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	AB-SAN
EX FORCEMAIN LINE	FM
PR FORCEMAIN LINE	FM
AB FORCEMAIN LINE	AB-FM
EX STORM LINE	
PR STORM LINE	ST
AB STORM LINE	AB-ST
EX WATER LINE	W
PR WATER LINE	W
AB WATER LINE	AB-W
EX GAS LINE	GAS
PR GAS LINE	GAS
AB GAS LINE	AB-GAS
EX STEAM LINE	
EX STEAM LINE	AB-STEAM
UG CABLE TV LINE	UGTV
AB CABLE TV LINE	AB-CATV
UG ELECTRIC LINE	UGE
AB ELECTRIC LINE	AB-ELEC
UG FIBEROPTIC LINE	FO
AB FIBEROPTIC LINE	AB-FO
UG TELEPHONE LINE	UGT
AB TELEPHONE LINE	AB-TELE
OH ELECTRIC LINE	OHE
OH TELEPHONE LINE	OHT
OH CABLE TV LINE	OHTV

SYMBOLS

EX SANITARY MANHOLE (SAN)
EX SANITARY CLEANOUT
EX STORM MANHOLE (STRM)
EX STORM CATCHBASIN
EX. WATER MANHOLE (W)
EX. WATER VALVE (WV)
EX. WATER HYDRANT
EX. WATER SHUTOFF
EX. WATER & GAS MH (W&G)
EX. GAS MANHOLE (GAS)
EX. GAS VALVE (GV)
EX. GAS SHUTOFF
EX. STEAM MANHOLE (STEAM)
EX. TELEPHONE MANHOLE (T)
EX. ELECTRIC MANHOLE (E)
EX. POWERPOLE
EX. LIGHT POLE
EX. ELECTRIC VAULT (ET)
EX. ANCHOR
EX. ELECTRIC TRANSFORMER
EX. STREET LIGHT
EX. SIGNAL W/ STREET LIGHT
EX. HANDHOLE (H.H.)
EX. HANDHOLE (H.H.)
EX. TELEPHONE PEDESTAL
EX. WELL (W)
BENCHMARK
FOUND CI MONUMENT
EX. SIGN
CONTROL POINT
EX DECIDUOUS TREE
EX CONIFEROUS TREE
EX. PARKING METER
EX. SOIL BORING (SB#: ?? ELEV: ??)

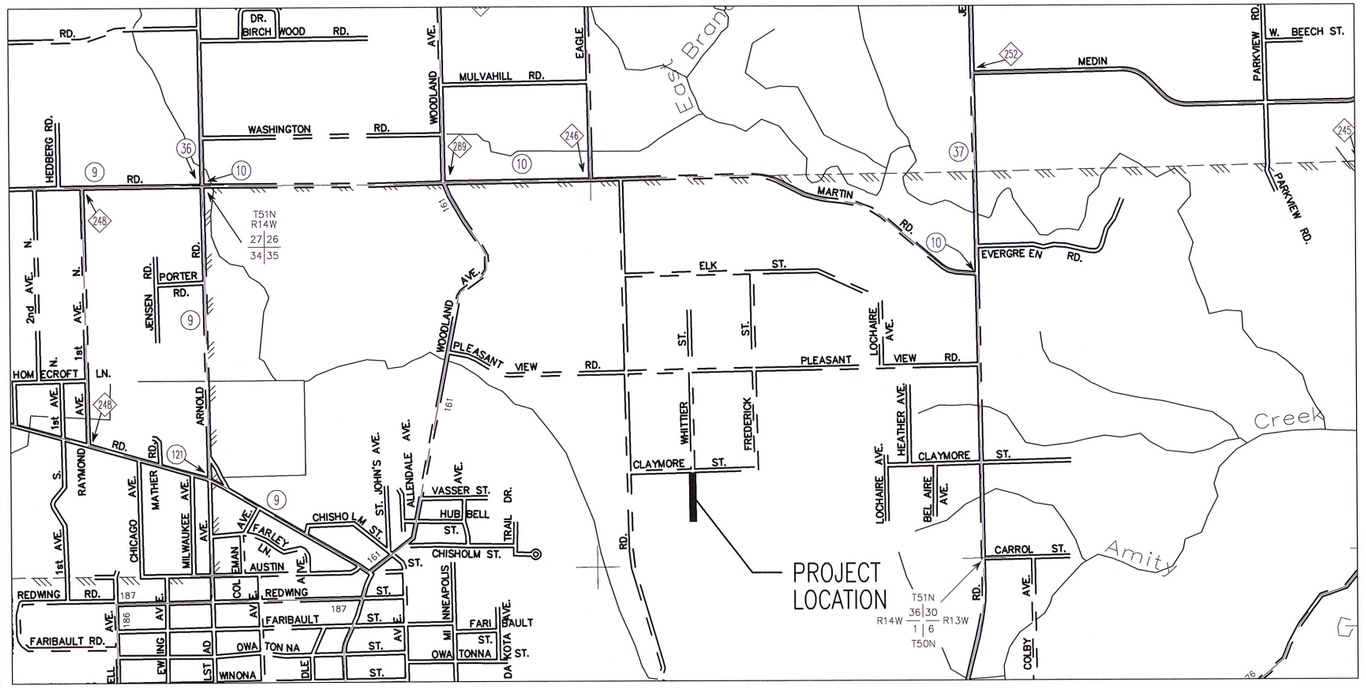
CITY OF DULUTH

DEPARTMENT OF PUBLIC WORKS AND UTILITIES
ENGINEERING DIVISION

CONSTRUCTION PLANS FOR:

WHITTIER STREET RECONSTRUCTION CULVERT INSTALLATION,
GRADING AND BASE OPERATIONS, BITUMINOUS PAVING

CITY PROJECT NO. 1542



PROJECT LOCATION
ST. LOUIS COUNTY
CITY OF DULUTH
SEC. 36
SW 1/4 SW 1/4
T51N R14W

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 2016 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 2016 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT CONSTRUCTION STANDARDS AND SUPPLEMENTS OR ADDENDUMS SHALL APPLY.
AVAILABLE AT:
http://www.duluthmn.gov/engineering/standard-construction-specifications/

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INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-4	CHARTS AND NOTES
5	TYPICAL SECTIONS
6	INPLACE TOPOGRAPHY & REMOVAL PLAN
7	EROSION CONTROL
8	PROPOSED PLAN & PROFILE
9-18	CROSS SECTIONS

THIS PLAN CONTAINS 18 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.

DUNCAN SCHWENSOHN
PROJECT ENGINEER (TYPED OR PRINTED NAME)

PROJECT ENGINEER	DATE	LIC. NO.
	4/5/17	45486

CITY APPROVAL

APPROVED	CHIEF ENGINEER OF TRANSPORTATION	4/5/17 DATE
APPROVED	CHIEF ENGINEER OF UTILITIES	4/5/17 DATE
APPROVED	CITY ENGINEER	4/5/17 DATE

CITY OF DULUTH PROJECT NO. 1542 | DRAWN BY: DJK | SHEET NO. 1 OF 18

STATEMENT OF ESTIMATED QUANTITIES

NOTES	LINE NUM	SPEC NUM	DESCRIPTION	UNIT	EST. QUANTITY	FINAL QUANTITY
	1	2021.501	MOBILIZATION	LS	1	
	2	2101.501	CLEARING	TREE	4	
	3	2101.501	GRUBBING	TREE	4	
	4	2101.501	CLEARING AND GRUBBING	LS	1	
	5	2104.501	REMOVE PIPE CULVERT	LF	69	
	6	2104.505	REMOVE BITUMINOUS PAVEMENT	SF	180	
	7	2104.513	SAWING BITUMINOUS PAVEMENT	LF	35	
	8	2104.523	SALVAGE SIGN	EACH	1	
	9	2105.501	COMMON EXCAVATION (EV)	CY	300	
	10	2211.503	COMMON BORROW (CV)	CY	400	
	11	2104.522	SELECT GRANULAR BORROW MOD 7% (CV)	CY	600	
	12	2105.604	GEOTEXTILE FABRIC, TYPE V	SY	2050	
	13	2211.503	AGGREGATE BASE (CV) CLASS 5 (P)	SY	400	
	14	2360.501	Type SP 9.5 Wearing Course Mixture (3,C)	TON	365	
	15	2501.511	18" RC PIPE APRON	EACH	4	
	16	2501.511	18" RC PIPE CULVERT	LF	50	
	17	2502.502	SUBSURFACE DRAINAGE SYSTEM - TYPE SPECIAL	LS	1	
	18	2511.501	RANDOM RIPRAP, CLASS II	CY	9	
	19	2563.601	TRAFFIC CONTROL	LS	1	
	20	2564.531	SIGN PANELS TYPE C	SF	2.25	
	21	2564.602	SIGN POST SUPPORT	EACH	1	
	22	2573.502	SILT FENCE, TYPE PA	LF	583	
	23	2575.523	EROSION CONTROL BLANKETS, CATEGORY 3	SY	956	
	24	2573.533	SEDIMENT CONTROL LOG, WOOD FIBER	LF	100	
	25	2573.535	STABILIZED CONSTRCUCTION EXIT	LS	1	
	26	2573.56	CULVERT END CONTROLS	EACH	2	

A — CLEARING - REMOVALS - SAWCUTTING

					REMOVE	SAWING	
				CLEARING	PIPE	BITUMINOUS	
		CLEARING	GRUBBING	GRUBBING	CULVERTS	DRIVEWAY	
						FULL DEPTH	
LOCATION	L / R	2102	2101.507	2101.511	2104	2104	REMARKS
		TREE	TREE	LUMP SUM	LIN FT	LIN FT	
11+08	20' LT	1	1				16" - 20" FIR
11+19	20' LT	1	1				16" - 20" FIR
15+95	11' LT	1	1				8" - 12" BIRCH
16+29	11' LT	1	1				8" - 12" BIRCH
11+05 - 11+95	RT			LS			69 SY
12+14 - 15+69	LT			LS			410 SY
14+50 - 15+43	RT			LS			75 SY
15+81 - 17+38	LT - RT			LS			340 SY
11+17.5	C/L				24		10" CM PIPE CULVERT
15+22	C/L				25		10" CM PIPE CULVERT
15+63 TO 15+83	12 LT				20		8-10" CM PIPE CULVERT
16+87	RT					34	DRIVEWAY # 2125
15+50	LT						ADDRESS # 2130
		4	4		69	34	

B — SUBBASE, AGGREGATE BASE AND BITUMINOUS

				SELECT		SHOULDER	PLANT MIXED BITUMINOUS	
				GRANULAR	AGGREGATE	BASE	TYPE SP 9.5	GEOTEXTILE
				BORROW	BASE	AGGREGATE	WEARING COURSE	FABRIC
			DRIVEWAY	7% MODIFIED (P)	CLASS 5 (P)	CLASS 4	MIXTURE (2,C)	TYPE V (P)
STATION	LT / RT	ADDRESS	AREA	2105	2211	2221	2350	2105
				CU YD	CU YD	CU YD	TON	SQ YD
100+00 TO 114+28.27				700.0	400		345	1860.0
11+95	L	502 CLAYMORE						
16+75	L	2130						
16+87	R	2125						
				700.00	400.00		345.00	1860.00

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.

SIGNATURE: _____ DUNCAN SCHWENSOHN (TYPE NAME)

DATE: 04/05/2017

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542 | STATE AID PROJECT NO.: NA

DRAWN BY: DJK

CHARTS – NOTES

SHEET NO. 2 OF 18

I:\PW\ENGINEER\PROJECTS\1500-1999\1542_Whittier_St_Reconstruction\20-DRAWINGS\1542_SEQ.dwg

C — PROPOSED DRAINAGE ITEMS

			12" RC PIPE CULVERT CLASS III	DRAINAGE SYSTEM TYPE -SPECIAL	12" RC PIPE APRON	RANDOM RIPRAP CLASS II	INLET	OUTLET	
STATION	OFFSET	L / R	2501.511	2502.502	25010.515	2511.501	INVERT	INVERT	REMARKS
			LIN FT	LS	EACH	CU YD	ELEV	ELEV	
11+44		CL	25		2	3	1317.24	1316.88	TIED ENDS
15+75	17	LT	25		2	3	1314.16	1314.00	TIED ENDS
AS DIRECTED				1 *					
		TOTALS	**50**	**1**	**4**	**6**			

* DRAINAGE SYSTEM TYPE SPECIAL INCLUDES (100 LF) X 4" PERFORATED PIPE, CONCRETE HEADWALLS, ROCK AND FABRIC.

D — EROSION CONTROL / TURF RESORATION

					SEDIMENT	EROSION	
				CULVERT	CONTROL LOG	CONTROL	
			SILT FENCE	END	TYPE	BLANKETS	
			TYPE PA	CONTROLS	WOOD FIBER	CATEGORY 3	
STATION	OFFSET	L / R	2573.502	2573.560	2573.533	2575.523	REMARKS
			LIN FT	EACH	LIN FT	S. Y.	
10+37 - 11+88		LT				126	
10+44 - 13+36		RT	312			180	
11+44	17	LT		1			C/L CULVERT
12+14 - 15+60		LT				386	
14+45 - 16+63		RT	223			71	
15+56	17	LT		1			DRIVEWAY CULVERT
15+83 - 17+50		RT				193	
17+42 - 17+60		LT - RT	48				
VARIES					100 *		AS DIRECTED
		TOTALS	583	2.00	0.00	956.00	

* SEDIMENT CONTROL LOG TYPE - WOOD FIBER INCLUDES STAKING MATERIALS

E — SALVAGE

		SALVAGE AND RE-INSTALL MAILBOX STRUCTURE	SALVAGE AND RE-INSTALL STREET SIGN	
STATION				REMARKS
(ADDRESS) / STATION		2104.523	2564.537	
	L / R	EACH	EACH	
10+70	LT		1.00	DEAD END (W14-1) 30" x 30"
(2130) / 15+30	LT	1.00		TEMPORARY MOUNTING REQUIRED *
	TOTAL	**1**	**1**	

* THE CONTRACTOR SHALL PROVIDE A TEMPORARY LOCATION FOR THE SALVAGED MAILBOX, AND MAINTAIN ACCESS FOR THE MAIL CARRIER.

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.

SIGNATURE: Duncan C. Schwensohn

DUNCAN SCHWENSOHN
TYPE NAME

DATE: 04/05/2017

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542 | STATE AID PROJECT NO.: NA

DRAWN BY: DJK

CHARTS – NOTES

SHEET NO. 3 OF 18

I:\PW\ENGINEER\PROJECTS\1500-1999\1542_Whittier_St_Reconstruction\20-DRAWINGS\1542_SEQ.dwg

CONSTRUCTION NOTES

1. MNDOT STANDARD 2016 SPECIFICATIONS FOR CONSTRUCTION SHALL APPLY.
2. WITHIN THE PLAN WHENEVER THE WORD "INCIDENTAL" IS USED IT SHALL MEAN NO DIRECT PAYMENT WILL BE MADE FOR THAT ITEM.
3. WHENEVER THE WORD "MIN" IS USED IN THIS PLAN, IT SHALL MEAN MINIMUM.
4. THE CONTRACTOR SHALL NOT STORE MATERIAL OUTSIDE THE PLANNED CONSTRUCTION LIMITS UNLESS APPROVED BY THE ENGINEER.
5. EMBANKMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF DULUTH STANDARD SPECIFICATIONS, MN/DOT SPECIFICATION 2106 AND PROJECT SPECIAL PROVISIONS.
6. THE CONTRACTOR SHALL PRESERVE ALL LAND AND PROPERTY CORNERS, VERTICAL AND HORIZONTAL CONTROLS AND RIGHT OF WAY MONUMENTS.
7. ALL PIPE LENGTHS AND SLOPES ARE BASED UPON THE DISTANCE FROM ENC OF APRON TO END OF APRON.
8. ALL GAS UTILITY ADJUSTMENTS OR RELOCATIONS SHALL BE COORDINATED WITH THE CITY OF DULUTH ENGINEERING OFFICE.
9. CONTRACTOR SHALL MAKE EVERY EFFORT TO MAINTAIN ACCESS TO LOCAL RESIDENTS DURING CONSTRUCTION OPERATIONS. ONLY SHORT DURATION ROAD CLOSURES WILL BE ALLOWED. PRIOR TO ANY ROAD CLOSURE, CONTRACTOR MUST GET PERMISSION FROM ENGINEER AND PROVIDE 24 PRIOR NOTICE TO RESIDENTS.

MnDOT STANDARD PLATES	
PLATE NO.	DESCRIPTION
3000 L	REINFORCED CONCRETE PIPE
3006 G	GASKET JOINT FOR R.C. PIPE
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3131 C	PECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
3133 D	RIPRAP AT RCP PUTLETS
3145 G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
8000 J	STANDARD BARRICADES
9102 E	TURF ESTABLISHMENT AREAS (AT PIPE CULVERT ENDS)
9350 A	MAILBOX SUPPORT SWING-AWAY TYPE
CITY OF DULUTH STANDARDS	
PLATE NO.	DESCRIPTION
EX-4	CONCRETE STORM SEWER BEDDING
T-2	SIGN INSTALLATION DETAIL

CONSTRUCTION PRACTICES TO MINIMIZE STORM WATER CONTAMINATION

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

1. ALL AREAS THAT ARE ROUGH GRADED MUST BE KEPT IN A SMOOTH CONDITION TO ALLOW SHEET FLOW OF STORM WATER WHEREVER PRACTICAL AND ALWAYS READY FOR SURFACE APPLICATION OF DEGRADABLE OR NON-DEGRADABLE BLANKETS, MULCH, OR OTHER PROTECTIVE COVERS.

2. A STABILIZED CONSTRUCTION ENTRANCE/EXIT WILL BE CONSTRUCTED TO REDUCE VEHICLE TRACKING OF SEDIMENTS OFF THE PROJECT RIGHT OF WAY. ALL SOLID WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER OR OTHER APPROVED CONTAINMENT METHOD AT THE END OF EACH DAY. ANY ALTERNATIVE TO A METAL DUMPSTER MUST BE SUBMITTED IN WRITING FOR APPROVAL BY THE PROJECT ENGINEER.

3. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED AS NECESSARY TO FUNCTION AS INTENDED FOR DEBRIS COLLECTION.

5. NO CONSTRUCTION MATERIALS WILL BE BURIED ON-SITE. THE CONTRACTOR'S EROSION CONTROL SUPERVISOR WILL INSTRUCT ALL PERSONNEL REGARDING THE CORRECT PROCEDURE FOR DISPOSAL. RECYCLABLE MATERIALS MUST BE SEPARATED ON-SITE AND SEGREGATED IN DESIGNATED CONTAINERS.

6. A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR WILL COLLECT ALL SANITARY WASTE FROM THE PORTABLE UNITS AT A RATE NECESSARY TO MAINTAIN DESIGNED FUNCTION. ALL VEHICLES ON SITE WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE.

7. FERTILIZERS WILL BE STORED IN A COVERED SHED AND PARTIALLY USED BAGS WILL BE TRANSFERRED TO A SEALABLE BIN TO REDUCE THE CHANCE OF SPILLAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS, WHICH ARE CLEARLY LABELED. SPILL KITS WILL BE INCLUDED WITH ALL FUELING SOURCES AND MAINTENANCE ACTIVITIES.

8. SECONDARY CONTAINMENT MEASURES WILL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR. ANY ASPHALT SUBSTANCES USED ON SITE WILL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. ALL PAINT CONTAINERS AND CURING COMPOUNDS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE.

9. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM WATER SYSTEM BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTION. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEAN-UP SHALL BE READILY AVAILABLE AND BE KEPT IN AN ENCLOSED TRAILER OR SHED ON SITE.

10. EQUIPMENT WILL INCLUDE, BUT NOT LIMITED TO, BROOMS, MOPS, DUST PANS, RAGS, GLOVES, GOGGLES, ABSORBENT (KITTY LITTER, OIL ABSORBENT BOOMS AND DIAPERS) AND BUCKETS. ALL SPILLS WILL BE CONTAINED AND CLEANED UP IMMEDIATELY UPON DISCOVERY. SPILLS LARGE ENOUGH TO REACH THE STORM WATER CONVEYANCE SYSTEM WILL BE REPORTED TO THE MINNESOTA DUTY OFFICER AT 1-800-422-0798. CONCRETE TRUCKS WILL NOT BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON THE SITE UNLESS DONE IN AN ENGINEERED CONTAINMENT SYSTEM. THE ENGINEERED SYSTEM MUST INCLUDE SITE DRAWINGS FOR THE PROJECT FILE AND WRITTEN ASSURANCE THAT THE SYSTEM WILL WORK AS DESIGNED AND LEAVE NO DISCHARGE OF CONCRETE OR CONCRETE RESIDUE POTENTIAL TO ENTER WATERS OF THE STATE. FORM RELEASE OIL USED FOR CONCRETE WORK MUST BE APPLIED OVER A PALLET CONTAINING ABSORBENT TO COLLECT EXCESS LIQUID.

11. THE ABSORBENT MATERIAL WILL BE REPLACED AND PROPERLY DISPOSED OF WHEN SATURATED. DISCHARGES FROM BASIN DEWATERING OPERATIONS THAT ARE TURBID OR SEDIMENT LADEN SHALL BE DISCHARGED TO TEMPORARY SEDIMENT BASINS CONSTRUCTED ON THE SITE TO PROVIDE TREATMENT PRIOR TO DISCHARGE TO A WATER OF THE STATE.

I:\PWU\ENGINEER\PROJECTS\1500-1999\1542_Whittier_St_Reconstruction\20-DRAWINGS\1542_C_NOTES.dwg

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SIGNATURE: Duncan C. Schwensohn

DUNCAN SCHWENSOHN
TYPE NAME

DATE: ########

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542

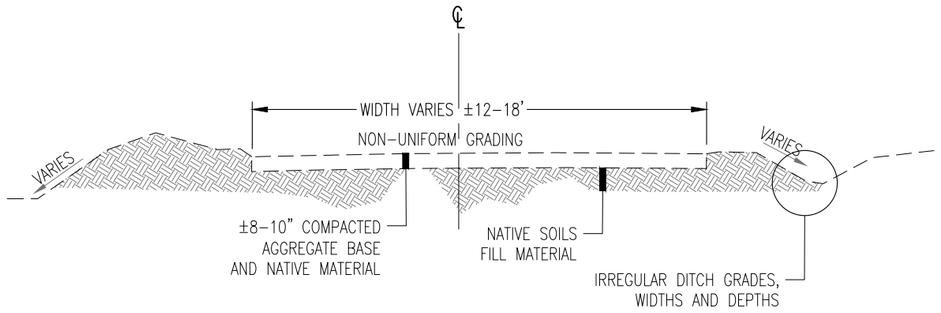
STATE AID PROJECT NO.:

DRAWN BY: DJK

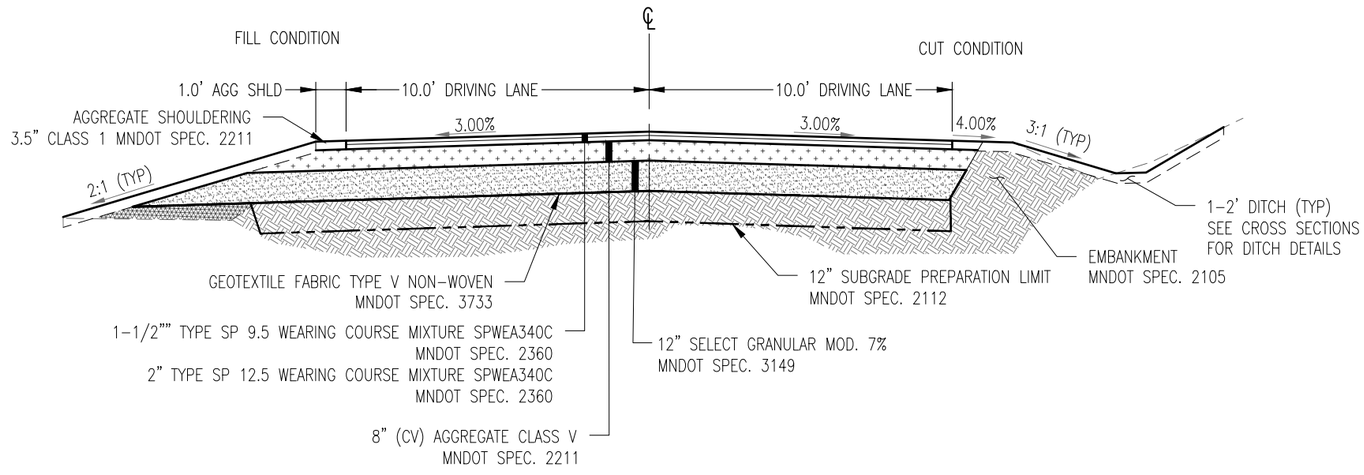
CONSTRUCTION NOTES

SHEET NO. # OF ###

WHITTIER STREET
EXISTING TYPICAL SECTION



WHITTIER STREET
PROPOSED TYPICAL SECTION



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DATE: 2017

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542

STATE AID PROJECT NO.:

DRAWN BY: DJK

TYPICAL SECTIONS

SHEET NO. 3 OF 15

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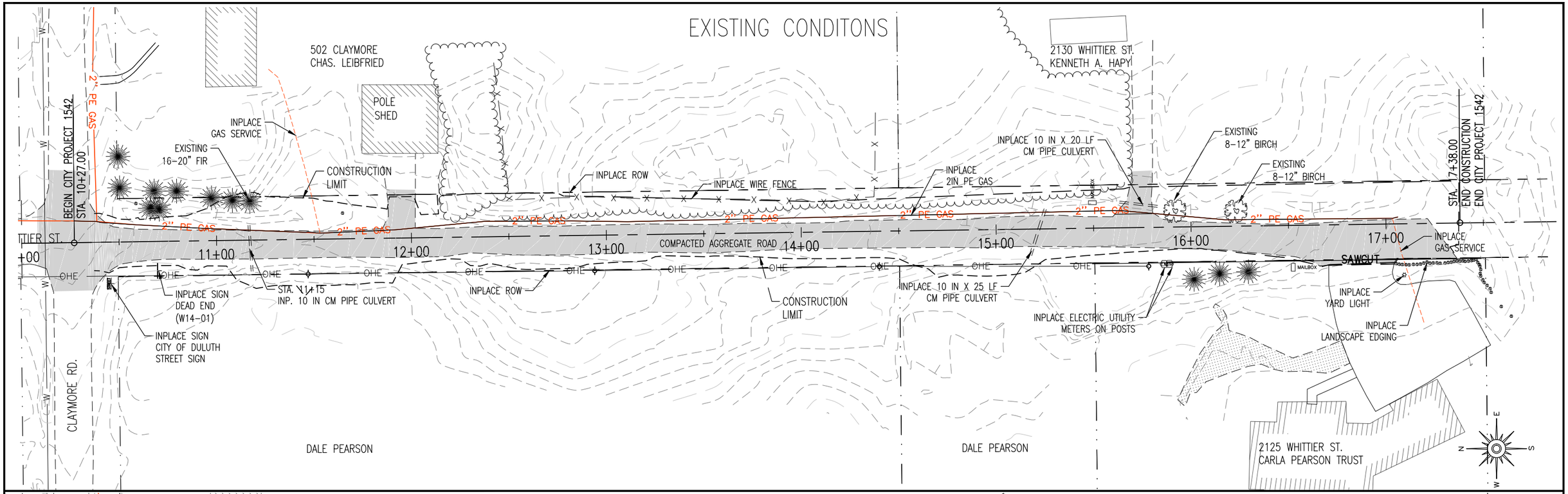
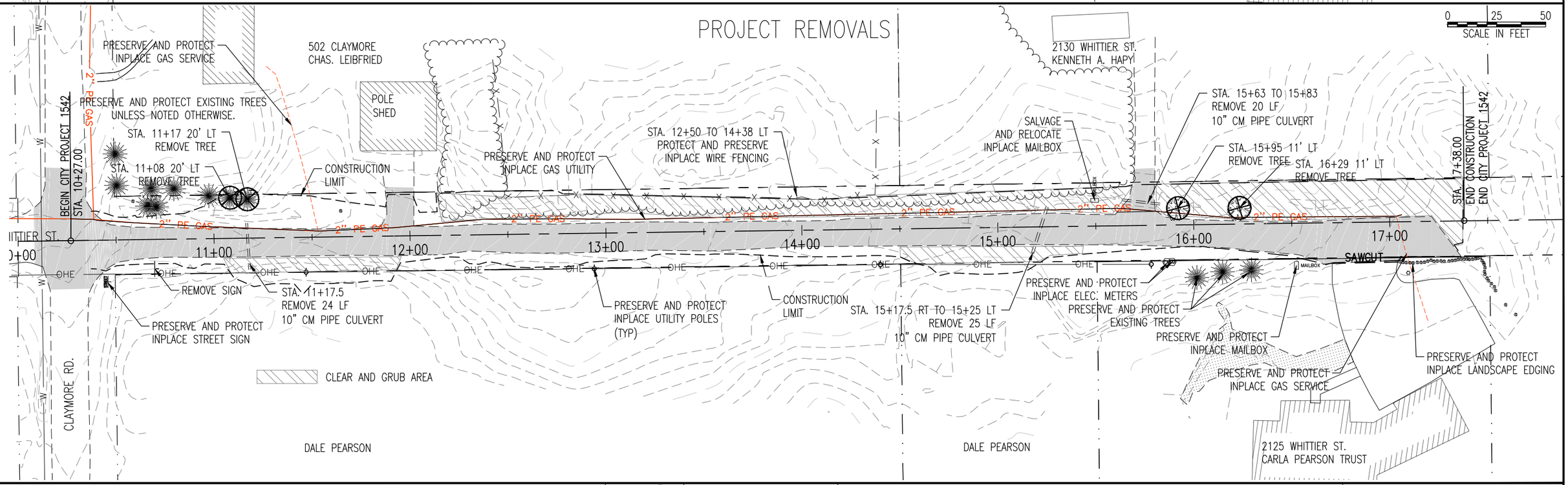
EXISTING CONDITONS



PROJECT REMOVALS



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SIGNATURE: _____ DATE: 04/05/2017

DUNCAN SCHWENSOHN (TYPE NAME) LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542 STATE AID PROJECT NO.: NA

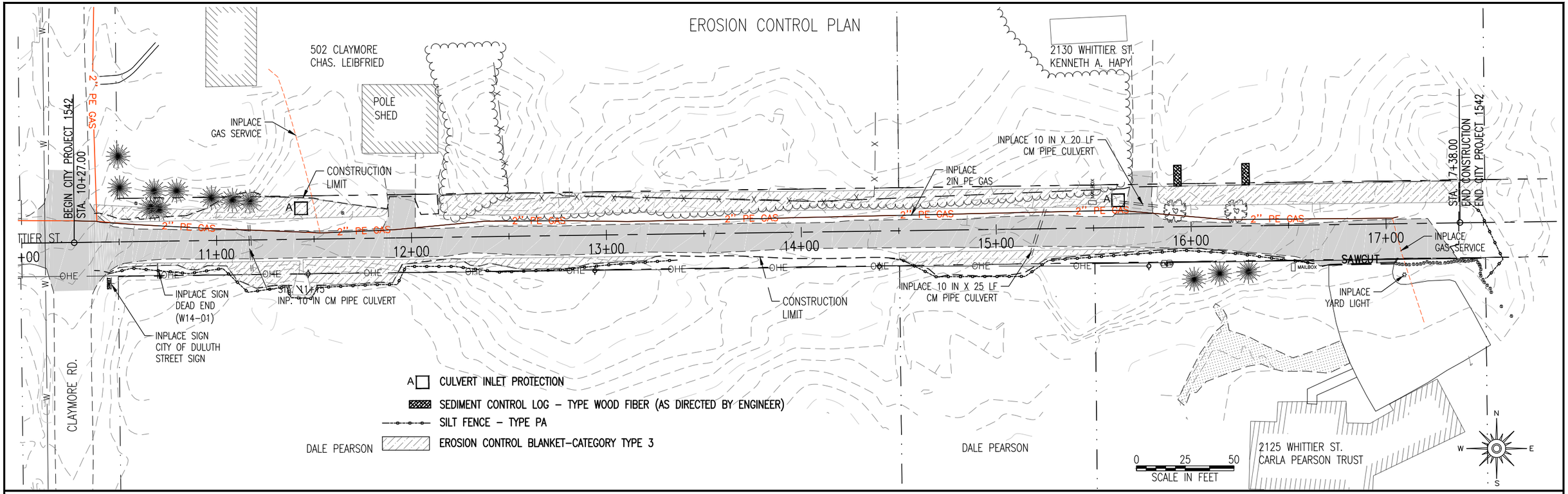
DRAWN BY: DJK

INPLACE TOPO – REMOVALS

SHEET NO. 6 OF 18

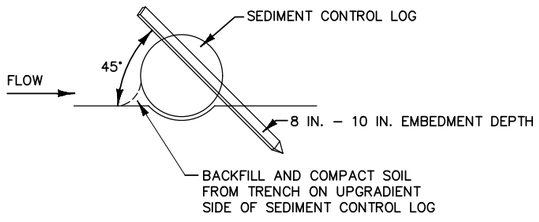
I:\PW\ENGINEER\PROJECTS\1500-1999\1542_Whittier_St_Reconstruction\20-DRAWINGS\1542_Rmvl.dwg

EROSION CONTROL PLAN



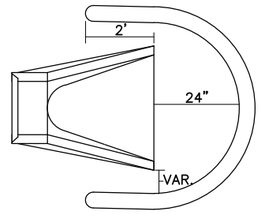
EROSION CONTROL DETAILS

1 IN. X 2 IN. X 24 IN. LONG WOODEN STAKES.
STAKES SHALL BE DRIVEN THROUGH THE BACK HALF OF THE SEDIMENT CONTROL LOG AT AN ANGLE OF 45 DEGREES WITH THE TOP OF THE STAKE POINTING UPSTREAM.



SEDIMENT CONTROL LOG TYPE – WOOD FIBER

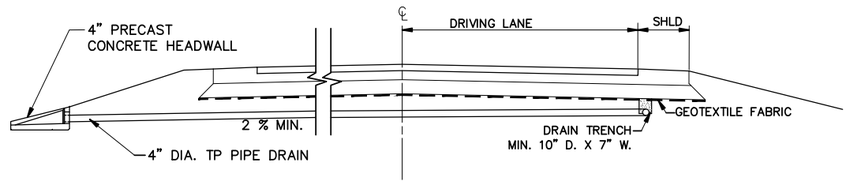
PLACE SEDIMENT CONTROL LOG IN SHALLOW TRENCH (1 TO 2 IN. DEPTH)



CULVERT INLET CONTROL

SEDIMENT CONTROL LOG WEIR (WOOD FIBER)

SUBSURFACE DRAIN DETAIL



SECTION VIEW

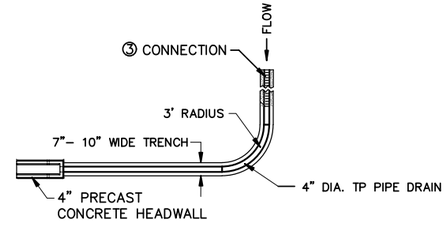
TYPICAL EDGE DRAIN AND DISCHARGE CROSS SECTION ①②
(LOCATION WILL BE DETERMINED BY ENGINEER)

NOTES:

① THE UPSTREAM ENDS OF THE PERFORATED PIPE SHALL BE CAPPED AS APPROVED BY THE PROJECT ENGINEER, THE CAPS ARE INCIDENTAL. PLACE PERFORATED PIPE WITH THE PERFORATIONS DOWN.

② ALL PERFORATED PIPE, CAPS, CONNECTORS, ELBOWS AND HEADWALLS ARE PAID FOR AS SPEC. 2502, 4 INCH DIA. TP PIPE DRAIN.

③ DETAILS OF CONNECTION AND COUPLING TO PIPE SHALL BE APPROVED BY THE ENGINEER.



TYPICAL PLAN VIEW (SINGLE DISCHARGE)①②
(LOCATION WILL BE DETERMINED BY ENGINEER)

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.

SIGNATURE: _____ DATE: 04/05/2017

DUNCAN SCHWENSOHN (TYPE NAME) LIC. NO: 45486

Sediment CONTROL logs

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542 | STATE AID PROJECT NO.: NA

DRAWN BY: DJK

EROSION CONTROL PLAN

SHEET NO. 7 OF 18

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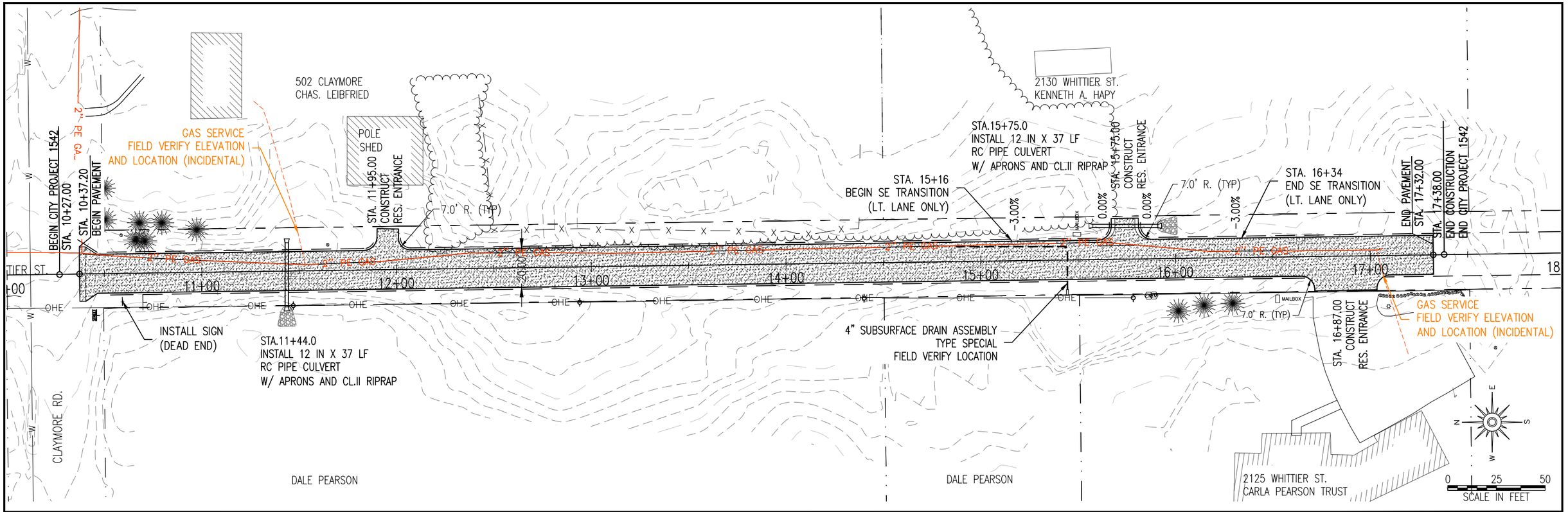

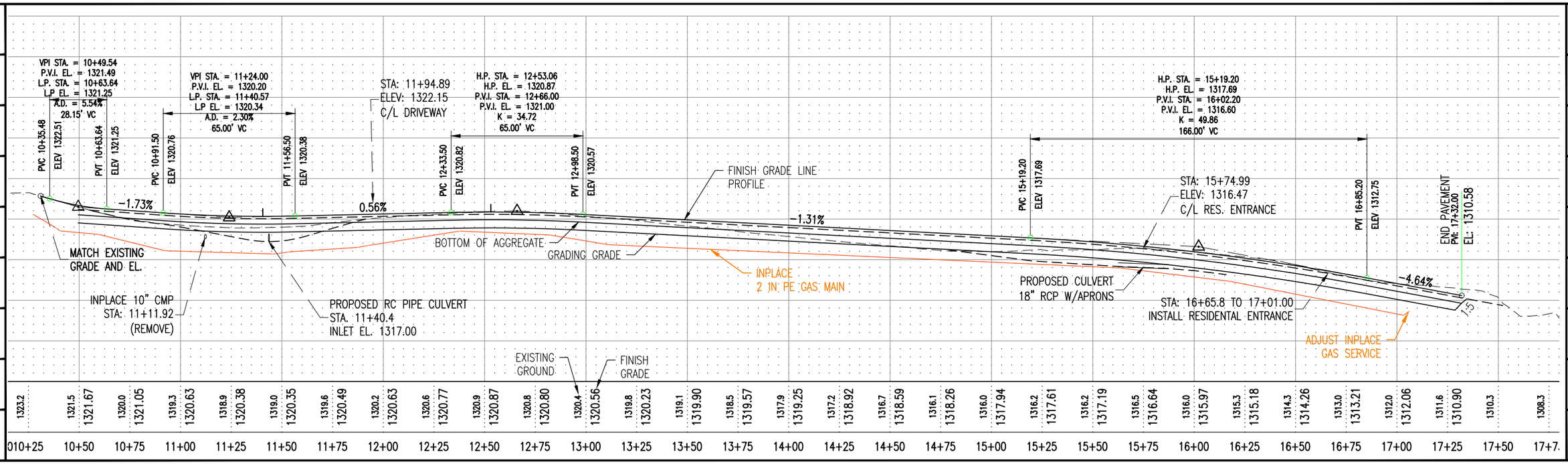

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SIGNATURE: _____ DUNCAN SCHWENSOHN (TYPE NAME)

DATE: 04/05/2017

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542

STATE AID PROJECT NO.: NA

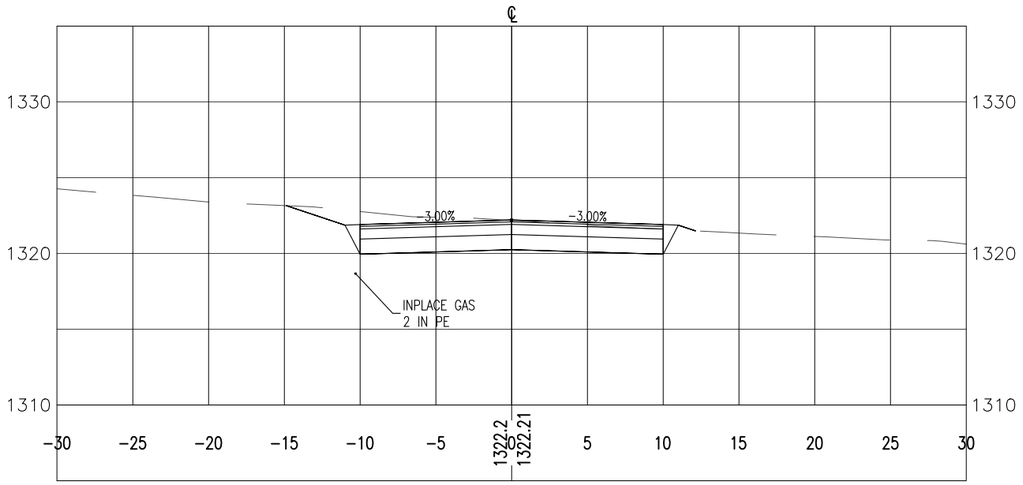
DRAWN BY: DJK

PROPOSED CONSTRUCTION

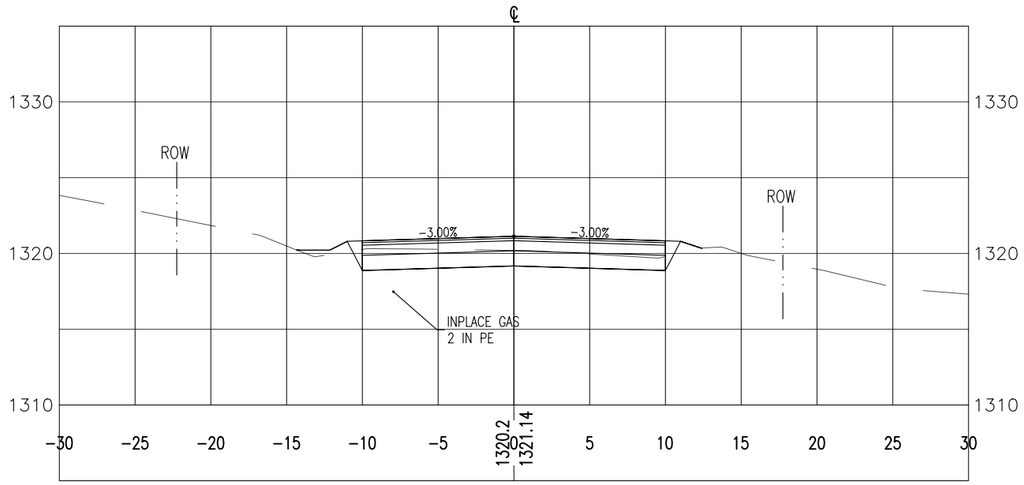
SHEET NO. 8 OF 18

I:\PW\ENGINEER\PROJECTS\1500-1999\1542_Whittier_St_Reconstruction\20-DRAWINGS\1542_Prop.dwg

10+40



10+70



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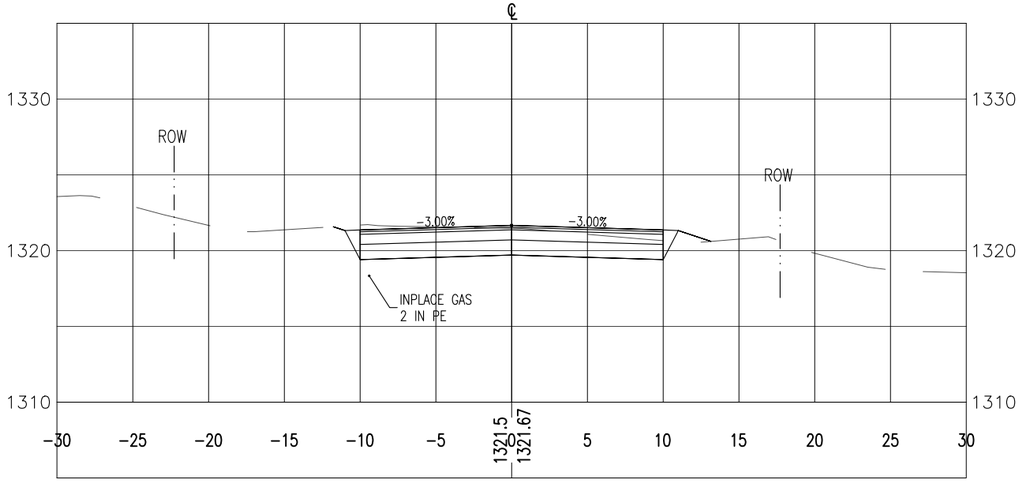

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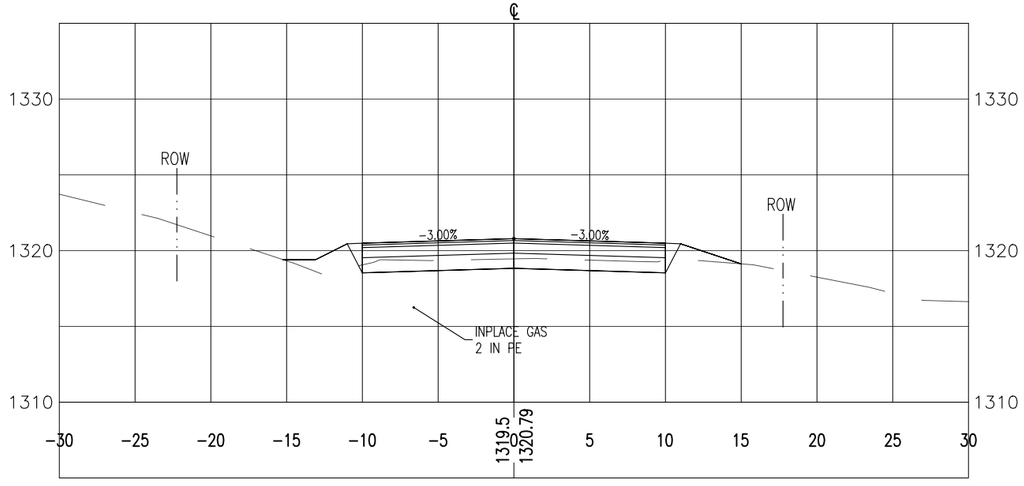

I:\PWU\ENGINEER\PROJECTS\1500-1999\1542_Whittier_St_Reconstruction\20-DRAWINGS\1542_cCorr.dwg

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SIGNATURE: Duncan C. Schwensohn

DUNCAN SCHWENSOHN
TYPE NAME

DATE: 04/05/2017

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542

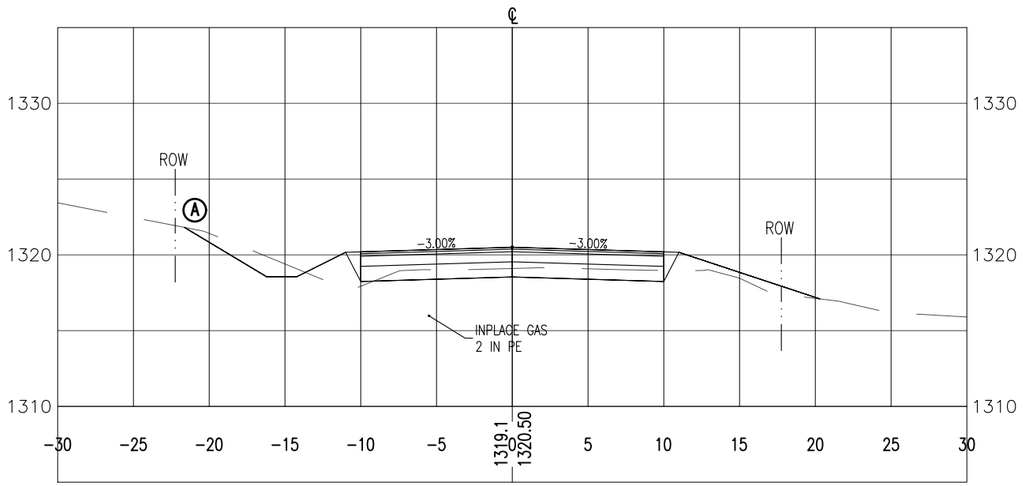
STATE AID PROJECT NO.:

DRAWN BY: DJK

XS STA 10+40 TO 10+90

SHEET NO. 9 OF 18

11+10



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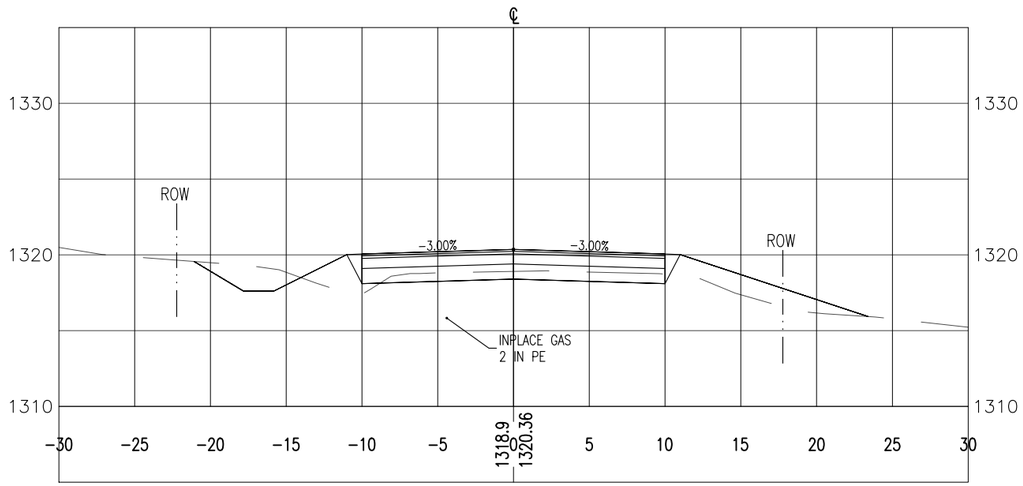

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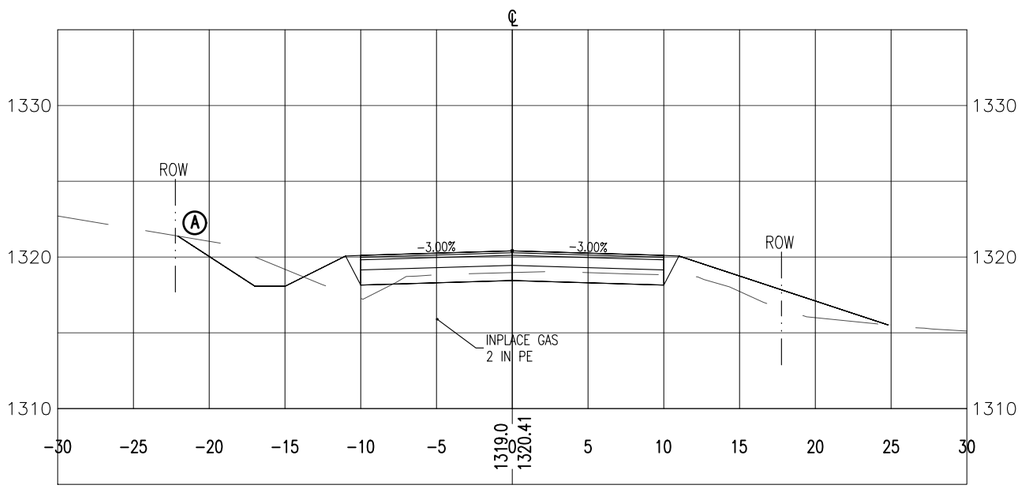

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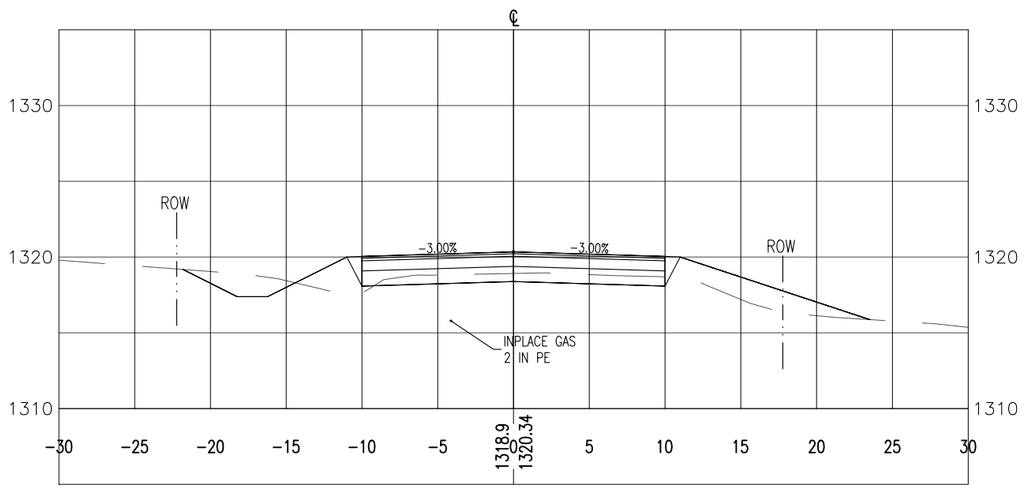

KEY NOTE

Ⓐ KEEP TOP OF SLOPE 1' INSIDE RIGHT OF WAY

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DUNCAN SCHWENSOHN
TYPE NAME

DATE: 2017

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER ST. RECONSTRUCT

CITY PROJECT NO.: 1542

STATE AID PROJECT NO.:

DRAWN BY: DJK

XS STA 11+10 TO 11+35

SHEET NO. 10 OF 18

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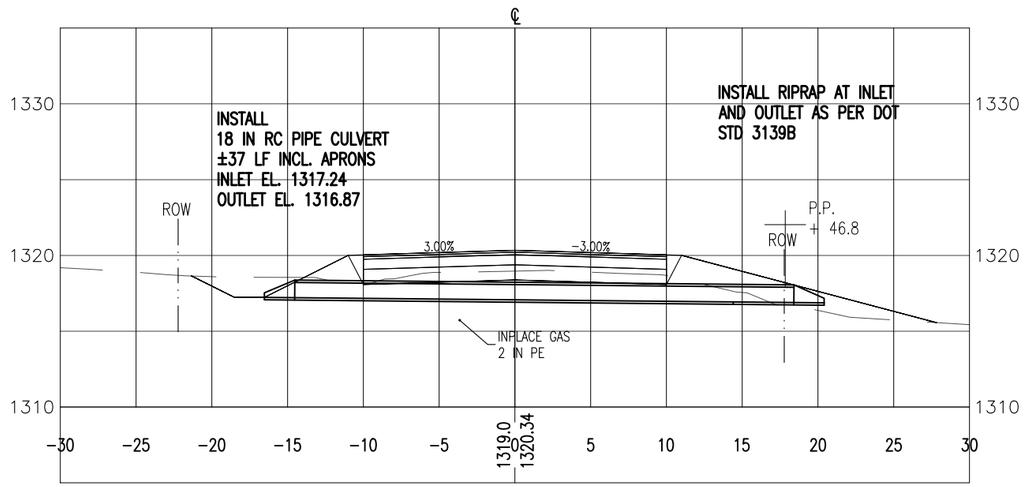
11+44



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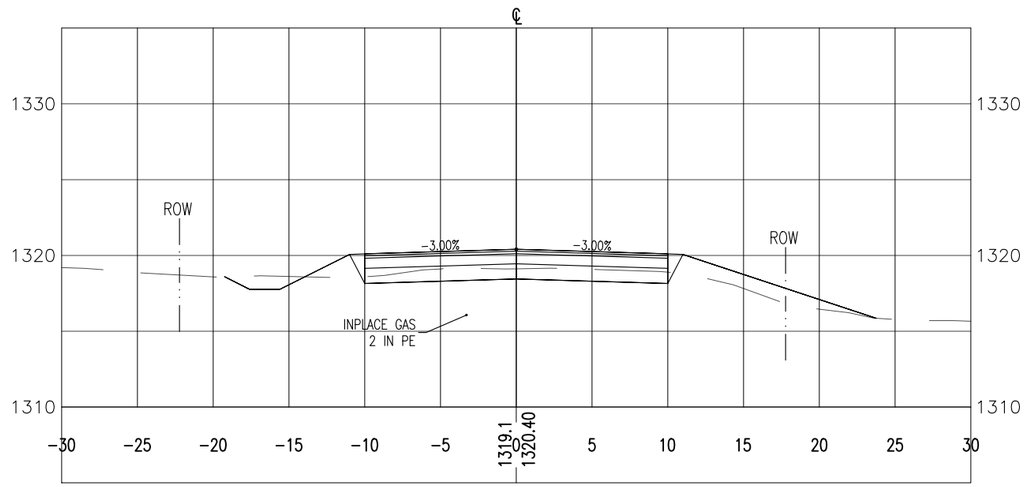

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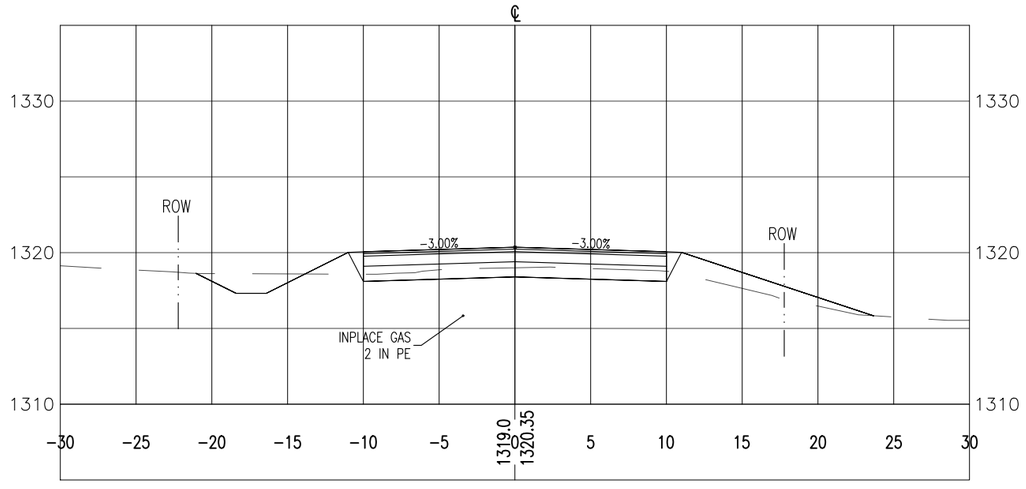
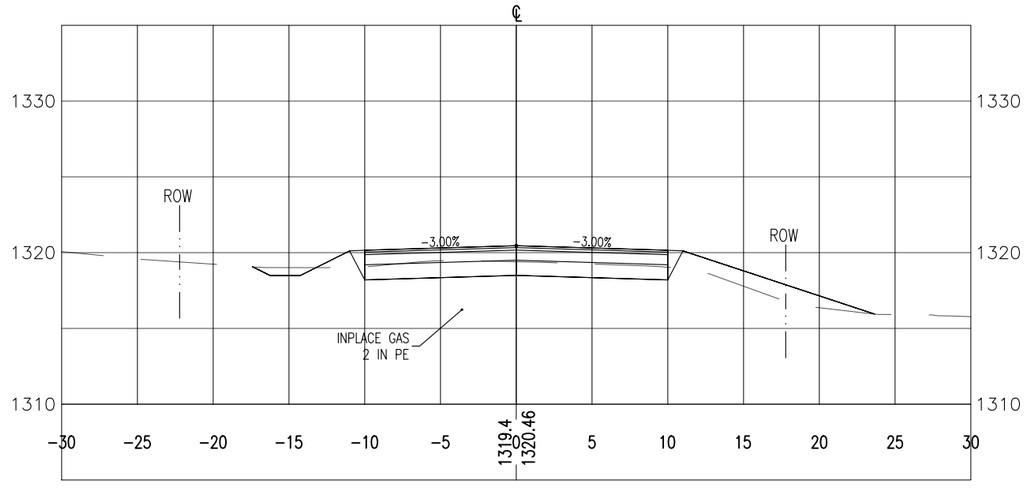


11+70



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411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542

STATE AID PROJECT NO.:

DRAWN BY: DJK

XS STA 11+44 TO 11+70

SHEET NO. 11 OF 18

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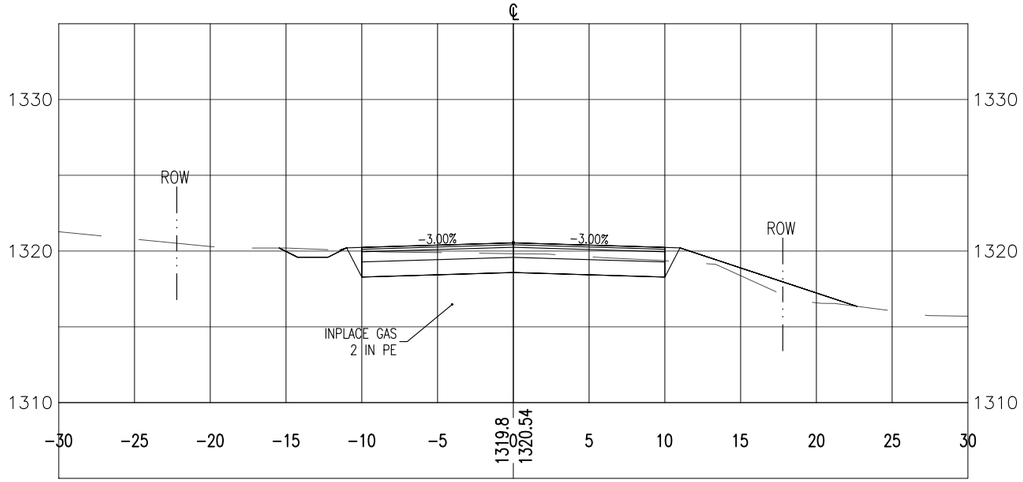
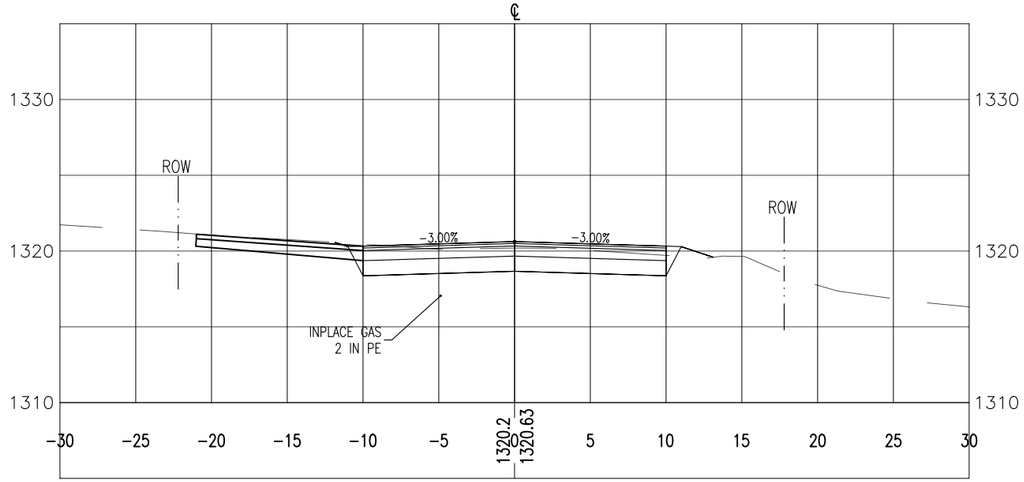
11+85



12+00



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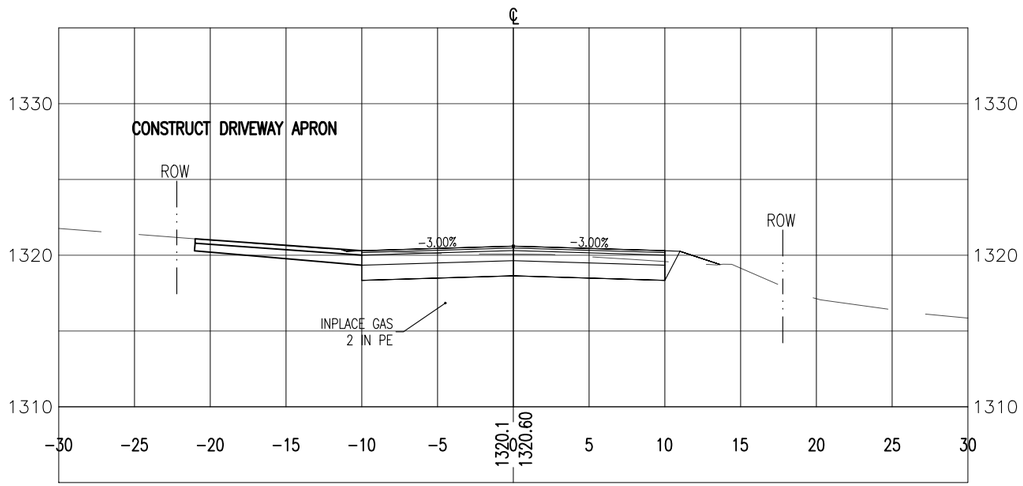

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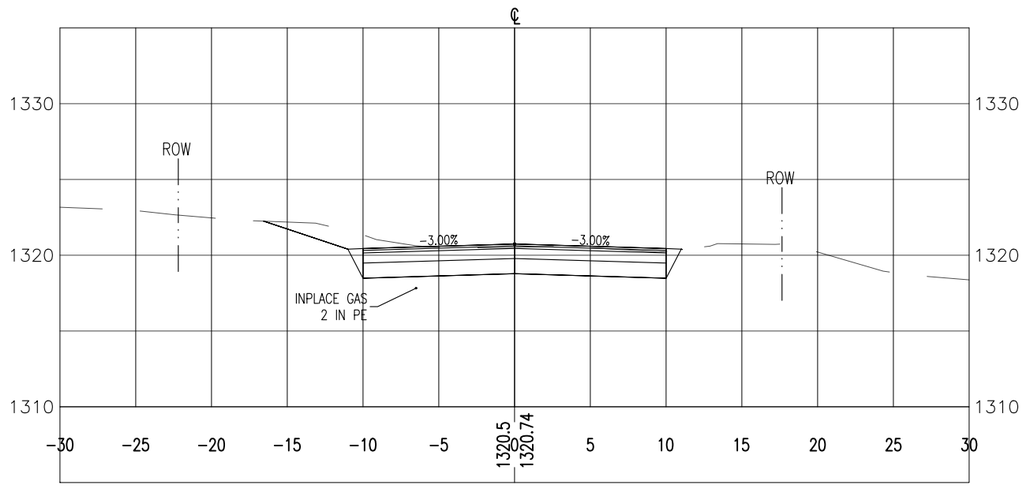

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DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542

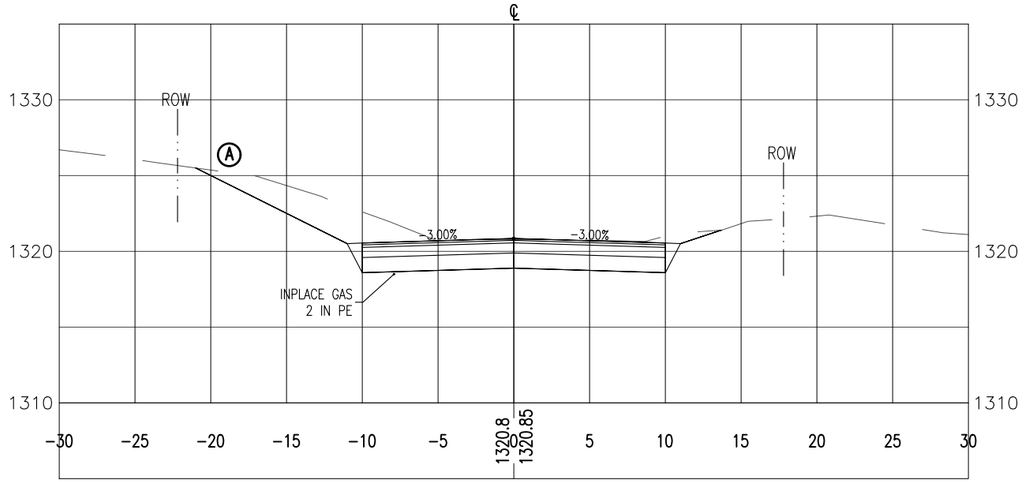
STATE AID PROJECT NO.:

DRAWN BY: DJK

XS STA 11+85 TO 12+20

SHEET NO. 12 OF 18

12+40



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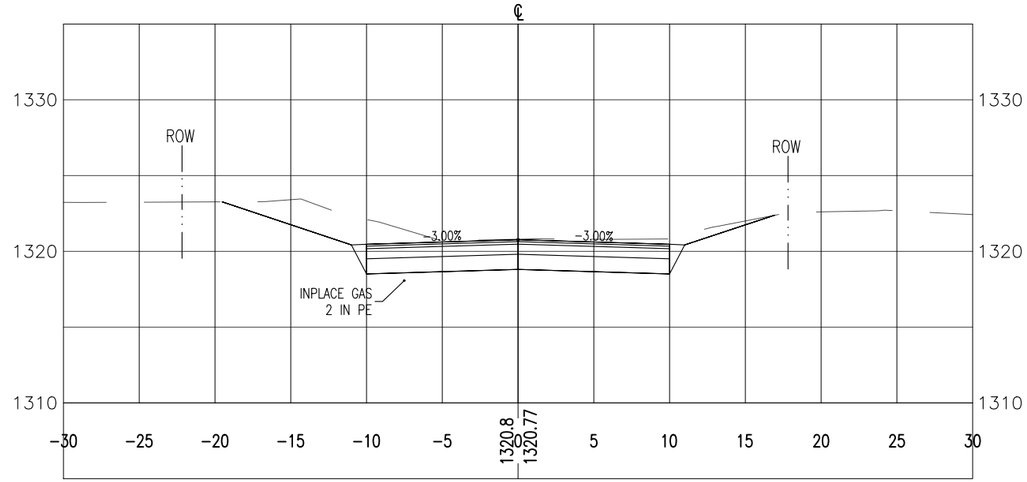

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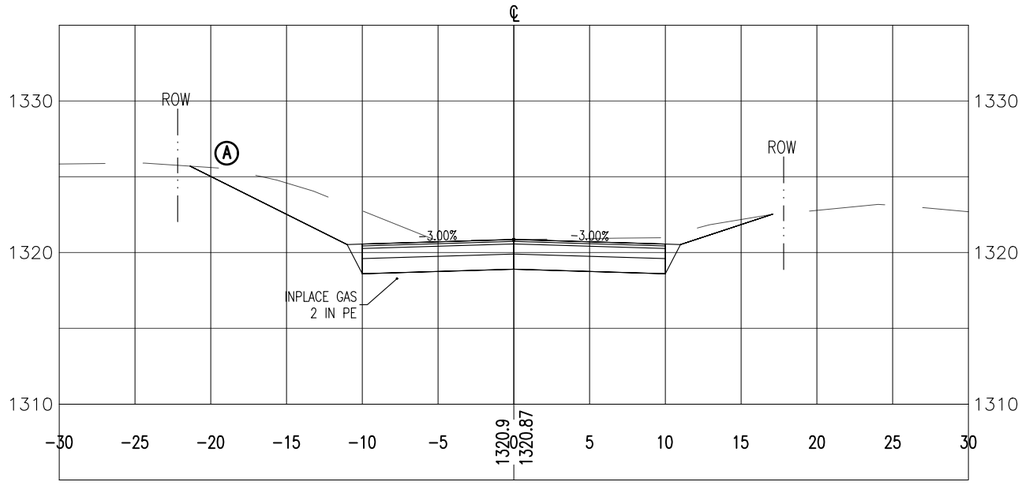

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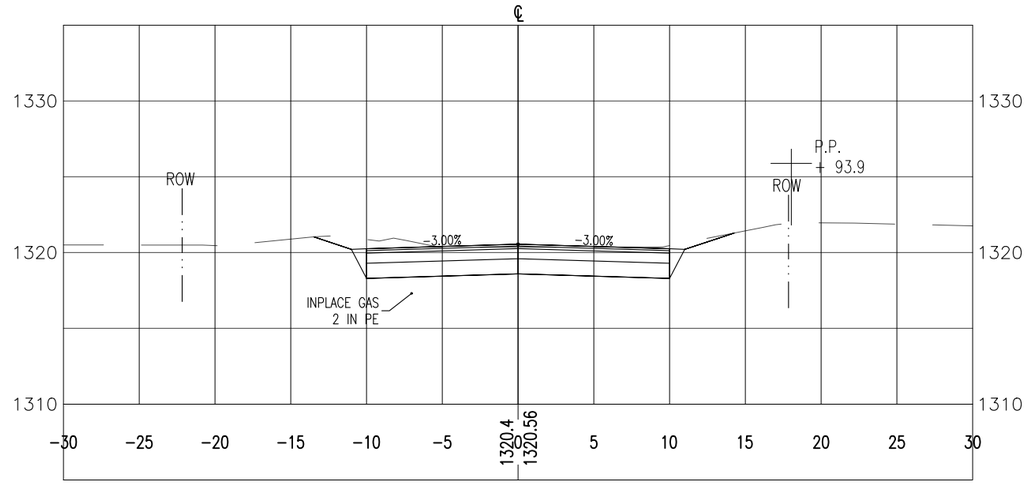

KEY NOTE

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DUNCAN SCHWENSOHN
TYPE NAME

DATE: 04/05/2017

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542

STATE AID PROJECT NO.:

DRAWN BY: DJK

XS STA 12+40 TO 13+00

SHEET NO. 13 OF 18

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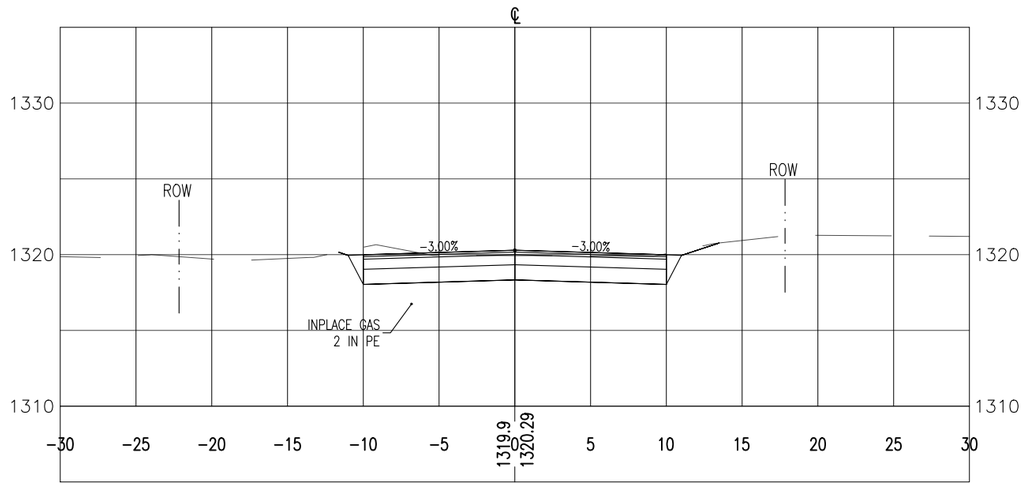
13+20



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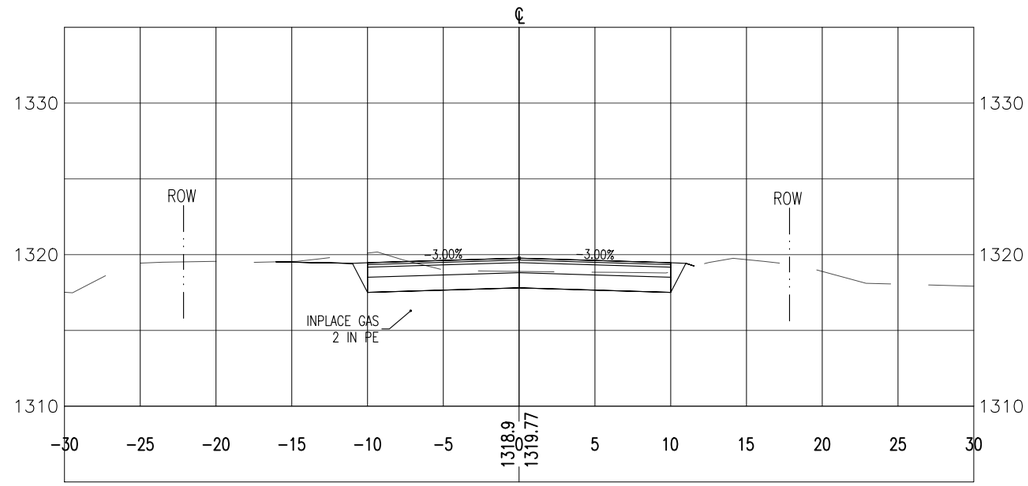

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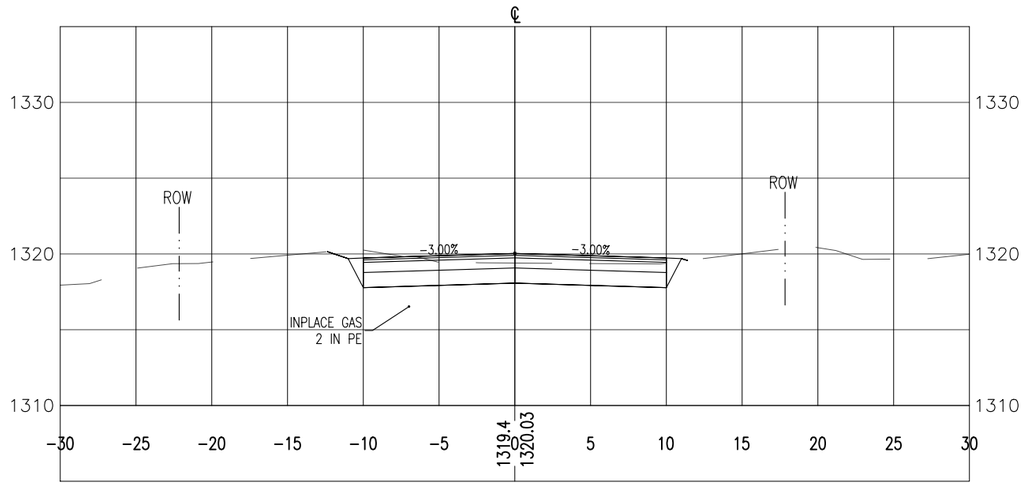

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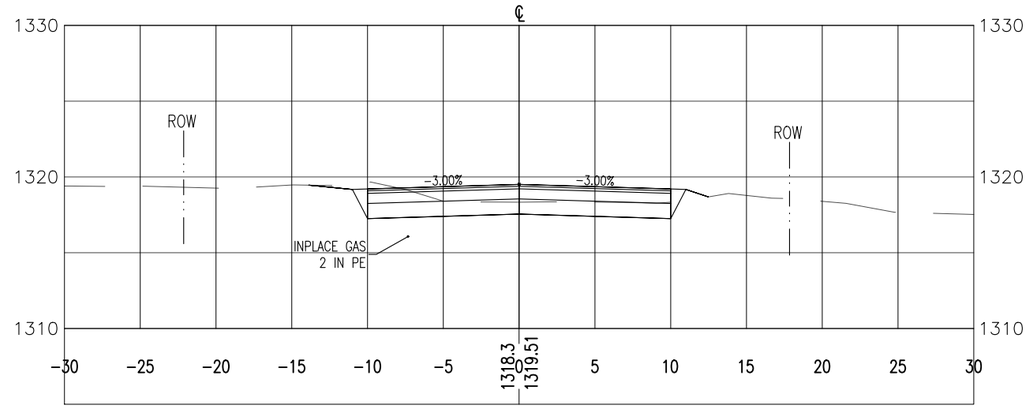

I:\PWU\ENGINEER\PROJECTS\1500-1999\1542_Whittier_St_Reconstruction\20-DRAWINGS\1542_cCorr.dwg

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DATE: 04/05/2017

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542

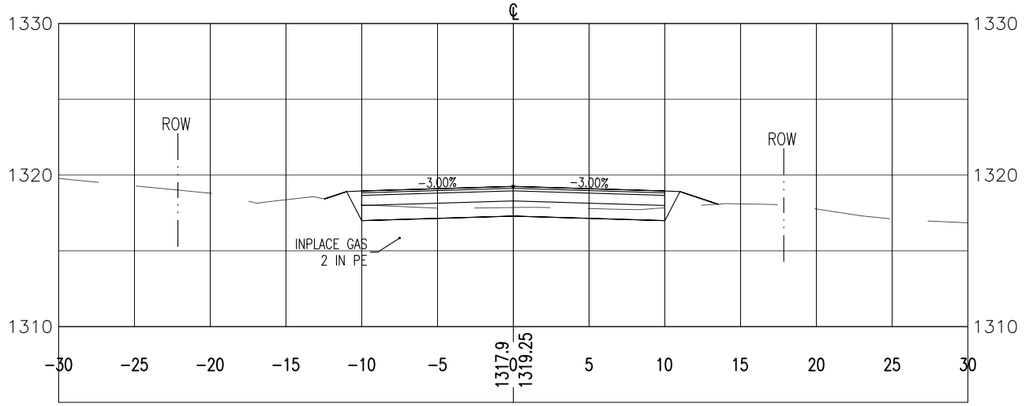
STATE AID PROJECT NO.:

DRAWN BY: DJK

XS STA 13+20 TO 13+80

SHEET NO. 14 OF 18

14+00



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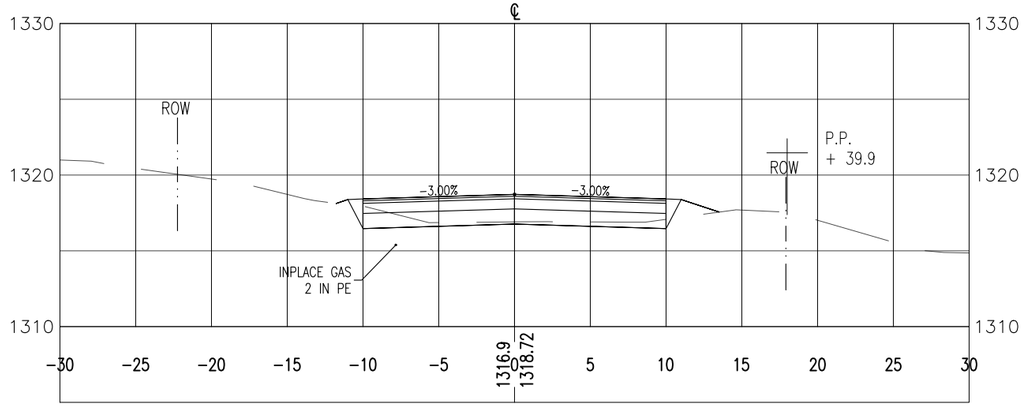

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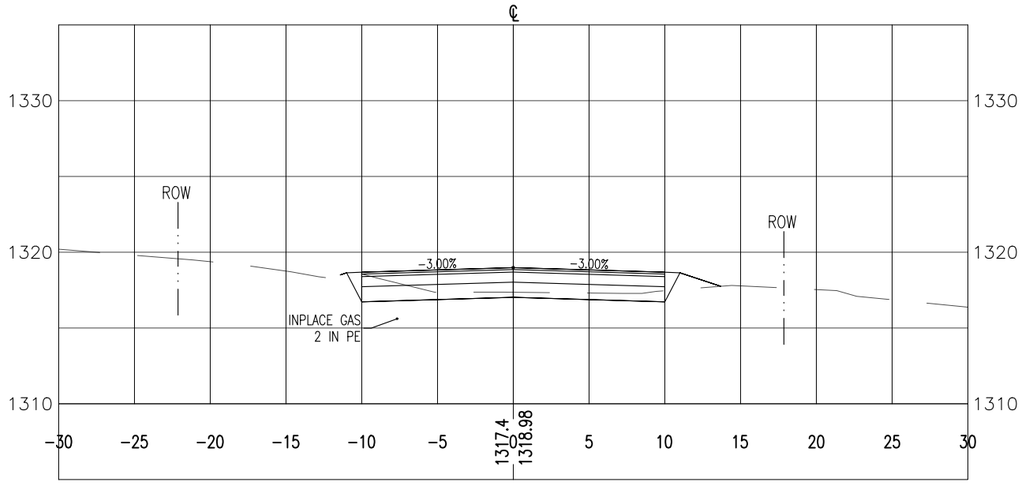

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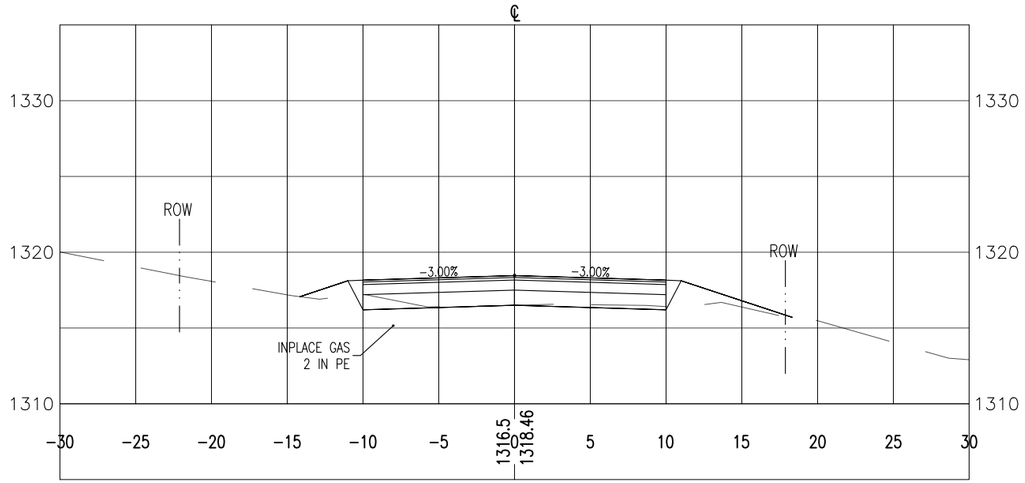

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SIGNATURE: Duncan C. Schwensohn

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TYPE NAME

DATE: 04/05/2017

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542

STATE AID PROJECT NO.:

DRAWN BY: DJK

XC STA 14+00 TO 14+60

SHEET NO. 15 OF 18

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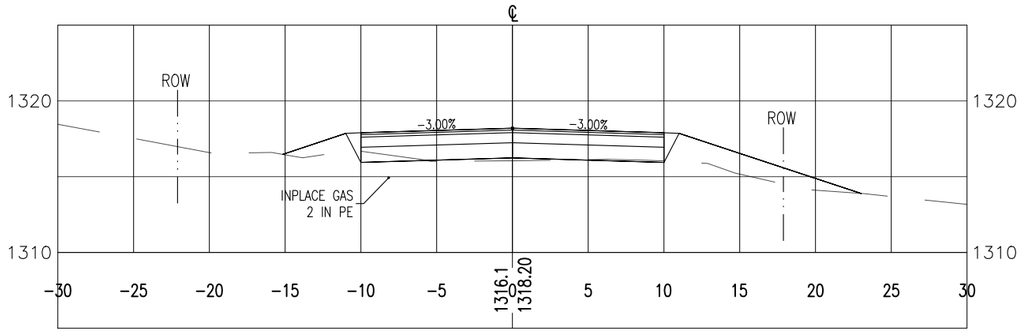
14+80



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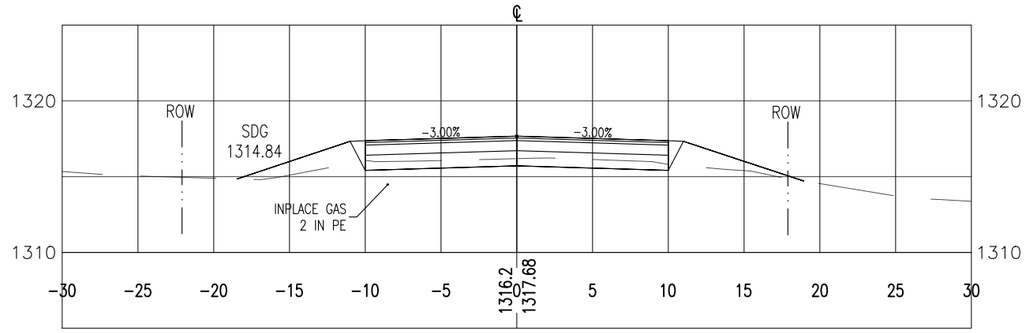

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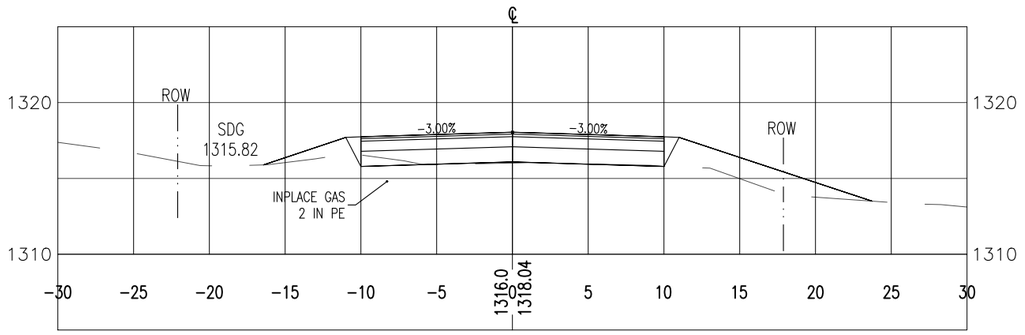

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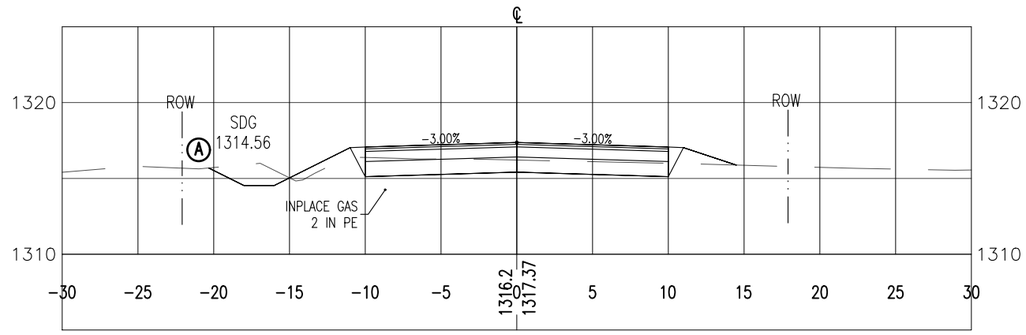

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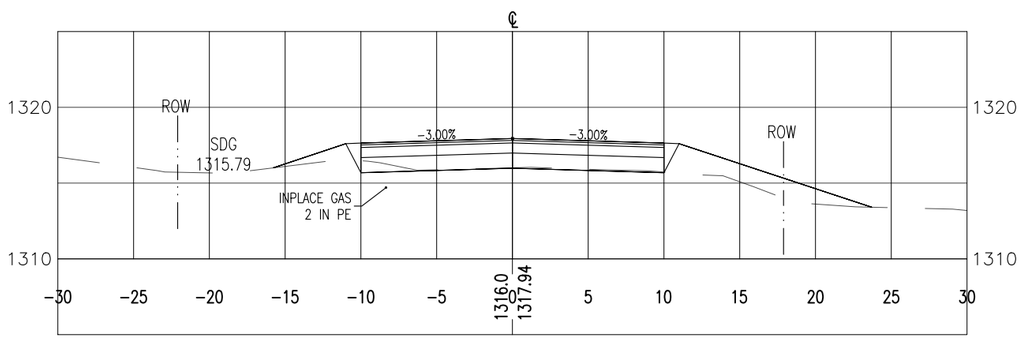

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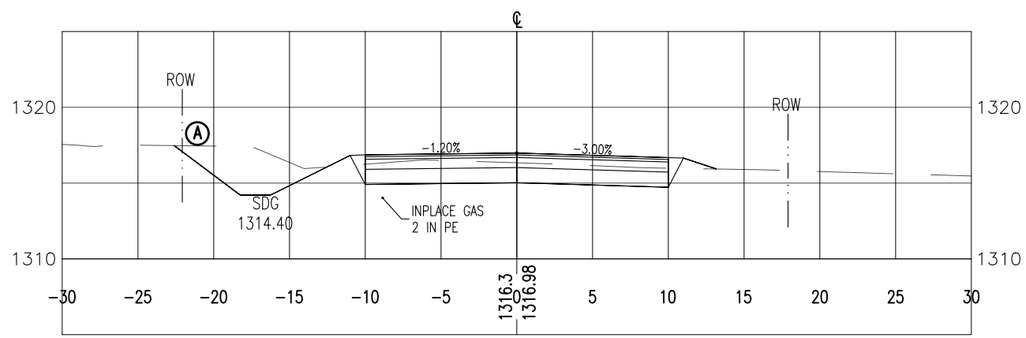

KEY NOTE

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SIGNATURE: Duncan C. Schwensohn

DUNCAN SCHWENSOHN
TYPE NAME

DATE: 04/05/2017

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

WHITTIER STREET RECONSTRUCTION

CITY PROJECT NO.: 1542

STATE AID PROJECT NO.:

DRAWN BY: DJK

XC STA 14+80 TO 15+60

SHEET NO. 16 OF 18

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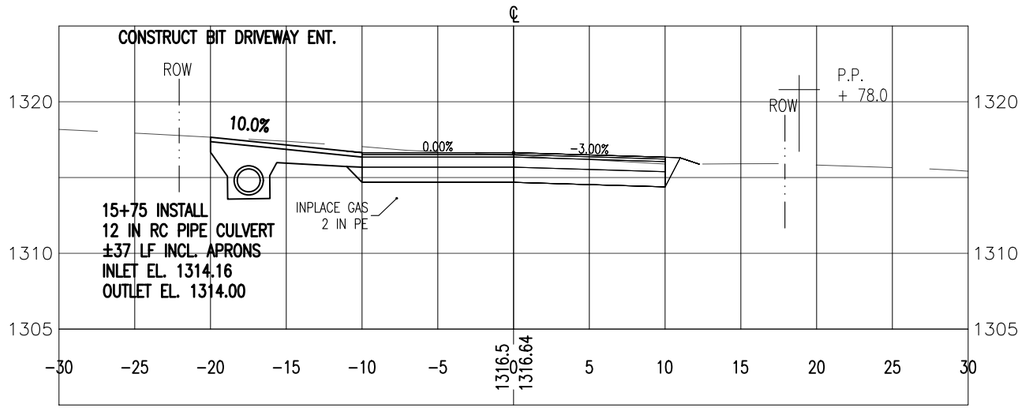
15+75



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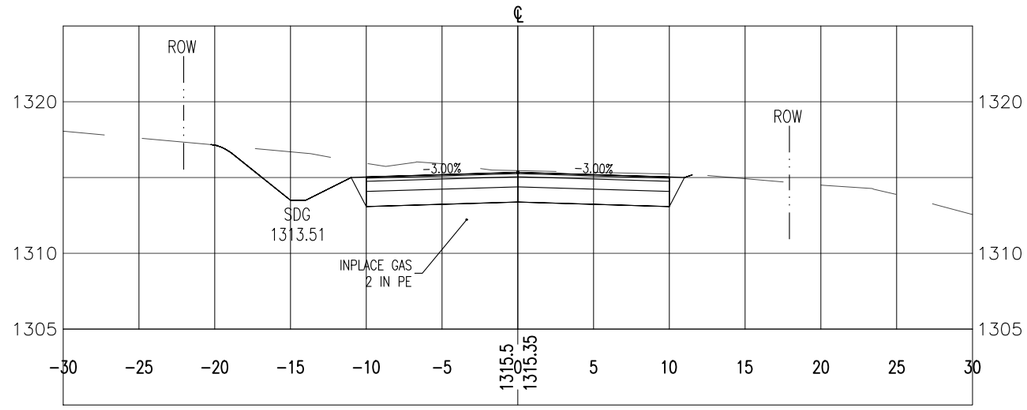

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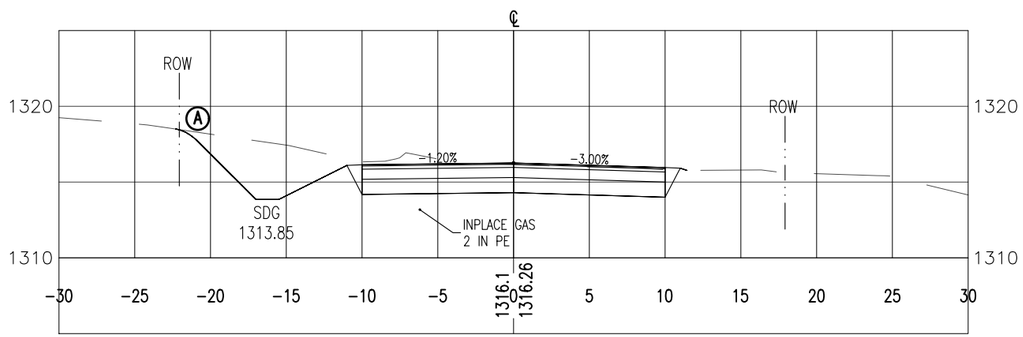

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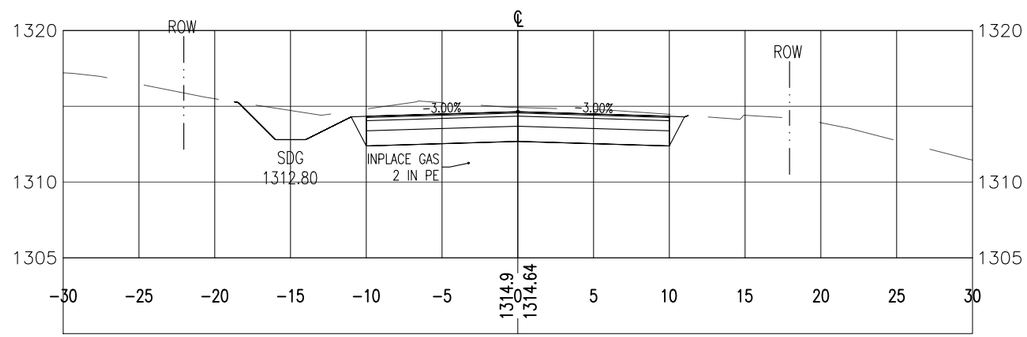

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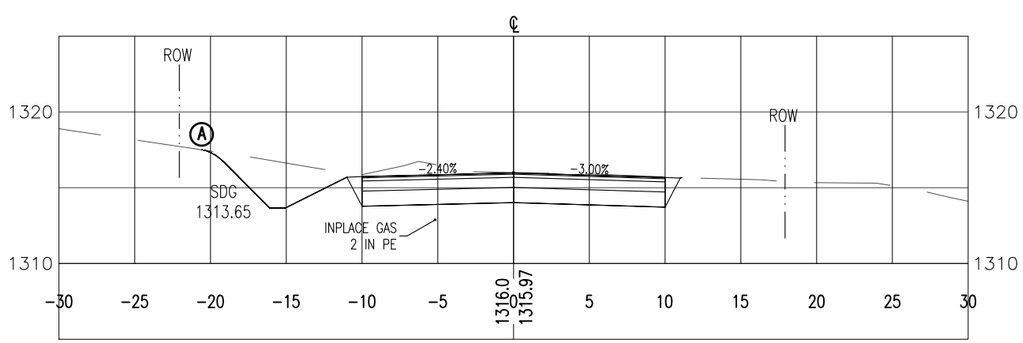

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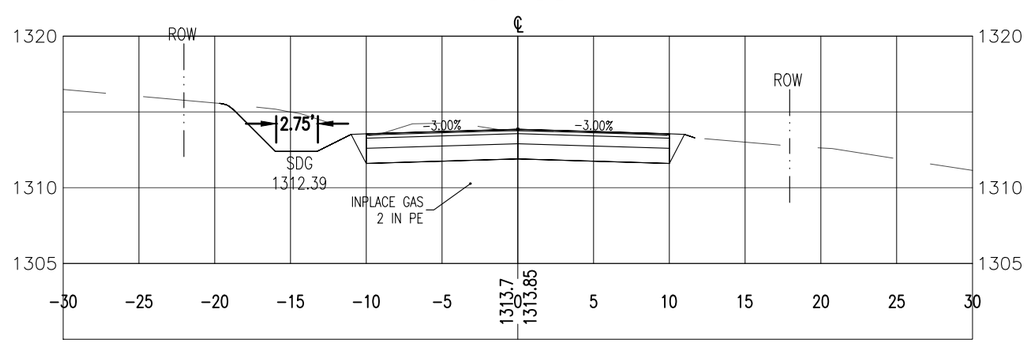

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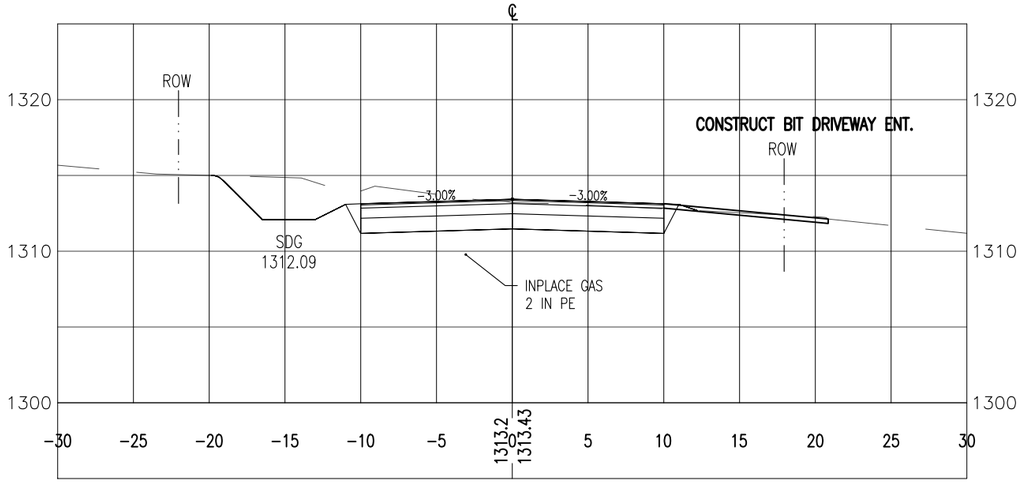
16+70



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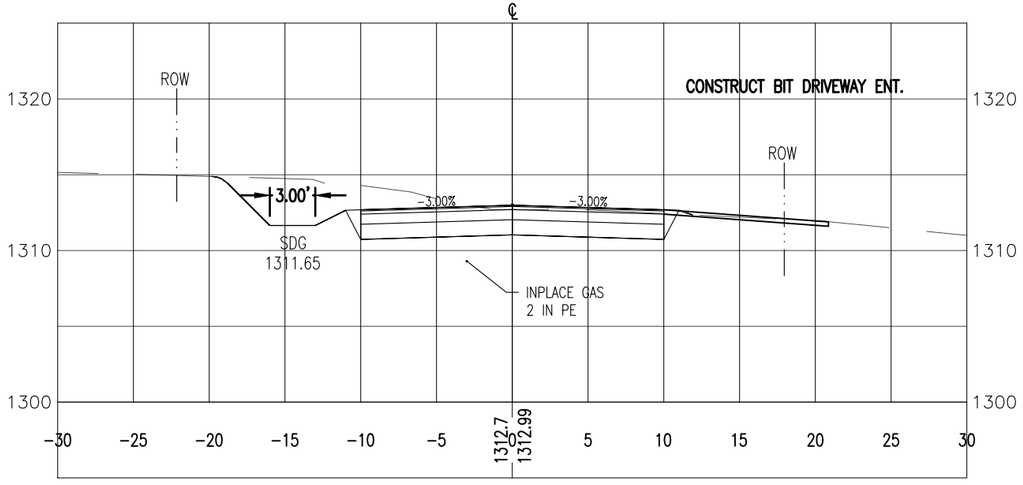
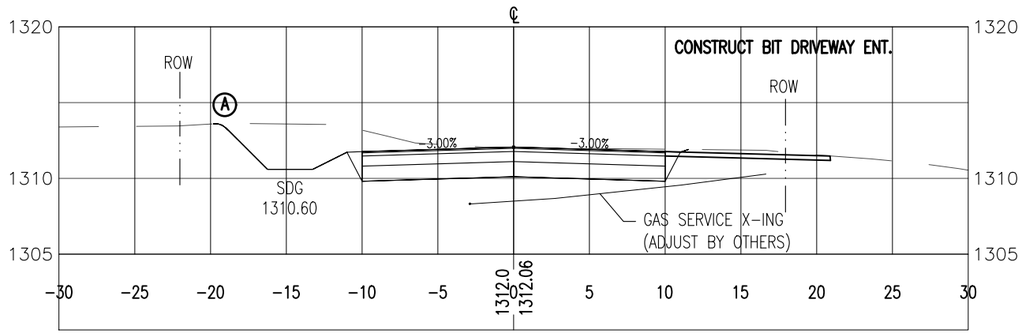


17+00



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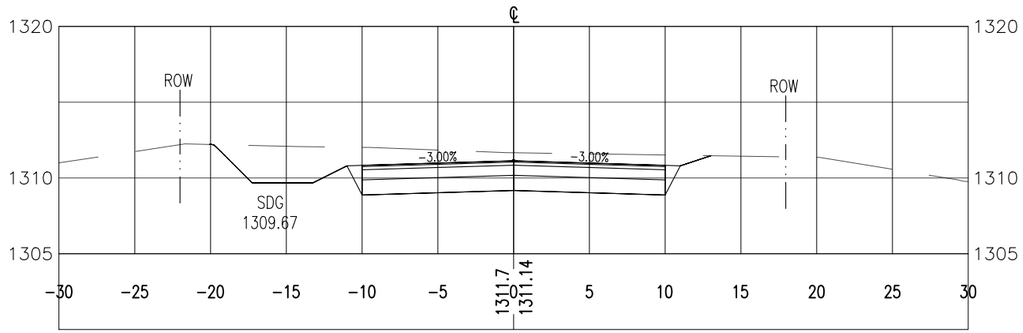
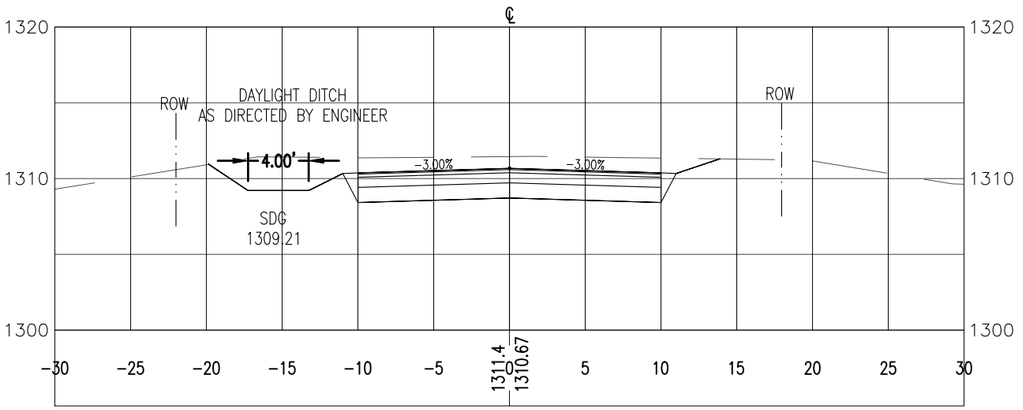


17+30



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