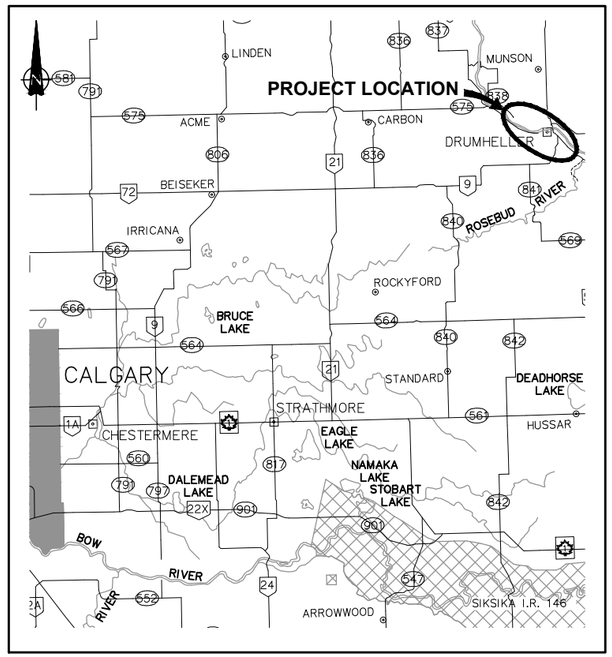
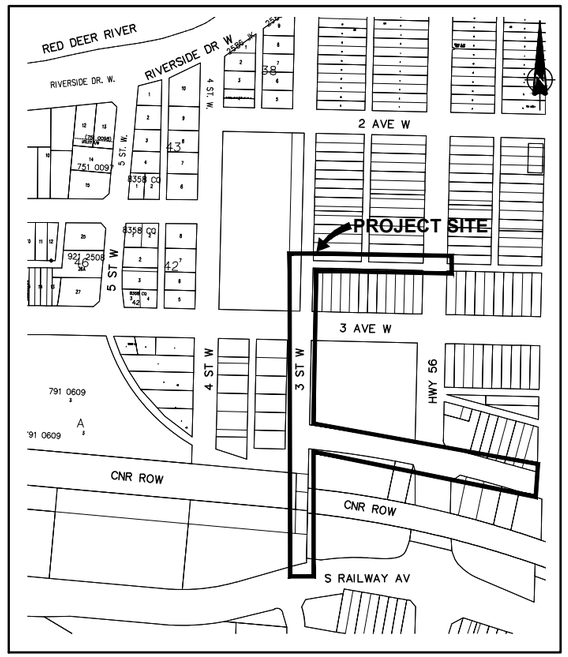
SET _____



LOCATION PLAN



SITE PLAN

LIST OF DRAWINGS

G0	TITLE PAGE
G1	LEGEND
G2	ABBREVIATIONS
C1.0	SITE PLAN
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C2.0	CONNECTION DETAILS 1 OF 2
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C4	MISCELLANEOUS DETAILS

DRUMHELLER INFRASTRUCTURE SERVICES

TOWN OF DRUMHELLER

2022 UTILITY UPGRADES

ISSUED FOR TENDER

2450-057-00

MPE Engineering Ltd.

PROPOSED	SURFACE FEATURES	EXISTING
XXX XXX.XX	ABBREVIATION ELEVATION	XXX XXX.XX
1.2 ASP	ASPHALT SWALE	1.2 ASP
	BOLLARD	
	BOREHOLE	
	BUSH	
BP	BUS PAD	BP
BS	BUS SHELTER	BS
	CATCHMENT AREA BOUNDARY	
0.6 CONC	CONCRETE SWALE	0.6 CONC
LP C&G	CURB AND GUTTER	LP C&G
	DRAINAGE DITCH	
	DRAINAGE SWALE	
	DRAINAGE SWALE BACKFILLED	
	EDGE OF PAVEMENT	
ET	ELECTRICAL TRANSFORMER	ET
X	FENCE	X
X X	FENCE TO BE REMOVED	
GW	GUY WIRE ANCHOR	GW
	GRADE BREAK	
GUARD RAIL	GUARD RAIL	GUARD RAIL
LS	LIGHT STANDARD	LS
	MAIL BOX	
LP MONO	MONOLITHIC SIDEWALK	LP MONO
	OVERLAND DRAINAGE	
	OVERLAND ESCAPE ROUTE	
PED	PEDESTAL	PED
PP	POWER POLE	PP
	PROPERTY LINE	
	RAILWAY	
	ROAD RECONSTRUCTION	
	ROAD OVERLAY	
SEP	SEPARATE SIDEWALK	SEP
	SIGN	
	SILT FENCE	
TH10-05	TEST HOLE	TH10-05
TS	TRAFFIC SIGNAL	TS
	TREE	
	TREELINE	
	WHEELCHAIR RAMP	

PROPOSED	WATERWORKS	EXISTING
AM	ACCESS MANHOLE	AM
	BEND	
	BUTTERFLY VALVE	
	GATE VALVE	
VC No.	CHAMBER VALVE	VC No.
	COUPLING INSULATING STANDARD TRANSITION	W 150 PVC DR18
	COUPLING PVC	W 150 PVC DR18
	CROSS	
FLH	ENCASEMENT	FLH
	FLUSHING HYDRANT	
	HYDRANT PUMPER	
	HYDRANT STANDARD	
SIZE AV	MANHOLE AIR VALVE	SIZE AV
SIZE CV	MANHOLE CHECK VALVE	SIZE CV
SIZE MV	MANHOLE MAIN VALVE	SIZE MV
	PIPE CROSS (OVER/UNDER WATER PIPE)	
	END CAP (PLUG)	
	REDUCER/INCREASER	
W SIZE	SERVICE	W SIZE
	TEE	
	TRACER WIRE JUNCTION BOX	
W 150 PVC	WATER MAIN	W 150 PVC
	WATERMAIN ABANDONED	W 150 AB

PROPOSED	SEWERS	EXISTING
	CATCH BASIN	
SIZE L	CATCH BASIN LEAD	SIZE L
	CATCH BASIN TWIN	
CO	CLEANOUT	CO
	CULVERT	
	DIRECTION OF FLOW	
	INLET STRUCTURE	
LS	LIFT STATION	LS
	MANHOLE TYPE 1-S	
	OUTFALL STRUCTURE	
	PLUG VALVE	
S 200 PVC SDR35	SAN. MAIN & 5A MANHOLE	S 200 PVC SDR35
	SANITARY ABANDONED	S 200 PVC SDR35 AB
IS SIZE	SANITARY SERVICE	IS SIZE
ST 200 CONC	STORM MAIN & 5A MANHOLE	ST 200 CONC
	STORM ABANDONED	ST 200 CONC AB
WTD 100 HDPE	WEEPING TILE DRAIN	WTD 100 HDPE

PROPOSED	SHALLOW UTILITIES	EXISTING
C	CABLE TV BURIED	C
E	ELECTRICAL BURIED	E
OH	ELECTRICAL OVERHEAD	OH
FO	FIBRE OPTIC BURIED	FO
G	GAS BURIED (NON-ERCB REGISTERED)	G
T T	TELEPHONE BURIED	T T
CET No. of cables	MULTIPLE BURIED UTILITY CABLE (CATV, ELECTRICAL, TELEPHONE)	CET No. of cables

PROPOSED	ERCB REGISTERED UTILITIES	EXISTING
	FLOWING GAS WELLHEAD	
	FLOWING OIL WELLHEAD	
	WATER WELLHEAD	
	SUSPENDED GAS WELLHEAD	
	SUSPENDED OIL WELLHEAD	
	ABANDONED WELLHEAD	
	OIL WELL EFFLUENT	OE OSPMAB
	NATURAL GAS	NG OSPMAB
	SOUR NATURAL GAS	SG OSPMAB
	CRUDE OIL	CO OSPMAB
	MISCELLANEOUS GAS	MG OSPMAB
	FUEL GAS	FG OSPMAB
	LOW PRESSURE	LP OSPMAB
	FRESH WATER	FW OSPMAB
	SALT WATER	SW OSPMAB
	O-OWNER	
	S-SIZE	
	P-PRESSURE	
	M-MATERIAL	
	AB-ABANDONED	

LEGAL SURVEY AND CONTROL

ALBERTA SURVEY CONTROL MONUMENT — ASCM No.

PROPERTY (LEGAL) LINE

UTILITY RIGHT OF WAY EASEMENT

IRON PIN — IP

MPE CONTROL POINT — 1322.586 CONTROL 7

NOTES:
1. EXISTING INFORMATION IS BASED ON UTM 12 NAD 83 COORDINATES.
2. FOR ADDITIONAL SYMBOLS REFER TO STANDARD CITY OF CALGARY SPECIFICATIONS.

THE EXISTENCE, LOCATION AND ELEVATION OF ALL UTILITIES AS SHOWN ON ANY PLANS MAY BE BASED ON INFORMATION RECEIVED FROM THE RESPECTIVE AUTHORITIES AND ARE NOT GUARANTEED BY THE ENGINEER. NO RESPONSIBILITY IS IMPLIED OR ASSUMED BY THE ENGINEER AS TO THE LOCATION AND ELEVATION OR ANY OMISSIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXISTENCE, LOCATION AND ELEVATION OF ALL SUCH UTILITIES AND MUST CONTACT THE VARIOUS UTILITY COMPANIES FOR ON SITE INFORMATION PRIOR TO COMMENCEMENT OF ANY OPERATIONS.

3TM-114 NAD 83
COORDINATES

ALBERTA ONE CALL

NOTE :
ALL PIPE SIZES ARE IN MILLIMETERS AND ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.

THIS DRAWING MAY HAVE BEEN MODIFIED FROM ITS ORIGINAL SIZE. ALL SCALE NOTATIONS INDICATED (i.e. 1:1000 etc) ARE BASED ON 11"x17" FORMAT DRAWINGS

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2	22-07-21	FOR APPROVAL
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ISSUE	YY-MM-DD	REVISION

PERMIT TO PRACTICE
MPE ENGINEERING LTD.
Signature
APEGA ID 73165
Date AUGUST 2, 2022
PERMIT NUMBER: P 3680
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

PROFESSIONAL ENGINEER ALBERTA — DERICK D. WILJAMA

AUGUST 2, 2022

MPE Engineering Ltd.

TOWN OF DRUMHELLER

2022 UTILITY UPGRADES
GENERAL
LEGEND

DESIGN	D.V.	JOB	2450-057-00
DRAWN	A.J.S.	SCALE	N/A
DATE	JULY 2021	DRAWING	G1

ABANDONED	AB
ACRE	AC
AIR RELEASE MANHOLE	AR
ALBERTA SURVEY CONTROL MONUMENT	ASCM
ASBESTOS CEMENT	AC
ASPHALTIC CONCRETE PAVEMENT	ACP
AT	@
AVENUE	AVE
BACK OF WALK	BOW
BEDDING	BED
BEGINNING OF CURVE	BC
BEGINNING OF VERTICAL CURVE	BVC
BENCH MARK	BM
BLOCK	BLK
BOTTOM	BTM
BOTTOM OF PIPE	BOP
BOUNDARY	BDY
BOULEVARD	BLVD
BUILDING	BLDG
CABLE	C
CANADIAN NATIONAL RAILWAY	CNR
CANADIAN PACIFIC RAILWAY	CPR
CANADIAN STANDARDS ASSOCIATION	CSA
CAPACITY	CAP
CAST IRON	CI
CATCH BASIN	CB
CATHODIC PROTECTION	CP
CENTRE LINE	CL
CERTIFICATE OF TITLE	C OF T
CHAIN LINK FENCE	CLF
CHECK VALVE IN MANHOLE	CVM
CLASS	CL
CLEAN OUT	CO
COMMUNITY RESERVE	COMM RES
COMPLETE WITH	C/W
CONCRETE	CONC
CONDUIT	COND
CORRUGATED METAL PIPE	CMP
CORRUGATED STEEL PIPE	CSP
COUPLING	CPLG
CREEK	CRK
CRESCENT	CRES
CROSSFALL	X-FALL
CROSS SECTION	X-SEC
CUBIC METRE PER SECOND	m^3/s
CULVERT	CULV
CURB AND GUTTER	C&G
CURED IN PLACE PIPE	CIPP
CURVE TO SPIRAL	CS
DEGREE	°
DELTA	Δ
DIAMETER	ø
DIMENSION RATIO	DR
DRAWING	DWG
DRIVEWAY	DWY
DUCTILE IRON	DI
DWELLING	DWLG
EAST	E
EDGE OF GRAVEL	EOG
EDGE OF PAVEMENT	EOP
EDGE OF ROAD	EOR
ELECTRICAL TRANSFORMER	ET
ELEVATION	ELEV
ENCASEMENT	ENC
END OF CURVE	EC
END OF VERTICAL CURVE	EVC
ENGINEER	ENG
ENVIRONMENTAL RESERVE	ER
EXTERIOR DROP	EXT DROP
EXISTING GROUND	EG

FACE OF CURB	FOC
FACE OF WALK	FOW
FIBRE OPTIC	FO
FINISHED GRADE	FG
FINISHED LANDSCAPE GRADE	FLG
FLANGE	FLG
FLAPPER GATE	FP
FLOOD PLAIN	FLD PLN
FLOOD WAY	FLD WY
FLOOR	FLR
FLOW RATE	Q
FOOTING	FTG
FORCE MAIN	FM
GALVANIZED	GALV
GALVANIZED IRON	GI
GAS	G
HECTARE	ha
HEIGHT	H
HIGH DENSITY POLYETHYLENE	HDPE
HIGHWAY	HWY
HORIZONTAL	HOR OR H
HOSPITAL	HOSP
HYDRANT	HYD
INLET CHAMBER	IC
INLET CONTROL DEVICE	ICD
INLET/OUTLET STRUCTURE (DRY POND)	I/O
INSIDE DIAMETER	ID
INTERSECTION	INT
INVERT	INV
IRON PIN	IP
KILOGRAM	kg
KILOMETRES	km
KILOMETRES PER HOUR	km/h
RATE OF CURVATURE	K
LENGTH	L
LENGTH OF CURVE	LC
LENGTH OF VERTICAL CURVE	LVC
LIFT STATION	LS
LIP OF GUTTER	LG
LONG RADIUS	LR
LONG TANGENT	LT
LOW PROFILE CURB AND GUTTER	LPC&G
MANHOLE	MH
MAXIMUM	MAX
MEDIAN	MED
METRE	m
METRES PER SECOND	m/s
METER CHAMBER	MC
MIDDLE ORDINATE DISTANCE (VERTICAL SEPARATION FROM PI)	M
MILLIMETRE	mm
MINIMUM	MIN
MINUTES	'
MONOLITHIC SIDEWALK	MONO
MUNICIPAL RESERVE	MR
NORTH	N
NORTH EAST	NE
NORTH WEST	NW
NOT TO SCALE	NTS
ON CENTRE	OC
OUTLET CHAMBER	OC
OUTSIDE DIAMETER	OD
OVERHEAD POWER	OH

PER	/
PERCENT	%
POINT OF INTERSECTION	PI
POLYETHYLENE	PE
POLYVINYL CHLORIDE	PVC
POWER POLE	PP
POUNDS PER SQUARE INCH	PSI
PRESSURE REDUCING MANHOLE	PRVM
PROPERTY LINE	PL
PULL BOX	PB
PUMP STATION	PS
RADIUS	R
RANGE	RGE
RAW WATER	RW
REDUCER	RED
REGISTERED PLAN	REG'D PL
REINFORCED	RE
REINFORCED CONCRETE	RC
RELOCATION	RELO
RESERVOIR	RES
RIGHT OF WAY	ROW
ROAD	RD
ROLLED CURB AND GUTTER	RCG
RUBBER GASKET	RG
SANITARY	S
SECOND	"
SLOPE	S
SOUTH	S
SOUTH EAST	SE
SOUTH WEST	SW
SPIRAL TO CURVE	SC
SPIRAL TO TANGENT	ST
SQUARED	SQ
STANDARD	STD
STATION	STA
STEEL	ST
STREET	ST
STORM	ST
TANGENT	TAN
TANGENT TO SPIRAL	TS
TAPPING VALVE	TV
TELEPHONE	T
THRUST BLOCK	TB
TOP OF ASPHALT	TOA
TOP OF CURB	TOC
TOP OF PIPE	TOP
TOP OF RAIL	TOR
TOWNSHIP	TWP
TRAFFIC SIGNAL	TS
TYPICAL	TYP
UNDERGROUND POWER	UG
UTILITY RIGHT OF WAY	URW
VALVE	V
VALVE CHAMBER	VC
VELOCITY	VEL
VERTICAL	VER OR V
VERTICAL BEND DOWN	VBD
VERTICAL BEND UP	VBU
VERTICAL CURVE	VC
VERTICAL POINT OF INTERSECTION VPI	
VITRIFIED CLAY TILE	VCT
WATER	W
WEST	W
WEEPING TILE DRAIN	WTD
WHEEL CHAIR RAMP	WCR
WIDTH	W

OVERLAND STORM WATER FLOW FORMULA ABBREVIATIONS

DEPTH OF FLOW IN 1 IN 5 YEAR STORM EVENT	$D_{1:5}$
DEPTH OF FLOW IN 1 IN 100 YEAR STORM EVENT	$D_{1:100}$
FLOW RATE FOR A 1 IN 5 YEAR STORM EVENT	$Q_{1:5}$
FLOW RATE FOR A 1 IN 100 YEAR STORM EVENT	$Q_{1:100}$
VELOCITY FOR A 1 IN 5 YEAR STORM EVENT	$V_{1:5}$
VELOCITY FOR A 1 IN 100 YEAR STORM EVENT	$V_{1:100}$

NOTES:

1. ALL PIPE SIZES ARE IN MILLIMETERS AND ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2. COORDINATES FOR MANHOLES, BENDS AND VALVES ARE LOCATED BASED ON THE CENTER OF STRUCTURE, BASED ON 3TM COORDINATE SYSTEM (NAD 83).
3. TEMPORARY EROSION AND SEDIMENT CONTROL TO BE IN PLACE PRIOR TO START OF CONSTRUCTION TO PREVENT AND SILT LADEN RUNOFF WATER TO DRAIN INTO THE TOWN OF DRUMHELLER DRAINAGE SYSTEM.

3TM-114 NAD 83
COORDINATES

ALBERTA ONE CALL

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PERMIT TO PRACTICE
MPE ENGINEERING LTD.
Signature
APEGA ID 73165
Date AUGUST 2, 2022
PERMIT NUMBER: P 3680
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

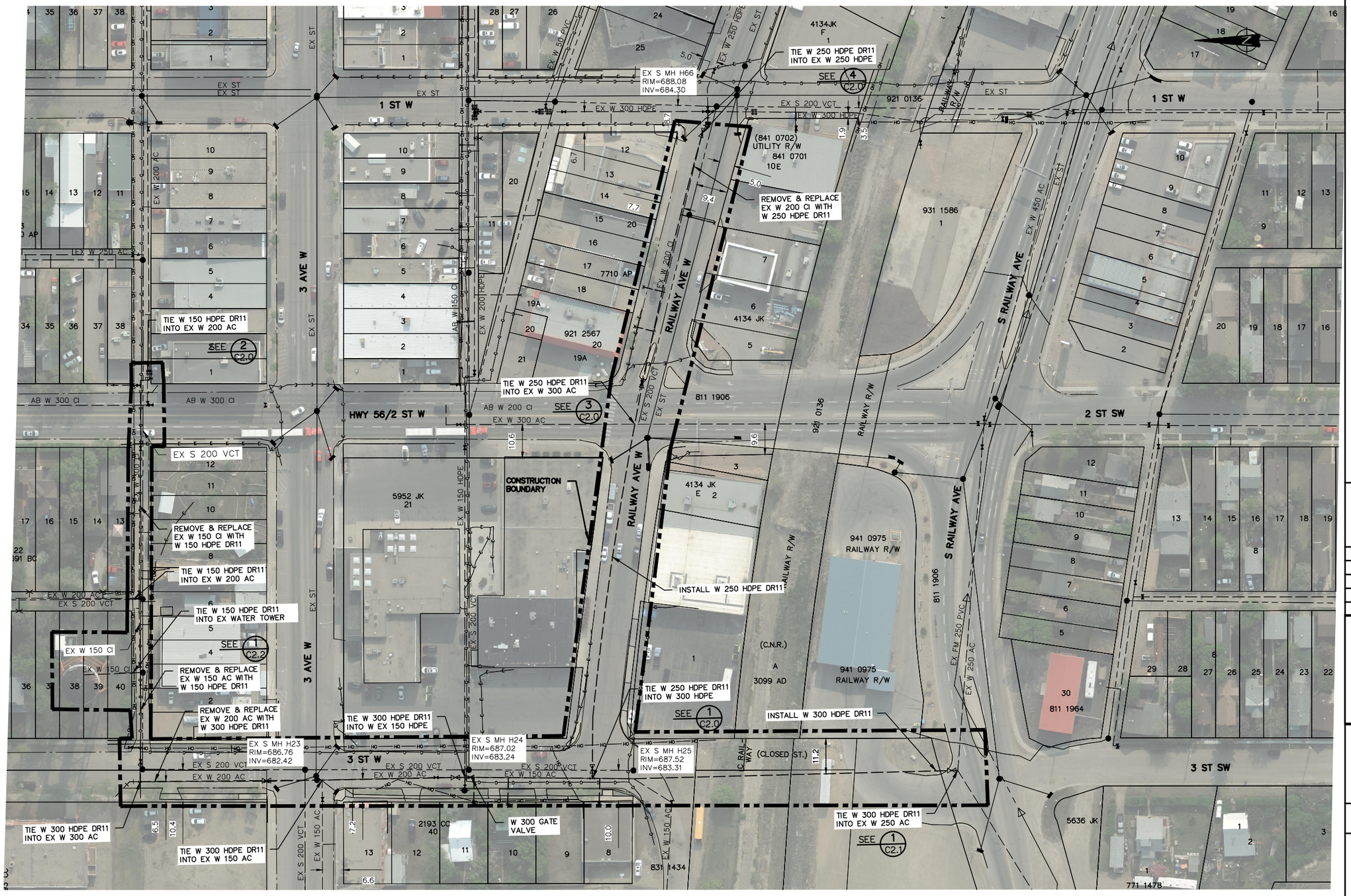
PROFESSIONAL ENGINEER ALBERTA
PATRICK D. WILJAMA
AUGUST 2, 2022

MPE Engineering Ltd.

TOWN OF DRUMHELLER

2022 UTILITY UPGRADES
ABBREVIATIONS

DESIGN	D.V.	JOB	2450-057-00
DRAWN	A.J.S.	SCALE	N/A
DATE	JULY 2021	DRAWING	G2



NOTES:

1. FOR INFORMATION REGARDING GENERAL NOTES, UTILITIES, SYMBOLS, AND ABBREVIATIONS, REFER TO THE LEGEND AND ABBREVIATIONS DRAWINGS.
2. EX SHALLOW UTILITIES TO BE EXPOSED PRIOR TO CONSTRUCTION AND RELOCATED IF REQUIRED IN COORDINATION THE SHALLOW UTILITY COMPANY.
3. EX DEEP UTILITIES TO BE EXPOSED PRIOR TO CONSTRUCTION. ELEVATION, LOCATION AND DIAMETER TO BE CONFIRMED. IF ANY DISCREPANCIES ARE FOUND, THE ENGINEER IS TO BE BE NOTIFIED IMMEDIATELY.
4. WATER SERVICES LOCATIONS AND DEPTHS ARE UNKNOWN. CONFIRMING INTEGRITY AND LOCATION IS THE RESPONSIBILITY OF THE CONTRACTOR. NO SEPARATE PAYMENT FOR THIS WORK.
5. ALL ACTIVE SERVICES TO BE REPLACED, INCLUDING CURB STOPS. FOR SINGLE FAMILY DETACHED RESIDENTIAL SERVICES 3/4" TO BE REPLACED WITH 1". FOR COMMERCIAL AND MULTI-FAMILY SERVICES 1 1/2" TO BE REPLACED WITH 2". WATER SERVICE LOCATIONS ARE UNKNOWN AND REQUIRE FIELD LOCATION. ABANDONED WATER SERVICES ARE TO BE DECOMMISSIONED. CONFIRM WATER SERVICE PRIOR TO BACKFILL.
6. TRENCH SLOPE AS PER OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS.
7. ALL WATER MAINS AND SERVICES TO MAINTAIN A MINIMUM 2.6m COVER.
8. EXISTING SERVICE LOCATION TO BE DETERMINED IN FIELD, SHOWN FOR REFERENCE ONLY, EXACT LOCATION UNKNOWN.
2. EX PATHWAYS, SIDEWALKS, CURBS, ROAD, FENCES AND DISTURBED AREAS TO BE RESTORED TO EXISTING CONDITION OR BETTER AFTER PIPELINE IS INSTALLED.
3. CONTRACTOR TO HYDROVAC EX WATERMAIN/SANITARY MAIN/STORM MAIN/TELUS DUCT AS NOTED ON THE DWG, AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION START OF SANITARY PIPELINE INSTALLATION, ELEVATION, LOCATION AND DIAMETER TO BE CONFIRMED. IF ANY DISCREPANCIES ARE FOUND, THE ENGINEER IS TO BE BE NOTIFIED IMMEDIATELY
4. PIPE INSTALLED BELOW EXISTING UTILITIES TO BE INSTALLED BY SUPPORTING EXISTING UTILITIES OR BY CASED AUGER BORE OR APPROVED EQUAL. PIPE SUPPORTS AND SHORING IF REQUIRED TO BE DESIGNED BY CONTRACTOR ENGINEER.
5. PIPES SHOWN ON PLAN VIEW ARE CENTERLINE OF PIPE ALIGNMENTS

3TM-114 NAD 83
COORDINATES

ALBERTA ONE CALL

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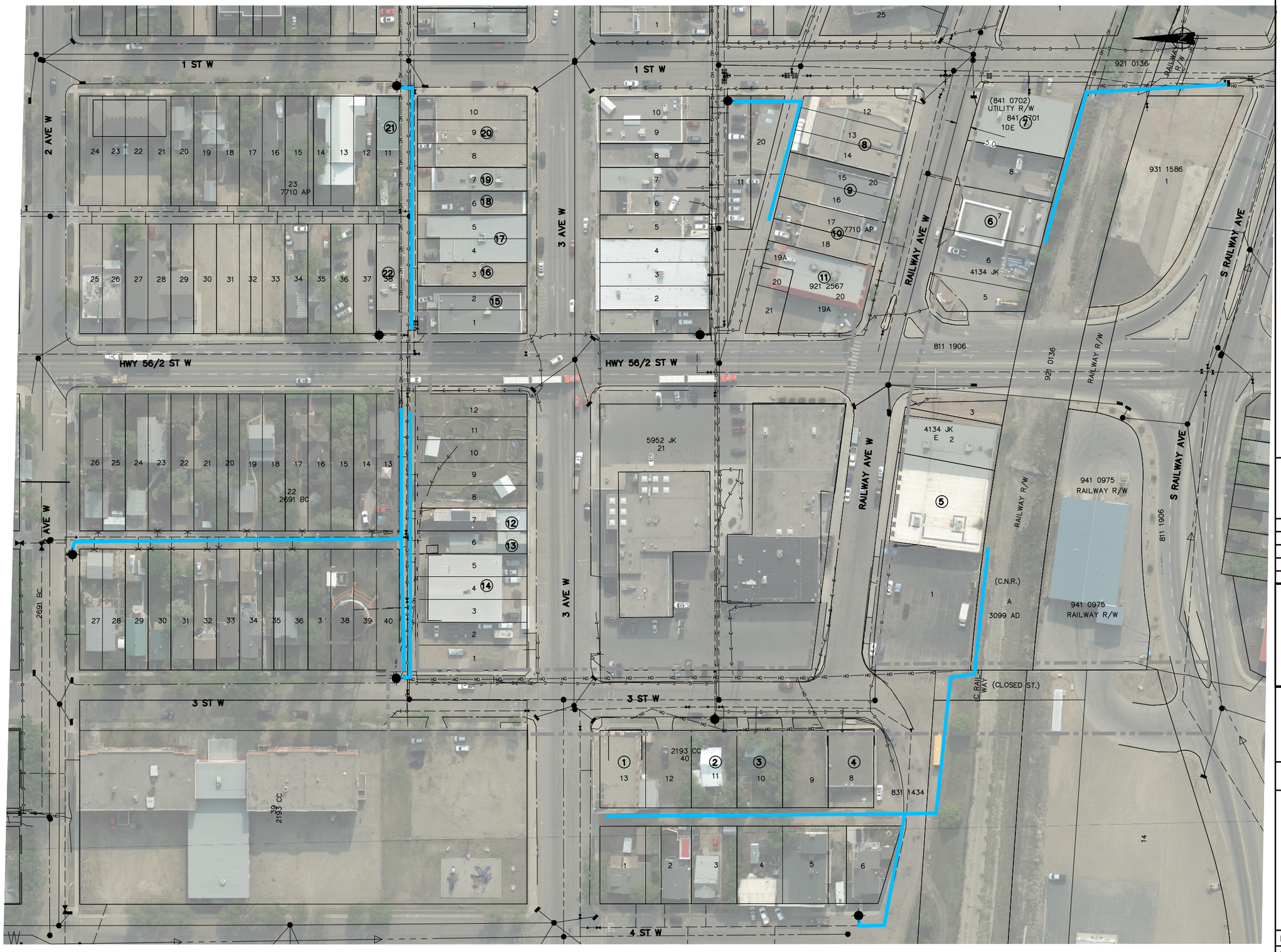
PROFESSIONAL ENGINEER ALBERTA
DERICK D. WILJAMAA
AUGUST 2, 2022

MPE Engineering Ltd.

TOWN OF DRUMHELLER

2022 UTILITY UPGRADES
CIVIL
SITE PLAN

DESIGN	D.V.	JOB	2450-057-00
DRAWN	A.J.S.	SCALE	1:1250
DATE	JULY 2021	DRAWING	C1.0



NOTES

1. FOR INFORMATION REGARDING GENERAL NOTES, UTILITIES, SYMBOLS, AND ABBREVIATIONS, REFER TO THE LEGEND AND ABBREVIATIONS DRAWINGS.
2. CONTRACTOR TO SUPPLY APPROVED HYDRANT METER BOX AT TEMPORARY WATER HYDRANT CONNECTIONS.

SERVICE ID

1. NAVY LEAGUE OF CANADA
2. RESIDENCE – No. 331
3. RESIDENCE – No. 345
4. BODY WORKS
5. DOLLARAMA
6. FASGAS
7. AGRICULTURE FINANCIAL SERVICES CORPORATION
8. –
9. AAGAARDS UPHOLSTERY
10. HOODOO VOODOO MOTORSPORTS
11. NEIGHBOURS PUB / CANADIAN PIZZA UNLIMITED
12. JURASSIC INK TATTOO
13. SHREDZ SNOW & SKATE
14. –
15. TREVOR GOUGH PROFESSIONAL CORPORATION
16.
17. PIONEER TRAIL SENIORS CENTRE
18. BLACK MOUNTAIN ROASTERS DRUMHELLER
19. AMARA PASTRIES
20. RBC ROYAL BANK
21. JUNGLING WORKS GIFT SHOP
22. –

3TM-114 NAD 83
COORDINATES

ALBERTA ONE CALL

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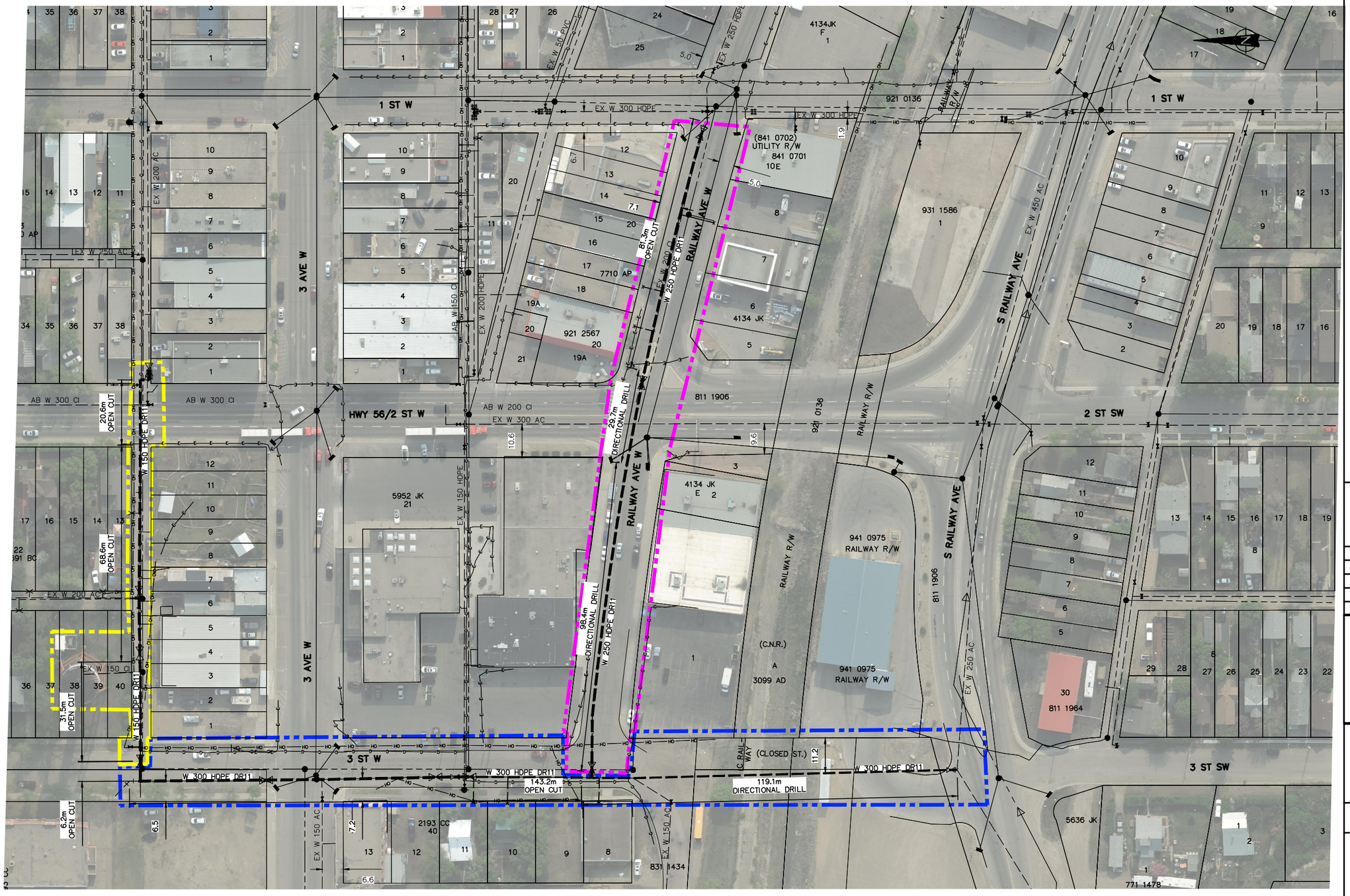
PROFESSIONAL ENGINEER ALBERTA
ERICK D. WILJAMAA
AUGUST 2, 2022

MPE Engineering Ltd.

TOWN OF DRUMHELLER

2022 UTILITY UPGRADES
SITE PLAN – TEMP WATER SERVICING

DESIGN	D.V.	JOB	2450–057–00
DRAWN	A.J.S.	SCALE	1:1250
DATE	JULY 2021	DRAWING	C1.1



NOTES:

1. FOR INFORMATION REGARDING GENERAL NOTES, UTILITIES, SYMBOLS, AND ABBREVIATIONS, REFER TO THE LEGEND AND ABBREVIATIONS DRAWINGS.

LEGEND:

PHASE 1
PHASE 2
PHASE 3

3TM-114 NAD 83
COORDINATES

ALBERTA ONE CALL

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DERICK D. WILJAMAA
AUGUST 2, 2022

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TOWN OF DRUMHELLER

2022 UTILITY UPGRADES
CIVIL
SITE PLAN – CONSTRUCTION PHASING

DESIGN	D.V.	JOB	2450-057-00
DRAWN	A.J.S.	SCALE	1:1250
DATE	JULY 2021	DRAWING	C1.2

NOTES

1. FOR INFORMATION REGARDING GENERAL NOTES, UTILITIES, SYMBOLS, AND ABBREVIATIONS, REFER TO THE LEGEND AND ABBREVIATIONS DRAWINGS.
2. HIGHWAY ASPHALT ROAD RESTORATION WORK INCLUDES:
   - SAW CUT ASPHALT
   - ASPHALT MILLING
   - ASPHALT REMOVE AND DISPOSAL
   - WASTE EXCAVATION
   - SUBGRADE PREPARATION
   - 200mm SUB-BASE GRANULAR MATERIAL
   - 100mm BASE GRANULAR MATERIAL
   - PRIME COAT
   - 100mm MIX 'A' HOT MIX ASPHALT
   - TACK COAT
   - 40mm MIX 'B' HOT MIX ASPHALT
3. LOCAL ASPHALT ROAD RESTORATION WORK INCLUDES:
   - SAW CUT ASPHALT
   - ASPHALT MILLING
   - ASPHALT REMOVE AND DISPOSAL
   - WASTE EXCAVATION
   - SUBGRADE PREPARATION
   - 200mm SUB-BASE GRANULAR MATERIAL
   - 100mm BASE GRANULAR MATERIAL
   - PRIME COAT
   - 80mm (50mm & 30mm) MIX 'B' HOT MIX ASPHALT
   - TACK COAT
4. LANE ASPHALT ROAD RESTORATION WORK INCLUDES:
   - SAW CUT ASPHALT
   - ASPHALT REMOVE AND DISPOSAL
   - WASTE EXCAVATION
   - SUBGRADE PREPARATION
   - 200mm SUB-BASE GRANULAR MATERIAL
   - 50mm BASE GRANULAR MATERIAL
   - 50mm MIX 'B' HOT MIX ASPHALT
5. CONCRETE RESTORATION WORK INCLUDES:
   - CONCRETE REMOVAL AND DISPOSAL
   - WASTE EXCAVATION
   - 100mm BASE GRANULAR MATERIAL
   - CONCRETE MATERIALS

3TM-114 NAD 83
COORDINATES

ALBERTA ONE CALL

NOTE :
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ISSUE	YY-MM-DD	REVISION

PERMIT TO PRACTICE
MPE ENGINEERING LTD.
Signature
APEGA ID 73165
Date AUGUST 2, 2022
PERMIT NUMBER: P 3680
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

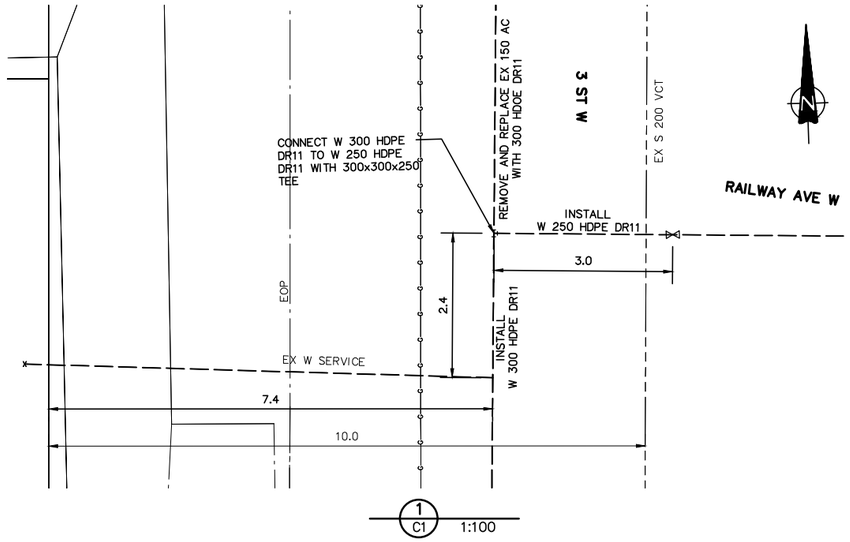
PROFESSIONAL ENGINEER ALBERTA
RICK D. WILJAMA
AUGUST 2, 2022

MPE Engineering Ltd.

TOWN OF DRUMHELLER

2022 UTILITY UPGRADES
SITE PLAN – SURFACE RESTORATION

DESIGN	D.V.	JOB	2450-057-00
DRAWN	A.J.S.	SCALE	1:1250
DATE	JULY 2021	DRAWING	C1.3



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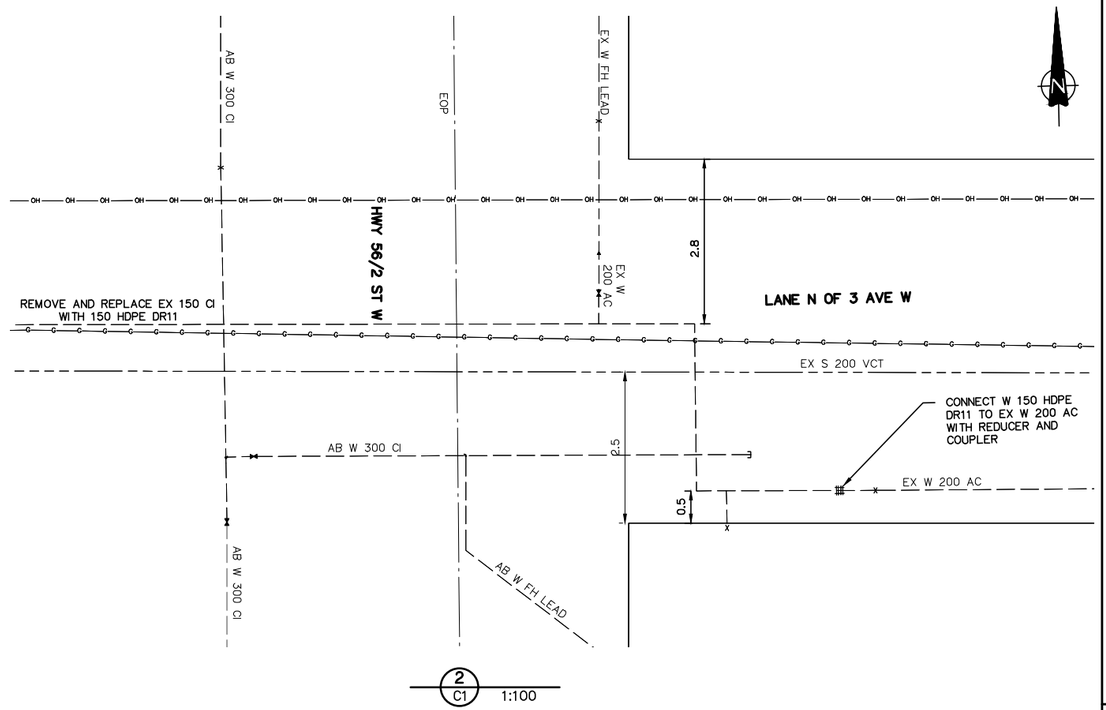

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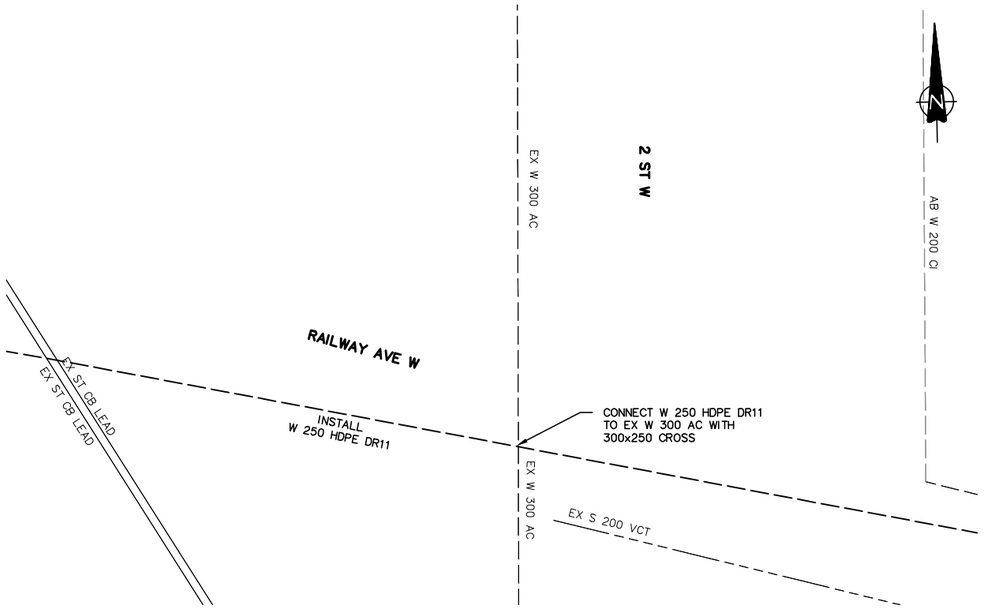

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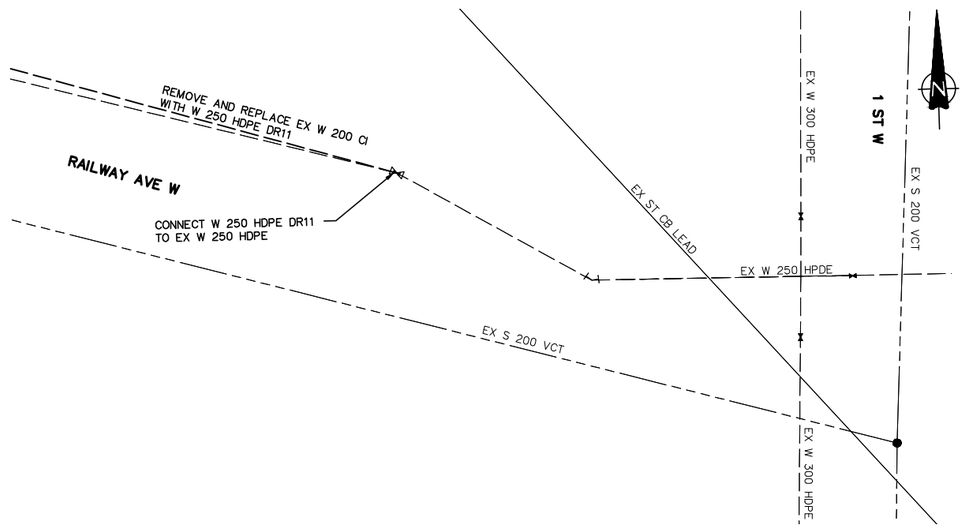

4 C1 1:100

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3. EX DEEP UTILITIES TO BE EXPOSED PRIOR TO CONSTRUCTION. ELEVATION, LOCATION AND DIAMETER TO BE CONFIRMED. IF ANY DISCREPANCIES ARE FOUND, THE ENGINEER IS TO BE BE NOTIFIED IMMEDIATELY.
4. WATER SERVICES LOCATIONS AND DEPTHS ARE UNKNOWN. CONFIRMING INTEGRITY AND LOCATION IS THE RESPONSIBILITY OF THE CONTRACTOR. NO SEPARATE PAYMENT FOR THIS WORK.
5. ALL ACTIVE SERVICES TO BE REPLACED, INCLUDING CURB STOPS. FOR SINGLE FAMILY DETACHED RESIDENTIAL SERVICES 3/4" TO BE REPLACED WITH 1". FOR COMMERCIAL AND MULTI-FAMILY SERVICES 1 1/2" TO BE REPLACED WITH 2". WATER SERVICE LOCATIONS ARE UNKNOWN AND REQUIRE FIELD LOCATION. ABANDONED WATER SERVICES ARE TO BE DECOMMISSIONED. CONFIRM WATER SERVICE PRIOR TO BACKFILL.
6. TRENCH SLOPE AS PER OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS.
7. ALL WATER MAINS AND SERVICES TO MAINTAIN A MINIMUM 2.6m COVER.
8. EXISTING SERVICE LOCATION TO BE DETERMINED IN FIELD, SHOWN FOR REFERENCE ONLY, EXACT LOCATION UNKNOWN.
2. EX PATHWAYS, SIDEWALKS, CURBS, ROAD, FENCES AND DISTURBED AREAS TO BE RESTORED TO EXISTING CONDITION OR BETTER AFTER PIPELINE IS INSTALLED.
3. CONTRACTOR TO HYDROVAC EX WATERMAIN/SANITARY MAIN/STORM MAIN/TELUS DUCT AS NOTED ON THE DWG, AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION START OF SANITARY PIPELINE INSTALLATION, ELEVATION, LOCATION AND DIAMETER TO BE CONFIRMED. IF ANY DISCREPANCIES ARE FOUND, THE ENGINEER IS TO BE BE NOTIFIED IMMEDIATELY
4. PIPE INSTALLED BELOW EXISTING UTILITIES TO BE INSTALLED BY SUPPORTING EXISTING UTILITIES OR BY CASED AUGER BORE OR APPROVED EQUAL. PIPE SUPPORTS AND SHORING IF REQUIRED TO BE DESIGNED BY CONTRACTOR ENGINEER.
5. PIPES SHOWN ON PLAN VIEW ARE CENTERLINE OF PIPE ALIGNMENTS

3TM-114 NAD 83
COORDINATES

ALBERTA ONE CALL

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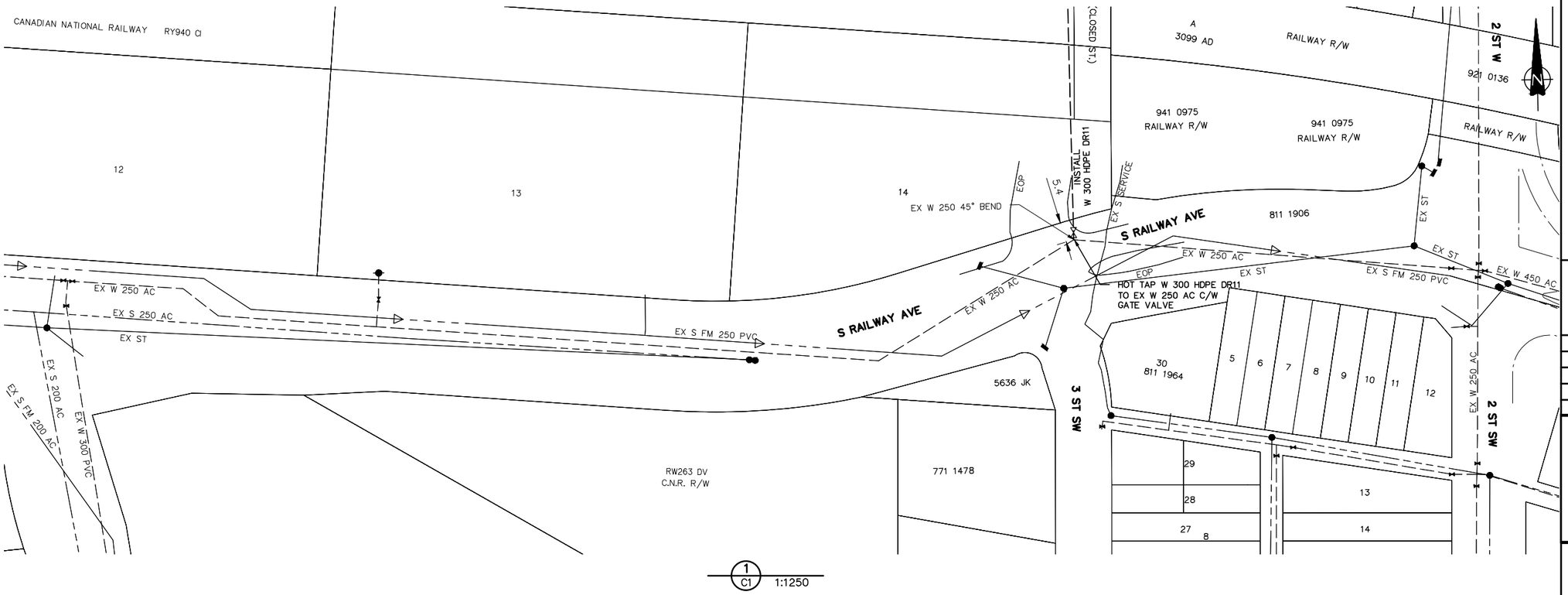
PROFESSIONAL ENGINEER ALBERTA
RICK D. WILJAMA
AUGUST 2, 2022

MPE Engineering Ltd.

TOWN OF DRUMHELLER

2022 UTILITY UPGRADES
CIVIL
CONNECTION DETAILS 1 OF 2

DESIGN	D.V.	JOB	2450-057-00
DRAWN	A.J.S.	SCALE	AS SHOWN
DATE	JULY 2021	DRAWING	C2.0



1 C1 1:1250

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TOWN OF DRUMHELLER

2022 UTILITY UPGRADES
CIVIL
CONNECTION DETAILS 2 OF 2

DESIGN	D.V.	JOB	2450-057-00
DRAWN	A.J.S.	SCALE	AS SHOWN
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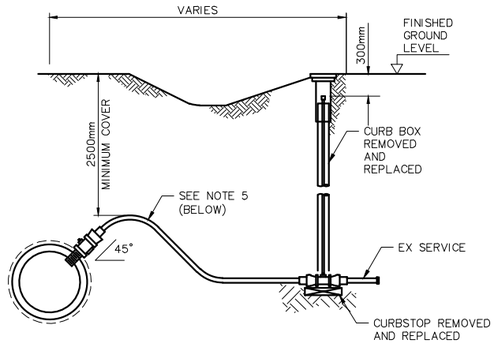
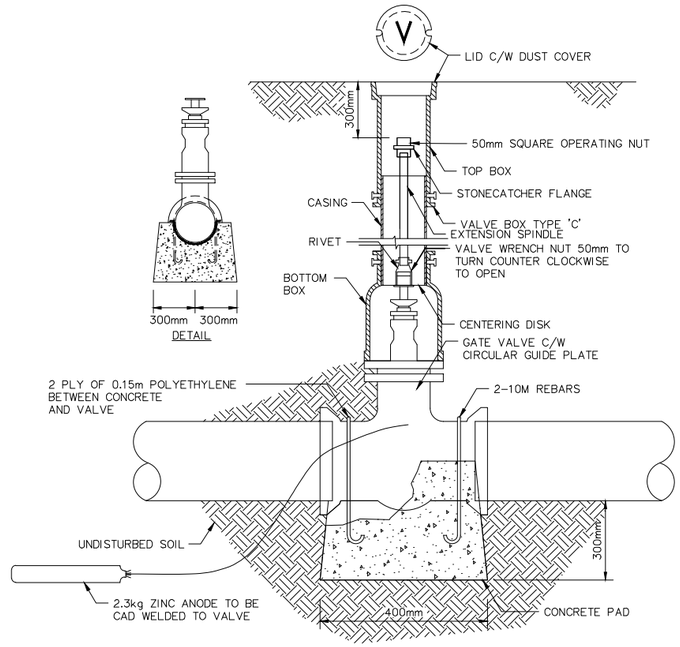


NOTE:

1. CORPORATION STOPS TO BE STAGGERED RADIALLY AND AT LEAST 450mm APART.
2. USE AWWA THREAD FOR ALL DIRECT TAPS.
3. PROVIDE 40mm MINIMUM CLASS 1 GRANULAR BEDDING MATERIAL UNDER SERVICE AND SELECT NATIVE MATERIAL WITHIN 200mm ABOVE.
4. EXTERIOR AND INTERIOR OF THE BOTTOM BOX SHALL BE FACTORY COATED TO CITY OF CALGARY STANDARD TROJAN, WWSS OR EQUAL.
5. PROVIDE HORIZONTAL "GOOSENECK" BEND (BEND PIPE BEFORE TAPPING INTO MAIN).
6. ALL SERVICES TO BE REPLACED, INCLUDING CURB STOPS. FOR RESIDENTIAL SERVICES 3/4" TO BE REPLACED WITH 1". FOR COMMERCIAL AND MULTI-FAMILY SERVICES 1-1/2" TO BE REPLACED WITH 2". WATER SERVICE LOCATIONS ARE UNKNOWN AND REQUIRE FIELD LOCATION.

WATER SERVICE DETAILS



TYPICAL GATE VALVE INSTALLATION

NOTES:

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3TM-114 NAD 83
COORDINATES

ALBERTA ONE-CALL

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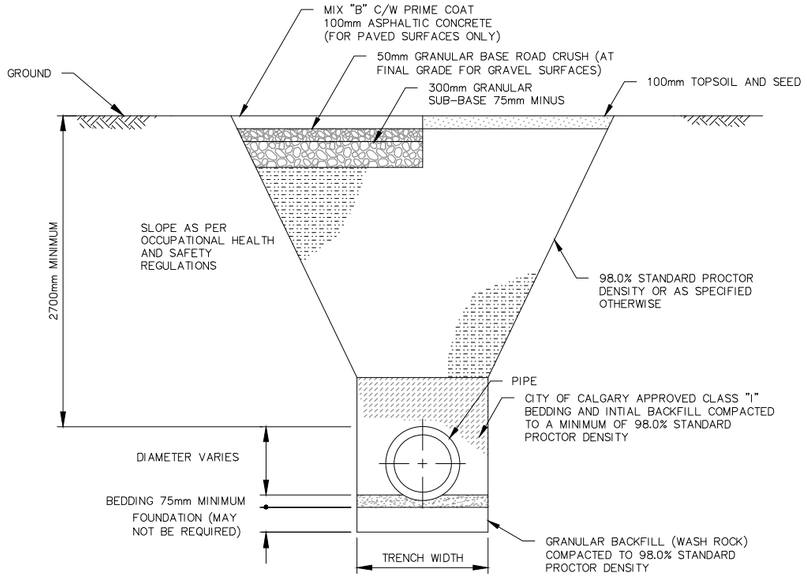
PATRICK D. WILJAMA
AUGUST 2, 2022

MPE Engineering Ltd.

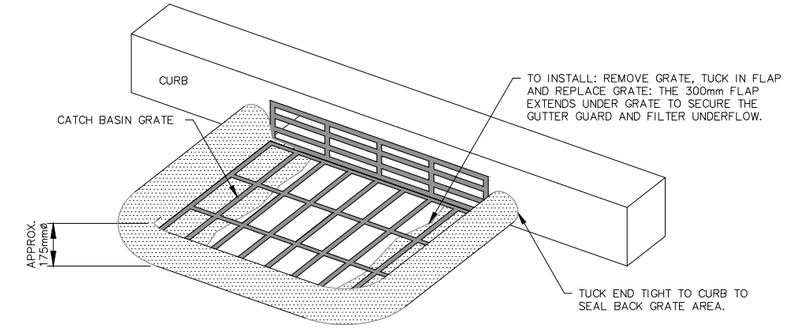
TOWN OF DRUMHELLER

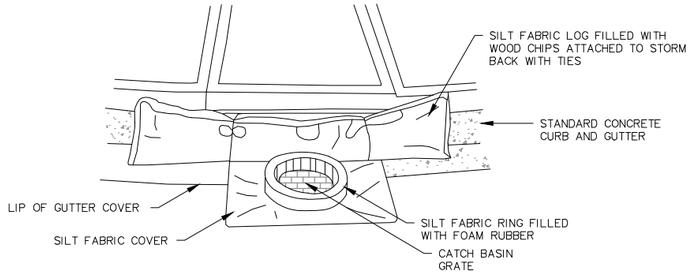
2022 UTILITY UPGRADES
CIVIL
WATER DETAILS

DESIGN	D.V.	JOB	2450-057-00
DRAWN	A.J.S.	SCALE	N.T.S.
DATE	JULY 2021	DRAWING	C3

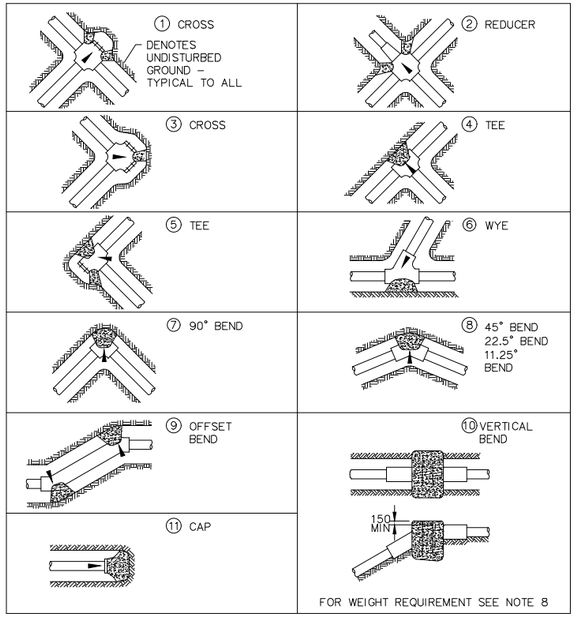


TYPICAL TRENCH BEDDING AND TRENCH BACKFILL REQUIREMENTS

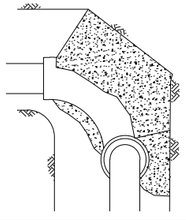




CATCH BASIN ESC MEASURE



TYPICAL THRUST BLOCK LOCATIONS



BEARING AREA OF BLOCKS						
CONCRETE AREAS IN SQUARE METRES						
TYPE OF FITTING	PIPE SIZE (mm)					
	100	150	200	250	300	400
1,4,11	0.2	0.4	0.7	1.0	1.4	1.9
3,5,7	0.3	0.5	0.9	1.4	2.0	2.7
2	–	–	–	0.5	0.7	1.6
6,8,10	0.2	0.3	0.5	0.6	1.1	1.4
9	0.3	0.6	1.0	1.2	2.2	2.9

NOTES:
1. DESIGN ASSUMPTION
   a) HYDRAULIC PRESSURE 1.38 MPa (200 psi)
   b) SOIL BEARING 100 kPa (2000 lbs/ft²) MEDIUM SOFT CLAY
2. CONCRETE SHALL BE SULPHATE RESISTANT (TYPE HS).
3. TEMPORARY BLOCKING MUST BE APPROVED BY THE ENGINEER
4. 2 PLY OF 0.15mm (6 MIL) POLYETHYLENE SHALL BE PLACED BETWEEN PIPE AND CONCRETE
5. CONCRETE SHALL BE 20 MPa AT 28 DAY STRENGTH, MAXIMUM SLUMP 75mm.
6. THRUST BLOCKS AS PER STD. SPEC. SECTION 2522
7. IN DISTURBED GROUND (COMPACTED BACK FILL) INCREASE BEARING AREA BY 50%
8. DEAD WEIGHT REACTION BLOCK REQUIREMENTS FOR VERTICAL BENDS (BASED ON 1380 kPa PRESSURE) SHALL BE AS FOLLOWS:

DEAD WEIGHT IN CUBIC METRES OF CONCRETE (m³)

DEGREE OF BEND	SIZE OF BEND (mm)					
	100	150	200	250	300	400
90°	0.8	1.5	2.7	4.2	6.1	10.7
45°	0.4	1.1	1.5	2.3	3.4	5.7
22 1/2°	0.4	0.8	0.9	1.1	1.9	3.1
11 1/4°	0.4	0.4	0.5	0.8	1.1	1.5

THRUST BLOCK DATA

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2022 UTILITY UPGRADES
CIVIL
MISCELLANEOUS DETAILS

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