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EXCAVATED MATERIAL DISPOSAL SITES FOR THE SOUTHEAST COLLECTOR TRUNK SEWER PROJECT 74040

The Environmental Services Committee recommends the adoption of the recommendations contained in the following report dated May 20, 2010, from the Commissioner of Environmental Services.

1. RECOMMENDATIONS

It is recommended that:

1. The Commissioner of Environmental Services be authorized to enter into an agreement with the Toronto and Region Conservation Authority to provide a site(s) for disposal of excavated material from construction of the new Southeast Collector Trunk Sewer.
2. The Regional Chair and Regional Clerk be authorized to execute the necessary agreement for this procurement, subject to the approval of Legal Services as to form and content.

2. PURPOSE

The purpose of this report is to seek authorization for the Commissioner of Environmental Services to negotiate with the Toronto and Region Conservation Authority (TRCA) to secure a site for disposal of excavated material from the new Southeast Collector Trunk Sewer construction and an appropriate scope of work for site management.

3. BACKGROUND

Construction of the Southeast Collector Trunk Sewer will generate excavated material

The Southeast Collector Trunk Sewer will be a 15 km tunnelled sewer with an internal diameter of 3.0 metres. The sewer alignment starts within the Town of Markham in the Box Grove Community (Ninth Line) and continues southeast towards the City of Pickering within Durham Region at the intersection of Valley Farm Road and Finch Avenue. The Individual Environmental Assessment for this tunnel project was approved by the Ontario Minister of Environment on March 31, 2010.

The tunnel will be constructed using Earth Pressure Balance Tunnel Boring Machines and installed with pre-cast concrete segmental lining throughout as a one pass system.

350,000 m³ of excavated material will be generated from tunnel and shaft construction

Construction of the shafts and tunnel will require removal of a significant amount of subsurface material. Excess clean native excavated soils (muck or spoil) will require continuous removal, management and disposal. Management of the spoil, including storage, transportation and the disposal, must comply with applicable regulations and guidelines. Past tunneling contracts by York Region did not yield this quantity of material. It was a requirement of the contractor to source a disposal site; however during the Value Engineering session in July 2008, it was considered that the disposal site should be secured in advance since previous experiences demonstrated difficulties for the contractor to find adequate disposal sites.

Anticipated duration for disposal of excavated material is from March 2011 to spring 2014. The total quantity of excavated material is estimated to be 350,000 m³. This is equivalent to approximately 8,750 underground parking spaces or 6,400 average size recreational swimming pools. Additionally, approximately 36,000 m³ of topsoil from the compounds will also be disposed. Based upon information from the geotechnical boreholes it is expected that material excavated from the tunnel and shafts will consist of sand, gravel, silt and clay and any combination of them. These materials are the same type of materials found everywhere in southern Ontario and it is anticipated that all the muck will be clean and therefore suitable to be disposed without restrictions. Due to requirements to use soil conditioners to soften the soil to operate the tunnel boring machines, the excavated material could potentially be wet on arrival at the disposal site. In general, soil conditioners are biodegradable and technical specifications for the project will mandate that any soil conditioner material used on the project be biodegradable.

All material to be disposed of shall be continuously monitored for type and quality to ensure it is disposed of in accordance with all regulations. Although contaminated material is not anticipated, the construction contract will include an item for disposal of any found contaminated materials at a provincially approved disposal site.

4. ANALYSIS AND OPTIONS

Selection criteria for determining suitable disposal sites include proximity to construction, capacity, site requirements and permits.

The total estimated quantity of excavated material originating from tunnels and shafts is 350,000 m³. Ideally one or possibly two sites to accept all the material is desired to minimize mobilization, demobilization and operation costs.

Excavated material from tunnel and shafts will originate at various points along the alignment. To minimize haulage costs and impact to haul roads, disposal sites should be located as close to the Southeast Collector alignment as possible with ease of access to regional roads and Hwy 407.

Site requirements or future land use are factors for consideration in the selection of a disposal site. As previously discussed, material originating from tunneling will be conditioned and the excavated material may be wet on arrival at the disposal site. This wet material may be more suitable for large fill areas such as an abandoned gravel pit and less favourable for berm construction. Preliminary discussions with TRCA indicate that they are familiar with the wet nature of material originating from EPBM tunnelling. Management of the excess clean native soils, including storage, transportation and the disposal, must comply with the applicable regulations and guidelines. Site specific permits may be required from regulatory authorities (e.g. TRCA and Lake Simcoe Region Conservation Authority) as well from the local City, Town or Region.

Disposal site alternatives considered include private and Government sectors

There has been correspondence between the Southeast Collector design team and a representative of the program for Management of Abandoned Aggregates Properties (MAAP) that undertakes the rehabilitation and research of pits and quarries abandoned prior to January 1, 1990. This program is administered by the Ontario Aggregate Resources Corporation but no definite confirmation from MAAP that it would be interested in receiving any material was received.

Fill Management, a company specialized in fill disposal, has indicated that it has the capacity to dispose of all excavated materials and that it can locate and secure fill disposal sites in York and Durham Regions close to the project location. Fill Management informed the Southeast Collector design team of fill sites that are operating at the present; however Fill Management explained that they can not ensure that these sites will still be available during construction of the Southeast Collector. The company did indicate that new fill disposal sites in York Region and Durham Regions, as well as in the City of Toronto, could be open but at that time no precise location was mentioned.

The Southeast Collector design team and staff met with developers in the Seaton Community in Durham Region. Through various discussions and meetings, the developers indicated they may be interested in accepting all material from the Southeast Collector project. The Seaton Community is located just north-east of the project between Taunton Road and Highway 7 and west of Brock Road. Material disposal at this site would have been ideal due to the proximity of the project, however during subsequent discussions with the developers, requirements for fill changed and fill was no longer needed.

Due to the uncertainties in securing a site either with developers, MAAP, Fill Management and others, York Region initiated a soil management Expression of Interest (EOI) in January 2010. Three recipients responded to the EOI, resulting in the identification of a total of four sites in the Southeast Collector project area suitable for material disposal.

The sites proposed by the three recipients were evaluated to each other relative to their distance from the mining locations. All sites were a considerable distance from the project location and a forecasted cost for hauling and disposal indicates costs will be higher than anticipated.

TRCA has available sites in close proximity to the project

TRCA subsequently made it known it provides fill disposal for other municipalities in its jurisdiction and that it has prior experience receiving wet conditioned materials from tunneling operations. York Region has met with TRCA and several sites in comparatively close proximity to the project site are available. On this basis, staff are seeking authority to enter into an agreement with TRCA if a cost effective solution that benefits both York Region and the TRCA can be negotiated. In the event an acceptable solution is not successfully negotiated with TRCA, provision of a fill disposal site will be included in the tender for constructing the Southeast Collector and bidders will be responsible for sourcing an appropriate site.

5. FINANCIAL IMPLICATIONS

Funds for fill management have been included in the 10 year capital budget for the Southeast Collector Trunk Sewer project.

6. LOCAL MUNICIPAL IMPACT

The Southeast Collector is a critical infrastructure component in ensuring adequate wastewater capacity for growth across York Region. Construction of the Southeast Collector is required to support forecast growth within the Region, as established by “Places to Grow” and reflected in the York Region Official Plan (June, 2009). The Plan establishes forecasts for each of the local municipalities for the plan period. Further, as envisioned in the Province of Ontario’s Growth Plan for Greater Golden Horseshoe (2006), there will be the requirement to service a residential population of 1.5 million people and an employment population of 800,000 people by year 2031. To achieve this, a new Southeast Collector Trunk Sewer is required to carry the projected flows to accommodate growth in York Region to 2036 and beyond.

7. CONCLUSION

It is recommended that the Region enters into an agreement with TRCA to secure a viable site for disposal of the excavated material to avoid delays during construction due to the contractor's potential inability to dispose of the excavated material. Staff will report back in the fall 2010 on the results of the negotiations undertaken with TRCA for council approval.

For more information on this report, please contact Daniel Kostopoulos, Director, Capital Planning and Delivery, Environmental Services at extension 5070.

The Senior Management Group has reviewed this report.