



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

218-730-5340
purchasing@duluthmn.gov

Addendum 3
Solicitation 24-99199
Lower Spirit Nordic Center Lighting & Snowmaking

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

- Civil earthwork contractor responsible to return after snowmaking pipes are installed to ensure adequate cover where pipe crosses trail.
- An earthen berm can be used to support pipe as an alternative for elevated pipe support shown in drawing
- Clearing and grubbing for pipe installation is incidental to pipe. It is anticipated most pipe installed will be routed above ground between trees minimizing additional clearing.
- No low point bellies allowed in snowmaking piping where pipe crosses trails.
- See attached Addendum – E1 for changes to electrical specifications and drawings
- Bid Form has been updated in BidExpress and is attached to this addendum. NOTE: Mobilization will only be awarded for the two Base Bids and Alternate 7.

Questions: The following question was asked and is answered in *Italics*

1. Had a question for this bid regarding Valve Station Structure Dimensions, Drawing 852615-M1 Sheet 5 of 8 shows the dimensions of the building at 10'X8' and Drawing AS1.0 shows the dimensions of the building at 15'X8'
 - a. Drawing 852615-M1 is correct – the dimensions are 10'X8'

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

Posted: **February 8, 2024**

ADDENDUM – E1

Date	02/08/2024
Project #	L30159
Project Name	Grand Avenue Nordic Center Ski Trails - 0.8 KM Loop and 2.0 KM Connector
Project Location	Duluth, MN

NOTICE TO BIDDERS: This Addendum is prepared to supplement information presented in the Drawings and Project Manual for the above referenced project. All additions, changes, omissions, and conditions listed herein shall become an integral part of the Contract Documents.

Specifications

ITEM NO. 1 SECTION 26 09 23 LIGHTING CONTROL DEVICES

- A. 2.01.C
 - 1. Replace “Wattstopper” with “Aquity Brands nLIGHT system”
- B. 2.02.A.1
 - 1. Replace “Wattstopper LMPO-200” with “Aquity Brands nLIGHT system”
- C. 2.03.A
 - 1. Sub-Paragraph 1. – Replace “...with 1-8 relays if required by manufacturer.” With “...for installation of Aquity Brands nLIGHT ECLYPSE system.”
 - 2. Sub-Paragraph 3 – Replace “...the following features:” with nLIGHT ECLYPSE SYSTEM EQUIPMENT FURNISHED BY OWNER.”
 - 3. Delete Sub-Paragraphs 3.a-f, 4,5,6,7, and 8.
 - 4. Delete Sub-Paragraphs B.1-7
- D. 3.07.A
 - 1. Replace “Wattstopper representative to program...” with “Owners Aquity Brands representative will program...”

Drawings

ITEM NO. 2 Sheet E1 (SEE ATTACHED)

- A. Revised lighting control and lighting fixture requirements.
 - 1. Revised key note #4.
 - 2. Deleted general note H.
 - 3. Revised general note M.
 - 4. Light fixture Schedule: added Holophane as approved manufacturer, revised notes 3, 4, and 5.

ITEM NO. 3 Sheet E3 (SEE ATTACHED)

- 1. Revised detail 2/E3 including but not limited to lighting control manufacturer.

ITEM NO. 4 Sheet E4 (SEE ATTACHED)

- 1. Revised details 1 and 3/E4 including nLIGHT wireless node.

PRIOR APPROVALS – HOLOPHANE BY AQUITY BRANDS
END OF ADDENDUM

TORRENT Engineering and Equipment
 P.O. BOX 270
 MILFORD, IN 46542
 USA
 Phone: (317) 658-5200
 Fax: (317) 658-2228
 www.torrent.com

SEH
 410 W. SUPERIOR ST. S112 200
 DULUTH, MN 55802-1512
 PHONE: 218.279.3000
 www.sehinc.com

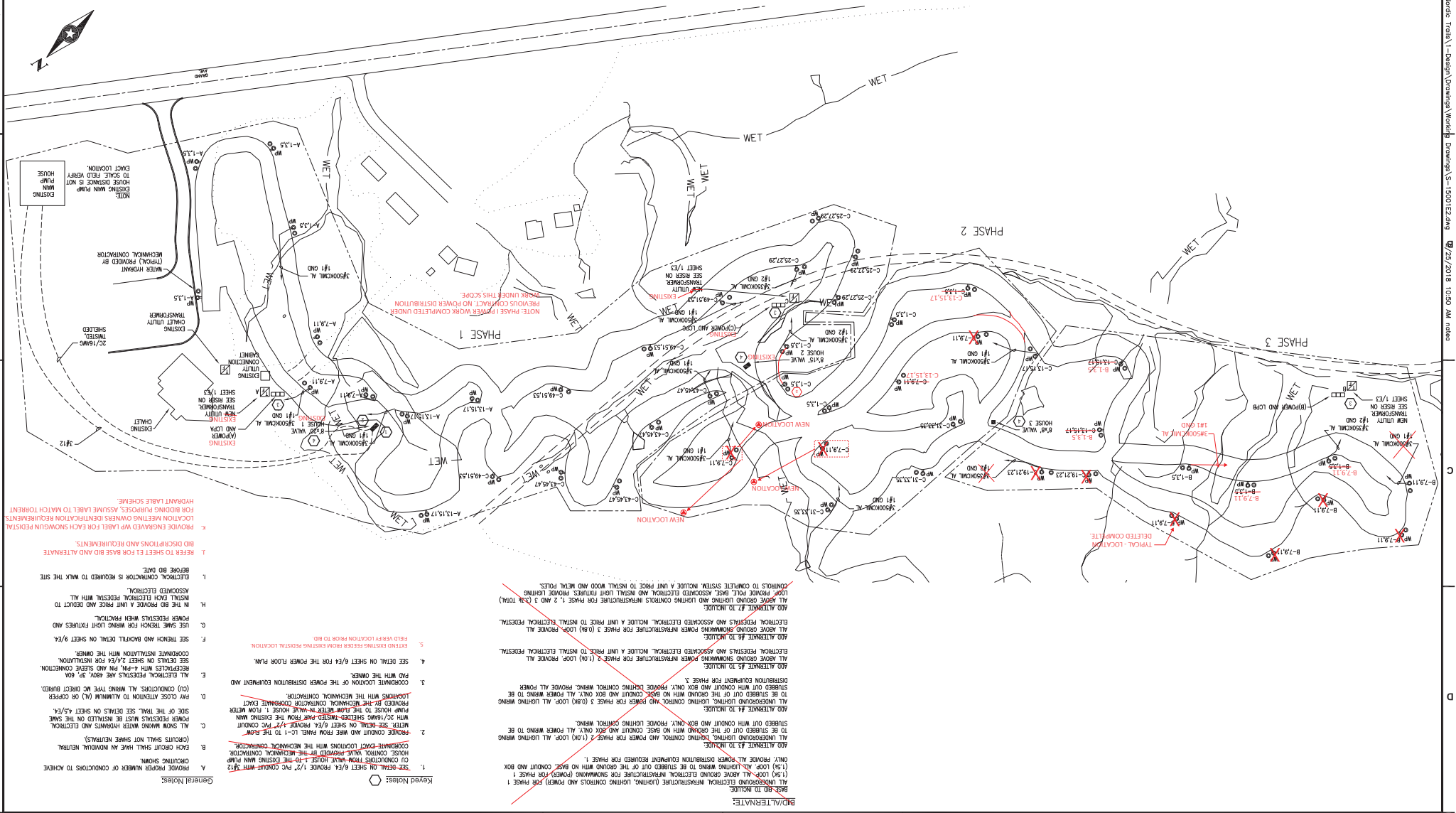
FF
FOSTER, JACOBS & JOHNSON, INC.
 346 CANAL PARK DRIVE
 DULUTH, MINNESOTA 55802
 SUITE 200
 218.222.2080
 218.222.1931 fax
 Email: mjj@ff.com

PROJECT: **SPIRIT MOUNTAIN NORDIC TRAILS**
 DULUTH, MINNESOTA
 SHEET TITLE: **POWER PLAN**

DATE: 07/25/2018
 DRAWN BY: MJA
 CHECKED BY: MJE
 PROJECT: S-15001
 DATE: 05/29/18
 DESIGNED BY: MJE
 DATE: 05/29/18
 DRAWN BY: MJA

Scale: 1" = 100'
 0 50 100 200 feet

1 POWER LAYOUT



- General Notes:**
1. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCULATING SHUNT.
 2. EACH CIRCUIT SHALL HAVE AN INDEPENDENT NEUTRAL (POINTS SHALL NOT SHARE NEUTRALS).
 3. ALL SHOW WORKING WATER HEADINGS AND ELECTRICAL POWER PRESENTS MUST BE INDICATED ON THE SAME SIDE OF THE TRAIL. SEE DETAILS ON SHEET 42/43.
 4. PROVIDE CLOSE ATTENTION TO ALUMINUM (AL) OR COPPER (CU) CONDUCTORS. ALL WIRING TYPE W/ DIRECT BURIED.
 5. ALL ELECTRICAL PRESENTS ARE 480V, 3P, 3W.
 6. RECEPTORS WITH 4-PH, 4-W, 3LN AND STEVE CONNECTION. SEE DETAILS ON SHEET 24/24 FOR INSTALLATION.
 7. SEE TRENCH AND BACKFILL DETAIL ON SHEET 9/64.
 8. POWER PRESENTS WITH PROTECTIVE LIGHT FIXTURES AND IN THE BID PROVIDE A UNIT PRICE AND QUANTITY TO INSTALL EACH ELECTRICAL PRESENT WITH ALL ASSOCIATED ELECTRICAL.
 9. ELECTRICAL CONTRACTOR IS REQUIRED TO WALK THE SITE BEFORE BID DATE.
 10. REFER TO SHEET 1 FOR BASE BID AND ALTERNATE BID DISCREPANCIES AND REQUIREMENTS.
 11. PROVIDE ENGRAVED W/P LABEL FOR EACH SIGNOWAY PRESENT. LOCATION MEETING OWNERS IDENTIFICATION REQUIREMENTS FOR BIDDING PURPOSES. ASSUME LABEL TO MATCH TORRENT HYDRAUNT LABEL SCHEME.

Keyed Notes:

1. SEE DETAIL ON SHEET 6/4 PROVIDE 1/2" PVC CONDUIT WITH 3/16" CU CONDUCTORS FROM WAVE HOUSE 1 TO THE EXISTING MAIN PUMP HOUSE CONTROL WAVE REMOVED BY THE MECHANICAL CONTRACTOR.
2. PROVIDE CONDUIT AND WIRE FROM PANEL LC-1 TO THE PUMP HOUSE TO THE PUMP HOUSE 1. FLOW WATER WITH 2" R/WAVE SHIELDED PIPING FROM THE EXISTING MAIN PUMP HOUSE TO THE MECHANICAL CONTRACTOR EXACT COORDINATE EXIST LOCATIONS WITH THE MECHANICAL CONTRACTOR.
3. ALL UNDERGROUND LIGHTING, TRAFFIC CONTROL AND POWER FOR PHASE 2 (1.00) LOOP. ALL LIGHTING WIRING TO BE STRIPPED OUT OF THE GROUND WITH NO BASE CONDUIT AND BOX ONLY. ALL POWER WIRING TO BE STRIPPED OUT OF THE GROUND WITH NO BASE CONDUIT AND BOX ONLY. PROVIDE LIGHTING CONTROL WIRING, PROVIDE ALL POWER DISTRIBUTION EQUIPMENT FOR PHASE 2.
4. ALL UNDERGROUND LIGHTING, TRAFFIC CONTROL AND POWER FOR PHASE 3 (0.80) LOOP. ALL LIGHTING WIRING TO BE STRIPPED OUT OF THE GROUND WITH NO BASE CONDUIT AND BOX ONLY. PROVIDE LIGHTING CONTROL WIRING, PROVIDE ALL POWER DISTRIBUTION EQUIPMENT FOR PHASE 3.
5. ALL ABOVE GROUND SIGNOWAY AND POWER INFRASTRUCTURE FOR PHASE 2 (1.00) LOOP. PROVIDE ALL ELECTRICAL PRESENTS AND ASSOCIATED ELECTRICAL AND METALL LIGHT FIXTURES. PROVIDE LIGHTING AND ASSOCIATED ELECTRICAL. INCLUDE A UNIT PRICE TO INSTALL ELECTRICAL PRESENT.
6. ALL ABOVE GROUND SIGNOWAY AND POWER INFRASTRUCTURE FOR PHASE 3 (0.80) LOOP. PROVIDE ALL ELECTRICAL PRESENTS AND ASSOCIATED ELECTRICAL AND METALL LIGHT FIXTURES. PROVIDE LIGHTING AND ASSOCIATED ELECTRICAL. INCLUDE A UNIT PRICE TO INSTALL WOOD AND METAL POLES.
7. TO COMPLETE SYSTEM. INCLUDE A UNIT PRICE TO INSTALL WOOD AND METAL POLES.
8. ALL ALTERNATE #2 TO INCLUDE: ALL ABOVE GROUND LIGHTING AND LIGHTING CONTROL INFRASTRUCTURE FOR PHASE 1, 2 AND 3 (2.80 TOTAL). LIGHT FIXTURES, BASES, ASSOCIATED ELECTRICAL AND METALL LIGHT FIXTURES. PROVIDE LIGHTING AND ASSOCIATED ELECTRICAL AND METALL LIGHT FIXTURES. PROVIDE LIGHTING AND ASSOCIATED ELECTRICAL. INCLUDE A UNIT PRICE TO INSTALL ELECTRICAL PRESENT.
9. ALL ABOVE GROUND SIGNOWAY AND POWER INFRASTRUCTURE FOR PHASE 1 (1.50) LOOP. PROVIDE ALL ELECTRICAL PRESENTS AND ASSOCIATED ELECTRICAL AND METALL LIGHT FIXTURES. PROVIDE LIGHTING AND ASSOCIATED ELECTRICAL. INCLUDE A UNIT PRICE TO INSTALL WOOD AND METAL POLES.

BASE BID TO INCLUDE:

ALL UNDERGROUND ELECTRICAL INFRASTRUCTURE (LIGHTING, TRAFFIC CONTROL AND POWER) FOR PHASE 1 (1.50) LOOP. ALL ABOVE GROUND ELECTRICAL INFRASTRUCTURE FOR SIGNOWAY (POWER) FOR PHASE 1 (1.50) LOOP. ALL LIGHTING WIRING TO BE STRIPPED OUT OF THE GROUND WITH NO BASE CONDUIT AND BOX ONLY. PROVIDE ALL POWER DISTRIBUTION EQUIPMENT REQUIRED FOR PHASE 1.

ALL UNDERGROUND LIGHTING, TRAFFIC CONTROL AND POWER FOR PHASE 2 (1.00) LOOP. ALL LIGHTING WIRING TO BE STRIPPED OUT OF THE GROUND WITH NO BASE CONDUIT AND BOX ONLY. ALL POWER WIRING TO BE STRIPPED OUT OF THE GROUND WITH NO BASE CONDUIT AND BOX ONLY. PROVIDE LIGHTING CONTROL WIRING, PROVIDE ALL POWER DISTRIBUTION EQUIPMENT FOR PHASE 2.

ALL UNDERGROUND LIGHTING, TRAFFIC CONTROL AND POWER FOR PHASE 3 (0.80) LOOP. ALL LIGHTING WIRING TO BE STRIPPED OUT OF THE GROUND WITH NO BASE CONDUIT AND BOX ONLY. PROVIDE LIGHTING CONTROL WIRING, PROVIDE ALL POWER DISTRIBUTION EQUIPMENT FOR PHASE 3.

ALL ABOVE GROUND SIGNOWAY AND POWER INFRASTRUCTURE FOR PHASE 1, 2 AND 3 (2.80 TOTAL). LIGHT FIXTURES, BASES, ASSOCIATED ELECTRICAL AND METALL LIGHT FIXTURES. PROVIDE LIGHTING AND ASSOCIATED ELECTRICAL. INCLUDE A UNIT PRICE TO INSTALL WOOD AND METAL POLES.

TORRENT Engineering and Equipment
 P.O. BOX 270
 MILFORD, NJ 08842 USA
 PHONE: (874) 668-8200
 WWW.TORRENT.COM

SEH
 419 W. STATE ST. #117, 200
 DULUTH, MN 55802-1912
 PHONE: 218.279.3000
 WWW.SEHINC.COM

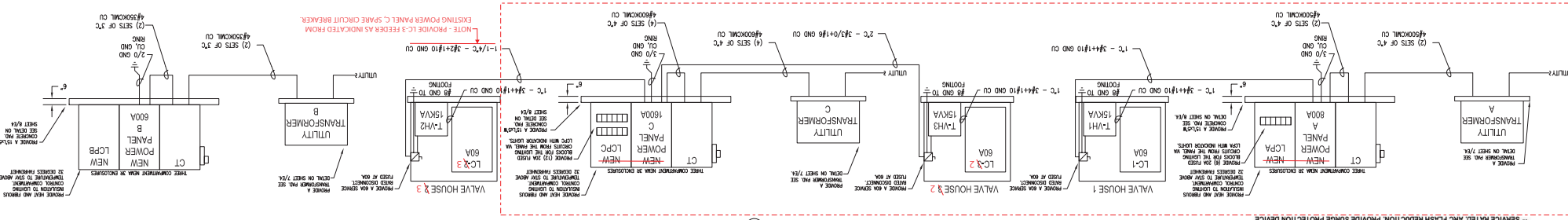
FF
 346 CANAL PARK DRIVE
 DULUTH, MINNESOTA 55802
 218.222.2000
 EMAIL: MFF@FFINC.COM

PROJECT: SPIRIT MOUNTAIN NORDIC TRAILS
 DULUTH, MINNESOTA
 DATE: 12/22/2018
 DRAWING NO.: E3

SHEET TITLE: RISER AND POWER SCHEDULES
 DATE: 05/27/18
 DRAWN BY: NLA

REVISIONS:
 1. REVISION 1: NLA, 05/27/18

1 RISER LAYOUT (NOT TO SCALE)



2 TYPICAL NEW LIGHTING CONTROL PANELS LCPA, LCPB & LCPD (NOT TO SCALE)

PANEL A

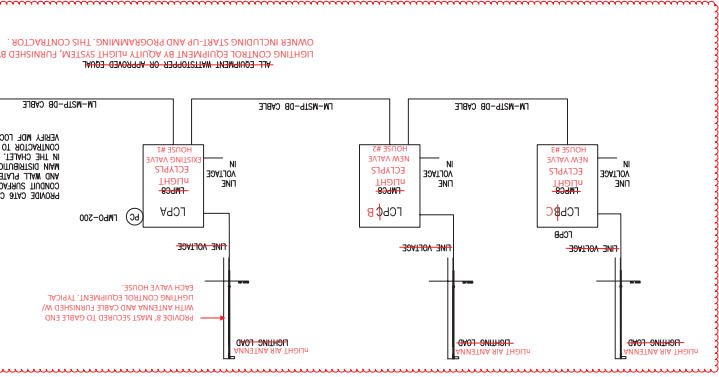
RM NO.	DESCRIPTION	LOAD	PHASE	REMARKS
1	LCPD	2	20T	LCPD
2	LCPD	4	20T	LCPD
3	LCPD	8	20T	LCPD
4	LCPD	8	20T	LCPD
5	LCPD	8	20T	LCPD
6	LCPD	8	20T	LCPD
7	LCPD	8	20T	LCPD
8	LCPD	8	20T	LCPD
9	LCPD	8	20T	LCPD
10	LCPD	8	20T	LCPD
11	LCPD	8	20T	LCPD
12	LCPD	8	20T	LCPD
13	LCPD	8	20T	LCPD
14	LCPD	8	20T	LCPD
15	LCPD	8	20T	LCPD
16	LCPD	8	20T	LCPD
17	LCPD	8	20T	LCPD
18	LCPD	8	20T	LCPD
19	LCPD	8	20T	LCPD
20	LCPD	8	20T	LCPD
21	LCPD	8	20T	LCPD
22	LCPD	8	20T	LCPD
23	LCPD	8	20T	LCPD
24	LCPD	8	20T	LCPD
25	LCPD	8	20T	LCPD
26	LCPD	8	20T	LCPD
27	LCPD	8	20T	LCPD
28	LCPD	8	20T	LCPD
29	LCPD	8	20T	LCPD
30	LCPD	8	20T	LCPD
31	LCPD	8	20T	LCPD
32	LCPD	8	20T	LCPD
33	LCPD	8	20T	LCPD
34	LCPD	8	20T	LCPD
35	LCPD	8	20T	LCPD
36	LCPD	8	20T	LCPD
37	LCPD	8	20T	LCPD
38	LCPD	8	20T	LCPD
39	LCPD	8	20T	LCPD
40	LCPD	8	20T	LCPD
41	LCPD	8	20T	LCPD
42	LCPD	8	20T	LCPD

PANEL B

RM NO.	DESCRIPTION	LOAD	PHASE	REMARKS
1	LCPD	2	20T	LCPD
2	LCPD	4	20T	LCPD
3	LCPD	8	20T	LCPD
4	LCPD	8	20T	LCPD
5	LCPD	8	20T	LCPD
6	LCPD	8	20T	LCPD
7	LCPD	8	20T	LCPD
8	LCPD	8	20T	LCPD
9	LCPD	8	20T	LCPD
10	LCPD	8	20T	LCPD
11	LCPD	8	20T	LCPD
12	LCPD	8	20T	LCPD
13	LCPD	8	20T	LCPD
14	LCPD	8	20T	LCPD
15	LCPD	8	20T	LCPD
16	LCPD	8	20T	LCPD
17	LCPD	8	20T	LCPD
18	LCPD	8	20T	LCPD
19	LCPD	8	20T	LCPD
20	LCPD	8	20T	LCPD
21	LCPD	8	20T	LCPD
22	LCPD	8	20T	LCPD
23	LCPD	8	20T	LCPD
24	LCPD	8	20T	LCPD
25	LCPD	8	20T	LCPD
26	LCPD	8	20T	LCPD
27	LCPD	8	20T	LCPD
28	LCPD	8	20T	LCPD
29	LCPD	8	20T	LCPD
30	LCPD	8	20T	LCPD
31	LCPD	8	20T	LCPD
32	LCPD	8	20T	LCPD
33	LCPD	8	20T	LCPD
34	LCPD	8	20T	LCPD
35	LCPD	8	20T	LCPD
36	LCPD	8	20T	LCPD
37	LCPD	8	20T	LCPD
38	LCPD	8	20T	LCPD
39	LCPD	8	20T	LCPD
40	LCPD	8	20T	LCPD
41	LCPD	8	20T	LCPD
42	LCPD	8	20T	LCPD

PANEL C

RM NO.	DESCRIPTION	LOAD	PHASE	REMARKS
1	LCPD	2	20T	LCPD
2	LCPD	4	20T	LCPD
3	LCPD	8	20T	LCPD
4	LCPD	8	20T	LCPD
5	LCPD	8	20T	LCPD
6	LCPD	8	20T	LCPD
7	LCPD	8	20T	LCPD
8	LCPD	8	20T	LCPD
9	LCPD	8	20T	LCPD
10	LCPD	8	20T	LCPD
11	LCPD	8	20T	LCPD
12	LCPD	8	20T	LCPD
13	LCPD	8	20T	LCPD
14	LCPD	8	20T	LCPD
15	LCPD	8	20T	LCPD
16	LCPD	8	20T	LCPD
17	LCPD	8	20T	LCPD
18	LCPD	8	20T	LCPD
19	LCPD	8	20T	LCPD
20	LCPD	8	20T	LCPD
21	LCPD	8	20T	LCPD
22	LCPD	8	20T	LCPD
23	LCPD	8	20T	LCPD
24	LCPD	8	20T	LCPD
25	LCPD	8	20T	LCPD
26	LCPD	8	20T	LCPD
27	LCPD	8	20T	LCPD
28	LCPD	8	20T	LCPD
29	LCPD	8	20T	LCPD
30	LCPD	8	20T	LCPD
31	LCPD	8	20T	LCPD
32	LCPD	8	20T	LCPD
33	LCPD	8	20T	LCPD
34	LCPD	8	20T	LCPD
35	LCPD	8	20T	LCPD
36	LCPD	8	20T	LCPD
37	LCPD	8	20T	LCPD
38	LCPD	8	20T	LCPD
39	LCPD	8	20T	LCPD
40	LCPD	8	20T	LCPD
41	LCPD	8	20T	LCPD
42	LCPD	8	20T	LCPD

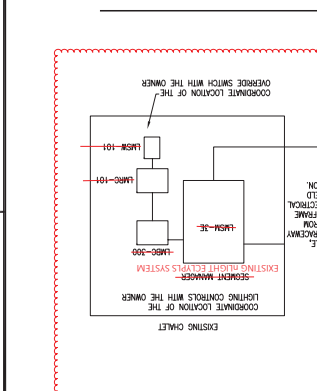


LOAD CENTER PANEL SCHEDULES

PANEL	LOCATION	VOLTS	PHASE	REMARKS
LCPA	VALVE HOUSE 1	208	3	
LCPB	VALVE HOUSE 2	208	3	
LCPD	VALVE HOUSE 3	208	3	

MOTOR AND EQUIPMENT SCHEDULE

IDENTITY	LOCATION	DESCRIPTION	UNIT HEATER	NOTES
1	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
2	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
3	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
4	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
5	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
6	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
7	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
8	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
9	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
10	VALVE HOUSE 1	MANUAL MOTOR SWITCH		



LOAD CENTER PANEL SCHEDULES

PANEL	LOCATION	VOLTS	PHASE	REMARKS
LCPA	VALVE HOUSE 1	208	3	
LCPB	VALVE HOUSE 2	208	3	
LCPD	VALVE HOUSE 3	208	3	

MOTOR AND EQUIPMENT SCHEDULE

IDENTITY	LOCATION	DESCRIPTION	UNIT HEATER	NOTES
1	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
2	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
3	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
4	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
5	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
6	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
7	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
8	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
9	VALVE HOUSE 1	MANUAL MOTOR SWITCH		
10	VALVE HOUSE 1	MANUAL MOTOR SWITCH		

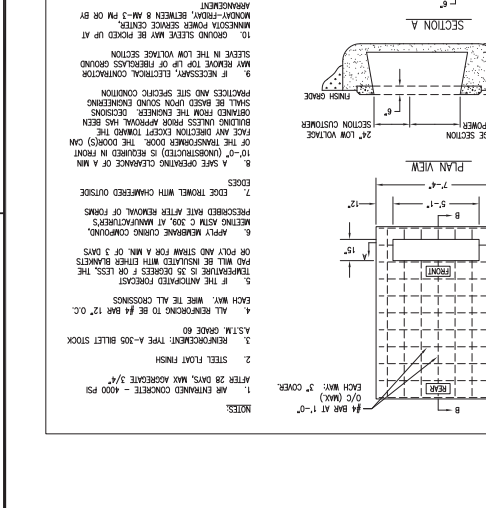
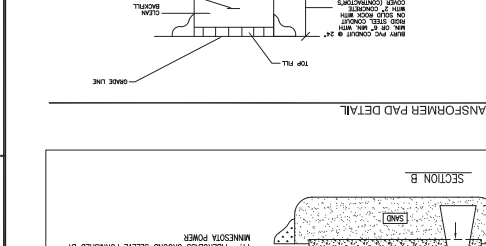
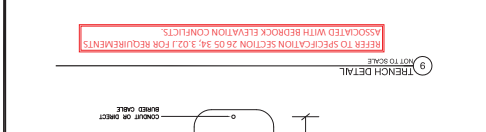
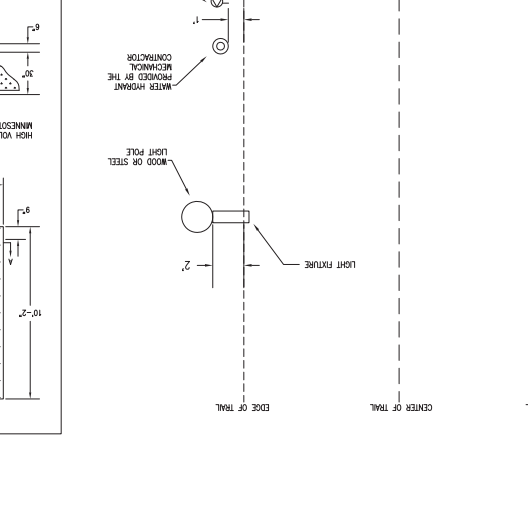
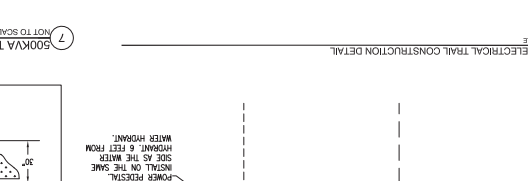
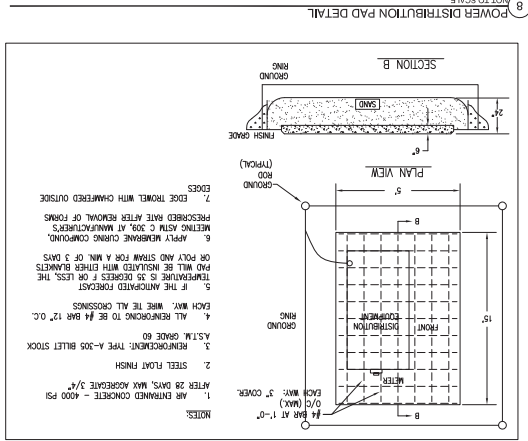
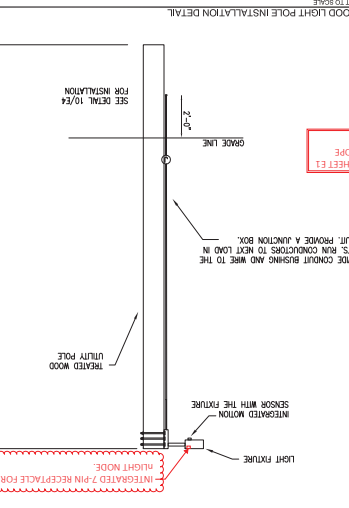
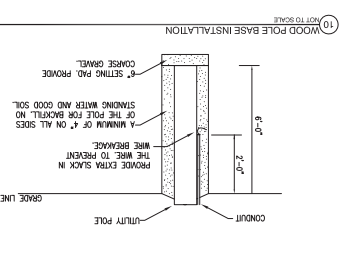
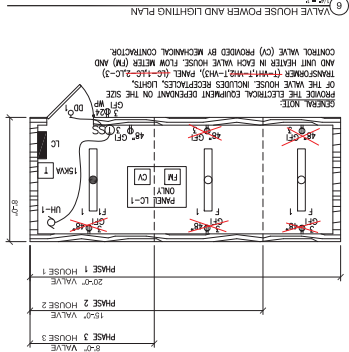
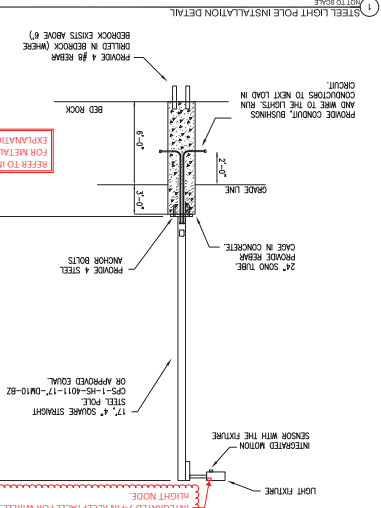
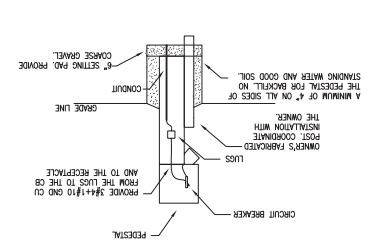
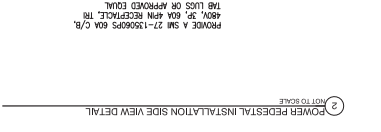
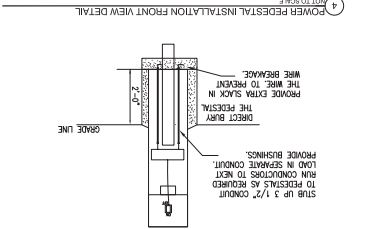
TORRENT Engineering and Equipment
 MILFORD, IN 46542 USA
 Phone: (317) 658-3200
 Fax: (317) 658-2232
 www.torrent.com

SEH
 419 W. SUPERIOR ST. STE. 200
 DULUTH, MN 55802-1912
 Phone: 218.279.3000
 www.sehinc.com

FOSTER, JACOBS & JOHNSON, INC.
 346 CAVAL PARK DRIVE
 DULUTH, MINNESOTA 55802
 218.222.3000
 218.222.1911 FAX
 Email: mjb@fjj.com

SPIRIT MOUNTAIN NORDIC TRAILS
 DULUTH, MINNESOTA
 PROJECT: SHEET TITLE:
 DATE: DESCRIPTION:
 DATE: DESCRIPTION:
 DATE: DESCRIPTION:
 DATE: DESCRIPTION:
 DATE: DESCRIPTION:

Drawn By: NLA
 Checked By: NME
 Date: 07/19/18
 Title: 05579
 Scale: 1"=1'-0"
 Project: S-15001
 Drawing No: E4



CITY OF DULUTH

Duluth Project No: L30159

Grand Avenue Nordic Center Ski Trails - 0.8 KM Loop and 2.0 KM Connector

2/2/2024

BASE BID #1 - Loop 1 Lighting					
ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	BASE BID 1 QUANTITY	UNIT PRICE
1	MOBILIZATION	1	LUMP SUM	1	NA
2	LIGHTING ASSEMBIES	41	EACH	41	NA
3	LIGHTING CONTROL INSTALLATION	41	LUMP SUM	1	NA
4	METAL POLE INSTALLATION	10	EACH	10	
5	WOOD POLE INSTALLATION	31	EACH	31	
6	LIGHTING ASSEMBLY POWER CONNECTIONS	41	LUMP SUM	1	NA

Alternate 1 - Loop 2 Underground power					
ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	ADD ALT. # 1 QUANTITY	UNIT PRICE
1	UNDERGROUND LIGHTING POWER	22	LUMP SUM	1	NA
2	UNDERGROUND SNOWMAKING PED. POWER	12	LUMP SUM	1	NA

Alternate 2 - Loop 3 Underground power					
ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	ADD ALT. # 2 QUANTITY	UNIT PRICE
1	UNDERGROUND LIGHTING POWER	17	LUMP SUM	1	NA
2	UNDERGROUND SNOWMAKING PED. POWER	6	LUMP SUM	1	NA
3	ELECTRIC SERVICE PACKAGE AND VH-3 FEEDER	10	LUMP SUM	1	NA

Alternate 3 - Loop 2 Aboveground Snowmaking power					
ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	ADD ALT. # 3 QUANTITY	UNIT PRICE
1	ABOVEGROUND SNOWMAKING PEDISTAL	12	EACH	12	

Alternate 4 - Loop 3 Aboveground Snowmaking power					
ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	ADD ALT. # 4 QUANTITY	UNIT PRICE
1	ABOVEGROUND SNOWMAKING PEDISTAL	6	EACH	6	
2	VALVE HOUSE #3 ELECTRICAL PACKAGE	1	LUMP SUM	1	NA
3	ELECTRIC SERVICE GEAR PACKAGE	1	LUMP SUM	1	NA

Alternate 5 - Loop 2 Aboveground Lighting Systems					
--	--	--	--	--	--

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	ADD ALT. # 5 QUANTITY	UNIT PRICE
1	LIGHTING ASSEMBIES	22	LUMP SUM	1	NA
2	LIGHTING CONTROL INSTALLATION	22	LUMP SUM	1	NA
3	METAL POLE INSTALLATION	5	EACH	5	
4	WOOD POLE INSTALLATION	17	EACH	17	
5	LIGHTING ASSEMBLY POWER CONNECTIONS	22	LUMP SUM	1	NA

Alternate 6 - Loop 3 Aboveground Lighting Systems					
ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	ADD ALT. # 6 QUANTITY	UNIT PRICE
1	LIGHTING ASSEMBIES	17	LUMP SUM	1	NA
2	LIGHTING CONTROL INSTALLATION	17	LUMP SUM	1	NA
3	METAL POLE INSTALLATION	4	EACH	4	
4	WOOD POLE INSTALLATION	13	EACH	13	
5	LIGHTING ASSEMBLY POWER CONNECTIONS	17	LUMP SUM	1	NA

St. Cloud Mountain, MN

**NORDIC SNOWMAKING PIPING - END OF LINE DRAINS - REF PT 8C, 8D
Base Bid 2
QUANTITIES LISTED ARE FOR EACH END OF LINE LOCATION**

ITEM	DESCRIPTION	MANUFACTURER/ MODEL/ENGINEERING DATA	Estimated Quantity	QTY	
1.00	Mobilization	Mobilization	1	1	Lump Sum
2.00	Reducer, Weld, Eccentric: 4x2	Standard wall, bevel end, A234	1	1	each
3.00	Pipe: 2"	2" (2-3/8" OD) CS SEAMLESS PIPE, Black, beveled ASTM A-120 GRADE A, 0.218" (SCH80) wall As Required +/- 4'-0"	4'	1	Lump Sum
4.00	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	1	each
5.00	300# Flange Stud Set 2" Flange	2474-0223 B7, Zinc Plated Stud with 2 Nuts 5/8"x4-1/4"	8	8	each
6.00	Spiral Wound Gasket	2511-0133 2" 300# Steel / Chlorite / Graphite	2	2	each
7.00	Flange: 2" 300# RFSO.	2" 300# slip-on flange, raised face standard bore A105	2	2	each
8.00	Reducer, Weld, Eccentric: 10x8	Standard wall, bevel end, A234	1	1	each
9.00	Elbow - 90 Deg: 10" Long radius weld	10" 90 Standard wall, bevel end, long radius A234 weld	1	1	each
10.00	Elbow - 45 Deg: 10" weld	10" 45 Standard wall, bevel end, A234 weld	2	2	each
11.00	Tee: 10" weld	10" Tee Standard wall, bevel end, A234	1	1	each
12.00	Elbow - 45 Deg: 10" weld	10" 45 Standard wall, bevel end, A234 weld	1	1	each
13.00	Elbow - 45 Deg: 10" weld	10" 45 Standard wall, bevel end, A234 weld	2	2	each
14.00	Elbow - 90 Deg: 10" Long radius weld	10" 90 Standard wall, bevel end, long radius A234 weld	1	1	each
15.00	Elbow - 90 Deg: 6" Long radius weld	6" 90 Standard wall, bevel end, long radius A234 weld	1	1	each
16.00	Elbow - 45 Deg: 6" weld	6" 45 Standard wall, bevel end, A234 weld	3	3	each
17.00	Elbow - 45 Deg: 6" weld	6" 45 Standard wall, bevel end, A234 weld	2	2	each
18.00	Reducer, Weld, Eccentric: 6x4	Standard wall, bevel end, A234	1	1	each
19.00	Elbow - 45 Deg: 4" weld	4" 45 Standard wall, bevel end, A234 weld	2	2	each
20.00	Elbow - 45 Deg: 4" weld	4" 45 Standard wall, bevel end, A234 weld	2	2	each
21.00	Elbow - 90 Deg: 4" Long radius weld	4" 90 Standard wall, bevel end, long radius A234 weld	1	1	each
22.00	Hydrants	Hydrants	12	12	each
23.00	10-3/4" X 0.365" Pipe	10-3/4" X 0.365" Pipe	1380'	1,380	Feet
24.00	6-5/8" X 0.280" Pipe	6-5/8" X 0.280" Pipe	1110'	1110	Feet
25.00	4-1/2" x 0.237 " Pipe	4-1/2" x 0.237 " Pipe	630'	630	Feet

NORDIC SNOWMAKING PIPING - VALVE STATION #3 (VS3) - REF PT 6
Alternate 7
QUANTITIES LISTED ARE FOR EACH VALVE STATION

ITEM	DESCRIPTION	MANUFACTURER/ MODEL/ENGINEERING DATA	Estimated Quantity	QTY	Unit
1	Mobilization	Mobilization	1		1 Lump Sum
2	Pipe: 10"	10"-BLK CS ERW PIPE (10-3/4" OD) ASTM A-53 / API 5L GRADE B, 0.365" wall (MIN) As Required +/- 5'-0"	5'	1	Lump Sum
3	Tee: 10"	10" Tee Standard wall, bevel end, A234	1	1	Each
4	Reducer, Weld, Concentric: 10x8	Standard wall, bevel end, A234	1	1	Each
5	Reducer, Weld, Concentric: 10x6	Standard wall, bevel end, A234	1	1	Each
6	Pipe: 8"	8"-BLK CS ERW PIPE (8-5/8" OD) ASTM A-53 / API 5L GRADE B, 0.322" wall (MIN) As Required +/- 5'-0"	5'	1	Lump Sum
7	Pipe: 6"	6"-BLK CS ERW PIPE (6-5/8" OD) ASTM A-53 / API 5L GRADE B, 0.280" wall (MIN) As Required +/- 5'-0"	5'	1	Lump Sum
8	Isolation Valve: 10"-300# wafer butterfly valve with gear operator.	Bray Series 42-466 10" 300# CS body, 316ss disc, 17-4 shaft, RTFE seat, TFE packing, Glass backed TFE bearing, Gear Operator	1	1	Each
9	Stud And Nut Set 1"x10"	2474-0877 B7, Zinc Plated Stud with 2 Nuts 1"x10"	16	16	Each
10	Spiral Wound Gasket	2511-0156 10" 300# Steel / Chlorite / Graphite	2	2	Each
11	Flange: 10" 300# RFSO.	1700-3186 slip on flange, raised face standard bore A105 10" 300#	2	2	Each
12	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	1	Each
13	Stud And Nut Set 7/8"x9"	2474-0677 B7, Zinc Plated Stud with 2 Nuts 7/8"x9"	12	12	Each
14	Spiral Wound Gasket	2511-0153 8"300# Steel / Chlorite / Graphite	2	2	Each
15	Flange: 8" 300# RFSO.	1700-3178 slip on flange, raised face standard bore A105 8" 300#	2	2	Each
16	Isolation Valve: 6"-300# wafer butterfly valve with gear operator.	Bray Series 42-466 6" 300# CS body, 316ss disc, 17-4 shaft, RTFE seat, TFE packing, Glass backed TFE bearing, Gear Operator	1	1	Each
17	Stud And Nut Set 3/4"x7-1/2"	2474-0469 B7, Zinc Plated Stud with 2 Nuts 3/4"x7-1/2"	12	12	Each
18	Spiral Wound Gasket	2511-0149 6" 300# Steel / Chlorite / Graphite	2	2	Each
19	Flange: 6" 300# RFWN.	1702-3195 6" 300# weldneck flange, raised face standard bore A105	2	2	Each
20	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"	30'	1	Lump Sum
21	Elbow: 2" Long radius	2" 90 Standard wall, bevel end, long radius A234 weld	3	3	Each
22	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	2	Each
23	300# Flange Stud Set 2" Flange	B7, Zinc Plated Stud with 2 Nuts 5/8"x4-1/4"	16	16	Each
24	Spiral Wound Gasket	2" 300# Steel / Chlorite / Graphite	4	4	Each
25	Flange: 2" 300# RFSO.	2" 300# slip-on flange, raised face standard bore A105	4	4	Each
26	Thread-O-Let: 2"	36-6x2, A105 TOL	3	3	Each
27	Nipple: 2" x 3"	2" X 3" NPT,XH , Forged Steel, SA106 Black	3	3	Each
28	Ball Valve: 2"	Apollo 70 108-01 600 WOG bronze 2 piece threaded 2"	3	3	Each
29	Pipe Stand 10"	10" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.	1	1	Each
30	Pipe Stand 8"	8" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.	1	1	Each
31	Pipe Stand 6"	6" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.	1	1	Each
32	Pipe Stand 2"	2" saddle pipe support with U-bolt and bolt to floor, fabricated and painted.	3	3	Each
33	Vale Station Structure	Manufacturer built per plan sheet	1	1	Each

St. Cloud, MN

**NORDIC SNOWMAKING PIPING - END OF LINE DRAINS - REF PT 10, 10A
Alternate 8
QUANTITIES LISTED ARE FOR EACH END OF LINE LOCATION**

ITEM	DESCRIPTION	MANUFACTURER/ MODEL/ENGINEERING DATA	Estimated Quantity	QTY	
1	Reducer, Weld, Eccentric: 4x2	Standard wall, bevel end, A234	1	1	Each
2	Pipe: 2"	2" (2-3/8" OD) CS SEAMLESS PIPE, Black, beveled ASTM A-120 GRADE A, 0.218" (SCH80) wall As Required +/- 4'-0"	4'	1	Lump Sum
3	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	1	Each
4	300# Flange Stud Set 2" Flange	2474-0223 B7, Zinc Plated Stud with 2 Nuts 5/8"x4-1/4"	8	8	Each
5	Spiral Wound Gasket	2511-0133 2" 300# Steel / Chlorite / Graphite	2	2	Each
6	Flange: 2" 300# RFSO.	2" 300# slip-on flange, raised face standard bore A105	2	2	Each
7	Elbow - 45 Deg: 8" weld	8" 45 Standard wall, bevel end, A234 weld	3	3	Each
8	Reducer, Weld, Eccentric: 8x6	Standard wall, bevel end, A234	2	2	Each
9	Elbow - 45 Deg: 6" weld	6" 45 Standard wall, bevel end, A234 weld	2	2	Each
10	Reducer, Weld, Eccentric: 8x6	Standard wall, bevel end, A234	1	1	Each
11	Elbow - 45 Deg: 6" weld	6" 45 Standard wall, bevel end, A234 weld	2	2	Each
12	Hydrants	Hydrants	18	18	Each
13	8-5/8" x 0.322" Pipe	8-5/8" x 0.322" Pipe	620'	620	Feet
14	6-5/8" X 0.280" Pipe	6-5/8" X 0.280" Pipe	720'	720	Feet