McNAIR SAND & GRAVEL LTD.

BEISEKER PIT EXPANSION

MASTER SITE DEVELOPMENT PLAN
LAND USE REDESIGNATION
SUBDIVISION APPLICATION

PTN SW 9 TWP 28 RGE 26 W4M

Prepared by:
Badke Consulting Ltd.

Prepared for:
McNair Sand & Gravel Ltd.

Presented to:
Rocky View County

February 2015

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A. INTRODUCTION and PURPOSE

1. Introduction

McNair Sand & Gravel Ltd. (**McNair**) is based in Beiseker and is a local supplier of sand and gravel products to the Beiseker, Crossfield, Airdrie and north Calgary areas as well as to local residential, oilfield and agricultural users. McNair is a family business which has been supplying sand and gravel for more than 40 years, operating out of the NW 4-28-26 W4M, which is located immediately south of the subject lands, as well as other lands in the area.

McNair is proposing to develop a sand and gravel pit on the subject lands which are located in the northeastern portion of Rocky View County. The property, on which the subject pit is proposed to be developed, is located within the SW 9-28-26-4 as shown on the location map. The proposed pit in the SW 9 will be operated as an extension to the current McNair pit in the NW 4. The proposed sand and gravel pit in SW 9 will be located in the western 25 acres (10 ha) of the subject lands, as shown on the attached plans. The low-lying eastern 15 acres will not be disturbed as it contains no commercial reserves of sand or gravel. On-site pit operations will include stripping of the topsoil and silty overburden materials covering the granular deposit, then mining the underlying sand and gravel. This sand and gravel will be processed by screening and stockpiling of granular products in the SW 9 or stockpiling in the existing pit immediately to the south. Granular products will then be loaded to trucks and transported to markets via the paved Range Road 264 and Highways 72 and 9. Sand and gravel crushing and washing activities are not planned for this site. The majority of granular materials produced from this pit will be used for concrete sand or sanding chips. Reclamation of the mined out pit will follow the mining operation as close as practically possible. Once the mining operations have been completed, the disturbed lands will be reclaimed as hayland, which is the current land use.

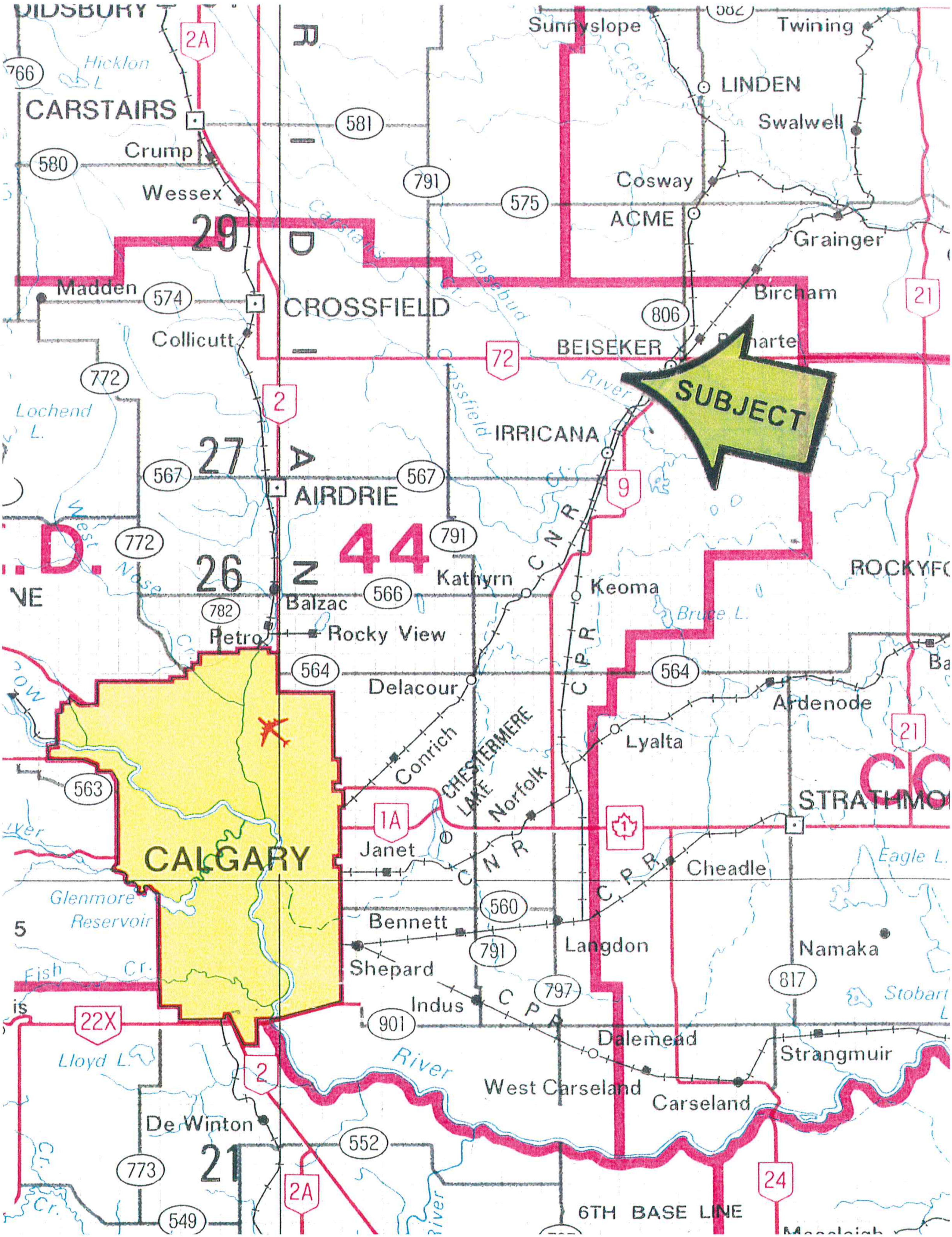
2. Land Ownership

The subject lands are legally described as follows:

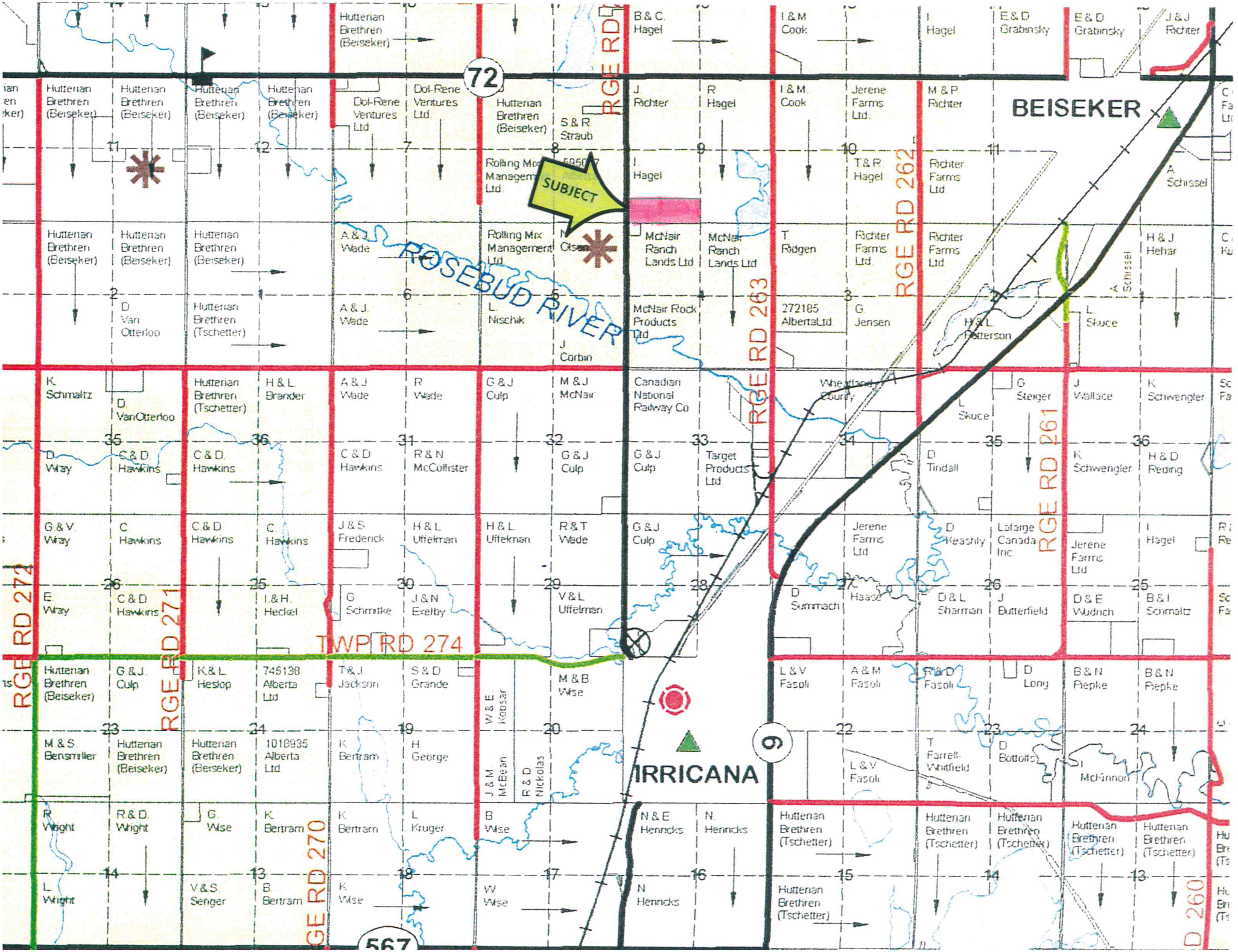
The southerly 40 acres (16.2 ha) within the SW Section 9, Township 28, Range 26 W4M. These lands currently stand in the name of **Irene Ruth Hagel** as indicated on the current certificate of title included in the Appendix. **McNair Sand & Gravel Ltd.** has acquired the mining rights to these lands by way of an agreement for sale.

3. Location

The subject lands are located in the northeastern portion of Rocky View County, some 3 miles (5 km) west of Beiseker or 17 miles (27 km) northeast of Airdrie. The attached Regional and Municipal maps show the location of the subject lands.



DIDSBURY
2A
766
Hicklon L.
CARSTAIRS
581
Crump
580
Wessex
791
575
29
Madden
574
CROSSFIELD
Collicutt
772
Lochend L.
2
27
567
AIRDRIE
567
772
E.D.
44
791
26
Balzac
566
782
Petro
Rocky View
564
Delacour
Kathyrn
CALGARY
563
Glenmore Reservoir
Fish Cr.
22X
Lloyd L.
De Winton
773
549
21
552
2A
Sunnyslope
Twining
LINDEN
Swalwell
Cosway
ACME
Grainger
Bircham
806
BEISEKER
72
SUBJECT
IRRICANA
Rosebud
Crossfield
River
9
Keoma
ROCKYFO
Bruce L.
CNR
CPR
564
Ardenode
Lyalta
21
CHESTERMERE LAKE
Conrich
Norfolk
1A
1
Janet
STRATHMO
Cheadle
Eagle L.
560
Bennett
Langdon
Namaka
Shepard
791
817
Indus
797
901
Stobart L.
Dalemead
Strangmuir
River
West Carseland
Carseland
24
6TH BASE LINE


SUBJECT
BEISEKER
IRRICANA
ROSEBUD RIVER
TWP RD 274
RGE RD 272
RGE RD 271
RGE RD 270
RGE RD 263
RGE RD 262
RGE RD 261
72
9
567

4. Applicant, Agent and Landowners

The applicant is:

McNair Sand & Gravel Ltd.
PO Box 205,
Beiseker, Alberta
T0M 0G0
Attention: Miles McNair
Phone: 403-947-2233
Facsimile: 403-947-2237
e-mail: mgmcnair@telus.net; mcnairmsg@xplornet.ca

Registered Land Owner is:

Irene Ruth Hagel
10 Nordal Close
Wetaskiwin Albeta
T9A 0P1
Phone: 780-352-6973

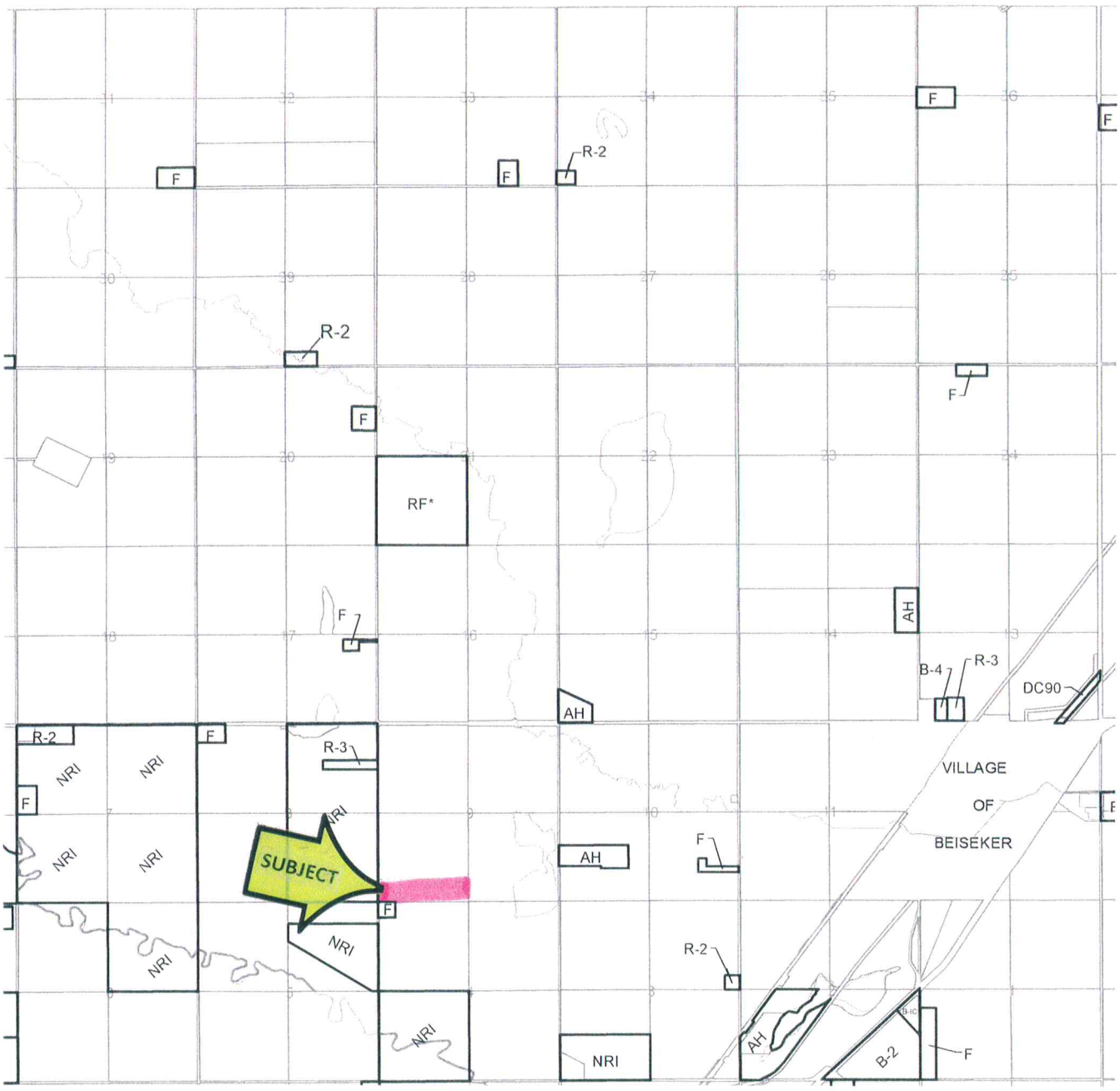
The authorized agent for the applicant and landowner is:

Badke Consulting Ltd.
160 Park Estates Place S.E.
Calgary, Alberta
T2J 3W5
Attention: Doug Badke
Phone: (403) 271-8708
Fax: (403) 278-3734
Cell: (403) 540-4991
email: doug@badkeconsulting.com

5. Purpose of Application

The purpose of this report is to provide documentation to Rocky View County in support of the following applications:

- **Master Site Development Plan** (MSDP): application for the MSDP is submitted so as to facilitate the redesignation of the subject lands; the information contained in this report creates the MSDP;



ALL LANDS ARE DESIGNATED RF UNLESS NOTED OTHERWISE

RANCH AND FARM DISTRICT	RF
SEE EXCEPTIONS LISTED WITH THIS DISTRICT	RF *
RANCH AND FARM TWO DISTRICT	RF-2
RANCH AND FARM THREE DISTRICT	RF-3
AGRICULTURAL HOLDING DISTRICT	AH
FARMSTEAD DISTRICT	F
RESIDENTIAL ONE DISTRICT	R-1
RESIDENTIAL TWO DISTRICT	R-2
RESIDENTIAL THREE DISTRICT	R-3
HIGHWAY BUSINESS DISTRICT	B-1
GENERAL BUSINESS DISTRICT	B-2
LIMITED BUSINESS DISTRICT	B-3
RECREATION BUSINESS DISTRICT	B-4
AGRICULTURAL BUSINESS DISTRICT	B-5
LOCAL BUSINESS DISTRICT	B-6
HIGHWAY FRONTAGE BUSINESS DISTRICT	B-HF
BUSINESS CAMPUS BUSINESS DISTRICT	B-BC
INDUSTRIAL CAMPUS BUSINESS DISTRICT	B-IC

VISUAL REFERENCE ONLY. CONTACT THE COUNTY PLANNING DEPARTMENT FOR OFFICIAL CONFIRMATION

RECREATION DESTINATION BUSINESS DISTRICT	B-RD
LEISURE AND RECREATION BUSINESS DISTRICT	B-LR
AGRICULTURAL SERVICES BUSINESS DISTRICT	B-AS
POINT COMMERCIAL DISTRICT	C-PT
VILLAGE CENTRE COMMERCIAL DISTRICT	C-VC
LOCAL COMMERCIAL DISTRICT	C-LC
REGIONAL COMMERCIAL DISTRICT	C-RC
INDUSTRIAL ACTIVITY DISTRICT	I-IA
STORAGE AND SALES INDUSTRIAL DISTRICT	I-IS
NATURAL RESOURCE INDUSTRIAL DISTRICT	NRI
HAMLET RESIDENTIAL SINGLE FAMILY DISTRICT	HR-1
HAMLET RESIDENTIAL (2) DISTRICT	HR-2
HAMLET COMMERCIAL DISTRICT	HC
HAMLET INDUSTRIAL DISTRICT	HI
PUBLIC SERVICES DISTRICT	PS
AIRPORT DISTRICT	AP
DIRECT CONTROL DISTRICT	DC

N

ROCKY VIEW COUNTY

TWP. 28-26-W4M

Part FIVE of the BYLAW No. C-4841-97

LAND USE MAP NO. 81

Date: Dec 18 , 2013

- **Redesignation:** the current zoning of the subject lands is Ranch and Farm District (RF) as shown on the attached zoning map; it is proposed that this zoning be redesignated to Natural Resource Industrial District (NRI) on the southerly 40 acres;

  The purpose and intent of the Natural Resource Industrial (NRI) District "*is to provide for the development of industrial uses related to non-renewable natural resource extraction and processing.*" Natural resource extraction and processing is listed as a discretionary use under the NRI zoning. A copy of the NRI guidelines is attached.

- **Subdivision:** McNair has entered into an agreement for the purchase of the southerly 40 acres of the subject lands and the attached subdivision application will isolate this 40 acre parcel in the name of **McNair Sand & Gravel Ltd.**

The purpose of this report is also to provide documentation to Alberta Environment in support of an application for the registration approval of the mining operations pursuant to the *Code of Practice for Pits*. This application has been submitted to Alberta Environment.

6. Area Description

The subject lands are located in an area in which agricultural land uses on large tracts of land are predominant. Land uses include pastureland on the rougher, lower class lands along with some cultivated cropland or hayland on the better class lands. Country residential developments are not common in the area. A number of sand and gravel mining operations are located on the surrounding lands to the south and west. The aerial photo included as Dwg. 1 shows the subject and surrounding lands.

Topography in the area is generally level to undulating. Highway 72 is located 1.5 km north of the subject lands and is the main east-west transportation route through the area. Highway 9 is the main north-south transportation route and is located 2.5 km east of the subject lands. The Rosebud River is located 1 km south of the subject lands, flowing from west to east.

7. Site Description

The south and western portion of the subject lands have level to gently east sloping topography with the northeastern portion sloping eastward at a level some 6 metres lower. A caragana hedge is located near the north boundary of the proposed 40 acre subject lands. The subject lands are currently utilized for hay crop production. Dwg. 2 and 3 are enlarged aerial photos which show the subject and surrounding lands, with and without contours; these contours were provided by Rocky View County. Dwg. 4 is a closer aerial view of the subject lands showing its physical features. A detailed topographic survey was done on the entire 40 acre subject lands from which quarter metre interval contours were produced as presented on Dwg. 5.

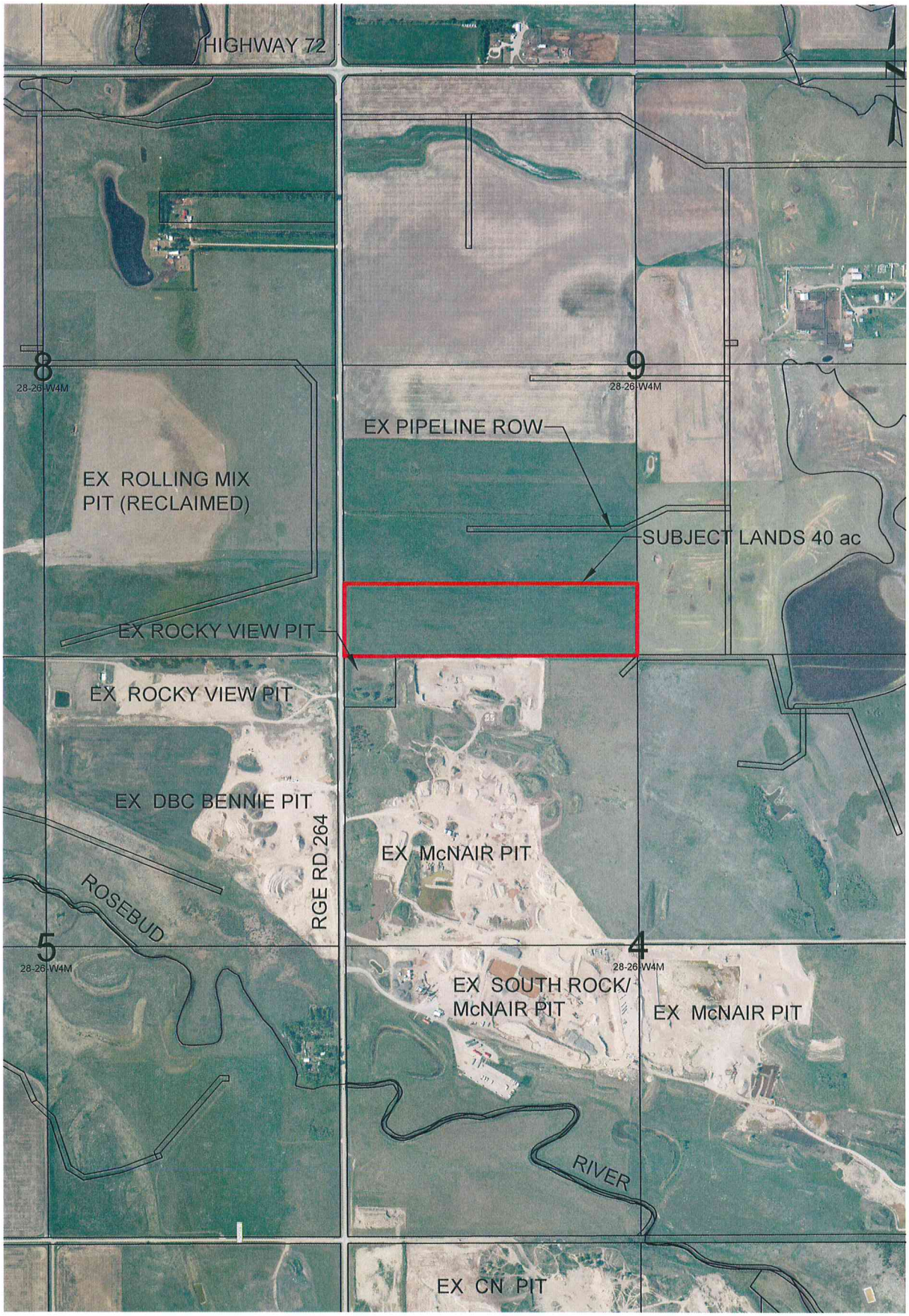


PHOTO DATE: JUNE 2012

Rocky View County	McNAIR SAND & GRAVEL LTD. BEISEKER PIT EXPANSION
HORIZONTAL SCALE: 1:10000 0 50 100 200 400 600 m	IN SW 1/4 9-28-26-W4M — AERIAL PHOTO
BADKE CONSULTING LTD. (403)271-8708	DRAWN: JDB — DATE: NOV. 2012 CHECK'D: DAB — DWG. No. 1 APPROVED: DAB — REV. No. 4

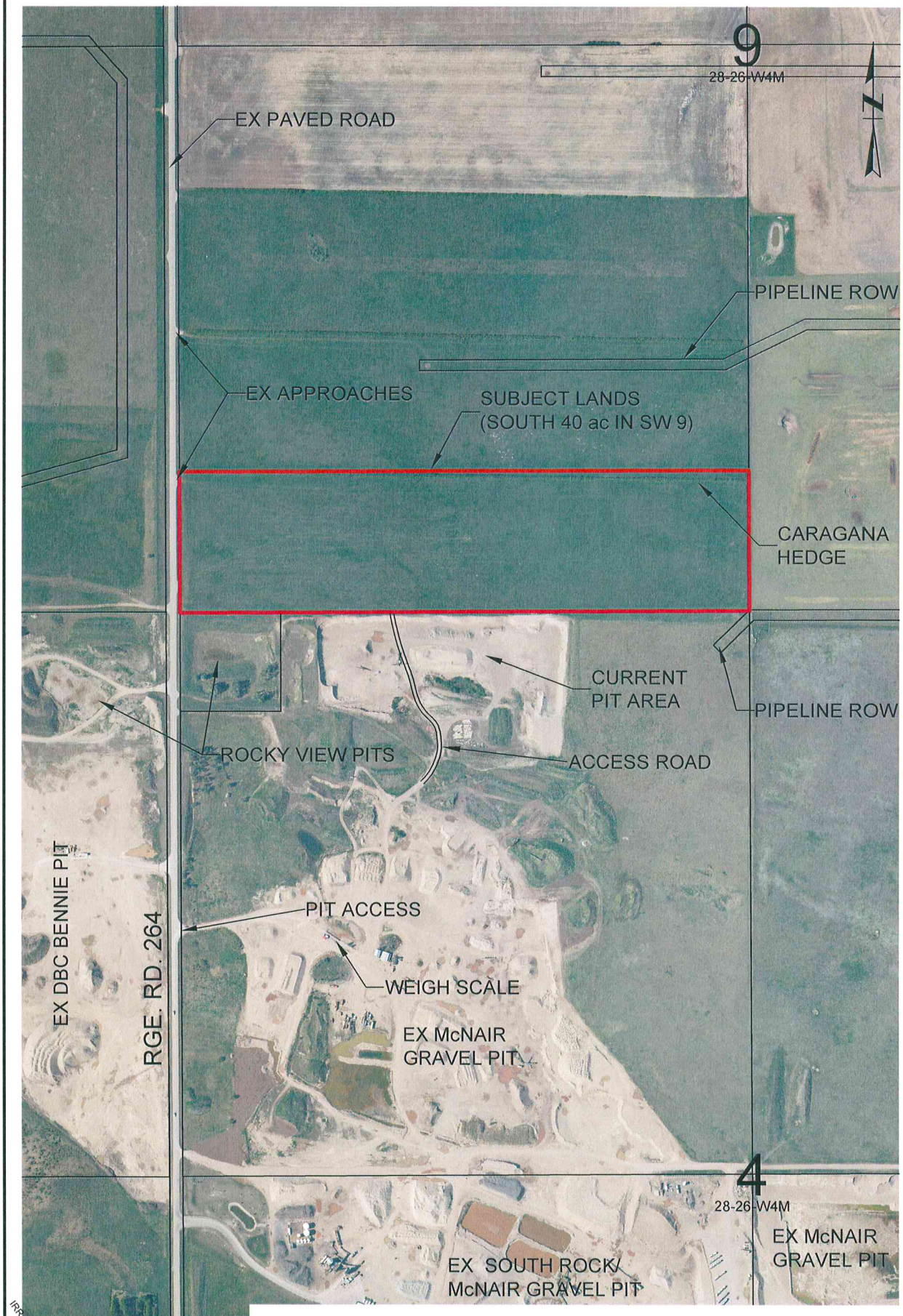


PHOTO DATE: JUNE 2012

Rocky View County	McNAIR SAND & GRAVEL LTD. BEISEKER PIT EXPANSION
HORIZONTAL SCALE: 1:5000 0 25 50 100 200 300 m	IN SW 1/4 9-28-26-W4M — AERIAL PHOTO
BADKE CONSULTING LTD. (403)271-8708	DRAWN: JDB — DATE: NOV. 2012 CHECK'D: DAB — DWG. No. 2 APPROVED: DAB — REV. No. 4

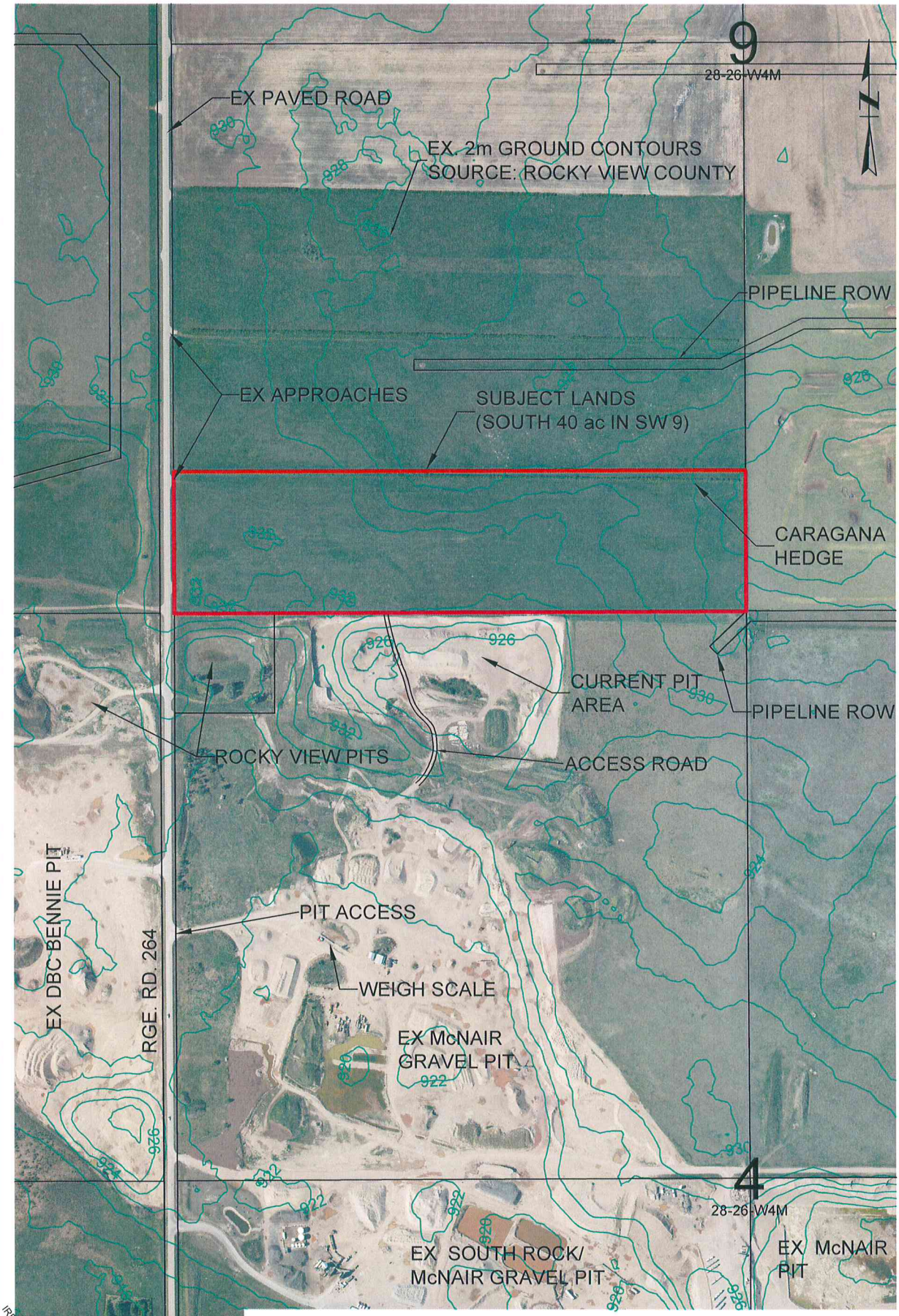
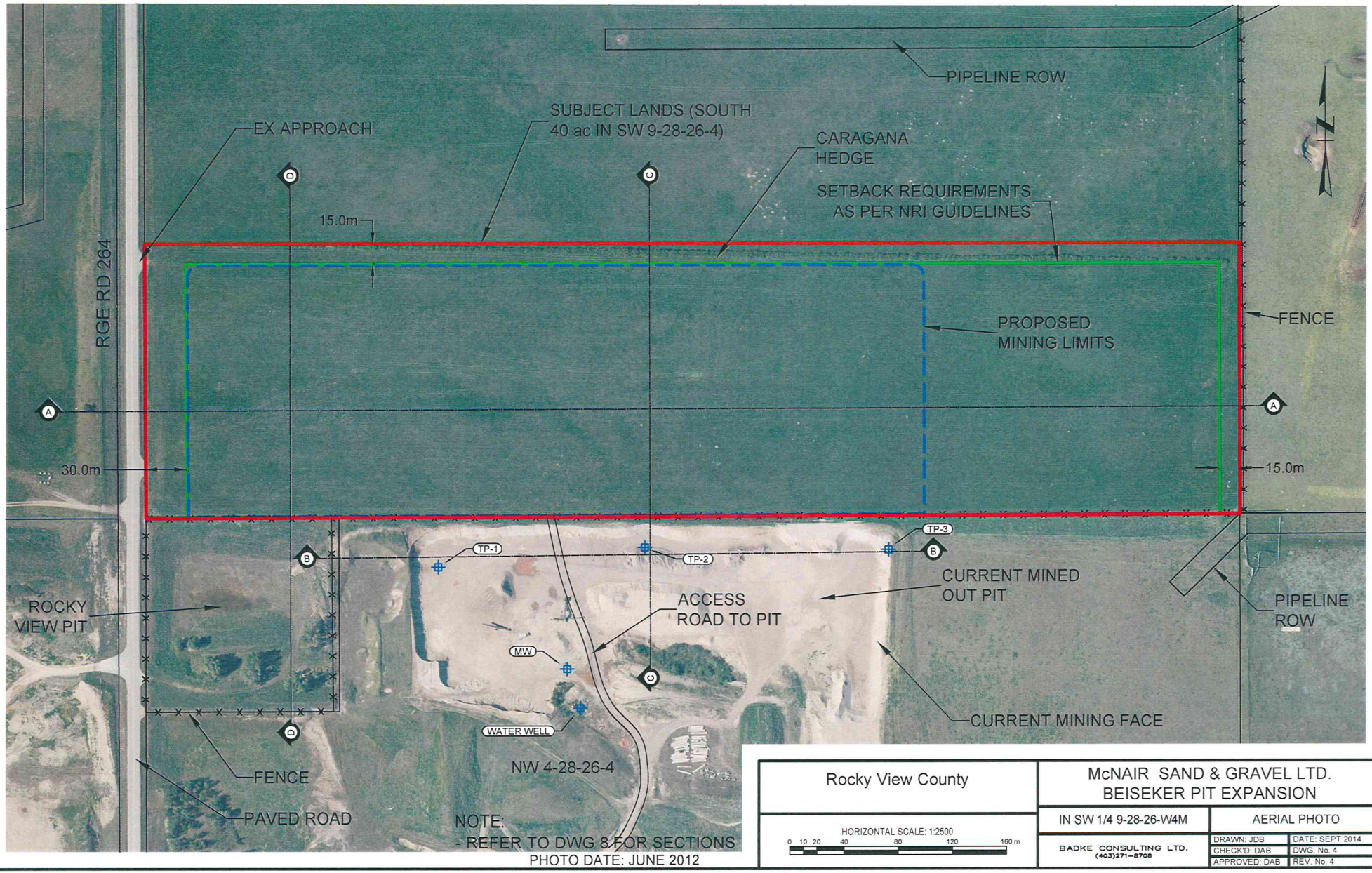
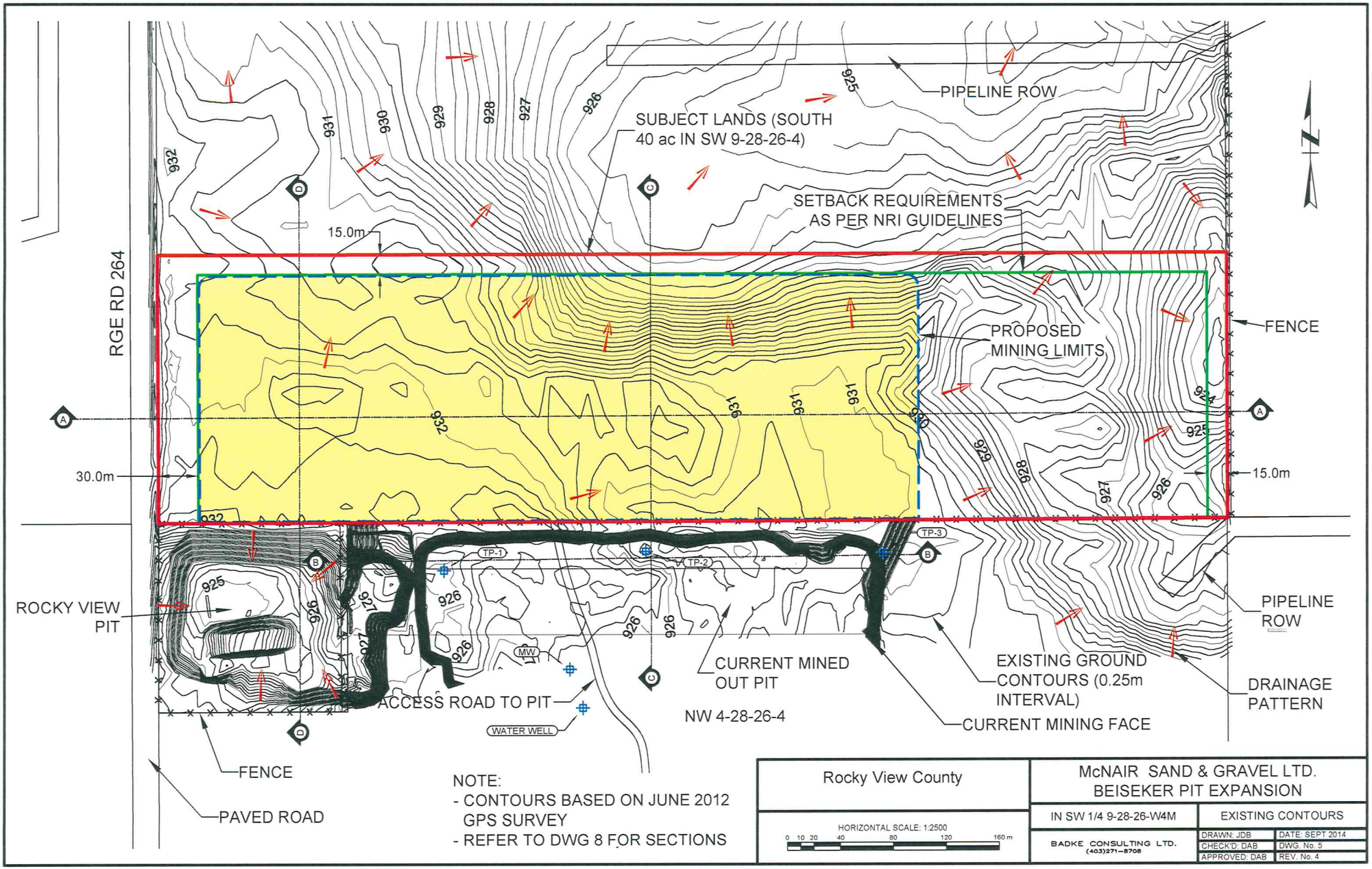


PHOTO DATE: JUNE 2012

Rocky View County	McNAIR SAND & GRAVEL LTD. BEISEKER PIT EXPANSION
HORIZONTAL SCALE: 1:5000 0 25 50 100 200 300 m	IN SW 1/4 9-28-26-W4M / AERIAL PHOTO / CONTOURS
BADKE CONSULTING LTD. (403)271-8708	DRAWN: JDB / DATE: NOV. 2012 CHECK'D: DAB / DWG. No. 3 APPROVED: DAB / REV. No. 4



Rocky View County	McNAIR SAND & GRAVEL LTD. BEISEKER PIT EXPANSION
HORIZONTAL SCALE: 1:2500 0 10 20 40 80 120 160 m	IN SW 1/4 9-28-26-W4M / AERIAL PHOTO
BADKE CONSULTING LTD. (403)271-8708	DRAWN: JDB / DATE: SEPT 2014 CHECK'D: DAB / DWG. No. 4 APPROVED: DAB / REV. No. 4


RGE RD 264
SUBJECT LANDS (SOUTH
40 ac IN SW 9-28-26-4)
PIPELINE ROW
SETBACK REQUIREMENTS
AS PER NRI GUIDELINES
15.0m
30.0m
PROPOSED
MINING LIMITS
FENCE
15.0m
ROCKY VIEW
PIT
TP-1
TP-2
TP-3
MW1
ACCESS ROAD TO PIT
WATER WELL
CURRENT MINED
OUT PIT
NW 4-28-26-4
EXISTING GROUND
CONTOURS (0.25m
INTERVAL)
CURRENT MINING FACE
PIPELINE
ROW
DRAINAGE
PATTERN
FENCE
PAVED ROAD
NOTE:
- CONTOURS BASED ON JUNE 2012
GPS SURVEY
- REFER TO DWG 8 FOR SECTIONS
Rocky View County
HORIZONTAL SCALE: 1:2500
0 10 20 40 80 120 160 m
McNAIR SAND & GRAVEL LTD.
BEISEKER PIT EXPANSION
IN SW 1/4 9-28-26-W4M
EXISTING CONTOURS
BADKE CONSULTING LTD.
(403)271-8708
DRAWN: JDB
DATE: SEPT 2014
CHECK'D: DAB
DWG. No. 5
APPROVED: DAB
REV. No. 4

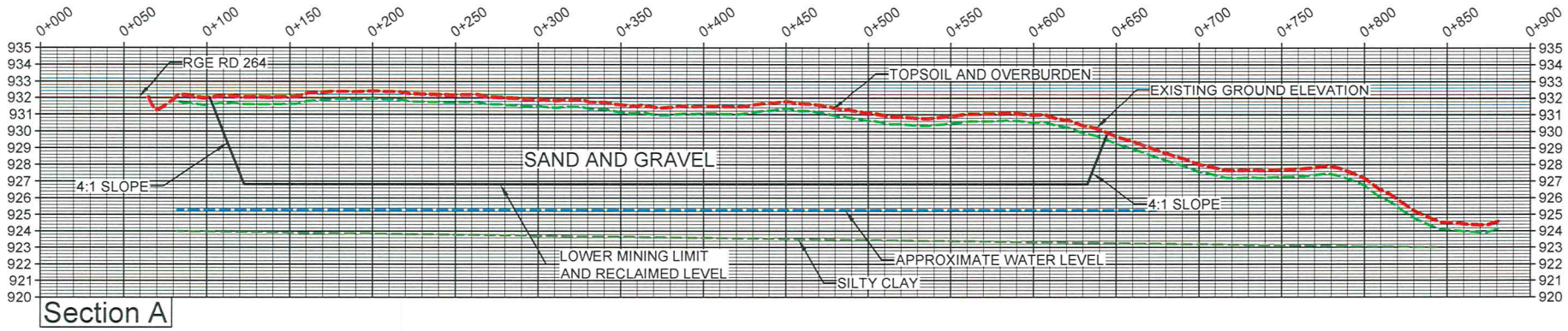
The southern 40 acres of the subject quarter contains no buildings, services, or oil and gas facilities. Improvements are limited to perimeter fencing on the south and east boundaries. Access to both the subject and balance lands is by way of the existing approaches as shown on Dwg 2 and 3. The approach to the subject lands off Rge Rd 264 will continue to be used for access by hay-making equipment until such time as mining takes place in the western portion of these lands.

8. Sand and Gravel Deposit

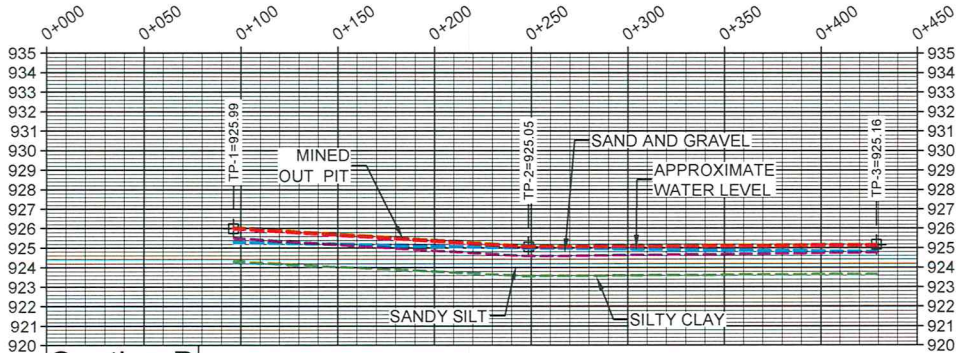
A commercially recoverable deposit sand and gravel is located beneath the western 25 acre portion of the proposed 40 acre parcel. The parameters of this deposit were established by the excavation of test pits. In summary, the structure of the sand and gravel deposit is as follows:

- The average depth of topsoil is 0.15m (0.5 ft);
- The average depth of silty overburden is 0.3m (1.0 ft);
- The average depth of the sand and gravel deposit is 4.0m (13 ft);
- Clay forms the lower limit of the sand and gravel deposit;
- The eastern 15 acre portion of the subject lands contains a fine sand that is likely not useable.

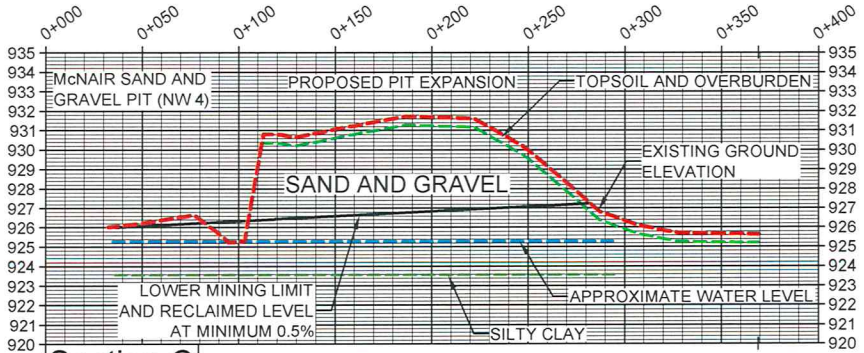
Dwg 8 contains cross sections through the granular deposit on the subject lands, at the locations shown. A water table is shown on the cross sections located about 3.0m (10 ft) below the current mining limit in the adjacent pit to the south.



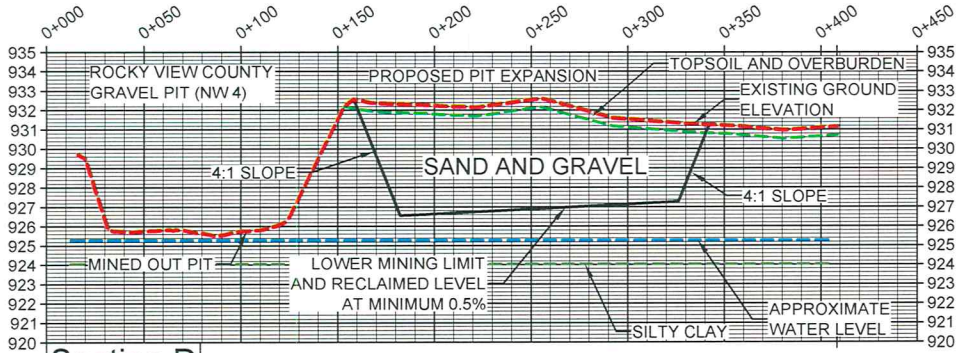
Section A



Section B



Section C



Section D

Rocky View County	McNAIR SAND & GRAVEL LTD. BEISEKER PIT EXPANSION	
HORIZONTAL SCALE: 1:2500 0 10 20 40 80 120 160 m 0 1 2 4 8 12 16 m VERTICAL SCALE: 1:250	IN SW 1/4 9-28-26-W4M	SECTIONS
BADKE CONSULTING LTD. (403)271-8708	DRAWN: JDB CHECK'D: DAB APPROVED: DAB	DATE: SEPT 2014 DWG. No. 8 REV. No. 4

B. DEVELOPMENT CONCEPT

1. Development Rationale

Sand and gravel deposits in the general Calgary area are a non-renewable natural resource which are rapidly depleting due either to the deposits being exhausted, being built over by urban expansion or the inability to obtain permitting due to the proximity of the deposits to other incompatible uses. It is essential that new sand and gravel deposits be identified and permitted so as to prevent the sterilization of these valuable non-renewable resources. The subject lands contain a small reserve of commercial quality sand and gravel which should be exploited as the logical northward extension to the existing McNair pit in NW 4. The subject sand and gravel deposit is located in an area which is in close proximity to two provincial highways, which provide good access to markets. As well, the subject deposit is located in a sparsely populated area, thereby reducing the possibility of conflicting land uses. In summary, we feel it is very important that this granular deposit be permitted and not sterilized.

2. Mining Areas

All mining operations will be conducted in accordance with the prescribed Natural Resource Industrial District (NRI) guidelines included in the appendix. That is, mining will be setback 15 metres from the north and east property lines and 30 metres from the west property boundary along Range Road 264 as shown on the attached Dwg 5 and 6. We are proposing no mining setback from the south boundary of the subject lands such that the reclaimed pit floor in the subject lands and those to the south will be at a continuous level to promote better future use of both lands. The subject lands will be fenced to prevent unauthorized access to the pit.

Policies:
The following policies have been developed generally in accordance with the Hab-Tech report submitted in support of this document:

2.1. All mining operations shall be conducted in accordance with the prescribed Natural Resource Industrial District (NRI) guidelines.

2.2. The subject lands shall be fenced prior to the start of mining to prevent unauthorized access to the pit.

2.3 The low-lying area in the northeast contains no recoverable sand and gravel and as such, shall not be disturbed;

3. Initial Stripping

The sand and gravel deposit on the subject lands is overlain by an average 0.15m (0.5 ft) of topsoil and 0.3m (1.0 ft) of silty overburden as discussed earlier. In preparation for the mining operations to begin, these overburden materials will first need to be removed from the granular deposit. It is proposed that topsoil from the initial mining area will be removed and salvaged by placing these materials in stockpiles, well separated from other materials. The silty overburden materials covering the granular reserve will then be removed from the initial mining area and will be spread in the mined out lands to the south.

Policies:
The following policies have been developed generally in accordance with the Hab-Tech report submitted in support of this document:

3.1 All topsoil shall be salvaged such that there is no contamination with other materials and all of this topsoil shall be utilized for reclamation of the mined out lands.

3.2 All topsoil stripping operations shall be done at a time of year when birds are not nesting on area being stripped.

4. Gravel Mining and Processing

After stripping the topsoil and overburden from the initial Year 1-5 mining area, the mining operations will proceed in a northwesterly direction from the current operations in NW 4.

The actual mining operation will consist of a rubber tired front end loader excavating pitrun sand and gravel from the bank and loading it directly to trucks for removal from the subject lands. Alternately, the pitrun sand and gravel excavated from the bank will be fed directly to a conventional screening plant. The screening plant will typically consist of a feeder and vibratory screener, plus conveyors and/or trucks for stockpiling the finished product. The screening plant is powered by its own diesel power generator. This screening plant will mainly produce screened products for use as concrete aggregates and road sanding materials. The screening plant will operate on the subject lands on an as required basis to meet demands which are variable. The screening plant will operate on a 7AM to 7PM basis, Monday through Saturday with no work on Sundays or holidays. The plant will typically employ one operator for the loader and screening plant. Portable washroom facilities will be provided at the existing pit in NW 4 for the operator and truck drivers. Drinking water for the scale house will be brought in from an offsite source. Gravel washing is not proposed on the subject lands. It is anticipated that all granular materials mined will be utilized, that is, no rejected materials will be wasted in the pit. This is a small granular deposit and it is anticipated that the mining operations will cover a span of some 10 years, depending of course on market conditions.

Policies:
4.1 The mining operations in the subject pit shall be restricted to a 7AM to 7PM basis, *Monday through Saturday with no work on Sundays or holidays.*

4.2 The mining operations shall generally operate within the boundaries as shown on the attached plans.

5. Gravel Mining Phasing

The initial mining area on the subject lands is proposed within a 12.5 acre (5 ha) area immediately northwest of the current mining area in the NW 4. It is expected that this area will satisfy McNair's projected sales for a 5 year term, depending of course on the actual market demands. Once this initial mining area is depleted, another 12.5 acre (5 ha) area immediately to the east will be mined which is expected to satisfy McNair's projected sales for another 5 year term. The aggregates are coarser in the west and finer in the east so selective mining and blending may take place depending on the product being produced at any time.

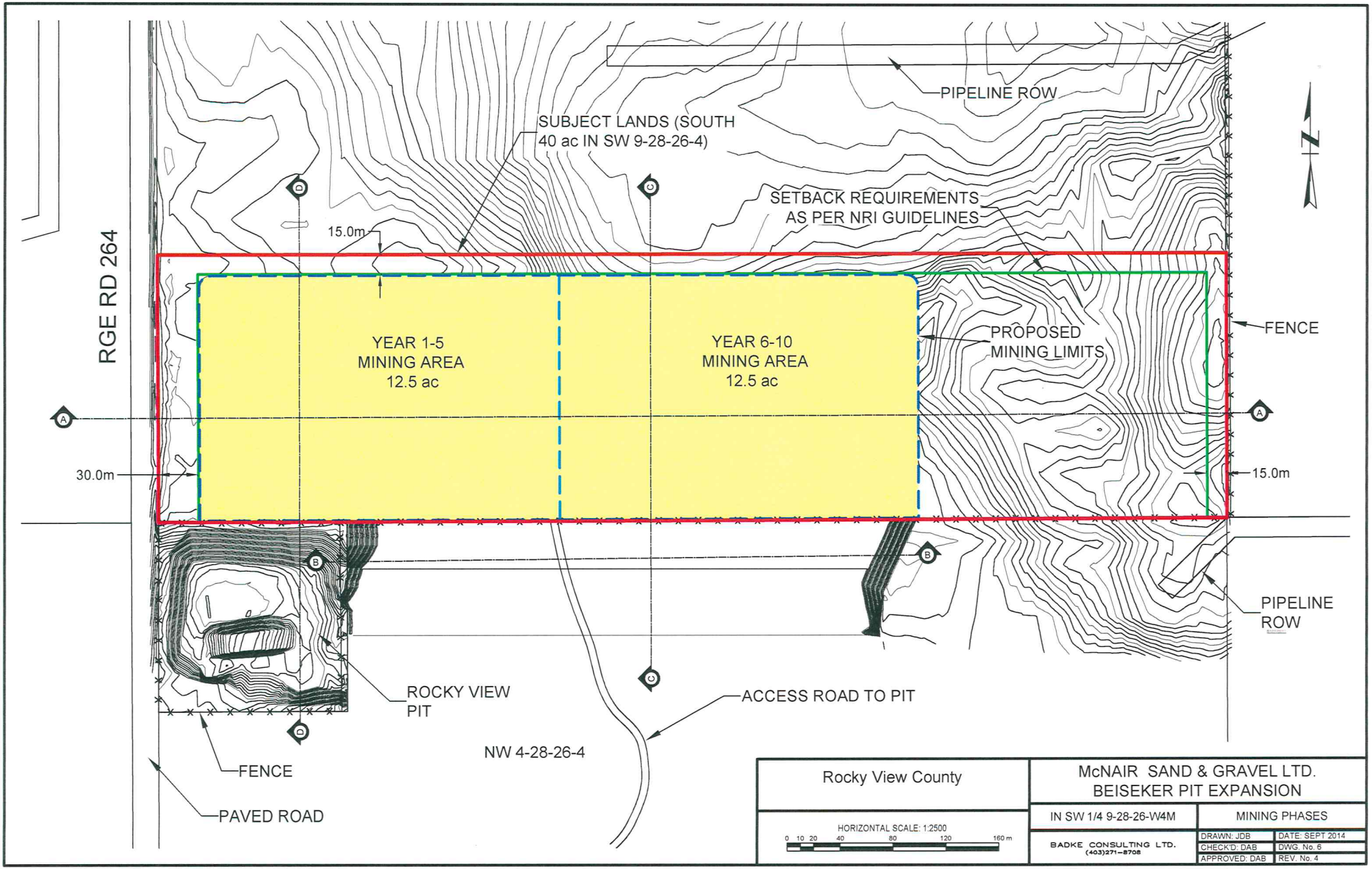
Policies:
5.1 The mining operations shall be phased generally as shown on the attached Dwg. 6.

5.2 A Development Permit shall be obtained for the mining operations and all Development Permits shall be renewed every 5 years until the mining and reclamation operations are completed.

6. Groundwater and Surface Water

A natural water table is located approximately one to two metres (3-6 ft) below the current pit floor in NW 4 and based on subsurface investigations, the water table in the subject lands will be at a similar depth below the pit floor. The pit operator will stop the mining operations at a point above this perched water table or the pit will be dewatered to allow mining to a lower level.

Application for approval pursuant to the Water Act has not been made for handling any minor amounts of groundwater which may be encountered along the pit bottom. That is, the Water (Ministerial) Regulation provides that water diverted for the purpose of dewatering a gravel site, is exempt from requiring a Water Act approval, provided that the water is retained within an on-site pit and is not used. McNair shall comply with these dewatering guidelines. During the mining operations, storm water accumulations in the pit, will be retained within the pit, thereby avoiding any chance of siltation to the surrounding lands or drainage courses. Silt fencing, if required, will also be utilized to prevent siltation of areas outside the mining areas.


RGE RD 264
PIPELINE ROW
SUBJECT LANDS (SOUTH
40 ac IN SW 9-28-26-4)
SETBACK REQUIREMENTS
AS PER NRI GUIDELINES
15.0m
YEAR 1-5
MINING AREA
12.5 ac
YEAR 6-10
MINING AREA
12.5 ac
PROPOSED
MINING LIMITS
FENCE
30.0m
15.0m
PIPELINE
ROW
ROCKY VIEW
PIT
ACCESS ROAD TO PIT
NW 4-28-26-4
FENCE
PAVED ROAD
Rocky View County
HORIZONTAL SCALE: 1:2500
0 10 20 40 80 120 160 m
McNAIR SAND & GRAVEL LTD.
BEISEKER PIT EXPANSION
IN SW 1/4 9-28-26-W4M
MINING PHASES
BADKE CONSULTING LTD.
(403)271-8708
DRAWN: JDB
DATE: SEPT 2014
CHECK'D: DAB
DWG. No. 6
APPROVED: DAB
REV. No. 4

Policies:
The following groundwater management techniques shall be employed, generally in accordance with the GITL and Osprey reports submitted in support of this document and included in the appendix:

6.1 The mining operations shall be confined to areas above the water table unless pit dewatering is employed.

6.2 All storm water accumulations shall be retained within the pit to avoid siltation to the surrounding lands or drainage courses.

7. Reclamation Plan

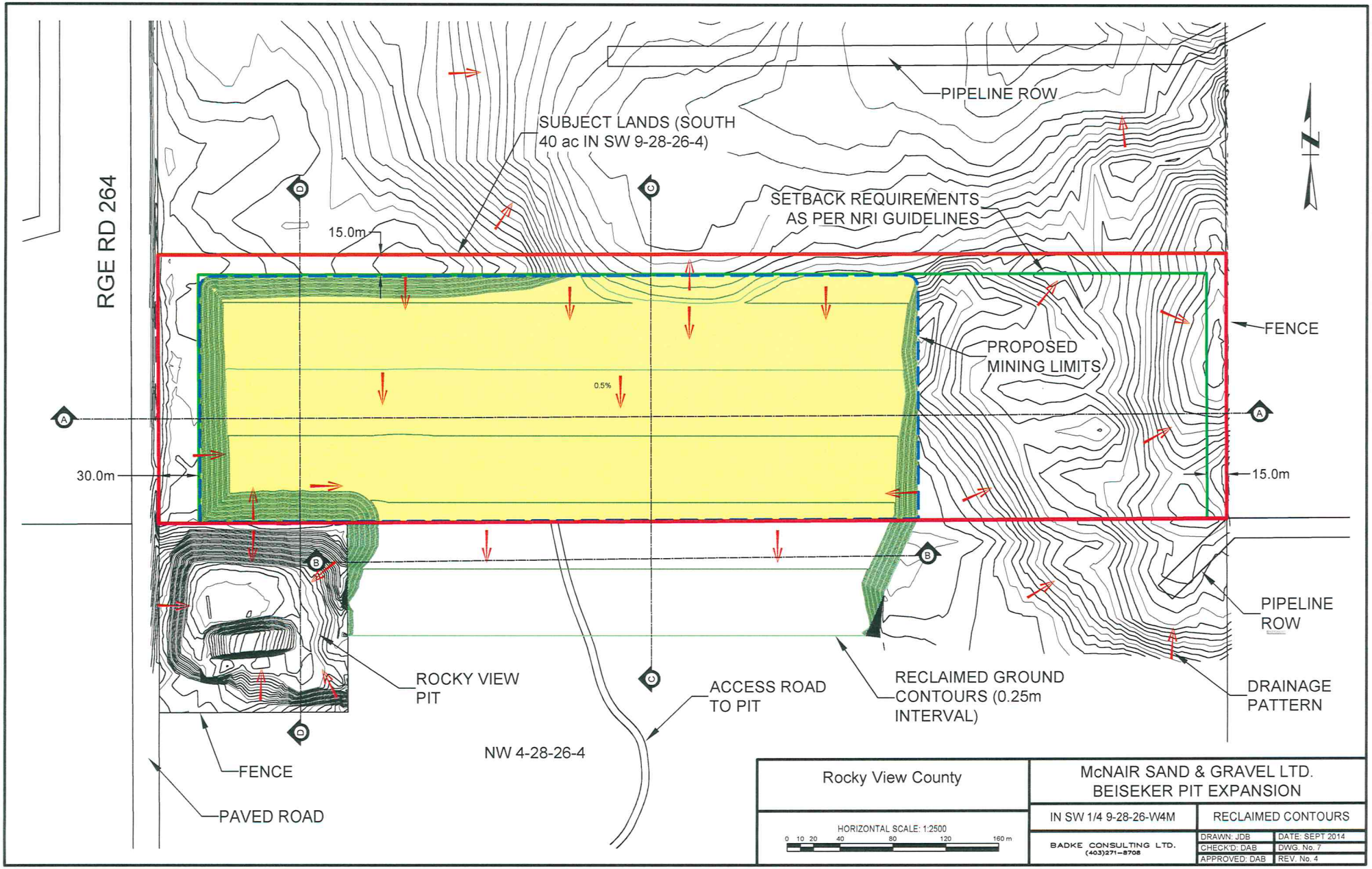
Reclamation will initially consist of stripping the topsoil materials from the initial Year 1-5 mining area and placing these materials in a separate stockpile in the NW 4 for later use in the reclamation process. The overburden materials stripped from the initial mining area will be spread in the mined out portions of NW 4 such that these materials will not need to be moved a second time. Topsoil materials stripped from the Year 6-10 mining area will also be placed in a separate stockpile in NW 4 for later use in the reclamation process. The overburden stripped from the year 6-10 mining area, will be spread in the Year 1-5 mined areas as part of the reclamation process. Once the mined out pit bottom has been graded, the pit operator will re-spread the topsoil materials stockpiled in NW 4, evenly on the graded on the pit bottom of the subject lands.

The pit bottom on the subject lands shall be graded to provide surface drainage towards the south such that all stormwater will be retained within the subject lands or within the NW 4. The mined out pit floor will have a minimum 0.5% slope towards the south, such that no water ponding will occur in the reclaimed areas. Slopes around the periphery of the mining areas will be 4:1 (horizontal to vertical) or flatter, such that they can be farmed effectively without erosion. The ultimate proposed reclaimed grades are shown on Dwg. 7. The mining area on the subject lands shall be reclaimed as hayland, which is its current use.

Policies:
The following reclamation techniques shall be employed, generally in accordance with the Osprey report submitted in support of this document and included in the appendix:

7.1 Reclamation of the mined pit areas shall consist of placing the salvaged overburden and topsoil on the pit floor with 4:1 side slopes around the periphery of the mined areas and seeding all disturbed areas to an appropriate grass seed mixture.

7.2 Reclamation of the mined areas shall be done on a progressive basis so as to minimize the amount of land which is unreclaimed and out of agricultural production at any time in the pit operation.


RGE RD 264
SUBJECT LANDS (SOUTH
40 ac IN SW 9-28-26-4)
PIPELINE ROW
SETBACK REQUIREMENTS
AS PER NRI GUIDELINES
15.0m
FENCE
PROPOSED
MINING LIMITS
0.5%
30.0m
15.0m
PIPELINE
ROW
ROCKY VIEW
PIT
ACCESS ROAD
TO PIT
RECLAIMED GROUND
CONTOURS (0.25m
INTERVAL)
DRAINAGE
PATTERN
NW 4-28-26-4
FENCE
PAVED ROAD
N
Rocky View County
HORIZONTAL SCALE: 1:2500
0 10 20 40 80 120 160 m
McNAIR SAND & GRAVEL LTD.
BEISEKER PIT EXPANSION
IN SW 1/4 9-28-26-W4M
RECLAIMED CONTOURS
BADKE CONSULTING LTD.
(403)271-8708
DRAWN: JDB
DATE: SEPT 2014
CHECK'D: DAB
DWG. No. 7
APPROVED: DAB
REV. No. 4

8. Access and Haul Route

The subject lands are bounded on the west by Range Road 264 which contains a 7.4m wide paved municipal roadway with 0.5m paved shoulders. Range Road 264, between Highway 72 and the local pits, was upgraded as a joint venture between the Province, Rocky View County and the local pit operators. This roadway is posted at an 80 kph speed limit. Truck traffic from the subject lands will travel south through the existing pit in NW 4, then onto Range Road 264 and mostly northward to Highway 72, located some 2 km to the north. At Highway 72, most of the traffic will be westbound to Crossfield, Airdrie and Calgary with some eastbound traffic to Beiseker. Some materials may be hauled to the south via Range Road 264 to the Irricana area.

A Traffic Impact Assessment (TIA) has been prepared by prepared by Opus International Consultants (Canada) Limited (Opus) and is included in the appendix to this report. As recommended by Opus, "*The low number of trips generated by the gravel pit expansion is not expected to result in any operational issues at the intersection or along Highway 72 and Range Road 264.*" Opus further indicated that "*Based on the findings of this study, the McNair Gravel Pit expansion should have negligible impact on the traffic operations in the area. The development should be able to proceed without any additional changes to the existing roads.*"

Policies:

8.1 Truck traffic from the subject lands to markets shall be via the existing pit in NW 4, then via Range Road 264 to markets.

8.2 The existing approach at the northwest corner of the subject lands shall be used for agricultural (haying) equipment only and not for truck traffic to the pit.

9. Truck Traffic from Pit

The following table provides an indication of the truck traffic that is anticipated from the subject pit on a daily, monthly and annual basis. It is anticipated that the pit will generally be closed in the winter months for sand and gravel hauling. These traffic projections may vary with market demands. It is proposed that granular materials will be hauled from the subject pit Monday through Saturday, with the pit being closed on Sundays and statutory holidays. It should be noted that although the mining area is proposed for expansion, the volume of truck traffic is not expanding. That is, the existing and proposed pits will operate as one unit and therefore the traffic from the pit will be unchanged.

Truck Traffic McNair Pit

Month	Tonnes	Monthly Trips	Daily Trips
Jan	0	0	0
Feb	500	14	1
Mar	500	14	1
Apr	2,000	57	3
May	2,000	57	3
Jun	3,000	86	4
Jul	5,000	143	7
Aug	5,500	157	8
Sept	4,000	114	6
Oct	2,500	71	4
Nov	0	0	0
Dec	0	0	0
Total	**25,000**	**714**	

Policies:

9.1 Hauling from the subject pit shall be restricted to Monday through Saturday, on a 7AM to 7PM basis, with no hauling on Sundays or holidays.

C. IMPACTS ON SURROUNDING LANDS AND MITIGATIVE STRATEGIES

1. Communication

Lines of communication will be implemented with neighbours such that any concerns relative to the pit operation can easily be forwarded to McNair so that perceived problems can be rectified in an expeditious manner. McNair will provide all nearby neighbours with their contact information to facilitate communication.

Policies:
1.1 McNair shall implement lines of communication with neighbours to the subject pit.

2. Access and Truck Policies

McNair will strive to ensure a balanced flow of trucks based on customer demand to ensure the effective and efficient use of people, equipment, and haulers at the pit with the least possible disturbance to the surrounding neighbours. McNair will continue to use the existing approach to the pit near the center of NW 4 for access to the subject lands and NW 4. This approach provides good sight distance north and south of the entrance onto Rge Rd 264. A stop sign is currently in place at the pit approach for trucks leaving the pit to ensure safe entry onto Rge Rd 264.

Policies:
*2.1 The following policies have been developed generally in accordance with the **Opus TIA** report submitted in support of this document and included in the appendix. All trucks employed by McNair shall operate under the following requirements:*

- *trucks shall not exceed posted speed limits;*
- *the use of engine retarder brakes shall be prohibited near local residences;*
- *trucks shall not arrive at the pit prior to the permitted hours of operation;*
- *haulers are to conduct themselves in a professional and courteous manner;*
- *loads shall be tarped as required;*
- *drivers shall ensure that loose gravel is removed from hitches, bumpers, sideboards and tailgates prior to the truck leaving the pit;*
- *all trucks leaving the pit shall be scaled using a government approved weigh scale to ensure that trucks are not overloaded;*
- *trucks hauling from the site must have adequate mufflers and trucks must be in good working order;*
- *all trucks hauling for McNair shall be responsible for cleaning any spilled sand, gravel or other debris which fell from their truck, from any off-site haul roads.*
- *Access to the subject lands shall be via the existing pit within NW 4 with a stop sign at the entrance to Range Road 264.*

3. Noise Control

In all cases, Alberta Occupational Health and Safety requirements will be adhered to and all operations within the pit will be conducted in accordance with all municipal and provincial regulations governing noise levels.

Policies:
3.1 In order to minimize impacts on surrounding neighbours related to noise, McNair shall implement the following measures in general accordance with the ***Patching NIA*** *report included in the appendix:*

- *properly maintain all mining and processing equipment;*
- *using strobe lights during hours of darkness instead of backup beeper alarm systems;*
- *orientation of the processing equipment to direct noise in an appropriate direction away from nearby residents;*
- *ensure operator awareness when operating mobile equipment;*
- *limit the duration of an activity in a particular location if possible;*
- *require all trucks hauling from the site to have adequate mufflers and to be in good working order;*
- *prohibit the use of engine retarder brakes near residences;*
- *operate the screening equipment within lower areas of the pit;*
- *strategically place stockpiled material between ongoing pit operations and nearby residences.*

4. Weed Management Control

McNair will control all weeds through routine inspections and spraying.

Policies:
4.1 McNair shall implement the following methods to prevent the introduction of weeds to the site and weed control during pit development and reclamation:

- *an initial inspection shall be conducted on site to document any weed problems;*
- *use only soils salvaged from the pit area, that is, avoid imported materials;*
- *seed topsoil stockpiles with grass to reduce weed growth;*
- *mow or spray weeds prior to flowering;*
- *use herbicides appropriately during pit operations to control or prevent the onset of noxious weed invasion; and,*
- *conduct inspections for weeds on an as-required basis and if necessary, implement a spraying program to control the spread of noxious and restricted weeds.*

5. Stormwater, Erosion and Siltation Control

McNair will control stormwater, erosion and siltation within the subject lands at all times.

Policies:
*5.1 McNair shall implement the following measures to control stormwater, erosion and siltation in general accordance with the **Osprey SWMP** report included in the appendix:*

- *Ensure that all stormwater generated within stripped areas, is directed into the pit and contained within the pit;*
- *Where stormwater flows are concentrated, utilize silt fencing, erosion control matting, rock checks in ditches or drainage courses to minimize erosion and siltation;*
- *The proposed mining area shall be clearly defined at all times. Construction equipment shall be restricted from non-gravel bearing areas so as to prevent scarring of the existing ground cover and therefore prevent erosion of those areas;*
- *The reclaimed pit bottom shall generally slope towards the south and drain into the existing pit in NW 4, with care being taken to avoid water ponding on the reclaimed pit bottom;*
- *The reclaimed slopes of the pit bottom shall be gentle, that is, in the order of 0.5 percent so as to promote sheet flow and prevent erosion.*
- *Slopes around the periphery of the mining areas shall be 4:1 (horizontal to vertical) or flatter such that they can be hayed effectively. Cat track packing of these slopes, such that the track marks are parallel with the slope contours, shall be done to minimize erosion.*
- *Erosion control measures shall be inspected on an ongoing basis and repairs made as necessary.*
- *During the mining operations, all stormwater runoff shall be contained within the mined out pit area. In areas where this is not possible, silt fencing or filtersoxx shall be utilized to control siltation of areas outside the mining areas.*
- *All stockpiles of stripped materials shall be seeded to an appropriate grass mixture to prevent erosion and weed growth.*
- *Reclaimed areas within the subject lands shall be covered with silty overburden and topsoil and seeded to an appropriate grass mixture;*
- *After reclamation of the subject lands in SW 9, stormwater shall be directed south to the NW 4 where it shall be retained within the mined out pit in NW 4;*
- *Stormwater from the subject lands shall drain towards the NW 4 at a minimum 0.5% and shall not be allowed to spill onto areas of the subject lands outside the mining area.*

6. Dust Control Plan

Dust originating from the mining or hauling operations on the subject lands will be controlled at all times such that it does not become a nuisance to surrounding neighbours.

Policies:
6.1 Dust generated from the proposed sand and gravel mining plus hauling operations shall be controlled by the following measures:

- *internal roads shall be watered and/or treated with a dust suppressant as required;*
- *pit operations shall be suspended temporarily during periods of dry, windy conditions;*
- *temporary topsoil stockpiles shall be seeded to grass to prevent erosion;*
- *if required, Range Road 264 shall be broomed to remove spilled material generated by the trucks hauling from the subject pit;*
- *product stockpiles shall be placed on the mined out pit bottom to lessen the chance of wind erosion.*
- *strategically place stockpiled material between ongoing pit operations and nearby residences.*

7. Hazardous Materials and Waste

McNair will not store any hazardous materials on the subject lands in the SW 9, but will employ the following measures to control hazardous materials stored in the existing McNair Pit in NW 4:

- Hazardous materials used on site may include diesel fuel, hydraulic fluid, oils and lubricants. All materials will be stored in approved commercial containers or in the operator's equipment. Diesel fuel for equipment in the pit will be stored in above ground tanks with an impervious containment structure below. The tanks will be dual lined vaults that conforms to the Alberta Fire Code Standards and the Petroleum Tank Management Association.

- Used oil from servicing of equipment onsite will not be disposed within the subject lands. Rather, it will be collected in leak-proof containers and disposed offsite at a proper recycling facility. All major equipment repairs will be done off-site.

- Self-contained portable sanitary facilities will be provided onsite in the existing pit for the trucker drivers, pit operators and scale personnel. These facilities will be maintained and emptied on an as required basis.

- All garbage will be collected on site in a secure container and removed from site to be disposed at a proper off-site disposal facility.

Policies:

7.1 All hazardous materials shall be stored on site in leak-proof containers in the NW 4;

7.2 Self-contained portable sanitary facilities shall be provided onsite in the NW 4;

7.3 All garbage shall be collected on site in the NW 4, in a secure container and removed from site to be disposed at a proper off-site disposal facility.

8. Development Permitting Structure

Air quality monitoring is not being carried out on the adjacent lands to the south and is not planned for the proposed mining operations on the subject lands. One of the major sources of dust in other pit operations, is the crushing of rock fragments which produces dust from the dry fractured rock surfaces that are produced. However, the crushing of rock is not proposed in the subject pit. The processing of sand and gravel in the subject pit will be done utilizing a screener only. That is, moist pitrun sand and gravel will be excavated from the bank using a front end loader and fed directly to a screener thereby producing very little dust. As such, dust from the processing operation in the subject pit should be minimal.

The internal haul roads between the proposed pit and Rge Rd 264 are gravelled. During periods of concentrated hauling, these internal haul roads will be visually monitored for the production of dust. If the trucks are producing significant amounts of dust, then the internal haul roads will be watered or treated with a dust suppressant to control the dust.

Policies:

8.1 All diesel or oil spills shall be reported to the appropriate authorities immediately;

8.2 All internal roads shall be watered or treated with a dust suppressant to control dust from becoming a nuisance to neighbours;

9. Environmental mitigation strategies and initiatives

The following environmental mitigation strategies and initiatives shall be implemented with respect to the sand and gravel mining operations on the subject lands. McNair shall implement the following strategies, generally in accordance with the technical reports submitted in support of this document which are included in the appendix:

- Topsoil and other overburden materials shall be carefully removed from the mining areas and stored separately in the mined out lands to the south. These materials shall subsequently be spread evenly on the mined out pit floor, thereby reclaiming the disturbed areas for agricultural purposes;

- All stormwater accumulating in the pit shall be contained within the pit so as to prevent erosion and siltation of the lands surrounding the mining areas;
- If appropriate, silt fencing or filtersoxx shall be utilized to control erosion;
- Dust from truck traffic shall be controlled by watering the haul roads or treating them with a dust suppressant;
- Stripping of the proposed mining areas shall be carried out during periods of the year when birds are not nesting on the ground;
- If servicing of equipment takes place on the subject lands, all used oils shall be collected in leak proof containers and recycled at an off-site location;
- Weed growth shall be controlled by spraying, mowing and seeding of topsoil piles to grass;

10. Interim and post reclamation land uses

The subject lands are currently utilized for agricultural purposes, that is, for hay crop production. The proposed mining operations will be confined to the smallest area possible and the non-gravel bearing areas on the east will be left undisturbed. That is, topsoil and overburden removed from the proposed mining areas will be stockpiled in the mined out areas of the adjacent lands to the south. The mining of sand and gravel on the subject lands is an interim land use. Following the granular extraction process, these lands will be returned to agricultural uses such as hay crop production. During the mining operations, those portions of the subject lands not required for the mining operations, will continue to be used for hay crop production.

The current zoning of the 40 acre subject lands is Ranch and Farm District (RF) and it is proposed that this zoning be redesignated to Natural Resource Industrial District (NRI) during the period in which granular material is being removed from these lands. It is anticipated that following the extraction of the granular materials, the zoning of the subject lands will be returned to the zoning of Ranch and Farm District (RF).

D. TECHNICAL REPORTS

Technical reports have been prepared by each of the following consultants and are enclosed in the appendix of this report.

1. Transportation and Access Management

Opus International Consultants (Canada) Limited, (**Opus**) has prepared a *Traffic Impact Assessment (TIA)* to study the effects of the traffic from the expanded pit on the Highway 72 and Range Road 264 intersection. Opus concluded that:

- "*The low number of trips generated by the gravel pit expansion is not expected to result in any operational issues at the intersection or along Highway 72 and Range Road 264.*"
- "*Based on the findings of this study, the McNair Gravel Pit expansion should have negligible impact on the traffic operations in the area. The development should be able to proceed without any additional changes to the existing roads.*"
- The existing pit in the NW 4 and the proposed pit in the SW 9, will operate as one unit and therefore the traffic volume from the pit will be unchanged from current levels.

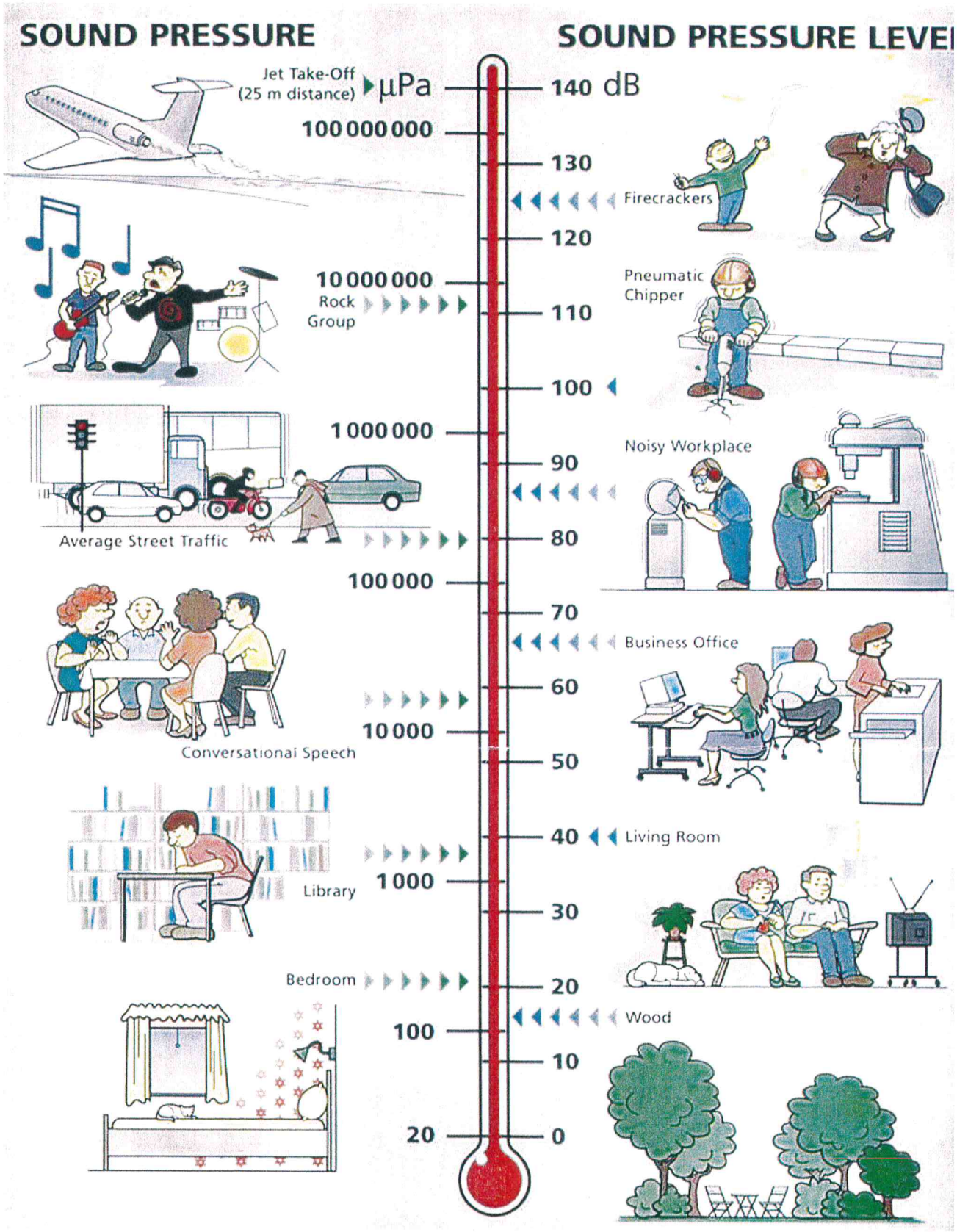
2. Noise Impact Assessment

Patching Associates Acoustical Engineering Ltd. (**Patching**) has prepared the attached *Noise Impact Assessment* report dated April 30th, 2014. The Patching report concluded that the predicted sound levels with the pit in operation were in the range of 35 to 37 dBA, including ambient noise levels. Patching indicated that the permissible noise levels for daytime are 50 dBA and 40 dBA at night. As such, the predicted noise levels at the various receptors, falls below the permissible noise range. Attached is a chart which relates various sound intensities to common noise generating conditions.

Some noise will be generated at the subject pit by the earthmoving equipment used to strip and stockpile the overburden materials as well as reclaiming the pit. Noise will also be generated by the equipment used to load, process and transport the granular materials. The aerial photo included as Dwg 1 shows the neighbouring residences which are closest to the proposed pit on the subject lands.

3. Stormwater Management Plan and Erosion and Siltation Control Plan

Osprey Engineering Inc. (Osprey) has prepared the attached *Stormwater Management Plan* dated May 21st, 2014. This report addresses stormwater management techniques as well as erosion and sedimentation control. Osprey concluded that "*no significant concerns are noted with respect to changes to surface runoff due to this development*".


SOUND PRESSURE
SOUND PRESSURE LEVEL
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(25 m distance)
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Firecrackers
120
10 000 000
Rock
Group
110
Pneumatic
Chipper
100
1 000 000
90
Noisy Workplace
Average Street Traffic
80
100 000
70
Business Office
60
10 000
Conversational Speech
50
40
Living Room
1 000
Library
30
Bedroom
20
100
Wood
10
20
0

4. Groundwater Analysis

Groundwater Information Technologies Ltd. (GITL) has prepared the attached Groundwater Analysis report dated November 28th, 2014. GITL has conducted subsurface investigations within the subject lands and within the mined out pit bottom in the NW 4. Based on this testing, GITL concluded that:

- A natural water table is located at one to two metres (3-6 ft) below the current pit floor in NW 4; the water table in the subject lands will be at a similar depth below the pit floor;
- "*no adverse effects to the groundwater within the gravel deposits or groundwater users within the area is anticipated from the proposed gravel operation*".

5. Biophysical Impact Assessment

Hab-Tech Enviromental (Hab-Tech) has prepared the attached Biophysical Overview and Assessment for the McNair Beiseker Pit Expansion dated February 6th, 2014;

The subject lands are a small 40 acre parcel of land which is surrounded to the north and east by agricultural lands which are utilized for hay crop production and pastureland for cattle. The lands to the south and west contain large active gravel mining operations and an asphalt plant. Based on the setting of the subject lands, Hab-Tech concluded that:

- The subject lands are utilized for agricultural purposes (hayland) without any treed areas on site and as such do not provide a refuge or movement corridor for wildlife; Hab-Tech concluded that "*the McNair property is not considered as a viable wildlife corridor*".
- The entire subject lands have been cultivated and are now seeded to grass for hay crop production. Hab-Tech concluded that "*the vast majority of the subject lands have been characterized as habitats with low native integrity (ie, cultivated fields and non-native tall shrub patches). Development of these low ecological quality habitats will not result in a significant negative effect on wildlife or vegetation.*"

- Hab-Tech has recommended avoidance of the low-lying area in the northeast; this area contains no recoverable sand and gravel and as such, will not be disturbed.

6. Historical Resources Impact Assessment

Lifeways of Canada has conducted an *Historical Resources Impact Assessment* (HRIA) on the subject lands. Clearance for the subject lands has been obtained from Alberta Culture with respect to the Historical Resources Act. A copy of this document is attached in the appendix.

E. PROVINCIAL APPROVALS REQUIRED

1. Alberta Transportation

In support of this application, a **Traffic Impact Assessment** (TIA) has been prepared by **Opus International Consultants (Canada) Limited** (**Opus**) and this report is included in the appendix to this application. This report has been submitted to Alberta Transportation for their review. A Roadside Development Permit will be prepared if required by Alberta Transportation for the continued access onto Highway 72.

2. Alberta Environment (Code of Practice for Pits)

With respect to the **Code of Practice for Pits**, all pits that result in a disturbance of 5.0 ha (12.4 ac) or more, require registration approval from Alberta Environment. Application for registration has been prepared and a copy is included with this application package; this application was submitted to Alberta Environment concurrently with the application to Rocky View County.

3. Alberta Environment (Water Act)

Application for approval pursuant to the Water Act has not been made for handling any minor amounts of groundwater encountered along the pit bottom. That is, the Water (Ministerial) Regulation provides that water diverted for the purpose of dewatering a gravel site, is exempt from requiring a Water Act approval, provided that the water is retained within an on-site pit and not used, which in fact is the case.

Drinking water for use at the scale house will be brought in from an offsite source.

4. Alberta Culture - Historical Resources Impact Assessment

Lifeways of Canada has conducted an **Historical Resources Impact Assessment** (HRIA) on the subject lands. Clearance has been obtained from Alberta Culture with respect to the Historical Resources Act. Attached is a copy of the clearance for the subject lands.

F. ASSESSMENT OF CUMULATIVE EFFECT

The mapping on the facing page shows the location of the subject lands outlined in pink along with other active pits in the general area. These existing pits are identified as follows:

- **Pits on Range Road 263:**
  Pits 1, 2 and 3 are located along Rge Rd 263 with access southward to Highway 9;

- **Pits on Range Road 264:**
  Traffic from the Pits along Rge Rd 264 for the most part travels northward to Highway 72 then westward to markets in Crossfield, Airdrie and Calgary;

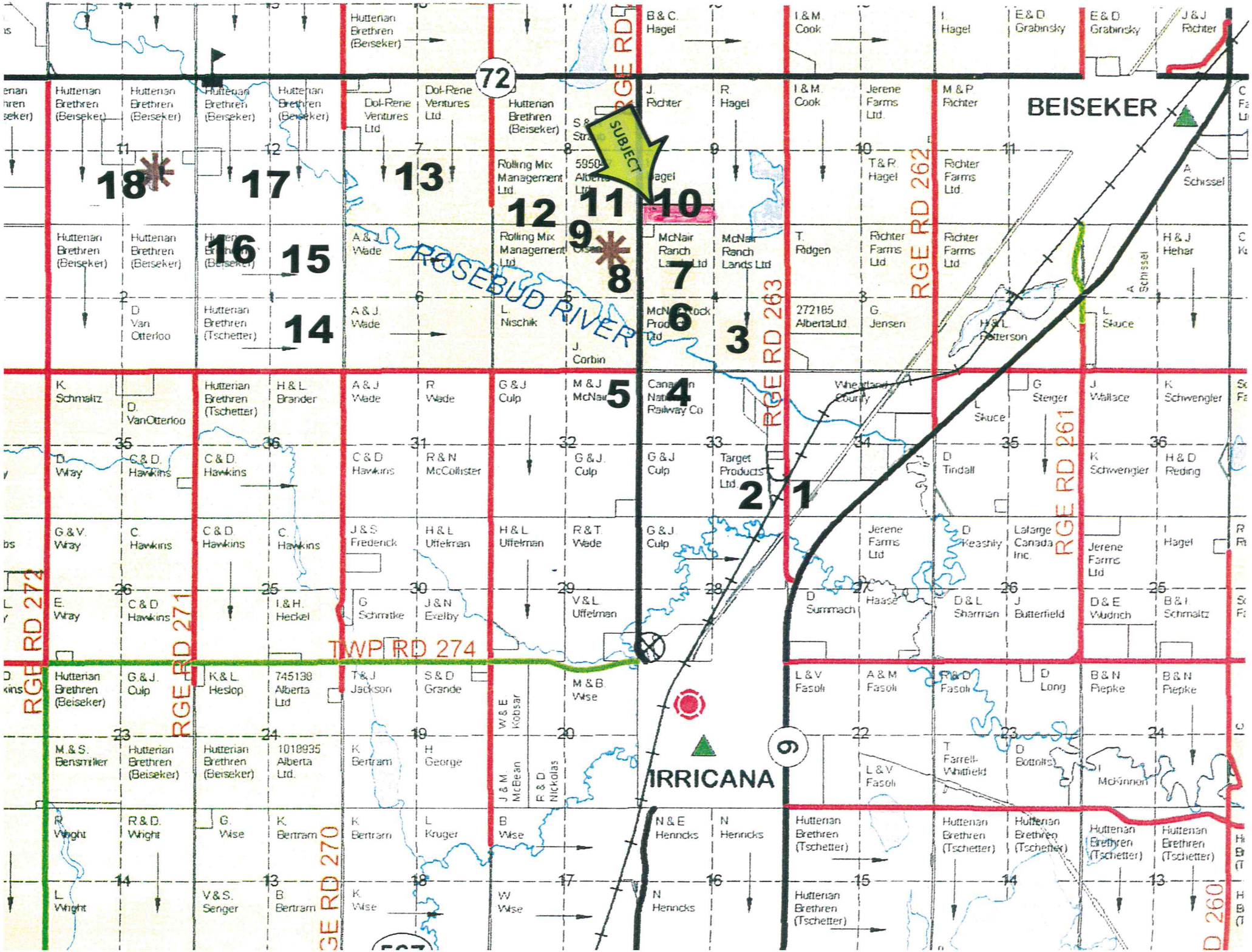
    - Pit 4: Standard General pit which is actively being mined;
    - Pit 5: McNair Nischik pit which is completely mined out and mostly reclaimed;
    - Pit 6: South Rock/McNair pit which is mostly mined; includes an asphalt plant;
    - Pit 7: McNair pit which is partially mined out;
    - Pit 8: DBC Bennie pit which is mostly mined out and partly reclaimed;
    - Pit 9: Rocky View County Bennie pit which is mostly mined out;
    - Pit 10: Subject lands proposed pit on the Hagel Lands in the SW 9;

- **Pits on Range Road 265:**
  Traffic from the Pits along Rge Rd 265 travel northward to Highway 72, then westward to markets in Crossfield, Airdrie and Calgary;
    - Pit 11: Rolling Mix pit which is mined out and reclaimed;
    - Pit 12: Rolling Mix pit which is mostly mined out; wash plant site;
    - Pit 13: DBC Bosch pit which is partially mined out and partially reclaimed;

- **Pits with direct access to Highway 72 between Range Road 271 & 272:**
  Traffic from these Pits has direct access Highway 72, then westward to markets in Crossfield, Airdrie and Calgary;

    - Pit 14: South Rock/Lafarge pit which is partially mined and reclaimed;
    - Pit 15: Hardrock pit which is mostly mined out and mostly reclaimed;
    - Pit 16: Lafarge pit in which mining has just started;
    - Pit 17: Lafarge pit which is mostly mined out; includes a wash plant site;
    - Pit 18: Rocky View County pit which is mostly mined out and partly reclaimed;

The above pits are located in a large deposit which covers an area of about 3km by 6km. Over the past decades, this area has been a very active source of gravel. However, production is now declining as a number of the pits are nearing depletion. Mining on the subject lands is an extension of the current operations in NW 4 and as such does not represent additional truck traffic entering the road system. In summary, the addition of the subject pit as a new operation will have no negative cumulative effects, given the fact that the activity of the entire mining area is declining.


SUBJECT
BEISEKER
IRRICANA
ROSEBUD RIVER
TWP RD 274
RGE RD 272
RGE RD 271
RGE RD 270
RGE RD 263
RGE RD 262
RGE RD 261
RGE RD 260
72
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1
Huttenian Brethren (Beiseker)
Huttenian Brethren (Tschetter)
Dol-Rene Ventures Ltd
Rolling Mix Management Ltd
McNair Ranch Lands Ltd
Jerene Farms Ltd
Richter Farms Ltd
Target Products Ltd
Canadian Nat Railway Co
Wheatland County

G. COMMUNITY CONSULTATION

Lines of communication shall be set up with the immediate neighbours once the pit expansion is in operation such that McNair can establish an easy form of communication for nearby residents to express concerns directly to McNair such that these concerns can be rectified quickly should any arise.

Prior to the Public Hearing, all surrounding land owners will be contacted, advising them of the planned activities on the subject lands. Any concerns will be discussed with these land owners. The responses from these landowners will be summarized and forwarded to Rocky View County prior to the Public Hearing.