

TYPICAL TRAIL DESIGN CROSS-SECTION

NOT TO SCALE

1
L-3

TYPICAL TRAIL DESIGN NOTES:

1. THE GRAPHIC ON THIS SHEET ILLUSTRATES A TYPICAL TRAIL CROSS-SECTION HIGHLIGHTING TREAD AND VEGETATION CLEARANCE ZONE WIDTHS.
2. THE TRAIL WIDTH AND VEGETATION CLEARANCE ZONE WIDTHS MAY BE MODIFIED BY THE OWNER IN RESPONSE TO PARTICULAR SITE CONDITIONS.
3. SEE SPECIFICATIONS FOR FURTHER DETAILS ON TREAD AND CORRIDOR CLEARING AND TYPICAL TRAIL DESIGN CROSS-SECTIONS
4. SEE SHEET L-6 AND SPECIFICATIONS FOR RECOMMENDED BEST MANAGEMENT PRACTICES FOR EROSION CONTROL MEASURES.
5. AFTER COMPLETION OF ALL GRADING, THE TRAIL TREAD SHALL BE MECHANICALLY COMPACTED TO ITS SPECIFIED WIDTH USING A VIBRATORY PLATE, SHEEP'S FOOT, OR OTHER APPROVED EQUAL COMPACTOR.
6. CUT BRUSH AND SLASH MUST BE DISPOSED IN AN UPLAND LOCATION AND MUST BE KEPT OUT OF STREAMS, GULLIES, SWALES, WETLANDS, AND LOW AREAS. SEE SPECIFICATIONS FOR DETAILS.
7. NO EXCAVATION OR FILL PERMITTED IN WET & LOWLAND AREAS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSULT WITH THE OWNER PRIOR TO DOING ANY WORK WITHIN SUSPECTED WET & LOWLAND AREAS.

TRAIL BIDDING NOTES:

1. TREE REMOVAL, STUMP REMOVAL, BRUSH REMOVAL, AND LIMB TRIMMING IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATION FOR FURTHER DETAILS)
2. TRAIL TREAD GRADING AND COMPACTING IS INCLUDED IN THE CONTRACTORS UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATION FOR FURTHER DETAILS)
3. PUSHING ASIDE ROCKS OR FRACTURED STONE ENCOUNTERED WHILE GRADING THE TRAIL IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR ALL TRAIL CONSTRUCTION TYPES. (SEE SPECIFICATIONS FOR FURTHER DETAILS)
4. GRADING THROUGH LOW SPOTS, FLATTER AREAS, EARTHEN PILES, MISCELLANEOUS DEBRIS, AND FALLEN WOODY MATERIALS IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION. (SEE SPECIFICATIONS FOR FURTHER DETAILS)
5. ALL TURNS NOT DEFINED AS A BERM OR SWITCHBERM ARE TO BE INSLOPED TURNS AS SPECIFIED. INSLOPED TURNS ARE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)
6. GRADE REVERSALS ARE REQUIRED AT A MINIMUM EVERY 100 LF. GRADE REVERSALS ARE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)

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ISSUE RECORD/REVISION

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**HARTLEY PARK
TRAIL IMPROVEMENTS**
CITY OF DULUTH, MINNESOTA

SHEET KEY

SHEET TITLE
TYPICAL TRAIL SECTION

DATE: 4/7/16

DRAWN BY: LWS

CHECKED BY: LWS

PROJECT NUMBER: 15205

SHEET NUMBER: L-3

| PURPOSE | DATE |
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**HARTLEY PARK
TRAIL IMPROVEMENTS**
CITY OF DULUTH, MINNESOTA

FIELD MEASUREMENT NOTES:

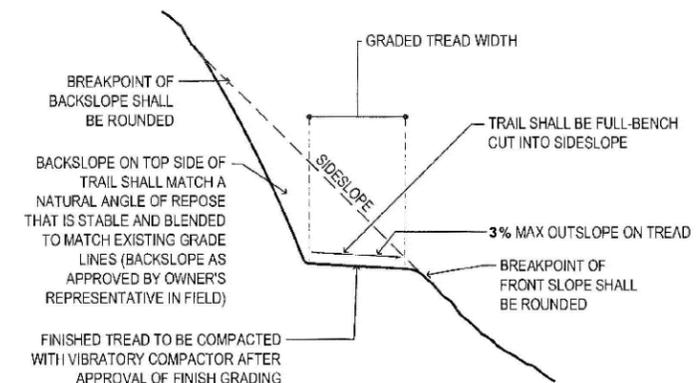
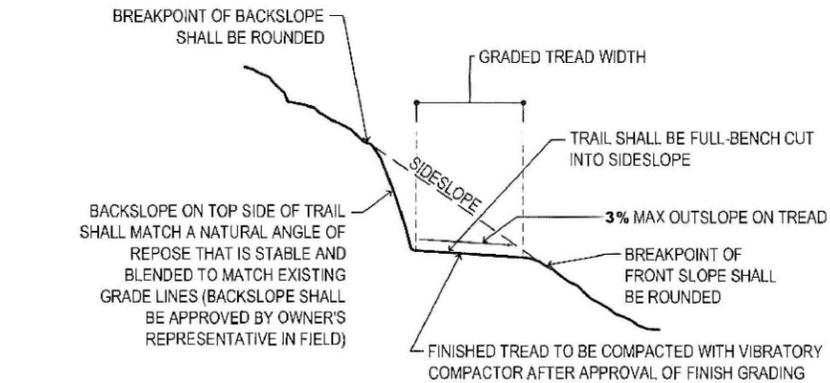
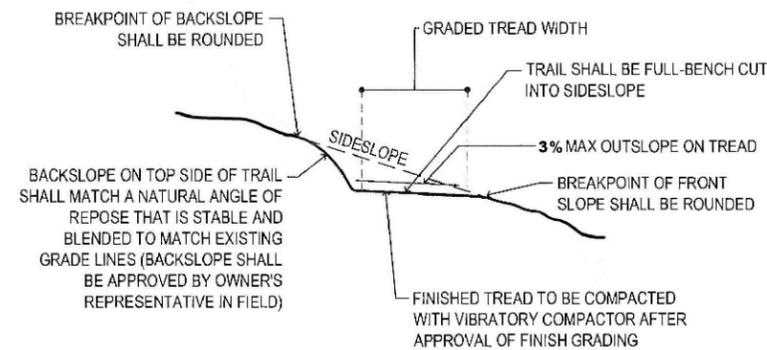
- MEASUREMENT AND PAYMENTS FOR TRAIL CONSTRUCTION TYPE IS BASED ON THE SLOPE AVERAGES AS DEPICTED IN THE TRAIL ALIGNMENT SECTION OF THIS PLAN SET AND IN THE TRAIL SLOPE ANALYSIS MAP (FOUND IN THE SPECS).
- TRAIL TYPES AND QUANTITIES ARE PROVIDED AS A CONVENIENCE TO THE CONTRACTOR. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY FIELD QUANTITIES AND NOTIFY THE OWNER OF ANY DISCREPANCIES PRIOR TO COMMENCING WORK.

CONSTRUCTION NOTE:

- PARTIAL BENCH CUT IS ALLOWED WHEN DONE PROPERLY WITH A DOWNHILL RETAINING WALL AND COMPACTED BACKFILL. REFER TO PAGE 159 OF (TRAIL SOLUTIONS: IMBA'S GUIDE TO BUILDING BETTER SINGLETRACK).
- GRADING THROUGH LOW SPOTS, FLATTER AREAS, EARTHEN PILES, LANDSLIDES, MISCELLANEOUS DEBRIS, AND FALLEN WOODY MATERIALS IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)
- CONTRACTOR IS EXPECTED TO CREATE FREQUENT GRADE REVERSALS REGARDLESS OF THE LOCAL LANDSCAPE. THIS MAY REQUIRE LOCALIZED TOPOGRAPHY MODIFICATIONS INCLUDING BUT NOT LIMITED TO RAISED TREAD, BORROW PITS AND SUMPS WHEN BUILDING THROUGH LANDSCAPES WITH LOW SLOPE ANGLES AND FLATTER AREAS SUCH AS TYPE "A" TRAIL.
- UNLESS SHOWN ON SPECIFIC DETAILS THE OUTFRAN SHALL BE CONSTRUCTED AS BELOW.

NOTE:

CONTRACTOR CANNOT INVOICE FOR BOTH TRAIL CONSTRUCTION, TYPES A, B & C, AND CONSTRUCTED FEATURES OF A GIVEN LINEAR FOOT OF TRAIL.



TYPE "A" (LOW SIDESLOPE TRAIL) 3%-15% SIDESLOPE

TYPE "B" (MEDIUM SIDESLOPE TRAIL) 16%-60% SIDESLOPE

TYPE "C" (HIGH SIDESLOPE TRAIL) 61%+ SIDESLOPE

TYPICAL TRAIL CROSS-SECTIONS (A-C TRAIL TYPES)

NOT TO SCALE

1
L-4

SHEET KEY

SHEET TITLE

TRAIL SECTIONS

DATE

4/7/16

DRAWN BY:

LWS

CHECKED BY:

LWS

PROJECT NUMBER

15205

SHEET NUMBER

L-4

| ISSUE RECORD/REVISION | |
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| PURPOSE | DATE |
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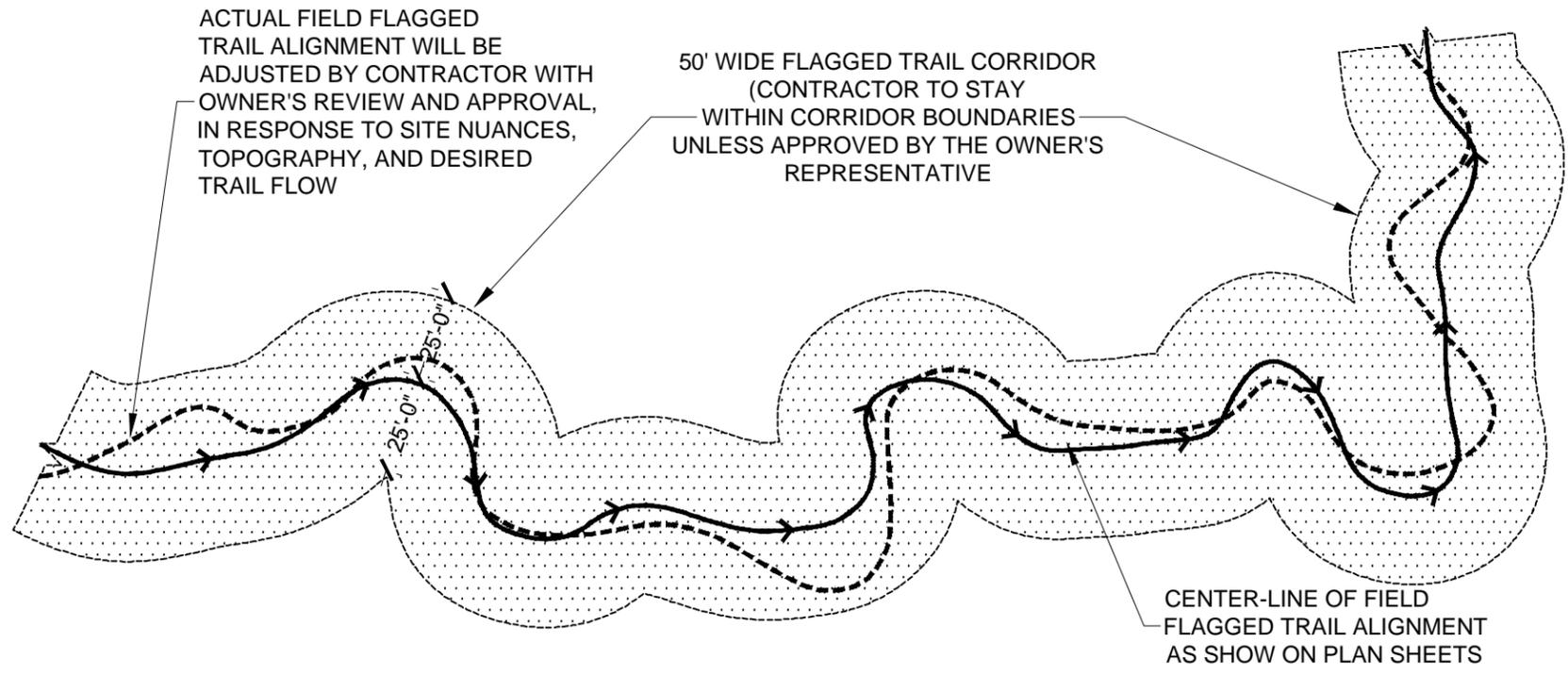
HARTLEY PARK
TRAIL IMPROVEMENTS
CITY OF DULUTH, MINNESOTA

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|-----------------|--------|
| SHEET KEY | |
| SHEET TITLE | |
| TRAIL ALIGNMENT | |
| DATE | 4/7/16 |
| DRAWN BY: | LWS |
| CHECKED BY: | LWS |
| PROJECT NUMBER | 15205 |
| SHEET NUMBER | L-5 |

NOTES:
PLAN SHEETS L-7 THROUGH L-9 ILLUSTRATE THE APPROXIMATE CENTER OF A 50-FOOT WIDE CORRIDOR FOR TRAIL CONSTRUCTION, WHICH ARE PROVIDED TO ESTABLISH AN OVERALL TRAIL LAYOUT PLAN AND TO ESTIMATE OVERALL LINEAL FEET OF TRAIL.

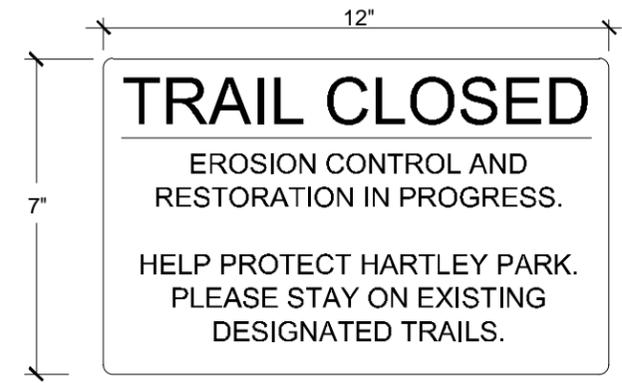
Flagging:

In this project, the centerline of a 50' wide trail corridor has been drop-flagged by the Owner. The plans and specifications are based on this trail corridor. Final trail design is the responsibility of the Contractor within this corridor.
Corridor is marked with blue hanging flags.
Contractor shall mark with flagging tape all trees over six inches (6") DBH that are to be removed. Final determination on removal lies with the Owner.
The trail should have a grade reversal a minimum of every one-hundred feet (100'). Trail should follow a rolling contour alignment and abide by the Half Rule.



TRAIL LAYOUT AND FIELD LAYOUT REQUIREMENTS
NOT TO SCALE

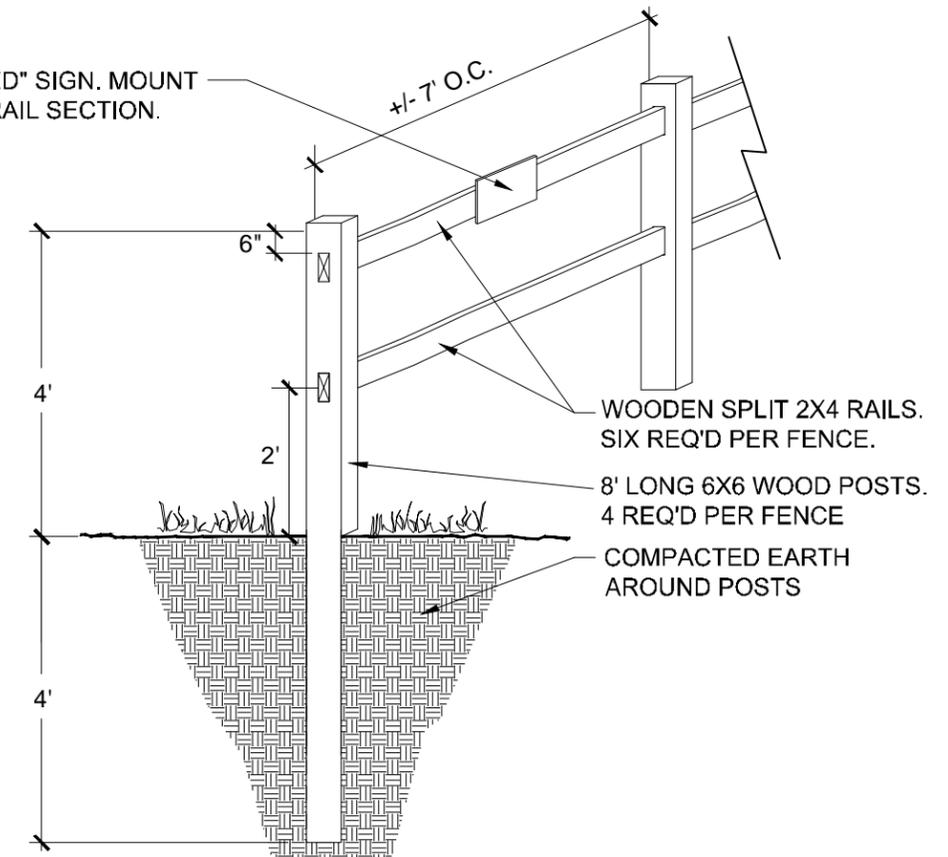
1
L-5



TRAIL CLOSED SIGN
NOT TO SCALE

SIGNS TO BE FURNISHED BY CITY OF DULUTH, INSTALLED BY CONTRACTOR.

"TRAIL CLOSED" SIGN. MOUNT ON CENTER RAIL SECTION.

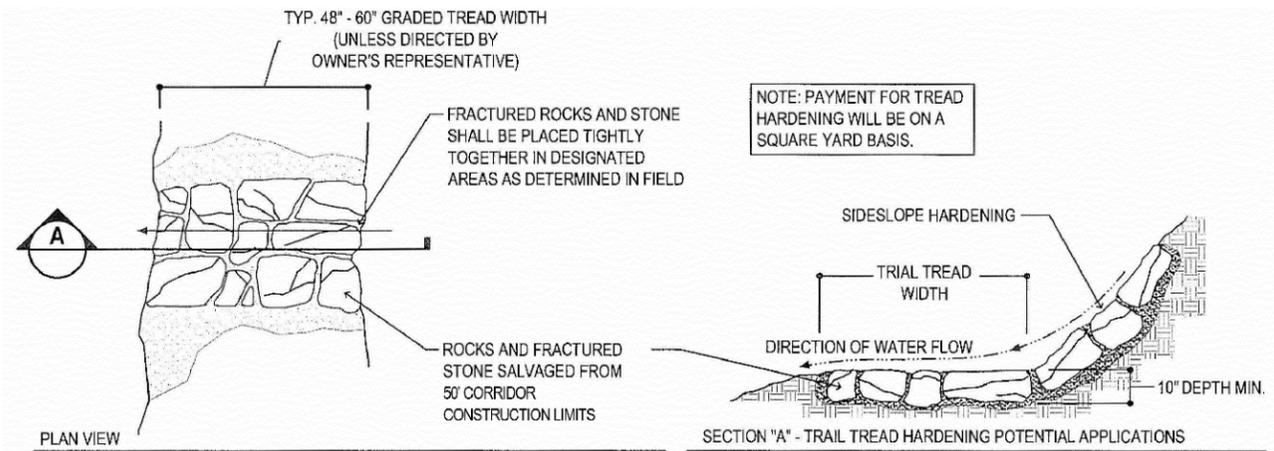


SPLIT RAIL FENCE INSTALLATION
NOT TO SCALE

3
L-5

N/A
NOT TO SCALE

2
L-5



CONSTRUCTION NOTE:

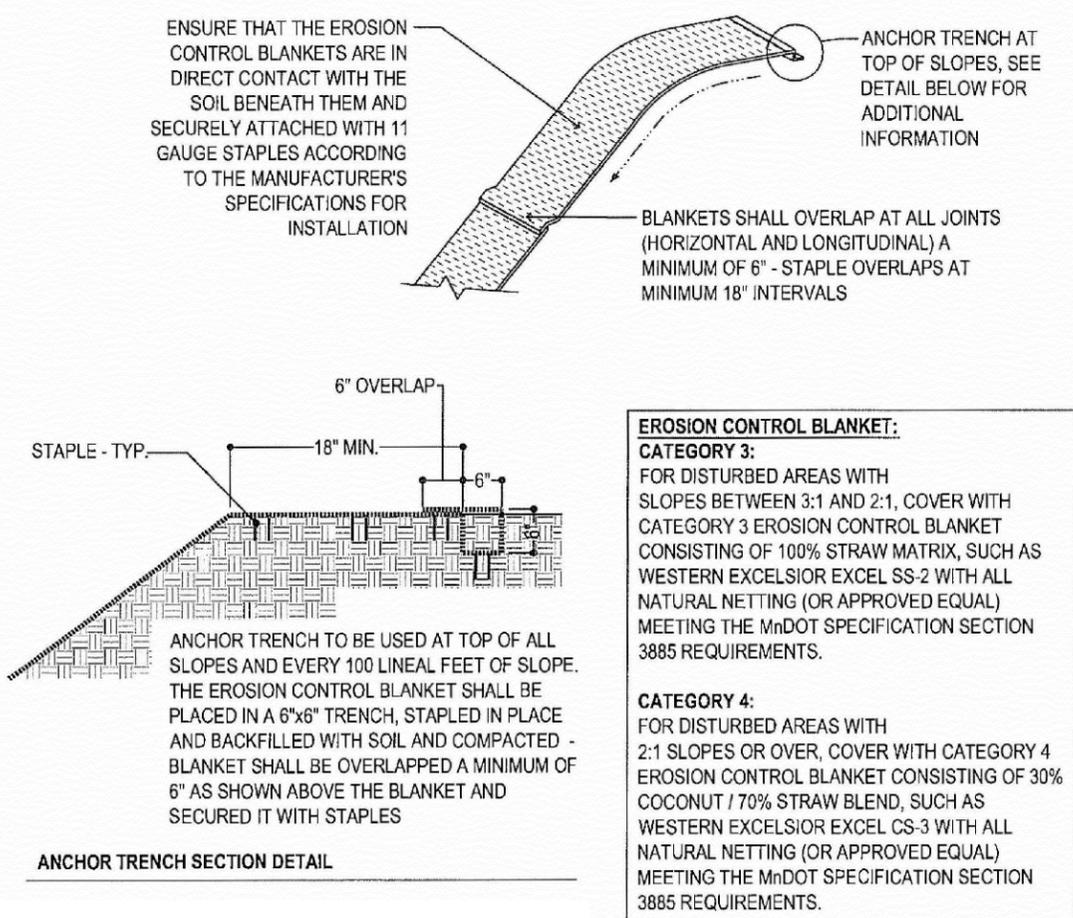
BACKFILL BEDDING MATERIAL SHALL BE 3"- 6" OF 3/4" - CRUSHED ROCK. THE SAME CRUSHED ROCK CAN BE UTILIZED FOR FILL BETWEEN THE SET ROCK/STONE.

10" MINIMUM ROCK/STONE SET DEPTH.

SEAMS RUNNING IN THE DIRECTION OF TRAVEL SHALL BE MINIMIZED IN BOTH LENGTH AND WIDTH. SEAM WIDTH SHALL BE MINIMIZED AND SEAM STAGGERING SHALL BE USED WHERE POSSIBLE.

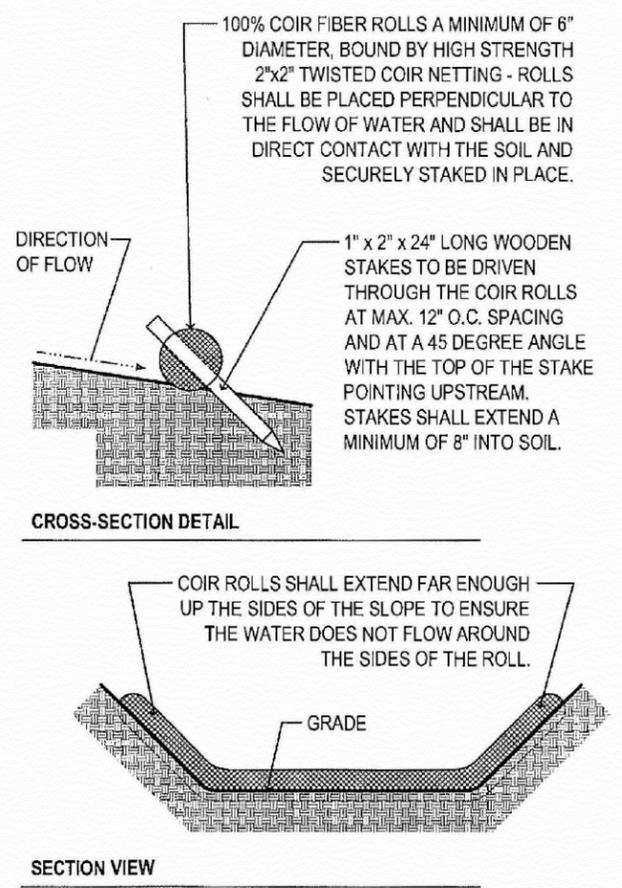
TRAIL TREAD ROCK ARMORING AND SIDESLOPE ARMORING DETAIL

NOT TO SCALE 1 L-6



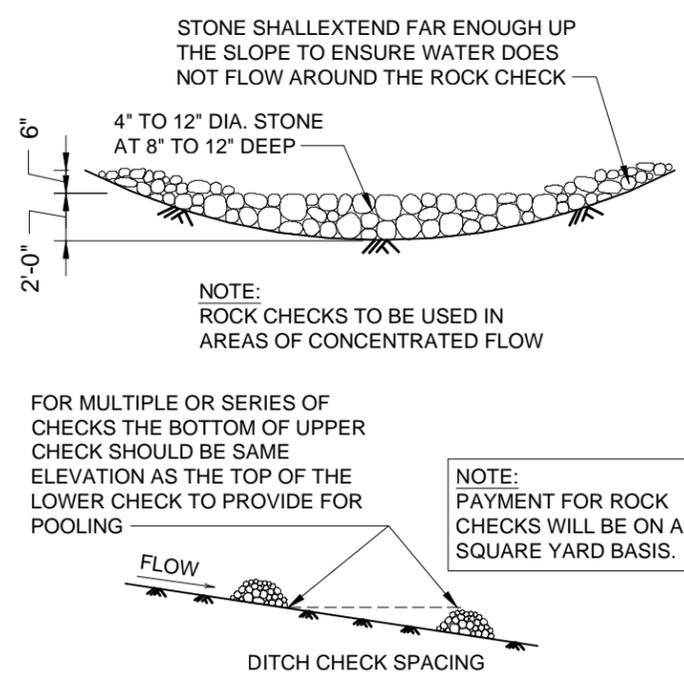
WOOD FIBER BLANKET DETAIL

NOT TO SCALE 2 L-6



COIR ROLL DETAIL

NOT TO SCALE 3 L-3



ROCK CHECK DETAIL

NOT TO SCALE 4 L-6

- EROSION CONTROL NOTES:**
- ALL DISTURBED AREAS NOT PART OF ACTIVE TREAD TO BE STABILIZED WITHIN 7 DAYS OF NOT BEING WORKED.
 - WHENEVER POSSIBLE USE NATIVE DUFF MATERIALS FOUND IN THE TRAIL CORRIDOR AS A MULCH FOR COVERING SOIL EXPOSED BY BACKSLOPE AND DOWNSLOPE CUTS. WOOD CHIPS MADE FROM WOODY MATERIAL CLEARED AS A RESULT OF THE CORRIDOR CLEARING ARE AN ACCEPTABLE ALTERNATIVE TO NATIVE DUFF MULCH.
 - FOR SLOPE ANGLES UNDER 3:1 USE TEMPORARY EROSION CONTROL SEED MIX AND FOR DISTURBED AREAS THAT ARE LACKING ADEQUATE NATIVE DUFF MATERIAL.
 - FOR SLOPE ANGLES 3:1 AND OVER USE PERMANENT EROSION CONTROL SEED MIX AND EROSION CONTROL BLANKET FOR LAND SLIDE AREAS AND AREAS OF HEAVY DISTURBANCE. THESE AREAS MUST BE APPROVED BY THE OWNER.
 - SEED SHALL BE A NATIVE WOODLAND AND NATIVE MEADOW MIX.
 - AFTER COMPLETION OF ALL GRADING, THE TRAIL TREAD SHALL BE MECHANICALLY COMPACTED TO ITS SPECIFIED WIDTH USING A VIBRATORY PLATE, SHEEP'S FOOT, OR OTHER APPROVED EQUAL COMPACTOR.
 - CUT BRUSH AND SLASH MUST BE DISPOSED IN AN UPLAND LOCATION AND MUST BE KEPT OUT OF STREAMS, GULLIES, SWALES, WETLANDS, AND LOW AREAS. SEE SPECIFICATIONS FOR DETAILS.
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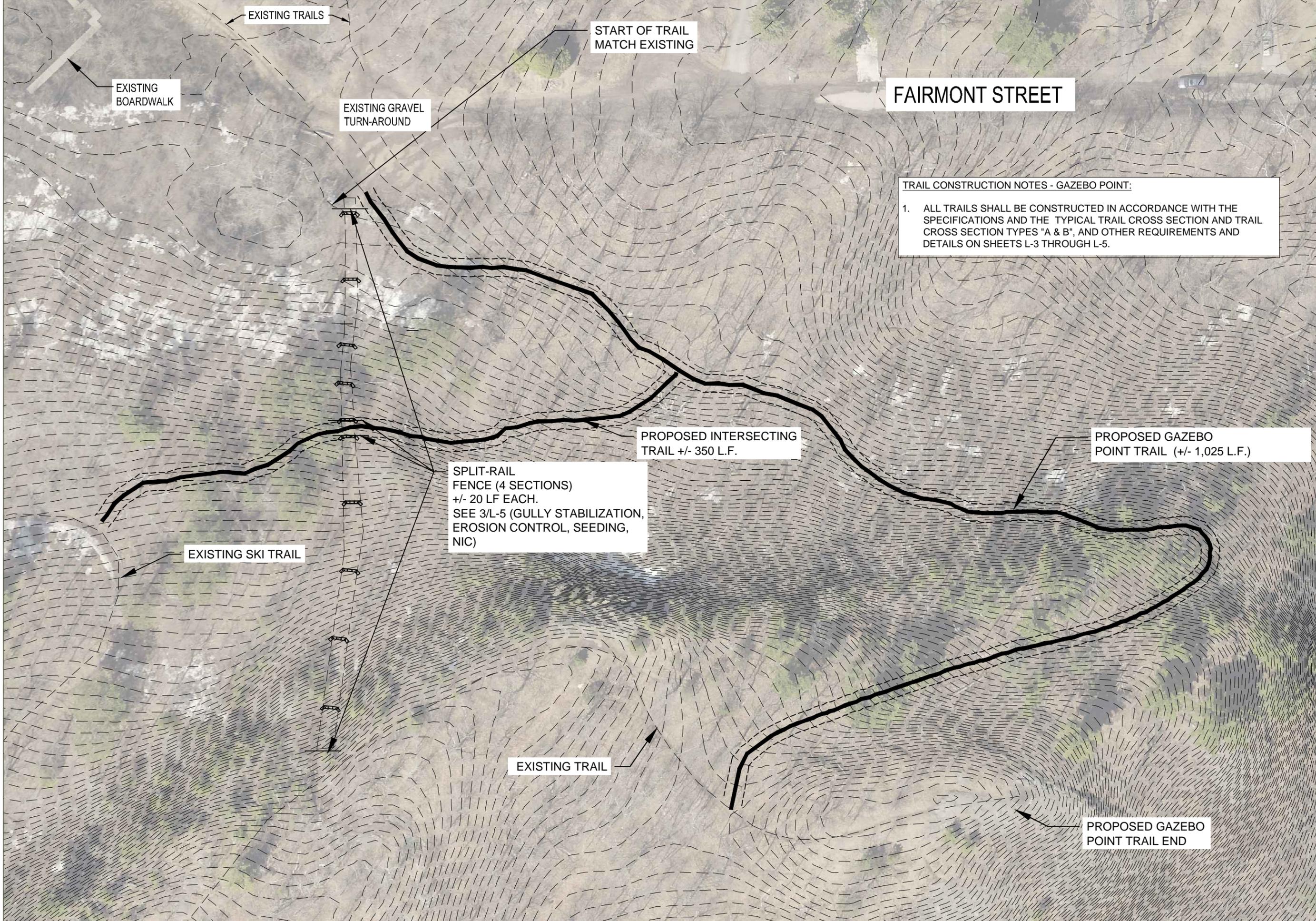
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HARTLEY PARK
TRAIL IMPROVEMENTS
CITY OF DULUTH, MINNESOTA

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| SHEET KEY | |
| SHEET TITLE | SWPP PLANS |
| DATE | 4/7/16 |
| DRAWN BY: | LWS |
| CHECKED BY: | LWS |
| PROJECT NUMBER | 03110 |
| SHEET NUMBER | L-6 |



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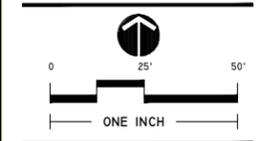
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TRAIL CONSTRUCTION NOTES - GAZEBO POINT:
1. ALL TRAILS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE TYPICAL TRAIL CROSS SECTION AND TRAIL CROSS SECTION TYPES "A & B", AND OTHER REQUIREMENTS AND DETAILS ON SHEETS L-3 THROUGH L-5.

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HARTLEY PARK
TRAIL IMPROVEMENTS
CITY OF DULUTH, MINNESOTA



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|------------------------|--------|
| SHEET KEY | |
| SHEET TITLE | |
| PROJECT I (BID ALT #1) | |
| TRAIL IMPROVEMENTS | |
| GAZEBO POINT | |
| DATE: | 4/7/16 |
| DRAWN BY: | LWS |
| CHECKED BY: | LWS |
| PROJECT NUMBER | 15205 |
| SHEET NUMBER | L-9 |