

**SCOPE OF SERVICES
TASK ORDER 2024-2
UNDERWOOD CREEK DAYLIGHTING DESIGN SERVICES**

A. BACKGROUND

This task order supplements the Underwood Creek Daylighting project scope of services authorized by the Village on January 17, 2024.

Purpose

- Minimize cost increases and project delays in achieving compliance with CPKC design and construction requirements.
- Improve anticipated bid pricing related to soil disposal and concrete structures.
- Incorporate user amenities and adjacent site improvements into the project.

Overview of additional investigation and design activities

- Geotechnical and environmental subsurface investigations along the proposed channel alignment.
- Adjustment of channel alignment away from railroad track corridor; corresponding hydraulic model modifications.
- Retaining wall design modifications.
- Pedestrian bridge and associated abutment design.
- Storm sewer modifications to accommodate adjacent drainage improvements.
- Parking lot paving and grading outside of project limits, coordinating parking lot layout and striping design with private property owners, pedestrian path design.
- Parking lot site amenities.

Discussion: CPKC

The Village is in the process of negotiating with CPKC the purchase of the former railroad spur corridor adjacent to the DPW yard. As part of project reviews, CPKC closely reviews any construction planned near their tracks that may affect their current or future operations. If project features are located within a defined zone adjacent to their tracks, CPKC requires that those features be designed to withstand Cooper E-80 train loading. CPKC approval is contingent on complying with extensive third-party structural review. In addition, CPKC further requires inspection by railroad personnel during construction. Because of the expense and time required for compliance with CPKC requirements, it is generally advantageous to minimize the extent to which project features, including any temporary shoring that may be required during construction, are located within the zone of train loading.

Retaining Wall W3, directly east of the Sendik's building, is affected by these considerations. To maximize the amount of space available for Sendik's deliveries at their east loading dock, this retaining wall is located relatively close to the CPKC corridor. In its current location, the temporary

shoring required for construction of Retaining Wall W3 is located within the zone of train loading from CPKC's existing tracks, and would also require a railroad easement for construction. In addition to considering the retaining wall location relative to the existing track configuration, CPKC notified the Village that a future third set of tracks within their mainline track corridor is included in their long-term planning and must be addressed in the project design.

The Village could elect to keep Retaining Wall W3 in its current location and proceed with the design, review, and railroad construction inspection required by CPKC. However, to avoid the associated design and construction costs and schedule delay, it is recommended that the channel alignment be shifted to the west so that project features (channel, retaining wall, temporary shoring) are outside the zone of current and future train loading. Doing so eliminates railroad involvement from the design and construction process. To reduce the wall's footprint and its required distance from the railroad corridor, thereby maximizing the use of space available in the parking lot, Retaining Wall W3 is recommended to be designed as a cast-in-place structure rather than a precast modular block wall. To avoid extending the channel bank further west toward Sendik's than it is currently when the channel alignment is shifted west, a retaining wall is recommended to be built at the top of the bank along the west project limit.

Discussion: Abutments, concrete structures, amenities

Late in the design process (November 2018), the Village requested that abutments for a conceptual pedestrian bridge be shown on the drawings. Structural design of the abutments was to be done at a future time prior to construction. This is therefore the appropriate time to proceed with the final design of the abutments. To allow the abutment design to advance, a bridge type and size must be identified and loading parameters specified. The selection process for the bridge type and final location should occur in coordination with Village staff and appropriate parties. The cast-in-place concrete bridge abutments will be in line with Retaining Walls W1 and W2. These walls, currently laid out as precast modular block walls, are recommended to be designed as reinforced cast-in-place concrete walls to facilitate integration with the cast-in-place bridge abutments.

The parking lot area adjacent to the project limits is planned to be redesigned by the adjacent property owners. After the property owners' redesigns are completed and provided to the Village, it is anticipated that drawings and specifications for the parking lot reconstruction, paving, and striping will be incorporated into the project construction drawings. There has also been discussion, still ongoing, related to other user amenities within and outside the channel daylighting project area, including pedestrian paths, lighting, benches, trash receptacles, plantings, and signage. The extent of design required for these features, as well as collaboration with the adjacent property owners, is still under discussion.

Drainage and parking lot features near the 890 Building and the Sendik's building will be incorporated into the project design to optimize the use and function of the area. For example, 890 Building downspouts that currently discharge directly to the stream channel will be piped to storm sewer laterals and connected to the project storm sewer system, allowing the area adjacent to the building to be used for parking. Existing surface drainage piping between the 890 Building and Sendik's will be extended to connect to the project storm sewer system. These various building drainage and

parking lot features, designed by the property owners, will be accommodated and incorporated into the project construction documents.

Discussion: Subsurface investigations

Approximately 21,000 cubic yards (CY) of soil will be excavated and hauled off-site for disposal during construction of the new Underwood Creek channel, accounting for a significant percentage of the total project cost. Because disposal costs for contaminated soil can be several times higher than for non-contaminated soil, it is important to provide adequate information on soil contamination and associated disposal options so that Contractors can develop competitive bids. If sufficient soil quality information is not made available, bidders will generally make conservative assumptions about soil disposal costs, resulting in significantly higher bids than would otherwise be expected. In addition, because geotechnical soil borings were not previously conducted at the locations of the retaining walls, bridge abutments and road crossings included in the project, new borings at specific locations and depths are required to identify soil bearing capacities and related parameters needed for the efficient design of these features.

It is therefore recommended that a subsurface investigation program be implemented to collect both geotechnical and environmental subsurface information. Geotechnical borings will be used to evaluate strength and soil behavior related characteristics of the soil for use in the geotechnical and structural design of the project elements, including walls, abutments, road crossings, and sloped channel banks. Environmental borings will be used to identify the extent of contamination present in the soil to be excavated and describe disposal options for Contractor consideration during bidding, resulting in more competitive construction bids.

B. TASK DESCRIPTIONS

The proposed scope of work includes the tasks and services described below.

1. Environmental and geotechnical subsurface investigations

This task addresses drilling, sampling, analysis and reporting to identify subsurface soil and groundwater properties and to determine associated construction and soil disposal parameters.

Included in task scope:

- Develop geotechnical and environmental drilling and sampling plans.
 - Preliminary geotechnical investigation plan includes up to 17 hollow stem auger borings to depths between 12 feet and 75 feet below ground surface, totaling approximately 612 feet of boring depth, conducted at the proposed locations of the various project structural elements and channel slopes.
 - Preliminary environmental investigation plan includes up to 30 direct push soil borings to depths up to 16 feet at approximate 50-foot intervals along the proposed channel alignment.
- Subcontract drilling and laboratory analyses.

- Soil samples will be collected continuously from each borehole. Up to three soil samples from each boring will be analyzed for one or more of the following: volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and/or Resource Conservation and Recovery Act (RCRA) metals. Up to 10 soil samples will also be analyzed for polychlorinated biphenyls (PCBs). In addition, Toxicity Characteristic Leaching Potential (TCLP) analysis will be performed if VOCs or RCRA metals concentrations exceed the “20x” rule, indicating that the soil may have hazardous characteristics. For the purposes of this scope, we have assumed up to 10 samples will be analyzed for TCLP VOC and/or RCRA metals.
- Up to four landfill waste characterization samples will be collected within the proposed daylighting corridor for laboratory analysis and landfill waste profiling. Each sample will be analyzed for typical parameters needed to obtain approval to dispose of soil at a local landfill (i.e. Protocol B).
- Develop summary reports.

Not included in task scope:

- This scope does not include development of WDNR-related documentation that may be required based upon investigation results and findings.

Deliverables:

- Geotechnical Data Report (GDR) for inclusion in project specifications.
- Geotechnical Interpretation Report (GIR) memorandum for internal design use.
- Environmental assessment sampling summary report including discussion of options for beneficial reuse of soil or other disposal options.

Assumptions:

- Soil cuttings generated during drilling operations will be drummed and stored on-site pending off-site disposal during project construction.

2. Design modifications

This task comprises various design improvements and modifications needed to address stakeholder requirements and improve the competitiveness of bid pricing.

Included in task scope:

- Adjust channel alignment so that temporary shoring is outside the zone of track loading for the existing track configuration and Retaining Wall W3 is outside the zone of track loading for the future third track.
 - Modify HEC-RAS model to reflect the realigned channel.
 - Modify the FEMA CLOMR work map and related documentation accordingly.

- Provide reinforced cast-in-place concrete designs and construction details for the structures listed below.
 - Pedestrian bridge abutments integral to Retaining Walls W1 and W2.
 - Select and specify features of a prefabricated pedestrian bridge in coordination with Village staff to use in abutment design and to include in project construction documents.
 - Retaining Walls W1 (current location), W2 (current location), W3 (new location west of current), and W4 (new wall).
- Modify storm sewer system (alignment and structures) to accommodate building drainage improvements at and adjacent to 890 Building.
 - The 890 Building owner has communicated their preference to have their roof drainage tie directly into the new Village storm sewer system rather than discharge to the ground surface adjacent to the building.
 - Provide a manhole and associated storm sewer modifications to which the 890 Building can connect.
 - Modify grading and surface restoration adjacent to building.
 - Coordinate with private property parking lot design to accommodate connection to private sewer located between 890 Building and Sendik's building.
- Develop landfill disposal option.
 - Coordinate with up to two local landfills to obtain landfill disposal waste profile information to include in project specifications.
- Incorporate parking lot reconstruction, repaving and restriping plans and specifications, provided by others, into construction documents.
 - Specific requirements for this task have not been fully defined.
 - It is anticipated that parking lot grading and drainage, ingress/egress and traffic lanes, parking space layout, islands, vegetation and landscaping, curbing, pedestrian access ways, and any other features outside the project limits will be provided by others.
 - Coordination with Village staff and appropriate stakeholders will be necessary to finalize the pedestrian path alignment adjacent to and potentially through the project area.
- Incorporate amenities into construction documents.
 - Specific requirements for this task have not been fully defined.
 - Upon receiving direction from Village staff, it is anticipated that elements including benches, trash receptacles, and lighting will be included in this task.

Not included in task scope:

- This scope does not include design elements not mentioned above.
- This scope does not include public outreach assistance, renderings, or related materials.

Deliverables:

- Revised construction drawings and specifications detailing the design modifications identified above.

Assumptions:

1. The Village will coordinate with adjacent property owners regarding required designs ‘by others’.

C. SCHEDULE

It is assumed that Tasks 1 and 2 will commence in June 2024 and be completed by the end of December 2024. The scope of services described will commence upon receipt of the Village’s Notice to Proceed (NTP).

D. FEE

Stantec’s estimated fee to complete the work described is provided in Table 1 below. The work will be done on a Time & Materials basis, with a cost not to exceed the total identified without prior Village approval.

If additional budget is required to complete a task, or if out-of-scope work not currently included in the scope is required, Stantec will notify the Village of the required fee adjustment for approval prior to continuing the work.

Table 1 - Estimated Fee

Task	Name	Estimated Fee
1	Subsurface Investigations	\$204,737
2	Design Modifications	\$189,020
Total		\$393,757