NUMBERING SCHEME USED FOR OPERATIONAL NOTES REFERS TO AGGREGATE RESOURCES ACT PROVINCIAL STANDARDS FOR A CLASS "A" CATEGORY 3 LICENCE

Sequence and Direction
1.2.1 This plan depicts a schematic operations sequence for the property based on the best information available at the time of preparation. Extraction, stripping and rehabilitation areas shown are schematic and may vary. Phases do not represent any specific or equal time period. The direction of extraction will generally be in accordance with the Sequence of Operations diagram shown on this page. Rehabilitation will be progressive and proceed as limits of extraction (area and depth) are reached. Notwithstanding the operational and rehabilitation notes, demand for certain products or blending of materials may require minor deviation in the extraction and rehabilitation sequence.

Topsoil and Overburden Stripping and Stockpiling
1.2.2 Areas within the Limit of Extraction will be stripped of topsoil, subsoil and overburden in stages and in accordance with the Sequence of Operations diagram. Topsoil will be placed back on the pit floor and/or sideslopes or stockpiled in temporary berms. Subsoil will be used in the progressive rehabilitation of the side slopes or stored in temporary berms/stockpiles. Overburden will be used in the construction of the visual and acoustic berms. Wherever there are distinguishable layers and sufficient thickness to allow it, topsoil and subsoil will be stripped and stored separately, and replaced on the pit floor and side slopes during site rehabilitation in a similar manner (see note 1.2.27 "Agricultural Impact Assessment" on this page).

Lifts
1.2.3 Extraction will occur in 1 lift (maximum lift height 12 metres) through the five phases as shown in the Sequence of Operations diagram, in accordance with the Ministry of Labour requirements.

Haul Roads
1.2.4 All traffic for operations will enter and exit the site onto Shantz Station Road (Regional Road #30) at the location shown on the Sequence of Operations diagram. The final location of the new internal haul road will be reviewed in consultation with the landowner and applicable review agencies. The main internal haul routes will be located between the pit faces, processing area (on the active pit floor) and the entrance/exit. Locations of internal haul routes may vary as the operation progresses. The existing field/residential access on to Foerster Road will not be used for pit operations. Trucks will not use Foerster Road or Village View Road. In the event that the intersection of Shantz Station Road and Highway #7 is closed for construction, alternative Regional roads may be used.

Entrance and Exit
1.2.5 All entrances/exits are described above in note 1.2.4. Operational entrances/exits will be gated and the gate will be closed at all times when the pit is not in operation (except the Operational entrance/exit at Shantz Station Road - See Variations from Operational Standards table 5.2).

Ground Water Table
1.2.6 Hydrogeological information prepared by MTE and taken from "Level 1 and Level 2 Hydrogeological Investigation Proposed Category 3 Class 'A' Pit Above-Water-Table", (May 2019) identifies the ground water table onsite ranging in elevation from ±323.0m a.s.l. at the east boundary of the site to ±332.0m a.s.l. in the north-central portion of the site.

Surface Water Discharge Points
1.2.7 The Sequence of Operations diagram (on page 2 of 5) identifies the location of existing and proposed culverts. These culverts will allow overland run-off from adjacent lands to maintain the existing surface water drainage patterns.

Fencing
1.2.8 In areas not secured by post and wire fence, temporary construction fencing will be placed around the perimeter of each phase to provide security from active areas of the operation. All fencing for enclosure of operating areas shall be minimum 1.2 metres high construction fencing and shall be maintained around active phases of the operation. Sections of the existing fence may be removed, replaced and/or repaired to ensure compliance with minimum ARA standards (fence at least 1.2 metres in height). Marker posts will be used to demarcate the Boundary of Area to be Licensed as shown on the Sequence of Operations diagram. Also see Variations from Operational Standards table 5.1, this page.

Proposed Buildings and Structures
1.2.9 An office/scale house and scales will be erected on site (approximate location as shown). From time to time, office trailers will be brought onto the site for the use of workers during operational hours. These portable structures will be located as required by site operations.

Topsoil and Overburden Stockpiles
1.2.10 Overburden and topsoil not required for immediate use in berm construction or progressive rehabilitation of this site may be temporarily stockpiled throughout the extraction area. Any stockpile to be stored for longer than 1 year will be vegetated to control erosion. Stockpiles may be located within 30m of the Licensed Boundary (see Variations from Operational Standards Table on this page).

Aggregate Stockpiles and Recyclable Material
1.2.11 Aggregate material will be stockpiled adjacent to the processing area on the pit floor, in Phase 1. Stockpiles will not exceed 15m in height. Recycling of concrete and RAP will be permitted on this site.
Recyclable asphalt materials will not be stockpiled within:
- 30m of any water body or man-made pond; or
- 2 m of the surface of the established water table.

Any rebar and other structural metal must be removed from the recycled material during processing and placed in a designated scrap pile on site which will be removed on an on-going basis. Removal of recycled aggregate is to be ongoing. Once the aggregate on site has been depleted there will be no further importation of recyclable materials permitted and all recycling operations will cease.

Temporary Scrap Storage
1.2.12 Temporary scrap storage will be located adjacent to the office/scale house and scale and will be removed on an on-going basis. Scrap will not be stored within 30m of the Licensed Boundary (see Sequence of Operations diagram).

Fuel Storage
1.2.13 All fuel storage and associated products are stored in above ground tanks or containers and in compliance with the Technical Standards and Safety Act, 2000, Liquid Fuels Regulation O.Reg.217/01 and Liquid Fuels Handling Code, 2000. Fuel trucks may be used for onsite refueling of equipment within the pit in accordance with the "Prescribed Conditions" that apply to all Category 3 licences. (See Sequence of Operations Diagram, this page). The site will operate in accordance with the Capital Paving Inc. Spills Plan (included in the Hydrogeology Report).

Area to be Extracted
1.2.14 The area to be extracted is ±67.9 ha (167.8 ac).

Setbacks
1.2.15 Setbacks will be as shown/labeled on the site plans. Also see Variations from Operational Standards table on this page.

Extraction Depth
1.2.16 The proposed maximum depth of extraction is indicated by the proposed spot elevations on the Sequence of Operations Diagram, this page. The depth of extraction ranges from approximately 1m (south and northwest portion of extraction area) to 12m (central portion of Phase 5).

Processing Equipment
1.2.17 The processing plant will be located in Phase 1, in the general location shown on the Sequence of Operations diagram, once the pit floor has been established. A source pond and silt pond will also be located in Phase 1 subject to any MECP permits. The portable crusher and/or portable screening plant will be located on the pit floor and will move in association with the phasing subject to the noise controls in note 1.2.27. All processing equipment is subject to applicable permitting under MOE Environmental Compliance Approvals (see note 1.2.27 "Noise").

Berms
1.2.18/19 Locations and heights for all berms are provided on the Sequence of Operations diagram on page 2 of 5. The heights shown are the minimum required. Berm Details on page 2 of 5 provide additional details on location and heights for the proposed berms. Overburden may be stored in separate berms throughout the extraction area. All proposed berms will be vegetated and maintained to control erosion as required.

Equipment
1.2.20 Main equipment on site may include, but is not limited to: primary crusher (portable plant), processing and wash plant with secondary crusher, conveyors, 1 extraction loader, 1 plant/shipping loader, highway trucks and service vehicles for general operations and maintenance.

Tree Screens
1.2.21 Planting of trees is to be carried out prior to extraction in Phase 1. Trees will be maintained and/or replaced if required, throughout the operation of the pit.

Hours of Operation
1.2.22 The pit may operate subject to the following restrictions and hours:
--Shipping: 6 am to 7 pm Monday to Friday and 7 am to 3 pm on Saturdays.
--Extraction and processing: 7 am to 7 pm Monday to Friday
--No operations on Holidays as defined in accordance with the Employment Standards Act.
--The pit will not operate Sundays or overnight except as required by a specific contract and subject to notifying the Township and will be limited to shipping activities only.

Tree and Stump Disposal
1.2.23 Timber resources (if any) will be salvaged for use as saw logs, fence posts and fuel wood where appropriate. Stumps and brush cleared during site preparation will be burned (subject to necessary local approvals)or mulched for use in the progressive rehabilitation of the site.

Cross Sections
1.2.24 The location of cross sections are as shown on pages 1,2, and 4 of 5. Cross sections are provided on page 5 of 5.

Variations from Operational Standards
1.2.25 See table this page for Operational Standards (Section 5.0 of ARA Provincial Standards) that will be varied by this site plan.

VARIATIONS FROM OPERATIONAL STANDARDS

OPERATIONAL STANDARD	VARIATION
O.S. 5.1	A portion of the north, west and east proposed licensed boundaries are to be demarcated with 1.2m high marker posts on the corners of the boundary, visible from one another. Temporary construction fencing to be installed along the outer edge of the setback in the area of the site adjacent to Hopewell Creek.
O.S. 5.2	No gate will be located at the operational entrance/exit to Shantz Station Road. The gate will be located as shown on the Sequence of Operations diagram. No gate will be located at the two entrance/exits to the residential properties along Foerster Road
O.S. 5.10.2.2	The setback will be reduced from 15m to 0m and from 30m to 15m for a portion of the east boundary.
O.S. 5.13.1	Overburden and topsoil stockpiles may be permitted within 30m of the Boundary of Area to be Licensed.

Tonnage Limit
1.2.26 The maximum number of tonnes of aggregate to be removed from the site in any calendar year is 500,000 tonnes.

1.2.27 Technical Recommendations
Hydrogeology: "Capital Paving Inc. Shantz Station Pit Level 1 and Level 2 Hydrogeological Investigation Proposed Category 3 Class 'A' Pit Above-Water-Table", May 2019 (MTE Consultants Inc.)
1. MTE recommends that manual water levels will be collected on a seasonal basis, three times per year, once in the spring, summer and fall, at all on-site monitoring wells and participating domestic wells;
2. MTE recommends that the annual groundwater monitoring program extend throughout the life of the operation so that confirmatory water table elevations can be obtained as the pit develops;
3. MTE recommends the results of the monitoring be retained on-file by Capital Paving Inc. so that it can be made available upon request by agencies such as the MNRF or MECP;
4. MTE recommends monitoring wells that may be destroyed by extraction activities be decommissioned according to the Wells Regulation (*O.Reg. 903)* and subsequently replaced at a location that will ensure the new monitoring well will remain intact to allow groundwater monitoring to continue;
5. MTE recommends that Capital Paving Inc. adopt the Well Interference Complaint Procedure described in Section 9.1 of this report; and
6. MTE recommends that Capital Paving Inc. adopt their Spill Contingency Plan for the Site and that a QP be retained, in the unlikely event of a spill.

Natural Environment: "Natural Environment Report, Level 1 & 2 Assessment, Shantz Station Pit Application, Township of Woolwich", May 2019 (RiverStone Environmental Solutions Inc.)
- Proposed pit extraction activities shall be setback a minimum of 30 m from the boundary of all PSW units (except the existing laneway in the northwest corner of the site). The 30 m setback should be well-marked prior to the commencement of pit operations.
- The 30 m wetland setback area shall be undisturbed by pit operations and remain as natural self-sustaining vegetation.
- Sediment and erosion control measures shall be employed where appropriate to prevent the erosion of unstable soils and the movement of sediment and/or other deleterious substances into the adjacent PSW (and other identified wetlands). These measures shall be in place prior to the onset of site preparation.
- Sediment fencing must be constructed of heavy material and solid posts and be properly installed (trenched in) to maintain its integrity during inclement weather events.
- Once installed, sediment fencing should be routinely monitored and maintained.
- Culverts should be installed in the existing and proposed laneways to promote hydrologic connectivity between wetland components and herpetofaunal movement.
- All stockpiled aggregates should be stored in a location that will prevent the movement of sediment laden runoff into the PSW units (and other identified wetlands) and their setbacks.
- Water level measurements should be recorded annually and obtained from groundwater monitoring wells installed on-site (see Hydrogeological Assessment, MTE April 2019) and be retained on-file by Capital Paving Inc. so that it can be made available u[on request by agencies such as the MNRF or MECP.
- Proposed pit extraction activities shall be setback a minimum of 30 m from the dripline of the Significant Woodlands. The 30 m dripline setback should be well-marked prior to the commencement of pit operations.
- The proposed access road should be laid out and staked with qualified biologists to avoid key tree specimens where possible.
- Tree removal will be timed to avoid Breeding Bird and potential SAR bat roosting (April 1 to October 15) seasons. If limited vegetation removal must occur early during this period (i.e., between April 1-April 15), additional bat and/or bird surveys will be required.
- The habitat compensation measures developed by RiverStone and incorporated in the rehabilitation plan submitted by MHBC Planning Ltd., should be implemented in full to offset potential impacts associated with the construction of the proposed access road through the significant woodland.
- The 30 m Significant Woodland setback area shall be undisturbed by pit operations and remain as natural self-sustaining vegetation.
- RiverStone recommends that any proposed rehabilitation/compensation activities proximate to or within the identified habitat be reviewed to ensure compliance with the ESA.
- Specialized barrier fencing for reptiles should be erected at the northern and northeastern limit of the extraction and existing laneway adjacent to the PSWs.
- A qualified person should be retained to confirm the adequacy of the specialized barrier fence. The fence should be inspected to ensure any necessary repairs are made on a routine basis (monthly from April through October).

Natural Environment (cont'd):
- Proposed pit extraction activities shall not occur within the dripline of the non-significant FOD6-1 woodlands that are outside of the proposed extraction area and adjacent to wetland features (i.e. FOD6-1 east of the Northern Ponds and east of the site in the Hopewell Creek valley). To protect the FOD6-1 communities, a 5 m setback from the dripline shall be undisturbed by pit operations and remain as natural self-sustaining vegetation.
- Proposed pit extraction activities shall not occur within the CUT1-1 thicket adjacent to the site to protect potential shrub/early successional bird breeding habitat within these vegetation communities.
- At pit closure, site rehabilitation will be required. The list of plant species provided on the Rehabilitation Plan (page 4 of 5) should be used in the final rehabilitation plan in areas subject to naturalization that blends with the adjoining vegetation communities.

Noise: "Noise Impact Analysis Shantz Station Pit, Proposed Gravel Pit", May 10 2019 (Valcoustics Canada Ltd.)
Phase 1
Prior to the start of extraction in Phase 1,
- Construct a 1.2 m high berm along the northern property line (close to the Processing Plant);
- Construct a 7.5 m high berm in the vicinity of POR03;
- Construct a 11 m high localized berm for screening the processing plant; and
- Construct a 7.5 m high acoustic enclosure around the portable crusher.

Phase 2
Prior to the start of extraction in Phase 2,
- Construct a 2.8 m high berm along the northwest property line;
- Construct a 2.5 m high berm along a portion of the south property line; and
- Construct a 5.5 m high berm around POR03.
- Maintain the localized berm (11 m high, constructed in Phase 1) at the processing plant; and
- Maintain a portion of the 1.2 m high berm along the northern property line.

Phase 3
Prior to the start of extraction in Phase 3,
- Construct a 4.0 m high berm along a portion of the Phase 3 perimeter; and
- Construct a 5.8 m high berm along around POR03;
- Maintain the localized berm (11 m high, constructed in Phase 1) at the processing plant and the 1.2 m high berm along a portion of the north boundary of the site.

Phase 4
Prior to the start of extraction in Phase 4,
- Construct a 1.5 m high berm along the south property line;
- Construct a 7.5 m high berm along the east property line adjacent to POR02;
- Construct a 2.0 m high berm along the east property line (adjacent to POR03);
- Construct a 7.5 m high berm around POR03.
- The portable crusher operating near the working face is permitted to operate no more than 100 m east of the Phase 3 boundary. In addition, a 6 m high localized berm is needed at the portable crusher location.; and
- Maintain the localized berm (11 m high, constructed in Phase 1) at the processing plant and the 1.2 m high berm along a portion of the north property line.

Phase 5
Prior to the start of extraction in Phase 5,
- Construct an 8.5 m high berm around POR03;
- Portable crushing near the working face is only permitted within 405 m of the Phase 2 boundary. In addition, a 6.5 m high localized berm at the portable plant is needed;
- The height of the berm along the east property line adjacent to POR02 can be reduced to 3.7 m; and
- Maintain the localized berm (11 m high, constructed in Phase 1) at the processing plant and a 1.2 m high berm along a portion of the north property line.

These are the minimum noise mitigation requirement for each phase. It is noted that if a berm constructed for a previous phase is higher than that required for the next phase, it is likely that the higher berm constructed in earlier phase will remain (i.e. no reduction in berm height). For example, the minimum berm heights around POR03 are 7.5 m in Phase 1, 5.5 m in Phase 2, 5.8 m in Phase 3, and 7.5 m in Phase 4; in this case, a berm of 7.5 m height can be constructed prior to extraction in Phase 1 and maintained the height over Phase 1 to Phase 4 operations.
The local berms recommended above can be constructed using aggregate stockpiles and should be no more than 30 m from the portable crusher or processing plant locations.
It should be noted that the highest sound barrier is needed to protect POR03. It is our understanding that this dwelling is owned by the owner of the gravel pit lands. If it could be ensured that this dwelling could remain vacant over the life of the site, then POR03 could be removed as a receptor location and the barrier height requirements reduced.
The sound barrier configurations are considered conceptual and can be modified to account for grading and drainage requirements. However, the final sound barrier design should be reviewed by a qualified acoustical engineer to ensure the MECP noise guideline limits will be met at all off site receptor locations.
According to the MECP, a sound barrier means a wall, berm, wall/berm combination or similar structure. The minimum surface density (face weight) of a sound barrier is 20 kg/m2. The barrier must be structurally sound, appropriately designed to withstand wind and snow load, and constructed without cracks or surface gaps. Any gaps under the barrier that are necessary for drainage purposes should be minimized and localized, so that the acoustical performance of the
barrier is maintained. Sound barrier walls can be constructed from a variety of materials including wood, masonry, composites, etc., provided the above requirements are met.
It is recommended that any changes to the noise mitigation and/or equipment should be reviewed by a qualified acoustical consultant to ensure compliance with the MECP noise guideline limits.
- The sound emission level for all pieces of equipment used for construction activities including site preparation and rehabilitation must comply with the limits outlined in MECP Publication NPC-115, "Construction Equipment".
- Construction activities should only occur during the daytime (i.e. 0700 to 1900 hours) period, Monday to Friday. There should be no construction on weekends or on statutory holidays unless required due to an emergency.
- The perimeter berms should be constructed as early in the construction process as possible to minimize the off-site noise impacts from the construction activities.
- Sound emissions from equipment to be used on-site should be measured to confirm that they comply with the levels outlined within this report. Alternatively, for equipment brought on-site on an as-needed basis, they should have appropriate portable C's of A or ECA's.
- Sound barriers are recommended to be constructed as shown in Figures A9 to A13 of the Noise Impact Analysis. The sound barriers will need to be constructed prior to commencing of extraction at each phase. The extraction plan is included in Appendix B of the Noise Impact Analysis.
- Back-up beepers are exempt from assessment by the MECP stationary noise source guidelines. However, to reduce off-site noise impacts, where possible, alternative technologies will be used on all equipment operating at the site. Details regarding a potential alternative technology are included in Appendix E of the Noise Impact Analysis.
- Extraction and processing operations should only occur Monday to Friday during the daytime (i.e. 0700 to 1900 hours) period. Loading and shipping of material off-site can occur between 0600 to 1900 hours on Monday to Friday and 0700 to 1500 hours on Saturday. Work outside these hours will require a specific contract and will be subject to notifying the Township.
- Off-site noise audit measurements should be completed when operations are underway on the site to confirm the MECP noise guideline limits are met. The audit measurements must be done by a qualified acoustical engineer.
- If other or new equipment is brought to the site, the sound emissions should be checked to ensure the equipment is in compliance with this noise study.
- If alternate noise mitigation measures are to be implemented, they should be reviewed by a qualified acoustical consultant to ensure the MECP noise guideline limits will be met.

1.2.27 Technical Recommendations (cont'd)
Archaeology
The Stage 1 assessment determined that the study area comprised a mixture of areas of archaeological potential and areas of no archaeological potential. The Stage 2 assessment of the identified areas of archaeological potential resulted in the discovery of 11 locations of archaeological materials: Site 1 (AjHc-39), Site 2 (AjHc-40), Site 5 (AjHc-41), Site 7, Site 10, Site 13, Site 14, Site 15, Site 17, Site 19 and Site 19. Sites 1, 2 and 5 were found to be of further CHVI, whereas Sites 7, 10, 13, 14, 15, 17, 18 and 19 were found to be of no further CHVI.
- ARA recommends that Site 1 (AjHc-39), Site 2 (AjHc-40) and Site 5 (AjHc-41) be subject to Stage 3 site-specific assessments in accordance with the requirements set out in Section 3.2, Section 3.2.2 and Section 3.2.3 of the S&Gs (MTC 2011:47, 50–53). Controlled Surface Pickups were conducted at each site location as part of the subject assessment and are not required in advance of test unit excavation. Detailed documentary research must also be carried out as per Section 3.1 of the S&Gs (MTC 2011:46–47).
- An appropriate assessment method for Sites 1, 2 and 5 would comprise test unit excavation using the strategy for Pre-Contact or Post-Contact sites where it is not yet evident that the level of CHVI will result in a recommendation to proceed to Stage 4 (MTC 2011:Table 3.1, Numbers 1 and 2). This would involve the excavation of grid test units at a 5 m interval across each site extent and additional test units amounting to at least 20% of the grid unit total in areas of interest. If it becomes evident during the excavation of Stage 3 test units that a site should proceed to Stage 4, then the strategy for Pre-Contact or Post-Contact sites where it is clearly evident that the level of CHVI will result in a recommendation to proceed to Stage 4 can be followed (MTC 2011:Table 3.1, Numbers 3 and 4). As discussed in Section 3.3.3 of the RHF (MTCS 2014:10), this would involve finishing the grid test units at a 10 m interval and completing additional test units amounting to at least 40% of the grid unit total in areas of interest. The test unit excavation strategy should therefore be developed with the objective of meeting the requirements of Table 3.1, Numbers 3 and 4, with further test units being excavated according to Table 3.1, Numbers 1 and 2 only if necessary to support the argument that the site should not proceed to Stage 4 (MTCS 2014:10).
- All test units must be excavated stratigraphically into at least the first 5 cm of subsoil, and all soils must be screened through mesh with an aperture of no greater than 6 mm. If a potential cultural feature is uncovered, the exposed plan of the feature must be recorded, and geotextile fabric must be placed over the unit floor prior to backfilling. Section 3.2.2 Guideline 3 of the S&Gs (MTC 2011:49) states that exposed cultural features may be excavated during a Stage 3 assessment only if the information is required to inform a recommendation for or against a Stage 4 mitigation of development impacts.
- Sites 7, 10, 13, 14, 15, 17, 18, 19 and the remainder of the assessed portion of the licensed boundary do not require further archaeological assessment. The outstanding areas within the licensed boundary still require Stage 1 and 2 assessments. These include a rectilinear parcel surrounding the extant farmstead, a square parcel adjacent to Foerster Road, and two irregularly-shaped parcels located along the northwestern and eastern limits of the licensed boundary, respectively.
- Given that there are no further concerns for impacts to archaeological sites within the majority of the project lands, ARA also makes a recommendation for partial clearance. A partial clearance is intended to accommodate the need for a development to be able to proceed while outstanding concerns for alterations to archaeological sites continue to be addressed. At the time of writing, Sites 1, 2 and 5 are the only sites of further archaeological concern located within the project lands.
- In accordance with Section 4.1.1 and Section 7.8.5 of the S&Gs (MTC 2011:68–69; 140–141), ARA recommends that an avoidance strategy be implemented as part of the recommendation for partial clearance to ensure that the sites are not impacted. Each site warrants a 20 m protective buffer and a 50 m monitoring buffer. All lands comprising the site extents and the 20 m protective buffers must be considered 'protected areas' to be avoided. Protective buffers cannot traverse private properties for legal reasons, so the 20 m buffer around Site 5 is truncated in the associated mapping (Map 10–Map 11; SD Map 15–SD).
- It is recommended that a temporary barrier be established around each protected area in advance of construction. All soil disturbing activities within the 50 m monitoring buffer must be monitored by a licensed archaeologist to ensure the effectiveness of the avoidance strategy. The archaeologist must ensure that the temporary barrier is in the appropriate location and must be empowered to stop construction if there is a concern for impacts to an archaeological site. 'No go' instructions must be issued to all on-site work crews and engineers for the protected areas, and the location of the protected areas must be shown on all appropriate contract drawings. The protected areas must be inspected by a licensed archaeologist once the strategy is no longer required (i.e., after a report recommending no further assessment has been entered into the Ontario Public Register of Archaeological Reports), and the effectiveness of the strategy must be reported to the MTCS.
- As required by Section 7.8.5 Standard 1c of the S&Gs (MTC 2011:140), ARA requests that the MTCS provide a letter confirming that there are no further concerns regarding alterations to any archaeological sites within the project lands save for Sites 1, 2 and 5. A letter confirming the proponent's commitment to the avoidance strategy has been included in the submission package. Once the construction schedule has been finalized, a licensed archaeologist will be retained so that monitoring can occur where required.
- No ground alterations or development of any kind may occur within the designated protected areas until the required investigations are completed, recommendations that the sites have no further cultural heritage value or interest are made, and the associated reports are entered into the Ontario Public Register of Archaeological Reports.
- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act.
- Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the Ontario Heritage Act and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence.
- The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

Other:
Traffic Impact Assessment: "Capital Paving Inc. Shantz Station Pit, Township of Woolwich, Region of Waterloo Transportation Impact Study", April 2019 (Paradigm Transportation Solutions Limited):
Based on the findings of this study, it is recommended that the subject development be approved as proposed, with the addition of a northbound, right-turn deceleration lane at the site driveway on Shantz Station Road in accordance with the Regional Municipality of Waterloo Standards.

Dust: "Capital Paving Inc. – Shantz Station Pit, Township of Woolwich, Ontario Air Quality Assessment RWDI # 1803181" May 14, 2019 (RWDI Air Inc.)
With the following recommendations in place, the impacts from the addition of the Shantz Station Pit are within acceptable levels at nearby residential receptors outside of the property line.
- Dust will be mitigated on site;
- Water or another provincially approved dust suppressant will be applied to internal haul roads and processing areas as often as required to mitigate dust;
- Stripping, excavation and loading operations shall be monitored hourly when all of the following criteria are met:
  - -Dry weather is anticipated;
  - -Excavation and loading activities are within 200 m of a residence;
  - -Winds are anticipated to be blowing towards the residence.

If visible dust is observed under these conditions, these operations shall be reduced, or additional mitigation measures shall be undertaken, such that visible dust is prevented from leaving the site.
- A row of conifers will be planted along the top of the berm adjacent to Receptor R3, on the portion of that berm located in Phase 1. It is our understanding that this dwelling is owned by the owner of the gravel pit lands. If it could be ensured that this dwelling becomes and remains vacant during the life of the site, then R3 could be removed as a receptor location and the need for the conifer trees will not be required.
- A BMPP for the Shantz Station Pit will be developed with control measures capable of providing the emission reductions used in this assessment.

Visual Impact Assessment: "Visual Impact Report, Capital Paving Inc. Shantz Station Pit", April 2019 (MHBC Planning)
Visual impacts of the Shantz Station Road Pit will be effectively mitigated and minimized through the use of perimeter screening berms, retained and proposed vegetation, and limits on proposed product stockpile heights. The key recommendations of this Visual Impact Review are:
a. Existing vegetation located along the perimeter and within the setback area should be retained wherever possible.
b. Naturalization consisting of tree planting of the previous non-rehabilitated aggregate pit site, (located north of the subject lands in between the existing mature woodlot and Hopewell Creek) on the Cox property lands, is highly recommended and be implemented as outlined on the Rehabilitation Plan.
c. Visual berms are to be installed as per the berm elevation detail and berm requirements noted on the Operational Plan. Berms are to be constructed in a smooth, rolling manner with varying highpoints (respecting minimum height requirements) and variations along the berm frontage to create a more natural appearance. Berms should be seeded with a naturalizing mix of wildflowers and grasses to stabilize slopes and minimize mowing and maintenance. The Sequence of Operations diagram identifies the location and height of the visual berms.
d. Trees should be planted prior to extraction in Phase 1 in certain view locations as indicated on the Sequence of Operations diagram and outlined below. Trees are to be installed at 5 to 10 m on centre spacing, depending on species, in groupings as shown on the Operational Plan (page 2 of 5). Plantings are to be randomly spaced and staggered to appear more natural, where possible. Understory plantings are recommended to complement the natural vegetation occurring adjacent to the subject lands and should be spaced according to species anticipated growth. All vegetation is to be selected for hardiness, wind, drought and salt tolerance, and is to conform to the Rehabilitation Plan. Where appropriate, native species that complement the existing surroundings are to be utilized wherever possible. These may include, but are not limited to the following:

Coniferous and Deciduous Trees
White Pine, White Spruce, Balsam Fir, White Cedar, Common Hackberry, Sugar Maple, Silver Maple, Red Maple, Basswood, Red Oak, White Oak

Native Shrubs and Grasses (Infill planting examples)
Gray Dogwood, Red Osier Dogwood, Common Ninebark, Serviceberry, Sumac sp., Rose sp., Raspberry, Willow sp., Elderberry, Snowberry, Meadowsweet, Viburnum sp., Big Bluestem Grass, Little Bluestem Grass, Sedge Grass sp., Side Oats Grama Grass, Tufted Hair Grass, Wild Rye Grass, Switch Grass

- Tree groupings are to be located along Foerster Road at the south boundary.
- Trees are to be located in front or on the toe of the berm at the west side of the subject lands, closest to Shantz Station Road.
- Trees are to be located in locations along the East property boundary.
- Where existing vegetation is thin, impacted or removed within the 15m setback at the north edge of the site, replacement trees are to be planted to compensate for the loss of existing vegetative screening.
- A double row of tree planting (White Cedar installed at 300cm. height) is recommended on the north boundary of the site, adjacent to the existing wetland area.
- Infill native plantings are to be installed in naturalized groupings on new slopes along the east side of the subject lands that are adjacent to Hopewell Creek.

e. To ensure survival and positive growth rate, the vegetative screening is to be maintained and managed appropriately so that it remains an effective visual screen over time. Allowance of natural succession to occur is encouraged, in keeping with restoration objectives.
f. During the first year of pit operations, it is recommended that the planted trees along Foerster Road, and vegetative restoration areas located along the north, west and east boundaries of the subject lands are watered and monitored until established. After the first year, it is recommended that the trees are inspected twice each year. Once in spring after leaf break, and once in fall prior to leaf drop, to ensure any trees which are in poor condition at the time, are fertilized, watered and monitored, as needed, to improve their health and vigor. In extreme cases, it may be necessary for a horticultural expert to observe the trees for any signs of disease or infestation, and provide specific recommendations in order to retain as many trees as possible. If any of the planted trees die, they should be replaced yearly, preferably in spring or late summer. With annual maintenance and monitoring, the trees will have the best chance of survival, and overall, it is anticipated that the need for tree replacements during the life of the operation will be reduced.
g. Figure 11 illustrates the phasing of berms in terms of the timing for the construction and timing of removal of the visual berms. Timing for construction and removal of visual berms varies at each Phase. Some berms, or portions of berms are to remain in place until the pit operations in Phase 5 are complete, while others may be removed for rehabilitation as per Figure 11.

Cultural Heritage Impact Assessment: "Cultural Heritage Impact Assessment Proposed Shantz Station Pit, Township of Woolwich", March 2019 (MHBC Planning)
In order to help ensure that the applicable cultural heritage resources are appropriately conserved, the following recommendations are made:
- A conservation plan for the house located at 1195 Foerster Road is recommended to be prepared in order to ensure that the heritage attributes of the house are retained. It is recommended that this occur at the commencement of site operations.
- Site rehabilitation is recommended in order to restore the laneway connections to 1195 Foerster Road and also to the rear of the subject lands following the completion of extraction, as well as the field areas surrounding the buildings.
- A conservation plan for the house located at 1472 Village View Road is recommended to be prepared in order to ensure that the heritage attributes of the house are retained. It is recommended that this occur at the commencement of site operations.
- That photo documentation of the laneway and remnant fence areas at the rear of the property be completed prior to removal of the features for aggregate extraction.

Agricultural Impact Assessment: "Agricultural Impact Assessment Capital Paving Inc. Shantz Station Road Pit", April 2019 (MHBC Planning)
The following recommendations are made to reduce the impacts of the proposed new licence on the surrounding agricultural uses in the primary and secondary study area. Recommendations are also made for final and progressive rehabilitation of a portion of the pit to the same average soil capabilities and agricultural production as pre-extraction:
1. Extraction will occur in phases to minimize the amount of disturbed area. Later phases of the operation that are not currently in extraction should remain in agricultural production for as long as realistically possible.
2. The recommended agricultural rehabilitation sequence should be included in the ARA site plan and rehabilitation plan to ensure best practices are implemented throughout the progressive rehabilitation.
3. Implementing progressive rehabilitation procedures that avoid substantial storage of topsoil and minimize store of subsoil are encouraged. Stripped soils should be moved directly to depleted areas where they will be immediately used for agricultural rehabilitation. Stripping areas should also be limited to what is required for the season of operation.
4. Soil material should only be handled under dry conditions and a wet weather shut down procedure should be put in place for stripping operations. Travel over soils and rehabilitated areas should be minimized to reduce compaction. Where required, ripping/tilling the soils should be undertaken to alleviate soil compaction. The mixing of soil materials/layers should be avoided.
5. The depths of soil being removed during stripping should be monitored and compared to the pre-extraction depths as found in the Soil Survey completed by DBH. Topsoil and subsoil should be replaced at generally the same pre-extraction depth.
6. Vegetation cover (such as perennial crops) over the area are to be established in order to reduce erosion. This should be done prior to stripping as it adds organic matter to the soil and improves soil structure. A grass-legume cover crop should be established immediately following the replacement of soils and maintained for up to five years and ploughed under annually in order to promote and increase organic matter.
7. Prior to the replacement of overburden, subsoil, and soil, the final pit floor should be ripped to alleviate compaction if required. Side slopes should be graded to the desired slope (3:1) prior to the replacement of topsoil and subsoil, and permanent vegetative cover should be provided to stabilize the slopes and prevent erosion.
8. Random soil testing should be completed at the beginning of each growing season to analyze soil fertility and structure. Adjustments to cropping practices and/or soil amendments may be required based on the results of the soil testing.
9. An Annual Rehabilitation Report should be completed in order to document agricultural rehabilitation activities and demonstrate compliance in relation to soil stripping, handling and storage; rehabilitation progress, methods and best practices; soil tests; and post rehabilitation soil capability and farming activity.

Legal Description
Part of Lots 81 & 82
German Company Tract
(geographic Township of Waterloo)
Township of Woolwich
Regional Municipality of Waterloo

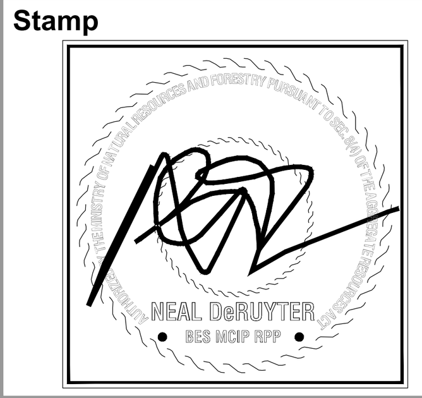
Site Plan Amendments

No.	Date	Description	By

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
200 - 540 BINGEMANS CENTRE DR. KITCHENER, ON. N2B 3X9 | P: 519.576.3650 F: 519.576.0121 | WWW.MHBCPLAN.COM

MNRF Approval Stamp

Stamp



Applicant
Capital Paving Inc.
P.O. Box 815
Guelph, Ontario
N1H 6L8
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Project
Shantz Station Pit
Part of Lots 81 & 82, German Company Tract
Township of Woolwich, Regional Municipality of Waterloo

MNRF Licence Reference No.	Pre-approval review: For Submission to MNRF - May 2019
Plan Scale: **NTS**	Plot Scale: 1:3 [1mm = 3 units] MODEL Drawn By: D.G.S. — File No. 16313B Checked By: N.D.
File Name	**OPERATIONAL NOTES**
Drawing No.	**3 OF 5**

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