



PPG Highway Waterproofing System Tie-In and Overlap Procedure

PART 1 - PRE-APPLICATION

1.1 SECTION INCLUDES

- A. Tie-in and overlap procedures for Spray Applied Waterproofing Membrane, aka “Membrane Waterproofing (Cold Liquid Elastomeric),” “Cold Liquid Applied Elastomeric Waterproofing Membrane,” “Cold Liquid-Applied Membrane (CLAM),” etc. with an asphalt or concrete wearing course.

1.2 REFERENCED PARTIES

- A. Owner: The individual, company, or agency which owns the structure(s) under contract.
- B. General Contractor: The contractor employed by the Owner to provide all labor, materials, tools, and equipment, either directly or through sub-contractors, to perform all operations necessary for the construction associated with the contract documents.
- C. Installer: The installer of the waterproofing system. In the event the Installer is directly contracted by the Owner, the installer shall assume the responsibilities designated to the General Contractor listed herein.
- D. Waterproofing Inspector: An individual with the dedicated role of performing field testing of the PPG Highway Waterproofing system as specified in the contract documents.

PART 2 - MEMBRANE APPLICATION

2.1 GENERAL

- A. The procedures contained herein are intended to be used in conjunction with other PPG issued documents including, but not limited to, **PPG Highway Waterproofing Installation Procedure** and **PPG Highway Waterproofing Inspection and Testing Procedure**.
- B. Where new membrane is to be joined to existing, cured material, the new membrane shall overlap the existing membrane by at least 6 inches (150 mm)^{1,2,3}.
- C. New membrane shall only be applied to existing membrane that is fully bonded to the substrate and meets the minimum thickness required in the contract documents.
- D. If no such requirements are listed in the contract documents, the minimum thickness of the existing membrane thickness shall be 80 mils (2 mm).

¹ If construction staging is such that existing membrane will be paved prior to installation of adjacent membrane (resulting in a membrane tie-in or overlap), it is recommended that the 6-inch (150 mm) tie-in or overlap area be protected during the paving process to reduce the amount of cleaning required on the tie-in or overlap area.

² As a safety factor, it is recommended that the General Contractor and/or Installer ensure the membrane tie-in or overlap surface area is larger than 6 inches (150 mm) to allow for full 6-inch (150 mm) tie-in or overlap.

³ Installer must protect adjacent areas from overspray to ensure new membrane is only installed on the designated 6-inch tie-in or overlap area. Examples of adjacent areas include, but are not limited to, asphalt paving, untreated existing membrane, parapet walls, etc.

2.2 SURFACE PREPARATION

- A. Areas of existing membrane shall be cut back to sound material as defined in the contract documents.
- B. If no such requirements are listed in the contract documents, “sound” material may be defined as material that meets the following criteria:
 - 1. Membrane meets the minimum thickness requirements defined in the contract documents, or PPG’s requirements, whichever is more stringent.
 - 2. Membrane is not “feathered”.
 - 3. Membrane is fully bonded to the substrate as illustrated by Pull-Off Adhesion Strength testing defined in the **PPG Highway Waterproofing Inspection and Testing Procedure** document.
- C. Areas of membrane that are not sound shall be cut back to sound material.
- D. Remove asphalt or other overburden as required herein until sufficient membrane surface is exposed.
- E. Refer to **PPG Highway Waterproofing Installation Procedure** document for surface preparation of adjacent substrates and any uncoated substrates to be recoated.
- F. For existing Bridge Deck Membrane (“BDM”) without embedded aggregate,
 - 1. Remove loose dirt, debris, and other contaminants that could interfere with adhesion of new membrane to existing membrane.
 - 2. Abrade BDM surface using handheld grinder, wire wheel, or other similar equipment to create a visible texture on the surface of the BDM.
 - 3. Clean the BDM surface using clean rags and acetone or MEK solvent.
- G. For existing BD Top Coat (“BDTC”) with embedded aggregate,
 - 1. Remove loose dirt, debris, and other contaminants that could interfere with adhesion of new membrane to existing membrane.
 - 2. Abrade BDTC surface using handheld grinder, wire wheel, or other similar equipment to remove all embedded aggregate and create a visible texture on the surface of the BDTC.
 - 3. Clean the BDTC surface using clean rags and acetone or MEK solvent.

2.3 NEW MEMBRANE INSTALLATION

- A. Treat existing membrane surface to receive new membrane using Raven 161 adhesion promoting primer in accordance with the Raven 161 Technical Data Sheet.
- B. Allow the Raven 161 primer to fully cure (refer to the Technical Data Sheet for cure times and recoat windows).
- C. Install new primer, BDM, and BDTC in accordance with the **PPG Highway Waterproofing Installation Procedure** document.
- D. Installer shall utilize masking or a spray shield to ensure the new membrane (BDM and BDTC) meets the minimum thickness requirements and the terminated edge of the new

membrane is not “feathered”⁴. Refer to the photographs in Appendix A for additional information on proper membrane tie-in or overlap.

PART 3 - FIELD INSPECTION AND TESTING

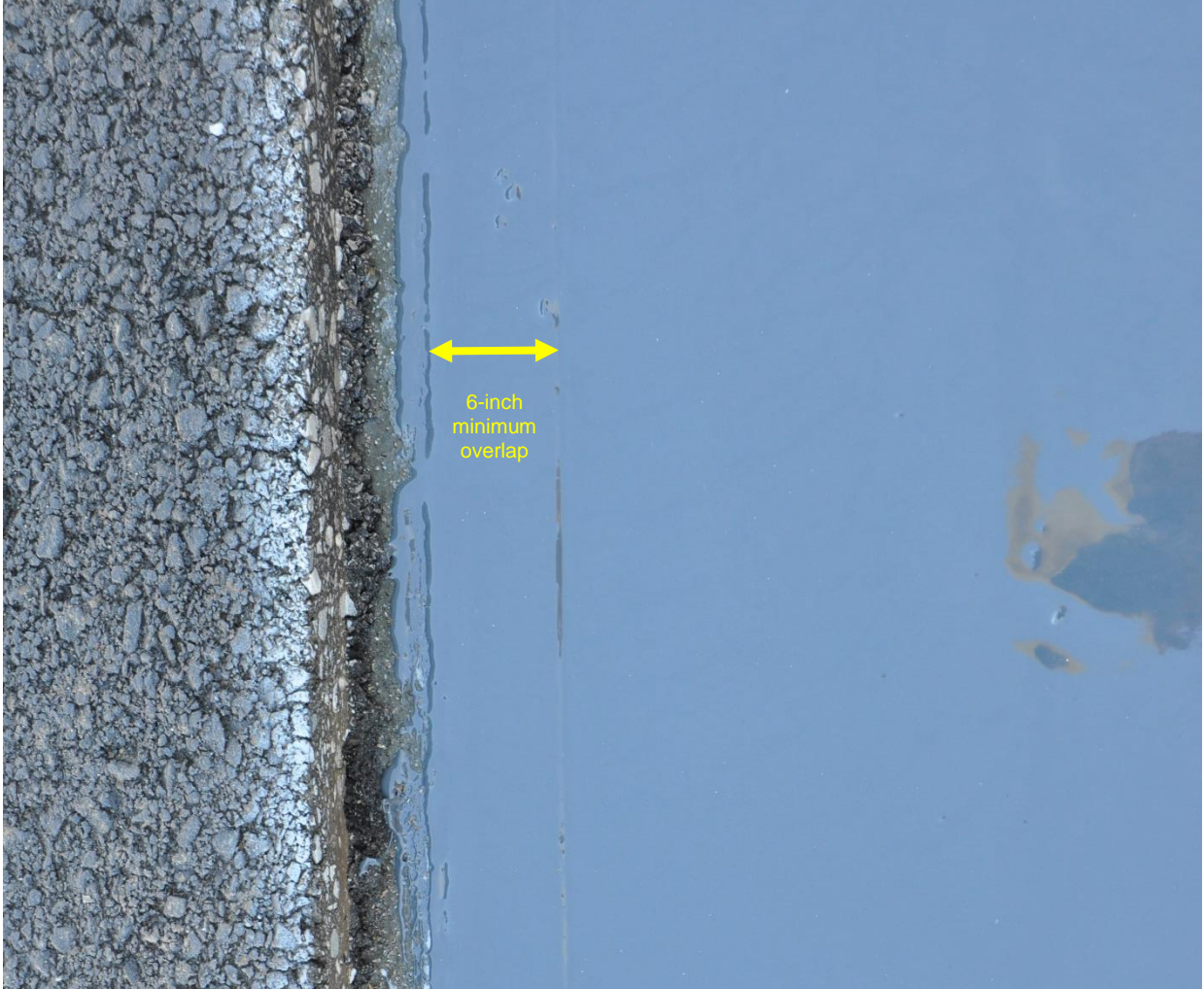
- A. Refer to **PPG Highway Waterproofing Inspection and Testing Procedure** document for field inspection and testing.

⁴ Installer must protect adjacent areas from overspray to ensure new membrane is only installed on the designated 6-inch tie-in or overlap area. Examples of adjacent areas include, but are not limited to, asphalt paving, untreated existing membrane, parapet walls, etc.

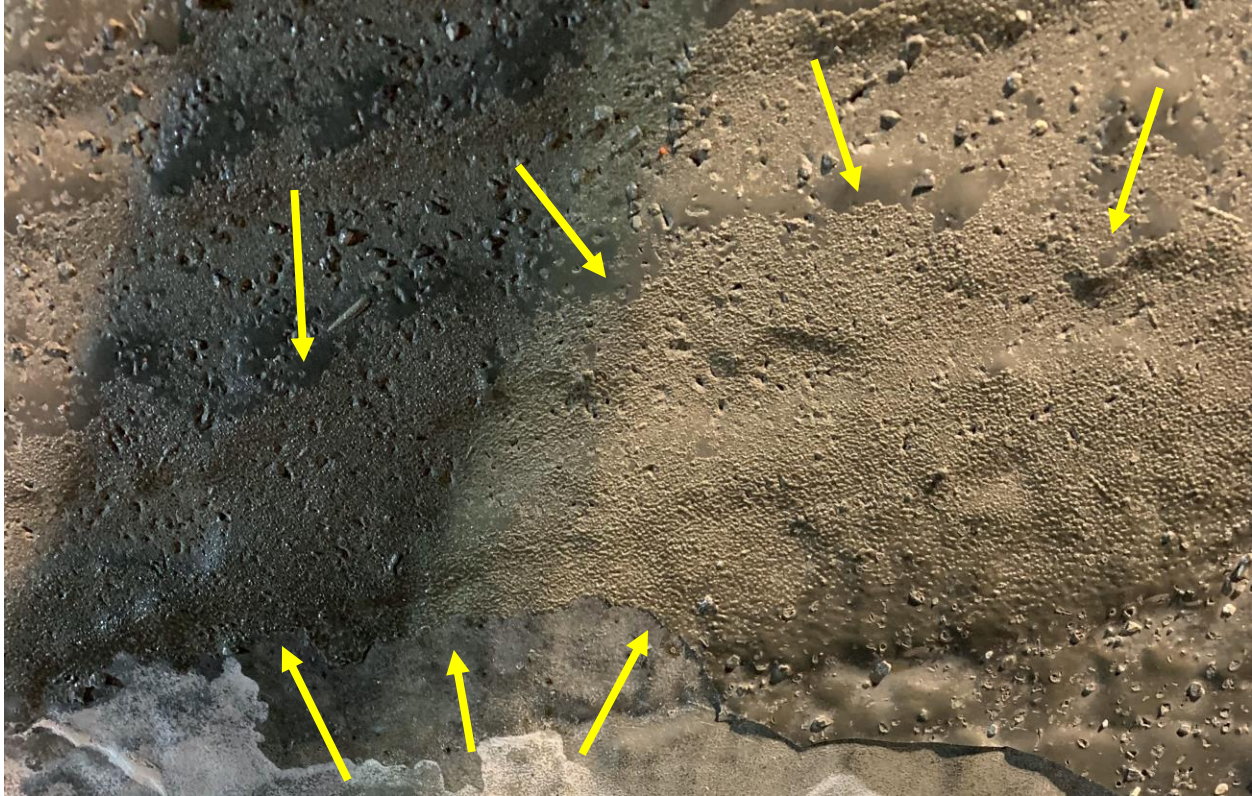
Appendix A – Example Membrane Tie-In or Overlap Photographs



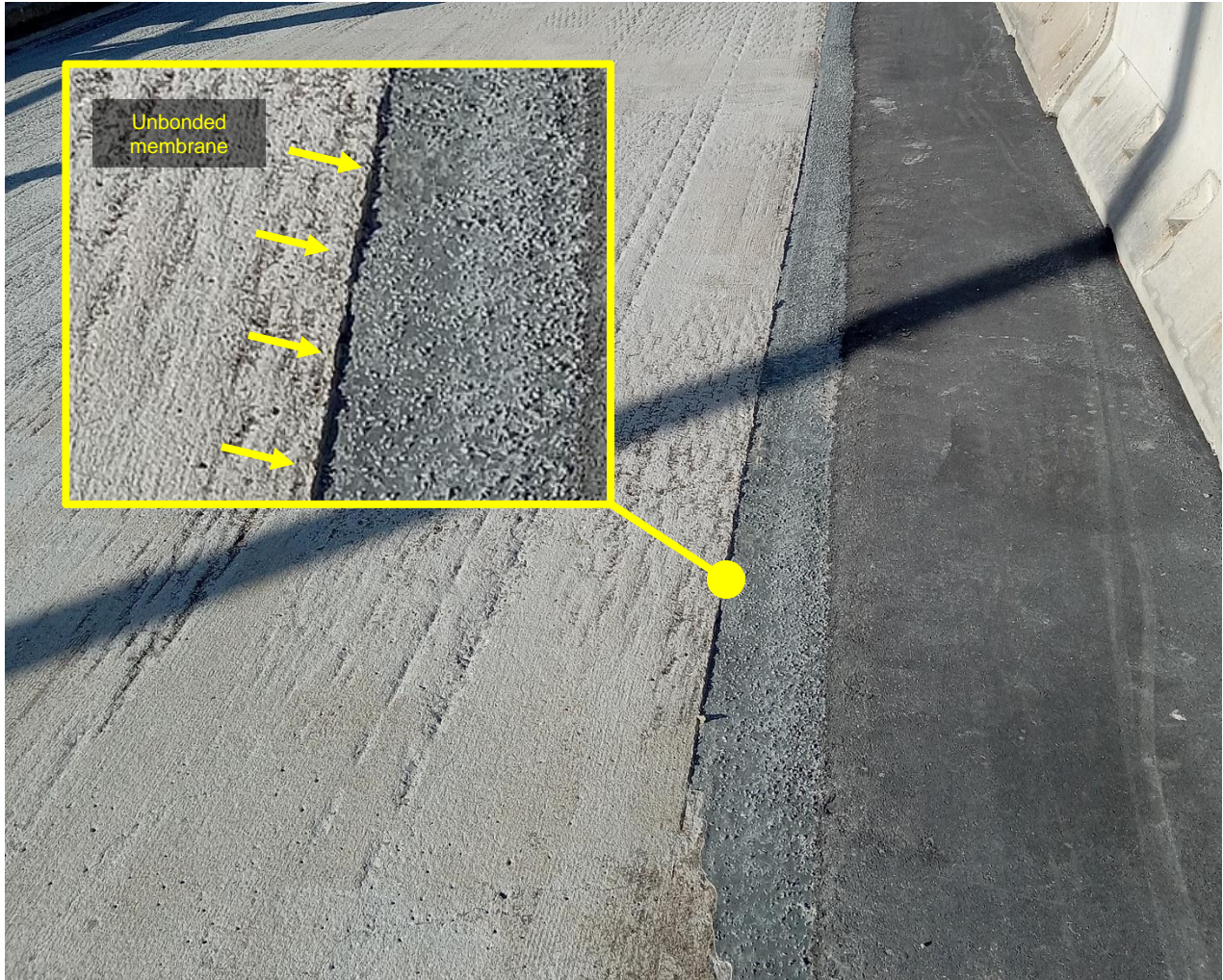
Proper Application Procedures & Techniques: Installer utilizing shield to ensure new membrane meets minimum thickness requirements at termination edge.



Proper Application Procedures & Techniques: Properly terminated membrane edge without “feathering” or overspray.



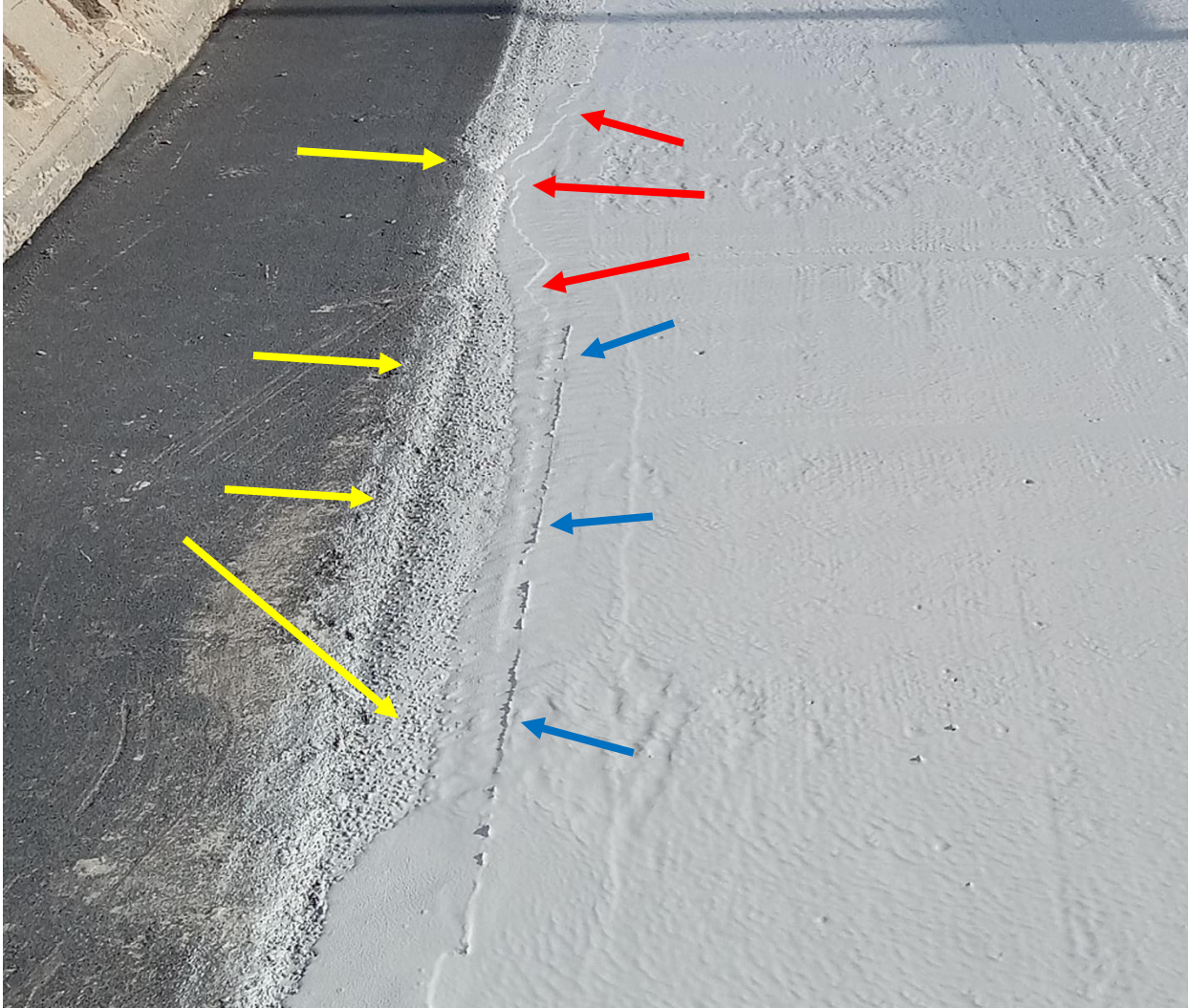
Improper Application Procedures & Techniques: Example of improperly terminated overlap membrane with “feathered” edge. Yellow arrows indicate areas of insufficient thickness due to overspray and lack of shield or masking to create “hard edge” with full thickness.



Improper Application Procedures & Techniques: Example of existing membrane that is not fully bonded to the substrate and can be defined as “unsound” in accordance with Section 2.2B above.



Improper Application Procedures & Techniques: Example of existing membrane that is not fully bonded to the substrate and can be defined as “unsound” in accordance with Section 2.2B above.



Improper Application Procedures & Techniques: Example of improper membrane installation.

Yellow arrows indicate examples of “feathered” membrane and membrane sprayed onto asphalt paving (i.e., not protected in accordance with Footnote 4 above).

Red arrows indicate examples of new membrane that does not meet the 6-inch minimum overlap requirement in accordance with 2.1B above.

Blue arrows indicate examples of existing membrane that is not fully bonded to the substrate and can be defined as “unsound” in accordance with Section 2.2B above.

Appendix B – Document Version Control

Version	Date	Author	Rationale	Approval
1.0d	8/31/2023	Jonathan Haydu	First draft	
1.1d	9/5/2023	Jonathan Haydu	Reviewed draft internally, minor updates.	
1.1	9/6/2023	Jonathan Haydu	Issued	Jonathan Haydu James McCarthy