ANNAFELD 6th & 7th FILING
PUBLIC PARK

PHASE TWO BILLINGS, MT

SITE MAP

NTS

OWNER: City of Billings
Parks, Recreation, and Public Lands

Interim Director: Gavin Woltjer
Project Manager: Brad Wright

390 N. 23rd ST.
Billings, MT 59101

LANDSCAPE ARCHITECT:
Second Nature Consulting, P.L.L.C.

Contact: Neil Kiner, Project Manager

2722 3rd Ave. N.
Suite 230
Billings, MT 59101

SHEET INDEX

STATE OF MONTANA
NEIL RYAN KINER
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LANDSCAPE ARCHITECT

SECOND NATURE CONSULTING
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REVISIONS

ANNAFELD PARK - 6TH & 7TH FILING IMPROVEMENTS
6202 FARMSTEAD AVE
BILLINGS, MT 59101

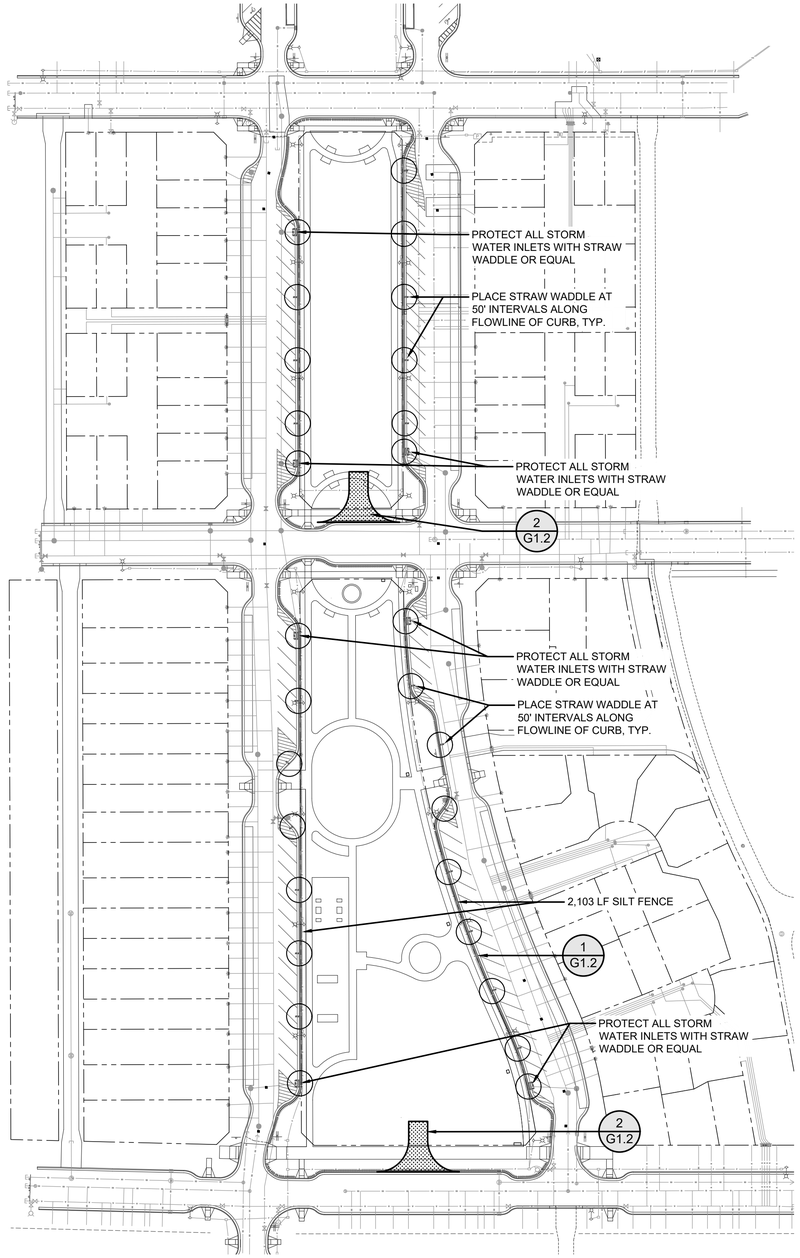
BID SET

COVER SHEET

251022

DRAWN BY	SNC
APPROVED	EJSW
DATE	03-12-2026

G1.0



EROSION CONTROL PLAN

SCALE: 1" = 60'

0 60' 120'

SCALE IN FEET

EROSION CONTROL NOTES

1. INITIATION:
   - 1.1. CONTRACTOR MUST CALL A CONSTRUCTION START 48 HOURS PRIOR TO ANY LAND DISTURBANCES. FAILURE TO DO SO MAY RESULT IN FINES, THE REVOCATION OF PERMIT AND A STOP WORK ORDER BEING ISSUED.
   - 1.2. INSTALL PERIMETER EROSION CONTROL AT THE LOCATIONS SHOWN ON THE PLANS PRIOR TO THE COMMENCEMENT OF ANY LAND DISTURBANCE OR CONSTRUCTION ACTIVITIES.
   - 1.3. BEFORE BEGINNING CONSTRUCTION, INSTALL A TEMPORARY ROCK CONSTRUCTION ENTRANCE AT EACH POINT WHERE VEHICLES EXIT THE CONSTRUCTION SITE. USE 2 INCH OR GREATER DIAMETER ROCK IN A LAYER AT LEAST 6 INCHES THICK ACROSS THE ENTIRE WIDTH OF THE ENTRANCE. EXTEND THE ROCK ENTRANCE AT LEAST 50 FEET INTO THE CONSTRUCTION ZONE USING A GEO-TEXTILE FABRIC BENEATH THE AGGREGATE TO PREVENT MIGRATION OF SOIL INTO THE ROCK FROM BELOW.
2. GENERAL CLEANUP:
   - 2.1. REMOVE ALL SOILS AND SEDIMENTS TRACKED OR OTHERWISE DEPOSITED ONTO PUBLIC AND PRIVATE PAVEMENT AREAS. REMOVAL SHALL BE ON A DAILY BASIS WHEN TRACKING OCCURS AND MAY BE ORDERED BY PROJECT INSPECTORS AT ANY TIME IF CONDITIONS WARRANT. SWEEPING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE CONSTRUCTION AND DONE IN A MANNER TO PREVENT DUST BEING BLOWN TO ADJACENT PROPERTIES.
3. EROSION CONTROL IMPLEMENTATION:
   - 3.1. INSTALL INLET PROTECTION AT ALL PUBLIC AND PRIVATE CATCH BASIN INLETS, WHICH RECEIVE RUNOFF FROM THE DISTURBED AREAS. INSTALL INLET PROTECTIONS IN CONJUNCTION WITH ONGOING CONSTRUCTION. NO INLET SHALL REMAIN UNPROTECTED FOR ANY STORM EVENT, EVEN FOLLOWING INSTALLATION.
   - 3.2. CONTRACTOR SHALL CLEAN, REMOVE SEDIMENT OR REPLACE STORM DRAIN INLET PROTECTION DEVICES ON A ROUTINE BASIS SUCH THAT THE DEVICES ARE FULLY FUNCTIONAL FOR THE NEXT RAIN EVENT. SEDIMENT DEPOSITED IN AND/OR PLUGGING DRAINAGE SYSTEMS IS THE RESPONSIBILITY OF THE CONTRACTOR. HAY BALES OR FILTER FABRIC WRAPPED GRATES ARE NOT ALLOWED FOR INLET PROTECTION.
   - 3.3. LOCATE SOIL OR DIRT STOCKPILES NO LESS THAN 25 FEET FROM ANY PUBLIC OR PRIVATE ROADWAY OR DRAINAGE CHANNEL. IF REMAINING FOR MORE THAN SEVEN DAYS, STABILIZE THE STOCKPILES BY MULCHING, VEGETATIVE COVER, TARPS, OR OTHER MEANS.
   - 3.4. CONTROL EROSION FROM ALL STOCKPILES BY PLACING SILT BARRIERS AROUND THE PILES. TEMPORARY STOCKPILES LOCATED ON PAVED SURFACES MUST BE NO LESS THAN TWO FEET FROM THE DRAINAGE/GUTTER LINE AND SHALL BE COVERED IF LEFT MORE THAN 24 HOURS.
4. MAINTENANCE:
   - 4.1. MAINTAIN ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES IN PLACE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED. INSPECT TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES ON A DAILY BASIS AND REPLACE DETERIORATED, DAMAGED, OR ROTTED EROSION CONTROL DEVICES IMMEDIATELY.
5. TEMPORARILY OR PERMANENTLY STABILIZE ALL CONSTRUCTION AREAS WHICH HAVE UNDERGONE FINAL GRADING, AND ALL AREAS IN WHICH GRADING OR SITE BUILDING CONSTRUCTION OPERATIONS ARE NOT ACTIVELY UNDERWAY AGAINST EROSION DUE TO RAIN, WIND AND RUNNING WATER WITHIN 7-14 DAYS.
   - 5.1. USE SEED AND MULCH, EROSION CONTROL MATTING, AND/OR SODDING AND STAKING IN GREEN SPACE AREAS. REMOVE ALL TEMPORARY SYNTHETIC, STRUCTURAL, NON-BIODEGRADABLE EROSION AND SEDIMENT CONTROL DEVICES AFTER THE SITE HAS UNDERGONE FINAL STABILIZATION WITH PERMANENT VEGETATION ESTABLISHMENT. FINAL STABILIZATION FOR PURPOSES OF THIS REMOVAL IS 70% ESTABLISHED COVER OVER DENUDED AREA.
6. FINAL CLEANUP:
   - 6.1. EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL A 70% STAND OF GRASS OR UNTIL FINAL SURFACING IS INSTALLED AND CLEANED.
   - 6.2. CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL EROSION CONTROL MEASURES PRIOR TO FINAL PAYMENT.
7. READY MIXED CONCRETE AND CONCRETE BATCH/MIX PLANTS ARE PROHIBITED WITHIN THE PUBLIC RIGHT OF WAY. ALL CONCRETE RELATED PRODUCTION, CLEANING AND MIXING ACTIVITIES SHALL BE DONE IN A DESIGNATED CONCRETE MIXING/WASHOUT LOCATION(S) AND BE SHOWN IN THE EROSION CONTROL PLAN (CONTRACTOR TO DETERMINE LOCATION(S)). UNDER NO CIRCUMSTANCE MAY WASHOUT WATER DRAIN ONTO THE PUBLIC RIGHT OF WAY OR INTO ANY PUBLIC OR PRIVATE STORM DRAIN CONVEYANCE.
8. CHANGES TO APPROVED EROSION CONTROL PLAN MUST BE INDICATED BY UPDATING THE SWPPP DAILY. CONTRACTOR TO PROVIDE INSTALLATION AND DETAILS FOR ALL PROPOSED ALTERNATE TYPE DEVICES. THESE PLANS MUST BE ONSITE AND AVAILABLE FOR VIEWING AT ALL TIMES DURING CONSTRUCTION.
9. DEWATERING:
   - 9.1. IF DEWATERING OR PUMPING OF WATER IS NECESSARY, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND/OR APPROVALS PRIOR TO DISCHARGE OF ANY WATER FROM THE SITE. IF THE DISCHARGE FROM THE DEWATERING OR PUMPING PROCESS IS TURBID OR CONTAINS SEDIMENT LADEN WATER, IT MUST BE TREATED THROUGH THE USE OF SEDIMENT TRAPS, VEGETATIVE FILTER STRIPS, OR OTHER SEDIMENT REDUCING MEASURES SUCH THAT THE DISCHARGE IS NOT VISIBLY DIFFERENT FROM THE RECEIVING WATER. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AT THE DISCHARGE POINT TO PREVENT SCOUR EROSION. THE CONTRACTOR SHALL PROVIDE A DEWATERING/PUMPING PLAN TO THE EROSION CONTROL INSPECTOR PRIOR TO INITIATING DEWATERING ACTIVITIES.

STORM WATER POLLUTION PREVENTION PLAN

1. INFORMATION REGARDING SWPPP REQUIREMENTS IS FOUND ON THE MONTANA STATE DEPARTMENT OF ENVIRONMENTAL QUALITY WEBSITE AT:
   - 1.1. http://deq.mt.gov/wqinfo/mpdes/stormwaterconstruction.mcpx
2. THIS PROJECT REQUIRES COVERAGE UNDER THE MONTANA GENERAL PERMIT FOR "STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY." IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE FOLLOWING NOTICE OF INTENT (NOI) PACKAGE ITEMS THAT ARE REQUIRED TO BE RECIEVED BY DEQ'S WATER PROTECTION BUREAU PRIOR TO THE PROPOSED CONSTRUCTION START DATE:
   - 2.1. NOI FORM WITH ALL REQUESTED ITEMS COMPLETED.
   - 2.2. STORM WATER POLLUTION PREVENTION PLAN (SWPPP) ADDRESSING ALL REQUESTED ITEMS IN THE GENERAL PERMIT (A FORM HAS BEEN DEVELOPED AND IS AVAILABLE FOR DOWNLOAD FROM THE MONTATA DEQ WEBSITE: http://deq.mt.gov/wqinfo/wpbforms/pdf/swppp_1-1frm.pdf
   - 2.3. APPLICATION FEE IS BASED ON THE TOTAL ACRES OF DISTURBED LAND.
3. PERMITTEES MUST READ AND BE FAMILIAR WITH THE GENERAL PERMIT TO ASSIST IN THE COMPLETION OF THE FORMS AND SUBMITTAL OF THE NOI PACKAGE. PERMITTEES SHOULD BE FAMILIAR WITH SIGNATORY RESPONSIBILITIES AND REGULATIONS REGARDING THE TRANSFERABILITY OF THE PERMIT.
4. THE PERMITTEE MUST SUBMIT A NOTICE OF TERMINATION (NOT) FORM WHEN THE CONSTRUCTION ACTIVITY IS COMPLETE AND THE SITE HAS ACHIEVED "FINAL STABILIZATION." "FINAL STABILIZATION" MEANS THE TIME AT WHICH ALL SOIL-DISTURBING ACTIVITIES AT A SITE HAVE BEEN COMPLETED AND A VEGETATIVE COVER HAS BEEN ESTABLISHED WITH A DENSITY OF AT LEAST 70% OF THE PRE-DISTURBANCE LEVELS, OR EQUIVALENT PERMANENT, PHYSICAL EROSION REDUCTION METHODS HAVE BEEN EMPLOYED. FINAL STABILIZATION USING VEGETATION MUST BE ACCOMPLISHED USING SEEDING MIXTURES OR FORBS, GRASSES, AND SHRUBS THAT ARE ADAPTED TO THE CONDITIONS OF THE SITE. ESTABLISHMENT OF A VEGETATIVE COVER CAPABLE OF PROVIDING EROSION CONTROL EQUIVALENT TO PRE-EXISTING CONDITIONS AT THE SITE WILL BE CONSIDERED FINAL STABILIZATION. ALL APPLICABLE FEES MUST BE PAID BEFORE PERMIT COVERAGE CAN BE TERMINATED.

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1-800-227-2600

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EROSION CONTROL PLAN

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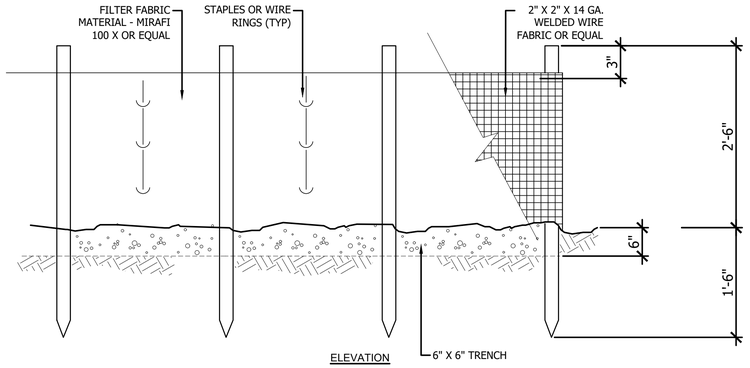
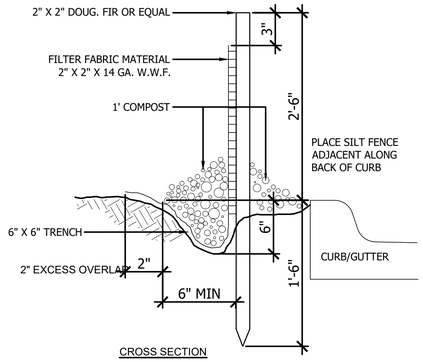
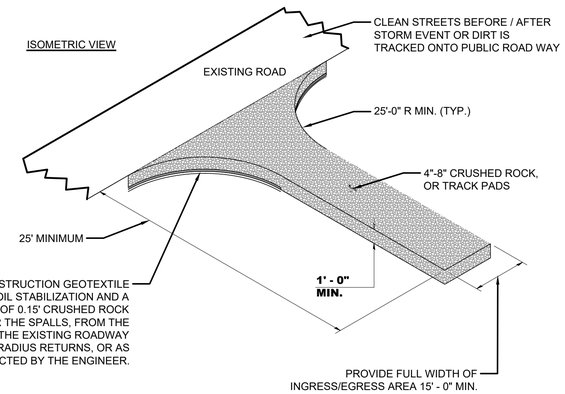




NOTES:
1. PLACE 1' OF COMPOSTED YARD WASTE ON BOTH SIDES OF FENCE TO CREATE A BEVEL SHAPE.
2. FABRIC SHALL COVER BOTTOM OF 6" X 6" TRENCH AND EXTEND BEYOND THE LIMITS OF THE GRAVEL IN ORDER TO MAINTAIN AN EXCESS OVERLAP OF 2" MINIMUM AS SHOWN IN THE TYPICAL CROSS-SECTION.
3. RAKE OUT COMPOST SMOOTH AT END OF JOB AND HYDROSEED.

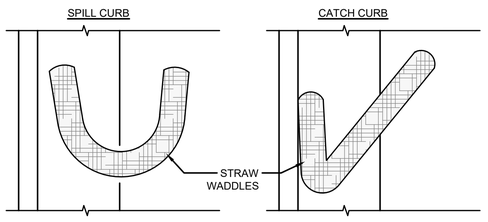
1 SILT FENCE

NTS P-CO-ANN 6.7-05



2 STABILIZED CONSTRUCTION ENTRANCE

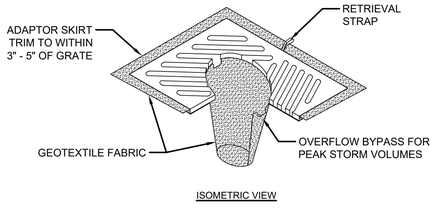
1" = 1'-0" P-CO-ANN 6.7-07



REGULARLY CLEAN DEBRIS FROM GUTTER, REPLACE STRAW WADDLES AS NEEDED DURING DURATION OF CONSTRUCTION

3 CURB STRAW WADDLE

1/2" = 1'-0" P-CO-ANN 6.7-01



NOTES:
1. INSERT SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
2. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES HALF FULL.
3. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING, AND RE-INSERTING IT INTO THE CATCH BASIN.

4 CATCH BASIN FILTER SOCK

1" = 1" P-CO-ANN 6.7-06

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EROSION CONTROL DETAILS

251022	
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G1.2

Call (2) working days before you dig.
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NORTHING/EASTING POINT SCHEDULE

POINT	DESCRIPTION	NORTHING	EASTING
1	CENTER POINT OF SIDEWALK ARC	N 148236.99	E 616486.34
2	CENTER POINT OF SIDEWALK ARC	N 147916.61	E 616489.22
3	CENTER POINT OF SIDEWALK ARC	N 147878.67	E 616489.33
4	CENTER POINT OF SIDEWALK ARC	N 147721.33	E 616489.78
5	CENTER POINT OF SIDEWALK ARC	N 147696.09	E 616489.85
6	CENTER POINT OF SANDBOX	N 147569.86	E 616547.43
7	CENTER POINT OF SIDEWALK ARC	N 147457.21	E 616490.56

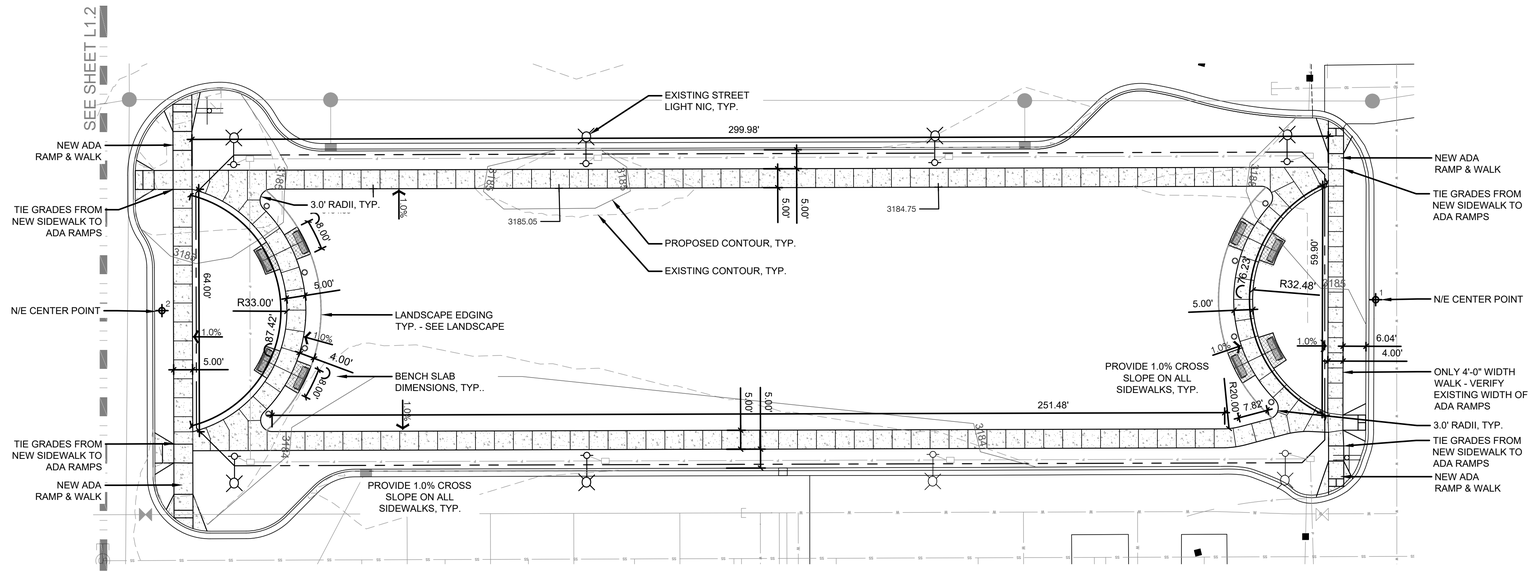
GRADING AND DRAINAGE NOTES

1. BEFORE ANY CONSTRUCTION BEGINS, THE SWPPP MUST BE REVIEWED AND INITIATED, PERMITS OBTAINED. THE FIRST ORDER OF BUSINESS ON SITE MUST BE TO INSTALL THE VEHICULAR TRACKING CONTROL AT EACH ENTRANCE THAT WILL BE USED DURING CONSTURCTION.
2. A REPORT OF GEOTECHNICAL EXPLORATION HAS BEEN COMPLETED FOR THIS SITE AND THE RECOMMENDATIONS THEREIN FORM THE BASIS FOR THESE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL VERIFY THE ADAPTATION OF THE REPORT WITHIN THESE PLANS TO THEIR SATISFACTION PRIOR TO CONSTRUCTION.
3. READY MIXED CONCRETE AND CONCRETE BATCH PLANTS ARE PROHIBITED WITHIN THE PUBLIC RIGHT OF WAY. UNDER NO CIRCUMSTANCE MAY WASHOUT WATER DRAIN ONTO THE PUBLIC RIGHT OF WAY OR INTO THE PUBLIC STORM SEWER SYSTEM.
4. THE CONTRACTOR IS REQUIRED TO ACQUIRE ALL REQUIRED PERMITS, INCLUDING BUILDING PERMITS, AND STORMWATER POLLUTION PREVENTION PLAN PERMITS REQUIRED BY THE STATE, OR CITY.
5. THE UNDERGROUND UTILITIES KNOWN TO EXIST FROM THE PROVIDED SURVEY ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THESE AREAS. PRIOR TO MAKING NEW CONNECTIONS OR EXCAVATING NEAR KNOWN EXISTING UTILITIES, EXPOSE EXISTING LINES TO VERIFY THEIR LOCATIONS, AS NEEDED.
6. PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE.
7. WHERE APPLICABLE AND FEASIBLE THE CONTRACTOR SHALL HAVE INSTALLED THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS PRIOR TO INITIATING ANY EARTH MOVING PHASE OF THE PROJECT. TEMPORARY EROSION CONTROLS SHALL REMAIN IN PLACE UNTIL PERMANENT MEASURES ARE IN PLACE AND ESTABLISHED.
8. NON-COMPLIANCE OF THE ABOVE REQUIREMENTS MAY RESULT IN IMMEDIATE SUSPENSION OF ALL WORK AND REMEDIAL WORK SHALL COMMENCE IMMEDIATELY. ALL COSTS RESULTING SHALL BE BORN BY THE CONTRACTOR.
9. SEE SPECIFICATIONS SECTION 02.31.10 "ROUGH GRADING" FOR FURTHER COORDINATION.
10. PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND ANY NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. INSTALL ALL NECESSARY UTILITIES PRIOR TO INSTALLATION OF NEW PAVEMENT.
11. ALL DAMAGE TO EXISTING ASPHALT PAVEMENT TO REMAIN WHICH RESULTS FROM NEW CONSTRUCTION SHALL BE REPLACED WITH LIKE MATERIALS AT CONTRACTOR'S EXPENSE. EXCESS MATERIAL SHALL BE DISPOSED OF OFF THE OWNER'S PROPERTY AT NO ADDITIONAL COST.
12. EXISTING SOIL SHALL BE STRIPPED FROM ALL CONCRETE PAVING AREAS. STOCKPILED MATERIAL SHALL BE USED TO CONSTRUCT BERM. TOP 6" OF FINISHED GRADE SHALL BE AMENDED IN PLACE, PER SOILS REPORT. COORDINATE WITH MCCALL HOMES FOR LOCATIONS FOR SOIL WASTING OR SOIL PROCUREMENT, AS NEEDED.
13. ALL AREAS OF CUT AND FILL OR THAT ARE DISTURBED BY THE CONTRACTOR SHALL BE FINE GRADED PER THESE PLANS. SOIL SURFACES SHALL SLOPE TO DRAIN AT A MINIMUM OF 2% AND SHALL BE NO STEEPER THAN 5:1. ALL GRADED AREAS INCLUDING SLOPES SHALL BE HYDROSEEDED AS SOON AS POSSIBLE AFTER GRADING IS COMPLETED TO PREVENT WASH OUTS.
14. ALL AREAS SHALL SLOPE TO DRAIN FREELY. NO PONDING OR STANDING WATER CONDITIONS SHALL OCCUR ANYWHERE WITHIN THE SCOPE OF THIS CONTRACT EXCEPT AS NOTED. CONTRACTOR SHALL INSTALL ADDITIONAL FIELD DRAINS OR DROP INLETS AS NEEDED TO ALLEVIATE ANY STANDING WATER CONDITIONS.
15. IN PLANT BEDS, SOIL FINISH GRADES SHALL BE 1.5" BELOW FINISH SURFACES OF ADJACENT PAVEMENTS TO ACCOMMODATE MULCH LAYER.
16. NEW SPOT ELEVATIONS REPRESENT FINISHED GRADE, TOP OF FINISHED PAVING AND TOP OF CONCRETE.
17. CONTOUR LINES AND SPOT ELEVATIONS ARE THE RESULT OF A DETAILED GRADING DESIGN AND REFLECT A PLANNED INTENT WITH REGARDS TO DRAINAGE. SHOULD THE CONTRACTOR HAVE QUESTIONS OF INTENT OR ANY PROBLEMS WITH CONTINUITY OF GRADES, THE LANDSCAPE ARCHITECT SHOULD BE CONTACTED PRIOR TO BEGINNING WORK.
18. ALL PIPES UNDER PAVED AREAS SHALL BE BACK FILLED WITH CRUSHED STONE. ALL PIPES UNDER LAWN AREAS SHALL BE BACK FILLED WITH SATISFACTORY MATERIAL AS DESCRIBED IN THE SPECIFICATIONS.
19. TOP SURFACES OF FURNITURE (BENCHES, TABLES, RECEPTACLES, ETC. SHALL BE LEVEL, EXCEPT AS RECOMMENDED BY THE MANUFACTURER. COORDINATE FOOTING DEPTH AND LOCATIONS TO ACCOUNT FOR THIS, WITHOUT IMPEDING SURFACE FLOW.
20. ALL NOTES, CONDITIONS AND SPECIFICATIONS OF ENGINEER'S UTILITY PLANS ARE APPLICABLE (NIC)..
21. DO NOT INSTALL PERFORATED PIPE BENEATH BUILDINGS OR PAVEMENTS.
22. GRADE BREAKS TO OCCUR ALONG JOINT LINES WHERE POSSIBLE.
23. PREPARE SOIL AS DESCRIBED ON PLANTING PLAN PRIOR TO BEGINNING PLANT INSTALLATION.

CONCRETE PREPARATION EARTHWORK SUMMARY

CONTRACTOR RESPONSIBLE FOR REVIEWING AND COMPLYING WITH PROVIDED GEOTECHNICAL RECOMMENDATIONS:

- *ENSURE VEGETATION, TOPSOIL, FILL MATERIALS, AND OTHER UNSUITABLE MATERIALS AND DEBRIS SHOULD BE REMOVED FROM THE PROPOSED CONSTRUCTION AREA.*
- *CUT: 6" TOPSOIL STOCKPILE, 12' BELOW EXISTING GRADE ALL EXTERIOR AND INTERIOR BUILDING FOUNDATIONS, 12" BELOW BOTTOM OF PAVING SECTIONS FOR RECONDITIONING*
- *FILL: IMPORTED FILL IS REQUIRED FOR INITIAL BACKFILL IN BUILDING EXCAVATION AREAS*



LAYOUT & GRADING PLAN

SCALE: 1" = 20'

0 20' 40'
SCALE IN FEET

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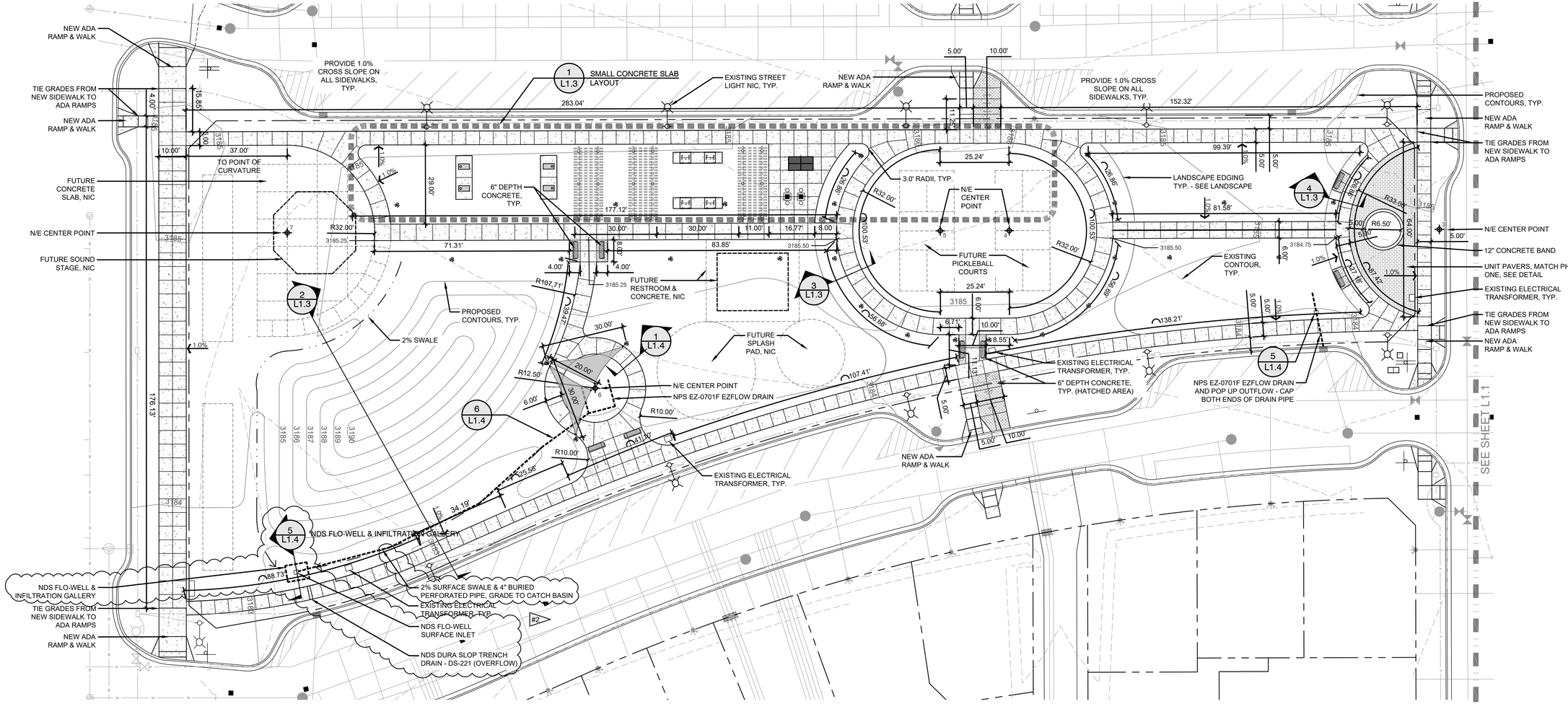

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#1	ADDENDA #1 - 04/03/2026
#2	ADDENDA #2 - 04/14/2026

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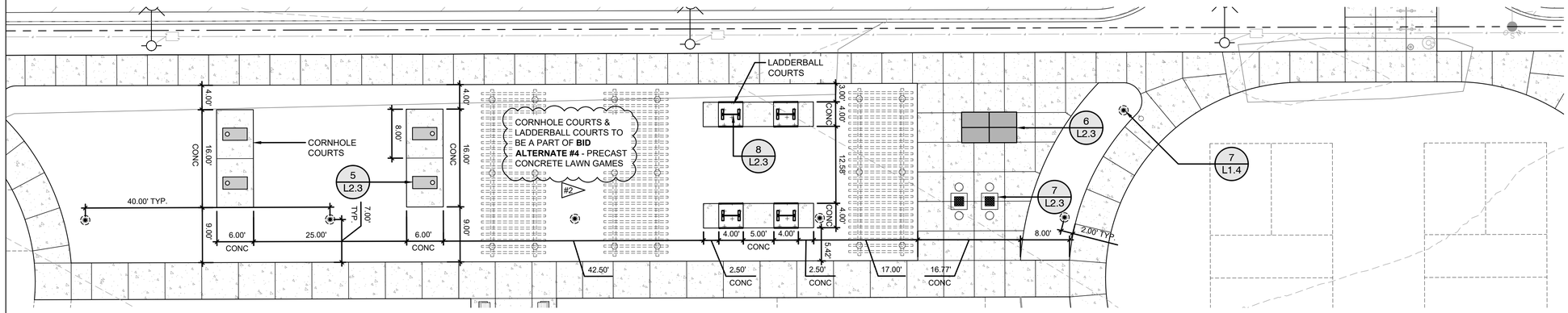


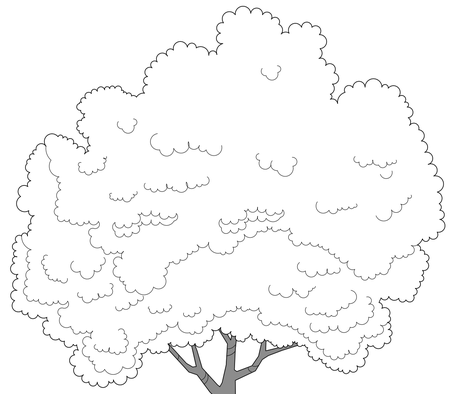
1 SMALL CONCRETE SLAB LAYOUT

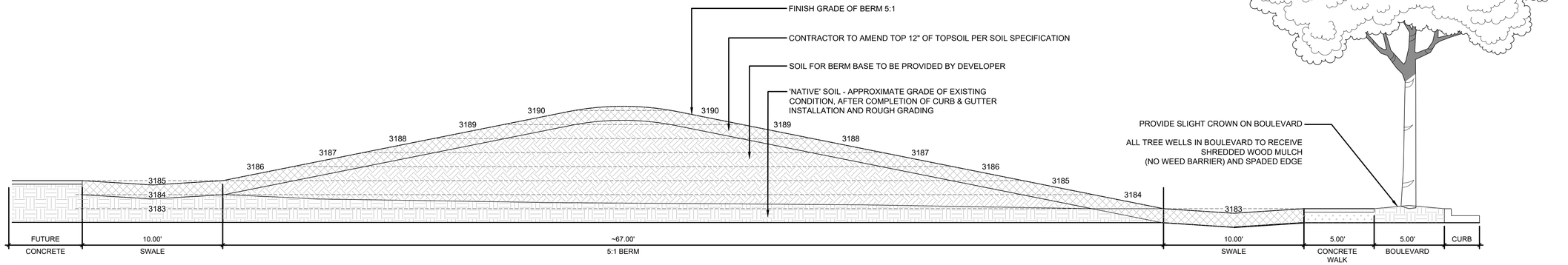
1" = 10'

P-CO-ANN 6.7-45

0 10' 20'

SCALE IN FEET

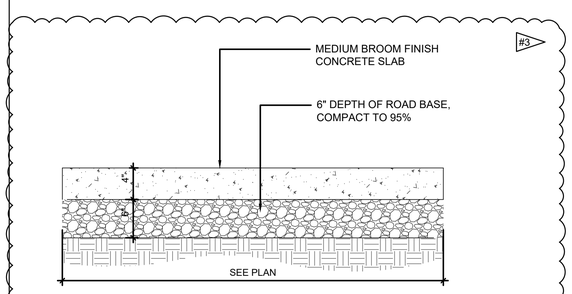




2 BERM SECTION

1/4" = 1'-0"

P-CO-ANN 6.7-44

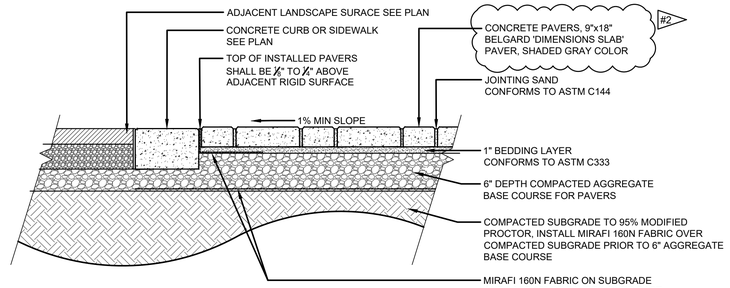


3 NEW CONCRETE WALK

CITY OF BILLINGS P/W STANDARD

1" = 1'-0"

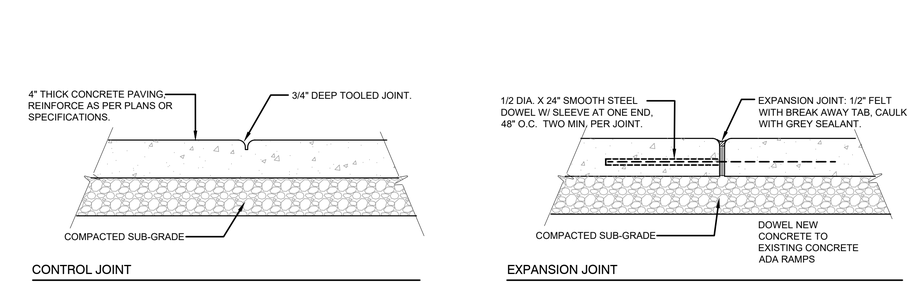
P-CO-ANN 6.7-02



4 PAVER SECTION

1" = 1'-0"

P-CO-ANN 6.7-04



5 CONCRETE EXPANSION/CONTROL

1 1/2" = 1'-0"

P-CO-ANN 6.7-31

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REVISIONS

#1	ADDENDA #1 - 04/03/2026
#2	ADDENDA #2 - 04/14/2026
#3	ADDENDA #3 - 04/16/2026

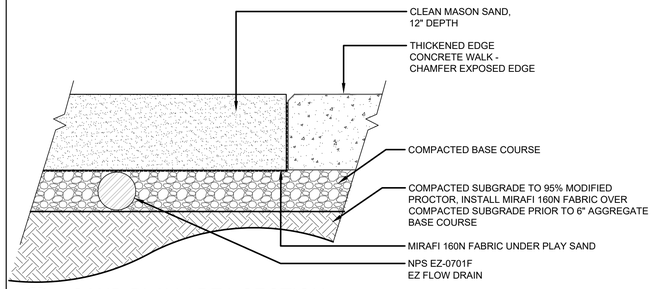
ANNAFELD PARK - 6TH & 7TH FILING IMPROVEMENTS
6202 FARMSTEAD AVE
BILLINGS, MT 59101

ENLARGED LAYOUT PLAN & SITE DETAILS

BID SET

251022	
DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

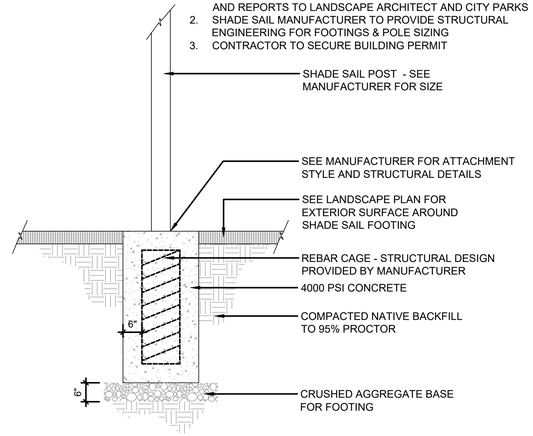
L1.3



1 SAND PLAY AREA SECTION

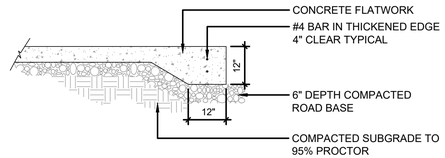
1" = 1'-0" P-CO-ANN 6.7-20

NOTES:
1. ALL COMPACTION SHALL BE PROVIDED BY TESTING AGNECY AND REPORTS TO LANDSCAPE ARCHITECT AND CITY PARKS
2. SHADE SAIL MANUFACTURER TO PROVIDE STRUCTURAL ENGINEERING FOR FOOTINGS & POLE SIZING
3. CONTRACTOR TO SECURE BUILDING PERMIT



2 SHADE SAIL FOOTING

1/2" = 1'-0" P-CO-ANN 6.7-33

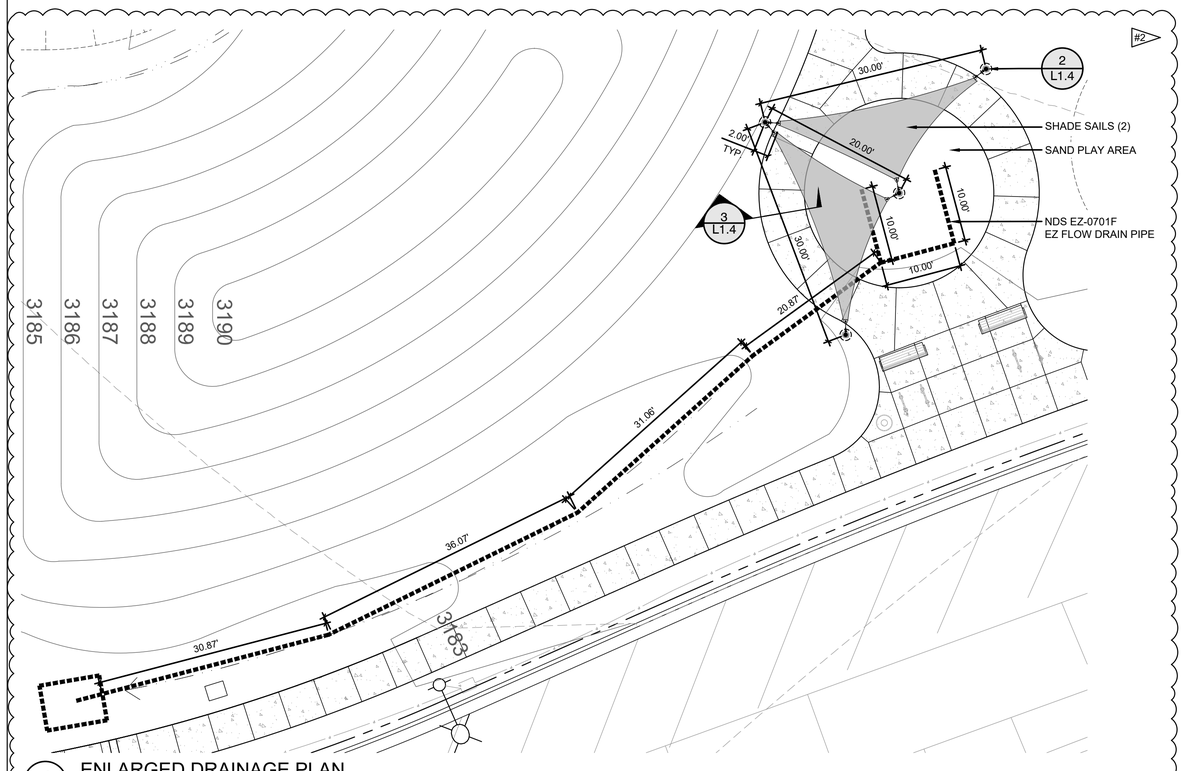


NOTES:
1. CONTRACTOR TO PROVIDE TEST RESULTS FOR COMPACTION TESTING TO LANDSCAPE ARCHITECT AND CITY PARKS.
2. 12" THICKENED EDGE ONLY FOR INTERIOR EDGE AT SAND PLAY AREA

#2

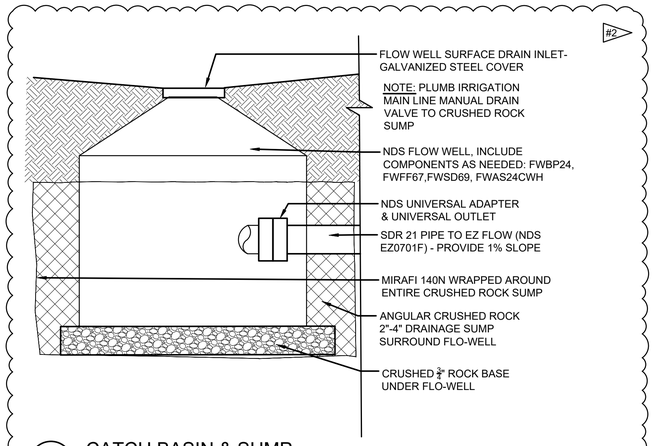
3 12" THICKENED EDGE

1/2" = 1'-0" P-CO-ANN 6.7-34



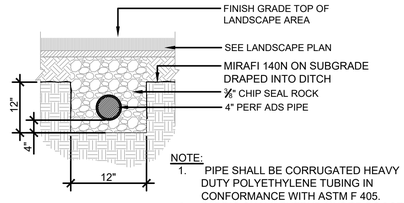
4 ENLARGED DRAINAGE PLAN

1" = 10' P-CO-ANN 6.7-55



5 CATCH BASIN & SUMP

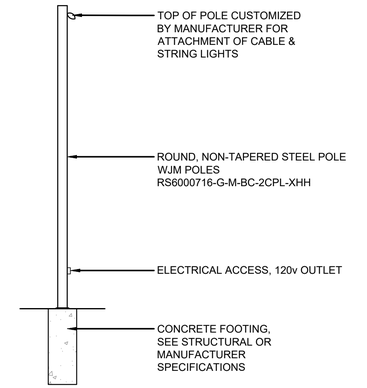
3/4" = 1'-0" P-CO-ANN 6.7-61



NOTE:
1. PIPE SHALL BE CORRUGATED HEAVY DUTY POLYETHYLENE TUBING IN CONFORMANCE WITH ASTM F 405.
2. FABRIC SHALL EXTEND UNDER BOCCE BALL BASE AGGREGATE IN ALTERNATE 1
3. MIRAFI FABRIC SHALL EXTEND UNDER AGGREGATE FOR SHADE SALE

6 LANDSCAPE DRAINAGE

1" = 1'-0" P-CO-ANN 6.7-59



7 LIGHT POLE

1/4" = 1'-0" P-CO-ANN 6.7-62

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REVISIONS

#1	ADDENDA #1 - 04/03/2026
#2	ADDENDA #2 - 04/14/2026

BID SET

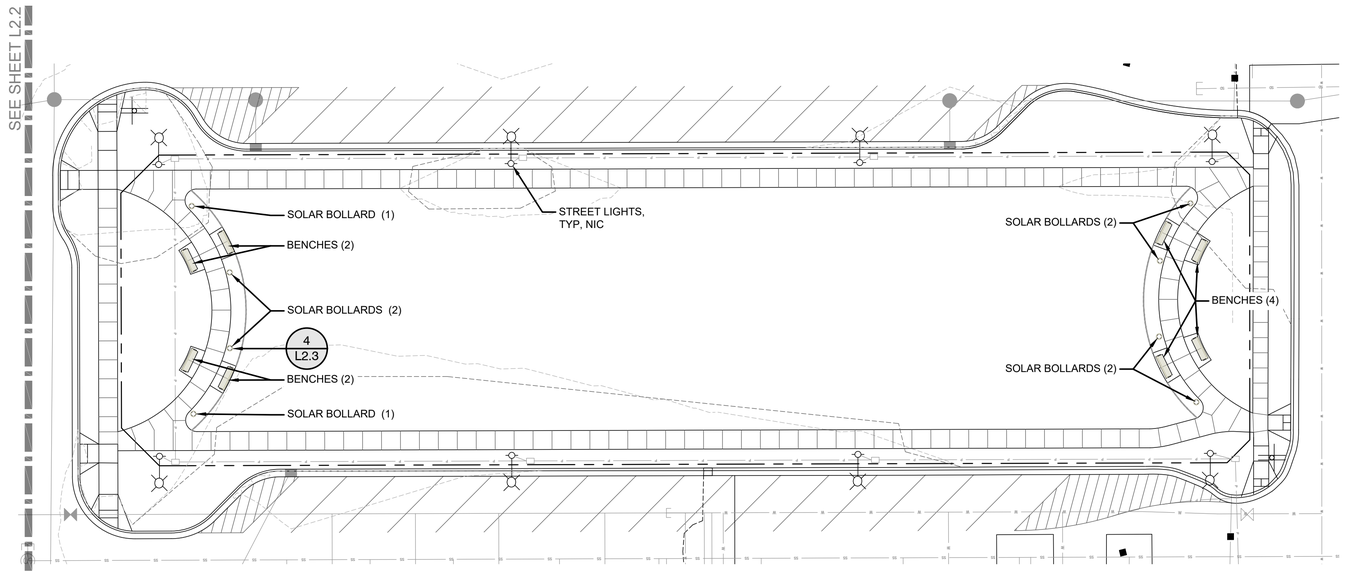
ANNAFELD PARK - 6TH & 7TH FILING IMPROVEMENTS
6202 FARMSTEAD AVE
BILLINGS, MT 59101

SITE DETAILS

251022	
DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

L1.4

SITE AMENITIES			**BASIS OF DESIGN SHOWN: SUBSTITUTES WILL BE CONSIDERED IF SHOWN TO BE EQUAL**
	TRASH RECEPTACLE (3)		GLOBAL INDUSTRIAL OUTDOOR DIAMOND STEEL TRASH CAN WITH FLAT LID; ITEM#: 261924BK
	PET WASTE STATION (2)		ZERO WASTE USA, THE SENTRY DOG WASTE STATION SKU: JJB006-GRN - DO NOT INCLUDE TRASH CAN
	BIKE RACK (12)		DERO; ROUND RACK, POWDER COAT BLACK SURFACE MOUNT
	SQUARE TABLE (4) PROVIDE (1) ADA TABLE	**BID ALTERNATE #1** (2 TABLES) **BID ALTERNATE #3** (2 TABLES)	GLOBAL INDUSTRIAL 46" SQUARE PICNIC TABLE, EXPANDED METAL, BLACK; ITEM#: 277151BK
	BENCH (16)		KEYSTONE RIDGE DESIGNS; S-PU026-00-00-000-00 PULLMAN BENCH WITH BACK, 6', STEEL FRAME & MATERIAL
	PRECAST CONCRETE LADDER BALL (2 PAIR)		STONE AGE CONCRETE GAMES, INC. (541) 215-8280 LADDER BALL UNITS
	PRECAST CONCRETE CORNHOLE (2 PAIR)		STONE AGE CONCRETE GAMES, INC. (541) 215-8280 CONCRETE CORNHOLE BOARDS, COB PARKS LOGO
	PRECAST TABLE TENNIS TABLE (1)		STONE AGE CONCRETE GAMES, INC. (541) 215-8280 UPTOWN TABLE TENNIS TABLE, CUSTOM 'NET'
	PRECAST CHECKBOARD TABLE & STOOLS (2)		STONE AGE CONCRETE GAMES, INC. (541) 215-8280 FREESTANDING CHESS WITH STOOLS
	SOLAR BOLLARD (8)		FIRST LIGHT TECHNOLOGY LTD (FLT); PLB-102-BK-ASM-WW-04
	16' HEIGHT PRECAST LIGHT POLE (24) **BID ALTERNATE #2: POLE LIGHTS + STRING LIGHTS**		WJM PARTNERS, INC; 16' ROUND STRAIGHT STEEL POLE, BASE MOUNTED, 6" BASE, 7 GA STEEL, RS6000716-SCBA-BC
	COMMERCIAL GRADE STRING LIGHTS, HANG ON STAINLESS STEEL CABLE; **BID ALTERNATE #2: POLE LIGHTS + STRING LIGHTS**		STINGRAY BY ACE ILLUMINATIONS; SR-3-SD-27K-XXXX 180 CASSIA WAY, SUITE 508, HENDERSON, NV 89014
	HAMMOCK (2)		PAWLEYS ISLAND HAMMOCKS - BLUE LARGE SOFT WEAVE HAMMOCK, ITEM# QWEAVEBL
	HANGING BENCH (8)		THE PORCH SWING COMPANY; AMISH CASUAL 6' ROLL BACK PORCH SWING, CEDAR STAIN; SKU: CAF-007-6018CH1
	SHADE SAIL		SUPERIOR SHADE 1050 COLUMBIA DRIVE CARROLLTON, GA 30117 866-804-8725



PARK AMENITIES PLAN

SCALE: 1" = 20'

0 20' 40'
SCALE IN FEET

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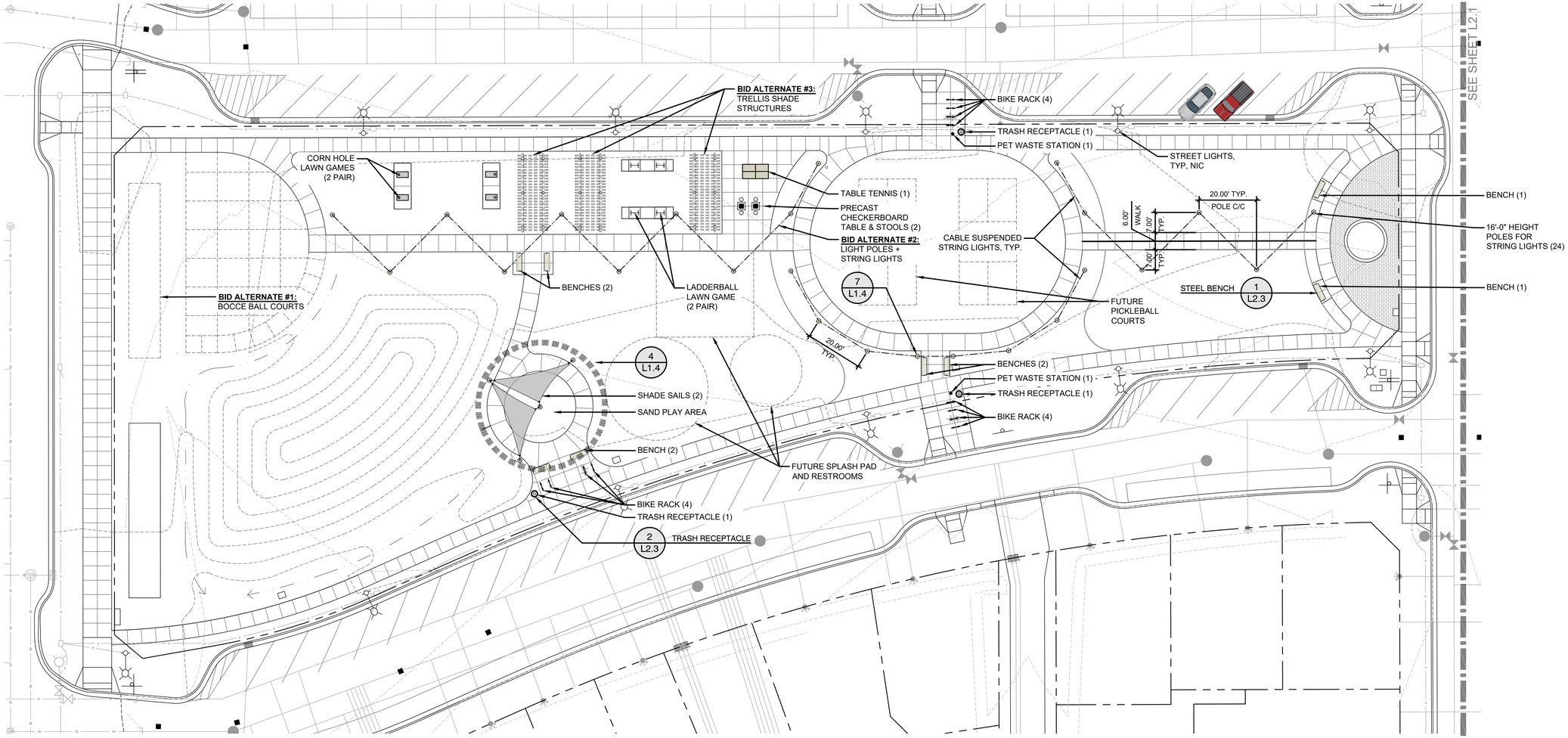
BID SET

PARK AMENITIES PLAN

251022	
DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

L2.1

SITE AMENITIES			BASIS OF DESIGN SHOWN: SUBSTITUTES WILL BE CONSIDERED IF SHOWN TO BE EQUAL
	TRASH RECEPTACLE (3)		GLOBAL INDUSTRIAL OUTDOOR DIAMOND STEEL TRASH CAN WITH FLAT LID; ITEM#: 261924BK
	PET WASTE STATION (2)		ZERO WASTE USA, THE SENTRY DOG WASTE STATION SKU: JJB006-GRN - DO NOT INCLUDE TRASH CAN
	BIKE RACK (12)		DERO; ROUND RACK, POWDER COAT BLACK SURFACE MOUNT
	SQUARE TABLE (4) PROVIDE (1) ADA TABLE	**BID ALTERNATE #1** (2 TABLES) **BID ALTERNATE #3** (2 TABLES)	GLOBAL INDUSTRIAL 46" SQUARE PICNIC TABLE, EXPANDED METAL, BLACK; ITEM#: 277151BK
	BENCH (16)		KEYSTONE RIDGE DESIGNS; S-PU026-00-00-000-00 PULLMAN BENCH WITH BACK, 6', STEEL FRAME & MATERIAL
	PRECAST CONCRETE LADDER BALL (2 PAIR)		STONE AGE CONCRETE GAMES, INC. (541) 215-8280 LADDER BALL UNITS
	PRECAST CONCRETE CORNHOLE (2 PAIR)		STONE AGE CONCRETE GAMES, INC. (541) 215-8280 CONCRETE CORNHOLE BOARDS, COB PARKS LOGO
	PRECAST TABLE TENNIS TABLE (1)		STONE AGE CONCRETE GAMES, INC. (541) 215-8280 UPTOWN TABLE TENNIS TABLE, CUSTOM 'NET'
	PRECAST CHECKBOARD TABLE & STOOLS (2)		STONE AGE CONCRETE GAMES, INC. (541) 215-8280 FREESTANDING CHESS WITH STOOLS
	SOLAR BOLLARD (8)		FIRST LIGHT TECHNOLOGY LTD (FLT); PLB-102-BK-ASM-WW-04
	16' HEIGHT PRECAST LIGHT POLE (24) **BID ALTERNATE #2: POLE LIGHTS + STRING LIGHTS**		WJM PARTNERS, INC; 16' ROUND STRAIGHT STEEL POLE, BASE MOUNTED, 6" BASE, 7 GA STEEL, RS6000716-SCBA-BC
	COMMERCIAL GRADE STRING LIGHTS, HANG ON STAINLESS STEEL CABLE; **BID ALTERNATE #2: POLE LIGHTS + STRING LIGHTS**		STINGRAY BY ACE ILLUMINATIONS; SR-3-SD-27K-XXXX 180 CASSIA WAY, SUITE 508, HENDERSON, NV 89014
	HAMMOCK (2)		PAWLEYS ISLAND HAMMOCKS - BLUE LARGE SOFT WEAVE HAMMOCK, ITEM# QWEAVEBL
	HANGING BENCH (8)		THE PORCH SWING COMPANY; AMISH CASUAL 6' ROLL BACK PORCH SWING, CEDAR STAIN; SKU: CAF-007-6018CH1
	SHADE SAIL		SUPERIOR SHADE 1050 COLUMBIA DRIVE CARROLLTON, GA 30117 866-804-8725



PARK AMENITIES

SCALE: 1" = 20'

0 20' 40'
SCALE IN FEET

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REVISIONS

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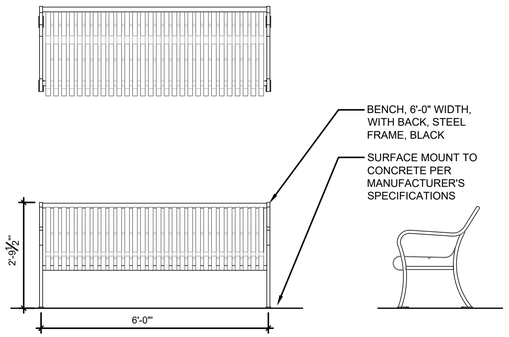
BILLINGS, MT 59101

BID SET

PARK AMENITIES PLAN

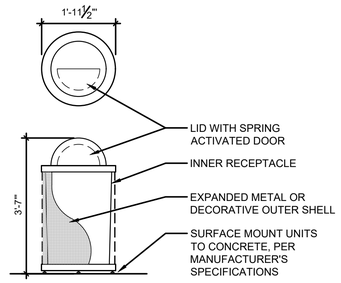
251022	
DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

L2.2



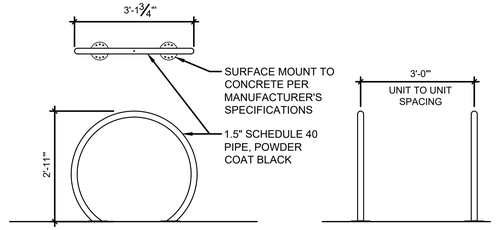
1 STEEL BENCH

1/2" = 1'-0" P-CO-ANN 6.7-47



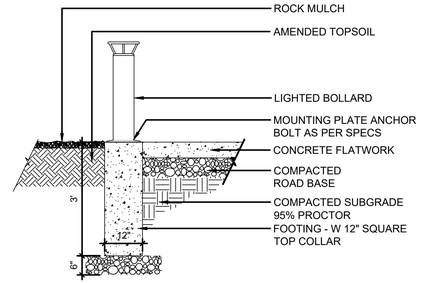
2 TRASH RECEPTACLE

1/2" = 1'-0" P-CO-ANN 6.7-46



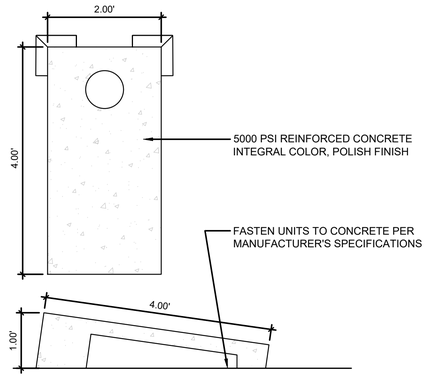
3 BIKE RACK

1/2" = 1'-0" P-CO-ANN 6.7-52



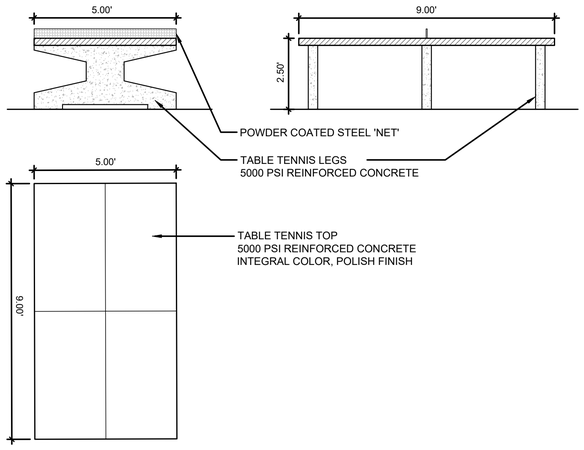
4 BOLLARD LIGHT

1/2" = 1'-0" P-CO-LAN-43



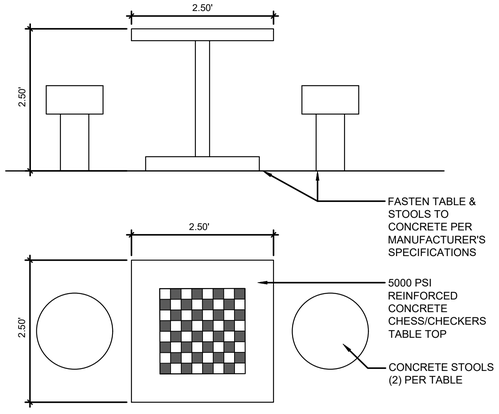
5 CONCRETE CORNHOLE

3/4" = 1'-0" P-CO-ANN 6.7-54



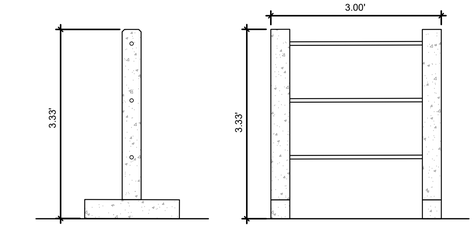
6 PRECAST TABLE TENNIS

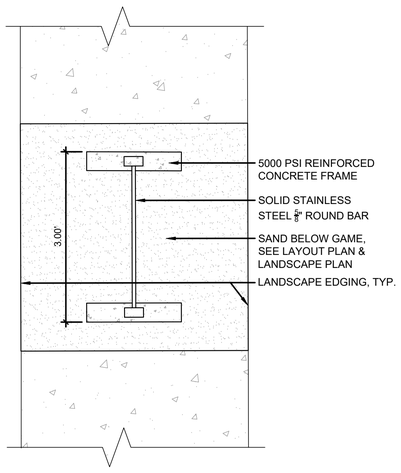
3/8" = 1'-0" P-CO-ANN 6.7-56



7 PRECAST CONCRETE CHECKBOARD TABLE

3/4" = 1'-0" P-CO-ANN 6.7-57





8 PRECAST LADDER BALL

3/4" = 1'-0" P-CO-ANN 6.7-58

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REVISIONS

ANNAFELD PARK - 6TH & 7TH FILING IMPROVEMENTS
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BILLINGS, MT 59101

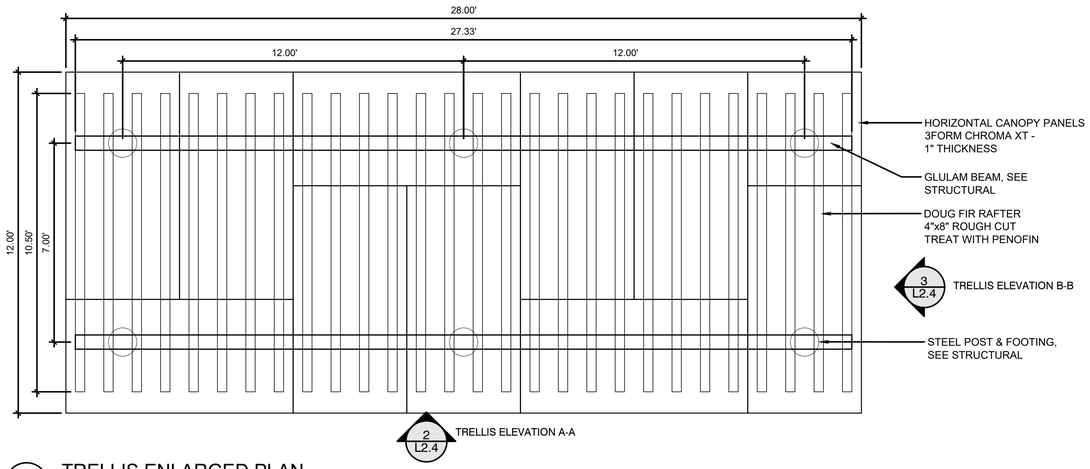
SITE AMENITIES DETAILS

BID SET

251022

DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

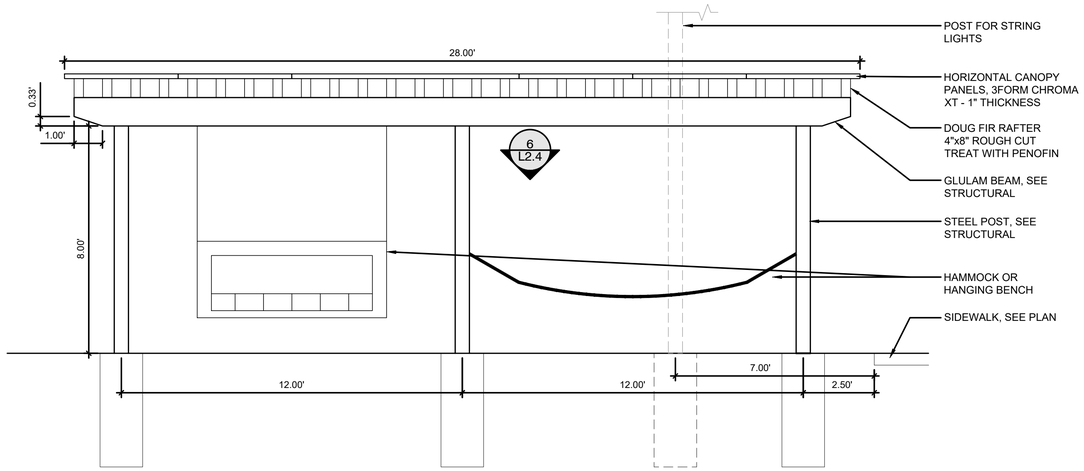
L2.3



1 TRELLIS ENLARGED PLAN

3/8" = 1'-0"

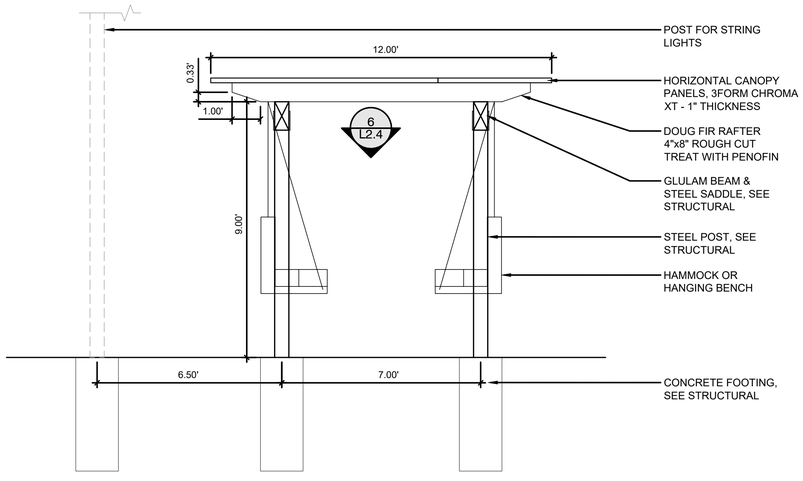
P-CO-ANN 6.7-39



2 TRELLIS ELEVATION A-A

3/8" = 1'-0"

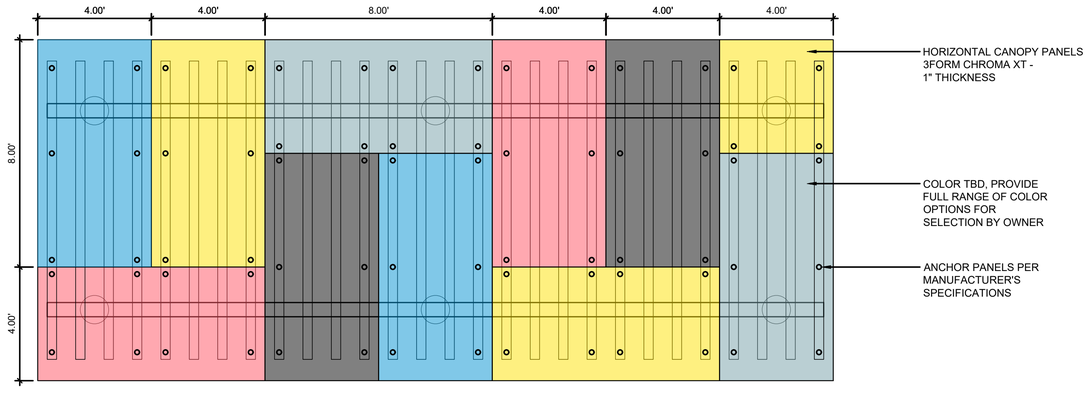
P-CO-ANN 6.7-38



3 TRELLIS ELEVATION B-B

3/8" = 1'-0"

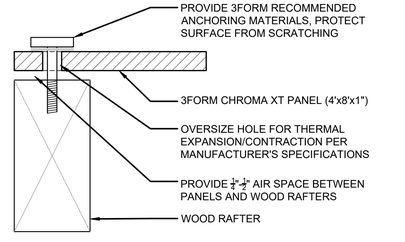
P-CO-ANN 6.7-40



4 TRELLIS PANEL PLAN

3/8" = 1'-0"

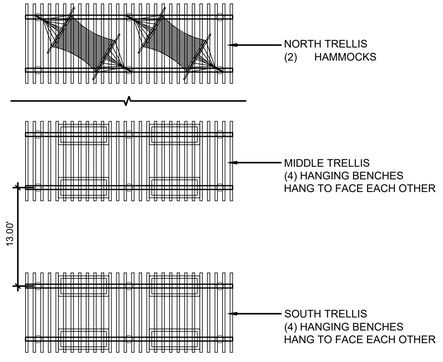
P-CO-ANN 6.7-41



5 CHROMA XT PANEL ATTACHMENT

3" = 1'-0"

P-CO-ANN 6.7-50



6 HANGING BENCH - HAMMOCK PLAN

1" = 10'

P-CO-ANN 6.7-42

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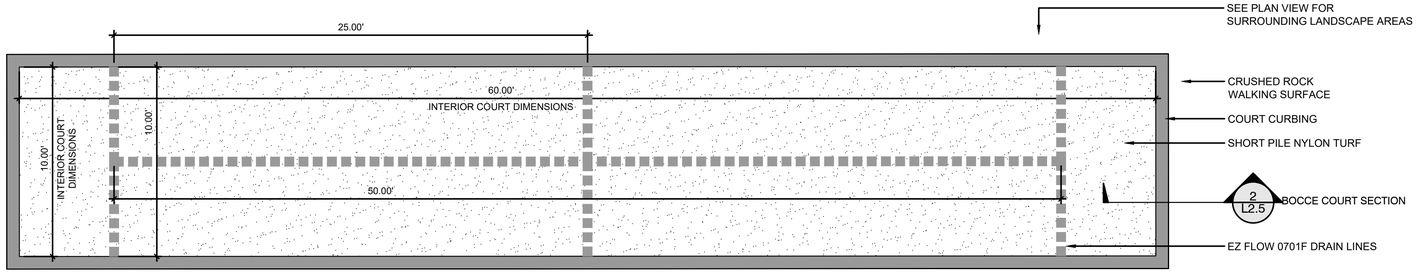
BILLINGS, MT 59101

TRELLIS PLANS AND DETAILS - BID ALTERNATE #3 BID SET

251022	
DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

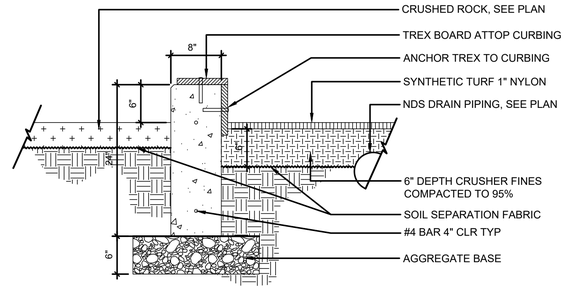
L2.4



1 BOCCE BALL COURT ENLARGED PLAN

1/4" = 1'-0"

P-CO-ANN 6.7-49



2 BOCCE COURT SECTION

1" = 1'-0"

P-CO-ANN 6.7-48

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BOCCE BALL COURT - BID ALTERNATE #1

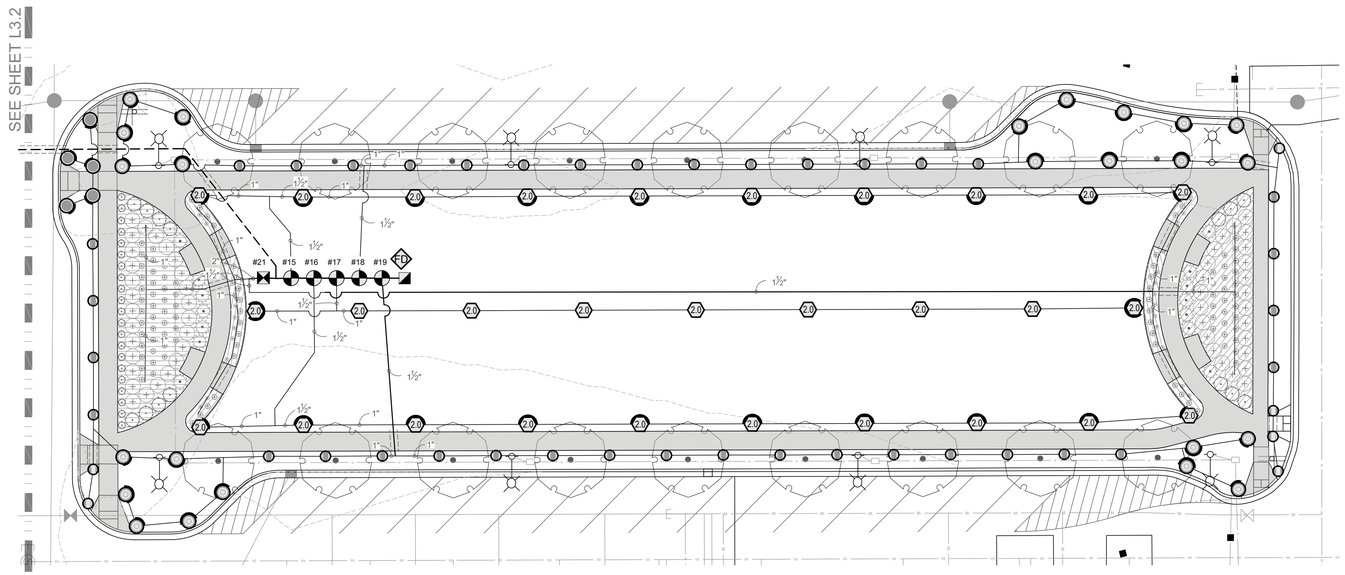
BID SET

251022	
DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

L2.5

VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	WIRE	PSI	PSI @ POC	PRECIP
1	RAIN BIRD PEB	1"	TURF ROTOR	14	238.1	47.6	62.4	0.59 in/h
2	RAIN BIRD PEB	1"	TURF ROTARY	14.2	410.0	44.8	60.0	0.24 in/h
3	RAIN BIRD PEB	1"	TURF ROTARY	18.22	416.0	43.5	59.2	0.27 in/h
4	RAIN BIRD PEB	1"	TURF ROTARY	22.85	422.0	47.6	63.9	0.4 in/h
5	RAIN BIRD PEB	1"	TURF ROTARY	28.68	535.5	46.4	63.9	0.39 in/h
6	RAIN BIRD PEB	1"	TURF ROTARY	24.18	529.3	48.1	65.0	0.23 in/h
7	RAIN BIRD PEB	1"	TURF ROTARY	21.03	523.4	44.4	60.8	0.44 in/h
8	RAIN BIRD PEB	1"	TURF ROTARY	21.77	517.3	45.9	62.3	0.24 in/h
9	RAIN BIRD PEB	1"	TURF ROTARY	23.61	511.3	45.3	61.9	0.35 in/h
10	RAIN BIRD PEB	1"	TURF ROTARY	14.58	505.4	44.5	59.9	0.27 in/h
11	RAIN BIRD PEB	1"	TURF ROTOR	18	298.3	48.5	63.7	0.42 in/h
12	RAIN BIRD PEB	1"	TURF ROTARY	27.8	304.3	50.4	66.4	0.45 in/h
13	RAIN BIRD PEB	1"	TURF ROTOR	20	310.3	49.3	64.8	0.48 in/h
14	RAIN BIRD PEB	1"	TURF ROTOR	14	131.3	47.5	62.4	0.7 in/h
15	RAIN BIRD PEB	1"	TURF ROTOR	20	261.0	51.8	67.8	0.57 in/h
16	RAIN BIRD PEB	1"	TURF ROTOR	20	267.0	52.0	68	0.56 in/h
17	RAIN BIRD PEB	1"	TURF ROTOR	18	273.0	50.5	66.2	0.22 in/h
18	RAIN BIRD PEB	1"	TURF ROTARY	18.19	279.0	46.6	62.4	0.43 in/h
19	RAIN BIRD PEB	1"	TURF ROTARY	16.79	285.0	49.0	64.5	0.42 in/h
20	RAIN BIRD XCZ-100-LC	1"	AREA FOR DRIPLINE	13.78	280.6	38.9		1.31 in/h
21	RAIN BIRD XCZ-150-LCS	1-1/2"	AREA FOR DRIPLINE	25.32	260.3	26.1		1.37 in/h
	Common Wire				1,545			



IRRIGATION PLAN

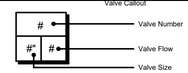
SCALE: 1" = 20'

0 20' 40'
SCALE IN FEET

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI			DETAIL
LST SST RST	HUNTER MP STRIP RB 1806-SAM-P45 TURF ROTATOR, 6IN. POP-UP WITH FACTORY INSTALLED CHECK VALVE, PRESSURE REGULATED TO 45 PSI	94	45			
DESIGN RADIUS 1000	HUNTER MP1000 RB 1806-SAM-P45 TURF ROTATOR, 6IN. POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 45 PSI.	42	40			1/L3.4
DESIGN RADIUS 2000	HUNTER MP2000 RB 1806-SAM-P45 TURF ROTATOR, 6IN. POP-UP WITH FACTORY INSTALLED CHECK VALVE, PRESSURE REGULATED TO 45 PSI	100	40			1/L3.4
DESIGN RADIUS 3000	HUNTER MP3000 RB 1806-SAM-P45 TURF ROTATOR, 6IN. POP-UP WITH FACTORY INSTALLED CHECK VALVE, PRESSURE REGULATED TO 45 PSI	53	40			1/L3.4
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI	GPM	RADIUS	DETAIL
1.5	HUNTER I-20-06 1.5 TURF ROTOR, 6IN. POP-UP. ADJUSTABLE AND FULL CIRCLE. PLASTIC RISER. DRAIN CHECK VALVE. STANDARD NOZZLE.	12	45	1.5	31'	2/L3.4
2.0	HUNTER I-20-06 2.0 TURF ROTOR, 6IN. POP-UP. ADJUSTABLE AND FULL CIRCLE. PLASTIC RISER. DRAIN CHECK VALVE. STANDARD NOZZLE.	53	45	2	34'	2/L3.4
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION					DETAIL
ZONE #	RAIN BIRD XCZ-100-LC 1" WIDE FLOW DRIP CONTROL KIT, FOR LIGHT COMMERCIAL USES. 1IN. PEB VALVE, WITH 1IN. PRESSURE REGULATING 40PSI BASKET FILTER. 0.3-20 GPM.					
ZONE #	RAIN BIRD XCZ-150-LCS 1-1/2" HIGH FLOW CONTROL ZONE KIT WITH LOW MINIMUM INLET PRESSURE REQUIREMENTS, FOR LARGE COMMERCIAL DRIP ZONES. 1-1/2IN. PEB GLOBE VALVE WITH HIGH-CAPACITY FILTER AND PRESSURE REGULATING SYSTEM (PRS) FIXED AT 40PSI. FLOW RANGE: 20 - 62 GPM.					
	AREA TO RECEIVE DRIPLINE RAIN BIRD XFCV-06-12 XFCV XON-SURFACE LANDSCAPE DRIPLINE WITH A HEAVY-DUTY 3.5 PSI CHECK VALVE. 0.6 GPH EMITTERS AT 12" O.C. DRIPLINE LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. GREAT FOR ELEVATION CHANGE. SPECIFY XF INSERT FITTINGS.					
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION					DETAIL
ZONE #	RAIN BIRD PEB 1" 1.0 AND 1.5 INCH PLASTIC INDUSTRIAL REMOTE CONTROL VALVE. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION.					2/L3.3
	RAIN BIRD 5-LRC 1" 1INCH BRASS QUICK-COUPLING VALVE, WITH CORROSION-RESISTANT STAINLESS STEEL SPRING, LOCKING THERMOPLASTIC RUBBER COVER, AND 1-PIECE BODY.					5/L3.3
	APOLLO VALVES 94ALF10801 BALL VALVE, INLET SIZE 2IN., LEAD FREE BRASS BODY, FULL-PORT, BLOW-OUT PROOF STEM DESIGN					9/L3.3
MV	RAIN BIRD PESB W/IVM-SOL 1-1/2" 1-1/2IN., PLASTIC INDUSTRIAL MASTER VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION. INSTALL NORMALLY CLOSED.					3/L3.4
D	MANUAL DRAIN VALVE 2" MANUAL DRAIN VALVE - PLUMB DRAIN TO CRUSHED STONE SUMP					
BF	FEBCO 825YA 1" REDUCED PRESSURE BACKFLOW PREVENTER					
C	RAIN BIRD ESPLXIVM-LXMMSS 60 STATION, 2-WIRE CONTROLLER W/ SMART VALVE TECHNOLOGY. (1) ESPLXIVM 60-STATION, OUTDOOR, INSTALLED IN LXMMSS STAINLESS STEEL PEDESTAL MOUNTED CABINET. SYSTEM REQUIREMENTS: RAIN BIRD LXIVM-XXX INTEGRATED VALVE MODULES & 2-WIRE DEVICES. USE PAIGE ELECTRIC CABLE P7072D & RAIN BIRD WC20 DRY SPLICES ONLY. GROUND SYSTEM W/ (X) LXIVMSD SURGE DEVICE IN RAIN BIRD ROUND VALVE BOXES. INSTALL PER MANUFACTURERS RECOMMENDATIONS.					1/L3.3
FD	RAIN BIRD FD-X0XTURF FIELD DECODER FOR TWO-WIRE SYSTEM. INSTALL IN VALVE BOX FOR VALVE. FD 101/102/202/401/601 VALVE/SOLENOIDS. USE LINE SURGE PROTECTION AS PER MANUFACTURERFT.S DIRECTIONS.					
IQ	RAIN BIRD IQ4G-USA IQ NCC 4G CELLULAR CARTRIDGE UPGRADES ESP-LX SERIES CONTROLLERS TO IQ SATELLITE, FOR COMMUNICATION WITH IQ CENTRAL CONTROL. INCLUDE IQEXTANT4G EXTERNAL ANTENNA FOR METAL OR STAINLESS STEEL CABINET/PEDESTAL. USED FOR DIRECT OR SERVER SATELLITE APPLICATIONS.					
FS	RAIN BIRD UFS-150 1-1/2IN. ULTRASONIC FLOW SENSORS, WITH GLASS FILLED NYLON BODY. OPERATING RANGE 0.5 GPM TO 100 GPM SIZE FOR FLOW NOT ACCORDING TO PIPE SIZE.					8/L3.3
POC	POINT OF CONNECTION 1 1/2" NEW POTABLE CONNECTION					
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1"					
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1 1/2"					
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2"					
	IRRIGATION MAINLINE: PVC SCHEDULE 40 2"					
	PIPE SLEEVE: PVC SCHEDULE 80					

Valve Callout



Call (2) working days before you dig.
1-800-227-2600

STATE OF MONTANA
NEIL RYAN KINER
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LANDSCAPE ARCHITECT

SECOND NATURE CONSULTING
LANDSCAPE ARCHITECTURE & PLANNING
(406) 850-0461 www.secondnature.consulting

REVISIONS

#1	ADDENDA #1 - 04/03/2026
#2	ADDENDA #2 - 04/14/2026

BID SET

ANNAFELD PARK - 6TH & 7TH FILING IMPROVEMENTS
6202 FARMSTEAD AVE
BILLINGS, MT 59101

IRRIGATION PLAN

251022	
DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

L3.1

#2

IRRIGATION NOTES:

1. CONTRACTOR TO VERIFY EXISTING CONDITIONS. ALL EXISTING UTILITIES ARE TO BE LOCATED BEFORE TRENCHING OF ANY KIND BEGINS.
2. PROTECT ALL EXISTING IMPROVEMENTS TO REMAIN. IF DAMAGE OCCURS RESULTANT FROM CONTRACTOR'S OPERATIONS OR NEGLIGENCE, REPAIR BACK TO ORIGINAL CONDITION AT CONTRACTOR'S EXPENSE.
3. COORDINATE WORK FROM THIS SHEET WITH ALL OTHER TRADES.
4. INSTALL IRRIGATION SYSTEM AS DETAILED AND PER MANUFACTURER'S SPECIFICATIONS.
5. IRRIGATION PIPING LAYOUT IS SCHEMATIC. ACTUAL LOCATION OF PIPING AND OTHER COMPONENTS MAY VARY DUE TO EXISTING SITE CONDITIONS. PLACEMENT OF PIPE AND HEADS SHALL BE FIELD ADJUSTED TO ACCOMMODATE ACTUAL SITE CONDITIONS.
6. ALL MAINLINE SHALL BE AT LEAST 18" BELOW FINISHED GRADE. ALL LATERAL LINES SHALL BE AT LEAST 12" BELOW FINISHED GRADE.
7. RE-GRADE AND REPAIR ALL EXISTING AREAS DISTURBED BY CONTRACTOR'S OPERATIONS. A DISTURBED AREA SHALL BE WHERE CONSTRUCTION ACTIVITIES INCLUDING TRENCHING, DEMOLITION, EARTHWORK, MATERIAL STORAGE, STAGING, PARKING, OR ANY OTHER FORM OF EXCAVATION, COMPACTION, OR TRAFFIC RESULTS IN THE REMOVAL OR DISPLACEMENT OF EXISTING GROUND COVER OR GRADE. COORDINATE WITH GENERAL CONTRACTOR.
8. SYSTEM DESIGN IS BASED ON NEW POTABLE CONNECTION TO EXISTING 8" WATER LINE. EXPECTED PRESSURE AT POINT OF CONNECTION IS 90 PSI. NOTIFY LANDSCAPE ARCHITECT IF THESE ASSUMPTIONS ARE NOT REALIZED IN THE FIELD.
9. PROVIDE ALL COMPONENTS REQUIRED TO COMPLETELY WINTERIZE THE IRRIGATION SYSTEM WHETHER OR NOT SPECIFIED HEREIN.
10. INSTALL TEMPORARY WATERING AS NECESSARY.
11. PROVIDE POWER TO IRRIGATION CONTROLLER AND FILTRATION COMPONENTS. COORDINATE POWER SOURCE WITH ELECTRICIAN.
12. INSTALL 2-WIRE CONTROL WIRES FROM ELECTRIC VALVES TO CONTROLLER, INCLUDING DECODERS AS NEEDED.
13. SLEEVES SHALL BE (2) SIZES LARGER THAN PIPE OR COMBINATION OF PIPES THEREIN ENCLOSED, WITH MINIMUM SIZE TO BE 4" (2" FOR CONTROL WIRES). SUPPLY (1) EXTRA SLEEVE. INSTALL 24" BELOW FINISHED GRADE AND EXTEND SLEEVES 12" PAST CURBS. TAPE/PLUG AND MARK ALL SLEEVE ENDS PRIOR TO BACKFILL.
14. CONTRACTOR TO ADJUST IRRIGATION DISTRIBUTION TO PROVIDE COMPLETE COVERAGE AND TO MINIMIZE WASTE WATER.
15. ALL PRESSURIZED MAIN LINE AND FITTINGS ABOVE GRADE SHALL BE GALVANIZED STEEL.
16. IRRIGATION CONTRACTOR TO PROVIDE PRESSURE TEST RESULTS OF MAINLINE CONNECTIONS TO GENERAL CONTRACTOR PRIOR TO BACKFILLING.
17. CONTRACTOR TO SUPPLY A MINIMUM OF (2) DRIP EMITTERS PER PLANT. PERENNIALS = 2 EMITTERS, SHRUBS = 3 EMITTERS. CONTRACTOR MAY UTILIZE MULTI-PORT EMITTERS IN LANDSCAPE BEDS WHERE APPROPRIATE.
18. INSTALL ALL COMPONENTS PER MANUFACTURER'S INSTRUCTIONS.
12. NOTIFY LANDSCAPE ARCHITECT AND PROJECT MANAGER OF ANY DISCREPANCIES.

VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	WIRE	PSI	PSI @ POC	PRECIP
1	RAIN BIRD PEB	1"	TURF ROTOR	14	238.1	47.6	62.4	0.59 in/h
2	RAIN BIRD PEB	1"	TURF ROTARY	14.2	410.0	44.8	60.0	0.24 in/h
3	RAIN BIRD PEB	1"	TURF ROTARY	18.22	416.0	43.5	59.2	0.27 in/h
4	RAIN BIRD PEB	1"	TURF ROTARY	22.85	422.0	47.6	63.9	0.4 in/h
5	RAIN BIRD PEB	1"	TURF ROTARY	28.68	535.5	46.4	63.9	0.39 in/h
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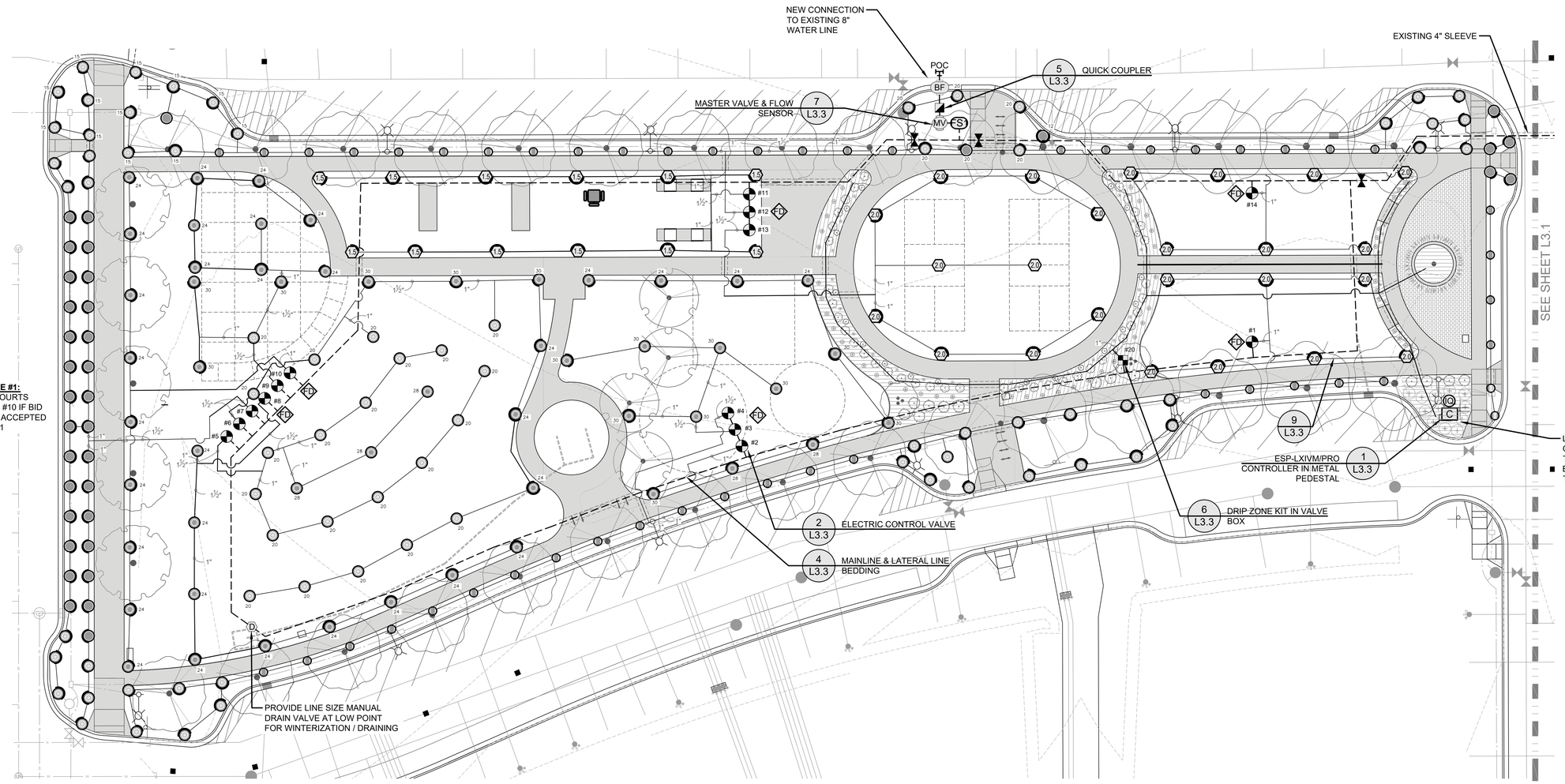
21	RAIN BIRD XCZ-150-LCS	1-1/2"	AREA FOR DRIPLINE	25.32	260.3	26.1		1.37 in/h
	Common Wire				1,545			



IRRIGATION PLAN

SCALE: 1" = 20'

0 20' 40'
SCALE IN FEET

STATE OF MONTANA • NEIL RYAN KINER 232 LICENSED LANDSCAPE ARCHITECT •

SECOND NATURE CONSULTING
LANDSCAPE ARCHITECTURE & PLANNING
(406) 850-0461 www.secondnature.consulting

REVISIONS

#1	ADDENDA #1 - 04/03/2026
#2	ADDENDA #2 - 04/14/2026

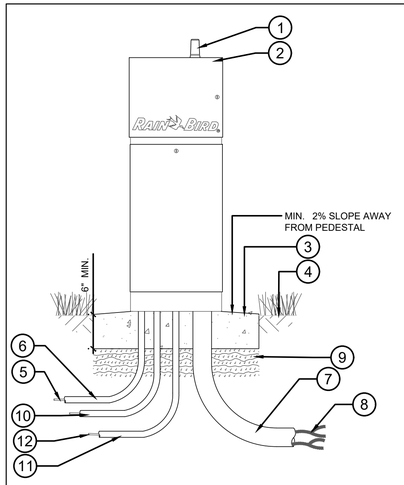
BID SET

ANNAFELD PARK - 6TH & 7TH FILING IMPROVEMENTS
6202 FARMSTEAD AVE
BILLINGS, MT 59101

IRRIGATION PLAN

251022	
DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

L3.2



1. OPTIONAL EXTERIOR CELLULAR ANTENNA IF USING IQ4 CELLULAR CARTRIDGE
2. CONVENTIONAL ESP-LXME2 CONTROLLER: RAIN BIRD ESP-LXME2/PRO WITH LXMM METAL OR LXMMSS STAINLESS STEEL CABINET AND LXMMPED METAL OR LXMMSSPED STAINLESS STEEL PEDESTAL. INSTALL CONTROLLER, CABINET AND PEDESTAL PER MANUFACTURER'S RECOMMENDATIONS. OPTIONAL IQ4 CARTRIDGE, REFERENCE LEGEND FOR MODEL
3. CONCRETE PAD: 6-INCH MIN. THICKNESS. 6-INCHES LARGER ON ALL SIDES THAN PEDESTAL FOOTPRINT
4. FINISH GRADE
5. POWER SUPPLY WIRE
6. 1-INCH SCH 40 PVC CONDUIT, FITTINGS AND SWEEP ELL FOR POWER SUPPLY
7. 2-INCH SCH 40 PVC CONDUIT, FITTINGS AND SWEEP ELL FOR TWO-WIRE CABLE
8. MAXI WIRE TWO-WIRE PATH TO FIELD DEVICES, USE A DIFFERENT CABLE JACKET COLOR FOR EACH PATH
9. COMPACTED SUBGRADE
10. 1-INCH SCH 40 PVC CONDUIT, FITTINGS AND SWEEP ELL FOR GROUNDING WIRE, REF. NOTE 2
11. IF APPLICABLE, 1-INCH SCH 40- PVC CONDUIT, FITTINGS AND SWEEP ELL FOR IQ COMMUNICATION WIRE
12. IF APPLICABLE, COMMUNICATION WIRE, REFERENCE LEGEND FOR TYPE.
    OPTIONS:
    A. RS232 SERIAL CABLE TO CENTRAL CONTROL COMPUTER
    B. ETHERNET CABLE TO LOCAL NETWORK JACK
    C. PE-CABLE OR Y-CABLE FOR EXTERNAL RADIO TO CLIENT SATELLITE CONTROLLERS

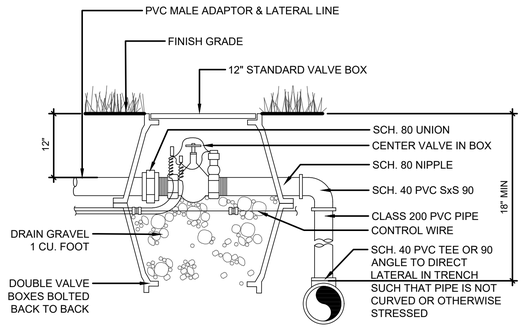
NOTES:
1. ESP-LXIVM CONTROLLER IS AVAILABLE IN TWO MODELS.THE LXIVM WITH 60 STATIONS AND THE LXIVM-PROWITH 240 STATIONS. REFER TO THE CHART FOR DIFFERENCES BETWEEN THE TWO MODELS.
2. PROVIDE PROPER GROUNDING COMPONENTS TO ACHIEVE GROUND RESISTANCE OF 10 OHMS OR LESS.

KEY SPECIFICATIONS

FEATURE ▶ / MODEL ▼	MAX PROGRAMS	STATIONS	MASTER SIMULATIONS	MASTER VALVES	FLOW SENSORS	WEATHER SENSORS
LXME2	10	60	8	5	5	4
LXME2 PRO	40	240	16	10	10	8

1 ESP-LXIVM/PRO CONTROLLER IN METAL PEDESTAL

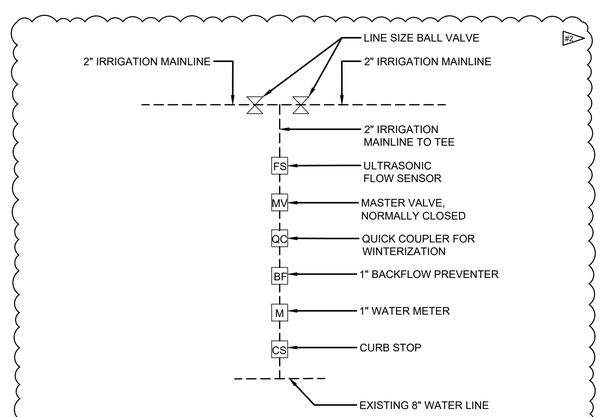
1" = 1'-0" P-CO-ANN 6.7-66



NOTES:
1. USE TEFLON TAPE FOR ALL THREADED PIPE CONNECTIONS.
2. ALL WIRES TO BE INSTALLED AS PER LOCAL CODES. NO "IN-LINE" WIRE SPLICES WILL BE ALLOWED.

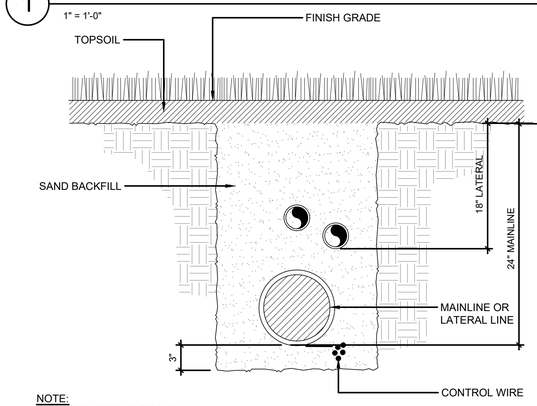
2 ELECTRIC CONTROL VALVE

1" = 1'-0" P-CO-ANN 6.7-09



3 POINT OF CONNECTION

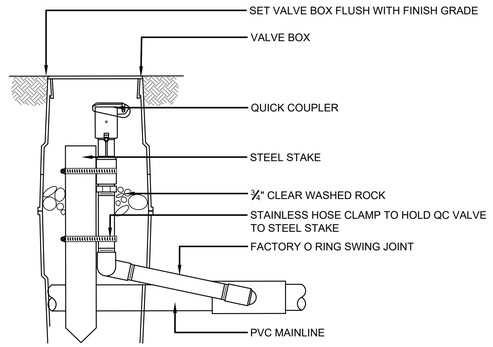
1" = 1'-0" P-CO-ANN 6.7-08



NOTE:
WET TRENCHES THOROUGHLY FOLLOWING BACKFILL PROCEDURE. BACKFILL TO PREVENT FUTURE SETTLING

4 MAINLINE & LATERAL LINE BEDDING

1" = 1'-0" P-CO-ANN 6.7-23



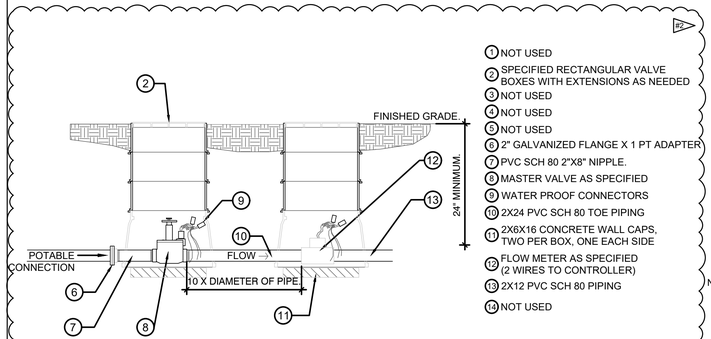
5 QUICK COUPLER

1" = 1'-0" P-CO-ANN 6.7-11

1. FINISH GRADE
2. LANDSCAPE PRODUCTS JUMBO VALVE BOX WITH COVER
3. VALVE ID TAG
4. CONTROL WIRE
5. LANDSCAPE PRODUCTS DRIP KIT (INCLUDES VALVE, FILTER & PRESSURE REGULATOR)
6. PVC SUPPLY HEADER TO DRIPLINE
7. PVC SCH 80 FEMALE ADAPTER OR REDUCER
8. PVC SCH 80 ELL
9. PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
10. PVC SCH 80 TEE OR ELL
11. PVC MAINLINE
12. 3" MINIMUM DEPTH OF 3/4" WASHED GRAVEL
13. PVC SCH 80 STREET ELL
14. MANUAL FLUSH POINT

6 DRIP ZONE KIT IN VALVE BOX

NOT TO SCALE P-CO-ANN 6.7-10

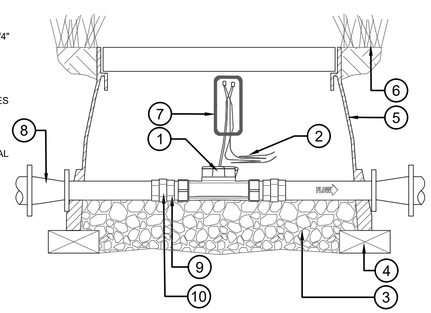


1. NOT USED
2. SPECIFIED RECTANGULAR VALVE BOXES WITH EXTENSIONS AS NEEDED
3. NOT USED
4. NOT USED
5. NOT USED
6. 2" GALVANIZED FLANGE X 1 PT ADAPTER
7. PVC SCH 80 2"X8" NIPPLE.
8. MASTER VALVE AS SPECIFIED
9. WATER PROOF CONNECTORS
10. 2X24 PVC SCH 80 TOE PIPING
11. 2X6X16 CONCRETE WALL CAPS, TWO PER BOX, ONE EACH SIDE
12. FLOW METER AS SPECIFIED (2 WIRES TO CONTROLLER)
13. 2X12 PVC SCH 80 PIPING
14. NOT USED

7 MASTER VALVE & FLOW SENSOR

3/4" = 1'-0" P-CO-ANN 6.7-28

MODEL	SIZE	K	OFFSET	FLOW RANGE
UFS100	1"	0.73	-1.66	0.3 - 50 GPM
UFS150	1.5"	1.70	-0.316	0.5 - 110 GPM
UFS200	2"	2.849	0.1439	1.0 - 200 GPM

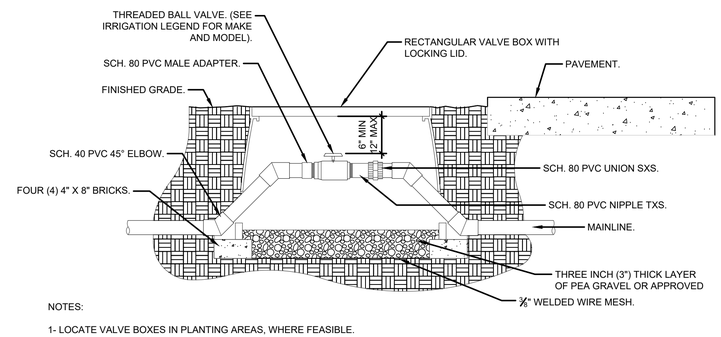


1. RAIN BIRD UFS SERIES FLOW SENSOR, SEE LEGEND FOR MODEL
2. 36" LENGTH OF COILED CONTROL WIRE
3. 3" MIN. DEPTH OF 3/4" WASHED GRAVEL
4. BRICK (1 OF 4), IF APPLICABLE
5. RAIN BIRD VB SERIES VALVE BOX W/ LID
6. FINISH GRADE
7. REFERENCE MANUAL FOR WIRING INSTALLATION INSTRUCTIONS
8. CONCENTRIC REDUCER
9. PVC CLOSE NIPPLE (1 OF 2)
10. PVC UNION (1 OF 2)

NOTES:
1. THE UFS CAN BE INSTALLED IN A VERTICAL POSITION WITH THE FLOW ARROW POINTING UPWARDS.
2. THE UFS SIZE MUST BE EQUAL TO OR SMALLER THAN THE INCOMING PIPE SIZE.
3. THE UFS DOES NOT REQUIRE STRAIGHT PIPE BEFORE OR AFTER SENSOR PLACEMENT.
4. NO BRICKS REQUIRED FOR RAIN BIRD VB-SERIES VALVE BOXES ONLY.

8 ULTRASONIC FLOW SENSOR

3" = 1'-0" P-CO-ANN 6.7-64



NOTES:

1- LOCATE VALVE BOXES IN PLANTING AREAS, WHERE FEASIBLE.

2- WRAP VALVE BOX WITH A MINIMUM OF 3 MIL THICK PLASTIC AND SECURE IT USING DUCT TAPE OR ELECTRICAL TAPE.

3- ALL THREADED CONNECTION TO BE MADE USING TEFLON TAPE.

4- ALL CHANGES IN ELEVATION SHALL BE MADE USING SCH. 40 PVC 45° ELBOWS.

9 BALL VALVE DETAIL

1 1/2" = 1'-0" P-CO-ANN 6.7-29

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REVISIONS

#1	ADDENDA #1 - 04/03/2026
#2	ADDENDA #2 - 04/14/2026

ANNAFELD PARK - 6TH & 7TH FILING IMPROVEMENTS
6202 FARMSTEAD AVE
BILLINGS, MT 59101

IRRIGATION DETAILS

BID SET

251022

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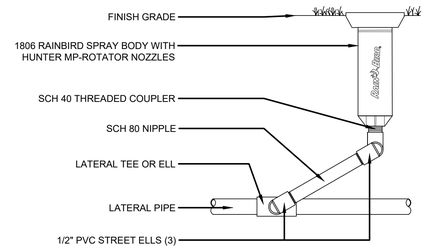
APPROVED	NRK
DATE	03-12-2026

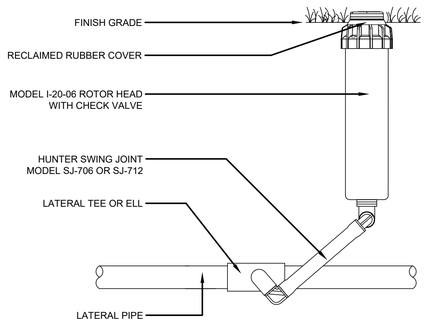
L3.3



1 STREAM SPRAYS

3" = 1'-0"

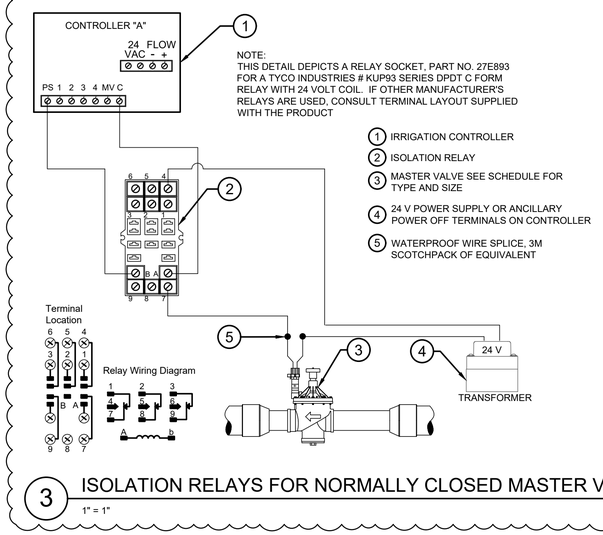
P-CO-ANN 6.7-68



2 I-20 POP-UP SERIES ROTOR

3" = 1'-0"

P-CO-ANN 6.7-67



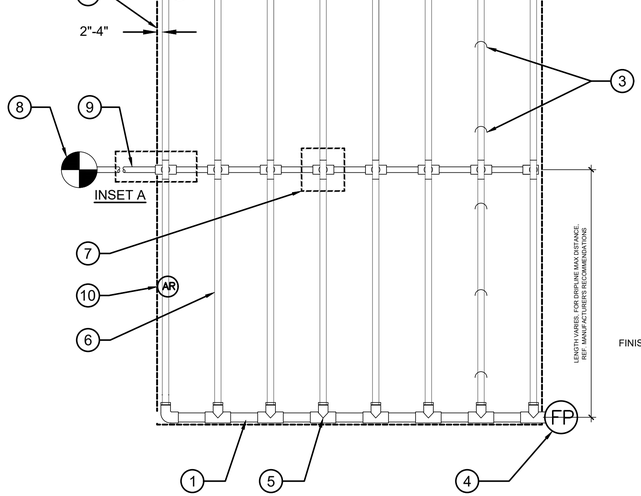
NOTE:
THIS DETAIL DEPICTS A RELAY SOCKET, PART NO. 27E893 FOR A TYCO INDUSTRIES # KUP93 SERIES DPDT C FORM RELAY WITH 24 VOLT COIL. IF OTHER MANUFACTURER'S RELAYS ARE USED, CONSULT TERMINAL LAYOUT SUPPLIED WITH THE PRODUCT

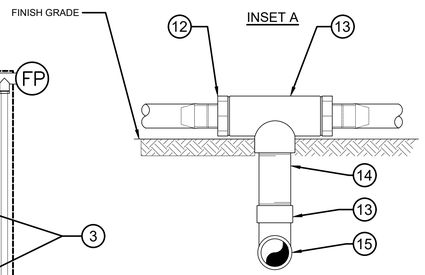
1. IRRIGATION CONTROLLER
2. ISOLATION RELAY
3. MASTER VALVE SEE SCHEDULE FOR TYPE AND SIZE
4. 24 V POWER SUPPLY OR ANCILLARY POWER OFF TERMINALS ON CONTROLLER
5. WATERPROOF WIRE SPLICE, 3M SCOTCHPACK OF EQUIVALENT

3 ISOLATION RELAYS FOR NORMALLY CLOSED MASTER VALVE

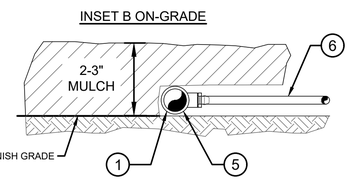
1" = 1"

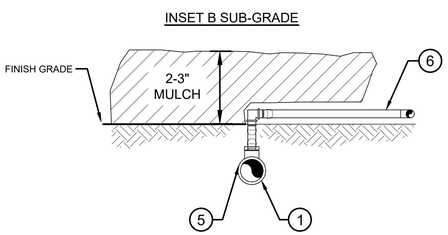
P-CO-ANN 6.7-69





1. PVC EXHAUST HEADER
2. OPEREATION INDICATOR RAIN BIRD MODEL: OPERIND
3. XF SERIES TIE-DOWN STAKES (TDS-050) REFER TO RAIN BIRD DRIPLINE DESIGN GUIDE FOR PROPER SPACING
4. FLUSH POINT (TYPICAL), INSTALL AT LOWEST PART OF DRIPLINE SECTION
5. PVC TEE OR ELL W/ RAIN BIRD XFF-MA FITTING
6. ON-GRADE RAIN BIRD DRIPLINE, REF. LEGEND FOR MODEL
7. CONNECTION FROM SUPPLY MANIFOLD TO DRIPLINE (TYPICAL)- SEE INSET A
8. RAIN BIRD CONTROL ZONE DRIP KIT, REF. LEGEND FOR MODEL
9. PVC SUPPLY PIPE FROM RAIN BIRD CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
10. AIR RELIEF VALVE, INSTALL AT HIGHEST PART OF DRIPLINE SECTION RAIN BIRD MODEL: ARV050
11. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
12. XFF - MA - 050 FITTING
13. SCH 40 PVC TEE
14. PVC SCH 40 RISER PIPE
15. PVC CENTER FEED HEADER



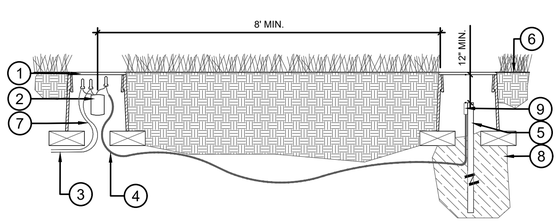


NOTES:
1. FOR ALL XFS-CV AND POLY CONNECTIONS INSTALL XFF AND/OR XFD FITTINGS.
2. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE INSTALLATION SPECIFICATIONS ON RAIN BIRD WEB SITE (WWW.RAINBIRD.COM) FOR SUGGESTED SPACING.
3. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM SPACING PER MANUFACTURE'S RECOMMENDATIONS.

4 ON-GRADE DRIPLINE LAYOUT W PVC HEARDER-CENTER FEED

N.T.S

NOTES:
1. INSTALL SURGE PROTECTOR ON ITS OWN OR A VALVE IN THE SAME VALVE BOX.
2. NO OTHER WIRES OR CABLES SHALL BE INSTALLED WITHIN THE SPHERE OF INFLUENCE.
3. INSTALL THE CONNECTING WIRE IN AS STRAIGHT A LINE AS POSSIBLE. IF YOU MUST MAKE A TURN OR BEND IN THE WIRE, MAKE THE TURN IN A SWEEPING CURVE WITH A MAXIMUM RADIUS OF EIGHT INCHES AND MINIMUM INCLUDED ANGLE OF 90°.
4. TO MINIMIZE RESISTANCE, THE COPPER WIRE MUST BE PRE-WELDED TO THE GROUNDING RODS/PLATES, OR WELDED TO THE RODS/PLATES USING AN EXOTHERMIC WELDING PROCESS AT THE SITE.
5. MAKE SURE ALL WELDS ARE SECURE BEFORE BURYING THE GROUNDING RODS. RODS AND PLATES WITH WELDED JOINTS DO NOT NEED PERIODIC VISUAL INSPECTION AND CAN BE FULLY BURIED.



1. RAIN BIRD VALVE BOX 6" ROUND
2. SURGE PROTECTOR, SEE LEGEND
3. TWO-WIRE MAXI-WIRE PATH
4. #6 AWG OR LARGER SOLID BARE COPPER WIRE
5. COPPER CLAD GROUNDNG ROD (5/8" x 8')
6. FINISH GRADE
7. COPPER WIRE
8. GROUND ENHANCEMENT, IF APPLICABLE
9. CADWELD CONNCECTION

5 SURGE PROTECTOR W/ GROUNDING ROD

1 1/2" = 1'-0"

P-CO-ANN 6.7-65

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BILLINGS, MT 59101

BID SET

IRRIGATION DETAILS

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APPROVED	NRK
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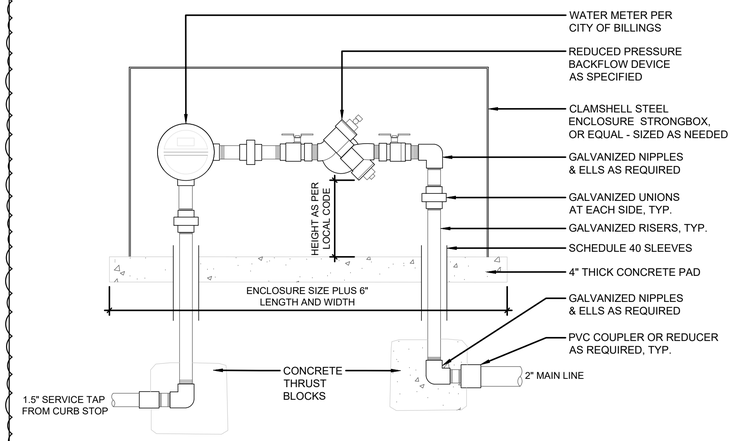
L3.4



1 METER & BACKFLOW PREVENTER ENCLOSURE

1" = 1'-0" P-CO-ANN 6.7-71

#2

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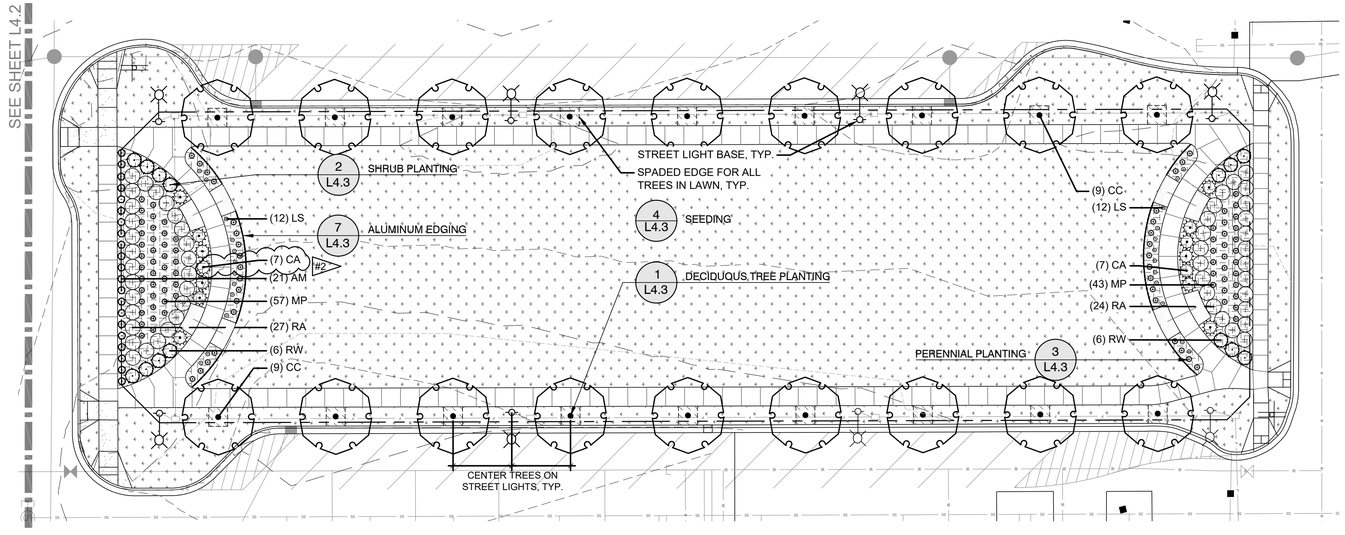
L3.5

PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	QTY
TREES						
	AC	ABIES CONCOLOR	WHITE FIR	15` HT.	SPADE	1
	AD	ACER PLATANOIDES 'DEBORAH'	DEBORAH NORWAY MAPLE	1" CAL.	POT	4
	CC	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2" CAL.	B&B	18
DECIDUOUS TREES						
	AG	ACER GINNALA	AMUR MAPLE	1" CAL.	POT	2
	AO	AESCULUS GLABRA	OHIO BUCKEYE	2" CAL.	B&B	10
	QB	QUERCUS BICOLOR	SWAMP WHITE OAK	1.5" CAL.	B&B	5
	TA	TILIA AMERICANA `BOULEVARD`	BOULEVARD LINDEN	2" CAL.	B&B	20
SHRUBS						
	AM	ARONIA MELANOCARPA 'UCONNAM165'	LOW SCAPE MOUND	1 GAL.	POT	40
	CA	COTONEASTER ADPRESSUS 'TOM THUMB'	EARLY COTONEASTER	3 GAL.	POT	14
	LR	DIERVILLA X 'G2X88544'	KODIAK® ORANGE DIERVILLA	2 GAL.	POT	39
	RA	RHUS AROMATICA `GRO LOW`	SKUNKBUSH SUMAC	2 GAL.	POT	64
	RW	ROSA X 'MEICOUBLAN'	WHITE MEIDILAND® SHRUB ROSE	5 GAL.	POT	28
GRASSES						
	MP	MISCANTHUS PURPURASCENS	FLAME GRASS	1 GAL	POT	153
PERENNIALS						
	LS	LEUCANTHEMUM X SUPERBUM	SHASTA DAISY	4"	POT	58
SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	
SOD/SEED						
	TS	TURF GRASS	DROUGHT TOLERANT FESCUE BLEND	HYDROSEED		
TOP DRESSING						
	DG	DECOMPOSED GRANITE	BID ALTERNATE #3 - SEE L5.2	CRUSHER FINES		
	CR	ROCK MULCH	CRUSHED ROCK	3/4" CRUSHED		
	SA	SAND	WASHED SAND	6" DEPTH		
	WM	WOOD MULCH	SHREDDED HARDWOOD MULCH	SHREDDED MULCH		

ALUMINUM EDGING - SEE DETAIL #2



PLANTING PLAN

SCALE: 1" = 20'

0 20' 40'
SCALE IN FEET

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L4.1

LANDSCAPING NOTES:

GENERAL PLANTING REQUIREMENTS

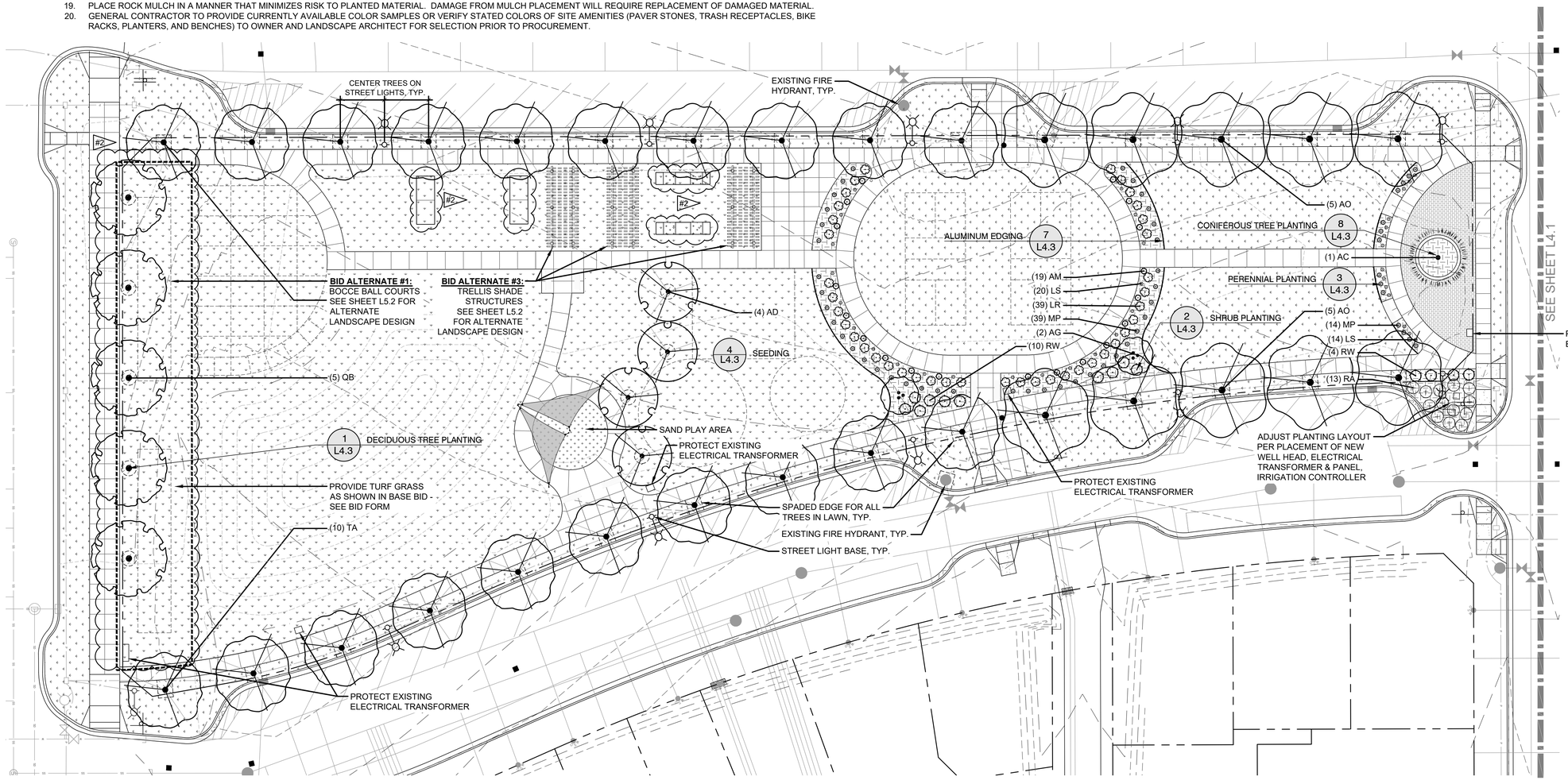
1. SEE DETAIL SHEETS FOR PLANTING DETAILS & SEE PROJECT MANUAL FOR LANDSCAPE SPECIFICATIONS.
2. THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE BASED ON THE BEST AVAILABLE INFORMATION. SOURCE OF BASE SHEETS IS PROJECT ENGINEER. THE LANDSCAPE ARCHITECT ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION OR THE INADVERTENT OMISSION OF ANY SUCH INFORMATION. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE LOCATORS AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION FOR MARKOUTS OF EXISTING UNDERGROUND FACILITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO ANY UTILITIES CAUSED BY HIS/HER PROJECT OPERATIONS. NO CONSTRUCTION SHALL COMMENCE WITHOUT PRIOR APPROVAL OF THE SUPERVISING LANDSCAPE ARCHITECT, ENGINEER OR ARCHITECT.
4. THE CONTRACTOR SHALL MAINTAIN REASONABLE ACCESS TO ALL PRIVATE DRIVEWAYS, PARKING AREAS AND AREAS THAT REQUIRE PUBLIC ACCESS DURING CONSTRUCTION.
5. REFER TO CIVIL ENGINEER'S UTILITY PLANS FOR UTILITY LOCATION AND GRADING AND DRAINAGE PLANS FOR STORM WATER MANAGEMENT INFORMATION. IF ACTUAL SITE CONDITIONS VARY FROM WHAT IS SHOWN ON THE PLANS OR IF THERE ARE DISCREPANCIES BETWEEN THE PLANS, CONTACT THE LANDSCAPE ARCHITECT FOR DIRECTION ON HOW TO PROCEED.
6. VERIFY LOCATIONS OF PERTINENT SITE IMPROVEMENTS INSTALLED UNDER OTHER SECTIONS. IF ANY PART OF THIS PLAN CANNOT BE FOLLOWED DUE TO SITE CONDITIONS, CONTACT LANDSCAPE ARCHITECT FOR INSTRUCTIONS PRIOR TO COMMENCING WORK.
7. IF SPECIFIED MATERIAL IS NOT OBTAINABLE, SUBMIT TO LANDSCAPE ARCHITECT PROOF OF NON-AVAILABILITY AND A PROPOSAL FOR SUBSTITUTION OF EQUIVALENT MATERIAL. SUBMIT PHOTOGRAPHS OF ALTERNATIVE CHOICES OF PLANT MATERIAL FOR SELECTION BY LANDSCAPE ARCHITECT. INCLUDED WITH THESE PHOTOGRAPHS SHOULD BE CLEAR, WRITTEN DESCRIPTION OF THE TYPE, SIZE, CONDITION, AND GENERAL CHARACTER OF THE PLANT MATERIAL.

TOP SOIL & AMENDMENTS - SOIL CONDITIONING

8. EXISTING SOIL ON SITE NEEDS TO BE AMENDED IN PLACE TO CREATE SUITABLE PLANTING SOIL. EXISTING SOIL MAY NEED TO BE TESTED PRIOR TO AMENDING. PROVIDE SCIENTIFIC SOIL ANALYSIS OF EXISTING SOIL AND HAVE SOIL SCIENTIST PROVIDE FERTILIZER AND OTHER AMENDMENT RECOMMENDATIONS FOR OBTAINING SUITABLE SOIL COMPOSITION AND OPTIMAL ELECTRICAL CONDUCTIVITY. PROVIDE 4" ORGANIC MULCH TILLED/DISKED INTO THE TOP 12" THROUGHOUT ALL GRASS AND PLANTING AREAS.
9. IN AREAS OF COMPACTED SOILS, UTILIZE EQUIPMENT CAPABLE OF BREAKING UP THE SOIL HARD PAN. RIP AND SCARIFY ALL COMPACTED SOILS PRIOR TO PLACEMENT OF PLANTING SOILS.
10. ALL TREE & SHRUB PLANTING AREAS REQUIRED TO REMOVE ALL ROAD BASE OR OTHER COMPACTED BASES IN PLANTING PITS PRIOR TO PLANTING. PROVIDE PLANTING SOIL AS SHOWN IN PLANTING DETAILS.

PLANTING

11. QUANTITIES SHOWN IN THE PLANT LIST ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR & FOR OWNER INFORMATION. CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE QUANTITY OF PLANTS SHOWN GRAPHICALLY ON THE PLANS. IN THE CASE OF A DISCREPANCY THE PLANS SHALL OVERRULE THE LEGEND, EXCEPT PLANTS SPECIFICALLY NOTED AS "NOT SHOWN ON PLAN." VERIFY PLANT COUNTS AND SQUARE FOOTAGES.
12. EXACT LOCATIONS OF PLANT MATERIALS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD PRIOR TO INSTALLATION. LANDSCAPE ARCHITECT RESERVES THE RIGHT TO ADJUST PLANTS TO EXACT LOCATION IN FIELD.
13. TREES SHALL BEAR SAME RELATION TO FINISHED GRADE AND SOLAR ORIENTATION AS THEY BORE IN THE NURSERY BEFORE TRANSPLANTING.
14. PROVIDE MATCHING FORMS AND SIZES FOR PLANT MATERIALS WITHIN EACH SPECIES AND SIZE DESIGNATED ON THE DRAWINGS.
15. PRUNE NEWLY PLANTED TREES ONLY AS DIRECTED BY LANDSCAPE ARCHITECT.
16. FINISH GRADES OF PLANTER AREAS SHALL BE 2 INCHES BELOW ADJACENT PAVING OR TOP OF CURB UNLESS OTHERWISE NOTED.
17. REMOVE ENTIRE WIRE CAGE FROM ROOTBALL. CUT AND REMOVE BURLAP FROM TOP 1/3 OF BALL.
18. LANDSCAPE ARCHITECT TO REVIEW PLANT MATERIALS AT SOURCE OR BY PHOTOGRAPHS PRIOR TO DIGGING OR SHIPPING OF PLANT MATERIALS.
19. PLACE ROCK MULCH IN A MANNER THAT MINIMIZES RISK TO PLANTED MATERIAL. DAMAGE FROM MULCH PLACEMENT WILL REQUIRE REPLACEMENT OF DAMAGED MATERIAL.
20. GENERAL CONTRACTOR TO PROVIDE CURRENTLY AVAILABLE COLOR SAMPLES OR VERIFY STATED COLORS OF SITE AMENITIES (PAVER STONES, TRASH RECEPTACLES, BIKE RACKS, PLANTERS, AND BENCHES) TO OWNER AND LANDSCAPE ARCHITECT FOR SELECTION PRIOR TO PROCUREMENT.



PLANTING PLAN

SCALE: 1" = 20'

0 20' 40'
SCALE IN FEET

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PLANTING PLAN

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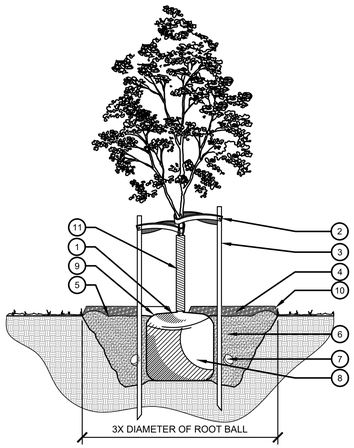
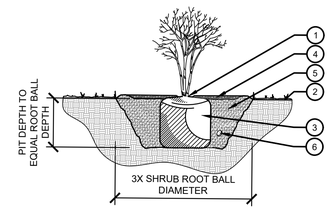
L4.2



1. PLANT CROWN OF ROOT BALL 2" ABOVE FINISHED GRADE
2. 24" LONG RUBBER STRAP (NAIL TO STAKE)
3. (2) TREE T-POST STAKES
4. 3" WOOD MULCH
5. WEED BARRIER
6. OVER-EXCAVATE TREE PLANTING PLACEMENT - PLACE AMENDED SOIL MIX
7. FERTILIZER PACKS PER SPECIFICATIONS: (7) / 15 GAL.LON (10) / 24" BOX
8. ROOT BALL:
9. SHAVE EDGE OF ROOT BALL
10. FINISHED GRADE - PLACE ROCK MULCH OVER WATERING RING TO DISGUISE
11. 4" DIAMETER CORRUGATED PLASTIC DRAIN PIPE, CUT LENGTHWISE AND CAREFULLY FITTED AROUND TREE TRUNK FOR TRUNK PROTECTION

1 DECIDUOUS TREE PLANTING

1" = 1'-0"



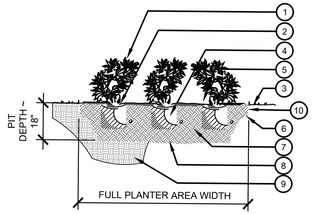
1. PLANT CROWN OF ROOT BALL 1" ABOVE GRADE
2. FINISHED GRADE
3. ROOT BALL
4. TOP DRESSING
5. ROUGHEN SIDES OF PLANTING HOLE. BACKFILL WITH NATIVE SOIL AMENDED WITH 25% ORGANIC COMPOST
6. FERTILIZER PACKETS PER SPECIFICATIONS (1) / 1 GALLON (3) / 5 GALLON

NOTES:
1. SHAPE SOIL SURFACE TO PROVIDE WATERING RING
2. IN AREAS WITH MULTIPLE PLANTS PREPARE ENTIRE BED PER SOIL SPECIFICATIONS

2 SHRUB PLANTING

1" = 1'-0"

P-CO-ANN 6.7-17



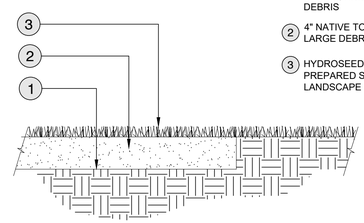
1. PLANT PER SPECIFICATION
2. PLANT CROWN OF ROOT BALL 1" ABOVE GRADE
3. FINISHED GRADE
4. ROOT BALL
5. ROCK TOPDRESSING - KEEP 3" CLEAR OF PLANT - PROVIDE WEED BARRIER FABRIC
6. ROUGHEN SIDES OF PLANTING AREA
7. FERTILIZER PACKETS PER SPECIFICATIONS (1) / = OR <1 GAL. (2) >1 GAL. & < 5 GAL. (3) / 5 GAL. OR >
8. PLANTING SOIL MIX
9. SUBGRADE PER SPECIFICATIONS AND PLAN NOTES
10. EDGING, ADJACENT WALK OR CURB PER PLANS

NOTES:
1. SHAPE SOIL SURFACE TO PROVIDE WATERING RING
2. IN AREAS WITH MULTIPLE PLANTS, PREPARE ENTIRE BED TO SOIL SPEC.

3 PERENNIAL PLANTING

1" = 1'-0"

P-CO-ANN 6.7-03



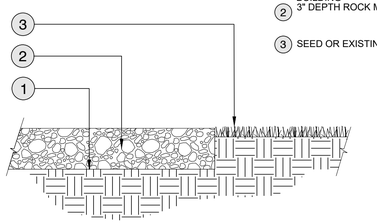
NOTES:

1. SCARIFY SUBGRADE 6", RAKE SUBGRADE AND REMOVE ALL DEBRIS GREATER THAN 1/2" IN DIA. INCLUDE ALL ROCKS, CONCRETE, ORGANIC DEBRIS, AND OR CONSTRUCTION DEBRIS
2. 4" NATIVE TOPSOIL REMOVE ALL LARGE DEBRIS FROM TOPSOIL
3. HYDROSEED MIX INSTALLED OVER PREPARED SUBGRADE AS PER LANDSCAPE PLAN

4 SEEDING

1" = 1"

P-CO-ANN 6.7-14



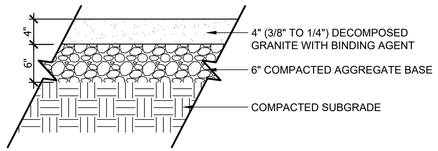
NOTES:

1. WEED BARRIER FABRIC LAYED ON PREPARED SUBGRADE. REMOVE ALL DEBRIS, CONCRETE LARGER THAN 1/2" IN DIA. SLOPE AT 1% AWAY FROM BUILDING
2. 3" DEPTH ROCK MULCH
3. SEED OR EXISTING LAWN

5 ROCK MULCH

1" = 1"

P-CO-ANN 6.7-13

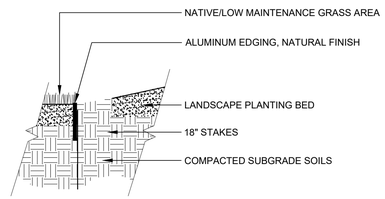


NOTES:
1. CAP EXISTING CRUSHER FINE TRAIL TO MEET ADA REQUIREMENTS.
2. DECOMPOSED GRANITE TO BE TREATED WITH STABILIZER BINDING AGENT

6 DECOMPOSED GRANITE

1" = 1'-0"

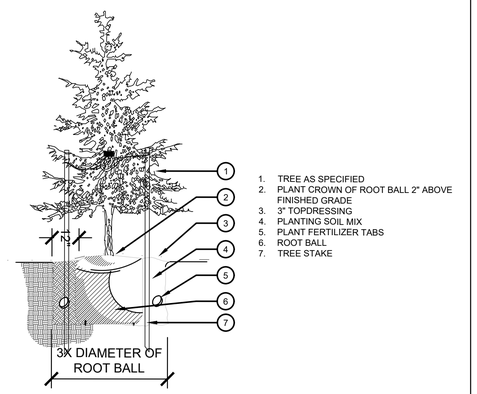
P-CO-ANN 6.7-25



7 ALUMINUM EDGING

1" = 1'-0"

P-CO-ANN 6.7-70



1. TREE AS SPECIFIED
2. PLANT CROWN OF ROOT BALL 2" ABOVE FINISHED GRADE
3. 3" TOPDRESSING
4. PLANTING SOIL MIX
5. PLANT FERTILIZER TABS
6. ROOT BALL
7. TREE STAKE

8 CONIFEROUS TREE PLANTING

1" = 1'-0"

P-CO-ANN 6.7-16

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BID SET

PLANTING DETAILS

251022	
DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

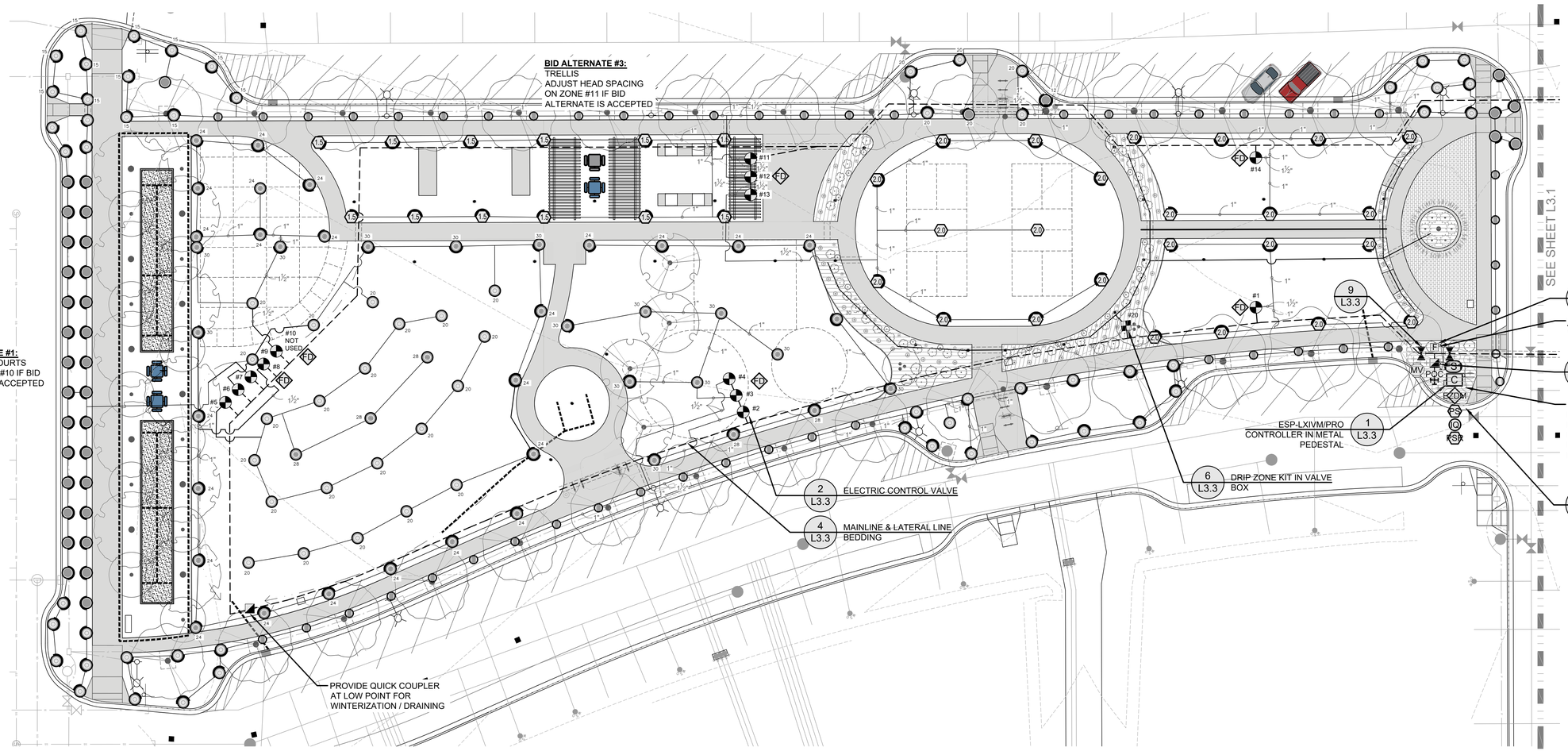
L4.3

IRRIGATION NOTES:

1. CONTRACTOR TO VERIFY EXISTING CONDITIONS. ALL EXISTING UTILITIES ARE TO BE LOCATED BEFORE TRENCHING OF ANY KIND BEGINS.
2. PROTECT ALL EXISTING IMPROVEMENTS TO REMAIN. IF DAMAGE OCCURS RESULTANT FROM CONTRACTOR'S OPERATIONS OR NEGLIGENCE, REPAIR BACK TO ORIGINAL CONDITION AT CONTRACTOR'S EXPENSE.
3. COORDINATE WORK FROM THIS SHEET WITH ALL OTHER TRADES.
4. INSTALL IRRIGATION SYSTEM AS DETAILED AND PER MANUFACTURER'S SPECIFICATIONS.
5. IRRIGATION PIPING LAYOUT IS SCHEMATIC. ACTUAL LOCATION OF PIPING AND OTHER COMPONENTS MAY VARY DUE TO EXISTING SITE CONDITIONS. PLACEMENT OF PIPE AND HEADS SHALL BE FIELD ADJUSTED TO ACCOMMODATE ACTUAL SITE CONDITIONS.
6. ALL MAINLINE SHALL BE AT LEAST 18" BELOW FINISHED GRADE. ALL LATERAL LINES SHALL BE AT LEAST 12" BELOW FINISHED GRADE.
7. RE-GRADE AND REPAIR ALL EXISTING AREAS DISTURBED BY CONTRACTOR'S OPERATIONS. A DISTURBED AREA SHALL BE WHERE CONSTRUCTION ACTIVITIES INCLUDING TRENCHING, DEMOLITION, EARTHWORK, MATERIAL STORAGE, STAGING, PARKING, OR ANY OTHER FORM OF EXCAVATION, COMPACTION, OR TRAFFIC RESULTS IN THE REMOVAL OR DISPLACEMENT OF EXISTING GROUND COVER OR GRADE. COORDINATE WITH GENERAL CONTRACTOR.
8. SYSTEM DESIGN IS BASED ON CONNECTION TO NEW EXEMPT IRRIGATION WELL. EXPECTED PRESSURE AT POINT OF CONNECTION IS 60 PSI. NOTIFY LANDSCAPE ARCHITECT IF THESE ASSUMPTIONS ARE NOT REALIZED IN THE FIELD.
9. PROVIDE ALL COMPONENTS REQUIRED TO COMPLETELY WINTERIZE THE IRRIGATION SYSTEM WHETHER OR NOT SPECIFIED HEREIN.
10. INSTALL TEMPORARY WATERING AS NECESSARY.
11. PROVIDE POWER TO IRRIGATION CONTROLLER AND FILTRATION COMPONENTS. COORDINATE POWER SOURCE WITH ELECTRICIAN.
12. INSTALL 2-WIRE CONTROL WIRES FROM ELECTRIC VALVES TO CONTROLLER, INCLUDING DECODERS AS NEEDED.
13. SLEEVES SHALL BE (2) SIZES LARGER THAN PIPE OR COMBINATION OF PIPES THEREIN ENCLOSED, WITH MINIMUM SIZE TO BE 4" (2" FOR CONTROL WIRES). SUPPLY (1) EXTRA SLEEVE. INSTALL 24" BELOW FINISHED GRADE AND EXTEND SLEEVES 12" PAST CURBS. TAPE/PLUG AND MARK ALL SLEEVE ENDS PRIOR TO BACKFILL.
14. CONTRACTOR TO ADJUST IRRIGATION DISTRIBUTION TO PROVIDE COMPLETE COVERAGE AND TO MINIMIZE WASTE WATER.
15. ALL PRESSURIZED MAIN LINE AND FITTINGS ABOVE GRADE SHALL BE GALVANIZED STEEL.
16. IRRIGATION CONTRACTOR TO PROVIDE PRESSURE TEST RESULTS OF MAINLINE CONNECTIONS TO GENERAL CONTRACTOR PRIOR TO BACKFILLING.
17. CONTRACTOR TO SUPPLY A MINIMUM OF (2) DRIP EMITTERS PER PLANT. PERENNIALS = 2 EMITTERS, SHRUBS = 3 EMITTERS. CONTRACTOR MAY UTILIZE MULTI-PORT EMITTERS IN LANDSCAPE BEDS WHERE APPROPRIATE.
18. INSTALL ALL COMPONENTS PER MANUFACTURER'S INSTRUCTIONS.
12. NOTIFY LANDSCAPE ARCHITECT AND PROJECT MANAGER OF ANY DISCREPANCIES.

VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	WIRE	PSI
1	HUNTER ICV-G	1"	TURF ROTOR	14		50.2
2	HUNTER ICV-G	1"	TURF ROTARY	14.2		49.8
3	HUNTER ICV-G	1"	TURF ROTARY	18.22		45.8
4	HUNTER ICV-G	1"	TURF ROTARY	22.25		51.8
5	HUNTER ICV-G	1"	TURF ROTARY	28.67		66.7
6	HUNTER ICV-G	1"	TURF ROTARY	24.18		52.2
7	HUNTER ICV-G	1"	TURF ROTARY	21.03		49.8
8	HUNTER ICV-G	1"	TURF ROTARY	17.27		49.3
9	HUNTER ICV-G	1"	TURF ROTARY	17.24		48.5
10	HUNTER ICV-G	1"	TURF ROTARY	14.58		45.5
11	HUNTER ICV-G	1"	TURF ROTOR	21		55.1
12	HUNTER ICV-G	1"	TURF ROTARY	26.94		55.1
13	HUNTER ICV-G	1"	TURF ROTOR	20		55.3
14	HUNTER ICV-G	1"	TURF ROTOR	14		50.2
15	HUNTER ICV-G	1"	TURF ROTOR	20		55.9
16	HUNTER ICV-G	1"	TURF ROTOR	20		56.4
17	HUNTER ICV-G	1"	TURF ROTOR	18		56.2
18	HUNTER ICV-G	1"	TURF ROTARY	17.61		50.8
19	HUNTER ICV-G	1"	TURF ROTARY	16.17		50.2
20	HUNTER ICZ-101-25	1"				
21	HUNTER ICZ-101-25	1"				
	Common Wire				1,484	



IRRIGATION PLAN

SCALE: 1" = 20'

0 20' 40'
SCALE IN FEET

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BID SET

IRRIGATION PLAN - BID ALTERNATE 1 & 3

251022

DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

L5.1

PLANT SCHEDULE

THESE PLANTS TO BE INCLUDED IN **BID ALTERNATE #1: BOCCE BALL COURTS**

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	QTY
TREES						
	CT	CRATAEGUS X MORDENENSIS 'TOBA'	TOBA HAWTHORN	1" CAL.	POT	11
DECIDUOUS TREES						
	QB	QUERCUS BICOLOR	SWAMP WHITE OAK	1.5" CAL.	B&B	5
SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	
SOD/SEED						
	TS	TURF GRASS	DROUGHT TOLERANT FESCUE BLEND	HYDROSEED		
TOP DRESSING						
	DG	DECOMPOSED GRANITE	BID ALTERNATE #3 - SEE L5.2	CRUSHER FINES		
	SA	SAND	WASHED SAND	6" DEPTH		

#2

DG = DECOMPOSED GRANITE, SEE LANDSCAPE PLAN

BID ALTERNATE #3: TRELLIS SHADE STRUCTURES (3 UNITS), HANGING SWINGS, HAMMOCKS, TWO SQUARE TABLES

BID ALTERNATE #4: PRECAST CONCRETE LAWN GAMES (INCLUDING SMALL CONCRETE SLABS)

TWO SQUARE TABLES, PROVIDE (1) ADA TABLE

HANGING BENCH (8)

HAMMOCKS (2)

LANDSCAPE EDGING

1 L2.4 TRELLIS ENLARGED PLAN

30.00' DG

11.00' DG

6 L4.3 DECOMPOSED GRANITE

BOCCE BALL COURT

BID ALTERNATE #1: BOCCE BALL COURTS

NPS EZ0701F EZFLOW DRAIN, ADJUST LOCATIONS AS NEEDED TO AVOID TREE PLANTINGS

5 L4.3 ROCK MULCH

SQUARE TABLES (2)

LANDSCAPE EDGING

1 L2.5 BOCCE BALL COURT ENLARGED PLAN

BOCCE BALL COURT

PROTECT EXISTING ELECTRICAL TRANSFORMER

SEE SHEET L4.1

C

W

#2

PLANTING PLAN FOR BID ALTERNATES

SCALE: 1" = 20'

0 20' 40'

SCALE IN FEET

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#2 ADDENDA #2 - 04/14/2026

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PLANTING PLAN - BID ALTERNATES 1 & 3

251022

DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

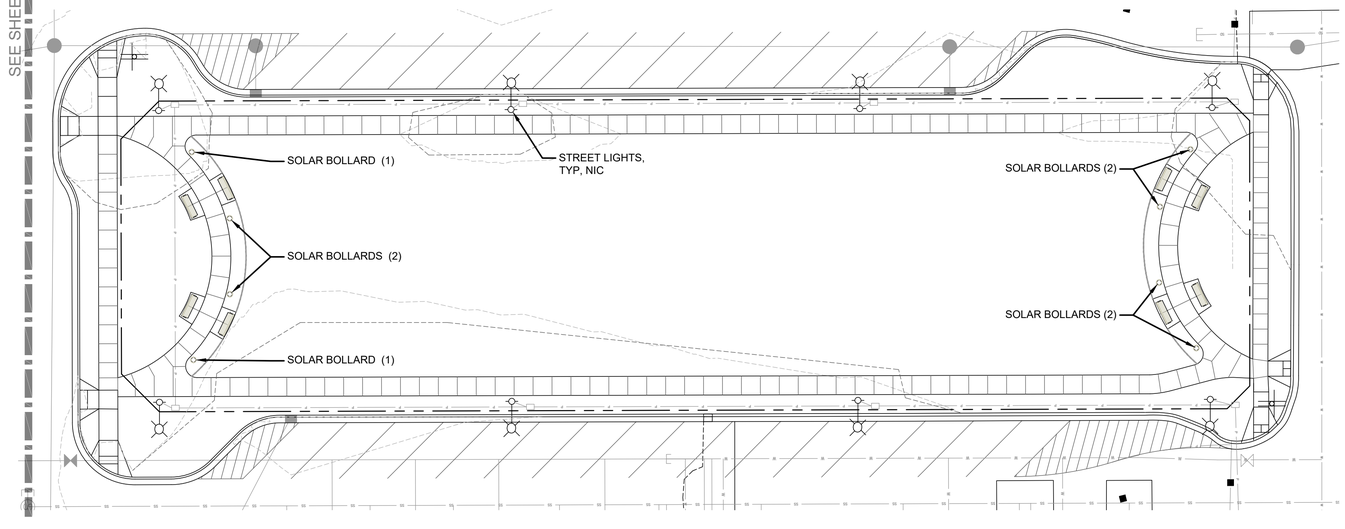
L5.2

ELECTRICAL BASIS OF DESIGN

	UNDERGROUND ELECTRICAL - CONTRACTOR TO COORDINATE ELECTRICAL NEEDS WITH OWNER AND ELECTRICIAN	
	120v OUTLET, OUTDOOR RATED (20 AMP SERVICE)	
C	IRRIGATION CONTROLLER, 15 AMP SERVICE	
	SOLAR BOLLARD (8)	FIRST LIGHT TECHNOLOGY LTD (FLT); PLB-102-BK-ASM-WW-04
	BID ALTERNATE #2: POLE LIGHTS + STRING LIGHTS 16' HEIGHT PRECAST LIGHT POLE (24)	WJM PARTNERS, INC; 16' ROUND STRAIGHT STEEL POLE, BASE MOUNTED, 6" BASE, 7 GA STEEL, RS6000716-SCBA-BC
	BID ALTERNATE #2: POLE LIGHTS + STRING LIGHTS COMMERCIAL GRADE STRING LIGHTS, HANG ON STAINLESS STEEL CABLE	STRINGLITE BY CELESTIAL LIGHTING - MODEL# STL-24 CONTACT QUANTUM LIGHTING, JAKE HERRICK (623) 537-3934

#2

SEE SHEET E1.2



ELECTRICAL BASIS OF DESIGN

SCALE: 1" = 20'

0 20' 40'
SCALE IN FEET

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ELECTRICAL BASIS OF DESIGN

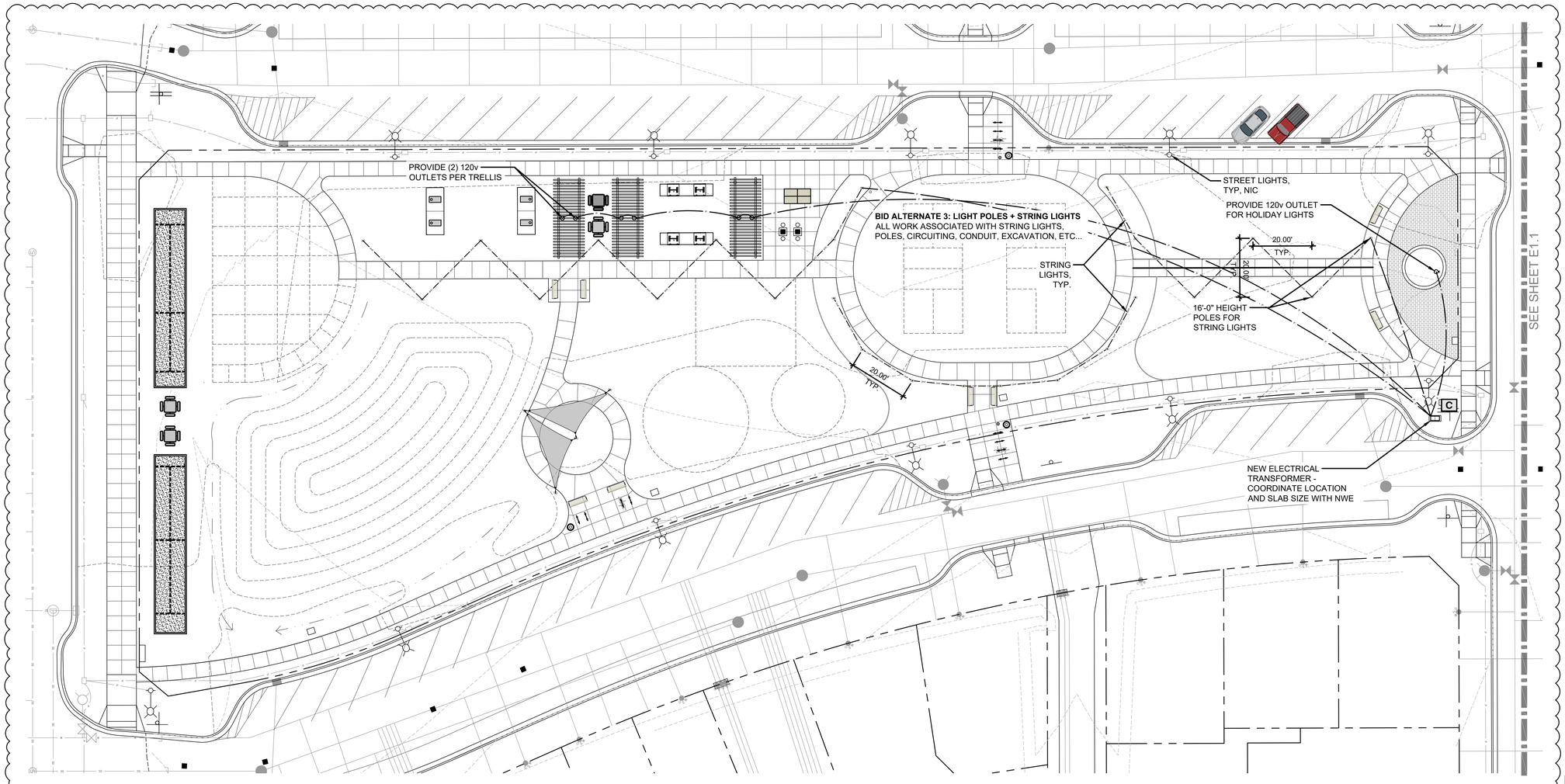
251022	
DRAWN BY	SNC
APPROVED	NRK
DATE	03-12-2026

E1.1

ELECTRICAL BASIS OF DESIGN

	UNDERGROUND ELECTRICAL - CONTRACTOR TO COORDINATE ELECTRICAL NEEDS WITH OWNER AND ELECTRICIAN	
	120v OUTLET, OUTDOOR RATED (20 AMP SERVICE)	
C	IRRIGATION CONTROLLER, 15 AMP SERVICE	
	SOLAR BOLLARD (8)	FIRST LIGHT TECHNOLOGY LTD (FLT); PLB-102-BK-ASM-WW-04
	BID ALTERNATE #2: POLE LIGHTS + STRING LIGHTS 16' HEIGHT PRECAST LIGHT POLE (24)	WJM PARTNERS, INC; 16' ROUND STRAIGHT STEEL POLE, BASE MOUNTED, 6" BASE, 7 GA STEEL, RS6000716-SCBA-BC
	BID ALTERNATE #2: POLE LIGHTS + STRING LIGHTS COMMERCIAL GRADE STRING LIGHTS, HANG ON STAINLESS STEEL CABLE	STRINGLITE BY CELESTIAL LIGHTING - MODEL# STL-24 CONTACT QUANTUM LIGHTING, JAKE HERRICK (623) 537-3934

#2



#2

ELECTRICAL BASIS OF DESIGN

SCALE: 1" = 20'

0 20' 40'
SCALE IN FEET

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BID SET

ELECTRICAL BASIS OF DESIGN

251022	
DRAWN BY	SNC
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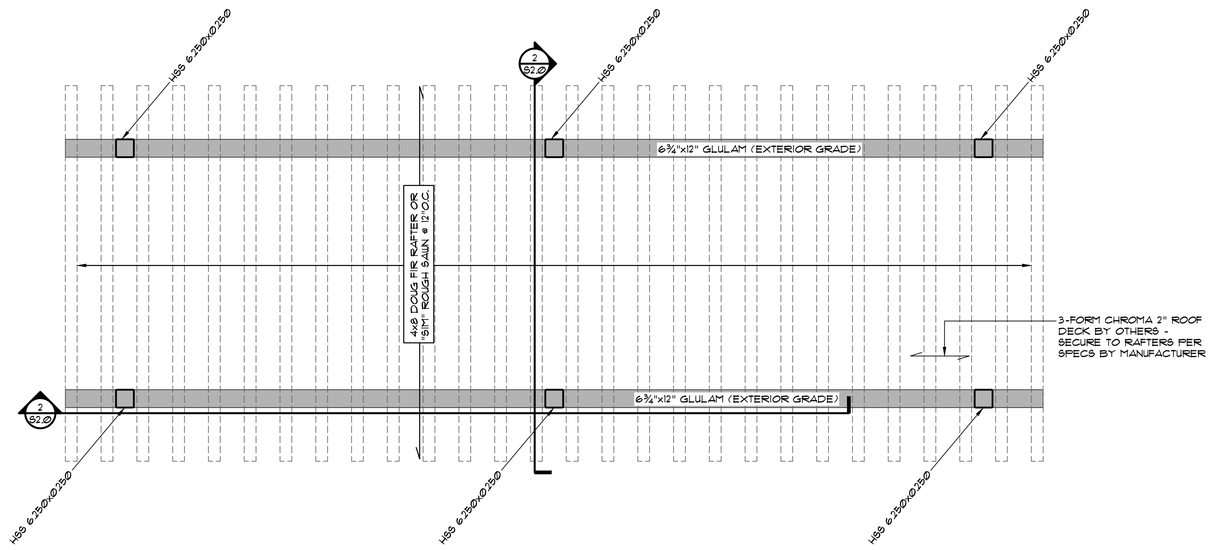
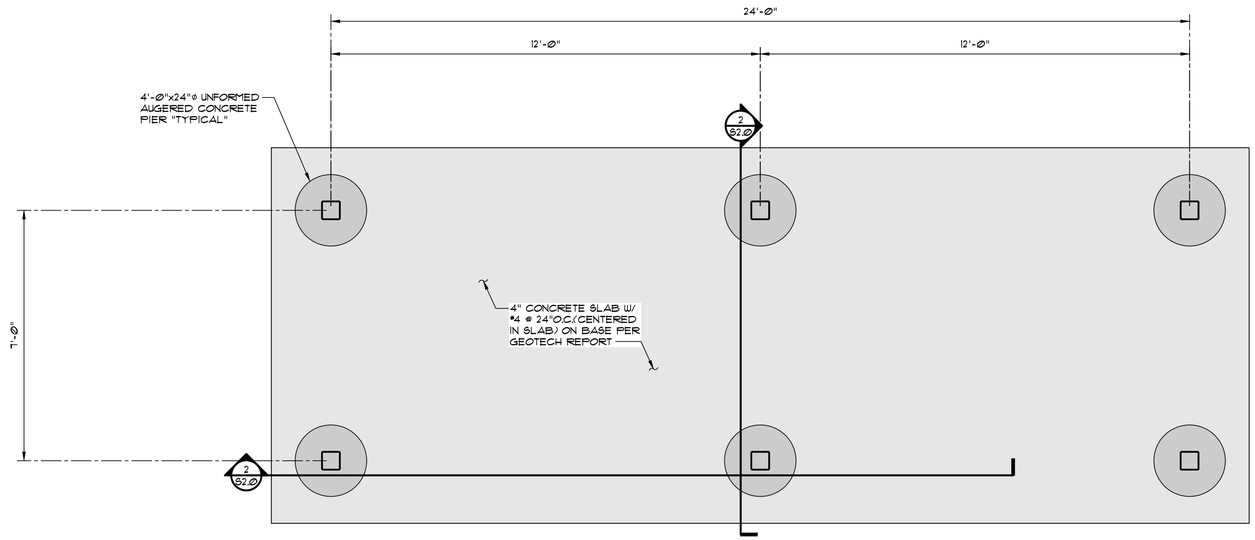
DATE	03-12-2026

E1.2



1 ROOF FRAMING PLAN

½" = 1'-0"



2 FOUNDATION PLAN

½" = 1'-0"

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Annafeld
Trellis
Billings, Montana

MONTANA
SAM KRZANICKA
51149
REGISTERED PROFESSIONAL ENGINEER

SHEET DESCRIPTION:

Foundation & Framing Plans

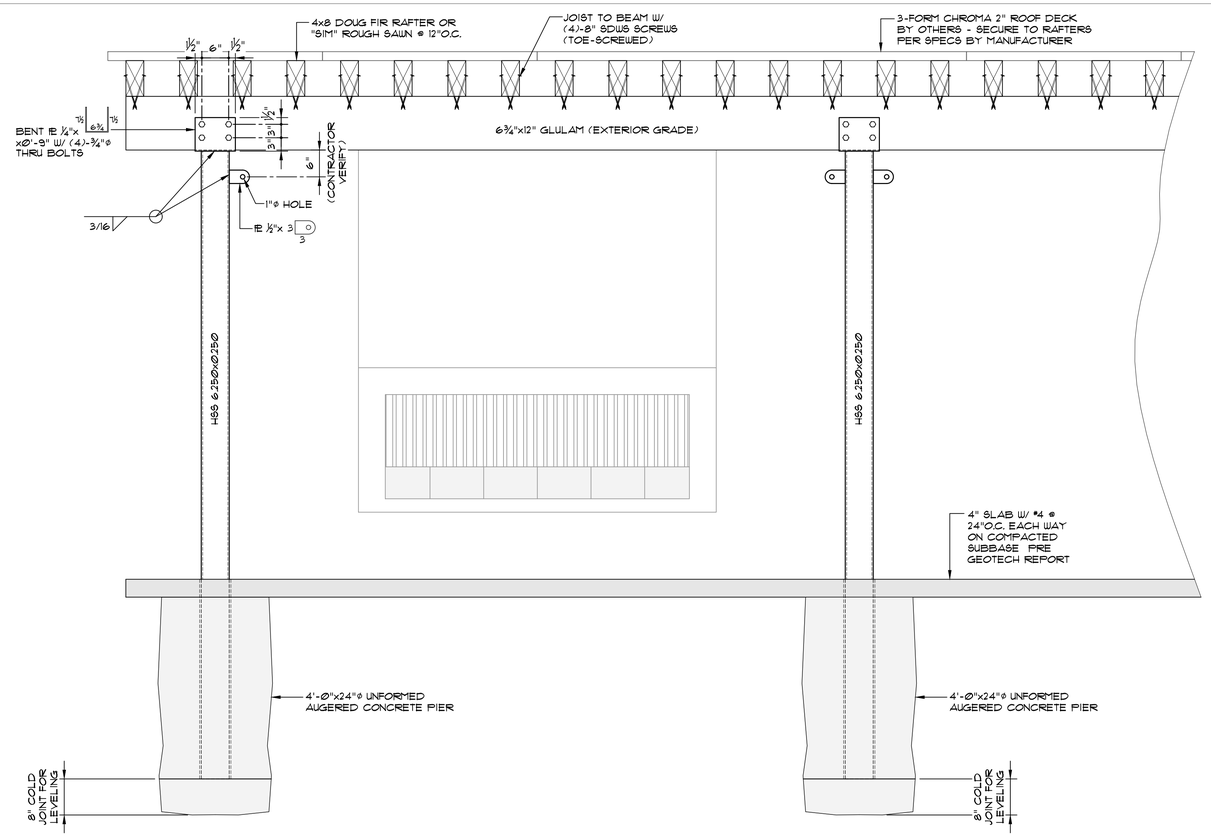
DRAFTER: TB
ENGINEER: SK
SCALE: 1/2" = 1'-0"
DATE: 1.29.2026
JOB NUMBER: 26008

SHEET:

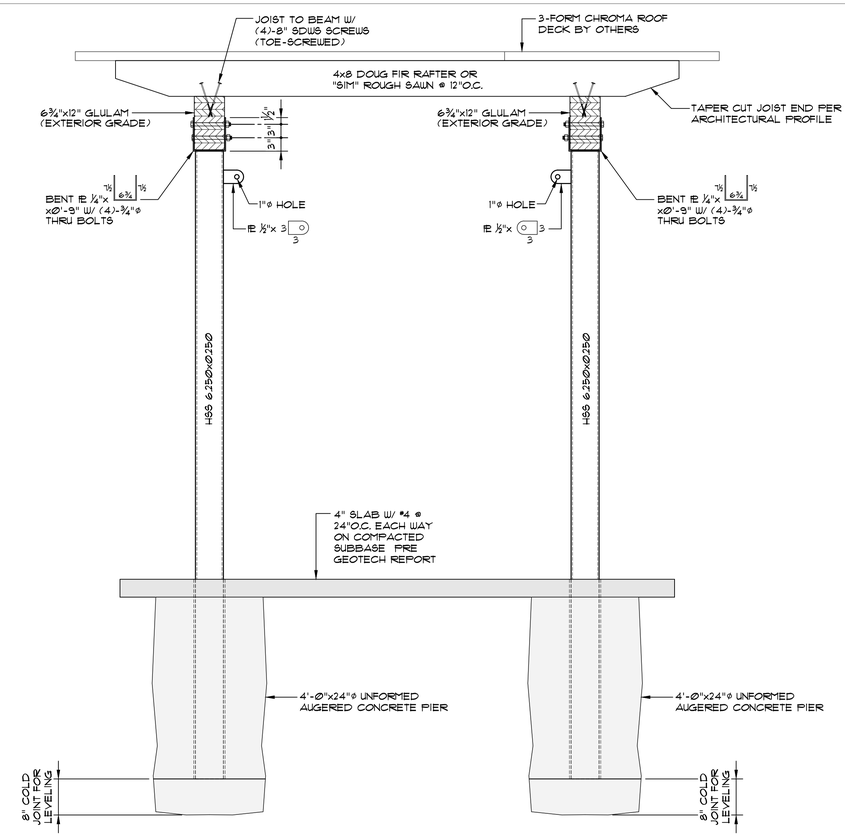
S1.0

1/29/26 26008s1.0.dwg

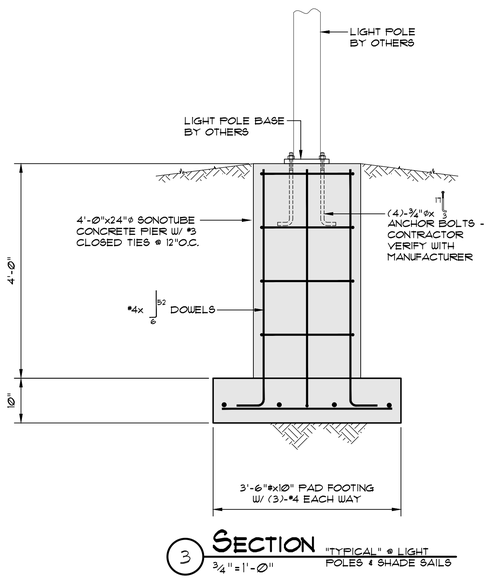
printed scale: 1/2" = 1'-0"



1 SECTION
¾"=1'-Ø"



2 SECTION
¾"=1'-Ø"



3 SECTION "TYPICAL" @ LIGHT POLES & SHADE SAILS
¾"=1'-Ø"

printed scale: 1/2" = 1'-0"

1/29/26 26008s2.0.dwg

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Annafeld
Trellis
Billings, Montana

MONTANA SAM KRYANIUSA 51149 REGISTERED PROFESSIONAL ENGINEER

SHEET DESCRIPTION:
Details & Sections

DRAFTER: TB
ENGINEER: SK
SCALE: 1/2" = 1'-0"
DATE: 1.29.2026
JOB NUMBER: 26008

SHEET:
S2.0

STRUCTURAL NOTES

GOVERNING CODES

INTERNATIONAL BUILDING CODE, 2021 EDITION
AMERICAN INSTITUTE OF STEEL CONSTRUCTION, 9TH EDITION
AMERICAN CONCRETE INSTITUTE, 318-14
AMERICAN SOCIETY OF CIVIL ENGINEERS, 7-16
AMERICAN WELDING SOCIETY D1.1 (U.O.N.)

DESIGN CRITERIA

BUILDING DESIGN CATEGORY: II
SNOW LOAD: P_f=30 PSF NON-REDUCIBLE + DRIFTING, P_g= 40 PSF, C_e=1.0, C_s=1.0, I_w=1.0, C_t=1.0
WIND LOAD: $V_{(3\ SEC)}$=102 MPH
SEISMIC:
SOIL CLASS: "D"
DESIGN CATEGORY "B": I_E=1.0, S_s=0.13, S_1=0.049
RESISTIVE SYSTEM=WOOD SHEATHING
SEISMIC DESIGN FACTORS: S_{MS}=0.18, S_{M1}=0.13, S_{DS}=0.12, S_{D1}=0.087, R=6½
SIMPLIFIED BASE SHEAR METHOD: LIVE LOAD FACTOR = 1
FLOOR LOAD: 100 PSF (LIVE), DECKS=60 PSF (LIVE)
FOUNDATION: ASSUMED BEARING ON MATERIAL SPECIFIED W/ ASSOCIATED CAPACITY IN GEOTECHNICAL REPORT

GENERAL NOTES

- CONTRACTOR SHALL COORDINATE OPENINGS & IMBEDDED ITEMS NOTED ON CONSTRUCTION DOCUMENTS W/ APPROPRIATE TRADE.
- ALL SHOP DRAWINGS OF ALL STRUCTURAL COMPONENTS SHALL BE REVIEWED BY ARCHITECT / ENGINEER PRIOR TO FABRICATION.
- STRUCTURAL COMPONENTS SHALL BE TEMPORARILY BRACED IN A MANNER TO RESIST EARTHQUAKE, WIND, SNOW, & LATERAL EARTH LOADS or COMBINATION THEREOF UNTIL PLYWOOD ROOF DIAPHRAGM, PLYWOOD SHEATHED SHEAR WALLS, or FLOOR FRAMING ARE IN PLACE & SECURED PROPERLY.
- ANY PROFESSIONAL THIRD PARTY REVIEW TO BE APPROVED BY "KRIVONEN STRUCTURAL ENGINEERS" PRIOR TO REVIEW.
- THE STRUCTURAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH DRAWINGS AND SPECIFICATIONS FROM ALL OTHER DISCIPLINES. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHASES, HANGERS, INSERTS, ANCHORS, HOLES, AND OTHER ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.
- THE STRUCTURAL DRAWINGS HERE-IN REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY GUYING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK & CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY, & INSPECTION OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE METHODS, TECHNIQUES, AND SEQUENCE OF PROCEDURES TO PERFORM THE WORK. THE SUPERVISION OF THE WORK IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO APPROVAL BY THE ENGINEER.
- LOADING APPLIED TO THE STRUCTURE DURING THE PROCESS OF CONSTRUCTION SHALL NOT EXCEED THE SAFE LOAD-CARRYING CAPACITY OF THE STRUCTURAL MEMBERS. THESE LOADINGS ARE SPECIFIED IN THE "DESIGN CRITERIA" PORTION OF THESE NOTES. DO NOT APPLY ANY CONSTRUCTION LOADS UNTIL STRUCTURAL FRAMING IS PROPERLY CONNECTED TOGETHER AND UNTIL ALL TEMPORARY BRACING IS IN PLACE.
- SHOP DRAWINGS AND OTHER ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. ALL SHOP DRAWINGS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL. THE ENGINEER'S REVIEW IS TO BE FOR CONFORMANCE WITH THE DESIGN CONCEPT AND GENERAL COMPLIANCE WITH THE RELEVANT CONTRACT DOCUMENTS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW, CHECK, AND COORDINATE THE SHOP DRAWINGS PRIOR TO SUBMISSION. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR THE ERRORS & OMISSIONS ASSOCIATED WITH THE PREPARATION OF THE SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, DIMENSIONS, ETC.

SPECIAL INSPECTION

STATEMENT OF SPECIAL INSPECTIONS:

- SPECIAL INSPECTIONS AND STRUCTURAL TESTING SHALL BE PROVIDED BY AN INDEPENDENT AGENCY EMPLOYED BY THE OWNER FOR THE ITEMS IDENTIFIED IN THIS SECTION & IN OTHER AREAS OF THE APPROVED CONSTRUCTION PLANS & SPECIFICATIONS, UNLESS WAIVED BY THE BUILDING OFFICIAL (SEE IBC CHAPTER 17)
- THE NAMES & CREDENTIALS OF THE SPECIAL INSPECTORS TO BE USED SHALL BE SUBMITTED TO THE BUILDING OFFICE FOR APPROVAL. SPECIAL INSPECTORS FOR THIS PROJECT INCLUDE:
- SPECIAL INSPECTION OF BOLTED CONNECTIONS & CONCRETE FOUNDATION WILL BE REQUIRED PER 2021 IBC REQUIREMENTS.

CONCRETE TESTING: TAKE 1 STRENGTH TEST ON EACH DAY OF CONCRETE POUR OR A MINIMUM OF 3 STRENGTH TESTS FOR ENTIRE PROJECT SEQUENCE. TAKE 3 CYLINDERS PER STRENGTH TEST OF WHICH ONE IS TO BE BROKEN AT 7 DAYS & TWO AT 28 DAYS. THE TESTING SHALL BE CONSISTENT WITH IBC RECOMMENDATIONS & CONDUCTED BY "RIMROCK ENGINEERING".

BOLTED CONNECTIONS: BOLTED CONNECTIONS INSPECTION BY K4 INSPECTION SERVICE. PER IBC 2021 INSPECTION REQUIREMENTS.

FIELD WELDS: DECK & FILLET WELD INSPECTION BY K4 INSPECTION SERVICE. PER IBC 2021 INSPECTION REQUIREMENTS.

SOIL INSPECTIONS: PERIODIC SOIL & COMPACTION TESTING TO BE PERFORMED BY "RIMROCK ENGINEERING" PER IBC 2021 REQUIREMENTS.

POST-INSTALLED ANCHORS: POST-INSTALLED ANCHOR INSTALLATION TO BE PERFORMED BY "TERRACON ENGINEERING" PER IBC 2021 REQUIREMENTS.

CONCRETE REINFORCING: VERIFICATION OF CONCRETE REINFORCING SIZE, MATERIAL, & LOCATION TO BE CONDUCTED BY "RIMROCK ENGINEERING" PER IBC 2021 REQUIREMENTS.

- DUTIES OF THE SPECIAL INSPECTOR:
  --THE SPECIAL INSPECTOR SHALL REVIEW ALL WORK LISTED BELOW FOR CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS & SPECIFICATIONS & THE 2021 IBC.
  --THE SPECIAL INSPECTOR SHALL FURNISH SPECIAL INSPECTION REPORTS TO THE EOR, CONTRACTOR, OWNER & BUILDING OFFICIAL ON A WEEKLY BASIS, OR MORE FREQUENTLY AS REQUIRED BY THE BUILDING OFFICIAL. ALL ITEMS NOT IN COMPLIANCE SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, & IF UNCORRECTED, TO THE EOR AND THE BUILDING OFFICIAL.
  --ONCE CORRECTIONS HAVE BEEN MADE BY THE CONTRACTOR, THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT TO THE BUILDING OFFICIAL STATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE SPECIAL INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS & SPECIFICATIONS AS WELL AS THE APPLICABLE WORKMANSHIP PROVISIONS OF THE 2021 IBC.
- DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR:
  --THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE OWNER & THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF WORK. IN ACCORDANCE WITH IBC 1704.4, THE STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED WITHIN THIS "STATEMENT OF SPECIAL INSPECTIONS."
  --THE CONTRACTOR SHALL NOTIFY THE RESPONSIBLE SPECIAL INSPECTOR THAT WORK IS READY FOR INSPECTION AT LEAST ONE WORKING DAY (24 HOURS MINIMUM) BEFORE SUCH INSPECTION IS REQUIRED.
  --ALL WORK REQUIRING SPECIAL INSPECTION SHALL REMAIN ACCESSIBLE & EXPOSED UNTIL IT HAS BEEN OBSERVED BY THE SPECIAL INSPECTOR.
- PLEASE SEE THE "SPECIAL INSPECTION SCHEDULE" FOR THE TYPES, EXTENTS AND FREQUENCY OF SPECIFIC ITEMS REQUIRING SPECIAL INSPECTIONS AND STRUCTURAL TESTS AS PART OF THIS PROJECT.

SPECIAL INSPECTION SCHEDULE

TYPE	FREQUENCY: CONTINUOUS	FREQUENCY: PERIODIC	REFERENCED STANDARD	IBC REFERENCE
IBC TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION				
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.		●	ACI 318: CH. 20, 25.2, 25.3, 26.6.1-26.6.3	
2. REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706. b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM ⅝". c. INSPECT ALL OTHER WELDS.	●	● ●	AWS D1.4 ACI 318: 26.6.4	
3. INSPECT ANCHORS CAST IN CONCRETE.		●	ACI 318: 17.8.2	
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.[b] a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a	●	●	ACI 318: 17.8.2.4 ACI 318: 17.8.2	
5. VERIFY USE OF REQUIRED DESIGN MIX.		●	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	●		ASTM C31 ASTM C172 ACI 318: 26.5, 26.12	
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	●		ACI 318: 26.5	
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.		●	ACI 318: 26.5.3-26.5.5	
14. INSPECT FORMWORK FOR SHAPE, LOCATION, & DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.		●	ACI 318: 26.13.1.3	
IBC TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS				
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATION ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		●		
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		●		
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIAL.		●		
4. DURING FILL PLACEMENT, VERIFY USE OF PROPER MATERIALS & PROCEDURES IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT. VERIFY DENSITIES & LIFT THICKNESSES DURING PLACEMENT & COMPACTION OF COMPACTED FILL.	●			
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE & VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		●		
COLD-FORMED STEEL CONSTRUCTION (IBC 1705.11.3)				
COMPONENTS OF WIND AND SEISMIC-FORCE RESISTING SYSTEMS.		●	VERIFY PROPER SCREW ATTACHMENT, BOLTING & ANCHORING OF SHEAR WALLS, BRACES & HOLDOWNS HAVING A FASTENER SPACING OF ≤ 4"O.C.	
STRUCTURAL STEEL CONSTRUCTION (IBC 1705.2, 1705.11, 1705.12)				
PRIOR TO WELDING (TABLE N5.4-1, AISC 360-10)				
VERIFY WELDING PROCEDURES	●			
MATERIAL IDENTIFICATION		●	VERIFY TYPE & GRADE OF MATERIAL.	
WELDER IDENTIFICATION	●		VERIFY THERE IS A SYSTEM IN PLACE TO IDENTIFY THE WELDER WHO HAS WELDED A JOINT OR MEMBER.	
FIT-UP GROOVE WELDS		●	VERIFY JOINT PREPARATION, DIMENSIONS, CLEANLINESS, TACKING & BACKING.	
ACCESS HOLES		●	VERIFY CONFIGURATION & FINISH.	
FIT-UP FILLET WELDS		●	VERIFY ALIGNMENT, GAPS AT ROOT, CLEANLINESS OF STEEL SURFACES, TACK WELD QUALITY & LOCATION.	
DURING WELDING (TABLE N5.4-2, AISC 360-10)				
USE OF QUALIFIED INSPECTORS		●	VERIFY THAT WELDERS ARE APPROPRIATELY QUALIFIED.	
CONTROL & HANDLING OF WELDING CONSUMABLES		●	VERIFY PACKAGING & EXPOSURE CONTROL.	
CRACKED TACK WELDS		●	VERIFY WELDING IS NOT OVER A CRACKED TACK WELD.	
ENVIRONMENTAL CONDITIONS		●	VERIFY WIND SPEED IS WITHIN LIMITS AS WELL AS PRECIPITATION & TEMPERATURE.	
WPS FOLLOWED		●	VERIFY ITEMS SUCH AS WELDING EQUIPMENT SETTINGS, TRAVEL SPEED, WELDING MATERIALS, SHIELDING GAS TYPE/ FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED, & PROPER POSITION	
WELDING TECHNIQUES		●	VERIFY INTERPASS & FINAL CLEANING, EACH PASS IS WITHIN PROFILE LIMITATIONS, & QUALITY OF EACH PASS.	
AFTER WELDING (TABLE N5.4-3, AISC 360-10)				
WELDS CLEANED		●	VERIFY THAT WELDS HAVE BEEN PROPERLY CLEANED.	
SIZE, LENGTH & LOCATION OF WELDS	●			
WELDS MEET VISUAL ACCEPTANCE CRITERIA	●			
ARC STRIKES	●			
K-AREA	●			
BACKING & WELDING TABS REMOVED	●			
REPAIR ACTIVITIES	●			
DOCUMENT ACCEPTANCE/REJECTION OF WELD	●			
NONDESTRUCTIVE TESTING (TABLE N5.5, AISC 360-10)				
CJP WELDS (RISK CAT. II)		●	ULTRASONIC TESTING SHALL BE PERFORMED ON 10% OF CJP GROOVE WELDS IN BUTT, T-AND CORNER JOINTS SUBJECT TO TRANSVERSELY APPLIED TENSION LOADING IN MATERIALS ¾" THICK OR GREATER. TESTING RATE MUST BE INCREASED IF > 5% OF WELDS HAVE UNACCEPTABLE DEFECTS.	
ACCESS HOLES (FLANGE > 2")	●			
WELDED JOINTS SUBJECT TO FATIGUE	●			
OTHER STEEL INSPECTIONS (TABLE N5.7, AISC 360-10; TABLES J8-1 AND J10-1, AISC 341-10)				
STRUCTURAL STEEL DETAILS		●	ALL FABRICATED STEEL & THEIR CONNECTIONS SHALL BE INSPECTED TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN IN APPROVED PLANS.	
ANCHOR RODS/EMBEDS SUPPORTING STRUCTURAL STEEL		●	SHALL BE ON THE PREMISES DURING THE PLACEMENT OF ANCHOR RODS/EMBEDMENTS. VERIFY DIAMETER, GRADE, TYPE, & LENGTH OF ELEMENT & THE EXTENT OR DEPTH OF EMBEDMENT PRIOR TO PLACEMENT OF CONCRETE.	
REDUCED BEAM SECTIONS (RBS)		●	VERIFY CONTOUR & FINISH AS WELL AS DIMENSIONAL TOLERANCES (SEE TABLE J8-1 OF AISC 341).	
PROTECTED ZONES		●	VERIFY/ VERIFY THAT NO HOLES OR UNAPPROVED ATTACHMENTS ARE MADE WITHIN THE PROTECTED ZONE (SEE TABLE J8-1 OF AISC 341).	

STRUCTURAL STEEL

- ALL STEEL DESIGN AND FABRICATION IN ACCORDANCE WITH THE 14TH EDITION OF THE AMERICAN INSTITUTE FOR STEEL CONSTRUCTION (A.I.S.C.) CODE:
- WHERE "CONTINUOUS CHORD" ANGLES ARE INDICATED, PROVIDE A CONTINUOUS BUTT WELD OR FULL PENETRATION WELD AT THE SPLICE POINTS.
- HOLES IN THE STEEL SHALL BE DRILLED OR PUNCHED WITH SMOOTH EDGES. BURNING OR TORCH CUTTING OF HOLES AT SITE IS NOT PERMITTED.
- THE STRUCTURAL STEEL ERECTOR SHALL PROVIDE ALL TEMPORARY GUYING AND BRACING.
- COLUMNS, ANCHOR BOLTS, AND BASE PLATES, ETC. HAVE BEEN DESIGNED FOR THE FINAL COMPLETED CONDITION AND HAVE NOT BEEN ANALYZED FOR POTENTIAL LOADINGS ENCOUNTERED DURING STEEL ERECTION AND CONSTRUCTION. ANY ANALYSIS OF THESE COMPONENTS FOR ADEQUACY DURING ERECTION AND CONSTRUCTION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- UNLESS OTHERWISE NOTED, ALL STRUCTURAL STEEL PERMANENTLY EXPOSED TO THE WEATHER SHALL BE HOT-DIPPED GALVANIZED.
- PROTECTIVE COATINGS DAMAGED DURING TRANSPORTING, ERECTING, AND FIELD WELDING PROCESSES SHALL BE REPAIRED IN THE FILED TO MATCH THE SHOP APPLIED COATING.

COLD FORMED STEEL FRAMING:

- ALL COLD FORMED STEEL FRAMING MEMBERS, THEIR DESIGN FABRICATION, AND ERECTION SHALL CONFORM TO THE AISI 220 NORTH AMERICAN STANDARD FOR COLD FORMED STEEL FRAMING.
- ALL FRAMING MEMBERS TO BE FORMED FROM STEEL CONFORMING TO ASTM C955-18E1 WITH A MINIMUM YIELD STRENGTH AS FOLLOWS: 12, 14, AND 16 GAUGE MEMBERS - F_y = 50 KSI (GRADE D)
  18 AND 20 GAUGE MEMBERS - F_y = 33 KSI (GRADE A)
- THE GAUGE OF ALL TRACKS SHALL BE NO LIGHTER THAN THE FRAMING BEING CONNECTED. UNLESS NOTED OTHERWISE, CONNECT TRACKS TO CONCRETE W/ 0.201"ø x1½" POWER DRIVEN FASTENERS W/ 1½" EMBEDMENT AT 16"O.C..
- ALL WELDING SHALL BE IN COMPLIANCE WITH AISI 100. ALL WELDS SHALL BE TOUCHED UP WITH ZINC RICH PAINT.
- PROVIDE WEB STIFFENERS AT JOIST AND RAFTER BEARINGS IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
- ALL AXIAL LOADED STUDS SHALL HAVE FULL BEARING AGAINST THE TRACK INSIDE THE TRACK WEB, PRIOR TO STUD & TRACK ALIGNMENT. SPLICES IN AXIALLY LOADED STUDS ARE NOT PERMITTED.
- UNLESS OTHERWISE NOTED, PROVIDE DOUBLE BEARING TRIMMER STUDS AND DOUBLE FULL HEIGHT KING STUDS AT WALL OPENING JAMBS.
- ALL BEARING STUDS TO BE BRACED WITH COLD ROLLED CHANNEL BETWEEN THE WEBS OF LOAD BEARING STUDS AT 48"O.C. BRACING GAUGE SHALL BE EQUAL TO STUD GAUGE. BRACING SHALL BE ATTACHED TO STUDS PER BRACING MANUFACTURER'S SPECIFICATIONS.
- ALL SHEAR WALLS TO HAVE 3" WIDE CONTINUOUS METAL STRAPPING BACKING PANEL JOINTS IN SHEAR PANELS. STRAPPING ATTACHED TO EACH STUD W/ (1)-TEK SCREW UNLESS NOTED OTHERWISE.

MATERIALS:

TUBES: ASTM A500 GRADE B, Fy = 46 KSI
W BEAMS: ASTM A992, Fy = 50 KSI
STEEL SHAPES & PLATES: ASTM A36, Fy = 36 KSI (UNLESS NOTED)
WELDED CONNECTIONS: E70XX ELECTRODES
BOLTED CONNECTIONS: ASTM A325 BOLTS WITH "SNUG TIGHT" FIT UNLESS NOTED OTHERWISE NOTED

CONCRETE

- ALL CONCRETE SHALL BE READY MIXED AND SUPPLIED IN ACCORDANCE WITH SPECIFICATION REQUIREMENTS. NO WATER SHALL BE ADDED TO MIX AT JOB SITE.
- MINIMUM COVER REQUIREMENTS:
  CAST AGAINST EARTH = 3"
  FORMED WALLS = 1½"
  TOP OF SLAB = 1"
- CHAMFER ALL EXPOSED CORNERS ¾" UNLESS NOTED
- OPENINGS IN CONCRETE WALLS OF 2'-0" or GREATER IN EITHER DIRECTION SHALL HAVE 2 - #4 BARS ALL SIDES & SHALL EXTEND 24" BEYOND OPENING.
- COLD WEATHER CONCRETING GUIDELINES TO BE FOLLOWED IN COLD TEMPERATURES.
- FLYASH TYPE "F" or TYPE "C" MAY BE USED TO REPLACE NO MORE THAN 10% OF THE CEMENT CONTENT.
- CONCRETE SLUMP SHALL BE 2"-6" IF NO ADMIXTURES ARE USED. SLUMP MAY BE INCREASED TO 7½" MAX. IF ADMIXTURES ARE USED. 5-7% AIR ENTRAINED FOR ALL FOUNDATIONS & EXTERIOR SLABS.
- MAXIMUM AGGREGATE SIZE OF 1" MINUS OR ¾" NOMINAL.
- TYPE "1", TYPE "2", OR TYPE "1L" CEMENT IS ACCEPTABLE.

MATERIALS:

ANCHOR BOLTS: ASTM F1554 BOLTS

CONCRETE LOCATION	MIN. Fc (28 DAYS)
ELEVATED SLABS	3500 PSI @ 28 DAYS
FOUNDATIONS	3500 PSI @ 28 DAYS
INTERIOR SLAB ON GRADE	3500 PSI @ 28 DAYS
EXTERIOR SLAB ON GRADE	4000 PSI @ 28 DAYS

CAST IN-PLACE CONCRETE:

- CONCRETE MIXES SHALL BE DESIGNED PER ACI 318-19
- CONCRETE SHALL CONFORM TO THE FOLLOWING PROPERTIES:

AT CONTRACTOR'S OPTION, AN APPROVED ADMIXTURE MAY BE USED TO PRODUCE FLOWABLE CONCRETE. MAXIMUM SLUMP SHALL NOT EXCEED 10 INCHES. THE CONTRACTOR SHALL SUBMIT TEST RESULTS OF THE PROPOSED CONCRETE MIXES ALONG WITH THE MANUFACTURER'S TECHNICAL DATA FOR APPROVAL PRIOR TO POURING CONCRETE.

ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 318-19.
HOT WEATHER CONCRETING PER ACI 305.
COLD WEATHER CONCRETING PER ACI 306.

ALL REINFORCING STEEL SHALL BE SET AND TIED IN PLACE PRIOR TO POURING OF CONCRETE. EXCEPT THE VERTICAL DOWELS FOR MASONRY WALL REINFORCING MAY BE "FLOATED" IN PLACE. DO NOT FIELD BEND BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE UNLESS SPECIFICALLY INDICATED OR APPROVED BY THE ENGINEER.

REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH ACI 318-19.

BAR SUPPORTS AND HOLDING BARS SHALL BE PROVIDED FOR ALL REINFORCING STEEL TO INSURE MINIMUM CONCRETE COVER. BAR SUPPORTS SHALL BE PLASTIC TIPPED OR STAINLESS STEEL.

FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 90% OF ITS 28 DAY COMPRESSIVE STRENGTH. THE CONTRACTOR SHALL PROVIDE ALL SHORING AND RE-SHORING.

REINFORCING STEEL:

- LAP REQUIREMENTS: 40 BAR DIAMETERS COMPRESSIVE OR TENSION OR 60 BAR DIAMETERS IN HIGH-TENSION ZONES DESIGNATED ON PLANS.
- FOUNDATION CORNERS REINFORCED W/ BARS EQUAL IN SIZE & SPACING TO HORIZONTAL WALL REBAR W/ LEGS OF 40 BAR DIAMETERS MIN.
- REBAR NOT TO BE WELDED UNLESS ASTM A706 GRADE REBAR IS PROVIDED
- REBAR SHALL BE SECURELY TIED IN-PLACE WITH #16 ANNEALED IRON WIRE.
- CHAIRS SHALL BE USED IN SLABS FOR PROPER PLACEMENT.
- ALL WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A185-97, CENTERED IN SLAB.
- REINFORCING STEEL BARS :
  #4 THRU #10 BARS: ASTM A615 - GRADE 60
  #2 & #3 BARS: ASTM A615 - GRADE 40
- WELDED WIRE FABRIC (W.W.F.): ASTM A185

FOUNDATION BEARING NOTES:

-FOUNDATION PREP SHALL BE IN ACCORDANCE WITH GEOTECHNICAL REPORT. GEOTECHNICAL RECOMMENDATIONS SUPERCEDE ALL GENERIC RECOMMENDATIONS BELOW. THE FOLLOWING GUIDELINES ARE ONLY TO BE UTILIZED IF A GEOTECHNICAL REPORT IS NOT PROVIDED.
-PROVIDE BASE BENEATH SLAB PER GEOTECHNICAL REPORT. IF NO GEOTECHNICAL REPORT IS SUBMITTED, "KRIVONEN STRUCTURAL ENGINEERS" WILL NOT BE LIABLE FOR DAMAGES RELATED TO FOUNDATION SETTLEMENT or HEAVE.
-PROVIDE 4" LAYER OF ¾" MINUS ROADMIX BELOW SLABS ON GRADE. COMPACTION OF FILL BENEATH SLABS ON GRADE SHALL SATISFY 95% MAXIMUM DRY DENSITY PER ASTM D698.
-SOILS BENEATH FOUNDATIONS SHALL BE PROTECTED FROM FREEZING DURING CONSTRUCTION.
-POSITIVE DRAINAGE AND/OR THE EXCAVATION SHALL BE PUMPED TO PREVENT SURFACE WATER BUILD-UP DURING ALL PHASES OF CONSTRUCTION.
-PRIOR TO FILL PLACEMENT, REMOVE ALL TOPSOILS, ORGANICS, DEBRIS, OLD CONCRETE & MASONRY. EXISTING SLABS IN EXCESS OF 48" BELOW BOTTOM OF EXISTING FOOTINGS MAY REMAIN.
-ANY STRUCTURAL FILL REQUIRED BELOW FOOTINGS AND/OR SLABS SHOULD BE TO THE SPECIFICATION OF THE GEOTECHNICAL REPORT FOR THE PROJECT. IF NO GEOTECHNICAL REPORT IS PROVIDED, OUR OFFICE SHOULD BE CONTACTED DURING EXCAVATION TO VERIFY BEARING CONDITIONS.
-POTENTIAL STRUCTURAL SETTLEMENT GIVEN IN GEOTECHNICAL REPORT IS ASSUMED TO BE ACCEPTABLE TO OWNER. THE STRUCTURE HAS NOT BEEN DESIGNED TO MITIGATE THIS MAGNITUDE OF MOVEMENT.

CONCRETE SLAB NOTES:

-ALL WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A-185. LAP ADJOINING PIECES AT LEAST ONE FULL MESH.
-SLAB JOINTS SHALL BE FILLED WITH APPROVED MATERIAL. THIS SHOULD HAPPEN AS LATE AS POSSIBLE. PREFERABLY 4-6 WEEKS AFTER THE SLAB HAS BEEN CAST. PRIOR TO FILLING, REMOVE ALL DEBRIS FROM SLAB JOINT, THEN FILL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AS FOLLOWS:
  6" OR THICKER SLABS FILL JOINTS WITH EPOXY RESIN
  4" - 6" SLAB CONTROL JOINTS FILL WITH FIELD MOLDED OR ELASTOMETRIC SEALANT.
-EXTERIOR SLABS MAY NOT BE SHOWN ON THE STRUCTURAL DRAWING. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR EXTERIOR SLAB LOCATIONS, THICKNESS AND REINFORCING.
-THE USE OF POLYPROPYLENE FIBERS IN LIEU OF REBAR OR WELDED WIRE FABRIC IS PROHIBITED.
-SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF CONCRETE DRAINS. SLOPE SLAB ACCORDINGLY TO DRAINS.

FOUNDATION NOTES:

-NO UNBALANCED BACKFILL SHALL BE DONE UNLESS WALLS ARE SECURELY BRACED AGAINST OVERTURNING EITHER BY TEMPORARY BRACING OR BY PERMANENT CONSTRUCTION.
-ALL RETAINING WALLS SHALL HAVE AT LEAST 12" OF FREE-DRAINING GRANULAR BACKFILL, FULL HEIGHT OF WALL. PROVIDE VERTICAL CONTROL JOINTS IN RETAINING WALLS AT APPROXIMATELY EQUAL INTERVALS NOT TO EXCEED 25'-0" OR 3 TIMES THE WALL HEIGHT.

WOOD FRAMING

- ALL WOOD FRAMING MATERIALS SHALL BE SURFACE DRIED WITH A MAXIMUM OF 9% MOISTURE CONTENT.
- ALL LUMBER FLOOR OR ROOF FRAMING SHALL BE BRACED AT MIDSPAN AND NO MORE THAN 8'-0" CENTERS WITH FULL DEPTH BLOCKING.
- ALL FRAMING EXPOSED TO THE WEATHER OR EXPOSED TO CONCRETE OR MASONRY SHALL BE PRESSURE TREATED IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVES ASSOCIATION SPECIFICATIONS.
- BOLT HOLES SHALL BE CAREFULLY DRILLED NOT MORE THAN ½" LARGER THAN THE BOLT DIAMETER. BOLTED CONNECTIONS SHALL BE SNUGGED TIGHT BY NOT TO THE EXTENT OF CRUSHING THE WOOD UNDER WASHERS.
- WOOD MEMBERS SHALL BE BOLTED WITH A307 HOT DIPPED GALVANIZED BOLTS.

MATERIALS:

DIMENSIONAL FRAMING:
LUMBER - #1 HEM FIR: Fb = 975 PSI, Fv = 150 PSI, E = 1.5x10^6 PSI
2x4 FRAMING-#1 HEM FIR (CONSTRUCTION GRADE): Fb = 925 PSI, Fv = 135 PSI, E = 1.5x10^6 PSI
GLU-LAM BEAMS (V8 ORIENTATION): Fv = 265 PSI, Fb = 2400 PSI, E = 1.8x10^6 PSI

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Annafeld
Trellis
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MONTANA
SAM
KIVANIKSA
51149
REGISTERED
PROFESSIONAL ENGINEER

SHEET DESCRIPTION:
Structural Notes

DRAFTER: TB
ENGINEER: SK
SCALE: 1/2" = 1'-0"
DATE: 1.29.2026
JOB NUMBER: 26008

SHEET:
S3.0

1/29/26 26008s3-notes.dwg

printed scale: 1/2" = 1'-0"