CUMBERLAND ISLAND NATIONAL SEASHORE

PMIS CUIS_349598

REPLACEMENT AND REPAIR OF PLUM ORCHARD MANSION COPPER GUTTER AND FLASHING

NATIONAL PARK SERVICE (NPS)

1.0 Justification and Background

The existing gutter system at Plum Orchard Mansion exhibits areas of improper pitch and localized deflection, creating low areas in the gutter system, resulting from excessive spacing of gutter hangers. These conditions have compromised the ability of the system to maintain consistent positive drainage to downspouts.
As a result, rainwater sheeting from adjacent roof planes is not effectively captured and conveyed, leading to overtopping of gutters at low points. This condition directs water immediately adjacent to the structure, resulting in:

1. Elevated moisture exposure at foundation walls, including basement-level conditions;
2. Increased potential for water infiltration at window assemblies due to uncontrolled wall runoff;
3. Discoloration and deterioration of exterior stucco finishes; and
4. Accelerated weathering of exterior materials and building envelope components.

The existing conditions represent a failure of the roof drainage system to perform its intended function of collecting and directing stormwater away from the structure, thereby placing historic materials and character-defining features at risk of moisture-related damage.
The proposed work is intended to restore proper alignment, support, and drainage function of the existing gutter system while maintaining the historic appearance and materials to the greatest extent practicable. Work will be performed in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties, specifically:

- Standard 2: The historic character of the property shall be retained and preserved; and
- Standard 5: Distinctive features, finishes, and construction techniques shall be preserved.

No changes to the historic configuration, profile, or visual character of the gutter system are proposed beyond those necessary to correct functional deficiencies and prevent ongoing damage to the historic resource.

2.0 Scope of Work

Contractor shall provide all labor, materials, equipment, and transportation necessary to restore the functionality of the existing copper gutter and associated roof drainage systems at Plum Orchard Mansion.

The work includes removal and replacement of existing copper gutters; installation of new gutter hangers to correct spacing and eliminate deflection; adjustment of gutter alignment to achieve continuous positive drainage to existing downspouts; and preservation of the existing gutter profile, material, and visual appearance.

Work also includes installation of new copper counterflashing at stucco-finished masonry chases. Counterflashing shall be installed using a continuous kerf cut into the stucco to receive a hemmed copper edge, sealed to provide a watertight termination and to eliminate reliance on existing sealant wells.

Additional work includes preparation and painting of new and disturbed gutter components; installation of welded wire mesh at chase tops; and repair of any minor disturbed finishes required to complete the work.

All work shall be performed in a manner that restores proper drainage function, prevents water intrusion, and preserves the historic character and appearance of the structure.

3.0 Tasks

3.1 Gutter Replacement and Hanger Installation

1. Contractor shall remove and replace approximately 274 linear feet of existing gutter at locations identified in Exhibit A. Replacement gutters shall be fabricated from 20 oz copper and formed to match the existing half-round profile.
2. Gutters located at the lower roof of the west elevation shall consist of a deepened half-round profile. The gutter shall maintain the same top width, radius, and rolled bead profile as the standard half-round gutters, with an additional 2 inches of vertical depth below the springline to increase capacity.
3. The new gutter sections shall be shop-formed to replicate the existing profile, including the rolled bead. The rolled bead shall match the size, shape, and visual appearance of adjacent gutter sections that are not being removed.
4. Runs of gutter 20 feet or less shall be installed with a positive drainage slope between 1/16 inch per foot and 1/8 inch per foot. Runs of gutter greater than 20 feet shall be installed with a positive drainage slope of 1/16 inch per foot.
5. All gutters, both existing and replaced, shall be supported with hangers spaced not more than 24 inches on center. All inside and outside corners shall have a hanger installed within 4 inches of the 90-degree turn. Gutters shall be supported with copper strap hangers or other approved hangers compatible with the existing system. Hangers shall engage the rolled bead and be of the same material as the gutter. The total number of gutter hangers, based on corrected spacing, is approximately 191 and may vary based on field conditions.
6. All gutter joints shall have a minimum 1-1/2 inch overlap, mechanically fastened, and fully soldered to provide a watertight connection.
7. Existing outlet tubes shall remain in place. Contractor shall field verify alignment and connect new gutter sections to existing outlet tubes in a watertight manner. Any minor adjustments required to achieve proper alignment, and positive drainage shall be made without altering the existing downspout system.
8. Fasteners shall be copper and shall not create galvanic corrosion with adjacent materials.
9. Contractor shall ensure positive drainage to the existing 2-inch outfalls at the concealed wood gutters at the north and south. Work shall include the use of epoxy resin to reestablish proper slope and eliminate low areas or ponding within the gutter trough.
10. Existing downspouts are in good condition and shall remain in place. No new downspouts shall be installed. The Contractor shall adjust gutter alignment and slope to discharge to existing downspout locations without modification to the exterior stucco finish.
11. Work shall be executed to ensure positive drainage to existing downspouts and to eliminate existing areas of deflection and improper pitch. All work shall be performed in a manner that preserves the historic character and visual continuity of the existing gutter system.

3.2 Gutter Painting

1. Contractor shall prepare and paint all new gutter sections and any existing gutter and outlet tube surfaces disturbed by the work. All surfaces shall be cleaned, prepared, and made ready to receive coating.
2. Gutters and outlet tubes shall receive one coat of oil-based primer and two finish coats of oil-based paint. Final color shall match the existing gutter and outlet tube color.
3. Contractor shall protect adjacent surfaces during preparation and touch-up painting operations, including but not limited to walls, roof tiles, and landscaping. Protective measures shall be implemented to prevent overspray, drips, staining, or damage to surrounding materials.
4. Care shall be taken to ensure uniform coverage and finish, with no visible variation between new and existing components. Work shall be performed in a manner that preserves the historic appearance of the gutter system.

3.3 Stucco Kerf Reglet Counterflashing

1. Contractor shall remove all existing counterflashing with sealant wells at stucco-finished masonry chases.
2. Contractor shall cut a continuous, straight kerf into the stucco at all locations where existing counterflashing is removed. Kerf cuts shall be limited to the minimum dimensions necessary to receive the hemmed top edge of the new counterflashing. The kerf shall be formed using a diamond blade and shall be of uniform width and depth sufficient to receive the hemmed top edge of the new counterflashing.
3. Contractor shall install new copper counterflashing at all locations where existing counterflashing is removed. The new counterflashing shall be formed with a hemmed top edge sized for positive embedment within the kerf. The flashing shall extend over the step flashing or roof-side flashing below in a manner that provides continuous weather protection and positive drainage.
4. The hemmed top edge of the counterflashing shall be inserted into the kerf and set in a continuous bed of sealant to ensure full contact and positive embedment. The kerf shall be filled and sealed with a paintable epoxy sealant, or approved equivalent, compatible with copper and stucco.
5. All work shall be performed in a manner that produces a straight, uniform installation along the rake and minimizes damage to adjacent stucco surfaces.

3.4 Install Welded Wire Mesh at Tops of All Stucco Finished Masonry Chases

1. Contractor shall remove and replace the welded wire mesh (WWM) at the tops of all chases in kind with new 1/4-inch welded wire mesh.
2. New WWM shall be installed utilizing the same fastener locations as the existing installation to the greatest extent practicable. Existing fastener holes shall be filled with sealant prior to installation of new fasteners.
3. WWM shall be mechanically fastened to provide a secure and uniform installation consistent with the existing configuration.

4. All work shall be performed in a manner that preserves the existing appearance and function of the chase assemblies.

4.0 Requirements

4.1 Copper Gutter Fabrication and Installation

1. Contractor shall perform all work in accordance with the applicable provisions of the International Building Code (IBC).
2. Copper sheet used for gutter fabrication shall conform to ASTM B370 and shall be 20 oz copper (minimum thickness 0.027 inches).
3. All copper materials, fasteners, and accessories shall be compatible to prevent galvanic corrosion. Dissimilar metals shall not be placed in direct contact with copper.
4. Fabrication and installation of gutters, joints, and connections shall be performed in accordance with the applicable provisions of the Sheet Metal and Air Conditioning Contractors' National Association *Architectural Sheet Metal Manual*.
5. Except as otherwise shown or specified, comply with applicable recommendations and details of the Copper Development Association *Copper in Architecture* handbook.
6. All coatings shall be compatible with copper substrates and suitable for exterior exposure. Coating systems shall be submitted for approval as [product] or approved equivalent.
7. All work shall be executed to achieve continuous positive drainage with no standing water in gutters.
8. Contractor shall field verify all dimensions, slopes, and existing conditions prior to fabrication and installation. Any discrepancies affecting performance or alignment shall be reported to the Contracting Officer prior to proceeding.
9. Qualifications:

   A. Fabricator's Qualifications: Company specializing in copper gutter and downspout work with three (3) years of experience in similar size and type of installations.

   B. Installer: A firm with three (3) years of successful experience with installation of copper gutter and downspout work of type and scope described.

4.2 Finish Requirements

1. Gutters shall be primed and finish coated off-site prior to delivery to Cumberland Island to the greatest extent practicable. Field painting shall be limited to touch-up of minor damage or field connections only.
2. Touch-up painting may be performed in the field; however, all solvents, cleaners, and associated materials used for surface preparation and coating application shall be transported off of Cumberland Island and disposed of in accordance with all applicable Local, State, and Federal regulations.

4.3 Flashing Requirements

1. Copper sheet used for flashing and counterflashing shall conform to ASTM B370 and shall be minimum 20 oz copper.

2. Flashing and counterflashing shall be fabricated from copper matching the gutter system and shall be formed to provide continuous weather protection, proper overlap, and positive drainage.
3. Counterflashing installed at stucco-finished masonry chases shall be formed with a continuous hemmed top edge sized for embedment within a kerf cut into the stucco.
4. Kerf cuts in stucco shall be continuous, straight, and of uniform width and depth sufficient to receive the hemmed edge of the counterflashing without deformation of the flashing.
5. Counterflashing shall extend over and properly lap step flashing or roof-side flashing below to ensure positive drainage and prevent water intrusion.
6. The hemmed edge of the counterflashing shall be set in a continuous sealant bed and fully sealed within the kerf using sealant conforming to ASTM C920.
7. All flashing joints shall be lapped, mechanically secured as required, and soldered to provide a watertight assembly.
8. Flashing shall be installed to maintain a straight, uniform profile along horizontal and sloped rake conditions, consistent with existing historic appearance.

5.0 Resource Protection / Compliance

1. All work shall be performed in a manner that protects natural and cultural resources within the project area.
2. All wheeled equipment utilized within the project area shall be equipped with turf tires to minimize disturbance to soils, vegetation, and surrounding landscape features.
3. No ground disturbance is permitted under this contract. Contractor shall not excavate, grade, trench, or otherwise disturb soils inside or outside of the work area.
4. Contractor shall be responsible for repair and mitigation of any turf or landscape damage resulting from construction activities. Damaged areas shall be restored to pre-construction condition, including regrading, seeding, and stabilization as required.
5. Contractor shall protect all adjacent building materials and features, including but not limited to stucco finishes, masonry, roof tiles, wood elements, and architectural details. Damage to historic materials shall be avoided. Any damage caused by the Contractor shall be repaired at no additional cost to the Government.
6. All work shall be performed in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. Work shall be executed to preserve historic materials, finishes, and character-defining features to the greatest extent practicable.
7. Contractor shall limit work areas to those necessary to complete the work and shall minimize staging, storage, and access impacts to surrounding areas.
8. All debris generated by this work shall become the property of the Contractor. Contractor shall remove and dispose of all debris outside of the Park boundary and off of Cumberland Island in accordance with all applicable Local, State, and Federal regulations.
9. Contractor shall implement measures to prevent spills, staining, or contamination from fuels, oils, paints, sealants, or other materials. Any spills shall be immediately contained, cleaned, and reported to the Contracting Officer.
10. Contractor shall conduct all work in a manner that avoids disturbance to wildlife. If wildlife is encountered within or adjacent to the work area, Contractor shall stop work in the immediate area and notify the Contracting Officer's Representative. Work shall not resume in the affected area until directed by the Contracting Officer's Representative. Contractor shall not feed, harass, harm, or otherwise interact with wildlife.

6.0 Deliverables

6.1 Pre-Mobilization Submittals

1. Contractor shall submit Product Data Sheets (PDS) for all materials proposed for use, including but not limited to:
    - Copper sheet material
    - Gutter hangers and accessories
    - Flashing materials
    - Sealants
    - Coating systems
2. Contractor shall submit Safety Data Sheets (SDS) for all sealants, coatings, and other chemical products proposed for use under this contract.
3. Contractor shall submit manufacturer's data demonstrating that all proposed sealants are compatible with both copper and stucco substrates.
4. Contractor shall submit coating product data for primer and finish systems, including manufacturer's recommendations for application over copper substrates.
5. Contractor shall submit a tentative work schedule identifying sequencing of work activities and estimated durations for each activity.
6. Contractor shall submit a site-specific safety plan applicable to the work being performed. The document shall account for the resource being open and accessible to visitors on the grounds and in the structure. The safety plan shall include Activity Hazard Analyses (AHAs) for lift operations and overhead work.

6.2 Pre-Mobilization Submittals

1. Contractor shall provide a minimum of three (3) weeks advance notice prior to mobilization to Cumberland Island to allow for coordination of access and logistics.
2. Contractor shall participate in a pre-mobilization meeting with the Contracting Officer's Representative and other impacted stakeholders no later than seven (7) calendar days prior to mobilization. The purpose of the meeting is to review work sequencing, access, protection of historic materials, and site logistics.
3. Contractor shall submit a finalized construction schedule no later than forty-eight (48) hours prior to the pre-mobilization meeting. The schedule shall include sequencing of work activities and durations.
4. Contractor shall participate in weekly site coordination meetings with the Contracting Officer's Representative for the duration of the work.

6.3 Close-out

1. Contractor shall provide the National Park Service with a warranty for installed gutters, downspout connection, chase reglet flashing, and trim components to be free from defects in material and workmanship for a period of two (2) years. Warranty shall include coverage against leaks at seams and downspout connections.

7.0 Payment

1. Contractor shall submit a Pricing Schedule for approval prior to the start of work. Progress payments shall be based on work completed in accordance with the approved Pricing Schedule.
2. Contractor shall notify the Contracting Officer upon completion of all work.
3. The Contracting Officer's Representative shall inspect the work and notify the Contracting Officer and the Contractor when the project has reached substantial completion.
4. If deficiencies are identified, the Contracting Officer's Representative shall provide a list of deficiencies (punch list). Contractor shall correct all deficiencies prior to final acceptance.

5. Upon correction of all deficiencies and re-inspection by the Contracting Officer's Representative, the Contracting Officer's Representative shall approve the final payment application. The Contracting Officer will issue a letter of Final Acceptance.

NOTES
1. All runs of new gutter over 20' shall fall between 1/16"/ foot.
2. All runs of new gutter shall fall no more than 1/8" per foot.
3. Directional arrow indicates drainage direction to downspout.

REPAIRED

DS #13 (3" MIN.) REMOVE ELBOWS & EXTENSIONS AND INSTALL VERTICAL COPPER DOWNSPOUT

AREA OF SLOPED ROOF TO BE EVALUATED FOR IMPROVED DRAINAGE AND PROPER FLASHING

DORMER; EXISTING

DS #14 (3" MIN.)

GUTTER TO BE REPLACED

GUTTER TO BE REPLACED

DS#12 (4" MIN.)

ROOF VENT; EXISTING

SKYLIGHT; EXISTING TO BE RE

REMOVE TORN METAL MESH AND REPLACE WITH NEW MESH AT THE TOP OF MASONRY CHASES. (TYPICAL)

DS #11 (4" MIN.)

CHIMNEY; EXISTING TO BE REPAIRED: REPLACE FAILED FLASHING AS NECESSARY, TYPICAL OF ALL EXISTING CHIMNEYS

SKYLIGHT; EXISTING TO BE REPAIRED: RAISE CURB AND REPLACE FLASHING, TYPICAL OF ALL SKYLIGHTS AND ROOF HATCHES

Remove and Replace Approximately 26' of Copper Gutter, from under high roof to Existing Downspout

(5" MIN.)

SKYLIGHT; EXISTING TO BE REPAIRED

DS #9 (5" MIN.)

DS #8 (3" MIN.)

ROOF VENT; EXISTING

GUTTER TO BE REPLACED

CHIMNEY; EXISTING TO BE REPAIRED

DS #4 (4" MIN.)

DS #5 (5" MIN.)

CW UP TO HOSE BIBB ON ROOF; EXISTING

Remove and replace approximately 24' of gutter

ROOF VENT; EXISTING

DS #7 (3" MIN.) REMOVE ELBOWS & EXTENSIONS AND INSTALL VERTICAL COPPER DOWNSPOUT

DS #6 (3" MIN.)

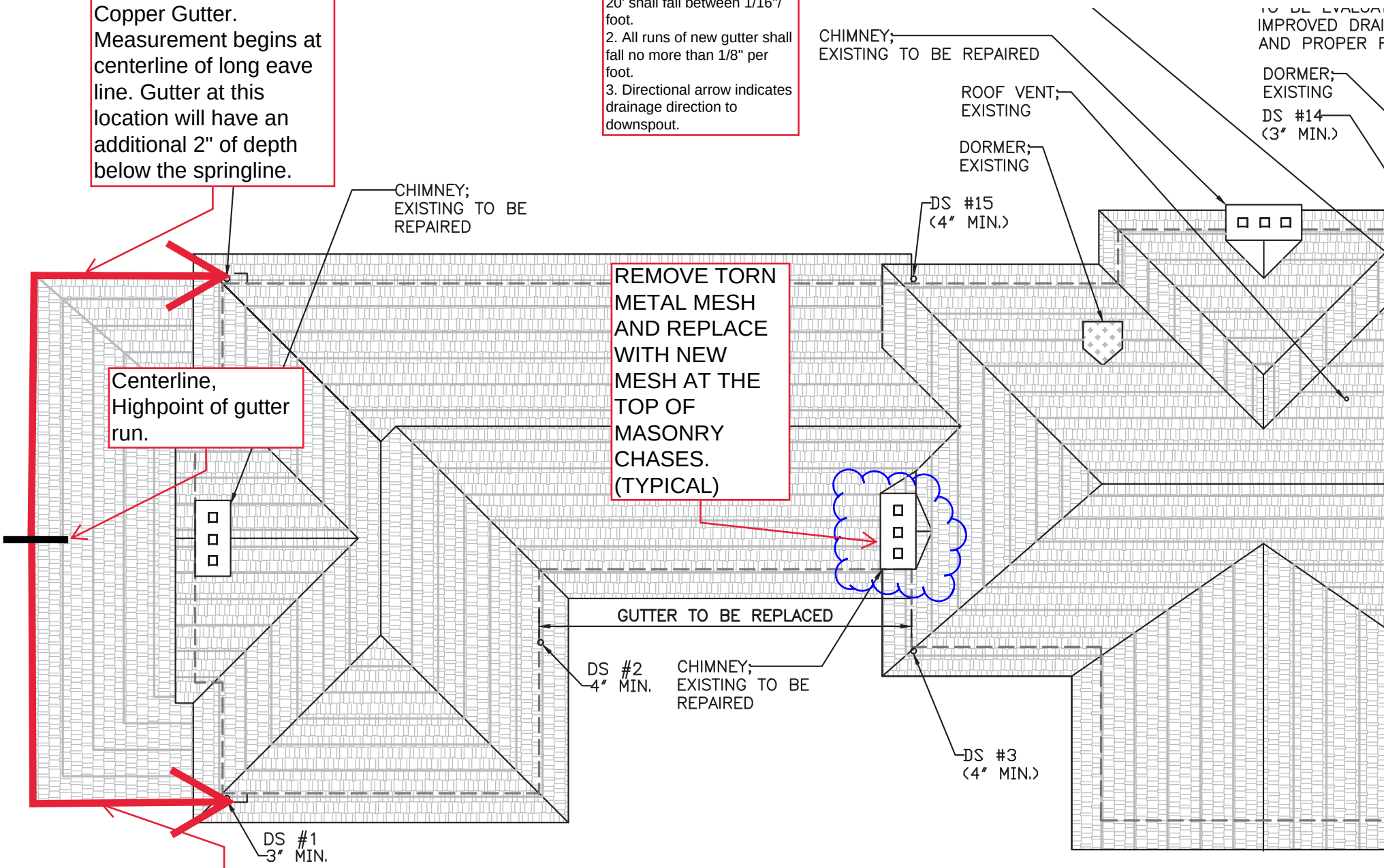
N

EAST LOW ROOF GUTTER REPLACEMENT PLAN

GUTTER REPLACEMENT AT LOW ROOF LOCATIONS

Remove and Replace Approximately 41' of Copper Gutter. Measurement begins at centerline of long eave line. Gutter at this location will have an additional 2" of depth below the springline.

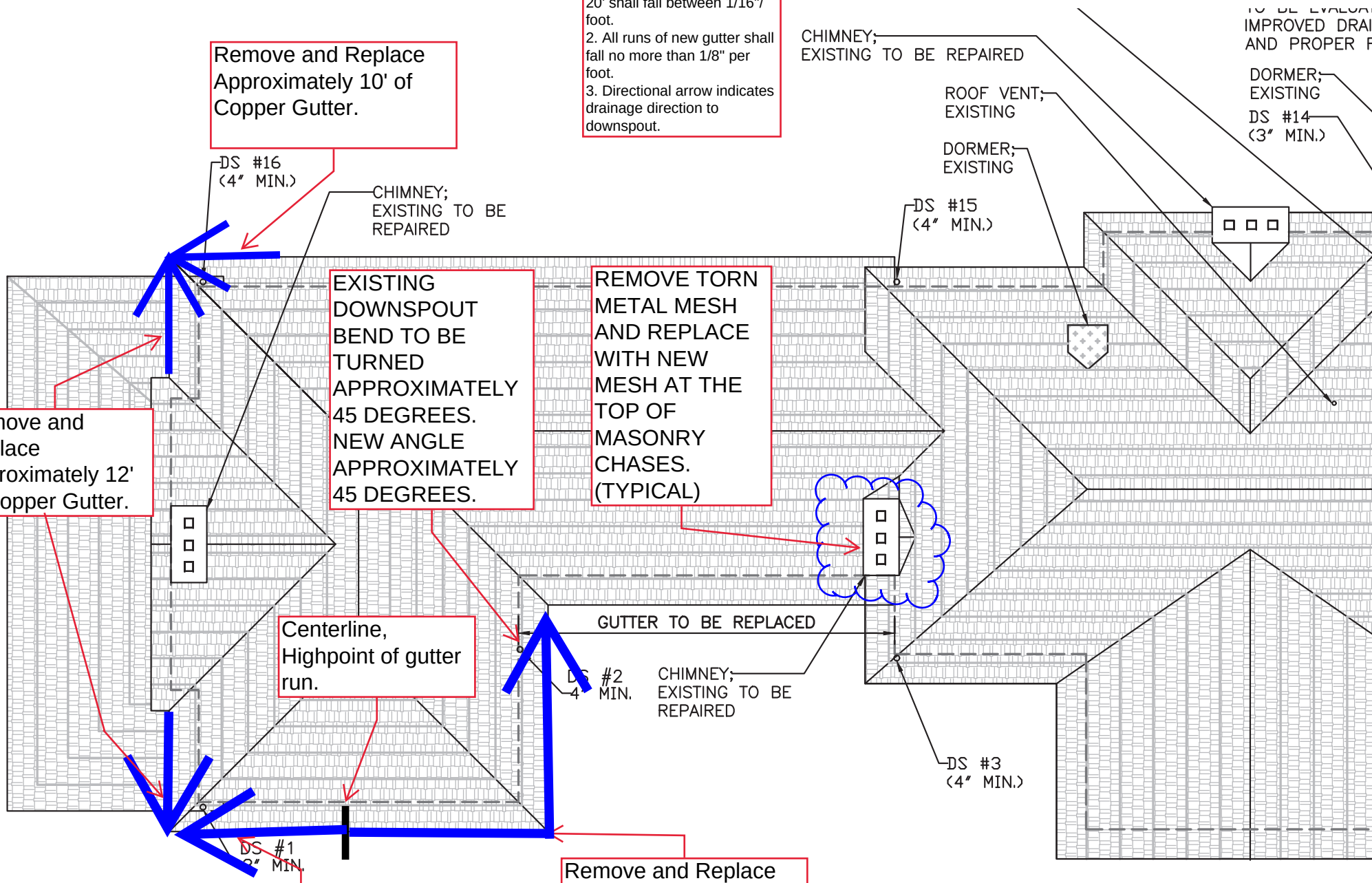
NOTES
1. All runs of new gutter over 20' shall fall between 1/16"/ foot.
2. All runs of new gutter shall fall no more than 1/8" per foot.
3. Directional arrow indicates drainage direction to downspout.



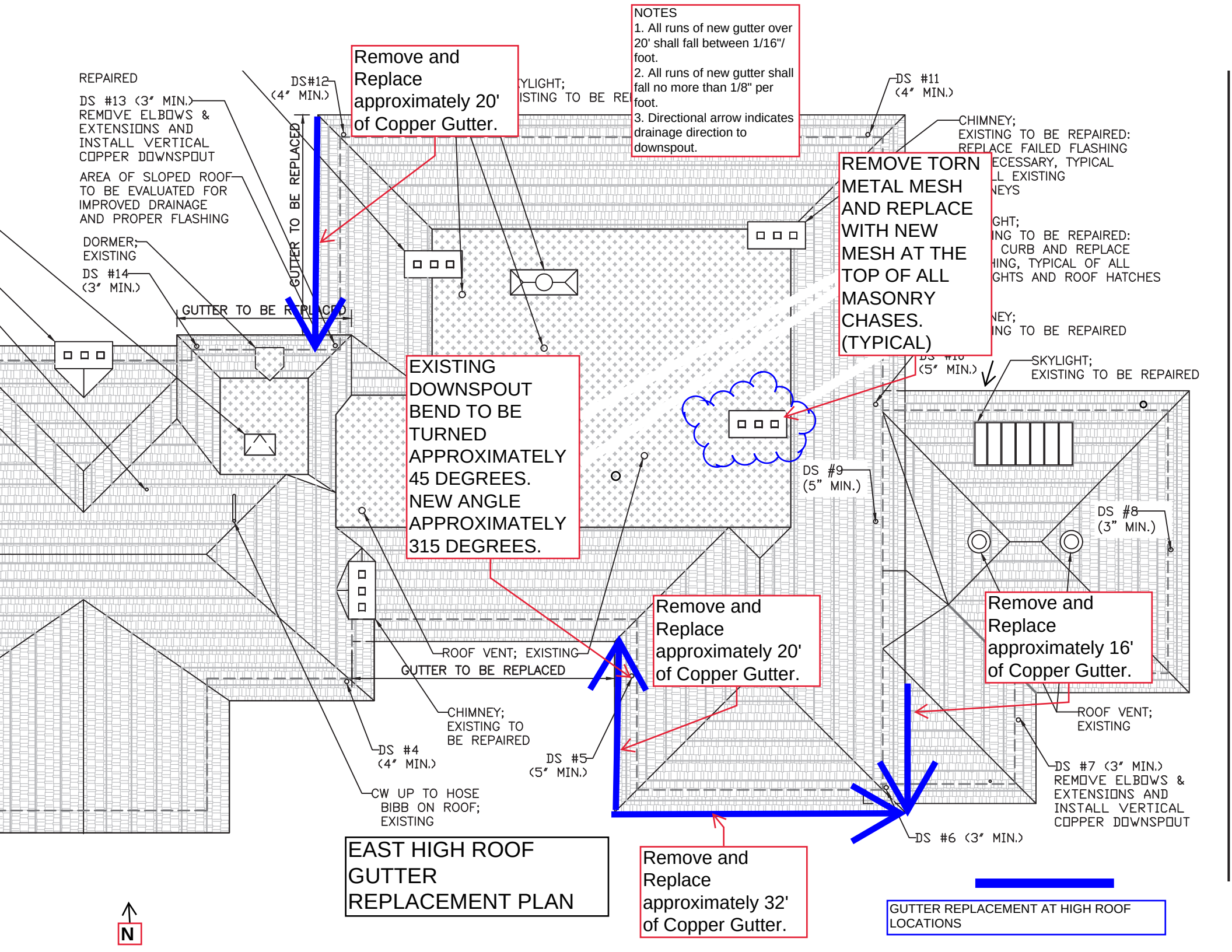
Remove and Replace Approximately 41' of Copper Gutter. Measurement begins at centerline of long eave line. Gutter at this location will have an additional 2" of depth below the springline.

GUTTER REPLACEMENT AT LOW ROOF LOCATIONS

NOTES
1. All runs of new gutter over 20' shall fall between 1/16"/ foot.
2. All runs of new gutter shall fall no more than 1/8" per foot.
3. Directional arrow indicates drainage direction to downspout.



GUTTER REPLACEMENT AT HIGH ROOF LOCATIONS


NOTES
1. All runs of new gutter over 20' shall fall between 1/16"/ foot.
2. All runs of new gutter shall fall no more than 1/8" per foot.
3. Directional arrow indicates drainage direction to downspout.
Remove and Replace approximately 20' of Copper Gutter.
REPAIRED
DS #13 (3" MIN.) REMOVE ELBOWS & EXTENSIONS AND INSTALL VERTICAL COPPER DOWNSPOUT
AREA OF SLOPED ROOF TO BE EVALUATED FOR IMPROVED DRAINAGE AND PROPER FLASHING
DORMER; EXISTING
DS #14 (3" MIN.)
DS#12 (4" MIN.)
GUTTER TO BE REPLACED
GUTTER TO BE REPLACED
DS #11 (4" MIN.)
CHIMNEY; EXISTING TO BE REPAIRED: REPLACE FAILED FLASHING
REMOVE TORN METAL MESH AND REPLACE WITH NEW MESH AT THE TOP OF ALL MASONRY CHASES. (TYPICAL)
SKYLIGHT; EXISTING TO BE REPAIRED
(5" MIN.)
EXISTING DOWNSPOUT BEND TO BE TURNED APPROXIMATELY 45 DEGREES. NEW ANGLE APPROXIMATELY 315 DEGREES.
DS #9 (5" MIN.)
DS #8 (3" MIN.)
Remove and Replace approximately 20' of Copper Gutter.
Remove and Replace approximately 16' of Copper Gutter.
ROOF VENT; EXISTING
GUTTER TO BE REPLACED
CHIMNEY; EXISTING TO BE REPAIRED
DS #4 (4" MIN.)
DS #5 (5" MIN.)
CW UP TO HOSE BIBB ON ROOF; EXISTING
ROOF VENT; EXISTING
DS #7 (3" MIN.) REMOVE ELBOWS & EXTENSIONS AND INSTALL VERTICAL COPPER DOWNSPOUT
DS #6 (3" MIN.)
EAST HIGH ROOF GUTTER REPLACEMENT PLAN
Remove and Replace approximately 32' of Copper Gutter.
GUTTER REPLACEMENT AT HIGH ROOF LOCATIONS
N