

PLAN LEGEND

RIGHT OF WAY LINE	---
DITCH CENTERLINE	---
FENCE LINE	---
RETAINING WALL	---
GRAVEL LINE	---
GUARD RAIL LINE	---
RAILROAD TRACK LINE	
ROAD CENTERLINE	---
TREE LINE	~~~~~
STREAM LINE	~~~~~
WETLAND LINE	---
EX SANITARY LINE	---
PR SANITARY LINE	SAN
AB SANITARY LINE	AS-SAN
EX FORCEMAIN LINE	FM
PR FORCEMAIN LINE	FM
AB FORCEMAIN LINE	AS-FM
EX STORM LINE	---
PR STORM LINE	ST
AB STORM LINE	AS-ST
EX WATER LINE	---
PR WATER LINE	W
AB WATER LINE	AS-W
EX GAS LINE	---
PR GAS LINE	GAS
AB GAS LINE	AS-GAS
EX STEAM LINE	---
PR STEAM LINE	AS-STEAM
UG CABLE TV LINE	UGTV
AB CABLE TV LINE	AS-CATV
UG ELECTRIC LINE	UGE
AB ELECTRIC LINE	AS-ELEC
UG FIBEROPTIC LINE	FD
AB FIBEROPTIC LINE	AS-FD
UG TELEPHONE LINE	UGT
AB TELEPHONE LINE	AS-TELE
OH ELECTRIC LINE	OHE
OH TELEPHONE LINE	OHT
OH CABLE TV LINE	OHTV

SYMBOLS

EX SANITARY MANHOLE	(SAN)
EX SANITARY CLEANOUT	(STRM)
EX STORM MANHOLE	(W)
EX STORM CATCHBASIN	(WV)
EX. WATER MANHOLE	(W)
EX. WATER VALVE	(WV)
EX. WATER HYDRANT	(W)
EX. WATER SHUTOFF	(W&G)
EX. WATER & GAS MH	(W&G)
EX. GAS MANHOLE	(GAS)
EX. GAS VALVE	(GAS)
EX. GAS SHUTOFF	(GAS)
EX. STEAM MANHOLE	(STEAM)
EX. TELEPHONE MANHOLE	(T)
EX. ELECTRIC MANHOLE	(E)
EX. POWERPOLE	(P)
EX. LIGHT POLE	(L)
EX. ELECTRIC VAULT	(V)
EX. ANCHOR	(A)
EX. ELECTRIC TRANSFORMER	(ET)
EX. STREET LIGHT	(SL)
EX. SIGNAL W/ STREET LIGHT	(SL)
EX. HANDHOLE	(H.H.)
EX. HANDHOLE	(H.H.)
EX. TELEPHONE PEDESTAL	(TP)
EX. WELL	(W)
BENCHMARK	(BM)
FOUND CI MONUMENT	(M)
EX. SIGN	(S)
CONTROL POINT	(CP)
EX DECIDUOUS TREE	(DT)
EX CONIFEROUS TREE	(CT)
EX. PARKING METER	(PM)
EX. SOIL BORING	(SB# ?? ELEV. ??)

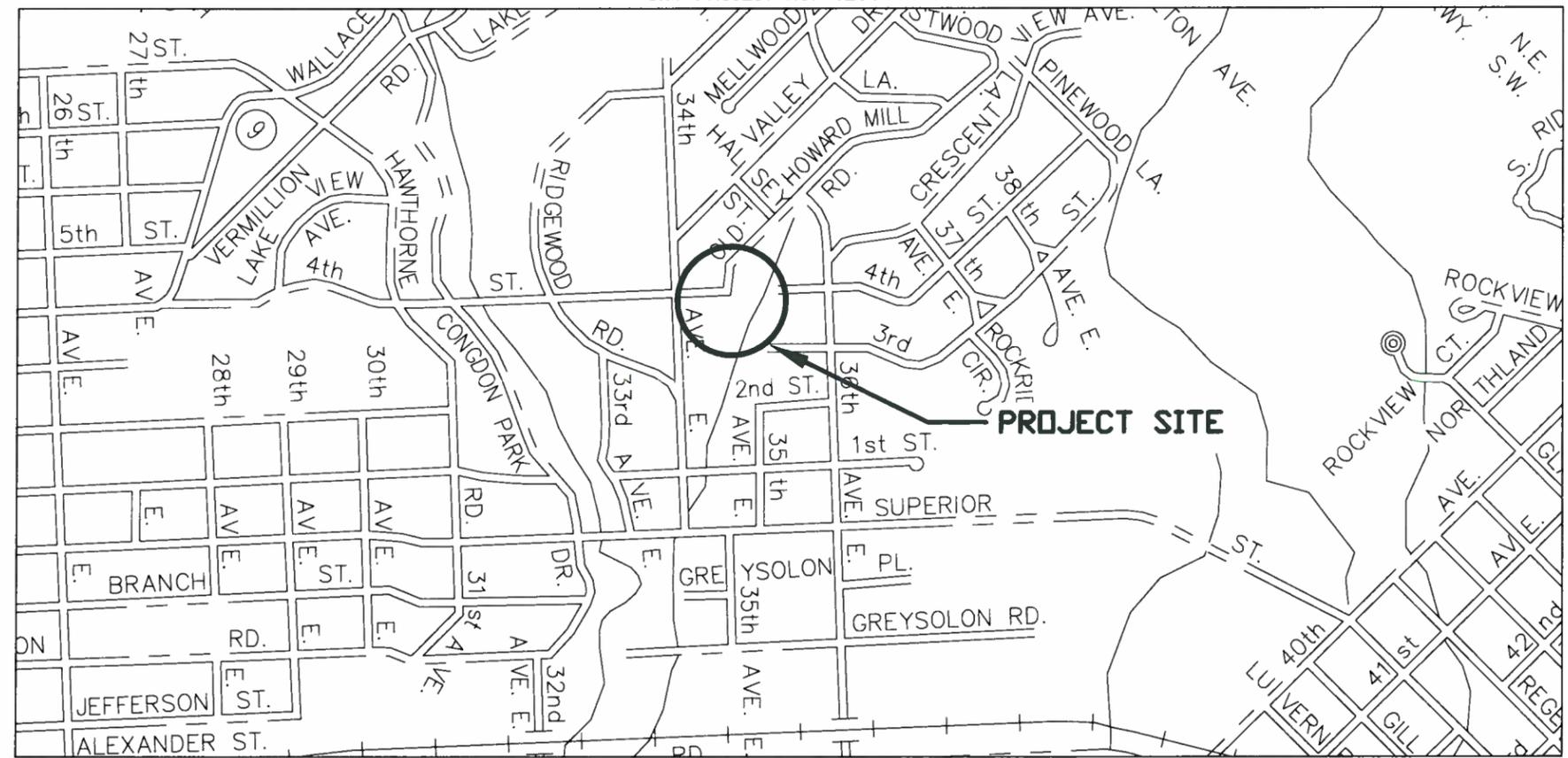
CITY OF DULUTH

DEPARTMENT OF PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

CONSTRUCTION PLANS FOR:

4TH STREET AND OLD HOWARD MILL ROAD STORM DOWN DRAIN REPLACEMENT

FLOOD SITE NO. 666
CITY PROJECT NO. 1264



THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THIS 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".

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

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
AVAILABLE AT: <http://www.dot.state.mn.us/pre-letting/spec/index.html>

THE 2360 PLANT MIXED ASPHALT PAVEMENT SPECIFICATION DATED 02/04/2011 SHALL APPLY.
AVAILABLE AT: <http://www.dot.state.mn.us/materials/bituminous.html> 01/23/13

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD, INCLUDING THE FIELD MANUAL DATED FEBRUARY 2011.
AVAILABLE AT: <http://www.dot.state.mn.us/trafficeng/publ/fieldmanual2011/>

THE 2013 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT STANDARD CONSTRUCTION SPECIFICATIONS AND SUPPLEMENTS OR ADDENDUMS SHALL APPLY.
AVAILABLE AT: http://www.duluthmn.gov/engineering/spec_book/

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	DETAIL DRAWINGS
3	DETAIL DRAWINGS & STATEMENT OF ESTIMATED QUANTITIES
4	PLAN & PROFILE - PROPOSED
5	PLAN & PROFILE - RESTORATION

THIS PLAN CONTAINS 5 SHEETS

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.

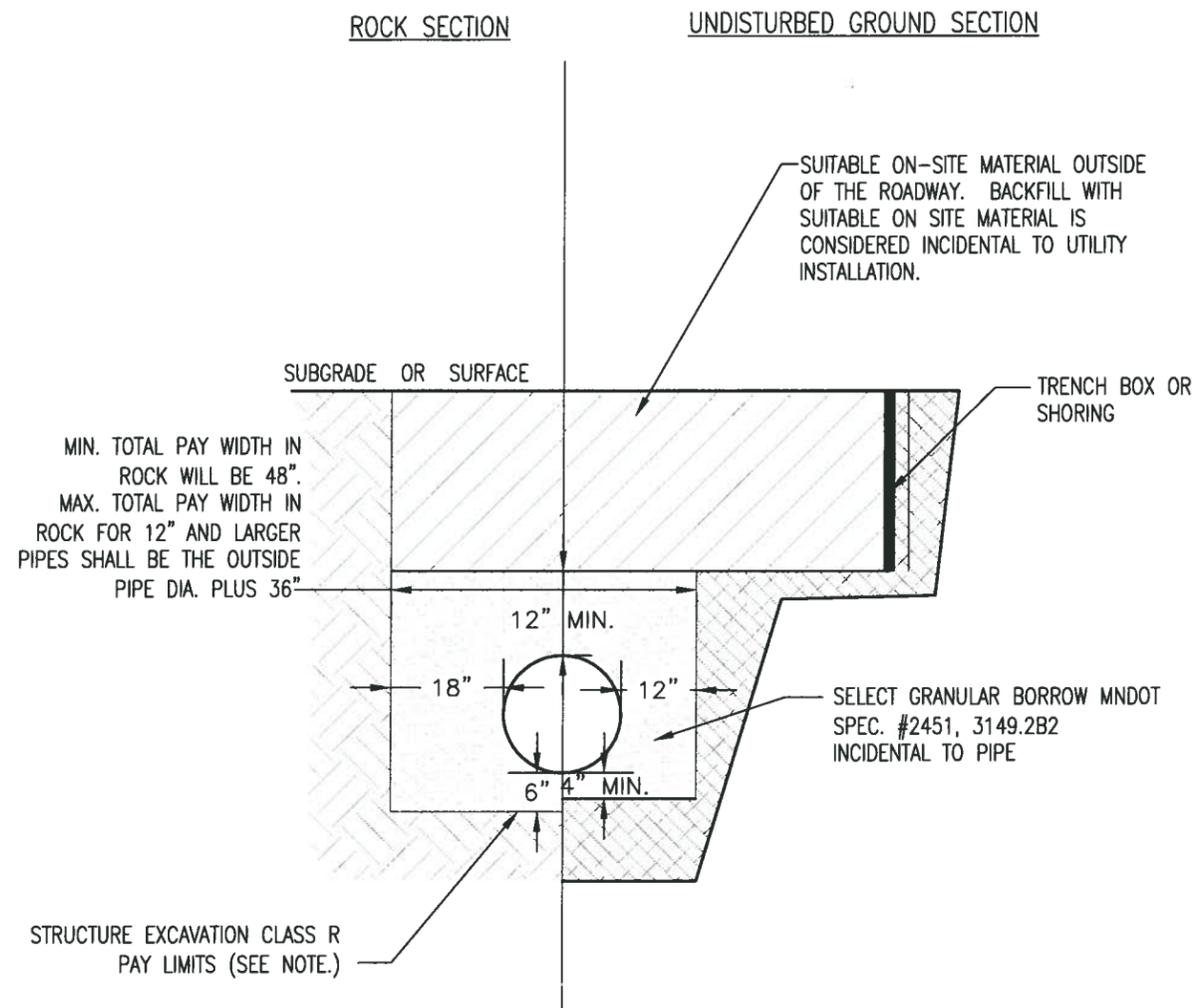
TOM JOHNSON, P.E.
PROJECT ENGINEER
[Signature] 7/30/13 46744
PROJECT ENGINEER DATE REG. NO.

CITY APPROVAL

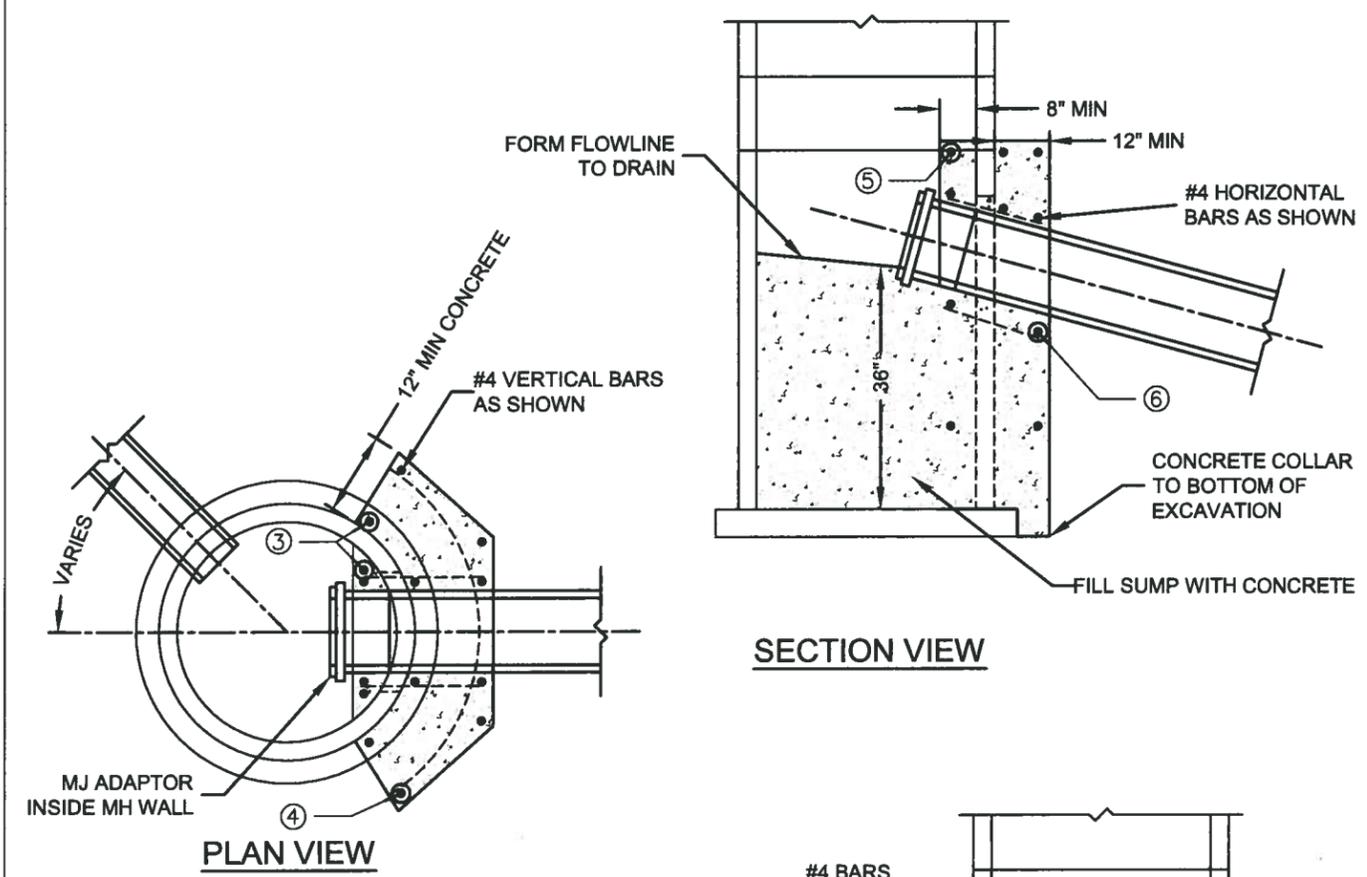
APPROVED *[Signature]* 8/2/13
CHIEF ENGINEER OF TRANSPORTATION DATE

APPROVED *[Signature]* 8/5/2013
CHIEF ENGINEER OF UTILITIES DATE

APPROVED *[Signature]* 8/5/13
CITY ENGINEER DATE



- 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. WHERE UTILITIES ARE INSTALLED IN ROCK TRENCHES OUTSIDE OF THE ROADWAY, THE CONTRACTOR SHALL PROVIDE COMMON BORROW MATERIAL TO SUPPLEMENT SUITABLE ON SITE BACKFILL MATERIALS AS NECESSARY. COMMON BORROW MATERIAL IS INCIDENTAL TO STRUCTURE EXCAVATION, CLASS R. REFER TO SPECIFICATIONS FOR RESTRICTIONS ON COMMON BORROW MATERIALS.

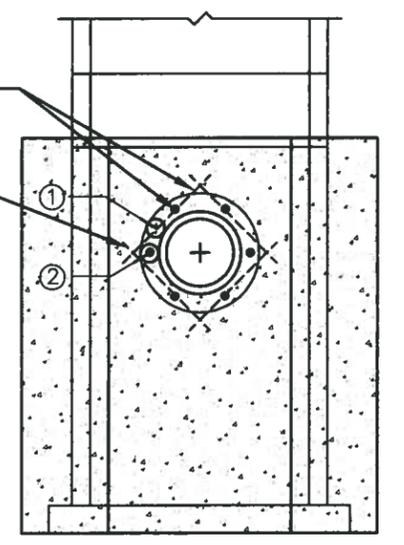


STEEL REINFORCING SCHEDULE

INDEX	SIZE	LENGTH (IN)	QUANTITY	DESCRIPTION
①	4	27	12	DIAMOND SHAPED MAT
②	4	26	6	LONGITUDINAL THRU DOGHOUSE
③	4	72	8	VERTICAL - INTERIOR
④	4	76	6	VERTICAL - EXTERIOR
⑤	4	28	4	HORIZONTAL - INTERIOR
⑥	4	76	6	HORIZONTAL - EXTERIOR

- NOTES:
- #4 EPOXY COATED REBAR
 - MAINTAIN 2" CLEARANCE

3 DIAMOND SHAPED MATS:
1 INTERIOR & 2 EXTERIOR



HDPE STORM SEWER BEDDING AND COVER

EX-1

REVISED/APPROVED 2/1/13
EDITED FOR PROJECT 7/15/13

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

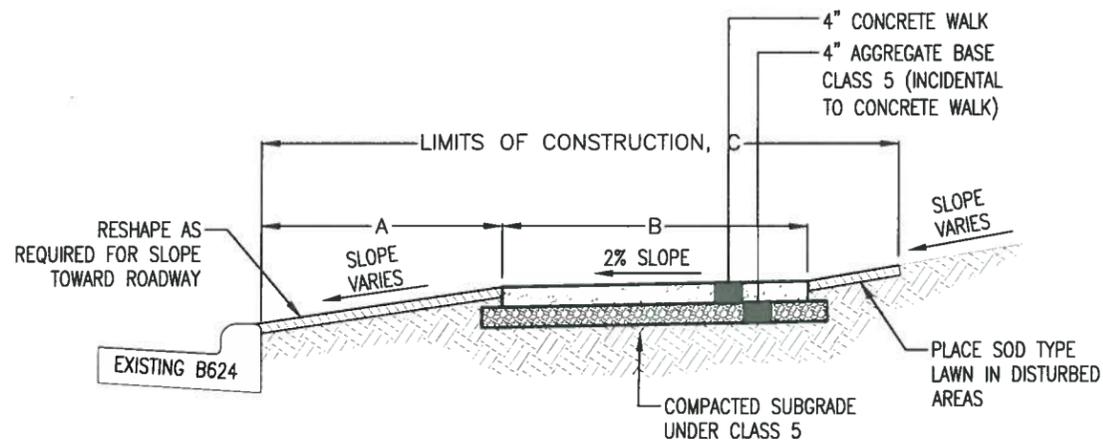
NO SCALE

ANCHORED MANHOLE

REVISED/APPROVED 11/1/2012

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

NO SCALE



SIDEWALK TYPICAL SECTION

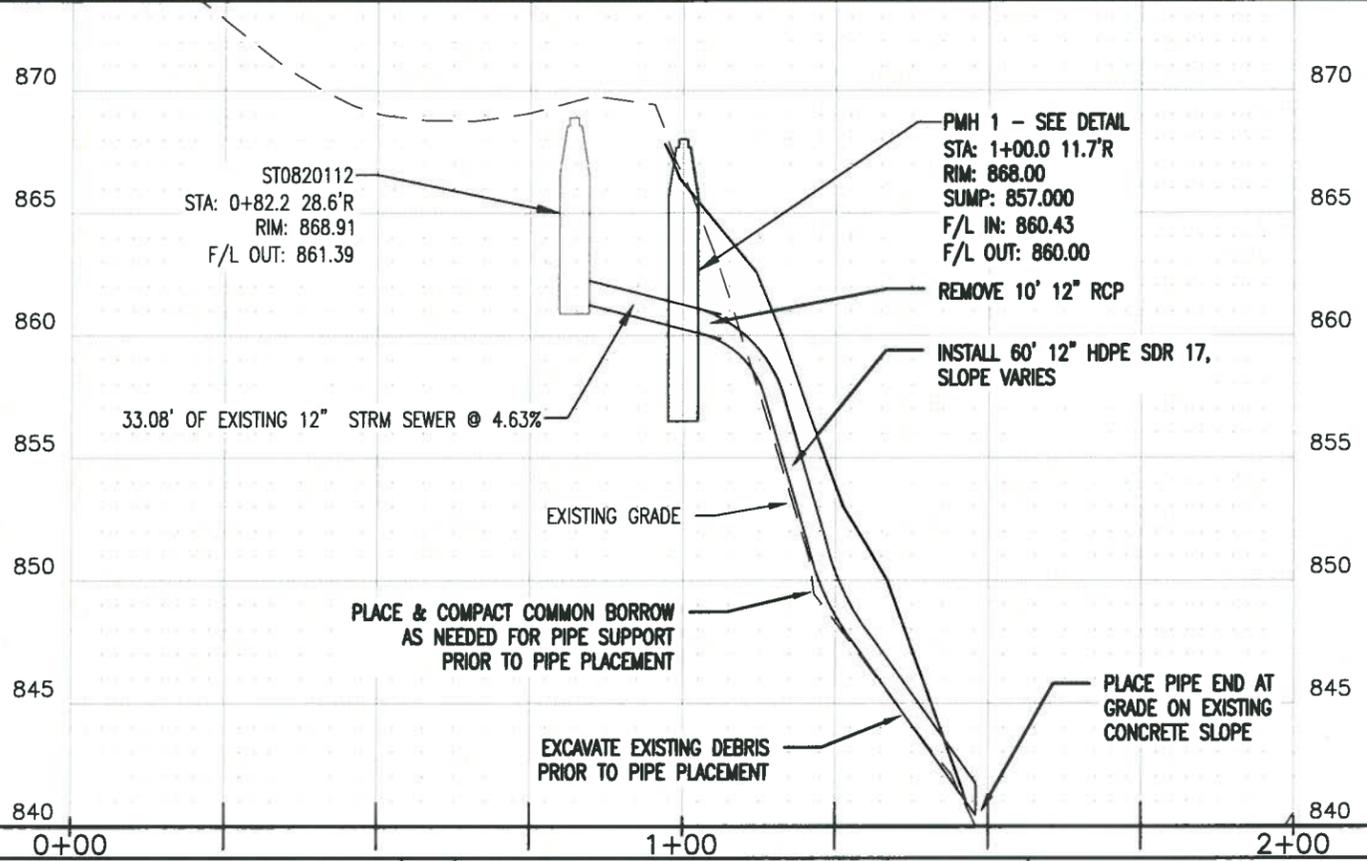
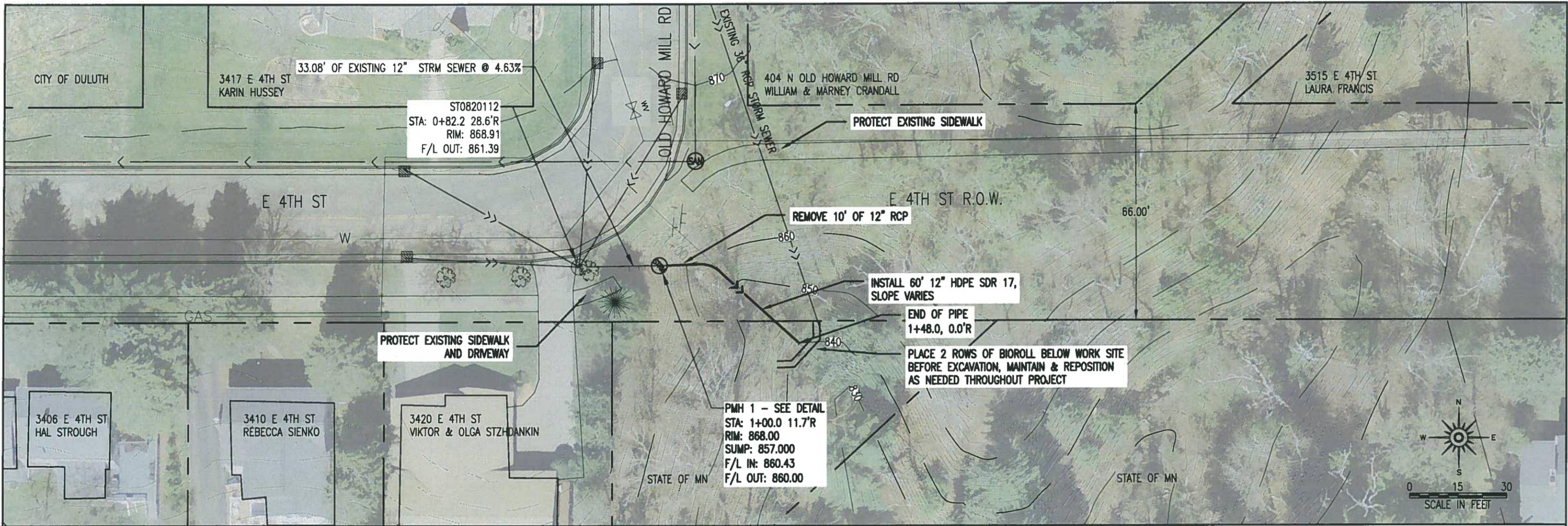
- NOTES:
1. CONTRACTOR TO SET GRADE TO FIT EXISTING GROUND, PERMIT CROSS DRAINAGE.
 2. CONTRACTOR TO PROVIDE CONSTRUCTION STAKING.
 3. FOR REPLACING EXISTING SIDEWALK,
A=±5.5', B=5', C=13' MAX
FOR NEW SIDEWALKS WHERE NONE EXISTED,
A=4', B=4', C=11' MAX
 4. CONSTRUCTION LIMITS VARY FOR SIDEWALK EXTENDING FROM 4TH STREET TO THE PEDESTRIAN BRIDGE.

STATEMENT OF ESTIMATED QUANTITIES
FOR REFERENCE ONLY

NOTES	ITEM NUM	DESCRIPTION	UNIT	EST QUANTITY	FINAL
	1	MOBILIZATION	LUMP SUM	1	
1	2	TREAFFIC CONTROL	LUMP SUM	1	
2	3	CLEARNG AND GRUBBING	LUMP SUM	1	
	4	PMH 1, ANCHORED MANHOLE	EACH	1	
3,4,5	5	12" SDR17 HDPE STORM SEWER PIPE	LN FT	60	
	6	12" MOLDED HDPE M.J. ADAPTOR	EACH	1	
6	7	COMMON BORROW	CU YD	102	
	8	CATEGORY 4 EROSION CONTROL BLANKET	SQ YD	220	
	9	STRAW BIOROLL	LN FT	160	
	10	TURF ESTABLISHMENT	LUMP SUM	1	
	11	SIDE WALK	SQ YD	20	
	12	REMOVE & RE-INSTALL SIGN	EACH	3	

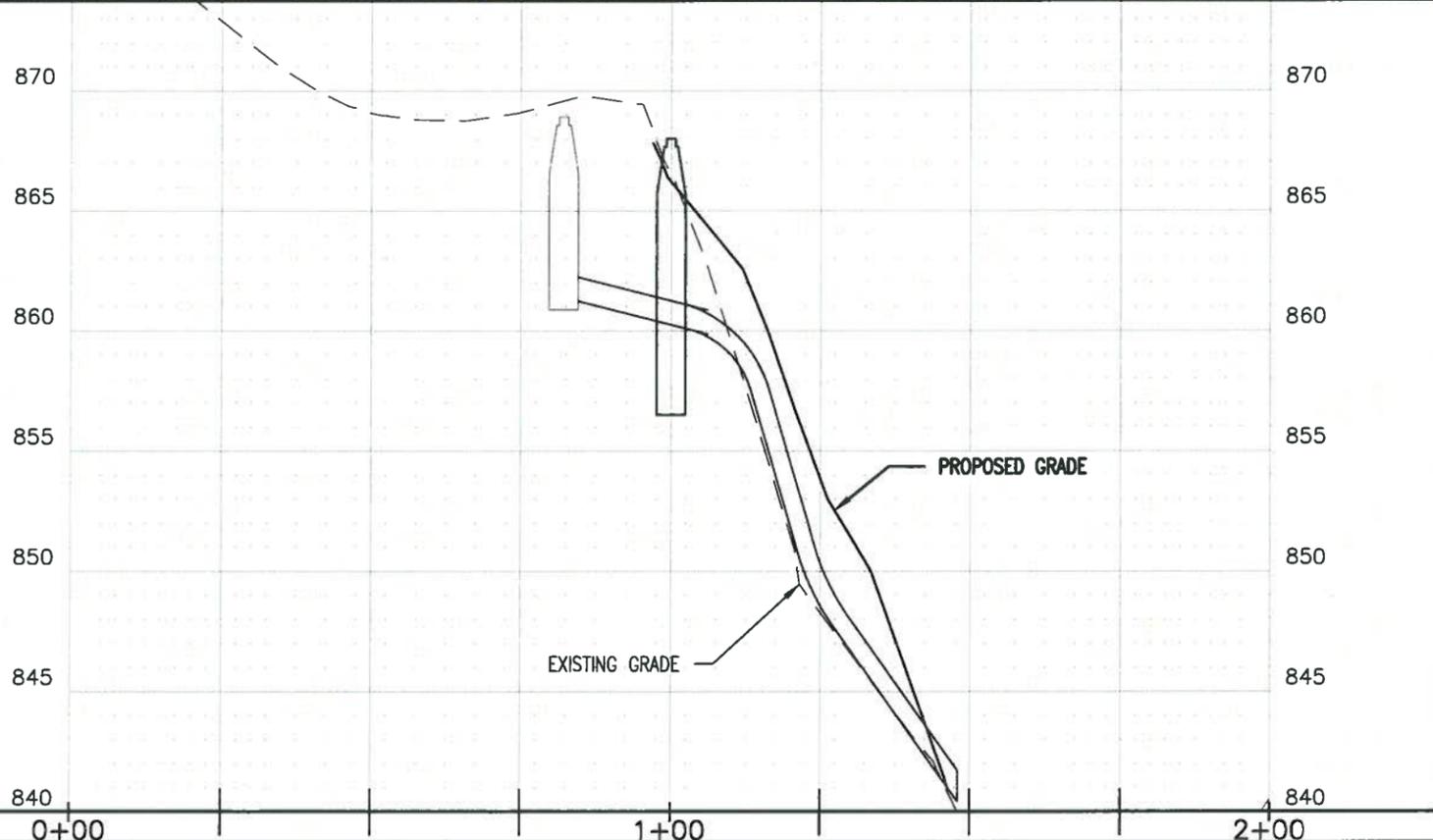
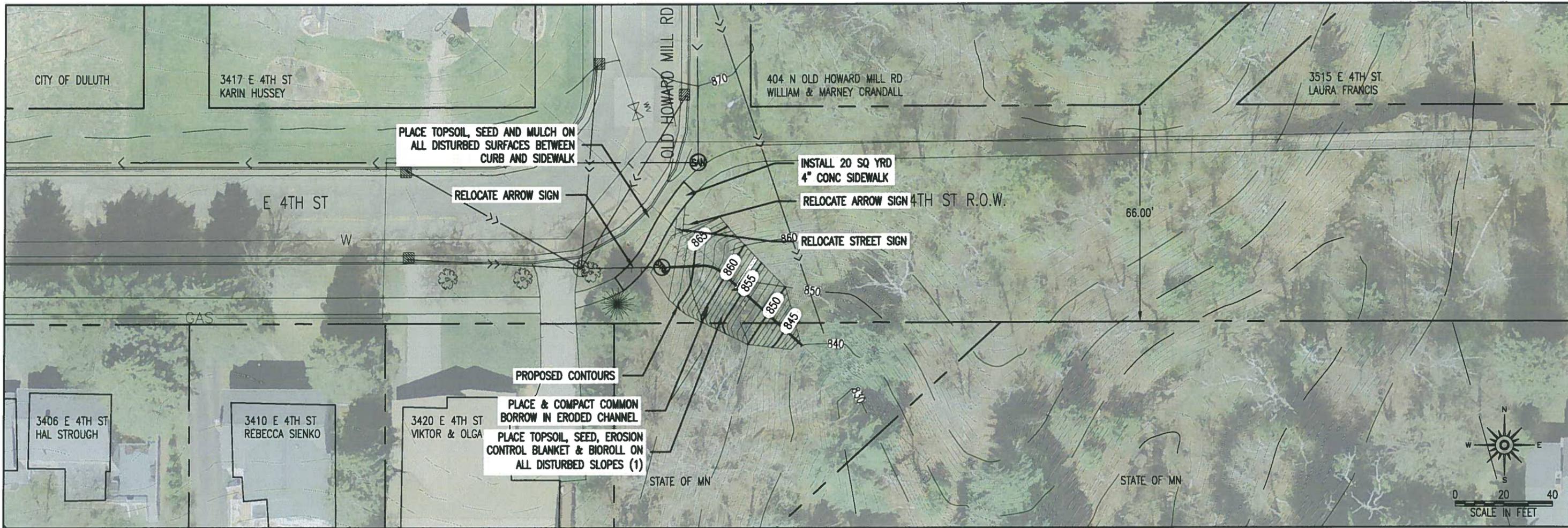
- NOTES:
- 1 ALL TRAFFIC CONTROL BY CONATRACTOR
 - 2 CLEARING AND GRUBBING SHALL BE MINIMAL AMOUNT NEEDED FOR CONTRACTOR TO ACHIEVE ACCESS
 - 3 ITEM INCLUDES TRENCH EXCAVATION, PIPE BEDDING MATERIAL, PIPE COVER MATERIAL AND BACKFILL
 - 4 ITEM INCLUDES REMOVAL AND DISPOSAL OF EXISTING 12" RCP STORM SEWER PIPE
 - 5 MEASURED ALONG SLOPE, NOT HORIZONTAL DISTANCE
 - 6 COMMON BORROW SHALL BE COMPACTABLE CLAY TYPE MATERIAL

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CERTIFIED BY: TOM JOHNSON	REG. NO.: 46744	REVISION	4TH STREET AND OLD HOWARD MILL ROAD STORM DOWN DRAIN REPLACEMENT	DRAWN BY: JJM
SIGNATURE: _____	DATE: 7/15/2013		CITY OF DULUTH	PLAN & PROFILE
			CITY PROJECT NO.: 1264	STATE AID PROJECT NO.:
				SHEET NO. 4 OF 5

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NOTES:
 (1) INSTALL BIOROLL ACROSS THE SLOPE OF THE DISTURBED AREA EVERY 20' UP THE SLOPE FROM THE OUTLET OF THE PIPE TO TOP OF SLOPE. EROSION CONTROL BLANKET SHALL BE CATEGORY 4.

CERTIFIED BY: TOM JOHNSON	REG. NO.: 46744	REVISION	4TH STREET AND OLD HOWARD MILL ROAD STORM DOWN DRAIN REPLACEMENT	DRAWN BY: JJM
SIGNATURE: _____	DATE: 7/15/2013		CITY OF DULUTH	PLAN & PROFILE
			CITY PROJECT NO.: 1264	STATE AID PROJECT NO.:
				SHEET NO. 5 OF 5