. The Contractor shall maintain communication with the utilities in order to coordinate time and requirements of the utilities' installation. The Owner has established accounts and will pay the utilities directly for all permanent utility connection fees charged by the utilities.

C. The Contractor shall provide all work necessary to comply with the requirements of the Contract Documents for work by the utility company that does not meet the Contract Document requirements, or for work that is disturbed by the utility installation.

D. The Contractor shall be responsible for compliance with Idaho Code Title 55, Chapter 22, to locate and protect existing utilities.

E. Direct Subcontractors to correct defects in substrates they install when Subcontracts of subsequent materials have a reasonable and justifiable objection to such surfaces.

F. Do not force Subcontractors to apply or install products to improperly finished product.

G. Coordinate changes to assure that:

1. Requirements of Contract Documents are fulfilled.
2. Changes in Contract requirements of all affected trades are reflected in executed Change Orders.

H. Scheduling and Installation Sequence:

1. Coordinate scheduling, submittals, and Work of various sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
2. Schedule work in accordance with current Project construction schedule.

    a. Coordinate schedules of all trades.
    b. Verify timely deliveries of products for installation by other trades.
    c. Verify that labor and equipment are adequate for work and schedule.
    d. Verify that material deliveries are adequate to maintain schedule.

I. Space Requirements:

1. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings.
2. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building.
3. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
4. Coordinate installation of difference components to assure maximum accessibility for required maintenance, service, and repair.

J. Concealed Services:

1. In areas receiving ceiling, wall or floor finishes, except as otherwise indicated, conceal pipes, ducts, and wiring within construction.
2. Coordinate locations of fixtures and outlets with finish elements.

K. Ascertain need for cutting and patching, and coordinate with work of other trades, and the Architect.

L. Completion and Clean Up:

1. Coordinate completion and clean up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner occupancy.

M. Start-Up, Inspection, and Acceptance of Equipment:

1. Verify that manufacturer's representative is present.
2. Verify that utilities, specified connections, and safety devices are complete and equipment is ready to operate.
3. Verify that equipment has been tested, adjusted, and balanced, is cleaned, repainted as required, and operational prior to inspection.

N. Access for Corrective Work:

1. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.5 COORDINATING UTILITIES

A. The Owner will pay for permanent utility connection fees. The Contractor shall be responsible for coordination of all utilities to be installed for service to the project and shall cooperate with all utility agencies. Utilities may include, but are not limited to, natural gas, water, sanitary sewer and storm sewer, telephone, electrical, and cable television. The Contractor shall maintain communication with the utilities in order to coordinate time and requirements of the utilities' installation.

B. The Contractor shall provide all work necessary to comply with the requirements of the Contract Documents for work by the utility company that does not meet the Contract Document requirements, or for work that is disturbed by the utility installation.

C. The Contractor shall be responsible for compliance with Ch. 19.122 RCW to locate and protect existing utilities.

1.6 CLOSEOUT DUTIES

A. At completion of Work of each subcontract, conduct inspection to assure that:

1. Work is acceptable.
2. Assist Architect in inspection.
3. Temporary facilities and debris have been removed from Site.

B. Substantial Completion:

1. Conduct inspection and prepare list of work to be completed or corrected.
2. Assist Architect in inspection.
3. Supervise correction and completion of Work as established in Architect's inspection reports and "punchlists".
4. Provide written notification of Substantial Completion with punchlist information.
5. Obtain Certificate of Occupancy from governing authorities.

C. Final Completion:

1. Submit and obtain approval of all contract closeout documents.
2. Assist Architect and Construction Manager in inspection.

1.7 OWNER'S NOTICE

The Contractor shall give the Owner forty-eight (48) hours advance notice of his intention to work overtime, nights, Sundays, or holidays, or anytime outside the usual working hours. In no case will the Contractor do any such work without first notifying the Owner to permit arrangements for proper inspection. Unless of an emergency nature, compensation for work performed in violation of this paragraph will not be made. The Contractor shall reimburse the Owner for the additional cost of any testing or inspection work performed on Sundays or recognized holidays. Such reimbursement shall include all additional costs to the Owner.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 31 13

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SECTION 01 31 19

PROJECT MEETINGS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Description

B. Authority Designation

C. Submittals

D. Agenda

E. Pre-installation Conferences

F. Minutes

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following Division One sections:

1. Section 01 31 13 - Project Coordination
2. Section 01 31 00 – Project Management and Coordination
3. Section 01 32 00 – Construction Progress Documentation

1.3 DESCRIPTION

A. Work included:

1. See Section 01 31 00, Paragraph 1.04.D regarding meetings called by the Owner's Project Manager.
2. In general, project meetings will be held weekly at the job site in accordance with a mutually acceptable schedule. The Contractor in conjunction with the Architect and Owner's Project Manager will conduct project meetings throughout the construction period.
3. The purpose of the project meetings is to enable orderly review of progress during construction and to provide for systematic discussion and analysis of problems that might arise between the Owner, Architect, Owner's Project Manager, and/or Contractor relative to execution of the Work.

B. Related work described elsewhere:

1. The Contractor's relations with his subcontractors and material suppliers, and discussions relative thereto, and the Contractor's responsibility as described in the General Conditions are not part of project meetings content.

1.4 AUTHORITY DESIGNATION

A. Persons designated by the Contractor to attend and participate in project meetings shall have all required authority to commit the Contractor to solutions as agreed upon in the project meetings.

1.5 SUBMITTALS

A. Agenda Items: To the maximum extent possible, advise the Owner's Project Manager at least twenty-four (24) hours in advance of the project meeting regarding all agenda items to be discussed.

1.6 AGENDA

A. Pre-construction Meeting

1. The Owner's Project Manager in conjunction with the Architect will conduct this meeting within fifteen (15) days after date of Notice to Proceed.
2. Location: To Be Determined
3. Attendance:

    a. Owner's Project Manager
    b. Architect and professional consultants for mechanical, electrical, civil, and structural disciplines
    c. Contractor's Project Manager, Superintendent, and Project Engineer(s)
    d. Major Subcontractors, as appropriate
    e. Major suppliers, as appropriate
    f. Others, as appropriate

4. Suggested Agenda:

    a. Team Introduction, roles and responsibilities
    b. Distribution (by Contractor) and discussion of:

        1) List of major Subcontractors and Suppliers
        2) Preliminary Progress Schedule

    c. Project overview including Contract Documents
    d. Critical Work sequencing
    e. Status of building permit
    f. Parking requirements
    g. Major equipment deliveries and priorities
    h. Project coordination
    i. Communications and Emergency contacts
    j. Designation of responsible personnel
    k. Procedures and processing of:

        1) Field decisions
        2) Request for Information (RFI)
        3) Change Order Proposal (COP)
        4) Submittals
        5) Change Orders
        6) Applications for payment

7) Schedules and reports

l. Weekly progress meetings
m. Adequacy of Contract Documents distribution
n. Procedures for maintaining record documents
o. Special site conditions and constraints
p. Use of premises:

1) Office, work, and storage areas
2) Owner's requirements

q. Construction facilities, controls, and construction aids
r. Temporary utilities and utility shut-downs
s. Safety and first-aid procedures
t. Security procedures
u. Inspection and testing
v. Housekeeping procedures
w. Commissioning and Closeout
x. Warranty requirements
y. Meeting Minutes by Architect

B. Project Meetings

1. The Architect will conduct weekly meetings at the Project Site to coordinate the Work, answer questions, and resolve problems.
2. Location: Contractor's field office at the Project site.
3. Attendance:

a. Owner's Project Manager
b. Architect and Consultants as needed
c. Contractor's project manager and superintendent
d. Major subcontractors
e. Others, as appropriate

4. Such meetings may include, but are not limited to review of: Outstanding Action Items, Technical Concerns, Structural, Mechanical, Electrical, Architectural, Civil, As-Built Review, Commissioning, Submittals, Fabrication, RFI's, COP's, Schedule Review, Projection of Work, Procurement, Job Concerns, Action Items, and Summary.
5. All items to be discussed shall be brought up at the time the appropriate agenda item is discussed. All attendees shall familiarize themselves with the agenda for the particular meeting and be prepared in advance with their items for discussion. Meeting minutes will be prepared by the Architect.

B. Change Proposal Negotiation Meetings

1. Owner's Project Manager in conjunction with the Architect will conduct weekly meetings at the Project site when requested to specifically negotiate contractor pricing for change order proposals and change directives.
2. Location: Owner's Project Manager's field office at the Project site.
3. Attendance:

a. Owner's Project Manager
b. Architect and Consultants as needed
c. Contractor's Project Manager (and Superintendent as needed)
d. Subcontractors (as needed)
e. Others, as appropriate

4. The agenda will be prepared by the Architect.

a. Agenda items will only include those change order proposals and change directives that have been submitted by the Contractor for review. The Owner's Project Manager's and Architect's review comments will be provided to the Contractor 24 hours in advance of the meeting.
b. All attendees shall familiarize themselves with the agenda items for the particular meeting and be prepared in advance with their items for discussion. Meeting minutes will be prepared by the Architect.

C. Special Meetings

1. The Owner's Project Manager may call special meetings at the project site or at other locations to coordinate the work, answer questions, and resolve problems.

1.7 PREINSTALLATION CONFERENCES

A. When required in individual Specification Sections and/or as requested, convene pre-installation conference at work Site prior to commencing work of Section.

B. Require attendance of parties directly affecting, or affected by, work of specific Section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda, preside at conference, record minutes, and distribute copies within two days after conference to participants, with two copies to Architect.

E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

1.8 MINUTES

A. The Architect will compile minutes (unless otherwise arranged/agreed) of each project meeting and Change Proposal Negotiation meeting and will distribute copies to all interested parties.

B. The minutes compiled by the Architect shall be the official record minutes and all clarifications and/or corrections shall be transmitted in writing to the Architect and the Owner's Project Manager within fourteen (14) days of date of receipt of the minutes or unless noted during the next schedule meeting under the appropriate agenda item. Transmitted corrections shall be legibly submitted on company letterhead.

C. All minutes shall be maintained on the Owner's cloud-based project management software.

PART 2 – PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 31 19

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SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. General Requirements.

B. Preliminary Progress Schedule

C. Detailed CPM Progress Schedule

D. Coordination

E. Updates and Progress Payments

F. Network Revisions

G. Float Time

H. Delays and Time Extensions

I. Recovery Schedule

J. Contractor's Organization

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. A201-2007 revised General Conditions

B. Section 00 73 00 Supplementary Conditions

C. Section 00 73 83 Preconstruction Services

D. Section 01 29 00 Application for Payment

E. Section 01 31 19 Progress Meetings

F. Section 01 33 00 Submittals

1.3 GENERAL REQUIREMENTS

NOTE: The requirements of this section apply to the Contractor and not necessarily its subcontractors. Subcontractors shall refer to the Contractor's Bid Manual and/or subcontract agreement for schedule requirements.

A. The purpose of the Progress Schedule shall be to:

1. Assure Contractor’s adequate planning, scheduling and reporting during execution of the contract.
2. Assure coordination of the work of the Contractor and the various subcontractors and suppliers.
3. Assist the Contractor and Owner’s Project Manager in monitoring the progress of the work and contemporaneously evaluate proposed changes to the Contract and the project schedule.
4. Assist the Contractor in the preparation and evaluation of the Contractor's monthly progress payments.

B. The Progress Schedule shall employ the Critical Path Method (CPM) using retained logic for the planning, scheduling and reporting of the work to be performed under this contract. The type of schedule shall be Precedence Diagramming Method (PDM). The schedule will be produced utilizing IBM compatible "WINDOWS" version of Primavera Project Planner version 3.01 or SureTrak Project Manager 3.0, or later, software system.

C. The Work shall be performed pursuant to the provisions of Part 3 of the General Conditions, Article 3 of the Owner-Contractor Agreement ("Time of Commencement and Completion") and the Specific Completion Dates in the Contract Documents. All milestones or specific completion dates listed in these specifications, or elsewhere in the Contract Documents, represent only the major items of construction/erection work or interface dates.

D. Should the Contractor plan to complete the Work earlier than any required milestone or specific completion date, the Owner and the Owner’s Project Manager shall not be liable to the Contractor for any costs or other damages if the Contractor is unable to complete the Work before such milestone or completion date.

E. The services provided by the Owner’s Project Manager as the Owner's Representative, the existence of schedules, networks or any other charts or services prepared or performed by the Owner’s Project Manager, shall in no way relieve the Contractor of the responsibility of complying with all of the requirements of the Contract Documents, including, but not limited to, the responsibility of completing the Work within the Contract Time and the responsibility of planning, scheduling, and coordinating the Work. The Contractor is required to comply with all control procedures specified herein and with any reasonable changes that may be necessary, in the opinion of the Owner’s Project Manager, during the Contract duration.

F. The Contractor’s Project Manager and Superintendent shall attend an orientation session relating to producing the CPM Schedule for this Project. This orientation meeting will be held by the Owner’s Project Manager, and is designed to review the Contractor’s approach to scheduling and assist the Contractor in planning the work and developing its Progress Schedule. This session will be held within fifteen (15) calendar days after the first Notice to Proceed. The Contractor shall submit to the Owner’s Project Manager for review, at the orientation meeting, the following:

- Responsibility Coding structure

- Work Area and Phase Coding structure representing physical and structural breakdown of the project
- Contract milestones
- Activity ID alphanumerical coding structure as outlined in this specification
- List of typical construction activities (exterior, structure, rough-in, finish work) showing the planned level of details.
- List of activities related to the TAB and Commissioning with predecessors and successors
- Major constraints (logic, resource, etc.)
- Project Calendar(s).

G. Contractor's scheduling personnel shall have working knowledge and a minimum of 5 years of experience using Primavera on project of similar size and nature. Should the Contractor not have experienced personnel to utilize Primavera for the Progress Schedule development, the Contractor shall employ a scheduling consultant to generate the detailed CPM Progress Schedule, as described further in paragraph 1.05, all updates, reports and progress payments as described further in paragraph 1.07 and all network revisions as described further in paragraph 1.08. Not less than one work day prior to the start of the orientation meeting, the Contractor shall provide the Construction Manger a written verification that Contractor has the required personnel under its employ or that Contractor will employ the required CPM scheduling consultant.

1. The written statement shall identify individual(s) who will perform CPM scheduling
2. Capability and experience shall be verified by description of construction projects on which individual has successfully applied computerized CPM scheduling, along with selected schedule samples (electronic files) on current or previous projects which the proposed scheduler has performed complete scheduling services.
3. Required level of experience shall include at least two projects of similar nature, scope and value not less than three-fourths the Total Base Bid Price of this Contract. The written statement shall provide contact persons for referenced projects with current telephone and address information.

The Owner's Project Manager reserves the right to approve Contractor's scheduler, or consultant, and right to reject them at any time.

1.4 PRELIMINARY PROGRESS SCHEDULE

A. Schedule Requirements:

1. A Preliminary Progress Schedule shall be submitted by the Contractor within ten (10) working days of issuance of the Notice to Proceed for construction, may be in bar chart format, and shall the sequence in which Contractor proposes to perform the Work, all specific completion dates and milestones indicated in the Contract Documents, and the dates on which Contractor plans to start and finish major portions of the Work. The Preliminary Progress Schedule may be general, showing the major portions of the Work, and shall be replaced by the Progress Schedule, as described in Paragraph 1.05 below.

1.5 DETAILED CPM PROGRESS SCHEDULE

A. Network Requirements:

1. Within twenty (20) working days of the Notice to Proceed, the Contractor shall submit to the Owner's Project Manager for review and comment, a CPM Progress Schedule for the construction/erection work scope. The schedule submitted by the Contractor shall have a sufficient number of activities to assure adequate planning of the project and to permit monitoring and evaluation of progress and the analysis of time impacts. The CPM Progress Schedule shall provide a complete and detailed sequence of operations and construction of the Work within the time limits specified in the Contract. Multiple critical paths and near- critical paths shall be kept to a minimum, as determined by the Owner's Project Manager.
2. The following criteria shall form the basis for assembly of the schedule logic:

   a. Which activity must be completed before a subsequent activity can be started?
   b. Which activities can be done concurrently?
   c. Which activity must be started immediately following a completed activity?
   d. What major resource (equipment, manpower, or other) restrictions are required for sequencing these activities?

3. The CPM Progress Schedule Content:

   a. The Contractor's network shall include details to the satisfaction of the Owner's Project Manager, including, but not be limited to:

      1) Procurement activities including mobilization, shop drawings and sample submittals, Owner/Architect review of submittals, fabrication, and delivery of all key and long-lead equipment and materials.
      2) Construction/erection activities, demolition activities, and hazardous materials abatement activities.
      3) Testing and commissioning activities.
      4) Any offsite activities including delivery of Owner-furnished material and interfaces with the work of outside contractors, e.g. utilities, power, or any separate contractor.
      5) Activities for project close-out including punch list, as- built drawings, Substantial Completion, O&M training and Final Completion.
      6) Approvals, coordination and inspections required by regulatory agencies or other third parties.

   b. The identity, and logic of activities comprising the CPM Progress Schedule shall meet the following criteria:

1) The description of work by activity. Activity descriptions shall contain the specific type of work only. The work must describe accurately and understood by those who must perform the work. If the description is not definitive, a separate listing of each activity and a descriptive narrative including the grid lines may be required.

2) Activity boundaries shall be easily measurable and descriptions shall be clear and concise. Do not preface activity descriptions with "Begin" or "Complete." The beginning and end of each activity shall be readily verifiable, and progress shall be quantifiable. In each activity, give quantity and unit of measure so that the amount of work the activity involves is clearly communicated.

3) Responsibility for each activity shall be identified with a single performing organization. Plumbing and HVAC work shall be segregated.

4) Activity duration's over fifteen (15) working days shall not be used except for non-construction activities such as shop drawing and sample submittals, fabrication and delivery of materials and equipment, concrete curing, and General Conditions activities, or as approved in writing by the Owner's Project Manager.

5) Activity duration shall be in workdays. The activity durations shall be based on the quantity for the individual work activity divided by a productivity rate and crew size to perform the work in consideration of contractually defined on-site work conditions. Each construction activity shall have its total material requirements established by an accurate material take-off.

6) The cost component for each activity shall be provided. Cost components shall be assigned to each of the activities identified in paragraph 1.05.A.2.a above of this Section. The sum of the activity cost components shall equal the Fixed Cost of Work. No costs, however, shall be assigned to manufacturing activities. Cost shall only be allowed on key delivery activities as approved by the Owner's Project Manager. Punch list activities shall not be less than 2% of the contract amount.

7) Potential problems or constraints related to the implementation of the construction plan shall be identified in writing.

8) Foreseeable delays to activities such as normal seasonal weather, shall be considered and included in the planning and scheduling of all work.

9) Maximize Start-To-Start activity relationships. Overlapping activities minimizes out-of-sequence problems that arise when most relationships are Finish- To-Start with zero lead or lag.

10) Use of discretionary dependencies (preferential logic) should be minimized. In case when in the Construction Manger's opinion preferential logic creates the negative float and/or multiple critical paths, the Contractor shall submit detail documents to the satisfaction of the Owner's Project Manager, including but not limited to; material quantities, crew sizes, productivity rate, subcontractor's schedule, narrative. The use of preferential logic will be allowed only on case-by-case approval of the Owner's Project Manager.
11) Imposed completion dates for events other than the Specific Completion Dates are not permitted. Constraints cannot override the logic. Mandatory constraints (start and finish) violate network logic and shall not be used.
12) Activity shall not be allowed to cover more than one area/phase.
13) Lag/lead durations contained in the progress schedule shall not have a negative value.
14) Only two (2) open-ended activities (the first and the last) are allowed.
15) Change Order, Construction Directive, Request for Information, Change Order Proposal, or Request for Equitable Adjustment number shall identify any activity that is added or changed by Change Order/Construction Directive/Request for Information Adjustment or used to justify a request for equitable adjustment. Activities shall not belong to more than one change order/Change Directive/Request for Information/Change Oder Proposal/Request for Equitable Adjustment. Contract requirements related to the activity coding structure shall apply for the added activities.

c. Each file submitted shall have a name related to the project name, project/contract number or data date. The Contractor shall develop a naming convention that will ensure that the names of the files submitted (baseline and the monthly updates) are unique.
d. All changes to activities shall be recorded with a note in the activity log field. The log shall include, as a minimum, the date and schedule update number and reason for the change.

B. CPM Scheduling Software Usage

1. Contract Milestones

a. Notice to Proceed, Substantial Completion, Final Completion, and any other milestones, shall be zero-day duration milestone activities.
b. Substantial Completion and Final Completion shall have a not- later-than finish constraint.
c. The Project "must finish by date" shall be Contract Final Completion Date.

2. Software Attributes and Switches

   a. Schedule automatically shall be set to off
   b. Use retained logic
   c. Calculate start-to-start lag from early start
   d. Durations are to be calculated as contiguous versus interruptible unless approved in writing by the Owner's Project Manager.
   e. Open ends shall be non-critical
   f. Calculate total float as finish float

3. Activity Coding Structure. At a minimum, each schedule activity shall contain codes by:

   a. Building/Area - shall be used to identify buildings/structures, site work, and administrative requirements such as submittals.
   b. Phase - shall be used as building floor and/or areas within the building description. If adding the grid line description will clarify the scope for each phase, the Contractor shall do that if requested by the Owner's Project Manager.
   c. All activities shall be identified in the progress schedule by the Bid Item to which the activity belongs.
   d. Responsibility - shall be subcontractors (trade).
   e. CSI code - Each activity shall be assigned a Construction Specifications Institute (CSI) code relating to the division of the work.
   f. Activity ID utilizing an alphanumeric designation system tied to the area and phase, and that is acceptable to the Owner's Project Manager. The first two characters of the activity ID are reserved and shall be used as described below:

      - The first character shall be a letter and identifies the work area
      - The second character shall be a number or letter to identify the floor or sub area

4. Cost Loading

   a. Activity cost shall be a Lump Sum resource
   b. Shall not be driving
   c. Shall not be leveled
   d. Shall not have time limits
   e. Shall have one cost per activity to value labor, materials, equipment and overhead and profit

5. Miscellaneous

   a. Do not use footers in tabular schedules.
   b. Tabular schedules are to be printed in portrait orientation.
   c. Each schedule update, including baseline development, shall have a unique name.

C. Submittals:

1. The submittal of the detailed CPM schedule documents shall include:

   a. Contractor's Transmittal Letter. If the detailed CPM Progress Schedule was submitted via e-mail the hard copy of the e-mail shall be included.
   b. A plotter-generated time-scaled network diagram showing activity descriptions, duration and relationships between activities. The critical path should be easily identifiable.
   c. The following reports:

      1) Three (3) sorts of the standard CPM report, including, as a minimum, activity numbers, descriptions, early and late start and finish dates, and total float; the required sorts shall be (1) by activity number, (2) by early start by total float, and (3) by total float by early start.
      2) Predecessor/successor report, showing the above information plus the predecessors and successors for each activity.
      3) Schedule report organized by responsibility (trade/subcontractor) and sorted by total float by early start.
      4) Histogram and cumulative costs curve for the early and late dates for the project.
      5) Schedule of Values sorted by activity number.

   d. Submit a written narrative discussing basic assumptions, historic project comparisons, productivity and installation rates, quantities, manpower and crew development, construction equipment planned, flow of work, and other elements related to developing the schedule.
   e. Electronic file (on a CD, or submitted via e-mail) containing the schedule data files.
   f. The Owner's Project Manager may waive the cost loading of the activities until after the mutual review of the CPM schedule.
   g. The Contractor shall require each major subcontractor and supplier (any subcontractor or supplier with five percent or more of the value of the Contract) to submit in writing a statement certifying that the subcontractor/supplier has concurred with the Contractor's CPM, including updates, and that the subcontractor's related schedule has been incorporated accurately, including the duration of activities and crew sizes.

D. Approval Process:

1. The Owner's Project Manager will review the Contractor's Schedule, including logic diagrams and computer-generated analysis. The Owner's Project Manager shall have ten (10) working days to review the complete submittal of the CPM schedule and comment in writing.

2. The Contractor shall revise and resubmit the Schedule as soon as practical but in all cases within ten (10) working days. The Owner's Project Manager will have five (5) working days to review and comment on the revised Schedule.
3. Within five (5) working days following acceptance of the Schedule, the Contractor shall provide a CD or diskette of the CPM Progress Schedule, with comments incorporated, to the Owner's Project Manager for final review and acceptance. The Owner's Project Manager will provide the final review and acceptance within five (5) working days. This final schedule is the approved baseline schedule for the project.
4. If the Contractor thereafter wishes to make changes to its method of completing the Work, it shall follow the procedures set out in Paragraph 1.06, Network Revisions, of this Section.
5. Acceptance by the Owner and Owner's Project Manager of the Contractor's CPM Progress Schedule shall not relieve the Contractor of the responsibility for accomplishing the Work within every Contract required Milestone and Completion date. The Owner disclaims any obligation or liability due to acceptance of the CPM Progress Schedule.
6. No time extensions will be granted by the Owner's Project Manager to complete activities not initially included in the Contractor's Progress Schedule. Comments made by the Owner and Owner's Project Manager on the Progress Schedule, during review, will not relieve the Contractor from compliance with requirements of the Contract Documents. To the extent that there are any conflicts between the approved CPM Progress Schedule and the requirements of the Contract Documents, the Contract Documents shall govern.
7. If the Contractor fails to provide the schedules within the time prescribed, or revisions to the schedule within the requested time, the Owner may withhold approval of payment until the Contractor submits the required information.
8. It is to be expressly understood and agreed by the Contractor that the Schedule is an estimate to be revised from time to time as progress proceeds, and that the Owner does not guarantee that the Contractor can start work activities on the "early start" or "late start" dates or complete work activities on the "early finish" or "late finish" date shown in the baseline Progress Schedule, or in an updated or revised Schedule; nor does the Owner or Owner's Project Manager guarantee that Contractor can always proceed in the sequence established by said Schedule. If Contractor's Schedule shows that the Owner or a separate contractor is to complete an activity by a specific date, or within a certain duration, Owner or any separate contractor under contract with Owner shall not be bound to said date or duration unless Owner expressly and specifically agrees in writing to same; the Owner's, the Owner's Project Manager's and/or the Architect's review and approval or acceptance of the Schedule does not constitute an agreement to specific dates, duration's, or sequences for activities of the Owner or any separate contractor.

1.6 COORDINATION

A. The Contractor shall coordinate the work with that of the other contractors and shall cooperate fully with the Owner's Project Manager in maintaining orderly progress toward completion of the Work as scheduled.

B. Failure of Owner-furnished equipment and materials to arrive as scheduled, or failure of other construction contracts to meet their schedule, shall not be justification for an extension of time unless a delay can be supported by a Time Impact Analysis (TIA).

C. The Contractor shall inform the subcontractors of progress while the Work is underway regarding delivery status of Owner-furnished equipment and material and of the progress of construction work being performed under separate contracts.

D. The Contractor shall involve all applicable Subcontractors in the schedule development, updating and revisions.

1.7 UPDATES AND PROGRESS PAYMENTS

Refer to the Paragraph 1.05 DETAILED CPM PROGRESS SCHEDULE

A. Update Procedures:

1. The Contractor understands and agrees that its schedule is intended to accurately reflect at all times the status of the Project construction and projected activities. The Contractor shall revise the schedule to reflect project construction and comply with the requirements of this section. The Contractor also understands and agrees that updating the schedule is a key component of this requirement and will make every reasonable effort to provide current information. Approved revisions shall be incorporated prior to statusing. Submittal of the schedule updates will be understood to be the Contractor's representation that the submitted schedule meets all of the requirements of the Contract Documents, accurately reflects the work accomplished, and that work will be executed in the sequence indicated on the submitted schedule. In accordance with the updating procedure, when an activity is deemed substantially complete by the Owner's Project Manager, such activity will no longer be treated as an activity affecting the critical path or successor activity on the project.
2. The Contractor has to take appropriate action to:

- Correct schedule logic to reflect the actual sequence followed by the Contractor in the field
- Revise durations to reflect actual experience in the field. Should such revised durations result in the occurrence of negative float paths jeopardizing specific contract completion dates, the Owner's Project Manager may avail himself of any and all remedies set forth in the Contract Documents to regain the specified completion dates.
- Revise logic to address out of sequence progress so that the Contractor and the Owner's Project Manager actually have a network analysis system that reflects the true status of the Project and the actual status and location of the critical path.
- Reflect actual start and finish dates.

3. The Contractor understands and agrees that updating the schedule is independent from updating the cost for progress payment purposes.

4. The Contractor shall update the schedule as necessary and submit updated information on a monthly basis within five (5) working days of the data date by reporting remaining duration from the data date and recording actual start and finish dates for each activity. The Contractor will check the “out of sequence” progress and make the appropriate corrections. Activities that have posted progress without all preceding logic being satisfied (Out of Sequence Progress) will be allowed only on a case-by-case approval of the Owner’s Project Manager. The Contractor shall propose logic corrections to eliminate all out of sequence progress or justify not changing the sequencing for approval prior to submitting an update project schedule. The Contractor shall provide a written narrative documenting proposed changes to the CPM logic to correct out of sequence work.
5. The Contractor shall provide the following information to the Owner’s Project Manager:

    a. Electronic file (on a CD, or submitted via e-mail) containing the detailed updated schedule information. Electronic file of the submitted schedule shall constitute a clear record of progress of the work from award of the contract to final completion.
    b. Report sorted by TF, ES
    c. Predecessor/Successor Report
    d. Responsibility sorted by ES
    e. Written narrative describing the overall progress of the work and discussing possible problems, the status of major changes and any changes in sequence. The report should include as a minimum the following entries:

        - Contractor’s Transmittal Letter. If the monthly update was submitted via e-mail the hard copy of the e-mail shall be included.
        - State whether the contract is on schedule, ahead or behind schedule (stated in the number of workdays) based on the approved contract Substantial Completion date. If schedule indicates that any contract milestone dates will not be met, the Contractor shall also submit either a detailed recovery plan that shall put the project back on schedule, or a request for time extension with justification as set forth in paragraph titled “Delays and Time Extensions”.
        - Comment on the project’s current critical path. Has it remained the same as the previous month, or has it shifted? Comment on activities and progress that could change the critical path. Discuss current and anticipated scheduling problems. If the project is behind the schedule, progress along other paths with negative float shall also be reported.
        - Comment on any anticipated problems in attaining late start or late finish dates of activities.
        - List all changes made since the previous period.
        - Attach copies of the Contractors’ three-week look-ahead schedules since last update.

f. List of critical activities scheduled to be performed next month.
g. Changes in construction sequences.
h. The Contractor may include any other information pertinent to status of the project and shall include additional status information requested by the Owner's Project Manager at no additional cost.
i. Status reports, and the information contained therein, shall not be construed as claims, notice of delay, or requests for changes or compensation.

6. Negative total float shall not be a basis for requesting time extensions. Any extension of time shall be addressed in accordance with the Paragraph "Delay and Time Extensions".
7. In the event that any error, or unrealistic or unreasonable component, parameter, or results is discovered in an approved logic, or statusing information, mathematical analysis, progress report, or payment estimate, the Owner's Project Manager may require the Contractor to correct, revise and resubmit the logic, or status information, or mathematical analysis, or progress report, or payment estimate for approval. The Contractor shall make requested corrections/revisions at no additional cost to the Owner and shall not be seen as affecting the Contractors means and methods of construction. Any payment amount made on the basis of such error, or unrealistic or unreasonable component, parameter or result may be adjusted by the Owner's Project Manager in subsequent payment estimate.
8. The Owner's Project Manager may require that the Contractor provide highly detailed, short-term schedule for specific critical items (work- arounds, start-up, progress recovery, etc.) at no additional cost to the Owner.
9. Upon approval of the cost component loading of the CPM Schedule by the Owner's Project Manager, the Contractor shall provide to the Owner's Project Manager a template spreadsheet electronic file of the schedule of values to be used by the Contractor for progress payment applications. The format shall be provided by the Owner's Project Manager. The Contractor shall not change the stated value for any activity unless approved in writing by the Owner's Project Manager. The Contractor shall submit the pay application for review by the Owner's Project Manager and Architect. The Contractor is responsible for the maintenance of the spreadsheet and verification that the formulas are working correctly from one update to the next. The Contractor, Owner's Project Manager, and Architect shall meet to review the update and approve the activity pay application percentages.
10. The Contractor shall generate the Application for progress payment based upon the review and approval per paragraph 9 above. Format and forms shall be as prescribed by the Owner's Project Manager. The application for progress payment shall not be routed for signatures to the Owner until all required supporting documentation is provided and approved.
11. The Owner's Project Manager and the Owner will not be obligated to review or to process any Application for Progress Payment until the Contractor has submitted all schedule update information.

12. Throughout the progress of the Work, the Contractor shall prepare and maintain a three week look ahead bar chart field schedule in a format approved by the Owner's Project Manager (see sample short form interval schedule at end of the section, entitled Appendix A) reflecting the schedule of work activities accomplished for the previous week and the work scheduled for the forthcoming three weeks. This schedule should not be handwritten.

    To create the three week look ahead schedules, the Contractor should utilize the scheduling software, or Excel spreadsheet, as acceptable by the Owner's Project Manager. The three-week look ahead schedules shall not be extracted from the approved CPM schedule unless approved in writing by the Construction Project Manager. This look ahead schedule shall be in greater detail than the CPM schedule and define specific operations at each specific location to be performed during the three-week period. This bar chart shall conform to the computerized CPM Program Schedule, include activity numbers from the CPM Progress Schedule, and be prepared and updated weekly to be discussed at the construction meetings. Additionally, the critical path activities are to be identified on the three week look ahead schedule. A copy (hard and/or electronic) of the three week look ahead bar chart schedule shall be delivered to the Owner's Project Manager not less than three work hours prior to the start of the weekly project coordination meeting.

    The weekly short-from interval schedule shall be converted to a Completion Schedule at 8 weeks prior to Substantial Completion date for Phase 2. This schedule will include all construction and AHJ activities to reach Substantial Completion including but limited to AHJ inspections, flush-out, fire alarm testing and approval, health inspections, elevator inspection and approval, and the like.

13. The initial updating shall take place within ten (10) working days after the acceptance of the Contractor's baseline schedule. Specific dates for subsequent updates shall be established by the Owner's Project Manager.
14. One initial Application for Payment for expenditures not directly related to Work accomplished at the project will be allowed before the acceptance of the Contractor's schedule, but not before Contractor submittal of the CPM Schedule. This payment will be limited to such items as Permits, Bonds, Mobilization, and Insurance. A second payment or requests for payment for work items not included above will not be allowed without an accepted schedule.
15. Submittal of "As Built" Schedule. The last update to the Progress Schedule submitted shall be identified by the Contractor as the "As Built Schedule". The "As Built Schedule" shall reflect the exact manner in which the project was actually constructed (including start and completion dates, activities, sequences, and logic) and shall be signed and certified by the Contractor's Project Manager and Scheduler as being a true reflection of the way in which the project was actually constructed.

B. Computer Cost and Schedule Reports:

1. Every month the Owner's Project Manager will generate Computer Cost and Schedule Reports from the CPM Progress Schedule, based on the updated schedule and progress payment application furnished by Contractor in the form described in Paragraph 1.07 Updates and Progress Payments of this Section. These computer reports will reflect the Contractor stated progress of the project with respect to both work in place cost and time. The Owner's Project Manager will generate these reports for the information and use of the Contractor in calculating progress.
2. All updated monthly reports will be distributed as follows:

Contractor	1
Architect	1
Owner	1

1.8 NETWORK REVISIONS

A. Should the Contractor, after approval of the baseline CPM Progress Schedule desire to change his plan of construction, he shall submit in writing his requested revisions to the Owner's Project Manager including a written description of the logic for rescheduling the work, methods of maintaining adherence to intermediate milestones and specific dates and the reasons for the revisions. The Owner's Project Manager will review if the proposed changes are consistent with sound planning and job management, and does not jeopardize specific contract completion date(s) or mask forward visibility of job progress. The Contractor shall revise his schedule to include the effect of changes, acts of God or other conditions or events, which have affected the CPM Progress Schedule. If the requested changes are acceptable to the Owner's Project Manager they will be incorporated by the Contractor into the CPM Schedule in the next reporting period. The Contractor shall submit the revised CPM Progress Schedule to the Owner's Project Manager in the form described in paragraph 1.05.B of this specification section.

B. If the Owner requests a change by change proposal and the Contractor believes the change will cause a delay, the Contractor shall submit a written Time Impact Analysis in accordance with paragraph 1.10 of this section 01 32 00. If the Owner accepts the Time Impact Analysis, a Change Order will be issued modifying the Contract Milestones or Specific Dates.

C. If at any time during the construction, it appears to the Owner's Project Manager that the Contractor's schedule no longer represents the actual prosecution and progress of the work, the Owner's Project Manager may request in writing a revision to the schedule. Any excessive "out of sequence progress" problems will be considered evidence that the schedule needs revising. The Contractor then has three (3) working days to respond to that written request

D. Neither the updating or revision of Contractor's CPM Progress Schedule nor the submission, updating, change or revision of any report or schedule for Owner's review or acceptance of any such report or schedule shall have the effect of amending or modifying, in any way, the Contract Time, any Contract Completion Date, or Contract Milestone Dates or of modifying or limiting in any way Contractor's obligations under this Contract.

E. Failure to furnish any required submittal or information specified herein shall constitute a cause for withholding any part of progress payments pursuant to the General Conditions.

1.9 FLOAT TIME

Float time is the amount of time between the earliest start date and the latest start date, or between the earliest finish date and the latest finish date of a chain of activities on the CPM Schedule. Float time is not for the exclusive use or benefit of either the Contractor or the Owner. Use of float suppression techniques such as preferential sequencing, special lead/lag logic restraints, zero total or free float constraints, extended activity times or imposed dates shall be cause for rejection of the Progress Schedule or any revisions or updates.

1.10 DELAYS AND TIME EXTENSIONS

The Contract Documents establish the parameters for time extensions, justification for time extensions and the period during which the request may be made. Refer to the following contract sections:

A201-2007	3.10	Contractor’s Construction Schedules
A201-2007	15.1.5	Claims for Additional Time

A. When the Contractor experiences change orders or delays and the Contractor requests an extension of time, the Contractor shall submit to the Owner’s Project Manager a Time Impact Analysis illustrating the impact of each change or delay on the current contract schedule completion date.

B. Extensions of time for performance as allowed under the Contract Documents will be granted only to the extent that such revisions cause the time for the changed activity and related activities to exceed the total float along the affected path of activities at the time of Notice to Proceed of a Change Order or the commencement of any delay or condition for which an adjustment is warranted under the Contract Documents. Time extensions shall be properly apportioned into compensable and non-compensable delays when the Contractor and the Owner concurrently cause the delay. Time extension will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total float along the most critical path of the activities at the time of actual delay.

C. The Owner will grant extensions of time separately for Substantial Completion and Final Completion. The approved Time Impact Analysis shall separately address Substantial and Final Completion impacts, and the resultant revised completion dates. No extension of time for Final Completion will be made based solely on an extension of time for Substantial Completion or any Milestone date.

D. Each Time Impact Analysis shall be submitted within ten (10) working days after a delay occurs or notice of direction for proceeding with a Change is given to the Contractor. If the Contractor does not submit a Time Impact Analysis within the specified time period, the Contractor's rights to any additional time and cost are waived.

E. Approval or rejection of each Time Impact Analysis shall be made within ten (10) working days after receipt, unless subsequent meetings and negotiations are necessary. A copy of the approved Time Impact Analysis shall be incorporated into a Change Order signed by the Owner and the Owner's Project Manager. The changes to the schedule will be incorporated into the Progress Schedule during the first update after agreement is reached on the time extension.

F. If the time period(s) in question occurred during the Preliminary CPM Schedule update(s), such update(s) must be converted to the approved Progress Schedule, which will then be used as the basis for the time extension request(s).

G. A Time Impact Analysis is an evaluation of the effects of changes in the construction sequence, contract, plans, or site conditions on the Contractor's plan for constructing the project, as represented by the schedule. Time Impact Analysis shall consist of all the steps listed below:

1. A descriptive summary of the changes
2. Establish the status of the project before the impact using the most recent project schedule update prior to the impact occurrence. Based on the current adjusted schedule, excusable delays for which time extensions may still be pending, job conditions encountered, and the progress achieved up to the point in time when the present delay occurs.(Step 1)
3. Identify all contracting parties who are affected by direct or indirect delay.
4. Predict the effect of the impact on the most recent project schedule update prior to the impact occurrence. This requires estimating the duration of the impact and inserting the impact into the schedule update. The Contractor shall demonstrate how the impact was inserted into the schedule using the fragment. This is the presentation of a fragmentary portion of the schedule network showing the added or modified activities and the added or modified relationships. Any other changes made to the schedule including modifications to the calendars or constraints shall be noted. (Step 2)
5. Track the effects of the impact on the schedule during its occurrence. Note any changes in sequencing, and mitigation efforts. (Step 3)
6. Compare the status of the work prior to the impact (Step 1) to the prediction of the effect to the impact (Step 2), and to the status of the work during and after the effects of the impact are over (Step 3).

Electronic files of all schedules used to produce TIA (Step 1 through 3) shall be submitted to the Owner's Project Manager. Make particular reference to the Paragraph 1.07 Update and Progress Payments regarding the submittals.

Time Impact Analysis shall not be considered for contract modification proposals that do not include full documentation for the schedule change. In the event the Contractor does not agree with the decision of the Owner's Project Manager regarding the impact of a change or delay, it shall be resolved in accordance with General Conditions Section 8, Dispute Resolution and Claims.

1.11 RECOVERY SCHEDULE

A. Pursuant to sub-paragraph 8.2.4 the General Conditions, should any of the conditions exist, such that certain activities shown on the Contractor's CPM Progress Schedule fall behind schedule to the extent that any of the Contract milestones or specific dates are in jeopardy, the Contractor shall be required, at no extra cost to the Owner, to prepare and submit to the Owner's Project Manager a supplementary recovery schedule, in a form and detail appropriate to the need, to explain and display how those activities will be rescheduled to regain compliance with the CPM Progress Schedule within a maximum of one month from the start of the Recovery Schedule.

B. After determination of the requirement for a Recovery Schedule, the Contractor shall, within seven (7) working days, submit a Recovery Schedule for acceptance to the Owner's Project Manager. The Recovery Schedule shall be prepared from the current CPM Progress Schedule. The Owner's Project Manager will have seven (7) working days to review the Recovery Schedule submittal.

(1) Any revisions necessary because of this review shall be resubmitted by the Contractor for acceptance within three (3) working days. The approved Recovery Schedule shall then be the schedule that the Contractor shall use in planning, organizing, directing, coordinating, performing and executing the Work (including all activities of subcontractors, equipment vendors and suppliers) for its maximum one (1) month duration, to regain compliance with the CPM Progress Schedule.

1.12 CONTRACTOR'S ORGANIZATION

The Contractor shall maintain, as part of its organization, a staff of sufficient size knowledgeable in the use and application of CPM scheduling. The Contractor's staff or the contractor's scheduling consultant will be responsible for preparing input information for the CPM Schedule, monitoring progress, providing input for updating and revising logic diagrams when necessary. Refer to paragraph 1.03 G. for further discussion of qualifications of contractor staff for developing and maintaining the progress schedule.

1.13 CPM PROJECT SCHEDULE REVIEW MEETING

A monthly meeting shall be held with the Contractor, Owner's Project Manager, Owner and Architect to reconcile status of the Work and to determine ownership of any negative total float. The Owner's Project Manager shall chair the meeting, provide an agenda and shall take and issue meeting minutes. The meeting shall be at the Owner's Project Manager's site office. A computer and scheduling software shall be available to interactively perform schedule analysis during the meeting.

The meeting will be held within seven calendar days after receipt of the Contractor's monthly CPM Schedule update, including the schedule narrative. The purpose of the meeting is to:

1. Provide a contemporaneous analysis of the CPM Schedule update
2. Present the findings of the Owner's analysis
3. Evaluate impacts of changes to the schedule as presented by the Contractor
4. Evaluate and discuss time impact analysis occurring during the month
5. Evaluate and adjust out of sequence activities
6. Evaluate status of work in progress
7. Evaluate and discuss concurrent delays
8. Evaluate and discuss mitigation efforts to Owner caused delays
9. Evaluate and discuss actions the Contractor could have taken to avoid delays

After evaluation of the updated CPM schedule and discussion of the analysis and findings, the Owner shall issue based on Owner caused delays a Change Order for time extension to the Contractor, and/or issue a Change Directive to accelerate the Work to maintain the Contract Time.

This meeting does not supersede the contract requirements for the Contractor from submitting Time Impact Analysis.

1.14 OTHER DELIVERABLES

The Contractor shall furnish the Owner's Project Manager and the Architect with copies of all purchase orders and acknowledgements of fabrication, production, and shipping schedules for all major items on the critical path within ten (10) days of Contractor's receipt of each purchase order, acknowledgment or schedule. The Owner's Project Manager, Architect, or the Owner shall not be deemed to have approved or accepted any such material, or its schedule, nor deemed to have waived this requirement if some or all of the material is not received.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 32 00

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Recipient Acceptance

_____ _____

Signature Date

_____

Printed Name and Title

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Description

B. Shop Drawings

C. Product Data

D. Samples

E. Manufacturer's Instructions

F. Manufacturer's Certificates

G. Construction Photographs

H. Required Submittal Quantities to Architect

I. Contractor Responsibilities

J. Submittal Requirements

K. Re-submittal Requirements

L. Review of Documents

M. Variations from Contract Documents

N. Labor Rates Schedule

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following Division One sections:

1. Section 01 32 00 – Construction Progress Documentation
2. Section 01 32 33 – Photographic Documentation
3. Section 01 78 39 - Project Record Documents

1.3 DESCRIPTION

A. Submit to the Architect, via the Owner's cloud-based project management software, shop drawings, product data and samples required by Specifications Sections.

B. The Contractor shall prepare and submit to the Owner's Project Manager with the Progress Schedule, a separate schedule listing dates for submission of all required shop drawings, product data and samples.

1.4 SHOP DRAWINGS

A. Original drawings, prepared by Contractor, subcontractor, manufacturer, supplier or distributor, which illustrate some portion of the Work showing fabrication, layout, setting or erection details.

B. Shop drawings shall be prepared for this particular project. Drawings prepared specifically for other projects and revised for this project will be rejected.

C. When necessary, base shop and setting drawings upon actual measurements taken at site and other job conditions. Show any variations and revisions to Contract Documents that are necessary for proper installation of work. Fabrication or installation of work shall not be started until shop or setting drawings have been checked and returned with indication of Architect's acceptance.

(Architect's review stamp bears the following markings: "No Exceptions Taken", "Note Markings", "Comments Attached - Confirm", "Comments Attached - Resubmit", and "Rejected - Resubmit").

D. Identify details by reference to sheet and detail numbers shown on Contract Drawings.

E. Shop drawings for all major trades required for review by the Architect prior to execution of work shall be submitted to the Architect no later than 60 days from award of contract or earlier if so stipulated elsewhere in the Contract Documents. All other shop drawings are to be submitted to the Architect in sufficient time to allow for A/E review, shipping and delivery prior to execution of the work.

F. Provide shop drawings with cross-reference to drawing and detail numbers on Contract Drawings to facilitate review.

G. Provide shop drawings which demonstrate to Architect that:

1. Contractor understands design concept of certain portions of Work.
2. Equipment and material to be provided meet design and technical requirements of Contract Documents.
3. Methods of fabrication and installation.

H. Review, reproduce and distribute in accordance with Articles 1.12, 1.13 and 1.14 on Procedures below and for Project Record Documents described in Section 01 78 39.

I. Mechanical and Electrical submittals must meet the submittal requirements as identified in their respective Divisions of the Specifications. Mechanical and Electrical submittals must be submitted as complete packages, unless agreed to otherwise by Architect, Engineer and Contractor.

1.5 PRODUCT DATA

A. Manufacturer's standard schematic drawings:

1. Modify drawings to delete information, which is not applicable to project.
2. Supplement standard information to provide additional information applicable to project.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance chart, illustrations and other standard descriptive data.

1. Clearly mark each copy and identify pertinent materials, products or models.
2. Show dimensions and clearances required.
3. Show performance characteristics and capacities.
4. Show wiring diagrams and controls.

C. Submit product data required by Contract Documents for execution of for all major trades to the Architect no later than 60 days from award of contract or earlier if so stipulated elsewhere in the Contract Documents. All other product data are to be submitted to the Architect in sufficient time to allow for A/E review, shipping and delivery prior to execution of the work.

D. Provide product data with cross-reference to Specifications Section of Project Manual to facilitate review.

E. Submit number of copies, which Contractor requires, plus three copies, which will be retained by Architect/Engineer.

F. After review, distribute in accordance with Article on Procedures below and provide copies for Project Record Documents described in Section 01 78 39.

1.6 SAMPLES

A. Physical examples to illustrate materials, equipment or workmanship and to establish standards by which completed work is judged.

B. Office Samples: Of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of product or material, with integrally related parts and attachment devices.
2. Full range of color samples.
3. After review, samples may be used in construction of Project.
4. Include identification on each sample, with full Project information.
5. Submit samples in ample time for review or selection, as applicable, so as to not delay Work.
6. Take into account delivery time of all manufactured items when submitting samples.

C. Submit samples of size and quantity specified, or, if not specified, of sufficient size and quantity (if not specified, then two to be submitted, one will be returned to Contractor) to illustrate functional and aesthetic characteristics of Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

D. Submit samples of finishes from full range of manufacturers' standard colors, or in specified custom colors, textures, and patterns, for Architect's selection.

E. Field Samples:

1. Construct each sample complete, including work of all trades required in finished Work.
2. After acceptance, where appropriate and upon Architect's written approval, field samples may be incorporated into Project.
3. When directed, remove field samples not incorporated into Project from site.

1.7 VERIFICATION OF EXISTING BUILDING DIMENSIONS

A. Contractor shall submit to the Architect prior to execution of work or fabrication of any structural building elements a redlined reproducible copy of the Contract Document plans, sections and elevations of the existing building indicating a “verification of existing building dimensions”. Any differences from Contract Document dimensions are to be clearly noted.

1.8 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.9 MANUFACTURER'S CERTIFICATES

A. When specified in individual specification Sections, submit manufacturers' certificate to Architect/Engineer for review, in quantities specified for Product Data.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect/Engineer.

1.10 REQUIRED SUBMITTAL QUANTITIES TO OWNER AND ARCHITECT

A. Survey Data:

1. To be submitted in .pdf format to Owners Sharepoint Site.

B. Shop Drawings:

1. To be submitted in .pdf format to Owners Sharepoint Site.

C. Product Data:

1. To be submitted in .pdf format to Owners Sharepoint Site.

D. Office Samples:
See specific section covering product or material.

E. Field Samples:
See section covering specific system.

1.11 CONTRACTOR RESPONSIBILITIES

A. Review shop drawings, product data and samples prior to submission.

B. Verify:

1. Field measurements.
2. Field Construction criteria.
3. Catalog numbers and similar data.

C. Coordinate each submittal with requirements of Work and Contract Documents.

D. Contractor's responsibility for errors and omissions in submittals is not relieved by Architect's review.

E. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Architect's review of submittals.

F. Notify the Owner’s Project Manager and Architect, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.

G. Begin no work, which requires submittals until return of submittals with Architect's stamp and initials or signature indicating review.

H. After Architect's review, distribute copies.

1.12 SUBMITTAL REQUIREMENTS

A. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for review, for securing necessary approvals, for possible revision and re-submittals and for placing orders and securing delivery. Submission of all submittals shall be through the General Contractor. The Contractor’s transmittal shall clearly identify the document being submitted and note the specification section and sub section(s). Partial submittals are to be clearly noted identifying the missing submittal information.

The Contractor shall maintain a submittal log for shop drawings, product data and samples. The Contractor is required to update the log on a minimum of a biweekly basis and submit copes of the updated log to the Owner’s Project Manager and the Architect. The submittal log is to list submittals by specification section, sub section(s) and an individual

submittal tracking number. The Contractor shall include with the tacking number the; date to be submitted for review, actual date submitted, date returned, status (approved, approved as noted, resubmit). Overdue submittals are to be clearly noted. Submittals noted for resubmission shall be considered as not having been submitted for overdue status. Partial or incomplete submittals are to be clearly noted.

B. Submit the number of copies of submittals noted above plus however many the Contractor requires for distribution.

C. Submit number of samples specified in each specification section.

D. Unless otherwise specifically permitted by the Architect, make all submittals in groups containing all associated items. Partial submittals may be rejected.

E. Accompany submittals with transmittal letter, in duplicate, containing:

1. Date
2. Project title and number
3. Contractor's name and address
4. The number of each shop drawing, product data and sample submitted.
5. Notification of deviations from Contract Documents.

F. Submittals shall include:

1. Date and revision dates
2. Project title and number
3. The name of:

    a. Architect
    b. Contractor
    c. Subcontractor
    d. Supplier
    e. Manufacturer
    f. Separate detailer when pertinent

4. Identification of product or material
5. Relation to adjacent structure or materials
6. Field dimensions, clearly identified as such
7. Specifications section number
8. Applicable standards, such as ASTM number or Federal Specification
9. A blank space, for Architect review stamp
10. Identification of deviations from Contract Documents
11. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.

1.13 RESUBMITTAL REQUIREMENTS

A. Shop Drawings:

1. Revise initial drawings as required and resubmit as specified for initial submittal.

2. Indicate on drawings any changes, which have been made other than those, requested by Architect.
3. Product data and samples: Submit new data and samples as required for initial submittal.

1.14 REVIEW OF DOCUMENTS

A. The Architect or Owner's Project Manager may immediately reject any item without further review if it is not:

1. Accompanied by a transmittal letter containing the required information.
2. Submitted as a reproducible.
3. Stamped "approved" by the Contractor.

B. The review will be for conformance to the design concept and compliance with information given in the Contract Documents. The Architect will make notations directly on the reproducible.

C. The review is intended to foresee unacceptable products and to avoid the possibility of their rejection at the site. The review shall not be construed as:

1. Permitting a departure from the Contract Documents, unless specifically so noted.
2. Relieving the Contractor of the responsibility for errors or omissions.
3. Acceptance of an assembly in which an approved item is a part.
4. Approval of variations from previously approved items.
5. Approval of dimensions.

D. The Architect will review all samples. Such review will be for appearance only. Compliance with all other requirements is the responsibility of the Contractor.

E. Where the Contract Documents require Contractor design of structural, mechanical or electrical systems or components of systems by a supplier, or where a Contractor initiates a change in the design of a system or component thereof, such systems or components shall be designed by a registered professional engineer and all calculations submitted to the Architect for its records, prior to starting fabrication or installation of the Work. The Owner will not be responsible for the designs of such other professional engineers.

1.15 VARIATIONS FROM CONTRACT DOCUMENTS

A. If the Architect determines a variation from the Contract Documents is in the best interest of the Owner, and it does not involve change in the Contract price or item, the Architect, through the Owner's Project Manager, with the Owner's concurrence, may permit such variation.

B. Unless the Architect receives immediate written notification, it will assume the Contractor approves any variation shown.

C. If the Contractor fails to mention variations from the Contract Documents, it will not be relieved of the responsibility for executing the Work in accordance with the Contract Documents.

D. When a variation from the Contract Documents is permitted and such variation involves corresponding adjustment in an adjacent or related item, the responsibility for making and paying all costs for such adjustment rests with the Contractor requesting the original variation.

E. Any variation that involves substitution of a specified product shall follow the Substitution requirements in 01 25 13 Product Substitution Procedures.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION 01 33 00

SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Sections Include

B. Compliance Requirements

C. Construction Type

D. Occupancy Classification

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following Division One sections:

1. Section 00 72 00 - General Conditions
2. Section 00 54 02 – Supplementary Conditions
3. Section 01 57 19 – Temporary Environmental Controls
4. Section 01 81 13 – Sustainable Design Requirements
5. Section 01 81 19 – Indoor Air Quality Requirements
6. Division 05 - Welding: for Fire Department permits for flammable liquids, welding/ cutting equipment, or compressed gases.

1.3 SECTIONS INCLUDE

A. Contractor is responsible for keeping building department, fire department, and other authorities completely informed of any changes in the work in a timely manner. This includes contract modifications, amendments, additions, shop drawings, and the like.

B. Contractor is responsible for gaining approvals as required for Owner occupancy within contract scheduling requirements.

C. Contractor shall make any and all adjustments and modifications as required to conform to ordinances, and regulations.

1.4 COMPLIANCE REQUIREMENTS

A. Referenced codes establish minimum requirement levels. Where provisions of various codes or standards conflict, the more stringent provisions govern. Promptly submit to Architect written notice of observed contract document variations from legal requirements.

B. Compliance requirements include, but are not limited to following:

1. Current version of International Building Code (with Idaho Amendments).
2. Current version of ICC/ANSI A117.1
3. The Life Safety Code NFPA 13 and 72 -current year.
4. Rules and Regulations from the State Board of Health.
5. Department of Labor and Industries Regulations.
6. Department of Ecology Regulations.
7. Mechanical Work:

    a. Current version of Uniform Mechanical Code
    b. Current version of Uniform Plumbing Code
    c. Current version of Northwest Heating, Ventilation and Air Conditioning Association.
    d. International Energy Conservation Code
    e. State/Local Boiler Inspector.

8. Electrical Work:

    a. Underwriters' Laboratories (UL).
    b. Current version of National Fire Protection Association, National Electric Code (NEC), National Electric Safety Code, and above electrical listings, as applicable.

9. Environmental Requirements: All work shall be performed in compliance with applicable provisions of Idaho Code Title 39, Chapter 1, Hazardous Waste Management Act of 1976, and other applicable federal, State and local statutes, ordinances and regulations dealing with prevention of environmental pollution and the preservation of public natural resources that affect or are affected by this project.
11. Factory Mutual (FM).
12. Industrial Risk Insurers (IRI).

C. Specifications of Higher Standards: Drawings and Specifications govern whenever they require higher standards than are required by governing codes, regulations, and the like.

D. Requirements of the City of Sandpoint building permit process.

1.5 CONSTRUCTION TYPE

A. See Drawings.

1.6 OCCUPANCY CLASSIFICATION

A. See Drawings.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 41 00

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SECTION 01 42 16

DEFINITIONS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Definitions

B. Drawings, dimension, and measurements

C. Specification explanation

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

None

1.3 DEFINITIONS

A. Certain terms used generally throughout the specifications (and drawings) are hereby defined as follows:

1. Indicated: A cross reference to details, notes or schedules on the drawings, other paragraphs or schedules in the specifications, and similar means of record "approved", "required, "accepted", and "permitted" mean "directed by the "Architect", "requested by the Architect , etc. However, no such implied meaning will be interpreted to extend the Architect's responsibility into the Contractor's area of construction supervision.
2. Installer: The person or entity engaged by the Contractor or his Subcontractor or Sub-subcontractor for the performance of a particular unit of work at the project site, including installation, erection, application, and similar required operations. It is a general requirement that Installers be recognized experts in the work they are engaged to perform.
3. Accepted: Where used in conjunction with the Architect's or Engineer's response to submittals, requests, applications, inquiries, reports, and claims by the Contractor, the meaning of the term "accepted" will be held to the limitations of the Architect's responsibilities and duties as specified in the General and Supplementary Conditions. In no case will "acceptance" by the Architect be interpreted as an assurance to the Contractor that the requirements of the Contract Documents have been fulfilled.
4. Furnish: Except as otherwise defined in greater detail, the term "furnish" is used to mean "...supply and deliver to the project site, ready for unpacking, assembly and installation...".
5. Provide: Except to the extent further defined, the term "provide" means to furnish and install, complete and ready for the intended use.

1.4 DRAWINGS, DIMENSION, AND MEASUREMENTS

A. Where on any of the drawings a portion of the work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other portions of the work.

B. Wherever a detail is referenced and developed for a specific condition, same or similar detail shall apply to identical or similar conditions elsewhere on project even though not specifically referenced.

C. Where the word "similar" occurs on the drawings, it shall be interpreted in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection with other parts of the work.

D. The figured dimensions on the drawings or noted indicating dimensions shall be used instead of measurements of the drawings by scale, and shall be strictly complied with.

E. No scale measurements shall be used as a dimension to work with except on "full size" drawings not dimensioned.

1.5 SPECIFICATION EXPLANATION

A. These specifications are of the abbreviated, or "streamlined" type, and include incomplete sentences.

B. Omissions of words or phrases such as "the Contractor shall" "in conformity therewith", "shall be", "as noted on the drawings", "according to the plans", "a", "an", "the", and "all" are intentional.

C. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the drawings.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 42 16

SECTION 01 42 19

REFERENCE STANDARDS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Quality assurance.

B. Schedule of references.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

None

1.3 QUALITY ASSURANCE

A. For products and workmanship specified by referenced association, trade, or Federal Standards, catalogs, and the like: Comply with requirements. Follow more rigid requirements if specified or required by applicable codes and other governing authorities.

B. Conform to reference standard by date of issue current on date of Contract Documents.

C. The date of the standard (including amendments) is as specified or in effect as of the Bid date.

D. When required by individual Specification Section, obtain copy of standard, catalog, or excerpt. Maintain copies at jobsite during submittals, planning, and progress of the specific work through final acceptance of the work by the Owner.

E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

F. The Contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.4 SCHEDULE OF REFERENCES

A. All listings may not be referenced in the Contract Documents.

B. Listings may not be complete. Where not shown, request information from Architect during bidding. Specified acronym may be as listed/Sweet's Architectural/Mechanical/Electrical files, or as generally understood and applicable within the construction industry.

AA Aluminum Association
818 Connecticut Avenue, NW; Washington, DC 20006

AABC	Associated Air Balance Council 1000 Vermont Avenue, NW; Washington, DC 20005
AAMA	Architectural Aluminum Manufacturers Association 2700 River Rd., Suite 118; Des Plaines, IL 60018
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, NW; Washington, DC 20001
AATCC	American Association of Textile Chemists and Colorists P.O. Box 12215; Research Triangle Park, NC 27709
ACI	American Concrete Institute Box 19150; Reford Station; Detroit, MI 48219
ADAAG	American's with Disabilities Act Accessibility Guidelines for Buildings and Facilities Federal Register Departme nt of Justice
ADC	Air Diffusion Council 230 North Michigan Avenue; Chicago, IL 60601
AGC	Associated General Contractors of America 1957 E Street, NW; Washington, DC 20006
AI	Asphalt Institute Asphalt Institute Building; College Park, MD 20740
AIA	American Institute of Architects 1735 New York Avenue, NW; Washington, DC 20006
AIA	American Insurance Association 1130 Connecticut Ave. N.W., Suite 1000, Washington, DC 20036
AIHA	American Industrial Hygiene Association 475 Wolf Ledges Parkway, Akron, OH 44311
AIMA	Acoustical and Insulating Materials Association (Successor to AMA and IBI) 205 West Tuohy Avenue; Park Ridge, IL 60068
AISC	American Institute of Steel Construction 400 North Michigan Avenue; 8th Floor; Washington, DC 20036
AISI	American Iron and Steel Institute 1000 16th Street, NW; Washington, DC 20036

AITC	American Institute of Timber Constructors 333 W. Hampden Avenue; Englewood, CO 80110
ALSC	American Lumber Standards Committee P.O. Box 210, Germantown, MD 20874-0210
AMCA	Air Movement and Control Association 30 West University Drive; Arlington Heights, IL 60004
ANSI	American National Standards Institute 1430 Broadway; New York, NY 10018
AOAC	Association of Official Analytical Chemists 1111 North 19th Street, Suite 210, Arlington, VA 83702
AOSA	Association of Official Seed Analysts c/o Robert Trent, 2240 Kellog Lane, Boise, ID 83702
APA	American Plywood Association Box 11700; Tacoma, WA 98411
APAW	Asphalt Paving Association of Washington, Inc. 1200 Westlake North, Seattle, WA 98109
APWA	American Public Works Association 1313 E. 60th St.; Chicago, IL 60637
ARI	Air-Conditioning and Refrigeration Institute 1815 North Fort Myer Drive; Arlington, VA 22209
ASA	American Standards Association 10 E. 40th Street, New York, NY 10018
ASA	American Subcontractors Association 1004 Duke Street, Alexandria, VA 22314-3512
ASBA	American Sports Builders Association 2331 Rock Spring Road, Forest Hill, MD 21050
ASCE	American Society of Civil Engineers 345 East 47th Street, New York, NY 10017
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tulli Circle, NE; Atlanta, GA 30329
ASM	Architectural Specifications Manual, published by Specification Services/Painting and Decorating Contractors of America 23830 Pacific Highway South, Suite 102, Kent, WA 98032
ASME	American Society of Mechanical Engineers 345 East 47th Street; New York, NY 10017

ASPA	American Sod Producers Association Association Building; Ninth & Minnesota; Hastings, NE 68901
ASSE	American Society of Sanitary Engineering 960 Illuminating Bldg.; Cleveland, OH 44113
ASTM	American Society for Testing and Materials 1916 Race Street; Philadelphia, PA 19103
AWCI	Association of Wall and Ceiling Industries 25 K Street NE, Suite 300, Washington, DC 20009
AWI	Architectural Woodwork Institute 13924 Braddock Road, Suite 100, Centreville, VA 22020
AWPA	American Wood Preservers' Association PO Box 286, Woodstock, MD 21163-0286
AWPI	American Wood Preservers Institute 1651 Old Meadow Road; McLean, VA 22090
AWS	American Welding Society PO Box 351040, 550 NW LeJeune Rd, Miami, FL 33135
AWWA	American Water Works Association 6666 West Quincy Avenue; Denver, CO 80235
AWI	Architectural Woodwork Institute 2310 South Walter Reed Drive; Arlington, VA 22206
AWPA	American Wood-Products Association 7735 Old Georgetown Road; Bethesda, MD 20014
AWPB	American Wood Preservers Bureau 2600 Virginia Avenue, NW; Washington, D.C. 20005
AWS	American Welding Society 550 LeJeune Road; Miami, FL 33135
BHMA	Builders Hardware Manufacturers Association 60 East 42nd Street; New York, NY 10017
BIA	Brick Institute of America 11490 Commerce Park, Reston, VA 22091
CDA	Copper Development Association 57th Floor, Chrysler Building 405 Lexington Avenue; New York, NY 10174

CISCA	Ceilings and Interior Systems Contractors Association 579 W. North Avenue, Suite 301, Elmhurst, IL 60025
CISPI	Cast Iron Soil Pipe Institute 2020 "K" Street, NW, Suite 320; Washington, D.C. 20006
CLFMI	Chain Link Fence Manufacturers Institute 1101 Connecticut Avenue, NW; Washington, DC 20036
CRA	California Redwood Association 617 Montgomery Street; San Francisco, CA 94111
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Road; Schaumburg, IL 60195
CS	Commercial Standard of National Bureau of Standards, U.S. Dept. of Commerce, Supt. of Documents U.S. Government Printing Office; Washington, D.C. 20402
CSI	Construction Specifications Institute 1150 17th St., Suite 300; Washington, D.C. 20036
DFPA	Douglas Fir Plywood Association - See APA (now known as American Plywood Association)
DHI	Door & Hardware Institute 14170 Newbrook Drive, Chantilly, VA 22021-2223
DOC	Department of Commerce Washington, DC 20234
EJCDC	Engineers' Joint Contract Documents Committee American Consulting Engineers Council 1050 15th Street, NW; Washington, DC 20005
EPA	Environmental Protection Agency 401 M Street SW, Washington DC, 20460
Fed. Spec	Federal Specifications, GSA Business Service Center 909 First Ave.; Seattle, WA 98104
FGMA	Flat Glass Marketing Association White Lakes Professional Building 3310 Harrison; Topeka, KS 66611
FM	Factory Mutual System 1151 Boston-Providence Turnpike; Norwood, MA 02062
FS	Federal Specification GSA Business Center, 909 First Avenue, Seattle, WA 98104

GA	Gypsum Association 1603 Orrington Avenue; Evanston, IL 60201
GTA	Glass Tempering Association 3310 Harrison; Topeka, KS 66611
HPMA	Hardwood Plywood Manufacturers Association P.O. Box 6246; Arlington, VA 22206
ICBO	International Conference of Building Officials 5360 S. Workman Mill Road; Whittier, CA 90601
IEEE	Institute of Electrical and Electronics Engineers 345 East 47th Street New York, NY 10017
IES	Illuminating Engineering Society 345 East 47th Street, New York, NY 10017
IMIAC	International Masonry Industry All-Weather Council International Masonry Institute 815 15th Street, NW; Washington, DC 20005
IPCEA	Insulated Power Cable Engineers Association PO Box P, South Yarmouth, MA 02664
IRIA	Industrial Risk Insurers Association 85 Woodland Street, Hartford, CT 06102
ITF	International Tennis Federation Bank Lane Rochampton, London SW15 5XZ United Kingdom
MFMA	Maple Flooring Manufacturers Association 2400 East Devon, Suite 205; Des Plaines, IL 60018
MIL	Military Specification Naval Publications and Forms Center 5801 Tabor Avenue; Philadelphia, PA 19120
MIW	Masonry Institute of Washington 3101 Northup Way, #105, Bellevue, WA 98004-1449
ML/SFA	Metal Lath/Steel Framing Association 221 North LaSalle Street; Chicago, IL 60601
NAAMM	The National Assoc. of Architectural Metal Manufacturers 100 S. Marion Street Oak Park, IL 60302
NBHA	National Builders' Hardware Association 1290 Avenue of the Americas; New York, NY 10019

NBS	National Bureau of Standards, U.S. Dept. of Commerce Gaithersburg, MD 20234
NCMA	National Concrete Masonry Association 2302 Horsepen Road, Herndon, VA 22071-3406
NEBB	National Environmental Balancing Bureau 8224 Old Courthouse Road; Vienna, VA 22180
NEC	National Electric Code by BFPA (ANSI C1) 470 Atlantic Avenue; Boston, MA 02210
NECA	National Electrical Contractors Association 7315 Wisconsin Avenue; Washington, D.C. 20014
NEMA	National Electrical Manufacturers' Association 2101 L Street, NW; Washington, DC 20037
NFPA	National Fire Protection Association 470 Atlantic Avenue; Boston, MA 02201
NIBS	National Institute of Business Sciences 1201 L Street NW, Suite 400, Washington, DC 20005
NIOSH	National Institute of Occupational Safety and Health Department of Health, Education and Welfare Region, 10 Arcade Building, 1321 Second Avenue, Seattle, WA 98101
NOFMA	National Oak Flooring Manufacturers Association, Inc. PO Box 3009, Memphis, TN 38173-0009
NRCA	National Roofing Contractors Association 1515 N. Harlem Avenue; Oak Park, IL 60302
NSF	National Sanitation Foundation 3475 Plymouth Road, PO Box 1468, Ann Arbor, MI 48106
NSWMA	National Solid Wastes Management Association 1120 Connecticut Avenue, NW; Washington, DC 20036
NTMTA	National Terrazzo and Mosaic Tile Association 3166 Des Plaines Avenue; Des Plaines, IL 60018
NWCMA	Northwest Concrete Masonry Association 40 Lake Bellevue, Suite 100, Bellevue, WA 98005
NWFA	National Wood Flooring Association 223 Old Meramec Station Road, Manchester, MO 63021-5310

NWMA	National Woodwork Manufacturers Association, Inc. 400 West Madison Street; Chicago, IL 60606
NWWDA	National Wood Window and Door Association 1400 East Touhy Avenue, Suite G-54, Des Plaines, IL 60018
NWWCB	Northwest Wall and Ceiling Bureau 1032-A NE 65th Street, Seattle, WA 98115
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor), Government Printing Office; Washington, D.C. 20402
OSHD	Oregon State Highway Division 2223 Transportation Building; Salem, OR 97310
PCA	Portland Cement Association 5420 Old Orchard Road; Skokie, IL 60077
PCI	Prestressed Concrete Institute 201 North Wacker Drive; Chicago, IL 60606
PDCA	Oregon Council, Painting & Decorating Contractors of America 4530 SE 67th Avenue; Portland, OR 97206
PEI	Porcelain Enamel Institute, Inc. 1900 "L" Street, NW; Washington, DC 20036
PS	Product Standard U.S. Department of Commerce; Washington, DC 20203
PSAPCA	Puget Sound Air Pollution Control Authority 200 West Mercer Street, PO Box 9863, Seattle, WA 98109
RCSHSB	Red Cedar Shingle and Handsplit Shake Bureau 515 116th Avenue; Bellevue, WA 98004
RFCI	Resilient Floor Covering Institute 966 Hungerford Drive, Suite 12-B, Rockville, MD 20850
RIS	Redwood Inspection Service One Lombard Street; San Francisco, CA 94111
SCPI	Structural Clay Products Institute 1750 Old Meadow Road; McLean, VA 22101
SDI	Steel Deck Institute Box 3812; St. Louis, MO 63122
SDI	Steel Door Institute 712 Lakewood Center North; Cleveland, OH 44107

SIGMA	Sealed Insulating Glass Manufacturers Association 111 East Wacker Drive; Chicago, IL 60601
SJI	Steel Joist Institute 1703 Parham Road, Suite 204; Richmond, VA 23229
SMACNA	Sheet Metal & Air Conditioning Contractor's National Assoc. 8224 Old Court House Road; Vienna, VA 22180
SPR	Simplified Practice Recommendation of National Bureau of Standards, U.S. Dept. of Commerce, Supt. of Documents U.S. Government Printing Office; Washington, D.C. 20402
SSPC	Steel Structures Painting Council 4400 Fifth Avenue; Pittsburgh,
PA 15213 SWEET'S	Sweet's Catalog File
(No Acronym)	McGraw-Hill Information Systems Company 1221 Avenue of the Americans, New York, NY 10020-1095
SWI	Steel Window Institute 1300 Sumner Ave, Cleveland, OH 44115-2851
TAS	Technical Aid Series Construction Specifications Institute 601 North Madison Street; Alexandria, VA 22314
TCA	Tile Council of America, Inc. Box 326; Princeton, NJ 08540
TIMA	Thermal Insulation Manufacturers Association, 7 Kirby Plaza Mt. Kisco, NY 10549
TSCA	Toxic Substances Control Act: (See PSAPCA)
UBC	Uniform Building Code as modified and amended by the State of Oregon and published as the Structured Specialty Code and Fire and Life Safety Regulations.
UL	Underwriters' Laboratories, Inc. 333 Pfingston Road; Northbrook, IL 60062
USDA	United States Department of Agriculture 915 2nd Avenue, Seattle, WA 98101
USTA	United States Tennis Association 640 - 8th Avenue, 34th Floor, New York, NY 10036
WCLA	West Coast Lumbermen's Association P.O. Box 25406; Portland, OR 97225

WCLIB	West Coast Lumber Inspection Bureau (Grading Rules) P.O. Box 25406; Portland, OR 97225
WRCLA	Western Red Cedar Lumber Association 1200 - 555 Burrard Street, Vancouver, British Columbia, Canada V7X 1S7
WSDA	Washington State Department of Agriculture 406 General Administration Building AXL-41, Olympia, WA 98504
WSDOT	Washington State Department of Transportation Department of General Administration - Purchasing Department Room 216, General Administration Building, Olympia, WA 98504
WWPA	Western Wood Products Association (Grading Rules) 700 Yeon Building; Portland, OR 97204

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 42 19

SECTION 01 45 00

QUALITY CONTROL

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Quality Assurance - Control of Installation.

B. Tolerances.

C. Manufacturer's Certificates.

D. Manufacturer's Field Services.

E. Field samples and mock-ups.

1. Provide specified field samples and mock-ups at designated Project Location, or where directed by Architect.
2. Provide physical field samples illustrating finishes, coatings, patterns, and systems.
3. Construct full size mock-ups for review of construction systems to establish standards by which workmanship will be judged.
4. Provide full scale field samples and mock-ups with specified attachments, anchorage devices, flashings, sealants, finishes, and colors for a complete and finished system.
5. Provide in dimension as specified, or when not specified, provide in sufficient size and completeness, in consultation with Architect, to clearly illustrate the work.
6. Maintain ease of access to accepted in-place mock-up. Where accepted mock-up is covered, lost, or damages, arrange with Architect to provide new accepted mock-up as means to illustrate acceptable quality standards.
7. Remove field samples and mock-ups when directed to do so, or if not directed, at Project completion.

1.2 RELATED REQUIREMENTS

A. The General Conditions of the Contract and Supplemental Conditions.

B. Make particular reference to the following Division One Sections:

1. Section 01 42 19 - Reference Standards: Applicability of specified reference standards
2. Section 01 45 23 - Testing and Inspecting Services

1.3 QUALITY ASSURANCE - CONTROL OF INSTALLATION

A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

C. Perform work by persons qualified to produce workmanship of specified quality.

1.4 TOLERANCES

A. Monitor tolerance control of installed Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturer's tolerances. Should manufacturer's tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust Products to appropriate dimensions, position before securing Products in place.

1.5 MANUFACTURERS' CERTIFICATES

A. When required by individual Specifications Section, submit manufacturers' certificate, in duplicate, that products meet or exceed specified requirements.

1.6 MANUFACTURERS' FIELD SERVICES

A. When specified in respective Specifications Section, require supplier and manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to make appropriate recommendations.

1. Manufacturer's Representative shall attend pre-installation conferences.
2. Representatives shall submit written report to Architect listing observations and recommendations.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 45 00

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Temporary Utilities

B. Temporary Controls

C. Construction Facilities

D. Removal of Utilities, Facilities, and Controls

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following Division One sections:

1. Section 01 11 00 - Summary of Work
2. Section 01 71 23.13 – Examination and Preparation
3. Section 01 71 23.16 – Construction Surveying
4. Section 01 74 00 - Cleaning and Waste Management

1.3 TEMPORARY UTILITIES

A. Temporary Electricity:

1. The Contractor will provide and pay for power service installation required from Utility source for the duration of work under this contract for areas not served or accessible by the Owner's power service within the park, or for equipment or work that exceed the current electrical services. The Contractor shall be responsible to provide and pay for any temporary power utility services, and to extend such service to the work area.
2. The Contractor shall furnish and install, as necessary, temporary wiring and associated service equipment. Upon completion of the work, remove all temporary wiring and equipment.
3. The Contractor shall furnish and install area distribution boxes so located that the individual trades may use their own construction type extension cords to obtain proper power and provide artificial lighting at all points where required by inspectors and for safety.
4. The Contractor shall ascertain where electrical service is available; provide required connections, and extend system to work area.
5. The Contractor may use temporary electrical generators only as allowed by the Master Use Permit (MUP) and as indicated on the MUP drawings, as allowed by the Owner's SEPA checklist, and by written permission of the Owner's Project Manager. The Contractor shall be responsible for all costs for temporary generators including rental, purchase, moving and staging, upkeep and maintenance, fuel, permitting, and removal.

6. Usage charges incurred due to Contractor's utilization of existing services will be paid by the Owner.

B. Temporary Lighting:

1. Provide and maintain lighting for construction operations to achieve minimum lighting level of 2 watt/sq. ft. Provide additional lighting for finish work where and when needed, or as required by the Contract Documents.
2. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
3. Maintain lighting and provide routine repairs.
4. Provide any temporary lighting required for current park occupants and egress pathways that are impacted from construction operations, including indoor and outdoor lighting.

C. Temporary Heat:

1. Provide and pay for heat devices and heat as required to maintain specified conditions for construction operations. For temporary heating use steam or hot water where available and where not available, use gas from piped distribution system where available. Where steam, hot water or pipe gas are not available, heat with electric resistance heaters or self-contained, indirect LP gas or fuel oil heaters bearing UL, FM or other approval labels appropriate for application. Vent products of combustion directly to out of doors for all fuel-burning heaters and equip units with individual space thermostatic controls. Direct-fired units are not allowed.
2. The Contractor shall provide and maintain temporary heating in the existing buildings at all times assuring a minimum temperature of 60 degrees. The permanent building heating and air conditioning system may be used for temporary heat during construction. These systems may only be operated after final cleaning and as allowed by the commissioning and indoor air quality requirements related to construction temperature and climate control. Refer to sections 01 81 19 Indoor Air Quality Requirements and 01 91 00 Commissioning.
3. The Contractor is responsible for providing and maintaining temporary heating to occupied portions of the building throughout the project. The occupied spaces shall be heated to a minimum of 68-degrees and a maximum of 76-degrees during occupied hours.
4. Location and types of temporary heating boilers are limited by the MUP and SEPA permits.
5. Usage charges incurred due to Contractor's utilization of existing services will be paid by the Owner.

D. Temporary Ventilation:

1. Ventilate enclosed areas to:

    a. Assist cure of materials.
    b. Dissipate humidity.
    c. Prevent accumulation of dust, fumes, vapors, or gases.
    d. Provide local exhaust ventilation to prevent harmful dispersal of hazardous substances into atmosphere at all times.

E. Temporary Humidity Control:

1. Employ de-humidifiers in sufficient numbers to aid the drying process and quality control during:

a. GWB taping.
b. Texturing (if any).
c. Painting (as appropriate).
d. Remediation of water infiltration or spillage.
e. Protection of historic wood remaining in place.

F. Temporary Telephone and Facsimile (FAX) Service:

1. Provide, maintain and pay for telephone and email service to Contractor's field office at time of project mobilization.

a. Equip phone with voice messaging service or approved equal.

2. Maintain services from start of work through building occupancy.

G. Temporary Water Service:

1. Provide and maintain suitable quality water service required for construction operations and drinking. Any use of owner provided water service is allowed only by written permission of the Construction Manager. In such case, separate metering must be provided; quantities tracked and costs for that use remitted to the Owner.

H. Temporary Sanitary Facilities:

1. Provide and maintain adequate number of required facilities and enclosures for use of all persons and trades employed on Work during construction period. Comply with all minimum requirements of all public agencies having jurisdiction. Maintain in a sanitary condition at all times.

I. Temporary First Aid Facilities: Provide adequate first aid facilities for construction personnel.

J. Temporary Fire Protection:

1. Take all precautions to prevent possibility of fire resulting from construction operations. Particularly avoid hazardous accumulations of rubbish and unsecured flammable materials.
2. Provide emergency fire extinguishing equipment of adequate type and quantity, readily available and properly maintained.
3. Keep local fire department's telephone number prominently displayed near telephone.

1.4 TEMPORARY CONTROLS

A. Barriers:

1. Provide interior and exterior barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
2. Provide barricades and covered walkways required by governing authorities for public rights-of-way.
3. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

B. Fencing and Signage:

1. Provide and maintain a continuous 6'-0" height commercial grade chain link fence at the construction site perimeter and in additional areas identified on the drawings and at Contractors' discretion to be removed after substantial completion or when authorized by the Owner's Project Manager. Provide gates for access as required by the Contractor with two (2) keys to any/all security padlocks to Owner's Project Manager.
2. Signage:

    a. Provide wayfinding exterior signage for all phases of construction to direct public and visitors to occupied portions of the site and park parking facilities. Signs shall be large, legible, mechanically fastened, impervious to weather, and maintained free of graffiti, etc. throughout the project.
    b. Provide interior directional wayfinding signage for all phases of construction to direct staff, students, and visitors to occupied areas of the building.
    c. Provide interior and exterior warning signs for all construction areas. Install on temporary construction barriers.
    d. Provide interior and exterior emergency egress signage to direct occupants to emergency exits as needed during construction phasing. Provide emergency egress rated doors, door hardware, signage, and/or battery-operated alarms at emergency exit doors that open into construction areas.

C. Water Control:

1. Grade site to drain.
2. Devise and implement adequate site drainage. Maintain excavations free of water. Provide, operate, and maintain pumping equipment as needed.
3. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
4. Exercise care in cleaning out equipment, etc., so as to prevent materials from clogging catch basins and yard drains.
5. Leave all drainage items clean and in proper working condition.
6. Fill materials contaminated by Contractor's lack of water control will not be replaced or remediated by the Owner. All such materials will be removed/replaced by the Contractor at its own expense and schedule loss.

D. Dust Control:

1. Maintain continuous cleaning and wetting procedures to control dust pollution at project site and haul routes as required by governing authorities and the Contract Documents. Use power sweepers or hose washing for street cleaning, if necessary. Protect catch basin inlets from silt infiltration.
2. Vacuum clean and wipe interior surfaces of building prior to start of finish painting.
3. Continue vacuum cleaning on as-needed basis until building is ready for Substantial Completion or occupancy. Do not sweep areas that can be vacuumed.

E. Pollution Control:

1. Burning or burying of rubbish and waste materials on Site is prohibited. Provide dump box for collection of waste materials.
2. Disposal of volatile fluid wastes (such as mineral spirits, fuel, lubricants, oil or paint thinner) in storm or sanitary sewer systems is prohibited.
3. Keep Site and surrounding areas clear of accumulations of waste material and rubbish resulting from operations under this Contract. Remove waste from Site immediately upon completion of Work.
4. Hazardous materials are present on site. See applicable abatement sections of the contract documents for procedures and controls.

F. Exterior Enclosures:

1. Provide temporary weather-tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification Sections, and to prevent entry of unauthorized persons.
2. Provide access doors with self-closing hardware and locks.
3. Provide temporary roofing as required.
4. Provide exterior weather-tight closures to protect any occupied areas of the building from the elements during construction.

G. Interior Enclosures:

1. Provide rated and insulated temporary partitions and ceilings as required to separate work areas from owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, to prevent noise transmission from construction activities, to prevent odors, and to prevent damage to existing materials and equipment.
2. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces in accordance with ASTM E90 (maximum Flame Spread Rating of 75) and in accordance with ASTM E84.

H. Protection of Installed Work:

1. Protect installed Work and provide special protection where specified in individual specification Sections.
2. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.

3. Provide and maintain temporary shoring and lateral bracing of structure during erection to resist all loads including:

    a. Wind
    b. Seismic
    c. Construction
    d. Materials
    e. Moving equipment

4. Do not remove temporary bracing and shoring until adequate permanent connections or structural elements are in final position and positively anchored.
5. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
6. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
7. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
8. Prohibit traffic in landscaped areas.

J. Vegetation Damage Control:

1. Protect all existing trees to remain on site from foliage, trunk, and root damage.
2. Provide temporary barricades at the tree drip lines, and maintain same around all trees, shrubs or other landscaped areas adjacent to work of this Contract to protect such areas from damage of any nature caused by construction operations.
3. Replace any plantings damaged or destroyed with plants of equivalent size, type and nature as approved by Architect.
4. Replace all damaged lawn or boulevard grass areas with approved sod, maintained and watered per landscape specifications.
5. Pruning of existing trees and shrubs will only be allowed by the consent of the Owner and Owner's Arborist if requested by RFI.

K. Security:

1. Contractor shall be responsible for the determination of and maintenance of proper security measures for the job site temporary facilities and building for the duration of the Construction Project until Owner assumes the responsibility, in writing (either at Substantial Completion or Final Acceptance). Contractor shall provide security measures as he sees fit for protection of the work, but shall provide the following minimum items: (The following list does not guaranty adequate security measures):

    a. Locks on all construction equipment boxes, temporary storage and office facilities, and construction equipment (vehicles, cranes, dozers, forklifts, etc.).
    b. Temporary construction cores for all exterior and storage room doors, locksets or cylinders.
    c. Provide security and facilities to protect Work, and Owner's operations from unauthorized entry, vandalism, or theft.
    d. Coordinate with Owner's security program.

2. Contractor shall hold the Owner harmless from all damage, vandalism, stolen equipment or supplies on the Project Site for whatever reason, or from injury to or death of unauthorized persons trespassing on Project Site because of inadequate security measures until the Owner releases the Contractor from security responsibilities in writing or at Final Completion, whichever comes first.
3. See builder's risk deductibles and details, as well as overall insurance requirements, for which the Contractor is responsible.
4. The Contractor shall not be responsible for security of the Owner occupied spaces, to the extent the Contractor's activities in occupied spaces do not contribute to security violations.

L. Traffic Control:

1. Whenever the Contractor's operations affect public vehicular or pedestrian traffic, the Contractor shall be responsible for the installation and maintenance of any and all traffic control devices as deemed necessary by the authority having jurisdiction.
2. Reference also Division 1, General Requirements, Section 01 55 00, Vehicular Access and Parking, for additional information and requirements.

1.5 CONSTRUCTION FACILITIES

A. Access Roads and Staging Areas:

1. Construct and maintain any temporary access from public thoroughfares to serve construction area. Maintenance and repair of the temporary entrance(s) is the responsibility of the Contractor.
2. Relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.
3. Provide and maintain access to fire hydrants, free of obstructions.
4. Provide means of removing mud from vehicle wheels before entering streets. Provide street cleaning as needed. Provide dust control measures.
5. Provide barricades, warning signs, flagmen or other traffic regulators which may become necessary for protection of public, construction personnel and property.
6. Staging Areas:

    a. The designated construction staging area is the area south of the existing tennis courts.
    b. Additional staging areas may be allowed on other areas of the site if they do not interfere with required access for owner occupants and activities. The Contractor shall work with the Owner during design to determine these auxiliary staging areas.

B. Parking:

1. See 01 55 00 Vehicular Access and Parking
2. Contractor shall provide for two (2) on-site parking spaces reserved for use by the Owner's Project Manager and its staff or consultants. These parking spaces are to be located directly adjacent to the field office.

C. Progress Cleaning:

1. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
2. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing space.
3. Vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust. Avoid broom cleaning.
4. Remove waste materials, debris, and rubbish from site periodically and dispose off-site.
5. Provide regular street cleaning as needed for staging areas and surrounding streets and parking lots affected by construction dirt and dust.

D. Project Identification:

1. Mount 4x8 sign provided by Owner on 4x6 posts.
2. Erect on Site at location established by Owner.

    a. Comply with requirements of authorities having jurisdiction.
    b. Obtain and pay for required permits.

3. No other signs are allowed without Owner permission except those required by law.

E. Field Office and Sheds:

1. General: Furnish and install a field office building adequate in size and accommodation for all Contractor's offices, job site meetings, superintendent's office, supply room and tool room.
2. Temporary Telephone Service:

    a. Provide and maintain wireless internet access for the Owner’s Project Manager’s office as required above. Cost of installation and removal shall be included in the contract.

3. Not Used
4. Not Used
5. The above-referenced facilities shall be completed in total and fully operational for use by the Owner’s Project Manager and the Architect not later than ten (10) days after mobilization by the CMGC Contractor.
6. Thermometer:

    a. Maintain one twelve inch minimum size high/low register outdoor thermometer. Mount at convenient location not in direct sunlight. Contractor to record daily high and low temperatures.
    b. Thermometer Range: Minus 60□ to plus 110□F.

7. Protective Headgear:

a. Provide for visitors' use twelve (12) new rotating knob adjustment type, WISHA approved hard hats white in color and shelving to store them on.

8. Sheds: Provide following facilities in temporary buildings used for material and equipment storage.

a. Ventilation: Where required for materials being stored.
b. Fire Extinguisher: One (1) ABC type portable fire extinguisher.
c. Temperatures: As required for materials being stored.

F. Temporary Vertical Transportation:

Provide and maintain all essential temporary vertical transportation for use of all persons and trades employed on Work during construction. Be responsible for all costs incurred.

1.6 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing facilities, Owner's property, and adjacent private and public property damaged or used during construction, to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 50 00

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SECTION 01 55 00

VEHICULAR ACCESS AND PARKING

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Description of Work

B. Submittals

C. Traffic Maintenance Facilities

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following Division One sections:

1. Section 01 11 00 - Summary of Work
2. Section 01 50 00 – Temporary Facilities and Controls

1.3 DESCRIPTION OF WORK

A. The Contractor shall retain the responsibility for the traffic operations. The Contractor shall cooperate with the Owner so that traffic flow is least impeded by the execution of the work under this Contract. In the event of conflict, the Owner’s Project Manager shall be the sole judge of the adequacy of the Contractor's protective measures to assure the flow of traffic.

B. The Contractor understands the special requirement of maintaining the facility in full operation concurrent with the construction activity, and shall provide continuous and safe access by the Owner to all areas of the site not specifically designated for work by the Contractor under each phase. The Contractor's access shall be limited to the work, staging, delivery and parking areas indicated on the drawings unless otherwise authorized by the Owner.

C. Whenever the Contractor's activity affects vehicular or pedestrian traffic the Contractor shall install and maintain lighted barriers, signals, separators, etc. for the safety of the public. Provide flaggers for traffic control as required to comply with City of Sandpoint and other agency requirements.

1.4 SUBMITTALS

A. Prior to starting any work the Contractor shall submit to City of Sandpoint and the Owner’s Project Manager a detailed plan of his proposed method for controlling traffic. The proposed traffic control plan shall show and describe the proposed locations and time durations covering the following:

1. Vehicular traffic routing
2. Traffic blockage anticipated to be caused by the work under this Contract.
3. Trucking plan for delivery of materials and haul-off of debris, soils and hazardous material.
4. Parking plan meeting City of Sandpoint and Owner requirements.
5. Compliance with City of Sandpoint requirements.

1.5 TRAFFIC MAINTENANCE FACILITIES

A. Other than as shown on the approved traffic control plans, at no time shall the Contractor's operations interfere with the safe and orderly operation of Owner occupied areas of the facility or the neighborhood. Encroachment by the Contractor's operations will not be permitted.

B. For the duration of the Contract, the Contractor shall immediately repair or replace any and all appurtenances damaged or destroyed in the performance of work included herein.

C. Upon completion of the work, temporary traffic maintenance items furnished by the Contractor shall remain his property and shall be removed from the site by the Contractor.

D. The Contractor shall utilize water application methods to control dust on access streets and the project site to the satisfaction of the Architect and the Owner's Project Manager. Power sweepers shall be used to clean streets of dirt along haul routes.

1.6 CONSTRUCTION PARKING

A. The Contractor shall be responsible for informing all workers of parking restrictions and immediately removing any vehicle from areas designated as NO PARKING below.

B. Construction parking shall be limited to the following areas:

a. Contractor's laydown and storage yard.
b. Legal parking areas on adjacent city streets except as noted below.

C. Construction parking shall <u>not</u> be allowed in the following areas:

a. Dedicated park parking.
b. Adjacent city streets where parking is not allowed, such as bus loading zones, driveways, etc.
c. On-site in non-parking areas, such as lawn or landscaped areas.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 55 00

SECTION 01 56 39

TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

B. Travers Park is an important park for the Sandpoint Community. Protection and preservation of existing trees to remain is a very high community priority.

C. Oak tree identified on drawings at SW corner of building is a critical tree for preservation and protection. Contractor to use all methods necessary to limit disruption and damage to roots. See Section 3.0 Execution.

D. Related Requirements:

1. Section 01 50 00 "Temporary Facilities and Controls" for temporary site fencing.
2. Section 31 10 00 "Site Clearing" for removing existing trees and shrubs.

1.3 DEFINITIONS

A. Caliper: Diameter of a trunk measured by a diameter tape at a height 6 inches above the ground for trees up to and including 4-inch size at this height and as measured at a height of 12 inches above the ground for trees larger than 4-inch size.

B. Caliper (DBH): Diameter breast height; diameter of a trunk as measured by a diameter tape or the average of the smallest and largest diameters at a height 54 inches above the ground line for trees with caliper of 8 inches or greater as measured at a height of 12 inches above the ground.

C. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

D. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated.

E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:

a. Tree-service firm's personnel, and equipment needed to make progress and avoid delays.
b. Arborist's responsibilities.
c. Quality-control program.
d. Coordination of Work and equipment movement with the locations of protection zones.
e. Trenching by hand or with air spade within protection zones.
f. Field quality control.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Include plans, elevations, sections, and locations of protection-zone fencing and signage, showing relation of equipment-movement routes and material storage locations with protection zones.
2. Detail fabrication and assembly of protection-zone fencing and signage.
3. Indicate extent of trenching by hand or with air spade within protection zones.

C. Samples: For each type of the following:

1. Organic Mulch: 1-quart volume of organic mulch; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch.
2. Protection-Zone Fencing: Assembled Samples of manufacturer's standard size made from full-size components.
3. Protection-Zone Signage: Full-size Samples of each size and text, ready for installation.

D. Tree Pruning Schedule: Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.

1. Species and size of tree.
2. Location on site plan. Include unique identifier for each.
3. Reason for pruning.
4. Description of pruning to be performed.
5. Description of maintenance following pruning.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For arborist and tree service firm.

B. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.

C. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.

D. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.

1. Use sufficiently detailed photographs or video recordings.

2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

E. Quality-control program.

1.7 QUALITY ASSURANCE

A. Arborist Qualifications: Certified Arborist as certified by ISA.

B. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.

C. Quality-Control Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work without damaging trees and plantings. Include dimensioned diagrams for placement of protection zone fencing and signage, the arborist's and tree-service firm's responsibilities, instructions given to workers on the use and care of protection zones, and enforcement of requirements for protection zones.

D. Air Spade Contractor Qualifications: Provide list of projects that Air Spade operator has completed related to utility or irrigation work around existing mature trees.

E. Tree Pruning Standards: Comply with applicable municipal tree pruning standards and ANSI A300, "Trees, Shrubs, and Other Woody Plant Maintenance - Standard Practices," unless more stringent requirements are indicated.

F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

G. Before starting tree protection and pruning, meet with representatives of authorities having jurisdiction, Owner, Landscape Architect, consultants, and other concerned entities. Review tree protection and pruning procedures and responsibilities. Notify participants at least three working days before convening conference. Record discussions and agreements and furnish a copy to each participant.

1.8 FIELD CONDITIONS

A. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Moving or parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

B. Do not direct vehicle or equipment exhaust toward protection zones.

C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Backfill Soil: Stockpiled soil mixed with planting soil of suitable moisture content and granular texture for placing around tree; free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.

1. Mixture: Well-blended mix of two parts stockpiled soil to one part planting soil.

B. Organic Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of one of the following:

1. Type: Wood and bark chips.
2. Size Range: 3 inches maximum, 1/2 inch minimum.
3. Color: Natural.

C. Protection-Zone Fencing: Fencing fixed in position and meeting one of the following requirements:

1. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch maximum opening in pattern and weighing a minimum of 0.4 lb./ft.; remaining flexible from minus 60 to plus 200 deg F; inert to most chemicals and acids; minimum tensile yield strength of 2000 psi and ultimate tensile strength of 2680 psi; secured with plastic bands or galvanized-steel or stainless-steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 96 inches apart.

a. Height: 48 inches.
b. Color: High-visibility orange, nonfading.

D. Air Spade or Air Knife: Compressed air tool that removes soil without damaging roots, even fine fibrous roots. The tools convert compressed air to a directional jet stream by use of specially nozzles fitted to the end of a hand-held lance. The skilled use of this compressed air tool will break up and remove the soil from around tree roots. The finely focused stream of air penetrates the ground to a depth of up to 12 inches and can be aimed to crumble and blast the soil away. It is possible to cause damage to the root cortex of thin barked species. Two specially designed filter units are necessary to reduce the oil content of the air stream down to a more acceptable 0.05 parts per million. It is important to install filters in the air line between the compressor unit and the hand-held lance.

E. Cabling and other tree stabilization equipment.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

B. Prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

3.2 PREPARATION

A. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated. Flag each tree trunk at 54 inches above the ground.

1. Review existing trees and shrubs with Owner's representative to identify trees and shrubs for protection within the limits of construction.

B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

C. Tree-Protection Zones: Mulch areas inside tree-protection zones and other areas indicated. Do not exceed indicated thickness of mulch.

1. Apply 2-inch uniform thickness of organic mulch unless otherwise indicated. Do not place mulch within 6 inches of tree trunks.

D. Boring for utility installation within the TPZ is authorized.

E. Air-Spading: Air-Spading for utility excavation within the designated TPZ is authorized.

1. The Air-Spade is a handheld soil excavation tool connected to a large air-compressor. The high-pressure stream of air is funneled through a small nozzle breaking dense soils apart into small particles. By using air to excavate soil, delicate roots, underground pipes, and hard surfaces are not damaged. Protect adjacent property, vehicles and pedestrians from debris generated by trenching or air-spading.

3.3 OAK TREE PROTECTION

A. An oak tree has been identified on the plans for special efforts to preserve and protect. Prior to construction around this tree, a pre-construction conference will be held to refine strategies to protect this tree during construction.

B. Efforts to protect tree to include but are not limited to the following operations supervised by a certified arborist:

1. Air Spading
2. Boring
3. Root Pruning
4. Tree stabilization

C. Do not Air-Spade within the TPZ, without prior approval of the Owner. Owner's representative will approve areas that require air spading prior to excavation.

3.4 PROTECTION ZONES

A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people and animals from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.

1. High visibility plastic construction fence, attach to T-posts and maintain in place for the duration of the project.
2. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Architect.

B. Maintain protection zones free of weeds and trash.

C. Maintain protection-zone fencing and signage in good condition as acceptable to Architect and remove when construction operations are complete and equipment has been removed from the site.

1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
2. **Temporary access** is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

3.5 EXCAVATION

A. General: Excavate at edge of protection zones and for trenches indicated within protection zones according to requirements in Section 31 20 00 "Earth Moving" unless otherwise indicated.

B. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.

C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.

D. Where excavation for new construction is required within the TPZ hand clear and excavate or Air Spade to minimize damage to root systems. Use narrow-tine spading forks and comb soil to expose roots.

1. Relocate roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and relocate them without breaking. If encountered immediately adjacent to location of new construction and relocation is not practical, cut roots approximately 3 inches back from new construction.
2. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

E. Do not Air-Spade within the TPZ, without prior approval of the Owner. Owner's representative will approve areas that require air spading prior to excavation.

F. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.6 ROOT PRUNING

A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows:

1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
2. Cut Ends: Do not paint cut root ends.
3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
4. Cover exposed roots with burlap and water regularly.
5. Backfill as soon as possible according to requirements in Section 312000 "Earth Moving."

B. Root Pruning at Edge of Protection Zone: Prune tree roots 12 inches outside of the protection zone by cleanly cutting all roots to the depth of the required excavation.

C. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.7 PRUNING

A. Prune shrubs and trees as directed that are affected by demolition of existing improvements, including fences.

B. Prune branches that are affected by temporary and permanent construction. Prune branches as directed by arborist.

1. Prune to remove only injured, broken, dying, or dead branches unless otherwise indicated. Do not prune for shape unless otherwise indicated.
2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.
3. Pruning Standards: Prune trees according to ANSI A300 (Part 1).

a. Type of Pruning: Cleaning and raising where indicated.
b. Specialty Pruning: Structural where necessary.

C. Unless otherwise directed by arborist and acceptable to Architect, do not cut tree leaders.

D. Cut branches with sharp pruning instruments; do not break or chop.

E. Do not paint or apply sealants to wounds.

F. Provide subsequent maintenance pruning during Contract period as recommended by arborist.

G. Chip removed branches and dispose of off-site.

3.8 REGRADING

A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.

1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.

C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

D. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.

3.9 FIELD QUALITY CONTROL

A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.10 REPAIR AND REPLACEMENT

A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Architect.

1. Submit details of proposed pruning and repairs.
2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Architect.

B. Trees: Remove and replace trees indicated to remain that are more than 25 percent dead or in an unhealthy condition before the end of the corrections period or are damaged during construction operations that Architect determines are incapable of restoring to normal growth pattern.

1. Small Trees: Provide new trees of same size and species as those being replaced for each tree that measures 2 inches or smaller in caliper size.
2. Large Trees: Provide one new tree(s) of 2.5” caliper size for each tree being replaced that measures more than 2” in caliper size.

a. Species: As selected by Architect.

3. Plant and maintain new trees as specified in Section 32 93 00 "Plants."

C. Excess Mulch: Rake mulched area within protection zones, being careful not to injure roots. Rake to loosen and remove mulch that exceeds a 2-inch uniform thickness to remain.

D. Soil Aeration: Where directed by Architect, aerate surface soil compacted during construction. Aerate 10 feet beyond drip line and no closer than 36 inches to tree trunk. Drill 2-inch- diameter holes a minimum of 12 inches deep at 24 inches o.c. Backfill holes with an equal mix of augered soil and sand.

3.11 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION 01 56 39

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SECTION 01 57 19

TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Work Included

B. Reference Standards

C. Title to Materials

D. Hydroseed Mix

E. Filter Fabric Fence

F. Pavement

G. Overflow Pipe

H. Netting

I. Land Resources

J. Temporary Construction

K. Water Resources

L. Oily Substances

M. Historical and Archeological Resources

N. Erosion and Sediment Control Measures

O. Petroleum Products

P. Polychlorinated Biphenyls (PCB) Control

Q. Dust Control

R. Noise

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following Division One sections:

1. 01 11 00 – Summary of Work
2. 01 50 00 – Temporary Facilities and Controls
3. 01 56 39 – Temporary Tree and Plant Protection and Thinning

4. 01 74 00 – Cleaning and Waste Management
5. 01 81 19 – Indoor Air Quality Requirements

1.3 WORK INCLUDED

A. Provide and maintain during the life of the Contract, Temporary Environmental Controls as defined herein. Provide environmental protective measures as required to control pollution that develops during normal construction practice. Comply with all federal, state and local regulations pertaining to water, air and noise pollution.

1.4 REFERENCE STANDARDS

A. Standard specifications for work and materials under this Section shall be the Idaho State Department of Public Works and the specifications of City of Sandpoint.

B. In case of conflict in the requirements of City of Sandpoint and the requirements stated herein, the requirements determined by the Architect to be the most stringent shall apply.

1.5 TITLE TO MATERIALS

Title to materials to be removed, except as specified otherwise on the Plans, is vested in the Contractor upon removal from the site. The Owner will not be responsible for the condition, or loss of, or damage to, such property after Notice to Proceed.

PART 2 - PRODUCTS

2.1 HYDROSEED MIX

A. 75% turf-type perennial ryegrass and 25% Kentucky Bluegrass seed by weight. Seed shall be 98% pure with a minimum germination rate of 90%. Apply at a rate of four (4) lbs. per 1,000 square feet.

2.2 FILTER FABRIC FENCE

A. Permea-tex silt fence, Mirafi or equal.

2.3 PAVEMENT

A. Class B asphalt in accordance with the reference standards.

2.4 OVERFLOW PIPE

A. Perforated CMP (corrugated metal pipe) in accordance with the referenced standards.

2.5 NETTING

A. Jute net shall be heavy, uniform cloth woven of single jute yarn. 36 to 48 inches wide with an average weight of 1.2 lbs./linear yard. Netting shall be securely anchored to the soil with No. 11 gauge wire staples at least six (6) inches long.

PART 3 - EXECUTION

3.1 PROTECTION OF NATURAL RESOURCES

A. The natural resources outside the project boundaries of this Contract shall be preserved in their existing condition. Confine construction activities to areas indicated or specified in the Contract documents.

3.2 LAND RESOURCES

A. Except in areas indicated to be cleared and grubbed, do not remove, cut deface, injure or destroy trees, shrubs or other vegetation.

3.3 TEMPORARY CONSTRUCTION

A. Prior to Substantial Completion, remove all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpile of excess or waste materials, and all other vestiges of construction. Temporary roads, parking areas and similar temporary use areas shall be graded in conformance with surrounding areas.

3.4 WATER RESOURCES

A. Perform all work in such manner that any adverse environmental impact on water resources is reduced to a level acceptable to all regulatory agencies.

3.5 OILY SUBSTANCES

A. Take special measures to prevent oily or other hazardous substances from entering the ground, drainage areas or local bodies of water.

3.6 HISTORICAL AND ARCHEOLOGICAL RESOURCES

A. Carefully preserve and report immediately to the Construction Program Manager all items having apparent historical or archeological interest which are discovered in the course of any construction activities.

3.7 EROSION AND SEDIMENT CONTROL MEASURES

A. Burn-off:

1. Burn-off of standing ground cover is not permitted. See Section 31 10 00 SITE CLEARING for other requirements for burning.

B. Protection of Erodible Soils:

1. All earthwork brought to final grade shall be immediately finished as indicated or specified. Protect immediately all side slopes and backslopes upon completion of rough grading. Plan and conduct all earthwork in such a manner as to minimize the duration of exposure of unprotected soils.

C. Temporary Protection of Erodible Soils:

1. Utilize the following methods, as necessary, to prevent erosion and control sedimentation, whether shown on the plans or not, and without claim for extra work.

D. Mechanical Retardation and Control of Runoff:

1. Mechanically retard and control the rate of runoff from the construction site. This includes construction of diversion ditches, benches and berms, to retard and divert runoff to protected drainage courses. Provide straw bale checking in ditches or problem swales at intervals required to adequately slow water velocity and impede soil loss.

E. Sediment Basins:

1. Trap sediment in temporary sediment basins. Select basin size to accommodate the runoff of a local ten (10) year storm. Pump dry and remove accumulated sediment after each storm. Use a paved weir or vertical overflow pipe for overflow. Remove collected sediment from the site.

F. Vegetation And Mulch:

1. Provide temporary protection on all side and back slopes as soon as rough grading is completed or sufficient soil is exposed to require protection to prevent erosion. Such protection shall be accelerated growth of permanent vegetation, temporary vegetation, mulching or netting. Stabilize slopes by hydroseeding, anchoring mulch in place, covering with anchored netting, sodding or such combination of these and other methods necessary for effective erosion control.

G. Filter Fabric Fence:

1. Provide filter fabric fence as indicated on Plans. Note that filter fabric fence shown is the minimum acceptable amount. Provide additional fence as required to satisfy regulatory agencies and permits.

3.8 PETROLEUM PRODUCTS

A. Conduct fueling and lubricating of equipment and motor vehicles in a manner that affords the maximum protection against spills and evaporation. Dispose of lubricants to be discarded and excess oil in acceptance with approved procedures meeting federal, state and local regulations.

3.9 POLYCHLORINATED BIPHENYLS (PCB) CONTROL

A. Comply with 40 CFR 761 for removal and disposal of PCB containing articles.

3.10 DUST CONTROL

A. Keep dust down at all times, including non-working hours, weekends and holidays. Sprinkle or treat, with dust suppressers, the soil at the site, haul roads and other areas disturbed by operations. No dry power brooming is permitted. Instead use vacuuming, wet mopping, wet sweeping or wet power brooming. Air blowing is permitted only for cleaning non-particulate debris, such as steel reinforcing bars. No sandblasting is permitted unless dust there from is confined. Only wet cutting of concrete blocks, concrete and asphalt is permitted. No unnecessary shaking of bags is permitted where bagged cement, concrete mortar and plaster is used.

3.11 NOISE

A. Make the maximum use of "low-noise-emission products" as certified by EPA. No blasting or use of explosives is permitted.

B. Comply with City of Sandpoint Noise Ordinance.

C. See 01 11 00 Summary of Work for additional noise-related requirements.

END OF SECTION 01 57 19

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SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Definitions

B. Transportation and Handling

C. Storage and Protection

D. Materials and Equipment

E. Manufactured and Fabricated Products

F. Preparation

G. Installation

H. Starting Systems

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following Division One sections:

1. Section 01 45 23 - Testing and Inspecting Services
2. Section 01 78 23 - Operation and Maintenance Data
3. Section 01 78 36 – Warranties
4. Section 01 80 00 – General Commissioning Requirements
5. Section 01 91 00 - Commissioning

1.3 DEFINITIONS

A. Definition of "Products":

1. "Products" include new material, machinery, components, equipment, fixtures, and systems forming Work.
2. "Products" do not include machinery and equipment used for preparation, fabrication, conveying and erection of Work.
3. "Products" may also include existing materials or components required for reuse.

B. Comply with Specifications and referenced standards as minimum requirements.

C. Components required to be supplied in quantity within a Specification section shall be the same and shall be interchangeable.

D. Do not use materials and equipment removed from existing structure, except as specifically required, or allowed, by Contract Documents.

1.4 TRANSPORTATION AND HANDLING

A. Coordinate product deliveries to avoid work schedule conflicts or delays.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Deliver products undamaged, in manufacturer's original containers, with labels intact and legible.

D. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.5 STORAGE AND PROTECTION

A. Assume full responsibility for protection and safekeeping of products stored on premises.

B. Store stockpiled materials in designated area.

C. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather- tight, climate controlled enclosures.

D. For exterior storage of fabricated products, place on sloped supports, above ground.

E. Provide off-site storage and protection when site does not permit on-site storage or protection.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.

H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. All materials and equipment shall be new (except existing items specifically designated for re -use) and free from defects impairing strength, durability, or appearances.

1. When two or more items of same kind are required under work, use items of single manufacturer except where specifically exempted.
2. Electrical products shall bear Underwriters' Laboratories (UL) label properly attached in accordance with requirements of Regulatory Agencies.

B. All items incorporated into Work shall conform to Contract Documents and designated standards.

2.2 MANUFACTURED AND FABRICATED PRODUCTS

A. Design, fabricate and assemble products in accordance with current best engineering, industry, and shop practices.

B. Provide interchangeable components of same manufacturer, for similar components.

C. Contract Documents are based upon specific manufacturers listed in various Specification sections. Alternate manufacturers may require deviations from Contract Documents to properly install their particular product and to provide required results.

1. Provide all additional work necessary to install such products, if approved, at no extra charge to Owner.
2. Submit Shop Drawings showing all deviations from Contract Documents for each specific item.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine existing conditions, Project requirements and Contract Documents. Verify that materials and equipment furnished meet specified requirements.

3.2 INSTALLATION

A. Perform Work, handle, install, connect, clean, condition and adjust products in strict accordance with manufacturers' printed Instructions, and with Contract Document requirements.

B. In case of conflict, Contract Documents shall govern. When in doubt, request clarification.

3.3 STARTING SYSTEMS

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architect seven days prior to start-up of each item.

C. Verify that each piece of equipment ore system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.

D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of responsible manufacturer's representative or Contractor's personnel in accordance with manufacturer's instructions.

G. When specified in individual specification sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report in accordance with the Contract Documents that equipment or system has been properly installed and is functioning correctly.

END OF SECTION 01 60 00

SECTION 01 71 23.13

EXAMINATION AND PREPARATION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Work Included

B. Quality Control

C. Survey Reference Points

D. Examination and Preparation

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following Division One sections:

1. Section 01 78 39 - Project Record Documents

1.3 WORK INCLUDED

A. Provide survey work by an Idaho State registered land surveyor, as required for execution of Project.

1.4 QUALITY CONTROL

A. Before starting work, the Contractor shall locate all general reference points. The Contractor shall take such steps as are necessary to prevent the dislocation or destruction of the reference points, and shall be responsible for the accuracy of the site and building layout and elevations for the work.

1.5 SURVEY REFERENCE POINTS

A. Existing Points: See Drawings.

B. Locate existing points prior to starting site work, and preserve during construction.

C. Make no changes to existing points without Architect's and Owner's Project Manager's approval.

D. Notify Owner's Project Manager when any point is lost, destroyed, or requires relocation.

1.6 EXAMINATION AND PREPARATION

A. Establish existing control points.

B. Record benchmark locations with horizontal and vertical dimensions on Project Record Drawings.

C. Using survey instruments, establish lines and levels for the following:

1. Stakes for grading, fill, and all earthwork.
2. Building foundation, floor elevations, and similar elements.

D. Re-establish control points as required due to construction activity.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 71 23.13

SECTION 01 71 23.16

CONSTRUCTION SURVEYING

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Notification and Claims by Utilities

B. Protection of Utilities

1.2 RELATED REQUIREMENTS

A. Make particular reference to the following sections:

1. Section 01 50 00 - Temporary Facilities andControls.
2. Section 01 57 19 - Temporary EnvironmentalControls

1.3 DESCRIPTION

A. Upon receipt of written notification from any of the public agencies or utilities that the Contractor has caused damage to any facility, equipment or installation of the agency, and the Contractor failed to request a utility locate service from said utility at least two (2) normal business days prior to the damage, or if the locate service was properly requested and the damage was not caused by an error in the locate service, the Owner will withhold from forthcoming or accrued Contract payment, including advances, a sum sufficient to protect the agency of utility from loss.

B. Upon receipt of a release of claim by the notifying utility or upon judgment of a court having jurisdiction in the matter and having established that the contractor is liable for a lesser amount or is not liable for a lesser amount or is not liable for the damage, the Owner will release the excess funds to the Contractor. Funds withheld pursuant to this provision shall not bear interest. Upon receipt of satisfactory evidence against the Contractor in a court of competent jurisdiction within sixty (60) days after discovery of the damage, the Owner shall release the funds withheld pursuant to this provision.

1.4 PROTECTION OF UTILITIES

A. Any pipes or other utilities encountered in the excavation shall be shored up and cared for by the Contractor as to leave them in a proper working condition until such times as the Owner shall determine what shall be done with them.

B. Any utilities misallocated or inadequately located by the appropriate utility company which is damaged by the contractor shall not constitute reimbursement or time extension to the Contractor from the Owner for repair(s) of work that the Contractor performs.

C. No underground utility or structures shall be backfilled until they are inspected and approved by the Owner. The Contractor shall give the Owner twenty-four (24) hours notice of his intention to backfill or cover his work. Any work covered up without approval or proper required inspection shall, upon request of the Owner, be uncovered for inspection at the expense of the Contractor. If the law or ordinance of any public authority requires any work to be tested, approved, or inspected, the Contractor shall arrange an appointment and a fixed date for such inspection.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 71 23.16

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Submittals

B. Materials

C. Extent of Work

D. Existing Conditions

E. Preparation

F. Performance

G. Cutting Structural Framing

H. Cleaning and Repairing

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following Division One sections:

1. Section 01 11 00 - Summary of Work
2. Section 01 25 13 - Approval for Substitutions and Product Options

1.3 SUBMITTALS

A. Submit written request for cutting approval to Architect well in advance of any cutting which affects:

1. Work of Owner or any separate contractor.
2. Structural value or integrity of any completed or existing work.
3. Waterproof value or integrity of any weather-exposed or moisture resistant work.
4. Efficiency, operational life, maintenance, or safety of any completed or existing work.
5. Visual qualities of any sight-exposed work.

B. Request shall include:

1. Project identification.
2. Location and Description of affected work.
3. Necessity for cutting, alteration, or excavation.
4. Effect on Owner's or separate contractor's work.
5. Effect on structural or weatherproof integrity on completed or existing work.

6. Description of proposed work including:

   a. Extent of cutting, patching, alteration, or excavation.
   b. Trades who will execute work.
   c. Products proposed for use.
   d. Extent of required refinishing.

7. Alternative to cutting and patching.
8. Cost proposal, when applicable.

C. Submit written notice to Architect through Construction Manager designating date and time work will be performed.

PART 2 - PRODUCTS

2.1 MATERIALS

A. For products similar to those specified elsewhere in this Project Manual: Follow those Specifications.

B. For other Products: Follow Architect's instructions.

C. For any change in materials, submit request for substitution under provisions of Section 01 25 13.

PART 3 - EXECUTION

3.1 EXTENT OF WORK

Perform all cutting, fitting, and patching, including attendant excavation and backfill, required to complete Work or to:

A. Make Work fit properly together.

B. Uncover Work for installation of ill-timed work.

C. Remove and replace defective Work and Work not conforming to Contract Documents.

D. Remove samples of installed Work for testing.

E. Provide penetrations through non-structural surfaces for mechanical and electrical Work.

3.2 EXISTING CONDITIONS

A. Inspect existing conditions and identify Work subject to damage or movement caused by proposed cutting and patching.

B. After uncovering Work, inspect conditions affecting products installation or performance.

C. Report unsatisfactory and questionable conditions to the Construction Manager in writing; do not proceed with work until further instructions are provided.

D. Beginning of cutting and patching implies acceptance of existing conditions.

3.3 PREPARATION

A. Maintain adequate temporary support necessary to assure structural integrity of affected work; provide devices and methods to protect other portions of project from damage.

B. Protect work exposed by cutting against damage and discoloration.

C. Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

3.4 PERFORMANCE

A. Provide proper surfaces for repairs.

B. Employ qualified installer or fabricator to perform cutting and patching of:

1. Weather-exposed or moisture-resistant surfaces.
2. Sight-exposed finished surfaces.

C. Restore cut or removed work with new products to provide work complete in accordance with Contract Documents. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with fire-rated material, full thickness of the construction element. Provide required fire resistant rating.

D. Fit work air-tight to pipes, sleeves, ducts, conduits, and other surface penetrations.

E. Where patching occurs, refinish entire surface to provide even finish to match adjacent work as follows:

1. Continuous surfaces: refinish to nearest intersection.
2. Assemblies: refinish entire unit.

3.5 CUTTING STRUCTURAL FRAMING

A. Cutting of exposed members, including any columns and posts, are not permitted unless shown on Drawings or otherwise approved.

3.6 CLEANING AND REPAIRING

A. Including work of other Sections, clean, repair, and touchup, or replace when directed, products which have been soiled, discolored, or damaged by work of this Section.
B. Remove debris from Project Site upon work completion or sooner, if required by Owner.

END OF SECTION 01 73 29

SECTION 01 74 00

CLEANING & WASTE MANAGEMENT

PART 1 - GENERAL

1.1 REQUIREMENTS

A. Summary

B. Quality Assurance

C. Cleaning Materials and Equipment

D. Progress Cleaning

E. Dust Control

F. Closeout Cleaning

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following sections: Related work described elsewhere: In addition to standards described in this Section, comply with all requirements for cleaning as described in other various Sections of these Specifications.

1.3 SUMMARY

A. Work included: Throughout the construction period, maintain the project site where work is carried out in a standard of cleanliness as described in this section.

1.4 QUALITY ASSURANCE

A. Inspection: Conduct daily inspection, and more often if necessary, to verify that requirements of cleanliness are being met.

B. Codes and Standards: In addition to the standard described in this section, comply with all pertinent requirements of governmental agencies having jurisdiction.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS AND EQUIPMENT

A. Provide all required personnel, equipment, and materials needed to maintain specified standard of cleanliness.

PART 3 - EXECUTION

3.1 PROGRESS CLEANING

A. General:

1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.
2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
3. Provide adequate storage for all items, awaiting removal from the job site, observing all requirements for fire prevention and protection of the ecology.

B. Site:

1. Weekly, and more often if necessary, inspect all arrangements of materials stored on the site; restack, tidy, or otherwise service. All arrangements to meet the requirements of paragraph 3.01 A.1 above.
2. Maintain the site in a neat and orderly condition at all times to the satisfaction of the Construction Program Manager.

3.2 DUST CONTROL

A. Maintain continuous cleaning and wetting procedures to control dust pollution at project site and haul routes as required by governing authorities and the Contract Documents. Use power sweepers for street cleaning, if necessary.

B. Schedule cleaning so that resultant dust and contaminants will not fall on wet or newly coated surfaces.

3.3 CLOSEOUT CLEANING

A. Cleaning: Provide final cleaning of Work prior to Substantial Completion Inspection at time indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of work to condition expected from normal commercial building cleaning and maintenance program. Comply with manufacturer's recommendations. Complete following cleaning operations before requesting Architect's review for Certification of Substantial Completion:

1. Clean equipment and fixtures to sanitary condition.
2. Clean or replace filters of operation equipment.
3. Clean debris from roofs, gutters, downspouts, and drainage systems.
4. Remove grease, mastic, adhesives, dust dirt, stains, fingerprints, labels, and other foreign matter from sight exposed interior and exterior surfaces.
5. Hose-clean exterior paved surfaces; rake clean other surfaces of grounds.
6. Clean mechanical and electrical equipment and spaces, including tops of pipes, ducts, equipment, etc.

7. Re-clean areas or equipment, after final inspection, if dirtied as result of Contractor's work in preparing for final inspection or completion of punchlist.

B. Removal of protection: Except as otherwise indicated or requested by Architect, remove temporary protection devices and facilities which were installed during course of Work to protect previously completed Work during remainder of construction period or to protect public.

C. Compliance:

1. Comply with safety standards and governing regulations for cleaning operations.
2. Do not burn waste materials at Site.
3. Do no bury debris or excess materials on Owner's property.
4. Do not discharge volatile or other harmful or dangerous materials into
5. drainage systems.
6. Remove waste materials from Site and dispose of in lawful manner.

END OF SECTION 01 74 00

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SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Prerequisites to Substantial Completion

B. Substantial Completion

C. Final Inspection

D. Final Documentation and Accounts

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Administrative procedures established by the Owner's Project Manager

B. A201 – 2007 revised – General Conditions

C. Section 01 50 00 - Temporary Facilities and Controls

D. Section 01 91 00 - Commissioning

E. Section 01 81 19 - Indoor Air Quality Requirements

F. Section 01 78 23 - Operations and Maintenance Data

G. Section 01 78 36 - Warranties and Bonds

H. Section 01 81 13 – Sustainable Design Requirements

1.3 DESCRIPTION OF REQUIREMENTS

A. Definitions: Closeout Procedures is a term used to describe certain collective project requirements, indicating completion of Work, that shall be fulfilled near end of Contract time in preparation for Final Acceptance and occupancy of Work by Owner as well as final payment to Contractor.

B. Time of Project Closeout may be either single time period for entire Work or series of time periods for individual elements of Work that are scheduled to be substantially complete at different dates. This time variation, if any, shall be applicable to other provisions of this Section.

1.4 PREREQUISITES TO SUBSTANTIAL COMPLETION

A. General: Complete following before requesting Architect's review for certification of Substantial Completion, either for entire Work or for portions of Work. List known exceptions in request.

1. In progress payment request that coincides with, or is first request following date Substantial Completion is claimed, show either 100% completion for portion of Work claimed as “substantially complete”, or list incomplete items, value of incomplete Work, and reason for Work being incomplete.
2. Include supporting documentation for completing as indicated in these Contract Documents.
3. Submit statement showing accounting of changes to Contract Sum.
4. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.
5. Deliver tools, spare parts, extra stock of material and similar physical items to Owner.
6. Complete pre-functional and functional testing documentation submitted by Test Engineer and accepted by Commissioning Agent for all building systems upon completion of Performance Period as outlined in section 01 91 00 Commissioning. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools and facilities mock-ups and similar elements.
7. Make final change-over of locks, transmit new keys to Owner, return loaned construction keys, and advise Owner of readiness for change- over in security provisions.
8. Complete final cleanup requirements, including touch-up painting of blemished surfaces.
9. Test fire and life safety systems in presence of Owner, Architect and City officials.
10. Complete major punchlist items.
11. Contractor shall submit copy of Contractor’s Punchlist to Architect, clearly stating that building is ready for review with exception of items noted in Contractor’s Punchlist.

1.5 SUBSTANTIAL COMPLETION

A. When Contractor considers Work substantially complete as defined in Contract Conditions, it shall submit to the Architect and the Owner:

1. Written notice that Work, or designated portion thereof, is substantially complete.
2. Written notice that the Project, adjoining Properties and streets are cleaned for the Owner's full use, as defined in section 01740.
3. List of Items to be completed or corrected.

B. Architect and Owner’s Project Manager will, as soon as possible thereafter, make inspection to determine completion status.

C. Should Architect and Owner’s Project Manager determine that Work is not substantially complete:

1. Architect will promptly notify Contractor in writing, giving reasons therefore.
2. Contractor will remedy Work deficiencies, and send second notice of substantial completion to Architect and Owner’s Project Manager.

3. Architect and Owner's Project Manager will re-inspect Work (at Contractor's expense).

D. When Architect and Owner concur that Work is substantially complete, they will jointly:

1. Prepare Certificate of Substantial Completion accompanied with Contractor's list of items to be complete or corrected, as verified and amended by Architect and/or Owner.
2. Submit certificate to Owner and Contractor for their written acceptance of the responsibilities assigned to them in the certificate.

1.6 FINAL INSPECTION

A. When Contractor considers Work complete, it shall submit written certification that:

1. Contract Documents have been reviewed.
2. Contractor has inspected Work for compliance with Contract Documents.
3. Work has been completed in accordance with Contract Documents.
4. The Project, Properties and streets are finally cleaned of debris and dirt caused by Contractor operations.
5. Work is complete and ready for final inspection.

B. Architect and Owner's Project Manager will inspect Work to verify completion status as soon as possible after receipt of Contractor's certification.

C. Should Architect and Owner's Project Manager consider Work incomplete or defective:

1. Architect will promptly notify Contractor in writing, through Owner, listing incomplete or defective work.
2. Contractor shall immediately remedy deficiencies, and send second written certification to Architect that Work iscomplete.
3. Architect and Owner's Project Manager will reinspect Work (at Contractor's expense).

D. When Architect and Owner find Work acceptable under Contract Documents, they will jointly request Contractor to make closeout submittals.

1.7 REINSPECTION FEES

A. Should Architect and Owner's Project Manager be required to make more than one Substantial inspection or one Final inspection due to Contractor's failure to correct specified deficiencies, the Contractor shall bear all costs (including compensation for the Architect's and Owner's Project Manager's additional services) made necessary thereby.

1.8 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

A. Contractor shall submit to the Owner's Project Manager the following:

1. Contractor's Affidavit of Payment of Debt and Claims (AIA Documents G706, or similar form approved by the Owner).
2. Contractor's Affidavit of Release of Liens (AIA Documents G706A or similar form approved by the Owner including the following:

    a. Contractor's Release or Waiver of Liens.
    b. Separate releases or Waivers of Lien for each Subcontractor, supplier, and others with lien rights against Owner's property, together with list of those parties.

3. Certified Affidavit of Wages Paid from Contractor and all Subcontractors.
4. Certificates from State Department of Labor and Department of Labor and Industries that taxes and fees are discharged.

B. Duly sign and execute all submittals, before delivery to Owner's Project Manager.

1.9 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit final statement of accounting to the Owner's Project Manager, including the following:

1. Original Contract Sum.
2. Additions and deductions resulting from:

    a. Previous Change Orders.
    b. Deductions for uncompleted Work. (if any)
    c. Deductions for Liquidated Damages. (if any)
    d. Deductions for Reinspection Payments. (if any)

3. Total Contract Sum, as adjusted.
4. Previous Payments
5. Sum remaining due.
6. Final Audit of Costs.

B. The Owner's Project Manager will prepare and issue final Change Order, reflecting approved adjustments to Contract Sum not previously made by Change Orders.

1.10 FINAL APPLICATION FOR PAYMENT

A. Follow procedures specified in General Conditions.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 77 00

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. General Requirements

B. Operating Instructions and Maintenance Manuals

C. Operation and Maintenance Instructions

D. Spare Parts and Maintenance Materials

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following sections:

1. Section 01 25 13 – Product Substitution Procedures
2. Section 01 33 00 – Submittal Procedures
3. Section 01 60 00 – Product Requirements
4. Section 01 71 23.13 – Examination and Preparation
5. Section 01 77 00 – Closeout Procedures
6. Section 01 78 39 - Project Record Documents
7. Section 01 80 00 – General Commissioning Requirements
8. Section 01 91 00 - Commissioning

1.3 GENERAL REQUIREMENTS

A. Description

1. Coordinate related requirements specified in other parts of the Project Manual.
2. Compile product data and related information appropriate for Owner's maintenance and operation.
3. Prepare operating and maintenance data specified in this Section and referenced in other Sections.
4. Prior to Owner's acceptance, instruct Owner's personnel in maintenance, equipment, and systems operation.
5. For additional data requirements see respective Specifications Sections.
6. Operation and maintenance manuals as specified herein, for all equipment for the total Project, shall be submitted per the submittal schedule at the end of this section.

B. Forms of Submittals

1. Prepare data in instructional form for use by Owner's personnel.
2. Format:

a. Size: 8-1/2" x 11".
b. Paper: 20 pound minimum, white for typed pages.
c. Text: Manufacturer's printed data, or neatly typewritten.
d. Drawings:

1) Provide reinforced punched binder tab, bound in with text.
2) Fold larger drawings to text page size.

e. Provide fly-leaf for each separate product, or each piece of operating equipment.

1) Provide typed description of product, and major component parts of equipment.
2) Provide indexed tabs.

f. Cover:

Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:

1) Title of Project.
2) Identity of general subject matter covered in the Manual.
3) Binders:

a) Commercial quality stiff cover, metal-hinged three-ring binders with durable and cleanable plastic covers; binders shall be Wilson Jones #344 Series or equivalent, as approved by the Architect.
b) Minimum ring size: 1".
c) When multiple binders are used, correlate data into related consistent groupings.

C. Schedule

1. Submit two (2) copies/preliminary drafts of proposed formats and outlines of contents 90 days prior to date of Substantial Completion. Architect will review and return with comments.
2. Submit two (2) copies of completed draft in final form forty-five (45) days prior to substantial completion. After review, copy will be returned with accompanying comments. Submit final corrected copies no later than ten (10) days after Substantial Completion.

D. Quantity

1. Furnish four (4) copies of each complete Operation and Maintenance Manual and/or data to Owner for review. Furnish four (4) copies of final reviewed Operation and Maintenance Manuals and/or data to Owner. Furnish one(1) electronic copy.

1.4 OPERATING INSTRUCTIONS & MAINTENANCE MANUALS

A. Contents of Operating Instruction & Maintenance Manuals

1. General:

   For all operational equipment installed, including general, mechanical and electrical operational equipment, Contractor shall submit operation and maintenance manuals as specified herein. Manuals shall have a neatly typewritten table of contents for each volume, arranged in a systematic order.

   a. Contractor, name of responsible principal, address and telephone number.
   b. A list of each product required to be included, indexed to content of volume.
   c. List, with each project, the name, address and telephone number of:

      1) Subcontractor or Installer.
      2) Maintenance or Service Contractor, as appropriate.
      3) Identify the area of responsibility for each.
      4) Local source of supply for parts and replacement.

   d. Identify each product by name and other identifying symbols as set forth in Contract Documents.

2. Product Data:

   a. Product data shall contain detailed information, where applicable, relative to the following:

      1) Equipment functions, operating characteristics, and limiting conditions.
      2) Assembly, installation, alignment, adjustment and checking instructions.
      3) Operating instructions for start-up, routine and normal operation, regulation and control, shutdown, and emergency conditions.
      4) Detailed lubrication and routine and preventative maintenance instruction, including a schedule of recommended checks.
      5) List of all parts and components of equipment stating catalog number and size of part used in or on equipment.
      6) Safety precautions and safety features.
      7) Outline, cross-section and assembly drawings, engineering data, and wiring diagrams.
      8) Test data and performance curves.

   b. Include only sheet pertinent to specific product.
   c. Annotate each sheet to:

      1) Clearly identify specific product or part installed.
      2) Clearly identify data applicable to installation.

   d. Delete references to inapplicable information.

3. Drawings:

a. Supplement product data with drawings as necessary to clearly illustrate relations of component parts of equipment and system.
b. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.

4. Supplement product/installation data with written text:

a. Organize in consistent format under separate headings for different procedures.
b. Provide logical sequence of installations for each procedure.

5. Warranties, Bonds and Service Contracts:

Copy of each warranty, bond and service contract issued, signed over to the Owner and exercisable by Owner. Provide information sheet for Owner's personnel indicating:

a. Proper procedures in event of failure.
b. Instances which might affect validity of warranties and bonds.

B. Contents of Maintenance Manuals for Non-Operational Items

1. For all architectural non-operational products, applied materials and finish items installed, including but not limited to writing boards and tack boards, toilet partitions, and floor and wall coverings such as carpet, sheet vinyl, vinyl composition tile, epoxy flooring, ceramic tile, vinyl wall covering, acoustical ceiling panels, etc., Contractor shall submit maintenance manuals as specified herein. Each manual shall contain detailed information, where applicable, relative to the following:

a. Manufacturer's data, given full information on products.

1) Catalog number, size, composition.
2) Color and texture designations.
3) Information required for re-ordering special manufactured products.

b. Instructions for care and maintenance:

1) Manufacturer's recommendation for types of cleaning agents and methods.
2) Cautions against cleaning agents and methods which are detrimental to the product.
3) Recommended schedule for cleaning and maintenance.
4) Instructions and recommendations for repair of finish.

2. For additional requirements, see respective Specification Sections.

1.5 OPERATION & MAINTENANCE INSTRUCTIONS

A. Instruction of Owner's Personnel

1. After substantial completion and prior to final inspection or full acceptance of the Project, Contractor shall provide qualified personnel for conducting full operation and maintenance training and instructions in the operation, adjustment and maintenance of all operating equipment and systems to Owner's designated personnel; include all general, mechanical and electrical operating systems and equipment.
2. Except as otherwise specified, arrange for each installer of work requiring continuing maintenance or operation, to meet with Owner's personnel, at project site, to provide basic instructions needed for proper operation and maintenance of entire work. Include instructions by manufacturer's representatives where installers are not expert in the required procedures.
3. Use operating and maintenance manuals as the basis for instruction. Review contents of Manual with personnel in full detail to explain all aspect of operations and maintenance; include as a minimum record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning and renewal of finishes, and similar procedures and facilities.
4. For operational equipment, demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain, bonds and similar continuing commitments.
5. All equipment operation and maintenance instructions and training shall be video taped by the Contractor and the edited film delivered to the Owner.
6. For additional requirements for operations instruction, see respective Specification Sections.

1.6 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual Specifications Sections.

B. Deliver, as specific work is completed, to Project Site and place in location as directed by Owner, obtain receipt prior to Substantial Completion.

C. Provide spare construction materials in similar fashion as indicated in appropriate Sections of Specifications.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

END OF SECTION 01 78 23

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SECTION 01 78 36

WARRANTIES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Compile specified Warranties.

B. Compile specified Service and Maintenance Contracts.

C. Review submittals to verify compliance with Contract Documents.

1.2 RELATED REQUIREMENTS

A. Make particular reference to the following:

1. Bid Bond: See General and Supplemental Conditions.
2. Performance Bond and Labor and Material Payment Bond: See General and Supplemental Conditions.
3. Warranty of Work after Final Payment: See General and Supplemental Conditions.
4. Section 01 77 00 – Closeout Procedures
5. Section 01 78 23 - Operation & Maintenance Data

1.3 SUMMARY

A. Definitions

1. “Standard product warranties” are preprinted written warranties published by individual manufacturer’s for particular products and are specifically endorsed by the manufacturer to the Owner.
2. “Special warranties” are written warranties required by or incorporated in the contract documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

B. Types

Categories of warranties require for the Work include:

1. Special project warranty issued by Contractor and, where required, countersigned by installer or other recognized entity involved in performance of the work.
2. Specified product warranty issued by a manufacturer or fabricator for compliance with requirements in contract documents.
3. Coincidental product warranty, available on a product incorporated into the work, by virtue of manufacturer’s publication of warranty without regard for application requirements (nonspecified warranty).
4. Refer to sections of Division 2 through 16 for requirements of specified warranties.

C. Disclaimers and Limitations

1. Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

D. Warranty Duration

1. The specified warranty period durations shall commence upon Substantial Completion of each phase and shall apply only to the items installed during the phase, unless otherwise noted in the technical specifications and in this section. Equipment warranties will not start until systems commissioning has been completed and approved and Substantial Completion is given for the entire Work. Contractor is to provide extended warranties from manufacturer and installer to cover the required warranty period.

1.4 SUBMITTAL REQUIREMENTS

A. Assemble Warranties, Bonds, and Service and Maintenance Contracts, executed by each of the respective Manufacturer, Suppliers and Subcontractors.

B. Contractor and each Subcontractor shall submit a completed Warranty Contact List as attached to this section or in a similar format.

C. Format

1. Bind each manual in a three-ring, heavy-duty, vinyl, hardboard cover binder.
2. On cover, imprint tile "Warranty Manual"; name of project, Owner, Architect; and date of substantial completion.
3. On bound edge, imprint name of project and owner and date of substantial completion. Note that warranty periods shall not start prior to the date of substantial completion for any project phase.
4. Pages to be neat, clean sheets, 8-1/2 by 11-inch maximum size or accordion foldouts to same size.
5. Items to be identified with tabbed dividers showing name and number of appropriate specification sections.
6. Arrange dividers and items in order they occur in specifications.

D. Information Required

1. Table of contents identifying separate warranties by specification section number and name.
2. Contractor's warranty of the work per contract documents.
3. Warranties, certificates, and bonds for all portions of the work per specifications, Divisions 1 through 33.
4. Certificate of occupancy obtained from appropriate building officials.

E. Provide complete information for each item:

1. Product or Work Item.
2. Firm, with name of principal, address, and telephone number.
3. Beginning date of Warranty, Bond, or Service and Maintenance Contract.
4. Duration of Warranty, Bond, or Service and Maintenance Contract.
5. Provide the following information for Owner's Personnel:

a. Procedure in case of failure or malfunction.

b. Instances which affect Warranty or Bond validity.

6. Contractor, name of responsible principal, address, and telephone number.

F. Distribution

1. Submit one preliminary copy to Architect for approval prior to final submittal.
2. After approval of preliminary copy and within ten (10) days following Substantial Completion, prepare and submit four final copies to Architect - one for Architect and three for Owner.

1.5 WARRANTY OBLIGATIONS

A. Following completion of field testing and before building and/or phase commissioning, the Contractor will be responsible for required interim maintenance. A record of the interim maintenance will be kept and made available to the Owner upon final completion of the project.

B. Conducting of tests and inspections, review of specifications or plans, payment for goods and services, or acceptance by the Owner does not constitute a waiver, modification, or exclusion of any express or implied warranty or any right under the contract or in law.

C. If the Contractor elects to store equipment or any subcomponent thereof on the project site or in an offsite storage facility, such storage shall be in accordance with the vendor's recommendations. All precautions to protect the original vendor's warranty, including interim maintenance, shall be exercised by the Contractor at the Contractor's expense.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 78 36

WARRANTY CONTACT LIST

Date: _____ General Contract Date: _____

Owner: _____

Address: _____

_____

Project: _____

The following subcontractors performed the work or furnished materials subject to warranty:

Warranted Work	Subcontractor and Address	Phone	Contact Person

Warranted Work	Subcontractor and Address	Phone	Contact Person

Contractor: _____

Address: _____

Phone: _____

Contact Person: _____

Signature: _____
(authorized representative)

SUBCONTRACTOR'S WARRANTY CONTACT LIST

Date: _____

General Contract Date: _____

Owner: _____

Address: _____

_____

Project: _____

Trade: _____

Subcontractor: _____

Address: _____

_____

Phone: _____

Contact Person: _____

Signature: _____
(authorized representative)

Contractor: _____

Address: _____

Signature: _____
(authorized representative)

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Maintenance of Documents

B. Recording

C. Record Documents

D. Submittal

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Make particular reference to the following sections:

1. Section 01 33 00 – Submittal Procedures
2. Section 01 78 23 – Operation and Maintenance Data
3. Section 01 78 36 - Warranties
4. Section 01 91 00 - Commissioning

1.3 MAINTENANCE OF DOCUMENTS

A. Maintain at job site, one copy of:

1. Contract Drawings
2. Specifications
3. Addenda
4. Shop Drawings and Submittals
5. Change Orders
6. Change Order Proposals
7. Other Modifications to Contract
8. Field Test Records
9. Truck tickets for all imported material
10. Current Progress Schedule

B. Store Documents in approved location, apart from documents used for construction. Protect from deterioration and loss in a secure fire-resistive location.

C. Maintain documents in clean, dry, legible condition.

D. Do not use record documents for construction purposes.

E. Make documents available at all times for inspection by Owner's Project Manager, Architect and Owner.

F. Record documents must be updated with all required information prior to approval of application for payment each month.

1.4 RECORDING

A. In addition to copies of Contract Documents to be furnished by Owner's Project Manager, the Owner's Project Manager will furnish the Contractor one (1) complete set of new prints of Contract Drawings. The Contractor and/or Subcontractors under his direction shall record on set of clean, new prints each and every change that is made from general drawings at time it is made. This includes any changes that are made in partitions, doors, or otherwise in arrangement of construction of buildings as well as a complete record of exact manner in which electrical and mechanical work, piping, etc., are installed. Dimensions shall be included where necessary to accurately locate piping and other items that will be concealed underground or in finished building that may later be necessary to service.

B. The Contractor shall update the Record Documents regularly, and in no event less than once per week. As part of the weekly project meeting, the Contractor shall inform the Owner's Project Manager of the status of the updating of Record Documents and, if requested by the Owner's Project Manager or Architect, demonstrate that the Record Documents have been recently updated to show current conditions. Failure on the part of the Contractor to update the Record Documents as provided herein shall be cause for withholding a portion of monthly payment until such failure is corrected.

C. Owner will monitor Record Documents and compare to Contractor's payment application on monthly basis.

D. Up-to-date Record Documents are prerequisite to Final Acceptance and approval of Final Payment Request.

E. Label each document "PROJECT RECORD" in 1/2 in. high printed letters.

F. Keep record documents current.

G. Do not permanently conceal any work until required information has been recorded.

1.5 RECORD DOCUMENTS

A. Record Drawings:

1. Maintain record set of blue or black line prints of Contract Drawings and Shop Drawings in clean, undamaged condition. Accurately indicate depth of all concealed mechanical items, buried piping, locations of cleanouts, etc., from walls and centerlines utilizing standard industry practice. Provide to the Architect prior to acceptance of the completed project the complete set of drawings revised to show "As-Installed" conditions.
2. Mark-up set of Record Drawings to show actual installations where installed work varies substantially from work as originally shown.

3. Mark whichever Drawing (Contract Drawings or Shop Drawings), most appropriate and most capable of showing actual “field” condition fully and accurately. Consolidate information on complete systems or units of work on minimum number of Drawing Sheets required to properly document changes.
4. Give particular attention to concealed work that would be difficult to measure and record at later date.
5. Mark record set with red erasable pencil and where feasible, use other color to distinguish between variations in separate categories of Work.
6. Show all backing material and other embedded or concealed items required for installation of future work by Owner.
7. Organize Record Drawing sheets into manageable sets, separated by construction discipline, and bind with durable cover sheet. Print suitable titles, dates and other identification on cover of each set.
8. Legibly mark Drawings to record actual construction.

    a. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
    b. Field changes of dimensions and detail.
    c. Changes made by Change Order and Shop Drawing variations.
    d. Details not on original Contract Drawings.

B. Record Specifications:

1. Maintain one complete copy of Project Manual, including Specifications and Addenda, and one copy if other written Construction Documents such as change orders, supplemental instructions and similar modifications issued in printed form during construction.
2. Mark these documents to show substantial variations in actual Work performed in comparison with text of specifications and modifications issued.
3. Note related Record Drawing information and Product Data, where applicable.
4. Upon completion of Work, submit Record Specifications to Architect for Owner’s records.

C. Record Product Data:

1. Maintain one copy of each Product Data submittal approved for Project.
2. Mark documents to show significant variations in actual work performed in comparison with submitted information.
3. Include both variations in products as delivered to Site and variations from manufacturer’s instructions and recommendations for installation.
4. Give particular attention to concealed products and portions of Work which cannot otherwise be readily discerned at later date by direct observation.
5. Note related change orders and markup of Record Drawings and Record Specifications.

6. Upon completion of mark-up, and no later than Final Acceptance of the Project, provide written verification that all Record Product Data has been transmitted to Architect for Owner's records.

D. Record Sample Submittal:

1. Immediately prior to date or dates of Substantial Completion, Contractor shall meet at Site with Architect and Owner's representative to determine which, if any, of submitted Samples that have been maintained by Contractor during progress of Work, shall be submitted to Owner for record purposes.
2. Comply with delivery to Owner's designated location.

E. Miscellaneous Record Submittals:

1. Refer to other Sections of these Specifications for requirements of miscellaneous record-keeping and submittals in connection with actual performance of work.
2. Provide signed-off permits including plumbing, electrical, and building.
3. Immediately prior to date or dates of Substantial Completion complete miscellaneous records and place in good order, properly identified and bound and filed, ready for continued use and reference.
4. Submit to Architect for Owner's records.

1.6 SUBMITTAL

A. Within ten (10) days following Substantial Completion of the Project, and prior to final payment, the Contractor shall submit Project Record Documents to Architect for review through the Owner's Project Manager.

B If not accepted by Architect, records of changes shall be revised and resubmitted by the Contractor.

C. Accompany submittal with transmittal letter to Owner's Project Manager containing:

1. Date
2. Project title and number
3. Contractor's name and address
4. Title and number of each record document
5. Certification that each document as submitted is complete accurate.
6. Signature of Contractor, or his authorized representative.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

END OF SECTION 01 78 39

SECTION 01 80 00

GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Commissioning is the systematic process of verifying and documenting that all building systems perform according to the design intent, the Owner's operational needs, to maximize efficiency/stability, and to ensure that the Owner is provided with useful and clear training and documentation necessary to operate and maintain the building systems.

B. Commissioning is the Quality Assurance (QA) portion of a QA/QC (Quality Assurance/Quality Control) program as it is applied to the construction process. The Contractor shall be responsible for providing Quality Control through ensuring that the installed systems comply with the project design document/code requirements, and through performing specified quality control requirements (i.e. – duct leakage testing, manufacturer's startup requirements, DDC point to point testing, electrical 3rd-party testing, etc.). The Contractor shall also be responsible for providing Quality Assurance in the form of the Commissioning process for the project, as led by the Commissioning Authority.

1.2 RELATED SECTIONS (to be developed by the design team)

A. Section 07 08 00 – Commissioning of Building Envelope (to be developed during the pre-construction phase)

B. Section 22 08 00 – Commissioning of Plumbing (to be developed during the pre- construction phase)

C. Section 23 08 00 – Commissioning of HVAC (to be developed during the pre- construction phase)

D. Section 26 08 00 – Commissioning of Electrical (to be developed during the pre- construction phase)

E. Section 27 08 00 – Commissioning of Communications (to be developed during the pre-construction phase)

F. Section 28 08 00 – Commissioning of Electronic Safety and Security (to be developed during the pre-construction phase)

1.3 COMMISSIONING GOALS

A. The Contractor shall execute the commissioning process to meet the following goals:

1. Clarify the operational design intent where there are different interpretations between the Commissioning Team members,
2. Integrate commissioning activities into the general construction schedule (project master schedule) such that commissioning is substantially completed at the time of Substantial Completion for the project,

3. Ensure that equipment is installed correctly per the contract documents and in a manner that maximizes efficiency/performance and provides sufficient access for maintenance/ operation utilizing manufacturer's guidelines as minimum criteria,
4. Provide oversight of the Contractor's equipment/system startup and testing requirements as defined in the contract documents,
5. Provide and execute a set of repeatable, step-by-step set of testing procedures (Functional Performance Tests) in order to demonstrate system compliance with the design intent and to provide a format for future re- commissioning,
6. Ensure that systems are optimized to operate with minimal energy usage,
7. Identify system installation and operational deficiencies and ensure that resolution to those deficiencies occur in a timely manner,
8. Ensure that the O&M documentation submitted to the Owner is complete, clearly organized, and useful,
9. Ensure that the As-Built information has been completed and submitted to the Owner,
10. Ensure that Owner's operating personnel are sufficiently trained in order to achieve necessary technical, safety, operational, and maintenance knowledge before the time of building systems turnover to the Owner.

1.4 SCOPE OF WORK

A. The following equipment/systems shall be commissioned. Refer to related specification sections for further details. The five columns at the right side of the matrix below represent the five major commissioning activities and how they apply to each of the commissioned equipment/systems. Refer to Part 3, "Commissioning Process", of this specification section for further description of each of the five major commissioning activities.

Equipment and Systems to be Commissioned:	Installation Audit	Startup Oversight	Functional Performance	O&M/As-Built Oversight	Owner Training Oversight
Section 01 80 10: General Commissioning Requirements:					
Efficiency Rating of HVAC Equipment	□				
Lighting Power Density	□				
Metering Devices Tie-in to BAS	□				
Sensor Location and Orientation	□				

Piping Distribution Systems – Heating Hot Water	□	□		□	□
Piping Distribution Systems – Chilled Water	□	□		□	□
Ductwork Distribution Systems	□	□		□	□
Air Handling Units and VFDs	□	□	□	□	□
VAV Air Terminal Units	□		□	□	□
Hydronic Duct Reheat and Cooling Coils	□	□	□	□	□
Exhaust Fan Equipment and Systems	□	□	□	□	□
Heat Recovery Ventilators with Heating and Cooling Coils	□	□	□	□	□
Hot Water Radiators	□	□	□	□	□
Split System AC Units	□	□	□	□	□
Electric Unit Heaters	□	□	□	□	□
BAS Actuated Windows (Natural Ventilation)	□	□	□	□	□
Building Automation System		□	□	□	□
Efficiency Rating of HVAC Equipment	□				
Interfaces to Fire Alarm Systems			□		
Interfaces to Emergency Power Systems			□		
Section 26 08 00: Electrical Power Systems to be Commissioned:					
EC (Electrical Contractor) – Standby Generator	□	□	□	□	□
EC – Photovoltaics	□	□	□	□	□
Low Voltage Relay Panels – Interior Lighting Controls	□	□	□	□	□
Occupancy Sensors – Interior Lighting Controls	□	□	□	□	□
Photocell Sensors – Interior Lighting Controls	□	□	□	□	□
Lighting Power Density	□				
Building Loss of Power and Recovery			□		
EC – Electrical Control Devices		□		□	□
EC – Receptacles		□		□	□
EC – < 600V Wiring		□		□	□
EC – Dimmable Fluorescent Lamp Burn-In		□		□	□
EC – Power Systems Tests (Post Occupancy Testing)		□	□(1)	□	□
3rd Party Testing Agency – Service Grounding		□	□(2)	□	□
3rd Party Testing Agency – Service Ground Fault Protection System		□	□(2)	□	□
3rd Party Testing Agency – Coordination Study Settings		□	□(2)	□	□

3rd Party Testing Agency – Automatic Transfer Switches		□	□(2)	□	□
3rd Party Testing Agency – Motor Control Centers		□	□(2)	□	□
3rd Party Testing Agency – Molded Case Circuit Breakers		□	□(2)	□	□
3rd Party Testing Agency – Insulated Case Circuit Breakers		□	□(2)	□	□
3rd Party Testing Agency – Metering Interfaces to BAS		□	□(2)	□	□
Section 27 08 00: Communications Systems to be Commissioned:					
Clock System		□	□	□	□
Intercom System		□	□	□	□
Telecom Systems		□		□	□
Section 28 08 00: Electronic Safety and Security Systems to be Commissioned:					
Fire Alarm Systems	□	□	□(3)	□	□
Fire Alarm Interfaces – Emergency Power Operation			□		
Fire Alarm Interfaces – BAS			□		

Notes:

(1) Functional performance testing demonstrated to Commissioning Authority
(2) Functional performance testing performed by 3rd Party Electrical Testing Agency
(3) Functional performance testing and installation conformance demonstrated to Authority Having Jurisdiction per the Acceptance Testing Procedures

1.5 COMMISSIONING COORDINATOR

A. The Owner shall provide a Commissioning Authority for the project. The Contractor shall provide a Commissioning Coordinator whose services shall begin with subcontractor buyout of the prime mechanical and electrical subcontractors and shall continue until commissioning is complete.

B. The Commissioning Coordinator may be comprised of more than one person in to provide the required scope and experience but one person shall be designated as the main point of contact and provide management of the entire Commissioning Coordinator scope of work.

C. The Commissioning Coordinator shall have the following qualifications:

1. Have experience and knowledge in the startup and troubleshooting of plumbing, HVAC, electrical power, and electrical low voltage systems similar to the equipment and systems identified to be commissioned for this project,
2. Be competent in or have excellent understanding of system design and intent,
3. Have excellent understanding and knowledge of HVAC test and balancing procedures,
4. Have excellent communications in writing skills,
5. Be highly organized,
6. Be able to work well with management, designers, and trades contractors,
7. Have a Bachelor of Science degree in Mechanical Engineering and Professional Engineering license. At the Owner's discretion, this requirement may be substituted with a sufficient combination of technical training and extensive practical field experience,
8. Have experience providing commissioning services as a Commissioning Authority, Test Engineer, or Commissioning Coordinator for at least three pro- jects of similar size and scope.

D. The Commissioning Coordinator shall submit a resume indicating that the above minimum qualifications are met. The Owner will review the Commissioning Coordinator's resume and reject or approve the proposed Commissioning Coordinator for an interview. Upon a satisfactory review of the proposed Commissioning Coordinator's resume, the Architect and Owner reserve the right to personally inter- view the Commissioning Coordinator candidate prior to accepting placement in this position. Where more than one person is proposed to fulfill the duties of the Commissioning Coordinator role, the Contractor shall submit resumes for each person and present an organizational chart to indicate who the contact person will be and which portions of the Commissioning Coordinator responsibilities each person will be performing for the project.

E. Final approval of the Commissioning Coordinator will be by the Architect and the Owner.

F. Commissioning Coordinator Roles and Responsibilities

1. Provide the General Contractor with an entity to lead the implementation of the commissioning plan from the Contractor's side,
2. Provide a single point of contact for general communication and overall management of the commissioning process from the Contractor,
3. Review the equipment submittals with an emphasis on equipment performance and integration of controls,
4. Develop and compile the Installation Audit forms with assistance from the Subcontractors and Manufacturer's Representatives,
5. Gather the completed Installation Audit forms from the Subcontractors and back-check in order to ensure that the signed-off work has been completed as a prerequisite to startup activities for that equipment/system,
6. Develop and continuously update the Startup Plan including the Startup/Commissioning Schedule and the Startup Documentation Binders,
7. Gather and review blank startup forms, as developed by the Subcontractors and Manufacturer's Representatives.
8. Witness all major equipment startup activities and all system startup and testing activities. Gather all completed startup documentation from Subcon- tractors and Manufacturer's Representatives and compile them into the Startup Documentation Binders,

9. Give notice to the Owner when any commissioning activity is to take place at least 72 hours in advance including the name of the activity, the start date, start time, and meeting location. Notifications shall be through the normal Owner notification and communications process for the project. The Startup and Commissioning Schedule and the Two Week Look Ahead Calendar shall not be sufficient for Owner notification of upcoming startup activities,
10. Coordinate and provide participation of the Subcontractors and Manufacturer's Representatives for each commissioning activity. Ensure that participants are present when and where they are required,
11. Ensure that all equipment and testing instrumentation required for functional testing is provided when and where they are required,
12. Direct corrections of deficiencies found during the Installation Audits, Startup Oversight, Functional Performance Testing, and meetings in a manner to ensure adherence to the Startup and Commissioning schedule. Where responsibility of a deficiency is divided in scope between different trades, ensure that the contractual requirements are ultimately satisfied and in a timely manner to adhere to the Startup and Commissioning Schedule,
13. Provide enforcement for the contractual requirements when those requirements are not being met by the Subcontractors or Manufacturer's Representatives,
14. Review the General Contractor-developed Owner Training Plan and attend training sessions,

G. Commissioning Authority Roles and Responsibilities

1. Develop the outline for the Installation Audit and Startup Binders,
2. Review the blank Installation Audit and Startup forms for completeness,
3. Review the completed Installation Audit and Startup forms to ensure that all activities have taken place,
4. Develop a Systems Manual document for each system for use in the commissioning process,
5. Develop the commissioning Functional Performance Test Procedures (FPTs) and lead testing. Employ the Subcontractors and Manufacturer's Representatives as necessary to execute the functional performance testing,
6. Produce and distribute "Commissioning Activity Reports" to keep the commissioning team informed of progress for the different commissioning activities,
7. Track deficiencies found during the installation verification, startup witnessing, and functional performance testing commissioning activities on the Commissioning Matrix,
8. Lead the development of the preliminary O&M documentation review draft with the assistance of the Subcontractors and Manufacturer's Representatives and review to ensure that the documentation meets at least the mini- mum criteria outlined in these specifications,
9. Lead and attend all commissioning meetings and electronically distribute commissioning meeting minutes,
10. Produce Final Commissioning Report in compliance with International Energy Conservation Code.

PART 2 - PRODUCTS

2.1 TESTING EQUIPMENT AND INSTRUMENTATION

A. The Contractor shall provide all testing equipment and instrumentation as necessary to perform startup and functional performance testing of the systems identified to be commissioned.

1. The General Contractor shall employ the TAB Contractor to provide and operate testing instrumentation relating to flow, velocity, pressure, and rotational speed measurements.
2. The General Contractor shall employ the Controls Contractor to provide and operate testing instrumentation relating to temperature and controls electrical low voltage resistance/current/voltage measurements.
3. The General Contractor shall employ the Electrical Subcontractor and 3rd Party Electrical Subcontractor to provide and operate testing instrumentation relating to the Electrical Acceptance Testing.
4. The General Contractor shall employ the Low Voltage Electrical Contractors to provide and operate testing instrumentation relating to the Low Voltage electrical systems including Fire Alarm System, Communications Cable Plant, A/V Systems, Lighting Controls, and Clock Systems.

B. All proprietary testing equipment and instrumentation required by equipment manufacturer representatives as necessary for startup and functional performance testing, whether specified or not, shall be provided by the equipment manufacturer's representative.

C. The testing and measuring instrumentation provided for testing purposes shall meet the following minimum requirements:

1. Air Temperature – Point Type
   a. Type: RTD or Thermistor w/Digital Readout (nothermocouples)
   b. Accuracy: ±0.5°F
   c. Resolution: 0.1°F
   d. Range: 32°F to 230°F
2. Air Relative Humidity
   a. Type: Thin Film Capacitance w/Digital Readout
   b. Accuracy: ±2% RH
   c. Resolution: 0.1% RH
   d. Range: 0-90% RH
3. Air Differential Pressure
   a. Type: Digital Manometer
   b. Accuracy: ±2% of Reading ± 0.001" wc
   c. Resolution: 0.0001" wc
   d. Range: 0.0001 to 50 "wc
4. Air Static Pressure – Pressure Switch Low Range
   a. Type: Diaphragm Gauge (Magnehelic) with minimum 4" diameter face
   b. Accuracy: ±2% of Scale
   c. Resolution: 0.05" wc
   d. Range: 0 to 2" "wc
5. Air Static Pressure – Pressure Switch High Range
   a. Type: Diaphragm Gauge (Magnehelic) with minimum 4" diameter face
   b. Accuracy: ±2% of Scale
   c. Resolution: 0.2" wc

d. Range: 0 to 6" "wc

6. Air Pressure – Pneumatic Controls
   a. Type: Mirrored Back Bourden Tube Gauge, with minimum 4" face
   b. Accuracy: ±0.25% of Scale
   c. Resolution: 0.1 psig
   d. Range: 0 to 30 psig
7. Air Velocity and Flow Rate – Duct Traverse
   a. Type: Digital Manometer w/Pitot Tube
   b. Accuracy: ±3% of Reading
   c. Resolution: 1 fpm
   d. Range: 50 to 8000 fpm
8. Air Velocity and Flow Rate – Low Velocity
   a. Type: Hot Wire Anemometer
   b. Accuracy: ±3% of Reading
   c. Resolution: 1 fpm
   d. Range: 1 to 6000 fpm
9. Air Flow Rate – Grilles, Diffusers, and Registers
   a. Type: Digital Manometer w/Flow Hood
   b. Accuracy: ±3% of Reading
   c. Resolution: 1 cfm
   d. Range: 100 to 2500 cfm
10. Water Temperature – Point Type
   a. Type: Sheathed RTD or Thermistor w/Digital Readout (No thermocouples)
   b. Accuracy: ±0.5°F
   c. Resolution: 0.1°F
   d. Range: 32°F to 230°F
11. Water Pressure – Point Type
   a. Type: Digital Hydronic Manometer
   b. Accuracy: ±1% of Reading
   c. Resolution: 0.001psig to 0.01psig depending on measuring range
   d. Range: 0 to 300 psig
12. Water Flow Rate – Differential Measurement Across Pumps or Balancing Valve
   a. Type: Digital Hydronic Manometer
   b. Accuracy: ±1% of Reading
   c. Resolution: 0.001psig to 0.01psig depending on measuring range
   d. Range: 0 to 300 psig
13. Water Flow Rate – Non-Contact
   a. Type: Transient Time Ultrasonic
   b. Accuracy: ±1% of Reading
   c. Resolution: 0.1 fps
   d. Range: 0 to 40 fps
14. Surface Temperature – Non-Contact
   a. Type: Infrared, minimum 20:1 distance ratio
   b. Accuracy: ±1°F
   c. Resolution: 0.1°F
   d. Range: -20°F to 900°F
15. Surface Temperature Imaging
   a. Type: Flir Thermacam B400 – Infrared Camera
   b. Accuracy: ±3.6°F
   c. Resolution: 320x240 pixels
   d. Range: -48 to 248°F
16. Electrical Voltage – Non-VFD Motors

a. Type: True RMS Electrical Volt-Ohm Meter
b. Accuracy: ±1½ % of Reading
c. Resolution: 0.1V
d. Range: 4-1000V

17. Electrical Voltage – VFD Motors
    a. Type: Fluke 87V True RMS Compensating Electrical Volt-Ohm Meter
    b. Accuracy: ±1% of Reading
    c. Resolution: 0.1V
    d. Range: 4-1000V
18. Electrical Current
    a. Type: True RMS Inductive Amperage Meter
    b. Accuracy: ±1% of Reading
    c. Resolution: 1mA @ 3A range, 10mA @ 30A range, 100mA @300A range
    d. Range: 3A, 30A, 300A or autoranging from 0 to 200 amps
19. Rotational Speed – Noncontact
    a. Type: Laser RPM Meter w/Reflective Tape
    b. Accuracy: ±1 rpm
    c. Resolution: 1 rpm
    d. Range: 6-8000 rpm
20. Handheld Radios
    a. Type: UHF, minimum 2 Watts
    b. Quantity: Provide a minimum of 3 radios during startup and functional testing
21. Ladders
    a. Type: 6 Foot, 8 Foot, and 10 Foot Step Ladder
    b. Quantity: Provide as needed for startup and functional testing activities

2.2 COMMISSIONING DOCUMENTATION AND DELIVERABLES

A. The commissioning process shall be planned, managed, and documented using the following documentation and deliverables:

Document or Deliverable	Responsible Party		
	CA *	CC **	Both ***
Commissioning Plan	□		
Commissioning Systems Manuals	□		
Installation Audit Forms		□	
Startup Plan		□	
Startup Schedule (“Commissioning Schedule”)		□	
Startup Forms		□	
Functional Performance Tests (FPT)	□		
Commissioning Activity Reports	□		
Commissioning Issues Matrix	□		
Commissioning Meeting Minutes	□		
Commissioning O&M Preliminary Review Draft			□
Commissioning Owner Training Plan		□	
Commissioning Final Reports ****	□		

Definitions for Responsible Party:

* - Documentation is produced and continuously maintained and updated by the Commissioning Authority.

** -Documentation shall be produced and continuously maintained and updated by the Commissioning Coordinator with assistance from Subcontractors and Manufacturer's Representatives, except for the Startup Forms which shall be developed by the Subcontractors and Manufacturer's Representatives and then turned over to the Commissioning Coordinator.

*** - Documentation will be initially drafted by the Commissioning Authority and then turned over to be maintained and continuously updated by the Commissioning Coordinator with assistance from the Subcontractors and Manufacturer's Representatives to reflect the specific features of the equipment actually provided for the project as well as reflect any changes made through the course of construction.

**** - A Preliminary Final Commissioning Report will be submitted to the Owner's Representative for review.

2.3 INSTALLATION AUDIT AND STARTUP FORMS

A. Installation Audit Forms

1. The Commissioning Coordinator shall employ the subcontractors and vendors to develop the Installation Audit forms. Each individual Installation Audit Form shall be developed by the installing subcontractor and shall include a checklist of all the requirements listed in the design documents and the manufacturer's installation instructions for that specific equipment or distribution system.
2. The Commissioning Coordinator shall gather all of the blank individual installation audit forms from the subcontractors and vendors and compile them into an Installation Audit Binder, to be kept at the General Contractor's office on- site. The subcontractors shall make all corrections per the review and re- submit until approved.
3. The Subcontractors shall conduct the initial Installation Audits as a quality control back-check of their work and turn in the completed forms to the Commissioning Coordinator so that they can replace the blank forms as they are completed.
4. For distribution systems, such as piping, ductwork, etc., the documentation for the installation audit forms shall be in two parts. First, a form shall be developed that includes a list of the items to be verified for that system. Second, 11"x17" partial or reduced copies of the As-Built floor plan drawings shall be provided to highlight the piping, ductwork, etc. that was verified for the items on the first form. Installation Audits for distribution systems shall be conducted prior to wall and ceiling cover and shall be conducted and documented prior to wall and ceiling cover taking place. This activity will also serve as a back-check for the As-Built drawings. Each form shall be noted with the system being verified.
5. As the Subcontractors turn in the completed Installation Audit forms, the Commissioning Coordinator shall replace the blank forms in the Installation Audits binder with the completed forms.
6. The Commissioning Coordinator shall keep the Installation Audit binder on site, available for review at any time.
7. The Commissioning Coordinator shall notify the Architect and Owner when a specific installation audit has been completed and documentation turned in so that they may have the opportunity to back-check the forms.

B. Minimum Installation Audit Form Criteria

At minimum, the Installation Audit forms shall include the following items:

1. Title: “Installation Audit Form”,
2. Name of Project,
3. Name of Equipment or System,
4. Indication of whether the Installation Audit is being conducted for wall cover, ceiling cover, in a Mechanical/Electrical Room, or relating to a specific equipment,
5. A list of equipment/system aspects to verify (based on manufacturer’s installation instructions and design document requirements for installation),
6. A check-off box and initial field for each aspect to verify
7. A date field, signature field, name field, and company field at the bottom of the form to indicate when the Installation Audit form was completed and the name and company of the person who conducted the installation audit.

C. Startup Documentation Forms

1. The Commissioning Authority shall provide Startup Binders to compile the startup documentation.
2. A separate Startup Binder shall be provided for Mechanical and Electrical systems.
3. The binders shall be indexed and tabbed according to the commissioned systems.
4. The Commissioning Coordinator shall gather blank startup forms as developed by the Subcontractors and Manufacturer’s Representatives and shall compile them in the Startup Binders.
5. The Subcontractors and Manufacturer’s Representatives shall develop the startup documentation and provided blank sample documentation forms to the Commissioning Coordinator for development of the Startup Plan. The startup documentation shall be the Manufacturers’ or Manufacturer Representatives’ standard startup forms, specific to the actual installed equipment (typically referred to by the manufacturers as “Prestartup Installation Check- list”, “Startup Checklist”, “Commissioning Form”, or similar title). Where Manufacturers’ or Manufacturer’s Representatives’ startup forms are not available, the Subcontractors shall provide startup forms to document the equipment/system startup activity.
6. Refer to the specific commissioning sections for minimum criteria of activities required to be included in the Startup Forms.
7. The Commissioning Authority will review and approve the blank startup forms to ensure that they are specific to the project and that they are sufficient to adequately document the startup activities. The Subcontractors shall make corrections and supplement the Manufacturer’s startup forms to comply with the review.
8. As startup activities are completed by the Subcontractors and Manufacturer’s Representatives, the Commissioning Coordinator shall gather the completed startup documentation and replace the blank forms within the Startup Binder.
9. The following documentation shall not be included in the Startup Binder and shall be submitted under separate cover:

    a. BAS Point to Point Testing
    b. Test and Balancing Reports
    c. Fire Alarm Acceptance Testing Procedures Report

d. 3rd Party Electrical Testing Contractor Report

10. The Commissioning Coordinator shall submit the completed Startup Forms Binder and the startup documentation to be provided under separate cover to the Commissioning Authority prior to Substantial Completion.

2.4 COMMISSIONING SCHEDULE

A. Commissioning Schedule

1. The Commissioning Coordinator shall develop the Commissioning schedule with input from the Subcontractors and Manufacturer's Representatives.
2. The Commissioning Schedule shall be presented in a Gantt-style chart format using a software program specifically made to produce these types of sched- ules.
3. The Commissioning Schedule shall indicate major equipment/system startup dates and functional performance testing dates with prerequisite tasks also shown on the schedule.
4. The Commissioning Schedule shall be separate from the General Construction Schedule but shall include prerequisite General Construction milestones. Al- ternately, the schedule can be developed within the General Construction Schedule as long as the startup and commissioning activities can be pulled out separately and printed in a clear manner.
5. The Commissioning Schedule shall indicate an orderly process of activities that shall result in substantial completion of all commissioning functional performance testing prior to the Partial Final Completion date.
6. Special consideration shall be given to the schedule to prevent unrealistic overlap of activities (i.e. – Air balancing, flooring installation, and fire alarm testing occurring on the same day within the same area of the building).
7. For each of the equipment/systems, the following activities shall be indicated on the Commissioning Schedule as a minimum (note that not all of these activities apply to all equipment/systems and that some equipment/systems will require additional activities and prerequisites to be indicated):

    a. Equipment Installation Completion Date(s) with referenced prerequisites from the General Schedule,
    b. Permanent Power Completion Date(s),
    c. Controls Wiring Completion Date(s),
    d. Manufacturer's Representatives' Equipment/System Startup Date(s),
    e. Subcontractors' Equipment/System Startup Date(s),
    f. BAS Point to Point Testing Date(s),
    g. Test and Balancing Date(s),
    h. 3rd-Party Electrical Testing Agency Testing Date(s),
    i. Fire Alarm System Pre-Testing Date(s),
    j. Owner-Witnessed Fire Alarm System Testing Date(s),
    k. Fire Department Fire Alarm and Fire Suppression Systems Testing Date(s),
    l. Functional Performance Testing Date(s)

2.5 FUNCTIONAL PRFORMANCE TESTS

A. The Commissioning Authority shall develop the preliminary Functional Performance Test forms. These forms will be a step-by-step procedure for testing the equipment and systems including expected results.

B. The functional performance tests will be developed after the equipment and major submittals have been approved such that they can incorporate the specific aspects of the actual equipment being provided for the project.

C. The Subcontractors and Manufacturer's Representatives shall carefully study the procedures for the purpose of compliance with safe practices including applicable safety laws, statues, codes, rules, regulations, procedures, and processes to ensure the safety of persons and protection of property involved in or relating or pertaining to the testing of the Work. Subcontractor and Manufacturer's Representatives shall promptly report in writing to the Commissioning Authority any safety concerns discovered by or made known. All Subcontractor's and Manufacturer's Representative's Work shall remain responsible for all risk of loss until acceptance of the Work by Owner (Exhibit E Protection of Work).

2.6 OWNER TRAINING PLAN

A. The Commissioning Authority shall review the General Contractor- developed Owner Training Plan.

1. As a minimum, each equipment or system specified to be provided with training shall have a separate training agenda.
2. Administration and Contact Information:
   Each training agenda shall include the following administration information:

   a. Project Name
   b. Name of Equipment or System
   c. Contact Information on presenters including name(s), company(s), title(s), address(es), phone number(s), fax number(s), and e-mail ad- dress(es).
   d. Contact Information for equipment vendor including vendor contact name, company, address, phone number, fax number, and e-mail ad- dress.

3. Training Scope:

   a. Each training agenda shall include the specification reference requiring training for the equipment or system and a brief description of the training requirements including how much training is specified (hours, days, etc.), whether the training is to be conducted on-site or off-site.

4. System Description:

   a. Each training agenda shall include a brief description of the system including the name of the equipment or system, a very brief description of its purpose, where it is located in the building, and what it serves.

5. Training Session Agenda:

Each training agenda shall include an agenda for the training session including at minimum all of the following:

a. Introduction of presenters,
b. What is the equipment,
c. How does it work,
d. What does it do or serve,
e. Any special features,
f. Basic operating procedures (including startup/shutdown using O&M documentation as the basis for the training materials),
g. Safety precautions,
h. Preventative maintenance procedures (using O&M documentation as the basis for the training materials),
i. Troubleshooting procedures (using O&M documentation as the basis for the training materials),
j. Maintaining warranties, guarantees, and warranty periods,
k. Instruction on how to use proprietary instrumentation or operating equipment,
l. Recommended spares,
m. Review of startup reports,
n. Review of functional performance testing results,
o. Intermissions,
p. Jobsite walk-through,
q. Attendance Sign-In Sheet.

B. The Owner Training Plan shall include a calendar with equipment/system, dates, times, and locations for each training session. The Commissioning Coordinator shall attend all training sessions.

PART 3 - EXECUTION

3.1 COMMISSIONING PROCESS

A. The Contractor shall provide commissioning of specific building systems and equipment through five major commissioning activities as follows:

1. Installation Audits
The Contractor shall install the building systems to meet the design document requirements, meet applicable code requirements, meet the manufacturer's installation instructions, provide installations that maximize equipment/system performance, and provide adequate space for maintenance of the equipment. Commissioning Installation Audits shall be performed by the Subcontractors and back-checked by the Commissioning Authority to verify that the equipment/systems have been completed and are ready for equipment/system startup and functional performance testing.

a. The following Installation Audits shall be performed by the Commissioning Authority per Puget Sound Energy requirements for the New Construction Program. Representative sampling is allowed for identical pieces of equipment or sequences (except for major pieces of equipment such as boilers, chillers, or any motor > 10Hp), as long as each major element is sampled. The initial sampling rate must be at least 15% and all systems must pass the initial

Installation Audit or additional per- centages must be verified, up to 100%, as needed.

1) Efficiency Rating of HVAC Equipment
   The Commissioning Authority shall perform a back-check of efficiency ratings (EER, SEER, IPLV, HSPF, COP, etc.) listed on equipment nameplates to ensure they meet design criteria.
2) Lighting Power Density
   The Commissioning Authority shall verify appropriate LPD by calculating the total wattage of installed fixtures divided by the floor area for each type of zone. Fixture wattages shall be taken from the approved submittals for each zone.
3) Sensor Location and Orientation
   The Commissioning Authority shall verify that any controlling sensors (photocells, CO2, temperature, etc.) are properly mounted in a fashion, location and orientation to provide accurate measurements.

2. Equipment/System Startup Oversight
   The Contractor shall perform the startup activities required through the design documents and as per the manufacturer's directions. The Commissioning Authority shall provide oversight of the Subcontractor's and Manufacturer Representatives' startup activities to ensure that they have been completed and have been performed in a manner to ensure proper operation, meet the manufacturer's startup requirements, maximize equipment service life, and ensure interoperability with interfaces to other equipment and building systems where applicable. The Commissioning Coordinator shall continuously update the Commissioning Schedule and maintain the Startup binder.
3. Functional Performance Testing
   The Contractor shall demonstrate proper operation of each commissioned equipment/system for all equipment/system features and operating modes as well as demonstrate specified equipment/system capacities. The Commissioning Coordinator shall employ the services of the Subcontractors and Manufacturer's Representatives to demonstrate the functional performance tests. The Contractors shall make all corrections in a timely manner until the system(s) fully comply with the test procedures.
4. O&M (Operation and Maintenance) Documentation and As-Built Submittals Oversight
   The Contractor shall provide one complete draft of the O&M documentation for review by the Owner and Commissioning Authority. The draft O&M documentation shall be reviewed by the Commissioning Team in a meeting format to ensure that the preliminary draft version is complete, includes all information necessary to conduct maintenance, provides all information necessary to describe operation, and is organized such that it is clear which components and options are provided with each equipment/system and is clearly divided between equipment/systems in a logical manner. This draft O&M document shall be a separate requirement from the O&M documentation submittals required in other sections of these specifications and shall be used for the purpose of providing information necessary for development of the commissioning Functional Performance Test procedures as well as a preliminary review of the O&M documentation.
5. Owner Training Oversight

The Commissioning Authority shall review the General Contractor-developed Owner's Training Plan. The training plan and its execution shall be used to ensure that all required Owner training has been provided, knowledgeable personnel are used to perform the training, the training includes all information necessary for the Owner to take over operation of the building systems, the Owner has been provided with contact information for all Manufacturer's and Manufacturer's Representatives, the proper Owner personnel have received training, the Owner has been provided with all required equipment and instrumentation required for operation/ maintenance, the Owner has been instructed in the use and organization of the O&M/As- Built documentation, the Owner has been provided with clear documentation for all warranty start and end dates, and documentation of Owner training has been provided through video-taped training sessions and submission of Owner Training attendance sign-in forms.

B. The commissioning activities for the specific equipment/systems shall generally proceed in the following order:

1. Installation Audits
2. Startup Oversight
3. Functional Performance Testing
4. O&M/As-Built Submittal Oversight (can alternately be provided as early as possible)
5. Owner Training Oversight

3.2 COMMISSIONING ISSUES TRACKING

A. Issues discovered during the commissioning activities or during commissioning meetings will be tracked on the "Commissioning Issues Matrix" as developed, up- dated, and distributed by the Commissioning Authority.

B. The Commissioning Coordinator shall be responsible for ensuring that the Sub- contractors and Manufacturer's Representatives correct the items on the Com- missioning Matrix in a timely manner to adhere to the Commissioning Schedule.

C. The Commissioning Matrix will be kept separate from the Architect's Punchlist.

3.3 COMMISSIONING REPORTS

A. Commissioning Activity Reports
The Commissioning Authority will produce and distribute Commissioning Activity Reports to keep the Commissioning Team informed of the results of the commissioning activities and the commissioning progress.

B. Commissioning Final Reports
The Commissioning Authority will provide two Final Commissioning Report submissions. One copy of the Final Commissioning Report will be turned over to the Owner at the time of Temporary Certificate of Occupancy for the project. This report will include all commissioning installation audits, startup forms/reports, and commissioning testing documentation completed to that date and will identify any outstanding tests, deficiencies, and seasonal testing that still need to be completed. After all deficiencies, outstanding tests, and seasonal testing have been completed, the Commissioning Authority will submit the Final Commissioning Report to the Owner.

3.4 COMMISSIONING MEETINGS

A. Commissioning Kickoff Meeting:
Commissioning kick-off meeting will be held after the equipment submittals are substantially completed. The members of the Contractor's commissioning team will identified and all team members (including the Commissioning Authority and A/E team) participate in an initial commissioning kick-off meeting to discuss roles and responsibilities. The Commissioning Plan is distributed to the Contractor's commissioning team at this time.

B. Commissioning Design Intent Clarification Meeting:
In order to clarify any misinterpretations, and to facilitate implementation of the design intent by the sub-Contractors, a design intent clarification meeting will be held. This meeting will be conducted after the kick-off meeting but before the controls submittals are completed. All commissioning team members will be welcome to attend but at a minimum, the Commissioning Authority, Commissioning Coordinator, the Mechanical Design Engineer, the Electrical Design Engineer, the Mechanical Contractor, the DDC Controls Contractor, the Test and Balancing (TAB) Contractor, the Electrical Contractor, the Fire Alarm Contractor, the Audio Visual Contractor, and other low voltage electrical subcontractors/vendors shall be required to attend. There shall be at least two separate sessions held, one for mechanical and one for electrical. Each session can be expected to last for approximately one day. Any recommendations for changes to the design documentation, as a result of these meetings, will not be considered as part of the contract documents until confirmed by the RFI process or change order process.

C. O&M Documentation Review Meeting:
After the preliminary draft O&M Manual documentation is prepared, the entire Commissioning Team will review the Mechanical and Electrical portions to ensure that the preliminary draft version is complete, includes all information necessary to conduct maintenance, provides all information necessary to describe operation, and is organized such that it is clear which components and options are provided with each equipment/system and is clearly divided between equipment/systems in a logical manner. This draft O&M document shall be a separate requirement from the O&M documentation submittals required in other sections of these specifications and shall be used for the purpose of providing information necessary for development of the commissioning Functional Performance Test procedures as well as a preliminary review of the O&M documentation.

D. Weekly Commissioning Meetings:
Just after the MEP (Mechanical Electrical Plumbing) coordination meetings are completed, weekly commissioning meetings shall start. Weekly commissioning meetings shall be held to track progress and discuss system issues. At a minimum, the Commissioning Authority, Commissioning Coordinator, General Contractor, Mechanical Prime Contractor, Electrical Prime Contractor, and DDC Controls Contractor shall be required to participate. The Mechanical and Electrical Design Engineers may be asked to participate as required to help resolve issues. Other subcontractors, such as Fire Alarm, Fire Protection, TAB, and Low Voltage Contractors, will be required to attend when their involvement is required to resolve issues or deficiencies. During the weekly commissioning meetings, the Commissioning Authority shall identify which Subcontractors will be required to participate in the upcoming FPTs and also give notice to the Owner's Representatives to upcoming activities that they may witness. The Commissioning Authority will prepare and distribute, electronically,

commissioning meeting minutes. The weekly commissioning meetings shall continue until the commissioning process is completed and all issues resolved (with the exception of deferred seasonal and occupancy testing).

3.5 SEASONAL AND OCCUPIED FUNCTIONAL TESTING

A. Some commissioning functional testing will require certain ambient or occupied conditions be present in order to complete. The Contractor shall provide qualified personnel to participate in this testing which may occur up to 6 months after the time of Partial Final Completion for the building.

B. The following systems and equipment shall be assumed to require Seasonal and Occupied Testing:

1. HVAC equipment capacity testing (coils typically),
2. Electrical power systems testing (testing post-occupancy).

END OF SECTION 01 80 00

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes cast-in-place concrete for building slabs, footings, foundations and structural components and includes formwork, vapor retarder, steel & fiber reinforcement, concrete materials, mixture design, placement procedures, and finishes.

B. Related Requirements:

1. Section 03 35 36 “Polished Concrete Floor Finish”.
2. Section 07 92 00 “Joint Sealants” for sealant joints in concrete.
3. Section 31 20 00 "Earth Moving" for drainage fill under slabs-on-grade.
4. Section 32 13 13 "Concrete Paving" for concrete pavement and walks.

1.3 DEFINITIONS

A. Architectural Concrete: Formed concrete that is exposed to view on surfaces of completed structure or building and that requires special concrete materials, formwork, placement or finishes to obtain specified architectural appearance.

B. Cast-in-Place Concrete: Formed concrete that is concealed or locations where appearance is not critical.

C. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

D. W/C Ratio: The ratio by weight of water to cementitious materials.

E. Slump: The measurement of the vertical difference in the height of the resulting concrete pile and the original 12-inch-tall cone after the slump cone is filled then lifted.

F. Slump Flow: The measurement of the resulting horizontal diameter of the concrete pile after the slump cone is filled then lifted. This method measures the unconfined flow of the mixture.

1.4 ACTION SUBMITTALS

A. Product Data: Submit manufacturer’s printed data and instructions for products and equipment, including the following:

1. Admixtures and additives

2. Bonding agents
3. Curing materials and methods
4. Joint systems

C. Design Mixtures: submit the following for each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.
2. Method and test data used to establish mix proportions
3. Concrete compressive strengths
4. Water/cement ratios, corresponding cement content, and water content.
5. Admixtures and additives
6. Slump or slump flow
7. Hot and cold weather designs
8. Air entrainment for each design
9. Ingredients, proportions, and source of materials.
10. Location and intended use
11. Aggregate sieve analysis with graph

D. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

E. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Architect and structural engineer.

F. Samples: For vapor retarder.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer manufacturer.

B. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Steel reinforcement and accessories.
4. Curing compounds.
5. Floor and slab treatments.
6. Bonding agents.
7. Adhesives.
8. Vapor retarders.
9. Repair materials.

C. Material Test Reports: For the following, from a qualified testing agency:

1. Aggregates: Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity. Include aggregate sieve analysis with graph.

D. Mix Design Certification: Written and signed by batch plant quality control engineer or responsible agent. Certify that mix design conforms to provisions of this Section and that ingredients for each mix design are compatible.

E. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

F. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Architecturally Exposed Concrete: Conform to ACI 301, Section 6 and ACI 303R for Architectural Concrete at exterior and interior exposed to view formed concrete surfaces, except at non-public utility spaces such as mechanical and electrical spaces.

1.7 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

B. Batch Tickets: Conform to ASTM C94 option A or C. Accompany with each load, fully executed, and signed. Log in with inspector at time of entry. Conform to Source Quality Control requirements specified in this Section.

1. Include water content and water withheld at batch plant.
2. Indicate time to nearest minute that batch was dispatched from plant, when it arrived at site, when unlading began and when it finished.
3. Indicate ambient air temperature and concrete internal temperature at time of arrival.
4. Make written record of water and other additives added to design mix following the time the mix truck left the batch plant.

C. Reject concrete that has reached internal temperatures of 89 degree F or above and when temperature has risen 5 degrees F in 10 minutes, indicating concrete is setting up prior to discharge.

D. Store products in accordance with ACI 301. Do not use admixtures that have been in storage at project site for more than 6 months or which have been subject to freezing, except as accepted by the Architect and Structural Engineer based on test results.

1.9 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

1.10 COORDINATION

A. Conform to Section 01 31 00 for coordination with work of other Sections.

B. Finish Flooring: Coordinate with carpeting, resilient tile flooring, sheet flooring, and other finish flooring systems to prevent moisture conditions, alkaline levels, and bond breaking & curing agents at interior concrete slabs are compatible with manufacturer’s warranty provisions.

C. Curing Compounds: where permitted, verify compatibility with flooring adhesives for finish flooring specified under work of other Sections or remove completely prior to installation of finish flooring systems.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301.
2. ACI 117.

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.

2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

    a. High-density overlay, Class 1 or better.

B. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.

C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.

E. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.

F. Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
2. Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Steel Bar Mats: ASTM A 184/A 184M, fabricated from ASTM A 615/A 615M, Grade 60, deformed bars, assembled with clips.

C. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.

2.4 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports are required: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.5 CONCRETE MATERIALS

A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

B. Cementitious Materials:

1. Portland Cement (Interior): ASTM C 150/C 150M, Type I/II, gray.
2. Portland Cement (Exterior): ASTM C 150/C 150M, Type IA/IIA with specified air entrainment admixture; Type IIIA for cold weather construction, gray
3. Fly Ash: ASTM C 618, Class F.

C. Normal-Weight Aggregates: ASTM C 33/C 33M, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source. Provide well graded mixes, gap graded mixes are not acceptable. Mixes containing ¾" aggregate and sand will not be allowed.

1. Maximum Coarse-Aggregate Size: 3/4 inch nominal unless otherwise noted on the structural drawings.
2. Fine Aggregate: Free of deleterious substances or materials that may cause expansion of concrete or react with alkalis in concrete.

D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

E. Water: ASTM C 94/C 94M and potable.

2.6 FIBER REINFORCEMENT

A. Synthetic Macro-Fiber: Polyolefin macro-fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III. Dosage rate at 6 lbs/CY at polished concrete slabs and as indicated in structural drawings for other slabs on grade and slabs on deck.

2.7 VAPOR RETARDERS

A. Sheet Vapor Retarder for all slab-on-grate applications. Include manufacturer's recommended adhesive or pressure-sensitive tape.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Barrier-Bac; Inteplast Group, Ltd.
b. Fortifiber Building Systems Group.
c. Grace Construction Products; W.R. Grace & Co. -- Conn.
d. Insulation Solutions, Inc.
e. Poly-America, L.P.
f. Raven Industries, Inc.
g. Reef Industries, Inc.
h. Stego Industries, LLC.
i. Tex-Trude, Inc.
j. W. R. Meadows, Inc.

2. Water-Vapor Permeance: 0.04 Perms; ASTM E 96.
3. Water Vapor Retarder: Meets or exceeds Class C (ASTM 1745).
4. Retarder Thickness: Not less than 10 mils (ACI 302.1R-96).

2.8 CURING MATERIALS

A. Accepted Curing Methods:

1. Conform to ACI 302.1R Section 9.2 using wet curing, wet covering, moisture retaining coverings, polyethylene film curing methods, using materials specified.
2. ACI 308, Section 2.2 – Water Curing or 2.3 – Sealing Materials using wet film curing methods.
3. Liquid-applied curing and sealing compounds.

B. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. BASF Corporation; Construction Systems, Confilm.
b. Dayton Superior, SureFilm J-74.
c. Euclid Chemical Company (The); an RPM company.
d. L&M Construction Chemicals, Inc, E-Con.
e. U.S. Mix, US SPEC MonoFilm ER.
f. W. R. Meadows, Inc, EVAPRE.

C. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

D. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

E. Water: Potable.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, non-dissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. BASF Corporation; Construction Systems.
b. Dayton Superior.
c. Euclid Chemical Company (The); an RPM company.
d. L&M Construction Chemicals, Inc.
e. W. R. Meadows, Inc.

2.9 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

B. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Reglets: Fabricate reglets of not less than 0.022-inch thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

D. Joint Fillers and Sealers:

1. Exterior Recessed Joint Fillers: ASTM D1751, preformed asphalt impregnated joint filler
2. Joint Sealant and Backer Rod: As specified in 07 92 00.

E. Penetrating Sealers at Concrete Elements Exposed to Freeze-Thaw:

1. Water based, internal membrane forming penetrating sealant
2. Freeze/Thaw Resistance: ASTM C666/C 666 M-03
3. Products: Subject to compliance with requirements and properties of the products listed, products by one of the following may be considered:

a. “Deep Penetrating Sealer” – CretoSeal.
b. “Barracade WB 244” – Euclid Chemical.
c. “Siloxa-Tek 8500” – GhostShield.
d. “IntraGuard” – W.R. Meadows.

F. Grouts:

1. As indicated in the structural drawings.

2.10 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 3500 PSI at 28 days when tested according to ASTM C 109/C 109M.

2.11 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 25 percent.

C. Limit water-soluble, chloride-ion content per ACI 318.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing, high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a w/c ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

E. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. As indicated in Structural General Notes

2.13 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.14 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.
2. Class B, 1/4 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3.3 REMOVING AND REUSING FORMS

A. General: Conform to ACI 301 Section 2 “Formwork and Form Accessories.” Removal of forms shall conform to section 2.3.2 except strength indicated in Sections 2.3.2.5 shall be 0.75 f’c.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material are not acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR-RETARDERS

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 12 inches and seal with manufacturer's recommended tape.

3.5 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated on the drawings. Embed keys at least 1-1/2 inches into concrete.
3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.

4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
5. Space vertical joints in walls **as indicated**. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Section 07 92 00 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.7 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

3.8 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces [exposed to public view or to be covered with a coating or covering material applied directly to concrete.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.9 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces [indicated] [exposed to view] [or] [to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system] <Insert locations>.
2. Finish surfaces to the following tolerances, according to ASTM E 1155 (ASTM E 1155M), for a randomly trafficked floor surface:

    a. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.

3. Finish and measure surface, so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- (3.05-m-) long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).

D. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thinset method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

3.10 MISCELLANEOUS CONCRETE ITEM INSTALLATION

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations:

1. Coordinate sizes and locations of rooftop housekeeping pads with structural and mechanical drawings.
2. Construct concrete bases 4 inches high unless otherwise indicated, and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated or unless required for seismic anchor support.
3. Minimum Compressive Strength: 3000 psi at 28 days.
4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of concrete base.
5. For supported equipment, install anchor bolts that extend through concrete base and anchor into structural concrete substrate.
6. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
7. Cast anchor-bolt insert into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

3.11 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

    a. Water.
    b. Continuous water-fog spray.
    c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches , and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.

    a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
    b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
    c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies does not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

    a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.12 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least [**one**] [**six**] month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.13 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension to solid concrete. Limit cut depth to 3/4 inch (19 mm). Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar matches surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect’s approval.

3.14 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

C. Inspections:

1. Steel reinforcement placement.
2. Steel reinforcement welding.
3. Headed bolts and studs.
4. Verification of use of required design mixture.
5. Concrete placement, including conveying and depositing.
6. Curing procedures and maintenance of curing temperature.
7. Verification of concrete strength before removal of shores and forms from beams and slabs.

D. Concrete Tests: As indicated the Structural General Notes

END OF SECTION 03 30 00

SECTION 11 68 13

PLAYGROUND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Section 32 18 16.13 “Playground Protective Surfacing” alternates and installation requirements.

C. Existing Playground Equipment Information and Drawings, See end of this section.

1.2 SUMMARY

A. Base Bid:

1. Relocate existing playground equipment as indicated on drawings.
2. Salvage existing equipment that is not relocated to Owner.

B. This Section includes playground equipment consisting of the following type of play structures:

1. Exterior mounted play equipment.

1.3 DEFINITIONS

A. Composite Play Structures: According to ASTM F 1487, this means "two or more play structures, attached or functionally linked," creating one integral unit with more than one play activity.

B. Critical Height: Standard measure of shock attenuation. According to CPSC No. 325, this means "the fall height below which a life-threatening head injury would not be expected to occur."

C. Fall Height: According to ASTM F 1487, this means "the vertical distance between a designated play surface and the protective surfacing beneath it." The fall height of playground equipment should not exceed the Critical Height of the protective surfacing beneath it.

D. HDPE: High-density polyethylene.

E. IPEMA: International Play Equipment Manufacturers Association.

F. LLDPE: Linear low-density polyethylene.

G. MDPE: Medium-density polyethylene.

H. Play Structure: According to ASTM F 1487, this is "a free-standing structure with one or more components and their supporting members."

I. Protective Surfacing: According to ASTM F 1487, this means impact-attenuating "materials to be used within the use zone of any playground equipment" for playground surface systems.

J. PVC: Polyvinyl chloride.

K. Transfer Point: According to ASTM F 1487, this is "a platform or deck along an accessible route of travel or an accessible platform provided to allow a child in a wheelchair to transfer from the chair onto the equipment."

L. Use Zone: According to ASTM F 1487, this is "the area beneath and immediately adjacent to a play structure that is designated for unrestricted circulation around the equipment and on whose surface, it is predicted that a user would land when falling from or exiting the equipment."

1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For each type of playground equipment, include use zones, materials, plans, elevations, sections, details, method of field assembly, connections, and installation details. Indicate capacity and number of play activities.

C. Coordination Drawings: Layout plans and elevations drawn to scale and coordinating playground equipment with playground surface systems. Show playground equipment locations, use zones, fall heights, extent of protective surfacing, and Critical Heights.

1. Mounting coordination drawings for connections to mountings associated with the selected playground safety surfacing. Provide details for cable connections through poured in place and synthetic turf safety surfacing for approval.

D. Colors of Equipment and Components, to be selected by Owner: Submit manufacturer's color charts or 6-inch lengths of actual units showing the full range of colors and textures available for components with factory-applied color finishes for selection by Owner.

E. Samples for Verification: For the following replacement products, for each type of exposed finish required, prepared on Samples of size indicated below and of same thickness and material indicated for the Work. If finishes involve normal color and texture variations, include sample sets showing the full range of variations expected. Architect reserves the right to require additional Samples that show fabrication techniques, workmanship, and design of playground equipment.

1. Posts and Rails: Not less than 6 inches long.
2. Platforms: Not less than 6 inches square.
3. Molded Plastic: Not less than 3 inches square.
4. Post mounting to concrete assembly.

F. Product Certificates: Signed by manufacturers of playground equipment certifying that products furnished comply with requirements.

G. Installer Certificates: Signed by manufacturer certifying that installers comply with requirements.

H. Manufacturer Certificates: Signed by manufacturers certifying that they comply with requirements.

I. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:

1. Paints and similar finishes.
2. Recycled plastic.

J. Product Test Reports: From a qualified testing agency indicating playground equipment complies with requirements, based on comprehensive testing of current products.

K. Field Quality-Control Report: Indicate compliance of playground and installed playground equipment and components with requirements.

L. Maintenance Data: For playground equipment and finishes to include in maintenance manuals specified in Division 1.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Certified Playground Equipment Installer, experienced installer with a minimum 5 installs, who has specialized in installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer of playground equipment.

1. Playground equipment installer have previous experience relocating/installing similar equipment. Manufacturer to provide representative on site during installation.

B. Manufacturer Qualifications: A firm whose playground equipment components have been certified by IPEMA's "3rd Party Certification" service.

1. Provide only playground equipment and play structure components bearing the IPEMA Certification Seal.
2. Provide the following playground equipment and play structure components bearing the IPEMA Certification Seal:

a. See plans for equipment type, manufacturer and location.

C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

D. Standards and Guidelines: Provide playground equipment complying with or exceeding requirements in the following:

1. ASTM F 1487.
2. CPSC No. 325, "Handbook for Public Playground Safety."
3. Label play structures with warning label and manufacturer's identification per ASTM F 1487.

1.6 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect at least two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.
3. Before excavating, contact utility-locator service for area where Project is located.

B. Existing hardscape: Do not damage or deface existing hardscape (walks, curbs, etc.) during installation of equipment.

C. Existing playground equipment to be relocated and / or salvaged to Owner as indicted on the drawings and details.

D. Drainage Structures: Do not damage or move drainage structures installed as part of this project.

1.7 COORDINATION

A. Conduct Pre-Construction meeting for relocation of playground equipment prior to any demolition of existing play equipment to ensure coordination of the following:

1. Preservation of existing equipment to be relocated, including sequencing of disassembly and evaluation of existing components for replacement.
2. Existing equipment to be salvaged to Owner.
3. Construction schedule and sequencing of installation of relocated equipment.
4. Layout of new playground area and coordination of relocated playground equipment fall zones.

B. Coordinate construction of equipment use zones and fall heights during installation of playground equipment with installation of protective surfacing specified in Division 2 Section "Playground Protective Surfacing". Sequence work so protective surfacing can be installed immediately after concrete footings have set.

C. Ensure temporary construction fence remains in place to prevent use of equipment prior to Final Acceptance.

PART 2 - PRODUCTS

2.1 PLAYGROUND EQUIPMENT, GENERAL

A. Existing equipment to relocated as indicated on the drawings.

B. Manufacturers:

1. Gametime
150 PlayCore Drive SE
Fort Payne, Alabama 35967
Phone: (800) 235-2440
Supplier:
Great Western Recreation
975 S. Hwy 89-91, Logan, Utah 84321
Taggart Castleton
Great Western Recreation
Sales Associate
714-331-8895 c
435-245-5055 o
taggart@gwpark.com

2.2 MATERIALS

A. Subject to performance requirements of equipment specified.

B. Provide replacement poles and fittings as required to reassemble relocated playground equipment per manufacturers drawings and specifications.

2.3 CAST-IN-PLACE CONCRETE

A. General: Cast-in-place concrete for installation of miscellaneous site playground equipment. Install equipment per manufacturer's specifications and per contract documents.

B. Concrete Materials and Properties: Comply with requirements in Section 033000 "Cast-in-Place Concrete" ACI 301/ for normal-weight, air-entrained concrete with minimum 28-day compressive strength of 3000 psi, 3-inch slump, and 1-inch- maximum-size aggregate.

C. Concrete Materials and Properties: Dry-packaged concrete mix complying with ASTM C 387/C 387M and mixed at site with potable water, according to manufacturer's written instructions, for normal-weight concrete with minimum 28-day compressive strength of 3000 psi, 3-inch slump, and 1-inch- maximum-size aggregate.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, site surface and subgrade drainage, and other conditions affecting performance.

1. Do not begin installation before final grading required for placing protective surfacing is completed, unless otherwise permitted by Architect.
2. Ensure fall zones for all equipment meet manufacturer's requirements prior to commencing installation. Layout equipment and fall zones for review by Architect prior to installation of concrete walks, concrete curbs or pouring of footings.

B. Contractor to layout equipment and use zones prior to installation of hardscape and curb to ensure that required use zones are available within safety surfacing.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Call for locates of site utilities and coordinate with contractors installing utilities and irrigation system.

B. Disassemble existing playground equipment and separate equipment to be relocated from equipment to be salvaged to Owner.

1. Carefully package all equipment to be salvaged to Owner and deliver as directed by Owner to city facility.

C. Verify locations of play equipment locations and playground perimeter and pathways. Verify that playground layout and equipment locations comply with fall zone requirements for each type and component of equipment. Adjust perimeter of playground safety surfacing to accommodate equipment. Final perimeter to be approved by Owner's representative prior to installation of playground equipment.

D. Install construction fencing around playground equipment and maintain it in place until playground protective surfacing is installed and playground equipment is accepted in writing by Owner.

3.3 INSTALLATION, GENERAL

A. General: Comply with manufacturer's written installation instructions, unless more stringent requirements are indicated. Anchor playground equipment securely, positioned at locations and elevations indicated on Shop Drawings.

1. Maximum Equipment Height: Coordinate installed heights of equipment and components with installation of protective surfacing. Set equipment so fall heights and elevation requirements for age group use and accessibility are within required limits. Verify that playground equipment elevations comply with requirements for each type and component of equipment.

B. Coordinate installation of playground equipment with selection of playground protective surfacing alternate. Post and Footing Excavation, Exterior: Hand-excavate holes for posts and footings to dimensions, profile, spacings, and in locations indicated on Drawings, in firm, undisturbed or compacted subgrade soil. Level bearing surfaces with drainage fill to required elevation.

1. Add synthetic fiber reinforcement to concrete mixture in accordance with manufacturer's instructions.
2. Add synthetic fiber reinforcement into concrete mixer before, during, or after batching other concrete materials.
3. Application Rate: Add synthetic fiber reinforcement at minimum application rate of 1.5 pounds per cubic yard (0.9 kg/m^3) of concrete.

D. Footings for equipment requiring footing/pads for installation.

1. Size and thickness of footings per manufacturer's details and specifications.
2. Install per manufacturers written specifications.
3. Footing elevations to be established related to thickness of safety surfacing and adjacent grades, see Civil for grades.
4. Verify locations and elevations of footings in the field prior to installation. Contractor is responsible for proper location of footings to ensure manufacturer's specified safety zones.
5. Concrete footings shall not extend beyond the edge of the equipment unless footing is flush with subgrade. Footings installed within areas of engineered wood fiber shall not have any exposed edges that are not fully covered by the required safety surfacing depth to meet fall zone requirements.

E. Hand-excavate holes for posts and footings to dimensions, profile, spacings, and in locations indicated on Drawings, in firm, undisturbed or compacted subgrade soil. Level bearing surfaces with drainage fill to required elevation.

3.4 FIELD QUALITY CONTROL

A. Arrange for a certified Playground Inspector to inspect playground and playground equipment and components at final completion and to certify compliance with the following:

1. ASTM F 1487.
2. CPSC No. 325.

B. Notify Architect 48 hours in advance of date and time of final inspection.

C. Provide final inspection report certifying that the installation meets all safety requirements per the manufacturer's specifications, including safety zones

D. Construction fencing to remain in place around playground until satisfactory final inspection is completed and Owner has accepted playground equipment.

3.5 ADJUSTING

A. Adjust movable playground equipment components to operate smoothly, easily, and quietly, free from binding, warp, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range.

3.6 CLEANING

A. After completing playground equipment installation, inspect components. Remove spots, dirt, and debris. Repair damaged finishes to match original finish or replace component.

END OF SECTION 11 68 13

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SECTION 12 93 00

SITE FURNISHINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Bicycle racks.
2. Trash receptacles.
3. Drinking fountains.
4. Landscape Logs
5. Landscape Boulders, Existing and New

B. Related Requirements:

1. Section 03 30 00 "Cast-in-Place Concrete" for installing anchor bolts cast in concrete footings.
2. Section 31 20 00 "Earth Moving" for excavation for installing concrete footings.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM C-150
2. ASTM C-128
3. ASTM C-260
4. ASTM C-31
5. ASTM C-494
6. ASTM C-39

B. Precast Concrete Institute (PCI)

1.3 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 05 50 00 Metal Fabrications for fabrication of drinking fountain.

1.4 SUBSTITUTIONS

A. All substitutions must be submitted a minimum of two weeks prior to bid opening to be reviewed for approval as a substitute.

B. Submittal for substitutions must include a side-by-side comparison between the specified product and the proposed substitution. The comparison must include as a minimum:

1. Material, type size and quality.
2. Finish, type size and physical sample
3. Painted surfaces: color, comparison of paint including powder coat thickness.
4. Manufacturer: contact, experience with similar products
5. Warranty.

C. Substitution requests will not be considered without the comparison.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified.

C. Samples for Initial Selection: For units with factory-applied finishes.

D. Field Locating Pins, Survey: Certification that field dimensions and installation of field locating pins, prepared by a professional land surveyor, in conformance with drawings and details.

E. Samples for Verification: For each type of exposed finish, not less than 6-inch-long linear components and 4-inch-square sheet components.

F. Product Schedule: For site furnishings. Use same designations indicated on Drawings.

G. Shop Drawings:

1. Provide shop drawings for exterior drinking fountain. See below and details.
2. Precast Concrete

    a. Submit fabrication drawings of all precast concrete items showing detailed sections and profile for all precast items. Details shall show all reinforcing and cast in hardware.
    b. Samples

        1) Submit 1 sample for color and texture approval.
        2) Color and finish as specified.

    c. Submit a copy of manufacturer's Quality Assurance and Procedure Manual
    d. Performance Requirements

        1) Compressive Strength 5,000 p.s.i. minimum
        2) Air Content 6-8%
        3) Water-Cement Ration .45
        4) Deflection Max: L/720
        5) Test Results

            a) Manufacturer shall furnish test results attesting that materials meet specification requirements.

1.6 INFORMATIONAL SUBMITTALS

A. Material Certificates: For site furnishings manufactured with preservative-treated wood.

1. Indicate type of preservative used and net amount of preservative retained. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.7 QUALITY ASSURANCE

A. Precast Concrete:

1. Qualifications: Precast Concrete Manufacturer and Trade Contractor must have a minimum of 5 years of successful experience on projects of similar magnitude and complexity to the indicated project.
2. Manufacturer and contractor to be prequalified by Architect prior to bidding and failure to do so will void bid.

B. Manufacturers of site furnishings to have a minimum of 5 years of manufacturing experience of similar products and magnitude.

1.8 CLOSEOUT SUBMITTALS

A. Maintenance Data: For site furnishings to include in maintenance manuals.

PART 2 - PRODUCTS

2.1 DRINKING FOUNTAIN

A. Barrier-Free, Bi-Level, Outdoor, Round Pedestal Stainless Steel Drinking Fountain with Bottle Filler

1. Manufacturer: Murdock
2. Model: GYQ85
3. Color: To be selected by Ower from manufacturer's standard color selection: Green, Stainless Steel, Blue, Red.
4. ADA
5. Drain piping to be Class 200
6. Drain: see drawings and details.
7. See plans and details for quantity and locations.

2.2 TRASH RECEPTACLE

A. Manufacturer: Ultrasite

1. https://www.ultra-site.com/products/receptacles/metal-trash-receptacle-55-gallon
2. (800) 45-Ultra
3. Distributor: Great Western Recreation

B. Model: RBR-55-14, Surface Mount Trash Receptacle with SM Kit.

C. Description: Surface mounted, 55 gallon, surface mounted, metal trash receptacle. 14" opening with rain bonnet kit.

D. PL-55 Heavy Duty Plastic Garbage Can

E. Color: To be selected by Owner.

F. Lid Color: to be selected by Owner

G. Pattern: Slat

H. Surface Mount

1. Frame: 2-38” OC x 12 gauge pre-galvanized structural steel tubing. Receptacle mounting plates are 7 gauge x 8”x8” steel plate with 4 holes. Surface mounting plates are ¼” x 6” x6” steel plate with 4 holes.
2. Frame Coating: Electrostatic powder coated application over cured.
3. Hardware: All stainless steel hardware fasteners
4. Dimensions: 3-3/4” x 8”x8”
5. Contractor to provide Surface Mount Hardware: 3/8” x 3 ½” Concrete Expansion Anchor Bolts.

2.3 BICYCLE RACKS

A. Manufacturer: SportWorks
https://www.sportworks.com/products/bike-parking

B. Distributor: NW Playground Equipment

C. Model: Tofino No Scratch Bike Rack

D. Description: Surface mounted, steel tube two bike rack with No Scratch Bumper.

E. Material:

1. Coating: TGIC Powder Coat. Color to be selected by Owner from Manufacturer’s full color selection.

2.4 LANDSCAPE LOGS

A. Description: Rustic hand peeled Ponderosa pine, spruce or Douglas fir logs, 36”+/- 4” diameter, Lengths as indicated on drawings. Logs to be peeled and treated as required for log homes.

B. Suppler/Manufacturer:

1. North Idaho Post and Pole

a. Hayden Lake, Idaho
b. (208) 772-3942
c. https://northidahopostandpole.com/house-logs-round-stock/

2. Or Approved Equal

C. Quantity: see drawings and details for amount.

2.5 LANDSCAPE BOULDERS, EXISTING AND NEW

A. Landscape boulders to be existing on-site granite boulders, salvaged for reinstallation, see civil plans.

1. Boulders for playground to be approved by Landscape Architect prior to installation.

B. New landscape boulders to be granite.

1. Boulders around playground to be rounded and smooth,

a. Boulders for playground installation to be approved by Landscape Architect prior to installation

C. Boulders for planting areas to be:

1. Existing on site salvaged for installation
2. Granite boulders, predominately white granite, angular, blocky for installation primarily at the front entry of the building.

2.6 MATERIALS

A. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated; free of surface blemishes and complying with the following:

1. Rolled or Cold-Finished Bars, Rods, and Wire: ASTM B211.
2. Extruded Bars, Rods, Wire, Profiles, and Tubes: ASTM B221.
3. Structural Pipe and Tube: ASTM B429/B429M.
4. Sheet and Plate: ASTM B209.
5. Castings: ASTM B26/B26M.

B. Steel and Iron: Free of surface blemishes and complying with the following:

1. Plates, Shapes, and Bars: ASTM A36/A36M.
2. Steel Pipe: Standard-weight steel pipe complying with ASTM A53/A53M, or electric-resistance-welded pipe complying with ASTM A135/A135M.
3. Tubing: Cold-formed steel tubing complying with ASTM A500/A500M.
4. Mechanical Tubing: Cold-rolled, electric-resistance-welded carbon or alloy steel tubing complying with ASTM A513/A513M, or steel tubing fabricated from steel complying with ASTM A1011/A1011M and complying with dimensional tolerances in ASTM A500/A500M; zinc coated internally and externally.
5. Sheet: Commercial steel sheet complying with ASTM A1011/A1011M.

C. Plastic: Color impregnated, color and UV-light stabilized, and mold resistant.

1. Polyethylene: Fabricated from virgin plastic HDPE resin.

D. Anchors, Fasteners, Fittings, and Hardware: Stainless steel; commercial quality, tamperproof, vandal and theft resistant.

1. Antitheft Hold-Down Brackets: For securing site furnishings to substrate; two per unit.

E. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M; recommended in writing by manufacturer, for exterior applications.

F. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound; resistant to erosion from water exposure without needing protection by a sealer or waterproof coating; recommended in writing by manufacturer, for exterior applications.

G. Galvanizing: Where indicated for steel and iron components, provide the following protective zinc coating applied to components after fabrication:

1. Zinc-Coated Tubing: External, zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. of zinc after welding, a chromate conversion coating, and a clear, polymer film. Internal, same as external or consisting of 81 percent zinc pigmented coating, not less than 0.3 mil thick.
2. Hot-Dip Galvanizing: According to ASTM A123/A123M, ASTM A153/A153M, or ASTM A924/A924M.

2.7 FABRICATION

A. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.

B. Welded Connections: Weld connections continuously. Weld solid members with full-length, full-penetration welds and hollow members with full-circumference welds. At exposed connections, finish surfaces smooth and blended, so no roughness or unevenness shows after finishing and welded surface matches contours of adjoining surfaces.

C. Pipes and Tubes: Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.

D. Preservative-Treated Wood Components: Complete fabrication of treated items before treatment if possible. If cut after treatment, apply field treatment complying with AWPA M4 to cut surfaces.

E. Exposed Surfaces: Polished, sanded, or otherwise finished; all surfaces smooth, free of burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.

F. Factory Assembly: Factory assemble components to greatest extent possible to minimize field assembly. Clearly mark units for assembly in the field.

2.8 GENERAL FINISH REQUIREMENTS

A. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.9 STEEL AND GALVANIZED-STEEL FINISHES

A. Powder-Coat Finish: Manufacturer's standard polyester, powder-coat finish complying with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness.

2.10 IRON FINISHES

A. Powder-Coat Finish: Manufacturer's standard polyester powder-coat finish complying with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.

B. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.

C. Install site furnishings level, plumb, true, and securely anchored positioned at locations indicated on Drawings with final approval by Owner’s representative.

D. Bicycle Racks: Install per manufacturer’s requirements and as detailed on Drawings.

1. Locations to be approved by Owner’s representative prior to installation.
2. Concrete thickness and finish: 6” broom finish concrete unless adjacent to decorative concrete.

E. Drinking Fountains: Install exterior drinking fountain in coordination with hardscape installation. See plans for locations. Shall be installed per Drawings, with concrete footing; drain grate and drain as shown on details; and concrete slab elevation flush with adjacent grade and sloped to drain to integral drain grate.

1. Coordination water service with mechanical plans.
2. Perforated drain pipe to extend to turf or synthetic turf area. Minimum 10’ . See drawings and details for additional information.

F. Landscape Logs:

1. Logs to be installed on 6” of compacted crushed surfacing base course, typical.

2. Pin logs to ground with 4’ long #5 rebar installed in holes through logs at 4’ OC, typical. Rebar to be set 1” below face of log. Fill hole with ‘Log Builder Caulking’ or approved equal.
3. Log sealant: Coat logs with two coats of X-100 Natural Seal Wood Preservative or approved equal. Color Cedar Tone Gold.
4. Logs to be stable with no movement.
5. Coordinate installation of boulders and logs at playground with playground equipment installation to ensure required fall zone is provided.

G. Landscape Boulders, Existing and New:

1. Granite boulders and installation locations at playground to be approved by Landscape Architect prior to installation.

    a. If existing boulders are not available, new landscape boulders to be granite.
    b. Granite boulders around playground to be rounded and smooth.

        1) Boulders for playground installation to be approved by Landscape Architect prior to installation
        2) Boulders to be set on compacted subgrade and shall be stable with no movement.

    c. Coordinate installation of boulders and logs at playground with playground equipment installation to ensure required fall zone is provided.

2. Boulders for planting areas to be set on compacted subgrade and shall be stable with no movement.

    a. Existing on site salvaged for installation if available.
    b. Granite boulders, predominately white granite, angular, blocky for installation primarily at the front entry of the building.

        1) Set boulders with flat surface approximately level.
        2) Install 10 lf of boulders at front entry as mock up for approval. Do not continue installation without approval from Owner’s representative.

H. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.

I. Posts Set into Voids in Concrete: Form or core-drill holes for installing posts in concrete to depth recommended in writing by manufacturer of site furnishings and 3/4 inch larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.

J. Pipe Sleeves: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.

END OF SECTION 12 93 00

SECTION 13 31 23

TENSION FABRIC BUILDING SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The fabric building superstructure is comprised of solid flange and solid web rigid frames. The primary frames have welded plate tapered columns with side-wall girts, and tapered rafters with simple span purlins inset into the lower flange line. Fabric membrane panels are attached to the exterior of the frames and are tensioned to clad the exterior of the building's roof, side walls and end walls. Fabric membrane panels are attached to the interior side of the frames and are tensioned to line the building's interior. Blanket insulation is provided in the cavity between the two membranes. Roof ventilation is provided from the eaves to the ridge.

B. Section Includes:

1. Structural-steel framing.
2. Fabric cladding.
3. Fabric tensioning system.
4. Thermal insulation.
5. Accessories.

C. Related Requirements:

1. Section 03 30 00 "Cast-in-Place Concrete".
2. Section 08 11 13 "Hollow Metal Doors & Frames" for exterior doors and frames in metal buildings.
3. Section 08 36 13 "Sectional Doors" for sectional doors in metal building systems.

1.3 REFERENCES

A. American Institute of Steel Construction (AISC):

1. AISC 360 - Specification for Structural Steel Buildings, June 22, 2010.
2. AISC 341 - AISC Seismic Provisions for Structural Steel Buildings, June 22, 2010.
3. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges, April 14th, 2010.

B. American Iron and Steel Institute (AISI) :

1. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members, 2012 Edition.

C. American Welding Society (AWS)

1. AWS D1.1/D1.1M - Structural Welding Code - Steel.
2. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel.

D. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE):

1. ASHRAE 90.1-2010 - Energy Standard for Buildings Except Low-Rise Residential Buildings (I-P Edition).

E. ASTM International (ASTM): Latest versions of:

1. ASTM A 6/A 6M - Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling.
2. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel.
3. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat-Treated, 120/105 ksi Minimum Tensile Strength.
4. ASTM A 475 - Standard Specification for Zinc-Coated Steel Wire Strand.
5. ASTM A 490 Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength
6. ASTM A 500/A 500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
7. ASTM A 529/A 529M - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality.
8. ASTM A 563 - Standard Specification for Carbon and Alloy Steel Nuts.
9. ASTM A 572/A 572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
10. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
11. ASTM A 792/A 792M - Standard Specification for Steel Sheet, 55 Percent Aluminum- Zinc Alloy-Coated by Hot-Dip Process.
12. ASTM A 992/A 992M - Standard Specification for Structural Steel Shapes.
13. ASTM A 1011/A 1011M - Standard Specification for Steel, Sheet and Strip, Hot- Rolled, Carbon, Structural, High-Strength, Low-Alloy and High-Strength Low-Alloy with Improved Formability and Ultra-High Strength
14. ASTM A 1018/A 1018A - Standard Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Carbon, Commercial, Drawing, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
15. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
16. ASTM C 1363 - Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus.
17. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
18. ASTM D 1003 - Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.
19. ASTM D 1494 - Standard Test Method for Diffuse Light Transmission Factor of Reinforced Plastics Panels.
20. ASTM D 1929 - Standard Test Method for Determining Ignition Temperature of Plastics.
21. ASTM D 2240 - Standard Test Method for Rubber Property—Durometer Hardness.
22. ASTM D 2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
23. ASTM D 4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.
24. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

25. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
26. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences Across Specimen.
27. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
28. ASTM E 1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
29. ASTM E 1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.
30. ASTM E 1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.
31. ASTM E 1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
32. ASTM F 436 - Standard Specification for Hardened Steel Washers
33. ASTM F 1941 - Standard Specification for Electrodeposited Coatings on Threaded Fasteners (Unified Inch Screw Threads (UN/UNR))

F. Cool Roof Rating Council (CRRC):

1. CRRC-1 Standard, 2008.
2. Product Rating Program Manual for CRRC-1, November 19th, 2013.

G. Factory Mutual Approvals (FM Approvals):

1. FM 4471 - Approval Standard for Class 1 Panel Roofs.
2. FM 4880 - Approval Standard for Class 1 Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coatings and Exterior Wall Systems.
3. FM 4881 - Approval Standard for Class 1 Exterior Wall Systems.

H. International Accreditation Service (IAS):

1. Accreditation Criteria 472 (AC472) - Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems, latest edition.

I. Metal Building Manufacturers Association (MBMA):

1. Metal Building Systems Manual, 2012 Edition. J. National Fenestration Rating Council (NFRC):
2. NFRC 100 - Procedure for Determining Fenestration Product U-factors, 2014
3. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence, 2010.

J. National Fire Protection Association (NFPA):

1. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components, 2012 Edition.

K. Research Council on Structural Connections (RCSC):

1. RCSC Specification for Structural Joints Using ASTM A 325 or A 490 Bolts, December 31, 2009.

L. Underwriters Laboratories (UL):

1. UL-580 - Tests for Uplift Resistance of Roof Assemblies.
2. UL-790 - Standard Test Methods for Fire Tests of Roof Coverings.
3. UL-2218 - Impact Resistance of Prepared Roof Covering Materials.

1.4 COORDINATION

A. Coordinate sizes and locations of concrete foundations and casting of anchor-rod inserts into foundation walls and footings. Anchor rod installation, concrete, reinforcement, and formwork requirements are specified in Section 03 30 00 "Cast-in-Place Concrete."

B. Coordinate fabric cladding, tensioning system and structural framing with rain drainage work, flashing, trim, and construction of supports and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

C. Coordinate work of Hollow Metal Door Frames, Aluminum Framed Entrances and Storefronts, HVAC Equipment openings and penetrations and manufacturer’s accessories with installation of fabric cladding.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to tension fabric building systems including, but not limited to, the following:

    a. Condition of foundations and other preparatory work performed by other trades.
    b. Structural load limitations.
    c. Construction schedule. Verify availability of materials and erector's personnel, equipment, and facilities needed to make progress and avoid delays.
    d. Required tests, inspections, and certifications.
    e. Unfavorable weather and forecasted weather conditions and impact on construction schedule.

2. Review methods and procedures related to tension fabric cladding including, but not limited to, the following:

    a. Compliance with requirements for purlin, rafter and support conditions, including flatness, alignment between and attachment to structural members.
    b. Structural limitations of purlins, rafters, girts and columns during and after cladding.
    c. Flashings, special roof and siding details, wall penetrations, roof drainage, roof penetrations, wall openings, equipment curbs, and condition of other construction that will affect fabric cladding.
    d. Temporary protection requirements for fabric cladding during and after installation.
    e. Observation and repair after fabric cladding installation.

3. Review methods and procedures related to sequencing of the interior asphalt flooring to optimize quality of both the asphalt surface and tension fabric building system and so that the installation of each scope of work does not compromise the finished quality of the other.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of tension fabric building system component.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:

    a. Fabric cladding.
    b. Fabric tensioning system.
    c. Thermal insulation.

B. Shop Drawings: Indicate components by others. Include full building plan, elevations, sections, details and the following:

1. Anchor-Bolt Plans: Submit anchor-bolt plans and templates before foundation work begins. Include location, diameter, and minimum required projection of anchor bolts required to attach metal building to foundation. Indicate column reactions at each location.
2. Rigid Frame Drawings: Show complete fabrication of primary and secondary framing; include provisions for openings. Indicate welds and bolted connections, distinguishing between shop and field applications. Include transverse cross-sections.
3. Fabric Cladding Layout Drawings: Show layouts of panels including methods of support. Include details of edge conditions, joints, corners, anchorages, tensioning, attachment, trim, flashings, closures, and special details. Distinguish between factory- and field-assembled work.

    a. Show roof-mounted items including pipe penetrations.
    b. Show wall-mounted items including personnel doors, sectional doors, louvers, and lighting fixtures.

4. Accessory Drawings: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches (1:8):

    a. Flashing and trim.
    b. Gutters.
    c. Downspouts.
    d. Ice Breakers

5. Structural Design Calculations: 2 sets sealed and signed by a professional engineer licensed in accordance with applicable state law.
6. Documentation including test reports supporting Thermal Transmission Coefficients (U-factors) of building envelope components specified in this section.

C. Quality Control Submittals:

1. IAS AC472 Certificate for each facility involved in the design and fabrication of the Metal Building System.
2. Certified Erector Certificate issued to the erector by the manufacturer.
3. Material Test Reports (MTR) for all steel material used in the manufacture of primary and secondary framing members, panels and bolts specified in this section and when required by ASTM A 6/A 6MA.

D. Samples for Initial Selection: For units with factory-applied finishes.

E. Samples for Verification: For the following products:

1. Fabric Cladding: 12 inches long by 12 inches wide. Include fasteners, closures, and other exposed panel accessories.
2. Flashing and Trim: Nominal 12 inches (300 mm) long. Include fasteners and other exposed accessories.
3. Accessories: Nominal 12-inch- (300-mm-) long Samples for each type of accessory.

F. Delegated-Design Submittal: For tension fabric building system.

1. Include analysis data indicating compliance with performance requirements and design data signed and sealed by the qualified professional engineer responsible for their preparation.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer.

B. Welding certificates.

C. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

1. Name and location of Project.
2. Order number.
3. Name of manufacturer.
4. Name of Contractor.
5. Building dimensions including width, length, height, and roof slope.
6. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
7. Governing building code and year of edition.
8. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
9. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
10. Building-Use Category: Indicate category of building use and its effect on load importance factors.

D. Material Test Reports: For each of the following products:

1. Structural steel including chemical and physical properties.
2. Bolts, nuts, and washers including mechanical properties and chemical analysis.
3. Tension-control, high-strength, bolt-nut-washer assemblies.
4. Shop primers.
5. Nonshrink grout.

E. Source quality-control reports.

F. Field quality-control reports.

G. Sample Warranties: For special warranties.

1.8 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panel finishes and door hardware to include in maintenance manuals.

1.9 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer.

1. Accreditation: Building supplier must have a quality program in place that includes the following fabric seam testing procedures per ASTM D4851: sheer test, peel test, and creep test.
2. Accreditation: Building supplier must be CSA-A660 certified for quality of manufacturing of steel buildings.
3. Accreditation: Building supplier must be ISO 9001 certified.
4. Engineering Responsibility: Preparation of comprehensive engineering analysis and Shop Drawings by a professional engineer who is legally qualified to practice in jurisdiction where Project is located.

B. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3, "Structural Welding Code - Sheet Steel."

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, sheets, panels, and other manufactured items so as not to be damaged or deformed. Package components for protection during transportation and handling.

B. Unload, store, and erect components in a manner to prevent damage.

C. Store components to ensure dryness, with positive slope for drainage of water. Do not store components in contact with other materials that might cause staining, denting, or other surface damage.

1.11 FIELD CONDITIONS

A. Weather Limitations: Proceed with fabric cladding installation only when weather conditions permit cladding to be installed according to manufacturers' written instructions and warranty requirements.

1.12 WARRANTY

A. Special Warranty on Cladding Fabric: Manufacturer agrees to repair or replace fabric cladding and liner panels that show evidence of deterioration or damage within specified warranty period.

1. Warranty Period: 25 years from date of Substantial Completion.

B. Special Weathertightness Warranty: Manufacturer agrees to repair or replace fabric cladding assemblies that leak or otherwise fail to remain weathertight within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain tension fabric building system components, including primary and secondary framing, fabric cladding assembly and tensioning systems, from a single source.

B. Basis of Design Manufacturer: Legacy Building Solutions – Tension Fabric Building.

2.2 SYSTEM DESCRIPTION

A. Provide a complete, integrated set of mutually dependent components and assemblies that form a tension fabric building system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior.

B. Primary-Frame Type:

1. Rigid Clear Span: Solid-member, structural-framing system without interior columns.

C. End-Wall Framing: Manufacturer's standard, for buildings not required to be expandable, consisting of load-bearing end-wall and corner columns and rafters.

D. Secondary-Frame Type: Manufacturer's standard purlins , joists and girts.

E. Eave Height: As indicated by height on Drawings.

F. Bay Spacing: As indicated on Drawings.

G. Roof Slope: As indicated on Drawings.

H. Roof System: Manufacturer's standard PVC coated polyester fabric cladding.

I. Exterior Wall System: Manufacturer's standard PVC coated polyester fabric cladding.

2.3 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 “Quality Requirements”, to tension fabric building system.

B. Structural Performance: Tension fabric building systems shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.

1. Design Loads: As indicated on Drawings.
2. Deflection and Drift Limits: As indicated on Structural Drawings.

C. Seismic Performance: Tension fabric building system shall withstand the effects of earthquake motions determined according to ASCE/SEI 7, reference structural drawings for additional Seismic Force Resisting System Requirements.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg. F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

E. Fire Propagation Characteristics: PVC coated polyester fabric cladding shall meet the requirements for fire propagation performance as specified in NFPA 701. PVC coated polyester fabric liner shall have a Class A flame spread rating as specified by ASTM E84.

F. Structural Performance for Metal Roof Panels: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:

1. Wind Loads: As indicated on Drawings.

G. Air Infiltration for Fabric Roof Cladding: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E1680.

H. Air Infiltration for Fabric Wall Cladding: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E283.

I. Water Penetration for Fabric Roof Cladding: No water penetration when tested according to ASTM E1646.

J. Water Penetration for Fabric Wall Cladding: No water penetration when tested according to ASTM E331.

K. Wind-Uplift Resistance: Provide Fabric Roof Cladding assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. Uplift Rating: UL 90.

L. Thermal Performance for Opaque Elements: Provide the following maximum U-factors and minimum R-values when tested according to ASTM C1363 or ASTM C518:

1. Roof:

a. U-Factor: See drawings.
b. R-Value: See drawings.

2. Walls:

a. U-Factor: See drawings.
b. R-Value: See drawings.

2.4 STRUCTURAL-STEEL FRAMING

A. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings."

B. Bolted Connections: Comply with RCSC's "Specification for Structural Joints Using High-Strength Bolts."

C. Welded Connections: All shop connections shall be in accordance with the American Welding Society (AWS) Code for Building Construction.

D. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.

E. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse frames; rafters, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.

1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.

a. Slight variations in span and spacing may be acceptable if necessary to comply with manufacturer's standard, as approved by Architect.

2. Rigid Clear-Span Frames: All rigid frames shall be welded, built-up “I” sections or mill-rolled structural sections. Tubular cords and webs are not permitted. Interior columns are not permitted.
3. Plates, Stiffeners, etc.: All base plates, splice plates, cap plates, and stiffeners shall be factory welded into place on the structural members.
4. Bolt Holes, etc.: All base plates and flanges shall be shop fabricated to include bolt connection holes. Webs shall be shop fabricated to include cable brace or rod brace holes and flange brace holes.
5. Frame Configuration: Single gable.
6. Exterior Column: Tapered.
7. Rafter: Tapered.

F. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly to comply with the following:

1. End-Wall Columns: Cold-formed HSS, mill-rolled structural sections, or built-up “I” sections as required by design.
2. Plates, Stiffeners, etc.: All base plates, splice plates, cap plates, and stiffeners shall be factory welded into place on the structural members.
3. Bolt Holes, etc.: All base plates and flanges shall be shop fabricated to include bolt connection holes. Webs shall be shop fabricated to include cable brace or rod brace holes and flange brace holes.

G. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from metallic-coated steel sheet, to comply with the following:

1. Purlins: Purlins shall be HSS tubes that are precision drilled or cut at the factory to provide for field bolting to the primary framing. They shall be simple span as required by design. To provide a stronger connection all purlins must bolt directly to the frame, not by using secondary clips or angles. Retain depths in "Depth" Subparagraph below if manufacturer does not determine depths. Insert manufacturer's proprietary size if required.
2. Peak Purlins: Peak purlins shall be round to prevent fabric wear and shall be sized for adequate performance.
3. Base or Sill Angles: Manufacturer's standard base angle, minimum 3-by-2-inch (76-by-51-mm), fabricated from zinc-coated (galvanized) steel sheet.
4. Framing for Openings: Channel shapes. Frame head and jamb of door openings and head, jamb, and sill of other openings.
5. Miscellaneous Structural Members: Manufacturer's standard sections fabricated from zinc-coated (galvanized) steel sheet; designed to withstand required loads.

H. Bracing: Provide adjustable wind bracing using any method as follows:

1. Solid Steel Cross Rods (or cables): ASTM A36; ASTM A572, Grade 50; or ASTM A529, Grade 50; of size and connection type required to withstand design loads.
2. Flange Braces: Provide lateral bracing for the compression flange of all primary framing members as needed so that the flange compressive stress is within the allowable limits for any combination of loadings.
3. Rigid Portal Frames: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.

I. Anchor Rods: Headed anchor rods as indicated in Anchor Rod Plan for attachment of metal building to foundation.

J. Materials:

1. Primary Framing Steel for all built-up sections shall meet as applicable the physical and chemical properties of the following:

    a. ASTM A1011, Grade 55
    b. ASTM A572, Grade 55
    c. ASTM A529, Grade 55.

2. Primary Framing Steel for end-wall HSS sections and purlins shall meet the physical and chemical properties of the following:

    a. ASTM A500 Grade B, Fy = 46 KSI.

3. Secondary Framing Steel used to form “C” sections shall meet the physical and chemical properties of the following:

    a. ASTM A1003
    b. ASTM A654
    c. ASTM A924, Fy = 50 KSI

4. Channels, Angles, M-Shapes, and S-Shapes: ASTM A36/A36M; ASTM A572/A572M, Grade 50 or 55 (345 or 380); or ASTM A529/A529M, Grade 50 or 55 (345 or 380).
5. Plate and Bar: ASTM A36/A36M; ASTM A572/A572M, Grade 50 or 55 (345 or 380); or ASTM A529/A529M, Grade 50 or 55 (345 or 380).
6. Steel Pipe: ASTM A53/A53M, Type E or S, Grade B.
7. Cold-Formed Hollow Structural Sections: ASTM A500, Grade B or C, structural tubing.
8. Structural-Steel Sheet: Hot-rolled, ASTM A1011/A1011M, Structural Steel (SS), Grades 30 through 55 (205 through 380), or High-Strength Low-Alloy Steel (HSLAS) or High-Strength Low-Alloy Steel with Improved Formability (HSLAS-F), Grades 45 through 70 (310 through 480); or cold-rolled, ASTM A1008/A1008M, Structural Steel (SS), Grades 25 through 80 (170 through 550), or HSLAS, Grades 45 through 70 (310 through 480).
9. Metallic-Coated Steel Sheet: ASTM A653/A653M, SS, Grades 33 through 80 (230 through 550), or HSLAS or HSLAS-F, Grades 50 through 80 (340 through 550); with G60 (Z180) coating designation; mill phosphatized.

    a. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, SS, Grades 33 through 80 (230 through 550), or HSLAS or HSLAS-F, Grades 50 through 80 (340 through 550); with G90 (Z275) coating designation.
    b. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792/A792M, SS, Grade 50 or 80 (340 or 550); with Class AZ50 (AZM150) coating.

10. Non-High-Strength Bolts, Nuts, and Washers: ASTM A307, Grade A, carbon-steel, hex-head bolts; ASTM A563 (ASTM A563M) carbon-steel hex nuts; and ASTM F844 plain (flat) steel washers.

    a. Finish: Hot-dip zinc coating, ASTM F2329, Class C or Mechanically deposited zinc coating, ASTM B695, Class 50.

11. High-Strength Bolts, Nuts, and Washers: ASTM F3125/F3125M,Grade A325 (Grade A325M), Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH, (ASTM A563M, Class 10S) heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers.

a. Finish: Hot-dip zinc coating, ASTM F2329, Class C or Mechanically deposited zinc coating, ASTM B695, Class 50.

12. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F3125/F3125M, Grade F1852, Type 1, heavy-hex head assemblies consisting of steel structural bolts with splined ends; ASTM A563, Grade DH, (ASTM A563M, Class 10S) heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1 hardened carbon-steel washers.

    a. Finish: Mechanically deposited zinc coating, ASTM B695, Class 50.

13. Unheaded Anchor Rods: ASTM F1554, Grade 36.

    a. Configuration: Straight.
    b. Nuts: ASTM A563 (ASTM A563M) heavy-hex carbon steel.
    c. Plate Washers: ASTM A36/A36M carbon steel.
    d. Washers: ASTM F436 (ASTM F436M) hardened carbon steel.
    e. Finish: Hot-dip zinc coating, ASTM F2329, Class C.

14. Headed Anchor Rods: ASTM F1554, Grade 36.

    a. Configuration: Straight.
    b. Nuts: ASTM A563 (ASTM A563M) heavy-hex carbon steel.
    c. Plate Washers: ASTM A36/A36M carbon steel.
    d. Washers: ASTM F436 (ASTM F436M) hardened carbon steel.
    e. Finish: Hot-dip zinc coating, ASTM F2329, Class C.

15. Threaded Rods: ASTM A307, Grade A.

    a. Nuts: ASTM A563 (ASTM A563M) [heavy-]hex carbon steel.
    b. Washers: ASTM F436 (ASTM F436M) hardened or ASTM A36/A36M carbon steel.
    c. Finish: Hot-dip zinc coating, ASTM F2329, Class C or Mechanically deposited zinc coating, ASTM B695, Class 50.

K. Finish: All uncoated structural steel members shall be factory primed. Apply specified primer immediately after cleaning and pretreating.

1. Clean and prepare in accordance with SSPC-SP7.
2. Coat with manufacturer's standard primer. Apply primer to primary and secondary framing to a minimum dry film thickness of 1 mil (0.025 mm).

2.5 ROOF AND WALL FABRIC CLADDING SYSTEM

A. General:

1. Provide fabric clad roof, side wall and end wall assemblies that function as exterior walls that meet the following requirements:

    a. Air infiltration: Maximum air infiltration of 0.04 cubic feet per minute per square foot of specimen area when tested to ASTM E 283 at a pressure differential of +/- 1.57 psf (75 Pa).
    b. Water infiltration: No uncontrollable water leakage when tested to ASTM E 331 at a 6.24 psf pressure differential when sprayed with 5 gallons of water per hour per square foot of specimen area.

2. Pre-fabricated fabric cladding panels shall cover one structural bay width each. At walls, fabric cladding panels shall be continuous from sill to eave line. At roof, fabric cladding panels shall be continuous from eave to eave.
3. Roof to Gable Wall Connection: The structure membrane shall form a continuous, weather tight shell over the framework. Manufacture gable wall fabric so that it is connected to the adjacent side wall and roof cladding without the use of cantenary cables, winches, belting or PVC pipes.
4. Sidewall and Roof Panels: Sidewall fabric panels must be completely independent of the roof fabric panels.
5. The fabric membrane shall be designed to allow a factor of safety at design loads of at least three (3) times the theoretical design strength of the fabric material.
6. The structure must be capable of accepting and integrating a straight vertical metal panel wall system finish to the exterior if necessary in the future. Manufacturer shall demonstrate such capability with their design submittal.

B. Outer Weather Fabric Membrane Material:

1. Type: PVC coated polyester fabric with a minimum coated weight of 28 +1/-1 oz/sy (ASTM D3776).
2. Panel Strength: Determine and certify panel strength with minimum values as follows:

    a. Grab Tensile Strength (lbs.): 695/745 (ASM D 5034)
    b. Strip Tensile Strength (lbs.): 527/507 (ASTM D 751)
    c. Tear Strength (lbs.): 74/126 (ASTM D 751)
    d. Flame Resistance: Meets NFPA 701
    e. Flame Spread: Meets ASTM E84

C. Fabric Tensioning:

1. Eave/Overhang Tensioning System: The eave of the roof shall project 18” from the side wall. Provide a rectangular tension tube with a minimum size of of 3”x6”, 11 ga steel. The configuration must allow for the fabric roof panels to achieve proper tension with a mechanical tensioning system that can then be removed so that no winches or straps are visible. The configuration must allow for future tensioning to occur.
2. Exterior Base Tensioning System: The fabric cladding will be provided with a mechanical tensioning system that allows the fabric to be fully tensioned around the structure’s perimeter. The system shall be designed such that the membrane can be tightly and neatly secured over the structural frame and foundation and such that the system has remaining range of adjustment. The base tensioning must be done by mechanical means and have no winches or straps visible after installation is complete. The final termination for the fabric cladding will be secured by a 1” square aluminum tube secured into an aluminum J member to accommodate.
3. Membrane Seal at Openings and Base: Provide all materials and methods necessary to fully tension and seal the membrane material around all door, ventilation and other openings as well as around the structure perimeter below the main tensioning system. This seal shall provide a neat finished appearance and eliminate any loose fabric cladding that could otherwise be damaged by flapping or abrasion. Fabric cladding shall be attached to every frame using a continuous aluminum keder rail attachment system. Both sides of the keder rail shall be secured directly to the top flange of the rigid frame with bolts as Metal thickness options in “Material” Subparagraph below correspond to obsolete 26, 24, and 22 gage, respectively.

D. Fabric Attachment:

1. Fabric cladding shall be attached to every frame using a continuous aluminum keder rail attachment system. Both sides of the keder rail shall be secured directly to the top flange of the rigid frame with bolts as required properly secure the keder rail from uplift forces applied by the fabric cladding.
2. Each fabric panel shall be designed to achieve 100% seal over each frame and aluminum extrusion.
3. Where roof fabric cladding is in contact with steel supports, the fabric cladding is to be double layered.
4. Gable fabric cladding is to be attached to all vertical and horizontal steel supporting members.
5. The aluminum extrusion / fabric cladding attachment system shall be designed so that the fabric cladding is a minimum of 1.5" above the outer flange of the frame to prevent wear and damage to the fabric cladding.

2.6 INTERIOR FABRIC LINER SYSTEM

A. General:

1. Design interior fabric liner system to achieve a weather-tight seal from the inside out to prevent corrosion of steel frames and secondary bracing and provide an attractive interior finish.
2. Design and install factory welded monolithic panels spanning from peak to grade of the structure. Monolithic panels will be no less than 80' in length.
3. Minimize liner seams and field connections in the interior fabric liner system. All liner seams must be hand welded during installation to achieve proper seal.

B. Interior Fabric Liner System Material:

1. Type: PVC coated polyester fabric with a minimum coated weight of 19 +2/-1 oz/sy (ASTM D3776).
2. Panel Strength: Determine and certify panel strength, with minimum values as follows:

    a. Grab Tensile Strength (lbs.): 463/494 (ASM D 5034)
    b. Strip Tensile Strength (lbs.): 341/335 (ASTM D 751)
    c. Tear Strength (lbs.): 39/42 (ASTM D 751)
    d. Flame Resistance: Meets NFPA 701
    e. Flame Spread: Meets ASTM E84

C. Liner Fabric Tensioning:

1. Provide mechanical tensioning system that allows the fabric to be fully tensioned around the structure perimeter.
2. Tensioning system shall function such that the membrane can be ttightly and neatly secured over the structural frame and foundation and such that the system has remaining range of adjustment.
3. Base tensioning must be completed by mechanical means and there shall be no winches or straps visible after installation is complete.

D. Liner Cavity Ventilation System:

1. Provide adequate ventilation in the cavity between the exterior fabric panels and the interior liner panels with intakes in the soffit panels and roof vents near the ridge.

2.8 ACCESSORIES

A. General: Provide accessories as standard with tension fabric building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.

1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

B. Framing for Doors and Openings

1. Provide jamb and header framing for door and glazing openings shown on drawings.
2. Framing shall be designed to resist applicable horizontal wind loads and shall consist of HSS and/or light-gauge framing members and jamb and header locations.

C. Thermal Insulation:

1. Glass Fiber Blanket Insulation: ASTM C 991, Type II; 0.5-lb/cu. Ft. density; 2-inch-wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less.
2. The entire cavity between fabric cladding and liner – sidewalls, endwalls and roof – must be fully insulated.

a. R-Value: R-30

3. Thermal Breaks:

a. At all roof areas where steel members span from exterior fabric to interior fabric liner, a thermal break of at least R-10 must be provided under the inner flange of the frame.
b. Thermal breaks of at least R-0.75 must be provided on the inside flange of sidewall frames and the inside face of the endwall vertical columns.

4. Provide accessories required for supporting insulation within the cavity.
5. Insulation in the rafter sections must be supported by purlins, cables or belting no greater than 6 feet on center to prevent sagging.
6. Building manufacturer shall provide the U-Value calculations for the roof, sidewall and endwall systems to ensure that the building complies with energy code requirements.

C. Gutters & Downspouts: Provide manufacturer’s recommended gutter and downspout system. Configuration, supports sufficient to withstand friction from sliding snow, material and thickness shall be designed by manufacturer, who shall demonstrate with their submission their experience with and methodology of providing said system.

1. Size system to handle a 1-in-5 year rainfall intensity for local area.
2. Color for material to be selected by Architect from manufacturer’s standard color options.
3. Strainers: Bronze, copper, or aluminum wire ball type at outlets. Service walkways are not available from all manufacturers.

D. Snow and Ice Breaker System: Provide manufacturer-designed and recommended snow and ice breaker system at locations shown on drawings.

E. Soffit and Ridge Vents: Provide manufacturer’s standard intake and exhaust vents of size and quantity to provide sufficient cavity ventilation.

F. Pipe Flashing: Manufacturer’s standard premolded pipe collar with flexible aluminum ring bonded to base.

G. Materials:

1. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide fasteners with heads matching color of materials being fastened by means of plastic caps or factory-applied coating.

    a. Fasteners for Metal Wall Panels: Self-drilling or self-tapping, zinc-plated, hex-head carbon-steel screws, with EPDM sealing washers bearing on weather side of metal panels.
    b. Fasteners for Metal Wall Panels: Self-drilling, Type 410 stainless steel or self-tapping, Type 304 stainless-steel or zinc-alloy-steel hex washer head, with EPDM sealing washers bearing on weather side of metal panels.
    c. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.
    d. Blind Fasteners: High-strength aluminum or stainless-steel rivets.

2. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
3. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.
4. Metal Panel Sealants:

    a. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene-compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape of manufacturer's standard size.
    b. Joint Sealant: ASTM C920; one part elastomeric polyurethane or polysulfide; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended by metal building system manufacturer.

2.9 FABRICATION

A. General: Design components and field connections required for erection to permit easy assembly.

1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.

B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.

C. Primary Framing: Shop fabricate framing components to indicated size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.

1. Make shop connections by welding or by using high-strength bolts.
2. Join flanges to webs of built-up members by a continuous, submerged arc-welding process.

3. Brace compression flange of primary framing with steel angles or cold-formed structural tubing between frame web and purlin web or girt web, so flange compressive strength is within allowable limits for any combination of loadings.
4. Weld clips to frames for attaching secondary framing if applicable, or punch for bolts.
5. Shop Priming: Prepare surfaces for shop priming according to SSPC-SP 7. Shop prime primary framing with specified primer after fabrication.

D. Secondary Framing: Shop fabricate framing components to indicated size and section by roll forming or break forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

1. Make shop connections by welding or by using non-high-strength bolts.

E. Fabric Panels: Fabricate and finish fabric panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated dimensional and structural requirements.

2.10 SOURCE QUALITY CONTROL

A. Special Inspection: Owner will engage a qualified special inspector to perform source quality control inspections and to submit reports.

1. Accredited Manufacturers: Special inspections will not be required if fabrication is performed by an IAS AC472-accredited manufacturer approved by authorities having jurisdiction to perform such Work without special inspection.

a. After fabrication, submit copy of certificate of compliance to authorities having jurisdiction, certifying that Work was performed according to Contract requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Before erection proceeds, survey elevations and locations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments to receive structural framing, with erector present, for compliance with requirements and tension fabric building system manufacturer's tolerances.

1. Engage land surveyor to perform surveying.

C. Proceed with erection only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition.

B. Provide temporary shores, guys, braces, and other supports during erection to keep structural framing secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural framing, connections, and bracing are in place unless otherwise indicated.

3.3 ERECTION OF STRUCTURAL FRAMING

A. Erect metal building system according to manufacturer's written instructions and drawings.

B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.

D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.

F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.

1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt type and joint type specified.

    a. Joint Type: Snug tightened or pretensioned as required by manufacturer.

G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.

1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
2. Locate and space wall girts to suit openings such as doors and windows.
3. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.

H. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.

1. Tighten rod and cable bracing to avoid sag.
2. Locate interior end-bay bracing only where indicated.

I. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

J. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

3.4 METAL PANEL INSTALLATION, GENERAL

A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.

C. Examination: Examine primary and secondary framing to verify that structural-panel support members and anchorages have been installed within alignment tolerances required by manufacturer.

1. Examine roughing-in for components and systems penetrating metal panels, to verify actual locations of penetrations relative to seams before metal panel installation.

D. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.

    a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.

2. Install metal panels perpendicular to structural supports unless otherwise indicated.
3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Locate metal panel splices over structural supports with end laps in alignment.
6. Lap metal flashing over metal panels to allow moisture to run over and off the material.

E. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.

F. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

G. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants indicated; or, if not indicated, provide types recommended by metal panel manufacturer.

1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

3.5 METAL ROOF PANEL INSTALLATION

A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.

1. Install ridge caps as metal roof panel work proceeds.
2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.

B. Metal Roof Panel Installation Tolerances: Shim and align metal roof panels within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.6 METAL WALL PANEL INSTALLATION

A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
2. Shim or otherwise plumb substrates receiving metal wall panels.
3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
5. Rigidly fasten base end of metal wall panels and allow eave end free movement for thermal expansion and contraction. Predrill panels.
6. Flash and seal metal wall panels with weather closures at eaves and rakes, and at perimeter of all openings. Fasten with self-tapping screws.
7. Install screw fasteners in predrilled holes.
8. Install flashing and trim as metal wall panel work proceeds.
9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated on Drawings; if not indicated, as necessary for waterproofing.
10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.

C. Insulated Metal Wall Panels: Install insulated metal wall panels on exterior side of girts. Attach panels to supports at each panel joint using concealed clip and fasteners at maximum 42 inches (1067 mm) o.c., spaced not more than manufacturer's recommendation. Fully engage tongue and groove of adjacent insulated metal wall panels.

1. Install clips to supports with self-tapping fasteners.
2. Apply continuous ribbon of sealant to panel joint on concealed side of insulated metal wall panels as vapor seal; apply sealant to panel joint on exposed side of panels as weather seal.

D. Installation Tolerances: Shim and align metal wall panels within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m), noncumulative; level, plumb, and on location lines; and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.7 THERMAL INSULATION INSTALLATION

A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, according to manufacturer's written instructions.

1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.
2. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.
3. Install factory-laminated, vapor-retarder-faced units straight and true in one-piece lengths, with both sets of facing tabs sealed, to provide a complete vapor retarder.

3.8 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.

2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Tie downspouts to underground drainage system indicated.

E. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

3.9 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform field quality control special inspections and to submit reports.

B. Product will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.10 CLEANING AND PROTECTION

A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.

B. Touchup Painting: After erection, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted structural framing, bearing plates, and accessories.

1. Clean and prepare surfaces by SSPC-SP 2, "Hand Tool Cleaning," or by SSPC-SP 3, "Power Tool Cleaning."
2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.

C. Touchup Painting: Cleaning and touchup painting are specified in Section 09 91 13 "Exterior Painting" and Section 09 91 23 "Interior Painting."

D. Metal Panels: Remove temporary protective coverings and strippable films, if any, as metal panels are installed. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

1. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

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SECTION 26 01 01

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 CONDITIONS AND REQUIREMENTS

A. Refer to instructions to bidders, general conditions, supplementary general conditions, and Division 1 of these specifications that govern work under Division 26. Refer to other sections of these specifications for additional related requirements.

1.2 SCOPE OF WORK

A. The work covered by the Electrical Section (Division 26) of the specifications shall include:

1. Furnishing all materials and supplying all labor, equipment, and services to install the electrical systems as shown on the accompanying drawings and specified herein.
2. Testing and adjusting of the completed electrical systems in the manner described herein.

1.3 CODES, PERMITS AND FEES

A. Electrical work shall be in complete accordance with the latest revised edition of the following:

1. National Electrical Code as Amended by the State of Idaho
2. International Building Code
3. International Energy Conservation Code
4. International Mechanical Code
5. International Fire Code
6. Americans with Disabilities Act
7. Regulations of the State Fire Marshal
8. Regulations of the State Board of Fire Underwriters
9. Requirements of Occupational Safety and Health Administration (OSHA)
10. Rules of the State Idaho Division of Building Safety
11. Applicable sections of other State and local codes

B. In case of differences between building codes, state laws, local ordinances, utility company regulations, and Contract Documents, the most stringent shall govern. Promptly notify Owner's Representative in writing of such differences.

C. The Contractor, at their expense, shall obtain permits and inspections required for the electrical work on this project. Inspection certificates shall be included in the Operation and Maintenance Manuals. Deliver copies thereof to the Architect prior to final acceptance of the work.

D. The Contractor shall pay all costs levied by utility companies and/or governing agencies associated with electrical service, telephone service, and cable TV service connections and include these costs within their bid. This shall include but not limited to tap fees, service mains, meter, and vault charges, etc.

E. Comply with serving utility regulations.

1.4 INTENT AND INTERPRETATIONS

A. It is the intent of these specifications and the accompanying drawings to result in a complete electrical installation in complete accordance with all applicable codes and ordinances.

B. The drawings and specifications are intended to supplement each other, and any details contained in one and not the other shall be included as if contained in both. Items not specifically mentioned in the specifications or noted on the drawings, but which are necessary to properly complete the installation of the indicated systems or to render the systems operational, shall be provided, unless specifically excluded.

C. If any discrepancies of any kind exist, or that required items or details have been omitted, the Contractor shall notify the Architect in writing of such discrepancy or omission at least five (5) days prior to bid date. Failure to do so shall be construed as the willingness of the Contractor to supply all necessary materials and labor required for the proper completion of this work.

1.5 DEFINITIONS

A. The term “The Contractor”, when used in Division 26 of the specifications, shall be construed to mean the Contractor for the electrical work.

B. The term “Electrical Systems Installer”, where used in Division 26 of the specifications, refers to the firm, licensed by the State to perform electrical installation, that is responsible for immediate supervision of electrical work on the project.

C. The word “provide”, where used in this specification and on the accompanying drawings, shall mean furnish and install.

1.6 DRAWINGS

A. The Electrical Drawings shall serve as the working drawings for the electrical work, but the Architectural Drawings shall take precedence over the Electrical Drawings if any dimensional discrepancies exist. The Electrical Systems Installer shall review the plans for the work of the other trades and shall adjust their work to conform to all conditions indicated thereon.

B. Work covered under Division 26 has been indicated on the drawings in locations that should allow installation without interfering with the work of other trades; however, exact finish locations have not been indicated. Therefore, locations of all work and equipment shall be verified to avoid interferences, preserve headroom, provide access for maintenance, and keep openings and passageways clear. Changes shall be made in the location of equipment and materials as required to accomplish these purposes without additional claims or charges by the Contractor.

C. The locations of existing concealed lines and connection points have been indicated as closely as possible from available information. The Contractor shall assume that such connection points are within a 10 foot radius of the indicated location. Where connection points are not within this radius, the Contractor shall contact the Architect for a decision before proceeding or may proceed at their own expense.

D. At the beginning of the work, the Contractor shall set aside one complete set of the drawings which shall be maintained as a complete Record Drawings set. The Record Drawings set shall include one set of drawings for the facility conduit plan prepared by this Contractor as described in this specification. Notations shall be done in a neat and legible manner using RED ink as specified in Division 1 and in accordance with the Architect’s instructions.

1. The record drawings shall be updated daily by the foreman to show every change from the original drawings and the exact locations, sizes, and kinds of equipment. This set of drawings shall not be used for any other purpose and shall be maintained at the job site and available for review at any time.
2. Record drawings shall indicate actual size of electrical equipment routing of major raceway systems and location of control devices.
3. The actual location and elevation of all buried lines, boxes, monuments, stub-outs, and other provisions for future connection shall be shown on the record drawings and shall be referenced to the building lines or approved benchmarks.
4. Upon completion of the job, the Contractor shall deliver the Record Drawings marked-up to the Architect.
5. It shall be acceptable to maintain record drawings described herein in an electronic format (PDF) subject to the provisions noted above. Where Record Drawings are maintained in electronic format, they shall be available for review at any time.

E. By the act of submitting a bid, the Contractor shall be deemed to have:

1. Examined the site and familiarized themselves with the conditions affecting the work. No additional allowance shall be granted because of lack of knowledge of such conditions.
2. Verify all measurements at the building and acquaint themselves with the existing conditions before submitting their bid proposal.
3. Examined all architectural, structural, mechanical, and other applicable drawings.
4. Become familiar with the electrical drawings and specifications.
5. Developed an understanding of the electrical system requirements.
6. Discussed the project with the Electrical System Installer and determined that he can successfully execute the electrical work.
7. Accepted such conditions and included allowances for them in their bid.

1.7 ELECTRICAL COST BREAKDOWN

A. Refer to Section 01 29 00.

B. The Contractor shall furnish to the Owner's Representative a breakdown of the electrical construction cost within thirty (30) days of notice to proceed. The breakdown shall be in general conformance with the following:

1. Bonds, Permits, Fees
2. Cartage, Rentals, Shack
3. Supervision
4. Demolition
5. Utility Service Provisions
6. Utility Service Labor

1.8 TEMPORARY ELECTRICAL SERVICES

A. Refer to Section 01 50 00

B. Furnish and install a complete electrical system to provide temporary power, lighting and exit lighting to the project during construction.

C. Temporary electrical power and telephone services for facilities during construction phase shall not be supplied by the permanent system installed under Division 26.

D. Exception

1. Product warranties shall be extended to account for construction use. Contractor shall furnish certified document stating such extended warranties.
2. Contractor shall obtain letter of approval from the Owner stating that they understand equipment expected life might be shortened due to severe usage.

1.9 PAYMENT REQUESTS

A. Refer to Section 01 29 00.

B. Payment requests for materials and equipment will not be reviewed or approved until shop drawings have been received and approved.

1.10 GUARANTEE

A. The electrical equipment and installation shall be guaranteed for a period of one (1) year from date of acceptance unless an individual item or specification is otherwise noted as longer. The Contractor shall make good at their own expense all defects in their work, and/or equipment furnished by them, which shall develop at any time during the one-year guarantee period and shall stand any expense of cutting, patching, and repairing made necessary by their corrections of unsatisfactory work or equipment operation.

1.11 ALTERNATES

A. See Section 01 03 00 for a list of alternates to bid for this project. The Contractor shall include cost of their bid for complete working electrical system as described in the alternates and shown on the drawings.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials used under this Contract, unless specifically noted otherwise shall be delivered to the site new, in their original unbroken packages and shall be of the best quality of their respective kind and shall conform to the latest Standard Specifications of the American Society for Testing Materials, National Electrical Manufacturers' Association, National Board of Fire Underwriters or another appropriate agency. Standard items shall bear the stamp indicating listing by Underwriter's Laboratories, Inc. when such listing is available. Custom-designed items shall be fabricated of UL approved materials.

B. Throughout these specifications various materials, equipment, apparatus, and the like, are specified by manufacturer, brand name, type, or catalog number. Such designations are to establish standards of desired quality and construction and shall be the basis of the bid.

C. Substitutions will be allowed only as herein provided. No substitutions will be permitted without the Architect's written acceptance. Refer to Division 01 of these specifications for additional requirements.

1. All prior acceptance submittals shall be accompanied by a transmittal letter indicating date, project name, product description/type, and deviations from contract documents if any.
2. Present complete photometric data as listed by an independent testing laboratory for all proposed luminaire substitutions. See additional requirements in Section 26 50 00.

3. Subject to the Architect's discretions certain items may be considered for substitution only after samples have been submitted for review.

D. Contractors wishing to bid on equipment other than that listed shall obtain prior acceptance of same. Unless prior acceptance (By Addendum) is issued to all bidders, the Contractor will be held to furnish all items exactly as scheduled and/or specified.

E. Unauthorized product substitution will be removed from the job site and replaced with the specified item at the Contractor's expense.

2.2 EQUIPMENT/MATERIAL SUBSTITUTIONS

A. Throughout these specifications and drawings, various materials, equipment, apparatus, etc., are specified or scheduled by manufacturer, brand name, type, or catalog number. Such designation is to establish standards of desired quality and construction and shall be the basis of design and the bid.

B. Substitutions will not be permitted without written approval.

C. Where two or more manufacturer designations are listed in these specifications, choice will be optional with the Contractor except that where more than one manufacturer is listed, and only one manufacturer's catalog number is specified or only one manufacturer scheduled on the drawings (basis of design) that standard of quality, dimensional characteristics, capacities, and construction shall be maintained by materials or equipment supplied by the other manufacturer(s).

D. If the Division 26 Contractor uses manufacturers other than the basis of design, the Contractor shall be responsible for:

1. Insuring the substituted item will fit the available space while allowing proper maintenance access.
2. Any changes required by other Contractors caused by the substituted equipment.

E. In the event other than specified equipment is used and will not fit job site conditions, this Contractor assumes responsibility for replacement with items indicated as the basis of design.

F. See specifications Section(s) 01 60 00 and 01 63 00 for product prior approval requirements.

2.3 OWNER FURNISHED EQUIPMENT AND MATERIALS

A. The Contractor shall accept and become responsible for all Owner furnished equipment and materials. Inspect all equipment and materials to determine suitability for installation. Immediately notify the Owner of any defects or deficiencies. Failure to notify the Owner shall mean that the Contractor warrants that all equipment and materials are of the proper quantity, design and are free from all defects. Store all equipment and materials properly.

2.4 SUBMITTALS FOR REVIEW

A. Shop Drawings

1. Refer to Section 01 30 00.
2. Shop drawings, catalog information and material schedules shall be submitted for approval on all materials and equipment prior to ordering. This applies to all specified material and equipment in Division 26.

3. Provide specific wiring diagrams for all equipment requiring electrical or control wiring. Upon approval, copies of these diagrams shall be forwarded to pertinent contractors.
4. Prior to construction, a facility conduit plan shall be submitted for review showing the routing of all conduits and the mounting of the conduits, (e.g., below grade, concealed, surface mounted, etc.), the locations of all junction boxes, and the devices or equipment the conduits serve and where the conduits are terminated. Depict the location of all proposed access hatches on conduit plan. Shop drawing submittal shall be the same size as the contract documents and shall show the floorplan scaled at 1/8 inch = 1 foot.
5. Shop drawing shall be generated using a computer aided drafting program; as-built drawings and .DWG or .DXF files of the facility conduit plan shall be delivered to the Architect. CAD floorplans of the contract documents will be provided by the Owner's representative on a thumb-drive or transmitted electronically to the Electrical Contractor in .DWG format only after completion of an "Consent for the Release of Electronic Files" (forwarded by the Owner's representative on request).

B. All submittals shall be electronic unless specifically noted otherwise and are subject to all the following conditions. Submittals which do not comply with all these conditions will be rejected.

1. Electronic submittals shall be submitted in the current version of Adobe Portable Document Format (PDF)
2. Submittals shall be original PDFs of the document and shall not be created using scanned copies of paper documents.
3. PDF documents shall be searchable.
4. Optical character recognition (OCR) shall be run prior to transmission to ensure all text appears as text and not an image.
5. Electronic submittals shall be separated by specification section and identified as such. Submittals which combine multiple sections into a single document will be rejected.
6. Electronic submittals shall include a table of contents and each applicable section shall be bookmarked for easy access.
7. Electronic submittals shall be clearly marked in RED using boxes and arrows and other appropriate markings to indicate specific product information, option selections, accessories, etc.
8. Include only information relevant to this project in the submittals. Irrelevant or extraneous product information shall be identified and removed from documents prior to submitting.

C. The Contractor shall incorporate sufficient time for the submittal process in their project schedule. Allow a minimum of (10) business days for submittal review. Time shall begin on the first full business day following receipt of submittals by the engineer and end on date of return of submittals by the engineer. No additional consideration or compensation shall be granted the Contractor due to failure to allow sufficient time in their schedule for the submittal and review process.

D. Furnish complete shop drawing/catalog data for equipment and materials to be used in the work for review. Allow sufficient time for developing shop drawings, processing, and review time so that the installation will not be delayed.

E. Shop drawings shall be reviewed, approved, and stamped by the Contractor prior to submitting to Owner's Representative for approval. Submittals without such approval will be returned without review.

F. Submit data in accordance with Section 01 30 00 and in accordance with this section. Data shall be black and white, on 8½×11 inch or 11×17-inch, single, one-sided sheets. Diagrams and drawings larger than 8½×11inch shall be accordion folded to fit in a three-ring binder.

G. Where choices of options and accessories are available or specified, provide a written description of what is to be furnished. If necessary, list page numbers where submitted items are described.

H. If material or equipment is not as specified or submittal is not complete, it will be rejected. Only complete submittals including all applicable specification sections will be reviewed.

I. Catalog data or shop drawings for equipment that are noted as being reviewed shall not supersede Contract Documents.

J. Review comments shall not relieve Contractor from responsibility for deviations from Contract Documents unless attention has been called to such deviations in writing at time of submission, nor shall they relieve this Contractor from responsibility for errors in items submitted.

K. Check work described by catalog data with Contract Documents for deviations and errors.

PART 3 - EXECUTION

3.1 GENERAL

A. Workmanship shall be of first quality throughout and shall be in complete accordance with the applicable codes.

3.2 SCHEDULING

A. This Contractor is advised that the work on this project is phased to suit the requirements of the Owner. During construction, it may be necessary to make temporary connections or installations to accommodate the phased nature of the work. Some work may need to be installed and then reinstalled to satisfy the operational requirements of the Owner. Power changeover for existing loads shall be made in the smallest possible increments with branch circuit by branch circuit re-connection required wherever possible.

B. The controlling issue governing the work described under Division 26 shall be: DE-ENERGIZING OF ANY FEEDER, SWITCHBOARD, PANEL, BRANCH CIRCUIT OR OTHER EXISTING ELECTRICAL DEVICE OR ITEM SHALL BE AFFECTED ONLY AFTER NOTIFICATION AND SCHEDULING WITH THE OWNER'S PROJECT COORDINATOR.

C. The Contractor shall prepare written proposed schedules for all systems, feeders, panels, and branch circuits to be de-energized and submit same to the Owner's Project Coordinator fourteen (14) days in advance of the first schedule item for acceptance. Schedules shall include at least the following:

1. Specific load to be de-energized.
2. Proposed date and time to be de-energized and re-energized.
3. Backup plan should an emergency occur during the outage period (for critical loads)

D. Schedules proposed by the Contractor are subject to adjustment by the Owner.

E. The Contractor is advised that the above notification and scheduling requirement may necessitate rescheduling, partial completion and re-connection, overtime work at night or on weekends or delay of the work. Contractor costs incurred due to the above shall be included in the original bid price and shall not be the cause for additional claims or charges to the Owner.

3.3 COORDINATION, INSERTS AND OPENINGS

A. This installation requires extensive interfacing. It is the responsibility of the Contractor to clarify any questions or discrepancies with the Architect and to ascertain and verify installation conditions about which he is unsure prior to commencing work. Further, during the entire construction period, coordinate, verify and confirm that related work by other trades is done in a manner that will not complicate or compound the electrical system's work.

B. Locations of devices, outlets, fixtures, equipment, and the like. as shown on the drawings are approximate unless dimensioned. Exact locations of such items shall be determined by the Architect's representative or secured from special details and drawings. The Contractor shall insure that no switches or other electric control devices are mounted such that they are trapped behind open door swings or otherwise rendered inaccessible.

C. Obtain rough-in and connection dimensions as required for power, control and grounding connections to equipment items that require electrical connection.

D. Verify the physical dimensions of each item of electrical equipment to fit the available space and promptly notify the Architect/Engineer prior to roughing-in if conflicts appear. Coordination of equipment in the available space and to the access routes through the construction shall be the Contractor's responsibility.

E. Provide inserts for hangers, brackets, clamps, and the like. as required to support boxes, raceways, cables, fixtures, equipment, etc. Coordinate location and routing to avoid interference with the work of other trades. Method of insert placement shall suit the type of construction into which the inserts are to be installed.

F. Furnish and install sleeves and block-outs required for openings in the structure needed to install the electrical work. The responsibility for proper placement of sleeves and block-outs shall be with the Contractor.

G. Openings for electrical work shall be carefully caulked or grouted as required. Spare conduits shall be tightly capped.

H. All roof and exterior wall penetrations shall be flashed and counter-flashed watertight. Caulking shall be equal to General Electric silicone construction sealants.

I. Provide access hatches where required for access to junction boxes, electrical equipment, electrical connections, and the like. which require maintenance or access. Coordinate access hatch locations and finishes with architect prior to installation. Route and locate all concealed electrical assemblies to minimize the required access hatches.

3.4 CUTTING AND PATCHING

A. Cutting concrete or other building materials shall be avoided where possible. The Contractor shall have a workman present at the pouring of concrete and at the building of any masonry that contains electrical work.

B. All cutting and patching of new and existing construction required for the installation of systems and equipment specified in Division 26 shall be the responsibility of the Division 26 Contractor. All cutting shall be accomplished with masonry saws, drills, or similar equipment to provide neat uniform openings.

C. Patch and repair walls, floors, ceilings, and roof with materials of same quality and appearance as adjacent surfaces unless otherwise shown. Surface finishes shall exactly match existing finishes of same materials. All patching shall meet the approval of the Owner's Representative.

D. All cutting and patching made necessary to repair defective equipment, defective workmanship or by neglect of this Contractor to properly anticipate their requirements shall be included in Division 26.

E. Cut carefully to minimize necessity for repairs to existing work. Do not cut beams, columns, or trusses or other structural members without the Owner Representative's written approval.

F. Cutting, patching, repairing, and replacing pavement, sidewalks, roads, and curbs to permit installation of work specified or indicated under this Division is responsibility of Division 26.

3.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. See Section 01 60 00 for additional requirements.

B. Follow manufacturer's directions in delivery, storage, protection, and installation of equipment and materials.

C. Promptly notify Owner's Representative in writing of conflicts between requirements of Contract Documents and manufacturer's directions and obtain written instructions from Owner's Representative before proceeding with work. The Contractor shall bear expenses arising from correcting deficiencies in work that do not comply with manufacturer's directions or such written instructions from Owner's Representative.

D. Deliver equipment and material to site and tightly cover and protect against dirt, water, and chemical or mechanical injury but have readily accessible for inspection. Store items subject to moisture damage (such as controls) in a dry, heated space.

E. Notify Owner of equipment delivery dates, twenty-four (24) hours in advance of delivery.

F. The Contractor shall be responsible for the protection of equipment furnished in this Division from vandalism and weather during all phases of construction. Damaged equipment shall be restored to like new condition or replaced at the Contractor's expense.

G. Any factory painted equipment scratched or marred during shipment or construction shall be restored to original "new" condition. This includes complete repainting if necessary to provide an exact paint match.

3.6 EXCAVATION AND BACKFILL

A. The Contractor shall include in their bid the complete excavation and backfill cost required to install the electrical work as specified under Division 26 of this specification and that of the utilities affecting the electrical work. The Contractor shall provide all necessary excavation, shoring and backfilling required for the proper installation of their work, whether inside the building and premises, or outside as may be necessary.

B. Locate existing underground utilities in excavation areas. If utilities are indicated to remain, support, and protect services during excavation operations.

C. Where rock is encountered, carry excavation below required elevation and backfill with a layer of crushed stone or gravel prior to installation of raceways and equipment. Provide a minimum of 6 inches of stone or gravel cushion between rock bearing surface and electrical installations.

D. Dewater: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

1. Do not allow water to accumulate in excavations. Remove water to prevent softening of bearing materials. Provide and maintain dewatering system components necessary to convey water away from excavations.
2. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey surface water to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

E. No underground lines shall be covered until the installation has been viewed by inspectors having jurisdiction and the Engineer. Trenches near or under footings or utility tunnels shall be cut only after approval of the Architect/ Engineer. The backfilling of such trenches shall be in accordance with Architect/Engineer's directions.

F. Grading which will in any manner affect the bearing capacity of the soil foundation upon which will be placed floor slabs, walls, columns, footings, pipe beds, and external backfill under paved areas shall be performed in accordance with the requirements in Division 02 and the following specifications:

1. Compaction testing shall conform to ASTM 1557 modified proctor.
2. Compact to:

    a. 95 % density for fills under all interior and exterior concrete slabs, in all streets, and where lines are buried 10 feet or more.
    b. 90 % density elsewhere.

G. Approved site material not containing rocks more than 4 inches in diameter may be used for compacted backfill in amounts available. Additional approved backfill materials shall be furnished by the Contractor. No cinders shall be used for backfilling material.

H. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

I. Compact carefully against foundation, basement and retaining walls so as not to create excessive pressure on walls. Backfilling shall be compacted in lifts not to exceed 8 inches.

J. Excess earth shall be removed from the site and disposed of by the Contractor at their expense.

K. Prevent spillage during hauling operations. In case of spills, clean streets by means of proper sweepers or other approved methods.

L. Protect adjoining properties, existing sidewalks and other improvements that remain. If damaged, repair or replace as directed by the Architect.

M. Proper approvals shall be obtained in accordance with applicable City, County and/or State regulations.

N. All safety regulations must be observed.

O. Where subsidence occurs at electrical installation excavations during the period twelve (12) months after project completion, remove surface treatment (i.e., pavement, lawn, or other finish), add backfill material, compact to specified conditions, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent areas.

P. Surface Restoration: Once trenching, excavation and backfill activities are complete, fully restore the surface in accordance with architectural and civil drawings and specification requirements. Submit to the architect on proposed surface treatment for approval prior to commencing work.

3.7 PROTECTION AND CLEANING

A. The Contractor shall provide adequate means for protection and shall fully protect all material and equipment against damage from any causes during the progress of the work and until approval by the Architect.

B. All material and equipment, both when in storage and during construction, shall be covered in such a manner that no finished surfaces will be damaged, marred or splattered with plaster or paint, and all electrical conductors, buses and connections, electronic components and moving parts shall be kept clean and dry.

C. All damaged material or equipment, including face plates of panels and switchboard sections, shall be replaced, or refinished by the manufacturer at no additional expense to the Owner.

D. During the progress of the work, the Contractor shall clean up after their workers and shall leave the premises and all portions of the building in which he is working free from their debris.

E. Provide and maintain suitable barriers, protective devices, lights, and warning signs where required for protection of the public and employees about the building and site.

3.8 VISITING THE PROJECT SITE

A. Examine premises and understand the conditions that may affect the performance of work of this Division before submitting proposals for this work.

B. No subsequent allowance for time or money will be considered for any consequence related to failure to examine existing site conditions.

3.9 TESTS

A. See individual specification sections for Testing Requirements.

END OF SECTION 26 01 01

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SECTION 26 01 02

PROJECT FINALIZATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Operation and Maintenance Manual

B. Operation and Maintenance Training/Startup

C. Spare Parts/Maintenance Materials

D. Warranties

E. Final Cleaning

F. Record Drawings

G. Punch List Procedures

H. Maintenance Services

1.2 RELATED SECTIONS

A. Refer to Section 01 70 00 - Contract Closeout

B. Section 26 01 01 - Basic Electrical Requirements

1.3 OPERATION AND MAINTENANCE MANUAL

A. Bind final copies of the Operation and Maintenance Manual for Electrical Systems in a black three-post, hard-backed binder imprinted in gold lettering with the job title, date, Engineer, Architect and Contractor names. The work shall be done in a print shop or bindery.

1. Provide a master index at the beginning of the Manual showing items included. Use plastic index tabs for the end section of the Manual.
2. First section shall consist of name, address, and phone number of Architect, Mechanical and Electrical Engineers, General Contractor, and Electrical Contractors.
3. Provide a separate section for each section of the specifications. Provide an index for each section listing equipment included.

B. Product literature, catalog cuts, etc. shall be clean copies. FAX or other poor-quality prints will not be acceptable.

C. Submit one (1) electronic copy of Operation and Maintenance Manual to Owner's Representative for review. After this review and final approval of the manuals, prepare two (2) hard copies of approved manuals for use during the instruction period. Following the instruction period, turn over both copies to the Owner.

D. In general, the following shall be included in the Operation and Maintenance Manual for each electrical equipment item:

1. List of electrical equipment used to indicate name, model, serial number, and name plate data of each item together with number and name associated with each system item as indicated on the drawings.
2. Manufacturer's maintenance instructions: Instructions shall include name of vendor, installation instructions, parts numbers and lists, operation instructions of equipment, and maintenance and lubrication instructions.
3. Step-by-step procedure to follow in putting each piece of electrical equipment into operation
4. Wiring diagram for each specific equipment item
5. Refer to individual specification sections for additional information required to be incorporated into the Operation and Maintenance Manual.

E. Include the following additional items in the O&M Manual:

1. Summary list of spare equipment parts furnished under this contract.
2. Signed checklist of Instruction Period
3. Copies of specific product Warranties
4. Electrical identification schedules

1.4 OPERATION AND MAINTENANCE TRAINING/STARTUP

A. Upon completion of the work, the Contractor shall assemble the Electrical Systems Installer and any subcontractors together with factory representatives for system start-up and demonstration. These people shall assist in start-up and check out each system and remain at the site until the total electrical system operation is acceptable and understood by the Owner's designated maintenance and/or operation personnel. The Electrical System Installer or a subcontractor or factory representative designated by them shall also give personal instructions on operation and maintenance of the electrical equipment to the Owner's maintenance and/or operation personnel.

B. Provide a video record of the training sessions conducted and furnish copies to the Owner and Engineer. A professional shall record the training sessions to provide a HD 1080 quality video that the Owner can use to train future employees or refresh their operating personnel in the system operation and maintenance. Use a current and widely used video format such as AVI, FLV, WMV, MOV, MP4, etc. as acceptable to owner. Deliver video files on DVD, thumb-drive, or other portable storage media as acceptable to owner.

C. To prove acceptance of operation and instruction by the Owner's representative, the Contractor shall prepare a written statement of approval detailing it for their signature. The statement shall read as follows:

> "I, the Contractor, together with the Electrical Systems Installer and the associated factory representatives, have started each system and the total electrical system, and have demonstrated their normal operation to the Owner's representative and have instructed them in the operation and maintenance thereof."

Owner's Representative	Contractor

Electrical System	Demonstrated By/Witnessed By	Instruction Time Allotment	Date
Demonstrate Operation and Instruct Owner in Maintenance of General Electrical System	/	2.0 hrs	
Written Guarantee Received	/		
O&M Manuals Received	/		
As-Built Drawings Received	/		

1.5 SPARE PARTS/MAINTENANCE MATERIALS

A. Provide a summarized list of spare parts that are to be furnished. Incorporate into O&M Manual.

B. Refer to individual specification sections for spare parts to be furnished under this contract.

C. Turn spare parts and materials over to Owner.

1.6 WARRANTIES/GUARANTEES

A. The Contractor shall guarantee all work to be free from defects in material and workmanship for a period of one (1) year. See General Conditions for beginning of guarantee period. The Contractor shall make good at their own expense all defects in their work and/or equipment furnished by them, which shall develop at any time during the one (1) year guarantee period and shall stand any expense of cutting and patching and repairing made necessary to correct unsatisfactory work or equipment operation.

B. Exceptions - incandescent lamps shall be guaranteed for a period of one month.

C. The manufacturer’s warrantee certificates shall be included in the Operation & Maintenance Manuals for equipment that is warranted by the manufacturer for a period greater than one year.

1.7 CLEAN-UP

A. Clean up all equipment, materials, cartons, and other debris that is a direct result of the installation of equipment under this contract.

B. Clean exposed conduits, equipment, and fixtures. Repair damaged finishes and leave everything in working order.

C. Remove stickers and residue from fixtures and electrical equipment.

D. Remove debris and vacuum dust out of all panels, switchboards and other equipment and enclosures installed or modified under this project.

1.8 RECORD DRAWINGS

A. Record differences between electrical work as installed and as shown in Contract Documents, on a set of prints of electrical drawings to be furnished by Owner's Representative. Return these prints to Owner's Representative at completion of Project. Notations made on drawings shall be neat and legible and made using **RED** ink. These drawings shall not be used for any other purposes.

B. Refer to individual specification sections for additional requirements.

1.9 PUNCH LIST PROCEDURES

A. The Contractor shall notify the Owner's Representative in writing when the project is ready for punch lists. After punch lists are complete, written notice must be forwarded to the Owner's Representative requesting final checkout. Any additional trips by the Engineer to the site for punch list verification that become necessary due to items on previous punch lists that have not been completed at the time of the final checkout will be billed to the Contractor at normal rate plus travel expenses.

B. At the time of punch list and final project checkout, the project foreman shall accompany the Engineer and remove cover plates, panel covers and other access panels to allow complete review of the entire electrical systems.

1.10 MAINTENANCE SERVICES

A. Provide separate manual describing specific maintenance services to be provided as required under specific specification sections.

END OF SECTION 26 01 02

SECTION 26 01 60

ELECTRICAL DEMOLITION FOR REMODELING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Phased remodel construction

B. Demolition and salvage

1.2 RELATED SECTIONS

A. Section 01 12 00 - Alteration Project Procedures

B. Section 02 41 19 - Minor Demolition for Remodeling

C. Reference Section 26 01 01

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in individual Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify field measurements and circuiting arrangements are as shown on drawings.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Demolition drawings are based on casual field observation and existing record documents. Report discrepancies to the Architect/Engineer before disturbing existing installation.

D. Beginning of demolition means installer accepts existing conditions.

3.2 PREPARATION

A. Coordinate utility service outages with Utility Company.

B. Provide temporary wiring and connections to maintain existing systems in service during construction. When the work must be performed on energized equipment or circuits, use personnel experienced in such operations.

C. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable the system only to make switchovers and connections. Reference Section 26 01 01 - Scheduling. Make temporary connections to maintain service in areas adjacent to work area.

D. Existing Fire Alarm System: Maintain existing system in service until new system is complete and ready for service. Disable the system only to make switchovers and connections. Reference Section 26 01 01 - Scheduling. Make temporary connections to maintain service in areas adjacent to work area.

E. Existing Telephone System: Maintain existing system in service until new system is complete and ready for service. Disable the system only to make switchovers and connections. Reference Section 26 01 01 - Scheduling. Make temporary connections to maintain service in areas adjacent to work area.

3.3 DEMOLITION OF EXISTING ELECTRICAL WORK

A. Remove existing electrical equipment including switchgear, panels, and disconnect devices, conduit, and wiring, unless specifically indicated to remain. Completely remove such equipment from the site and properly dispose of it, unless specifically instructed otherwise.

B. Remove conduit as required to accommodate work of other trades. The Contractor may reuse the remaining existing branch circuit conduits to the extent possible. Provide proper support and bonding.

C. Remove inactive and abandoned raceways except raceways embedded in floors and walls, and raceways completely concealed above ceilings, may remain if such materials do not interfere with new installations.

D. Remove inactive and abandoned wire including disconnected circuits and circuits from all terminal devices or loads removed under this project.

E. Patch and repair finishes to match existing finishes for all openings left in existing construction by removal of existing equipment.

F. If during demolition, existing active services are encountered they shall be relocated as required to accommodate the remodeling. The continuity of said services shall always be maintained, except as provided under Section 26 01 01 - Scheduling.

3.4 RELOCATION OF EXISTING EQUIPMENT

A. Relocate existing electrical equipment as indicated on the drawings. Equipment to be relocated shall be serviced and repaired as necessary to place in good working order and to the satisfaction of the Architect/Engineer. Relocated equipment shall be disconnected and completely reconnected to required services at the new location.

B. Cap off and abandon or remove existing services as required where existing equipment is disconnected or removed.

3.5 EXISTING UTILITIES AND PIPING

A. The locations of existing concealed lines and connection points have been indicated as closely as possible from available information. The Contractor shall assume that such connection points are within a 10 foot radius of the indicated location. Where connection points are not within this radius, the Contractor shall contact the Owner’s Representative for a decision before proceeding or may proceed at their own expense.

B. Connection points to existing work shall be located and verified prior to starting new work.

1. Prior to commencing any excavation or ditching activity, the Contractor shall verify the exact location and inverts of all existing utilities and connection points around their proposed excavation. Notify Owner's representative for further direction if actual inverts will not allow the proper installation of new work.
2. The Contractor shall be responsible for damage that might be caused by their failure to exactly locate and preserve underground utilities.

3.6 CUTTING AND PATCHING

A. Reference paragraph 26 01 01, 3.4 Cutting and Patching.

END OF SECTION 26 01 60

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SECTION 26 05 26

GROUNDING AND BONDING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Grounding electrodes and conductors

1.2 REFERENCES

A. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems (International Electrical Testing Association)

B. NFPA 70 - National Electrical Code

C. UL 467 - Grounding and Bonding Equipment

D. IEEE 142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems

1.3 PERFORMANCE REQUIREMENTS

A. Maximum Grounding System Resistance: **10 ohms**

1.4 SUBMITTALS FOR REVIEW

A. Submit under provisions of Section 26 01 01.

B. Product Data: Provide data for grounding electrodes and connections, installation details, dimensioned plan view drawings of the buildings showing the grounding system, and criteria for system test and acceptance. At a minimum, said drawings shall show the type and location of all conductors, fasteners, splices and connectors, and all ground terminals. Submittal shall include design criteria and calculations for any deviations from these specifications.

C. Submit documentation of grounding system installation as described in this specification. Engineer approval of grounding system installation through the submittal process is required for substantial completion.

1.5 PROJECT FINALIZATION

A. Submit under provisions of Section 26 01 02.

B. Operation and Maintenance Data: Include manufacturer’s descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.

C. Warranty: Submit manufacturer’s warranty and ensure forms have been completed including the Owner’s name and registered with the manufacturer.

1.6 OPERATION AND MAINTENANCE DATA

A. Section 01 70 00 - Contract Closeout: 01 73 00 - Operation and Maintenance Data: 01 74 00 - Warranties: Procedures for submittals

B. Project Record Documents: Record actual locations of components and grounding electrodes.

C. Certificate of Compliance: Indicate approval of installation by authority having jurisdiction.

1.7 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Product: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2 - PRODUCTS

2.1 ROD ELECTRODES

A. Manufacturers:

B. Thomas & Betts

1. Erico/Caddy/Pentair
2. Harger
3. Galvan Industries, Inc.
4. Approved equal

C. Material: Copper-clad steel

D. Diameter: 5/8 inch diameter

E. Length: 8 feet long for pad-mount transformers and light poles, 10 feet long unless otherwise indicated.

2.2 CONNECTORS

A. Materials: Fasteners:

B. Splices and connectors shall be of the irreversible crimp type.

C. Splices and connectors shall be specifically designed for the application and the materials to be spliced.

D. Manufacturers:

E. Cable Connectors: Burndy Hyground, T&B Blackburn and Harger or equal.

F. Pipe Clamp Connectors: Thompson Lightning Protection, Inc. Models #803, #804, and #805, or equal.

G. Rebar Clamps: As manufactured by Burndy Hyground, T&B Blackburn and Harger or equal.

H. Grounding Rod Clamps: As manufactured by Burndy Hyground, T&B Blackburn and Harger or equal.

2.3 EXOTHERMIC CONNECTIONS

A. Exothermic fusion welds are not permissible unless indicated otherwise.

2.4 WIRE

A. Material: Stranded copper

B. System grounding electrode conductors and bonding conductors shall be stranded-type single conductors, with 600-volt insulation, sized to meet NFPA 70 requirements, as manufactured by General Cable, Rome, Southwire, or Triangle.

C. Bonding conductors, except rebar bonding conductors at ground terminals, shall be cable assemblies of 14 strands of 17 AWG copper wire assembled in a braided smooth twist resulting in ¼ inch diameter cable of 28,500 circular mil cross-sections with a net weight of 92 pounds per 1000 linear feet.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that final back fill and compaction has been performed before driving rod electrodes.

3.2 GENERAL

A. Grounding conductors shall be **COPPER** in all cases - no exceptions.

B. Exothermic fusion welding is not permissible, except where specifically accepted by the Engineer. Where used, exothermic welds shall comply with the following requirements:

1. Prepare welding contact surfaces by cleaning the surface with a file and/or carbide burr.
2. Use only molds of the proper size and type (e.g., wire-to-wire, wire-to-rebar, wire-to-rod, and the like.) for each weld.
3. Molds used shall be in good condition and shall be used no more than fifty (50) total welds before disposing. Molds with chips, voids, or other defects are unacceptable and are not permissible.
4. Heat mold before making the first weld to remove moisture.
5. Completed welds shall be subject to inspection and hammer blows to determine mechanical integrity. Welds that cannot withstand blows from a 3 to 4-pound hammer shall be removed and replaced at the Contractor’s expense.
6. If galvanizing or paint removal occurred to prepare contact surfaces, restore finish after completion and inspection of welds.

    a. Restore galvanized surfaces by spray application of zinc coating, equal to Osborn #76-245.
    b. Restore painted surfaces by one prime coat followed by two (2) coats of fresh paint.

c. Secure grounding bars, lugs, and the like, to the enclosure with a machine screw having not less than 32 threads per inch and specifically designed and listed for grounding applications.
d. Utilize bonding bushings on the connector threads where raceways enters enclosures through concentric knockouts. Bond all bonding bushings in the enclosure with a wire sized per NEC.

3.3 SERVICE GROUNDING

A. Utility transformer grounding shall be accomplished by installation of a #4/0 bare copper grounding grid as follows:

1. Drive one (1) 5/8 inch × 8 foot copper-clad steel ground rod such that when the installation is complete this ground rod extends 3 inches above the vault floor under the high voltage compartment.
2. Drive one (1) 5/8 inch × 8 foot copper-clad steel ground rod like the above except under the low voltage compartment.
3. Drive one (1) 5/8 inch copper-clad steel ground rod at each of the four corners of the transformer pad, 6 inches outside the concrete pad edge to a depth such that the top of each ground rod is approximately 6 inches below finished grade.
4. Provide a #4/0 bare, stranded copper conductor connecting the corner ground rods together in a girdle of rectangular pattern, approximately 6 inches outside the concrete pad edge. Provide another #4/0 bare stranded ground conductor connecting this girdle to the ground rods under the high and low voltage terminating compartments of the transformer. Connect the conductors to the ground rods at the elevation between natural earth and gravel sub-base.
5. Maximum ground resistance of as specified in section 1.4 of this specification shall be provided by supplementing the grounding methods specified herein as required. Ground resistance shall be measured in normally dry conditions at least forty-eight (48) hours after rainfall.

B. Ground the neutral of the secondary electrical system at the service equipment. A grounding electrode system shall be formed by bonding to metallic water lines and foundation reinforcing bars. In addition, the metal frame of the building, where applicable, shall be bonded to the grounding electrode system. Grounding connections made to the water systems shall be coordinated with the Mechanical Contractor and bonding jumpers shall be installed wherever deemed necessary.

C. Where the metallic water lines or the foundation reinforcing bars are not suitable for use as grounding electrodes as controlled by local requirements, provide multiple copper-clad ground rods. A minimum of four (4) ground rods shall be provided and shall be connected in a loop in such instances. Do not abandon the ground connection to the cold-water system even if it is not to be used as the primary grounding electrode.

D. The secondary electrical system ground shall consist of copper grounding electrode conductors, sized per the drawings, and installed in a rigid steel conduit which shall be routed to the system grounding electrodes in the most direct manner. Connect the conduit and the conductor to the grounding electrode with a malleable iron conduit hub and a two-bolt ground clamp approved for the purpose.

3.4 DOCUMENTATION

A. The contractor shall perform the following inspections and documentation of the grounding system prior to covering up connections:

1. After installation and prior to covering connections, photograph the entire grounding system installation. Include close-up photos to document critical system connection points.
2. Mark-up a set of drawings in PDF to indicate the photograph number and location of the photo for reference. Photographs shall be numbered and neatly assembled in a PDF or similar document having not more than (2) photographs per page. Submit this document to the engineer for review and approval. Approval of this submittal is required for substantial completion. Include this documentation along with the photographic record in the project O&M manuals.

3.5 TESTING

A. After installation, fully evaluate the grounding electrode systems for system conductivity and ground terminal resistance-to-earth.

B. Tests shall be performed using the three-point fall of potential test method and suitable test equipment in accordance with IEEE Standard 81 and other applicable standards.

C. Include the test report in the Operation and Maintenance Manual.

END OF SECTION 26 05 26

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SECTION 26 05 30

CONDUIT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Metal conduit

B. PVC coated metal conduit

C. Rigid plastic conduit

D. Fittings and conduit bodies

1.2 RELATED SECTIONS

A. Section 26 05 26 - Grounding and Bonding

B. Section 26 05 43 - Duct Bank

C. Section 26 05 53 - Electrical Identification

1.3 REFERENCES

A. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated

B. ANSI C80.3 - Electrical Metallic Tubing, Zinc Coated

C. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies

D. ANSI/NFPA 70 - National Electrical Code

E. NECA “Standard of Installation”

F. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit

G. NEMA TC 2 - Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80)

H. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing

1.4 DESIGN REQUIREMENTS

A. Conduit Size: ANSI/NFPA 70

1.5 SUBMITTALS

A. Product Data: Provide data for metallic conduit, flexible metal conduit, liquidtight flexible metal conduit, metallic tubing, nonmetallic conduit, flexible nonmetallic conduit, nonmetallic tubing, fittings, conduit bodies, and fire sealants.

B. Prior to construction, a facility conduit plan shall be submitted for review showing the routing of all conduits and the mounting of the conduits (e.g., below grade, concealed, surface mounted, etc.), the locations of all junction boxes, and the devices or equipment the conduits where the conduits are terminated. Shop drawing submittal shall be the same size as the contract documents and shall show the floorplan scaled at 1/8 inch = 1 foot. Shop drawing shall be generated using a computer aided drafting program; as-built drawings and .DWG or .DXF files of the facility conduit plan shall be delivered to the Architect. CAD floorplans of the contract documents will be provided by the Owner's representative on CD-ROM to the electrical Contractor in .DWG or format only after completion of a "Consent for the Release of Electronic Files" (forwarded by the Owner's representative on request).

1.6 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 70 00.

B. Accurately record actual routing of conduits larger than 1 inch.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle Products to site under provisions of Section 26 01 01.

B. Accept conduit on site. Inspect for damage.

C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

D. Protect PVC conduit from sunlight.

1.8 PROJECT CONDITIONS

A. Verify that field measurements are as shown on drawings.

B. Verify routing and termination locations of conduit prior to rough-in.

C. Conduit routing is shown on drawings in approximate locations unless dimensioned. Route as required to complete the wiring system.

PART 2 - PRODUCTS

2.1 METAL CONDUIT

A. Manufacturers:

1. Allied Tube and Conduit
2. Republic Conduit
3. Western Tube and Conduit

4. Wheatland Tube
5. Approved Equal

B. Rigid Steel Conduit: ANSI C80.1

C. Rigid Aluminum Conduit: ANSI C80.5

D. Intermediate Metal Conduit (IMC): Rigid steel

E. Fittings and Conduit Bodies: ANSI/NEMA FB 1; Threaded galvanized or cadmium plated steel fittings. Bushings shall have nylon insulated throats.

2.2 PVC COATED METAL CONDUIT

A. Manufacturers:

1. RobRoy Industries
2. Thomas & Betts Ocal
3. Approved Equal

B. Description: NEMA RN 1; rigid steel conduit with external PVC coating, 20 mil thick

C. Fittings and Conduit Bodies: ANSI/NEMA FB 1; Threaded galvanized or cadmium plated steel fittings. Bushings shall have nylon-insulated throats. All steel fittings shall have an external PVC coating to match conduit.

2.3 ELECTRICAL METALLIC TUBING (EMT)

A. Manufacturers:

1. Allied Tube and Conduit
2. Republic Conduit
3. Western Tube and Conduit
4. Wheatland Tube
5. Approved Equal

B. Description: ANSI C80.3; galvanized tubing

C. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel, set screw for indoor locations and rain tight compression type with nylon insulated throats on connectors for outdoor locations.

2.4 RIGID PLASTIC CONDUIT

A. Manufacturers:

1. Carlon
2. Cantex
3. Allied
4. Approved Equal

B. Description: NEMA TC 2; Schedule 40 PVC

C. Fittings and Conduit Bodies: NEMA TC 3

2.5 CONDUIT WITH INNERDUCTS

A. Manufacturers:

1. Carlon, Optic-Gard/PE, No 13109
2. Approved Equal

B. Description: NEMA TC 2

C. Fittings and Conduit Bodies: NEMA TC 3

PART 3 - EXECUTION

3.1 INSTALLATION

A. Primary service and secondary service entrance conduit types shall be any combination of the following:

1. Rigid metal conduit for exposed, concealed, underground or under slab runs.
2. Rigid nonmetallic conduit with a separate ground wire for underground, or under slab on grade, runs.

B. Feeder conduit types shall be as follows:

1. Rigid metal conduit for exposed, underground or under slab runs.
2. Intermediate metal conduit in walls, above ceilings, in poured concrete or in masonry, except for runs in hazardous locations.
3. Electrical metallic tubing with separate ground wire in non-masonry/concrete walls or above ceilings, except for runs in hazardous locations.
4. Rigid nonmetallic conduit with a separate ground wire for underground or under slab on grade runs, except runs in hazardous locations.

C. Conduits shall be sized in accordance with the applicable codes except where larger conduits are called for on drawings. Sizes shown on the drawings are based on the use of rigid metal conduit and copper conductors with THW insulation unless noted otherwise.

D. Do not install conduit in poured concrete or masonry walls or slabs without the Architect’s approval.

E. All conduit penetrations of structural elements or conduits run within masonry walls or slabs shall be approved by the Architect in advance of installation.

F. Conduits run in masonry shall be placed at least 1 inch from the surface. Care shall be taken to avoid placing conduits where they will be subjected to excessive heat.

G. Conduit ends shall be capped using standard capped bushings or steel “pennies” and bushings to prevent entrance of foreign materials during construction.

H. Rigid conduit and IMC shall be reamed after threads are cut. Joints shall be cut square and shall butt solidly into couplings. Running threads will not be permitted. The cut ends of EMT shall also be reamed.

I. Bends in rigid conduit, IMC and EMT runs larger than 1¼ inch shall be of factory-made elbows unless otherwise specifically approved. Bends in 1¼ inch and 1 inch runs shall be made in an approved bending machine (or factory made). Hickey bends will not be permitted in conduits larger than ¾ inch. Bends shall not show flattening.

J. The radius of the inner edge curve of any field bend shall not be less than indicated in the following table:

Conduit Size (inches)	Inside Radius (inches)
½	4
¾	5
1	6
1¼	8
1½	10
2	12
2½	15
3	18
3½	21
4	24

K. Where conduit runs are 100 feet or longer or contain the equivalent of four (4) 90-degree bends, pull/junction boxes shall be provided. Pull box locations shall be indicated on the as-built drawings.

L. Provide a #12 AWG copper pull wire or a polyethylene pull rope rated at 250 pounds (minimum) tensile strength in each conduit left empty for future use.

M. Conduits containing innerducts shall consist of a four-inch PVC Schedule 40 outer conduit (underground) or RGS (above ground or indoors), with three 1¼ inch ribbed polyethylene innerducts. Install all innerducts at once without crushing or kinking.

N. Ground and bond conduit under provisions of Section 26 05 26.

O. Identify conduit under provisions of Section 26 05 53.

P. Branch circuit runs are shown schematically. Except where exact routing is indicated, branch circuit home runs may be grouped, and the actual routing of branch circuit conduits may be determined at the site and properly entered on the As-built drawings.

3.2 RACEWAY INSTALLATION - SPECIAL UNDERGROUND REQUIREMENTS

A. Underground conduits installed outside the building perimeter shall be minimum ¾ inch trade size and shall have a minimum cover of 24 inches. Underground service conduits shall be encased in a minimum 3 inch concrete envelope (all around).

B. Primary and service entrance conduits shall be buried deeper than 24 inches if required by the power company.

C. Where PVC conduit is installed beneath concrete slabs on grade, it shall be buried a minimum of 6 inches below top of sub-surface beneath floor slab. Minimum size of PVC used shall be ¾ inch.

D. Transitions from under slab/below grade rigid nonmetallic conduit to above slab/grade conduits shall be made with rigid metallic sweeps. Rigid nonmetallic conduit shall not be installed above slab/grade.

E. Rigid steel conduit shall be used at penetrations through basement exterior walls encase conduits in a minimum 3 inch concrete envelope (all around) for the first 2 feet on the exterior side of the wall.

F. Make joints liquid and gastight. Ends of all underground conduits shall be sealed after conductors have been installed to prevent breathing and condensation.

G. All conduits stubbed out for future use underground shall be extended 5 feet clear beyond buildings, foundations, concrete walks, paving, other utilities, and the like. Keep such stub-outs at least 10 feet clear of future buildings or other permanent installations. Install a 4×4×12 inch (deep) concrete monument with an embedded brass plate at the end of all conduits for future location. The brass plate shall indicate the origin of the conduit whose end it marks.

H. All metallic conduits installed underground shall be painted with two coats of asphaltic compound or wrapped with one half-lapped layer of Hunt's Wrap Process No. 3. Alternate installation: provide PVC coated metallic conduits.

I. Slope underground conduits to handholes or vaults at three inches per 100 feet. Where impractical, provide a duct drain in the low point of the conduit. The finished grade elevation at the top of underground pull boxes shall be lower than the elevation of the finished floor at the point of stub-up within the building.

J. Do not cut, notch, or drill foundations, footings, retaining walls or other structural elements without the Architect's advance approval in each case.

END OF SECTION 26 05 30

SECTION 26 05 43

DUCT BANK

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Metal conduit

B. Rigid nonmetallic Duct

C. Flexible nonmetallic Duct

D. Duct Accessories

1.2 RELATED SECTIONS

A. Section 03 20 00 - Concrete Reinforcement

B. Section 03 30 00 - Cast-In-Place Concrete

C. Section 07 11 00 - Bituminous Dampproofing

D. Section 26 05 30 – Conduit

E. Section 26 05 26 Grounding and Bonding

F. Section 31 00 00 - Earthwork

1.3 REFERENCES

A. Section 01 40 00 - Quality Control:

B. ANSI C80.1 - Rigid Steel Conduit, Zinc-Coated

C. IEEE C2 - National Electrical Safety Code

D. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies

E. NEMA TC 2 - Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80)

F. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing

G. NEMA TC 6 - PVC and ABS Plastic Utilities Duct for Underground Installation

H. NEMA TC 9 - Fittings for ABS and PVC Plastic Utilities Duct for Underground Installation

I. NEMA TC 10 - PVC and ABS Plastic Communications Duct and Fittings for Underground Installation

J. NEMA TC 14 - Filament-Wound Reinforced Thermosetting Resin Conduit and Fittings

K. NFPA 70 - National Electrical Code

1.4 SCOPE

A. Provide concrete encased duct bank where called for on the drawings and where required by the NEC.

B. Provide direct buried ducts at all other underground conduit locations.

C. For manholes, handholes and vaults refer to Section 26 05 42 – Manholes and Handholes

1.5 DEFINITIONS

A. DIRECT BURIED – Conduits which are installed below grade and are surrounded fully with the native ground material without any concrete reinforcement.

B. DUCT BANK – A grouping of conduit(s) which are routed together between specific points in the system.

C. GRC – Galvanized rigid conduit.

D. SCHEDULE 40 – Refers to the wall thickness of the conduit. Schedule 40 has a thinner wall than Schedule 80 and is therefore less robust.

E. SCHEDULE 80 – Refers to the wall thickness of the conduit. Schedule 80 has a thicker wall than Schedule 40 and is therefore more robust.

1.6 SUBMITTALS FOR REVIEW

A. Section 01 33 00 - Submittals: Procedures for submittals

B. Provide product data for:

1. Metallic conduit
2. Nonmetallic conduit
3. Fiberglass Reinforced Thermosetting Resin Conduit
4. Solvent cement
5. Duct spacers
6. Conduit fittings including elbows, end bells, bends, etc.
7. Rebar
8. Warning tape
9. Ground wire
10. Grounding connections
11. Pull tape
12. Concrete mix

C. Shop Drawings: Indicate dimensions, reinforcement, size and locations of openings, and accessory locations for pre-cast manholes.

1. Provide a shop drawing showing the location of all duct banks on the project, the proposed routing, the specific conduit configuration of each ductbank, identify any roadways and traffic areas where they cross the proposed ductbank routing.

a. Include overall site plans, enlarged plans as required, sections, details, elevations, etc.

1.7 SUBMITTALS FOR INFORMATION

A. Section 01 33 00 - Submittals: Submittals for information

B. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

1.8 SUBMITTALS FOR CLOSEOUT

A. Section 01 77 00 - Contract Closeout

B. Project Record Documents: Record actual routing and elevations of underground conduit and duct.

1.9 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this Section with minimum five years documented experience, and with service facilities within 100 miles of Project.

1.10 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70 and IEEE C2.

B. Products: Listed and classified by Underwriters Laboratories, Inc. testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.

1.11 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated.

B. Verify routing and termination locations of duct bank prior to excavation for rough-in.

C. Duct bank routing is shown in approximate locations unless dimensions are indicated. Route as required to complete duct system.

PART 2 - PRODUCTS

2.1 TYPE EB AND DB DUCTS ARE SPECIFICALLY NOT ALLOWED.

2.2 RIGID STEEL CONDUIT

A. Shall be as described in Section 26 05 30

B. Rigid Steel Conduit: ANSI C80.1

C. Rigid Aluminum Conduit: ANSI C80.5

D. Intermediate Metal Conduit (IMC): Rigid steel

E. Fittings and Conduit Bodies: ANSI/NEMA FB 1; Threaded galvanized or cadmium plated steel fittings. Bushings shall have nylon insulated throats.

2.3 RIGID PLASTIC CONDUIT

A. Shall be as described in Section 26 05 30

B. Description: NEMA TC 2; Schedule 40 PVC

C. Fittings and Conduit Bodies: NEMA TC 3

2.4 FIBERGLASS REINFORCED THERMOSETTING RESIN CONDUIT

A. Shall be as described in Section 26 05 30

B. Description: NEMA TC 14, UL 2420; Fiberglass reinforced thermosetting epoxy resin conduit suitable for below grade installation.

C. Fittings and Conduit Bodies: NEMA TC 14, UL 2420 BG (Below Ground)

2.5 ACCESSORIES

A. Underground Warning Tape: 4 inch wide plastic tape, detectable type, colored red with suitable warning legend describing buried electrical lines. Install warning tape approximately halfway between the top of duct and grade but not less than 6” below grade.

2.6 DUCT SPACERS

A. Provide PVC duct spacers specifically designed for the intended purpose.

B. Spacers shall interlock together to allow for different ductbank configurations.

C. Spacers shall be sized for the size and type of conduit utilized on this project.

D. Spacers shall provide adequate support for the ducts to maintain required spacing during concrete installation.

PART 3 - EXECUTION

3.1 DUCT BANK CONFIGURATION

A. Use suitable separators and duct spacers installed at intervals not greater than 4 feet on centers along the length of the conduit.

B. Provide a minimum of 3 inch concrete cover at bottom, top, and sides of ductbank.

C. Where ductbanks are installed under roadways and other traffic areas provide two No. 4 steel reinforcing bars every 24" on the top, bottom, and sides but not less than (1) in each corner. In addition, provide #4 rebar hoops which wrap around the ductbank perpendicular to the longitudinal direction of the ductbank at intervals not less than (1) every 10 feet.

D. Install (1) #3/0 bare copper ground wire above the ductbank. Connect to building and manhole ground systems.

E. Encase ductbanks in 3,500 psi concrete.

3.2 DUCT BANK INSTALLATION

A. Section 01 40 00 - Quality Control: Manufacturer's instructions

B. Coordinate the final layout and routing of ductbanks with other utilities, site grading and other site conditions as determined in the field. Notify the architect in writing of any conflicts between ductbanks and other existing or new underground structures.

C. Install duct to locate top of ductbank at depths as indicated on drawings.

D. Install duct with minimum slope of 4 inches per 100 feet (0.33 percent). Slope duct away from building entrances.

E. Cut duct square using saw or pipe cutter; de-burr cut ends.

F. Insert duct to shoulder of fittings; fasten securely.

G. Join nonmetallic duct using adhesive as recommended by manufacturer.

H. Wipe nonmetallic ducts dry and clean before joining. Apply a full even coat of adhesive to entire area inserted in fitting. Allow joint to cure for twenty (20) minutes, minimum. Follow all manufacturer's instructions for adhesive application.

I. Install no more than equivalent of three 90 degree bends between pull points.

J. Provide suitable fittings to accommodate expansion and deflection where required.

K. Terminate duct at manhole entries using end bell.

L. Stagger duct joints vertically in concrete encasement 6 inches minimum.

M. Band ducts together before backfilling placing concrete.

N. Securely anchor duct to prevent movement during concrete placement.

O. Place concrete under provisions of Section 03 30 00.

P. Provide a minimum of 3 inch concrete cover at bottom, top, and sides of ductbank.

Q. Connect to existing concrete encasement using dowels.

R. Connect to manhole wall using dowels.

S. Swab Ducts:

1. Use wire brush mandrel and rubber duct swab to clean conduits and ducts before pulling cables. Wire brush mandrel and rubber duct swab shall be separated by not less than 48” on the pull rope or mule tape.

T. Use suitable caps to protect installed duct against entrance of dirt and moisture.

U. Coordinate installation of underground warning tape with backfilling specified in Section 02 22 50. Install tape 6 inches below finished surface.

V. Pull tape

1. Install woven polyester pull tape in all unpopulated conduits.
2. Pull tape shall be ¾” wide, 2500-lbs tensile strength, marked with accurate sequential footage markings on the entire length of the tape.
3. Label pull tape at each end and at every appearance in a manhole or other structure or enclosure.

3.3 EXCAVATION AND BACKFILLING

A. Refer to Section 26 01 01 for Surface Restoration requirements.

3.4 SURFACE RESTORATION

A. Refer to Section 26 01 01 for Surface Restoration requirements. Once trenching, excavation and backfill activities are complete, fully restore the surface in accordance with architectural and civil drawings and specification requirements. Submit to the architect on proposed surface treatment for approval prior to commencing work.

END OF SECTION 26 05 43

SECTION 26 05 53

ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Underground Conduit Markers

B. Pull and Junction Box Identification

1.2 SUBMITTALS

A. Furnish for Engineer review a schedule including equipment name, room name and number, nameplate size, font size, colors, and containing required nameplate information for those phenolic nameplates which identify electrical equipment as identified under Part 3 of this specification.

PART 2 - PRODUCTS

2.1 DUCTBANK WARNING TAPE

A. Manufacturers:

1. Seton
2. Tyton
3. W. H. Brady Co
4. Approved equal

B. Provide 5 mil red plastic tape at least 4 inches wide with black letters at least 2 inches high every 5 feet along its length indicating “CAUTION HIGH VOLTAGE” for power cables and “CAUTION COMMUNICATION CABLES” for fiber optic, low voltage, and communications cables and with a 1 mil minimum metallic foil core or backing to permit easy locating.

PART 3 - EXECUTION

3.1 PREPARATION

A. Degrease and clean surfaces to receive identification materials.

3.2 DUCTBANK WARNING TAPE

A. Identify underground conduits using one underground warning tape per trench. Place tape 18 inches below finished grade centered above the concrete encased duct liner.

3.3 PULL BOX AND JUNCTION BOX IDENTIFICATION

A. Each pull and junction box shall be neatly identified with permanent black markers or stick-on labels on the outside of the box (where the box is concealed) and on the inside of the box (in exposed locations). Identify each pull and junction box with a system description as follows:

1. Lighting – LTG
2. Receptacles – REC
3. Equipment – Specific equipment identification
4. Telecommunications – COMM
5. Audio/Visual - AV
6. Security – SEC
7. Fire Alarm – FA

END OF SECTION 26 05 53

SECTION 26 27 12

UTILITY SERVICE ENTRANCE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Transformer pad

B. Metering provisions

C. Arrangement with Electric Power Utility Company for permanent electric service

D. Payment of Electric Power Utility Company charges for service

1.2 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete: Transformer pads

B. Section 26 05 26 - Grounding and Bonding

C. Section 26 05 30 - Conduit

D. Section 26 05 43 – Ductbank

E. Section 31 20 00 - Earthwork

1.3 REFERENCES

A. EUSERC - Electrical Utility Service Equipment Requirements Committee

B. UL 50 - Electrical Cabinets and Boxes

C. UL 414 - Meter Sockets

D. UL 869 - Electrical Service Equipment

1.4 SCOPE

A. The Electric Power Utility Company will provide the primary conductors, pad mounted transformers, current transformers, meter, and meter wiring.

B. The Contractor shall provide trenching, backfilling and conduit for the primary conductors, a transformer pad, secondary conductors and conduit, a metering transformer cabinet, meter base, meter conduit and all secondary work in addition to any other materials, equipment or labor required to completely install an operable system for service of electrical energy to the project.

C. The Contractor shall adjust and test the electrical service equipment and shall place it as required to deliver electrical energy to the project.

D. Utility Company Charges: The Contractor shall be responsible for paying all Electric Power Utility Company fees and charges associated with relocation of existing services and provision of temporary services to the facility during construction. Include in the bid amount the following allowance to cover Utility Company charges for service relocation and reconnection:

1. New existing service: $20,000

1.5 SUBMITTALS FOR REVIEW

A. Product Data: Submit information covering every type of transformer cabinet and meter base to be provided on the project, as follows: Component list, descriptive bulletins, voltage, equipment ratings, including bus ampacities and withstand capacities, and conductor terminal sizes.

B. Shop Drawings: For each item of service equipment, show the following: Outline and support points, with dimensions, location of neutral bus, wiring gutter dimensions, field connection locations, and anchorage details.

1.6 INFORMATION FOR O&M MANUAL

A. Submittals: Information submitted for review.

B. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and start-up of product.

C. Maintenance Data: Furnish the following information: Replacement parts listing, including source, recommended maintenance procedures and intervals, and wiring diagrams.

D. Test Reports: Indicate field test and inspection procedures and results.

1.7 RECORD DOCUMENTS

A. Record final location of service equipment.

B. Record actual route and elevation of service conduits.

1.8 QUALITY ASSURANCE

A. Utility Service: Perform work in accordance with Electric Power Utility Company written requirements. Maintain one (1) copy of each document on site.

1.9 REGULATORY REQUIREMENTS

A. Products: Service equipment shall be UL listed and classified as suitable for the indicated purpose.

B. Where required by the Electrical Power Utility Company, service equipment shall comply with applicable EUSERC Standards.

1.10 PRE-INSTALLATION MEETING

A. Convene one (1) week prior to commencing service work. Review service entrance requirements and details with Electric Power Utility Company representative.

PART 2 - PRODUCTS

2.1 TRANSFORMER PAD

A. Description: Transformer pad shall be reinforced concrete pad with cable pit, conforming to Electric Power Utility Company requirements.

B. Size: As required by Utility Company.

2.2 METERING TRANSFORMER CABINETS

A. Description: Cabinet shall be sheet metal enclosure with cover, conforming to Electric Power Utility Company requirements, with provisions for locking and sealing. Enclosures located outdoors shall be NEMA 3R rated.

B. Size: As required by Utility Company. Enclosure shall have adequate space for current transformers and wiring. Allow for proper bend radius and compression-type spade connectors on conductor terminations.

2.3 METER BASES

A. Description: Meter base shall conform to Utility Company requirements, with ampere rating and number of sockets to match Utility Company meters. Enclosures located outdoors shall be NEMA 3R rated.

B. Size: As required by Utility Company.

PART 3 - EXECUTION

3.1 PREPARATION

A. Field Measurement: Verify that field measurements are as indicated, and that equipment will fit in the available space while maintaining required working space clearances.

B. Examination: Verify that service equipment is ready to be connected and energized.

C. Electric Service: Arrange with Electric Power Utility Company to obtain prompt delivery of permanent electric service to the Project as required. Only the signing of the request for service will not be the responsibility of the Contractor.

D. Coordination: It shall be the responsibility of the Contractor to coordinate with the Electric Power Utility Company as required to provide service to the building in a timely manner. Service shall be of the type, voltage and phase characteristics indicated.

3.2 INSTALLATION

A. Coordinate the service equipment installation with the Utility Company.

B. Provide transformer pad, constructed as directed by the Electric Power Utility Company. Provide 1 foot of fine gravel sub-base below transformer pad, except as otherwise directed by Utility Company.

C. Provide metering transformer cabinet and meter base as required by Electric Power Utility Company

D. Provide service conduits and conductors per Electric Power Utility Company requirements.

E. Where service conduits terminate at a riser pole, extend rigid steel conduit to height required by the Electric Power Utility Company. Mount conduit on the side of the pole where directed by the Utility Company. Provide mounting hardware per Utility Company requirements. Provide excess conductor length as required by Utility Company to leave drip loop in service conductors.

F. Where service conduits terminate in a service mast for an overhead service drop, service conduit shall be rigid steel conduit, sized as indicated on the drawings, but not be smaller than 2-inch (DN51) trade size. Extend service mast above roof and provide weatherhead service fittings in accordance with Electric Power Utility Company requirements. Provide excess conductor length as required by Utility Company to leave drip loop in service conductors. Service masts shall comply with the following requirements:

1. Masts shall be braced, secured, and supported in such a manner that no pressure from the attached conductors will be exerted on a roof flashing, meter base, or other enclosures.
2. Couplings are permitted in the service mast only below the point the mast is braced, secured, or supported.
3. Except as otherwise required by the Utility Company, service mast support guys shall attach to the service mast just below the point where the service drop attaches to the mast. Mast support guys are required if the service mast exceeds more than 24 inches above the roof line or if the service drop is greater than 100 feet in length measured from the pole or nearest support to the service mast.

3.3 ADJUSTMENT AND TESTING

A. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer’s published torque tightening values for equipment connectors. Check tightness of bolted connections using calibrated torque wrench or torque screwdriver per manufacturer’s instructions.

B. Arrange for the Electric Power Utility Company to adjust voltage taps on transformer for optimum operating level. After adjusting, the Contractor shall record secondary voltage phase-to-phase and phase-to-neutral for transformers. Include record of secondary voltage measurements in the “Operation and Maintenance Manuals.”

C. The Contractor shall notify the Owner’s representative at least one week in advance of the dates when the above testing will be undertaken.

D. Any deficiencies discovered because of the above tests shall be rectified, and the work affected by such deficiencies shall be completely retested at the Contractor’s expense.

E. Instruments, gauges, testing equipment, protective devices and safety equipment for all testing shall be provided by the Contractor.

3.4 TRAINING

A. The Contractor shall provide one (1) hour minimum of training for maintenance personnel in the maintenance and operation of the equipment.

B. A training plan shall be submitted in advance for approval, outlining the topics to be covered, the publications to be used, and the training schedule.

C. The training shall be conducted by personnel thoroughly familiar with the equipment and its features. The training shall include instruction and over-the-shoulder hands-on training. As a minimum, the training shall cover:

1. Recommended maintenance procedures and intervals.

END OF SECTION 26 27 12

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SECTION 31 10 00

SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Idaho Standards for Public Works Construction (latest edition).

C. City of Sandpoint Standard Drawings and Specifications.

D. Geotechnical Engineering Evaluation by ALLWEST dated September 8, 2022.

1.2 SUMMARY

A. This Section includes the following:

1. Protecting existing trees, shrubs, groundcovers, plants, and grass to remain.
2. Removing existing trees, shrubs, groundcovers, plants, and grass.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, and abandoning or removing site utilities.
7. Temporary erosion and sedimentation control measures.

B. Related Sections include the following:

1. Division 31 Section 31 15 00 "Erosion and Sedimentation Control" for temporary erosion and sedimentation control procedures.
2. Division 31 Section 31 20 00 "Earth Moving" for soil materials, excavating, backfilling, and site grading.

1.3 DEFINITIONS

A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other non-soil materials.

B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.4 MATERIAL OWNERSHIP

A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

B. Record drawings, according to Division 01 Section 01 78 39 "Project Record Documents," identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 QUALITY ASSURANCE

A. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section 01 31 00 "Project Management and Coordination."

1.7 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the City of Sandpoint.
2. Provide alternate routes around closed or obstructed traffic ways if required by the City of Sandpoint.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

PART 2 - PRODUCTS

1.8 SOIL MATERIALS

A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 31 Section 31 20 00 "Earth Moving."

1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly flag trees and vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to City of Sandpoint and the Storm Water Pollution Prevention Plan.

B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE PROTECTION

A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.

1. Do not store construction materials, debris, or excavated material within fenced area.
2. Do not permit vehicles, equipment, or foot traffic within fenced area.
3. Maintain fenced area free of weeds and trash.

B. Do not excavate within tree protection zones, unless otherwise indicated.

C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

1. Cover exposed roots with burlap and water regularly.
2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
3. Coat cut faces of roots more than 1-1/2 inches in diameter with emulsified asphalt or other approved coating formulated for use on damaged plant tissues.
4. Backfill with soil as soon as possible.

D. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by the Architect and Owner.

1. Employ an arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.

2. Replace trees that cannot be repaired and restored to full-growth status, as determined by Architect and Owner.

3.4 UTILITIES

A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.

1. Arrange with utility companies to shut off indicated utilities.

C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's written permission.

D. Excavate for and remove underground utilities indicated to be removed.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
3. Grind stumps and remove roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
4. Use only hand methods for grubbing within tree protection zone.
5. Chip removed tree branches and dispose of off-site.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and non-soil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Limit height of topsoil stockpiles to 72 inches.
2. Do not stockpile topsoil within tree protection zones.
3. Dispose of excess topsoil as specified for waste material disposal.
4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

3.8 DISPOSAL

A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

1. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 31 10 00

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SECTION 31 15 00

EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Idaho Standards for Public Works Construction (latest edition).

C. City of Sandpoint Standard Drawings and Specifications.

D. Geotechnical Engineering Evaluation by ALLWEST dated September 8, 2022.

E. Stormwater Pollution Prevention Plan (SWPPP).

1.2 SUMMARY

A. Section Includes:

1. Erosion-control material(s).

B. Related Sections:

2. Division 31 Section "Site Clearing" for topsoil stripping and stockpiling.
3. Division 31 Section "Earth Moving" for excavation, filling and backfilling, and rough grading.

1.3 DEFINITIONS

A. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.

B. Finish Grade: Elevation of finished surface.

C. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or top surface of a fill or backfill.

D. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

E. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Qualification Data: For qualified installer of ESC measures.

C. Product Certificates: From manufacturer.

D. Maintenance Instructions: Recommended procedures to be established by Contractor for maintenance of ESC measures.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.

B. Bulk Materials:

1. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.

1.6 SCOPE OF WORK

A. Work under this section includes the construction and maintenance throughout construction of the project, until all soils are stabilized. This section also includes the removal of erosion control structures at the completion of the project after permanent erosion control measures have become established.

B. The erosion control measures shown on the drawings are a minimum only. The Contractor shall be responsible for providing all necessary means to protect existing facilities, adjacent buildings, roadways and parking lots throughout construction.

C. Contractor shall coordinate removal of temporary erosion control BMP's (Best Management Practices) after final site stabilization has occurred.

1.7 REFERENCE SPECIFICATIONS

A. Erosion control measures shall be in conformance with Idaho Standards for Public Works Construction (latest edition).

PART 2 - PRODUCTS

2.1 EROSION-CONTROL MATERIALS

A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.

B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb/sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.

C. Erosion-Control Mats: Cellular, non-biodegradable slope-stabilization mats designed to isolate and contain small areas of soil over steeply sloped surface, of 3-inch nominal mat thickness. Include manufacturer's recommended anchorage system for slope conditions.

1. See Editing Instruction No. 1 in the Evaluations for cautions about naming manufacturers and products. See Division 01 Section "Product Requirements."
2. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Invisible Structures, Inc.; Slopetame 2.
b. Presto Products Company, a business of Alcoa; Geoweb.
c. Tenax Corporation - USA; Tenweb.

D. Silt Fence

1. Contractor shall install as needed to prevent sediments from leaving the limits of construction.

E. Temporary Gravel Construction Entrance/Exit

1. Contractor shall install as needed to prevent sediments from leaving the limits of construction.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas for compliance with requirements and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage.

1. Protect adjacent and adjoining areas.
2. Protect grade stakes set by others until directed to remove them.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 PREPARATION FOR EROSION-CONTROL MATERIALS

A. Prepare area as specified.

B. For erosion-control mats, install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.

C. Fill cells of erosion-control mat with planting soil and compact before planting.

D. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.

E. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.4 SILT FENCE

A. Trench shall be excavated approximately 8 inches wide and 12 inches deep along the line of posts and up-slope from the fence line. A minimum of 12 inches of filter fabric must extend into the trench. After placing the fabric, the trench must be backfilled, and the soil tamped. When wire or plastic mesh support is used, the mesh shall be buried in the trench a minimum of 6 inches.

B. The fabric shall be attached on the up-slope side of the posts and support system with staples, wire or in accordance with the manufacturer's recommendations. The grid material shall be fastened securely to the up-slope of the posts with the fabric being up-slope of the grid backup support.

C. Inspect immediately after heavy rainfall, and regularly during prolonged rainfall. Repair as necessary. Sediment must be removed when it reaches approximately 1/3 the height of the fence, especially if heavy rains are expected. Any sediment deposits remaining in place after the filter fence is no longer required shall be dressed to conform to the existing grade, prepared and seeded.

3.5 MAINTENANCE AND REMOVAL

A. All erosion control measures shall be inspected after each runoff-producing rainfall and regularly during prolonged rainfall.

B. All temporary erosion and sediment control measures shall be removed or stabilized onsite. Disturbed soils areas resulting from removal shall be permanently stabilized.

END OF SECTION 31 15 00

SECTION 31 20 00

EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Idaho Standards for Public Works Construction (latest edition).

C. City of Sandpoint Standard Drawings and Specifications.

D. Geotechnical Engineering Evaluation by ALLWEST dated September 8, 2022.

1.2 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns, and grasses.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Subbase course for concrete walks and pavements.
5. Subbase and base course for asphalt paving.
6. Subsurface drainage backfill for walls and trenches.
7. Excavating and backfilling for utility trenches.
8. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.

B. Related Sections include the following:

1. Division 01 Section "Allowances" for quantity allowance provisions related to unit-price rock excavation and authorized additional excavation.
2. Division 01 Section "Unit Prices" for unit-price rock excavation and authorized additional excavation provisions.
3. Division 01 Section "Construction Progress Documentation" for recording pre-excavation and earthwork progress.
4. Division 01 Section "Temporary Facilities and Controls" for temporary erosion and sedimentation control measures, temporary controls, utilities, and support facilities.
5. Division 03 Section "Cast-in-Place Concrete" for granular course if placed over vapor retarder and beneath the slab-on-grade.
6. Divisions 21, 22, 23, 26, 27, and 28 Sections for installing underground mechanical and electrical utilities and buried mechanical and electrical structures.
7. Division 31 Section "Site Clearing" for site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
8. Division 33 Section "Subdrainage" for drainage of foundations, slabs-on-grade, and walls.

1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

a. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

E. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.
2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

F. Fill: Soil materials used to raise existing grades.

G. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material 3/4 cu. yd. or more in volume that exceed a standard penetration resistance of 100 blows/2 inches when tested by an independent geotechnical testing agency, according to ASTM D 1586.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Each type of plastic warning tape.

2. Geotextile.
3. Controlled low-strength material, including design mixture.

B. Samples: 12-by-12-inch Sample of subdrainage geotextile.

C. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:

1. Classification according to ASTM D 2487 of each on-site and borrow soil material proposed for fill and backfill.
2. Laboratory compaction curve according to ASTM D 1557 for each on-site and borrow soil material proposed for fill and backfill.

D. Blasting Plan: For record purposes; approved by authorities having jurisdiction.

1.5 QUALITY ASSURANCE

A. Blasting: Comply with applicable requirements in NFPA 495, "Explosive Materials Code," and prepare a blasting plan reporting the following:

1. Types of explosive and sizes of charge to be used in each area of rock removal, types of blasting mats, sequence of blasting operations, and procedures that will prevent damage to site improvements and structures on Project site and adjacent properties.

B. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.

C. Pre-excavation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.6 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.
3. Contact utility-locator service for area where Project is located before excavating.

B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

H. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.

J. Sand: ASTM C 33; fine aggregate, natural, or manufactured sand.

K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

L. Structural Fill: Well-graded sand or sand and gravel mixture with less than about 5 percent fines. The fines content may be increased to 10 percent if construction takes place during extended periods of dry weather.

M. Capillary Break Material: Structural fill placed as capillary break material below floor slabs should consist of 1.5-inch minus clean crushed gravel with less than 10 percent passing the U.S. No. 4 sieve and negligible fines content.

2.2 GEOTEXTILES

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefin or polyester; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Grab Tensile Strength: 157 lbf; ASTM D 4632.

2. Sewn Seam Strength: 142 lbf; ASTM D 4632.
3. Tear Strength: 56 lbf; ASTM D 4533.
4. Puncture Strength: 56 lbf; ASTM D 4833.
5. Apparent Opening Size: No. 40 sieve, maximum; ASTM D 4751.
6. Permittivity: 0.5 per second, minimum; ASTM D 4491.
7. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

B. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefin or polyester; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Grab Tensile Strength: 247 lbf; ASTM D 4632.
2. Sewn Seam Strength: 222 lbf; ASTM D 4632.
3. Tear Strength: 90 lbf; ASTM D 4533.
4. Puncture Strength: 90 lbf; ASTM D 4833.
5. Apparent Opening Size: No. 60 sieve, maximum; ASTM D 4751.
6. Permittivity: 0.02 per second, minimum; ASTM D 4491.
7. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

2.3 CONTROLLED LOW-STRENGTH MATERIAL

A. Controlled Low-Strength Material: Low-density, self-compacting, flowable concrete material as follows:

1. Portland Cement: ASTM C 150, Type I.
2. Fly Ash: ASTM C 618, Class C or F.
3. Normal-Weight Aggregate: ASTM C 33, 3/4-inch nominal maximum aggregate size.
4. Foaming Agent: ASTM C 869.
5. Water: ASTM C 94/C 94M.
6. Air-Entraining Admixture: ASTM C 260.

B. Produce low-density, controlled low-strength material with the following physical properties:

1. As-Cast Unit Weight: 30 to 36 lb/cu. ft. at point of placement, when tested according to ASTM C 138/C 138M.
2. Compressive Strength: 80 psi, when tested according to ASTM C 495.

C. Produce conventional-weight, controlled low-strength material with 80-psi compressive strength when tested according to ASTM C 495.

2.4 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.

2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing," during earthwork operations.

D. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 EXPLOSIVES

A. Explosives: Obtain written permission from authorities having jurisdiction before bringing explosives to Project site or using explosives on Project site.

1. Perform blasting without damaging adjacent structures, property, or site improvements.
2. Perform blasting without weakening the bearing capacity of rock subgrade and with the least-practicable disturbance to rock to remain.

3.4 EXCAVATION

A. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents. Changes in the Contract time may be authorized for rock excavation.

1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.

    a. Intermittent drilling; blasting, if permitted; ram hammering; or ripping of material not classified as rock excavation is earth excavation.

2. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction without exceeding the following dimensions:

    a. 24 inches outside of concrete forms other than at footings.

    b. 12 inches outside of concrete forms at footings.
    c. 6 inches outside of minimum required dimensions of concrete cast against grade.
    d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
    e. 6 inches beneath bottom of concrete slabs on grade.
    f. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit.

C. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.

1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.8 SUBGRADE INSPECTION

A. Notify Architect when excavations have reached required subgrade.

B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
2. Revise minimum weight or type of vehicle in first subparagraph below if required.
3. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
4. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Delete or revise subparagraphs below to suit Project.
2. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
3. Surveying locations of underground utilities for Record Documents.
4. Testing and inspecting underground utilities.
5. Removing concrete formwork.
6. Removing trash and debris.
7. Removing temporary shoring and bracing, and sheeting.
8. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.12 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 03 Section "Cast-in-Place Concrete."

D. Provide 4-inch- thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase.

E. Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches over the utility pipe or conduit.

G. Backfill voids with satisfactory soil while installing and removing shoring and bracing.

H. Place and compact final backfill of satisfactory soil to final subgrade elevation.

I. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.

J. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.13 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use engineered fill.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.14 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 90 percent.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.17 SUBBASE AND BASE COURSES

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase and base course under pavements and walks as follows:

1. Shape subbase and base course to required crown elevations and cross-slope grades.
2. Place subbase and base course 6 inches or less in compacted thickness in a single layer.
3. Place subbase and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
4. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

C. Pavement Shoulders: Place shoulders along edges of subbase and base course to prevent lateral movement. Construct shoulders, at least 12 inches wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.18 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Frequencies of testing in subparagraphs below are examples only; revise to suit Project.
2. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than 3 tests.
3. Foundation Wall Backfill: At each compacted backfill layer, at least 1 test for each 100 feet or less of wall length, but no fewer than 2 tests.
4. Trench Backfill: At each compacted initial and final backfill layer (under proposed pavement area), at least 1 test for each 150 feet or less of trench length, but no fewer than 2 tests.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.19 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.20 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

1. Retain paragraph above or paragraph and subparagraph below.
2. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 31 20 00

SECTION 32 11 23

PERMEABLE AGGREGATE BASE COURSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes permeable fractured rock base and top courses for placement under playground safety surfacing.

1. Permeable base stone.
2. Permeable top stone.

B. Filter fabric isolation materials between the base stone and native sub base.

C. Field top stone finish grade string line procedures and tolerances.

1.3 SUBMITTALS

A. Current (less than 30 days old) Sieve analysis for each product. Submittal must show the exact same sieves as the specification.

B. Two-gallon sample of each product.

C. Permeability lab test results for each product. ASTM D-2434 Constant Head Permeability Test. Testing must be performed on a current representative sample of each proposed material and must be less than 30 days old. Tests shall be performed by a certified third-party testing laboratory.

1.4 DELIVERY, STORAGE AND HANDLING

A. General: Minimize handling and transfer of permeable crushed rock to avoid segregation of the material.

B. Maintain optimum moisture content when placing and compacting.

1.5 REFERENCES

A. This section incorporates by reference the latest revisions of the following documents. They are part of this section insofar as specified and modified herein. The contractor shall have one copy of each of the following documents on the job site. The bidder, in submitting a bid, acknowledges that he is familiar with the documents named in References and that they are incorporated into this document by reference. The Standard Plans and Policies apply only to

performance and materials and how they are to be incorporated into the work. The legal/contractual relationship sections and the measurement and payment sections do not apply to this document.

1. Idaho State Department of Transportation (IDOT), 2023 Standards for Highway Construction.
2. American Public Works Association Standard Specifications.
3. Geotechnical report.

B. ASTM C136 – Method for Sieve Analysis of Fine and Coarse Aggregates.

C. ASTM D1557 – Test Methods for Moisture density Relationships of Soils and Soil-Aggregate mixtures Using 10 lb. Rammer and 18" Drop.

D. ASTM D2922 – Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

E. ASTM D3017 – Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

PART 2 - PRODUCTS

2.1 PERMEABLE CRUSHED ROCK BASE COURSE

A. Aggregate material shall be uniformly mixed and processed. Stone material shall be 100% mechanically fractured with elongated characteristics on each individual particle larger than ¼". Material shall be devoid of natural mineral fines. Rounded sands or aggregates of any sort are prohibited. Material must strictly conform to the following gradation:

Sieve Size	Percent Passing By Weight
1-1/4 inch	100
1 inch	90-100
¾ inch	80-100
½ inch	50-80
3/8 inch	40-60
# 4	20-40
# 8	15-30
# 30	5-20
No. 100 (wet sieve)	2-10
No. 200 (wet sieve)	2-6

2.2 PERMEABLE CRUSHED ROCK TOP COURSE

A. Aggregate material shall be uniformly mixed and processed. Stone material shall be 100% mechanically fractured with elongated characteristics on each individual particle larger than ¼". Material shall be devoid of natural mineral fines. Rounded sands or aggregates of any sort are prohibited. Material must strictly conform to the following gradation:

Sieve Size	Percent Passing By Weight
½ inch	100
3/8 inch	90-100
# 4	55-75
# 8	30-50
# 30	5-25
No. 100 (wet sieve)	2-10
No. 200 (wet sieve)	2-6

PART 3 - EXECUTION

3.1 GENERAL

A. After completion of sub drainage installation, repair any damage to the sub base and obtain approval from the Landscape Architect.

B. Back blade crowned drainage backfill at sub drainage lines.

C. Filter fabric to be installed below permeable base rock.

D. Deliver and stockpile permeable base and top stone so as to minimize handling.

3.2 BASE COURSE

A. Place and compact base course using laser guided equipment. Minimize the use of vibratory rollers during compaction so as to avoid segregation of the material. Maintain optimum moisture content at all times during handling. Final compacted depth of base course is 6”. Compact to 95% modified proctor.

B. Landscape Architect will review intermediate grades and perform a field permeability test on the compacted base course in a minimum of 2 locations. Grade tolerance for base course is +/- 0.1” Do not proceed with top course installation until base course has been approved.

3.3 TOP COURSE

A. Subsequent to approval of the base course, proceed with placement and compaction of the top course in the same manner as described above. Compact to 95% modified proctor. Compacted depth of top course is 2”. The Landscape Architect will perform field permeability tests on the finished sub grade in a minimum of 2 locations. Finished surface must exhibit an infiltration rate of at least 20” per hour.

3.4 FINISH GRADE TOLERANCE AND TESTING

A. The final grade of the top stone shall not vary from the specified grade by more than 1/4” in any direction when measured with a 10’ straightedge.

B. The playground safety surfacing installer must inspect and approve the final tolerance-to-grade of the permeable stone base.

END OF SECTION 32 11 23

SECTION 32 12 16

ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Idaho Standards for Public Works Construction (latest edition).

C. City of Sandpoint Standard Drawings and Specifications.

D. Geotechnical Engineering Evaluation by ALLWEST dated September 8, 2022.

1.2 SUMMARY

A. Section Includes:

1. Cold milling of existing hot-mix asphalt pavement.
2. Hot-mix asphalt patching.
3. Hot-mix asphalt paving.
4. Hot-mix asphalt paving overlay.
5. Asphalt surface treatments.
6. Pavement-marking paint.
7. Traffic-calming devices.
8. Imprinted asphalt.

B. Related Sections:

1. Division 02 Section "Structure Demolition" for demolition, removal, and recycling of existing asphalt pavements, and for geotextiles that are not embedded within courses of asphalt paving.
2. Division 31 Section "Earth Moving" for aggregate subbase and base courses and for aggregate pavement shoulders.
3. Division 32 Section “Concrete Paving” for concrete pavements, sidewalks, and curbs.

1.3 DEFINITION

A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.

1. Job-Mix Designs: For each job mix proposed for the Work.

B. Samples: For each paving fabric, 12 by 12 inches minimum, if applicable.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by authorities having jurisdiction or the DOT of state in which Project is located.

B. Installer Qualifications: Imprinted-asphalt manufacturer's authorized installer who is trained and approved for installation of imprinted asphalt required for this Project.

C. Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated.

D. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of the Idaho Standards for Public Works Construction for asphalt paving work.

1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

E. Pre-installation Conference: Conduct conference at the Project site.

1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:

a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
b. Review condition of subgrade and preparatory work.
c. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.
d. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.

B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:

1. Prime Coat: Minimum surface temperature of 60 deg F.
2. Tack Coat: Minimum surface temperature of 60 deg F.
3. Slurry Coat: Comply with weather limitations in ASTM D 3910.

4. Revise temperature in first subparagraph below to suit Project. Thicker asphalt base courses may be placed if surface temperature exceeds freezing.
5. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
6. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials, 55 deg F for water-based materials, and not exceeding 95 deg F.

PART 2 - PRODUCTS

2.1 AGGREGATES

A. Follow recommendations of the Geotechnical Report.

B. Coarse Aggregate: ASTM D 692, sound; angular crushed stone, crushed gravel, or properly cured, crushed blast-furnace slag.

C. Fine Aggregate: ASTM D 1073, sharp-edged natural sand or sand prepared from stone, gravel, properly cured blast-furnace slag, or combinations thereof.

D. Mineral Filler: ASTM D 242, rock or slag dust, hydraulic cement, or other inert material.

2.2 ASPHALT MATERIALS

A. Asphalt Binder: AASHTO MP 1, PG 64-28.

B. Tack Coat: ASTM D 2397, cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.

2.3 AUXILIARY MATERIALS

A. Herbicide: Commercial chemical for weed control, registered by the EPA. Provide in granular, liquid, or wettable powder form.

B. Pavement-Marking Paint: Latex, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952, with drying time of less than 45 minutes.

1. Select from colors below; distinguish locations if more than one color is required.
2. Color: White and blue, as indicated.

C. Wheel Stops: Precast, air-entrained concrete, 2500-psi minimum compressive strength, 4-1/2 inches high by 9 inches wide by 72 inches long. Provide chamfered corners and drainage slots on underside and holes for anchoring to substrate.

1. Dowels: Rebar, Grade 60, minimum 10” length.

2.4 MIXES

A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction; designed according to procedures in AI MS-2, "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types"; and complying with the following requirements:

1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.

2. Base Course: 6” Crushed Surfacing Top Course.
3. Surface Course:

a. 2.5” Class ½” Hot Mix Asphalt.

B. Emulsified-Asphalt Slurry: ASTM D 3910, Type 1.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Follow recommendations of the Geotechnical Report.

B. Verify that subgrade is dry and in suitable condition to begin paving.

C. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
2. Revise minimum weight or type of vehicle in first subparagraph below if required.
3. Proof roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
4. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

D. Proceed with paving only after unsatisfactory conditions have been corrected.

E. Verify that utilities and other items requiring a cut and installation beneath the asphalt surface have been completed and that asphalt surface has been repaired flush with adjacent asphalt prior to beginning installation of imprinted asphalt.

3.2 PATCHING

A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.

B. Portland Cement Concrete Pavement: Break cracked slabs and roll as required to reseat concrete pieces firmly.

1. Pump hot undersealing asphalt under rocking slab until slab is stabilized or, if necessary, crack slab into pieces and roll to reseat pieces firmly.
2. Remove disintegrated or badly cracked pavement. Excavate rectangular or trapezoidal patches, extending into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Recompact existing unbound-aggregate base course to form new subgrade.

C. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

D. Patching: Fill excavated pavements with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

E. Patching: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

3.3 REPAIRS

A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.

1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.

B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch.

1. Clean cracks and joints in existing hot-mix asphalt pavement.
2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.
3. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.

3.4 SURFACE PREPARATION

A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.

1. Mix herbicide with prime coat if formulated by manufacturer for that purpose.

C. Retain first paragraph below if priming unbound-aggregate base courses.

D. Prime Coat: Apply uniformly over surface of compacted unbound-aggregate base course at a rate of 0.15 to 0.50 gal./sq. yd. Apply enough material to penetrate and seal but not flood surface. Allow prime coat to cure.

1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
2. Protect primed substrate from damage until ready to receive paving.

E. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.5 HOT-MIX ASPHALT PLACING

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
2. Place hot-mix asphalt surface course in single lift.
3. Spread mix at minimum temperature of 250 deg F.
4. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.6 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."
5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.

6. Compact asphalt at joints to a density within 2 percent of specified course density.

3.7 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F.

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.8 INSTALLATION TOLERANCES

A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. Base Course: Plus or minus 1/2 inch.
2. Surface Course: Plus 1/4 inch, no minus.

B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

1. Base Course: 1/4 inch.
2. Surface Course: 1/8 inch.
3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

3.9 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.

B. Sweep and clean surface to eliminate loose material and dust.

C. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

3.10 WHEEL STOPS

A. Install wheel stops in bed of adhesive as recommended by manufacturer.

B. Securely attach wheel stops to pavement with not less than two steel dowels embedded at one-quarter to one-third points. Securely install dowels into pavement and bond to wheel stop. Recess head of dowel beneath top of wheel stop.

3.11 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.

C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

D. In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compact pavement according to ASTM D 979 or AASHTO T 168.

1. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.

    a. One core sample will be taken for every 1000 sq. yd. or less of installed pavement, with no fewer than 3 cores taken.
    b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.

E. Replace and compact hot-mix asphalt where core tests were taken.

F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.12 DISPOSAL

A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow milled materials to accumulate on-site.

END OF SECTION 32 12 16

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SECTION 32 12 16.40

ASPHALT PAVING FOR INDOOR TENNIS COURTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Description: Furnish all material, labor, services, and related items required to complete work indicated on drawings and/or specifications. The items of work to be performed shall include but may not be limited to; asphalt patching, installation of tack coat and fabric, and the import, placement, and compaction of asphalt pavement for the interior asphalt court surface.

1.2 REFERENCES

A. American Sports Builders Association (ASBA) Tennis Courts, Construction and Maintenance Manual, 2021, applicable sections including but not limited to:

1. Tennis Court Dimensions and Related Measurements
2. Standard Classification for Tennis Court Surfacing Systems
3. Hard Courts Asphalt
4. Acrylic Color Finish Systems for Tennis Courts

B. American Sports Builders Association Asphalt Guidelines

C. AASHTO M17 -Mineral Filler for Bituminous Paving Mixtures: These references are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

D. Idaho Standards for Public Works Construction (ISPWC) – latest edition.

E. 1993 AASHTO Guide for Design of Pavement Structures.

F. Geotechnical Evaluation by ALLWEST dated September 8, 2022 and Geotechnical Plan Review letter by ALLWEST dated August 17, 2023.

1.3 SUMMARY

A. Section Includes:

1. Hot-mix asphalt paving for interior tennis courts.
2. Asphalt surface treatments for interior tennis courts.

B. Related Requirements:

1. Section 03 30 00 “Cast-in-Place Concrete”
2. Section 13 31 23 “Tension Fabric Building System”

3. Section 32 18 23.53 “Tennis Court Surfacing”
4. Geotechnical Engineering Report

1.4 PREINSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Project site.

1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:

    a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
    b. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.
    c. Review requirements for access and protection of existing facilities.

2. Coordinate optimal sequencing with other trades, including Rigid Frame Fabric Building System manufacturer.
3. Review ASBA asphalt guidelines for methods and procedures related to specialty requirements for tennis court surfaces.
4. Review methods and procedures related to sequencing of the Tension Fabric Building System to optimize quality of both the asphalt court surface and tension fabric building and so that the installation of each scope of work does not compromise the finished quality of the other.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include technical data and tested physical and performance properties.
2. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the asphalt paving of tennis court.

B. Samples for Verification: For the following product, in manufacturer's standard sizes unless otherwise indicated:

1. Paving Fabric: 12 by 12 inches minimum.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Contractor and subcontractors that will be performing work under this Section.

B. The Contractor shall submit to the Engineer written materials containing the following information:

1. Reference list from the installer of at least five (5) projects of similar scope done in the past three (3) years. The list shall include dates, dollar value of Contractor’s work, locations and project owner with current contact information.
2. Procedures to be used in construction of Tennis Courts with regard to the division of labor and responsibility of the Contractor and all sub-contractors involved.

C. Materials to be used and the proposed method of application and procedures to be followed.

D. Material Certificates: For each paving material.

E. Material Test Reports: For each paving material, by a qualified testing agency.

F. Field quality-control reports.

1.7 QUALITY ASSURANCE

A. Contractor Qualifications. The Contractor must have five (5) years' experience in work of this nature and have the equipment and personnel required for the work specified. The Contractor must acquaint themselves with all work related to site improvements and other work.

1. The Contractor shall submit to the Architect written materials containing the following information:

   a. Reference list from the installer of at least three (3) tennis court, running track or sport court projects of similar scope done in the past five (5) years. The list shall include dates, dollar value of Contractor's work, locations and project owner with current contact information.
   b. Procedures to be used in construction of Tennis Court(s) with regard to the division of labor and responsibility of the Contractor and all sub-contractors involved.
   c. Materials to be used and the proposed method of application and procedures
   d. Fabrics: Submit manufacturer's product specifications and recommended installation procedures to the Engineer for approval prior to delivery to the project site(s).
   e. Aggregate for HMA -Class 3/8": The Contractor shall submit to the Architect, for approval prior to delivery to the project site(s), a single 1/2 cubic foot sample in a secure container. Affix to the container the supplier name, address, and telephone number, batch number (if applicable), date, and sieve analysis.

B. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by authorities having jurisdiction or the DOT of state in which Project is located.

C. Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated.

1. Payment for testing under this section shall be as follows:

   a. The first run of any test of a given sample of workmanship will be paid for by the Owner. Where possible, the Engineer will perform the initial test. In the event that the Engineer's capabilities are insufficient to perform the test in a timely manner, the test will be performed by the Contractor at a reasonable cost to the Owner.
   b. In the event the sample of workmanship is found to be deficient in some way as a result of the initial test, the contractor shall remove from the project site(s) that work or material, and provide work or material as specified and with satisfactory test results at no additional cost to the Owner.

2. Test Reports shall be done under the supervision of the Contractor and in accordance with the Contract. Tests must be performed by a certified testing agency or licensed laboratory. The Engineer may require execution of tests described below, at the Contractors expense. Two copies of the results of each test shall be submitted to the Engineer for approval prior to continuation of the work to be tested, unless otherwise directed. Testing shall be performed according to the DOT Standard Specifications (most recent edition).

a. ASTM C131 -Test Method for Resistance to Degradation of Small Size Course Aggregate.
b. ASTM D1557 -Test Method for Moisture Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54 kg) Rammer and 18-in (457 mm) Drop.
c. ISPWC Test -Method of test for Determination of Method 705 Degradation Value.
d. ISPWC Test -Maximum Specific Gravity of Bituminous Paving Mixtures Method 113.
e. Other tests as may be referenced elsewhere in this Section.

D. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of the most current edition of the Idaho Standards for Public Works Construction (ISPWC) for asphalt paving work.

1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is frozen, wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:

1. Tack Coat: Minimum surface temperature of 60 deg F.
2. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
3. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

PART 2 - PRODUCTS

2.1 TACK COAT:

A. The sealant material used to impregnate and seal the geo-textile, as well as bond it to both the base pavement and overlay, shall be a paving grade asphalt recommended by the geo-textile manufacturer and approved by the Architect or Owner's Representative.

1. Apply specified material to all vertical surfaces of existing pavement, curbs, and other surfaces.

B. Uncut asphalt cements are the preferred sealants; however, cationic and anionic emulsions may be used. Cutbacks and emulsions, which contain solvents, shall not be used.

C. The grade of asphalt cement specified for hot-mix design in each geographic location is generally the most acceptable material.

2.2 AGGREGATES

A. General: Use materials and gradations that have performed satisfactorily in previous installations in accordance with ISPC Standard Specifications for Hot Mix Asphalt, except as modified below.

B. Mineral Aggregate shall meet the requirements of the ISPWC Standard Specifications (most recent edition). Aggregates for HMA -Class 3/8" shall meet the following requirements for partial gradation:

Sieve Size	% Passing
1/2" Square	100
3/8" Square	90 -100
#4	90 Max.
#8	32 -67
#200	2.0 -7.0

C. Coarse Aggregate: ASTM D 692/D 692M, sound; angular crushed stone, crushed gravel, or cured, crushed blast-furnace slag.

D. Fine Aggregate: ASTM D 1073 or AASHTO M 29, sharp-edged natural sand or sand prepared from stone, gravel, cured blast-furnace slag, or combinations thereof.

1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.

E. Mineral Filler: ASTM D 242/D 242M or AASHTO M 17, rock or slag dust, hydraulic cement, or other inert material.

F. The aggregate used in the mix shall be free from mineral pyrite, marcasite, ferrous compound, wood particles, clay or dust “balls” or other deleterious materials which may cause staining/discoloration or interfere with the planarity, structural stability or aesthetics of the playing surface.

2.3 ASPHALT MATERIALS

A. General: HMA, having a maximum aggregate size of three eighth’s inch (3/8") in accordance with the specifications of the Asphalt Institute, shall conform with or exceed the standards of the American Sports Builders Association (ASBA) Tennis Court Construction Guidelines for hot plant mix tennis court construction, except for Aggregate sieve analysis as noted below.

B. Asphalt Cement: per ISPWC Standard Specifications, 5.04 Hot Mix Asphalt

C. Cutback Prime Coat: per ISPWC Standard Specifications, 5.04 Hot Mix Asphalt.

D. Emulsified Asphalt Prime Coat: per ISPWC Standard Specifications, 5.04 Hot Mix Asphalt.

E. Tack Coat: per ISPWC Standard Specifications, 5.04 Hot Mix Asphalt.

F. Water: Potable.

G. Undersealing Asphalt: ASTM D 3141/D 3141M; pumping consistency.

2.4 AUXILIARY MATERIALS

A. Herbicide: Commercial chemical for weed control, registered by the EPA, and not classified as "restricted use" for locations and conditions of application. Provide in granular, liquid, or wettable powder form. See ISPWC Standard Specifications.

B. Sand: ASTM D 1073 or AASHTO M 29, Grade No. 2 or No. 3.

2.5 MIXES

A. Hot-Mix Asphalt: Dense-graded, hot-laid, hot-mix asphalt plant mixes per ISPWC Standard Specifications for Hot Mix Asphalt and complying with the following requirements:

1. Base Layer: Two (2”) inches HMA Class 1/2 inch
2. Top Layer: One and three quarter (1-3/4”) inch Class G
3. Submit recommended mixes with a history of satisfactory performance for tennis courts or similar application in the Sandpoint area for approval.

B. Emulsified-Asphalt Slurry: ASTM D 3910, Type 1.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Follow recommendations of the Geotechnical Report.

B. Verify that subgrade is dry, not frozen and in suitable condition to begin paving.

C. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction**, repeating proof-rolling in direction perpendicular to first direction**. Limit vehicle speed to 3 mph.
2. Proof roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by testing, and replace with compacted backfill or fill as directed.

D. Proceed with paving only after unsatisfactory conditions have been corrected.

E. Coordinate paving with installation of sleeves for chain link fence posts and tennis net posts. Sleeves to be installed prior to paving.

3.2 SURFACE PREPARATION

A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.

3.3 PLACING HOT-MIX ASPHALT

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix.

A course of HMA shall be installed to the extents indicated on the drawings. Final compaction thickness shall be no less than three and three-quarter inches (3-3/4"). Compaction shall be by rolling with a powered steel wheel tandem roller weighing not less than three (3) and not more than five (5) tons; the finish roller weighing not less than one (1) ton.

1. The hot plant mix shall be spread by methods and in a manner to produce a uniform density and thickness to meet the following tolerance criteria:

    a. The surface shall not vary more than 1/4” in ten feet when measured in any direction using a straightedge.
    b. The surface shall not include small irregularities such as those caused by irregular seams, expanded aggregate, or roller marks, measurable as a deviation in the asphalt surface greater than 1/8” in 18”.

2. Place hot-mix asphalt surface course in **two lifts**.
3. Paving contractor to flood test surface of courts after first lift to identify low spots. Fine patch low spots and re-roll.
4. Pave second lift after completion of fine patching and rolling of first lift.
5. Spread mix at a minimum temperature of 275 deg F.
6. Begin applying mix along high side of court unless otherwise indicated.
7. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Overlap mix placement about 1 to 1-1/2 inches from strip to strip to ensure proper compaction of mix along longitudinal joints.
2. Complete a section of asphalt base course before placing asphalt surface course.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

D. Curing and Cleaning: New HMA pavement must be completely cured (minimum of fourteen days of warm, dry weather, longer if cold or damp), prior to application of any materials. Pavement needs to be clean and free of all foreign matter. A high-pressure washer, air broom or hand sweeper shall be used; removal of grease and oil requires the use of a strong detergent. After using detergents, the surface must be thoroughly flushed with water. The Contractor must obtain approval of the Architect prior to using detergent if there is any chance it could enter the City’s storm drainage system.

E. Water Testing: Check the finished surface of the asphalt for puddling by flooding the entire paved area with water. Any puddle holding water deeper than a five cent piece should be outlined with chalk and filled in accordance with the specification of the Tennis Court Acrylic Color Surfacing per Section 32 18 23.53. It is the Contractor’s responsibility to provide water for this test, a water truck with sufficient volume to perform the test, or Owner’s irrigation if available at this location.

1. Testing to be completed in presence of Owner’s representative.

F. Corrective work for puddling areas, or “Birdbaths”:

1. Any areas holding enough water to cover a five cent piece (American coin) after draining a minimum of one hour at a minimum of 70 degrees Fahrenheit in sunlight should be outlined with chalk and the water swept out. After the area is cleaned and dried, a tack coat of approved material for filling low areas must be applied to the entire area within the chalk-line.

2. Estimate the required quantity of the thin patching mixture to fill such “birdbaths.” Apply it to the area, and strike it off with a straight-edge the length of which is in excess of the dimensions of the “birdbath.” A proper strike-off will level such a birdbath to the same elevation as the surrounding surface. After the leveling operation, the patch should be allowed to cure properly.
3. The patch material should be compatible with the surfacing material and should be used in accordance with the surfacing manufacturer’s directions.
4. See Section 32 18 23.53 Tennis Court Surfacing for approved materials.

3.4 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
5. Compact asphalt at joints to a density within 2 percent of specified course density.

B. Control Joint: Saw cut control joints in finished asphalt at locations shown on plans. Joint layout shall be approved in the field prior to cutting. Cuts shall be 1” deep. Clean slurry from cuts and dry.

1. Saw cut locations:

    a. Between net posts, along center line of courts.
    b. Between courts, locate exactly halfway between courts and parallel to court striping.

2. Install California Crack Filler, Plexipave Court Patch Binder or approved equal product to clean dry saw cut joints, prior to installation of court surfacing.

    a. Install per manufacturer’s written specifications.

3.5 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F.

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

1. Average Density: 96 percent of reference laboratory density according to ASTM D 6927 or AASHTO T 245, but not less than 94 percent or greater than 100 percent.
2. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent or greater than 96 percent.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.6 INSTALLATION TOLERANCES

A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. Base Course: Plus or minus 1/2 inch.
2. Surface Course: Plus 1/4 inch, no minus.

B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances and as defined below, as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

1. Base Course: 1/4 inch.
2. Surface Course: 1/8 inch.
3. Surface Tolerances for the asphalt surface shall comply with American Sports Builders Association / USTA requirements per “Tennis Courts, A Construction and Maintenance Manual” for:

    a. Slope
    b. Planarity
    c. Evenness
    d. Small Irregularities.

4. Contractor shall demonstrate conformance with requirements prior to final court surfacing.

3.7 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.

C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances. Surface must be accepted by Tennis Court Surfacing Contractor.

D. In-Place Density: Testing agency will take samples of un-compacted paving mixtures and compacted pavement according to ASTM D 979 or AASHTO T 168.

1. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.

    a. One core sample will be taken for every 1000 sq. yd. or less of installed pavement, with no fewer than three cores taken.
    b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.

E. Replace and compact hot-mix asphalt where core tests were taken.

F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.8 WASTE HANDLING

A. General: Handle asphalt-paving waste according local regulations.

END OF SECTION 32 12 16.40

SECTION 32 18 16.13

PLAYGROUND PROTECTIVE SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 11 6913 Playground Equipment and Structures.

1.2 SUMMARY

A. This specification includes information for playground protective surfacing alternates. See below for additional information. Owner intends to select one of the alternates for installation.

B. Furnish labor, material, and equipment necessary to install the playground protective surfacing system as shown on the drawings and specified herein. See Alternates for additional information on types of surfacing.

1. Work shall include, but not be limited to the following: layout; excavation; backfill; furnishing and installing of base material; furnishing and installing of engineered wood fiber safety surfacing.

1.3 BASE BID

1. Base Bid: Install subgrade, base rock and Engineered Wood Fiber (EWF). See Drawings and Details.

1.4 PERFORMANCE REQUIREMENTS

A. Area Safety: Playground protective surfacing within playground use zones shall meet or exceed the performance requirements of the CPSC, ADA and Fall Height Test ASTM F1292-17a. The surface must yield both a peak deceleration of no more than 200 G-max and a Head Injury Criteria (HIC) value of no more than 1,000 for a head-first fall from the highest accessible portion of play equipment being installed as shown on drawings. IPEMA certification is required. (ASTM F1292-17a section 4.3.3: The laboratory test used to determine critical fall height shall have been conducted on surfacing material samples identical in design, materials, components, and thickness and manufactured as the installed playground surface).

B. Accessibility: NOTE: Children’s outdoor play areas shall be in compliance with the Uniform Federal Accessibility Standards (UFAS) FED-STD-795 and the Architectural and Engineer Instructions (9AEI) Design Criteria.

C. The requirements of the Americans with Disabilities Act. Accessibility Guidelines (ADAAG) 28 CFR Part 36 that provide equal or greater accessibility than the requirements of UFAS must also be met in children’s outdoor play areas.

D. Engineered Wood Fiber playground safety surfacing. Engineered wood fiber product specifically manufactured for use in playgrounds for safety surfacing.

1. Accessibility of Surface Systems - ASTM F1951: Determination of accessibility of surface systems under and around playground equipment.
2. Impact Attenuation - ASTM F1292: Impact attenuation of surface systems under and around playground equipment.
3. Standard for Engineered Wood Fiber - ASTM F2075: Minimum characteristics for those factors that determine particle size, consistency, purity and ability to drain.
4. IPEMA Certification: Manufacturer must provide proof of certification.

1.5 DEFINITIONS

A. Definitions in ASTM F2223 apply to Work of this Section.

B. Critical Height: Standard measure of shock attenuation according to ASTM F2223; same as "critical fall height" in ASTM F1292. According to ASTM F1292, this approximates "the maximum fall height from which a life-threatening head injury would not be expected to occur."

C. SBR: Styrene-butadiene rubber.

D. Unitary Surfacing: A protective surfacing of one or more material components bound together to form a continuous surface; same as "unitary system" in ASTM F2223.

1.6 SUBSTITUTIONS

A. Requests for substitutions must be accompanied by a product to product comparison that demonstrates that the requested substitute meets or exceeds the basis of design product specified. Requests for substitution that do not include a side by side product comparison and do not meet the requirements outlined in this specification will not be approved.

B. Requests for substitutions must be submitted no less than two weeks prior to bid date.

1.7 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. The Contractor shall submit, two (2) complete sets of the material submittals, including manufacturer’s name and address, specific trade names, catalog and model numbers, illustrations and descriptive material, and samples of the proposed material for this project clearly marked as to proposed items for approval by the Owner’s representative.
2. Products submitted as equal **must** include hard copies of manufactures written specifications and warranty.
3. Manufacturer’s descriptive data and installation instructions.
4. Manufacturer’s details showing depths of Wear Course and sub-base materials, anchoring systems and edge details.

B. Shop Drawings: For each type of protective surfacing coordinated with locations and critical fall heights of selected equipment.

1. Include plans, sections, placement details, and attachment to substrates.
2. Include accessories and edge terminations.
3. Include patterns made by varying colors of surfacing and details of graphics.

C. Samples for Initial Selection: For each type of exposed finish.

1. Include Samples of accessories involving color selection.

D. Samples for Verification: For each type of protective surfacing and exposed finish.

1. Include Samples of accessories to verify color and finish selection.
2. Unitary, Seamless Surfacing: Minimum 6 by 6 inches.
3. Drainage/Separation Geotextile: Minimum 12 by 12 inches.
4. Crushed surfacing base course.

E. A signed statement by an authorized official certifying that the surfacing system meets the requirements of ASTM F1292-17a for a head-first fall from the highest accessible portion of the specified playground equipment.

F. A Certificate of Insurance shall be provided by manufacturer of material for use as playground safety surfacing, covering general and product liability, of not less than $1,000,000 for each occurrence, $2,000,000 general aggregate, with an excess/umbrella liability of $25,000,000. The issuing underwrite shall be AA rated.

1.8 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and testing agency.

B. Material Certificates: For each type of loose-fill surfacing.

C. Field quality-control reports.

D. Sample Warranty: For manufacturer's special warranty.

1.9 CLOSEOUT SUBMITTALS

A. Maintenance Data: For playground protective surfacing to include in maintenance manuals.

1.10 MAINTENANCE MATERIAL SUBMITTALS: SYNTHETIC TURF SAFETY SURFACING

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Turf Fabric: Minimum of 300 sq. ft. for each type indicated.
2. Seaming Tape and Adhesive: One roll of seaming tape and one gallon of adhesive.
3. One new set of maintenance tools, of type recommended by synthetic grass safety surfacing manufacturer for installation.

1.11 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.12 WARRANTY

A. Special Warranty: Manufacturer and Installer agree to repair or replace components of protective surfacing that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Reduction in impact attenuation as measured by reduction of critical fall height.
b. Deterioration of protective surfacing and other materials beyond normal weathering.

2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain protective surfacing materials from single source from single manufacturer.

B. Playground Surfacing

1. Engineered Wood Fiber System

2.2 Engineered Wood Fiber System

A. Manufacturers:

1. Source Limitations: Obtain protective surfacing materials from single source from single manufacturer.

a. Manufacturer: Gametime or approved equal.

1) GTIMPAX Engineered Wood Fiber or approved equal.

b. Contractor must submit side by side test results of proposed equal with GTMPAX test results.
c. Provide geosynthetic accessories of each type from source recommended by manufacturer of protective surfacing materials.

B. Product is manufactured of a ground wood fiber comprised of softwoods and/or hardwoods, consisting of randomly sized wood fibers the majority of which do not exceed 2” in length and no more than 15% fines to aid in compaction. Product to have minimal bark and to be free of twigs, leaf debris and other organic material. Product depth, after installation, must be in accordance with the procedure described in ASTM F1292 and meet guidelines for critical height as set forth by the Consumer Product Safety Commission for use of wood products for protective surfacing.

1. Engineered Wood Fiber: ASTM F2075; containing no bark, leaves, twigs, or foreign or toxic materials; tested for accessibility according to ASTM F1951.
2. Critical Height: As required by Play Equipment Manufacturers requirements, see plans and specifications for playground equipment.
3. Uncompressed Material Depth: Not less than 14” Depth at all locations.

C. Insurance Requirements: Contractor must carry a minimum insurance of $1,000,000 general liability; $2,000,000 general aggregate and $1,000,000 excess liability.

2.3 PERFORMANCE REQUIREMENTS

A. Completed product: Upon completed installation, product shall have an ASTM fall rating (Critical Height) to meet requirements of specified equipment, see plans.

B. Impact Attenuation: Critical fall height tested according to ASTM F1292 for all Playground Equipment (fall height of tallest item is 8’-2”, verify). Contractor to coordinate and verify fall heights with equipment manufacturer.

C. Accessibility Standard: Minimum surfacing performance according to ASTM F1951.

2.4 GEOSYNTHETIC ACCESSORIES

A. Drainage/Separation Geotextiles: Comply with Section 312000 "Earth Moving."

B. Drainage/Separation Geotextile: Nonwoven, needle-punched geotextile, manufactured for drainage applications and made from polyolefins or polyesters; with the following minimum properties:

1. Weight: 4 oz./sq. yd.; ASTM D5261.
2. Water Flow Rate: 100 gpm/sq. ft. according to ASTM D4491.

2.5 MATERIALS

A. Base Drainage Aggregate: Crushed angular hard stone, 5/8” minus to ¼” with fines, compactible stone (not clean) for drainage.

PART 3 - EXECUTION

3.1 BASE BID

A. The following items are part of base bid:

1. Log and boulder containment.
2. Permeable base aggregate.
3. Geotextile on top of subgrade.
4. Engineered Wood Fiber

3.2 BASE INSTALLATION

1. Coordinate elevations of base installation with installation of log and boulder containment.
2. Coordinate with installation of playground equipment.

B. Install base drainage aggregate to subgrade elevation as required by the thickness of the selected playground protective surfacing. Surface to be level and free of irregularities. Compact surface as required by selected playground protective surfacing specifications.

1. Base Course: 5/8” minus crushed surfacing.
2. Compaction: 95% minimum.

3.3 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for subgrade elevations, slope, and drainage and for other conditions affecting performance of the Work.

1. Verify that substrates are sound and without high spots, ridges, holes, and depressions.

B. Base Drainage Aggregate Substrates: Verify that substrates are satisfactory for unitary, protective surfacing installation and that substrate surfaces are dry, cured, and uniformly level within recommended tolerances according to protective surfacing manufacturer's written requirements for cross-section profile.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.4 PROJECT CONDITIONS

A. Project Site Conditions:

1. Engineered wood fiber system must be installed on dry sub-surface and drainage with no standing water.

B. Sequencing and Scheduling: Playground protective safety surfacing shall be installed after all playground equipment, shade structures, signs and any other items that will be within the surfacing area. Coordinate with General Contractor.

C. Delivery, Storage and Handling: Materials and equipment shall be delivered and stored in accordance with the manufacturer’s recommendations.

3.5 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for subgrade elevations, slope, and drainage and for other conditions affecting performance of the Work.

1. Verify that substrates are sound and without high spots, ridges, holes, and depressions.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.6 PREPARATION

A. Finished Grade/Slope: Verify that finished elevations or adjacent areas are as indicated on the architectural or site plans, that the appropriate sub-grade elevation has been established for the particular safety surface to be installed, and that the subsurface has been installed per architectural, site or equipment plans while meeting accessibility and use zones requirements.

B. Install geotextile material over prepared subgrade.

C. Aggregate Sub Base: Tolerance of aggregate sub base shall be with 3/8” inch in 10’ ft. Verify that aggregate sub base has been fully compacted. Per ADA Guidelines: compacted Aggregate sub base – 4” inches of ¾” inch minus irregular stone with fines compacted to 95% percent in 2” inch watered lifts.

D. Prepare substrates to receive surfacing products according to protective surfacing manufacturer's written instructions.

E. Contractor to review and accept equipment locations, containment curb and base course installation. Installation of EWF surfacing acknowledges acceptance of site preparation.

F. Drainage: Verify that sub-surfacing drainage has been installed to provide positive drainage.

3.7 INSTALLATION OF ENGINEERED WOOD FIBER

A. Install concrete curb ramp into playground area for ADA access, see drawings and details for location.

B. Apply components of loose-fill surfacing according to manufacturer's written instructions to produce a uniform surface.

C. Loose Fill: Place loose-fill materials to required depth after installation of playground equipment support posts and foundations. Include manufacturer's recommended amount of additional material to offset natural compaction over time.

D. Loose fill to be 14-16” uncompacted depth at installation to ensure 12” depth is achieved at Final Acceptance.

E. Stabilizing Mats: Coordinate installation of mats and mat anchoring system with placing loose fill. Install per manufacturer’s specifications and installation details.

F. Grading: Uniformly grade loose fill to an even surface free from irregularities.

G. Compaction: After initial grading, mechanically compact loose fill before finish grading.

H. Finish Grading: Hand rake to a uniformly smooth finished surface and to required elevations.

3.8 FIELD QUALITY CONTROL AND CERTIFICATION

A. Testing Agency: Engage a qualified testing agency to perform tests.

B. Perform the following tests with the assistance of a factory-authorized service representative:

1. Perform "Installed Surface Performance Test" according to ASTM F1292 for each protective surfacing type and thickness in each playground area.
2. Perform installed-surface-performance tests at no less than one series of tests for each 1000 sq. ft. of each type and thickness of in-place protective surfacing or part thereof.
3. Permeability: 30 in./h of rainfall capacity according to ASTM F2898 or EN 15330-1.
4. Shock Attenuation: No greater than 200 G(max) at time of installation according to ASTM F1936 and ASTM 1292.

    a. A certified playground inspector / testing agency shall test all playground areas in accordance **with current applicable ASTM standards**. ASTM F 1292 requires that at least three impact sites be tested in each play area. The test requires that a head form be dropped from the fall height of the play equipment three times at each impact test site. The test results of the second and third drop from each site to be averaged and recorded. The head form is attached to a hand-held device that records the G-max and HIC values of each drop. The G-max is the maximum deceleration of gravity. The HIC is Head Impact Criteria or the measure of impact severity and duration.
    b. Head Injury Criteria (HIC) value of no more than 1,000 for a headfirst fall from the accessible height of the installed play equipment at each location.

C. Playground protective surfacing will be considered defective if it does not pass tests.

D. Lines between surfacing colors will be smooth and consistent with the Drawings.

E. Prepare and submit safety and other test reports.

3.9 PROTECTION

A. Clean Up: Manufacturer installers shall work to minimize excessive adhesive on adjacent surfaces or play equipment. Spills of excess adhesive shall be promptly cleaned.

B. Prevent traffic over seamless surfacing for not less than 48 hours after installation and until impact attenuation testing is complete and the surface is accepted by the Owner.

C. The site shall be kept clean and free of tools, trash, and debris and installation materials on a daily basis. Products may be stored on site during installation with appropriate protective measures and approval by the Owner's representative.

3.10 DEMONSTRATION

A. Train Owner's maintenance personnel in proper maintenance procedures for selected type of playground protective surfacing.

END OF SECTION 32 18 16.13

SECTION 32 84 00

PLANTING IRRIGATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Section includes the installation of a new irrigation system. Work includes but is not limited to: connecting new irrigation valves to an existing conventional controller, sleeves, mainline and lateral line piping, mechanical joint restraints, sprinkler heads, bubblers and accessories, control valves, control wiring and decoders, isolation valves, fittings, electrical connections, winterization provisions for blowing out all lines and equipment, and necessary accessories.

B. Existing irrigation indicated on early site package is to remain in operation. Existing irrigation system will be completely demolished with limits of work. See below for salvaged equipment requirements.

C. Construction drawings and specifications are complimentary, in the event of a conflict between specifications and construction drawings, the more restrictive requirement shall apply.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 SUMMARY

A. Section Includes:

1. Piping.
2. Encasement for piping.
3. Manual valves.
4. Pressure-reducing valves.
5. Automatic control valves.
6. Transition fittings.
7. Dielectric fittings.
8. Miscellaneous piping specialties.
9. Sprinklers.
10. Quick couplers.
11. Drip irrigation specialties.
12. Controllers.
13. Boxes for automatic control valves.

B. Related Sections:

1. Section 01 56 39 “Temporary Tree and Plant Protection”.
2. Section 31 2 000 “Earth Moving”.

1.4 EXISTING CONDITIONS

A. Contractor is responsible for verifying existing conditions and extent of work in the field. Existing Site Conditions: Locations of existing utilities and other improvements shown on the drawings are approximate. Existing conditions shall be verified and should any utilities be encountered during construction, the contractor shall indicate them on the “Record Drawings” with coordinated dimensions from fixed above ground structures and as per depth, size and type of material. The contractor shall always protect existing utilities.

1.5 DEFINITIONS

A. Lateral Line Piping: Downstream from control valves to sprinklers, and specialties. Piping is under pressure during flow.

B. ET Controllers: EvapoTranspiration Controllers. Irrigation controllers which use some method of weather based adjustment of irrigation. These adjusting methods include use of historical monthly averages of ET; broadcasting of ET measurements; or use of on-site sensors to track ET.

C. Mainline / Pressure Piping: Downstream from point of connection to water distribution piping to, and including, control valves. Piping is under water-distribution-system pressure.

D. Low Voltage: As defined in NFPA 70 for Laterals and equipment operating at less than 50 V or for remote-control, signaling power-limited Laterals.

1.6 PERFORMANCE REQUIREMENTS

A. Irrigation zone control shall be automatic operation with existing controller and automatic control valves.

1. Connect new control valves to existing park controller.

B. Location of Sprinklers and Specialties: Design location is approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards. Maintain 100 percent irrigation coverage of areas indicated.

C. Minimum Working Pressures: The following are minimum pressure requirements for piping, valves, and specialties unless otherwise indicated:

1. Irrigation Mainline Piping: 200 psig.
2. Lateral Line Piping: 150 psig.

1.7 ACTION SUBMITTALS: REQUIRED

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories.

B. Wiring Diagrams: For power, signal, and control wiring.

1. Wiring diagram of extension of new control wires to new control valves.

C. Closeout Submittals: See Section 3.22 Closeout for requirements.

1.8 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Irrigation systems, drawn to scale, on which components are shown and coordinated with each other, using input from Installers of the items involved. Also include adjustments necessary to avoid plantings and obstructions such as signs and light standards.

B. Qualification Data: For qualified Installer.

C. Field quality-control reports.

1.9 PRODUCT SUBMITTALS

A. Prior to starting any work, the contractor shall present for approval by the Owner's representative, three (3) packages of the following information. The submittals shall be neatly bound with a cover letter on the company's letterhead, indicating the contents and purpose of the submittals. All items shall be provided within one submittal package.

B. Submittal Package to include:

1. Project name and location.
2. Job site foreman's name that will be responsible for the project at all times.
3. Table of Contents listing all material and equipment to be used on the project indicating brand names, model numbers and or shop drawings. Landscape irrigation manufacturer's literature, data and product 'cut sheets' are required for are required for the following:

    a. Control wire
    b. Direct bury wire connectors.
    c. Quick coupler
    d. Automatic control valves
    e. Isolation gate valve
    f. Pipe: Sleeve, Mainline, Lateral, tubing (as applicable).
    g. Unions, fittings and solvent weld pipe glue
    h. Control wire, conventional
    i. Locator wire
    j. Control wire conduit
    k. Sprinklers, all types including rotors and sprays
    l. Bubblers and bubbler assemblies
    m. Valve boxes
    n. Metallic identification ribbon
    o. Surge protection and grounding devices
    p. Sand for sand bedding
    q. Concrete paver bricks for control valve boxes.

C. NOTE: All substitutions for proposed products shall be identified in the Table of Contents.

D. Provide name and address of each manufacturer's permanent service, warranty support or repair service that is authorized and has the ability to respond to service calls within eight hours of notification for service.

1.10 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Rotors: 25 of each type and size indicated.
2. Spray Sprinklers: 25 of each type and size indicated.
3. Bubblers: 25 of each type installed.

1.11 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer identified for components and equipment shall regularly and currently manufacture the item submitted as one of their principal products.

B. Installer Qualifications: An employer of workers that includes an onsite supervisor or superintendent that has completed certification by the Washington Association of Landscape Professionals or equivalent qualifications. Installer or supplier of service shall have technical qualifications, experience and trained personnel and the resources to perform the specified work in the scheduled construction time.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. Certified Tester shall test the “Backflow Prevention” devices per local requirements and submit the test results to the Owner as part of the Operations and Maintenance Manual.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.

B. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.13 PROJECT CONDITIONS

A. Underground utilities and elements: The Contractor shall call **Utility Notification Center at (811) or (800) 424-5555 or click www.callbeforeyoudig.org** to locate all underground utilities (on or near Public Rights-of-Way / Property Lines) prior to digging and/or driving stakes. The Contractor can also engage the services of a private utilities locating service for location of utilities within the site. Private utilities locating services charge for services rendered.

1. Contractor to contact Owner’s maintenance personnel 48 hours in advance of any earthwork, trenching or excavation to make arrangements for utility locates within Owner’s property, in addition to contacting the professional utility location services.

B. Site Inspection and Layout: Before proceeding with any work, the Contractor shall inspect the site, carefully checking all grades and verifying all dimensions and conditions affecting the work in order to be satisfied that the work may safely proceed. Changes or alterations to the system to meet actual conditions shall be made at the Contractor's expense.

1. The irrigation plan is diagrammatic and is not intended to show exact locations of proposed piping, valves or controllers. Locate new items as closely as possible to related curbs, walls, fences or edges of paving. Pipelines shown parallel on drawing may be placed in a common trench.
2. Sprinkler heads are shown accurately and shall be installed as indicated by center of symbol.
3. Contractor to verify locations of all existing irrigation equipment in the field prior to demolition and construction. Preserve all existing equipment to remain and cap existing lines at edges of construction so that existing system can remain fully operational during construction.

    a. Contractor may adjust heads as necessary to minimize overspray onto construction site. Replacement of full heads with adjustable heads to match is authorized.

C. During the installation of the new irrigation system, if underground utilities are encountered, the Contractor shall notify the Landscape Architect via RFI two (2) working days in advance and perform repairs to that system per this section and/or as directed. Repairs and connections shall be done per the contract documents or as directed in the RFI response.

D. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:

1. Notify Architect, Construction Manager, Owner no fewer than two days in advance of proposed interruption of water service.
2. Do not proceed with interruption of water service without Architect's, Construction Manager's, Owner's written permission.

1.14 IRRIGATION SYSTEM WARRANTY:

A. Contractor shall warranty work and parts for a period of one year beginning on the date of the final “Punch List” walk-thru. Any repairs or replacements deemed to be the contractor’s responsibility shall be remedied immediately with originally-specified material and to the owner’s satisfaction and at no cost to the owner. The contractor shall replace material within 15 days of written notice from owner’s representative. O&M Manual to INCLUDE letter of warranty consistent with these terms.

B. The warranty shall include restoration of planted or paved areas due to settlement of trenches or damage caused by water from broken irrigation system pipes.

C. The warranty shall include one complete winterization and one complete spring startup of the irrigation system.

PART 2 - PRODUCTS

2.1 GENERAL

A. Multiple Units: When two or more units of the same type or class of materials or equipment are required, these units are products of one manufacturer.

B. Assembled Units: Manufacturers of equipment assemblies, which use components made by others, assume complete responsibility for the final assembled product.

C. All components of an assembled unit need not be products of the same manufacturer but component parts which are alike are the product of a single manufacturer.

D. Components are compatible with each other and with the total assembly for the intended service.

E. Nameplates: Nameplate bearing manufacturer's name or identification trademark securely affixed in a conspicuous place on equipment or name or trademark cast integrally with equipment, stamped, or otherwise permanently marked on each item of equipment.

F. Accepted Manufacturers of Irrigation Equipment: Basis of Design: Rain Bird and Hunter. Other manufacturers are not acceptable unless approved in writing prior to the date of the bid.

2.2 PIPES, TUBES, AND FITTINGS

A. Comply with requirements in the piping schedule for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.

B. Galvanized-Steel Pipe: ASTM A 53/A 53M, Standard Weight, Type E, Grade B.

1. Galvanized-Steel Pipe Nipples: ASTM A 733, made of ASTM A 53/A 53M or ASTM A 106/A 106M, Standard Weight, seamless-steel pipe with threaded ends.
2. Galvanized, Gray-Iron Threaded Fittings: ASME B16.4, Class 125, standard pattern.
3. Malleable-Iron Unions: ASME B16.39, Class 150, hexagonal-stock body with ball-and-socket, metal-to-metal, bronze seating surface, and female threaded ends.
4. Cast-Iron Flanges: ASME B16.1, Class 125.

C. PE Pipe with Controlled ID: ASTM F 771, PE 3408 compound; SIDR 11.5.

1. Insert Fittings for PE Pipe: ASTM D 2609, nylon or propylene plastic with barbed ends. Include bands or other fasteners.

D. PVC Pipe: ASTM D 1785, PVC 1120 compound, Schedules 40 and 80.

1. PVC Socket Fittings: ASTM D 2467, Schedules 40 and 80.
2. PVC Threaded Fittings: ASTM D 2464, Schedule 80.
3. PVC Socket and Threaded Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket ends.

E. PVC Pipe, Class 200, socket and gasketed, ASTM D 1784 or 5, ASTM D-2464, ASTM D 2467, ASTM F-1970.

1. PVC Socket Fittings: ASTM D 2464, Schedule 80.
2. PVC Socket and Threaded Unions: Schedule 80. Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket or threaded ends.

2.3 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick unless otherwise indicated; full-face or ring type unless otherwise indicated.

B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

C. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

E. Solvent Cements for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.

F. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

G. Mechanical Joint Restraints: Install HARCO Ductile Iron IPS Pipe to Pipe Joint Restraint for all mainline pipe connections 4” and greater.

1. Install HARCO Ductile Iron IPS joint restraints at all 6" to 4" Tee's and 90's.
2. Install HARCO Ductile Iron IPS joint restraints at transitions from ductile iron to 6" PVC pipe.

H. Control valve triple swing joint connections to mainline. Size as determined by size of mainline and size of valve.

1. HARCO restrained ductile iron service tee. Or
2. HARCO Ductal Iron IPS Saddle, Double Strap for PVC pipe

2.4 ENCASEMENT FOR PIPING

A. Standard: ASTM A 674 or AWWA C105.

B. Form: Sheet.

C. Material: LLDPE film of 0.008-inch minimum thickness.

D. Color: Black.

2.5 MANUAL VALVES

A. Brass Ball Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Flow-Tek, Inc.
b. Hammond Valve.
c. Milwaukee Valve Company.
d. NIBCO INC.
e. Red-White Valve Corp.

2. Description:

a. Standard: MSS SP-110.
b. SWP Rating: 150 psig.
c. CWP Rating: 600 psig.
d. Body Design: Two piece.
e. Body Material: Forged brass.
f. Ends: Threaded or solder joint if indicated.
g. Seats: PTFE or TFE.
h. Stem: Brass.
i. Ball: Chrome-plated brass.
j. Port: Full or regular, but not reduced.

B. Iron Gate Valve Casings:

1. Standard: AWWA M44 for cast-iron valve casings.
2. Top Section: Adjustable extension of length required for depth of burial of valve.
3. Barrel: Approximately 5-inch diameter.
4. Plug: With lettering "WATER."
5. Bottom Section: With base of size to fit over valve.
6. Base Support: Concrete collar.

C. Operating Wrenches for Iron Gate Valve Casings: Furnish one steel, tee-handle operating wrench(es) with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut for Project.

D. Iron Gate Valves, NRS:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. WATTS.

2. Description:

a. Model: 405 NRSRW
b. Standard: MSS SP-70, Type I.
c. CWP Rating: 200 psig.
d. Body Material: ASTM A 126, gray iron with bolted bonnet.
e. Ends: Flanged.
f. Trim: All bronze.
g. Disc: Solid wedge.
h. Packing and Gasket: Asbestos free.

2.6 AUTOMATIC CONTROL VALVES

A. Remote Control Valve:

1. Manufacturers: Rain Bird, Inc.
2. Basis of Design Product: PEB-PRS-D Series
3. 1", 1 ½" and 2": Globe valves with internal bleed and flow control
4. Install with PRS-Dial
5. Description: Molded-plastic body, normally closed, diaphragm type with manual-flow adjustment, and operated by 24-V ac solenoid.

B. Bubbler Irrigation Control Valve and Filter Assembly

1. Manufacturers: Rain Bird, Inc.

a. Basis of Design Product: XCZ-150-LCS, 1.5" Inline Commercial Control Zone Kit

1) 1 1/2": PEB Series globe valves with internal bleed and flow control

2.7 TRANSITION FITTINGS

A. General Requirements: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.

B. Transition Couplings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cascade Waterworks Mfg. Co.
b. Dresser, Inc.

2. Description: AWWA C219, metal sleeve-type coupling for underground pressure piping.

C. Plastic-to-Metal Transition Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Harvel Plastics, Inc.
b. Spears Manufacturing Company.

2. Description: PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-socket or threaded end.

D. Plastic-to-Metal Transition Unions:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. NIBCO INC.

2. Description: MSS SP-107, PVC four-part union. Include one brass threaded end, one solvent-cement-joint or threaded plastic end, rubber O-ring, and union nut.

2.8 MISCELLANEOUS PIPING SPECIALTIES

A. Pressure Gages: ASME B40.1. Include 4-1/2-inch-diameter dial, dial range of two times system operating pressure, and bottom outlet.

2.9 SPRINKLERS

A. General Requirements: Designed for uniform coverage over entire spray area indicated at available water pressure.

B. Manufacturers and models as indicated on the drawings. No substitutions.

2.10 QUICK COUPLERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Rain Bird Corporation.

B. Description: Factory-fabricated, bronze or brass, two-piece assembly. Include coupler water-seal valve; removable upper body with spring-loaded or weighted, rubber-covered cap; hose swivel with ASME B1.20.7, 3/4-11.5NH threads for garden hose on outlet; and operating key.

1. Rain Bird 44 LRC, 1” Quick Coupler Valve, Two Piece Body
2. Locking-Top: Vandal-resistant locking feature. Include one matching key(s).

2.11 BUBBLER IRRIGATION

A. Bubbler: Multi-Stream bubbler nozzle, pressure compensating bubbler.
Manufacturer: Hunter Industries

1. Model: PCN with standard female threads that are compatible with the threaded riser on Hunter on other manufacturer’s spray heads.
2. The pressure compensating bubbler shall be as manufactured by Hunter Industries.

B. Bubblers to be pressure compensating at the nozzle. The under-the-nozzle pressure compensating screen shall be a two-piece screen combination with a flow-control module positioned in the middle.

C. The bubbler shall be a pressure compensating type capable of providing a consistent discharge rate as indicated on the drawings for each bubbler.

D. The bubbler shall have a “trickle” pattern (1401& 1402 models) or an “umbrella” pattern (1406 &1408 models) discharge. See drawings for specific models and applications.

E. The bubbler assembly shall have a plastic inlet filter screen to protect the nozzle against clogging.

F. The pressure compensating bubbler shall be of a permanently assembled design constructed of durable, UV resistant plastic with an integral rubber flow washer for regulating the flow rate at an operating pressure range of 20 to 90 PSI.

G. The pressure compensating bubbler shall have a 1/2" inlet for connection to the piping system.

1. Connect bubbler to 4” pop-up sprinkler body.

H. Application Pressure Regulators: Plastic housing, NPS 3/4, with corrosion-resistant internal parts; capable of controlling outlet pressure to approximately 20 psig.

I. Air Relief Valves: Plastic housing, with corrosion-resistant internal parts.

J. Vacuum Relief Valves: Plastic housing, with corrosion-resistant internal parts.

2.12 CONTROLLER

A. Controller is existing. Coordinate connection to existing controller with Owner’s maintenance personnel.

2.13 CONTROL WIRE

A. Control Wire: Low-Voltage, Decoder-Circuit Cables: No. 14 AWG minimum, between controllers and automatic control valves up to 1000’, No. 12 AWG from 1000’ up; purple / blue jacketed. Exposed control wire to the controller shall only be placed in Electrical Metallic Tubing (EMT) conduit for interior building locations and PVC pipe for exterior building locations when not co-located with mainline.

B. Control Wire Connections: All electrical connections must be waterproof and moisture-resistant and shall be done with 3M™ Scotchcast™ 3570G Connector Sealing Packs.

C. Plastic Boxes:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Oldcastle, Inc.

2. Description: Specification Grade, Commercially Rated, box and locking cover, with open bottom and openings for piping; designed for installing flush with grade.

a. Size: As required for valves and service.
b. Shape: Round, Square, Rectangular.
c. Sidewall Material: HDPE.
d. Cover Material: HDPE.

1) Lettering: " IRRIGATION."

3. Specification Grade Round valve boxes, 10" diameter top access, shall be used for quick-coupler or mainline isolation valves only.

D. Polymer-Concrete Boxes:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Oldcastle Enclosure Solutions.

2. Description: Box and cover, with open bottom and openings for piping; designed for installing flush with grade.

a. Size: As required for valves and service. Size to allow full access to valve unions for service and removal.
b. Shape: Rectangular.
c. Sidewall Material: Polymer concrete with lateral and vertical sidewall design loading of 5000 lb. minimum over 10 by 10 inches square.
d. Cover Material: Reinforced polymer concrete with cover design loading of 5000 lb minimum over 10 by 10 inches square.

1) Lettering: " IRRIGATION."

e. Hydrometer valve box: Oldcastle Polymer 1730 with flush solid cover.

3. Valve Box Backfill: Place cleaned gravel or crushed stone, graded from 3/4 inch minimum to 3 inches maximum in bottoms of valve boxes.

PART 3 - EXECUTION

3.1 WATER SERVICE

A. Basis of Design:

1. The irrigation system shall be connected to the existing Travers Park irrigation system.
2. Operational Schedule: The system is designed to provide the irrigation required with an irrigation window of eight hours per day, seven days per week.

3.2 EXISTING IRRIGATION SYSTEM, DEMOLITION

A. Review existing irrigation system prior to demolition with Owner’s maintenance personnel.

1. Identify locations to isolate mainlines and lateral lines at edge of construction and adjust heads to provide coverage of existing landscape to remain with minimal overspray onto construction site.
2. Identify existing equipment for removal and salvage to Owner.
3. Maintain irrigation to all existing park landscape areas to remain. Provide temporary piping and control wiring as necessary to maintain irrigation.

3.3 EXISTING IRRIGATION EQUIPMENT, SALVAGE

A. Existing rotors and control valves to be removed and salvaged to Owner. Clean, box, label and deliver to Owner’s representative.

3.4 LAYOUT OF IRRIGATION SYSTEM:

A. Stake the irrigation system following the design shown on the Plans before construction begins. Alterations and changes to the layout may be expected in order to conform to the site conditions and to obtain full and adequate coverage of area to be irrigated. It is understood that corrective measures in the system may become necessary, but no changes or alterations to the system as planned shall be made without the prior authorization of the Architect.

B. Before starting work, determine that work may proceed without disruption of the activities of other trades.

C. The Contractor shall carefully check grades to ensure that the area is ready to begin work.

D. The Contractor is responsible for taking all reasonable investigative actions and precautions when working around all utility systems.

3.5 PREPARATION

A. Set stakes to identify locations of proposed irrigation system. Obtain Architect's approval before excavation.

3.6 TRENCHING

A. Excavating, trenching, and backfilling are specified in Section 31 20 00 "Earth Moving" and as modified below.

B. Trenching: All trenches shall be open, vertical construction, sufficiently wide enough to provide ample working space and at depths as specified. Trenching around roots shall be hand excavated or air spaded to pipe depth when roots of 2 inches in diameter or greater are encountered. Trench width shall be 4 inches minimum or 1-1/2 times the diameter of the pipe or whichever is wider.

1. Exercise care when excavating trenches near existing trees per Section 01 56 39 - Temporary Tree & Plant Protection. Where roots are two inches (2") and greater in diameter hand excavate and tunnel. When large roots are exposed, wrap with heavy burlap for protection and prevent excessive drying. Trenches dug by machines adjacent to trees having roots two inches (2") and less in diameter shall have the sides hand trimmed making a clean cut of the roots. Trenches having exposed tree roots shall be back-filled within twenty-four (24) hours unless adequately protected with moist burlap or canvas.
2. Trench bottom must be free of rocks, debris and sharp-edged objects.

C. The use of an underground vibratory plow or similar device to pull pipe will **not** be permitted unless indicated.

D. Install warning tape directly above pressure piping, 12 inches below finished grades, except 6 inches below subgrade under pavement and slabs.

E. Do not work over, or walk on, pipe in trenches until sand bedded and covered by layers of earth well tamped in place to a depth of 12 inches over pipe.

F. Provide minimum cover over top of underground piping according to the following:

1. Irrigation Mainline Piping and Control Wires: Cover over lines to be not less than 24" below finished grade.
2. Lateral Line Piping: Cover over lines to be not less than 18".

3. Sleeves: 24 inches from top of base rock under roads (bottom of pavement). Sleeves under sidewalks shall match proposed mainline and lateral depths.

G. Sand Bedding and Backfill: The contractor shall encase all PVC pipe within a 4" layer in all directions, with clean sand before commencing with the backfill process. Any rocks larger than 1", debris or other material found within 3" of the pipe shall result in Contractor exposing all pipe to ensure that sand bedding is free of rocks and debris. Trenches shall be back-filled with approved topsoil and compacted in layers to 80-85% modified proctor compaction, using manual or mechanical tamping devices. Trenches for piping shall be compacted to equal the compaction of the existing adjacent undisturbed soil and shall be left in firm unyielding condition. All trenches shall be left flush with the adjoining grade.

1. All work must be inspected, hydrostatically tested and approved by the Owner's representative prior to backfilling.
2. Pipe shall have a firm, uniform bearing for the entire length of each pipeline to prevent uneven settlement. Wedging or blocking of pipe shall not be permitted.
3. The Contractor shall set in place; cap and pressure test all piping under paving prior to paving work.
4. All backfill in turf areas shall proceed as follows: (No Deviations): Place first lift (1/2 of trench depth) in trench and flood to settle. Final lift shall be placed and compacted even with finish grade.

H. All roots, rocks and surplus excavation shall be removed from the site unless otherwise directed. Any turf areas buried under ditch excavation shall be raked clean of any excavated material.

I. The location, inspecting and testing provisions of these specifications will be strictly adhered to. If, for any reason, any part of the sprinkler system is back-filled before approved location, testing, or inspection is authorized, it must be completely uncovered and exposed until approved for back-filling by the Landscape Architect.

3.7 PIPING INSTALLATION

A. Location and Arrangement: Irrigation drawings are diagrammatic in nature and show the general location and arrangement of piping systems. Install piping as indicated unless deviations are approved on Coordination Drawings.

B. Piping Schedule: see end of section for piping schedule.

C. Sleeves:

1. Sleeves shall be installed straight with no bends or angle joints.
2. Furnish and install where pipe and control wires pass under walks, paving, walls, etc. Sleeving to be of adequate size to accommodate retrieval for repair of wiring or piping and shall extend 12 inches beyond edges of paving or construction. See Schedule at end of this section for minimum sizes. Sleeves shall be bedded with a minimum of four inches of sand backfill above top of pipe.
3. Sleeve locations shall be marked at edge of hardscape with an 'X' for future location.

D. Install piping free of sags and bends. Ensure pipe is evenly supported throughout the run to prevent uneven settling. Wedging or blocking of pipe shall not be permitted.

E. Install groups of pipes parallel to each other, spaced to permit valve servicing. Pipe to have 3" minimum space between parallel pipes.

F. Pipe may be assembled and solvent welded outside of the trench. Pipe to be ‘snaked’ from side to side in the trench to all for expansion and contraction. Pipe to be assembled with ALL MARKINGS CLEARLY LEGIBLE FROM THE TOP OF THE TRENCH, to facilitate pipe verification.

1. Pipe may be ‘center loaded’ with sand bedding to ensure pipe is stable during pressure testing. All joints, fittings and changes of direction are to be visible.

G. Install fittings for changes in direction and branch connections.

H. Install unions adjacent to valves and to final connections to other components with NPS 2 or smaller pipe connection.

I. Install flanges adjacent to valves and to final connections to other components with NPS 2-1/2 or larger pipe connection.

J. Install underground thermoplastic piping according to ASTM D 2774 and ASTM F 690.

K. Install expansion loops in control-valve boxes for plastic piping.

L. Lay piping on solid subbase, uniformly sloped without humps or depressions.

M. Install PVC piping in dry weather when temperature is above 40 deg F. Allow joints to cure at least 24 hours at temperatures above 40 deg F before testing.

N. Install fittings at changes in direction and connections. Pipe changes in direction without a fitting shall not exceed 15°.

O. Install unions on either side of globe valves and for lateral line piping connection on angle valves. Install unions at final connections for other components.

P. Concrete Thrust Blocks:

1. Mainline 2” and greater: Install concrete thrust blocks on at all changes in direction in mainline piping.

    a. Install thrust blocks on all irrigation mainline changes in direction, including ells, tees and mainline terminations.

2. Thrust Block Schedule: Place and size thrust blocks in accordance with pipe manufacturer’s specifications. Thrust block shall be of adequate size to counter maximum internal water pressure.

    a. 2” mainlines: five gallons of concrete minimum.
    b. 2.5” mainlines: ten gallons of concrete minimum
    c. 3” mainlines: fifteen gallons of concrete minimum
    d. 4” and greater mainlines: 20 gallons of concrete minimum.
    e. See drawings and details for additional thrust block information.

3. Installation: Wrap pipe in filter fabric and pour thrust block concrete around pipe. Concrete to be evenly distributed around top and sides of joint on opposing side of water flow.

Q. Mechanical Joint Restraints: Install mechanical joint restraints on:

1. All mainline joints 4” and greater.

2. Mainline changes of direction, tees, ells or terminations. Install mechanical restraints in addition to thrust blocks.

R. Install transition fittings for plastic-to-metal pipe connections according to the following:

1. Underground Piping:

a. NPS 1-1/2 and Smaller: Plastic-to-metal transition fittings.
b. NPS 2 and Larger: AWWA transition couplings.

2. Aboveground Piping:

a. NPS 2 and Smaller: Plastic-to-metal transition fittings.
b. NPS 2 and Larger: Use dielectric flange kits with one plastic flange.

S. Install dielectric fittings for dissimilar-metal pipe connections according to the following:

1. Underground Piping:

a. NPS 2 and Smaller: Dielectric coupling or dielectric nipple.
b. NPS 2-1/2 and Larger: Prohibited except in control-valve box.

2. Aboveground Piping:

a. NPS 2 and Smaller: Dielectric union.
b. NPS 2-1/2 to NPS 4: Dielectric flange.
c. NPS 5 and Larger: Dielectric flange kit.

3. Piping in Control-Valve Boxes:

a. NPS 2 and Smaller: Dielectric union.
b. NPS 2-1/2 to NPS 4: Dielectric flange.
c. NPS 5 and Larger: Dielectric flange kit.

T. Plastic Pipe and Fittings

3.8 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Make all connections between plastic pipe and metal pipes or valves with Teflon tape using plastic male adapters.
2. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
3. Teflon tape shall be installed in accordance with requirements of fitting manufacturers. Any deviation from installation procedures as instructed by fitting manufacturers shall be rectified at no cost to the Owner.
4. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

D. Flanged Joints: Select rubber gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

E. Ductile-Iron Piping Gasketed Joints: Comply with AWWA C600 and AWWA M41. Connect new mainline, regardless of size to existing mainline with HARCO ductile-iron gasketed joints.

F. PE Piping Fastener Joints: Join with insert fittings and bands or fasteners according to piping manufacturer's written instructions.

G. PVC Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Solvent weld using solvents and methods in accordance with the pipe manufacturer's specifications. Do not solvent weld threaded connections.
2. Pipe and fittings shall be thoroughly cleaned of dirt, dust and moisture before applying solvent with a non-synthetic brush.

    a. Primer and solvent shall be applied so that a small, clean bead is visible after assembly.
    b. Unacceptable installations include excessive solvent/primer, inadequate solvent/primer, will be removed and the pipe re-joined.

    Make all connections between plastic pipe and metal valves or pipe with teflon tape using plastic male adapters. Do not over tighten.

3. Install solvent weld joints in accordance with manufacturer's specifications for temperature, weather and other requirements. No solvent weld joints shall be installed when temperatures are lower than the manufacturer's minimum.
4. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
5. PVC Pressure Piping: Join schedule number, ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
6. PVC Nonpressure Piping: Join according to ASTM D 2855.

H. Repairs to existing PVC pipe:

1. Repairs or connections to existing PVC pipe shall be done using 'Romac', or approved equal fittings, installed per manufacturer's specifications. 'Romac' Model #511 (long version) repair coupling is required. No telescoping repair couplings will be allowed. An isolation valve is also required at that point of connection to allow for pressure testing of the new system.

3.9 VALVE INSTALLATION

A. Install flow meter and master valve as indicated in drawings and per Manufacturers' specifications.

B. Underground Curb Valves: Install in curb-valve casings with tops flush with grade.

C. Underground Iron Gate Valves with 2-inch operating nut for wrench operation; Resilient Seat: Comply with AWWA C600 and AWWA M44. Install in valve box with valve casing to interior of valve box.

1. Install valves and PVC pipe with restrained, gasketed joints.

D. Automatic Control Valves:

1. Install in control-valve box.
2. Valve Connections: Control valves shall be installed with swing joint consisting of schedule 80 nipples and galvanized elbows. Gasketed ductile iron retrained tapped tee fitting or double saddle tee fitting and Sch 80 triple swing joints nipples and fittings.
3. Install automatic control valves within landscape areas whenever possible. Do not install control valves in swales.
4. DO NOT piggy-back valves.
5. Control valves shall be no deeper than 18” from top of pipe leaving valve to finished grade.
6. Valve shall be identified with brass tag with zone number attached to valve.
7. Schedule 80 Tee for valve will be taken off the side of the main line (not the top) and the tee will be large enough to use a slip-by threaded bushing instead of a tapped tee.
8. Place within 24" to paved edges of sidewalks, roads or parking lot curbs in a neat and orderly fashion.
9. Valve boxes shall be installed so that the box cover will follow the proposed slopes and contours. (flush with slopes) This may require more than one-extension box. This will occur in all turf grass areas only not in shrub beds or groundcover areas.
10. No valve boxes shall be allowed in the bottom or within 18” of the bottom of swales.

E. Aboveground Valves: Install as components of connected piping system.

F. Pressure-Reducing Valves: Install in boxes for automatic control valves or aboveground between shutoff valves.

G. Throttling Valves: Install in underground piping in boxes for automatic control valves.

H. Drain Valves: Install in underground piping in boxes for automatic control valves.

I. Drain Pockets: Excavate to sizes indicated. Backfill with cleaned gravel or crushed stone, graded from 3/4 to 3 inches (19 to 75 mm), to 12 inches (300 mm) below grade. Cover gravel or crushed stone with sheet of asphalt-saturated felt and backfill remainder with excavated material.

J. Valve boxes shall be placed in a neat, orderly fashion, no closer than 12" apart and shall be placed with consideration to mowing and upkeep of adjacent areas (i.e., not on sloped planted areas). Valve boxes shall be installed on concrete pavers at each corner of the box for stability.

3.10 CONTROL WIRES, CONVENTIONAL

A. Installation and repair of conventional control wires for existing system to remain.

1. Extend conventional control wires from existing system to remain, to new control valve locations. Connect and verify operation.
2. **Control wires to be installed in conduit when not installed adjacent to mainline**.

B. Connect remote control valves to controller in sequence shown on drawings.

C. Control wires shall be taped together at ten (10) foot intervals with black electrical tape; then this bundle shall be installed at same depth as main line and lay to the side of the main line. A bare copper wire (#14 or greater), shall be installed on top of the PVC supply line for future detection with the wire ends clearly exposed in the valve boxes.

D. Tie a loose 24 inches long loop of control wire at 100' intervals, in all automatic control valve boxes and at changes of direction greater than 30 degrees. Untie all loops after all connections have been made.

E. Splices shall be permitted only at junction boxes, valve boxes, or at control equipment and never between valves or valve and controller. A minimum of 24 inches of excess conductor shall be left at all splices, terminal and control valves to facilitate inspection and future splicing. All splices must be encapsulated with sealant in approved splice kit. The splice kit shall be a 3M-DBY type water-proof wire splice, or approved equal. If a splice between the controller and valve is required due to damage to existing valve wires, the splice shall include minimum 24 inches excess length of control wire added at the splice location. At the break location, two splices are required to complete the repair. The splices (two per break) shall leave splice kits unburied, and shall be housed in a separate valve box and brought to finish grade.

F. All control wire shall be labeled within the controller at the point of each station connection. Identify both ends of each wire with station number to match sprinkler diagram. Wire identifications shall be located adjacent to connection point at each end and easily visible. Marking system shall be 'TP-BLDG XX' with 3/4" labels. Each label shall read: ZONE – 1, ZONE – 2, ZONE – 3 etc.

G. One (1) unconnected Spare Wire (color Orange) for each four (4) zones) shall be run from the controller through each intermediate control valve box. Provide at least a twenty-four inch (24") long, tight loop for each wire in each box. Where control valves run in multiple directions from the controller, at least one (1) separate spare wire shall be run in each direction. The spare wire(s) shall always be installed to the farthest valve(s) location(s) from the controller.

H. Minimum size of wire is to be determined strictly by the following chart:

No. of Maximum Length of Common Wire

Valves	500'	1000'	2000'	3000'
1	14	14	14	14
2	14	14	14	10
3	14	14	10	8
4	14	14	10	8
5	14	10	8	6
6	14	10	6	6
7	14	8	6	4
8	14	8	6	4
9	14	8	4	4
10	10	6	4	2
11	10	6	4	-

I. Ground equipment according to Division 26 Section " Low Voltage Electrical Power Conductors and Cables ".

J. Connect wiring according to Division 26 Section "Conductors and Cables". All Flow meter connection shall be tight and dry. All wire splices are to be located in valve box and identified in 'Record Drawings'.

3.11 SPRINKLER INSTALLATION

A. General: Locate as shown on the drawings, except where existing conditions prohibit, or to better suit field conditions, and to achieve as good, or better, coverage under the same conditions. Change without the Owner's representative's consent is subject to disapproval and may require replacement at no additional charge to the Owner.

B. Sprinkler heads and quick coupler valves shall be installed on triple swing joints.

1. Sprinkler head triple swing joints shall consist of three Schedule 40 PVC street elbows and a schedule 80 PVC nipple.
2. Quick coupler valve triple swing joints shall consist of three galvanized elbows and a galvanized nipple.

C. Install sprinklers after hydrostatic test is completed.

D. Install sprinklers:

1. ½" above sod and ¾" above finish grade in hydroseeded and seeded areas.
2. With 2" between sprinkler head and sidewalks, curb or mow strips.

E. Do not install sprinklers along curb side of street parking strips.

F. Locate part-circle sprinklers to maintain a minimum distance of 6 inches from walls, walks, header boards, curbs, mowing aprons or paved areas unless otherwise indicated.

3.12 BUBBLER INSTALLATION

A. Install bubblers so that no more than 20 bubblers are on each side of each riser. Ensure that flow is balanced on all sides of the riser and that each bubbler is operating at full flow. Adjust numbers of bubblers on risers as necessary to balance the flow.

B. Bubbler Schedule:

1. Perennials and ornamental grasses, one gallon and smaller: One bubbler, 25 gpm.
2. Perennials and ornamental grasses, one gallon and larger: One bubbler, see drawings.
3. Trees: Two bubblers, see drawings.

C. Bubblers to be installed within water basin of plants. Adjust basin so that a minimum of one gallon of water from bubbler remains in basin.

3.13 CONNECTIONS

A. Comply with requirements for piping specified in Section 22 11 13 "Facility Water Distribution Piping" for water supply from exterior water service piping, water meters, protective enclosures, and backflow preventers. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment, valves, and devices to allow service and Maintenance.

C. Connect wiring between existing controller and automatic control valves. Repair and/or replace any control wire serving existing control valves that has been damaged during construction.

3.14 IDENTIFICATION

A. Identify system components. Comply with requirements for identification specified in Section 22 05 53 "Identification for Plumbing Piping and Equipment."

B. Warning Tapes: Arrange for installation of continuous, underground, detectable warning tapes over underground piping during backfilling of trenches. See Section 31 20 00 "Earth Moving" for warning tapes.

3.15 FIELD QUALITY CONTROL:

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Flushing: Remove two heads (minimum) of each zone (or branch), operate system at full pressure until all rust, scale, debris and sand is removed from system.

    a. Divert water to prevent ponding, erosion or damage to finished work.

C. Perform tests and inspections.

    1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
    2. All PVC welded joints and fittings shall have cured for at least 24 hours prior to testing.

D. Tests and Inspections:

    1. **Contractor is required to perform hydrostatic tests on all mainline and lateral lines regardless of time of year of construction. It is the responsibility of the Contractor to provide all means for pressurizing and winterizing any piping that is tested during freezing temperatures. Piping and system components shall be immediately winterized following testing when temperatures are forecast to be below freezing.**
    2. Make hydrostatic tests in the presence of the Owner's authorized representative. No pipe shall be backfilled until it has been inspected, tested and approved. Center loading of piping with approved backfill to prevent arching and slipping under pressure is authorized.

        a. Notification: Contractor to notify Owner's representative a minimum of 48 hours in advance of testing.

    3. Contractor to furnish necessary water pump, gauges and all other test equipment.
    4. Larger projects may require phased testing of irrigation mainline and lateral lines. Contractor to identify phases for testing that correspond with sections between isolation valves.
    5. Main Line Hydrostatic Pressure Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.

        a. Main Line Testing Pressure: 100 psi.
        b. Test Duration: 2 hour.
        c. All PVC main lines with gate (isolation) valves installed and closed shall be hydrostatically pressure tested for a minimum of two hours with all joints exposed. Welded plastic joints to have cured a minimum of 24 hours prior to pressure testing.

            1) Mainline Piping: Mainline piping shall be exposed in the trench to the maximum extent possible to allow visual review of all mainline components during the pressure test. All pipe text shall face up. Leave all system joints, connections, etc., exposed until after completion and acceptance of the pressure test. All joints must be exposed for the duration of the test.
            2) Isolate mainline from water service and pressurize with a water pump. Do not use compressed air. Install gauge on section pressurized for verification. Gauge to be certified and tested for accuracy. Testing information showing date of test to be affixed to gauge.

3) Cap mainline and hydrostatically pressurize at 100 psi for 2 hours minimum prior to review by Landscape Architect or Owner's authorized representative. Maintain pressure for additional 2 hours during Owners representative's review. Visually check joints and connections for leaks. Repair all leaks, however minor.

a) Passage of test is predicated upon no loss of pressure for duration of testing period.
b) To be valid, all tests must be witnessed and approved by the Landscape Architect or Owner's authorized representative. The Contractor must give at least two (2) working days' notice prior to the anticipated date of inspection.

4) A report of the results of the pressure test will be prepared by the Landscape Architect or Owner's authorized representative immediately after completion of the testing.

a) Pipe that is damaged or found to unacceptable during testing will be replaced by the Contractor at no cost to the Owner and re-tested.
b) Changes or alterations to installed piping after satisfactory completion of pressure testing are required to be re-tested.

6. Lateral Line Hydrostatic Pressure Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist. Welded plastic joints to have cured a minimum of 24 hours prior to pressure testing.

a. Lateral Line Testing Pressure: Static pressure or 80psi whichever is greater.
b. Test Duration: 1 hour.
c. All PVC lateral lines shall be hydrostatically pressure tested and with all joints exposed to available static pressure until watertight. Cap swing joints and risers. Flush all lines upon completion of hydrostatic pressure testing.
d. All PVC lateral lines with risers installed and capped shall be flushed and pressure tested with all joints exposed to service line pressure required for design.

1) Lateral line piping shall be exposed in the trench to the maximum extent possible to allow visual review of all mainline components during the pressure test. All pipe text shall face up. Leave all system joints, connections, etc., exposed until after completion and acceptance of the pressure test. All joints must be exposed at time of test.
2) Isolate lateral line from water service and pressurize with a water pump if required. Do not use compressed air. Install gauge on section pressurized for verification. Gauge to be certified and tested for accuracy. Testing information showing date of test to be affixed to gauge.
Cap all risers and/or triple swing joints during lateral test. Test all lateral lines at static line pressure. Test for 2 hours minimum prior to review by Landscape Architect. Maintain pressure for 1 hour during Landscape Architect's review. Visually check joints and connections for leaks. Repair all leaks, however minor.

a) Lateral Line's only: Passage of test is predicated no visible leaks around exposed pipe joints, and no loss of pressure exceeding 5psi for duration of testing period.
b) To be valid, all tests must be witnessed and approved by the Landscape Architect or Owner's authorized representative. The Contractor must give at least two (2) working days' notice prior to the anticipated date of inspection.

3) All gauges used in the testing of water pressures shall be certified correct by an independent testing laboratory immediately prior to use on the project. Gauges shall be re-tested when directed by the Landscape Architect or Owner's authorized representative.
4) A report of the results of the pressure test will be prepared by the Landscape Architect or Owner's authorized representative immediately after completion of the testing.

a) Pipe that is damaged or found to unacceptable during testing will be replaced by the Contractor at no cost to the Owner and re-tested.
b) Changes or alterations to installed piping after satisfactory completion of pressure testing are required to be re-tested until satisfactory test results.

7. The backflow preventer shall be tested and approved by a certified contractor as to its working condition and the certificate shall be presented to the Owner. Test shall be completed no later than Final Completion. Test certificate to be included in Operations and Maintenance Manual.
8. Operational Test: After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.

Coverage Test:

1) Before the irrigation system will be accepted, the Contractor, in the presence of the Landscape Architect, shall perform a water coverage test for each zone of the system. This test shall be performed using only the power supplied from the project's final metered power drop. Never perform this or any other testing of the irrigation system equipment using power supplied by a portable generator.
2) The Contractor shall be responsible for changing nozzles, etc., at the discretion of the Landscape Architect, in order to obtain full coverage with minimum over spray. The Contractor will be required to adjust and/or replace nozzles, etc. as necessary to meet this requirement. Prior to arrival of the Landscape Architect, the Contractor shall accomplish the following: complete all work including balancing, adjusting the system (pressure reducing valves, flow adjustment keys, nozzles, etc.) to provide optimum coverage without fogging. Repair and replace any defective work. Substitute up to five percent (5%) of the total nozzles or fixed spray heads at the request of the Landscape Architect.
3) Operate all bubbler zones in the presence of LA or Owner's representatives to verify all bubblers are functioning. All water from bubblers should remain in well around base of plant.
4) Notify the Landscape Architect at least two (2) working days in advance of coverage test.

9. Test and adjust controls and communications. Replace damaged and malfunctioning controls and equipment.

a. Functionality Test:

1) A functionality test of the control/communication systems shall be performed and demonstrate that all parts of the system function as specified or intended. The functionality test for each new system shall consist of not less than thirty (30) calendar days of continuous, satisfactory operation.

b. Controls Test to include testing of communication from existing controller to existing and new control valves. All valves to be fully operational at completion of construction.

E. Any irrigation product will be considered defective if it does not pass tests and inspections.

1. Any materials determined to be faulty as part of the installation shall be replaced or corrected by the Contractor at their expense in a manner respective to the Plans, Details and other sections of this Specification. In the event of a system failure due to faulty installation or workmanship, the thirty (30) day period will be repeated until testing is complete.

3.16 COMMISSIONING, FIRST WINTERIZATION AND SPRING START-UP

A. Contractor shall use accepted industry practices for both winterization and startup.

B. Commissioning and initial startup.

1. Starting Procedures: Follow manufacturer's written procedures. If no procedures are prescribed by manufacturers, proceed as follows:

a. Verify that specialty valves and their accessories are installed and operate correctly.
b. Verify that specified tests of piping are complete.
c. Verify that sprinklers and devices are correct type.
d. Verify that damaged sprinklers and devices are replaced with new materials.
e. Verify that potable-water supply connections have tested backflow preventers.
f. Energize circuits to electrical equipment and devices.
g. Satisfactory test of backflow preventer in accordance with local regulations governing testing and acceptance of backflow prevention devices. Submit written results with Operations and Maintenance Manual.
h. Adjust operating controls.
i. Fully completed and approved Project Record Drawings.
j. Fully completed and approved Operations and Maintenance Manual.
k. Any other applicable requirement contained in the Specifications or Drawings.

C. First Winterization

1. Conduct winterization process with Owner’s maintenance personnel demonstrating the procedures included in the Operations and Maintenance manual. Coordinate with Owner’s maintenance personnel and provide 48 hours minimum notice prior to shut down and winterization.
2. Notify Owner in writing that the system has been Winterized and backflow prevention device/water service may be secured, noting the day completed and personnel present.

D. Spring Start-up

1. Upon notification from Owner that spring start-up is scheduled, return to project site and demonstrate start up procedures included in the Operations and Maintenance manual. Including but not limited to:

a. Visually inspect all system components for winter damage, and repair/replace any damaged devices, piping, etc.
b. Coordinate with Owner’s maintenance personnel to test and return the backflow prevention device to service.

2. Coordinate with Owner's staff to set controller operation to provide required application of water for the spring weather conditions.
3. Notify Owner in writing that the spring startup procedures have been completed, noting the day completed and personnel present.

3.17 ADJUSTING

A. Adjusting heads to proper grade when turf is sufficiently established to allow walking on it without appreciable harm. Such lowering or raising of heads shall be part of original contract with no additional cost to Owner.

B. Adjust sprinkler heads for proper distribution and trim so spray does not fall on building.

C. Adjust watering time of valves to provide proper amounts of water to all plants

D. Adjust sprinklers and devices, except those intended to be mounted aboveground, so they will be flush with, or not more than 1/2 inch above, finish grade.

3.18 TRAINING AND DEMONSTRATION

A. Demonstrate to Owner's maintenance personnel operation of controllers, equipment, sprinklers, specialties, and accessories. Review Maintenance and Operations information.

B. Provide seven days' advance written notice of demonstration.

3.19 CLEANING

A. Flush dirt and debris from piping before installing sprinklers and other devices.

B. Progressively clean the work site of debris and rubbish as work proceeds and upon completion of the work. Leave the site in a neat and orderly condition acceptable to the Landscape Architect or Owner's authorized representative.

3.20 CLOSEOUT

A. Upon completion of this project, and prior to final payment, the contractor shall return to the owner the Operations and Maintenance Manual, Record Drawings, ("as-builts"), irrigation plans, at the same scale as originally published, and in CD Auto Cad file format.

B. Operation/Maintenance Manuals:

1. Provide the Owner with one final hard copy and one electronic pdf of the Operation and Maintenance Manual for the system. One preliminary pdf copy of the manuals shall be submitted to the Architect for review and approval prior to issuing the final copies to the Owner. Manuals shall be provided to the Owner prior to the instruction/training session.
2. Manuals shall include at a minimum.

    a. A master index at the beginning of the manual. Provide tab index sheets separating sections within the manual; correlated to the index.
    b. A section containing the name, address, and phone number of the Architect, General Contractor, all subcontractors, and all material Suppliers.
    The listing shall be numbered or otherwise keyed to the other sections of the manual so that each system component or material item can easily be associated with the appropriate supplier and installer.
    c. A section containing a general description of the system, the intended sequence of operation, and the "Record Drawings".

d. Winterization and Spring Startup: Contractor to prepare a site-specific section containing the operational procedures for winterization and spring start-up, and recommended spare parts listings. Sequence for winterization and spring start-up shall identify procedures and reference equipment listed on the “As-Built” record drawings.
e. A section containing technical information about each and every component of the system. This information shall include catalog data clearly marked as to specific model number and/or style device used, exploded parts diagrams for assembled components such as control valves and sprinkler heads, and wiring/control diagrams for all parts of the system. This information should correspond with approved submittals for irrigation equipment. Equipment specified, approved substitutions and installed equipment shall be noted on the equipment cut sheets.
f. A section containing all manufacturer’s and contractor’s warrantees, test reports, and inspection certificates.

1) Inspection certificates include but are not limited to:

a) Backflow Preventor / RP and Double Check Valve Assemblies.
b) Reduced Pressure Back Flow Prevention Devices.
c) Electrical service. See applicable Electrical Sections.

C. Record Documents and Drawings

1. Record accurately and legibly on a daily basis, all changes, additions, deletions, substitutions, discovered utilities and irrigation system components and other irrigation system modifications on a clean set of Construction Documents. Update and review record documents with Architect during each site observation meeting/visit.
2. Record Drawings shall be approved by the Owner/Landscape Architect before controller charts and controller scheduling are finalized.
3. Provide the completed original markup drawings to the Owner and a copy to the Architect at the completion of the work, prior to application for final payment. 1.Provide the Owner with one final hard copy, one electronic cad drawing (Autocad 2018 or older), and one electronic pdf of at the same scale as the original design drawings. Landscape architect can provide contractor with electronic cad drawing for use in preparation of as-built drawings.

a. Indicate locations, sizes and kinds of equipment installed.
b. Dimension from 2 permanent points of reference (building corners, sidewalk, or road intersections, etc.) the location of the following items:

1) Connection to water lines.
2) Connection to electrical power.
3) Locations of points for grounding and surge protection.
4) Gate/Isolation valves.
5) Routing of sprinkler pressure lines (dimension max. 100' along routing).
6) Significant changes in routing of lateral lines from those indicated on Drawings.
7) Sprinkler control valves with as-built valve numbers that correspond with the Controller Chart.
8) Routing of control wiring.

a) Routing of control wire installed in conduit that is not co-located with the mainline.
b) Hose Bibs and quick coupling valves.

c. Deliverable:

1) As-Built drawings: Contractor shall prepare drawings utilizing an extra set of irrigation plans that the contractor utilizes to document the installation of the irrigation system on a daily basis.
2) Record drawing format: Autocad 2018 or older. PDF's of conformed drawings with markings are not acceptable.
3) Plan of the "As-Built" irrigation condition that identifies the location of point of connection, back flow assemblies, controllers, all new automatic control valves, isolation valves, mainline, lateral lines, route of control wires, sensor devices (rain, moisture, etc.), sprinkler heads, drip areas and equipment locations, sleeve crossings. Contractor shall annotate, on a daily basis, all deviations in the plans of the locations of piping, valves or other equipment. The contractor shall also indicate any discovered utilities on the in progress As-Builts. Plan will be prepared in a legible manner, suitable for printing at the same size as the construction drawings and at 11"x17" for display at controller.

    a) All valves to be identified by 'As-Built' number and correspond to the valve numbers as shown on the construction plans. Valves numbers shall also correspond with the operational irrigation schedule.
    b) Contractor may request CAD drawings for use in the preparation of "As-Built' drawings.
    c) All zones will be color coded for ease of identification.
    d) Format:
    e) Two full sets of plans marked "As-Built" printed to match the scale of the original construction documents.
    f) Two full sets of reduced plans marked "As-Built", plans to be laminated to resist moisture damage. Mount one copy at each controller (as applicable/approved) location as directed on ¾" exterior grade plywood. Provide one copy to Owner's maintenance personnel at irrigation system operation training.

3.21 PIPING SCHEDULE

A. Install components having pressure rating equal to or greater than system operating pressure.

B. Piping in control-valve boxes and aboveground may be joined with flanges or unions instead of joints indicated.

C. Sleeves:

1. Class 200, ASTM D 1784 or 5 plastic pipe.
2. Low voltage control wire: 3" diameter sleeve (dedicated, with no zone or main piping in sleeve), unless otherwise noted.
3. All piping sleeves shall be 6" diameter or if not called out a minimum of twice the size as the sleeved pipe.

D. Underground irrigation mainline and lateral line piping:

1. Pressure Pipe:

    a. Pipe smaller than 4": PVC plastic pipe, ASTM D 1785, Schedule 40.

        1) DO NOT use copper tubing or polyethylene pipe.
        2) Use PVC solvent cement compatible with PVC pipe. (NO quick-drying cement permitted.)

b. 4” and larger: Class 200 PVC, SDR 21, ASTM D 1784, gasketed pipe with JM Eagle's Ring-Tite™ joint with flexible elastomeric Rieber® gasket. Or approved equal.

2. Circuit Pipe:

a. PVC plastic pipe, ASTM D 1785, Schedule 40.
b. DO NOT use copper tubing or polyethylene pipe.
c. Use PVC solvent cement compatible with PVC pipe. (NO quick-drying cement permitted.)

3. Pipe Fittings for PVC Pipe: ASTM D 2464 socket fittings; ASTM D 2466 threaded fittings. PVC Nipples, Schedule 80 ASTM D 2466.

a. Use PVC solvent cement compatible with PVC pipe. (NO quick-drying cement permitted.)

4. Pipe Fittings for Galvanized Steel Pipe: ANSI B16.3 galvanized malleable-iron screwed fittings.

E. Underground Branches and Offsets at Sprinklers and Devices: Schedule 80, PVC pipe; threaded PVC fittings; and threaded joints.

1. Option: Plastic swing-joint assemblies, with offsets for flexible joints, manufactured for this application.

F. Transition Fittings: Refer to Division 22 Section "Common Work Results For Plumbing" for transition fittings.

G. Refer to Division 22 Section "Common Work Results For Plumbing" for commonly used joining materials.

3.22 VALVE SCHEDULE

A. Underground, Shutoff-Duty Valves: Use the following:

1. NPS 2 and Smaller: Curb valve, curb-valve casing, and shutoff rod.
2. NPS 3 and Larger: Iron gate valve, resilient seated; iron gate valve casing; and operating wrench(es).

B. Drain Valves:

1. NPS 1/2 and NPS 3/4: Plastic ball valve.
2. NPS 1/2 and NPS 3/4: Bronze gate valve.
3. NPS 1 to NPS 2: Bronze ball valve.
4. NPS 1 to NPS 2: Bronze gate valve.

END OF SECTION 32 84 00

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SECTION 32 91 13

SOIL PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Geotechnical Engineering Evaluation

1.2 SUMMARY

A. Section includes planting soils specified by composition of the mixes.

B. Related Requirements:

1. Section 31 20 00 “Earth Moving” for grading.
2. Section 32 18 23.15 “Natural Baseball and Softball Surfacing”
3. Section 32 91 15.10 “Soil Preparation – Athletic” for planting soils and preparation for athletic fields.
4. Section 32 92 00 "Turf and Grasses" for placing planting soil for turf and grasses.
5. Section 32 9 300 "Plants" for placing planting soil for plantings.

1.3 DEFINITIONS

A. AAPFCO: Association of American Plant Food Control Officials.

B. Backfill: The earth used to replace or the act of replacing earth in an excavation. This can be amended or unamended soil as indicated.

C. CEC: Cation exchange capacity.

D. Compost: The product resulting from the controlled biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth.

E. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.

F. Imported Soil: Soil that is transported to Project site for use.

G. Layered Soil Assembly: A designed series of planting soils, layered on each other, that together produce an environment for plant growth.

H. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.

I. NAPT: North American Proficiency Testing Program. An SSSA program to assist soil-, plant-, and water-testing laboratories through interlaboratory sample exchanges and statistical evaluation of analytical data.

J. Organic Matter: The total of organic materials in soil exclusive of undecayed plant and animal tissues, their partial decomposition products, and the soil biomass; also called "humus" or "soil organic matter."

K. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

L. RCRA Metals: Hazardous metals identified by the EPA under the Resource Conservation and Recovery Act.

M. SSSA: Soil Science Society of America.

N. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

O. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

P. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.

Q. USCC: U.S. Composting Council.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include recommendations for application and use.
2. Include test data substantiating that products comply with requirements.
3. Include sieve analyses for aggregate materials.
4. Material Certificates: For each type of imported soil, soil amendment and fertilizer before delivery to the site, according to the following:

    a. Manufacturer's qualified testing agency's certified analysis of standard products.
    b. Analysis of fertilizers, by a qualified testing agency, made according to AAPFCO methods for testing and labeling and according to AAPFCO's SUIP #25.
    c. Analysis of nonstandard materials, by a qualified testing agency, made according to SSSA methods, where applicable.

B. Test Results: Submit results for each planting soil with determination of required soil amendments.

C. Samples: For each bulk-supplied material, 1-quart volume of each in sealed containers labeled with content, source, and date obtained. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of composition, color, and texture.

D. Materials Source: Submit name and location of imported materials source.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For each testing agency.

B. Preconstruction Test Reports: For preconstruction soil analyses specified in "Preconstruction Testing" Article.

C. Field quality-control reports.

1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in types of tests to be performed.

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Contractor to engage a qualified testing agency to perform preconstruction soil analyses on imported soil.

1. Notify Architect seven days in advance of the dates and times when laboratory samples will be taken.

B. Preconstruction Soil Analyses: For each unamended soil type, perform testing on soil samples and furnish soil analysis and a written report containing soil-amendment and fertilizer recommendations by a qualified testing agency performing the testing according to "Soil-Sampling Requirements" and "Testing Requirements" articles.

1. Have testing agency identify and label samples and test reports according to sample collection and labeling requirements.

1.9 SOIL-SAMPLING REQUIREMENTS

A. General: Extract soil samples according to requirements in this article.

B. Sample Collection and Labeling: Soil samples and test results to be provided by supplier of soils.

1.10 TESTING REQUIREMENTS PLANTING SOILS.

A. General: Perform tests on soil samples according to requirements in this article.

B. Physical Testing:

1. Soil Texture: Soil-particle, size-distribution analysis by one of the following methods according to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods":

a. Sieving Method: Report sand-gradation percentages for very coarse, coarse, medium, fine, and very fine sand; and fragment-gradation (gravel) percentages for fine, medium, and coarse fragments; according to USDA sand and fragment sizes.
b. Hydrometer Method: Report percentages of sand, silt, and clay.

2. Total Porosity: Calculate using particle density and bulk density according to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods."

3. Water Retention: According to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods."
4. Saturated Hydraulic Conductivity: According to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods"; at 85% compaction according to ASTM D 698 (Standard Proctor).
5. Submit Stormwater Facility Soil Type A test results to Civil Engineer for approval.

C. Chemical Testing:

1. CEC: Analysis by sodium saturation at pH 7 according to SSSA's "Methods of Soil Analysis - Part 3- Chemical Methods."
2. Clay Mineralogy: Analysis and estimated percentage of expandable clay minerals using CEC by ammonium saturation at pH 7 according to SSSA's "Methods of Soil Analysis - Part 1- Physical and Mineralogical Methods."
3. Metals Hazardous to Human Health: Test for presence and quantities of RCRA metals including aluminum, arsenic, barium, copper, cadmium, chromium, cobalt, lead, lithium, and vanadium. If RCRA metals are present, include recommendations for corrective action.
4. Phytotoxicity: Test for plant-available concentrations of phytotoxic minerals including aluminum, arsenic, barium, cadmium, chlorides, chromium, cobalt, copper, lead, lithium, mercury, nickel, selenium, silver, sodium, strontium, tin, titanium, vanadium, and zinc.

D. Fertility Testing: Soil-fertility analysis according to standard laboratory protocol of SSSA NAPT NCR-13, including the following:

1. Percentage of organic matter.
2. CEC, calcium percent of CEC, and magnesium percent of CEC.
3. Soil reaction (acidity/alkalinity pH value).
4. Buffered acidity or alkalinity.
5. Nitrogen ppm.
6. Phosphorous ppm.
7. Potassium ppm.
8. Manganese ppm.
9. Manganese-availability ppm.
10. Zinc ppm.
11. Zinc availability ppm.
12. Copper ppm.
13. Sodium ppm.
14. Soluble-salts ppm.
15. Presence and quantities of problem materials including salts and metals cited in the Standard protocol. If such problem materials are present, provide additional recommendations for corrective action.
16. Other deleterious materials, including their characteristics and content of each.

E. Organic-Matter Content: Analysis using loss-by-ignition method according to SSSA's "Methods of Soil Analysis - Part 3- Chemical Methods."

F. Recommendations: Based on the test results, state recommendations for soil treatments and soil amendments to be incorporated to produce satisfactory planting soil suitable for healthy, viable plants indicated. Include, at a minimum, recommendations for nitrogen, phosphorous, and potassium fertilization, and for micronutrients.

1. Fertilizers and Soil Amendment Rates: State recommendations in weight per 1000 sq. ft. for 6-inch depth of soil.
2. Soil Reaction: State the recommended liming rates for raising pH or sulfur for lowering pH according to the buffered acidity or buffered alkalinity in weight per 1000 sq. ft. for 6-inchdepth of soil.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and compliance with state and Federal laws if applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on athletic fields or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Do not move or handle materials when they are wet or frozen.
4. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Regional Materials: Imported soil, manufactured planting soil and soil amendments and fertilizers shall be manufactured or supplied from sources within 75 miles of Project site.

2.2 TESTING

A. All test reports submitted for materials must be dated within 30 days of product submittal.

2.3 PLANTING SOILS SPECIFIED ACCORDING TO PERFORMANCE REQUIREMENTS

A. Planting-Soil Type ‘A’: Existing, on-site surface soil, with the duff layer, if any, retained; and stockpiled on-site; modified to produce viable planting soil. Blend existing, on-site surface soil with soil amendments and fertilizers as indicated in the soils report.

1. Planting Soil Type ‘A’ is **not** available.

B. Planting-Soil Type ‘B’: Manufactured soil consisting of specified sand blended with compost and other materials to produce viable planting soil for landscape areas meeting requirements.

1. Planting Soil Type ‘B’: Contractor shall provide Planting Soil Type ‘B’.
2. Planting Soil Type ‘B’ to be:

a. Wittkopf / SiteOne Turf Builder Soil or approved equal. Contractor to submit soil tests to confirm equivalency of submitted soil.

1) SiteOne Landscape Products
8721 N Fairview Rd
Spokane, WA
Phone: (509) 467-0685

b. Or approved equal from local source in Sandpoint, Idaho. Submittal for substitution must include all required soil testing noted above and comparison to specified planting soil.

3. The following amendments to Planting Soil Type ‘B’ shall be made.

   a. Required ratio of Compost.

      1) 2” minimum of compost applied to sod and turf grass seeded areas
      2) 2” minimum of compost applied to all planting areas.

   b. Soil Reaction: pH of 6 to 7.5.

   c. Fertility Amendments (as indicated by soil test):

      1) Weight of Lime.
      2) Weight of Sulfur Iron Sulfate.
      3) Weight of Agricultural Gypsum.
      4) Weight of Superphosphate.
      5) Weight of Commercial Fertilizer. As indicated for:

         a) Turf Grass Sod; starter fertilizer and maintenance fertilizer
         b) Seeded Turf Grass; starter fertilizer and maintenance fertilizer
         c) Planting areas

      6) Weight of Slow-Release Fertilizer as recommended.

4. Unacceptable Properties: Clean soil of the following:

   a. Unacceptable Materials: Concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.
   b. Unsuitable Materials: Stones, roots, plants, sod, clay lumps, and pockets of coarse sand that exceed a combined maximum of 8 percent by dry weight of the imported soil.
   c. Large Materials: Stones, clods, roots, clay lumps, and pockets of coarse sand exceeding 2 inches in any dimension.

2.4 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent.

B. Sulfur: Granular, biodegradable, and containing a minimum of 90 percent elemental sulfur, with a minimum of 99 percent passing through a No. 6 sieve and a maximum of 10 percent passing through a No. 40 sieve.

C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

D. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through a No. 50 sieve.

E. Sand: Clean, washed, natural or manufactured, free of toxic materials, and according to ASTM C 33/C 33M.

2.5 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance". Compost must be STA Certified Compost. Provide STA Certified Compost test results with submittal.

1. Compost to be:

a. Barr-Tech, LLC
PO 19265
Spokane, WA 99219
Contact: Ted Condon
T: 509-590-0437
Compost Manufacturing Facility
9117 Kallenberger Rd.
Sprague, WA 99032

b. Or approved equal that with current (within 2 months) STA Certified Compost Test Results demonstrating that the compost meets the US Composting Council Standards.

2. Compost Test Results: Must be STA Certified Compost Test Results per US Composting Council Requirements. Compost must comply with US Composting Council Standards.

2.6 FERTILIZERS

A. Commercial Fertilizer, Starter and Establishment: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Supplier: Planet Turf 6422 E. 2nd Ave Spokane Valley, WA 99212 509 977-1354 / Jared Whitaker

a. Starter: PROPEAT 11-11-11 at 300lbs per acre. No Substitutions
b. Establishment, 4 weeks after seeding: PROPEAT 11-11-11 at 200lbs per acre. No Substitutions

B. Final completion fertilizer as indicated by soil test. Contractor to pull samples from five locations in each field (east of building and baseball / softball fields). Submit to Planet Turf for testing and recommendations. Apply fertilizer as recommended by soils test at Final Completion and at end of maintenance period. See “Turf and Grasses” for additional requirements.

C. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium.

PART 3 - EXECUTION

3.1 GENERAL

A. Place planting soil and fertilizers according to requirements in other Specification Sections.

B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.

C. Proceed with placement only after unsatisfactory conditions have been corrected.

3.2 EXAMINATION

A. Verify building and trench backfilling have been inspected.

B. Verify substrate base has been contoured and compacted.

C. Preparation of subgrade: Removal all construction debris

D. See civil and architectural plans for placement of fill prior to installation of Planting Soil Type A.

3.3 PLACING MANUFACTURED PLANTING SOIL OVER EXPOSED SUBGRADE

A. General: Apply manufactured soil on-site in its final, blended condition. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.

B. Cleanly cut edge of existing sod where new soil is to be placed and ensure that transition between new and existing sod creates a smooth transition without ridges, humps or hollows.

C. Sodded Area Subgrade Preparation: Rip or till subgrade to a minimum depth of 6 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter from surface and legally dispose of them off Owner's property.

1. Grade subgrade to required elevations. Coordinate with irrigation installation.
2. Mixing: Spread 6" of approved Planting Soil to depth as indicated on plans to grades as indicated and to accommodate natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.
3. Apply approximately half the thickness of planting soil over prepared, loosened subgrade. Mix thoroughly into top 2 inches of subgrade. Spread remainder of planting soil

    a. Amendments: Apply fertilizer, if required, evenly on surface, and thoroughly blend them with soil.
    b. Mix fertilizer with Planting Soil no more than seven days before planting.
    c. Apply 2" of approved compost to all areas to be sodded and hydroseeded, till into top 2" of planting soil.

D. Planting Beds Subgrade Preparation: Remove construction debris and extraneous material from all areas to receive approved Planting Soil. Till subgrade to a minimum depth of 6 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

1. Mixing: Spread 6" of approved Planting Soil over all designated areas. Mix first 2" into top 2" of prepared subgrade.
2. Apply 2" of approved compost to planting beds, till into top 2" of planting soil.

E. Berm Construction: Berms to be constructed with Planting Soil. See Civil and Landscape drawings for final grades. Do not place any rock, debris or unsuitable material in berms.

F. Compaction: Compact each blended lift of planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D 698. Soils compacted in excess of 82 percent shall be corrected to a depth of no less than 8".

G. Application: Spread planting soil to total depth indicated on Drawings, but not less than required to meet finish grades after natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.

1. Lifts: Apply planting soil in lifts not exceeding 8 inches in loose depth for material compacted by compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

H. Grading Requirements, See Civil Plans for finish grades:

1. Subgrade: See Civil Plans for subgrade requirements.
2. Surface / Finish Grade: Contractor to ensure field and transitions to existing grades are smooth and free of ridges, humps and hollows greater than 1” over 10’.
3. Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
4. Installation Procedures:

a. Irrigation: Install irrigation system prior to installation of planting soil. See Planting Irrigation section for requirements.
b. Prior to placement of planting soil, contractor to get approval of subgrade preparation from Architect or Owner’s representative.
c. Contractor to preserve and protect installed irrigation piping, sprinklers and other improvements.
d. Do not use compaction devices on the surface material except for normal grading and tillage equipment.
e. Planting soil to be transported to the site and dumped around perimeter of the site. Contractor to utilize equipment for spreading that will not damage irrigation pipe, rutting of the subgrade or over compaction of the planting soil. Utilize plywood course over installed planting soil as necessary to protecting planting soil from rutting and excessive compaction. Under no circumstances should trucks or other equipment be allowed to travel over uncovered subgrade.
f. Post construction sod repair and seeding: See Section 329200 "Turf and Grasses" for planting turf and grasses.

I. Finish grading at building walls.

1. Top of planting soil and mineral mulch to be as directed by Owner’s representative in the field. Mark elevations as directed on walls. See civil and architectural plans and specifications for additional information.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Perform the following tests and inspections:

1. Compaction: Test planting-soil compaction after placing each lift and at completion using a densitometer or soil-compaction meter calibrated to a reference test value based on laboratory testing according to ASTM D 698. Space tests at no less than one for each 1000 sq. ft. of in-place soil or part thereof. Compaction shall not exceed 85% standard proctor density.

C. Soil will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

E. Label each sample and test report with the date, location keyed to a site plan or other location system, visible conditions when and where sample was taken, and sampling depth.

F. Full depth of planting soil shall be free for rocks, construction debris or other deleterious material. See Section 32 92 00 “Turf and Grasses” for requirements.

3.5 PROTECTION

A. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Vehicle traffic.
4. Foot traffic.
5. Erection of sheds or structures.
6. Impoundment of water.
7. Excavation or other digging unless otherwise indicated.

B. If planting soil or subgrade is over compacted, disturbed, or contaminated by foreign or deleterious materials or liquids, remove the planting soil and contamination; restore the subgrade as directed by Architect and replace contaminated planting soil with new planting soil.

3.6 PLANTING SOIL SCHEDULE

A. Planting soil thickness:

1. Sod and Seeded Areas: 6” Planting Soil ‘B’ and 2” minimum of compost.
2. Shrub / Planting Areas: 6” Planting Soil ‘B’ and 2” minimum of compost.

B. Fertilizer: See Section 329200 Turf and Grasses and 32 93 00 Plants for requirements.

3.7 CLEANING

A. Protect areas adjacent to planting-soil preparation and placement areas from contamination. Keep adjacent paving and construction clean and work area in an orderly condition.

B. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.

1. Dispose of excess subsoil and unsuitable materials on-site where directed by Owner.

C. Protect stormwater facilities from compaction and construction traffic. Do not cleanout concrete trucks, masonry materials, paint or other materials in landscape or stormwater facilities.

END OF SECTION 32 91 13

SECTION 32 92 00

TURF AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Turfgrass Seed
2. Low Maintenance Seed

B. Schedule:

1. Seeding operations for the park must be completed by the following dates:

a. Seeding must be installed by no later than the July 1st and no later than September 1st in the fall.
b. The contractor shall fertilize, re-seed and maintain the seeded lawns as necessary, responding to both weather conditions and schedule requirements, to deliver an acceptable stand of grass.
c. Protection: All seeded areas shall be protected from access through the means of temporary fencing and site controls.
d. Maintenance shall begin immediately upon placement; however, the 3-month maintenance period will not begin until the entire project has been declared substantially complete.
e. The contractor shall fertilize, replace damage sections, maintain the sodded lawns as necessary, responding to both weather conditions and schedule requirements, to deliver an acceptable stand of grass no later than the last day of July, upon which the three-month maintenance period will begin.
f. Protection: All sodded areas shall be protected from access and use prior to the full release for unrestricted access, through the means of temporary fencing and site controls.

C. Related Requirements:

1. Section 32 91 15 “Soil Preparation”
2. Section 32 93 00 “Plants”

1.2 DEFINITIONS

A. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

B. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329115 "Soil Preparation" and drawing designations for planting soils.

1.3 INFORMATIONAL SUBMITTALS

A. Seed certification.

1. Certification of seed mixture for turfgrass sod.

B. Product certificates.

1.4 ACTION SUBMITTALS

A. Phased Maintenance and Acceptance Plan

1. Contractor to prepare a proposed phased maintenance plan for review and approval by Owner's representative indicating areas of phased completion, dates of completion, date of end of maintenance period and date of final completion for acceptance by Owner.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.

1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.

2. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:

a. Landscape Industry Certified Technician - Exterior.
b. Landscape Industry Certified Lawncare Manager.
c. Landscape Industry Certified Lawncare Technician.

3. Pesticide Applicator: State licensed, commercial.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

PART 2 - PRODUCTS

2.1 TURF GRASS SEED

A. Turf Grass Seed, Park: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

1. Turf Grass Seed Mix:

a. Products: Subject to compliance with requirements, provide the following:
b. Turfgrass Seed / Hydroseed:

a) 30 percent Kentucky bluegrass (Poa pratensis). Three varieties, min.
b) 50 percent perennial ryegrass (Lolium perenne). Three varieties, min.
c) 20 percent creeping red fescue (Festuca rubra). One variety.

B. Low Maintenance Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

1. Seed Mix:

    a. Products: Subject to compliance with requirements, provide the following:

        1) Low Maintenance Grass Hydroseed:

            a) 25% - Hard Fescue, Festuca longifolia ‘Warwick’
            b) 45% - Sheep Fescue, Festuca Ovina ‘MX-86’
            c) 30% - Canada Bluegrass, Poa compressa ‘Ruebens’

2.2 FERTILIZERS

A. Commercial Fertilizer, Starter and Establishment: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Supplier: Planet Turf 6422 E. 2nd Ave Spokane Valley, WA 99212 509 977-1354 / Jared Whitaker

    a. Starter: PROPEAT 11-11-11 at 300lbs per acre. No Substitutions
    b. Establishment, 4 weeks after seeding: PROPEAT 11-11-11 at 200lbs per acre. No Substitutions
    c. Final completion fertilizer as indicated by soil test

B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium. Material in “Asphalt Emulsion” Paragraph below may be used as a tackifier in a hydroseeding slurry or to temporarily bond straw mulch in place.

2.4 HYDROSEED MULCHES & TACKIFIERS

A. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

B. Nature’s Own High-Density cellulose mulch or approved equal.

1. Hamilton Manufacturing, Inc. www.hmi-mfg.com

C. No asphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

D. EM-Tack or approved equal.

2.5 PESTICIDES

A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

PART 3 - EXECUTION

3.1 TURF AREA PREPARATION

A. General: Prepare planting area for soil placement and mix planting soil according to Sections 32 91 15 "Soil Preparation" and requirements listed below.

B. Slopes of turf areas to be 1:5 (rise:run), unless less than 3 feet in height. Slopes less than 3’ shall not exceed 1:4 with approved transitions that facilitate mowing.

C. Reduce elevation of planting soil to allow for soil thickness of sod.

D. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

E. Before planting, obtain Owner’s representative's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 TURF GRASS SEEDING

A. Seed athletic field and areas indicated on the plans as soon as possible after completion of soil preparation.

B. Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogenous slurry suitable for hydraulic application.

1. Apply slurry uniformly to all areas to be seeded in a 1-step process. Apply mulch at the minimum rate of 2500 lb. per acre dry weight but not less than the rate required to obtain specified seed-sowing rate.
2. Mix slurry with non-asphaltic tackifier. Submit material and recommended rate for approval.

C. Turfgrass Hydroseed: apply at a total rate of 8 lbs. PLS / 1000 sq. ft.

D. Protect seeded areas with temporary construction fencing until acceptable turf is established. No athletic activities to be conducted until turf has been established for one year.

E. Protect seeded areas with slopes exceeding 3:1 with erosion-control fiber mesh installed and stapled according to manufacturer's written instructions.

F. Protect seeded areas with erosion-control mats where indicated on Drawings; install and anchor according to manufacturer's written instructions. See Civil.

3.3 HYDROSEEDING, LOW MAINTENANCE GRASS AREAS

A. Seed athletic field and areas indicated on the plans as soon as possible after completion of soil preparation.

B. Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogenous slurry suitable for hydraulic application.

C. Apply slurry uniformly to all areas to be seeded in a 1-step process. Apply mulch at the minimum rate of 2500 lb. per acre dry weight but not less than the rate required to obtain specified seed-sowing rate.

D. Mix slurry with non-asphaltic tackifier. Submit material and recommended rate for approval.

E. Low Maintenance Hydroseed: apply at a total rate of 8-10 lbs. PLS / 1000 sq. ft.

F. Protect seeded areas with temporary construction fencing until acceptable turf is established. No athletic activities to be conducted until turf has been established for one year.

G. Protect seeded areas with slopes exceeding 3:1 with erosion-control fiber mesh installed and stapled according to manufacturer's written instructions.

H. Protect seeded areas with erosion-control mats where indicated on Drawings; install and anchor according to manufacturer's written instructions. See Civil.

3.4 SEEDING MAINTENANCE

A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

B. Perform maintenance in accordance with the approved Phased Maintenance and Acceptance Plan.

1. Maintenance Period: Three months from date of Substantial Completion.

a. When Substantial Completion is achieved after September 15th, maintenance period shall be extended by 2 weeks starting on April 20th of the following year.

C. Maintenance Period Fertilizer Schedule:

1. Installation of sod is likely to occur in phases. Contractor to provide phased maintenance plan with fertilization schedule based on soil test for review and approval.
2. All turf areas, including those sodded or rehabilitated through the use of topdressing of fields to eliminate irregularities, raking to remove excess thatch, etc., shall receive fertilizations per the following schedule:

a. General Lawn areas: Fertilize three times during growing season with 2.4 lbs. actual nitrogen per 1000 sq. ft. per application, subject to adjustment based on soils testing and nutrient levels available and approval of the Landscape Architect.
b. Aerate turf areas three times a year during growing season, in addition to mowing, trimming and cleanup of cuttings.

D. Hydroseeded Turfgrass: mow as soon as top growth is tall enough to cut. Do not mow when ground is saturated. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings.

1. Mowing Height: 2-2 ½”.
2. Contractor to maintain hydroseeded lawn for six weeks after hydroseeding and perform a minimum of 4 mowings, one per week. First mowing occurring no sooner than 21 days after seeding.
3. Maintenance period: April 1st to October 15th. If seeding occurs after September 1st, all maintenance mowings to occur the following spring unless otherwise determined by the Owner’s representative.

4. Conduct weed control to remove weeds from hydroseeded turf areas. Turf areas to be free of weeds at completion of maintenance period.
5. Fertilizer, composition and rate per approved submittal:

    a. Apply fertilizer with hydroseed.
    b. Apply fertilizer at end of maintenance period.
    c. Perform soil test prior to end of maintenance period and provide recommended fertilizer formulation and rate based on test.
    d. Submit report of fertilizer application with documentation of amount of fertilizer applied.

E. Low Maintenance Grass: mow as soon as top growth is 6". Do not mow when ground is saturated. Repeat mowing to maintain 5" height and reduce height of weeds without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings.

1. Contractor to perform three mowings of low maintenance turf grass with first mowing occurring no sooner than 21 days after seeding.
2. Maintenance period: April 1st to October 15th. If seeding occurs after September 1st, all maintenance mowings to occur the following spring unless otherwise determined by the Owner's representative.
3. Conduct weed control to remove weeds from low maintenance grass. Turf to be free of weeds at completion of maintenance period.
4. Fertilizer, composition and rate per approved submittal seed mix:

    a. Apply fertilizer to finish grade prior to laying seeding.
    b. Apply fertilizer at end of maintenance period.
    c. Submit report of fertilizer application with documentation of amount of fertilizer applied tailored to application on low maintenance seed.
    d. Complete two fertilizations of seeding per the soils report during maintenance period.

        1) Final fertilization to occur at completion of maintenance period.

F. Perform weed control and mowing per approved establishment schedule

G. Maintain all seeded and sodded turf areas as indicated above. Notify Owner's representative one month prior to date of completion of maintenance.

H. Contractor is responsible for irrigation scheduling until completion of maintenance and final acceptance of seeded and sodded turf grass.

I. Apply pesticides and other chemical products and biological control agents in accordance with authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

3.5 SATISFACTORY ESTABLISHMENT

A. Satisfactory Turfgrass: Establish and maintain hydroseeded areas by broad leaf weed control, re-seeding, erosion repair and other operations required to establish hydroseed. Apply additional hydroseed, at specified rates, to any area exceeding 2 square feet as required to establish a uniform stand. Maintenance requirements until all additional seed is established.

1. Treat for broad leaf weeds as necessary to achieve uniform stand of grass with no bare areas exceeding one square foot after three months or at time of Substantial Completion.
2. Treat for broad leaf weeds as necessary to achieve uniform stand of grass with no bare areas exceeding one square foot after three months or at time of Final Completion.
3. No weeds to be present at Substantial Completion, Final Completion and end of maintenance period.

B. Use specified materials to reestablish unsatisfactory turf and continue maintenance until turf is satisfactory.

C. All turf grass areas are to be weed free at time of Final Acceptance.

D. No mowing clippings shall remain on surface of newly mown lawn.

E. No weeds to be present at Substantial Completion and Final Completion.

3.6 SATISFACTORY LOW MAINTENANCE GRASS

A. Establish and maintain hydroseeded areas by broad leaf weed control, re-seeding, erosion repair and other operations required to establish hydroseed. Apply additional hydroseed, at specified rates, to any area exceeding 2 square feet as required to establish a uniform stand. Continue maintenance requirements until all additional seed is established.
B. Treat for broad leaf weeds as necessary to achieve uniform stand of grass with no bare areas exceeding one square foot after three months or at time of Substantial Completion.
C. No weeds to be present at both Substantial Completion and Final Completion.

END OF SECTION 32 92 00

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SECTION 32 93 00

PLANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Plants.
2. Tree stabilization.
3. Tree-watering devices.
4. Landscape edgings.
5. Organic Mulches
6. Mineral Mulches

B. Related Requirements:

1. Section 32 92 00 "Turf and Grasses" for turf grass sod planting
2. American National Standards Institute (ANSI) A 300 (Part 6) Tree, Shrub, and Other Woody Plant Management Standard Practices (Planting and Transplanting).
3. ANSI Z60.1-2014 American Standard for Nursery Stock

1.3 DEFINITIONS

A. Backfill: The earth used to replace or the act of replacing earth in an excavation.

B. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with a ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1.

C. Balled and Potted Stock: Plants dug with firm, natural balls of earth in which they are grown and placed, unbroken, in a container. Ball size is not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required.

D. Root Ball Depth: Depth of the root ball is measured from the top of the ball, which in all cases shall begin at the root flare. Soil above the root flare, from being deeply planted in the nursery as a young plant, as a result of maintenance practices in the nursery, or added during harvest, shall not be included in ball depth measurement, and should be removed. See ANSI Z60.1-2014 page 12.

E. Bare-Root Stock: Plants with a well-branched, fibrous-root system developed by transplanting or root pruning, with soil or growing medium removed, and with not less than the minimum root spread according to ANSI Z60.1 for type and size of plant required.

F. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.

G. Fabric Bag-Grown Stock: Healthy, vigorous, well-rooted plants established and grown in-ground in a porous fabric bag with well-established root system reaching sides of fabric bag. Fabric bag size is not less than diameter, depth, and volume required by ANSI Z60.1 for type and size of plant.

H. Finish Grade: Elevation of finished surface of planting soil.

I. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant. Some sources classify herbicides separately from pesticides.

J. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

K. Planting Area: Areas to be planted.

L. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 32 91 15 "Soil Preparation” for drawing designations for planting soils.

M. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.

N. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

O. Stem Girdling Roots: Roots that encircle the stems (trunks) of trees below the soil surface.

P. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 SCOPE

A. Furnish all material, equipment and labor required to complete all of the landscaping work as shown on plans and specified herein. All existing plants and features designated to remain shall be protected from damage. If damage occurs, Contractor shall repair, to Owner’s satisfaction, at no expense to the Owner or his representatives.

B. THE WORK SHALL INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING:

1. Finish and fine grade all soil surfaces of planting areas
2. Preparation of soil in all planted areas
3. Furnish and install all plants and grasses
4. Fertilize (install only) and weed control in planting areas
5. Provide and install all mulches
6. Disposal of debris off the site

7. Install plastic edging strips and concrete mow strips
8. Install rock boulders
9. Provide temporary watering for trees.
10. Practice safe and courteous operations while on-site

C. All scaled dimensions are approximate. Before proceeding with work, the contractor shall verify all dimensions and quantities and shall immediately inform the Owner's Representative of any discrepancy between the information on the drawings and the actual conditions. Contractor shall refrain from doing any work until given approval to do so by the Owner's Representative. Proceeding with work in areas of discrepancy can nullify contractor's ability to charge extra fees.

D. When "planting totals" are shown on the plans, they are provided for the convenience of the contractor only, and are not guaranteed. All planting indicated on the drawings will be required unless indicated otherwise.

1.5 COORDINATION

A. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.

1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

1.6 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.7 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Acquisition of Plant Materials:

a. Submit confirmation of acquisition and availability of all trees and plant material within 60 days of General Contractor's notice to proceed.
b. Substitutions are highly discouraged; contractor is encouraged to aggressively research and procure plant material specified.
c. No substitutions will be approved after approved submittal of Plant Materials.
d. Include quantities, sizes, quality, and sources for plant materials.

2. Fertilizer

B. Samples for Verification: For each of the following:

1. Mineral Mulch: 2 lbs. / ½ gallon volume of each mineral mulch required, in sealed plastic bags labeled with source of mulch. Sample shall be typical of the lot of material to be delivered and installed on-site; provide an accurate indication of color, texture, and makeup of the material.
2. Slow-Release, Tree-Watering Device: One unit of each size required.
3. Concrete mow curb profile and contractor information.

C. Phased Installation Plan

1. When planting installation extends between two planting seasons, Contractor to prepare a schedule of planting for phased installation. Submit plan for phased installation that indicates areas to be planted, schedule of substantial completion, final completion and required maintenance periods.
2. Plan to be reviewed upon completion of an installation phase for determination of start and finish dates of maintenance and warranties.
3. Plan to be submitted and approved by Owner's representative prior to start of irrigation installation.

1.8 INFORMATIONAL SUBMITTALS

A. Qualification Data: For landscape Installer. Include list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons.

B. Product Certificates: For each type of manufactured product, from manufacturer, and complying with the following:

1. Manufacturer's certified analysis of standard products.
2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.

C. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

D. Warranty for plant material.

1.9 CLOSEOUT SUBMITTALS

A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before expiration of required maintenance periods.

B. Warranty Information: Warranty memo from contractor establishing date of start of warranty and schedule for Back-Check prior to expiration of the warranty period.

1.10 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment of plants.

1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
2. Experience: Three years' experience in landscape installation in addition to requirements in Section 01 40 00 "Quality Requirements."
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:

    a. Landscape Industry Certified Technician - Exterior.
    b. Landscape Industry Certified Interior.
    c. Landscape Industry Certified Horticultural Technician.

5. Pesticide Applicator: State licensed, commercial.

B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.

C. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.

1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container-grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
2. Other Plants: Measure with stems, petioles, and foliage in their normal position.

D. Plant Material Observation: Architect may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Architect may also observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and may reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.

1. Notify Architect of sources of planting materials seven days in advance of delivery to site.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws if applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.

a. Contractor shall protect concrete and asphalt from damage caused by dumping, staging or storing mineral mulch. Dump and stage mineral mulch in areas other than asphalt parking lots and concrete paving.

2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

C. Deliver bare-root stock plants within 24 hours of digging. Immediately after digging up bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until planting. Transport in covered, temperature-controlled vehicles, and keep plants cool and protected from sun and wind at all times.

D. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

E. Handle planting stock by root ball.

F. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F until planting.

G. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.

1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

H. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.

I. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

1. Heel-in bare-root stock. Soak roots that are in less than moist condition in water for two hours. Reject plants with dry roots.
2. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
3. Do not remove container-grown stock from containers before time of planting.
4. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly wet condition.

1.12 FIELD CONDITIONS

A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.

B. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.

1. Planting to be completed between March 1st and October 15th, unless otherwise noted. No planting after October 15th without prior approval from Owner's Representative.
2. All planting to be completed two weeks prior to building opening.

C. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.

1. No planting is to be conducted when the ground is frozen or when the ground is excessively wet.

1.13 WARRANTY

A. Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner.
b. Structural failures including plantings falling or blowing over.
c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Periods: From date of Final Completion acceptance for building/project or approved phase.

a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
b. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.

3. Warranty Review Milestones:

a. Substantial Completion Punchlist: prepared by landscape architect at the request of Owner's representative.
b. Final Completion Punchlist: prepared by landscape architect at the request of Owner's representative. All landscape to be installed, all substantial completion punch list items to be completed.
c. Back Check: prepared by landscape architect at the request of the Owner's representative approximately 11 months after start of 12 month warranty period.

4. Include the following remedial actions as a minimum:

a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
c. A limit of one replacement of each plant is required except for losses or replacements due to failure to comply with requirements.
d. Provide extended warranty for period equal to original warranty period, for replaced plant material.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS:

A. Substitutions will not be permitted unless submitted in writing and approved by the Owner's Representative, 90 days minimum prior to scheduled planting.

2.2 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots are unacceptable.

2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.

B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Architect, with a proportionate increase in size of roots or balls.

1. Trees, minimum caliper: Two inches (2”).
2. Measurements:

a. Where dimensions of any specified plant materials are omitted from the plant list, it shall be understood that these plant materials shall be of normal stock size for type and container or caliper size listed.
b. Plant material larger than those specified may be supplied in compliance with all other respect, and at no additional cost to the Owner and with the approval of the Owner’s Representative.
c. Shape and form: Plant materials shall be symmetrical, and/or typical for variety and species and conform to size specified in the Plant List.
d. All plant materials shall be provided from a licensed nursery or other source, which has been previously inspected by a State/County Horticultural Department and shall be subject to acceptance by the Owner’s representative.

C. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

D. Labeling: Label at least one plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant.

E. If formal arrangements or consecutive order of plants is indicated on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.

2.3 FERTILIZERS

A. Planting Tablets: Tightly compressed chip-type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.

1. Agriform 20-10-5 Slow Release Fertilizer Tablets or approved equal.
2. Size: 21-gram tablets.
3. Nutrient Composition: 20 percent nitrogen, 10 percent phosphorous, and 5 percent potassium, by weight plus micronutrients.

2.4 WEED-CONTROL BARRIERS

A. Nonwoven Geotextile Filter Fabric: Polypropylene or polyester fabric, 3 oz./sq. yd. minimum, composed of fibers formed into a stable network so that fibers retain their relative position. Fabric shall be inert to biological degradation and resist naturally encountered chemicals, alkalis, and acids.

B. Composite Fabric: Woven, needle-punched polypropylene substrate bonded to a nonwoven polypropylene fabric, 4.8 oz./sq. yd.

2.5 MULCHES

A. Mineral Mulch: Hard, durable stone, washed free of loam, sand, clay, and other foreign substances, of the following type, size range, and color:

1. Type A: Crushed Granite.
   Location as indicated on plans; planting areas typical.

   a. Size Range: 1” crushed granite.
   b. Color: Natural color range acceptable to Architect.
   c. Depth in planting areas: 2”.

2. Type B Utility Areas: Clean Basalt
   Location as indicated on plans. Planting areas as designated on drawings.

   a. Size Range: 5/8” diameter.
   b. Color: Uniform beige to buff color range acceptable to Architect.
   c. Depth in planting areas: 2”.

2.6 PESTICIDES

A. General: Pesticide registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch/weed control barrier layer.

C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

2.7 TREE-WATERING DEVICES

A. Slow-Release Watering Device: Standard product manufactured for drip irrigation of plants and emptying its water contents over an extended time period; manufactured from UV-light-stabilized nylon-reinforced polyethylene sheet, PVC, or HDPE plastic.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. BIO-PLEX.
   b. Spectrum Products, Inc.

2. Color: green.
3. Size/Volume: 15 Gallons

2.8 TREE-STABILIZATION MATERIALS

1. Upright and Guy Stakes: Rough-sawn, sound, new softwood with specified wood pressure-preservative treatment, free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal by length indicated, pointed at one end.
2. Tree-Tie Webbing: UV-resistant polypropylene or nylon webbing.

a. ArborTie or approved equal. Deep Root, Inc. http://www.deeproot.com/products/arbortie/applications

3. Proprietary Staking-and-Guying Devices: Proprietary stake or anchor and adjustable tie systems to secure each new planting by plant stem; sized as indicated and according to manufacturer's written recommendations.

a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) Arborbrace.
2) DeepRoot Green Infrastructure, LLC.

2.9 MISCELLANEOUS PRODUCTS

A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.

B. Burlap: Non-synthetic, biodegradable.

2.10 LANDSCAPE EDGINGS

A. Concrete mow curb: see plans and details.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive plants, with Installer present, for compliance with requirements and conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Verify that plants and vehicles loaded with plants can travel to planting locations with adequate overhead clearance.
3. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
4. Suspend planting operations during periods of freezing temperatures until the ground is not frozen between 7:00am and 5:00pm.
5. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. Verify that rough grade has been established as required to permit the installation of planting soil and mulches to specified depths.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways. See civil engineering plans for erosion-control measures/plans.

C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Architect's acceptance of layout before excavating or planting. Make minor adjustments as required.

D. Lay out plants at locations directed by Architect. Stake locations of individual trees and shrubs and outline areas for multiple plantings.

3.3 PLANTING AREA ESTABLISHMENT

A. General: Prepare planting area for soil placement and mix planting soil according to Section 32 91 13 "Soil Preparation."

B. Placing Planting Soil: Place and mix planting soil in-place over exposed subgrade. Blend planting soil in place. See Soil Plan for depths.

C. Before planting, obtain Owner’s representative’s acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 EXCAVATION FOR TREES AND SHRUBS

A. Planting Pits and Trenches: Excavate circular planting pits.

1. Excavate planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are unacceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
2. Excavate approximately three times as wide as ball diameter for balled and burlapped, potted container-grown and fabric bag-grown stock.
3. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
4. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
5. If area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
6. Maintain angles of repose of adjacent materials to ensure stability. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing improvements.
7. Maintain supervision of excavations during working hours.
8. Keep excavations covered or otherwise protected after working hours.
9. Install watering basins around base of all plants as indicated in the details. Bubblers and emitters to be located in the water basin.

B. Backfill Soil: Subsoil and topsoil removed from excavations may be used as backfill soil unless otherwise indicated.

C. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.

1. Hardpan Layer: Drill 6-inch-diameter holes, 24 inches apart, into free-draining strata or to a depth of 10 feet, whichever is less, and backfill with free-draining material.

D. Drainage: Notify Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.

E. Fill excavations with water and allow to percolate away before positioning trees and shrubs.

3.5 TREE, SHRUB, AND VINE PLANTING

A. Tree planting shall be in accordance with drawings, details, ANSI A300 and ANSI Z60.1-2014. Failure to install per drawings, details and standards may result in rejection of trees.

1. Tree and shrub plantings required by permitting agency shall be installed per agencies requirements. Notify Owner's representative of any conflict between requirements or onsite conditions. See drawings and details for additional information.

B. Inspection: At time of planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.

C. Roots: Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.

D. Balled and Burlapped Stock: Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades. Planting shall be in accordance with drawings, details, ANSI A300 and ANSI Z60.1-2014. Failure to install per drawings, details and standards may result in rejection of trees.

1. Backfill: Planting Soil 'B' as available.
2. After placing some backfill around root ball to stabilize plant, carefully cut and completely remove burlap, rope, and wire baskets from tops, sides and bottoms of root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
4. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled or 4" below finish grade. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.

    a. Quantity:

        1) 5 gallon (24" spread/height) and smaller shrubs, perennials and groundcovers: Three per plant
        2) 5 gallon and larger shrubs: Five per plant.
        3) Trees: 2" and larger trees: Six per tree
        4) Evergreen trees: One for each foot of height; i.e. 6' tree = six planting tablets.

5. Continue backfilling process. Water again after placing and tamping final layer of soil.

E. Balled and Potted and Container-Grown Stock: Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.

1. Backfill: Planting soil per Soil Preparation section.
2. Carefully remove root ball from container without damaging root ball or plant.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
4. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.

    a. Quantity:

        1) 5 gallon (24” spread/height) and smaller shrubs, perennials and groundcovers: Three per plant
        2) 5 gallon and larger shrubs: Five per plant.
        3) Trees: 2” and larger trees: Six per tree
        4) Evergreen trees: One for each foot of height; i.e. 6’ tree = six planting tablets.

5. Continue backfilling process. Water again after placing and tamping final layer of soil.

F. Bare Root Stock: Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.

1. Backfill: Planting soil per Soil Preparation section.
2. Carefully remove root ball from container without damaging root ball or plant.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
4. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.

    a. Quantity:

        1) 5 gallon (24” spread/height) and smaller shrubs, perennials and groundcovers: Three per plant
        2) 5 gallon and larger shrubs: Five per plant.
        3) Trees: 2” and larger trees: Six per tree
        4) Evergreen trees: One for each foot of height; i.e. 6’ tree = six planting tablets.

5. Continue backfilling process. Water again after placing and tamping final layer of soil.

G. All tree trunks to be wrapped with craft paper type tree wrap tape. Ensure that tree trunks are free of damage prior to application of tree tape.

H. Slopes: When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

1. Install watering basin on slope to collect water from bubblers and drip emitters.

3.6 TREE, SHRUB, AND VINE PRUNING

A. Remove only dead, dying, or broken branches. Do not prune for shape.

B. Prune, thin, and shape trees, shrubs, and vines as directed by Architect.

C. Prune, thin, and shape trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by Architect, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.

D. Do not apply pruning paint to wounds.

3.7 TREE STABILIZATION

A. Trunk Stabilization by Upright Staking and Tying: Install trunk stabilization as follows unless otherwise indicated:

1. Upright Staking and Tying: as indicated on Drawings.
2. Proprietary Staking and Guying Device: Install staking and guying system sized and positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions.

3.8 GROUND COVER AND PLANT PLANTING

A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated on Drawings in even rows with triangular spacing.

B. Use planting soil per Soil Preparation section for backfill.

C. Dig holes large enough to allow spreading of roots.

D. For rooted cutting plants supplied in flats, plant each in a manner that minimally disturbs the root system but to a depth not less than two nodes.

E. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.

F. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.

G. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.9 PLANTING AREA MULCHING

A. Mineral mulch shall not be staged on concrete or asphalt paving with out prior approval from the Owner's representative. Contractor to take all necessary measures to protect surfaces from damage.

B. Protect plants from damage during installation of mineral mulch.

C. Install weed-control barriers after irrigation, planting soil installation and before mulching according to manufacturer's written instructions. Completely cover area to be mulched, overlapping edges a minimum of 6 inches and secure seams with galvanized pins.

1. Edges of weed-control barriers to be wrapped down against side of hardscape. No loose edges of barrier fabric to be visible.

D. Planting Areas with Mineral Mulch

1. Provide Mineral Mulch, Type ‘A’ over all planting areas indicated for mineral mulch. Does not include areas with Organic Mulch, Type ‘D’. Rake mineral mulch smooth.

a. Apply pre-emergent per manufacturer’s written specifications.
b. Paint or otherwise mark areas for installation of Mineral Mulch, Type ‘B’ and ‘C’ as shown on the plans. Owner’s representative to approve layout prior to installation of Mineral Mulch Type ‘B’ and ‘C’.

E. Mulch backfilled surfaces of planting areas and other areas indicated.

1. Trees and Treelike Shrubs in Turf Areas: Apply organic mulch ring of 3-inch average thickness, with 36-inch radius around trunks or stems. Do not place mulch within 6 inches of trunks or stems.

3.10 CONCRETE MOW-CURB INSTALLATION

A. General: Install concrete mow-curb around trees in turf grass and between planting areas and turf grass, typical.

B. Concrete Mow-curb, between turf grass and planting areas: Concrete mow-curb to separate mulched areas from turf areas. See Drawings and Details for construction. Profile: flat, ¼” rounded edges.

1. All trees planting in turf areas are to be installed with a mow curb per the drawings and details.

C. Mow-Curb Installation:

1. Excavate for mow-curb as indicated on Drawings.
2. Compact subgrade uniformly beneath mow-curb.
3. Apply nonselective, pre-emergent herbicide that inhibits growth of grass and weeds.
4. Install concrete mow-curb, delineating the edge of mow strip.

3.11 PLANT MAINTENANCE

A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.

B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.

C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices when possible to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.

3.12 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Pre-Emergent Herbicides (Selective and Nonselective): Apply to tree, shrub, and ground-cover areas according to manufacturer's written recommendations. Do not apply to seeded areas.

C. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.13 INSTALLING SLOW-RELEASE WATERING DEVICE

A. Provide one device for each tree.

1. Install to provide supplemental watering for trees.
2. Install and maintain for trees planted from June 1st – September 15th of first year of planting.

B. Place device on top of the mulch at base of tree stem and fill with water according to manufacturer's written instructions.

C. Fill bags twice a week from time of planting until September 1st. Once per week from September 1st until Final Completion/September 15th.

3.14 REPAIR AND REPLACEMENT

A. General: Repair or replace existing or new trees and other plants that are damaged by construction operations, in a manner approved by Architect.

1. Submit details of proposed pruning and repairs.
2. Perform repairs of damaged trunks, branches, and roots within 24 hours, if approved.
3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Architect.

A. Remove and replace trees that are more than 25 percent dead or in an unhealthy condition before the end of the corrections period or are damaged during construction operations that Architect determines are incapable of restoring to normal growth pattern.

1. Provide new trees of same size as those being replaced for each tree of 4 inches or smaller in caliper size.
2. Provide one new tree(s) of 4-inch caliper size for each tree being replaced that measures more than 4 inches in caliper size.
3. Species of Replacement Trees: Same species being replaced.

3.15 CLEANING AND PROTECTION

A. During planting, keep adjacent paving and construction clean and work area in an orderly condition. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

C. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

D. After installation and before Substantial Completion, remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.

E. At time of Substantial Completion, verify that tree-watering devices are in good working order and leave them in place. Replace improperly functioning devices.

F. Protect adjacent landscape areas disturbed from construction during establishment.

3.16 MAINTENANCE SERVICE

A. Maintenance Service for Trees and Shrubs: Provide maintenance by skilled employees of landscape Installer. Maintain as required in "Plant Maintenance" Article. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:

1. Maintenance Period: Three months from date of Substantial Completion. When two weeks or more of the maintenance period is not completed prior to October 15, one month of maintenance is required commencing on April 1st or at spring start-up of the irrigation system whichever occurs first.

B. Maintenance Service for Ground Cover and Other Plants: Provide maintenance by skilled employees of landscape Installer. Maintain as required in "Plant Maintenance" Article. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:

1. Maintenance Period: Three months from date of Substantial Completion. When two weeks or more of the maintenance period is not completed prior to October 15, one month of maintenance is required commencing on April 1st or at spring start-up of the irrigation system whichever occurs first.

C. Apply pre-emergent in accordance with manufacturer’s recommendations to all planting areas at completion of maintenance period. All planting areas to be weed free at completion of maintenance period.

3.17 SUBSTANTIAL AND FINAL COMPLETION

A. Substantial Completion:

1. Landscape substantial completion is achieved when all plantings and associated irrigation are completed. Contractor to notify Architect that the landscape is ready for Substantial Completion review and punch-list preparation. All planting areas are to be weed free with pre-emergent applied.
2. Contractor to notify appropriate permitting agency for street trees or landscape requirements that the landscape is ready for review. Contractor to coordinate with Owner's representative to respond or correct deficiencies in the planting to meet agency approval requirements in advance of Final Completion and/or application for Certificate of Occupancy whichever comes first.
3. Substantial completion punch-list to be completed by Architect and punch-list items delivered to Contractor for correction.
4. Substantial Completion is achieved when all Substantial Completion punch-list items have been completed and an annotated punch-list is delivered to the Architect.

B. Final Completion: Landscape final completion is achieved when all plantings and associated irrigation are completed, substantial completion punch list items have been completed.

1. Contractor to annotate Substantial Completion punch list that each line item has been corrected or action taken. Notify Architect that the landscape is ready for Final Completion review and punch-list preparation. All planting areas are to be weed free with pre-emergent applied.
2. Final completion punch-list to be completed by Architect and punch-list items delivered to Contractor for correction.
3. Final Completion is achieved when all punch-list items have been resolved.

C. Apply pre-emergent in accordance with manufacturer's recommendations to all planting areas at completion of maintenance period. All planting areas to be weed free at completion of maintenance period.

D. Back Check: Final back check for warranty to be completed two-weeks prior to end of warranty period. Contractor to review site and landscape installation prior to backcheck to identify issues.

1. Phased back check and warranty review to be completed only with approved phased installation schedule.

3.18 PLANT SIZE/GALLON CHART MINIMUM REQUIREMENTS

A. Plant Requirements for minimum planting standards

B. Reference: American Standard for Nursery Stock, ANZI Z60.1-2014

C. Deciduous and Evergreen Shrubs

Container (gallon) size	Minimum Height or Spread	Minimum spread of roots or root ball diameter
4" Plug	6 in.	3 in.
#1	6 in.	4 in.
#2	12 in.	6 in.
#3	18 in.	10 in.

#5	24 in.	12 in.

D. Deciduous Trees

Caliper size	Average Height Range	Minimum spread of roots or root ball diameter
1 1/2 in.	8 to 12 ft.	12 in.
1 3/4 in.	8 to 12 ft.	13 1/8 in.
2”	9 to 14 ft.	24 in.
2 1/2 in.	10 to 14 ft.	28 in.
3”	11 to 16 ft.	32 in.

E. Evergreen Trees

Average Height Range	Minimum Spread	Minimum spread of roots or root ball diameter
6 to 7 ft.	4 ft.	12 in.
7 to 8 ft.	5 ft.	14 in.
8 to 9 ft.	6 ft.	24 in.

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SECTION 33 10 00

WATER UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Idaho Standards for Public Works Construction (latest edition).

C. City of Sandpoint Construction Standards, Standard Drawings and Specifications.

1.2 DEFINITIONS

A. EPDM: Ethylene propylene diene terpolymer rubber.

B. PE: Polyethylene plastic.

C. PVC: Polyvinyl chloride plastic.

1.3 SUMMARY

A. This Section includes water-distribution piping and specialties outside the building for the following:

1. Water services.
2. Fire-service mains.
3. Combined water service and fire-service mains.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Valves and accessories.
2. Delete water meters below if provided by utility company.
3. Water meters and accessories.
4. Backflow prevention devices and assemblies.
5. Fire department connections.

B. Wiring Diagrams: Power, signal, and control wiring.

C. Field quality-control test reports.

D. Operation and Maintenance Data: For the following:

1. Water meters.

2. Valves.
3. Backflow prevention devices and assemblies.
4. Protective enclosures.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with requirements of the City of Sandpoint Construction Standards. Include tapping of water mains and backflow prevention.
2. Comply with City of Sandpoint Construction Standards for potable-water-service piping, including materials, installation, testing, and disinfection.
3. Comply with standards of the City of Sandpoint for fire-suppression water-service piping, including materials, hose threads, installation, and testing.

B. Piping materials shall bear label, stamp, or other markings of specified testing agency.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

D. Comply with FM's "Approval Guide" or UL's "Fire Protection Equipment Directory" for fire-service-main products.

E. NFPA Compliance: Comply with NFPA 24 for materials, installations, tests, flushing, and valve and hydrant supervision for fire-service-main piping for fire suppression.

F. NSF Compliance:

1. Comply with NSF 14 for plastic potable-water-service piping.
2. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.

1.6 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

1.7 COORDINATION

A. Coordinate with City of Sandpoint Fire Department on any fire hydrants or fire services that are temporarily or permanently not in use.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products and manufacturers are limited to those allowed by the City of Sandpoint.

1. Available Products: Subject to compliance with City of Sandpoint requirements, products that may be incorporated into the Work include, but are not limited to, the products specified in the City of Sandpoint standard specifications.
2. Available Manufacturers: Subject to compliance with City of Sandpoint requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified in the City of Sandpoint standard specifications.

2.2 PIPING MATERIALS

A. Refer to Part 3 "Piping Applications" Article for applications of pipe, tube, fitting, and joining materials.

2.3 PIPE AND FITTINGS

A. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151, with mechanical-joint, bell- and plain-spigot end unless grooved or flanged ends are indicated.

1. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
2. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

B. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint, bell- and plain-spigot end unless grooved or flanged ends are indicated.

1. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
2. Gaskets: AWWA C111, rubber.

C. Soft Copper Tube: ASTM B 88, Type K, water tube, annealed temper.

1. Copper Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated (not approved for City side of meter service).

D. PE, ASTM Pipe: ASTM D 2239, SIDR Numbers 5.3, 7, or 9; with PE compound number required to give pressure rating not less than 150 psig.

1. Insert Fittings for PE Pipe: ASTM D 2609, made of PA, PP, or PVC with serrated, male insert ends matching inside of pipe. Include bands or crimp rings.
2. Molded PE Fittings: ASTM D 3350, PE resin, socket- or butt-fusion type, made to match PE pipe dimensions and class.

E. PVC, Schedule 40 Pipe: ASTM D 1785.

1. PVC, Schedule 40 Socket Fittings: ASTM D 2466 (not approved for City side of meter service).

F. PVC, Schedule 80 Pipe: ASTM D 1785.

1. PVC, Schedule 80 Socket Fittings: ASTM D 2467 (not approved for City side of meter service).

G. PVC, AWWA Pipe: AWWA C900, Class 150, with bell end with gasket and spigot end.

1. Comply with UL 1285 for fire-service mains if indicated.
2. PVC Fabricated Fittings: AWWA C900, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
3. PVC Molded Fittings: AWWA C907, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.

2.4 JOINING MATERIALS

A. Brazing Filler Metals: AWS A5.8, BCuP Series.

B. Soldering Flux: ASTM B 813, water-flushable type.

C. Solder Filler Metal: ASTM B 32, lead-free type with 0.20 percent maximum lead content (not approved for City side of meter service).

2.5 VALVES

A. AWWA, Cast-Iron, Gate Valves:

1. Manufacturers and products as allowed by the City of Sandpoint:

2. Nonrising-Stem, Resilient-Seated Gate Valves: AWWA C509, gray- or ductile-iron body and bonnet; with bronze or gray- or ductile-iron gate, resilient seats, bronze stem, and stem nut.

a. Minimum Working Pressure: 200 psig.
b. End Connections: Mechanical joint.
c. Interior Coating: Complying with AWWA C550.

B. UL/FM, Cast-Iron Gate Valves:

1. Manufacturers and products as allowed by the City of Sandpoint:
2. UL/FM, Nonrising-Stem Gate Valves: UL 262, FM-approved iron body and bonnet with flange for indicator post, bronze seating material, and inside screw.

a. Minimum Working Pressure: 175 psig.
b. End Connections: Flanged.

2.6 GATE VALVE ACCESSORIES AND SPECIALTIES

A. Tapping-Sleeve Assemblies: Comply with MSS SP-60. Include sleeve and valve compatible with drilling machine.

1. Manufacturers and products as allowed by the City of Sandpoint:
2. Tapping Sleeve: Stainless-steel, two-piece bolted sleeve with flanged outlet for new branch connection. Include sleeve matching size and type of pipe material being tapped and with recessed flange for branch valve.
3. Valve: AWWA, cast-iron, nonrising-stem, resilient-seated gate valve with one raised face flange mating tapping-sleeve flange.

B. Valve Boxes: Comply with AWWA M44 for Tyler 6855 “Heavy” series cast-iron valve boxes. Include top section, adjustable extension of length required for depth of burial of valve, plug with lettering "WATER," bottom section with base of size to fit over valve, and approximately 5-inch diameter barrel.

1. Operating Wrenches: Steel tee-handle with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut.

C. Vertical-Type Indicator Posts: UL 789, FM-approved, cast-iron body with operating wrench, extension rod, and adjustable cast-iron barrel of length required for depth of burial of valve.

2.7 CORPORATION VALVES AND CURB VALVES

A. Manufacturers and projects as allowed by the City of Sandpoint:

B. Service-Saddle Assemblies: Comply with AWWA C800. Include saddle and valve compatible with tapping machine.

1. Service Saddle: Romac, Ford, or Dresser epoxy coated iron body with double stainless steel straps, threaded outlet for corporation valve.
2. Corporation Valve: Bronze body and ground-key plug, with AWWA C800, threaded inlet and outlet matching service piping material.

C. Curb Valves: Comply with AWWA C800. Include bronze body, ground-key plug or ball, and wide tee head, with inlet and outlet matching service piping material.

D. Service Boxes for Curb Valves: Similar to AWWA M44 requirements for cast-iron valve boxes. Include cast-iron telescoping top section of length required for depth of burial of valve, plug with lettering "WATER," bottom section with base of size to fit over curb valve, and approximately 3-inch diameter barrel.

1. Shutoff Rods: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and slotted end matching curb valve.

2.8 BACKFLOW-PREVENTION DEVICES

A. Manufacturers and products as allowed by the City of Sandpoint per current USC approval:

B. General: ASSE standard, backflow prevention devices.

1. Working Pressure: 150 psig minimum, unless otherwise indicated.
2. NPS 2 and Smaller: Bronze body with threaded ends.
3. NPS 2-1/2 and Larger: Bronze, cast-iron, steel, or stainless-steel body with flanged ends.

a. Interior Lining: AWWA C550 or FDA-approved, epoxy coating for backflow preventers having cast-iron or steel body.

4. Interior Components: Corrosion-resistant materials.
5. Exterior Finish: Polished chrome plate if used in chrome-plated piping system.

C. Pipe-Applied, Atmospheric-Type Vacuum Breakers: ASSE 1001, with floating disc and atmospheric vent.

D. Reduced-Pressure-Principle Backflow Prevention Devices per the City of Sandpoint: Suitable for continuous pressure application. Include outside screw and yoke gate valves on inlet and outlet, and strainer on inlet; test cocks; and pressure-differential relief valve with ASME A112.1.2, air-gap fitting located between two positive-seating check valves.

1. Maximum Pressure Loss: 12 psig through middle 1/3 of flow range.

E. Double-Check-Valve Backflow Prevention Assemblies per the City of Sandpoint: Suitable for continuous pressure application. Include outside screw and yoke gate valves on inlet and outlet, and strainer on inlet; test cocks; and two positive-seating check valves.

1. Maximum Pressure Loss: 5 psig through middle 1/3 of flow range.

F. Double-Check-Valve Backflow Prevention Assemblies per the City of Sandpoint: UL 312, FM approved; with two UL 312, FM-approved, iron-body, 175-psig working-pressure, flanged-end check valves and two UL 262, FM-approved, iron-body, outside screw and yoke, flanged, 175-psig working-pressure gate valves.

1. Maximum Pressure Loss: 5 psig through middle 1/3 of flow range.

G. Antisiphon-Pressure-Type Vacuum Breakers per the City of Sandpoint: ASSE 1020, suitable for continuous pressure application. Include shutoff valves, spring-loaded check valve, spring-loaded floating disc, test cocks, and atmospheric vent.

1. Maximum Pressure Loss: 5 psig through middle 1/3 of flow range.

2.9 FREESTANDING FIRE HYDRANTS

A. Per City of Sandpoint requirements.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

A. Refer to Division 31 Section "Earth Moving" for excavating, trenching, and backfilling.

B. Underground Water-Service Piping: Use any one the following piping materials for each size range, as allowed by the City of Sandpoint:

1. NPS 1” and NPS 2”: HDPE service tubing, IP size, from water main to meter setter. Soft copper tube, Type K; with flared fittings or approved compression fittings after meter setter.

2. NPS 4 or larger: PVC C-900 Class 150 prior to meter vault. Ductile-iron pipe, Class 350 ductile-iron, mechanical joint or tyton slip-joint fittings; mechanically restrained with Mega lugs and field lock gaskets.

C. Underground Fire-Service-Main Piping: Ductile-iron pipe, Class 350 ductile-iron, mechanical joint or tyton slip-joint fittings; mechanically restrained with Mega lugs and field lock gaskets.

3.2 VALVE APPLICATIONS

A. General Application: Use mechanical-joint-end valves for NPS 3 and larger underground installation. Use threaded- or flanged-end valves for installation in vaults. Use UL/FM, nonrising-stem gate valves for installation with indicator posts. Use corporation valves and curb valves with ends compatible with piping, for NPS 2 and smaller installation. Use right-turn for opening of valve.

B. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

1. Underground Valves, NPS 4” and Larger: AWWA, cast-iron, nonrising-stem, resilient-seated, gate valves with valve box.
2. Underground Valves, NPS 4” and Larger, for Indicator Posts: UL/FM, Cast-iron, nonrising-stem gate valves with indicator post.

3.3 JOINT CONSTRUCTION

A. Make pipe joints according to the following:

1. PVC Piping 4” and larger, Gasketed Joints for Water-Service Piping: AWWA C600 and AWWA M41.
2. Ductile-Iron Piping, Gasketed Joints for Fire-Service-Main Piping: UL 194.
3. Copper Tubing Soldered Joints: ASTM B 828. Use flushable flux and lead-free solder.
4. PVC Piping Gasketed Joints: Use joining materials according to AWWA C900. Construct joints with elastomeric seals and lubricant according to ASTM D 2774 or ASTM D 3139 and pipe manufacturer's written instructions.
5. PE Piping Insert-Fitting Joints: Use plastic insert fittings and fasteners according to fitting manufacturer's written instructions.
6. Dissimilar Materials Piping Joints: Use adapters compatible with both piping materials, with OD, and with system working pressure.
7. HDPE Piping, 1” and 2”: Approved pack joint fittings with stainless stiffeners for Water-Service Piping prior to the meter setter.

3.4 PIPING INSTALLATION

A. Water-Main Connection: Arrange with the City of Sandpoint for tap of size and in location indicated in water main.

B. Water-Main Connection: Tap water main according to the City of Sandpoint requirements and of size and in location indicated.

C. Make connections larger than NPS 2 with tapping machine according to the following:

1. Install tapping sleeve and tapping valve according to MSS SP-60.
2. Install tapping sleeve on pipe to be tapped. Position flanged outlet for gate valve.
3. Install gate valve onto tapping sleeve. Comply with MSS SP-60. Install valve with stem pointing up and with valve box.
4. Use tapping machine compatible with valve and tapping sleeve; cut hole in main. Remove tapping machine and connect water-service piping.

D. Make connections NPS 2 and smaller with drilling machine according to the following:

1. Install service-saddle assemblies and corporation valves in size, quantity, and arrangement required by utility company standards.
2. Install service-saddle assemblies on water-service pipe to be tapped. Position outlets for corporation valves.
3. Install corporation valves into service-saddle assemblies.
4. Use drilling machine compatible with service-saddle assemblies and corporation valves. Drill hole in main. Remove drilling machine and connect water-service piping.
5. Install manifold for multiple taps in water main.
6. Install curb valve in water-service piping with head pointing up and with service box.

E. Comply with NFPA 24 for fire-service-main piping materials and installation.

F. Install ductile-iron, water-service piping according to AWWA C600 and AWWA M41.

G. Install copper tube and fittings according to CDA's "Copper Tube Handbook."

H. Install PVC, AWWA pipe according to AWWA M23 and ASTM F 645.

I. Install PE pipe according to ASTM D 2774 and ASTM F 645.

J. Bury piping with depth of cover over top at least 48 inches.

K. Extend water-service piping and connect to water-supply source and building water piping systems at outside face of building wall in locations and pipe sizes indicated.

1. Terminate water-service piping at building wall until building water piping systems are installed. Terminate piping with caps, plugs, or flanges as required for piping material. Make connections to building water piping systems when those systems are installed.

L. Mechanical sleeve seals are specified in Division 15 Section "Basic Mechanical Materials and Methods."

M. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping, thrust blocks, anchors, tie-rods and clamps, and other supports.

N. Anchor service-entry piping to building wall.

3.5 ANCHORAGE INSTALLATION

A. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:

1. Gasketed-Joint, Ductile-Iron, Water-Service Piping: According to AWWA C600.
2. Gasketed-Joint, PVC Water-Service Piping: According to AWWA M23.
3. Fire-Service-Main Piping: According to NFPA 24.

4. Apply full coat of asphalt or other acceptable corrosion-resistant material to surfaces of installed ferrous anchorage devices.

3.6 VALVE INSTALLATION

A. AWWA Gate Valves: Comply with AWWA C600 and AWWA M44. Install each underground valve with stem pointing up and with valve box.

B. UL/FM Gate Valves: Comply with NFPA 24. Install each underground valve and valves in vaults with stem pointing up and with vertical cast-iron indicator post.

C. Corporation Valves and Curb Valves: Install each underground curb valve with head pointed up and with service box.

3.7 BACKFLOW-PREVENTION DEVICE INSTALLATION

A. Install backflow prevention device of type, size, and capacity indicated. Include valves and test cocks. Install according to requirements of plumbing and health department and authorities having jurisdiction.

B. Do not install backflow prevention devices with relief drain in vault or other space subject to flooding.

C. Do not install unprotected bypass piping around backflow prevention devices.

D. Support NPS 2-1/2 and larger backflow prevention devices, valves, and piping near floor and on brick or concrete piers.

3.8 FIRE HYDRANT INSTALLATION

A. Install fire hydrant in accordance with City of Sandpoint requirements.

3.9 FIRE DEPARTMENT CONNECTION INSTALLATION

A. Install fire department connections of types and features indicated.

B. Install ball drip valves at each check valve for fire department connection to mains.

3.10 CONNECTIONS

A. Piping installation requirements are specified in other Division 2 Sections. Drawings indicate general arrangement of piping and specialties.

B. Connect water-distribution piping to existing water main according to the requirements of the City of Sandpoint Construction Standards.

C. Connect water-distribution piping to interior domestic-water and fire-suppression piping.

D. Connect waste piping from drinking fountains to sanitary sewerage system. See Division 2 Section "Sanitary Sewerage" for connection to sanitary-sewer piping.

E. Ground equipment according to Division 16 Section "Grounding and Bonding."

3.11 FIELD QUALITY CONTROL

A. Piping Tests: Conduct piping tests before joints are covered and after thrust blocks have hardened sufficiently. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water.

B. Hydrostatic Tests: According to the City of Sandpoint requirements of 160 psi for a minimum of 2 hours or, in absence of standards, test at not less than 1-1/2 times working pressure for 2 hours as follows.

1. Increase pressure in 50-psig increments and inspect each joint between increments. Hold at test pressure for 1 hour; decrease to 0 psig. Slowly increase again to test pressure and hold for 1 more hour. Maximum allowable leakage is 2 quarts per hour per 100 joints. Remake leaking joints with new materials and repeat test until leakage is within allowed limits.

C. Prepare reports of testing activities.

3.12 IDENTIFICATION

A. Install 12 ga. coated copper tracer wire on top of pipe and a continuous underground detectable warning tape 18” below finished grade during backfilling of trench for underground water-service piping. Locate below finished grade, directly over piping. See Division 31 Section "Earth Moving" for underground warning tapes.

3.13 Delete below if metallic water-service piping without electrically insulated fittings will be used.

3.14 CLEANING

A. Clean and disinfect water-distribution piping according to the City of Sandpoint requirements or, in absence of standards, as follows:

1. Purge new water-distribution piping systems and parts of existing systems that have been altered, extended, or repaired before use.

2. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in NFPA 24 for flushing of piping. Flush piping system with clean, potable water until dirty water does not appear at points of outlet.

3. Use purging and disinfecting procedure prescribed by City of Sandpoint Construction Standards. If method is not prescribed by authorities having jurisdiction, use procedure described in AWWA C651 or as described below:

a. Fill system or part of system with water/chlorine solution containing at least 50 ppm of chlorine; isolate and allow to stand for 24 hours.
b. Drain system or part of system of previous solution and refill with water/chlorine solution containing at least 200 ppm of chlorine; isolate and allow to stand for 3 hours.

c. After standing time, flush system with clean, potable water until no chlorine remains in water coming from system.
d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedure if biological examination shows evidence of contamination.

B. Prepare reports of purging and disinfecting activities.

END OF SECTION 33 10 00

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SECTION 33 30 00

SANITARY SEWERAGE UTIILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Idaho Standards for Public Works Construction (latest edition).

C. City of Sandpoint Standard Drawings and Specifications.

1.2 SUMMARY

A. This Section includes sanitary sewerage outside the building.

B. Related Sections include the following:

1. Division 31 Section "Erosion and Sedimentation Control".
2. Division 31 Section "Earth Moving" for trench excavation, backfill, bedding.
3. Division 32 Section "Asphalt Paving".

1.3 DEFINITIONS

A. PVC: Polyvinyl chloride plastic.

1.4 PERFORMANCE REQUIREMENTS

A. Gravity-Flow, Nonpressure-Piping Pressure Ratings: At least equal to system test pressure.

1.5 SUBMITTALS

A. Product Data: For the following:

1. Pipe & Fittings.
2. Pipe Gaskets.
3. Manholes.
4. Manhole Gaskets.
5. Grade Rings.
6. Steps/Handholds.
7. Manhole Adaptors.
8. Rings & Covers.
9. Cleanouts.
10. Tracer Tape.
11. Oil/Water Separator

B. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic structures, pipe, and fittings in direct sunlight.

B. Protect pipe, fittings, and seals from dirt and damage.

C. Handle precast concrete manholes and other structures according to manufacturer's written rigging instructions.

1.7 PROJECT CONDITIONS

A. Site Information: Perform site survey, research public utility records, and verify existing utility locations.

B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two business days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Refer to Part 3 "Piping Applications" Article for applications of pipe and fitting materials.

2.2 PIPES AND FITTINGS

A. PVC Sewer Pipe and Fittings: According to the following:

1. PVC Sewer Pipe and Fittings, NPS 15 and Smaller: ASTM D 3034, SDR 35, for gasketed joints.

a. Gaskets: ASTM F 477, elastomeric seals.

2.3 MANHOLES

A. Normal-Traffic Precast Concrete Manholes: ASSHTO M 199, precast, reinforced concrete, of depth indicated, with provision for rubber gasketed joints.

1. Gaskets: AASHTO M 198, rubber.
2. Grade Rings: Include two or three reinforced-concrete rings, of 6- to 9-inch total thickness, that match 24-inch- diameter frame and cover.
3. Steps: ASTM C 478, individual step.

4. Manhole Adaptors: Kor-N-Seal manufactured by NPC, Inc. or an approved equal.

B. Manhole Rings: AASHTO 105, Grade 30B, gray iron.

C. Manhole Covers: ASTM A 536, Grade 80-55-06, ductile-iron designed for heavy-duty service.

2.4 CONCRETE

A. Portland Cement Design Mix: 4000 psi minimum, with 0.45 maximum water-cementitious materials ratio.

1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed steel.

B. Structure Channels and Benches: Factory or field formed from concrete. Portland cement design mix, 3000 psi minimum, with 0.45 maximum water-cementitious materials ratio. Include channels and benches in manholes.

1. Channels: Concrete invert, formed to same width as connected piping, with height of vertical sides to three-fourths of pipe diameter. Form curved channels with smooth, uniform radius and slope.

a. Invert Slope: 0.2’ minimum drop across, 1 percent through manhole.

2. Benches: Concrete, sloped to drain into channel.

a. Slope: 4 percent.

C. Ballast and Pipe Supports: Portland cement design mix, 3000 psi minimum, with 0.58 maximum water-cementitious materials ratio.

1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed steel.

2.5 CLEANOUTS

A. PVC Cleanouts: PVC body with PVC threaded plug. Include PVC sewer pipe fitting and riser to cleanout of same material as sewer piping.

2.6 TRACER TAPE

A. Tracer tape shall consist of 0.35 mils. Thick solid foil core encased in a protective plastic jacket that is resistant to alkalis, acids and other destructive elements found in the soil. The laminated bond shall be strong enough that the layers cannot be separated by hand. The tracer tape shall contain sufficient metal mass to provide detectability at depths up to three (3) feet, with most inexpensive radio type metal locators. The tracer tape shall be green in color and shall be marked with a continuous warning message every 16" to 36".

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Division 31 Section "Earth Moving".

3.2 IDENTIFICATION

A. Tracer tape shall be installed to a maximum depth of three feet below the finished surface directly above all gravity sanitary sewer pipe eight inches in diameter or larger and all force main sewer pipe.

3.3 PIPING APPLICATIONS

A. General: Include watertight joints.

B. Gravity-Flow Piping: Use the following:

1. PVC sewer pipe and fittings, gaskets and gasketed joints.

3.4 INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground sanitary sewerage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for using lubricants, cements, and other installation requirements. Maintain swab or drag in line, and pull past each joint as it is completed.

C. Use manholes for changes in direction, unless fittings are indicated. Use fittings for branch connections, unless direct tap into existing sewer is indicated.

D. Use proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

E. Install gravity-flow piping and connect to building's sanitary drains, of sizes and in locations indicated. Terminate piping as indicated.

1. Install piping pitched down in direction of flow, at minimum slope of 0.6 percent, unless otherwise indicated.
2. Install piping with 36-inch minimum cover.

F. Connections to existing Manholes. Immediately following placement and connection of a new pipe to an existing manhole, the pipe shall be plugged and remain plugged, except during testing, until the new line is accepted. No additional pipe shall be connected until final set of the grouted connection has occurred. The outlet of the existing manhole shall be cleaned at the conclusion of the work.

3.5 PIPE JOINT CONSTRUCTION AND INSTALLATION

A. General: Join and install pipe and fittings according to installations indicated.

B. PVC Sewer Pipe and Fittings: As follows:

1. Join pipe and gasketed fittings with gaskets according to ASTM D 2321 and manufacturer's written instructions.

C. System Piping Joints: Make joints using system manufacturer's couplings, unless otherwise indicated.

D. Join piping made of different materials or dimensions with couplings made for this application. Use couplings that are compatible with and that fit both systems' materials and dimensions.

3.6 MANHOLE INSTALLATION

A. General: Install manholes, complete with appurtenances and accessories indicated.

B. Form continuous concrete channels and benches between inlets and outlet.

C. Set tops of frames and covers flush with finished surface of manholes that occur in pavements. Set tops 3 inches above finished surface elsewhere, unless otherwise indicated.

D. Install precast concrete manhole sections with gaskets according to ASTM C 891.

3.7 CLEANOUT INSTALLATION

A. Install cleanouts and riser extension from sewer pipe to cleanout at grade. Install piping so cleanouts open in direction of flow in sewer pipe.

B. Set with tops 1 inch above surrounding grade.

C. Set cleanout frames and covers in concrete pavement with tops flush with pavement surface.

3.8 FIELD QUALITY CONTROL

A. Clear interior of piping and structures of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed.

1. Place plug in end of incomplete piping at end of day and when work stops.
2. Flush piping between manholes and other structures to remove collected debris, if required by authorities having jurisdiction.

B. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate reports for each system inspection.
2. Defects requiring correction include the following:

a. Alignment: Less than full diameter of inside of pipe is visible between structures.

b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
c. Crushed, broken, cracked, or otherwise damaged piping.
d. Infiltration: Water leakage into piping.
e. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
4. Re-inspect and repeat procedure until results are satisfactory.

C. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.
2. Test completed piping systems according to authorities having jurisdiction.
3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours advance notice.
4. Submit separate reports for each test.

a. Manhole Exfiltration Test. Manhole outlets shall be plugged and the manhole filled with water at least one hour prior to testing and shall be tested at least one hour maintaining the head by measured additions of water. The sum of these additions shall be the leakage for the test period. Leakage shall not exceed 0.2 GPH per foot of the head above the invert. Contractor shall, at his own expense, correct any excess leakage.
b. Low Pressure Air Test. All gravity sewer testing shall be by the low pressure air method in accordance with these specifications and the test procedure as outlined below. The low pressure air test method shall be conducted according to the following procedures:

1) Add air slowly to the portion of the pipe installation under test until the internal air pressure is raised to 4.0 psig.
2) After an internal pressure of 4.0 psig is obtained, allow at least two minutes for air temperature to stabilize, adding only the amount of air required to maintain pressure. After the two minute period, disconnect the air supply.
3) When the pressure decreases to 3.5 psig, start stop watch. Determine the time in seconds required for the internal air pressure to decrease to 2.5 psig. Compare this actual time interval to the “Time Required by Specification” derived in the following steps.
4) List the diameter (d) and respective length (L) of all portions of pipe under test.
5) Compute K and C for each diameter (d) and respective length (L) as follows; K = 0.011*d^2*L; C = 0.0003882*d*L.Sum all values of K and all values of C for pipe under the test.
6) If the total of all C values is less than one, the total of all K values is the “Time Required by Specification.”
7) If the total of all C values is greater than one, divide the total of all K values by the total of all C values. This is the “Time Required by Specification.”
8) The low pressure air test method as specified shall be performed and paid for by the Contractor. The Contractor shall, at his own expense, correct any pipe installation not passing this test.

c. Deflection Test. All sewer main pipe shall be required to pass this test. The Contractor shall, at his own expense, correct any pipe installation not passing this test.

5. Leaks and loss in test pressure constitute defects that must be repaired.
6. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

END OF SECTION 33 30 00

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SECTION 33 41 00

STORM UTILITY DRAINAGE PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Idaho Standards for Public Works Construction (latest edition).

C. City of Sandpoint Standard Drawings and Specifications.

1.2 SUMMARY

A. This Section includes storm drainage outside the building.

1.3 PERFORMANCE REQUIREMENTS

A. Gravity-Flow, Nonpressure-Piping Pressure Ratings: At least equal to system test pressure.

1.4 SUBMITTALS

A. Product Data: For cleanouts and drains indicated.

B. Shop Drawings: For precast concrete manholes and other structures, including frames, covers, and grates.

C. Field quality-control test reports.

1.5 PROJECT CONDITIONS

A. Site Information: Perform site survey, research public utility records, and verify existing utility locations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products and manufacturers are limited to those allowed by the City of Sandpoint.

1. Available Products: Subject to compliance with City of Sandpoint requirements, products that may be incorporated into the Work include, but are not limited to, the products specified in the City of Sandpoint standard specifications.

2. Available Manufacturers: Subject to compliance with City of Sandpoint requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified in the City of Sandpoint standard specifications.

2.2 PIPING MATERIALS

A. Refer to Part 3 "Piping Applications" Article for applications of pipe and fitting materials.

2.3 PIPES AND FITTINGS

A. Ductile-Iron Culvert Pipe: ASTM A 716, for push-on joints.

1. Standard-Pattern, Ductile-Iron Fittings: AWWA C110, ductile or gray iron, for push-on joints.
2. Gaskets: AWWA C111, rubber.

B. PVC Sewer Pipe and Fittings: According to the following:

1. PVC Sewer Pipe and Fittings, NPS 15 and Smaller: ASTM D 3034, SDR 35, for solvent-cemented or gasketed joints.

   a. Gaskets: ASTM F 477, elastomeric seals.

2. PVC Sewer Pipe and Fittings, NPS 18 and Larger: ASTM F 679, T-1 wall thickness, bell and spigot for gasketed joints.

   a. Gaskets: ASTM F 477, elastomeric seals.

2.4 MANHOLES

A. Normal-Traffic Precast Concrete Manholes: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for rubber gasketed joints.

1. Diameter: 48 inches minimum, unless otherwise indicated.
2. Ballast: Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.
3. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section, and having separate base slab or base section with integral floor.
4. Riser Sections: 4-inch minimum thickness, and lengths to provide depth indicated.
5. Top Section: Eccentric-cone type, unless concentric-cone or flat-slab-top type is indicated. Top of cone of size that matches grade rings.
6. Gaskets: ASTM C 443, rubber.
7. Grade Rings: Include two or three reinforced-concrete rings, of 6- to 9-inch total thickness, that match 24-inch diameter frame and cover.
8. Steps: Fiberglass, individual steps or ladder. Include width that allows worker to place both feet on one step and is designed to prevent lateral slippage off step. Cast or anchor into base, riser, and top section sidewalls with steps at 12- to 16-inch intervals. Omit steps for manholes less than 60 inches deep.
9. Steps: ASTM C 478, individual steps or ladder. Omit steps for manholes less than 60 inches deep.

10. Pipe Connectors: ASTM C 923, resilient, of size required, for each pipe connecting to base section.

B. Manhole Frames and Covers: ASTM A 536, Grade 60-40-18, ductile-iron castings designed for heavy-duty service. Include 24-inch ID by 7- to 9-inch riser with 4-inch minimum width flange, and 26-inch diameter cover. Include indented top design with lettering "STORM SEWER" cast into cover.

2.5 CATCH BASINS

A. Normal-Traffic, Precast Concrete Catch Basins: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for rubber gasketed joints.

1. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section, and having separate base slab or base section with integral floor.
2. Riser Sections: 4-inch minimum thickness, 48-inch diameter, and lengths to provide depth indicated.
3. Top Section: Eccentric-cone type, unless concentric-cone or flat-slab-top type is indicated. Top of cone of size that matches grade rings.
4. Gaskets: ASTM C 443, rubber.
5. Grade Rings: Include two or three reinforced-concrete rings, of 6- to 9-inch total thickness, that match 24-inch diameter frame and grate.
6. Steps: Fiberglass, individual steps or ladder. Include width that allows worker to place both feet on one step and is designed to prevent lateral slippage off step. Cast steps or anchor ladder into base, riser, and top section sidewalls at 12- to 16-inch intervals. Omit steps for catch basins less than 60 inches deep.
7. Steps: ASTM C 478, individual steps or ladder. Omit steps for catch basins less than 60 inches deep.
8. Pipe Connectors: ASTM C 923, resilient, of size required, for each pipe connecting to base section.

B. Frames and Grates: ASTM A 536, Grade 60-40-18, ductile iron designed for heavy-duty service. Include flat grate with small square or short-slotted drainage openings.

1. Size: 24 by 24 inches minimum, unless otherwise indicated.
2. Grate Free Area: Approximately 50 percent, unless otherwise indicated.

C. Retain paragraph and subparagraphs above or paragraph and subparagraph below.

D. Retain below for round, manhole-type structures.

E. Frames and Grates: ASTM A 536, Grade 60-40-18, ductile iron designed for heavy-duty service. Include 24-inch ID by 7- to 9-inch riser with 4-inch minimum width flange, and 26-inch-diameter flat grate with small square or short-slotted drainage openings.

1. Grate Free Area: Approximately 50 percent, unless otherwise indicated.

2.6 DRYWELLS

A. Per City of Sandpoint Requirements noted on the drawings.

2.7 STORMWATER INLETS

A. Curb Inlets: Made with vertical curb opening, of materials and dimensions according to utility standards.

2.8 CONCRETE

A. General: Cast-in-place concrete according to ACI 318, ACI 350R.

1. Cement: ASTM C 150, Type II.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Portland Cement Design Mix: 3000 psi minimum, with 0.45 maximum water-cementitious ratio.

1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed steel.

C. Edit below to suit Project. Delete if not required.

D. Ballast and Pipe Supports: Portland cement design mix, 3000 psi minimum, with 0.58 maximum water-cementitious ratio.

1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed steel.

2.9 PROTECTIVE COATINGS

A. Description: 1- or 2-coat, coal-tar epoxy; 15-mil minimum thickness, unless otherwise indicated; factory or field applied to the following surfaces:

1. Concrete Manholes: On exterior and interior surfaces.
2. Manhole Frames and Covers: On entire surfaces.
3. Catch Basins: On exterior and interior surfaces.
4. Catch Basin Frames and Grates: On entire surfaces.
5. Storm water Inlets: On exterior and interior surfaces.
6. Storm water Inlet Frames and Grates: On entire surfaces.

2.10 CLEANOUTS

A. Gray-Iron Cleanouts: ASME A112.36.2M, round, gray-iron housing with clamping device and round, secured, scoriated, gray-iron cover. Include gray-iron ferrule with inside calk or spigot connection and countersunk, tapered-thread, brass closure plug. Use units with top-loading classifications according to the following applications:

1. Light Duty: In earth or grass foot-traffic areas.
2. Medium Duty: In paved foot-traffic areas.
3. Heavy Duty: In vehicle-traffic service areas.
4. Extra-Heavy Duty: In roads.
5. Sewer Pipe Fitting and Riser to Cleanout: ASTM A 74, Service class, cast-iron soil pipe and fittings.

B. PVC Cleanouts: PVC body with PVC threaded plug. Include PVC sewer pipe fitting and riser to cleanout of same material as sewer piping.

2.11 DRAINS

A. See Mechanical specifications for interior piping and drainage.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, backfilling, and identification materials and their installation are specified in Division 31 Section "Earth Moving." Arrange for installing green warning tapes directly over piping and at outside edges of underground structures.

1. Use warning tape or detectable warning tape over ferrous piping.
2. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.2 PIPING APPLICATIONS

A. Piping Applications: Include watertight or soil-tight joints.

1. NPS 3: Hub-and-spigot, Service class, cast-iron soil pipe and fittings; gaskets; and gasketed joints.
2. NPS 4 to NPS 6: Hub-and-spigot, Service class, cast-iron soil pipe and fittings; gaskets; and gasketed joints.
3. NPS 4 and NPS 6: PVC sewer pipe and fittings, gaskets, and gasketed joints.
4. NPS 8 to NPS 15: Ductile-iron sewer pipe; standard-pattern, ductile-iron fittings; gaskets; and gasketed joints in NPS 8 to NPS 12. Use ductile-iron culvert pipe; standard-pattern, ductile-iron fittings; gaskets; and gasketed joints in NPS 14 and NPS 16.
5. NPS 8 to NPS 15: PVC sewer pipe and fittings, gaskets, and gasketed joints.
6. NPS 18 to NPS 36: PVC sewer pipe and fittings, gaskets, and gasketed joints.
7. NPS 4 to NPS 15: HDPE pipe.

3.3 SPECIAL PIPE COUPLINGS

A. Sleeve-Type Pipe Couplings: Use where required to join piping and no other appropriate method is specified. Do not use instead of specified joining methods.

3.4 INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line, and pull past each joint as it is completed.

C. Use manholes for changes in direction, unless fittings are indicated. Use fittings for branch connections, unless direct tap into existing sewer is indicated.

D. Use proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

E. Install gravity-flow piping and connect to building's storm drains, of sizes and in locations indicated. Terminate piping as indicated.

1. Install piping pitched down in direction of flow, at minimum slope of 0.5 percent, unless otherwise indicated.
2. Install piping with 24-inch minimum cover.

F. Extend storm drainage piping and connect to building's storm drains, of sizes and in locations indicated. Terminate piping as indicated.

3.5 PIPE JOINT CONSTRUCTION AND INSTALLATION

A. Join and install pipe and fittings according to installations indicated.

B. Hub-and-Spigot, Cast-Iron Soil Pipe and Fittings: With rubber gaskets according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook." Use gaskets that match class of pipe and fittings.

C. Ductile-Iron Pipe and Gray- or Ductile-Iron Fittings: According to AWWA C600.

D. PVC Sewer Pipe and Fittings: As follows:

1. Join pipe and gasketed fittings with gaskets according to ASTM D 2321.
2. Install according to ASTM D 2321.

E. Join piping made of different materials or dimensions with couplings made for this application. Use couplings that are compatible with and that fit both systems' materials and dimensions.

3.6 MANHOLE INSTALLATION

A. Install complete with appurtenances and accessories indicated.

B. Set tops of frames and covers flush with finished surface of manholes that occur in pavements. Set tops 3 inches above finished surface elsewhere, unless otherwise indicated.

C. Install precast concrete manhole sections with gaskets according to ASTM C 891.

3.7 CATCH-BASIN INSTALLATION

A. Set frames and grates to elevations indicated.

3.8 DRYWELL INSTALLATION

A. Set frame and grate to elevations indicated.

B. Per City of Sandpoint requirements noted on the drawings.

3.9 CONCRETE PLACEMENT

A. Place cast-in-place concrete according to ACI 318 and ACI 350R.

3.10 DRAINAGE SYSTEM INSTALLATION

A. Install cleanouts and riser extension from storm drainage pipe to cleanout at grade. Use cast-iron soil pipe fittings in storm drainage pipes at branches for cleanouts and cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in storm drainage pipe.

1. Set cleanout frames and covers in earth in cast-in-place concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding grade.
2. Set cleanout frames and covers in concrete pavement with tops flush with pavement surface.

B. Install drains in locations indicated.

C. Make connections to existing piping and underground structures so finished Work complies as nearly as practical with requirements specified for new Work.

D. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe; install wye fitting into existing piping; and encase entire wye fitting, plus 6-inch overlap, with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.

E. Make branch connections from side into existing piping, NPS 4 to NPS 20. Remove section of existing pipe; install wye fitting into existing piping; and encase entire wye with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.

F. Make branch connections from side into existing piping, NPS 21 or larger, or to underground structures by cutting opening into existing unit large enough to allow 3 inches of concrete to be packed around entering connection. Cut end of connection pipe passing through pipe or structure wall to conform to shape of and be flush with inside wall, unless otherwise indicated. On outside of pipe or structure wall, encase entering connection in 6 inches of concrete for minimum length of 12 inches to provide additional support of collar from connection to undisturbed ground.

1. Use concrete that will attain minimum 28-day compressive strength of 3000 psi, unless otherwise indicated.
2. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.

3.11 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Defects requiring correction include the following:

    a. Alignment: Less than full diameter of inside of pipe is visible between structures.
    b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter. Crushed, broken, cracked, or otherwise damaged piping.
    c. Infiltration: Water leakage into piping.
    d. Exfiltration: Water leakage from or around piping.

2. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
3. Reinspect and repeat procedure until results are satisfactory.

B. Test new piping systems according to authorities having jurisdiction.

3.12 PROTECTION AND CLEANING

A. Protect existing piping and structures to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.

B. Clear interior of piping and structures of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed.

1. Place plug in end of incomplete piping at end of day and when work stops.
2. Flush piping between manholes and other structures to remove collected debris, if required by authorities having jurisdiction.

END OF SECTION 33 41 00

SECTION 33 51 00

NATURAL GAS DISTRIBUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Idaho Standards for Public Works Construction (latest edition).

C. City of Sandpoint Standard Drawings and Specifications.

1.2 SUMMARY

A. This Section includes the following for natural gas distribution outside the building:

1. Piping.

B. Related Sections include the following:

1. Division 22 Section “Facility Natural Gas Piping” for natural gas piping inside the building.

1.3 DEFINITIONS

A. Gas Main: Utility’s natural gas piping.

B. Gas Distribution: Piping from gas main to individual service-meter assemblies.

C. Service-Meter Assembly: Piping, valves, service regulator**,** and specialties.

D. Point of Delivery: Piping outlet from service-meter assembly.

E. Natural Gas Piping: Piping that conveys natural gas from point of delivery to natural gas utilization devices inside the building.

F. PE: Polyethylene plastic.

1.4 PERFORMANCE REQUIREMENTS

A. Minimum Working-Pressure Ratings:

1. Piping and Valves: 100 psig (690 kPa) minimum, unless otherwise indicated.

B. Codes and Standards: Meet codes and regulatory standards of gas utility purveyor, and all other applicable regulatory standards.

1.5 SUBMITTALS

A. Product Data: For the following:

1. PE pipe and fittings.
2. Welding certificates.
3. Field quality-control test reports.

1.6 QUALITY ASSURANCE

A. Product Options: Drawings indicate size, profiles, and dimensional requirements of earthquake valves and are based on the specific system indicated. Refer to Division 1 Section “Product Requirements.”

B. Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX.

C. Comply with ANSI Z223.1 or NFPA 54 for materials, installation, testing, inspection, and purging.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Handling Flammable Liquids: Remove and legally dispose of liquids from drips in existing gas piping. Handle liquids to avoid spillage and ignition. Notify gas supplier. Do not leave flammable liquids on premises overnight.

B. Store PE pipes and valves protected from direct sunlight.

1.8 PROJECT CONDITIONS

A. Perform site survey, and verify existing utility locations. Contact utility-locating service for area where Project is located.

B. Interruption of Existing Natural Gas Service: Do not interrupt natural gas service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide purging and startup of gas supply according to requirements indicated:

1. Notify Owner no fewer than two days in advance of proposed interruption of natural gas service.
2. Do not proceed with interruption of natural gas service without Owner’s permission.

1.9 COORDINATION

A. Coordinate natural gas distribution with other utility Work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified or otherwise accepted by utility purveyor.

2.2 PIPES AND FITTINGS

A. Refer to Part 3 “Piping Applications” Article for applications of pipe, fitting, and joining materials.

B. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B; Schedule 40, black.

1. Malleable-Iron Fittings: ASME B16.3, Class 150, standard pattern, with threads complying with ASME B1.20.1.
2. Steel Fittings: ASME B16.9, wrought-steel butt-welding type; and ASME B16.11, forged steel.
3. Steel Flanges and Flanged Fittings: ASME B16.5.
4. Unions: ASME B16.39, Class 150, black malleable iron; female pattern; brass-to-iron seat; ground joint.

C. PE Pipe: ASTM D 2513, SDR 11.

1. PE Fittings: ASTM D 2683, socket type or ASTM D 3261, butt type with dimensions matching ASTM D 2513, SDR 11, PE pipe.

D. Transition Fittings: Manufactured pipe fitting with one PE pipe end for heat-fusion connection to PE pipe and with one ASTM A 53/A 53M, Schedule 40, steel pipe end for threaded connection to steel pipe.

E. Service-Line Risers: Manufactured PE pipe fitting with PE pipe inlet for heat-fusion connection to underground PE pipe; PE pipe riser section with protective-coated, anodeless, steel casing and threaded outlet for threaded connection to aboveground steel piping.

2.3 JOINING MATERIALS

A. Components, Tapes, Gaskets, and Bolts and Nuts: Suitable for natural gas and as recommended by piping manufacturer.

2.4 SERVICE METER

A. Service Meter Assembly: Service meter shall be per utility purveyor requirements and should be furnished and installed by the utility. Meter shall be furnished with pulse signal transmitting assembly and low-voltage connecting cable.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Refer to Division 31 Section 31 20 00 “Earthwork” for excavating, trenching, and backfilling.

3.2 PREPARATION

A. Close equipment shutoff valves before turning off gas to premises or piping section.

B. Inspect natural gas piping according to fuel gas code to determine that natural gas utilization devices are turned off in piping section affected.

C. Comply with fuel gas code requirements for prevention of accidental ignition.

3.3 PIPING APPLICATIONS

A. Flanges, unions, and transition and special fittings with pressure ratings same as or higher than system pressure rating may be used, unless otherwise indicated.

B. Above-ground Piping:

1. NPS 2 (DN 50) and Smaller: Steel pipe, butt-welding-type fittings, and welded joints. Joints for connection to threaded service regulators, service meters, and valves may be threaded.
2. NPS 2 (DN 50) and Smaller: Steel pipe, malleable-iron fittings, and threaded joints.
3. NPS 2-1/2 (DN 65) and Larger: Steel pipe, butt-welding-type fittings, and welded joints. Joints for connection to service regulators, service meters, and valves with flanged connections may be flanged. Joints for connection to service regulators, service meters, and valves with threaded connections NPS 2-1/2 to NPS 4 (DN 65 to DN 100) may be threaded.

C. Underground Piping: PE pipe, PE fittings, and heat-fusion joints.

D. Protective Conduit for Underground Piping: Steel pipe and threaded- or welding-type fittings.

E. Underground-to-Aboveground Piping Connections: Service-line riser.

F. PE-to-Steel Piping Connections: Transition fitting.

3.4 PIPING INSTALLATION

A. Install underground, natural gas distribution piping buried at least 36 inches below finished grade, unless indicated otherwise.

B. Install underground, PE, natural gas distribution piping according to ASTM D 2774. Provide sand bedding meeting City of Sandpoint requirements and standards.

3.5 JOINT CONSTRUCTION

A. Conform to City of Sandpoint requirements.

3.6 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect gas distribution piping to natural gas source and extend to service-meter assemblies and points indicated. Connect to building's natural gas piping if it is installed; otherwise, terminate piping with caps, plugs, or flanges, as required for piping material. Refer to Division 22 Section "Facility Natural Gas Piping" for natural gas piping inside the building.

C. Install unions, in piping NPS 2 (DN 50) and smaller, adjacent to each valve and at final connection to each piece of equipment having threaded pipe connection.

D. Install flanges, in piping NPS 2-1/2 (DN 65) and larger, adjacent to flanged valves and at final connection to each piece of equipment having flanged pipe connection.

E. Connect to existing gas line according to City of Sandpoint procedures and requirements.

F. Install aboveground, natural gas distribution piping upstream from equipment shutoff valves, electrically continuous, and bonded to grounding electrode according to NFPA 70.

G. Do not use natural gas distribution piping as grounding electrode.

3.7 LABELING AND IDENTIFYING

A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplates and signs on or near each service regulator, service meter, and earthquake valve.

B. Text: In addition to identifying unit, distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.

C. Warning Tapes: Arrange for installation of continuous, underground, detectable warning tape over natural gas distribution piping during backfilling of trenches for piping.

1. Refer to Division 31 Section 31 20 00 "Earth Moving" for warning tapes.

3.8 PAINTING

A. Paint exposed metal piping, valves, service regulators, service meters and meter bars, earthquake valves, and piping specialties except units with factory-applied paint or protective coating.

B. Damage and Touchup: Repair marred and damaged factory-applied finishes with materials and by procedures to match original factory finish.

3.9 FIELD QUALITY CONTROL

A. Test, inspect, and purge natural gas distribution according to requirements of fuel gas code and the utility purveyor.

B. Repair leaks and defective valves and specialties and retest system until no leaks exist.

C. Report results in writing.

D. Verify correct pressure settings for service regulators.

END OF SECTION 33 51 00

TRAVERS PARK RECREATION CENTER

CITY OF SANDPOINT

BID PACKAGE #1

08/25/23



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Grand total: 40

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CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE #1

REV	DATE	DESCRIPTION

PROJ. NO.	2023-011
DRAWN	RM
PROJ MNGR	GS
DATE	08/25/23

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COVER AND DRAWING INDEX

G-001

ARCHITECTURAL ABBREVIATIONS

≈	ALMOST EQUAL TO
&	AND
∠	ANGLE
@	AT
℄	CENTER LINE
°	DEGREE
ø	DIAMTER or ROUND
≥	GREATER THAN OR EQUAL TO
≤	LESS THAN OR EQUAL TO
≠	NOT EQUAL TO
⊥	PERPENDICULAR
#	POUNDS or NUMBER
x	TIMES or BY
	'A'
AB	ANCHOR BOLT
ABC	AGGREGATE BASE COURSE
ABV	ABOVE
AC	ASPHALTIC CONCRETE
A/C	AIR CONDITIONING
ACC	ACCESS
ACFL	ACCESS FLOOR
ACID RES	ACID RESISTANT
ACP	ACOUSTICAL PANEL
ACT	ACOUSTICAL TILE
AD	AREA DRAIN
ADD	ADDENDUM
ADH	ADHESIVE
ADJT	ADJUSTABLE
AF	ACCESS FLOOR
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AFS	ABOVE FINISH SLAB
AGGR	AGGREGATE
ALT	ALTERNATE
ALUM	ALUMINUM
ANOD	ANODIZED
AP	ACCESS PANEL
APC	ACOUSTICAL PANEL CEILING
APPROX	APPROXIMATE(LY)
ARCH	ARCHITECT(URAL)
ASB	ASBESTOS
ASKLR	AUTOMATIC SPRINKLER
ASPH	ASPHALT
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY for TESTING & MATERIALS
ATC	ACOUSTICAL TILE CEILING
ATF	ATHLETIC FLOORING
AUTO	AUTOMATIC
AWB	AIR WEATHER BARRIER
AWP	ACOUSTICAL WALL PANEL
	'B'
BALC	BALCONY
BB	BULLETIN BOARD
BD	BOARD
BEL	BELOW
BET	BETWEEN
BITUM	BITUMINOUS
BKG	BACKING
BJT	BED JOINT
BLDG	BUILDING
BLKG	BLOCKING
BLTN	BUILT-IN
BM	BEAM
BOD	BOTTOM OF DECK
BOF	BOTTOM OF FOOTING
BOH	BACK OF HOUSE
BOJ	BOTTOM OF JOISTS
BOT	BOTTOM
BPL	BEARING PLATE
BR	BEDROOM
BRCG	BRACING
BRG	BEARING
BRK	BRICK
BRZ	BRONZE
BS	BOTH SIDES
BSMT	BASEMENT
BUR	BUILT-UP ROOF(ING)
BVL	BEVEL
BW	BOTH WAYS
	'C'
CAB	CABINET
CB	CATCH BASIN, CORNER BEAD
CAN	CANOPY
CANTIL	CANTILEVER
CBB	CEMENTITIOUS (BACKER) BOARD
CEM	CEMENT
CER	CERAMIC
CF	CONTRACTOR FURNISHED
CF/CI	CONTRACTOR FURNISHED / CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED/OWNER INSTALLED
CFE	CONTRACTOR FURNISHED EQUIPMENT
CFLG	COUNTERFLASH(ING)
CFT	CUBIC FOOT
CG	CORNER GUARD
CH BD	CHALKBOARD
CHFR	CHAMFER
CHT	CEILING HEIGHT
CI	CAST IRON
CIP(C)	CAST-IN-PLACE (CONCRETE)
CIR	CIRCLE/CIRCULAR
CIRC	CIRCUMFERENCE
CJ	CONTROL JOINT, CONSTRUCTION JOINT
CK	CAULK(ING)
CLG	CEILING
CLL	CONTRACT LIMIT LINE
CLR	CLEAR(ANCE)
CLRM	CLASSROOM
CLS	CLOSURE
CMT	CERAMIC MOSAIC
CMU	CONCRETE MASONRY UNIT(S)
CMPST	COMPOSITE
CNTR	COUNTER
CO	CLEANOUT, CASED OPENING, CUTOUT
COL	COLUMN
COMB	COMBINE/COMBINATION
COMP	COMPRESS(ED/ION/IBLE)
COMPO	COMPOSITION/COMPOSITE
COMPT	COMPARTMENT
CONC	CONCRETE
CONF	CONFERENCE
CONN	CONNECT
CONST	CONSTRUCTION
CONT	CONTINUE/CONTINUOUS
CONTR	CONTRACTOR
COR	CORRIDOR
CORR	CORRUGATED
COTG	CLEANOUT TO GRADE
CPLP	CEMENT PLASTER (PORTLAND)
CPR	COPPER
CPT	CARPET
CR	CLOSET ROD
CRG	CROSS GRAIN
CRS	COURSE
CRT YD	COURTYARD
CSK	COUNTERSINK(SUNK)
CSMT	CASEMENT
CST	CAST STONE
CSWK	CASEWORK
CT	CERAMIC TILE
CTB	CERAMIC TILE BASE
CTR	CENTER
CU FT	CUBIC FEET
CU YD	CUBIC YARD(S)
CW	COLD WATER
	'D'
D	DEEP, DEPTH
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLISH/DEMOLITION
DET	DETAIL
DEP	DEPRESSED
DF	DRINKING FOUNTAIN
DH	DIAGONAL HUNG
DIA	DIAMETER
DIAG	DIAGONAL, DIAGRAM
DIAM	DIAMETER
DIM	DIMENSION
DISP	DISPENSER
DIV	DIVISION
DL	DEAD LOAD
DMPF	DAMPROOF(ING)
DMT	DEMOUNTABLE
DN	DOWN
DP	DAMP PROOFING
DPR	DAMPER
DR	DOOR, DINING ROOM, DRESSING ROOM, DRIVE
DRN	DRAIN
DRST	DOOR STOP
DS	DOWNSPOUT
DSP	DRY STANDPIPE
DSPL	DISPOSAL
DT	DRAIN TILE
DTA	DOVETAIL ANCHOR
DTL	DETAIL
DTS	DOVETAIL ANCHOR SLOT
DW	DUMBWAITER
DWG	DRAWING
DWR	DRAWER
	'E'
E	EAST
(E)	EXISTING
EA	EACH
EHD	ELECTRIC HAND DRYER
EIFS	EXTERIOR INSULATION FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENGR	ENGINEER
ENTR	ENTRANCE
ESMT	EASEMENT
EP	ELECTRICAL PANEL
EQ	EQUAL
EQUIP	EQUIPMENT
EST	ESTIMATE
EW	EACH WAY
EWC	ELECTRICAL WATER COOLER
EXCA	EXCAVATE(ION)
EXH FN	EXHAUST FAN
EXH HD	EXHAUST HOOD
EXIST	EXISTING
EXP	EXPANSION, EXPOSED, EXPOSURE
EXP BT	EXPANSION BOLT
EXT	EXTERIOR
EXT LT	EXIT LIGHT
	'F'
FA	FIRE ALARM, FRESH AIR
FACP	FIRE ALARM CONTROL PANEL
FAS	FASTEN(ER)
FB	FLAT BAR
FBD	FIRE BOARD
FBRK	FIRE BRICK
FBO	FURNISHED BY OTHERS
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDTN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FEHC	FIRE EXTINGUISHER & HOSE CABINET
FF	FACTORY FINISH
FF EL	FINISH FLOOR ELEVATION
FF&E	FURNITURE, FIXTURE & EQUIPMENT
FFL	FINISHED FLOOR LINE
FGL	FIBERGLASS
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FIN	FINISH(ED)
FIN FLR	FINISH FLOOR
FIN GR	FINISH GRADE
FJT	FLUSH JOINT
FLA	FLASHING
FLCO	FLOOR CLEAN OUT
FLG	FLASHING
FLR	FLOOR, FILLER
FLUOR	FLUORESCENT
FND	FOUNDATION
FO	FINISH OPENING
FOB	FACE OF BRICK
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD(S)
FP	FIREPROOF
FPL	FLOOR PLATE
FRMG	FRAMING
FR	FRAME(D)/FRAMING
FRA	FRESH AIR
FRC	FIRE-RESISTANT COATING
FRP	FIBER REINFORCED POLYESTER
FRR	FIRE-RESISTANCE RATING
FRTW	FIRE RETARDENT TREATED WOOD
FRZ	FREEZER
FS	FULL SIZE, FULL SCALE
FT	FOOT or FEET, FIRE TREATED
FTD	FACIAL TISSUE DISPENSER
FTG	FOOTING
FUR	FURR(ED/ING)
FUT	FUTURE
FWC	FABRIC WALLCOVERING
	'G'
GA	GAUGE
GALV	GALVANIZED, GALVANIC
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GD	GRADE, GRADING
GDR	GUARD RAIL
GEN	GENERAL, GENERATOR
GF	GROUND FACE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFRC	GLASS FIBER REINFORCED CONCRETE
GI	GALVANIZED IRON
GKT	GASKT(ED)
GL	GLASS/GLAZING
GL BLK	GLASS BLOCK
GLU LAM	GLU-LAMINATED BEAM/WOOD
GP	GALVANIZED PIPE
GPDW	GYPSUM DRYWALL
GPL	GYPSUM LATH
GPPL	GYPSUM PLASTER
GR FL	GROUND FLOOR
GR LN	GRADE LINE
GRN	GRANITE
GSB	GYPSUM SHEATHING BOARD
GSM	GALVANIZED SHEET METAL
GSS	GLAZED STRUCTURAL SHEET
GST	GLAZED STRUCTURAL TILE
GT	GROUT
GUT	GUTTER
GV	GALVANIZED
GVL	GRAVEL
GYM	GYMNASIUM
GYP	GYPSUM
GYP BD	GYPSUM BOARD
	'H'
HB	HOSE BIBB
HBD	HARDBOARD
HC	HANDICAP, HOLLOW CORE
HD	HAND DRYER, HEAVY DUTY
HDR	HEADER
HDW	HARDWARE
HDWD	HARDWOOD
HES	HIGH EARLY STRENGTH CEMENT
HK	HOOK
HM	HOLLOW METAL
HNDRL	HANDRAIL
HO	HOLD-OPEN
HORIZ	HORIZONTAL
HT	HEIGHT
HTG	HEATING
HVAC	HEATING VENTILATING AIR CONDITIONING
HW	HOTWATER
HWT	HOTWATER TANK
HEX/HX	HEXAGONAL
	'I'
ID	INSIDE DIAMETER, INSIDE DIMENSION
INCAND	INCANDESCENT
INCIN	INCINERATOR
INCL	INCLUDED
INSUL	INSULATION
INT	INTERIOR
INTM	INTERMEDIATE
INV	INVERT(ED)
IPS	IRON PIPE SIZE
IS	ISLAND, INSECT SCREEN
ISO	ISOMETRIC
IWH	INSTANTANEOUS WATER HEATER
	'J'
J	JOIST
JC	JANITOR'S CLOSET
JF	JOINT FILLER
JT	JOINT
J-BOX	JUNCTION BOX
	'K'
KO	KNOCK OUT
KIT	KITCHEN
KPL	KICKPLATE
	'L'
L	LENGTH
LAB	LABORATORY
LAD	LADDER
LAM	LAMINATE
LAV	LAVATORY
LB	POUND
LBL	LABEL
LC	LIGHT CONTROL
LD BRG	LOAD BEARING
LGT	LIGHT(ING)
LH	LEFT HANDED
LIB	LIBRARY
LINO	LINOLEUM
LKR	LOCKER
LKR RM	LOCKER ROOM
LL	LIVE LOAD, LOWER LEVEL
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LMS	LIMESTONE
LOC	LOCATION
LOUV	LOUVER
LP	LIGHT POLE
LPT	LOW POINT
LPG	LIQUID PETROLEUM GAS
LRG	LARGE
LT	LIGHT
LT SW	LIGHT SWITCH
LTG	LIGHTING
LTL	LINTEL
LT	LIGHT(ING)
LVR	LOUVER
LW	LIGHTWEIGHT
LWC	LIGHTWEIGHT CONCRETE
	'M'
M	METER
MAINT	MAINTENANCE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT, MAIL BOX
MBR	MEMBER
MC	MEDICINE CABINET, MANHOLE COVER, METAL CLAD
MECH RM	MECHANICAL ROOM
MECH	MECHANICAL
MED	MEDIUM, MEDICAL
MEL	MELAMINE
MEMB	MEMBRANE
MET	METAL
MFD	METAL FLOOR DECKING
MEZZ	MEZZANINE
MFR	MANUFACTURE(R)
MFR REC	MANUFACTURER'S RECOMMENDATION
MH	MANHOLE
MIN	MINIMUM
MIRR	MIRROR
MISC	MISCELLANEOUS
MLDG	MOLDING (MOULDING)
MLWK	MILLWORK
MMB	MEMBRANE
MO	MASONRY OPENING, MOTOR OPERATED
MOD	MODIFY
MOD	MODULAR
MOPR	MOP RACK
MOV	MOVABLE
MR	MAP RECEPTOR
MRB	MARBLE
MRD	METAL ROOF DECK(ING)
MS	MOP SINK, MACHINE SCREW
MT	MOUNT(ED/ING)
MTFR	METAL FURRING
MTHR	METAL THRESHOLD
MTL	METAL
MTLR	METAL ROOF
MULL	MULLION
MVBL	MOVABLE
MWK	MILLWORK
	'N'
N	NORTH
NAT	NATURAL
NCOMBL	NONCOMBUSTIBLE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NMT	NONMETALLIC
NO	NUMBER
NOM	NOMINAL
NR	NOISE REDUCTION
NRC	NOISE REDUCTION COEFFICIENT
NS	NO SCALE
NTS	NOT TO SCALE
	'O'
OA	OVERALL, OUTSIDE AIR
OBS	OBSCURE
OC	ON CENTER
OCC	OCCUPY
OD	OUTSIDE DIAMETER, OUTSIDE DIMENSION
OF	OUTSIDE FACE
OF/CI	OWNER FURNISHED/CONTRACTOR INSTALLED
OF/OI	OWNER FURNISHED/OWNER INSTALLED
OFD	OVERFLOW DRAIN
OFF	OFFICE
OFS	OUTSIDE FACE OF STUD
OGL	OBSCURE GLASS
OH	OVER(HANG/HEAD)
OH DR	OVERHEAD (COILING) DOOR
OPNG	OPENING
OPH	OPPOSITE HAND
OPP	OPPOSITE
OPS	OPPOSITE SURFACE
OPT	OPTIONAL
ORD	OVERFLOW ROOF DRAIN
	'P'
P	PAINT
PA	PUBLIC ADDRESS
PAR	PARALLEL
PAT	PATTERN
PB	PANIC BAR, PANELBOARD
PBD	PARTICLE BOARD
PCC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PE	PEDESTAL
PED	PEDESTAL
PEND	PENDANT
PERF	PERFORATE(D)
PERIM	PERIMETER
PERM	PERMANENT
PFB	PREFABRICATED
PFL	POUNDS PER LINEAR FOOT
PFM	PREFINISHED
PG	PLATE GLASS
PH	PHASE
PIL	PILASTER
PK GAR	PARKING GARAGE
PK LOT	PARKING LOT
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTIC
PLST	PLASTER
PLY	PLYWOOD
PNL	PANEL
PNT	PAINT(ED)
POL	POLISH(ED)
PORC	PORCELAIN
PR	PAIR, PIPE RAIL
PRCST	PRECAST
PREFAB	PREFABRICATE(D)
PREFIN	PREFINISHED
PRELIM	PRELIMINARY
PRF	PREFORMED
PRKG	PARKING
PROP	PROPERTY
PSC	PRE-STRESSED CONCRETE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PIPE SLEEVE
PT	PRESSURE TREATED, PAINT
PTD	PAPER TOWEL DISPENSER
PTDR	PAPTER TOWEL DISPENSER & RECEPTACLE
PTN	PARTITION
PTR	PAPER TOWEL RECEPTACLE
PV	PAVE(D)
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PWR	POWER
	'Q'
QT	QUARRY TILE
QTB	QUARRY TILE BASE
QTR	QUARTER
QTY	QUANTITY
QUAD	QUADRANT
QUAL	QUALITY
	'R'
R	RADIUS, RISER, RANGE
RA	RETURN AIR
RAD	RADIUS
RB	RUBBER BASE
RB HK	ROBE HOOK
RBL	RUBBLE STONE
RBT	RUBBER TILE
RCP	REFLECTED CEILING PLAN
RCPTN	RECEPTION
RD	ROOF DRAIN, ROAD
REBAR	REINFORCING STEEL BARS
REC	RECESSED
RECPT	RECEPTACLE
REF	REFERENCE
REFG	REFRIGIRATOR
REFL	REFLECTED
REG	REGISTER
REINF	REINFORCE(D)
REM	REMOVE(ABLE)
REQD	REQUIRED
RESIL	RESILIENT
REST	RESTROOM
REV	REVISED, REVISION
RF	RESILIENT FLOORING
RFG	ROOFING
RFH	ROOF HATCH
RFL	REFLECT(ED/IVE/OR)
RH	RIGHT HANDED
RH	ROOF HATCH
RL	RAIL(ING)
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RT	RIGHT
RTF	RUBBER TILE FLOOR
RVS	REVERSE
RWL	RAIN WATER LEADER
RWR	RECESSED WASTE RECEPTACLE
	'S'
S	SOUTH
SA	SUPPLY AIR
SAN	SANITARY
SC	SOLID CORE
SCD	SEAT COVER DISPENSER
SCHED	SCHEDULE
SCP	SCUPPER
SCR	SHOWER CURTAIN ROD
SCRN	SCREEN
SCT	STRUCTURAL CLAY TILE
SD	SMOKE DETECTOR, STORM DRAIN, SOAP DISPENSER
SDG	SIDING
SECT	SECTION
SF	SQUARE FOOT (FEET)
SFGL	SAFETY GLASS
SG	SHEET GLASS
SGD	SLIDING GLASS DOOR
SH	SHELF
SHFT	SHAFT (ELEVATOR)
SHO	SHORE(D/ING)
SHR	SHOWER
SHT	SHEET
SHTHG	SHEATHING
SHV	SHELVING
SIM	SIMILAR
SKLT	SKYLIGHT
SL	SIDELIGHT
SLNT	SEALANT
SM	SHEET METAL, SMALL, SMOOTH
SMP	SUMP PUMP
SND	SANITARY NAPKIN DISPENSER
SND INS	SANITARY NAPKIN DISPOSAL UNIT
SOV	SHUTOFF VALVE
SP	STANDPIPE, SUMP PIT
SPC	SPACE(R)
SPM	SOLID PLASTIC MATERIAL
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SPKR	SPEAKER
SPRT	SUPPORT
SPL	SPECIAL
SQ	SQUARE
SS	SANITARY SEWER, STORM SEWER
SSK	SERVICE SINK
SST	STAINLESS STEEL
ST	STAIR(S), STREET
STA	STATION
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STG	SEATING
STL	STEEL
STL LNTL	STEEL LINTEL
STL PL	STEEL PLATE
STL RF DK	STEEL ROOF DECK
STOR	STORAGE
STR	STRAIGHT, STRINGER(S)
STRUCT	STRUCTURAL
SUB FL	SUB FLOOR
SUSP	SUSPEND(ED)
SV	SHEET VINYL
SW	SIDEWALK, SWITCH
SYMM	SYMMETRICAL
SYN	SYNTHETIC
SYS	SYSTEM
	'T'
T	TREAD
T&B	TOP & BOTTOM
T&G	TONG & GROOVE
T/S	TUB / SHOWER
TB	TOWEL BAR, THROUGH BOLT
TBD	TO BE DETERMINED
TD	TRENCH DRAIN
TDR	TOWEL DISPENSER & RECEPTACLE
TEL	TELEPHONE
TEMP	TEMPORARY
TER	TERRAZZO
TFF	TOP OF FINISH FLOOR
TFB	TENSION FABRIC BUILDING
THK	THICK(INESS)
THR	THRESHOLD
THRU	THROUGH
TK BD	TACKBOARD
TKS	TACK STRIP
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE/CURB
TOC FTG	TOP OF CONCRETE FOOTING
TOC WALL	TOP OF CONCRETE WALL
TO FDN	TOP OF FOUNDATION
TOL	TOLERANCE
TOM	TOP OF MASONRY
TOP	TOP OF PARAPET, TOP OF PAVEMENT
TOPO	TOPOGRAPHY
TOS	TOP OF SLAB, TOP OF STEEL
TOT	TOP OF TRUSS
TOW	TOP OF WALL
TP	TELEPHONE POLE
TPD	TOILET PAPER DISPENSER
TPH	TOILET PAPER HOLDER
TPTN	TOILET PARTITION
TR	TOWEL RACK
TRANS	TRANSOM, TRANSPARENT
TRTD	TREATED
TS	TUBE STEEL
TSTAT	THERMOSTAT
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TYP	TYPICAL
	'U'
UC	UNDERCUT
UGND	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UNFIN	UNFINISH(ED)
UNIF	UNIFORM
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
UTIL	UTILITY
	'V'
V	VOLT
VAR	VARIES, VARIATION
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VF	VINYL FABRIC
VG	VERTICAL GRAIN
VIF	VERIFY IN FIELD
VIN	VINYL
VJ	V-JOINT(ED)
VNR	VENEER
VOLT	VOLTAGE
VP	VENEER PLASTER
VR	VAPOR RETARDER
VRM	VERMICULITE
VRFY	VERIFY
VT	VINYL TILE
VWC	VINYL WALLCOVERING
	'W'
W	WEST, WIDE, WASTE, WATT
W/	WITH
W/O	WITHOUT
WB	WOOD BASE
WC	WATER CLOSET, WALL COVERING
WD	WOOD
WDW	WINDOW
WGL	WIRED GLASS
WH	WATER HEATER, WEEP HOLE, WALL HYDRANT, WALL HUNG
WHB	WHEEL BUMPER
WHSE	WAREHOUSE
WI	WROUGHT IRON
WIN	WINDOW
WLD	WELDED
WM	WIRE MESH
WO	WHERE OCCURS, WITHOUT
WP	WATERPROOF(ED/ING)
WPT	WORKING POINT
WPM	WATERPROOF MEMBRANE
WR	WEATHER RESISTANT
WS	WEATHER STRIP
WSCT	WAINSCOT
WT	WEIGHT, WATERTIGHT
WW	WINDOW WALL
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH
	'X'
XFMR	TRANSFORMER
	'Y'
YH	YARD HYDRANT

SYMBOLS LEGEND

WALL REFERENCES

EXISTING WALL TO REMAIN

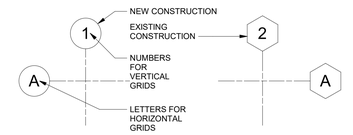
EXISTING WALL TO BE DEMOLISHED

FRAMED WALL - REFER TO WALL TYPES

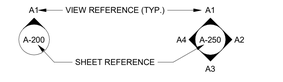
CONCRETE (CAST-IN-PLACE)

CONCRETE MASONRY (CMU)

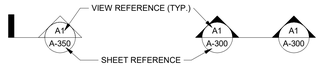
COLUMN / GRID REFERENCES



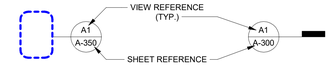
SECTIONS & DETAILS



ELEVATION (EXTERIOR) ELEVATION (INTERIOR)

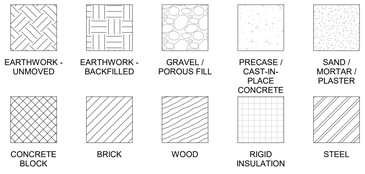


WALL SECTION BUILDING SECTION

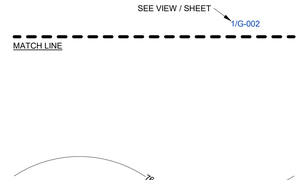


ENLARGED PLAN DETAIL SECTION

HATCHES / POCHÉS



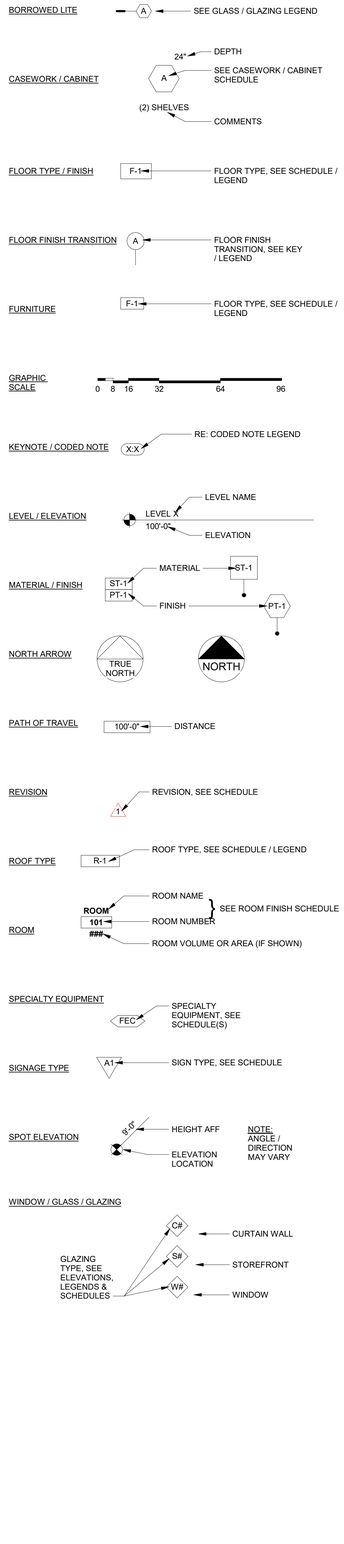
LINE TYPES



DOOR REFERENCES



TAGS & CALLOUTS



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CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE #1

REV	DATE	DESCRIPTION

PROJ. NO.	2023-011
DRAWN	RM
PROJ MNGR	GS
DATE	08/25/23

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SYMBOLS AND ABBREVIATIONS

G-002

TRAVERS PARK RECREATION CENTER
SITE IMPROVEMENT PERMIT SET

2016 PINE ST.
SANDPOINT, IDAHO

ABBREVIATIONS

ACP	ASPHALT CONCRETE PAVEMENT	FT (')	FOOT (FEET)
ADD'L	ADDITIONAL	FTG	FOOTING
AD	AREA DRAIN	G	GAS MAIN
ADJ	ADJACENT	GB	GRADE BREAK
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	GM	GAS METER
		GRD	GRADE
APPROX.	APPROXIMATE(LY)	GV	GATE VALVE
ARCH	ARCHITECT(URAL)	HB	HOSE BIB
ASSY	ASSEMBLY	HDPE	HIGH DENSITY POLYETHYLENE
BLDG	BUILDING	HORIZ(H)	HORIZONTAL
BM	BENCHMARK	HT	HEIGHT
BNDRY	BOUNDARY	HYD	HYDRANT
BOW	BOTTOM OF WALL (AT FINISHED GRADE)	ID	INSIDE DIAMETER
		I.E.	INVERT ELEVATION
BVC	BEGINNING OF VERTICAL CURVE	IN (")	INCH(ES)
CTV	CABLE TV	INV	INVERT
C&G	CURB AND GUTTER	IRR	IRRIGATION WATER
CB	CATCH BASIN	LB	POUND(S)
CC	CURB CUT	LCPE	LINED CORRUGATED POLYETHYLENE PIPE
CD	CONCRETE DRIVE	LF	LINEAR FEET
CF	CUBIC FEET (FOOT)	MAT'L	MATERIAL
CI	CAST IRON	MAX	MAXIMUM
CJ	CONSTRUCTION JOINT	MFR	MANUFACTURER
CL	CLASS	MH	MANHOLE
CL	CENTER LINE	MJ	MECHANICAL JOINT
CMP	CORRUGATED METAL PIPE	MIN.	MINIMUM
CONC.	CONCRETE	MISC.	MISCELLANEOUS
CONST.	CONSTRUCTION	N	NORTH(ING)
CPEP	CORRUGATED POLYETHYLENE PIPE	NO (#)	NUMBER
CTR	CENTER(ED)	OC	ON CENTER
CY	CUBIC YARD	O/W	OIL WATER
DCVA	DOUBLE CHECK VALVE ASSEMBLY	P	POWER
DDCV	DOUBLE DETECTOR CHECK VALVE	PC	POINT OF CURVATURE
DEPT.	DEPARTMENT	PIV	POST INDICATOR VALVE
DET	DETAIL	PP	POWER POLE
D.I.	DUCTILE IRON	PL	PROPERTY LINE
DIA (ø)	DIAMETER	PSF	POUNDS PER SQUARE FOOT
DIM	DIMENSION	PSI	POUNDS PER SQUARE INCH
DS	DOWN SPOUT	PT	POINT OF TANGENCY
DWG	DRAWING	PVC	POLYVINYL CHLORIDE
E	EAST(ING)	PVI	POINT OF VERTICAL INFLECTION
EC	ELECTRICAL CONDUIT	QTY.	QUANTITY
ECC	EXTRUDED CONCRETE CURB	RAD (R)	RADIUS
EL.=	ELEVATION	RCP	REINFORCED CONCRETE PIPE
EOP	EDGE OF PAVEMENT	RD	ROAD
EQUIV.	EQUIVALENT	REF	REFERENCE
EVC	END OF VERTICAL CURVE	REQD.	REQUIRED
EXIST.	EXISTING	RET	RETAINING
FD	FLOOR DRAIN	ROW	RIGHT OF WAY
FDC	FIRE DEPARTMENT CONNECTION	SD	STORM DRAIN
FDN	FOUNDATION	S.F.	SQUARE FEET
FFE	FINISH FLOOR ELEVATION	SHT	SHEET
FH	FIRE HYDRANT	SIM	SIMILAR
FL	FLANGED	SPEC	SPECIFICATION(S)
FLR	FLOOR	SQ	SQUARE
FOC	FACE OF CURB	SS	SANITARY SEWER
F.S.	FINISHED SURFACE	STA	STATION
		STD	STANDARD
		TOE	TOE OF WALL, OR SLOPE
		T	TELEPHONE WIRE
		TBM	TEMPORARY BENCH MARK
		T.C.	TOP OF CURB
		TG OR RIM	TOP OF GRATE
		TEMP.	TEMPORARY
		TOP	TOP OF SLOPE
		TOW	TOP OF WALL
		TV	TELEVISION WIRE
		TYP.	TYPICAL
		VC	VERTICAL CURVE
		VERT (V)	VERTICAL
		WM	WATER METER
		W/	WITH
		WT	WEIGHT
		WWF	WELDED WIRE FABRIC
		YD	YARD DRAIN

LEGEND

STORM PIPE — SD
NEW & EXISTING CATCH BASINS — CB / C.B.
NEW & EXISTING DRYWELLS — DW / DW
STORM MANHOLE — SDMH / SDMH
SANITARY SEWER PIPE — SS
SANITARY SEWER MANHOLE — SSMH / SSMH
WATER MAINS — W
FIRE HYDRANTS (NEW AND EXISTING) AND FDC — FH / FH
WATER METERS
WATER VALVES
FITTINGS WITH THRUST BLOCKS — TEE, 90°, 45°, 22.5°, 11.25°
SURFACE WTR AND PIPE DIRECTION FLOW — OR
EXISTING CONTOUR LABELS — (457)
PROPOSED CONTOUR LABELS — 457
EXISTING SURFACE ELEVATIONS — (XXX.XX) F.S.
FINISHED SURFACE ELEVATIONS — XXX.XX F.S. / XXX.XX T.C. (XXX.XX F.S.)
NEW EASEMENT
NEW DITCH
TRAFFIC ARROWS
TOP OF WALL/BOTTOM OF WALL — TOW XXX.XX / XXX.XX BOW
SLOPE INDICATORS — 3:1, 2:1
RIP RAP
FILTER FABRIC FENCING
FOOTING DRAINS
DOWNSPOUTS — DS
CLEANOUTS (C.O.) SS, AND RWL (NEW AND EXISTING) — CO
INTERCEPTOR AND BIO-SWALES
CEMENT CONCRETE
COORDINATES, & LEADERS — N 1000.00 E 5000.00
STUBBED & PLUGGED LINE
CONCRETE CURB
CONCRETE CURB & GUTTER
NEW ASPHALT/CONCRETE PAVEMENT
CURB INLET/UNDER SIDEWALK INLET
DRAINAGE SWALE
RETAINING WALL
STRAW BALE
ROCK CHECK DAM

GENERAL CONSTRUCTION NOTES:

1. UNLESS SPECIFICALLY EXCEPTED IN THE PLANS OR CONTRACT DOCUMENTS, ALL MATERIALS, WORKMANSHIP, TESTING, AND CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC) LATEST EDITION AND THE CITY OF SANDPOINT STANDARDS AND SPECIFICATIONS.

2. THE PLANS ARE SCHEMATIC AND ARE NOT INTENDED TO DEPICT ALL DETAILS OF THE WORK REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE TO FAMILIARIZE HIMSELF WITH ACTUAL SITE CONDITIONS, REQUIREMENTS AND FACTORS AFFECTING THE WORK. WHERE LACK OF DETAIL OR CONFLICT EXISTS BETWEEN THESE AND OTHER PLANS, THE CONTRACTOR SHALL NOTIFY THE OWNER TO RESOLVE THE ISSUE PRIOR TO PROCEEDING. IF THE CONTRACTOR DISCOVERS ANY DISCREPANCIES BETWEEN THE PLANS AND EXISTING CONDITIONS ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER AND THE CITY OF SANDPOINT PUBLIC WORKS DEPARTMENT.

3. THIS PLAN MAY NOT SHOW ALL EXISTING UTILITIES. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. PRIOR TO CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES. CALL THE UNDERGROUND UTILITY LOCATION SERVICE AT (811) BEFORE YOU DIG. ANY CONFLICTING UTILITIES SHALL BE RELOCATED PRIOR TO CONSTRUCTION. IN THE CASE WHERE RELOCATION IS REQUIRED, THE APPLICABLE UTILITY COMPANY SHALL BE NOTIFIED AND ANY COST REQUIRED FOR RELOCATION OR ADJUSTMENTS SHALL BE AGREED UPON.

4. THE ENGINEER HAS ATTEMPTED TO SHOW ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES. APPEARANCE ON THESE PLANS, HOWEVER, DOES NOT GUARANTEE THE ACCURACY AND COMPLETENESS OF THE LOCATION OR EXISTENCE OF THESE UTILITIES AND/OR SUBSTRUCTURES. THE CONTRACTOR IS REQUIRED TO TAKE ALL REQUIRED PRECAUTIONARY MEANS TO LOCATE AND PROTECT ALL EXISTING UTILITIES AND SUBSTRUCTURES, WHETHER SHOWN OR NOT, PRIOR TO EXCAVATION IN ANY AREA. THE CONTRACTOR SHALL MEET AT THE JOB SITE WITH REPRESENTATIVES OF THE UTILITY DISTRICTS, COMPANIES, AND OTHER OWNERS THAT MAY HAVE EXISTING FACILITIES AT THE SITE, TO DISCUSS THE PROTECTION OF THEIR FACILITIES.

5. THE CONTRACTOR IS REQUIRED TO HAVE A COMPLETE SET OF APPROVED PLANS ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS. THE CONTRACTOR SHALL HAVE A RESPONSIBLE PARTY, WHO HAS THE AUTHORITY TO REPRESENT AND ACT FOR THE CONTRACTOR, AT THE JOB SITE DURING ALL WORKING HOURS.

6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS AND APPROVALS FROM THE CITY OF SANDPOINT AND OTHER APPLICABLE JURISDICTIONS PRIOR TO THE START OF CONSTRUCTION. ABSENCE OF THE PERMIT MAY RESULT IN IMMEDIATE SHUT DOWN OF WORK AND POSSIBLE REMOVAL OF THE ITEMS CONSTRUCTED WITHOUT A PERMIT.

7. THE CONTRACTOR SHALL PROVIDE THE DESIGN ENGINEERS WITH ASBUILT DRAWINGS PRIOR TO FINAL APPROVAL. ALL DEVIATIONS FROM THE ORIGINAL PLANS MADE DURING THE COURSE OF CONSTRUCTION, INCLUDING LOCATION, INVERTS, AND DEPTHS OF UTILITIES, SHALL BE CLEARLY MARKED ON THE ASBUILT DRAWINGS. THE ENGINEER SHALL PROVIDE THE CITY ENGINEER WITH "RECORD DRAWINGS" AS REQUIRED.

8. THE SURVEY IS FOR INFORMATIONAL PURPOSES ONLY. NO CERTIFICATIONS ARE EXPRESSED OR IMPLIED. THE SURVEY WAS PROVIDED BY HMH ENGINEERING.

9. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT TO CONSTRUCT AND INSTALL TO PROPER WORKING ORDER, THE DESIGN SHOWN, AS DETAILED OR CALLED OUT IN THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR BEING FAMILIAR WITH THE PROVISIONS AND REQUIREMENTS CONTAINED IN THE STANDARD SPECIFICATIONS.

10. IF CONSTRUCTION IS TO TAKE PLACE IN PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL NOTIFY THE GOVERNING MUNICIPALITY AND OBTAIN ALL THE REQUIRED APPROVALS AND OBSTRUCTION PERMITS. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLAN(S) IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS REQUIRED. PRIOR TO DISRUPTION OF ANY TRAFFIC, A TRAFFIC PLAN SHALL BE PREPARED AND SUBMITTED TO THE CITY OF SANDPOINT FOR APPROVAL. NO WORK SHALL COMMENCE UNTIL ALL APPROVED TRAFFIC CONTROL IS IN PLACE.

11. A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH THE CITY OF SANDPOINT CONSTRUCTION INSPECTOR PRIOR TO THE START OF CONSTRUCTION.

12. ANY CHANGES TO THE DESIGN SHALL FIRST BE REVIEWED AND APPROVED BY THE DESIGN ENGINEER OF RECORD AND THE CITY OF SANDPOINT.

13. ALL TESTING SHALL BE IN ACCORDANCE WITH ISPWC STANDARD SPECIFICATIONS.

14. EXCAVATION, COMPACTION, AND EMBANKMENT SHALL BE IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION.

15. ALL FINISHED GRADING ELEVATIONS SHALL MATCH EXISTING ELEVATIONS AT THE SITE'S BOUNDARY, EXCEPT AS SHOWN OTHERWISE ON THE GRADING PLAN. WHERE CONFLICTS EXIST, THE CONTRACTOR SHALL NOTIFY THE OWNER TO RESOLVE THE ISSUE PRIOR TO PROCEEDING.

16. THE CONTRACTOR SHALL REMOVE ALL WASTE MATERIAL.

17. GRADING: ALL GRADING SHALL BE LIMITED TO THE AREAS IDENTIFIED ON THE GRADING PLAN AND SHALL NOT INFRINGE ON ADJACENT OWNERSHIPS, EXCEPT AS SHOWN OTHERWISE ON THE PLANS.

18. CUT SLOPES IN SOLID ROCK SHALL NOT EXCEED 0.5:1 (HORIZONTAL:VERTICAL), AND SOIL CUT SLOPES SHALL NOT EXCEED 1.5:1 (HORIZONTAL:VERTICAL), EXCEPT AS SHOWN OTHERWISE ON THE PLANS.

19. FILL SLOPES ACROSS THE PROPERTY SHOULD BE DESIGNED FOR A MAXIMUM SLOPE OF 3:1 (HORIZONTAL:VERTICAL), EXCEPT AS SHOWN OTHERWISE ON THE PLANS.

20. WHERE NEW ASPHALT JOINS EXISTING, THE EXISTING ASPHALT SHALL BE CUT TO A NEAT VERTICAL EDGE AND TACKED WITH ASPHALT EMULSION TYPE CSS-1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE NEW ASPHALT SHALL BE FEATHERED BACK OVER EXISTING TO PROVIDE FOR A SEAL AT THE SAW CUT LOCATION AND THE JOINT SEALED WITH GRADE AR-4000W PAVING ASPHALT.

21. FORM AND SUBGRADE INSPECTION BY THE INSPECTOR IS REQUIRED BEFORE POURING CONCRETE. FORTY-EIGHT HOURS NOTICE IS REQUIRED FOR FORM INSPECTION.

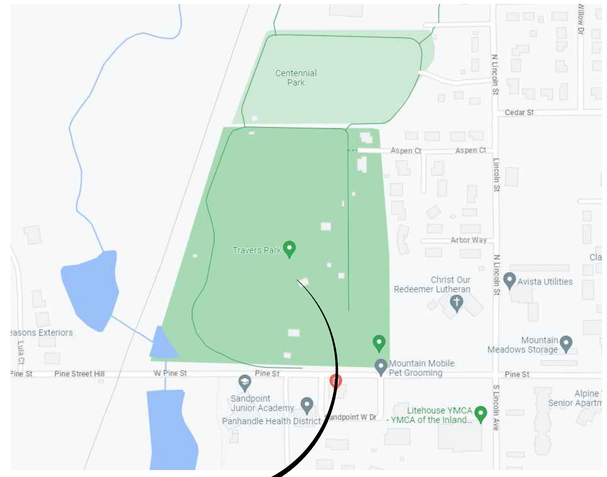
22. ALL CURB AND GUTTER, STREET GRADES, SIDEWALK GRADES, AND ANY OTHER VERTICAL AND/OR HORIZONTAL ALIGNMENT, SHALL BE STAKED BY AN ENGINEERING OR SURVEYING FIRM CAPABLE OF PERFORMING SUCH WORK.

23. PRIOR TO BACKFILL, ALL SEWER AND WATER MAINS AND APPURTENANCES SHALL BE INSPECTED AND APPROVED BY THE CITY OF SANDPOINT CONSTRUCTION INSPECTOR. APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FROM CORRECTION OF ANY DEFICIENCIES AND/OR FAILURES AS DETERMINED BY SUBSEQUENT TESTING AND INSPECTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OF SANDPOINT FOR THE REQUIRED INSPECTIONS FORTY-EIGHT HOURS IN ADVANCE – (208) 687-2700 X124.

24. THE CONTRACTOR SHALL PROTECT ALL CATCH BASINS, DRYWELLS, AND OTHER STORM WATER STRUCTURES FROM BEING CONTAMINATED WITH SILT BY INSTALLING FILTER FABRIC OVER THE METAL FRAME DURING CONSTRUCTION. ALL FILTER FABRIC IN DRAINAGE STRUCTURES, LOCATED IN PAVEMENT AREAS, CAN BE REMOVED ONCE FINAL PAVEMENT HAS BEEN INSTALLED AND CLEANED. ANY DRAINAGE STRUCTURES LOCATED IN LANDSCAPED AREAS OR IN SWALE AREAS MUST HAVE FILTER FABRIC LEFT IN PLACE UNDER GRATE UNTIL VEGETATION IS ESTABLISHED, AFTER WHICH THE CONTRACTOR SHALL REMOVE FABRIC.

25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING DIRT, MUD, AND OTHER CONSTRUCTION DEBRIS THAT MAY ACCUMULATE ON PAVED STREETS ADJACENT TO THE SITE AS A RESULT OF CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MATERIALS THAT SPILL ONTO LOCAL STREETS DURING THE TRANSPORTATION OF EQUIPMENT, MATERIALS, ETC. SHOULD A SPILL OCCUR, THE CONTRACTOR SHALL REMOVE THE MATERIAL BY THE END OF THE WORK DAY. NO MATERIAL SHALL BE ALLOWED TO SET, DRY, OR BE WASHED INTO ADJACENT STORM WATER FACILITIES. CLEANING SHALL BE ON AN "AS NEEDED" BASIS USING WATER UNDER PRESSURE. SWEEPING AND WATER SHALL BE USED WHEN WATER PRESSURE ALONE WILL NOT WASH THE CONSTRUCTION DEBRIS FROM THE STREET. THE CONTRACTOR MUST PROTECT ALL EXISTING STORM WATER FACILITIES FROM DIRT/DEBRIS.

26. SITE DISTANCES FOR ADJACENT PROPERTIES DRIVEWAYS AND INTERSECTIONS SHALL BE MAINTAINED.



PROJECT LOCATION:
2016 PINE ST.

VICINITY MAP

NOT TO SCALE

N

PROJECT TEAM:

OWNER:
CITY OF SANDPOINT
1123 W. LAKE ST.
SANDPOINT, ID 83864
CONTACT: MAEVE NEVINS-LAVTAR
PHONE: (208) 946-2711
EMAIL: mnevinslavtar@sandpointidaho.gov

ARCHITECT:
ALSC ARCHITECTS
203 N. WASHINGTON, SUITE 400
SPOKANE, WA 99201
CONTACT: RUSTIN HALL
PHONE: (509) 838-8568
EMAIL: rhall@alscarchitects.com

CIVIL ENGINEER:
DCI ENGINEERS
707 W. 2ND AVENUE
SPOKANE, WASHINGTON 99201
CONTACT: STEPHEN MATKIN, P.E.
PHONE: (208) 820-3797
EMAIL: smatkin@dci-engineers.com

UTILITY PURVEYORS:

SEWER/WATER:
CITY OF SANDPOINT
1123 W. LAKE ST.
SANDPOINT, ID 83864
PHONE: (208) 263-3428

POWER/GAS:
AVISTA UTILITIES
100 N. LINCOLN ST.
SANDPOINT, ID 83864
PHONE: (800) 227-9187

FIRE:
SELKIRK FIRE AND RESCUE
1123 LAKE ST.
SANDPOINT, ID 83864
PHONE: (208) 263-3502

SHEET INDEX

SHEET #	SHEET TITLE
C000	GENERAL CIVIL INFORMATION
C001	GENERAL NOTES
C100	EXISTING SITE CONDITIONS AND DEMOLITION PLAN
C110	EROSION CONTROL PLAN
C120	GRADING PLAN
C130	CIVIL SITE PLAN
C140	STORMWATER & UTILITY PLAN
C500	DETAILS
C501	DETAILS

FOR PERMIT

THESE DRAWINGS ARE SUFFICIENTLY COMPLETE FOR SUBMISSION TO THE JURISDICTION HAVING AUTHORITY FOR PERMIT. THE CONTRACTOR SHALL NOT USE THESE DRAWINGS FOR CONSTRUCTION UNTIL THE CONTRACTOR RECEIVES WRITTEN APPROVAL FOR USE IN CONSTRUCTION BY THE JURISDICTION HAVING AUTHORITY AND DCI ENGINEERS.

CONTRACTOR NOTE

ALL EXISTING UTILITIES SHOWN ON PLANS ARE TO BE VERIFIED HORIZONTALLY AND VERTICALLY PRIOR TO ANY CONSTRUCTION. ALL EXISTING FEATURES INCLUDING BURIED UTILITIES ARE SHOWN AS INDICATED ON RECORD MAPS AND SURVEYS FURNISHED BY OTHERS. WE ASSUME NO LIABILITY FOR THE ACCURACY OF THOSE RECORDS AND SURVEYS. CONTACT THE UTILITY OWNER/AGENCY FOR THE FINAL LOCATION OF EXISTING UTILITIES IN AREAS CRITICAL TO CONSTRUCTION.

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG

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DCI ENGINEERS
707 W. 2ND AVENUE
SPOKANE, WASHINGTON 99201
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WEBSITE: www.dci-engineers.com
CIVIL / STRUCTURAL

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PROFESSIONAL ENGINEER — LICENSED — 17233 — STATE OF IDAHO — MATTHEW R. MATKIN
8/25/2023

SANDPOINT

CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE #1

REV	DATE	DESCRIPTION

PROJ. NO.	2023-011
DRAWN	NJM
PROJ MNGR	SDM
DATE	8/25/23

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GENERAL CIVIL INFORMATION

C000

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

GENERAL EROSION CONTROL NOTES:

1. AN EROSION AND SEDIMENTATION CONTROL (ESC) PLAN IS REQUIRED FOR THIS PROJECT. IMPLEMENTATION OF THE ESC PLAN, AND CONSTRUCTION, MAINTENANCE, AND UPGRADING OF THE ESC FACILITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND ACCEPTED BY THE CITY OF SANDPOINT, OR UNTIL VEGETATION IS ESTABLISHED THROUGHOUT THE SITE, AND ACCEPTED BY THE CITY OF SANDPOINT, WHICHEVER IS LATER.

2. APPROVAL OF THE ESC PLAN DOES NOT CONSTITUTE APPROVAL OF ANY OF THE PROPOSED ROAD, STORM WATER, GRADING OR UTILITY DESIGN ELEMENTS SHOWN ON THE ESC PLAN.

3. THE EROSION/SEDIMENTATION CONTROL MEASURES SHOWN ARE THE MINIMUM REQUIREMENTS OF THE ANTICIPATED SITE CONDITIONS. THE CONTRACTOR SHALL INSPECT AND MAINTAIN THESE ESC MEASURES DAILY, AND SHALL MAINTAIN AND UPGRADE THESE MEASURES AS NECESSARY TO PREVENT SEDIMENT-LADEN WATER FROM EITHER FLOWING OFF-SITE, OR INTO NEW/EXISTING STORM WATER FACILITIES, SUCH AS DRYWELLS, CULVERTS, OR GRAVEL GALLERIES.

4. CONTRACTOR IS RESPONSIBLE FOR INSTALLING A ROCK CONSTRUCTION ENTRANCE AT ANY AND ALL LOCATIONS USED TO ENTER OR EXIT THE PROJECT SITE TO PREVENT SEDIMENTS FROM BEING TRACKED OFF THE SITE BY CONSTRUCTION TRAFFIC. SEE DETAIL 1/C500.

5. ANY DISTURBED AREAS, EXCEPT FOR POND BOTTOMS AND SLOPES, THAT WILL BE LEFT BARE FOR MORE THAN 7 DAYS AND ARE NOT INTENDED TO BE REWORKED WITHIN 30-45 DAYS, SHALL BE SEEDED WITH A FAST STARTING NATIVE DRYLAND GRASS SUCH AS ANNUAL RYE, OR APPROVED EQUAL, AT A RATE OF 60 LBS./ACRE.

6. GRADED POND AREAS, THAT WILL BE LEFT BARE FOR MORE THAN 7 DAYS, SHALL HAVE A MULCH APPLIED AT A RATE OF TWO THOUSAND (2,000) POUNDS PER ACRE. MULCH SHALL BE A VIRGIN WOOD CELLULOSE FIBER SPECIALLY PROCESSED AS A HYDROSEEDING MULCH AND CONTAIN NO GROWTH OR GERMINATION INHIBITING FACTORS. IF POND CONSTRUCTION HAS BEEN COMPLETED, INCLUDING DRAINAGE STRUCTURES, AND HAVE RECEIVED FINAL INSPECTION APPROVAL, THEY SHALL BE SODDED.

7. DUST CONTROL: AN APPROVED WATER TRUCK, MEETING THE REQUIREMENTS OF LOCAL REGULATIONS, SHALL BE UTILIZED DURING CONSTRUCTION OF THIS PROJECT.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MATERIALS THAT SPILL ONTO LOCAL STREETS DURING THE TRANSPORTATION OF EQUIPMENT. SHOULD A SPILL OCCUR, THE CONTRACTOR SHALL REMOVE THE MATERIAL BY THE END OF THE WORK DAY. NO MATERIAL SHALL BE ALLOWED TO SET, DRY, OR BE WASHED INTO ADJACENT STORM WATER FACILITIES.

9. GEOTEXTILE FABRIC SHALL BE PLACED ON THE RIMS OF ALL DRYWELLS, CATCH BASINS, AND INLETS UNTIL SUCH TIME AS THE VEGETATION ON THE SITE IS ESTABLISHED AND THE THREAT OF SEDIMENT DEPOSITION INTO THE DRAINAGE SYSTEM IS MITIGATED. DRAINAGE STRUCTURES LOCATED IN PAVEMENT CAN HAVE THE FILTER FABRIC REMOVED ONCE FINAL PAVEMENT HAS BEEN COMPLETED AND CLEANED.

10. THE CONTRACTOR SHALL PROTECT ALL CATCH BASINS, DRYWELLS, AND OTHER STORM WATER STRUCTURES FROM BEING CONTAMINATED WITH SILT BY INSTALLING FILTER FABRIC OVER THE METAL FRAME DURING CONSTRUCTION AND KEEPING IT IN PLACE UNTIL THE SITE/STREET HAS BEEN PAVED AND CLEANED.

11. ALL PONDS/SWALES SHALL BE SODDED AND IRRIGATED.

12. CONTRACTOR SHALL INSTALL FILTER FABRIC FENCE AS NEEDED ON-SITE TO PREVENT SEDIMENTS FROM LEAVING THE SITE.

EROSION CONTROL MAINTENANCE NOTES:

1. SEDIMENT BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL PRODUCING RUNOFF AND AT LEAST DAILY DURING PROLONGED RAINFALL OF 24 CONTINUOUS HOURS OR 48 HOURS IN ANY ONE WEEK.

2. NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF BARRIERS SHALL BE ACCOMPLISHED PROMPTLY.

3. SEDIMENT MUST BE REMOVED WHEN IT REACHES A HEIGHT OF 6 INCHES UP THE BASE OF THE FILTER FABRIC BARRIER, THE DEPTH OF THE CUTOFF DITCH, OR THE SEDIMENT POND. ALL EROSION CONTROL SHALL BE CHECKED AFTER ANY RAIN STORM.

4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE ESC STRUCTURE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED, AND HYDRO/HAND SEEDED OR SODDED.

5. ALL TEMPORARY AND PERMANENT ESC PRACTICES SHALL BE MAINTAINED AND PREPARED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION.

6. ALL TEMPORARY ESC MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMP'S ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON-SITE. DISTURBED SOIL AREAS RESULTING FROM REMOVAL WITHOUT PERMISSION OF THE ENGINEER OR INSPECTOR THAT RESULTS IN CONTAMINATION OF THE DRYWELLS SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO REMEDY. REMEDY MAY ENTAIL DRYWELL CLEANING OR REMOVAL AND RECONSTRUCTION.

7. ROADWAYS ADJACENT TO THE CONSTRUCTION SITE SHALL BE INSPECTED DAILY. CLEANING IS REQUIRED IF SEDIMENT HAS BEEN TRACKED OFF-SITE AND/OR BEYOND THE ROADWAY APPROACH.

8. STREET WASHING IS REQUIRED TO CLEAN SEDIMENT TRACKED OFF-SITE. STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON-SITE OR OTHERWISE PREVENTED FROM DISCHARGING INTO A STORM SYSTEM. IF NECESSARY, SEDIMENT SHALL BE REMOVED BY SHOVELING OR PICKUP SWEEPING PRIOR TO STREET WASHING.

9. CONSTRUCT STORM WATER CONTROL FACILITIES (STORAGE PONDS, SWALES, ETC.) BEFORE GRADING BEGINS. THESE FACILITIES SHALL BE OPERATIONAL BEFORE THE CONSTRUCTION OF IMPERVIOUS SITE IMPROVEMENTS.

10. STOCKPILE MATERIALS SUCH AS TOPSOIL ON SITE, KEEPING OFF OF ROADWAY AND SIDEWALKS.

11. COVER, CONTAIN, AND PROTECT ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND NON-INERT WASTES PRESENT ON-SITE FROM VANDALISM. USE SECONDARY CONTAINMENT FOR ONSITE FUELING TANKS.

12. CONDUCT MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM REPAIRS, SOLVENT AND DE-GREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORM WATER RUNOFF USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CLEAN ALL CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. IF RAINING OVER EQUIPMENT OR VEHICLE, PERFORM EMERGENCY REPAIRS ON SITE USING TEMPORARY PLASTIC BENEATH THE VEHICLE.

13. THE CONTRACTOR IS REQUIRED TO KEEP AN UPDATED COPY OF THE TESC PLAN ON-SITE.

14. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNATING A LOCATION WHERE CONCRETE TRUCK AND EQUIPMENT CAN BE WASHED OUT. THIS AREA SHALL NOT BE LOCATED NEAR OR DRAINING INTO A STORM DRAINAGE AREA, TREATMENT AREA, OR FACILITY.

GRADING NOTES:

1. EXCAVATION AND EMBANKMENT SHALL BE IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE ISPWC. ALL COMPACTION OF SUBGRADES, ROCK, AND ASPHALT SHALL BE IN ACCORDANCE WITH ISPWC CONSTRUCTION STANDARDS.

2. ALL FINISHED GRADING ELEVATIONS SHALL MATCH EXISTING ELEVATIONS AT THE SITE'S BOUNDARY, EXCEPT AS SHOWN OTHERWISE ON THE GRADING PLAN. WHERE CONFLICTS EXIST, THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER TO RESOLVE THE ISSUE PRIOR TO PROCEEDING.

3. GRADING: ALL GRADING SHALL BE LIMITED TO THE AREAS IDENTIFIED ON THE GRADING PLAN AND SHALL NOT INFRINGE ON ADJACENT OWNERSHIPS (UNLESS SPECIFICALLY NOTED ON PLANS).

4. CUT SLOPES IN SOLID ROCK SHALL NOT EXCEED 0.5H:1V (HORIZONTAL:VERTICAL), AND SOIL CUT SLOPES SHALL NOT EXCEED 1.5H:1V (HORIZONTAL:VERTICAL), EXCEPT AS SHOWN OTHERWISE ON THE PLANS. TEMPORARY SOIL CUT SLOPES SHALL NOT EXCEED 1.5H:1V.

5. FILL SLOPES ACROSS THE PROPERTY SHOULD BE DESIGNED FOR A MAXIMUM SLOPE OF 3H:1V (HORIZONTAL:VERTICAL), EXCEPT AS SHOWN OTHERWISE ON THE PLANS.

6. ALL CURB AND GUTTER, STREET GRADES, SIDEWALK GRADES, AND ANY OTHER VERTICAL AND OR HORIZONTAL ALIGNMENT SHALL BE STAKED BY AN ENGINEERING OR SURVEYING FIRM CAPABLE OF PERFORMING SUCH WORK.

7. FORM AND SUBGRADE INSPECTION BY THE INSPECTOR IS REQUIRED BEFORE POURING THE CONCRETE. FORTY-EIGHT HOURS NOTICE IS REQUIRED FOR FORM INSPECTION.

8. ON-SITE GRADING SHALL BE IN ACCORDANCE WITH THE APPROVED GRADING PLAN AND ESC PLAN. GRADING ON THIS SITE OR ANY OTHER SITE MUST COMPLY WITH ALL DEVELOPMENT REGULATIONS.

9. CONTRACTOR SHALL VERIFY AND MATCH THE EXISTING GRADES. WHERE APPLICABLE GRADES MAY NEED ADJUSTING TO PROVIDE A POSITIVE DRAINAGE SLOPE.

10. TOP OF CURB (T.C.) ELEVATION IS 0.5' ABOVE ASPHALT/CONCRETE PAVEMENT OR CEMENT CONCRETE PAVEMENT UNLESS OTHERWISE NOTED.

11. RIM ELEVATIONS OF UTILITY AND DRAINAGE STRUCTURES SHALL BE INSTALLED SO THAT RIMS MAY BE ADJUSTED ±0.5' TO MATCH FINISHED GRADE.

12. LAYOUT CURB AND SIDEWALK BEFORE SETTING VALVE BOXES AND UTILITY APPURTENANCES TO ENSURE THERE IS NO CONFLICT BETWEEN STRUCTURES AND HARD SURFACES.

PAVING NOTES:

1. ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE CITY OF SANDPOINT STANDARD DRAWINGS AND SPECIFICATIONS (LATEST EDITION) AND THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC) LATEST EDITION.

2. CONTRACTOR SHALL CONTACT ALL APPROPRIATE UTILITY COMPANIES AND THE CITY OF SANDPOINT TO OBTAIN NECESSARY LOCATES, OR UTILIZE ONE CALL NUMBER 811, 48 HOURS BEFORE CONSTRUCTION BEGINS.

3. NO VARIANCE FROM THE SPECIFICATIONS AND NOTES SHALL BE ACCEPTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE CITY OF SANDPOINT AND/OR THE ENGINEER OF RECORD.

4. CONCRETE, AGGREGATE BASE, AND ASPHALT MIX DESIGN SHALL BE SUBMITTED BY THE SUPPLIER AND APPROVED IN WRITING BY THE ENGINEER PRIOR TO PARKING LOT CONSTRUCTION. MATERIALS SHALL BE IN CONFORMANCE WITH THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION.

5. REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY A METHOD THAT DOES NOT MATERIALLY DAMAGE THE SURFACE OR TEXTURE OF THE PAVEMENT OR SURFACING. THE PAVEMENT MARKINGS SHALL BE REMOVED TO THE EXTENT THAT THEY WILL NOT BE VISIBLE UNDER DAY OR NIGHT CONDITIONS.

6. ALL EXISTING PAVEMENT SHALL BE REMOVED IN THE SECTIONS REQUIRING REMOVAL AND REPLACEMENT. THE EXISTING BASE COURSE MATERIALS IN THESE SECTIONS SHALL BE COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR DRY DENSITY. ALL COMPACTION SHALL BE DONE IN ACCORDANCE WITH ASTM D-1557. THE NEW PAVEMENT SHALL BE REPLACED TO A DEPTH OF THE PAVEMENT DETAIL SHOWN ON THESE PLANS.

7. ASPHALT/CONCRETE PAVING SHALL CONFORM TO IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION. ON-SITE ASPHALT PAVED AREAS SHALL BE:
LIGHT DUTY: A MINIMUM OF 2.5 INCHES OF ASPHALT/CONCRETE PAVEMENT PLACED OVER A MINIMUM OF 6 INCHES OF FREE-DRAINING, COMPACT, GRANULAR BASE MATERIAL.
HEAVY DUTY: A MINIMUM OF 3 INCHES OF ASPHALT/CONCRETE PAVEMENT PLACED OVER A MINIMUM OF 6 INCHES OF FREE-DRAINING, COMPACT, GRANULAR BASE MATERIAL.

8. ALL AREAS TO BE PAVED SHALL BE CLEARED OF ALL GRASS, ROOTS, TRASH, METAL AND ORGANIC MATERIALS DOWN TO FULL DEPTH BELOW THE PAVING MAT. THE EXPOSED SURFACE SHOULD THEN BE PROOF ROLLED TO 95% OF MAXIMUM COMPACTION AS DETERMINED BY ASTM D-1557 USING A MECHANICAL VIBRATORY COMPACTOR. ANY BACK FILL MATERIAL SHOULD BE SIMILARLY COMPACTED.

9. BEFORE PLACING THE BASE MATERIAL, THE SURFACE OF THE SUBGRADE SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557. THE GRANULAR BASE MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 3 INCHES IN THICKNESS AND COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557.

10. BITUMINOUS TACK COAT SHALL BE APPLIED BETWEEN ASPHALT PAVING LIFTS AND SHALL BE USED PRIOR TO OVERLAY, (CSS-1H), 50:50 DILUTION, 0.05 GAL/SY TO 0.15 GAL/SY OR AS DIRECTED BY THE ENGINEER. ALL EDGES ABUTTING NEW PAVEMENT SHALL BE TACKED.

11. TESTS SHALL BE CONDUCTED AT 100 FOOT INTERVALS OR 1 PER 3000 SQUARE FEET FOR EACH LIFT OR AS SPECIFIED IN ISPWC. ALL TEST REPORTS SHALL BE SUBMITTED TO THE OWNER PRIOR TO PROOF ROLLS. SINGLE-AXLE 5-TON TRUCK PROOF ROLLS MONITORED BY THE OWNER'S INSPECTOR PRIOR TO PLACEMENT OF ROAD/PARKING LOT BASE AND ASPHALT ARE REQUIRED. CONCRETE AND ASPHALT TESTING SHALL BE AS DIRECTED BY THE OWNER'S INSPECTOR.

12. ALL VALVE AND MANHOLE COVERS SHALL BE ADJUSTED TO PAVEMENT GRADE DURING INITIAL CONSTRUCTION.

13. ALL CONCRETE EDGES MUST BE ROUNDED TO A 1/4 INCH RADIUS, EXCEPT WHERE SHOWN OTHERWISE ON DRAWINGS. ALL ASPHALT SHALL BE 1/4 INCH ABOVE CONCRETE EDGES, MANHOLES, AND VALVES.

14. HALF-INCH EXPANSION JOINTS SHALL BE INSTALLED AT PROPERTY LINES; HOWEVER, JOINTS SHALL NOT EXCEED 100 FEET APART. CONTROL JOINTS SHALL BE INSTALLED AT 10 FOOT INTERVALS, HALF STONES ARE NOT ALLOWED.

15. ALL PHASES OF WORK SHALL BE INSPECTED AND APPROVED BY THE CITY OF SANDPOINT.

16. ALL TRAFFIC CONTROL, IF REQUIRED, SHALL CONFORM TO THE APPLICABLE REGULATIONS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

17. ALL THE OPERATIONS SHALL CONFORM TO THE APPLICABLE REGULATIONS SET FORTH BY ICC AND OSHA.

18. ALL ON-SITE CONCRETE PAVEMENT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI.

STORM WATER NOTES:

1. DRAINAGE PONDS SHALL BE CONSTRUCTED PER THE REQUIREMENTS OF THESE DRAWINGS INCLUDING GRADING, SOD OR SEED AS NOTED, AND CATCH BASIN INSTALLATION. NO BARK, GRAVEL OR CINDERS ARE ALLOWED IN PONDS.

2. ALL DRAINAGE PONDS WITHIN THE SCOPE OF THIS PROJECT SHALL BE COMPLETED DURING THE CONSTRUCTION OF THE PARKING AREAS. THE CONTRACTOR SHALL PERFORM THE POND GRADE WORK AND INSTALL THE IRRIGATION SYSTEM AND SOD OR HYDROSEED FOLLOWING THE ROADWAY/PARKING AREA PAVING WORK.

3. ALL DRAINAGE PONDS SHALL BE IRRIGATED BY AN AUTOMATIC IRRIGATION SYSTEM INSTALLED BY OR UNDER THE DIRECTION OF THE LANDSCAPE CONTRACTOR. THE IRRIGATION IS TO COMPLY WITH ALL LOCAL CODES AND ORDINANCES (90 DAY GUARANTEE). AN APPROVED BACKFLOW DEVICE SHALL BE INSTALLED TO PREVENT WATER FROM GOING BACK INTO THE WATER SUPPLY. SEE IRRIGATION PLAN.

4. THE FLOOR OF THE GRASSED PERCOLATION AREA (GPA) POND INCLUDES THE LEVEL PORTION OF THE FLOOR OF THE POND, AND THE SIDESLOPES OF THE POND OVERFLOW ELEVATION OR TOP OF DRYWELL. THE SOIL LOCATED IN THE FLOOR OF THE CONTAINMENT POND SHALL BE A MEDIUM TO WELL-DRAINING MATERIAL, WITH A MINIMUM INFILTRATION RATE OF 0.5 INCHES PER HOUR.

5. SLEEVING: PROVIDE SLEEVING AS REQUIRED UNDER SIDEWALKS, PATHS, CURBING, PAVING, ETC. AS NEEDED FOR IRRIGATION ACCESS. ALL SLEEVING SHALL BE 4" PVC WITH AT LEAST 12" OF COVER (1) FOOT BELOW FINISHED GRADE. THE OWNER/GENERAL CONTRACTOR IS RESPONSIBLE FOR INSTALLING SLEEVING BEFORE CURBING, SIDEWALKS, PAVING, ETC. IS INSTALLED. PATCH ASPHALT AS NEEDED. SEE IRRIGATION PLAN.

6. ADJUSTMENT: AFTER INSTALLATION, ADJUST VALVES, HEADS, EMITTERS ETC. TO PROVIDE UNIFORM COVERAGE AND TO MINIMIZE OVERSPRAY ON WALLS, FENCES, WALKS, DRIVES, ETC.

7. POND BOTTOM ELEVATIONS SHOWN ON THESE PLANS ARE FINISHED GRADE. CONTRACTOR SHALL ROUGH GRADE ALL PONDS TO 0.2' BELOW ELEVATIONS SHOWN TO ALLOW FOR FINAL PLACEMENT OF SOD, OR ESTABLISHMENT OF PLANTINGS.

8. RIM ELEVATIONS OF DRAINAGE STRUCTURES SHALL BE INSTALLED SO THAT RIMS MAY BE ADJUSTED ±0.5 FEET TO MATCH FINISHED GRADE.

9. STORM SEWER PIPE SHALL BE PVC ASTM D 3034, SDR 35, OR ASTM F 789 WITH PUSH-ON JOINTS AND RUBBER GASKETS CONFORMING TO ASTM D 3212 AND ASTM F 477 UNLESS OTHERWISE SPECIFIED IN THESE PLANS. PROVIDE TRENCHING AND BEDDING PER CITY OF PONDERAY STANDARDS.

10. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT THE INFILTRATION CAPACITY OF STORM WATER FACILITIES (E.G., LINE THE FACILITY WITH FILTER FABRIC, OVER-EXCAVATE UPON COMPLETION OF THE INFRASTRUCTURE, ETC.).

WATER CONSTRUCTION NOTES:

1. ALL MATERIALS AND INSTALLATION SHALL BE PER CITY OF SANDPOINT STANDARDS.

2. WATER LINES SHALL BE INSTALLED WITH TOP OF PIPE ELEVATIONS A MINIMUM OF 4.5' BELOW FINISHED GRADE UNLESS OTHERWISE NOTED. PROVIDE TRENCHING AND BEDDING PER STANDARD SPECIFICATIONS.

3. ALL LINES SHALL BE CHLORINATED AND TESTED IN ACCORDANCE WITH CITY OF SANDPOINT. CONTRACTOR SHALL COORDINATE WITH CITY OF SANDPOINT AND OBTAIN APPROVAL BEFORE CONNECTING TO THE EXISTING WATER MAINS.

4. ALL WATER MAINS SHALL BE STAKED FOR GRADES AND ALIGNMENT BY AN ENGINEERING OR SURVEYING FIRM CAPABLE OF PERFORMING SUCH WORK.

5. WHERE CONNECTIONS REQUIRED "FIELD VERIFICATION", CONNECTION POINTS WILL BE EXPOSED BY CONTRACTOR AND FITTINGS VERIFIED 48 HOURS PRIOR TO DISTRIBUTION SHUT-DOWN NOTICES.

6. DEFLECTIONS AT PIPE JOINTS SHALL NOT EXCEED 75% OF MAXIMUM ALLOWED DEFLECTION, PER MANUFACTURERS RECOMMENDATIONS.

7. ALL PIPE AND SERVICES SHALL BE INSTALLED WITH CONTINUOUS TRACER TAPE INSTALLED 12" TO 18" UNDER THE FINAL GROUND SURFACE. THE MARKER SHALL BE PLASTIC NON-BIODEGRADABLE, METAL CORE OR BACKING MARKED WATER, THAT CAN BE DETECTED BY A STANDARD METAL DETECTOR. TAPE SHALL BE TERRA TAPE "D" OR APPROVED EQUAL.

8. AT ANY CONNECTION TO AN EXISTING LINE WHERE A NEW VALVE IS NOT INSTALLED, THE EXISTING VALVE MUST BE PRESSURE TESTED PRIOR TO CONNECTION. IF AN EXISTING VALVE FAILS TO PASS THE TEST, THE CONTRACTOR SHALL MAKE THE NECESSARY PROVISIONS TO TEST THE NEW LINE PRIOR TO CONNECTION TO THE EXISTING SYSTEM OR INSTALL A NEW VALVE.

9. PIPE RESTRAINMENT OR THRUST BLOCKING SHALL BE INSTALLED AT ALL BENDS (VERTICAL AND HORIZONTAL), TEES, CROSSES, PLUGS, AND VALVES IN ACCORDANCE WITH CITY OF SANDPOINT SPECIFICATIONS.

10. LOCATION OF EXISTING WATER MAINS AND SERVICES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO CONSTRUCTION.

11. WATER SERVICES SHALL BE INSTALLED ABOVE THE BOTTOM OF FOOTING ELEVATIONS.

SEWER NOTES:

1. ALL SEWER CONSTRUCTION PROCEDURES AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF SANDPOINT STANDARDS.

2. ALL SEWER MAINS AND SERVICE LINES SHALL BE LOCATED TO MEET STATE SEPARATION REQUIREMENTS.

3. ANY SIDE SEWER THAT DOES NOT MAINTAIN A MINIMUM OF 18" SEPARATION AT WATER MAIN CROSSINGS, OR WHERE THE SIDE SEWER MUST CROSS ABOVE THE WATER, SHALL BE SLEEVED WITH A CONTINUOUS 20' SECTION OF C900 PVC WATER PIPE CENTERED ON THE CROSSING.

4. SANITARY SEWER PIPE SHALL BE PVC ASTM D 3034, SDR 35, OR ASTM F 789 WITH PUSH-ON JOINTS AND RUBBER GASKETS CONFORMING TO ASTM D 3212 AND ASTM F 477. PROVIDE TRENCHING AND BEDDING PER ISPWC STANDARDS.

5. SIDE SEWER SERVICES SHALL BE PVC, ASTM D 3034 SDR 35 WITH FLEXIBLE GASKETED JOINTS. SIDE SEWER CONNECTIONS SHALL BE MADE BY A TAP ON AN EXISTING MAIN OR WYE BRANCH FROM A NEW MAIN CONNECTED ABOVE THE SPRINGLINE OF THE PIPE.

6. ALL SEWER MAINS SHALL BE FIELD STAKED FOR GRADES AND ALIGNMENT BY A LICENSED ENGINEERING OR SURVEYING FIRM QUALIFIED TO PERFORM SUCH WORK.

7. ALL SEWER PIPE AND SERVICES SHALL BE INSTALLED WITH CONTINUOUS TRACER TAPE INSTALLED 12" TO 18" UNDER THE FINAL GROUND SURFACE. THE MARKER SHALL BE PLASTIC NON-BIODEGRADABLE, METAL CORE OR BACKING MARKED SANITARY SEWER, THAT CAN BE DETECTED BY A STANDARD METAL DETECTOR. TAPE SHALL BE TERRA TAPE "D" OR APPROVED EQUAL.

8. PIPE BEDDING SHALL BE IN ACCORDANCE WITH CITY OF SANDPOINT SEWER DISTRICT STANDARDS.

UTILITY NOTES:

1. CONTRACTOR SHALL COORDINATE WITH AVISTA UTILITIES FOR POWER AND NATURAL GAS SERVICE.

2. SEWER LINES MUST BE LAID 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER LINES. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE.

3. WATER LINES CROSSING SEWER LINES SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE SEWER AND THE BOTTOM OF THE SEWER WITH THE SEWER LINE BELOW THE WATER LINE. IF THIS CANNOT BE ACHIEVED, THE SEWER LINE MUST BE ENCASED 10 FEET ON EACH SIDE OF CROSSING WITH A CONTINUOUS 20 FOOT LENGTH OF C900 PVC PIPE.

4. RIM ELEVATIONS OF UTILITY STRUCTURES SHALL BE INSTALLED SO THAT THE RIM MAY BE ADJUSTED ±0.5 FEET TO MATCH FINISHED GRADES.

5. CONTRACTOR SHALL PLACE MARKING TAPE IN THE EXCAVATION TRENCH AT MID-DEPTH LOCATION FOR ALL UNDERGROUND SIDE SERVICE INSTALLATIONS FOR THE PURPOSE OF ALERTING ANY FUTURE EXCAVATION IN THE SPECIFIC AREA.

FOR PERMIT

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CONTRACTOR NOTE

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LICENSED
17233
STATE OF IDAHO
MATTHEW R. DAMBIS

8/25/2023

SANDPOINT

CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

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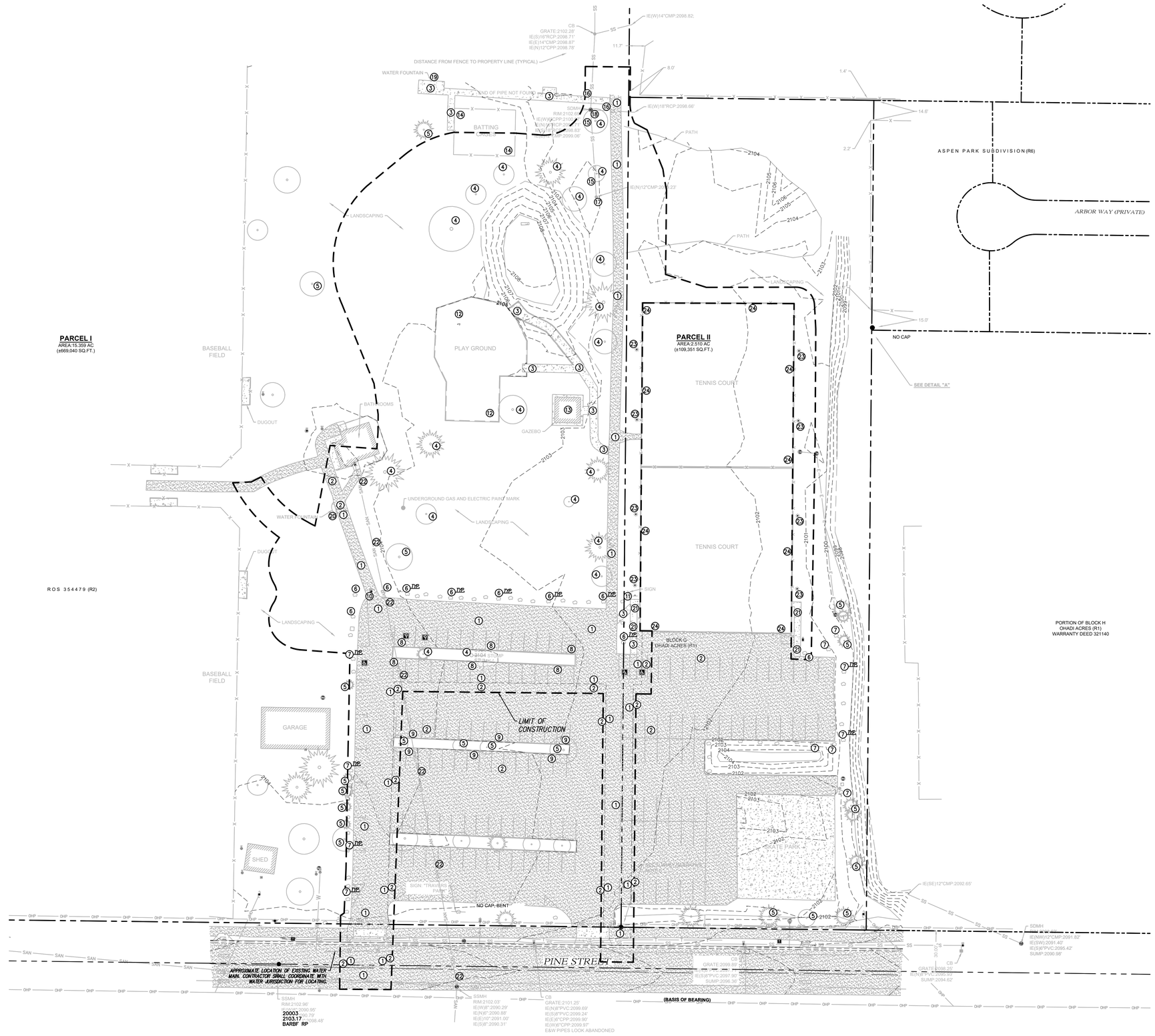
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GENERAL NOTES

C001



REFERENCE NOTES:

1. DEMOLISH AND REMOVE EXISTING ASPHALT PAVEMENT.
2. EXISTING ASPHALT PAVEMENT TO REMAIN. PROTECT IN PLACE.
3. DEMOLISH AND REMOVE EXISTING CONCRETE SIDEWALK.
4. DEMOLISH AND REMOVE EXISTING TREE OR VEGETATION.
5. EXISTING TREE OR VEGETATION TO REMAIN. PROTECT IN PLACE. SEE LANDSCAPE PLANS FOR TREE PROTECTION DETAILS AND NOTES.
6. EXISTING ROCK TO BE REMOVED, SALVAGED, AND STOCKPILED ON SITE FOR REUSE AS DIRECTED BY OWNER.
7. EXISTING ROCK TO REMAIN. PROTECT IN PLACE.
8. DEMOLISH AND REMOVE EXISTING CONCRETE CURB.
9. EXISTING CONCRETE CURB TO REMAIN. PROTECT IN PLACE.
10. DEMOLISH AND REMOVE EXISTING BOLLARD.
11. DEMOLISH AND REMOVE EXISTING SIGN.
12. EXISTING PLAYGROUND TO BE SALVAGED FOR RELOCATION. COORDINATE WITH ARCHITECT.
13. EXISTING GAZEBO TO BE SALVAGED FOR RELOCATION. COORDINATE WITH ARCHITECT AND LANDSCAPE ARCHITECT.
14. EXISTING BATTING CAGES TO BE SALVAGED FOR RELOCATION. COORDINATE WITH ARCHITECT AND LANDSCAPE ARCHITECT.
15. DEMOLISH AND REMOVE EXISTING STORM DRAIN PIPE.
16. EXISTING STORM DRAIN PIPE TO REMAIN. PROTECT IN PLACE.
17. DEMOLISH AND REMOVE EXISTING STORM DRAIN INLET.
18. EXISTING STORM DRAIN MANHOLE TO REMAIN. PROTECT IN PLACE.
19. EXISTING WATER FOUNTAIN TO BE SALVAGED FOR RELOCATION. COORDINATE WITH ARCHITECT AND LANDSCAPE ARCHITECT.
20. EXISTING WATER FOUNTAIN TO REMAIN. PROTECT IN PLACE.
21. EXISTING CONCRETE SIDEWALK TO REMAIN. PROTECT IN PLACE.
22. EXISTING SANITARY SEWER LINE. PROTECT IN PLACE.
23. EXISTING SITE LIGHTS TO REMAIN. PROTECT IN PLACE.
24. EXISTING FENCE TO REMAIN. PROTECT IN PLACE.

GRAPHIC SCALE

30 0 15 30

(IN FEET)
1 inch = 30 ft.

FOR PERMIT

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MATTHEW R. GIBB

8/25/2023

SANDPOINT

CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

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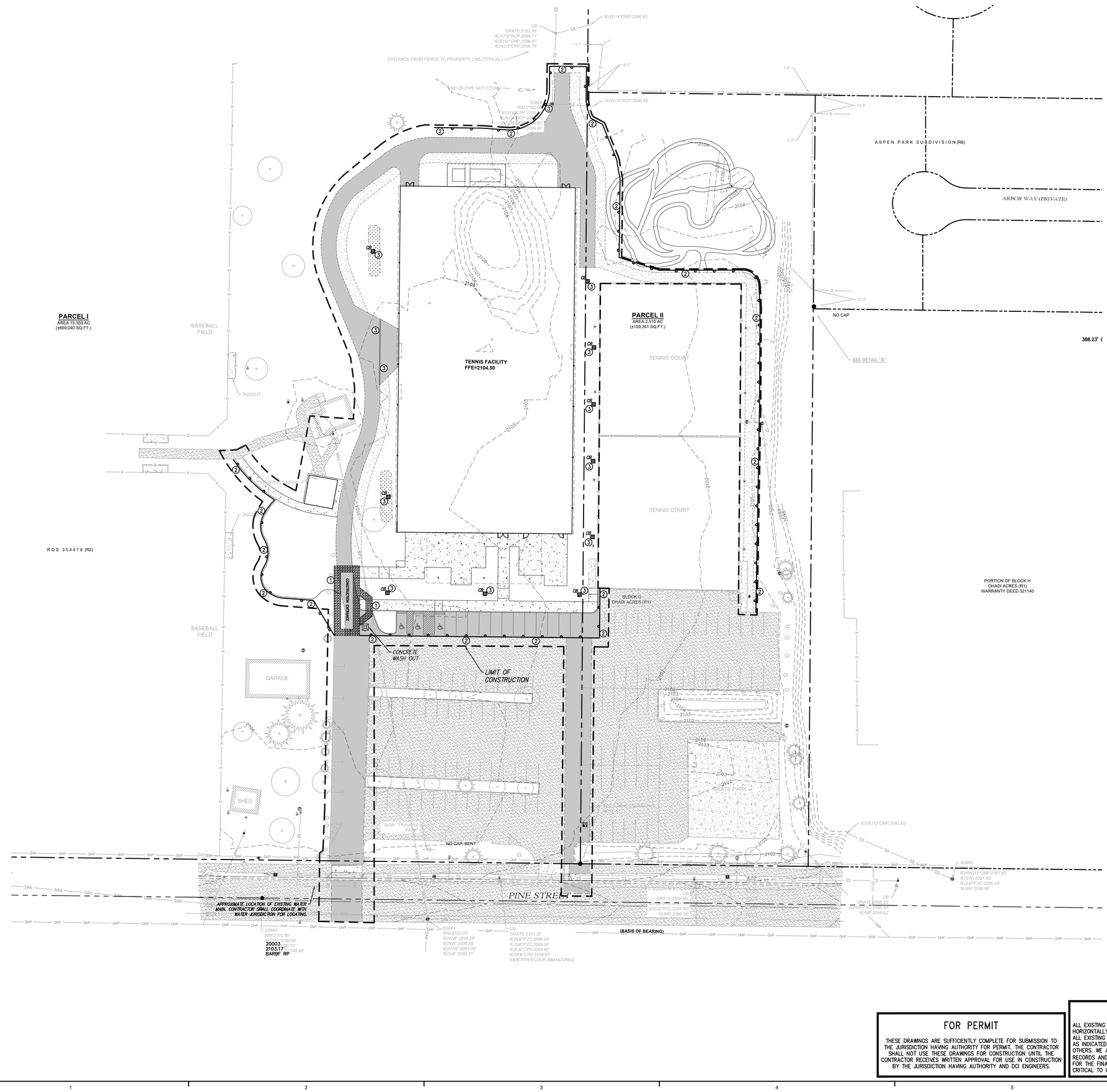
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EXISTING SITE CONDITIONS AND DEMOLITION PLAN

C100



REFERENCE NOTES:

1. PROVIDE NEW CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT PER DETAIL 1/C500. ACCESS TO SITE WILL ONLY BE ALLOWED THROUGH THE ROCK CONSTRUCTION ENTRANCE.
2. PROVIDE TEMPORARY FILTER FABRIC FENCE PER DETAIL 2/C500.
3. LINE DRAINAGE STRUCTURE LID WITH FILTER FABRIC TO PREVENT SILT CONTAMINATION. INSTALL INLET PROTECTION AROUND DRAINAGE STRUCTURE PER DETAIL 3/C500.

ENGINEER'S NOTES:

1. EROSION CONTROL MEASURES SHOWN ON THE PLAN ARE MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL INSTALL ADDITIONAL MEASURES, AS NEEDED, TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE OR FROM COMPROMISING THE PROPOSED/EXISTING STORM WATER FACILITIES.
2. SEE SHEET C001 FOR ADDITIONAL ESC NOTES.
3. CONTRACTOR SHALL CONSTRUCT EROSION CONTROL FACILITIES BEFORE GRADING COMMENCES.
4. CONTRACTOR IS RESPONSIBLE FOR DESIGNATING A LOCATION WHERE CONCRETE TRUCKS OR EQUIPMENT CAN BE WASHED OUT. THIS AREA SHALL NOT BE LOCATED NEAR OR DRAINING INTO A STORM DRAINAGE AREA, TREATMENT AREA, DRAINAGE STRUCTURE OR OTHER STORM WATER FACILITIES EXISTING OR OTHERWISE.
5. CONTRACTOR TO DETERMINE IF TEMPORARY CONSTRUCTION FENCING ALONG THE RIGHT-OF-WAY IS NECESSARY TO LIMIT ACCESS POINTS.

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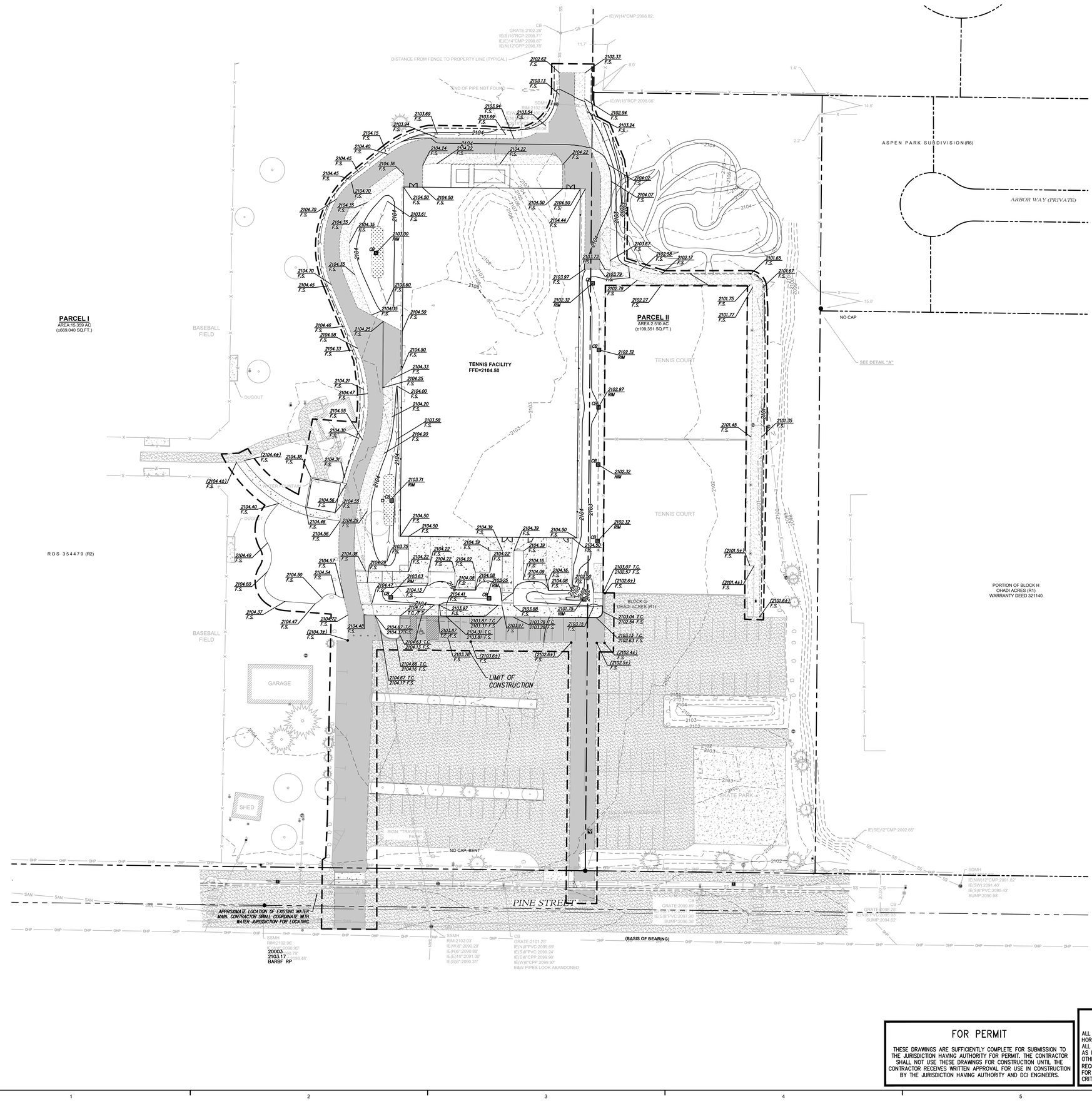
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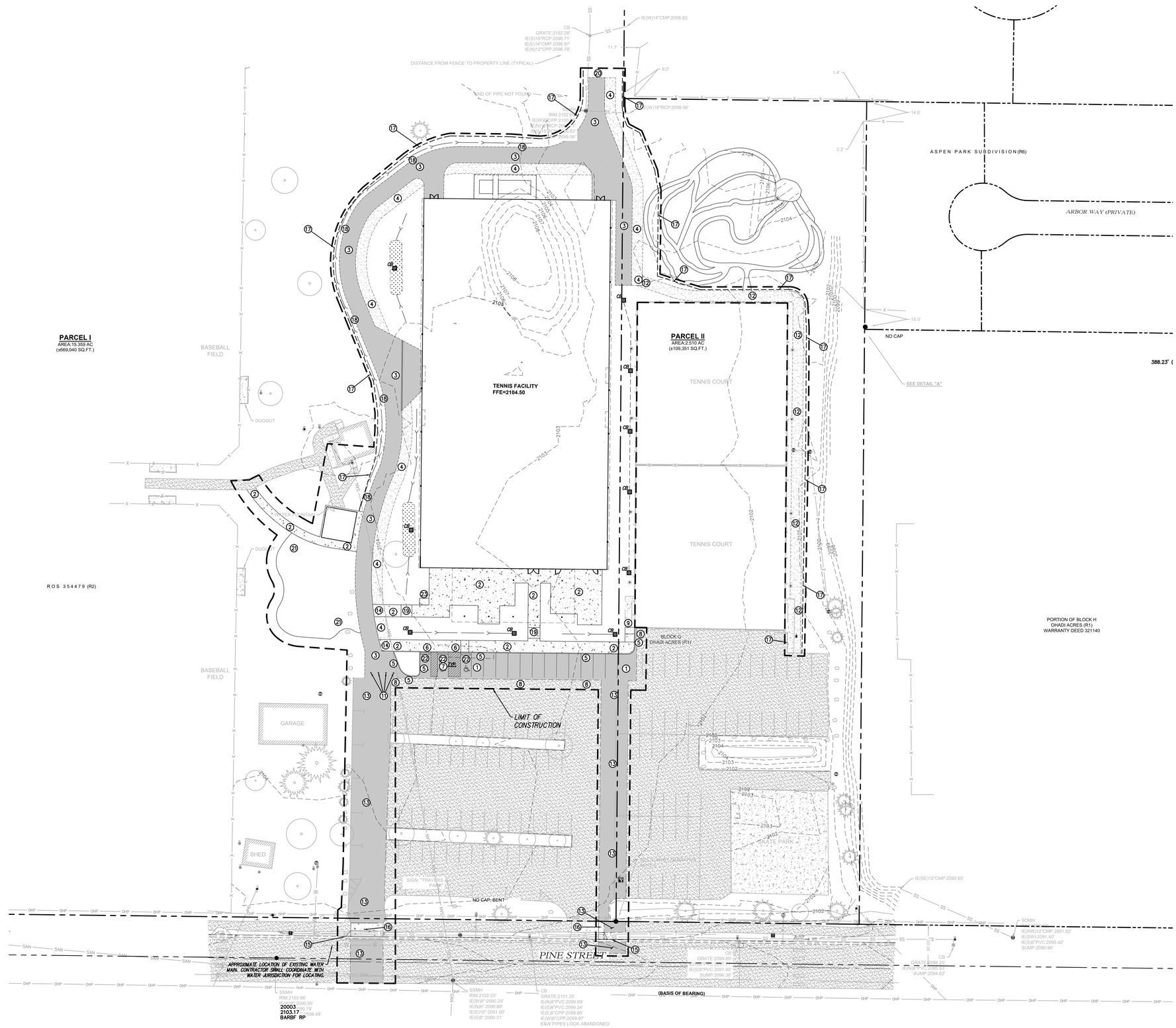
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EROSION CONTROL PLAN

C110


PARCEL I
AREA:15.359 AC
(±669,040 SQ.FT.)
PARCEL II
AREA:2.510 AC
(±109,351 SQ.FT.)
TENNIS FACILITY
FFE=2104.50
LIMIT OF CONSTRUCTION
ASPEN PARK SUBDIVISION(R6)
ARBOR WAY (PRIVATE)
PORTION OF BLOCK H
OHADI ACRES (R1)
WARRANTY DEED 321140
BLOCK G
OHADI ACRES (R1)
ROS 354479 (R2)
BASEBALL FIELD
TENNIS COURT
SKATE PARK
GARAGE
SHED
DUGOUT
SIGN "TRAVERS PARK"
NO CAP
NO CAP, BENT
SEE DETAIL "A"
PINE STREET
APPROXIMATE LOCATION OF EXISTING WATER MAIN. CONTRACTOR SHALL COORDINATE WITH WATER JURISDICTION FOR LOCATING.
(BASIS OF BEARING)
20003
2103.17
BARB/ RP
DISTANCE FROM FENCE TO PROPERTY LINE (TYPICAL)
END OF PIPE NOT FOUND
CB GRATE:2102.28' IE(S)16"RCP:2096.71' IE(E)14"CMP:2098.87' IE(N)12"CPP:2098.78'
IE(W)14"CMP:2098.82;
IE(W)18"RCP:2098.66'
SSMH RIM:2102.62' IE(E)8"PVC:2090.69' IE(S)8"PVC:2090.59'
SSMH RIM:2102.03' IE(W)8":2090.29' IE(N)6":2090.88' IE(E)10":2091.00' IE(S)8":2090.31'
CB GRATE:2101.25' IE(N)8"PVC:2099.69' IE(S)8"PVC:2099.24' IE(E)6"CPP:2099.99' IE(W)6"CPP:2099.97' E&W PIPES LOOK ABANDONED
SSMH RIM:2102.96' IE(NW)12"CMP:2091.82' IE(SW):2091.40' IE(S)6"PVC:2095.42' SUMP:2090.98'
IE(SE)12"CMP:2092.65'
CB GRATE:2098.27' IE(N)8"PVC:2090.90' SUMP:2094.62'
CB GRATE:2099.89' IE(S)8"PVC:2097.90' SUMP:2096.36'
SSMH RIM:2102.99' IE(W)8":2090.79' IE(E)8":2090.48'
SSMH RIM:2102.95'
SSMH RIM:2102.96'
SSMH RIM:2102.97'
SSMH RIM:2102.98'
SSMH RIM:2102.99'
SSMH RIM:2102.99'
SSMH RIM:2102.99



REFERENCE NOTES:

1. PROVIDE NEW ASPHALT PAVEMENT PER DETAIL 4/C500.
2. PROVIDE NEW ON-SITE CONCRETE SIDEWALK PER DETAIL 6/C500.
3. PROVIDE NEW ASPHALT SIDEWALK PER DETAIL 5/C500.
4. PROVIDE NEW HEAVY DUTY GRAVEL SIDEWALK PER DETAIL 12/C500.
5. PROVIDE NEW TYPE 2 CONCRETE CURB PER ITD STANDARD PLAN 615-1. SEE DETAIL 7/C500.
6. PROVIDE NEW TYPE "S" FLUSH CONCRETE CURB PER DETAIL 5/C501.
7. PROVIDE NEW ADA STALL STRIPING AND SIGNAGE PER DETAIL 8/C500.
8. TIE INTO EXISTING ASPHALT PAVEMENT. MATCH EXISTING ELEVATION AT CONNECTION.
9. TIE INTO EXISTING CONCRETE SIDEWALK. MATCH EXISTING ELEVATION AT CONNECTION.
10. NOT USED.
11. PROVIDE NEW CONCRETE BOLLARD PER DETAIL 11/C500.
12. PROVIDE NEW LIGHT-DUTY GRAVEL SIDEWALK PER DETAIL 13/C500.
13. REMOVE AND REPLACE EXISTING ASPHALT PAVEMENT FOR UTILITY ROUTING. MATCH EXISTING PAVEMENT SECTION. EXTENT SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR TO REMOVE AND REPLACE ON AN AS-NEEDED BASIS.
14. PROVIDE NEW REINFORCED CONCRETE PAVEMENT. SEE DETAIL 4/C501.
15. REMOVE AND REPLACE EXISTING CONCRETE CURB AND GUTTER PER CITY OF SANDPOINT STANDARD PLANS. EXTENT SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR TO REMOVE AND REPLACE ON AN AS-NEEDED BASIS.
16. REMOVE AND REPLACE EXISTING CONCRETE SIDEWALK PER CITY OF SANDPOINT STANDARD PLANS. EXTENT SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR TO REMOVE AND REPLACE ON AN AS-NEEDED BASIS.
17. CONTRACTOR TO TIE-INTO EXISTING GRADE AT OR NEAR PROPOSED DAYLIGHT LINE. SEE PLANS FOR LOCATION.
18. PROVIDE NEW LANDSCAPE DEPRESSION FOR RUNOFF CONVEYANCE.
19. PROVIDE NEW CUSTOM LENGTH PRECAST CONCRETE STORMWATER PASS THROUGH UNDER PROPOSED WALKWAY. CONCRETE PASS THROUGH SHALL MATCH PROPOSED WIDTH OF SIDEWALK.
20. TIE INTO EXISTING GRADE. MATCH EXISTING ELEVATION AT CONNECTION.
21. PROVIDE NEW PLAYGROUND AREA. COORDINATE WITH LANDSCAPE PLANS AND DETAILS.
22. PROVIDE NEW CONCRETE WHEEL STOPS PER DETAIL 14/C500.
23. PROVIDE NEW DRINKING FOUNTAIN. COORDINATE WITH ARCHITECTURAL AND PLUMBING PLANS.

ENGINEER'S NOTES:

1. ALL DRAINAGE AND UTILITY STRUCTURES SHALL BE INSTALLED SO THAT RIM ELEVATIONS OF CAN BE ADJUSTED ±0.5 FEET TO MATCH FINISHED GRADE.
2. FINISHED SURFACE ELEVATIONS (HARDSCAPE AND LANDSCAPING) SHALL BE SLOPED AWAY FROM BUILDING FOR A MINIMUM OF 5 FEET.
3. REFER TO SHEET "C150 – ALTERNATE ONE" FOR BID ALTERNATE REGARDING REVISIONS TO EXISTING TENNIS COURT.

GRAPHIC SCALE
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PROFESSIONAL ENGINEER
LICENSED
17233
STATE OF IDAHO
MATTHEW R. GIBB

8/25/2023

SANDPOINT

CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE #1

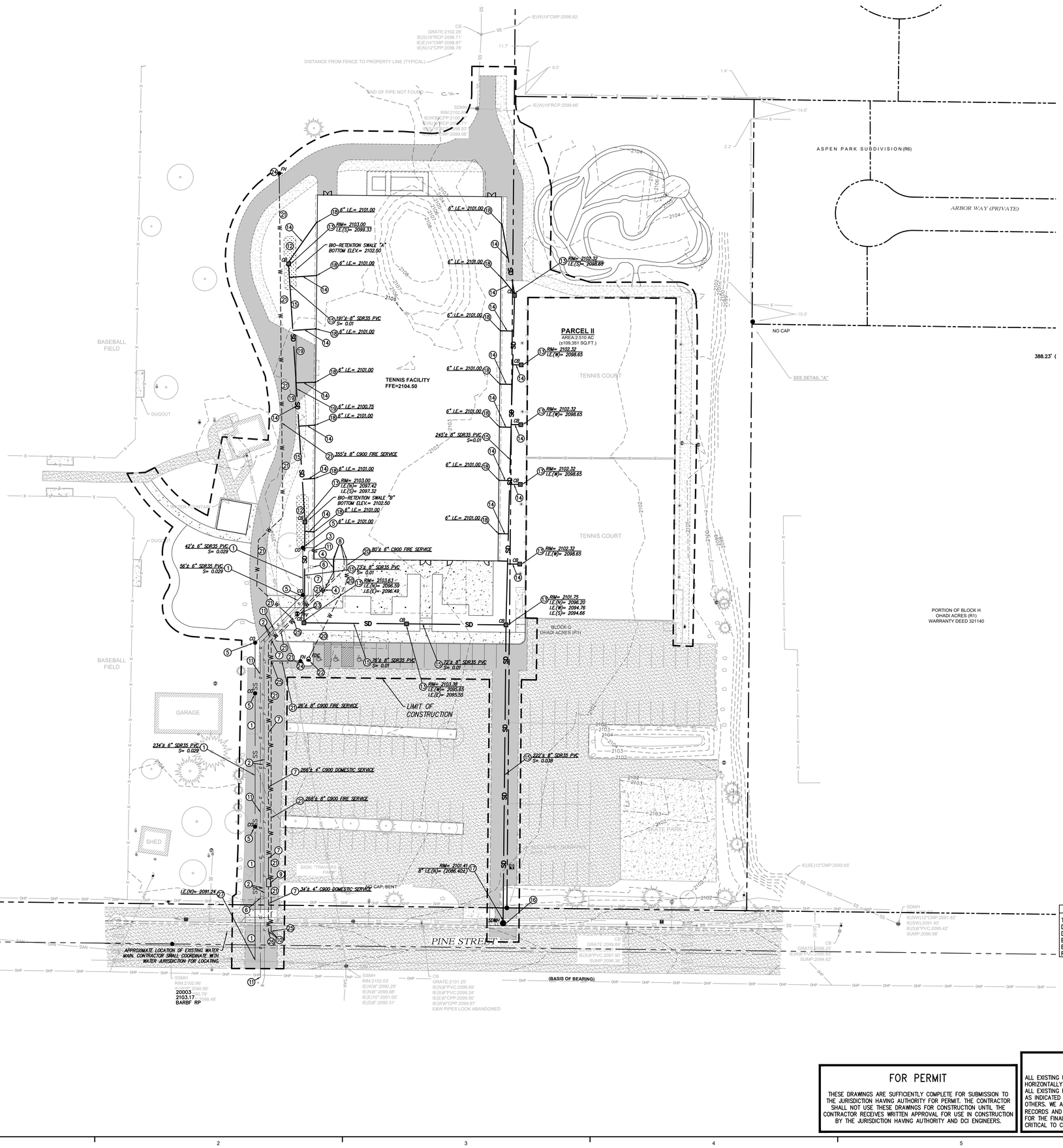
REV	DATE	DESCRIPTION

PROJ. NO.	2023-011
DRAWN	NJM
PROJ MNGR	SDM
DATE	8/25/23

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CIVIL SITE PLAN

C130



REFERENCE NOTES:

1. PROVIDE NEW 6" SDR35 SANITARY SEWER SERVICE. SLOPE AND LENGTH PER PLAN.
2. PROPOSED POWER SERVICE LOCATION. COORDINATE WITH ELECTRICAL PLANS.
3. CONNECT TO BUILDING SANITARY SEWER SYSTEM. COORDINATE WITH PLUMBING PLANS.
4. PROVIDE NEW 3/4" C900 DOMESTIC WATER SERVICE FROM BUILDING TO DRINKING FOUNTAIN. COORDINATE WITH PLUMBING PLANS.
5. PROVIDE NEW CLEANOUT TO GRADE PER DETAIL 10/C500.
6. PROPOSED POWER EQUIPMENT LOCATION. COORDINATE WITH ELECTRICAL PLANS.
7. PROVIDE NEW 4" C900 DOMESTIC WATER SERVICE PER CITY OF SANDPOINT WATER DEPARTMENT AND ISPWC STANDARDS.
8. TIE INTO BUILDING WATER SYSTEM. COORDINATE WITH PLUMBING PLANS.
9. PROVIDE NEW WATER VAULT FOR 4" DOMESTIC SERVICE PER ISPWC STANDARDS. CONTRACTOR SHALL DOWNSIZE AND INSTALL 1-1/2" DOMESTIC WATER METER IN VAULT IN PLACE OF LARGER METER.
10. TAP INTO EXISTING WATER MAIN PER CITY OF SANDPOINT AND ISPWC STANDARDS PLANS. FIELD VERIFY SIZE AND LOCATION PRIOR TO CONNECTION.
11. PROPOSED NATURAL GAS METER. SEE PLUMBING PLANS FOR EXACT LOCATION. CONTRACTOR SHALL COORDINATE ALL WORK WITH AVISTA UTILITIES. CONTRACTOR SHALL PROVIDE 3' DEEP TRENCH WITH 6" OF SAND ON THE BOTTOM FOR THE NEW SERVICE. AVISTA WILL PULL THE GAS SERVICE PIPE TO THE PROPOSED GAS METER LOCATION. AVISTA UTILITIES WILL BACKFILL NEW GAS SERVICE PIPE WITH 6" OF SAND (SAND PROVIDED BY CONTRACTOR). CONTRACTOR TO BACKFILL TRENCH WITH NATIVE SOIL TO FINISHED GRADE.
12. PROVIDE NEW BIO-RETENTION SWALE PER DETAIL X/C50X.
13. PROVIDE NEW TYPE '1' CATCH BASIN PER ITD STANDARD PLAN 605-20. SEE DETAIL 1/C501.
14. PROVIDE NEW 6" SDR35 PVC STORM DRAIN PIPE.
15. PROVIDE NEW 8" SDR35 PVC STORM DRAIN PIPE. SLOPE AND LENGTH PER PLAN.
16. CONNECT TO EXISTING STORM WATER MAIN WITH NEW MANHOLE PER CITY OF SANDPOINT STANDARD PLANS. FIELD VERIFY SIZE AND LOCATION PRIOR TO CONNECTION.
17. PROVIDE NEW STORM WATER MANHOLE PER ITD STANDARD PLAN 605-10. SEE DETAIL 9/C500.
18. TIE INTO BUILDING DOWNSPOUT. PROVIDE NEW CLEANOUT AT CONNECTION PER DETAIL 10/C500. COORDINATE WITH ARCHITECTURAL PLANS.
19. PROVIDE NEW 12" WIDE ZURN Z882 TRENCH DRAIN WITH H20 RATED GRATE.
20. PROVIDE NEW 6" C900 FIRE SERVICE PER CITY OF SANDPOINT WATER DEPARTMENT STANDARDS.
21. PROVIDE NEW 8" C900 FIRE SERVICE PER CITY OF SANDPOINT WATER DEPARTMENT STANDARDS.
22. PROVIDE NEW FIRE DEPARTMENT CONNECTION (FDC) PER DETAIL 2/C501.
23. PROVIDE NEW POST INDICATOR VALVE (PIV) PER DETAIL 3/C501.
24. PROVIDE NEW FIRE HYDRANT PER ISPWC STANDARDS PLAN SD-404. SEE DETAIL 4/C501.
25. PROVIDE NEW 8"x8" TEE.
26. PROVIDE NEW 8"x4" TEE. PROVIDE NEW 90 DEGREE BEND ALONG 4" C900 DOMESTIC WATER SERVICE LINE.
27. TIE INTO EXISTING SANITARY SEWER MAIN. COORDINATE WITH CITY OF SANDPOINT.

ENGINEER'S NOTES:

1. RIM ELEVATIONS OF UTILITY STRUCTURES SHALL BE INSTALLED SO THAT RIM ELEVATIONS MAY BE ADJUSTED ±0.5' TO MATCH PROPOSED FINISHED GRADE.
2. CONTRACTOR SHALL IDENTIFY PROPOSED FUTURE CONCRETE CURB LOCATIONS BEFORE INSTALLING STORM WATER STRUCTURES. CONTRACTOR SHALL NOT LOCATE DRAINAGE STRUCTURE LIDS IN CURB LOCATIONS.
3. ALL NEW UTILITY TURNS, RADII, UNIONS, OR CONNECTION LOCATIONS SHALL BE RECORDED VERTICALLY AND HORIZONTALLY ON THE AS-BUILTS.
4. COORDINATE WITH AVISTA UTILITIES FOR NATURAL GAS AND POWER SERVICE TO BUILDING.

BIO-INFILTRATION SWALE "A"	BIO-INFILTRATION SWALE "B"
TOTAL IMPERVIOUS AREA = 3,750 SF DETENTION VOLUME REQUIRED = 192 CF DETENTION VOLUME PROVIDED = 210 CF BOTTOM AREA = 350 SF BOTTOM ELEVATION = 2102.50 RIM ELEVATION = 2103.00	TOTAL IMPERVIOUS AREA = 4,600 SF DETENTION VOLUME REQUIRED = 196 CF DETENTION VOLUME PROVIDED = 210 CF BOTTOM AREA = 350 SF BOTTOM ELEVATION = 2102.50 RIM ELEVATION = 2103.00

GRAPHIC SCALE

30 0 15 30

(IN FEET)
1 inch = 30 ft.

FOR PERMIT

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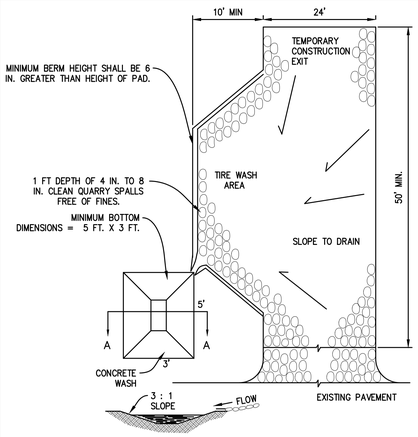
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STORMWATER & UTILITY PLAN

C140



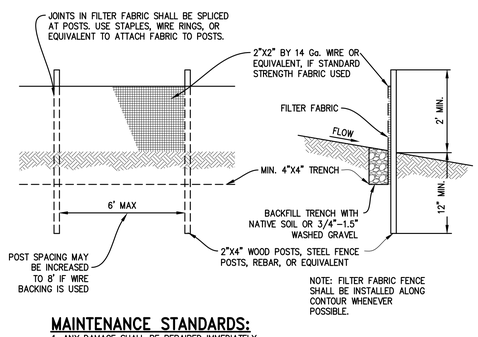
SECTION A–A

NOTES:

1. TIRE WASH AREA MUST BE INSTALLED ADJACENT TO AND DOWN GRADIENT FROM TEMPORARY CONSTRUCTION EXIT AND AS CLOSE TO EXISTING PAVEMENT AS POSSIBLE.
2. MORE TRUCK TRAFFIC MAY REQUIRE A LARGER AREA.

CONSTRUCTION ENTRANCE

SCALE : NTS — 1



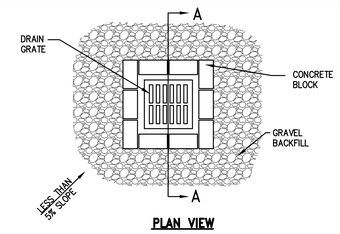
NOTE: FILTER FABRIC FENCE SHALL BE INSTALLED ALONG CONTOUR WHENEVER POSSIBLE.

MAINTENANCE STANDARDS:

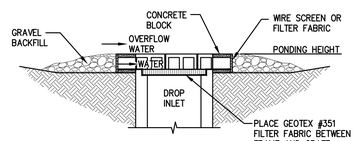
1. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY.
2. IF CONCENTRATED FLOWS ARE EVIDENT UPHILL OF THE FENCE, THEY MUST BE INTERCEPTED AND CONVEYED TO A SEDIMENT TRAP OR POND.
3. IT IS IMPORTANT TO CHECK THE UPHILL SIDE OF THE FENCE FOR SIGN OF THE FENCE CLOGGING AND ACTING AS A BARRIER TO FLOW AND THEN CAUSING CHANNELIZATION OF FLOWS PARALLEL TO THE FENCE. IF THIS OCCURS, REPLACE THE FENCE AND/OR REMOVE THE TRAPPED SEDIMENT.
4. SEDIMENT MUST BE REMOVED WHEN THE SEDIMENT IS 6" HIGH.
5. IF THE FILTER FABRIC HAS DETERIORATED DUE TO ULTRAVIOLET BREAKDOWN, IT SHALL BE REPLACED.

FILTER FABRIC FENCE DETAIL

SCALE : NTS — 2



PLAN VIEW



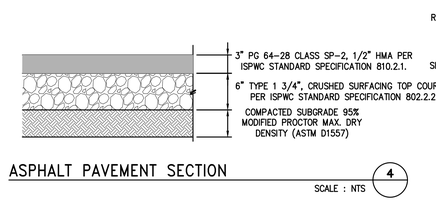
SECTION A–A

NOTES:

1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)
2. EXCAVATE A BASIN OF SUFFICIENT SIZE ADJACENT TO THE DROP INLET.
3. THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.

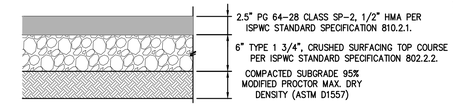
INLET PROTECTION DETAIL

SCALE : NTS — 3



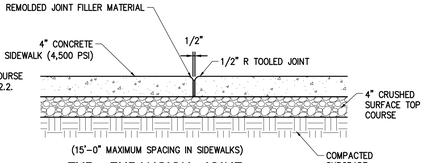
ASPHALT PAVEMENT SECTION

SCALE : NTS — 4

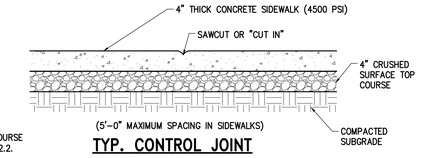


ASPHALT SIDEWALK SECTION

SCALE : NTS — 5



TYP. EXPANSION JOINT



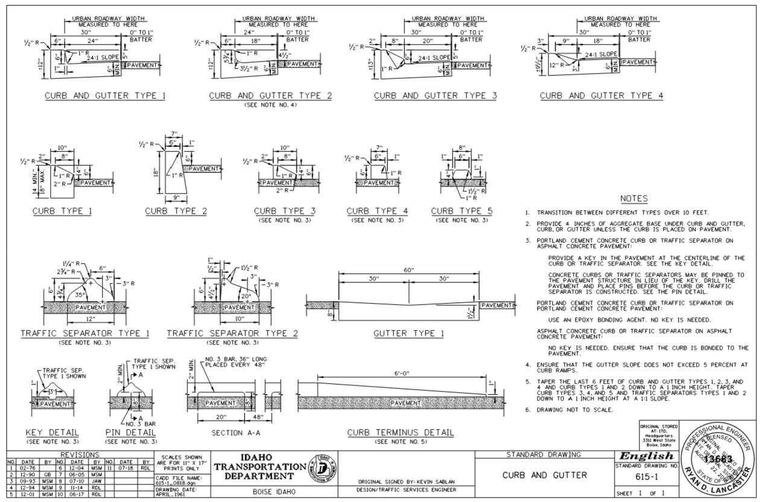
TYP. CONTROL JOINT

NOTES:

1. SUBGRADE AND 4" CRUSHED GRAVEL MUST BE PROPERLY COMPACTED TO PREVENT FUTURE DIFFERENTIAL SETTLING OF SIDEWALK.
2. SEE ARCHITECTURAL SITE PLANS FOR JOINT TYPES AND LOCATIONS IN CONCRETE SIDEWALK AREAS.

ON–SITE CONCRETE SIDEWALK

SCALE : NTS — 6



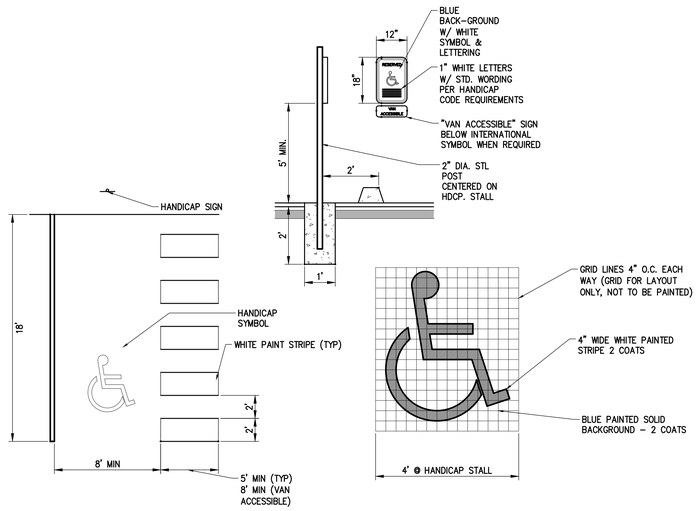
NOTES

1. TRANSITION BETWEEN DIFFERENT TYPES OVER 10 FEET.
2. PROVIDE 4 INCHES OF AGGREGATE BASE UNDER CURB AND GUTTER, CURB, OR GUTTER UNLESS THE CURB IS PLACED ON PAVEMENT.
3. PORTLAND CEMENT CONCRETE CURB OR TRAFFIC SEPARATOR ON ASPHALT CONCRETE PAVEMENT:
   PROVIDE A KEY IN THE PAVEMENT AT THE CENTERLINE OF THE CURB OR TRAFFIC SEPARATOR. SEE THE KEY DETAIL.
   CONCRETE CURBS OR TRAFFIC SEPARATORS MAY BE PINNED TO THE PAVEMENT STRUCTURE IN LIEU OF THE KEY. DRILL THE PAVEMENT AND PLACE PINS BEFORE THE CURB OR TRAFFIC SEPARATOR IS CONSTRUCTED. SEE THE PIN DETAIL.
   PORTLAND CEMENT CONCRETE CURB OR TRAFFIC SEPARATOR ON PORTLAND CEMENT CONCRETE PAVEMENT:
   USE AN EPOXY BONDING AGENT. NO KEY IS NEEDED.
   ASPHALT CONCRETE CURB OR TRAFFIC SEPARATOR ON ASPHALT CONCRETE PAVEMENT:
   NO KEY IS NEEDED. ENSURE THAT THE CURB IS BONDED TO THE PAVEMENT.
4. ENSURE THAT THE GUTTER SLOPE DOES NOT EXCEED 5 PERCENT AT CURB RAMPS.
5. TAPER THE LAST 6 FEET OF CURB AND GUTTER TYPES 1, 2, 3, AND 4 AND CURB TYPES 1 AND 2 DOWN TO A 1 INCH HEIGHT. TAPER CURB TYPES 3, 4, AND 5 AND TRAFFIC SEPARATORS TYPES 1 AND 2 DOWN TO A 1 INCH HEIGHT AT A 1:1 SLOPE.
6. DRAWING NOT TO SCALE.

REVISIONS								SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY.	IDAHO TRANSPORTATION DEPARTMENT		STANDARD DRAWING	English
NO	DATE	BY	NO	DATE	BY	NO	DATE	BY				
1	02-76		6	12-04	MSW	11	07-18	RDL			CURB AND GUTTER	STANDARD DRAWING NO. 615-1
2	12-90	GB	7	06-05	MSW				CADD FILE NAME: 625-1_0518.dgn			
3	09-93	MSW	8	07-10	JAM				DRAWING DATE: APRIL, 1961	ORIGINAL SIGNED BY: KEVIN SABLAN		SHEET 1 OF 1
4	12-94	MSW	9	11-14	RDL				BOISE IDAHO	DESIGN/TRAFFIC SERVICES ENGINEER		
5	12-01	MSW	10	06-17	RDL							

CURB AND GUTTER

SCALE : NTS — 7

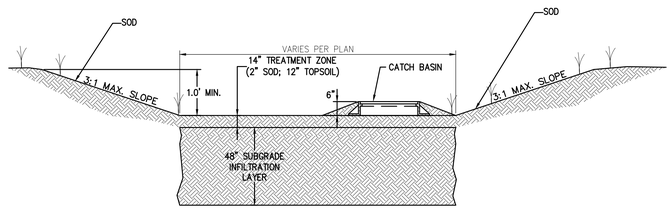


ADA STALL SIGNAGE AND STRIPING DETAIL

SCALE : NTS — 8

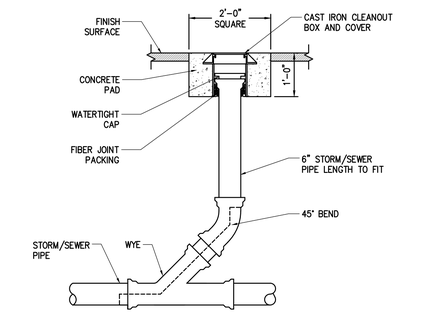
NOTES:

1. SEE LANDSCAPE PLANS FOR SWALE PLANTING DETAILS.
2. SOD SHALL BE PLACED IN ALL SWALE BOTTOMS AND SIDE SLOPES.
3. THE PROPOSED WATER QUALITY TREATMENT FOR THIS PROJECT IS KNOWN AS THE 1133A METHOD. THIS METHOD REQUIRES THAT THE PROPOSED SWALES HAVE ENGINEERED SOILS INSTALLED IN THEM. PER THE SPOKANE REGIONAL STORM WATER MANUAL, THE FOLLOWING REQUIREMENTS MUST BE MET FOR THE PROPOSED SWALES VOLUMES TO BE ALLOWED ON THIS PROJECT:
   A. THE SUBGRADE SOILS HAVE LESS THAN 12% FINES.
   B. THE SUBGRADE SOILS HAVE AN INFILTRATION RATE GREATER THAN 0.15 IN/HR.
   C. THE TREATMENT ZONE (VEGETATED COVER AND TREATMENT LAYER) MUST BE 14" THICK AND HAVE AN INFILTRATION RATE BETWEEN 0.25 AND 0.50 IN/HR.
   D. SUBGRADE INFILTRATION RATE MUST BE AT LEAST 0.15 IN/HR AND FACILITY MUST COMPLETELY DRAIN WITHIN 72 HOURS.
   E. THE ORGANIC MATTER CONTENT MUST BE AT LEAST 2% BY WEIGHT.
   F. THE AVERAGE CATION EXCHANGE CAPACITY (CEC) MUST BE AT LEAST 15 MILLIEQUIVALENTS/100 GRAMS.
   G. THE ORGANIC CONTENT OR CEC MUST BE TESTED ACCORDING TO THE SPOKANE REGIONAL STORM WATER MANUAL REQUIREMENTS TO SUBSTANTIATE THE SOIL COMPOSITION.
4. A GEOTECHNICAL ENGINEERING FIRM MUST VERIFY THAT SWALES WILL MEET THE ABOVE REQUIREMENTS FOR THIS PROJECT.
5. CONTRACTOR SHALL NOT COMPACT ANY PROPOSED SWALE AREAS VIA CONSTRUCTION TRAFFIC. DO NOT DUMP ANY CONSTRUCTION WASTE MATERIALS, ESPECIALLY CONCRETE WASTE, INTO ANY PROPOSED SWALE AREA.
6. FOR SWALES AND PONDS, THE TOP 12" OF SOIL SHALL CONSIST OF A THOROUGHLY BLENDED MIX OF 50% COMPOST WITH 50% NATIVE SOILS. IF THIS CONDITION IS MET, NOTE 3B–3G ARE NOT REQUIRED.



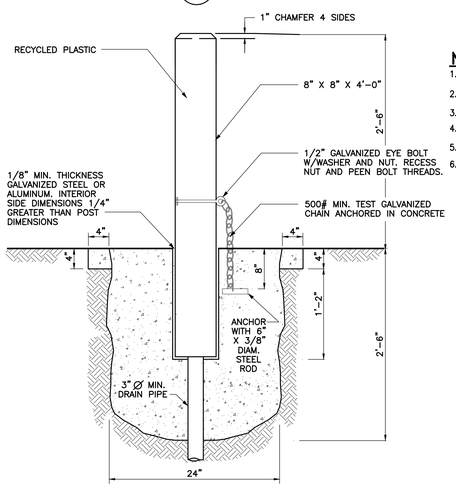
BIO–RETENTION SWALE

SCALE : NTS — 9



TYPICAL CLEANOUT

SCALE : NTS — 10

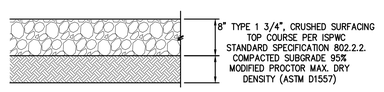


REMOVABLE BOLLARD

SCALE : NTS — 11

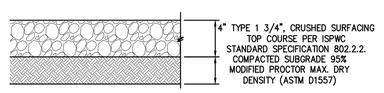
NOTES:

1. RECYCLED PLASTIC BOLLARD SHALL BE WHITE.
2. STEEL TUBE SHALL CONFORM TO ASTM A53 GRADE A.
3. NUTS, BOLTS, & WASHERS SHALL CONFORM TO ASTM A307.
4. ALL STEEL PARTS SHALL BE GALVANIZED.
5. CONCRETE SHALL BE CLASS 3000.
6. SEE SEC. 3–5.08.



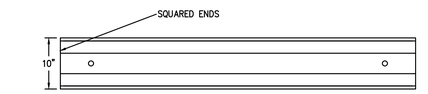
HEAVY DUTY GRAVEL SIDEWALK SECTION

SCALE : NTS — 12

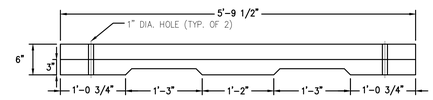


LIGHT DUTY GRAVEL SIDEWALK SECTION

SCALE : NTS — 13



PLAN



ELEVATION

CONCRETE WHEEL STOP

SCALE : NTS — 14

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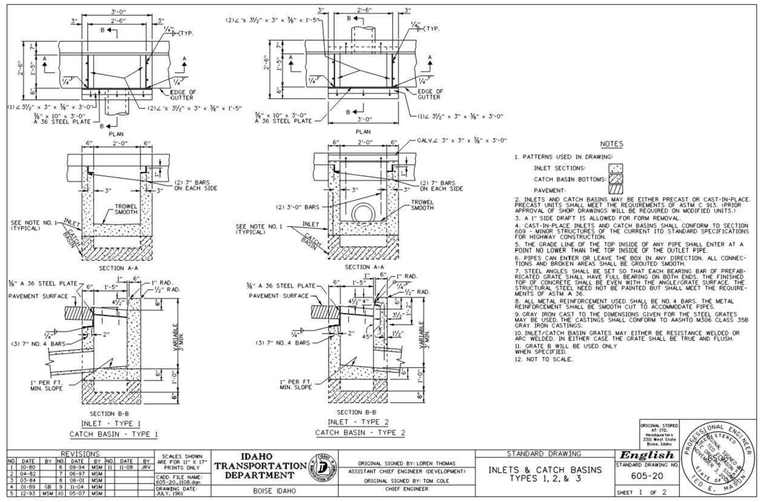
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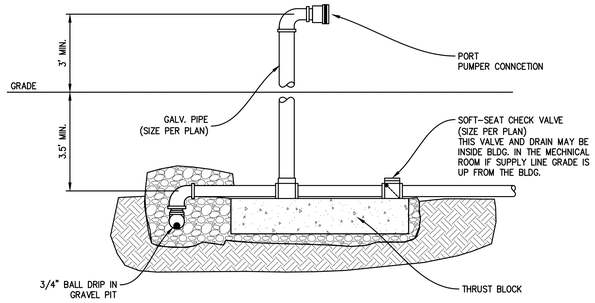
DETAILS

C500



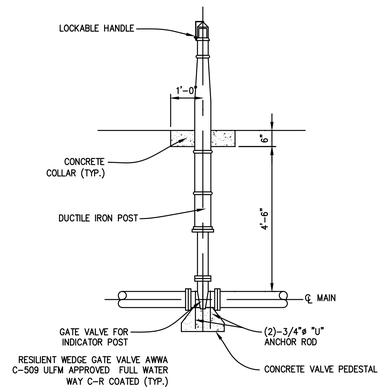
CATCH BASIN

SCALE : NTS 1



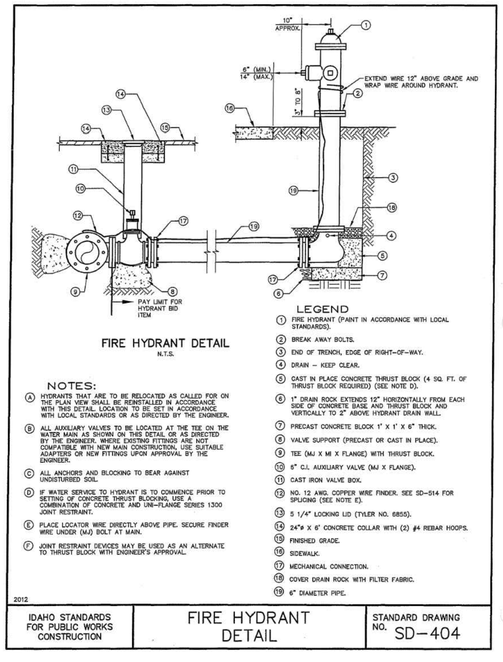
FIRE DEPARTMENT CONNECTION (FDC)

SCALE : NTS 2



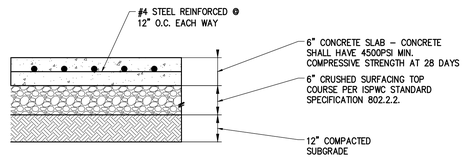
POST INDICATOR VALVE (PIV)

SCALE : NTS 3



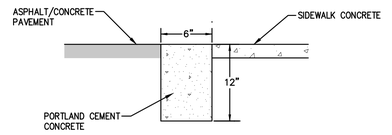
FIRE HYDRANT

SCALE : NTS 4



REINFORCED CONCRETE PAVEMENT SECTION

SCALE : NTS 4



TYPE "S" CURB

SCALE : NTS 5

CONTRACTOR NOTE

ALL EXISTING UTILITIES SHOWN ON PLANS ARE TO BE VERIFIED HORIZONTALLY AND VERTICALLY PRIOR TO ANY CONSTRUCTION. ALL EXISTING FEATURES INCLUDING BURIED UTILITIES ARE SHOWN AS INDICATED ON RECORD MAPS AND SURVEYS FURNISHED BY OTHERS. WE ASSUME NO LIABILITY FOR THE ACCURACY OF THOSE RECORDS AND SURVEYS. CONTACT THE UTILITY OWNER/AGENCY FOR THE FINAL LOCATION OF EXISTING UTILITIES IN AREAS CRITICAL TO CONSTRUCTION.

FOR PERMIT

THESE DRAWINGS ARE SUFFICIENTLY COMPLETE FOR SUBMISSION TO THE JURISDICTION HAVING AUTHORITY FOR PERMIT. THE CONTRACTOR SHALL NOT USE THESE DRAWINGS FOR CONSTRUCTION UNTIL THE CONTRACTOR RECEIVES WRITTEN APPROVAL FOR USE IN CONSTRUCTION BY THE JURISDICTION HAVING AUTHORITY AND DCI ENGINEERS.

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PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO 17233 MATTHEW R. DIRKSEN
8/25/2023

SANDPOINT

CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE #1

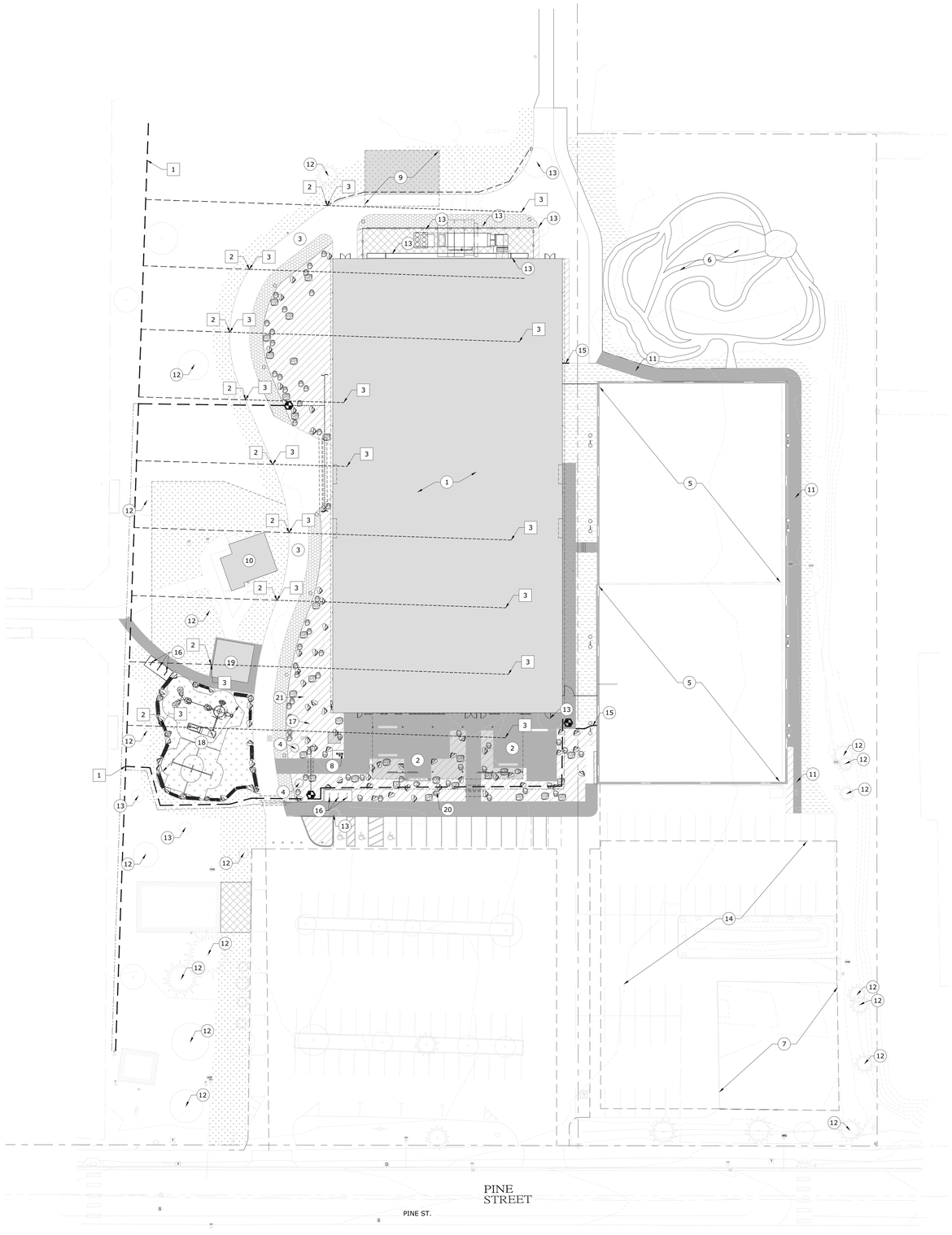
REV	DATE	DESCRIPTION

PROJ. NO.	2023-011
DRAWN	NJM
PROJ MNGR	SDM
DATE	8/25/23

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DETAILS

C501



A IRRIGATION PLAN

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 inch = 30 ft.

CALLOUTS

1. NEW SPORTS COMMUNITY BUILDING. SEE ARCHITECTURE PLANS.
2. HARDSCAPE. SEE ARCHITECTURE AND CIVIL PLANS.
3. 12' WIDE ASPHALT TRAIL WITH 4' GRAVEL SHOULDERS FOR FIRE ACCESS, SEE CIVIL.
4. SCULPTURE BASE, SEE SHEET L3.0, DETAIL Q.
5. TENNIS COURTS. PRESERVE AND PROTECT.
6. BIKE SKILLS COURSE, BY OTHERS.
7. EXISTING SKATE PARK TO REMAIN.
8. DRINKING FOUNTAIN ON CONCRETE PAD. CONTEMPORARY DRINKING FOUNTAINS, GYQ84 SERIES, SEE SPECIFICATIONS. SEE CIVIL FOR CONCRETE.
9. BATTING CAGES. LOCATION APPROXIMATE. SALVAGE TO OWNER.
10. EXISTING RESTROOMS AND CONCESSION BUILDING TO REMAIN.
11. NEW TRAIL. SEE CIVIL.
12. EXISTING TREE TO REMAIN, PRESERVE AND PROTECT.
13. EXISTING TREE TO BE REMOVED.
14. SKATEPARK EXPANSION AREA. SEE PLANS BY DREAMLAND.
15. POLY EDGING MOWCURB. SEE SHEET L3.0, DETAIL I.
16. BIKE RACKS ON CONCRETE PAD. BIKE RACK: SPORTWORKS TOFINO NO SCRATCH BIKE RACK, SEE SPECIFICATIONS. SEE CIVIL FOR CONCRETE.
17. TRANSFORMER. SEE ELECTRICAL.
18. RELOCATED PLAYGROUND. SEE SHEET L3.0, DETAILS M AND R. SEE SPECIFICATIONS.
19. RELOCATED PICNIC SHELTER. SEE ARCHITECTURE AND CIVIL.
20. LOW ROCK RETAINING WALL. SEE SHEET L3.0, DETAIL P.
21. EXISTING OAK TREE TO REMAIN, PRESERVE AND PROTECT. SEE SECTION 01 56 39 TEMPORARY TREE AND PLANT PROTECTION FOR AIR SPADING AND OTHER REQUIREMENTS FOR WORK WITHIN TREE PROTECTION ZONES.

LEGEND

- PLANTER AREA WITH MINERAL MULCH OVER WEED BARRIER FABRIC. SEE PLANTING NOTES FOR TYPE.
- TURF AREA WITH EXISTING OVERHEAD IRRIGATION. RELOCATE EXISTING HEADS AS NECESSARY TO ACCOMMODATE NEW SITE FEATURES. ENSURE HEAD TO HEAD COVERAGE. REPAIR AREAS DAMAGED BY CONSTRUCTION. SEE HYDROSEED SPECIFICATIONS.
- HYDROSEEDED LOW MAINTENANCE DRYLAND GRASS SEED MIX. SEE SPECIFICATIONS.
- RELOCATED PLAYGROUND AREA. 12" OF ENGINEERED WOOD FIBER. SEE SPECIFICATIONS.
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- UTILITY AREA WITH 2" OF MINERAL MULCH TYPE 'C'. SEE PLANTING NOTES FOR TYPE.
- PEELED CEDAR LOG. SEE SPECIFICATIONS SECTION SITE FURNISHINGS 12 93 00.
- 2-5' GRANITE BOULDER. 25% OF BOULDERS SHOULD BE 2' WIDE, AND 75% SHOULD BE LARGER THAN 2'. SEE SPECIFICATIONS SECTION SITE FURNISHINGS 12 93 00.
- CORTEN STEEL FENCE. SEE SHEET L3.0, DETAILS N AND O.
- LIGHTS. SEE ELECTRICAL.

IRRIGATION CALLOUTS

1. EXISTING IRRIGATION MAINLINE, PRESERVE AND PROTECT. LOCATION APPROXIMATE. VERIFY IN FIELD.
2. CAP EXISTING LATERAL LINE. LOCATION APPROXIMATE. VERIFY IN FIELD. ADD ONE HALF OR ADJUSTABLE SPRAY HEAD. ADJUST HEADS TO PROVIDE HEAD TO HEAD COVERAGE.
3. EXISTING LATERAL LINE TO BE REMOVED. LOCATION APPROXIMATE. VERIFY IN FIELD.

IRRIGATION LEGEND

- EXISTING IRRIGATION MAINLINE, PRESERVE AND PROTECT. LOCATION APPROXIMATE. VERIFY IN FIELD.
- EXISTING LATERAL LINE. LOCATION APPROXIMATE. VERIFY IN FIELD.
- EXISTING LATERAL LINE TO BE REMOVED. LOCATION APPROXIMATE. VERIFY IN FIELD.
- NEW LATERAL LINE - SCHEDULE 40 PVC - 1" UNLESS OTHERWISE NOTED.
- NEW PIPE SLEEVE - SCHEDULE 40 PVC. SEE SPECIFICATIONS.
- CONTROL WIRE IN CONDUIT.
- NEW IRRIGATION VALVE TO MATCH EXISTING.

IRRIGATION NOTES

1. CONTRACTOR SHALL CALL 811 TO LOCATE ALL EXISTING ABOVE OR BELOW GRADE ON-SITE UTILITIES PRIOR TO COMMENCEMENT OF WORK, INCLUDING PLANTING. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN IN THE CONTRACT DOCUMENTS SHALL BE DEEMED TO BE APPROXIMATIONS ONLY. ALL DISCREPANCIES BETWEEN WHAT IS SHOWN AND THE ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE. PRESERVE AND PROTECT EXISTING UTILITIES TO REMAIN FROM DAMAGE OR DISRUPTION, TYPICAL. MAINTAIN LOCATES DURING CONSTRUCTION FOR REFERENCE. CONTRACTOR SHALL RECORD ALL UTILITY MARKINGS ON A SEPARATE SET OF DRAWINGS. THIS SET SHALL BE KEPT ON-SITE FOR REFERENCE FOR DURATION OF CONTRACT.
2. CONTRACTOR TO COORDINATE WITH OWNER'S MAINTENANCE PERSONNEL TO IDENTIFY AND PROTECT ANY EXISTING OWNER MAINTAINED UTILITIES, WATER LINES, IRRIGATION LINES, IRRIGATION CONTROL WIRES OR OTHER IMPROVEMENTS PRIOR TO CONSTRUCTION.
3. THE INFORMATION ON THIS SHEET IS INCOMPLETE UNLESS ACCOMPANIED BY THE CORRESPONDING SPECIFICATION SECTION(S) AND DETAILS DEVELOPED FOR THIS PROJECT. REFER TO THOSE SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR IS RESPONSIBLE FOR VERIFYING CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND NOTIFYING THE OWNER AND OWNERS REPRESENTATIVES OF DISCREPANCIES. VERIFY THAT SUB GRADE PREPARATION HAS BEEN COMPLETED TO ACCEPTABLE TOLERANCES PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR ACCEPTS SUB GRADES UPON COMMENCEMENT OF WORK AND IS RESPONSIBLE FOR ANY CORRECTIONS REQUIRED AFTER WORK BEGINS.

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LANDSCAPE ARCHITECT
MICHAEL D. TERRELL
CERTIFICATE NO. 564

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CITY OF SANDPOINT

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BID PACKAGE #1

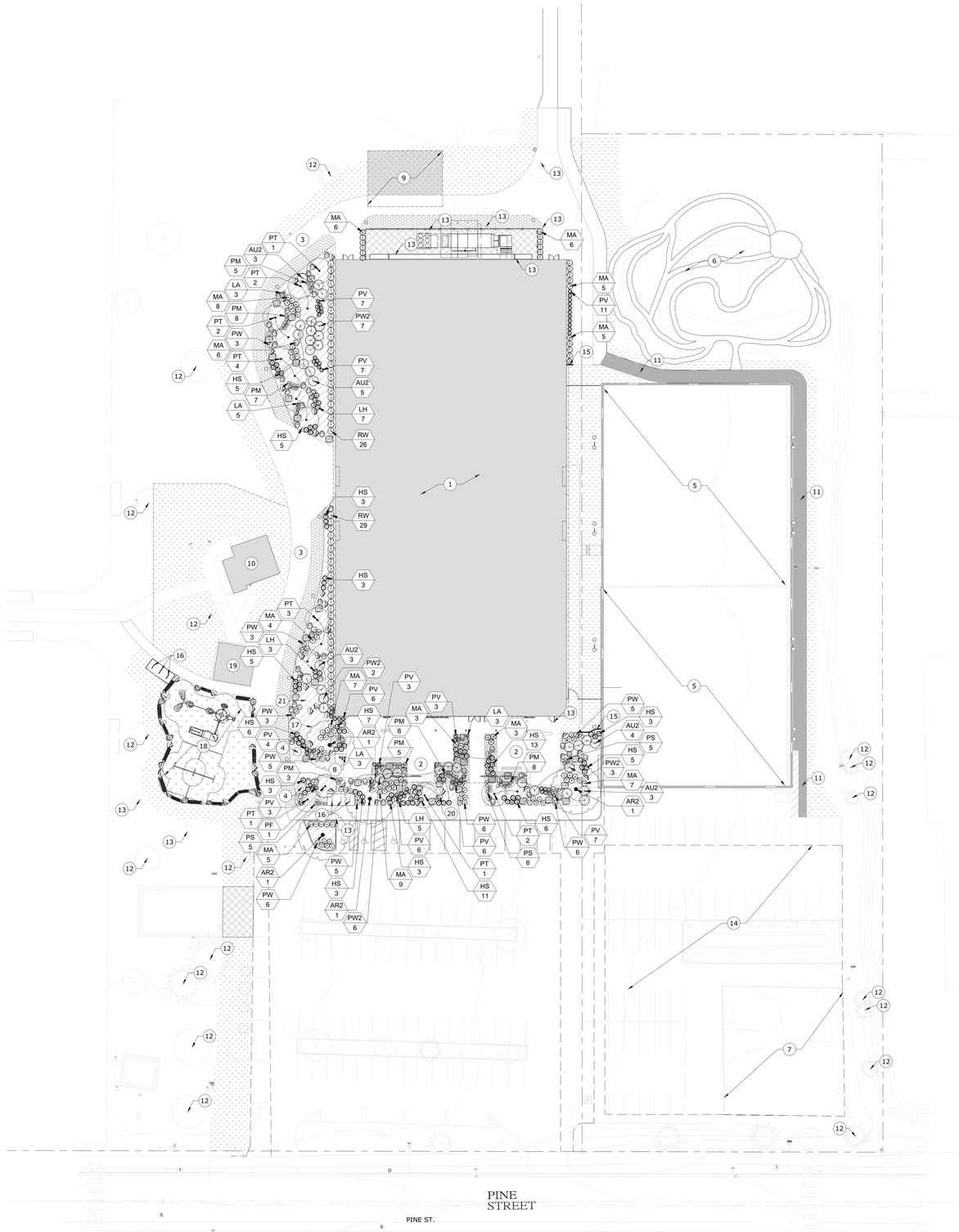
REV	DATE	DESCRIPTION

PROJ. NO.	2023-011
DRAWN	SH
PROJ MNGR	MT
DATE	8/25/23

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IRRIGATION PLAN

L1.0



A LANDSCAPE PLAN

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 inch = 30 ft.

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- CORTEN STEEL FENCE. SEE SHEET L3.0, DETAILS N AND O.
- LIGHTS. SEE ELECTRICAL.

PLANT LEGEND

TREES	BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT	WIDTH	QTY
AR2	Alnus rubra	Red Alder	2" Cal.	60`	30`	4
PF	Pinus flexilis `Vanderwolf`s Pyramid`	Vanderwolf`s Pyramid Pine	7-8` Tall	25`	15`	1
PT	Populus tremuloides	Quaking Aspen	2" Cal.	30`	15`	16

SHRUBS	BOTANICAL NAME	COMMON NAME	SIZE	QTY
AU2	Arctostaphylos uva-ursi	Kinnikinnick	2 gal	18
HS	Helictotrichon sempervirens	Blue Oat Grass	1 gal	79
LA	Lupinus argenteus	Silvery Lupine	1 gal.	14
LH	Lavandula angustifolia `Hidcote`	Hidcote Lavender	1 gal	15
MA	Mahonia aquifolium `Compacta`	Oregon Grape	2 gal	74
PM	Paxistima myrsinites	Oregon Boxwood	1 gal.	44
PS	Penstemon fruticosus	Shrubby Penstemon	1 gal.	16
PV	Panicum virgatum `Shenandoah`	Switch Grass	1 gal.	63
PW	Phlox subulata 'Red Wings'	Red Wings Creeping Phlox	1 gal.	42
PW2	Philadelphus lewisii	Wild Mockorange	1 gal.	18
RW	Rosa woodsii	Mountain Rose	2 gal.	55

PLANTING NOTES

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5. REMOVE ALL CONSTRUCTION DEBRIS, CONCRETE, MORTAR, ROCKS, ETC FROM LANDSCAPE AREAS PRIOR TO SUB GRADE PREPARATION AND INSTALLATION OF PLANTING SOIL.
6. TREES AND SHRUBS TO MEET REQUIREMENTS OF AMERICAN STANDARD FOR NURSERY STOCK FOR SIZE AND MATERIAL CONDITION.
7. PLANT COUNTS IN LEGEND ARE FOR REFERENCE ONLY. PLANT SYMBOLS DICTATE THE REQUIRED PLANTS.
8. PLANTING SOIL SCHEDULE (SEE SPECIFICATIONS):
   a. PLANTING AREAS: 6" OF APPROVED PLANTING SOIL TYPE 'B' - WITTKOPF TURF BUILDER SOIL. SUBMIT FOR APPROVAL.
   b. TURF AND HYDROSEEDED AREAS: 4" OF APPROVED PLANTING SOIL TYPE 'B' - WITTKOPF TURF BUILDER SOIL. SUBMIT FOR APPROVAL.
9. MINERAL MULCH SCHEDULE (SEE SPECIFICATIONS):
   a. PLANTING AREAS: 2" OF MINERAL MULCH TYPE 'A'. 1" CRUSHED GRANITE, CLEAN TO BE SELECTED BY OWNER OVER NON-WOVEN WEED BARRIER FABRIC. SUBMIT FOR APPROVAL.
   b. UTILITY AREAS: 2" OF MINERAL MULCH TYPE 'B'. ¾" CLEAN BASALT OVER NON-WOVEN WEED BARRIER FABRIC. SUBMIT FOR APPROVAL.
10. ORGANIC MULCH SCHEDULE (SEE SPECIFICATIONS):
    a. PLANTING AREAS: 2" OF ORGANIC MULCH TYPE 'B'. APPROVED COMPOST. SUBMIT FOR APPROVAL. SEE SPECIFICATIONS.
11. ALL LANDSCAPE AREAS TO BE IRRIGATED BY AN AUTOMATIC IRRIGATION SYSTEM. SEE IRRIGATION PLANS AND SPECIFICATIONS.
12. TREE LOCATIONS MAY VARY DEPENDING ON WALK, DRIVEWAY, AND UTILITY LOCATIONS. STAKE FOR APPROVAL PRIOR TO PLANTING.
13. LAYOUT OF MOWCURBS AND EDGING TO BE MARKED FOR APPROVAL PRIOR TO INSTALLATION.
14. DO NOT COMPACT BOTTOMS OF SWALES, PROTECT SWALES FROM CONSTRUCTION TRAFFIC AND DEBRIS. SEE CIVIL PLANS FOR SOILS IN SWALES.
15. ALL TREES TO BE SINGLE TRUNKED, UNLESS OTHERWISE NOTED. MULTI-TRUNKED TREES TO INCLUDE MAIN LEADER EQUAL OR GREATER TO SIZE SPECIFIED.
16. TREES OF THE SAME SPECIES SHALL BE MATCHED FROM SAME LOT AND GROWER.
17. FINISH GRADE TO BE:
    a. PLANTING AREAS: 2 1/2" BELOW ADJACENT WALKS OR HARDSCAPE ELEMENTS BEFORE INSTALLATION OF MINERAL/ORGANIC MULCH.

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REGISTERED LANDSCAPE ARCHITECT
MICHAEL D. TERRELL
CERTIFICATE NO. 584

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BID PACKAGE #1

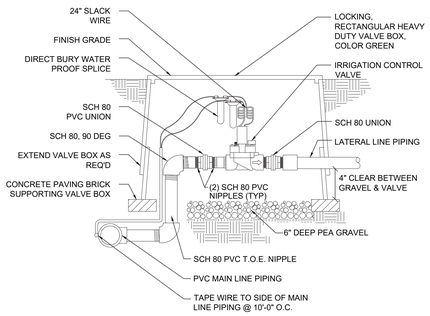
REV	DATE	DESCRIPTION

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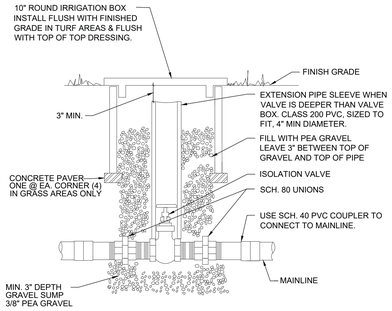
LANDSCAPE PLAN

L2.0

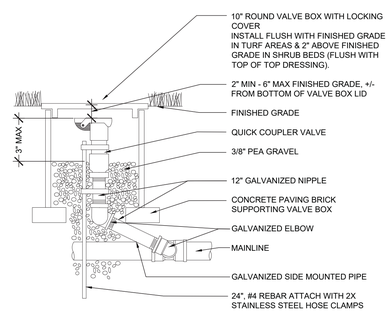


NOTES:
1. ONLY ONE AUTOMATIC VALVE PER VALVE BOX.
2. VALVE BOX TO REST ON CONCRETE PAVER BRICKS, NO PRESSURE TO BE PLACED ON MAINLINE OR LATERAL LINE.
3. PROVIDE 24" OF COILED WIRE SLACK IN VALVE BOX.
4. INSTALL LINE SURGE PROTECTION PER MANUFACTURERS SPECIFICATION.

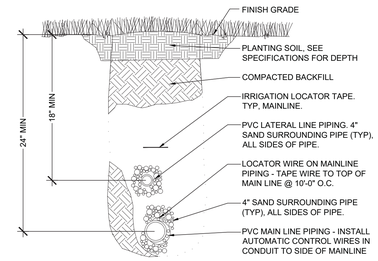
A CONTROL VALVE INSTALLATION
SCALE = NTS



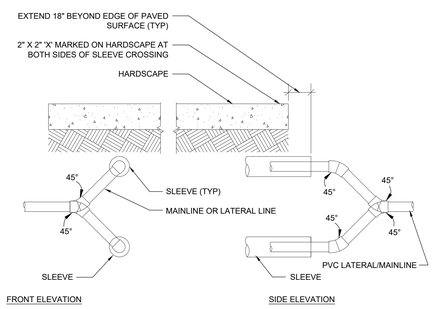
B ISOLATION VALVE
SCALE = NTS



C QUICK COUPLER VALVE IN BOX
SCALE = NTS



D IRRIGATION TRENCHING
SCALE = NTS

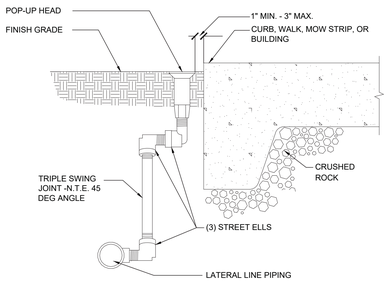


FRONT ELEVATION

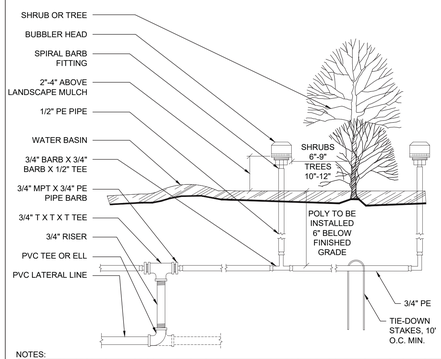
SIDE ELEVATION

NOTES:
1. THERE SHALL NOT BE 90° JOINTS DIRECTING LATERALS AND MAINLINES INTO SLEEVES. MAXIMUM ANGLE SHALL BE 45°.

E SLEEVING UNDER HARDSCAPE
SCALE = NTS

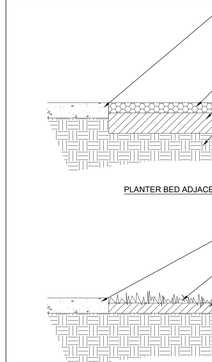


F HEADS ADJACENT HARDSCAPE
SCALE = NTS



NOTES:
1. CONTRACTOR TO ADJUST SO THAT NO MORE THAN 20 BUBBLERS ARE LOCATED ON EACH SIDE OF EACH RISER.
2. SEE PLANS FOR BUBBLER NUMBER/SIZES.

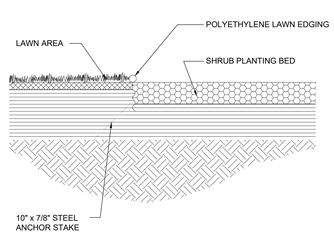
G BUBBLER ON RISER
SCALE = NTS



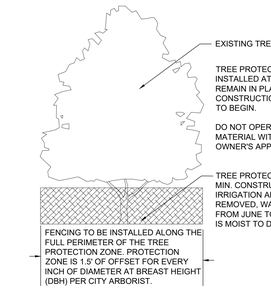
PLANTER BED ADJACENT TO HARDSCAPE (TYP)

TURF ADJACENT TO HARDSCAPE (TYP)

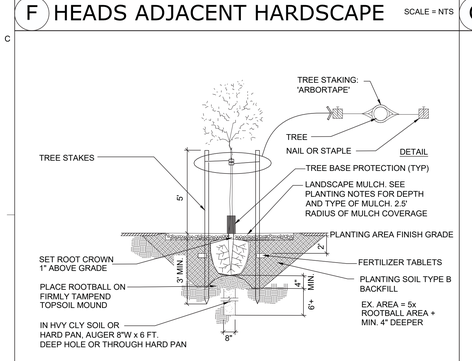
H HARDSCAPE TRANSITIONS
SCALE = NTS



I POLY EDGING
SCALE = NTS

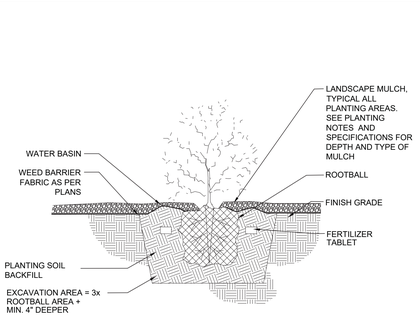


J TREE PROTECTION
SCALE = NTS

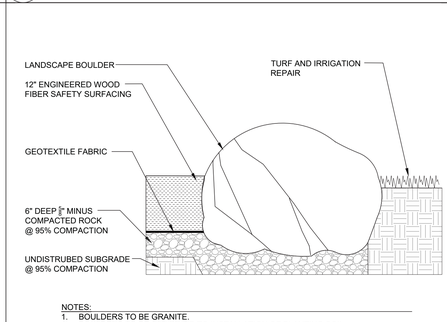


NOTES:
1. CUT AND REMOVE WIRE BASKET AFTER TREE IS IN PLANTING HOLE. REMOVE BURLAP AND TWINE FROM TOP AND SIDES OF ROOTBALL.
2. SEE SPECIFICATIONS FOR PLANTING AND FERTILIZER REQUIREMENTS.

K PLANTING AREA TREE PLANTING
SCALE = NTS



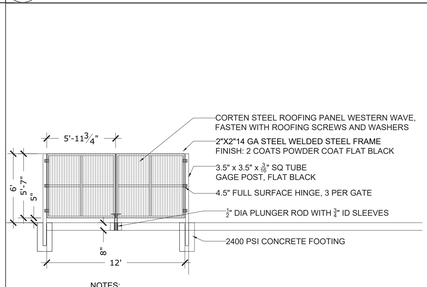
L SHRUB PLANTING
SCALE = NTS



NOTES:
1. BOULDERS TO BE GRANITE.
2. BOULDERS TO BE SET PRIOR TO INSTALLATION OF PLANTING SOIL.
3. BOULDERS TO BE GENERALLY ROUND.
3. BURY BOULDERS 1/3 TO 1/2 OF SIZE. STABILIZE BOULDERS AS NECESSARY. BOULDERS SHALL BE SOLID WITH NO MOVEMENT.

SCALE = NTS

M PLAYGROUND BOULDER PLACEMENT
SCALE = NTS



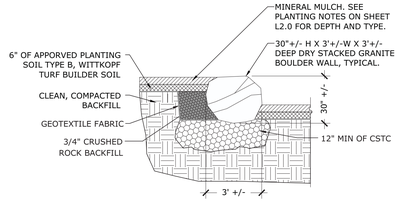
NOTES:
1. SUBMIT SHOP DRAWINGS FOR OWNER APPROVAL.

N CORTEN STEEL GATE
SCALE = NTS

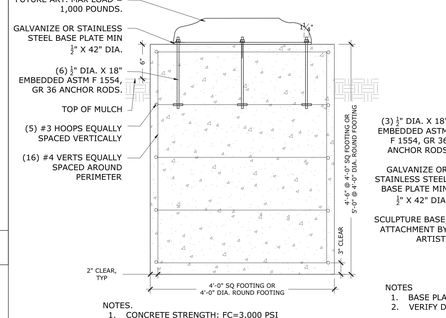


MATERIAL: WESTERN WAVE METAL WALL PANEL OR APPROVED EQUAL
WESTERN STATES METAL ROOFING
901 W WATKINS RD
PHOENIX, AZ 85007
(877) 787-5467
SALES@WESTERNSTATESMETALROOFING.COM

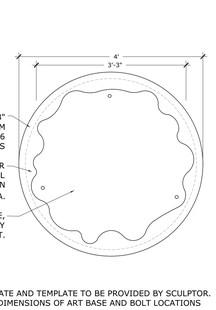
O CORTEN STEEL GATE MATERIAL
SCALE: NTS



P LOW ROCK RETAINING WALL
SCALE = NTS

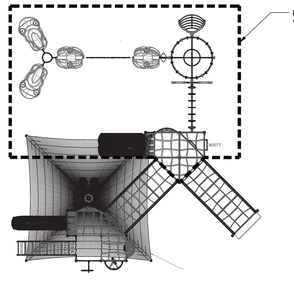


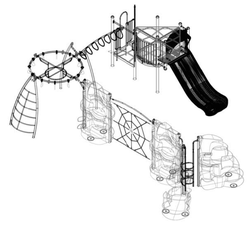
NOTES.
1. CONCRETE STRENGTH: FC=3,000 PSI
2. REBAR GRADE: FY = 60,000 PSI
3. ASSUMED ALLOWABLE LATERAL BEARING PRESSURE = 150 PCF
4. FOR REFERENCE ONLY. FINAL DESIGN DEPENDANT ON ART.



NOTES
1. BASE PLATE AND TEMPLATE TO BE PROVIDED BY SCULPTOR.
2. VERIFY DIMENSIONS OF ART BASE AND BOLT LOCATIONS

Q SCULPTURE BASE
SCALE = NTS







NOTES:
1. FOR REFERENCE ONLY.
2. VERIFY WITH OWNER PRIOR TO DISASSEMBLY
3. CONTRACTOR TO REPLACE DAMAGED COMPONENTS WITH NEW COMPONENTS FROM MANUFACTURER.

R RELOCATED PLAYGROUND EQUIPMENT
SCALE = NTS

MICHAEL TERRELL - LANDSCAPE ARCHITECTURE, PLLC
1421 N. MEADOWWOOD LANE, SUITE 150
LIBERTY LAKE, WA 99019
PHONE (509) 922-7449

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG

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STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
SCOTT T. ROSELL
CERTIFICATE NO. 564

NOT FOR CONSTRUCTION

SANDPOINT

CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE #1

REV	DATE	DESCRIPTION

PROJ. NO.	2023-011
DRAWN	SH
PROJ MNGR	MT
DATE	8/25/23

© ALSC ARCHITECTS, P.S.

DETAILS

L3.0

STRUCTURAL - GENERAL NOTES

GENERAL REQUIREMENTS

GOVERNING CODE: The design and construction of this project is governed by the **"International Building Code (IBC)", 2018 Edition**, hereafter referred to as the IBC, as adopted and modified by the City of Sandpoint, ID understood to be the Authority Having Jurisdiction (AHJ).

REFERENCE STANDARDS: Refer to Chapter 35 of 2018 IBC. Where other Standards are noted in the drawings, use the latest edition of the standard unless a specific date is indicated. Reference to a specific section in a code does not relieve the contractor from compliance with the entire standard.

DEFINITIONS: The following definitions cover the meanings of certain terms used in these notes:

(1) "**Architect/Engineer**" – The Architect of Record and the Structural Engineer of Record.

(2) "**Structural Engineer of Record**" **(SER)** – The structural engineer who is licensed to stamp & sign the structural documents for the project. The SER is responsible for the design of the Primary Structural System.

(3) "**Submit for review**" - Submit to the Architect/SER for review prior to fabrication or construction.

(4) "**Per Plan**" – Indicates references to the structural plans, elevations and structural general notes.

(5) "**Seismic Force Resisting System (SFRS)**" **–** A recognized structural system of components (beams, braces, drags, struts, collectors, diaphragms, columns, walls, etc) of the primary structure that are specially designed and proportioned to resist earthquake-induced ground motions and maintain stability of the structure. Fabrication and installation of components designated as part of the SFRS require the general contractor, subcontractor, or supplier who is responsible for any portion of SFRS fabrication or installation to comply with special requirements (including, but not limited to, material control, compliance certifications, personnel qualifications, documentation, reporting requirements, etc) and to provide the required Quality Control including the required coordination of Special Inspections (Quality Assurance – QA). Special provisions apply to any member designated as part of the SFRS. Refer to plans, elevations, details, Design Criteria and Symbols and Legends for applicable members and connections.

(6) "**Specialty Structural Engineer**" **(SSE) –** A professional engineer (PE or SE), licensed in the State where the project is located, (typically not the SER), who performs specialty structural engineering services for selected specialty-engineered elements identified in the Contract Documents, and who has experience and training in the Specialty. Documents stamped and signed by the SSE shall be completed by or under the direct supervision of the SSE.

(7) "**Bidder-designed**" **–** Components of the structure that require the general contractor, subcontractor, or supplier who is responsible for the design, fabrication and installation of specialty-engineered elements identified in the Contract Documents to retain the services of an SSE. Submittals of "Bidder-designed" elements shall be stamped and signed by the SSE.

SPECIFICATIONS: Refer to the project specifications issued as part of the contract documents for information supplemental to these drawings.

OTHER DRAWINGS: Refer to the architectural, mechanical, electrical, civil and plumbing drawings for additional information including but not limited to: dimensions, elevations, slopes, door and window openings, non-bearing walls, stairs, finishes, drains, waterproofing, railings, curbs, depressions, mechanical unit locations, and other nonstructural items.

STRUCTURAL DETAILS: The structural drawings are intended to show the general character and extent of the project and are not intended to show all details of the work. Use entire detail sheets and specific details referenced in the plans as "typical" wherever they apply. Similarly, use details on entire sheets with "typical" in the name wherever they apply.

STRUCTURAL RESPONSIBILITIES: The structural engineer (SER) is responsible for the strength and stability of the primary structure in its completed form.

COORDINATION: The Contractor is responsible for coordinating details and accuracy of the work; for confirming and correlating all quantities and dimensions; for selecting fabrication processes; for techniques of assembly; and for performing work in a safe and secure manner.

MEANS, METHODS and SAFETY REQUIREMENTS: The contractor is responsible for the means and methods of construction and all job related safety standards such as OSHA and DOSH (Department of Occupational Safety and Health). The contractor is responsible for means and methods of construction related to the intermediate structural conditions (i.e. movement of the structure due to moisture and thermal effects; construction sequence; temporary bracing, etc).

BRACING/SHORING DESIGN ENGINEER: The contractor shall at their discretion employ an SSE, a registered professional engineer for the design of any temporary bracing and shoring.

TEMPORARY SHORING, BRACING: The contractor is responsible for the strength and stability of the structure during construction and shall provide temporary shoring, bracing and other elements required to maintain stability until the structure is complete. It is the contractor's responsibility to be familiar with the work required in the construction documents and the requirements for executing it properly.

CONSTRUCTION LOADS: Loads on the structure during construction shall not exceed the design loads as noted in DESIGN CRITERIA & LOADS below or the capacity of partially completed construction as determined by the Contractor's SSE for Bracing/Shoring.

CHANGES IN LOADING: The contractor has the responsibility to notify the SER of any architectural, mechanical, electrical, or plumbing load imposed onto the structure that differs from, or that is not documented on the original Contract Documents (architectural / structural / mechanical / electrical or plumbing drawings). Provide documentation of location, load, size and anchorage of all undocumented loads in excess of **400** pounds. Provide marked-up structural plan indicating locations of any new equipment or loads. Submit plans to the Architect/Engineer for review prior to installation.

NOTE PRIORITIES: Plan and detail notes and specific loading data provided on individual plans and detail drawings supplements information in the Structural General Notes.

DISCREPANCIES: In case of discrepancies between the General Notes, Specifications, Plans/Details or Reference Standards, the Architect/Engineer shall determine which shall govern. Discrepancies shall be brought to the attention of the Architect/Engineer before proceeding with the work. Should any discrepancy be found in the Contract Documents, the Contractor will be deemed to have included in the price the most expensive way of completing the work, unless prior to the submission of the price, the Contractor asks for a decision from the Architect as to which shall govern. Accordingly, any conflict in or between the Contract Documents shall not be a basis for adjustment in the Contract Price.

SITE VERIFICATION: The contractor shall verify all dimensions and conditions at the site. Conflicts between the drawings and actual site conditions shall be brought to the attention of the Architect/Engineer before proceeding with the work.

ADJACENT UTILITIES: The contractor shall determine the location of all adjacent underground utilities prior to earthwork, foundations, shoring, and excavation. Any utility information shown on the drawings and details is approximate and not necessarily complete.

ALTERNATES: Alternate products of similar strength, nature and form for specified items may be submitted with adequate technical documentation (proper test report, etc.) to the Architect/Engineer for review. Alternate materials that are submitted without adequate technical documentation or that significantly deviate from the design intent of materials specified may be returned without review. Alternates that require substantial effort to review will not be reviewed unless authorized by the Owner.

DESIGN CRITERIA AND LOADS

OCCUPANCY:	Risk Category of Building per 2018 IBC Table 1604.5 =	II

WIND DESIGN:	**MAIN WIND FORCE RESISTING SYSTEM**		
	Ultimate Design Wind Speed, V_{ULT} (MPH)		104
	Exposure Category		C
	Internal Pressure Coefficient	Cpi =	+/- 0.18
	Topographic Factor	Kzt =	1.0
	Wind Analysis procedure used:		Envelope

SEISMIC DESIGN:	Seismic Design Category:	SDC =	C
	Basic Structural System		Building Frame
	Seismic Force Resisting System		Steel Systems Not Specifically detailed for Seismic Resistance
	Response Modification Factor:	R =	3
	System Over Strength Factor	Omega =	3
	Deflection Amplification Factor	Cd =	3
	Site Classification per IBC 1613.3.2 & ASCE 7-16, Ch. 20 Site Class =		C
	Seismic Importance Factor per ASCE 7-16 Table 1.5-2	Ie =	1.0
	Spectral Response Acceleration (Short Period)	S_s =	0.334 g
	Spectral Response Acceleration (1-Second Period)	S_1 =	0.112 g
	Seismic response coefficient(s)	Cs =	0.18
	Redundancy Factor (North/South Direction)	N/S rho=	1.0
	Redundancy Factor (East / West Direction)	E/W rho=	1.0
	Base shear governed by:		wind
	Seismic Analysis procedure used:		Equivalent Lateral Force (ELF)

SNOW LOAD: (1)	Flat Roof Snow Load, (PSF)	p_f =	41 (2)
	Snow Drift Loading required by Authority Having Jurisdiction?		Yes
	Snow Load Importance Factor	I_s =	1.0
	Ground Snow Load, (PSF)	p_g =	56
	Snow Exposure Factor	C_e =	C
	Thermal Factor	C_t =	1.0

(1) Snow Load is based on City of Sandpoint ID, Design Criteria.
(2) Snow Load Importance Factor per ASCE 7-16 Table 1.5-2.

SUBMITTALS

SUBMIT FOR REVIEW: SUBMITTALS of shop drawings, and product data are required for items noted in the individual materials sections and for *bidder designed* elements.

SUBMITTAL REVIEW PERIOD: Submittals shall be made in time to provide a minimum of TWO WEEKS or 10 WORKING DAYS for review by the Architect/Engineer prior to the onset of fabrication.

GENERAL CONTRACTOR'S PRIOR REVIEW: Prior to submission to the Architect/Engineer, the Contractor shall review the submittal for completeness. Dimensions and quantities are not reviewed by the SER, and therefore, must be verified by the General Contractor. Contractor shall provide any necessary dimensional details requested by the Detailer and provide the Contractor's review stamp and signature before forwarding to the Architect/Engineer.

SHOP DRAWING REVIEW: Once the contractor has completed their review, the SER will review the submittal for general conformance with the design concept and the contract documents of the building and will stamp the submittal accordingly. Markings or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The SER will return submittals in the form they are submitted in (either hard copy or electronic). If one hard copy submittals, the contractor is responsible for submitting the required number of copies to the SER for review.
SHOP DRAWING DEVIATIONS: When shop drawings (component design drawings) differ from or add to the requirements of the structural drawings they shall be designed and stamped by the responsible SSE.

DEFERRED SUBMITTALS

BIDDER-DESIGNED ELEMENTS
Submit "Bidder-Designed" deferred submittals to the Architect and SER for review. The deferred submittals shall also be submitted to the city for approval, if required by the city.
Design of prefabricated, "bidder designed", manufactured, pre-engineered, or other fabricated products shall comply with the following requirements:
(1) Design considers tributary dead, live, wind and earthquake loads in combinations required by IBC
(2) Design within the Deflection Limits noted herein and as specified or referenced in the IBC.
(3) Design shall conform to the specifications and reference standards of the governing code.
(4) Submittal shall include:
a. Calculations prepared, stamped, and signed by the SSE demonstrating code conformance.
b. Engineered component design drawings are prepared, stamped, and signed by the SSE.
c. Product data, technical information and manufacturer's written requirements and Agency approvals as applicable.
d. SSE may submit to the Architect/Engineer a request to utilize relevant alternate design criteria of similar nature and generally equivalency which is recognized by the Code and acceptable to the Authority Having Jurisdiction. Submit adequate documentation of design.

DEFLECTION	VERTICAL	LIMIT
LIMITS FOR SSE / BIDDER	Roof Members, Dead + Live or Snow or Wind. Total Load (TL) Deflection	L / 240, where (L is span length,inches)
DESIGNED	Roof, Live or Snow or Wind Load (RLL)	L / 360

GENERAL CONTRACTOR'S PRIOR REVIEW: Once the contractor has completed their review of the SSE component drawings, the SER will review the submittal for general conformance with the design of the building and will stamp the submittal accordingly. Review of the Specialty Structural Engineer's (SSE) shop drawings (component design drawings) is for compliance with design criteria and compatibility with the design of the primary structure and does not relieve the SSE of responsibility for that design. All necessary bracing, ties, anchorage, proprietary products shall be furnished and installed per manufacturer's instructions or the SSE's design drawings and calculations. These elements include but are not limited to:
(1) Pre-Engineered Steel Structures (Metal Building)
(2) Mechanical, Electrical, Plumbing & Sprinkler Hanger Plans

INSPECTIONS, QUALITY ASSURANCE VERIFICATIONS AND TEST REQUIREMENTS

INSPECTIONS: Foundations, footings, under slab systems and framing are subject to inspection by the Building Official in accordance with IBC 110.3. Contractor shall coordinate all required inspections with the Building Official.

SPECIAL INSPECTIONS, VERIFICATIONS and TESTS: Special Inspections, Verifications and Testing shall be done in accordance with IBC Chapter 17, the STATEMENT AND SCHEDULES OF SPECIAL INSPECTIONS listed in these drawings, and the AHJ STATEMENT OF SPECIAL INSPECTION and/or STATEMENT OF STRUCTURAL OBSERVATIONS.

STRUCTURAL OBSERVATION: per IBC Section 1704.6

Structural Observation is the visual observation of the structural system by a registered design professional for general conformance to the approved construction documents. It is not always required on a project, does not include or waive the responsibility for the special inspections and tests required by a Special Inspector per IBC Chapter 17, is not continuous, and does not certify conformance with the approved construction documents.

Structural Observation for this project is not required per IBC Section 1704.6.

CONTRACTOR RESPONSIBILITY: Prior to issuance of the building permit, the Contractor is required to provide the Authority Having Jurisdiction a signed, written acknowledgement of the Contractor's responsibilities associated with the above Statement of Special Inspections addressing the requirements listed in IBC Section 1704.4. Contractor is referred to IBC Sections 1705.12.5 and 1705.12.6 for architectural and MEP building systems that may be subject to additional inspections (based on the building's designated Seismic Design Category listed in the CRITERIA), including anchorage of HVAC ductwork containing hazardous materials, piping systems and mechanical units containing flammable, combustible or highly toxic materials, electrical equipment used for emergency or standby power; exterior wall panels and suspended ceiling systems.

SOILS AND FOUNDATION

REFERENCE STANDARDS: Conform to IBC Chapter 18 "Soils and Foundations."

GEOTECHNICAL REPORT: Recommendations contained in Geotechnical Evaluation Travers Park Improvements, Project Number 122-144G by ALLWEST dated September 8, 2022, were used for design.

CONTRACTOR'S RESPONSIBILITIES: Contractor shall be responsible to review the Geotechnical Report and shall follow the recommendations specified therein including, but not limited to, subgrade preparations, pile installation procedures, ground water management and steep slope Best Management Practices."

GEOTECHNICAL SUBGRADE INSPECTION: The Geotechnical Engineer shall inspect all sub-grades and prepared soil bearing surfaces, prior to placement of foundation reinforcing steel and concrete. Geotechnical Engineers shall provide a letter to the owner stating that soils are adequate to support the "Allowable Foundation Bearing Pressure(s)" shown below.

DESIGN SOIL VALUES:

Allowable Foundation Bearing Pressure	2500	PSF
Passive Lateral Pressure	350	PSF/FT
Active Lateral Pressure (unrestrained)	55	PSF/FT
Coefficient of Sliding Friction	0.35	

FOUNDATIONS and FOOTINGS: Foundations shall bear on compacted structural fill as per the geotechnical report. Exterior perimeter footings shall bear not less than 36 inches below finish grade, unless otherwise specified by the geotechnical engineer and/or the building official.

FOOTING DEPTH: Tops of footings shall be as shown on plans with vertical changes as indicated with steps in the footings; locations of steps shown as approximate and shall be coordinated with the civil grading plans.

SLABS-ON-GRADE: All slabs-on-grade shall bear on compacted structural fill per the geotechnical report. All moisture sensitive slabs-on-grade or those subject to receive moisture sensitive coatings/covering shall be provided with an appropriate capillary break and vapor barrier/retardant over the subgrade prepared and installed as noted in the geotechnical report, barrier manufacturer's written recommendations and coordinated with the finishes specified by the Architect.

CAST-IN-PLACE CONCRETE

REFERENCE STANDARDS: Conform to:
(1) ACI 301-16 "Specifications for Structural Concrete"
(2) IBC Chapter 19 "Concrete"
(3) ACI 318-14 "Building Code Requirements for Structural Concrete"
(4) ACI 117-10 "Specifications for Tolerances for Concrete Construction and Materials"

FIELD REFERENCE: The contractor shall keep a copy of ACI Field Reference manual. SP-15, "Standard Specifications for Structural Concrete (ACI 301) with Selected ACI and ASTM References."

CONCRETE MIXTURES: Conform to ACI 301 Section 4 "Concrete Mixtures" and IBC Section 1904.1.

MATERIALS: Conform to ACI 301 Section 4.2.1 "Materials" for requirements for cementitious materials, aggregates, mixing water and admixtures.

SUBMITTALS: Provide all submittals required by ACI 301 Section 4.1.2. Submit mix designs for each mix in the table below. Substantiating strength results from past tests shall not be older than 24 months per ACI 318 Section 26.4.3.1 (b).

TABLE OF MIX DESIGN REQUIREMENTS

Member Type/Location	Strength f'c (psi)	Test Age (days)	Nominal Maximum Aggregate	Exposure Class	Max W/C Ratio	Air Content	Notes (1 to 8 Typical UNO)
Footings	4000	28	1"	-	–	–	-
Exterior Slabs on Grade & Sidewalks	4500	28	1"	F3	0.45	6%	-
Interior Slabs on Grade	3000	28	1"	-	–	-	-
Stem Walls & Curbs (Not Exposed)	3500	28	1"	F1	0.45	4 ½%	-

Table of Mix Design Requirements Notes:

(1) W/C Ratio: Water–cementitious material ratios shall be based on the total weight of cementitious materials. Maximum ratios are controlled by strength noted in the Table of Mix Design Requirements and durability requirements given in ACI 318 Section 19.3.

(2) Cementitious Materials:
a. DCI encourages the reduction of cement content and/or the use of blended hydraulic cements. Where requirements of this section prohibit inclusion of any of these mixes, contact DCI for further coordination.
b. The use of fly ash, other pozzolans, silica fume, or slag shall conform to ACI 318 Sections 19.3.2 and 26.4.2.2. For mixes in exposure class F3, as noted in the table above, maximum amount of fly ash shall be 25% of total cementitious content and maximum amount of slag shall be 50%.
c. For concrete used in elevated floors, minimum cementitious-materials content shall conform to ACI 301 Table 4.1.2.9. Acceptance of lower cement content is contingent on providing supporting data to the SER for review and acceptance.
d. Cementitious materials shall conform to the relevant ASTM standards listed in ACI 318 Section 26.4.1.1.1(a).

(3) Air Content: Conform to ACI 318 Section 19.3.3.1. Minimum standards for exposure class are noted in the table. If freezing and thawing class is not noted, air content given is that required by the SER. Tolerance is ±1-½%. Air content shall be measured at point of placement.

(4) Aggregates shall conform to ASTM C33.

(5) Slump: Conform to ACI 301 Section 4.2.2.2. Slump shall be determined at point of placement.

(6) Chloride Content: Conform to ACI 318 Table 19.3.2.1.

(7) Non- chloride accelerator: Non-chloride accelerating admixture may be used in concrete placed at ambient temperatures below 50°F at the contractor's option.

(8) ACI 318, Section 19.3.1.1 exposure classes shall be assumed to be F0, S0, W0, and C0 unless different exposure classes are listed in the Table of Mix Design Requirements that modify these base requirements.

FORMWORK & RESHORING: Conform to ACI 301 Section 2 "Formwork and Form Accessories." Removal of Forms shall conform to Section 2.3.2 except strength indicated in Section 2.3.2.5 shall be 0.75 f'c.

MEASURING, MIXING, AND DELIVERY: Conform to ACI 301 Section 4.3.

HANDLING, PLACING, CONSTRUCTING AND CURING: Conform to ACI 301 Section 5. In addition, hot weather concreting shall conform to ACI 305R-10 and cold weather concreting shall conform to ACI 306R-10.

CONSTRUCTION JOINTS: Conform to ACI 301 Sections. 2.2.2.5 and 5.3.2.6. Construction joints shall be located and detailed as on the construction drawings. Submit alternate locations per ACI 301 Section 5.1.2.4(a) for review and approval by the SER two weeks minimum prior to forming. Use of an acceptable adhesive, surface retardant, portland cement grout or roughening the surface is not required unless specifically noted on the drawings.

EMBEDDED ITEMS: Position and secure in place expansion joint material, anchors and other structural and non-structural embedded items before placing concrete. Contractor shall refer to mechanical, electrical, plumbing and architectural drawings and coordinate other embedded items.

GROUT: Use 7000 psi non-shrink grout under column base plates.

GROUTED REBAR: See Post-Installed Anchors to Concrete.

POST-INSTALLED ANCHORS to CONCRETE: Anchor location, type, diameter and embedment shall be as indicated on drawings. Reference the POST INSTALLED ANCHORS section for applicable Post-Installed Anchor Adhesives. Anchors shall be installed and inspected in strict accordance with the applicable ICC-Evaluation Service Report (ESR). Special inspection shall be per the TESTS and INSPECTIONS section.

STRENGTH TESTING AND ACCEPTANCE:

Testing: Obtain samples and conduct tests in accordance with ACI 301 Section 1.6.3.2. Additional samples may be required to obtain concrete strengths at alternate intervals than shown below.

(1) Cure 4 cylinders for 28-day test age. Test 1 cylinder at 7 days, test 2 cylinders at 28 days, and hold 1 cylinder in reserve for use as the Engineer directs. After 56 days, unless notified by the Engineer to the contrary, the reserve cylinder may be discarded without being tested for specimens meeting 28-day strength requirements.

(2) The number of cylinders indicated above reference 6 by 12 in cylinders. If 4 by 8 in cylinders are to be used, additional cylinders must be cured for testing of 3 cylinders at test age per the table of mix design requirements.

Acceptance: Strength is satisfactory when:

(1) The averages of all sets of 3 consecutive tests equal or exceed the specified strength.

(2) No individual test falls below the specified strength by more than 500 psi.

A "test" for acceptance is the average strength of two 6 by 12 in. cylinders or three 4 by 8 in. cylinders tested at the specified test age.

CONCRETE PLACEMENT TOLERANCE: Conform to ACI 117-10 for concrete placement tolerance.

CONCRETE REINFORCEMENT

REFERENCE STANDARDS: Conform to:
(1) ACI 301-16 "Standard Specifications for Structural Concrete", Section 3 "Reinforcement and Reinforcement Supports."
(2) ACI SP-66(04) "ACI Detailing Manual"
(3) CRSI MSP-09, 28th Edition, "Manual of Standard Practice."
(4) ANSI/AWS D1.4: 2005, "Structural Welding Code - Reinforcing Steel."
(5) IBC Chapter 19-Concrete.
(6) ACI 318-14 "Building Code Requirements for Structural Concrete."
(7) ACI 117-10 "Specifications for Tolerances for Concrete Construction and Materials"

SUBMITTALS: Conform to ACI 301 Section 3.1.2 "Submittals." Submit placing drawings showing fabrication dimensions and placement locations of reinforcement and reinforcement supports.

MATERIALS:

Reinforcing Bars	ASTM A615, Grade 60, deformed bars. ASTM A706, Grade 60, deformed bars.
Bar Supports	CRSI MSP-09, Chapter 3 "Bar Supports."
Tie Wire	16 gage or heavier, black annealed.
Headed Deformed Bars	ASTM A970

FABRICATION: Conform to ACI 301, Section 3.2.2. "Fabrication", and ACI SP-66 "ACI Detailing Manual."

WELDING: Bars shall not be welded unless authorized. When authorized, conform to ACI 301, Section 3.2.2.2. "Welding", AWS D1.4, and provide ASTM A706, grade 60 reinforcement.

PLACING: Conform to ACI 301, Section 3.3.2 "Placing." Placing tolerances shall conform to ACI 117.

CONCRETE COVER: Conform to the following cover requirements unless noted otherwise in the drawings.

Concrete cast against earth	3"
Concrete exposed to earth or weather	2"
Ties in columns and beams	1-½"
Bars in slabs	¾"
Bars in walls	¾"

SPLICES: Conform to ACI 301, Section 3.3.2.7, "Splices". Refer to "Typical Lap Splice and Development Length Schedule" for typical reinforcement splices. Splices indicated on individual sheets shall control over the schedule. Mechanical connections may be used when approved by the SER.

FIELD BENDING: Conform to ACI 301 Section 3.3.2.8. "Field Bending or Straightening." Bar sizes #3 through #5 may be field bent cold the first time. Subsequent bends and other bar sizes require preheating. Do not twist bars. Bars shall not be bent past 45 degrees.

TYPICAL CONCRETE REINFORCEMENT: Unless noted on the plans, concrete walls shall have the following minimum reinforcement. Contractor shall confirm minimum reinforcement of walls with SER prior to rebar fabrication.

TABLE of MINIMUM CONCRETE WALL REINFORCING

WALL THICKNESS	HORIZONTAL BARS	VERTICAL BARS	LOCATION
6"	#4 @ 12" OC	#4 @ 12" OC	center in wall
8"	#5 @ 12" OC	#5 @ 12" OC	center in wall
10"	#4 @ 16" OC EF	#4 @ 16" OC EF	EF = each face
12"	#4 @ 12" OC EF	#4 @ 12" OC EF	EF = each face

DRAWING LEGEND

MARK	DESCRIPTION	MARK	DESCRIPTION
F2.0	FOOTING SYMBOL (REFER TO SPREAD FOOTING SCHEDULE)		INDICATES WIDE FLANGE COLUMN
P1	PILE CAP SYMBOL (REFER TO PILE CAP SCHEDULE)		INDICATES HOLLOW STRUCTURAL SECTION (HSS) COLUMN OR TUBE STEEL (TS) COLUMN
1	TILT-UP/PRECAST CONCRETE WALL CONNECTION SYMBOL (REFER TO CONNECTION DETAIL)		INDICATES HOLLOW STRUCTURAL SECTION (HSS) COLUMN OR STEEL PIPE COLUMN
2W4	SHEAR WALL SYMBOL (REFER TO SHEAR WALL SCHEDULE)		INDICATES WOOD POST
1 REVISION 00	REVISION TRIANGLE		INDICATES BUNDLED STUDS
1	TILT-UP/PRECAST CONCRETE WALL PANEL NUMBER (REFER TO TILT-UP/ PRECAST CONCRETE WALL ELEVATIONS)		INDICATES CONCRETE COLUMN
1	CMU WALL REINFORCING SYMBOL (REFER TO CMU WALL REINFORCING SCHEDULE)		INDICATES PRECAST CONCRETE COLUMN
8"	CONTINUITY PLATE LENGTH (REFER TO TYPICAL DETAIL)		INDICATES MOMENT FRAME CONNECTION
DS	INDICATES DOUBLE SHEAR CONNECTION (REFER TO THE DOUBLE SHEAR PLATE CONNECTIONS DETAIL)		INDICATES CANTILEVER CONNECTION
00TB	INDICATES REINFORCING TYPE (REFER TO THE REINFORCING SCHEDULE)		INDICATES DRAG CONNECTION
SR__	INDICATES NUMBER OF STUD RAIL REQUIRED AT COLUMN (REFER TO STUD RAIL DETAILS)		INDICATES A LEDGER
1	ROOF/FLOOR DIAPHRAGM NAILING SYMBOL (REFER TO DIAPHRAGM NAILING SCHEDULE)		INDICATES WOOD OR STEEL STUD BEARING WALL LINE PER KEY ON SHEET
C1 COLUMN SIZE	STEEL/CONCRETE COLUMN SYMBOL (REFER TO STEEL COLUMN SCHEDULE)	OR	INDICATES WOOD OR STEEL STUD SHEAR WALL LINE AND HOLD-DOWNS PER KEY ON SHEET
T/FTG = X'-X"	ELEVATION SYMBOL (T/ REFERS TO COMPONENT THAT THE ELEVATION REFERENCES)		INDICATES MASONRY/CMU WALL
3	STUD BUBBLE (INDICATES NUMBER OF STUDS REQUIRED IF EXCEEDS NUMBER SPECIFIED IN PLAN NOTE)		INDICATES CONCRETE/TILT-UP CONCRETE WALL
	INDICATES STEP IN FOOTING (REFER TO TYPICAL STEP IN FOOTING DETAIL)		INDICATES BEARING WALL BELOW
X SX.X	DETAILS OR SECTION CUT (DETAIL NUMBER/SHEET NUMBER)		INDICATES EXISTING WALL
00 S0.0	DETAILS OR SECTION CUT IN PLAN VIEW (DETAIL NUMBER/SHEET NUMBER)		POST-TENSION DEAD END (PLAN)
XX/SXX.XX	INDICATES LOCATION OF CONCRETE WALLS, SHEAR WALLS OR BRACED FRAME ELEVATIONS		POST-TENSION STRESSING END (PLAN)
	STRUCTURAL EXTENT SYMBOL SINGLE ARROW - END OF EXTENT DOUBLE ARROW - CONTINUOUS EXTENT ALONG THE ELEMENT LINE UNTIL THE ELEMENT IS INTERRUPTED	3	POST-TENSION PROFILE (PLAN) (IN INCHES)
			INTERMEDIATE STRESSING (PLAN)
	INDICATES DIRECTION OF DECK SPAN		

ABBREVIATIONS

L	Angle	FB	Factory-Built	PJP	Partial Joint Penetration
AB	Anchor Bolt	FD	Floor Drain	PREFAB	Prefabricated
ADDL	Additional	FDN	Foundation	PSF	Pounds per Square Foot
ADH	Adhesive	FIN	Finish	PSI	Pounds Per Square Inch
ALT	Alternate	FLR	Floor	PSL	Parallel Strand Lumber
ARCH	Architectural	FRP	Fiberglass Reinforced Plastic	P-T	Post-Tensioned
B or BOT	Bottom	FRT	Fire Retardant Treated	PT	Pressure Treated
B/	Bottom Of	FTG	Footing	R	Radius
BLDG	Building	F/	Face of	RD	Roof Drain
BLKG	Blocking	GA	Gage	REF	Refer/Reference
BMU	Brick Masonry Unit	GALV	Galvanized	REINF	Reinforcing
BP	Baseplate	GEOTECH	Geotechnical	REQD	Required
BRBF	Buckling Restrained Braced Frame	GL	Glue Laminated Timber	RET	Retaining
		GWB	Gypsum Wall Board	SB	Site-Built
BRG	Bearing	HDR	Header	SCBF	Special Concentric Braced Frame
BTWN	Between	HF	Hem-Fir		
C	Camber	HGR	Hanger	SCHED	Schedule
CB	Castellated Beam	HD	Hold-down	SER	Structural Engineer of Record
C'BORE	Counterbore	HORIZ	Horizontal		
CL or ℄	Centerline	HP	High Point	SFRS	Seismic Force-Resisting System
CLT	Cross-Laminated Timber	HSS = TS	(Hollow Structural Section)		
CIP	Cast in Place	IBC	International Building Code	SHTHG	Sheathing
CJ	Construction or Control Joint	ID	Inside Diameter	SIM	Similar
		IE	Invert Elevation	SLBB	Short Leg Back-to-Back
CJP	Complete Joint Penetration	IF	Inside Face	SMF	Special Moment Frame
		INT	Interior	SOG	Slab on Grade
CLR	Clear	k	Kips	SP	Southern Pine
CLG	Ceiling	KSF	Kips Per Square Foot	SPEC	Specification
CMU	Concrete Masonry Unit	LF	Lineal Foot	SQ	Square
COL	Column	LL	Live Load	SR	Studrail
CONC	Concrete	LLBB	Long Leg Back-to-Back	SF	Square Foot
CONN	Connection	LLH	Long Leg Horizontal	SST	Stainless Steel
CONST	Construction	LLV	Long Leg Vertical	STAGG	Stagger/Staggered
CONT	Continuous	LP	Low Point	STD	Standard
C'SINK	Countersink	LONGIT	Longitudinal	STIFF	Stiffener
CTRD	Centered	LSL	Laminated Strand Lumber	STL	Steel
DIA	Diameter	LVL	Laminated Veneer Lumber	STRUCT	Structural
DB	Drop Beam	MAS	Masonry	SWWJ	Solid Web Wood Joist
DBA	Deformed Bar Anchor	MAX	Maximum	SYM	Symmetrical
DBL	Double	MECH	Mechanical	T	Top
DEMO	Demolish	MEP	Mechanical, Electrical, Plumbing	T/	Top Of
DEV	Development			T&B	Top & Bottom
DF	Douglas Fir	MEZZ	Mezzanine	TC AX LD	Top Chord Axial Load
DIAG	Diagonal	MFR	Manufacturer	TCX	Top Chord Extension
DIST	Distributed	MIN	Minimum	TDS	Tie Down System
DL	Dead Load	MISC	Miscellaneous	T&G	Tongue & Groove
DN	Down	NIC	Not In Contract	THKND	Thickened
DO	Ditto	NLT	Nail-Laminated Timber	THRD	Threaded
DP	Depth/Deep	NTS	Not To Scale	THRU	Through
DWG	Drawing	OC	On Center	TRANSV	Transverse
(E)	Existing	OCBF	Ordinary Concentric Braced Frame	TYP	Typical
EA	Each			UNO	Unless Noted Otherwise
EF	Each Face	OD	Outside Diameter	URM	Unreinforced Masonry Unit
EL	Elevation	OF	Outside Face		
ELEC	Electrical	OPNG	Opening	VERT	Vertical
ELEV	Elevator	OPP	Opposite	W	Wide
EMBED	Embedment	OWSJ	Open Web Steel Joist	W/	With
EQ	Equal	OWWJ	Open Web Wood Joist	W/O	Without
EQUIP	Equipment	PL	Plate	WHS	Welded Headed Stud
EW	Each Way	PAF	Powder Actuated Fastener	WP	Working Point
EXP	Expansion	PC	Precast	WWF	Welded Wire Fabric
EXP JT	Expansion Joint	PERP	Perpendicular	±	Plus or Minus
EXT	Exterior	PLWD	Plywood		

FOR PERMIT
These drawings are sufficiently complete for submission to the jurisdiction having authority for permit. The Contractor shall not use these drawings for construction until Contractor receives written approval for use in construction by the jurisdiction having authority and DCI Engineers.

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PROFESSIONAL ENGINEER LICENSED 13697 STATE OF IDAHO JUSTIN B. COOK

SANDPOINT
CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE 1

REV	DATE	DESCRIPTION
2	07-24-2023	PERMIT SET
3	08-25-2023	BID PACKAGE 1

PROJ. NO.	22041-0451
DRAWN	JLP
CHECKER	MST
PROJ MNGR	KEA
DATE	05/25/2023

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GENERAL NOTES

S-001

POST-INSTALLED ANCHORS (INTO CONCRETE AND MASONRY)

REFERENCE STANDARDS: Conform to:
(1) IBC Chapter 19 "Concrete"
(2) ACI 318-19 "Building Code Requirements for Structural Concrete"
(3) IBC Chapter 21 "Masonry"
(4) TMS 402-16 "Building Code Requirements for Masonry Structures"

POST-INSTALLED ANCHORS: Install only where specifically shown in the details or allowed by SER. All post-Installed anchors types and locations shall be approved by the SER and shall have a current ICC-Evaluation Service Report that provides relevant design values necessary to validate the available strength exceeds the required strength. Submit current manufacturer's data and ICC ESR report to SER for approval regardless of whether or not it is a pre-approved anchor. Anchors shall be installed in strict accordance to ICC-ESR and the manufacturer's printed installation instructions (MPII) in conjunction with edge distance, spacing and embedment depth as indicated on the drawings. The contractor shall arrange for a manufacturer's field representative to provide installation training for all products to be used, prior to the commencement of work. Only trained installer shall perform post installed anchor installation. A record of training shall be kept on site and be made available to the SER as requested. Adhesive anchors installed in horizontally or upwardly inclined orientation shall be performed by a certified adhesive anchor installer (AAI) as certified through ACI/CRSI or approved equivalent. Proof of current certification shall be submitted to the engineer for approval prior to commencement of installation. No reinforcing bars shall be damaged during installation of post-installed anchors. Special inspection shall be per the TESTS and INSPECTIONS section. Anchor type, diameter and embedment shall be as indicated on drawings.

(1) ADHESIVE ANCHORS: The following Adhesive-type anchoring systems have been used in the design and shall be used for anchorage to CONCRETE as applicable and in accordance with corresponding current ICC ESR report. Reference the corresponding ICC ESR report for required minimum age of concrete, concrete temperature range, moisture condition, light weight concrete, and hole drilling and preparation requirements. Drilled-in anchor embedment lengths shall be as shown on drawings, or not less than 7 times the anchor nominal diameter (7D). Adhesive anchors are to be installed in concrete aged a minimum of 21 days. unless otherwise specified in the ICC ESR report.

a. SIMPSON "SET-3G" – ICC ESR 4057 for anchorage to CONCRETE only

STRUCTURAL STEEL

REFERENCE STANDARDS:
Conform to:
(1) IBC Chapter 22 – "Steel"
(2) ANSI/AISC 303-16 – "Code of Standard Practice for Steel Buildings & Bridges"
(3) AISC – "Manual of Steel Construction", Fifteenth Edition (2016)
(4) ANSI/AISC 360-16 – "Specification for Structural Steel Buildings"
(5) AWS D1.1:2015 – "Structural Welding Code – Steel"
(6) 2014 RCSC – "Specification for Structural Joints using High-Strength Bolts"

SUBMITTALS: Submit the following documents to the SER for review:
(1) SHOP DRAWINGS complying with AISC 360 Sections M1and N3 and AISC 303 Section 4.
(2) ERECTION DRAWINGS complying AISC 360 Sections M1and N3 and AISC 303 Section 4.

Make copies of the following documents "Available upon Request" to the SER or Owner's Inspection Agency in electronic or printed form prior to fabrication per AISC 360 Section N3.2 requirements:

(1) Fabricator's written Quality Control Manual that includes, as a minimum:
   a. Material Control Procedures
   b. Inspection Procedures
   c. Non-conformance Procedures
(2) Steel & Anchor Rod suppliers' Material Test Reports (MTR's) indicating the compliance with specifications.
(3) Fastener manufacturer's Certification documenting conformance with the specification.
(4) Filler metal manufacturer's product data for SMAW, FCAW and GMAW indicating:
   a. Product specification compliance
   b. Recommended welding parameters
   c. Recommended storage and exposure requirements including baking
   d. Limitations of use
(5) Welded Headed (Shear) Stud Anchors Manufacturer's certification indicating the meet specifications.
(6) Weld Procedure Specifications (WPS's) for shop and field welding.
(7) Manufacturer's Certificates of Conformance for electrodes, fluxes and gases (welding consumables).
(8) Procedure Qualification Records (PQR's) for WPS's that are not prequalified in accordance with AWS.
(9) Welding personnel Performance Qualification Records (WPQR) and continuity records conforming to AWS standards.

MATERIALS:
Structural steel materials shall conform to materials and requirements listed in AISC 360 section A3 including, but not limited to:

Structural Plate (PL)	ASTM A36, Fy = 36 ksi
Hollow Structural Section – Square/Rect (HSS)	ASTM A500, Grade C, Fy = 50 ksi
High Strength, Heavy Hex Structural Bolts	ASTM F3125 Gr. A325/F1852, Type 1 or 3, Plain
Heavy Hex Nuts	ASTM A563, Grade and Finish per RCSC Table 2.1
Washers (Hardened Flat or Beveled)	ASTM F436, Grade and Finish per RCSC Table 2.1
Anchor Rods (Anchor Bolts, typical)	ASTM F1554 Gr. 36
Mild Threaded Rods	ASTM A36, Fy = 36 ksi
Welded Headed (shear) Stud Anchors	ASTM A108 – Nelson/TRW S3L
Welded Headed Stud (WHS) Anchors	ASTM A108 – Nelson/TRW H4L
Deformed Bar Anchors (DBA)	ASTM A496 – Nelson/TRW D2L, Fy = 70 ksi

STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS:
(1) ASTM F3125 Gr. A325-N bolts – "threads NOT excluded in the shear plane".
(2) High-strength bolted joints have been designed as "BEARING" connections.
(3) Provide ASTM Bolt Grade and Type as specified in the Materials section above.
(4) Provide Washers over outer ply of slotted holes and oversize holes per RCSC Table 6.1.
(5) Provide Nut and Washer grades, types and finishes conforming to RCSC specification Table 2.1.
(6) Provide *fastener assemblies* from a single supplier.
(7) Joint Types shall be:
   a. ST – "Snug Tight", for typical beam end "shear" connections, unless noted otherwise.
   b. SC - "Slip Critical", where specifically indicated. Provide with Class A Faying surface.
(8) Install bolts in joints in accordance with the RCSC Specification Section 8 and Table 4.1.
(9) Inspection is per RCSC Section 9.

ANCHORAGE to CONCRETE:

(1) SHEAR STUDS on STEEL BEAMS for COMPOSITE CONSTRUCTION: Headed Shear Studs welded to tops of Wide Flange Beams, shall be 3/4" diameter WHS with nominal stud lengths as indicated. Unless noted otherwise, provide minimum shear stud height equal to the (metal deck depth + 1 ½") and a maximum shear stud height that allows for ½" of concrete cover over the stud.

(2) EMBEDDED STEEL PLATES for Anchorage to Concrete: Plates (PL) embedded in concrete with studs (WHS) or dowel bar anchors (DBA) shall be of the sizes and lengths as indicated on the plans with minimum 1/2" dia. WHS x 6" long but provide not less than ¾" interior cover or 1 ½" exterior cover to the opposite face of concrete, unless noted otherwise

(3) COLUMN ANCHOR RODS and BASE PLATES: All columns (vertical member assemblies weighing over 300 pounds) shall be provided with a **minimum of four ¾" diameter anchor rods.** Column base plates shall be at least ¾" thick, unless noted otherwise. Cast-in-place anchor rods shall be provided unless otherwise approved by the Engineer. Unless noted otherwise, embedment of cast-in-place anchor rods shall be 12 times the anchor diameter (12D).

FABRICATION:

(1) Conform to AISC 360 Section M2 "Fabrication" and AISC 303 Section 6 "Shop Fabrication".

(2) Quality Control (QC) shall conform to:
   a. AISC 360 Chapter N "Quality Control and Quality Assurance" and
   b. AISC 303 Section 8 "Quality Control"
   c. Fabricator and Erector shall establish and maintain written Quality Control (QC) procedures per AISC 360 section N3.
   d. Fabricator shall perform self-inspections per AISC 360 section N5 to ensure that their work is performed in accordance with Code of Standard Practice, the AISC Specification, Contract Documents and the Applicable Building Code.
   e. QC inspections may be coordinated with Quality Assurance inspections per Section N5.3 where fabricators QA procedures provide the necessary basis for material control, inspection, and control of the workmanship expected by the Special Inspector.

WELDING:
(1) Welding shall conform to AWS D1.1 with Prequalified Welding Processes except as modified by AISC 360 section J2. Welders shall be qualified in accordance with AWS D1 requirements.
(2) Use 70ksi strength, low-hydrogen type electrodes (E7018) or E71T as appropriate for the process selected.
(3) Welding of high strength anchor rods is prohibited unless approved by Engineer.
(4) Welding of headed stud anchors shall be in accordance with AWS D1.1 Chapter 7 "Stud Welding".

ERECTION:
(1) Conform to AISC 360 Section M4 "Erection" and AISC 303 Section 7 "Erection".
(2) Conform to AISC 360 Chapter N "Quality Control and Quality Assurance" and AISC 303 Section 8.
   a. The Erector shall maintain detailed erection quality control procedures that ensure that the work is performed in accordance with these requirements and the Contract Documents.
(3) Steel work shall be carried up true and plumb within the limits defined in AISC 303 Section 7.13.
(4) High strength bolting shall comply with the RCSC requirements including RCSC Section 7.2 "Required Testing", as applicable and AISC 360 Chapter J, Section M2.5 and Section N5.6.
(5) Welding of HEADED STUD ANCHORS shall be in accordance with AWS D1.1 Chapter 7 "Stud Welding".
(6) Provide Headed (Shear) Stud Anchors welded through the metal deck to tops of beams denoted in plans.
(7) The contractor shall provide temporary bracing and safety protection required by AISC 360 Section M4.2 and AISC 303 Section 7.10 and 7.11.

PROTECTIVE COATING REQUIREMENTS:

(1) SHOP PAINTING: Conform to AISC 360 Section M3 and AISC 303 Section 6.5 unless otherwise specified by the project specifications.

(2) INTERIOR STEEL:
   a. Unless noted otherwise, ***do not paint*** any of the steel surfaces meeting the following conditions:
      i. Concealed by the interior building finishes,
      ii. Fireproofed,
      iii. Embedded in concrete,
      iv. Specially prepared as a "faying surface" for Type-SC "slip-critical" connections including bolted connections that form a part of the Seismic Force Resisting System governed by AISC 341 unless the coating conforms to requirements of the RCSC Bolt Specification and is approved by the Engineer.
      v. Welded; if area requires painting, do not paint until after weld inspections and non-destructive testing requirement, if any, are satisfied.
   b. Interior steel, exposed to view, shall be painted with one coat of shop primer unless otherwise indicated in the project specifications. Field touch-ups to match the finish coat or as otherwise indicated in the project specifications.

(3) EXTERIOR STEEL: Exposed exterior steel shall be protected by either:
   a. Paint with an exterior multi-coat system as per the project specifications. Field touch-up painting shall as per the project specifications.

COLD-FORMED STEEL FRAMING

REFERENCE STANDARDS: Conform to:
(1) AISI S100-16 "North American Specification for the Design of Cold-Formed Steel Structural Members"
(2) AISI S202-15 "Code of Standard Practice for Cold-Formed Steel Framing"
(3) AISI S220-15 "North American Standard for Cold Formed Steel Framing – Nonstructural Members"
(4) AISI S230-15 "Standard for Cold-Formed Steel Framing-Prescriptive Method for One- and Two-family Dwellings"
(5) AISI S240-15 "North American Standard for Cold-Formed Steel Structuring Framing"
(6) AISI S400-15/S1-16 "North American Standard for Seismic Design of Cold-formed Steel Structural systems, with Supplement 1, 2016"
(7) AWWC "Wall and Ceiling Standards" Sec. 9.8 "Exterior Steel Studs Wall Systems."
(8) AWS D1.3 "Structural Welding Code - Sheet Steel."

SUBMITTALS: Submit panelized wall shop drawings and floor / roof framing shop drawings for review by the SER, General Contractor and Architect. Shop drawings shall indicate member sizes, spacing, and materials; shop and field assembly details and connections; type and location of welds and other fasteners; bridging and bridging anchorage. Submit product data and proof of ICC approval for framing members and fasteners.

MATERIALS:

Structural Sections	54, 68 and 97-mil; ASTM A653, SS Grade 50 or ASTM A1003 Grade 50, Min Fy=50 KSI 33 and 43-mil; ASTM A653, SS Grade 33, or ASTM A1003 Grade 33, Min Fy=33 KSI
Sheet Metal Screws	Grabber or Buildex TEK-Self-Drilling, #10 screws unless noted otherwise on drawings; ASTM C1513 or SER approved alternate
Fasteners to Steel	Hilti X-U 0.157" Diameter Power Actuated Fasteners – ICC ESR-2269
Fasteners to Concrete	Hilti X-U 0.157" Diameter Power Actuated Fasteners with ¾" embedment– ICC ESR-2269
Weld Material	E60XX electrodes conforming to AWS D1.3
Shearwall Track to Conc.	Embeds per Shearwall Schedule
Shear wall Fasteners	As indicated on the shearwall schedule
Floor Diaphragm Fasteners	Screws as indicated on the floor plan notes
Shear Wall Sheathing	Sureboard® (as defined below)
Grout	4000 psi, shall not contain chlorides or other chemical deleterious to track

GALVANIZED MATERIAL: Studs and track shall be galvanized in accordance with ASTM A653, G60, unless in contact with pressure treated wood. If in contact with pressure treated wood, use G90 or greater coatings. Fastenings not shown on the drawings shall be as recommended by the manufacturer.

SIZE AND PROFILE: Cold-formed steel framing members shall be as specified by the Steel Stud Manufacturer's Association (SSMA) ICC Evaluation Report ESR-3064P and of the size and profile as shown on the drawings. Alternate members equivalent in shape, size, and strength by manufacturers not members of the Steel Stud Manufacturer's Association shall be subject to review and approval by the Architect / Engineer.

JOISTS: Provide C-shaped joists with stiffened flanges (S-sections in SSMA). Spans are assumed to be continuously sheathed at the top flange. A minimum 3-1/2" bearing shall be provided at each end of each joist. Add web stiffeners if bearing is less than 3-1/2", but no less than 1-1/2". All joists must be braced laterally at each end by track or blocking. Joist bridging shall be a maximum 8'-0" oc.

GYPSUM WALL BOARD "SURE BOARD" SHEAR WALLS: Sure Board panels shall not be installed until weather protection is provided unless panels are manufactured using resinous coated glass-fiber-mat faced water resistant core gypsum sheathing board intended for use under exterior wall coverings and have a current ICC report. The steel face must be in contact with the steel stud. Supports for gypsum wall board shall conform to IBC Section 2508. Sure Board wall panels shall be manufactured, identified, and installed in accordance with IAPMO Certificate ES ER-0126 and per the shear wall schedule.

CONNECTORS and FASTENERS: Connectors shall be installed per the manufacturer's instructions. All screws shall be snug with steel surface and screws shall penetrate into steel studs by a minimum of three exposed threads. Connections shall not be stripped. Screws shall be installed a minimum of 3/8" from steel edges and no less than ¾" o.c. spacing. Screws or pins in wood shear walls or horizontal diaphragms shall be driven so that the head is no more than 1/16" below the surface of the sheathing. Where connector straps connect two members, place one-half of the screws in each member.

When fastening to steel, Powder Actuated Fasteners shall be installed a minimum of 1/2" from steel edges and with no less than 1" o.c. spacing. When fastening to concrete, Powder Actuated Fasteners shall be installed a minimum of 3" from concrete edges and with no less than 4" o.c. spacing.

MEMBER CONDITION: All structural cold-formed framing members must be in good condition. Damaged members, members with cracking in the steel at the bend radius locations, and members with significant red rusting or scaling of the protective coating are unacceptable and must be replaced, unless approved by the SER. Handling and lifting of prefabricated panels shall not cause permanent distortion to any member or collateral material. Members not meeting tolerances listed below shall be replaced prior to loading.

ERECTION and TOLERANCES: Axial load bearing cold-formed steel framing shall be erected true and plumb per the requirements and within the specified tolerances listed below. For purposes of this section, camber is defined as the deviation from straightness of a member or any portion of a member with respect to its major axis, and sweep is defined as the deviation from straightness of a member or any portion of a member with respect to its minor axis.
(1) For axial load bearing studs, out of plumbness and out of straightness (camber and sweep) shall not exceed $1/1000^{th}$ of the member length.
(2) For joists, out of straightness (camber and sweep) shall not exceed $1/1000^{th}$ of the member length.
(3) For track, camber shall not exceed $1/1000^{th}$ of the member length.
(4) Erect framing in accordance with manufacturer's instruction and shop drawings.
(5) Studs shall seat into top and bottom tracks. The gap between the end of the stud and the web of the track shall not exceed 1/16" for axial load bearing studs.
(6) Joists and end stiffeners shall be located directly over axial load bearing studs. The use of track as a load distribution member is not permitted.
(7) All axially loaded members shall be aligned vertically to allow for full transfer of the loads down to the foundation.

FIELD CUTS AND NOTCHES: Field cuts and notches of any kind (including widening pre-punched holes) are NOT allowed in any structural cold-formed steel member without prior approval from SER.

PERMANENT WALL BRACING AND BRIDGING: Bridging anchorage design to be based on "All Steel Design" (mechanically braced) or "Sheathing Braced Design" per AISI S240. Reference the floor framing plan notes for type of design used on that floor.
TEMPORARY BRACING: Reference "Temporary Shoring and Bracing" section above. The contractor is responsible for the strength and stability of the structure during construction and shall provide temporary bracing and other elements required to maintain stability until the structure is complete. Temporary bracing shall be designed by a licensed Oregon State registered Structural Engineer PE, SE and submitted to the SER for approval prior to fabrication of framing.

WOOD FRAMING

REFERENCE STANDARDS: Conform to:
(1) IBC Chapter 23 "WOOD"
(2) NDS - "2018 National Design Specification (NDS) for Wood Construction"
(3) ANSI/AWC – SDPWS-15: Special Design Provisions for Wind and Seismic
(4) APA D510C-12 Plywood Design Specification
(5) ANSI/TPI 1-2014 "National Design Standard for Metal-Plate-Connected Wood Truss Construction".
(6) BCSI B1 "Guide to Good Practice for Handling, Installing, Restraining & Bracing of Trusses"
(7) TPI DSB "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses"
(8) APA Report TT-045B "Minimum Nail Penetration for Wood Structural Panel Connections Subject to Lateral Loads"
(9) APA Report TT-061 "1-5/16 Inch-Thick I-Joist Flanges and Diaphragm Nail Penetration

IDENTIFICATION: All sawn lumber and pre-manufactured wood products shall be identified by the grade mark, or a certificate of inspection issued by the certifying agency.

MATERIALS:

(1) Wood Structural Sheathing (Plywood): Wood APA-rated structural sheathing includes: all veneer plywood, oriented strand board, waferboard, particleboard, T1-11 siding, and composites of veneer and wood-based material with T&G joint. **Architect** may disallow OSB. Confirm with **Architect**. Conform to "Construction and Industrial Plywood" based on Product Standard PS 1-09 by the U.S. Dept. of Commerce, and "Performance Standard for Wood-Based Structural-Use Panels" based on Product Standard PS 2-10 by the U.S. Dept. of Commerce and "Plywood Design Specification" based on APA D510C-12 by the American Plywood Association. Unless noted otherwise, sheathing shall comply with the following table:

TABLE of SHEATHING - Use, Minimum Thickness and Minimum APA Rating

Location	Thickness	Span Rating	Plywood Grade	Exposure
Roof	15/32"	32/16	C-D	1

Unless noted otherwise on drawings, install roof and floor panels with long dimension across supports and with panel continuous over two or more spans. End joints shall occur over supports.

(1) Fasteners (nails, bolts, screws, etc) attaching timber connectors (joist hangers, post caps and bases, etc) to PT wood shall have similar corrosion resistance properties (matching protective treatments) as the protected connector. Fasteners (nails, bolts, screws, etc) attaching sawn timber members or sheathing (shear walls) to PT wood shall be corrosion resistant; nails and lag bolts shall be either HDG (ASTM A153) or stainless steel. Verify the suitability of the fastener protection/coating with the wood treatment chemical manufacturer/supplier.

Provide washers under the heads and nuts of all bolts and lag screws bearing on wood.

(2) Lag Bolts/Bolts: Conform to ASTM A307 and IBC Section 2304.10.

(3) Nails and Staples: Conform to ASTM F1667 and IBC Sections 2303.6 and 2304.10.

NAILING REQUIREMENTS: Conform to IBC Section 2304.10 "Connections and fasteners." Unless noted on plans, nail per Table 2304.10.1. Nailing for roof/floor diaphragms/shear walls shall be per drawings. Nails shall be driven flush and shall not fracture the surface of sheathing. Alternate nails may be used but are subject to review and approval by the Structural Engineer. Substitution of staples for the nailing of rated sheathing is subject to review by the structural engineer prior to construction.

WOOD SHRINKAGE AND EXPANSION: Wood materials will expand, or contract based on relative changes in moisture. The contractor is responsible for means and methods of construction related to mitigating and managing the effects of changes in moisture.

MOISTURE CONTENT: The contractor shall make provisions during handling and construction to prevent the structural wood members from exceeding the appropriate moisture content limits. The moisture content for solid sawn wood material used for this project shall not exceed 19%. The moisture content for engineered wood products, laminated lumber and sheathing shall not exceed the limits required by the manufacturer or 12%, whichever is less. The moisture content limits may be more stringent for particular product requirements (eg. finishes, cladding, insulation systems, etc.). The contractor shall refer to the Architect's drawings, project specifications, or installer/product requirements for additional requirements.

SHRINKAGE COMPENSATION FOR MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS: MEP systems, including ductwork, pipes, and other elements that run continuously between levels shall be installed/designed in such a manner to accommodate shrinkage in the wood framing. Wood shrinkage amounts will vary depending on the construction process and materials used. The anticipated shrinkage under typical conditions is expected to range between 1/8" and 1/4" per floor.

CLADDING COMPATIBILITY: The Architect/Owner and contractor shall review the cladding, finishes, insulation systems, other non-structural components and construction procedures proposed for the project with respect to their performance over wood framing. EIFS systems should be avoided on wood-framed projects due to problems with moisture proofing. Note that DCI is not responsible for the attachment of the cladding to the wood studs which needs to be verified and provided by the cladding supplier.

STORAGE & HANDLING: All storage and handling is to be a means and methods provided by the contractor. The contractor is to determine the best practices in order to avoid damage to the members during storage, such as fungal growth, exposure to weather conditions. The following are suggestions to aid the contractor. All materials should be stored level on site and must be raised off the ground a minimum of 6" by means of blocking and separating spaces. It is recommended that the materials are covered with an additional opaque water proof material (i.e. good quality tarpaulin).

When members are wrapped in poly or another material which may inhibit air flow, the material should have slots in the material or perforations to allow for air flow and prevent the accumulation of water and or condensation. Ensure that all exposed members are protective material from exposure should be removed only after the roof or structure providing cover is installed. Members should be constantly protected from weather during transportation, storage, and erection.

For interior glulam members the heat in the building should be gradually increased over a two to three week period in order to provide a gradual change in moisture content. Do not direct any forced air heating systems onto the glulam members. It is recommended to apply the final finish to the glulam member before heat is applied.

Members that are to be exposed to view in the finished structure should be handled using nylon or fabric slings to prevent surface damage. The contractor should use means to protect corners of members to prevent "crushing" during transportation, storage and erection. All bolts should be galvanized, or make sure that they are free of oil to prevent staining. Glulam members should be treated and stained per the architect of records recommendations. The following are provided in order to help guide the contractor in the best practices to preserve the quality of wood products. These notes are not intended to be comprehensive and an end all solution and should be taken under consideration by the contractor and supplemented as necessary.

PRESERVATIVE TREATMENT (PT): Wood materials that are required to be "treated wood" in accordance with IBC Section 2304.12, "Protection Against Decay and Termite Protection" shall conform to the appropriate standards of the American Wood-Preservers Association (AWPA) for sawn lumber, glued laminated timber, round poles, wood piles and marine piles. Follow American Lumber Standards Committee (ALSC) quality assurance procedures. Products shall bear the appropriate mark. Fasteners or anchors in treated wood shall be of stainless steel or hot-dipped galvanized or as per IBC 2304.10.5.

Mud sill plates in normally dry interior applications may be treated with Sodium Borate (DOT - Disodium Octaborate Tetrahydrate) as recent studies have noted less connector corrosion potential than other available wood treatments or the original CCA treated sill plates. Wood treated with Sodium Borate shall be protected during shipment, storage and installation to minimize leaching of the water-soluble preservative from the lumber. Sodium borate pressure treated plates do not require hot-dipped galvanized connectors.

If using preservative treatments other than CCA or sodium borate, fasteners must be hot dipped galvanized or stainless steel. Wood treated with Alkaline Copper Quaternary (ACQ) requires steel components in contact with the wood to be stainless (nails, bolts, screws, washers & lag screws). Fasteners (nails, bolts, screws, washers & lag screws) attaching timber connectors (joist hangers, post caps and bases, etc) to PT wood shall have similar corrosion resistance properties (matching protective treatments) as the protected connector; that is, use hot dipped galvanized or stainless-steel fasteners. Fasteners (nails, bolts, screws, washers & lag screws) attaching sawn timber members or sheathing (shear walls) to Pressure Treated wood shall be corrosion resistant (hot dipped galvanized or stainless steel).

Always verify the suitability of the fastener protection/coating with the wood treatment chemical manufacturer/supplier.

Fire Retardant Treated (FRT) Wood: Wood material that is required to be Fire Retardant Treated Wood to conform to IBC section 2303.2 – "Fire Retardant Treated Wood." Submit ICC report to SER for review and approval prior to construction.

FOR PERMIT
These drawings are sufficiently complete for submission to the jurisdiction having authority for permit. The Contractor shall not use these drawings for construction until Contractor receives written approval for use in construction by the jurisdiction having authority and ALSC Engineers.

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SANDPOINT
CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE 1

REV	DATE	DESCRIPTION
2	07-24-2023	PERMIT SET
3	08-25-2023	BID PACKAGE 1

PROJ. NO.	22041-0451
DRAWN	JLP
CHECKER	MST
PROJ MNGR	KEA
DATE	05/25/2023

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GENERAL NOTES

S-002

SPECIAL INSPECTIONS

The following Statement and Schedules of Inspections are those Special Inspections and Tests that shall be performed for this project. Special Inspectors shall reference these plans and IBC Chapter 17 for all special inspection requirements.
The owner shall retain an "approved agency" per IBC 1703 to provide special inspections for this project. Special Inspectors shall be qualified persons per IBC 1704.2.1.
Special inspection reports shall be provided on a weekly basis. Submit copies of all inspection reports to the Architect/Engineer and the Authority Having Jurisdiction for review. In addition to special inspection reports and tests, submit reports and certificates noted in IBC 1704.5 to the Authority Having Jurisdiction. Final special inspection reports will be required by each special inspection firm per IBC 1704.2.4.

STATEMENT OF SPECIAL INSPECTIONS:
This statement of Special Inspections has been written with the understanding that the Building Official will:
- **Review and approve the qualifications of the Special Inspectors**
- **Monitor the special inspection activity on the project site to assure that Special Inspectors are qualified and performing their duty as stated within this statement.**
- **Review all Special Inspection Reports submitted to them by the Special Inspector**
- **Perform inspections as required by IBC Section 110.3.**

The following Special Inspections are applicable to this project:
- **Special Inspections for Standard Buildings (per IBC 1705.1) REQUIRED**
- **Special Inspections for Seismic Resistance (per IBC 1705.12) NOT REQUIRED**
- **Testing for Seismic Resistance (per IBC 1705.13) NOT REQUIRED**
- **Special Inspections for Wind Resistance (per IBC 1705.11) NOT REQUIRED**

SPECIAL INSPECTION OF SHOP FABRICATED GRAVITY LOAD-BEARING MEMBERS AND ASSEMBLIES:
Special Inspection of shop fabricated Gravity Load Bearing Members & Assemblies shall be verified by the Special Inspector as stated in Section 1704.2.5 which includes the following:

- **Prior to the start of fabrication:** Special Inspector(s), representing the Owner, shall visit the Fabricator's shop(s) where the work is to be performed, and verifies that the Fabricator maintains detailed Fabrication and Quality Control procedures that provide a basis for inspection, control of workmanship, material control, and fabricator's ability to conform to approved Construction Documents and referenced Standards.
- Fabricator shall have available for Inspector's review, detailed procedures for material control that demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, grade and applicable test reports for primary load-carrying members, are capable of being determined.

STRUCTURAL STEEL per IBC 1705.2.1

A qualified Special Inspector of an "approved agency" providing Quality Assurance (QA) Special Inspections for the project shall review and confirm the Fabricator and Erector's Quality Control (QC) procedures for completeness and adequacy relative to AISC 360-16 Chapter N, AISC 303-16 Code of Standard Practice, AWS D1.1-2015 Structural Welding Code, and 2018 IBC code requirements for the fabricator's scope of work.

- QA Agency providing Special Inspections shall provide personnel meeting the minimum qualification requirements for Inspection and Nondestructive Testing NDT per AISC 360 Section N4.
- Verify Fabricator and Erector QC Program per AISC 360 Section N2.
- Inspection of welds and bolts by both QC and QA personnel shall be per the Schedule of Special Inspections below. All provisions of AWS D1.1 Structural Welding Code for statically loaded structures shall apply.
- Nondestructive Testing (NDT) of welds:
  - Non-Destructive Testing (NDT) of welded joints per AISC 360 N5.5.
  - Risk Category for determination of extent of NDT per AISC 360 N5.5b is noted in the Design Criteria and Loads section of these General Requirements.
  - NDT performed shall be documented and reports shall identify the tested weld by piece mark and location of the piece.
  - For field work, the NDT report shall identify the tested weld by location in the structure, piece mark and location of the piece.
- Additional Inspection tasks per AISC 360 Section N5.8.
- Inspection for Composite Construction shall be done per AISC 360 Section N6.

POST-INSTALLED ANCHORS TO CONCRETE AND MASONRY: shall comply with IBC Section 1703. Inspections shall be in accordance with the requirements set forth in the approved ICC Evaluation Report and as indicated by the design requirements specified on the drawings. Refer to the POST INSTALLED ANCHORS section of these notes for anchors that are the basis of the design. Special inspector shall verify anchors are as specified in the POST INSTALLED ANCHORS section of these notes or as otherwise specified on the drawings. Substitutions require approval by the SER and require substantiating calculations and current 2018 IBC recognized ICC Evaluation Services (ES) Report. Special Inspector shall document in their Special Inspection Report compliance with each of the elements required within the applicable ICC Evaluation Services (ES) Report.

PREFABRICATED CONSTRUCTION: All prefabricated construction shall conform to IBC Section 1703.

SCHEDULES OF SPECIAL INSPECTIONS:

TABLE 1705.6
REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity	-	X
2. Verify excavations are extended to proper depth and have reach proper material	-	X
3. Perform classification and testing of compacted fill materials	-	X
4. Verify use of proper materials, densities and lift thickness during placement and compaction of compacted fill	X	-
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly	-	X

TABLE 1705.3
REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD	IBC REFERENCE
1. Inspection, reinforcement, including prestressing tendons, and verify placement.	-	X	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. Reinforcing bar welding: a. Verify weldability of reinforcing bars other than ASTM A706 b. Inspect single pass fillet weld maximum 5/16" c. Inspect all other welds	- - X	X X -	AWS D1.4 ACI 318: 26.6.4	-
3. Inspect anchors cast in concrete	-	X	ACI 318: 17.8.2	-
4. Verify use of required design mix	-	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
5. Prior to concrete placement, fabricate specimens, for strength tests, perform slump and air content tests, and determine the temperature of the concrete	X	-	ASTM C172 ASTM C31 ACI 318: 26.5, 26.12	1908.10
6. Inspect concrete and shotcrete placement for proper application techniques	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8
7. Verify maintenance of specified curing temperature and techniques	-	X	ACI 318 :26.5.3 – 26.5.5	1908.9
8. Inspect formwork for shape, location and dimensions of the concrete member being formed	-	X	ACI 318: 26.11.1.2 (b)	-

MINIMUM REQUIREMENTS FOR INSPECTIONS OF STRUCTURAL STEEL CONSTRUCTION

INSPECTION TASKS	QC	QA	REFERENCED STANDARD
INSPECTION TASKS PRIOR TO WELDING			
1. Welder qualification records and continuity records	P	O	AISC 360 TABLE N5.4-1
2. Welding procedure specifications (WPSs) available	P	P	AISC 360 TABLE N5.4-1
3. Manufacturing certifications for welding consumables available	P	P	AISC 360 TABLE N5.4-1
4. Material identification (type/grade)	O	O	AISC 360 TABLE N5.4-1
5. Welder identification system	O	O	AISC 360 TABLE N5.4-1
6. Fit-up of groove welds (including joint geometry) • Joint preparation • Dimensions (alignment, root opening, root face, bevel) • Cleanliness (condition of steel surfaces) • Tacking (tack welding quality and location) • Backing type and fit (if applicable)	O	O	AISC 360 TABLE N5.4-1
7. Configuration and finish of access holes	O	O	AISC 360 TABLE N5.4-1
8. Fit-up of fillet welds • Dimensions (alignment, gaps at root) • Cleanliness (condition of steel surfaces) • Tacking (tack weld quality and location)	O	O	AISC 360 TABLE N5.4-1
9. Check welding equipment	O	-	AISC 360 TABLE N5.4-1
INSPECTION TASKS DURING WELDING			
1. Use of qualified welders	O	O	AISC 360 TABLE N5.4-2
2. Control and handling of welding consumables • Packaging • Exposure control	O	O	AISC 360 TABLE N5.4-2
3. No welding over cracked tack welds	O	O	AISC 360 TABLE N5.4-2
4. Environmental conditions • Wind speed within limits • Precipitation and temperature	O	O	AISC 360 TABLE N5.4-2
5. WPS followed • Settings on welding equipment • Travel speed • Selected welding materials • Shielding gas type/flowrate • Preheat applied • Interpass temperature maintained (min/max) • Proper position (F, V, H, OH)	O	O	AISC 360 TABLE N5.4-2
6. Welding techniques • Interpass and final cleaning • Each pass within profile limitations • Each pass meets quality requirements	O	O	AISC 360 TABLE N5.4-2
INSPECTION TASKS AFTER WELDING			
1. Welds cleaned	O	O	AISC 360 TABLE N5.4-3
2. Size, length, and locations of welds	P	P	AISC 360 TABLE N5.4-3
3. Welds meet visual acceptance criteria • Crack prohibition • Weld/base-metal fusion • Crater cross section • Weld profiles • Weld size • Undercut • Porosity	P	P	AISC 360 TABLE N5.4-3
4. Arc strikes	P	P	AISC 360 TABLE N5.4-3
5. k-area	P	P	AISC 360 TABLE N5.4-3
6. Weld access holes in rolled heavy shapes and built-up heavy shapes	P	P	AISC 360 TABLE N5.4-3
7. Backing removed and weld tabs removed (if required)	P	P	AISC 360 TABLE N5.4-3
8. Repair activities	P	P	AISC 360 TABLE N5.4-3
9. Document acceptance or rejection of welded joint or member	P	P	AISC 360 TABLE N5.4-3
10. No prohibited welds have been added without the approval of the EOR	P	P	AISC 360 TABLE N5.4-3
INSPECTION TASKS PRIOR TO BOLTING			
1. Manufacturer's certifications available for fastener materials	O	P	AISC 360 TABLE N5.6-1
2. Fasteners marked in accordance with ASTM requirements	O	O	AISC 360 TABLE N5.6-1
3. Correct fasteners selected for the joint detail (grade, type, bolt length if threads are to be excluded from shear plane)	O	O	AISC 360 TABLE N5.6-1
4. Correct bolting procedure selected for joint detail	O	O	AISC 360 TABLE N5.6-1
5. Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements	O	O	AISC 360 TABLE N5.6-1
6. Pre-installation verification testing by installation personnel observed and documented for fastener assemblies and methods used.	P	O	AISC 360 TABLE N5.6-1
7. Proper storage provided for bolts, nuts, washers and other fasteners components	O	O	AISC 360 TABLE N5.6-1
INSPECTION TASKS DURING BOLTING			
1. Fastener assemblies, of suitable condition, placed in all holes and washers are positioned as required	O	O	AISC 360 TABLE N5.6-2
2. Joint brought to the snug-tight condition prior to the pre-tensioning operation	O	O	AISC 360 TABLE N5.6-2
3. Fastener component not turned by the wrench prevented from rotating	O	O	AISC 360 TABLE N5.6-2
4. Fasteners are pre-tensioned in accordance with the RCSC Specification, progressing systematically from the most rigid point toward the free edges	O	O	AISC 360-10 TABLE N5.6-2
INSPECTION TASKS AFTER BOLTING			
1. Document acceptance or rejection of bolted connections	P	P	AISC 360 TABLE N5.6-3

O - Observe these items on a random basis. Operations need not be delayed pending these inspections
P - Perform these tasks for each welded joint or member, each bolted connection, or each steel element

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SANDPOINT

CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE 1

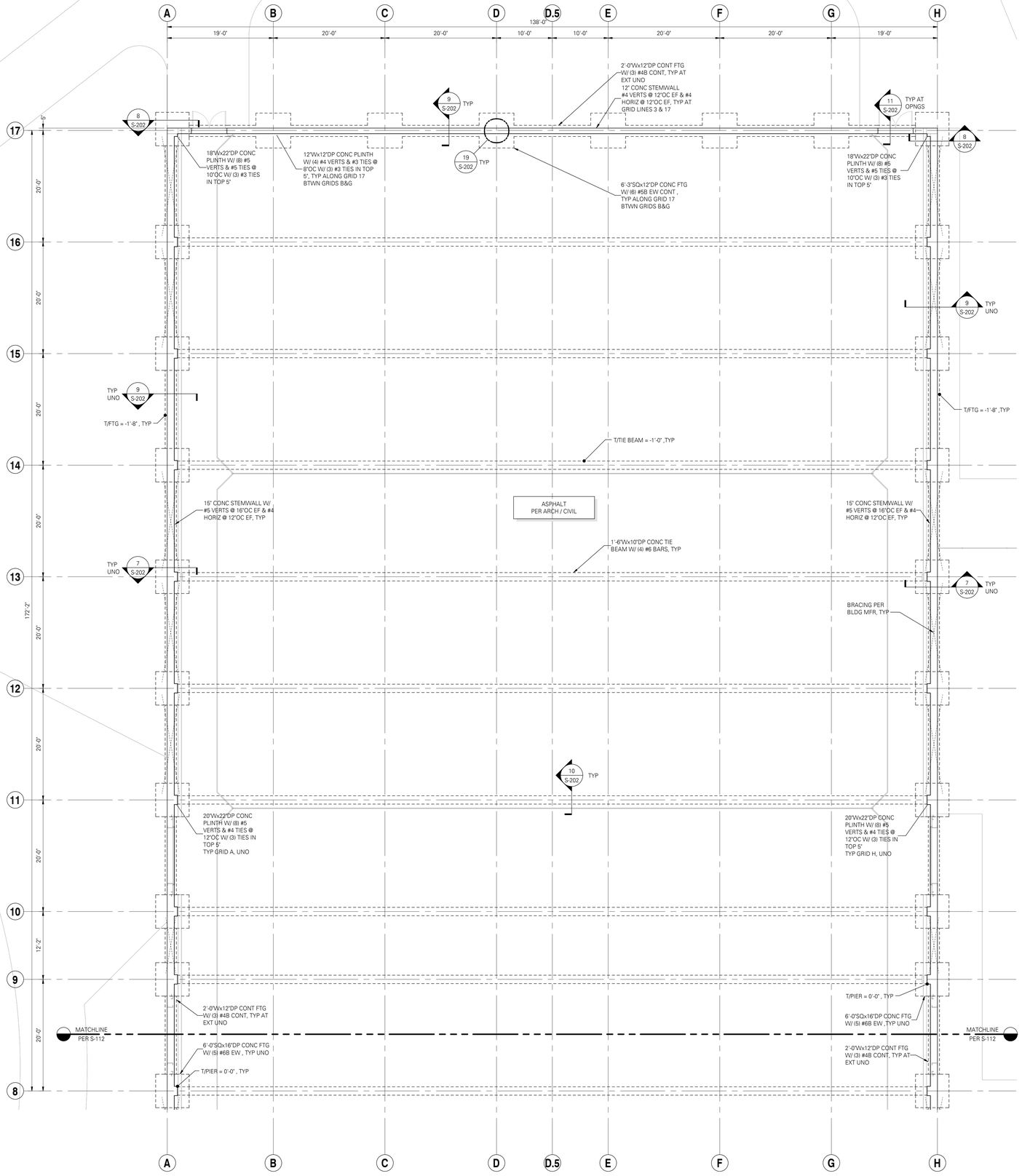
REV	DATE	DESCRIPTION
2	07-24-2023	PERMIT SET
3	08-25-2023	BID PACKAGE 1

PROJ. NO.	22041-0451
DRAWN	JLP
CHECKER	MST
PROJ MNGR	KEA
DATE	05/25/2023

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SPECIAL INSPECTIONS

S-003



FOUNDATION PLAN NOTES:

1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S1.1, S1.2 AND S1.3.
2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
3. CONTRACTOR SHALL LOCATE AND VERIFY THE FOLLOWING WITH OTHERS PRIOR TO POURING CONCRETE: ALL DOOR OPENINGS IN FOUNDATION WALLS; DRAINS AND SLOPES; BLOCKOUTS FOR FREEZERS, COOLERS, PLUMBING, SPRINKLERS AND HVAC. ALL DUCTS, CHASES AND PIPES PER MECHANICAL, PLUMBING, ELECTRICAL AND SPRINKLER DRAWINGS. STAIR DETAILS AND GUARDRAILS PER ARCHITECTURAL DRAWINGS.
4. TOP OF SLAB (T/SLAB) ELEVATION ASSUMED 0'-0". FOR ACTUAL T/SLAB ELEVATION REFER TO CIVIL AND ARCHITECTURAL DRAWINGS. PROVIDE 15 MIL VAPOR BARRIER BELOW SLAB AT INTERIOR SPACES. PROVIDE FREE-DRAINING GRANULAR FILL PER GEOTECH REPORT.
5. TYPICAL TOP OF EXTERIOR (T/EXTERIOR) FOOTING ELEVATIONS = -1'-8", UNO.
6. ALL FOOTINGS AND SLABS TO BEAR ON STRUCTURAL FILL, IMPROVED SOIL, SUBGRADE PREPARATION, STRUCTURAL FILL, DRAINAGE SYSTEM, AND OTHER REQUIREMENTS PER GEOTECH REPORT AS NOTED IN THE STRUCTURAL GENERAL NOTES.
7. CJ INDICATES CONTROL JOINT PER PLAN.
8. MOISTURE PROOF ALL CONCRETE STEM AND BASEMENT WALLS PER ARCHITECT. CONTRACTOR TO VERIFY ADDITIONAL LOCATIONS WHICH REQUIRE WATERPROOFING PER ARCHITECTURAL DRAWINGS.
9. STEEL STAIRS SHALL BE BIDDER-DESIGNED, UNO. APPLICABLE DESIGN REQUIREMENTS PER STRUCTURAL GENERAL NOTES.
10. TYPICAL DETAILS PER:

1/S-201	STANDARD HOOKS AND BAR BENDS
2/S-201	TYPICAL PIPE AND TRENCH LOCATIONS AT CONCRETE STEMWALL / FOOTING
5/S-201	PIPE OR CONDUIT EMBEDDED IN SLAB ON GRADE
6/S-201	TYPICAL SLAB ON GRADE JOINT DETAILS WITH REINFORCING
7/S-201	TYPICAL CORNER REINFORCING AT CONCRETE FOOTINGS
9/S-201	TYPICAL LAP SPLICE SCHEDULE
10/S-201	TYPICAL DEPRESSED SLAB DETAIL
11/S-201	TYPICAL ANCHOR BOLT SCHEDULE
12/S-202	PLAN - INTERSECTING SHEAR WALLS
13/S-202	TYPICAL STEEL STUD SHEAR WALL BEARING REQUIREMENTS
15/S-202	TYPICAL SHEAR WALL TO REINFORCED SLAB CONNECTION
16/S-202	TYPICAL SHEAR WALL ELEVATION
17/S-202	HOLD-DOWN SCHEDULE

FOUNDATION PLAN -NORTH
SCALE: 1/8" = 1'-0"

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BID PACKAGE 1

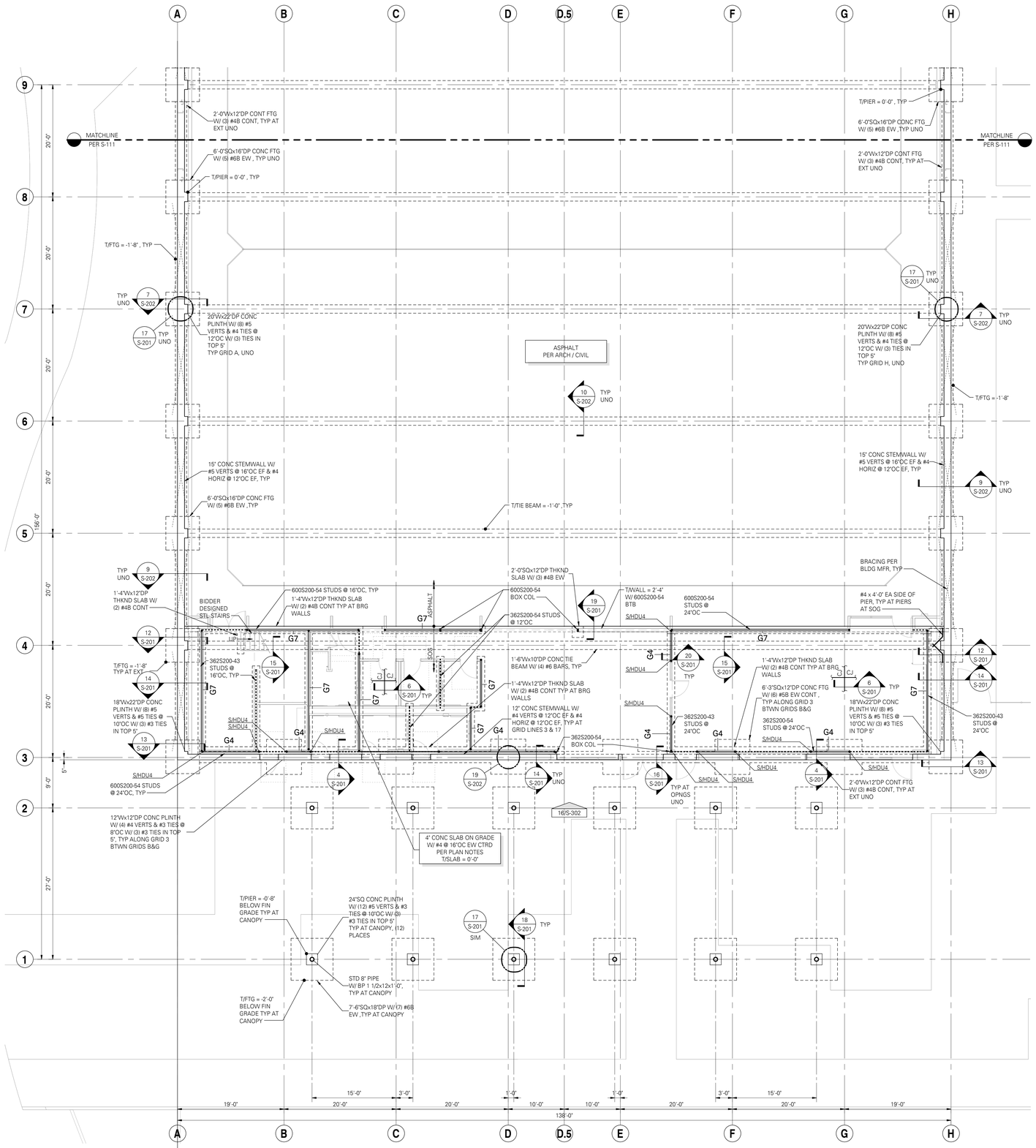
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3	08-25-2023	BID PACKAGE 1

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FOUNDATION PLAN -NORTH

S-111



FOUNDATION PLAN NOTES:

1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S1.1, S1.2 AND S1.3.
2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
3. CONTRACTOR SHALL LOCATE AND VERIFY THE FOLLOWING WITH OTHERS PRIOR TO POURING CONCRETE: ALL DOOR OPENINGS IN FOUNDATION WALLS; DRAINS AND SLOPES; BLOCKOUTS FOR FREEZERS, COOLERS, PLUMBING, SPRINKLERS AND HVAC. ALL DUCTS, CHASES AND PIPES PER MECHANICAL, PLUMBING, ELECTRICAL AND SPRINKLER DRAWINGS. STAIR DETAILS AND GUARDRAILS PER ARCHITECTURAL DRAWINGS.
4. TOP OF SLAB (T/SLAB) ELEVATION ASSUMED 0'-0". FOR ACTUAL T/SLAB ELEVATION REFER TO CIVIL AND ARCHITECTURAL DRAWINGS. PROVIDE 15 MIL VAPOR BARRIER BELOW SLAB AT INTERIOR SPACES. PROVIDE FREE-DRAINING GRANULAR FILL PER GEOTECH REPORT.
5. TYPICAL TOP OF EXTERIOR (T/EXTERIOR) FOOTING ELEVATIONS = -1'-8", UNO.
6. ALL FOOTINGS AND SLABS TO BEAR ON STRUCTURAL FILL, IMPROVED SOIL, SUBGRADE PREPARATION, STRUCTURAL FILL, DRAINAGE SYSTEM, AND OTHER REQUIREMENTS PER GEOTECH REPORT AS NOTED IN THE STRUCTURAL GENERAL NOTES.
7. CJ INDICATES CONTROL JOINT PER PLAN.
8. MOISTURE PROOF ALL CONCRETE STEM AND BASEMENT WALLS PER ARCHITECT. CONTRACTOR TO VERIFY ADDITIONAL LOCATIONS WHICH REQUIRE WATERPROOFING PER ARCHITECTURAL DRAWINGS.
9. STEEL STAIRS SHALL BE BIDDER-DESIGNED, UNO. APPLICABLE DESIGN REQUIREMENTS PER STRUCTURAL GENERAL NOTES.
10. TYPICAL DETAILS PER:

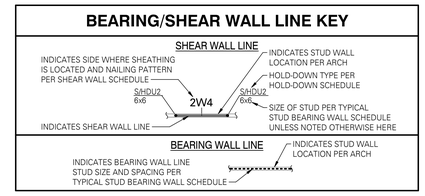
1/S-201	STANDARD HOOKS AND BAR BENDS
2/S-201	TYPICAL PIPE AND TRENCH LOCATIONS AT CONCRETE STEMWALL / FOOTING
5/S-201	PIPE OR CONDUIT EMBEDDED IN SLAB ON GRADE
6/S-201	TYPICAL SLAB ON GRADE JOINT DETAILS WITH REINFORCING
7/S-201	TYPICAL CORNER REINFORCING AT CONCRETE FOOTINGS
9/S-201	TYPICAL LAP SPLICE SCHEDULE
10/S-201	TYPICAL DEPRESSED SLAB DETAIL
11/S-201	TYPICAL ANCHOR BOLT SCHEDULE
12/S-202	PLAN - INTERSECTING SHEAR WALLS
13/S-202	TYPICAL STEEL STUD SHEAR WALL BEARING REQUIREMENTS
15/S-202	TYPICAL SHEAR WALL TO REINFORCED SLAB CONNECTION
16/S-202	TYPICAL SHEAR WALL ELEVATION
17/S-202	HOLD-DOWN SCHEDULE

STUD AND SHEAR WALL PLAN NOTES:

1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S-001, S-002 AND S-003.
2. ALL INTERIOR NON-BEARING, NON-STRUCTURAL WALL STUDS AND DEFLECTION TRACKS SHALL BE DESIGNED BY STUD SUPPLIER. ALLOW FOR DEFLECTIONS AS NOTED ON STRUCTURAL GENERAL NOTES. LOAD AND SUBMITTAL REQUIREMENTS PER STRUCTURAL GENERAL NOTES. ATTACH PER 16/S-301.
3. COLD-FORMED BEAMS AND HEADERS SHOWN ON FRAMING PLAN SHALL BE SUPPORTED BY (1) S300-54 OR BY (2) FULL HEIGHT STUDS TO MATCH WALL TYPE MINIMUM EACH END OF BEAM OR HEADER UNO PER 12/S-301. TOP AND BOTTOM TRACK OF HEADER TO BE SAME AS TRACK SPECIFIED FOR BEARING WALLS AT EACH LEVEL UNO. WHERE ADDITIONAL FULL HEIGHT STUDS ARE REQUIRED, THE TOTAL NUMBER OF STUDS TO MATCH WALL TYPE SHALL BE NOTED THUS: ■ ③.
4. STRUCTURAL STEEL BEAMS SHOWN ON FRAMING PLAN SHALL BE SUPPORTED BY A MINIMUM OF (2) BEARING STUDS AND (2) FULL HEIGHT STUDS EACH END OF BEAM UNO. WHERE ADDITIONAL BEARING STUDS ARE REQUIRED, THE TOTAL NUMBER OF STUDS SHALL BE NOTED THUS: ■ ④. WHERE ADDITIONAL FULL HEIGHT STUDS ARE REQUIRED, THE TOTAL NUMBER OF STUDS SHALL BE NOTED THUS: ■ ③.
5. BEARING STUDS TO BE CONTINUOUS TO FOUNDATION.
6. BEARING WALL STUD AND TRACKS SHALL BE PER PLAN. STUDS SHALL ALIGN WITH JOISTS AT LEVELS ABOVE. ATTACH TRACKS PER 14/S-301 UNO IN SHEAR WALL SCHEDULE.
7. BEARING STUDS HAVE BEEN DESIGNED ON THE BASIS OF SHEATHING BRACED DESIGN. GYPSUM BOARD AND/OR SHEAR WALL SHEATHING SHALL BE 5/8" THICK MINIMUM AND ATTACHED DIRECTLY TO THE WALL STUDS WITH A MINIMUM OF #6 @ 12"OC AT FIELD AND EDGES. BRIDGING ANCHORAGE IS NOT REQUIRED AT SHEATHING BRACED DESIGN LEVELS.
8. SHEAR WALL AND SHEATHING ATTACHMENT REQUIREMENTS PER SHEAR WALL SCHEDULE 20/S-202.
9. TYPICAL DETAILS PER:

20/S-202	SHEAR WALL SCHEDULE
9/S-301	TYPICAL STEEL STUD BEARING REQUIREMENTS (NON-SHEAR WALL)
14/S-301	TYPICAL TOP AND BOTTOM TRACK DETAIL
15/S-301	TYPICAL TRACK SPLICE

BEARING/SHEAR WALL LINE KEY



FOR PERMIT
These drawings are sufficiently complete for submission to the jurisdiction having authority for permit. The Contractor shall not use these drawings for construction until Contractor receives written approval for use in construction by the jurisdiction having authority and ALSC Engineers.

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PROFESSIONAL ENGINEER LICENSED 13697 STATE OF IDAHO JUSTIN B. COOK

SANDPOINT

CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE 1

REV	DATE	DESCRIPTION
1	06-23-2023	50% CD'S
2	07-24-2023	PERMIT SET
3	08-25-2023	BID PACKAGE 1

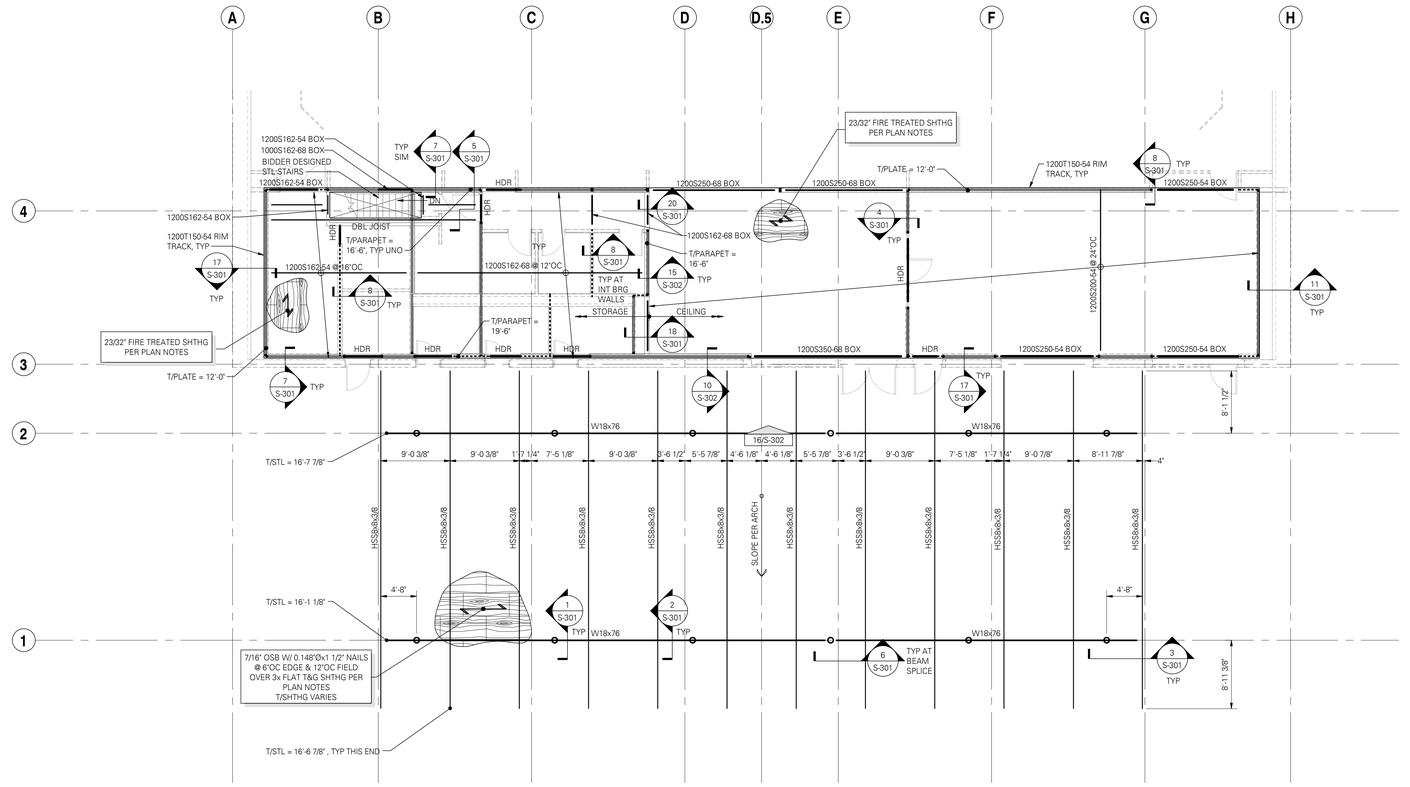
PROJ. NO.	22041-0451
DRAWN	JLP
CHECKER	MST
PROJ MNGR	KEA
DATE	05/25/2023

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FOUNDATION PLAN - SOUTH

FOUNDATION PLAN - SOUTH
SCALE: 1/8" = 1'-0"

S-112



ROOF FRAMING PLAN NOTES:

1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S-001, S-002 AND S-003.
2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
3. ALL DUCTS, CHASES AND PIPES SHALL BE PER MECHANICAL, PLUMBING, ELECTRICAL AND SPRINKLER DRAWINGS.
4. ROOF SHEATHING PER PLAN AND STRUCTURAL GENERAL NOTES. SHEATHING TO BE ATTACHED TO ROOF FRAMING WITH #8 SCREWS @ 6"OC AT PANEL EDGES AND @ 12"OC FIELD, UNO. LAY SHEATHING WITH FACE GRAIN (LONG DIRECTION) PERPENDICULAR TO SUPPORTS AND STAGGER PANEL END JOINTS. PROVIDE 1/8" SPACE BETWEEN PANEL ENDS AND EDGES.
5. BEAM AND HEADER SUPPORTS PER STUD AND SHEAR WALL PLAN ON FLOOR BELOW. BEAMS TO BE UNPUNCHED UNO.
6. RIM TRACK SHALL BE PER PLAN. ATTACH W/ (3) #12 SCREWS AT EACH SINGLE STUD. ATTACH RIM TRACK AT HEADERS PER 17/S-301.
7. ATTACH EACH JOIST TO RIM TRACK TAB WITH (3) #10 SCREWS. WHERE RIM TRACK DOES NOT INCLUDE TAB, PROVIDE A CLIP L1 1/2x1 1/2x54MIL x 7" W/ (3) #10 SCREWS EACH LEG AT SINGLE JOISTS.
8. BEARING STUD, SHEAR WALL, HOLD-DOWN, AND POST BELOW PER STUD AND SHEAR WALL PLAN FOR FLOOR BELOW.
9. CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY SHORING AND ALL TEMPORARY BRACING/STABILITY OF SYSTEM DUE TO CONSTRUCTION LOADS.
10. JOISTS TO ALIGN OVER STUDS.
11. TYPICAL DETAILS PER:

S-301	TYPICAL STEEL STUD DETAILS
16/S-301	TYPICAL NON-BEARING WALL CONNECTION TO JOISTS
19/S-301	TYPICAL RIM TRACK SPLICE
20/S-302	TYPICAL BOX HEADER

MEZZANINE & CANOPY FRAMING PLAN
SCALE: 1/8" = 1'-0"

FOR PERMIT
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LICENSED PROFESSIONAL ENGINEER
13697
STATE OF IDAHO
JUSTIN B. COOK

SANDPOINT
CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE 1

REV	DATE	DESCRIPTION
1	06-23-2023	50% CD'S
2	07-24-2023	PERMIT SET
3	08-25-2023	BID PACKAGE 1

PROJ. NO.	22041-0451
DRAWN	JLP
CHECKER	MST
PROJ MNGR	KEA
DATE	05/25/2023

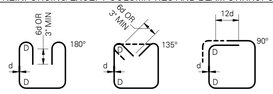
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MEZZANINE & CANOPY FRAMING PLAN

S-121

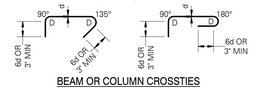


ALL REINFORCING EXCEPT COLUMN TIES AND BEAM STIRRUPS



STIRRUP | STIRRUP OR TIE

D = 4d FOR #3, #4 & #5
D = 6d FOR #6, #7 & #8



BEAM OR COLUMN CROSSTIES

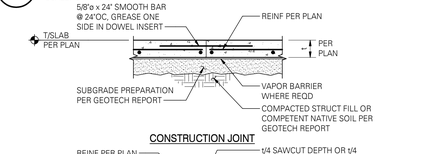
BEAM STIRRUPS AND COLUMN TIES

NOTE:

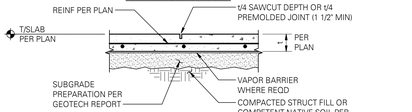
TIES AND CROSSTIES FOR SHEAR WALL BOUNDARY ELEMENTS SHALL BE DETAILED AS COLUMN TIES/CROSSTIES.

1 STANDARD HOOKS AND BENDS

SCALE: 3/4" = 1'-0" (03400)



CONSTRUCTION JOINT



CONTROL JOINT

NOTES:

1. CONSTRUCTION JOINT IS A JOINT BETWEEN DIFFERENT POURS. CONTROL JOINT IS A CRACK CONTROL JOINT WITHIN THE SAME POUR.

2. USE "EARLY ENTRY DRY-CUT SAW" AS SOON AS POSSIBLE WITHOUT CAUSING RAVELING OF CONCRETE EDGES. SAWCUT ALONG SHORT DIRECTION OF POUR FIRST.

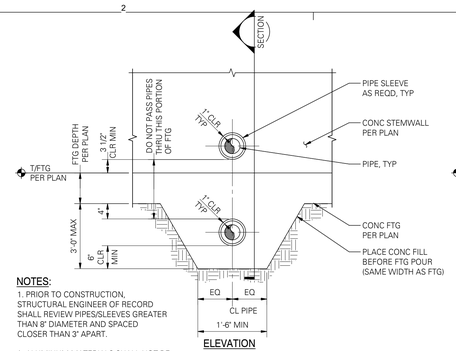
3. ALIGN A CONSTRUCTION OR CONTROL JOINT WITH RE-ENTRANT SLAB CORNERS, EACH WAY, TYPICAL.

4. CONSTRUCTION/CONTROL JOINT TO ENCLOSE APPROXIMATE SQUARE AREAS 225 SQUARE FEET MAXIMUM, WITH MAXIMUM PANEL ASPECT RATIO OF 1.3 TO 1.0.

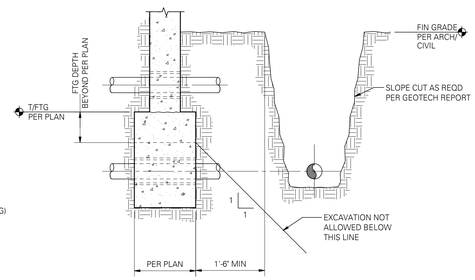
5. CONTRACTOR TO SUBMIT CONSTRUCTION/CONTROL JOINT PLAN TO STRUCTURAL ENGINEER OF RECORD FOR REVIEW/APPROVAL.

2 TYPICAL PIPE AND TRENCH LOCATIONS AT CONCRETE STEMWALL/FOOTING

SCALE: 3/4" = 1'-0" (03190)



ELEVATION



SECTION

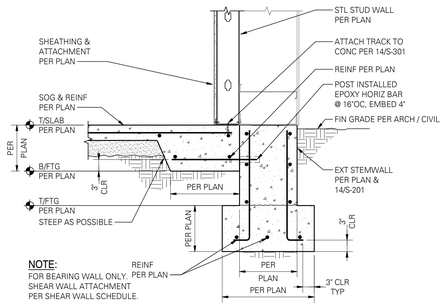
NOTES:

1. PRIOR TO CONSTRUCTION, STRUCTURAL ENGINEER OF RECORD SHALL REVIEW PIPES/SLEEVES GREATER THAN 8" DIAMETER AND SPACED CLOSER THAN 3' APART.

2. ALUMINUM MATERIALS SHALL NOT BE EMBEDDED IN CONCRETE.

4 TYPICAL THICKENED SLAB EDGE FOOTING

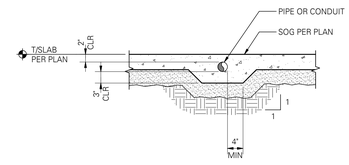
SCALE: 3/4" = 1'-0" (03072)



NOTE:
FOR BEARING WALL ONLY. SHEAR WALL ATTACHMENT PER SHEAR WALL SCHEDULE.

5 PIPE OR CONDUIT EMBEDDED IN SLAB ON GRADE

SCALE: 3/4" = 1'-0" (03204)



NOTE:
ALUMINUM MATERIALS SHALL NOT BE EMBEDDED IN CONCRETE.

6 TYPICAL SLAB ON GRADE JOINT DETAILS WITH REINFORCING

SCALE: 3/4" = 1'-0" (03201)

01901 TYPICAL ANCHOR BOLT SCHEDULE

INSTALLATION TYPE	CAST-IN-PLACE (PRE-AUTHORIZED) [2]				DRILL-IN OPTIONS (SUBMITTAL REQUIRED) [3]	
BOLT TYPE	STANDARD J-BOLT	HEADED ANCHOR	THREADED ROD ANCHOR	SIMPSON "SSTB" ANCHOR BOLT	ADHESIVE ANCHOR	EXPANSION ANCHOR
EMBEDMENT REQUIREMENTS	7 1/2"	12x DIA	TACK, 1/4" MIN	PER MFR	NOTE [4]	NOT ALLOWED AT P-T SLAB
LIMITS	5/8"Ø MAX	5/8"Ø THRU 2 1/2"Ø		FOR WOOD FRAME ONLY	5/8"Ø THRU 1"Ø	

PROJECTION NOTE [1] | MIN EMBED UNO PER PLAN

DIA = ANCHOR BOLT DIAMETER (NOMINAL)

NOTES:

[1] CONTRACTOR SHALL DETERMINE THE REQUIRED THREAD PROJECTION SUITABLE FOR THE THICKNESS OF MATERIAL BEING FASTENED PLUS GROUT ALLOWANCE, IF ANY, AND CONSTRUCTION TOLERANCES, UNO.

[2] CONTRACTOR MAY SELECT APPROPRIATE CAST-IN-PLACE ANCHOR BOLT OPTION WITHOUT SUBMITTAL.

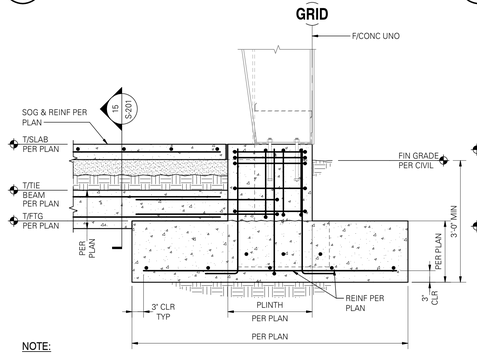
[3] DRILL-IN OPTIONS ARE NOT APPROPRIATE AT ALL CONDITIONS. IF DRILL-IN METHOD IS PREFERRED, SUBMIT MANUFACTURER'S INFORMATION, ALLOWABLE LOAD VS EMBEDMENT DATA AND LOCATIONS OF WHERE SUBSTITUTIONS ARE REQUESTED. ENGINEER WILL DETERMINE IF SUBSTITUTION IS APPROPRIATE FOR LOCATION AND LOADING.

[4] EMBEDMENT OF DRILL-IN ANCHORS SHALL BE PER ENGINEERS'S SUBMITTAL REVIEW COMMENTS. EMBEDMENT SHALL BE (9) NINE TIMES THE NOMINAL ANCHOR DIAMETER, UNO.

[5] AT PRESSURE TREATED SILLS, PROVIDE HOT-DIPPED GALVANIZED OR STAINLESS STEEL ANCHORS.

7 PLAN - TYPICAL CORNER REINFORCING AT CONCRETE FOOTINGS

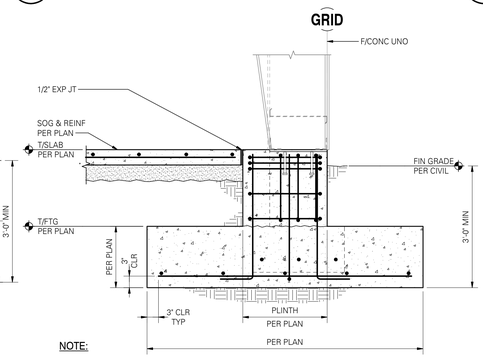
SCALE: 3/4" = 1'-0" (03132)



NOTE:
ADDITIONAL INFORMATION PER 13/S-201 & 7/S-202.

8 PLAN - TYPICAL CORNER REINFORCING

SCALE: 3/4" = 1'-0" (03403)



NOTE:
ADDITIONAL INFORMATION PER 8/S-202.

9 TYPICAL LAP SPLICE AND DEVELOPMENT LENGTH SCHEDULE

SCALE: 3/4" = 1'-0" (01400)

01400 GRADE 60 REINFORCING

BAR SIZE	MISCELLANEOUS BARS		TOP BARS (see note #6)		HOOKED BARS
	Ld	Splice	Ld	Splice	Ldh
f'c = 3000psi					
#3	17	22	22	28	9
#4	22	29	29	38	11
#5	28	36	36	47	14
#6	33	43	43	56	17
#7	48	63	63	81	20
#8	55	72	72	93	22
#9	62	81	81	105	25
#10	70	91	91	118	28
#11	78	101	101	131	31
#14	93	N/A	121	N/A	38
#18	124	N/A	161	N/A	50
f'c = 4000psi					
#3	15	19	19	25	8
#4	19	25	25	33	10
#5	24	31	31	41	12
#6	29	37	37	49	15
#7	42	54	54	71	17
#8	48	62	62	81	19
#9	54	70	70	91	22
#10	61	79	79	102	25
#11	67	87	87	114	27
#14	81	N/A	105	N/A	33
#18	108	N/A	140	N/A	43

NOTES:

1. ALL TABULATED VALUES ARE IN INCHES.

2. VALUES FOR UNCOATED REINFORCING AND NORMAL WEIGHT CONCRETE WITH CLEAR SPACING > db, CLEAR COVER > db AND MINIMUM STIRRUPS OR TIES THROUGHOUT Ld OR CLEAR SPACING > 2db AND CLEAR COVER > db.

3. DEVELOP ALL REINFORCING IN STRUCTURAL SLABS WITH MINIMUM DEVELOPMENT LENGTH Ld.

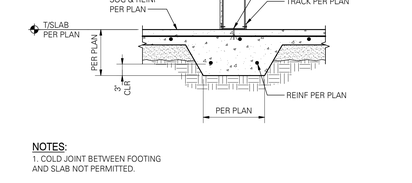
4. Ldh = DEVELOPMENT LENGTH OF BAR WITH STANDARD HOOK.

5. TOP BAR = HORIZONTAL BAR WITH MORE THAN 12" OF FRESH CONCRETE BELOW OR AS NOTED ON DOCUMENTS AS "TOP BAR".

6. LAP SPLICE OF DIFFERENT SIZED BARS TO BE THE LARGER OF Ld OF THE LARGER BAR OR SPLICE LENGTH OF THE SMALLER BAR.

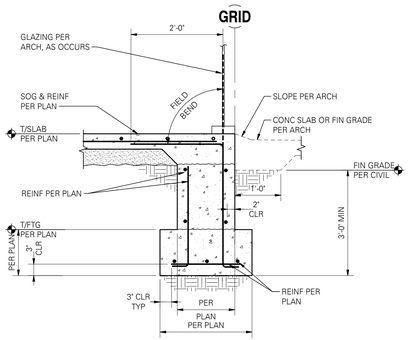
10 TYPICAL DEPRESSED SLAB DETAIL

SCALE: 3/4" = 1'-0" (03202)



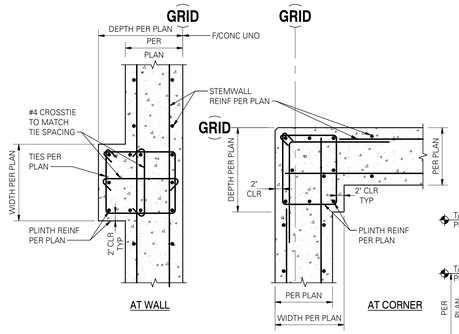
11 TYPICAL ANCHOR BOLT SCHEDULE

SCALE: 1" = 1'-0" (01901)



12 METAL BUILDING FOOTING WITH TIE BEAM AT CONCRETE SLAB

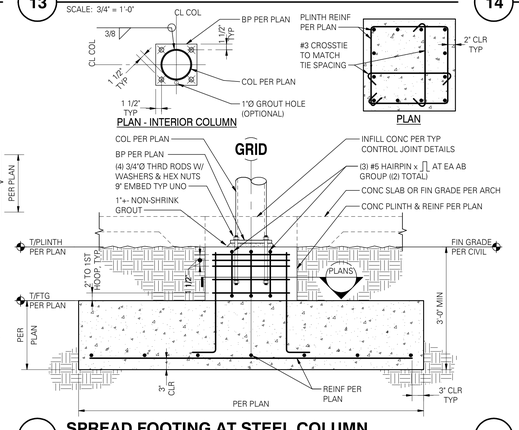
SCALE: 3/4" = 1'-0"



NOTE:
AT SIMILAR CONDITION NO STEMWALL.

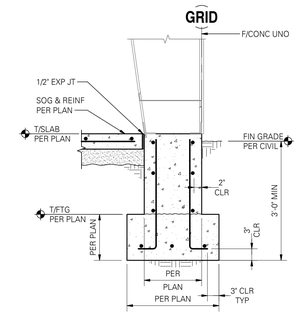
13 METAL BUILDING FOOTING WITH EMBED PLATE AT CORNER

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



14 TYPICAL METAL BUILDING PERIMETER DETAIL

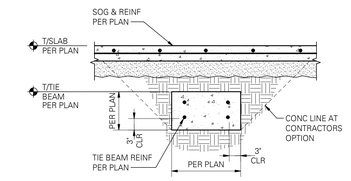
SCALE: 3/4" = 1'-0"



NOTE:
ADDITIONAL INFORMATION PER 9/S-202.

15 TIE BEAM SECTION

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



NOTE:
ADDITIONAL INFORMATION PER 10/S-202.

16 CONCRETE SLAB AND STEMWALL AT OPENINGS

SCALE: 3/4" = 1'-0" (03033M)

17 PLAN - PLINTH AT STEMWALL

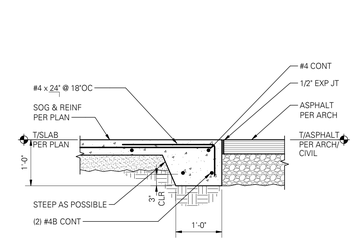
SCALE: 3/4" = 1'-0"

18 SPREAD FOOTING AT STEEL COLUMN

SCALE: 3/4" = 1'-0" (03007M)

19 EXTERIOR THICKENED SLAB EDGE FOOTING AT STUD WALL

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



20 TYPICAL STEEL STUD WALL AT INTERIOR FOOTING

SCALE: 3/4" = 1'-0" (03073)

NOTES:
1. COLD JOINT BETWEEN FOOTING AND SLAB NOT PERMITTED.

2. FOR BEARING WALL ONLY. SHEAR WALL ATTACHMENT PER SHEAR WALL SCHEDULE.

FOR PERMIT
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CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE 1

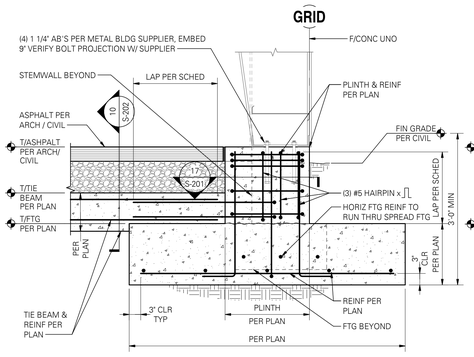
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PROJ MNGR	KEA
DATE	05/25/2023

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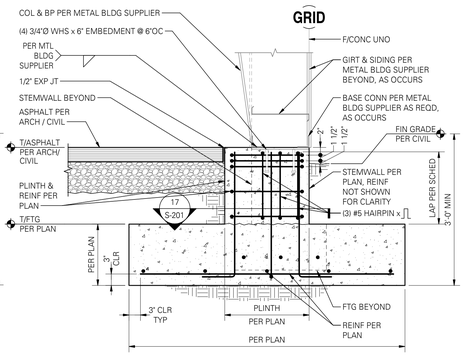
FOUNDATION DETAILS

S-201



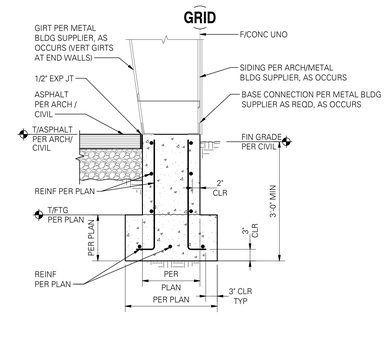
7 METAL BUILDING FOOTING WITH TIE BEAM

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



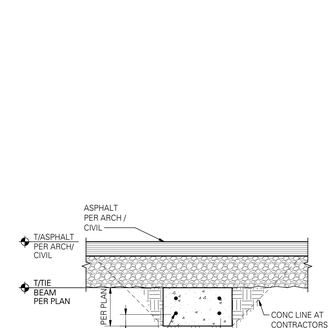
8 METAL BUILDING FOOTING WITH EMBED PLATE AT CORNER

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



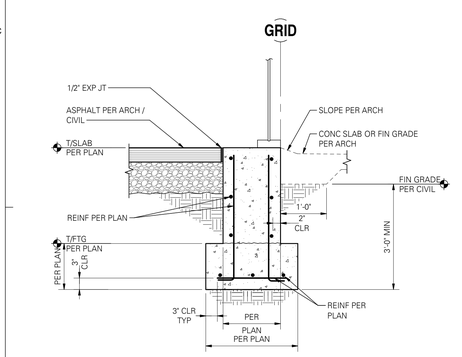
9 TYPICAL METAL BUILDING PERIMETER DETAIL

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



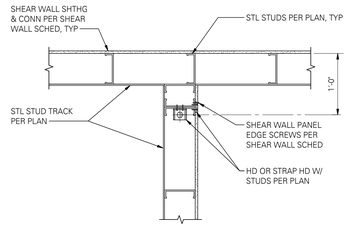
10 TIE BEAM SECTION

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



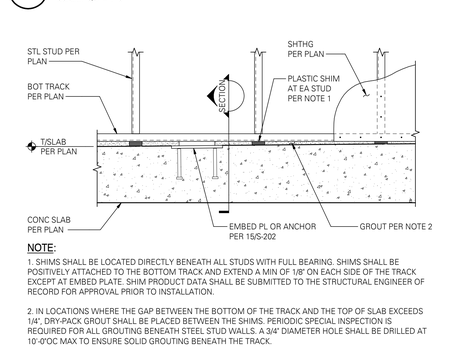
11 CONCRETE SLAB AND STEMWALL AT OPENINGS

SCALE: 3/4" = 1'-0" (03033M)



12 PLAN - INTERSECTING SHEAR WALLS

SCALE: 1" = 1'-0" (07086)



NOTE:

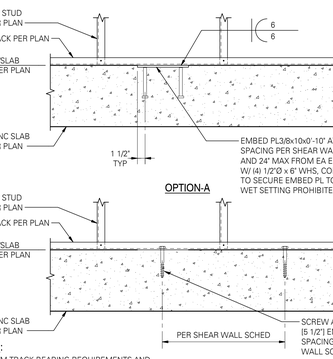
1. SHIMS SHALL BE LOCATED DIRECTLY BENEATH ALL STUDS WITH FULL BEARING. SHIMS SHALL BE POSITIVELY ATTACHED TO THE BOTTOM TRACK AND EXTEND A MIN OF 1/8" ON EACH SIDE OF THE TRACK EXCEPT AT EMBED PLATE. SHIM PRODUCT DATA SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR APPROVAL PRIOR TO INSTALLATION.

2. IN LOCATIONS WHERE THE GAP BETWEEN THE BOTTOM OF THE TRACK AND THE TOP OF SLAB EXCEEDS 1/4", DRY-PACK GROUT SHALL BE PLACED BETWEEN THE SHIMS. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR ALL GROUTING BENEATH STEEL STUD WALLS. A 3/4" DIAMETER HOLE SHALL BE DRILLED AT 10'-0"OC MAX TO ENSURE SOLID GROUTING BENEATH THE TRACK.

3. WHERE THE GAP BETWEEN THE BOTTOM OF THE TRACK AND THE TOP OF SLAB EXCEEDS 1" CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR ALTERNATIVE PROCEDURES.

13 TYPICAL STEEL STUD SHEAR WALL BEARING REQUIREMENTS

SCALE: 1" = 1'-0" (07051)



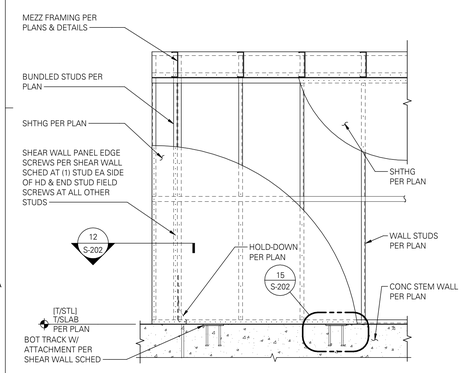
SECTION

NOTE:
BOTTOM TRACK BEARING REQUIREMENTS AND INSTALLATION PROCEDURE PER 13/S-202.

OPTION-B

15 TYPICAL SHEAR WALL TO REINFORCED SLAB CONNECTION

SCALE: 1" = 1'-0" (07050B)



16 TYPICAL SHEAR WALL ELEVATION

SCALE: 1/2" = 1'-0" (07080M)

01421

HOLD-DOWN SCHEDULE (STEEL STUDS) [1]

TYPE	STUDS REQUIRED AT HOLD-DOWN [2]	SCREWS	ANCHOR				CAPACITY (LBS) [5]		
			CONCRETE EMBEDMENT [5]			DIAMETER			
			STEMWALL [6]		SPREAD FOOTING				
			CIP [3]	ADHESIVE [4]	CIP OR ADHESIVE [3, 4]		33MIL	43MIL	54MIL
S/HDU4	(2) 362S200-54	(6) #14	8"	8"	8"	5/8"	2320	3825	3970

NOTES:

[1] TYPICAL SHEAR WALL ELEVATION PER 16/S-202. TYPICAL HOLD-DOWN DETAILS PER 12/S-202.

[2] PROVIDE PANEL EDGE SCREWS AT HOLD-DOWN STUDS PER SHEAR WALL SCHEDULE. CONNECT STUDS TOGETHER PER STRUCTURAL GENERAL NOTES. PROVIDE BACK TO BACK STUDS FOR HOLD-DOWN TO CONNECT TO AT END OF STUD BUNDLE.

[3] CAST IN PLACE (CIP) TYPE ANCHOR BOLTS AT HOLD-DOWNS SHALL HAVE A HEX HEAD WITH A STANDARD CUT WASHER UNO.

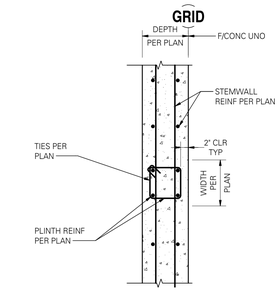
[4] THREADED ROD WITH ADHESIVE PER STRUCTURAL GENERAL NOTES.

[5] BASED ON MINIMUM f'c = [2500] PSI CONCRETE.

[6] STEMWALLS SHALL BE 6" WIDE MINIMUM FOR 5/8"Ø AND SMALLER ANCHOR BOLTS AND 8" WIDE MINIMUM FOR 7/8"Ø AND LARGER ANCHOR BOLTS.

17 HOLD-DOWN SCHEDULE

SCALE: 1" = 1'-0" (01421)



19 PLAN - PLINTH AT STEMWALL

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

01434A

SHEAR WALL SCHEDULE
FOR GYPSUM BOARD SHEATHING

WALL TYPE	MINIMUM STUD AND TRACK THICKNESS	SCREW SPACING AT PANEL EDGES AND FIELD [5]	SHEAR CAPACITY (PLF, ASD) [4]
G7	33MIL	7"OC	232
G4	33MIL	4"OC	340

NOTES:

[1] PROVIDE STRAP BLOCKING AT HORIZONTAL PANEL JOINTS AND SOLID BLOCKING BETWEEN THE FIRST (2) END STUDS.

[2] ATTACH STUD TO TOP AND BOTTOM TRACK PER 14/S-301.

[3] ATTACH BOTTOM TRACK TO CONCRETE WITH PAF @ 4'OC OR STEEL WITH PAF PER 14/S-301.

[4] 1/2" GYPSUM BOARD MINIMUM REQUIRED EACH FACE OF STUD. STUDS SPACED @ 24'OC MAXIMUM.

[5] ATTACH GYPSUM BOARD TO STEEL STUD FRAMING WITH #6 SCREWS MINIMUM IN ACCORDANCE WITH ASTM C954.

[6] STUDS SHALL HAVE MINIMUM FLANGE WIDTH OF 1 5/8".

20 SHEAR WALL SCHEDULE

SCALE: 1" = 1'-0" (01434A)

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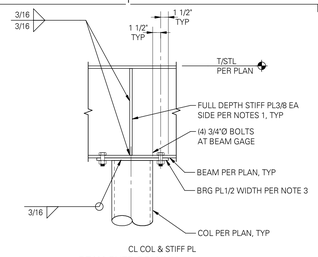
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DATE	05/25/2023

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FOUNDATION DETAILS

S-202



BEAM OVER COLUMN
WHERE BEAM CONTINUOUS

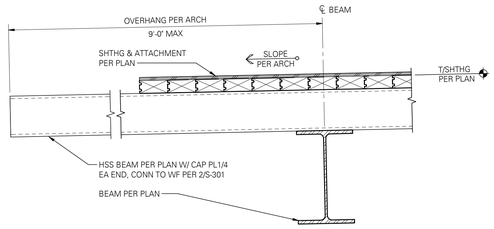
NOTES:

1. CHAMFER CORNERS AS REQUIRED AT BEAM "K" REGION.

2. BEARING PLATE WIDTH = (BEAM WIDTH OR IF COLUMN IS WIDER THAN BEAM, COLUMN WIDTH + 1") MINIMUM.

1 BEAM TO HSS COLUMN CONNECTIONS

SCALE: 1" = 1'-0" (05050M)

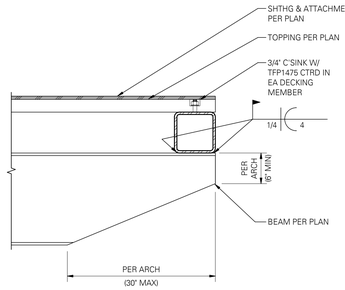


NOTES:

T&G TO HSS ATTACHMENT PER 3/S-301.

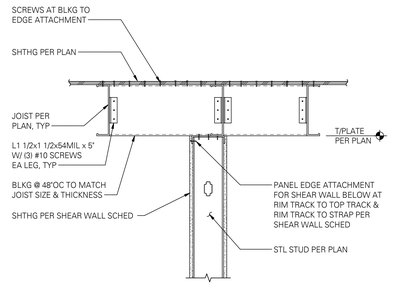
2 HSS BEAM TO WF BEAM AT CANOPY

SCALE: 1" = 1'-0"



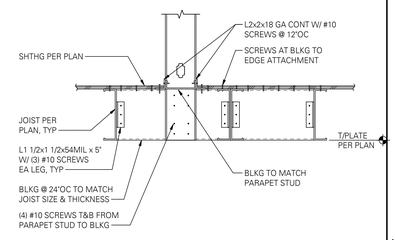
3 CANOPY DETAIL

SCALE: 1" = 1'-0"



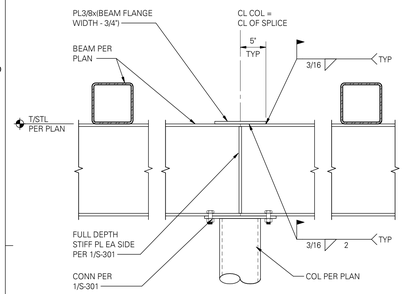
4 TYPICAL INTERIOR WALL AT MEZZANINE WITH JOISTS PARALLEL

SCALE: 1" = 1'-0" (07133)



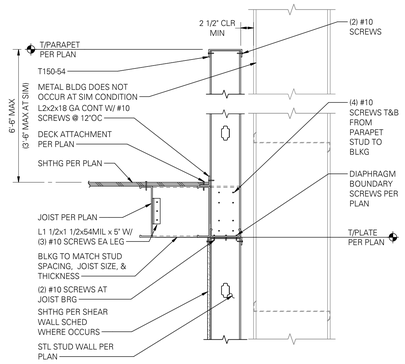
5 TYPICAL PARAPET AT MEZZANINE WITH JOISTS PARALLEL

SCALE: 1" = 1'-0"



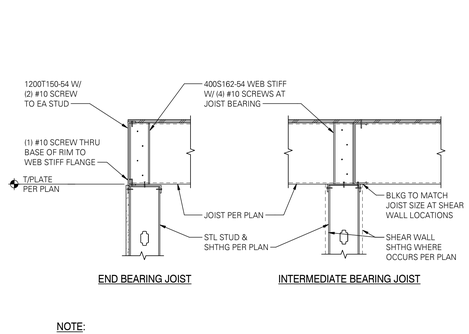
6 BEAM SPLICE OVER COLUMN

SCALE: 1" = 1'-0"



7 TYPICAL EXTERIOR WALL AT MEZZANINE WITH JOISTS PARALLEL

SCALE: 1" = 1'-0"



END BEARING JOIST

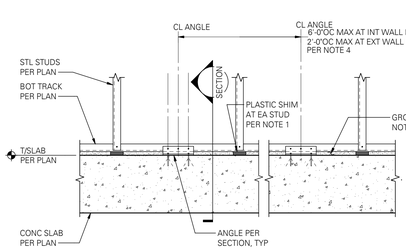
INTERMEDIATE BEARING JOIST

NOTE:

STIFFENER MUST EXTEND TO WITHIN 1/8" OF TOP AND BOTTOM FLANGE OF JOIST.

8 TYPICAL BEARING WALL WEB STIFFENER CONDITION

SCALE: 1" = 1'-0" (07156M)



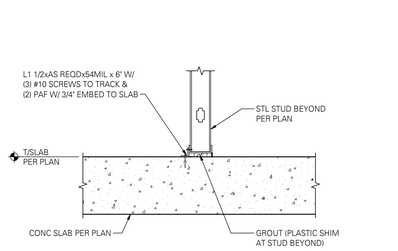
NOTES:

1. SHIMS SHALL BE LOCATED DIRECTLY BENEATH ALL STUDS WITH FULL BEARING. SHIMS SHALL BE POSITIVELY ATTACHED TO THE BOTTOM TRACK AND EXTEND A MINIMUM OF 1/8" ON EACH SIDE OF THE TRACK. SHIM PRODUCT DATA SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR APPROVAL PRIOR TO INSTALLATION.

2. IN LOCATIONS WHERE THE GAP BETWEEN THE BOTTOM OF THE TRACK AND THE TOP OF SLAB EXCEEDS 1/4", DRY-PACK GROUT SHALL BE PLACED BETWEEN THE SHIMS. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR ALL GROUTING BENEATH STEEL STUD WALLS. A 3/4" DIAMETER HOLE SHALL BE DRILLED AT 10'-0"OC MAXIMUM TO ENSURE SOLID GROUTING BENEATH THE TRACK.

9 TYPICAL STEEL STUD BEARING REQUIREMENTS (NON-SHEAR WALL)

SCALE: 1" = 1'-0" (07002M)



SECTION

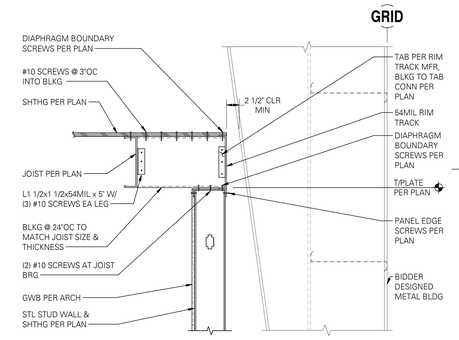
3. WHERE THE GAP BETWEEN THE BOTTOM OF THE TRACK AND THE TOP OF SLAB EXCEEDS 1" CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR ALTERNATIVE PROCEDURES.

4. AT EXTERIOR WALLS, ADDITIONAL ANGLE IS REQUIRED ON EACH SIDE OF DOOR AND WINDOW OPENINGS. INSTALL ANGLES ON INTERIOR FACE OF EXTERIOR STUD WALL.

5. IF FULL AND LEVEL BEARING OF THE BOTTOM TRACK ON SLAB CAN BE ACHIEVED WITHOUT SHIMS AND GROUT, BOTTOM TRACK ATTACHMENT TO SLAB PER 18/S-301.

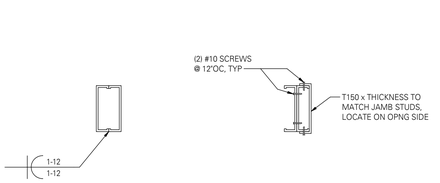
10 TYPICAL NON-BEARING WALL CONNECTION TO JOISTS

SCALE: 1" = 1'-0" (07190M)



11 TYPICAL JOIST PARALLEL TO EXTERIOR WALL

SCALE: 1" = 1'-0" (07211)



WELDED OPTION

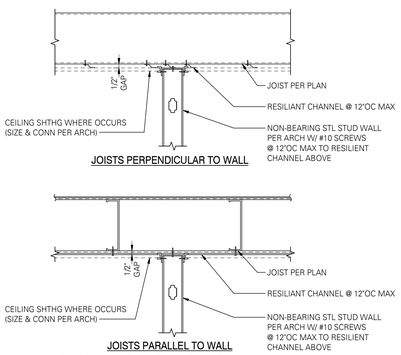
SCREWED OPTION

NOTE:

SINGLE JAMB STUDS ARE ACCEPTABLE WHERE ALLOWED PER PLAN NOTES, STUD SIZE PER PLAN NOTES.

12 TYPICAL JAMB STUD DETAIL

SCALE: 1 1/2" = 1'-0" (07103)

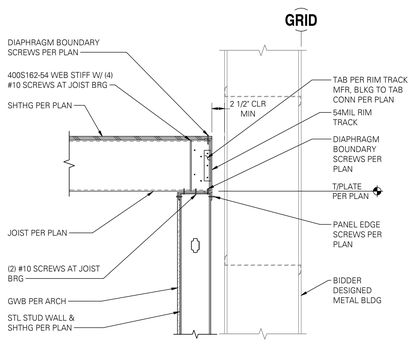


JOISTS PERPENDICULAR TO WALL

JOISTS PARALLEL TO WALL

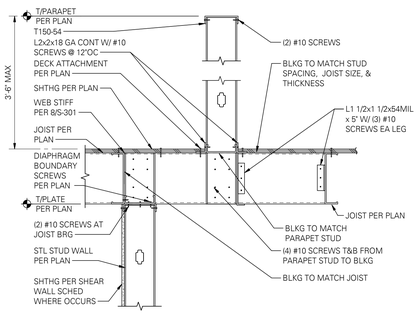
16 TYPICAL NON-BEARING WALL CONNECTION TO JOISTS

SCALE: 1" = 1'-0" (07190M)



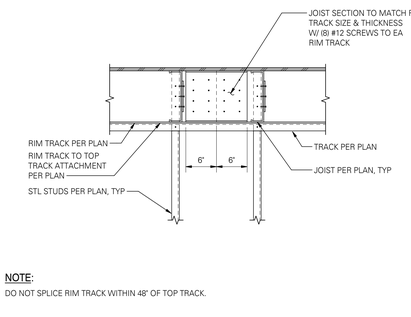
17 TYPICAL JOIST PERPENDICULAR TO EXTERIOR WALL

SCALE: 1" = 1'-0"



18 TYPICAL EXTERIOR WALL AT MEZZANINE WITH JOISTS PERPENDICULAR

SCALE: 1" = 1'-0"

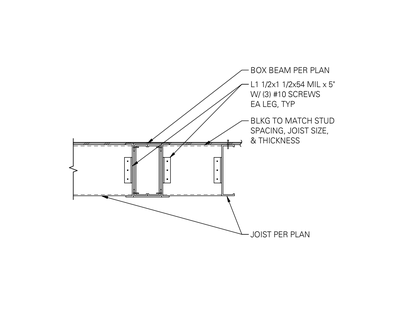


NOTE:

DO NOT SPLICE RIM TRACK WITHIN 48" OF TOP TRACK.

19 TYPICAL RIM TRACK SPLICE

SCALE: 1" = 1'-0" (07101M)



20 BOX BEAM TO BOX BEAM CONNECTION

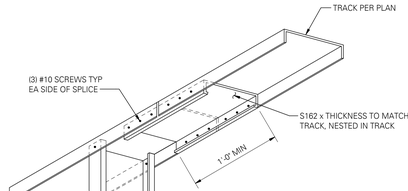
SCALE: 1" = 1'-0"

NOTE:

THIS DETAIL APPLIES TO TOP AND BOTTOM TRACKS OF ALL STRUCTURAL STEEL STUD WALLS UNO. AT NON-STRUCTURAL WALLS, USE TOP DEFLECTION TRACK PER 18/S-301.

14 TYPICAL TOP AND BOTTOM TRACK DETAIL

SCALE: 1" = 1'-0" (07000)



NOTE:

TOP AND BOTTOM TRACK SPLICES SHALL BE STAGGERED 48" MINIMUM.

15 TYPICAL TRACK SPLICE

SCALE: 1 1/2" = 1'-0" (07001)

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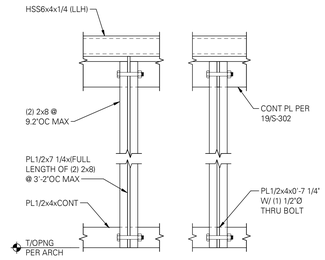
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1	06-23-2023	50% CD'S
2	07-24-2023	PERMIT SET
3	08-25-2023	BID PACKAGE 1

PROJ. NO.	22041-0451
DRAWN	JLP
CHECKER	MST
PROJ MNGR	KEA
DATE	05/25/2023

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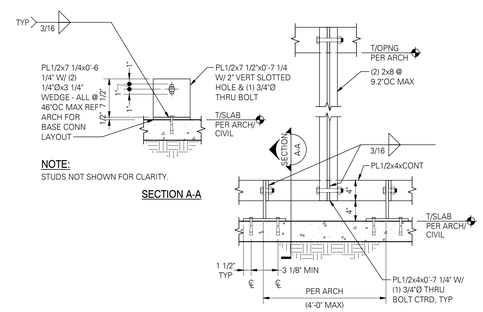
FRAMING DETAILS

S-301



NOTE:
1. FASCIA ATTACHMENT PER 14/S-302.
2. TOP CONNECTION PER 19/S-302.
3. PLATE SPLICE LOCATIONS PER ARCH & 16/S-302

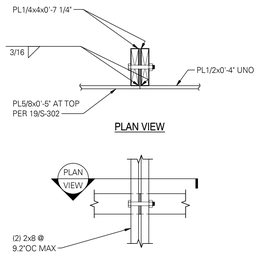
3 LARGE OPENING WOOD SLAT WALL SUPPORT
SCALE: 1" = 1'-0"



NOTE:
STUDS NOT SHOWN FOR CLARITY.

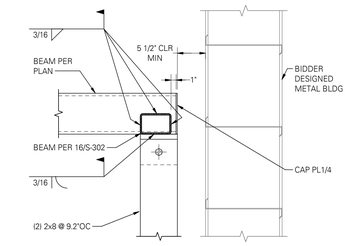
SECTION A-A

4 WOOD SLAT WALL - BOTTOM CONNECTION
SCALE: 1" = 1'-0"



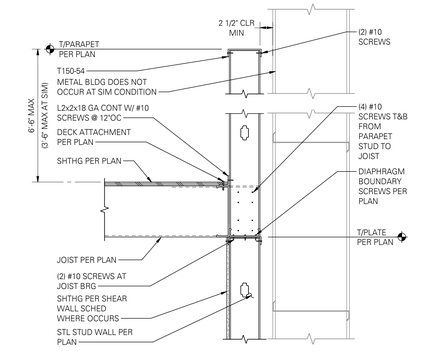
NOTE:
PLATE SPLICE LOCATIONS PER ARCH & 16/S-302.

8 WOOD SLAT WALL SPLICE CONNECTION AT ADJOINING PANELS
SCALE: 1" = 1'-0"

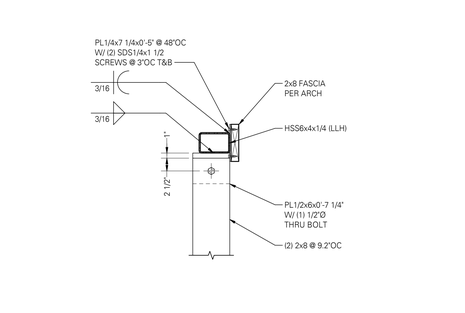


NOTE:
ADDITIONAL TWO 2x8 CONNECTION INFORMATION PER 14/S-302.

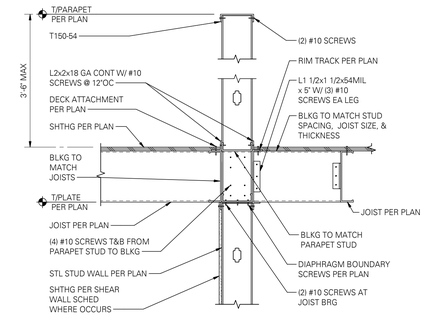
9 HSS INFILL CONNECTION TO HSS BEAMS
SCALE: 1" = 1'-0"



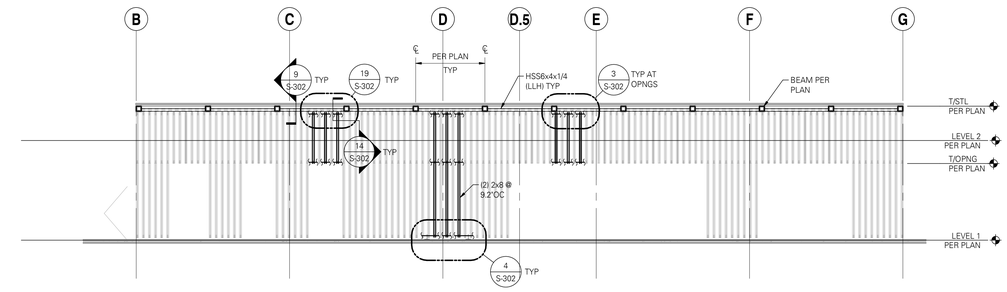
10 TYPICAL EXTERIOR WALL AT MEZZANINE WITH JOISTS PERPENDICULAR
SCALE: 1" = 1'-0"



14 WOOD SLAT WALL - FASCIA CONNECTION
SCALE: 1" = 1'-0"

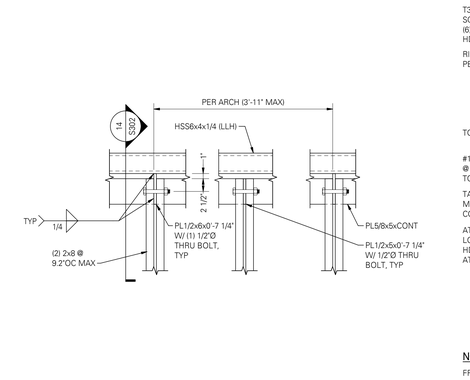


15 TYPICAL EXTERIOR WALL AT MEZZANINE WITH JOISTS PERPENDICULAR
SCALE: 1" = 1'-0"

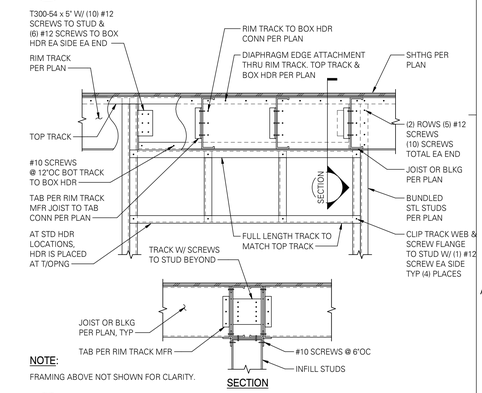


NOTE:
REFERENCE ARCH AND 8/S-302 FOR WOOD SLAT WALL PANELIZATION AND SPLICE LOCATIONS.

16 WOOD SLAT WALL ELEVATION
SCALE: 1/8" = 1'-0"



19 WOOD SLAT WALL - TOP CONNECTION
SCALE: 1" = 1'-0"



NOTE:
FRAMING ABOVE NOT SHOWN FOR CLARITY.

20 TYPICAL BOX HEADER
SCALE: 1" = 1'-0" (07151M)

FOR PERMIT
These drawings are sufficiently complete for submission to the jurisdiction having authority for permit. The Contractor shall not use these drawings for construction until Contractor receives written approval for use in connection by the jurisdiction having authority and ALSC Engineers.

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LICENSED PROFESSIONAL ENGINEER
13697
STATE OF IDAHO
JUSTIN B. COOK

SANDPOINT

CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE 1

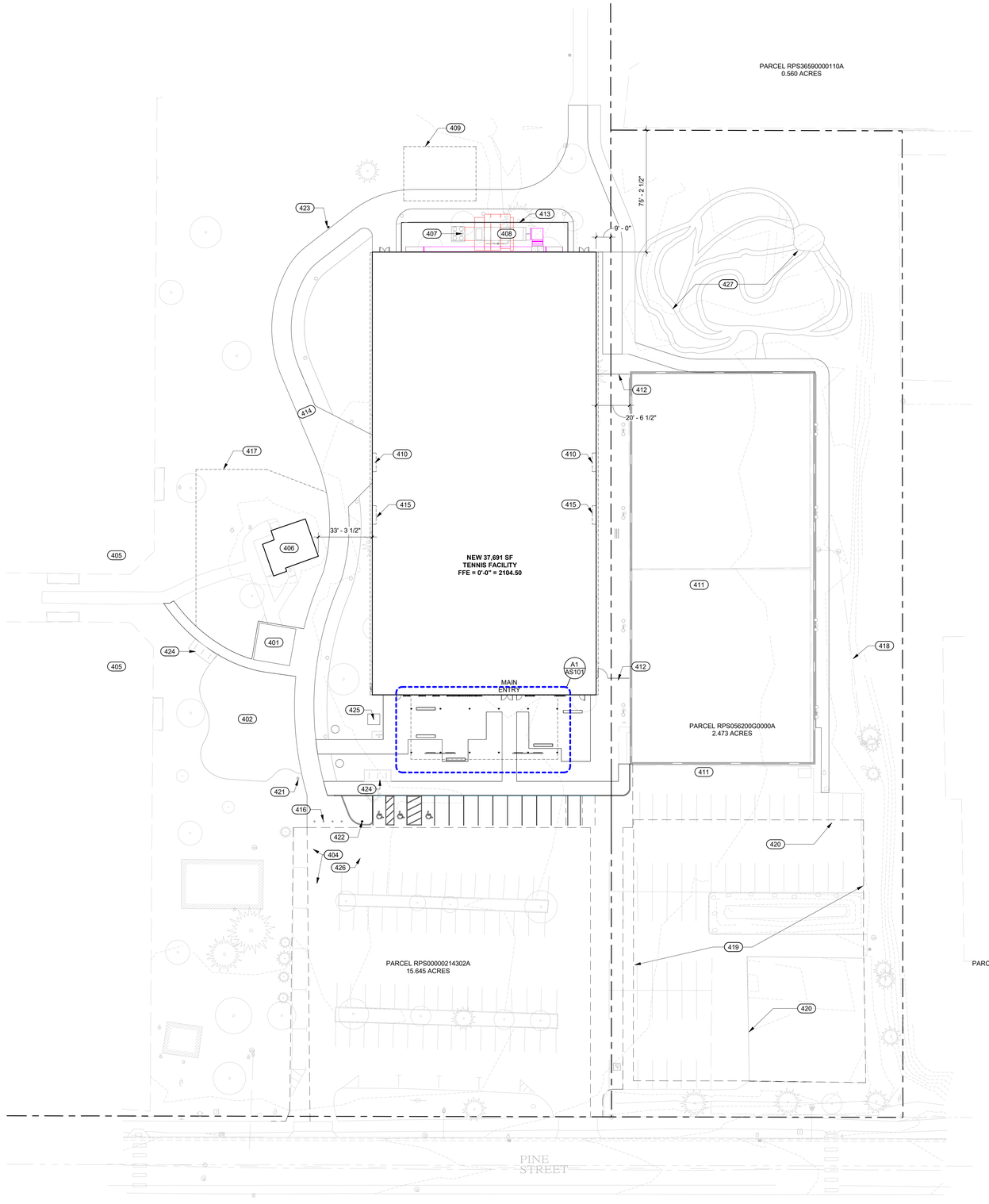
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PROJ. NO.	22041-0451
DRAWN	JLP
CHECKER	MST
PROJ MNGR	KEA
DATE	05/25/2023

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FRAMING DETAILS

S-302



A1 SITE PLAN
SCALE: 1" = 30'-0"

PROJECT NORTH

LEGAL DESCRIPTION / ZONING INFORMATION

AHJ: CITY OF SANDPOINT BUILDING & PLANNING DEPT
SANDPOINT CITY CODE, TITLE 9, ZONING

A.	PARCEL NUMBER	RPS00000214302A
B.	PROPERTY ADDRESS	2016 PINE STREET
C.	LEGAL DESCRIPTION	21-57N-2W TAX 2, LESS TAX 26 TRAVER'S PARK
D.	ZONING	RESIDENTIAL SINGLE FAMILY - RS
E.	MAX BUILDING AREA	35% OF LOT AREA
F.	MAX IMPERVIOUS AREA	30% OF LOT AREA
G.	MAX BUILDING HEIGHT	N/A
H.	FRONT YARD SETBACK	20'-0" FROM PROPERTY LINE
I.	SIDE YARD SETBACK	5'-0" FROM PROPERTY LINE
J.	REAR YARD SETBACK	15'-0" FROM PROPERTY LINE
K.	PROPOSED SQUARE FOOTAGE	37,656 SF
L.	PROPOSED BUILDING HEIGHT	55'-0" / 1 STORY
M.	PARKING REQUIREMENTS TOTAL PARKING PROVIDED:	3 NEW ADA STALLS 12 NEW STANDARD STALLS *131 EXISTING STALLS (TBD - BASED ON SKATE PARK EXTENTS)*

CODED NOTES

NUMBER	DESCRIPTION
401	RELOCATED PICNIC SHELTER-SEE LANDSCAPE
402	RELOCATED PLAYGROUND-SEE LANDSCAPE
404	BRONZE STATUE - OFCI, SEE LANDSCAPE
405	EXISTING SOFTBALL FIELD TO REMAIN
406	EXISTING RESTROOMS & CONCESSIONS BUILDING TO REMAIN
407	FUTURE CONDENSER LOCATION
408	AIR HANDLING UNIT-SEE MECH
409	EXISTING BATTING CAGES TO BE RELOCATED
410	OVERHEAD DOOR LOCATION
411	ALT #1: DEMOLISH AND REPLACE EXISTING TENNIS COURTS, SEE CIVIL AND LANDSCAPE. SALVAGE FENCING & SITE LIGHTING FOR POSSIBLE REUSE
412	CHAIN LINK FENCE & GATE
413	SITE OBSCURING FENCE ENCLOSURE
414	12' WIDE ASPHALT TRAIL W/ 8' WIDE GRAVEL SHOULDER FOR 20' FIRE ACCESS
415	ALTERNATE – OVERHEAD DOOR LOCATION
416	REMOVABLE BOLLARD, TYP OF (4) - SEE CIVIL
417	DASHED LINE INDICATES EXTENTS OF FUTURE PLAYGROUND EXTENSION & SPLASH PAD, NIC
418	TRAIL, SEE CIVIL
419	EXTENTS OF PROPOSED SKATE PARK EXPANSION, NIC
420	EXISTING SKATE PARK TO REMAIN
421	EXISTING FIRE HYDRANT
422	NEW FIRE HYDRANT AND FIRE DEPARTMENT CONNECTION - SEE CIVIL
423	NEW FIRE HYDRANT - SEE CIVIL
424	BIKE RACK, SEE LANDSCAPE
425	TRANSFORMER, SEE ELECTRICAL
426	DRINKING FOUNTAIN W/CONCRETE PAD, SEE LANDSCAPE
427	BIKE SKILLS COURSE, NIC

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TRAVERS PARK RECREATION CENTER

BID PACKAGE #1

REV	DATE	DESCRIPTION

PROJ. NO.	2023-011
DRAWN	RM
PROJ MNGR	GS
DATE	08/25/23

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SITE PLAN

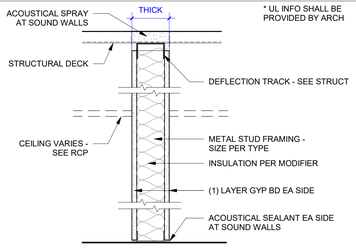
AS100

INTERIOR PARTITIONS

TYPE			THICK	MODIFIER
A	A4	3 5/8" MTL STUD	4 7/8"	**S** SOUND ATTEN INSUL
	A6	6" MTL STUD	7 1/4"	**t** THERMAL INSULATION
	A8	8" MTL STUD	9 1/4"	
				x SMOKE PARTITION

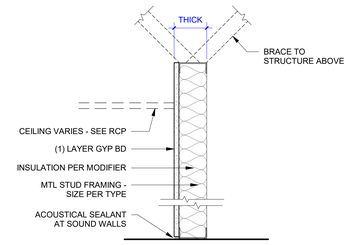
1-HR RATING WHERE INDICATED, IN ACCORDANCE WITH UL FILE # U419 *

* UL INFO SHALL BE PROVIDED BY ARCH



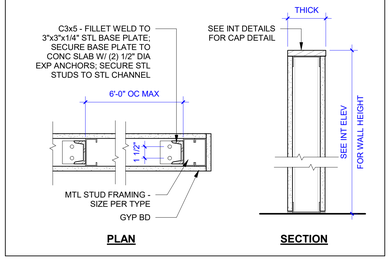
TYPE			THICK	MODIFIER
D	D1	7/8" HAT CHANNEL	1 1/2"	**S** SOUND ATTEN INSUL
	D4	3 5/8" MTL STUD	4 1/4"	**t** THERMAL INSULATION
	D6	6" MTL STUD	6 5/8"	
	D8	8" MTL STUD	8 5/8"	

NON-RATED



TYPE			THICK	MODIFIER
G	G4	3 5/8" MTL STUD	4 3/4"	
	G6	6" MTL STUD	6 3/4"	
	G8	8" MTL STUD	8 1/2"	

NON-RATED

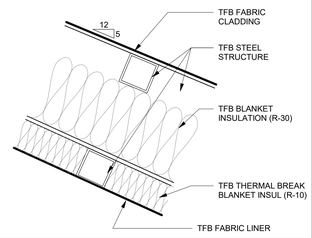


ROOF ASSEMBLIES

xR1

INSULATION CAVITY	U FACTOR	PROPOSED UA	TARGET UA
R-30			

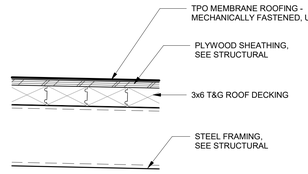
TENSION FABRIC BUILDING SYSTEM ROOF



xR2

INSULATION	U FACTOR	PROPOSED UA	TARGET UA
N/A			

ROOF @ CANOPY

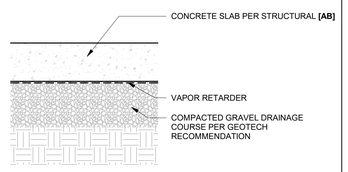


FLOOR ASSEMBLIES

xF1

CONCRETE SLAB ON GRADE

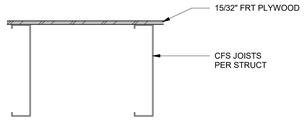
NOT RATED



*NOTE: PROVIDE R-10ci TO A DEPTH OF 24" AT ENTIRE SLAB PERIMETER

xF2

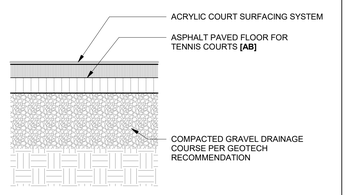
PLYWOOD OVER CFS JOISTS



xF3

ASPHALT PAVED FLOOR ON GRADE

NOT RATED



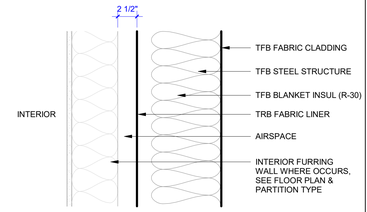
*NOTE: PROVIDE R-10ci TO A DEPTH OF 24" AT ENTIRE SLAB PERIMETER

EXTERIOR WALL ASSEMBLIES

xW1

INSULATION CAVITY		
R-30		

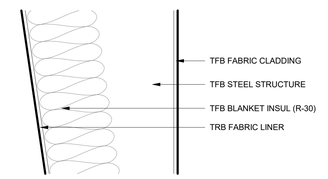
TENSION FABRIC BUILDING SYSTEM @ END WALL



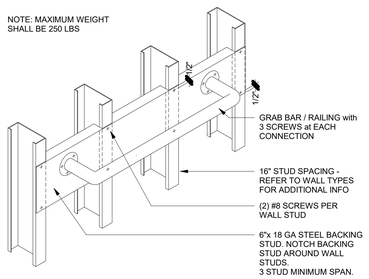
xW2

INSULATION CAVITY + CI		
R-30		

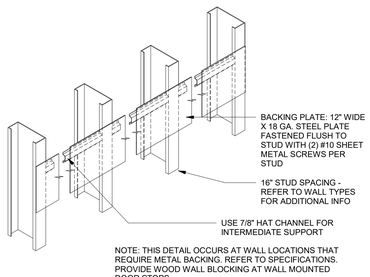
TENSION FABRIC BUILDING SYSTEM @ SIDEWALL



NOTE: MAXIMUM WEIGHT SHALL BE 250 LBS

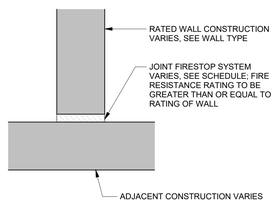


WALL BLOCKING - GRAB BARS & HANDRAILS



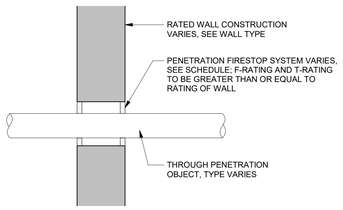
NOTE: THIS DETAIL OCCURS AT WALL LOCATIONS THAT REQUIRE METAL BACKING. REFER TO SPECIFICATIONS. PROVIDE WOOD WALL BLOCKING AT WALL MOUNTED DOOR STOPS.

WALL BLOCKING



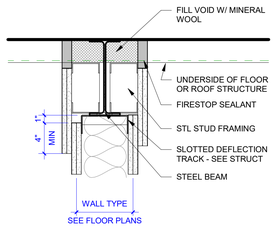
JOINT FIRESTOPPING

SCALE : NOT TO SCALE



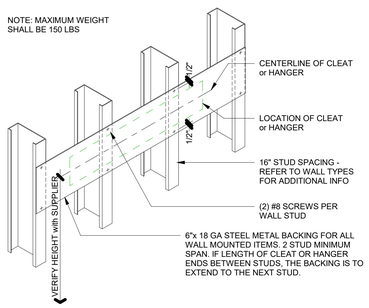
PENETRATION FIRESTOPPING

SCALE : NOT TO SCALE



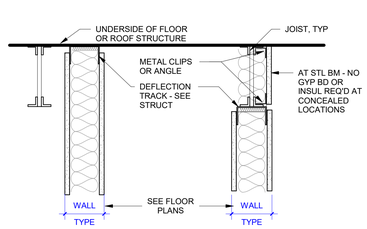
FIRE RESISTANT ASSEMBLY - TOP OF WALL DETAIL @ BEAM

NOTE: MAXIMUM WEIGHT SHALL BE 150 LBS



WALL BLOCKING

WALL HUNG ACCESSORIES, WALL HUNG CABS

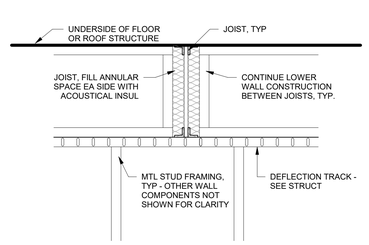


CONDITION 1
USE WHEN STRUCTURE IS NOT IN LINE WITH WALL

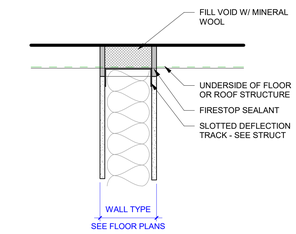
OR

CONDITION 2
USE WHEN STRUCTURE IS FULLY OR PARTIALLY IN LINE WITH WALL

WALL PARALLEL TO JOISTS



WALL PERPENDICULAR TO JOISTS



FIRE RESISTANT ASSEMBLY - HEAD OF WALL

TYP TOP OF WALL - FULL HEIGHT WALL - METAL STUD

SCALE : NOT TO SCALE

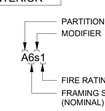
WALL TAG DESIGNATION LEGEND

EXTERIOR



SEE BUILDING ASSEMBLIES ON SHEET A-050

INTERIOR



EXAMPLES:

WALL GENERAL NOTES

1. INTERIOR PARTITIONS SHALL EXTEND FULL HEIGHT TO THE UNDERSIDE OF FLOOR DECK OR ROOF DECK ABOVE, UNO.
2. STUD SPACING SHALL BE 16"OC TYPICAL.
3. WALL TYPES INDICATE GENERIC CONSTRUCTION. FINISH AND COLOR SCHEDULES IDENTIFY SPECIFIC MATERIALS TO BE USED FOR THE SUBSTRATES. THIS MUST BE USED WITH THIS SCHEDULE TO UNDERSTAND THE TOTAL ASSEMBLY AND ITS FINISHES.
4. TYPICAL CONDITIONS (UNO):
   A. PERIMETER RELIEF: WHERE PARTITIONS MEET STRUCTURE OR DISSIMILAR CONSTRUCTION, PROVIDE PERIMETER RELIEF. SEE STRUCTURAL FOR DEFLECTION CRITERIA.
   B. FIRE RATED WALL FACE MATERIAL TERMINATIONS: CONTINUOUS FROM TOP OF FLOOR SLAB TO FLOOR OR ROOF SLAB ABOVE.
   C. ACOUSTICAL WALL SUBSTRATE MATERIAL: CONTINUOUS FROM TOP OF FLOOR SLAB TO FLOOR OR ROOF SLAB ABOVE. SEAL DEFLECTION SPACE AS REQUIRED.
5. SOUND TESTS SHOWN HAVE BEEN CONDUCTED ACCORDING TO THE REQUIREMENTS OF ASTM E 90 FOR LABORATORY TESTS OR ASTM 336 FOR FIELD TESTS. THE CONTRACTOR MUST ADHERE TO SPECIFIED MATERIALS AND CONSTRUCTION DETAILS FOR SOUND AND FIRE RATED ASSEMBLIES, ALL OPENINGS THROUGH THE ASSEMBLY, AND ITS ENTIRE PERIMETER, MUST BE SEALED AIRTIGHT.
6. FIRE RATED WALL CONSTRUCTION: PROVIDE FIRE STOPPING TO MEET FIRE RATINGS REQUIRED. WHERE OPENINGS ARE OVERSIZED, PROVIDE WALL INFILL TO MEET FIRE RATINGS.
7. ACOUSTICAL INFILL: ACCEPTABLE MATERIALS FOR USE AT THESE TOP OF WALL / FLUTE LOCATIONS INCLUDE SEMI-RIGID ACOUSTICAL INSULATION, FOAMED-IN-PLACE INSULATION OR RIGID FOAM FLUTE INSERTS.

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SANDPOINT

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TRAVERS PARK RECREATION CENTER

BID PACKAGE #1

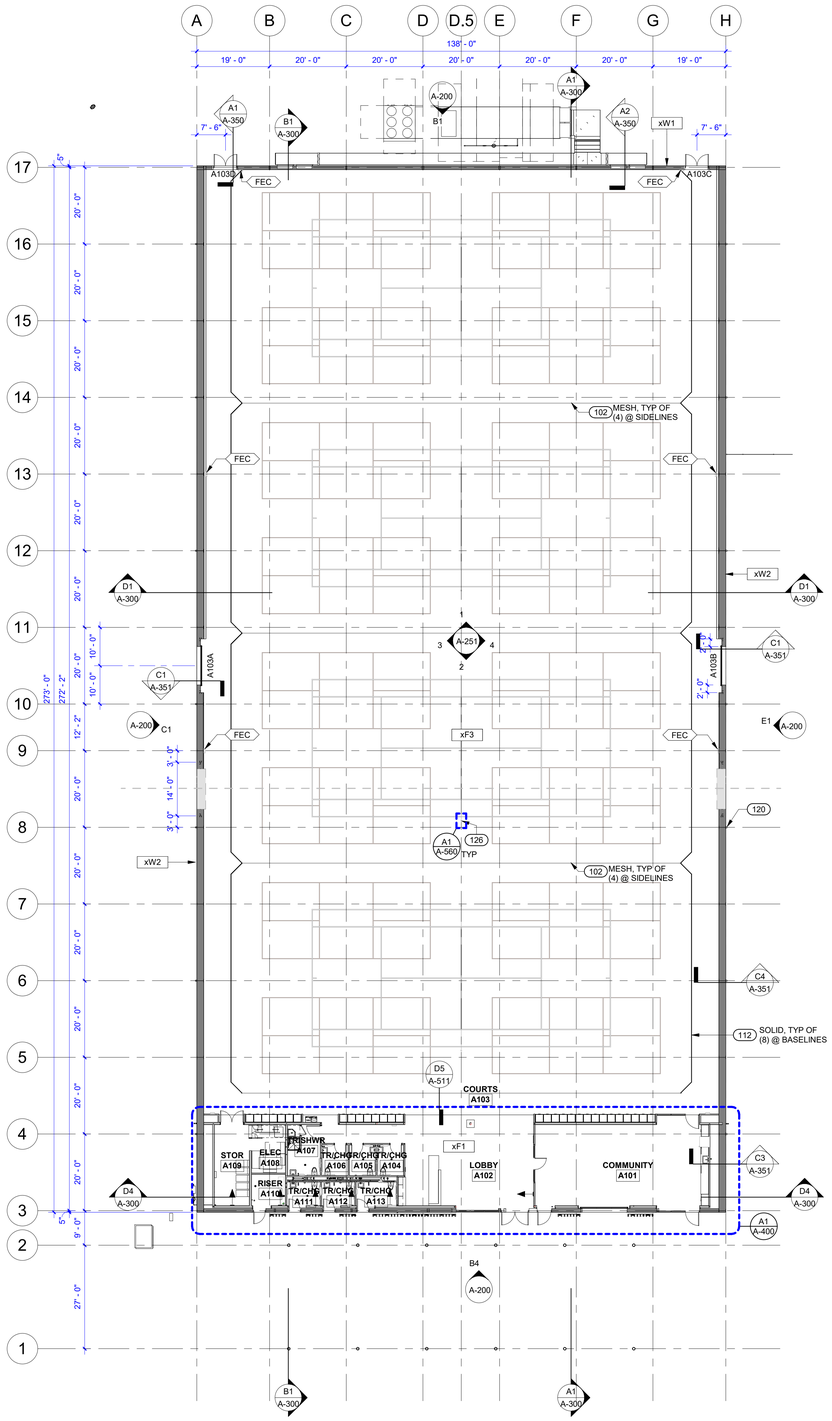
REV	DATE	DESCRIPTION

PROJ. NO.	2023-011
DRAWN	RM
PROJ MNGR	GS
DATE	08/25/23

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ENVELOPE ASSEMBLIES & PARTITION TYPES

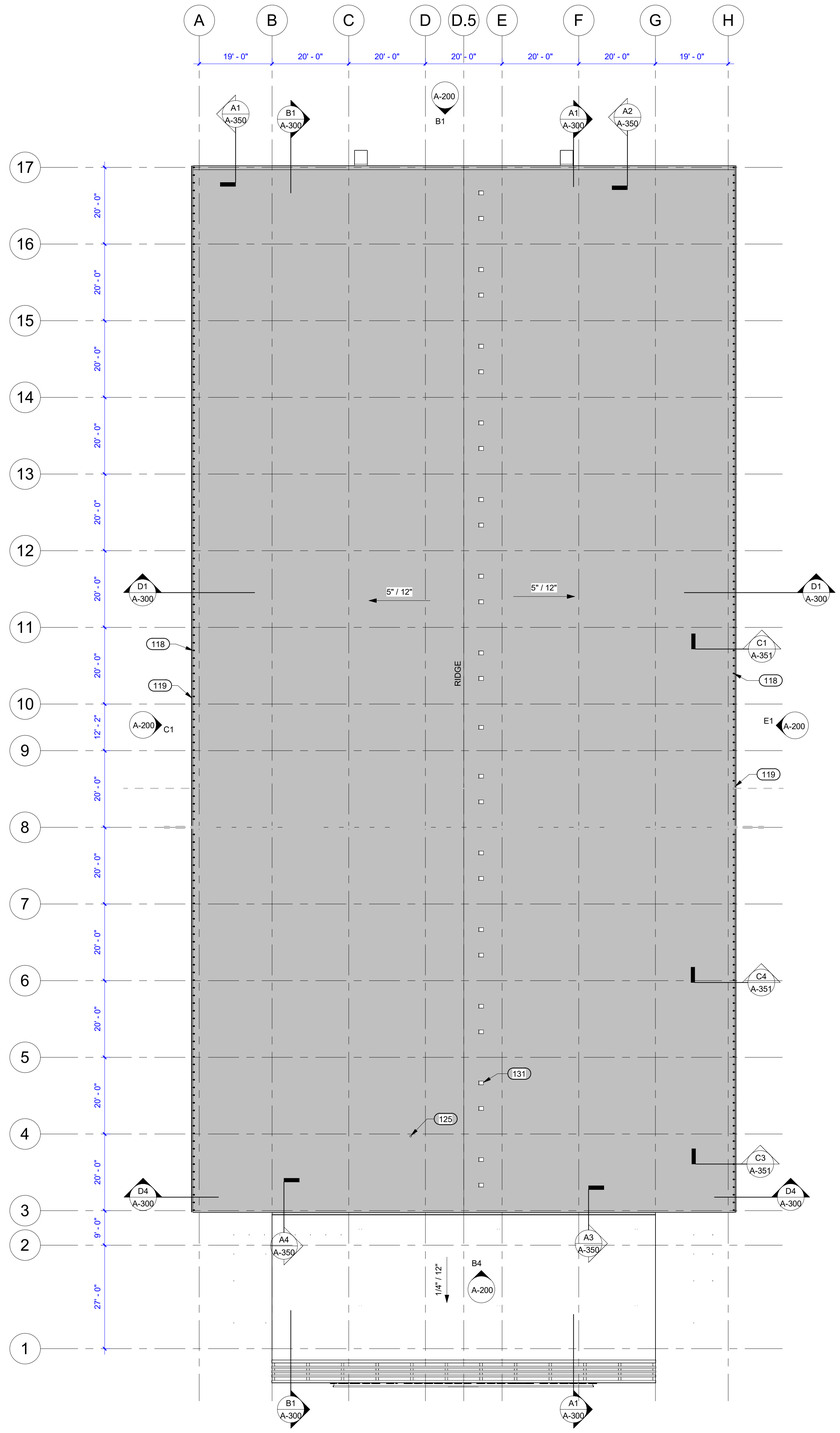
A-050



A1 LEVEL 1 FLOOR PLAN

SCALE: 1/16" = 1'-0"

PROJECT NORTH



A3 ROOF - OVERALL PLAN

SCALE: 1/16" = 1'-0"

GENERAL NOTES

1. DIMENSIONS ARE TO FACE OF STUD AT PARTITIONS, GRID LINES, FACE OF CMU, AND CENTERLINE OF COLUMNS UNO
2. CLR DIMENSIONS INDICATE CLEAR DIMENSIONS FROM FACE OF WALL FINISH
3. WALL TYPES DEFINE THE ENTIRE LENGTH OF A WALL ON THE WALL SIDE NOTED FROM CORNER TO CORNER UNO. SEE SHEET A-051 FOR WALL TYPES LEGEND.
4. ALL WALLS NOT DESIGNATED WITH A WALL TYPE OR NOTED OTHERWISE SHALL BE A6s.
5. SEE DOOR SCHEDULE FOR DOOR AND RELITE FRAME TYPES AND DETAIL REFERENCES
6. SEE GLAZING SCHEDULES FOR CURTAIN WALL AND INTERIOR AND EXTERIOR STOREFRONT SIZES AND INFORMATION
7. SEE ENLARGED PLANS FOR ADDITIONAL NOTES, INTERIOR ELEVATION CALLOUTS AND OTHER DETAILS WITHIN THE CALLOUT AREA.
8. PROVIDE WOOD WALL BLOCKING AT WALL MOUNTED DOOR STOPS. SEE DOOR SCHEDULE AND A-051.

GENERAL NOTES - ROOF

1. ARROWS INDICATE DIRECTION OF SLOPE. ALL SLOPES 1/2" PER FOOT, UNO.
2. SEE MECHANICAL DWGS FOR MORE INFORMATION, EQUIPMENT & ROOF PENETRATIONS
3. PROVIDE TAPERED INSULATION CRICKET AT ALL MECH EQUIPMENT
4. ALL ROOFING TO BE TPO.
5. SEE WALL SECTIONS FOR COPING & PARAPET INFORMATION.
6. REQUIRED SOLAR ZONE PER WSEC C411 IS PROVIDED. MINIMUM AREA HAS BEEN CALCULATED THROUGH METHOD C411.2.2, 20% OF ELECTRICAL SERVICE SIZE - 33,216 SF.
7. ALL ROOFS TO BE xR1 UNO
8. 4" CONC PAD (xR4 ROOF TYPE) TYPICAL AT ALL AHU ROOFTOP - SEE STRUCT FOR PAD LOCATIONS AND EXTENTS

ROOF LEGEND

xR1
FABRIC COLOR: GRAY

xR2

CODED NOTES

NUMBER	DESCRIPTION
102	MESH DIVIDER CURTAIN, 10'-0" HIGH
112	SOLID VINYL BACKSTOP CURTAIN, 10'-0"HIGH
118	ICE BREAKERS @ EAVES PER TFB MFR
119	MTL GUTTER W/ HEAT TRACE, RE: ELEC
120	DOWNSPOUTS @ 40' MAX OC PER TFB MFR
125	PLUMBING VENT STACK, PER MECH COORDINATION LOCATION W/ TFB MFR AND BRACE TO STRUCTURE
126	TENNIS NET SLEEVE & STANDARD, TYP @ 8 LOCATIONS. SEE STRIPING PLAN FOR EXACT PLACEMENT
131	ROOF VENT PER TFB MFR, TYP

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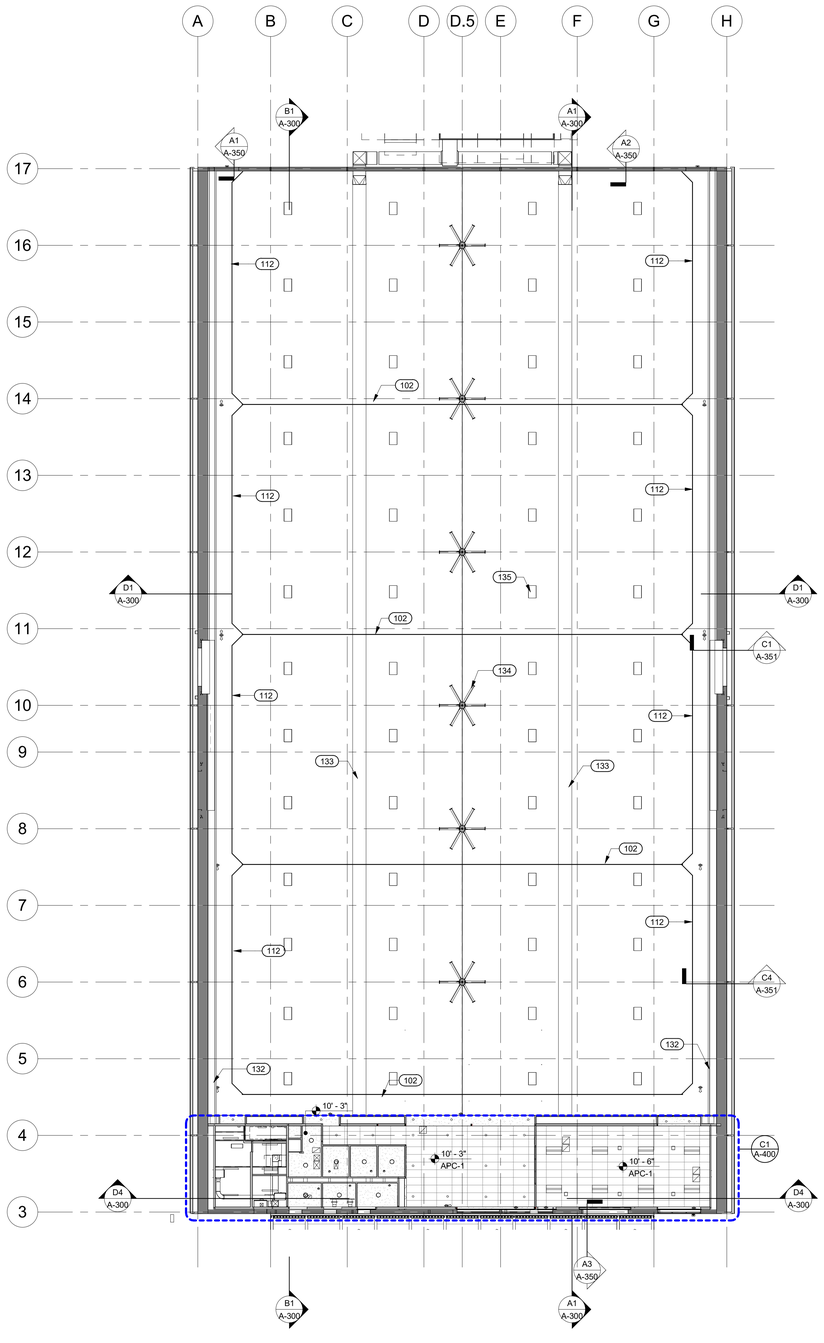
REV	DATE	DESCRIPTION

PROJ. NO.	2023-011
DRAWN	RM
PROJ MNGR	GS
DATE	08/25/23

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FLOOR & ROOF PLAN - OVERALL

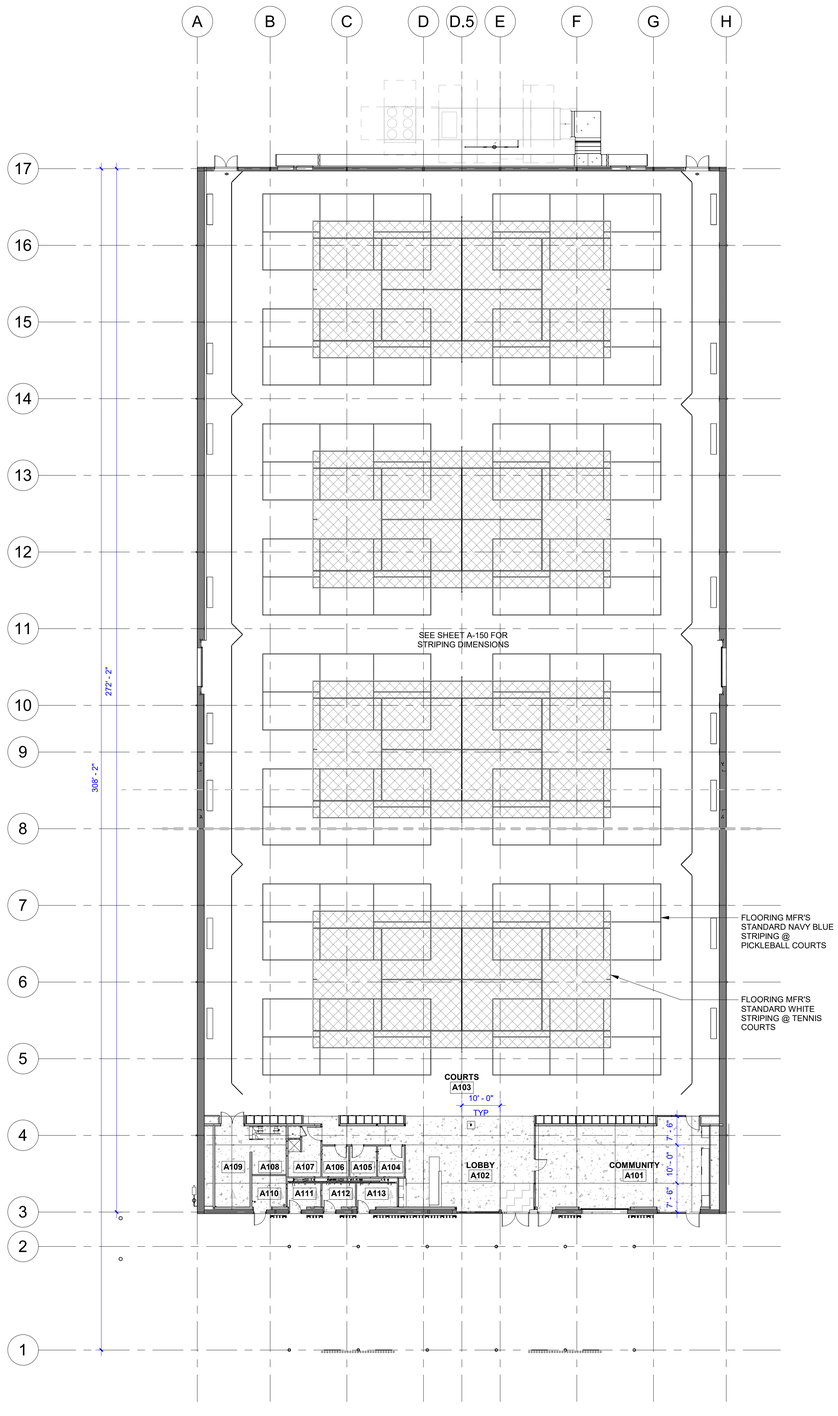
A-110



A1 LEVEL 1 - REFLECTED CEILING PLAN

SCALE: 1/16" = 1'-0"

PROJECT NORTH



A4 LEVEL 1 FLOOR FINISH PLAN

SCALE: 1/16" = 1'-0"

PROJECT NORTH

GENERAL NOTES - CEILING

1. ALL CEILING HEIGHTS LISTED ARE AFF, UNO
2. ACOUSTICAL PANEL CEILINGS AT 10'-0" AFF, UNO
3. GYP BD. CEILINGS AT 9'-0" AFF AND PAINTED P-4, UNO
4. AT ROOMS INDICATED IN FINISH SCHEDULE, PAINT OUT ALL VISIBLE CEILING ELEMENTS INCLUDING, BUT NOT LIMITED TO, STRUCTURE, MECHANICAL EQUIPMENT, DUCTS, PIPES, ETC. PAINT COLOR AS IDENTIFIED IN FINISH SCHEDULE
5. AT ROOMS WITH EXPOSED STRUCTURE AND/OR CEILING CLOUDS, EXTEND GYP BD AT WALLS TO ROOF DECK ABOVE.
6. ALL GYP BD WALLS & SOFFITS EXPOSED TO VIEW &/OR ADJACENT TO CEILING CLOUDS SHALL BE PAINTED TO UNDERSIDE OF STRUCTURE. MATCH COLOR OF GYP BD HORIZ SURFACE TO VERT SURFACE
7. ALL GYP BD SOFFITS TO BE PAINTED P-4, UNO.
8. FOR ROLLER SHADES THAT NOTE CEILING MOUNTED, SEE INT. ELEVATIONS AND SPEC SECTION 12 24 13.1 WINDOW SHADE SCHEDULE FOR LOCATIONS.

CEILING TYPE LEGEND

- APC-1
- GYP BOARD CEILING PAINTED
- WLC-2 SOLID WOOD PANEL
- WLC-1 PERFORATED WOOD PANEL
- OPEN TO STRUCTURE ABOVE
- xS1 EXTERIOR SOFFIT ASSEMBLY

LIGHTS

HVAC

GENERAL NOTES - FLOOR FINISHES

1. SEE 09 00 01 FINISH LEGEND FOR FLOOR MATERIAL TYPE. AT ALL AREAS WHERE NO HATCH PATTERN PROVIDED ASSUME SEALED CONCRETE, REFER TO FINISH SCHEDULE FOR VERIFICATION OF ALL FLOOR FINISHES.
2. FOR ALL RTF TO CONC TRANSITIONS SEE "TS-4" IN FINISH LEGEND. SEE DETAIL A6/A-553
3. FOR ALL PT TO CONC TRANSITIONS SEE "TS-6" IN FINISH LEGEND. SEE DETAIL A4/A-553
4. FOR ALL RTF TO CPT TRANSITIONS SEE "TS-1" IN FINISH LEGEND. SEE DETAIL B6/A-553
5. FOR ALL PT TO CPT TRANSITIONS SEE "TS-7" IN FINISH LEGEND. SEE DETAIL B4/A-553
6. FOR ALL EM TO CONC TRANSITIONS SEE "TS-2" IN FINISH LEGEND. SEE DETAIL A5/A-553.
7. FOR ALL RTF TO PT TRANSITIONS SEE "TS-5" IN FINISH LEGEND. SEE DETAIL B3/A-553
8. FOR ALL QUARRY TILE TO EM SEE "TTS-1" IN FINISH LEGEND. SEE DETAIL A3/A-553
9. FOR ALL EM TO CPT SEE "TS-3" IN FINISH LEGEND. SEE DETAIL B5/A-553
10. AT ALL BOOKCASES (CLASSROOM, LIBRARY, OFFICES, ETC..) AND CASEWORK NOTED AS "MOBILE" OR "MOVEABLE" OR THAT IS NOT ATTACHED TO THE WALL, RUN FLOOR FINISH BELOW, TYP
11. AT ADA ACCESSIBLE BASE CABINETS BELOW A COUNTER MOUNTED SINK, FLOOR FINISH TO BE INSTALLED BELOW CABINET TO THE WALL.
12. AT ALL FLOOR TRANSITIONS THAT OCCUR AT A DOORWAY, ALIGN FLOORING TRANSITION W/ CENTER OF DOOR PANEL, TYP

FLOOR FINISH LEGEND

- POLISHED CONCRETE
- CONTROL JOINT
- ACRYLIC TENNIS COATING SYSTEM COLOR: MFR'S STANDARD GREEN
- ACRYLIC TENNIS COATING SYSTEM COLOR: MFR'S STANDARD BLUE
- ENTRY MAT: EM-1

NOTE: SEE FINISH LEGEND SPECIFICATIONS FOR FLOORING TYPES

CODED NOTES

NUMBER	DESCRIPTION
102	MESH DIVIDER CURTAIN, 10'-0" HIGH
112	SOLID VINYL BACKSTOP CURTAIN, 10'-0"HIGH
132	FIRE SPRINKLER MAIN FOR BIDDER-DESIGNED FIRE SUPPRESSION SYSTEM. COORDINATE LOCATION AND SUPPORTS FOR MAINS AND BRANCHES WITH TFB STEEL FRAMING LOCATIONS
133	FABRIC DUCT, SEE MECH. COORDINATE LOCATION FOR SUPPORTS WITH TFB STEEL FRAMING LOCATIONS
134	HVLS FAN, SEE MECH. COORDINATE LOCATION FOR SUPPORTS WITH TFB STEEL FRAMING LOCATIONS
135	LIGHT FIXTURE, SEE ELEC. COORDINATE PLACEMENT WITH TFB STEEL FRAMING LOCATIONS

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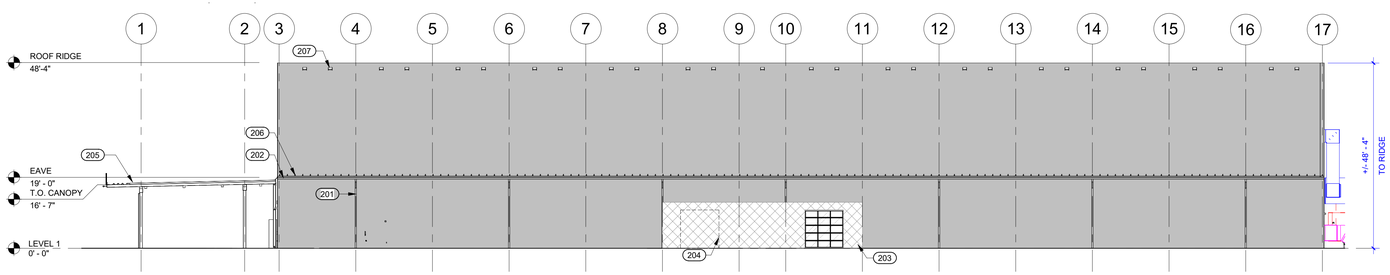
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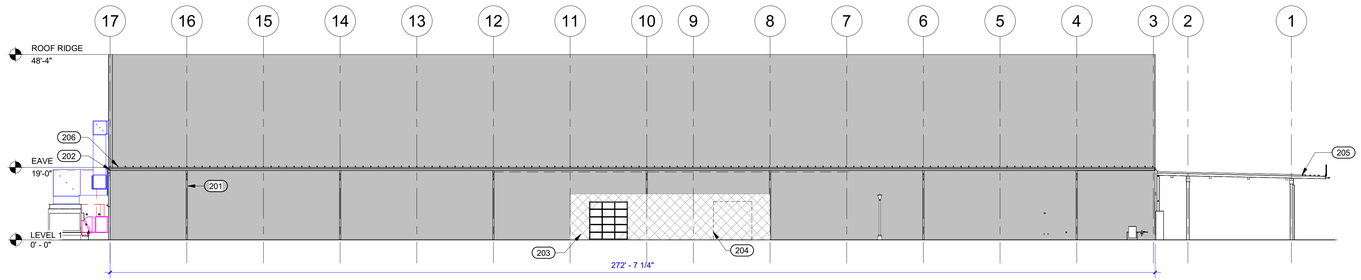
RCP & FINISH PLAN - OVERALL

A-120



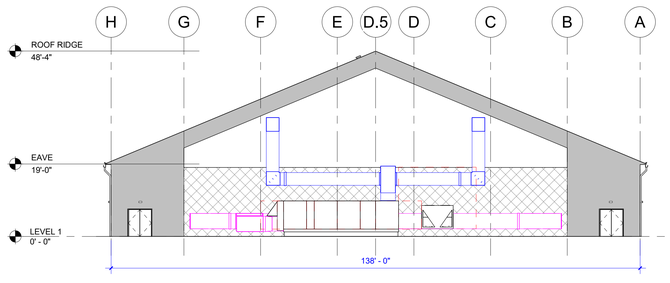
E1 EAST ELEVATION - OVERALL

SCALE: 1/16" = 1'-0"



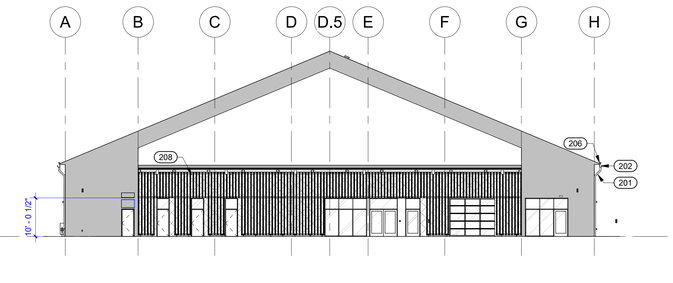
C1 WEST ELEVATION - OVERALL

SCALE: 1/16" = 1'-0"



B1 NORTH ELEVATION - OVERALL

SCALE: 1/16" = 1'-0"



B4 SOUTH ELEVATION - OVERALL

SCALE: 1/16" = 1'-0"

GENERAL NOTES

1. APPLY ANTI-GRAFFITI TO TOP OF 1ST FLOOR WINDOW HEAD AND WATER-REPELLENT COATINGS FULL HEIGHT TO ALL EXPOSED MASONRY AND CONC.
2. ALL PREFIN METAL COPING SHALL BE SM-1. SEE FINISH LEGEND.
3. AT ALL FLASHING THAT IS NOT CONTINUOUS (ABOVE OR BELOW OPENINGS IN THE WALL, THRU-WALL FLASHING TERMINATION AT DOOR JAMBS, ETC.), PROVIDE FLASHING END DAM.
4. ALL LINTELS AND EXPOSED STRUCTURAL STEEL SHAPES SHALL BE PAINTED P-3.
5. C | J DENOTES LOCATION OF MASONRY CONTROL JOINT.

MATERIAL LEGEND

NOTE: SEE FINISHES LEGEND FOR ADDITIONAL INFORMATION

- TENSION FABRIC 1 - GRAY
- TENSION FABRIC 2 - WHITE
- TENSION FABRIC 3 - BLUE
- GLAZING

CODED NOTES

NUMBER	DESCRIPTION
201	DOWNSPOUTS @ 40' MAX O.C. PER TFS MFR
202	MTL GUTTER W/HEAT TRACE, RE: ELEC
203	SEE LEGACY DRAWINGS FOR EXTENT OF BLUE FABRIC
204	ALTERNATE: OH DOOR
205	STEEL ENTRY CANOPY
206	ICE BREAKERS @ EAVES PER TFS MFR
207	ROOF VENT, TYP. SEE LEGACY DRAWINGS FOR LOCATIONS
208	WOOD SLAT WALL

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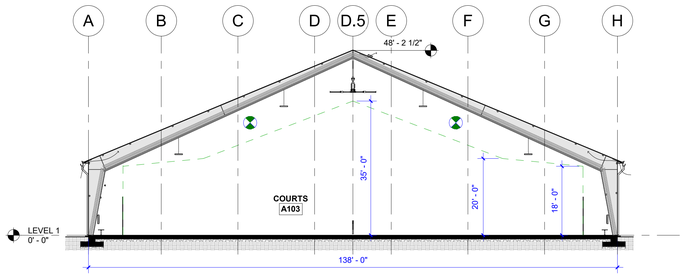
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PROJ MNGR	GS
DATE	08/25/23

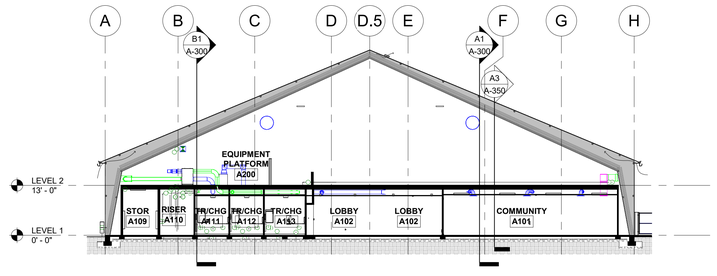
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EXTERIOR ELEVATIONS

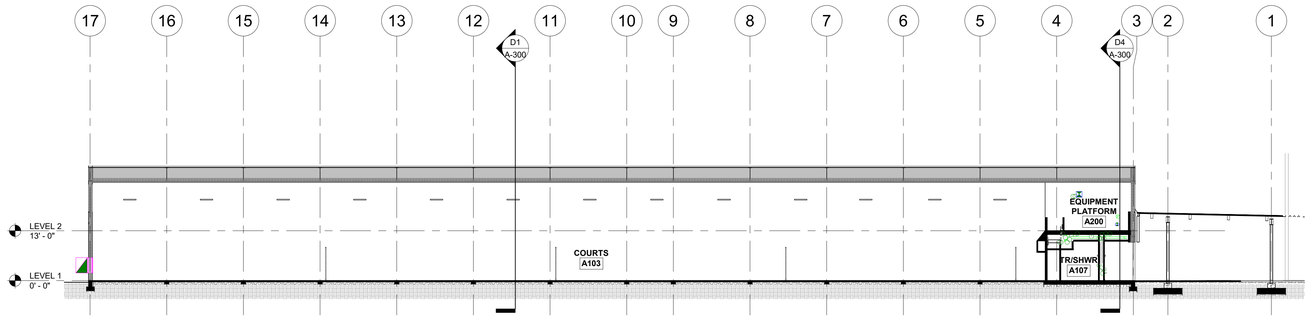
A-200



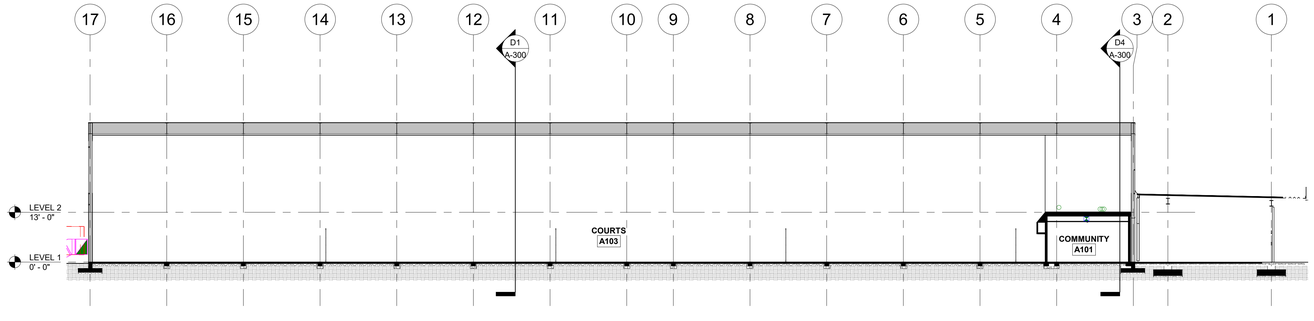
D1 EAST / WEST BUILDING SECTION - THRU COURTS
SCALE: 1/16" = 1'-0"



D4 EAST / WEST BUILDING SECTION - THRU LOBBY
SCALE: 1/16" = 1'-0"



B1 NORTH / SOUTH BUILDING SECTION
SCALE: 1/16" = 1'-0"



A1 NORTH / SOUTH BUILDING SECTION3
SCALE: 1/16" = 1'-0"

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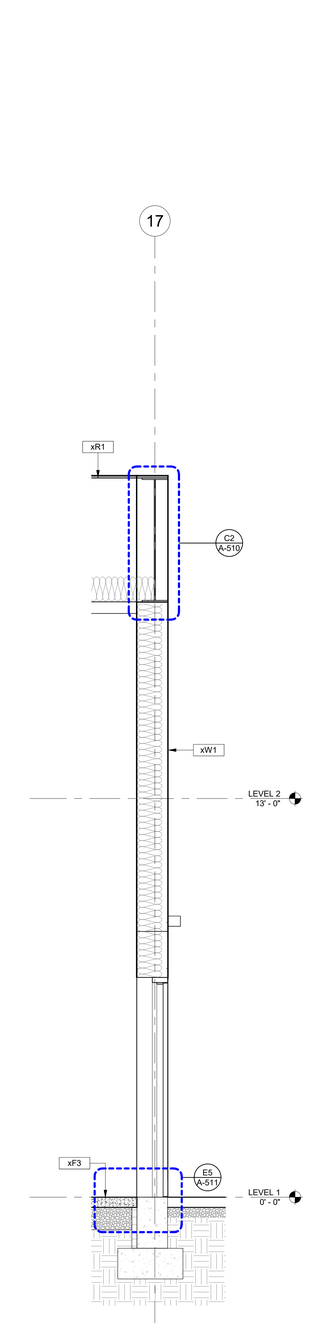
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PROJ MNGR	GS
DATE	08/25/23

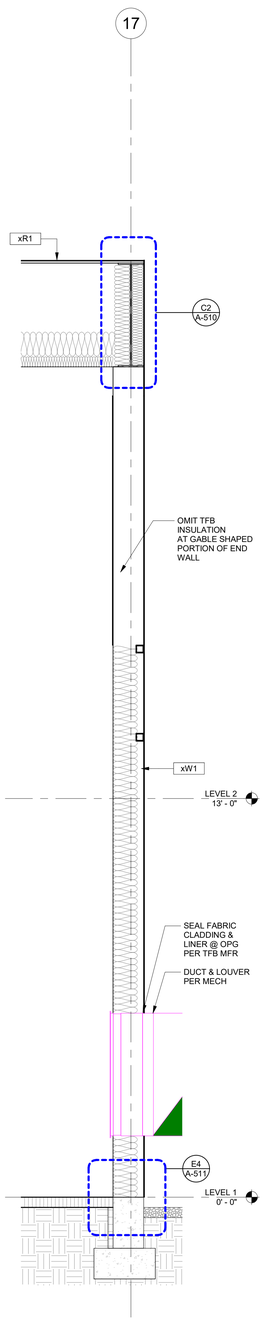
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BUILDING SECTIONS

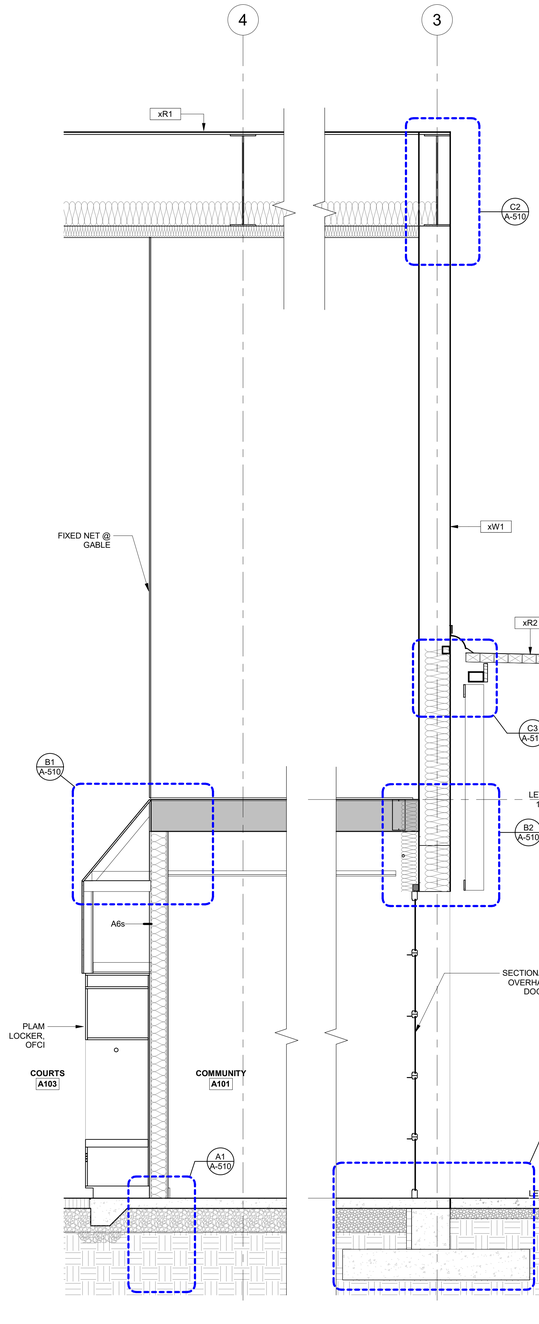
A-300



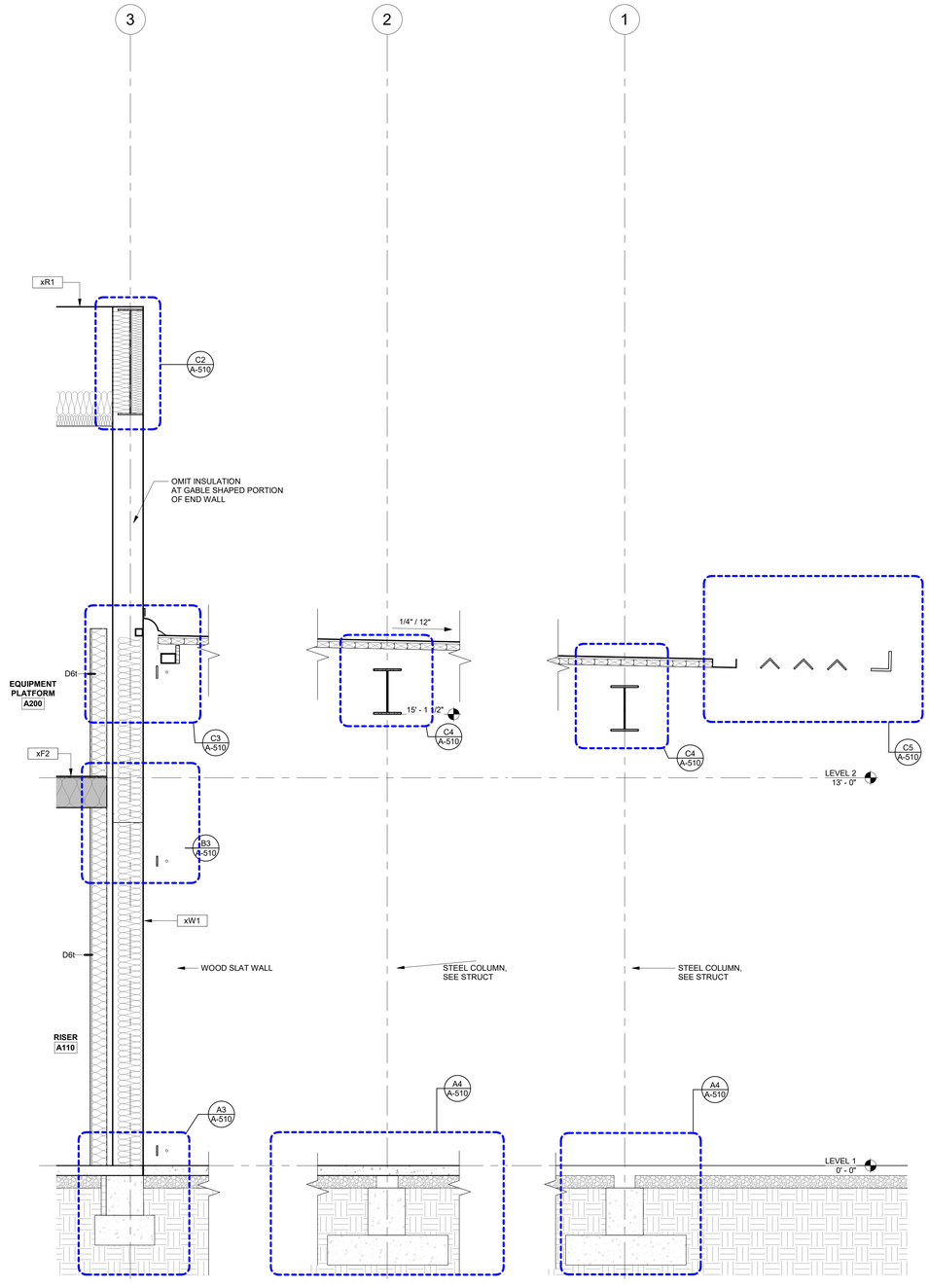
A1 NORTH WALL @ HM DOOR
SCALE: 1/2" = 1'-0"



A2 NORTH WALL @ GRILL
SCALE: 1/2" = 1'-0"



A3 MEZZ @ SOUTH WALL @ DOOR
SCALE: 1/2" = 1'-0"



A4 RAKE & CANOPY CONNECTION @ SOUTH WALL
SCALE: 1/2" = 1'-0"

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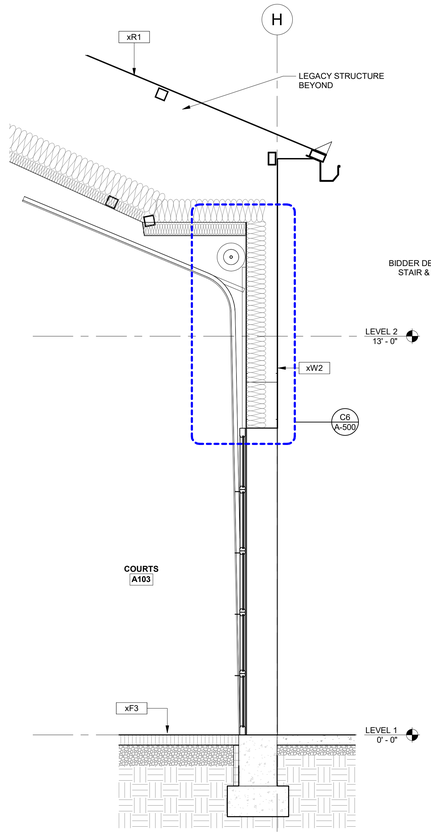
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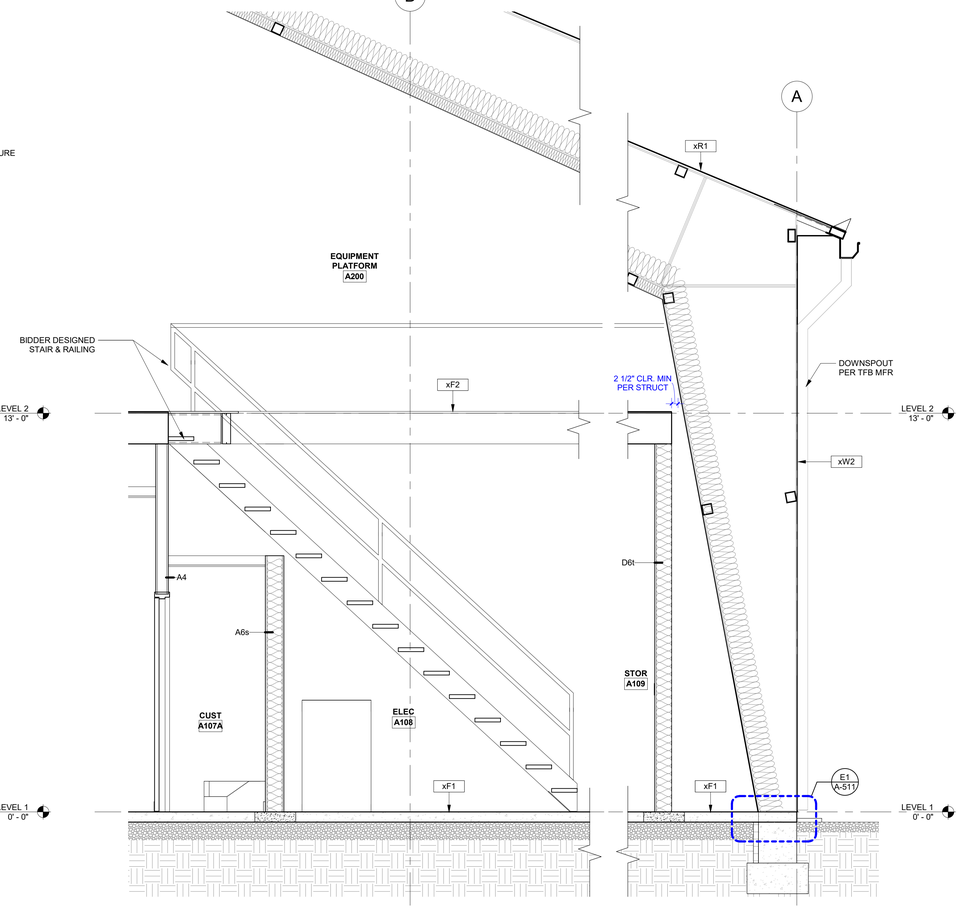
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WALL SECTIONS

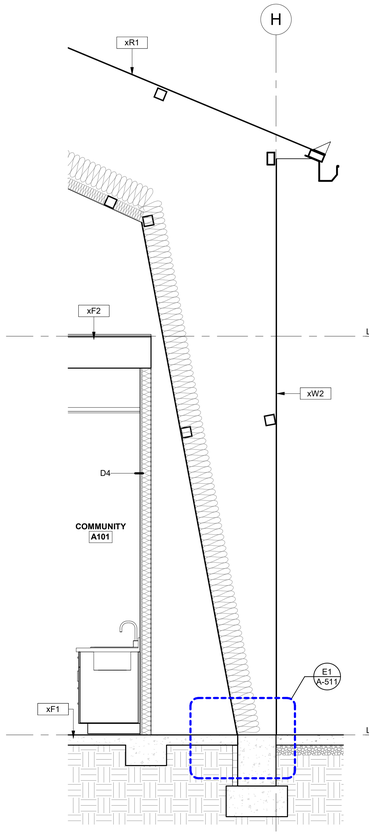
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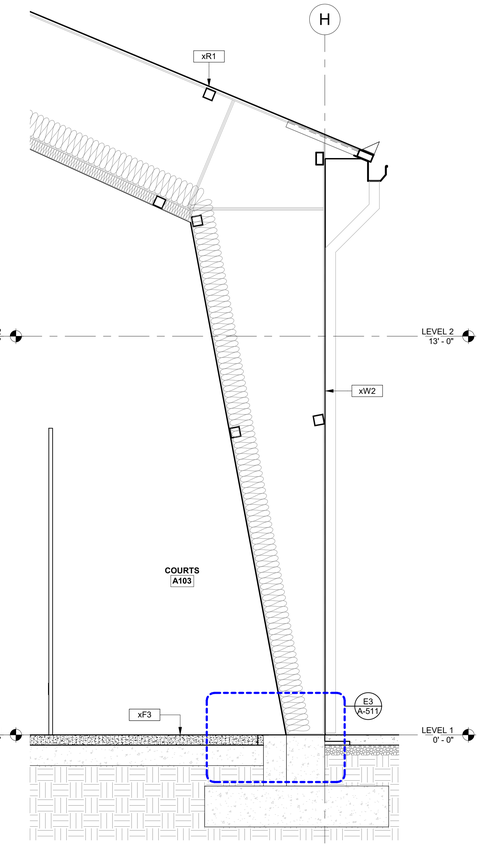
C1 EAVE @ OVERHEAD DOOR
SCALE: 1/2" = 1'-0"



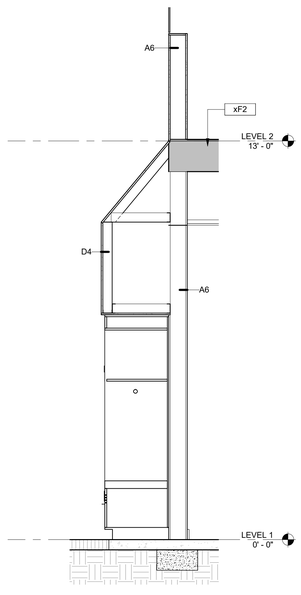
C2 EAVE @ STORAGE ROOM
SCALE: 1/2" = 1'-0"



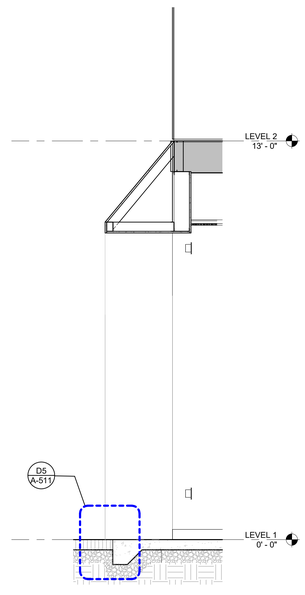
C3 EAVE @ COMMUNITY ROOM
SCALE: 1/2" = 1'-0"



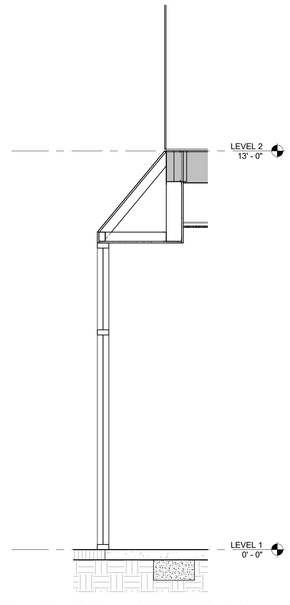
C4 EAVE - TYPICAL
SCALE: 1/2" = 1'-0"



A1 LOCKER WALL @ SOFFIT
SCALE: 1/2" = 1'-0"



A2 SOFFIT @ LOBBY
SCALE: 1/2" = 1'-0"



A3 STOREFRONT @ SOFFIT
SCALE: 1/2" = 1'-0"

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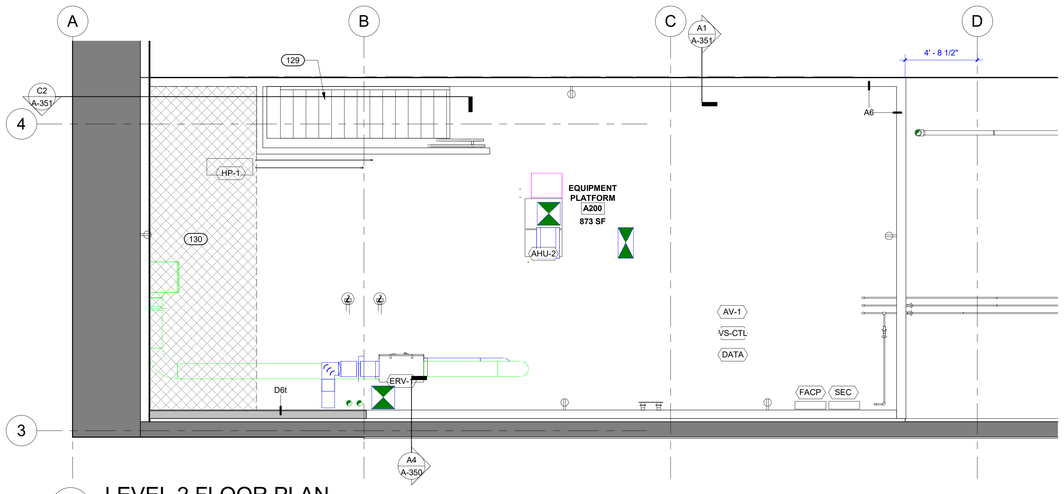
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WALL SECTIONS

A-351



E1 LEVEL 2 FLOOR PLAN

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

CODED NOTES

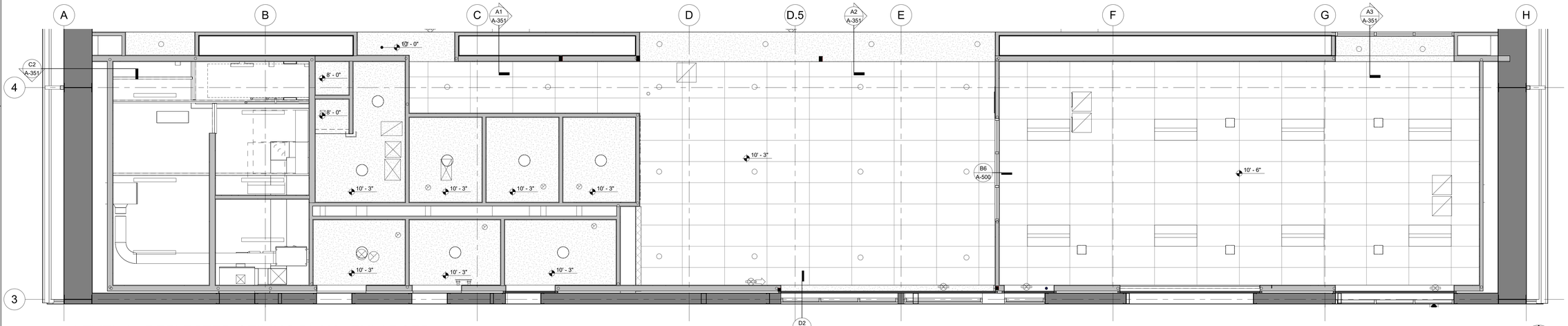
NUMBER	DESCRIPTION
101	CASEWORK
103	APPROXIMATE LOCATION OF FIRE RISER FOR BIDDER-DESIGNED "DRY" FIRE SUPPRESSION SYSTEM. COORDINATE LOCATION WITH OTHER EQUIPMENT AND SYSTEMS AT THIS ROOM.
104	WATER RISER, SEE PLUMBING
105	SINK, SEE PLUMBING
107	DRINKING FOUNTAIN, SEE PLUMBING
108	JANITOR SINK, SEE PLUMBING
109	REFRIGERATOR
121	CHANGING TABLE
127	WOOD SLAT WALL
129	BIDDER DESIGNED STEEL STAIR & RAILING
130	CROSSHATCH INDICATES LOW CLEARANCE AREA

MATERIAL LEGEND - INTERIOR WALL FINISH

- FRP - 1
- FRP-2
- FWP-1 & FWP-2 FABRIC WRAPPED PANELS
- TENSION FABRIC, FWP-3
- NETTING

GENERAL NOTES - INTERIOR ELEVATION

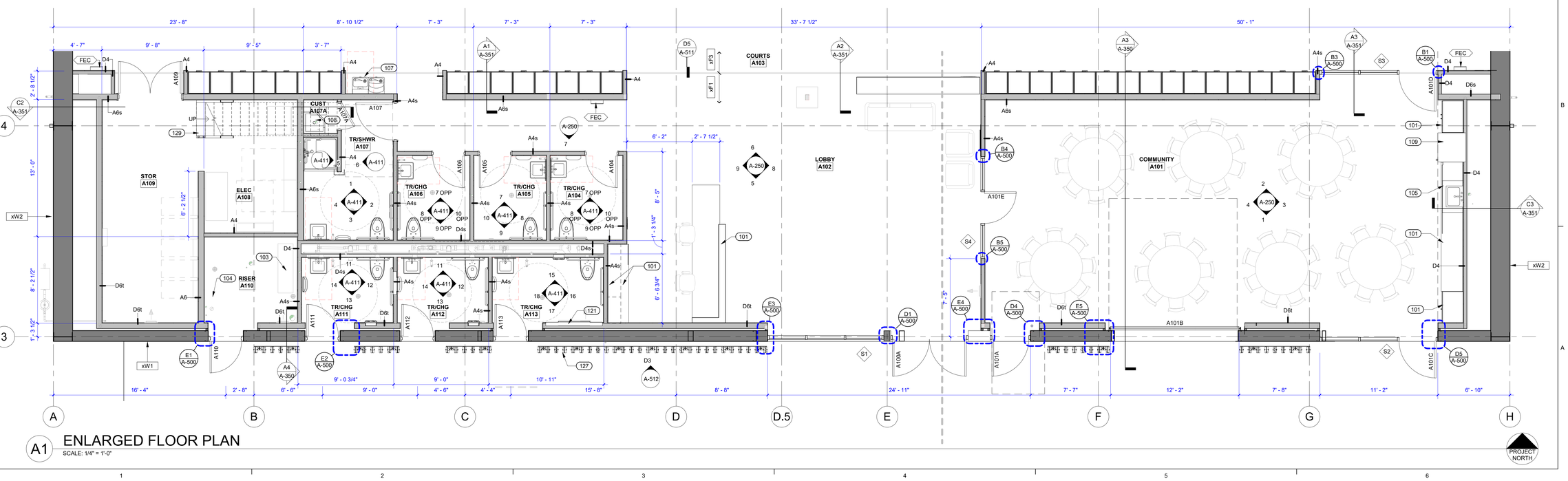
1. DO NOT SCALE DRAWINGS, REFER TO DIMENSIONS
2. SEE E1/A-550 AND D1/A-550 FOR TAGGED CASEWORK TYPES AND CASEWORK (CUSTOM AND TAGGED) GENERAL NOTES
3. SEE A1/A-401 FOR TYPICAL MOUNTING HEIGHTS
4. ALL PAINT, VWC & GYP BD REVEALS TO TERMINATE AT NEAREST INSIDECORNER, UNO
5. HOLLOW METAL DOOR AND RELIGHT FRAMES TO BE PAINTED AS NOTED ON FINISH LEGEND
6. ALL WINDOW SILLS BELOW 12'-0" AFF TO BE PLAM-0X. SEE DETAIL AX/A-XXX.
7. PROVIDE BLOCKING IN WALLS BEHIND ALL WALL HUNG ELEMENTS, INCLUDING BUT NOT LIMITED TO, TACKBOARDS, MARKERBOARDS, LARGE SIGNAGE, COUNTER AND COUNTER SUPPORTS, CASEWORK, TV'S, PROJECTION SCREENS, ETC. WHETHER PROVIDED BY CONTRACTOR OR OWNER.
8. SEE SPEC SECTION 11 30 00.1 FOR RESIDENTIAL APPLIANCES SCHEDULE; VERIFY SIZE OF APPLIANCES PRIOR TO CASEWORK CONSTRUCTION.
9. PAINT ALL MECHANICAL LOUVERS ON INTERIOR TO MATCH ADJACENT WALL SURFACE.
10. SEE FINISH LEGEND FOR MATERIAL KEYWORDS AND FINISH DESCRIPTIONS.
11. ALL MARKER BOARDS TO BE MOUNTED 3'-0" AFF TO BOTTOM OF WRITABLE SURFACE .
16. SEE ROLLER SHADE SPECIFICATIONS FOR LOCATION OF ROLLER SHADES. ROLLER SHADE LOCATIONS ARE NOT SHOWN IN INTERIOR ELEVATION.
17. SEE DOOR FRAME TYPES, A-600, FOR LOCATION OF HORIZONTAL BLINDS. HORIZONTAL BLIND LOCATIONS ARE NOT SHOWN IN INTERIOR ELEVATIONS.
18. AT VERTICAL CONTROL JOINTS, ALIGN ALL REVEALS OR ROUTED JOINTS THAT OCCUR BELOW WITH CONTROL JOINT.
19. ALL LIGHTING NOT SHOWN FOR CLARITY; SEE ELEC DRAWINGS.
20. AT ALL INTERIOR AND EXTERIOR UN-PAINTED MASONRY, PROVIDE CLEAR ANTI-GRAFFITI COATING.
21. CHAMFER OUTSIDE CORNERS AT ALL INTERIOR MASONRY LOCATIONS.
22. ALL EXPOSED STRUCTURE PAINT P-3, UNO.
23. PROVIDE HORIZONTAL BLINDS AT ALL INTERIOR RELITES/WINDOWS, UNLESS OTHERWISE NOTED IN THE HORIZONTAL BLIND AND ROLLER SHADE SCHEDULE.



C1 LEVEL 1 - REFLECTED CEILING PLAN - ENLARGED

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

PROJECT NORTH



A1 ENLARGED FLOOR PLAN

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

PROJECT NORTH

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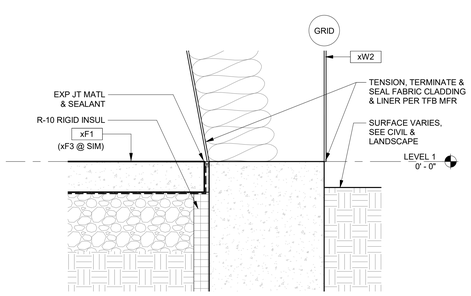
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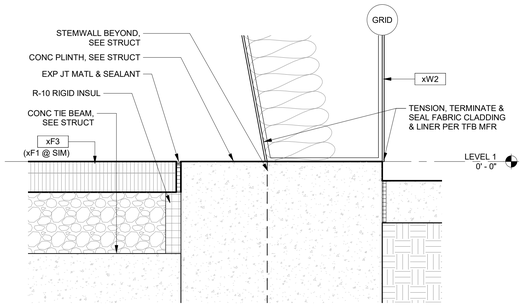
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ENLARGED FLOOR & REFLECTED CEILING PLANS

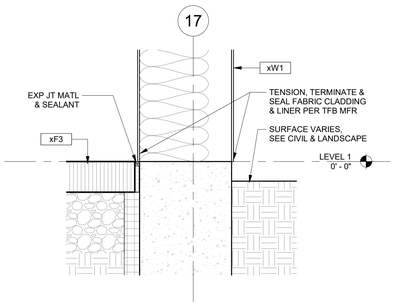
A-400



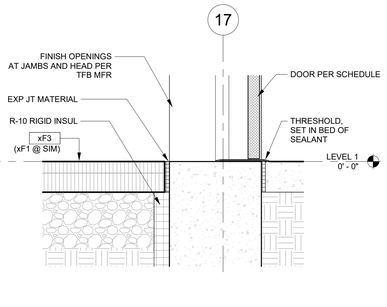
E1 FOUNDATION @ SIDEWALL - TYP
SCALE: 1 1/2" = 1'-0"



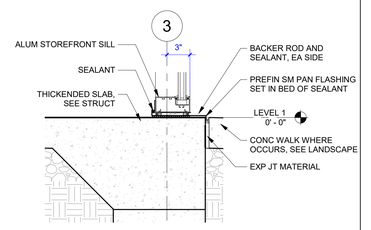
E3 FOUNDATION @ PRIMARY FRAME
SCALE: 1 1/2" = 1'-0"



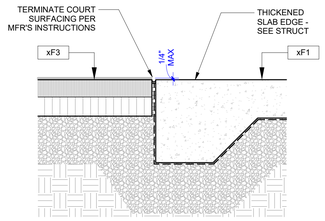
E4 FOUNDATION @ END WALL
SCALE: 1 1/2" = 1'-0"



E5 FOUNDATION @ END WALL DOOR
SCALE: 1 1/2" = 1'-0"



E6 SF SILL @ FDN
SCALE: 1 1/2" = 1'-0"



D5 xF1 / xF3 TRANSITION
SCALE: 1 1/2" = 1'-0"

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EXTERIOR DETAILS

A-511

SYMBOLS & ABBREVIATIONS

FIRE ALARM SYMBOLS

- DOOR HOLD OPEN
- DUCT SMOKE DETECTOR
- FACP — FIRE ALARM CONTROL PANEL
- FAA — FIRE ALARM ANNUNCIATOR PANEL
- FASP — FIRE ALARM SLAVE PANEL
- FIRE BELL
- FLOW SWITCH
- HEAT DETECTOR (CEILING MOUNTED)
- HEAT DETECTOR (WALL MOUNTED) — W
- HORN (WALL MOUNTED)
- HORN (CEILING MOUNTED) — C
- MANUAL PULL STATION — PS
- MICROPHONE — M
- MONITOR MODULE — MM
- OUTPUT RELAY — R
- SMOKE DETECTOR (CEILING MOUNTED)
- SMOKE DETECTOR (WALL MOUNTED) — W
- SPEAKER (WALL MOUNTED)
- SPEAKER (CEILING MOUNTED) — C
- SPEAKER STROBE (WALL MOUNTED)
- SPEAKER STROBE (CEILING MOUNTED) — C
- STROBE (WALL MOUNTED)
- STROBE (CEILING MOUNTED) — C
- TAMPER DETECTOR (WITH VALVE)
- TAMPER DETECTOR (WITHOUT VALVE)

SCHEMATIC SYMBOLS

- AMP METER — A
- AUTOMATIC TRANSFER SWITCH
- AUTOMATIC TRANSFER SWITCH (4-POLE BYPASS ISOLATION)
- CIRCUIT BREAKER
- CIRCUIT BREAKER (GFI) — GFI
- 3P-1600 AF / 1200 AT — INDICATES A BREAKER WITH A 1600 AMP FRAME AND A 1200 AMP TRIP SETTING
- CONTACT (N.C.)
- CONTACT (N.O.)
- CONTACT (REMOTE, N.C.)
- CONTACT (REMOTE, N.O.)
- DISCONNECT SWITCH
- ELECTRONIC INTERLOCK — E
- ENCLOSED CIRCUIT BREAKER
- FEEDER IDENTIFICATION
- FUSE
- FUSIBLE SWITCH
- GENERATOR — G
- GROUND
- GROUNDED WYE
- INDUCTOR
- LINE TAP
- METER — M
- MOTOR
- PANELBOARD (# INDICATES NAME) — PNL
- PANEL OR CABINET — PNL
- SEPARABLE CONNECTIONS
- SPACE IN PANELBOARD
- SWITCH
- SURGE PROTECTION DEVICE — SPD
- TRANSFORMER
- VOLT METER — V
- CUSTOMER METER — C

GENERAL SYMBOLS

- KEY NOTE — #
- EQUIPMENT IDENTIFIER — EQ#
- DETAIL NUMBER / DETAIL REFERENCE / SHEET NUMBER
- DETAIL NUMBER / DETAIL REFERENCE / MATCHED SHEET NUMBER / CURRENT SHEET NUMBER — Ref Matchsheet no.
- MATCH LINE REFERENCE / MATCHED SHEET NUMBER — Sht #
- ROOM NAME AND NUMBER — ROOM NAME
- CONNECTION TO EXISTING (# INDICATES EXISTING SIZE)
- REVISION NUMBER — 1
- SECTION NUMBER / SECTION REFERENCE / SHEET NUMBER — 1 SIM A101
- NORTH ARROW — N
- CENTER LINE

NOTE:
SYMBOLS AND ABBREVIATIONS ON THE DRAWINGS SHALL BE INTERPRETED IN ACCORDANCE WITH THE LEGENDS WHEREVER APPLICABLE. NOT ALL SYMBOLS AND ABBREVIATIONS IN THE LEGENDS ARE NECESSARILY USED FOR THE PROJECT. ALL SIZES ARE IN INCHES, UNLESS OTHERWISE NOTED.

LINEWEIGHT LEGEND

- NEW WORK
- EXISTING TO REMAIN OR NOT IN CONTRACT
- DEMOLITION
- FUTURE WORK

SECURITY SYMBOLS (RACEWAY ONLY)

- CARD READER
- DOOR INTERLOCK
- DOOR POSITION INDICATION SWITCH (INTERRUPTIBLE)
- DOOR POSITION INDICATION SWITCH (UNINTERRUPTIBLE)
- DURESS ALARM (WITH LIGHT)
- DURESS ALARM (WITHOUT LIGHT)
- ELECTRIC LOCK
- ELECTRIC LOCK (DEADBOLT)
- KEYED SWITCH — K
- MOTION DETECTOR — M
- PUSH BUTTON REX — R
- SECURITY CAMERA (STANDARD)
- SECURITY CONTROL PANEL — SEC
- SENSOR REX — R
- KEYPAD
- VSS MONITOR — M
- WINDOW BREAKAGE DETECTOR — W

POWER SYMBOLS

- CONDUIT DROP
- CONDUIT RISE
- DISCONNECT SWITCH
- DISTRIBUTION PANEL
- ELECTRICAL PANEL
- JUNCTION BOX — J
- METER — M
- MOTOR
- MOTOR STARTER — M
- MOTOR STARTER (MANUAL) — $
- PUSH TYPE SWITCH
- RECEPTACLE, 20 AMP DUPLEX
- RECEPTACLE, CEILING MOUNTED
- RECEPTACLE, CEILING 20 AMP DUPLEX
- RECEPTACLE, CEILING DUPLEX STANDBY POWER
- RECEPTACLE, CEILING DUPLEX UPS BACKED — U
- EQUIPMENT TAG. REFER TO EQUIPMENT SHEDULE SHEET FOR DETAILS. — CH-1A
- RECEPTACLE, DUPLEX
- RECEPTACLE, DUPLEX FLOOR MOUNTED
- RECEPTACLE, DUPLEX GFI — G
- RECEPTACLE, DUPLEX ISOLATED GROUND — IG
- RECEPTACLE, DUPLEX SWITCHED
- RECEPTACLE, DUPLEX STANDBY POWER
- RECEPTACLE, DUPLEX UPS BACKED — U
- RECEPTACLE, DUPLEX WITH USB
- RECEPTACLE, QUAD
- RECEPTACLE, QUAD FLOOR MOUNTED
- RECEPTACLE, FLOORBOX. 'X' INDICATES THE QUANTITY OF DUPLEX OUTLETS TO BE INSTALLED. 'Y' INDICATES THE FLOORBOX TYPE. REFER TO SHEET EXXX FOR DETAILS ON EACH TYPE. — X Y
- RECEPTACLE, SINGLE
- RECEPTACLE, SPECIAL
- RECEPTACLE, SPECIAL FLOOR MOUNTED
- TRANSFORMER — T
- CONCEALED CONDUIT: UNLESS OTHERWISE INDICATED, DENOTES 3/4"C-2#12+1#12G
- SURFACE MOUNTED RACEWAY

LIGHTING SYMBOLS

- 1'x4' LIGHT
- 2'x2' LIGHT
- 2'x4' LIGHT
- DOWNLIGHT
- EXIT LIGHT
- PENDANT LIGHT
- POLE MOUNTED LIGHT
- STRIP LIGHT
- TRACK LIGHT
- WALL MOUNTED EMERGENCY LIGHT
- WALL SCONCE
- WALL WASHER
- LIGHT FIXTURE WITH LOWER CASE LETTER INDICATING ZONING FOR LIGHTING CONTROLS — a
- CRITICAL POWER LIGHT
- EMERGENCY POWER LIGHT
- DAYLIGHT SENSOR — D
- VACANCY SENSOR — V
- OCCUPANCY SENSOR — O
- PHOTOCELL SENSOR — P
- PRIMARY DAYLIGHT ZONE — PDZ
- SECONDARY DAYLIGHT ZONE — SDZ
- LIGHTING SWITCH (STANDARD) — $
- LIGHTING SWITCH (3-WAY) — $3
- LIGHTING SWITCH (4-WAY) — $4
- LOW VOLTAGE LIGHTING SWITCH DETAILS - SHOWN ON LOW VOLTAGE LIGHTING DETAIL SHEET — $L
- LIGHTING CONTROL PANEL — LCP

ABBREVIATIONS

Ø	DIAMETER	LSI	INDICATES A BREAKER WITH FULLY ADJUSTABLE LONG TIME, SHORT TIME AND INSTANTANEOUS TRIP CHARACTERISTICS
ABV	ABOVE		
AC	ABOVE COUNTER		
AFF	ABOVE FINISH FLOOR	LSIA	INDICATES A BREAKER WITH FULLY ADJUSTABLE LONG TIME, SHORT TIME, INSTANTANEOUS AND GROUND FAULT ALARM TRIP CHARACTERISTICS
AFG	ABOVE FINISH GRADE		
AL	ALUMINUM		
AR	AS REQUIRED	LSIG	INDICATES A BREAKER WITH FULLY ADJUSTABLE LONG TIME, SHORT TIME, INSTANTANEOUS AND GROUND FAULT TRIP CHARACTERISTICS
ATS	AUTOMATIC TRANSFER SWITCH		
BLDG	BUILDING		
C	CONDUIT	MAX	MAXIMUM
CCT	CIRCUIT	MFR	MANUFACTURER
CKT	CIRCUIT	MIN	MINIMUM
CLG	CEILING	MMS	MANUAL MOTOR STARTER
CO	CONDUIT ONLY WITH 1/4" POLYPROPYLENE PULL ROPE	MNT	MOUNT(ED)
CP	CHROME PLATED	(N)	NEW
CT	CURRENT TRANSFORMER	N	NEUTRAL
CU	COPPER	NL	NIGHT LIGHT
(D)	DEMOLISH	N.C.	NORMALLY CLOSED
DIA	DIAMETER	NIC	NOT IN CONTRACT
DISC	DISCONNECT	N.O.	NORMALLY OPEN
DIST	DISTRIBUTION	NORM	NORMAL
DIV	DIVISION	UNO	UNLESS NOTED OTHERWISE
DWG	DRAWING	PNL	PANEL
DX	DUPLEX	QIG	QUAD ISOLATED GROUND
DZ	DAYLIGHT ZONE	REQ'D	REQUIRED
(E)	EXISTING TO REMAIN	RM	ROOM
EA	EACH	SIM	SIMILAR
EM	EMERGENCY	SPST	SINGLE POLE/SINGLE THROW SWITCH
FLR	FLOOR, OR FLOOR MOUNTED	SS	STAINLESS STEEL
FT	FEET	SW	SWITCH
G	GROUND	T	TAMPER PROOF RECEPTACLE
GA	GAUGE	TYP	TYPICAL
GFI	GROUND FAULT INTERRUPT	W	WIDE
GND	GROUND	W/	WITH
H	HIGH	WIN	WITHIN
HT	HEIGHT	W/O	WITHOUT
IG	ISOLATED GROUND	WP	WEATHERPROOF. RECEPTACLES TO BE GFCI
IN	INCHES	X	EXISTING DEVICE TO BE REPLACED WITH NEW DEVICE
L	LONG		AT SAME LOCATION
LI	INDICATES A BREAKER WITH FULLY ADJUSTABLE LONG TIME AND INSTANTANEOUS TRIP CHARACTERISTICS	XFMR	TRANSFORMER

ANNOTATION

+XX" MOUNTING HEIGHT (AFF OR AFG)

(n)x"C-a#b-c#d
n = QUANTITY OF CONDUIT
x = SIZE OF CONDUIT
a = QUANTITY OF CONDUCTORS
b = CONDUCTOR WIRE SIZE
c = QUANTITY OF GROUND
d = GROUND WIRE SIZE

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LEGENDS & ABBREVIATIONS - ELECTRICAL

E001

GENERAL NOTES:

1. AVISTA CONTACT: ROB SHERRILL
   PHONE (CELL): 208-714-7894
   EMAIL: ROB.SHERRILL@AVISTACORP.COM
2. CONTACT TO AVISTA UTILITIES AT MINIMUM ONE MONTH PRIOR TO WORK FOR COORDINATION.
3. LOCATIONS AND DIMENSIONS SHOWN ARE APPROXIMATE. FIELD VERIFICATION AND MEASUREMENTS ARE REQUIRED PRIOR TO WORK.

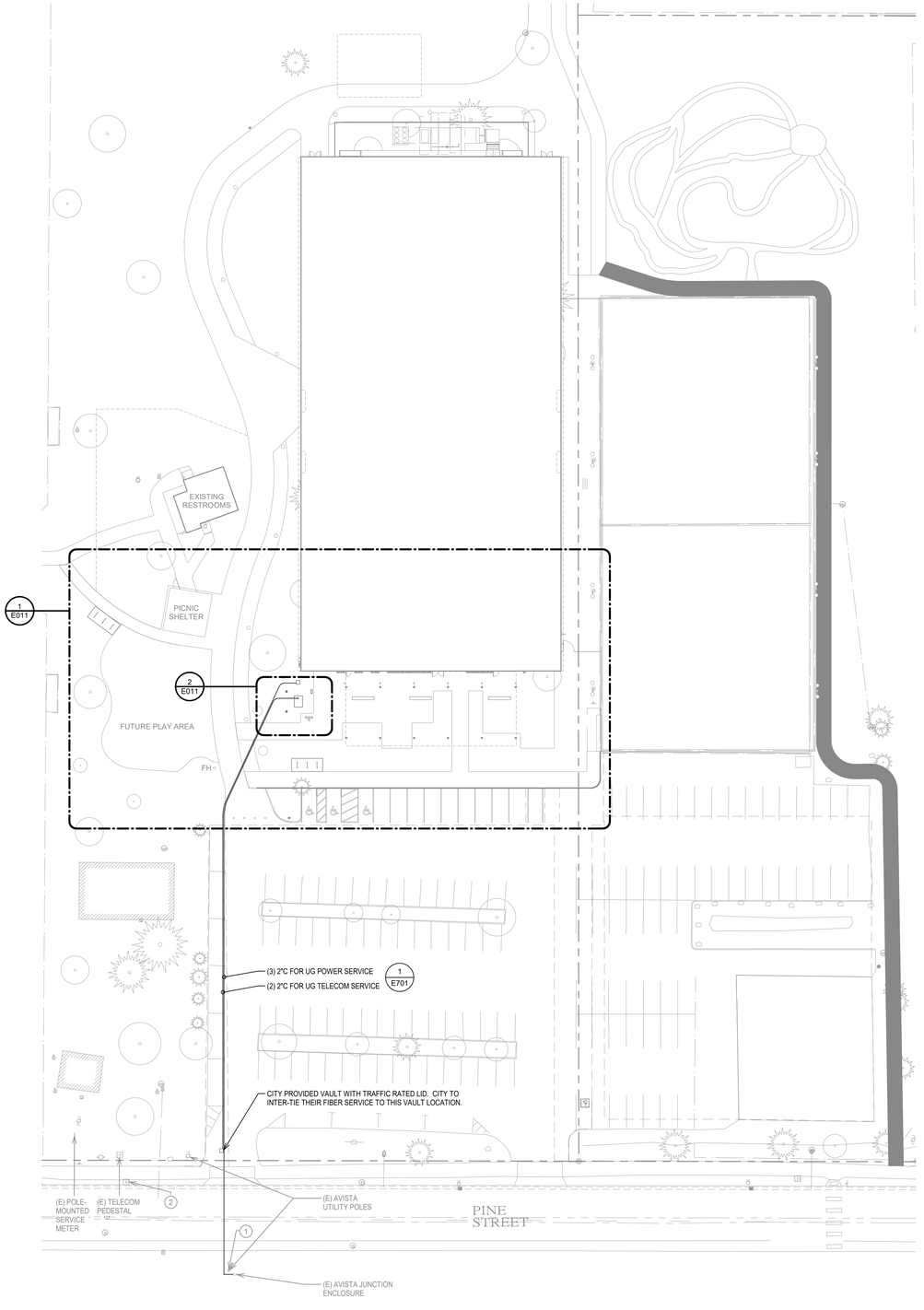
(#) KEYNOTES:

1. ZIPLY AND YYVE INTERNET SERVICES ON EXISTING POLE.
2. TING SERVICES AT UNDERGROUND ON NORTH SIDE OF PINE STREET.



SITE PLAN DEMOLITION & EXISTING - ELECTRICAL

1" = 30'-0"



SITE PLAN - ELECTRICAL

1" = 30'-0"

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SITE PLANS - ELECTRICAL

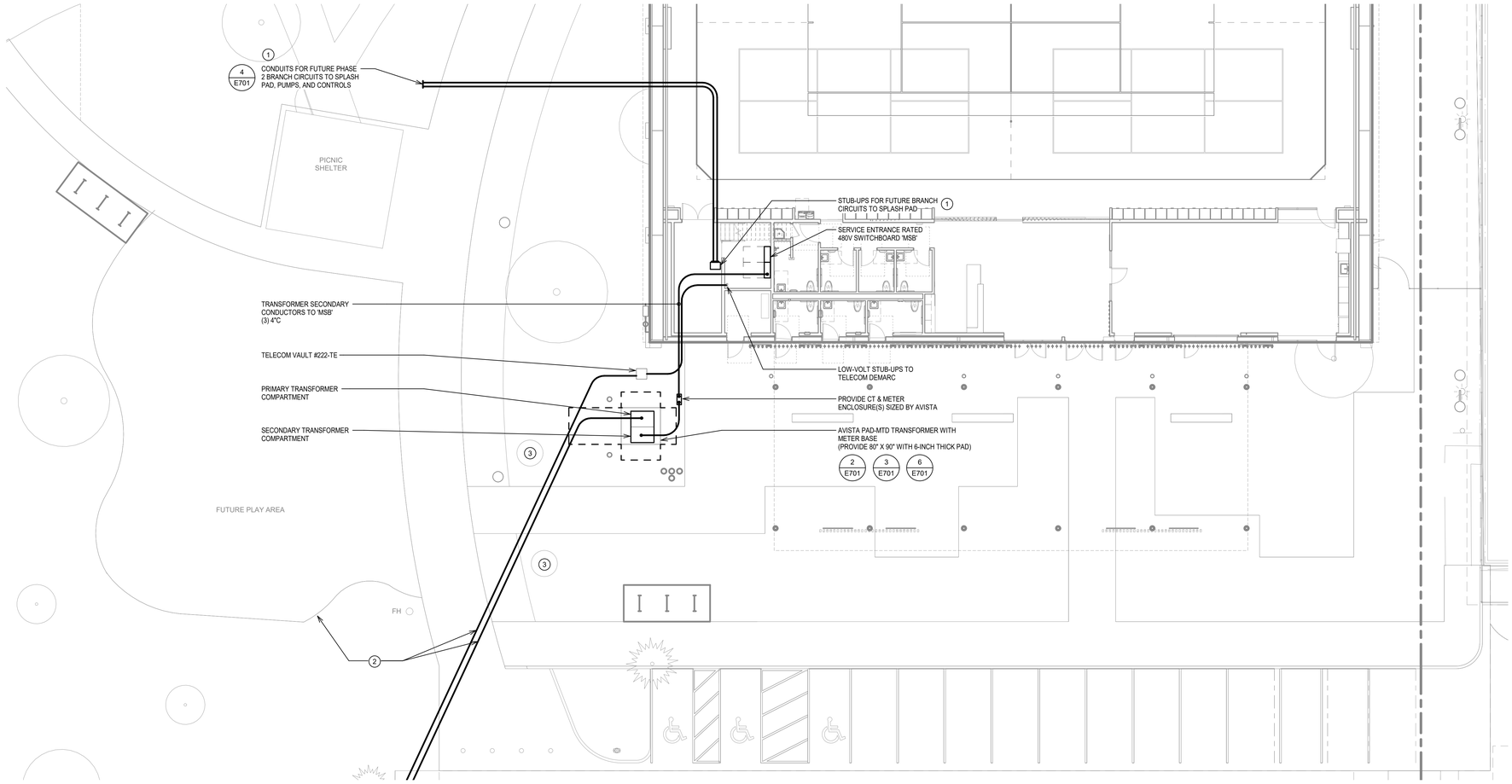
E010

GENERAL NOTES:

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   PHONE (CELL): 208-714-7894
   EMAIL: ROB.SHERRILL@AVISTACORP.COM
2. CONTACT TO AVISTA UTILITIES AT MINIMUM ONE MONTH PRIOR TO WORK FOR COORDINATION.
3. LOCATIONS AND DIMENSIONS SHOWN ARE APPROXIMATE. FIELD VERIFICATION AND MEASUREMENTS ARE REQUIRED PRIOR TO WORK
4. ALL EXTERIOR RECEPTACLES SHALL BE TAMPER RESISTANT TYPE..

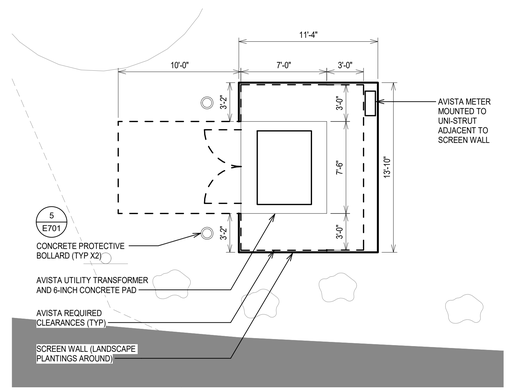
(#) KEYNOTES:

1. PROVIDE (12) 2"C & (2) 4"C FROM CAPPED STUB-UPS IN THE ELECTRICAL ROOM TO BURIED AND CAPPED CONDUITS (WITH PULL STRINGS) TO LOCATIONS SHOWN.
2. MARK-OUT AREA FOR FUTURE SPLASH PAD / PLAY AREA. KEEP UTILITY CONDUITS AWAY FROM THIS AREA WITH APPROPRIATE COORDINATED UTILITY CLEARANCES PRIOR TO INSTALLATION. CONFIRM FUTURE PLAY AREA DIMENSIONS PRIOR TO INSTALLATION. ADJUST ROUTING AS REQUIRED TO MEET THE CLEARANCES AND AVOID THE SPLASH PAD / PLAY AREA FOOTPRINT COMPLETELY.
3. COORDINATE UTILITIES AROUND SCULPTURE FOOTPRINTS.



1 N ENLARGED SITE PLAN - ELECTRICAL

1" = 10'-0"



2 ENLARGED PLAN - AVISTA TRANSFORMER CLEARANCES

1 : 60

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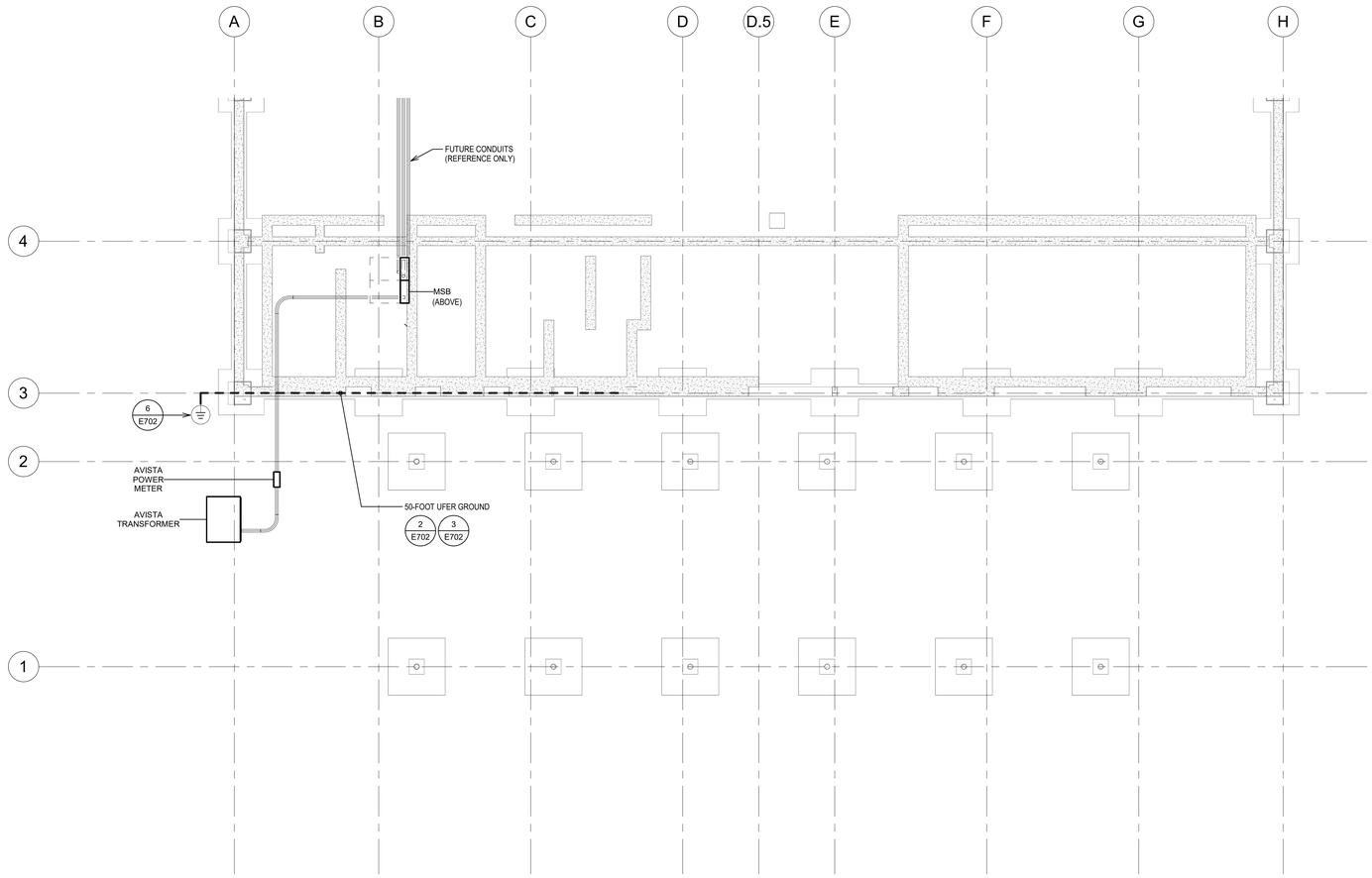
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ENLARGED SITE PLANS - ELECTRICAL

E011



KEYNOTES:

1. NOT USED.

1 FOUNDATION FLOOR PLAN - POWER
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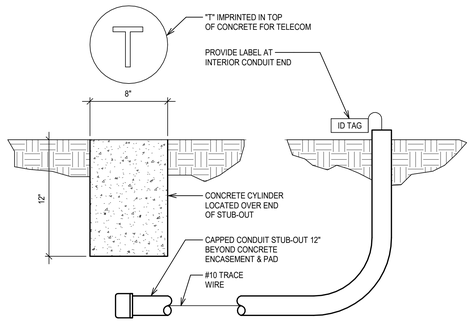
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FOUNDATION FLOOR PLAN - POWER

E100



4 TYPICAL CONDUIT STUB-OUT DETAIL
N.T.S.

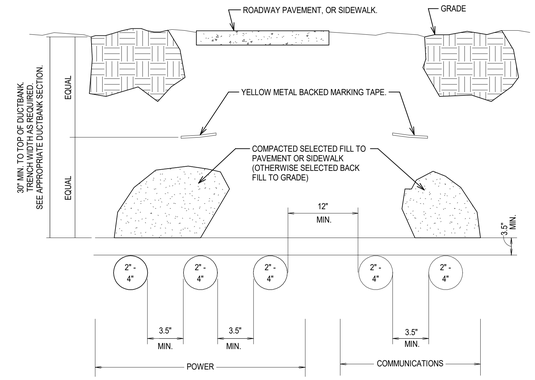
GENERAL NOTES:

A. REFERENCE SPECIFICATION SECTION 26 05 43 FOR CONDUIT AND DUCT INSTALLATION AT ENTRANCE INTO BUILDINGS.

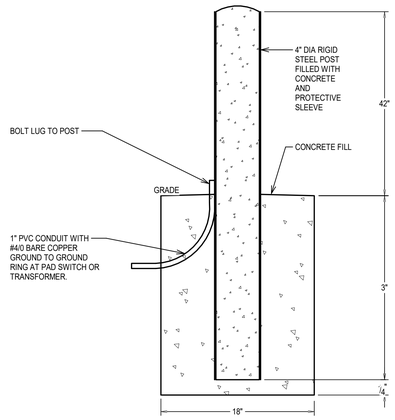
B. DIMENSIONS APPLY TO ALL DUCTBANKS UNLESS SPECIFICALLY NOTED OTHERWISE.

C. REFER TO AVISTA BLUE BOOK FOR ADDITIONAL UNDERGROUND REQUIREMENTS.

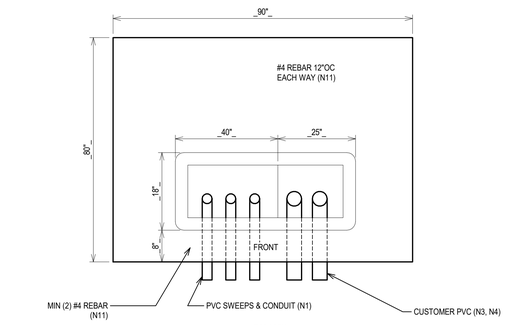
D. CONDUITS SHALL BE SCHEDULE 40 PVC UNLESS NOTED OTHERWISE.



1 DUCTBANK SECTION
N.T.S.

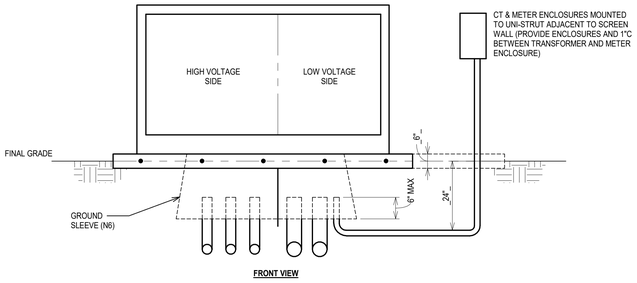


5 TYPICAL PROTECTIVE POST
N.T.S.



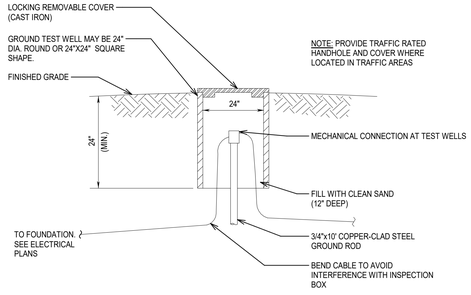
TOP VIEW

UTILIZE:
- SCHED 40 PVC
- 24" RADIUS SWEEPS
- GRAY

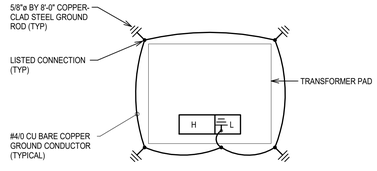


FRONT VIEW

2 TRANSFORMER PAD DETAIL
N.T.S.



6 HANDHOLE/GROUND WELL SYSTEM TEST & SPLICE POINT DETAIL
N.T.S.



3 PAD MOUNTED EQUIPMENT GROUNDING
N.T.S.

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CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

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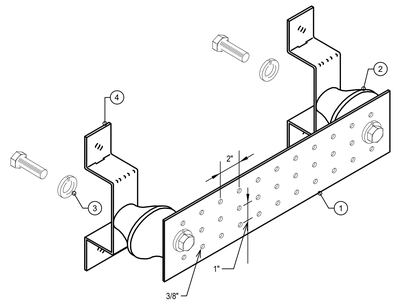
REV	DATE	DESCRIPTION

PROJ. NO.	2023-011
DRAWN	NBH
PROJ MNGR	JET
DATE	08/25/23

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DETAILS - ELECTRICAL - SITE

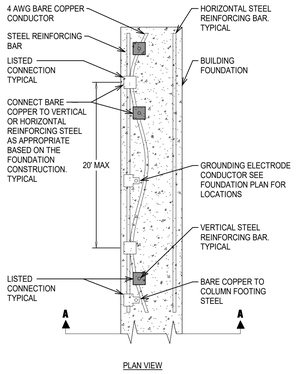
E701



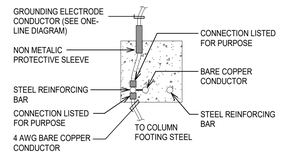
(#) NOTES:

1. COPPER GROUND BAR (1/4" x 4" x 12") HOLE CENTERS SHALL MATCH NEMA DOUBLE LUG SPACING.
2. INSULATORS
3. LOCKWASHERS
4. WALL MOUNTING BRACKET
5. ALL GROUND BAR CONNECTIONS SHALL BE MADE WITH 2-HOLE LONG BARREL COMPRESSION LUGS. USE ILSCO TYPE CLND COMPRESSION LUGS OR APPROVED EQUAL. COORDINATE SIZES WITH WIRE SIZE.

1 GROUND BAR DETAIL
N.T.S.



PLAN VIEW

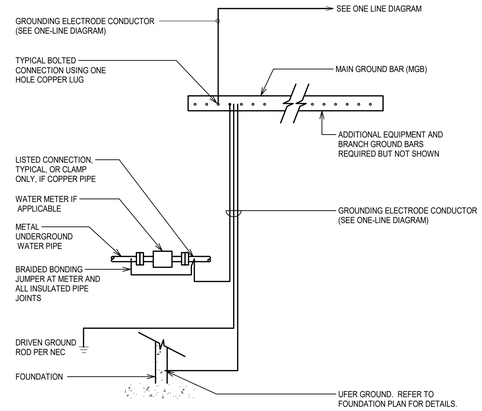


SECTION A-A

NOTES:

1. DETAIL IS FOR REFERENCE ONLY. EXACT FOUNDATION CONFIGURATION MAY VARY. REFER TO STRUCTURAL DRAWINGS FOR EXACT FOUNDATION CONFIGURATION PRIOR TO INSTALLATION.
2. SEE SHEET E011 FOR ADDITIONAL UFER GROUND REQUIREMENTS.
3. COMPLY WITH THE PROVISIONS OF NEC 250.52.

3 TYPICAL CONCRETE ENCASED (UFER) GROUNDING DETAIL
N.T.S.



NOTES:

1. ALL WIRE SIZES SHOWN ARE MINIMUM SIZE TO BE INSTALLED. ALL GROUNDING ELECTRODE CONDUCTOR SIZES SHALL CONFORM TO NEC ARTICAL 250-94.

2 TYPICAL BUILDING GROUNDING ELECTRODE SYSTEM DETAIL
N.T.S.

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DETAILS - ELECTRICAL - GROUNDING

E702

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ADDENDUM NO. ___1____

The additions, omissions, clarifications and corrections contained herein shall be made to drawings and specifications for the project and shall be included in scope of work and proposals to be submitted. References made below to specifications and drawings shall be used as a general guide only. Bidder shall determine the work affected by Addendum items.

In the Specification:

In the Drawings:

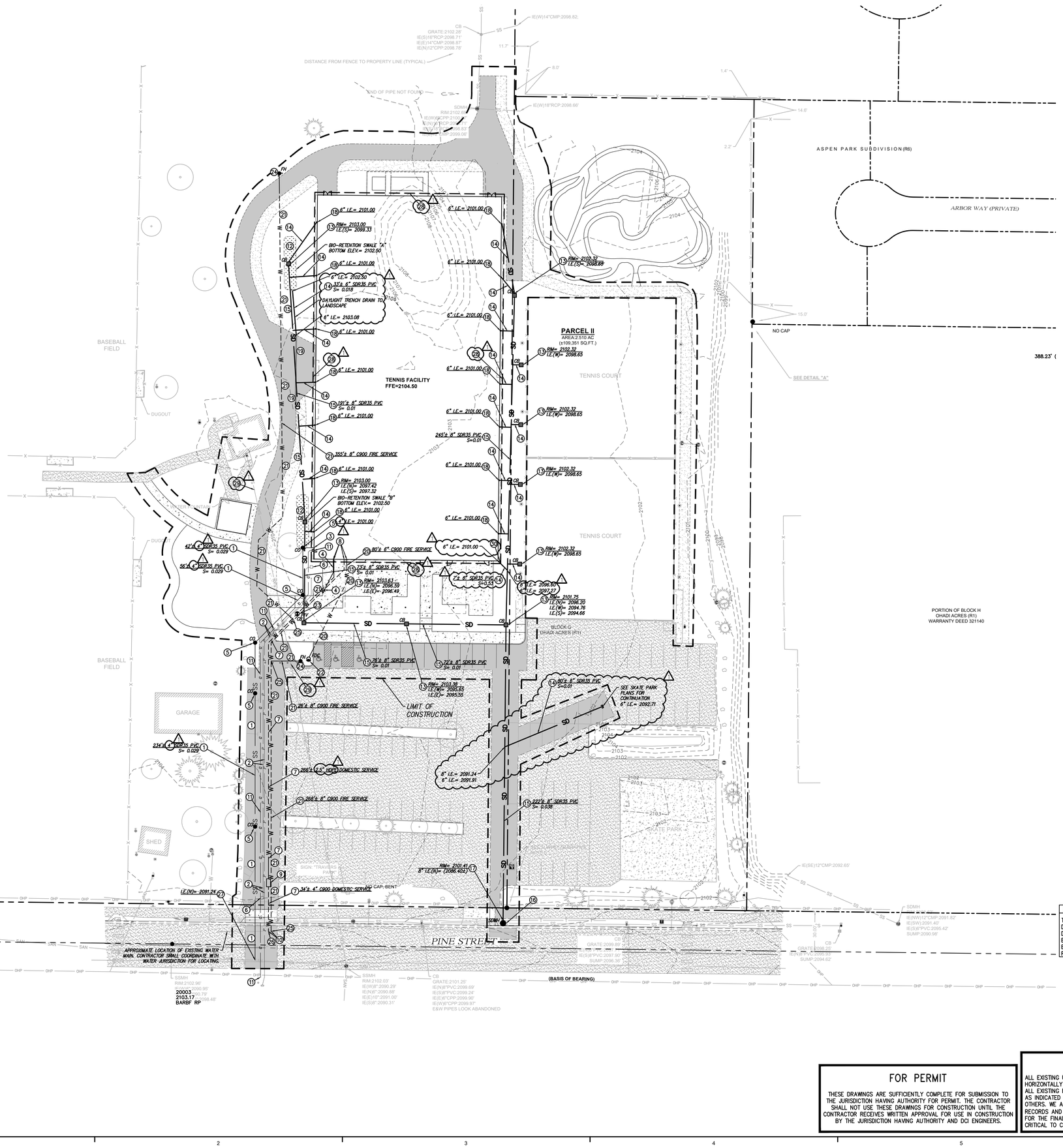
C-140	Stormwater & Utility Plan	REVISE size of sanitary sewer to 4”
		REVISE size of domestic water service to 2.5”
		ADD foundation drain and callouts
		ADD stub to skate park for storm drain tie-in
		REVISE trench drain to daylight into swale
		ADD scope for pot holing existing sewer service
S-111	Foundation Plan – North	REVISE top of continuous footing elevations and pad footing elevations.
S-112	Foundation Plan – South	REVISE top of continuous footing elevations and pad footing elevations.
S-201	Foundation Details	ADD continuous footing drain in details 4, 13, 14, and 16.
		REVISE Detail 12 to reflect top of footing elevation / tie beam and continuous footing drain.
S-202	Foundation Details	ADD continuous footing drain in details 8, 9, and 11.
		REVISE detail 7 to reflect top of footing elevation / tie beam and continuous footing drain.

Acceptance of Substitutions

Add the following to approved list of manufacturers at this time.

This approval is an approval of quality only. No attempt has been made to check each material as to special features, capacities or physical dimensions especially required by this project. It shall be the responsibility of supplier, manufacturer and Contractor to check all requirements before submitting for final approval. Final approval of exact features, sizes, capacities, etc., all of which must match materials indicated/specified, will be determined when submitted during construction period. Certain approvals are subject to conditions as noted.

	SECTION	ITEM	MANUFACTURER



REFERENCE NOTES:

1. PROVIDE NEW 4" SDR35 SANITARY SEWER SERVICE. SLOPE AND LENGTH PER PLAN.
2. PROPOSED POWER SERVICE LOCATION. COORDINATE WITH ELECTRICAL PLANS.
3. CONNECT TO BUILDING SANITARY SEWER SYSTEM. COORDINATE WITH PLUMBING PLANS.
4. PROVIDE NEW 3/4" C900 DOMESTIC WATER SERVICE FROM BUILDING TO DRINKING FOUNTAIN. COORDINATE WITH PLUMBING PLANS.
5. PROVIDE NEW CLEANOUT TO GRADE PER DETAIL 10/C500.
6. PROPOSED POWER EQUIPMENT LOCATION. COORDINATE WITH ELECTRICAL PLANS.
7. PROVIDE NEW 2.5" HDPE OR COPPER DOMESTIC WATER SERVICE PER CITY OF SANDPOINT WATER DEPARTMENT AND ISPWC STANDARDS.
8. TIE INTO BUILDING WATER SYSTEM. COORDINATE WITH PLUMBING PLANS.
9. PROVIDE NEW WATER VAULT FOR 2.5" DOMESTIC SERVICE PER ISPWC STANDARDS. CONTRACTOR SHALL DOWNSIZE AND INSTALL 1-1/2" DOMESTIC WATER METER IN VAULT IN PLACE OF LARGER METER.
10. TAP INTO EXISTING WATER MAIN PER CITY OF SANDPOINT AND ISPWC STANDARDS PLANS. FIELD VERIFY SIZE AND LOCATION PRIOR TO CONNECTION.
11. PROPOSED NATURAL GAS METER. SEE PLUMBING PLANS FOR EXACT LOCATION. CONTRACTOR SHALL COORDINATE ALL WORK WITH AVISTA UTILITIES. CONTRACTOR SHALL PROVIDE 3' DEEP TRENCH WITH 6" OF SAND ON THE BOTTOM FOR THE NEW SERVICE. AVISTA WILL PULL THE GAS SERVICE PIPE TO THE PROPOSED GAS METER LOCATION. AVISTA UTILITIES WILL BACKFILL NEW GAS SERVICE PIPE WITH 6" OF SAND (SAND PROVIDED BY CONTRACTOR). CONTRACTOR TO BACKFILL TRENCH WITH NATIVE SOIL TO FINISHED GRADE.
12. PROVIDE NEW BIO-RETENTION SWALE PER DETAIL 9/C500
13. PROVIDE NEW TYPE '1' CATCH BASIN PER ITD STANDARD PLAN 605-20. SEE DETAIL 1/C501.
14. PROVIDE NEW 6" SDR35 PVC STORM DRAIN PIPE.
15. PROVIDE NEW 8" SDR35 PVC STORM DRAIN PIPE. SLOPE AND LENGTH PER PLAN.
16. CONNECT TO EXISTING STORM WATER MAIN WITH NEW MANHOLE PER CITY OF SANDPOINT STANDARD PLANS. FIELD VERIFY SIZE AND LOCATION PRIOR TO CONNECTION.
17. PROVIDE NEW STORM WATER MANHOLE PER ITD STANDARD PLAN 605-10. SEE DETAIL 9/C500.
18. TIE INTO BUILDING DOWNSPOUT. PROVIDE NEW CLEANOUT AT CONNECTION PER DETAIL 10/C500. COORDINATE WITH ARCHITECTURAL PLANS.
19. PROVIDE NEW 12" WIDE ZURN Z882 TRENCH DRAIN WITH H20 RATED GRATE.
20. PROVIDE NEW 6" C900 FIRE SERVICE PER CITY OF SANDPOINT WATER DEPARTMENT STANDARDS.
21. PROVIDE NEW 8" C900 FIRE SERVICE PER CITY OF SANDPOINT WATER DEPARTMENT STANDARDS.
22. PROVIDE NEW FIRE DEPARTMENT CONNECTION (FDC) PER DETAIL 2/C501.
23. PROVIDE NEW POST INDICATOR VALVE (PIV) PER DETAIL 3/C501.
24. PROVIDE NEW FIRE HYDRANT PER ISPWC STANDARDS PLAN SD-404. SEE DETAIL 4/C501.
25. PROVIDE NEW 8"x8" TEE.
26. PROVIDE NEW 8"x4" TEE. PROVIDE NEW 90 DEGREE BEND ALONG 4" C900 DOMESTIC WATER SERVICE LINE.
27. TIE INTO EXISTING SANITARY SEWER MAIN. COORDINATE WITH CITY OF SANDPOINT.
28. CONTRACTOR SHALL PROVIDE FOUNDATION DRAIN. COORDINATE WITH STRUCTURAL AND ARCHITECTURAL PLANS.
29. CONTRACTOR SHALL POTHOLE EXISTING SANITARY SEWER LINE AND PROVIDE ENGINEER OF RECORD PIPE TYPE, SIZE, DEPTH, AND SLOPE PRIOR TO STARTING CONSTRUCTION.
30. PROVIDE NEW CONNECTION TO FOUNDATION DRAIN SYSTEM.

ENGINEER'S NOTES:

1. RIM ELEVATIONS OF UTILITY STRUCTURES SHALL BE INSTALLED SO THAT RIM ELEVATIONS MAY BE ADJUSTED ±0.5' TO MATCH PROPOSED FINISHED GRADE.
2. CONTRACTOR SHALL IDENTIFY PROPOSED FUTURE CONCRETE CURB LOCATIONS BEFORE INSTALLING STORM WATER STRUCTURES. CONTRACTOR SHALL NOT LOCATE DRAINAGE STRUCTURE LIDS IN CURB LOCATIONS.
3. ALL NEW UTILITY TURNS, RADII, UNIONS, OR CONNECTION LOCATIONS SHALL BE RECORDED VERTICALLY AND HORIZONTALLY ON THE AS-BUILTS.
4. COORDINATE WITH AVISTA UTILITIES FOR NATURAL GAS AND POWER SERVICE TO BUILDING.

BIO-RETENTION SWALE "A"	BIO-RETENTION SWALE "B"
TOTAL IMPERVIOUS AREA = 3,750 SF	TOTAL IMPERVIOUS AREA = 4,600 SF
DETENTION VOLUME REQUIRED = 192 CF	DETENTION VOLUME REQUIRED = 196 CF
DETENTION VOLUME PROVIDED = 210 CF	DETENTION VOLUME PROVIDED = 210 CF
BOTTOM AREA = 350 SF	BOTTOM AREA = 350 SF
BOTTOM ELEVATION = 2102.50	BOTTOM ELEVATION = 2102.50
RIM ELEVATION = 2103.00	RIM ELEVATION = 2103.00

GRAPHIC SCALE
30 0 15 30
(IN FEET)
1 inch = 30 ft.

FOR PERMIT

THESE DRAWINGS ARE SUFFICIENTLY COMPLETE FOR SUBMISSION TO THE JURISDICTION HAVING AUTHORITY FOR PERMIT. THE CONTRACTOR SHALL NOT USE THESE DRAWINGS FOR CONSTRUCTION UNTIL THE CONTRACTOR RECEIVES WRITTEN APPROVAL FOR USE IN CONSTRUCTION BY THE JURISDICTION HAVING AUTHORITY AND DCI ENGINEERS.

CONTRACTOR NOTE

ALL EXISTING UTILITIES SHOWN ON PLANS ARE TO BE VERIFIED HORIZONTALLY AND VERTICALLY PRIOR TO ANY CONSTRUCTION. ALL EXISTING FEATURES INCLUDING BURIED UTILITIES ARE SHOWN AS INDICATED ON RECORD MAPS AND SURVEYS FURNISHED BY OTHERS. WE ASSUME NO LIABILITY FOR THE ACCURACY OF THOSE RECORDS AND SURVEYS. CONTACT THE UTILITY OWNER/AGENCY FOR THE FINAL LOCATION OF EXISTING UTILITIES IN AREAS CRITICAL TO CONSTRUCTION.

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811
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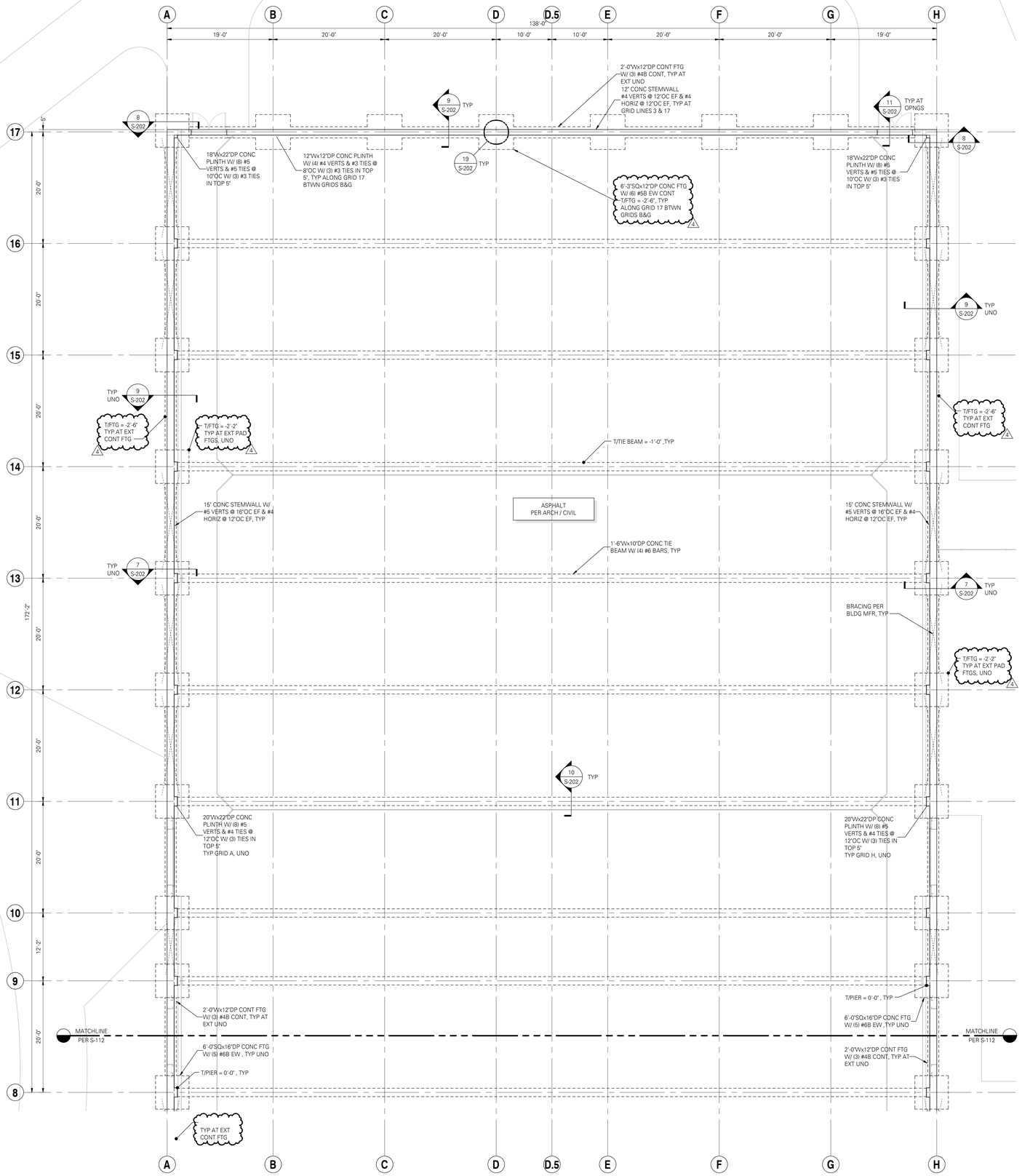
REV	DATE	DESCRIPTION
1	9/15/2023	ADDENDUM 1

PROJ. NO.	2023-011
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PROJ MNGR	SDM
DATE	8/25/23

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STORMWATER & UTILITY PLAN

C140



FOUNDATION PLAN NOTES:

1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S1.1, S1.2 AND S1.3.
2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
3. CONTRACTOR SHALL LOCATE AND VERIFY THE FOLLOWING WITH OTHERS PRIOR TO POURING CONCRETE: ALL DOOR OPENINGS IN FOUNDATION WALLS; DRAINS AND SLOPES; BLOCKOUTS FOR FREEZERS, COOLERS, PLUMBING, SPRINKLERS AND HVAC. ALL DUCTS, CHASES AND PIPES PER MECHANICAL, PLUMBING, ELECTRICAL AND SPRINKLER DRAWINGS. STAIR DETAILS AND GUARDRAILS PER ARCHITECTURAL DRAWINGS.
4. TOP OF SLAB (T/SLAB) ELEVATION ASSUMED 0'-0". FOR ACTUAL T/SLAB ELEVATION REFER TO CIVIL AND ARCHITECTURAL DRAWINGS. PROVIDE 15 MIL VAPOR BARRIER BELOW SLAB AT INTERIOR SPACES. PROVIDE FREE-DRAINING GRANULAR FILL PER GEOTECH REPORT.
5. TYPICAL TOP OF EXTERIOR (T/EXTERIOR) FOOTING ELEVATIONS = -1'-8", UNO.
6. ALL FOOTINGS AND SLABS TO BEAR ON STRUCTURAL FILL, IMPROVED SOIL, SUBGRADE PREPARATION, STRUCTURAL FILL, DRAINAGE SYSTEM, AND OTHER REQUIREMENTS PER GEOTECH REPORT AS NOTED IN THE STRUCTURAL GENERAL NOTES.
7. CJ INDICATES CONTROL JOINT PER PLAN.
8. MOISTURE PROOF ALL CONCRETE STEM AND BASEMENT WALLS PER ARCHITECT. CONTRACTOR TO VERIFY ADDITIONAL LOCATIONS WHICH REQUIRE WATERPROOFING PER ARCHITECTURAL DRAWINGS.
9. STEEL STAIRS SHALL BE BIDDER-DESIGNED, UNO. APPLICABLE DESIGN REQUIREMENTS PER STRUCTURAL GENERAL NOTES.
10. TYPICAL DETAILS PER:

1/S-201	STANDARD HOOKS AND BAR BENDS
2/S-201	TYPICAL PIPE AND TRENCH LOCATIONS AT CONCRETE STEMWALL / FOOTING
5/S-201	PIPE OR CONDUIT EMBEDDED IN SLAB ON GRADE
6/S-201	TYPICAL SLAB ON GRADE JOINT DETAILS WITH REINFORCING
7/S-201	TYPICAL CORNER REINFORCING AT CONCRETE FOOTINGS
9/S-201	TYPICAL LAP SPLICE SCHEDULE
10/S-201	TYPICAL DEPRESSED SLAB DETAIL
11/S-201	TYPICAL ANCHOR BOLT SCHEDULE
12/S-202	PLAN - INTERSECTING SHEAR WALLS
13/S-202	TYPICAL STEEL STUD SHEAR WALL BEARING REQUIREMENTS
15/S-202	TYPICAL SHEAR WALL TO REINFORCED SLAB CONNECTION
16/S-202	TYPICAL SHEAR WALL ELEVATION
17/S-202	HOLD-DOWN SCHEDULE

FOUNDATION PLAN -NORTH
SCALE: 1/8" = 1'-0"

FOR PERMIT
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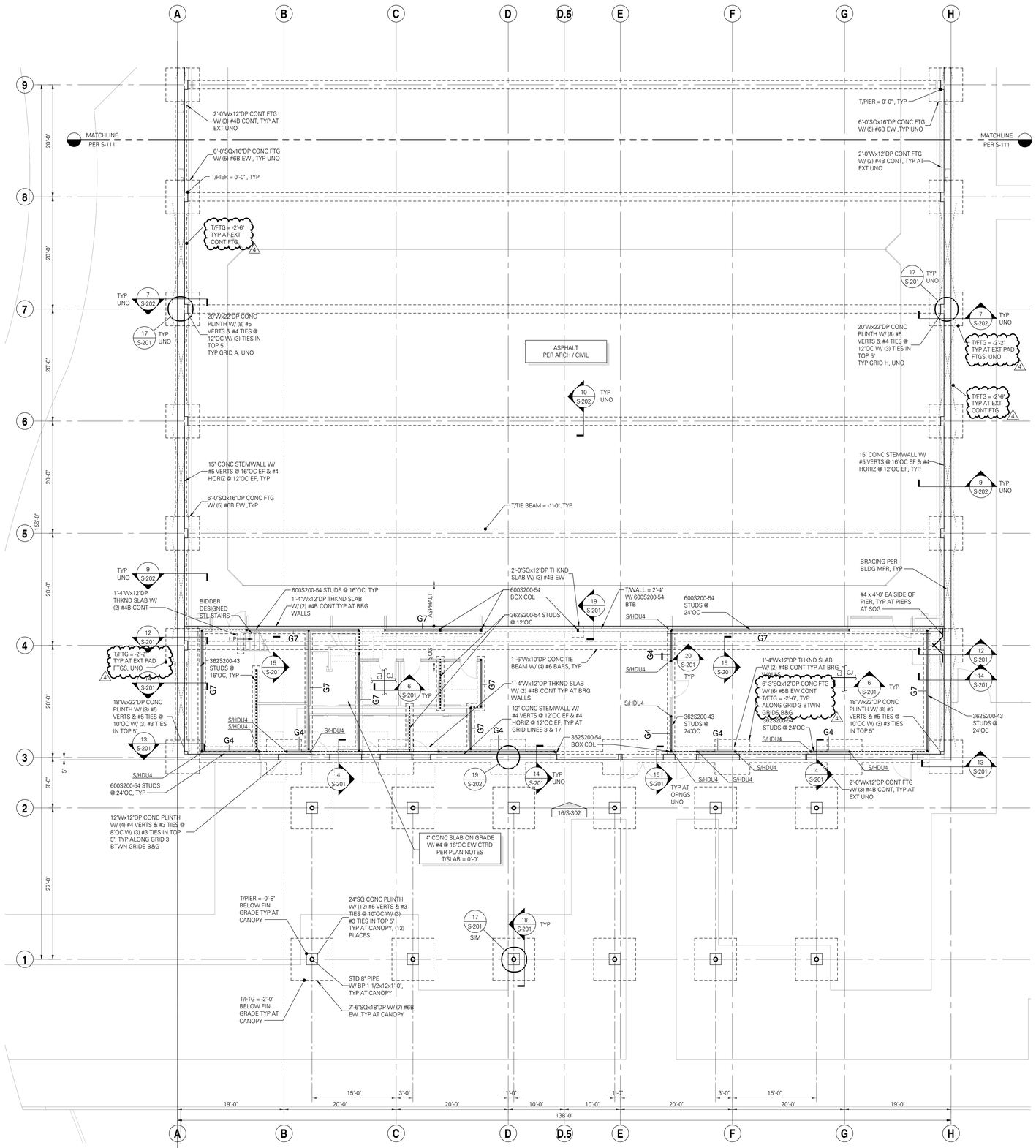
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1	06-23-2023	50% CD'S
2	07-24-2023	PERMIT SET
3	08-25-2023	BID PACKAGE 1
4	09-15-2023	ADDENDUM 1

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CHECKER	MST
PROJ MNGR	KEA
DATE	05/25/2023

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FOUNDATION PLAN -NORTH

S-111



FOUNDATION PLAN NOTES:

1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S1.1, S1.2 AND S1.3.
2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
3. CONTRACTOR SHALL LOCATE AND VERIFY THE FOLLOWING WITH OTHERS PRIOR TO POURING CONCRETE: ALL DOOR OPENINGS IN FOUNDATION WALLS; DRAINS AND SLOPES; BLOCKOUTS FOR FREEZERS, COOLERS, PLUMBING, SPRINKLERS AND HVAC. ALL DUCTS, CHASES AND PIPES PER MECHANICAL, PLUMBING, ELECTRICAL AND SPRINKLER DRAWINGS. STAIR DETAILS AND GUARDRAILS PER ARCHITECTURAL DRAWINGS.
4. TOP OF SLAB (T/SLAB) ELEVATION ASSUMED 0'-0". FOR ACTUAL T/SLAB ELEVATION REFER TO CIVIL AND ARCHITECTURAL DRAWINGS. PROVIDE 15 MIL VAPOR BARRIER BELOW SLAB AT INTERIOR SPACES. PROVIDE FREE-DRAINING GRANULAR FILL PER GEOTECH REPORT.
5. TYPICAL TOP OF EXTERIOR (T/EXTERIOR) FOOTING ELEVATIONS = -1'-8", UNO.
6. ALL FOOTINGS AND SLABS TO BEAR ON STRUCTURAL FILL, IMPROVED SOIL, SUBGRADE PREPARATION, STRUCTURAL FILL, DRAINAGE SYSTEM, AND OTHER REQUIREMENTS PER GEOTECH REPORT AS NOTED IN THE STRUCTURAL GENERAL NOTES.
7. CJ INDICATES CONTROL JOINT PER PLAN.
8. MOISTURE PROOF ALL CONCRETE STEM AND BASEMENT WALLS PER ARCHITECT. CONTRACTOR TO VERIFY ADDITIONAL LOCATIONS WHICH REQUIRE WATERPROOFING PER ARCHITECTURAL DRAWINGS.
9. STEEL STAIRS SHALL BE BIDDER-DESIGNED, UNO. APPLICABLE DESIGN REQUIREMENTS PER STRUCTURAL GENERAL NOTES.
10. TYPICAL DETAILS PER:

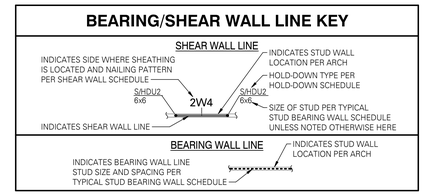
1/S-201	STANDARD HOOKS AND BAR BENDS
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5/S-201	PIPE OR CONDUIT EMBEDDED IN SLAB ON GRADE
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13/S-202	TYPICAL STEEL STUD SHEAR WALL BEARING REQUIREMENTS
15/S-202	TYPICAL SHEAR WALL TO REINFORCED SLAB CONNECTION
16/S-202	TYPICAL SHEAR WALL ELEVATION
17/S-202	HOLD-DOWN SCHEDULE

STUD AND SHEAR WALL PLAN NOTES:

1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S-001, S-002 AND S-003.
2. ALL INTERIOR NON-BEARING, NON-STRUCTURAL WALL STUDS AND DEFLECTION TRACKS SHALL BE DESIGNED BY STUD SUPPLIER. ALLOW FOR DEFLECTIONS AS NOTED ON STRUCTURAL GENERAL NOTES. LOAD AND SUBMITTAL REQUIREMENTS PER STRUCTURAL GENERAL NOTES. ATTACH PER 16/S-301.
3. COLD-FORMED BEAMS AND HEADERS SHOWN ON FRAMING PLAN SHALL BE SUPPORTED BY (1) S300-54 OR BY (2) FULL HEIGHT STUDS TO MATCH WALL TYPE MINIMUM EACH END OF BEAM OR HEADER UNO PER 12/S-301. TOP AND BOTTOM TRACK OF HEADER TO BE SAME AS TRACK SPECIFIED FOR BEARING WALLS AT EACH LEVEL UNO. WHERE ADDITIONAL FULL HEIGHT STUDS ARE REQUIRED, THE TOTAL NUMBER OF STUDS TO MATCH WALL TYPE SHALL BE NOTED THUS: ■ ③.
4. STRUCTURAL STEEL BEAMS SHOWN ON FRAMING PLAN SHALL BE SUPPORTED BY A MINIMUM OF (2) BEARING STUDS AND (2) FULL HEIGHT STUDS EACH END OF BEAM UNO. WHERE ADDITIONAL BEARING STUDS ARE REQUIRED, THE TOTAL NUMBER OF STUDS SHALL BE NOTED THUS: ■ ④. WHERE ADDITIONAL FULL HEIGHT STUDS ARE REQUIRED, THE TOTAL NUMBER OF STUDS SHALL BE NOTED THUS: ■ ③.
5. BEARING STUDS TO BE CONTINUOUS TO FOUNDATION.
6. BEARING WALL STUD AND TRACKS SHALL BE PER PLAN. STUDS SHALL ALIGN WITH JOISTS AT LEVELS ABOVE. ATTACH TRACKS PER 14/S-301 UNO IN SHEAR WALL SCHEDULE.
7. BEARING STUDS HAVE BEEN DESIGNED ON THE BASIS OF SHEATHING BRACED DESIGN. GYPSUM BOARD AND/OR SHEAR WALL SHEATHING SHALL BE 5/8" THICK MINIMUM AND ATTACHED DIRECTLY TO THE WALL STUDS WITH A MINIMUM OF #6 @ 12"OC AT FIELD AND EDGES. BRIDGING ANCHORAGE IS NOT REQUIRED AT SHEATHING BRACED DESIGN LEVELS.
8. SHEAR WALL AND SHEATHING ATTACHMENT REQUIREMENTS PER SHEAR WALL SCHEDULE 20/S-202.
9. TYPICAL DETAILS PER:

20/S-202	SHEAR WALL SCHEDULE
9/S-301	TYPICAL STEEL STUD BEARING REQUIREMENTS (NON-SHEAR WALL)
14/S-301	TYPICAL TOP AND BOTTOM TRACK DETAIL
15/S-301	TYPICAL TRACK SPLICE

BEARING/SHEAR WALL LINE KEY



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SANDPOINT

CITY OF SANDPOINT

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BID PACKAGE 1

REV	DATE	DESCRIPTION
1	06-23-2023	50% CD'S
2	07-24-2023	PERMIT SET
3	08-25-2023	BID PACKAGE 1
4	09-15-2023	ADDENDUM 1

PROJ. NO.	22041-0451
DRAWN	JLP
CHECKER	MST
PROJ MNGR	KEA
DATE	05/25/2023

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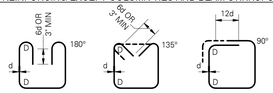
FOUNDATION PLAN - SOUTH

S-112

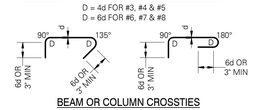
FOUNDATION PLAN - SOUTH
SCALE: 1/8" = 1'-0"



ALL REINFORCING EXCEPT COLUMN TIES AND BEAM STIRRUPS



STIRRUP | STIRRUP OR TIE



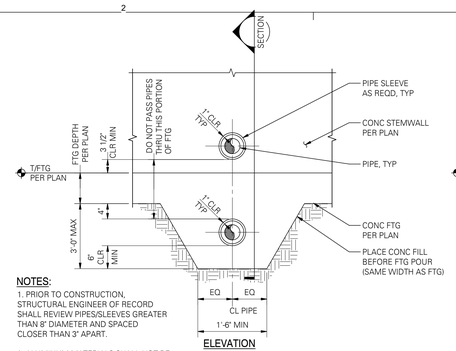
BEAM OR COLUMN CROSSTIES

BEAM STIRRUPS AND COLUMN TIES

NOTE:

TIES AND CROSSTIES FOR SHEAR WALL BOUNDARY ELEMENTS SHALL BE DETAILED AS COLUMN TIES/CROSSTIES.

d = BAR DIAMETER, D = BEND DIAMETER

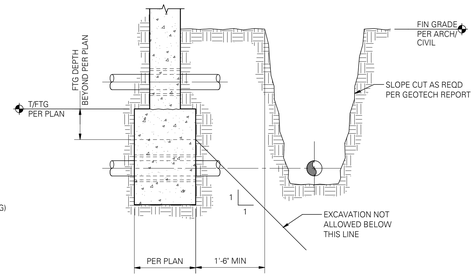


NOTES:

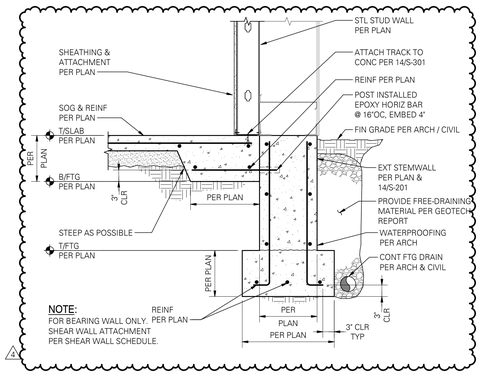
1. PRIOR TO CONSTRUCTION, STRUCTURAL ENGINEER OF RECORD SHALL REVIEW PIPES/SLEEVES GREATER THAN 8" DIAMETER AND SPACED CLOSER THAN 3' APART.

2. ALUMINUM MATERIALS SHALL NOT BE EMBEDDED IN CONCRETE.

ELEVATION

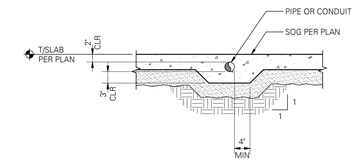


SECTION



NOTE:

FOR BEARING WALL ONLY. SHEAR WALL ATTACHMENT PER SHEAR WALL SCHEDULE.

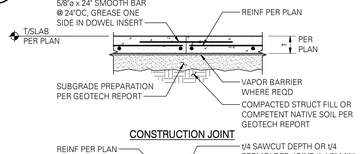


NOTE:

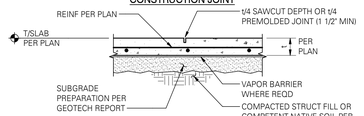
ALUMINUM MATERIALS SHALL NOT BE EMBEDDED IN CONCRETE.

1 STANDARD HOOKS AND BENDS

SCALE: 3/4" = 1'-0" (03400)



CONSTRUCTION JOINT



CONTROL JOINT

NOTES:

1. CONSTRUCTION JOINT IS A JOINT BETWEEN DIFFERENT POURS. CONTROL JOINT IS A CRACK CONTROL JOINT WITHIN THE SAME POUR.

2. USE "EARLY ENTRY DRY-CUT SAW" AS SOON AS POSSIBLE WITHOUT CAUSING RAVELING OF CONCRETE EDGES. SAWCUT ALONG SHORT DIRECTION OF POUR FIRST.

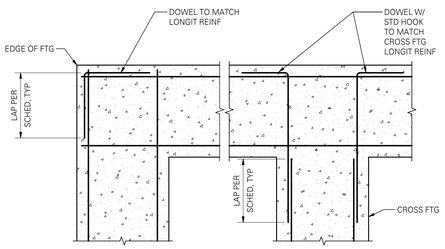
3. ALIGN A CONSTRUCTION OR CONTROL JOINT WITH RE-ENTRANT SLAB CORNERS, EACH WAY, TYPICAL.

4. CONSTRUCTION/CONTROL JOINT TO ENCLOSE APPROXIMATE SQUARE AREAS 225 SQUARE FEET MAXIMUM, WITH MAXIMUM PANEL ASPECT RATIO OF 1.3 TO 1.0.

5. CONTRACTOR TO SUBMIT CONSTRUCTION/CONTROL JOINT PLAN TO STRUCTURAL ENGINEER OF RECORD FOR REVIEW/APPROVAL.

2 TYPICAL PIPE AND TRENCH LOCATIONS AT CONCRETE STEMWALL/FOOTING

SCALE: 3/4" = 1'-0" (03190)

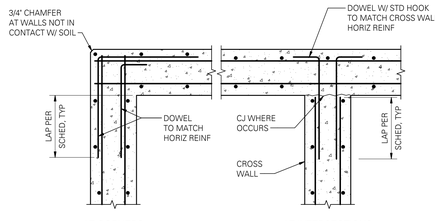


AT CORNERS | AT INTERSECTIONS

NOTE:

1. SPLICE LENGTHS PER LAP SPLICE AND DEVELOPMENT LENGTH SCHEDULE.

2. FOOTING REINFORCING PER PLAN OR ELEVATIONS, SECTIONS AND DETAILS.



AT CORNERS | AT INTERSECTIONS

NOTES:

1. SPLICE LENGTHS PER LAP SPLICE AND DEVELOPMENT LENGTH SCHEDULE.

2. WALL REINFORCING PER PLAN OR ELEVATIONS, SECTIONS AND DETAILS.

3. AT FOOTINGS AND STEMWALLS, CORNER REINFORCING TO MATCH FOOTING AND STEMWALL HORIZONTAL REINFORCING.

4 TYPICAL THICKENED SLAB EDGE FOOTING

SCALE: 3/4" = 1'-0" (03072)

01400	GRADE 60 REINFORCING				
BAR SIZE	MISCELLANEOUS BARS		TOP BARS (see note #5)		HOOKED BARS
	Ld	Splice	Ld	Splice	Ldh
f'c = 3000psi					
#3	17	22	22	28	9
#4	22	29	29	38	11
#5	28	36	36	47	14
#6	33	43	43	56	17
#7	48	63	63	81	20
#8	55	72	72	93	22
#9	62	81	81	105	25
#10	70	91	91	118	28
#11	78	101	101	131	31
#14	93	N/A	121	N/A	38
#18	124	N/A	161	N/A	50
f'c = 4000psi					
#3	15	19	19	25	8
#4	19	25	25	33	10
#5	24	31	31	41	12
#6	29	37	37	49	15
#7	42	54	54	71	17
#8	48	62	62	81	19
#9	54	70	70	91	22
#10	61	79	79	102	25
#11	67	87	87	114	27
#14	81	N/A	105	N/A	33
#18	108	N/A	140	N/A	43

NOTES:

1. ALL TABULATED VALUES ARE IN INCHES.

2. VALUES FOR UNCOATED REINFORCING AND NORMAL WEIGHT CONCRETE WITH CLEAR SPACING > db, CLEAR COVER > db AND MINIMUM STIRRUPS OR TIES THROUGHOUT Ld OR CLEAR SPACING > 2db AND CLEAR COVER > db.

3. DEVELOP ALL REINFORCING IN STRUCTURAL SLABS WITH MINIMUM DEVELOPMENT LENGTH Ld.

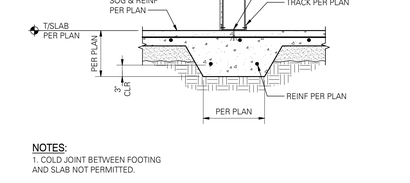
4. Ldh = DEVELOPMENT LENGTH OF BAR WITH STANDARD HOOK.

5. TOP BAR = HORIZONTAL BAR WITH MORE THAN 12" OF FRESH CONCRETE BELOW OR AS NOTED ON DOCUMENTS AS "TOP BAR".

6. LAP SPLICE OF DIFFERENT SIZED BARS TO BE THE LARGER OF Ld OF THE LARGER BAR OR SPLICE LENGTH OF THE SMALLER BAR.

5 PIPE OR CONDUIT EMBEDDED IN SLAB ON GRADE

SCALE: 3/4" = 1'-0" (03204)



6 TYPICAL SLAB ON GRADE JOINT DETAILS WITH REINFORCING

SCALE: 3/4" = 1'-0" (03201)

01901	TYPICAL ANCHOR BOLT SCHEDULE					
INSTALLATION TYPE	CAST-IN-PLACE (PRE-AUTHORIZED) [2]				DRILL-IN OPTIONS (SUBMITTAL REQUIRED) [3]	
BOLT TYPE	STANDARD J-BOLT	HEADED ANCHOR	THREADED ROD ANCHOR	SIMPSON "SSTB" ANCHOR BOLT	ADHESIVE ANCHOR	EXPANSION ANCHOR
EMBEDMENT REQUIREMENTS	7 1/2"	12x DIA, 1/4" MIN, TACK		PER MFR	NOTE [4]	NOT ALLOWED AT P-T SLAB
LIMITS	5/8"Ø MAX	5/8"Ø THRU 2 1/2"Ø		FOR WOOD FRAME ONLY	5/8"Ø THRU 1"Ø	
DIA = ANCHOR BOLT DIAMETER (NOMINAL)						

PROJECTION NOTE [1]

MIN EMBED UNO PER PLAN

NOTES:

[1] CONTRACTOR SHALL DETERMINE THE REQUIRED THREAD PROJECTION SUITABLE FOR THE THICKNESS OF MATERIAL BEING FASTENED PLUS GROUT ALLOWANCE, IF ANY, AND CONSTRUCTION TOLERANCES, UNO.

[2] CONTRACTOR MAY SELECT APPROPRIATE CAST-IN-PLACE ANCHOR BOLT OPTION WITHOUT SUBMITTAL.

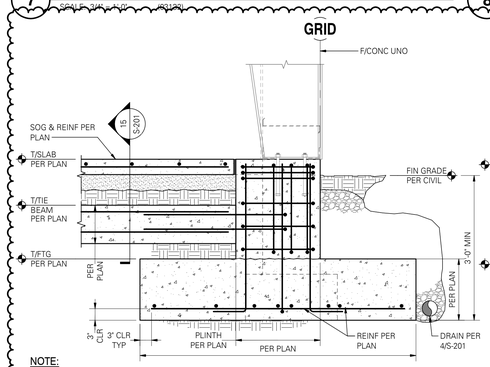
[3] DRILL-IN OPTIONS ARE NOT APPROPRIATE AT ALL CONDITIONS. IF DRILL-IN METHOD IS PREFERRED, SUBMIT MANUFACTURER'S INFORMATION, ALLOWABLE LOAD VS EMBEDMENT DATA AND LOCATIONS OF WHERE SUBSTITUTIONS ARE REQUESTED. ENGINEER WILL DETERMINE IF SUBSTITUTION IS APPROPRIATE FOR LOCATION AND LOADING.

[4] EMBEDMENT OF DRILL-IN ANCHORS SHALL BE PER ENGINEERS'S SUBMITTAL REVIEW COMMENTS. EMBEDMENT SHALL BE (9) NINE TIMES THE NOMINAL ANCHOR DIAMETER, UNO.

[5] AT PRESSURE TREATED SILLS, PROVIDE HOT-DIPPED GALVANIZED OR STAINLESS STEEL ANCHORS.

7 PLAN - TYPICAL CORNER REINFORCING AT CONCRETE FOOTINGS

SCALE: 3/4" = 1'-0" (03120)

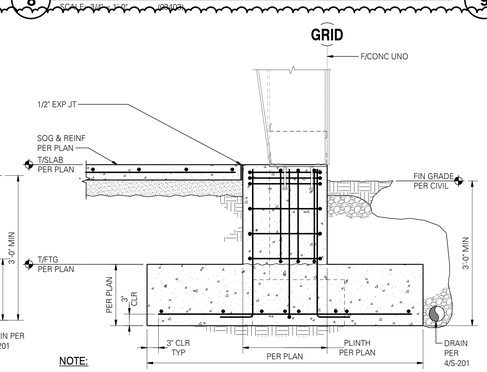


NOTE:

ADDITIONAL INFORMATION PER 13/S-201 & 7/S-202.

8 PLAN - TYPICAL CORNER REINFORCING

SCALE: 3/4" = 1'-0" (03120)

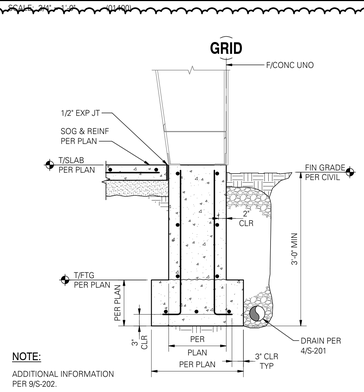


NOTE:

ADDITIONAL INFORMATION PER 8/S-202.

9 TYPICAL LAP SPLICE AND DEVELOPMENT LENGTH SCHEDULE

SCALE: 3/4" = 1'-0" (03120)

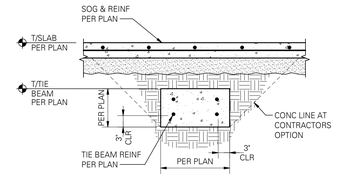


NOTE:

ADDITIONAL INFORMATION PER 9/S-202.

10 TYPICAL DEPRESSED SLAB DETAIL

SCALE: 3/4" = 1'-0" (03202)

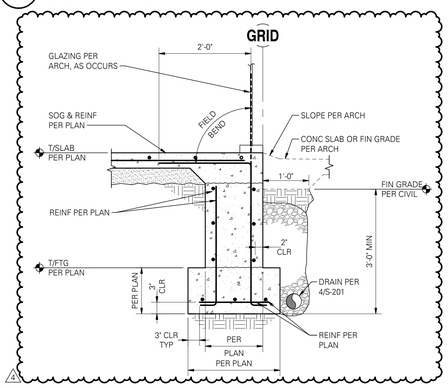


NOTE:

ADDITIONAL INFORMATION PER 10/S-202.

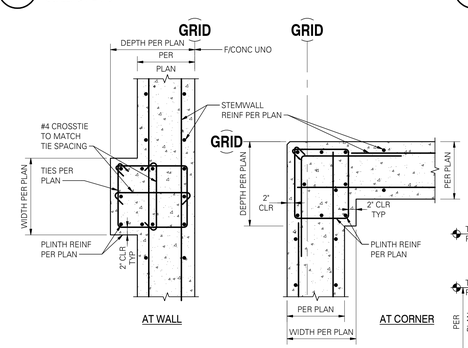
11 TYPICAL ANCHOR BOLT SCHEDULE

SCALE: 1" = 1'-0" (01901)



12 METAL BUILDING FOOTING WITH TIE BEAM AT CONCRETE SLAB

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

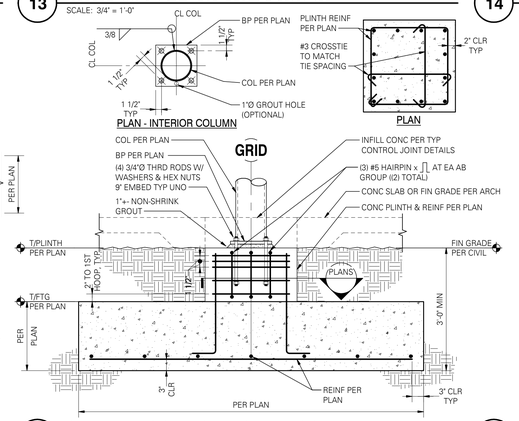


NOTE:

AT SIMILAR CONDITION NO STEMWALL.

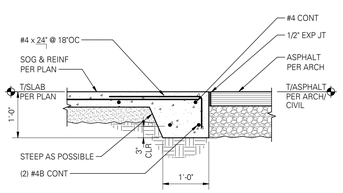
13 METAL BUILDING FOOTING WITH EMBED PLATE AT CORNER

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



14 TYPICAL METAL BUILDING PERIMETER DETAIL

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



15 TIE BEAM SECTION

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

NOTES:

1. COLD JOINT BETWEEN FOOTING AND SLAB NOT PERMITTED.

2. FOR BEARING WALL ONLY. SHEAR WALL ATTACHMENT PER SHEAR WALL SCHEDULE.

16 CONCRETE SLAB AND STEMWALL AT OPENINGS

SCALE: 3/4" = 1'-0" (03033M)

17 PLAN - PLINTH AT STEMWALL

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

18 SPREAD FOOTING AT STEEL COLUMN

SCALE: 3/4" = 1'-0" (03007M)

19 EXTERIOR THICKENED SLAB EDGE FOOTING AT STUD WALL

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

20 TYPICAL STEEL STUD WALL AT INTERIOR FOOTING

SCALE: 3/4" = 1'-0" (03073)

FOR PERMIT

These drawings are sufficiently complete for submission to the jurisdiction having authority for permit. The Contractor shall not use these drawings for construction until Contractor receives written approval for use in connection by the jurisdiction having authority and ALSC Engineers.

ALSC ARCHITECTS

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PROFESSIONAL ENGINEER LICENSED 13697 STATE OF IDAHO JUSTIN B. COOK

CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE 1

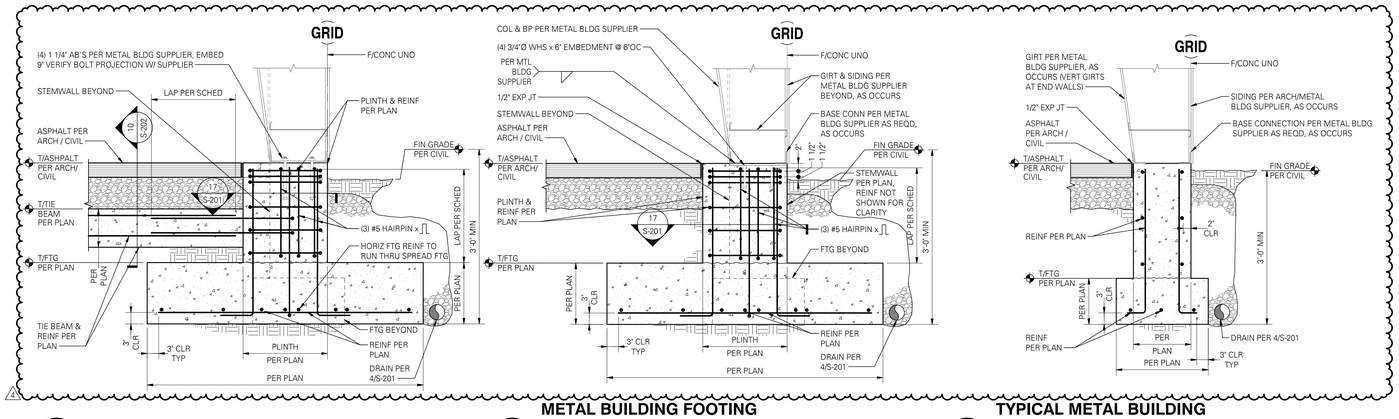
REV	DATE	DESCRIPTION
2	07-24-2023	PERMIT SET
3	08-25-2023	BID PACKAGE 1
4	09-15-2023	ADDENDUM 1

PROJ. NO.	22041-0451
DRAWN	JLP
CHECKER	MST
PROJ MNGR	KEA
DATE	05/25/2023

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FOUNDATION DETAILS

S-201

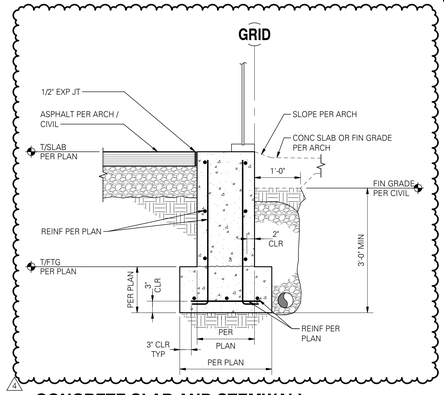


7 METAL BUILDING FOOTING WITH TIE BEAM
SCALE: 3/4" = 1'-0"

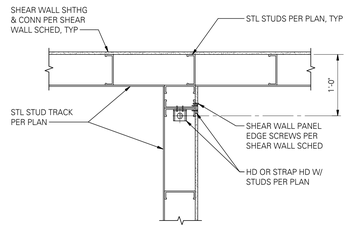
8 METAL BUILDING FOOTING WITH EMBED PLATE AT CORNER
SCALE: 3/4" = 1'-0"

9 TYPICAL METAL BUILDING PERIMETER DETAIL
SCALE: 3/4" = 1'-0"

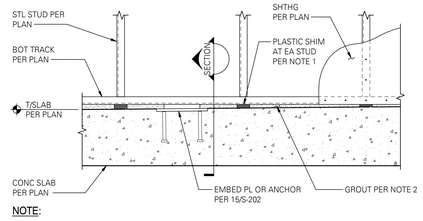
10 TIE BEAM SECTION
SCALE: 3/4" = 1'-0"



CONCRETE SLAB AND STEMWALL AT OPENINGS
SCALE: 3/4" = 1'-0" (03033M)



12 PLAN - INTERSECTING SHEAR WALLS
SCALE: 1" = 1'-0" (07086)



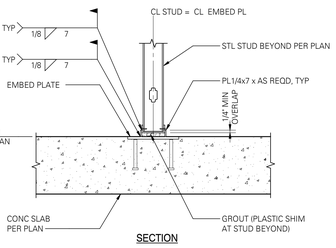
NOTE:

1. SHIMS SHALL BE LOCATED DIRECTLY BENEATH ALL STUDS WITH FULL BEARING. SHIMS SHALL BE POSITIVELY ATTACHED TO THE BOTTOM TRACK AND EXTEND A MIN OF 1/8" ON EACH SIDE OF THE TRACK EXCEPT AT EMBED PLATE. SHIM PRODUCT DATA SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR APPROVAL PRIOR TO INSTALLATION.

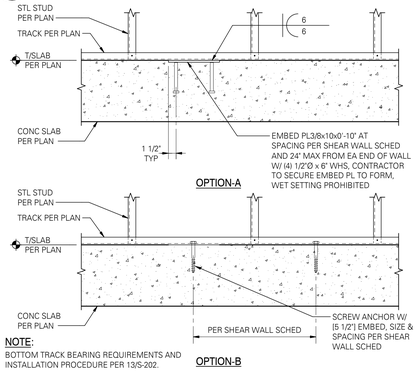
2. IN LOCATIONS WHERE THE GAP BETWEEN THE BOTTOM OF THE TRACK AND THE TOP OF SLAB EXCEEDS 1/4", DRY-PACK GROUT SHALL BE PLACED BETWEEN THE SHIMS. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR ALL GROUTING BENEATH STEEL STUD WALLS. A 3/4" DIAMETER HOLE SHALL BE DRILLED AT 10'-0"OC MAX TO ENSURE SOLID GROUTING BENEATH THE TRACK.

3. WHERE THE GAP BETWEEN THE BOTTOM OF THE TRACK AND THE TOP OF SLAB EXCEEDS 1" CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR ALTERNATIVE PROCEDURES.

13 TYPICAL STEEL STUD SHEAR WALL BEARING REQUIREMENTS
SCALE: 1" = 1'-0" (07051)



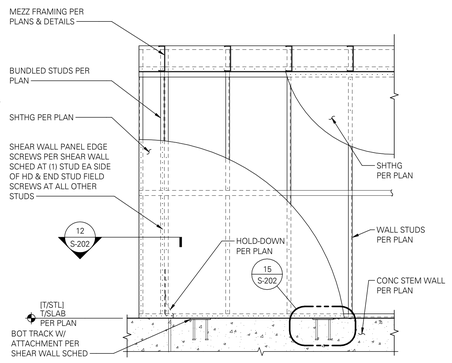
SECTION



NOTE:
BOTTOM TRACK BEARING REQUIREMENTS AND INSTALLATION PROCEDURE PER 13/S-202.

OPTION-B

15 TYPICAL SHEAR WALL TO REINFORCED SLAB CONNECTION
SCALE: 1" = 1'-0" (07050B)



16 TYPICAL SHEAR WALL ELEVATION
SCALE: 1/2" = 1'-0" (07080M)

01421

HOLD-DOWN SCHEDULE (STEEL STUDS) [1]

TYPE	STUDS REQUIRED AT HOLD-DOWN [2]	SCREWS	ANCHOR				CAPACITY (LBS) [5]		
			CONCRETE EMBEDMENT [5]			DIAMETER			
			STEMWALL [6]		SPREAD FOOTING				
			CIP [3]	ADHESIVE [4]	CIP OR ADHESIVE [3, 4]		33MIL	43MIL	54MIL
S/HDU4	(2) 362S200-54	(6) #14	8"	8"	8"	5/8"	2320	3825	3970

NOTES:

[1] TYPICAL SHEAR WALL ELEVATION PER 16/S-202. TYPICAL HOLD-DOWN DETAILS PER 12/S-202.

[2] PROVIDE PANEL EDGE SCREWS AT HOLD-DOWN STUDS PER SHEAR WALL SCHEDULE. CONNECT STUDS TOGETHER PER STRUCTURAL GENERAL NOTES. PROVIDE BACK TO BACK STUDS FOR HOLD-DOWN TO CONNECT TO AT END OF STUD BUNDLE.

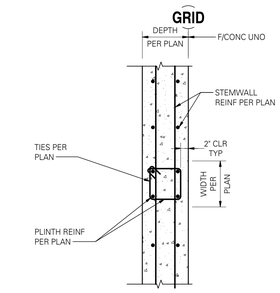
[3] CAST IN PLACE (CIP) TYPE ANCHOR BOLTS AT HOLD-DOWNS SHALL HAVE A HEX HEAD WITH A STANDARD CUT WASHER UNO.

[4] THREADED ROD WITH ADHESIVE PER STRUCTURAL GENERAL NOTES.

[5] BASED ON MINIMUM f'c = [2500] PSI CONCRETE.

[6] STEMWALLS SHALL BE 6" WIDE MINIMUM FOR 5/8"Ø AND SMALLER ANCHOR BOLTS AND 8" WIDE MINIMUM FOR 7/8"Ø AND LARGER ANCHOR BOLTS.

17 HOLD-DOWN SCHEDULE
SCALE: 1" = 1'-0" (01421)



19 PLAN - PLINTH AT STEMWALL
SCALE: 3/4" = 1'-0"

01434A

SHEAR WALL SCHEDULE
FOR GYPSUM BOARD SHEATHING

WALL TYPE	MINIMUM STUD AND TRACK THICKNESS	SCREW SPACING AT PANEL EDGES AND FIELD [5]	SHEAR CAPACITY (PLF, ASD) [4]
G7	33MIL	7"OC	232
G4	33MIL	4"OC	340

NOTES:

[1] PROVIDE STRAP BLOCKING AT HORIZONTAL PANEL JOINTS AND SOLID BLOCKING BETWEEN THE FIRST (2) END STUDS.

[2] ATTACH STUD TO TOP AND BOTTOM TRACK PER 14/S-301.

[3] ATTACH BOTTOM TRACK TO CONCRETE WITH PAF @ 4'OC OR STEEL WITH PAF PER 14/S-301.

[4] 1/2" GYPSUM BOARD MINIMUM REQUIRED EACH FACE OF STUD. STUDS SPACED @ 24'OC MAXIMUM.

[5] ATTACH GYPSUM BOARD TO STEEL STUD FRAMING WITH #6 SCREWS MINIMUM IN ACCORDANCE WITH ASTM C954.

[6] STUDS SHALL HAVE MINIMUM FLANGE WIDTH OF 1 5/8".

20 SHEAR WALL SCHEDULE
SCALE: 1" = 1'-0" (01434A)

FOR PERMIT
These drawings are sufficiently complete for submission to the jurisdiction having authority for permit. The Contractor shall not use these drawings for construction until Contractor receives written approval for use in construction by the jurisdiction having authority and DCI Engineers.

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PROFESSIONAL ENGINEER LICENSED 13697 STATE OF IDAHO JUSTIN B. COOK

SANDPOINT
CITY OF SANDPOINT

TRAVERS PARK RECREATION CENTER

BID PACKAGE 1

REV	DATE	DESCRIPTION
2	07-24-2023	PERMIT SET
3	08-25-2023	BID PACKAGE 1
4	09-15-2023	ADDENDUM 1

PROJ. NO.	22041-0451
DRAWN	JLP
CHECKER	MST
PROJ MNGR	KEA
DATE	05/25/2023

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FOUNDATION DETAILS

S-202

SECTION 13 31 23

TENSION FABRIC BUILDING SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The fabric building superstructure is comprised of solid flange and solid web rigid frames. The primary frames have welded plate tapered columns with side-wall girts, and tapered rafters with simple span purlins inset into the lower flange line. Fabric membrane panels are attached to the exterior of the frames and are tensioned to clad the exterior of the building's roof, side walls and end walls. Fabric membrane panels are attached to the interior side of the frames and are tensioned to line the building's interior. Blanket insulation is provided in the cavity between the two membranes. Roof ventilation is provided from the eaves to the ridge.

B. Section Includes:

1. Structural-steel framing.
2. Fabric cladding.
3. Fabric tensioning system.
4. Thermal insulation.
5. Accessories.

C. Related Requirements:

1. Section 03 30 00 "Cast-in-Place Concrete".
2. Section 08 11 13 "Hollow Metal Doors & Frames" for exterior doors and frames in metal buildings.
3. Section 08 36 13 "Sectional Doors" for sectional doors in metal building systems.

1.3 REFERENCES

A. American Institute of Steel Construction (AISC):

1. AISC 360 - Specification for Structural Steel Buildings, June 22, 2010.
2. AISC 341 - AISC Seismic Provisions for Structural Steel Buildings, June 22, 2010.
3. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges, April 14th, 2010.

B. American Iron and Steel Institute (AISI) :

1. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members, 2012 Edition.

C. American Welding Society (AWS)

1. AWS D1.1/D1.1M - Structural Welding Code - Steel.
2. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel.

D. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE):

1. ASHRAE 90.1-2010 - Energy Standard for Buildings Except Low-Rise Residential Buildings (I-P Edition).

E. ASTM International (ASTM): Latest versions of:

1. ASTM A 6/A 6M - Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling.
2. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel.
3. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat-Treated, 120/105 ksi Minimum Tensile Strength.
4. ASTM A 475 - Standard Specification for Zinc-Coated Steel Wire Strand.
5. ASTM A 490 Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength
6. ASTM A 500/A 500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
7. ASTM A 529/A 529M - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality.
8. ASTM A 563 - Standard Specification for Carbon and Alloy Steel Nuts.
9. ASTM A 572/A 572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
10. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
11. ASTM A 792/A 792M - Standard Specification for Steel Sheet, 55 Percent Aluminum- Zinc Alloy-Coated by Hot-Dip Process.
12. ASTM A 992/A 992M - Standard Specification for Structural Steel Shapes.
13. ASTM A 1011/A 1011M - Standard Specification for Steel, Sheet and Strip, Hot- Rolled, Carbon, Structural, High-Strength, Low-Alloy and High-Strength Low-Alloy with Improved Formability and Ultra-High Strength
14. ASTM A 1018/A 1018A - Standard Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Carbon, Commercial, Drawing, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
15. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
16. ASTM C 1363 - Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus.
17. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
18. ASTM D 1003 - Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.
19. ASTM D 1494 - Standard Test Method for Diffuse Light Transmission Factor of Reinforced Plastics Panels.
20. ASTM D 1929 - Standard Test Method for Determining Ignition Temperature of Plastics.
21. ASTM D 2240 - Standard Test Method for Rubber Property—Durometer Hardness.
22. ASTM D 2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
23. ASTM D 4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.
24. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

25. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
26. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences Across Specimen.
27. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
28. ASTM E 1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
29. ASTM E 1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.
30. ASTM E 1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.
31. ASTM E 1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
32. ASTM F 436 - Standard Specification for Hardened Steel Washers
33. ASTM F 1941 - Standard Specification for Electrodeposited Coatings on Threaded Fasteners (Unified Inch Screw Threads (UN/UNR))

F. Cool Roof Rating Council (CRRC):

1. CRRC-1 Standard, 2008.
2. Product Rating Program Manual for CRRC-1, November 19th, 2013.

G. Factory Mutual Approvals (FM Approvals):

1. FM 4471 - Approval Standard for Class 1 Panel Roofs.
2. FM 4880 - Approval Standard for Class 1 Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coatings and Exterior Wall Systems.
3. FM 4881 - Approval Standard for Class 1 Exterior Wall Systems.

H. International Accreditation Service (IAS):

1. Accreditation Criteria 472 (AC472) - Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems, latest edition.

I. Metal Building Manufacturers Association (MBMA):

1. Metal Building Systems Manual, 2012 Edition. J. National Fenestration Rating Council (NFRC):
2. NFRC 100 - Procedure for Determining Fenestration Product U-factors, 2014
3. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence, 2010.

J. National Fire Protection Association (NFPA):

1. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components, 2012 Edition.

K. Research Council on Structural Connections (RCSC):

1. RCSC Specification for Structural Joints Using ASTM A 325 or A 490 Bolts, December 31, 2009.

L. Underwriters Laboratories (UL):

1. UL-580 - Tests for Uplift Resistance of Roof Assemblies.
2. UL-790 - Standard Test Methods for Fire Tests of Roof Coverings.
3. UL-2218 - Impact Resistance of Prepared Roof Covering Materials.

1.4 COORDINATION

A. Coordinate sizes and locations of concrete foundations and casting of anchor-rod inserts into foundation walls and footings. Anchor rod installation, concrete, reinforcement, and formwork requirements are specified in Section 03 30 00 "Cast-in-Place Concrete."

B. Coordinate fabric cladding, tensioning system and structural framing with rain drainage work, flashing, trim, and construction of supports and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

C. Coordinate work of Hollow Metal Door Frames, Aluminum Framed Entrances and Storefronts, HVAC Equipment openings and penetrations and manufacturer’s accessories with installation of fabric cladding.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to tension fabric building systems including, but not limited to, the following:

    a. Condition of foundations and other preparatory work performed by other trades.
    b. Structural load limitations.
    c. Construction schedule. Verify availability of materials and erector's personnel, equipment, and facilities needed to make progress and avoid delays.
    d. Required tests, inspections, and certifications.
    e. Unfavorable weather and forecasted weather conditions and impact on construction schedule.

2. Review methods and procedures related to tension fabric cladding including, but not limited to, the following:

    a. Compliance with requirements for purlin, rafter and support conditions, including flatness, alignment between and attachment to structural members.
    b. Structural limitations of purlins, rafters, girts and columns during and after cladding.
    c. Flashings, special roof and siding details, wall penetrations, roof drainage, roof penetrations, wall openings, equipment curbs, and condition of other construction that will affect fabric cladding.
    d. Temporary protection requirements for fabric cladding during and after installation.
    e. Observation and repair after fabric cladding installation.

3. Review methods and procedures related to sequencing of the interior asphalt flooring to optimize quality of both the asphalt surface and tension fabric building system and so that the installation of each scope of work does not compromise the finished quality of the other.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of tension fabric building system component.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:

    a. Fabric cladding.
    b. Fabric tensioning system.
    c. Thermal insulation.

B. Shop Drawings: Indicate components by others. Include full building plan, elevations, sections, details and the following:

1. Anchor-Bolt Plans: Submit anchor-bolt plans and templates before foundation work begins. Include location, diameter, and minimum required projection of anchor bolts required to attach metal building to foundation. Indicate column reactions at each location.
2. Rigid Frame Drawings: Show complete fabrication of primary and secondary framing; include provisions for openings. Indicate welds and bolted connections, distinguishing between shop and field applications. Include transverse cross-sections.
3. Fabric Cladding Layout Drawings: Show layouts of panels including methods of support. Include details of edge conditions, joints, corners, anchorages, tensioning, attachment, trim, flashings, closures, and special details. Distinguish between factory- and field-assembled work.

    a. Show roof-mounted items including pipe penetrations.
    b. Show wall-mounted items including personnel doors, sectional doors, louvers, and lighting fixtures.

4. Accessory Drawings: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches (1:8):

    a. Flashing and trim.
    b. Gutters.
    c. Downspouts.
    d. Ice Breakers

5. Structural Design Calculations: 2 sets sealed and signed by a professional engineer licensed in accordance with applicable state law.
6. Documentation including test reports supporting Thermal Transmission Coefficients (U-factors) of building envelope components specified in this section.

C. Quality Control Submittals:

1. IAS AC472 Certificate for each facility involved in the design and fabrication of the Metal Building System.
2. Certified Erector Certificate issued to the erector by the manufacturer.
3. Material Test Reports (MTR) for all steel material used in the manufacture of primary and secondary framing members, panels and bolts specified in this section and when required by ASTM A 6/A 6MA.

D. Samples for Initial Selection: For units with factory-applied finishes.

E. Samples for Verification: For the following products:

1. Fabric Cladding: 12 inches long by 12 inches wide. Include fasteners, closures, and other exposed panel accessories.
2. Flashing and Trim: Nominal 12 inches (300 mm) long. Include fasteners and other exposed accessories.
3. Accessories: Nominal 12-inch- (300-mm-) long Samples for each type of accessory.

F. Delegated-Design Submittal: For tension fabric building system.

1. Include analysis data indicating compliance with performance requirements and design data signed and sealed by the qualified professional engineer responsible for their preparation.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer.

B. Welding certificates.

C. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

1. Name and location of Project.
2. Order number.
3. Name of manufacturer.
4. Name of Contractor.
5. Building dimensions including width, length, height, and roof slope.
6. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
7. Governing building code and year of edition.
8. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
9. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
10. Building-Use Category: Indicate category of building use and its effect on load importance factors.

D. Material Test Reports: For each of the following products:

1. Structural steel including chemical and physical properties.
2. Bolts, nuts, and washers including mechanical properties and chemical analysis.
3. Tension-control, high-strength, bolt-nut-washer assemblies.
4. Shop primers.
5. Nonshrink grout.

E. Source quality-control reports.

F. Field quality-control reports.

G. Sample Warranties: For special warranties.

1.8 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panel finishes and door hardware to include in maintenance manuals.

1.9 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer.

1. Accreditation: Building supplier must have a quality program in place that includes the following fabric seam testing procedures per ASTM D4851: sheer test, peel test, and creep test.
2. Accreditation: Building supplier must be CSA-A660 certified for quality of manufacturing of steel buildings.
3. Accreditation: Building supplier must be ISO 9001 certified.
4. Engineering Responsibility: Preparation of comprehensive engineering analysis and Shop Drawings by a professional engineer who is legally qualified to practice in jurisdiction where Project is located.

B. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3, "Structural Welding Code - Sheet Steel."

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, sheets, panels, and other manufactured items so as not to be damaged or deformed. Package components for protection during transportation and handling.

B. Unload, store, and erect components in a manner to prevent damage.

C. Store components to ensure dryness, with positive slope for drainage of water. Do not store components in contact with other materials that might cause staining, denting, or other surface damage.

1.11 FIELD CONDITIONS

A. Weather Limitations: Proceed with fabric cladding installation only when weather conditions permit cladding to be installed according to manufacturers' written instructions and warranty requirements.

1.12 WARRANTY

A. Special Warranty on Cladding Fabric: Manufacturer agrees to repair or replace fabric cladding and liner panels that show evidence of deterioration or damage within specified warranty period.

1. Warranty Period: 25 years from date of Substantial Completion.

B. Special Weathertightness Warranty: Manufacturer agrees to repair or replace fabric cladding assemblies that leak or otherwise fail to remain weathertight within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain tension fabric building system components, including primary and secondary framing, fabric cladding assembly and tensioning systems, from a single source.

B. Basis of Design Manufacturer: Legacy Building Solutions – Tension Fabric Building.

2.2 SYSTEM DESCRIPTION

A. Provide a complete, integrated set of mutually dependent components and assemblies that form a tension fabric building system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior.

B. Primary-Frame Type:

1. Rigid Clear Span: Solid-member, structural-framing system without interior columns.

C. End-Wall Framing: Manufacturer's standard, for buildings not required to be expandable, consisting of load-bearing end-wall and corner columns and rafters.

D. Secondary-Frame Type: Manufacturer's standard purlins , joists and girts.

E. Eave Height: As indicated by height on Drawings.

F. Bay Spacing: As indicated on Drawings.

G. Roof Slope: As indicated on Drawings.

H. Roof System: Manufacturer's standard PVC coated polyester fabric cladding.

I. Exterior Wall System: Manufacturer's standard PVC coated polyester fabric cladding.

2.3 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 “Quality Requirements”, to tension fabric building system.

B. Structural Performance: Tension fabric building systems shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.

1. Design Loads: As indicated on Drawings.
2. Deflection and Drift Limits: As indicated on Structural Drawings.

C. Seismic Performance: Tension fabric building system shall withstand the effects of earthquake motions determined according to ASCE/SEI 7, reference structural drawings for additional Seismic Force Resisting System Requirements.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg. F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

E. Fire Propagation Characteristics: PVC coated polyester fabric cladding shall meet the requirements for fire propagation performance as specified in NFPA 701. PVC coated polyester fabric liner shall have a Class A flame spread rating as specified by ASTM E84.

F. Structural Performance for Metal Roof Panels: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:

1. Wind Loads: As indicated on Drawings.

G. Air Infiltration for Fabric Roof Cladding: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E1680.

H. Air Infiltration for Fabric Wall Cladding: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E283.

I. Water Penetration for Fabric Roof Cladding: No water penetration when tested according to ASTM E1646.

J. Water Penetration for Fabric Wall Cladding: No water penetration when tested according to ASTM E331.

K. Wind-Uplift Resistance: Provide Fabric Roof Cladding assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. Uplift Rating: UL 90.

L. Thermal Performance for Opaque Elements: Provide the following maximum U-factors and minimum R-values when tested according to ASTM C1363 or ASTM C518:

1. Roof:

a. U-Factor: See drawings.
b. R-Value: See drawings.

2. Walls:

a. U-Factor: See drawings.
b. R-Value: See drawings.

2.4 STRUCTURAL-STEEL FRAMING

A. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings."

B. Bolted Connections: Comply with RCSC's "Specification for Structural Joints Using High-Strength Bolts."

C. Welded Connections: All shop connections shall be in accordance with the American Welding Society (AWS) Code for Building Construction.

D. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.

E. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse frames; rafters, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.

1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.

a. Slight variations in span and spacing may be acceptable if necessary to comply with manufacturer's standard, as approved by Architect.

2. Rigid Clear-Span Frames: All rigid frames shall be welded, built-up “I” sections or mill-rolled structural sections. Tubular cords and webs are not permitted. Interior columns are not permitted.
3. Plates, Stiffeners, etc.: All base plates, splice plates, cap plates, and stiffeners shall be factory welded into place on the structural members.
4. Bolt Holes, etc.: All base plates and flanges shall be shop fabricated to include bolt connection holes. Webs shall be shop fabricated to include cable brace or rod brace holes and flange brace holes.
5. Frame Configuration: Single gable.
6. Exterior Column: Tapered.
7. Rafter: Tapered.

F. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly to comply with the following:

1. End-Wall Columns: Cold-formed HSS, mill-rolled structural sections, or built-up “I” sections as required by design.
2. Plates, Stiffeners, etc.: All base plates, splice plates, cap plates, and stiffeners shall be factory welded into place on the structural members.
3. Bolt Holes, etc.: All base plates and flanges shall be shop fabricated to include bolt connection holes. Webs shall be shop fabricated to include cable brace or rod brace holes and flange brace holes.

G. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from metallic-coated steel sheet, to comply with the following:

1. Purlins: Purlins shall be HSS tubes that are precision drilled or cut at the factory to provide for field bolting to the primary framing. They shall be simple span as required by design. To provide a stronger connection all purlins must bolt directly to the frame, not by using secondary clips or angles. Retain depths in "Depth" Subparagraph below if manufacturer does not determine depths. Insert manufacturer's proprietary size if required.
2. Peak Purlins: Peak purlins shall be round to prevent fabric wear and shall be sized for adequate performance.
3. Base or Sill Angles: Manufacturer's standard base angle, minimum 3-by-2-inch (76-by-51-mm), fabricated from zinc-coated (galvanized) steel sheet.
4. Framing for Openings: Channel shapes. Frame head and jamb of door openings and head, jamb, and sill of other openings.
5. Miscellaneous Structural Members: Manufacturer's standard sections fabricated from zinc-coated (galvanized) steel sheet; designed to withstand required loads.

H. Bracing: Provide adjustable wind bracing using any method as follows:

1. Solid Steel Cross Rods (or cables): ASTM A36; ASTM A572, Grade 50; or ASTM A529, Grade 50; of size and connection type required to withstand design loads.
2. Flange Braces: Provide lateral bracing for the compression flange of all primary framing members as needed so that the flange compressive stress is within the allowable limits for any combination of loadings.
3. Rigid Portal Frames: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.

I. Anchor Rods: Headed anchor rods as indicated in Anchor Rod Plan for attachment of metal building to foundation.

J. Materials:

1. Primary Framing Steel for all built-up sections shall meet as applicable the physical and chemical properties of the following:

    a. ASTM A1011, Grade 55
    b. ASTM A572, Grade 55
    c. ASTM A529, Grade 55.

2. Primary Framing Steel for end-wall HSS sections and purlins shall meet the physical and chemical properties of the following:

    a. ASTM A500 Grade B, Fy = 46 KSI.

3. Secondary Framing Steel used to form “C” sections shall meet the physical and chemical properties of the following:

    a. ASTM A1003
    b. ASTM A654
    c. ASTM A924, Fy = 50 KSI

4. Channels, Angles, M-Shapes, and S-Shapes: ASTM A36/A36M; ASTM A572/A572M, Grade 50 or 55 (345 or 380); or ASTM A529/A529M, Grade 50 or 55 (345 or 380).
5. Plate and Bar: ASTM A36/A36M; ASTM A572/A572M, Grade 50 or 55 (345 or 380); or ASTM A529/A529M, Grade 50 or 55 (345 or 380).
6. Steel Pipe: ASTM A53/A53M, Type E or S, Grade B.
7. Cold-Formed Hollow Structural Sections: ASTM A500, Grade B or C, structural tubing.
8. Structural-Steel Sheet: Hot-rolled, ASTM A1011/A1011M, Structural Steel (SS), Grades 30 through 55 (205 through 380), or High-Strength Low-Alloy Steel (HSLAS) or High-Strength Low-Alloy Steel with Improved Formability (HSLAS-F), Grades 45 through 70 (310 through 480); or cold-rolled, ASTM A1008/A1008M, Structural Steel (SS), Grades 25 through 80 (170 through 550), or HSLAS, Grades 45 through 70 (310 through 480).
9. Metallic-Coated Steel Sheet: ASTM A653/A653M, SS, Grades 33 through 80 (230 through 550), or HSLAS or HSLAS-F, Grades 50 through 80 (340 through 550); with G60 (Z180) coating designation; mill phosphatized.

    a. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, SS, Grades 33 through 80 (230 through 550), or HSLAS or HSLAS-F, Grades 50 through 80 (340 through 550); with G90 (Z275) coating designation.
    b. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792/A792M, SS, Grade 50 or 80 (340 or 550); with Class AZ50 (AZM150) coating.

10. Non-High-Strength Bolts, Nuts, and Washers: ASTM A307, Grade A, carbon-steel, hex-head bolts; ASTM A563 (ASTM A563M) carbon-steel hex nuts; and ASTM F844 plain (flat) steel washers.

    a. Finish: Hot-dip zinc coating, ASTM F2329, Class C or Mechanically deposited zinc coating, ASTM B695, Class 50.

11. High-Strength Bolts, Nuts, and Washers: ASTM F3125/F3125M,Grade A325 (Grade A325M), Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH, (ASTM A563M, Class 10S) heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers.

a. Finish: Hot-dip zinc coating, ASTM F2329, Class C or Mechanically deposited zinc coating, ASTM B695, Class 50.

12. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F3125/F3125M, Grade F1852, Type 1, heavy-hex head assemblies consisting of steel structural bolts with splined ends; ASTM A563, Grade DH, (ASTM A563M, Class 10S) heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1 hardened carbon-steel washers.

    a. Finish: Mechanically deposited zinc coating, ASTM B695, Class 50.

13. Unheaded Anchor Rods: ASTM F1554, Grade 36.

    a. Configuration: Straight.
    b. Nuts: ASTM A563 (ASTM A563M) heavy-hex carbon steel.
    c. Plate Washers: ASTM A36/A36M carbon steel.
    d. Washers: ASTM F436 (ASTM F436M) hardened carbon steel.
    e. Finish: Hot-dip zinc coating, ASTM F2329, Class C.

14. Headed Anchor Rods: ASTM F1554, Grade 36.

    a. Configuration: Straight.
    b. Nuts: ASTM A563 (ASTM A563M) heavy-hex carbon steel.
    c. Plate Washers: ASTM A36/A36M carbon steel.
    d. Washers: ASTM F436 (ASTM F436M) hardened carbon steel.
    e. Finish: Hot-dip zinc coating, ASTM F2329, Class C.

15. Threaded Rods: ASTM A307, Grade A.

    a. Nuts: ASTM A563 (ASTM A563M) [heavy-]hex carbon steel.
    b. Washers: ASTM F436 (ASTM F436M) hardened or ASTM A36/A36M carbon steel.
    c. Finish: Hot-dip zinc coating, ASTM F2329, Class C or Mechanically deposited zinc coating, ASTM B695, Class 50.

K. Finish: All uncoated structural steel members shall be factory primed. Apply specified primer immediately after cleaning and pretreating.

1. Clean and prepare in accordance with SSPC-SP7.
2. Coat with manufacturer's standard primer. Apply primer to primary and secondary framing to a minimum dry film thickness of 1 mil (0.025 mm).

2.5 ROOF AND WALL FABRIC CLADDING SYSTEM

A. General:

1. Provide fabric clad roof, side wall and end wall assemblies that function as exterior walls that meet the following requirements:

    a. Air infiltration: Maximum air infiltration of 0.04 cubic feet per minute per square foot of specimen area when tested to ASTM E 283 at a pressure differential of +/- 1.57 psf (75 Pa).
    b. Water infiltration: No uncontrollable water leakage when tested to ASTM E 331 at a 6.24 psf pressure differential when sprayed with 5 gallons of water per hour per square foot of specimen area.

2. Pre-fabricated fabric cladding panels shall cover one structural bay width each. At walls, fabric cladding panels shall be continuous from sill to eave line. At roof, fabric cladding panels shall be continuous from eave to eave.
3. Roof to Gable Wall Connection: The structure membrane shall form a continuous, weather tight shell over the framework. Manufacture gable wall fabric so that it is connected to the adjacent side wall and roof cladding without the use of cantenary cables, winches, belting or PVC pipes.
4. Sidewall and Roof Panels: Sidewall fabric panels must be completely independent of the roof fabric panels.
5. The fabric membrane shall be designed to allow a factor of safety at design loads of at least three (3) times the theoretical design strength of the fabric material.
6. The structure must be capable of accepting and integrating a straight vertical metal panel wall system finish to the exterior if necessary in the future. Manufacturer shall demonstrate such capability with their design submittal.

B. Outer Weather Fabric Membrane Material:

1. Type: PVC coated polyester fabric with a minimum coated weight of 28 +1/-1 oz/sy (ASTM D3776).
2. Panel Strength: Determine and certify panel strength with minimum values as follows:

    a. Grab Tensile Strength (lbs.): 695/745 (ASM D 5034)
    b. Strip Tensile Strength (lbs.): 527/507 (ASTM D 751)
    c. Tear Strength (lbs.): 74/126 (ASTM D 751)
    d. Flame Resistance: Meets NFPA 701
    e. Flame Spread: Meets ASTM E84

C. Fabric Tensioning:

1. Eave/Overhang Tensioning System: The eave of the roof shall project 18” from the side wall. Provide a rectangular tension tube with a minimum size of of 3”x6”, 11 ga steel. The configuration must allow for the fabric roof panels to achieve proper tension with a mechanical tensioning system that can then be removed so that no winches or straps are visible. The configuration must allow for future tensioning to occur.
2. Exterior Base Tensioning System: The fabric cladding will be provided with a mechanical tensioning system that allows the fabric to be fully tensioned around the structure’s perimeter. The system shall be designed such that the membrane can be tightly and neatly secured over the structural frame and foundation and such that the system has remaining range of adjustment. The base tensioning must be done by mechanical means and have no winches or straps visible after installation is complete. The final termination for the fabric cladding will be secured by a 1” square aluminum tube secured into an aluminum J member to accommodate.
3. Membrane Seal at Openings and Base: Provide all materials and methods necessary to fully tension and seal the membrane material around all door, ventilation and other openings as well as around the structure perimeter below the main tensioning system. This seal shall provide a neat finished appearance and eliminate any loose fabric cladding that could otherwise be damaged by flapping or abrasion. Fabric cladding shall be attached to every frame using a continuous aluminum keder rail attachment system. Both sides of the keder rail shall be secured directly to the top flange of the rigid frame with bolts as Metal thickness options in “Material” Subparagraph below correspond to obsolete 26, 24, and 22 gage, respectively.

D. Fabric Attachment:

1. Fabric cladding shall be attached to every frame using a continuous aluminum keder rail attachment system. Both sides of the keder rail shall be secured directly to the top flange of the rigid frame with bolts as required properly secure the keder rail from uplift forces applied by the fabric cladding.
2. Each fabric panel shall be designed to achieve 100% seal over each frame and aluminum extrusion.
3. Where roof fabric cladding is in contact with steel supports, the fabric cladding is to be double layered.
4. Gable fabric cladding is to be attached to all vertical and horizontal steel supporting members.
5. The aluminum extrusion / fabric cladding attachment system shall be designed so that the fabric cladding is a minimum of 1.5" above the outer flange of the frame to prevent wear and damage to the fabric cladding.

2.6 INTERIOR FABRIC LINER SYSTEM

A. General:

1. Design interior fabric liner system to achieve a weather-tight seal from the inside out to prevent corrosion of steel frames and secondary bracing and provide an attractive interior finish.
2. Design and install factory welded monolithic panels spanning from peak to grade of the structure. Monolithic panels will be no less than 80' in length.
3. Minimize liner seams and field connections in the interior fabric liner system. All liner seams must be hand welded during installation to achieve proper seal.

B. Interior Fabric Liner System Material:

1. Type: PVC coated polyester fabric with a minimum coated weight of 19 +2/-1 oz/sy (ASTM D3776).
2. Panel Strength: Determine and certify panel strength, with minimum values as follows:

    a. Grab Tensile Strength (lbs.): 463/494 (ASM D 5034)
    b. Strip Tensile Strength (lbs.): 341/335 (ASTM D 751)
    c. Tear Strength (lbs.): 39/42 (ASTM D 751)
    d. Flame Resistance: Meets NFPA 701
    e. Flame Spread: Meets ASTM E84

C. Liner Fabric Tensioning:

1. Provide mechanical tensioning system that allows the fabric to be fully tensioned around the structure perimeter.
2. Tensioning system shall function such that the membrane can be ttightly and neatly secured over the structural frame and foundation and such that the system has remaining range of adjustment.
3. Base tensioning must be completed by mechanical means and there shall be no winches or straps visible after installation is complete.

D. Liner Cavity Ventilation System:

1. Provide adequate ventilation in the cavity between the exterior fabric panels and the interior liner panels with intakes in the soffit panels and roof vents near the ridge.

2.8 ACCESSORIES

A. General: Provide accessories as standard with tension fabric building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.

1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

B. Framing for Doors and Openings

1. Provide jamb and header framing for door and glazing openings shown on drawings.
2. Framing shall be designed to resist applicable horizontal wind loads and shall consist of HSS and/or light-gauge framing members and jamb and header locations.

C. Thermal Insulation:

1. Glass Fiber Blanket Insulation: ASTM C 991, Type II; 0.5-lb/cu. Ft. density; 2-inch-wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less.
2. The entire cavity between fabric cladding and liner – sidewalls, endwalls and roof – must be fully insulated.

a. R-Value: R-30

3. Thermal Breaks:

a. At all roof areas where steel members span from exterior fabric to interior fabric liner, a thermal break of at least R-10 must be provided under the inner flange of the frame.
b. Thermal breaks of at least R-0.75 must be provided on the inside flange of sidewall frames and the inside face of the endwall vertical columns.

4. Provide accessories required for supporting insulation within the cavity.
5. Insulation in the rafter sections must be supported by purlins, cables or belting no greater than 6 feet on center to prevent sagging.
6. Building manufacturer shall provide the U-Value calculations for the roof, sidewall and endwall systems to ensure that the building complies with energy code requirements.

C. Gutters & Downspouts: Provide manufacturer’s recommended gutter and downspout system. Configuration, supports sufficient to withstand friction from sliding snow, material and thickness shall be designed by manufacturer, who shall demonstrate with their submission their experience with and methodology of providing said system.

1. Size system to handle a 1-in-5 year rainfall intensity for local area.
2. Color for material to be selected by Architect from manufacturer’s standard color options.
3. Strainers: Bronze, copper, or aluminum wire ball type at outlets. Service walkways are not available from all manufacturers.

D. Snow and Ice Breaker System: Provide manufacturer-designed and recommended snow and ice breaker system at locations shown on drawings.

E. Soffit and Ridge Vents: Provide manufacturer’s standard intake and exhaust vents of size and quantity to provide sufficient cavity ventilation.

F. Pipe Flashing: Manufacturer’s standard premolded pipe collar with flexible aluminum ring bonded to base.

G. Materials:

1. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide fasteners with heads matching color of materials being fastened by means of plastic caps or factory-applied coating.

    a. Fasteners for Metal Wall Panels: Self-drilling or self-tapping, zinc-plated, hex-head carbon-steel screws, with EPDM sealing washers bearing on weather side of metal panels.
    b. Fasteners for Metal Wall Panels: Self-drilling, Type 410 stainless steel or self-tapping, Type 304 stainless-steel or zinc-alloy-steel hex washer head, with EPDM sealing washers bearing on weather side of metal panels.
    c. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.
    d. Blind Fasteners: High-strength aluminum or stainless-steel rivets.

2. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
3. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.
4. Metal Panel Sealants:

    a. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene-compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape of manufacturer's standard size.
    b. Joint Sealant: ASTM C920; one part elastomeric polyurethane or polysulfide; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended by metal building system manufacturer.

2.9 FABRICATION

A. General: Design components and field connections required for erection to permit easy assembly.

1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.

B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.

C. Primary Framing: Shop fabricate framing components to indicated size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.

1. Make shop connections by welding or by using high-strength bolts.
2. Join flanges to webs of built-up members by a continuous, submerged arc-welding process.

3. Brace compression flange of primary framing with steel angles or cold-formed structural tubing between frame web and purlin web or girt web, so flange compressive strength is within allowable limits for any combination of loadings.
4. Weld clips to frames for attaching secondary framing if applicable, or punch for bolts.
5. Shop Priming: Prepare surfaces for shop priming according to SSPC-SP 7. Shop prime primary framing with specified primer after fabrication.

D. Secondary Framing: Shop fabricate framing components to indicated size and section by roll forming or break forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

1. Make shop connections by welding or by using non-high-strength bolts.

E. Fabric Panels: Fabricate and finish fabric panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated dimensional and structural requirements.

2.10 SOURCE QUALITY CONTROL

A. Special Inspection: Owner will engage a qualified special inspector to perform source quality control inspections and to submit reports.

1. Accredited Manufacturers: Special inspections will not be required if fabrication is performed by an IAS AC472-accredited manufacturer approved by authorities having jurisdiction to perform such Work without special inspection.

a. After fabrication, submit copy of certificate of compliance to authorities having jurisdiction, certifying that Work was performed according to Contract requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Before erection proceeds, survey elevations and locations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments to receive structural framing, with erector present, for compliance with requirements and tension fabric building system manufacturer's tolerances.

1. Engage land surveyor to perform surveying.

C. Proceed with erection only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition.

B. Provide temporary shores, guys, braces, and other supports during erection to keep structural framing secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural framing, connections, and bracing are in place unless otherwise indicated.

3.3 ERECTION OF STRUCTURAL FRAMING

A. Erect metal building system according to manufacturer's written instructions and drawings.

B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.

D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.

F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.

1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt type and joint type specified.

    a. Joint Type: Snug tightened or pretensioned as required by manufacturer.

G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.

1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
2. Locate and space wall girts to suit openings such as doors and windows.
3. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.

H. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.

1. Tighten rod and cable bracing to avoid sag.
2. Locate interior end-bay bracing only where indicated.

I. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

J. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

3.4 METAL PANEL INSTALLATION, GENERAL

A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.

C. Examination: Examine primary and secondary framing to verify that structural-panel support members and anchorages have been installed within alignment tolerances required by manufacturer.

1. Examine roughing-in for components and systems penetrating metal panels, to verify actual locations of penetrations relative to seams before metal panel installation.

D. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.

    a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.

2. Install metal panels perpendicular to structural supports unless otherwise indicated.
3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Locate metal panel splices over structural supports with end laps in alignment.
6. Lap metal flashing over metal panels to allow moisture to run over and off the material.

E. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.

F. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

G. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants indicated; or, if not indicated, provide types recommended by metal panel manufacturer.

1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

3.5 METAL ROOF PANEL INSTALLATION

A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.

1. Install ridge caps as metal roof panel work proceeds.
2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.

B. Metal Roof Panel Installation Tolerances: Shim and align metal roof panels within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.6 METAL WALL PANEL INSTALLATION

A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
2. Shim or otherwise plumb substrates receiving metal wall panels.
3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
5. Rigidly fasten base end of metal wall panels and allow eave end free movement for thermal expansion and contraction. Predrill panels.
6. Flash and seal metal wall panels with weather closures at eaves and rakes, and at perimeter of all openings. Fasten with self-tapping screws.
7. Install screw fasteners in predrilled holes.
8. Install flashing and trim as metal wall panel work proceeds.
9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated on Drawings; if not indicated, as necessary for waterproofing.
10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.

C. Insulated Metal Wall Panels: Install insulated metal wall panels on exterior side of girts. Attach panels to supports at each panel joint using concealed clip and fasteners at maximum 42 inches (1067 mm) o.c., spaced not more than manufacturer's recommendation. Fully engage tongue and groove of adjacent insulated metal wall panels.

1. Install clips to supports with self-tapping fasteners.
2. Apply continuous ribbon of sealant to panel joint on concealed side of insulated metal wall panels as vapor seal; apply sealant to panel joint on exposed side of panels as weather seal.

D. Installation Tolerances: Shim and align metal wall panels within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m), noncumulative; level, plumb, and on location lines; and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.7 THERMAL INSULATION INSTALLATION

A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, according to manufacturer's written instructions.

1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.
2. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.
3. Install factory-laminated, vapor-retarder-faced units straight and true in one-piece lengths, with both sets of facing tabs sealed, to provide a complete vapor retarder.

3.8 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.

2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Tie downspouts to underground drainage system indicated.

E. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

3.9 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform field quality control special inspections and to submit reports.

B. Product will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.10 CLEANING AND PROTECTION

A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.

B. Touchup Painting: After erection, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted structural framing, bearing plates, and accessories.

1. Clean and prepare surfaces by SSPC-SP 2, "Hand Tool Cleaning," or by SSPC-SP 3, "Power Tool Cleaning."
2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.

C. Touchup Painting: Cleaning and touchup painting are specified in Section 09 91 13 "Exterior Painting" and Section 09 91 23 "Interior Painting."

D. Metal Panels: Remove temporary protective coverings and strippable films, if any, as metal panels are installed. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

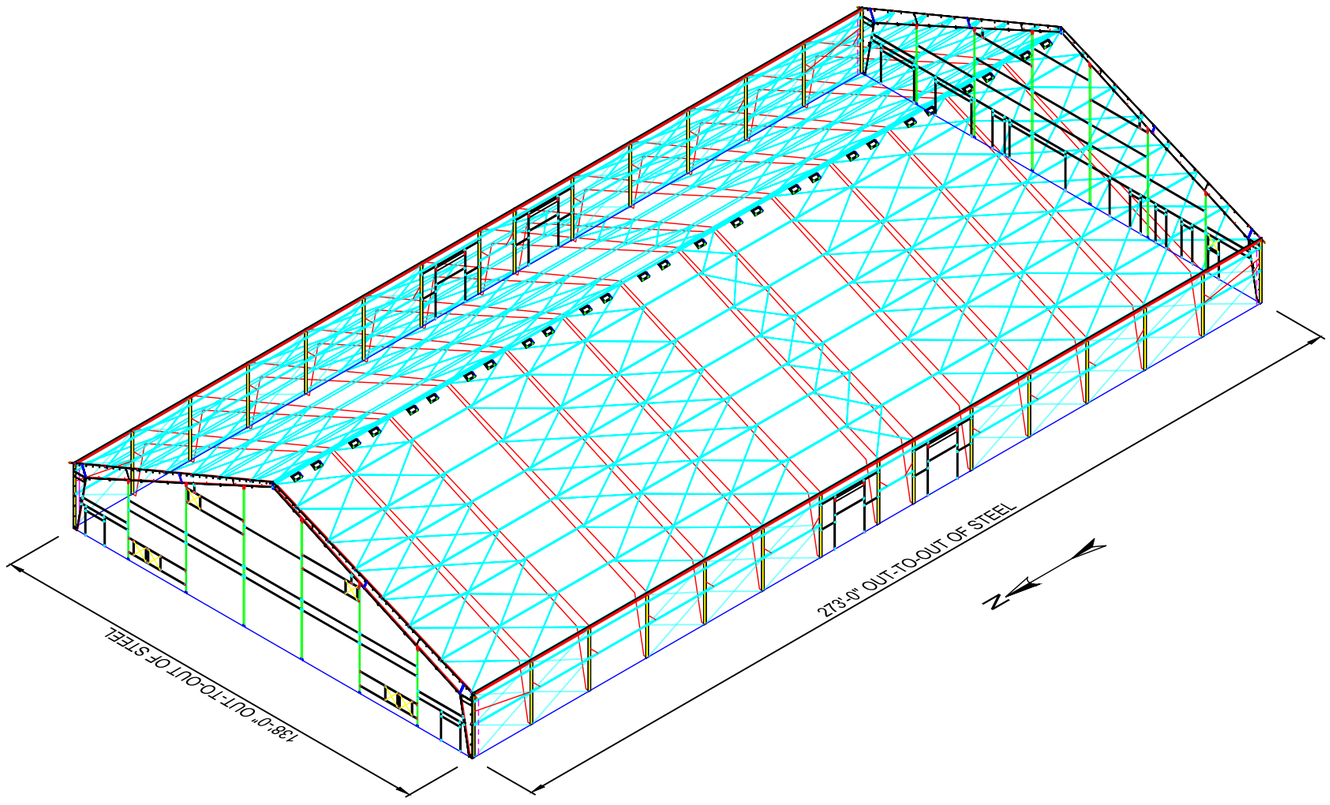
1. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

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138'-0"X273'-0"
SANDPOINT , ID

DRAWINGS FOR APPROVAL ONLY

Legacy Building Solutions
19500 County Rd 142
South Haven, MN 55382
p. 320-258-0500

THIS DRAWING AND THE INFORMATION HEREON, REMAINS THE PROPERTY OF LEGACY BUILDING SOLUTIONS. IT IS PROVIDED FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF LEGACY BUILDING SOLUTIONS.
U.S. PATENTS
9,038,349; 9,334,653
OTHER PATENTS PENDING

SHEET INDEX

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Drawn/Checked By: NJK / TEM

Sheet Number:

S0.0

BUILDING LOADS / DESCRIPTION:

WIDTH: 138 LENGTH: 313 HEIGHT: 19.5 / 19.5
(BUILDING DIMENSIONS ARE NOMINAL. REFER TO PLANS).

THIS STRUCTURE IS DESIGNED UTILIZING THE LOADS INDICATED AND APPLIED AS REQUIRED BY : IBC 18 / IBC 18 .
FABRIC DESIGN UTILIZING THE LOADS INDICATED UNDER ASCE 55-16 OR CSA S367-12; WHICHEVER IS ENFORCEABLE.

THE CONTRACTOR IS TO CONFIRM THAT THESE LOADS COMPLY WITH THE REQUIREMENTS OF THE LOCAL BUILDING DEPARTMENT.

ROOF DEAD LOAD:	2.000	PSF
COLLATERAL LOAD:	5	PSF
ROOF LIVE LOAD:	20.00	PSF
ROOF SNOW LOAD (Ps):	40.52	PSF
GROUND SNOW LOAD:	56	PSF
BASIC/ULTIMATE WIND SPEED:	104	MPH
SEISMIC DESIGN CATEGORY:	C	
IMPORTANCE FACTORS:		
WIND LOAD:	1.00	
SNOW LOAD:	1.0000	
SEISMIC LOAD:	1.00	
HORIZONTAL DRIFT:	H/74	

LEGACY BUILDING SOLUTIONS(LBS) FOLLOWS THE GUIDELINES OUTLINED IN THE AISC AND MBMA CODES OF STANDARD PRACTICE. LBS STANDARD PRODUCT SPECIFICATIONS, DESIGN, FABRICATION, AND QUALITY CRITERIA SHALL GOVERN ALL WORK UNLESS STIPULATED OTHERWISE IN CONTRACT DOCUMENTS. IN CASE OF DISCREPANCIES BETWEEN LBS STRUCTURAL PLANS AND PLANS FOR OTHER TRADES LBS PLANS SHALL GOVERN.

IT IS THE RESPONSIBILITY OF THE OWNER TO OBTAIN APPROVALS AND PERMITS FROM ALL GOVERNING AGENCIES AND JURISDICTIONS AS REQUIRED. APPROVAL OF LBS DRAWINGS CONSTITUTES THE ACCEPTANCE OF LBS INTERPRETATION OF THE CONTRACT PURCHASE ORDER. UNLESS SPECIFIC DESIGN CRITERIA CONCERNING INTERFACE DESIGN AND DETAILS ARE FURNISHED AS PART OF THE CONTRACT, LBS DESIGN ASSUMPTIONS SHALL GOVERN.

LBS ENGINEERS ARE NOT PROJECT ENGINEERS OR ENGINEER OF RECORD FOR THE OVERALL PROJECT. LBS ENGINEERING SUPPLIES SEALED ENGINEERING DESIGN DATA AND DRAWINGS FOR LBS SUPPLIED MATERIAL AS PART OF THE OVERALL PROJECT FOR USE BY OTHERS TO OBTAIN PERMITS, APPROVALS, AND COORDINATE WITH OTHER TRADES. THE OWNER OR A/E FIRM ARE RESPONSIBLE FOR THE OVERALL PROJECT COORDINATION INCLUDING COORDINATION WITH APPROPRIATE INSPECTION AND TESTING AGENCIES. ALL INTERFACE AND/OR COMPATIBILITY OF ANY MATERIALS NOT FURNISHED BY LBS ARE TO BE CONSIDERED AND COORDINATED BY THE OWNER OR A/E FIRM.

GENERAL

WHEN LBS IS NOT THE CONTRACTED ERECTOR, THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE, QUALITY WORKMANSHIP IN ERECTING THE BUILDING IN CONFORMANCE WITH THIS DRAWING. DETAILS REFERENCED IN THIS DRAWING AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION INCLUDING THE USE OF TEMPORARY BRACING.

WHEN LBS IS NOT THE CONTRACTED ERECTOR; LBS IS NOT RESPONSIBLE FOR ANY ERRORS OR DAMAGE IN THE ERECTION OF THE COMPONENTS IN THIS DRAWING, NOR THE INSPECTION OF THE ERECTED COMPONENTS TO DETERMINE THE SAME.

THIS CERTIFICATION AND ENGINEERING SEAL APPLIES ONLY TO PRODUCTS DESIGNED AND FABRICATED BY LBS OR ITS AFFILIATE COMPANIES FOR THE LOADING CONDITIONS DESIGNATED ON THESE DRAWINGS. CONCRETE FOUNDATIONS, STEEL COMPONENTS BY OTHERS AND ERECTION SUPERVISION ARE NOT THE RESPONSIBILITIES OF LBS OR THE CERTIFYING ENGINEER.

ERECTION

THE ERECTOR MUST PROVIDE SAFE WORKING CONDITIONS AND PRACTICES CONFORMING TO ALL SAFETY REGULATIONS. ALL LIFTING DEVICES ARE TO BE DESIGNED TO LIFT THE VARIOUS BUILDING COMPONENTS. SLINGS AND SPREADER BARS ARE TO BE USED TO PREVENT PERMANENT DEFORMATION OF ALL STRUCTURAL COMPONENTS.

ERECTION MUST START AT A BRACED BAY. ERECT AND TEMPORARILY SUPPORT RIGID FRAMES. USE TEMPORARY BRACING AS REQUIRED TO ENSURE STABILITY OF THE FRAMES. INSTALL PURLINS AND CROSS BRACING. PLUMB AND SQUARE RIGID FRAMES IN ACCORDANCE WITH CSA S16-1 AND OSHA 29 CFR PART 1926-SAFETY STANDARD FOR STEEL ERECTION.

ENSURE ALL PURLINS REMAIN PARALLEL AND ALL STRUCTURAL FRAMING MEMBERS ARE PLUMB LEVEL AND ALIGNED.

FIELD MODIFICATIONS

MODIFICATIONS TO THIS BUILDING FROM DETAILS AND INSTRUCTIONS CONTAINED ON THESE DRAWINGS MUST BE APPROVED IN WRITING BY LBS BUILDING ENGINEERS. THIS INCLUDES, BUT IS NOT LIMITED TO, REMOVAL OF ROOF OR WALL COVERING, REMOVING OR MOVING STRUCTURAL PURLINS OR SUPPORTS, REMOVING OR MOVING STRUCTURAL CROSS BRACING OR FLANGE BRACING, OR CORRECTION OF FABRICATION ERRORS, ETC. THE OWNER/ERECTOR SHALL NOT IMPOSE LOADS TO THIS STRUCTURE BEYOND WHAT IS SPECIFIED FOR THE BUILDING IN THE CONTRACT DOCUMENTS. LBS ACCEPTS NO RESPONSIBILITY FOR THE CONSEQUENCES OF ANY UNAUTHORIZED ADDITIONS, ALTERATIONS, OR ADDED LOADS TO THIS STRUCTURE.

LEGACY BUILDING SOLUTIONS (LBS) RESERVES THE RIGHT TO PROCURE MATERIALS FROM VENDORS OF THEIR CHOOSING BOTH FOREIGN AND DOMESTIC

IT IS THE RESPONSIBILITY OF THE ERECTOR TO ENSURE THE PROPER BOLT TIGHTNESS IN ACCORDANCE WITH APPLICABLE REGULATIONS. SEE RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS. SEE TABLE 4.1 FOR SUMMARY OF CONNECTIONS. TABLES 8.1 AND 8.2 FOR INSTALLATION REQUIREMENTS AND SECTIONS 9.1-3 FOR DETAIL INSPECTION REQUIREMENTS.

WHEN BOLT INSPECTIONS ARE NOT SPECIFICALLY REQUIRED, A325 BOLTS IN PRIMARY FRAMING AND BRACING CONNECTIONS MAY BE "SNUG TIGHT" EXCEPT AS FOLLOWS; 1) PRETENSION A325 BOLTS IF BUILDING SUPPORTS A CRANE GREATER THAN 5 TON CAPACITY. 2) PRETENSION A325 BOLTS IF BUILDING SUPPORTS MACHINERY THAT CREATES VIBRATION, IMPACT, OR STRESS REVERSALS ON CONNECTIONS. 3) PRETENSION A325 BOLTS IF LOCATED IN HIGH SEISMIC AREAS. FOR IBC BASED CODES; HIGH SEISMIC IS DESIGN CATEGORIES D, E OR F. 4) IF FOR ANY OTHER REASON A BOLT INSPECTION IS REQUIRED, USE AN APPROVED TIGHTENING METHOD PER THE RCSC.

ALL A490 BOLTS SHALL BE PRE-TENSIONED JOINTS

ALL OTHER HEX BOLTS SHALL CONFORM TO SAE GR.5 OR EQUAL U.N.O.

IN CANADA, ALL A325 AND A490 BOLTS SHALL BE "PRE-TENSIONED", EXCEPT FOR SECONDARY MEMBERS.

SECONDARY MEMBERS ARE ALWAYS SNUG TIGHT, UNLESS INDICATED OTHERWISE IN ERECTION DRAWING DETAILS.

FOUNDATION

FOUNDATION MUST BE LEVEL, SQUARE AND SMOOTH. ANCHOR BOLTS MUST BE PLACED AS SHOWN ON DRAWINGS

ANCHOR BOLTS

ANCHOR DIAMETERS, LENGTHS, AND PROJECTIONS TO BE DETERMINED BY FOUNDATION ENGINEER

ANCHOR BOLT PROJECTIONS BASED ON NO GROUT ARE $2\frac{1}{2}$" MIN TO 4" MAX.

MATERIAL SPECIFICATIONS

3 PLATE WELDED SECTIONS	
A529, A572, A1011	GRADE 55
MISC. STEEL SHAPES	
A36	GRADE 36
MISC. STEEL SHAPES	
A529, A572, A588, A709, A992	GRADE 50
COLD FORMED MEMBERS	
ASTM A1003, A653	GRADE 50
HSS MEMBERS	
A500 GRADE B	46 KSI

STANDARD PRIMER:

COATINGS OF STRUCTURAL PLATES RECEIVE A 1.5-3.0 DFT COAT OF GRAY OXIDE PRIMER THAT MEETS OR EXCEEDS THE PERFORMANCE REQUIREMENTS OF THE SPECIFICATION SSPC-1.

CROSS BRACING - PER PLANS

ROOF ALUMINUM EXTRUSION ALLOY 6061-T6, ROCKWELL A HARDNESS 40, TENSILE STRENGTH (ULTIMATE 45KSI, YIELD 40KSI) AND ELONGATION 12%.

SIDEWALL ALUMINUM EXTRUSION ALLOY 6005A-T5, ROCKWELL E HARDNESS (83-98), TENSILE STRENGTH (ULTIMATE 38KSI, YIELD 31KSI) AND ELONGATION 7%.

ROOF PLAN NOTES

USE OF BOLTS SPECIFIED IN DRAWING DETAILS IS REQUIRED FOR ALL CONNECTIONS

CABLE/ROD AND PURLIN BRACING ARE INTEGRAL PARTS OF THE STRUCTURAL SYSTEM AND SHOULD BE PROPERLY INSTALLED PRIOR TO ERECTION OF ROOF FABRIC AND END PANELS. REMOVAL OR ALTERATION OF ANY BRACING WITHOUT PRIOR AUTHORIZATION FROM LBS ENGINEERING IS PROHIBITED

MATERIAL STORAGE

HDG, ALUMINIZED, AND COLORED MATERIALS ARE SUBJECT TO CORROSION AND DISCOLORATION IF THEY ARE IMPROPERLY STORED. SHORT TERM SITE STORAGE OF STEEL COMPONENTS MAY BE TOLERATED PROVIDED CARE IS TAKEN TO KEEP MATERIALS DRY AT ALL TIMES. IF STEEL IS STORED OUTSIDE PROPER DRAINAGE MUST BE PROVIDED. IN ADDITION STEEL SHOULD NEVER BE STORED IN DIRECT CONTACT WITH GROUND AND SHOULD BE SET ON BLOCKING AT ALL TIMES

FABRIC/LINER NOTES

EXTERIOR FABRIC IS AN INTEGRAL PART OF THE BUILDING ENVELOPE, REMOVAL OR ALTERATION WITHOUT PRIOR AUTHORIZATION IS PROHIBITED. ALL TEARS MUST BE REPAIRED IMMEDIATELY TO AVOID POTENTIAL LOSS

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EXTERIOR FABRIC

ExxoTec Elite H58973-0286	
Base Fabric	100% Polyester
Coating Material	PVC
Total Weight	28 oz/yd²
Grab Tensile ASTM D-5034	696/745 lbs
Strip Tensile (W/F) ASTM D-751	527/507 lbs/in
Tear Resistance (W/F) ASTM D-751	74/126 lbs
Weld Adhesion ASTM D 751	19 lbs/in
Flex Resistance DIN 53359 A	At least 100,000 bends
Translucency PA 2001/41	*12%
Hydrostatic Resistance ASTM D 751- Procedure A EN13501-1, DIN 4102-1, NF P 92-503ff, UNI 9177, BS 7837	psi. 670 lbs
Low Temperature ASTM D 2136	-40 - 158° F -40 - 70° C

*VALUE SHOWN IS FOR WHITE ONLY

FR Performance
This product meets the requirements of SIS 620082, Cal. T19, NFPA 701, ASTM E84, CAN/ULC S109, CAN/ULC S102.

INTERIOR FABRIC

ExxoTec Pro H5871-0287	
Base Fabric	100% Polyester
Coating Material	PVC
Total Weight	19 oz/yd²
Grab Tensile ASTM D-5034	463/494 lbs
Strip Tensile (W/F) ASTM D-751	341/335 lbs/in
Tear Resistance (W/F) ASTM D-751	39/42 lbs
Weld Adhesion ASTM D 751	19 lbs/in
Flex Resistance DIN 53359 A	At least 100,000 bends
Translucency PA 2001/41	*16%
Hydrostatic Resistance ASTM D 751- Procedure A EN13501-1, DIN 4102-1, NF P 92-503ff, UNI 9177, BS 7837	psi. 612 lbs
Low Temperature ASTM D 2136	-22 - 158° F -30 - 70° C

*VALUE SHOWN FOR WHITE ONLY

FR Performance
This product meets the requirements of SIS 620082, Cal. T19, NFPA 701, ASTM E84, CAN/ULC S109, CAN/ULC S102.

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ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Dead Vert	Wind Press Horz	Wind Suct Horz	Seis Long Horz
17	G	0.3	-4.8	5.4	0.2
17	F	0.7	-6.8	7.5	0.2
17	E	1.5	-8.7	9.7	0.3
17	D	1.5	-8.7	9.7	0.3
17	C	0.7	-6.8	7.5	0.2
17	B	0.3	-4.8	5.4	0.2
3	B	0.3	-4.8	5.4	0.2
3	D	0.7	-6.8	7.5	0.2
3	C	1.5	-8.7	9.7	0.3
3	E	1.5	-8.7	9.7	0.3
3	F	0.7	-6.8	7.5	0.2
3	G	0.3	-4.8	5.4	0.2

ENDWALL COLUMN: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Column_Reactions(k) Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Dia	Base_Plate(in) Width	Length
17	G	7	3.2	0.2	8	-2.9	0.2	4	0.750		SEE PLAN
		6	-0.1	0.3							
17	F	7	4.5	0.4	8	-4.1	0.4	4	0.750		SEE PLAN
		6	-0.2	0.8							
17	E	7	5.8	0.9	8	-5.2	0.9	4	0.750		SEE PLAN
		6	-0.2	1.5							
17	D	7	5.8	0.9	8	-5.2	0.9	4	0.750		SEE PLAN
		6	-0.2	1.5							
17	C	7	4.5	0.4	8	-4.1	0.4	4	0.750		SEE PLAN
		6	-0.2	0.8							
17	B	7	3.2	0.2	8	-2.9	0.2	4	0.750		SEE PLAN
		6	-0.1	0.3							
3	B	7	3.2	0.2	8	-2.9	0.2	4	0.750		SEE PLAN
		6	-0.1	0.3							
3	C	7	4.5	0.4	8	-4.1	0.4	4	0.750		SEE PLAN
		6	-0.2	0.8							
3	D	7	5.8	0.9	8	-5.2	0.9	4	0.750		SEE PLAN
		6	-0.2	1.5							
3	E	7	5.8	0.9	8	-5.2	0.9	4	0.750		SEE PLAN
		6	-0.2	1.5							
3	F	7	4.5	0.4	8	-4.1	0.4	4	0.750		SEE PLAN
		6	-0.2	0.8							
3	G	7	3.2	0.2	8	-2.9	0.2	4	0.750		SEE PLAN
		6	-0.1	0.3							

ANCHOR BOLT SUMMARY

Qty	Locate	Dia (in)
⊠ 48	Endwall	3/4"
⊕ 104	Frame	1 1/4"

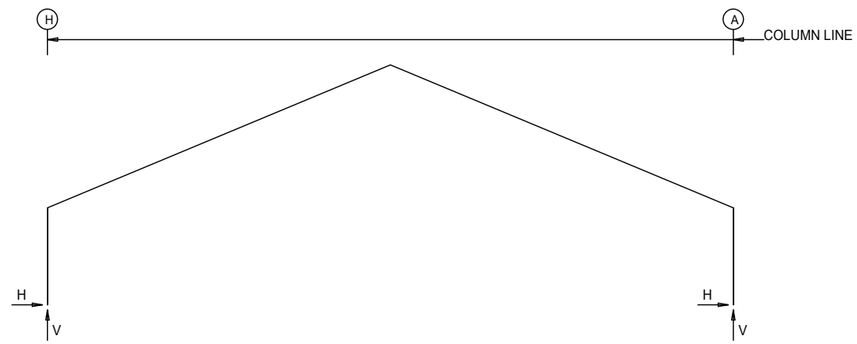
BUILDING BRACING REACTIONS

Loc	Wall Line	Col Line	± Reactions(k) Wind Horz	Wind Vert	Seismic Horz	Seismic Vert	Panel_Shear (lb/ft) Wind	Seis	Note
L_EW	17								(h)
F_SW	A	17,16	1.7	1.5	11.6	10.0			
		16,15	1.7	1.5	11.6	10.0			
		15,14	1.7	1.5	11.6	10.0			
		14,13	1.7	1.5	11.6	10.0			
		13,12	1.7	1.5	11.6	10.0			
		12,11	1.7	1.5	11.6	10.0			
		10,9	1.7	2.4	11.6	16.4			
		8,7	1.7	1.5	11.6	10.0			
		7,6	1.7	1.5	11.6	10.0			
		6,5	1.7	1.5	11.6	10.0			
		4,3	1.7	1.5	11.6	10.0			
R_EW	3								(h)
B_SW	H	3,4	1.7	1.5	11.6	10.0			
		5,6	1.7	1.5	11.6	10.0			
		6,7	1.7	1.5	11.6	10.0			
		7,8	1.7	1.5	11.6	10.0			
		9,10	1.7	2.4	11.6	16.4			
		11,12	1.7	1.5	11.6	10.0			
		12,13	1.7	1.5	11.6	10.0			
		13,14	1.7	1.5	11.6	10.0			
		14,15	1.7	1.5	11.6	10.0			
		15,16	1.7	1.5	11.6	10.0			
		16,17	1.7	1.5	11.6	10.0			

(h)Rigid frame at endwall

Reactions for seismic represent shear force, Eh

FRAME LINES: 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3



RIGID FRAME: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Column_Reactions(k) Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Dia	Base_Plate(in) Width	Length	Thick
17*	H	1	53.0	71.3	2	-7.3	-7.3		SEE S1.2	SEE S1.2	15.00	0.750
					4	-1.8	-10.4					
17*	A	3	7.3	-7.3	1	-53.0	71.3		SEE S1.2	SEE S1.2	15.00	0.750
		1	-53.0	71.3	5	1.8	-10.4					
17*	Frame lines:	17 16 15 14 13 12 11 10 9		8	7	6	5	4	3			

RIGID FRAME: BASIC COLUMN REACTIONS (k)

Frame Line	Column Line	-----Dead---- Horiz	Vert	--Collateral- Horiz	Vert	-----Live---- Horiz	Vert	-----Snow---- Horiz	Vert	--Wind_Left1- Horiz	Vert	-Wind_Right1- Horiz	Vert
17*	H	5.0	7.9	5.7	7.5	12.5	16.6	42.3	55.9	-17.3	-20.0	-6.4	-18.7
17*	A	-5.0	7.9	-5.7	7.5	-12.5	16.6	-42.3	55.9	6.4	-18.7	17.3	-20.0

Frame Line	Column Line	--Wind_Left2- Horiz	Vert	-Wind_Right2- Horiz	Vert	--Wind_Long1- Horiz	Vert	--Wind_Long2- Horiz	Vert	-Seismic_Left Horiz	Vert	Seismic_Right Horiz	Vert
17*	H	-13.2	-9.2	-2.2	-7.8	-8.1	-25.2	-12.1	-22.4	-3.3	-0.9	3.3	0.9
17*	A	2.2	-7.8	13.2	-9.2	12.1	-22.4	8.1	-25.2	-3.3	0.9	3.3	-0.9

Frame Line	Column Line	-Seismic_Long Horiz	Vert	F1UNB_SL_L- Horiz	Vert	F1UNB_SL_R- Horiz	Vert
17*	H	0.0	-16.4	36.2	53.9	36.2	33.0
17*	A	0.0	-16.4	-36.2	33.0	-36.2	53.9

17* Frame lines: 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3

NOTES FOR REACTIONS

Building reactions are based on the following building data:

Width (ft)	=	138.0
Length (ft)	=	273.0
Eave Height (ft)	=	19.5/ 19.5
Roof Slope (rise/12)	=	5.0/ 5.0
Dead Load (psf)	=	2.0
Collateral Load (psf)	=	5.0
Roof Live Load(psf)	=	20.0
Frame Live Load(psf)	=	12.0
Snow Load (psf)	=	40.5
Wind Speed (mph)	=	104.0
Wind Code	=	IBC 18
Exposure	=	C
Closure	=	Enclosed
Importance Wind	=	1.00
Importance Seismic	=	1.00
Seismic Zone	=	C
Seismic Coeff (Fa*Ss)	=	0.51

ID	Description
1	Dead+Collateral+Snow+Slide_Snow
2	0.6Dead+0.6Wind_Left1
3	0.6Dead+0.6Wind_Right1
4	0.6Dead+0.6Wind_Long1L
5	0.6Dead+0.6Wind_Long2L
6	1.05Dead+1.05Collateral+0.7Seismic_LongR
7	0.6Dead+0.6Wind_Right2+0.6Wind_Suction
8	0.6Dead+0.6Wind_Pressure+0.6Wind_Long2L

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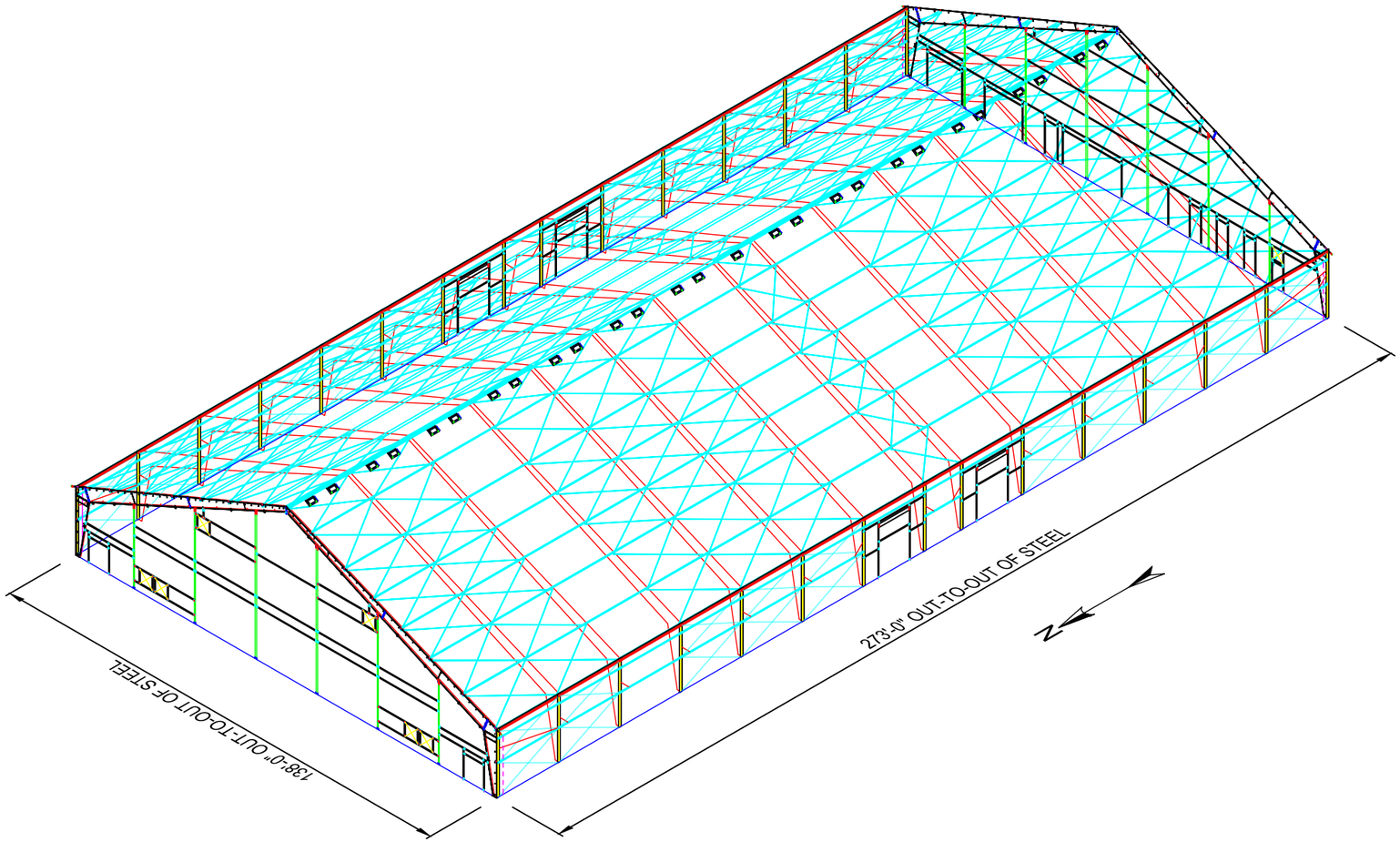
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NOTE:

THIS DRAWING IS A GRAPHICAL REPRESENTATION OF THE BUILDING AND SHOULD NOT BE USED FOR MODELING OR DIMENSIONING. REFER TO BUILDING PLAN AND ELEVATION VIEWS FOR TECHNICAL INFORMATION.



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U.S. PATENTS
9,038,349; 9,334,653
OTHER PATENTS PENDING

3D VIEW 1

DRAWING SET:	DATE:
BP & REACTIONS	5/3/2023
IN-HOUSE REVIEW	5/24/2023
IN-HOUSE APPROVAL	5/25/2023
2 CUSTOMER APPROVAL	9/11/2023

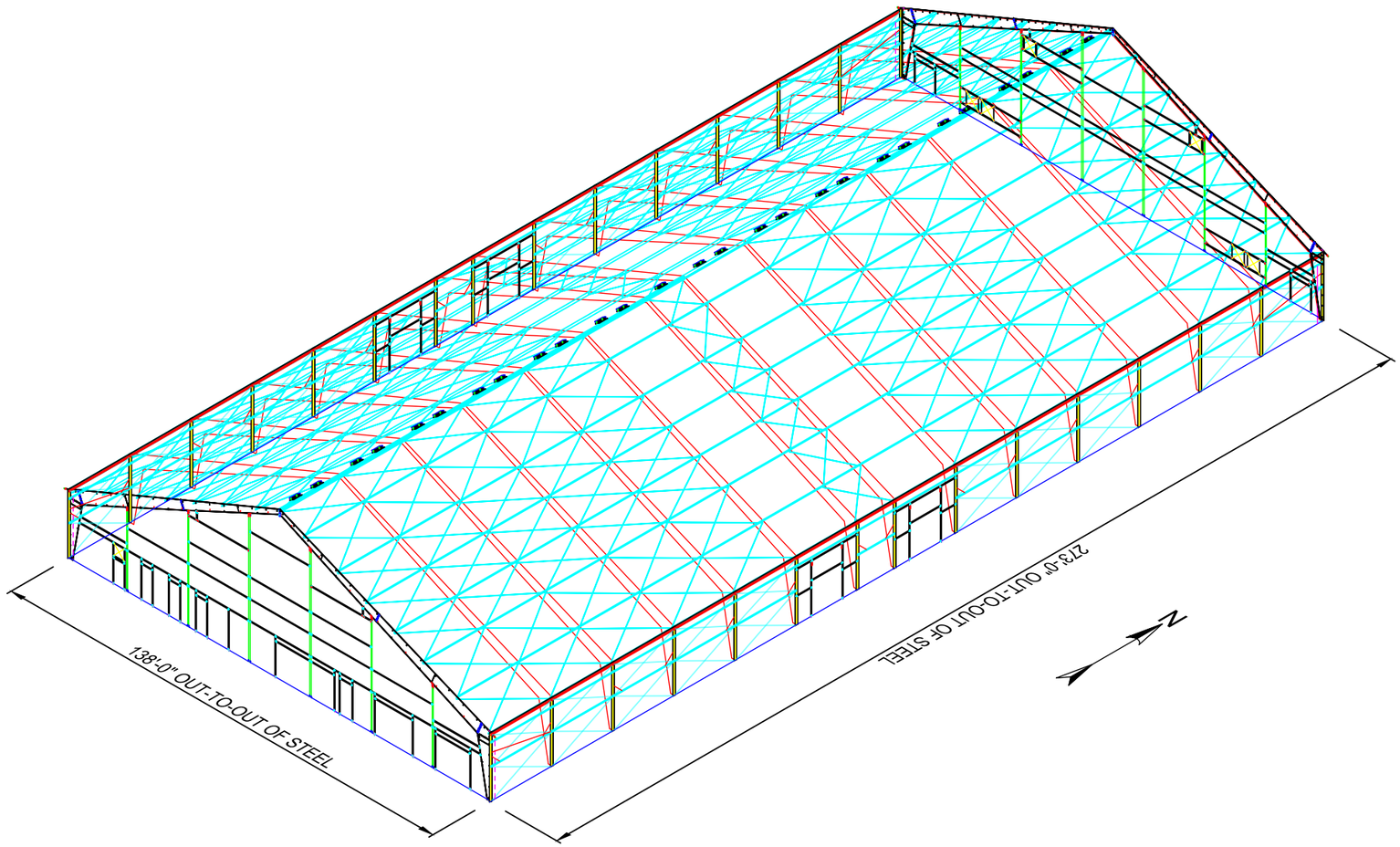
Project No.: 2023-25
Date: 9/11/2023
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Sheet Number:

S0.5

NOTE:

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TRAVERS PARK

138'-0"X273'-0"
SANDPOINT , ID

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U.S. PATENTS
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OTHER PATENTS PENDING

3D VIEW 2

DRAWING SET:	DATE:
BP & REACTIONS	5/3/2023
IN-HOUSE REVIEW	5/24/2023
IN-HOUSE APPROVAL	5/25/2023
2 CUSTOMER APPROVAL	9/11/2023

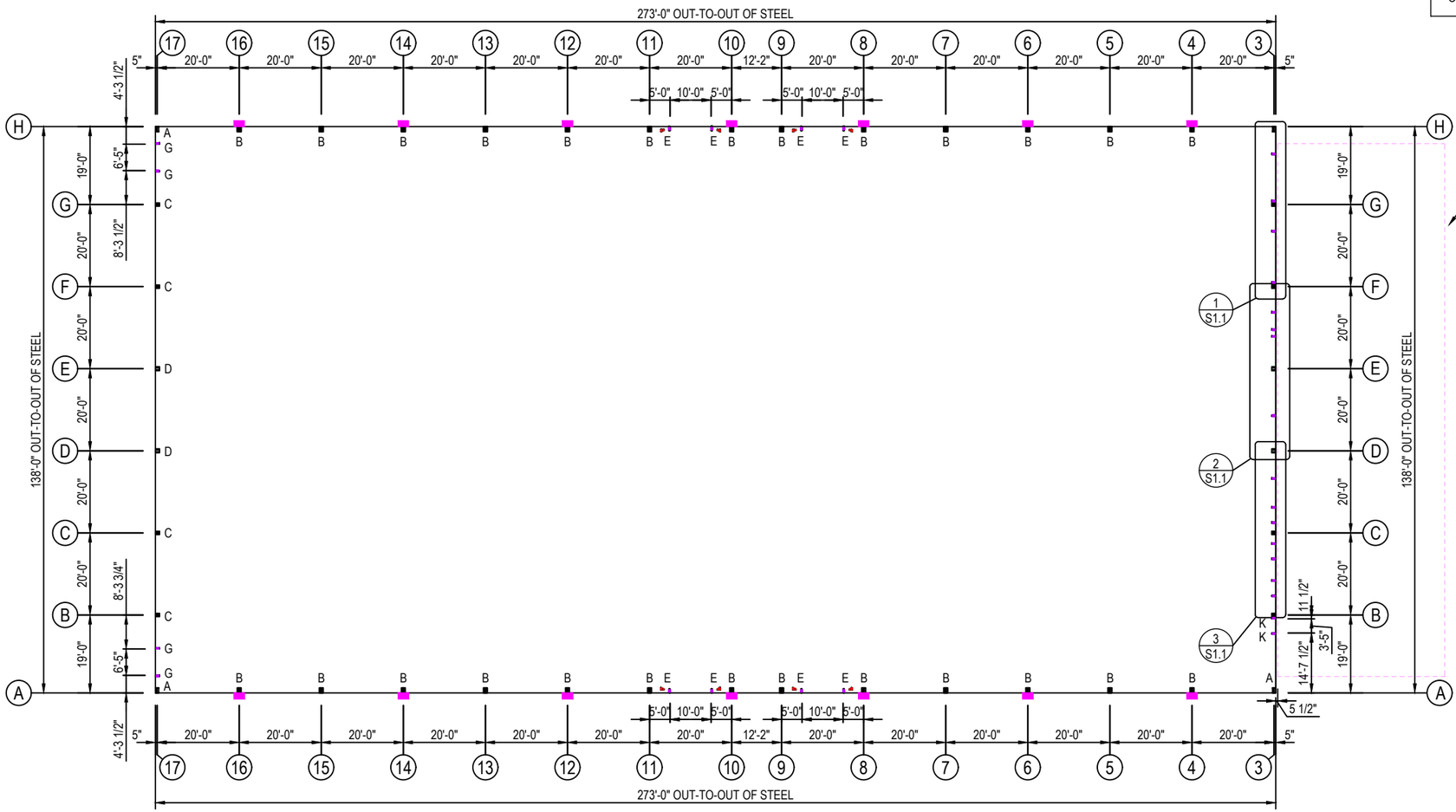
Project No.: 2023-25
Date: 9/11/2023
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Sheet Number:

S0.6

ALL OPENING DIMENSIONS
R.O. CLEAR

APPROVER TO VERIFY ALL
OPENING DIMENSIONS



1 BASEPLATE LAYOUT
SCALE: 1/32" = 1'-0"

DENOTES DOWNSPOUT LOCATIONS
MAXIMUM OF 40' O.C.

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U.S. PATENTS
9,038,349; 9,334,653
OTHER PATENTS PENDING

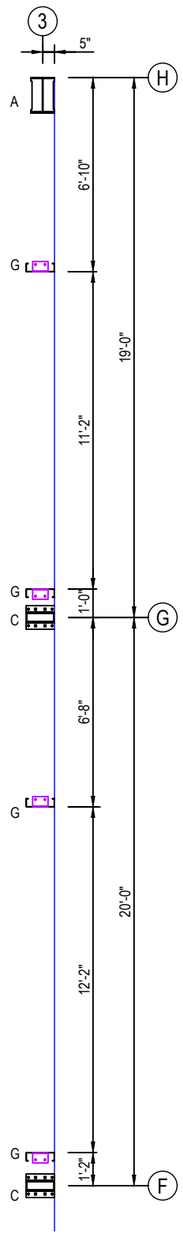
BASE PLATE PLAN

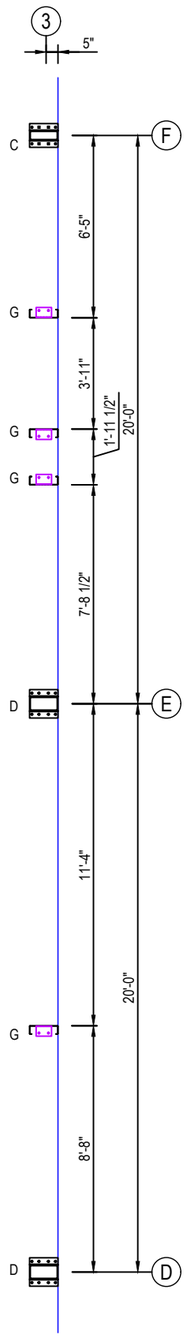
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IN-HOUSE APPROVAL	5/25/2023
2 CUSTOMER APPROVAL	9/11/2023

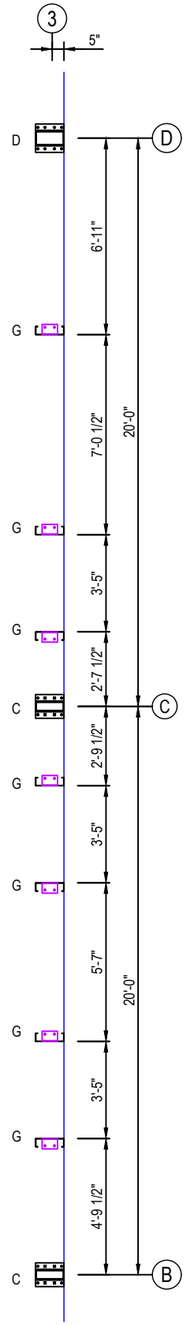
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Sheet Number:

S1.0







1 ENLARGED BASEPLATE PLAN
SCALE: 3/16" = 1'-0"

2 ENLARGED BASEPLATE PLAN
SCALE: 3/16" = 1'-0"

3 ENLARGED BASEPLATE PLAN
SCALE: 3/16" = 1'-0"

ALL OPENING DIMENSIONS
R.O. CLEAR

APPROVER TO VERIFY ALL
OPENING DIMENSIONS

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9,038,349; 9,334,653
OTHER PATENTS PENDING

BASE PLATE ENLARGED PLANS

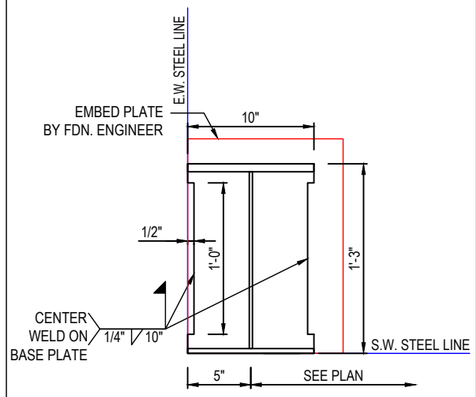
DRAWING SET:	DATE:
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Project No.: 2023-25
Date: 9/11/2023
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Sheet Number:

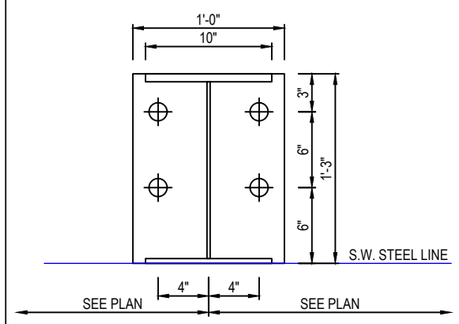
S1.1

ANCHOR BOLT DIA. = N.A.
BASE PLT. BRG. ELEV. = 100'-0"



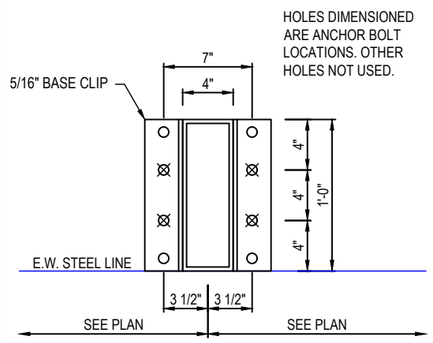
DETAIL A (ROTATE / MIRROR AS NEEDED)

ANCHOR BOLT DIA. = 1 1/4" (BY OTHERS)
BASE PLT. BRG. ELEV. = 100'-0'



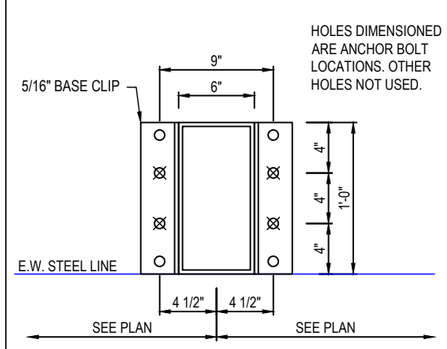
DETAIL B (ROTATE / MIRROR AS NEEDED)

ANCHOR BOLT DIA. = 3/4" (BY OTHERS)
BASE PLT. BRG. ELEV. = 100'-0'



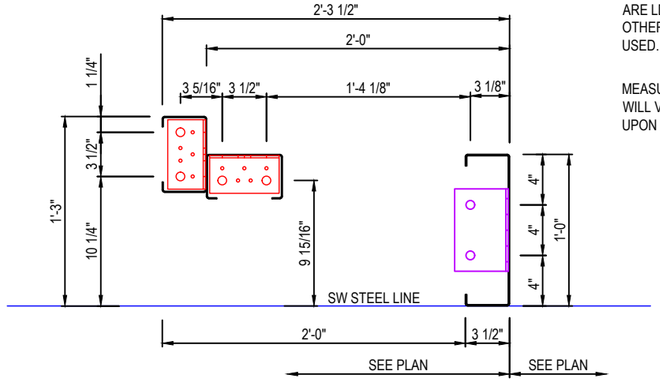
DETAIL C (ROTATE / MIRROR AS NEEDED)

ANCHOR BOLT DIA. = 3/4" (BY OTHERS)
BASE PLT. BRG. ELEV. = 100'-0'



DETAIL D (ROTATE / MIRROR AS NEEDED)

ANCHOR BOLT DIA. = 1/2"x4" LDT (BY LEGACY)
BASE PLT. BRG. ELEV. = 100'-0"

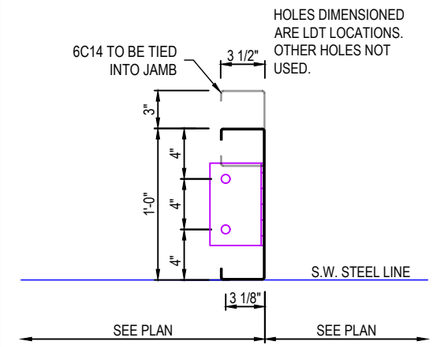


HOLES DIMENSIONED ARE LDT LOCATIONS. OTHER HOLES NOT USED.

MEASUREMENTS WILL VARY BASED UPON DOOR SHOPS

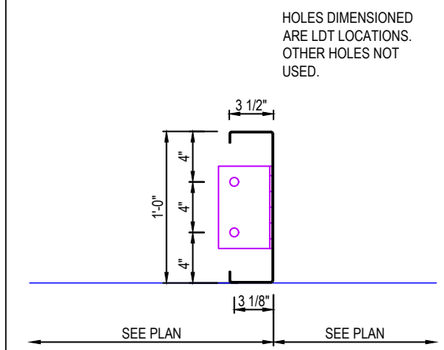
DETAIL E (ROTATE / MIRROR AS NEEDED)

ANCHOR BOLT DIA. = 1/2"x4" LDT (BY LEGACY)
BASE PLT. BRG. ELEV. = 100'-0"



DETAIL F (ROTATE / MIRROR AS NEEDED)

ANCHOR BOLT DIA. = 1/2"x4" LDT (BY LEGACY)
BASE PLT. BRG. ELEV. = 100'-0"



DETAIL G (ROTATE / MIRROR AS NEEDED)

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U.S. PATENTS
9,038,349; 9,334,653
OTHER PATENTS PENDING

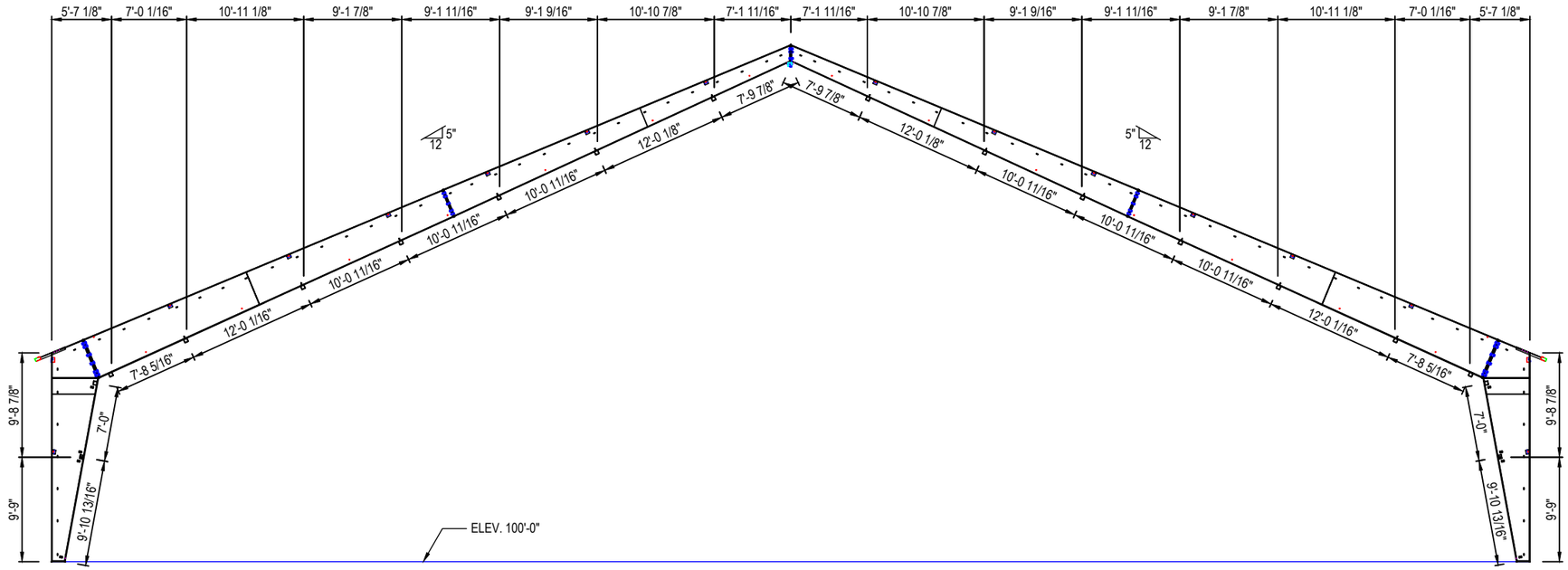
BASE PLATE DETAILS

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△	BP & REACTIONS	5/3/2023
△	IN-HOUSE REVIEW	5/24/2023
△	IN-HOUSE APPROVAL	5/25/2023
△2	CUSTOMER APPROVAL	9/11/2023
△		

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S1.2



1 TYP. PURLIN SPACING
SCALE: 5/64" = 1'-0"

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TYP. PURLIN SPACING

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1	IN-HOUSE APPROVAL	5/25/2023
2	CUSTOMER APPROVAL	9/11/2023

Project No.: 2023-25
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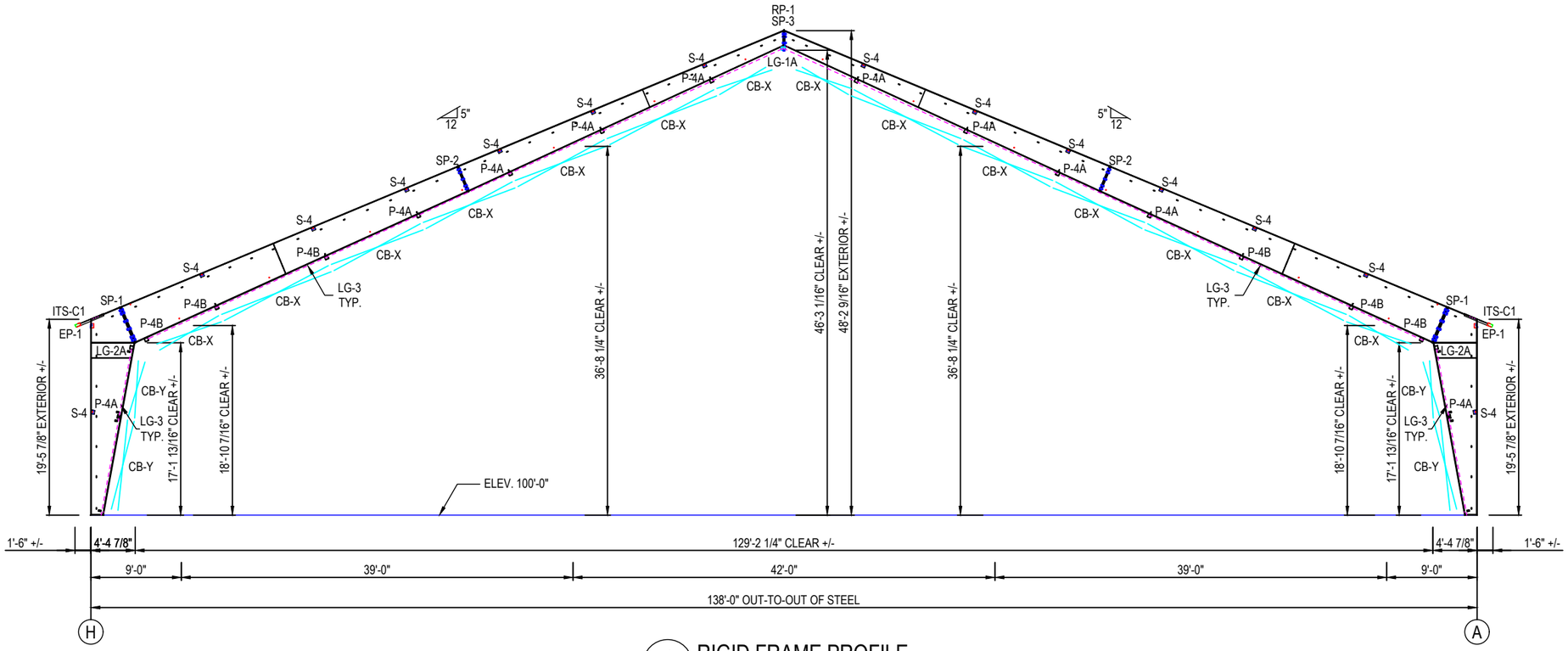
Sheet Number:

S2.1

SPLICE BOLT TABLE						
	QTY					
MARK	TOP	BOT	INT	TYPE	DIA	LENGTH
SP-1	2	2	8	A325	1.500	4.75
SP-2	2	2	6	A325	1.000	3.75
SP-3	2	2	2	A325	1.250	4.25

*ALL A325 BOLTS TO RECEIVE (2) WASHERS
BOLT INSPECTION UNKNOWN APPROVER TO VERIFY

MEMBER TABLE RIGID FRAME ELEVATIONS		
MARK	PART	LENGTH
P-4A	HSS 4x4x14ga	19'-11 1/16"
P-4B	HSS 4x4x11ga	19'-11 1/16"
S-4	HSS 4x4x14ga	19'-6"
RP-1	4" ROUND x 11ga	19'-11 3/4"
EP-1	HSS 5x3x11ga	19'-10 1/2"
CB-X	3/8" CBL	TBD
CB-Y	1/2" CBL	TBD
ITS-C1	HSS 6x3x11ga	19'-8"
LG-1A	HSS 4x4x11ga	19'-3"
LG-2A	HSS 4x4x11ga	19'-11 1/16"
LG-3	HSS 3x3x14ga	C.T.F. (12'-0")



1 RIGID FRAME PROFILE
F.L. 3 &17 AT BAY 3 & 16 SCALE: 5/64" = 1'-0"

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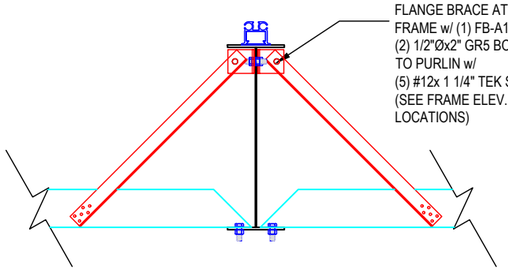
RIGID FRAME PROFILE:
F.L. 3 &17 AT BAY 3 & 16

DRAWING SET:	DATE:
BP & REACTIONS	5/3/2023
IN-HOUSE REVIEW	5/24/2023
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2 CUSTOMER APPROVAL	9/11/2023

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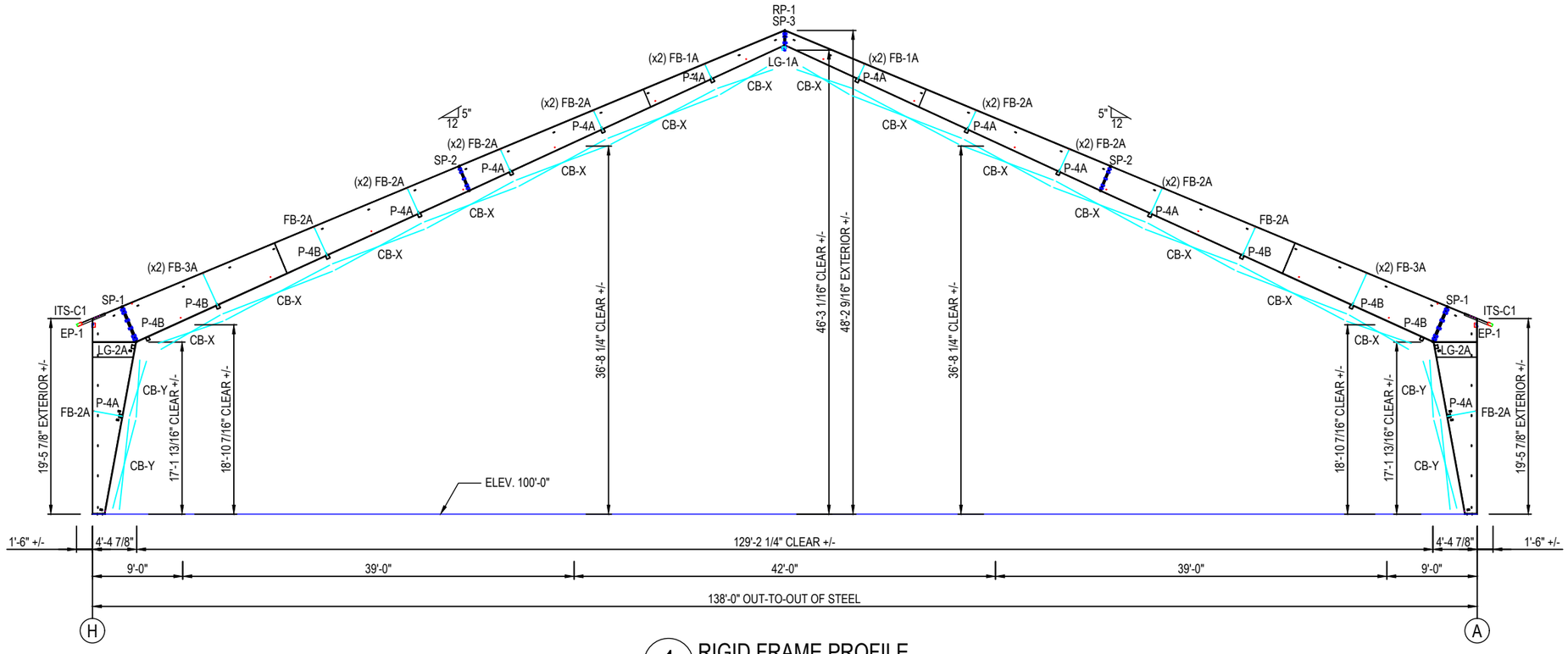


2 DOUBLE FLANGE BRACE DETAIL

SPLICE BOLT TABLE						
	QTY					
MARK	TOP	BOT	INT	TYPE	DIA	LENGTH
SP-1	2	2	8	A325	1.500	4.75
SP-2	2	2	6	A325	1.000	3.75
SP-3	2	2	2	A325	1.250	4.25

*ALL A325 BOLTS TO RECEIVE (2) WASHERS
BOLT INSPECTION UNKNOWN APPROVER TO VERIFY

MEMBER TABLE RIGID FRAME ELEVATIONS		
MARK	PART	LENGTH
P-4A	HSS 4x4x14ga	19'-11 1/16"
P-4B	HSS 4x4x11ga	19'-11 1/16"
RP-1	4" ROUND x 11ga	19'-11 3/4"
EP-1	HSS 5x3x11ga	19'-10 1/2"
CB-X	3/8" CBL	TBD
CB-Y	1/2" CBL	TBD
FB-1A	L1.5x1.5x1/8"	3'-0"
FB-2A	L2x2x3/16"	5'-0"
FB-3A	L2.5x2.5x3/16"	7'-0"
ITS-C1	HSS 6x3x11ga	19'-8"
LG-1A	HSS 4x4x11ga	19'-3"
LG-2A	HSS 4x4x11ga	19'-11 1/16"



1 RIGID FRAME PROFILE
F.L. 4-7, 11-13, 15 AT BAYS 4-7, 11-13, 15 SCALE: 5/64" = 1'-0"

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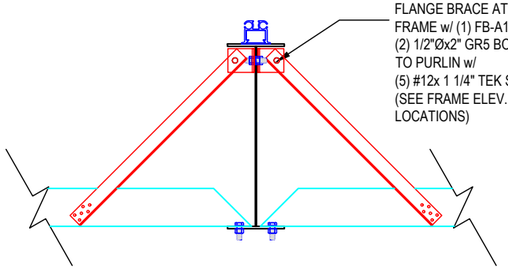
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F.L. 4-7, 11-13, 15 AT BAYS 4-7, 11-13, 15

DRAWING SET:	DATE:
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S2.3

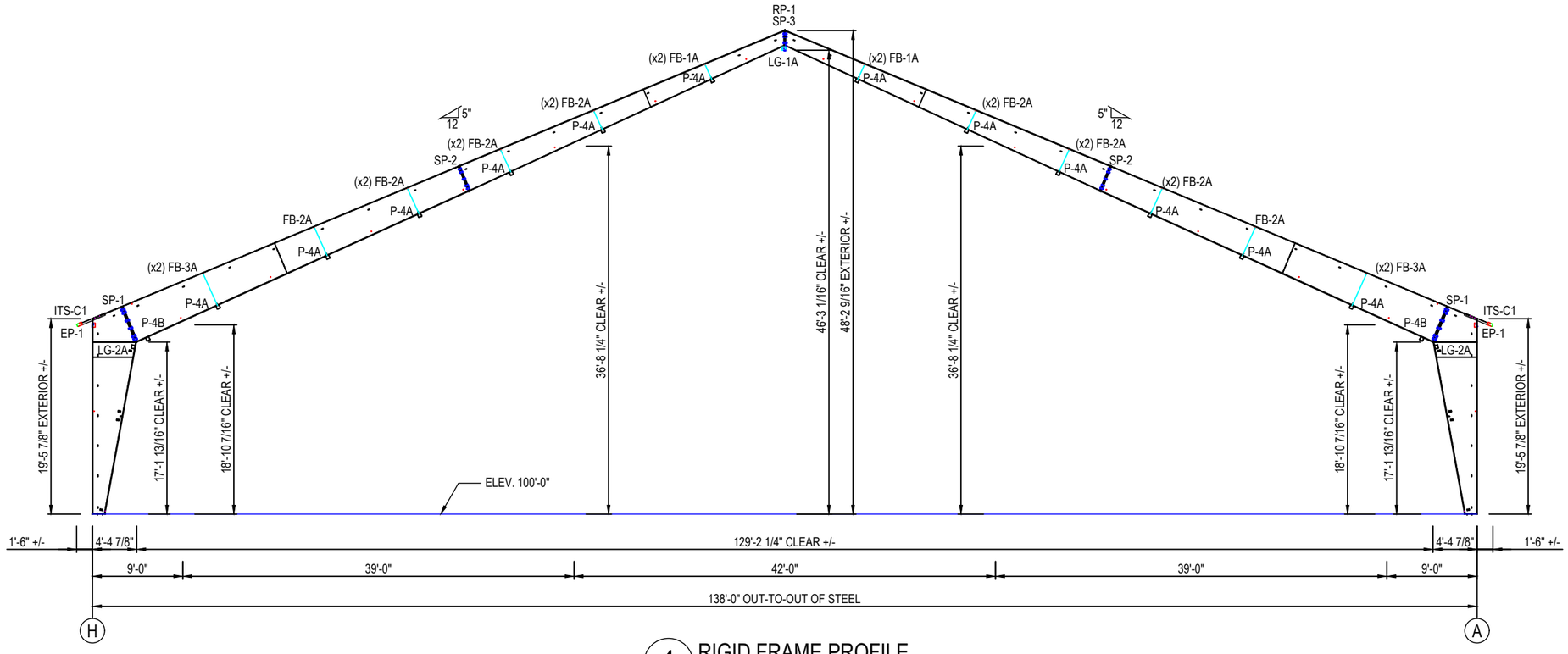


2 DOUBLE FLANGE BRACE DETAIL

SPLICE BOLT TABLE						
	QTY					
MARK	TOP	BOT	INT	TYPE	DIA	LENGTH
SP-1	2	2	8	A325	1.500	4.75
SP-2	2	2	6	A325	1.000	3.75
SP-3	2	2	2	A325	1.250	4.25

*ALL A325 BOLTS TO RECEIVE (2) WASHERS
BOLT INSPECTION UNKNOWN APPROVER TO VERIFY

MEMBER TABLE RIGID FRAME ELEVATIONS		
MARK	PART	LENGTH
P-4A	HSS 4x4x14ga	19'-11 1/16"
RP-1	4" ROUND x 11ga	19'-11 3/4"
EP-1	HSS 5x3x11ga	19'-10 1/2"
FB-1A	L1.5x1.5x1/8"	3'-0"
FB-2A	L2x2x3/16"	5'-0"
FB-3A	L2.5x2.5x3/16"	7'-0"
ITS-C1	HSS 6x3x11ga	19'-8"
LG-1A	HSS 4x4x11ga	19'-3"
LG-2A	HSS 4x4x11ga	19'-11 1/16"



1 RIGID FRAME PROFILE
F.L. 8, 10 AT BAYS 8, 10 SCALE: 5/64" = 1'-0"

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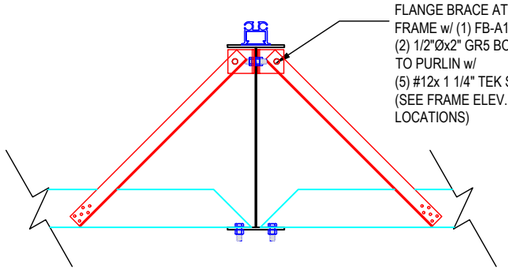
RIGID FRAME PROFILE:
F.L. 8, 10 AT BAYS 8, 10

DRAWING SET:	DATE:
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Sheet Number:

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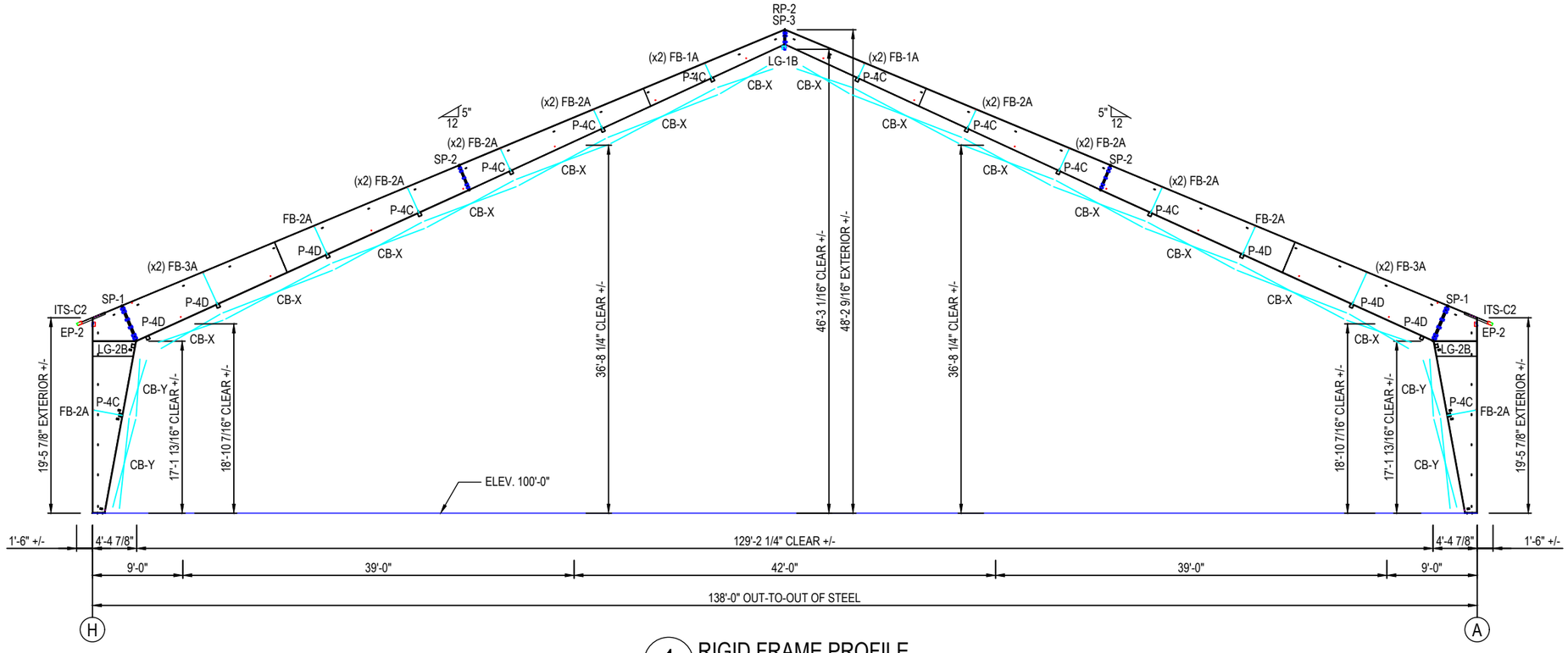


2 DOUBLE FLANGE BRACE DETAIL

SPLICE BOLT TABLE						
	QTY					
MARK	TOP	BOT	INT	TYPE	DIA	LENGTH
SP-1	2	2	8	A325	1.500	4.75
SP-2	2	2	6	A325	1.000	3.75
SP-3	2	2	2	A325	1.250	4.25

*ALL A325 BOLTS TO RECEIVE (2) WASHERS
BOLT INSPECTION UNKNOWN APPROVER TO VERIFY

MEMBER TABLE RIGID FRAME ELEVATIONS		
MARK	PART	LENGTH
P-4C	HSS 4x4x14ga	12'-1 1/16"
P-4D	HSS 4x4x11ga	12'-1 1/16"
RP-2	4" ROUND x 11ga	12'-1 3/4"
EP-2	HSS 5x3x11ga	12'-0 1/2"
CB-X	3/8" CBL	TBD
CB-Y	1/2" CBL	TBD
FB-1A	L1.5x1.5x1/8"	3'-0"
FB-2A	L2x2x3/16"	5'-0"
FB-3A	L2.5x2.5x3/16"	7'-0"
ITS-C2	HSS 6x3x11ga	11'-10"
LG-1B	HSS 4x4x11ga	11'-5"
LG-2B	HSS 4x4x11ga	11'-1 1/16"



1 RIGID FRAME PROFILE
F.L. 9 AT BAY 9 SCALE: 5/64" = 1'-0"

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TRAVERS PARK
138'-0"X273'-0"
SANDPOINT , ID

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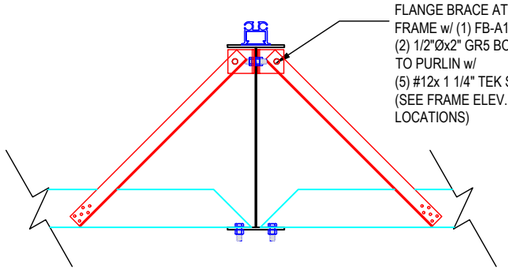
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U.S. PATENTS
9,038,349; 9,334,653
OTHER PATENTS PENDING

RIGID FRAME PROFILE:
F.L. 9 AT BAY 9

DRAWING SET:	DATE:
BP & REACTIONS	5/3/2023
IN-HOUSE REVIEW	5/24/2023
IN-HOUSE APPROVAL	5/25/2023
2 CUSTOMER APPROVAL	9/11/2023

Project No.: 2023-25
Date: 9/11/2023
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Sheet Number:
S2.5

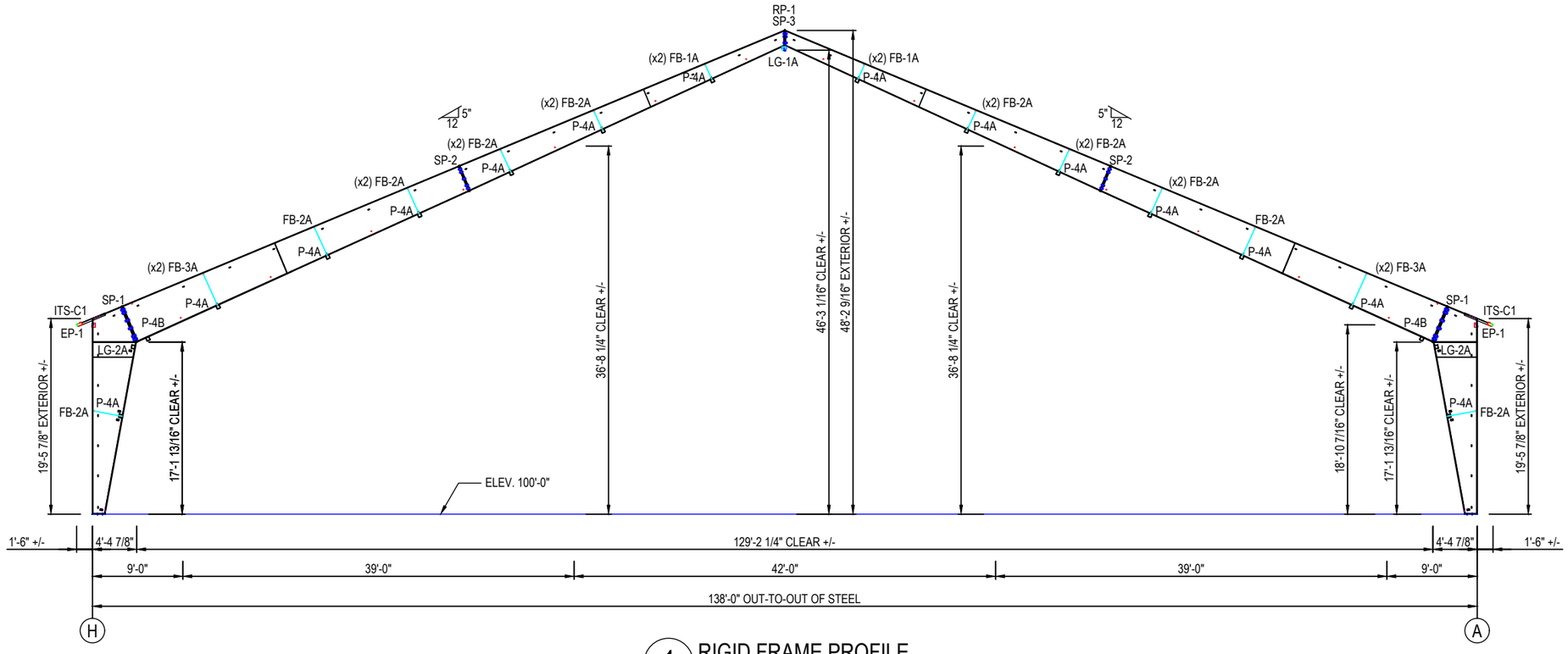


2 DOUBLE FLANGE BRACE DETAIL

SPLICE BOLT TABLE						
	QTY					
MARK	TOP	BOT	INT	TYPE	DIA	LENGTH
SP-1	2	2	8	A325	1.500	4.75
SP-2	2	2	6	A325	1.000	3.75
SP-3	2	2	2	A325	1.250	4.25

*ALL A325 BOLTS TO RECEIVE (2) WASHERS
BOLT INSPECTION UNKNOWN APPROVER TO VERIFY

MEMBER TABLE RIGID FRAME ELEVATIONS		
MARK	PART	LENGTH
P-4A	HSS 4x4x14ga	19'-11 1/16"
RP-1	4" ROUND x 11ga	19'-11 3/4"
EP-1	HSS 5x3x11ga	19'-10 1/2"
FB-1A	L1.5x1.5x1/8"	3'-0"
FB-2A	L2x2x3/16"	5'-0"
FB-3A	L2.5x2.5x3/16"	7'-0"
ITS-C1	HSS 6x3x11ga	19'-8"
LG-1A	HSS 4x4x11ga	19'-3"
LG-2A	HSS 4x4x11ga	19'-11 1/16"



1 RIGID FRAME PROFILE
F.L. 14 AT BAY 14 SCALE: 5/64" = 1'-0"

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U.S. PATENTS
9,038,349; 9,334,653
OTHER PATENTS PENDING

RIGID FRAME PROFILE:
F.L. 14 AT BAY 14

DRAWING SET:	DATE:
BP & REACTIONS	5/3/2023
IN-HOUSE REVIEW	5/24/2023
IN-HOUSE APPROVAL	5/25/2023
2 CUSTOMER APPROVAL	9/11/2023

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Sheet Number:

S2.6

INSTALLERS TO COORDINATE WITH ON-SITE GENERAL CONTRACTOR TO CONFIRM LOCATIONS OF INDUSTRIAL FAN FRAMING

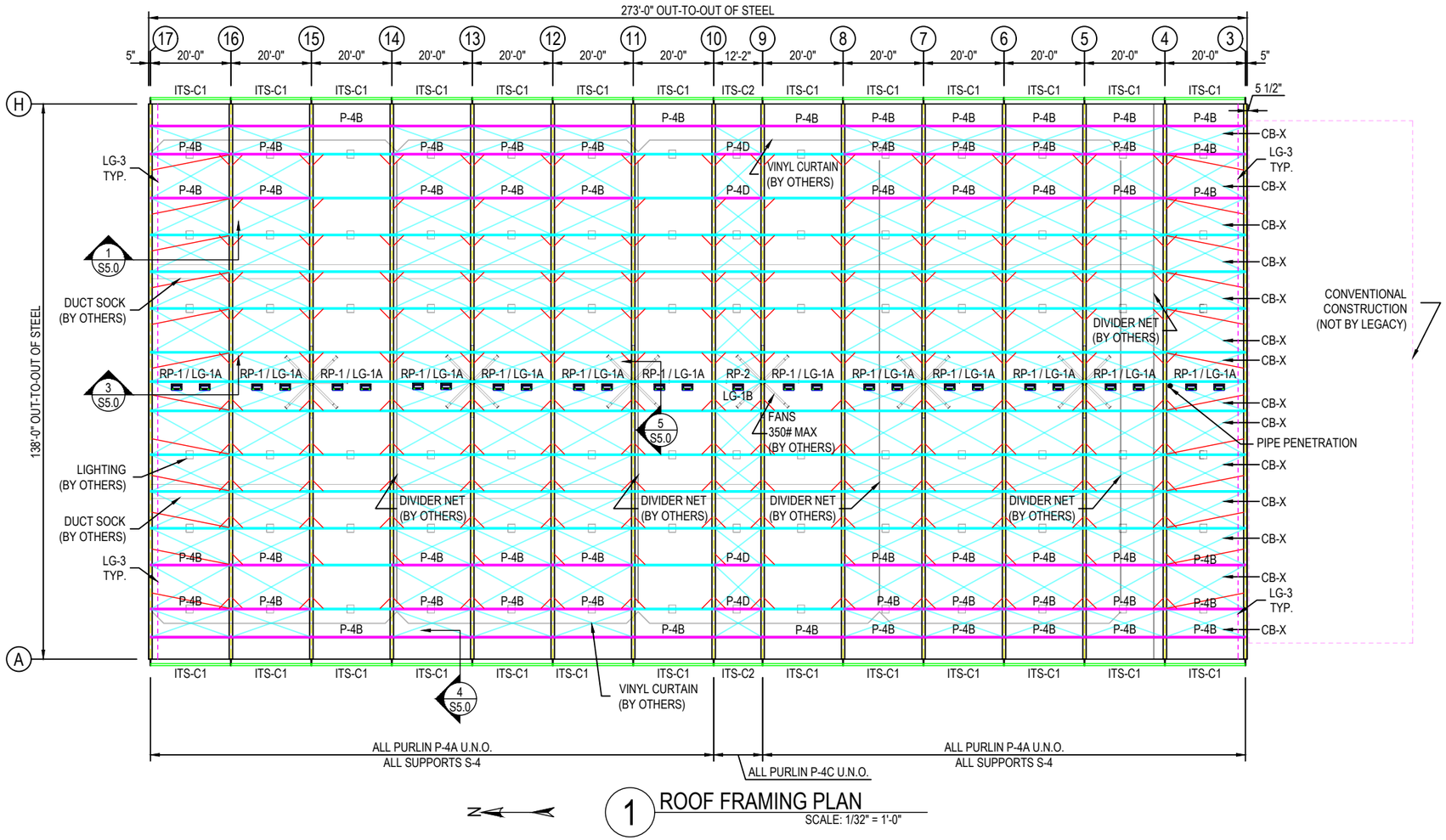
ATTACHMENT POINT LOCATIONS MUST BE IDENTIFIED FOR ALL ANCILLARY ITEMS. WHERE EXISTING PURLINS WILL BE USED TO SUPPORT HANGING ITEMS, UPGRADED MEMBERS MAY BE REQUIRED. IF EXACT LOCATIONS ARE REQUIRED FOR THIS EQUIPMENT THAT DO NOT MATCH THE CURRENT DESIGNED PURLIN LAYOUT, ADDITIONAL SECONDARY SUPPORT MEMBERS MAY BE REQUIRED. ADDITIONAL, AND UPGRADED, FRAMING PROVIDED BY LEGACY BUILDING SOLUTIONS MAY REQUIRE A CHANGE ORDER. RE: S0.1 FOR DESIGNED COLLATERAL LOAD INCLUDED.

MEMBER TABLE
RIGID FRAME ELEVATIONS

MARK	PART	LENGTH
P-4A	HSS 4x4x14ga	19'-11 1/16"
P-4B	HSS 4x4x11ga	19'-11 1/16"
P-4C	HSS 4x4x14ga	12'-1 1/16"
P-4D	HSS 4x4x11ga	12'-1 1/16"
RP-1	4" ROUND x 11ga	19'-11 3/4"
RP-2	4" ROUND x 11ga	12'-1 3/4"
S-4	HSS 4x4x14ga	19'-6"
CB-X	3/8" CBL	TBD
FB-1A	L1.5x1.5x1/8"	3'-0"
FB-2A	L2x2x3/16"	5'-0"
FB-3A	L2.5x2.5x3/16"	7'-0"
ITS-C1	HSS 6x3x11ga	19'-8"
ITS-C2	HSS 6x3x11ga	11'-10"
LG-1A	HSS 4x4x11ga	19'-3"
LG-1B	HSS 4x4x11ga	11'-5"
LG-3	HSS 3x3x14ga	C.T.F. (12'-0")

NOTE:
ALL TOP FLANGES OF RIGID FRAME MUST BE BRACED WITH FLANGE BRACE OR SUPPORT PURLINS AT ALL NOTED PURLIN LOCATIONS

/ - DENOTES FLANGE BRACE LOCATION



1 ROOF FRAMING PLAN
SCALE: 1/32" = 1'-0"

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ROOF FRAMING PLAN

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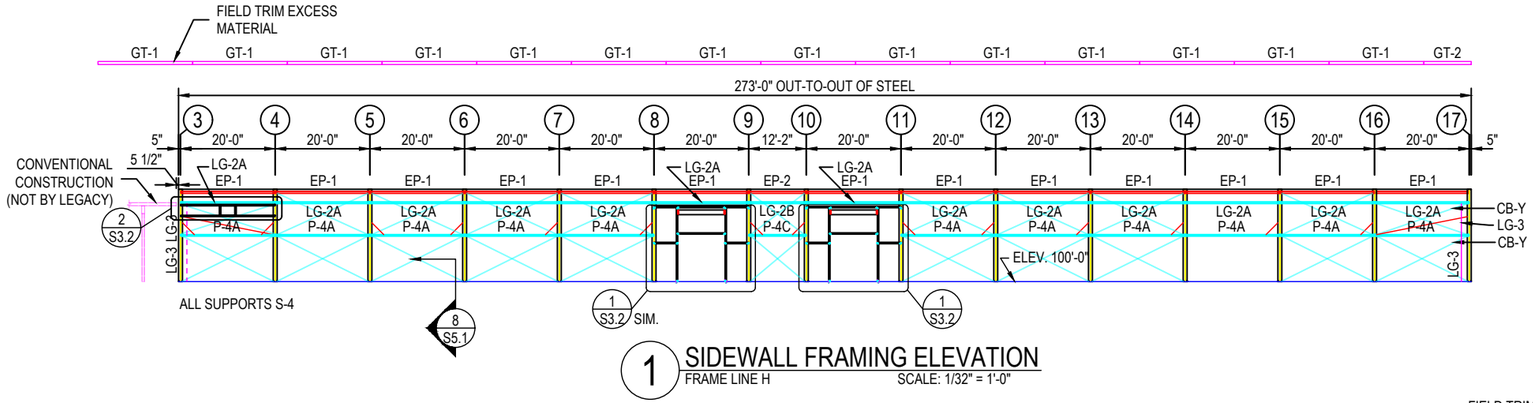
Sheet Number:

S3.0

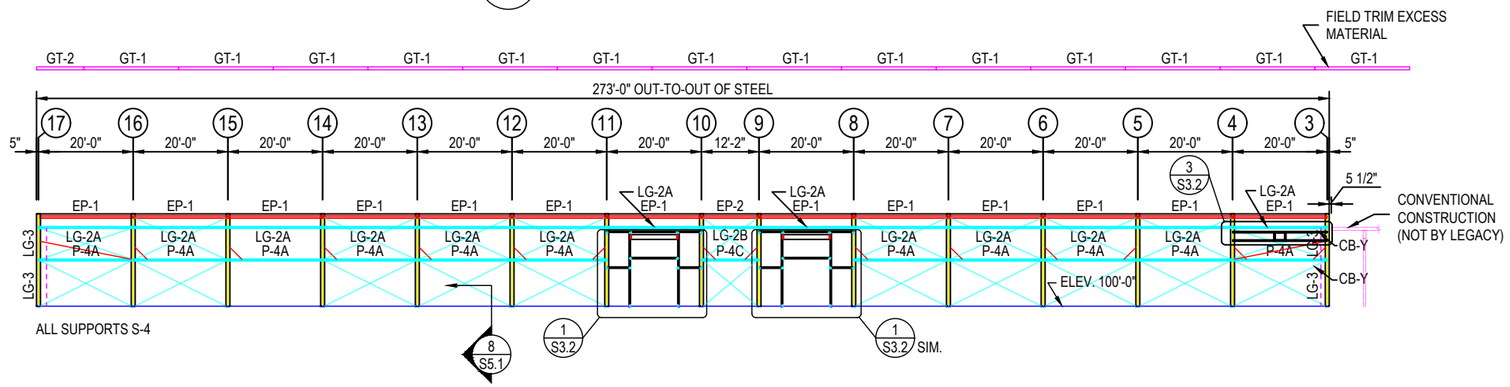
MEMBER TABLE		
MARK	PART	LENGTH
P-4A	HSS 4x4x14ga	19'-11 1/16"
P-4C	HSS 4x4x14ga	12'-1 1/16"
EP-1	HSS 5x3x11ga	19'-10 1/2"
EP-2	HSS 5x3x11ga	12'-0 1/2"
S-4	HSS 4x4x14ga	19'-6"
CB-Y	1/2" CBL	TBD
FB-2A	L2x2x3/16"	5'-0"
LG-2A	HSS 4x4x11ga	19'-11 1/16"
LG-2B	HSS 4x4x11ga	11'-1 1/16"
LG-3	HSS 3x3x14ga	C.T.F. (12'-0")
GT-1	26ga. GUTTER	20'-2"
GT-2	26ga. GUTTER	10'-2"

NOTE:
ALL TOP FLANGES OF RIGID FRAME MUST BE BRACED WITH FLANGE BRACE OR SUPPORT PURLINS AT ALL NOTED PURLIN LOCATIONS

/ - DENOTES FLANGE BRACE LOCATION



1 SIDEWALL FRAMING ELEVATION
FRAME LINE H SCALE: 1/32" = 1'-0"



2 SIDEWALL FRAMING ELEVATION
FRAME LINE A SCALE: 1/32" = 1'-0"

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U.S. PATENTS
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OTHER PATENTS PENDING

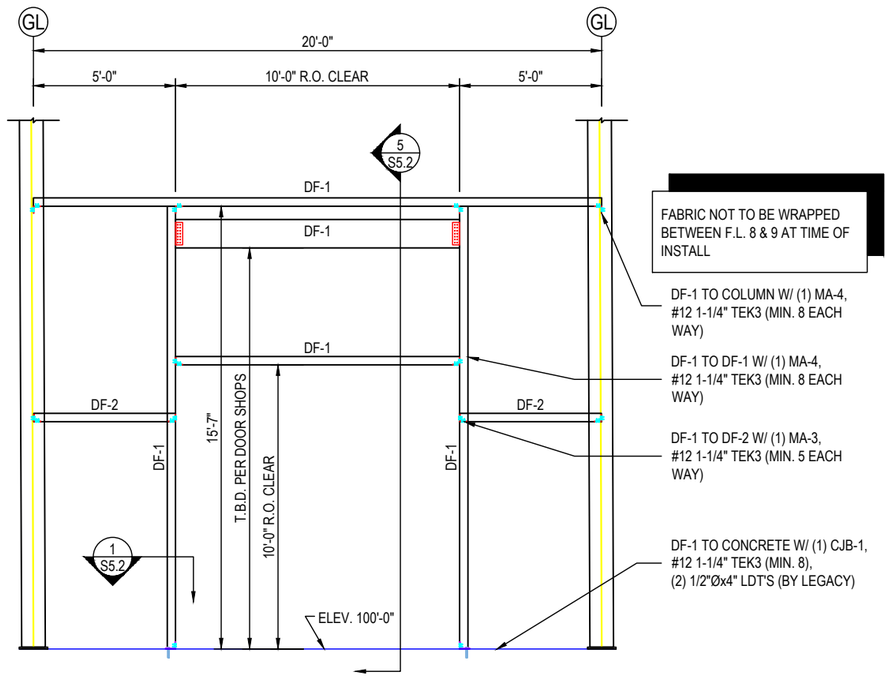
SIDE WALL FRAMING ELEVATIONS

DRAWING SET:	DATE:
BP & REACTIONS	5/3/2023
IN-HOUSE REVIEW	5/24/2023
IN-HOUSE APPROVAL	5/25/2023
2 CUSTOMER APPROVAL	9/11/2023

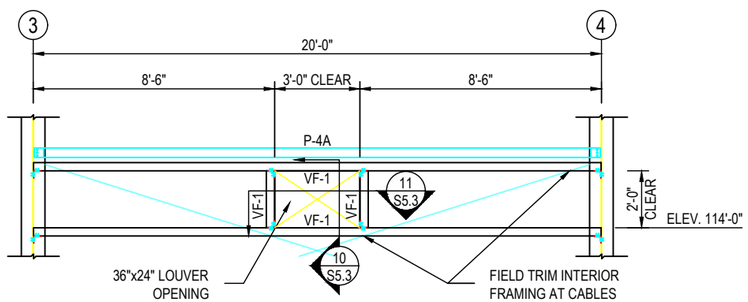
Project No.: 2023-25
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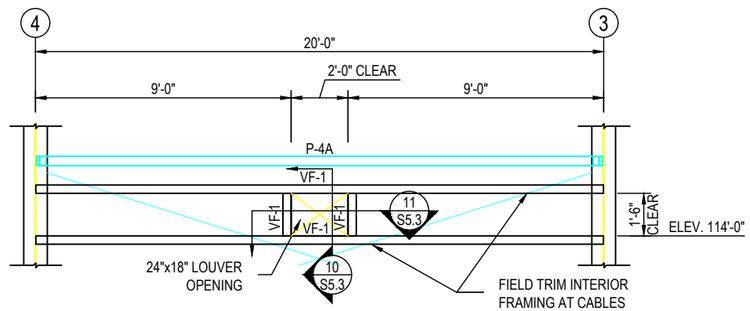
S3.1



1 OVERHEAD DOOR DETAIL
AT SIDEWALLS SCALE: 3/16" = 1'-0"



2 OPENING DETAIL
AT F.L. H SCALE: 3/16" = 1'-0"



3 OPENING DETAIL
AT F.L. A SCALE: 3/16" = 1'-0"

MEMBER TABLE		
MARK	PART	LENGTH
DF-1	12C12	C.T.F. (20'-0")
DF-2	6C14	C.T.F. (20'-0")
VF-1	12C12	C.T.F. (20'-0")
VF-2	6C14	C.T.F. (20'-0")

DOOR OPENINGS TO BE FRAMED W/ DF-2 AT INTERIOR

VENT OPENINGS TO BE FRAMED W/ VF-2 AT INTERIOR

APPROVER TO VERIFY ALL OPENING DIMENSIONS

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U.S. PATENTS
9,038,349; 9,334,653
OTHER PATENTS PENDING

SIDEWALL FRAMING - ENLARGED ELEVATIONS

DRAWING SET:		DATE:
1	BP & REACTIONS	5/3/2023
2	IN-HOUSE REVIEW	5/24/2023
3	IN-HOUSE APPROVAL	5/25/2023
4	CUSTOMER APPROVAL	9/11/2023
5		

Project No.: 2023-25
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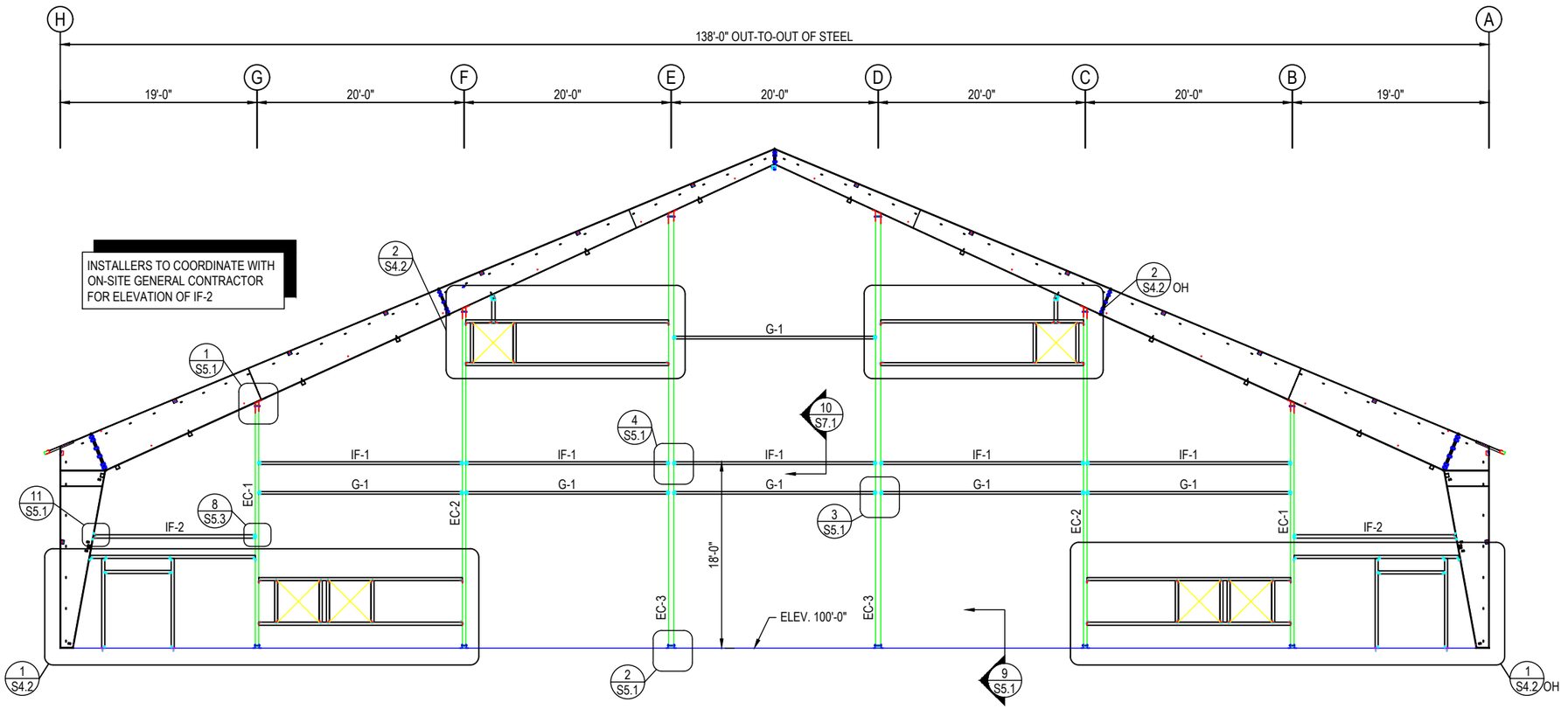
Sheet Number:

S3.2

BOLT TABLE FRAME LINE 17	* ALL A325 BOLTS TO RECEIVE (2) WASHERS		
LOCATION	QUAN	DIA	LENGTH
EC-1 To Rigid Frame	4	3/4"	2 1/2"
	2	3/4"	6"
EC-1 To Anchor Clip	2	3/4"	6"
EC-2 To Rigid Frame	4	3/4"	2"
	2	3/4"	6"
EC-2 To Anchor Clip	2	3/4"	6"
EC-3 To Rigid Frame	4	3/4"	2"
	2	3/4"	8"
EC-3 To Anchor Clip	2	3/4"	8"

MEMBER TABLE FRAME LINE 17		
MARK	PART	LENGTH
EC-1	HSS 12x4x1/4"	23'-4 1/4"
EC-2	HSS 12x4x1/4"	32'-5 5/8"
EC-3	HSS 12x6x5/16"	41'-7 7/8"
G-1	HSS 3x3x14ga	C.T.F. (20'-0")
IF-1	HSS 3x3x14ga	C.T.F. (20'-0")
IF-2	HSS 4x4x11ga	C.T.F. (20'-0")

APPROVER TO VERIFY ALL OPENING DIMENSIONS



1 ENDWALL FRAMING ELEVATION

FRAME LINE 17 SCALE: 5/64" = 1'-0"

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END WALL FRAMING ELEVATIONS
FRAME LINE 17

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2 CUSTOMER APPROVAL	9/11/2023

Project No.: 2023-25
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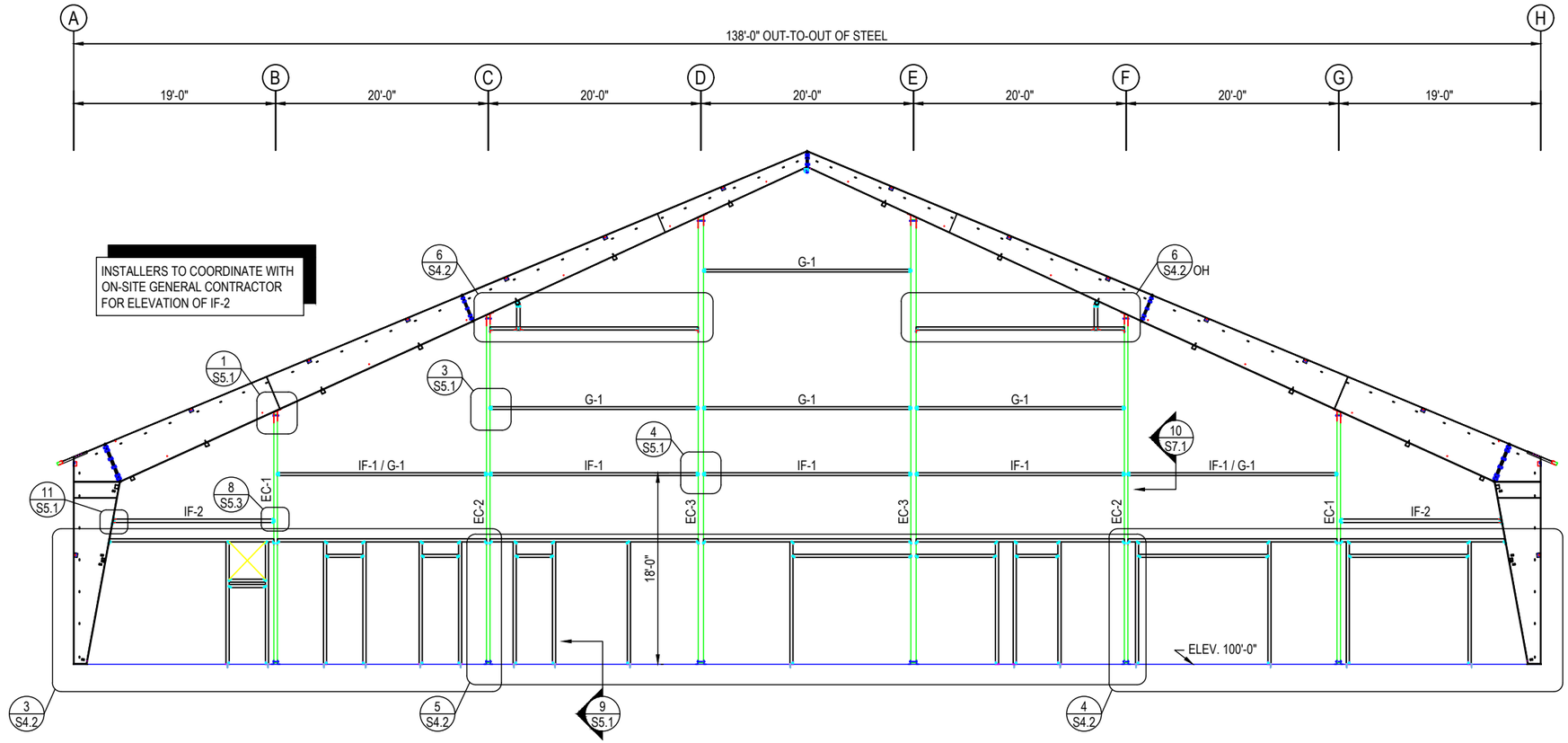
Sheet Number:

S4.0

BOLT TABLE FRAME LINE 3	* ALL A325 BOLTS TO RECEIVE (2) WASHERS		
LOCATION	QUAN	DIA	LENGTH
EC-1 To Rigid Frame	4	3/4"	2 1/2"
	2	3/4"	6"
EC-1 To Anchor Clip	2	3/4"	6"
EC-2 To Rigid Frame	4	3/4"	2"
	2	3/4"	6"
EC-2 To Anchor Clip	2	3/4"	6"
EC-3 To Rigid Frame	4	3/4"	2"
	2	3/4"	8"
EC-3 To Anchor Clip	2	3/4"	8"

MEMBER TABLE FRAME LINE 3		
MARK	PART	LENGTH
EC-1	HSS 12x4x1/4"	23'-4 1/4"
EC-2	HSS 12x4x1/4"	32'-5 5/8"
EC-3	HSS 12x6x5/16"	41'-7 7/8"
G-1	HSS 3x3x14ga	C.T.F. (20'-0")
IF-1	HSS 3x3x14ga	C.T.F. (20'-0")
IF-2	HSS 4x4x11ga	C.T.F. (20'-0")

APPROVER TO VERIFY ALL OPENING DIMENSIONS



1 ENDWALL FRAMING ELEVATION
FRAME LINE 3 SCALE: 5/64" = 1'-0"

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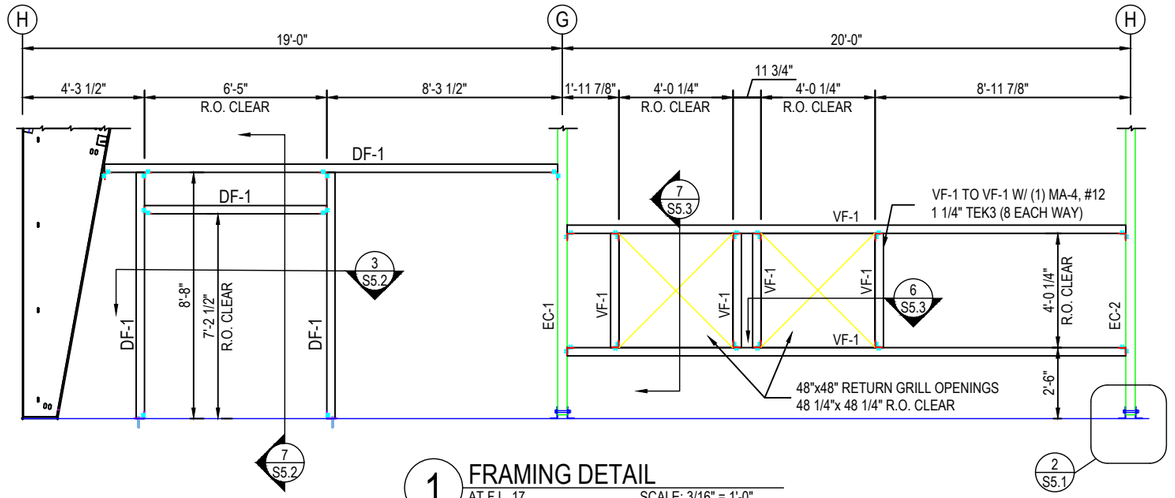
END WALL FRAMING ELEVATIONS
FRAME LINE 3

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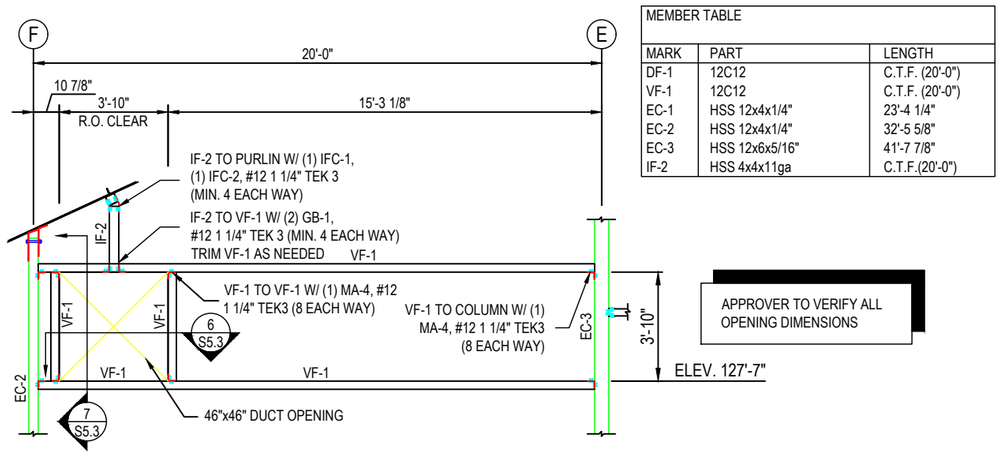
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Sheet Number:

S4.1

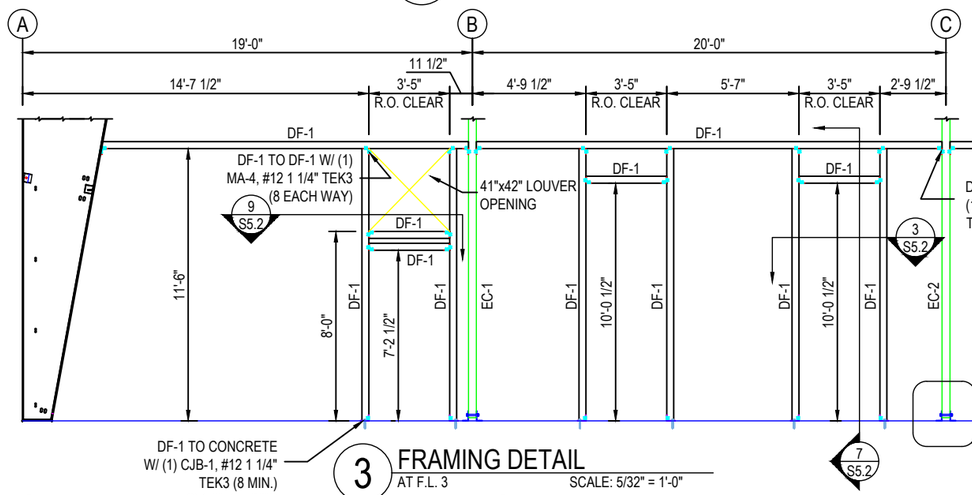


1 FRAMING DETAIL
AT F.L. 17 SCALE: 3/16" = 1'-0"

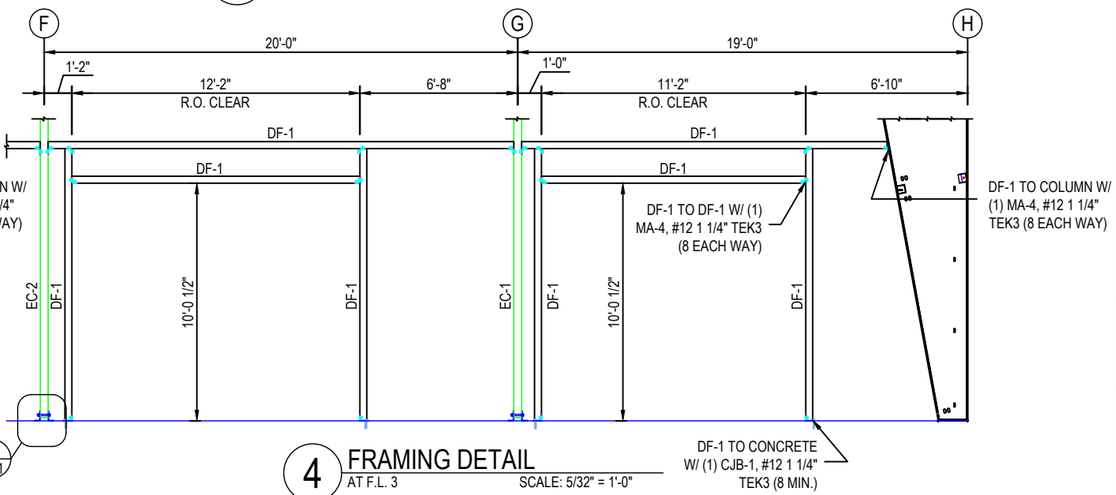


2 DUCT OPENING DETAIL
AT F.L. 17 SCALE: 3/16" = 1'-0"

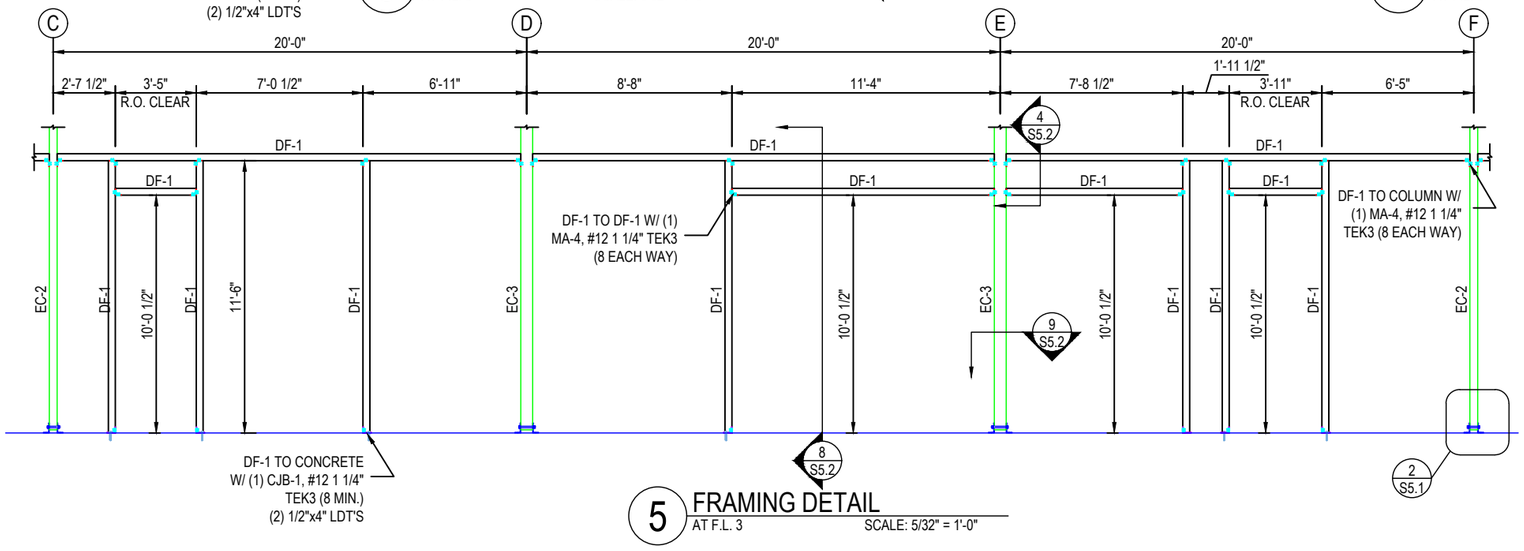
MEMBER TABLE		
MARK	PART	LENGTH
DF-1	12C12	C.T.F. (20'-0")
VF-1	12C12	C.T.F. (20'-0")
EC-1	HSS 12x4x1/4"	23'-4 1/4"
EC-2	HSS 12x4x1/4"	32'-5 5/8"
EC-3	HSS 12x6x5/16"	41'-7 7/8"
IF-2	HSS 4x4x11ga	C.T.F.(20'-0")



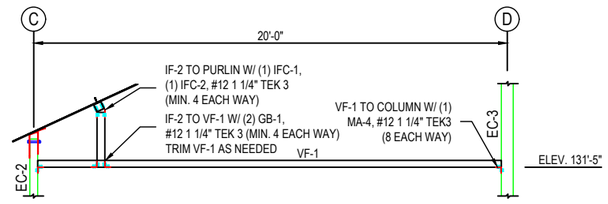
3 FRAMING DETAIL
AT F.L. 3 SCALE: 5/32" = 1'-0"



4 FRAMING DETAIL
AT F.L. 3 SCALE: 5/32" = 1'-0"



5 FRAMING DETAIL
AT F.L. 3 SCALE: 5/32" = 1'-0"



6 FRAMING DETAIL
AT F.L. 3 SCALE: 5/32" = 1'-0"

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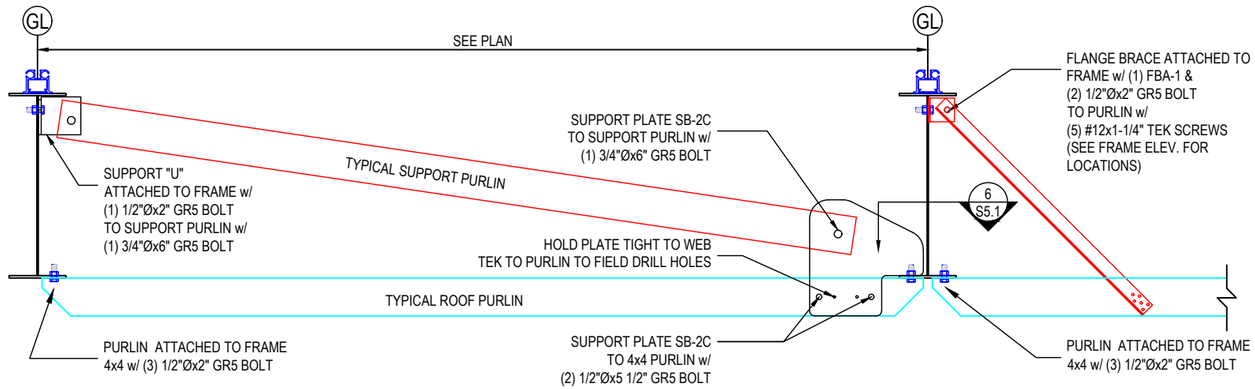
ENDWALL FRAMING - ENLARGED ELEVATIONS

DRAWING SET:	DATE:
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IN-HOUSE APPROVAL	5/25/2023
2 CUSTOMER APPROVAL	9/11/2023

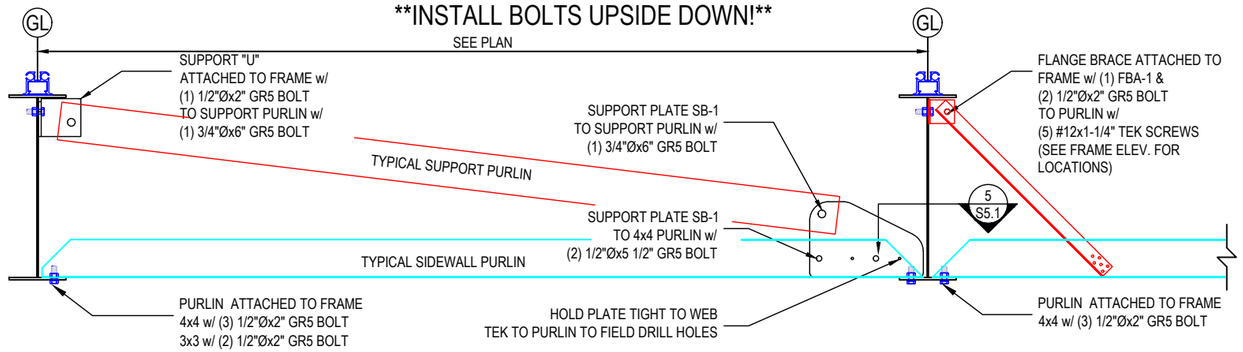
Project No.: 2023-25
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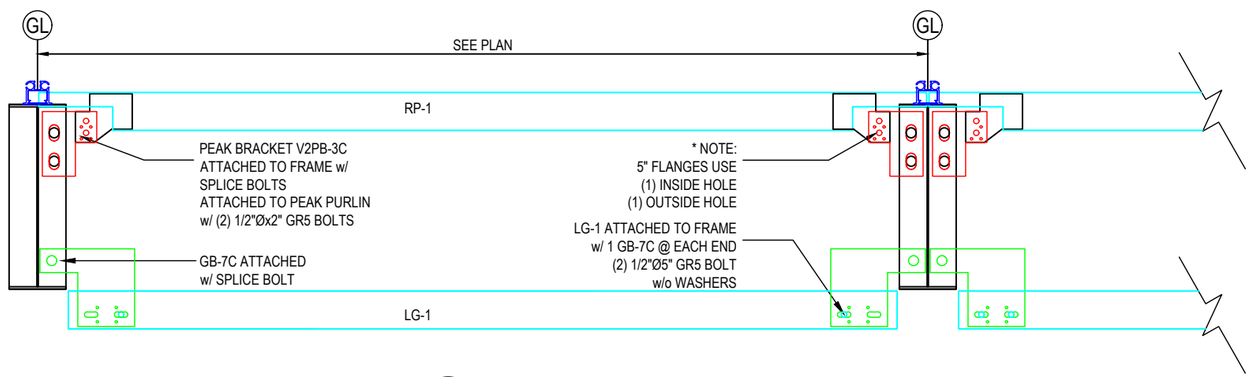
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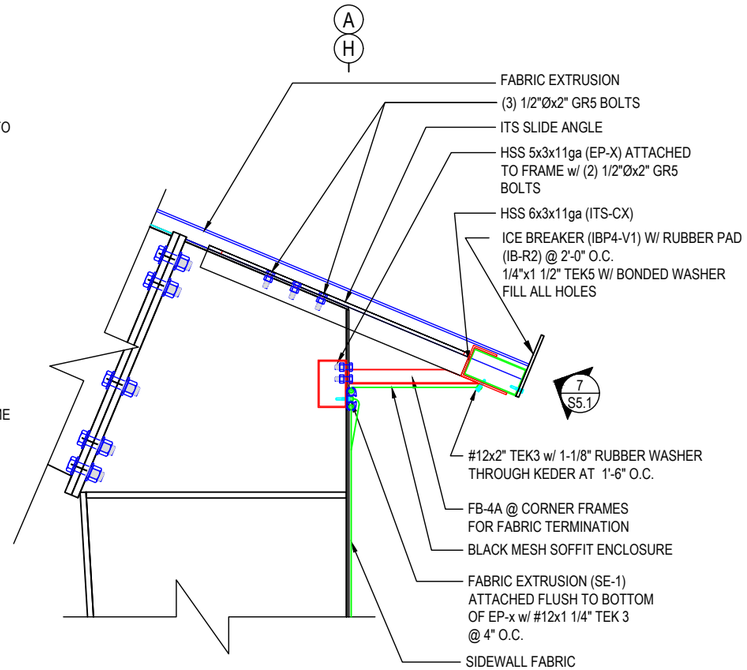
1 TYPICAL PURLIN BRACE DETAIL
AT RAFTER SCALE: 3/4" = 1'-0"



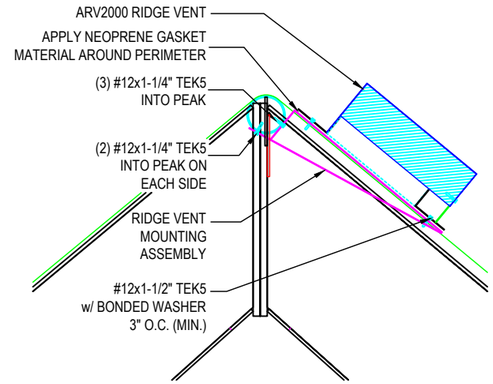
2 TYPICAL PURLIN BRACE DETAIL
AT SIDEWALL SCALE: 3/4" = 1'-0"



3 TYPICAL RP-1 BRACE DETAIL
SCALE: 3/4" = 1'-0"



4 TYPICAL EAVE/SOFFIT DETAIL
SCALE: 3/4" = 1'-0"



5 ARV 2000 INSTALLATION DETAILS
SCALE: 3/4" = 1'-0"

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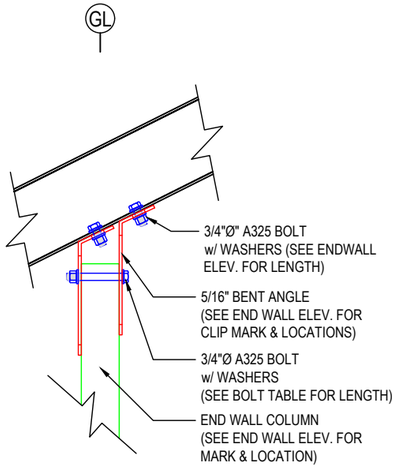
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U.S. PATENTS
9,038,349; 9,334,653
OTHER PATENTS PENDING

STANDARD CONNECTION DETAILS

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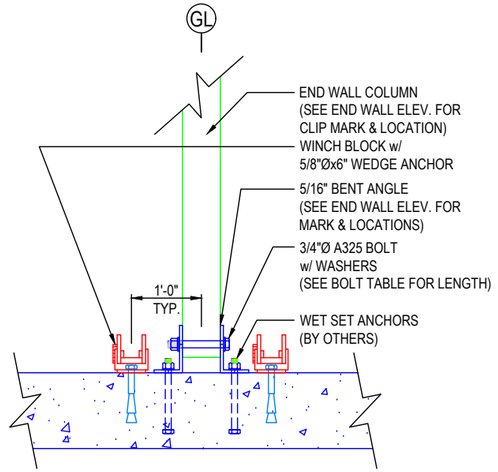
Project No.: 2023-25
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S5.0



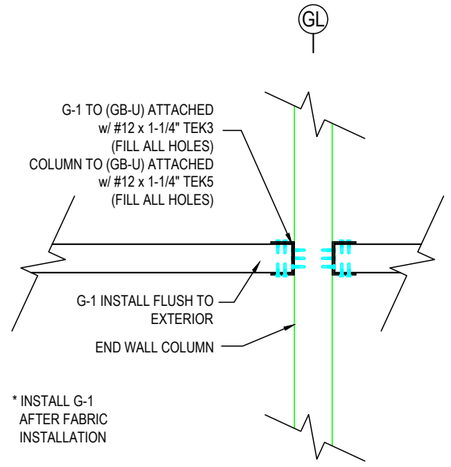
1 COLUMN TOP ATTACHMENT

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



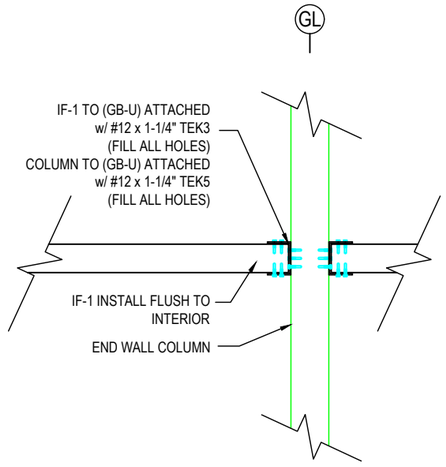
2 COLUMN BOTTOM ATTACHMENT

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



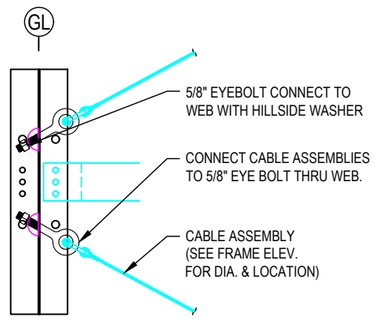
3 ENDWALL GIRT ATTACHMENT DETAIL

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



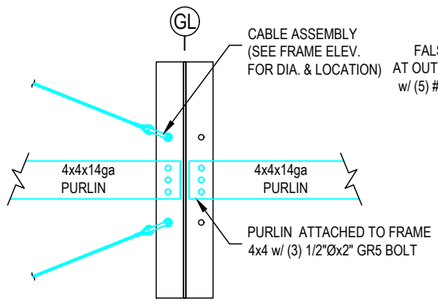
4 ENDWALL ATTACHMENT DETAIL

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



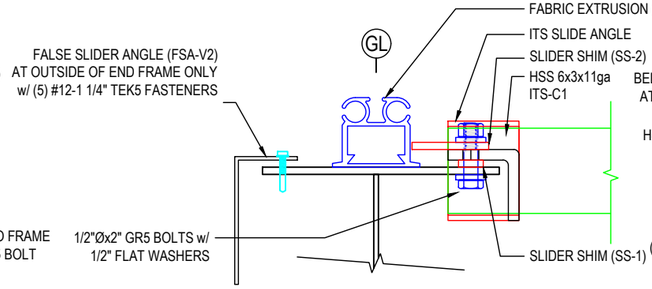
5 TYP. BRACING ATTACHMENT DETAIL

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



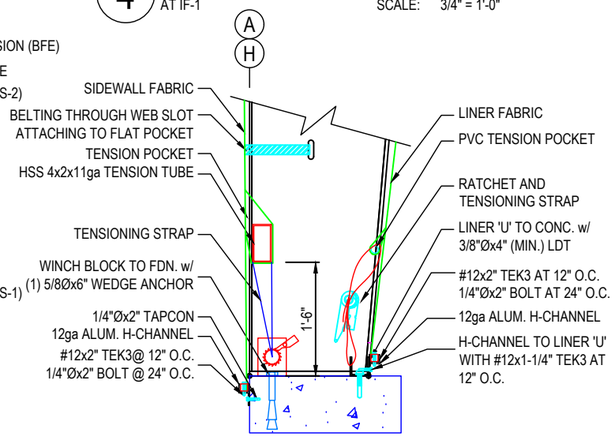
6 BRACING ATTACHMENT DETAIL

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

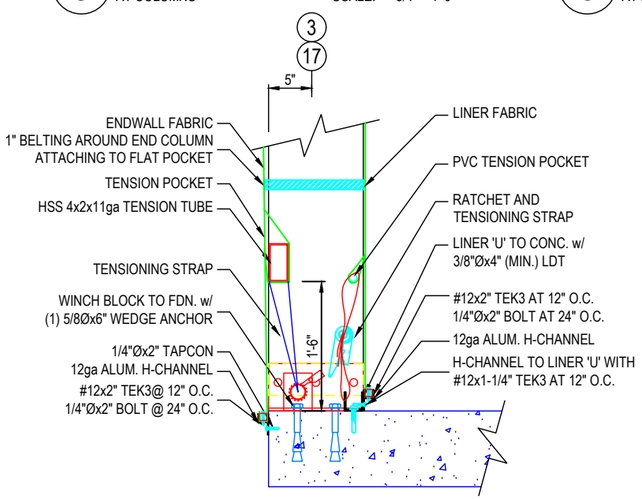


7 ITS CONNECTION END VIEW

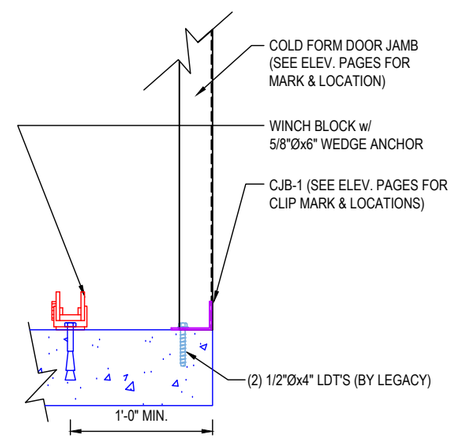
AT 10" FLANGES SCALE: 3/4" = 1'-0"



8 SIDEWALL TERMINATION

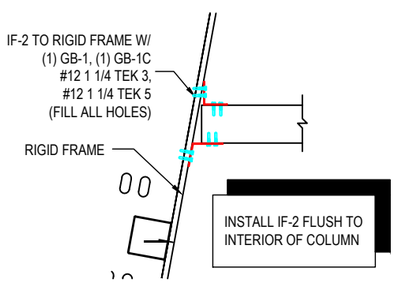


9 H-CHANNEL TERMINATION @ EW



10 DOOR JAMB ATTACHMENT

AT COLD FORM JAMBS SCALE: 3/4" = 1'-0"



11 IF-2 ATTACHMENT DETAIL

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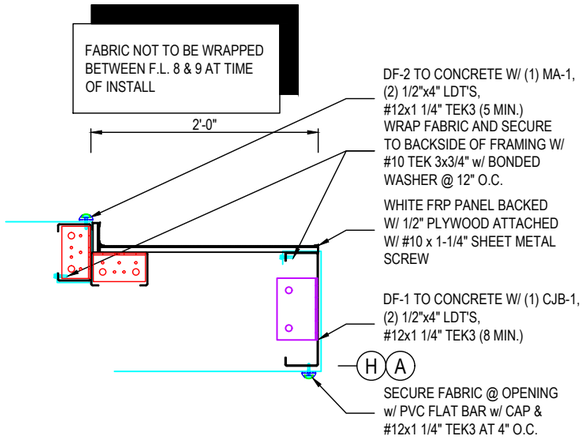
STANDARD CONNECTION DETAILS

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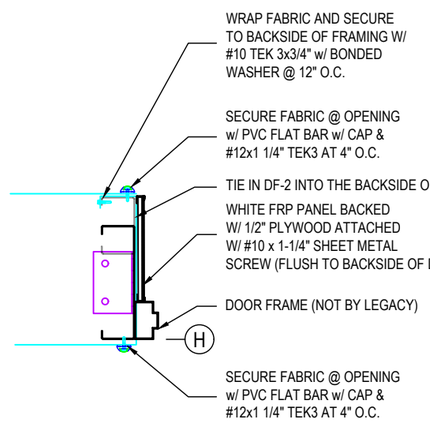
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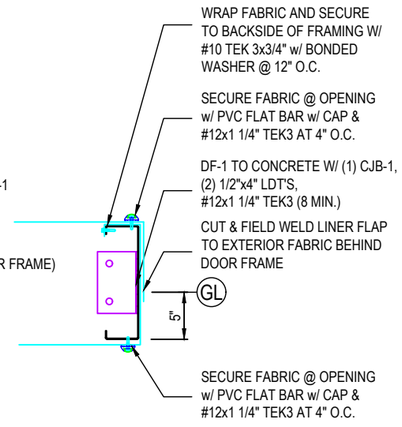
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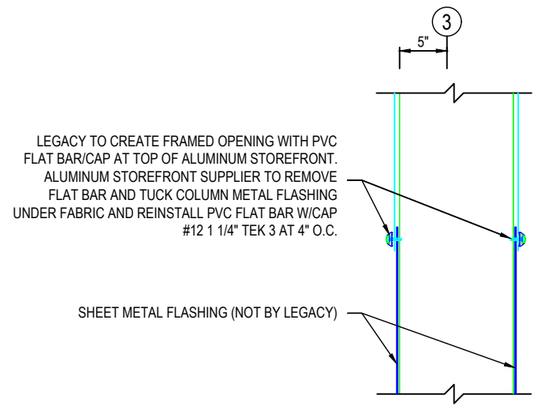
1 OVERHEAD DOOR SECTION
AT SIDEWALL SCALE: 3/4" = 1'-0"



2 WALK DOOR SECTION
AT SIDEWALL SCALE: 3/4" = 1'-0"

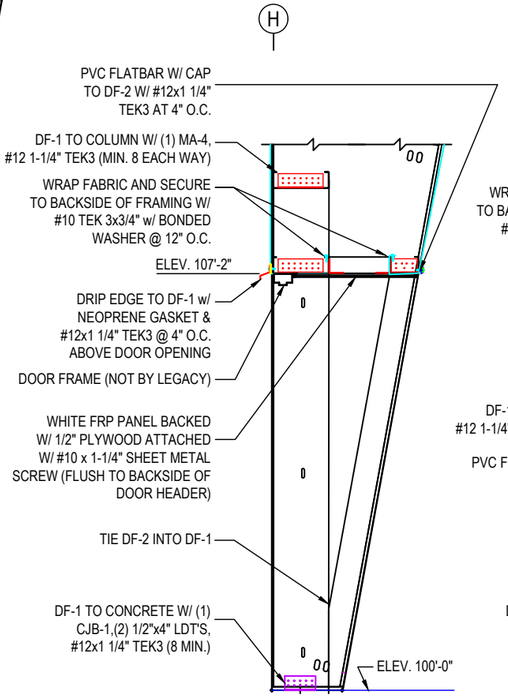


3 WALK DOOR SECTION
AT ENDWALL SCALE: 3/4" = 1'-0"

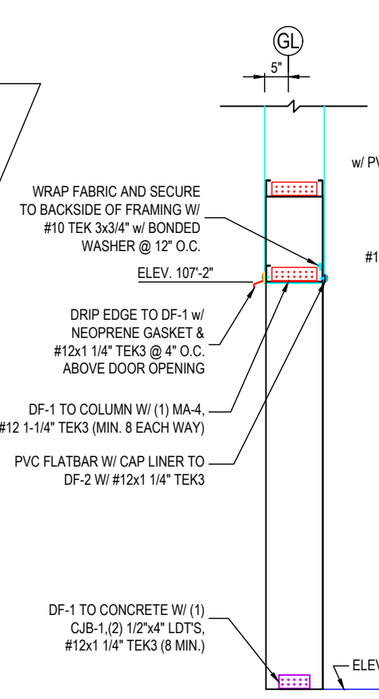


4 STOREFRONT SECTION
AT FRAME LINE E SCALE: 3/4" = 1'-0"

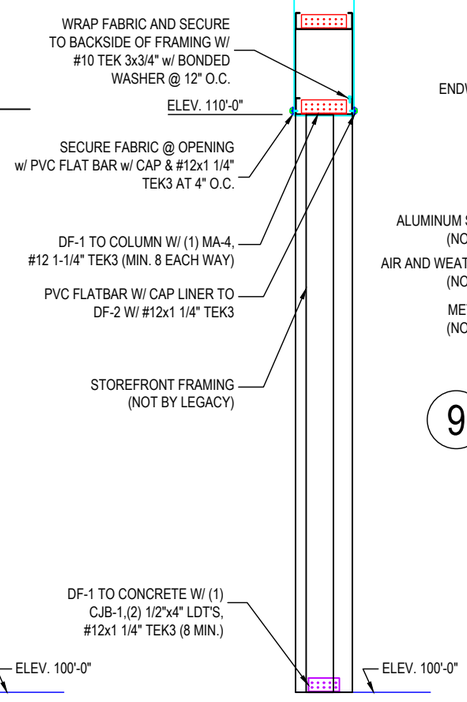
5 OVERHEAD DOOR SECTION
AT SIDEWALL SCALE: 11/32" = 1'-0"



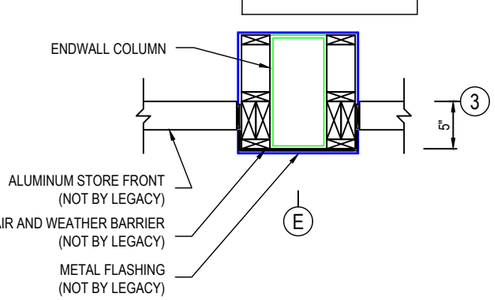
6 WALK DOOR SECTION
AT F.L. H SCALE: 3/8" = 1'-0"



7 WALK DOOR SECTION
AT ENDWALL SCALE: 3/8" = 1'-0"



8 STOREFRONT SECTION
AT ENDWALL SCALE: 3/8" = 1'-0"



9 STOREFRONT SECTION
AT FRAME LINE E SCALE: 3/4" = 1'-0"

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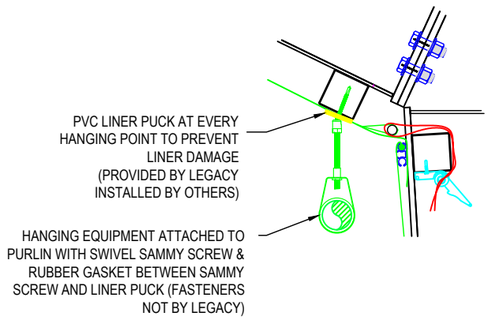
DOOR DETAILS

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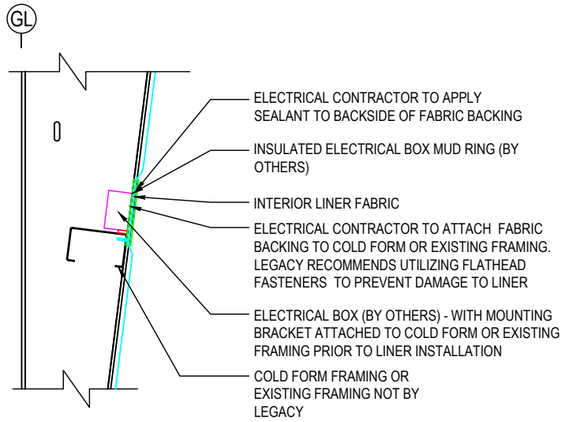
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S5.2



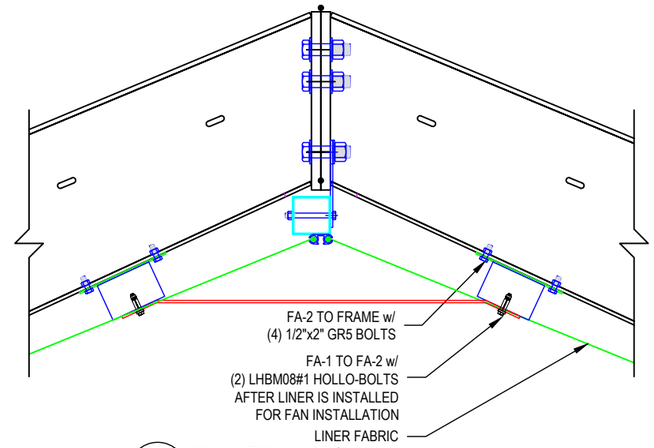
1 SUGGESTED PURLIN ATTACHMENT

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

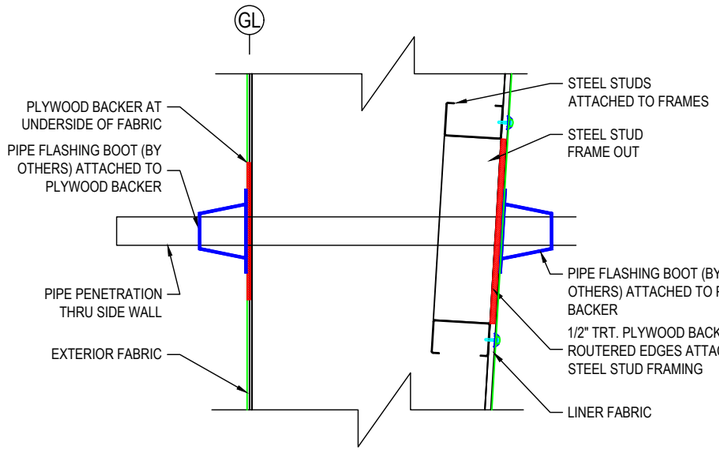


2 SUGGESTED ELECTRICAL BOX FINISH

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

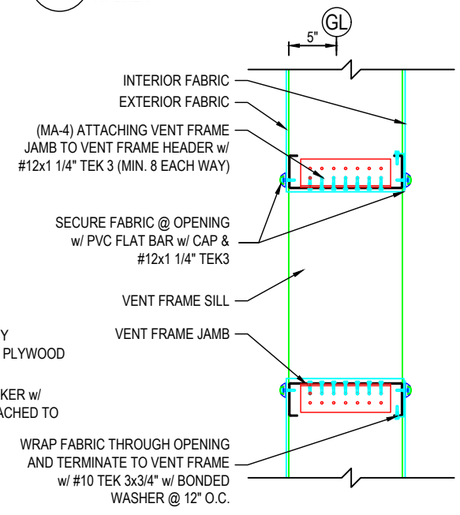


3 FAN FRAMING



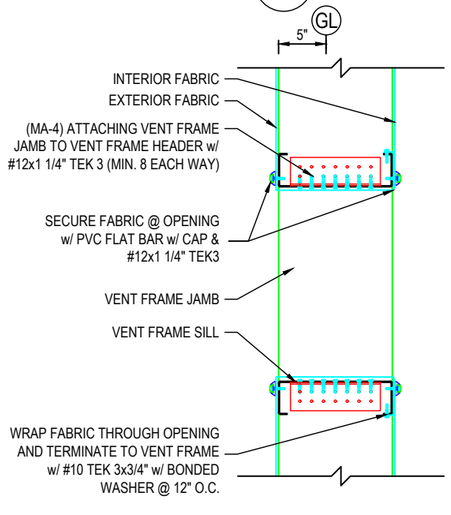
5 SUGGESTED PIPE PENETRATION DETAIL

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



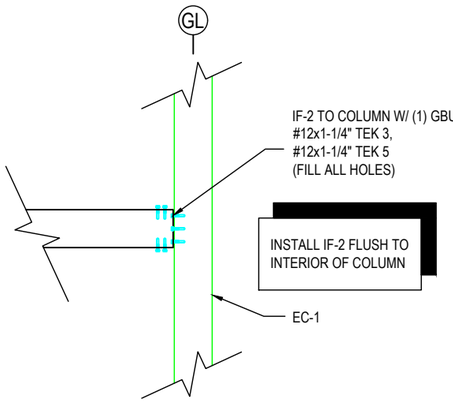
6 VENT FRAME JAMB TO SILL

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



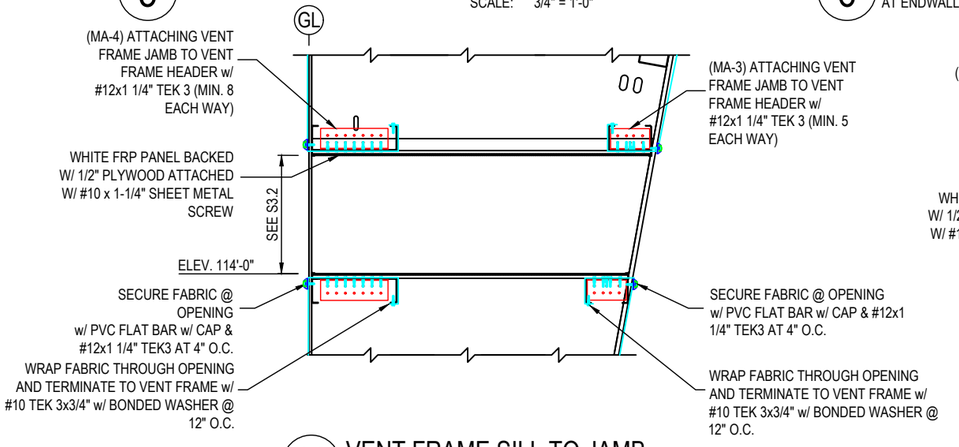
7 VENT FRAME SILL TO JAMB

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



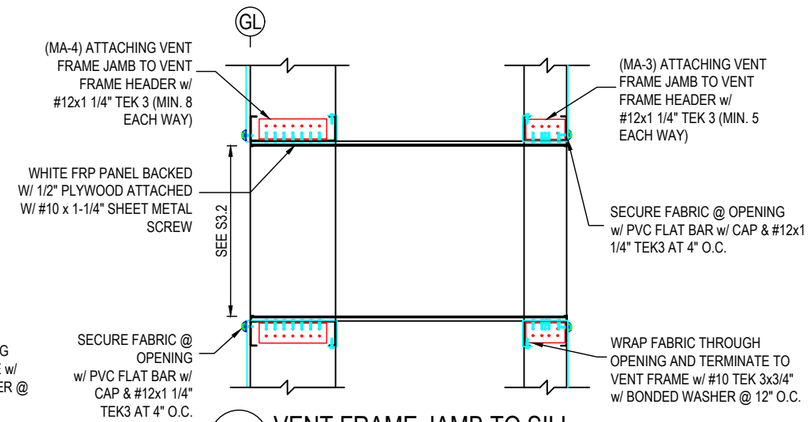
8 IF-2 ATTACHMENT DETAIL

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



10 VENT FRAME SILL TO JAMB

AT SIDEWALL SCALE: 9/16" = 1'-0"



11 VENT FRAME JAMB TO SILL

AT SIDEWALL SCALE: 9/16" = 1'-0"

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Sheet Number:

S5.3



1 FABRIC LAYOUT

ALL PANELS VIEWED FROM EXTERIOR SCALE: 1/32" = 1'-0"

*NOTE: SEE PAGE S6.1 FOR FABRIC INSTALLATION DETAILS

*NOTE: APPLY AVALANCHE SIGNS @ SW DOORS ON JOBS w/ SNOW SHED

FABRIC KEY

- = 28oz E.T. ELITE WHITE
- = 28oz E.T. ELITE GRAY
- = 19oz E.T. PRO WHITE
- = 28oz E.T. ELITE BLUE

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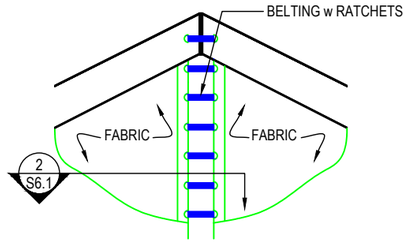
FABRIC LAYOUT

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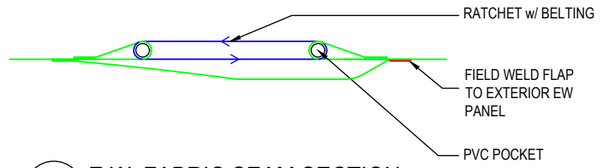
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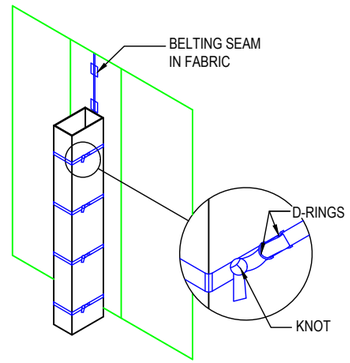
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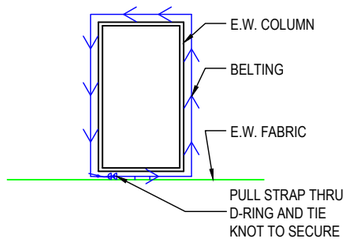
1 E.W. FABRIC LACING DETAIL
AS VIEWED FROM INSIDE



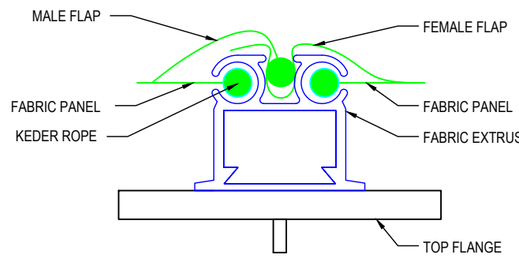
2 E.W. FABRIC SEAM SECTION



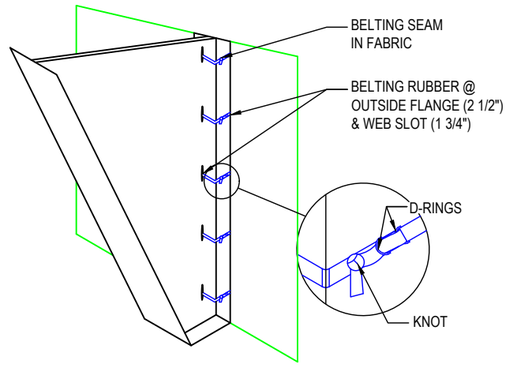
3 E.W. BELTING @ E.W. COLUMNS



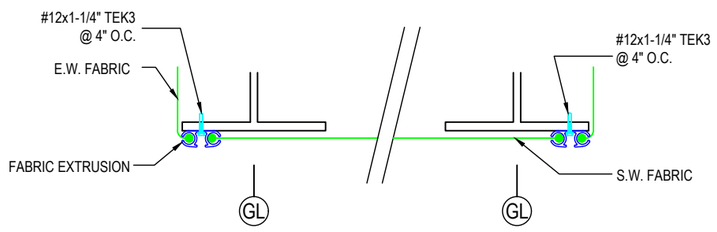
4 E.W. BELTING @ E.E.W. COLUMN SECTION



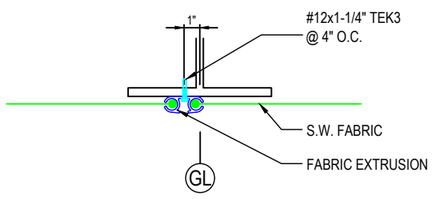
5 FABRIC EXTRUSION SECTION



6 S.W. BELTING @ S.W. COLUMN



7 TYP. FABRIC OUTSIDE CORNER



8 VERTICAL FABRIC SPLICE

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TRAVERS PARK
138'-0"X273'-0"
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U.S. PATENTS
9,038,349; 9,334,653
OTHER PATENTS PENDING

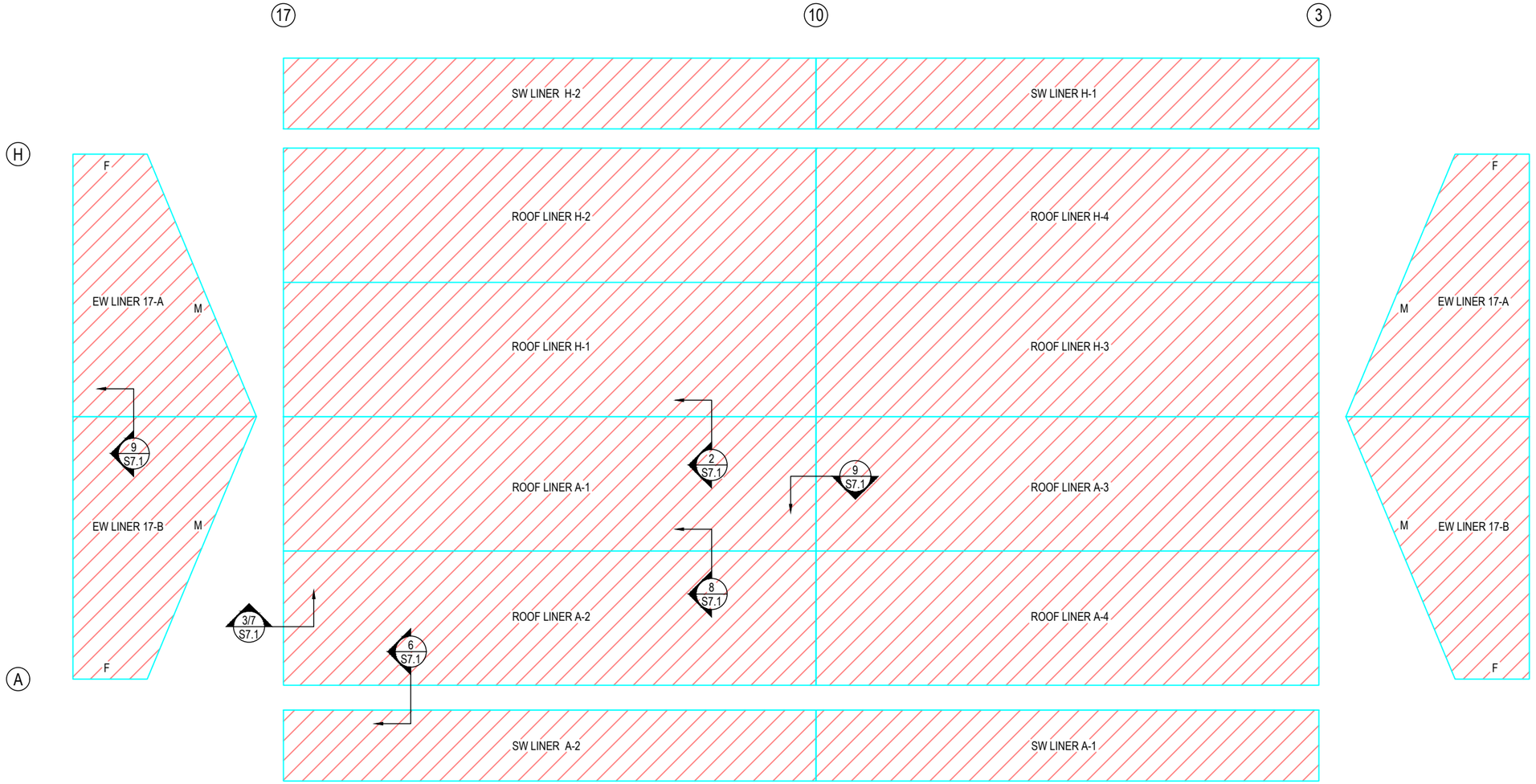
FABRIC DETAILS

DRAWING SET:	DATE:
BP & REACTIONS	5/3/2023
IN-HOUSE REVIEW	5/24/2023
IN-HOUSE APPROVAL	5/25/2023
2 CUSTOMER APPROVAL	9/11/2023

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1 LINER LAYOUT
ALL PANELS VIEWED FROM INTERIOR SCALE: 1/32" = 1'-0"

*NOTE: SEE PAGE S7.1 FOR FABRIC INSTALLATION DETAILS

FABRIC KEY
- = 28oz E.T. ELITE WHITE
- = 28oz E.T. ELITE GRAY
- = 19oz E.T. PRO WHITE
- = 28oz E.T. ELITE BLUE

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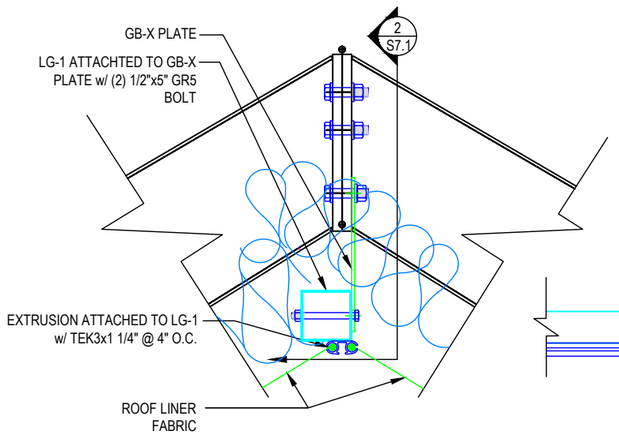
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LINER LAYOUT

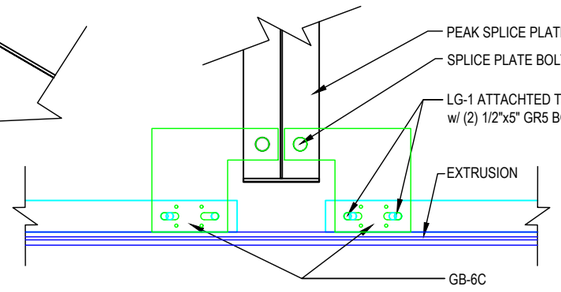
DRAWING SET:		DATE:
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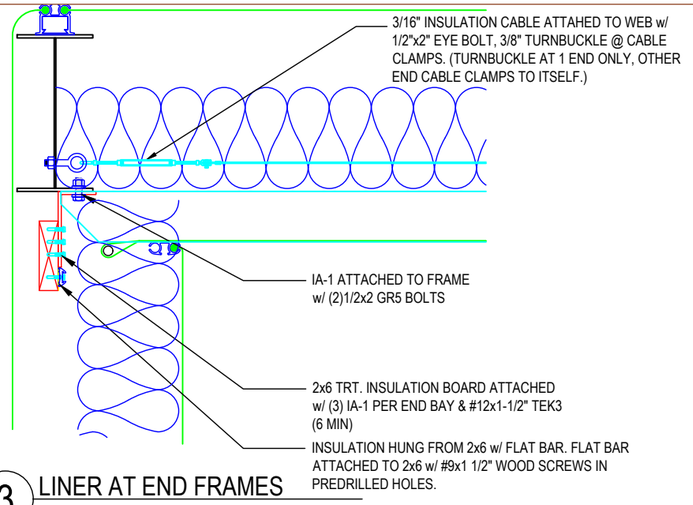
Sheet Number:
S7.0



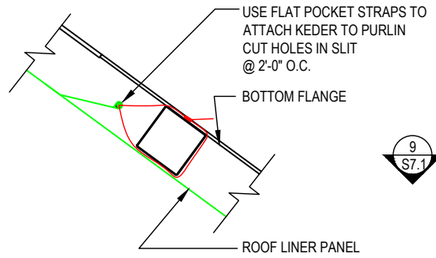
1 LINER AT PEAK



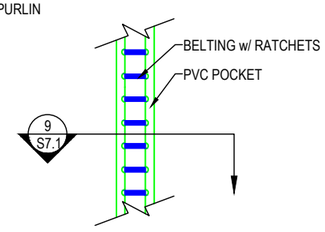
2 LINER AT PEAK SECTION



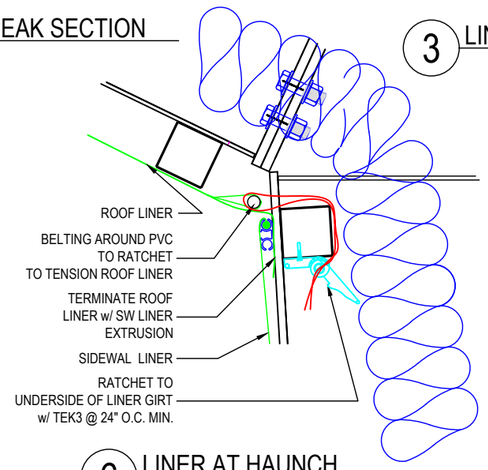
3 LINER AT END FRAMES



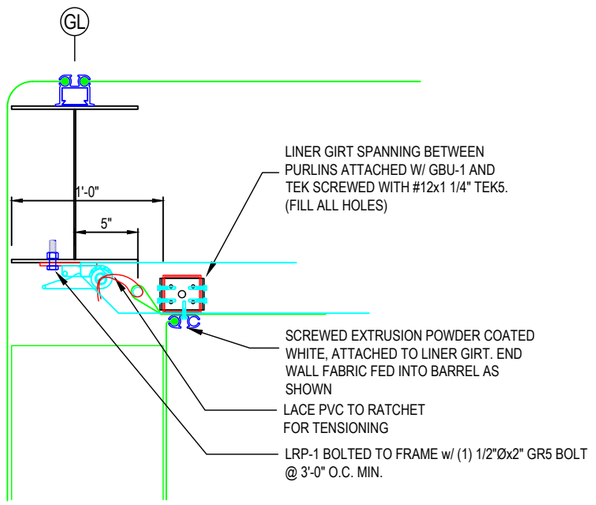
4 LINER TO PURLIN SECURING DETAIL



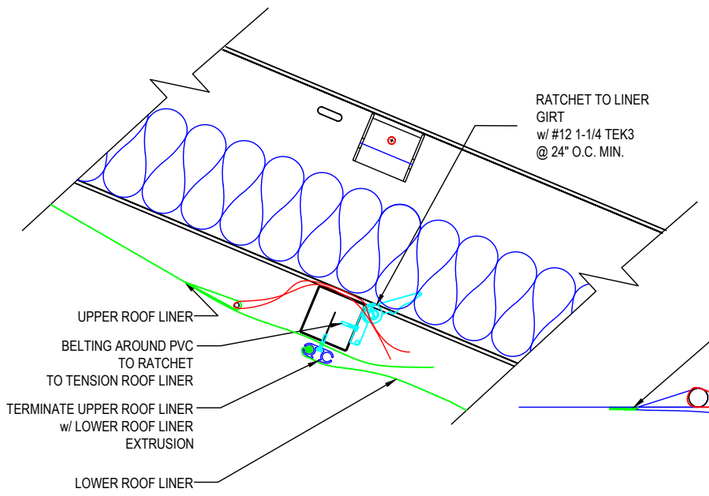
5 LINER AT SEAMS



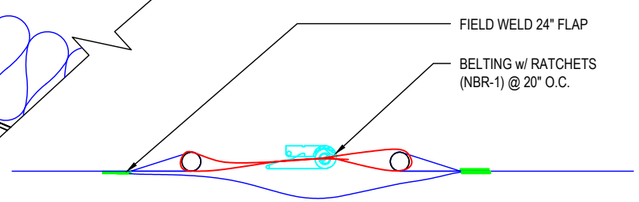
6 LINER AT HAUNCH



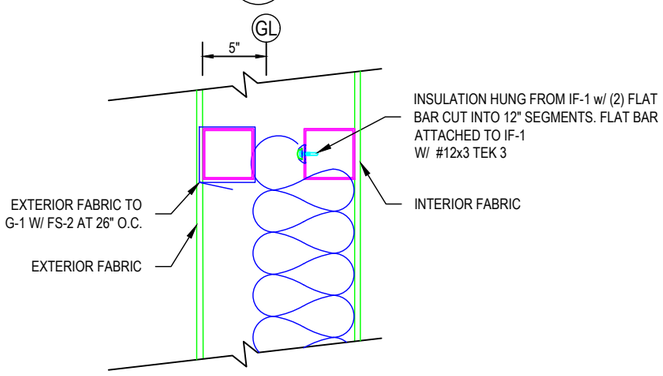
7 FALSE TRUSS DETAIL



8 LINER SEAM SECTION
AT HORIZONTAL SEAMS



9 LINER SEAM SECTION
AT VERTICAL SEAMS



10 END FRAME INSULATION DET.

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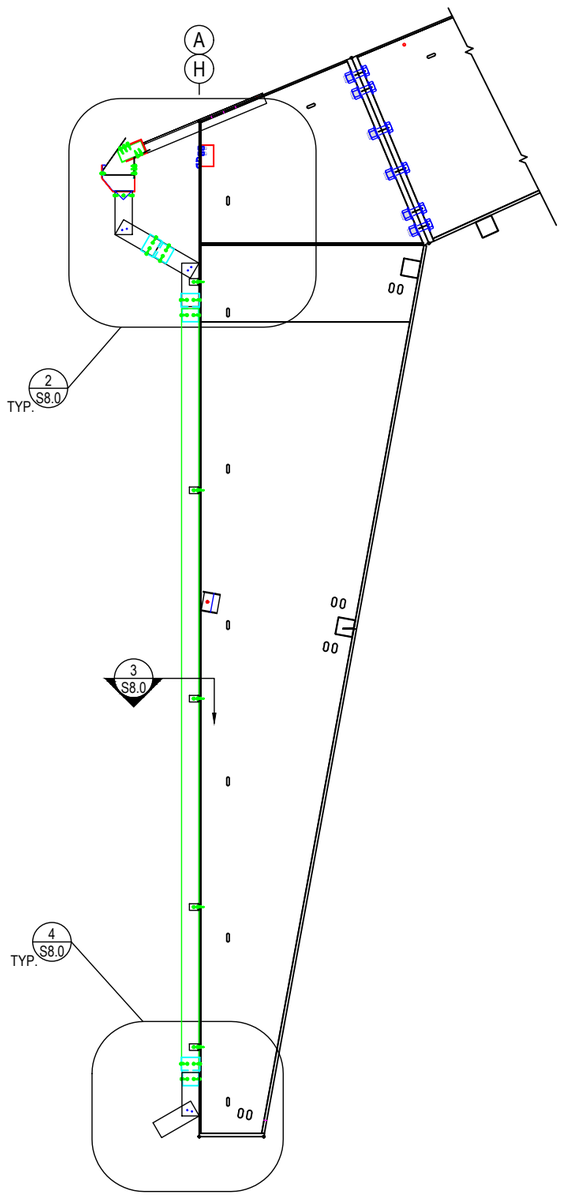
LINER DETAILS

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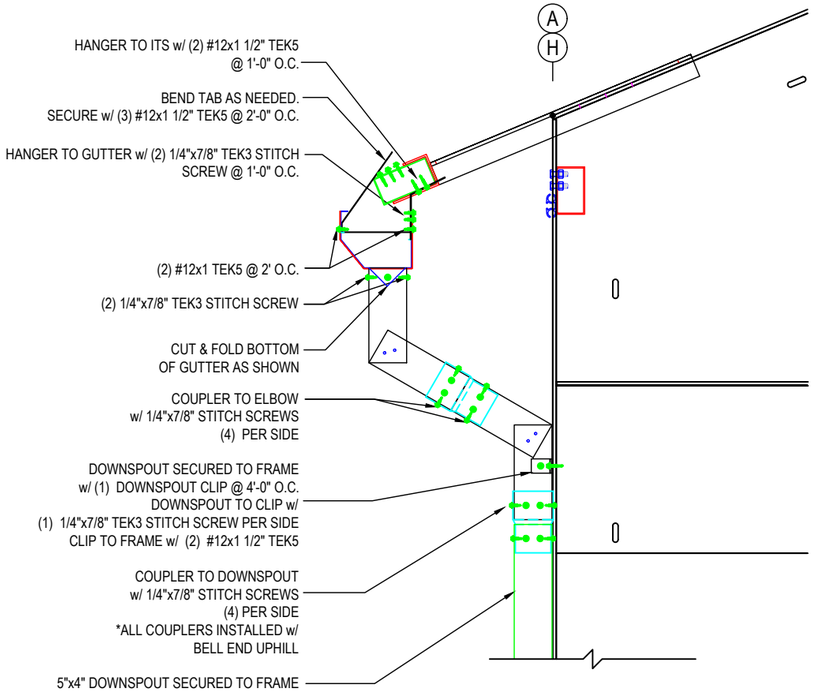
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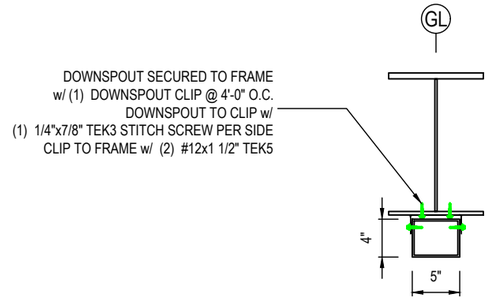
S7.1



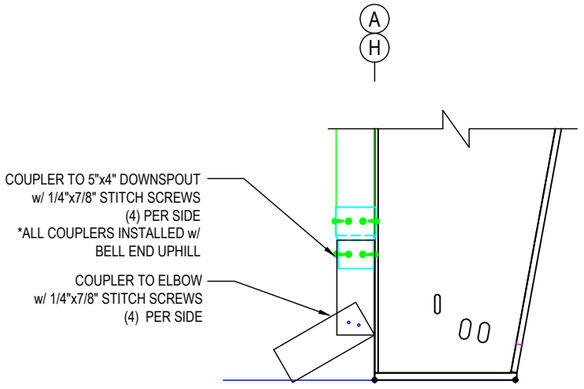
1 GUTTER DETAIL
AT COMMON FRAMES SCALE: 11/32" = 1'-0"



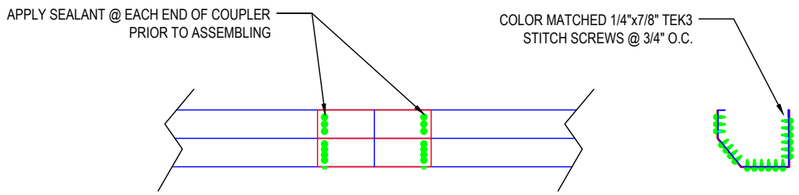
2 GUTTER CONNECTION @ EAVE
AT COMMON FRAMES SCALE: 3/4" = 1'-0"



3 GUTTER SECTION
AT DOWNSPOUT CLIP SCALE: 3/4" = 1'-0"



4 GUTTER CONNECTION @ FOUNDATION
AT COMMON FRAMES SCALE: 3/4" = 1'-0"



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TYPICAL GUTTER DETAILS

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