MUNICIPAL DISTRICT OF MACKENZIE NO. 23

BUDGET MEETING - OPERATING

Seminar Room, Fort Vermilion School Division
Fort Vermilion, Alberta

10:00 a.m.

Monday, February 4, 2002

NOTE: Please bring your budget binder to the meeting

1. Call to Order

2. Adoption of Agenda

3. Revised Operating Budget Sheets — ***Page*** 3

4. Grader Contracts — ***Page*** 23

5. Prioritize Recognized Bridge Projects — ***Page*** 29

6. GPEC – Review of Hamlet Projects – 1:00 p.m. — ***Page*** 39

7.

8.

9. Adjournment

M.D. of Mackenzie No. 23

Request For Decision

Meeting:	Special Council Meeting - Budget
Meeting Date:	February 4, 2002
Originated By:	Ivan Perich
Title:	Grader Contracts
Agenda Item No:	4

BACKGROUND / PROPOSAL:

A decision must be made as to whether the MD will be contracting out the grading of local roads or if it will be done internally. Secondly, if the M.D. is providing the grading services internally, will the graders be traded off just prior to the expiration of the warranty or will the graders be kept an additional year or two? Thirdly, if the grading is being contracted out, are the contracts per mile or per hour?

DISCUSSION / OPTIONS / BENEFITS / DISADVANTAGES:

In determining whether the graders will be contracted out or if the grading will be done internally, the fact must be considered that contractors work for a profit margin, whereas there is no profit margin when providing the service internally.

If it is decided that the M.D. will provide the grading services internally, a decision must be made on whether graders are kept only as long as they are on warranty, or if they are kept longer. Currently there are two graders whose warranty has expired, and there is one grader whose warranty will expire shortly. According to the analysis (see attached), there is an increase of approximately $2.00 per hour to keep a grader after the warranty has expired.

As stated earlier, if a decision is made to contract out the grading, it must be determined if the contract is per mile or per hour. A per hour contract reduces the risk to the contractor versus the risks that are involved by contracting by the mile. For example, the number of hours to be spent per mile depends on the weather; the more it rains or snows, the more hours spent grading the road.

Review:	Dept.	C.A.O.

COSTS / SOURCE OF FUNDING:

2002 operating and capital budgets.

RECOMMENDED ACTION (by originator):

That the Municipal District of Mackenzie replace three graders, keeping them only until the warranty expires.

Review:	Dept.	C.A.O.

27) The Municipal District of Mackenzie retains the right to set the standards for road maintenance. The following points should be noted in connection with gravel road maintenance:

a) Care must be taken to maintain a crown of approximately 4% on the roadway to allow proper drainage from the roadway surface.

b) The superelevation on curves must be retained.

c) A ridge shall not be allowed to build along the edge of the roadway.

d) The grader operator shall stop and remove any rocks or other hazardous debris pulled up by the blade, or found on the roadway which are large enough to present a problem to vehicular traffic.

e) Special care must be taken at railway crossings to assure gravel is not carried onto the tracks and deposited in the flangeways. The grader operator must stop after crossing the railroad tracks to inspect and remove any material which may have entered the flangeways. The blade must be raised well clear of the tracks to avoid damage to the tracks. In the event of damage to the railroad tracks that occurs due to the grader operator's actions, he must immediately inform the railway company roadmaster and the Director of Operational Services or his designate, so that action can be taken to avoid a railway accident by performing the necessary repairs.

f) Graders shall normally operate on the right side of the road and proceed in the same direction as the traffic, unless directed by the Director of Operational Services or his designate and warning signs are in place.

g) All flashing lights shall be operated as per the Highway Traffic Act Flashing Light Regulations. All flags must be kept in good condition and meet the standards of the Motor Transport Act (400 mm square).

h) The grader operater shall notify the MD of downed signs, plugged culverts or any other abnormality that may affect the safe operation of the roadway or constitute a hazard, such as dead animals, fallen trees etc.

i) At the discretion of the M.D. of Mackenzie, the contractor shall maintain the road surface from shoulder to shoulder free of all rutting, washboard, potholes, etc.

j) The contractor shall maintain all granular materials on the road surface within 0.5 meters from the shoulder.

k) Winter maintenance shall include:

i) snow and ice control as per the attached M.D. of Mackenzie policy; and
ii) winging to define shoulders.

MOTOR GRADER COSTS COMP

UNITS	G-8 BUFFALO AD STILL WARRANTY	MG-9 ROCKY LANE STILL ON WARRANTY	MG-10 ZAMA CITY STILL ON WARRANTY
GENERAL INFORMATION	ROSS COST	GROSS COST	GROSS COST
HOURS WORKED BY GRADER PER YEAR			
LENGTH OF GRADER BEAT (MILES)			
HOURS PER MILE PER YEAR			
CAPITAL COSTS			
PURCHASE PRICE (INCLUDING INTEREST COSTS			
LESS GUARANTEED BUY BACK (5 YEAR OR 7500			
LESS TRADE-IN VALUE (ESTIMATED PROVIDED E			
BASED ON TOTAL GRADER HOURS			
TOTAL CAPITAL COSTS			
CAPITAL COST PER HOUR			
OPERATING COST / PER YEAR			
OPERATOR HRS WORKED (INCLUDING SERVICIN			
INSURANCE (COATS PER YEAR			
SANDVIK 2000 SYSTEM (COST PER YEAR)			
CUTTING EDGES (BLADES/TIPS) PER YEAR			
COMMUNICATIONS RENTAL			
INTERNAL SHOP AND LABOUR COSTS ($45.00 PE			
CONTRACT REPAIRS AND MAINTENANCE (INCLU			
POWER ALLOWANCE			
TOTAL OPERATING COSTS			
OPERATING COSTS PER HOUR			
GENERAL SERVICE MAINTENANCE COS			
ENGINE OIL/FILTER (250HRS.)			
FINAL DRIVE OIL/FILTER (1000HRS.)			
HYDRAULIC OIL& FILTER (2000HRS.)			
FUEL COST PER HOUR			
TIRE REPLACEMENT (3000HRS.)			
GENERAL MAINTENANCE COST PER HOUR.			
LABOUR COSTS PER HOUR			
WAGES INCLUDE BENEFITS/ISOLATION ALLOWA			
G.S.T. 3%			
TOTAL GRADER COST PER HOUR			
TOTAL GRADER COST PER MILE			
COST FOR SHORTER PERIOD WITHOUT WARRA			
TOTAL ANNUAL COSTS			

INCREASED COST PER HOUR TO KEEP THE UNIT
WARRANTY HAS EXPIRED

COST BASED ON THE LOSS OF OPPORTUNITY FOR 2002

UNITS	MG-5	MG-5	MG-6
EXTRA COST PER HOUR TO KEEP THE GRADER AFTER WARRANTY HAS EXPIRED	$3.09	$5.91	$4.90
ESTIMATED ANNUAL HOURS BASED ON THE HOURS ACCUMULATED IN 7 MONTHS	2107.00	2107.00	2031.00
TOTAL COST	$6,510.63	$12,452.37	$9,951.90
THE DIFFERENCE PAID OUT TO PURCHASE REPLACEMENT UNITS	$150,000.00	$150,000.00	$150,000.00
LOSS OF OPPORTUNITY @ 4%	$6,000.00	$6,000.00	$6,000.00
LOSS	$510.63	$6,452.37	$3,951.90
GAIN			

MOTOR GRADER COSTS COMPARISON FOR 2002

FEB 3/02

UNITS	MG-5 ACTUAL PURCHASE AGREEMENT INCLUDING WARRANTY	MG-5 LETTER OF OFFER PRIOR TO WARRANTY EXPIRING	MG-5 NO WARRANTY MAY 21-OCT20/01 5 MONTHS	MG-5 NO WARRANTY- MAY 21- ESTIMATED ANNUAL HOURS	MG-6 ACTUAL PURCHASE AGREEMENT INCLUDING WARRANTY	MG-6 LETTER OF OFFER PRIOR TO WARRANTY EXPIRING	MG-6 NO WARRANTY JUNE21-OCT20/01 4 MONTHS	MG-6 NO WARRANTY JUNE21- ESTIMATED ANNUAL HOURS	MG-8 BUFFALO HEAD STILL ON WARRANTY	MG-9 ROCKY LANE STILL ON WARRANTY	MG-10 ZAMA CITY STILL ON WARRANTY
GENERAL INFORMATION	GROSS COST	GROSS COST	GROSS COST		GROSS COST	GROSS COST	GROSS COST	GROSS COST	GROSS COST	GROSS COST	GROSS COST
HOURS WORKED BY GRADER PER YEAR	1,521.00	1,521.00	878.00	2,107.00	1,433.00	1,433.00	677.00	2,031.00			
LENGTH OF GRADER BEAT (MILES)	121.50	121.50		121.50	122.00	122.00		122.00			
HOURS PER MILE PER YEAR	12.52	12.52	#DIV/0!	17.34	11.75	11.75	#DIV/0!	16.65			
CAPITAL COSTS											
PURCHASE PRICE (INCLUDING INTEREST COSTS)	$205,000.00	$205,000.00	$205,000.00	$205,000.00	$205,000.00	$205,000.00	$205,000.00	$205,000.00			
LESS GUARANTEED BUY BACK (5 YEAR OR 7500 HOURS)	$108,000.00	$118,000.00			$108,000.00	$118,000.00					
LESS TRADE-IN VALUE (ESTIMATED PROVIDED BY WAJAX) BASED ON TOTAL GRADER HOURS			$110,000.00 8883 HRS.	$102,000.00			$110,000.00 8351 HRS.	$102,000.00			
TOTAL CAPITAL COSTS	$97,000.00	$87,000.00	$95,000.00	$103,000.00	$97,000.00	$87,000.00	$95,000.00	$103,000.00			
CAPITAL COST PER HOUR	$13.10	$11.75	$10.69	$10.72	$13.10	$11.75	$11.38	$10.81			
OPERATING COST / PER YEAR											
OPERATOR HRS WORKED (INCLUDING SERVICING)	1,521.00	1,521.00	878.00	2,107.00	1,433.00	1,433.00	677.00	2,031.00			
INSURANCE (COATS PER YEAR)	$282.61	$282.61	$117.75	$282.61	$282.61	$282.61	$94.20	$282.61			
SANDVIK 2000 SYSTEM 7500HR. REPLACEMENT. (COST PER YEAR)	$628.68	$628.68	$362.91	$870.89	$592.31	$592.31	$279.83	$839.48			
CUTTING EDGES 5.38 PER/HR. (BLADES/TIPS) PER YEAR	$8,182.98	$8,182.98	$4,723.64	$11,335.66	$7,709.54	$7,709.54	$3,642.26	$10,926.78			
COMMUNICATIONS RENTAL 50.00 PER/MONTH	$600.00	$600.00	$250.00	$600.00	$600.00	$600.00	$200.00	$600.00			
INTERNAL SHOP AND LABOUR COSTS ($45.00 PER HR.)	$1,090.80	$1,090.80	$1,890.00	$4,536.00	$1,597.50	$1,597.50	$607.50	$1,822.50			
CONTRACT REPAIRS AND MAINTENANCE (INCLUDES PARTS)	$644.32	$644.32	$2,939.59	$12,939.59	$793.03	$793.03	$3,237.83	$13,920.83			
POWER ALLOWANCE	$300.00	$300.00	$125.00	$300.00	$300.00	$300.00	$100.00	$300.00			
TOTAL OPERATING COSTS	$11,729.39	$11,729.39	$10,408.89	$30,864.75	$11,874.99	$11,874.99	$8,161.62	$28,692.20			
OPERATING COSTS PER HOUR	$7.71	$7.71	$11.86	$14.65	$8.29	$8.29	$12.06	$14.13			
GENERAL SERVICE MAINTENANCE COSTS											
ENGINE OIL/FILTER (250HRS.)											
FINAL DRIVE OIL/FILTER (1000HRS.)											
HYDRAULIC OIL& FILTER (2000HRS.)	$1.57	$1.57	$1.57	$1.57	$1.57	$1.57	$1.57	$1.57			
FUEL COST PER HOUR	$13.15	$13.15	$13.15	$13.15	$13.15	$13.15	$13.15	$13.15			
TIRE REPLACEMENT (3000HRS.)	$2.37	$2.37	$2.37	$2.37	$2.37	$2.37	$2.37	$2.37			
GENERAL MAINTENANCE COST PER HOUR.	$17.09	$17.09	$17.09	$17.09	$17.09	$17.09	$17.09	$17.09			
LABOUR COSTS PER HOUR											
WAGES INCLUDE BENEFITS/ISOLATION ALLOWANCE	$27.72	$27.72	$27.72	$27.72	$27.72	$27.72	$27.72	$27.72			
G.S.T. 3%											
TOTAL GRADER COST PER HOUR	$65.62	$64.27	$67.36	$70.18	$66.20	$64.85	$68.24	$69.74			
TOTAL GRADER COST PER MILE	$821.48	$804.57	#DIV/0!	$1,217.03	$777.53	$761.67					
COST FOR SHORTER PERIOD WITHOUT WARRANTY			$59,634.62				$46,199.46				
TOTAL ANNUAL COSTS	$99,809.37	$97,755.35	$143,123.08	$147,869.30	$94,858.96	$92,923.78	$138,598.39	$141,650.00			
INCREASED COST PER HOUR TO KEEP THE UNIT AFTER WARRANTY HAS EXPIRED			$3.09	$5.91			$3.40	$4.90			

MG-6 ACCUMULATED 1185 HOURS FROM JUNE 21/01 - JAN 20/02. (7 MONTHS). ESTIMATED HOURS FOR 12 MONTHS WOULD BE 2031. P.M. CHECK DONE ON JAN 28/02. SCHEDULE REPAIR COST $10,683.00 WOULD INCREASE THE TOTAL OPERATING COST BY $4.90 PER HOUR. TOTAL ANNUAL LOSS $9,951.90

MOTOR GRADER COSTS COMPARISON FOR 2000

FEB 3/02

UNITS	MG-5 FT. VERMILION	MG-6 LA CRETE	MG-7 BLUMENORT	MG-8 BUFFALO HEAD	MG-9 ROCKY LANE	MG-10 ZAMA CITY	CONTRACT GRADER TOMPKINS	CONTRACT GRADER HIGH LEVEL	CONTRACT GRADER ASSUMPTION
GENERAL INFORMATION	GROSS COST	GROSS COST	GROSS COST	GROSS COST	GROSS COST	GROSS COST	GROSS COST	GROSS COST	GROSS COST
HOURS WORKED BY GRADER PER YEAR	1,521.00	1,433.00	1,478.00	1,423.00	1,516.00	1,059.00	1,816.00	1,709.00	706.00
LENGTH OF GRADER BEAT (MILES)	121.50	122.00	118.00	121.00	132.00	47.00	119.50	154.00	28.00
HOURS PER MILE PER YEAR	12.52	11.75	12.53	11.76	11.48	22.53	15.20	11.10	25.21
CAPITAL COSTS									
PURCHASE PRICE (INCLUDING INTEREST COSTS)	$205,000.00	$205,000.00	$204,370.00	$220,000.00	$244,709.00	$315,245.48			
LESS GUARANTEED BUY BACK (5 YEAR OR 7500 HOURS)	$108,000.00	$108,000.00	$102,300.00			$138,370.00			
LESS TRADE-IN VALUE (ESTIMATED PROVIDED BY WAJAX) BASED ON TOTAL GRADER HOURS				$110,000.00	$122,000.00				
TOTAL CAPITAL COSTS	$97,000.00	$97,000.00	$102,070.00	$110,000.00	$122,709.00	$176,875.48	$0.00		
CAPITAL COST PER HOUR	**$13.10**	**$13.10**	**$13.78**	**$14.85**	**$16.57**	**$23.89**	**$0.00**	**$0.00**	**$0.00**
OPERATING COST / PER YEAR									
OPERATOR HRS WORKED (INCLUDING SERVICING)	1,521.00	1,433.00	1,478.00	1,423.00	1,516.00	1,059.00			
INSURANCE (COATS PER YEAR)	$282.61	$282.61	$309.73	$308.25	$308.25	$416.80			
SANDVIK 2000 SYSTEM 7500HR. REPLACEMENT (COST PER YEAR)	$628.68	$592.31	$610.91	$588.17	$626.61	$437.72			
CUTTING EDGES 5.38 PER/HR. (BLADES/TIPS)COST PER YEAR	$8,182.98	$7,709.54	$7,951.64	$7,655.74	$8,156.08	$5,697.42	$9,770.08	$9,144.42	$3,798.28
COMMUNICATIONS RENTAL 50.00 PER/MONTH	$600.00	$600.00	$600.00	$600.00	$600.00	$600.00	$600.00	$600.00	
INTERNAL SHOP AND LABOUR COSTS ($45.00 PER HR.)	$1,090.80	$1,597.50	$1,248.75	$360.00	$776.25	$3,026.25			
CONTRACT REPAIRS AND MAINTENANCE (INCLUDES PARTS)	$644.32	$793.03	$1,293.63	$557.67	$52.31	$1,233.07			
POWER ALLOWANCE	$300.00	$300.00	$300.00	$300.00	$300.00	$300.00			
TOTAL OPERATING COSTS	$11,729.39	$11,874.99	$12,314.66	$10,369.83	$10,819.50	$11,711.26	$10,370.08	$9,744.42	$3,798.28
OPERATING COSTS PER HOUR	**$7.71**	**$8.29**	**$8.33**	**$7.29**	**$7.14**	**$11.06**	**$5.71**	**$5.70**	**$5.38**
GENERAL SERVICE MAINTENANCE COSTS									
ENGINE OIL/FILTER (250HRS.) FINAL DRIVE OIL/FILTER (1000HRS.) HYDRAULIC OIL& FILTER (2000HRS.)	$1.57	$1.57	$1.57	$1.57	$1.57	$1.57			
FUEL COST PER HOUR	$13.15	$13.15	$13.15	$13.15	$13.15	$13.15			
TIRE REPLACEMENT (3000HRS.)	$2.37	$2.37	$2.37	$2.37	$2.37	$2.37			
GENERAL MAINTENANCE COST PER HOUR.	**$17.09**	**$17.09**	**$17.09**	**$17.09**	**$17.09**	**$17.09**	**$0.00**	**$0.00**	**$0.00**
LABOUR COSTS PER HOUR									
WAGES INCLUDE BENEFITS/ISOLATION ALLOWANCE	$27.72	$27.72	$27.72	$27.72	$27.72	$32.04	$70.00	$80.00	$76.32
G.S.T. 3%							$2.10	$2.40	$2.29
TOTAL GRADER COST PER HOUR	**$65.62**	**$66.20**	**$66.93**	**$66.95**	**$68.52**	**$84.07**	**$77.81**	**$88.10**	**$83.99**
TOTAL GRADER COST PER MILE	**$821.48**	**$777.53**	**$838.28**	**$787.38**	**$786.92**	**$1,894.36**	**$1,182.46**	**$977.70**	**$2,117.75**
TOTAL ANNUAL COSTS	**$99,809.37**	**$94,858.96**	**$98,916.49**	**$95,272.88**	**$103,873.25**	**$89,035.15**	**$141,303.68**	**$150,566.02**	**$59,296.94**

M.D. of Mackenzie No. 23

Request For Decision

Meeting:	**Committee of a Whole**
Meeting Date:	February 4, 2002
Originated By:	Allan Cronkhite, Projects Services Technologist
Title:	**Prioritize Recognized Bridge Projects**
Agenda Item No:	5.

BACKGROUND / PROPOSAL: Three Bridge projects were brought to a previous Council meeting at which more information was requested. Attached are photos with a brief description, a preliminary three-year plan, suggested letter to Alberta Transportation and Municipal Bridge Request Information Sheets.

DISCUSSION / OPTIONS / BENEFITS / DISADVANTAGES:

2002 Projects
1) Bridge File (BF) 74193 design for replacement is underway for construction in 2002.
2) Bridge File 76507 requires relatively inexpensive repairs to prolong the life thereof.
3) Bridge File 80678 requires minor repairs.

2003 Projects
4) BF 75877 Rot detected during core tests.
5) BF 78185 Corbels Rotting.
6) BF 81336 Girder spalls and cracked connector pockets.

COSTS / SOURCE OF FUNDING:

2002 Projects		
1) BF 74193	$100,000 MD	$280,000 GAP Funding
2) BF 76507	$ 3,000 MD	$ 7,000 GAP Funding
3) BF 80679	$ 500 MD	$ 1,500 GAP Funding
2003 Projects		
4) BF 75877	$ 10,000 MD	$ ~~10~~ 20,000 GAP Funding
5) BF 78185	$ 2,500 MD	$ 47,500 GAP Funding
6) BF 81336	$ 35,000 MD	$175,000 GAP Funding

Review: Dept. C.A.O.

Due to cutbacks there is a possibility of no GAP Funding although the MD is eligible for the above stated amounts. If funding is unavailable this year the projects would not proceed.

RECOMMENDED ACTION (by originator):

1. Budget as if Gap Funding will be available.

2. Consider options if funding is not available (detour).

3. Prioritize proposed projects as recommended by EXH Engineering Services.

Review:	Dept.	C.A.O.

January 29, 2002

MD of Mackenzie Three Year Plan

Alberta Transportation
9621 - 96 Avenue
Room 301
Peace River, AB
T8S 1T4

Attention: Ajit Paramapathy, Bridge Manager

RE: MD of Mackenzie Three Year Plan

As requested, please find attached our three year plan for bridges. You will notice that we have tried to minimize the number of structures on our plan. We are cognizant of the current budget restraints that you are under. We have only brought forward projects that are in definite need of repair or replacement.

Also be advised that we have not included a number of poor conditions structures in our plan. For instance, BF 13400 is in poor condition (1999 BIM said replace in 2000) is on a reserve. It is our understanding that Alberta Transportation is responsible for repair and replacement of this structure. In addition, the structures on the extension of Highway 58 are not included in this bridge plan. We reiterate our earlier conversations regarding these structures. It is our understanding that these structures are the responsibility of Alberta Transportation.

If you require any additional information, feel free to contact me at (780) 928 3983.

Sincerely,

Ivan Perich, P. Eng.
MD of Mackenzie

IP/jm

Enclosure

c: James Morgan, EXH - Red Deer
Garth Thomson, EXH - Grimshaw

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MD of MacKenzie - Three Year Local Road Bridge Planning

Year of Construction: 2002				Comments
BF#	Priority	Total Cost	MD Cost	
74193	1	$280,000	$100,000	Design for replacement in 2002 currently underway (Tender in spring 2002) Critical Element: Substructure rated "2"
76507	2	$10,000	$3,000	2001 assessment says repair in 2002 and replace in 2012 Critical Element: Girders rated "4"
80678	3	$2,000	$500	2001 assessment says repair in 2002 and replace in 2026 Critical Element: Girders rated "4"
Year 2002		$292,000	$103,500	

Year of Construction: 2003				Comments
BF#	Priority	Total Cost	MD Cost	
75877	1	$30,000	$10,000	2001 assessment says repair in 2003 and replace in 2011 Critical Element: South abutment cap rot rated "3"
78185	2	$50,000	$2,500	2002 assessment says repair in 2003 and replace in 2032 Critical Element: Corbels rotting rated "2"
81336	3	$175,000	$35,000	2002 assessment says repair in 2003 and replace in 2037 Critical Element: Girders rated "3"
Year 2003		$255,000	$47,500	

Year of Construction: 2004				Comments
BF#	Priority	Total Cost	MD Cost	
Year 2004		$0	$0	

Municipal Official's Signature

Date

EXH Engineering Services Ltd.

Print Date: 29-Jan-02

EXH Engineering Services Ltd. — Municipal Bridge Request Information Sheet

Bridge File: 81336
Municipality: MD of Mackenzie

EXISTING STRUCTURE INFORMATION:					
Stream:	Teepee Creek	Highway:	L	Legal Location:	WSW 35 – 105 – 14 – 5
Existing Structure:	Two Span (8.5 m – 8.5 m) HC Girder			Year Built:	1961/1988
Allowable Loading:	30 – 53 – 75			Loading Governed By:	Girder-Girder-Girder
BIM Level 1 Date:	June 15, 2001			Inspector:	Dan Kwan

Item	Rating	Comments
Approach Road:	6	
Superstructure or Culvert Ends:	3	Girder spalls and cracked connector pockets
Substructure or Culvert Barrel	6	
Channel:	7	
Structural Condition Rating:	%	Sufficiency Rating: % Est. Remaining Life: 5 years (in 2001)

BIM Level 2 Date:	June 15, 2001	Type:	Girder, Timber Coring	Inspector:	Dan Kwan
Results:	No rot detected, one girder rated "3", four girders rated "4"				

ALTERNATIVES CONSIDERED:					
	Description	Selected	Year	Cost Estimate	NPV (50 years, 4%)
1	Repairs in 2003, New superstructure in 2009	✓	2003	40,000	199,000
2	New superstructure in 2003		2003	175,000	204,000
3	New bridge in 2003		2003	350,000	321,000
4	New culvert in 2003		2003	220,000	209,000

Assessment Date: October 1, 2001 Assessed By: EXH Engineering Accepted by Department: Yes

Selected Alternative: ☐ Replace ☐ Upgrade (raise/widen/partial replacement) ☐ New (need transportation plan) ☒ Repair/Rehabilitation

SPECIAL CONSIDERATIONS:

The assessment recommended superstructure replacement in 2003. Alberta Transportation comments suggested that Alternative 1 is preferred if girders are available. Funding for design ($15,000) in 2002 is hereby requested. To ensure the project can proceed in 2003, funding for Alternative 2 ($160,00) is requested for 2003.

SELECTION RATIONALE:

PRIORITIZATION INFORMATION:						
Urgency:	☐ High	☐ Medium	☐ Low	Explain:		
Necessity:	☐ Safety	☐ Preservation	☐ Bridge Improvement (loading, flow capacity, clearance)		☐ Road Improvement	☐ Other
Explain:						
Can Structure be Eliminated?:	☐ Yes	☐ No	Explain:			
AADT:	E-6	Year Counted:	1990	No. of Residences Served as Main Access:		
Type of Traffic:	☐ Farm	☐ Industrial/Commercial	☐ School Bus	☐ Commuter	☐ Land Access Only	☐ Other
Describe:				Bridge Spacing Downstream:		
Alternative Route Distance:	2 km	Bridge Spacing Upstream:				

Municipal Official's Signature

Date

EXH Engineering Services Ltd.

Municipal Bridge Request Information Sheet

Bridge File: 78185
Municipality: MD of Mackenzie

EXISTING STRUCTURE INFORMATION:					
Stream:	Boyer River	Highway:	Local Road	Legal Location:	WNW - 5 - 109 - 17 - 5
Existing Structure:	Four span (8.5 m – 24.4 m – 8.5 m – 6.1 m) RGTT			Year Built:	1960/1978
Allowable Loading:	39t – 52t – 68t			Loading Governed By:	Stringer-Girder-Girder
BIM Level 1 Date:	June 16, 2001			Inspector:	Aime Theroux

Item	Rating	Comments
Approach Road:	7	
Superstructure or Culvert Ends:	7	Corbels rotting
Substructure or Culvert Barrel	2	
Channel:	8	
Structural Condition Rating:	%	Sufficiency Rating: % Est. Remaining Life: 10 years (in 2001)

BIM Level 2 Date:	June 16, 2001	Type:	Timber Coring, Paint	Inspector:	Aime Theroux
Results:	Corbels rotting				

ALTERNATIVES CONSIDERED:					
	Description	Selected	Year	Cost Estimate	NPV (50 years, 4%)
1	Repairs in 2003 & 2007, Replace in 2032	✓	2003	50,000	567,000
2	Replace in 2012		2012	1,400,000	908,000
3					
4					

Assessment Date: January 7, 2002 Assessed By: EXH Engineering Accepted by Department:

Selected Alternative: ☐ Replace ☐ Upgrade (raise/widen/partial replacement) ☐ New (need transportation plan) ☒ Repair/Rehabilitation

SPECIAL CONSIDERATIONS:

Due to the poor condition of the substructure and the significant structure replacement cost, it is requested that $50,000 ($47,500 GAP eligible) in funding be authorized for 2003.

SELECTION RATIONALE:

PRIORITIZATION INFORMATION:

Urgency: ☐ High ☐ Medium ☐ Low Explain:

Necessity: ☐ Safety ☐ Preservation ☐ Bridge Improvement (loading, flow capacity, clearance) ☐ Road Improvement ☐ Other

Explain:

Can Structure be Eliminated?: ☐ Yes ☐ No Explain: No. of Residences Served as Main Access:

AADT: Year Counted: ☐ Land Access Only ☐ Other

Type of Traffic: ☐ Farm ☐ Industrial/Commercial ☐ School Bus ☐ Commuter

Describe: Bridge Spacing Downstream:

Alternative Route Distance: Bridge Spacing Upstream:

Municipal Official's Signature Date

EXH Engineering Services Ltd.

Municipal Bridge Request Information Sheet

Bridge File: 75877

Municipality: MD of Mackenzie

EXISTING STRUCTURE INFORMATION:

Stream:	Boyer River	Highway:	Local Road	Legal Location:	NW 12 – 109 – 17 – 5
Existing Structure:	Four Span (6.1 m – 6.1 m – 30.5 m – 6.5 m) PTTT			Year Built:	1948/1964
Allowable Loading:	21t – 37t – 53t			Loading Governed By:	Stringer-Stringer-Stringer

BIM Level 1 Date:	June 16, 2001	Inspector:	Aime Theroux

Item	Rating	Comments
Approach Road:	6	
Superstructure or Culvert Ends:	5	
Substructure or Culvert Barrel	3	South abutment cap rotting
Channel:	8	

Structural Condition Rating:	%	Sufficiency Rating:	%	Est. Remaining Life:	10 years (in 2001)

BIM Level 2 Date:	June 16, 2001	Type:	Timber Coring, Paint	Inspector:	Aime Theroux
Results:	Rot detected in south abutment and pier #1 cap				

ALTERNATIVES CONSIDERED:

	Description	Selected	Year	Cost Estimate	NPV (50 years, 4%)
1	Repairs in 2003, Replacement in 2011	✓	2003	30,000	
2					
3					
4					

Assessment Date:	January 7, 2002	Assessed By:	EXH Engineering	Accepted by Department:	

Selected Alternative: ☐ Replace ☐ Upgrade (raise/widen/partial replacement) ☐ New (need transportation plan) ☒ Repair/Rehabilitation

SPECIAL CONSIDERATIONS:

Due to the relatively high replacement costs, it is requested that $30,000 ($20,000 GAF eligible) in funding be approved for 2003.

SELECTION RATIONALE:

PRIORITIZATION INFORMATION:

Urgency: ☐ High ☐ Medium ☐ Low Explain:

Necessity: ☐ Safety ☐ Preservation ☐ Bridge Improvement (loading, flow capacity, clearance) ☐ Road Improvement ☐ Other

Explain:

Can Structure be Eliminated?: ☐ Yes ☐ No Explain:

AADT: Year Counted: No. of Residences Served as Main Access:

Type of Traffic: ☐ Farm ☐ Industrial/Commercial ☐ School Bus ☐ Commuter ☐ Land Access Only ☐ Other

Describe:

Alternative Route Distance: Bridge Spacing Upstream: Bridge Spacing Downstream:

Municipal Official's Signature Date

EXH Engineering Services Ltd.

Municipal Bridge Request Information Sheet

Bridge File: 80678
Municipality: MD of Mackenzie

EXISTING STRUCTURE INFORMATION:

Stream:	Watercourse	Highway:	L	Legal Location:	WNW 27 – 109 – 13 – 5
Existing Structure:	Two span (10.1 m – 6.1 m) HC Girders			Year Built:	1961/1980
Allowable Loading:	28 – 49 – 66			Loading Governed By:	Girder-Girder-Girder
BIM Level 1 Date:	June 17, 2001			Inspector:	Dan Kwan

Item	Rating	Comments
Approach Road:	8	
Superstructure or Culvert Ends:	4	Exposed rebar on girders and one spall
Substructure or Culvert Barrel	7	
Channel:	6	
Structural Condition Rating:	%	Sufficiency Rating: %

Est. Remaining Life: 25 years (in 1997)

BIM Level 2 Date:	June 17, 2001	Type:	Girder, Timber Coring	Inspector:	Dan Kwan
Results:	No rot detected				

ALTERNATIVES CONSIDERED:

	Description	Selected	Year	Cost Estimate	NPV (50 years, 4%)
1	Minor repairs in 2002	✓	2002	2,000	N/A
2					
3					
4					

Accepted by Department: Yes

Assessment Date: October 30, 2001 Assessed By: EXH Engineering

Selected Alternative: ☐ Replace ☐ Upgrade (raise/widen/partial replacement) ☐ New (need transportation plan) ☒ Repair/Rehabilitation

SPECIAL CONSIDERATIONS:

This standard bridge is in fairly good condition. The assessment completed in 2001 recommends minor repairs at an estimated cost of $2,000 ($1500 GAP Eligible). Funding for the repairs in 2002 is hereby requested.

SELECTION RATIONALE:

PRIORITIZATION INFORMATION:

Urgency: ☐ High ☐ Medium ☐ Low Explain:

Necessity: ☐ Safety ☐ Preservation ☐ Bridge Improvement (loading, flow capacity, clearance) ☐ Road Improvement ☐ Other

Explain:

Can Structure be Eliminated?: ☐ Yes ☐ No Explain:

AADT: Year Counted: No. of Residences Served as Main Access:

Type of Traffic: ☐ Farm ☐ Industrial/Commercial ☐ School Bus ☐ Commuter ☐ Land Access Only ☐ Other

Describe:

Alternative Route Distance: Bridge Spacing Upstream: Bridge Spacing Downstream:

Municipal Official's Signature

Date

SENT BY: EXH ENGINEERING SERVICES LTD.;

EXH Engineering Services Ltd.

Municipal Bridge Request Information Sheet

Bridge File: 78507

Municipality: MD of Mackenzie

EXISTING STRUCTURE INFORMATION:					
Stream:	Watercourse	Highway:	L	Legal Location:	SSE 28 – 105 – 14 – 5
Existing Structure:	Single Span (6.5 m) HC			Year Built:	1967/1987
Allowable Loading:	30 – 53 – 75			Loading Governed By:	Girder-Girder-Girder

BIM Level 1 Date:	August 27, 2001	Inspector:	Aime Theroux

Item	Rating	Comments
Approach Road:	6	
Superstructure or Culvert Ends:	4	Concrete in girders have spalls & popouts
Substructure or Culvert Barrel	4	Backwall sagging and wingwall planks cracked
Channel:	4	Sharp turn in creek on south side

Structural Condition Rating:	%	Sufficiency Rating:	%	Est. Remaining Life:	10 years (in 2001)

BIM Level 2 Date:	August 27, 2001	Type:	Girder & Timber	Inspector:	Aime Theroux
Results:	Three girders rated "4". No rot detected in substructure.				

ALTERNATIVES CONSIDERED:

	Description	Selected	Year	Cost Estimate	NPV (50 years, 4%)
1	Repair structure in 2002, Replace with culvert in 2012	✓	2002	10,000	136,000
2	Replace in 2002 with twin culverts		2002	200,000	200,000
3	Repair structure in 2002, Replace with bridge in 2012		2002	10,000	211,000
4					

Assessment Date:	October 30, 2001	Assessed By:	EXH Engineering	Accepted by Department:	Yes

Selected Alternative: ☐ Replace ☐ Upgrade (raise/widen/partial replacement) ☐ New (need transportation plan) ☒ Repair/Rehabilitation

SPECIAL CONSIDERATIONS:

Relatively inexpensive repairs ($10,000) can be done in 2002 to extend the life of the structure another ten years. GAP Funding in the amount of $7,000 is hereby requested to complete the GAP eligible repairs.

SELECTION RATIONALE:

PRIORITIZATION INFORMATION:

Urgency: ☐ High ☐ Medium ☐ Low Explain:

Necessity: ☐ Safety ☐ Preservation ☐ Bridge Improvement (loading, flow capacity, clearance) ☐ Road Improvement ☐ Other

Explain:

Can Structure be Eliminated?: ☐ Yes ☐ No Explain:

AADT:	E-20	Year Counted:	2001	No. of Residences Served as Main Access:	

Type of Traffic: ☐ Farm ☐ Industrial/Commercial ☐ School Bus ☐ Commuter ☐ Land Access Only ☐ Other

Describe:					
Alternative Route Distance:	8 km	Bridge Spacing Upstream:		Bridge Spacing Downstream:	

Municipal Official's Signature

Date

EXH Engineering Services Ltd.

Municipal Bridge Request Information Sheet

Bridge File: 74193
Municipality: MD of Mackenzie

EXISTING STRUCTURE INFORMATION:					
Stream:	Watercourse	Highway:	L	Legal Location:	SSE 13 – 0 109 – 15 – 5
Existing Structure:	1-8.5 m Type HC span on TT substructure			Year Built:	1968/1970
Allowable Loading:	30t – 53t – 75t			Loading Governed By:	Girder/Girder/Girder

BIM Level 1 Date:	June 18, 2001	Inspector:	Dan Kwan

Item	Rating	Comments
Approach Road:	5	
Superstructure or Culvert Ends:	4	
Substructure or Culvert Barrel	2	Cap is moving back from piles. Two piles split right down to water. Abutment instability.
Channel:	7	

Structural Condition Rating:	55%	Sufficiency Rating:	64.2%	Est. Remaining Life:	2 years (in 2001)

BIM Level 2 Date:	June 18, 2001	Type:	Girder, Timber Coring	Inspector:	Dan Kwan
Results:	Two split piles				

ALTERNATIVES CONSIDERED:					
	Description	Selected	Year	Cost Estimate	NPV (50 years, 4%)
1					
2					
3					
4				Accepted by Department:	

Assessment Date: Assessed By:

Selected Alternative: ☐ Replace ☐ Upgrade (raise/widen/partial replacement) ☐ New (need transportation plan) ☐ Repair/Rehabilitation

SPECIAL CONSIDERATIONS:

An assessment was started in 2001. Due to the condition of the structure, the assessment was halted and design for replacement began.

This structure is in poor condition and currently posted for 3 Tonnes. Design of the replacement structure is underway for tendering in the spring of 2002.

SELECTION RATIONALE:

PRIORITIZATION INFORMATION:

Urgency: ☐ High ☐ Medium ☐ Low Explain:

Necessity: ☐ Safety ☐ Preservation ☐ Bridge Improvement (loading, flow capacity, clearance) ☐ Road Improvement ☐ Other

Explain:

Can Structure be Eliminated?: ☐ Yes ☐ No Explain:

AADT: E-45 Year Counted: 1989 No. of Residences Served as Main Access:

Type of Traffic: ☐ Farm ☐ Industrial/Commercial ☐ School Bus ☐ Commuter ☐ Land Access Only ☐ Other

Describe:

Alternative Route Distance: 8 km Bridge Spacing Upstream: Bridge Spacing Downstream:

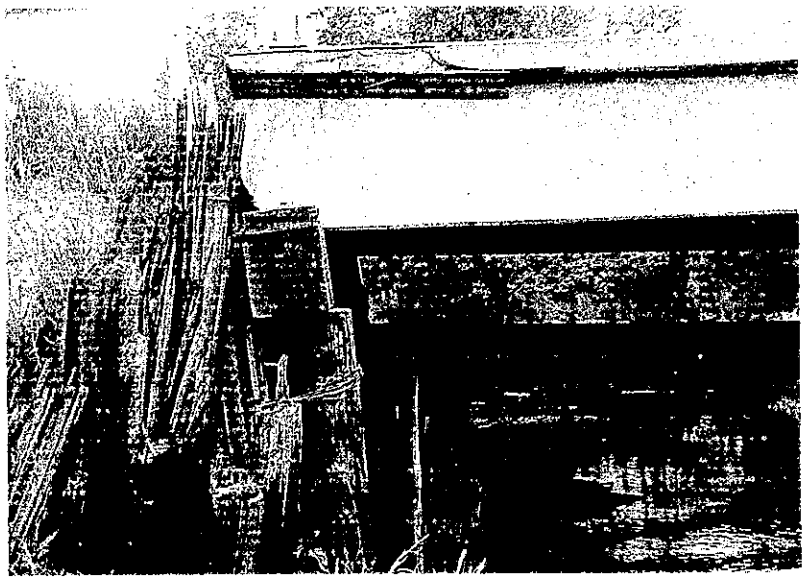
Municipal Official's Signature

Date

BF 74193 - SSE - 13 - 109 - 15 W5

This structure is listed as the #1 priority in 2002 for the MD of Mackenzie. It is currently posted for 3 Tonnes. School busses would normally travel over this structure and they are now being forced to travel an extra four miles around the bridge. Other heavy traffic (water haul) is known to have used the road and may possibly be traveling over the bridge unauthorized. Design of the replacement structure is currently underway. Although it is anticipated that the replacement structure will likely be a large SPCSP culvert, a single span bridge is also being considered.

The 3 Tonne weight restriction was posted in the summer of 2001. The need for the posting is due primarily to several cracked and split piles in the east abutment. The abutment backwalls are pushing in and the timber caps are rolling. The backwall pressure problems at this site go back to 1994 when Alberta Transportation asked the MD to install struts between the backwalls. In March 2000, a letter was sent to Alberta Transportation requesting funds for repair of the structure in 2000. In July 2000, a request was sent to Alberta Transportation asking for funds to replace the structure in 2001. In March 2001, a request was sent to Alberta Transportation asking for funds to complete an assessment on the structure.

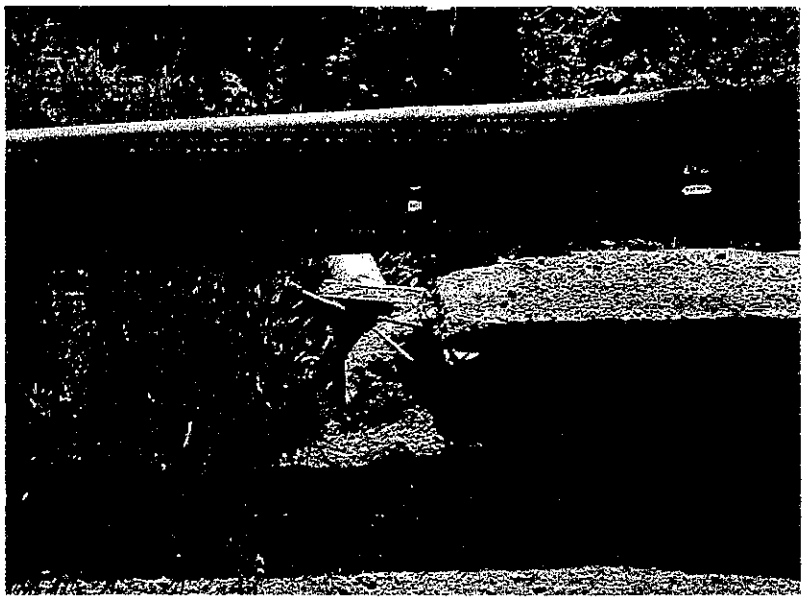


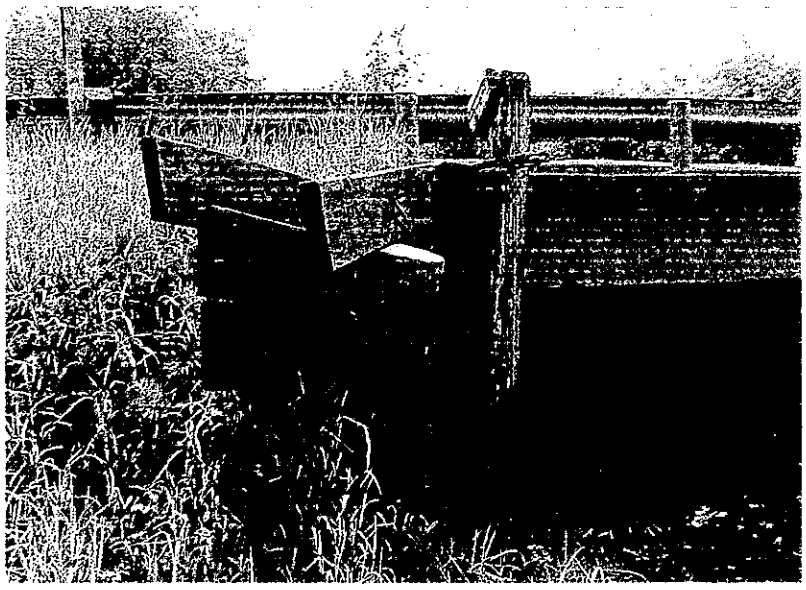
BF 76507 – SSE 28 - 105 -14 - W5

This structure is listed as #2 priority in 2002 for the MD of Mackenzie. The assessment completed in 2001 recommended the following repairs:

- Replacement of the south curb girder with a salvaged girder
- Fill scour hole at southwest wingwall
- Repair of girder pop-outs
- Installation of four hazard markers
- Replacement of timber planks on northeast wingwall

The estimated cost of the repairs is $10,000. It is anticipated that $7,000 will be eligible for funding under the Alberta Transportation GAP funding program.



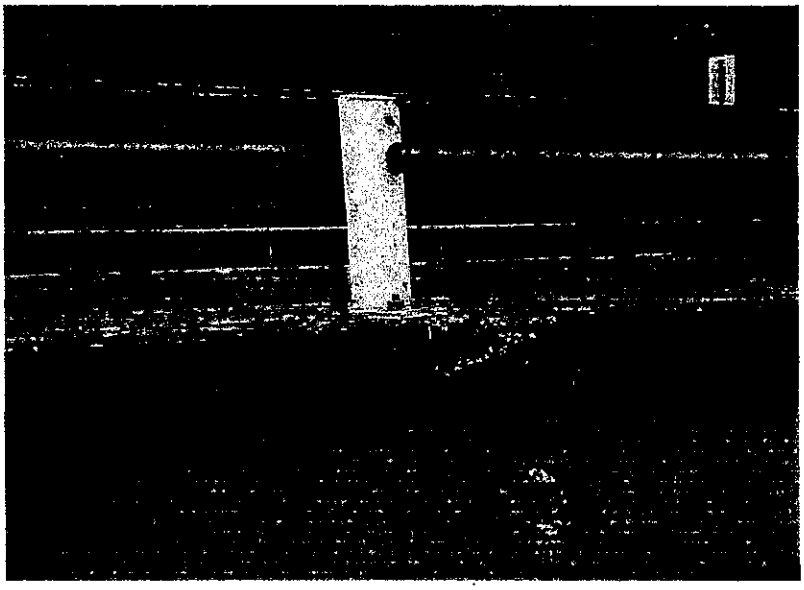


BF 80678 – WNW 27 - 109 - 13 - W5

This structure is listed as #3 priority in 2002 for the MD of Mackenzie. The assessment completed in 2001 recommended the following repairs:

- Repair the south east girder
- Replace one incorrect hazard marker

The estimated cost of the repairs is $2,000. It is anticipated that $1,500 will be eligible for funding under the Alberta Transportation GAP funding program.



M.D. of Mackenzie No. 23

Request For Decision

Meeting:	Special Council Meeting - Budget
Meeting Date:	February 4, 2002
Originated By:	Ivan Perich
Title:	GPEC Consulting Delegation
Agenda Item No:	6.

BACKGROUND / PROPOSAL:

GPEC Consulting has been working on the street improvement projects within the hamlets of Fort Vermilion, La Crete, and Zama. There have been various questions raised regarding all the options for the various street improvement projects, especially in La Crete. Doug Schuler from GPEC will be attending the meeting to review all projects within the hamlets with Council, and to answer any questions that there may be.

DISCUSSION / OPTIONS / BENEFITS / DISADVANTAGES:

This issue will be brought back to the Capital Budget meeting on Friday, February 8 for decision regarding street projects to be completed in 2002.

COSTS / SOURCE OF FUNDING:

2002 Capital Budget

RECOMMENDED ACTION (by originator):

For information.

Review:	Dept.	C.A.O.

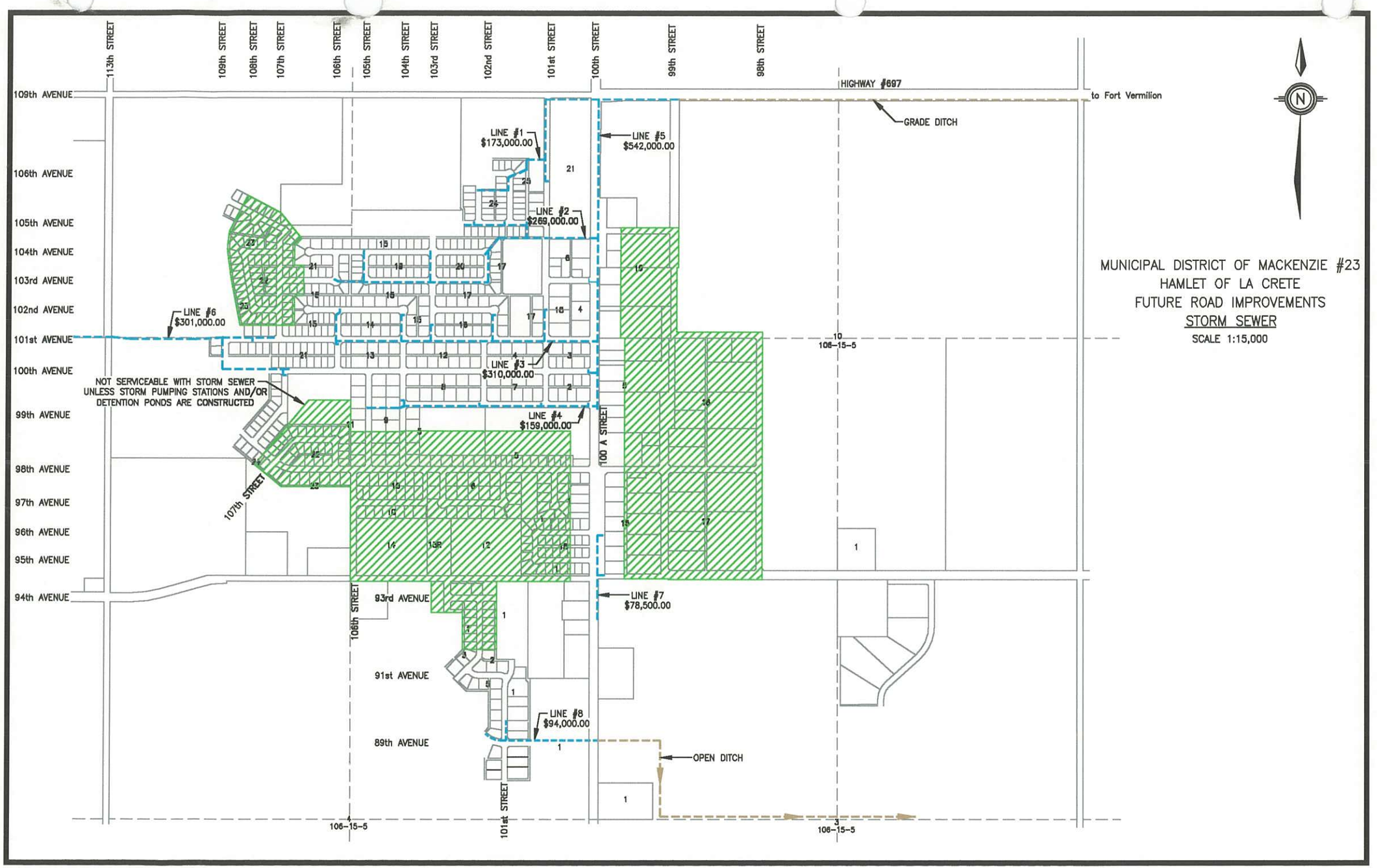
January 31, 2002
File No. 5353

MUNICIPAL DISTRICT OF MACKENZIE #23
FEBRUARY 4, 2002 COUNCIL MEETING
FORT VERMILION, ALBERTA

Agenda Items

1. Storm Water Drainage Area 'A', West of 108 Street - La Crete
2. Road Base & Paving 2002 (including Storm Sewer) - La Crete & Fort Vermilion
3. Southeast Drainage Ditch - La Crete
4. 100 Street Lowering - La Crete
5. Community Hall Drainage Improvements - Zama
6. Drainage System Review - Zama
7. Beach Road Improvements - Zama
8. Gravity Sanitary Sewer Outfall & Trunk Mains - La Crete
9. Prairie Grain Haul Program Grant

G.P.E.C. CONSULTING LTD.


113th STREET
109th STREET
108th STREET
107th STREET
106th STREET
105th STREET
104th STREET
103rd STREET
102nd STREET
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99th AVENUE
98th AVENUE
97th AVENUE
96th AVENUE
95th AVENUE
94th AVENUE
93rd AVENUE
91st AVENUE
89th AVENUE
HIGHWAY #697
to Fort Vermilion
GRADE DITCH
LINE #1 $173,000.00
LINE #2 $269,000.00
LINE #3 $310,000.00
LINE #4 $159,000.00
LINE #5 $542,000.00
LINE #6 $301,000.00
LINE #7 $78,500.00
LINE #8 $94,000.00
NOT SERVICEABLE WITH STORM SEWER UNLESS STORM PUMPING STATIONS AND/OR DETENTION PONDS ARE CONSTRUCTED
100 A STREET
107th STREET
106th STREET
101st STREET
OPEN DITCH
106-15-5
106-15-5
106-15-5
MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF LA CRETE
FUTURE ROAD IMPROVEMENTS
STORM SEWER
SCALE 1:15,000

January 29, 2002
File No. 5353-011-01-40

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF LA CRETE
PROPOSED STORM WATER DRAINAGE - AREA 'A'
108 STREET - 100 & 101 AVENUE

ALTERNATIVES	DESCRIPTION	ESTIMATED COST
Option A	Full storm sewer system	$265,000.00
Option B	Open ditch upper end	$185,000.00
Option C	Open ditch west of 109 Street	$185,000.00
Option D	Open ditch west of 113 Street	$230,000.00
Option E	Open ditch north along 113 Street	Add $100,000.00 to Option D or E

G.P.E.C. CONSULTING LTD.

January 28, 2002

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF LA CRETE - CATCHMENT AREA 'A'
PROPOSED STORM SEWER WEST - OPTION A
PRELIMINARY COST ESTIMATE
(Based on Concept Design)

Storm Sewer Mains & Appurtenances

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
1.	Supply & install storm sewer pipe, laying, jointing, testing & backfilling, compact native backfill of trench to 95% SPD.			
	a) 300mm diameter (P.V.C. Ultra-Rib)	55 l.m.	65.00	3,575.00
	b) 400mm diameter	290 l.m.	90.00	26,100.00
	c) 450mm diameter	95 l.m.	110.00	10,450.00
	d) 600mm diameter	105 l.m.	135.00	14,175.00
	e) 750mm diameter (C.S.P. Ultra-Flo)			
	> 1.0m - 2.0m depth	110 l.m.	150.00	16,500.00
	> 2.0m - 3.0m depth	195 l.m.	155.00	30,225.00
	> 3.0m - 4.0m depth	230 l.m.	165.00	37,950.00
	> 4.0m - 5.0m depth	190 l.m.	175.00	33,250.00
2.	Supply & install 1200mm diameter concrete manhole, c/w frame & cover (12 units).	29 v.m.	1,000.00	29,000.00
3.	Supply & install 900mm diameter concrete catch basin, c/w top & base with frame and cover.	2 units	2,500.00	5,000.00
4.	Construct open ditch to existing ditch.	50 l.m.	20.00	1,000.00
5.	Road crossing; compacted native backfill to 98% SPD.	50 l.m.	25.00	1,250.00
6.	Traffic gravel.	60 c.m.	20.00	1,200.00
7.	Base stabilized material.	100 c.m.	14.00	1,400.00
8.	Prime Cost Sum for Testing @ 1½%			$ 3,125.00
9.	Contingency Allowance @ 10%			$ 21,400.00
10.	Engineering @ 10%			$ 21,400.00
11.	G.S.T. @ 3%			$ 7,700.00
	TOTAL UNIT PRICE SCHEDULE - Option A			**$ 264,700.00**

BUDGET $265,000.00

Note: *A storm water / detention pond has not been considered in the cost estimates at this time. Alberta Environment will require a review of proposed system & the discharge.*

G.P.E.C. CONSULTING LTD.

January 28, 2002

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF LA CRETE - CATCHMENT AREA 'A'
PROPOSED STORM SEWER WEST - OPTION B
PRELIMINARY COST ESTIMATE
(Based on Concept Design)

Storm Sewer Mains & Appurtenances

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
1.	Supply & install storm sewer pipe, laying, jointing, testing & backfilling, compact native backfill of trench to 95% SPD.			
	a) 300mm diameter (P.V.C. Ultra-Rib)	22 l.m.	65.00	1,430.00
	b) 750mm diameter (C.S.P. Ultra-Flo)			
	> 1.0m - 2.0m depth	110 l.m.	150.00	16,500.00
	> 2.0m - 3.0m depth	195 l.m.	155.00	30,225.00
	> 3.0m - 4.0m depth	230 l.m.	165.00	37,950.00
	> 4.0m - 5.0m depth	190 l.m.	175.00	33,250.00
2.	Supply & install 1200mm diameter concrete manhole, c/w frame & cover (7 units).	20 v.m.	1,000.00	20,000.00
3.	Supply & install 900mm diameter concrete catch basin, c/w top & base with frame and cover.	2 units	2,500.00	5,000.00
4.	Construct open ditch to existing ditch.	50 l.m.	20.00	1,000.00
5.	Road crossing; compacted native backfill to 98% SPD.	24 l.m.	25.00	600.00
6.	Traffic gravel.	30 c.m.	20.00	600.00
7.	Base stabilized material.	50 c.m.	14.00	700.00
8.	Prime Cost Sum for Testing @ 1½%			$ 2,200.00
9.	Contingency Allowance @ 10%			$ 15,000.00
10.	Engineering @ 10%			$ 15,000.00
11.	G.S.T. @ 3%			$ 5,385.00
	TOTAL UNIT PRICE SCHEDULE - Option B			**$ 184,840.00**

BUDGET $185,000.00

Note: *A storm water / detention pond has not been considered in the cost estimates at this time. Alberta Environment will require a review of proposed system & the discharge.*

G.P.E.C. CONSULTING LTD.

January 28, 2002

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF LA CRETE - CATCHMENT AREA 'A'
PROPOSED STORM SEWER WEST - OPTION C
PRELIMINARY COST ESTIMATE
(Based on Concept Design)

Storm Sewer Mains & Appurtenances

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
1.	Supply & install storm sewer pipe, laying, jointing, testing & backfilling, compact native backfill of trench to 95% SPD.			
	a) 300mm diameter (P.V.C. Ultra-Rib)	55 l.m.	65.00	3,575.00
	b) 400mm diameter	290 l.m.	90.00	26,100.00
	c) 450mm diameter	95 l.m.	110.00	10,450.00
	d) 600mm diameter	105 l.m.	135.00	14,175.00
	e) 750mm diameter (C.S.P. Ultra-Flo)			
	> 1.0m - 2.0m depth	50 l.m.	150.00	7,500.00
	f) 600mm diameter C.S.P. (113 St Crossing)	50 l.m.	150.00	7,500.00
2.	Supply & install 1200mm diameter concrete manhole, c/w frame & cover (12 units).	10 v.m.	1,000.00	10,000.00
3.	Supply & install 900mm diameter concrete catch basin, c/w top & base with frame and cover.	2 units	2,500.00	5,000.00
4.	Excavation of drainage ditch.	24,000 c.m.	2.50	60,000.00
5.	Road crossing; compacted native backfill to 98% SPD.	50 l.m.	25.00	1,250.00
6.	Traffic gravel.	60 c.m.	20.00	1,200.00
7.	Base stabilized material.	50 c.m.	14.00	700.00
8.	Prime Cost Sum for Testing @ 1½%			$ 2,250.00
9.	Contingency Allowance @ 10%			$ 15,000.00
10.	Engineering @ 10%			$ 15,000.00
11.	G.S.T. @ 3%			$ 5,390.00
	TOTAL UNIT PRICE SCHEDULE - Option C			**$ 185,090.00**

BUDGET $185,000.00

Note: A storm water / detention pond has not been considered in the cost estimates at this time. Alberta Environment will require a review of proposed system & the discharge.

G.P.E.C. CONSULTING LTD.

January 28, 2002

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF LA CRETE - CATCHMENT AREA 'A'
PROPOSED STORM SEWER WEST - OPTION D
PRELIMINARY COST ESTIMATE
(Based on Concept Design)

Storm Sewer Mains & Appurtenances

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
1.	Supply & install storm sewer pipe, laying, jointing, testing & backfilling, compact native backfill of trench to 95% SPD.			
	a) 300mm diameter (P.V.C. Ultra-Rib)	55 l.m.	65.00	3,575.00
	b) 400mm diameter	290 l.m.	90.00	26,100.00
	c) 450mm diameter	95 l.m.	110.00	10,450.00
	d) 600mm diameter	105 l.m.	135.00	14,175.00
	e) 750mm diameter (C.S.P. Ultra-Flo)			
	> 1.0m - 2.0m depth	110 l.m.	150.00	16,500.00
	> 2.0m - 3.0m depth	195 l.m.	155.00	30,225.00
	> 3.0m - 4.0m depth	100 l.m.	165.00	16,500.00
2.	Supply & install 1200mm diameter concrete manhole, c/w frame & cover (12 units).	21 v.m.	1,000.00	21,000.00
3.	Supply & install 900mm diameter concrete catch basin, c/w top & base with frame and cover.	2 units	2,500.00	5,000.00
4.	Excavation of drainage ditch.	14,000 l.m.	2.50	35,000.00
5.	Road crossing; compacted native backfill to 98% SPD.	50 l.m.	25.00	1,250.00
6.	Traffic gravel.	60 c.m.	20.00	1,200.00
7.	Base stabilized material.	75 c.m.	14.00	1,050.00
8.	Prime Cost Sum for Testing @ 1½%			$ 2,730.00
9.	Contingency Allowance @ 10%			$ 18,500.00
10.	Engineering @ 10%			$ 18,500.00
11.	G.S.T. @ 3%			$ 6,650.00
	TOTAL UNIT PRICE SCHEDULE - Option D			**$ 228,405.00**

BUDGET $230,000.00

Note: *A storm water / detention pond has not been considered in the cost estimates at this time. Alberta Environment will require a review of proposed system & the discharge.*

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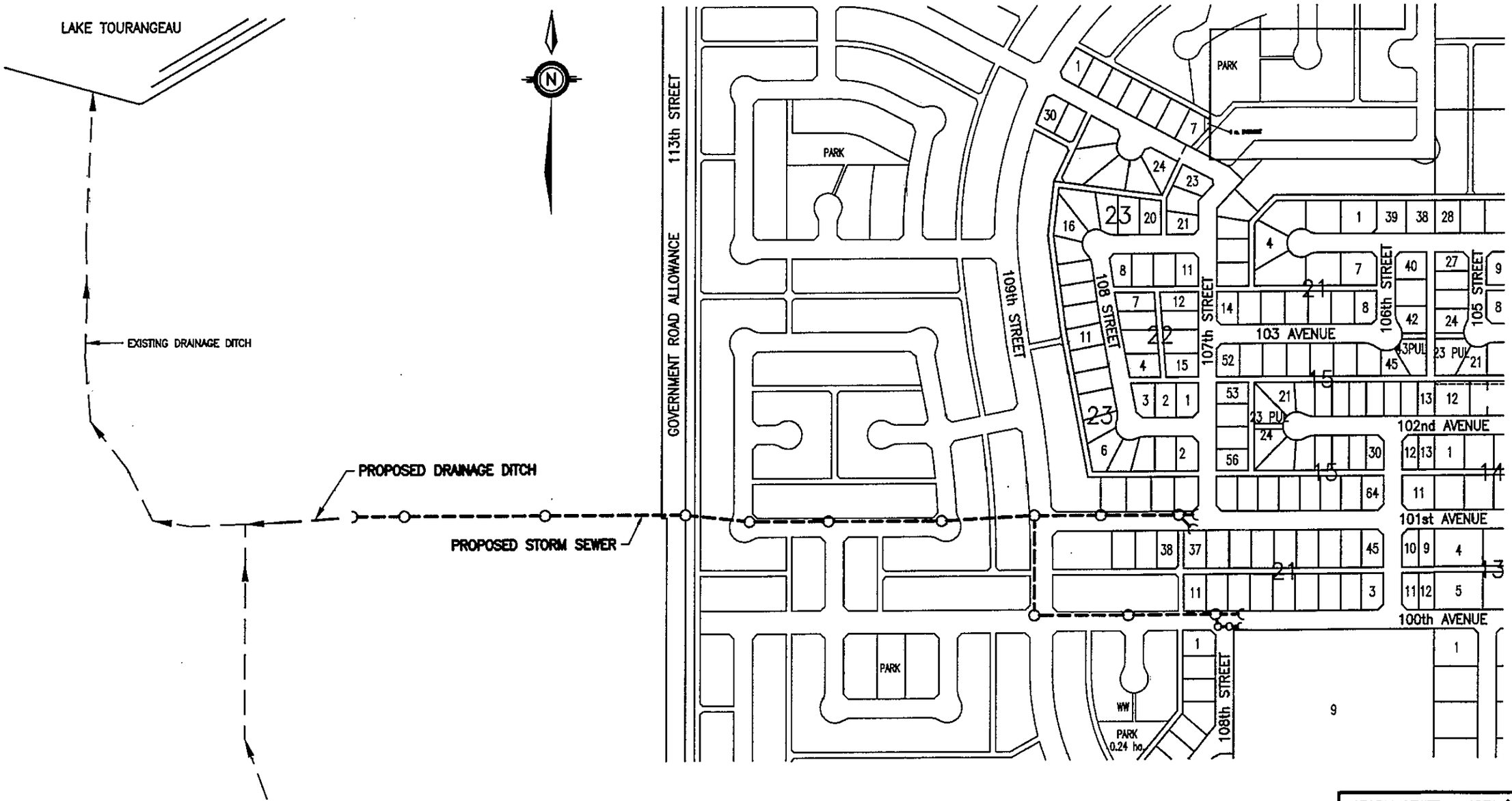
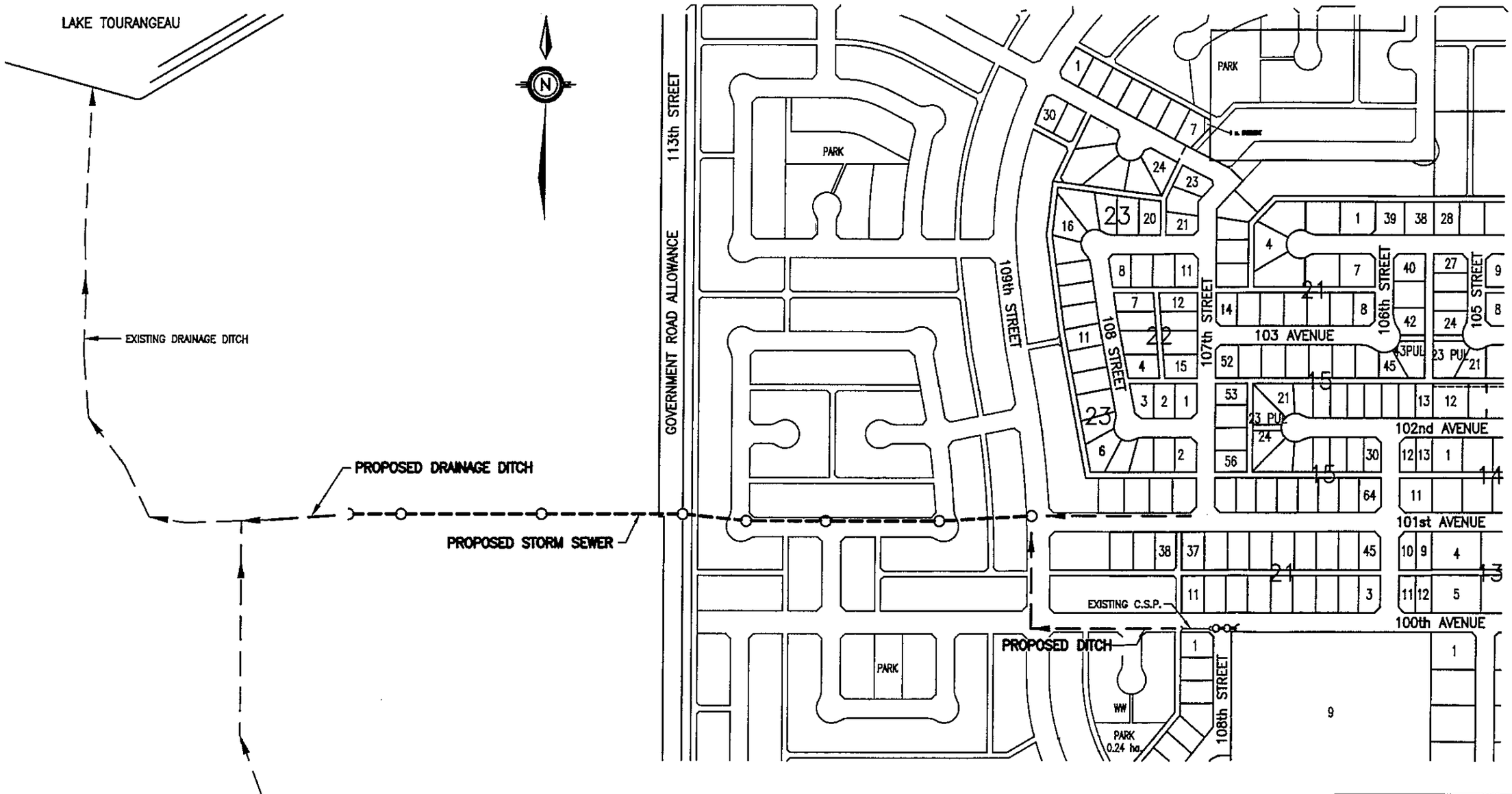
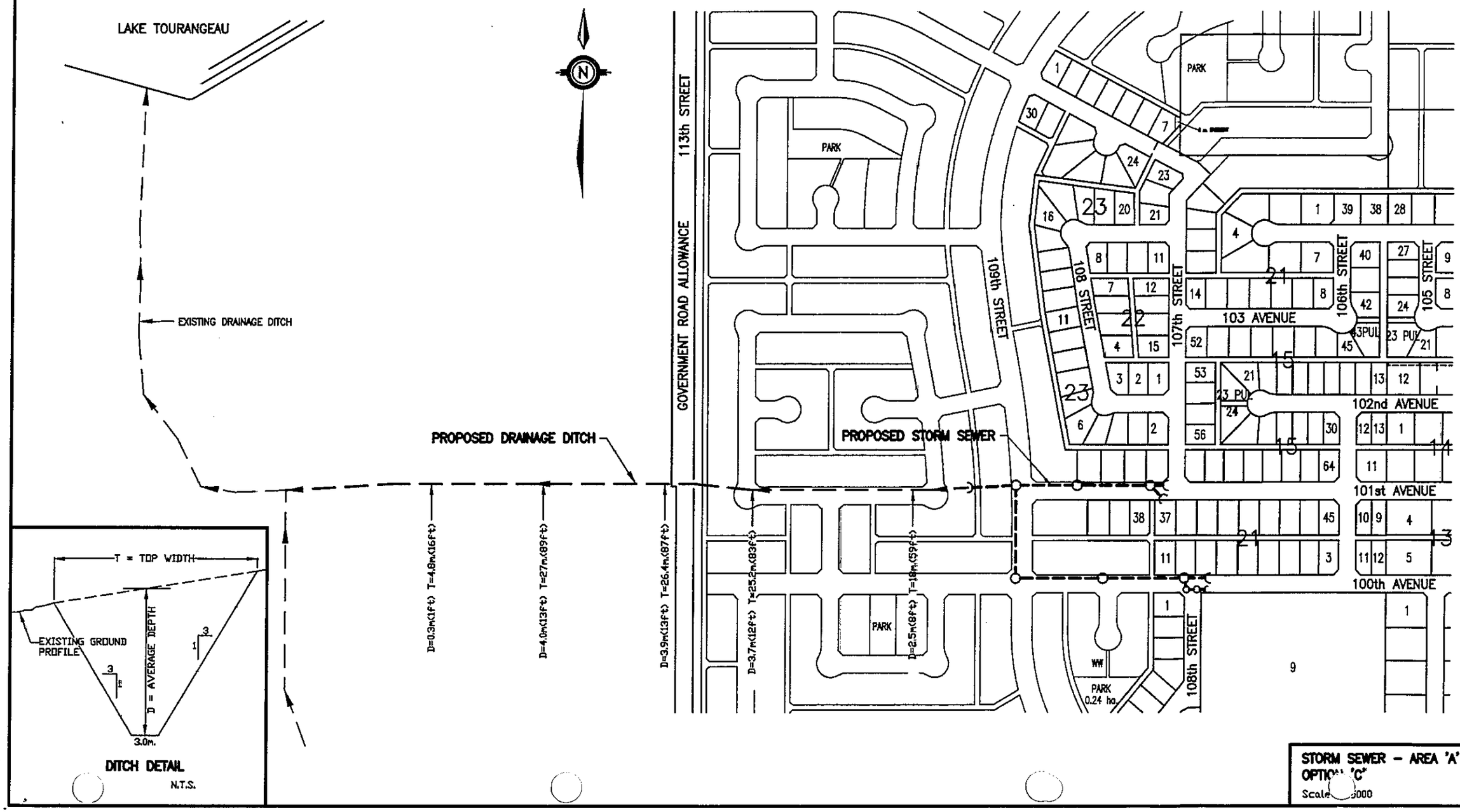
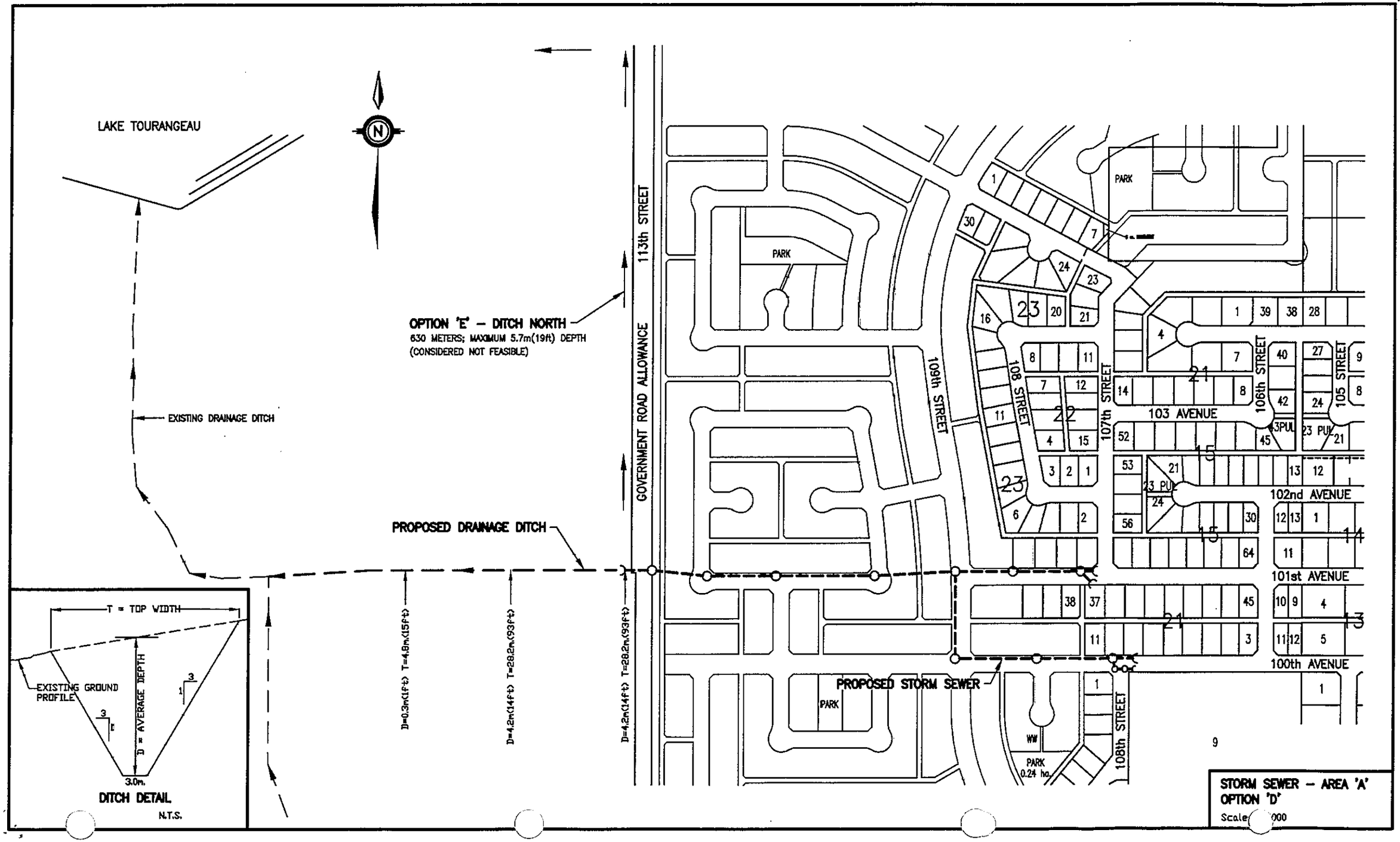


STORM SEWER – AREA 'A'
OP 'A'
Scale- 1:5000



STORM SEWER – AREA 'A'
OPTION 'B'
Scale 1:5000


LAKE TOURANGEAU
EXISTING DRAINAGE DITCH
PROPOSED DRAINAGE DITCH
PROPOSED STORM SEWER
GOVERNMENT ROAD ALLOWANCE
113th STREET
109th STREET
108 STREET
107th STREET
106th STREET
105 STREET
103 AVENUE
102nd AVENUE
101st AVENUE
100th AVENUE
108th STREET
PARK
PARK 0.24 ha.
D=0.3m(1Ft) T=4.8m(16Ft)
D=4.0m(13Ft) T=27m(89Ft)
D=3.9m(13Ft) T=26.4m(87Ft)
D=3.7m(12Ft) T=25.2m(83Ft)
D=2.5m(8Ft) T=18m(59Ft)
T = TOP WIDTH
EXISTING GROUND PROFILE
D = AVERAGE DEPTH
3.0m.
DITCH DETAIL
N.T.S.
STORM SEWER – AREA 'A'
OPTION 'C'
Scale 1:5000


LAKE TOURANGEAU
N
OPTION 'E' – DITCH NORTH
630 METERS; MAXIMUM 5.7m(19ft) DEPTH
(CONSIDERED NOT FEASIBLE)
EXISTING DRAINAGE DITCH
PROPOSED DRAINAGE DITCH
GOVERNMENT ROAD ALLOWANCE
113th STREET
109th STREET
108 STREET
107th STREET
106th STREET
105 STREET
103 AVENUE
102nd AVENUE
101st AVENUE
100th AVENUE
108th STREET
PARK
PARK 0.24 ha.
PROPOSED STORM SEWER
D=0.3m(1ft) T=4.8m(15ft)
D=4.2m(14ft) T=28.2m(93ft)
D=4.2m(14ft) T=28.2m(93ft)
T = TOP WIDTH
D = AVERAGE DEPTH
EXISTING GROUND PROFILE
3.0m.
DITCH DETAIL
N.T.S.
STORM SEWER – AREA 'A'
OPTION 'D'
Scale 1:2000

January 28, 2002
File No. 5353-011-01-40

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLETS OF LACRETE & FORT VERMILION
ROAD BASE AND PAVING - 2002

Class "C" Cost Estimate

Description	**Project #7** LaCrete 108 Street	**Project #8A** Fort Vermilion 52 Street	**Project #9** Subdivision West of La Crete Co-op	**TOTAL**
Paving	$213,500.00	$214,500.00	$68,000.00	$496,000.00
Storm Sewers	Option A $265,000.00 Option B $185,000.00	$210,000.00	N/A	Option A $475,000.00
TOTAL	**Option A $478,500.00**	**$424,500.00**	**$68,000.00**	**Option A $971,000.00**

Note: The above estimates include G.S.T. @ 3%.

G.P.E.C. CONSULTING LTD.

January 28, 2002
File No. 5353-011-0-104

Municipal District of Mackenzie #23 - Hamlet of La Crete
105 Avenue (West of Co-op) - Proposed Road Base & Paving

Cost Estimate

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
1.	Supply and install filter fabric.	300 s.m.	2.00	600.00
2.	Adjustment of water valve boxes to final design elevation.	2 units	200.00	400.00
3.	Adjustment of manhole frames to final design elevation.	1 unit	300.00	300.00
4.	Subgrade preparation & compaction (150mm depth); shape & compact existing gravel.	2,350 s.m.	2.50	5,875.00
5.	Supply, place, grade & compact granular road base material.			
	a) 150mm depth; 20mm crush gravel	2,300 s.m.	6.00	13,800.00
6.	Bituminous seal coat.	2,300 s.m.	0.60	1,380.00
7.	Supply & place hot-mix bituminous surface course (75mm compacted depth).	2,210 s.m.	14.00	30,940.00
8.	Bituminous flush coat at a rate of 0.50 litres per square meter.	100 s.m.	0.60	60.00
9.	Traffic gravel, if required.	50 c.m.	17.00	850.00
10.	Prime Cost Sum for Material Testing @ 1½%			$ 800.00
11.	Contingency Allowance @ 10%			$ 5,500.00
12.	Engineering @ 10%			$ 5,500.00
13.	G.S.T. @ 3%			$ 1,980.00
	TOTAL ESTIMATED COST			**$ 67,985.00**

BUDGET $68,000.00

Note: *Rural section proposed with ditches.*
Maximum pavement width 8 meters finished top.
The installation of the proposed storm sewer system along Main (100) Street could allow some portions of this subdivision to be constructed with curb & gutter.

G.P.E.C. CONSULTING LTD.

January 28, 2002
File No. 5353-011-0-104

Municipal District of Mackenzie #23 - Hamlet of La Crete
108 Street & 98 Avenue - Proposed Road Base & Paving

Cost Estimate

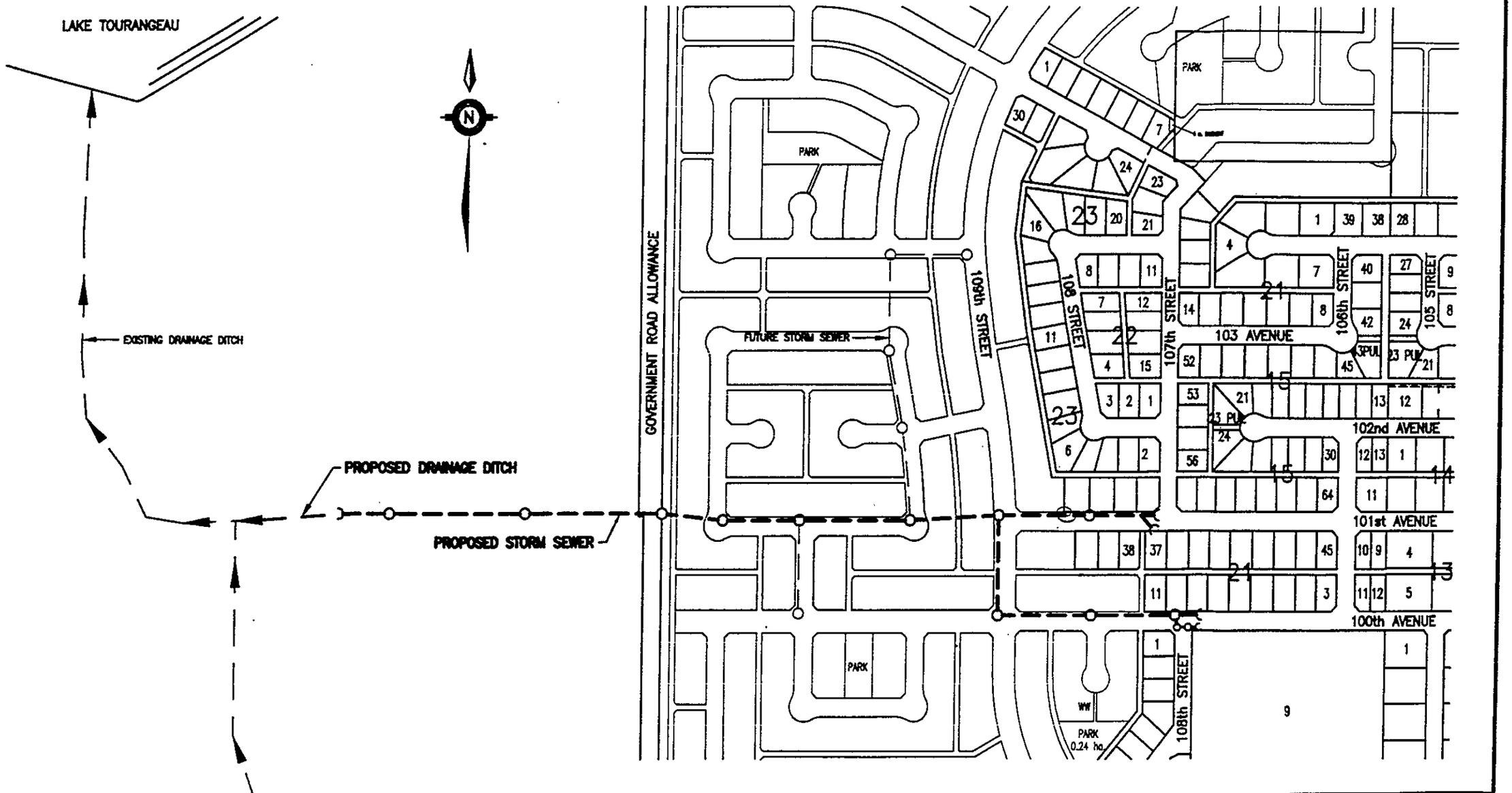
ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
1.	Supply & install concrete work, including excavation, subgrade preparation, backfilling & clean-up, etc.			
	a) rolled curb & gutter	730 l.m.	80.00	58,400.00
2.	Supply & install additional reinforcing steel; 2 - 10 mm bars, as required.	60 l.m.	2.50	150.00
3.	Subcut excavation & backfill for concrete work (imported granular material).	30 c.m.	40.00	1,200.00
4.	Supply and install filter fabric.	1,500 s.m.	2.00	3,000.00
5.	Adjustment of water valve boxes to final design elevation.	1 unit	200.00	200.00
6.	Adjustment of manhole frames to final design elevation.	2 units	300.00	600.00
7.	Earth excavation and disposal at .35 depth.	1,270 c.m.	9.00	11,430.00
8.	Subgrade preparation & compaction (150mm depth).	3,630 s.m.	2.50	9,075.00
9.	Supply, place, grade & compact granular road base material.			
	a) 150mm depth; 40mm crush gravel	3,630 s.m.	6.00	21,780.00
	b) 75mm depth; 20mm crush gravel	3,630 s.m.	3.80	13,794.00
10.	Bituminous seal coat.	3,630 s.m.	0.60	2,178.00
11.	Supply & place hot-mix bituminous surface course (65mm compacted depth).	3,630 s.m.	13.00	47,190.00
12.	Bituminous flush coat at a rate of 0.50 litres per square meter.	300 s.m.	0.60	180.00
13.	Traffic gravel, if required.	60 c.m.	17.00	1,020.00
14	Prime Cost Sum for Material Testing @ 1½%			$ 2,553.00
15.	Contingency Allowance @ 10%			$ 17,300.00
16.	Engineering @ 10%			$ 17,300.00

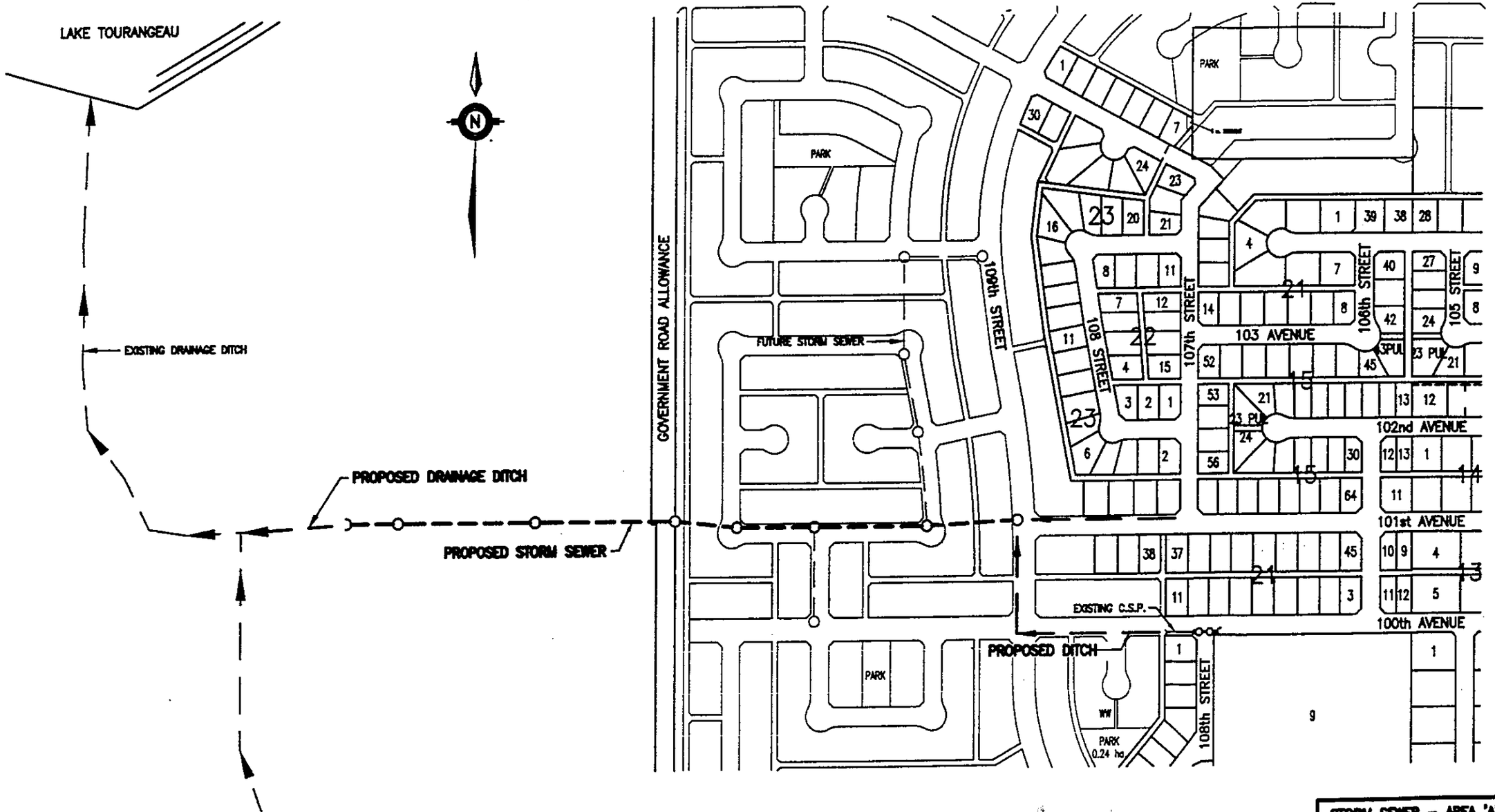
ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
17.	G.S.T. @ 3%			$ 6,220.00
	TOTAL ESTIMATED COST			**$ 213,570.00**

BUDGET $213,500.00

Note: *Storm sewer catch basins & piping required at the intersection of 108 Street & 100 Avenue. The sidewalk considered on one side only was postponed one year to allow settlement of ditch backfill (May 16, 2001 estimated cost $36,000.00).*

G.P.E.C. CONSULTING LTD.


LAKE TOURANGEAU
N
EXISTING DRAINAGE DITCH
PROPOSED DRAINAGE DITCH
PROPOSED STORM SEWER
GOVERNMENT ROAD ALLOWANCE
FUTURE STORM SEWER
PARK
PARK
PARK
PARK
0.24 ha.
109th STREET
108 STREET
107th STREET
106th STREET
105 STREET
108th STREET
103 AVENUE
102nd AVENUE
101st AVENUE
100th AVENUE
3PUL
23 PUL
WW
9
STORM SEWER - AREA 'A'
OPTION A
Scale- 1:5



STORM SEWER – AREA 'A'
OPTION B
Scale– 1:5000

January 28, 2002
File No. 5353-011-01-40

Municipal District of Mackenzie #23 - Hamlet of Ft. Vermilion
52 Street - 44 to 48 Street; Proposed Road Base & Paving

Cost Estimate

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
1.	Supply & install concrete work, including excavation, subgrade preparation, backfilling & clean-up, etc.			
	a) standard curb & gutter	20 l.m.	85.00	1,700.00
	b) rolled monolithic curb & gutter	720 l.m.	80.00	57,600.00
2.	Supply & install additional reinforcing steel; 2 - 10 mm bars, as required.	60 l.m.	2.50	150.00
3.	Subcut excavation & backfill for concrete work (imported granular material).	30 c.m.	40.00	1,200.00
4.	Supply and install filter fabric.	1,800 s.m.	2.00	3,600.00
5.	Adjustment of water valve boxes to final design elevation.	3 units	200.00	600.00
6.	Adjustment of manhole frames to final design elevation.	2 units	300.00	600.00
7.	Earth excavation and disposal at .35 depth.	1,230 c.m.	9.00	11,070.00
8.	Subgrade preparation & compaction; 150mm depth.	3,600 s.m.	2.50	9,000.00
9.	Supply, place, grade & compact granular road base material.			
	a) 150mm depth; 40mm crush gravel	3,600 s.m.	6.00	21,600.00
	b) 100mm depth; 20mm crush gravel	3,600 s.m.	3.80	13,680.00
10.	Bituminous seal coat.	3,600 s.m.	0.60	2,160.00
11.	Supply & place hot-mix bituminous surface course (75mm compacted depth).	3,600 s.m.	13.00	46,800.00
12.	Bituminous flush coat at a rate of 0.50 litres per square meter.	300 s.m.	0.60	180.00
13.	Traffic gravel, if required.	60 c.m.	17.00	1,020.00
14.	Prime Cost Sum for Material Testing @ 1½%			$ 2,540.00

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
15.	Contingency Allowance @ 10%			$ 17,300.00
16.	Engineering @ 10%			$ 17,300.00
17.	G.S.T. @ 3% Net			$ 6,245.00
	TOTAL ESTIMATED COST			**$ 214,345.00**

BUDGET $214,500.00

G.P.E.C. CONSULTING LTD.

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF FORT VERMILION
52 STREET - 44 AVENUE TO 50 AVENUE
PRELIMINARY COST ESTIMATE

Storm Sewer Mains & Appurtenances

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
1.	Supply & install storm sewer pipe, laying, jointing, testing & backfilling, compact native backfill of trench to 97% SPD. **C.S.P. Ultra-Flo (Alum)**			
	a) 750mm diameter	30 l.m.	155.00	4,650.00
	b) 600mm diameter	375 l.m.	145.00	54,375.00
	c) 500mm diameter	425 l.m.	110.00	46,750.00
2.	Supply & install PVC catch basin leads.	70 l.m.	65.00	4,550.00
3.	Supply & install 1200mm diameter concrete manhole, c/w frame & cover (10 units).	10 each	3,000.00	30,000.00
4.	Supply & install 900mm diameter concrete catch basin, c/w top & base with frame and cover.	7 units	2,500.00	17,500.00
5.	Road crossing; compacted granular backfill to 98% SPD.	120 l.m.	20.00	2,400.00
6.	Outlet erosion protection (rip-rap).	40 c.m.	50.00	2,000.00
7.	Base stabilized material.	40 c.m.	20.00	800.00
8.	Pavement repairs (three locations).	150 s.m.	25.00	3,750.00
9.	Traffic gravel.	40 c.m.	20.00	800.00
10.	Prime Cost Sum for Testing @ 1½%			$ 2,515.00
11.	Contingency Allowance @ 10%			$ 17,000.00
12.	Engineering @ 10%			$ 17,000.00
13.	G.S.T. @ 3% Net			$ 6,120.00
	TOTAL UNIT PRICE SCHEDULE "A"			**$ 210,210.00**

BUDGET $210,000.00

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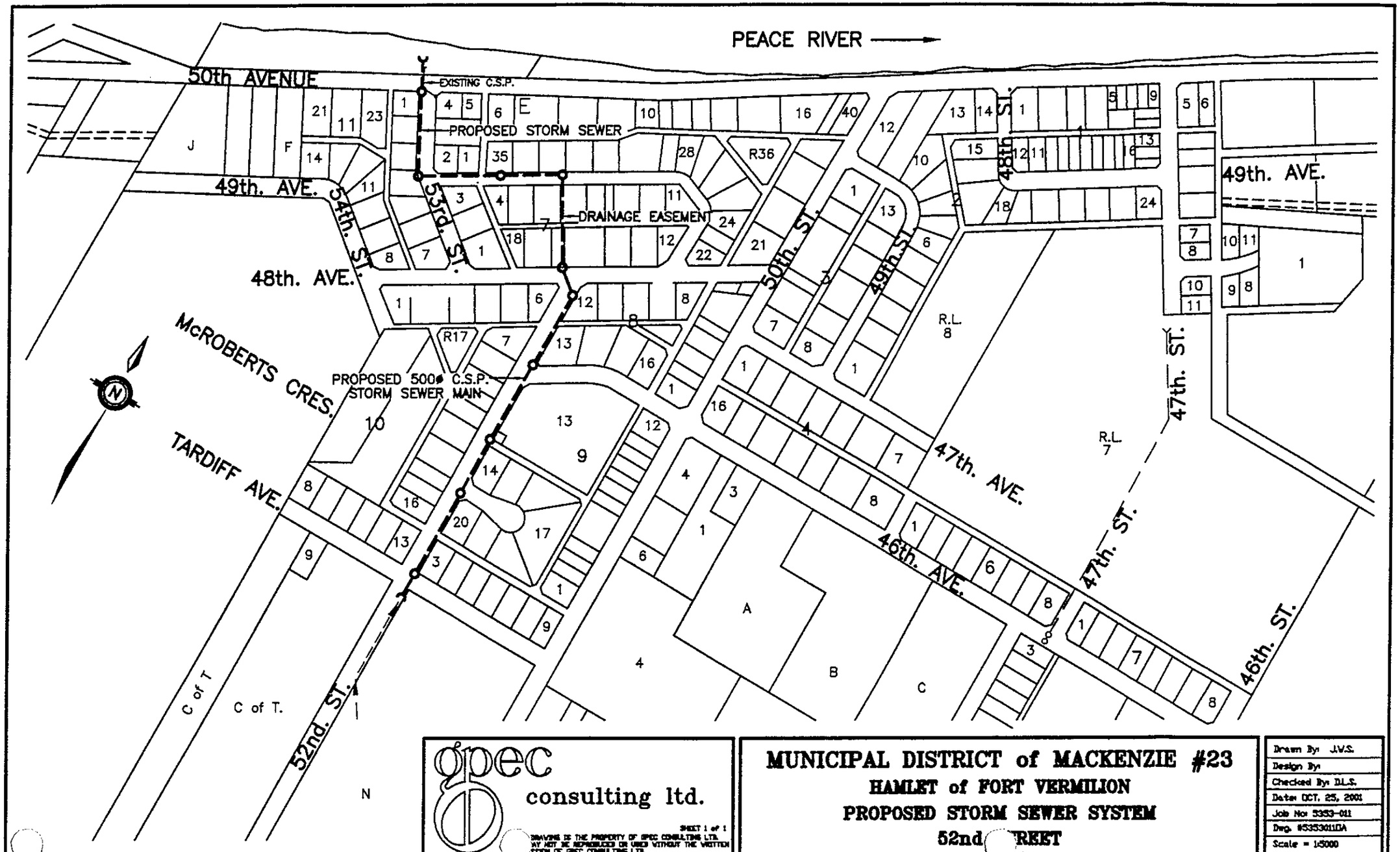


gpec consulting ltd.

MUNICIPAL DISTRICT of MACKENZIE #23

HAMLET of FORT VERMILION

PROPOSED STORM SEWER SYSTEM

52nd STREET

Drawn By:	J.V.S.
Design By:	
Checked By:	D.L.S.
Date:	OCT. 25, 2001
Job No:	3353-011
Dwg. #:	53353011DA
Scale =	1:5000

November 9, 2001
File No. 5353-022-01-40

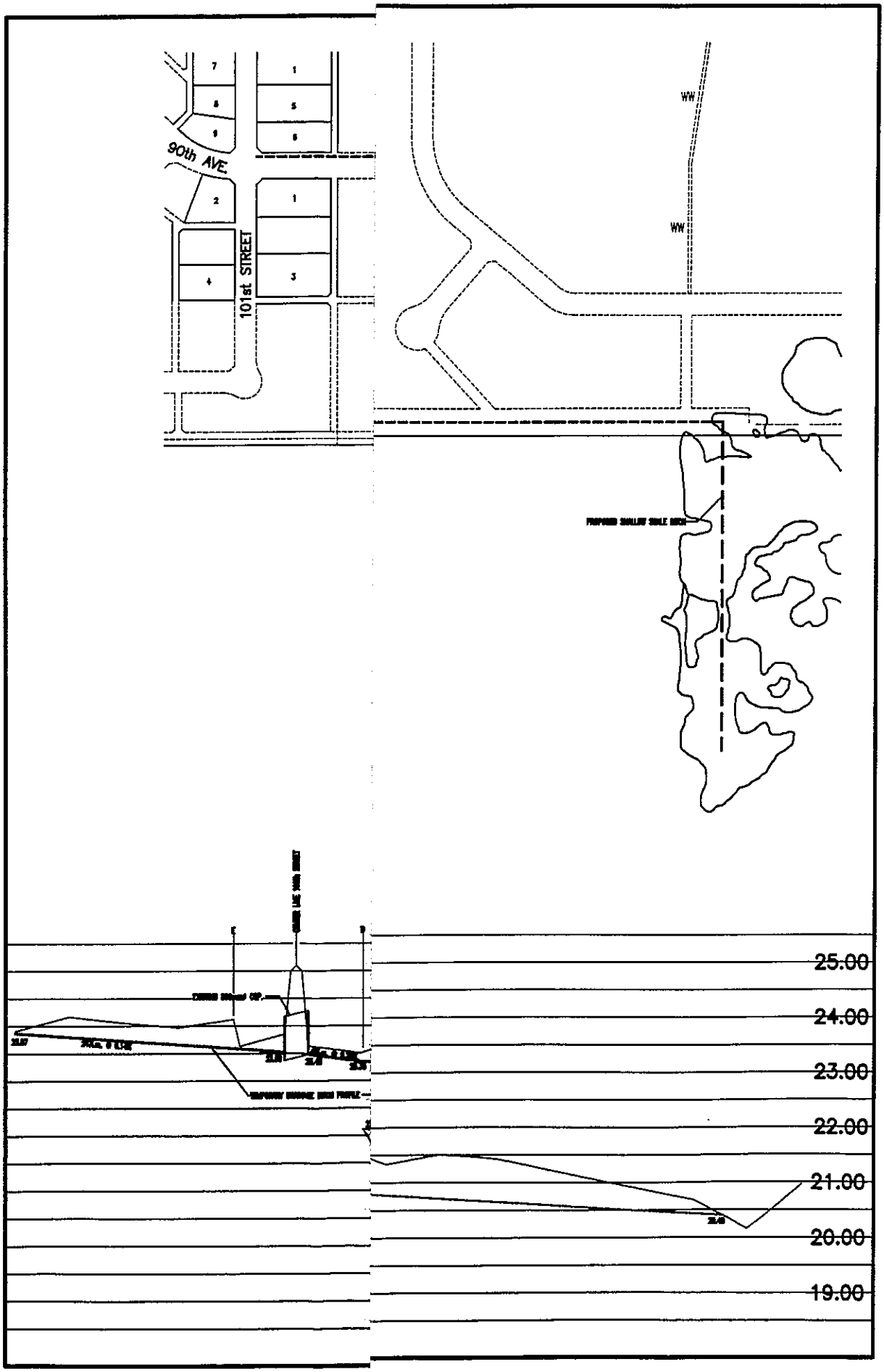
MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF LA CRETE
SOUTH EAST STORM WATER
DRAINAGE DITCH
EAST OF 100 STREET

Cost Estimate

1.	Clearing & timber salvage (completed by J.L. Investments, at no cost, ± $10,000.00)	N/C
2.	Lowering of two natural gas lines (completed by J.L. Investments, at no cost, ± $1,000.00)	N/C
3.	Strip topsoil (sumps, etc.); 5,000 c.m. @ $0.50	$ 2,500.00
4.	Earth excavation & level material; 9,000 c.m. @ $2.00	18,000.00
5.	Excavate swale ditch east end; backhoe 12 hours @ $100.00	1,200.00
6.	Engineering	
	a) Easement discussion & meetings	1,100.00
	b) Preliminary survey for clearing & elevations	4,500.00
	c) Design, drafting & approvals	3,000.00
	d) Construction survey & supervision	
	• administration & meeting	600.00
	• time; 45 hours @ $55.00	2,475.00
	• vehicle, meals, room & survey supplies (5 days)	875.00
7.	Contingency Allowance @ 10%	3,350.00
	TOTAL ESTIMATED COST	**$37,600.00**

Note: Temporary ditch cost not included in above estimate is $5,700.00

G.P.E.C. CONSULTING LTD.



M.D.S. File: D:\2000awg\5353(M.D. of Mackenzie #23)\5353022(Lo Crete SE Drainage Di

January 29, 2002
File No. 5353-019-01-40

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF LA CRETE
100 STREET LOWERING - LONG TERM PLAN

Alternative 'A' - Two Lane Traffic

- two driving lanes (3.5 meters)
- two parking lanes (2.5 meters) 220 stalls 94 to 105 Avenue
- 1200mm wide sidewalk; one side (west)

Estimated Cost $2,520,000.00

Alternative 'B' - Four Lane Traffic

- 4 driving lanes (3.5 meters)
- no parking (option 220 stalls)
- 1200mm wide sidewalk; one side

Estimated Cost $2,705,000.00

Alternative 'C' - Center Turning Lane (94 to 105 Avenue)

- two driving lanes (3.5 meters)
- two parking lanes (2.5 meters) 220 stalls 94 to 105 Avenue
- painted center turning
- 1200mm wide sidewalk, one side
- option concrete meridian, additional cost

Estimated Cost $2,735,000.00

Alternative 'D' - Middle Turning Bays @ Intersections

- two driving lanes (3.5 meters)
- two parking lanes (2.5 meters) 140 stalls 94 to 105 Avenue
- painted turning at intersection delete parking
- 1200mm wide sidewalk, one side

Estimated Cost $2,570,000.00

Alternative 'E' - Two Lane Traffic

- two driving lanes (3.5 meters)
- one parallel parking lane (2.5 meters), one angled parking lane (5.5 meters)
- 315 parking stalls 94 to 105 Avenue
- 1200mm wide sidewalk, one side
- raised concrete boulevard @ intersections

Estimated Cost **$2,845,000.00**

Alternative 'F' - Two Lane Traffic

- two driving lanes (3.5 meters)
- two angled parking lanes (5.5 meters) 440 stalls 94 to 105 Avenue
- 1200mm wide sidewalk, one side
- raised concrete boulevard @ intersections

Estimated Cost **$3,130,000.00**

Alternative 'G' - Four Lane Traffic & Parallel Parking Both Sides (19 meter width)

- four driving lanes (3.5 meters)
- two parallel parking lanes (2.5 meters), 220 stalls 94 to 105 Avenue
- painted center turning
- 1200mm wide sidewalk, one side

Estimated Cost **$3,230,000.00**

Alternative 'H' - Four Lane Traffic & Angle Parking Both Sides (25 meter width)

- four driving lanes (3.5 meters)
- two angled parking lanes (5.5 meters) 140 stalls 94 to 105 Avenue
- painted turning at intersection delete parking
- 1200mm wide sidewalk, one side

Estimated Cost **$3,800,000.00**

Note: To construct new street lighting from 94 to 106 Avenue add $95,000.00 to all alternatives.
To construct four-way traffic control lighting at one intersection add $140,000.00 to all alternatives.
To construct a sidewalk east side from 98 to 105 Avenue add $80,000.00 to all alternatives.

November 23, 2001
File No. 5353-019-01-40

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF LA CRETE
MAIN (100) STREET LOWERING

Alternative 'A'

Existing Conditions:

- The existing streets are presently constructed to a rural section.
- The grade of the existing rural section was constructed with slopes less than the considered minimum 0.4% grade for curb and gutter.
- No storm sewer exists only open ditches (main collector ditch, east side)
- A survey conducted determined curb and gutter can be constructed at a lower elevation with the construction of a storm sewer system.
- Some lots have minimum drainage to existing ditch bottom.
- The existing road surfaces is estimated to be lowered approximately 1.0 meters.

Preliminary Design Considerations:

- Location - 100 Street from 170 meters south of 94 Avenue to 30 meters north of 109 Avenue
- Pavement width - 11.4 meters
- Commercial road section - earth excavation, 150mm subgrade preparation, 200mm depth of 40mm & 100mm depth of 20mm granular base course and 100mm depth of hot-mix asphalt surface course
- Concrete curb and gutter, both sides
- Concrete sidewalk, west side only
- Storm sewer system along 109 Avenue from 99 Street & along 100 Street to 99 Avenue
- Catch basins will be located at 13 or 14 locations.
- Open ditch or swale ditch may be required between 96 and 99 Avenue.
- Cost estimates are based on conceptual design for storm sewer and road grades.

Cost Estimate

1.	Concrete Work	
	• Curb & gutter; 3,700 l.m.	$ 304,000.00
	• 1200mm wide sidewalk; 2,000 s.m.	143,000.00
	SUBTOTAL	$ 447,000.00
2.	Storm Sewers	
	• Storm sewer mains & manholes	$ 274,000.00
	• Crossing 100 Street; lead pipes	28,000.00
	• Catch basins; 38 units	95,000.00
	• Outfall ditch on 109 Avenue	20,000.00
	• Miscellaneous items	15,000.00
	SUBTOTAL	$ 432,000.00

3.	Road Lowering	
	• Excavation; 26,000 c.m.	$ 182,000.00
	• Subgrade; 23,500 s.m.	97,000.00
	• Base Course ; 27,600 s.m.	271,000.00
	• Paving	
	- 100 Street; 23,500 s.m.	470,000.00
	- Paved street tie-ins; 2,700 s.m.	38,000.00
	- Driveways (approaches); 1,400 s.m.	20,000.00
	• Utility relocation (gas, power, Telus, cable)	30,000.00
	• Miscellaneous items	26,000.00
	SUBTOTAL	$1,134,000.00
4.	Materials Testing @ 1½%	$ 30,000.00
5.	Contingency Allowance @ 10%	$ 204,000.00
6.	Engineering estimated at	$ 200,000.00
7.	G.S.T. @ 3% (less rebate)	$ 73,000.00
	**TOTAL ESTIMATED COST	**$2,520,000.00**

G.P.E.C. CONSULTING LTD.

November 23, 2001
File No. 5353-019-01-40

Municipal District of Mackenzie #23 - Hamlet of La Crete
100 Street Re-Construction (Lowering) - Road Base & Paving
Alternative 'A'

Cost Estimate

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
1.	Supply & install concrete work, including excation, subgrade preparation, backfilling & clean-up, etc.			
	a) standard curb & gutter	3,700 l.m.	80.00	296,000.00
	b) separate sidewalk (1.22m wide); one side	2,000 l.m.	70.00	140,000.00
2.	Supply & install additional reinforcing steel; 2 - 10 mm bars, as required.	300 l.m.	2.50	750.00
3.	Subcut excavation & backfill for concrete work (imported granular material).	200 c.m.	40.00	8,000.00
4.	Mechanical cutting of existing asphalt road surface, including soil cement base course.	100 l.m.	20.00	2,000.00
5.	Supply and install filter fabric.	12,000 s.m.	2.00	24,000.00
6.	Supply, place, grade & compact pitrun.	1,000 c.m.	14.00	14,000.00
7.	Adjustment of water valve boxes to final design elevation.	10 units	200.00	2,000.00
8.	Adjustment of manhole frames to final design elevation.	10 units	300.00	3,000.00
9.	Earth excavation and disposal at 1.0 depth.	26,000 c.m.	7.00	182,000.00
10.	Subgrade preparation & compaction; 150mm depth.	23,500 s.m.	2.50	58,750.00
11.	Supply, place, grade & compact granular road base material.			
	a) 200mm depth; 40mm crush gravel	23,500 s.m.	6.50	152,750.00
	b) 100mm depth; 20mm crush gravel	23,500 s.m.	4.00	94,000.00
	c) 150mm depth; 20mm crush gravel (side streets & approaches)	4,100 s.m.	6.00	24,600.00
12.	Bituminous tack coat at a rate of 0.50 litres per square meter.	23,500 s.m.	0.60	14,100.00
13.	Supply & place hot-mix bituminous surface course			
	a) 100mm compacted depth	23,500 s.m.	20.00	470,000.00
	b) 75mm compacted depth (side streets & approaches)	4,100 s.m.	14.00	57,400.00

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
14.	Bituminous flush coat at a rate of 0.50 litres per square meter.	2,500 s.m.	1.00	2,500.00
15.	Traffic gravel, if required.	300 c.m.	17.00	5,100.00
16.	Utility relocations			30,000.00
16.	Prime Cost Sum for Material Testing @ 1½%			$ 23,700.00
	SUBTOTAL			$ 1,604,650.00
17.	Contingency Allowance @ 10%			$ 160,450.00
18.	Engineering @ 10%			$ 160,450.00
19.	G.S.T. @ 3%			$ 57,750.00
	TOTAL ESTIMATED COST			**$ 1,983,300.00**

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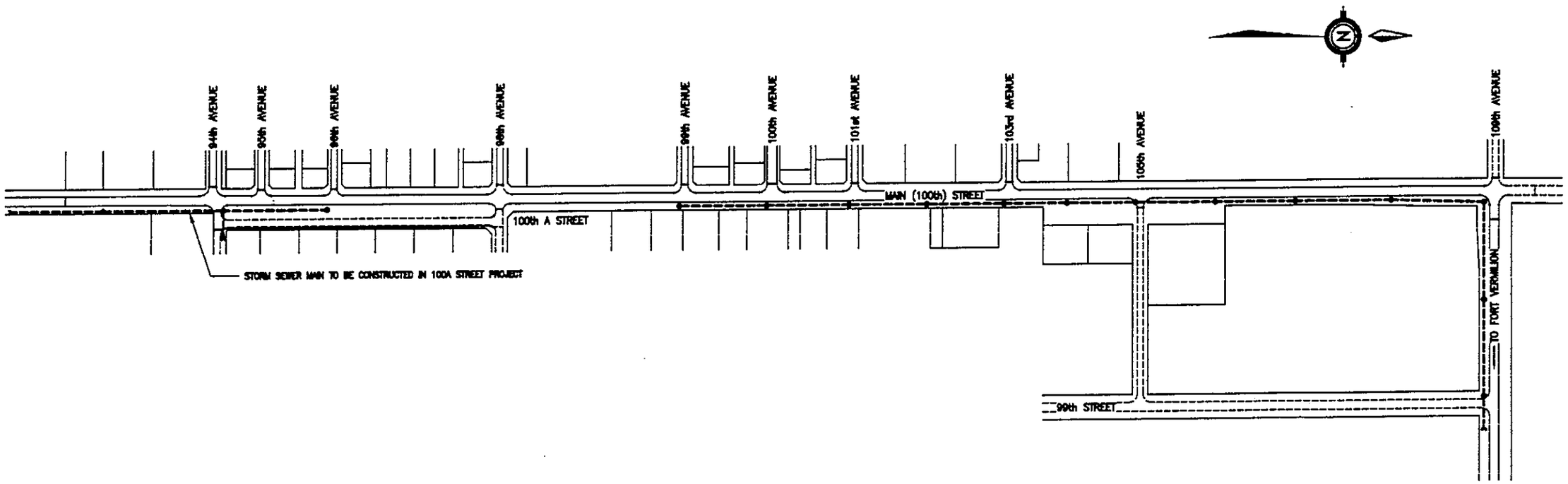
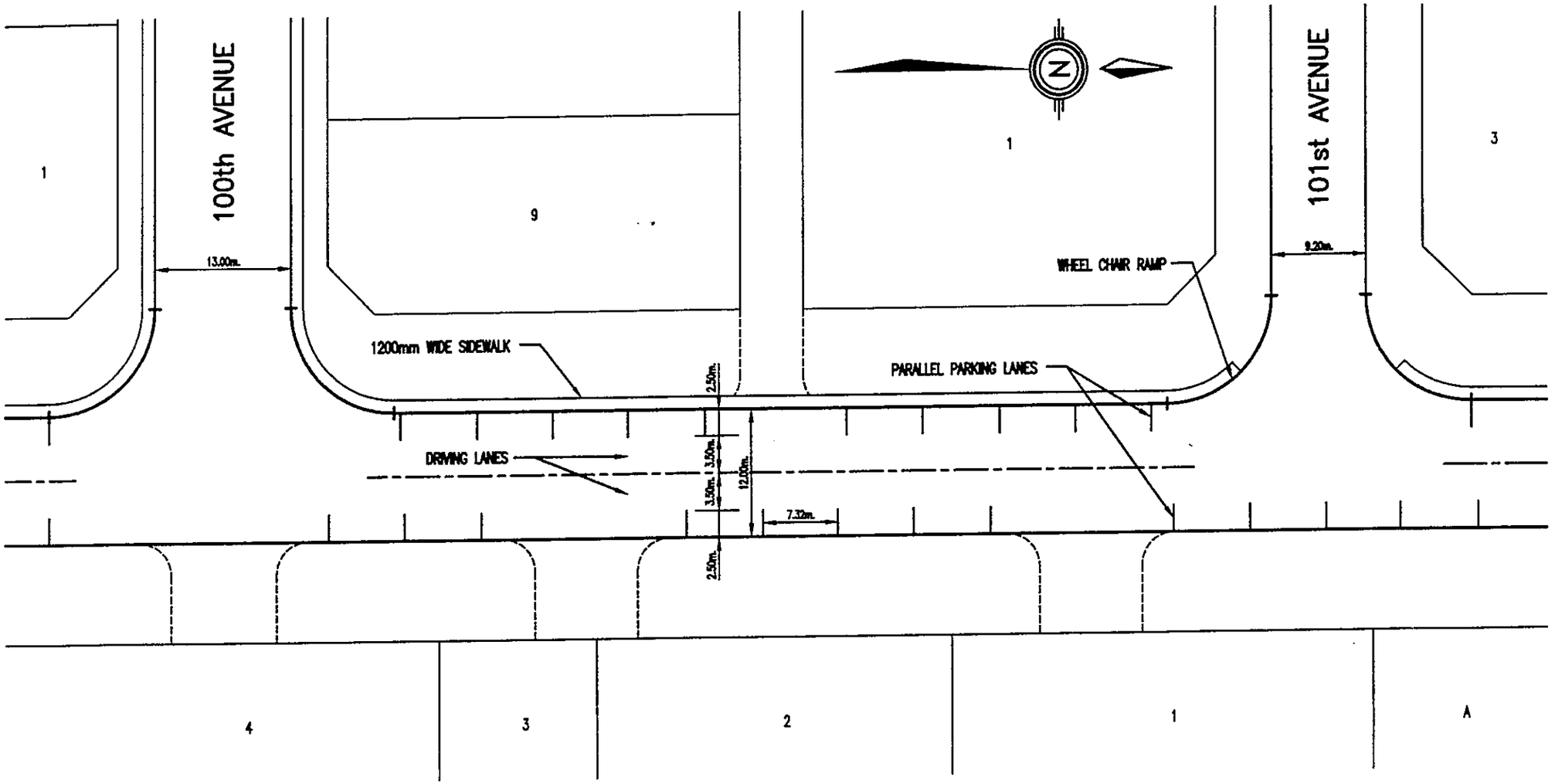
MUNICIPAL DISTRICT OF MACKENZIE #23

HAMLET OF LA CRETE

MAIN (100th) STREET STORM DRAINAGE





gpec consulting ltd.

SHEET 1 of 4

MUNICIPAL DISTRICT of MACKENZIE #23

100th STREET REHABILITATION

ALTERNATIVE 'A'

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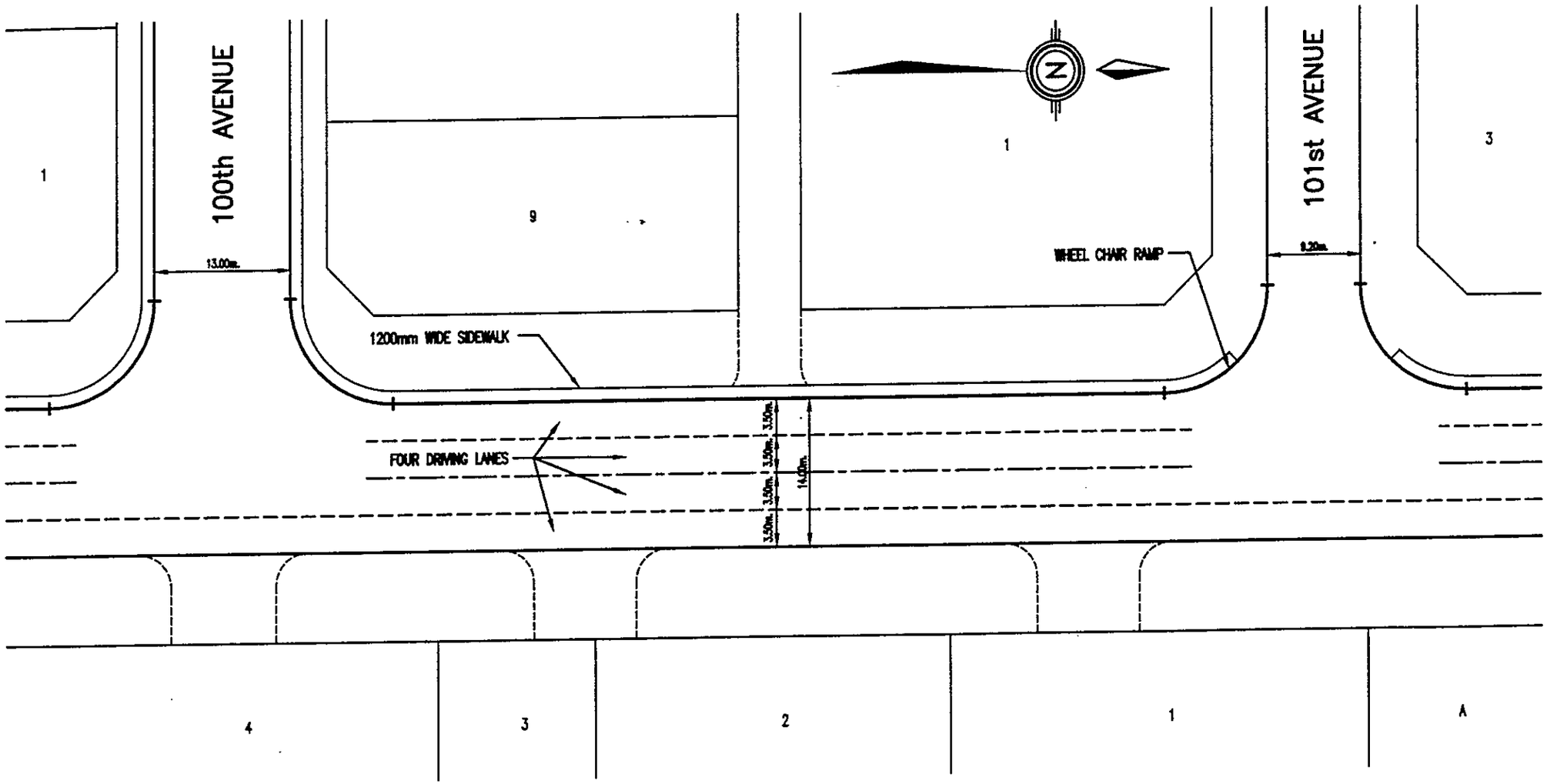
Design By:	
Checked By:	D.L.S.
Date:	NOV. 22, 2001
Job No:	5353-019
Dwg.	853530194
Scale:	Hor.- 1:500



gpec consulting ltd.

SHEET 2 of 4

MUNICIPAL DISTRICT of MACKENZIE #23

100th STREET REHABILITATION

ALTERNATIVE 'B'

Drawn By:	J.V.S.
Design By:	
Checked By:	D.L.S.
Date:	NOV. 22, 2001
Job No:	5353-019
Dwg. #:	535530193
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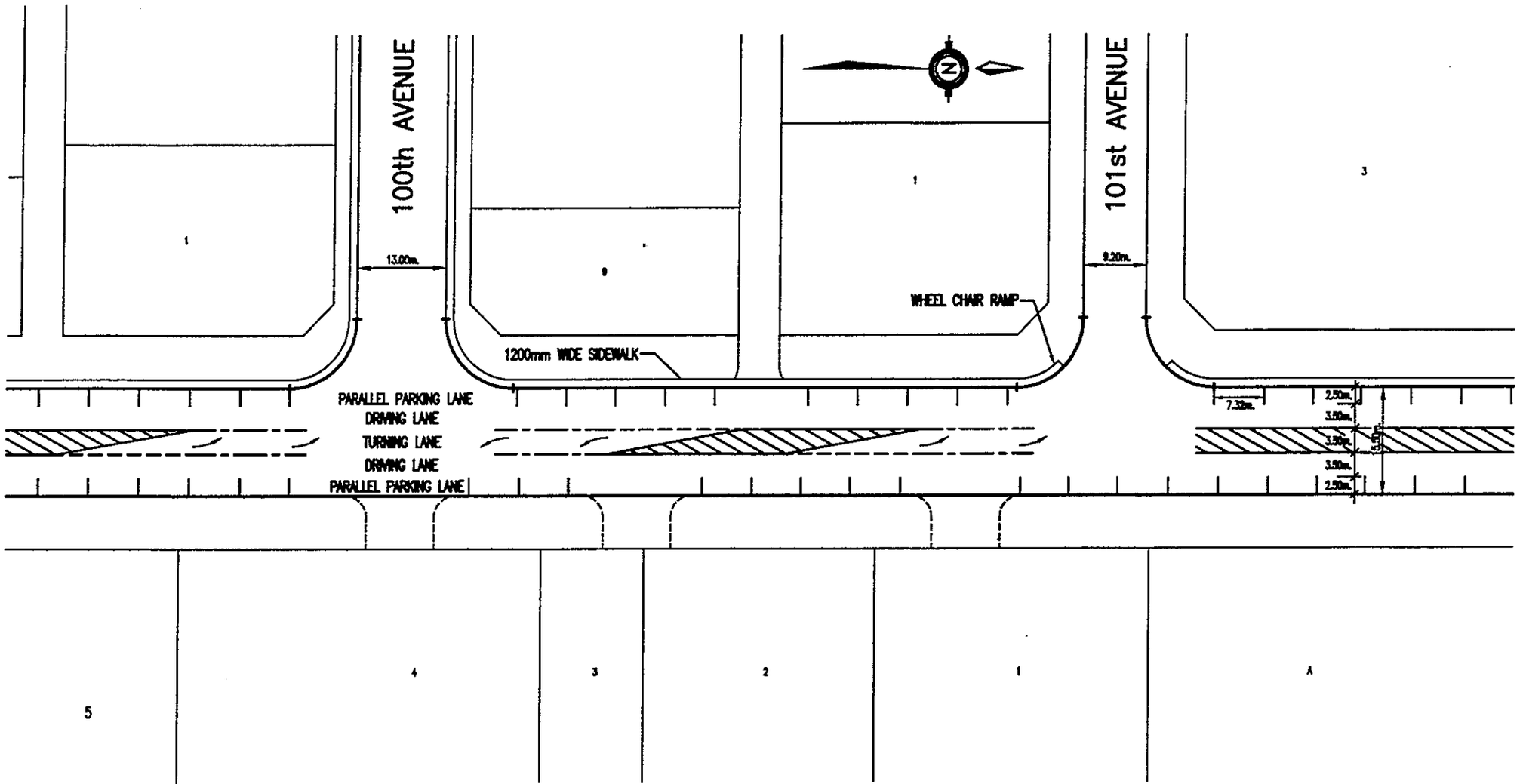

gpec consulting ltd.

SHEET 3 of 4

MUNICIPAL DISTRICT of MACKENZIE #23

100th STREET REHABILITATION

ALTERNATIVE 'C'

Drawn By:	J.W.S.
Design By:	
Checked By:	D.L.S.
Date:	NOV. 22, 2001
Job No:	5353-019
Dwg. #:	53530190
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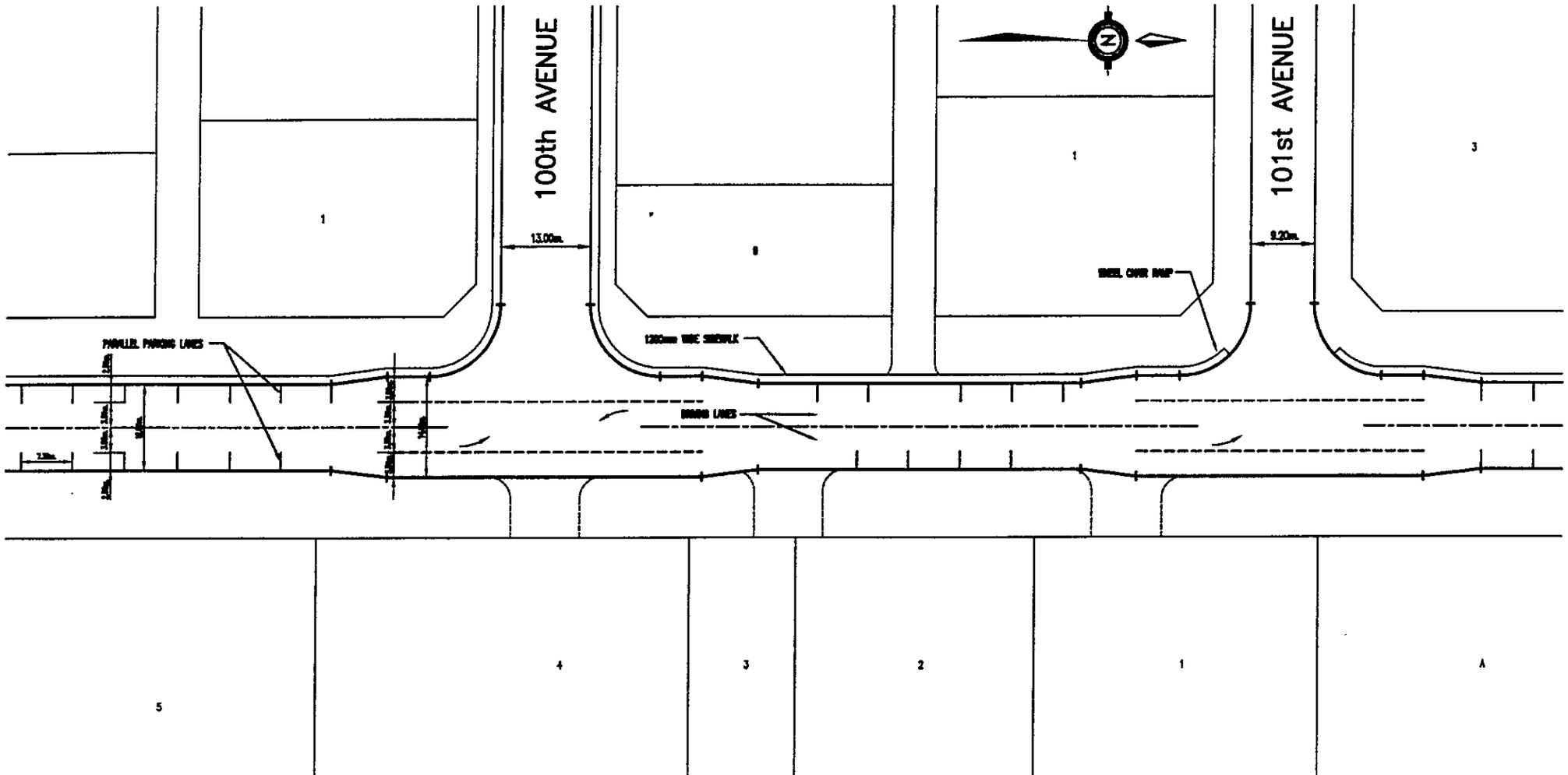


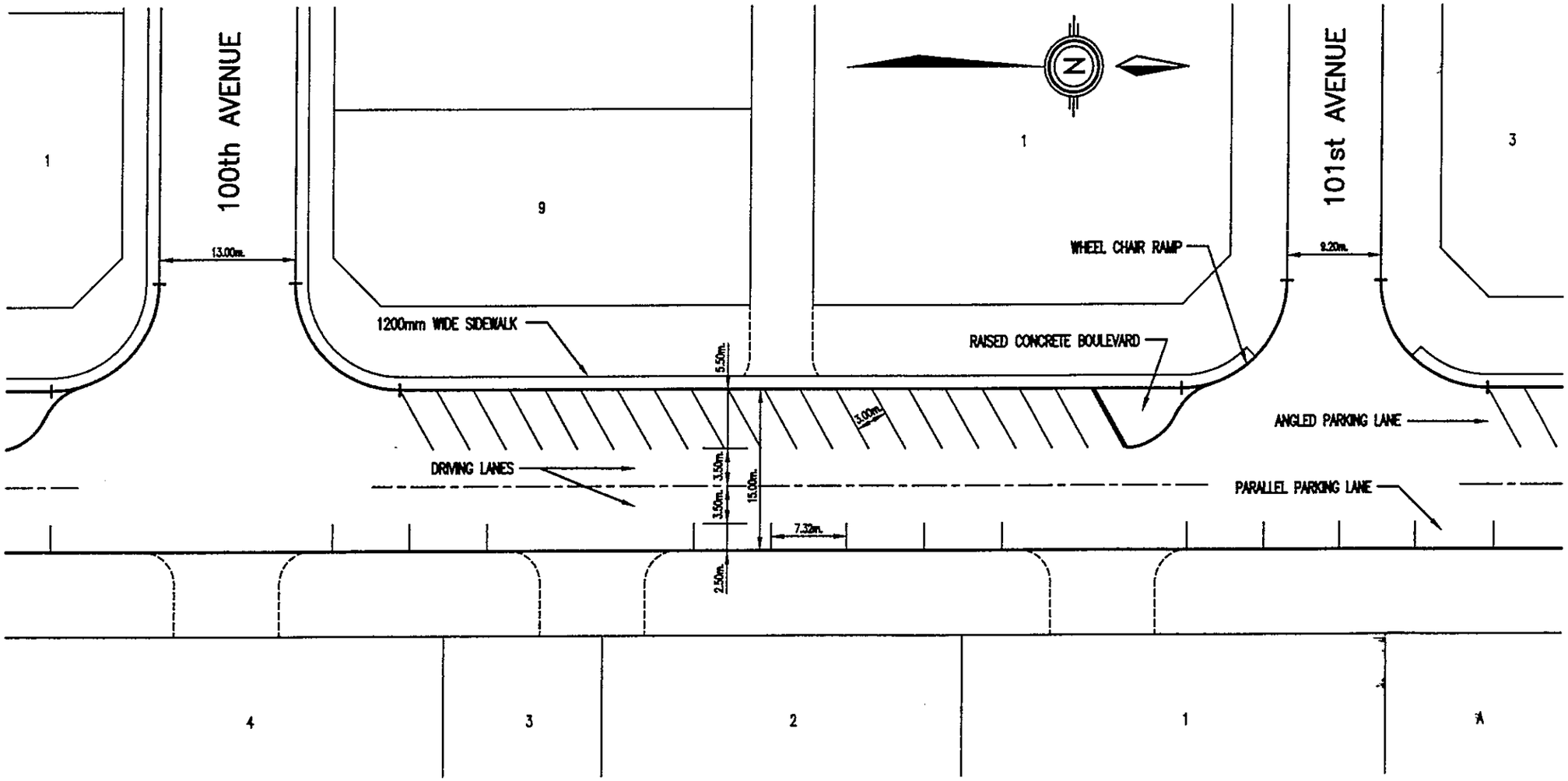
gpec consulting ltd.

SHEET 4 of 4

MUNICIPAL DISTRICT of MACKENZIE #23

100th STREET REHABILITATION
ALTERNATIVE 'D'

Drawn By:	J.V.S.
Design By:	
Checked By:	D.L.S.
Date:	NOV. 22, 2001
Job No:	5353-019
Dwg. #:	5353019D
Scale:	Hor.- 1:750



gpec consulting ltd.

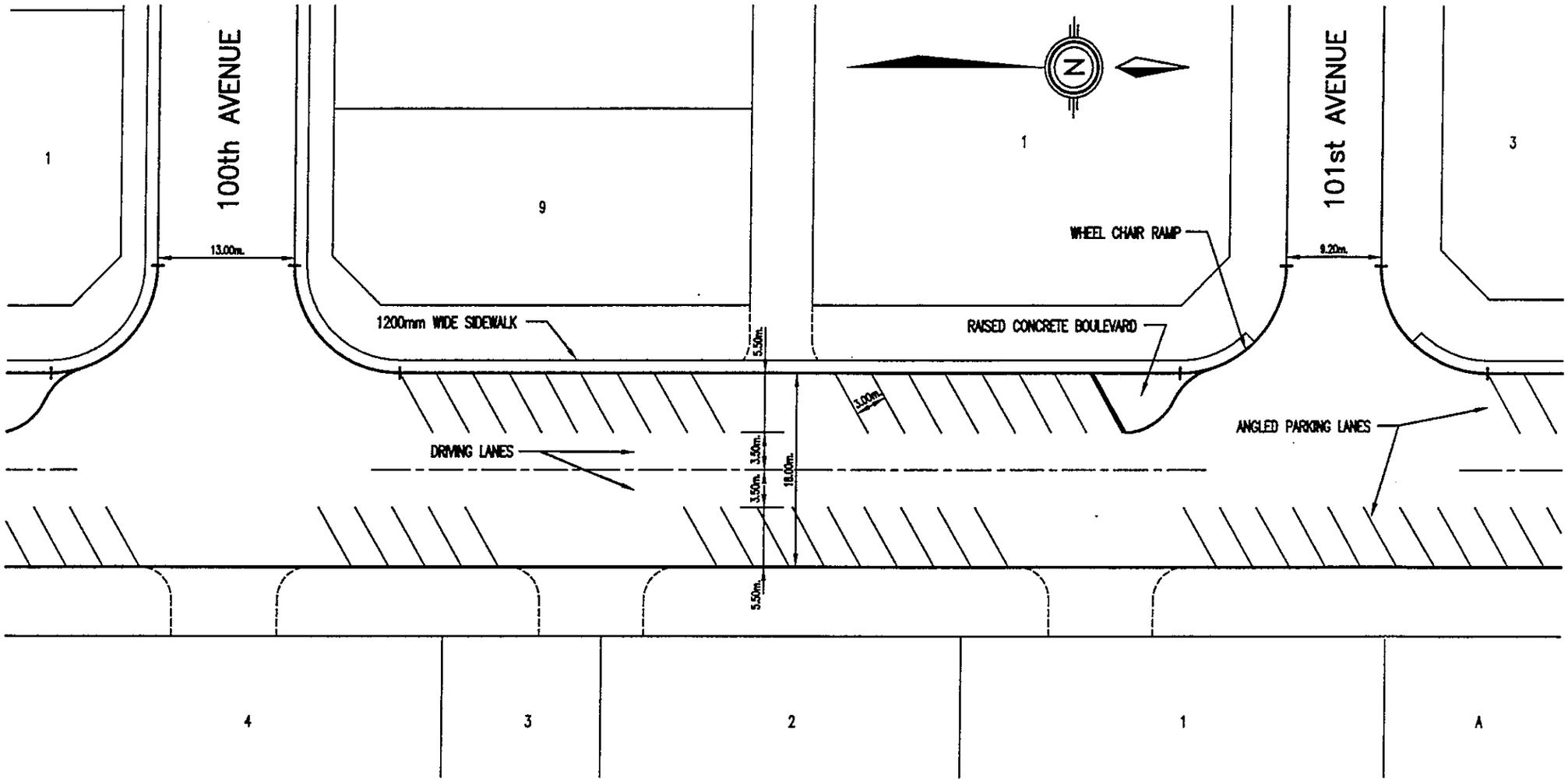
SHEET 5 of 6

MUNICIPAL DISTRICT of MACKENZIE #23

100th STREET REHABILITATION

ALTERNATIVE 'E'

Drawn By:	J.V.S.
Design By:	
Checked By:	D.L.S.
Date:	DEC. 18, 2001
Job No:	5353-019
Dwg. #:	5353019A
Scale:	Hor.- 1:500



gpec consulting ltd.

SHEET 6 of 6

MUNICIPAL DISTRICT of MACKENZIE #23

100th STREET REHABILITATION

ALTERNATIVE 'F'

Drawn By:	J.V.S.
Design By:	
Checked By:	D.L.S.
Date:	DEC. 18, 2001
Job No:	5353-019
Dwg. #:	5353019A
Scale:	Hor.- 1:500

January 30, 2002
File No. 5353-020-01-40

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF ZAMA
COMMUNITY HALL DRAINAGE IMPROVEMENTS

Cost Estimate

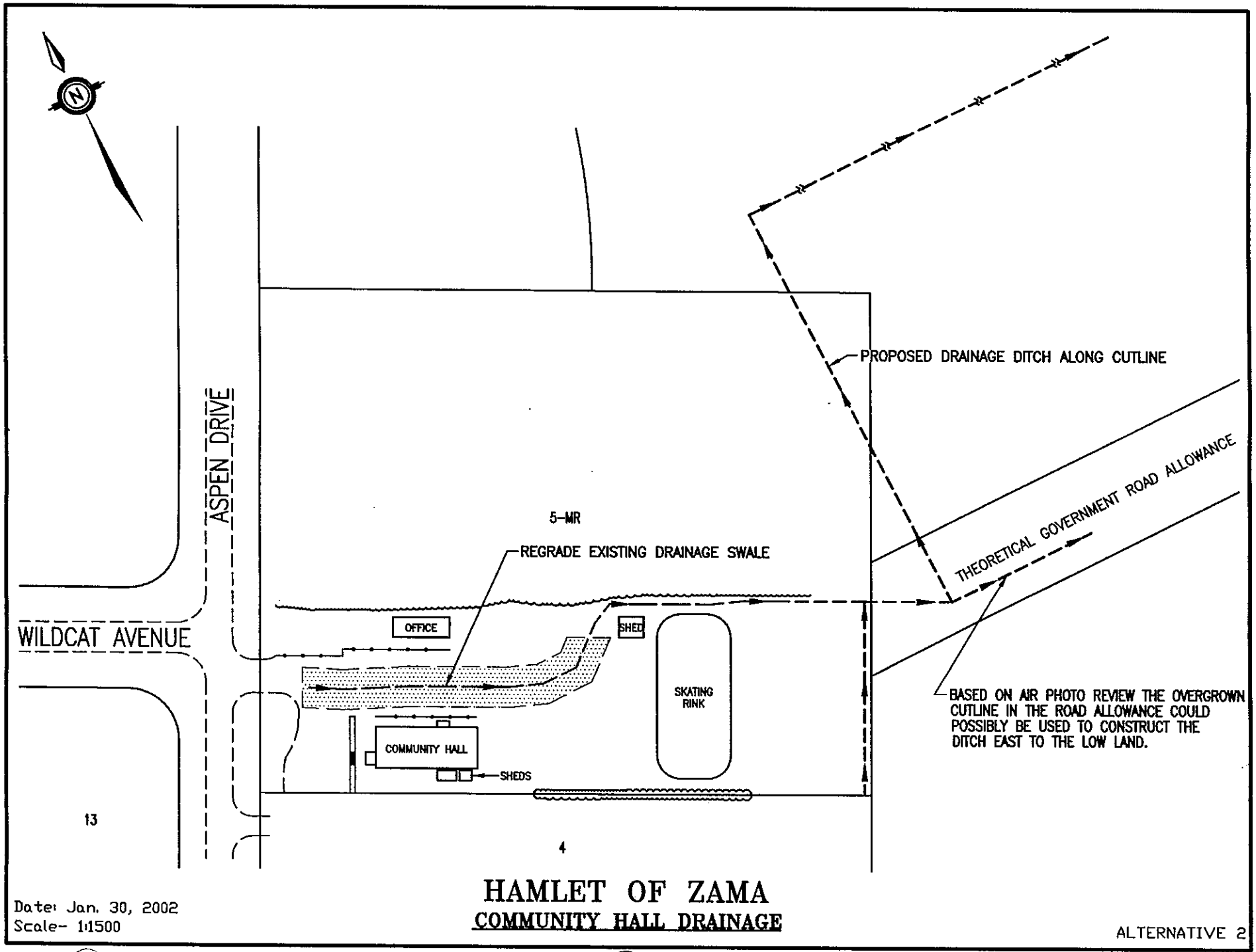
Alternative 1 - Parking Lot Area
Excavate, remove topsoil and construct granular base section as shown on Drawing 1.

• Earth excavation; 800 c.m.	$ 7,200.00
• Subgrade preparation; 2,600 s.m.	6,200.00
• Granular base section	
▸ 150mm depth / 40mm crush; 500 c.m.	11,500.00
▸ 75mm depth / 20mm crush; 265 c.m.	6,600.00
• Raise existing sidewalk; 30 s.m.	5,000.00
• Re-construct existing ditch north of skating rink; 120 l.m.	1,200.00
• Construct new ditch to northeast; 390 l.m.	5,800.00
• Contingency Allowance @ 10%	4,300.00
• Engineering estimated at	5,000.00
• Northern Project Allowance	10,500.00
• G.S.T @ 3% Net	1,900.00
Total Estimated Cost	**$65,200.00**

Alternative 2 - Swale Area Only
Excavate, remove topsoil & construct granular base section in swale area as shown on Drawing 2.

• Earth excavation; 400 c.m.	$ 3,600.00
• Subgrade preparation; 1,120 s.m.	4,500.00
• Granular base section	
▸ 150mm depth / 40mm crush; 220 c.m.	5,100.00
▸ 75mm depth / 20mm crush; 140 c.m.	3,500.00
• Re-construct existing ditch north of skating rink; 120 l.m.	1,200.00
• Construct new ditch to northeast; 390 l.m.	5,800.00
• Contingency Allowance @ 10%	2,400.00
• Engineering estimated at	5,000.00
• Northern Project Allowance	6,200.00
• G.S.T @ 3% Net	1,100.00
Total Estimated Cost	**$38,400.00**

G.P.E.C. CONSULTING LTD.



HAMLET OF ZAMA

COMMUNITY HALL DRAINAGE

Date: Jan. 30, 2002
Scale- 1:1500

ALTERNATIVE 2

January 30, 2002
File No. 5353-020-01-40

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF ZAMA
COMMUNITY HALL DRAINAGE IMPROVEMENTS

Cost Estimate

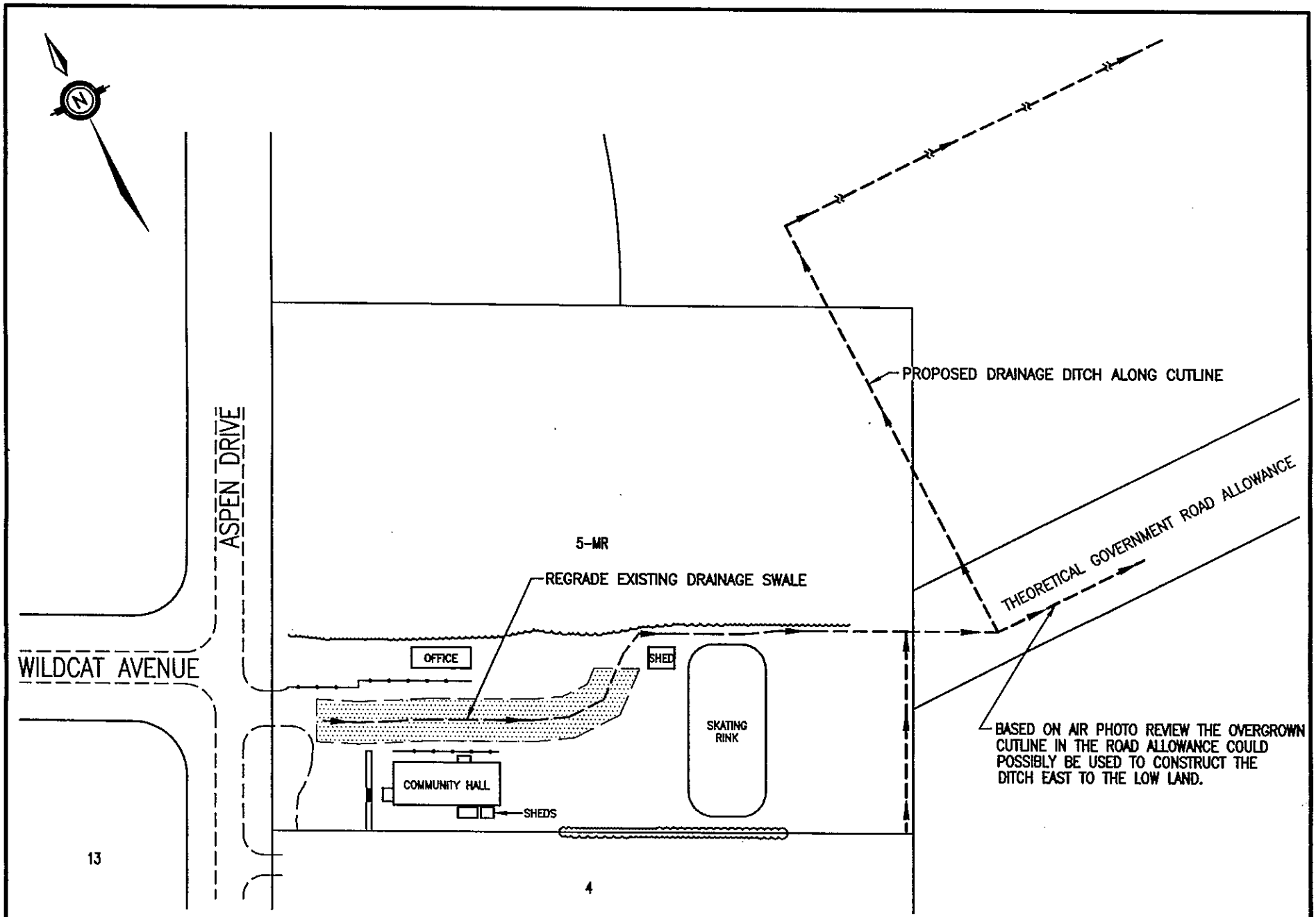
Alternative 1 - Parking Lot Area
Excavate, remove topsoil and construct granular base section as shown on Drawing 1.

• Earth excavation; 800 c.m.	$ 7,200.00
• Subgrade preparation; 2,600 s.m.	6,200.00
• Granular base section	
▸ 150mm depth / 40mm crush; 500 c.m.	11,500.00
▸ 75mm depth / 20mm crush; 265 c.m.	6,600.00
• Raise existing sidewalk; 30 s.m.	5,000.00
• Re-construct existing ditch north of skating rink; 120 l.m.	1,200.00
• Construct new ditch to northeast; 390 l.m.	5,800.00
• Contingency Allowance @ 10%	4,300.00
• Engineering estimated at	5,000.00
• Northern Project Allowance	10,500.00
• G.S.T @ 3% Net	1,900.00
Total Estimated Cost	**$65,200.00**

Alternative 2 - Swale Area Only
Excavate, remove topsoil & construct granular base section in swale area as shown on Drawing 2.

• Earth excavation; 400 c.m.	$ 3,600.00
• Subgrade preparation; 1,120 s.m.	4,500.00
• Granular base section	
▸ 150mm depth / 40mm crush; 220 c.m.	5,100.00
▸ 75mm depth / 20mm crush; 140 c.m.	3,500.00
• Re-construct existing ditch north of skating rink; 120 l.m.	1,200.00
• Construct new ditch to northeast; 390 l.m.	5,800.00
• Contingency Allowance @ 10%	2,400.00
• Engineering estimated at	5,000.00
• Northern Project Allowance	6,200.00
• G.S.T @ 3% Net	1,100.00
Total Estimated Cost	**$38,400.00**

G.P.E.C. CONSULTING LTD.

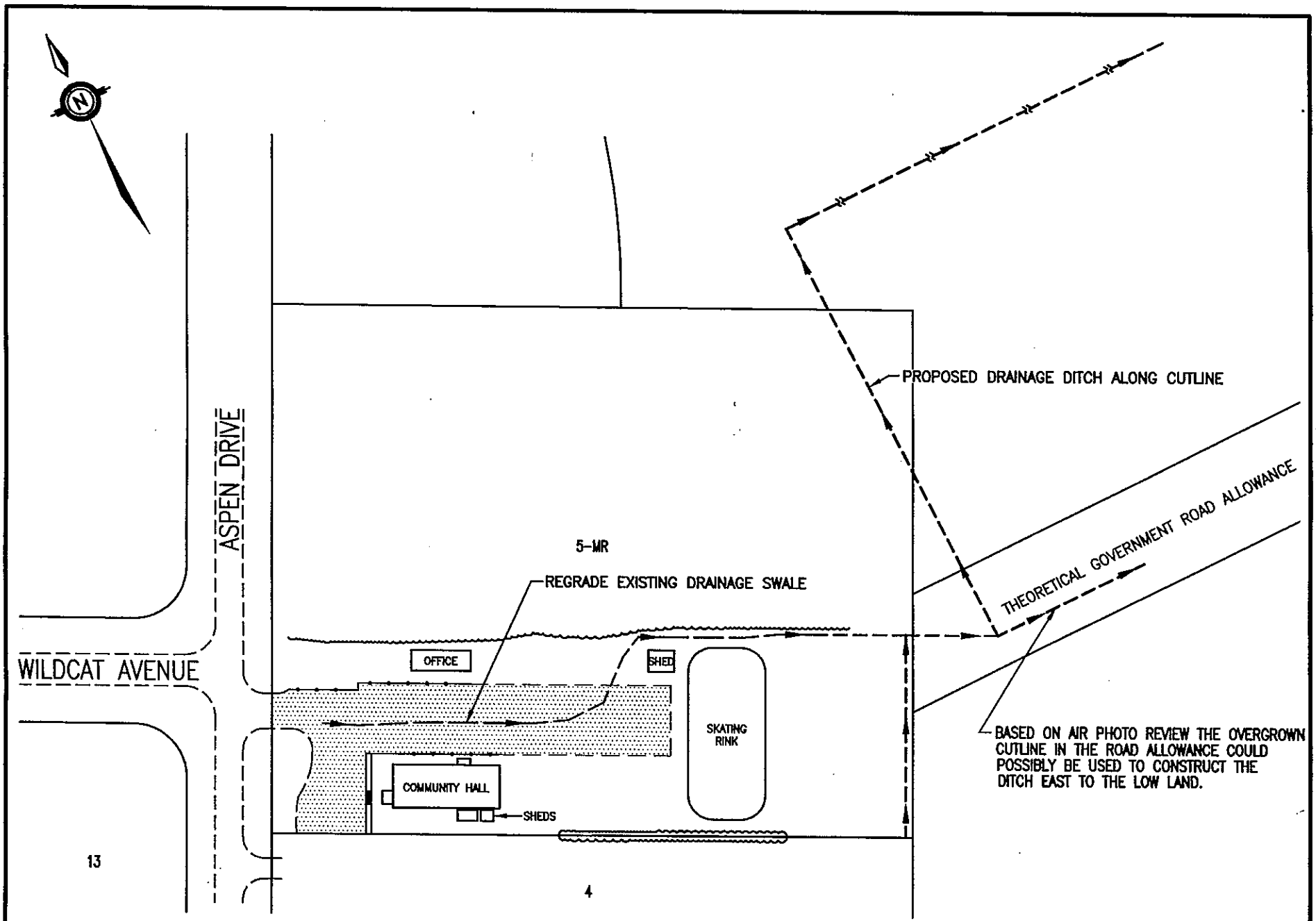


HAMLET OF ZAMA

COMMUNITY HALL DRAINAGE

Date: Jan. 30, 2002
Scale- 1:1500

ALTERNATIVE 2



HAMLET OF ZAMA

COMMUNITY HALL DRAINAGE

Date: Jan. 30, 2002
Scale- 1:1500

ALTERNATIVE 1

M.D.S. File: D:\2002...n\5353(M.D. of Mackenzie #23)\535302A(Zama Comm. Hall Drainage)\hall.dwg Plotted: 2002-01-30 11:39:35

January 29, 2002
File No. 5353-017-01-40

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF ZAMA
PROPOSED ROAD IMPROVEMENTS
BEACH ROAD - WEST OF TOWER ROAD

Class 'C' Cost Estimate

Alternative 'A' - Improve Drainage Only

• Existing ditch grading; 1,900 l.m.	$ 19,000.00
• Clean or repair existing culverts	5,500.00
• Install three new culverts	6,000.00
• Contingency Allowance @ 10%	3,050.00
• Engineering estimated at	5,000.00
• G.S.T. @ 3% Net	1,150.00
Estimated Cost	**$ 39,700.00**

Alternative 'B' - Re-Construct Road Base & Gravel

• Earth excavation, subgrade & graveling	$126,700.00
• Grade ditches	9,500.00
• New CSP culverts	20,200.00
• Contingency Allowance @ 10%	15,600.00
• Engineering estimated at	17,000.00
• Northern Project Allowance	37,800.00
• G.S.T. @ 3% Net	6,800.00
Estimated Cost	**$233,600.00**

G.P.E.C. CONSULTING LTD.

Hamlet of Zama - Road Improvements 2002

Area #11 - Beach Road West of Tower Road

Option B.

DATE: January 29, 2002
File No. 5353-011-01-40

ITEM NO.	DESCRIPTION	UNIT PRICE	UNIT	Rural Road Section QUANT.	EXTEN.
1	Supply and install filter fabric.	2.00	s.m.	3000	6,000.00
2	Adjustment of water valve boxes to final design	200.00	units	8	1,600.00
3	Adjustment of manhole frames to final design	300.00	units	4	1,200.00
4	Earth excavation	9.00	c.m.	5000	45,000.00
5	Subgrade preparation & compaction	1.75	s.m.	11100	19,425.00
6	Supply, place, grade & compact granular road base material.				
	a) 50mm depth; 40mm crush gravel (1st lift)	23.00	c.m.	720	16,560.00
	b) 50mm depth; 20mm crush gravel (2nd lift)	25.00	c.m.	740	18,500.00
7	Traffic gravel for approaches (8)	25.00	c.m.	60	1,500.00
8	Ditch Grading incl. remove & replace topsoil	5.00	l.m.	1900	9,500.00
9	Base stabilization material (pitrun)	23.00	c.m.	600	13,800.00
10	Extend 800 dia. CSP. Culvert	1000.00	unit	1	1,000.00
12	Supply & Install new 500 dia. CSP culverts (10 units)	120.00	l.m.	160	19,200.00
13	Prime Cost Sum for Material Testing @ 2.0%				3,065.70
	SUBTOTAL				$158,350.70
14	Contingency Allowance @ 10%				15,635.07
15	Engineering @ 10%				17,198.58
16	Northern Project Allowance @ 20%				37,836.87
17	G.S.T. @ 3%				6,810.64
	TOTAL				$233,831.85

G.P.E.C. CONSULTING LTD.

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF ZAMA
DRAINAGE SYSTEM REVIEW
COST ESTIMATES

1. Proposed Drainage Ditch Improvements

• Existing Ditch grading; 3,000 l.m. (c/w topsoil removal & replacement)	$30,000.00
• New Ditch construction 200 l.m. South East Corner	3,000.00
• Contingency allowance @ 10%	3,300.00
• Engineering estimated @	5,000.00
• G.S.T. estimated @ 3% Net	1,200.00
ESTIMATED COST	**$42,500.00**

2. Proposed Intersection Culvert Improvements

Maintenance Items	
• Culvert Cleaning; 11 units	$ 5,500.00
• Pipe End Repairs; 6 units	6,000.00
• Pipe End Extensions; 12 units (2 meter)	12,000.00
• Re-grade Existing C.S.P.; 2 unit	6,000.00
• Replace 250mm with 500mm diameter CSP	3,000.00
• Contingency allowance @ 10%	3,200.00
• Engineering estimated @	4,500.00
• G.S.T. estimated @ 3% Net	1,200.00
ESTIMATED COST	**$ 41,400.00**

3. Proposed Approach Culvert Improvements

• Maintenance; culvert cleaning, pipe end repairs, extensions	$ 50,000.00
• Contingency allowance @ 10%	5,000.00
• Engineering	6,500.00
• G.S.T. estimated @ 3% Net	1,800.0
ESTIMATED COST	**$ 63,300.00**
TOTAL ESTIMATED COST	**$147,200.00**

July 24, 2001

MUNICIPAL DISTRICT OF MACKENZIE #23
HAMLET OF LA CRETE
PROPOSED GRAVITY SANITARY SEWER OUTFALL & TRUNK MAINS

1. Northwest Sanitary Sewer Trunk Main #1 (From Manhole at 100 Street & 105 Avenue North and West to 109 Street & 103 Avenue)

• 250mm Diameter Sanitary Sewer	$390,300.00
• Legal Survey	4,200.00
• Engineering estimated @	39,500.00
• Non-Recoverable G.S.T. (3%)	13,000.00
ESTIMATED COST	**$447,000.00**

2. Northeast Sanitary Sewer Outfall Main #2 (Lift Station #4 at 99 Street & 105 Avenue to Lift Station #2 at 98 Avenue & 100 Street)

• 300mm & 250mm Diameter Sanitary Sewer	$267,700.00
• Legal Survey	4,100.00
• Engineering estimated @	27,200.00
• Non-Recoverable G.S.T. (3%)	9,000.00
ESTIMATED COST	**$308,000.00**

3. Northeast Sanitary Sewer Trunk Main #3 (From 101 Avenue & 99 Street to 98 Street & 98 Avenue)

• 250mm Diameter Sanitary Sewer	$153,200.00
• Legal Survey	3,000.00
• Engineering estimated @	15,600.00
• Non-Recoverable G.S.T. (3%)	5,200.00
ESTIMATED COST	**$177,000.00**

TOTAL ESTIMATED PROJECT COST **$932,000.00**

G.P.E.C. CONSULTING LTD.