



Purchasing Division
Finance Department
Room 120
411 West First Street
Duluth, Minnesota 55802

218-730-5340
purchasing@duluthmn.gov

Addendum 1
Solicitation 23-99776
GANC Connector Trail, Snowmaking & Lighting

This addendum serves to notify all bidders of the following changes to the solicitation documents:

1. Due to the funding source, a project labor agreement will NOT be required as part of this solicitation.
2. A new State of Minnesota Highway and Heavy Wage Prevailing Wage Decision for Region 1 is effective as of 11/20/2023. The attached wage decision replaces the wage decision dated 11/14/2022 originally included in the bid package.
3. The Labor Cost Bidding Data form has been updated to include the new wage decision and remove the reference to the project labor agreement.
4. Additional conditions per the grant are attached.
5. Replace all existing plan pages with planset attached.
6. Replace all special provisions with the special provisions attached
7. The bid form in Bid Express has been updated to include a Base Bid 1 and Base Bid 2, and to remove Add Alternates 1 and 2. A copy of Base Bid 1 and 2 are attached.

Please acknowledge receipt of this Addendum by checking the acknowledgement box within the www.bidexpress.com solicitation.

Posted: **11/21/2023**

Attachments:

1. Labor Cost Bidding Data Sheet
2. MN Highway and Heavy Prevailing Wage Decision, Region 1, effective 11/20/2023
3. Additional conditions
4. Special Provisions
5. Planset
6. Base bid 1 and 2



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LABOR COST BIDDING DATA

Solicitation No.: 23-99776
Project Title: GANC Connector Trail, Snowmaking & Lighting

Funding sources for City of Duluth projects determine what wages and work hours are required. The project identified above includes the funding sources checked below.

- ☒ Federal funds
☒ State funds
☒ City funds
☐ Other:

Per the Duluth City Code, prevailing wages must be paid on projects of \$2,000 or more. The prevailing wage decisions included in this project are listed below. If multiple wage decisions cover the work, bidders are required to pay the higher wage:

1. MN State Highway-Heavy Prevailing Wage Rates, effective 11.14.2022
2. MN State Truck Rental Rates, Region 1, effective 12.19.2022
3. Federal Heavy Wage Decision MN20230040, effective 10.13.2023
4. Federal Highway Wage Decision MN20230056, effective 1.6.2023

Bidders are required to pay the highest of any wage decisions included.

Overtime rate to be paid at no less than 1 ½ times the rate of pay, plus fringe, as established in the project's wage decision OR 1 ½ times the base rate the employee is being paid, plus fringe; whichever is higher. Overtime must be paid on:

- ☒ hours worked in excess of 8 hours per day (even if less than 40 hours worked in a week) and hours worked in excess of 40 hours per week per state statute
☐ hours worked in excess of 40 hours per week per federal regulation
☐ hours worked in excess of 8 hours per day and 40 hours per week, unless the bidder has an existing union labor agreement allowing different hours as prescribed in section 2-26 of the City Code.

MINNESOTA DEPARTMENT OF LABOR AND INDUSTRY PREVAILING WAGES FOR STATE FUNDED CONSTRUCTION PROJECTS

 **THIS NOTICE MUST BE POSTED ON THE JOBSITE IN A CONSPICUOUS PLACE**

Construction Type: Highway and Heavy

Region Number: 01

Counties within region:

- CARLTON-09
- COOK-16
- ITASCA-31
- KOOCHICHING-36
- LAKE-38
- PINE-58
- ST. LOUIS-69

Effective: 2023-11-20

This project is covered by Minnesota prevailing wage statutes. Wage rates listed below are the minimum hourly rates to be paid on this project.

All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at a rate of one and one half (1 1/2) times the basic hourly rate. *Note: Overtime pay after eight (8) hours on the project must be paid even if the worker does not exceed forty (40) hours in the work week.*

Violations on MnDOT highways and road projects should be reported to:

Department of Transportation
Office of Construction
Transportation Building MS650
John Ireland Blvd
St. Paul, MN 55155
(651) 366-4209

All other prevailing wage violations and questions should be sent to:

Department of Labor and Industry
Prevailing Wage Section
443 Lafayette Road N
St Paul, MN 55155
(651) 284-5091
DLI.PrevWage@state.mn.us

<u>LABOR CODE AND CLASS</u>		<u>EFFECT DATE</u>	<u>BASIC RATE</u>	<u>FRINGE RATE</u>	<u>TOTAL RATE</u>
LABORERS (101 - 112) (SPECIAL CRAFTS 701 - 730)					
101	LABORER, COMMON (GENERAL LABOR WORK)	2023-11-20	37.53	23.67	61.20
		2024-05-01	40.26	24.42	64.68
102	LABORER, SKILLED (ASSISTING SKILLED CRAFT JOURNEYMAN)	2023-11-20	37.53	23.67	61.20
		2024-05-01	40.26	24.42	64.68

	<u>LABOR CODE AND CLASS</u>	<u>EFFECT DATE</u>	<u>BASIC RATE</u>	<u>FRINGE RATE</u>	<u>TOTAL RATE</u>
103	LABORER, LANDSCAPING (GARDENER, SOD LAYER AND NURSERY OPERATOR)	2023-11-20	28.29	20.41	48.70
		2024-05-01	30.04	21.16	51.20
104	FLAG PERSON	2023-11-20	37.53	23.67	61.20
		2024-05-01	40.26	24.42	64.68
105	WATCH PERSON	2023-11-20	30.58	21.77	52.35
106	BLASTER	2023-11-20	38.53	22.67	61.20
107	PIPELAYER (WATER, SEWER AND GAS)	2023-11-20	41.03	23.67	64.70
		2024-05-01	43.76	24.42	68.18
108	TUNNEL MINER	2023-11-20	35.63	22.02	57.65
109	UNDERGROUND AND OPEN DITCH LABORER (EIGHT FEET BELOW STARTING GRADE LEVEL)	2023-11-20	37.12	25.58	62.70
		2024-05-01	39.94	26.24	66.18
110	SURVEY FIELD TECHNICIAN (OPERATE TOTAL STATION, GPS RECEIVER, LEVEL, ROD OR RANGE POLES, STEEL TAPE MEASUREMENT; MARK AND DRIVE STAKES; HAND OR POWER DIGGING FOR AND IDENTIFICATION OF MARKERS OR MONUMENTS; PERFORM AND CHECK CALCULATIONS; REVIEW AND UNDERSTAND CONSTRUCTION PLANS AND LAND SURVEY MATERIALS). THIS CLASSIFICATION DOES NOT APPLY TO THE WORK PERFORMED ON A PREVAILING WAGE PROJECT BY A LAND SURVEYOR WHO IS LICENSED PURSUANT TO MINNESOTA STATUTES, SECTIONS 326.02 TO 326.15.	2023-11-20	35.62	25.58	61.20
		2024-05-01	38.44	26.24	64.68
111	TRAFFIC CONTROL PERSON (TEMPORARY SIGNAGE)	2023-11-20	35.53	22.67	58.20
112	QUALITY CONTROL TESTER (FIELD AND COVERED OFF-SITE FACILITIES; TESTING OF AGGREGATE, ASPHALT, AND CONCRETE MATERIALS); LIMITED TO MN DOT HIGHWAY AND HEAVY CONSTRUCTION PROJECTS WHERE THE MN DOT HAS RETAINED QUALITY ASSURANCE PROFESSIONALS TO REVIEW AND INTERPRET THE RESULTS OF QUALITY CONTROL TESTERS. SERVICES PROVIDED BY THE CONTRACTOR.	2023-11-20	31.00	13.93	44.93
SPECIAL EQUIPMENT (201 - 204)					
201	ARTICULATED HAULER	2023-11-20	42.49	25.20	67.69
		2024-04-29	44.67	26.40	71.07
202	BOOM TRUCK	2023-11-20	44.94	25.00	69.94
203	LANDSCAPING EQUIPMENT, INCLUDES HYDRO SEEDER OR MULCHER, SOD ROLLER, FARM TRACTOR WITH ATTACHMENT SPECIFICALLY SEEDING, SODDING, OR PLANT, AND TWO-FRAMED FORKLIFT (EXCLUDING FRONT, POSIT-TRACK, AND SKID STEER LOADERS), NO EARTHWORK OR GRADING FOR ELEVATIONS	2023-11-20	24.00	16.96	40.96
204	OFF-ROAD TRUCK	2023-11-20	42.49	25.20	67.69

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		2024-04-29	44.67	26.40	71.07
205	PAVEMENT MARKING OR MARKING REMOVAL EQUIPMENT (ONE OR TWO PERSON OPERATORS); SELF-PROPELLED TRUCK OR TRAILER MOUNTED UNITS.	2023-11-20	41.29	23.48	64.77
HIGHWAY/HEAVY POWER EQUIPMENT OPERATOR					
GROUP 2		2023-11-20	43.38	25.20	68.58
		2024-04-29	45.61	26.40	72.01
302	HELICOPTER PILOT (HIGHWAY AND HEAVY ONLY)				
303	CONCRETE PUMP (HIGHWAY AND HEAVY ONLY)				
304	ALL CRANES WITH OVER 135-FOOT BOOM, EXCLUDING JIB (HIGHWAY AND HEAVY ONLY)				
305	DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR WHEEL MOUNTED) AND/OR OTHER SIMILAR EQUIPMENT WITH SHOVEL-TYPE CONTROLS THREE CUBIC YARDS AND OVER MANUFACTURER.S RATED CAPACITY INCLUDING ALL ATTACHMENTS. (HIGHWAY AND HEAVY ONLY)				
306	GRADER OR MOTOR PATROL				
307	PILE DRIVING (HIGHWAY AND HEAVY ONLY)				
308	TUGBOAT 100 H.P. AND OVER WHEN LICENSE REQUIRED (HIGHWAY AND HEAVY ONLY)				
GROUP 3		2023-11-20	42.81	25.20	68.01
		2024-04-29	45.01	26.40	71.41
309	ASPHALT BITUMINOUS STABILIZER PLANT				
310	CABLEWAY				
311	CONCRETE MIXER, STATIONARY PLANT (HIGHWAY AND HEAVY ONLY)				
312	DERRICK (GUY OR STIFFLEG)(POWER)(SKIDS OR STATIONARY) (HIGHWAY AND HEAVY ONLY)				
313	DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR WHEEL MOUNTED) AND/OR SIMILAR EQUIPMENT WITH SHOVEL-TYPE CONTROLS, UP TO THREE CUBIC YARDS MANUFACTURER.S RATED CAPACITY INCLUDING ALL ATTACHMENTS (HIGHWAY AND HEAVY ONLY)				
314	DREDGE OR ENGINEERS, DREDGE (POWER) AND ENGINEER				
315	FRONT END LOADER, FIVE CUBIC YARDS AND OVER INCLUDING ATTACHMENTS. (HIGHWAY AND HEAVY ONLY)				
316	LOCOMOTIVE CRANE OPERATOR				
317	MIXER (PAVING) CONCRETE PAVING, ROAD MOLE, INCLUDING MUCKING OPERATIONS, CONWAY OR SIMILAR TYPE				
318	MECHANIC . WELDER ON POWER EQUIPMENT (HIGHWAY AND HEAVY ONLY)				
319	TRACTOR . BOOM TYPE (HIGHWAY AND HEAVY ONLY)				
320	TANDEM SCRAPER				
321	TRUCK CRANE . CRAWLER CRANE (HIGHWAY AND HEAVY ONLY)				
322	TUGBOAT 100 H.P AND OVER (HIGHWAY AND HEAVY ONLY)				
GROUP 4		2023-11-20	42.49	25.20	67.69
		2024-04-29	44.67	26.40	71.07
323	AIR TRACK ROCK DRILL				
324	AUTOMATIC ROAD MACHINE (CMI OR SIMILAR) (HIGHWAY AND HEAVY ONLY)				
325	BACKFILLER OPERATOR				
326	CONCRETE BATCH PLANT OPERATOR (HIGHWAY AND HEAVY ONLY)				
327	BITUMINOUS ROLLERS, RUBBER TIRED OR STEEL DRUMMED (EIGHT TONS AND OVER)				
328	BITUMINOUS SPREADER AND FINISHING MACHINES (POWER), INCLUDING PAVERS, MACRO SURFACING AND MICRO SURFACING, OR SIMILAR TYPES (OPERATOR AND SCREED PERSON)				
329	BROKK OR R.T.C. REMOTE CONTROL OR SIMILAR TYPE WITH ALL ATTACHMENTS				
330	CAT CHALLENGER TRACTORS OR SIMILAR TYPES PULLING ROCK WAGONS, BULLDOZERS AND SCRAPERS				
331	CHIP HARVESTER AND TREE CUTTER				
332	CONCRETE DISTRIBUTOR AND SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT, JOINT MACHINE, AND SPRAY MACHINE				
333	CONCRETE MIXER ON JOBSITE (HIGHWAY AND HEAVY ONLY)				
334	CONCRETE MOBIL (HIGHWAY AND HEAVY ONLY)				
335	CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING AND SCREENING PLANT				

<u>LABOR CODE AND CLASS</u>		<u>EFFECT</u> <u>DATE</u>	<u>BASIC</u> <u>RATE</u>	<u>FRINGE</u> <u>RATE</u>	<u>TOTAL</u> <u>RATE</u>
336	CURB MACHINE				
337	DIRECTIONAL BORING MACHINE				
338	DOPE MACHINE (PIPELINE)				
339	DRILL RIGS, HEAVY ROTARY OR CHURN OR CABLE DRILL (HIGHWAY AND HEAVY ONLY)				
340	DUAL TRACTOR				
341	ELEVATING GRADER				
342	FORK LIFT OR STRADDLE CARRIER (HIGHWAY AND HEAVY ONLY)				
343	FORK LIFT OR LUMBER STACKER (HIGHWAY AND HEAVY ONLY)				
344	FRONT END, SKID STEER OVER 1 TO 5 C YD				
345	GPS REMOTE OPERATING OF EQUIPMENT				
346	HOIST ENGINEER (POWER) (HIGHWAY AND HEAVY ONLY)				
347	HYDRAULIC TREE PLANTER				
348	LAUNCHER PERSON (TANKER PERSON OR PILOT LICENSE)				
349	LOCOMOTIVE (HIGHWAY AND HEAVY ONLY)				
350	MILLING, GRINDING, PLANNING, FINE GRADE, OR TRIMMER MACHINE				
351	MULTIPLE MACHINES, SUCH AS AIR COMPRESSORS, WELDING MACHINES, GENERATORS, PUMPS (HIGHWAY AND HEAVY ONLY)				
352	PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR TYPE				
353	PICKUP SWEEPER, ONE CUBIC YARD AND OVER HOPPER CAPACITY(HIGHWAY AND HEAVY ONLY)				
354	PIPELINE WRAPPING, CLEANING OR BENDING MACHINE				
355	POWER PLANT ENGINEER, 100 KWH AND OVER (HIGHWAY AND HEAVY ONLY)				
356	POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES				
357	PUGMILL				
358	PUMPCRETE (HIGHWAY AND HEAVY ONLY)				
359	RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS (HIGHWAY AND HEAVY ONLY)				
360	SCRAPER				
361	SELF-PROPELLED SOIL STABILIZER				
362	SLIP FORM (POWER DRIVEN) (PAVING)				
363	TIE TAMPER AND BALLAST MACHINE				
364	TRACTOR, BULLDOZER (HIGHWAY AND HEAVY ONLY)				
365	TRACTOR, WHEEL TYPE, OVER 50 H.P. WITH PTO UNRELATED TO LANDSCAPING (HIGHWAY AND HEAVY ONLY)				
366	TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER (HIGHWAY AND HEAVY ONLY)				
367	TUB GRINDER, MORBARK, OR SIMILAR TYPE				
368	WELL POINT DISMANTLING OR INSTALLATION (HIGHWAY AND HEAVY ONLY)				
GROUP 5		2023-11-20	39.33	25.20	64.53
		2024-04-29	41.36	26.40	67.76
369	AIR COMPRESSOR, 600 CFM OR OVER (HIGHWAY AND HEAVY ONLY)				
370	BITUMINOUS ROLLER (UNDER EIGHT TONS)				
371	CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED)				
372	FORM TRENCH DIGGER (POWER)				
373	FRONT END, SKID STEER UP TO 1C YD				
374	GUNITE GUNALL (HIGHWAY AND HEAVY ONLY)				
375	HYDRAULIC LOG SPLITTER				
376	LOADER (BARBER GREENE OR SIMILAR TYPE)				
377	POST HOLE DRIVING MACHINE/POST HOLE AUGER				
378	POWER ACTUATED AUGER AND BORING MACHINE				
379	POWER ACTUATED JACK				
380	PUMP (HIGHWAY AND HEAVY ONLY)				
381	SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR)				
382	SHEEP FOOT COMPACTOR WITH BLADE . 200 H.P. AND OVER				
383	SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER				
384	STUMP CHIPPER AND TREE CHIPPER				
385	TREE FARMER (MACHINE)				

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GROUP 6		2023-11-20	38.06	25.20	63.26
		2024-04-29	40.02	26.40	66.42
387	CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER				
388	CONVEYOR (HIGHWAY AND HEAVY ONLY)				
389	DREDGE DECK HAND				
390	FIRE PERSON OR TANK CAR HEATER (HIGHWAY AND HEAVY ONLY)				
391	GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING)				
392	GREASER (TRACTOR) (HIGHWAY AND HEAVY ONLY)				
393	LEVER PERSON				
394	OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS, AND MILLING MACHINES, OR OTHER SIMILAR HEAVY EQUIPMENT) (HIGHWAY AND HEAVY ONLY)				
395	POWER SWEEPER				
396	SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS				
397	TRACTOR, WHEEL TYPE, OVER 50 H.P., UNRELATED TO LANDSCAPING				
TRUCK DRIVERS					
GROUP 1		2023-11-20	36.59	22.70	59.29
		2024-05-01	38.55	23.70	62.25
601	MECHANIC . WELDER				
602	TRACTOR TRAILER DRIVER				
603	TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER OPERATED WINCHES)				
GROUP 2		2023-11-20	36.01	22.70	58.71
		2024-05-01	37.95	23.70	61.65
604	FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK				
GROUP 3		2023-11-20	35.91	22.70	58.61
		2024-05-01	37.84	23.70	61.54
605	BITUMINOUS DISTRIBUTOR DRIVER				
606	BITUMINOUS DISTRIBUTOR (ONE PERSON OPERATION)				
607	THREE AXLE UNITS				
GROUP 4		2023-11-20	35.65	22.70	58.35
		2024-05-01	37.57	23.70	61.27
608	BITUMINOUS DISTRIBUTOR SPRAY OPERATOR (REAR AND OILER)				
609	DUMP PERSON				
610	GREASER				
611	PILOT CAR DRIVER				
612	RUBBER-TIRED, SELF-PROPELLED PACKER UNDER 8 TONS				
613	TWO AXLE UNIT				
614	SLURRY OPERATOR				
615	TANK TRUCK HELPER (GAS, OIL, ROAD OIL, AND WATER)				
616	TRACTOR OPERATOR, UNDER 50 H.P.				
SPECIAL CRAFTS					
701	HEATING AND FROST INSULATORS	2023-11-20	45.56	20.20	65.76
702	BOILERMAKERS	2023-11-20	44.37	30.55	74.92
		2024-01-01	46.00	31.93	77.93
703	BRICKLAYERS	2023-11-20	42.19	30.93	73.12
		2024-05-01	45.69	30.93	76.62
704	CARPENTERS	2023-11-20	40.76	28.28	69.04

<u>LABOR CODE AND CLASS</u>		<u>EFFECT DATE</u>	<u>BASIC RATE</u>	<u>FRINGE RATE</u>	<u>TOTAL RATE</u>
		2024-05-01	45.26	28.28	73.54
705	CARPET LAYERS (LINOLEUM)	2023-11-20	32.13	12.85	44.98
706	CEMENT MASONS	2023-11-20	42.93	22.13	65.06
		2024-04-29	46.09	22.13	68.22
707	ELECTRICIANS	2023-11-20	44.77	30.83	75.60
		2024-06-02	46.59	31.64	78.23
711	GROUND PERSON	2023-11-20	33.40	16.30	49.70
712	IRONWORKERS	2023-11-20	39.14	34.11	73.25
		2024-04-28	42.34	34.11	76.45
713	LINEMAN	2023-11-20	47.71	20.31	68.02
714	MILLWRIGHT	2023-11-20	41.77	27.55	69.32
715	PAINTERS (INCLUDING HAND BRUSHED, HAND SPRAYED, AND THE TAPING OF PAVEMENT MARKINGS)	2023-11-20	31.39	19.99	51.38
716	PILEDRIIVER (INCLUDING VIBRATORY DRIVER OR EXTRACTOR FOR PILING AND SHEETING OPERATIONS)	2023-11-20	43.53	27.91	71.44
		2024-05-01	47.03	27.91	74.94
717	PIPEFITTERS . STEAMFITTERS	2023-11-20	47.44	25.78	73.22
		2024-05-06	50.64	25.78	76.42
719	PLUMBERS	2023-11-20	41.02	22.03	63.05
721	SHEET METAL WORKERS	2023-11-20	42.83	29.75	72.58
723	TERRAZZO WORKERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
724	TILE SETTERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
725	TILE FINISHERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
727	WIRING SYSTEM TECHNICIAN	2023-11-20	44.61	20.16	64.77
728	WIRING SYSTEMS INSTALLER	2023-11-20	31.25	16.34	47.59
729	ASBESTOS ABATEMENT WORKER	2023-11-20	36.13	22.45	58.58
730	SIGN ERECTOR	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			

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SPECIAL PROVISIONS
GANC Connector Trail, Snowmaking & Lighting
November 21, 2023

SPECIAL PROVISIONS

**GANC Connector Trail,
Snowmaking & Lighting**

Bid No. 23-99776

**City of Duluth, Minnesota
411 West 1st Street
Duluth, MN 55802**

SPECIAL PROVISIONS
GANC Connector Trail, Snowmaking & Lighting
November 21, 2023

I HEREBY CERTIFY THAT THIS PLAN, specification or report
was prepared by me or under my direct supervision and that I am a duly
Licensed Professional Engineer under the laws of the State of Minnesota.

_____ Signature	_____ Emily R. Major Typed or Printed Name
_____ November 21, 2023 Date	_____ 52201 MN License

SPECIAL PROVISIONS
GANC Connector Trail, Snowmaking & Lighting
November 21, 2023

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SPECIAL PROVISIONS
GANC Connector Trail, Snowmaking & Lighting
November 21, 2023

The following forms and regulations/rules/statutes and interpretations, which are incorporated by reference in this contract, are available on the World Wide Web at the sites listed below. The City of Duluth will use its best efforts to ensure that the most recent, applicable forms and regulations/rules/statutes and interpretations are included on the web sites provided; however, if you are the successful bidder, prior to signing the contract, you are responsible for comparing the versions of the forms and regulations/rules/statutes and interpretations attached to the contract which you are signing with the versions on the web to ensure conformity.

THE VERSIONS OF THE FORMS AND REGULATIONS/RULES/STATUTES and INTERPRETATION ATTACHED TO THE CONTRACT WILL BE CONTROLLING.

FORM	FUND	WEB SITE
Declaration of Non-Collusion (required by awarded contractor only)	All	https://duluthmn.gov/purchasing/forms/
Equal Opportunity (EEO) Policy Statement and Compliance Certificate (required by awarded contractor only)	All	https://duluthmn.gov/purchasing/forms/
Certified Payroll Form WH347	All	http://www.dol.gov/whd/forms/
Contractor's Haul Route	All	https://duluthmn.gov/engineering/resources/contractor-resources/
Debarment/Suspension Notice (most current version)	All	http://www.dot.state.mn.us/bidlet/howtobid.html
IC-134 Contractor Affidavit - Form	All	https://www.revenue.state.mn.us/submit-contractor-affidavit-mail
IC-134 Contractor Affidavit – Online	All	https://www.revenue.state.mn.us/submit-contractor-affidavit-electronically
MN Rules 5200.1105	All	https://www.revisor.mn.gov/rules/?id=5200.1105
MN Rules 5200. 1106	All	https://www.revisor.mn.gov/rules/?id=5200.1106
MN Statutes 177.41 to 177.44	All	https://www.revisor.mn.gov/statutes/?id=177
Notice to Bidders - Prompt Payment to Subs – CITY (MS 471.425)	All	https://www.revisor.mn.gov/statutes/cite/471.425
One-Call Instructions	All	https://www.gopherstateonecall.org
Request to Sublet TP-21834	All	http://www.dot.state.mn.us/const/labor/forms.html
Request to Sublet Summary	All	http://www.dot.state.mn.us/const/labor/forms.html
Responsible Contractor Certification (MS 16C.285)	All	https://duluthmn.gov/purchasing/forms
Statement of Compliance Form (8-2013)	All	http://www.dot.state.mn.us/const/labor/forms.html

SPECIAL PROVISIONS
GANC Connector Trail, Snowmaking & Lighting
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Truck Rental Rates	State	http://www.doli.state.mn.us/LS/PrevWageTR1.asp
Contractor/Vendor Form	State	http://www.dot.state.mn.us/const/labor/forms.html
Trucking Com/Vendor Form	State	http://www.dot.state.mn.us/const/labor/forms.html
Month End Trucking Report Form A & B (12-10)	State	http://www.dot.state.mn.us/const/labor/forms.html
Month-End Trucking Report Statement of Compliance (12-10)	State	http://www.dot.state.mn.us/const/labor/forms.html
Notice to Bidders - Prompt Payment to Subs – STATE & FED (MS 16A.1245)	State & Federal	https://www.revisor.mn.gov/statutes/cite/16a.1245
Notice to Bidders - Traffic Control Prevailing Wage - FED	Federal	https://dot.state.mn.us/pre-letting/prov/index.html
Statement of Compliance Form – 2 nd page of WH347	Federal	http://www.dol.gov/whd/forms/
HUD-4010 Federal Labor Standards Provisions	HUD	https://www.hud.gov/sites/dfiles/OCHCO/documents/4010.pdf

SPECIAL PROVISIONS
LOWER SPIRIT NORDIC CENTER CULVERT BID PACKAGE
November 21, 2023

SP-1 GOVERNING SPECIFICATIONS

The 2019 Edition of the City of Duluth Public Works & Utilities Department/Engineering Division “Construction Standards” book and any addendums or supplements is incorporated by reference and is deemed to be a part hereof as if fully incorporated and set forth herein. The ‘Construction Standards’ is available on the City website at <http://www.duluthmn.gov/engineering/standard-construction-specifications/>.

Section S-12 of the City of Duluth, Minnesota “Construction Standard” book is hereby modified as follows:

“A. The 2020 Edition of the Minnesota Department of Transportation ‘Standard Specifications for Construction’ and all amendments shall govern.”

SP-2 SCOPE OF WORK

In general, the Work consists of construction of culvert and drainage improvements for the remaining phases of work for a Nordic Ski trail system approximately 2.8 kilometers long at the Spirit Mountain Recreation Area. Work includes culvert and rip rap installation.

SP-3 CONTACT INFORMATION

Questions regarding this project should be directed to: James Shoberg, PLA, Project Coordinator at 218.730.4415 [or jshoberg@duluthmn.gov](mailto:jshoberg@duluthmn.gov).

TKDA is the engineer of record. Questions regarding this project may also be directed to Emily Major, Project Engineer with TKDA, at 218.216.3142.

SP-4 COMMUNITY BENEFITS POLICY

Revised 02-19-2020

For Contracts that include a Project Labor Agreement, the contractor shall comply with the City of Duluth’s Community Benefits Policy. This policy requires a plan and good faith effort by contractors to recruit/hire/employ Eligible Workers to perform the work. Eligible Workers shall refer to women, people of color, and other individuals who are considered socially disadvantaged, and whose work hours on a covered project shall count toward the Community Benefits Goal set forth in the policy. A copy of the Community Benefits Program Contract Specification is available on the City of Duluth Purchasing web site.

SP-5 PROJECT SHUTDOWN PLAN

Revised 06-26-2023

In the event that pandemic, epidemic or a governmental agency requires that the project cease prior to suspension, the contractor shall provide a written plan to the architect/engineer on the project and to the City for their prior approval and, upon such approval, shall be implemented by the contractor as part of this contract. The plan shall include the following requirements which shall apply to the status of the work at the time of interruption:

1. Time, if any, between the determination of the necessity of suspension and the actual suspension of work will be allocated in this order of priority; Life Safety Issues, Asset Integrity, Environmental Impacts, & Economic Impacts.
2. Excavations will be completed or temporarily filled.

SPECIAL PROVISIONS
LOWER SPIRIT NORDIC CENTER CULVERT BID PACKAGE
November 21, 2023

3. Equipment will be removed from the site or secured by the contractor.
4. Physical barricades shall be installed as necessary to protect the work from damage or destruction and the public from injury in the event of trespass on the site.
5. Warning signs shall be installed where reasonably necessary to warn the public of any hazardous condition on the site.
6. Erosion control necessary to protect the site shall be in place and functioning and vegetation shall be in place and properly protected; all exposed and or erodible soil surfaces shall be fully stabilized per the SWPPP/NPDES permit requirements.
7. Onsite materials shall be removed from the site to safe storage or protected on site from damage or theft.

SP-6 (1203) ACCESS TO PROPOSAL PACKAGE

MnDOT 1203 is deleted and replaced by the following:

Bidders shall access the proposal package electronically through Bid Express® at their website www.bidexpress.com. There is no charge to view proposal packages, however Bidders must register with Bid Express® and login to the website. Bidders may search for 'City of Duluth' or the specific bid number to locate the proposal package. The city may require a fee for bidders to purchase paper copies of the proposal package.

SP-7 (1206) PREPARATION OF PROPOSAL

MnDOT 1206 is modified by the following:

1206.1. "Preparation and Delivery", is modified as follows:

The **first** paragraph shall be deleted and replaced with the following:

All bids must be submitted electronically through Bid Express® at www.BidExpress.com.

The **third** paragraph shall be deleted and replaced with the following:

Bid bonds may be submitted electronically using Surety 2000 or Tinubu through Bid Express, or emailed to purchasing@duluthmn.gov. The City of Duluth spam filter has blocked an emailed bid bond in the past. Bidders are responsible for ensuring their bid bond is received and approved by the City. Paper bid bonds may be mailed or dropped off at City Hall, 411 W. 1st Street, Room 140, Duluth, MN 55802. Regardless of the method of submission, bid surety must be received by the City prior to the bid deadline.

SP-8 (1213) DISQUALIFICATION OF BIDDERS

Contractors who are debarred or suspended under Minnesota Statutes 161.315 Protection of Public Contracts will not be eligible for award of this contract or to act as a subcontractor to any contractor under this contract.

SP-9 (1505) COOPERATION BY CONTRACTORS

Coordinate Work with work on site by others, including the following:

- Spirit Mountain Recreation Area activities, including mountain biking, site maintenance, snowmaking operations, downhill skiing, and events at the Grand Avenue Chalet.

**SPECIAL PROVISIONS
LOWER SPIRIT NORDIC CENTER CULVERT BID PACKAGE
November 21, 2023**

SP-10 (1508) CONSTRUCTION STAKES, LINES AND GRADES

In addition to the provisions of MN/DOT 1508, trail construction guidance and centerline flags will be provided by the City of Duluth:

Centerline alignment and clearing limits, every 100 feet

The Contractor will be responsible for all other intermediate stakes and grades as he/she deems necessary. The contractor will be responsible for the preservation of the stakes set. Any negligence on the contractor's part resulting in the disturbance of the stakes, that need to be reset will be deducted for monies due to the contractor on the pay estimates.

SP-11 (1701) LAWS TO BE OBSERVED (DATA PRACTICES)

The provisions of Mn/DOT 1701 are supplemented with the following:

Bidders are advised that all data created, collected, received, maintained, or disseminated by the Contractor and any subcontractors in performing the work contained in this Contract are subject to the requirements of MN Statute Chapter 13, the Minnesota Government Data Practices Act (MGDPA). The Contractor shall comply with the requirements of the MGDPA in the same manner as the Department. The Contractor does not have a duty to provide access to public data to the public if the public data are available from the Department, except as required by the terms of the Contract.

SP-12 (1702) PERMITS, LICENSES, AND TAXES

Contractor shall apply for, pay for, and comply with all permit requirements for the NPDES and ESCP Permit.

The City of Duluth has applied for the wetland permits. No work can occur in wetlands until permit is approved.

SP-13 (1806) DETERMINATION AND EXTENSION OF CONTRACT TIME

The Contract Time will be determined in accordance with the provisions of MN/DOT 1806 and the following:

1. Construction operations shall be started on or before **January 1, 2024**, or within ten (10) calendar days after the date of **Notice to Proceed**, whichever is later.
2. Substantial Completion. All work under this Contract shall be substantially complete on or before **June 30, 2024**.
 - (A) Substantial Completion shall consist of the completion of culvert installation, trail construction, earthwork, grading, final turf establishment and all associated work for these items.
3. Final Completion. ALL work required under this Contract shall be complete on or before **July 31, 2024**.
 - (A) Final Completion shall consist of all work listed in SP-12.2.A and all work associated with installation of the lighting utilities and snowmaking equipment.
4. The third exemption listed under the second paragraph of the provisions of MN/DOT

SPECIAL PROVISIONS
LOWER SPIRIT NORDIC CENTER CULVERT BID PACKAGE
November 21, 2023

1806.3 is modified to the extent that the phrase “(3) During the inclusive period from November 15 through April 15, except as specified in 1806.1...” is deleted.

5. No work which will restrict or interfere with traffic shall be performed between 12:00 noon on the day preceding and 6:30 a.m. on the day following any consecutive combination of a Saturday, Sunday, and legal holiday without written permission from the Engineer.
 - (A) If the Contractor chooses not to work at all on the day preceding the holiday period, no working day charges will be assessed.
 - (B) If the Contractor chooses to work prior to 12:00 noon on the day preceding the holiday period or if the Contractor obtains written permission to work after 12:00 noon on the day preceding the holiday period, working day charges will be assessed only for the actual hours worked.
6. When all, or a portion, of the Contract Time is specified as a calendar completion date, the time is presumed to have been determined by considering the Proposal quantities, normal weather for the locality and season of the year, and the necessity of having the work completed by the specified date. The time may be extended by the Engineer only if the delay is considered “Excusable” in accordance with MN/DOT 1806.2 Types of Delays.

SP- 14 (1807) FAILURE TO COMPLETE WORK ON TIME

The provisions of MN/DOT 1807 shall apply in full to both the Substantial Completion Date and the Final Completion Date.

SP-15 (1906) PARTIAL PAYMENTS

Section 1906 Partial Payments of the City of Duluth Construction Standard is hereby deleted and replaced with the following:

Partial Payments shall be made in accordance with the provisions of MN/DOT 1906 and the following:

- A. Prior to Substantial Completion: The first sentence of Paragraph Three shall be amended to read as follows: "From the total of the amounts ascertained as payable, five percent (5%) will be deducted and retained by the City for the protection of its interests as hereinafter provided. The balance, less all previous payments, will be certified for payment." The City will withhold eight percent (8%) from out of state contractors unless a waiver has been granted from the State of Minnesota, Department of Revenue by submitted Form SDE, Exemption from Surety Deposits for Non-Minnesota Contractors.
- B. All provisions for partial payments shall apply to domestic materials only. No payments shall be made to the Contractor for materials manufactured outside of the United States until such materials have been delivered to the job site.
- C. After ‘Substantial Completion,’ the City may withhold no more than 1) 250 percent of the cost to correct or complete work known at the time of substantial completion; and 2) one percent of the value of the contract or \$500, whichever is greater, pending completion and submission of all final paperwork by the contractor or subcontractor.

SP-16 (1908) FINAL PAYMENTS

Section 1908 Final Payments of the City of Duluth Construction Standard is hereby deleted and replaced with the following:

SPECIAL PROVISIONS
LOWER SPIRIT NORDIC CENTER CULVERT BID PACKAGE
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Final Payment shall be made in accordance with the provisions of MN/DOT 1908 and the following:

- 1) The final estimate will show the balance due the Contractor after making all legal and specified forfeitures and deductions. This balance will then be paid by the City to the Contractor within thirty (30) days after such estimate is presented to and accepted by the Contractor or within forty-five (45) days after such estimate is presented to and not acted upon by the Contractor, less allowable retainage per Minnesota Statutes 15.72 subdivision 2. At such time, the paid final estimate shall be considered valid with no further compensation due the Contractor.
- 2) The City will withhold and retain up to the allowable retainage per Minnesota Statutes 15.72 subdivision 2 of the final estimate for a period of up to the date of Final Contract Acceptance (MN/DOT 1516.4).
- 3) Where the provisions of MN/DOT 2571.3.K Plant Establishment Period pertain to the contract, the City will withhold and retain an amount equal to the final value of planting bid items or one percent (1%) of the final estimate, whichever is greater, for a period of up to two calendar years after the initial planting operations are complete.
- 4) State Law provides that the final estimate will be made within 90 days after completion of all work required under this Contract. If, however, the total value of the Contract exceeds \$2,000,000.00, the 90-day requirement will not apply and the time allowed for making such final estimate shall be 180 days after the work under this Contract has been, in all things, completed to the satisfaction of the Commissioner.

SP-17 TRAFFIC CONTROL AND SITE ACCESS

SP-17.1 Contractor Work Access

- A. Contractor shall access the project area from the existing roads and trail access points.
- B. Trail access points are restricted to the Skyline Parkway, and Warwick Street off Grand Avenue in Duluth. New trails may not be created to provide site access.
- C. Contractor is allowed to drive ATVs or other approved work equipment on the existing trails and off trail, at a safe speed with flashers on, yielding to right-of-way to trail users. Contractor must repair any ruts or other damage caused by work vehicles or equipment to the satisfaction of the Engineer.
- D. Contractor will keep all trails and roads open and not blocked with trees, branches, materials, equipment, vehicles, or debris resulting from this operation.

SP-17.2 Traffic Control

- A. Contractor shall utilize Type III barricades and/or temporary work signage to alert the public that construction work is ongoing and make full closures for use when equipment is working or hauling on an established public trail. If features such as culverts are removed, barricades shall be placed to create a trail closure to protect the public. All traffic control measures required for use on the project shall be included in the bid price for Traffic Control.
- B. Jersey barriers shall be placed as traffic control at the Skyline Parkway crossing where the Connector Trail is being constructed as a part of this project. Temporary fencing accompanied by advanced warning signs placed on the DWP Trail may be used to provide public protection and warning of grading operations where the GANC ski trails intersect the existing DWP Trail corridor during construction of the project.

**SPECIAL PROVISIONS
LOWER SPIRIT NORDIC CENTER CULVERT BID PACKAGE
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SP-18 (2101) CLEARING

The project work involves clearing of trees (> 4 " DBH) and brush (< 4" DBH) from within the GANC trail corridors to facilitate the grading operation needed to construct the GANC cross country ski trails. The Contract provides pay items for the removal of larger trees (2101.502 Clearing—Tree) and brush across the entire trail corridor (2101.501 Clearing-Acre) which shall be marked by the City of Duluth prior to beginning the clearing operation.

SP-19 (2101) GRUBBING

Contractor shall remove tree and brush stumps from the trail corridor to facilitate a smooth finished trail surface suitable for grooming a cross country ski trail. For trees 4-inches and larger, each stump will be paid for individually as indicated by the 2101.524 Grubbing (Tree) pay item. Grubbing/removal of small brush, roots, stumps, and stumps that may be uncovered at or below ground level during grading activities shall be considered as incidental to the common excavation pay item and will essentially be removed as a function of trail grading activities.

SP-20 (2105) EXCAVATION AND EMBANKMENT

The trail and drainage grading work shown on the Plans is detailed in the Trail Construction Special Provisions.

SP-21 (2211) AGGREGATE TRAIL SURFACING (CV) ¾"(-)

The bid item for the aggregate trail surfacing material is a ¾-inch (minus) Limestone material available locally in Duluth. Aggregate surfacing courses shall be constructed in accordance with the provisions of Mn/DOT 2211 except as modified below:

- A. Compaction shall be measured by the "Ordinary Compaction Method" described in Mn/DOT 2211.3C.
- B. Bid price for Aggregate Trail Surfacing (CV) ¾"- shall be considered full payment for labor, equipment, and materials needed to provide additional aggregate surfacing for the GANC Trail at stormwater crossings as shown in the Plans. This price shall include payment for rolling and compacting the aggregate once graded onto the trail surface to provide a firm and stable trail surface at completion of the work.

SP-22 (2411) NATURAL STONE RETAINING WALL

In order to facilitate construction of the GANC cross country ski trails on this project, there are several locations which will require construction of a short dry-stacked natural stone wall to reinforce and support the edge of the graded trail corridor. The Contractor shall be required to salvage or gather stones along the limits of the trail corridor during the grading operation to be used to construct support walls which act as a hard edge to fill/grade to at locations where there is significant relief along hillsides.

The trail typical sections, Details 1/7 and 2/5, illustrate this concept. Locations where natural stone retaining walls are anticipated are shown in the Plans. The walls are not intended to be masonry or mortar-joint walls. The concept is to place a mix of larger and smaller stones adjacent to the trail grading, press into place, and utilize that hard edge as a means of retaining 1-2-foot fill heights at the edge of the cross country ski trails where necessary. These shall be constructed from materials found onsite during the grading operation or immediately adjacent to the trail itself.

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LOWER SPIRIT NORDIC CENTER CULVERT BID PACKAGE
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SP-23 (2451) EXCAVATION, BACKFILL AND COMPACTION FOR UTILITIES – TRENCH BACKFILL

The provisions of section 2451 of the City of Duluth 'Construction Standards' are supplemented with the following:

No excavation is permitted over City of Duluth utilities north of the race staging area.

Provide Coarse Filter Aggregate, pipe encasement, and backfill.

Install 6-inch-thick bentonite cut-off collar through encasement zone approximately 5 feet upstream/downstream of pipe aprons and in the center of the pipe.

Trench backfill above the top of encasement zone and below the subgrade shall be accomplished entirely with suitable salvaged on-site select grading materials meeting the City's Construction Standards.

The Owner will determine if any material is suitable for use as trench backfill.

Where the Owner determines that acceptable select grading material is not available within the site, the Contractor shall provide imported granular backfill or common backfill which will be considered Extra Work and the Contractor will be compensated under the provisions of MN/DOT 1904. Any Extra Work payments made for imported backfill shall be considered compensation in full for furnishing backfill materials to the site and disposing of waste excavation. No separate payment will be made for placing and compacting imported backfill materials.

All costs for placing Coarse Filter Aggregate, Pipe Encasement, and compacting backfill (regardless of type: select grading material, common or granular) shall be considered incidental to relevant Contract bid items.

SP-24 (2503) PIPE SEWERS - GRAVITY

Provide HDPE pipe culverts conforming to the requirements of 2503, except as modified herein.

Provide CS flared end sections conforming to MnDOT Plate 3123J, 1 piece, with 8-inch toe.

Provide concrete catch basin manhole conforming to Duluth Standard Detail STRM-5, except no tracer wire is required. Provide MNDOT 410D inlet (convex). Payment at the Bid Unit Price shall constitute payment in full for manhole, casting, frame, and all accessories, regardless of build.

Provide shop drawings for culvert systems. Perform complete final trail field design and verification prior to submitting culvert shop drawings.

Minimize joints by utilizing full length pipes to the extent possible. Place joints minimum 20 feet from aprons. Provide restrained pipe couplings conforming to the requirements of 2503. Provide minimum 2 feet cover over top of pipe.

Delete the requirement for locating wire, post-installation television inspection, air test, deflection testing, and electrical continuity test.

Install 6-inch thick bentonite cut-off collar around pipe encasement area for steep culverts, in three locations: 5 feet from aprons (approximately at the edge of trail) and at pipe midline.

Payment at the Bid Unit Price for HDPE pipe and aprons shall be compensation in full for all work of this section for each diameter including geotextile fabric wrap, concrete joint anchor, bentonite cutoff collar, SS and Nylon straps, and aggregate bedding and backfill.

Catch basin MHs shall be paid for at the Bid Unit Price, regardless of depth or casting (solid cover or grade).

SPECIAL PROVISIONS
LOWER SPIRIT NORDIC CENTER CULVERT BID PACKAGE
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SP-25 (2511) RIPRAP

Conform to the requirements of 2511, except as modified herein.

Payment at the Bid Unit price per cubic yard shall include all work for the grading, materials and installation. Geotextile fabric and granular filter shall be incidental to riprap placement.

SP-10 (2575) SEEDING











Seeding shall be in accordance with State Seed Mix, table 36-311. All labor and material to complete bid item shall be incidental to the bid price.

- END -

EXISTING

- MAJOR CONTOUR (10')
MINOR CONTOUR (2')
EXISTING TRAIL
BITUMINOUS
CENTERLINE

PROPOSED

- | | |
|---|--|
|  | PROPOSED CONTOUR - MAJOR (10') |
|  | PROPOSED CONTOUR - MINOR (2') |
|  | ROCK FILTER LOG TYPE COMPOST |
|  | STORM SEWER |
|  | BR-BEDROCK/ SH- SHALLOW ROCK |
|  | RIP RAP/ ROCK ARMORING |
|  | ROCK STABILIZED ENTRANCE |
|  | SEEDING |
|  | CONSTRUCTED RETAINING WALL |
|  | BLANKET AND SEED OR STABILIZE WITH AVAILABLE ONSITE ROCK |

LEGEND

GRAND AVENUE NORDIC CENTER SKI TRAIL

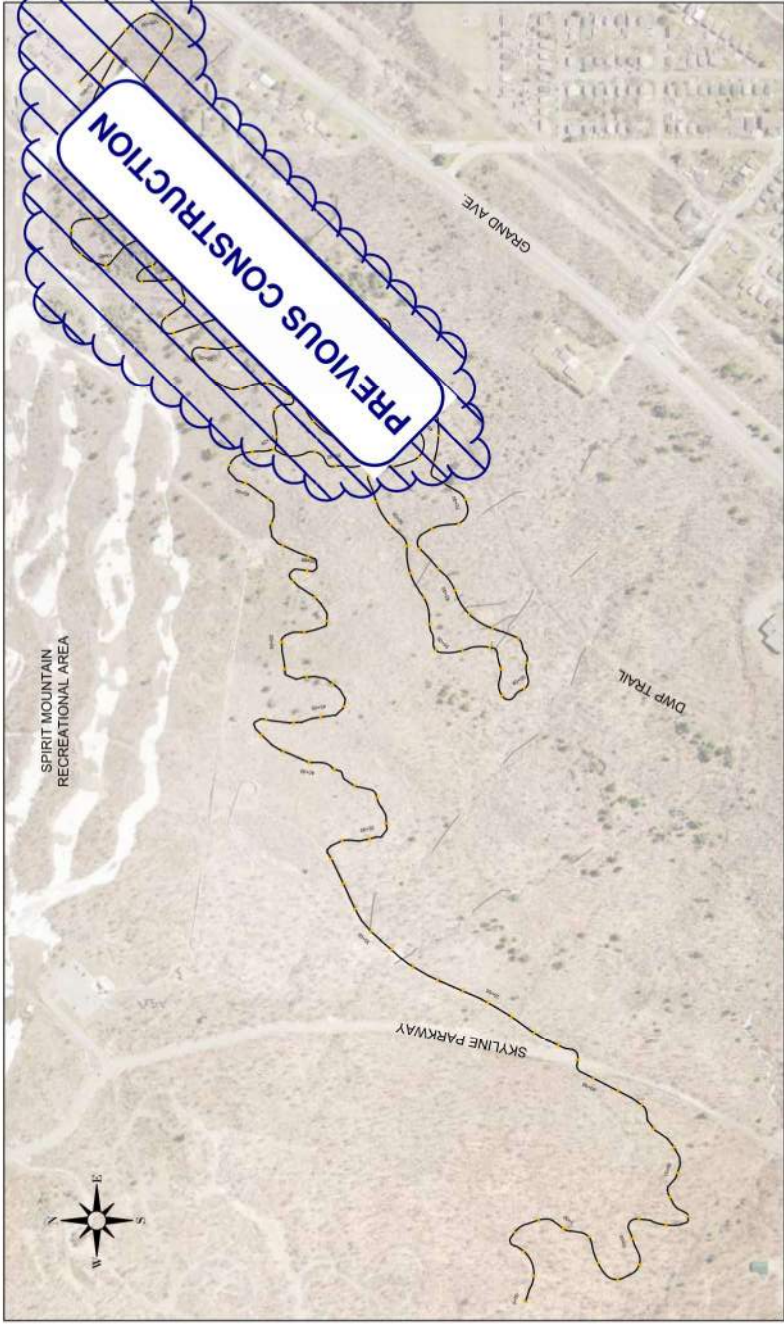
CONSTRUCTION PLANS FOR:

CITY OF DULUTH

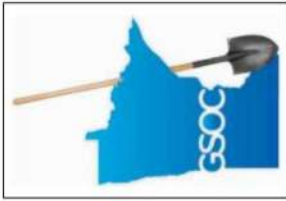
CONSTRUCTION PLANS FOR TRAIL REALIGNMENT, GRADING, AND STORMWATER

CONTROLS.

LOCATION MAP



GOPHER STATE ONE CALL



EXISTING UTILITY LOCATIONS

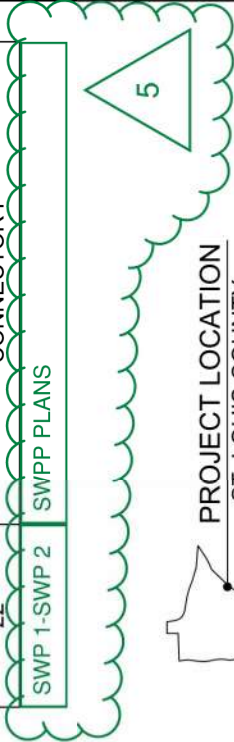
THE CONTRACTOR SHALL VERIFY ALL EXISTING UNDERGROUND UTILITY LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION. ALL INPLACE UTILITIES MAY NOT BE SHOWN ON THIS PLAN & THOSE THAT ARE SHOWN, MAY NOT BE SHOWN IN THE EXACT LOCATIONS.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL "D". THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CIASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

SPECIFICATION REFERENCES

1. THE MOST RECENT CITY OF DULUTH, MINNESOTA CONSTRUCTION STANDARDS SHALL APPLY.
2. THE MINNESOTA DEPARTMENT OF NATURAL RESOURCES "TRAIL PLANNING, DESIGN AND DEVELOPMENT GUIDELINES" SHALL APPLY.
3. THE MOST RECENT EDITION OF MNDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION SHALL APPLY.
4. TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MOST RECENT EDITION OF MN MUTCD, INCLUDING THE MOST RECENT EDITION OF THE MN MUTCD FIELD MANUAL.

Sheet List Table	
Sheet Number	Sheet Title
01	TITLE SHEET
02	SCHEDULE OF ESTIMATED QUANTITIES
03	GANC SITE LAYOUT
04	DETAILS I
06	TYPICAL SECTIONS
07	SWPPP 001
09	GANC I
22	CONNECTOR I
SWP 1-SWP 2	SWPP PLANS



CONTRACTOR TO NOTIFY 911 PERSONNEL
PRIOR TO ALL ROAD CLOSURES.

THIS PLAN SET CONTAINS ~~29~~ SHEETS

31

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Will D. Derocher
WILL D. DEROCHE

DATE	02/08/2018	LIC. NO.	54757
------	------------	----------	-------

ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE







BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS DRAWING ADJUST SCALES ACCORDINGLY.

					
HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.		SIGNATURE: <i>Walter D. Grocher</i>		DATE: 02/08/2018	
PRINTED NAME: WALTER D. GROCHER		LIC. NO.: 54757		L.C. NO.:	
DESIGNED	JS	CHECKED	JG	DATE	BY
5/11/21/23	EM	ADDENDUM 5 - ADDED CULVERTS AND REVISED SWPPP			
4/11/13/23	EM	ADDENDUM 4 - CONSTRUCTION OF 0.8K LOOP & CONNECTOR TRAIL			
3/03/12/18	WD	ADDENDUM 3			
3/03/12/18	WD	ADDENDUM 2			
1/02/23/18	WD	ADDENDUM 1			
DESCRIPTION OF REVISIONS					
TITLE SHEET					
GRAND AVENUE NORDIC CENTER SKI TRAIL					
44 East So. Girard Street, Suite 420 Duluth, MN 55803-101 553.232.4499 info@toda.com				PROJ. NO. 15585.000 DRAWING NO. 01	

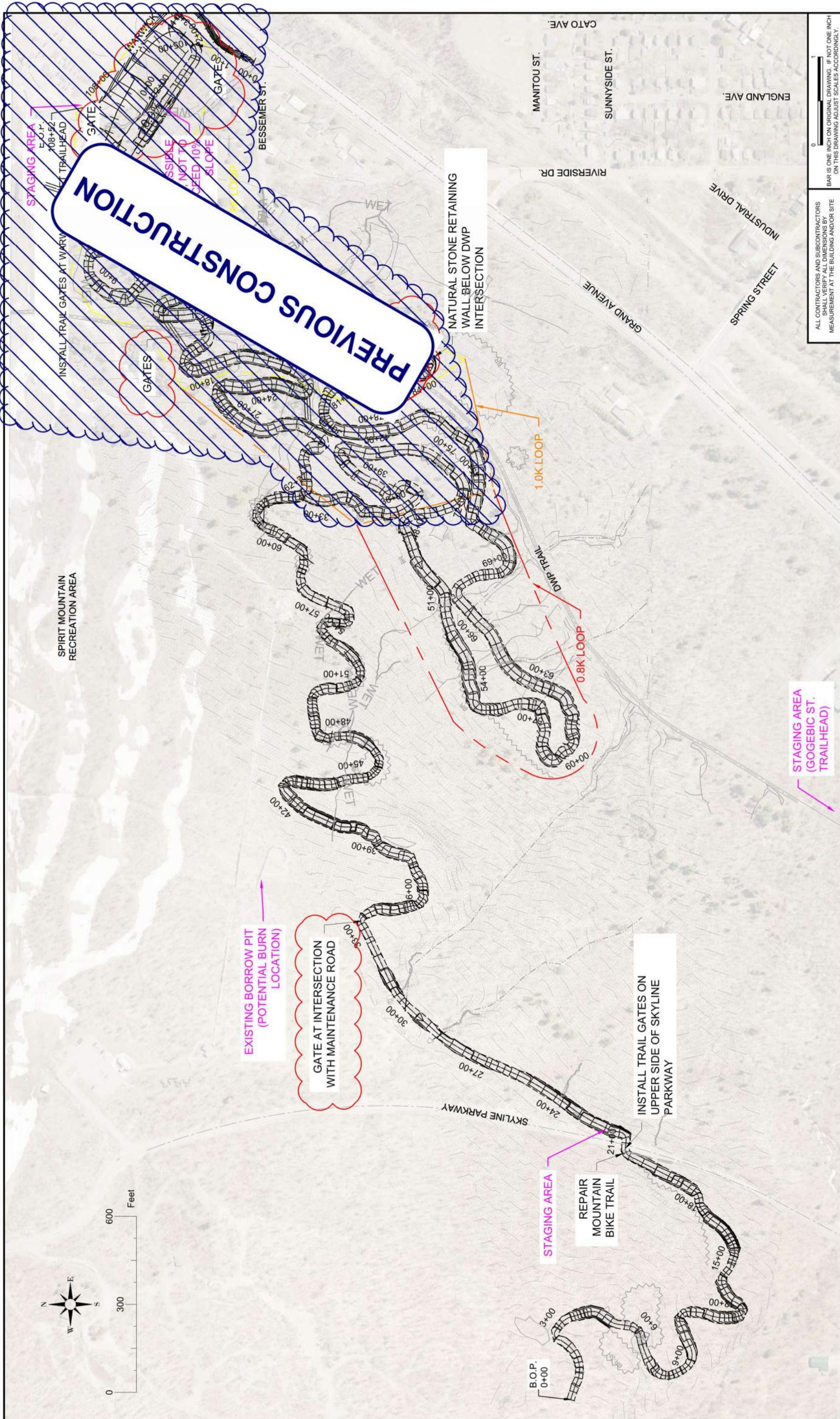
DRAINAGE NOTES	
A	GRADE DITCH TO CULVERT
B	ROUTE SNOWMAKING PIPE DRAINAGE TO CULVERT
C	ROUTE SNOWMAKING LOW POINT DRAINS AND BLOW-OFFS TO CULVERT
D	WETLAND ASSUMED TO FLOW ALONGSIDE TRAIL HERE
E	ANY CONCENTRATED FLOW FROM THIS POINT IS ANTICIPATED TO BE INTERCEPTED BY THE DOWNGRADIANT WETLANDS AND SWALES
F	ANY CONCENTRATED FLOW FROM THIS POINT IS ANTICIPATED TO BE INTERCEPTED BY THE DOWNGRADIANT WETLANDS AND SWALES
G	ROUTE FLOW UPGRADEMENT OF THE DWP TO THE NORTH OR SOUTH, RATHER THAN ACROSS THE DWP
H	LOW POINT DRAINAGE ACROSS TRAIL OR INSTALL CULVERT
I	REINFORCE TOE OF SLOPE TO ALLOW DRAINAGE ALONG TOE
J	ANTICIPATED FLOW PATH OF 85TH AVE W CREEK BASED ON TOPOGRAPHY. ADJUST CULVERT LOCATION AS NEEDED
K	ACID APRON AND RIPRAP TREATMENT TO END OF EXISTING PIPE. CONFIRM DIAMETER PRIOR TO ORDERING APRONS
L	ANTICIPATED FLOW PATH OF 85TH AVE W CREEK FROM CITY LINEWORK
M	CITY PROVIDED LINEWORK INDICATES 85TH AVE W CREEK FLOWS THROUGH THIS LOCATION, TOPOGRAPHY INDICATES IT DOES NOT
N	ROUTE SNOWMAKING PIPE DRAINAGE TO NORTH
O	ASSUMED OUTLET FLOW WILL BE ROUTED ALONG SNOWPIPE RATHER THAN OVERFLOWING TRAIL DOWNGRADIANT
P	ASSUME SNOWMAKING PIPE WILL DIRECT WATER INTO WETLAND
Q	ROUTE ANY IMPOUNDED WATER HERE TO CULVERT 105 OR OVER TRAIL
R	DRAINAGE CHANNEL ASSUMED IN THIS LOCATION BASED ON THE DOWNSTREAM DRAINAGE CHANNEL
S	DRAINAGE CHANNEL ASSUMED IN THIS LOCATION BASED ON THE DOWNSTREAM DRAINAGE CHANNEL
T	ROUTE ANY IMPOUNDED WATER TO CULVERT 140 WITH A DITCH
U	PROVIDE A BERM ALONG THE NORTH SIDE OF TRAIL TO DIRECT WETLAND DRAINAGE ALONG THE SIDE OF THE TRAIL
V	GRADE DITCH TO WETLAND TO DRAIN LOW POINT AREA
W	RAISE MOUNTAIN BIKE TRAIL AND SKI TRAIL FOR DITCH CULVERT
X	REMOVE EXISTING CULVERT. INSTALL NEW CULVERT. PATCH EXISTING ROADWAY SURFACE WITH 12" AGGREGATE BASE CLASS 5 (INCIDENTAL)
Y	DO NOT DISTURB WETLAND WITH SWALE GRADING. CROSS ONLY THROUGH DRAINAGE CHANNEL
Z	PLACE SNOW MAKING PIPE ON SUPPORT TO ALLOW DRAINAGE TO PASS UNDERNEATH
AA	SHOW STEEP CULVERT TREATMENT (CONC. JOINT ANCHORS, CUT-OFF COLLARS). INCIDENTAL
BB	PROVIDE HIGH VELOCITY OUTLET TREATMENT (GEOTEXTILE SEAL). INCIDENTAL

CONSTRUCTION NOTES

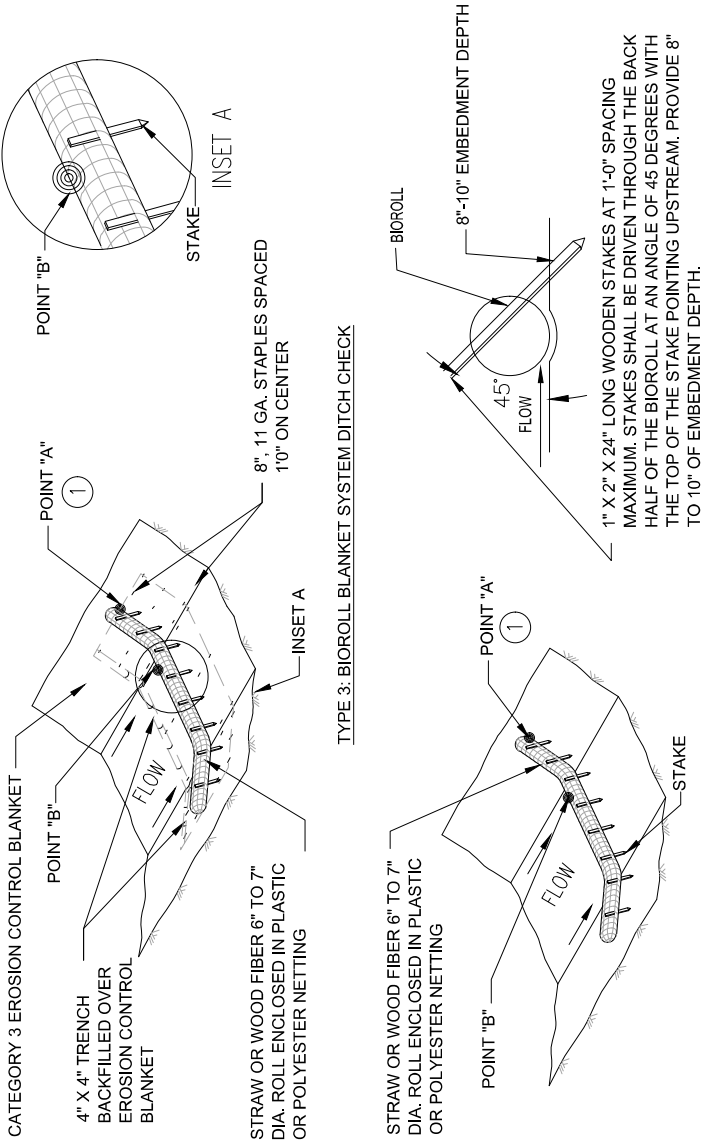
1. CLEARING OPERATIONS COMPLETED PREVIOUSLY BY OTHERS.
2. GRUBBING PAY ITEMS SHALL INCLUDE ALL LABOR AND MATERIALS ASSOCIATED WITH REMOVING ALL WOODY VEGETATION FROM THE GANC (GRAND AVENUE NORDIC CENTER) TRAIL CORRIDOR. BURNH AND STUMPS MAY BE CHIPPED AND DISTRIBUTED ONSITE. DISTRIBUTED MATERIAL MAY NOT EXCEED 4" DEPTH OR BE DISTRIBUTED IN WETLANDS. BRUSH AND STUMPS MAY BE BURNED AT DESIGNATED AREAS ONSITE. CONTRACTOR TO OBTAIN PRIOR CITY APPROVAL AND REQUIRED BURN PERMITS AS NECESSARY.
2. NATURAL STONE RETAINING WALL PAY ITEM SHALL INCLUDE ALL LABOR AND MATERIALS ASSOCIATED WITH CONSTRUCTING SHORT NATURAL STONE RETAINING WALLS WHERE NECESSARY TO MINIMIZE SOIL DISTURBANCES. NATURAL STONES FOR RETAINING WALLS EXIST ONSITE BUT MUST BE GATHERED AND INSTALLED BY CONTRACTOR.
3. COMMON EXCAVATION ITEM INCLUDES MATERIALS AND LABOR ASSOCIATED WITH GRADING TRAIL TO MAXIMUM CROSS SLOPE OF 5%. TRAIL CENTERLINE PROFILE IS EXPECTED TO REMAIN NEAR EXISTING GRADE WITH MINOR EXCAVATION TO CREATE THE TRAIL TYPICAL SECTION PER DETAILS. IT IS EXPECTED THAT EXCESS MATERIAL WILL BE DISTRIBUTED ONSITE, SEEDING AND STABILIZED PER THE SWPPP. STABILIZING EFFORTS FOR AREAS OF EXCESS FILL WILL BE CONSIDERED INCIDENTAL TO COMMON EXCAVATION PAY ITEM. CONTRACTOR MAY UTILIZE EXISTING OR CREATE NEW BORROW PITS WHERE APPROPRIATE TO GENERATE FILL MATERIAL. ALL DISTRIBUTED AREAS TO BE SEEDING AND STABILIZED PER THE SWPPP. SEEDING AND STABILIZATION FOR BORROW PITS SHALL BE CONSIDERED INCIDENTAL.
4. GEOTEXTILE FABRIC ITEM TO INCLUDE LABOR AND MATERIALS ASSOCIATED WITH REINFORCING THE TRAIL OVER STORMWATER PAVING.
5. NATURAL SURFACE TRAIL IS INTENDED FOR WINTER CROSS COUNTRY SKIING USE. AGGREGATE TRAIL SURFACING INTENDED FOR TRAIL CONSTRUCTION OVER STORMWATER STRUCTURES.
6. TRAIL GATE TYPE SPECIAL ITEM TO INCLUDE LABOR AND MATERIALS ASSOCIATED WITH FURNISHING AND INSTALLING SINGLE SWING GATES PER DETAILS. TRAIL GATES TO RESTRICT ALL MOTORIZED ACCESS TO THE TRAIL EXCEPT MAINTENANCE VEHICLES AT THE SKYLINE PARKWAY INTERSECTION.
7. EROSION CONTROL BLANKET ITEM TO INCLUDE LABOR AND MATERIALS ASSOCIATED WITH STABILIZING ANY TRAIL GRADES OR BACKSLOPES GREATER THAN 1:3. STONE RETAINING WALLS MAY BE CONSTRUCTED IN LIEU OF 1:3 BACKSLOPES.
8. SEEDING ITEM SHALL INCLUDE ALL LABOR AND MATERIALS ASSOCIATED WITH STABILIZING THE TRAIL GRADE AND BACKSLOPES PER THE SWPPP. ALL DISTURBED AREAS MUST BE RE-ESTABLISHED WITH THE SPECIFIED SEED MIX.
9. STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AT SKYLINE PARKWAY.
10. STORMWATER CONVEYANCE AND SNOWMAKING UTILITY DESIGN COMPLETED BY OTHERS. STORMWATER AND SNOW PRODUCTION UTILITIES SHOWN FOR REFERENCE ONLY.
11. WORK OUTSIDE OF WETLANDS MAY BEGIN ONCE THE CONTRACTOR HAS RECEIVED THE NOTICE TO PROCEED FROM THE CITY. WORK INSIDE THE WETLANDS IS RESTRICTED TO CLEARING ACTIVITIES ONLY UNTIL WETLAND MITIGATION PROCESS HAS BEEN COMPLETED. NO GROUND DISTURBING ACTIVITIES ARE ALLOWED UNTIL THE MITIGATION PROCESS HAS BEEN COMPLETED.
12. FERTILIZER SHALL BE APPLIED PER THE SWPPP AND INCLUDED AS INCIDENTAL.
13. OWNER RESERVES THE RIGHT TO MAKE ADJUSTMENTS TO ALIGNMENTS IN THE FIELD DURING CONSTRUCTION OF SKI TRAILS AT THEIR DISCRETION. UNIT PRICE QUANTITY ADJUSTMENTS SHALL BE ESTABLISHED AT THE TIME OF PROPOSED ADJUSTMENTS AND AGREED UPON BY OWNER AND CONTRACTOR.
14. CULVERT LOCATIONS SHALL BE FIELD VERIFIED SO THAT CULVERTS ARE PLACED IN APPROPRIATE LOCATIONS TO PROMOTE POSITIVE DRAINAGE. LOCATIONS MUST BE APPROVED BY OWNER PRIOR TO CULVERT PLACEMENT.

14. Explain the HERBERRY CERTIFICATION THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED ENGINEER UNDER THE LAWS OF MINNESOTA	 	 	 
SIGNATURE <i>Will D. Grocher</i>	DATE 02/26/2019	SIGNATURE	DATE
SIGNED NAME WILL D. GROCHER	LIC. NO. 54757	SIGNED NAME	LIC. NO.

SCHEDULE OF ESTIMATED QUANTITIES
BRAND AVENUE NORDIC CENTER SKI TRAIL



NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	02/23/18	WD	ADDENDUM 1
2	03/02/18	WD	ADDENDUM 2
4	11/13/23	EM	ADDENDUM 4 - CONSTRUCTION OF 0.8K LOOP & CONNECTOR TRAIL
DESIGNED			
JS			
<p>I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.</p>			
WD			
CHECKED			
JG			
<p>SIGNATURE: <u>Will D. LeRochoer</u> DATE: <u>02/08/2018</u> PRINTED NAME: <u>WILL D. LEROCHER</u> LIC NO.: <u>51757</u></p>			
<div style="display: flex; justify-content: space-between; align-items: center;"> <div>  <p>KS KS Engineering, Inc. 44 E. Center Street, Suite 500 St. Cloud, MN 56304-4220 855.738.4499 ksa.com</p> </div> <div style="text-align: center;"> <h1 style="margin: 0;">GANC SITE LAYOUT</h1> <p>*****</p> </div> <div> <p>PROJ. NO. 16585.000 DRAWING NO. 03</p> </div> </div>			



NOTES:

SEE SPECS. 2573, 3601, 3733, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

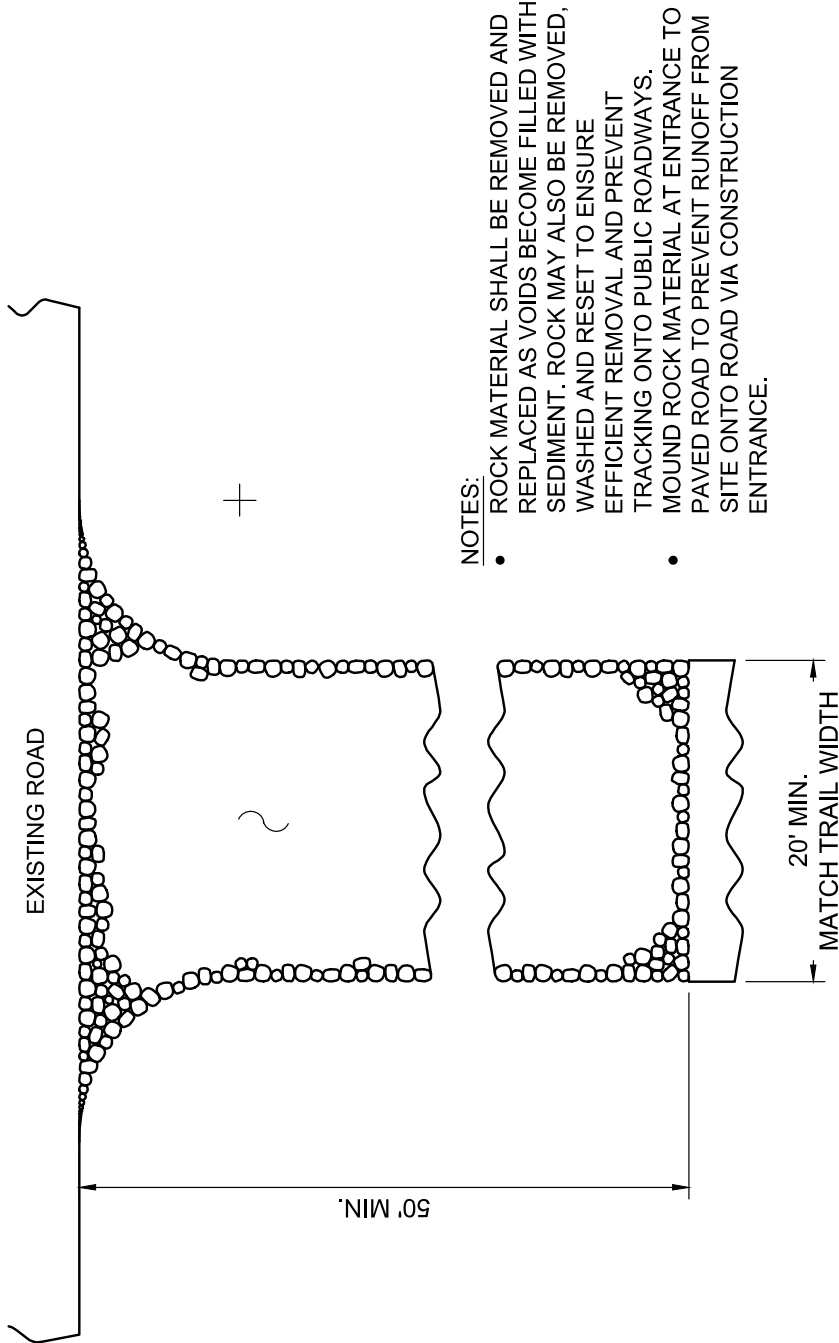
APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

APPROXIMATE SPACING OF DITCH CHECKS (FT.)
Y = DITCH CHECK HEIGHT (FT) / % CHANNEL SLOPE x 100

- POINT "A" MUST BE A MINIMUM OF 6" HIGHER THAN POINT "B" TO ENSURE WATER FLOWS OVER THE DITCH AND NOT AROUND EDGES.
- PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.
- DITCH GRADE 3% - 5%
MAX FLOW VELOCITY 12 FT/SEC.
- DITCH GRADE 1.5% - 3%
MAX FLOW VELOCITY 4.5 FT/SEC.

SEDIMENT CONTROL LOG TYPE COMPOST

1 04 NO SCALE



NOTES:

- ROCK MATERIAL SHALL BE REMOVED AND REPLACED AS VOIDS BECOME FILLED WITH SEDIMENT. ROCK MAY ALSO BE REMOVED, WASHED AND RESET TO ENSURE EFFICIENT REMOVAL AND PREVENT TRACKING ONTO PUBLIC ROADWAYS.
- MOUND ROCK MATERIAL AT ENTRANCE TO PAVED ROAD TO PREVENT RUNOFF FROM SITE ONTO ROAD VIA CONSTRUCTION ENTRANCE.

STABILIZED CONSTRUCTION EXIT

2 04 NO SCALE

ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE. BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS DRAWING ADJUST SCALES ACCORDINGLY.

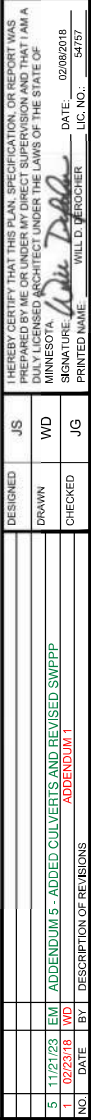




TRAIL GATE DETAILS

TRAIL GATE TYPE SPECIAL PAY ITEM SHALL INCLUDE BOTH SWING STYLE GATES TO BARRICADE ENTIRE TRAIL WIDTH.

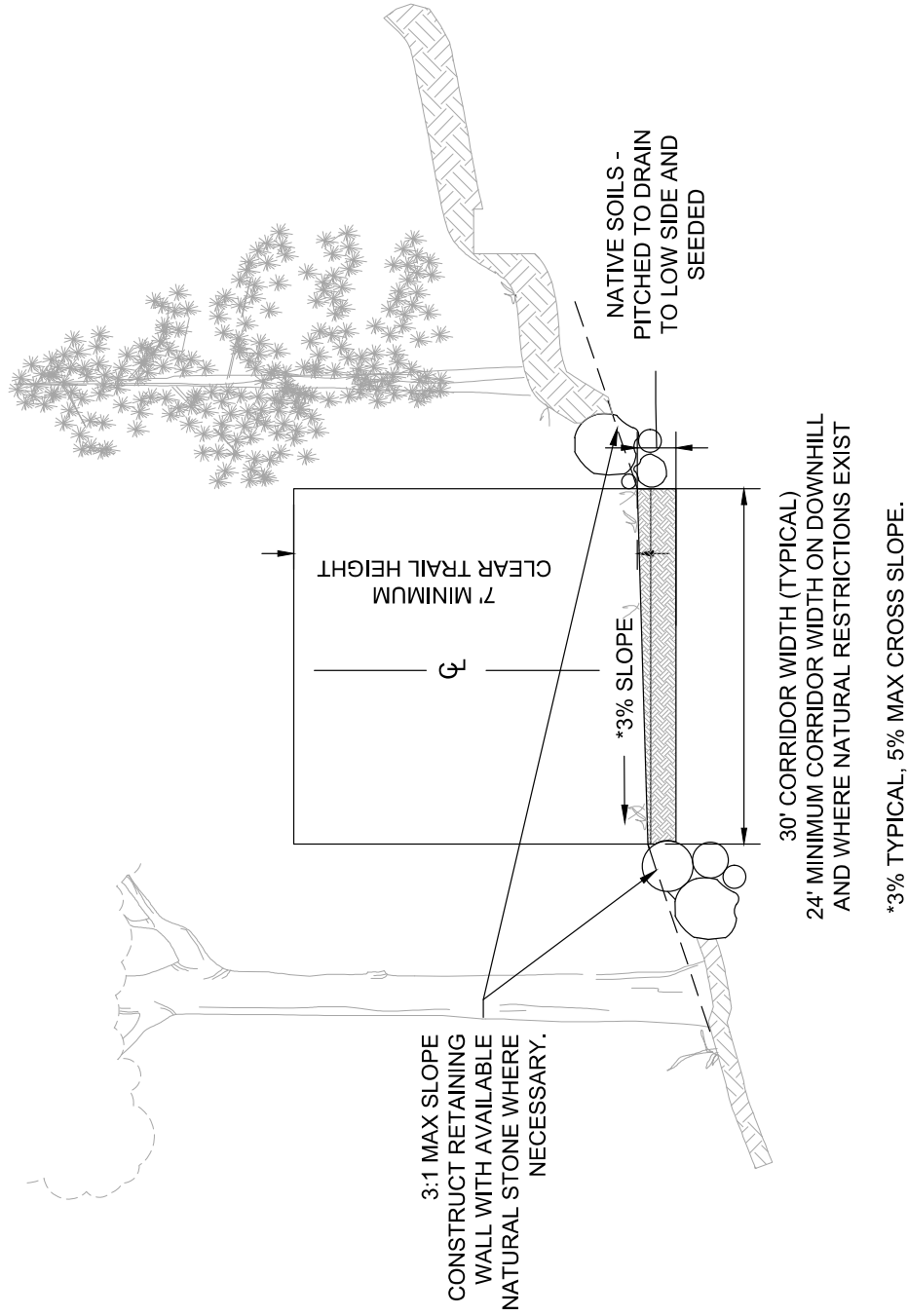
1. STRUCTURAL STEEL PLATE SHALL CONSIST OF MATERIAL PER A.S.T.M. A709, GRADE 36. WT SECTIONS SHALL CONSIST OF MATERIAL PER A.S.T.M. A992.
2. FABRICATION PRACTICES SHALL CONFORM TO CURRENT A.R.E.M.A. CHAPTER 15 REQUIREMENTS FOR STEEL FABRICATION.
3. WELDING SHALL CONFORM TO CURRENT A.W.S. STRUCTURAL WELDING CODE D1.1.
4. ALL WELD MATERIAL SHALL BE EQUIVALENT TO BASE MATERIAL IN STRENGTH.
5. ALL HOLES TO BE DRILLED RATHER THAN PUNCHED.
6. DEBURR ALL HOLES AND EDGES ON STEEL PLATES AND SHAPES.
7. FOLLOWING FABRICATION, GALVANIZED RAILING POSTS PER A.S.T.M. A123. AFTER GALVANIZING, ALL ITEMS SHALL BE FREE OF FINIS, ABRASIONS, ROUGH OR SHARP EDGES AND OTHER SURFACE DEFECTS.



GRAND AVENUE NORDIC CENTER SKI TRAIL



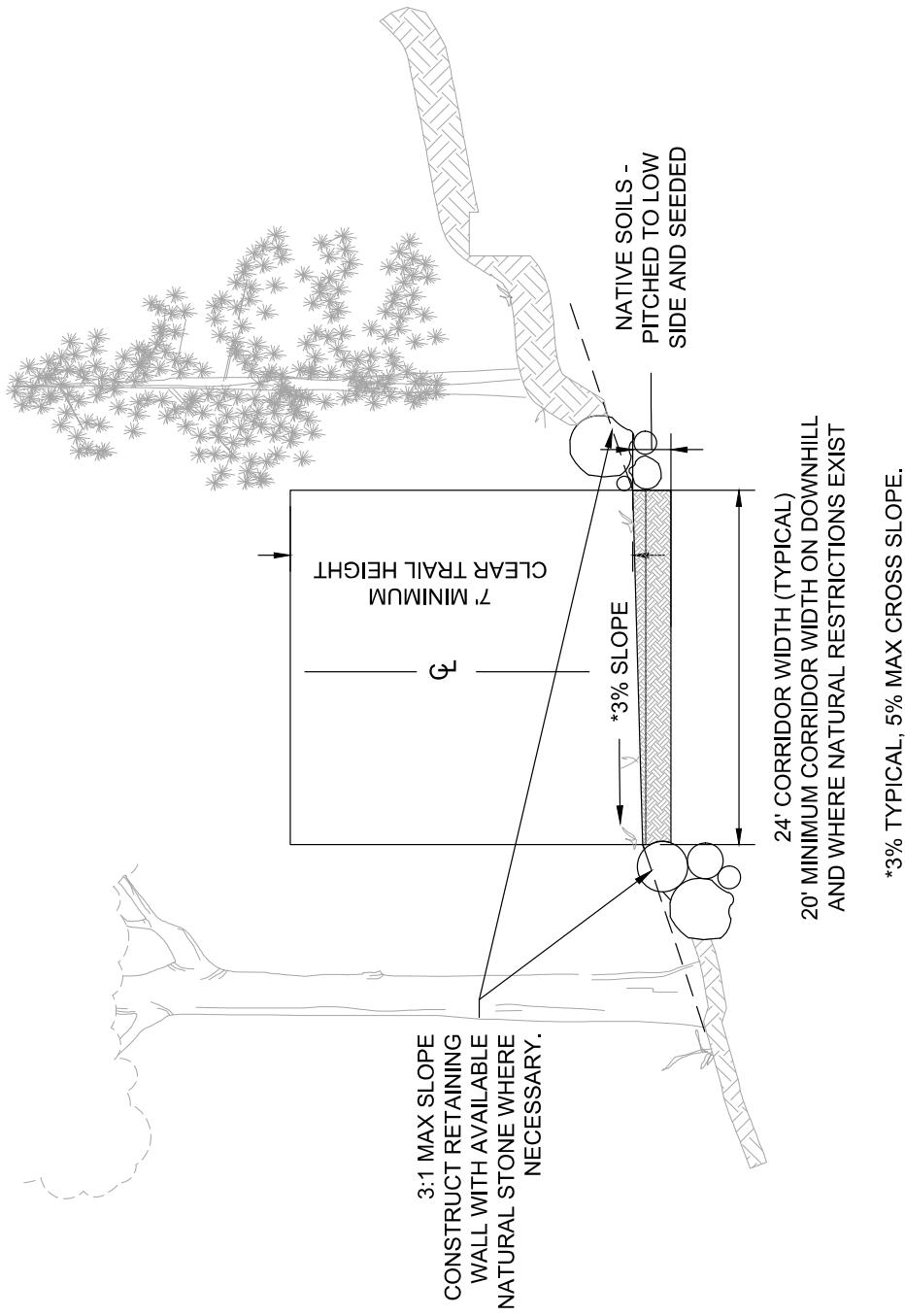
ROCK OUTCROPPINGS NEAR PROPOSED TRAIL



1
06

TRAIL TYPICAL SECTION

NO SCALE



2
06

TRAIL TYPICAL SECTION - CONNECTOR TRAIL

NO SCALE

[illegible]

1. The current City of Duluth Construction Standards shall apply.
Contractor will be permiitee for the MPOA NPDES stormwater construction permit for this project - Contractor's signature on permit is required.
Submit Initial Erosion Control (EC) schedule at or before Pre-Con.
Submit EC schedule alterations/adjustments weekly thereafter for Engineers approval.

2. The Contractor is responsible for EC Quality Control on this project. (MnDOT 1747.2B)
Contractor shall phase/sequence the project to minimize exposure to erosion. Contractor shall place or otherwise construct erosion control and sediment containment devices to minimize the runoff, tracking and sediment loss from disturbed areas of the project site.

3. Sediment and erosion control devices shall be functional before site is disturbed.

4. Total disturbed area is 17.4 acres, beginning impervious area is 0.0 acres, and new impervious area is 0.0 acres.

5. Receiving water is Knowlton Creek and other unnamed tributaries to the St. Louis River Estuary.

6. Disturbed slopes not actively worked shall be protected from soil erosion with temporary or permanent cover within permit requirements but in no case greater than 7 days of being worked.
Use erosion control blanket with soil staples, or engineer approved equal.

7. At minimum, the following controls will be implemented at the construction site:

- * Sediment control logs shall be used in conjunction with other erosion BMPs.
- * Rock ditch checks, or approved equal, are to be used to reduce ditch velocities and reduce erosion.
- * Storm inlets and outlet area shall be protected with rip rap.
- * Stabilized construction entrance shall be used to reduce sediment tracking.
- * Storm inlets shall be continuously protected by rock filled socks, or specified inlet protection device.
- * Permanent vegetation will be established right after topsoil is re-spread.
- * Control all site waste, debris, material storage, concrete washout, to prevent impacts to any drainage.
- * All exposed soil areas with a slope of 3:1 or steeper, that have a continuous positive slope to a slope protection or permanent cover within 3 days after the area is no longer actively being worked. All other to a special water must have temporary erosion protection or permanent cover within 7 days after the

8. All slopes and ditches shall be stabilized prior to opening new culverts into existing drainage ways.

9. If any stockpile is to remain in place for more than 3 days, sediment and erosion control devices

10. Water pumped or otherwise discharged from the site during construction dewatering shall be discharged to an energy dissipating device to eliminate erosion at the outlet.

11. Site dust generation must be controlled by application of water by spray trucks or similarly effective means of dust control.

12. The contractor shall take all possible precautions to prevent appreciable soil tracking onto roadways. Where sediment has been tracked out from the site onto the surface of off-site streets, other paved areas, and sidewalks, the deposited sediment must be removed by the end of the same work day in which the trackout occurs or by the end of the next work day if track-out occurs on a non-work day. The tracked sediment must be removed by sweeping, shoveling, vacuuming, or by using other similarly effective means of sediment removal. Hosing or sweeping tracked out sediment into any stormwater conveyance (unless it is connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or surface water is prohibited.

13. Stabilized construction entrance(s) shall be removed and area restored after grading is complete.

14. JAW MnDot 1717.2 B, the contractor QC program shall ensure that a competent individual shall inspect erosion and sediment control devices weekly and after each rain event. All nonfunctional devices shall be repaired/replaced/cleaned. Maintain NPDES Log of all weekly and rain event inspections - include the corrective actions that were taken and update the SWPPP to reflect the amendment plan. Inspection logs and a current SWPPP shall be maintained on site and available upon request.

15. Where not otherwise specified; MnDot Sp Provision S-246; Rapid Stabilization Method 4 shall be used when quick stabilization is needed. Use Cat III erosion control blanket (ECB) [N/American Green S150 or approved equal]. Use with seed mixture 25-14-1 @ 58 lbs per acre and fertilizer 10-10-10 @ 200 lbs per acre. The fertilizer, seed, and blanket shall be placed as per MnDOT 2575.3. The upgrade end of each blanket strip shall be buried at least 6 inches in a vertical check slot. Staples shall be placed at seams and throughout the blanket at a maximum spacing in all directions of 2 feet.

STORM WATER POLLUTION PREVENTION PLAN

CONSTRUCTION PRACTICES TO MINIMIZE STORM WATER CONTAMINATION

TO PREVENT STORM WATER CONTAMINATION FROM OCCURRING, THE FOLLOWING BMPs WILL BE IMPLEMENTED:

1. All areas that are rough graded must be kept in a smooth condition to allow sheet flow of storm water wherever practical and always ready for surface application of degradable or non-degradable blankets, mulch, or other protective covers.

2. A stabilized construction entrance/exit will be constructed to reduce vehicle tracking of sediments off the project right of way.

3. All non-hazardous waste materials will be collected and stored in a securely lidded metal dumpster or other approved containment method at the end of each day. Any alternative to a metal dumpster must be submitted in writing for approval by the project engineer. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied as necessary to function as intended for debris collection. No construction materials will be buried on-site. The contractor's erosion control supervisor will instruct all personnel regarding the correct procedure for disposal.

4. A licensed sanitary waste management contractor will collect all sanitary waste from the portable units at a rate necessary to maintain design function.

5. All vehicles on site will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage.

6. Fertilizers will be stored in a covered shed and partially used bags will be transferred to a sealable bin to reduce chance of spillage.

7. Petroleum products will be stored in tightly sealed containers, which are clearly labeled.

Added with all fueling sources and maintenance activities. Secondary containment measures will be paired by the contractor.

Spills used on site will be applied in accordance with manufacturers recommendations.

Sealing and curing compounds will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm water system but will be properly disposed of according to manufacturer's instructions.

If necessary for spill clean up will be kept in an enclosed trailer or shed on site. Equipment will include, s, props, dust paws, rags, gloves, absorbent (kitty litter). Oil absorbent brooms and diapers and

12. All spills will be contained and cleaned up immediately upon discovery. Spills large enough to reach the stormwater conveyance system will be reported to the Minnesota duty officer at 1.800.422.0798.

13. Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site. Unless done in an engineered containment system. The engineered system must include site drawings for the project file and written assurance that the system will work as designed and leave no discharge of concrete or concrete residue potential to waters of the state during a minimum of a 100 year storm event.

14. Form release oil used for concrete work must be applied over a pallet containing absorbent to collect excess liquid. The absorbent material will be replaced and properly disposed of when saturated.

15. Discharges from basins dewatering operations that are turbid or sediment laden shall be discharged to temporary sediment basins constructed on the site to provide treatment prior to discharge to a water of the state.

16. Clogged or compromised filters must be replaced. Where there is evidence of sediment accumulation adjacent to the inlet protection measure, deposited sediment shall be removed by the end of the same work day on which it is found or by the end of the following work day if removal by the same work day is not feasible.

17. Accumulated sediment shall be removed where the depth of sediment has reached half of the working height of the sediment retaining device. Sediment shall be removed by the end of the work day on which it is found or by the end of the following work day if removal by the same work day is not feasible.

NOT FOR CONSTRUCTION

UPDATED SWPPP SHALL BE ISSUED VIA UPCOMING ADDENDUM

DESIGNED JS
DRAWN WJD
CHECKED JG

ADDENDUM 4 - CONSTRUCTION OF 0.8K LOOP & CONNECTOR TRAIL
ADDENDUM 3

NO DATE BY DESCRIPTION OF REVISIONS

14 Education Street, Suite 120
Duluth, MN 55805-101
654.732.4496
teda.com

TKQA

HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULUTH LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: WILL D. FEROCHER U.C. NO.: 54757

PROJ. NO. 15585.000
DRAWING NO. 08

SWPPP 002

FILE NAME: K:\a\IDuluth_City\15585\000\4_Production\01_CAD\02_Sheets\0A\NC SWPPP.dwg

PLOT DATE: Jun 20, 2018 - 2:50pm



					DESIGNED	JG	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.	SIGNATURE <i>Willie Davis</i>	DATE: 02/08/2018
					DRAWN	WD			
					CHECKED	JG		PRINTED NAME: WILLIE D. FISCHER	LIC NO.: 54757
NO	DATE	BY	DESCRIPTION OF REVISIONS						
4	11/13/23	EM	ADDENDUM 4 - CONSTRUCTION OF 0.8K LOOP & CONNECTOR TRAIL						
1	02/23/18	WD	ADDENDUM 1						

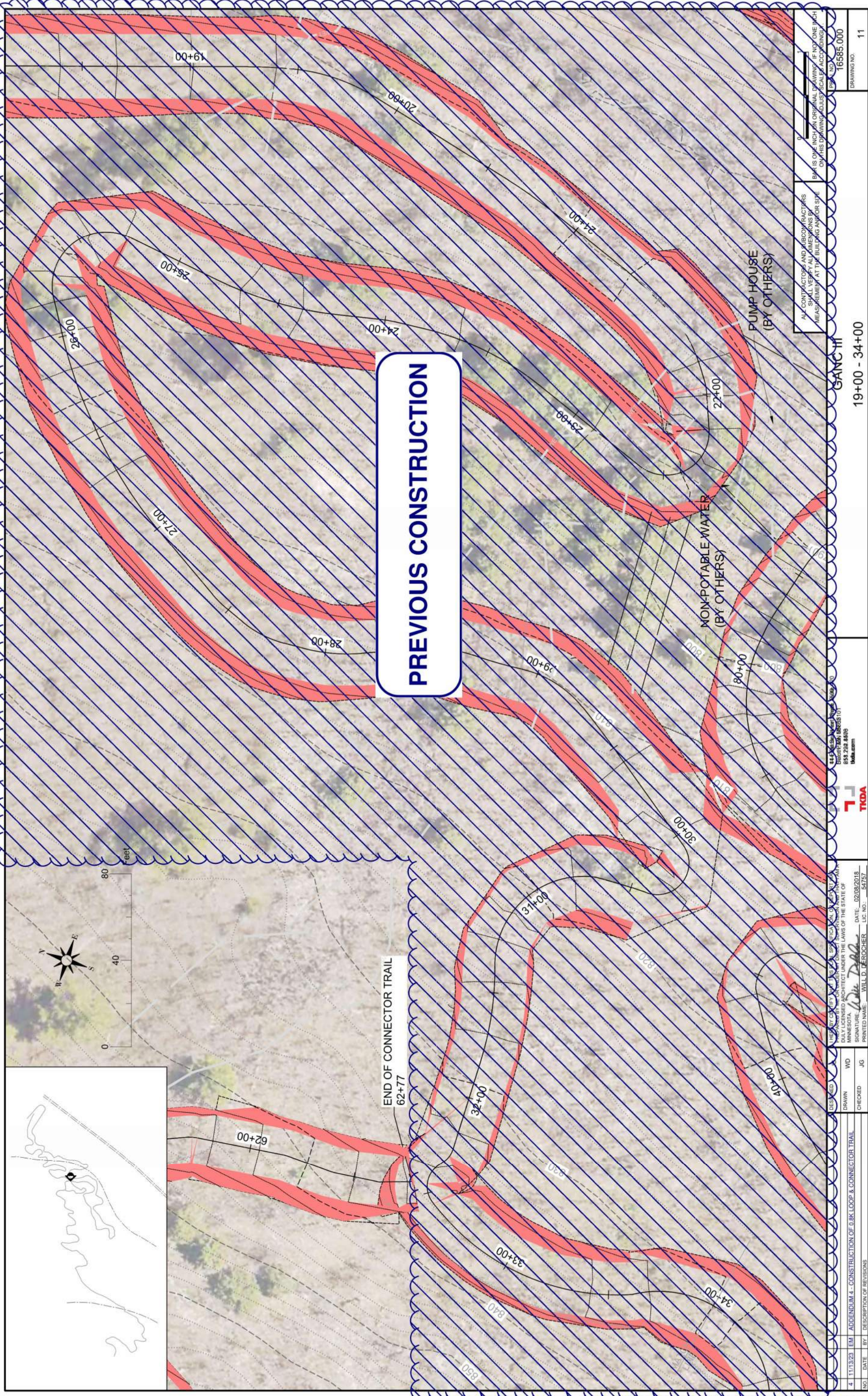
TKDA
44 E. Gallop Street, Suite 420
Baltimore, MD 21201
855.228.4509
tkda.com

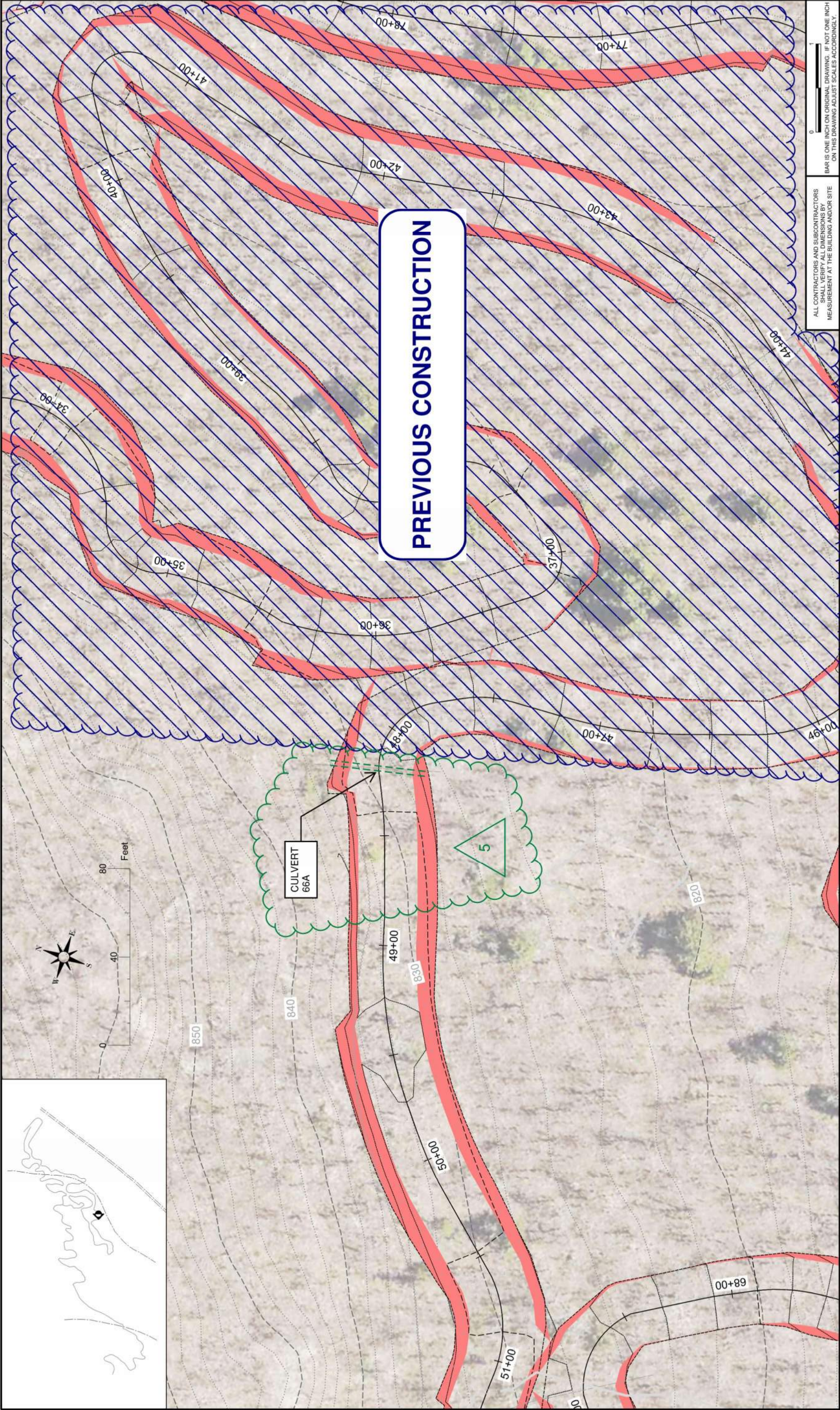
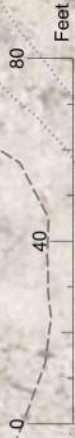
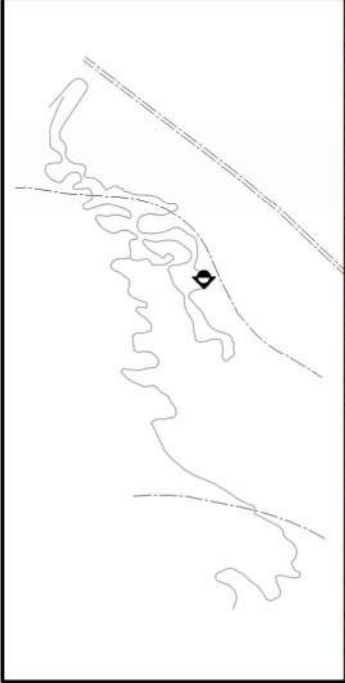
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PROJ. NO.	16585.000
DRAWING NO.	09



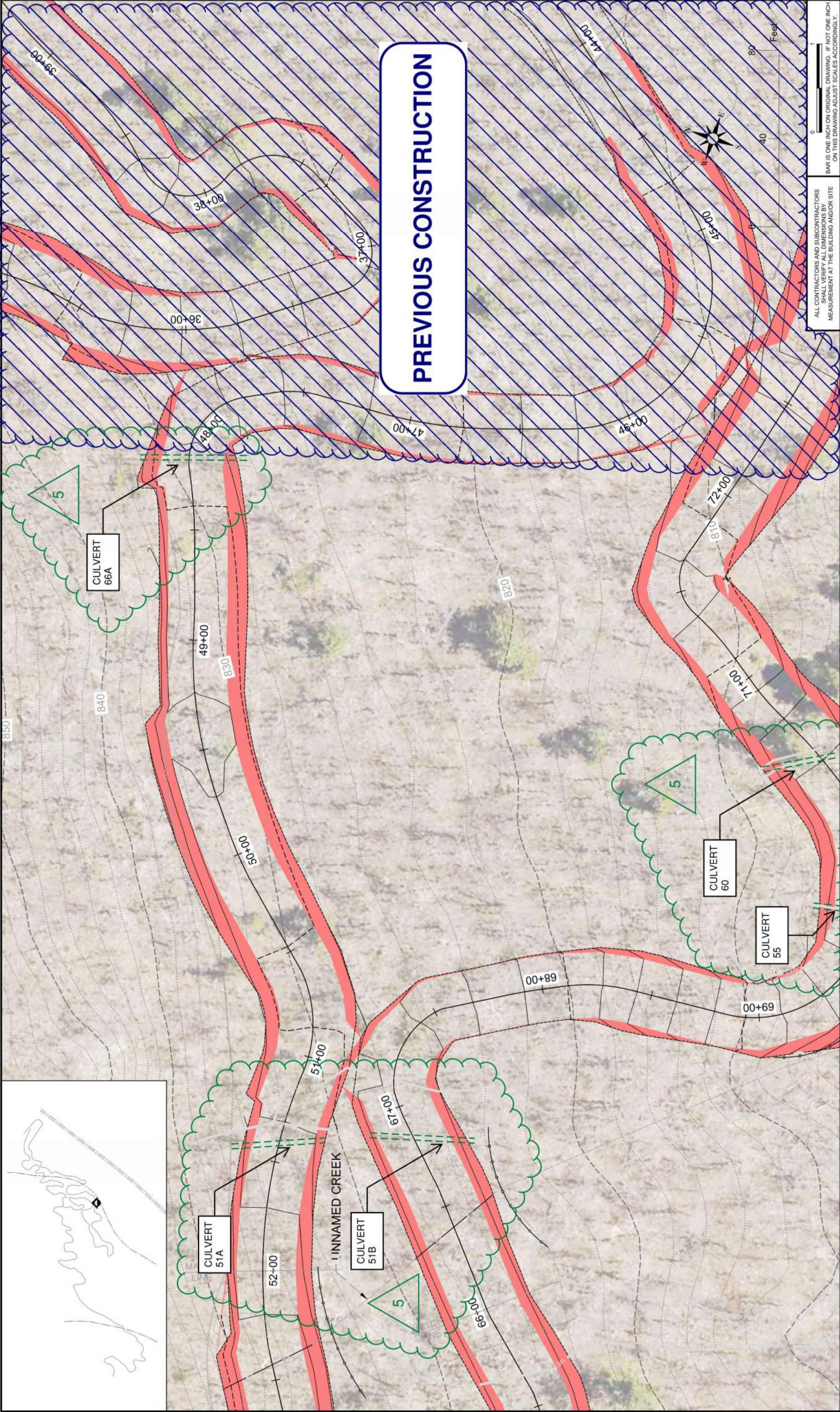
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PROJECT NAME: GANC II		7+00 - 19+00	
DESIGNED BY: JS		CHECKED BY: JG	
DRAWN BY: WD		DATE: 02/08/2018	
4 11/13/23		EM	
ADDENDUM 4 - CONSTRUCTION OF 0.8K LOOP & CONNECTOR TRAIL		DESCRIPTION OF REVISIONS	
NO.		DATE	
BY		DESCRIPTION OF REVISIONS	
PRINTED NAME: WILL D. FEROCHER		LIC. NO.: 54757	
HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF WISCONSIN.		TRCA	
144 East Second Street, Suite 420 Burlington, WI 53105-1011 608.232.8499 trca.com		ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS OF THE TRAIL AT THE FIELD AND REPORT ANY DISCREPANCIES TO THE DESIGNER AT THE FIRST MEETING.	
SCALE: 1" = 40'		BLANK ONE INCH ORIGINAL DRAWING IF NO ONE INCH	





PREVIOUS CONSTRUCTION

DESIGNED		JS		 TKDA 654.732.8498 tkda.com		44.5% SWAMP ENCLOSURE 101		GANC IV		ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE ON THIS DRAWING ADJUST SCALES ACCORDINGLY.	
DRAWN		WD									
CHECKED		JG									
BY		DATE									
5		11/21/23		EM		ADDENDUM 5 - ADDED CULVERTS AND REVISED SWPPP		34+00 - 44+00		PROJ. NO. 16585.000	
4		11/13/23		EM		ADDENDUM 4 - CONSTRUCTION OF 0.8K LOOP & CONNECTOR TRAIL		34+00 - 44+00		DRAWING NO. 12	
PRINTED NAME		WILL D. FEROCHER		DATE		02/08/2018		LIC. NO.		54757	



PREVIOUS CONSTRUCTION

ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE ON THIS DRAWING ADJUST SCALES ACCORDINGLY.

DESIGNED	JS	PROJECT NO.	16585.000
DRAWN	WD	DRAWING NO.	13
CHECKED	JG		
DATE	DATE		
NO.	ST	DESCRIPTION OF REVISIONS	
5	11/21/23	EM	ADDENDUM 5 - ADDED CULVERTS AND REVISED SWPPP
4	11/10/23	EM	ADDENDUM 4 - CONSTRUCTION OF 0.8K LOOP & CONNECTOR TRAIL
3	11/10/23	EM	ADDENDUM 3 - CONSTRUCTION OF 0.8K LOOP & CONNECTOR TRAIL
2	11/10/23	EM	ADDENDUM 2 - CONSTRUCTION OF 0.8K LOOP & CONNECTOR TRAIL
1	11/10/23	EM	ADDENDUM 1 - CONSTRUCTION OF 0.8K LOOP & CONNECTOR TRAIL

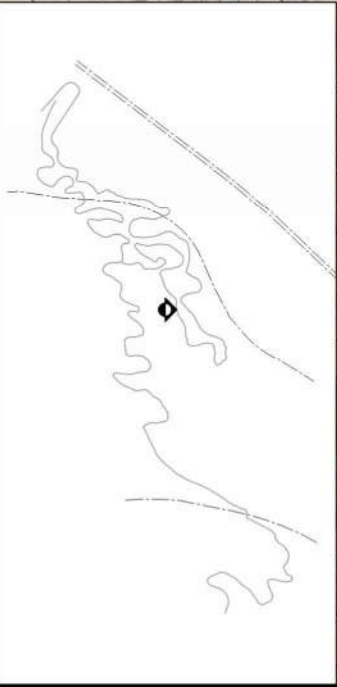
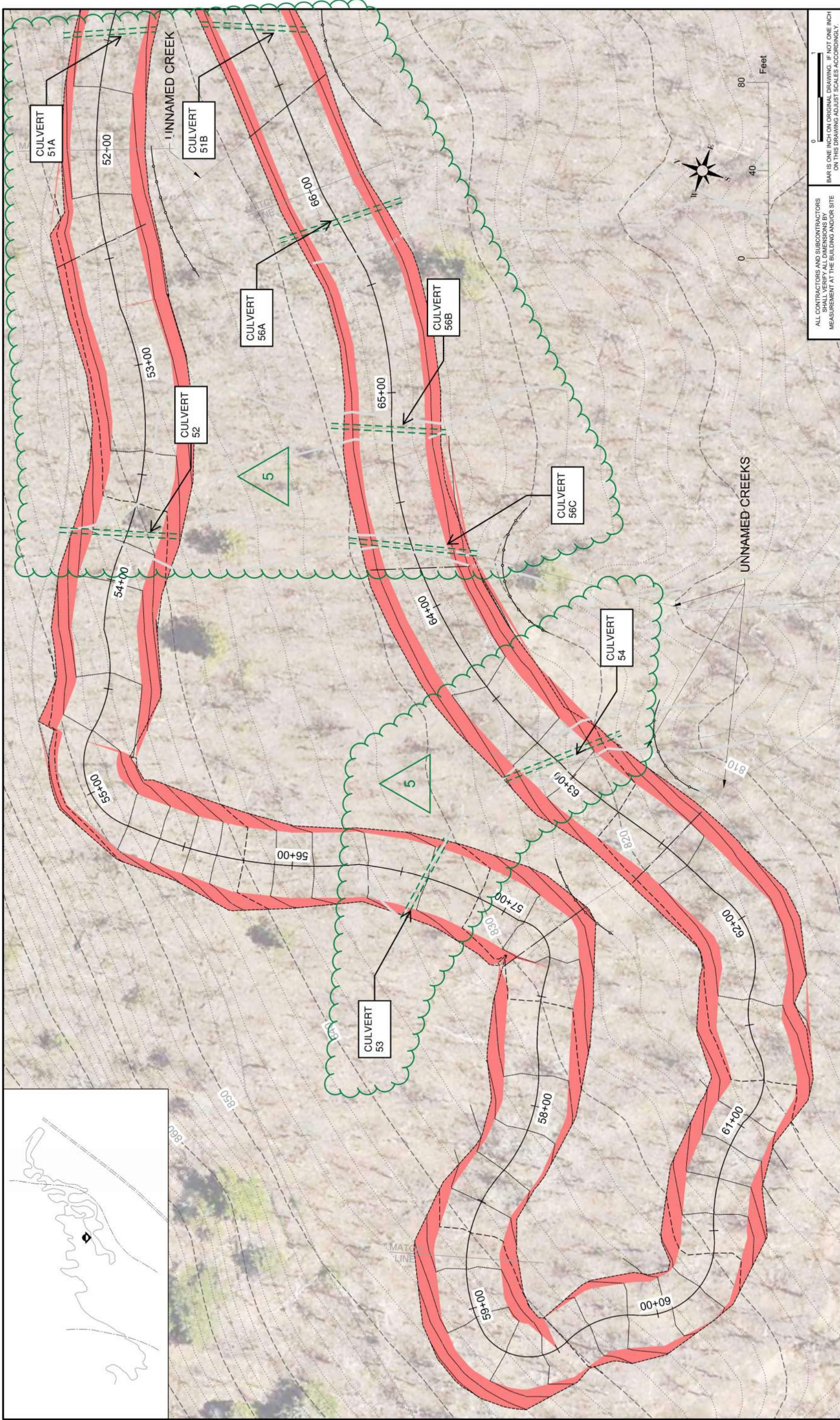
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44+00 - 52+00

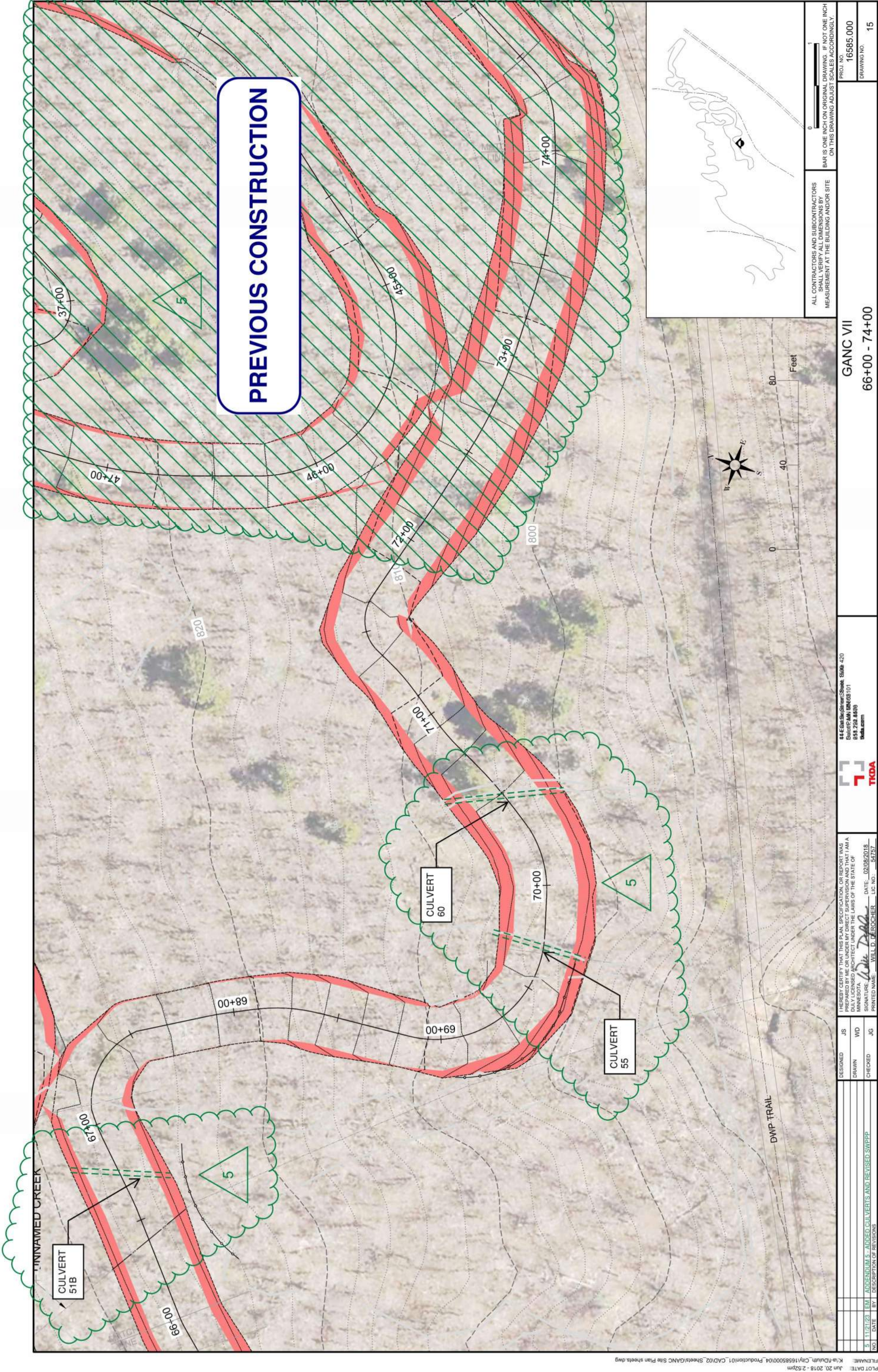
44+00 - 52+00

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF WISCONSIN.
 SIGNATURE: *Will D. Ferocher* DATE: 02/08/2018
 PRINTED NAME: WILL D. FEROCHER LIC. NO. 54757

44+00 - 52+00



DESIGNED		JS	HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF ILLINOIS.		44 East Second Street, Suite 420 Bloomington, IL 61802-1011 618.232.8498 tbd.com		GANC VI		ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE.		0 40 80 Feet	
DRAWN		WD	PROJECT NO.		16585.000		52+00 - 66+00		DRAWING NO.		14	
CHECKED		JG	DATE		02/08/2018		PRINTED NAME		WILL D. ROCHER		L.C. NO.	
NO.		5	DATE		11/21/23		DESCRIPTION OF REVISIONS		ADDENDUM 5 - ADDED CULVERTS AND REVISED SWPPP			



NO.	DATE	BY	DESCRIPTION OF REVISIONS
5	11/21/23	EM	ADDENDUM 5 - ADDED CULVERTS AND REVISED SWPPP

DESIGNED	JS
DRAWN	WD
CHECKED	JG

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF WISCONSIN.
SIGNATURE: *Will D. Bercher* DATE: 02/08/2018
PRINTED NAME: WILL D. BERCHER LIC. NO.: 54757



44 East Second Street, Suite 420
Eau Claire, WI 54601-1011
854.732.8498
tkda.com

GANC VII
66+00 - 74+00

PROJECT NO. 16585.000
DRAWING NO. 15

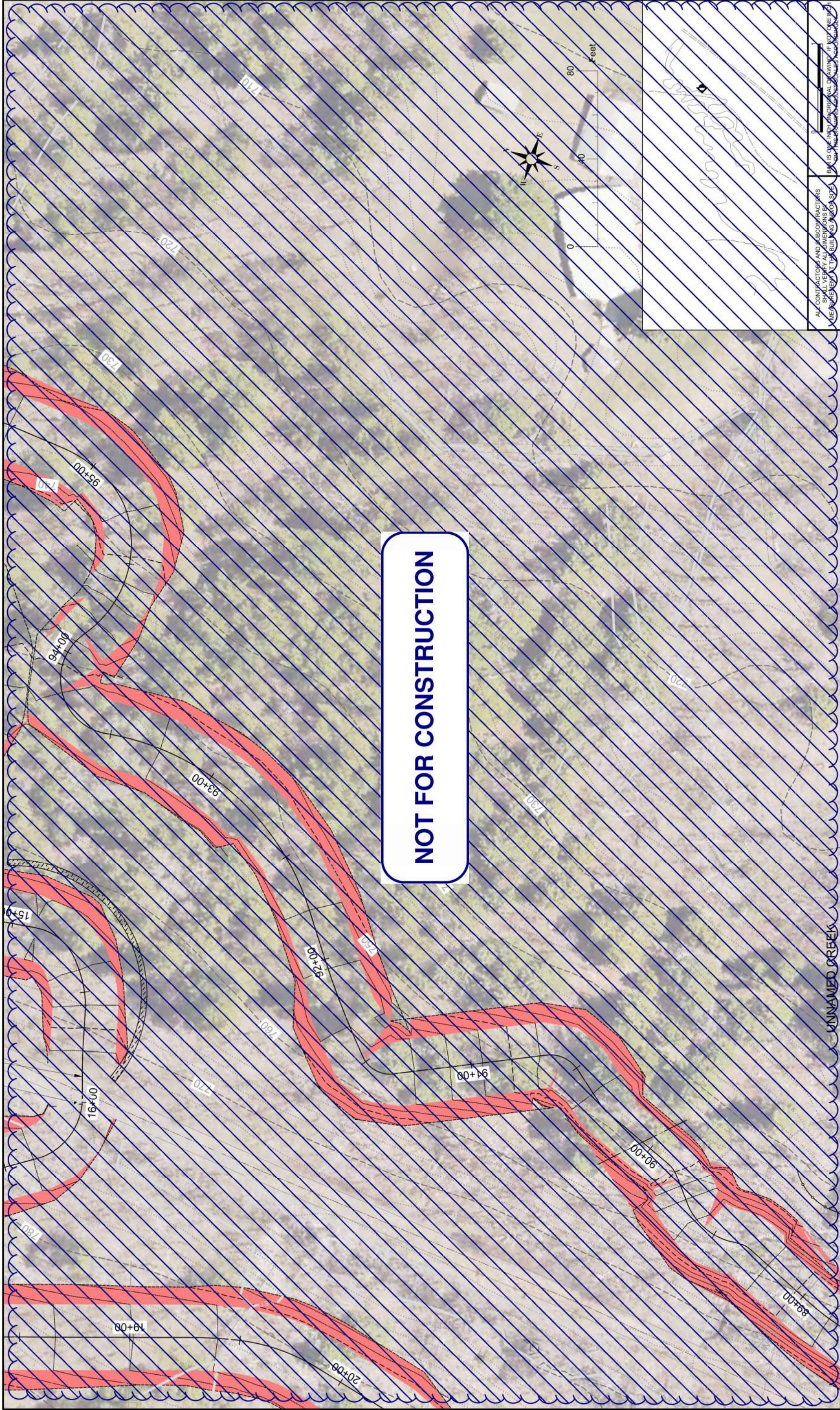
ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS DRAWING ADJUST SCALES ACCORDINGLY.





NOT FOR CONSTRUCTION



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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE: Will D. Derocher DATE: 02/08/2018

PRINTED NAME: WILL D. DEROCHER LIC. NO.: 54757

DESIGNED	JS
DRAWN	WD
CHECKED	JG

4	11/13/23	EM	APPENDIX 4 - CONSTRUCTION OF 0.8K LOOP & CONNECTOR TRAIL
NO	DATE	BY	DESCRIPTION OF REVISIONS



444 East Second Street, Suite 420
Salt Lake City, UT 84103
801.525.7228
tkoda.com

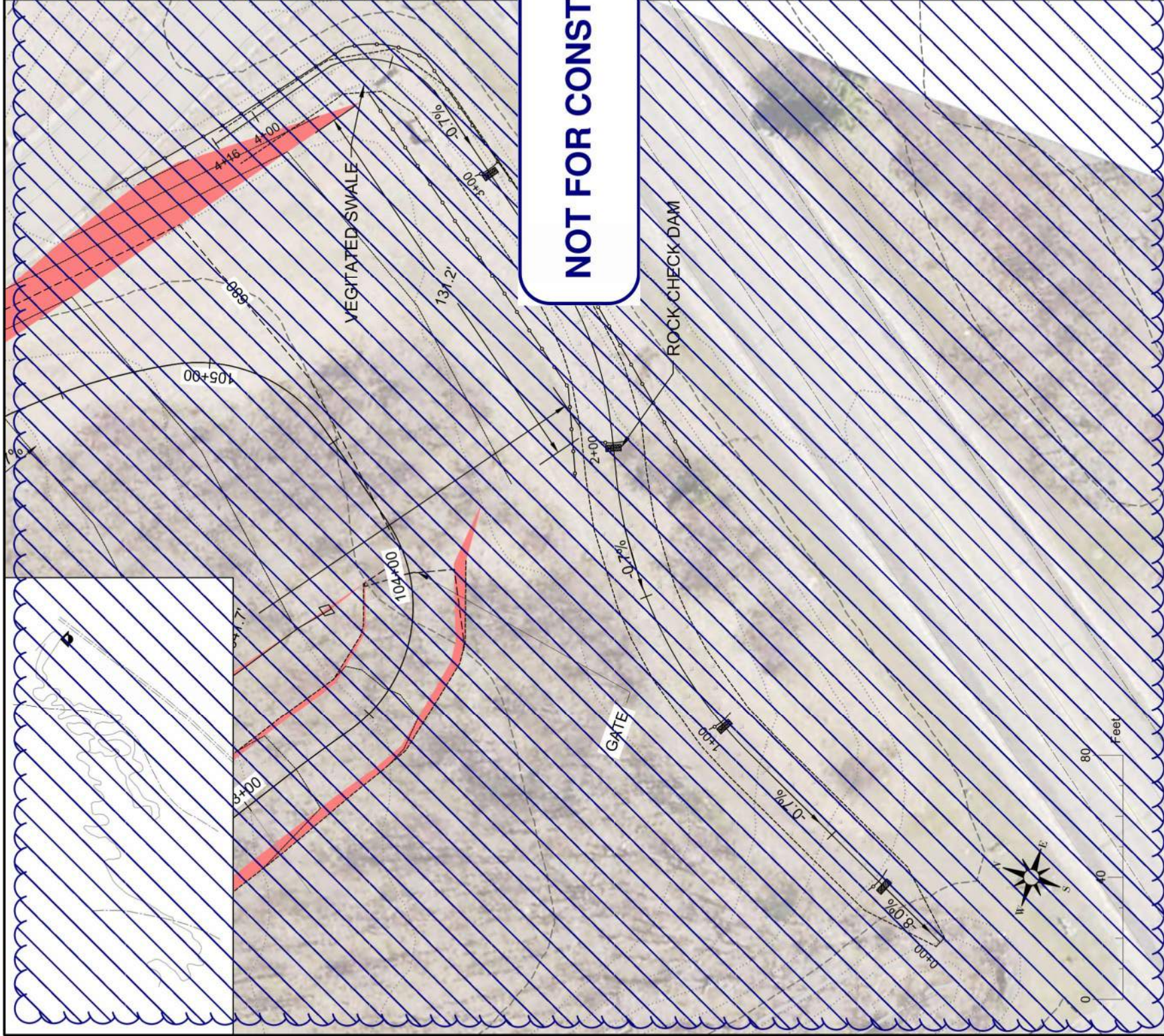
GANC XI
89+00 - 95+

PROJ. NO.	16585.000
DRAWING NO.	19

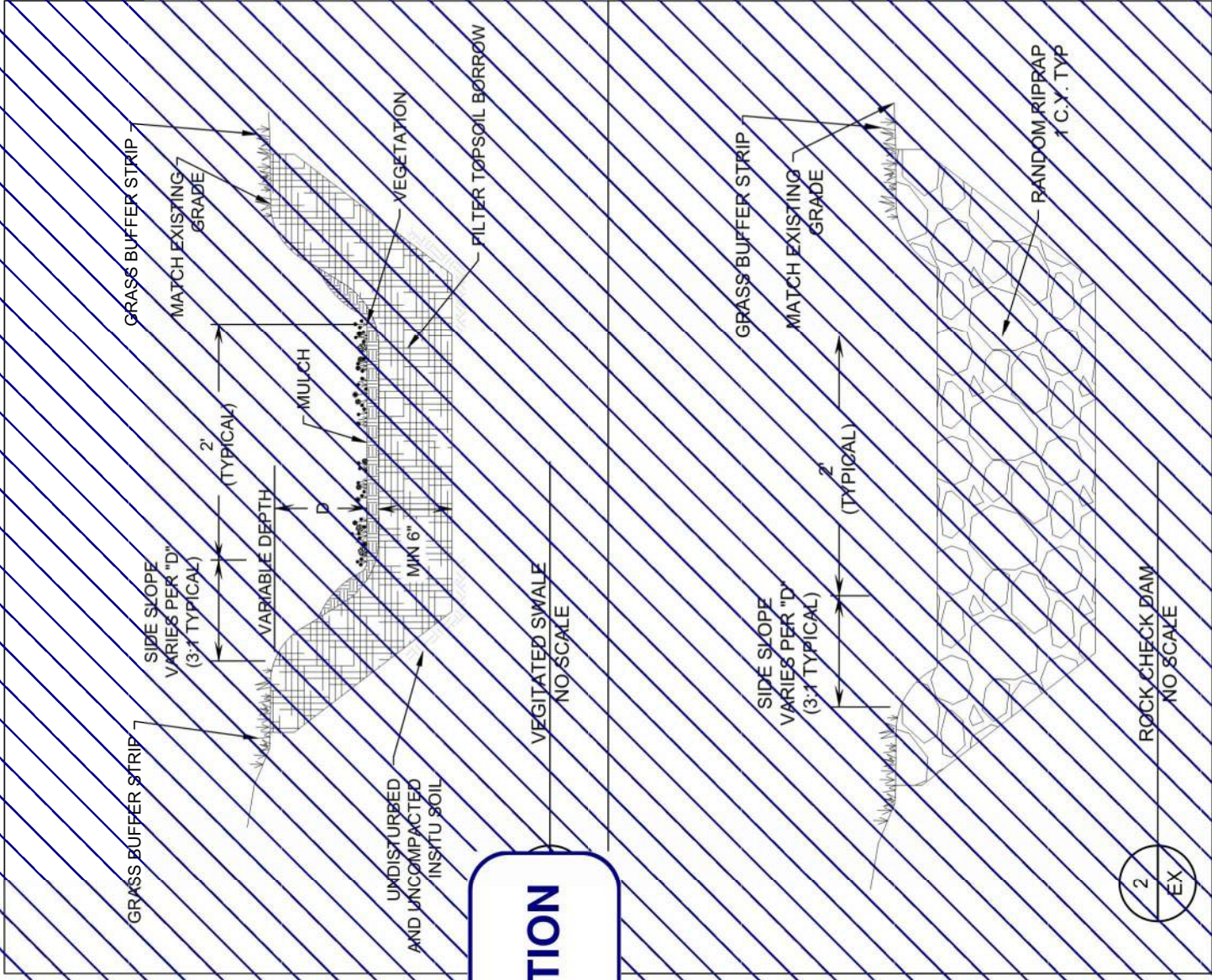


NOT FOR CONSTRUCTION

GANC XII				15585.000	
95+00 - 103+00				20	
ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING NUMBER STATION. THIS DRAWING IS NOT TO BE USED FOR ANY OTHER PURPOSES.				PROJECT NO. 15585.000	
DRAWING NO. 20				DRAWING NO. 20	
TKDA				14 East Second Street, Suite 420 Burlington, MN 56005-1011 651.732.8499 tkda.com	
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PRINTED NAME: WILL D. FEROCHER				DATE: 02/08/2018 LIC. NO. 54757	
ADDENDUM 1				NO. 1	
DESCRIPTION OF REVISIONS				NO. 1	
4 11/13/23 EM ADDENDUM 4 - CONSTRUCTION OF 0.9K LOOP & CONNECTOR TRAIL				NO. 4	
1 02/23/18 WD				NO. 1	



NOT FOR CONSTRUCTION



590 C.Y. COMMON EXCAVATION
860 S.Y. BLANKET & SEEDING (MnDOT 36-211)
140 C.Y. COMMON TOPSOIL BORROW (MnDOT 2574.526)
BIOTOP
4 C.Y. RIPRAP CLASS II (MnDOT 2511.504)

ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE.

U
 BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS DRAWING, ADJUST ALL DIMENSIONS ACCORDINGLY.

GANC XIII
103+00 - 108+00

PROJ. NO.	16585.000
DRAWING NO.	21

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS
PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A
DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF
MINNESOTA. DATE: 02/08/2018
SIGNATURE: *Will D. Derocher* LIC. NO.: 54757
PRINTED NAME: WILL D. DEROCHE

JS	WD	JG
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[illegible]

44.F. Cat: Soc, Parent: Student, \$5.00 420

E.E. Ostrin, *Principal*

08/04/2011

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REVISION THEREOF IS THE PROPERTY OF THE COMPANY AND IS NOT TO BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE COMPANY.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICALLY

I HEREBY CERTIFY THAT THIS PLAN, SP

I HEREBY CERTIFY THAT THIS

I HEREBY CERTIFY

HEREBY

58

IGNED

DESIGN

15 JULY 2005

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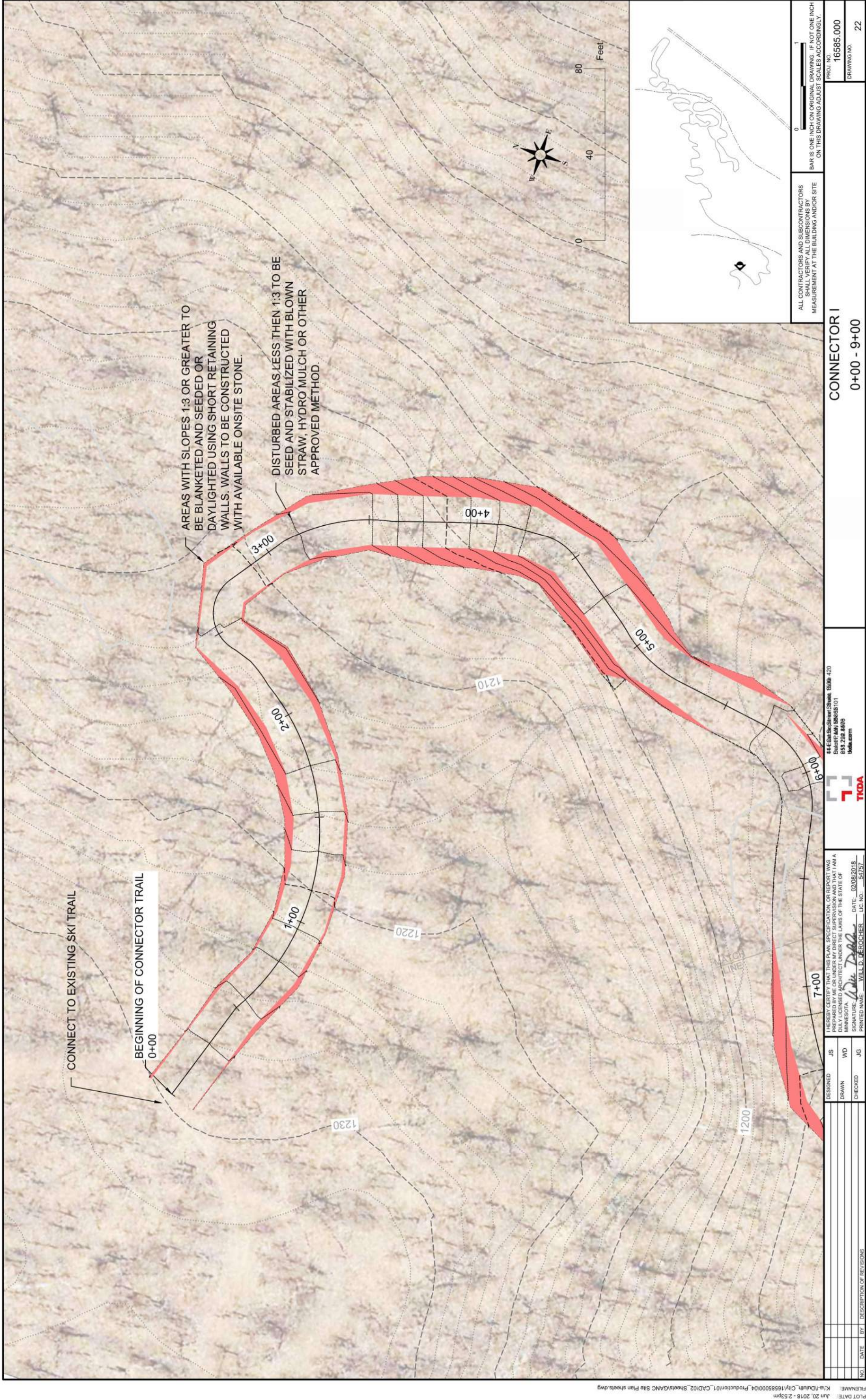
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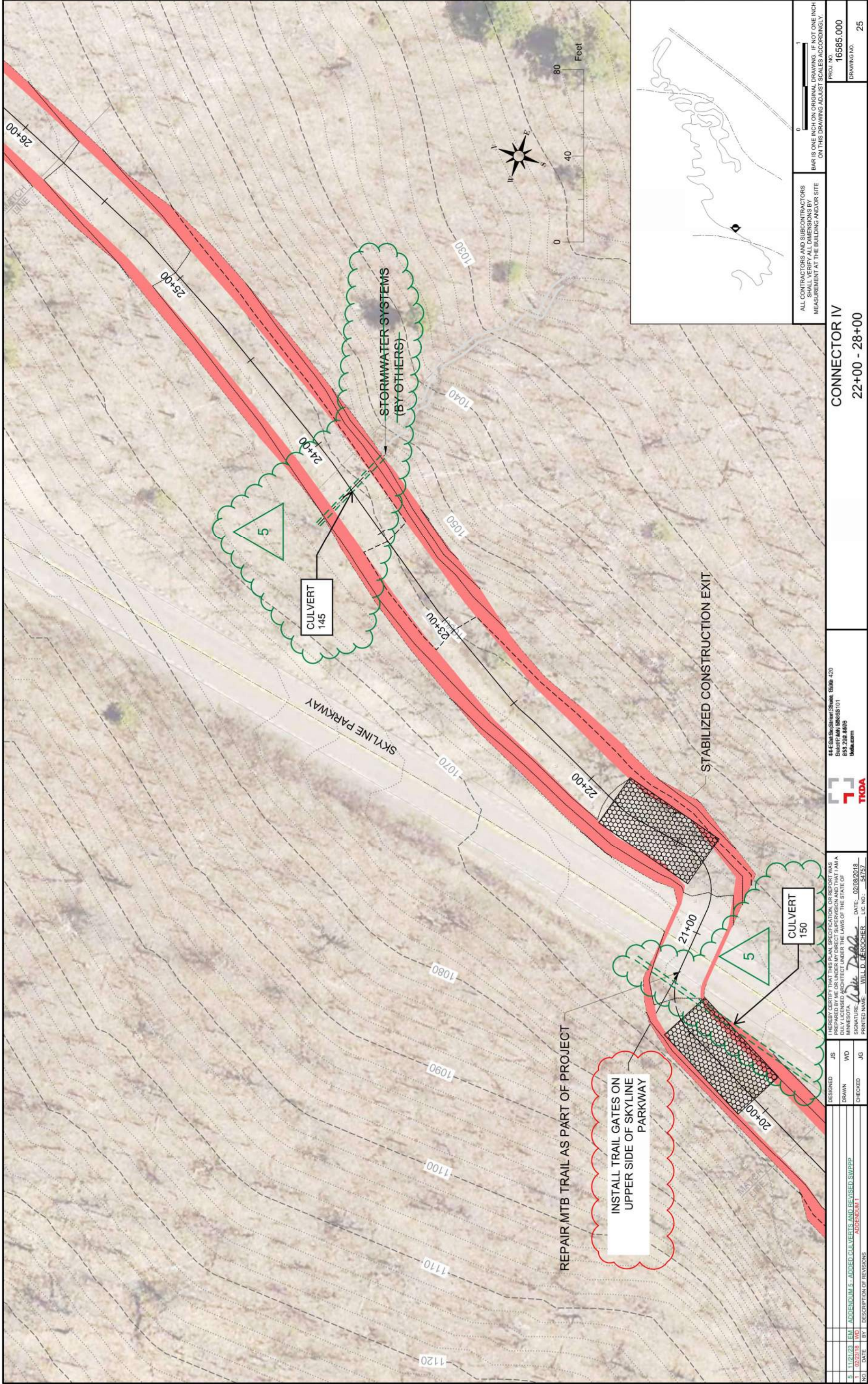
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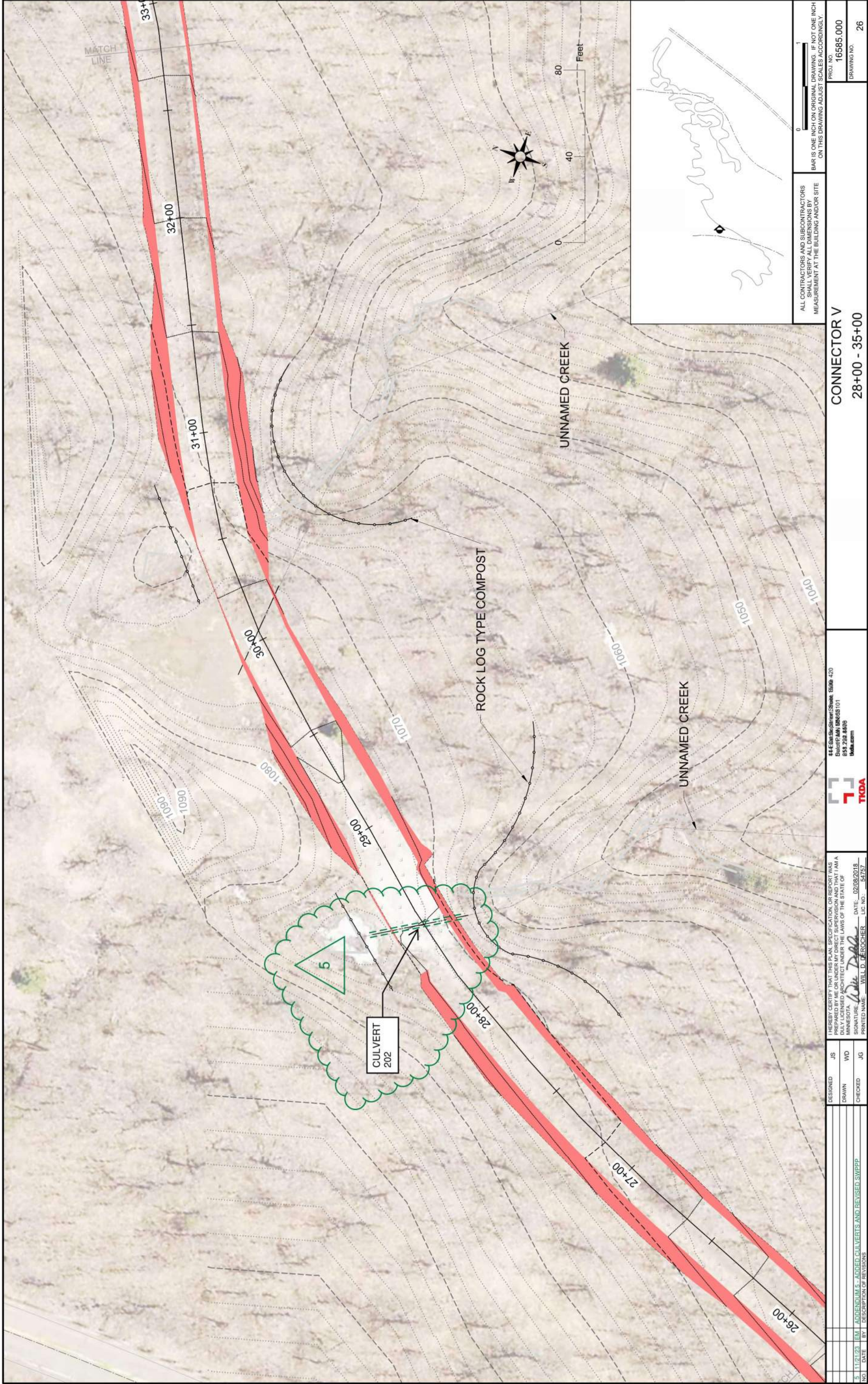
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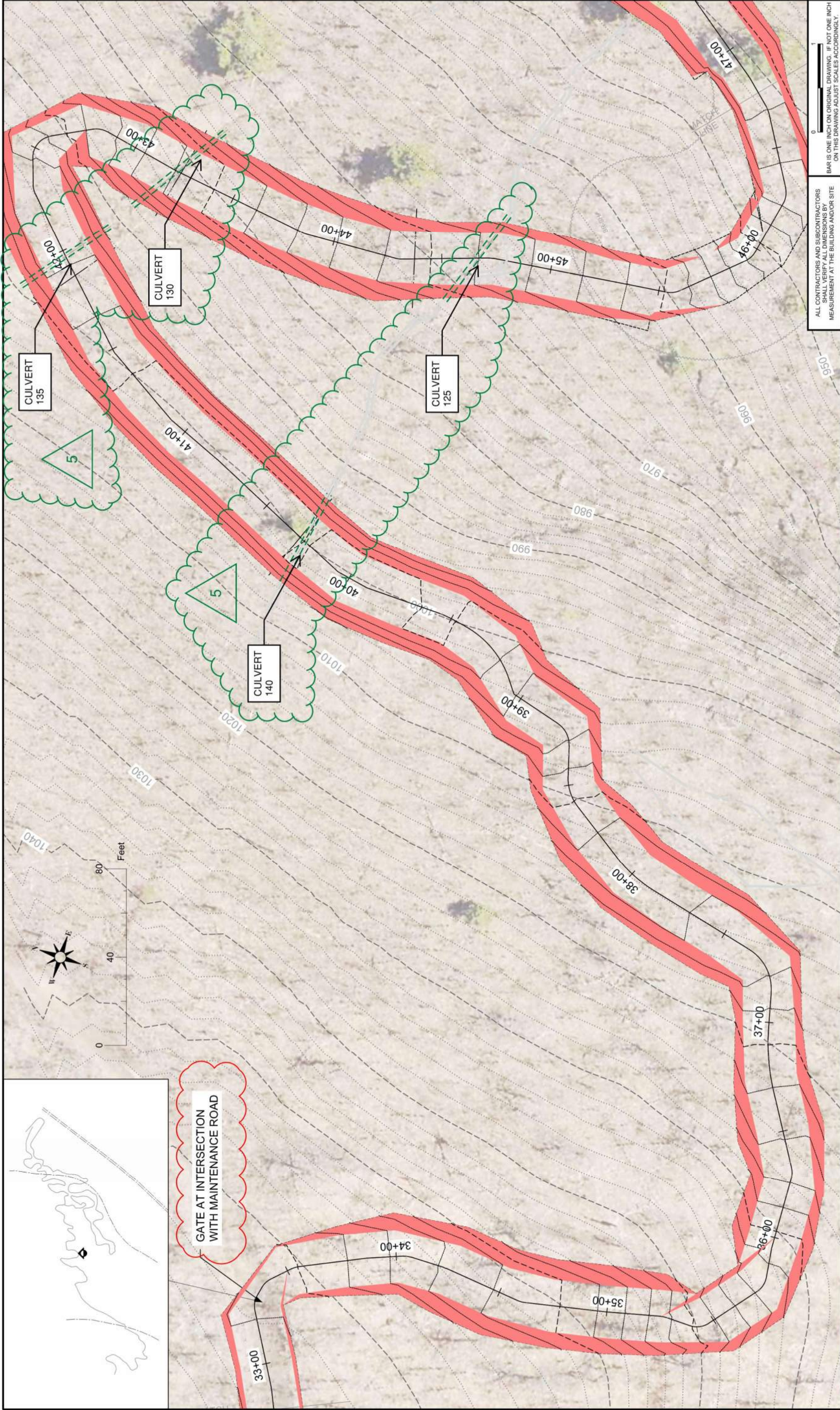




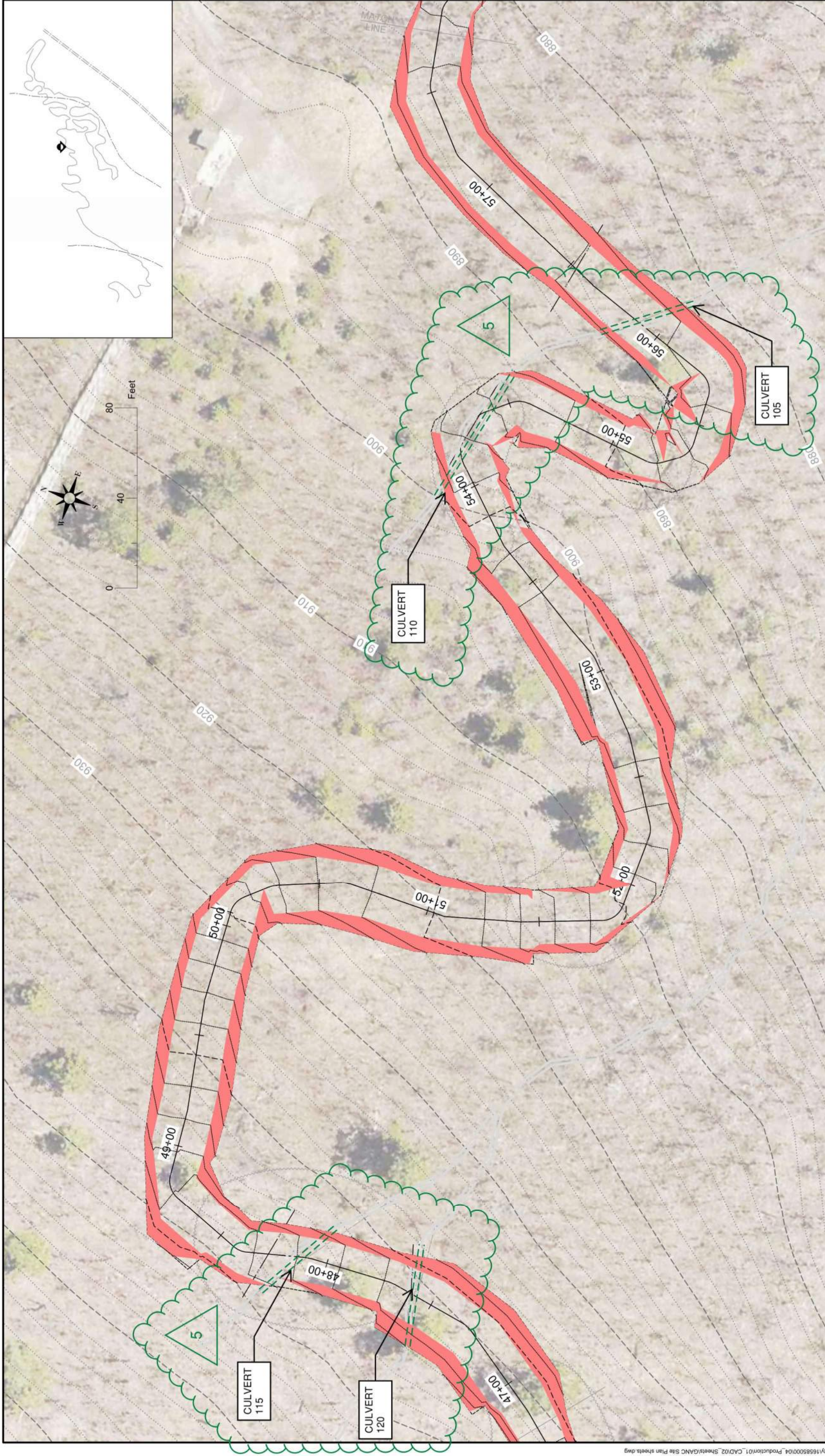
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DESIGNED		JS	HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF WISCONSIN.		44 E. Eastland Street, Suite 420 Burlington, WI 53105-1011 608.232.8498 buda.com		PROJECT NO. 16585.000		DRAWING NO. 27	
DRAWN		WD	DATE: 02/08/2018		PROJECT NO. 16585.000		DRAWING NO. 27		CONNECTOR VI	
CHECKED		JG	PRINTED NAME: WILL D. FEROCHER		PROJECT NO. 16585.000		DRAWING NO. 27		CONNECTOR VI	
DATE		BT	DESCRIPTION OF REVISIONS		PROJECT NO. 16585.000		DRAWING NO. 27		CONNECTOR VI	
NO.		BT	DESCRIPTION OF REVISIONS		PROJECT NO. 16585.000		DRAWING NO. 27		CONNECTOR VI	
1		02/29/18	ADDENDUM 5 - ADDED CULVERTS AND REVISED SWPPP		PROJECT NO. 16585.000		DRAWING NO. 27		CONNECTOR VI	
5		11/21/23	EM		PROJECT NO. 16585.000		DRAWING NO. 27		CONNECTOR VI	



ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE ON THIS DRAWING ADJUST SCALES ACCORDINGLY.

0 1

PROJECT NO. 16585.000

DRAWING NO. 28

CONNECTOR VII

49+00 - 60+00

44 E. 1st Street, Suite 100, 420
Burlington, MA 01803-101
855.732.8498
burlington.com



DESIGNED JS

DRAWN WD

CHECKED JG

DATE 11/21/23

DATE 02/08/2018

DATE

DESCRIPTION

ADDENDUM 5 - ADDED CULVERTS AND REVISED SWPPP

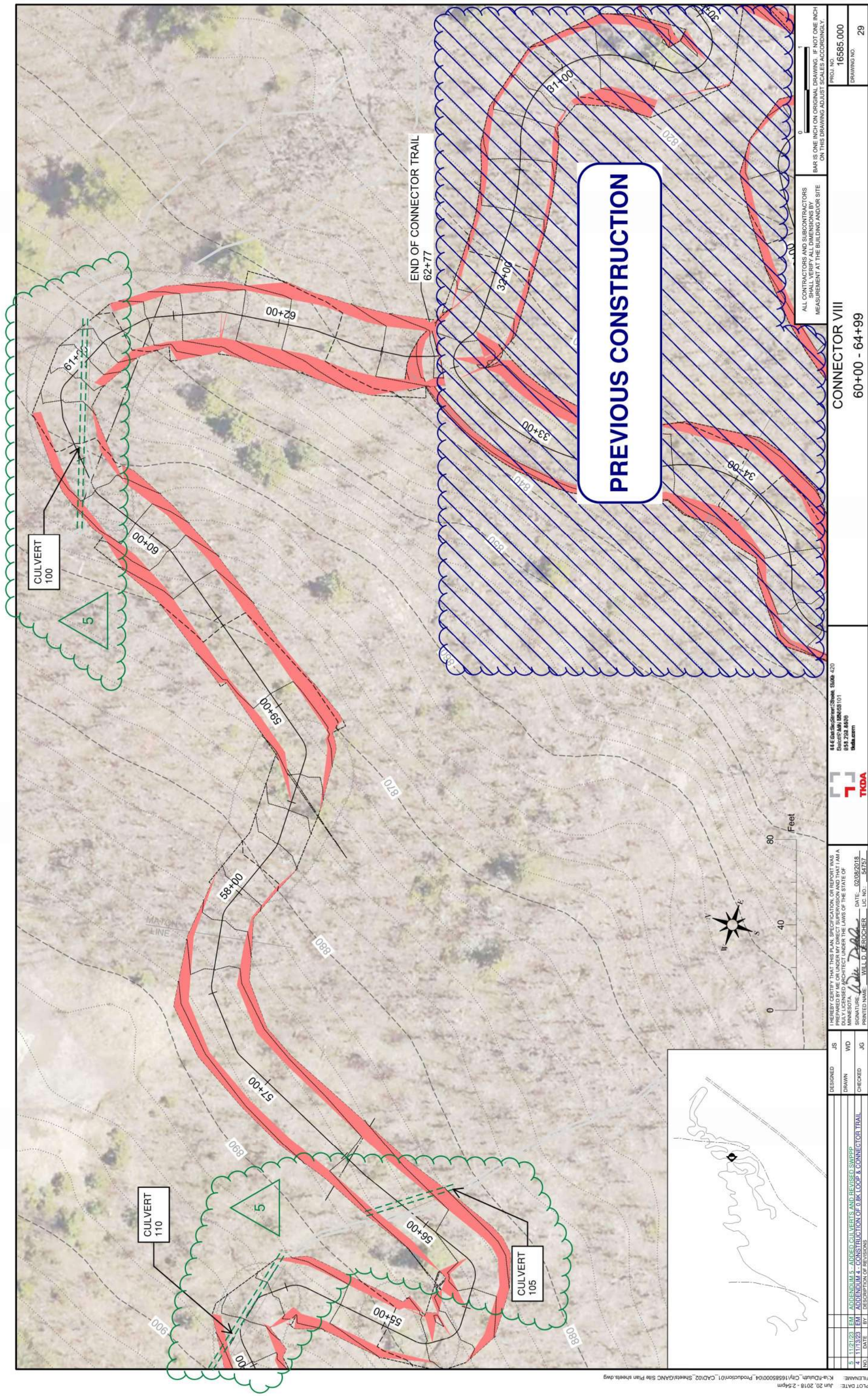
DESCRIPTION OF REVISIONS

PROJECT NAME: K:\a-r\duffy\city\1658500\004_Production\01_CAD\02_Sheets\GA\NC Site Plan sheets.dwg

PLT DATE: Jun 20 2018 - 2:54pm

FILE NAME: K:\a-r\duffy\city\1658500\004_Production\01_CAD\02_Sheets\GA\NC Site Plan sheets.dwg

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SIGNATURE: *Will D. Bercher* DATE: 02/08/2018
PRINTED NAME: WILL D. BERCHER LIC. NO. 54757



PROJECT DESCRIPTION AND CONTACTS

PROJECT NAME AND LOCATION: SPIRIT MOUNTAIN SNOWMOBILE TRAIL, DULUTH, MINNESOTA
PROJECT SCOPE: STUMP GRUBBING, TRAIL SHAPING & GRADING, BRIDGE ABUTMENT CONSTRUCTION, CULVERT INSTALLATION, AND LANDSCAPING.

PROJECT CONTACTS	NAME	PHONE NUMBER
OWNER	TBD	TBD
CONTRACTORS EROSION AND SEDIMENT CONTROL SUPERVISOR	TBD	763.750.4415
CONTRACTORS EROSION AND SEDIMENT CONTROL INSTALLER	TBD	TBD
OWNER CONSTRUCTION PROJECT MANAGER	TBD	TBD
CONTRACTOR SUPERVISOR	TBD	218.726.3142
CONTRACTOR DESIGNER	TBD	TBD
MPCA CONSTRUCTION STORMWATER COMPLIANCE (SAINT LOUIS COUNTY)	TBD	TBD

CONTRACTOR CHECKLIST:

- CONTRACTOR SHALL SUPPLY THE NAME, CONTACT INFORMATION, AND TRAINING CERTIFICATES FOR THE EROSION AND SEDIMENT CONTROL SUPERVISOR AND BACKUP INDIVIDUAL. THIS INFORMATION SHALL BE KEPT WITH THE SWPPP (AMENDMENT).
- CONTRACTOR SHALL POST A COPY OF THE NPDES CONSTRUCTION STORM WATER PERMIT AT THE SITE ENTRANCE.
- CONTRACTOR SHALL INCLUDE THEIR PROPOSED AND OWNER ACCEPTED CONSTRUCTION SCHEDULE WITH THE SWPPP.
- CONTRACTOR SHALL INCLUDE A MAP(S) OF ALL OFF-SITE AREAS USED FOR THE PROJECT (BORROW AND DISPOSAL AREAS) WITH THE SWPPP.
- CONTRACTOR SHALL PREPARE A MAP(S) SHOWING LOCATIONS OF SITE ENTRANCE/EXITS AND HAUL ROUTES TO AND FROM THE PROJECT AND INCLUDE WITH THE SWPPP.
- CONTRACTOR SHALL DOCUMENT HOW RAINFALL WILL BE TRACKED IN THE SWPPP.
- CONTRACTOR SHALL DOCUMENT ALL SUBCONTRACTORS IN THE SWPPP.
- CONTRACTOR SHALL PREPARE ALL SWPPP AMENDMENTS AND THEY SHALL BE KEPT WITH THE SWPPP.
- CONTRACTOR SHALL COMPLETE ALL REQUIRED INSPECTIONS PER THE NPDES CONSTRUCTION STORM WATER PERMIT. ALL INSPECTION FORMS SHALL BE KEPT WITH THE SWPPP. INSPECTION FORMS CAN BE CONTRACTOR DEVELOPED OR MINNESOTA POLLUTION CONTROL AGENCY STANDARD FORMS.
- CONTRACTOR SHALL COMBINE ALL ITEMS INTO BINDER TO CREATE SWPPP, WHICH SHALL BE KEPT AT THE PROJECT SITE.

SWPPP SUMMARY/OVERVIEW:

THIS SWPPP HAS BEEN DEVELOPED TO ADDRESS THE REQUIREMENTS OF NPDES PERMIT MNR100001, PARTS 5-23. THIS SWPPP INCLUDES A COMBINATION OF NARRATIVE AND PLAN SHEETS THAT DESCRIBE THE TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL FOR THE PROJECT. THE NUMBERED SECTIONS BELOW CORRESPOND TO THE SAME SECTIONS OF THE NPDES PERMIT.

- 3.3 FOR PROJECTS DISTURBING LESS THAN 50 ACRES AND DO NOT DISCHARGE TO AN IMPAIRED OR SPECIAL WATER, SWPPP DOES NOT NEED TO BE INCLUDED WITH PERMIT APPLICATION. PERMIT COVERAGE IS EFFECTIVE UPON APPLICATION AND COMPLETING THE PAYMENT PROCESS.
- 3.4 FOR PROJECTS DISTURBING 50 ACRES OR MORE AND DISCHARGE TO AN IMPAIRED OR SPECIAL WATER WITHIN 1 MILE, SWPPP DOES NEED TO BE INCLUDED WITH PERMIT APPLICATION. PERMIT COVERAGE IS EFFECTIVE ONCE APPLICATION IS SUBMITTED. PAYMENT IS RECEIVED, AND A CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN AND DETAILS FOR BMPs WILL TAKE UP TO 30 DAYS.
- 5.3 EROSION AND SEDIMENT CONTROL PLANS AND DETAILS FOR BMPs USED TO COMPLY WITH THE REQUIREMENTS OF THE NPDES PERMIT.
- 5.4 TIMING FOR INSTALLATION OF ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs:

AREA	TIME FRAME
ESTABLISH SEDIMENT CONTROL DEVICES ON ALL DOWN GRADIENT PERIMETERS AND UPGRADEMENT OF ANY BUFFER ZONES	PERIMETERS AND UPGRADEMENT OF ANY BUFFER ZONES
REPAIR, REPLACE OR SUPPLEMENT PERIMETER CONTROL BMPs	WHEN BMP BECOMES NON FUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT OF THE BMP BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY.
REPAIR, REPLACE OR SUPPLEMENT ALL NONFUNCTIONAL BMPs	BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY.
REPAIR, REPLACE OR SUPPLEMENT INLET PROTECTION BMPs	WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT AND/OR DEPTH OF THE BMP BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY.
REMOVE TRACKED SEDIMENT FROM PAVED SURFACES BOTH ON AND OFF SITE (LIGHTLY WET PRIOR TO SWEEPING)	WITHIN 24 HOURS OF DISCOVERY
REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS AND RESTABILIZE	WITHIN 7 DAYS OF DISCOVERY

DESCRIPTION OF THE PERMANENT STORMWATER TREATMENT SYSTEM NA.

- 5.5 LOCATION AND TYPE OF ALL TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPs ARE SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS AND DETAILS. PROCEDURES USED TO ESTABLISH ADDITIONAL BMPs HAVE BEEN IDENTIFIED IN SECTION 6 OF THIS SWPPP NARRATIVE.
- 5.6 TEMPORARY SEDIMENT BASINS ARE NOT REQUIRED SINCE TOTAL DISTURBED SURFACE DRAINING TO A COMMON LOCATION IS LESS THAN 10 ACRES AND IMPAIRED RECEIVING WATER IS LOCATED MORE THAN 1 MILE AWAY.

ESTIMATED QUANTITIES ANTICIPATED FOR ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs ARE SHOWN IN TABLE BELOW:

EROSION PREVENTION AND SEDIMENT CONTROL SPIRIT MOUNTAIN SNOWMOBILE TRAILS					
ITEM	UNIT	TOTAL ESTIMATED QUANTITY	MIN/NOT SPEC	NOTES	
RANDOM RIPRAP CLASS III	CU YD	46	2511.507	DOES NOT INCLUDE MAINTENANCE	
STABILIZED CONSTRUCTION EXIT	EACH	8	2573.501	DOES NOT INCLUDE MAINTENANCE	
STORM DRAIN INLET PROTECTION	EACH	3	2573.502		
CULVERT END CONTROLS	EACH	16	2573.502		
SILT FENCE TYPE MS	LIN FT	13890	2573.503	PLACE DOWNSLOPE OF CONSTRUCTION AREAS	
SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	392	2573.503		
SEEDING	ACRE	2.62	2575.505		
ROLLED MATJURE 36-311	POUND	88	2575.508		
ROLLED EROSION PREVENTION CATEGORY 25	SQ YD	4718	2575.604	PLACE ON ALL SLOPES STEEPER THAN 1:3	

EROSION PREVENTION AND SEDIMENT CONTROL GRAND AVENUE NORDIC CENTER SKI TRAILS					
ITEM	UNIT	TOTAL ESTIMATED QUANTITY	MIN/NOT SPEC	NOTES	
RANDOM RIPRAP CLASS III	CU YD	264	2511.507	DOES NOT INCLUDE MAINTENANCE	
STABILIZED CONSTRUCTION EXIT	EACH	2	2573.501	DOES NOT INCLUDE MAINTENANCE	
CULVERT END CONTROLS	EACH	42	2573.502		
SILT FENCE TYPE MS	LIN FT	7627	2573.503	PLACE DOWNSLOPE OF ALL CONSTRUCTION AREAS	
SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	965	2573.503		
SEEDING	ACRE	8.9	2575.505		
ROLLED MATJURE 36-311	POUND	522	2575.508		
ROLLED EROSION PREVENTION CATEGORY 25	SQ YD	9720	2575.604	PLACE ON ALL SLOPES STEEPER THAN 1:3	

QUANTITIES FOR INFORMATIONAL PURPOSES ONLY AS REQUIRED BY NPDES PERMIT

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

- 5.8 NUMBER OF ACRES OF IMPERVIOUS SURFACE FOR BOTH PRE- AND POST-CONSTRUCTION ARE SHOWN IN THE LAND FEATURES TABLE BELOW:

LAND FEATURE CHANGES:	
TOTAL PROJECT AREA -	11.52 ACRES
1. DISTURBED AREA IS WHERE EXCAVATION INTO THE UNDERLYING SOIL TAKES PLACE	
2. AGGREGATE SURFACING AND SELECT GRANULAR LAYER BELOW IN PLACE PAVEMENT IS NOT THE UNDERLYING SOIL	11.52 ACRES
3. MPCA NPDES PERMIT REQUIRED IF TOTAL DISTURBED AREA EXCEEDS 1 ACRE	
TOTAL PRE CONSTRUCTION IMPERVIOUS AREA -	0 ACRES
4. PERMANENT STORMWATER TREATMENT IF NET CHANGE IN IMPERVIOUS SURFACE EXCEEDS 1 ACRE NOT REQUIRED IF AN IMPROVED DRAINAGE POND HAS BEEN DESIGNED FOR THE DEVELOPMENT	
TOTAL POST CONSTRUCTION IMPERVIOUS AREA -	0 ACRES
TOTAL NEW IMPERVIOUS AREA -	0 ACRES

- 5.9 SITE MAP WITH EXISTING AND FINAL GRADES, STEEP SLOPES 1:3 (V/H) OR 33.3 PERCENT OR STEEPER, IMPERVIOUS SURFACES, AND LOCATIONS OF POTENTIAL POLLUTANT-GENERATING ACTIVITIES IS SHOWN ON THE CONSTRUCTION PLANS. SEE GRAND AVENUE NORDIC CENTER SKI TRAIL SHEETS 117 - 25 AND SPIRIT MOUNTAIN SNOWMOBILE TRAIL SHEETS 13 - 17.
- 5.10 SITE MAP SHOWING DRAINAGE AREA BOUNDARIES IS AVAILABLE FROM THE OWNER UPON REQUEST.
- 5.11 SITE MAP WITH DIRECTIONS OF FLOW AND DISCHARGE POINTS WHERE STORMWATER IS LEAVING THE SITE OR ENTERING A SURFACE WATER IS SHOWN ON FOLLOWING SHEET.

- 5.12 SITE MAP OF ALL SURFACE WATERS, EXISTING WETLANDS, AND STORMWATER PONDS WITHIN 1 MILE (AERIAL RADIUS) FROM THE PROJECT BOUNDARY IS SHOWN ON FOLLOWING SHEET.
- 5.13 STORMWATER RUNOFF FROM THE PROJECT AREA FLOWS INTO KNOWLTON CREEK.
- 5.12 PRESERVE A 50 FOOT NATURAL BUFFER TO SURFACE WATERS PER SECTION 9.17 OF THE PERMIT. PRESERVING A 100 FOOT NATURAL BUFFER TO A SPECIAL WATER PER SECTION 23.11 OF THE PERMIT, NOT APPLICABLE.
- 5.13 INFASIBILITY DOCUMENTATION FOR THE FOLLOWING REQUIREMENTS:

- BUFFER ZONES PER SECTION 9.17 AND 23.11 - UNDISTURBED BUFFER ZONES ARE BEING MAINTAINED.
- 5.14 DESCRIPTION OF ALTERNATIVE BMPs USED IF TEMPORARY SEDIMENT BASIN PER SECTION 14 IS INFEASIBLE: NA.
- 5.15 DOCUMENTATION OF REASONS WHY FULL VOLUME REDUCTION REQUIREMENT CANNOT BE MET: NA.
- 5.16 MITIGATION MEASURES REQUIRED FROM PREVIOUS REVIEWS (EAW, EIS, LOCAL, ETC.): NO ADDITIONAL MITIGATION MEASURES BEYOND THE RULES OF APPLICABLE REGULATORY AGENCIES ARE REQUIRED
- 5.17 DESCRIPTION OF METHODS USED FOR PERMANENT COVER OF ALL EXPOSED SOIL AREAS: ALL DISTURBED AREAS WILL BE SURFACED WITH GRAVEL OR TURF. NO SOIL WILL BE LEFT EXPOSED.
- 5.18 LOCATIONS WHERE CONSTRUCTION WILL BE PHASED TO MINIMIZE EXPOSED SOIL AREA: CONTRACTOR SHALL PHASE WORK ACTIVITIES TO THE MAXIMUM EXTENT TO MINIMIZE EXPOSED SOIL AREA. CONTRACTOR SHALL PLACE PERMANENT SITE RESTORATION BMPs IMMEDIATELY DURING WORK ACTIVITIES, UNLESS THE AREA IS TO BE RE-DISTURBED WITHIN 14 DAYS.

APPROXIMATE PROJECT PHASING FOR SPIRIT MOUNTAIN SNOWMOBILE TRAIL AND GRAND AVENUE NORDIC SKI TRAILS WILL BE AS

PHASE 1 - SPRING 2024
PLACE INLET PROTECTION AND PERIMETER CONTROL (SILT FENCE AND SEDIMENT CONTROL LOGS) DOWN GRADIENT OF THE PROPOSED DISTURBED SOIL AREA.
PHASE 2 - SPRING 2024 - SUMMER 2024
PERFORM GRADING AND CONSTRUCT TRAILS.
PHASE 3 - SUMMER 2024
FINAL STABILIZATION OF DISTURBED AREAS AND PLACEMENT OF GRAVEL OR TURF SURFACES.
SPOT STABILIZATION AS NEEDED FOR DISTURBANCES RELATED TO INSTALLATION OF LIGHTING AND SNOW MAKING EQUIPMENT (GRAND AVENUE NORDIC SKI TRAILS ONLY)

- 5.19 IMPAIRED WATERS AND TMDL (CONSTRUCTION RELATED): THIS SITE DOES NOT DISCHARGE TO ANY IMPAIRED WATERS. THE RECEIVING WATER IS KNOWLTON CREEK.
- 5.20 TMDL NO RECEIVING WATERS WITH ANY IMPAIRMENTS.
- 5.20 TRAINING DOCUMENTATION: DESIGNER OF SWPPP: EMILY R. MAJOR, PE, L OF A CERTIFIED SWPPP DESIGNER EXPIRES MAY 31, 2025. TKDA DOCUMENTATION OF THE REQUIRED TRAINING FOR THE DESIGNER OF THE SWPPP IS AVAILABLE FROM TKDA UPON REQUEST. CONTRACTOR SHALL INCLUDE THEIR REQUIRED TRAINING DOCUMENTATION WITH THE SWPPP (AMENDMENT).

- 5.21 PERSON KNOWLEDGEABLE IN EROSION PREVENTION AND SEDIMENT CONTROL AND WHO WILL OVERSEE IMPLEMENTATION OF THE SWPPP: THE CONTRACTOR SHALL DESIGNATE ONE INDIVIDUAL, TRAINED PER THE REQUIREMENTS OF PART 21 OF THE PERMIT, TO OVERSEE IMPLEMENTATION OF THE SWPPP.
- 5.22 CHEMICAL TREATMENTS: CONTRACTOR CAN USE POLYMERS, FLOCCULANTS, OR OTHER SEDIMENTATION TREATMENT CHEMICALS IF SPECIFICATIONS PROVIDED BY THE MANUFACTURER AND OWNER APPROVAL. AMEND SWPPP ACCORDINGLY IF CHEMICAL TREATMENTS ARE USED.

- 5.23 LONG-TERM OPERATION AND MAINTENANCE OF THE INPLACE PERMANENT STORMWATER TREATMENT SYSTEMS: THE OWNER IS RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE INFILTRATION BASINS AND PRIVATE STORM SEWER SYSTEM. THE CITY OF DULUTH IS RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE STORMWATER POND LOCATED AT THE OTHER END AS TO BE DETERMINED.
- 5.24 BMP DESIGN FACTORS: BMPs SHALL BE CAPABLE OF HANDLING TYPICAL MINNESOTA RAINFALLS RANGING FROM 0" TO 3" IN A SHORT DURATION.

- 5.25 SITE ASSESSMENT FOR GROUNDWATER OR SOIL CONTAMINATION: NO SOIL BORINGS WERE OBTAINED BY THE OWNER FOR THESE PROJECTS. DUE TO THE NATURE OF THE PROJECT WORK, IT IS NOT EXPECTED THAT GROUNDWATER OR SOIL CONTAMINATION WILL BE ENCOUNTERED.
- 5.26 BMP DESIGN FACTORS: BMPs SHALL BE CAPABLE OF HANDLING TYPICAL MINNESOTA RAINFALLS RANGING FROM 0" TO 3" IN A SHORT DURATION.

- 6. AMENDMENTS: PERMITTEES MUST AMEND THE SWPPP TO INCLUDE ADDITIONAL OR MODIFIED BMPs AS NECESSARY TO CORRECT PROBLEMS IDENTIFIED DURING INSPECTIONS. PERMITTEES SHALL ADDRESS SUCH CORRECTIONS BY CHANGING DESIGN, CONSTRUCTION, OPERATIONS AND MAINTENANCE, WEATHER OR SEASONAL CONDITIONS HAVING A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS.

- 7. BMP SELECTION: PERMITTEES MUST SELECT, INSTALL, AND MAINTAIN THE BMPs IDENTIFIED IN THE SWPPP AND PERMIT IN AN APPROPRIATE AND FUNCTIONAL MANNER AND IN ACCORDANCE WITH RELEVANT MANUFACTURER SPECIFICATIONS AND ACCEPTED ENGINEERING PRACTICES. STORMWATER CALCULATIONS AND HYDRAULIC INFORMATION IS ON FILE WITH THE PROJECT ENGINEER AND IS AVAILABLE ON REQUEST.

SOIL CLASSIFICATION - 0-8 IN LDDP	DESCRIPTION	HYDROLOGIC SOIL GROUP	RANGE OF PARTICLES
BARTO, STONY-GREYSOLON-ROCK OUTCROP COMPLEX		D	GRAVELLY SANDY LOAM, BEDROCK

SOIL CLASSIFICATION - 2-8 IN LDDP	DESCRIPTION	HYDROLOGIC SOIL GROUP	RANGE OF PARTICLES
AHMEK-CANOSIA-ROCK OUTCROP COMPLEX		D	SILT LOAM, GRAVELLY SANDY LOAM
ROCK OUTCROP-MESABA-BARTO COMPLEX		B/D	GRAVELLY SANDY LOAM, BEDROCK
AHMEK-ROCK OUTCROP FLUVAUQUENTS		B/D	SILT LOAM, GRAVELLY SANDY LOAM
BARTO, STONY-GREYSOLON-ROCK OUTCROP COMPLEX		D	GRAVELLY SANDY LOAM, BEDROCK

SOIL CLASSIFICATION - UPPER CONNECTOR SNOWMOBILE TRAIL	DESCRIPTION	HYDROLOGIC SOIL GROUP	RANGE OF PARTICLES
AHMEK-CANOSIA-ROCK OUTCROP COMPLEX		D	SILT LOAM, GRAVELLY SANDY LOAM

	DESIGNED	ERM	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
	DRAWN	IDR	
	CHECKED	ERM	SIGNATURE: <i>Emily R. Major</i> DATE: 11/02/2023
NO.	DATE	BY	DESCRIPTION OF REVISIONS

11 E. Superior Street, Suite 420
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tkda.com



SPIRIT MOUNTAIN
SNOWMOBILE TRAILS
CITY OF DULUTH, MINNESOTA

STORMWATER POLLUTION
PREVENTION PLAN

PROJ. NO.
20747.000 & 20749.000

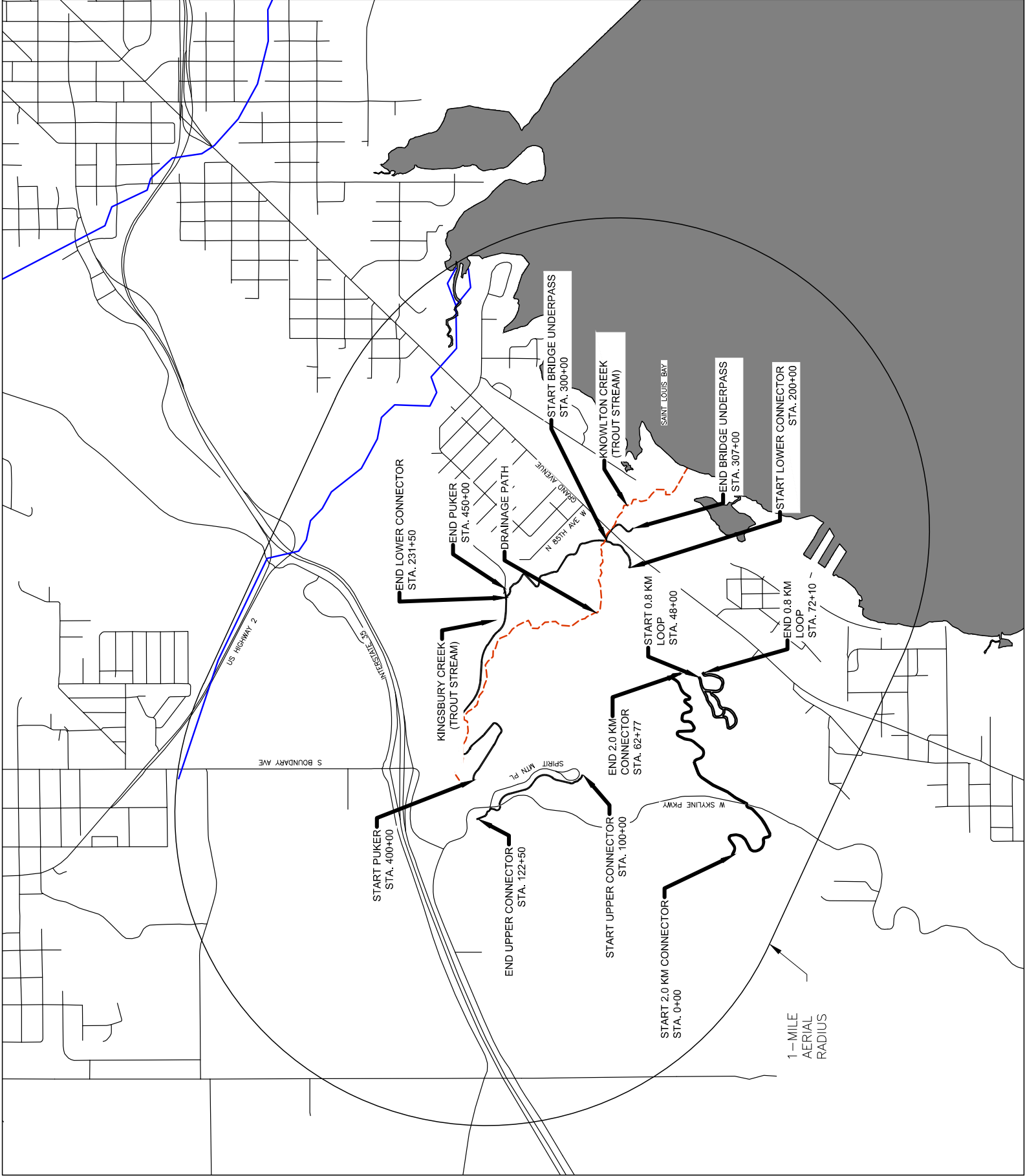
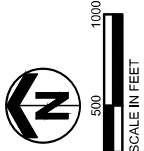
DRAWING NO.

SWP 1

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTD)

13. NPDES PERMIT TERMINATION CONDITIONS:
 - PERMITTEES MUST COMPLETE ALL CONSTRUCTION ACTIVITY AND MUST INSTALL PERMANENT COVER OVER ALL AREAS PRIOR TO SUBMITTING THE NOTICE OF TERMINATION (NOT). VEGETATIVE COVER MUST CONSIST OF A UNIFORM PERENNIAL VEGETATION WITH A DENSITY OF 70% OF ITS EXPECTED FINAL GROWTH.
 - PERMITTEES MUST MAINTAIN ALL CONVEYANCE SYSTEMS AND STABILIZE THE PERMANENT STORMWATER TREATMENT SYSTEMS AND MUST ENSURE THE SYSTEMS ARE OPERATING AS DESIGNED.
 - PERMITTEES MUST REMOVE ALL SEDIMENT FROM CONVEYANCE SYSTEMS PRIOR TO SUBMITTING THE NOT.
 - PERMITTEES MUST REMOVE ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPs PRIOR TO SUBMITTING THE NOT. PERMITTEES MAY LEAVE BMPs DESIGNED TO DECOMPOSE ON-SITE IN PLACE.
 - FOR CONSTRUCTION PROJECTS ON AGRICULTURAL LAND, PERMITTEES MUST RETURN THE DISTURBED LAND TO ITS PRECONSTRUCTION AGRICULTURAL USE PRIOR TO SUBMITTING THE NOT.
14. TEMPORARY SEDIMENT BASINS: TOTAL PLANNED DISTURBED AREA IS 11.52 ACRES. A TEMPORARY SEDIMENT BASIN IS NOT REQUIRED BECAUSE THERE ARE NO DISTURBED AREAS GREATER THAN OR EQUAL TO 10 ACRES THAT DRAIN TO A COMMON LOCATION.
15. PERMANENT STORM WATER MANAGEMENT SYSTEM: STORMWATER RUNOFF FROM THE SITE DISCHARGES TO KNOWLTON CREEK.
16. INFILTRATION SYSTEM: NA
17. FILTRATION SYSTEM: NA
18. WET SEDIMENTATION BASIN: NA
19. REGIONAL WET SEDIMENT BASIN: NA
20. THE SWPPP AND ALL RECORDS SHALL BE KEPT ON SITE BY THE CONTRACTOR DURING NORMAL WORKING HOURS.
21. TRAINING: CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAINING OF STAFF AND SUBCONTRACTORS. THE FOLLOWING INDIVIDUALS SHALL RECEIVE TRAINING:
 - INDIVIDUALS PREPARING THE SWPPP FOR THE PROJECT.
 - INDIVIDUALS OVERSEEING IMPLEMENTATION OF, REVISING AND/OR AMENDING THE SWPPP
 - INDIVIDUALS PERFORMING INSPECTIONS FOR THE PROJECT. ONE OF THESE INDIVIDUALS MUST BE AVAILABLE FOR AN ONSITE INSPECTION POINT THAT IS WITHIN 1 MILE OF SPECIAL OR IMPAIRED WATER. NOT APPLICABLE.
 - INDIVIDUALS PERFORMING OR SUPERVISING THE INSTALLATION, MAINTENANCE AND REPAIR OF BMPs.
 - INDIVIDUALS PERFORMING OR SUPERVISING THE INSTALLATION, MAINTENANCE AND REPAIR OF BMPs.
22. REQUIREMENTS FOR DISCHARGES TO WETLANDS: NA
- 23.1 REQUIREMENTS FOR DISCHARGES TO SPECIAL WATERS AND IMPAIRED WATERS: THIS SITE DOES NOT DISCHARGE TO ANY IMPAIRED WATERS. THE RECEIVING WATER IS KNOWLTON CREEK.
- 23.2 BMPs IDENTIFIED FOR EACH SPECIAL OR IMPAIRED WATER ARE REQUIRED FOR THOSE AREAS OF THE PROJECT DRAINING TO A DISCHARGE POINT THAT IS WITHIN 1 MILE OF SPECIAL OR IMPAIRED WATER. NOT APPLICABLE.
- 23.3 DISCHARGES TO SPECIAL WATERS IDENTIFIED IN SECTION 23.3 OF THE PERMIT MUST INCORPORATE THE BMPs OUTLINED IN ITEMS 23.9, 23.10, 23.11, 23.13 AND 23.14. NOT APPLICABLE.
- 23.4 DISCHARGES TO SPECIAL WATERS IDENTIFIED IN SECTION 23.4 OF THE PERMIT MUST INCORPORATE THE BMPs OUTLINED IN ITEMS 23.9, 23.10, 23.11, 23.13 AND 23.14. NOT APPLICABLE.
- 23.5 DISCHARGES TO TROUT LAKES MUST INCORPORATE THE BMPs OUTLINED IN ITEMS 23.9, 23.10 AND 23.11. NOT APPLICABLE.
- 23.6 DISCHARGES TO TROUT STREAMS MUST INCORPORATE THE BMPs OUTLINED IN ITEMS 23.9, 23.10, 23.11 AND 23.12. NOT APPLICABLE.
- 23.7 THERE ARE NO APPROVED TMDLS FOR THE CONSTRUCTION RELATED IMPAIRMENTS OF NUTRIENTS AND TSS.
- 23.9 STABILIZATION OF SOILS MUST BE COMPLETED WITHIN 7 DAYS.
- 23.10 TEMPORARY SEDIMENT BASINS REQUIRED FOR 5 ACRES DISTURBED DRAINING TO A COMMON LOCATION. NOT APPLICABLE.

MAP OF SURFACE WATERS



NO.	DATE	BY	DESCRIPTION OF REVISIONS	DESIGNED	ERM
				DRAWN	IDR
—	—	—	—	CHECKED	ERM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *Emily R. Major* DATE: 11/21/2023
NAME: EMILY R. MAJOR LIC. NO.: 52201

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STORMWATER POLLUTION PREVENTION PLAN

SPIRIT MOUNTAIN SNOWMOBILE TRAILS
CITY OF DULUTH, MINNESOTA

PROJ. NO.
20747.000 & 20749.000
DRAWING NO.
SWP 2

D

C

B

A

CODE SUMMARY

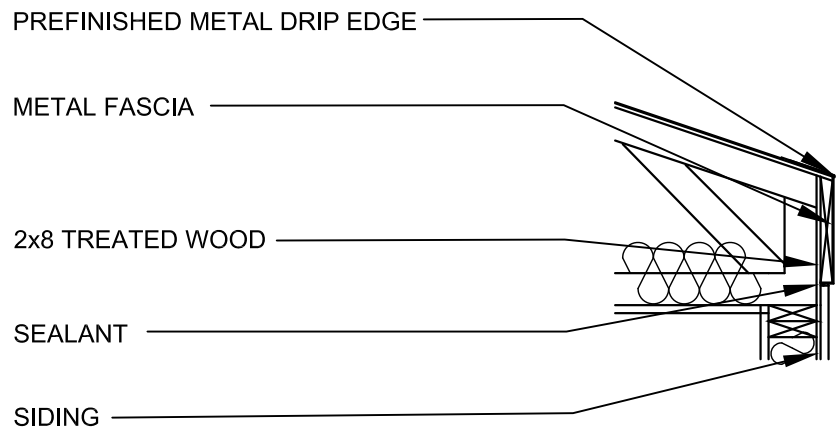
CODES USED:		2012 INTERNATIONAL BUILDING CODE (IBC) 2015 MINNESOTA STATE BUILDING CODE (MSBC); CHAPTER1305	
OCCUPANCY:	GROUP U	UTILITY AND MISCELLANEOUS (VALVE HOUSE)	
CONSTRUCTION:	TYPE VB		
ALLOWABLE AREA:	TABLE 503	TABULAR (U): FRONTAGE SPRINKLER	5,500 SF NA 5,500 SF
		MULTI-STORY TOTAL:	1 5,500 SF
ACTUAL AREA:	GROUP U	MAIN FLOOR	224 SF
MIXED OCCUPANCY:	TABLE 508.3	NOT APPLICABLE	
OCCUPANCY SEPARATION:	TABLE 508.3.3	NOT APPLICABLE	
ALLOWABLE HEIGHT:	TABLE 503	TABULAR (U) SPRINKLER TOTAL:	1 STORY / 40 FEET NA 1 STORY / 40 FEET
ACTUAL HEIGHT:			1 STORY < 40 FEET
AUTOMATIC FIRE PROTECTION:	SECTION 903	NOT REQUIRED	
FIRE RESISTIVE REQUIREMENTS:	TABLE 601	BUILDING ELEMENTS	STRUCTURAL FRAME BEARING WALLS (EXT) BEARING WALLS (INT) NONBEARING WALLS (EXT) NONBEARING WALLS (INT) FLOOR CONSTRUCTION ROOF CONSTRUCTION
			0 HOUR 0 HOUR TABLE 602 0 HOUR 0 HOUR 0 HOUR
	TABLE 602	EXTERIOR WALLS	<5 FEET 5 FEET TO < 10 FEET 10 FEET TO < 30 FEET > 30 FEET
			1 HOUR 1 HOUR 1 HOUR 0 HOUR
EXTERIOR WALL OPENINGS:	SECTION 707.4	SHAFT ENCLOSURES	NOT APPLICABLE
	TABLE 704.8	UNPROTECTED:	<3 FEET >3 FEET TO 5 FEET >5 FEET TO 10 FEET >10 FEET TO 15 FEET >15 FEET TO 20 FEET >20 FEET TO 25 FEET >25 FEET TO 30 FEET >30 FEET
			NOT PERMITTED NOT PERMITTED 10% 15% 25% 45% 70% UNLIMITED
		PROTECTED:	NOT APPLICABLE
INTERIOR FINISH REQUIREMENTS:	TABLE 803.5	EXIT ENCLOSURES AND EXIT PASSAGEWAYS CORRIDORS ROOMS AND ENCLOSED SPACES	NO RESTRICTIONS NO RESTRICTIONS NO RESTRICTIONS

PROJECT REQUIREMENTS:

OCCUPANT LOAD:	TABLE 1004.1.1	EQUIPMENT ROOM - 160 SF / 300 OCF	1 OCCUPANTS
EXIT ACCESS TRAVEL DISTANCE:	TABLE 1016.1	GROUP U WITHOUT SPRINKLER MAXIMUM 300 FT	
BUILDINGS WITH ONE EXIT:	TABLE 1019.2	GROUP U 1 STORY MAXIMUM 49 OCCUPANTS AND 75 FEET TRAVEL DISTANCE	
SANITATION REQUIREMENTS	TABLE 2902.1	NOT REQUIRED	

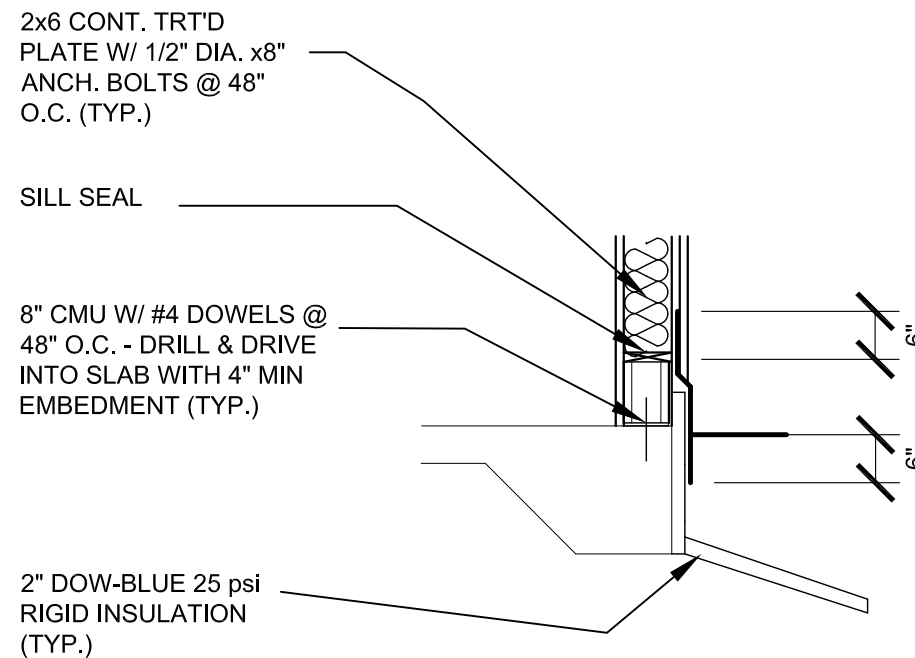
COMMENTS:

- PROJECT SCOPE INCLUDES CONSTRUCTION OF NEW VALVE STATION BUILDING
- CHANGE OF USE- NOT APPLICABLE
- SPECIAL INSPECTIONS NOT REQUIRED.
- WLSDD CAP FEES NOT REQUIRED.
- UNIFIED DEVELOPMENT CODE CHAPTER 50 REQUIREMENTS NOT APPLICABLE.
- BUILDING ENVELOPE REQUIREMENTS - CLIMATE ZONE 7 SEMIHEATED ATTIC R-30.0; WOOD- FRAMED WALL ABOVE GRADE R-13.0; ANY SLAB ON GRADE FLOOR R-10.



8
AS1.0
1/2"=1'-0"

DETAIL @ ROOF TRUSS



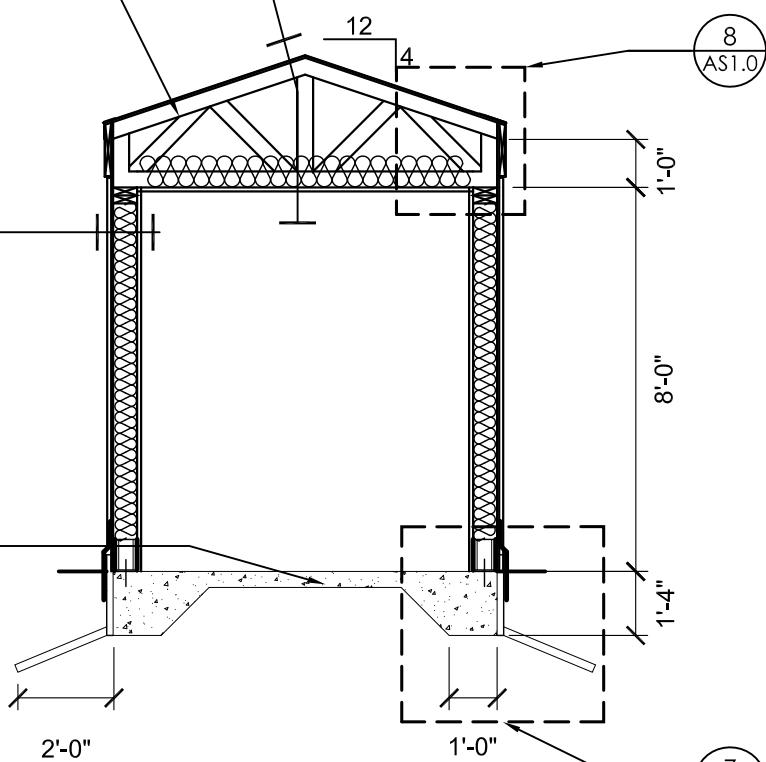
7
AS1.0
1/2"=1'-0"

DETAIL @ FOUNDATION

TYPICAL ROOF / CEILING CONSTRUCTION:
(INSIDE TO OUTSIDE)
METAL LINER PANEL
6 MIL POLY VAPOR BARRIER
PRE-ENGINEERED ROOF TRUSS @ 2'-0" O.C. W/ 1'-0" ENERGY HEAL
BATT INSULATION - R30
1/2" ROOF SHEATHING
ICE AND WATER SHIELD
ASPHALT SHINGLES

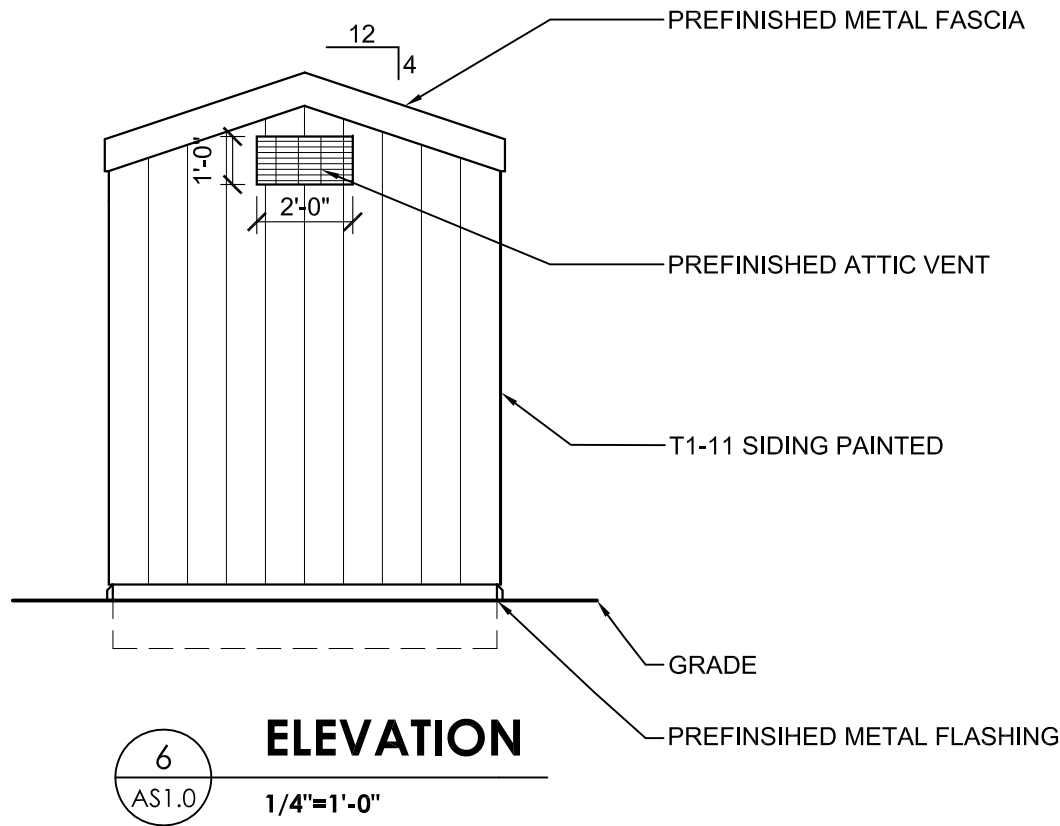
TYPICAL WALL CONSTRUCTION:
(INSIDE TO OUTSIDE)
METAL LINER PANEL
POLY VAPOR BARRIER
2x6 WOOD STUDS @ 1'-4" OC
FIBERGLASS BATT INSULATION
1/2" EXTERIOR SHEATHING
AIR/WEATHER BARRIER
T1-11 PLYWOOD SIDING PANEL

4" CONC. SLAB ON GRADE
R/W SYNTHETIC FIBERS AS
PER MANUFACTURERS
RECOMENDATION (TYP.)



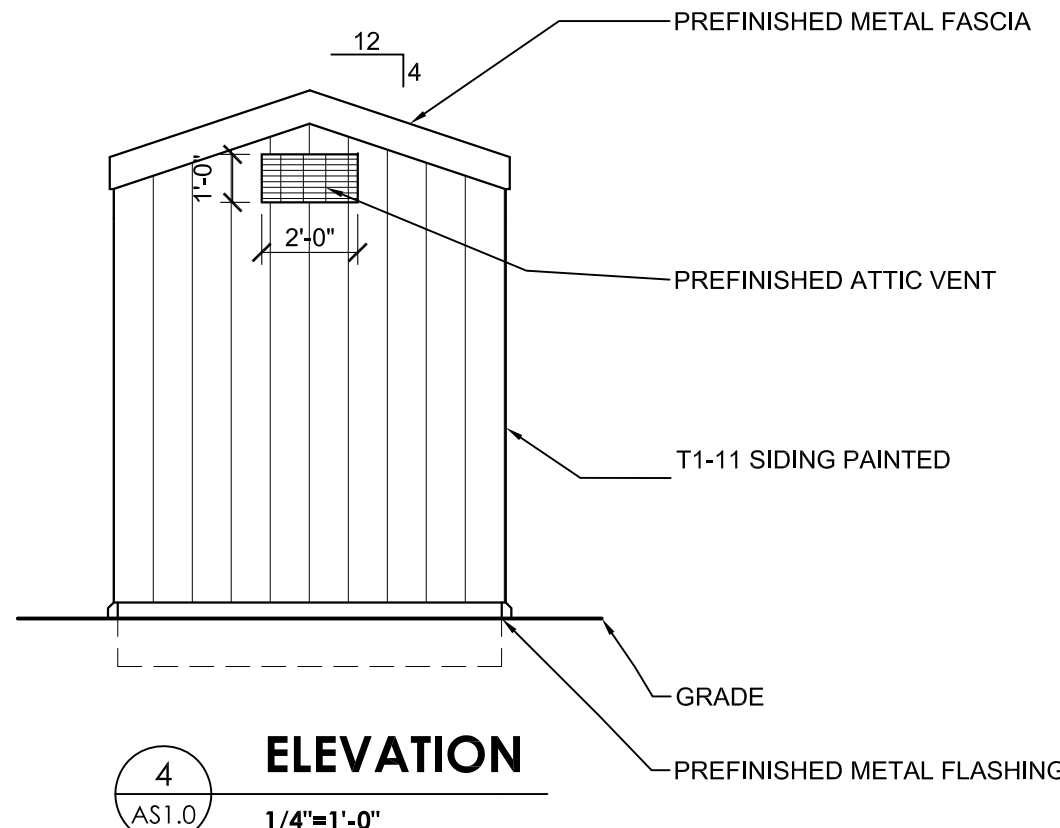
2
AS1.0
1/4"=1'-0"

SECTION



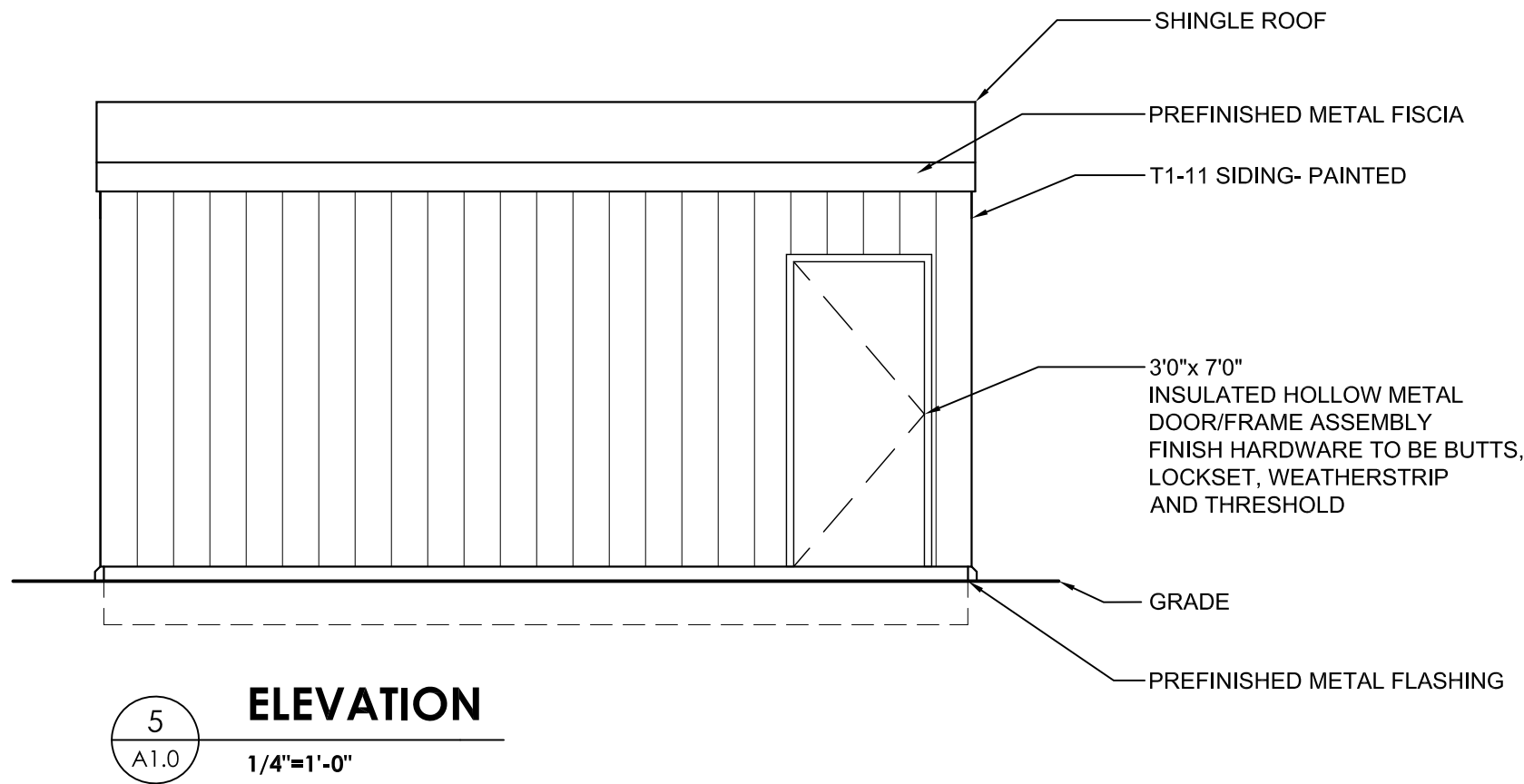
6
AS1.0
1/4"=1'-0"

ELEVATION



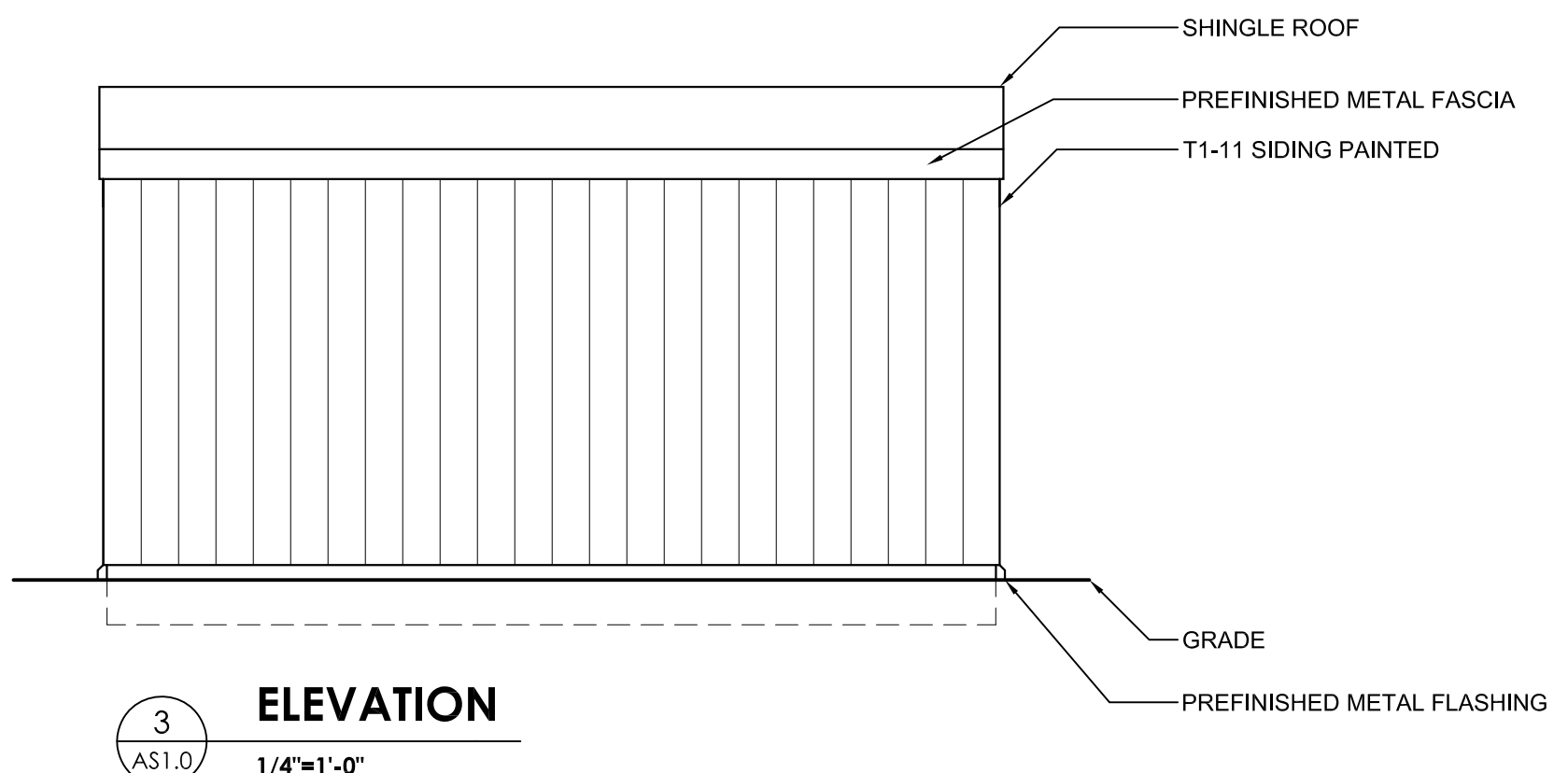
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AS1.0
1/4"=1'-0"

ELEVATION



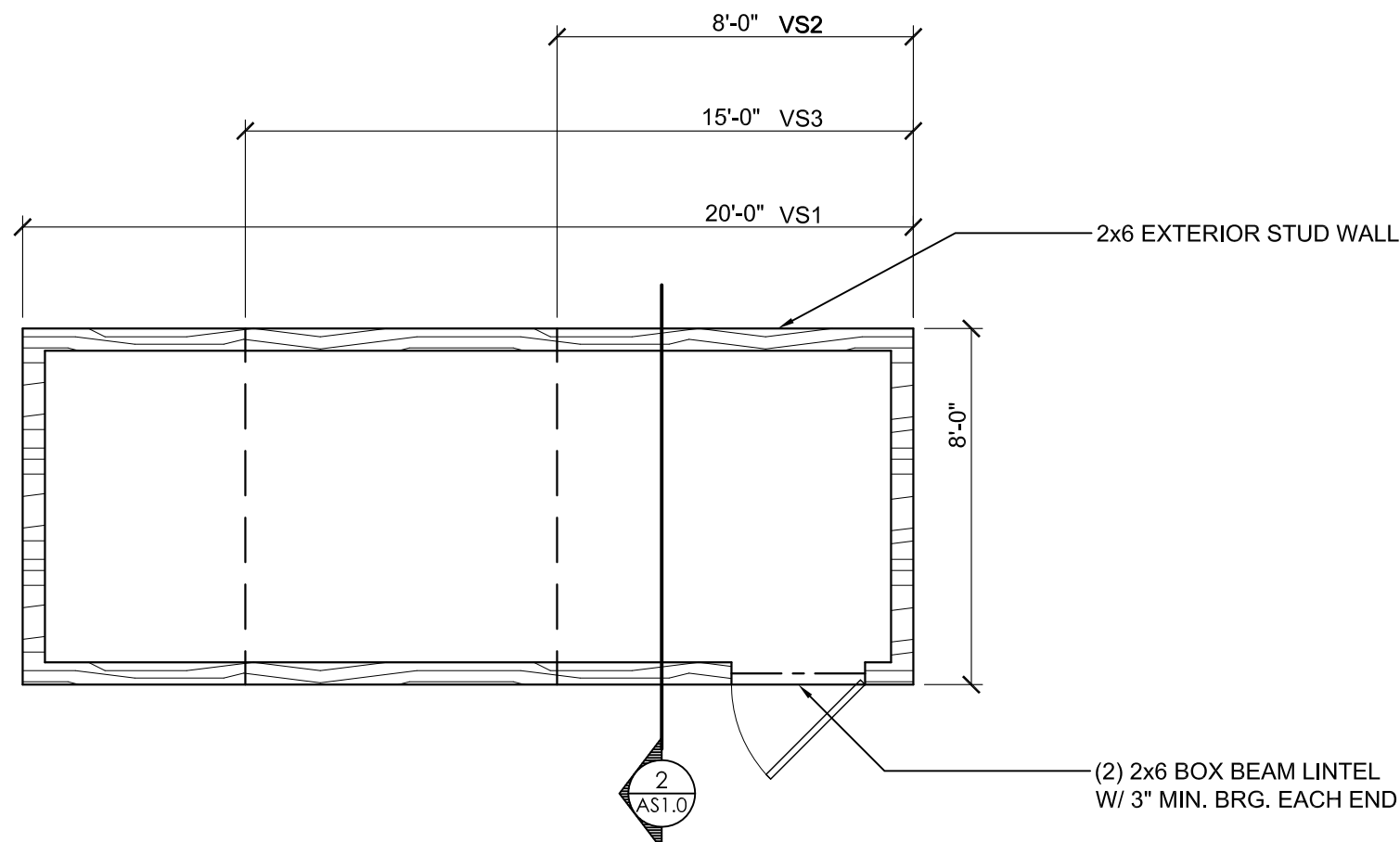
5
AS1.0
1/4"=1'-0"

ELEVATION



3
AS1.0
1/4"=1'-0"

ELEVATION



1
AS1.0
1/4"=1'-0"

VALVE STATION #1 SHOWN
(VALVE STATION #2 AND #3 SIMILAR)

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

William B. Scalzo

WILLIAM B. SCALZO
DATE: FEBRUARY 21, 2018
LICENSE NO: 18130

S:\S-15001-Spirit Mountain Nordic Trails\1-Design\Drawings\Works\Drawings\S-15001E1.dwg 3/25/2018 10:50 AM notes

BID/ALTERNATE:

BASE BID TO INCLUDE:
ALL UNDERGROUND ELECTRICAL INFRASTRUCTURE (LIGHTING, LIGHTING CONTROLS AND POWER) FOR PHASE 1 (1.5k) LOOP. ALL ABOVE GROUND ELECTRICAL INFRASTRUCTURE FOR SNOWMAKING (POWER) FOR PHASE 1 (1.5k) LOOP. ALL LIGHTING WIRING TO BE STUBBED OUT OF THE GROUND WITH NO BASE, CONDUIT AND BOX ONLY. PROVIDE ALL POWER DISTRIBUTION EQUIPMENT REQUIRED FOR PHASE 1.

ADD ALTERNATE #3 TO INCLUDE:
ALL UNDERGROUND LIGHTING, LIGHTING CONTROL AND POWER FOR PHASE 2 (1.0k) LOOP. ALL LIGHTING WIRING TO BE STUBBED OUT OF THE GROUND WITH NO BASE, CONDUIT AND BOX ONLY. ALL POWER WIRING TO BE STUBBED OUT WITH CONDUIT AND BOX ONLY. PROVIDE LIGHTING CONTROL WIRING.

ADD ALTERNATE #4 TO INCLUDE:
ALL UNDERGROUND LIGHTING, LIGHTING CONTROL AND POWER FOR PHASE 3 (0.8k) LOOP. ALL LIGHTING WIRING TO BE STUBBED OUT OF THE GROUND WITH NO BASE, CONDUIT AND BOX ONLY. ALL POWER WIRING TO BE STUBBED OUT WITH CONDUIT AND BOX ONLY. PROVIDE LIGHTING CONTROL WIRING. PROVIDE ALL POWER DISTRIBUTION EQUIPMENT FOR PHASE 3.

ADD ALTERNATE #5 TO INCLUDE:
ALL ABOVE GROUND SNOWMAKING POWER INFRASTRUCTURE FOR PHASE 2 (1.0k) LOOP. PROVIDE ALL ELECTRICAL PEDESTALS AND ASSOCIATED ELECTRICAL. INCLUDE A UNIT PRICE TO INSTALL ELECTRICAL PEDESTAL.

ADD ALTERNATE #6 TO INCLUDE:
ALL ABOVE GROUND SNOWMAKING POWER INFRASTRUCTURE FOR PHASE 3 (0.8k) LOOP. PROVIDE ALL ELECTRICAL PEDESTALS AND ASSOCIATED ELECTRICAL. INCLUDE A UNIT PRICE TO INSTALL ELECTRICAL PEDESTAL.

ADD ALTERNATE #7 TO INCLUDE:
ALL ABOVE GROUND LIGHTING AND LIGHTING CONTROLS INFRASTRUCTURE FOR PHASE 1, 2 AND 3 (3.3k TOTAL) LOOP. PROVIDE POLE, BASE, ASSOCIATED ELECTRICAL AND INSTALL LIGHT FIXTURES. PROVIDE LIGHTING CONTROLS TO COMPLETE SYSTEM. INCLUDE A UNIT PRICE TO INSTALL WOOD AND METAL POLES.

Keyed Notes:

1. PROVIDE A PHOTOCELL ON THE EXTERIOR OF THE LIGHTING PANEL (A). CONNECT TO THE LIGHTING CONTROL PANEL A.
2. SEE DETAIL ON SHEET 6/E4 FOR POWER AND LIGHTING FLOOR PLAN.
3. PROVIDE A WATTSTOPPER LMSM-3E SEGMENT MANAGER WITH AN ENCLOSURE LMSM-ENC1 OR APPROVED EQUAL. COORDINATE LOCATION IN THE CHALET WITH THE OWNER. PROVIDE A DEDICATED CIRCUIT FROM THE EXISTING PANEL IN THE BASEMENT. ELECTRICAL CONTRACTOR TO FIELD VERIFY LOCATIONS.
4. PROVIDE A LMBC-300 NETWORK BRIDGE AND LMRC-101 AT EACH LIGHTING PANEL. CONNECT TO THE SEGMENT MANAGER IN THE CHALET WITH A DIRECT BURIED CABLE LM-MSTP-DB OR APPROVED EQUAL. SEE DETAIL ON SHEET 2/E3.

General Notes:

- A. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUITING SHOWN.
- B. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS (SEE PANELBOARD SCHEDULE). BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED PER THE N.E.C. (#12 MINIMUM).
- C. EACH CIRCUIT SHALL HAVE AN INDIVIDUAL NEUTRAL (CIRCUITS SHALL NOT SHARE NEUTRALS).
- D. SEE DETAILS 1-5,10/E4 FOR LIGHT POLE INSTALLATION. COORDINATE EXACT LIGHT POLE LOCATION WITH THE OWNER AND TRAIL DESIGNER.
- E. LIGHTING CIRCUITS ARE ALL COPPER CONDUCTORS.
- F. SEE TRENCH AND BACKFILL DETAIL ON SHEET 9/E4.
- G. ALL WIRING TYPE MC DIRECT BURIED.
- H. TRAIL LIGHTS TO BE PROGRAMMED AT 100% LIGHT OUTPUT WHEN OCCUPANCY IS DETECTED. AFTER A 30 MINUTES DELAY OF NO OCCUPANCY DETECTION THE LIGHTS WILL DIM DOWN TO 50% LIGHT OUTPUT.
- I. USE SAME TRENCH FOR WIRING LIGHT FIXTURES AND POWER PEDESTALS WHEN PRACTICAL.
- J. PROVIDE A UNIT PRICE IN THE BID TO INSTALL WOOD POLES AND A UNIT PRICE TO INSTALL STEEL POLES WITH ALL ASSOCIATED ELECTRICAL INCLUDED FOR EACH POLE.
- K. LIGHTS WILL ALSO BE AUTOMATICALLY AND MANUALLY CONTROLLED BY SEGMENT MANAGER.
- L. ELECTRICAL CONTRACTOR IS REQUIRED TO WALK THE SITE PRIOR TO OPENING BID DATE.

LUMINAIRE SCHEDULE

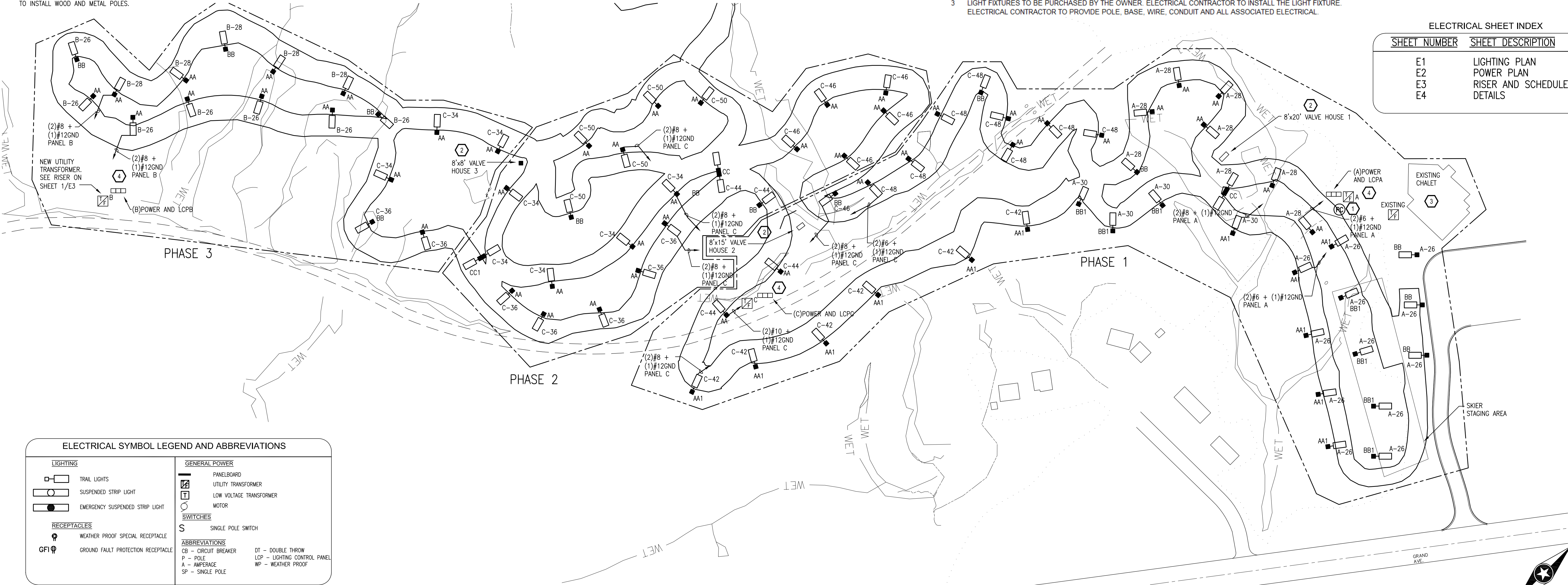
TYPE	MANUFACTURER	MODEL	VOLTS	LAMP	DESCRIPTION	NOTES
AA	LUMARK PHILIPS	NAV-AF-04-D-UNV-T2-10K-7030-MS/DIM-L20-A15-BZ	UNV	LED 160W 16000 LU	AREA/SITE LED LIGHT FIXTURE, WITH BRONZE STRAIGHT ARM DARK SKY COMPLIANT, BRONZE FINISH, INTEGRATED MOTION SENSOR 3000K, TYPE II DISTRIBUTION, DIMMING DRIVER	1,2,3
AA1	LUMARK PHILIPS	NAV-AF-04-D-UNV-T2-10K-7030-MS/DIM-L20-LS/HSS-A15-BZ	UNV	LED 160W 16000 LU	AREA/SITE LED LIGHT FIXTURE, HOUSE SIDE SHIELD DARK SKY COMPLIANT, BRONZE FINISH, MOTION SENSOR 3000K, TYPE II DISTRIBUTION, DIMMING DRIVER, BRONZE STRAIGHT ARM	1,2,3
BB	LUMARK PHILIPS	NAV-AF-04-D-UNV-T3-10K-7030-MS/DIM-L20-A15-BZ	UNV	LED 160W 16000 LU	AREA/SITE LED LIGHT FIXTURE, WITH BRONZE STRAIGHT ARM DARK SKY COMPLIANT, BRONZE FINISH, INTEGRATED MOTION SENSOR 3000K, TYPE III DISTRIBUTION, DIMMING DRIVER	1,2,3
BB1	LUMARK PHILIPS	NAV-AF-04-D-UNV-T3-10K-7030-MS/DIM-L20-HSS-A14-BZ	UNV	LED 160W 16000 LU	AREA/SITE LED LIGHT FIXTURE, HOUSE SIDE SHIELD DARK SKY COMPLIANT, BRONZE FINISH, INTEGRATED MOTION SENSOR 3000K, TYPE III DISTRIBUTION, DIMMING DRIVER, BRONZE STRAIGHT ARM	1,2,3
CC	LUMARK PHILIPS	(SEE ABOVE) CPS-2-HS-4011-17-DM10-BZ	UNV	(2) LED 160W 16000 LU	TWO TYPE BB FIXTURES (SEE ABOVE) TWO HEADS ON ONE POLE 17' 4"x4" SQUARE STEEL DARK BRONZE, W/ HAND HOLE	3
CC1	LUMARK PHILIPS	(SEE ABOVE) CPS-2-HS-4011-17-DM10-BZ	UNV	(2) LED 160W 16000 LU	ONE TYPE AA AND ONE TYPE BB FIXTURE (SEE ABOVE) TWO HEADS ON ONE POLE 17' 4"x4" SQUARE STEEL DARK BRONZE, W/ HAND HOLE	3
DD	LUMARK PHILIPS	XTOR18-Y-PC1	UNV	LED 12W 1300 LU	WALL PACK, DARK SKY COMPLIANT DARK BRONZE FINISH 120V PHOTOCELL	3
F	METALUX PHILIPS	4SNLED-LD4-46SL-LW-UNV-L830-CD1-U	UNV	LED 46W 4600 LU	4' LED STRIP LIGHT WITH FROST LENS 0-10V DIMMING, 3000K	3
F1	METALUX PHILIPS	4SNLED-LD4-46SL-LW-UNV-EL-L830-CD1-U	UNV	LED 46W 4600 LU	4' LED STRIP LIGHT WITH FROST LENS 0-10V DIMMING, 3000K, BATTERY BACK UP	3

- NOTE
- 1 EC TO PROVIDE NECESSARY HARDWARE FOR MOUNTING. BOLT FIXTURE TO WOOD POLE USING BOLTS THAT GO THROUGH THE POLE WITH WASHERS AND NUTS. DO NOT USE LAG BOLTS. FOR THE TOTAL AMOUNT OF POLES IN THE PROJECT, PROVIDE 75% TO BE WOOD UTILITY POLES. SEE DETAIL ON SHEET 3/E4.
 - 2 EC TO PROVIDE NECESSARY HARDWARE FOR MOUNTING. FOR THE TOTAL AMOUNT OF POLES IN THE PROJECT, PROVIDE 25% OF THE POLES TO BE METAL. SEE DETAIL ON SHEET 1/E4.
 - 3 LIGHT FIXTURES TO BE PURCHASED BY THE OWNER. ELECTRICAL CONTRACTOR TO INSTALL THE LIGHT FIXTURE. ELECTRICAL CONTRACTOR TO PROVIDE POLE, BASE, WIRE, CONDUIT AND ALL ASSOCIATED ELECTRICAL.

ELECTRICAL SHEET INDEX

SHEET NUMBER SHEET DESCRIPTION

- | | |
|----|---------------------|
| E1 | LIGHTING PLAN |
| E2 | POWER PLAN |
| E3 | RISER AND SCHEDULES |
| E4 | DETAILS |



ELECTRICAL SYMBOL LEGEND AND ABBREVIATIONS

LIGHTING		GENERAL POWER	
	TRAIL LIGHTS		PANELBOARD
	SUSPENDED STRIP LIGHT		UTILITY TRANSFORMER
	EMERGENCY SUSPENDED STRIP LIGHT		LOW VOLTAGE TRANSFORMER
RECEPTACLES		SWITCHES	
	WEATHER PROOF SPECIAL RECEPTACLE		SINGLE POLE SWITCH
	GROUND FAULT PROTECTION RECEPTACLE	ABBREVIATIONS	
	CIRCUIT BREAKER	CB	CIRCUIT BREAKER
	POLE	P	POLE
	AMPERAGE	A	AMPERAGE
	SINGLE POLE	SP	SINGLE POLE
		DT	DOUBLE THROW
		LCP	LIGHTING CONTROL PANEL
		WP	WEATHER PROOF

1 LIGHTING PLAN
1" = 100'-0"

Revisions		
No.	Date	Description
0		

PROJECT:
SPIRIT MOUNTAIN NORDIC TRAILS
DULUTH, MINNESOTA



SHEET TITLE:
LIGHTING PLAN

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Nate P. Eisenbarth
Reg. No. 53579
Date: 2/21/2018

DRAWN BY: NJA
CHECKED BY: NPE
PROJECT: S-15001
LINE IS 1/4" INCH
AT FULL SIZE
(IF NOT 1"=SCALE ACCORDINGLY)

DRAWING NO:
E1
Sheet 1 of 4

S:\S-15001-Spirit Mountain Nordic Trails\1-Design\Drawings\Working\Drawings\S-15001E2.dwg 11/25/2018 10:50 AM notes

D

C

B

A

BID/ALTERNATE:

BASE BID TO INCLUDE:
ALL UNDERGROUND ELECTRICAL INFRASTRUCTURE (LIGHTING, LIGHTING CONTROLS AND POWER) FOR PHASE 1 (1.5K) LOOP. ALL ABOVE GROUND ELECTRICAL INFRASTRUCTURE FOR SNOWMAKING (POWER) FOR PHASE 1 (1.5K) LOOP. ALL LIGHTING WIRING TO BE STUBBED OUT OF THE GROUND WITH NO BASE. CONDUIT AND BOX ONLY. PROVIDE ALL POWER DISTRIBUTION EQUIPMENT REQUIRED FOR PHASE 1.

ADD ALTERNATE #3 TO INCLUDE:
ALL UNDERGROUND LIGHTING, LIGHTING CONTROL AND POWER FOR PHASE 2 (1.0K) LOOP. ALL LIGHTING WIRING TO BE STUBBED OUT OF THE GROUND WITH NO BASE. CONDUIT AND BOX ONLY. ALL POWER WIRING TO BE STUBBED OUT WITH CONDUIT AND BOX ONLY. PROVIDE LIGHTING CONTROL WIRING.

ADD ALTERNATE #4 TO INCLUDE:
ALL UNDERGROUND LIGHTING, LIGHTING CONTROL AND POWER FOR PHASE 3 (0.8K) LOOP. ALL LIGHTING WIRING TO BE STUBBED OUT OF THE GROUND WITH NO BASE. CONDUIT AND BOX ONLY. ALL POWER WIRING TO BE STUBBED OUT WITH CONDUIT AND BOX ONLY. PROVIDE LIGHTING CONTROL WIRING. PROVIDE ALL POWER DISTRIBUTION EQUIPMENT FOR PHASE 3.

ADD ALTERNATE #5 TO INCLUDE:
ALL ABOVE GROUND SNOWMAKING POWER INFRASTRUCTURE FOR PHASE 2 (1.0K) LOOP. PROVIDE ALL ELECTRICAL PEDESTALS AND ASSOCIATED ELECTRICAL. INCLUDE A UNIT PRICE TO INSTALL ELECTRICAL PEDESTAL.

ADD ALTERNATE #6 TO INCLUDE:
ALL ABOVE GROUND SNOWMAKING POWER INFRASTRUCTURE FOR PHASE 3 (0.8K) LOOP. PROVIDE ALL ELECTRICAL PEDESTALS AND ASSOCIATED ELECTRICAL. INCLUDE A UNIT PRICE TO INSTALL ELECTRICAL PEDESTAL.

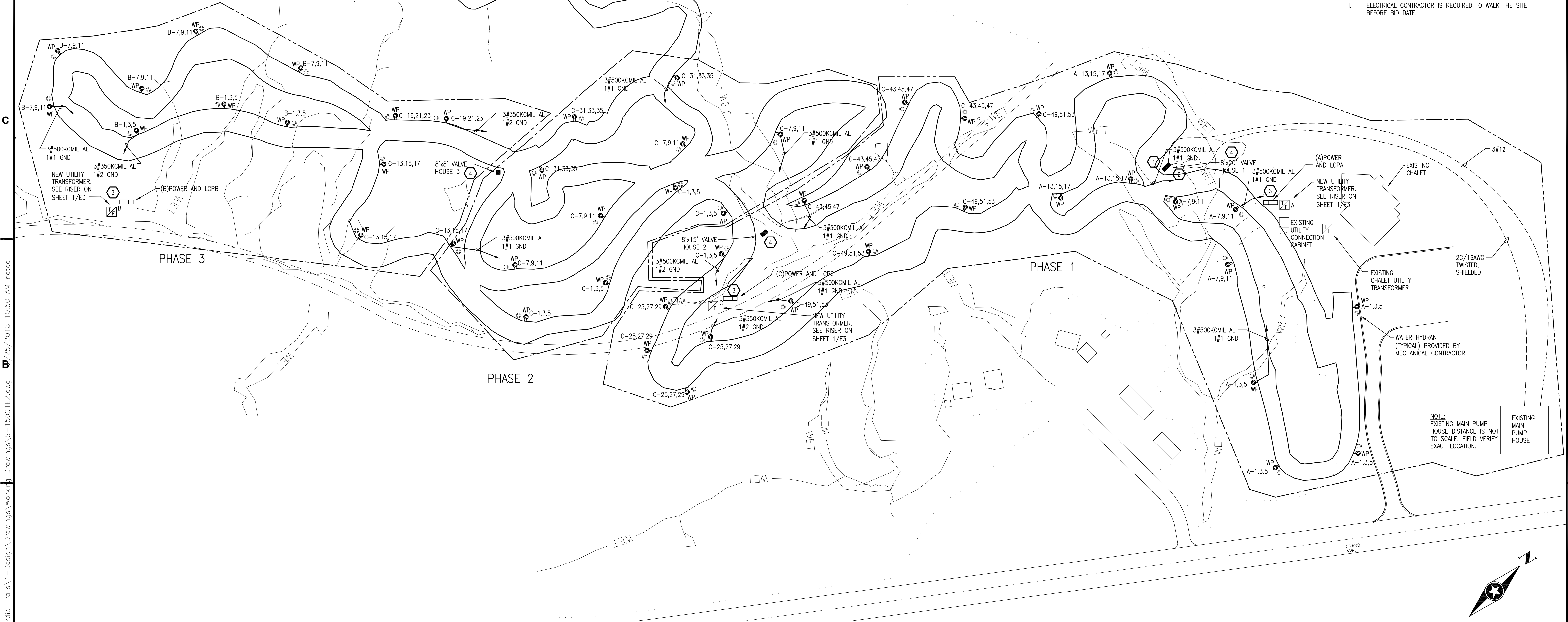
ADD ALTERNATE #7 TO INCLUDE:
ALL ABOVE GROUND LIGHTING AND LIGHTING CONTROLS INFRASTRUCTURE FOR PHASE 1, 2 AND 3 (3.3K TOTAL) LOOP. PROVIDE POLE, BASE, ASSOCIATED ELECTRICAL AND INSTALL LIGHT FIXTURES. PROVIDE LIGHTING CONTROLS TO COMPLETE SYSTEM. INCLUDE A UNIT PRICE TO INSTALL WOOD AND METAL POLES.

Keyed Notes:

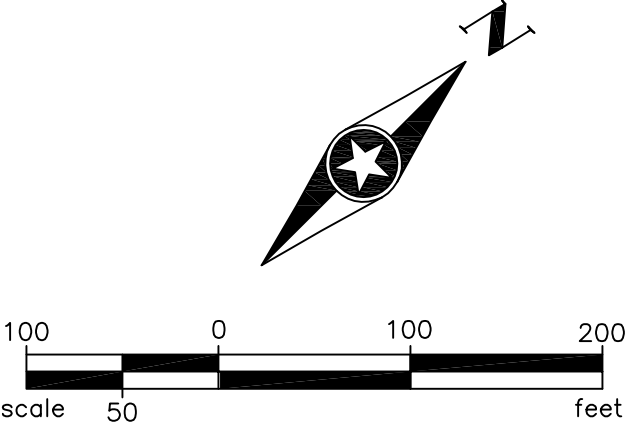
- SEE DETAIL ON SHEET 6/E4. PROVIDE 1/2" PVC CONDUIT WITH 3#12 CU CONDUCTORS FROM VALVE HOUSE 1 TO THE EXISTING MAIN PUMP HOUSE. CONTROL VALVE PROVIDED BY THE MECHANICAL CONTRACTOR. COORDINATE EXACT LOCATIONS WITH THE MECHANICAL CONTRACTOR.
- PROVIDE CONDUIT AND WIRE FROM PANEL LC-1 TO THE FLOW METER. SEE DETAIL ON SHEET 6/E4. PROVIDE 1/2" PVC CONDUIT WITH 2C/16AWG SHIELDED TWISTED PAIR FROM THE EXISTING MAIN PUMP HOUSE TO THE FLOW METER IN VALVE HOUSE 1. FLOW METER PROVIDED BY THE MECHANICAL CONTRACTOR. COORDINATE EXACT LOCATIONS WITH THE MECHANICAL CONTRACTOR.
- COORDINATE LOCATION OF THE POWER DISTRIBUTION EQUIPMENT AND PAD WITH THE OWNER.
- SEE DETAIL ON SHEET 6/E4 FOR THE POWER FLOOR PLAN.

General Notes:

- PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUITING SHOWN.
- EACH CIRCUIT SHALL HAVE AN INDIVIDUAL NEUTRAL (CIRCUITS SHALL NOT SHARE NEUTRALS).
- ALL SNOW MAKING WATER HYDRANTS AND ELECTRICAL POWER PEDESTALS MUST BE INSTALLED ON THE SAME SIDE OF THE TRAIL. SEE DETAILS ON SHEET 4,5/E4.
- PAY CLOSE ATTENTION TO ALUMINUM (AL) OR COPPER (CU) CONDUCTORS. ALL WIRING TYPE MC DIRECT BURIED.
- ALL ELECTRICAL PEDESTALS ARE 480V, 3P, 60A RECEPTACLES WITH 4-PIN, PIN AND SLEEVE CONNECTION. SEE DETAILS ON SHEET 2,4/E4 FOR INSTALLATION. COORDINATE INSTALLATION WITH THE OWNER.
- SEE TRENCH AND BACKFILL DETAIL ON SHEET 9/E4.
- USE SAME TRENCH FOR WIRING LIGHT FIXTURES AND POWER PEDESTALS WHEN PRACTICAL.
- IN THE BID PROVIDE A UNIT PRICE AND DEDUCT TO INSTALL EACH ELECTRICAL PEDESTAL WITH ALL ASSOCIATED ELECTRICAL.
- ELECTRICAL CONTRACTOR IS REQUIRED TO WALK THE SITE BEFORE BID DATE.



1 POWER LAYOUT
1" = 100'-0"



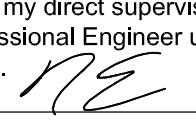
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345 CANAL PARK DRIVE
SUITE 200
DULUTH, MINNESOTA 55802
218.722.3060
218.722.1931 fax
Email: mail@fjji.com

Revisions		
No.	Date	Description
0	Date	Description

PROJECT:
**SPIRIT MOUNTAIN
NORDIC TRAILS**
DULUTH, MINNESOTA


SHEET TITLE:
POWER PLAN
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Nate P. Eisenbarth
Reg. No. 53579
Date: 2/21/2018

DRAWN BY: **NJA**
CHECKED BY: **NPE**
PROJECT: **S-15001**
LINE IS 1/8" = 1" AT FULL SIZE (IF NOT 1"=SCALE ACCORDINGLY)
DRAWING NO:
E2
Sheet 2 of 4

ELECTRIC HEAT SCHEDULE

TYPE	MANUFACTURER OR APPROVED EQUAL	CATALOG NO.	VOLT	PHASE	WATTS	THERMOSTAT	NOTES
UH-1	DAYTON	3UG73E	240	1	5,000	2YU33	1
NOTES: 1. PROVIDE A MOUNTING BRACKET 2YU83							

PANEL SCHEDULE

PANEL	A	AMPS	800			GRD. BUS	YES			
LOCATION	EXTERIOR	VOLTS	277/480			O.C.P. DEVICE	MCB			
MOUNTING	PAD MOUNT	PHASE	3			FED FROM	TRANSFORMER A			
AIC	35,000A	WIRE	4			REMARKS	GND FAULT PROTECTION**			
RM. NO.	LOAD DESCRIPTION	BRKR	CKT NO.	A	B	C	CKT NO.	BRKR	LOAD DESCRIPTION	RM. NO.
	POWER PEDESTALS	250/3	1	X			2	100/3	SPARE	
			3		X		4			
			5			X	6			
	POWER PEDESTALS	200/3	7	X			8	300/3	SPARE	
			9		X		10			
			11			X	12			
	POWER PEDESTALS	200/3	13	X			14	300/3	SPARE	
			15		X		16			
			17			X	18			
	SPARE	200/3	19	X			20	100/3	SPARE	
			21		X		22			
			23			X	24			
	T-VH1, PNL LC-1		25	X			26	20/1	LIGHTING	
			27		X		28	20/1	LIGHTING	
	SPACE		29			X	30	20/1	LIGHTING	
	SPACE		31	X			32	20/1	LCPA	
	SPACE		33		X		34	20/1	SPARE	
	SPACE		35			X	36	20/1	SPARE	
	SPACE		37	X			38		SPARE	
	SPACE		39		X		40		SPARE	
	SPACE		41			X	42		SPACE	

** SERVICE RATED. PROVIDE SURGE PROTECTION DEVICE

PANEL SCHEDULE

PANEL		B	AMPS			600	GRD. BUS		YES		
LOCATION		EXTERIOR	VOLTS			277/480	O.C.P. DEVICE		MCB		
MOUNTING		PAD MOUNT	PHASE			3	FED FROM		TRANSFORMER B		
AIC		13,000A	WIRE			4	REMARKS		GND FAULT PROTECTION**		
RM. NO.	LOAD DESCRIPTION		BRKR	CKT NO.	A	BUS B	C	CKT NO.	BRKR	LOAD DESCRIPTION	RM. NO.
				1	X			2			
		POWER PEDESTAL	200/3	3		X		4	100/3	SPARE	
				5			X	6			
				7	X			8	300/3		
		POWER PEDESTAL		9		X		10		SPARE	
			300/3	11			X	12			
				13	X			14	300/3		
		SPARE		15		X		16		SPARE	
			200/3	17			X	18			
				19	X			20			
		SPARE	250/3	21		X		22	100/3	SPARE	
				23			X	24			
		LCPB	20/1	25	X			26	20/1	LIGHTING	
		SPARE	20/1	27		X		28	20/1	LIGHTING	
		SPACE		29			X	30		SPACE	
		SPACE		31	X			32		SPACE	
		SPACE		33		X		34		SPACE	
		SPACE		35			X	36		SPACE	
		SPACE		37	X			38		SPACE	
		SPACE		39		X		40		SPACE	
		SPACE		41			X	42		SPACE	

** SERVICE RATED. PROVIDE SURGE PROTECTION DEVICE

PANEL SCHEDULE

PANEL	C	AMPS	1600				GRD. BUS	YES		
LOCATION	EXTERIOR	VOLTS	277/480				O.C.P. DEVICE	MCB		
MOUNTING	PAD MOUNT	PHASE	3				FED FROM	TRANSFORMER C		
AIC	18,000A	WIRE	4				REMARKS	GND FAULT PROTECTION**		
RM. NO.	LOAD DESCRIPTION	BRKR	CKT NO.	A	B	C	CKT NO.	BRKR	LOAD DESCRIPTION	RM. NO.
	POWER PEDESTAL	300/3	1	X			2	20/1	LCPB	
			3		X		4	20/1	SPARE	
			5			X	6	20/1	SPARE	
	POWER PEDESTAL	250/3	7	X			8	60/3	SPARE	
			9		X		10			
			11			X	12			
	POWER PEDESTAL	200/3	13	X			14	300/3	SPARE	
			15		X		16			
			17			X	18			
	POWER PEDESTAL	125/3	19	X			20	100/3	SPARE	
			21		X		22			
			23			X	24			
	POWER PEDESTAL	250/3	25	X			26	40/2	T-VH2, PNL LC-2	
			27		X		28			
			29			X	30			
	POWER PEDESTAL	200/3	31	X			32	40/2	T-VH3, PNL LC-3	
			33		X		34			
			35			X	36			
	SPARE	200/3	37	X			38	20/1	SPARE	
			39		X		40	20/1	SPARE	
			41			X	42	20/1	LIGHTING	
	POWER PEDESTAL	250/3	43	X			44	20/1	LIGHTING	
			45		X		46	20/1	LIGHTING	
			47			X	48	20/1	LIGHTING	
	POWER PEDESTAL	250/3	49	X			50	20/1	LIGHTING	
			51		X		52	20/1	SPARE	
			53			X	54	20/1	SPARE	

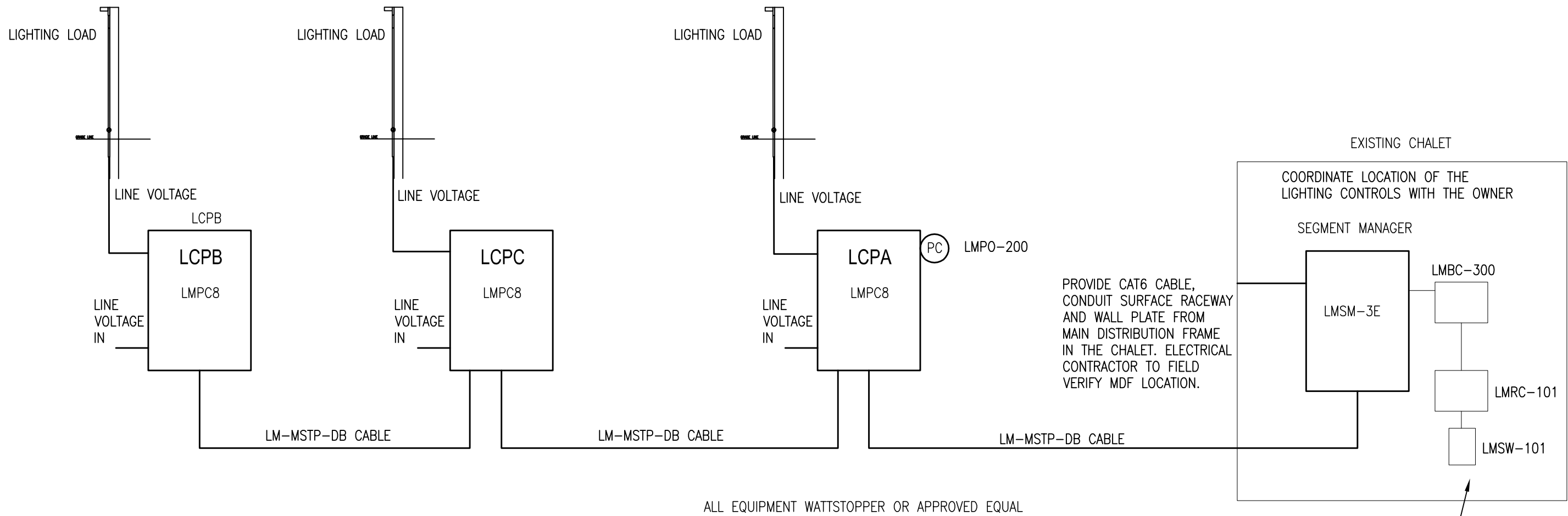
** SERVICE RATED. ARC FLASH REDUCTION. PROVIDE SURGE PROTECTION DEVICE

MOTOR AND EQUIPMENT SCHEDULE

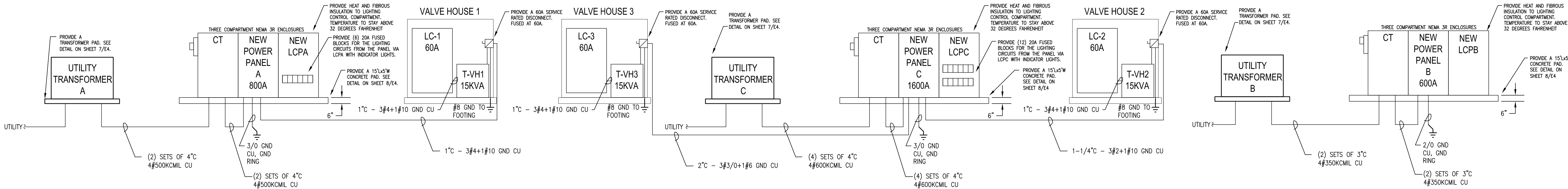
IDENTITY	LOCATION	DESCRIPTION	MOTOR BY	VOLTAGE	PHASE	LOAD	UNITS	STARTER	CONTROL	DISCONNECT	WIRE SIZE	PANEL	CIRCUIT	NOTES
UH-1	VH1,2,3	UNIT HEATER 1	E	240	1	5	KW	X	TELEC THERMOSTAT	CORD & PLUG	10	LC1,2,3	2,4	1
NOTES: 1 SEE PANEL SCHEDULE ON SHEET E3 AND DETAIL ON SHEET 6/E4														
ABBREVIATIONS: E - ELECTRICAL CONTRACTOR M - MECHANICAL CONTRACTOR G - GENERAL CONTRACTOR O - OTHERS HOA - HAND-OFF-AUTOMATIC SWITCH S/S - START/STOP SWITCH P - PILOT LIGHT U - WITH UNIT														

LOAD CENTER PANEL SCHEDULES

PANEL	LC-1,2,3	AMPS	60	GRD. BUS	YES				
LOCATION	VH1,2, OR 3	VOLTS	120/240	O.C.P. DEVICE	60 MCB				
MOUNTING	SURFACE	PHASE	1	FED FROM	A OR C				
		WIRE	3	REMARKS	3 LC PANELS				
RM. NO.	LOAD DESCRIPTION	BRKR	CKT NO.	A	B	CKT NO.	BRKR	LOAD DESCRIPTION	RM. NO.
	LIGHTS	20/1	1	X		2			
	RECEPTACLES	20/1	3		X	4	30/2	UH-1	
LC-1 ONLY	FLOW METER	20/1	5	X		6			
	SPARE	20/1	7		X	8	20/2	SPARE	
	SPARE	20/1	9	X		10		SPACE	
	SPARE	20/1	11		X	12		SPACE	



2 TYPICAL NEW LIGHTING CONTROL PANELS LCPA, LCPB & LCPC
NOT TO SCALE



1 RISER LAYOUT
NOT TO SCALE

D

C

B

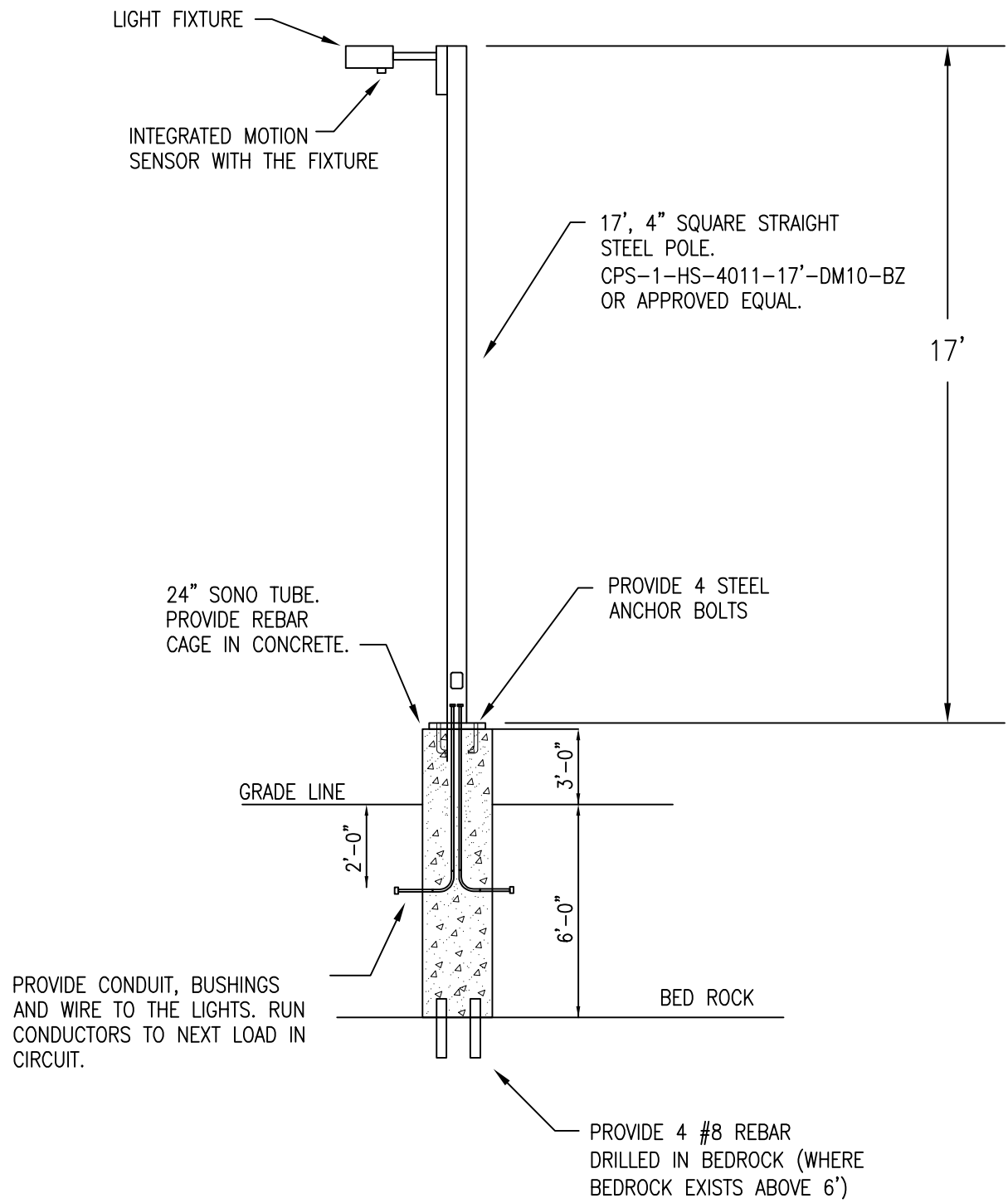
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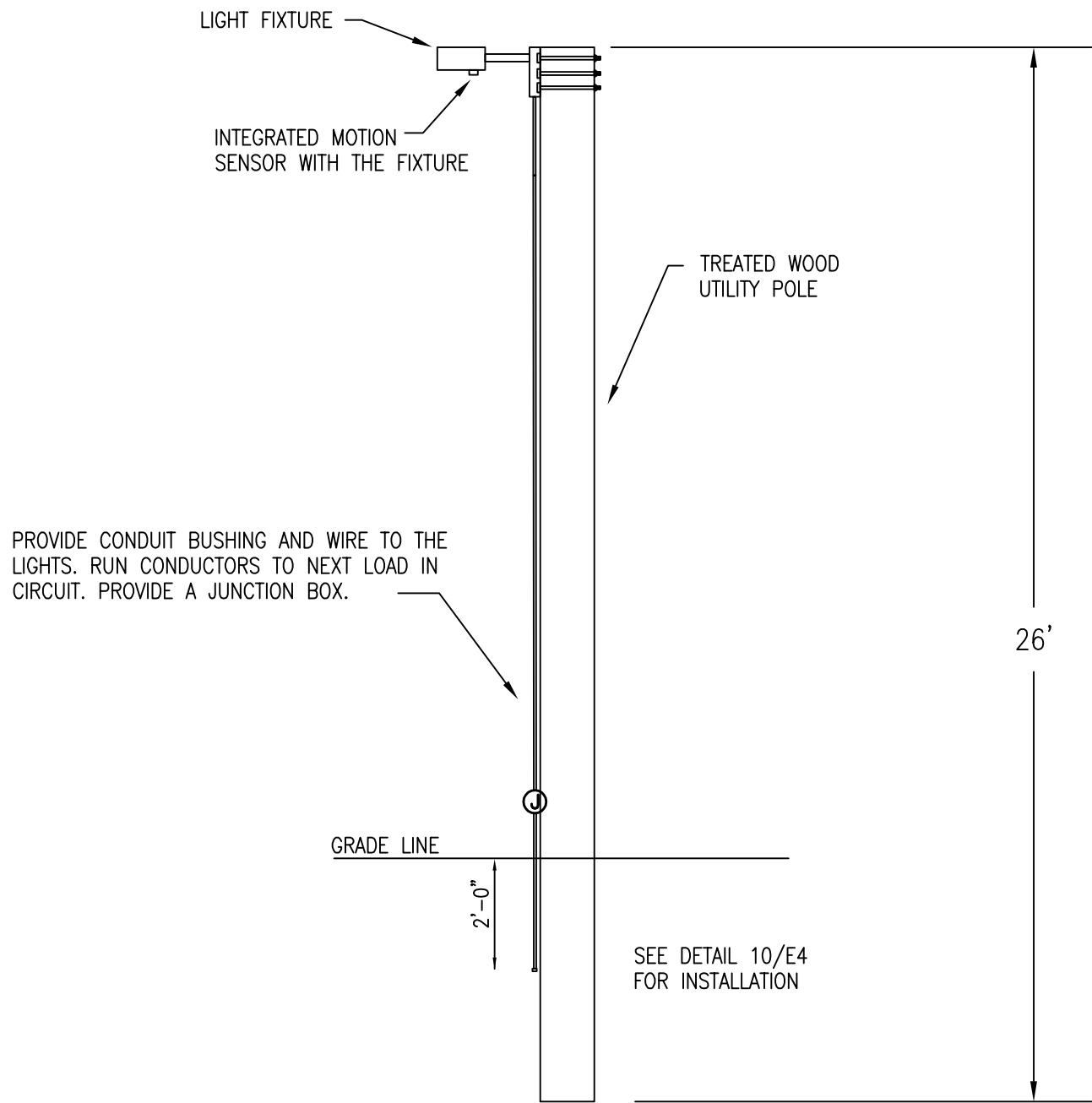
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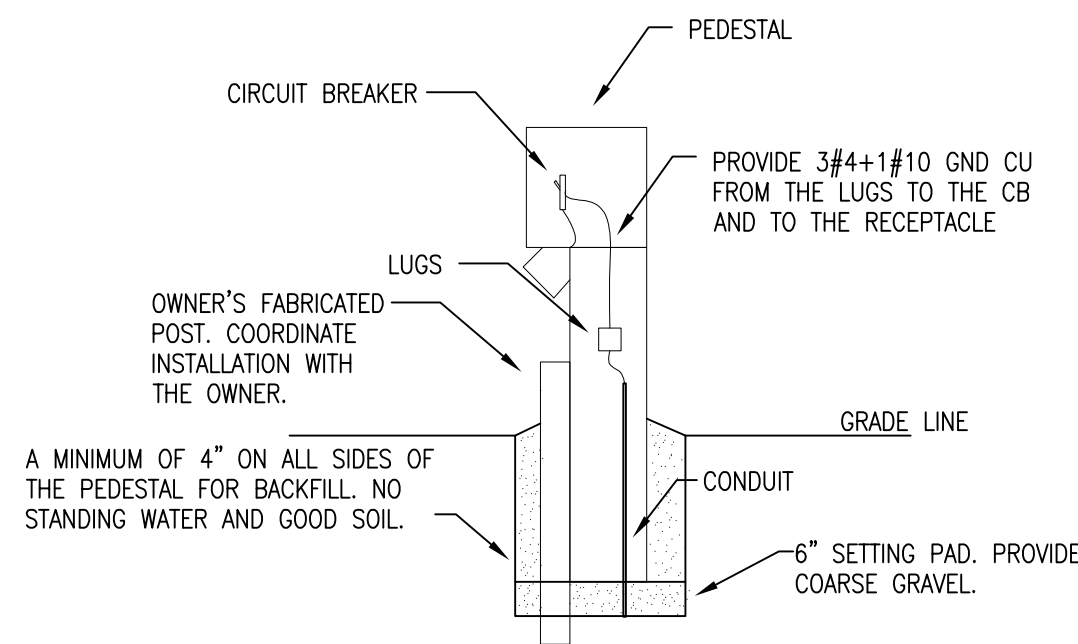
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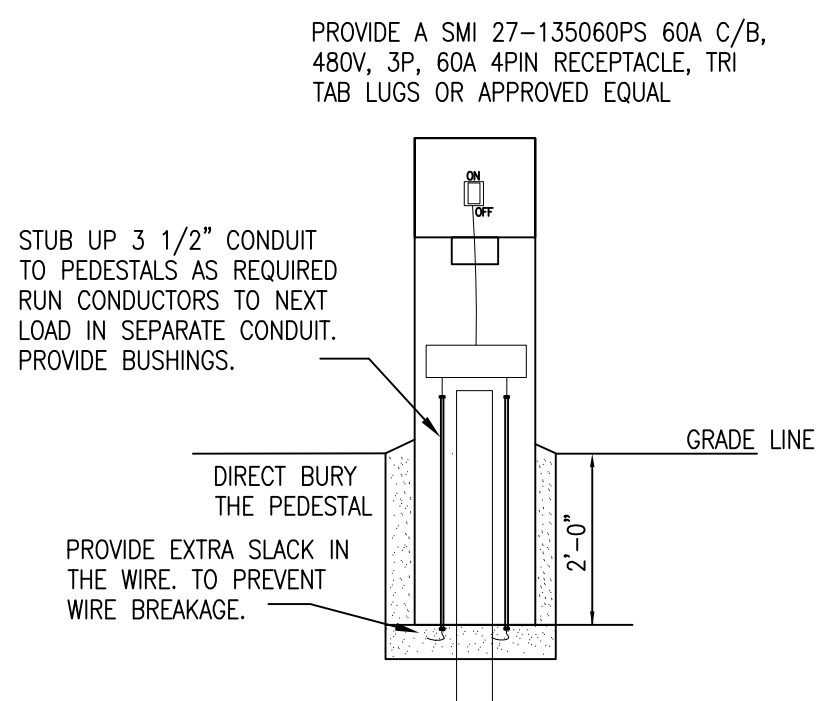
1 STEEL LIGHT POLE INSTALLATION DETAIL
NOT TO SCALE



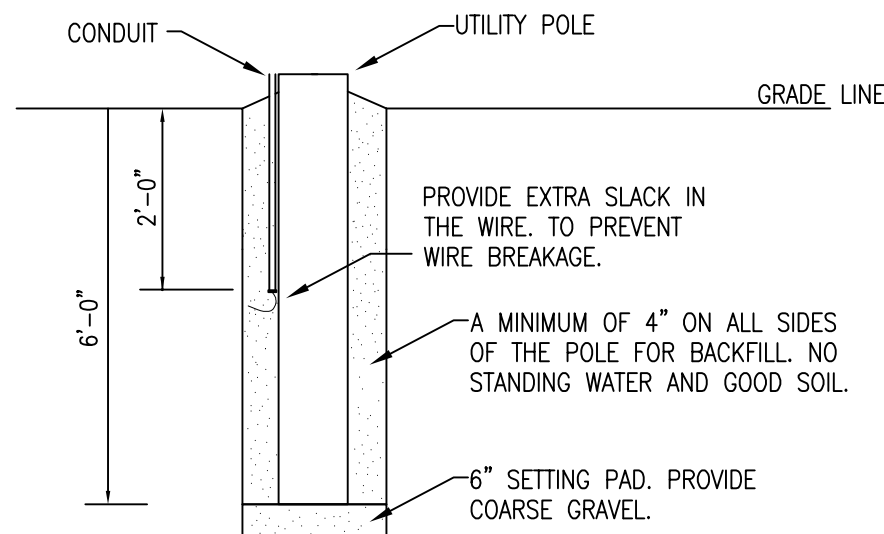
3 WOOD LIGHT POLE INSTALLATION DETAIL
NOT TO SCALE



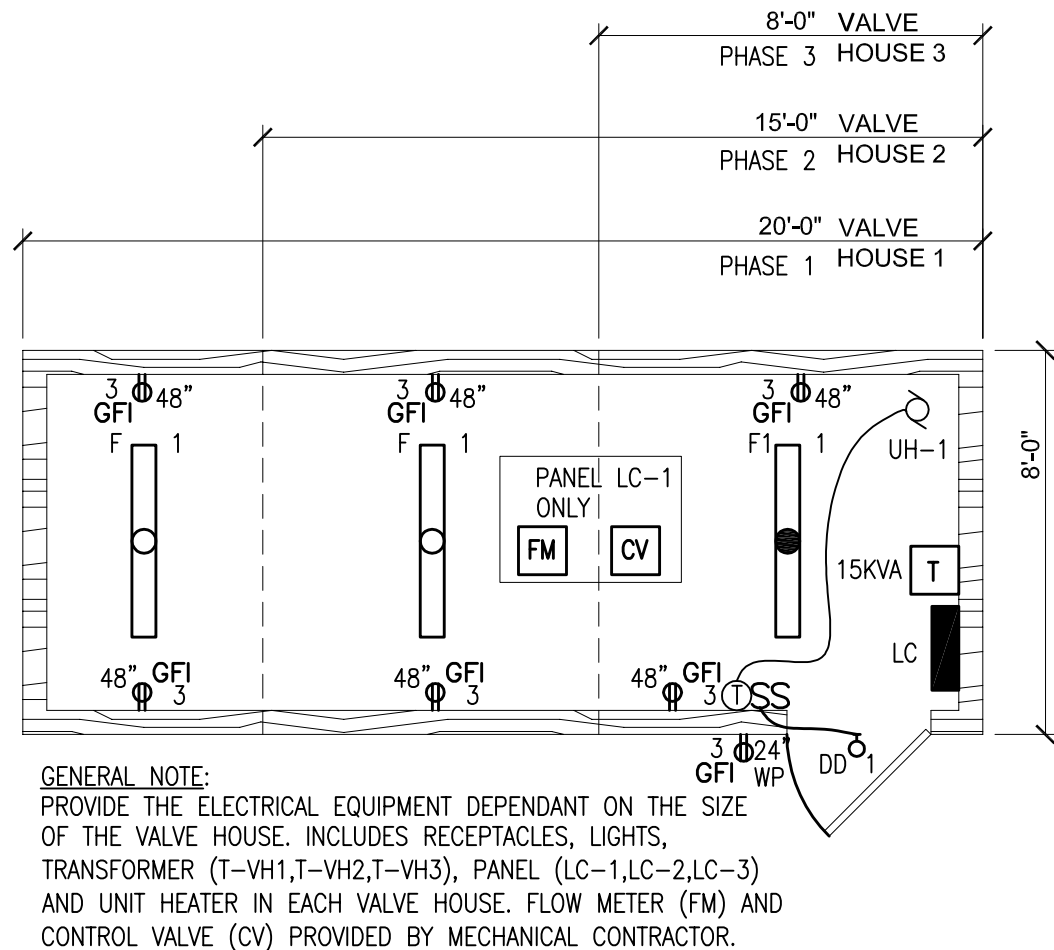
2 POWER PEDESTAL INSTALLATION SIDE VIEW DETAIL
NOT TO SCALE



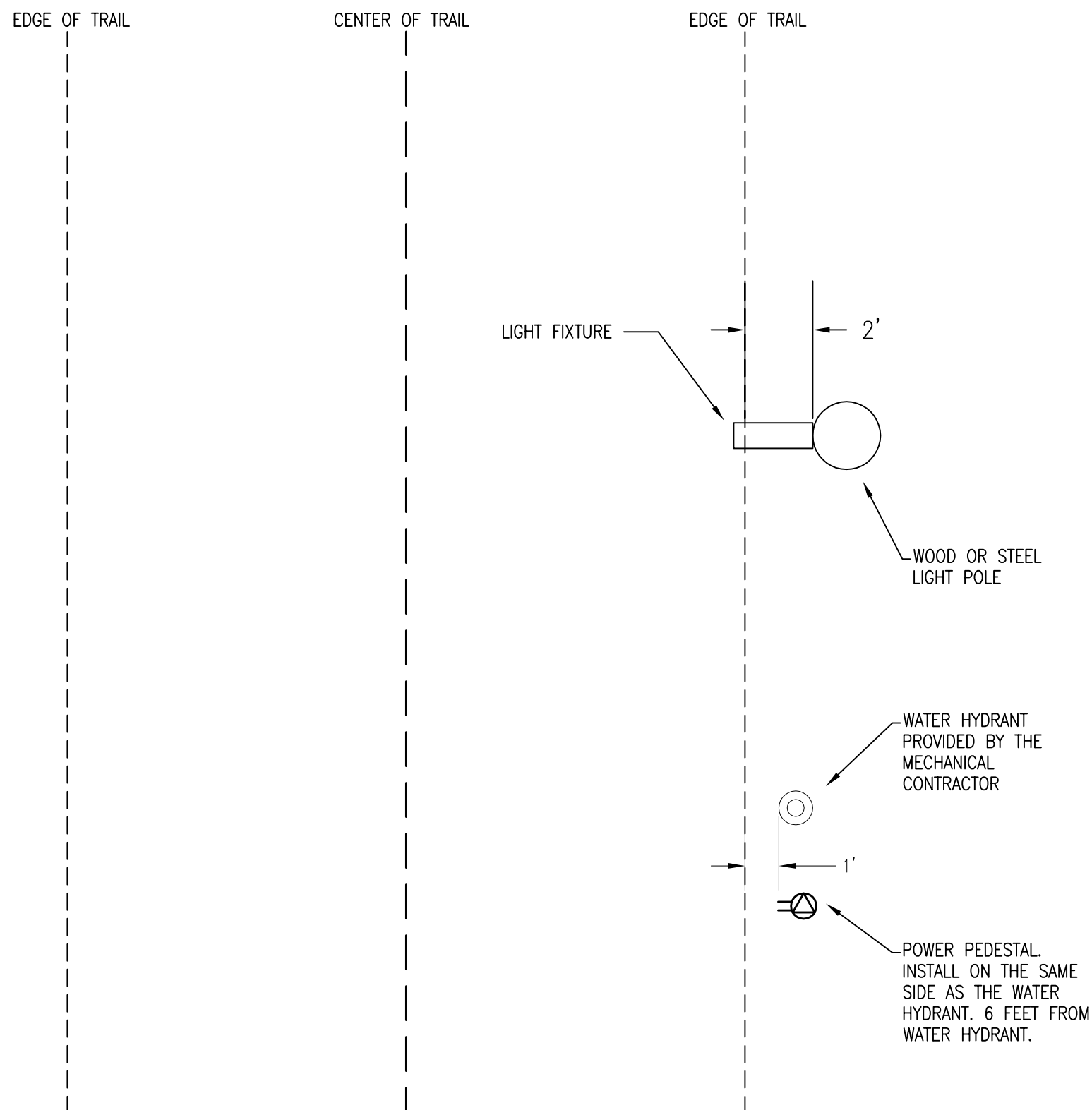
4 POWER PEDESTAL INSTALLATION FRONT VIEW DETAIL
NOT TO SCALE



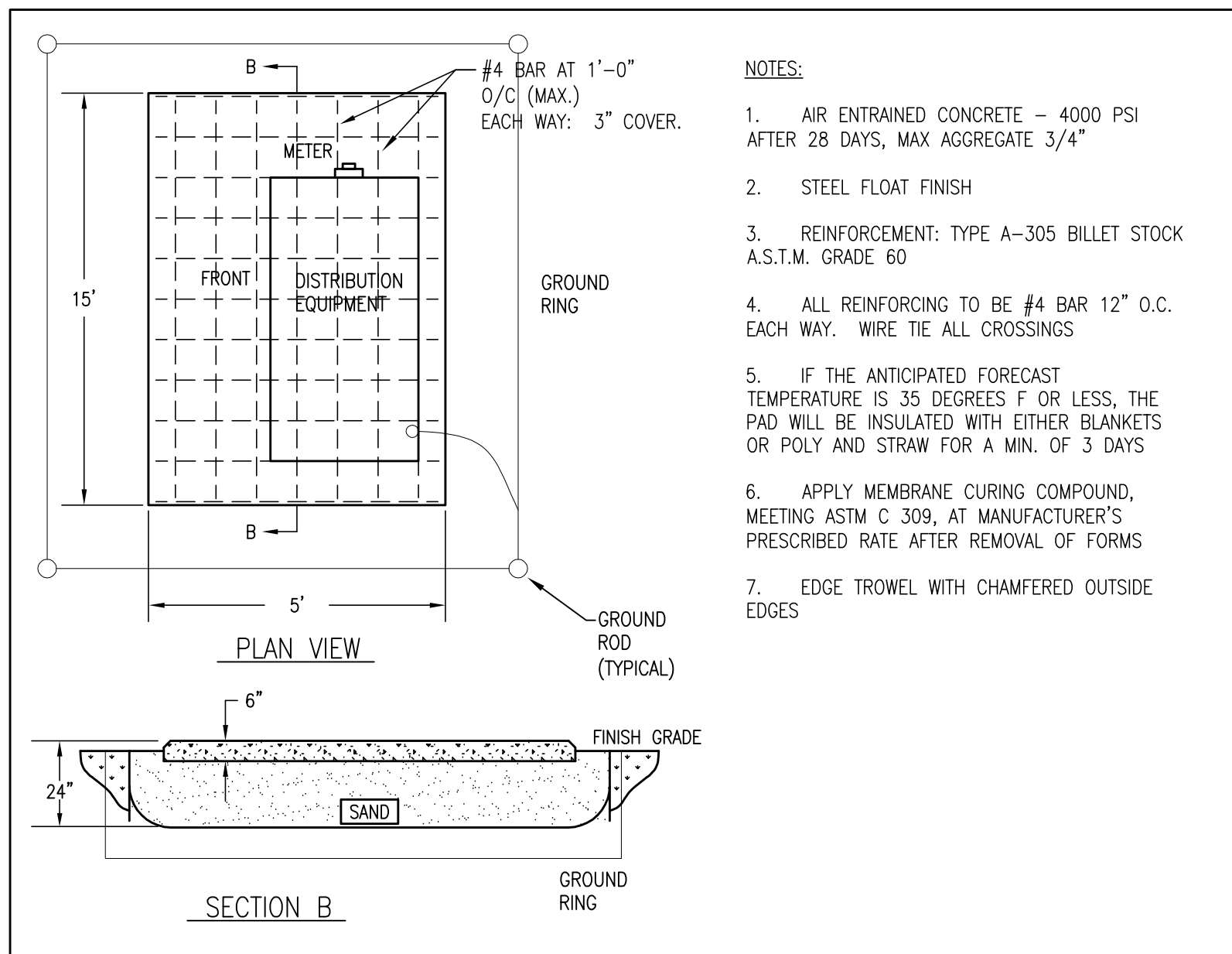
10 WOOD POLE BASE INSTALLATION
NOT TO SCALE



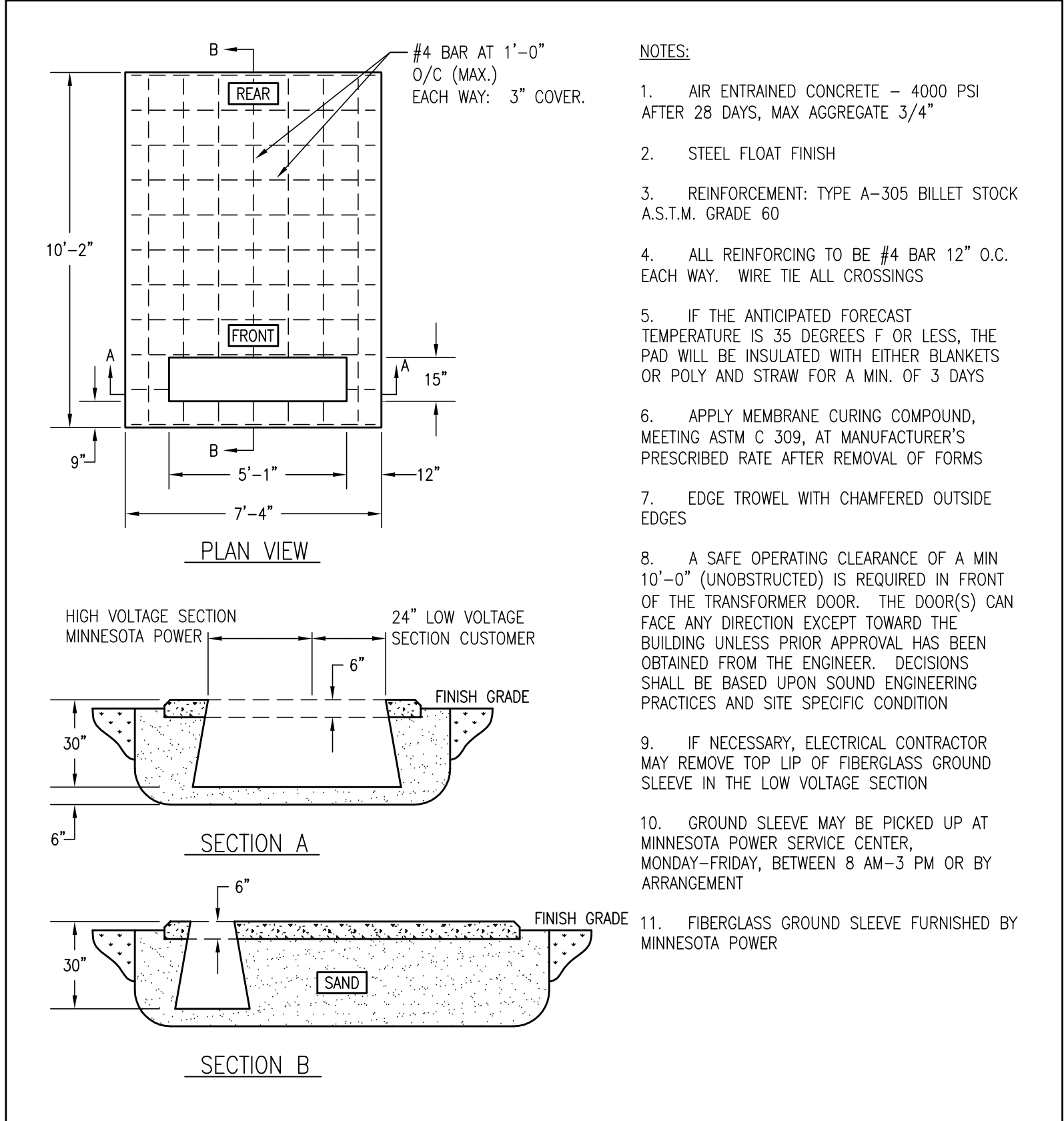
6 VALVE HOUSE POWER AND LIGHTING PLAN
1/4" = 1'



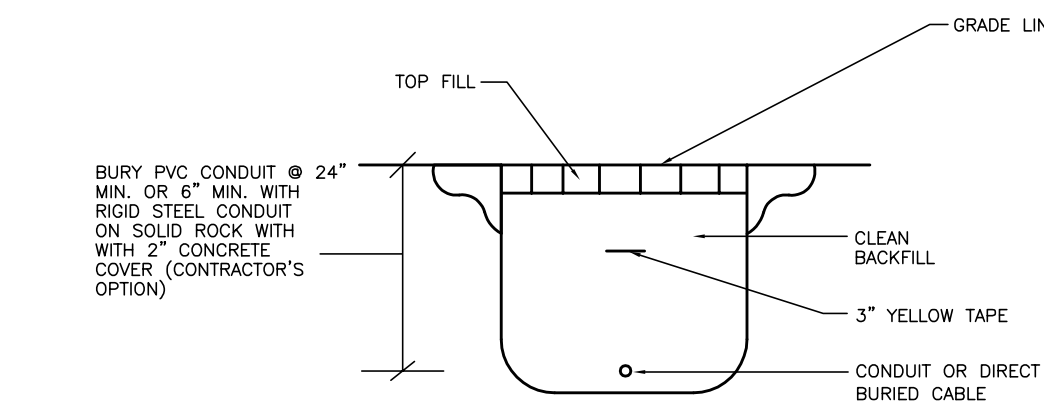
5 TYPICAL ELECTRICAL TRAIL CONSTRUCTION DETAIL
NOT TO SCALE



8 POWER DISTRIBUTION PAD DETAIL
NOT TO SCALE



7 500KVA TRANSFORMER PAD DETAIL
NOT TO SCALE



9 TRENCH DETAIL
NOT TO SCALE

SPIRIT MOUNTAIN
RECREATION AREA

TIE-IN POINT TO SPIRIT MTN
SNOWMAKING SYSTEM, SEE DETAIL.

100+00
GANC BASE

WARWICK

PREVIOUS
CONSTRUCTION:
NOT IN
CONTRACT

LEGEND

18"Ø PIPE (FROM EXISTING PRIMARY PUMPHOUSE)

PHASE 1 PIPE

PHASE 2 PIPE

PHASE 3 PIPE

LPD

D

ISOLATION VALVE

PIPELINE REFERENCE POINT

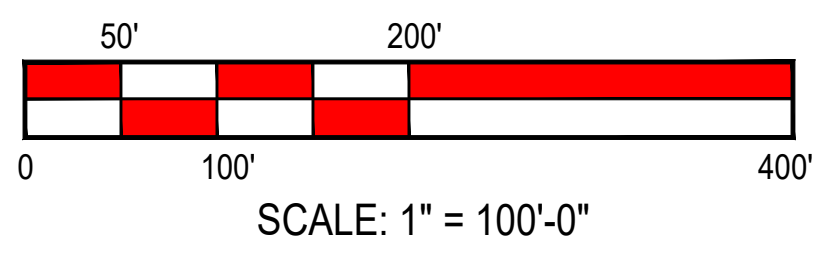
XX

HYDRANT/PEDESTAL LOCATION

LOW POINT DRAIN

DRAIN / BLEEDER

SNOWMAKING BY PHASES



SPIRIT MOUNTAIN
GRAND AVENUE NORDIC CENTER

NO.	DATE	REVISION	BY
4	06-07-17	REVISED PER COMMENTS	JDM
5	07-05-17	REVISED PER SITE VISIT	CAD
6	02-06-18	REVISED PER COMMENTS	JDM


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IN COOPERATION WITH:



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(218) 722-3060

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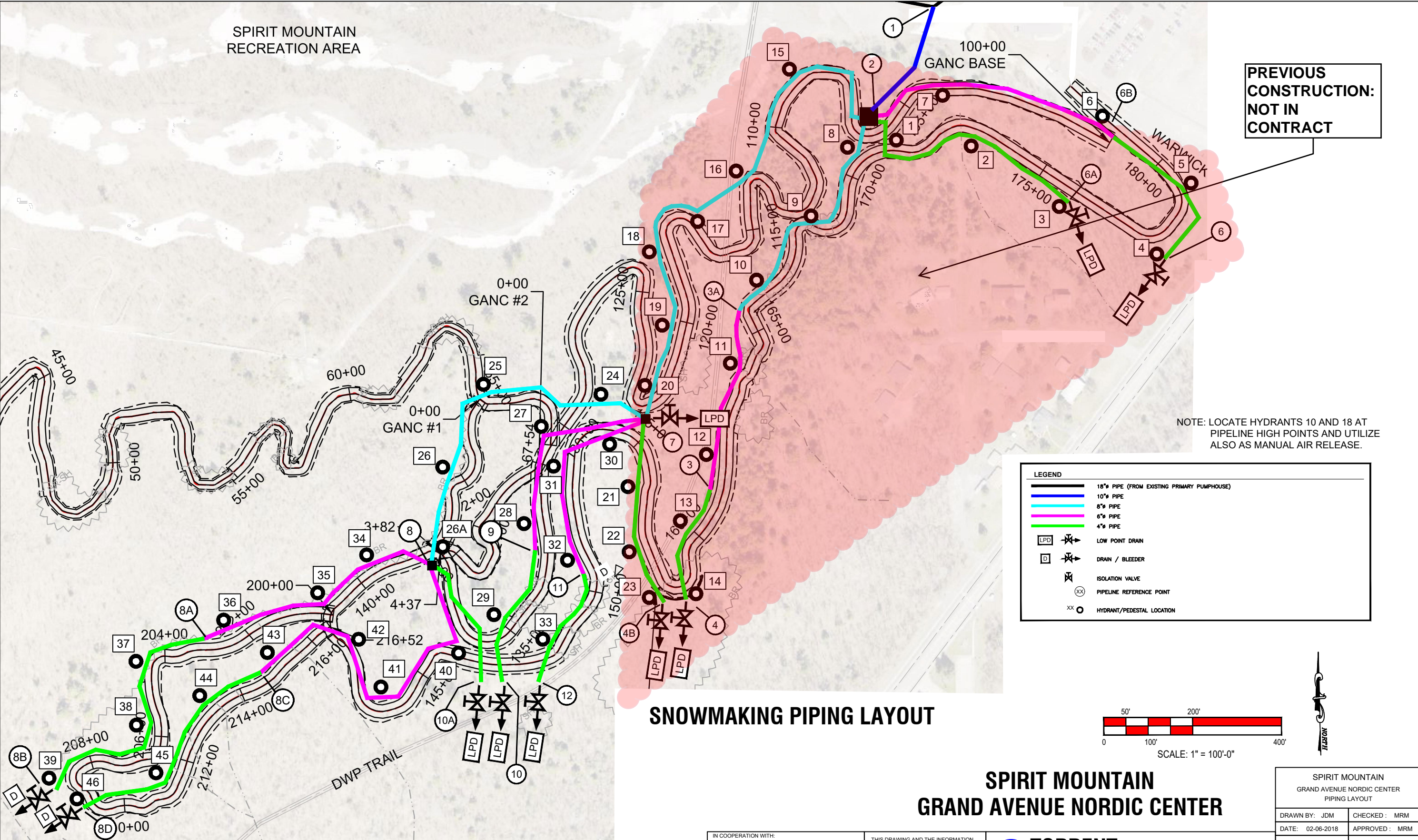
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SPIRIT MOUNTAIN GRAND AVENUE NORDIC CENTER PHASING LAYOUT	
DRAWN BY: JDM	CHECKED: MRM
DATE: 02-06-2018	APPROVED: MRM
SCALE: AS NOTED	D - SIZE DRAWING
DRAWING NUMBER : 852615-M1	
REV : 6	SHEET : 1 OF 9



NO.	DATE	REVISION	BY
4	06-07-17	REVISED PER COMMENTS	JDM
5	07-05-17	REVISED PER SITE VISIT	CAD
6	02-06-18	REVISED PER COMMENTS	JDM

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NORDIC SNOWMAKING PIPING - ABOVE GROUND CONFIGURATION

Location on Map	Distance on Map (FT)	Pipeline Length (see note 1) (FT)	Water Piping Grade B or Equal (OD x Min. Wall)	Number of Hydrants and Pedestals (see note 3)	Hydrant Numbers
PHASE 1					
1 - 2	310	340	10-3/4" x 0.307"	0	
2 - 3A	570	630	8-5/8" x 0.250"	3	8 - 10
3A - 3	420	460	6-5/8" x 0.219"	2	11, 12
3 - 4	270	300	4-1/2" x 0.219"	2	13, 14
2 - 6A	550	610	4-1/2" x 0.219"	3	1 - 3
2 - 6B	600	660	6-5/8" x 0.219"	2	7, 6
6B - 6	390	430	4-1/2" x 0.219"	2	5, 4
2 - 7	1230	1350	8-5/8" x 0.250"	6	15 - 20
7 - 4B	420	460	4-1/2" x 0.219"	3	21 - 23
PHASE 1		5240		23	
PHASE 2					
7 - 8	820	900	8-5/8" x 0.250"	4	24 - 26, 26A
7 - 11	480	530	6-5/8" x 0.219"	3	30 - 32
11 - 12	270	300	4-1/2" x 0.219"	1	33
7 - 9	490	540	6-5/8" x 0.219"	2	27, 28
9 - 10	320	350	4-1/2" x 0.219"	1	29
8 - 10A	310	340	4-1/2" x 0.219"	0	
PHASE 2		2960		11	
PHASE 3					
8 - 8A	570	630	6-5/8" x 0.219"	3	34 - 36
8A - 8B	600	660	4-1/2" x 0.219"	3	37 - 39
8 - 8C	830	910	6-5/8" x 0.219"	4	40 - 43
8C - 8D	580	640	4-1/2" x 0.219"	3	44 - 46
PHASE 3		2840		13	
TOTALS	10030 Ft	11040 Ft		47	

Notes:

1.) A 10% variation allowance has been added to measured map distances to obtain estimated pipe lengths. Measure and verify all pipe lengths before ordering.

2.) All pipe to be new prime steel pipe, specification API-5L, Grade B or better.

3.) One (1) electrical pedestal for each pair of the following hydrants; 5/5A, 20/20A, and 30/30A

Piping Summary:

Size - OD x Minimum Wall	Pipe Length (FT)
10-3/4" x 0.307"	340
8-5/8" x 0.250"	2880
6-5/8" x 0.219"	3730
4-1/2" x 0.219"	4090

Totals 11040 Ft

All main line pipe 4" - 10" to be new prime steel pipe, specification API-5L, Grade B or better. Wall thickness as noted above and per required minimum grade.

NORDIC SNOWMAKING PIPING - PIPELINE FITTINGS

NOTE: TRIM 45 AND 90 ELBOWS TO FIT NEEDED PIPELINE ROUTING ANGLES

All fittings ASTM A-234, Grade B Carbon Steel

PIPELINE LOCATION	DESCRIPTION	MANUFACTURER/ MODEL/ENGINEERING DATA	QTY
PHASE 1			
1 - 2	Elbow - 45 Deg: 10" weld	10" 45 Standard wall, bevel end, A234 weld	1
2-3A	Elbow - 45 Deg: 8" weld	8" 45 Standard wall, bevel end, A234 weld	4
3A	Reducer, Weld, Eccentric: 8x6	Standard wall, bevel end, A234	1
3A - 3	Elbow - 45 Deg: 6" weld	6" 45 Standard wall, bevel end, A234 weld	2
3	Reducer, Weld, Eccentric: 6x4	Standard wall, bevel end, A234	1
3 - 4	Elbow - 45 Deg: 4" weld	4" 45 Standard wall, bevel end, A234 weld	3
2 - 6A	Elbow - 90 Deg: 6" Long radius weld	6" 90 Standard wall, bevel end, long radius A234 weld	2
	Elbow - 45 Deg: 4" weld	4" 45 Standard wall, bevel end, A234 weld	4
2 - 6B	Elbow - 45 Deg: 6" weld	6" 45 Standard wall, bevel end, A234 weld	2
6B	Reducer, Weld, Eccentric: 6x4	Standard wall, bevel end, A234	1
6B - 6	Elbow - 90 Deg: 4" weld	4" 90 Standard wall, bevel end, A234 weld	1
2-7	Elbow - 90 Deg: 8" Long radius weld	8" 90 Standard wall, bevel end, long radius A234 weld	1
	Elbow - 45 Deg: 8" weld	8" 45 Standard wall, bevel end, A234 weld	5
7 - 4B	Elbow - 45 Deg: 4" weld	4" 45 Standard wall, bevel end, A234 weld	2
PHASE 2			
7 - 11	Elbow - 90 Deg: 6" Long radius weld	6" 90 Standard wall, bevel end, long radius A234 weld	1
	Elbow - 45 Deg: 6" weld	6" 45 Standard wall, bevel end, A234 weld	1
11	Reducer, Weld, Eccentric: 6x4	Standard wall, bevel end, A234	1
11 - 12	Elbow - 45 Deg: 4" weld	4" 45 Standard wall, bevel end, A234 weld	4
7 - 9	Elbow - 90 Deg: 6" Long radius weld	6" 90 Standard wall, bevel end, long radius A234 weld	1
	Elbow - 45 Deg: 6" weld	6" 45 Standard wall, bevel end, A234 weld	1
9	Reducer, Weld, Eccentric: 6x4	Standard wall, bevel end, A234	1
9 - 10	Elbow - 45 Deg: 4" weld	4" 45 Standard wall, bevel end, A234 weld	2
7 - 8	Elbow - 90 Deg: 8" weld	8" 90 Standard wall, bevel end, A234 weld	1
	Elbow - 45 Deg: 8" weld	8" 45 Standard wall, bevel end, A234 weld	4
8 - 10A	Elbow - 45 Deg: 4" weld	4" 45 Standard wall, bevel end, A234 weld	3
PHASE 3			
8 - 8A	Elbow - 45 Deg: 6" weld	6" 45 Standard wall, bevel end, A234 weld	3
8A	Reducer, Weld, Eccentric: 6x4	Standard wall, bevel end, A234	1
8A - 8B	Elbow - 45 Deg: 6" weld	6" 45 Standard wall, bevel end, A234 weld	7
8 - 8C	Elbow - 90 Deg: 6" weld	6" 90 Standard wall, bevel end, A234 weld	1
	Elbow - 45 Deg: 6" weld	6" 45 Standard wall, bevel end, A234 weld	5
8C	Reducer, Weld, Eccentric: 6x4	Standard wall, bevel end, A234	1
8C - 8D	Elbow - 45 Deg: 4" weld	4" 45 Standard wall, bevel end, A234 weld	3

NOTE: ALL MATERIALS (FITTINGS AND VALVES) FOR END POINT & LOW POINT DRAINS AND VALVE STATIONS ARE LISTED WITH THE INDIVIDUAL DETAILS.

SPIRIT MOUNTAIN
GRAND AVENUE NORDIC CENTER

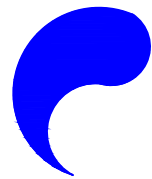
SPIRIT MOUNTAIN GRAND AVENUE NORDIC CENTER PIPELINE FITTINGS LIST	
DRAWN BY: JDM	CHECKED: MRM
DATE: 02-06-2018	APPROVED: MRM
SCALE: AS NOTED	D - SIZE DRAWING
DRAWING NUMBER : 852615-M1	
REV: 6	SHEET: 3 OF 9

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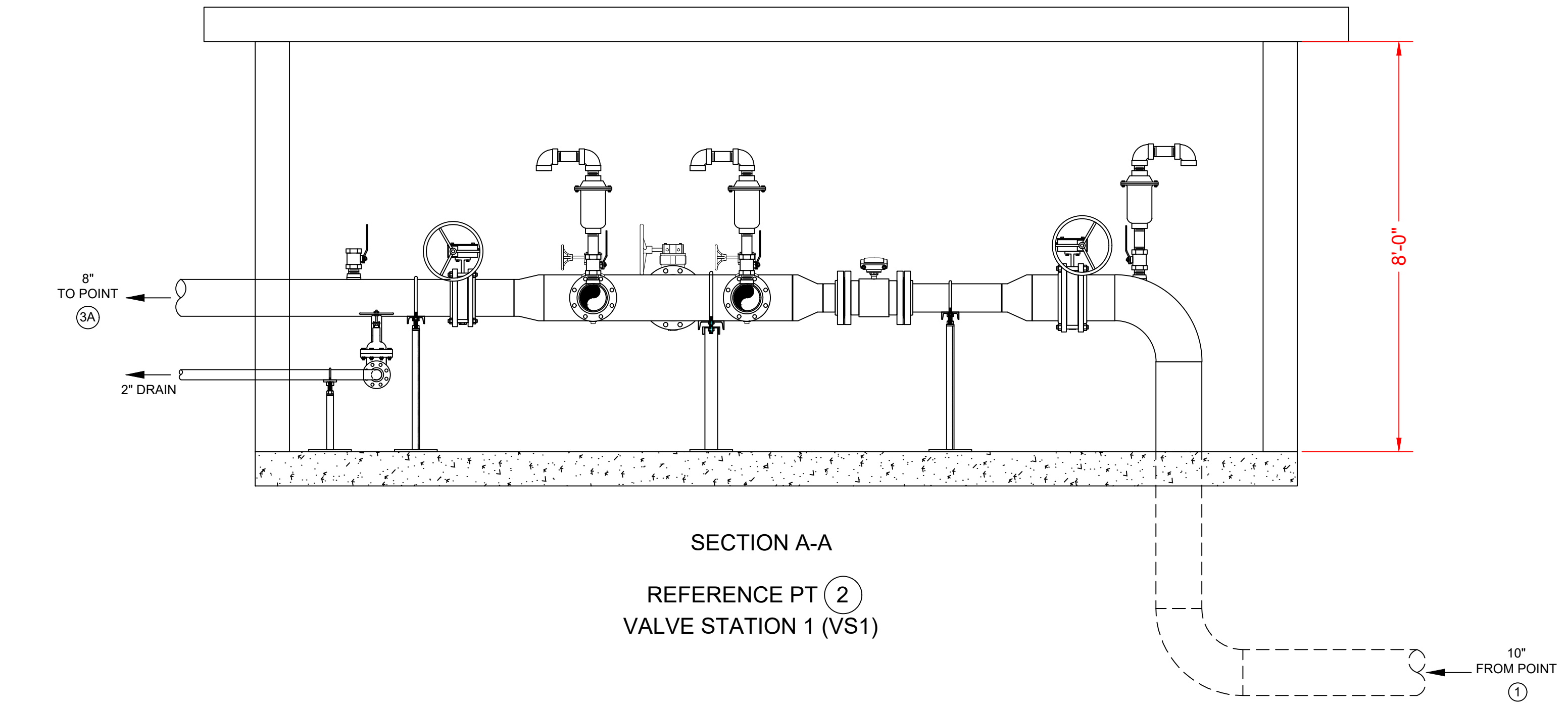
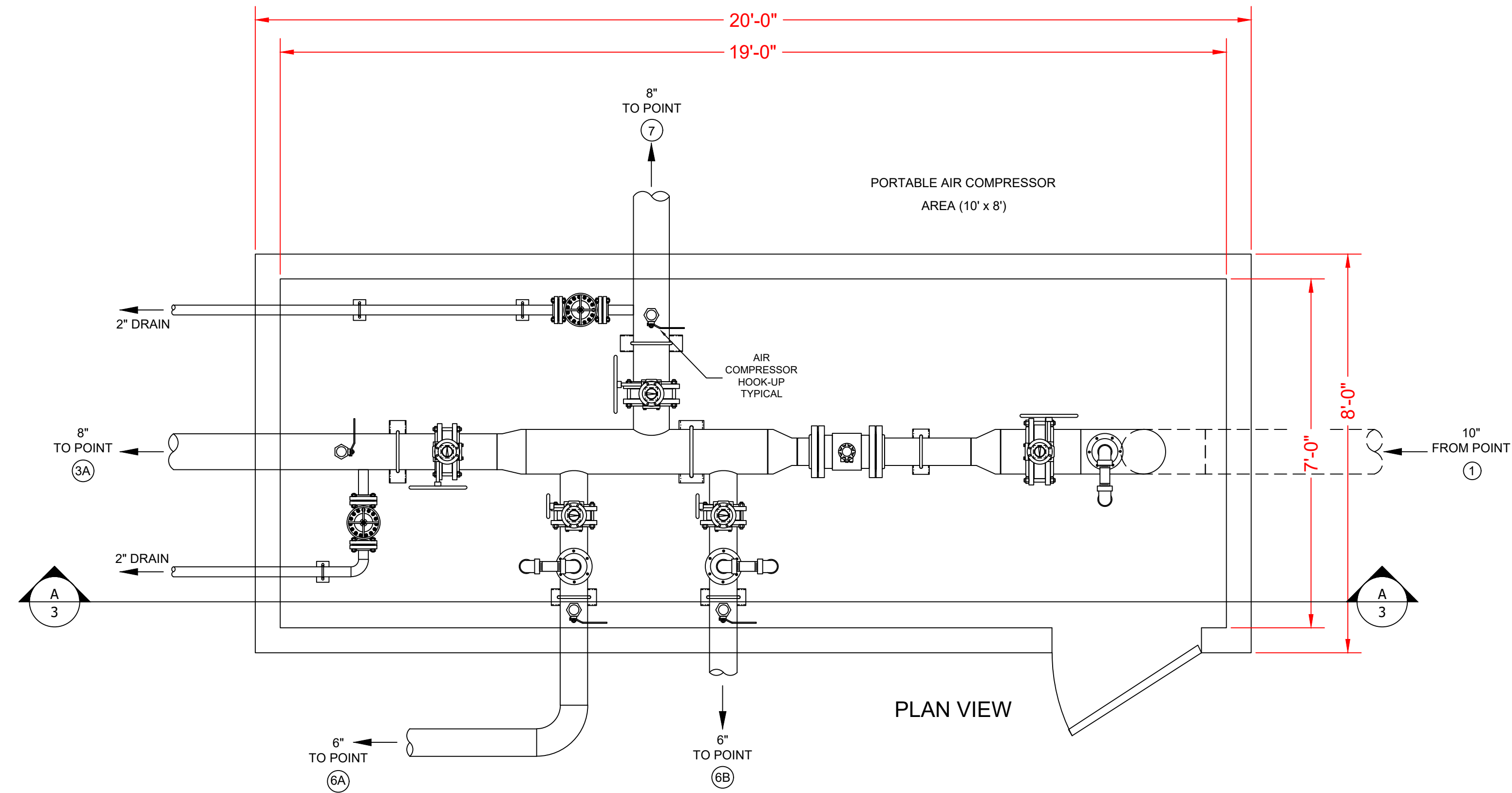


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NORDIC SNOWMAKING PIPING - VALVE STATION #1 (VS1) - REF PT 2

DESCRIPTION	MANUFACTURER/ MODEL/ENGINEERING DATA	QTY
Elbow: 10" Long radius	10" 90 Standard wall, bevel end, long radius A234 weld	2
Pipe: 10"	10"-BLK CS ERW PIPE (10-3/4" OD) ASTM A-53 / API 5L GRADE B, 0.307" wall (MIN)	As Required +/- 8'-0"
Isolation Valve: 10"-300# wafer butterfly valve with gear operator.	Bray Series 42-466 or equal, 10" 300# CS body, 316ss disc, 17-4 shaft, RTFE seat, TFE packing, Glass backed TFE bearing, Gear Operator. With auxiliary limit switches for remote opened and closed position indication.	1
Stud And Nut Set 1"x10"	B7, Zinc Plated Stud with 2 Nuts 1"x10"	16
Spiral Wound Gasket	10" 300# Steel / Chlorite / Graphite	2
Flange: 10" 300# RFSO.	10" 300# slip-on flange, raised face standard bore A105	1
Flange: 10" 300# RFWN.	10" 300# weld neck flange, raised face standard bore A105	1
Reducer, Weld, Concentric: 10x6	Standard wall, bevel end, A234	2
Pipe: 6"	6"-BLK CS ERW PIPE (6-5/8" OD) ASTM A-53 / API 5L GRADE B, 0.219" wall (MIN)	As Required +/- 3'-6"
Flange: 6" 300# RFSO.	6" 300# slip-on flange, raised face standard bore A105	4
6" 300# Flow Meter: Measures discharge water flow in GPM. Full bore, flanged body, magnetic type. 90-2300 GPM	Krohne EnviroMag 2000 Part# B144DB0130321 Hastelloy C4 electrodes and grounding rings. Hard rubber liner.	1
Fiber Gasket	6" 300# Full Face, Fiber	2
Stud And Nut Set 3/4"x7-1/2"	B7, Zinc Plated Stud with 2 Nuts 3/4"x5"	24
Reducer, Weld, Concentric: 10x6	Standard wall, bevel end, A234	1
Pipe: 8"	8"-BLK CS ERW PIPE (8-5/8" OD) ASTM A-53 / API 5L GRADE B, 0.250" wall (MIN)	As Required +/- 5'-0"
Isolation Valve: 8"-300# wafer butterfly valve with gear operator.	Bray Series 42-466 or equal, 8" 300# CS body, 316ss disc, 17-4 shaft, RTFE seat, TFE packing, Glass backed TFE bearing, Gear Operator	2
Stud And Nut Set 7/8"x6"	B7, Zinc Plated Stud with 2 Nuts 7/8"x9"	24
Spiral Wound Gasket	8" 300# Steel / Chlorite / Graphite	4
Flange: 8" 300# RFSO.	8" 300# slip-on flange, raised face standard bore A105	4
Pipe: 6"	6"-BLK CS ERW PIPE (6-5/8" OD) ASTM A-53 / API 5L GRADE B, 0.219" wall (MIN)	As Required +/- 8'-0"
Isolation Valve: 6"-300# wafer butterfly valve with gear operator.	Bray Series 42-466 or equal, 6" 300# CS body, 316ss disc, 17-4 shaft, RTFE seat, TFE packing, Glass backed TFE bearing, Gear Operator	2
Stud And Nut Set 3/4"x7-1/2"	B7, Zinc Plated Stud with 2 Nuts 3/4"x7-1/2"	24
Spiral Wound Gasket	6" 300# Steel / Chlorite / Graphite	4
Flange: 6" 300# RFSO.	6" 300# slip-on flange, raised face standard bore A105	4
Pipe: 2"	2" (2-3/8" OD) CS SEAMLESS PIPE, Black, beveled ASTM A-120 GRADE A, 0.218" (SCH80) wall	As Required +/- 30'-0"
Elbow: 2" Long radius	2" 90 Standard wall, bevel end, long radius A234 weld	1
Gate Valve: 2"-300# Gate valve.	2" 300# Bonney gate valve 3-11-RF, CS body, OS&Y Gate Valve	2
300# Flange Stud Set 2" Flange	B7, Zinc Plated Stud with 2 Nuts 5/8"x4-1/4"	16
Spiral Wound Gasket	2" 300# Steel / Chlorite / Graphite	4
Flange: 2" 300# RFSO.	2" 300# slip-on flange, raised face standard bore A105	4
Thread-O-Let: 2"	36-6x2, A105 TOL	7
Nipple: 2" x 3"	2" X 3" NPT, XH, Forged Steel, SA106 Black	10
Nipple: 2" x 6"	2" X 6" NPT, XH, Forged Steel, SA106 Black	3
Elbow: 2"	2" NPT, Forged Steel, SA105 elbow, black	6
Ball Valve: 2"	Apollo 70 108-01 600 WOG bronze 2 piece threaded 2"	7
Vacuum Breaker / Air Release Valve: Combination vacuum breaker / air release valve.	Cla-Val Model 33ADS Single Body Combination Air Release and Vacuum Breaker Valve, ductile iron body, Stainless Steel trim, 300# NPT inlet and outlet, rated to 500 psi working pressure. 2" FNPT x 2" FNPT	3
Pipe Stand 10"	10" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.	1
Pipe Stand 8"	8" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.	2
Pipe Stand 6"	6" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.	3
Pipe Stand 2"	2" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.	3

SPIRIT MOUNTAIN
GRAND AVENUE NORDIC CENTER

SPIRIT MOUNTAIN GRAND AVENUE NORDIC CENTER DETAILS	
DRAWN BY: JDM	CHECKED: MRM
DATE: 02-06-2018	APPROVED: MRM
SCALE: AS NOTED	D - SIZE DRAWING
DRAWING NUMBER : 852615-M1	
REV: 6	SHEET: 4 OF 9

NO.	DATE	REVISION	BY
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5	07-05-17	REVISED PER SITE VISIT	CAD
6	02-06-18	REVISED PER COMMENTS	JDM

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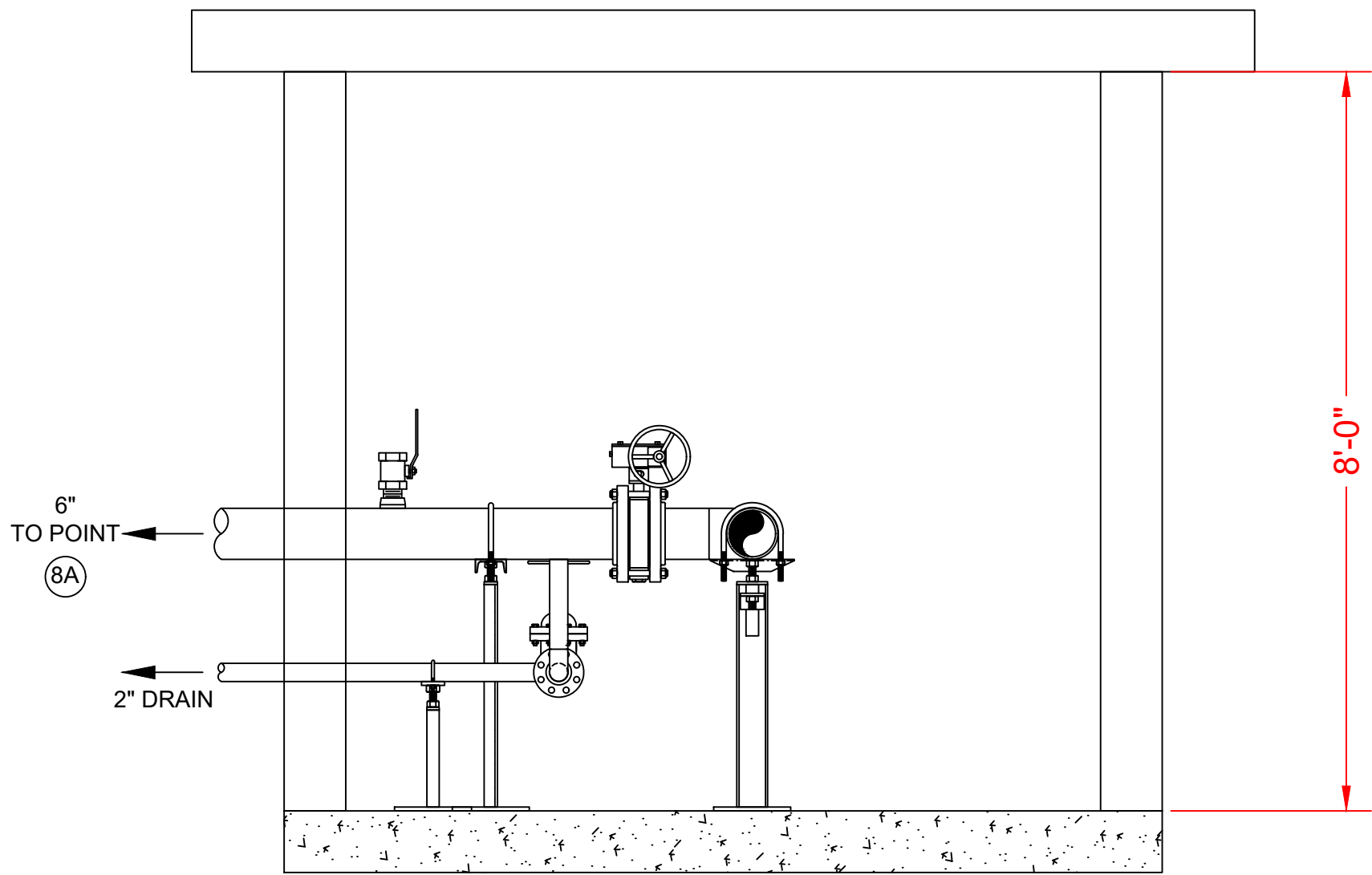
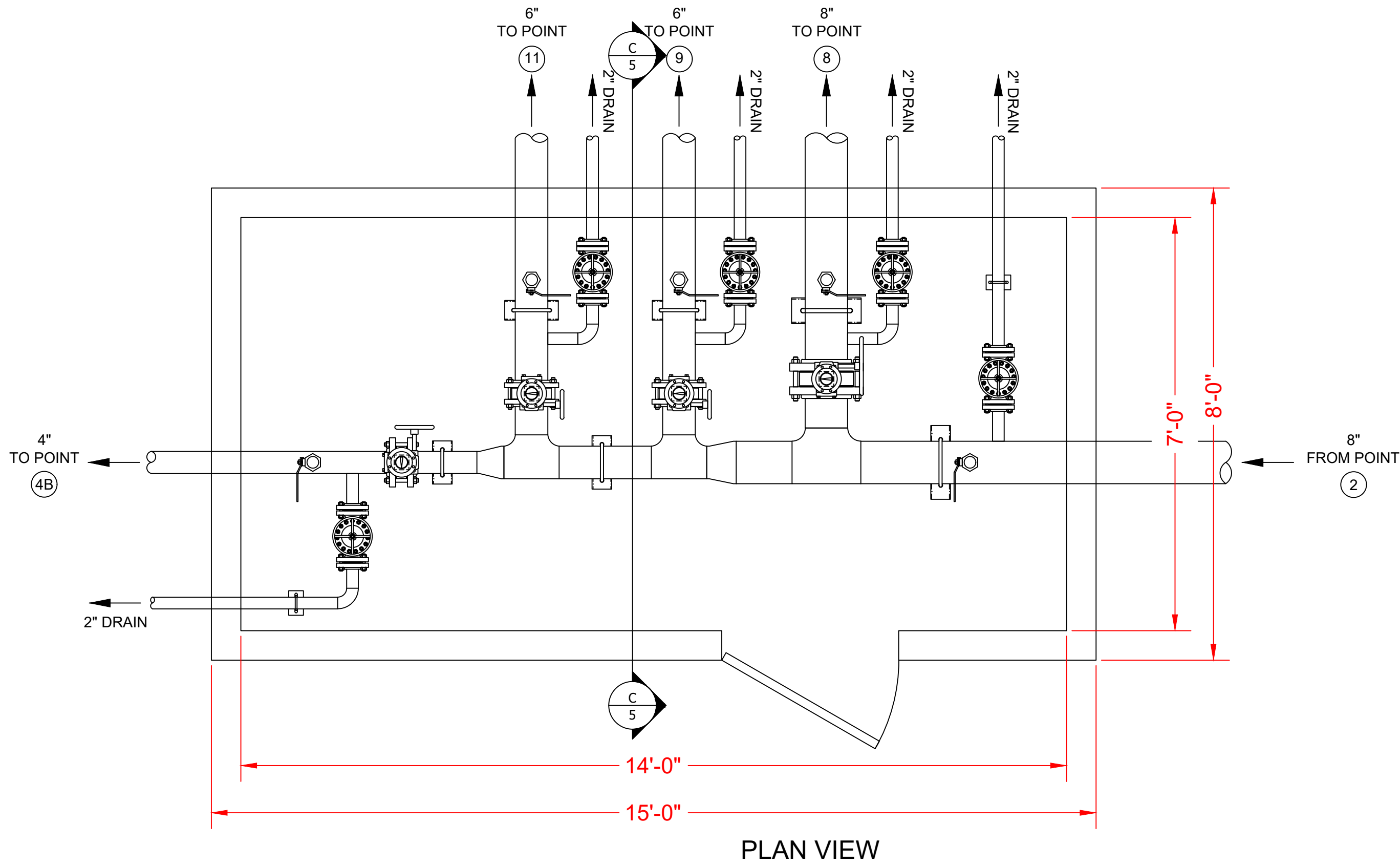
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NORDIC SNOWMAKING PIPING - VALVE STATION #2 (VS2) - REF PT 7

QUANTITIES LISTED ARE FOR EACH VALVE STATION

ITEM	DESCRIPTION	MANUFACTURER/ MODEL/ENGINEERING DATA	QTY
Pipe: 8"	8" BLK CS ERW PIPE (8-5/8" OD) ASTM A-53 / API 5L GRADE B, 0.250" wall (MIN)		As Required +/- 5'-0"
Tee: 8"	8" Tee Standard wall, bevel end, A234		1
Isolation Valve: 8"-300# wafer butterfly valve with gear operator.	Bray Series 42-466 8" 300# CS body, 316ss disc, 17-4 shaft, RTFE seat, TFE packing, Glass backed TFE bearing, Gear Operator		1
Stud And Nut Set 7/8"x9"	B7, Zinc Plated Stud with 2 Nuts 7/8"x9"		12
Spiral Wound Gasket	8" 300# Steel / Chlorite / Graphite		2
Reducer, Weld, Concentric: 8x6	Standard wall, bevel end, A234		1
Tee: 6"	6" Tee Standard wall, bevel end, A234		2
Pipe: 6"	6" BLK CS ERW PIPE (6-5/8" OD) ASTM A-53 / API 5L GRADE B, 0.219" wall (MIN)		As Required +/- 12'-0"
Isolation Valve: 6"-300# wafer butterfly valve with gear operator.	Bray Series 42-466 or equal, 6" 300# CS body, 316ss disc, 17-4 shaft, RTFE seat, TFE packing, Glass backed TFE bearing, Gear Operator		2
Stud And Nut Set 3/4"x7-1/2"	B7, Zinc Plated Stud with 2 Nuts 3/4"x7-1/2"		24
Spiral Wound Gasket	6" 300# Steel / Chlorite / Graphite		4
Flange: 6" 300# RFSO.	6" 300# slip-on flange, raised face standard bore A105		4
Reducer, Weld, Concentric: 6x4	Standard wall, bevel end, A234		1
Pipe: 4"	4" BLK CS ERW PIPE (4-1/2" OD) ASTM A-53 / API 5L GRADE B, 0.219" wall (MIN)		As Required +/- 6'-0"
Isolation Valve: 4"-300# wafer butterfly valve with gear operator.	Bray Series 42-466 4" 300# CS body, 316ss disc, 17-4 shaft, RTFE seat, TFE packing, Glass backed TFE bearing, Gear Operator		1
Stud And Nut Set 3/4"x7"	B7, Zinc Plated Stud with 2 Nuts 3/4"x7"		8
Spiral Wound Gasket	4" 300# Steel / Chlorite / Graphite		2
Flange: 4" 300# RFSO.	4" 300# slip on flange, raised face standard bore A105		2
Pipe: 2"	2" (2-3/8" OD) CS SEAMLESS PIPE, Black, beveled ASTM A-120 GRADE A, 0.218" (SCH80) wall		As Required +/- 30'-0"
Elbow: 2" Long radius Spiral Wound Gasket	2" 90 Standard wall, bevel end, long radius A234 weld 2" 300# Steel / Chlorite / Graphite		3 8
Gate Valve: 2" 300# Gate valve 300# Flange Stud Set 2" Flange	2" 300# Bonney gate valve 3-11-RF, CS body, OS&Y Gate Valve FE T's P-GRF HW B7, Zinc Plated Stud with 2 Nuts 5/8"x4-1/4"		5 40
Flange: 2" 300# RFSO.	2" 300# slip-on flange, raised face standard bore A105		10
Thread-O-Let: 2"	36-6x2, A105 TOL		5
Nipple: 2" x 3"	2" X 3" NPT, XH, Forged Steel, SA106 Black		5
Ball Valve: 2"	Apollo 70 108-01 600 WOG bronze 2 piece threaded 2"		5
Pipe Stand 8"	8" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.		1
Pipe Stand 6"	6" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.		2
Pipe Stand 4"	4" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.		1
Pipe Stand 2"	2" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.		3

SPIRIT MOUNTAIN
GRAND AVENUE NORDIC CENTER

SPIRIT MOUNTAIN GRAND AVENUE NORDIC CENTER DETAILS	
DRAWN BY: JDM	CHECKED: MRM
DATE: 02-06-2018	APPROVED: MRM
SCALE: AS NOTED	D - SIZE DRAWING
DRAWING NUMBER : 852615-M1	
REV: 6	SHEET: 5 OF 9

NO.	DATE	REVISION	BY
4	06-07-17	REVISED PER COMMENTS	JDM
5	07-05-17	REVISED PER SITE VISIT	CAD
6	02-06-18	REVISED PER COMMENTS	JDM

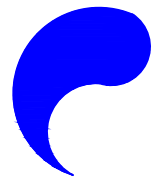
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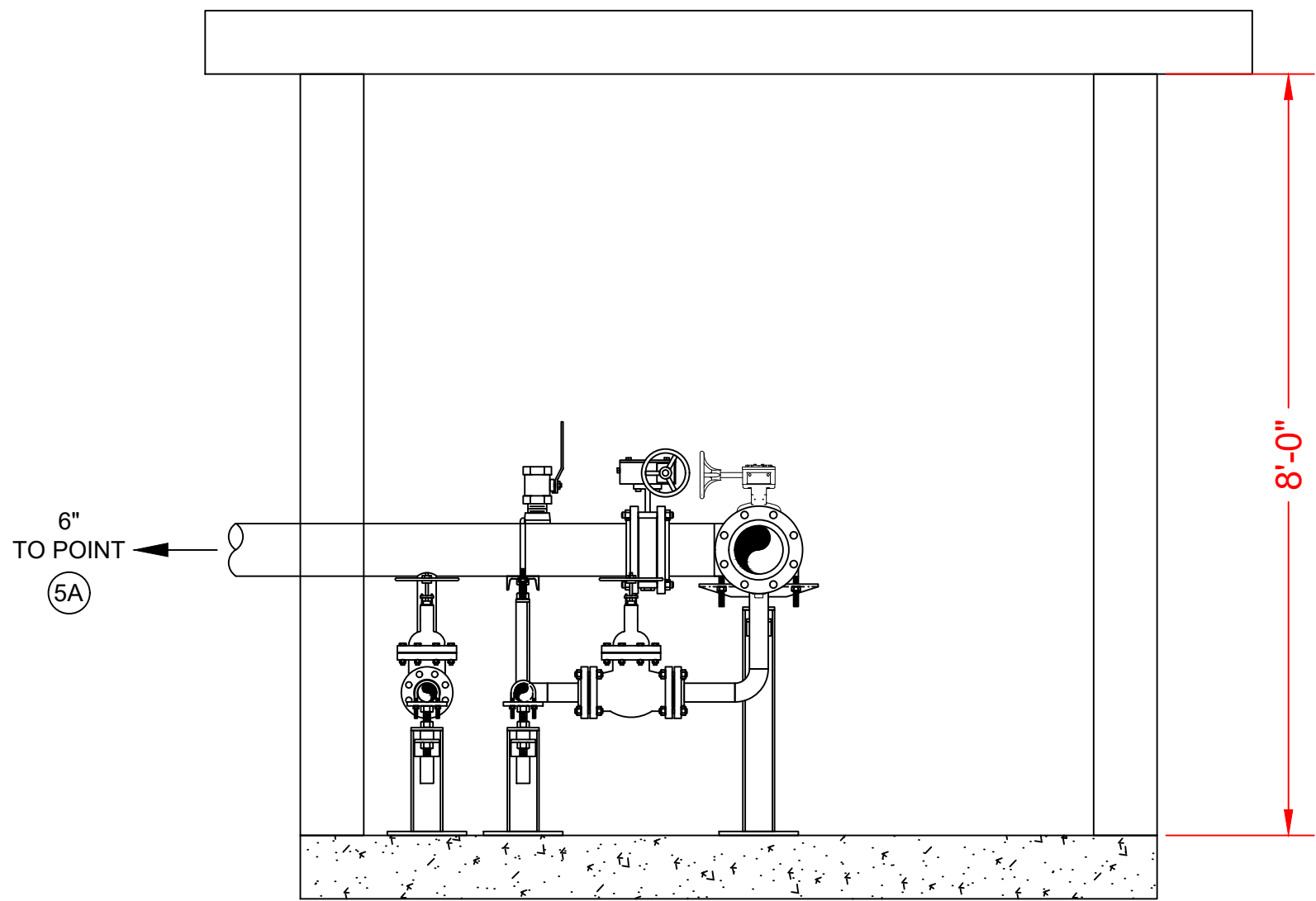
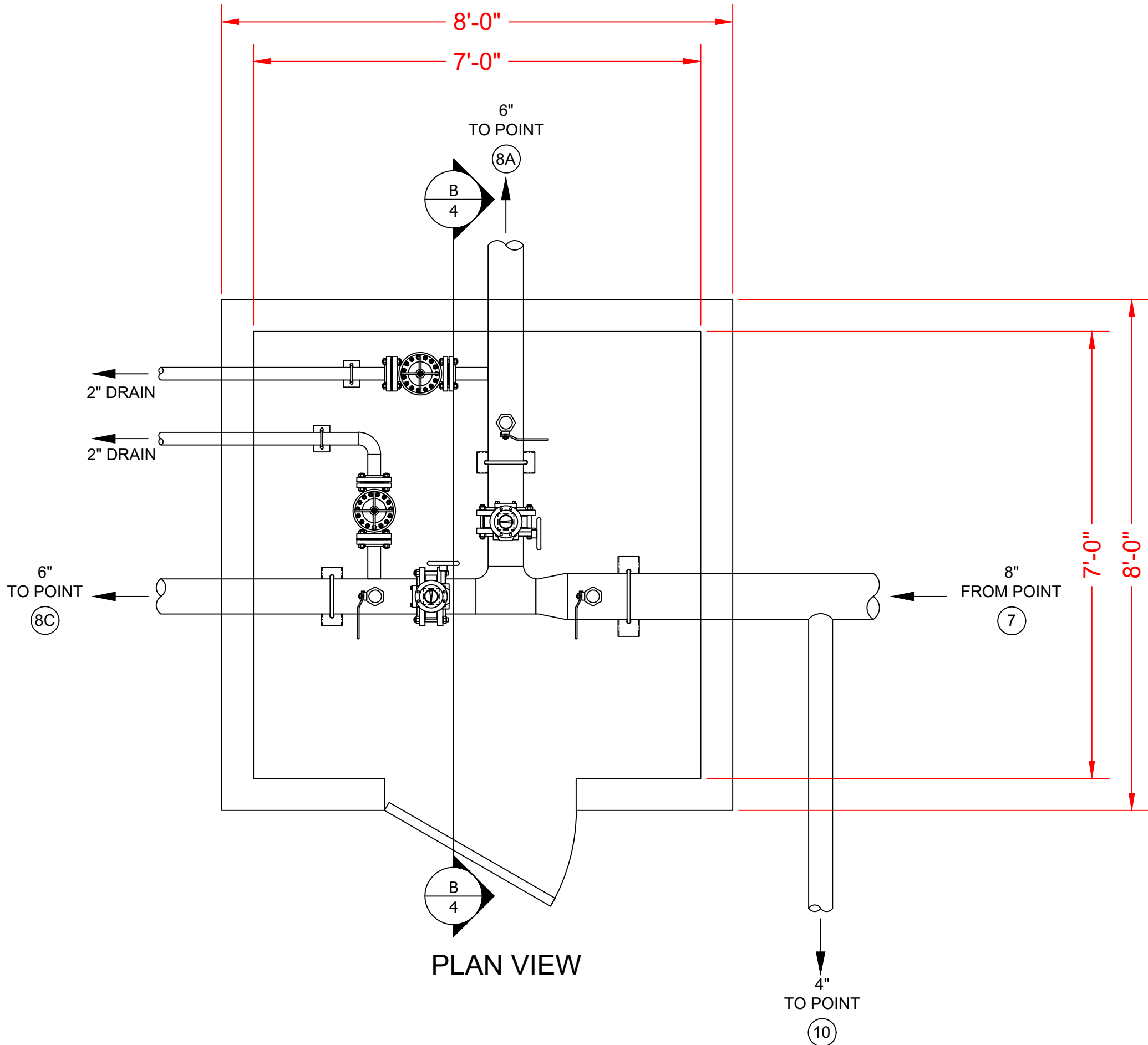
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WARSAW, IN 46582 Fax: (574)-372-3229
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NORDIC SNOWMAKING PIPING - VALVE STATION #3 (VS3) - REF PT 8

QUANTITIES LISTED ARE FOR EACH VALVE STATION

ITEM	DESCRIPTION	MANUFACTURER/ MODEL/ENGINEERING DATA	QTY
Pipe: 8"	8"-BLK CS ERW PIPE (8-5/8" OD) ASTM A-53 / API 5L GRADE B, 0.250" wall (MIN)		As Required +/- 5'-0"
Reducer, Weld, Concentric: 8x6	Standard wall, bevel end, A234		1
Tee: 6"	6" Tee Standard wall, bevel end, A234		1
Pipe: 6"	6"-BLK CS ERW PIPE (6-5/8" OD) ASTM A-53 / API 5L GRADE B, 0.219" wall (MIN)		As Required +/- 12'-0"
Isolation Valve: 6"-300# wafer butterfly valve with gear operator.	Bray Series 42-466 or equal, 6" 300# CS body, 316ss disc, 17-4 shaft, RTFE seat, TFE packing, Glass backed TFE bearing, Gear Operator		2
Stud And Nut Set 3/4"x7-1/2"	B7, Zinc Plated Stud with 2 Nuts 3/4"x7-1/2"		24
Spiral Wound Gasket	6" 300# Steel / Chlorite / Graphite		4
Flange: 6" 300# RFSO.	6" 300# slip-on flange, raised face standard bore A105		4
Pipe: 2"	2" (2-3/8" OD) CS SEAMLESS PIPE, Black, beveled ASTM A-120 GRADE A, 0.218" (SCH80) wall		As Required +/- 30'-0"
Elbow: 2" Long radius	2" 90 Standard wall, bevel end, long radius A234 weld		1
Gate Valve: 2"-300# Gate valve	2" 300# Bonney gate valve 3-11-RF, CS body, OS&Y Gate Valve FE T-8 P:GRF HW		2
300# Flange Stud Set 2" Flange	B7, Zinc Plated Stud with 2 Nuts 5/8"x4-1/4"		16
Spiral Wound Gasket	2" 300# Steel / Chlorite / Graphite		4
Flange: 2" 300# RFSO.	2" 300# slip-on flange, raised face standard bore A105		4
Thread-O-Let: 2"	36-6x2, A105 TOL		3
Nipple: 2" x 3"	2" X 3" NPT, XH, Forged Steel, SA106 Black		3
Ball Valve: 2"	Apollo 70 108-01 600 WOG bronze 2 piece threaded 2"		3
Pipe Stand 8"	8" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.		1
Pipe Stand 6"	6" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.		2
Pipe Stand 2"	2" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.		3



SPIRIT MOUNTAIN
GRAND AVENUE NORDIC CENTER

NO.	DATE	REVISION	BY
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5	07-05-17	REVISED PER SITE VISIT	CAD
6	02-06-18	REVISED PER COMMENTS	JDM

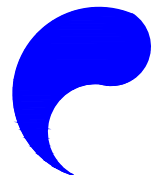
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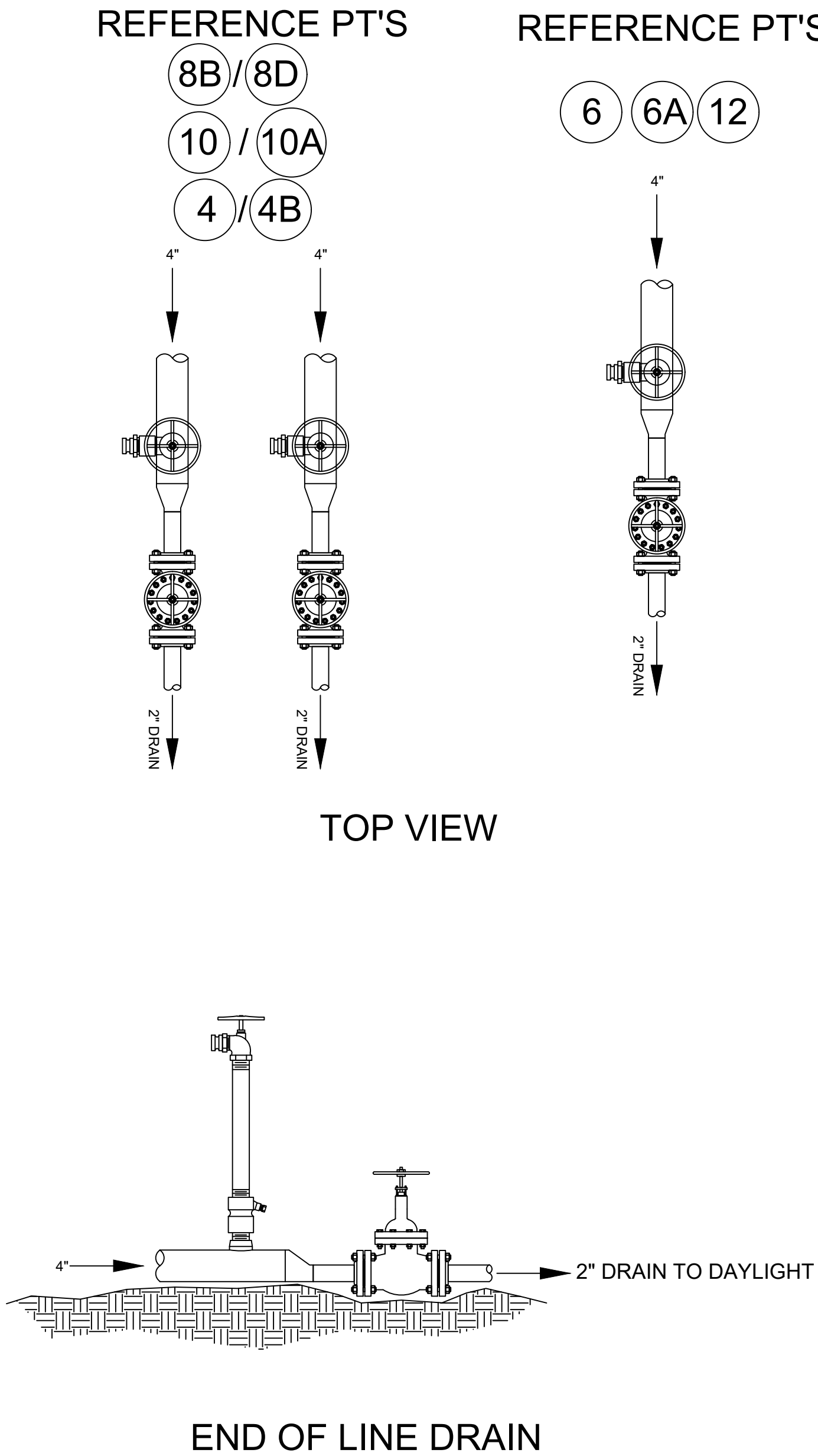
WARSAW, IN 46582
Fax: (574)-372-3229

USA
www.torrentee.com

SPIRIT MOUNTAIN GRAND AVENUE NORDIC CENTER DETAILS	
DRAWN BY: JDM	CHECKED: MRM
DATE: 02-06-2018	APPROVED: MRM
SCALE: AS NOTED	D - SIZE DRAWING
DRAWING NUMBER : 852615-M1	
REV : 6	SHEET : 6 OF 9

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NORDIC SNOWMAKING PIPING - END OF LINE DRAINS - REF PTS 4/4B, 10/10A, 8B/8D

QUANTITIES LISTED ARE FOR EACH EAN OF LINE LOCATION

ITEM	DESCRIPTION	MANUFACTURER/ MODEL/ENGINEERING DATA	QTY
	Reducer, Weld, Eccentric: 4x2	Standard wall, bevel end, A234	2
	Pipe: 2"	2" (2-3/8" OD) CS SEAMLESS PIPE, Black, beveled ASTMA-120 GRADE A, 0.218" (SCH80) wall	As Required +/- 8'-0"
	Gate Valve: 2"-300# Gate valve .	0907-1001 2" 300# Bonney gate valve 3-11-RF, CS body ,OS&Y Gate Valve FE T:8 P:GRF HW	2
	300# Flange Stud Set 2" Flange	2474-0223 B7, Zinc Plated Stud with 2 Nuts 5/8"x4-1/4"	16
	Spiral Wound Gasket	2511-0133 2" 300# Steel / Chlorite / Graphite	4
	Flange: 2" 300# RFSO.	2" 300# slip-on flange, raised face standard bore A105	4

NORDIC SNOWMAKING PIPING - END OF LINE DRAINS - REF PTS 6, 6A, 12

QUANTITIES LISTED ARE FOR EACH EAN OF LINE LOCATION

ITEM	DESCRIPTION	MANUFACTURER/ MODEL/ENGINEERING DATA	QTY
	Reducer, Weld, Eccentric: 4x2	Standard wall, bevel end, A234	1
	Pipe: 2"	2" (2-3/8" OD) CS SEAMLESS PIPE, Black, beveled ASTMA-120 GRADE A, 0.218" (SCH80) wall	As Required +/- 4'-0"
	Gate Valve: 2"-300# Gate valve .	0907-1001 2" 300# Bonney gate valve 3-11-RF, CS body ,OS&Y Gate Valve FE T:8 P:GRF HW	1
	300# Flange Stud Set 2" Flange	2474-0223 B7, Zinc Plated Stud with 2 Nuts 5/8"x4-1/4"	8
	Spiral Wound Gasket	2511-0133 2" 300# Steel / Chlorite / Graphite	2
	Flange: 2" 300# RFSO.	2" 300# slip-on flange, raised face standard bore A105	2

SPIRIT MOUNTAIN
GRAND AVENUE NORDIC CENTER

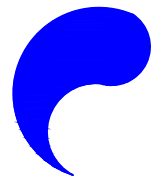
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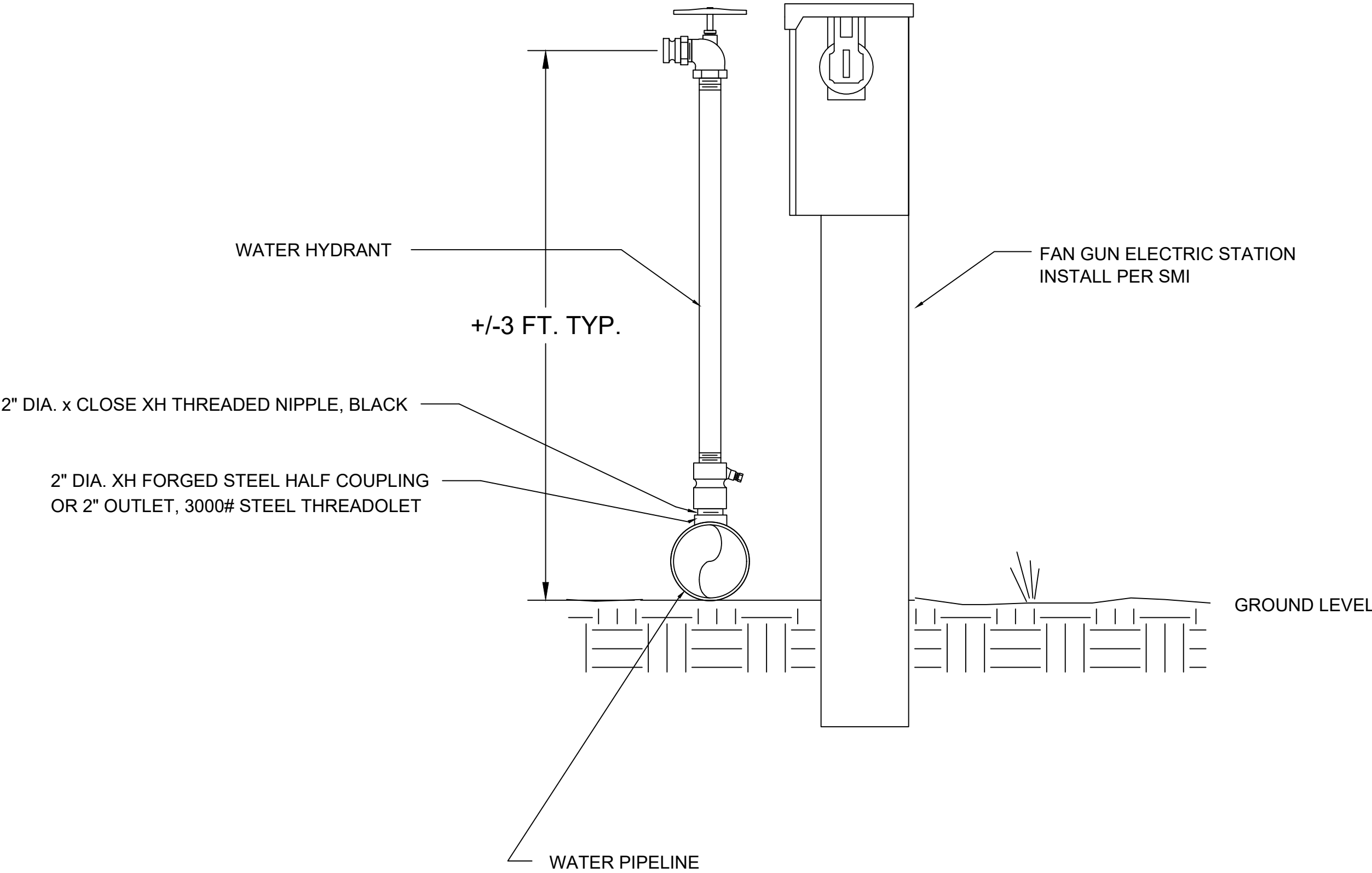
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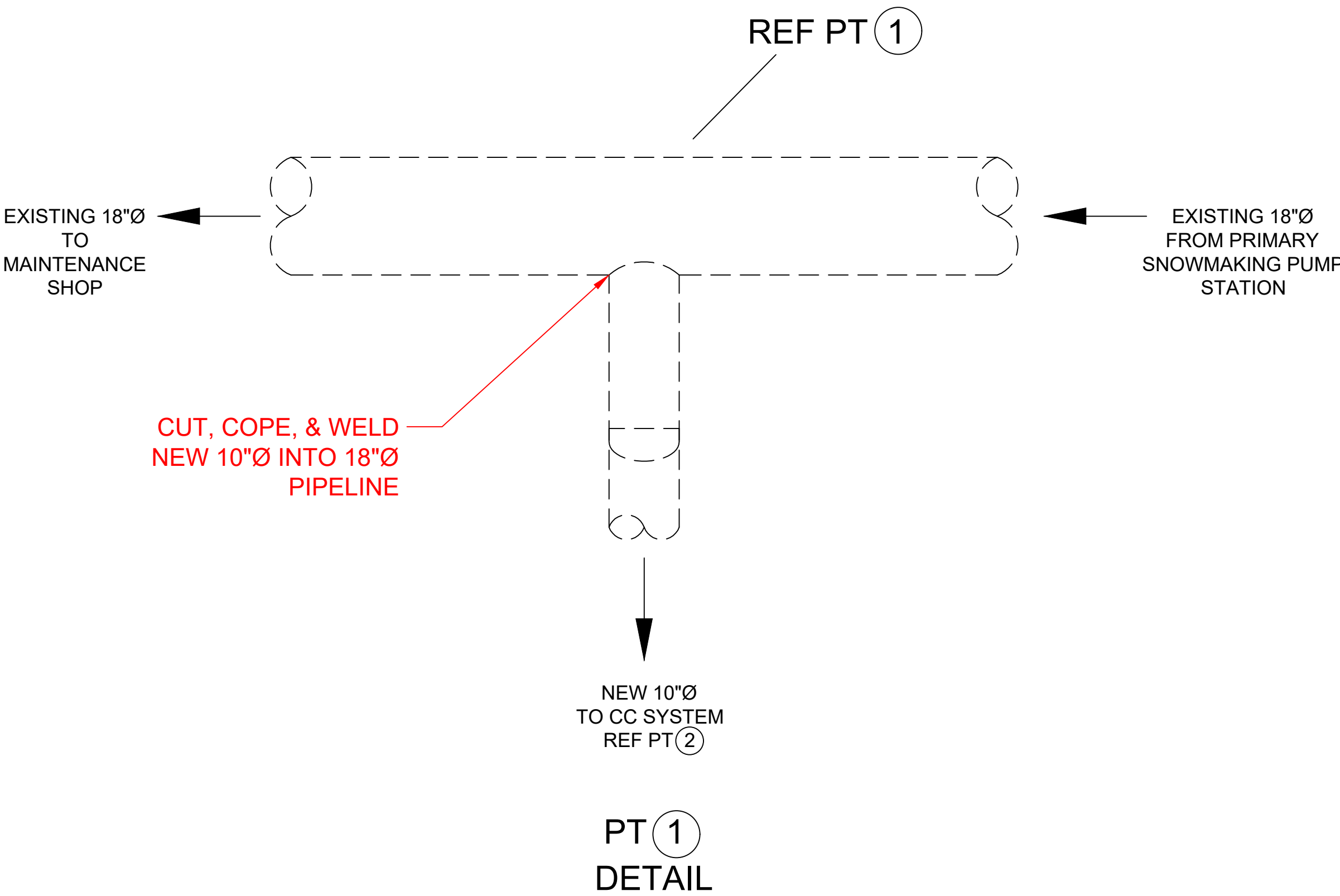


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ABOVE GROUND HYDRANT AND FAN GUN STATION DETAIL - TYP.

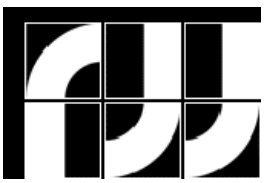


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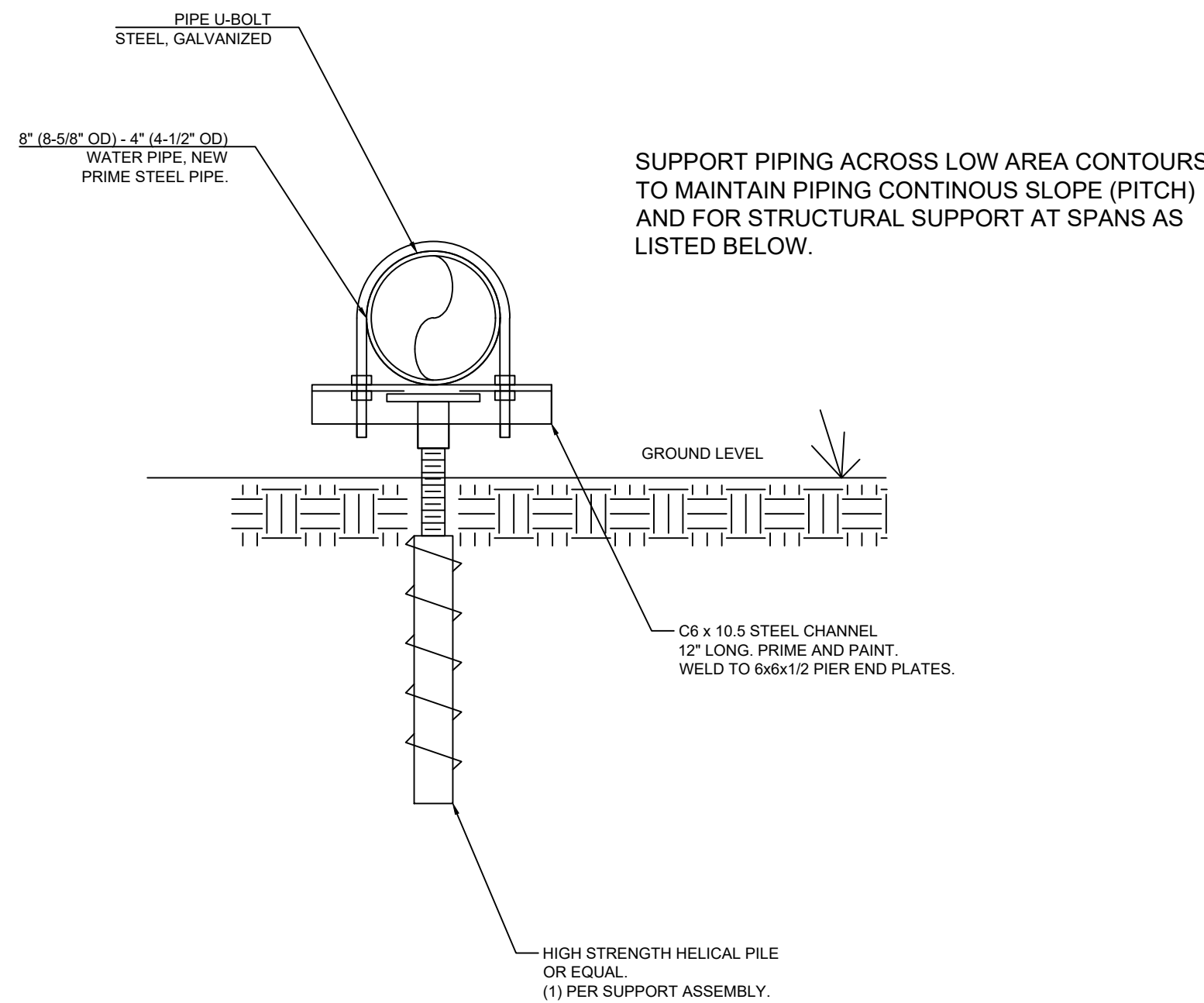
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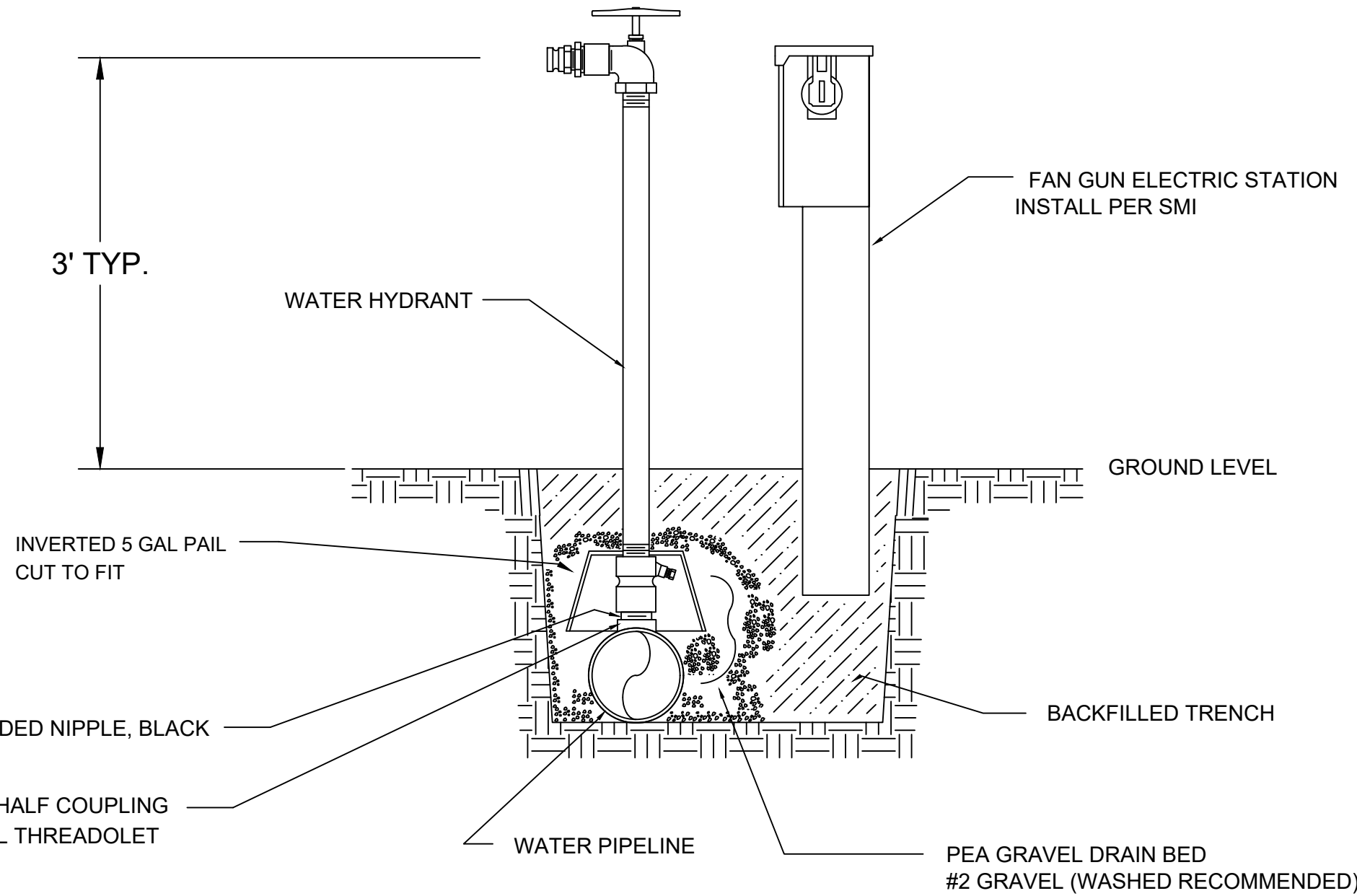
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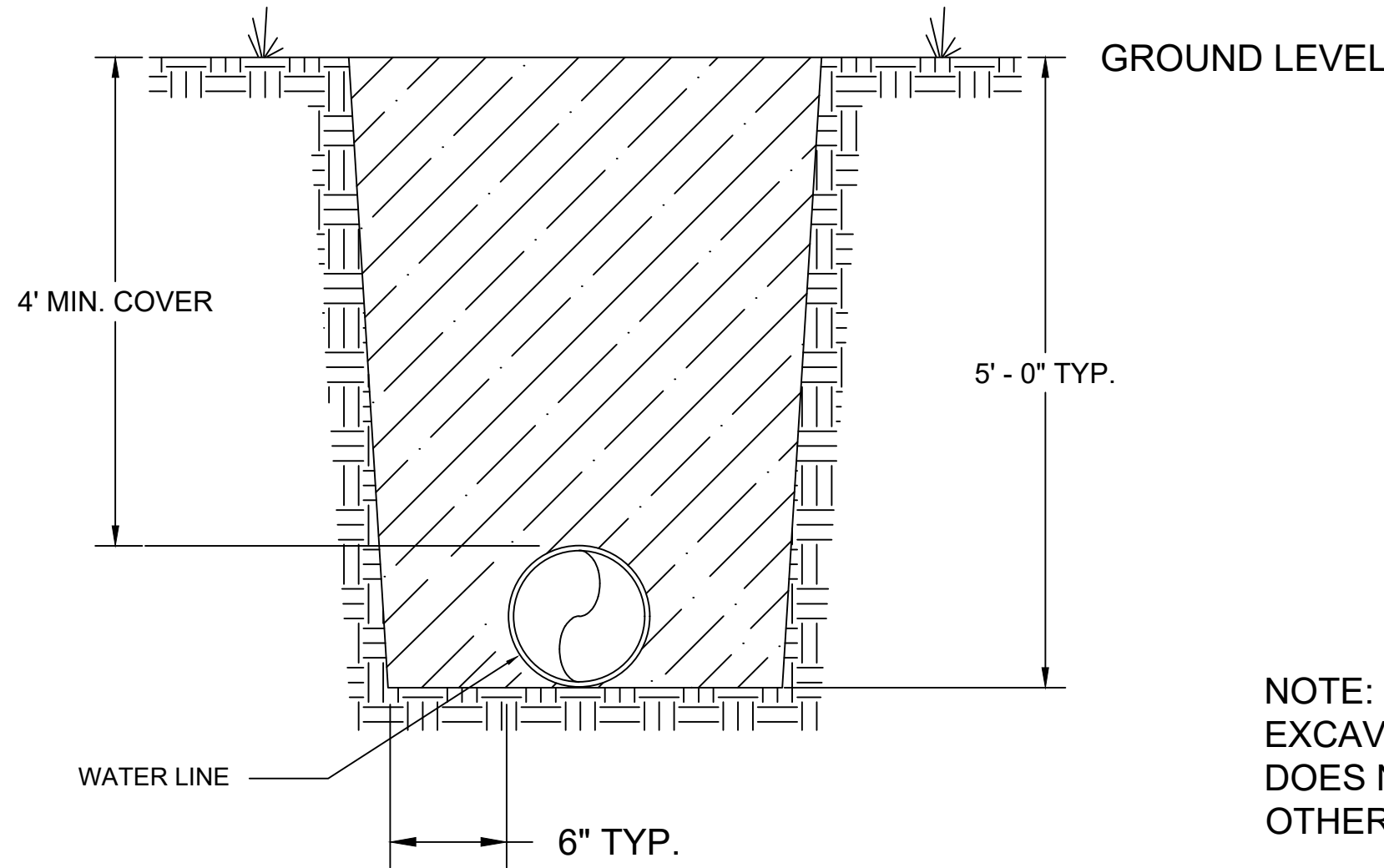
ABOVE GROUND ELEVATED PIPE SUPPORT ASSEMBLY

MAXIMUM UNSUPPORTED PIPE SPAN; 12' FOR 8" PIPING, 8' FOR 4" AND 6" PIPING

ALTERNATE IN LEDGE ROCK AREAS - PIN SUPPORT(S) TO ROCK



SHALLOW BURY HYDRANT AND FAN GUN STATION DETAIL - TYP.



NOTE: SMOOTH BOTTOM OF TRENCH WITH EXCAVATOR BUCKET AND INSURE PIPELINE DOES NOT REST ON ANY SHARP ROCKS OR OTHER OBJECTS.

DEEP BURY PIPELINE TRENCH CROSS SECTION - TYP.

NOTE: NO ROCKS LARGER THAN 2" IN TRENCH WHEN BACKFILLING.

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BASE BID 1 - 0.8K LOOP

ITEM NO.	MNDOT SPEC NO.	DESCRIPTION	UNIT	BASE BID 1 QUANTITY
1	2021.501	MOBILIZATION	LUMP SUM	0.5
2	2101.505	GRUBBING	ACRE	2.5
3	2105.501	COMMON EXCAVATION	CU YD	2251
4	2105.604	GEOTEXTILE FABRIC TYPE V	SQ YD	308
5	2118.607	AGGREGATE TRAIL SURFACING (CV) 3/4" MINUS	CU YD	49
6	2411.000	NATURAL STONE RETAINING WALL	LIN FT	476
7	2501.502	12" CS PIPE APRON	EACH	6
8	2501.502	15" CS PIPE APRON	EACH	0
9	2501.502	18" CS PIPE APRON	EACH	12
10	2501.502	24" CS PIPE APRON	EACH	2
11	2501.502	30" CS PIPE APRON	EACH	0
12	2501.503	12" CP PIPE CULVERT (SMOOTH)	LIN FT	170
13	2501.503	15" CP PIPE CULVERT (SMOOTH)	LIN FT	0
14	2501.503	18" CP PIPE CULVERT (SMOOTH)	LIN FT	380
15	2501.503	24" CP PIPE CULVERT (SMOOTH)	LIN FT	50
16	2501.503	30" CP PIPE CULVERT (SMOOTH)	LIN FT	0
17	2511.507	RANDOM RIPRAP CLASS IV	CU YD	244
18	2557.602	TRAIL GATE, TYPE SPECIAL	EACH	0
19	2563.601	TRAFFIC CONTROL	LUMP SUM	0.5
20	2573.502	CULVERT END CONTROLS	EACH	10
21	2573.503	SILT FENCE, TYPE MS	LIN FT	1350
22	2573.503	SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	270
23	2573.535	STABILIZED CONSTRUCTION EXIT	EACH	0
24	2575.501	SEEDING	ACRE	2.5
25	2575.502	SEED MIXTURE TYPE 36-311	LB	83.75
26	2575.604	ROLLED EROSION PREVENTION CATEGORY 25	SQ YD	2720

BASE BID 2 - 2.0K CONNECTOR

ITEM NO.	MNDOT SPEC NO.	DESCRIPTION	UNIT	BASE BID 2 QUANTITY
1	2021.501	MOBILIZATION	LUMP SUM	0.5
2	2101.505	GRUBBING	ACRE	6.4
3	2105.501	COMMON EXCAVATION	CU YD	5788
4	2105.604	GEOTEXTILE FABRIC TYPE V	SQ YD	792
5	2118.607	AGGREGATE TRAIL SURFACING (CV) 3/4" MINUS	CU YD	126
6	2411.000	NATURAL STONE RETAINING WALL	LIN FT	1224
7	2501.502	12" CS PIPE APRON	EACH	2
8	2501.502	15" CS PIPE APRON	EACH	6
9	2501.502	18" CS PIPE APRON	EACH	4
10	2501.502	24" CS PIPE APRON	EACH	6
11	2501.502	30" CS PIPE APRON	EACH	4
12	2501.503	12" CP PIPE CULVERT (SMOOTH)	LIN FT	70
13	2501.503	15" CP PIPE CULVERT (SMOOTH)	LIN FT	155
14	2501.503	18" CP PIPE CULVERT (SMOOTH)	LIN FT	110
15	2501.503	24" CP PIPE CULVERT (SMOOTH)	LIN FT	215

16	2501.503	30" CP PIPE CULVERT (SMOOTH)	LIN FT	190
17	2511.507	RANDOM RIPRAP CLASS IV	CU YD	304
18	2557.602	TRAIL GATE, TYPE SPECIAL	EACH	2
19	2563.601	TRAFFIC CONTROL	LUMP SUM	0.5
20	2573.502	CULVERT END CONTROLS	EACH	11
21	2573.503	SILT FENCE, TYPE MS	LIN FT	6277
22	2573.503	SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	695
23	2573.535	STABILIZED CONSTRUCTION EXIT	EACH	2
24	2575.501	SEEDING	ACRE	6.4
25	2575.502	SEED MIXTURE TYPE 36-311	LB	214.4
26	2575.604	ROLLED EROSION PREVENTION CATEGORY 25	SQ YD	7000