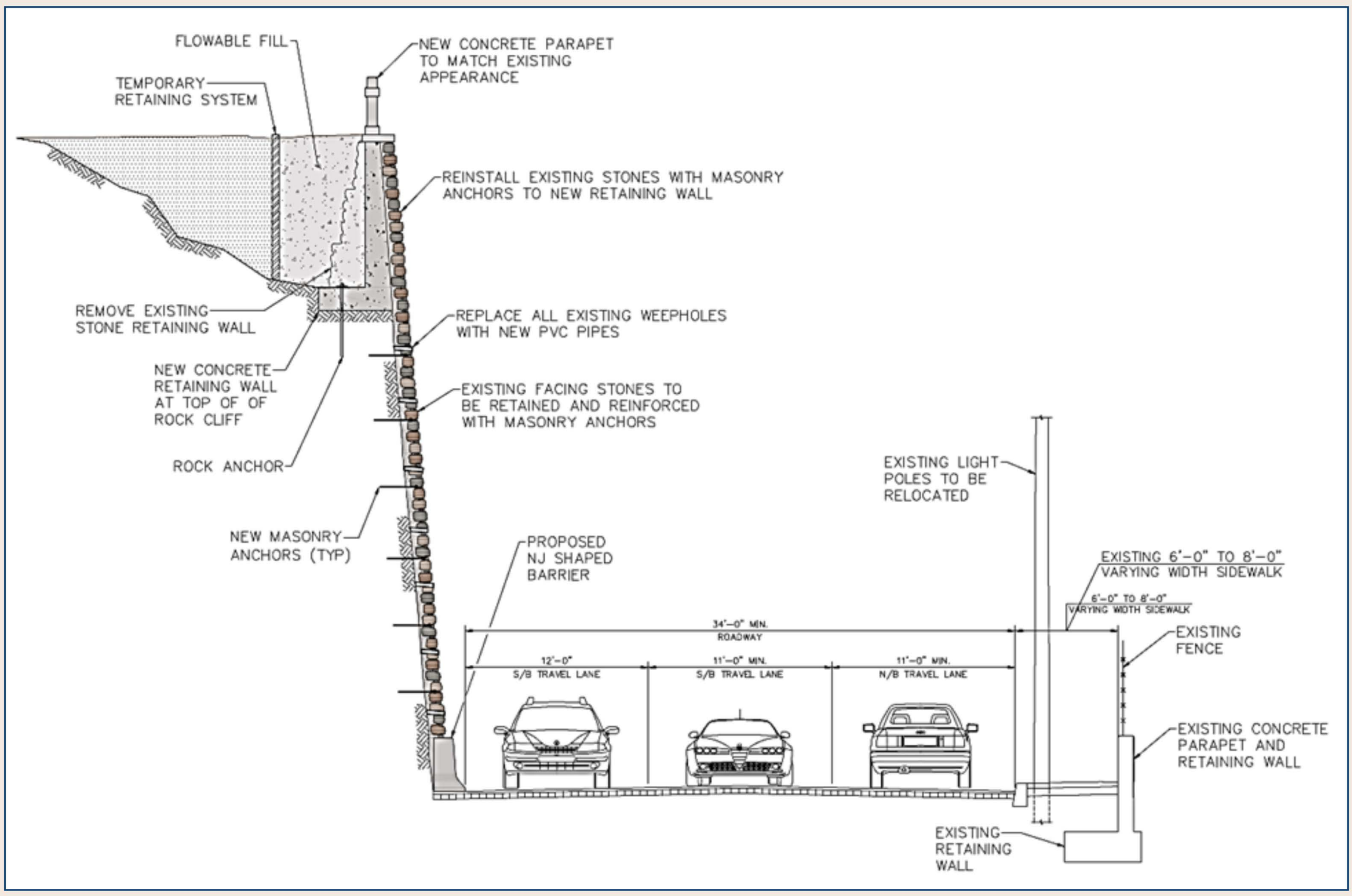
Local Concept Development Study for Retaining Wall & Slope Stabilization Improvements Along Manhattan Avenue, Union City, Hudson County, NJ

Repair Alternative #1A

In Place Rehabilitation Without Slope Stabilization



BENEFITS:

- Eliminates need for wall demolition.
- Significantly lower cost than other repair alternatives.
- Can be developed in a manner that meets Secretary of Interior Standards. Assumed to be most desirable to State Historic Preservation Office (SHPO).

DRAWBACKS:

- Does not improve mismatched appearance of the previous various wall repairs.
- Does not enable installation of new drainage enhanced system behind wall. New weepholes will be provided but they may get clogged over time and will require regular

VOTE HERE

1 2 3 4 5

Most Preferred — Least Preferred

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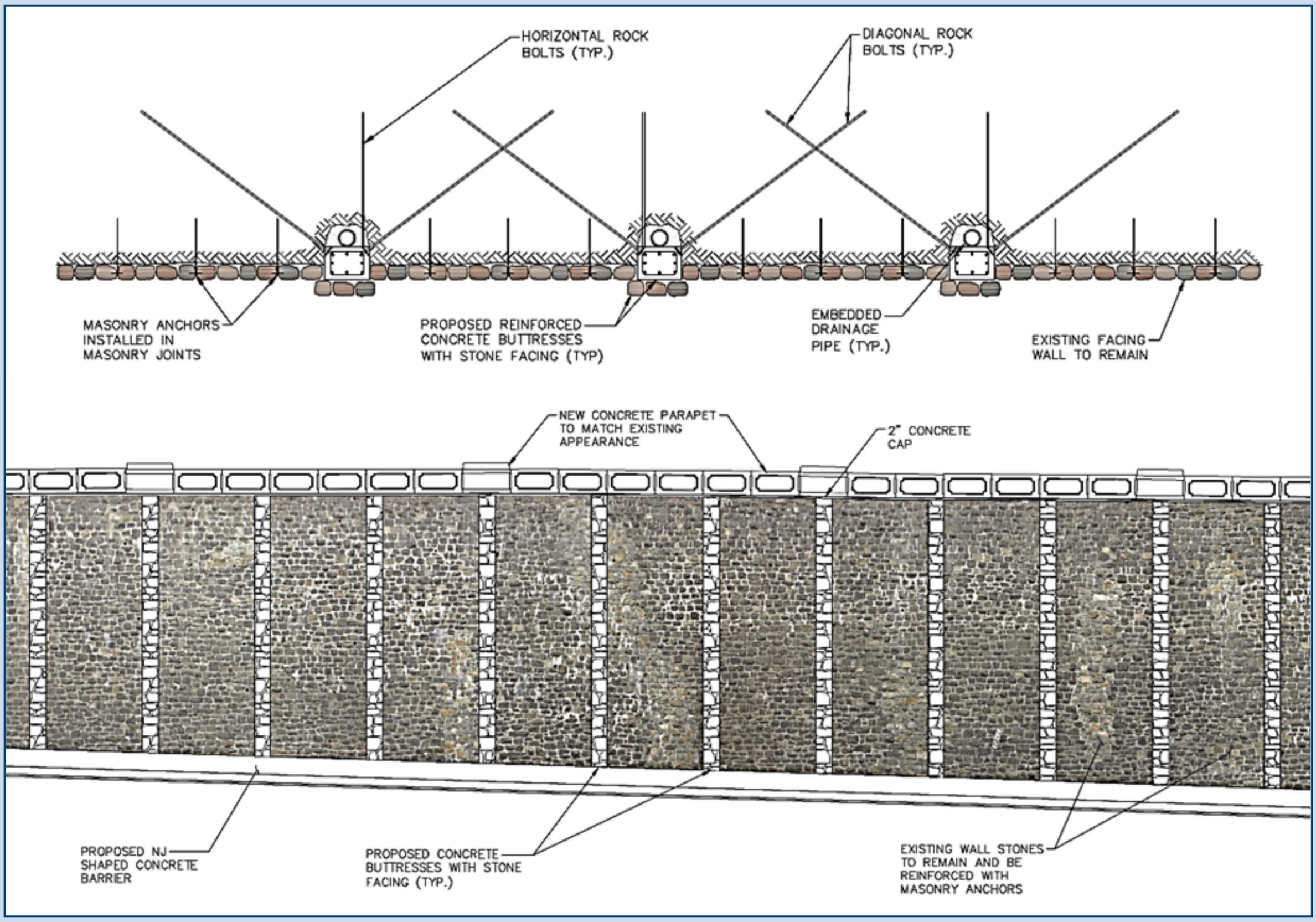
Local Concept Development Study for Retaining Wall & Slope Stabilization Improvements Along Manhattan Avenue, Union City, Hudson County, NJ

Repair Alternative #1B

In Place Rehabilitation with Slope Stabilization



BENEFITS:

- Minimizes wall demolition.
- Reinforces the rock cliff behind the existing wall to prevent fractures.
- Enables installation of new drainage system behind wall.

DRAWBACKS:

- Modifies existing appearance of wall.
- Requires significant rock excavation to provide enough set-back for buttresses to avoid encroaching on roadway.

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1 2 3 4 5

Most Preferred — Least Preferred

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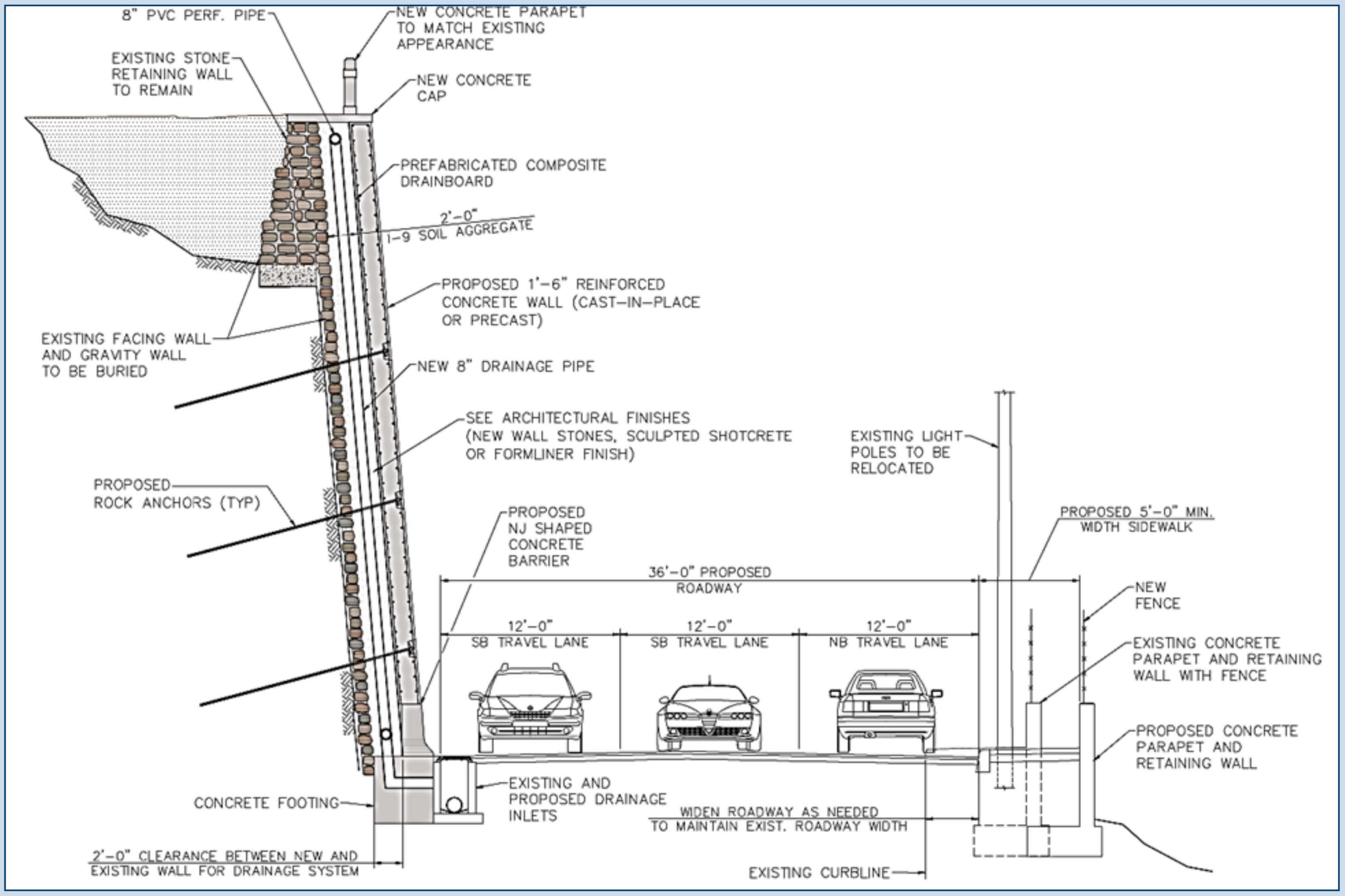
Repair Alternative #2

Construct New Retaining Wall in Front of Existing Wall



BENEFITS:

- Eliminates need for wall demolition & need for temporary retaining system.
- No impact to existing structures above the wall. Structures built on retained soil (parking lots, swimming pool, retaining walls etc.) can remain (if desired).

DRAWBACKS:

- Requires roadway realignment and shift (to the east), to provide additional space for new wall.
- Does not maintain existing historic appearance of the walls.
- Requires replacement of some of the existing retaining walls on the east side of Manhattan Avenue.

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1 2 3 4 5

Most Preferred — Least Preferred

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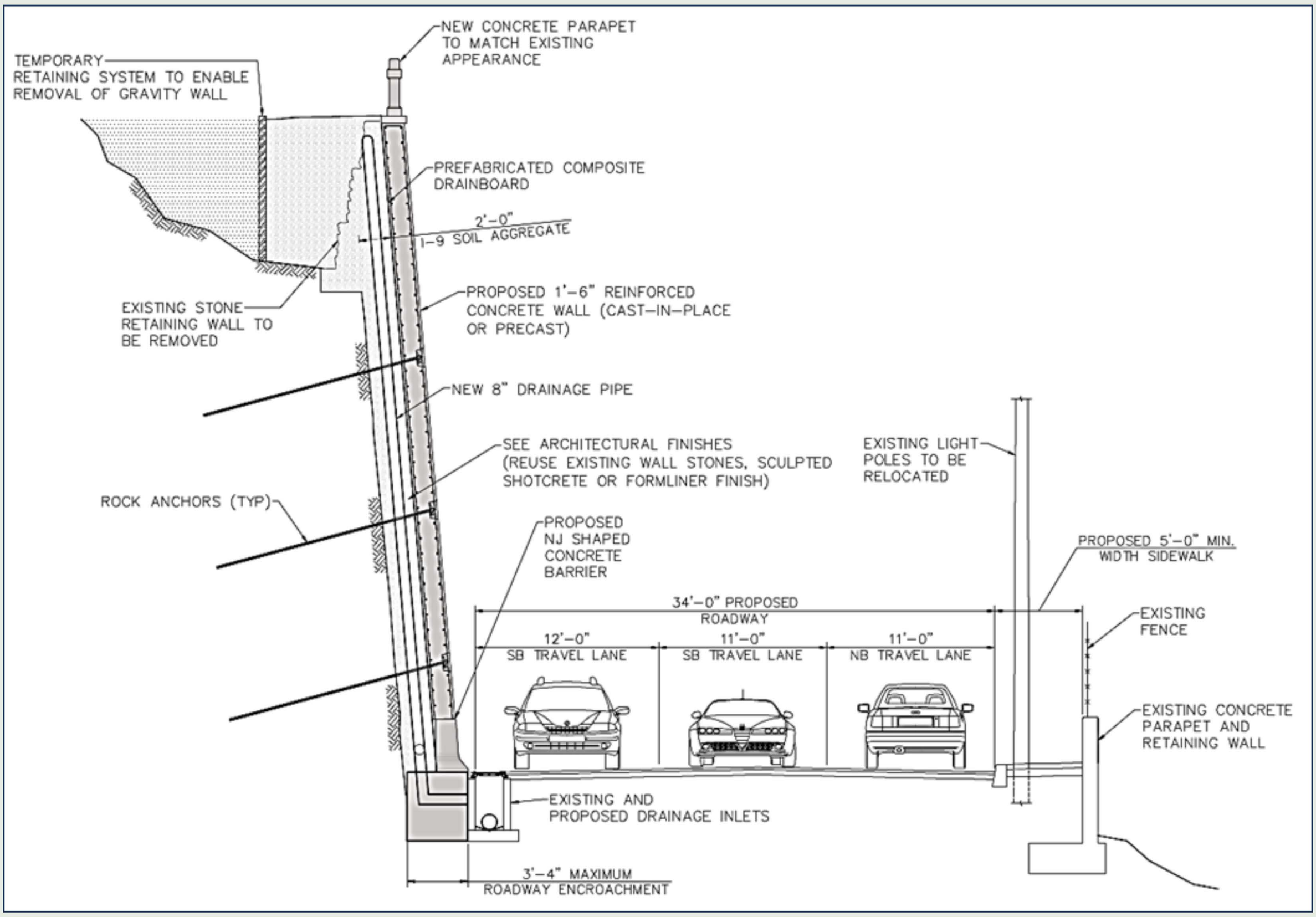
Repair Alternative #3

Remove & Replace Existing Retaining Wall



BENEFITS:

- Maintains existing roadway alignment.
- Eliminates all hidden risks associated with the existing wall.
- Could reuse existing stones to maintain existing appearance.

DRAWBACKS:

- Will impact existing structures above the wall that were built on retained soil (parking lots, swimming pool, retaining walls etc.).

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1 2 3 4 5

Most Preferred — Least Preferred

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Repair Alternative #4

Remove the Existing Retaining Wall

BENEFITS:

- Eliminates the long term need for maintenance of the retaining wall.

DRAWBACKS:

- Impacts aesthetic appearance.
- Unknown profile of rock face behind wall.
- Risk of encountering unknown conditions once demolition work begins. May require additional work to stabilize exposed rock face.

VOTE HERE

1 2 3 4 5

Most Preferred — Least Preferred

●	●	●	●	●												

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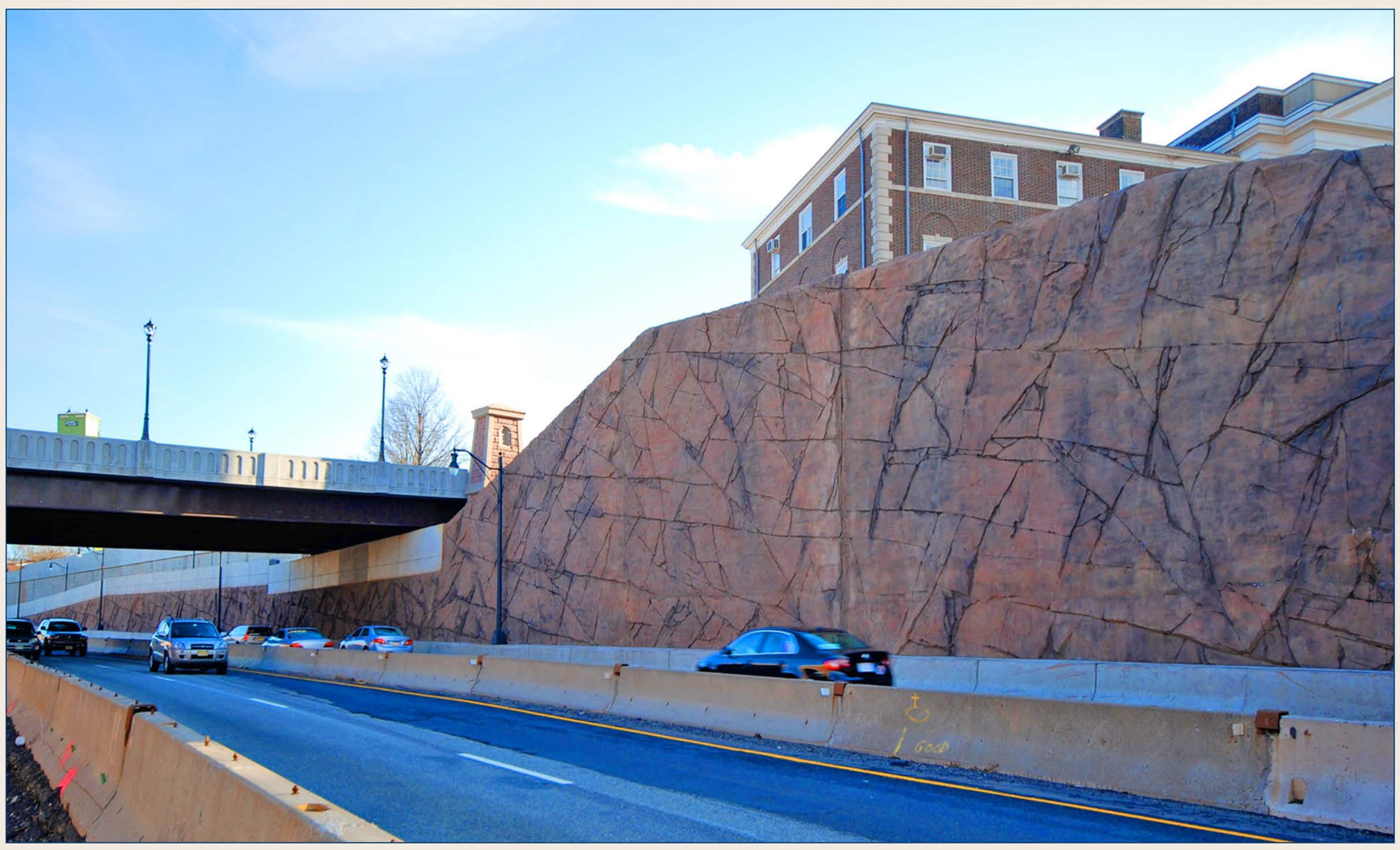
Local Concept Development Study for Retaining Wall & Slope Stabilization Improvements Along Manhattan Avenue, Union City, Hudson County, NJ

Architectural Finish Alternative #1

Hand Sculpted and Stained Shotcrete



Route 18 Project, New Brunswick, NJ

VOTE HERE

1 2 — Most Preferred

3 4 — Least Preferred

Sample sculpted shotcrete finishes. Masonry patterns are hand carved and can be customized to replicate the existing look of the Manhattan Avenue Retaining Walls (See sample bottom photo).

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Architectural Finish Alternative #2

Decorative Concrete Formliner

South Wall Replacement Following 2007 Collapse—Formlined, But Not Stained

Sample decorative concrete formliner finishes. The 2008 repair utilized this type of wall system, but the concrete was not stained. Staining the concrete could help make it blend in with the adjacent stone masonry.

VOTE HERE

1 2 3 4

Most Preferred — Least Preferred

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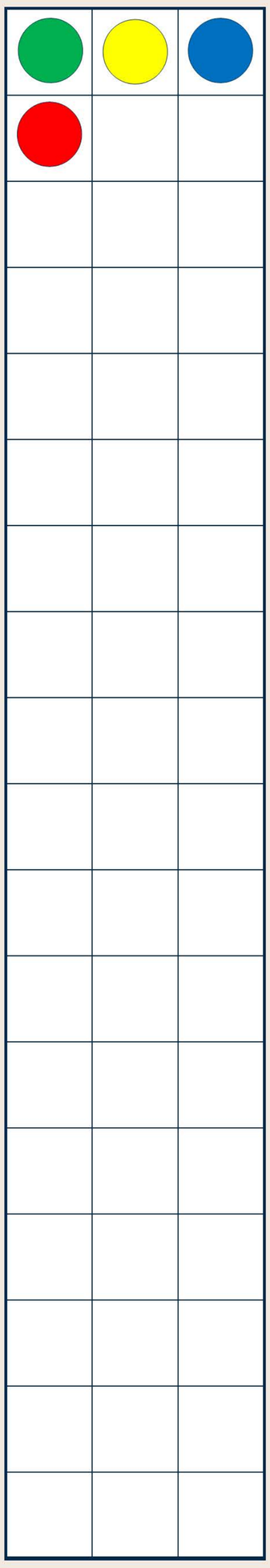
Architectural Finish Alternative #3

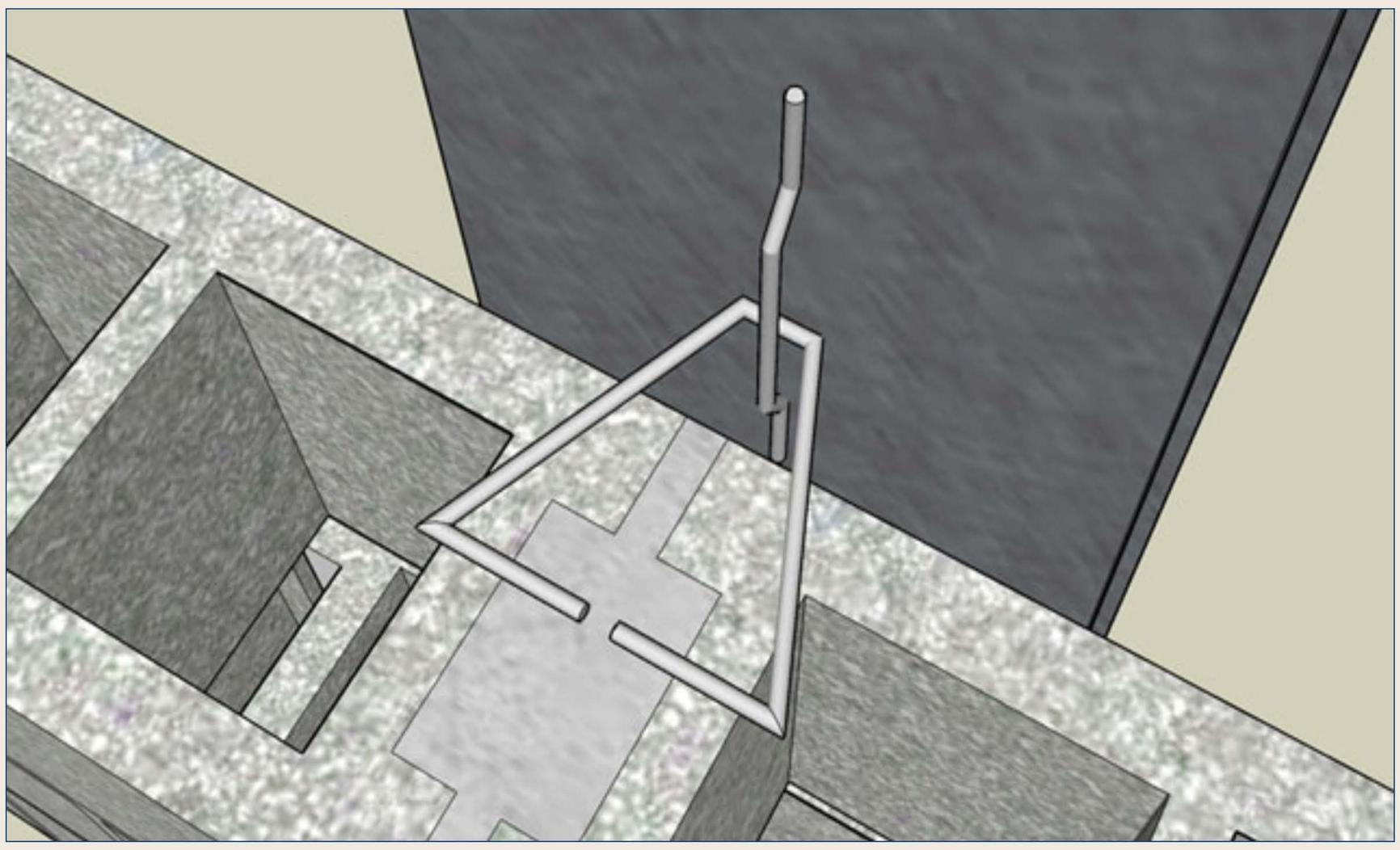
New 6” Stone Veneer

VOTE HERE

1 2 — Most Preferred

3 4 — Least Preferred





Typical masonry anchors. The proposed stone veneer would be anchored to the concrete backing wall with dovetail anchors to secure the stones in place and prevent them breaking loose.

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Local Concept Development Study for Retaining Wall & Slope Stabilization Improvements Along Manhattan Avenue, Union City, Hudson County, NJ

Architectural Finish Alternative #4

Number, Dismantle and Reuse Existing Stones

VOTE HERE

1 2 — Most Preferred

3 4 — Least Preferred

In order to reuse the existing stones, each stone would have to be carefully numbered, dismantled, cleaned and stored. The stones would then been reinstalled in their original locations with new masonry anchors or straps. This alternative would replicate the appearance of the existing wall and would meet Secretary of Interior standards.

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FY 2017 Hudson, Morris, & Somerset Counties Local Concept Development Studies Contract "B"

Retaining Wall & Slope Stabilization Improvements Along Manhattan Avenue

Proposed Detour Route for North Retaining Wall Repairs

14th Street Viaduct to 16th Street - Existing Route Travel Time and Distance

14th Street Viaduct to 16th Street - Proposed Detour Travel Time and Distance

	Travel Distance	Travel Time (w/o Traffic)
Existing Roadway	0.5 miles	2 minutes
Proposed Detour Route	1.2 miles	5 to 7 minutes
Net Increase	0.7 mile	3 to 5 minutes

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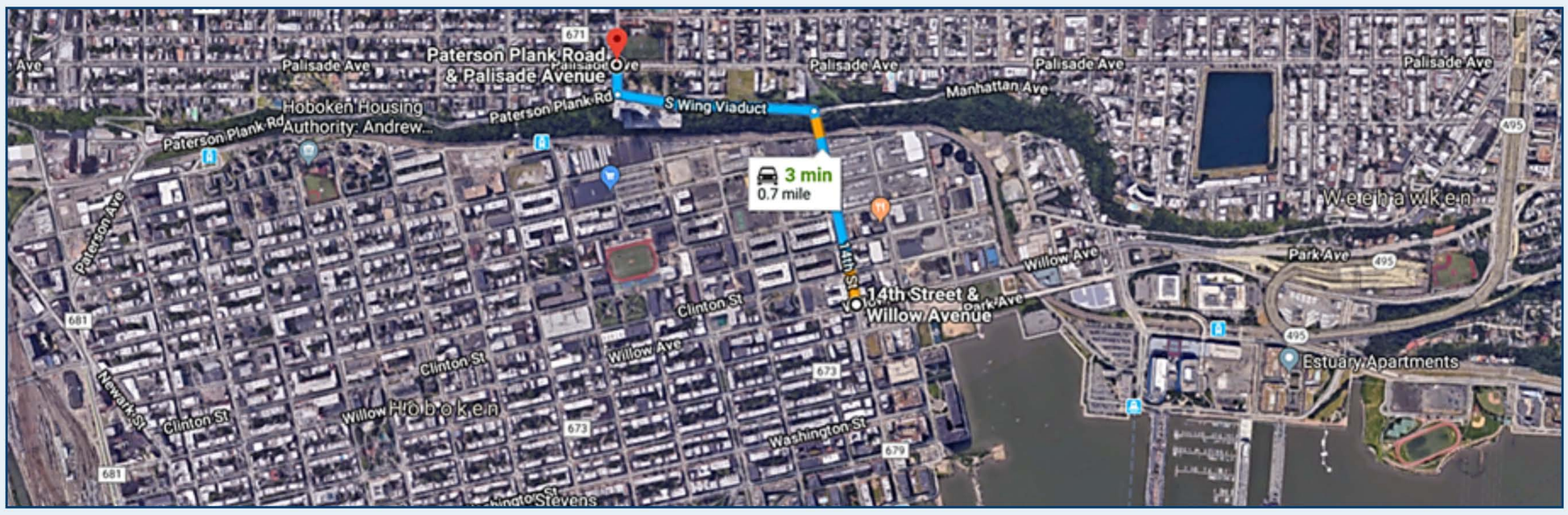
FY 2017 Hudson, Morris, & Somerset Counties Local Concept Development Studies Contract "B"

Retaining Wall & Slope Stabilization Improvements Along Manhattan Avenue

Proposed Detour Routes for South Retaining Wall Repairs



14th Street Viaduct to Paterson Plank Road - Existing Route Travel Time and Distance

14th Street Viaduct to Paterson Plank Road - **Proposed Southern Detour**

14th Street Viaduct to Paterson Plank Road - **Proposed Northern Detour**

	Travel Distance	Travel Time (w/o Traffic)
Existing Roadway	0.7 miles	3 minutes
Proposed Detour Routes	2.6 / 2.7 miles	9-12 / 10-16 minutes
Net Increase	1.9 / 2.0 miles	6-9 / 7-13 minutes

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