

Notes:

A. General

- This site plan is prepared under the Aggregate Resources Act (ARA) for a Class A licence for a pit below the ground water table and follows the Aggregate Resources of Ontario: Site Plan Standards August 2020.
- Area Calculations:
Licence Area: 69.5 hectares (172 acres)
Limit of Excavation: 55.9 hectares (138 acres)
All measurements shown are in metres unless specified otherwise.

B. References

- Topographic information compiled by GeoOptic (a division of Aeon Egmond Ltd.) produced from aerial photography flown March 23, 2021. Mapping is produced in real world scale and coordinates (NAD83 UTM Zone 18N). Contour interval is 1m. All elevations are geodetic (CGVD2013 HT2).
- Property boundary from parcel fabric on vUMap (First Base Solutions) online mapping subscription; Plan 49R-6656 prepared by Gibson, Sury & Rowe (Oct. 1983); Plan 49R-15517 prepared by Adam Kasprzak Surveying Ltd. (July 2004); Plan 49R-8151 prepared by Sury, Rowe & Kasprzak Limited (Nov. 1986) and Plan 49R-19545 prepared by Adam Kasprzak Surveying Ltd. (Apr. 2020).
- The subject site is zoned Extractive Industrial Reserve (EMR) and Rural (RU) and Environmental Protection (EP) in the Township of Horton Zoning By-law 2010-14.
- Land use information compiled from 2021 imagery and client input.

C. Drainage

- Surface drainage on and within 120 metres of the licence boundary is by overland flow in the directions shown by arrows on the plan view or by infiltration.

D. Groundwater

- The groundwater table elevation on site ranges between 165 masl in the western portion of the site to 160 masl in the eastern portion of the site. The existing water table elevations are shown on each cross section on page 5 of 5. Groundwater table elevations provided by WSP Golder (November 2022).

E. Site Access and Fencing

- There are several existing field accesses to the site, in the locations shown on the plan view.
- Post and wire fencing (unless noted otherwise) exists in the locations shown on the plan view.

F. Aggregate Related Site Features

- There are no existing aggregate operations or features on-site such as processing areas with stationary or portable equipment, stockpiles, recyclable materials, scrap, haul roads, fuel storage, berms or excavation faces.

G. Significant Natural Features

- On-site: Significant wildlife habitat, fish habitat, endangered species (butternut trees) and unevaluated wetland; Within 120m: significant woodland, fish habitat and unevaluated wetland.

H. Cross Sections

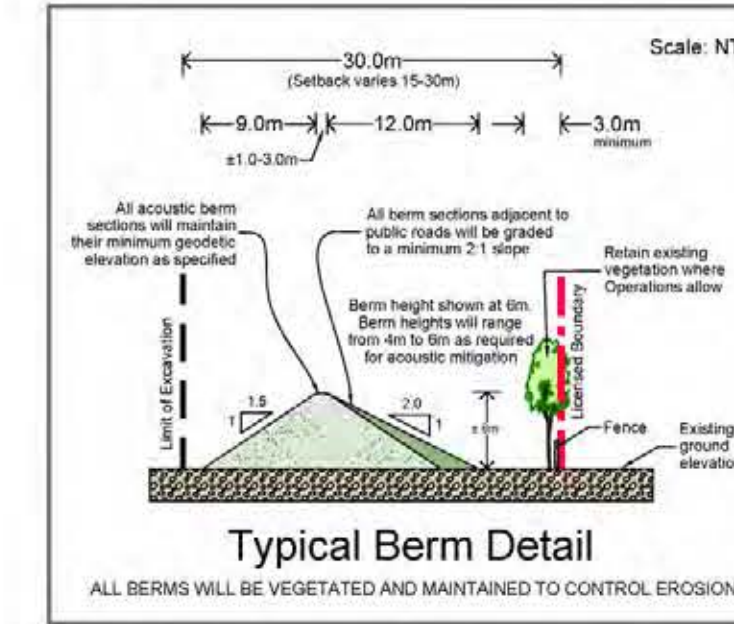
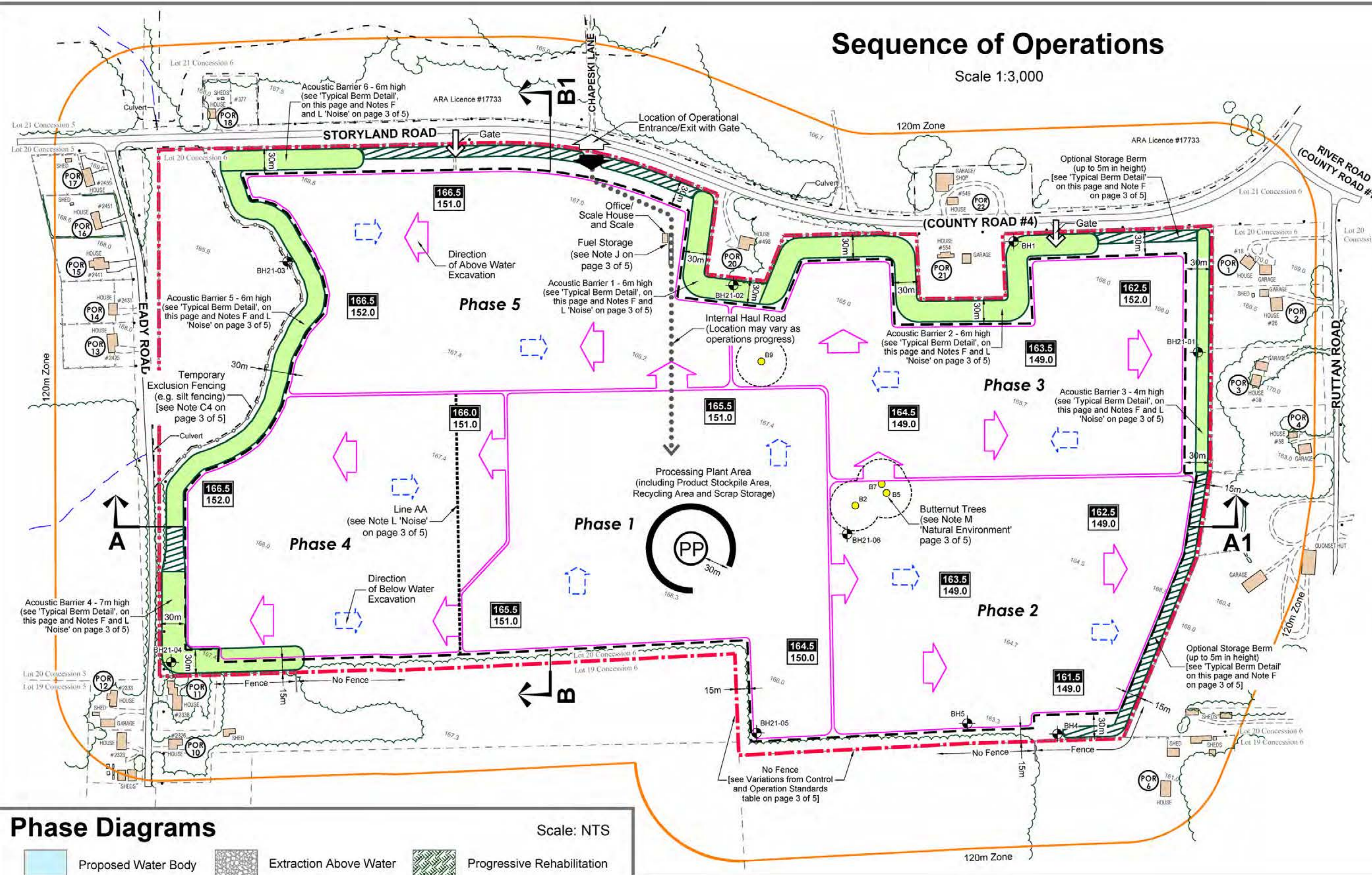
- As shown on this page. Detailed sections are shown on page 5 of 5.
- Cross section locations are identified on the plan view for each drawing.

I. Report References

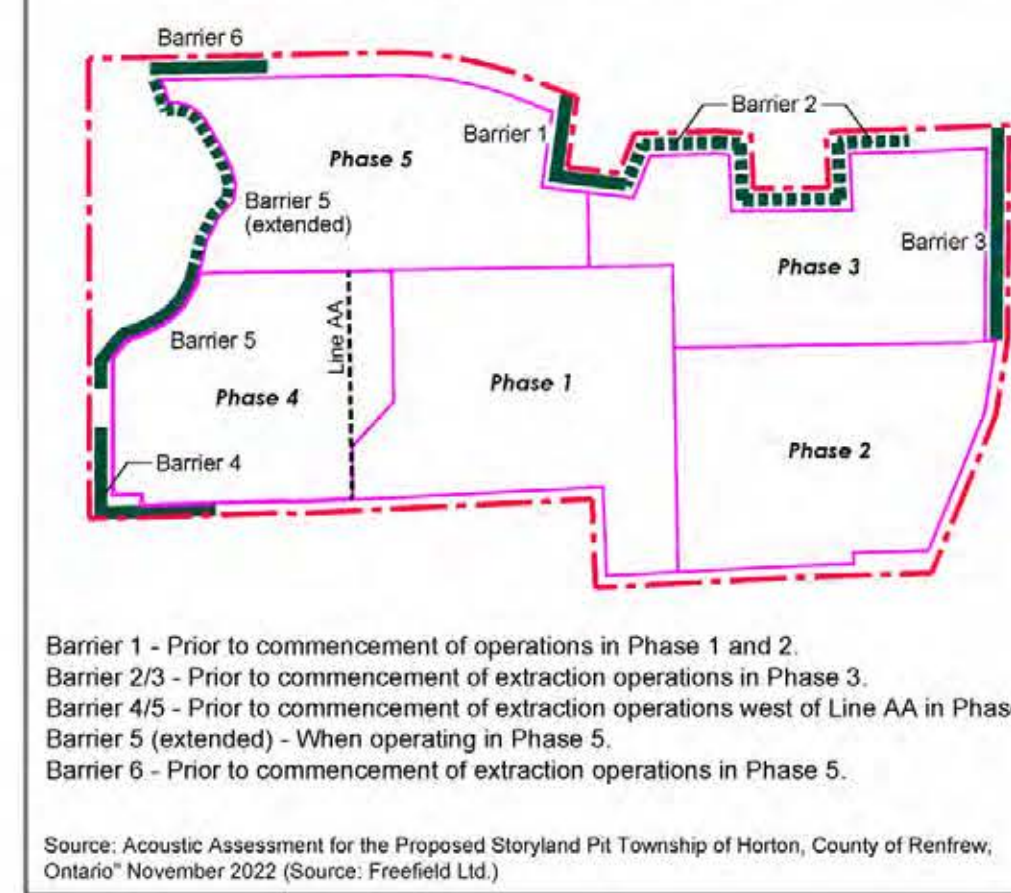
- Noise: "Acoustic Assessment for the Proposed Storyland Pit Township of Horton, County of Renfrew, Ontario" November 2022 (Source: Freefield Ltd.)
- Natural Environment: "Storyland Road Aggregate Development Natural Environment Report & Environmental Impact Statement" November 2022 (Source: McKinley Environmental Solutions)
- Archaeology: "Stage 1 Archaeological Assessment: Storyland Road, Part Lot 20, Concession 6, Geographic Township of Horton, County of Renfrew, Ontario" March 2021 (Source: Paterson Group) and "Stage 2 Archaeological Assessment: 432 Storyland Road, Part Lot 20, Concession 6, PIN 57271-0024 Geographic Township of Horton, County of Renfrew, Ontario" June 2021 (Source: Matrix Heritage Inc.)
- Hydrogeology: "Level 1 and Level 2 Water Report Proposed Storyland Pit, Horton Township Ontario" November 2022 (Source: WSP Golder)
- Maximum Predicted Water Table Report: "Proposed Storyland Pit Horton Township, Ontario" November 2022 (Source: WSP Golder)
- Traffic: "Proposed Mineral Extraction Site, 432 Storyland Road, County of Renfrew" November 3, 2022 (Source: Castleglen Consultants Ltd.)

Sequence of Operations

Scale 1:3,000



Phasing of Acoustic Berms



Source: Acoustic Assessment for the Proposed Storyland Pit Township of Horton, County of Renfrew, Ontario November 2022 (Source: Freefield Ltd.)

Phase Diagrams

Scale: NTS

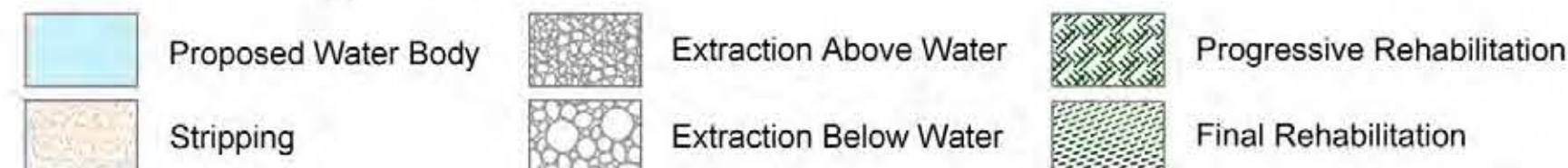


Diagram 1 (Phase 1 & 2 Above Water)

1. Site preparation in Phase 1 to include: confirm that there is existing fencing on the licensed boundary; install 1.2m marker posts on south portion of licensed boundary where there is no fencing; removal of vegetation where applicable; initial stripping of overburden/topsoil and constructing berms as shown; and establishing operational entrance/exit.
2. Build office/scale house and scale as required on-site.
3. Establish fuel storage and equipment parking/highway truck parking areas on-site.
4. Begin Phase 1 and 2 above water extraction in the direction as shown.
5. Construct processing plant. Source/settling ponds may be created during Phase 1 extraction in the approximate areas as shown.
6. Initiate progressive rehabilitation of above water side slopes in Phase 1 as shown.
7. Establish scrap area in the vicinity of the processing plant.
8. Commence site preparation in Phase 3.

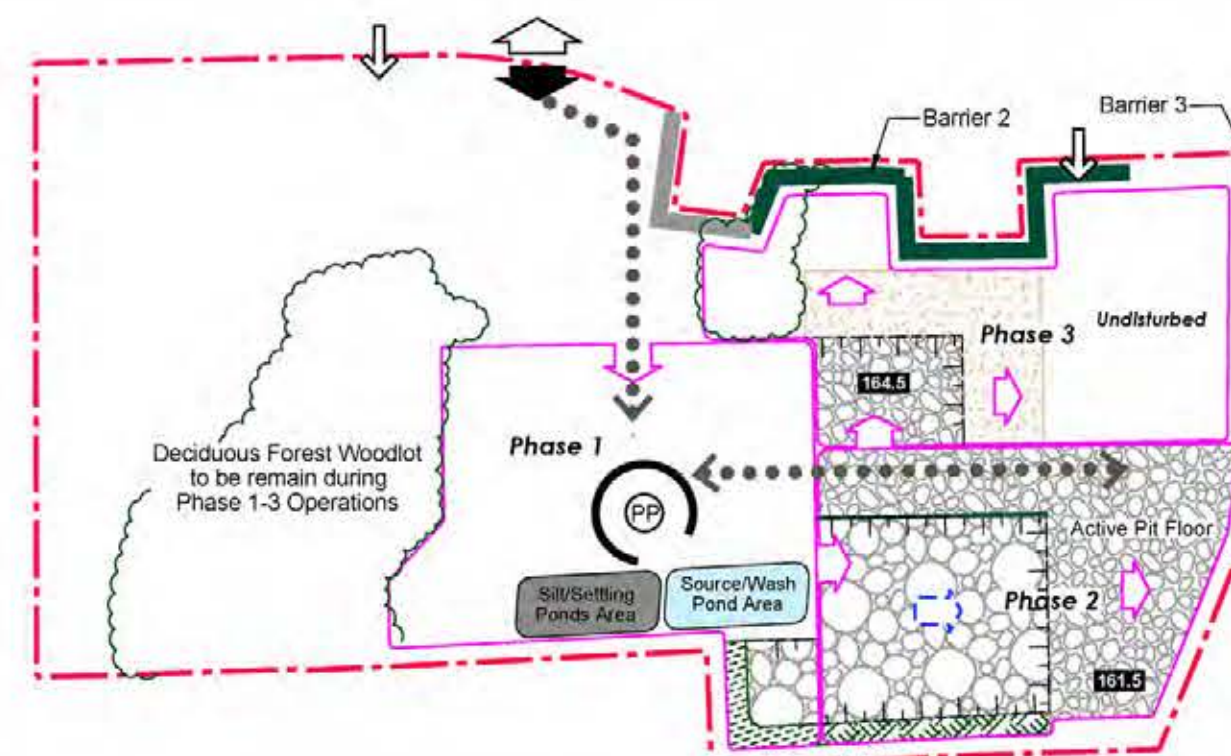


Diagram 2 (Phase 2 Below Water / Phase 3 Above Water)

1. Site preparation in Phase 3 to include: removal of vegetation where applicable; initial stripping of overburden/topsoil and constructing berms as shown;
2. Begin Phase 3 above water extraction in the direction as shown.
3. Extraction below water to occur in the eastern portion of Phase 1 and western portion of Phase 2, in an easterly direction.
4. Continue rehabilitation activities of above water side slopes in Phase 2.
5. Commence site preparation in Phase 4.

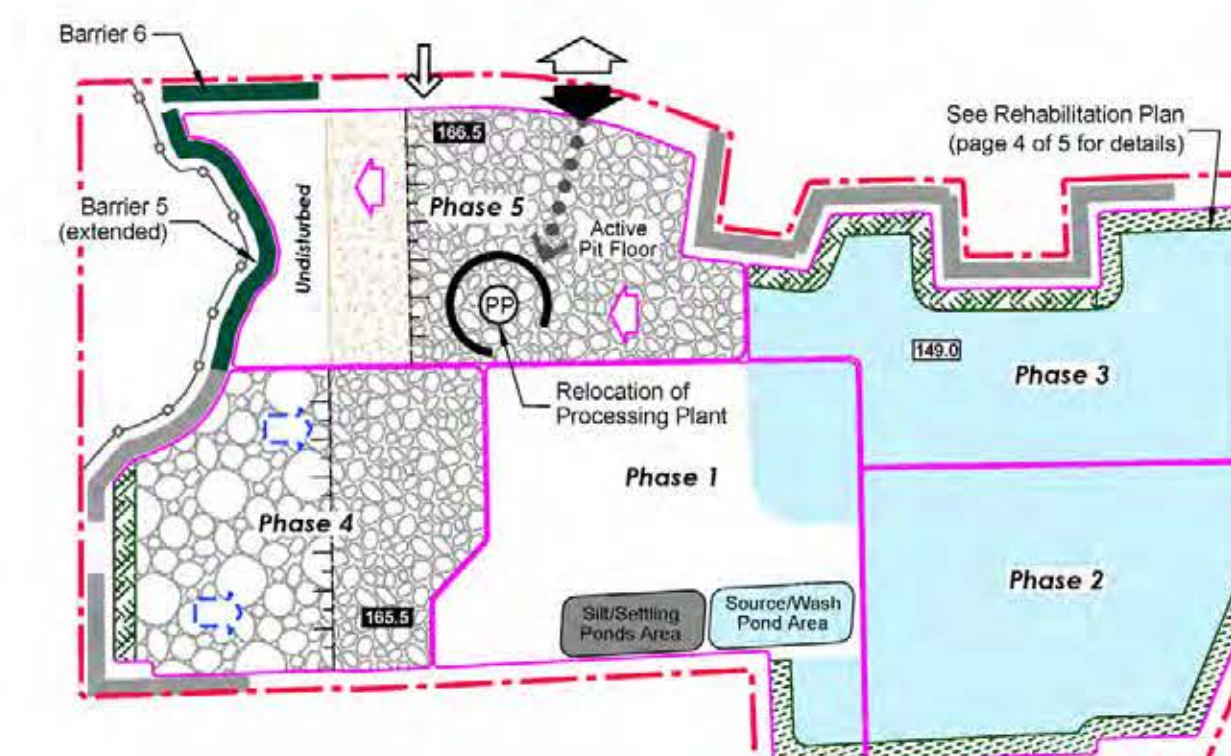


Diagram 3 (Phase 3 Below Water / Phase 4 Above Water)

1. Site preparation in Phase 4 to include: removal of vegetation where applicable; initial stripping of overburden/topsoil, constructing berms and installation of temporary exclusion fencing (e.g. silt fencing) as shown;
2. Begin Phase 4 above water extraction in the direction as shown.
3. Continue below water extraction in Phase 3.
4. Finalize side slope rehabilitation in Phase 2.
5. Commence site preparation in Phase 5.

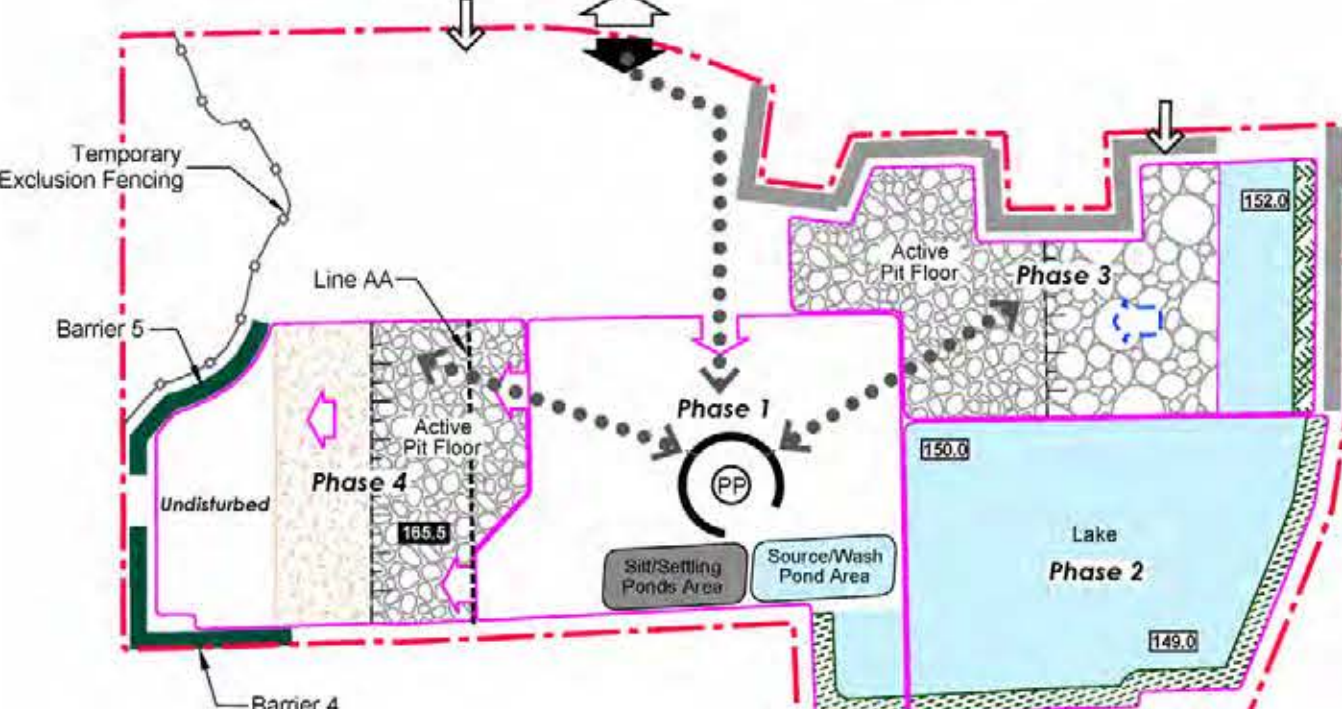


Diagram 4 (Phase 4 Below Water / Phase 5 Above Water)

1. Site preparation in Phase 5 to include: removal of vegetation where applicable; initial stripping of overburden/topsoil and constructing berms as shown;
2. Begin Phase 5 above water extraction in the direction as shown.
3. Commence Phase 4 below water extraction and continue below water extraction in Phase 1.
4. Continue progressive rehabilitation in Phase 3 and begin progressive rehabilitation in Phase 4.
5. Processing Plant to be moved to Phase 5 once material above water table has been mined and sufficient operational area is available.

Not Shown on Phase Diagrams

1. The processing plant will remain on site until the encroachment of below water extraction in Phase 5 requires the removal of the plant.
2. Remove any equipment, scrap, haul roads and buildings on site.
3. Finalize rehabilitation of site (see Rehabilitation Plan on page 4 of 5 for details).

Legal Description

PART OF LOT 20 CONCESSION 6
(geographic township of Horton)
TOWNSHIP OF HORTON
COUNTY OF RENFREW

Legend

	Boundary of Area to be Licensed		Limit of Excavation ALL SETBACKS ARE DRAWN TO SCALE AND SHOW LABELLED DISTANCES
	Existing Fence PAGE WIRE FENCE UNLESS OTHERWISE NOTED		Existing Licensed Boundary ARA LICENCE #17733
	Existing Spot Elevation METRES ABOVE SEA LEVEL		General Direction of Above Water Excavation (SEE NOTES ON THIS PAGE)
	Private Laneway		Operational Access MAINTAINED BY A GATE WHICH WILL BE CLOSED WHEN PIT IS NOT IN OPERATION
	Farm/Field Access		Direction of Below Water Excavation SEE NOTES ON THIS PAGE/PAGE 3 OF 5
	Existing Vegetation		Acoustic Berm SEE "TYPICAL BERM DETAIL" AND NOTES ON THIS PAGE/PAGE 3 OF 5
	Drainage Feature		Optional Storage Berm SEE "TYPICAL BERM DETAIL" AND NOTES ON THIS PAGE/PAGE 3 OF 5
	Unevaluated Wetland ONTARIO GEORUB OPEN DATA		Elevation ABOVE WATER DEPTH OF EXTRACTION MAXIMUM DEPTH OF BELOW WATER EXTRACTION/PIT FLOOR
	Monitoring Well Locations GOLDER 2021		Internal Haul Road LOCATION TO VARY AS OPERATIONS PROGRESS
	Category 3 Butternut Trees FROM MCKINLEY ENVIRONMENTAL (2022)		Receptor Locations WITHIN 120m OF THE SITE
	Cross Sections SEE PAGE 4 OF 4 FOR EXISTING AND REHABILITATED CROSS SECTIONS		

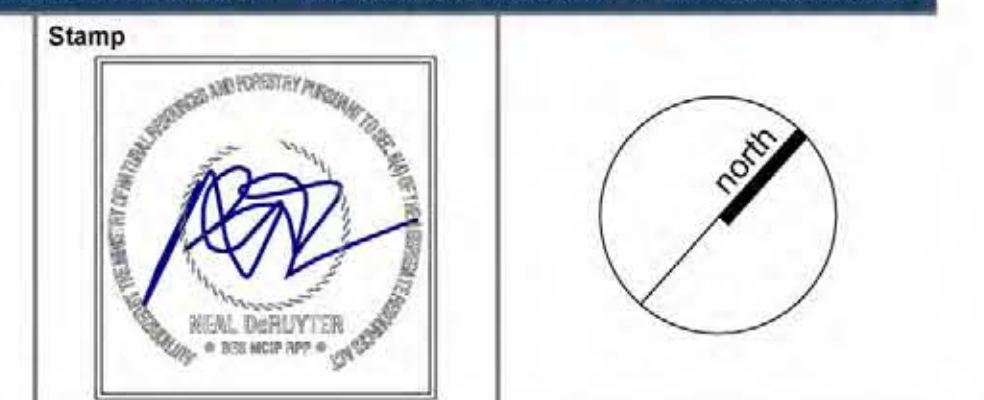
Site Plan Amendments

No.	Date	Description	By

**PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE**

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MNRF Approval Stamp



Applicant

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Rob Pierce
R.W. Tomlinson Limited
Vice President Planning and Development

Project

Storyland Pit

ARA Licence Reference No.	Pre-approval review:
Plan Scale: See Plan	For Submittal to MNRF - November 2022
SCALE 50 0 50 100 METRES	Plot Scale: 1:3 [1mm = 3 units] MODEL
Drawn By: D.G.S.	File No.: 9137W
Checked By: N.D.	

File Name

OPERATIONAL PLAN

Drawing No.

2 OF 5

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A. General

- This site plan is prepared under the Aggregate Resources Act (ARA) for a Class A licence for a pit below the ground water table and follows the Aggregate Resources of Ontario: Site Plan Standards August 2020.
- Area Calculations:
Licence Area: 69.5 hectares (172 acres) Limit of Excavation: 55.9 hectares (138 acres)
- The maximum number of tonnes of aggregate to be removed from this site is 1,000,000 tonnes in any calendar year.
- An office/scale house, scale and processing plant may be located on the site as shown on the Sequence of Operations drawing on page 2 of 5.
- The elevation of the on-site groundwater table ranges from 165 masl in the western portion of the site to 160 masl in the eastern portion of the site The existing water table elevations are shown on each cross section on page 5 of 5.
- Setbacks will be as shown and labelled on the Sequence of Operations Diagram (page 2 of 5) and on the Existing Features Plan (page 1 of 5).
- Agricultural production may continue in areas not under extraction.
- Source Water Protection: The site is not located in a Source Water Protection Area.

B. Hours of Operation

- Operation of the pit may take place on a 24 hour basis.

C. Site Access and Fencing

- The existing field accesses may be utilized for monitoring, setback maintenance and agricultural access. The accesses shall be gated, kept closed during hours of non-operation and shall be maintained throughout the life of the licence. Aggregate trucks shall not be permitted to access the site at these locations.
- The site shall be accessed through the operational entrance/exit which will be opposite to Chapeski Lane and it will be gated.
- The majority of the site is currently fenced. Portions of the south licence boundary within the existing woodlot will not be fenced (see Note M 'Variations from Control and Operation Standards'). Where there is no fencing, 1.2m marker posts will be installed that are visible from one to the other.
- Temporary exclusion fencing (e.g. silt fencing) shall be installed along the west portion of the limit of extraction between the area to be disturbed and the wetlands to the west, prior to commencement of work in Phase 4 (see Note L 'Natural Environment').

D. Drainage

- Drainage of undisturbed areas will continue and be in the directions shown on the Existing Features drawing on page 1 of 5.

E. Site Preparation

- Prior to site preparation, a Spills Contingency Plan shall be developed to address any potential spills from equipment on-site [O.Reg 244/ 97 Section 0.12 (3) 2].
- Timber resources will be salvaged for use as saw logs, fence posts and fuel wood where appropriate. Non-merchantable timber, stumps and brush may be used in for aquatic habitat enhancement or mulched for use in progressive rehabilitation. Excess material not required for uses mentioned above will be burned (with applicable permits).
- Topsoil and overburden shall be stripped and stored separately in accordance with the Sequence of Operations diagram.
- Excess topsoil and overburden not required for immediate use in the construction of acoustic berms or rehabilitation, may be temporarily stockpiled inside the licensed area. Topsoil and overburden stockpiles shall be located within the limit of excavation and remain a minimum of 30 metres from the licence boundary and 90 metres from a property with residential use.
- Temporary topsoil and overburden stockpiles which remain for more than one year shall have their slopes vegetated to control erosion. Seeding shall not be required if these stockpiles have vegetated naturally in the first year.

F. Berms and Screening

- Berms shall be constructed as specified in the locations shown on the Sequence of Operations (see also 'Phasing of Acoustic Berms' Detail on page 2 of 5). The heights shown are the minimum required for acoustic berms.
- Berm side slopes shall not exceed 1.5:1 on the interior (extraction) side and 2:1 on the exterior side facing a public road. Berms that are not adjacent to a public road shall have side slopes not exceeding 1.5:1. See 'Typical Berm Detail' on page 2 of 5.
- Berms shall not be located within three (3.0) metres of the licence boundary.
- All proposed berms will be constructed in accordance with the 'Typical Berm Detail' on page 2 of 5 and will be vegetated and maintained to control erosion using a low maintenance grass/legume seed mixture (e.g. MTO Seed Mix) composed of Creeping red Fescue, Perennial Ryegrass, Kentucky Bluegrass and White Clover. Temporary erosion control will be implemented as required.
- Berms shall be maintained (vegetated to prevent erosion) throughout the operational life of the pit.
- Optional storage berms may fill in gaps between acoustic berms where applicable.
- Existing vegetation within the setbacks shall be maintained except where noise attenuation berms are required or to accommodate truck entrance.
- Berms that encroach within the limit of extraction shall be removed, and the underlying aggregate may be extracted, as part of final extraction/rehabilitation of the site.

G. Extraction Sequence

- The operational plan depicts a schematic operations sequence for this property. Phases do not represent any specific or equal time period. The direction of extraction will be in accordance with the Sequence of Operations diagram shown on page 2 of 5. All extraction, processing and transportation equipment operating within these Phases shall comply with the restrictions identified in Note L 'Noise'.
- Rehabilitation will be progressive and proceed as limits of extraction (area and depth) are reached. Notwithstanding the operation and rehabilitation notes, demand for certain products or blending of materials may require minor deviations in the extraction and rehabilitation sequence. Any major deviations from the operations sequence shown will require approval from MNRF.
- See Phase Diagrams on page 2 of 5 for details.

H. Extraction Details

- The maximum depth of extraction is as shown as spot elevations and extraction will occur in up to 2 lifts through the five phases as shown on the Sequence of Operations Diagram on page 2 of 5 and in accordance with the Ministry of Labour requirements. The proposed pit floor will be located at an elevation of 149-152 masl or 10 m to 14 m below the existing ground surface.
- Aggregate stockpiles will be located on the pit floor (interim elevations) and will move throughout the life of the operations of the pit. Stockpiles will not be located within 30m of the Licensed boundary.
- Internal haul road locations will vary as extraction progresses and will be located on the above water table (interim) pit floor.

I. Equipment and Processing

- The equipment used on site for aggregate operations and may include: Wash Plant, Extraction Loaders or Excavators, Dragline, Cutter Suction Dredge and Trucks.
- The wash plant including associated activities (e.g. source pond, silt pond etc.) is planned to be located in Phase 1 subject to detailed design and applicable Permit to Take Water.

J. Fuel Storage

- Fuel or associated products may be stored on site. See Sequence of Operations drawing on page 2 of 5. The licensee or permittee shall ensure that fuel storage tanks are installed and maintained in accordance with the *Technical Standards and Safety Act, 2000* [O.Reg 244/ 97 Section 0.12 (3) 1].

K. Scrap and Recycling

- Temporary scrap storage will be located within the processing plant area. Scrap will only include materials derived from the operation of the pit such as scrap metal or lumber, discarded machinery and equipment. Scrap will not be located within 30m of any body of water or within 30m of the boundary of the site. All scrap will be removed on an ongoing basis. The property will be kept in an orderly condition.
- Recycling activities:
 - may occur on site and will be in close proximity to the processing plant in Phase 1 or Phase 5.
 - recycling activities shall remain accessory to the pit operation and once extraction ceases, recycling activities will be no longer permitted
 - shall not interfere with the operational phases of the site or rehabilitation of the site [O.Reg 244/ 97 Section 0.13 (1) 32]

L. Report Recommendations

- Noise: "Acoustic Assessment for the Proposed Storyland Pit Township of Horton, County of Renfrew, Ontario" November 2022 (Source: Freefield Ltd.)

Noise Barriers and Berms

- Noise barriers and berms are to be provided as per Table 7 and Figure 13, 14 and 15 in the report.
- Noise barriers shielding receptors on vacant lots zoned for potential noise sensitive use are only required following development of a noise sensitive use.
- Noise shielding portable equipment may be progressively established to shield line of site from equipment operation to the identified receptors.
- Noise barriers and berms are to be solid, having no gaps, and are to have a surface density of no less than 20 kg/m2. Examples of suitable barriers or berms are as follow:
 - Lift face or existing terrain;
 - Earth, gravel or aggregate berms or stockpiles;
 - Concrete or brick walls;
 - Commercial noise barriers;
 - Shipping containers or buildings

Wash Plant

The operation of the wash plant and associated diesel generator may take place on a twenty-four-hour basis (24-hour) and shall comply with the following:

- The wash plant is to be located on the pit floor at a maximum elevation of 165.5 mASL in locations shown in Figure 2 in the report.
 - Noise barriers are to be provided as per Table 7 and Figure 14 and 15 in the report.
 - The maximum outdoor sound power of the generator, if used to provide power to the wash plant, must not exceed the levels given in Table 2 in the report. To achieve these ratings the generator will likely need to be fitted with an exhaust silencer that meets the minimum insertion loss requirements listed in Table 8 in the report. The silencer is to be located inside the enclosures or as close as possible to the location where the exhaust exits the enclosures with the duct material between the silencer and the generator constructed of 16-gauge weather resistant metal. The silencers shall have a high transmission loss casing.
 - Item c. above does not apply if hydro is used to provide power to the plant
- Loaders and Excavators
- The operation of the loaders may take place on a twenty-four-hour basis (24-hour) and shall comply with the following:
 - During the daytime period (07:00 to 19:00): A maximum of three loaders or excavators may be in operation concurrently with a maximum of two loaders or excavators in operation at the extraction face.
 - During the evening and nighttime period (19:00 to 07:00): A maximum of two loaders or excavators may be in operation concurrently with a maximum of one loader or excavator in operation at the extraction face.

Trucks

The loading and shipping of product using highway trucks may take place on a twenty-four-hour basis (24-hour) and shall comply with the following:

- When operating on-site, highway trucks shall not exceed 20 km/h and shall not use compression braking (Jake Brakes).

Portable Construction Equipment

Portable construction equipment used for site preparation (e.g. land clearing and construction of berms) and rehabilitation shall comply with MECP Publication NPC-115, Construction Equipment, August 1978. (This publication gives noise standards to be met by construction equipment in Ontario.) Site preparation and rehabilitation activities shall take place only during daytime hours (07:00 - 19:00).

New Process

If a new process is introduced to the site, then this process shall be assessed by a qualified acoustical consultant prior to commissioning. Noise mitigation measures shall be reviewed, and altered, if necessary, to ensure that MECP sound level limits are met at all points of reception.

- Natural Environment: "Storyland Road Aggregate Development Natural Environment Report & Environmental Impact Statement" November 2022 (Source: McKinley Environmental Solutions)

Tree Protection Mitigation Measures:

Soil compaction, vegetation damage, intrusion of construction equipment and other potential impacts on the root systems of trees adjacent to the edge of the development area will be avoided by restricting grading, placement of fill, excavation, and other site alteration activities to the development area. This will be achieved by providing construction fencing or another form of suitable boundary definition to clearly mark the boundaries between the edge of the development area and the retained features. The boundaries between the development area and the retained features will be marked during each phase of tree clearing and operation.

Staff will be provided with the following instructions when clearing trees and vegetation:

- Mark the edge of the tree clearing area to ensure only designated trees are removed. Protect the Critical Root Zone (CRZ) of retained trees, where the CRZ is established as being 10 cm from the trunk of a tree for every centimeter of trunk diameter at breast height (dbh). The CRZ is calculated as dbh x 10 cm;
- When trees to be removed overlap with the CRZ of trees to be retained, cut the roots at the edge of the CRZ and grind down the stumps after tree removal. Do not pull out the stumps. Ensure there is not root pulling or disturbance of the ground within the CRZ;
- If roots must be cut, roots 20 mm or larger should be cut at right angles with clean and sharp horticultural tools;
- Do not place any material or equipment within the CRZ of any retained tree;
- Do not attach any signs, notices, or posters to any retained tree;
- Do not damage the root system, trunk, or branches of any retained tree; and
- Ensure that exhaust fumes from all equipment are directed away from any retained tree canopy

Wetland Setback:

30 m wide setback will be maintained from the edge of the Mixed Willow Deciduous Thicket Swamp during the development of the Site. A Noise Attenuation Berm (acoustic barrier) will be installed within the 30 m wide wetland setback. The Noise Attenuation Berm will be vegetated and it will be constructed as close to the limit of the extraction area as possible.

Butternut Tree Regulatory Requirements:

Three (3) Category 2 (retainable) Butternut Trees (endangered) were found within the Site (Refer to Section 3.5.3 of the report for additional details). All three (3) Category 2 Butternut Trees will be removed during the development of the Site. The rules and regulations of the Ontario Endangered Species Act (ESA) allow proponents to address requirements for up to fifteen (15) Category 2 Butternuts Trees through the Ministry of Environment, Conservation, and Parks (MECP) Online Impact Registration Process. The MECP Online Impact Registration Process for the three (3) Category 2 Butternut Trees has been completed (Registration #M-103-3428458887, refer to Appendix D of the report). The rules and regulations of the Ontario ESA require projects that are registered through the MECP Online Impact Registration Process to compensate for impacts to Butternut Trees by planting Butternut seedlings. A Butternut planting program will be undertaken to compensate for the impacts to the Category 2 Butternut Trees.

Four (4) Category 3 (archivable) Butternut Trees were found within the Site (Refer to Section 3.5.3 for additional details). The rules and regulations of the Ontario ESA allow proponents to address requirements for up to five (5) Category 3 Butternuts Trees through the MECP Online Impact Registration Process. Per the rules and regulations of the Ontario ESA, a 25 m wide setback from the Butternut Trees is required in order to avoid impacting the trees during development activities. During the initial phases of the development, a 25 m wide setback will be maintained surrounding the four (4) Category 3 Butternut Trees in order to avoid impacting the trees. If required, an authorization under the Ontario ESA will be obtained prior to undertaking any development activities which may negatively impact the four (4) Category 3 Butternut Trees.

Construction Stage Mitigation Measures:

Construction stage mitigation measures for Species at Risk (SAR) and wildlife will include the following:

Pre-Stressing: Prior to vegetation removal, the area will be pre-stressed by traversing the Site with a loud noise such as an excavator horn. This will encourage wildlife to leave the area;

Tree Clearing Direction: The trees will be cleared from the northwest to the southeast (within each phase of the development). This will encourage any wildlife fleeing the development area to move towards the adjacent forest located south and southeast of the Site;

Temporary Exclusion Fencing: Prior to the commencement of work in Phase 4 of the development, it is recommended that temporary exclusion fencing (e.g. toed-in silt fencing) should be installed between the edges of the development area and the Mixed Willow Deciduous Thicket Swamp. The development phasing is shown above in the Operational Plan. The temporary exclusion fencing will mitigate the risk of reptiles, amphibians and other wildlife entering the development area, while also providing a sediment and erosion control function.

Vehicle Operation: Vehicles and equipment are to be operated on Construction Travelways (e.g. roads within the development area) at a speed at which drivers are able to stop safely to avoid wildlife;

Species at Risk (SAR) Encounters: If a Species at Risk (SAR) is encountered in the development area, construction in the vicinity must be stopped immediately and measures must be taken to ensure that the SAR is not harmed. The project biologist and the Ministry of Environment, Conservation, and Parks (MECP) must be contacted to discuss how to proceed prior to the recommencement of work;

General Provisions: General provisions for the management of the development area include the following:

Do not harm, feed, or unnecessarily harass wildlife;

Drive slowly and avoid hitting wildlife; and

Keep the development area tidy and free of garbage and food wastes. Secure all garbage in appropriate sealed containers.

Timing Windows: The core migratory bird nesting season is defined as April 15th to August 15th each year. The clearing of trees and shrubs must be undertaken outside of the core migratory bird nesting season.

- Archaeology: "Stage 1 Archaeological Assessment: Storyland Road, Part Lot 20, Concession 6, Geographic Township of Horton, County of Renfrew, Ontario" March 2021 (Source: Paterson Group) and "Stage 2 Archaeological Assessment: 432 Storyland Road, Part Lot 20, Concession 6, PIN 57271-0024 Geographic Township of Horton, County of Renfrew, Ontario" June 2021 (Source: Matrix Heritage Inc.)
 - Based on the results of this investigation it is recommended that: No further archaeological study is required for the subject property as delineated in Map 1 of the report (Stage 2 assessment)

- Hydrogeology: "Level 1 and Level 2 Water Report Proposed Storyland Pit, Horton Township Ontario" November 2022 (Source: WSP Golder)

The following water level monitoring program shall be implemented by the Licensee:

- Quarterly water levels shall be collected from BH21-01, BH21-02, BH21-03, BH21-04, BH-1 and SW-1. A datalogger will be installed at SW-1 to record water level measurements at least once per day.
- In the event of a well interference complaint, the Licensee shall implement the Complaints Response Program outlined in Section 6.0 of this report.

Maximum Predicted Water Table Report: "Proposed Storyland Pit Horton Township, Ontario" November 2022 (Source: WSP Golder)

Based on the available groundwater elevation data, the maximum predicted water table on the site is 165.3 metres asl on the western edge of the extraction area corner (as measured at BH21-03).

Based on the groundwater elevation data measured at BH4 located on the southeastern side of the site, the water table slopes down moving from west to southeast, and the maximum predicted water table on the east side of the site is approximately 159.9 metres asl.

- Traffic: "Traffic Impact Assessment, Proposed Mineral Extraction Site 432 Storyland Road, County of Renfrew" November 3, 2022 (Source: Castleglenn Consultants Ltd.)

- The preferred access location from a traffic operational perspective offering the least disruption to surrounding lands and residents was found to be directly opposite the Storyland Road/Chapeski Lane intersection. The proposed access does not require any auxiliary slip nor storage lanes, but remains to be designed in terms of throat length, tapers, curve radii and drainage accommodation.

M. Variations from Control and Operation Standards

No.	O.Reg 244/97 Section 0.13	Variation	Rationale
1	(3)(a)	Fencing is not required along a portion of the southern boundary that runs through the woodlot.	Lands are not publicly accessible which will limit potential access to this area of the site. Furthermore, this variation will avoid unnecessary disturbance to the woodland. A portion of the south licensed boundary will be demarcated by 1.2m high marker posts that are visible from one to the other.
2	(1)19i	Below water side slopes may vary from a slope that is at least three horizontal metres for every vertical metre (3:1). These will slope at minimum to the natural angle of repose.	Slopes will be no steeper than a 2:1 slope below water or the natural angle of repose.

Legal Description

PART OF LOT 20 CONCESSION 6
(geographic township of Horton)
TOWNSHIP OF HORTON
COUNTY OF RENFREW

Site Plan Amendments

No.	Date	Description	By



PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE

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MNRF Approval Stamp

Stamp



Applicant



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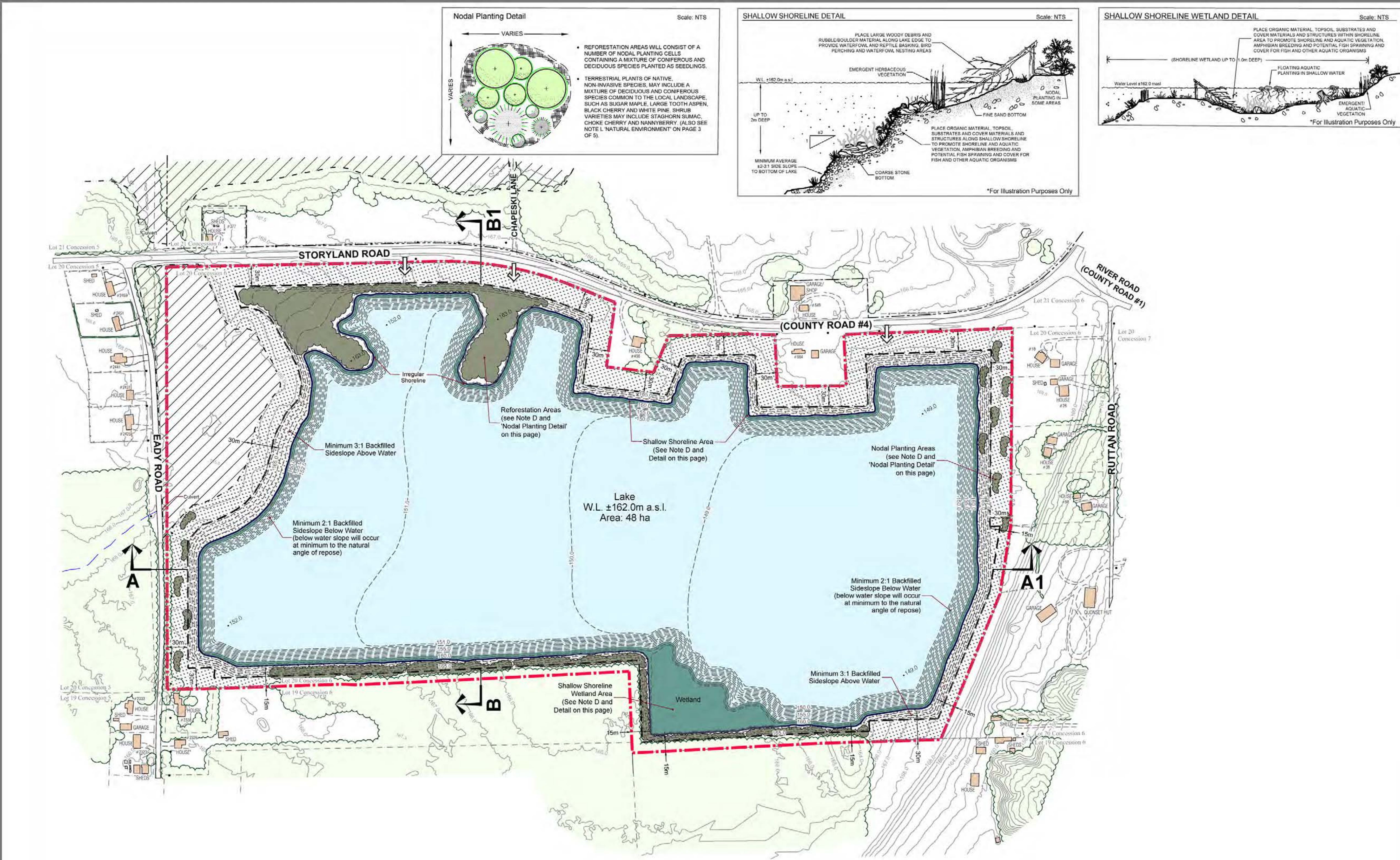
Project

Storyland Pit

ARA Licence Reference No.	Pre-approval review:
Plan Scale: NTS	Plot Scale 1:3 [1mm = 3 units] MODEL
	Drawn By D.G.S. File No.
	Checked By N.D. 9137W

OPERATIONAL NOTES PLAN

3 OF 5



Legal Description
PART OF LOT 20 CONCESSION 6
(geographic township of Horton)
TOWNSHIP OF HORTON
COUNTY OF RENFREW

Legend

	Boundary of Area to be Licensed		Limit of Excavation ALL SETBACKS ARE DRAWN TO SCALE AND SHOW LABELLED DISTANCES
	Contour with Elevation METRES ABOVE SEA LEVEL		Existing Licensed Boundary ARA LICENCE #17733
	Existing Fence PAGE WIRE FENCE UNLESS OTHERWISE NOTED		Proposed Contour METRES ABOVE SEA LEVEL (m A.S.L.)
	Building/Structure LOCATION AND USE FOR BUILDINGS ON-SITE AND WITHIN 120m ARE SHOWN ON THIS PAGE		Proposed Elevation REHABILITATED ELEVATION
	Public Road (Paved)		Nodal Planting Areas LOCATION APPROXIMATE
	Public Road (Gravel)		Post Extraction Lake
	Private Laneway		Shallow Shoreline Area (SEE DETAIL ON THIS PAGE)
	Field Access		Grassland Area (SEE NOTE D ON THIS PAGE)
	Existing Vegetation		
	Drainage Feature		
	Unevaluated Wetland ONTARIO GEOHUB OPEN DATA		
	Cross Sections SEE PAGE 5 OF 5 FOR EXISTING AND REHABILITATED CROSS SECTIONS		

Site Plan Amendments			
No.	Date	Description	By

**PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE**

200 - 540 BINGEMANS CENTRE DR. KITCHENER, ON. N2B 3K9 | P: 519.576.3650 F: 519.576.0121 | WWW.MHBCPLAN.COM

MNRF Approval Stamp

Stamp

Applicant

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Project

Storyland Pit

ARA Licence Reference No.	Pre-approval review:
Plan Scale 1:3,000 (Arch D)	Plot Scale 1:3 [1mm = 3 units] MODEL
SCALE	Drawn By D.G.S.
50 0 50 100 METRES	Checked By N.D.
	File No. 9137W

REHABILITATION PLAN

4 OF 5

File Name Drawing No.

K:\9137W Renfrew Twp Horton\A\Rehapan 4of5 November2022.dwg

A. General

- Area Calculations: Licence Area: 69.5 hectares (172 acres)
Limit of Excavation: 55.9 hectares (139 acres)
- The rehabilitated landform of this site will include: lake, shallow shoreline and shallow shoreline wetland areas, reforestation, various side slope treatments and nodal tree and shrub planting areas.

B. Phasing

- The proposed Storyland Pit will be rehabilitated on a progressive basis, corresponding to the operational progression of the pit excavation, to form a lake at final rehabilitation.
- As the pit is excavated to its maximum, or any other lesser terminal limits, both horizontally and vertically on a lift-by-lift basis, progressive rehabilitation will follow provided the subject area is of an appropriate area to undergo rehabilitation (See Note G on page 3 of 5 for details).
- The excavation perimeter will be fully side sloped at a maximum 2:1 (from original ground to floor) at a portion of the north, the entire west and the entire south side slope areas. Sloping will occur as the limits of the pit excavation are reached. See Rehabilitation Plan drawing and Note D on this page.
- Side slopes will be vegetated where located above the final water level of the pit lake and will include nodal tree and shrub plantings in suitable locations in order to introduce a diversity of native vegetation types and species that are anticipated to spread around the rehabilitated side slopes (see Note D and 'Nodal Planting Detail' on this page).

C. Slopes and Grading

- Topsoil and overburden will be used in the progressive rehabilitation of the side slope areas. Overburden and/or imported material will be used to backfill pit faces to create the topography of the side slopes (i.e. 3:1 slope). Above water side slope areas that will be vegetated will be covered with a minimum 15 cm of topsoil/organic matter prior to planting.
- Importation of fill/excess soil:
 - Excess soil, as defined in Ontario Regulation 244/97 may be imported to this site to facilitate the following rehabilitation:
 - Establish final grades as described on the site plan
 - Top dressing to establish vegetation

- The quality of excess soil imported to the site for final placement must be equivalent to or more stringent than the applicable excess soil quality standards as determined in accordance with Ontario Regulation 244/97 as amended from time to time and must be consistent with the site conditions and the end use identified in the approved rehabilitation plan.

- Where a qualified person is retained or required to be retained in accordance with Ontario Regulation 244/97, the quality, storage, and final placement of excess soils shall be done according to the advice of the qualified person.
- Excess soil imported to facilitate rehabilitation as described on this site plan shall be undertaken in accordance with Ontario Regulation 244/97 under the Aggregate Resources Act, as amended from time to time.

D. Proposed Vegetation and Rehabilitated Features

- All planting and seeding will consist of native species. All ground covers on side slopes will be established as part of the phased stripping operations that proceed extraction and will be maintained and replaced as soon as possible if the vegetative cover fails to establish itself to control erosion.
- Shallow Shoreline Area Habitat Creation**
Shallow shoreline areas will be created around the perimeter of the lake. Shallow shoreline habitats shall be created up to 2 m deep and shall include habitat features such as boulders, submerged logs, etc. Organic material and topsoil shall be added to the shoreline areas to promote shoreline vegetation, and the placement of basking logs along the shoreline is recommended to create turtle basking areas, waterfowl nesting areas and bird perching sites (see "Shallow Shoreline Detail" on this page). Shoreline and Aquatic plantings will coincide with the final stages of site rehabilitation. Species suitable for aquatic plantings are listed in the species planting list on this page.
- Shallow Shoreline Wetland Habitat**
Wetland areas will be created along the shoreline in the southeast part of the lake. These areas will be backfilled to the desired elevations and plants shall be established by broadcast seeding an Ontario Native Wetland/Riparian Restoration Seed Mix.

4. Terrestrial Habitat Creation on sideslope and in setback areas

Side slope areas above the water table will be covered with a minimum 15 cm of topsoil/organic matter and planted/seeded. Any undisturbed setback areas will also be planted in nodal plantings and seeded with Ontario Native Grassland Seed Mix.

5. Reforestation and Nodal Plantings

Terrestrial nodal plantings on the side slope and within the setback areas and reforestation areas shall include a mixture of coniferous and deciduous tree and shrub species to promote species diversity and provide a variety of species to compensate for any substrate deficiencies (see nodal planting detail on this page). Recommended species are outlined in the species planting list. The establishment of nodal planting areas will occur progressively and follow the sequence of excavation and side slope/setback grading and seeding. Nodal planting areas are conceptually shown on the drawing.

6. Rehabilitated Landform

The proposed rehabilitation includes an opportunity to enhance the biological diversity of the local landscape by providing features that will attract migratory waterfowl and terrestrial and aquatic habitat features that will be of value to locally resident wildlife. Rehabilitation of this site involves the creation of 48 ha of lake and terrestrial landform comprised of above water overburden side slopes and setback areas. Some of the rehabilitated area will be rehabilitated to forest cover through nodal tree and shrub plantings as shown conceptually on this plan. The final landform will be in accordance with the drawing as shown on this page.

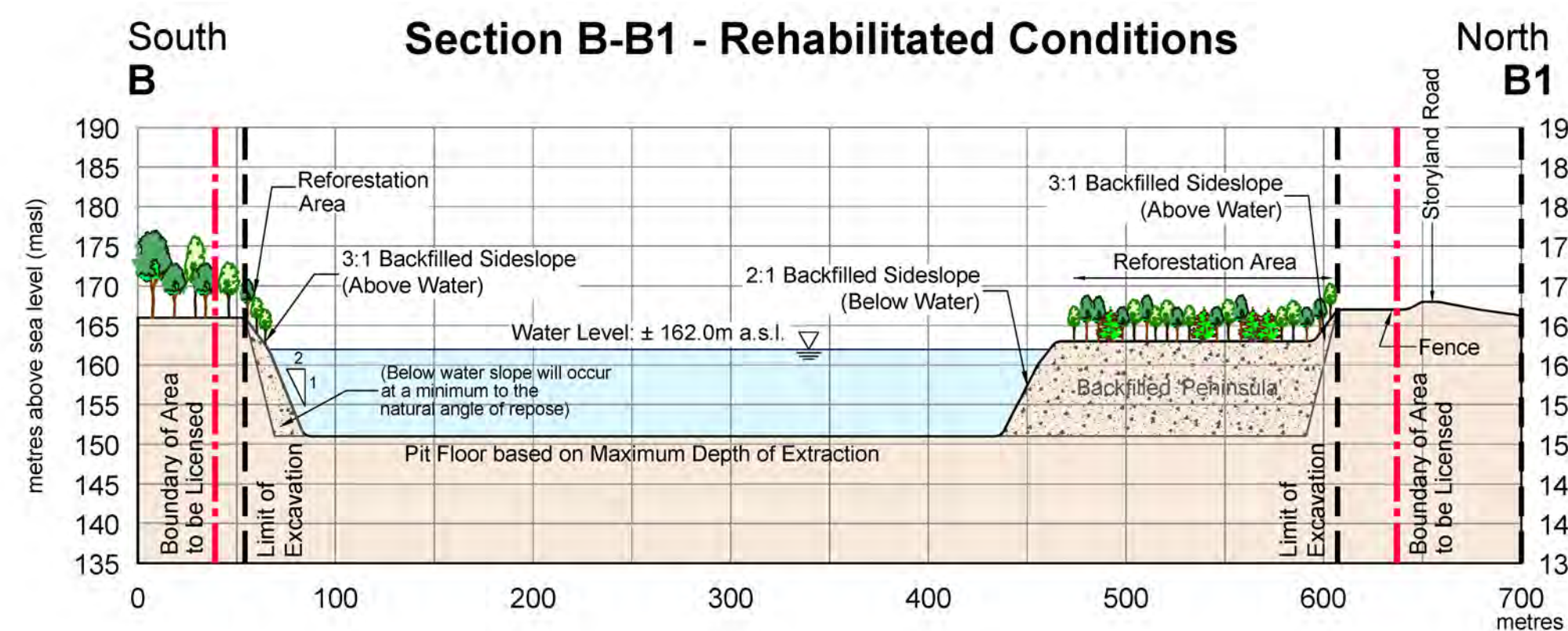
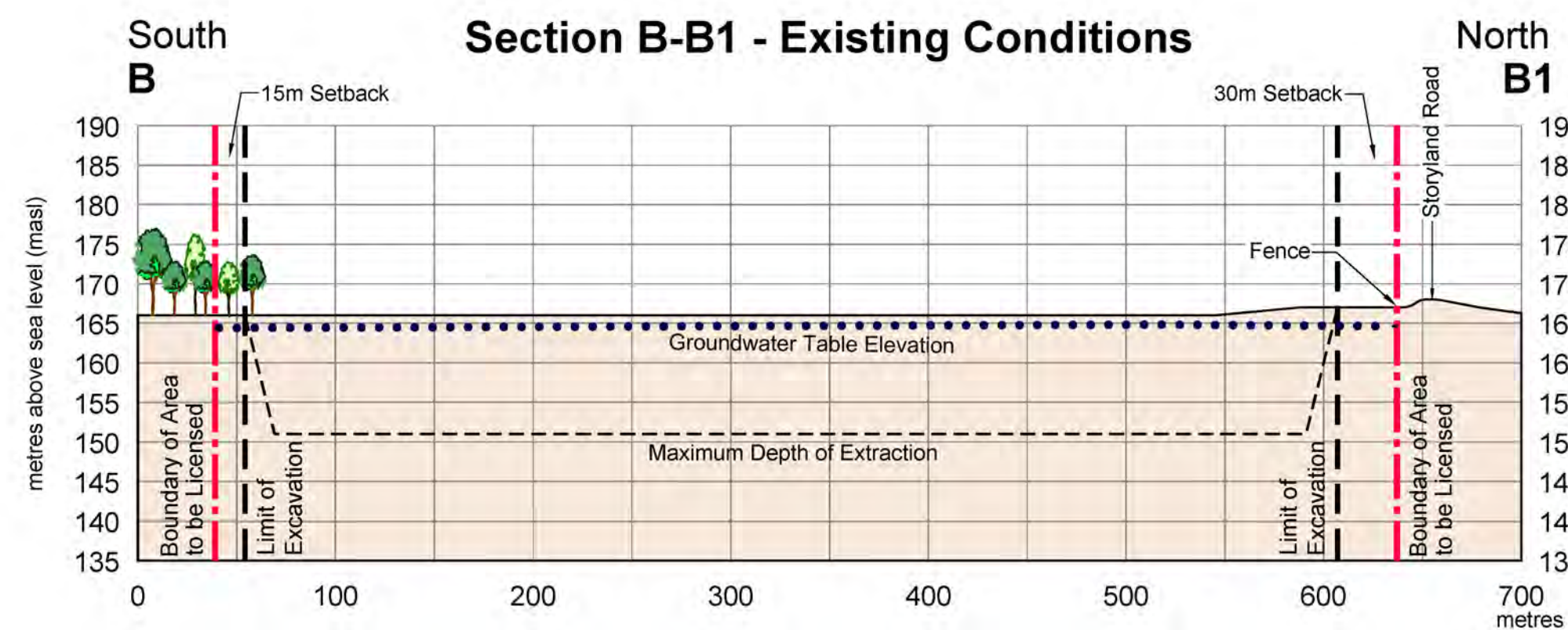
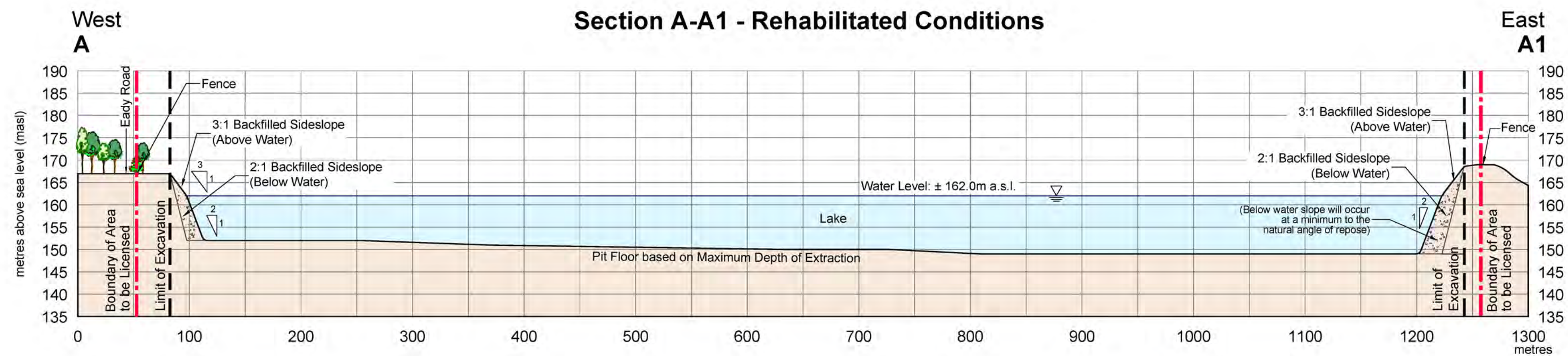
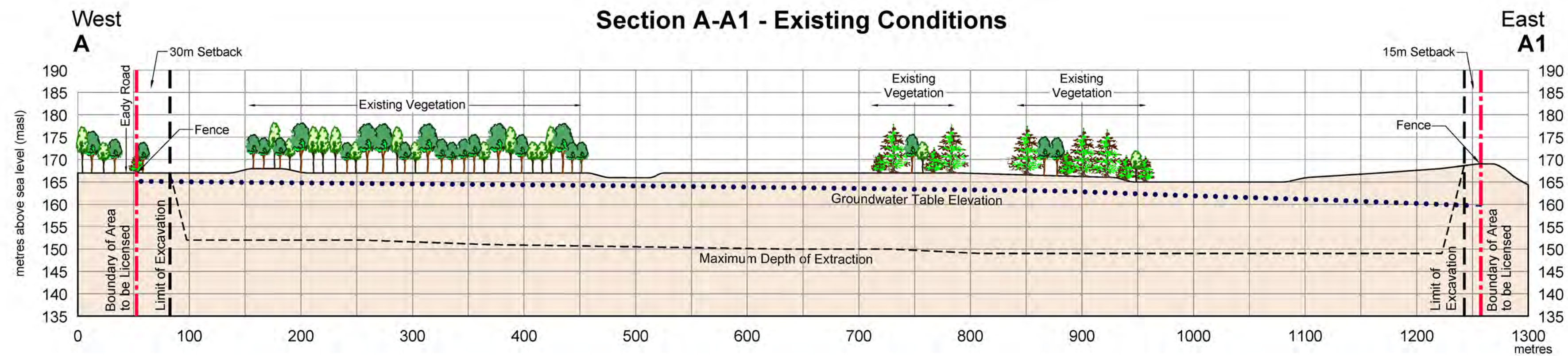
E. Drainage

- Final surface drainage will follow the rehabilitated contours as shown and be directed towards the post-extraction lake and existing wetland.

F. Final Rehabilitation

- No buildings or structures associated with aggregate operations will remain on site.
- The water level of the proposed lake (± 162 m a.s.l.) and the post-extraction ground water table, are as shown on pages 1, 4 and 5 of 5 as per hydrogeological/ hydrological assessment.

Species Planting List - Recommended Species		
Nodal Plantings/Reforestation	Wetland/Shoreline Areas	Above Shoreline Area
Sugar Maple	Ontario Native Wetland/ Riparian Restoration Seed Mix	Ontario Native Grassland Seed Mix
Large Tooth Aspen		
White Pine		
Basswood		
Black Cherry		
Ironwood		
Red Oak		
White Birch		
Staghorn Sumac		
Choke Cherry		
Nannyberry		
Red Elderberry		



Legal Description

PART OF LOT 20 CONCESSION 6
(geographic township of Horton)
TOWNSHIP OF HORTON
COUNTY OF RENFREW

Legend

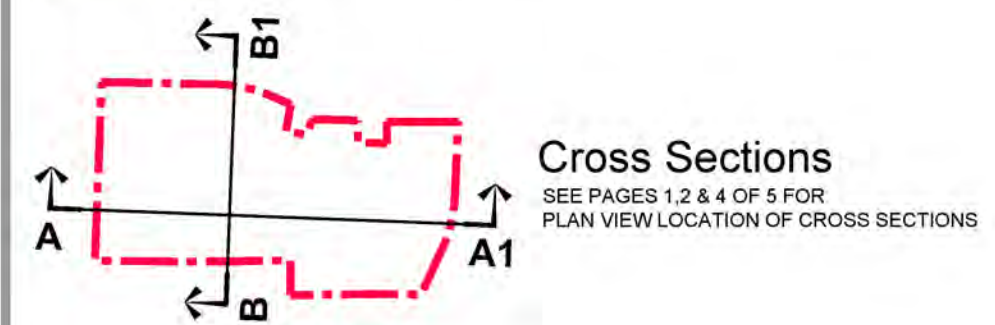
Boundary of Area
to be Licensed

Limit of Excavation
ALL SETBACKS ARE DRAWN TO SCALE
AND SHOW LABELLED DISTANCES

Groundwater Table
(SEE NOTE 2, THIS PAGE)

Maximum Depth of
Extraction

Vegetation/Trees



General Notes

- THIS SITE PLAN IS PREPARED UNDER THE AGGREGATE RESOURCES ACT (ARA) FOR A CLASS A LICENCE PIT BELOW THE GROUND WATER TABLE. THIS SITE PLAN FOLLOWS THE AGGREGATE RESOURCES OF ONTARIO: SITE PLAN STANDARDS AUGUST 2020.
- THE GROUNDWATER TABLE ELEVATION ON SITE RANGES BETWEEN 165 MASL IN THE WESTERN PORTION OF THE SITE TO 160 MASL IN THE EASTERN PORTION OF THE SITE. THE EXISTING WATER TABLE ELEVATIONS ARE SHOWN ON EACH CROSS SECTION ON PAGE 5 OF 5. GROUNDWATER TABLE ELEVATIONS PROVIDED BY WSP GOLDER (NOVEMBER 2022).
- LICENCE AREA 69.5 hectares (172 acres)
LIMIT OF EXTRACTION 55.9 hectares (138 acres)
- ALL MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES.

Site Plan Amendments

No.	Date	Description	By



MNRF Approval Stamp

Stamp



Applicant

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Project

Storyland Pit

ARA Licence Reference No.	Pre-approval review:
Plan Scale 1:3,000 Horizontal (Arch D) 4x Exaggeration (vertical)	For Submittal to MNRF - November 2022
HORIZONTAL SCALE 50 0 50 100 METRES	Plot Scale 1:3 [1mm = 3 units] MODEL
Drawn By D.G.S.	File No. 9137W
Checked By N.D.	

File Name **CROSS SECTION PLAN**

Drawing No. **5 OF 5**