King County

Department of Local Services
Road Services Division

WAC 197-11-960: SEPA Environmental Checklist

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

A. Background

1. Name of proposed project, if applicable:

South 277th Street Bridge #3126 Replacement (Project #1136001)

2. Name of applicant/lead agency:

King County Department of Local Services (DLS), Road Services Division (Roads)

3. Address and phone number of applicant and contact person:

King County Department of Local Services
Road Services Division
King Street Center, Mail Stop: KSC-LS-0315
201 South Jackson Street
Seattle, WA 98104-3856

Contact Person:
Broch Bender, Roads Communications Manager
206-263-1189, bbender@kingcounty.gov

4. Date checklist prepared:

May 19, 2020

5. Agency requesting checklist:

King County DLS, Roads

6. Proposed timing or schedule (including phasing, if applicable):

The project is planned for construction in late spring to early fall 2021, requiring an

estimated 60 working days of active construction (about three months), including a reduction in travel lanes through the construction zone. The full construction duration is estimated at 145 working days, or about 7 months.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Yes, there are plans for further activity related to this proposal. In accordance with the federal permit requirements, specifically the United States Army Corps of Engineers (USACE) Seattle District's 2017 Nationwide Permit Regional General Condition 6, the proposed new culvert will be monitored annually for a period of five years. The monitoring is required to ensure effectiveness in providing fish passage at all life stages and at all flows where salmonid species would naturally seek passage.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

The following environmental information has been prepared for this project:

- *Hydraulic Design Report, South 277th Street Bridge #3126 Replacement* (Naidu Engineering. November 15, 2019)
- *Stormwater Drainage Review Memo, South 277th Street Bridge #3126 Replacement* (Naidu Engineering. November 15, 2019)
- "Final Critical Areas Memorandum for the South 277th Street Bridge #3126 Replacement" (Stantec. November 20, 2019)
- *S 277th Street Bridge #3126 (CIP 300508) Wetland Delineation Report* (King County. December 20, 2010)
- "Cultural Resources Screening for S 277th St Bridge 3126 (113350)" (King County. December 6, 2018)
- *Final Geotechnical Engineering Report, S 277th Street Bridge No. 3126 Replacement, King County, Washington* (King County. May 4, 2020)
- *S 277th Street Bridge Replacement Project CIP 300508, Bridge Replacement Traffic Impact Analysis Report* (King County. April 2011)

Additional environmental information that we anticipate being prepared for this project includes the following:

- Wetland delineation addendum, with updated delineation information
- Critical areas impact and mitigation memo

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No, there are no applications pending government approval of other proposals directly affecting the property covered this proposal.

10. List any government approvals or permits that will be needed for your proposal, if known.

The following approvals and permits are anticipated for the project:

- State Environmental Policy Act (SEPA) Determination of Non-significance and Notice of Action Taken
- USACE Clean Water Act Section 404 Nationwide Permit
- Washington State Department of Ecology (WDOE) Clean Water Act Section 401 Water Quality Certification
- WDOE Individual Coastal Zone Management Consistency Determination
- Washington State Department of Fish and Wildlife Hydraulic Project Approval
- King County Department of Local Services Permitting Division:
  - Shoreline Substantial Development Permit or Exemption
  - Clearing and Grading Permit
  - Flood Hazard Certification

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

King County Roads proposes to replace the South 277th Street Bridge #3126 with a four-sided concrete box culvert to meet current road standards, remove an existing load restriction, and improve habitat for fish. South 277th Street at this location has a traffic volume of about 23,000 vehicles per day, of which 2,600 vehicles are trucks carrying an estimated 4 to 10 million tons of freight per year. The road is in Tier 1 of the King County roadway system, and a designated county snow/ice route, lifeline route, and Green River Valley flood evacuation route. The bridge has a sufficiency rating of 39.70 out of 100 and was identified in the King County *2017 Annual Bridge Report* as a priority need for replacement. Currently the bridge is load-restricted and unable to support certain types of

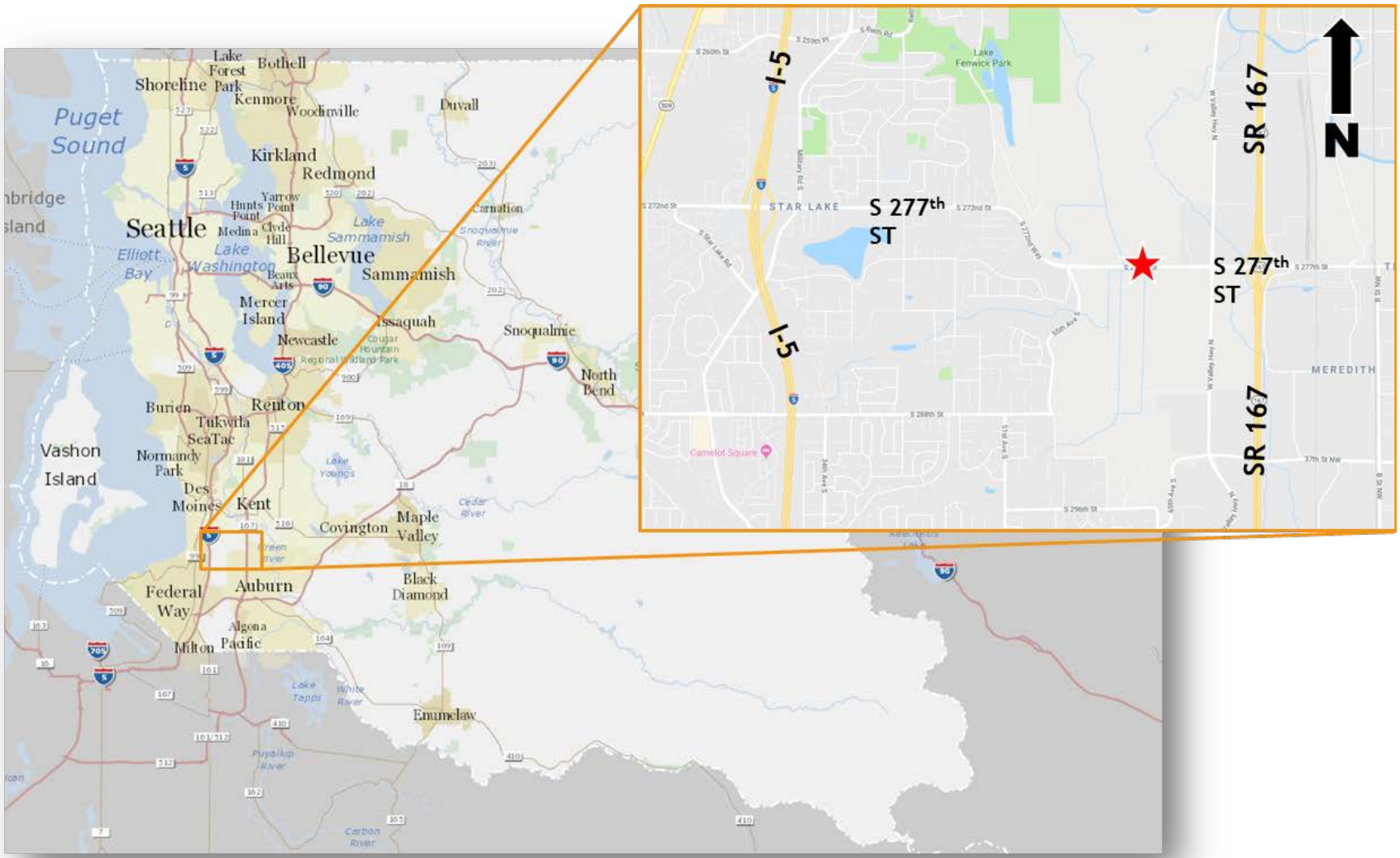
large trucks including some types of fire engines used by adjacent fire districts, full-size garbage trucks, dump trucks, and concrete mixers. The replacement culvert will provide unrestricted access for all vehicles. It will also provide environmental enhancements by improving fish passage and removing creosote timber pilings from Mullen Slough (note: Mullen Slough is a fish-bearing stream within the project site; throughout this document Mullen Slough and stream are used interchangeably. See Section B.3.a.1 for the stream description).

The project area is confined to the existing road right-of-way. The existing bridge is 64-feet-wide (measured road edge to road edge) and has a 14-foot-wide opening over Mullen Slough; the proposed culvert will have a 19-foot-wide opening. The construction footprint is estimated at up to 200 feet long by the 92-foot-width of the right-of-way. Traffic-control measures to facilitate the bridge replacement will extend approximately 1,000 feet west of 55th Avenue South and east to West Valley Highway South.

Construction will occur in three primary stages. During the first stage, one half of the road will be closed and traffic moved to the open half (one lane in each direction). On the closed side the bridge will be demolished; half of the proposed culvert will be installed and the road surface restored. The second stage would move traffic to the side of the proposed structure (again, one lane in each direction), and the other half of the bridge demolished. The remainder of the culvert will be installed and the roadway restored. The third stage of construction would reopen two lanes of traffic in each direction while completing remaining work along the sides of the road and ends of the proposed culvert. Single lane closures would be required for short durations to complete this work. The roadway would be reopened to full standards following the third stage of construction.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The proposal is located within the road right-of-way on South 277th Street at the Mullen Slough crossing, between 55th Avenue South and West Valley Highway South in unincorporated King County, near the City of Kent. The site is located at latitude 47.353669, longitude -122.258292 in the northwest quarter of Section 45, Township 22N, Range 05E (Willamette meridian). The location can be found on page 715, grid cell B7 of the Thomas Brothers Guide. See the Project Vicinity Map on page 5. A site plan is attached at the end of the document.



Project Vicinity Map

B. Environmental Elements

1. Earth

a. General description of the site (underline one): flat, rolling, hilly, steep slopes, mountainous, other

b. What is the steepest slope on the site (approximate percent slope)?

The steepest existing slope within the project limits is the roadway embankment, which slopes at an approximate 70-percent grade from the edge of the road to the roadside ditch that conveys Mullen Slough. The steepest proposed slope within the project limits is also the roadway embankment, which will slope at an approximate 50-percent grade from the edge of road to the roadside ditch.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

Geologic mapping accessed from the Washington State Department of Natural Resources Subsurface Geology Portal and the United States Geologic Survey indicates surficial soils in the general site vicinity as consisting of the following:

- Wetland deposits (Qw): Peat and alluvium that is poorly drained and intermittently wet.
- Alluvium deposits (Qal): Alluvium is deposited in and along streams and is subject to seasonal flooding. Organic-rich fine sand, silt, clay, and peat are accumulated in the low energy parts of the stream valley. Floodplain alluvial soils are generally loose or soft in consistency and are highly susceptible to settlement with increased overburden loading.

Based on geotechnical drilling in the project area (as summarized in the Geotechnical Engineering Report) the soils in the project limits consist of the following:

- Fill: Encountered directly below the pavement section and extending to depths of up to 10 feet below ground surface. The fill generally consisted of medium dense, poorly graded gravel and silty sand with gravel in a moist to wet condition.
- Alluvium deposits: These soils underlie the fill section to the depth of the borings at 121.5 feet. The alluvium is variable in nature and consists of generally loose silty sands with interbedded silt. The loose- to low-medium-dense alluvial deposits underlying the bridge site are anticipated to be susceptible to liquefaction during seismic events.

The project site is located within the Lower Green River Valley Agricultural Production District. Much of the nearby lands are used to produce market crops; however, wetlands to the north and south of the site are identified in the King County 2009 Farms Report as "too

wet to farm." The project is not expected to impact agricultural soils.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There are no surface indications or history of unstable surficial soils. However, the area occurs in a mapped seismic hazard area and, as described in Section B.1.c., the project site is anticipated to be susceptible to liquefaction in a seismic event.

The proposed culvert was selected as a preferred alternative relative to other bridge replacement options in part because of the anticipated performance of the culvert in a seismic event. While the culvert will be susceptible to liquefaction-induced settlement, the uniform bedding material that will be provided below the culvert will allow the culvert to settle more uniformly with the surrounding roadway.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

The table below provides a preliminary estimate of the purpose, type, total area, approximate quantities, and total affected area of filling, excavation, and grading proposed for the project. Excavated material that is not suitable for reuse on-site will be hauled off-site and disposed of at an appropriate facility. King County's Materials Lab will confirm that all fill is from approved sources.

Purpose of Ground Disturbance	Grading Area (Square Feet)	Excavation/Cut (Cubic Yards)	Fill (Cubic Yards)
Roadway excavation for removal of existing bridge and installation of culvert	9,000	2,500	2,000
Streambed regrading	3,200	570	250
Roadside restoration	4,500	85	85
TOTAL	**16,700**	**3,155**	**2,335**

As part of the roadway excavation, a total of 22 creosote-treated timber piles will be removed from the project site.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion could occur as a result of vegetation removal, ground-disturbing activities during construction, and rerouting of the stream and stormwater during construction. Seasonal weather conditions could impact the severity of erosion. Temporary erosion and sedimentation control (TESC) Best Management Practices (BMPs), as well as permanent site restoration measures will be implemented to minimize potential erosion. Please see Section B.1.h for specific

proposed measures to reduce and control construction-related erosion.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Approximately 70 percent of the project limits is currently impervious surface, consisting of the paved roadway and shoulder. Following construction, the impervious surface will increase by less than two percent. This increase is from a 1.5-foot road widening at the culvert crossing, which is required for the staged construction approach (see Section A.11) and will equate to about 162 square feet of non-pollution generating impervious surface (NPGIS). The increased impervious surface will increase the stormwater runoff rate by less than or equal to 0.1 cubic feet per second, thereby the project is exempt from flow-control requirements in accordance with the 2016 King County Surface Water Design Manual.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Construction: During construction, the area of ground disturbance will be minimized to the extent practicable to reduce the potential for erosion. TESC BMPs include, but are not limited to, the use of silt fence, dust control, coir logs, and seeding areas that are temporarily disturbed by construction. In addition, the stream and stormwater will be bypassed around the construction zone. The stream bypass will consist of a coffer dam, a pump and temporary pipe, and an energy dissipation device for outfall erosion protection.

Operation: Following construction, disturbed grounds that are not restored to impervious conditions or stream channel will be covered with topsoil and seeded.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Greenhouse Gas Emissions: Construction, operations, and maintenance of the roadway will result in greenhouse gas (GHG) emissions. Life cycle GHG emissions for the project include embodied, construction, and operational emissions that are defined as follows:

- Embodied emissions are the emissions released during the extraction, processing, and transportation of the materials used in construction.
- Construction emissions are released during project construction and primarily come from fuel burned in the equipment used to build the project elements, such as bulldozers, pavers, and rollers. These emissions are temporary.
- Operational and maintenance emissions are released by vehicles and equipment at the site and during vehicular roadway travel. The project is not anticipated to increase the operation and maintenance emissions.

The total estimated embodied and construction greenhouse gas emissions for the project is 505 metric tons of carbon dioxide equivalent (MTCO2e), as calculated using the King County SEPA Greenhouse Gas Emissions Worksheet.

Fugitive Dust Emissions: Demolition of concrete, excavation, or placement of imported aggregates may result in sources of fugitive dust that can reduce roadway visibility, cause respiratory health problems in humans/animals, and negatively impact aquatic life, vegetation, and water quality.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No off-site sources of emissions or odors have been identified that may affect this proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

During construction, the contractor will implement a Fugitive Dust Control Plan. During construction, operation, and maintenance of the roadway, mitigation measures for project impacts to air quality and GHG emissions may include, but are not limited to, the following:

- Spraying water, when necessary, during construction operations to reduce emissions of fugitive dust.
- Covering dirt, gravel, and debris piles as needed to reduce fugitive dust and wind-blown debris.
- Covering open-bodied trucks in accordance with RCW 46.61.655, wetting materials in trucks or providing adequate space from the top of the material to the top of the truck to reduce fugitive dust emissions.
- Sweeping public roadways, when necessary, to remove mud and dirt deposits.
- Using biodiesel or ultra-low-sulfur diesel fuels for vehicles and equipment to reduce diesel exhaust emissions.
- Conservation and reuse of construction materials on-site, to reduce exhaust emissions and traffic delays.
- Enforcing the County's no-idling policy for county vehicles.

3. Water

a. Surface Water:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Mullen Slough (Water Resource Inventory Area stream number 09.0045) is a perennial fish-bearing (Type F) stream in the Duwamish-Green watershed. The stream originates in the residential uplands to the southwest of the project site. Upon entering the Lower Green River Valley, it flows northward through wetlands, agricultural ditches, and the roadside ditch to the existing bridge crossing. Downstream of the site it flows through agricultural ditches for approximately one mile and then through natural forested park lands and open space for about 0.8 mile to the Green River, which ultimately drains to Puget Sound.

The site sits within the Lower Green River #30 wetland identified in the King County Wetland Inventory (1990). Using the 2014 Wetland Rating System for Western Washington, King County staff determined the wetland to be Category II. The wetland is drained by a network of agricultural ditches and Mullen Slough, and ultimately flows to the Green River. Within the vicinity of the project site, the wetland occurs on both sides of South 277th Street, with the wetland edge occurring at the base of the road prism.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

The construction footprint for the proposal lies entirely within 200 feet of Mullen Slough, including portions of the work within the stream. As described in Section A.11, the proposal will involve removing the existing bridge including creosote-treated timber pilings within and adjacent to the stream, and installation of a new four-sided box culvert that the stream will run through under South 277th Street. The proposed culvert will provide a wider opening for the stream in accordance with state 2013 Water Crossing Design Guidelines. The proposed culvert will include bedding material under the structure and streambed gravel and sediment within the structure. As described in Sections B.1.h and B.3.a.4, the stream will be bypassed around the construction area to minimize the potential for construction-related sediments and other materials to enter the stream during the construction process. See site plan and project plan sheets attached at the end of the document for more information.

The construction footprint for the proposal also lies entirely within 200 feet of the Lower Green River #30 wetland. The proposal includes placement of boulders or other material for a retaining wall on both sides of the southern end of the proposed culvert; a portion of these materials may be placed within the wetland. Elsewhere, impacts to the wetland will be avoided through use of best management practices described in Section B.1.h such as placement of silt fencing upslope of the wetland edge.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

The affected area of stream is approximately 2,000 square feet. Excavation within the stream will consist of removal of 22 creosote timber pilings and streambed sediments under the existing bridge. The estimated volume of excavation is 570 cubic yards. After the proposed culvert is placed, it will be filled with approximately 250 cubic yards of

streambed materials that will regrade the stream channel within the project limits and create a new stream channel through the culvert. The materials will be sourced by the contractor in accordance with state requirements for streambed materials.

The area of rock or other materials to be placed within the wetland for the retaining walls on the southern side of the proposed culvert has yet to be determined but will be less than 150 square feet. The estimated volume of excavation necessary to key-in the retaining walls will be less than 36 cubic yards. The materials for the retaining walls will be sourced by the contractor.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

The project does not require surface water withdrawals. The stream and incoming stormwater will temporarily be bypassed/diverted around the construction zone during construction to allow excavation, structure installation, and fill to occur outside of the water (in dry conditions). The bypass system will consist of a pump sized for stream flow anticipated at the time of construction, a pipe, and cofferdam separation between incoming and outgoing flows and the construction area.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Yes, the entire construction footprint lies within the 100-year floodplain of the Lower Green River. See site plan attached at the end of this document.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No waste materials will be discharged to surface waters.

b. Groundwater:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

Groundwater will not be withdrawn from a well for drinking water, nor will water be discharged to groundwater for this project. Based on the *Geotechnical Engineering Report,* static groundwater is expected to be encountered during project construction at approximately the same elevation as the stream. To facilitate the construction process, temporary shallow groundwater well points will be installed in order to dewater the work area and minimize impacts to water quality. These well points will locally depress the groundwater elevation during excavation so less water is present within the work area; this will facilitate the dewatering process and minimize additional sediment-laden water that would otherwise require treatment. Well points are typically comprised of 12- to 24-inch-diameter perforated pipe extending one to three feet below the excavation area. When

excavation is complete, the shallow wells are filled with roadway fill material or streambed gravel depending on their location. The collected groundwater will be directed to an upland vegetated area to filter sediment or will be collected and disposed of off-site in accordance with regulatory requirements. Water that meets state water quality standards may be released downstream of the construction area to the stream.

2) **Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

No waste material will be discharged into the ground from septic tanks or other sources.

c. **Water runoff (including stormwater):**

1) **Describe the source of runoff (including stormwater) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

The source of any anticipated runoff is precipitation that runs off of the road within the project limits and the contributing basin. At the site, runoff flows down the road embankment and either directly into the stream or into a connecting ditch.

The proposal will not alter the source of runoff or the method of collection.

2) **Could waste materials enter ground or surface waters? If so, generally describe.**

It is unlikely, but possible, that fuel, hydraulic fluid or paving materials could drip or spill from construction machinery or staging containers during construction. Spill prevention BMPs will be implemented and spill control materials will be on-site during construction for emergency use in accordance with an approved Spill Prevention Control and Countermeasures (SPCC) Plan. See Section B.7.a.5 for additional information regarding the SPCC Plan.

3) **Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.**

No, the proposal will not alter drainage patterns in the project vicinity.

d. **Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:**

In addition to bypassing the stream and stormwater around the construction zone as described in Section B.3.a.4 above, some work areas may need additional dewatering during construction as described in Section B.3.b.1 to minimize impacts to ground, surface, and stormwater. If needed, water will be intercepted and pumped around the work area. Sediment-laden water that does

not meet water-quality standards will be discharged to a vegetated upland infiltration area or collected and hauled off-site for appropriate disposal in accordance with regulatory requirements. Construction and operational measures as described in Section B.1.h will be used to prevent sediment from entering surface and stormwater systems.

4. Plants

a. Check the types of vegetation found on the site:

__ deciduous tree: alder, maple, aspen, other
__ evergreen tree: fir, cedar, pine, other
__ shrubs
X grass
__ pasture
__ crop or grain
__ orchards, vineyards or other permanent crops
X wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other: reed canary grass
__ water plants: water lily, eelgrass, milfoil, other
X other types of vegetation: weeds, Himalayan blackberry

b. What kind and amount of vegetation will be removed or altered?

The vegetation that will be removed/altered consists of roadside grasses and invasive species. Approximately 0.1 acre of vegetation will be removed for this project; no trees will be removed.

c. List threatened and endangered species known to be on or near the site.

According to a review of online data from the Washington State Department of Natural Resources, Natural Heritage Program conducted on April 28, 2020, there are no special-status plant species known to occur in the project area.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Clearing limits will be marked on-site prior to construction to ensure only required vegetation removal occurs, most of which consists of invasive, non-native species. After construction, impacted areas will be seeded with a native species mix. Because the project footprint is confined to the existing right-of-way limits, which largely consists of the road and existing stream channel, there is not an opportunity for substantial vegetation enhancement at the site. Incorporation of streamside vegetation, such as willow stakes, on the south right-of-way boundary will be considered.

e. List all noxious weeds and invasive species known to be on or near the site.

Common Name	Scientific Name	King County Noxious Weed Class
Himalayan blackberry	*Rubus armeniacus*	Non-regulated, Class C Noxious Weed
Reed canary grass	*Phalaris arundinacea*	Non-regulated, Class C Noxious Weed

5. Animals

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

birds: hawk, heron, eagle, songbirds, other: crows
mammals: deer, bear, elk, beaver, other: coyote, raccoons, squirrels, cattle
fish: bass, salmon, trout, herring, shellfish, other: amphibians

The birds, mammals, and fish underlined above are known or anticipated to be present on or near the project site.

b. List any threatened and endangered species known to be on or near the site.

Steelhead, listed as threatened under the Endangered Species Act (ESA), are documented within approximately 0.35 mile downstream and are presumed present at the site. Chinook salmon and bull trout, both listed as threatened under the ESA, are documented in the Green River about 1.8 miles downstream of the project site. The project site is accessible to Chinook salmon; however, bull trout are not expected to enter small tributaries such as Mullen Slough.

c. Is the site part of a migration route? If so, explain.

Coho and chum salmon, cutthroat trout, and winter steelhead are known to utilize the stream within the project vicinity; thus, the site could be part of a fish migration route.

The project site is located within the Pacific Flyway, which is a major north-south route of travel for migratory birds, extending from Alaska to Patagonia. Every year, migratory birds travel some or all of this distance both in spring and in fall, following food sources, heading to breeding grounds, or travelling to overwintering sites.

The project area is otherwise not a known or mapped wildlife species corridor.

d. Proposed measures to preserve or enhance wildlife, if any:

Measures as described in Sections B.1.h, B.3.d, and B.4.d above are expected to preserve and enhance fish and wildlife habitat within the project area. Prior to installing the stream bypass system described in Section B.3.d, netting will be installed to isolate the work area from fish, and all fish and other aquatic species will be relocated from the isolated work area. Removal

of creosote-treated timbers from within the ordinary high water level of the stream will provide habitat and hydraulic improvement. The proposed culvert will meet fish passage design standards as outlined in the state 2013 Water Crossing Design Guidelines.

e. List any invasive animal species known to be on or near the site.

No invasive animal species are known or anticipated to be on or near the site.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

The completed project will have no energy use.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No, the project will not affect the potential use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Because the completed project will not use energy, no conservation features are included. Measures to reduce energy use during construction will be encouraged; for example, local sourcing of materials, efficient material transport and staging, and well-organized scheduling and sequencing of the work.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

The accidental leakage of petroleum products (e.g., gasoline, diesel fuel, hydraulic fluid, anti-freeze, or grease) from construction equipment could occur but is not likely. These substances can be toxic to nearby aquatic systems, to humans upon prolonged exposure and skin contact, and can pose a fire hazard. A SPCC Plan will be prepared and implemented for the project. Spill control and cleanup kits will be available on-site.

During construction, community health could be affected by dust and vehicle exhaust. Construction activities will intermittently generate particulate matter and odors, and construction equipment will generate diesel engine exhaust. Any air-quality impacts associated with construction activities are most noticeable at sensitive land uses, such as schools or parks; however, there are not any sensitive land uses near the construction site, so these impacts are unlikely. In addition, air-quality impacts will be short-term, occurring only while construction is in progress. BMPs will be employed to reduce fugitive dust, odors, and

exhaust emissions; see Section B.2.c. for more information.

1) **Describe any known or possible contamination at the site from present or past uses.**

Sediments under and immediately adjacent to the bridge pilings are expected to be contaminated by creosote.

Based on a review of the Washington State Department of Ecology's website, there is one historic or one active cleanup site, as well as four Ecology-permitted sites within a half-mile radius from the project area. None of these hazardous material sites are adjacent to the project site, nor will they have any impact on the proposal.

The project area falls inside the predicted arsenic contamination zone, which is based on the modeled Asarco Tacoma plume. The anticipated arsenic levels in the soil are 20 to 40 parts per million. Any historically undisturbed soils within the project area will be screened for arsenic contamination prior to disposal.

2) **Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.**

Two natural gas transmission lines exist under the roadway within the project limits. These lines are located sufficiently deep beneath the proposed excavation limits of the project so as not to impact the proposal.

3) **Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.**

During construction, biodegradable oils will be used as a hydraulic fluid substitute on-site to power construction equipment and as a component of asphalt pavement. Storage of petroleum products and fueling of equipment during construction will occur at least 100 feet from the stream and in accordance with the approved SPCC Plan. At completion of the project, toxic or hazardous chemicals will not be stored, used, or produced at the project site.

4) **Describe special emergency services that might be required.**

The need for special emergency services is not anticipated.

5) **Proposed measures to reduce or control environmental health hazards, if any:**

During construction, the contractor will implement a King County-approved SPCC including the use of BMPs during construction to minimize the potential for hazardous spills from fuels and materials used on-site. Spill control and cleanup kits will be available on-site to be used in the rare event of a spill. Worker health and safety will be addressed as required by Washington State and federal regulations. Waste material generated from

construction will be properly managed and disposed of at permitted facilities.

The Contractor will be required to implement a King County-approved Fugitive Dust Control Plan. The plan will include use of BMPs to minimize the amount of particulate matter or dust generated during construction.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Noise will not affect the project.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Construction will create noise on a short-term basis. This noise will be generated from the various types of construction equipment and activities; for example, truck traffic hauling materials to and from the site, excavation and material-moving equipment such as backhoes and bulldozers, soil-compaction equipment, hand-held equipment such as chain saws, and asphalt-paving operations.

Construction will occur in accordance with King County Code 12.86, which allows typical construction equipment operation between 7:00 am and 7:00 pm weekdays and 9:00 am and 7:00 pm on weekends.

Following construction, noise is expected to return to existing levels. The project will not generate ongoing noise.

3) Proposed measures to reduce or control noise impacts, if any:

Standard mufflers will be used on all construction equipment. The construction crew will work during hours allowed in the King County Code and permit conditions.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The current use of the site is as King County roadway infrastructure and utility corridor. Adjacent properties are used as pasture and croplands. The proposal will not alter existing land uses.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will

be converted to nonfarm or non-forest use?

The project site is within the Lower Green River Agricultural Production District; however, the road right-of-way is used for roadway infrastructure and utilities. No agricultural, farmland or forest land will be modified as a result of this project.

1) **Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how?**

   The travel lanes on South 277th Street will be reduced during construction as described in Section A.11. This temporary roadway capacity reduction may affect the flow of traffic to and from agricultural lands and associated businesses.

c. **Describe any structures on the site.**

Current structures within the project limits include:

- Short-span, 64-foot-wide, creosote timber pile and concrete beam bridge
- South 277th Street, a four-lane, asphalt-paved arterial with eight-foot-wide shoulders and guardrail
- Utility poles and overhead utility wires

d. **Will any structures be demolished? If so, what?**

The existing bridge and roadway within the project limits will be demolished in two stages to allow installation of the proposed culvert also in two stages. The staged process will allow two travel lanes (one in each direction) to remain open at all times during the construction phase. The roadway will be restored similar to existing conditions following the full installation of the culvert.

e. **What is the current zoning classification of the site?**

King County's public road rights-of-way are not subject to zoning. The project area is located outside the urban growth boundary. The surrounding properties are zoned as A-10: agricultural area with one dwelling unit per 10 acres.

f. **What is the current comprehensive plan designation of the site?**

According to the *King County Comprehensive Plan* (2017), the project is located within an agricultural area.

g. **If applicable, what is the current shoreline master program designation of the site?**

The site is located within the Resource Shoreline area.

h. **Has any part of the site been classified as a critical area by the city or county? If so,**

specify.

The following King County-classified critical areas are mapped within or adjacent to the project site:

- Mullen Slough, a Type F Aquatic Area with an associated buffer of 165 feet on either side
- Category II wetland with an associated buffer of 75 feet on all sides
- 100-year floodplain and FEMA floodway
- A Critical Aquifer Recharge Area that is highly susceptible to groundwater contamination (refer to Section B.3.b.1 for additional information)
- Seismic Hazard Area

i. Approximately how many people would reside or work in the completed project?

No people will reside or work in the completed project.

j. Approximately how many people would the completed project displace?

No people will be displaced by the project.

k. Proposed measures to avoid or reduce displacement impacts, if any:

No measures will be implemented to avoid or reduce displaced people because no one will be displaced.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposal replaces existing deteriorated infrastructure and is consistent with existing and projected land uses in the areas that are potentially affected by the project. The project requires land use permits from the King County DLS Permitting Division to further ensure the project is compatible with existing and projected land uses and plans.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

The project will not impact commercial forest lands or agricultural lands. These uses may benefit from the project, which will restore the ability for larger, heavier vehicles to use the new, unrestricted stream crossing relative to the current load-restricted bridge.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units are being provided by the project.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low- income housing.

No housing units are being eliminated by the project.

c. Proposed measures to reduce or control housing impacts, if any:

Protective measures for housing impacts are not needed because housing will not be impacted.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest height of the proposed structure is reconstruction of the road prism to the same elevation as the existing roadway. The principal exposed material will be asphalt and concrete.

b. What views in the immediate vicinity would be altered or obstructed?

No views in the project vicinity will be altered or obstructed by the proposal.

c. Proposed measures to reduce or control aesthetic impacts, if any:

The project area will be restored to conditions similar to existing aesthetics at the completion of project construction.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The project will not produce light or glare.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No, the finished project will not produce any additional light or glare that will be a safety hazard or interfere with views.

c. What existing off-site sources of light or glare may affect your proposal?

No off-site sources of light or glare will affect the proposed project.

d. Proposed measures to reduce or control light and glare impacts, if any:

No light and glare impacts are proposed, so no measures are needed to prevent or minimize light and glare impacts.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Within the immediate vicinity of the project, informal recreational activities include walking and biking.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No existing recreational uses will be displaced.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

During construction, walking through the project area will be prohibited for safety reasons. The completed project will return walking facilities and opportunities to pre-existing conditions.

13. Historic and Cultural Preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.

The cultural resources screening, utilizing the King County Cultural Resource Protection Project (CRPP) and Department of Archaeology and Historic Preservation (DAHP) Washington Information System for Architectural and Archaeological Records Data (WISAARD) databases, identified no recorded, reported or suspected cultural resources at the project location; there is one identified King County Landmark structure within a half-mile of the project. The existing bridge was constructed in 1950 but is exempt from historic preservation review as a post-World War II bridge of a common type.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

As noted in Section B.13.a., no recorded, reported or suspected cultural resources were identified at the project location. Two historic archaeological sites are recorded within a half-mile of the project location.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archaeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

The project began with an initial project screening using the CRPP and DAHP WISAARD databases. These geographic information system (GIS)-based databases utilize historic maps,

ethno-historic accounts, and professional site records.

The general setting of the project on the floodplain of the Green River, a major salmon-bearing river, and on a fish-bearing tributary to the river, suggests a moderate to high likelihood for unknown buried intact prehistoric archaeological deposits. The presence of a bridge and road prism reduces this likelihood somewhat.

An Area of Potential Effect has been defined and an archaeological survey will be conducted prior to construction and in compliance with Section 106 of the National Historic Preservation Act. In addition, King County, via USACE, will consult with the DAHP and Tribes.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

Based on findings of the upcoming archaeological survey, King County, in coordination with USACE, will follow recommendations of the professional archaeologists. If resources are identified during construction, then work in the vicinity of the identified resources will cease and the Roads Archaeologist, USACE, DAHP, King County Historic Preservation Program, affected Tribes, and other appropriate agencies will be notified immediately. Work will not be allowed to resume at the site in the vicinity of the identified resources until appropriate archaeological investigations are complete.

14. Transportation

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on-site plans, if any.

The site is located on a principal arterial that connects State Route 167 (SR-167) with Interstate 5 (I-5). South 277th Street will be reduced from four to two lanes of traffic (one in each direction) during the active construction phase of the project (see also Section A.6). See also the Project Vicinity Map on page 5.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

The project location is not directly served by public transit. The nearest routes run on SR-167, approximately one-half-mile to the east, and I-5, approximately two miles to the west.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

The completed project will not include parking spaces, nor will it eliminate any existing parking spaces.

d. Will the proposal require any new or improvements to existing roads, streets,

pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

The proposal requires rebuilding South 277th Street after installing the proposed culvert. The road will be rebuilt to match the existing conditions, which meets current King County Road Design and Construction Standards.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No, the project will not use water, rail, or air transportation and is not in the immediate vicinity of these transportation options.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and non-passenger vehicles). What data or transportation models were used to make these estimates?

The completed project will not generate additional vehicular trips.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

South 277th Street runs through the Lower Green River Agricultural Production District and thus provides for movement of agricultural products. Construction impacts are described in Section B.8.b.1; operational benefits are described in Section B.8.m.

h. Proposed measures to reduce or control transportation impacts, if any:

The project will be constructed in stages, as described in Section A.11, in order to maintain through traffic capability throughout the project construction. The proposed project was chosen as the preferred alternative of several crossing structure options in part because the construction duration is substantially shorter than other options.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

No increased needs for public services will result from the proposal.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Because there will be no direct impacts on public services, no proposed measures will be needed.

16. Utilities

a. Underline utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other: cable

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity that might be needed.

No new utilities are proposed for the project. Existing utilities that conflict with the construction project will be temporarily relocated outside of the construction zone and then restored upon site restoration.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

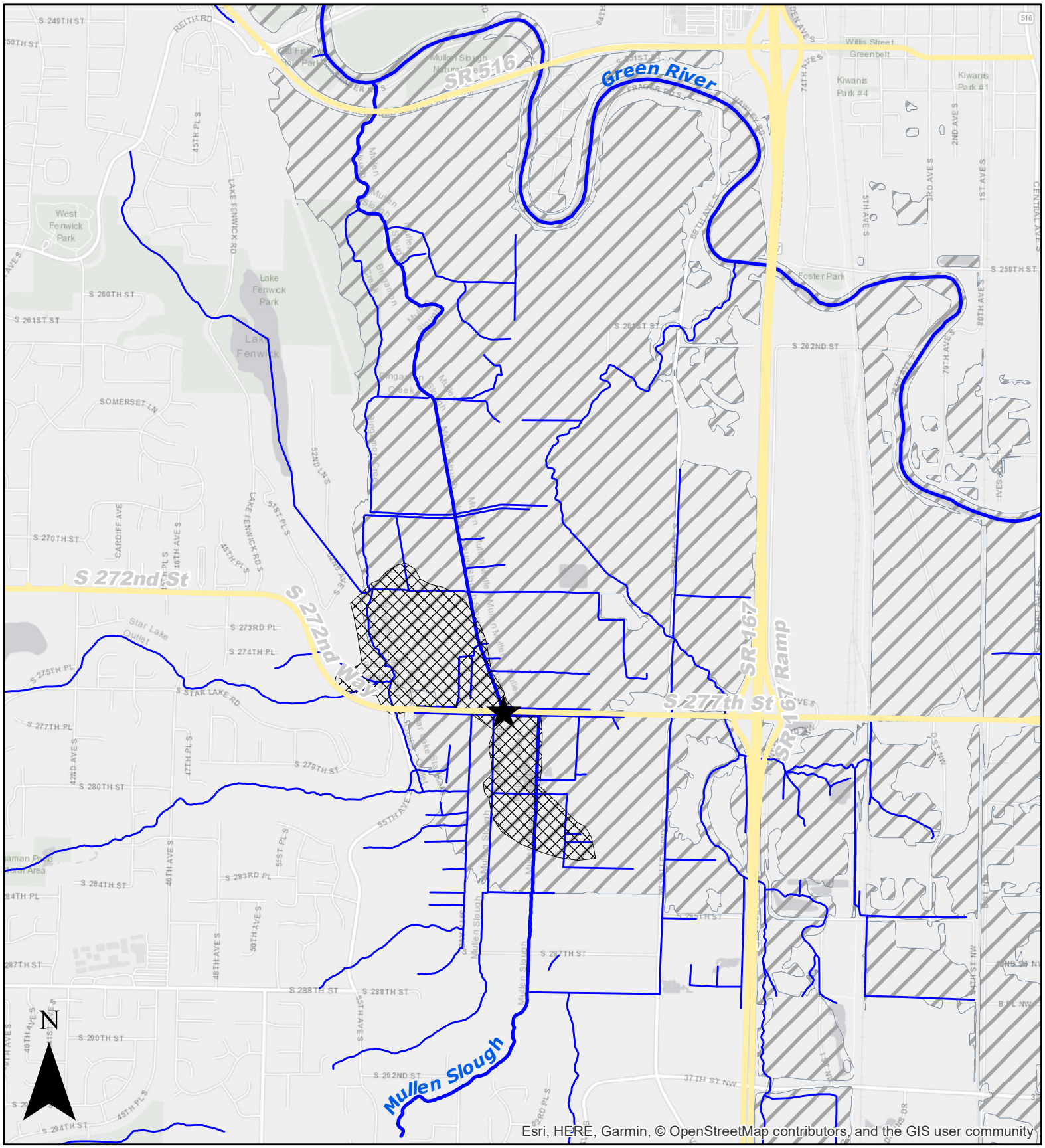
Signature: Tony Ledbetter Date: 5/26/20

Name of Signee: Tony Ledbetter
Position/Title: Maintenance Operation Manager
Agency/Organization: Road Services Division, Maintenance Section

Attached:

- Site Plan
- Project Plan Sheets:
  - Existing Site Preparation Plan (sheet 6)
  - Project Construction Staging Plan (sheet 12)
  - Stream Plan and Profile (sheet 18)
  - Culvert Section and Details (sheet 11)
  - Restoration Plan (sheet 23)

Site Plan: S 277th St Bridge #3126 Replacement



★ Project Location

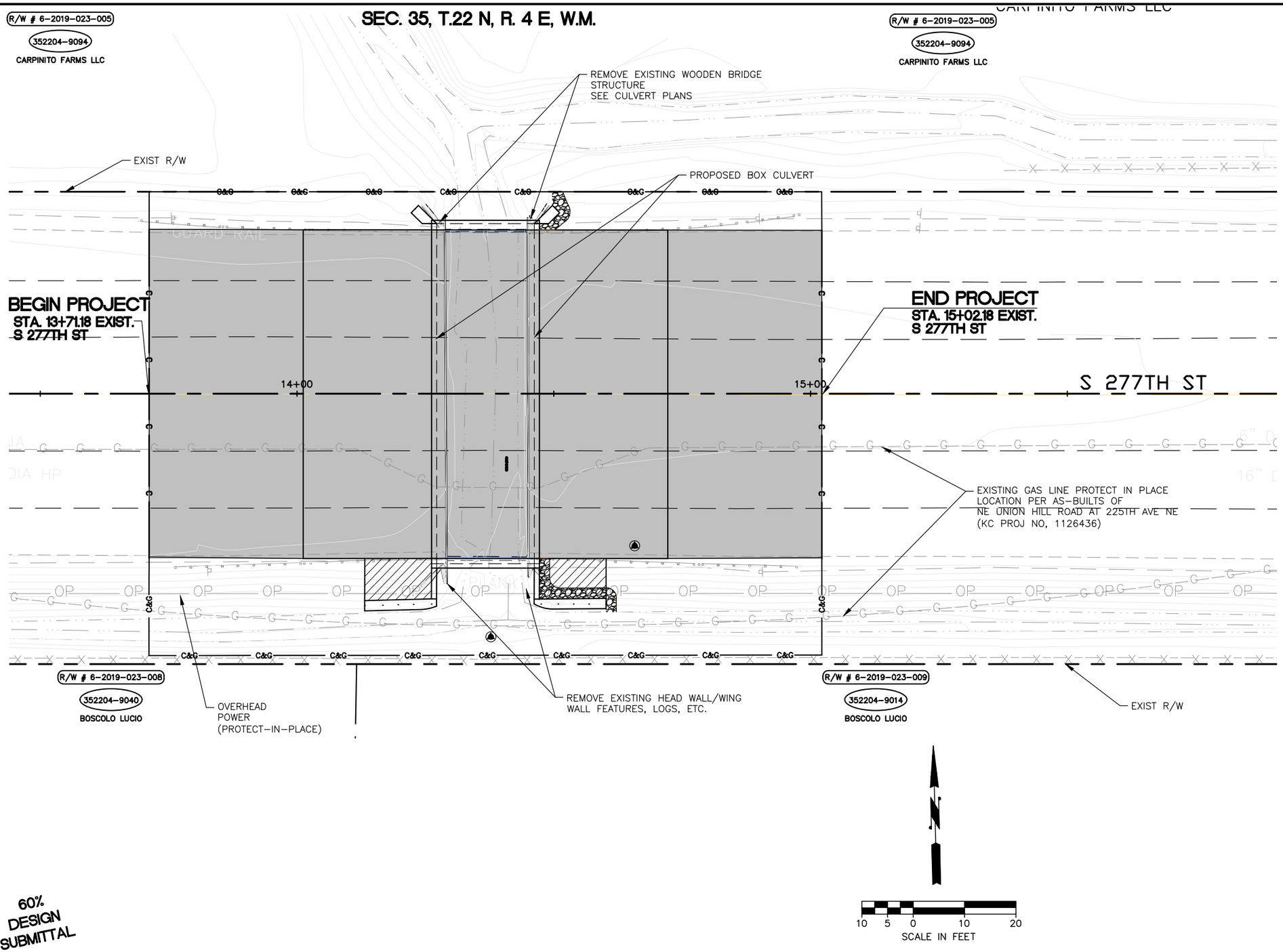
Streams and Rivers

Adjacent Wetlands

Regulatory Floodplain

King County

0.5 0.25 0 0.5 Miles



GAS PIPELINE NOTES:

1. TBD

GENERAL UTILITY NOTES:

1. TBD

SITE PREPARATION NOTES:

(1) TBD

SITE PREPARATION LEGEND:

TEMPORARY SAFETY FENCE (TBD)

SAW CUT

REMOVE EXISTING ASPHALT PAVEMENT
BRIDGE STRUCTURE

60% DESIGN SUBMITTAL

811 Know what's below. Call before you dig.

SURVEY JOB NO: 19062	9-19			
CHECKED: T. CRAY	9-19			
CAD ENTERED: SK. ABHISHEK	05-20			
DESIGNED: KC. LOHENDIRA	05-20			
CHECKED: R. NAIDU	05-20			
SUPERVISOR: R. NAIDU	05-20			
		NUM.	REVISION	BY DATE

NAIDU ENGINEERING LLC
Engineering for Infrastructure
Stantec

NAGARAJU(RAJ) V. NAIDU
STATE OF WASHINGTON
16853
REGISTERED
PROFESSIONAL ENGINEER

FED. AID No. --

PROJECT No. 1136001

MAINTENANCE DIVISION No. 4

KING COUNTY DEPT. OF LOCAL SERVICES
JOHN TAYLOR, DIRECTOR

S 277TH ST BRIDGE #3126 REPLACEMENT

EXISTING SITE PREPARATION PLAN

King County

SHEET 6 OF X SHEETS

Plotted: May 18, 2020 - 3:47pm 12066 Layout: SHEET
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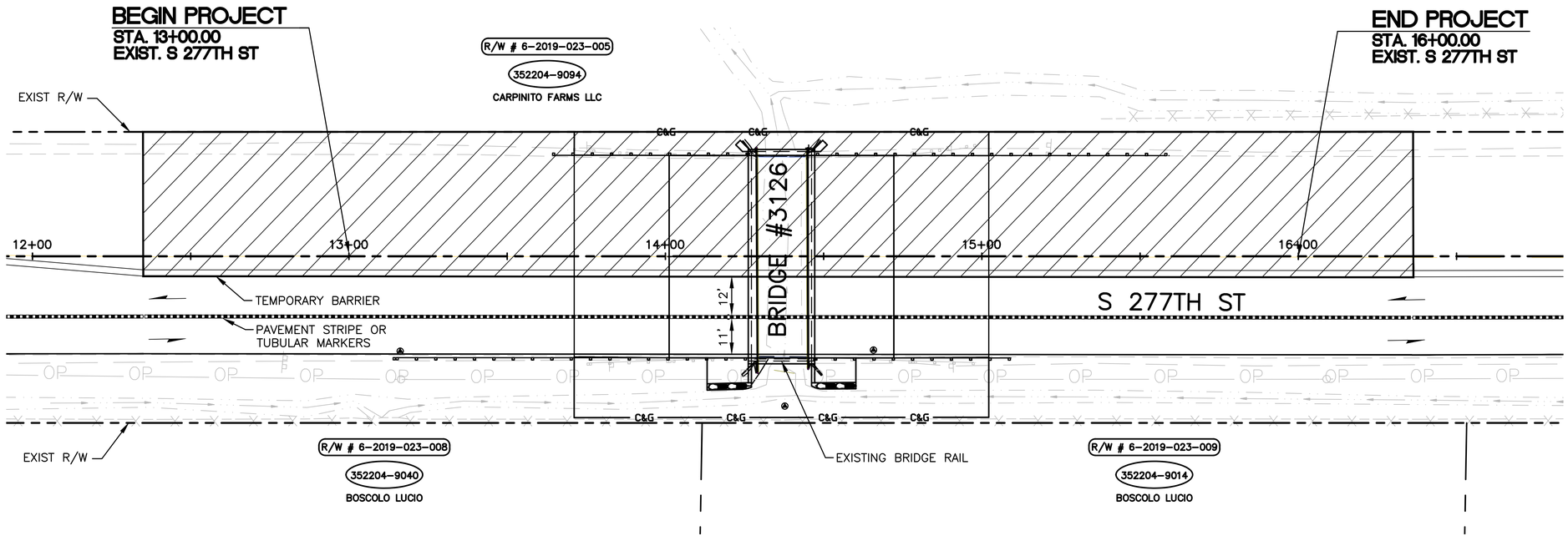
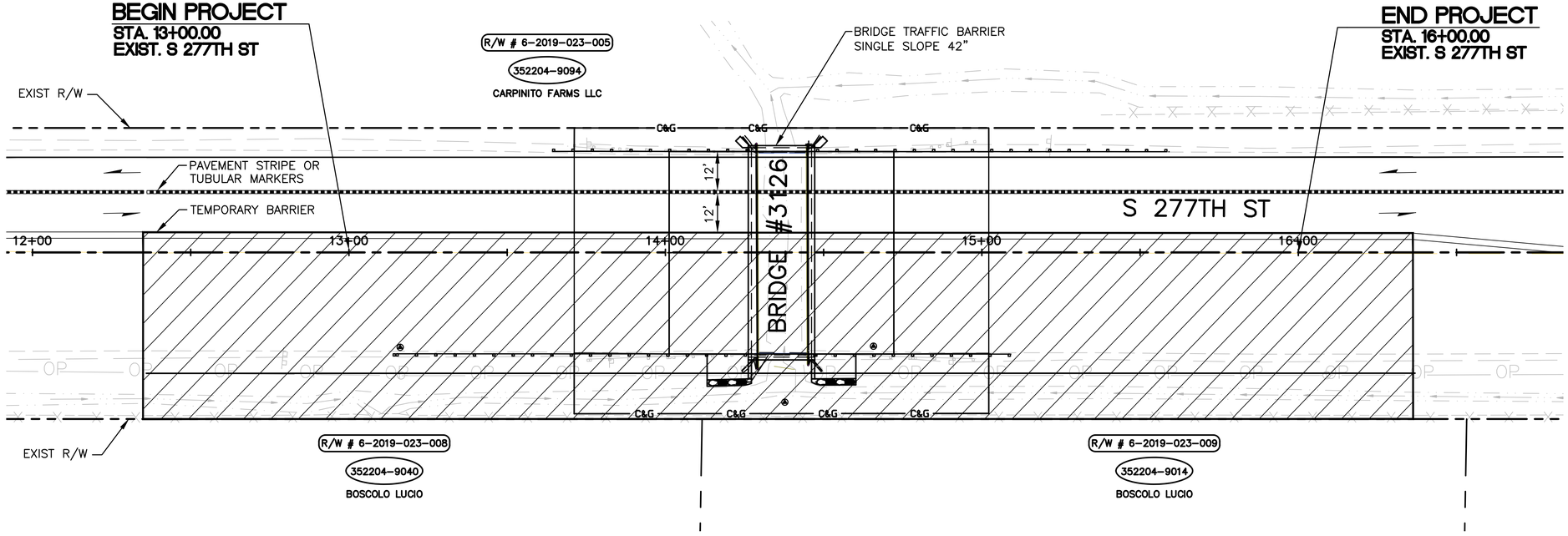


NORTH SIDE CLOSURE



SOUTH SIDE CLOSURE

CONSTRUCTION STAGING GENERAL NOTES:

1. CONSTRUCTION STAGING AREAS SHALL BE ALLOWED ONLY IN ACCORDANCE WITH THE CONTRACT SPECIAL PROVISIONS.
2. PUBLIC PEDESTRIAN ACCESS THROUGH THE WORK AREA DURING PARTIAL ROAD CLOSURES IS NOT REQUIRED. SEE SPECIAL PROVISIONS.
3. CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS TO ALL PROPERTIES UNLESS APPROVED OTHERWISE. THE CONTRACTOR SHALL COORDINATE ALL TEMPORARY CLOSURES WITH THE ONSITE CONTRACTING AGENCY REPRESENTATIVE AND AFFECTED PROPERTY OWNER PRIOR TO IMPLEMENTING CLOSURE.
4. CONTRACTOR AND/OR IT'S AGENTS (SHALL ONLY) PARK IN DESIGNATED WORK STREET CLOSURE AREAS.
5. CONTRACTOR AND/OR IT'S AGENTS SHALL NOT PARK ON ANY PRIVATE PROPERTY WITHOUT WRITTEN PERMISSION FROM THE PROPERTY OWNER.
6. CONTRACTOR SHALL NOT ERECT PROJECT CONSTRUCTION OFFICE IN CONSTRUCTION STAGING AREAS SHOWN ON S 277TH ST.
7. TWO LANES OF TRAFFIC, ONE IN EACH DIRECTION, SHALL REMAIN OPEN AT ALL TIMES DURING CONSTRUCTION.

20 10 0 20 40
SCALE

LEGEND

WORK ZONE

20 10 0 20 40
SCALE

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SURVEY JOB NO: 19062	9-19				
CHECKED: T. CRAY	9-19				
CAD ENTERED: E. SHOYMERMAN	05-20				
DESIGNED: B. CHASE	05-20				
CHECKED: K. DICKERSON	05-20				
SUPERVISOR: R. PATTERSON	05-20				
		NUM.	REVISION	BY	DATE

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PROJECT No. 1136001

MAINTENANCE DIVISION No. 4

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KING COUNTY DEPT. OF LOCAL SERVICES
JOHN TAYLOR, DIRECTOR

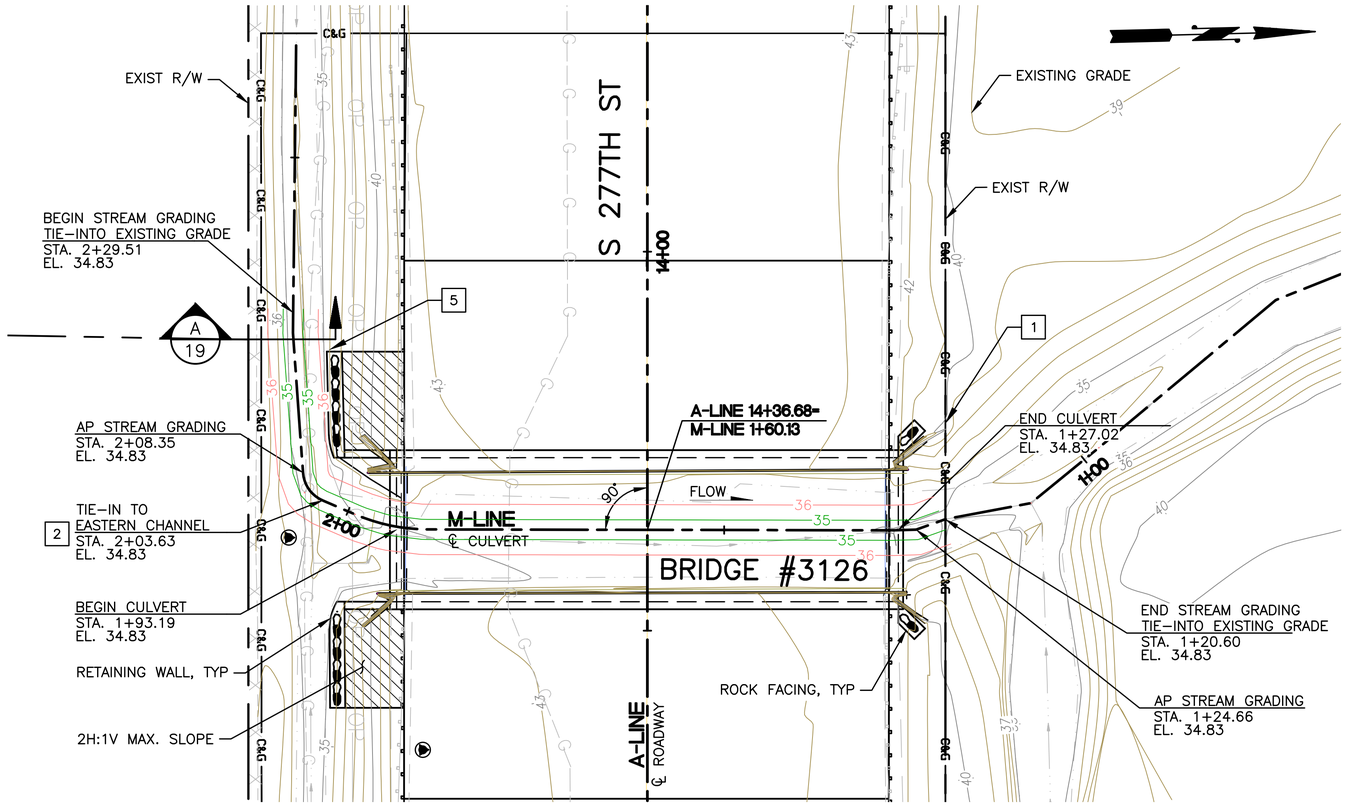
S 277TH ST BRIDGE #3126 REPLACEMENT

PROJECT CONSTRUCTION STAGING PLAN

King County

SHEET 12 OF XX SHEETS

320-68 (1)



STREAM AND CULVERT PLAN

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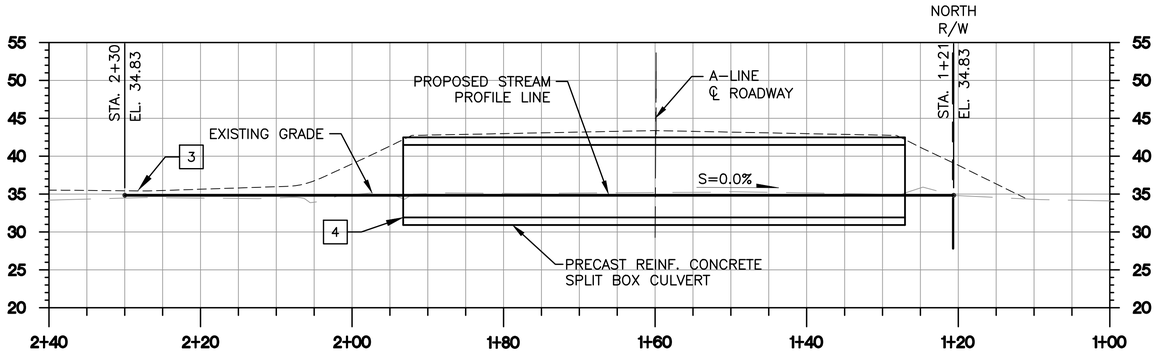
SCALE IN FEET



STREAM AND CULVERT PROFILE

10 5 0 10 20
HORIZ SCALE IN FEET

10 5 0 10 20
VERT SCALE IN FEET

MERIDIAN
W.S.L.G.N.Z.
NAD 83/91
VERTICAL DATUM
NAVD 88

DATUM

DATUM

NOTES

1. NO WORK BEYOND EXISTING R/W.
2. MAINTAIN EXISTING SLOPE OF EXISTING CHANNEL. TIE INTO THALWEG.
3. MINIMUM STREAMBED DEPTH IS 2 FEET.
4. MINIMUM DEPTH OF STREAMBED MATERIAL IN CULVERT IS 3.7 FEET.
5. SLOPE 10:1 TO ROCK FACING. SEE SHEET 15 FOR ROCK FACING SECTION.

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SURVEY JOB NO: 19062	9-19			
CHECKED: T. CRAY	9-19			
CAD ENTERED: E. SHOYMERMAN	05-20			
DESIGNED: D. EGGERS	05-20			
CHECKED: K. DICKERSON	05-20			
SUPERVISOR: R. PATTERSON	05-20			
		NUM.	REVISION	BY / DATE

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DANIEL J. EGGERS 43170 PROFESSIONAL ENGINEER

FED. AID No. --

PROJECT No. 1136001

MAINTENANCE DIVISION No. 4

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KING COUNTY DEPT. OF LOCAL SERVICES
JOHN TAYLOR, DIRECTOR

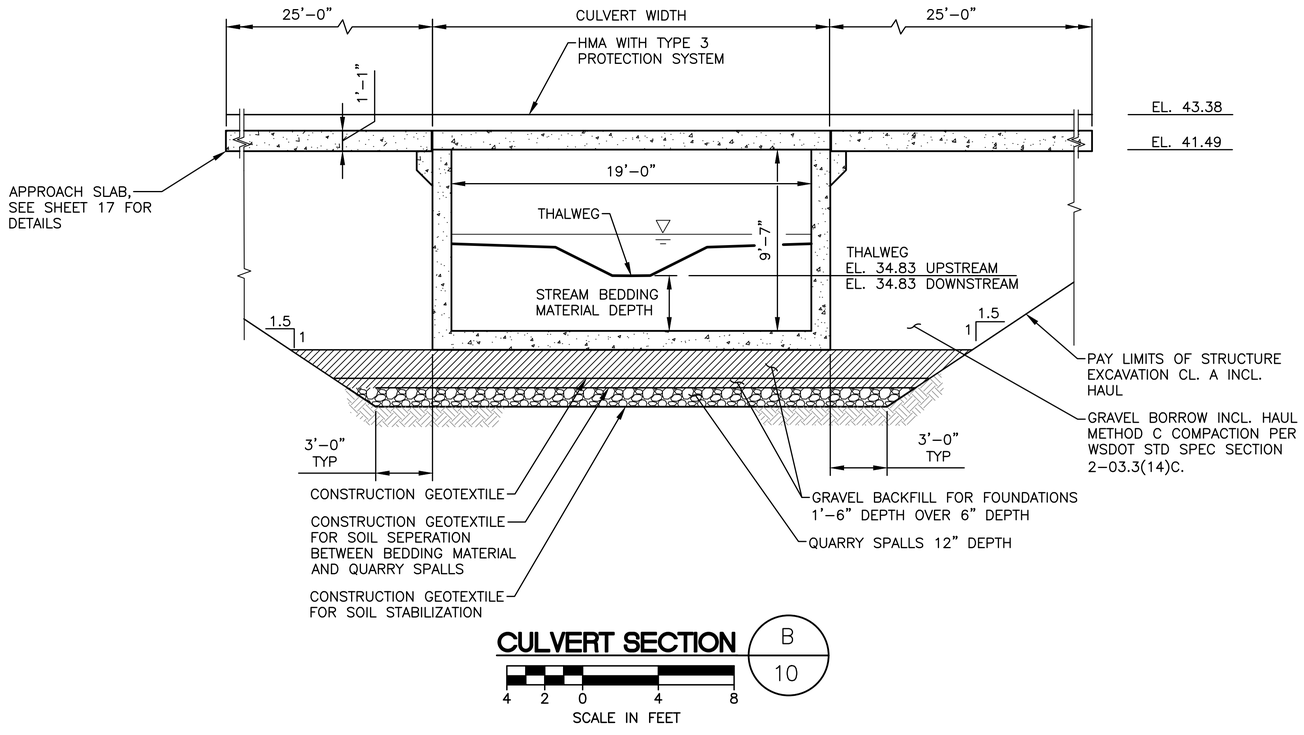
S 277TH ST BRIDGE #3126 REPLACEMENT

STREAM PLAN AND PROFILE

King County

SHEET 18 OF XX SHEETS

320-68 (1)



CULVERT SECTION B 10

4 2 0 4 8
SCALE IN FEET

STRUCTURAL GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS.
2. THE PRECAST CONCRETE CULVERT SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 8TH EDITION, DATED 2018, AND THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL (LRFD) M23–50.19.
3. PRECAST CULVERT DESIGN LOADS:
   a. DEAD LOAD OF EARTH & ROADWAY: 125 PCF
   b. VEHICLE LIVE LOAD: HL–93
   c. LATERAL EARTH PRESSURE DUE TO BACKFILL:
      i. AT–REST LATERAL EARTH PRESSURE COEFFICIENT, KO: 0.43
      ii. ACTIVE LATERAL EARTH PRESSURE COEFFICIENT, KA: 0.27
      iii. PASSIVE LATERAL EARTH PRESSURE COEFFICIENT, KP: 3.25
4. PRECAST REINFORCED CONCRETE BOX CULVERT UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 7–02.3(6).
5. THE CONTRACTOR SHALL DESIGN FOR LIFTING AND TRANSPORTING PER STD. SPEC. SECTION 7–02.3(6).
6. SUBMIT SHOP DRAWINGS FOR PRECAST CONCRETE CULVERT TO ENGINEER FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS SHALL INCLUDE ALL ACCESSORIES AND APPURTENANCES FOR A COMPLETE INSTALLATION.
7. PRECAST CONCRETE SHALL BE CLASS 5000, 6000, OR 7000 SCC. ALL CAST–IN–PLACE CONCRETE SHALL BE CLASS 4000.
8. LOCATION OF REBAR SPLICES AT CONTRACTOR'S OPTION, EXCEPT ALL SPLICES SHALL BE ALTERNATED SO THAT NO MORE THAN 50% OF EACH MAT OF REBAR IS SPLICED AT THE SAME LOCATION.
9. UNLESS OTHERWISE SHOWN ON THE PLANS, CONCRETE COVER SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 7–02–3(6)A1.
10. THE NOMINAL BEARING RESISTANCE OF CULVERT FOOTING SHALL BE TAKEN AS 1.5 KSF FOR THE SERVICE LIMIT STATE (1" SETTLEMENT) AND 9 KSF FOR THE UNFACTORED STRENGTH AND EXTREME LIMIT STATE.
11. THE BACKFILL AGAINST THE OUTSIDE FACE ON BOTH SIDES OF THE CULVERT SHALL BE PLACED IN SEQUENCE AND COMPACTED IN ACCORDANCE STD. SPEC, SECTION 2–09.3 (1) E. THE MAXIMUM BACKFILL HEIGHT DIFFERENCE MEASURED WITH FROM ONE SIDE TO THE OTHER SIDE SHALL BE 2'–0".
12. THE LOCATIONS OF ALL EXISTING UTILITIES WITHIN THE VICINITY OF THE STRUCTURE SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO EXCAVATING.
13. CONSTRUCTION GEOTEXTILE SHALL BE TENCATE MIRAFI RS580i OR EQUAL APPROVED BY THE GEOTECHNICAL ENGINEER. GEOTEXTILE TO BE INSTALLED IN ACCORDANCE WITH SECTION 4.2.4 OF THE PROJECT GEOTECHNICAL REPORT DATED MAY 4, 2020.

811 Know what's below. Call before you dig.

SURVEY JOB NO: 19062	9–19				
CHECKED: T. CRAY	9–19				
CAD ENTERED: E. SHOYMERMAN	05–20				
DESIGNED: K. DICKERSON	05–20				
CHECKED: B. CHASE	05–20				
SUPERVISOR: R. PATTERSON	05–20				
		NUM.	REVISION	BY	DATE

Stantec

E. RICHARD PATTERSON — STATE OF WASHINGTON — 26572 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

FED. AID No. --

PROJECT No. 1136001

MAINTENANCE DIVISION No. 4

60% DESIGN SUBMITTAL

KING COUNTY DEPT. OF LOCAL SERVICES
JOHN TAYLOR, DIRECTOR

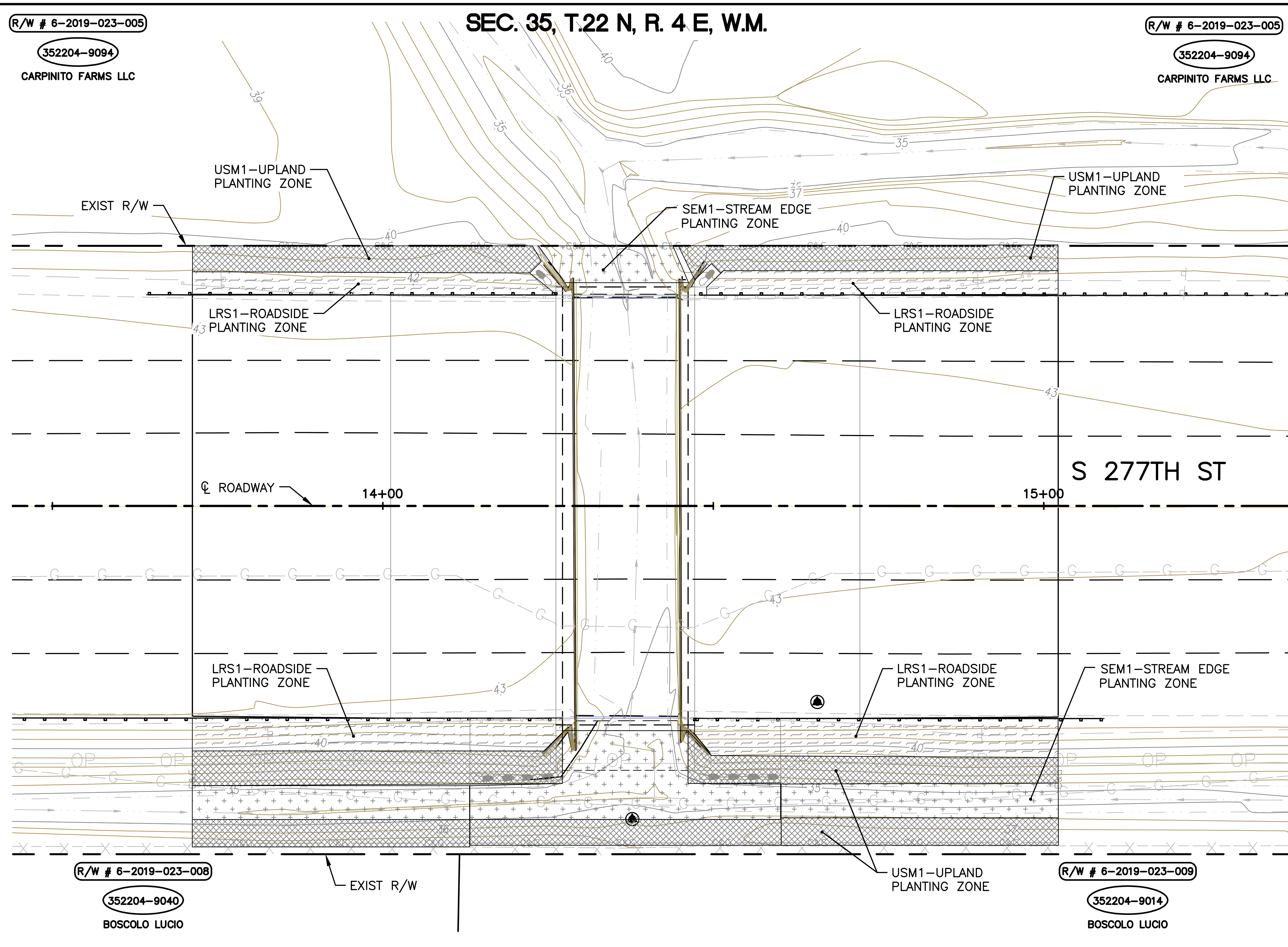
S 277TH ST BRIDGE #3126 REPLACEMENT

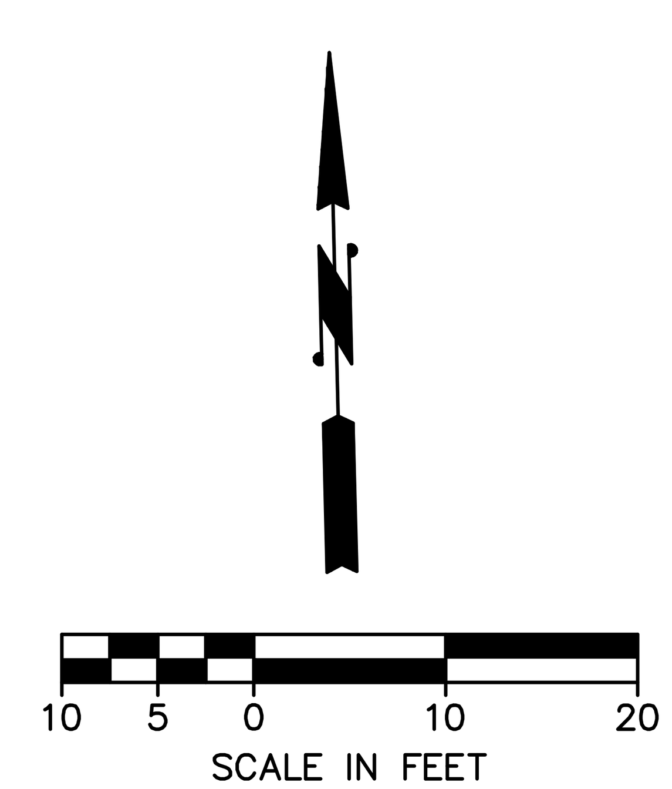
CULVERT SECTION AND DETAILS

King County

SHEET 11 OF XX SHEETS

320-68 (1)





PLANTING NOTES

1. USMI-USM3 PLANTS SHALL BE PLANTED IN A RANDOM INTERMIXED LAYOUT TRIANGULAR SPACING @ 6' O.C., WSM1-WSM2 @ 5' O.C., AND LSM1 @ 3' O.C. GROUP PLANTS OF THE SAME TYPE IN CLUSTERS OF 4-5 PLANTS. TREES TO BE LOCATED PER PLAN.
2. ANY DISCREPANCIES WITH THE DWG'S AND/OR SPEC'S AND SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE FIELD ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
4. INSTALL EROSION CONTROL BLANKET ON ALL SHRUB/GROUND COVER PLANTING SLOPES THAT ARE 2:1 OR STEEPER.
5. MEET AND MATCH EXISTING GRADE WITH A SMOOTH TRANSITION.
6. WITHIN ALL DISTURBED AREAS TO BE PLANTED OR SEEDED, PROVIDE AND INSTALL 4" DEPTH OF TOPSOIL A (OR TOPSOIL TYPE B WHERE SPECIFIED), ROTOTILLED TO AN 8" MIN. DEPTH.
7. SEE CIVIL DWG'S FOR TEMPORARY EROSION CONTROL REQUIREMENTS.
8. HIGH VISIBILITY FENCE TO REMAIN IN PLACE THROUGHOUT PLANT ESTABLISHMENT PERIOD AS DIRECTED BY THE FIELD ENGINEER.
9. ALL PLANTING AREAS INSIDE LIMIT OF EARTHWORK LINE SHALL BE PREPARED FOR PLANTING PRIOR TO COMPOST PLACEMENT. SEE CIVIL DWG'S FOR CLEAR, GRUB AND GRADING REQUIREMENTS.
10. ADJUST PLANTING LOCATIONS AROUND FALLEN TREES AS REQUIRED PER ENGINEER FIELD DIRECTIVE.
11. CONTRACTOR SHALL ATTACH A 'NAME TAG" (COMMON TO EACH GROUPING OF PLANTS FOR IDENTIFICATION.
12. ALL TREES SHALL BE TAGGED WITH 12" OF SURVEY TAPE AND ALL SHRUBS WITH 9" OF SURVEY TAPE.
13. ALL PLANT REPLACEMENTS SHALL BE DONE DURING THE PLANT ESTABLISHMENT PERIOD AND SHALL BE TAGGED WITH 12" OF WHITE SURVEY TAPE.
14. CONTRACTOR IS RESPONSIBLE TO VERIFY PLANT COUNTS LISTED ON THIS SHEET PRIOR TO PURCHASING PLANT MATERIAL

S 277 ST BRIDGE REPLACEMENT PLANTING SCHEDULE

SYM.	ABBR.	SCIENTIFIC NAME	COMMON NAME	QTY.	SIZE / REMARKS
	TREES				
	FL	FRAXINUS LATIFOLIA	OREGON ASH		
	PE	PRUNUS EMARGINATA	BATTER CHERRY		
	TP	THUJA PLICATA	WESTERN RED CEDAR		
	USM1 – UPLAND PLANTING ZONE			USM1-1, USM1-2, USM1-3, SUM1-4	
	AC	ACER CIRCINATUM	VINE MAPLE		
	HD	HOLODISCUS DISCOLOR	OCEAN SPRAY		
	OC	OEMLERIA CERASIFORMIS	INDIAN PLUM		
	RN	ROSA NUTKANA	NOOTKA ROSE		
	CS	CORNUS STOLONIFERA	RED-OSIER DOGWOOD		
	SS	SALIX SCOULERIANA	SCOULER'S WILLOW		
	RG	ROSA GYMNOCARPA	BALDHIP ROSE		
	RP	RUBUS PARVIFLORUS	THIMBLEBERRY		
	SEM1 – STREAM EDGE PLANTING ZONE			SEM1-1,SEM1-2 ,SEM1-3 ,SEM1-4	
	CS	CORNUS STOLONIFERA	RED-OSIER DOGWOOD		
	RC	ROSA PISOCARPA	CLUSTERED ROSE		
	SH	SALIX HOOKERIANA	HOOKER'S WILLOW		
	SL	SALIX LASIANDRA	PACIFIC WILLOW		
	SE	SPARGANIUM EMERSUM	NARROWLEAF BUR-REED		
	SM	SCIRPUS MICROCARPUS	SMALL-FRUITED BULRUSH		
	LRS1 – LOW ROADSIDE PLANTING ZONE (FOR VISIBILITY)			LRS1-1, LRS1-2, LRS1-3,	
	AU	ARCTOSTAPHYLOS UVA-URSI	KINNIKINNICK		
	CK	CORNUS STOLONIFERA "KELSEYI"	KELSEYI DWARF DOGWOOD		
	MN	MAHONIA NERVOSA	LOW OREGON GRAPE		

811
Know what's below.
Call before you dig.

SURVEY JOB NO:	19062	9-19
CHECKED:	T. CRAY	9-19
CAD ENTERED:	E. SHOYMERMAN	05-20
DESIGNED:	S. RADFORD	05-20
CHECKED:	K. DICKERSON	05-20
SUPERVISOR:	R. PATTERSON	05-20

NUM.	REVISION	BY	DATE

Stantec

STATE OF WASHINGTON
SCOTT W RADFORD
LICENSED LANDSCAPE ARCHITECT

FED. AID No. --
PROJECT No. 1136001
MAINTENANCE DIVISION No. 4

60% DESIGN SUBMITTAL

KING COUNTY DEPT. OF LOCAL SERVICES
JOHN TAYLOR, DIRECTOR

S 277TH ST BRIDGE #3126 REPLACEMENT

RESTORATION PLAN

King County

SHEET 23 OF XX SHEETS

320-68 (1)

Plotted: May 18, 2020 – 6:26pm eshoymerman Layout: 23 RESTORATION PLAN
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