

PLAN SYMBOLS

- SECTION SUBDIVISION LINE
 - EXISTING R/W
 - NEW R/W
 - PERMANENT EASEMENT
 - TEMPORARY EASEMENT
 - RAILROAD R/W
 - UNSURFACED RD. OR SHLD.
 - MISCELLANEOUS BOUNDARY
 - CORPORATE OR CITY LIMITS
 - PROPERTY LINE
-
- RECREATIONAL TRAIL
 - ALIGNMENT STATIONS
 - ALIGNMENT POINTS
-
- DRAINAGE DITCH
-
- BARBED WIRE FENCE
 - CHAIN LINK FENCE
 - WOVEN WIRE, COMBINATION WOVEN AND BARB
 - WOOD FENCE
 - RETAINING WALL
 - GUARDRAIL (CABLE)
-
- AUGER REFUSAL (BEDROCK)
-
- GROUNDWATER OBSERVED
-
- DRAIN TILE
 - CULVERT
 - CULVERT WITH APRONS
-
- CATCH BASIN
 - STORM MANHOLE
 - SANITARY MANHOLE
-
- WOODS OR BRUSH, NURSERY
 - DECIDUOUS TREES
 - CONIFER (EVERGREEN) TREES
 - HEDGE
 - BUSH OR SHRUB
 - STUMP
-
- MONUMENT (C, ACT, ACP, BCP, ...)
 - CONCRETE OR STONE MONUMENT
 - IRON PIPE
 - IRON PIN OR REBAR
 - IRON PIN WITH BRASS DISK
 - NAIL, PK NAIL, SPIKE, SFP, T-BAR, ...
 - VERTICAL CONTROL
 - HORIZONTAL CONTROL
-
- POWER POLE
 - LIGHT POLE
 - LIGHT AND TELEPHONE POLE
 - LIGHT, TELEPHONE AND POWER POLE
 - GUY POLE
 - POLE ANCHOR
 - TELEPHONE POLE
 - TELEPHONE AND POWER POLE
 - UNDERGROUND CABLE PEDESTAL
 - TELEPHONE MANHOLE (VAULT)
 - TRAFFIC SIGNAL LIGHT
 - HAND HOLE
 - BURIED ELECTRIC CABLE
 - BURIED FIBER OPTIC CABLE
 - BURIED FIBER OPTIC CABLE (NESC)
 - BURIED TELEPHONE CABLE
 - BURIED TELEPHONE CABLE IN CLAY DUCT
 - BURIED TELEPHONE CABLE IN ASBESTOS PIPE
 - BURIED TELEPHONE CABLE IN LEAD PIPE
 - MULTIPLE BURIED TELEPHONE CABLES
 - SANITARY MAIN
 - SANITARY SERVICE
 - I&I LINE
 - STORM SEWER LINE
 - ROAD SUBDRAIN
 - WATER MAIN
 - WATER SERVICE
 - GAS MAIN
 - GAS SERVICE
 - WATER SHUT-OFF VALVE
 - VALVE
 - FIRE HYDRANT
 - WATER MANHOLE
 - WELL
 - SEPTIC TANK
 - FORCE MAIN LIFT STA.
-
- PERMANENT BARRICADE
 - SOIL BORING
-
- ENTRANCE
-
- BUILDING
 - SATELLITE DISH
 - STEEL TOWER
 - FLAG POLE

CITY OF DULUTH

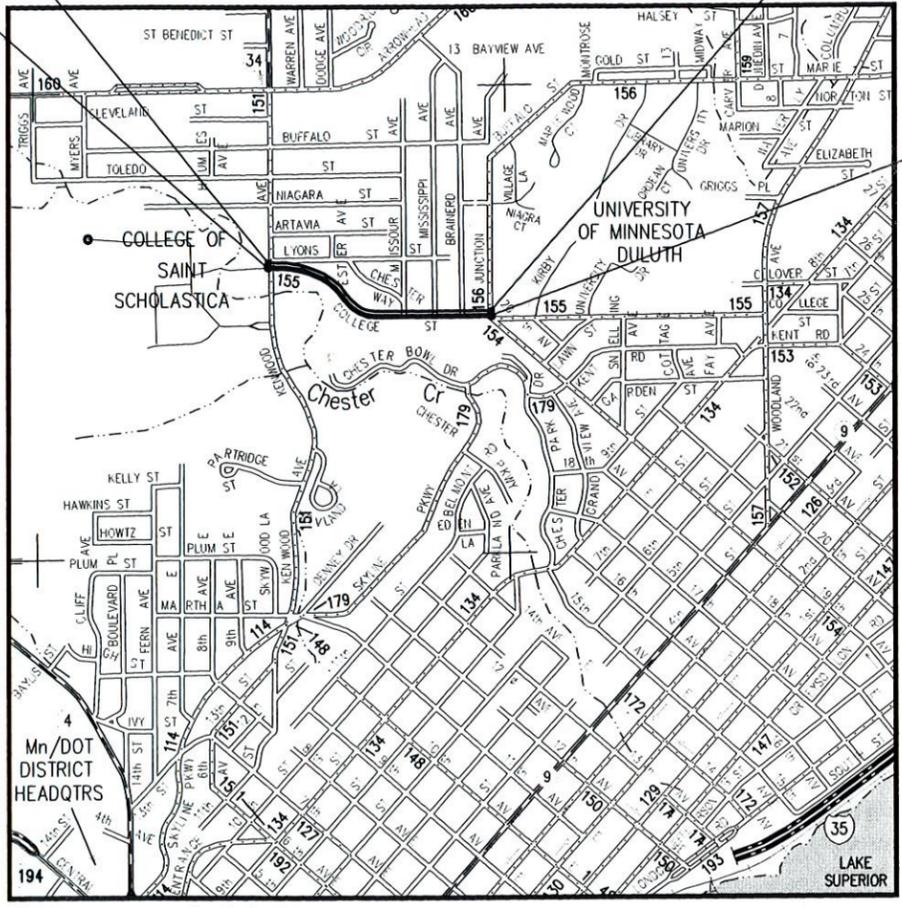
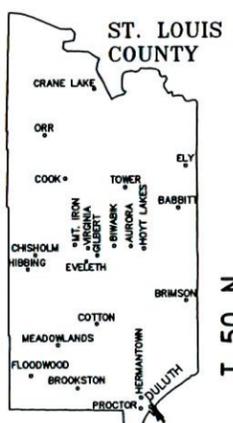
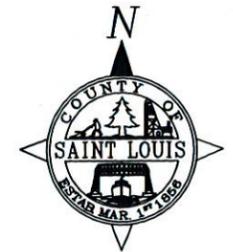
DEPARTMENT OF PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

CONSTRUCTION PLAN FOR: BITUMINOUS SURFACING (MILL & OVERLAY), BITUMINOUS AND CONCRETE SHARED USE PATH, DRAINAGE, AND STRIPING

LOCATED ON M.S.A.S. 155 (COLLEGE ST.) BETWEEN M.S.A.S. 151 AND M.S.A.S. 154
 FROM A POINT 620 FEET NORTH OF THE CENTER OF SECTION 15, TOWNSHIP 50 NORTH, RANGE 14 WEST TO A POINT 26 FEET NORTH OF AND 63 EAST OF THE EAST QUARTER CORNER OF SECTION 15, TOWNSHIP 50 NORTH, RANGE 14 WEST

S.A.P. No. 118-155-008
 GROSS LENGTH 2773.70 FEET 0.525 MILES
 BRIDGES-LENGTH N.A. FEET N.A. MILES
 EXCEPTIONS-LENGTH N.A. FEET N.A. MILES
 NET LENGTH 2773.70 FEET 0.525 MILES

BEGIN SHARED USE PATH LOWELL TO LAKEWALK TRAIL STA. 200+97.78
 END SHARED USE PATH LOWELL TO LAKEWALK TRAIL STA. 228+17.50
 BEGIN S.A.P. 118-155-008 STA. 99+85.61
 END S.A.P. 118-155-008 STA. 127+59.31



0' 1,000'
 Basis of Bearing is Grid North, St. Louis County Transverse Mercator 96 Coordinate System

WARNING
 LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1-800-252-1166 REQUIRED BY LAW

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



21 W. Superior St., Ste. 500 | Duluth, MN 55802 | 218.727.8446

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

SCALES	
PLAN	40 ft., 80 ft.
INDEX MAP	1000 ft.

MN. PROJECT No. _____

GOVERNING SPECIFICATIONS
 THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
 THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT ENGINEERING DIVISION 2015 EDITION STANDARD CONSTRUCTION SPECIFICATION SHALL APPLY.
 ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD, INCLUDING THE FIELD MANUAL DATED JANUARY 2014.
<http://www.dot.state.mn.us/trafficeng/publ/fieldmanual/index.html>

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-3	STATEMENT OF ESTIMATED QUANTITIES
4	CONSTRUCTION NOTES AND STANDARD PLATES
5-7	CONSTRUCTION QUANTITY CHARTS
8-9	TYPICAL SECTIONS
10-21	CONSTRUCTION DETAILS
22-28	SWPPP
29-36	TRAFFIC CONTROL
37-41	PLAN AND PROFILE
42-44	EPOXY STRIPING AND SIGNING PLAN
45-53	CROSS SECTIONS

- THIS PLAN CONTAINS 53 SHEETS -

DESIGN DESIGNATION*

PROJECT	2012
R VALUE =	---
ADT (Current Year) 2012	= 5900
ADT (Future Year) 2032	= 7080
HCA DT (Current)	= NA
HCA DT (Future)	= NA
D (Directional Distr.)	= 50/50
T (Heavy Commercial)	= 1%
Proj. Soil Factor	= NA
Shoulder Width	= NA
Design Loading	= NA
Design Speed	30 MPH
Based on STOPPING Sight Distance	
Height Of Eye	3.5 ft.
Height of object	2.0 ft.
Design Speed not achieved at:	
STA. --- TO STA. ---	--- MPH ---
STA. --- TO STA. ---	--- MPH ---
Urban Classification	MINOR ARTERIAL (URBAN)
Traffic Lanes	2 @ 11' Each
Parking Lanes	8'

* SEE SHEET 4 FOR SHARED USE PATH DESIGN DESIGNATION

DESIGNERS: (LHB) B. Scott, M. Goplin, P. Barden

I HEREBY CERTIFY THAT THIS PLAN 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.
 PRINT NAME: BRAD SCOTT
 SIGNATURE: *[Signature]*
 DATE: 01-06-2016 LIC. #: 46198

CITY APPROVALS

APPROVED: DULUTH CITY ENGINEER DATE: 1/12/16

APPROVED: DULUTH CHIEF ENGINEER OF TRANSPORTATION DATE: 1/12/16

APPROVED: DULUTH CHIEF ENGINEER OF UTILITIES DATE: 1/13/16

STATE AID APPROVALS

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE-AID RULES/POLICY DATE: 1-11-16

STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING DATE: 1-11-16

STATEMENT OF ESTIMATED QUANTITIES

LINE	NOTES	CHART	SHEET	SPEC. NO.	DESCRIPTION	UNIT	TOTAL PROJECT		S.A.P. 118-115-008				
							TOTAL ESTIMATED QUANTITY	TOTAL FINAL QUANTITY	ROADWAY		STORM		
									EST	FINAL	EST	FINAL	
1													
2				2021.501	MOBILIZATION	LUMP SUM	1		0.90			0.10	
3													
4	1,2		37-41	2101.511	CLEARING AND GRUBBING	LUMP SUM	1		0.90			0.10	
5													
6		A	5	2104.501	REMOVE PIPE SEWERS	LIN FT	131					131	
7		A	5	2104.501	REMOVE CURB AND GUTTER	LIN FT	319		319				
8		A	5	2104.501	REMOVE MANHOLE OR CATCH BASIN	EACH	10					10	
9		A	5	2104.503	REMOVE CONCRETE WALK	SQ FT	3 983		3 983				
10		A	5	2104.505	REMOVE DRIVEWAY PAVEMENT	SQ YD	118		118				
11		A	5	2104.505	REMOVE PAVEMENT (P)	SQ YD	5 274		5 274				
12		A	5	2104.509	REMOVE SIGN	EACH	20		20				
13	23		39	2104.509	REMOVE HYDRANT (P)	EACH	1		1				
14	28	A	5	2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	3 651		3 651				
15		A	5	2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	176		176				
16													
17	3	H	7	2105.501	COMMON EXCAVATION (P)	CU YD	477		477				
18	5	H	7	2105.522	SELECT GRANULAR BORROW MOD 7% (CV) (P)	CU YD	1 746		1 746				
19													
20	11	B,C	5	2211.503	AGGREGATE BASE (CV) CLASS 5 (P)	CU YD	990		990				
21													
22	22		8	2232.501	MILL BITUMINOUS SURFACE (3.0") (P)	SQ YD	3 747		3 747				
23													
24	26	C	5	2301.511	STRUCTURAL CONCRETE	CU YD	155		155				
25		C	5	2301.538	DOWEL BAR (EPOXY COATED)	EACH	30		30				
26				2301.602	REINFORCEMENT BAR (EPOXY COATED)	EACH	1 493		1 493				
27		C	5	2301.602	DRILL & GROUT REINF BAR (EPOXY COATED)	EACH	1 463		1 463				
28		C	5	2301.604	PLACE CONCRETE PAVEMENT	SQ YD	701		701				
29													
30	4	B	5	2360.501	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)	TON	379		379				
31	4	B	5	2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (3,C)	TON	1 519		1 519				
32	4, 29	C	5	2360.503	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) 3.0" THICK	SY	130		130				
33	4,17			2360.601	BITUMINOUS MIXTURE FOR PATCHING	TON	34		34				
34													
35		D	6	2501.515	12" CAS PIPE APRON	EACH	1					1	
36	6	I	7	2503.541	12" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	174					174	
37	8	D	6	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	8					8	
38													
39	7		39-41	2504.602	ADJUST VALVE BOX	EACH	3		3				
40	30		39	2504.602	HYDRANT	EACH	1		1				
41													

NOTES

1. CONTRACTOR SHALL PERFORM A FIELD REVIEW OF TREES DESIGNATED FOR REMOVAL WITH ENGINEER PRIOR TO BEGINNING WORK. CONTRACTOR SHALL PROTECT TREES NOT DESIGNATED FOR REMOVAL.
2. GRUBBING OPERATIONS SHALL INCLUDE TRIMMING AND REMOVING ALL ROOTS BENEATH THE PATH TO A MINIMUM DEPTH OF 18 INCHES BELOW EXISTING OR PROPOSED GRADE (WHICHEVER IS LOWER) OR AS DIRECTED BY THE ENGINEER.
3. EXCESS MATERIAL FROM EXCAVATION SHALL BE DISPOSED OF BY THE CONTRACTOR OFF PROJECT RIGHT-OF-WAY (INCIDENTAL). SEE EARTHWORK BALANCE.
4. BITUMINOUS MIX COMPUTED AT 120 LBS/ SQ. YD./ INCH OF THICKNESS.
5. SELECT GRANULAR BORROW (SPEC. 3149) MODIFIED SO THAT THE RATIO OF THE PORTION PASSING THE #200 SIEVE DIVIDED BY THE PORTION PASSING THE 1" SIEVE MAY NOT EXCEED 7 PERCENT BY MASS.
6. STORM PIPE INCLUDES COARSE FILTER AGGREGATE FOR BEDDING AND GRANULAR BACKFILL ENCASEMENT COVER (INCIDENTAL).
7. INCLUDES PROVIDING NEW EXTENSION AND LID.
8. INCLUDES GROUTING PIPE TO STRUCTURE AND RE-GROUTING INVERT OF STRUCTURE.
9. STRUCTURES INCLUDE EXCAVATION, BEDDING AND GRANULAR BACKFILL (INCIDENTAL)
10. INCLUDES PAYMENT FOR 4" CLASS 5 BASE UNDER WALK (INCIDENTAL). INCLUDES COMMON EXCAVATION (INCIDENTAL)
11. MODIFIED CURB AND GUTTER DEPTH. REFER TO CONSTRUCTION DETAILS.
12. INCLUDES PAYMENT FOR 12" CLASS 5 BASE UNDER CONCRETE (INCIDENTAL). INCLUDES COMMON EXCAVATION (INCIDENTAL).
13. TRUNCATED DOMES SHALL BE FACTORY PAINTED (BRICK RED).
14. ALL LAYOUT ASSOCIATED WITH REMOVAL & CONSTRUCTION OF PEDESTRIAN RAMPS, SIDEWALK AND CURB & GUTTER SHALL BE DONE BY THE CONTRACTOR. CONTRACTOR SHALL PROTECT AND RESTRICT USE OF PEDESTRIAN RAMPS UNTIL THEY CAN BE USED SAFELY AND SUPPLY A SAFE ROUTE FOR PEDESTRIANS DURING CONSTRUCTION AND COMPLY WITH THE TRAFFIC CONTROL FIELD MANUAL. REFER TO SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
15. INCLUDES CASTING ASSEMBLY.
16. PAID FOR ONCE AT EACH LOCATION REGARDLESS OF THE NUMBER OR TYPE USED AT EACH LOCATION.
17. PLACED AT DIRECTION OF ENGINEER TO FILL VOIDS, CRACKS, OR LOW SPOTS PRIOR TO FINAL PAVING.
18. SEED AT 120 LBS/ACRE.
19. PROVIDE BLANKET AT ALL SEEDED AREAS.
20. FERTILIZE AT A RATE OF 200 LBS/ACRE ON SOD AREAS. FERTILIZE AT 350 LBS/ACRE ON SEED AREAS. ANALYSIS 22-5-10.
21. INCLUDES NECESSARY GRADING. INCLUDES COMMON EXCAVATION (0.15 CU YD/SQ YD) AND SOIL PREPARATION (INCIDENTAL).
22. INPLACE PAVEMENT DEPTHS ARE EXPECTED TO VARY BETWEEN 2" TO 5". ADJUST MILLING DEPTH AND GRADE AT DIRECTION OF ENGINEER. NO PAY QUANTITY OR PRICE ADJUSTMENT SHALL BE MADE FOR VARYING PAVEMENT DEPTHS OR MILLING GRADE ADJUSTMENTS.
23. STA 217+80.59 (4.33' LT).
24. REFER TO SPECIAL PROVISIONS FOR REQUIREMENTS.
25. APPLIES TO ALL STRUCTURES IN PAVED AREAS. REFER TO CONSTRUCTION DETAILS (CITY STRM-5A) FOR REQUIREMENTS.
26. HIGH EARLY CONCRETE.
27. REFER TO SPECIAL PROVISION FOR SEQUENCING AND STAGING REQUIREMENTS.
28. SAWING CONCRETE PAVEMENT (FULL DEPTH) SHALL INCLUDE OVERLAY AND CONCRETE WHERE ENCOUNTERED.
29. INCLUDES COMMON EXCAVATION FOR BITUMINOUS DRIVE.
30. STA 217+85.00 (8.0' LT)
31. APPLIES TO ALL STRUCTURES IN CONCRETE GUTTER OR WALK AREAS.

PLOT DATE: 1/5/2016 9:35:19 AM FILE: R:\14P\140315\600 Drawings\C\College Street\140315-CS 02 (SEQ and Construction Notes).dwg

LHB PROJECT NO. 140315

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.

BRAD SCOTT
PRINTED NAME


SIGNATURE

01/06/2016
DATE
46198
LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

STATEMENT OF ESTIMATED QUANTITIES

SHEET NO. **2** OF **53** SHEETS

STATEMENT OF ESTIMATED QUANTITIES

LINE	NOTES	CHART	SHEET	SPEC. NO.	DESCRIPTION	UNIT	TOTAL PROJECT		S.A.P. 118-115-008				
							TOTAL ESTIMATED QUANTITY	TOTAL FINAL QUANTITY	ROADWAY		STORM		
									EST	FINAL	EST	FINAL	
42													
43	9	D	6	2506.501	CONST DRAINAGE STRUCTURE DESIGN F	LIN FT	6.6					6.6	
44	9,15	D	6	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	EACH	12					12	
45		E	6	2506.516	CASTING ASSEMBLY	EACH	2					2	
46	31		39-41	2506.602	ADJUST FRAME & RING CASTING	EACH	11					11	
47	25		40-41	2506.602	CONCRETE ENCASED CASTING COLLAR	EACH	11					11	
48	24		37-39	2506.602	REPAIR STRUCTURE	EACH	3					3	
49													
50	10	C	5	2521.501	4" CONCRETE WALK	SQ FT	2 998		2 998				
51	10	C	5	2521.501	6" CONCRETE WALK	SQ FT	2 134		2 134				
52													
53		C	5	2531.501	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	537		537				
54	11	C	5	2531.501	CONCRETE CURB & GUTTER DESIGN B624 (MODIFIED)	LIN FT	2 916		2 916				
55													
56	12	C	5	2531.507	7" CONCRETE DRIVEWAY PAVEMENT	SQ YD	188		188				
57	13,14	C	5	2531.618	TRUNCATED DOMES	SQ FT	338		338				
58													
59	27		36	2563.601	TRAFFIC CONTROL	LUMP SUM	1		0.90		0.10		
60													
61		J	44	2564.515	SIGN SUPPORT	EACH	21		21				
62		J	44	2564.531	SIGN PANELS TYPE C	SQ FT	20		20				
63		J	44	2564.602	RELOCATE SIGN	EACH	15		15				
64													
65		F	6	2573.502	SILT FENCE, TYPE HEAVY DUTY	LIN FT	813		813				
66	16	F	6	2573.530	STORM DRAIN INLET PROTECTION	EACH	22		22				
67	16	F	6	2573.602	CULVERT INLET PROTECTION	EACH	3		3				
68	16	F	6	2573.602	OUTLET APRON SEDIMENT TRAP	EACH	4		4				
69													
70			37-41	2574.525	COMMON TOPSOIL BORROW	CU YD	327		327				
71													
72	18,21	G	7	2575.501	SEEDING	ACRE	0.5		0.5				
73		G	7	2575.502	SEED MIXTURE 25-151	POUND	60		60				
74	21	G	7	2575.505	SODDING TYPE LAWN	SQ YD	1 787		1 787				
75	19	G	7	2575.523	EROSION CONTROL BLANKETS CATEGORY 3	SQ YD	673		673				
76	20	G	7	2575.532	FERTILIZER TYPE 3	POUND	151		151				
77													
78			42-43	2582.501	PAVEMENT MESSAGE (LEFT ARROW) EPOXY	EACH	2		2				
79			42-43	2582.501	PAVEMENT MESSAGE (THRU & RIGHT ARROW) EPOXY	EACH	2		2				
80			42-43	2582.502	4" SOLID WHITE LINE EPOXY	LIN FT	1 960		1960				
81			42-43	2582.502	24" STOP LINE WHITE EPOXY	LIN FT	100		100				
82			42-43	2582.502	4" DOUBLE SOLID LINE YELLOW EPOXY	LIN FT	2 705		2705				
83			42-43	2582.503	CROSSWALK	SQ FT	1 230		1230				
84													

PLOT DATE: 1/5/2016 9:04:34 AM FILE: R:\P\Proj\140315\600 Drawings\C\College Street\140315-CS-02 (SEQ and Construction Notes).dwg

LHB PROJECT NO. 140315

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.

BRAD SCOTT
PRINTED NAME



SIGNATURE

01/06/2016
DATE
46198
LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

STATEMENT OF ESTIMATED QUANTITIES

SHEET NO. 3 OF 53 SHEETS

CONSTRUCTION NOTES

1. WITHIN THE PLAN WHEREVER THE WORD "INCIDENTAL" IS USED IT SHALL MEAN NO DIRECT PAYMENT WILL BE MADE FOR THAT ITEM.
2. WHENEVER THE PHRASE "MIN." IS USED IN THIS PLAN, IT SHALL MEAN THE WORD MINIMUM.
3. ALL EXCAVATION IS CONSIDERED COMMON EXCAVATION.
4. THE BOTTOM OF ALL EXCAVATIONS SHALL BE SHAPED AND COMPACTED WITH A MINIMUM OF FOUR PASSES OF AN APPROVED ROLLER.
5. THE CONTRACTOR SHALL NOT STORE EXCAVATED MATERIAL OUTSIDE THE PLANNED CONSTRUCTION LIMITS UNLESS APPROVED BY THE ENGINEER.
6. EMBANKMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY STANDARD SPECIFICATIONS, MN/DOT SPECIFICATION 2105, AND PROJECT SPECIAL PROVISIONS.
7. THE CONTRACTOR SHALL PRESERVE ALL LAND AND PROPERTY CORNERS, VERTICAL AND HORIZONTAL CONTROLS AND RIGHT OF WAY MONUMENTS.
8. PROVIDE 1:4 (V:H) LONGITUDINAL TAPERS BETWEEN CHANGES IN SUBGRADE AND SUBCUT DEPTHS UNLESS OTHERWISE NOTED.
9. PLACE 1/2" BIT FELT (FULL HEIGHT) AT ALL JOINTS WHERE PROPOSED CONCRETE DRIVEWAYS AND WALKS MEET EXISTING CONCRETE DRIVEWAYS, SIDEWALKS, OR RETAINING WALLS.
10. AVERAGE INPLACE PAVEMENT THICKNESS IS 8.0" NON-REINFORCED CONCRETE PAVEMENT WITH BITUMINOUS OVERLAY. INPLACE PAVEMENT DEPTHS MAY VARY.
11. ALL AREAS DISTURBED BY THE CONTRACTOR'S EQUIPMENT WHICH ARE OUTSIDE THE PLANNED CONSTRUCTION LIMITS SHALL BE RESTORED WITH SOD, TOPSOIL AND FERTILIZER AT THE CONTRACTOR'S EXPENSE AND NO ADDITIONAL COST TO THE CITY.
12. BITUMINOUS SURFACING, CONCRETE ITEMS, ABANDONED UTILITY ITEMS, OR ANY OTHER MATERIAL WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION THAT ARE NOT SUITABLE FOR SALVAGE OR FOR ROADWAY CONSTRUCTION SHALL BE DISPOSED OF BY THE CONTRACTOR AT AN APPROVED DISPOSAL SITE AND SHALL BE INCIDENTAL TO THESE ITEMS.
13. THE CONTRACTOR SHALL PROVIDE A CONCRETE WASHOUT AND WASHOUT LOCATION AND CONTAINER ON THE PROJECT AND IT SHALL BE APPROVED BY THE ENGINEER PRIOR TO RELATED WORK. THE CONTRACTOR SHALL MAINTAIN THE CONTAINER AND DISPOSE OF ITS CONTENTS IN ACCORDANCE WITH MPCA REQUIREMENTS. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ALL CONCRETE ITEMS, FOR WHICH NO DIRECT COMPENSATION SHALL BE MADE.
14. BITUMINOUS TONNAGE COMPUTED AT 120 LBS/SQ YD/INCH OF THICKNESS.
15. PLACE BITUMINOUS MATERIAL FOR TACK COAT (SPEC 2357) IN BETWEEN BITUMINOUS LIFTS AT A RATE OF 0.03-0.05 GAL./SQ. YD. ON PAVED SURFACES AND 0.07-0.10 GAL./SQ. YD. ON MILLED SURFACES AND 0.5' OVERLAP ON LONGITUDINAL JOINTS WHICH SHALL BE CONSIDERED INCIDENTAL.
16. CARE SHALL BE TAKEN BY THE CONTRACTOR SO AS NOT TO DAMAGE THE REMAINING MATERIALS DIRECTLY ADJACENT TO THE MATERIALS TO BE REMOVED.
17. ANY DAMAGE TO THE EXISTING MATERIAL RESULTING FROM THE MATERIAL REMOVAL OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
18. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

UTILITIES

THE CONTRACTOR IS HEREBY REMINDED OF HIS RESPONSIBILITY UNDER STATE LAW TO CONTACT ALL UTILITIES THAT MAY HAVE FACILITIES IN THE AREA. CONTACT MUST BE MADE THROUGH GOPHER STATE ONE-CALL: 1-800-252-1166.

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

THE FOLLOWING UTILITY COMPANIES HAVE FACILITIES WITHIN THE PROJECT LIMITS:

- CHARTER COMMUNICATIONS
- CITY OF DULUTH
- PAUL BUNYAN TELEPHONE
- NORTHEAST SERVICE COOPERATIVE (NESC)
- COMPUTDYNE
- MINNESOTA POWER
- ENVENTIS
- CENTURYLINK

SHARED USE PATH DESIGN DESIGNATION

Surface Width = 10' (8' MIN.)
 Shoulder / Clear Zone = 2'
 Design Speed 20 MPH
 Based on STOPPING Sight Distance
 Height Of Eye 4.5 ft. Height of object 0.0 ft.
 Design Speed not achieved at the following stop conditions: N.A.
 Classification SHARED USE PATH

MnDOT STANDARD PLATES

THE FOLLOWING STANDARD PLATES APPROVED BY FHWA SHALL APPLY ON THIS PROJECT	
PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
4005M	MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F
4006M	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE
4011E	PRECAST CONCRETE BASE
4140D	SPECIAL GRATE CASTINGS FOR CATCH BASIN
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4160D	CURB BOX CASTING FOR CATCH BASIN - CASTING NO. 823A AND 833A
7035N	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7102J	CONCRETE CURB AND GUTTER (DESIGN D, DESIGN S, DESIGN B4, DESIGN B5, DESIGN B3)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
8000I	STANDARD BARRICADES

CONSTRUCTION QUANTITY CHART INDEX

CHART NO.	DESCRIPTION	SHEET NO.
A	REMOVALS AND SAWCUTTING PAVEMENT	5
B	AGGREGATE BASE AND BITUMINOUS	5
C	PROPOSED CONCRETE, CURB AND GUTTER, WALKS, AND DRIVEWAYS	5
D	PROPOSED DRAINAGE STRUCTURES	6
E	CASTING ASSEMBLIES	6
F	TEMPORARY EROSION CONTROL	6
G	PERMANENT TURF RESTORATION	7
H	EARTHWORK VOLUMES	7
I	PROPOSED DRAINAGE PIPE	7
J	SIGNS	40

PLOT DATE: 1/5/2016 9:35:33 AM FILE: R:\P-Proj\140315\600 Drawings\C\College Street\140315-CS-02 (SEQ and Construction Notes).dwg

LHB PROJECT NO. 140315

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BRAD SCOTT
PRINTED NAME


SIGNATURE

01/06/2016
DATE
46198
LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CONSTRUCTION NOTES & STANDARD PLATES
SHEET NO. 4 OF 53 SHEETS

A	REMOVALS AND SAWCUTTING PAVEMENT									
LOCATION	L / R	REMOVE PIPE SEWERS	REMOVE CURB AND GUTTER	REMOVE CONCRETE WALK	REMOVE DRIVEWAY PAVEMENT	REMOVE PAVEMENT	REMOVE SIGN	REMOVE MANHOLE OR CATCH BASIN	SAWING CONCRETE PAVEMENT FULL DEPTH	SAWING BITUMINOUS PAVEMENT FULL DEPTH
		2104 LIN FT	2104 LIN FT	2104 SQ FT	2104 SQ YD	2104 SQ YD	2104 EACH	2104 EACH	2104 LIN FT	2104 LIN FT
99+86.00 to 100+19.27	L/R					210			130	
99+89.97 to 100+19.27	R			228						
99+91.00 to 116+54.00	L	61		101	91	2852	6	5	1687	
114+67.00	R						2			
116+75.00 to 126+41.00	L	70	67	52	27	1820	10	5	1037	51
116+76.03 to 117+15.64	R			202		16			47	
119+82.89 to 120+00.06	R			81		7			25	
120+93.04 to 121+13.48	R			105		11			37	
121+63.82 to 122+48.47	R			508		34			92	
122+96.06 to 125+24.77	R			1390		93	1		234	
125+76.01 to 126+34.00	R		19	337		24			67	
126+70.00 to 127+62.00	L		201	813		198	1		200	
127+23.00 to 127+57.00	R		32	166		9			40	
MISSOURI									25	
BRAINERD									30	
DRIVES										125
TOTALS		131	319	3983	118	5274	20	10	3651	176

B	AGGREGATE BASE AND BITUMINOUS		
STATION	AGGREGATE BASE (CV) CLASS 5 (P) 2211 CU YD	PLANT MIXED BITUMINOUS	
		TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) 2360 TON	TYPE SP 12.5 NON-WEARING COURSE MIXTURE (3,C) 2360 TON
COLLEGE STREET			
99+85.25 TO 127+59.29			1519
SHARED USE TRAIL			
200+97.80 TO 226+99.96	505	379	
TOTALS	505	379	1519

C	PROPOSED CONCRETE, CURB AND GUTTER, WALKS, AND DRIVEWAYS														
STATION	L / R	TRUNCATED DOMES	4" CONCRETE WALK	6" CONCRETE WALK	B624 CURB & GUTTER	B624 CURB & GUTTER (MODIFIED)	PLACE CONCRETE PAVEMENT	STRUCTURAL CONCRETE	DOWEL BARS	DRILL & GROUT REINF. BARS	REINF. BARS	AGGREGATE BASE (CV) CLASS 5	7" CONCRETE DRIVEWAY PAVEMENT	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) 3" THICK 2360	REMARKS
		2531 SQ FT	2521 SQ FT	2521 SQ FT	2531 LIN FT	2531 LIN FT	2301 SQ YD	2301 CU YD	EACH	EACH	EACH	EACH	2211 CU YD	2531 SQ YD	2360 SQ YD
COLLEGE STREET															
99+89.20 TO 116+64.91	LT	48		412		1701	391	87		852	852	240	110	98	INCLUDES 35 CY AGG BASE FOR DRIVES
99+89.30 TO 100+19.27	RT	58		380	51							3			
116+64.91 TO 119+99.64	LT	40		172		357	79	18		180	180	37			
116+64.91 TO 119+99.64	RT		283		58							4			
119+99.64 TO 123+24.70	LT	40		172		351	78	17		177	177	86	35	13	INCLUDES 8 CY AGG BASE FOR DRIVES
119+99.64 TO 122+48.47	RT		615		109							14			
122+96.06 TO 126+55.28	RT	20	1580	139	287							29			
123+24.70 TO 126+55.28	LT	54		306		332	74	16		167	167	46	43	19	INCLUDES 10 CY AGG BASE FOR DRIVES
126+55.28 TO 127+62.36	LT	58	520	376		175	39	9		89	89	23			
126+55.28 TO 127+56.51	RT	20		177	32							3			
MISSISSIPPI AVE	LT						20	4	15		15				REPLACE CONC. PANELS AT STORM WORK
BRAINERD AVE	LT						20	4	15		15				REPLACE CONC. PANELS AT STORM WORK
TOTALS		338	2998	2134	537	2916	701	155	30	1463	1493	485	188	130	

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DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CONSTRUCTION QUANTITY CHARTS
SHEET NO. 5 OF 53 SHEETS

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D										
PROPOSED DRAINAGE STRUCTURES										
STRUCTURE NO.	STATION	OFFSET	L / R	CONSTRUCT DRAINAGE STRUCTURE DESIGN F	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	CASTING ASSEMBLY	CONNECT TO EXISTING STORM SEWER	CITY PLATE NUMBER	RIM ELEV	OUTLET INVERT ELEV
				2506 LIN FT	2506 EACH		2506 EACH			
PCB-105	103+52.07	9.91	L		1		1	STRM-3	1184.25	1180.89
PCB-107	108+01.85	9.53	L		1		1	STRM-3	1181.13	1177.28
APR-123	108+13.75	34.96	L					12" CAS PIPE APRON		1180.50
PCB-109A	111+81.62	10.06	L		1			STRM-2	1176.66	1172.79
PCB-109B	112+04.24	9.90	L		1		1	STRM-2	1176.42	1172.30
PCB-109C	112+17.39	44.62	L		1			4140	1175.19	1173.09
PCB-109D	112+26.63	10.07	L		1			STRM-2	1176.42	1172.79
PCB-113	119+68.79	9.75	L		1			STRM-3	1177.84	1174.09
PCB-114	119+83.79	33.29	L		1		1	STRM-3	1176.58	1175.91
PCB-115	120+07.60	32.51	L		1		1	STRM-3	1176.00	1174.00
PMH-105	119+97.95	9.97	L		1		1	STRM-1	1175.95	1172.44
PCB-117	122+96.85	9.75	L		1			STRM-3	1149.71	1146.83
PMH-107	123+28.50	10.13	L	6.6		1	1	STRM-1	1148.14	1141.50
PCB-122	126+18.07	15.78	L		1		1	STRM-3	1132.25	1129.08
ICB-25	126+76.00	21.70	L			1		STRM-1		
TOTALS				6.6	12	2	8			

E									
CASTING ASSEMBLIES									
TYPE OF CASTING	A		B		C			D	
	STORM MH		CATCH BASIN		CATCH BASIN - LOW POINT			CATCH BASIN - FIELD	
TYPE OF ASSEMBLY	FRAME	LID	FRAME	GRATE	FRAME	GRATE	CURB BOX	FRAME	GRATE
CASTING DESCRIPTION	STRM-1		STRM-3		STRM-2			STRM-3	
CITY STD. DETAIL NUMBER	STRM-1		STRM-3		STRM-2			STRM-3	
CASTING NUMBER	700-8	715	805	816	5002	816	823A	700-9	720
STANDARD PLATE NUMBER	4101	4110	CITY 5005	4154	CITY 5002	4154	4160	4101	4140
HEIGHT IN FEET	0.67	NA	0.78	N/A	0.78	N/A	1.05	0.78	N/A
NUMBER REQUIRED	3		7		3			1	

F					
TEMPORARY EROSION CONTROL					
STATION	L / R	SILT FENCE TYPE	STORM DRAIN INLET PROTECTION	CULVERT INLET PROTECTION	OUTLET APRON SEDIMENT TRAP
		HEAVY DUTY	2573	2573	2573
		LIN FT	EACH	EACH	EACH
100+00	R	72			
103+49.00 to 103+52.00	L/R		2		1
108+01.00	L/R		2	1	1
111+64.00 to 114+20.00	L	221	3	1	2
112+02	R		1		
114+43.00 to 115+07.00	L	62		1	
116+76.00 to 117+16.00	R	40			
119+69.00 to 120+08.00	L/R		4		
121+64.00 to 122+49.00	R	85			
122+96.00 to 125+25.00	L/R	229	4		
125+76.00 to 126+76.00	R	54	4		
127+34.00 to 127+61.00	R	50			
128+05.00 to 128+29.00	L/R		2		
TOTALS		813	22	3	4

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BRAD SCOTT
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SIGNATURE

01/06/2016
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46198
LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CONSTRUCTION QUANTITY CHARTS
SHEET NO. 6 OF 53 SHEETS

G		PERMANENT TURF RESTORATION				
STATION	L / R	SEEDING	SEED MIXTURE 25-131	SODDING TYPE LAWN	EROSION CONTROL BLANKET CATEGORY 3	FERTILIZER TYPE 3
		2575	2575	2575	2575	2575
		ACRE	POUND	SQ YD	SQ YD	POUND
99+95.00 to 100+21.00	L/R			24		1
100+09.00 to 108+26.00	L	0.25	30	305	361	50
108+46.00 to 114+21.00	L	0.25	30	254	312	50
114+47.00 to 115+31.00	L			108		4
115+45.00 to 116+50.00	L			98		4
116+76.03 to 119+83.00	L/R			166		7
119+82.89 to 120+00.06	R			8		0
120+08.00 to 121+25.00	L/R			118		5
121+47.00 to 123+10.00	L/R			191		8
122+96.06 to 125+35.00	L/R			232		10
125+46.00 to 126+37.00	L/R			72		3
126+72.00 to 127+62.00	L/R			211		9
TOTALS		0.5	60	1787	673	151

H		EARTHWORK SUMMARY				
LOCATION	LT/RT	TOTAL COMMON EXCAVATION	EMBANKMENT FROM X-SEC.	EXCESS COMMON EXCAVATION	SELECT GRANULAR BORROW MOD 7%	REMARKS
		CU YD	CU YD	CU YD	CU YD	
200+97.78 TO 209+33.80	LT	184	164	20	593	START AT KENWOOD AVE TO DRWY 835
209+33.80 TO 215+17.45	LT	74	174	-100	462	DRIVEWAY 835 TO DRIVEWAY 1001
215+17.45 TO 216+25.00	LT	13	30	-17	61	DRIVEWAY 1001 TO INTERSECTION MISSOURI AVE.
216+25.00 TO 217+50.00	LT	24	26	-2	56	INTERSECTION MISSOURI AVE TO INTERSECTION MISSISSIPPI AVE
217+50.00 TO 220+75.00	LT	49	55	-6	154	INTERSECTION MISSISSIPPI AVE TO DRIVEWAY 615
220+75.00 TO 224+00.00	LT	60	57	3	222	DRIVEWAY 615 TO INTERSECTION BRAINERD AVE
224+00.00 TO 225+36.73	LT	16	12	4	60	INTERSECTION BRAINERD AVE TO DRIVEWAY 517
225+36.73 TO 225+75.00	LT	12	1	11	28	DRIVEWAY 517 TO DRIVEWAY 511
225+75.00 TO 226+25.00	LT	17	1	16	27	DRIVEWAY 511 TO DRIVEWAY 507
226+25.00 TO 227+01.28	LT	28	1	27	39	DRIVEWAY 507 TO END AT JUNCTION ST.
TOTALS		477.0	521.0	-44.0 (1)	1746.0	

KEY NOTES:

(1) INDICATES IMPORT REQUIRED. PROVIDE SELECT GRANULAR BORROW MOD. 7%.

I							PROPOSED DRAINAGE PIPE		
PIPE NO.	STRUCTURE NO.		PIPE SEWER						
	FLOWS FROM	FLOWS TO	UPSTREAM	12" RC PIPE SEWER DESIGN 3006 CLASS III	PIPE GRADE	DOWNSTREAM			
			INVERT ELEV.	2503 L.F.	(FT/FT)	INVERT ELEV.			
P101	PCB-109C	PCB-109B	1173.09	37.0	0.020	1172.35			
P102	PCB-109A	PCB-109B	1172.79	22.0	0.020	1172.35			
P103	PCB-113	PMH-105	1174.09	29.0	0.053	1172.54			
P104	PCB-117	PMH-107	1146.83	32.0	0.163	1141.60			
P105	APR-123	PCB-107	1180.50	32.0	0.101	1177.28			
P106	PCB-109D	PCB-109B	1172.79	22.0	0.020	1172.35			
TOTALS				174					

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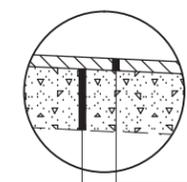
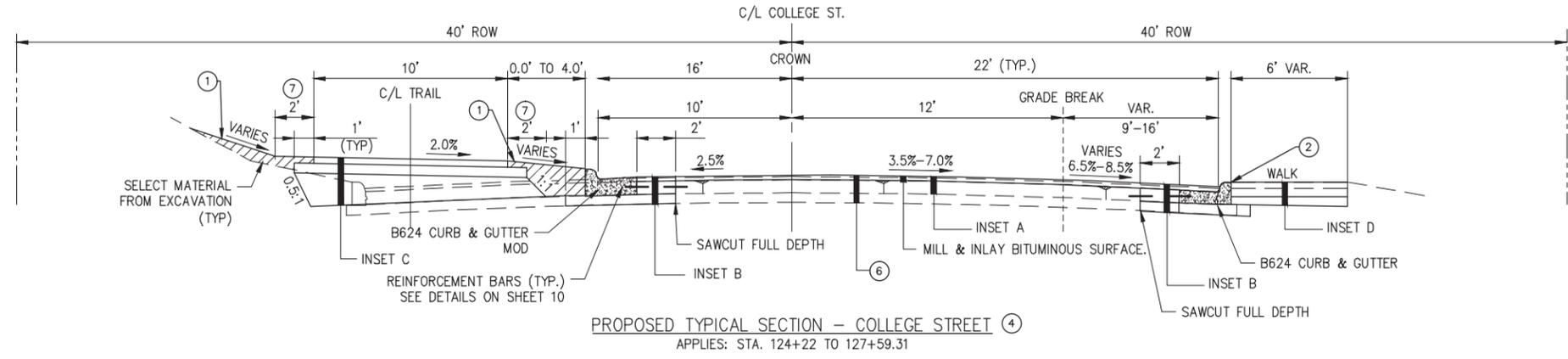
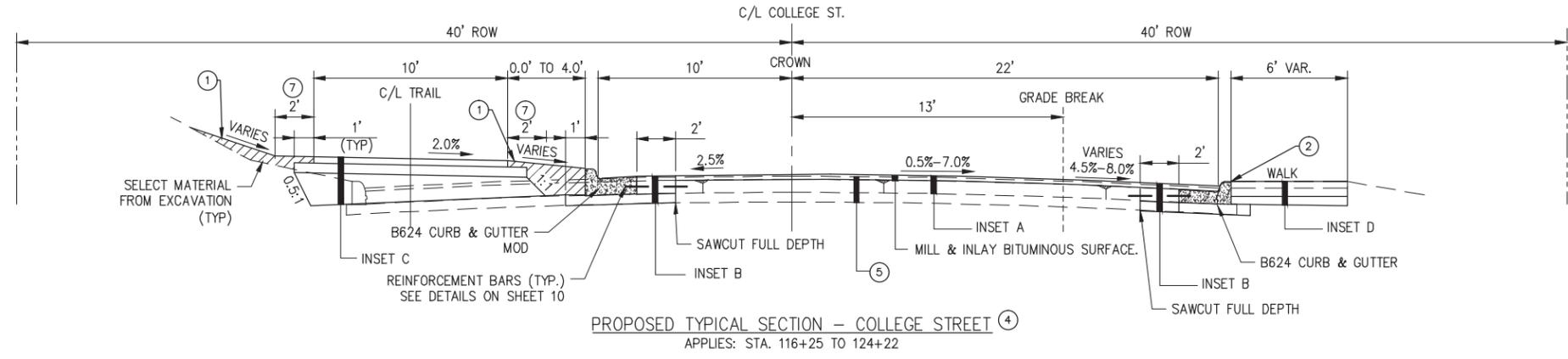
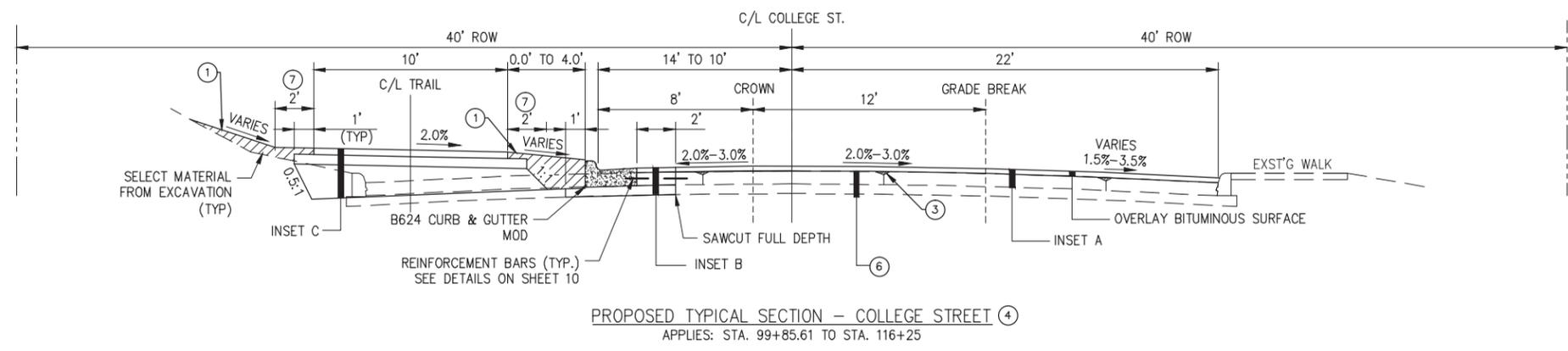
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

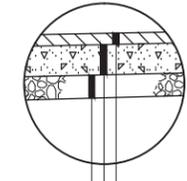
CONSTRUCTION QUANTITY CHARTS
SHEET NO. 7 OF 53 SHEETS

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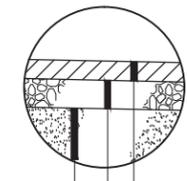
2.0"+ TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB340C)
 PLACE TACK COAT BETWEEN BIT. AND CONCRETE – SPEC 2357 (INCIDENTAL)
 EXISTING ±8" THICK CONCRETE PAVEMENT

INSET A



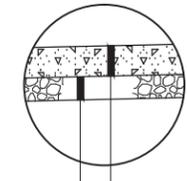
2.0"+ TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB340C)
 PLACE TACK COAT BETWEEN BIT. AND CONCRETE – SPEC 2357 (INCIDENTAL)
 PLACE CONCRETE PAVEMENT
 6" AGGREGATE BASE (CV) CLASS 5

INSET B



2.5" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA340C)
 6" AGGREGATE BASE CLASS 5
 VAR. DEPTH SELECT GRANULAR BORROW MOD. 7% (CV)

INSET C



4" OR 6" CONCRETE WALK
 6" AGGREGATE BASE (CV) CLASS 5 (INCIDENTAL TO WALK)

INSET D

KEY NOTES:

- ① 4" COMMON TOPSOIL BORROW AND SOD OR SEED AND BLANKET. PROVIDE SEEDING AND BLANKET FROM B.O.P. TO APPROXIMATE STA 114+20 (LT). PROVIDE SOD FROM APPROXIMATE STA 114+20 TO E.O.P. AND IN ALL BOULEVARD AREAS.
- ② SELECTIVE WALK AND CURB AND GUTTER REPLACEMENT.
- ③ BITUMINOUS MIX FOR PATCHING TO FILL AND LEVEL AT DIRECTION OF ENGINEER.
- ④ REFER TO CROSS SECTIONS FOR SUGGESTED MILLING AND PAVING GRADES TO BE VERIFIED AND ADJUSTED AS NEEDED IN FIELD.
- ⑤ EXISTING SECTION CONSISTS OF 3" TO 5" OF BITUMINOUS OVER 8" CONCRETE AND BASE.
- ⑥ EXISTING SECTION CONSISTS OF 8" OF CONCRETE OVER AGGREGATE BASE OR CONCRETE.
- ⑦ TRAIL SHOULDER/CLEAR ZONE.

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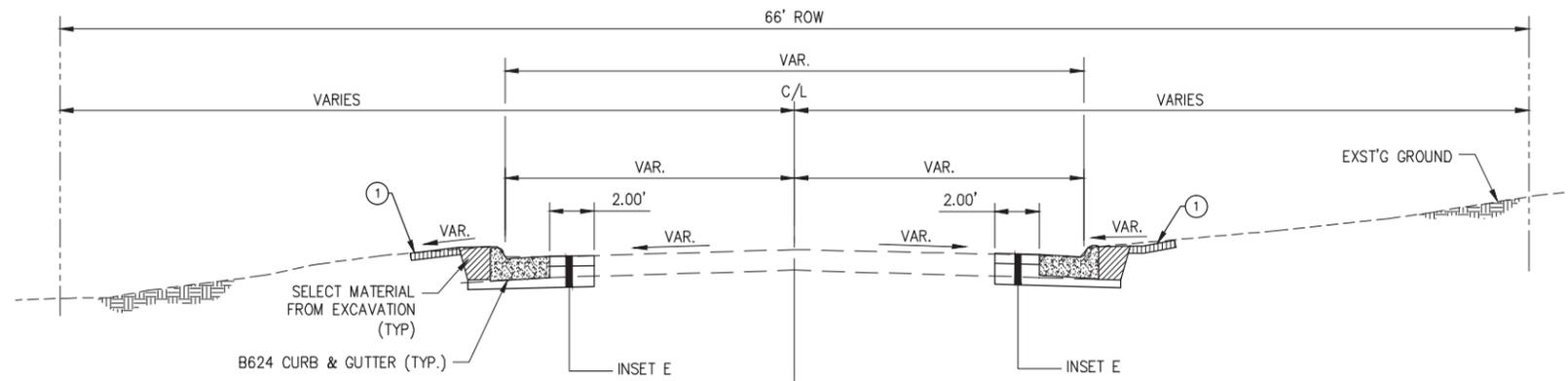
LOWELL TO LAKEWALK TRAIL
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CITY OF DULUTH
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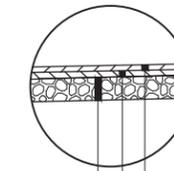
TYPICAL SECTIONS
 SHEET NO. 8 OF 53 SHEETS

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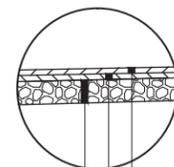
SELECT MATERIAL FROM EXCAVATION (TYP.)
B624 CURB & GUTTER (TYP.)

PROPOSED TYPICAL SECTION
APPLIES: MISSISSIPPI AVE, MISSOURI AVE, BRAINERD AVE AND JUNCTION AVE



1.5" TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB340C)
PLACE TACK COAT BETWEEN BIT. COURSES - SPEC 2357 (INCIDENTAL)
1.5" TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB340C)
6" AGGREGATE BASE (CV) CLASS 5

INSET E



1.5" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEB340C) ②
PLACE TACK COAT BETWEEN BIT. COURSES - SPEC 2357 (INCIDENTAL)
1.5" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEB340C) ②
6" AGGREGATE BASE (CV) CLASS 5

BITUMINOUS SECTION FOR DRIVEWAYS

KEY NOTES:

- ① 4" COMMON TOPSOIL BORROW AND SOD OR SEED AND BLANKET. PROVIDE SEEDING AND BLANKET FROM B.O.P. TO APPROXIMATE STA 114+20 (LT). PROVIDE SOD FROM APPROXIMATE STA 114+20 TO E.O.P. AND IN ALL BOULEVARD AREAS.
- ② PAID FOR AS "TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) 3.0" THICK" BY THE SQUARE YARD.

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DULUTH, MINNESOTA

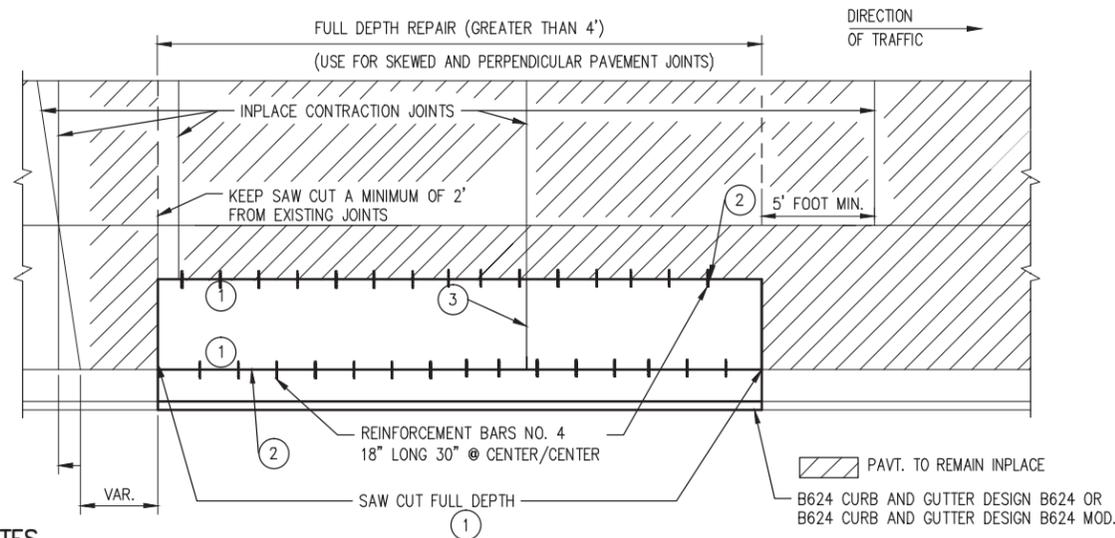
CITY OF DULUTH
CITY PROJECT NO. 1327

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TYPICAL SECTIONS

SHEET NO. 9 OF 53 SHEETS

PLAN VIEW



NOTES

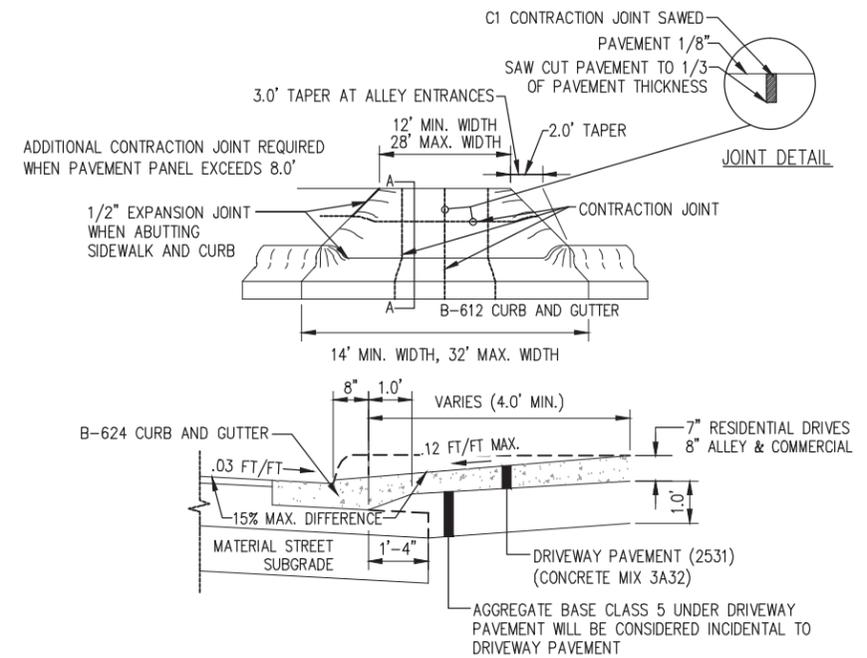
1. PLACE SAW CUT AT LEAST 2' UP STREAM OR 5' DOWN STREAM FROM ANY TRANSVERSE JOINTS IN THE ADJACENT LANE.

WORK TO BE DONE

1. SAW FULL DEPTH & REMOVE IN PLACE CONCRETE PAVEMENT. RESTORE AND COMPACT INPLACE BASE. (1)
2. DRILL AND GROUT EPOXY COATED REINFORCEMENT BARS INTO THE ADJACENT PAVEMENT. PLACEMENT OF BARS MAY OCCUR AFTER CURB & GUTTER PLACEMENT. (2)
3. PLACE CONCRETE CURB & GUTTER WITH EPOXY COATED REINFORCEMENT BARS.
4. CLEAN VERTICAL SURFACES OF INPLACE CONCRETE.
5. FURNISH AND PLACE CONCRETE MIX NUMBER 3A32HE.
6. VIBRATE, FINISH TO GRADE AND SLOPE, EDGE, TEXTURE, AND SAW JOINTS. MATCH INPLACE TRANSVERSE JOINTS. (3)

BASIS OF PAYMENT

2104	SAWING CONCRETE PAVEMENT (FULL DEPTH) (LIN FT) REMOVE PAVEMENT (SQ YD)
2301	DRILL AND GROUT REINFORCEMENT BAR (EPOXY COATED) (EACH)
2531	CONCRETE CURB & GUTTER DESIGN B624 (LIN FT) OR CONCRETE CURB & GUTTER DESIGN B624 MOD. (LIN FT). PLACEMENT OF REINFORCEMENT BARS IN CURB & GUTTER SHALL BE CONSIDERED INCIDENTAL
2301	PLACE CONCRETE PAVEMENT (SQ YD) (VARIES 7" OR 8") STRUCTURAL CONCRETE (CU YD)



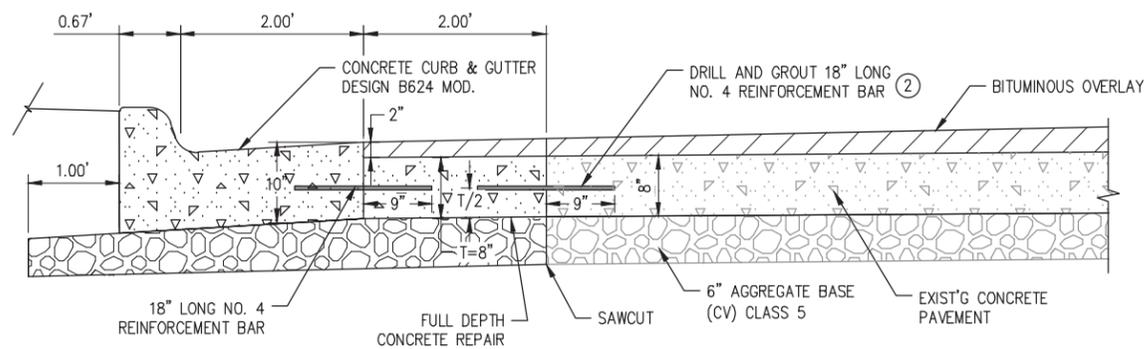
SECTION A-A

NOTE: THE CREST OF THE DRIVEWAY MUST BE AT LEAST 6" ABOVE GUTTER TO CONTAIN RUNOFF. NOTE: STATE OF MIN. STANDARD PLATE 7035N NOTE 5 SHALL NOT APPLY.

1 CONCRETE CURB AND GUTTER RETROFIT

DESCRIPTION: REMOVE CONCRETE, RESTORE AND COMPACT BASE, PLACE REINFORCEMENT BARS, FURNISH AND PLACE CONCRETE, AND SAW JOINTS.

NOT TO SCALE



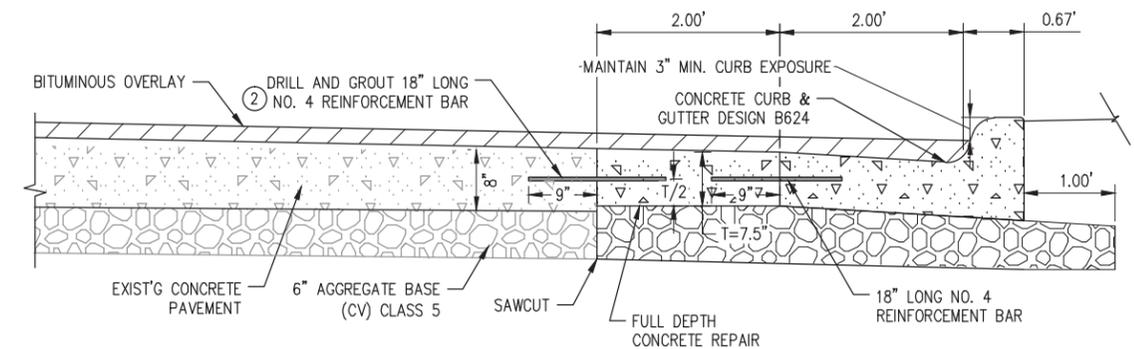
2 CONCRETE CURB AND GUTTER RETROFIT - LEFT

APPLIES TO: KENWOOD AVE TO 19TH AVE E (STA 200+97.78 TO STA 227+01.28)

NOT TO SCALE

4 DRIVEWAY & ALLEY ENTRANCES

NTS



3 CONCRETE CURB AND GUTTER RETROFIT - RIGHT (SELECT CURB & GUTTER REPLACEMENT)

APPLIES TO: MISSOURI AVE TO 19TH AVE E (STA 116+76.03 TO STA 127+56 (COLLEGE ST STATIONING))

NOT TO SCALE

NOTE:
IF THE REPLACEMENT CURB IS HAND PLACED, THE HAND PLACED CURB AND CONCRETE PATCH (AS REQUIRED) MAY BE PLACED INTEGRALLY AND ONLY A SINGLE ROW OF REINFORCEMENT BARS AT THE INTERFACE BETWEEN OLD AND NEW CONCRETE SHALL BE REQUIRED. PROJECT PAY QUANTITIES SHALL BE ADJUSTED ACCORDINGLY BY THE INSPECTOR.

PLOT DATE: 1/5/2016 12:38:52 PM FILE: R:\44pro\140315\600 Drawings\C.Collins Street\140315-05_04 (Detail).dgn

LHB PROJECT NO. 140315

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BRAD SCOTT
PRINTED NAME

BRAD SCOTT
SIGNATURE

01/06/2016
DATE
46198
LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

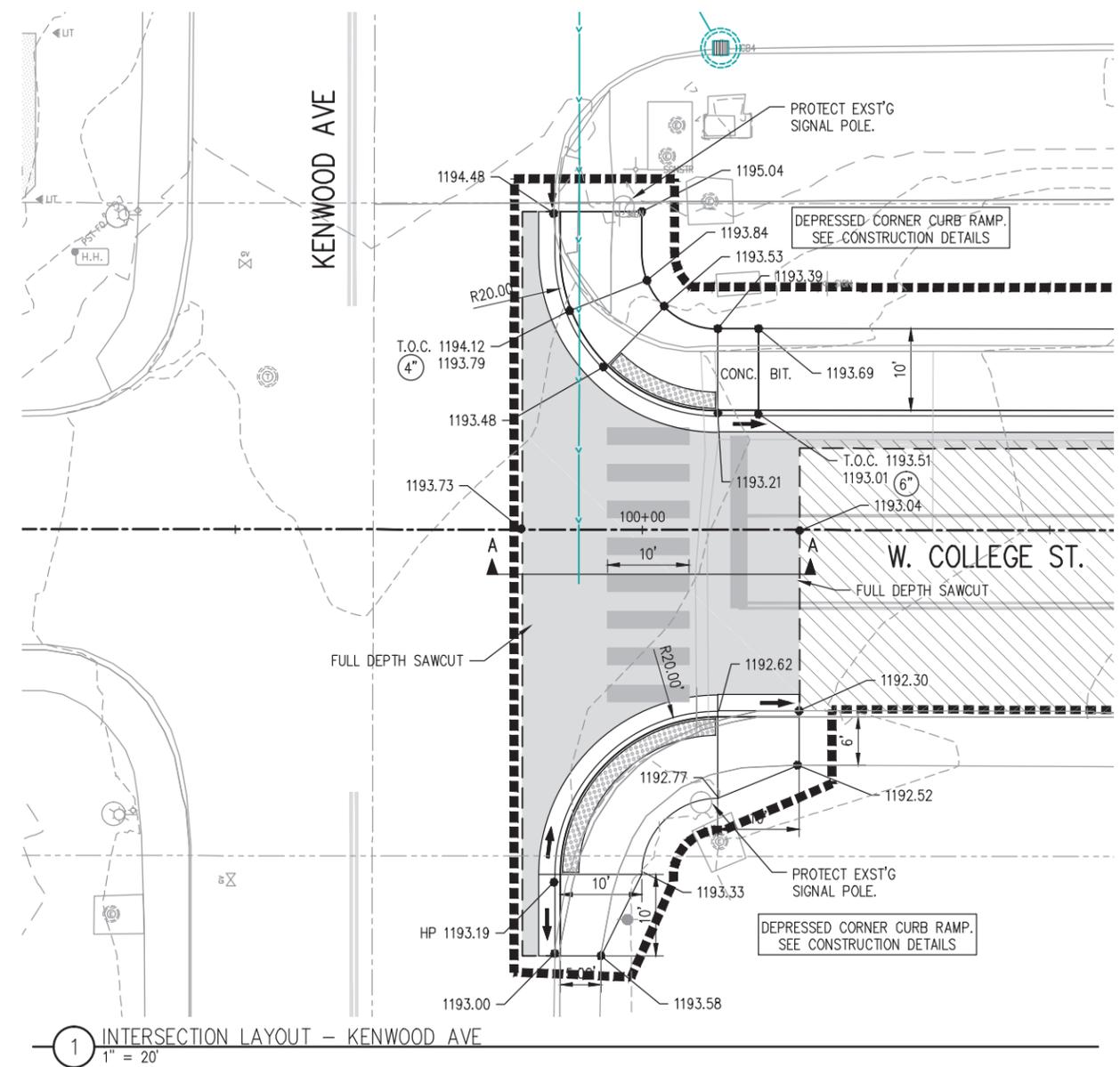
CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CONSTRUCTION DETAILS

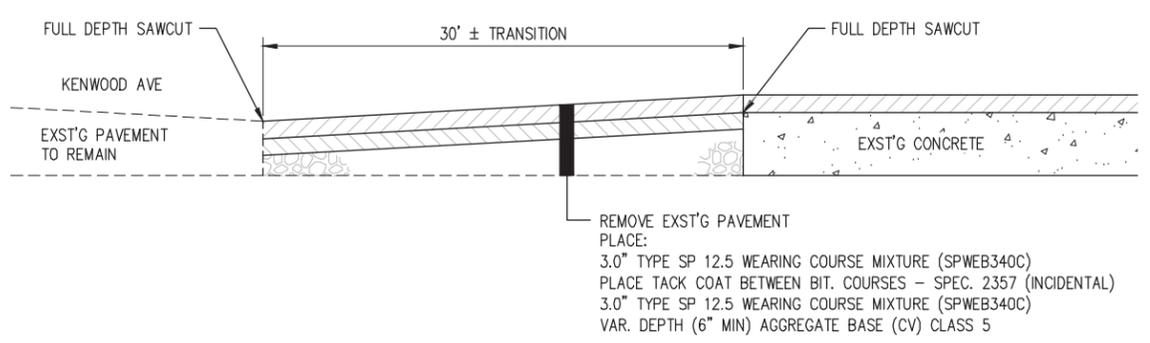
SHEET NO. 10 OF 53 SHEETS

PLOT DATE: 1/5/2016 11:58:15 AM FILE: R:\4Pro\140315\600 Drawings\College Street\140315-CS 04 (Details - Intersection).dwg



LEGEND

- EL. XXX CONTROL POINTS AT GUTTER FLOW LINE (UNLESS NOTED OTHERWISE)
- TRUNCATED DOMES (SEE STD. PLATE 7038)
- ══ CONSTRUCT CONCRETE CURB & GUTTER
- (X") CURB HEIGHT
- DRAINAGE FLOW ARROW
- T.O.C. TOP OF CURB ELEVATION
- LP LOW POINT
- HP HIGH POINT
- ▨ FULL DEPTH PAVEMENT REPLACEMENT
- ▧ BITUMINOUS OVERLAY



1 INTERSECTION LAYOUT - KENWOOD AVE
1" = 20'

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LOWELL TO LAKEWALK TRAIL

DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

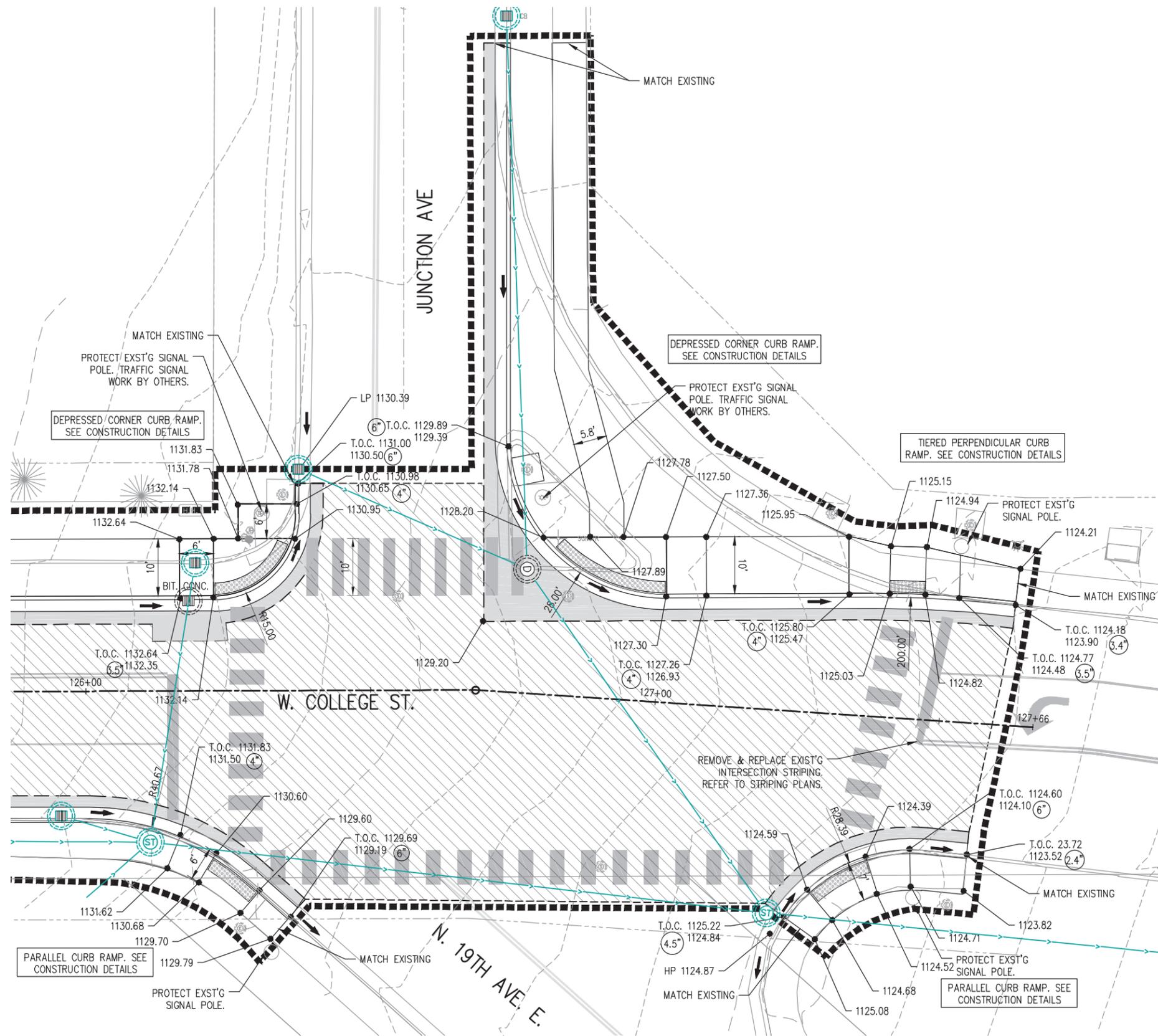
S.A.P. 118-155-008

INTERSECTION LAYOUT

CONSTRUCTION DETAILS

SHEET NO. 11 OF 53 SHEETS

PLOT DATE: 1/5/2016 11:58:55 AM FILE: R:\44ra\140315\600 Drawings\140315-CS-04 (Details - Intersection).dwg



LEGEND

- EL. XXX CONTROL POINTS AT GUTTER FLOW LINE (UNLESS NOTED OTHERWISE)
- TRUNCATED DOMES (SEE STD. PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- CURB HEIGHT
- DRAINAGE FLOW ARROW
- T.O.C. TOP OF CURB ELEVATION
- LP LOW POINT
- HP HIGH POINT
- FULL DEPTH PAVEMENT REPLACEMENT
- BITUMINOUS OVERLAY

1 INTERSECTION DETAIL - N 19TH AVE EAST
1" = 20'

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LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

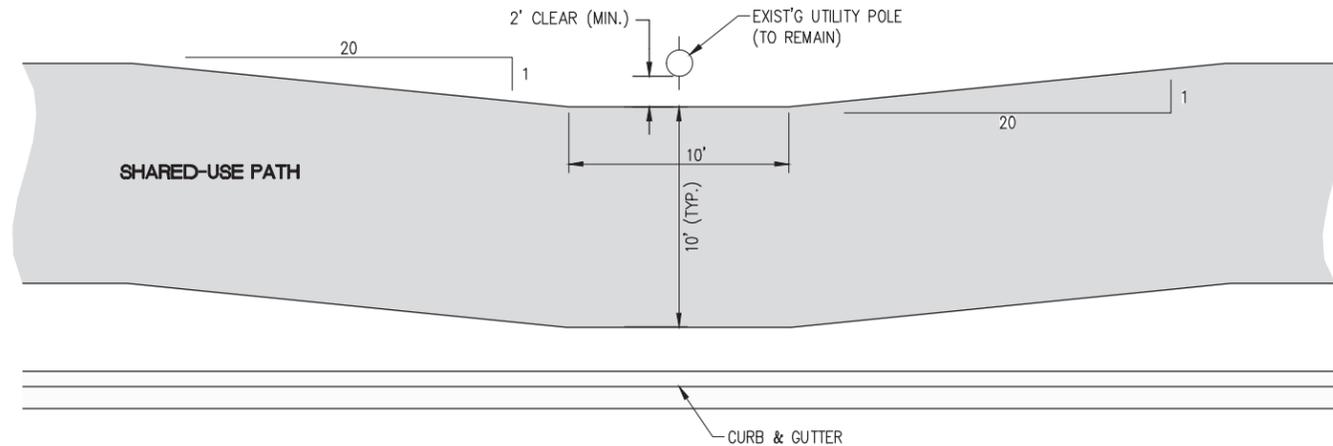
CITY OF DULUTH
CITY PROJECT NO. 1327

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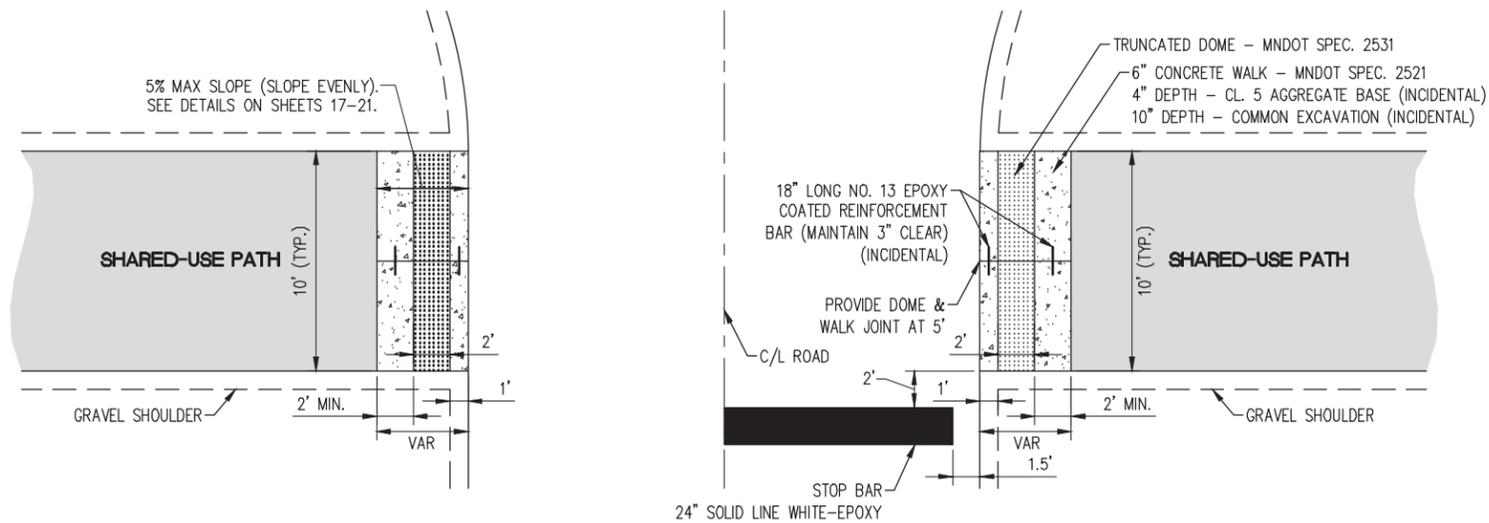
INTERSECTION LAYOUT

CONSTRUCTION DETAILS

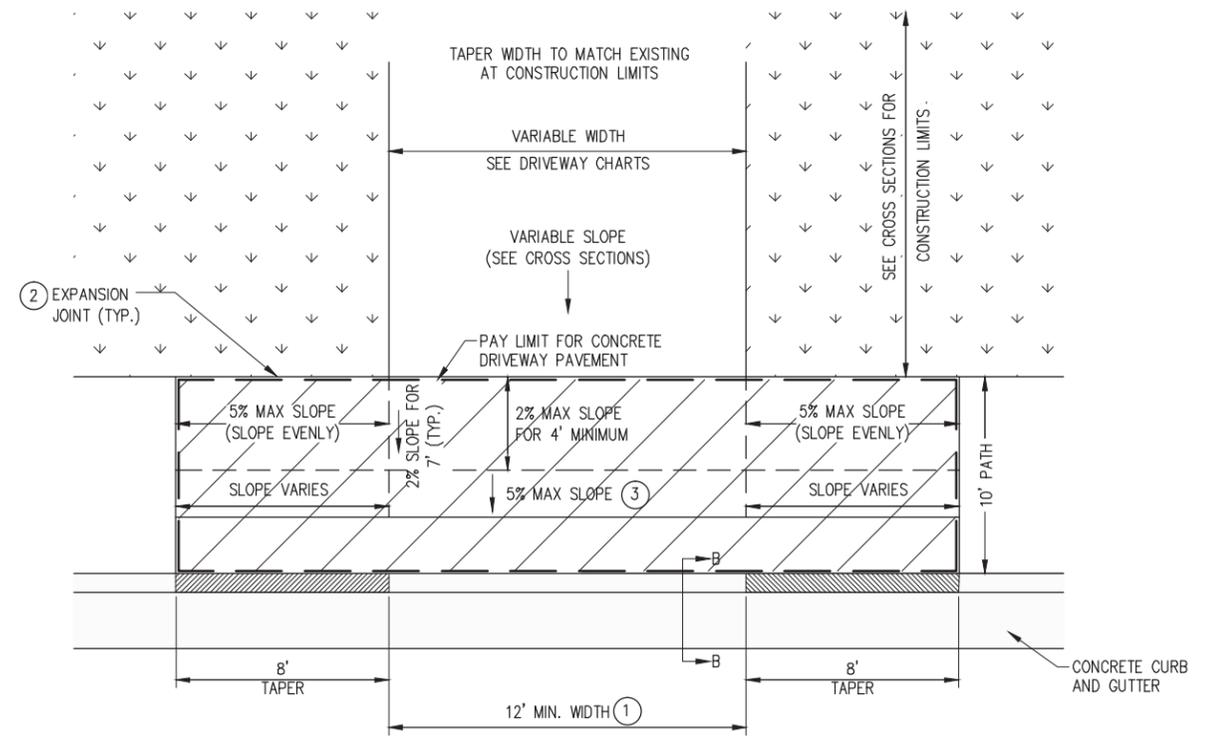
SHEET NO. 12 OF 53 SHEETS



4 SHARED-USE PATH SHIFT AT UTILITY POLES
NTS

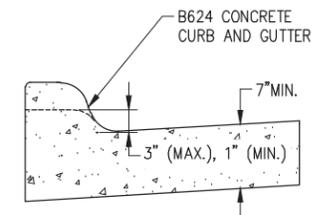


3 SHARED-USE PATH TRUNCATED DOMES
NTS



KEY NOTES

- 1 7" CONCRETE (8" AT ALLEYS AND COMMERCIAL DRIVES) WITH 12" GRAVEL BASE OR SAME AS STREET BASE. WALK PAID FOR AS DRIVEWAY PAVEMENT.
- 2 1/2" PREFORMED JOINT FILLER MATERIAL.
- 3 USE 5% MAX SLOPE WITHIN 1' OF BACK OF CURB AS DIRECTED BY THE ENGINEER OR AS INDICATED IN THE CROSS SECTIONS FOR SPECIAL SITUATIONS TO TIE INTO DRIVEWAY GRADES.

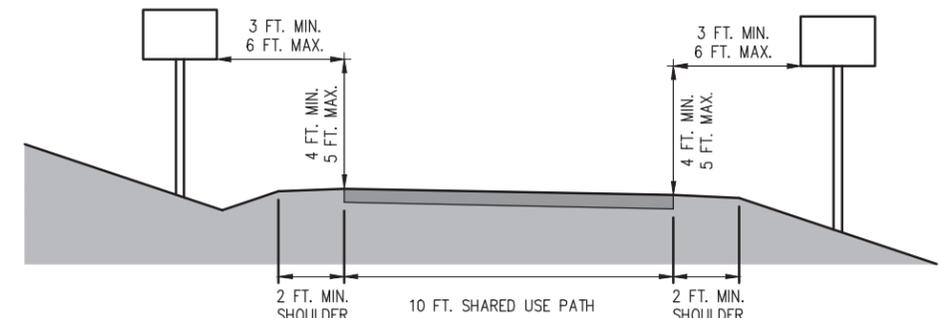


SECTION B-B

GENERAL NOTES

- 1. ALIGN APRON JOINTS WITH SIDEWALKS AND GUTTER JOINTS.
- 2. MAXIMUM DISTANCE BETWEEN JOINTS SHOULD NOT BE MORE THAN 1.5 X THE SMALLER PANEL DIMENSION. PANELS 3 FT. WIDE SHOULD HAVE JOINTS NO FURTHER APART THAN 5 FT.
- 3. SAW CUT ALL JOINTS 1/2 THE THICKNESS OF CONCRETE (7" CONC. = 2 1/2" SAWCUT) (8" CONC. = 2 3/4" SAWCUT).

1 DRIVEWAY AND WALK DETAIL
PLAN VIEW WITH 10' PATH
NTS



2 GENERAL GUIDELINES FOR SHARED-USE PATH SIGN PLACEMENT
NTS

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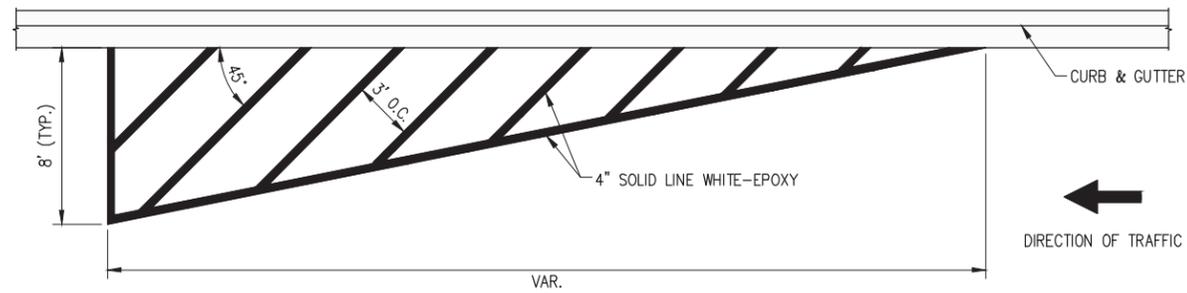
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

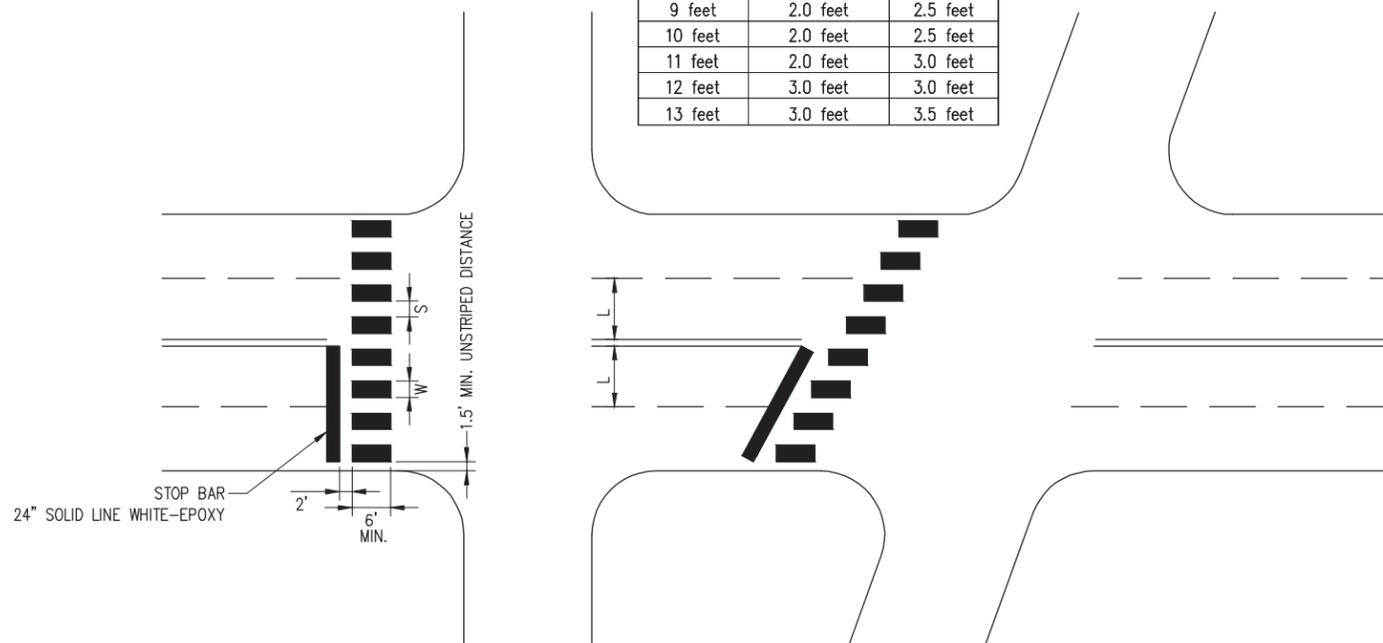
CONSTRUCTION DETAILS

SHEET NO. 13 OF 53 SHEETS



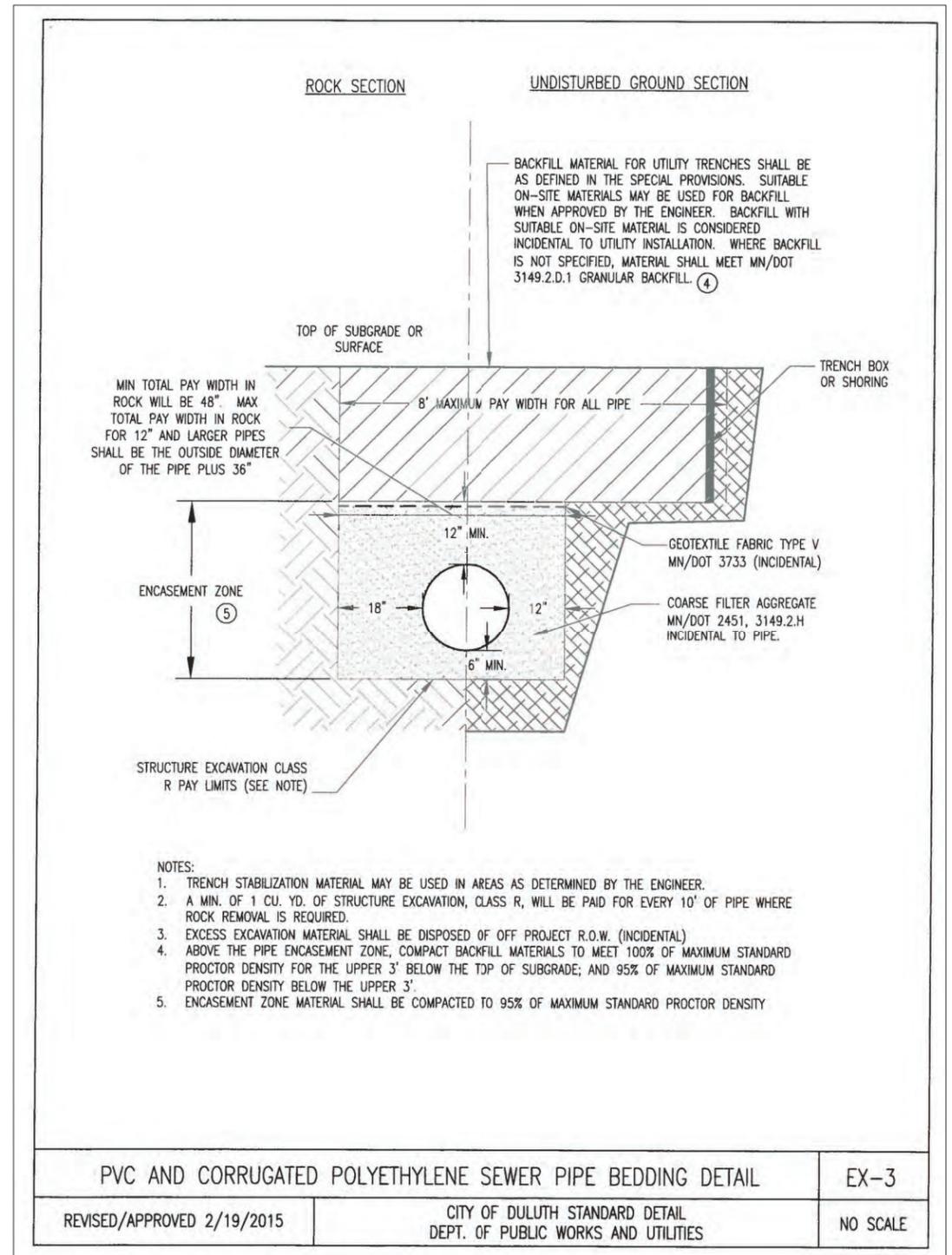
2 NO PARKING STRIPING
NTS

(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREA	(S) WIDTH OF SPACE
9 feet	2.0 feet	2.5 feet
10 feet	2.0 feet	2.5 feet
11 feet	2.0 feet	3.0 feet
12 feet	3.0 feet	3.0 feet
13 feet	3.0 feet	3.5 feet



- NOTES:
1. PAINTED AREAS TO BE CENTERED ON CENTERLINE AND LANE LINES.
 2. A MINIMUM OF 1.5 FEET CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB. IF THE LAST PAINTED AREA FALLS INTO THIS DISTANCE, IT MUST BE OMITTED.
 3. ON TWO-LANE, TWO-WAY STREETS, USE THE SPACING SHOWN FOR A 11 FOOT INSIDE LANE.
 4. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
 5. AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES AS SHOWN.
 6. THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES.
 7. CROSSWALK STRIPING SHALL BE SOLID WHITE-EPOXY.
 8. CROSSWALK STRIPING SHALL BE 10' WIDE WHERE NOTED ON PLANS.

1 PEDESTRIAN CROSS WALK MARKINGS
NTS



- NOTES:
1. TRENCH STABILIZATION MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
 2. A MIN. OF 1 CU. YD. OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
 3. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
 4. ABOVE THE PIPE ENCASEMENT ZONE, COMPACT BACKFILL MATERIALS TO MEET 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE TOP OF SUBGRADE; AND 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.
 5. ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY

PVC AND CORRUGATED POLYETHYLENE SEWER PIPE BEDDING DETAIL

EX-3

REVISED/APPROVED 2/19/2015

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE

PLOT DATE: 1/5/2016 12:39:03 PM FILE: R:\44pro\140315\600 Drawings\C.Collage Street\140315-CS 04 (Detail).dgn

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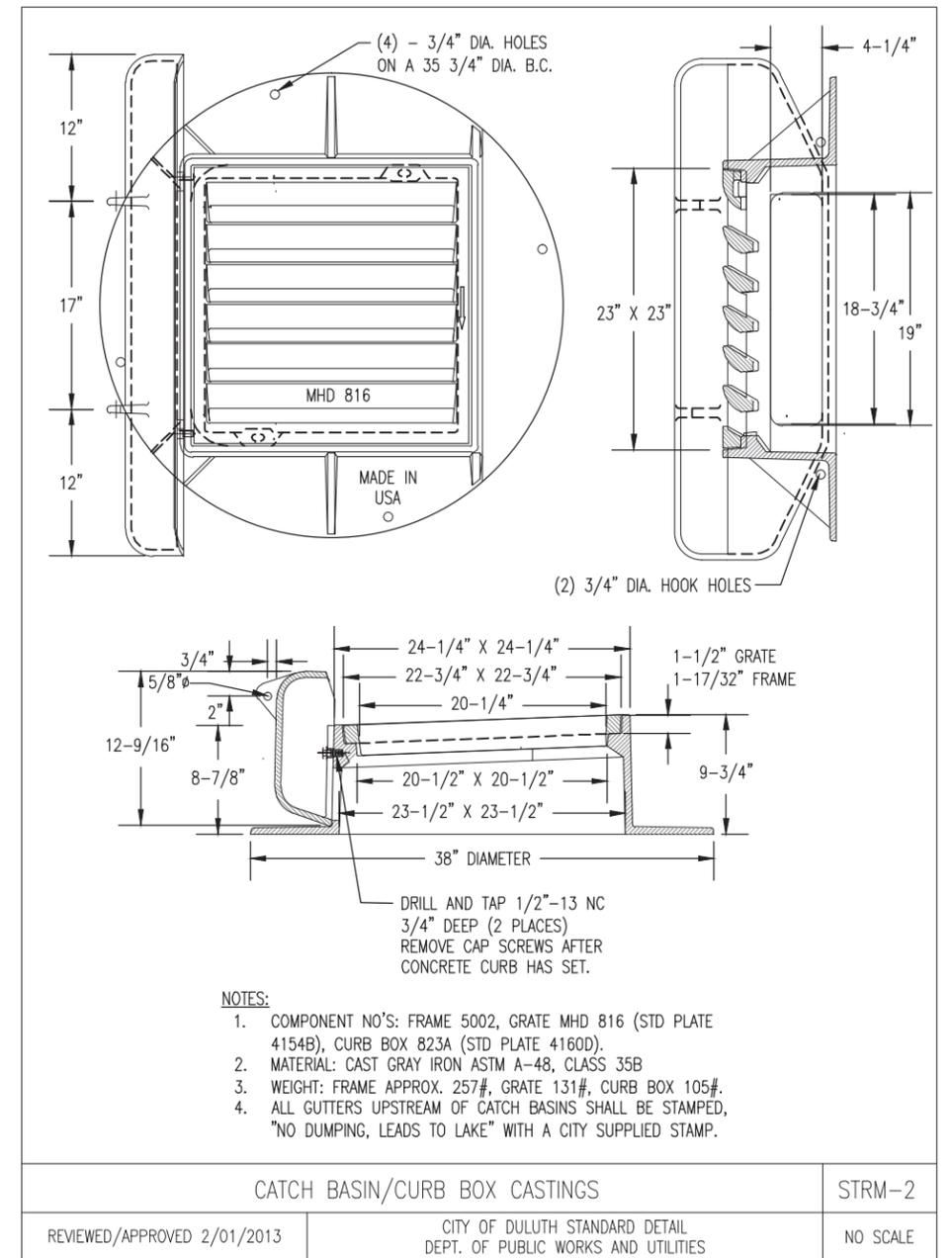
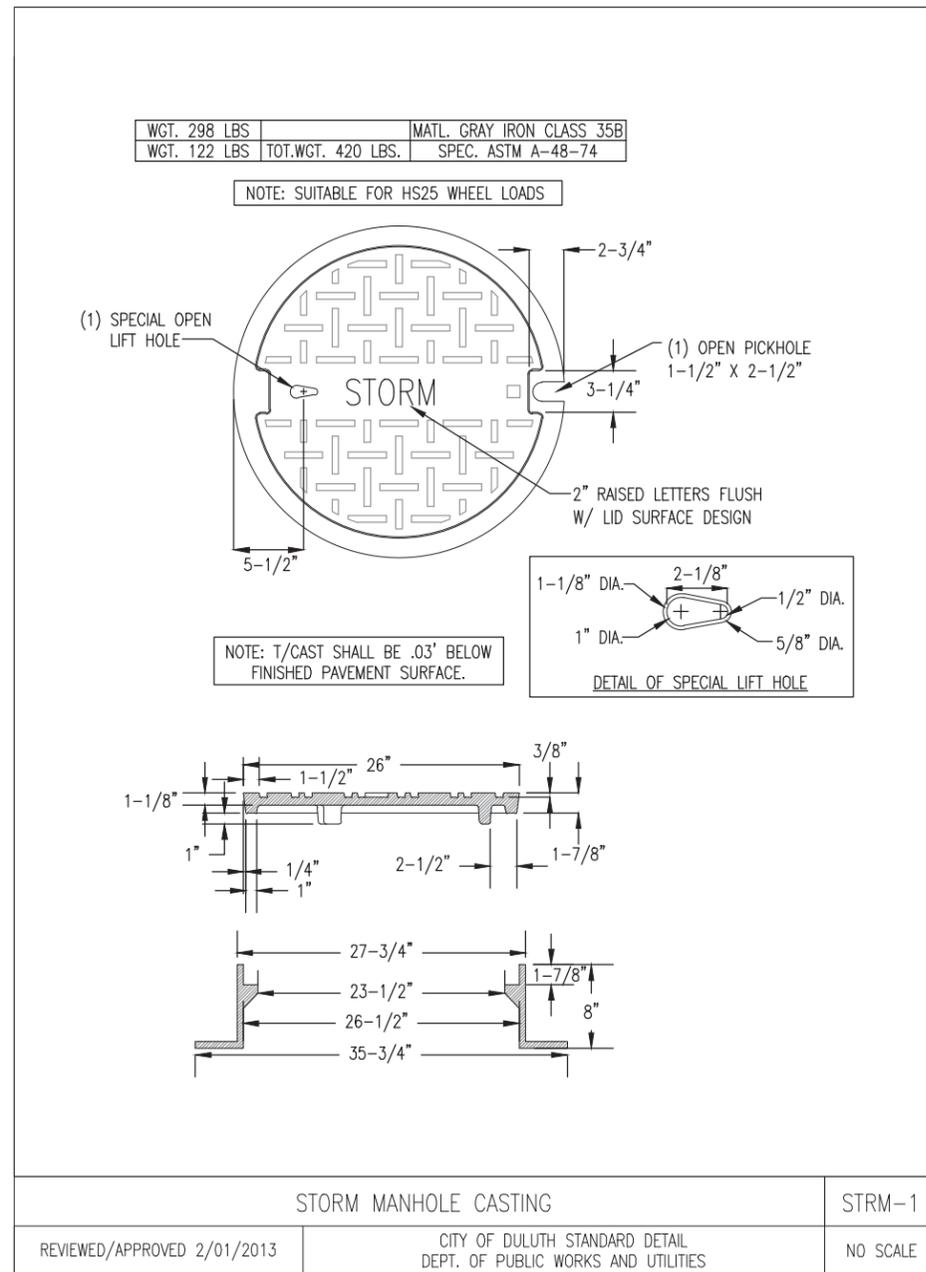
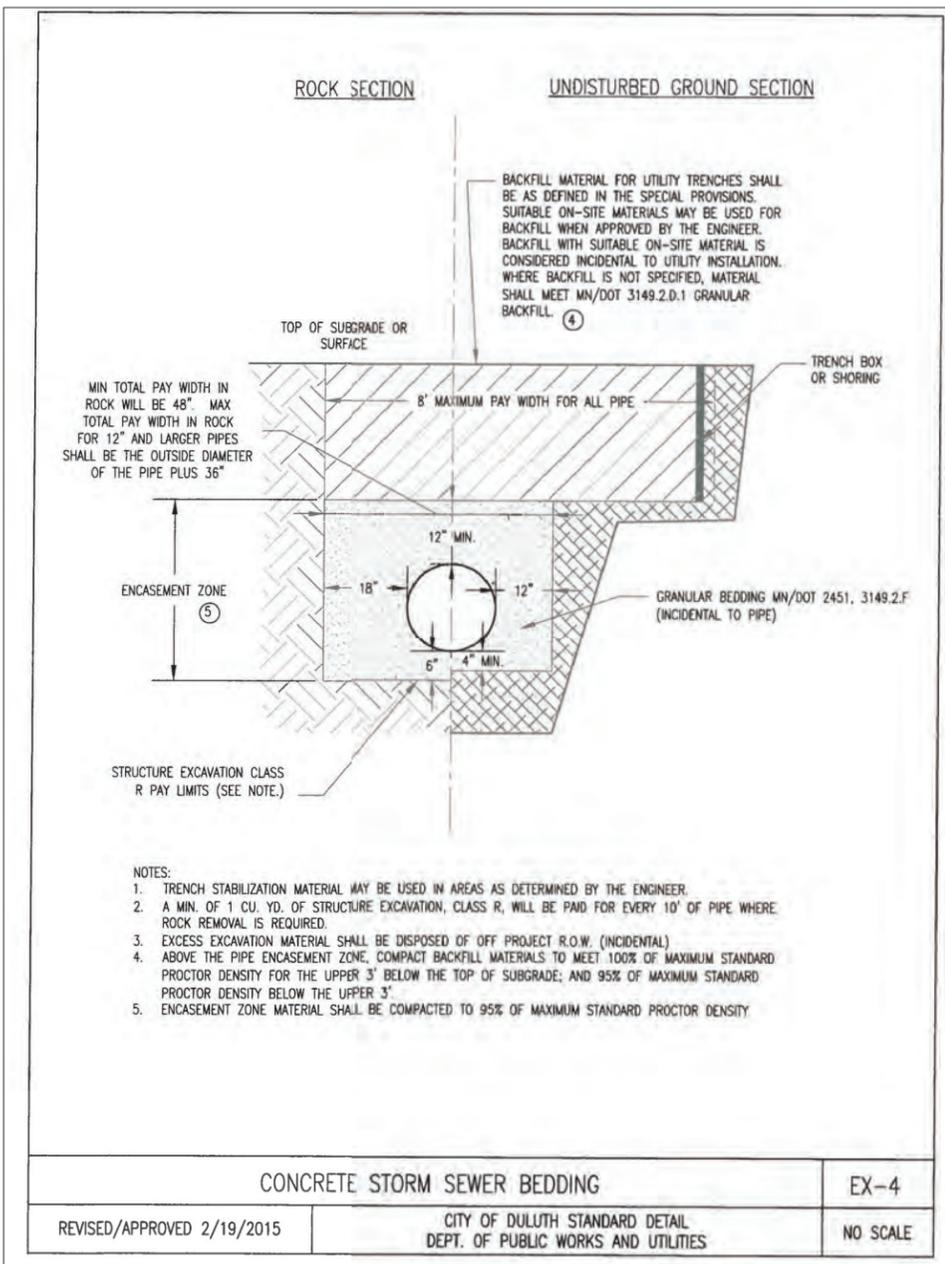
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CONSTRUCTION DETAILS
SHEET NO. 14 OF 53 SHEETS

PLOT DATE: 1/5/2016 12:39:08 PM FILE: R:\44\proj\140315\600 Drawings\C.Collins\140315-04 (Detail).dwt



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DULUTH, MINNESOTA

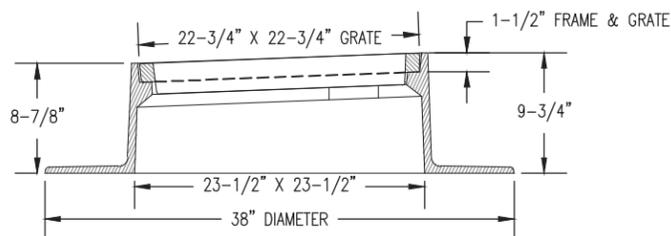
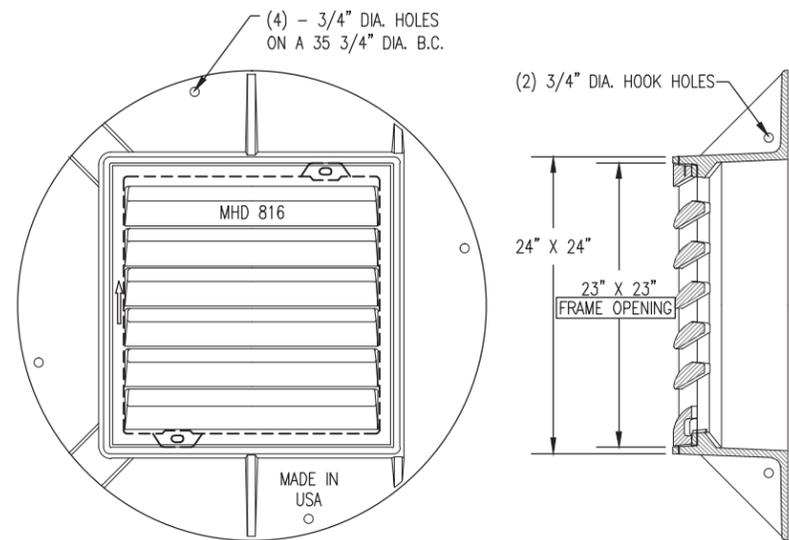
CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CONSTRUCTION DETAILS

SHEET NO. 15 OF 53 SHEETS

PLOT DATE: 1/5/2016 12:39:13 PM FILE: R:\44Pro\140315\600 Drawings\College Street\140315-05-04 (Details).dwg



NOTES:

1. COMPONENT NO'S: TOP FRAME 5005, GRATE 816 (STD PLATE 4154B).
2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
3. WEIGHT: FRAME 262#; GRATE 131#
4. ALL GUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE" WITH A CITY SUPPLIED STAMP.

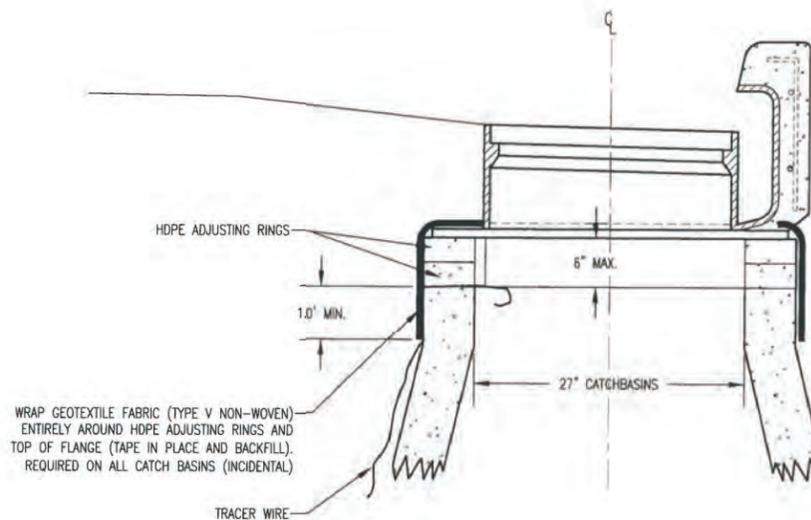
CATCH BASIN/CURB BOX CASTINGS

STRM-3

REVIEWED/APPROVED 2/01/2013

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



WRAP GEOTEXTILE FABRIC (TYPE V NON-WOVEN) ENTIRELY AROUND HDPE ADJUSTING RINGS AND TOP OF FLANGE (TAPE IN PLACE AND BACKFILL). REQUIRED ON ALL CATCH BASINS (INCIDENTAL).

NOTE:
TRACER WIRE REQUIRED ON ALL PLASTIC STORM SEWER PIPES

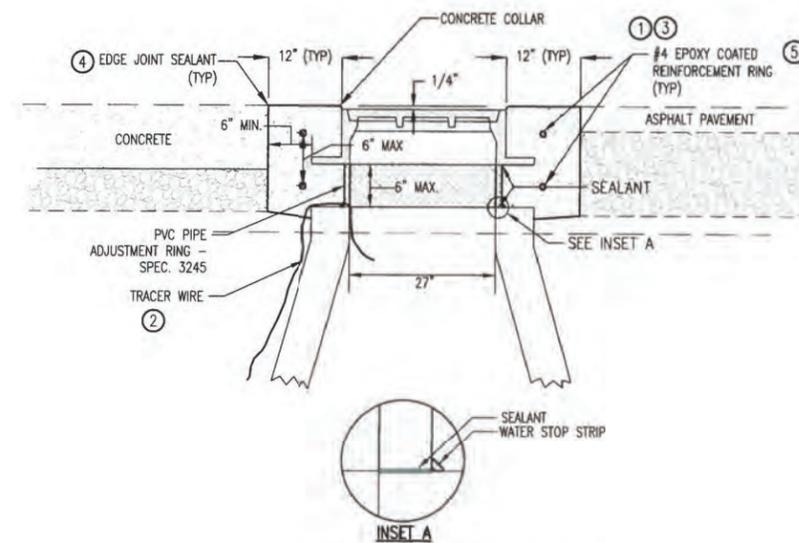
FABRIC WRAPPED CATCH BASIN CASTING

STRM-4

REVIEWED/APPROVED 02/19/2015

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



NOTES:

1. CONCRETE (MIX NO. 3Y43) COLLAR TO ENCASE CASTING AND ADJUSTMENT RING.
2. TRACER WIRE, IF REQUIRED, FOR PLASTIC PIPE ON PROJECT
3. CONCRETE COLLAR SHALL BE CIRCULAR LAYOUT. PAVEMENT AND BASE SHALL BE CUT OUT WITH ROTATING CUTTING DEVICE
4. FINISH CONCRETE EDGE WITH 1/4" RADIUS. SEAL JOINT BETWEEN PAVEMENT AND COLLAR.
5. MAINTAIN 3.5" COVER ON REINFORCEMENT.

NOT TO SCALE

CONCRETE ENCASED CASTING COLLAR FOR STORM MH IN ROADWAY, WALKS, & DRIVES

STRM-5A

REVIEWED/APPROVED 02/19/2015

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE

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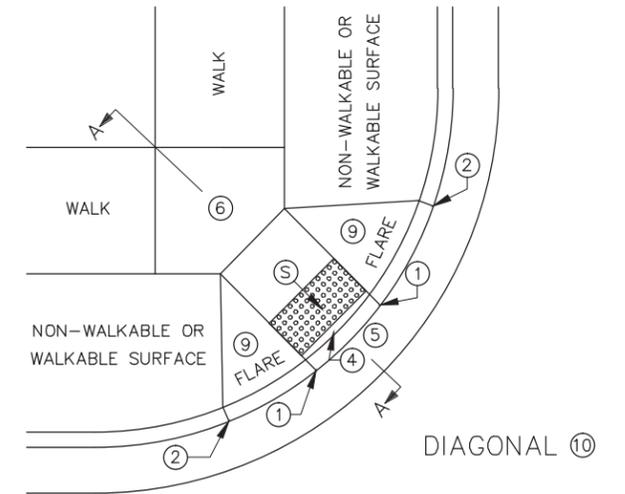
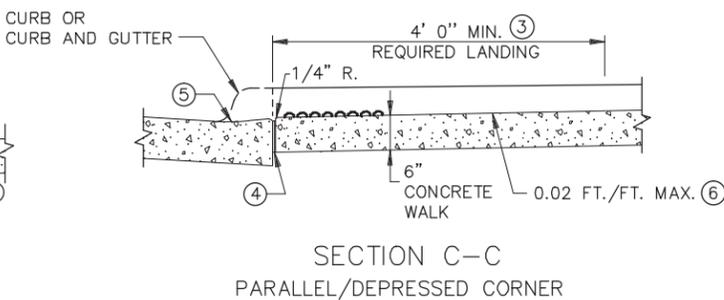
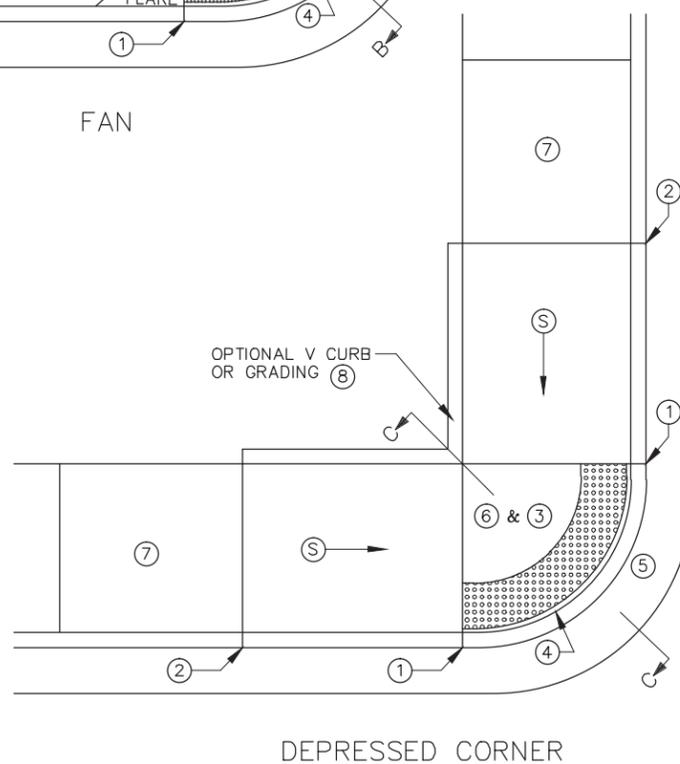
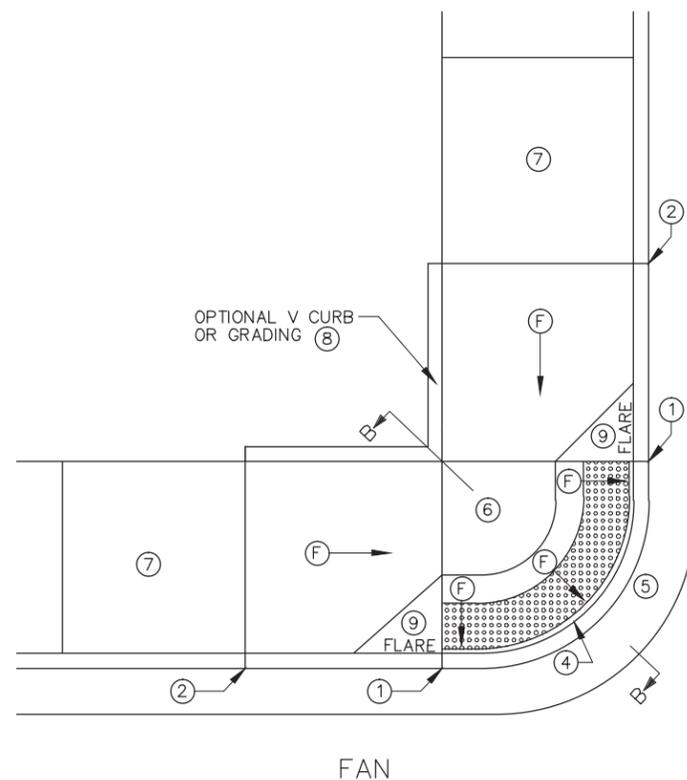
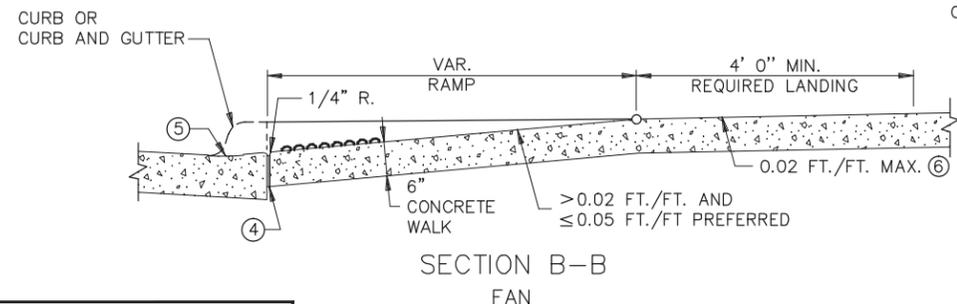
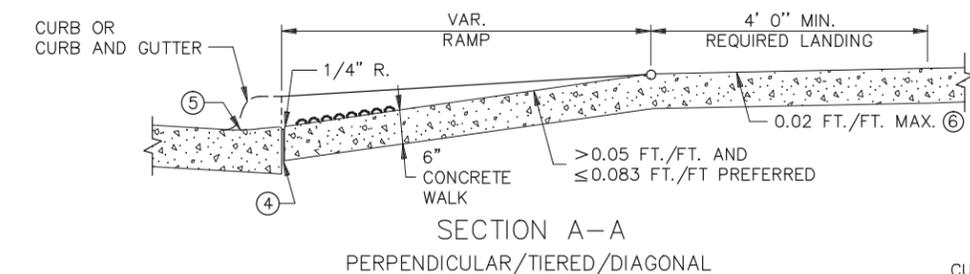
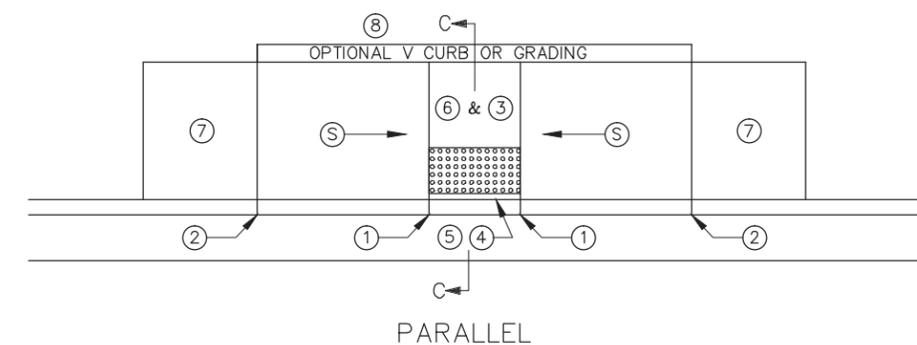
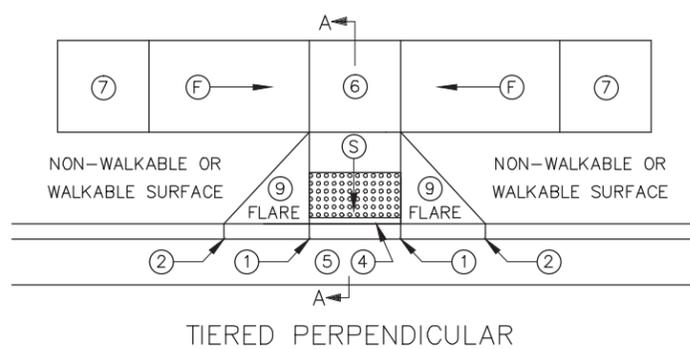
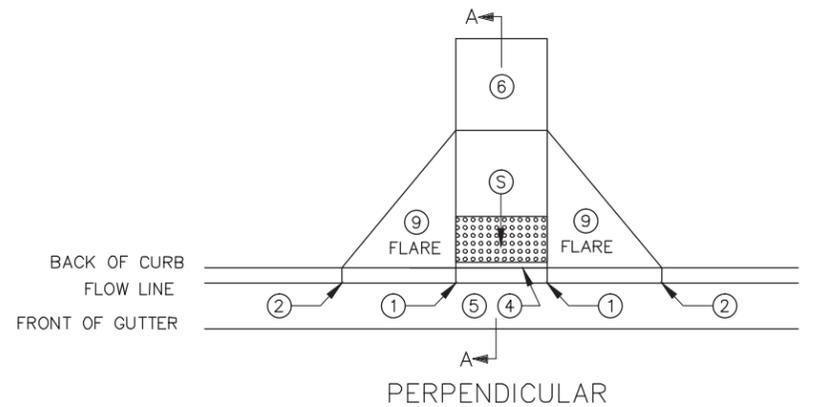
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CONSTRUCTION DETAILS

SHEET NO. 16 OF 53 SHEETS



NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 21 WHEN LANDINGS ARE CAST SEPARATELY.

ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

SEE STANDARD PLATE 7038 AND SHEET 20 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- ④ 1/2" PREFORMED JOINT FILLER AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
- ⑤ SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET 19.
- ⑥ 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
- ⑦ IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.
- ⑧ V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. SEE SHEET 21.
- ⑨ SEE SHEET 20, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- ⑩ DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
S	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
F	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

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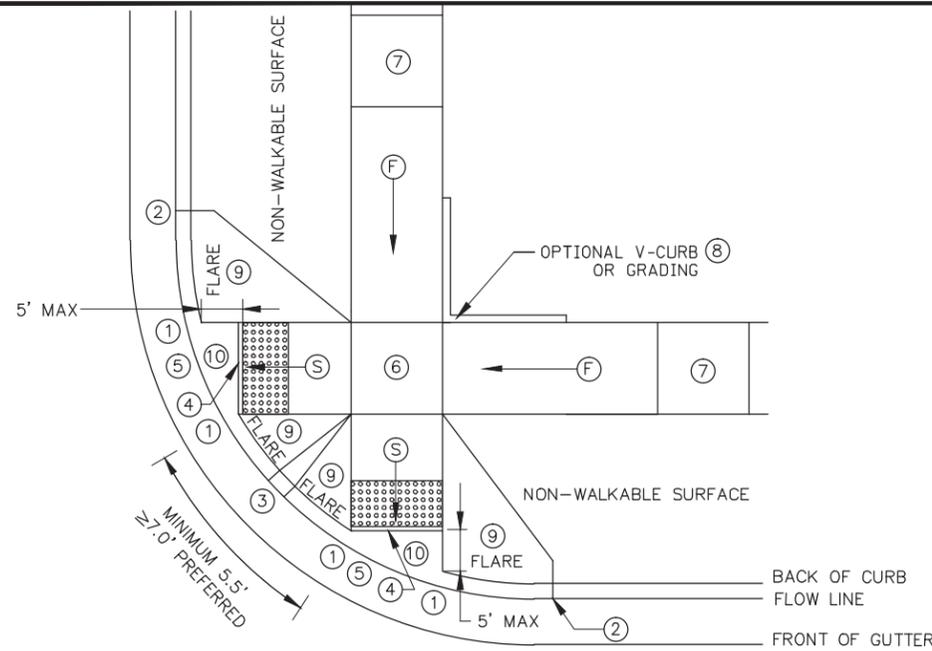
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

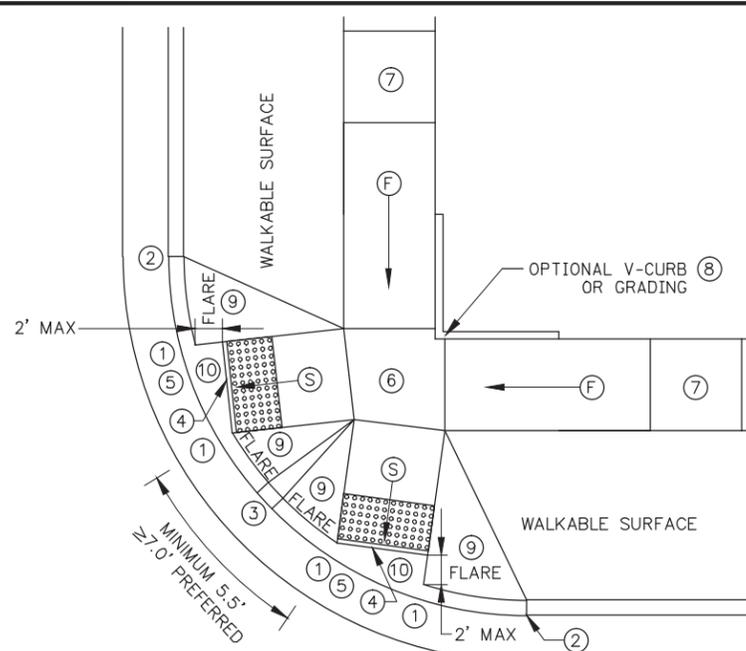
S.A.P. 118-155-008

CONSTRUCTION DETAILS

SHEET NO. 17 OF 53 SHEETS

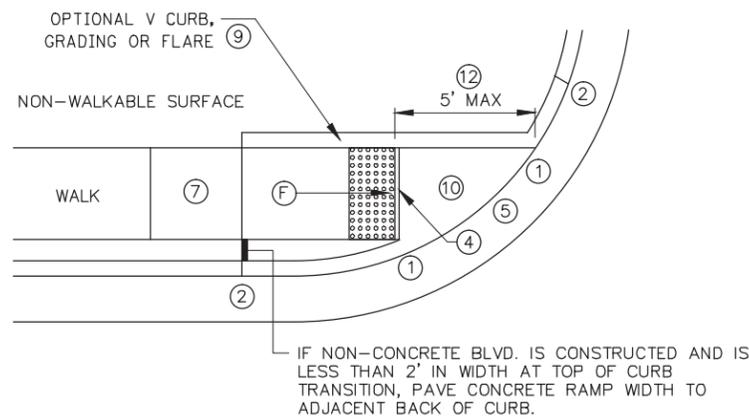


ADJACENT TO NON-WALKABLE SURFACE

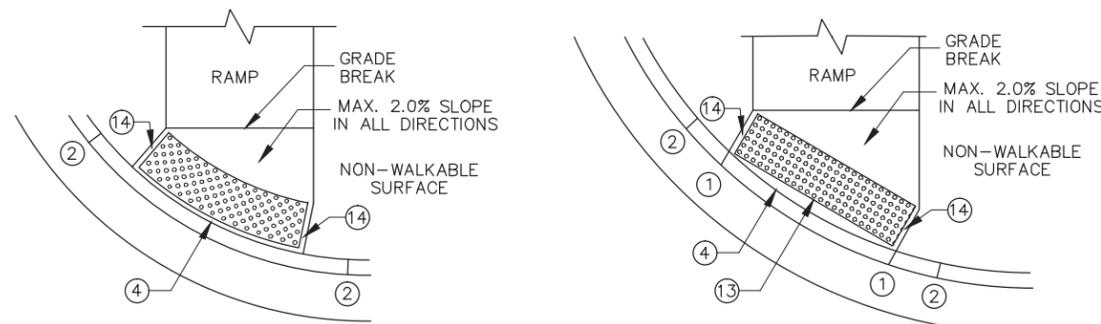


ADJACENT TO WALKABLE SURFACE

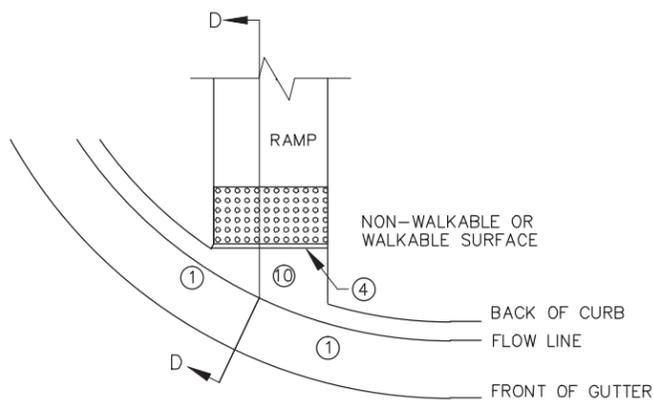
COMBINED DIRECTIONAL ⑮



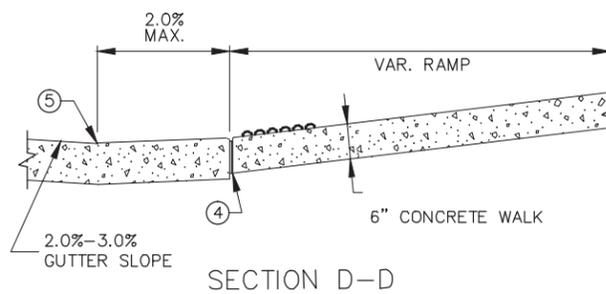
ONE-WAY DIRECTIONAL



DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED



CURB FOR DIRECTIONAL RAMPS ⑪



SECTION D-D

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 21 WHEN LANDINGS ARE CAST SEPARATELY.

ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

SEE STANDARD PLATE 7038 AND SHEET 20 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ 3" MINIMUM CURB HEIGHT, 4" PREFERRED.
- ④ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MIN. TO 6" MAX. FROM THE BACK OF CURB.
- ⑤ SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET 19.
- ⑥ 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
- ⑦ IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.
- ⑧ V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- ⑨ SEE SHEET 20, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- ⑩ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- ⑪ TO BE USED FOR ALL DIRECTIONAL RAMPS.
- ⑫ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- ⑬ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- ⑭ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑮ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
- ⓕ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

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LHB PROJECT NO. 140315

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.

BRAD SCOTT
PRINTED NAME



SIGNATURE

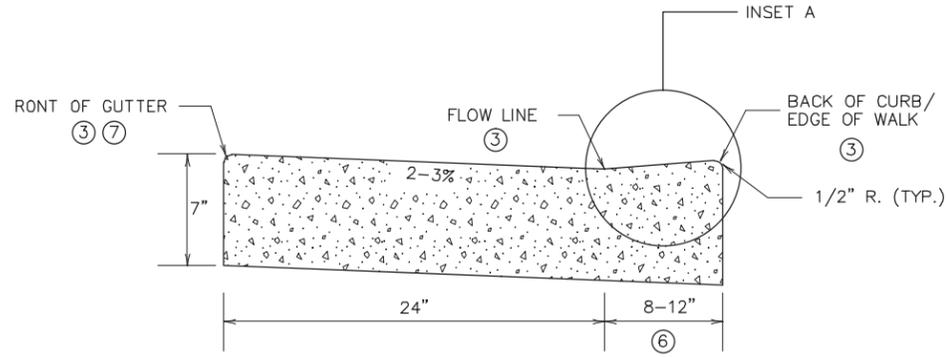
01/06/2016
DATE
46198
LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

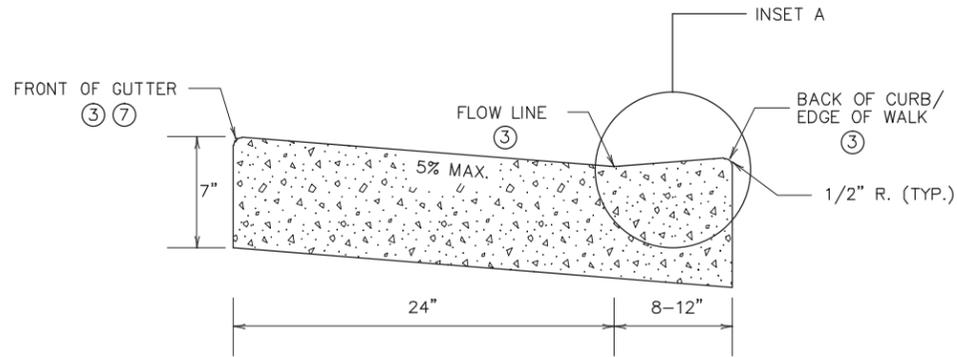
CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

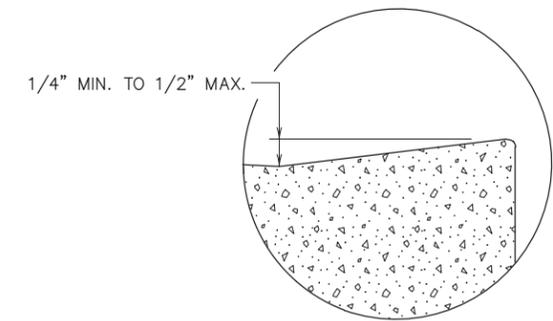
CONSTRUCTION DETAILS
SHEET NO. 18 OF 53 SHEETS



NON PERPENDICULAR ①

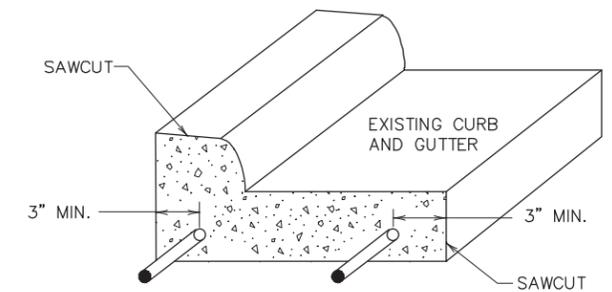
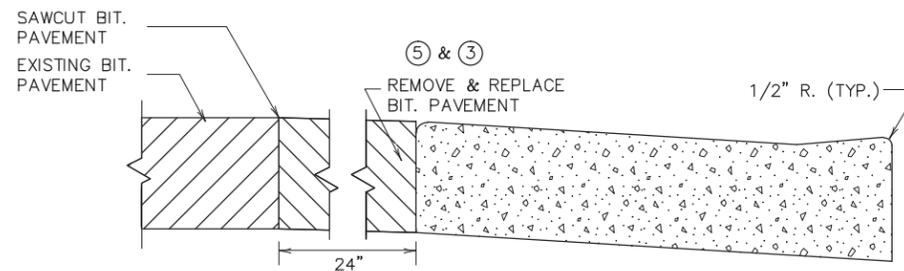
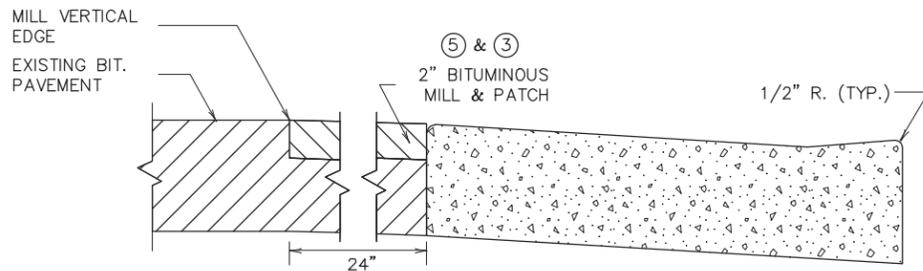


PERPENDICULAR ②

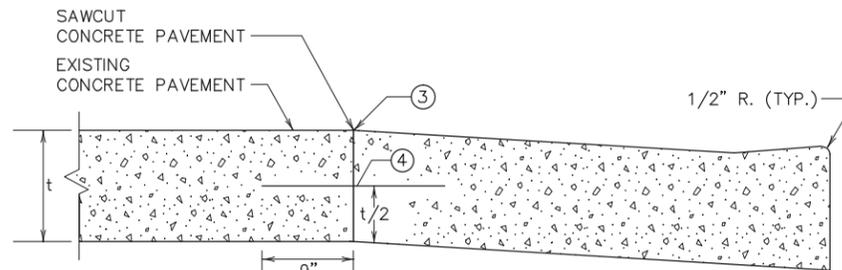
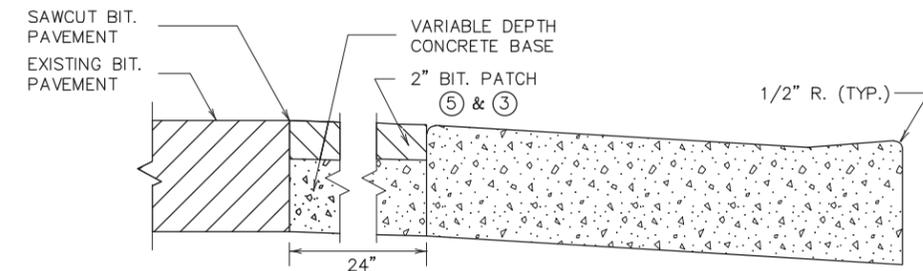


INSET A

PEDESTRIAN ACCESS ROUTE
CURB & GUTTER DETAIL



CURB AND GUTTER REINFORCEMENT ⑧
FOR USE ON CURB RAMP RETROFITS



PAVEMENT TREATMENT OPTIONS
IN FRONT OF CURB & GUTTER
FOR USE ON CURB RAMP RETROFITS

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.

② FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

④ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.

⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.

⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. PAR GUTTER SHALL NOT BE OVERLAID.

⑧ WHERE PLAN SPECIFIES, DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED).

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BRAD SCOTT
PRINTED NAME

SIGNATURE

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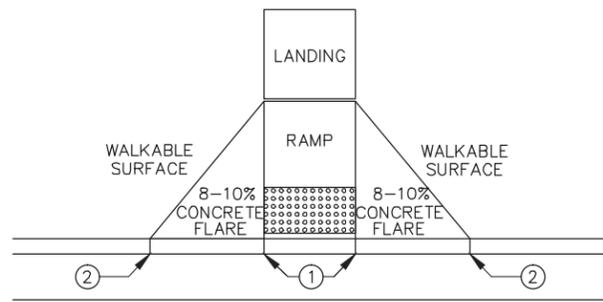
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

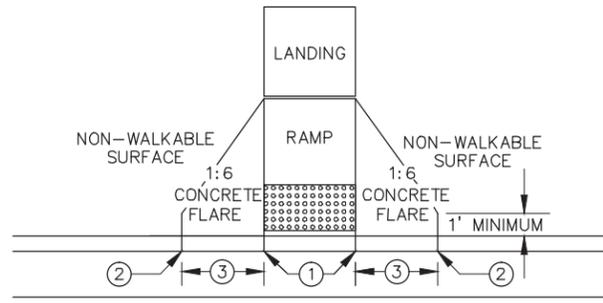
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CONSTRUCTION DETAILS

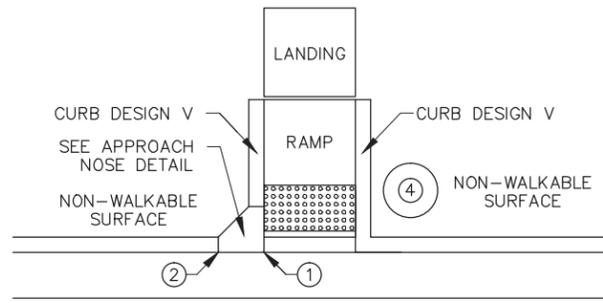
SHEET NO. 19 OF 53 SHEETS



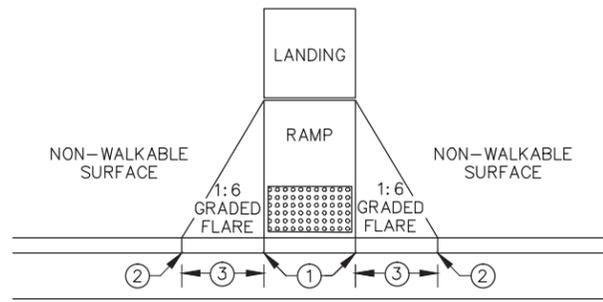
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

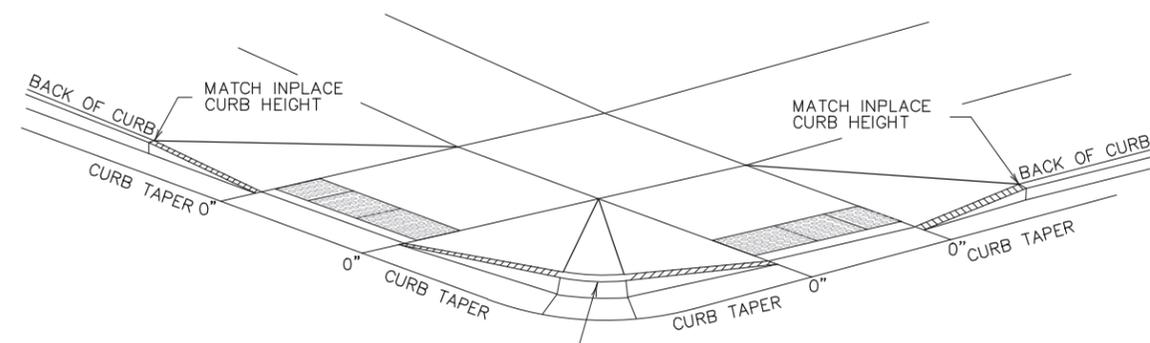


DIRECTION OF TRAFFIC
RETURNED CURB



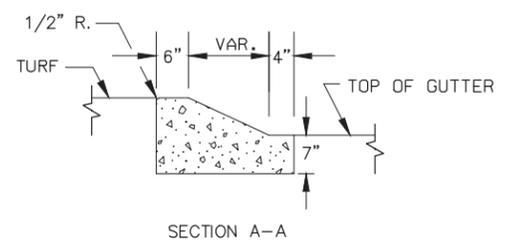
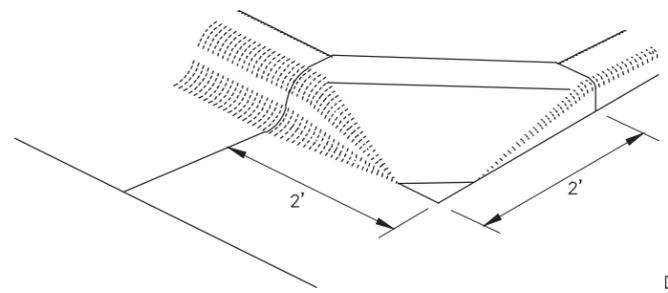
GRADED FLARES

TYPICAL SIDE TREATMENT OPTIONS ⑤

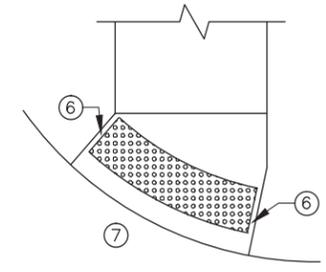


3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH
(MEASURED ALONG FLOW LINE)

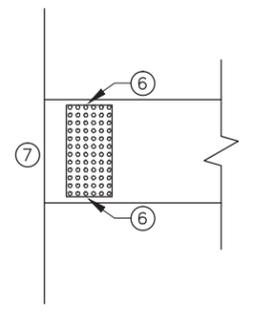
DETECTABLE EDGE WITH
CURB AND GUTTER ⑧



APPROACH NOSE DETAIL
FOR DOWNSTREAM SIDE OF TRAFFIC



RADIAL DETECTABLE WARNING



RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

NOTES:

- SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
- WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER.
- CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.
- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ 2' - 3' FLARE.
- ④ IMMOVABLE OBJECT OR OBSTRUCTION.
- ⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE VISUAL CONTRAST.
- ⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

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BRAD SCOTT
PRINTED NAME

BRAD SCOTT
SIGNATURE

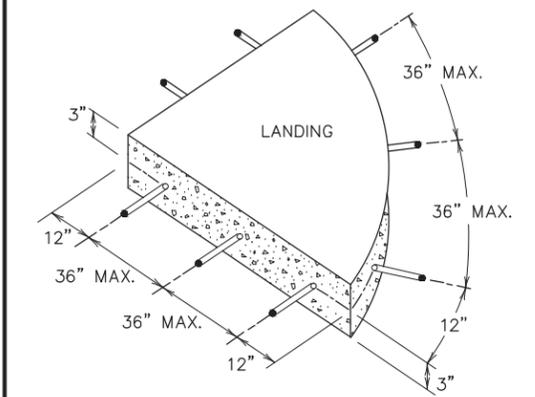
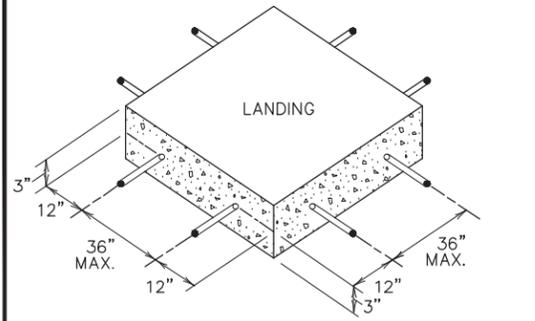
01/06/2016
DATE
46198
LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

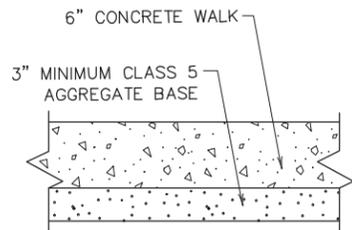
CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

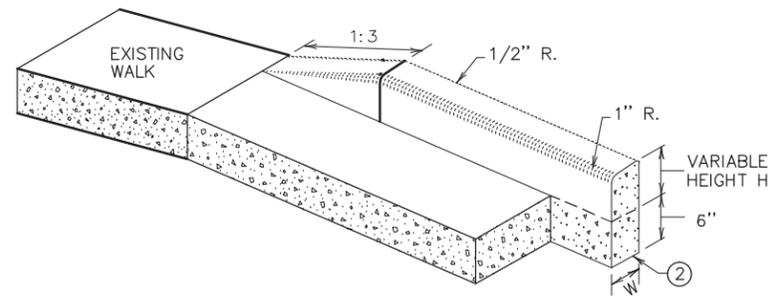
CONSTRUCTION DETAILS
SHEET NO. 20 OF 53 SHEETS



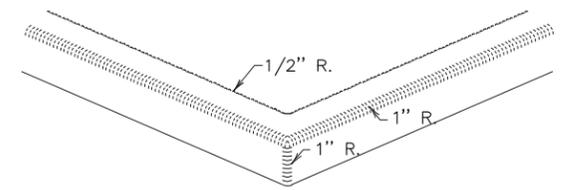
SIDEWALK REINFORCEMENT ⑥ ⑦



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

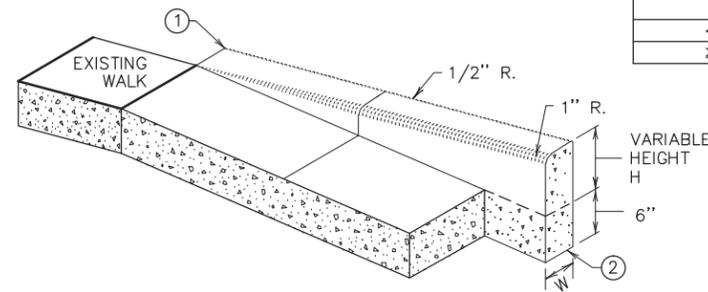


V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

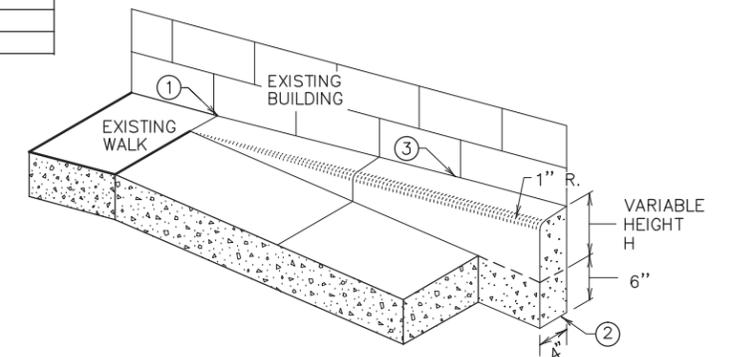


V CURB INTERSECTION

CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



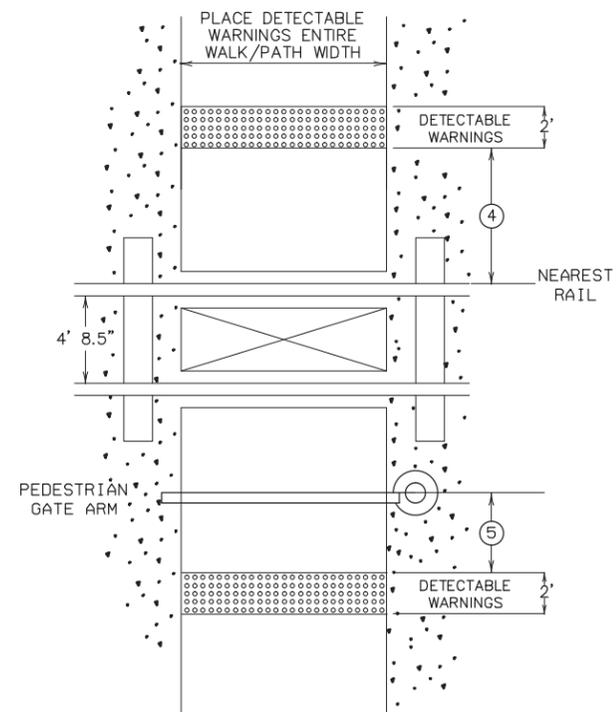
V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



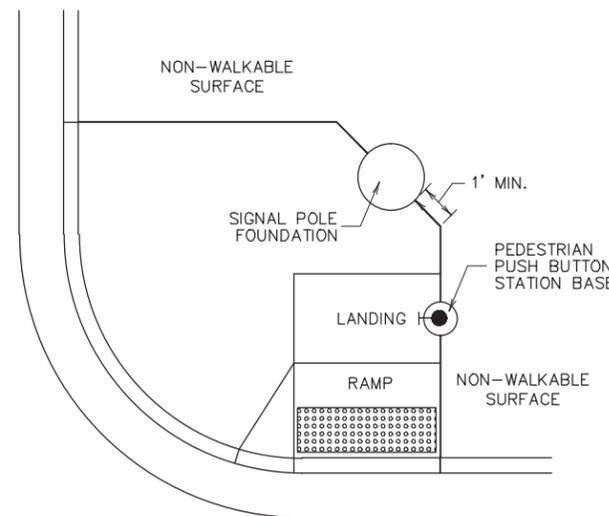
V CURB ADJACENT TO BUILDING
OR BARRIER

NOTES:

- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- ④ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.
- ⑤ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM.
- ⑥ WHEN PLAN SPECIFIES, DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAX. CENTER TO CENTER (EPOXY COATED).
- ⑦ TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET WHEN LANDINGS ARE CAST SEPARATELY.



RAILROAD CROSSING
PLAN VIEW



CONCRETE WALK EDGES ADJACENT
TO CONCRETE STRUCTURES

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LHB PROJECT NO. 140315

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BRAD SCOTT
PRINTED NAME

SIGNATURE

01/06/2016
DATE
46198
LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CONSTRUCTION DETAILS

SHEET NO. 21 OF 53 SHEETS

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF CONSTRUCTION OF A 10' SHARED-USE BITUMINOUS TRAIL ALONG THE NORTH SIDE OF COLLEGE STREET FROM KENWOOD AVE. TO JUNCTION AVE/ 19TH AVE E. AS PART OF THE PROJECT, THE CITY WILL ALSO MILL AND OVERLAY THE ENTIRE WIDTH OF COLLEGE STREET AND SELECTIVELY REPLACE DAMAGED CURB AND GUTTER, WALKS, AND DRIVES ON BOTH SIDES. THE PROJECT INCLUDES CLEARING AND GRUBBING, EARTHWORK, STORM SEWER WORK, BITUMINOUS AND CONCRETE PAVING AND PERMANENT TURF ESTABLISHMENT.

THE EXISTING TYPICAL SECTION OF COLLEGE STREET IS 44-FT WIDE (CURB TO CURB) AND CONSISTS OF A 12-FT DRIVING LANE IN EACH DIRECTION; 6-FT BIKE LANES IN EACH DIRECTION; AND AN 8-FT PARKING LANE ON THE SOUTH SIDE OF THE STREET.

THE PROPOSED TYPICAL SECTION WILL BE APPROXIMATELY 32-FT WIDE (CURB TO CURB) AND CONSISTS OF A 12-FT DRIVING LANES IN EACH DIRECTION AND AN 8-FT PARKING LANE ON THE NORTH SIDE OF THE STREET. THE NARROWER PROPOSED WIDTH OF THE ROAD WILL BE ACHIEVED BY REMOVING 12-FT OF THE EXISTING STREET ON THE NORTH SIDE.

CONTACTS

THE CONSULTANT ENGINEER IS:
BRAD SCOTT, PE
LHB, INC
21 WEST SUPERIOR STREET, SUITE 500
DULUTH, MN 55802
(218) 727-8446

THE CITY OF DULUTH PROJECT ENGINEER IS:
PATRICK LOOMIS
CITY OF DULUTH
211 CITY HALL
DULUTH, MN 55802
(218) 730-5076

TIMING OF BMP INSTALLATION

THE EROSION AND SEDIMENTATION CONTROL BMP'S SHALL BE INSTALLED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND CAPTURE SEDIMENT ON SITE, AND SHALL MEET THE NPDES PERMIT PART IV CONSTRUCTION ACTIVITY REQUIREMENTS.

1. PONDS (IF APPLICABLE) SHALL BE EXCAVATED PRIOR TO ANY SOIL DISTURBANCE.
2. TEMPORARY PERIMETER CONTROL BMP'S SHALL BE INSTALLED BEFORE ANY UP GRADIENT SOIL DISTURBANCE OCCURS.
3. PERMANENT AND TEMPORARY SEDIMENT TRAPS AND BASINS (IF APPLICABLE) SHALL BE CONSTRUCTED BEFORE ANY HYDRAULIC CONVEYANCE OR DEWATERING PROCEDURES OCCUR.
4. TOPSOIL AND TEMPORARY EROSION CONTROL BMP'S SHALL BE PLACED WITHIN 7 DAYS OF COMPLETION OF EMBANKMENT AND PONDS.
5. PLACEMENT OF RIPRAP SHALL BE COMPLETED WITHIN 24 HOURS OF PLACEMENT OF THE CULVERT AND DONE IN ONE CONTINUOUS OPERATION.
6. ONCE CONSTRUCTION ACTIVITY CEASES FOR 7 DAYS OR MORE IN AN AREA, THAT AREA SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT BMP'S.

SUMMARY OF Pervious AND IMPERVIOUS				
	TOTAL DISTURBED AREA (Ac)	EXISTING IMPERVIOUS AREA (Ac)	POST CONSTRUCTION IMPERVIOUS AREA (Ac)	NET INCREASE/ DECREASE IMPERVIOUS AREA (Ac)
COLLEGE ST.	3.42	3.11	2.97	0.14 DECREASE

CONSTRUCTION NOTES

CONSTRUCTION SHALL BE GOVERNED BY THE 2014 MNDOT STANDARD SPECIFICATIONS, CITY OF DULUTH STANDARD CONSTRUCTION SPECIFICATIONS, AND SPECIAL PROVISIONS.

PLACE EROSION CONTROL BLANKET ON ALL EXPOSED SOILS WHICH ARE NOT IMMEDIATELY SODDED.

THE CONTRACTOR SHALL KEEP THE INSPECTION AND MAINTENANCE LOGS IN ACCORDANCE WITH THE NPDES PERMIT.

THIS SWPPP, ALL PERMITS, ALL INSPECTION AND MAINTENANCE RECORDS, AND DESIGN CALCULATIONS WILL BE KEPT BY THE OWNER AFTER CONSTRUCTION FOR NOT LESS THAN THREE YEARS.

THE CONTRACTOR SHALL MAINTAIN A RESPONSIBLY SIZED STOCKPILE OF EROSION CONTROL DEVICES ON THE PROJECT FOR IMMEDIATE USE.

TMDL IMPLEMENTATION PLANS CONTAINING STORM WATER REQUIREMENTS

NO TMDL IMPLEMENTATION PLANS CURRENTLY EXIST FOR THE RECEIVING WATER ON THIS PROJECT.

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN		
DESCRIPTION	TITLE	LOCATION
SUMMARY OF Pervious AND IMPERVIOUS	SWPPP	22
DIRECTION OF FLOW/DRAINAGE AREA	SWPPP	26-28
RECEIVING SURFACE WATERS	SWPPP	26-28
NO DISTURBANCE AREAS AND AREAS OF PHASED CONSTRUCTION	PLAN & PROFILE	37-41
DRAINAGE STRUCTURES	PLAN & PROFILE	37-41
DRAINAGE TABULATIONS	CHART	XX
EROSION CONTROL TABULATIONS	CHART	XX
EROSION CONTROL SHEETS	SWPPP	26-28
EROSION CONTROL DETAILS	SWPPP	25
SEDIMENT CONTROL PRACTICES	SWPPP	22-24
FINAL STABILIZATION	PLAN & PROFILE	37-41
SEDIMENT BASIN (POND) TABULATIONS	NOT APPLICABLE	--
POND SHEETS (SEDIMENT BASIN)	NOT APPLICABLE	--
LOCATIONS OF PONDS	NOT APPLICABLE	--

SWPPP IMPLEMENTATION CONTACTS			
AGENCY	PERMIT	NAME	PHONE/E-MAIL
CONTRACTOR'S EROSION CONTROL SUPERVISOR	NPDES	TO BE DETERMINED	TO BE DETERMINED
MPCA	NPDES	JIM DEXTER	Ph. 800-657-3804
SWCD	WCA	RC BOHEIM	Ph. 218-723-4629
MnDNR WATERS	N/A	PATTY FOWLER	Ph. 218-834-1442 patricia.fowler@state.mn.us
CORPS OF ENGINEERS	SECTION 404	DARYL WIERZBINSKI	Ph. 218-834-6630
STATE DUTY OFFICER	N/A	MPCA	Ph. 800-422-0798
EROSION CONTROL REVIEW	N/A	TOM JOHNSON	Ph. 218-730-5103 tjohnson@duluthmn.gov

PLOT DATE: 1/5/2016 12:36:14 PM FILE: R:\44proj\140315\600 Drawings\C\College Street\140315-05 05 (SWPPP).dwg

LHB PROJECT NO. 140315

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.

BRAD SCOTT
PRINTED NAME



SIGNATURE

01/06/2016
DATE
46198
LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

SWPPP

SHEET NO. 22 OF 53 SHEETS

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

1. THE STATE OF MINNESOTA REGULATES STORMWATER DISCHARGES ASSOCIATED WITH ANY CONSTRUCTION ACTIVITY DISTURBING LAND EQUAL TO OR GREATER THAN ONE ACRE. THE GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY (PERMIT NO. MN R100001) AUTHORIZES STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY TO THE WATERS OF THE STATE IN COMPLIANCE WITH THE CLEAN WATER ACT AND THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM (NPDES/SDS) PERMIT PROGRAM. THIS PERMIT REQUIRES THE DEVELOPMENT AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP). THE SWPPP IS A COMBINATION OF A NARRATIVE, PLANS SHEETS, AND STANDARD DETAIL SHEETS THAT ADDRESS THE FORESEEABLE CONDITIONS AT ANY STAGE IN THE CONSTRUCTION OR POST-CONSTRUCTION ACTIVITIES.
2. ADMINISTRATIVE REQUIREMENTS FOR GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY
 - A. RESPONSIBLE PARTIES: THE OWNER AND CONTRACTOR ARE CO-PERMITTEES ON THE GENERAL STORMWATER PERMIT AND ARE JOINTLY RESPONSIBLE FOR COMPLIANCE WITH ALL TERMS AND CONDITIONS OF THE PERMIT.
 - B. PERMIT COVERAGE: PERMIT COVERAGE TYPICALLY BECOMES EFFECTIVE SEVEN (7) CALENDAR DAYS AFTER THE POSTMARKED DATE OF THE COMPLETED APPLICATION, OR TWO (2) DAYS AFTER THE APPLICATION IS COMPLETED AND SUBMITTED ON-LINE. NO LAND DISTURBING CONSTRUCTION ACTIVITIES CAN BEGIN UNTIL PERMIT COVERAGE IS EFFECTIVE. THE START OF ANY LAND DISTURBING ACTIVITIES SIGNIFIES THAT THE CONTRACTOR IS ASSUMING RESPONSIBILITY FOR PERMIT COVERAGE AND HAS COMPLIED WITH PERMIT REQUIREMENTS.
 - C. COVERAGE LETTER: THE CONTRACTOR WILL RECEIVE A PERMIT LETTER AND CERTIFICATE ACKNOWLEDGING PERMIT COVERAGE USUALLY WITHIN 30 DAYS OF APPLICATION SUBMISSION. CONTRACTOR SHALL KEEP OR POST A COPY OF THE COVERAGE LETTER AT THE PROJECT SITE. PROVIDE COPIES TO THE OWNER AND ENGINEER.
 - D. TERMINATION OF COVERAGE: THE OWNER IS RESPONSIBLE FOR TERMINATING PERMIT COVERAGE BY SUBMITTING A NOTICE OF TERMINATION (NOT) FORM TO THE MPCA. A NOTICE OF TERMINATION MUST BE SUBMITTED WITHIN 30 DAYS AFTER FINAL STABILIZATION HAS BEEN ESTABLISHED FOR THE SITE AND CONSTRUCTION ACTIVITY IS COMPLETE, OR WHEN THE OWNER OR OPERATOR CHANGES. COMPLIANCE WITH PERMIT REQUIREMENTS IS REQUIRED UNTIL SUBMISSION OF A NOTICE OF TERMINATION.
 - E. RECORD RETENTION: THE CONTRACTOR SHALL KEEP A COPY OF THE SWPPP, INCLUDING ALL SWPPP AMENDMENTS, TRAINING DOCUMENTATION, AND ALL INSPECTION AND MAINTENANCE RECORDS ON SITE DURING NORMAL WORKING HOURS THROUGHOUT CONSTRUCTION.
 - F. PERMIT MODIFICATION WILL BE REQUIRED PER PART II.B.5 OF THE PERMIT FOR CHANGE IN OWNER OR CONTRACTOR.
 - G. SWPPP AMENDMENTS: THE CONTRACTOR WILL MONITOR CONDITIONS LISTED UNDER PART III.A.5 OF THE GENERAL STORMWATER PERMIT THAT PROMPT AMENDING THE SWPPP AND SHALL COORDINATE ANY AMENDMENTS WITH THE OWNER AND ENGINEER.
 - H. FOR DESIGN REQUIREMENTS OR SWPPP COMPONENTS WHERE THIS PERMIT ALLOWS OTHER METHODS TO BE USED IF THE PERMITTEE(S) DETERMINES THAT COMPLIANCE WITH THE REQUIREMENT IS INFEASIBLE ON THE PROJECT SITE; THE SWPPP MUST DOCUMENT THAT DETERMINATION AND THE SUBSTITUTE BMPS PROVIDED IN THE SWPPP.
3. GENERAL REQUIREMENTS FOR CONSTRUCTION ACTIVITY
 - A. GENERAL: THE CONTRACTOR MUST IMPLEMENT THE SWPPP AND THE REQUIREMENTS OF PART IV AND APPENDIX A PART C OF THE GENERAL STORMWATER PERMIT. THE BMPS IDENTIFIED IN THE SWPPP AND PERMIT MUST BE SELECTED, INSTALLED, AND MAINTAINED IN AN APPROPRIATE AND FUNCTIONAL MANNER IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, MANUFACTURER RECOMMENDATIONS, AND ACCEPTED ENGINEERING PRACTICES.
 - B. EROSION PREVENTION: THE CONTRACTOR MUST PLAN FOR AND IMPLEMENT CONSTRUCTION PRACTICES THAT MINIMIZE EROSION SO THAT INSPECTION AND MAINTENANCE REQUIREMENTS OF THE GENERAL STORMWATER PERMIT ARE MET. COMMON EROSION PREVENTION PRACTICES INCLUDE:
 - 1) MARKING AND DELINEATING AREAS OF THE SITE NOT TO BE DISTURBED (WITH FLAGS, STAKES, SIGNS, SILT FENCE, ETC.).
 - 2) STABILIZING ALL EXPOSED SOIL AREAS AS SOON AS POSSIBLE, BUT IN NO CASE LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED PER APPENDIX A.C.1.A.
 - 3) STABILIZE THE LAST 200 LINEAL FEET OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE WITHIN 24 HOURS AFTER CONNECTING TO RECEIVING SURFACE WATER OR STORM SEWER INLET PER PART IV.B.3 AND B.4.
 - 4) PROVIDE TEMPORARY OR PERMANENT ENERGY DISSIPATION TO PIPE OUTLETS WITHIN 24 HOURS OF CONNECTING TO A SURFACE WATER.
 - 5) WHERE FEASIBLE THE DESIGN OF THE SITE DIRECTS STORMWATER TO VEGETATED AREAS, TO INCREASE SEDIMENT REMOVAL.
 - 6) MINIMIZE THE DISTURBANCE OF STEEP SLOPES (1:3 OR STEEPER). IF DISTURBANCE OF STEEP SLOPES IS UNAVOIDABLE, PHASE DISTURBANCE TO MINIMIZE SOIL EXPOSURE AND STABILIZE USING MNDOT RAPID STABILIZATION METHOD 4. USE SLOPE DRAINING AND TERRACING AS NEEDED.
 - C. SEDIMENT CONTROL: THE CONTRACTOR MUST PLAN FOR AND IMPLEMENT CONSTRUCTION PRACTICES THAT MINIMIZE SEDIMENT FROM ENTERING SURFACE WATERS, INCLUDING BUT NOT LIMITED TO: CURB AND GUTTER SYSTEMS AND STORM SEWER INLETS. COMMON SEDIMENT CONTROL PRACTICES ARE DETAILED IN PART IV.C1-7 AND INCLUDE:
 - 1) DO NOT ALLOW ANY UNBROKEN SLOPE LENGTH GREATER THAN 75 FEET FOR 1:3 (V:H) SLOPES OR STEEPER IN ORDER TO MAINTAIN SHEET FLOW AND MINIMIZE RILLS AND GULLIES.
 - 2) MINIMIZE THE DISTURBANCE OF SLOPES 1:2 OR GREATER.
 - 3) MINIMIZE SOIL COMPACTION AND PRESERVE TOPSOIL.
 - 4) ALL SEDIMENT CONTROL BMPS MUST BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS BEFORE ANY UPGRADIENT LAND DISTURBING ACTIVITIES CAN BEGIN AND SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION IS ESTABLISHED.
 - 5) THE TIMING FOR SEDIMENT CONTROL BMPS MAY BE ADJUSTED TO ACCOMMODATE SHORT-TERM CONSTRUCTION ACTIVITIES, SUCH AS CLEARING AND GRUBBING OR PASSAGE OF VEHICLES, AND MUST BE COMPLETED AS QUICKLY AS POSSIBLE. SEDIMENT CONTROL BMPS MUST BE INSTALLED IMMEDIATELY AFTER SHORT-TERM CONSTRUCTION IS COMPLETE, OR BEFORE THE NEXT PRECIPITATION EVENT IF THE ACTIVITY IS NOT COMPLETE.
 - 6) PROTECT ALL STORM DRAIN INLETS WITH APPROPRIATE BMPS DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED. INLET PROTECTION MAY ONLY BE REMOVED EARLIER IF SPECIFIC SAFETY CONCERNS (STREET FLOODING/FREEZING) HAVE BEEN BROUGHT FORTH IN WRITING BY JURISDICTIONAL AUTHORITY.
 - 7) TEMPORARY STOCKPILES MUST HAVE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS, AND CANNOT BE PLACED IN ANY SURFACE WATERS, INCLUDING STORMWATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS OR DITCHES.
 - 8) TEMPORARY SEDIMENT BASIN OUTLET STRUCTURES MUST BE DESIGNED TO WITHDRAW WATER FROM THE SURFACE.
 - 9) TEMPORARY SEDIMENT BASINS MUST BE LOCATED OUTSIDE ANY NATURAL BUFFERS.
 - 10) ALL VEHICLE TRACKING OF SEDIMENT FROM THE CONSTRUCTION SITE, OR ONTO STREETS WITHIN THE SITE, MUST BE MINIMIZED BY BMPS SUCH AS STONE PADS, CONCRETE OR STEEL WASH RACKS, OR EQUIVALENT SYSTEMS. STREET SWEEPING MUST BE PERFORMED IF BMPS ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE STREETS / ROADWAYS.
 - 11) PRESERVE NATURAL BUFFERS OR IF A BUFFER IS NOT FEASIBLE ON THE SITE PROVIDE REDUNDANT SEDIMENT CONTROLS WHEN A SURFACE WATER IS LOCATED WITHIN 50 FEET OF THE PROJECT'S EARTH DISTURBANCES AND DRAINS TO THE SURFACE WATER. NATURAL BUFFERS ARE NOT REQUIRED ADJACENT TO ROAD DITCHES, JUDICIAL DITCHES, STORMWATER CONVEYANCE CHANNELS, STORM DRAIN INLETS, AND SEDIMENT BASINS.
 - D. DEWATERING AND BASIN DRAINING: THE CONTRACTOR MUST ENSURE THAT ALL WATER FROM DEWATERING OR BASIN DRAINING ACTIVITIES ARE DISCHARGED IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING CHANNELS OR DOWNSLOPE PROPERTIES, OR INUNDATION IN WETLANDS CAUSING SIGNIFICANT ADVERSE IMPACTS TO THE WETLANDS. ANY TURBID OR SEDIMENT LADEN DISCHARGE WATER MUST BE ADEQUATELY TREATED BY DISCHARGING TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN ON THE PROJECT SITE WHENEVER POSSIBLE, OR TREATED WITH APPROPRIATE BMPS IF THE WATER CANNOT BE DISCHARGED TO A SEDIMENT BASIN. THE CONTRACTOR MUST VISUALLY CHECK THE TREATED STORMWATER PRIOR TO DISCHARGING TO RECEIVING WATERS TO ENSURE ADEQUATE TREATMENT IS BEING MET.
 - E. INSPECTIONS: THE CONTRACTOR MUST ROUTINELY INSPECT THE ENTIRE CONSTRUCTION SITE AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS DURING CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES OVER 24 HOURS. CONTRACTOR SHALL PROVIDE A RAIN GAGE OR ANOTHER METHOD TO MEASURE RAINFALL. INSPECTION OF AREAS WITH PERMANENT COVER MAY BE REDUCED TO ONCE PER MONTH. THE CONTRACTOR SHALL RECORD IN WRITING WITHIN 24 HR ALL INSPECTION AND MAINTENANCE ACTIVITY ON FORMS WITH INFORMATION REQUIRED BY PART IV.E.2 OF THE GENERAL STORMWATER PERMIT. THESE RECORDS SHALL BE RETAINED WITH THE SWPPP. RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY SHALL INCLUDE:
 - 1) DATE AND TIME OF INSPECTIONS
 - 2) NAME OF PERSON(S) CONDUCTING INSPECTIONS
 - 3) FINDINGS OF INSPECTIONS, INCLUDING THE SPECIFIC LOCATION WHERE CORRECTIVE ACTIONS ARE NEEDED
 - 4) CORRECTIVE ACTIONS TAKEN (INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES)
 - 5) DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 1/2 INCH (0.5 INCHES) IN 24 HOURS. RAINFALL AMOUNTS MUST BE OBTAINED BY A PROPERLY MAINTAINED RAIN GAUGE INSTALLED ONSITE, A WEATHER STATION THAT IS WITHIN 1 MILE OF THE PROJECT SITE OR A WEATHER REPORTING SYSTEM THAT PROVIDES SITE SPECIFIC RAINFALL DATA FROM RADAR SUMMARIES.
 - 6) IF ANY DISCHARGE IS OBSERVED TO BE OCCURRING DURING THE INSPECTION, A RECORD OF ALL POINTS OF THE PROPERTY FROM WHICH THERE IS A DISCHARGE MUST BE MADE, AND THE DISCHARGE SHOULD BE DESCRIBED (I.E., COLOR, ODOR, FLOATING, SETTLED, OR SUSPENDED SOLIDS, FOAM, OIL SHEEN, AND OTHER OBVIOUS INDICATORS OF POLLUTANTS) AND PHOTOGRAPHED.
 - 7) ANY AMENDMENTS TO THE SWPPP PROPOSED AS A RESULT OF THE INSPECTION MUST BE DOCUMENTED AS REQUIRED IN PART III.B. WITHIN SEVEN (7) CALENDAR DAYS.
 - F. MAINTENANCE: ALL NONFUNCTIONAL BMPS MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPS WITHIN 24 HOURS AFTER DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS. COMMON ROUTINE MAINTENANCE ACTIVITIES INCLUDE:
 - 1) ALL SILT FENCE MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/3 OF THE FENCE HEIGHT WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.
 - 2) DRAIN ALL TEMPORARY AND PERMANENT SEDIMENTATION BASINS AND REMOVE SEDIMENT WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES 1/2 THE STORAGE VOLUME WITHIN 72 HOURS OF DISCOVERY OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.
 - G. POLLUTION PREVENTION MANAGEMENT MEASURES: THE CONTRACTOR MUST MANAGE AND IMPLEMENT POLLUTION PREVENTION MEASURES TO PREVENT AIR, LAND, AND WATER CONTAMINATION AND MEET REGULATORY COMPLIANCE. COMMON POLLUTION PREVENTION MANAGEMENT MEASURES INCLUDE:
 - 1) COLLECT SOLID WASTE (SEDIMENT, CONSTRUCTION AND DEMOLITION DEBRIS, ASPHALT/CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, ETC) AND DISPOSE IN COMPLIANCE WITH MPCA REQUIREMENTS.
 - 2) STORE HAZARDOUS MATERIALS (FUEL, PAINT, ETC.) AND PROVIDE SECONDARY CONTAINMENT TO PREVENT SPILLS, LEAKS, AND OTHER DISCHARGE. RESTRICT ACCESS TO STORAGE AREAS AND DISPOSE OF HAZARDOUS WASTE IN COMPLIANCE WITH MPCA REQUIREMENTS.
 - 3) STORAGE AREAS FOR POTENTIAL POLLUTANTS ON SITE SUCH AS BUILDING MATERIALS, HAZARDOUS PRODUCTS OR MATERIALS, SOAPS OR DETERGENTS, WASTES, ETC. MUST MINIMIZE EXPOSURE TO RUNOFF.
 - 4) LIMIT EXTERNAL WASHING OF TRUCKS AND CONSTRUCTION VEHICLES TO A DEFINED AREA OF SITE. CONTAIN RUNOFF AND PROPERLY DISPOSE OF WASTE. NO ENGINE DEGREASING IS ALLOWED ON SITE.
 - 5) ALL LIQUID AND SOLID WASTE GENERATED BY CONCRETE WASHOUT OPERATIONS MUST BE CONTAINED IN A LEAK-PROOF CONTAINMENT FACILITY OR IMPERMEABLE LINER ONSITE. NO LIQUID OR SOLID WASTE MUST CONTACT THE GROUND AND NO RUNOFF IS ALLOWED FROM THE CONCRETE WASHOUT OPERATIONS OR AREA. ALL WASTE MUST BE PROPERLY DISPOSED IN COMPLIANCE WITH MPCA REGULATIONS. A SIGN MUST BE INSTALLED NEAR EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES.
 - 6) PORTABLE TOILETS ON SITE MUST BE SECURED. SANITARY WASTE MUST BE PROPERLY DISPOSED OF.
 - 7) FILTER BACKWASH WATERS MUST BE PROPERLY DISPOSED OF OR RETURNED TO THE BEGINNING OF THE TREATMENT PROCESS. FILTER MEDIA ON SITE MUST BE MAINTAINED AND CLEANED.
 - H. FINAL STABILIZATION: THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING FINAL STABILIZATION FOR THE SITE AS DESCRIBED IN PART IV.G OF THE GENERAL STORMWATER PERMIT. SPECIFIC CONDITIONS REQUIRED FOR FINAL STABILIZATION INCLUDE:
 - 1) ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND ALL SOILS ARE STABILIZED BY A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% OVER THE ENTIRE PERVIOUS SURFACE AREA OR OTHER PERMANENT EQUIVALENT MEANS NECESSARY TO PREVENT SOIL FAILURE UNDER EROSION CONDITIONS. FINAL STABILIZATION WILL BE ACCOMPLISHED BY IMPERVIOUS SURFACING (CONCRETE STREETS, SIDEWALKS, CURB AND GUTTER ETC.) AND VEGETATIVE GROUND COVERS (SODDING AND SEEDING/MULCHING). SPECIFIC CONSTRUCTION METHODS ARE DESCRIBED IN THE PLANS AND SPECIFICATIONS.
 - 2) ALL PERMANENT STORMWATER TREATMENT SYSTEMS ARE OPERATIONAL AND ALL SEDIMENT IS REMOVED FROM TEMPORARY AND PERMANENT SEDIMENTATION BASINS AND CONVEYANCE SYSTEMS AND DITCHES MUST BE STABILIZED WITH PERMANENT COVER. ALL PERMANENT STORMWATER TREATMENT SYSTEMS MUST MEET THE REQUIREMENTS IN PART III.C.
 - 3) ALL TEMPORARY SYNTHETIC AND STRUCTURAL EROSION PREVENTION AND SEDIMENT CONTROL BMPS MUST BE REMOVED. BMPS DESIGNED TO DECOMPOSE MAY BE LEFT IN PLACE.

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LHB PROJECT NO. 140315

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.

BRAD SCOTT
PRINTED NAME


SIGNATURE

01/06/2016
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46198
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LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

SWPPP

SHEET NO. 23 OF 53 SHEETS

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

- 4) SWPPP RESPONSIBILITIES (THE OWNER IS RESPONSIBLE FOR PREPARING AND AMENDING THE SWPPP).
- A. ON BEHALF OF THE OWNER, THE FOLLOWING PERSON PREPARED THE SWPPP AND IS TRAINED IN SWPPP DESIGN:
- NAME: NATHAN BRUNO
 TRAINING DATE/INSTRUCTOR: DECEMBER 2013/SHRI RAMASWAMY
 TRAINING CONTENT/HOURS: U OF M DESIGN OF SWPPP / 12 HOURS
- B. THE CONTRACTOR IS RESPONSIBLE FOR OVERSEEING THE SWPPP IMPLEMENTATION AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs BEFORE AND DURING CONSTRUCTION. THE CONTRACTOR SHALL AMEND, MODIFY, AND/OR UPDATE THE SWPPP AS NECESSARY TO ADDRESS SITE CONDITIONS. THE EROSION CONTROL SUPERVISOR IS DESIGNATED TO PERFORM THESE DUTIES ON BEHALF OF THE CONTRACTOR AND IS TRAINED AND CERTIFIED TO INSPECT AND INSTALL BMPs AND/OR MANAGE SITES COVERED UNDER THE GENERAL STORMWATER PERMIT.
- NAME: _____
 TRAINING DATE/INSTRUCTOR: _____
 TRAINING CONTENT/HOURS: _____
- C. THE OWNER IS RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT SYSTEM. THE FOLLOWING PERSON IS DESIGNATED TO PERFORM THESE DUTIES:
- NAME/TITLE: _____
- D. CHAIN OF RESPONSIBILITY: THE GENERAL CONTRACTOR IS IN CHARGE OF ALL SWPPP IMPLEMENTATION ON THE CONSTRUCTION SITE AND IS ACCOUNTABLE FOR SUBCONTRACTORS AND OTHER CONTRACTORS WORKING ON SITE AND THEIR COMPLIANCE WITH GENERAL STORMWATER PERMIT AND SWPPP REQUIREMENTS. NOTIFY THE OWNER OF ANY AMENDMENT NEEDED TO THE SWPPP.

- 5) PROJECT DESCRIPTION
- A. THE PROJECT CONSISTS OF A SHARED-USE TRAIL AND A BITUMINOUS OVERLAY ALONG COLLEGE STREET IN DULUTH MINNESOTA. THE PROJECT INCLUDES CLEARING AND GRUBBING, EARTHWORK, STORM SEWER WORK, BITUMINOUS PAVING, AND PERMANENT TURF ESTABLISHMENT. TOTAL DISTURBED AREA BY THIS PROJECT IS 3.42 ACRES.
- 6) IMPERVIOUS SURFACE AREAS
- A. PRE-CONSTRUCTION CONDITIONS: **3.11 ACRES**
 B. POST-CONSTRUCTION CONDITIONS: **2.97 ACRES**
 C. NET DIFFERENCE: - **0.14 ACRES**
- 7) POTENTIAL FOR SEDIMENT AND POLLUTANT DISCHARGES FROM THE SITE
- A. THE RECEIVING WATERS FOR STORM WATER FROM THIS PROJECT INCLUDE:
- CITY OF DULUTH STORM WATER FACILITIES
 - CHESTER CREEK. CHESTER CREEK IS A DESIGNATED TROUT STREAM AND IS A SPECIAL WATER.
 - LAKE SUPERIOR.
- B. SEDIMENT FROM OVERLAND (SHEET) FLOW FROM THE SITE WILL BE CONTAINED BY A PERIMETER CONTROL OF SILT FENCE AND BALE BARRIERS AT POINTS OF DISCHARGE.
- C. LIQUID AND SOLID WASTE FROM CONCRETE OPERATIONS WILL BE TREATED BY DESIGNATED CONCRETE WASHOUT STATIONS.
- 9) TIMING/SCHEDULE OF BMP INSTALLATION FOR EROSION PREVENTION AND SEDIMENT CONTROL
- A. PRIOR TO LAND DISTURBANCE ACTIVITIES:
- INSTALL SILT FENCE AT SITE PERIMETERS, AREAS NOT TO BE DISTURBED, AND AT AREAS SHOWN ON PLAN.
 - INSTALL INLET PROTECTION (SEDIMENT TRAPS, ETC.) IN EXISTING CATCH BASINS.
- B. DURING CONSTRUCTION ACTIVITIES:
- INSTALL SILT FENCE OR OTHER CONTAINMENT METHODS AROUND STOCKPILES.

- INSTALL AND MAINTAIN PORTABLE SEDIMENT CONTAINMENT SYSTEMS FOR TREATING WATER FROM DEWATERING OPERATIONS.
 - INSTALL EROSION CONTROL BLANKETS, SOD, AND SEED/MULCH IN AREAS SHOWN ON THE PLANS WHEN LAND DISTURBING ACTIVITIES ARE COMPLETE.
 - INSPECT AND MAINTAIN ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs, INCLUDING REMOVING SEDIMENT DEPOSITS AND SWEEPING STREETS.
- C. UPON COMPLETION OF LAND DISTURBANCE ACTIVITIES:
- ESTABLISH PERMANENT COVER IN ALL AREAS OF THE SITE AND MAINTAIN UNTIL FINAL STABILIZATION.
 - UPON FINAL STABILIZATION, REMOVE ALL TEMPORARY BMPs (STABILIZED CONSTRUCTION EXITS, INLET PROTECTION, SILT FENCE, CONCRETE WASHOUT STATIONS, PORTABLE SEDIMENT CONTAINMENT SYSTEMS) AND REMOVE ANY SEDIMENT THAT HAS ACCUMULATED IN TEMPORARY BMPs, CONVEYANCE SYSTEMS, SEDIMENT BASINS, AND PERMANENT STORMWATER MANAGEMENT SYSTEMS.
- 10) PROCEDURES FOR ESTABLISHING ADDITIONAL BMPs FOR SITE CONDITIONS DURING CONSTRUCTION
- A. IF ANY DOWN GRADIENT TREATMENT SYSTEM IS OVERLOADED, ADDITIONAL UPGRADIENT SEDIMENT CONTROL OR REDUNDANT BMPs MUST BE INSTALLED BY THE CONTRACTOR TO ELIMINATE THE OVERLOADING CONDITION.
- 11) STANDARDS SPECIFICATIONS FOR CONSTRUCTION
- A. UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS, ALL MATERIAL AND CONSTRUCTION REQUIREMENTS FOR TEMPORARY SEDIMENT CONTROL AND EROSION PREVENTION SHALL BE IN ACCORDANCE WITH THE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2014 EDITION.
- 12) SOIL TYPES
- A. THE AREA GENERALLY CONSISTS OF HYDROLOGIC SOIL GROUP D (BASED ON USDA WEB SOIL SURVEY).
- 13) APPENDIX A REQUIREMENTS
- A. THIS PROJECT DISCHARGES TO A TROUT STREAM AND THEREFORE MUST INCORPORATE THE BMPs C.1, C.2, C.3, AND C.4 AS DESCRIBED IN APPENDIX A OF THE NPDES PERMIT.

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LHB PROJECT NO. 140315

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.

BRAD SCOTT
 PRINTED NAME


 SIGNATURE

01/06/2016
 DATE
 46198
 LIC. NO.

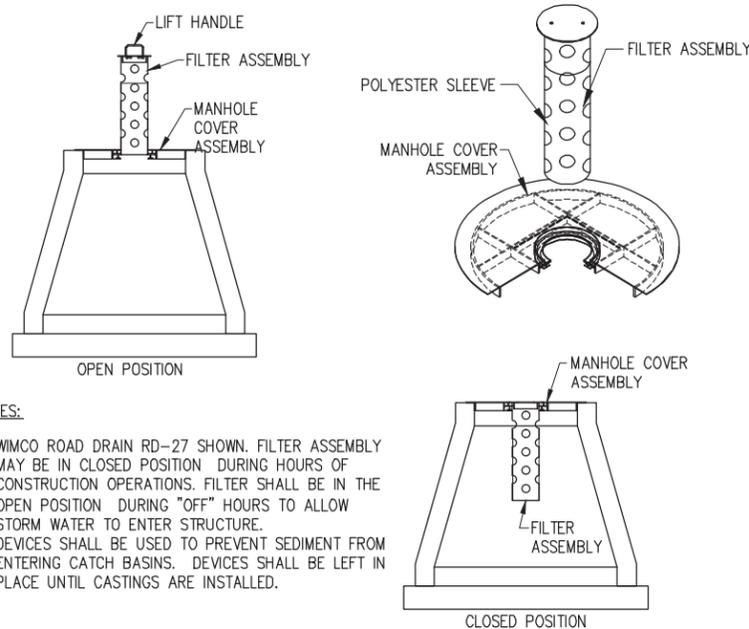
LOWELL TO LAKEWALK TRAIL
 DULUTH, MINNESOTA

CITY OF DULUTH
 CITY PROJECT NO. 1327

S.A.P. 118-155-008

SWPPP

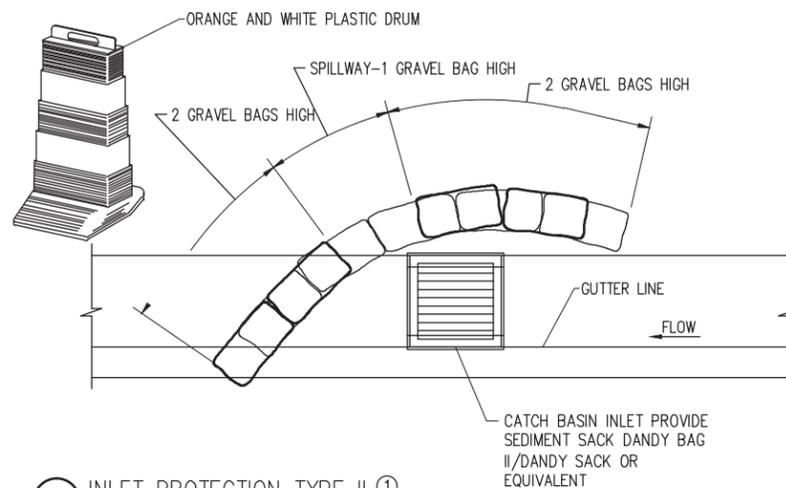
SHEET NO. 24 OF 53 SHEETS



NOTES:

1. WIMCO ROAD DRAIN RD-27 SHOWN. FILTER ASSEMBLY MAY BE IN CLOSED POSITION DURING HOURS OF CONSTRUCTION OPERATIONS. FILTER SHALL BE IN THE OPEN POSITION DURING "OFF" HOURS TO ALLOW STORM WATER TO ENTER STRUCTURE.
2. DEVICES SHALL BE USED TO PREVENT SEDIMENT FROM ENTERING CATCH BASINS. DEVICES SHALL BE LEFT IN PLACE UNTIL CASTINGS ARE INSTALLED.

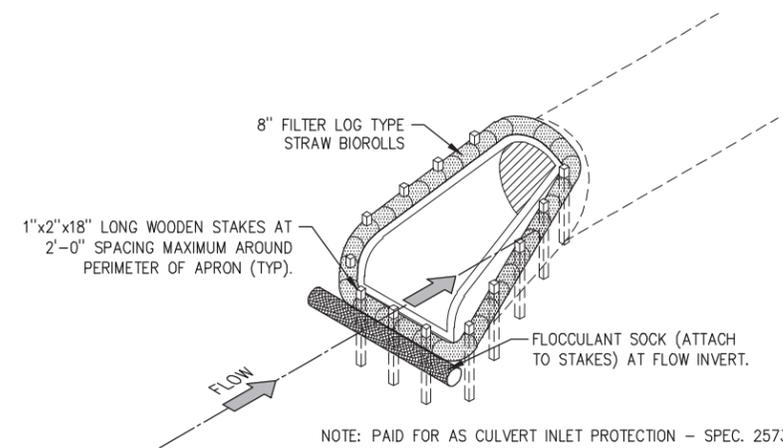
1 INLET PROTECTION TYPE I ①
NTS



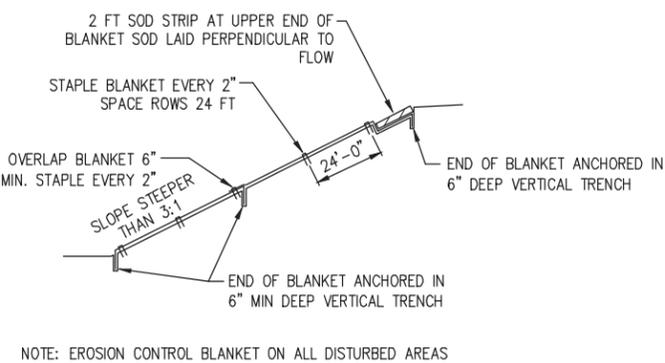
2 INLET PROTECTION TYPE II ①
NTS

KEY NOTES

- ① PAID FOR AS STORM DRAIN INLET PROTECTION - SPEC. 2573 (TO BE PAID FOR ONCE AT EACH LOCATION REGARDLESS OF TYPE OR QUANTITY USED AT EACH LOCATION).

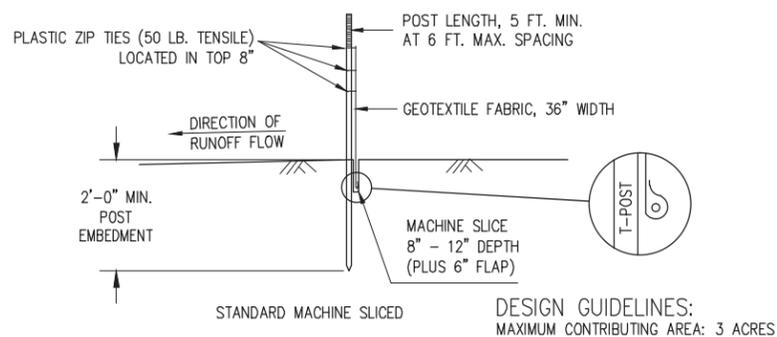


3 CULVERT INLET PROTECTION ①
NOT TO SCALE

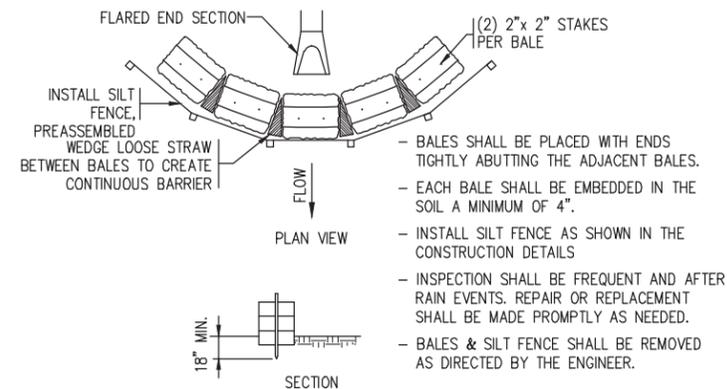


NOTE: EROSION CONTROL BLANKET ON ALL DISTURBED AREAS

4 EROSION CONTROL BLANKET
NTS



5 SILT FENCE
NTS



6 OUTLET APRON SEDIMENT TRAP
NTS

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LHB PROJECT NO. 140315

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BRAD SCOTT
PRINTED NAME

BRAD SCOTT
SIGNATURE

01/06/2016
DATE
46198
LIC. NO.

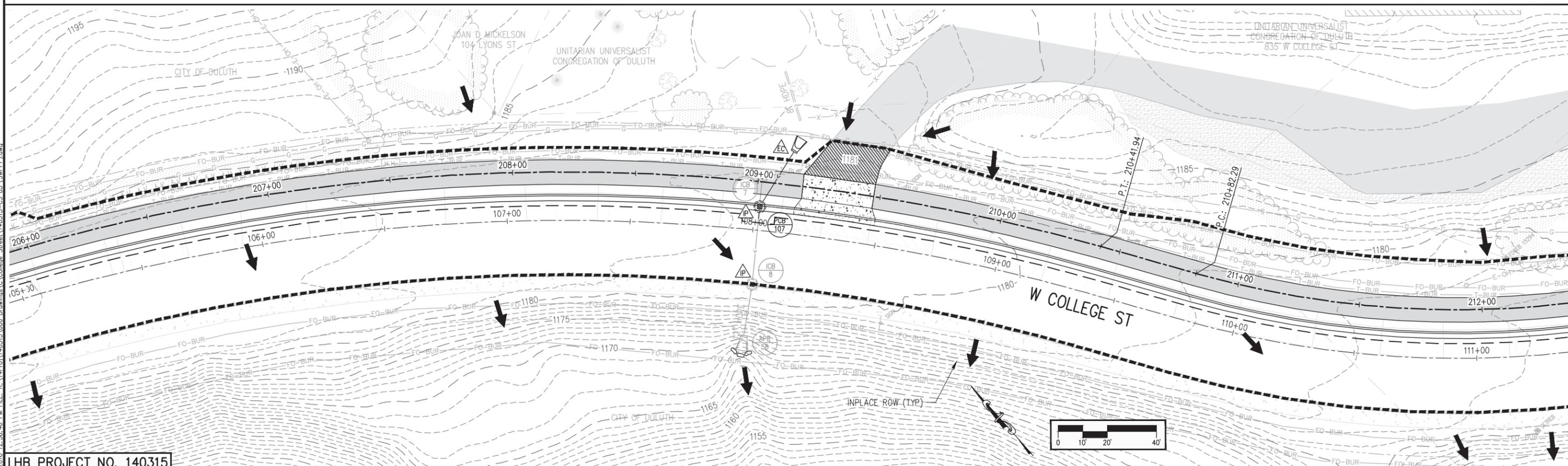
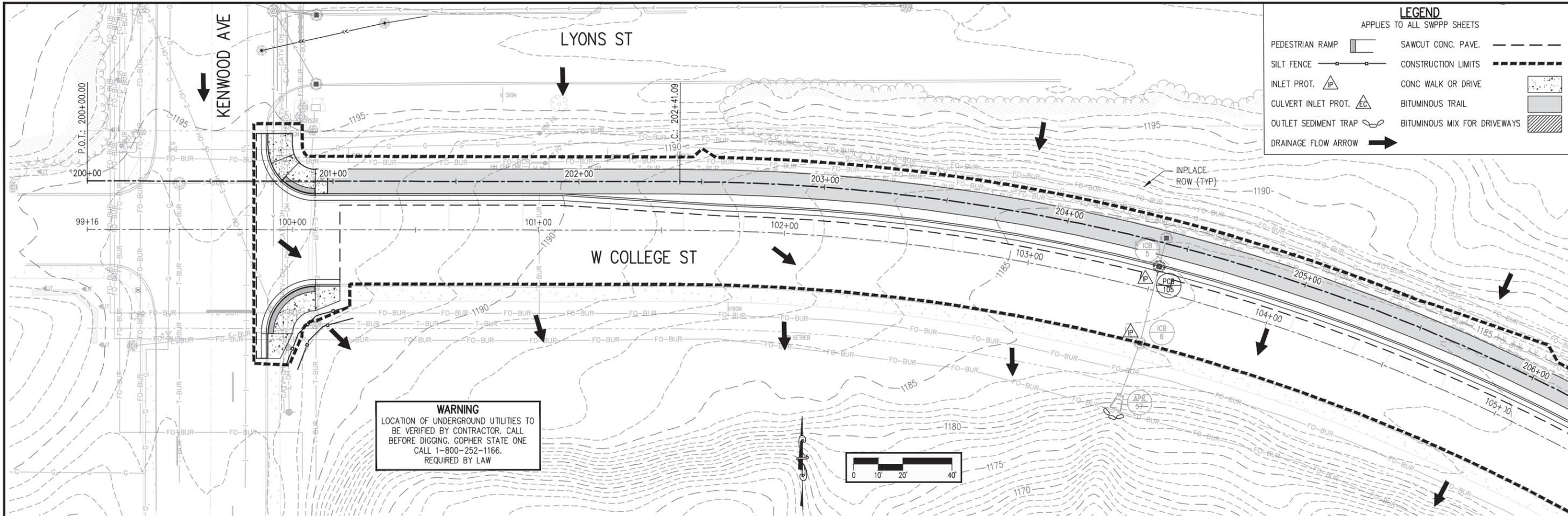
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

SWPPP

SHEET NO. 25 OF 53 SHEETS



LHB PROJECT NO. 140315

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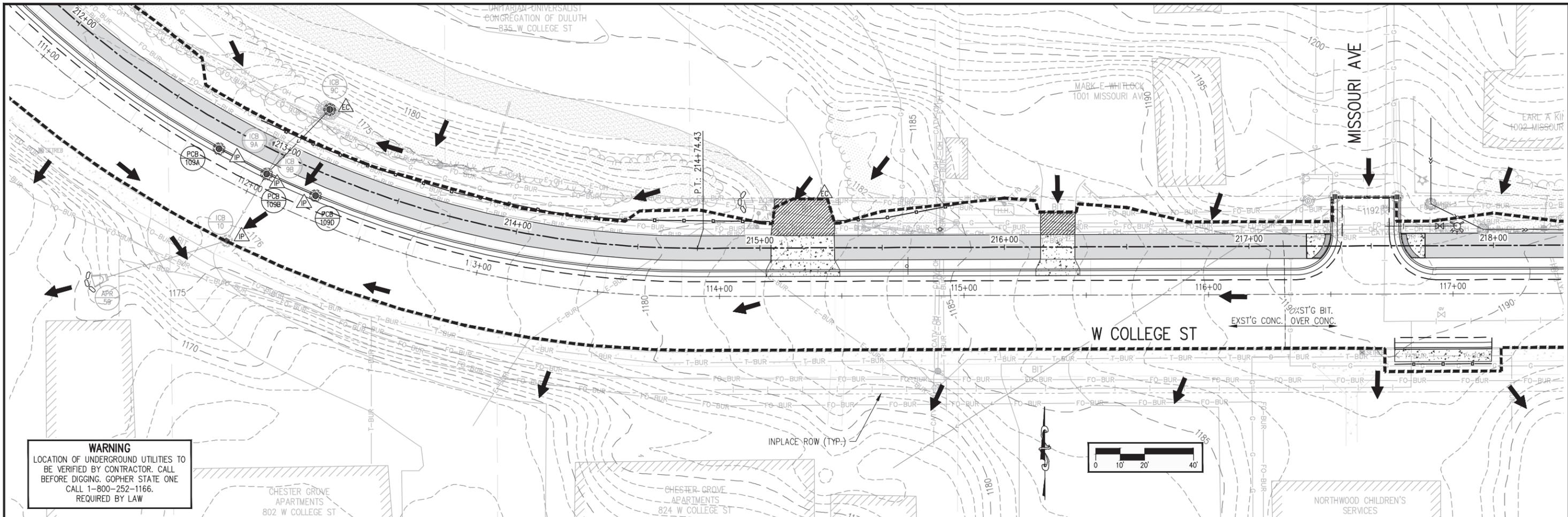
LOWELL TO LAKEWALK TRAIL
 DULUTH, MINNESOTA

CITY OF DULUTH
 CITY PROJECT NO. 1327

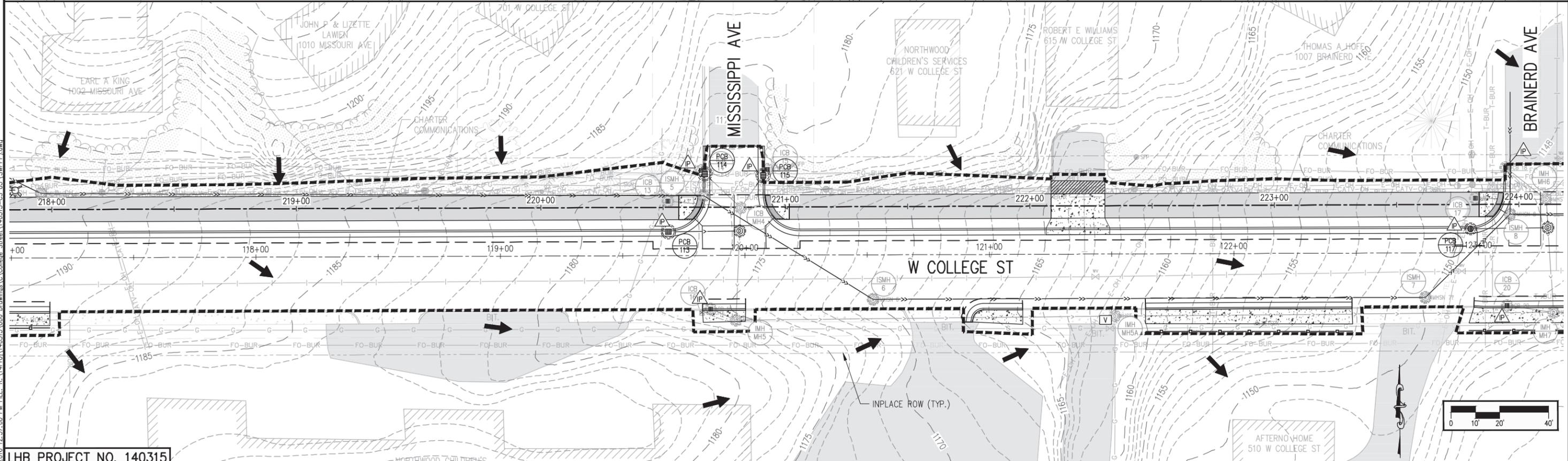
S.A.P. 118-155-008

SWPPP
 SHEET NO. 26 OF 53 SHEETS

PLOT DATE: 1/5/2016 12:36:46 PM FILE: R:\44\proj\140315\600 Drawings\C.Collage Street\140315-CS-05 (SWPPP).dwg



WARNING
 LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1-800-252-1166. REQUIRED BY LAW



LHB PROJECT NO. 140315

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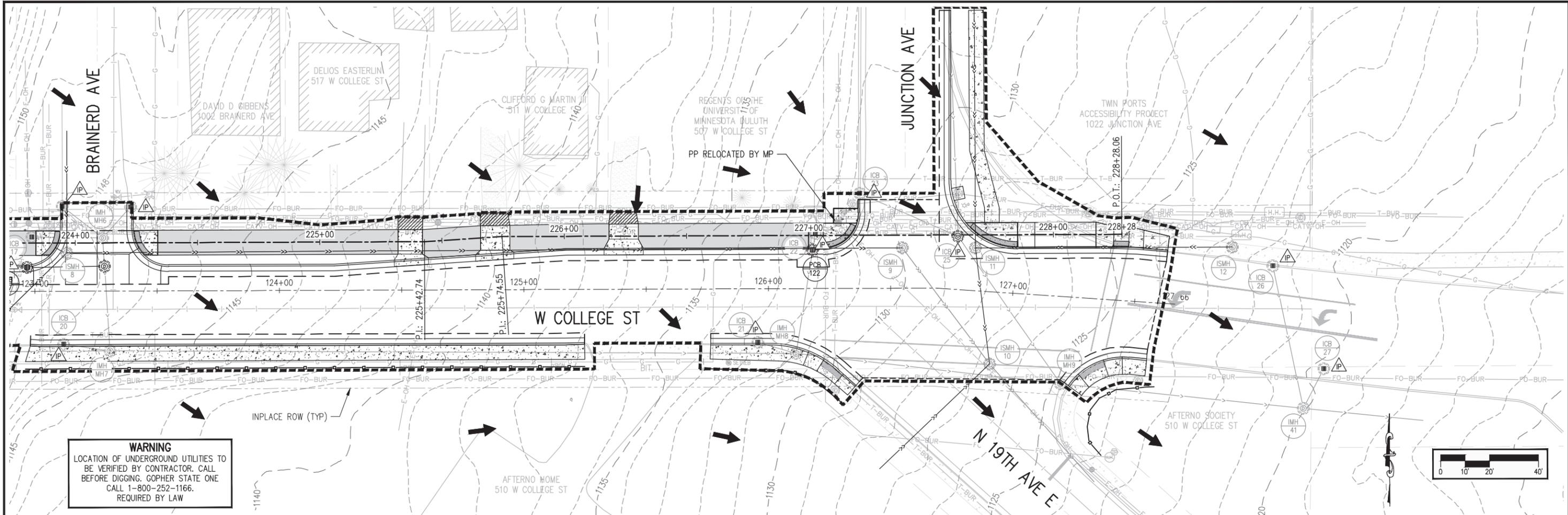
LOWELL TO LAKEWALK TRAIL
 DULUTH, MINNESOTA

CITY OF DULUTH
 CITY PROJECT NO. 1327

S.A.P. 118-155-008

SWPPP
 SHEET NO. 27 OF 53 SHEETS

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PLOT DATE: 1/5/2016 12:37:10 PM FILE: R:\14\Pro\140315\600 Drawings\College Street\140315-CS-05 (SWPPP).dwg

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LOWELL TO LAKEWALK TRAIL
 DULUTH, MINNESOTA

CITY OF DULUTH
 CITY PROJECT NO. 1327

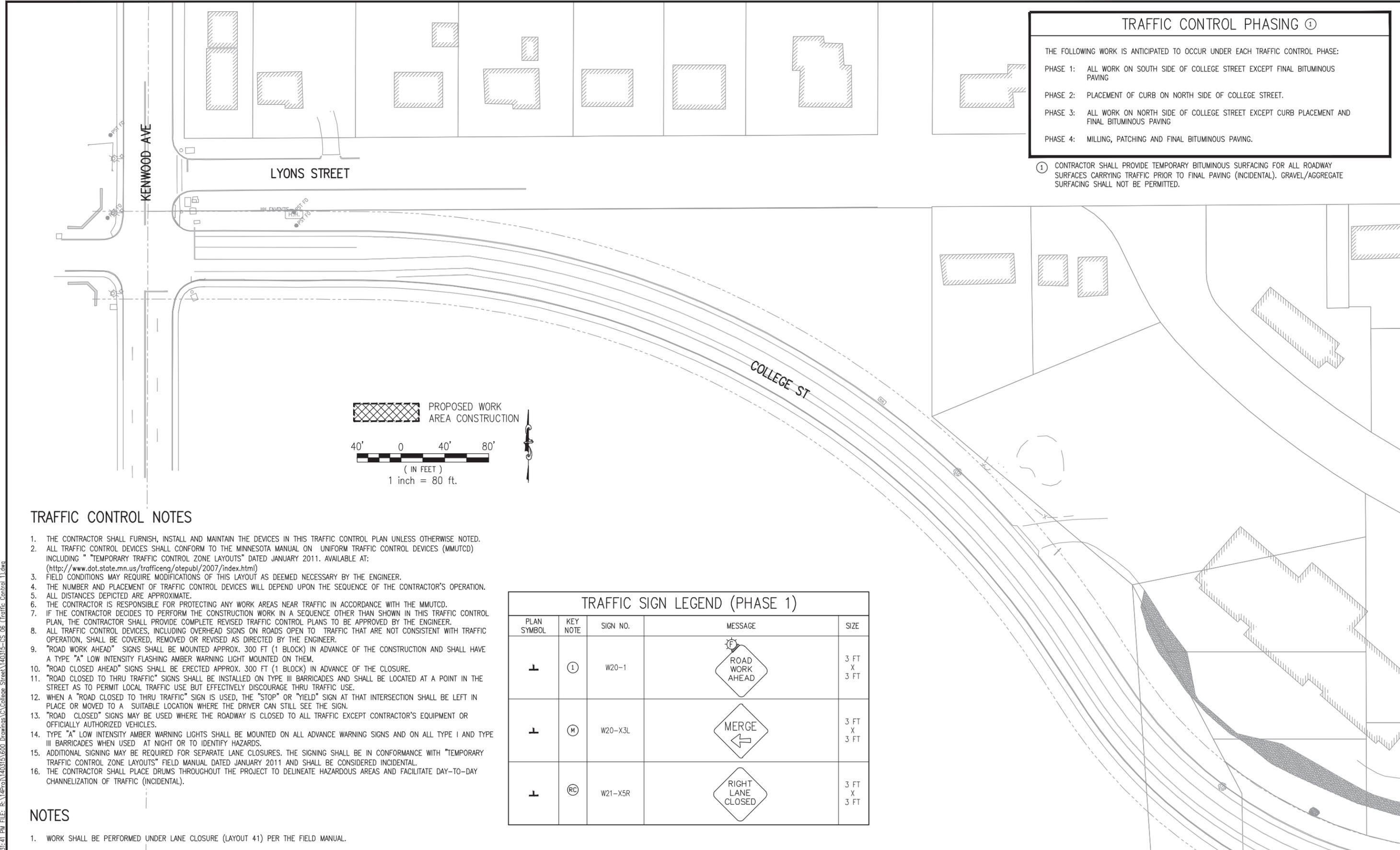
S.A.P. 118-155-008

SWPPP
 SHEET NO. 28 OF 53 SHEETS

TRAFFIC CONTROL PHASING ①

- THE FOLLOWING WORK IS ANTICIPATED TO OCCUR UNDER EACH TRAFFIC CONTROL PHASE:
- PHASE 1: ALL WORK ON SOUTH SIDE OF COLLEGE STREET EXCEPT FINAL BITUMINOUS PAVING
 - PHASE 2: PLACEMENT OF CURB ON NORTH SIDE OF COLLEGE STREET.
 - PHASE 3: ALL WORK ON NORTH SIDE OF COLLEGE STREET EXCEPT CURB PLACEMENT AND FINAL BITUMINOUS PAVING
 - PHASE 4: MILLING, PATCHING AND FINAL BITUMINOUS PAVING.

① CONTRACTOR SHALL PROVIDE TEMPORARY BITUMINOUS SURFACING FOR ALL ROADWAY SURFACES CARRYING TRAFFIC PRIOR TO FINAL PAVING (INCIDENTAL). GRAVEL/AGGREGATE SURFACING SHALL NOT BE PERMITTED.



TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) INCLUDING "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" DATED JANUARY 2011. AVAILABLE AT: (<http://www.dot.state.mn.us/trafficeng/otepubl/2007/index.html>)
3. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
4. THE NUMBER AND PLACEMENT OF TRAFFIC CONTROL DEVICES WILL DEPEND UPON THE SEQUENCE OF THE CONTRACTOR'S OPERATION.
5. ALL DISTANCES DEPICTED ARE APPROXIMATE.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MMUTCD.
7. IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN, THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.
8. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION, SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
9. "ROAD WORK AHEAD" SIGNS SHALL BE MOUNTED APPROX. 300 FT (1 BLOCK) IN ADVANCE OF THE CONSTRUCTION AND SHALL HAVE A TYPE "A" LOW INTENSITY FLASHING AMBER WARNING LIGHT MOUNTED ON THEM.
10. "ROAD CLOSED AHEAD" SIGNS SHALL BE ERECTED APPROX. 300 FT (1 BLOCK) IN ADVANCE OF THE CLOSURE.
11. "ROAD CLOSED TO THRU TRAFFIC" SIGNS SHALL BE INSTALLED ON TYPE III BARRICADES AND SHALL BE LOCATED AT A POINT IN THE STREET AS TO PERMIT LOCAL TRAFFIC USE BUT EFFECTIVELY DISCOURAGE THRU TRAFFIC USE.
12. WHEN A "ROAD CLOSED TO THRU TRAFFIC" SIGN IS USED, THE "STOP" OR "YIELD" SIGN AT THAT INTERSECTION SHALL BE LEFT IN PLACE OR MOVED TO A SUITABLE LOCATION WHERE THE DRIVER CAN STILL SEE THE SIGN.
13. "ROAD CLOSED" SIGNS MAY BE USED WHERE THE ROADWAY IS CLOSED TO ALL TRAFFIC EXCEPT CONTRACTOR'S EQUIPMENT OR OFFICIALLY AUTHORIZED VEHICLES.
14. TYPE "A" LOW INTENSITY AMBER WARNING LIGHTS SHALL BE MOUNTED ON ALL ADVANCE WARNING SIGNS AND ON ALL TYPE I AND TYPE III BARRICADES WHEN USED AT NIGHT OR TO IDENTIFY HAZARDS.
15. ADDITIONAL SIGNING MAY BE REQUIRED FOR SEPARATE LANE CLOSURES. THE SIGNING SHALL BE IN CONFORMANCE WITH "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL DATED JANUARY 2011 AND SHALL BE CONSIDERED INCIDENTAL.
16. THE CONTRACTOR SHALL PLACE DRUMS THROUGHOUT THE PROJECT TO DELINEATE HAZARDOUS AREAS AND FACILITATE DAY-TO-DAY CHANNELIZATION OF TRAFFIC (INCIDENTAL).

NOTES

1. WORK SHALL BE PERFORMED UNDER LANE CLOSURE (LAYOUT 41) PER THE FIELD MANUAL.

TRAFFIC SIGN LEGEND (PHASE 1)

PLAN SYMBOL	KEY NOTE	SIGN NO.	MESSAGE	SIZE
⊥	①	W20-1	ROAD WORK AHEAD	3 FT X 3 FT
⊥	Ⓜ	W20-X3L	MERGE	3 FT X 3 FT
⊥	Ⓜ	W21-X5R	RIGHT LANE CLOSED	3 FT X 3 FT

LHB PROJECT NO. 140315

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LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

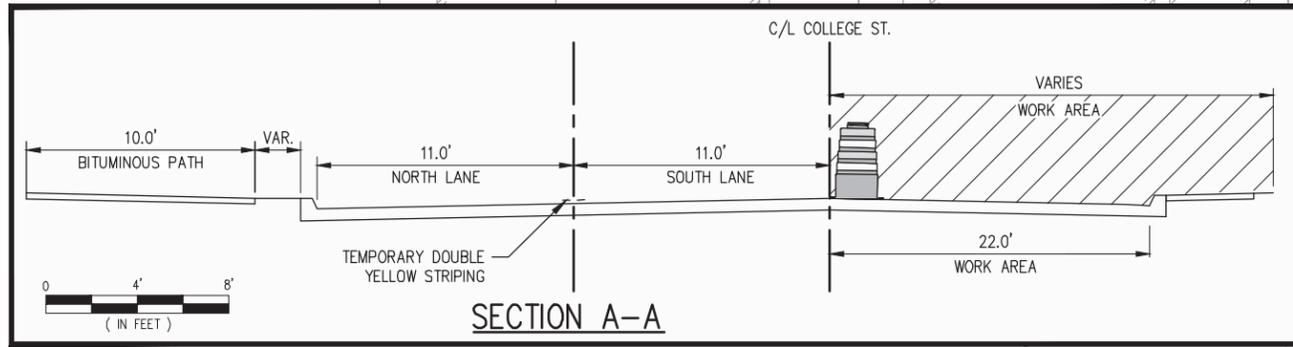
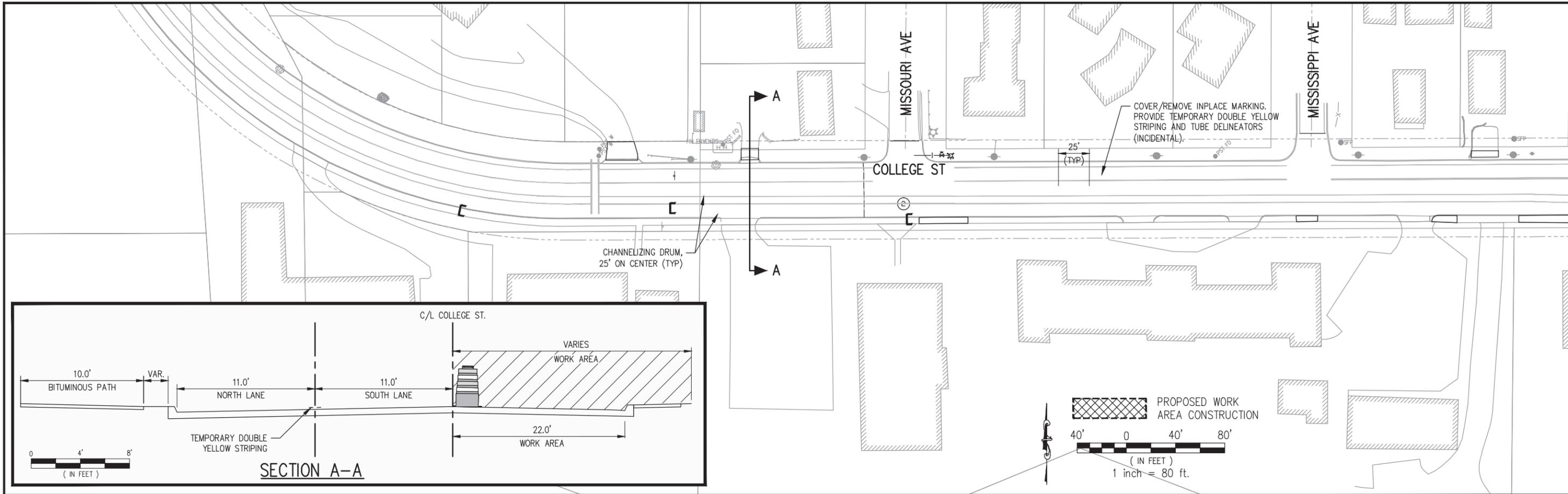
PHASE 1

TRAFFIC CONTROL PLAN

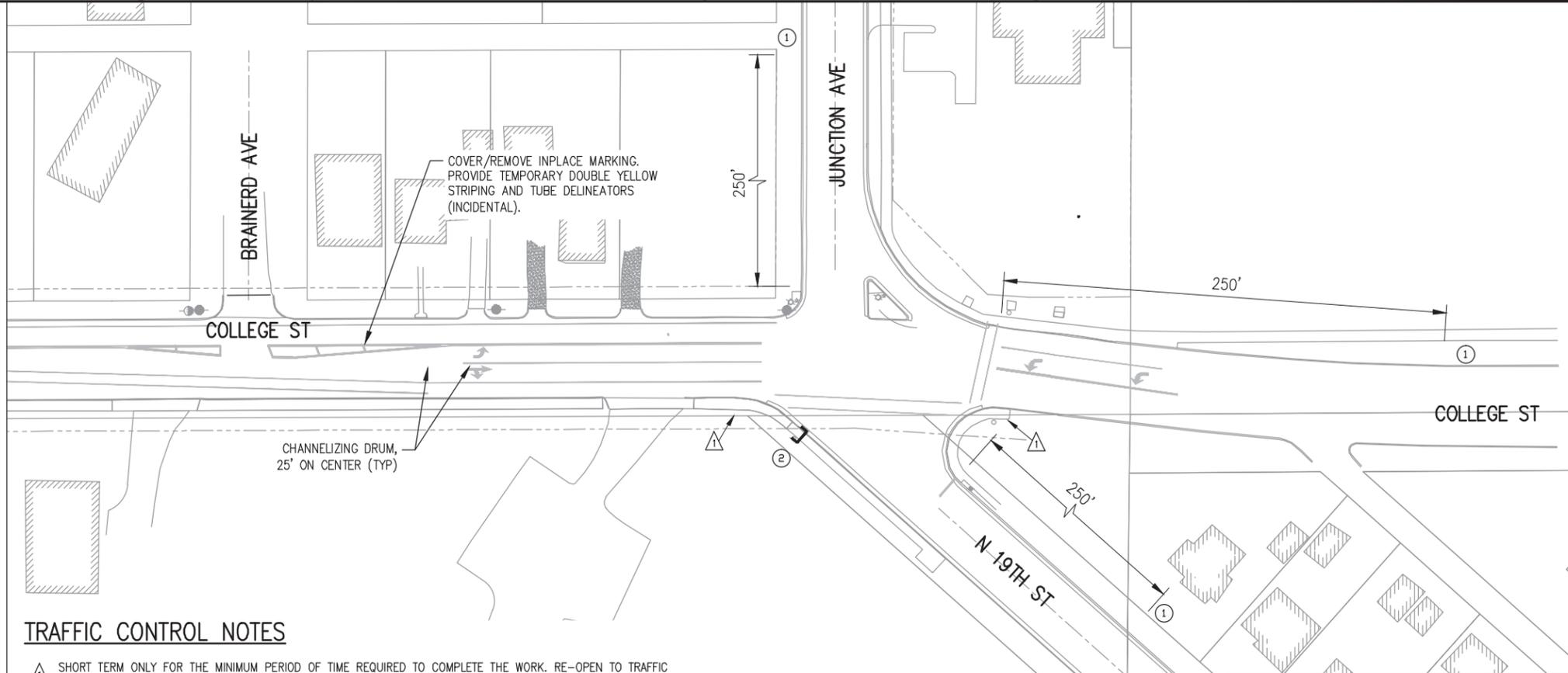
SHEET NO. 29 OF 53 SHEETS

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PLOT DATE: 1/5/2016 12:31:29 PM FILE: R:\44\Proj\140315\600 Drawings\College Street\140315-08 (Traffic Control 1).dwg



TRAFFIC SIGN LEGEND (PHASE 1)				
PLAN SYMBOL	KEY NOTE	SIGN NO.	MESSAGE	SIZE
●		STANDARD NO. 4 ENCAPSULATED LENS BARREL		
⊥	①	W20-1	ROAD WORK AHEAD	3 FT X 3 FT
⊥	②	W20-X3L		3 FT X 3 FT
C	②	TYPE III BARRICADE & R9-9	SIDEWALK CLOSED	30 IN X 18 IN
	③	TYPE III BARRICADE & W1-6		48 IN X 24 IN



TRAFFIC CONTROL NOTES

▲ SHORT TERM ONLY FOR THE MINIMUM PERIOD OF TIME REQUIRED TO COMPLETE THE WORK. RE-OPEN TO TRAFFIC AS SOON AS POSSIBLE. PROVIDE TEMPORARY LANE CLOSURE, BARRELS, SIGNAGE AND FLAGGERS AS NECESSARY TO COMPLETE THE WORK. (NOT SHOWN AND INCIDENTAL TO TRAFFIC CONTROL).

LHB PROJECT NO. 140315

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CITY PROJECT NO. 1327

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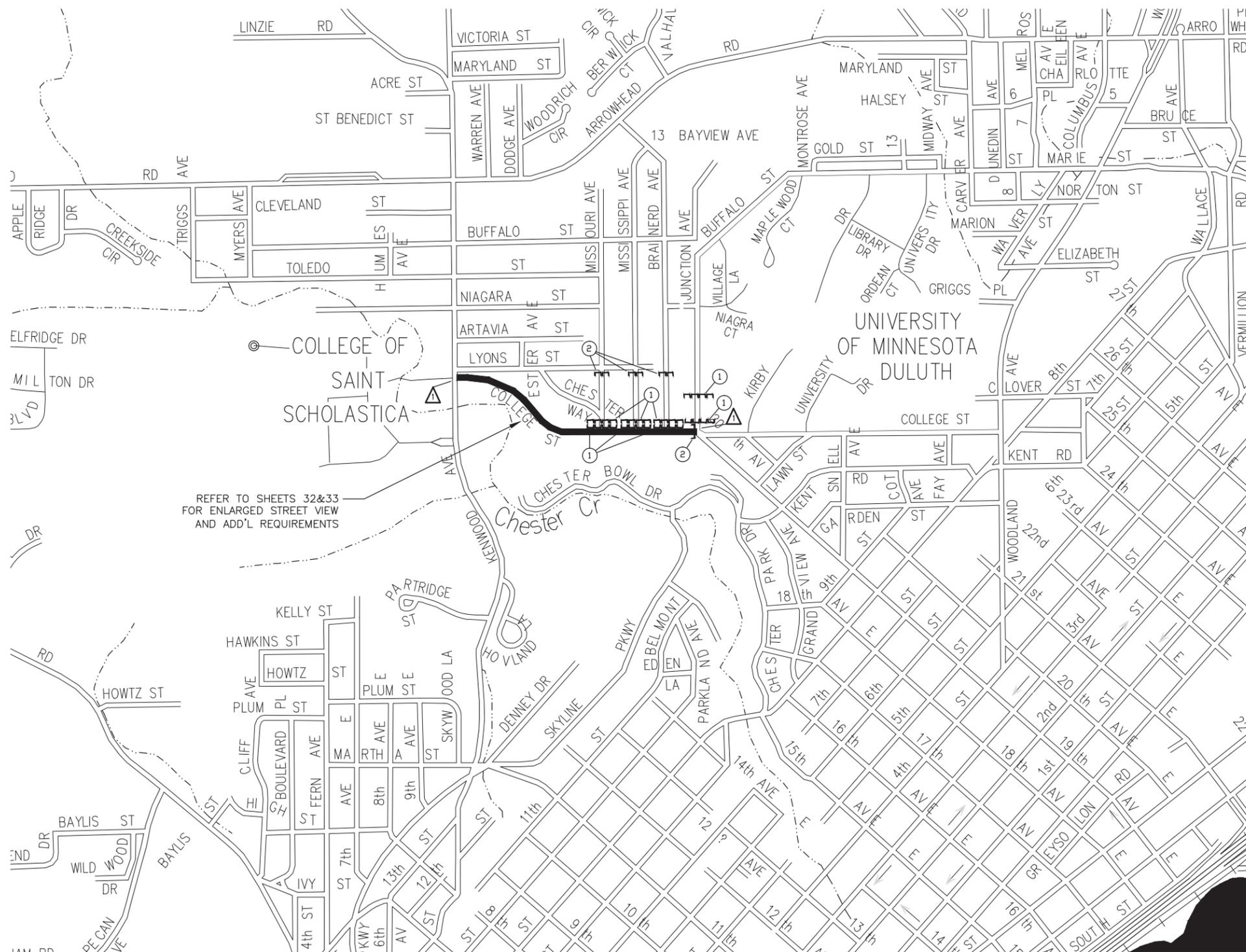
PHASE 1

TRAFFIC CONTROL PLAN

SHEET NO. 30 OF 53 SHEETS

TRAFFIC SIGN LEGEND				
PLAN SYMBOL	KEY NOTE	SIGN NO.	DESCRIPTION	SIZE
	①	TYPE III BARRICADE & R11-2		4 FT X 2.5 FT*
	②	TYPE III BARRICADE & R11-4		5 FT X 2.5 FT*

* ADDITIONAL TYPE III BARRICADES SHALL BE AVAILABLE TO PROVIDE SUFFICIENT WIDTH WHERE NEEDED.



REFER TO SHEETS 32&33 FOR ENLARGED STREET VIEW AND ADD'L REQUIREMENTS

TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) INCLUDING "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" DATED FEBRUARY 2015. AVAILABLE AT: (<http://www.dot.state.mn.us/trafficeng/publ/mutcd>)
3. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
4. THE NUMBER AND PLACEMENT OF TRAFFIC CONTROL DEVICES WILL DEPEND UPON THE SEQUENCE OF THE CONTRACTOR'S OPERATION.
5. ALL DISTANCES DEPICTED ARE APPROXIMATE.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MMUTCD.
7. IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN, THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.
8. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION, SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
9. "ROAD WORK AHEAD" SIGNS SHALL BE MOUNTED APPROX. 250 FT IN ADVANCE OF THE CONSTRUCTION AND SHALL HAVE A TYPE "A" LOW INTENSITY FLASHING AMBER WARNING LIGHT MOUNTED ON THEM.
10. "ROAD CLOSED AHEAD" SIGNS SHALL BE ERECTED APPROX. 300 FT (1 BLOCK) IN ADVANCE OF THE CLOSURE.
11. "ROAD CLOSED TO THRU TRAFFIC" SIGNS SHALL BE INSTALLED ON TYPE III BARRICADES AND SHALL BE LOCATED AT A POINT IN THE STREET AS TO PERMIT LOCAL TRAFFIC USE BUT EFFECTIVELY DISCOURAGE THRU TRAFFIC USE.
12. WHEN A "ROAD CLOSED TO THRU TRAFFIC" SIGN IS USED, THE "STOP" OR "YIELD" SIGN AT THAT INTERSECTION SHALL BE LEFT IN PLACE OR MOVED TO A SUITABLE LOCATION WHERE THE DRIVER CAN STILL SEE THE SIGN.
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14. TYPE "A" LOW INTENSITY AMBER WARNING LIGHTS SHALL BE MOUNTED ON ALL ADVANCE WARNING SIGNS AND ON ALL TYPE I AND TYPE III BARRICADES WHEN USED AT NIGHT OR TO IDENTIFY HAZARDS.
15. ADDITIONAL SIGNING MAY BE REQUIRED FOR SEPARATE LANE CLOSURES. THE SIGNING SHALL BE IN CONFORMANCE WITH "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL DATED JANUARY 2014 AND SHALL BE CONSIDERED INCIDENTAL.
16. THE CONTRACTOR SHALL PLACE DRUMS THROUGHOUT THE PROJECT TO DELINEATE HAZARDOUS AREAS AND FACILITATE DAY-TO-DAY CHANNELIZATION OF TRAFFIC (INCIDENTAL).

TRAFFIC CONTROL NOTES

▲ COORDINATE SIGNAL COVERING AND/OR MODIFICATIONS TO SIGNAL TIMING WITH THE CITY OF DULUTH.

LEGEND

— PROPOSED WORK AREA



NOT TO SCALE

PLOT DATE: 1/5/2016 12:30:24 PM FILE: R:\44pro\140315\600 Drawings\College Street\140315-05-06 (Traffic Control 2).dwg

LHB PROJECT NO. 140315

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BRAD SCOTT
PRINTED NAME

SIGNATURE

01/06/2016
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46198
LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

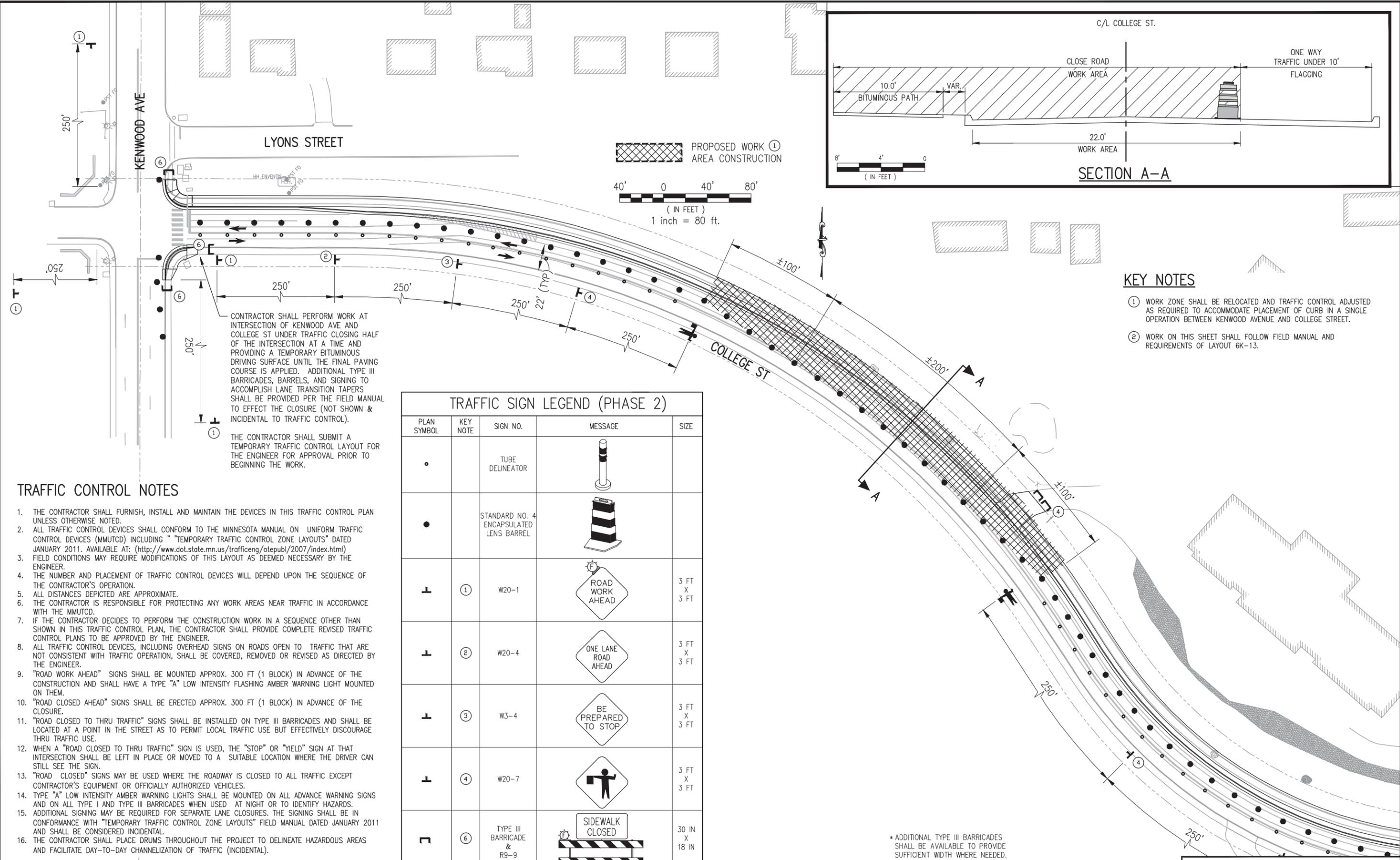
CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

PHASE 2

TRAFFIC CONTROL PLAN

SHEET NO. 31 OF 53 SHEETS



LHB PROJECT NO. 140315

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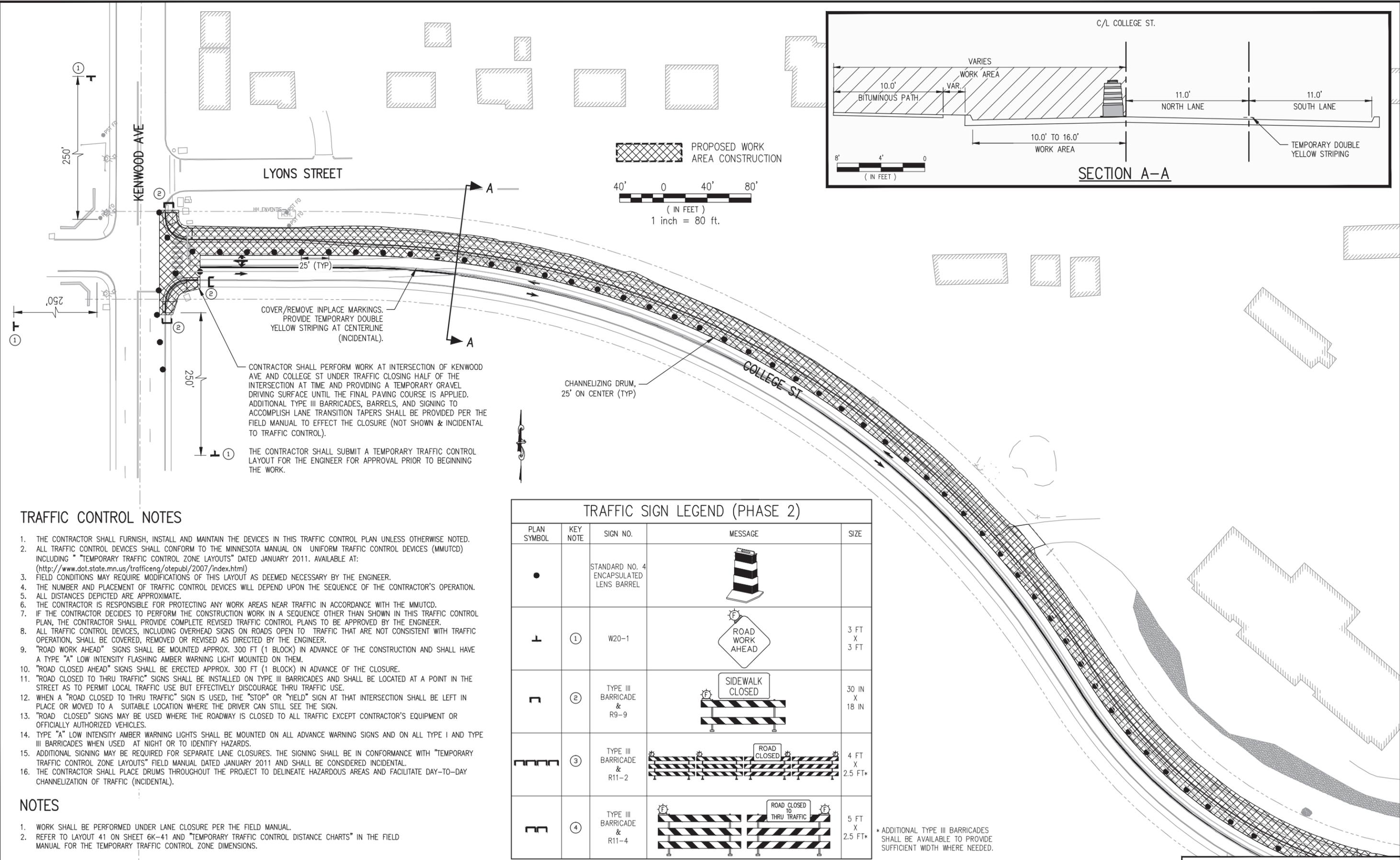
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

PHASE 2
TRAFFIC CONTROL PLAN
SHEET NO. 32 OF 53 SHEETS

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TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) INCLUDING "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" DATED JANUARY 2011. AVAILABLE AT: (<http://www.dot.state.mn.us/trafficeng/otepubl/2007/index.html>)
3. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
4. THE NUMBER AND PLACEMENT OF TRAFFIC CONTROL DEVICES WILL DEPEND UPON THE SEQUENCE OF THE CONTRACTOR'S OPERATION.
5. ALL DISTANCES DEPICTED ARE APPROXIMATE.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MMUTCD.
7. IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN, THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.
8. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION, SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
9. "ROAD WORK AHEAD" SIGNS SHALL BE MOUNTED APPROX. 300 FT (1 BLOCK) IN ADVANCE OF THE CONSTRUCTION AND SHALL HAVE A TYPE "A" LOW INTENSITY FLASHING AMBER WARNING LIGHT MOUNTED ON THEM.
10. "ROAD CLOSED AHEAD" SIGNS SHALL BE ERECTED APPROX. 300 FT (1 BLOCK) IN ADVANCE OF THE CLOSURE.
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12. WHEN A "ROAD CLOSED TO THRU TRAFFIC" SIGN IS USED, THE "STOP" OR "YIELD" SIGN AT THAT INTERSECTION SHALL BE LEFT IN PLACE OR MOVED TO A SUITABLE LOCATION WHERE THE DRIVER CAN STILL SEE THE SIGN.
13. "ROAD CLOSED" SIGNS MAY BE USED WHERE THE ROADWAY IS CLOSED TO ALL TRAFFIC EXCEPT CONTRACTOR'S EQUIPMENT OR OFFICIALLY AUTHORIZED VEHICLES.
14. TYPE "A" LOW INTENSITY AMBER WARNING LIGHTS SHALL BE MOUNTED ON ALL ADVANCE WARNING SIGNS AND ON ALL TYPE I AND TYPE III BARRICADES WHEN USED AT NIGHT OR TO IDENTIFY HAZARDS.
15. ADDITIONAL SIGNING MAY BE REQUIRED FOR SEPARATE LANE CLOSURES. THE SIGNING SHALL BE IN CONFORMANCE WITH "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL DATED JANUARY 2011 AND SHALL BE CONSIDERED INCIDENTAL.
16. THE CONTRACTOR SHALL PLACE DRUMS THROUGHOUT THE PROJECT TO DELINEATE HAZARDOUS AREAS AND FACILITATE DAY-TO-DAY CHANNELIZATION OF TRAFFIC (INCIDENTAL).

NOTES

1. WORK SHALL BE PERFORMED UNDER LANE CLOSURE PER THE FIELD MANUAL.
2. REFER TO LAYOUT 41 ON SHEET 6K-41 AND "TEMPORARY TRAFFIC CONTROL DISTANCE CHARTS" IN THE FIELD MANUAL FOR THE TEMPORARY TRAFFIC CONTROL ZONE DIMENSIONS.

TRAFFIC SIGN LEGEND (PHASE 2)

PLAN SYMBOL	KEY NOTE	SIGN NO.	MESSAGE	SIZE
●		STANDARD NO. 4 ENCAPSULATED LENS BARREL		
T	①	W20-1		3 FT X 3 FT
U	②	TYPE III BARRICADE & R9-9		30 IN X 18 IN
W	③	TYPE III BARRICADE & R11-2		4 FT X 2.5 FT*
W	④	TYPE III BARRICADE & R11-4		5 FT X 2.5 FT*

* ADDITIONAL TYPE III BARRICADES SHALL BE AVAILABLE TO PROVIDE SUFFICIENT WIDTH WHERE NEEDED.

LHB PROJECT NO. 140315

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DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

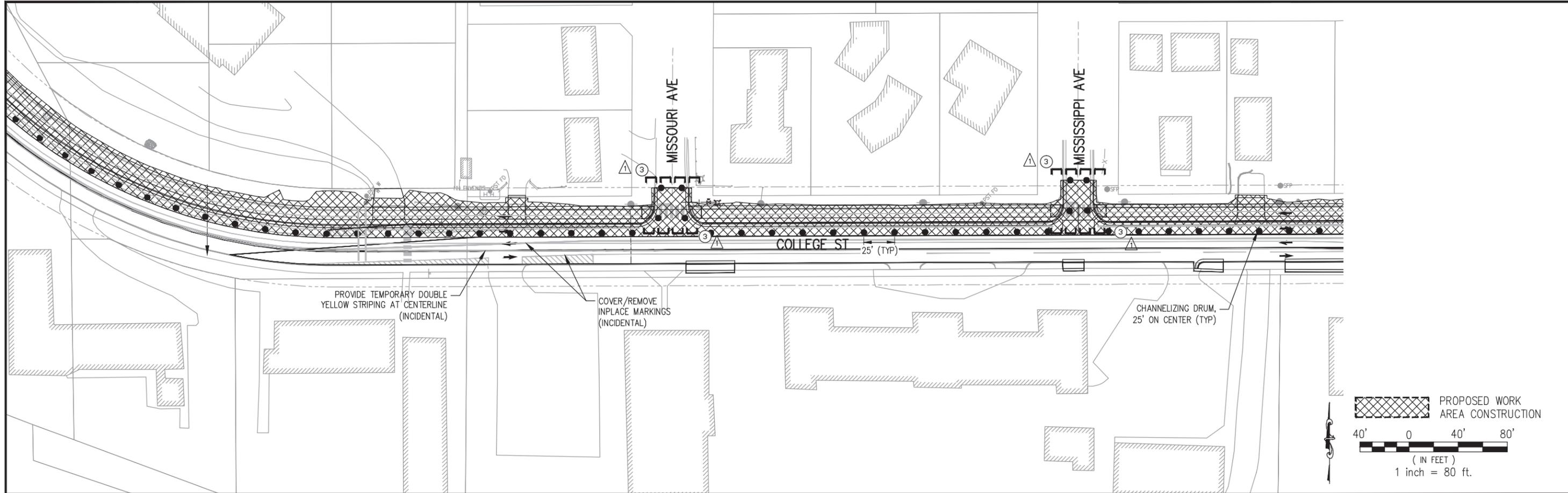
S.A.P. 118-155-008

PHASE 3

TRAFFIC CONTROL PLAN

SHEET NO. 34 OF 53 SHEETS

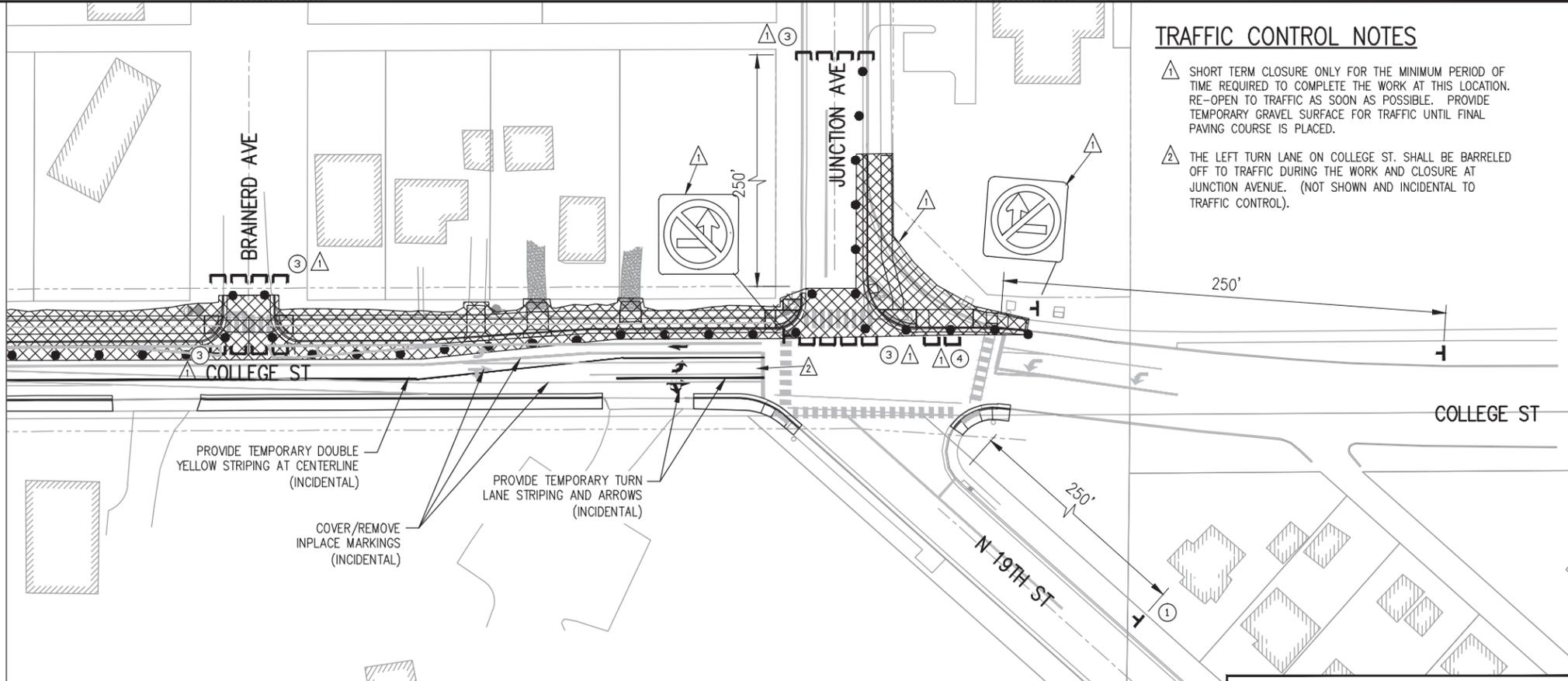
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TRAFFIC SIGN LEGEND (PHASE 2)

PLAN SYMBOL	KEY NOTE	SIGN NO.	MESSAGE	
●		STANDARD NO. 4 ENCAPSULATED LENS BARREL		
T	①	W20-1	 ROAD WORK AHEAD	3 FT X 3 FT
C	②	TYPE III BARRICADE & R9-9	 SIDEWALK CLOSED	30 IN X 18 IN
M	③	TYPE III BARRICADE & R11-2	 ROAD CLOSED	4 FT X 2.5 FT*
E	④	TYPE III BARRICADE & R11-4	 ROAD CLOSED	5 FT X 2.5 FT*

* ADDITIONAL TYPE III BARRICADES SHALL BE AVAILABLE TO PROVIDE SUFFICIENT WIDTH WHERE NEEDED.



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S.A.P. 118-155-008

PHASE 3
TRAFFIC CONTROL PLAN
SHEET NO. 35 OF 53 SHEETS

PLOT DATE: 1/5/2016 12:28:15 PM FILE: R:\4\Proj\140315\600 Drawings\College Street\140315-05.06 (Traffic Control 3).dwg

TRAFFIC CONTROL NOTES

- △ SHALL REMAIN FOR DURATION OF PROJECT.
- △ STREET CLOSURES SHALL BE LIMITED TO THE MINIMUM PERIOD OF TIME REQUIRED TO COMPLETE THE WORK AND TRAFFIC SHALL BE RETURNED AS SOON AS IT IS PRACTICABLE TO DO SO UTILIZING TEMPORARY GRAVEL SURFACES UNTIL FINAL PAVING.

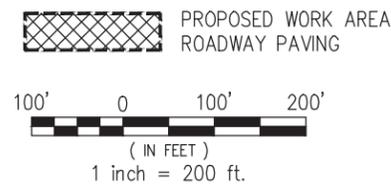


TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) INCLUDING "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" DATED FEBRUARY 2015. AVAILABLE AT: (<http://www.dot.state.mn.us/trafficeng/publ/mutcd>)
3. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
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9. "ROAD WORK AHEAD" SIGNS SHALL BE MOUNTED APPROX. 250 FT IN ADVANCE OF THE CONSTRUCTION AND SHALL HAVE A TYPE "A" LOW INTENSITY FLASHING AMBER WARNING LIGHT MOUNTED ON THEM.
10. "ROAD CLOSED AHEAD" SIGNS SHALL BE ERECTED APPROX. 300 FT (1 BLOCK) IN ADVANCE OF THE CLOSURE.
11. "ROAD CLOSED TO THRU TRAFFIC" SIGNS SHALL BE INSTALLED ON TYPE III BARRICADES AND SHALL BE LOCATED AT A POINT IN THE STREET AS TO PERMIT LOCAL TRAFFIC USE BUT EFFECTIVELY DISCOURAGE THRU TRAFFIC USE.
12. WHEN A "ROAD CLOSED TO THRU TRAFFIC" SIGN IS USED, THE "STOP" OR "YIELD" SIGN AT THAT INTERSECTION SHALL BE LEFT IN PLACE OR MOVED TO A SUITABLE LOCATION WHERE THE DRIVER CAN STILL SEE THE SIGN.
13. "ROAD CLOSED" SIGNS MAY BE USED WHERE THE ROADWAY IS CLOSED TO ALL TRAFFIC EXCEPT CONTRACTOR'S EQUIPMENT OR OFFICIALLY AUTHORIZED VEHICLES.
14. TYPE "A" LOW INTENSITY AMBER WARNING LIGHTS SHALL BE MOUNTED ON ALL ADVANCE WARNING SIGNS AND ON ALL TYPE I AND TYPE III BARRICADES WHEN USED AT NIGHT OR TO IDENTIFY HAZARDS.
15. ADDITIONAL SIGNING MAY BE REQUIRED FOR SEPARATE LANE CLOSURES. THE SIGNING SHALL BE IN CONFORMANCE WITH "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL DATED JANUARY 2014 AND SHALL BE CONSIDERED INCIDENTAL.
16. THE CONTRACTOR SHALL PLACE DRUMS THROUGHOUT THE PROJECT TO DELINEATE HAZARDOUS AREAS AND FACILITATE DAY-TO-DAY CHANNELIZATION OF TRAFFIC (INCIDENTAL).

NOTES

1. WORK SHALL BE PERFORMED WITH FLAGGERS UNDER TWO-LANE TWO-WAY ROAD LANE CLOSURE (FIELD MANUAL LAYOUT 6-7).
2. ACCESS TO LOCAL BUSINESS AND ORGANIZATIONS ON SOUTH SIDE OF COLLEGE ROAD SHALL BE MAINTAINED.
3. ACCESS TO RESIDENTIAL DRIVES SHALL BE MAINTAINED.
4. MISSOURI AVE, MISSISSIPPI AVE, AND BRAINERD AVE SHALL BE CLOSED TO TRAFFIC.
5. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING BUSINESSES AND RESIDENCES AT LEAST 48 HOURS PRIOR TO PAVING OPERATIONS.



TRAFFIC SIGN LEGEND (PHASE 3)

PLAN SYMBOL	KEY NOTE	SIGN NO.	MESSAGE	SIZE	PLAN SYMBOL	KEY NOTE	SIGN NO.	DESCRIPTION	SIZE
⊕	①	W20-1	ROAD WORK AHEAD	3 FT X 3 FT	⊕	⑤	TYPE III BARRICADE & R11-2	ROAD CLOSED	4 FT X 2.5 FT*
⊕	②	W20-3	ROAD CLOSED AHEAD	3 FT X 3 FT	⊕	⑥	TYPE III BARRICADE & R11-4	ROAD CLOSED TO THRU TRAFFIC	5 FT X 2.5 FT*
⊕	③	W20-3	BE PREPARED TO STOP	3 FT X 3 FT					
⊕	④	W20-3	STOP	3 FT X 3 FT					

* ADDITIONAL TYPE III BARRICADES SHALL BE AVAILABLE TO PROVIDE SUFFICIENT WIDTH WHERE NEEDED.

PLOT DATE: 1/5/2016 12:28:18 PM FILE: R:\4Pro\140315\600 Drawings\College Street\140315-05_06 (Traffic Control 4).dwg

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BRAD SCOTT
PRINTED NAME

SIGNATURE

01/06/2016
DATE
46198
LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

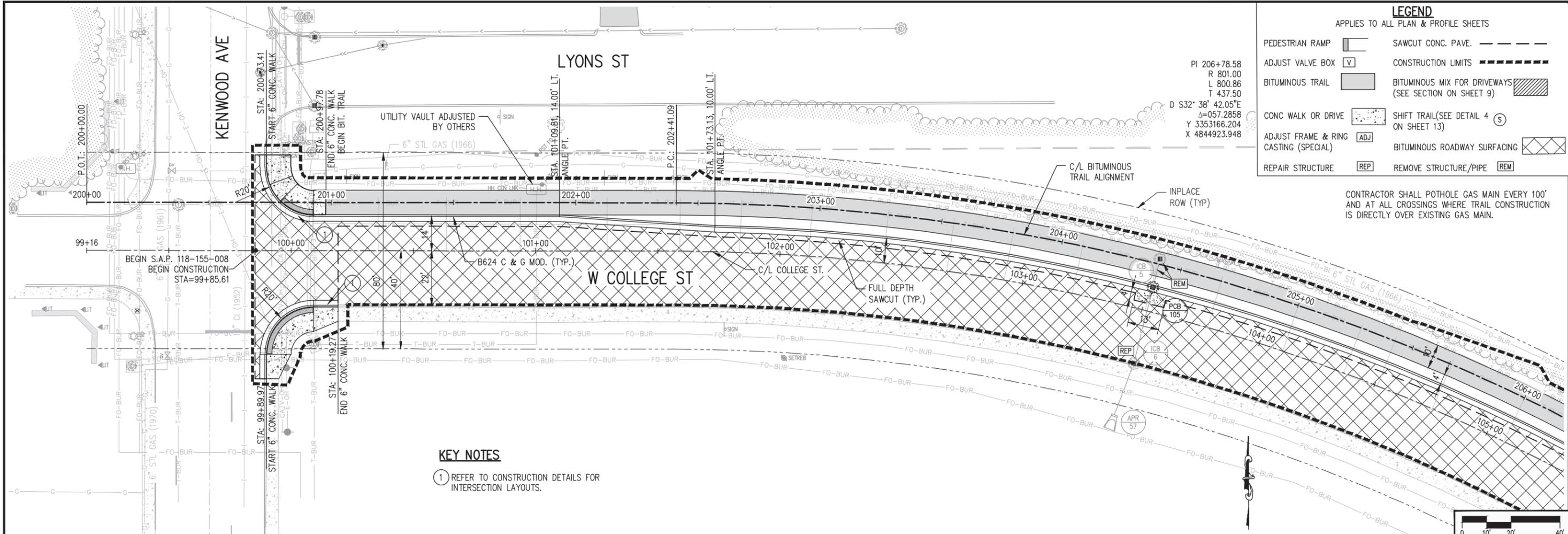
CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

PHASE 4

TRAFFIC CONTROL PLAN

SHEET NO. 36 OF 53 SHEETS

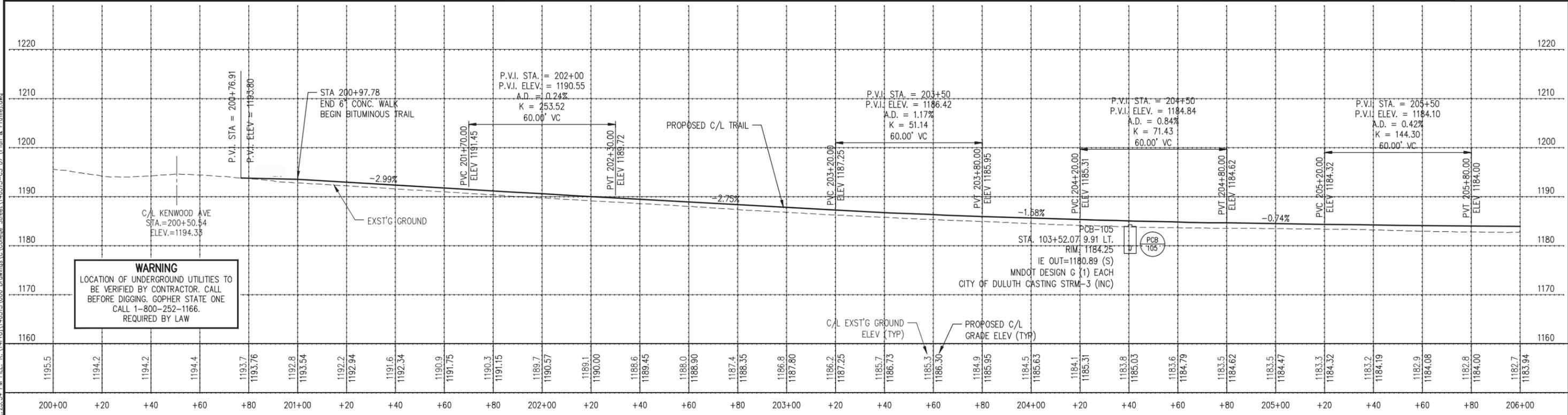


LEGEND
APPLIES TO ALL PLAN & PROFILE SHEETS

PEDESTRIAN RAMP	SAWCUT CONC. PAVE.
ADJUST VALVE BOX	CONSTRUCTION LIMITS
BITUMINOUS TRAIL	BITUMINOUS MIX FOR DRIVEWAYS (SEE SECTION ON SHEET 9)
CONC WALK OR DRIVE	SHIFT TRAIL (SEE DETAIL 4 (S) ON SHEET 13)
ADJUST FRAME & RING CASTING (SPECIAL)	BITUMINOUS ROADWAY SURFACING
REPAIR STRUCTURE	REMOVE STRUCTURE/PIPE

PI 206+78.58
R 801.00
L 800.86
T 437.50
D S32° 38' 42.05"E
Δ=057.2858
Y 3353166.204
X 4844923.948

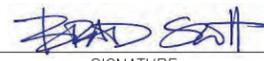
KEY NOTES
① REFER TO CONSTRUCTION DETAILS FOR INTERSECTION LAYOUTS.



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LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

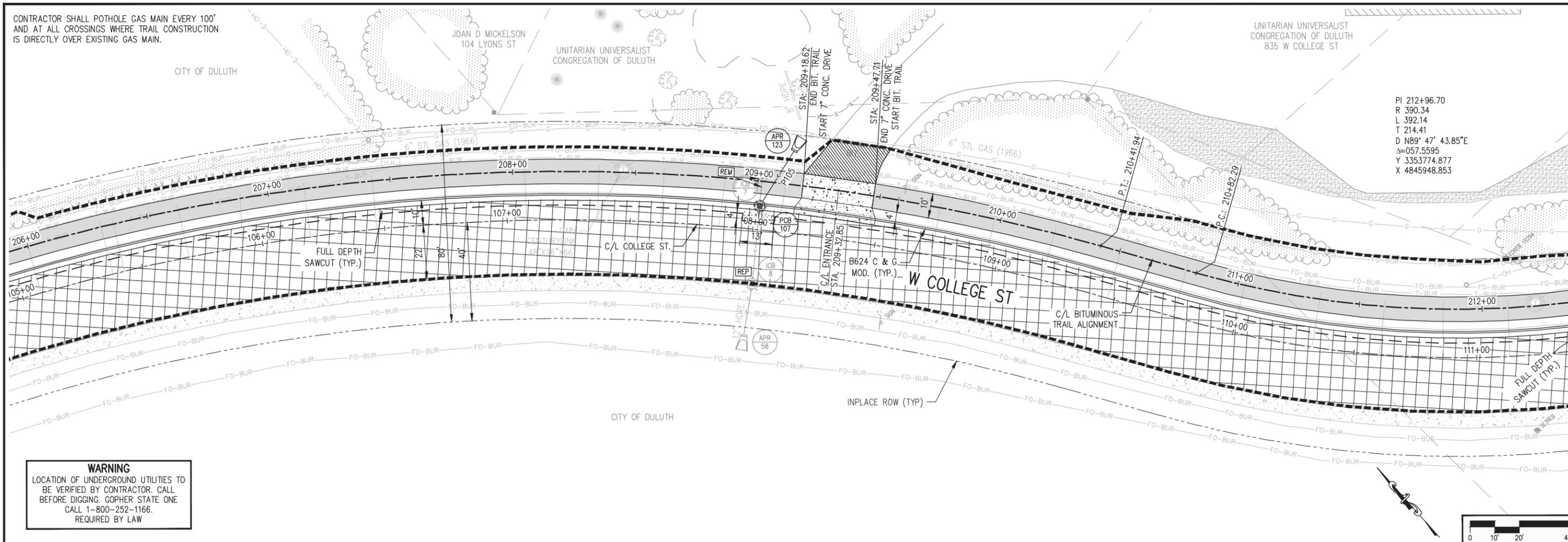
S.A.P. 118-155-008

PLAN AND PROFILE
SHEET NO. 37 OF 53 SHEETS

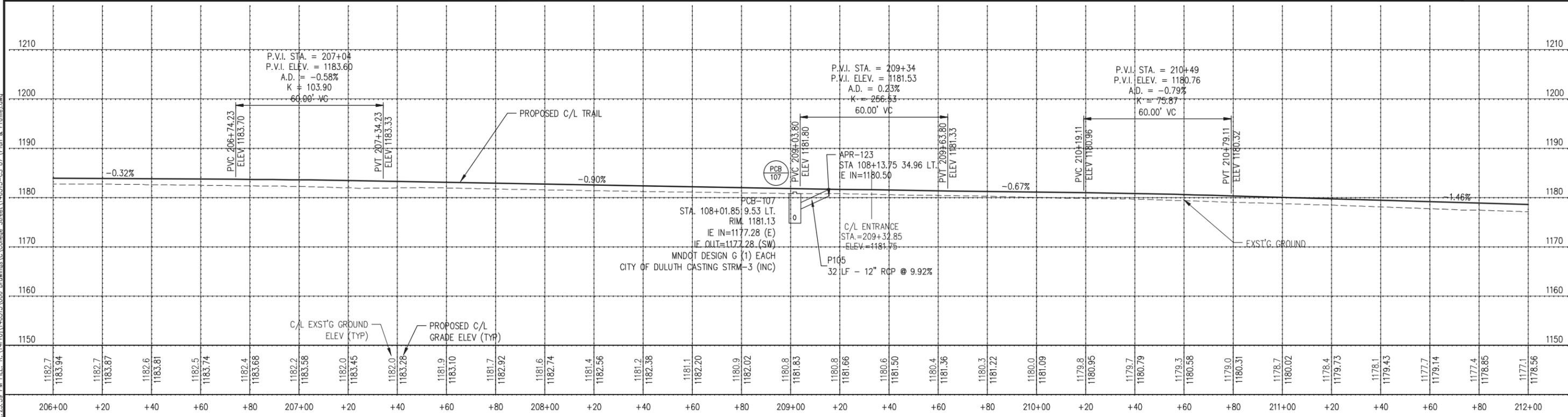
CONTRACTOR SHALL POTHOLE GAS MAIN EVERY 100'
AND AT ALL CROSSINGS WHERE TRAIL CONSTRUCTION
IS DIRECTLY OVER EXISTING GAS MAIN.

UNITARIAN UNIVERSALIST
CONGREGATION OF DULUTH
835 W COLLEGE ST

PI 212+96.70
R 390.34
L 392.14
T 214.41
D N89° 47' 43.85"E
Δ=057.5595
Y 3353774.877
X 4845948.853

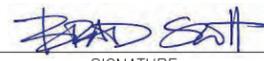


WARNING
LOCATION OF UNDERGROUND UTILITIES TO
BE VERIFIED BY CONTRACTOR. CALL
BEFORE DIGGING. GOPHER STATE ONE
CALL 1-800-252-1166.
REQUIRED BY LAW



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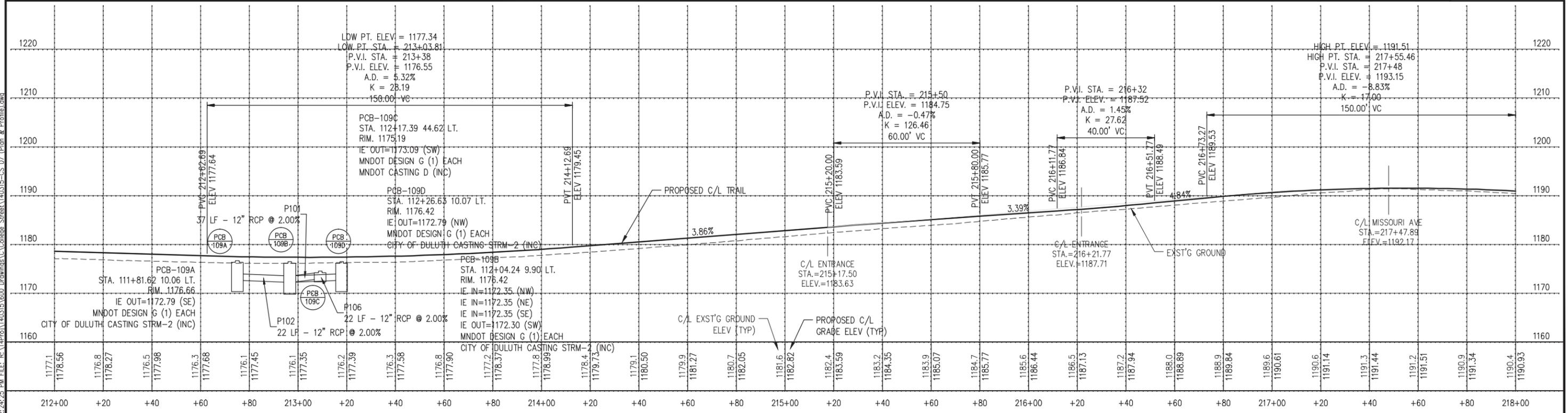
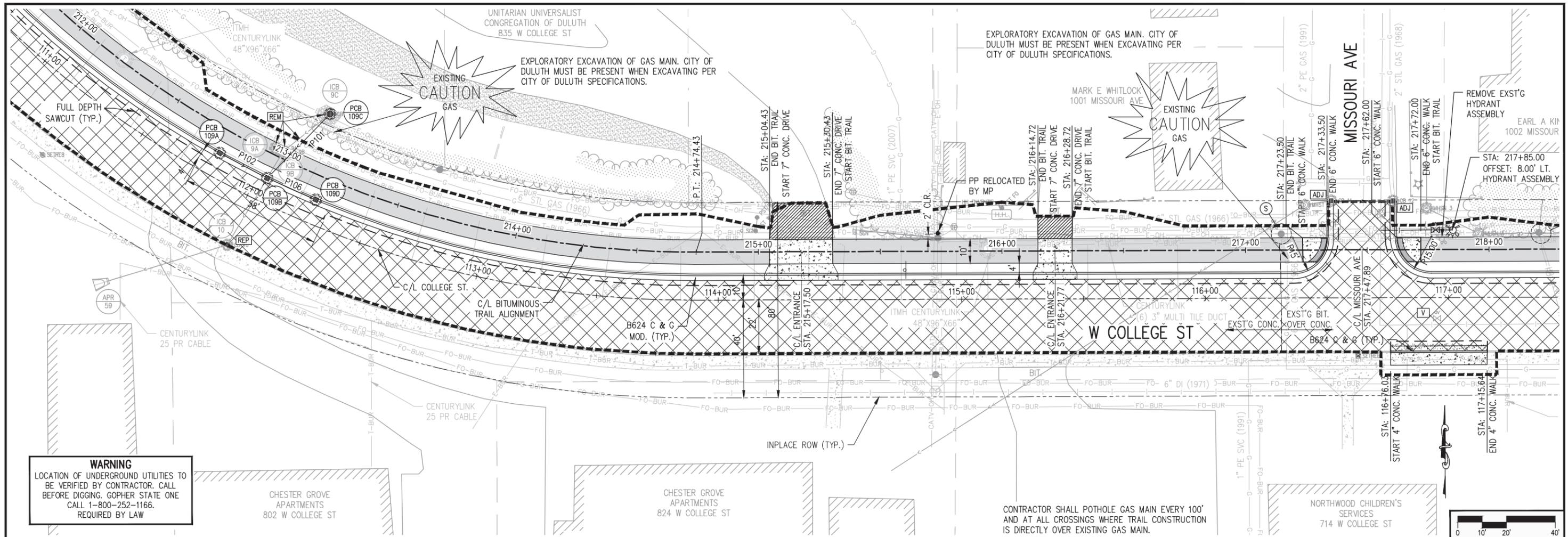
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

PLAN AND PROFILE
SHEET NO. 38 OF 53 SHEETS

PLOT DATE: 1/5/2016 12:23:59 PM FILE: R:\V-Pro\140315\600 Drawings\C\College Street\140315-08.DWG (Plan & Profile).dwg



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BRAD SCOTT
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BRAD SCOTT
 SIGNATURE

01/06/2016
 DATE

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LOWELL TO LAKEWALK TRAIL
 DULUTH, MINNESOTA

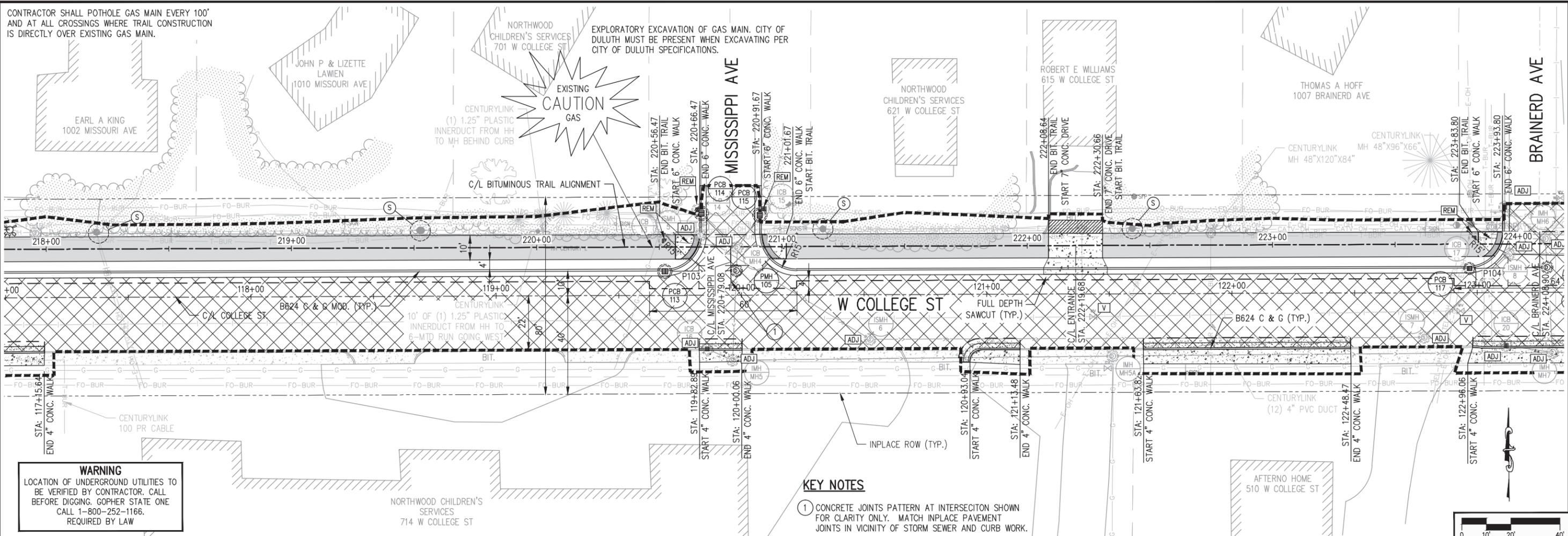
CITY OF DULUTH
 CITY PROJECT NO. 1327

S.A.P. 118-155-008

PLAN AND PROFILE
 SHEET NO. 39 OF 53 SHEETS

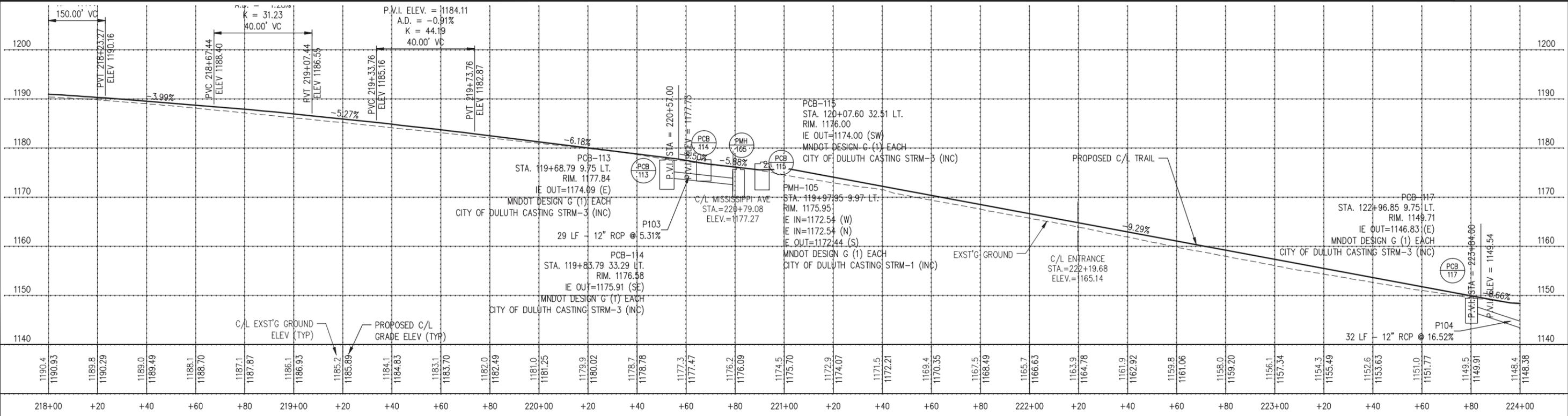
CONTRACTOR SHALL POTHOLE GAS MAIN EVERY 100'
AND AT ALL CROSSINGS WHERE TRAIL CONSTRUCTION
IS DIRECTLY OVER EXISTING GAS MAIN.

EXPLORATORY EXCAVATION OF GAS MAIN. CITY OF
DULUTH MUST BE PRESENT WHEN EXCAVATING PER
CITY OF DULUTH SPECIFICATIONS.



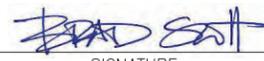
WARNING
LOCATION OF UNDERGROUND UTILITIES TO
BE VERIFIED BY CONTRACTOR. CALL
BEFORE DIGGING. GOPHER STATE ONE
CALL 1-800-252-1166.
REQUIRED BY LAW

KEY NOTES
1 CONCRETE JOINTS PATTERN AT INTERSECTION SHOWN
FOR CLARITY ONLY. MATCH INPLACE PAVEMENT
JOINTS IN VICINITY OF STORM SEWER AND CURB WORK.



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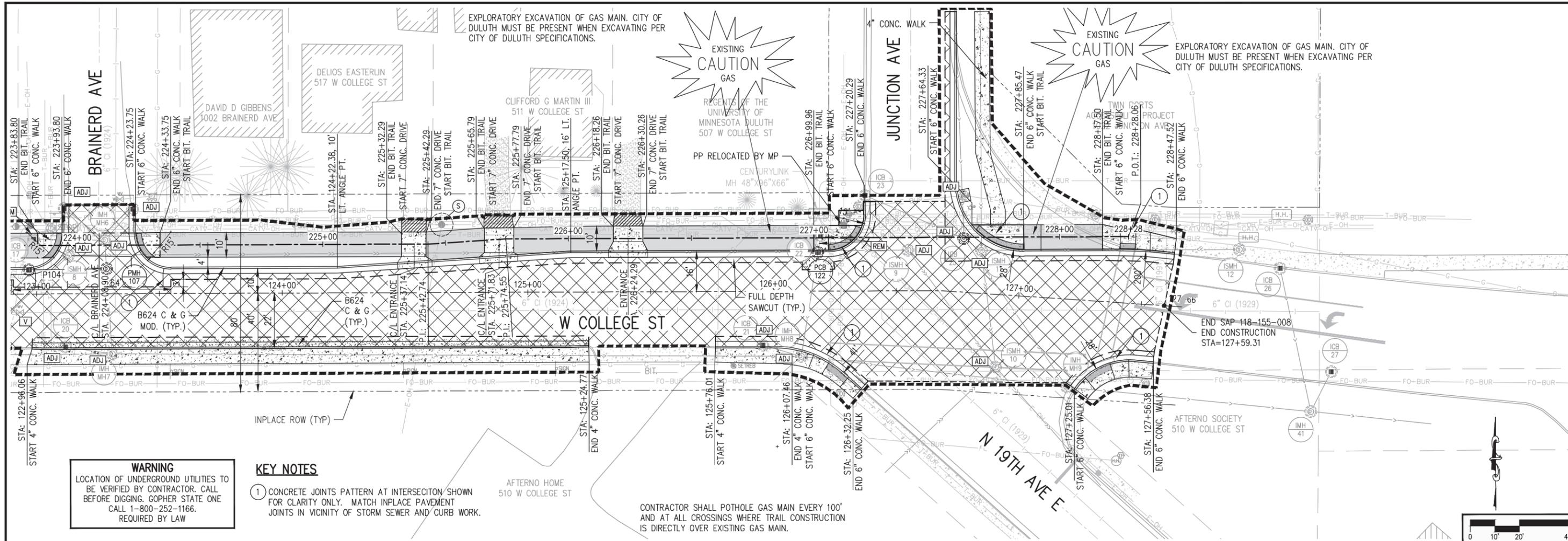
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

PLAN AND PROFILE
SHEET NO. 40 OF 53 SHEETS

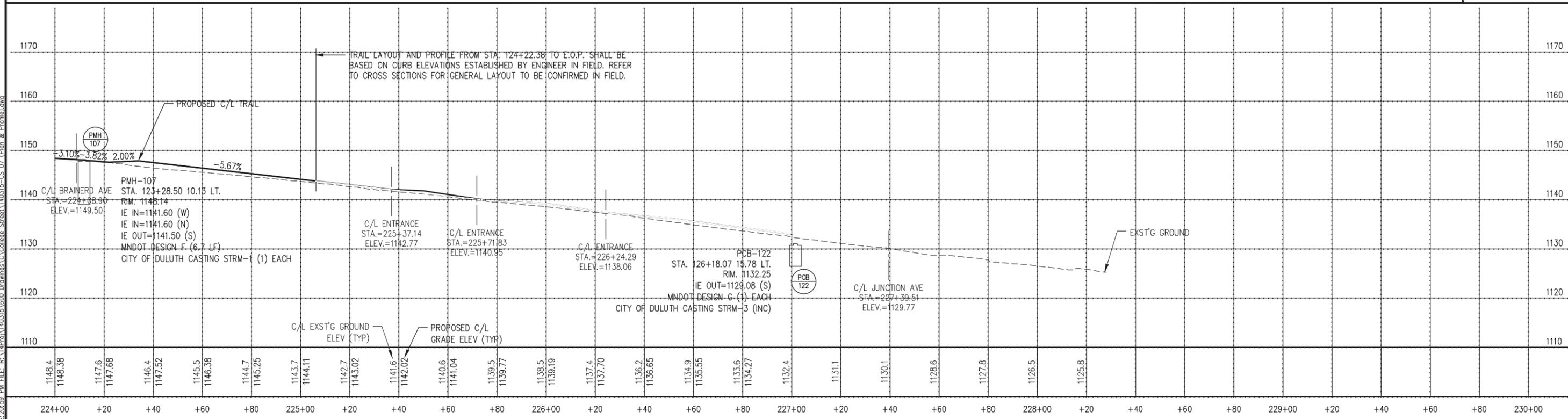
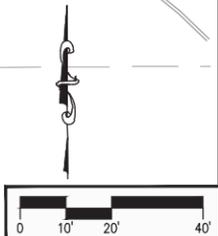
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WARNING
 LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1-800-252-1166. REQUIRED BY LAW

KEY NOTES
 1 CONCRETE JOINTS PATTERN AT INTERSECTION SHOWN FOR CLARITY ONLY. MATCH INPLACE PAVEMENT JOINTS IN VICINITY OF STORM SEWER AND CURB WORK.

CONTRACTOR SHALL POTHOLE GAS MAIN EVERY 100' AND AT ALL CROSSINGS WHERE TRAIL CONSTRUCTION IS DIRECTLY OVER EXISTING GAS MAIN.



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BRAD SCOTT
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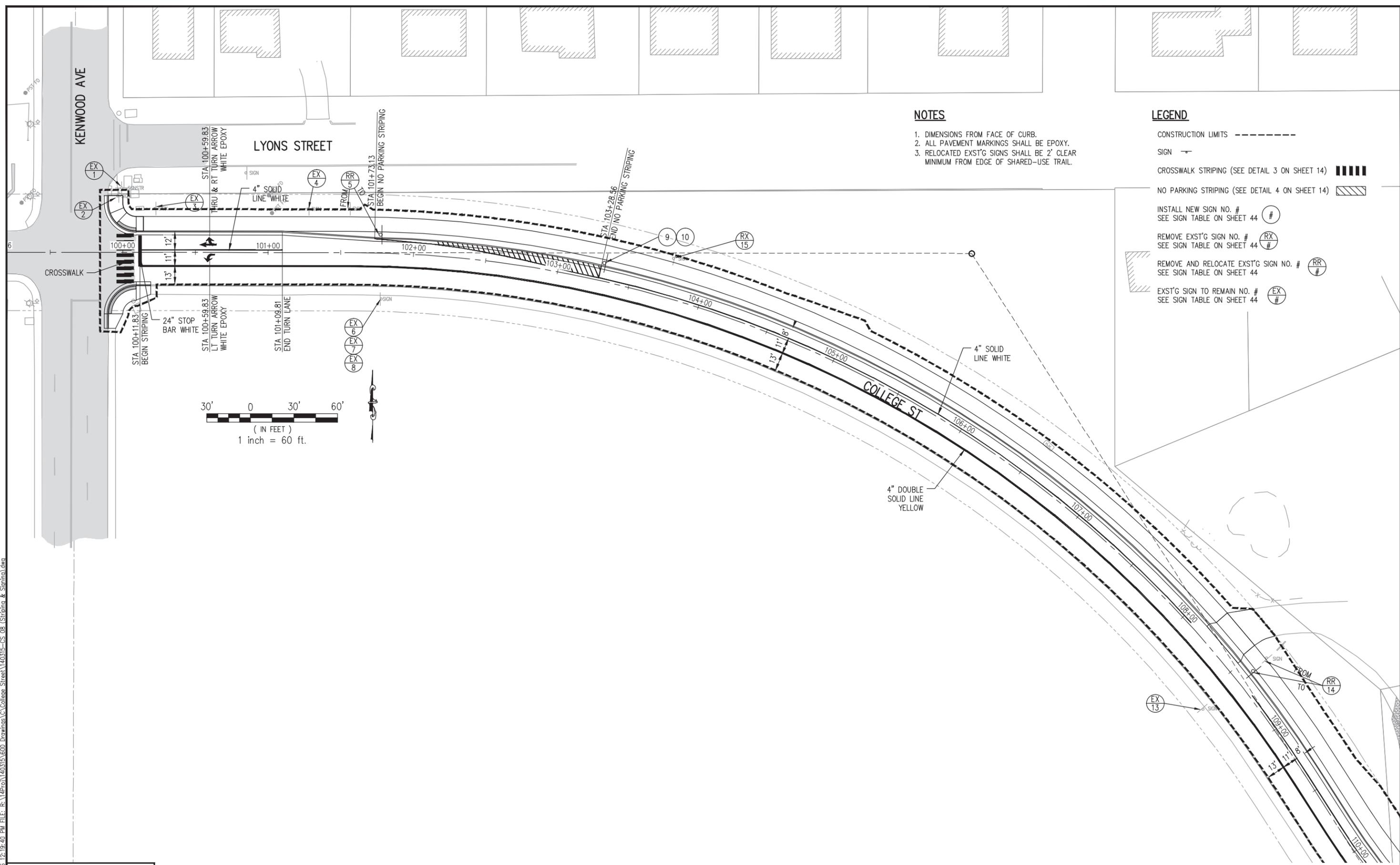
LOWELL TO LAKEWALK TRAIL
 DULUTH, MINNESOTA

CITY OF DULUTH
 CITY PROJECT NO. 1327

S.A.P. 118-155-008

PLAN AND PROFILE
 SHEET NO. 41 OF 53 SHEETS

PLOT DATE: 1/5/2016 12:19:40 PM FILE: R:\4Pro\140315\600 Drawings\College Street\140315-CS-08 (Striping & Signing).dwg



NOTES

1. DIMENSIONS FROM FACE OF CURB.
2. ALL PAVEMENT MARKINGS SHALL BE EPOXY.
3. RELOCATED EXST'G SIGNS SHALL BE 2' CLEAR MINIMUM FROM EDGE OF SHARED-USE TRAIL.

LEGEND

- CONSTRUCTION LIMITS -----
- SIGN ———
- CROSSWALK STRIPING (SEE DETAIL 3 ON SHEET 14) |||||
- NO PARKING STRIPING (SEE DETAIL 4 ON SHEET 14) ▨▨▨▨
- INSTALL NEW SIGN NO. # (#)
SEE SIGN TABLE ON SHEET 44
- REMOVE EXST'G SIGN NO. # (RX #)
SEE SIGN TABLE ON SHEET 44
- REMOVE AND RELOCATE EXST'G SIGN NO. # (RR #)
SEE SIGN TABLE ON SHEET 44
- EXST'G SIGN TO REMAIN NO. # (EX #)
SEE SIGN TABLE ON SHEET 44

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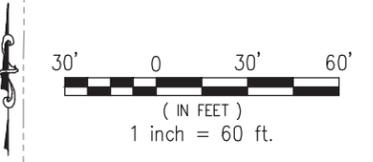
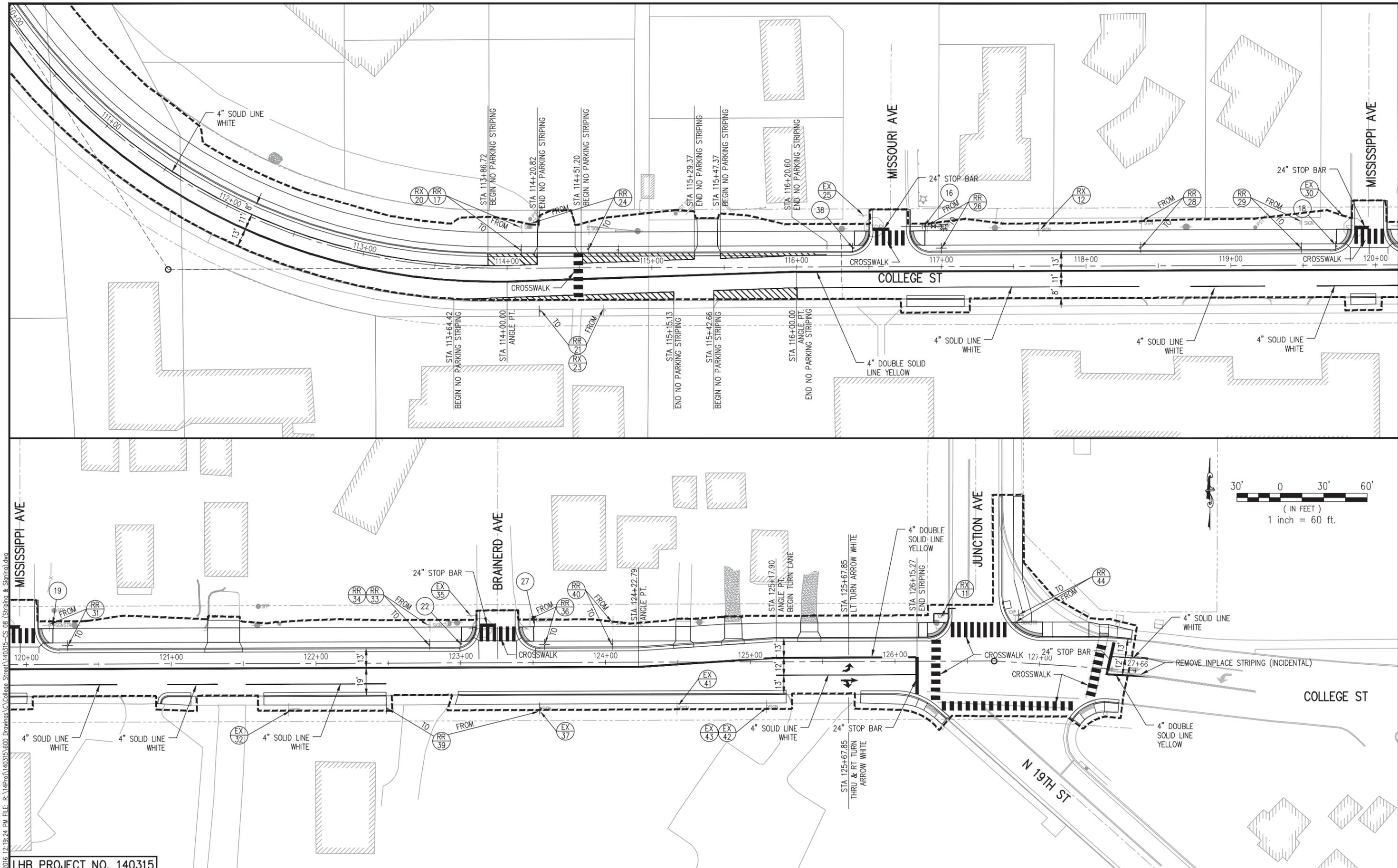
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DATE
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LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

EPOXY STRIPING & SIGNING PLAN
SHEET NO. 42 OF 53 SHEETS



PLOT DATE: 1/5/2016 12:19:24 PM FILE: R:\4Pro\140315\600 Drawings\College Street\140315-08 (Striping & Signing).dwg

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LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

EPOXY STRIPING & SIGNING PLAN
SHEET NO. 43 OF 53 SHEETS

SIGN LOCATION TABLE (COLLEGE ST. STATIONING)

SIGN	SIGN DESCRIPTION	PROPOSED STATION	PROPOSED OFFSET	NOTES
1	EX - STREET NAME SIGNS	EXISTING TO REMAIN		
2	EX - NO RT. TURN ON RED ARROW	EXISTING TO REMAIN		
3	EX - BUS STOP	EXISTING TO REMAIN		
4	EX - BIKE ROUTE	EXISTING TO REMAIN		
5	RR - LANE ASSIGNMENT	101+77.00	12.5' LT	
6	EX - SPEED LIMIT	EXISTING TO REMAIN		
7	EX - NO PARKING THIS SIDE	EXISTING TO REMAIN		
8	EX - BUS STOP	EXISTING TO REMAIN		
9	NEW - NO PARKING (R8-3)	103+28.56	12.5' LT	
10	NEW - BEGIN (R3-9CP)	103+28.56	12.5' LT	
11	RX-CROSSWALK CLOSED	EXISTING SIGN REMOVED		
12	RX-CROSSWALK	EXISTING SIGN REMOVED		
13	EX - BUS STOP	EXISTING TO REMAIN		
14	RR - BUS STOP	108+60.00	12.5' LT	
15	RX-NO PARKING THIS SIDE	EXISTING SIGN REMOVED		
16	NEW-STOP SIGN (R1-1)	116+89.00	27.0' LT	18"x18" FOR TRAIL
17	RR - SPEED LIMIT	114+09.50	12.5' LT	
18	NEW-STOP SIGN (R1-1)	119+72.00	13.0' LT	18"x18" FOR TRAIL
19	NEW-STOP SIGN (R1-1)	120+19.00	27.0' LT	18"x18" FOR TRAIL
20	RX - NO PARKING THIS SIDE	EXISTING SIGN REMOVED		
21	RR - PED CROSSING	114+23.00	29.5' RT	
22	NEW-STOP SIGN (R1-1)	123+00.00	13.0' LT	18"x18" FOR TRAIL
23	RX - NO PARKING 2AM TO 6AM	EXISTING SIGN REMOVED		
24	RR - PED CROSSING	114+56.50	12.5' LT	
25	EX - STOP SIGN	EXISTING TO REMAIN		
26	RR - STREET NAME	117+00.00	12.5' LT	
27	NEW-STOP SIGN (R1-1)	123+50.00	27.0' LT	18"x18" FOR TRAIL
28	RR - NO PARKING THIS SIDE	118+38.00	12.5' LT	
29	RR - NO PARKING THIS SIDE	119+48.50	12.5' LT	
30	EX - STOP SIGN	EXISTING TO REMAIN		
31	RR - STREET NAME	120+28.00	12.5' LT	
32	EX - FIRE TRUCK	EXISTING TO REMAIN		
33	RR - SPEED LIMIT	122+78.50	12.5' LT	
34	RR - NO PARKING THIS SIDE	122+78.50	12.5' LT	
35	EX - STOP SIGN	EXISTING TO REMAIN		
36	RR - STREET NAME	123+58.00	12.5' LT	
37	EX - LEFT LANE MUST TURN LEFT	EXISTING TO REMAIN		
38	NEW-STOP SIGN (R1-1)	116+39.00	13.0' LT	18"x18" FOR TRAIL
39	RR - NO PARKING BEGIN	122+49.00	31.5' RT	
40	RR - NO PARKING THIS SIDE	124+05.00	12.5' LT	
41	EX - SKYLINE GUIDE	EXISTING TO REMAIN		
42	EX - LANE ASSIGNMENT	EXISTING TO REMAIN		
43	EX - NO PARKING THIS SIDE	EXISTING TO REMAIN		
44	RR - STREET NAME	126+83.50	32.8' LT	

SIGN DESCRIPTION	LOCATION		SIGN SUPPORT	SIGN PANELS	RELOCATE	REMARKS
	STATION	OFFSET	2564	2564	2564	
			EACH	SQ FT	EACH	
LANE ASSIGNMENT	101+77.00	12.5' LT	1		1	
NO PARKING, BEGIN	103+28.56	12.5' LT	1	6.50		(R8-3), (R3-9CP)
BUS STOP	108+60.00	12.5' LT	1		1	
SPEED LIMIT	114+09.50	12.5' LT	1		1	
PED CROSSING	114+23.00	29.5' RT	1		1	
PED CROSSING	114+56.50	12.5' LT	1		1	
STOP SIGN	116+39.00	13' LT	1	2.25		(R1-1)
STOP SIGN	116+89.00	27' LT	1	2.25		(R1-1)
STREET NAME	117+00.00	12.5' LT	1		1	
NO PARKING THIS SIDE	118+38.00	12.5' LT	1		1	
NO PARKING THIS SIDE	119+48.50	12.5' LT	1		1	
STOP SIGN	119+72.00	13' LT	1	2.25		(R1-1)
STOP SIGN	120+19.00	27' LT	1	2.25		(R1-1)
STREET NAME	120+28.00	12.5' LT	1		1	
NO PARKING BEGIN	122+49.00	31.5' RT	1		1	
NO PARKING THIS SIDE, SPEED LIMIT	122+78.50	12.5' LT	1		2	
STOP SIGN	123+00.00	13' LT	1	2.25		(R1-1)
STOP SIGN	123+50.00	27' LT	1	2.25		(R1-1)
STREET NAME	123+58.00	12.5' LT	1		1	
NO PARKING THIS SIDE	124+05.00	12.5' LT	1		1	
STREET NAME	126+83.50	32.8' LT	1		1	
TOTALS			21	20	15	

PLOT DATE: 1/5/2016 12:19:09 PM FILE: R:\4\Proj\140315\600 Drawings\C\College Street\140315-CS-08 (Striping & Signing).dwg

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BRAD SCOTT
PRINTED NAME



SIGNATURE

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LIC. NO.

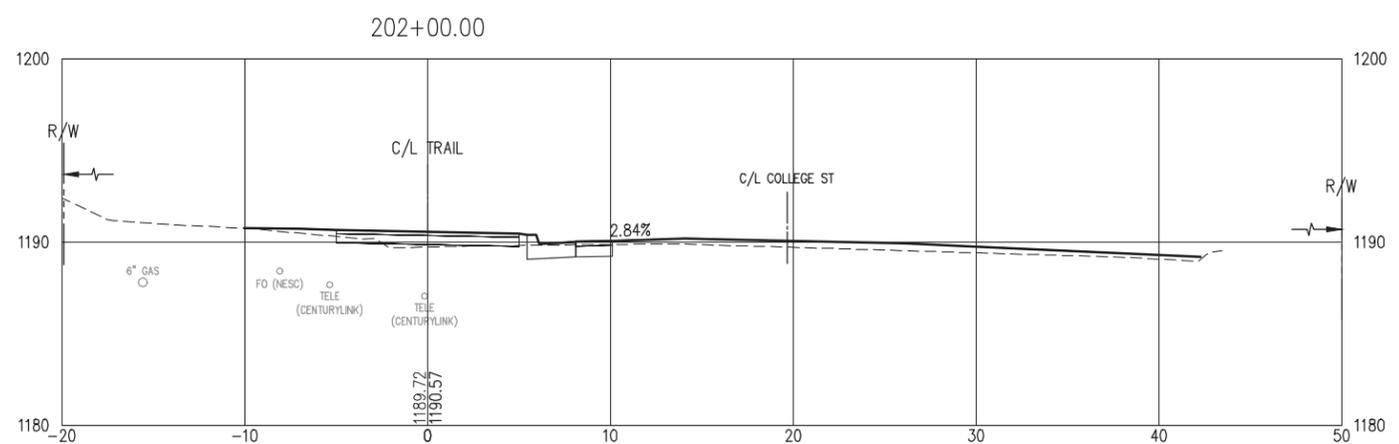
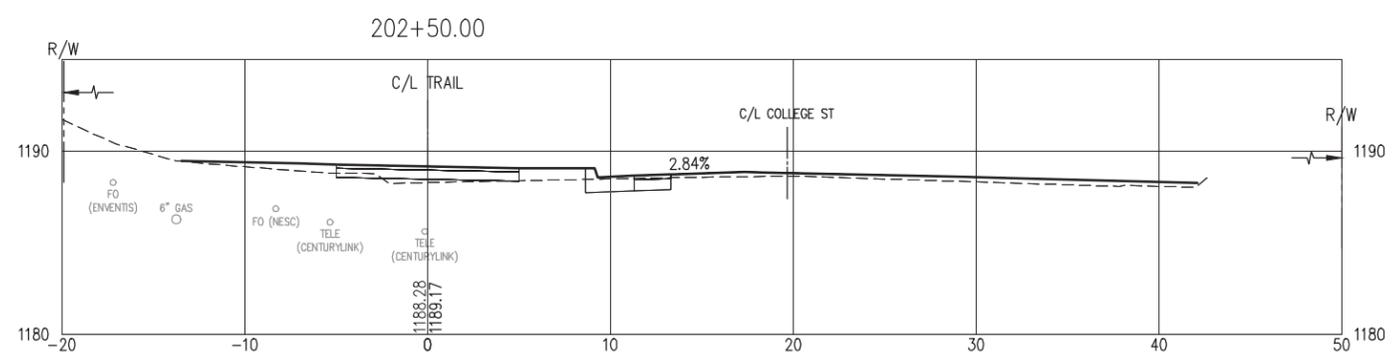
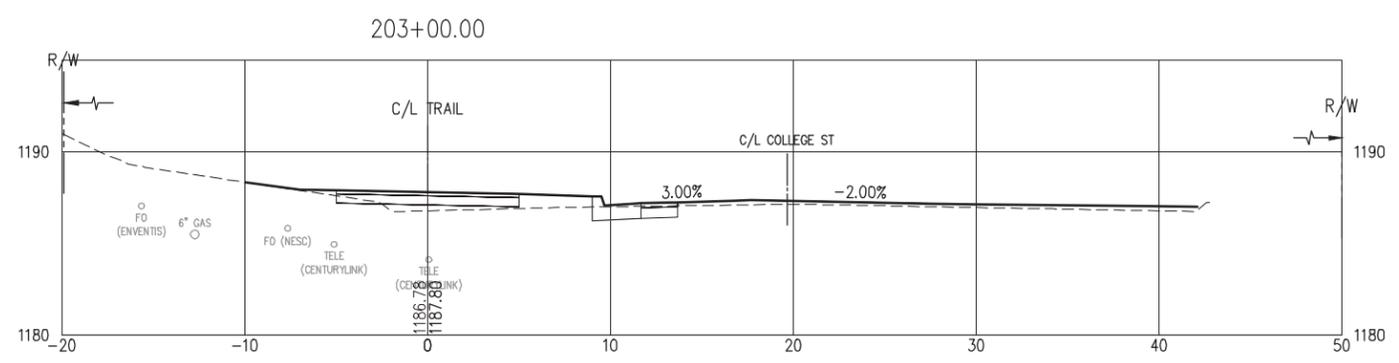
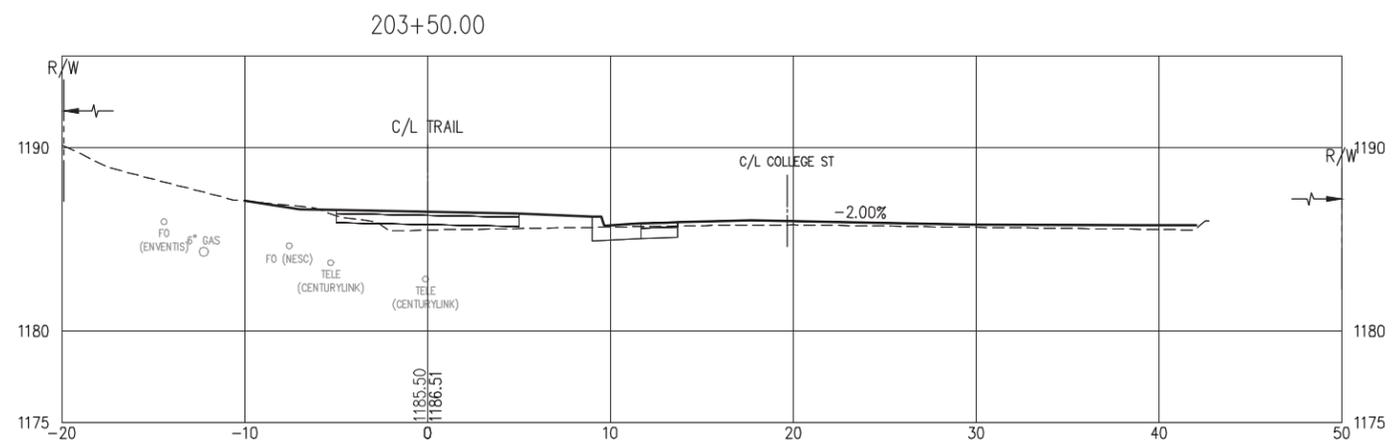
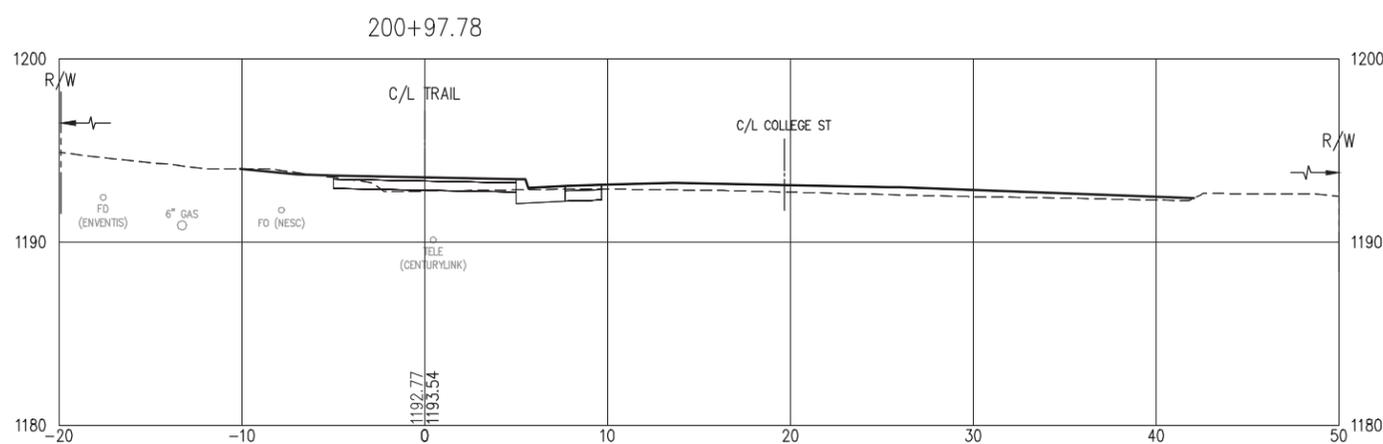
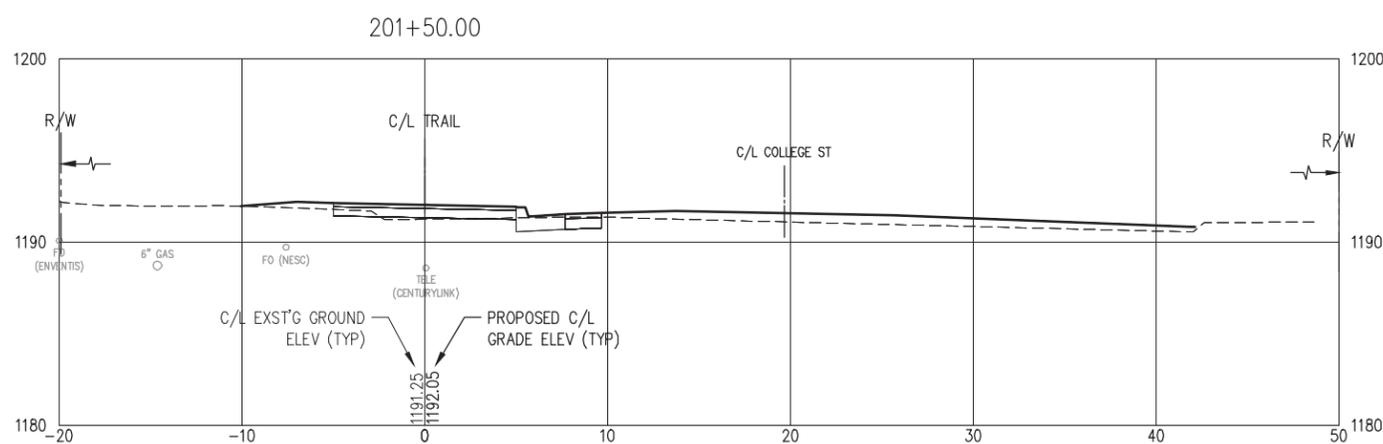
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

EPOXY STRIPING & SIGNING PLAN
SHEET NO. 44 OF 53 SHEETS

PLOT DATE: 1/5/2016 12:05:08 PM FILE: R:\44Pro\140315\600 Drawings\C\College Street Base\140315\600RR (College St).dwg



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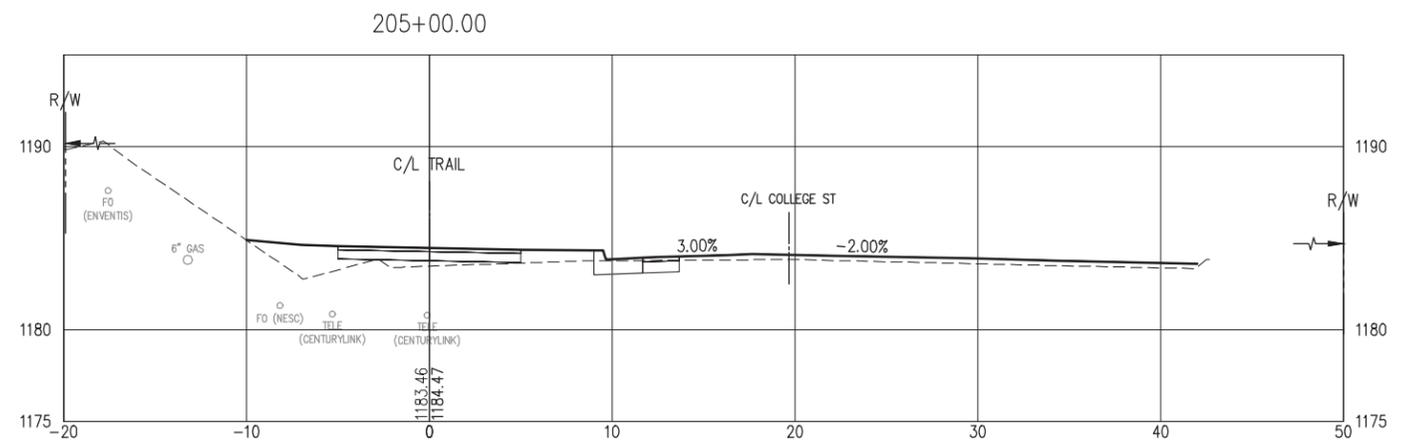
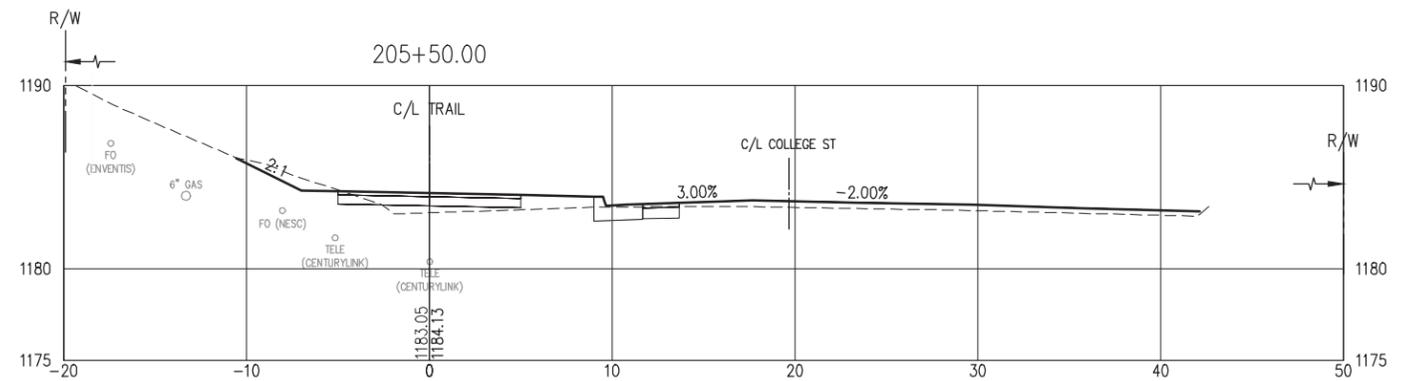
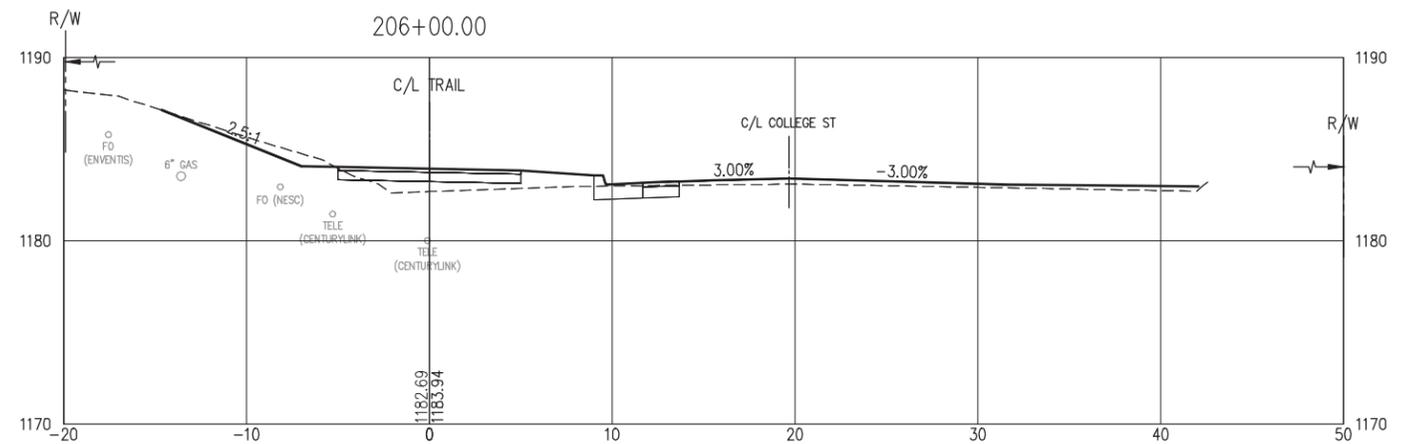
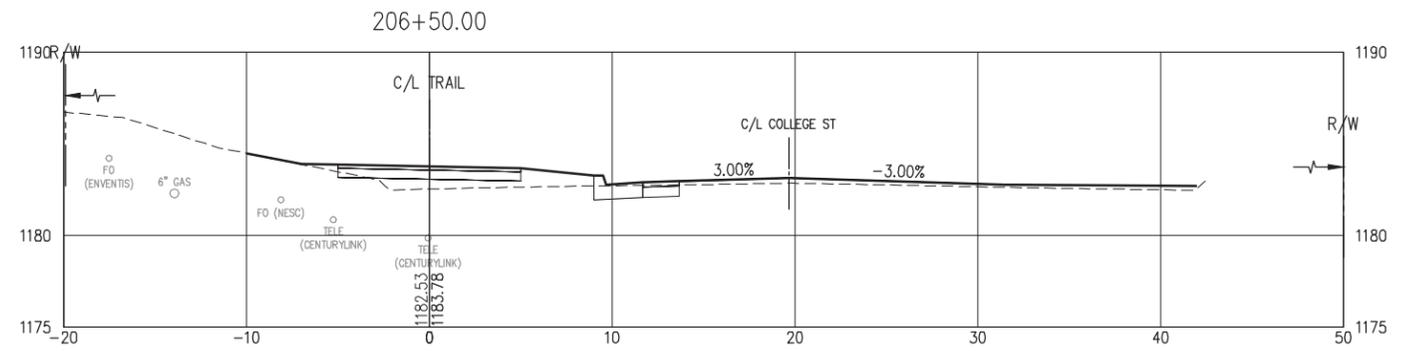
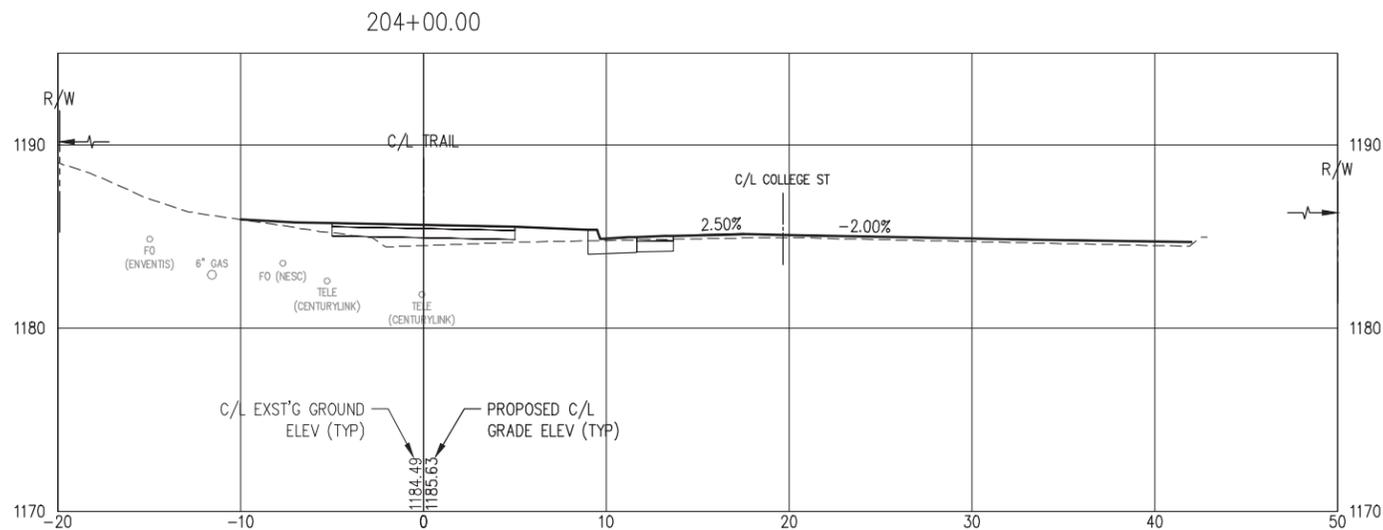
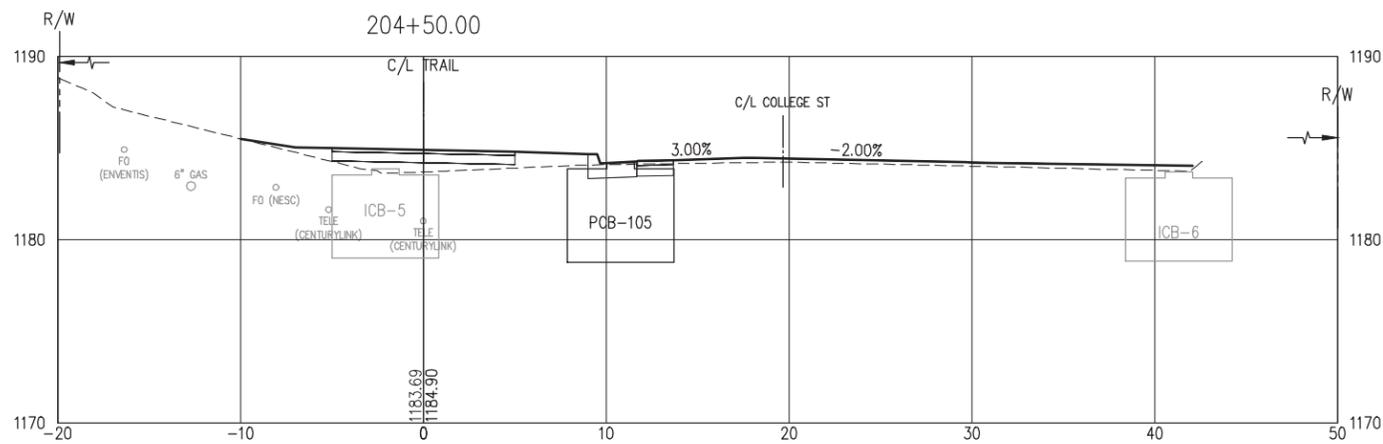
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
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S.A.P. 118-155-008

CROSS SECTIONS
 SHEET NO. 45 OF 53 SHEETS

PLOT DATE: 1/5/2016 12:05:52 PM FILE: R:\4\Proj\140315\600 Drawings\C\College Street\Besa\140315\600RR (College St).dwg



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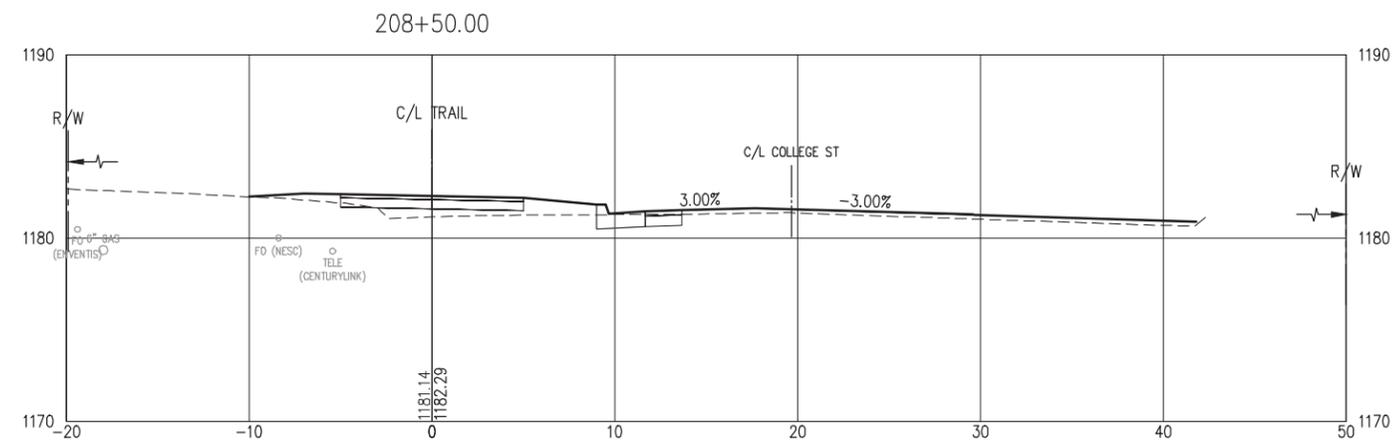
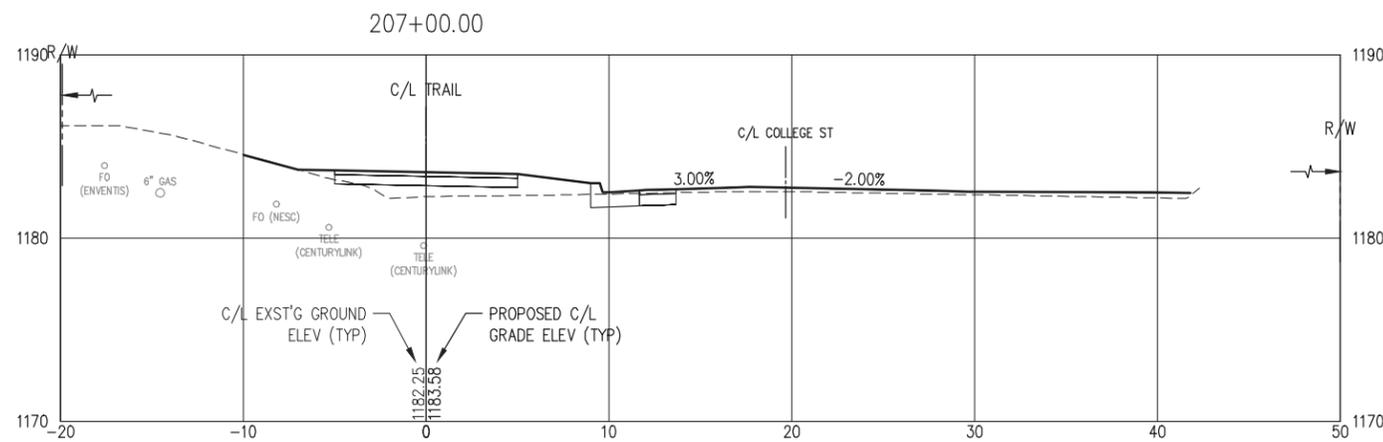
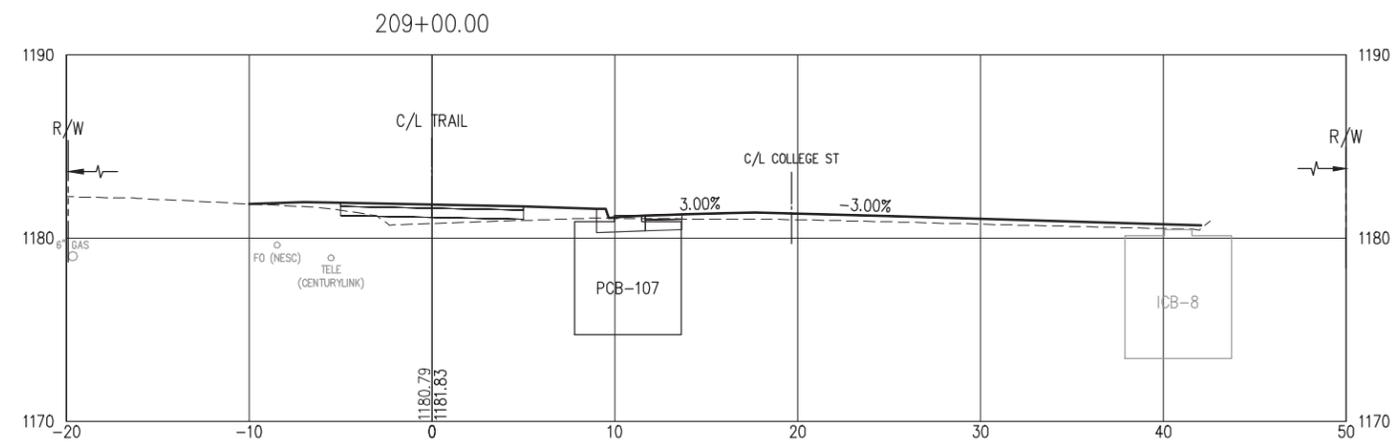
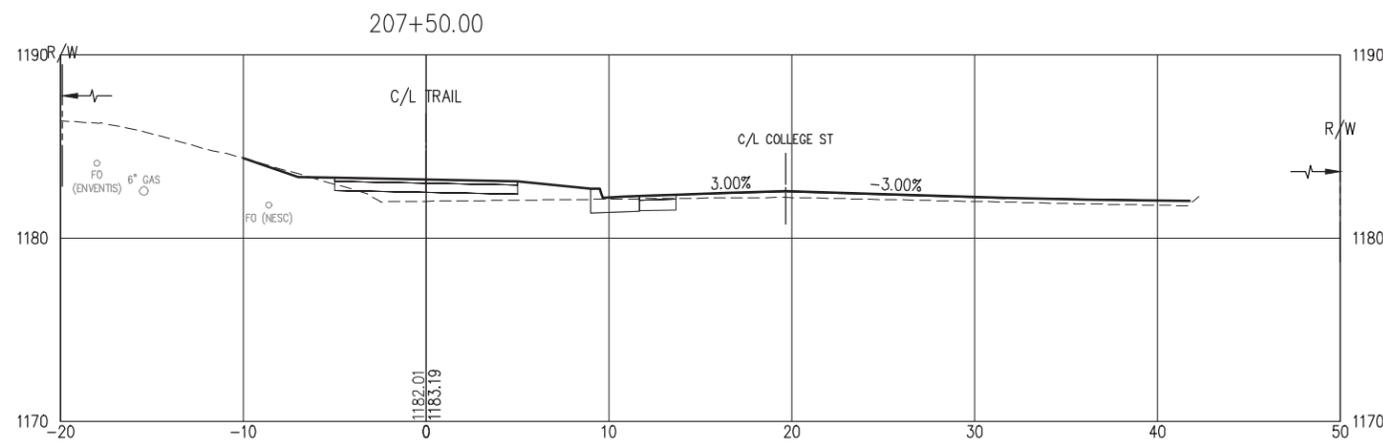
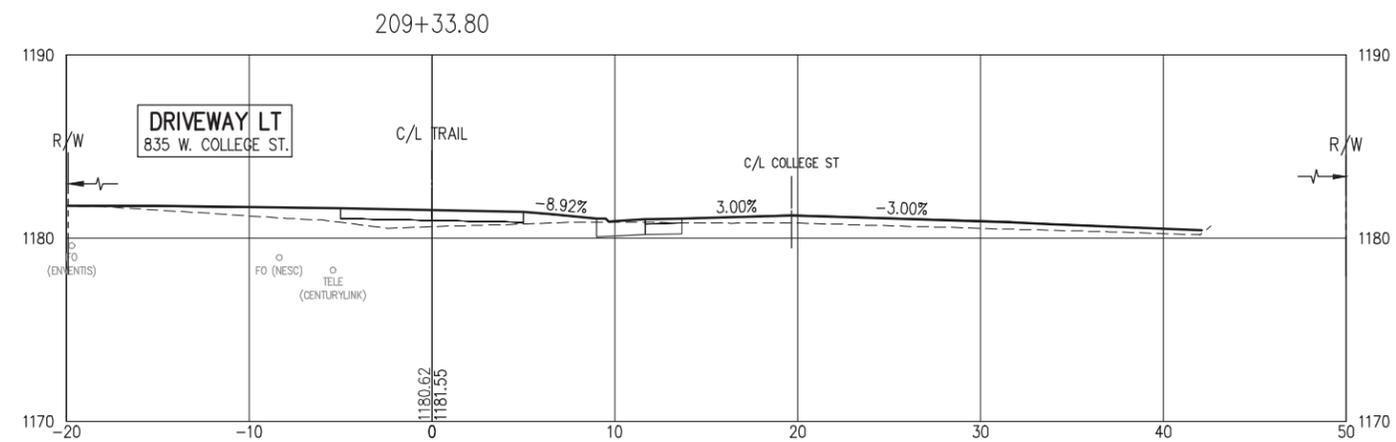
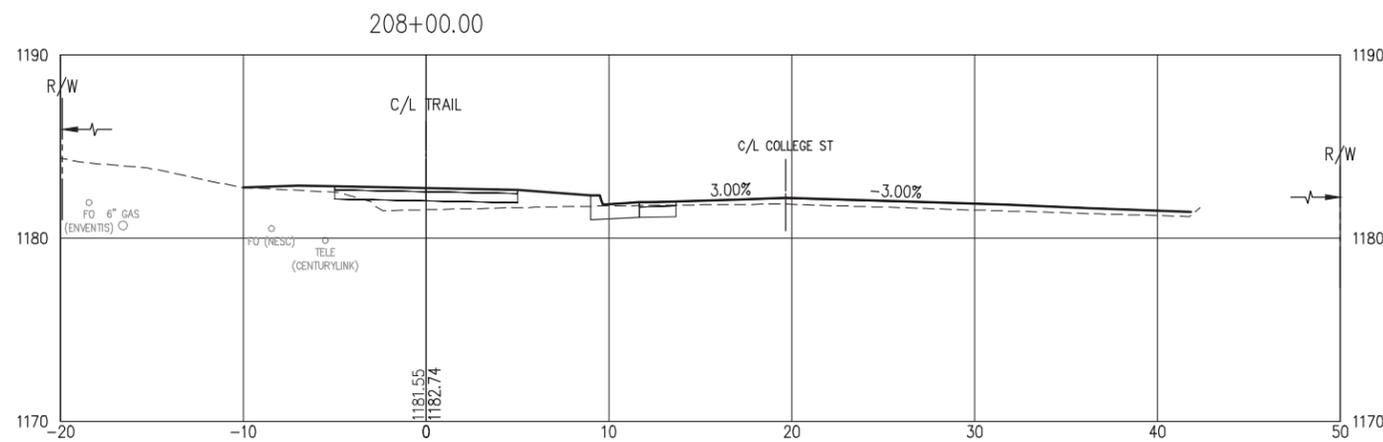
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CROSS SECTIONS
SHEET NO. 46 OF 53 SHEETS

PLOT DATE: 1/5/2016 12:06:57 PM FILE: R:\4\Proj\140315\600 Drawings\C\College Street Base\140315\600RR (College St).dwg



LHB PROJECT NO. 140315

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.

BRAD SCOTT
PRINTED NAME

BRAD SCOTT
SIGNATURE

01/06/2016
DATE
46198
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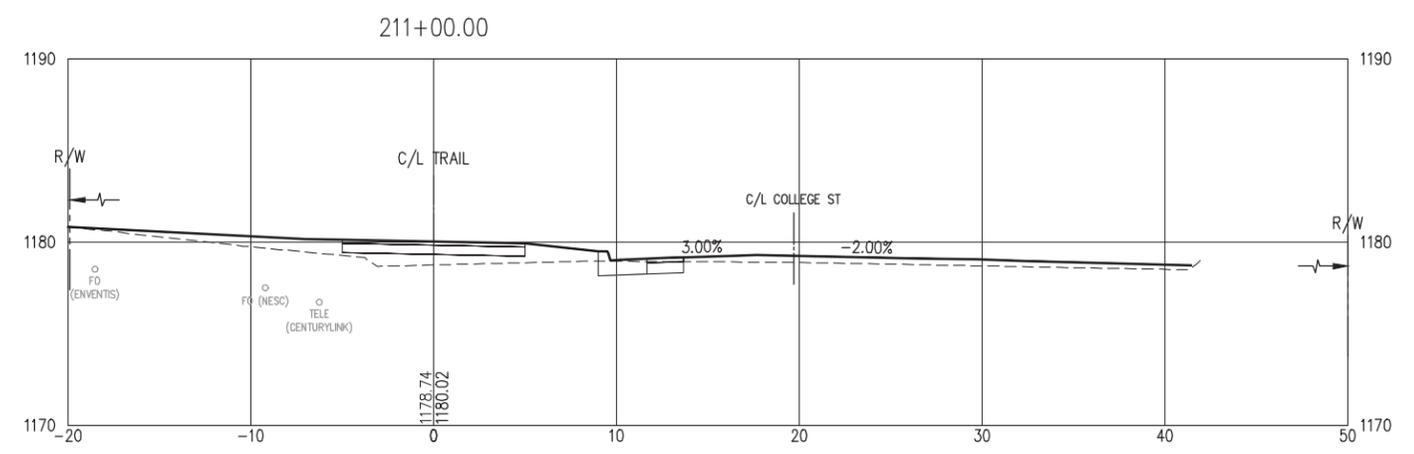
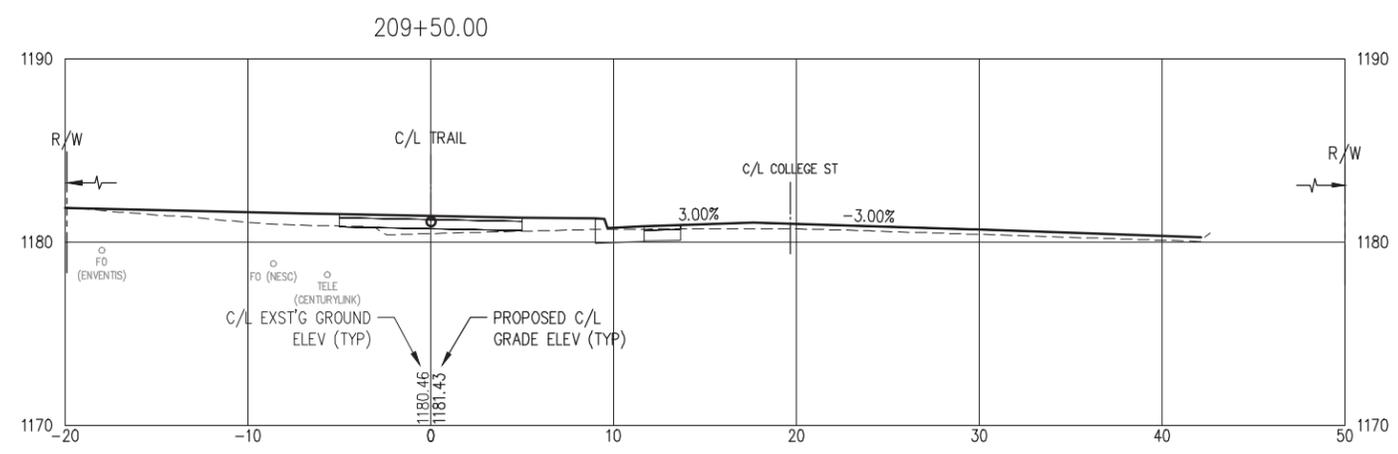
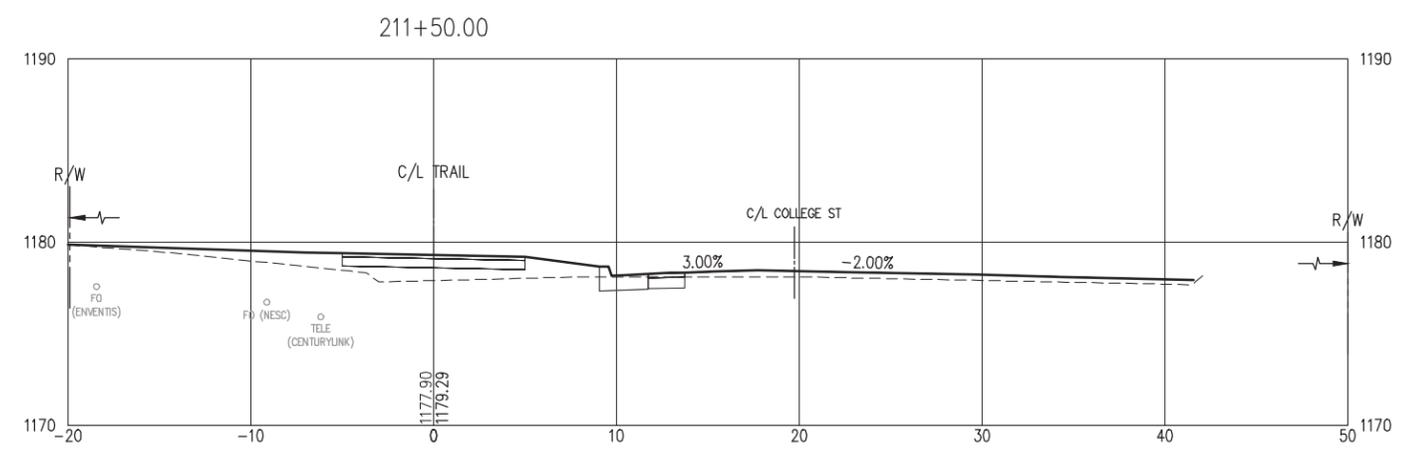
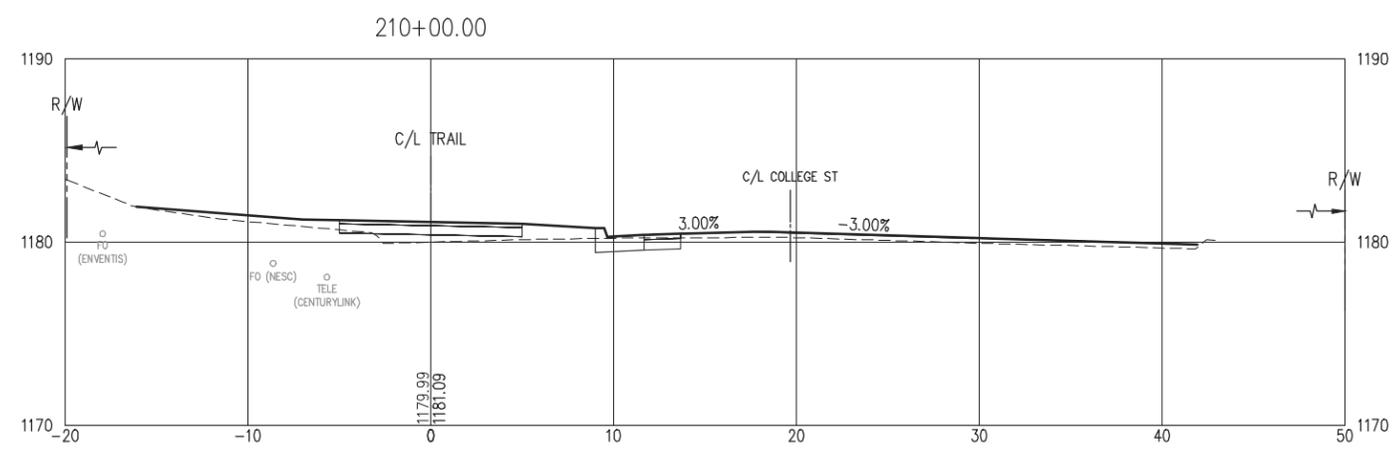
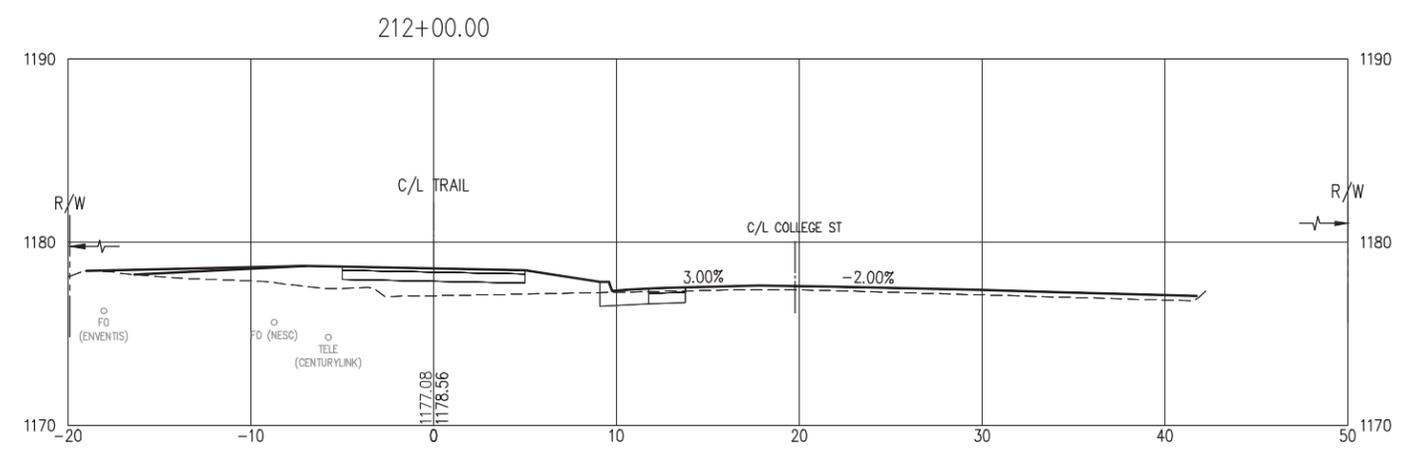
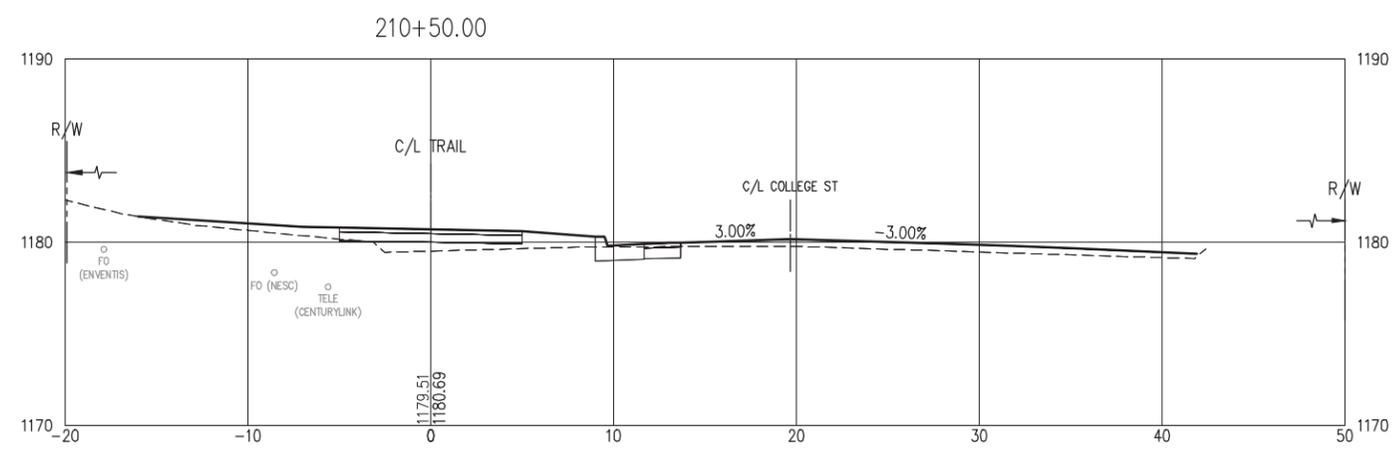
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

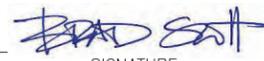
CROSS SECTIONS
SHEET NO. 47 OF 53 SHEETS

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BRAD SCOTT
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 SIGNATURE

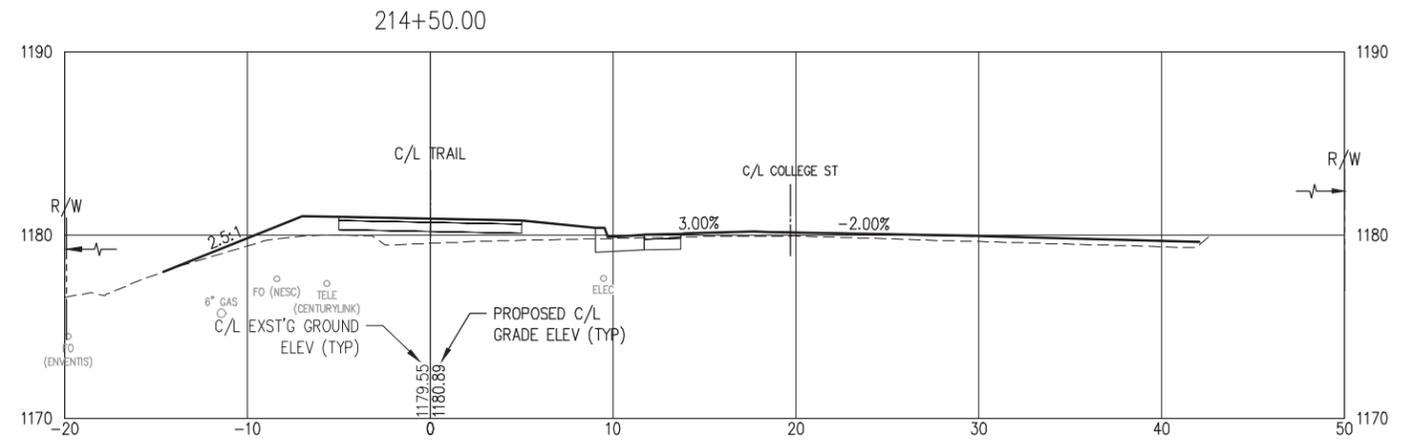
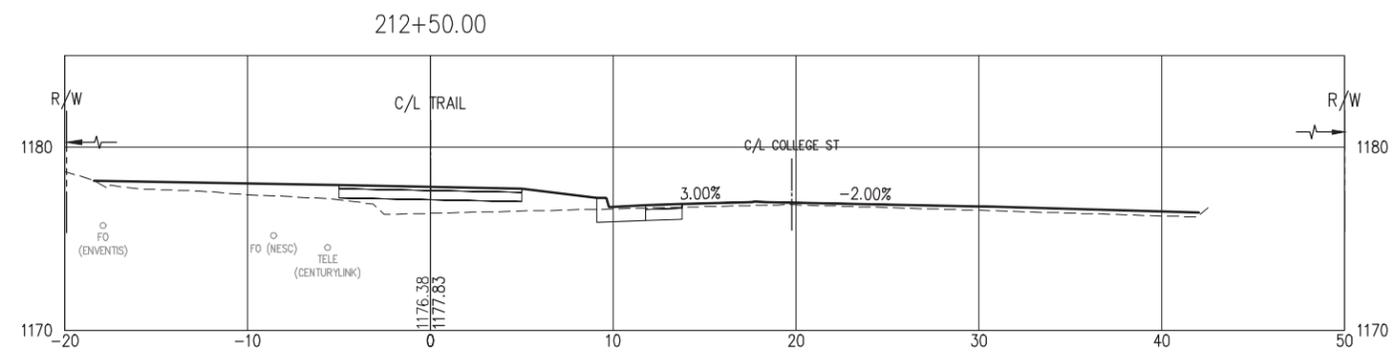
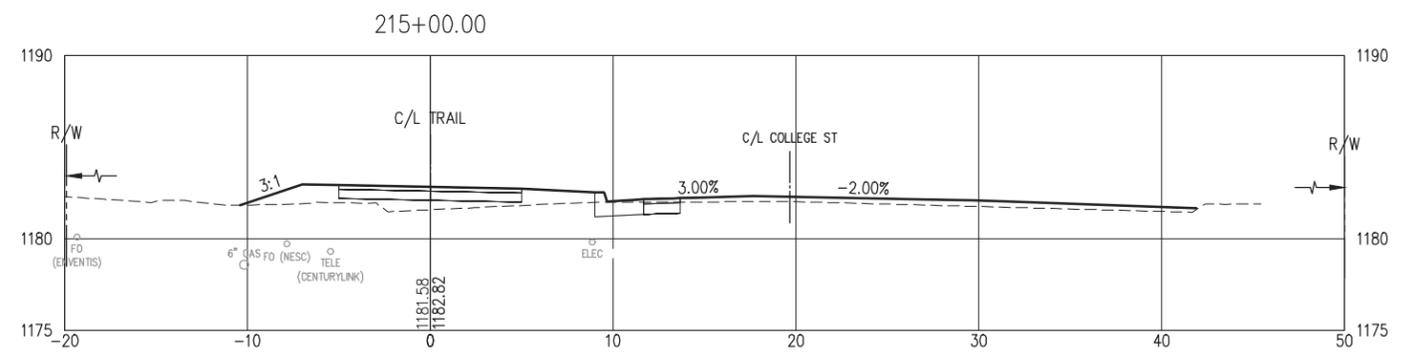
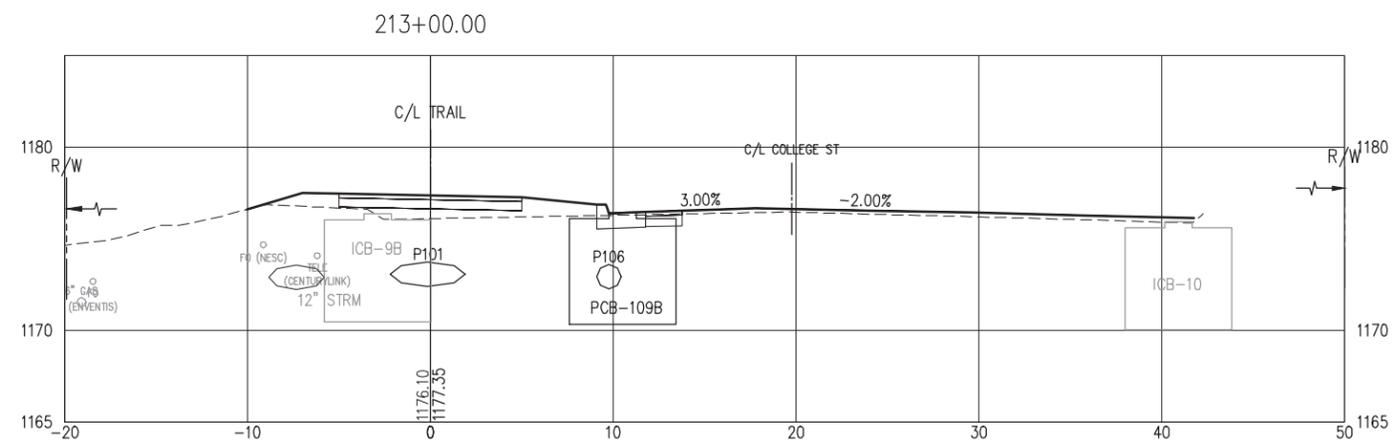
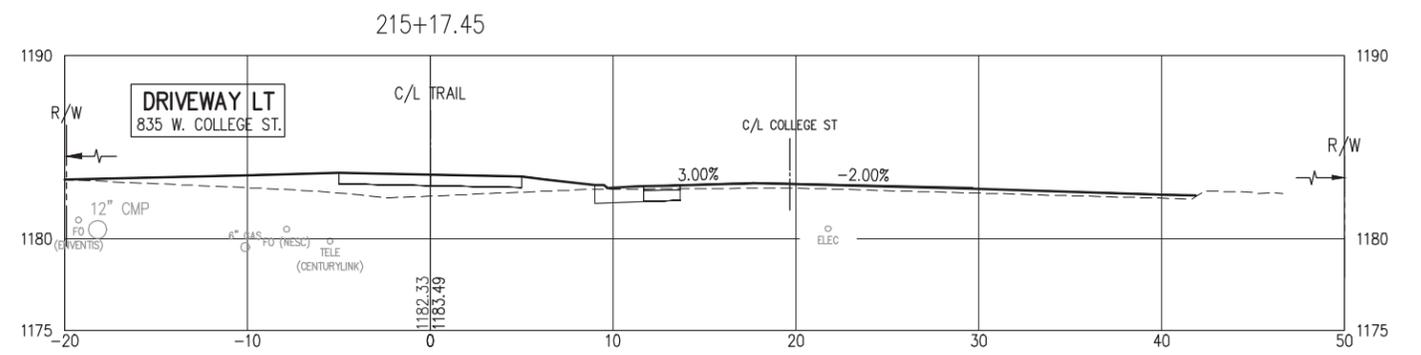
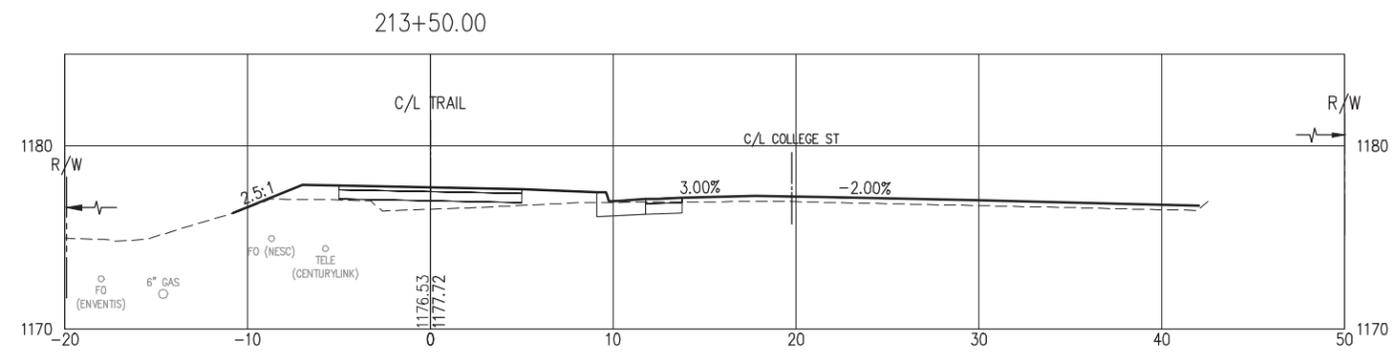
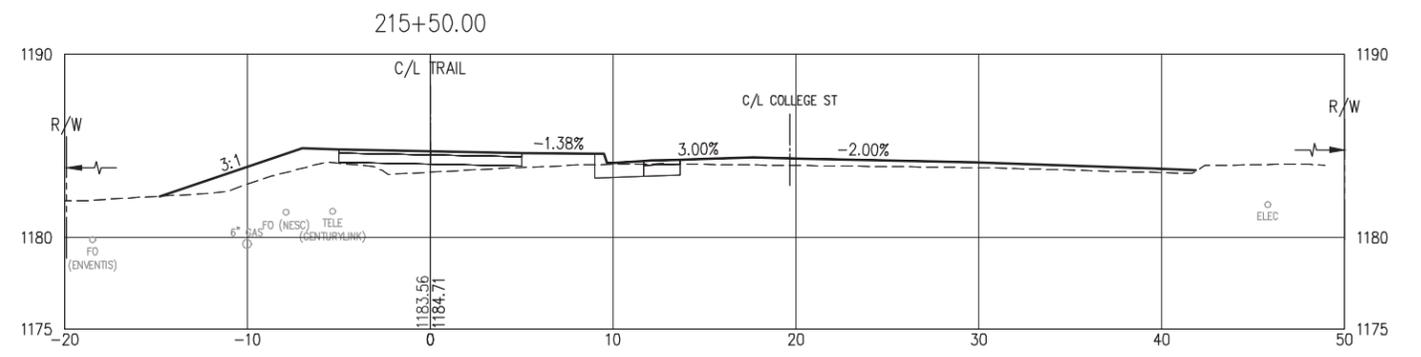
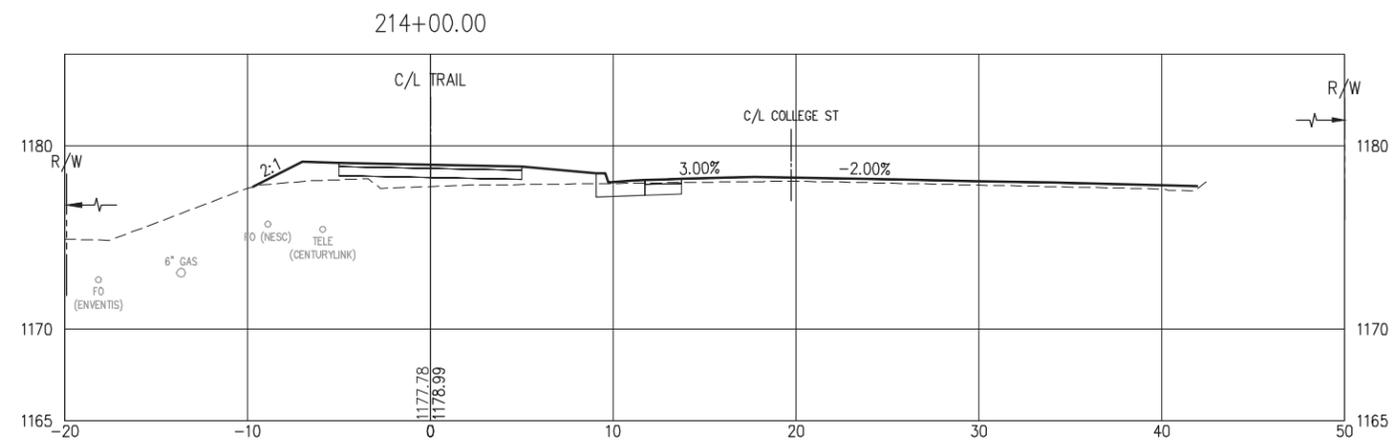
01/06/2016
 DATE
 46198
 LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CROSS SECTIONS
 SHEET NO. 48 OF 53 SHEETS



PLOT DATE: 1/5/2016 12:06:47 PM FILE: R:\4\Proj\140315\600 Drawings\C\Colege Street\Basa\140315c00R (College St).dwg

LHB PROJECT NO. 140315

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 PRINTED NAME

 SIGNATURE

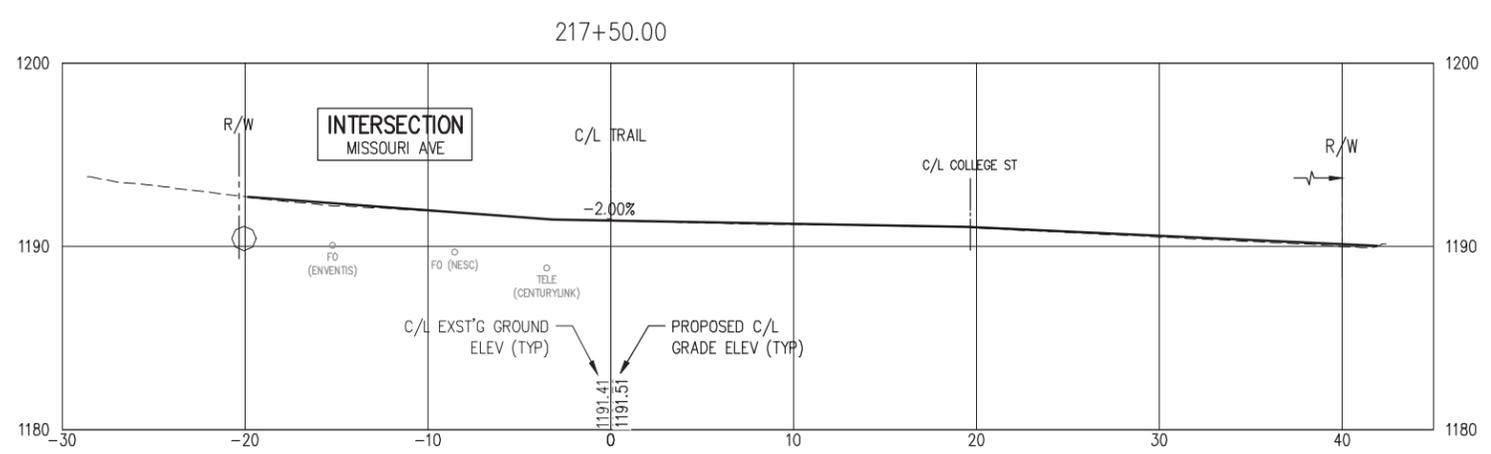
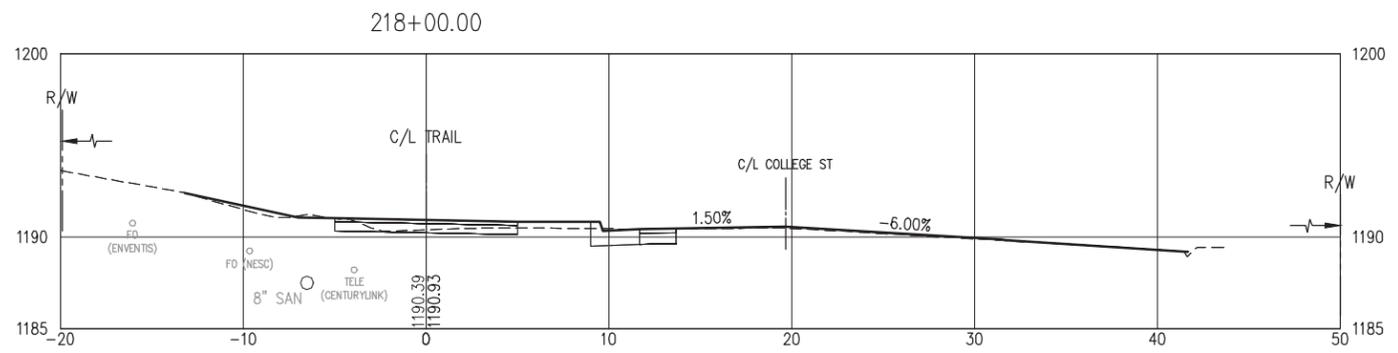
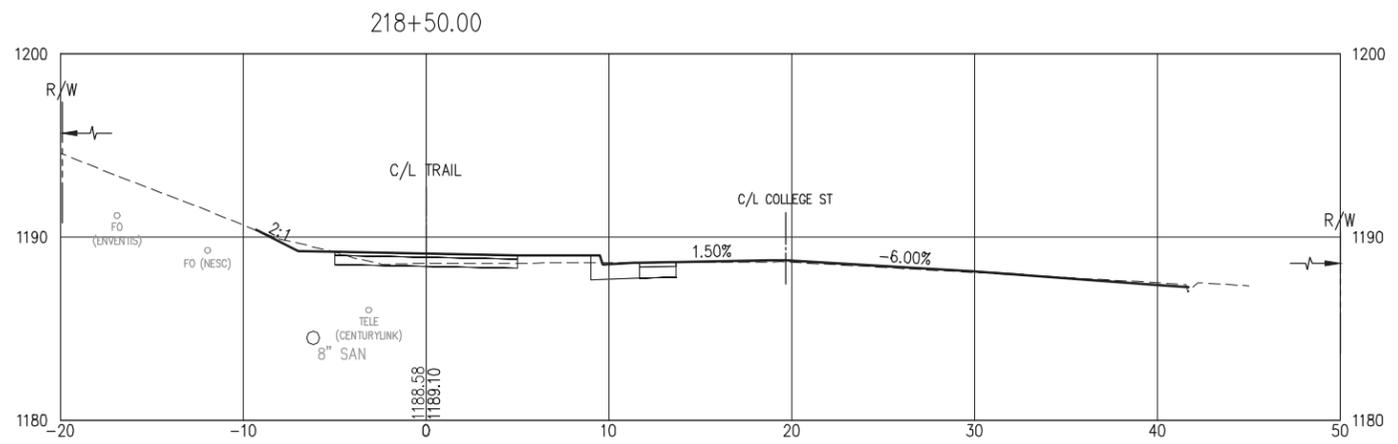
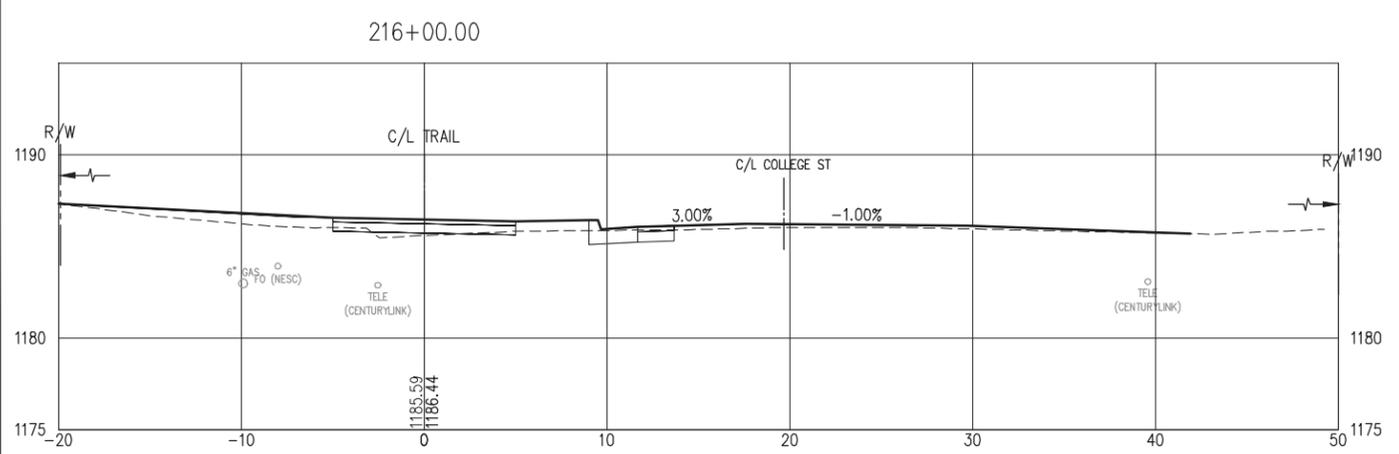
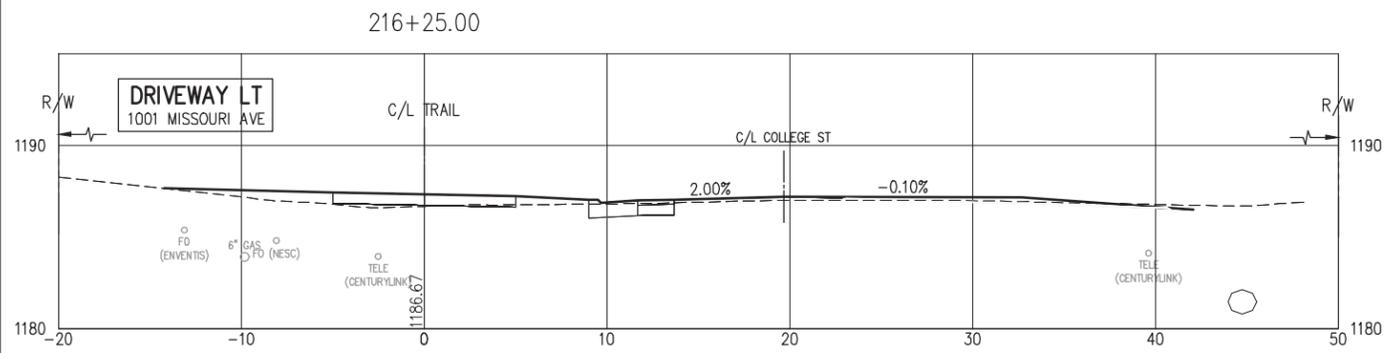
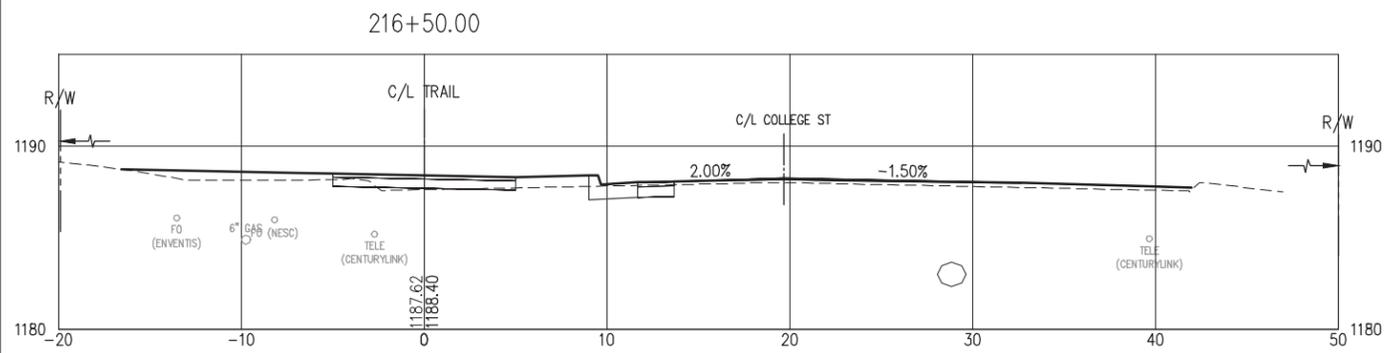
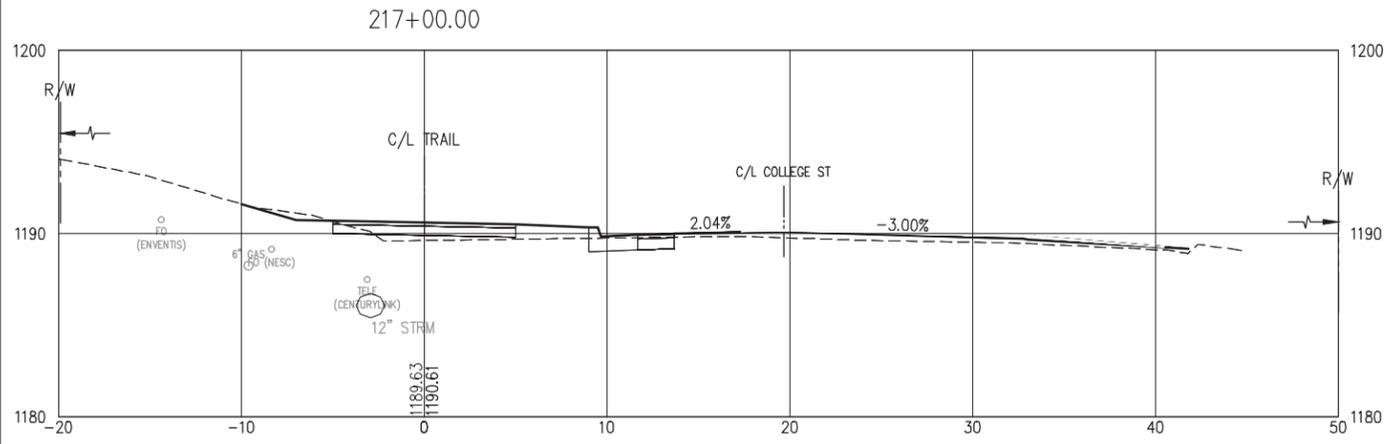
01/06/2016
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 LIC. NO.

LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CROSS SECTIONS
 SHEET NO. 49 OF 53 SHEETS



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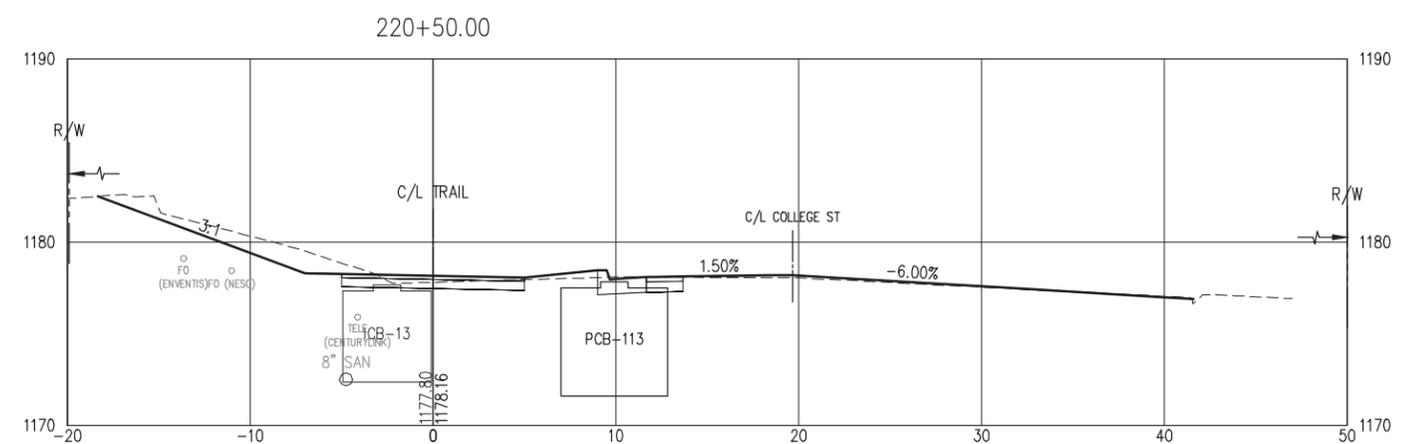
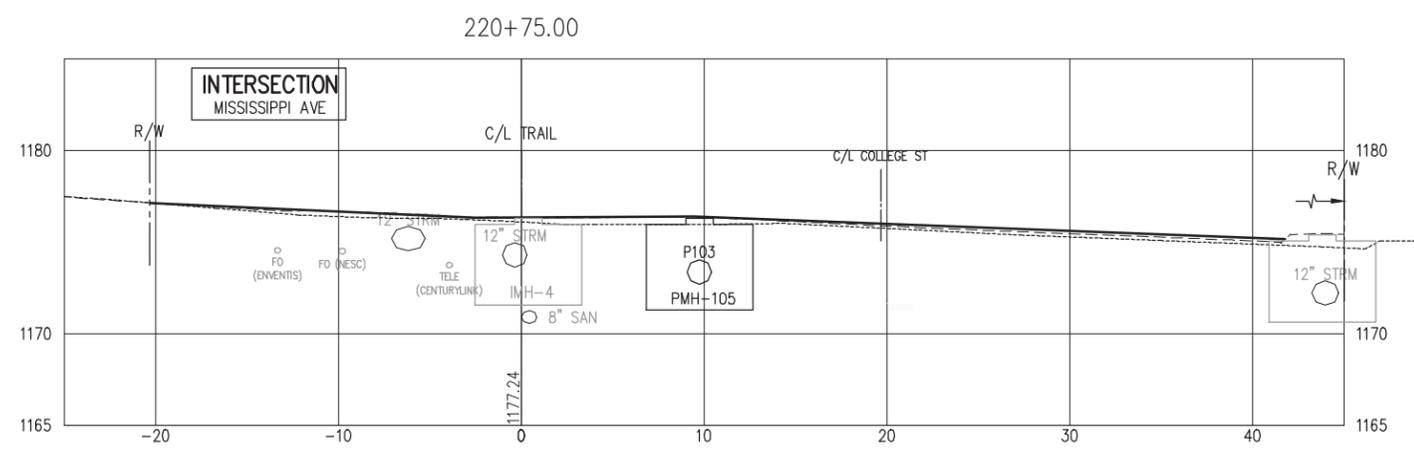
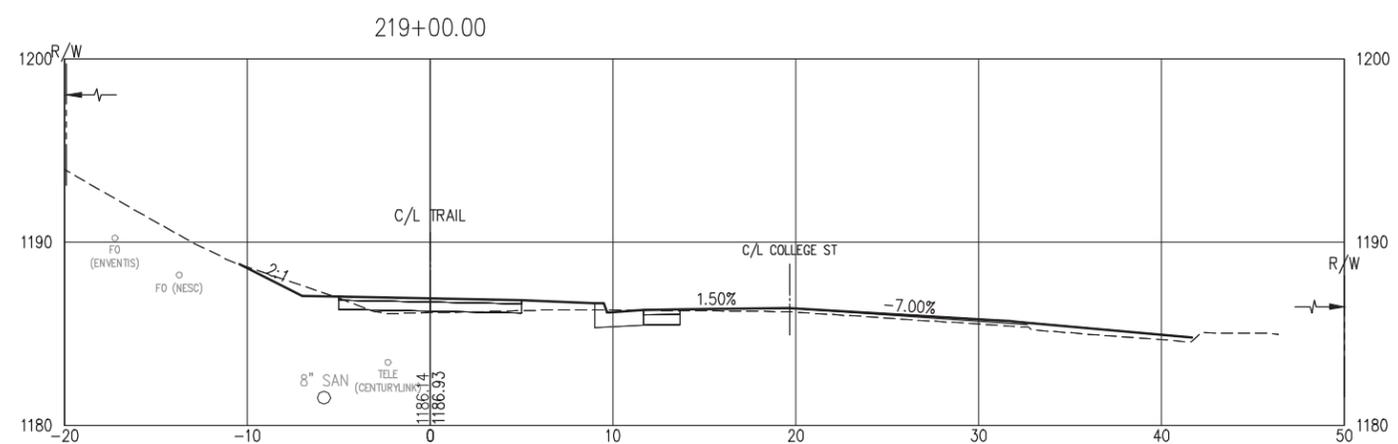
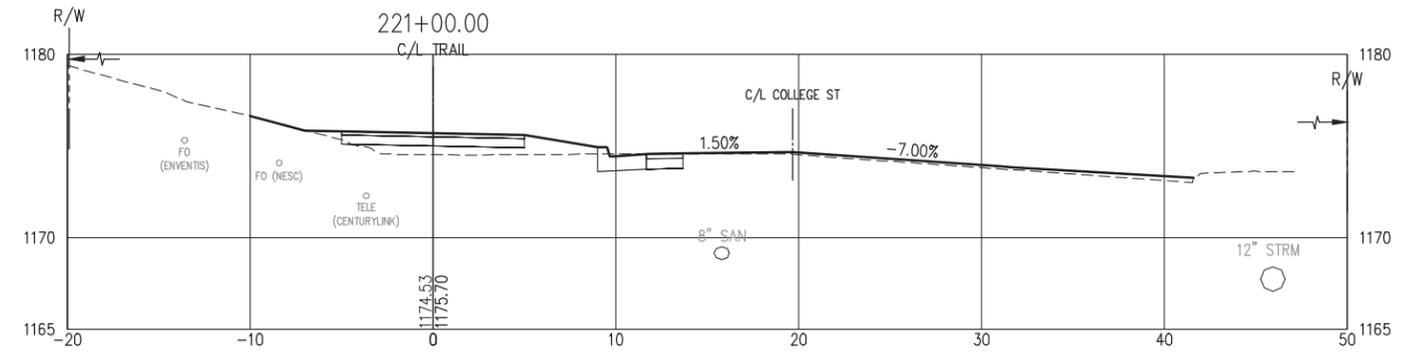
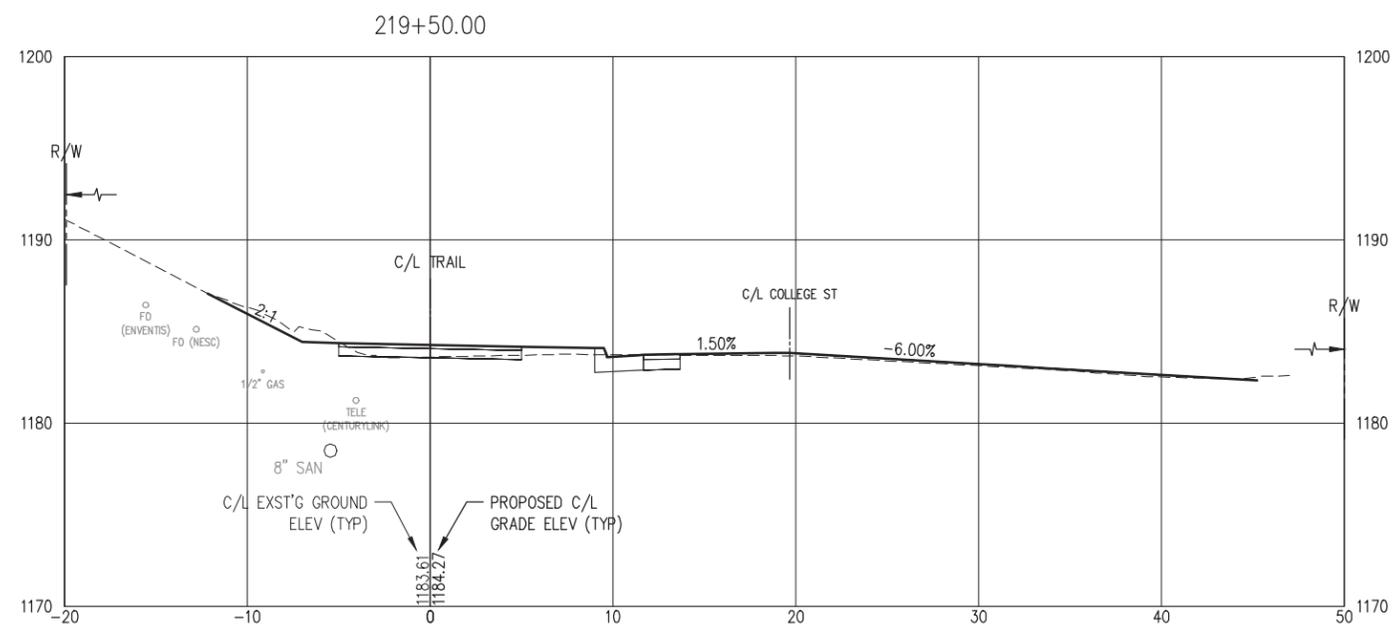
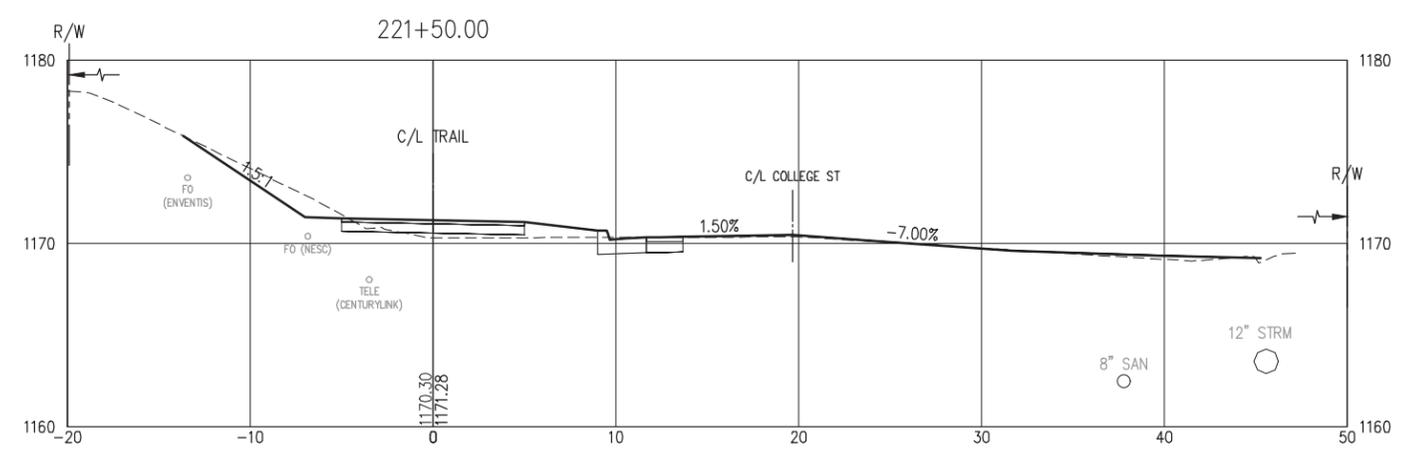
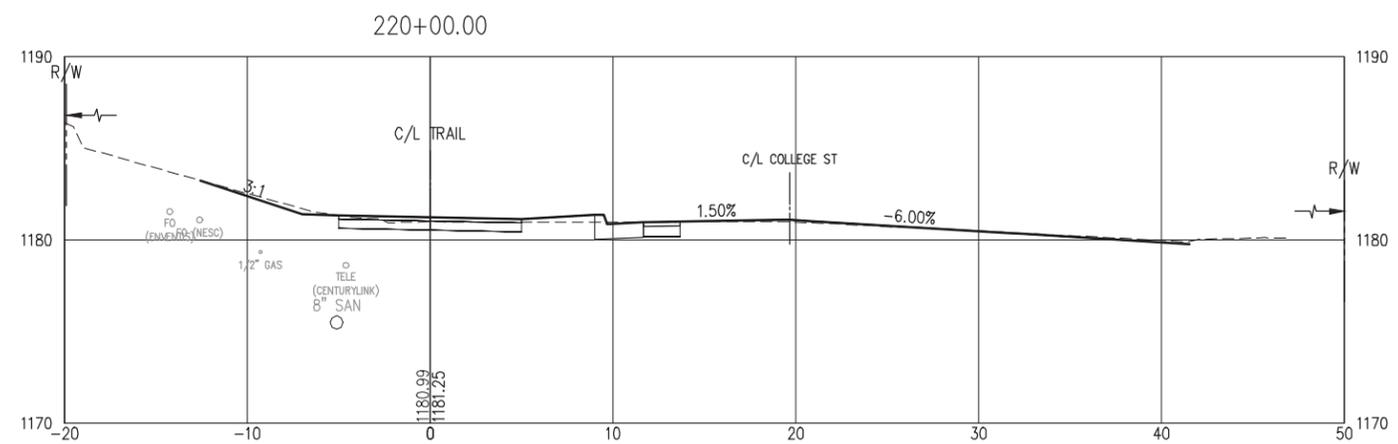
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CROSS SECTIONS
 SHEET NO. 50 OF 53 SHEETS

PLOT DATE: 1/5/2016 12:07:38 PM FILE: R:\44\proj\140315\600 Drawings\C\College Street Base\140315\600R (College St).dwg



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BRAD SCOTT
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01/06/2016
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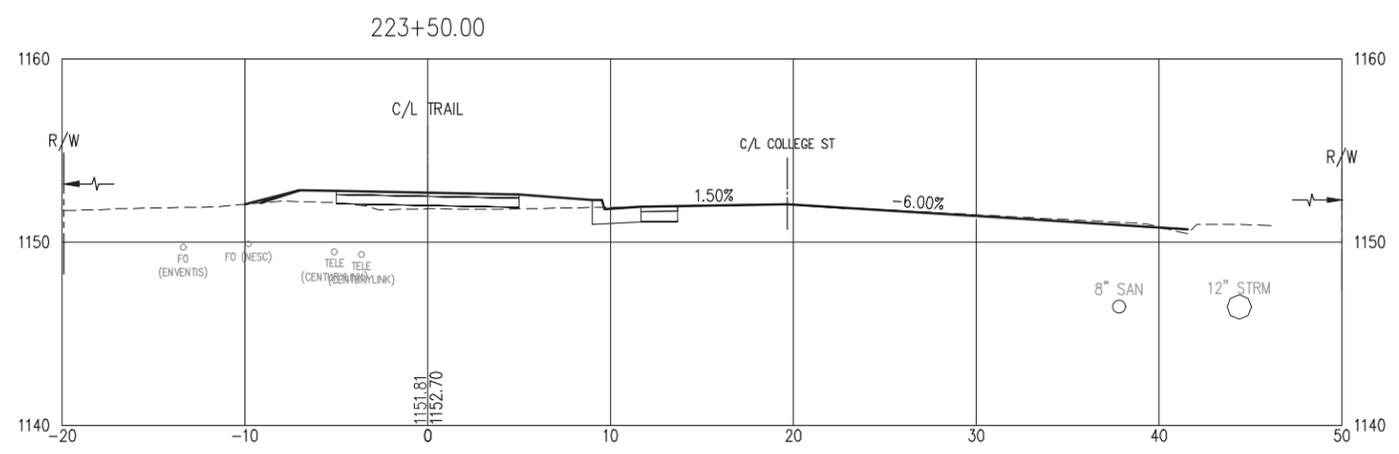
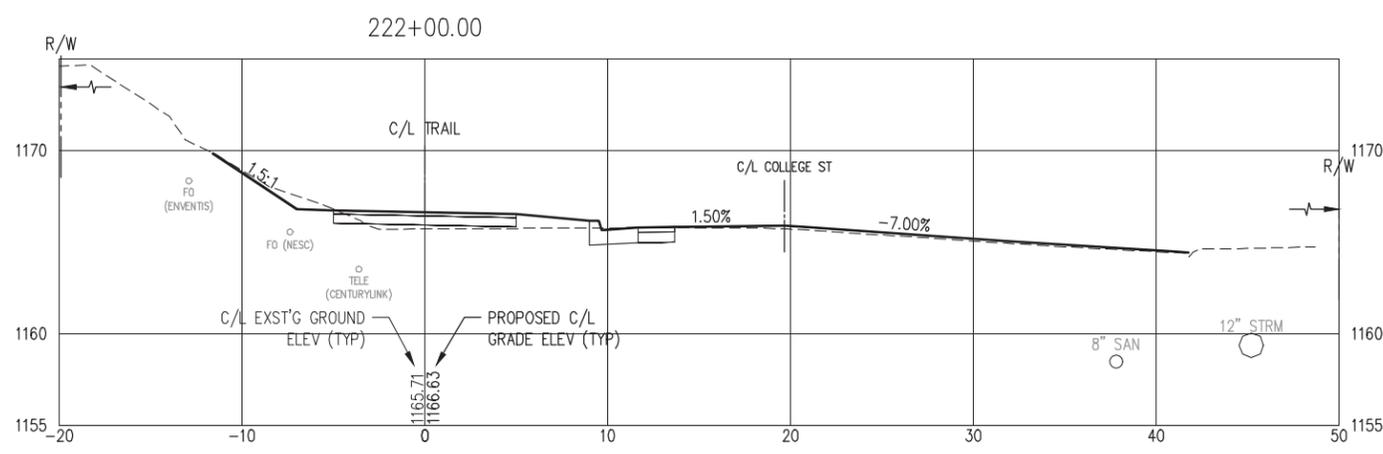
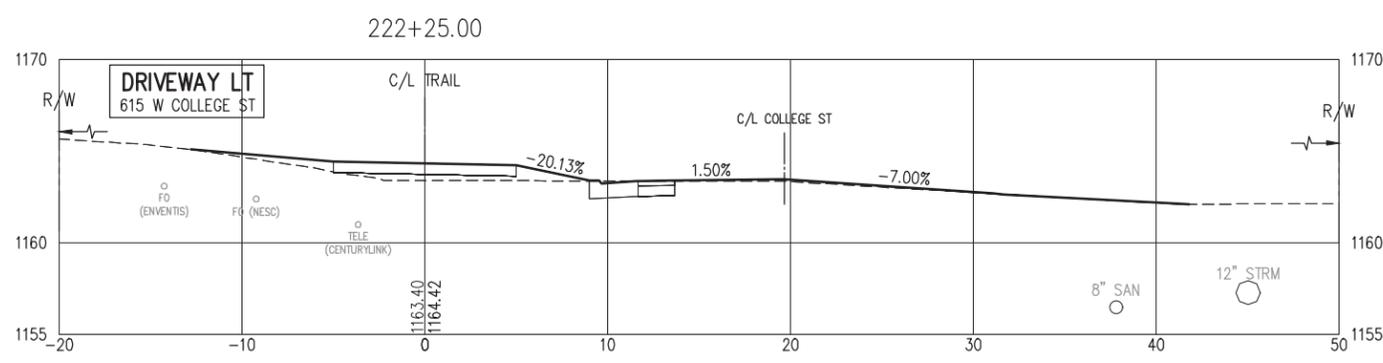
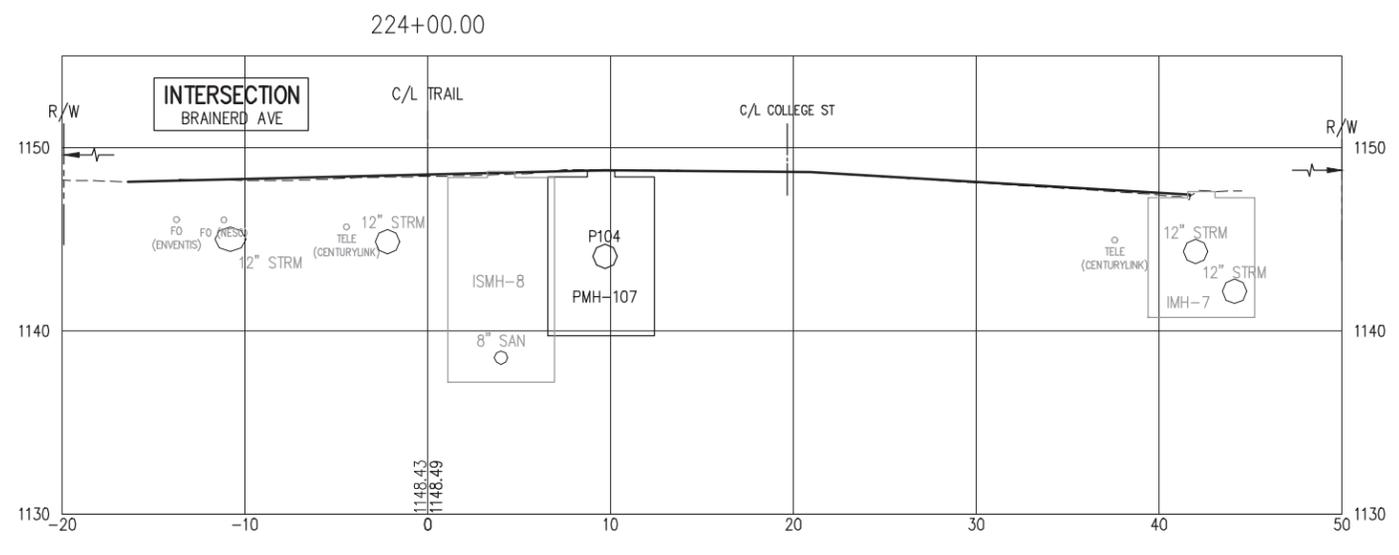
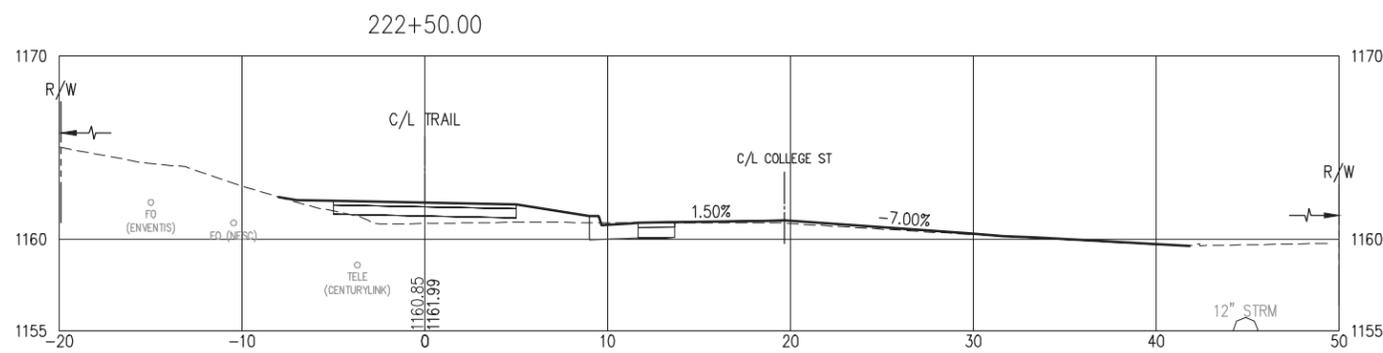
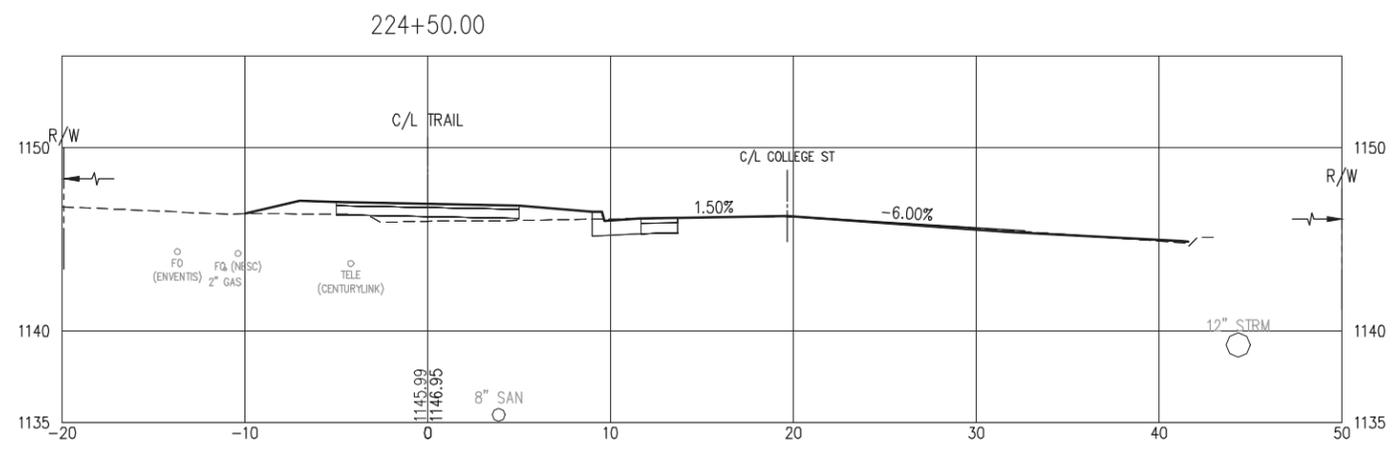
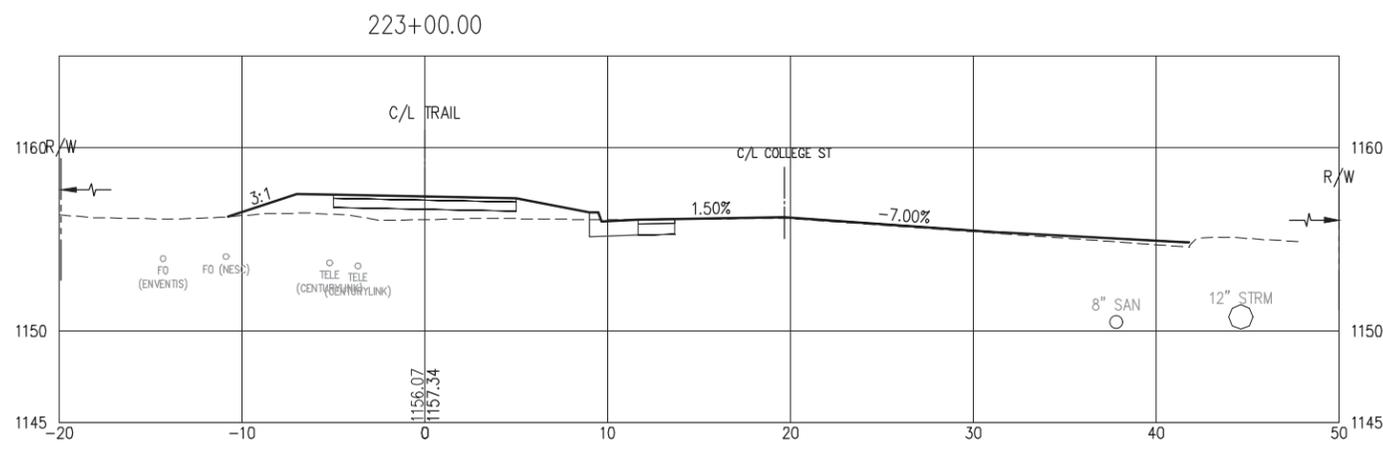
LOWELL TO LAKEWALK TRAIL
DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

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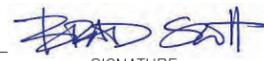
CROSS SECTIONS
 SHEET NO. 51 OF 53 SHEETS

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BRAD SCOTT
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 SIGNATURE

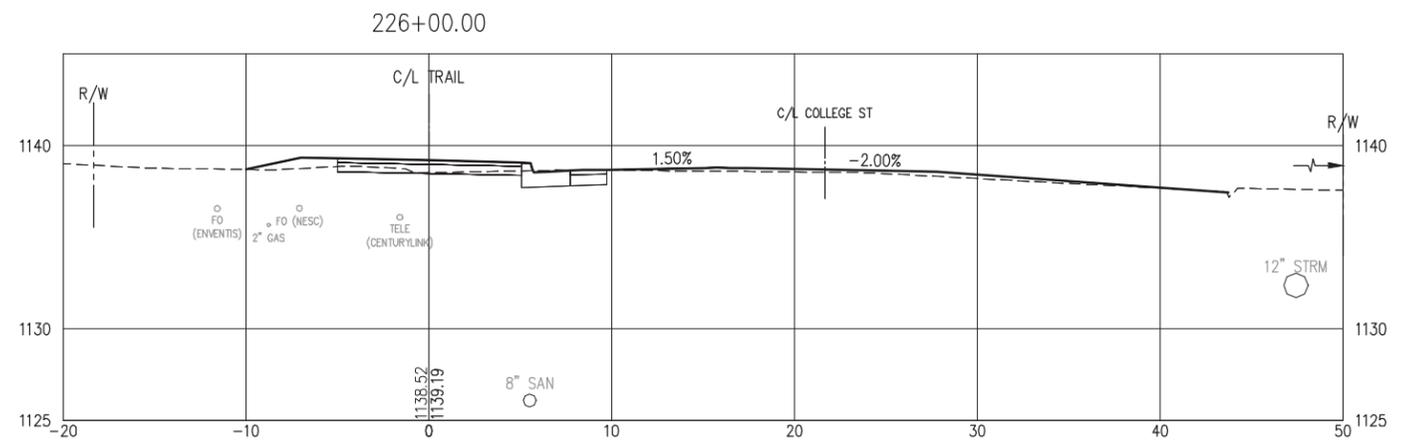
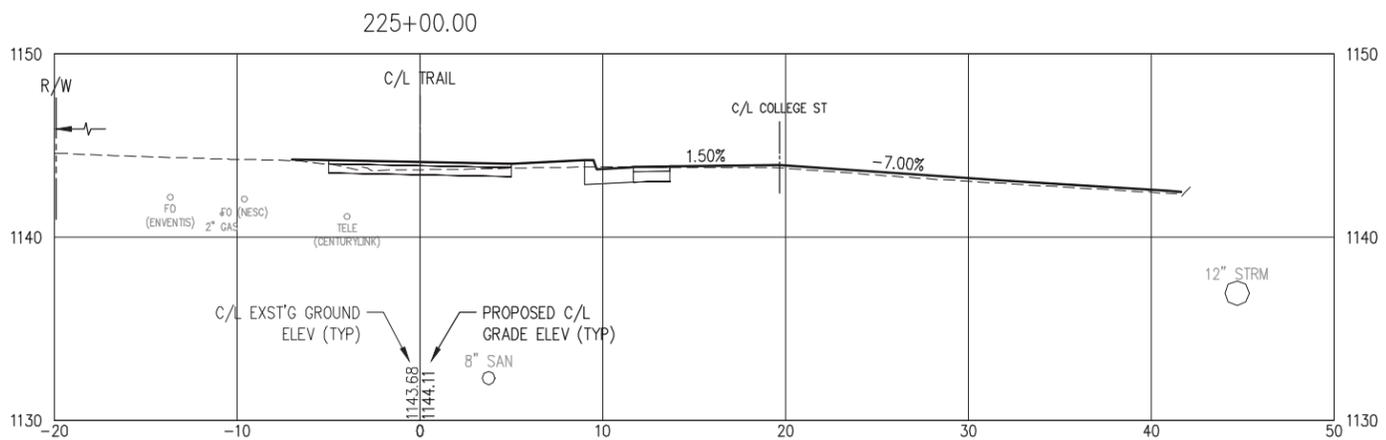
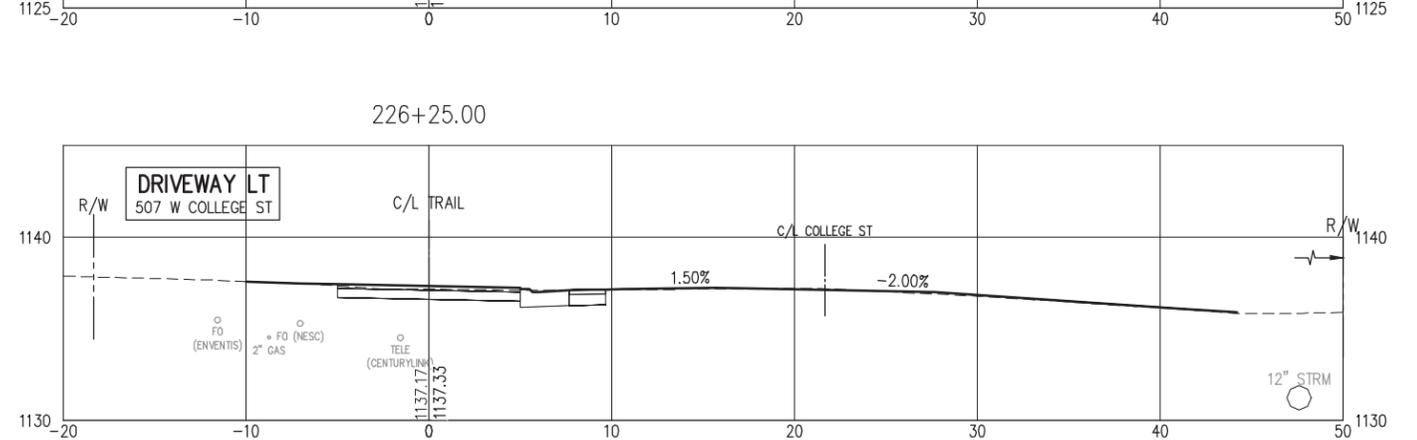
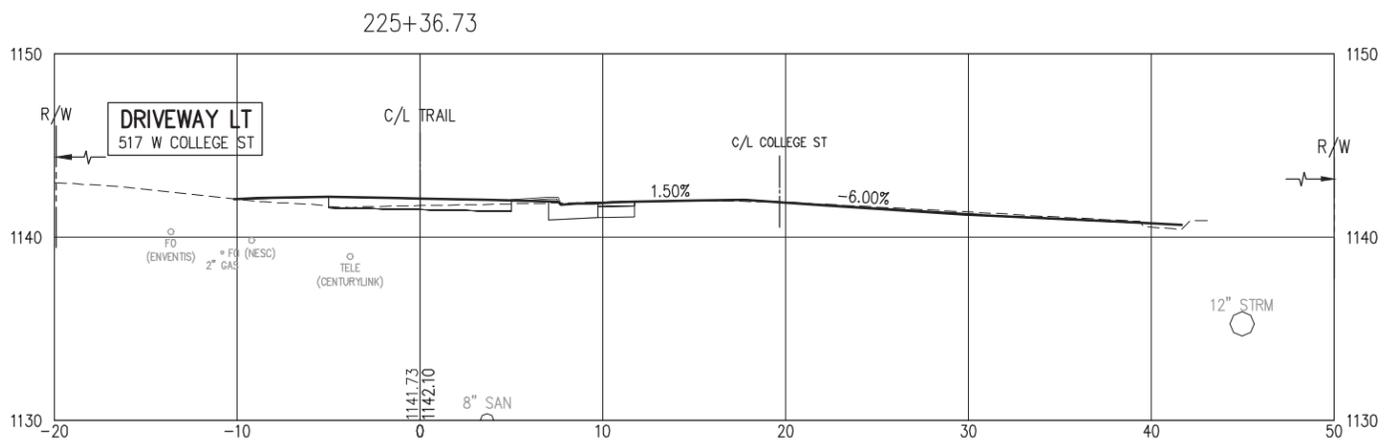
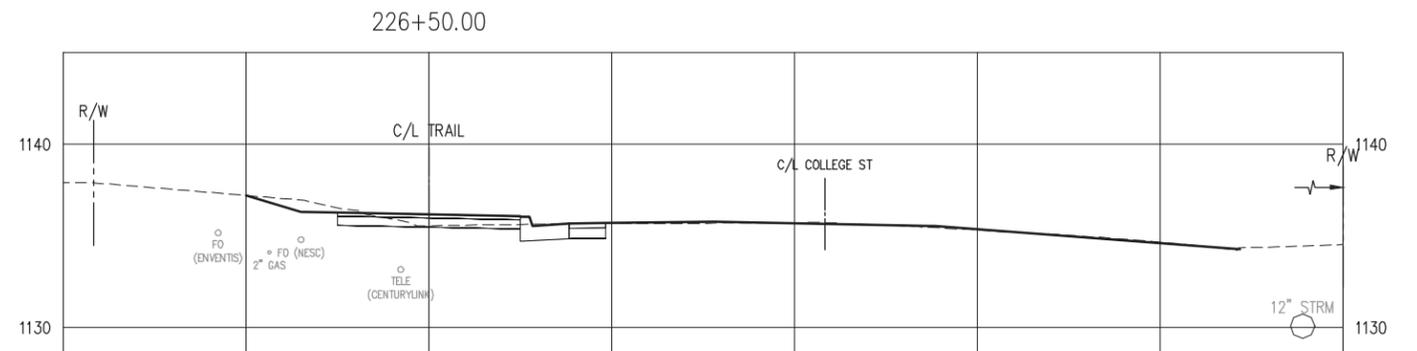
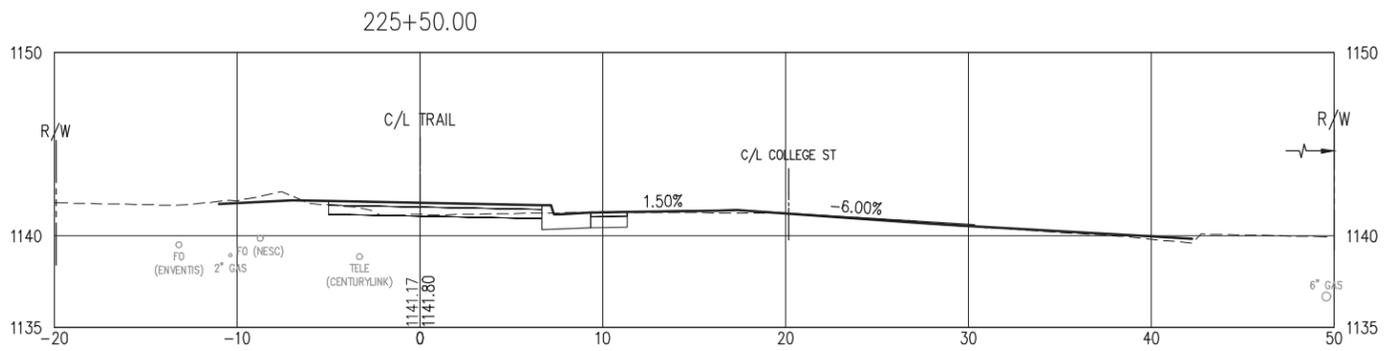
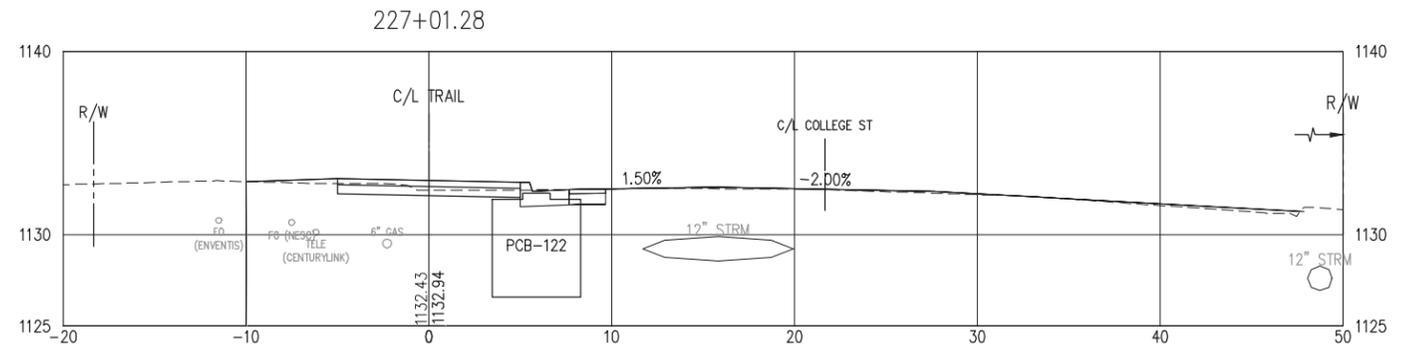
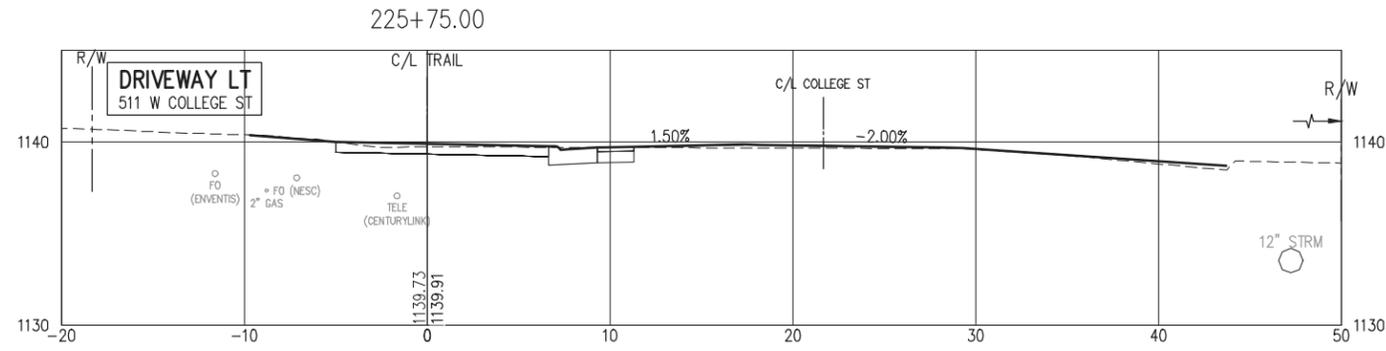
01/06/2016
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DULUTH, MINNESOTA

CITY OF DULUTH
CITY PROJECT NO. 1327

S.A.P. 118-155-008

CROSS SECTIONS
 SHEET NO. 52 OF 53 SHEETS



PLOT DATE: 1/5/2016 12:08:27 PM FILE: R:\44\proj\140315\600 Drawings\C\College Street\Bases\140315sc00R (College St).dwg

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CROSS SECTIONS
SHEET NO. 53 OF 53 SHEETS