

TOWN OF BROOKLINE, VERMONT  
PROPOSED SAND & SALT SHED PROJECT  
BROOKLINE STP MM18(7)

TOWN OF BROOKLINE  
COUNTY OF WINDHAM  
STATE OF VERMONT

ROUTE #: TH 1 (GRASSY BROOK ROAD)

PROJECT DESCRIPTION: CONSTRUCTION OF A NEW SAND & SALT SHED WITH  
RELATED SITE WORK.

OCTOBER 30, 2021

SHEET LIST

NO. DESCRIPTION

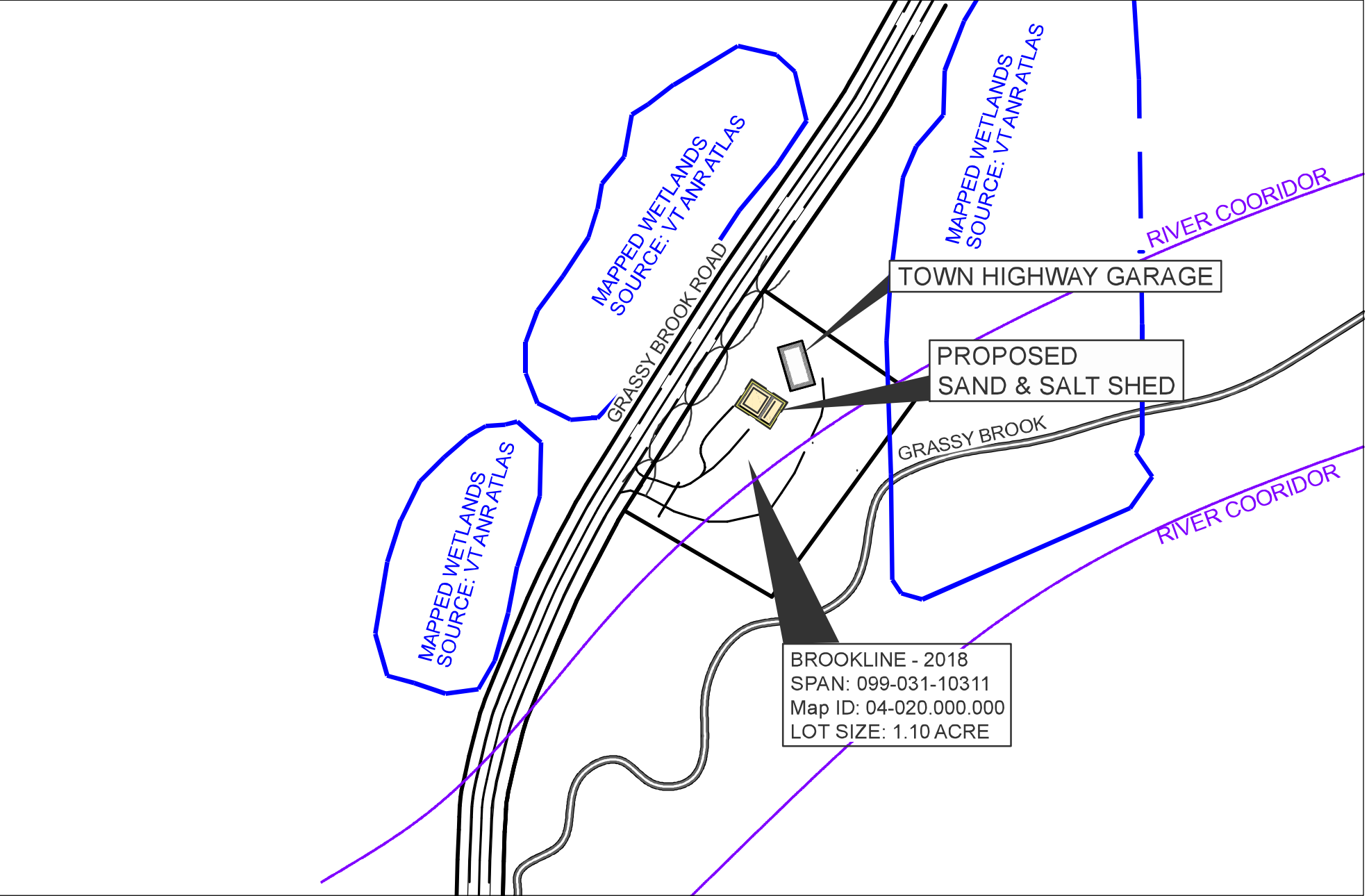
- TITLE SHEET  
C-1. SITE PLAN  
C-2. DRIVEWAY PLAN/PROFILE AND SITE WORK DETAILS  
C-3. TRAFFIC CONTROL PLAN  
C-4. EROSION CONTROL DETAILS  
C-5. ESPC NARRATIVE  
C-6. RIGHT OF WAY PLAN  
A-1. BUILDING PLAN, DETAIL AND ELEVATIONS  
A-2. BUILDING SECTIONS AND NOTES

NOTES:

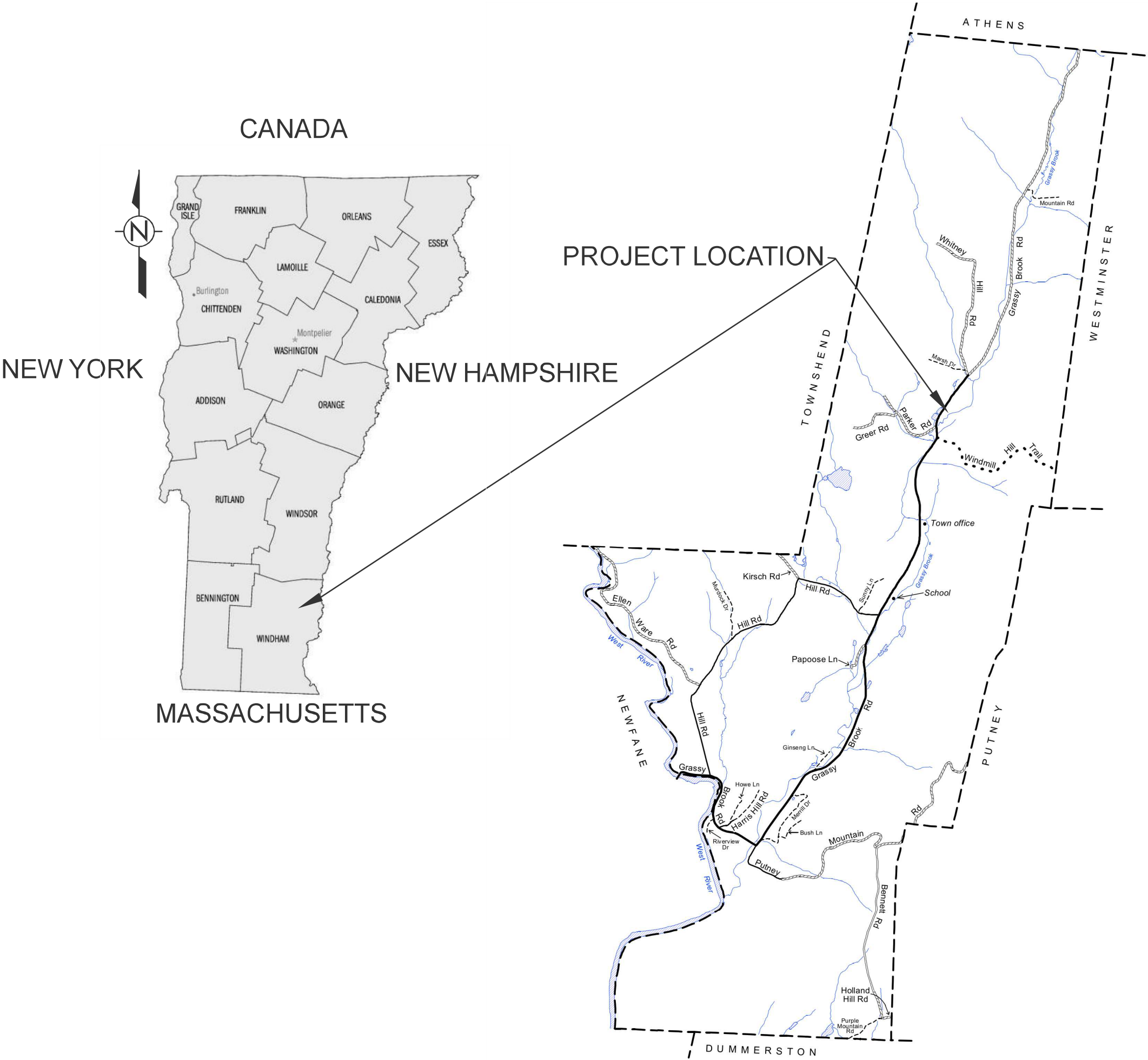
CONSTRUCTION IS TO BE CONDUCTED IN ACCORDANCE WITH THE VTRANS  
STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2018.

THE PROJECT IS TO BE CONDUCTED ACCORDING TO THE VERMONT AGENCY OF  
TRANSPORTATION QUALITY ASSURANCE PROGRAM DOCUMENT DATED JUNE 1, 2018  
AT LEVEL 3.

THE SITE SURVEY WORK WAS CONDUCTED BY GNSS SURVEY UTILIZING THE  
VTRANS RTN DISTRICT 2 CORS STATION; ID: VTD2; PID DJ8953; ELLIPTICAL HEIGHT  
97.973m; VERMONT CORS ARE REFERENCED TO NAD 83 (2011) EPOCH 2010.00



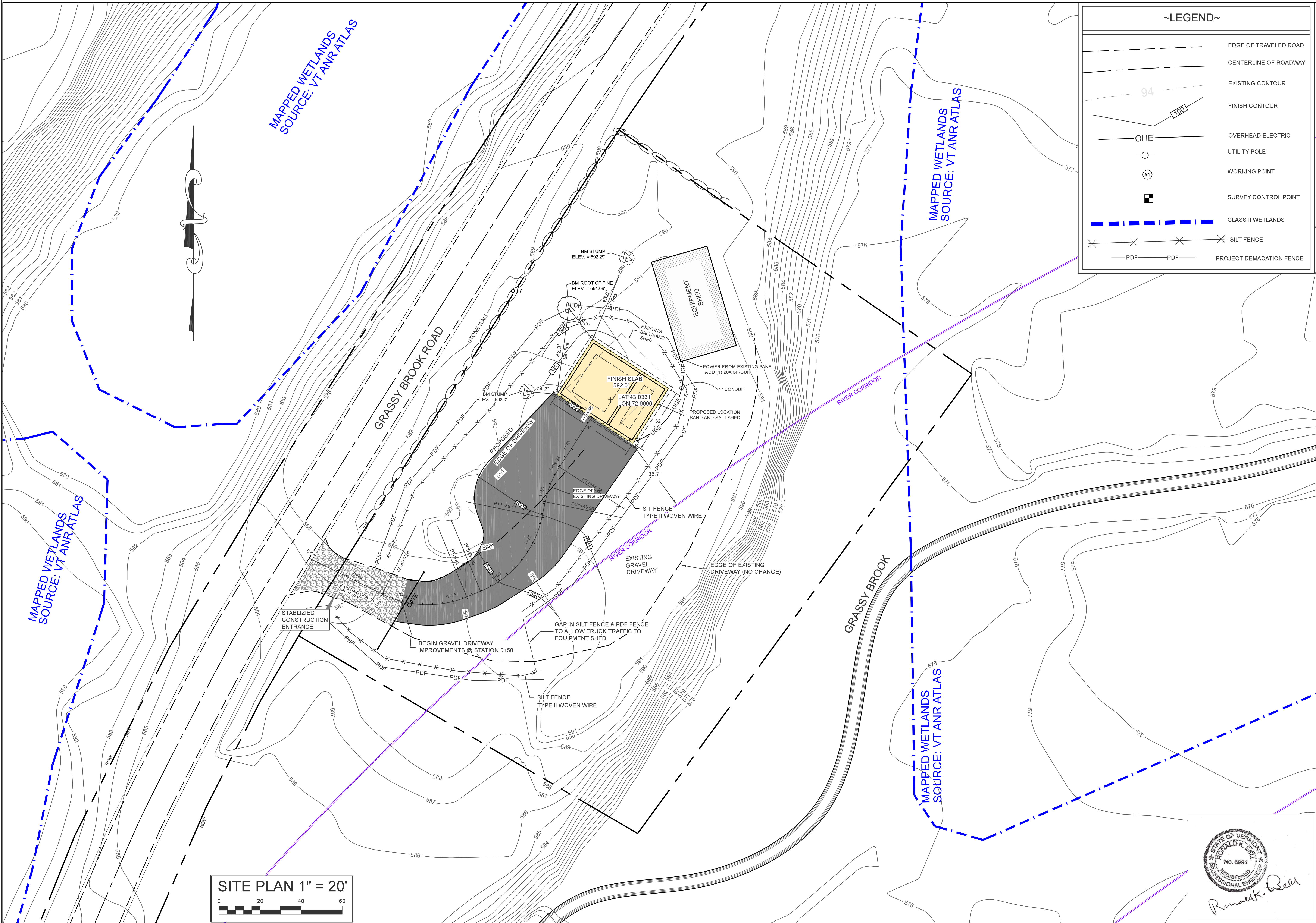
PROJECT LOCATION: THE PROJECT IS LOCATED ON GRASSY BROOK ROAD 0.1  
MILES NORTH OF PARKER ROAD AND 0.85 MILES NORTH OF THE TOWN OFFICES.



ENGINEERING BY:  
BELL ENGINEERING  
17 ECHO COVE WAY  
SPOFFORD, NEW HAMPSHIRE 03462  
PHONE (603) 363- 9966  
RONALD K. BELL, PE

PROJECT MANAGEMENT BY:  
WINDHAM REGINONAL COMMISSION  
139 MAIN STREET: SUITE 505  
BRATTLEBORO, VERMONT 05301  
PHONE (802) 257-4547  
MARGO GHIA & CHRIS CAMPANY

TOWN OF BROOKLINE  
TOWN OFFICE:  
734 GASSY BROOK ROAD  
BROOKLINE, VERMONT 05345  
PHONE (802) 365-4648  
TOWN AGENT: GUY TANZA



~LEGEND~

	EDGE OF TRAVELED ROAD
	CENTERLINE OF ROADWAY
	EXISTING CONTOUR
	FINISH CONTOUR
	OHE
	UTILITY POLE
	WORKING POINT
	SURVEY CONTROL POINT
	CLASS II WETLANDS
	SILT FENCE
	PROJECT DEMACATION FENCE

**BELL ENGINEERING**  
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REVISIONS:	

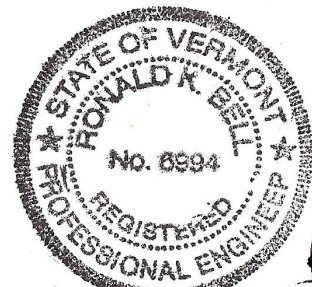
PROJECT: TOWN OF BROOKLINE  
GRASSY BROOK ROAD  
BROOKLINE, VT

SHEET TITLE: SITE PLAN  
BROOKLINE SAND  
& SALT SHED

SCALE: 1" = 20'

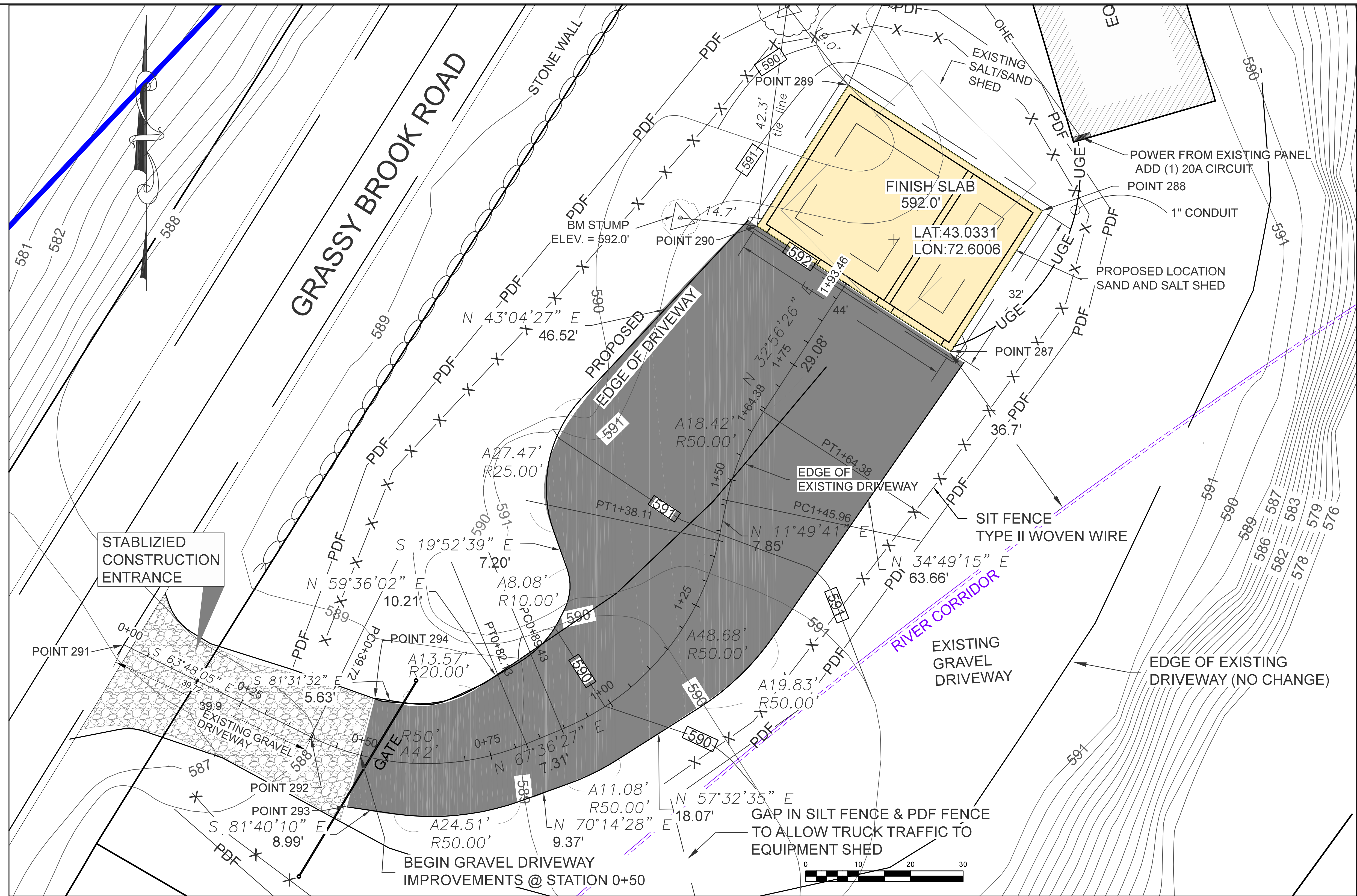
DATE: OCT. 30, 2021

SHEET C-1



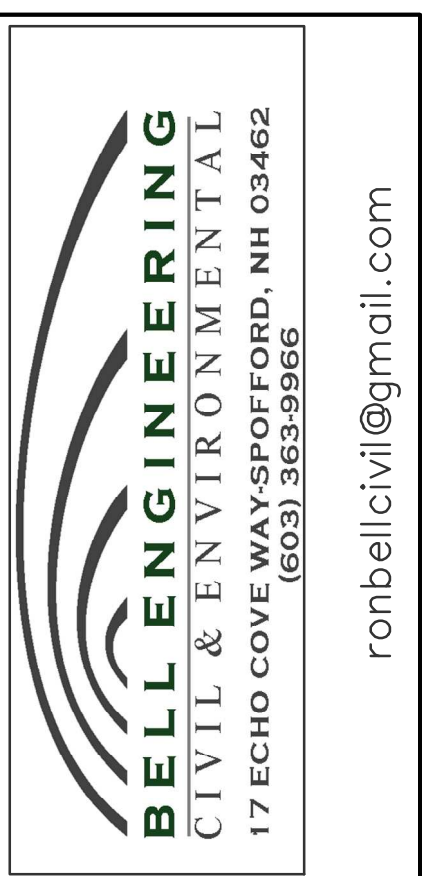
Ronald K. Bell

bellengineering@myfairpoint.net



CONTROL POINT COORDINATES				
Point	Northing	Easting	Elevation	Description
12	194306.933	1613482.730	1592.00	BM STUMP
15	194371.952	1613531.231	1592.29	BM STUMP
46	194347.311	1613503.112	591.06	BM STUMP

POINT NUMBER COORDINATES				
Point	Northing	Easting	Description	
287	194281.475	1613534.295	BUILD CRN	
288	194308.330	1613551.695	BUILD CRN	
289	194332.256	1613514.769	BUILD CRN	
290	194305.401	1613497.368	BUILD CRN	
291	194225.545	1613376.577	0+00	
292	194208.008	1613412.220	POC	
293	194194.803	1613419.192	OFFSET	
294	194215.249	1613424.451	OFFSET	



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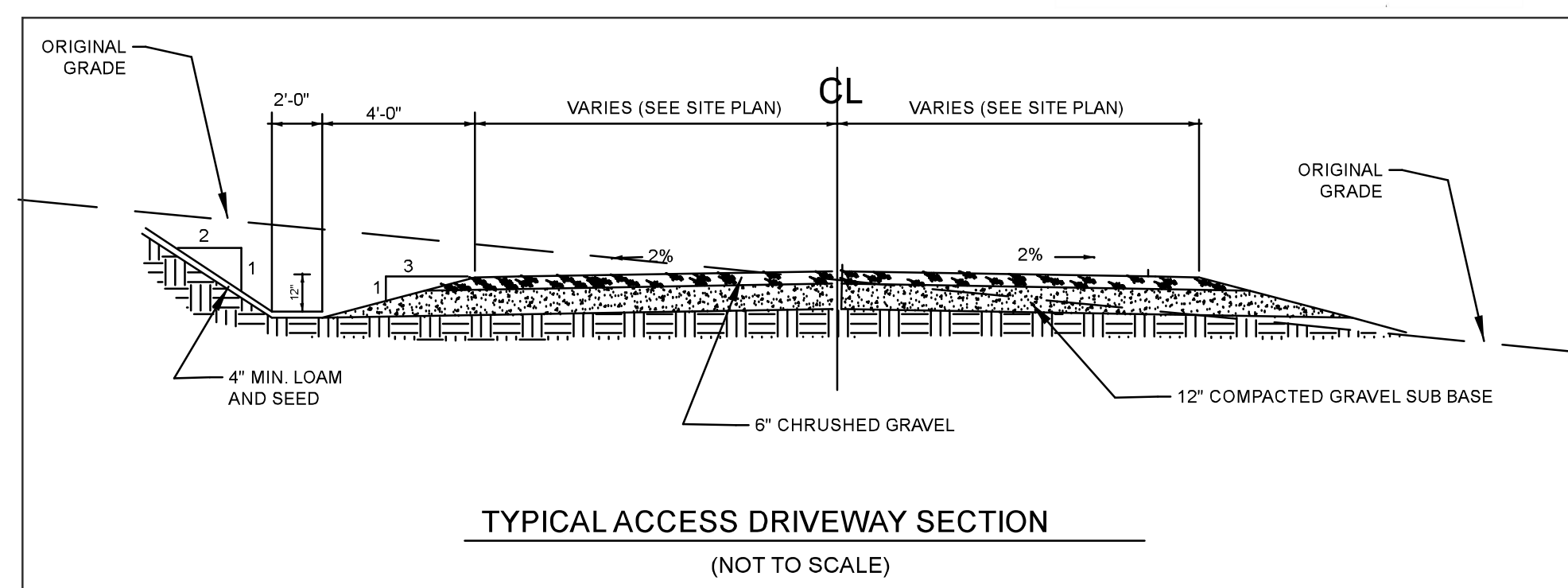
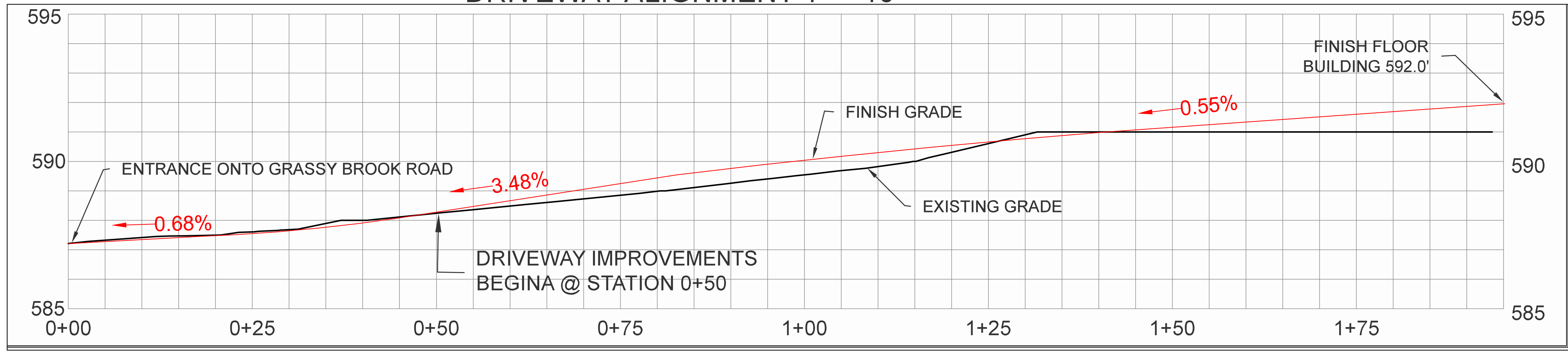
REVISIONS:	
02-18-2022	NOTE STABILIZED ENTRANCE & ALIGNMENT BEARING CORRECTIONS
05-25-2020	ADDRESS VTRANS COMMENTS

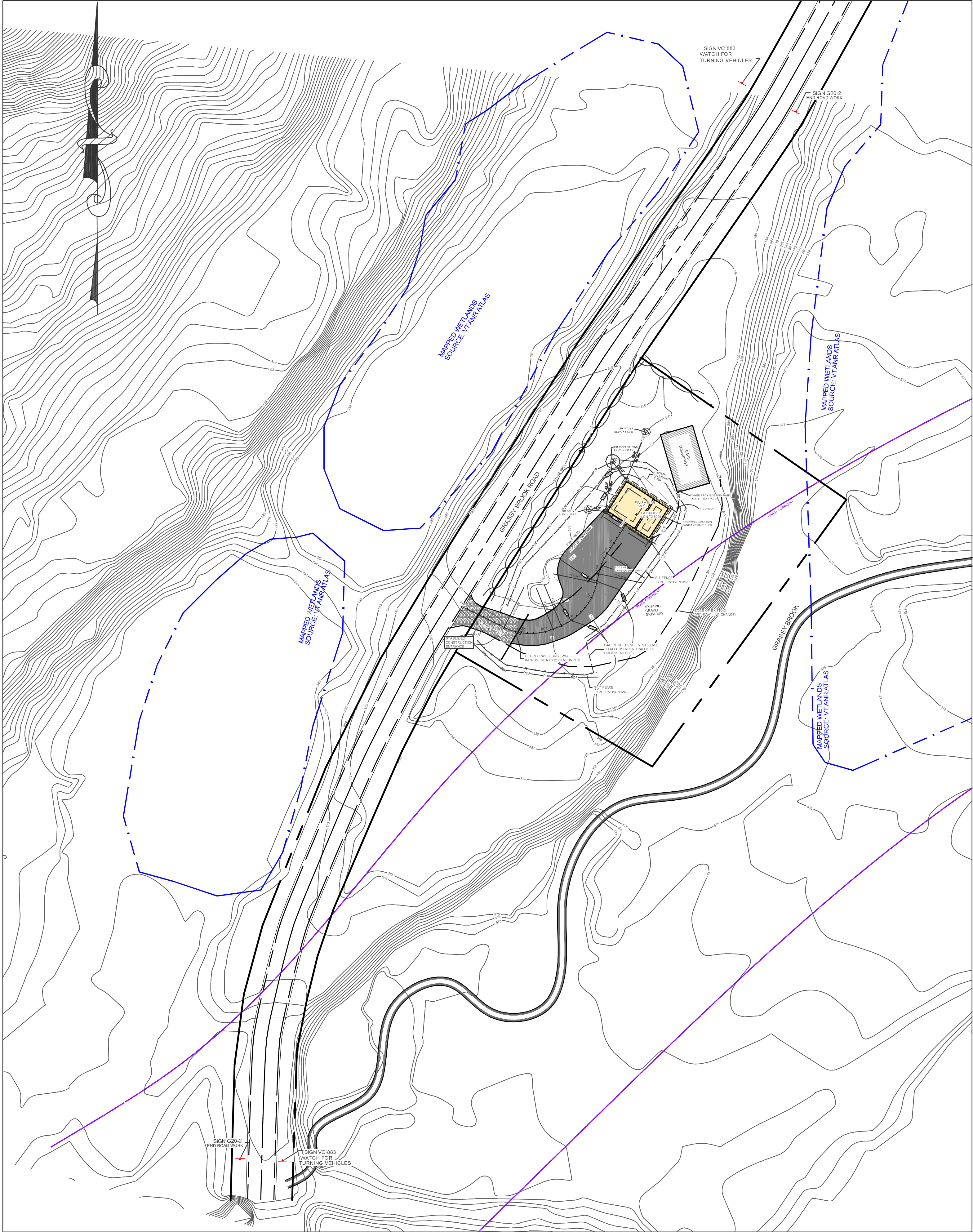
PROJECT: TOWN OF BROOKLINE  
GRASSY BROOK ROAD  
BROOKLINE, VT

SHEET TITLE: DRIVEWAY PLAN & PROFILE  
&  
SITE PLAN DETAILS  
BROOKLINE SAND  
& SALT SHED

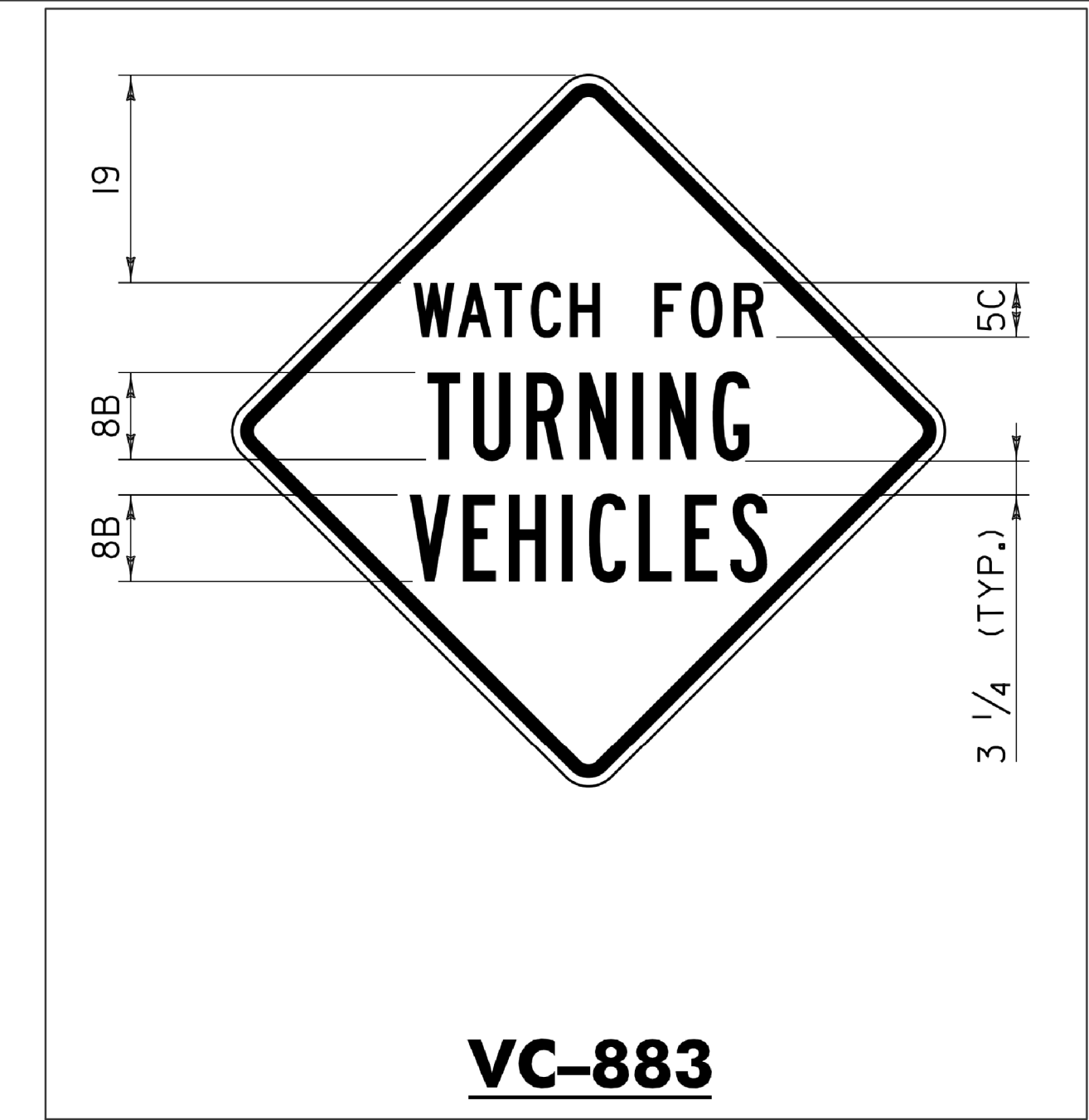
SCALE: 1" = 20'  
DATE: OCT. 30 2021

SHEET C-2





TRAFFIC CONTROL PLAN 1" = 50'



PROJECT SIGNAGE: INSTALL SIGNS 500' EITHER SIDE OF DRIVEWAY

GENERAL NOTES:

1. COLORS FOR SIGNS SHALL BE BLACK LEGEND AND BORDER ON FLUORESCENT ORANGE BACKGROUND.
2. CONSTRUCTION SIGNS SHALL BE 48 INCH BY 48 INCH. IF SOLID SUBSTRATE SIGNS ARE SUED, SIGNS SHALL HAVE CORNERS ROUNDED TO A THREE INCH RADIUS WITH FLUORESCENT ORANGE BACKGROUND SHEET WITH A BLACK LEGEND AND BORDER.
3. SIGNS SHALL HAVE 1&1/4 INCH WIDE BORDERS THAT ARE INDENTED 3/4 INCH FROM THE EDGE OF THE SIGN.
4. SIGNS SHALL HAVE THE LEGEND CENTERED HORIZONTALLY AND VERTICALLY ON THE SIGN UNLESS OTHERWISE INDICATED..
5. ALL DIMENSION SHOWN IN INCHES.
6. POST MOUNTED SIGNS SHALL BE MOUNTED ON TWO 3 LBS/FT FLANGED CHANNEL POSTS. NO SIGNPOSTS SHALL EXTEND OVER THE TOP EDGE OF THE SIGN INSTALLED ON SAID POSTS. NO SIGN POST STUB HEIGHT TO EXCEED 4 INCHES ABOVE THE GROUND HEIGHT.
7. PORTABLE SIGNS STANDS SHALL BE NCHRP REPORT 350 OR MASH COMPLIANT. THE BOTTOM OF THE SIGN MOUNTED ON THE PORTABLE SIGN SUPPORT SHALL BE AT LEAST 1 FOOT ABOVE THE TRAVELED WAY.

INSTALL TRAFFIC CONTROL SIGNS 500' EITHER SIDE OF DRIVEWAY.

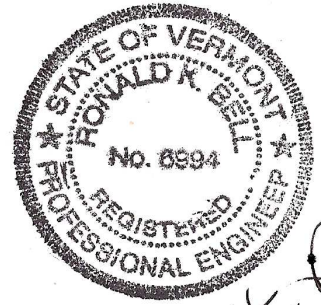
THE CONTRACOR IS TO INSPECT THE ROADWAY DAILY FOR THE PRESENCE OF SAND, MUD AND RUTS. IMMEDIATELY REPAIR ANY DAMAGED ROAD SHOULDERS IN ORDER TO TO MAINTAIN SAFE PEDESTRIAN AND BICYCLE PASSAGE.

ANY SAND OR MUD TO BE REMOVED AND ALL RUTS IN SHOULDER TO BE FILLED WITH GRAVEL AND COMPACTED.

MAINTAIN BOTH SIDES OF ROADWAY FOR MIN. 200' EITHER SIDE OF DRIVEWAY ENTRANCE. PAY PARTICULAR ATTENTION TO DRIVEWAY TURNING RADIUS WHERE TRUCKS MAY CUT THE CORNERS AND TRAVEL OFF GRAVEL DRIVEWAY CAUSING RUTS THAT COULD ENDANGER PEDESTRIAN \ BICYCLE TRAFFIC.

IF REPAIRS TO THE DRIVEWAY ENTRANCE ARE REQUIRED, DO NOT UTILIZE ANY AGGREGATE LARGER THAN 3/4" WHICH COULD HINDER BICYCLE WHEELS. REPAIRS TO THE DRIVEWAY WITHIN 5' OF THE EDGE OF PAVEMENT TO UTILIZE FINE PROCESS AGGREGATE AND COMPACTED SUFFICENTLY TO SUPPORT BICYCLE WHEELS.

THE PROJECT IS LOCATED IN A LOW VOLUME PEDESTRIAN / BICYLCE USE AREA. HOWEVER, IF NOTIFIED BY THE TOWN OFFICIALS THAT ACTIVIES ARE PLANNED WHICH WILL RESULT IN HIGH PEDESTRIAN TRAFFIC (SUCH AS A BIKE RACE) - THAN THE CONTRACTOR TO USE A FLAGGER TO CONTROL TRUCK TRAFFIC.



*Ronald K. Bell*



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REVISIONS:	

PROJECT:

**TOWN OF BROOKLINE**  
**GRASSY BROOK ROAD**  
**BROOKLINE, VT**

SHEET TITLE:

**TRAFFIC CONTROL PLAN**  
**BROOKLINE SAND**  
**& SALT SHED**

SCALE:  
1" = 50'

DATE:  
OCT. 30, 2021

SHEET  
**C-3**



EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF AN EXISTING SAND AND SALT SHED AND CONSTRUCTION OF A NEW SAND AND SALT SHED. THE PROJECT IS LOCATED IN THE TOWN OF BROOKLINE, ON GRASSY BROOK ROAD, APPROXIMATELY 0.1 MILES NORTH OF PARKER ROAD. THE NEW SAND & SALT SHED IS 44'X32' (1408 SQ. FT.). IN ADDITION TO CONSTRUCTION OF THE BUILDING, WIDENING OF THE DRIVEWAY WILL BE REQUIRED TO ACCESS THE NEW BUILDING.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED SITE PLAN. THE AREA OF DISTURBANCE WITHIN THE PDF FENCE) IS APPROXIMATELY 0.4 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS A VALLEY FLOOR WITH SURROUNDING HILLSIDES. THE VEGETATION IN THE AREA IS A COMBINATION OF FIELDS, CULTIVATED FARMLAND AND WELL ESTABLISHED FOREST. GRASSY BROOK ROAD (TH 1) AND AN EXISTING GRAVEL DRIVEWAY ARE WITHIN THE PROJECT SITE. THERE IS A RESIDENCE ON THE WEST SIDE OF THE PROJECT WITH TREE BUFFERS.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN–MADE WATER FEATURES

THE GRASSY BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS A SHALLOW, SINUOUS STREAM WITH INTERMITTENT POOLS. THE STREAM BANKS ARE NATURAL VEGETATION AT THE SITE. THE BUILDING SITE IS APPROXIMATELY 140' FROM THE STREAM AND 16' HIGHER THAN THE STREAM ELEVATION. THE STREAM BED CONSISTS OF SAND, SILT AND GRAVEL. THE PROJECT SITE DOES NOT DRAIN DIRECTLY TO THE STREAM. RUNOFF FLOW IS TO THE SOUTH OFF THE SITE TO A WOODED AREA.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF SOFTWOOD AND HARDWOOD TREES, AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY WIDENING THE DRIVEWAY TO THE SOUTH OF THE NEW BUILDING. THE NEW BUILDING IS SITUATED IN THE APPROXIMATE AREA OF THE EXISTING BUILDING

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WINDHAM, VERMONT. SOILS ON THE PROJECT SITE ARE COLTON GRAVELLY SANDY (50C) LOAM, 8% TO 15% SLOPES, 'K FACTOR' = 0.17. THE SOIL HAS A LOW SUSCEPTIBILITY TO EROSION DUE TO THE LOW K VALUE AND LOW SLOPES IN THE AREA OF DISTURBANCE.

NOTE: K–VALUES GENERALLY INDICATE THE FOLLOWING:  
0.0–0.23 = LOW EROSION POTENTIAL  
0.24–0.36 = MODERATE EROSION POTENTIAL  
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: TO BE DETERMINED  
HISTORICAL OR ARCHAEOLOGICAL AREAS: TO BE DETERMINED  
PRIME AGRICULTURAL LAND: NO  
THREATENED AND ENDANGERED SPECIES: TO BE DETERMINED  
WATER RESOURCE: GRASSY BROOK  
WETLANDS: NONE WITHIN THE AREA OF DISTURBANCE

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3–9020 FOR STORM WATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD–UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA  
PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION  
TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS  
SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN. WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

1.4.5 DIVERT UPLAND RUNOFF  
DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE PROJECT AREA IS RELATIVELY FLAT. THEREFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF  
CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

DUE TO THE FREE DRAINING NATURE OF THE SOILS AND THE SHALLOW SLOPES AT THE CONSTRUCTION SITE, THE USE OF STONE CHECK DAMS IS NOT ANTICIPATED.

1.4.7 CONSTRUCT PERMANENT CONTROLS  
PERMANENT STORM WATER TREATMENT DEVICES ARE NOT REQUIRED ON THIS PROJECT.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION  
ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3–9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION  
VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE  
EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE–WATERING ACTIVITIES  
DE–WATERING ACTIVITIES ARE NOT REQUIRED ON THIS PROJECT.

1.4.12 INSPECT YOUR SITE  
INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

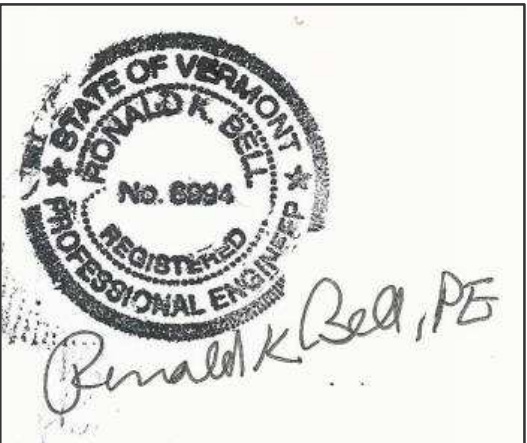
1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF–SITE ACTIVITIES  
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SPECIFICATION 105.25– 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

1.5.3 UPDATES





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REVISIONS:					
					ADDRESS ALL COMMENTS BY VTRANS
				5–25–2020	

PROJECT:

TOWN OF BROOKLINE  
DEPOT ROAD  
BROOKLINE, VT

SHEET TITLE:

EPSC NARRATIVE  
BROOKLINE SAND  
& SALT SHED

SCALE:

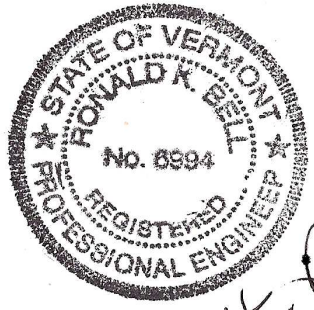
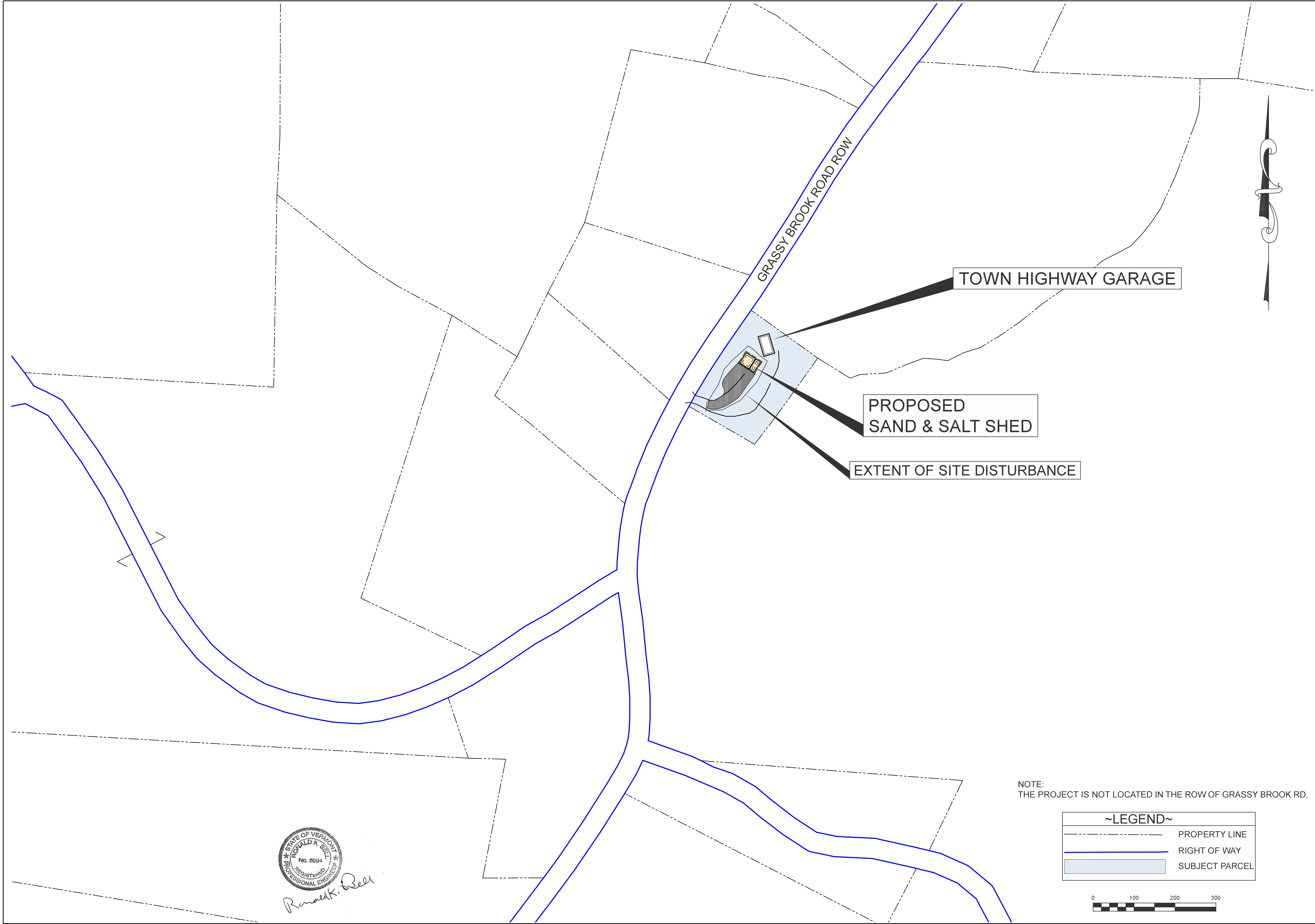
NTS

DATE:

OCT. 30 2021

SHEET

C-5



Ronald K. Bell

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REVISIONS:					

PROJECT:

TOWN OF BROOKLINE  
GRASSY BROOK ROAD  
BROOKLINE, VT

SHEET TITLE:

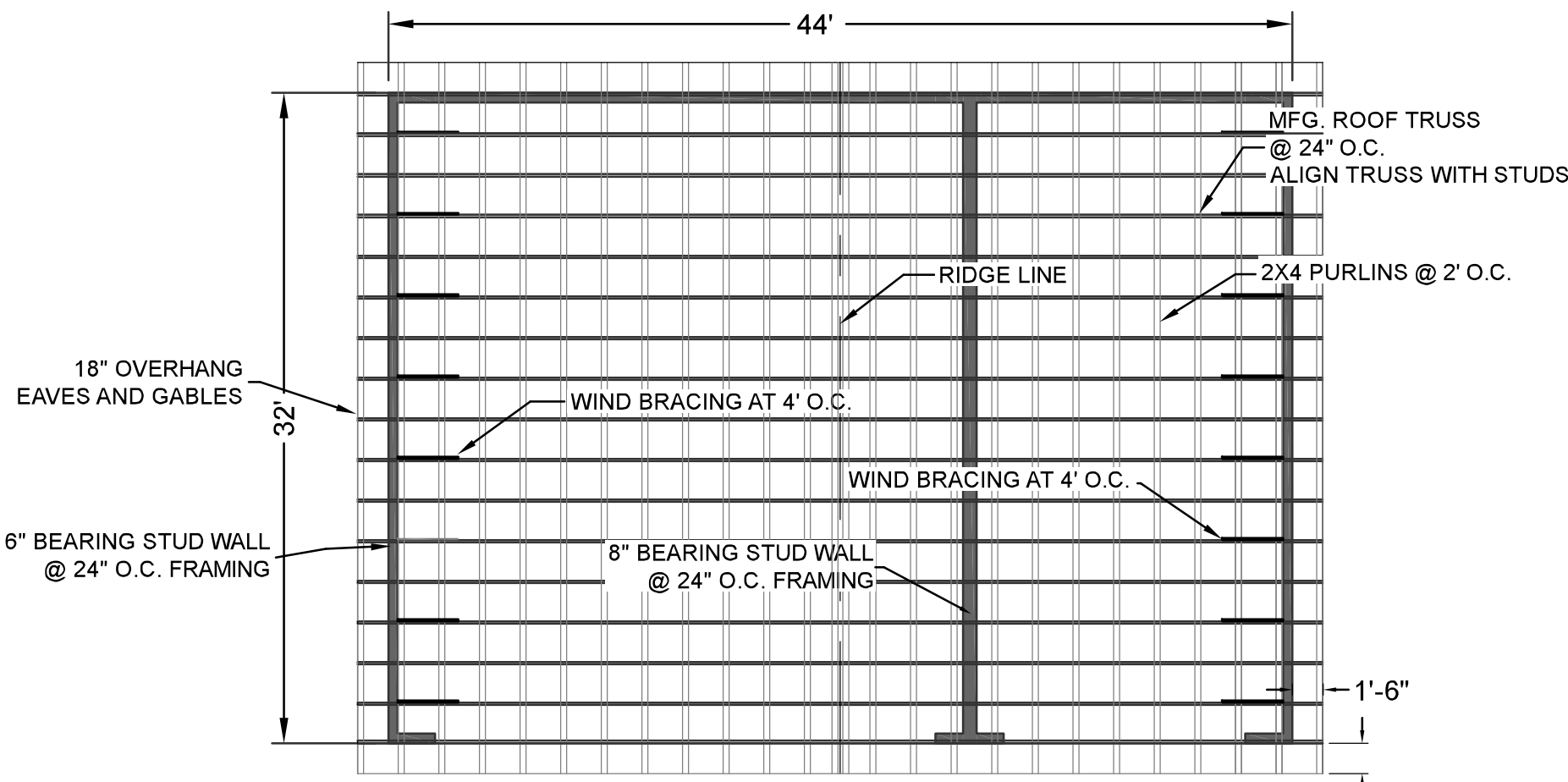
RIGHT OF WAY PLAN  
BROOKLINE SAND  
& SALT SHED

SCALE:  
1" = 100'

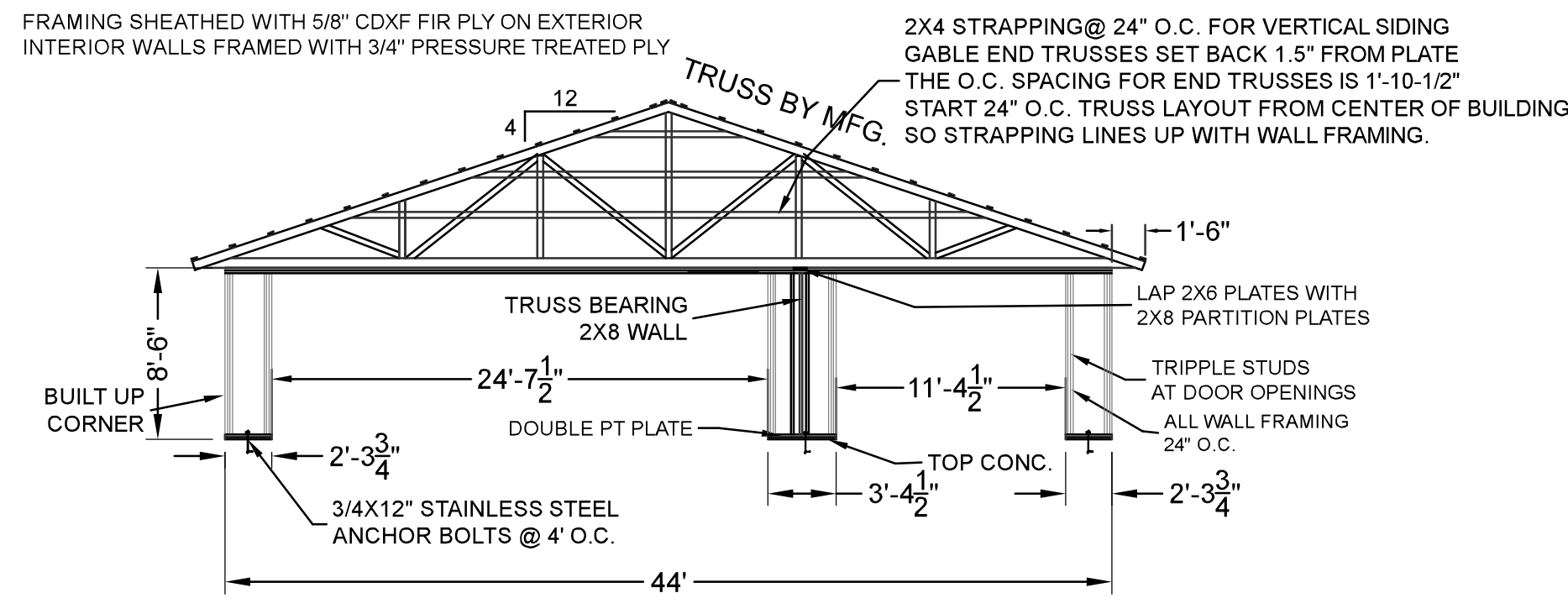
DATE:  
OCT. 30, 2021

SHEET

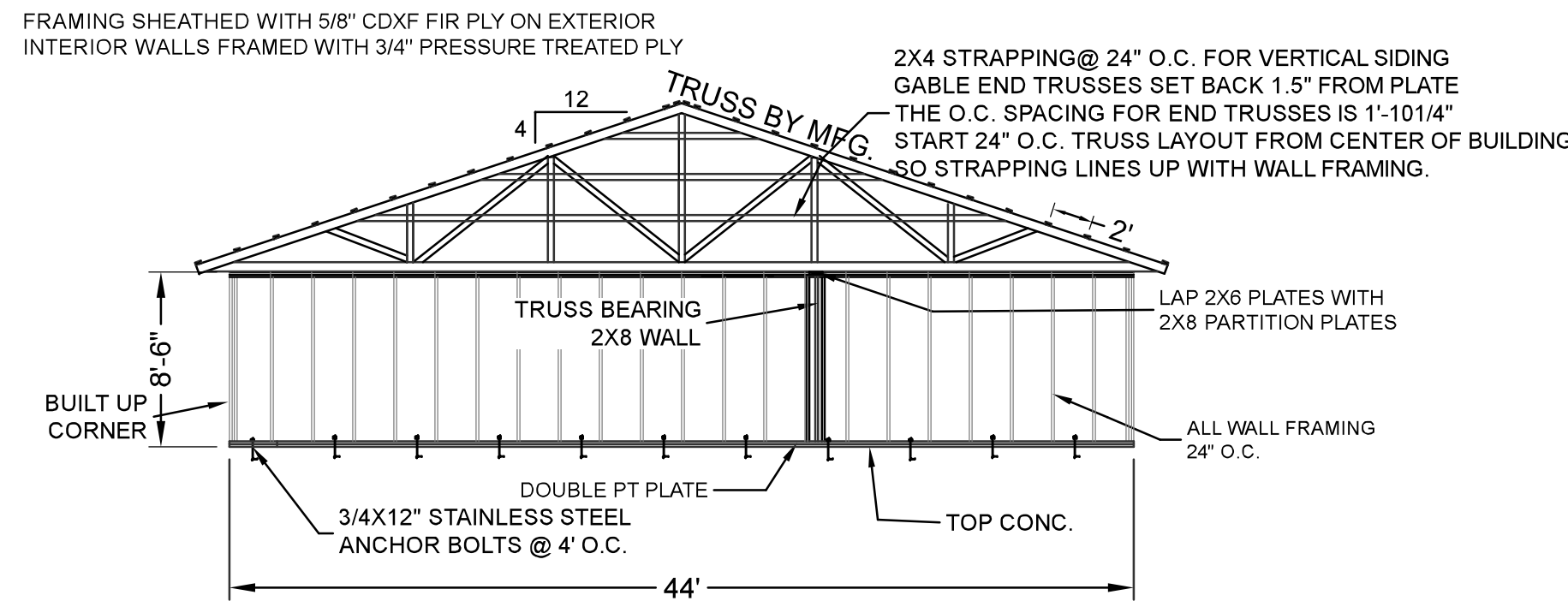
**C-6**



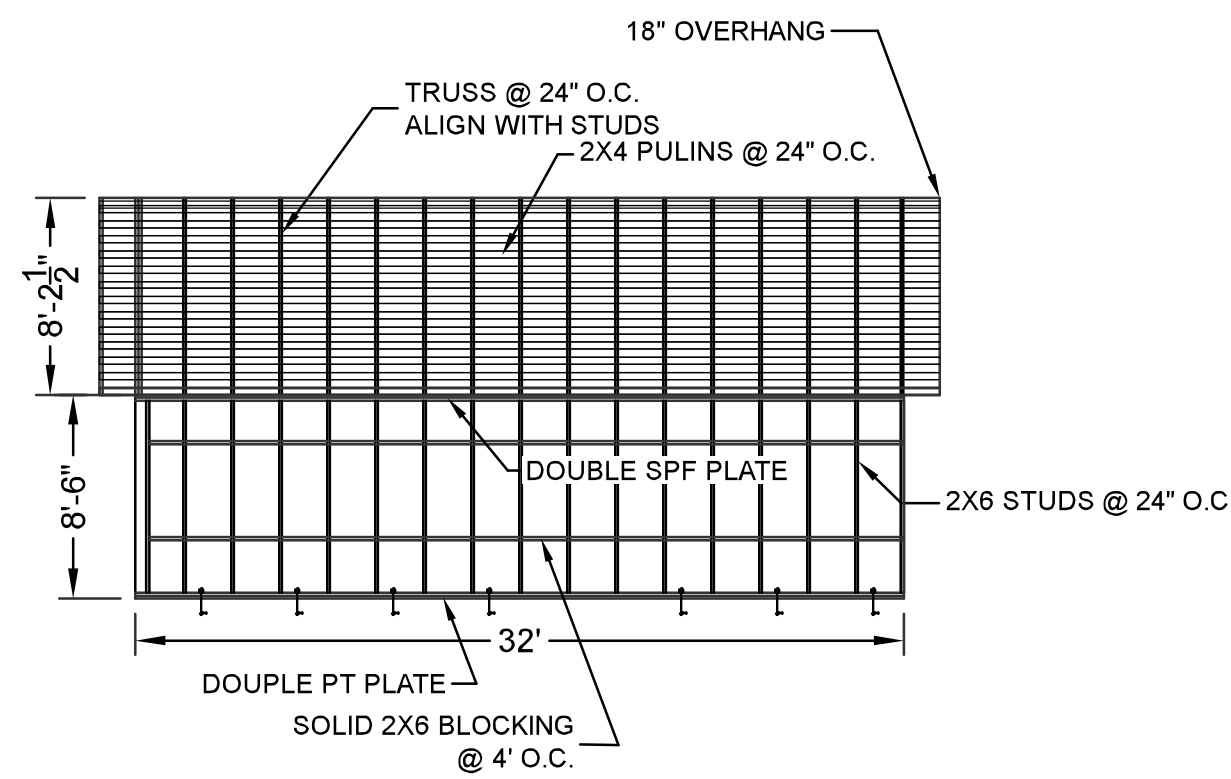
ROOF FRAMING PLAN  
1/8" = 1'-0"



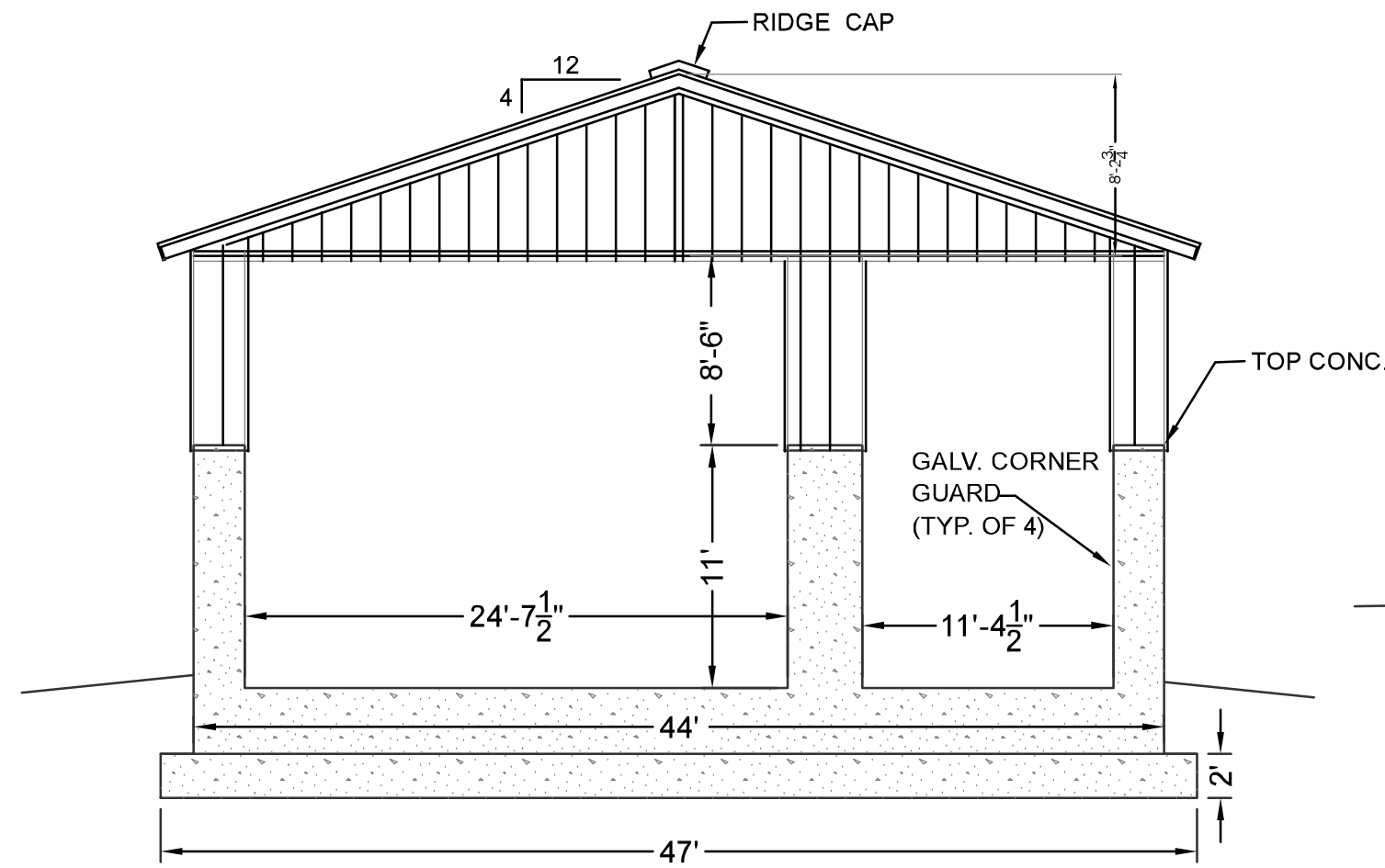
SOUTH FRAMING PLAN  
1/8" = 1'-0"



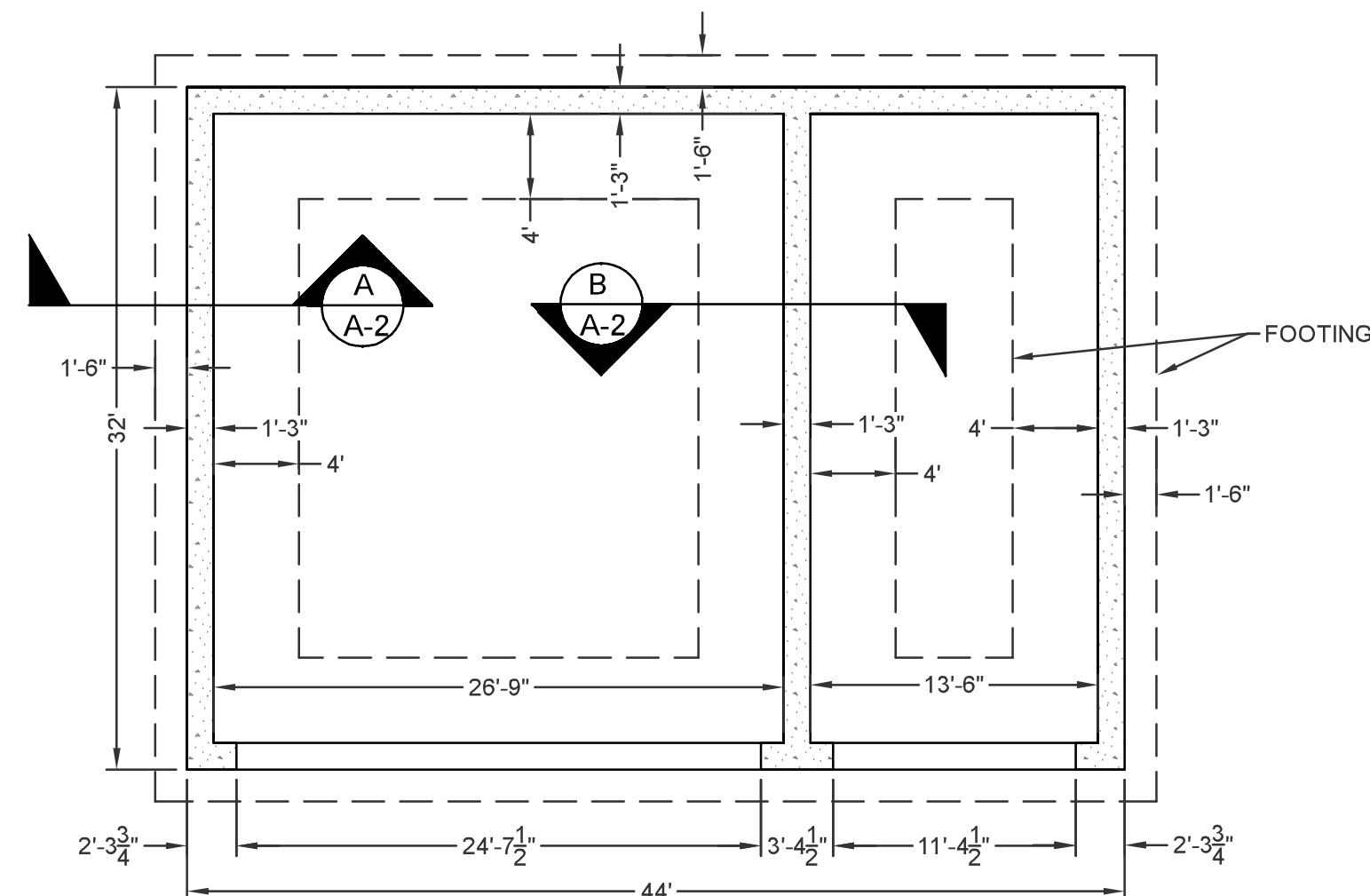
NORTH FRAMING PLAN  
1/8" = 1'-0"



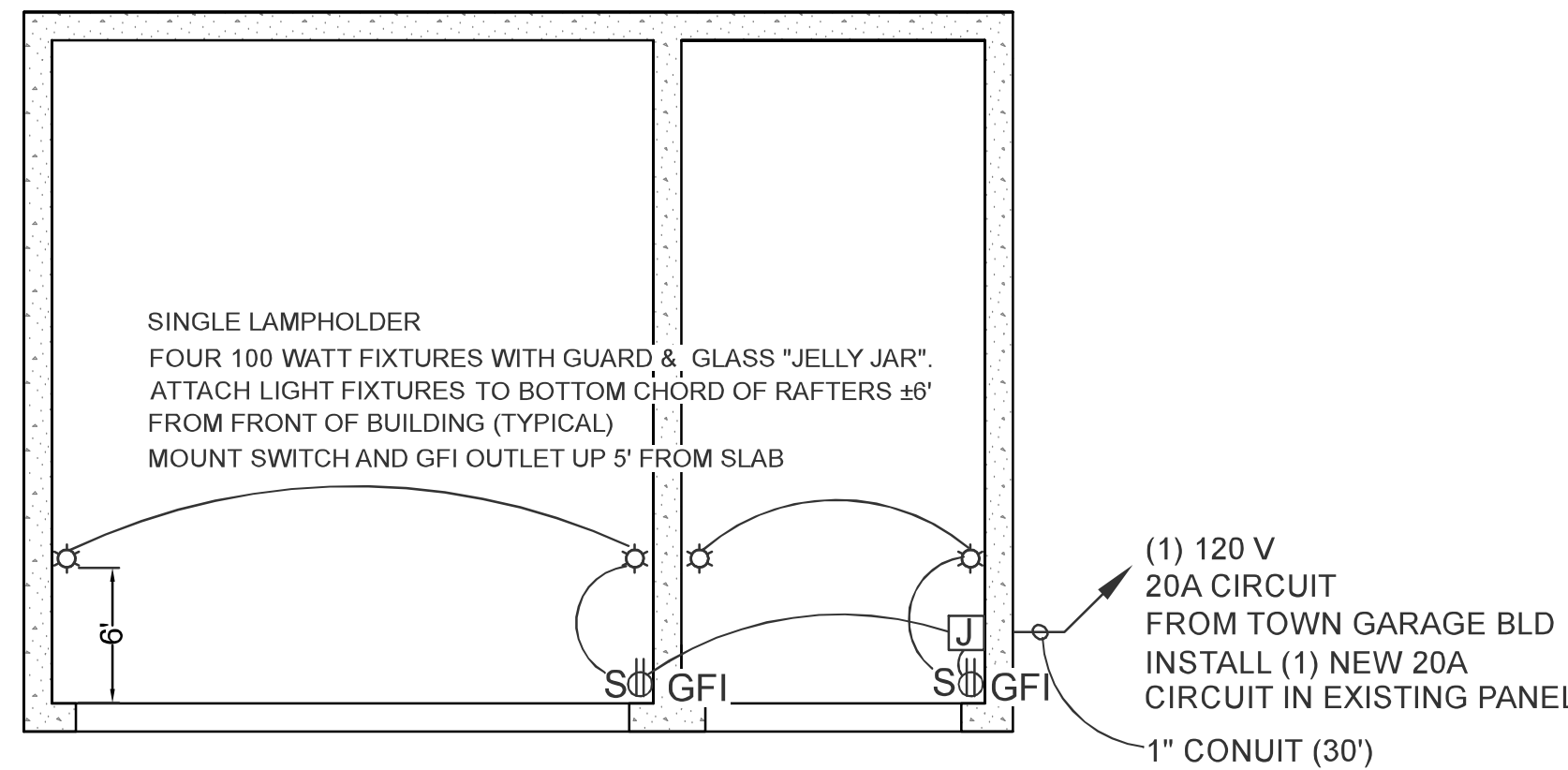
EAST & WEST FRAMING PLAN  
1/8" = 1'-0"



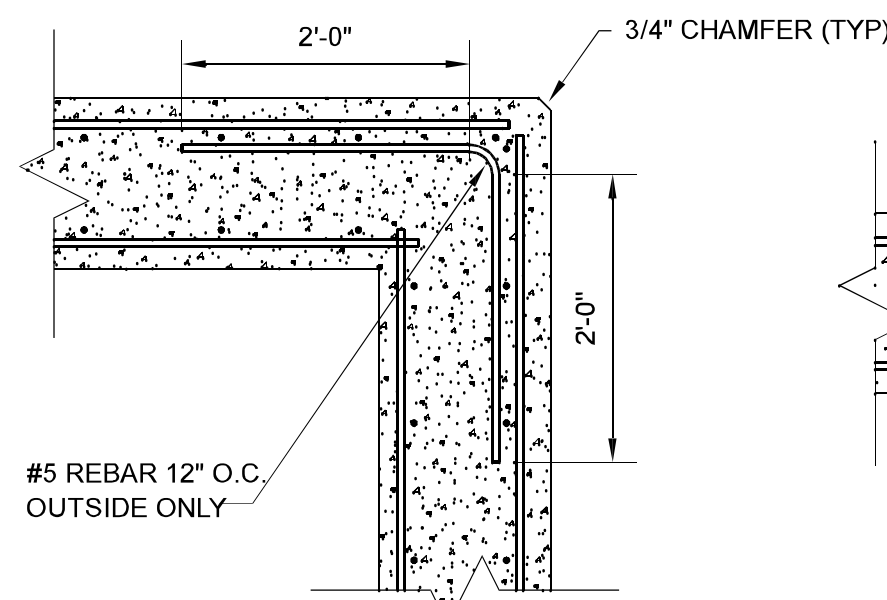
SOUTH ELEVATION  
1/8" = 1'-0"



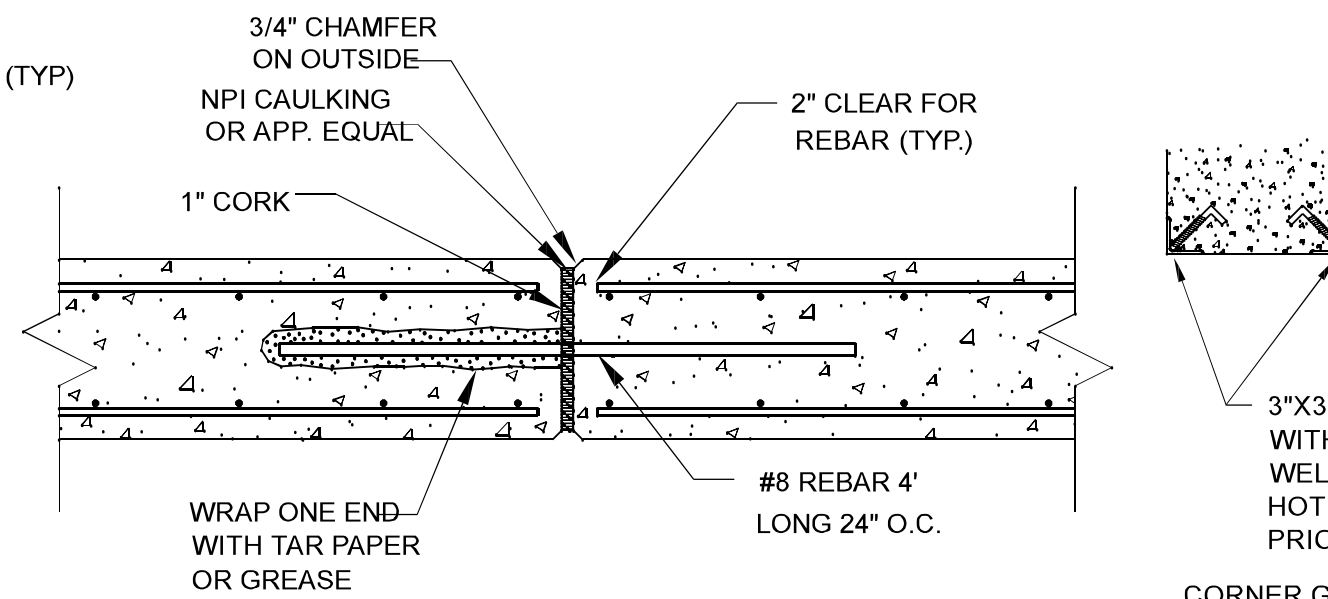
FOUNDATION PLAN  
1/8" = 1'-0"



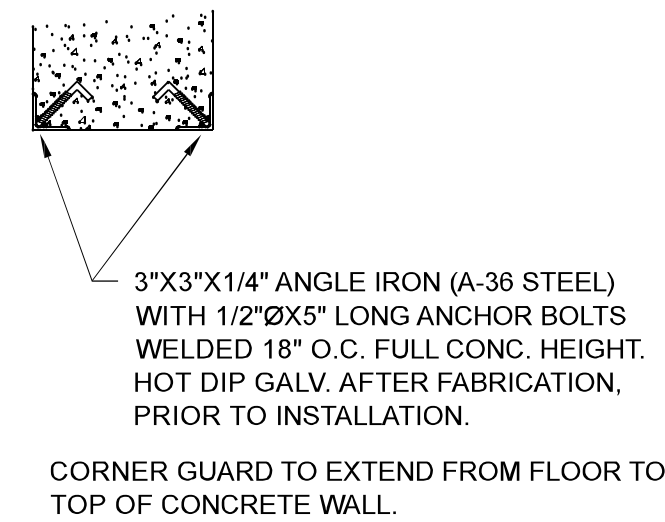
ELECTRICAL PLAN  
1/8" = 1'-0"



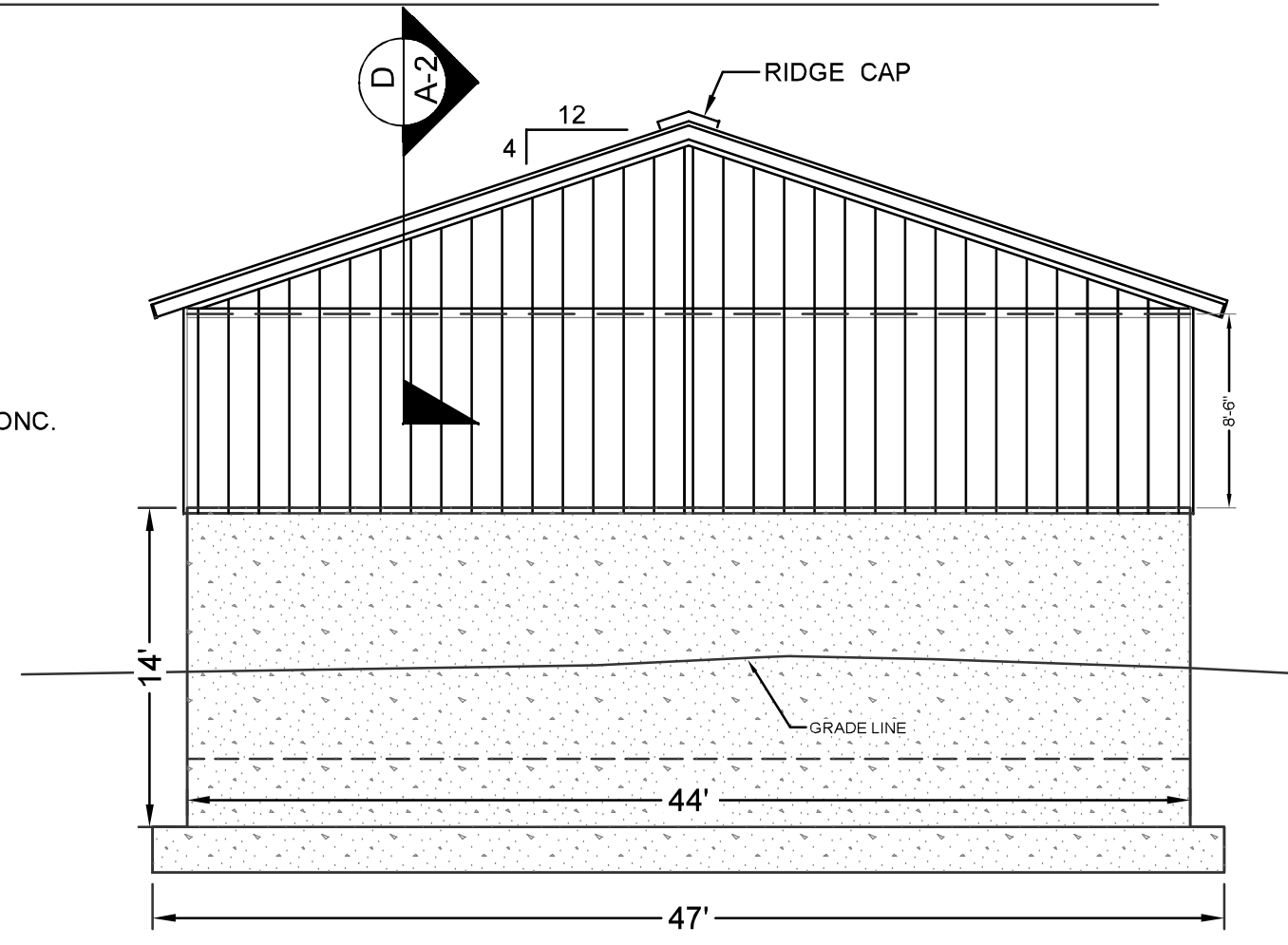
CORNER DETAIL  
3/4" = 1'-0"



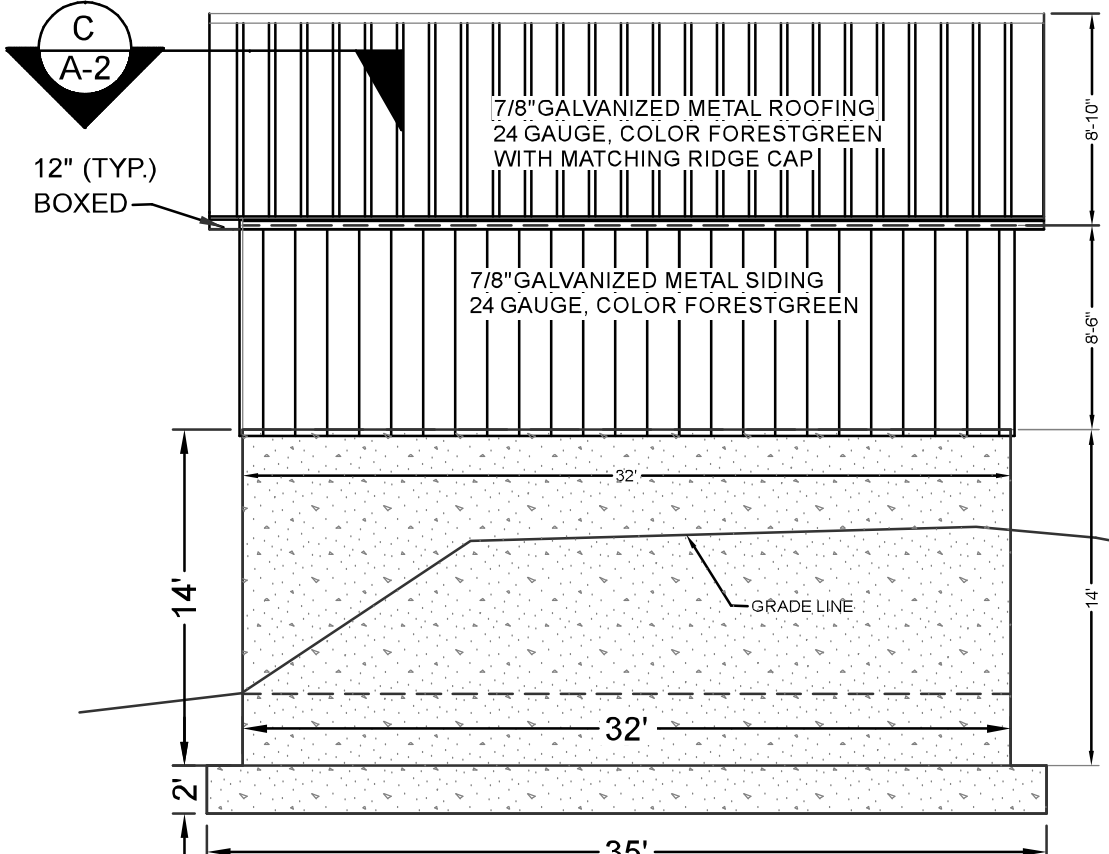
EXPANSION JOINT DETAIL  
3/4" = 1'-0"



CORNER DETAIL AT OPENINGS  
3/4" = 1'-0"



NORTH ELEVATION  
1/8" = 1'-0"



EAST & WEST ELEVATIONS  
1/8" = 1'-0"

REVISIONS:

PROJECT:

TOWN OF BROOKLINE  
GRASSY BROOK ROAD  
BROOKLINE, VT

SHEET TITLE:

CONSTRUCTION DETAILS  
BROOKLINE SAND  
& SALT SHED

SCALE:

AS NOTED

DATE:

OCT. 30, 2021

SHEET

A-1

GENERAL NOTES

TRUSS NOTES:

TRUSS MANUFACTURER TO PROVIDE THE PROJECT ENGINEER A SET OF ENGINEERED & STAMPED DRAWINGS FOR APPROVAL PRIOR TO TRUSS MANUFACTURE (ENGINEER MUST BE LICENSED IN VERMONT).

TRUSS MANUFACTURER TO PROVIDE THE CONTRACTOR WITH ALL NECESSARY INSTRUCTIONS FOR PROPER TRUSS INSTALLATION, ANCHORAGE, BRACING,

TRUSS DESIGN LOADS IN ACCORDANCE WITH THE 1987 B.O.C.A. FOR VERMONT.

MINIMUM LOADS:

GROUND SNOW LOAD = 70 PSF  
LIVE ROOF SNOW LOAD = 49 PSF  
TOP CHORD DEAD = 5 PSF  
BOTTOM CHORD DEAD = 2 PSF  
WIND - 25 PSF

DIAGONAL WIND BRACING & BOTTOM CHORD BRACING PER TRUSS MANUFACTURER.

LUMBER NOTES:

FRAMING MEMBERS TO BE KILN DRIED CONSTRUCTION GRADE SPRUCE S4S 19% MOISTURE CONTENT.

PLATES AND NAILERS IN CONTACT WITH CONCRETE TO BE PRESSURE-TREATED IN ACCORDANCE WITH THE REQUIREMENTS OF AASHTO M-133 UNING A PERSERVATIVE AS SPECIFIED IN SUBSECTION 728.01.

ALL NAILS TO BE STAINLESS RING SHANK AND SHALL BE APPROPRIATELY SIZED.

GALVANIZED 7/8" RIB ROOF AND WALL PANEL NOTES:

ROOF AND WALL PANELS SHALL BE 24 GAUGE GALVANIZED STEEL. PANEL COLOR SHALL BE FOREST GREEN. A COLOR SAMPLE SHALL BE PROVIDED TO THE TOWN FOR COLOR APPROVAL.

CONTRACTOR TO COMPLY WITH THE BUY AMERICA REQUIREMENTS. GALVANIZED SCREW FASTENERS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURES SPACING SPECIFICATIONS AND SUBSTRATE EMBEDMENT DEPTH.

IT IS EXTREMELY IMPORTANT TO SET SCREWS ACCORDING TO MANUFACTURER'S GUIDANCE. THE EDMS WASHER MATERIAL IS COMPRESSED AND VISIBLE AT THE WASHER. SCREWS SET TOO LOOSE OR OVERLY TIGHTENED SUCH THAT THE EDMS MATERIAL PROTRUDES BEYOND THE FASTENER WILL RESULT IN LEAKAGE.

CONCRETE NOTES: PER A.O.T. 2018 STANDARD SPECIFICATIONS FOR CONSTRUCTION.

CONCRETE TO BE CLASS "B" PER AOT STANDARD SPECIFICATIONS TABLE 541.03A CONCRETE FINISH TO BE FLOATED.

RE-BAR TO BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.

1/2" "V" JOINTS IN EXPOSED FACE OF CONSTRUCTION JOINTS.

3/4" CHAMFER ON EACH FACE OF EXPANSION JOINTS.

NO HORIZONTAL CONSTRUCTION JOINTS IN WALLS - CONTINUOUS POUR.

CONTRACTOR TO LEAVE NO METAL WITHIN 1" OF SURFACE. USE 1" DEEP PLASTIC CONES AT ALL TIES AND PLUG ALL TIE HOLES WITH AN APPROVED NON-SHRINK GROUT.

ALL ROUGH CONC. FORM JOINTS AND OTHER ROUGH SURFACES TO BE RUBBED FINISH.

ALL RE-BAR TO BE GRADE 60 WITH 3" CLEARANCE ON ALL SIDES UNLESS NOTED OTHERWISE.

RE-BAR TO BE STORED ON BLOCKING 4" MINIMUM ABOVE GROUND.

CONCRETE SUPPLIER TO PROVIDE TEST CYLINDERS FOR CONCRETE TESTING.

ALL CONCRETE TESTING TO BE SCHEDULED AND PAID BY THE CONTRACTOR. .

CONCRETE FORMS SHALL REMAIN IN PLACE FOR A MIN. OF 48 HOURS. CONCRETE CURING SHALL FOLLOW IMMEDIATELY AFTER FORM REMOVAL PER A.O.T. STANDARD 501.07A. WATER CURING WILL BE REQUIRED , UNLESS ALTERNATE MEANS OF CURING IS APPROVED. IN WRITING, BY THE PROJECT ENGINEER.

FOUNDATION SITE PREPARATION WORK NOTES:

- THE ENGINEER OF RECORD IS NOT RESPONSIBLE FOR SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD CONTRARY TO THOSE ASSUMED FOR DESIGN.
- THE ALLOWABLE FOUNDATION BEARING PRESSURE OF 2,000 PSF (POUNDS PER SQUARE FOOT) IS USED IN THIS DESIGN.
- COMPACTED ENGINEERED FILL SHALL BE AS FOLLOWS:

- INSPECTED AND APPROVED BY PROJECT ENGINEER
- PLACED IN LOOSE LIFTS NOT EXCEEDING 4 INCHES IN THICKNESS.
- COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY PER ASTM D-698, STANDARD PROCTOR METHOD.
- MAXIMUM DRY DENSITY OF 90 PCF (POUNDS PER CUBIC FOOT)
- MOISTURE CONTENT WITHIN 3 PERCENT OF OPTIMUM.
- FREE OF BOULDERS, ORGANICS, PARTICLES OF 3 INCHES OR MORIN IN DIAMETER AND OTHER DELETERIOUS MATERIALS.

- CONTRACTOR SHALL CONTROL SITE GROUNDWATER AND/OR SURFACE WATER BY ALL MEANS NECESSARY TO MAINTAIN A WATER LEVEL A MINIMUM 2 FEET BELOW FOUNDATION SUBGRADE SO S TO NOT DAMAGE FOUNDATION EXCAVATIONS. THE BASE OF ALL FOUNDATION EXCAVATIONS SHOULD BE FREE OF ALL WATER AND LOOSE SOIL PRIOR TO PLACING CONCRETE. ANY SUBGRADE SOILS WHICH HAVE BEEN WEAKENED DUE TO SATURATION OR DISTURBANCE SHALL BE RECOMPACTED OR REMOVED AND REPLACED WITH STRUCTURAL FILL AS DIRECTED BY THE ENGINEER.

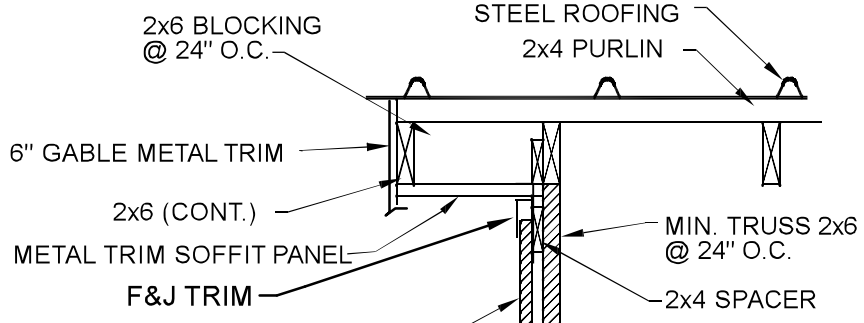
- LOOSE OR SOFT SOILS SHALL BE CLEANED FROM FOUNDATION EXCAVATION BOTTOMS PRIOR TO PLACING OF CONCRETE. SUBGRADES NEEDING UNDERCUTTING SHALL BE BACKFILLED TO THE ORIGINAL SUBGRADE ELEVATION WITH COMPACTED WASHED ASTM No.57 STONE UNLESS DIRECTED OTHERWISE BY PROJECT ENGINEER. A FILTER FABRIC MATERIAL (MIRAFI 140NL OR APPROVED EQUAL) SHALL BE PLACED BETWEEN THE STONE BACKFILL AND THE SUBGRADE. THE OVER EXCAVATED AREA SHALL EXTEND A MINIMUM OF 2 FEET BEYOND THE EDGES OF THE STRUCTURE BASE SLAB OR FOOTING.

- FOUNDATION FOOTING CONCRETE SHOULD BE PLACED WITHIN 3 DAYS OF EXCAVATION. IF THE BEARING SOILS ARE SOFTENED BY SURFACE WATER INTRUSION OR EXPOSURE, THEN THE SOFTENED SOILS MUST BE REMOVED FROM THE FOUNDATION EXCAVATION BOTTOM PRIOR TO THE PLACING OF CONCRETE. IF THE EXCAVATION MUST REMAIN OPEN FOR MORE THAN 3 DAYS, OR IF RAINFALL IS IMMINENT WHILE THE BEARING SOILS ARE EXPOSED, THEN A 2 INCH THICK LAYER OF LEAN CONCRETE (2,000 MINIMUM STRENGTH) SHALL BE PLACED ON THE BEARING SOILS BEFORE THE PLACEMENT OF REINFORCING STEEL TO PROTECT THE INTERGRITY OF THE BEARING SOILS.

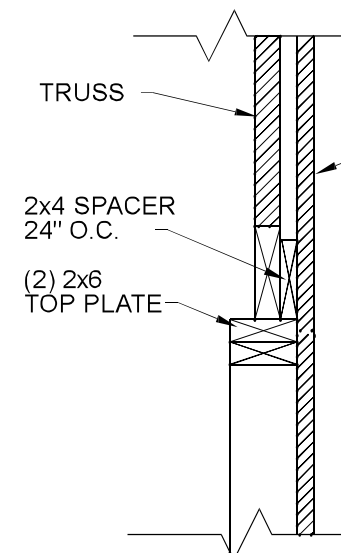
- ALL EXCAVATIONS SHALL CONFORM TO APPLICABLE OSHA REGULATIONS.

SILANE CHEMICAL PROTECTION OF EXPOSED CONCRETE IN THE SALT STORAGE AREA:

The application of silane is to be applied to protect the concrete in the salt storage area from moisture and chloride ingress, and corrosion of reinforcing steel. A dry concrete surface is essential for successful application. An application rate of 175 sq ft/gal for all surfaces is required. After application, and the silane has penetrated, water should be applied to assure sufficient moisture for chemical reaction between the silane and concrete.



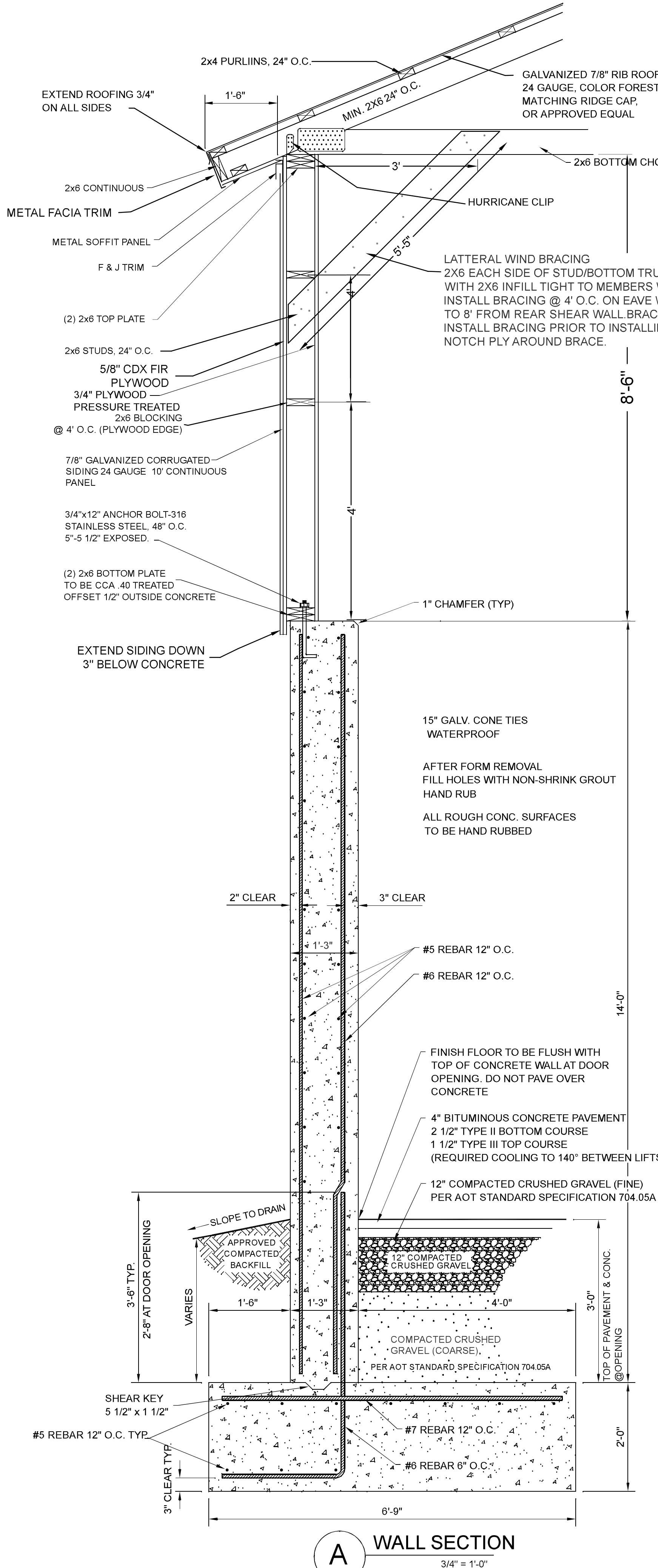
C SECTION  
3/4" = 1'-0"



D SECTION  
3/4" = 1'-0"

HURRICANE CLIP DETAIL

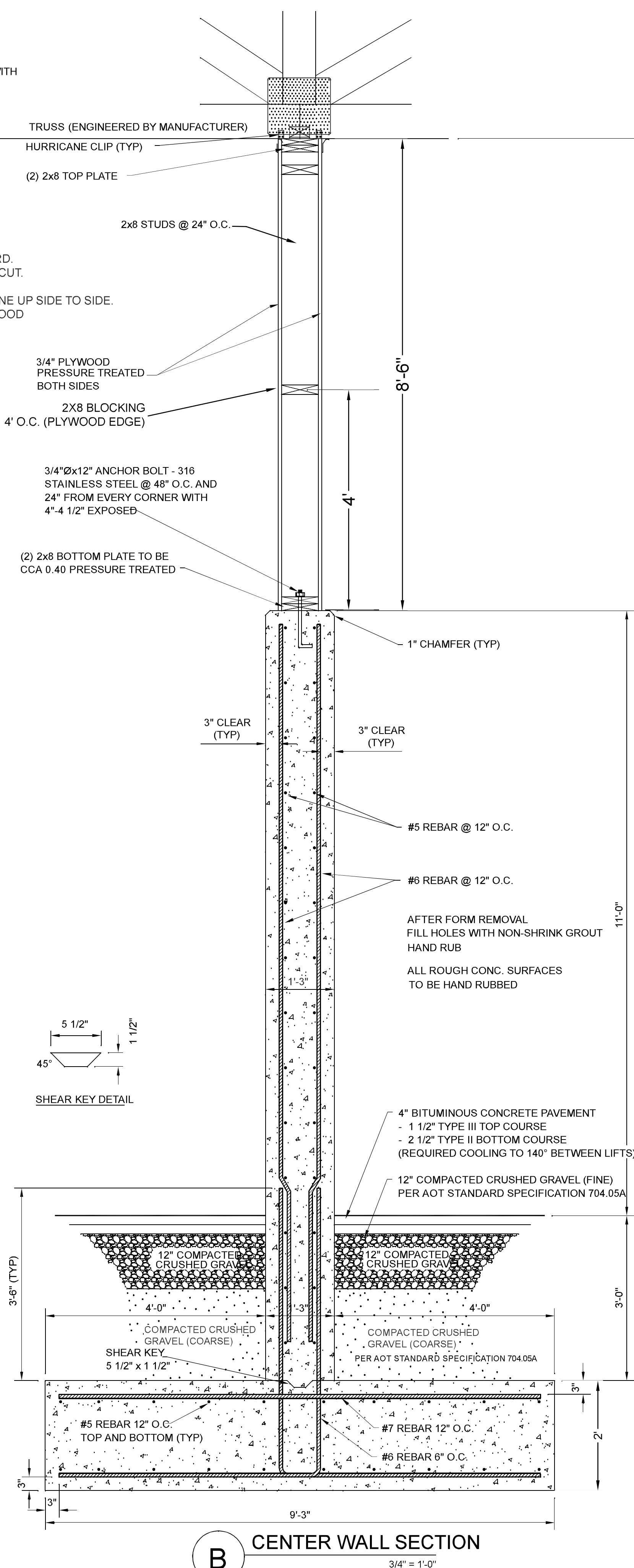
N.T.S.



A

WALL SECTION

3/4" = 1'-0"



B

CENTER WALL SECTION

3/4" = 1'-0"

REVISIONS:

PROJECT:

SHEET TITLE:

SCALE:

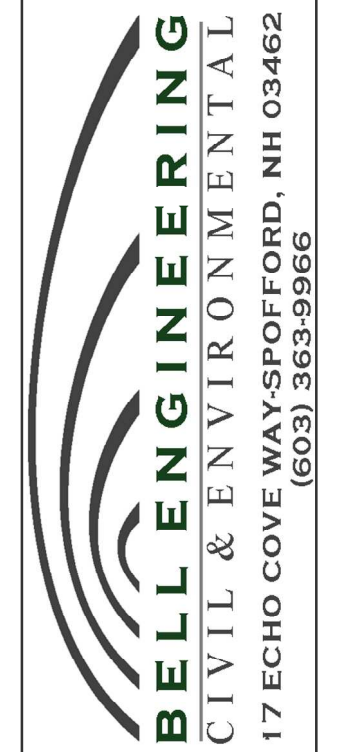
AS NOTED

DATE:

OCT. 30, 2021

SHEET

A-2



ronbellcivil@gmail.com

TOWN OF BROOKLINE  
GRASSY BROOK ROAD  
BROOKLINE, VT

CONSTRUCTION DETAILS  
BROOKLINE SAND  
& SALT SHED

# TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21

Invitations to Bidder

## **Contract Documents for:**

**Construction of a new salt storage facility to include site work, cast-in-place concrete foundation and wood framed walls and roof.**

**STP MM19(17)**

## **TOWN OF BROOKLINE, VT**

VT Agency of Transportation 2018 Standard Specifications for Construction shall apply to this contract.

Owner: Town of Brookline

P.O. Box 403 734 Grassy Brook Road

Brookline, VT 05345

August 10, 2021

**Bid Set No. \_\_\_\_\_**

## **Table of Contents**

- Invitation for Bids
- Instructions to Bidders
- Bid Form
- Special Provisions
- Supplemental Specifications

## APPENDICES

- A. Contractors EEO Certification Form CA-109
- B. Debarment & Non-Collusion Affidavit CA-91
- C. Required Contract Provisions for Federal-Aid Construction, FHWA Form 1273
- D. Standard Federal EEO Specifications, (Executive Order 11246)
- E. Certification of Federal Aid Contracts CA-163

**TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21**  
Invitations to Bidder

- F. Vermont Minimum Labor & Truck Rates
- G. Vermont Agency of Transportation Contractor Workforce Reporting Requirements CA26A
- H. Disadvantaged Business Enterprise (DBE) Policy Contract Requirements
- I. General Special Provisions for All Projects dated 10/12/16
- J. Example Performance and Payment Bond Forms
- K. Labor and Material Bond
- L. Work Zone Safety and Mobility Guidance Document
- M. Us Department of Labor Davis-Bacon Rates
- N. Project Permits
- O. Right of Way and Utility Clearance
- P. TOWN OF BROOKLINE STP MM18 (7) as NHRA
- Q. PACE-NEPA Letter
- R. Flood Plains River Corridor
- S. Haz Waste VT LRS

**INVITATION TO BID**

Sealed bids from pre-qualified contractors shall be accepted until x/x/xxxx 3:00 P.M., prevailing time at the Brookline Town Offices for construction of the project hereinafter described. Bid opening will occur immediately after the bid submittal or emergencies or unforeseen conditions.

Sealed BIDS shall be marked in the lower left-hand corner: Bid Documents: Town of Brookline - STP MM18(7)

Each BID must be accompanied by a certified check payable to the Town of Brookline for five percent (5%) of the total amount of the BID. A BID bond may be used in lieu of a certified check.

TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21  
Invitations to Bidder

**PREQUALIFICATION OF CONTRACTORS:** All bidders on this project shall be on the Agency of Transportation's prequalified list under the category Building Construction, shall have submitted a complete prequalification application to the Agency of Transportation, Contract Administration, a minimum of 10 working days prior to the bid opening. For information contact Margo Ghia, Windham Regional Commission or Chris Hunt, VTrans at (802) 498-8874.

**LOCATION:** Town Garage Grassy Brook Road Brookline, VT.

**TYPE OF CONSTRUCTION:** Work to be performed under this project includes: Construction of a new sand storage facility to include site work, cast-in-place concrete foundation and wood framed walls and roof.

**CONTRACT COMPLETION DATE:** The Contract shall be completed on or before November 15, 2021.

**OBTAINING PLANS:** Plans may be obtained from Blueprints, Etc. (802) 865-4503; orders@blueprintsetc.com; 20 Farrell Street, South Burlington, VT 05403-6112.

**ENGINEERS ESTIMATE:** For this Proposal the Engineers Estimate falls between \$500,000 and \$1,000,000.

**PLANS, SPECIFICATIONS AND PROPOSAL MAY BE SEEN AT THE OFFICE OF:**

1. Town of Brookline 734 Grassy Brook Road Brookline, VT.
2. Bell Engineering 17 Echo Cove Way Spofford, NH 03462
3. Works in Progress, Inc. 20 Farrell Street, South Burlington, Vermont 05403-6112.

**PREBID CONFERENCE:** No pre-bid conference.

**STANDARD SPECIFICATIONS:** This contract is governed by the Vermont Agency of Transportation ("VTrans") 2018 Standard Specifications for Construction.

**QUESTIONS:** During the advertisement phase of this project all questions shall be addressed solely to Ronald K. Bell, PE; ronbellcivil@gmail.com copy Margo Ghia, Windham Regional Commission by xx/xx/21 3:00 P.M.

**EQUAL EMPLOYMENT OPPORTUNITY (EEO) CERTIFICATION:** Certification is required by the Equal Employment Opportunity regulations of the Secretary of

## TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21

### Invitations to Bidder

labor (41 CFR 60-1.7(b) (1)) and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Generally only contracts and subcontracts of \$10,000 or under are exempt as set forth in 41 CFR 60-1.5. See Appendix A for Contractors EEO Certification Form (CA-109). This form must be submitted with the bid.

**NON-COLLUSION AFFIDAVIT:** All bidders are required to execute a sworn statement, certifying that the bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract. See Appendix B for Debarment and Non-Collusion Affidavit (CA-91). This affidavit must be submitted with the bid.

**DEBARMENT AFFIDAVIT:** All bidders are required to execute a sworn statement, certifying that the bidder has not within the last three (3) years been, suspended, debarred, voluntarily excluded or determined ineligible by any Federal or State Agency; does not have a proposed suspension, debarment, voluntary exclusion or ineligibility determination pending; and has not been indicted, convicted or had civil judgment rendered against (it, him, her, them) by a court having jurisdiction in any matter involving fraud or official misconduct within the past three (3) years. See Appendix B for Debarment and Non-Collusion Affidavit (CA-91). This affidavit must be submitted with the bid.

**NON-DISCRIMINATION IN FEDERALLY ASSISTED CONTRACTS:** The Town of Brookline hereby notifies all bidders that it will ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the basis of race, color, religion, sex or national origin for an award. This is consistent with the Town's requirement to comply with provisions of Title VI.

**DAVIS BACON WAGE REQUIREMENTS:** Bidders agree to abide by the Davis Bacon Wage Rate Schedule, which are appended to these Contract Documents. Current wage rates can be obtained from the AOT web site. BUY AMERICA

**REQUIREMENTS:** Buy America requirements of 23 CFR 635.410 are applicable to

## TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21 Invitations to Bidder

all Federal-aid construction projects. All steel or iron products permanently incorporated into Federal-aid projects, shall be products that have been entirely manufactured within the United States. All manufacturing processes of the steel or iron Town of Brookline Sand and Salt Shed - STP MM18(7) 07/08/20 Invitations to Bidder material, in a product, must occur within the United States to be considered of domestic origin. This includes process such as rolling, extruding, machining, bending, grinding, and drilling. The action of applying a coating to a material is deemed a manufacturing process subject to Buy America. Coating includes epoxy coating, galvanizing, painting, and any other coating that protects or enhances the value of the material. This requirement does not prevent a minimal use of foreign materials, provided the cost of foreign materials used does not exceed 0.1 percent of the total Contract price or \$2,500, whichever is greater. The cost of foreign steel or iron is defined as its value delivered to the project.

### **NOTICE TO BIDDERS – SUBSECTION 108.01(b)**

Subsection 108.01(b) is hereby modified to require the Contractor to perform at least 30% of the total Contract work amount, instead of 50%.

### **NOTICE TO BIDDERS – MEASURES TO MITIGATE POTENTIAL IMPACTS DUE TO THE COVID-19 PANDEMIC.**

The Contractor is hereby notified that they should anticipate the possibility of future temporary Contract shutdowns, delays, or suspensions as a result of the COVID-19 pandemic. The Contractor shall consider risks associated with the COVID–19 pandemic as the Contractor develops project schedules and advances the work. The Contractor shall schedule work in a manner that in the event of a temporary shutdown, delay, or suspension, the impacts to mobility will be minimized. The sequence and progression of the work will be solely the Contractor’s responsibility. The Contractor is expected to communicate with the Agency regularly to discuss the risks to the project and proposed mitigation measures. VTrans will collaborate with the contractor to mitigate the risks to the project and adjust the sequence of work as necessary to ensure that mobility is not impaired unnecessarily. If a shutdown, suspension or delay occurs due to the COVID-19 pandemic, the Contractor shall ensure the site is in a stable, safe, and maintainable condition by implementing mitigation measures. Such mitigation

## TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21 Invitations to Bidder

measures may include, but are not limited to, limiting the area of milled surfaces exposed at once, or limiting the number of work operations in progress at any one time. The Contractor is solely responsible for any additional maintenance activities or delays related to the sequence and progression of operations. The Agency has established a contract duration which may be longer than expected for the specified work to account for inefficiencies related to the COVID-19 pandemic. The Contractor should anticipate mobility, labor, employee protection Town Brookline Sand and Salt Shed - STP MM18(7) 07/08/20 Invitations to Bidder measures and material supply issues related to the COVID-19 pandemic. The Contractor is also expected to comply with any Executive Orders.

### **NOTICE TO BIDDERS – SITE CONDITION**

Prior to any shutdown or suspension, the site condition shall be in a stable, safe, and maintainable condition for the travelling public. Stable, safe, and maintainable condition means that the Contractor shall establish necessary erosion and environmental controls; ensure that the full width of the roadway is fully paved with no milled sections; install all safety features including guardrail, traffic signs, and pavement markings as designed or restored to the existing condition to meet the existing geometry; and undertake any additional measures as needed based on site conditions. No lane reductions will be allowed through the winter months. Subsection 109.06 will not apply for work that is required to bring a project to a satisfactory shutdown condition. In the event of a project Suspension of Work Ordered by the Engineer, the Contractor will be reimbursed per Subsection 108.16.

### **NOTICE TO BIDDERS – SUBSECTION 108.16(b)**

Subsection 108.16(b) is hereby modified by adding the following language. (4) The ownership costs for equipment with a current Blue Book value in excess of \$200,000.00 on site of an active project at the time of a suspension caused by the COVID-19 pandemic will be paid per Subsection 109.06(c).

### **NOTICE TO BIDDERS – SUBSECTION 635.03(a)**

Subsection 635.03(a) is hereby modified by being deleted in its entirety and replaced with the following:

# TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21

## Invitations to Bidder

The first payment of 50% of the lump sum price for Mobilization/Demobilization, or 10% of the adjusted Contract price, whichever is less, will be made upon successful execution of the contract.

### **INSTRUCTIONS TO BIDDERS**

#### **1. Bid Preparation and Submission**

- a. Bidders are expected to examine the specifications, drawings, all instructions and, the construction site. Failure to do so will be at the bidders' risk.
- b. All bids must be submitted on the forms provided by the municipality. Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidders name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of the agent's authority. (Bidders should retain a copy of their bid for their own records.)
- c. All bids shall be sealed in an envelope which shall be clearly marked with the words "Bid Document," the Invitation to Bid number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.
- d. This solicitation requires bidding on all items, failure to do so will disqualify the bid.
- e. Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.
- f. Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph, facsimile (fax) machines, or electronically via the internet or email will not be considered.
- g. All blank spaces under the page(s) headed "Bid Form" must be filled in with ink or typewriter in both words and figures indicating the unit price for

# TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21

## Invitations to Bidder

each respective bid item. The bid total shall also be entered in words and figures.

h. In case of a discrepancy between a unit price written in words and one entered in figures, the price written in words shall govern.

i. In case of a discrepancy between the bid total written in words and that entered as a figure, the adjusted figure shall govern.

j. The estimated quantities are not guaranteed and can be adjusted as needed during the project, but are given as a basis for the comparison of bids.

k. Electronic Bids are not permitted for Municipal Assistance Bureau Projects at this time.

## **2. Explanation and Interpretation to Prospective Bidders**

- a. Any prospective bidder desiring an explanation or interpretation of the solicitation, specification, drawings, etc., must request it at least 10 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given to a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written addendum to the solicitation, if that information is necessary in submitting bids, or if lack of it would be prejudicial to other prospective bidders.
- b. Any information obtained by, or provided to, a bidder other than by formal addendum to the solicitation shall not constitute a change to the solicitation.

## **3. Addendum to Invitation for Bids**

- a. If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21  
Invitations to Bidder

- b. Bidders shall acknowledge receipt of any addendum to this solicitation by identifying the addendum number and date on the bid form. Bids which fail to acknowledge the bidders receipt of any addendum will result in the rejection of the bid if the addendum (addenda) contained information which substantively changed the municipality's requirements.
- c. Addenda will be on file in the offices of the Municipality at least 5 days before the bid opening.

**4. Responsibility of Prospective Contractor**

- a. All prospective contractors shall be pre-qualified by the Town of Brookline or by Vtrans under Buildings Category. For this project a current annual prequalification is necessary. The contact for pre-qualification is Margo Ghia at the Windham Regional Commisiton or Chris Hunt, VTrans Tel: (802) 498-8874. Please note that applications for pre-qualification must be made at least 10 working days prior to the bid opening.
- b. The VERMONT AGENCY OF TRANSPORTATION "POLICIES AND PROCEDURES FOR PREQUALIFICATION, BIDDING, AND AWARD OF CONTRACTS", latest edition, Sections 1-6 and 9 are hereby incorporated in these specifications and the contract by reference. Sections 1 through 6 shall not be subject to the changes to the definitions in the Special Provisions.
- c. The Method of Measurement and Basis of Payment for all contract items shall follow the Vermont Agency of Transportation's ("VTrans") 2018 Standard Specification for Construction, unless modified in these Contract Documents.
- d. If a bidder submits a unit bid price of zero for a contract bid item, the bid will be declared informal.
- e. A bidder may submit a unit bid price that is obviously below the cost of the item. If the Municipality awards and enters into a contract with a Bidder that has submitted a unit bid price

TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21  
Invitations to Bidder

that is obviously below cost, the contractor shall be obligated to perform the work under such item as indicated in the contract documents and/or as directed by the Engineer.

- f. When "Optional Bid Items" are indicated in the proposal bidders shall bid on only one pay item in each group of options, leaving the other pay items in the group without a bid price. If a bidder enters more than one unit price bid in a group of options, only the lowest total price will be considered as the basis of calculation for determining the low bidder and used in the contract.
- g. When "Alternate Bid Items" are indicated in the Proposal bidders must bid on all pay items in each set of "Alternate Bid Items". Failure to bid on all of the "Alternate Bid Items" in the proposal may result in rejection of the bid.
- h. When the schedule of items for a contract contains one or more pay items which have a quantity of one (1) and a unit price and total price entered, the Municipality has set a unit price in the event that such item is used. If such item is determined to be needed by the Engineer, the work will be performed by the contractor according to the contract documents at the unit price listed.
- i. When it is indicated in the contract documents that payment or costs of work and/or materials are incidental to one or more other contract items (but not to specific other items), such costs shall be included by the bidder in the price bid for all other contract items.

**5. Errors and/or Inconsistencies in Contract Documents**

- a. By submitting a bid, a prospective bidder/contractor certifies that it shall assert no claim, cause of action, litigation, or defense against the Municipality unless notice was provided to the Municipality in writing of any error or inconsistency

**TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21**  
Invitations to Bidder

discovered in the plans, proposal, specifications, and/or contract documents immediately upon discovery of such error or inconsistency.

**6. Availability of Lands for Work, Etc.**

- a. The lands upon which the Work is to be performed, rights of way and easement for access thereto and other lands designated for use by the contractor in performing the Work are identified in the contract documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the work are to be obtained and paid for by the Contractor. Easements for permanent structures or permanent changes in the existing facilities are to be obtained and paid for by the Municipality unless otherwise provided for in the contract documents.

**7. Familiarity with Laws, Ordinances and Regulations**

- a. By submitting a bid an entity certifies that it is familiar with all Federal, State and local laws, ordinances and regulations which affect in any way the materials, equipment, haul roads used in or upon the work, the conduct of the work, and the persons engaged or employed in the performance of the work to be performed pursuant to the contract.
- b. By submitting a bid an entity certifies that it shall forthwith report in writing to the Municipality any provision in the plans, proposal, specifications or proposed contract that the bidder/contractor believes is in conflict with or inconsistent with any Federal, State or local law, ordinance, or regulation.
- c. By submitting a bid a prospective Bidder certifies that if, during its investigation of the work in the process of preparing its bid, it discovers or encounters subsurface or latent physical conditions at a project site differing materially from those

TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21  
Invitations to Bidder

ordinarily encountered and generally recognized as inherent in the work provided for in the contract, it shall notify in writing the Municipality of the specific differing conditions immediately upon discovering or encountering the differing site conditions.

- d. An entity further certifies that if it fails to notify the Municipality of any differing site conditions as described above, it shall waive any and all rights that it might have to additional compensation from the Municipality for additional work as a result of the differing site conditions and that it shall not bring a claim for additional compensation because of differing site conditions.
- e. By submitting a bid a prospective bidder/contractor certifies that no claim or defense of ignorance or misunderstanding concerning Federal, State or local laws, ordinances and/or regulations will be employed by a bidder/contractor or considered by the Municipality in claims, litigation, alternative dispute resolution procedures, or other matters concerning the contract for which the bid is submitted.

**8. Late Submissions, Modifications, and Withdrawal of Bids**

- a. Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered.
- b. Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a.) of this provision.
- c. The only acceptable evidence to establish the time of receipt at the Municipality is the time/date stamp of the Municipality on the proposal wrapper, or other documentary evidence of receipt maintained by the municipality.
- d. Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile

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machine transmission received at any time before the exact time set for opening of bids: provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized agent if , before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

## **9. Bid Opening**

All bids received by the date and time specified in the solicitation will be publicly opened and total bid amounts read aloud. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present. In the event of unforeseen circumstances (severe weather, etc.) the Municipality reserves the right to postpone the reading of the bids for that contract. All bids for a contract will be opened at the same time and location at a later date.

## **10. Protests**

- a. This Section sets forth the exclusive protest remedies available with respect to this solicitation. Each Bidder, by submitting its bid, expressly recognizes the limitation on its rights to protest contained herein, expressly waives all other rights and remedies and agrees that the decision on any protest, as provided herein, shall be final and conclusive unless wholly arbitrary. These provisions are included in this solicitation expressly in consideration for such waiver and agreement by the Bidders. Such waiver and agreement by each Bidder are also consideration to each other Bidder for making the same waiver and agreement.
- b. A Bidder may protest any determination regarding the proposed award of a Contract by filing a notice of protest by hand delivery or courier to the Town Brookline Selectboard. Such notice shall be provided: (a) no earlier than the day of Town Brookline Sand and Salt

## TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21

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Shed issuance of the Notice of Award; and (b) no later than five (5) business days after Town of St. Alban Salt Shed issuance of the Notice of Award. The notice of protest shall specifically state the grounds of the protest.

- c. Within seven (7) calendar days of the notice of protest the protesting Bidder must file with the Municipality a detailed statement of the grounds, legal authorities and facts, including all documents and evidentiary statements, in support of the protest. Evidentiary statements, if any, shall be submitted under penalty of perjury. The protesting Bidder shall have the burden of proving its protest by clear and convincing evidence.
- d. Failure to file a notice of protest or a detailed statement within the applicable period shall constitute an unconditional waiver of the right to protest the evaluation or qualified process and decisions there under.
- e. Unless otherwise required by law, no evidentiary hearing or oral argument shall be provided, except the Town of Brookline Selectboard, in its sole discretion, may decide to permit a hearing or argument if it determines that such hearing or argument is necessary for the protection of the public interest. The Town of Brookline Selectboard shall issue a written decision regarding the protest within thirty (30) calendar days after it receives the detailed statement of protest. Such decision shall be final and conclusive.
- f. If the Town of Brookline Selectboard concludes that the Bidder submitting the protest has established a basis for protest, the Town of Brookline Selectboard will determine what remedial steps, if any, are necessary or appropriate to address the issues raised in the protest. Such steps may include, without limitation, withdrawing or revising the decisions, issuing a new solicitation or taking other appropriate actions.

### **11. Rejection of Proposals**

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- a. The Municipality may declare a Proposal “Informal” and hence rejected if the proposal shows any alteration of form, omissions or additions not called for in the proposal, lacks proper signatures, is a conditional bid, has alternate bids unless required in the proposal, has irregularities of any kind, has changes to the printed content, is submitted on a form not furnished by the Municipality, is incomplete, fails to acknowledge receipt of one or more addendums, or includes a clause in which the bidder reserves a right to accept or reject the contract award.
- b. The Municipality may reject a proposal at the time of bid opening or following analysis to confirm the proposal.
- c. The Municipality may reject any or all proposals, waive any or all technicalities, and/or advertise for new proposals if the municipality, in consultation with VTrans, determines that the best interests of the Municipality, or the awarding authority, will be served.
- d. The Municipality will reject a proposal submitted without a completed Debarment and Non-Collusion Affidavit.
- e. The Municipality will reject a proposal submitted without a signed Contractors Equal Employment Certification Form.
- f. The Municipality will reject a proposal submitted without a Bid Bond.
- g. The Municipality will reject bids which fail to acknowledge the bidder’s receipt of any addendum if the addendum (addenda) contained information which substantively changed the municipality’s requirements.
- h. The Municipality will decide whether any bid prices are unbalanced above or below a reasonable cost analysis value as determined by its Municipal Project Manager. Proposals in which bid prices are unbalanced, mathematically and/or materially, may be rejected at the sole discretion of the Municipality. For purposes of this subsection “mathematically unbalanced bid” and “materially unbalanced bid” shall have the same meaning as in 23 CFR Part 635 – Construction and Maintenance.

TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21  
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- i. Prospective bidders may be disqualified for various reasons including (a) Submission of more than one proposal for the same work by an entity under the same or different names, (b) Evidence of collusion among bidders, or (c) Any other cause for suspension or debarment as detailed in the Agency's policy and Procedures on Debarment, Code of Vermont Rules (CVR), Volume 8A, 14 010 004, pages 1-10.

**12. Contract Award**

- a. The municipality will evaluate bids in response to this solicitation without discussions and will award a contract to the lowest responsive and responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the municipality considering only price and any price related factors specified in the solicitation.
- b. Opened proposals will be considered and submitted bids confirmed on the basis of the summation of the products of the quantities shown in each proposal's Schedule of Items multiplied by the unit prices bid. In the event of a discrepancy between the written bid amount and the alpha numeric figure, the written amount shall govern. In the event of a discrepancy between a unit price and the calculated extension, the product based on the unit price bid and the mathematically correct summation of the products shall govern.
- c. The municipality may reject any and all bids, waive any or all technicalities, and/or advertise for new proposals if the municipality, in consultation with VTrans, determines that the best interests of the municipality will be served.
- d. The municipality may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.
- e. A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding

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contract without further action by either party.

- f. Prior to signing a construction contract, the successful bidder must submit a current Certificate of Good Standing from the Vermont Secretary of State's office.

**13. Bid Guarantee**

- a. All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the State of Vermont. Certified checks and bank drafts must be made payable to the order of the municipality. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in rejection of the bid. Proposal guarantees of the two lowest bidders that have submitted proposals that comply with all the provisions required to render them formal will be retained until the contract and bonds have been signed by all parties. Bid guarantees submitted by the remaining unsuccessful bidders will be returned as soon as practicable after bid opening. Should no award be made within thirty-one calendar days following the opening of bids, thirty-two if the thirty-first day is a state holiday, all proposals may be rejected and all guarantees may be returned.

**14. Contract Bonds**

- a. A successful bidder entering into a contract for any portion of the work included in a proposal shall provide the Town sufficient surety in the form of; 1) a labor and materials bond, and 2) a compliance bond, both as required by 19 V.S.A. Section 10(8) and (9).
- b. Each bond shall be in a sum equal to one hundred percent (100%) of the contract awarded.

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- c. The labor and materials bond shall guarantee the payment in full of all bills and accounts for materials and labor used in the work as well as other obligations incurred in carrying out the terms of the contract.
- d. The compliance bond shall guarantee the faithful performance and completion of the work to be done under the contract as well as compliance with all provisions of the contract.
- e. The form of the bond shall be that provided by the Municipality, and the surety shall be acceptable to the State. The bonds shall be procured from an insurance company registered and licensed to do business in the State of Vermont.

**15. Signing the Contract**

- a. The entity to which the Contract has been awarded shall sign the contract documents and return them the Municipality within 30 calendar days from the date of the Notice of Award. No contract shall be considered effective until it has been fully executed by all parties.
- b. Failure to comply with any of the requirements of these provisions relative to signing the contract or failure to furnish the required surety within fifteen (15) calendar days after notice of award shall be just cause for the annulment of the award or of the contract and/or forfeiture of the proposal guarantee/bid bond. Further, if the award or the contract is annulled, or if the contract is not awarded due to in(action) of the lowest responsible bidder that has submitted a proposal that complies with all the provisions required to make it formal, the proposal guaranty accompanying the proposal shall become the property of the Municipality, not as a penalty but as liquidated damages.
- c. If the award or the contract is annulled, the Municipality may award the contract to the next lowest responsible bidder that has submitted a proposal that complies with all the provisions required to make it formal or advertise a new request for bids for the contract(s).

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- d. Failure by the contractor to sign the contract within the time provided by this Subsection shall not be reason for an extension of the contract completion date.

### 16. Taxes and Insurance Requirements

Taxes and insurance for this project shall be in conformance with Section 103 of the VTrans 2018 Standard Specifications for Construction. For this project the following limits for Commercial Liability and Automobile coverage apply:

Commercial Liability:

\$1,500,000 Each Occurrence

\$2,000,000 General Aggregate applying, in total, to this project only

\$2,000,000 Products/completed Operations Aggregate

\$250,000 Fire Damage Legal Liability

Automobile Liability:

Bodily Injury	\$1,000,000	Each Person
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	\$1,000,000	Each Occurrence
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Property Damage	\$500,000	Each Occurrence
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OR

Combined Single Limit \$1,500,000 Each Occurrence

### 17. Prompt Pay Compliance

- a. Vermont's Prompt Pay Statute requires payment from primes to subs within 7 days of primes receiving payment. Vermont State Statutes Annotated, Title 9, §4003 provides: "Notwithstanding any contrary agreement, when a subcontractor has performed in accordance with the provisions of its contract, a contractor shall pay a subcontractor, and each subcontractor shall in turn pay its subcontractors, the full or proportional amount received for each such subcontractor's work and materials based

## TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21

### Invitations to Bidder

on work completed or service provided under the subcontractor, seven days after receipt of each progress or final payment or seven days after receipt of the subcontractor's invoice, whichever is later."

#### **18. Preconstruction Conference**

- a. After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the Municipality, Design and/or Resident Engineer, Municipal Project Manager (MPM), and the VTrans Project Supervisor, and other interested parties convened by the Municipality's engineer/representative. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The municipality will provide the successful bidder with the date, time and place of the conference. Note: If the specific material testing and certification requirements are not included elsewhere in the contract documents, they will be provided by the Design Consultant to the contractor at the preconstruction conference

#### **19. Waste Borrow and Staging Areas**

- a. The opening and use of offsite waste, borrow and staging areas shall follow the provisions of Section 105.25 of the VTrans Standard Specifications for Construction, 2018 Edition.
- b. The Contractor and/or property owner shall obtain all necessary permits and clearances prior to using off site waste, borrow or staging areas. In addition all off site waste borrow and staging areas must be reviewed and approved by the VTrans Environmental Section prior to use. Application should be made at least 21 calendar days prior to planned utilization. No work will be performed at offsite waste borrow or staging areas without written approval of the Engineer. The forms for either documenting an exempt site or applying for review of a site may be found on the VTrans web site at: <http://vtrans.vermont.gov/working/offsite-activity>

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**20. DBE Requirements**

- a. There are to be no mandatory Contract goals for DBE compliance on this project.

**21. Contaminated Soils**

- a. If contaminated soils are encountered during the course of construction, the Contractor is directed to contact: Mr. Andy Shively, Hazardous Material and Waste Coordinator, of the Vermont Agency of Transportation at (802) 229- 8740.

**22. Contract Documents**

The following documents are included in this proposal and are effective for this contract. Proposal holders are reminded to check the contents of this proposal against the following index. In the event that you suspect or determine the proposal is incomplete, notify Ronald K. Bell, Pe Bell Engineering 17 Echo Cove Way Spofford, NH 03462 603-363-9966 ronbellcivil@gmail.com.

- Invitation for Bids
- Instruction to Bidders
- Bid Proposal Form
- Special Provisions
- VTrans 2018 Standard Specifications for Construction
- Contractors EEO Certification Form CA-109 – Appendix A
- Debarment & Non-Collusion Affidavit CA-91 – Appendix B
- Required Contract Provisions for Federal-Aid Construction, FHWA Form 1273 – Appendix C
- Standard Federal EEO Specifications, (Executive Order 11246) – Appendix D
- Certification of Federal Aid Contracts CA-163 – Appendix E
- Vermont Minimum Labor & Truck Rates – Appendix F
- Vermont Agency of Transportation Contractor Workforce Reporting Requirements CA-26A – Appendix G

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- Disadvantaged Business Enterprise (DBE) Policy Contract Requirements – Appendix H
- General Special Provisions for All Projects dated April 28, 2020
- Example Performance and Payment Bond Forms – Appendix J
- Project Change Order Form – Appendix K • Work Zone Safety and Mobility Guidance Document – Appendix L
- US Department of Labor Davis-Bacon Rates
- Materials Record & Certification Package
- Project Permits
- Environmental Permits
- Right of Way and Utility Clearance

Invitations to Bidder

**BID FORM**

**TOWN OF BROOKLINE SAND AND SALT SHED**

Proposal of \_\_\_\_\_  
(hereinafter called Bidder), organized and existing under the laws of the State of \_\_\_\_\_  
\_\_\_\_\_ doing business as

\_\_\_\_\_  
(a corporation, a partnership, of an individual)

To the Town Brookline, Vermont (hereinafter called Owner)

The Bidder represents that this bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation. The bidder has not directly or indirectly induced or solicited any other bidder to submit a false bid. Bidder has not solicited or induced any person, firm or corporation to refrain from bidding and the bidder has not sought by collusion to obtain for himself any advantage over any other bidder or Owner.

It is essential that all forms that require signature as part of the final Bid Submission be signed or the Bid itself will be invalid:

- Contractors EEO Certification Form CA-109 – Appendix A
- Debarment & Non-Collusion Affidavit CA-91 – Appendix B

The undersigned bidder proposed and agrees, if this bid is accepted, to enter into an agreement with Owner to furnish all materials and to complete all work as specified or indicated in the Contract Documents for the contract price and within the contract time indicated in this bid and in accordance with the Contract Documents.

Bidder hereby agrees to commence Work under this contract on the date of issuance of the Notice to Proceed and that the Final Completion date for this contract is xx/xx/xxxx.

Bidder acknowledges receipt of the following Addenda:

\_\_\_\_\_  
\_\_\_\_\_

# TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21

## Invitations to Bidder

### Bid Form

Bidder agrees to perform all the Work described in the Contract Documents for the following total lump sum price. Unqualified bids will not be accepted.

VTRANS ITEM #	ITEM	UNIT	QTY	PRICE	UNIT	TOTAL PRICE
900.53	Special Provisions (Building Structure)	LS			\$ _____ \$ _____	
	Unit price in words _____					
653.08	Runoff Control Measures	LS			\$ _____ \$ _____	
	Unit price in words _____					
641.10	Traffic Control	LS			\$ _____ \$ _____	
	Unit price in words _____					
						Total Base Bid \$ _____
Total base bid written _____						

The lowest responsive and responsible bidder will be determined by the Total Base Bid.

### Bid Form

The above lump sum shall include all labor, materials, removal, overhead, profit, insurance, etc. to cover the finished work of the several kinds called for on the drawings and specifications.

THE ABOVE PROPOSAL IS HEREBY RESPECTFULLY SUBMITTED BY:

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
By

\_\_\_\_\_  
Title

# TOWN OF BROOKLINE SAND AND SALT SHED STP MM18(7) 10/30/21

## Invitations to Bidder

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Business Address

---

City State

---

Date

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ATTEST

LS = lump sum LU = lump unit

EA = each CY = cubic yard

SY = square yard LF = linear foot

SF = square feet TON = ton

CWT = hundredweight MGAL = thousand gallons

GAL = gallon LB = pound

HR = hour

## SPECIAL PROVISIONS

The Contractor shall comply with the Vermont Agency of Transportation 2018 Standard Specifications for Construction manual. Specific Sections of the manual germane to this project are highlighted and project specific specifications are presented herein.

The basis for payment for all items on this project is a lump sum payment based on the Contractors Bid.

### SECTION 104 INTENT OF CONTRACT – TIME

1. The Contractor shall be allowed to commence work on the Contract on or after, ~~x/x/xxxx~~ provided that the Contract has been awarded, all required plans/submittals have been received and determined to be acceptable by the Town and a preconstruction meeting has been held.
2. The specified Contract Completion Date is ~~x/x/xxxx~~. All work must be completed by the Contract Completion Date specified in the Contract, and any authorized extensions.
3. Once the Contractor begins physical work, they shall have 90 calendar days to complete the work. For every Calendar day above and beyond the 90 calendar days the work is not complete, the Contractor will be assessed Supplemental Liquidated Damages as prescribed in section 108.
4. Once operations commence, the Contractor shall continue work on the project until physical work is complete.
5. Work can be performed at any time except Sundays, Holidays. Requests to work Saturday must be made by noon time on Thursday.
6. Completion of Physical Work occurs when the Work is complete and has undergone a successful final inspection. Liquidated Damages will cease upon the physical completion of the Work. Completion occurs when the Contractor has finished all Work pursuant to the Contract, the Work is complete and has undergone a successful final inspection and delivered documentation is complete and accepted. Completion does not mean substantial Completion.

### SECTION 105 GENERAL SCOPE OF WORK

1. A Preconstruction meeting must be held prior to any work being started.
2. The Contractor shall notify the Project Manager 48 hours prior to any change in work schedule.
3. Inspections by Project Manager will be done at key points to be determined by the Engineer. The Contractor shall plan operations so that the Project Manager will have sufficient advance notification of daily work schedules to provide the necessary inspection and testing. Sufficient notification will be considered 48 hours, unless otherwise agreed by the Project Manager.

BROOKLIN SAND & SALT SHED  
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SECTION 200 EARTHWORK

The Town of Brookline will remove all trees in the project area prior to the start of work.

Prior to any earthwork the contractor shall install silt fence in the locations noted on the project Site plan.

The contractor will be responsible for clearing, grubbing and stump removal in accordance with items 201.02, 201.03 & 201.04.

204.04 PREPARATION OF FOUNDATION

The foundation pits shall be excavated so that the footings are the full lengths and widths shown on the Plans. The footings shall be constructed with full horizontal beds. Unless otherwise specified or authorized in writing, foundations shall be constructed in the dry. The site shall be dewatered to or below the footing elevation or lowest elevation of a structural component. The excavation shall continue to either bedrock or the elevation specified for footings on soil. All loose material shall be removed, and all seams in the rock shall be cleaned out and filled with concrete or as directed by the Engineer. No excavation shall be done below the elevations shown on the Plans unless authorized in writing by the Engineer. Any material excavated without authority shall be replaced with concrete or as directed by the Engineer at the Contractor's expense. When the footing is to be constructed on an excavated surface other than rock, particular care shall be taken not to disturb the bottom of the excavation. No excavation shall be done below the elevations shown on the Plans, unless authorized in writing by the Engineer. Any material excavated without authority shall be replaced with approved backfill and thoroughly compacted in accordance with Subsection 204.05(a) at the Contractor's expense. When poor foundation material is encountered at the designed foundation level, it shall be removed as Structure Excavation or Trench Excavation and replaced with Granular Backfill for Structures or other suitable material as shown on the Plans or as directed by the Engineer, and thoroughly compacted in accordance with Subsection 204.05(a).

SECTION 400 SURFACE COURCES AND PAVEMENT

The floor of the sand and salt shed is a 4" bituminous concrete pavement (1&1/2" type III top course and 2&1/2" bottom coarse. The bituminous pavement is underlain by a minimum of 12" of compacted crushed gravel (fine) per AOT Standard Specification 704.05A.

401.01 DESCRIPTION. This work shall consist of furnishing and placing a wearing course of approved aggregate on a prepared surface.

401.02 MATERIALS. Materials shall meet the requirements of the following Subsections:

BROOKLINE SAND & SALT SHED  
STP MM 18(7)

Aggregate for Surface Course 704.12

401.03 PLACING. The aggregate shall be placed and properly shaped using equipment that allows the typical cross-section and design grade to be attained. Should aggregate segregation occur, the Contractor shall remove and replace the segregated material or manipulate it until uniform gradation is obtained. The maximum layer thickness for placement of any aggregate surface material shall be 6 inches after compaction. All layers shall be placed and compacted at approximately equal thickness. In the placement of layers, all joints shall be staggered at least 12 inches. After each layer of surface material is placed, it shall be thoroughly compacted to a uniform density of not less than 95% of the maximum dry density as determined by *AASHTO T 99*, Method C. Suitable and effective equipment, meeting the approval of the Engineer, shall be used to obtain a true and even surface during compaction. All holes or depressions found during the compacting shall be filled with additional material, reworked, and compacted. If required, water shall be uniformly applied over the aggregate material during compaction in an amount necessary to produce proper consolidation. The aggregate shall be thoroughly compacted by an approved power roller with a minimum weight of 8 tons, by an approved rubber-tired roller, or by other approved methods.

SECTION 406 – BITUMINOUS CONCRETE PAVEMENT

406.01 DESCRIPTION. This work shall consist of constructing one or more courses of bituminous mixture on a prepared foundation in accordance with these Specifications and the specific requirements of the type of surface being placed and in conformance with the lines, grades, thicknesses, and typical cross-sections shown on the Plans or established by the Engineer.

406.02 MATERIALS. Materials shall meet the requirements of the following Subsections:

Performance-Graded Asphalt Binder .....	702.02
Emulsified Asphalt .....	702.04
Aggregate for Bituminous Concrete Pavement .....	704.10(a)

The grade of performance-graded (PG) asphalt binder used to produce bituminous concrete pavement shall be as specified in Table 406.03C or Table 406.03F unless otherwise specified in the Contract Documents. Placing and finishing shall comply with section 406.13 and compaction in accordance with 403.14.

DIVISION 500 STRUCTURES

SPECIAL PROVISION – CONCRETE FORMWORK

PART 1 – GENERAL

1.1 QUALITY ASSURANCE

## BROOKLINE SAND & SALT SHED

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- A. Comply with all recommendations of American Concrete Institute publication ACI 347, "Recommended Practice for Concrete Formwork".
- B. Design formwork to permit removal without damaging concrete and with sufficient strength and rigidity to sustain the dead weight of liquid concrete, together with other dead loads, live loads and other loads to which it will be subjected, without excessive deflection. Make forms tight enough to prevent leakage.
- C. Accurately erect formwork to the lines and dimensions shown on the drawings and straight, true, plumb, and square to within a tolerance of one in 300 horizontally and one in 500 vertically. Finished concrete thickness shall be within  $\frac{1}{4}$  inch of the required thickness.
- D. Use clean, smooth forms, free from nicks, gouges, and other defects which may affect appearance or the structural integrity of the concrete or the formwork.
- E. Locate all built-in items and penetrations so as not to impair the strength or stability of any structural member of the formwork.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Forms: "Steel-Ply" by Symons Corporation, or approved equal.
- B. Form ties: Galvanized with 1" breakback. After ties have been snapped, the remaining metal shall be no closer than  $\frac{1}{2}$  inches from the surface. Tie wire is prohibited.
- C. Form Releasing Agent: "Magic Kote" by Symons Corporation, "Burke Release" by Burke Concrete Accessories, Inc., Burke Accessories, Inc., Harris Form Release VOC by A.H. Harris or equal. Releasing agents which will stain, or have any deleterious effect on concrete, or adversely affect the subsequent application or adhesion of paints, epoxies or other coatings, are prohibited.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Make all necessary field measurements to ensure precise fit of all items.
- B. Clean all forms and coat with form releasing agent prior to each use. Form releasing agent shall be applied prior to installation of reinforcing steel.
- C. Do not close up formwork until Engineer has inspected the reinforcing steel, conduits, and other work to be embedded in concrete.

### 3.2 INSTALLATION

## BROOKLINE SAND & SALT SHED

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- A. Construct forms to be sufficiently tight to prevent leakage of mortar and to be able to withstand all loads without deflecting beyond allowable limits.
- B. Install forms to the shapes, sizes, lines, and dimensions indicated on the drawings.
- C. Coordinate and perform all forming and do all cutting and repairing of forms required to accept built-in and embedded items.
- D. Set all required waterstops, pipe sleeves, frames, angles, grilles, bolts, inserts and other items required to be embedded or anchored in the concrete.
- E. Securely shore, brace and tie the forms together so as to maintain position and shape, to prevent displacement, and to ensure safety to personnel, equipment and work completed or in progress.
- F. Arrange formwork to minimize joints, utilize minimum 48-inch wide forms where possible.

### 3.3 REMOVAL OF FORMS

- A. Remove so as not to spall off or cause injury to concrete. Hammering or prying against concrete is prohibited.
- B. Above 90 degrees : 4 days; 40-90 degrees: 1 day; below 40 degrees: do not remove forms until site-cured test cylinder develops 50% of 28 day strength and in no case, sooner than the time for 40-90 degree temperature.

### SECTION 507 REINFORCING STEEL

Description This work shall consist of furnishing and placing of reinforcement in accordance with these specifications and in conformance with the Plans, Supplemental Specifications and Special Provisions. Materials shall meet the requirements of the following State of Vermont Standard Specifications Sections 713 Reinforcing Steel and Wire Rope.

The Contractor shall submit order lists, bending diagrams and bar layout drawings to the Resident for approval. The reinforcing steel shall not be ordered until these lists and drawings are approved. Approval shall not relieve the Contractor of full responsibility for the satisfactory completion of this item.

Protection of Material Reinforcement shall be stored on skids or other supports a minimum of 12 in above the ground surface and protected at all times from damage and surface contamination. The storage supports shall be constructed of wood, or other material that will not damage the surface of the reinforcement or epoxy coating. Bundles of bars shall be stored on supports in a single layer. Each bundle shall be placed on the supports in a single layer. Each bundle shall be placed on the supports out of contact with adjacent bundles.

If it is expected that epoxy-coated bars will be required to be stored outdoors for a period in excess of three months, then they shall be protected from ultraviolet radiation.

## BROOKLINE SAND & SALT SHED

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Fabrication Bending of reinforcing bars and tolerances for bending of reinforcing bars shall be in conformance with the latest edition of “Manual of Standard Practice of the Concrete Reinforcing Steel Institute” and the “Detailing Manual of the American Concrete Institute”. Unless otherwise specifically authorized, bars shall be bent cold.

Placing and Fastening All steel reinforcement shall be accurately placed in the positions shown on the plans and shall be firmly held there during the placing and setting of the concrete. Immediately before placing concrete, steel reinforcement shall be free from all foreign material, which could decrease the bond between the steel and concrete. Such foreign material shall include, but not be limited to, dirt, loose mill scale, excessive rust, paint, oil, bitumen and dried concrete mortar.

Bars shall be fastened together at all intersections except where spacing is less than 1 ft. in either direction, in which case, fastening at alternate intersections of each bar with other bars will be permitted providing this will hold all the bars securely in position. This fastening may be tightly twisted wire. Welding on epoxy-coated reinforcing steel will not be permitted under any condition.

Proper distances from the forms shall be maintained by means of stays, blocks, ties, hangers or other approved means. Blocks used for this purpose shall be precast Portland cement mortar blocks of approved shape and dimensions. Chairs may be used for this purpose and, when used, must be plastic, plastic coated, epoxy coated or plastic tipped. Layers of bars may be separated by precast Portland cement mortar blocks or other approved devices. The use of pebbles, pieces of broken stone or brick, metal pipe or wooden blocks shall not be permitted. The placing of reinforcement as concrete placement progresses, without definite and secure means of holding the steel in its correct position, shall not be permitted except in the case of welded steel wire fabric or bar mats.

Field bending or cutting of epoxy-coated reinforcing bars will not be allowed, unless otherwise indicated on the plans or permitted by the Resident. When field bending or cutting is allowed, all damaged coating areas shall be repaired in accordance with the patching requirements.

Bars in the foundation walls shall be placed so as to clear anchor bolts.

At each anchor location, existing reinforcing will be located to avoid drilling through existing bars. Where interferences are found to exist, location adjustments will be determined by the Resident.

Minimum embedment lengths of reinforcing bars shall comply with the manufacturer's published recommendations for the anchoring material selected. These embedment lengths shall be verified by the Resident before installation of the reinforcing bars. The reinforcing steel lengths indicated on the Plans may be reduced, at the Contractor's option, to the determined minimum embedment lengths.

Reinforcement shall be inspected and approved by the Resident before any concrete is placed.

BROOKLINE SAND & SALT SHED

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SECTION 522 LUMBER AND TIMBER

ROUGH CARPENTRY

PART 1 – GENERAL

1.1 Summary

- A. This work consists of all labor, materials and equipment necessary to complete the work as shown on the Drawings and as specified herein.

1.2 References

- A. International Building Code, Latest Edition.

1.3 Workmanship

- A. Only experienced personnel shall be engaged in this work.

1.4 Delivery, Storage and Handling

- A. Deliver the materials to the job site and store in a safe area, out of the way of traffic, shored up off the ground surface and covered to protect from weather.

PART 2 – PRODUCTS

2.1 Dimension Lumber

- A. Non pressure treated dimension lumber shall be Eastern Spruce or other wood approved by the Engineer and shall comply with grading requirements of the Northeastern Lumber Manufacturers Association for Common, Number 2 or better, and shall bear the grade stamp. Pressure treated dimension lumber shall be Southern Yellow Pine.
- B. When specified on the Plans or in part 4, stress grade structural lumber shall be provided. Stress grade lumber shall bear appropriate stamp for the specified grade and species.
- C. Wood for pressure treating and special installation shall be southern yellow pine meeting the requirements of the Southern Pine Inspection Bureau (SPIB) for Number 2 or better.
- D. All lumber shall not exceed 19% moisture content.

2.2 Plywood

- A. All plywood shall be 4/5-ply minimum and shall comply with U.S. Product Standard PS-1 for softwood plywood and shall bear the specified grade and stamp of the American Plywood Association.
- B. Unless otherwise shown on the Drawings, plywood shall use exterior glue and have a span rating of 32/16.

## BROOKLINE SAND & SALT SHED

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#### PART 3 – EXECUTION

##### 3.1 Preparation

A. Carefully select individual lumber pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing.

B. Cut out and discard defects which render a piece unable to serve its intended function.

C. Lumber will be rejected by the Department if it is excessively warped, twisted, bowed, mildewed or molded, as well as if it is improperly installed.

##### 3.2 Erection

A. All framing work shall produce joints which are tight, true, and well nailed with members assembled in accordance with the Drawings and with pertinent codes and regulations.

B. All framing and fastening shall equal or exceed HUD Minimum Property Standards, Manual of Accepted Practices and the requirements of the IBC.

C. Do not shim any framing member.

D. Install horizontal and sloped members with crown up.

E. Do not notch, cut or bore members for pipes, ducts, conduits, or for any other reason, except as shown on the Drawings and as approved the Engineer.

F. Bearing surfaces on which structural members rest shall provide a full, even support.

G. Joists, rafters and similar members shall be fastened with at least two (2) galvanized steel hangers or anchors and nailed completely.

H. Install solid block bridging at midpoint of joists or as shown on the Drawings.

I. Provide all shims, blocking and bracing as shown on the Drawings and as approved by the Engineer to complete the work.

J. In addition to normal framing operations, install wood blocking or backing required to support the work of other trades.

##### 3.3 Plywood Sheathing

A. Unless otherwise specified or approved by the Department, install plywood with the face grain perpendicular to framing and central joints over supports. Leave 1/16-inch gap where adjacent plywood panels meet.

B. Stagger plywood joints so that all joints do not lie on the same support.

##### 3.4 Nailing

A. Use galvanized nails except as otherwise indicated. Make tight connections between members. Countersink nail heads on exposed carpentry work and fillholes.

B. Install fasteners without splitting wood; pre-drill as required.

C. All nailing shall comply with the IBC, Recommended Fastening Schedule (found in table 2304.9.1), unless special requirements are shown on the Drawings.

##### 3.5 Concrete Bearing

## BROOKLINE SAND & SALT SHED

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A. All wood which bears against concrete, earth, steel or masonry shall be pressure treated as specified on the Drawings or as approved by the Engineer.

## WOOD TRUSSES

### PART 1 – GENERAL

#### 1.1 Summary

A. The work included in this Section shall consist of providing wood trusses and truss accessories where shown on the Drawings, and as specified herein, and as needed for a complete and proper installation.

#### 1.2 Quality Assurance

A. Truss fabrication and installation shall comply with the International Building Code, latest edition and the requirements and recommendations of the following Truss Plate Institute (TPI) publications:

1. “Design Specification for Metal Plate Connected Wood Trusses”.
2. Commentary and Recommendations for Handling and Erecting Wood Trusses”.
3. “Commentary and Recommendations for Bracing Wood Trusses”.
4. “Quality Control Manual”.

B. Trusses and metal truss connector plates shall be manufactured by a firm that practices a quality control program comparable to the TPI “Quality Control Manual”.

C. Use adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

#### 1.3 Submittals

A. Product Date: Within 15 calendar days after the Contractor has received the Engineers’ notice to Proceed, submit:

1. Materials list of items proposed to be provided under this Section
2. Manufacturer’s specifications and other data needed to prove compliance with the specified requirements.
3. Shop drawings in showing species, sizes, and stress grades of lumber proposed to be used; pitch, span, camber configuration, and spacing of trusses; connector type, thickness, size, location, and design value; bearing details; all other relevant information to show compliance with the specified requirements of the work of this Section.

## BROOKLINE SAND & SALT SHED

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4. Submit two (2) copies of shop drawings showing types and sizes of metal tie down anchors and any other accessories.
5. These submittals shall be provided on Shop Drawings signed and stamped by a structural engineer licensed to practice in the State of Vermont.
- B. All shop drawings shall be submitted to the Engineer for review at least 15 calendar days prior to incorporation into the work. All shop drawings shall be reviewed and approved by the Engineer prior to incorporating into the work.

## PART 2 – PRODUCTS

### 2.1 Wood Trusses

- A. Design wood trusses for the loads shown on the Drawings.
- B. Fabrication:
  1. Cut truss members to accurate lengths, angles and sizes to produce close fitting joints with proper wood-to-wood bearing in assembled units.
  2. Connect truss members by means of metal connector plates accurately located and securely fastened to wood members
- C. Lumber:
  1. All lumber used in the fabrication of wood trusses shall not exceed 19% moisture content.

### 2.2 Permanent Bracing

- A. Provide 2x6 diagonal bracing of vertical truss members and continuous lateral bracing of intermediate truss members as shown on the Drawings, as recommended by the manufacturer and as approved by the Department.

### 2.3 Other Materials

- A. Provide other materials, not specifically described but required for a complete and proper installation, subject to the approval of the Department.

### 2.4 Metal Tie Down Anchors

- A. Provide metal tie down anchors that are nailed to the truss bottom chord, top wall plate and wall stud.
- B. Acceptable Products:
  1. Simpson Strong Tie
  2. U.S.P. RT.
  3. Approved Equal.
- C. Anchors and fasteners shall be galvanized with a minimum G90 coating.

## PART 3 – EXECUTION

### 3.1 Surface Conditions

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 Installation

- A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
- B. Install the work of this Section in strict accordance with the manufacturer's recommended installation procedures, the approved shop drawings and the recommendations of the Truss Plate Institute, as approved by the Department, anchoring all components firmly into position:
  - 1. Hoist the truss into position with proper bracing secured at designated lifting points.
  - 2. Exercise care to keep bending of trusses to a minimum.
  - 3. Install temporary horizontal and cross bracing to hold trusses plumb and in safe condition until permanent bracing is installed.
  - 4. Install permanent bracing and related components prior to application of loads to trusses.
  - 5. Anchor trusses securely at all bearing points and install metal tie down anchors as shown on the Drawings.
  - 6. Restrict construction loads to prevent overstressing of truss members.
  - 7. Do not cut or remove truss members in the field without approval of the Engineer and truss manufacturer.

## METAL WALL & ROOF SYSTEM SPECIFICATION

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. General:
  - 1. Furnish all labor, material, tools, equipment and services for all preformed roofing panels as indicated, in accord with the provisions of the Contract
- B. Documents.
  - 1. Completely coordinate with work of all other trades.
- C. See Division 1 for General Requirements.

#### 1.2 QUALITY ASSURANCE

- A. Applicable standards:
  - 1. 1996 Low Rise Building Systems Manual, Metal Building Manufacturers Association, Inc., Cleveland, OH, 1996.
  - 2. ASTM A653, "Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process," American Society for Testing and Materials, 1998.
  - 3. ASTM A792a, "Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process," American Society for Testing and Materials, 1997.
  - 4. Cold-Formed Steel Design Manual, American Iron and Steel Institute, Washington, D.C., 1996.
  - 5. Specification for Structural Steel Buildings - Allowable Stress Design and Plastic Design, American Institute of Steel Construction, Chicago, IL, 1989.
- B. Manufacturer's qualifications:
  - 1. Manufacturer shall have a minimum of ten years' experience in manufacturing metal roofing/wall systems. Panels specified in this section shall be produced in a permanent factory environment with fixed-base roll-forming equipment. A letter from the manufacturer certifying the manufacturer's

## BROOKLINE SAND & SALT SHED

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#### 1.3 SYSTEM PERFORMANCE REQUIREMENTS

##### A. Performance Testing

B. Metal wall and roofing systems shall be designed and in accordance with latest release of AISI.

#### 1.4 DESIGN REQUIREMENTS (as applicable to roof/wall system)

##### A. General

1. The METAL WALL AND ROOF SYSTEM shall be designed by the Manufacturer as a complete system. Members and connections not indicated on the drawings shall be the responsibility of the Contractor. All components of the system shall be supplied or specified by the same manufacturer.

##### B. Design Loads

1. Design load application shall be in accordance with ASCE-7.

##### C. Live Loads

1. The panels and concealed anchor clips shall be capable of supporting a minimum uniform live load of 20 psf.

##### D. Wind Loads

1. The design wind speed for the metal wall system shall be as defined on the contract documents.

#### 1.5 SUBMITTALS

##### A. Installation Drawings:

1. Submit completed installation drawings and installation details by the manufacturer, to the architect (owner) for review. Do not proceed with manufacture prior to review and architectural approval of installation drawings. Do not use drawings prepared by the architect (owner) for installation drawings.

2. Installation drawings shall show methods of installation, elevations and plans of roof and wall panels, sections and details, specified loads, flashings, roof curbs, vents, sealants, interfaces with all materials not supplied by the metal roofing system manufacturer, and proposed identification of component parts and their finishes.

3. Calculate holding strength of fasteners in accordance with submitted test data provided by Fastener Manufacturer based on length of embedment and properties of materials.

##### B. Physical Samples:

1. Submit samples and color chips for all proposed finishes.

2. Submit one 12-inch long sample of panel, including clips.

3. Submit two 3-inch x 5-inch color chip samples in color selected by the owner.

#### 1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

##### A. Delivery:

1. Deliver metal roofing and wall system to job site properly packaged to provide protection against transportation damage.

##### B. Handling:

1. Exercise extreme care in unloading, storing and installing metal roofing system

## BROOKLINE SAND & SALT SHED

### STP MM 18(7)

to prevent bending, warping, twisting and surface damage.

#### C. Storage:

1. Store all material and accessories above ground on well supported platforms. Store under waterproof covering. Provide proper ventilation of metal roofing system to prevent condensation build-up between each panel or trim/flashing component.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

A. Products equal to Metal Sales Corp.

B. Metal wall and roof panel: 24-gauge, 1 rib, 6" corrugations, 36" panel coverage (T3)

C. Colors to be selected by owner.

D. Panel Base Material:

E. Galvalume(r) steel sheet, AZ50, conforming to ASTM A792 for painted and unpainted panels.

F. Texture: Smooth.

G. Finish:

1. Selected from manufacturer's standard offering.
2. Thermoset silicone polyester.
3. Fluoropolymer coating produced with minimum 70% PVDF resin.
4. Clear acrylic-coated Galvalume(r).

H. Miscellaneous Materials

I. Fasteners:

1. Fasteners for steel wall and roof panels shall be zinc-coated steel, aluminum, corrosion resisting steel, or nylon-capped steel, type and size specified below, or as otherwise, approved for the applicable requirements. Fasteners for aluminum wall and roof panels shall be aluminum or corrosion resisting steel. Fasteners for structural connections shall provide both tensile and shear ultimate strengths of not less than 750 pounds per fastener. Fasteners for accessories shall be the manufacturer's standard. Exposed wall fasteners shall be sealed or have sealed washers on the exterior side of the covering to waterproof the fastener penetration. Washer material shall be compatible with the screw head; have a minimum diameter of 3/8-inch for structural connections; and gasket portion of fasteners or washers shall be neoprene or other equally durable elastomeric material.

J. Components:

1. Components shall be compatible with the wall and roof panel furnished. Flashing, trim, metal closure strips, caps, and similar metal components shall not be less than the minimum thickness specified by the METAL WALL AND ROOF SYSTEM Manufacturer. Exposed metal components shall be finished to match the panels or trim, as furnished.
2. Sealants:
3. All tape sealant is to be a pressure sensitive, 100 percent solid, sealing tape with

## BROOKLINE SAND & SALT SHED

### STP MM 18(7)

a release paper backing. Provide permanently elastic, non-staining tape sealant approved by the Manufacturer.

#### 2.2 FABRICATION

- A. Panels shall be produced by Metal Sales or equal.
- B. Fabricate trim, flashing and accessories to Manufacturer's specified profiles.
- C. General: Provide the Manufacturer with the dimensions, weights and model number of the units to be supported by the curb(s).

### PART 3 – EXECUTION

#### 3.1 SURFACE CONDITIONS

- A. Examination:
  - 1. The Contractor shall verify installed work of other trades that such work is complete to a point where the wall system installation may commence.
  - 2. Verify that the substructure installation is in accordance with the approved shop drawings and METAL WALL AND ROOF SYSTEM Manufacturer's requirements.
  - 3. This specifically includes verifying that secondary structural members and/or decking are installed to meet performance requirements. Coordinate with
  - 4. METAL WALL AND ROOF SYSTEM Manufacturer to ensure that the substructure is installed to accommodate the appropriate fastener spacing.
- B. Discrepancies:
  - 1. In event of discrepancy, notify the architect (owner).
  - 2. Do not proceed with installation until discrepancies have been resolved.

#### 3.2 INSTALLATION

- A. Install the METAL WALL AND ROOF SYSTEM in accordance with manufacturer's instructions and approved installation drawings.
- B. Locate and space all exposed fasteners in accordance with the METAL WALL AND ROOF SYSTEM Manufacturer's recommendations. Use proper torque settings to obtain controlled uniform compression for a positive seal without rupturing the neoprene washer.
- C. Avoid placing pipe penetrations through the panel seams.
- D. Do not allow panels or trim to come into contact with dissimilar materials (i.e. copper, lead, graphite, treated lumber, mortar, etc.). Water run-off from these materials is also prohibited.
- E. Comply with METAL WALL AND ROOF SYSTEM Manufacturer's approved installation drawings, instructions and recommendations for installation of roof curbs.
- F. Refer to METAL WALL AND ROOF SYSTEM Manufacturer's standard installation

## BROOKLINE SAND & SALT SHED

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details.

### 3.3 CLEANING, PROTECTION

- A. Dispose of excess wall materials and remove debris from site.
- B. Clean work in accordance with manufacturer's recommendations.
- C. Protect work against damage until final acceptance. Replace or repair to the satisfaction of the architect (owner), any work that becomes damaged prior to final acceptance.
- D. Touch up minor scratches and abrasions per the METAL WALL AND ROOF SYSTEM
- E. Manufacturer's recommendations.

## APPENDIX A

STATE OF VERMONT  
AGENCY OF TRANSPORTATION

November, 1985  
CA-109

### CONTRACTOR'S EEO CERTIFICATION FORM

Certification with regard to the Performance of Previous Contracts of Subcontracts subject to the Equal Opportunity Clause and the filing of Required Reports.

The bidder \_\_\_\_\_, proposed subcontractor \_\_\_\_\_, hereby certifies that he/she has \_\_\_\_\_, has not \_\_\_\_\_, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246 as amended, and that he/she has \_\_\_\_\_, has not \_\_\_\_\_, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

_____	_____	_____
Company	By	Title

NOTE: The above certification is required by the Equal Employment Opportunity regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5 (Generally only contracts or subcontracts of \$10,000 or under are exempt.) Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7 (b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration, or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

## APPENDIX B

CA-91

STATE OF VERMONT  
AGENCY OF TRANSPORTATION  
DEBARMENT AND NON-COLLUSION AFFIDAVIT

I, \_\_\_\_\_, representing  
(Official Authorized to Sign Contracts)

\_\_\_\_\_ of \_\_\_\_\_,  
(Individual, Partnership or Corporation) (City or State)

being duly sworn, depose and certify under the penalties of perjury under the laws of the State of Vermont and the United States that on behalf of the person, firm, association, or corporation submitting the bid certifying that such person, firm, association, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid for the Vermont project:

\_\_\_\_\_  
(Project Name)

\_\_\_\_\_ project located on \_\_\_\_\_,  
(Project Number) (Route or Highway)

bids opened at \_\_\_\_\_,  
(Town or City)

Vermont on \_\_\_\_\_, 20\_\_\_\_.  
(Date)

I further depose and certify under the penalties of perjury under the laws of the State of Vermont and the United States that except as noted below said individual, partnership or corporation or any person associated therewith in any capacity is not currently, and has not been within the past three (3) years, suspended, debarred, voluntarily excluded or determined ineligible by any Federal or State Agency; does not have a proposed suspension, debarment, voluntary exclusion or ineligibility determination pending; and has not been indicted, convicted, or had a civil judgement rendered against (it, him, her, them) by a court having jurisdiction in any matter involving fraud or official misconduct within the past three (3) years.

Exceptions: \_\_\_\_\_ No \_\_\_\_\_ Yes. (If yes complete back of this form.)

Sworn to before me this

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
(Name of Individual, Partnership or Corporation) L.S.

\_\_\_\_\_  
(Signature of Official Authorized to Sign Contracts) L.S.

\_\_\_\_\_  
(Notary Public)

\_\_\_\_\_  
(Name of Individual Signing Affidavit) L.S.

(My commission expires \_\_\_\_\_)

\_\_\_\_\_  
(Title of Individual Signing Affidavit) L.S.

## APPENDIX B

Page 2

Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, indicate below to whom it applies, initiating agency, and dates of action. Providing false information may result in criminal prosecution or administration sanctions.

EXCEPTIONS:

## APPENDIX C

RFP/PROJECT NAME & NUMBER:  
DATE:

### WORKER CLASSIFICATION COMPLIANCE REQUIREMENT

#### Self Reporting Form 1 of 2

**This form must be completed in its entirety and submitted as part of the response for the proposal to be considered valid.**

The Vermont Agency of Transportation, in accordance with Section 32 of Act 54 (2009), as amended by Section 17 of Act 142 (2010) and further amended by Section 6 of Act 50 (2011), and for total projects costs exceeding \$250,000.00, requires bidders comply with the following provisions and requirements.

Bidder is required to self report the following information relating to past violations, convictions, suspensions, and any other information related to past performance and likely compliance with proper coding and classification of employees. The Agency of Transportation is requiring information on any incidents that occurred in the previous 12 months. Attach additional pages as necessary. If not applicable, so state.

Summary of Detailed Information	Date of Notification	Outcome

**WORKER CLASSIFICATION COMPLIANCE REQUIREMENT:** Bidder hereby certifies that the company/individual is in compliance with the requirements as detailed in Section 32 of Act 54(2009), as amended by Section 17 of Act 142 (2010) and further amended by Section 6 of Act 50 (2011).

Date: \_\_\_\_\_

Name of Company: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Address: \_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_

Phone Number: \_\_\_\_\_

E-mail: \_\_\_\_\_

Fax Number: \_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Signature (Request/Report Not Valid Unless Signed) \*

(Type or Print)

\*Form must be signed by individual authorized to sign on the bidder's behalf.

<b>DO NOT WRITE IN THIS SPACE – AGENCY USE ONLY</b>	
VDOL CHECKED RE: ACT 54 2009, AND AMENDMENTS	<input type="checkbox"/>

## REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

### ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

### I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

### II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

## APPENDIX D

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

**6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

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applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

### 10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

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will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

#### 1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

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will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

### 2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

### 3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

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(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

### 4. Apprentices and trainees

#### a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

#### b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

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### d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

**6. Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

**9. Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

### 10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

## V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

**3. Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

**4. Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

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### VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

### VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

### VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

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"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

### IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

### X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

#### 1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

\* \* \* \* \*

### **2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

### **2. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

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department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

\* \* \* \* \*

### **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

\* \* \* \* \*

### **XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

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### **ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY**  
**CONSTRUCTION CONTRACT SPECIFICATIONS**  
**(EXECUTIVE ORDER 11246)**

1. As used in these specifications:
  - a. "Covered Area" means the geographical area described in the solicitation from which this contract resulted.
  - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.
  - c. "Employer Identification Number" means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

A Minority Group Member is:

  - ...American Indian or Alaskan Native  
consisting of all persons having origins in any of the original people of North American and who maintain cultural identification through tribal affiliations or community recognition.
  - ...Black  
consisting of all persons having origins in any of the Black racial groups of Africa.
  - ...Asian or Pacific Islander  
consisting of all persons having origins in any of the original people of the Far East, Southeast Asia, the Indian Sub-Continent or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippines and Samoa.
  - ...Hispanic  
consisting of all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin.
  - ...Cape Verde an  
consisting of all persons having origins in the Cape Verde Islands.
  - ...Portuguese  
consisting of all persons of Portuguese, Brazilian or other Portuguese culture or origin.
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000.00 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in the Hometown Plan

approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontract participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. the overall good faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or subcontractor's failure to make good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in Paragraphs 7a through p of these specifications. The goals set for the Contractor in the solicitation from which this contract resulted are expressed as percentages in the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minority or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity . The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:
  - a. Ensure and maintain a working environment free of harassment, intimidation and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment with specific attention to minority or female individuals working at such sites or in such facilities.
  - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available and maintain a record of the organizations' responses.
  - c. Maintain a current file of the names, addresses and telephone numbers of each

minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

- d. Provide immediate written notifications to the Regional Director when the union or unions, with which the Contractor has a collective bargaining agreement, have not referred to the Contractor a minority person or woman sent by the Contractor or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under Paragraph 7b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, Supervisors etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, and providing written notification to, and discussing the Contractor's EEO policy with, other Contractors and subcontractors with whom the Contractor anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notifications to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority

persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
  - l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
  - m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the EEO policy and Contractor's obligations under these specifications are being carried out.
  - n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
  - o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
  - p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (Paragraph 7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under Paragraph 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's non-compliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is under-utilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to

discriminate against any person because of race, color, religion, sex or national origin.

11. The Contractor shall not enter into any subcontract with any person for firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, terminations and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in Paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application or requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL  
EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Economic Areas	Timetables	Goals for Minority participation for each trade (%)	Goals for Female Participation in each trade (%)
Entire State of Vermont:			
<u>Vermont</u> 003 Burlington, VT Non-SMSA Counties NH Coos; NH Grafton; NH Sullivan; VT Addison; VT Caledonia; VT Chittenden; VT Essex; VT Franklin; VT Grand Isle; VT Lamoille; VT Orange; VT Orleans; VT Rutland; VT Washington; VT Windsor	Indefinite	0.8	6.9
<u>Connecticut</u> (Mass) 006 Hartford - New Haven Springfield, CT-MA Non-SMSA Counties CT Litchfield; CT Windham; MA Franklin; NH Cheshire; VT Windham	Indefinite	5.9	
<u>New York</u> 007 Albany - Schenectady - Troy, NY Non-SMSA Counties NY Clinton; NY Columbia; NY Essex; NY Fulton; NY Greene; NY Hamilton; NY Schoharie; NY Warren; NY Washington; VT Bennington	Indefinite	2.6	

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulation in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten working days of award of any construction subcontract in excess of \$10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notifications shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; and the geographical area in which the subcontract is to be performed.
4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any)

**CERTIFICATION FOR FEDERAL-AID CONTRACTS**

The prospective bidder, by signing and submitting this bid proposal, certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person or influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered to. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such sub-recipients shall certify and disclose accordingly.

## APPENDIX G

CA101

Minimum Labor and Truck Rates  
Under Title 19, Vermont Statutes  
Annotated Section 18, as amended

April 3, 1997  
Sheet 1 of 1

### STATE OF VERMONT AGENCY OF TRANSPORTATION MONTPELIER

FOR OTHER THAN FEDERAL-AID. In accordance with the provisions of Title 19, VSA, Section 18, the following minimum rate for labor shall apply to this project:

The minimum wage for common labor will not be less than the State or Federal minimum wage, whichever is higher.

ON FEDERAL-AID PROJECTS ONLY.

The minimum rates for labor for Federal-Aid Projects shall be those set in the Wage Determination Decision of the U.S. Secretary of Labor for each project in accordance with the Federal-Aid Highway Act of 1956. When such wage rates are required they shall be included in the proposal. In the event these rates are lower than the Vermont rates, the Vermont rates shall prevail.

TRUCK RATES. In accordance with the provisions of Title 19, VSA, Section 18, the following minimum rates for trucks shall apply to this project:

<u>Trucks, not Including Driver</u> <u>Water Level Body Capacity</u>	<u>Minimum Rates</u> <u>Per YD per Hr.</u>
Trucks, Equipment Loaded	\$1.65

## DISADVANTAGED BUSINESS ENTERPRISE (DBE) POLICY CONTRACT REQUIREMENTS

**Disadvantaged Business Enterprise (DBE) Policy.** It shall be the policy of the Vermont Agency of Transportation (VTrans) to ensure nondiscriminatory opportunity for Disadvantaged Business Enterprises (DBEs) to participate in the performance of all contracts and subcontracts financed with Federal funds as specified by the regulations of the United States Department of Transportation (USDOT), Federal Highway Administration and as set forth below.

1. **Policy.** It is the policy of USDOT that DBEs as defined in 49 Code of Federal Regulation (CFR) Part 26 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal funds. Consequently, the DBE requirements of 49 CFR Part 26 and 23 CFR, Chapter 1, Part 230, Subpart b apply to this contract.
2. **DBE Obligation.** The State and its Contractors agree to ensure that DBEs as defined in 49 CFR Part 26, have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds. **Each subcontract the prime contractor signs with a subcontractor must include this assurance:** *The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as VTrans deems appropriate.*
3. **Sanctions for Noncompliance.** The Contractor is hereby advised that failure of the Contractor, or any Subcontractor performing work under this contract, to carry out the requirements set forth in paragraphs 1 and 2 above shall constitute a breach of contract and after the notification of the Vermont Agency of Transportation, Secretary of Transportation, may result in termination of this contract by the State or such remedy as the State deems necessary.
4. **Inclusion in Subcontracts.** The Contractor shall insert in each of its subcontracts this Disadvantaged Business Enterprise (DBE) Policy and also a clause requiring its subcontractors to include this same Policy in any lower tier subcontracts which they may enter into, together with a clause requiring the inclusion of the Policy in any further subcontract that may in turn be made. This Policy shall not be incorporated by reference.

**Disadvantaged Business Enterprise (DBE) Program Goals.** The Vermont Agency of Transportation (VTrans) is required to set an overall DBE goal for participation in all transportation related Federal-aid projects. The goal is determined following guidelines set forth in 49 CFR 26.45, and based on the availability of ready, willing and able DBEs who submitted bids and quotes for transportation related projects, compared as a percentage of all available contractors who submitted bids and quotes for transportation related projects during the same time period. The DBE goal may be adjusted to take into account other factors impacting DBE utilization, in an effort to narrowly tailor the overall DBE goal. The detailed goal setting methodology and current overall DBE goal may be viewed on the VTrans website at: <http://vtrans.vermont.gov/civil-rights/doing-business/dbe-center/program-goals>

VTrans currently utilizes a race/gender neutral policy to fulfill its overall DBE goals, and relies on the voluntary participation of contractors to utilize certified DBEs on every project sufficient to obtain the Agency's overall DBE goal. In order for this practice to continue, contractors must be proactive and solicit bids and quotes from certified DBEs for use when submitting their own bids, and employ certified DBEs when participating on transportation related projects. Otherwise, VTrans may have to implement specified contract goals on projects to ensure the overall DBE goals are met. VTrans may include specific DBE contract goals in certain cases to ensure DBE participation, if failure to obtain the project DBE goal would negatively impact the Agency's overall DBE goal because of the size of the contract.

**Disadvantaged Business Enterprise (DBE) Definition.** A DBE is defined as a business that is owned and controlled by one or more socially and economically disadvantaged person(s). For the purposes of this definition:

- (1) "Socially and economically disadvantaged person" means an individual who is a citizen or lawful permanent resident of the United States and who is a Woman, Black, Hispanic, Portuguese, Native American, Asian American, or a member of another group, or an individual found to be disadvantaged by the Small Business Administration pursuant to Section 3 of the Small Business Act.
- (2) "Owned and controlled" means a business which is:
  - a. A sole proprietorship legitimately owned and controlled by an individual who is a disadvantaged person.
  - b. A partnership, joint venture or limited liability company in which at least 51% of the beneficial ownership interests legitimately is held by a disadvantaged person(s).
  - c. A corporation or other entity in which at least 51% of the voting interest and 51% of the beneficial ownership interests legitimately are held by a disadvantaged person(s).

The disadvantaged group owner(s) or stockholder(s) must possess control over management, interest in capital, and interest in earnings commensurate with percentage of ownership. Disadvantaged participation in a joint venture must also be based on the sharing of real earnings, as above. If the disadvantaged group ownership interests are real, substantial and continuing and not created solely to meet the requirements of the program, a firm is considered a bona fide DBE.

**Certified DBE Directory.** The current Vermont Unified Disadvantaged Business Enterprise (DBE) Directory is available online at: <http://vtrans.vermont.gov/civil-rights/doing-business/dbe-center/directory>. This directory contains all currently certified DBEs available for work in Vermont, and is updated continuously. Only firms listed in this directory are eligible for DBE credit on Vermont Federal-aid projects. If you have questions about DBE certification, or do not have access to the Internet, please call the DBE Program Manager at (802) 828-5858 for assistance.

**Counting DBE Participation Towards Project Goals.** In order for payments made to DBE contractors to be counted toward DBE goals, the DBE contractors must perform a commercially

useful function (CUF). The DBE must be responsible for execution of the work of the contract and must carry out its responsibilities by actually performing, managing, and supervising the work involved, consistent with standard industry practices.

This means that:

- The DBE must also be responsible for ordering its own materials and supplies, determining quantity and quality, negotiating price, installing (where applicable) and paying for the material itself;
- The DBE must perform work commensurate with the amount of its contract;
- The DBE's contribution cannot be that of an extra participant or a conduit through which funds are passed in order to obtain the appearance of DBE participation;
- The DBE must exercise responsibility for at least fifty percent of the total cost of its contract with its own workforce;
- None of the DBE's work can be subcontracted back to the prime contractor, nor can the DBE employ the prime's or other subcontractor's supervisors currently working on the project;
- The DBE's labor force must be separate and apart from that of the prime contractor or other subcontractors on the project. Transferring crews between primes, subcontractors, and DBE contractors is not acceptable;
- The DBE owner must hold necessary professional or craft license(s) or certification(s) for the type of work he/she performs on the project;
- The DBE may rent or lease, at competitive rates, equipment needed on the project from customary leasing sources or from other subcontractors on the project.

**Allowable credit for payments made to DBEs for work performed.** A contractor may take credit for payments made to a certified DBE that satisfies CUF requirements at the following rate:

- A DBE Prime Contractor: Count 100% of the value of the work performed by own forces, equipment and materials towards the DBE goals.
- An approved DBE subcontractor: Count 100% of the value of work performed by the DBE's own forces, equipment and materials, excluding the following:
  - The cost of materials/supplies purchased from a non-DBE Prime Contractor.
  - The value of work provided by non-DBE lower tier subcontractors, including non-DBE trucking to deliver asphalt to a DBE contractor.
- A DBE owner-operator of construction equipment: Count 100% of expenditures committed.

- A DBE manufacturer: Count 100% of expenditures committed. The manufacturer must be a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Contractor.
- A regular DBE dealer/supplier: Count 60% of expenditures committed. A regular dealer/supplier is defined as a firm that owns, operates, or maintains a store, warehouse or other establishment, in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. A person may be a dealer in such bulk items as petroleum products, steel, cement, gravel, stone or asphalt without owning, operating or maintaining a place of business, if the person both owns and operates distribution equipment for the products, by the means of a long term agreement, and not by a contract by contract basis.
- A DBE broker: Count for DBE credit only the fees or commissions charged for assistance in the procurement, and, fees and transportation charges for the delivery of materials or supplies required at the job site, but not the cost of materials procured. A broker is defined as any person(s) or firm who arranges or expedites transactions for materials or supplies, and does not take physical possession of the materials or supplies at their place of business for resale.
- A DBE renter of construction equipment to a contractor: Count 20% of expenditures committed, with or without operator.
- A bona fide DBE service provider: Count 100% of reasonable fees or commissions. Eligible services include professional, technical, consultant, or managerial, services and assistance in the procurement of essential personnel, facilities, equipment, materials or supplies required for the performance of the contract. Eligible services also include agencies providing bonding and insurance specifically required for the performance of the contract.
- A trucking, hauling or delivery operation: Count 100% of expenditures committed when trucks are owned, operated, licensed and insured by the DBE and used on the contract and, if applicable, includes the cost of the materials and supplies. 100% of expenditures committed when the DBE leases trucks from another DBE firm including an owner-operator. 100% of reasonable fees, or commissions, the DBE receives as a result of a lease arrangement for trucks from a non-DBE, including an owner-operator.
- Any combination of the above.

**Removal of Approved DBE From Transportation Related Project.** Contractors may not terminate for convenience, any approved DBE subcontractor and perform the work with their own forces, without prior written consent from the VTrans DBE Program Manager or VTrans Chief of Civil Rights.

**Federal-aid projects which specify a DBE contract goal.** The provisions of the Vermont Agency of Transportation Supplemental Specification – Disadvantaged Business Enterprise

(DBE) Utilization (CR 160) shall apply to all VTrans Federal-aid projects which specify a DBE contract goal.

**Compliance With Prompt Payment Statute.** In accordance with Vermont's Prompt Payment Act and VTrans Standard Specifications for Construction, Section 107.01(g), the Contractor shall fully comply with the provisions of 9 V.S.A. Chapter 102, also referred to as Act No. 74 of 1991 or the Prompt Payment Act, as amended.

**Subcontractor Payments.** In accordance with VTrans Standard Specifications for Construction, Section 107.01(h), on all federal-aid and state funded contracts, the Contractor, during the life of the Contract and on a monthly basis, shall submit electronically, a listing of payments to subcontractors on the form specified by the State and made available at: <http://apps.vtrans.vermont.gov/promptpay/>. Electronic reports shall be filed with the Agency Office of Civil Rights by an authorized representative and received in the Agency Office of Civil Rights on or before the tenth working day after month end. Contractors without access to the internet shall obtain and submit manual reports to the Agency Office of Civil Rights. Manual reports shall be signed by an authorized representative, sent to the Agency Office of Civil Rights, and postmarked on or before the tenth working day after month end. There shall be no direct compensation allowed the Contractor for this work, but the cost thereof shall be included in the general cost of the work. In accordance with 9 V.S.A. Section 4003, notwithstanding any contrary agreement, payments made to subcontractors after seven days from receipt of a corresponding progress payment by the State to the Contractor, or seven days after receipt of a subcontractor's invoice, whichever is later, violate this agreement. Violations shall be reported to the Agency Office of Civil Rights for review. Failure to resolve disputes in a timely manner may result in a complaint made to the Agency Pre-qualification Committee. In this Committee's judgment, appropriate penalties may be involved for failure to comply with this specification. Penalties may include suspension, reduction or revocation of the Contractor's pre-qualification rating. This clause shall be included in the prime Contractor's Contract made with all if its subcontractors.

# ***APPENDIX I***

VERMONT AGENCY OF TRANSPORTATION  
GENERAL SPECIAL PROVISIONS  
FOR ALL PROJECTS

**GENERAL SPECIAL PROVISIONS**  
**VERSION NUMBER GSP-1813**

**PART I – SUMMARY LIST OF GENERAL SPECIAL PROVISIONS**

The following list is a summary of all approved General Special Provisions for the 2018 Standard Specifications for Construction. This list is only intended to serve as a general guide to identify which subsections have been modified. The list is not considered part of the modification, is non-contractual, and shall not be used to interpret the language of General Special Provisions. The full text must be referenced to determine the details of the change.

The list is organized by subsection. Not all General Special Provisions are listed individually – modifications which were made to adjacent subsections for the same general reason may be combined within this list. Entries in bold text indicate the changes made in the most recent version of the General Special Provisions.

The version of the General Special Provisions is identified using a four digit number that specifies the Standard Specification year and the revision number (e.g. GSP-1805 is the 5<sup>th</sup> General Special Provision document issued for the 2018 Standard Specifications).

Subsections Changed	Broad Description of Changes	Change Made In	
		Version No.	Dated
Subsection 101.02	Deleted the definition of Construction Safety Technician.	GSP-1808	10-27-2020
Subsection 101.02	Added definition for direct melt glass beads.	GSP-1806	4-28-2020
Subsection 101.02	Replaced “Columbus Day” with “Indigenous Peoples’ Day” in the definition of holidays to reflect change in state law.	GSP-1803	7-23-2019
Subsection 101.02	Deleted all references to Supplemental Specifications.	GSP-1804	10-22-2019
Subsection 103.03	Legal reference to sales tax regulations corrected.	GSP-1801	8-8-2018
Subsection 103.04(d)	Changed the requirements for railroad protective liability insurance.	GSP-1807	7-28-2020
Subsection 103.04(e)	Corrected the mailing address.	GSP-1807	7-28-2020
Subsection 105.05(a)	Deleted all references to Supplemental Specifications and modified the Contract Document Precedence to reflect the elimination of Supplemental Specifications.	GSP-1804	10-22-2019
Subsection 105.05(d)	Deleted all references to Supplemental Specifications.	GSP-1804	10-22-2019
Subsection 105.14	Corrected double numbering by re-lettering list subparts.	GSP-1801	8-8-2018
Subsection 105.16	Corrected legal reference.	GSP-1801	8-8-2018
Subsection 105.24	Corrected and relabeled subparts to fix omission of subpart (e).	GSP-1808	10-27-2020

Subsections Changed	Broad Description of Changes	Change Made In	
		Version No.	Dated
Subsection 105.24(e)	Deleted and replaced subsection to clarify requirements for contaminated materials and remove reference to the Construction Safety Technician.	GSP-1808	10-27-2020
Subsection 106.09(c)	Revised the stockpiling requirements for raw materials.	GSP-1804	10-22-2019
<b>Subsection 107.12 (Table 107.12A)</b>	<b>Deleted and replaced table to correct error in units.</b>	<b>GSP-1813</b>	<b>1-25-2022</b>
Subsection 108.09	Deleted subparts (b) and (c) and relabeled what were subparts (d) through (g) as (b) through (e)	GSP-1808	10-27-2020
Subsection 108.12 (Table 108.12A)	Replaced the liquidated damages table.	GSP-1807	7-28-2020
Subsections 203.03 and 204.03	Added a requirement to submit construction drawings when required by OSHA or VOSHA.	GSP-1803	7-23-2019
Subsection 203.12	Added requirements prohibiting use of frozen material or placement on frozen ground.	GSP-1810	4-27-2021
Subsection 210.03	Modified requirements for length of time milled surface can remain unpaved	GSP-1803	7-23-2019
Subsection 301.02	Deleted and replaced entire subsection to change requirements for PGA and RCA.	GSP-1809	1-26-2021
Subsection 301.03	Added requirements prohibiting use of frozen material or placement on frozen ground.	GSP-1810	4-27-2021
Subsection 301.03	Shifted the location of a sentence and deleted the last paragraph.	GSP-1809	1-26-2021
Subsection 406.03B	Added requirements for the Contractor to provide Hamburg Wheel-Track and FIT testing data in mix designs.	GSP-1803	7-23-2019
Subsection 406.03C (Table 406.03I)	Corrected an outdated reference and slightly modified Note 4.	GSP-1803	7-23-2019
Subsections 406.03C(e) and 406.19(c)	Changed names of subsections to better match their contents and the names of other subsections.	GSP-1801	8-8-2018
Subsection 406.05(a)(12)	Changed internet requirements to reference Subsection 631.02(a)(4).	GSP-1812	10-26-2021
Subsection 406.14	Added a requirement to use a self-propelled pneumatic tired roller for the levelling course of pavement.	GSP-1804	10-22-2019
<b>Subsection 406.18</b>	<b>Modified asphalt price adjustment procedures.</b>	<b>GSP-1813</b>	<b>1-25-2022</b>
Subsection 407.03	Deleted and replaced several paragraphs to correct equations and the table.	GSP-1803	7-23-2019
Subsection 407.04	Deleted and replaced the entire subsection to modify acceptance requirements.	GSP-1809	1-26-2021

Subsections Changed	Broad Description of Changes	Change Made In	
		Version No.	Dated
Subsection 407.05	Changed seasonal limitation date from October 15 <sup>th</sup> to September 15 <sup>th</sup> .	GSP-1812	10-26-2021
Subsection 407.08(b)	Deleted a sentence that allowed placement on damp surfaces.	GSP-1809	1-26-2021
Section 418	Created a new section for Asphaltic Approach Material.	GSP-1804	10-22-2019
Subsection 501.02	Added a new material subsection to the list and deleted and replaced a second material subsection to correct the name.	GSP-1811	7-27-2021
Subsection 501.03	Deleted and replaced the entire subsection to update testing and mix design requirements.	GSP-1804	10-22-2019
Subsection 501.04	Deleted and replaced paragraphs 1 through 3 to update the batching requirements.	GSP-1804	10-22-2019
Subsection 501.04(b)	Changed internet requirements to reference Subsection 631.02(a)(4).	GSP-1812	10-26-2021
Subsection 501.05(a)	Deleted and replaced subparts (2) and (3) to update the mixing and delivery requirements.	GSP-1804	10-22-2019
Subsection 506.02	Updated the name of the subsection for one of the materials and added a new material subsection to the list.	GSP-1803	7-23-2019
Subsection 506.03	Deleted and replaced multiple paragraphs to clarify requirements for fabrication drawings, the use of subcontractors for fabrication, and the level of plant certification required.	GSP-1803	7-23-2019
Subsection 506.03	Deleted and replaced multiple paragraphs to specify that fabricators must be pre-qualified.	GSP-1810	4-27-2021
Subsection 506.03(c)(1)	Deleted and replaced the subsection to provide additional details about inspectors.	GSP-1803	7-23-2019
Subsection 506.03(c)(1)	Clarified inspector certification requirements.	GSP-1810	4-27-2021
Subsections 506.03(d)(3) and 506.03(e)	Minor wording changes.	GSP-1803	7-23-2019
Subsection 506.04(c)	Deleted and replaced subsection to modify welding procedures.	GSP-1803	7-23-2019
Subsection 506.04(c)	Clarified welding procedures.	GSP-1810	4-27-2021
Subsection 506.04(e)	Created new subpart (e) regarding approval of procedures.	GSP-1810	4-27-2021
Subsection 506.05	Added a sentence stating that acceptance by VTrans does not relieve fabricator of responsibility.	GSP-1810	4-27-2021
Subsection 506.05(b)	Deleted a sentence.	GSP-1803	7-23-2019
Subsection 506.06(b)	Deleted and replaced subsection to modify inspector requirements.	GSP-1803	7-23-2019
Subsection 506.08	Added definition of main members.	GSP-1810	4-27-2021

Subsections Changed	Broad Description of Changes	Change Made In	
		Version No.	Dated
Subsections 506.10(b) and 506.10(c)	Modified AWS references.	GSP-1810	4-27-2021
Subsection 506.10(d)	Minor wording changes.	GSP-1803	7-23-2019
Subsection 506.10(d)	Added sentence prohibiting welding to tension members, corrected cross reference.	GSP-1810	4-27-2021
Subsection 506.10(e)(1)	Deleted two paragraphs.	GSP-1803	7-23-2019
Subsection 506.12(c)	Clarified that air used for cooling must be dry air.	GSP-1810	4-27-2021
Subsection 506.12(d)	Minor wording changes.	GSP-1803	7-23-2019
Subsection 506.14	Deleted and replaced subsection to clarify surface preparation requirements.	GSP-1803	7-23-2019
Subsection 506.16(c)	Clarified shipping requirements.	GSP-1810	4-27-2021
Subsection 506.18(a)	Corrected AASHTO reference.	GSP-1807	7-28-2020
Subsection 506.18(b)	Deleted and replaced subparts (2) and (3) to clarify alignment, drilling and reaming requirements.	GSP-1803	7-23-2019
Subsections 506.19(a) and 506.19(b)	Minor wording changes.	GSP-1803	7-23-2019
Subsection 506.19(c)	Added a sentence stating that standard bolts are to be Grade A 325.	GSP-1801	8-8-2018
Subsection 506.19(c)	Clarified that reaming holes is not allowed unless approved by the engineer.	GSP-1810	4-27-2021
Subsection 506.19	Relabeled existing subparts in order to correct duplicate list numbering. Also corrected internal cross references.	GSP-1801	8-8-2018
Subsections 506.19(d)(1) and 506.19(e)	Minor wording changes.	GSP-1803	7-23-2019
Subsection 506.19(d)(2)	Added requirement to provide hardened washers when required by manufacturer.	GSP-1810	4-27-2021
Subsection 506.22	Simplified and clarified language regarding payment.	GSP-1810	4-27-2021
Subsection 506.23	Deleted and replaced entire subsection to add additional coating requirements.	GSP-1803	7-23-2019
Subsection 506.23	Clarified timing of coating application and added information regarding repairs to galvanizing.	GSP-1810	4-27-2021
Subsection 506.23(e) and 506.23(f)	Inserted a new subpart (e) to cover field connections and relabeled what was subpart (e) as subpart (f).	GSP-1810	4-27-2021
Subsection 506.24(a)	Deleted and replaced several subparts to clarify measurement by weight.	GSP-1810	4-27-2021

Subsections Changed	Broad Description of Changes	Change Made In	
		Version No.	Dated
Subsection 506.25	Deleted and replaced entire subsection.	GSP-1803	7-23-2019
Subsection 510.02	Added a new material subsection to the list.	GSP-1811	7-27-2021
Subsection 510.02	Renamed material subsection list item to reflect changes to Section 780.	GSP-1812	10-26-2021
Subsection 510.06	Changed internet requirements to reference Subsection 631.02(a)(4).	GSP-1812	10-26-2021
Subsections 510.12(b) and 540.11(b)	Corrected internal cross references.	GSP-1801	8-8-2018
Subsection 516.02	Updated materials list item to reflect name change of Subsection 707.15	GSP-1804	10-22-2019
Subsection 516.02	Deleted metalizing from materials list.	GSP-1810	4-27-2021
Subsection 516.02	Deleted and replaced a material subsection to correct the name.	GSP-1811	7-27-2021
Subsection 516.04	Deleted reference to metalizing expansion devices.	GSP-1810	4-27-2021
Subsections 516.05 and 516.08	Changed “epoxy bonding compound” to “epoxy bonding systems”.	GSP-1811	7-27-2021
Subsection 519.02	Deleted and replaced subsection to reflect changes made in Subsection 726.11.	GSP-1804	10-22-2019
Subsection 524.02	Updated materials list to reflect name change of Subsection 707.15	GSP-1804	10-22-2019
Subsection 525.04	Deleted sentence requiring fabrication in an approved plant as that is covered in Section 506.	GSP-1810	4-27-2021
Subsections 529.03 and 529.05	Added language to cover the removal of bridge membranes.	GSP-1811	7-27-2021
Subsection 531.04	Updated reference to Section 506, deleted sentence regarding rounding of edges as that is covered in Section 506.	GSP-1810	4-27-2021
Subsection 540.02	Updated material list to reflect changes made in Subsection 726.11.	GSP-1804	10-22-2019
Subsection 540.02	Added a new material subsection to the list.	GSP-1811	7-27-2021
Subsection 540.02	Renamed material list item to reflect changes to Section 780 and added a new material to the list.	GSP-1812	10-26-2021
Subsection 540.06	Changed internet requirements to reference Subsection 631.02(a)(4).	GSP-1812	10-26-2021
Subsection 540.10	Updated internal cross reference to reflect changes made in Subsection 726.11.	GSP-1804	10-22-2019
Subsection 540.12	Corrected internal cross reference.	GSP-1801	8-8-2018
Subsection 540.14(b)	Replaced the word “prestressed” with the word “precast”.	GSP-1804	10-22-2019

Subsections Changed	Broad Description of Changes	Change Made In	
		Version No.	Dated
Subsection 541.02	Added a new material subsection to the list.	GSP-1811	7-27-2021
Subsection 541.04(b)	Changed internet requirements to reference Subsection 631.02(a)(4)	GSP-1812	10-26-2021
Subsection 541.07	Changed requirements related to supplying thermometers for monitoring concrete temperature.	GSP-1811	7-27-2021
Subsection 543.04	Deleted and replaced sentence to correct submittal requirements.	GSP-1803	7-23-2019
Subsection 544.02	Deleted and replaced subsection to reflect changes to Section 780.	GSP-1812	10-26-2021
Subsection 580.02	Deleted and replaced subsection to reflect changes to Section 780.	GSP-1812	10-26-2021
Subsections 580.06	Changed “epoxy bonding compound” to “epoxy bonding systems”.	GSP-1811	7-27-2021
Subsection 580.06	Added a paragraph to reflect changes to Section 780	GSP-1812	10-26-2021
Subsection 605.02	Updated materials list to reflect name change of Subsection 707.15	GSP-1804	10-22-2019
Subsection 605.02	Added a new material subsection to the list and deleted internal cross reference. Changes made to conform to new Section 720.	GSP-1801	8-8-2018
Subsection 605.02	Deleted and replaced subparts (a) through (d) to remove the word perforated from description of pipe types.	GSP-1806	4-28-2020
Section 617	Deleted and replaced entire section to clarify difference between remove and reset and remove and replace.	GSP-1808	10-27-2020
Subsection 621.02	Deleted emulsified asphalt from the material list.	GSP-1812	10-26-2021
Subsection 625.02	Deleted incorrect material reference.	GSP-1802	1-18-2019
Subsection 621.07	Updated requirements for using traffic barrier meeting MASH or NCHRP 350.	GSP-1807	7-28-2020
Subsection 630.01	Minor wording changes.	GSP-1803	7-23-2019
Subsection 630.02(b)	Deleted and replaced subsection to modify flagger apparel requirements.	GSP-1803	7-23-2019
Subsection 630.04(a)	Modified flagger training requirements.	GSP-1802	1-18-2019
Subsection 631.02(a)(4)	Updated internet speed requirements.	GSP-1812	10-26-2021
Subsection 631.06	Added additional required bituminous testing equipment.	GSP-1805	1-28-2020
Subsection 631.08	Modified requirements for grout molds.	GSP-1802	1-18-2019
Subsection 631.09	Deleted a sentence that dictated an Agency process.	GSP-1804	10-22-2019

Subsections Changed	Broad Description of Changes	Change Made In	
		Version No.	Dated
Subsection 641.02	Deleted and replaced several paragraphs in order to add new subparts and clarify the difference between the traffic control items.	GSP-1803	7-23-2019
Subsection 641.03	Added paragraph requiring security system for PCMS.	GSP-1802	1-18-2019
Subsection 641.07	Deleted and replaced entire subsection to clarify basis of payment.	GSP-1803	7-23-2019
Section 646	Deleted and replaced entire section.	GSP-1806	4-28-2020
Subsection 649.02	Deleted and replaced existing subsection so it would conform with the new Section 720.	GSP-1801	8-8-2018
Subsection 653.02	Added new material subsections to the list and deleted internal cross reference. Changes made to conform to new Section 720.	GSP-1801	8-8-2018
Subsection 653.03(a)	Added information for when an EPSC Plan is not included in the Contract.	GSP-1807	7-28-2020
Subsection 653.08(a)(1), 653.09(a), 653.09(b)(1) and 653.09(b)(3)	Corrected references to various geotextile requirements to conform to new Section 720.	GSP-1801	8-8-2018
Subsection 653.17	Added requirement that EPSC monitoring reports will not be paid for unless received within 7 calendar days of the event.	GSP-1810	4-27-2021
Subsection 675.02	Deleted internal cross reference.	GSP-1802	1-18-2019
Subsection 675.07(b)(2)	Deleted and replaced subsection to modify the requirements.	GSP-1803	7-23-2019
Subsection 675.07(d)	Added two new sentences to add additional requirements for fasteners.	GSP-1803	7-23-2019
Subsection 677.03	Added a sentence removing the requirement for field verification of DTI's.	GSP-1801	8-8-2018
Subsection 679.02	Deleted one material from the materials list and added two new ones to match changes in Subsection 753.04.	GSP-1802	1-18-2019
Subsection 679.05	Deleted existing first sentence and added two new paragraphs	GSP-1802	1-18-2019
Subsection 679.09	Added a sentence removing the requirement for field verification of DTI's.	GSP-1801	8-8-2018
Subsection 680.02	Changed materials list entry.	GSP-1812	10-26-2021
Subsection 680.02	Deleted a material from the materials list.	GSP-1802	1-18-2019
Subsection 680.06	Changed material requirement from peastone to drainage aggregate.	GSP-1812	10-26-2021
Section 690	Deleted and replaced reserved section to add fuel price adjustment to the book.	GSP-1806	4-28-2020

Subsections Changed	Broad Description of Changes	Change Made In	
		Version No.	Dated
Subsection 690.02 (Table 690.02A)	Changed fuel usage factor and threshold quantity for the Cold Mixed Recycled Bituminous Pavement work category.	GSP-1810	4-27-2021
Section 701	Deleted and replaced entire section to update requirements for hydraulic cement.	GSP-1811	7-27-2021
Subsection 702.06 (Table 702.06A)	Deleted and replaced table to correct some temperatures and add a new row.	GSP-1803	7-23-2019
Subsection 702.07	Deleted and replaced entire subsection to modify anti-stripping requirements.	GSP-1809	1-26-2021
Subsection 704.01(b)	Corrected ambiguity associated with organic impurities.	GSP-1805	1-28-2020
Subsection 704.10(a)	Added a sentence regarding anti-stripping additives.	GSP-1809	1-26-2021
Subsection 704.10(a)	Corrected AASHTO references.	GSP-1803	7-23-2019
Subsection 704.10 (Table 704.10D)	Removed special percent wear requirements for bonded wearing course aggregate.	GSP-1807	7-28-2020
Subsection 704.11	Deleted and reserved subsection.	GSP-1812	10-26-2021
Subsection 704.15	Deleted and replaced entire subsection to modify anti-stripping requirements.	GSP-1809	1-26-2021
Subsection 704.20	Added new section to provide PGA requirements.	GSP-1809	1-26-2021
Subsection 704.21	Added new section to provide RCA requirements.	GSP-1809	1-26-2021
Subsection 706.06	Deleted and reserved entire subsection.	GSP-1805	1-28-2020
Subsection 707.01(a)	Added a cross reference.	GSP-1811	7-27-2021
Subsection 707.14 (Table 707.14A)	Corrected AASHTO references.	GSP-1802	1-18-2019
Subsection 707.15	Deleted and replaced entire subsection to update requirements.	GSP-1804	10-22-2019
Subsection 707.17	Added a new subsection to provide material requirements for the new Section 418.	GSP-1804	10-22-2019
Subsection 708.03	Deleted and replaced entire subsection to provide new requirements.	GSP-1803	7-23-2019
Subsection 708.06	Deleted and reserved entire subsection.	GSP-1802	1-18-2019
Subsection 708.08 (Table 708.08C)	Added two rows to the table.	GSP-1803	7-23-2019
Subsection 708.09	Deleted and reserved entire subsection.	GSP-1806	4-28-2020
Subsection 708.11	Deleted and reserved entire subsection.	GSP-1803	7-23-2019
Subsection 708.12	Deleted and replaced entire subsection to provide new requirements.	GSP-1803	7-23-2019

Subsections Changed	Broad Description of Changes	Change Made In	
		Version No.	Dated
Subsection 710.03	Deleted and replaced subsection to update material requirements for corrugated polyethylene pipe.	GSP-1806	4-28-2020
Subsection 710.07	Deleted and replaced subsection to update material requirements for corrugated polypropylene pipe.	GSP-1806	4-28-2020
Subsection 711.02	Corrected internal cross reference.	GSP-1802	1-18-2019
Subsection 712.04	Deleted and reserved entire subsection.	GSP-1805	1-28-2020
Subsections 713.04 and 713.05	Corrected AASHTO references.	GSP-1802	1-18-2019
Subsection 714.01	Clarified requirements for CVN testing.	GSP-1809	1-26-2021
Subsection 714.01	Deleted definition of main members.	GSP-1810	4-27-2021
Subsection 714.05	Deleted and replaced the first sentence to provide new requirements.	GSP-1803	7-23-2019
Subsection 714.05	Changed the word “painted” to “coated”.	GSP-1809	1-26-2021
Subsection 714.06	Deleted and replaced the first sentence to provide new requirements.	GSP-1803	7-23-2019
Subsection 714.06	Revised requirements related to coating of bolts, nuts, and washers.	GSP-1811	7-27-2021
Subsection 714.10	Corrected AASHTO/AWS material reference.	GSP-1806	4-28-2020
Section 719	Deleted and replaced entire section to add detailed requirements for epoxy resin materials.	GSP-1811	7-27-2021
Section 720	Deleted and replaced entire section in order to align it with current AASHTO specifications.	GSP-1801	8-8-2018
Subsection 720.03 (Table 720.03A)	Updated the MARV value for Apparent Opening Size (mm).	GSP-1804	10-22-2019
Subsection 720.06 (Table 720.06A)	Updated the MARV value for Apparent Opening Size (mm).	GSP-1804	10-22-2019
Subsections 725.01(d) and 725.02(a)	Deleted and replaced both subparts to update requirements.	GSP-1802	1-18-2019
Subsection 725.03(b)	Deleted and replaced subpart to clarify the requirements.	GSP-1811	7-27-2021
Subsection 726.08	Clarified requirements for repairing damaged galvanizing.	GSP-1806	4-28-2020
Subsection 726.08	Clarified that repair requirements apply to zinc coatings in general, not just galvanizing.	GSP-1810	4-27-2021
Subsection 726.09	Deleted and replaced entire subsection to clarify the requirements.	GSP-1803	7-23-2019
Subsection 726.09	Clarified metalizing requirements.	GSP-1810	4-27-2021

[illegible]

PART II – GENERAL SPECIAL PROVISIONS FOR ALL PROJECTS

**DIVISION 100**

**GENERAL PROVISIONS**

SECTION 101 – DEFINITIONS AND TERMS

101.02 DEFINITIONS is hereby modified by deleting the entry for, and definition of, “Construction Safety Technician”.

101.02 DEFINITIONS is hereby modified by adding the following definition in alphabetical order:

DIRECT MELT GLASS BEADS – Glass beads derived from recycled glass by returning the glass to a molten form, removing impurities, and refining the glass into near-virgin glass beads.

101.02 DEFINITIONS, the definition for “Holidays” is hereby modified by deleting the phrase “Columbus Day” from the first column and replacing it with the phrase “Indigenous Peoples’ Day”.

101.02 DEFINITIONS, is hereby modified by deleting the phrase “Supplemental Specifications,” from the definitions for “Contract”, “Project Special Provisions”, and “Specifications”.

101.02 DEFINITIONS is hereby modified by deleting the entry for, and definition of, “Supplemental Specifications”.

SECTION 103 – TAXES AND INSURANCE

103.03 STATE SALES TAX is hereby modified by deleting the phrase “(see *Vermont Sales and Use Tax Regulations*, No. 226-2 and 226-7 and 32 *V.S.A.* § 9743(4))” and the phrase “(see 32 *V.S.A.* § 9741(44)).” from the first paragraph.

103.03 STATE SALES TAX is hereby further modified by adding the following reference to the end of the first paragraph:

(see 32 *V.S.A.* § 9743(4), 32 *V.S.A.* § 9741(30), 32 *V.S.A.* § 9741(44), and the *Vermont Sales and Use Tax Regulations*, Reg. § 1.9741(34)-5 and Reg. § 1.9743).

103.04 INSURANCE REQUIREMENTS, subpart (d), is hereby modified by deleting the second paragraph, which begins with “The Contractor shall file...” and ends with “... to the Operating Railroad concerned.”, and replacing it with the following:

Upon request by the Agency, the Contractor shall provide a copy of the railroad protective liability policy within 24 hours.

103.04 INSURANCE REQUIREMENTS, subpart (e), is hereby modified by deleting the phrase “*1 National Life Drive, Montpelier, Vermont 05633-5001*” from the ninth paragraph and replacing it with the phrase “*219 North Main Street, Barre, Vermont 05641*”.

## SECTION 105 – CONTROL OF THE WORK

105.05 COORDINATION OF CONTRACT DOCUMENTS, subpart (a), is hereby modified by deleting the phrase “Supplemental Specifications,” from the first sentence.

105.05 COORDINATION OF CONTRACT DOCUMENTS, subpart (a)(1), is hereby modified by deleting subpart g. in its entirety, relabeling subpart h. as subpart g., and relabeling subpart i. as subpart h.

105.05 COORDINATION OF CONTRACT DOCUMENTS, subpart (d), is hereby modified by deleting the phrase “Supplemental Specifications,” from the last sentence.

105.14 SUNDAY, NIGHT, AND HOLIDAY WORK is hereby modified by relabeling subpart (c), “Application.”, as “(d) Application.” and subpart (d), “Other Provisions Not Affected.”, as “(e) Other Provisions Not Affected.”

105.16 LOAD RESTRICTIONS, subpart (c), is hereby modified by changing the phrase “*23 V.S.A. § 1391(a)*” to read “*23 V.S.A. § 1391a*”.

105.24 POLLUTION CONTROL is hereby modified by relabeling subpart (f) as subpart (e), relabeling subpart (g) as subpart (f), and relabeling subpart (h) as subpart (g).

105.24 POLLUTION CONTROL, subpart (e), is hereby modified by being deleted in its entirety and replaced with the following:

(e) Contaminated Materials and Hazardous Waste.

- (1) Unanticipated Contamination. Should evidence of unanticipated contamination (such as chemical or petroleum odors or presence of non-native materials including, but not limited to, solid waste, asphalt, or ash) be discovered during construction, the Contractor shall immediately notify the Engineer. The Agency will work with the Contractor to notify regulators as necessary and to develop a plan to manage the materials, waste, or both.
- (2) Generated Contamination. The Contractor shall provide documentation to the Engineer that any generated contaminated material or hazardous waste was characterized as necessary and disposed of in conformance with all applicable regulations.

The Agency may suspend work when it determines that a serious safety or environmental violation exists on the job site. The period of time work is suspended due to a serious safety or environmental violation will not be justification for an extension of time.

## SECTION 106 – CONTROL OF MATERIALS

106.09 STOCKPILING, subpart (c), is hereby modified by being deleted in its entirety and replaced with the following:

- (c) Raw Materials. In addition to the criteria set out above for other materials, raw material stockpiles shall be approved by the Construction Engineer and meet the following additional criteria:
- (1) The various components of the finished product shall include all of the appropriate certifications, passing samples, passing tests, and any other documentation that may be required to certify that the materials are acceptable.
  - (2) For stockpiles of structural steel, invoices or quotes from the fabricator shall include supporting documentation such as mill invoices or quotes that show actual dimensions, quantities, and costs to the fabricator for the raw materials. The intent of this raw material payment is to reimburse the actual amount it cost the fabricator to purchase the raw materials for the specific Contract item. There will be no allowance for mark up of any type by the Contractor or fabricator. Stockpile payments will be limited to one payment per 6 months, per Contract item. There will be no raw material stockpile payment allowed for materials that do not meet the dimensions provided on the mill invoices.
  - (3) Any other criteria the Engineer deems necessary to allow for payment.

## SECTION 107 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

107.12 PROTECTION AND RESTORATION OF PROPERTY, Table 107.12A, is hereby modified by being deleted in its entirety and replaced with the following:

TABLE 107.12A – MAXIMUM PEAK PARTICLE VELOCITY

Type of Structure	Frequencies < 40 Hertz	Frequencies ≥ 40 Hertz
Modern homes (drywall interior, maximum PPV limit in inches/sec.)	0.75	2.0
Older homes (plaster on wood or lath, maximum PPV limit in inches/sec.)	0.50	2.0

SECTION 108 – PROSECUTION AND PROGRESS

108.09 TEMPORARY SUSPENSION OF THE WORK is hereby modified by deleting subparts (b) and (c) in their entirety, relabeling subpart (d) as subpart (b), relabeling subpart (e) as subpart (c), relabeling subpart (f) as subpart (d), and relabeling subpart (g) as subpart (e).

108.12 FAILURE TO COMPLETE WORK ON TIME, Table 108.12A, is hereby modified by being deleted in its entirety and replaced with the following:

TABLE 108.12A – DAILY LIQUIDATED DAMAGES CHARGE PER WORKING DAY OF DELAY

Original Contract Amount		Daily Charge per Working Day of Delay
From More Than	To and Including	
\$0	\$300,000	\$1,900
\$300,000	\$500,000	\$2,000
\$500,000	\$1,000,000	\$2,100
\$1,000,000	\$1,500,000	\$2,200
\$1,500,000	\$3,000,000	\$2,500
\$3,000,000	\$5,000,000	\$3,000
\$5,000,000	\$10,000,000	\$4,000
\$10,000,000	\$15,000,000	\$5,200
\$15,000,000	+	\$6,200

**DIVISION 200**  
**EARTHWORKS**

SECTION 203 – EXCAVATION AND EMBANKMENTS

203.03 GENERAL CONSTRUCTION REQUIREMENTS is hereby modified by adding the following as the last sentence of the ninth paragraph:

Construction Drawings shall be submitted in accordance with Section 105 whenever OSHA or VOSHA regulations require a design by a Professional Engineer.

203.12 SUBGRADE is hereby modified by adding the following as the second and third sentences of the sixth paragraph:

Frozen material shall not be used in the construction of subbase. Subbase, base, or surface material shall not be deposited on frozen subgrade, and successive layers shall not be placed on material that has frozen.

SECTION 204 – EXCAVATION FOR STRUCTURES

204.03 GENERAL CONSTRUCTION REQUIREMENTS is hereby modified by adding the following as the last sentence of the third paragraph:

Construction Drawings shall be submitted in accordance with Section 105 whenever OSHA or VOSHA regulations require a design by a Professional Engineer.

SECTION 210 – COLD PLANING

210.03 GENERAL CONSTRUCTION REQUIREMENTS, subpart (b) is hereby modified by being deleted in its entirety and replaced with the following:

- (b) The Contractor shall repave any coarse-milled areas within 14 Calendar Days and any fine-milled areas within 28 Calendar Days of milling, or when directed by the Engineer. Should the area remain unpaved for a period longer than specified herein, without the approval of the Engineer, no payment whatsoever will be made for the milled areas left exposed in excess of the 14 or 28 Calendar Day periods. If the Contractor lays down temporary pavement to avoid the above non-payment for milling, temporary pavement and subsequent milling shall be at the Contractor's expense.

**DIVISION 300**  
**SUBBASE AND BASE COURSES**

**SECTION 301 – SUBBASE**

301.02 MATERIALS is hereby modified by being deleted in its entirety and replaced with the following:

301.02 MATERIALS. Materials shall meet the requirements of the following subsections:

Coarse Aggregate for Concrete.....	704.02
Gravel for Subbase.....	704.04
Crushed Gravel for Subbase .....	704.05
Dense Graded Crushed Stone for Subbase .....	704.06
Processed Glass Aggregate .....	704.20
Recycled Concrete Aggregate.....	704.21

At the option of the Contractor, unless otherwise specified in the Contract, processed glass aggregate (PGA) meeting the requirements of Subsection 704.20 or recycled concrete aggregate (RCA) meeting the requirements of Subsection 704.21 may be used to partially replace natural aggregate in materials specified to meet the requirements of Subsection 704.04, Subsection 704.05, and Subsection 704.06.

PGA subbase blends shall not contain more than 20% by weight of PGA. RCA subbase blends shall not contain more than 25% by weight of RCA. In no case shall PGA and RCA be combined in subbase. The final blend shall conform to the specified gradation for the subbase material. The blending process shall be complete to ensure that as thorough a distribution and as uniform a mixture as practicable has been obtained. In-place blending of PGA with other materials will not be permitted.

When specified for use on the project or as directed by the Engineer, Subbase, RAP shall include milled grindings which have been screened or crushed by the Contractor such that 100% pass the 1-1/2 inch (37.5 mm) sieve prior to blending.

The grindings shall be blended in equal proportions (50% by weight) with material meeting the requirements of Subbase of Crushed Gravel, Fine Graded as specified in Table 704.05B.

301.03 GENERAL CONSTRUCTION REQUIREMENTS is hereby modified by adding the following as the fourth paragraph:

Frozen material shall not be used in the construction of subbase. Subbase material shall not be deposited on frozen subgrade, and successive layers shall not be placed on material that has frozen.

301.03 GENERAL CONSTRUCTION REQUIREMENTS is hereby modified by adding “Care will be taken to prevent excessive moisture contents in subbase materials prior to compaction.” as the last sentence of the sixth paragraph.

301.03 GENERAL CONSTRUCTION REQUIREMENTS is hereby further modified by deleting “Care will be taken to prevent excessive moisture contents in subbase materials prior to compaction.” from the seventh paragraph.

301.03 GENERAL CONSTRUCTION REQUIREMENTS is hereby further modified by deleting the last paragraph. The deleted text begins with “If roadway shoulders are to remain unpaved...” and ends with “...in accordance with Subsection 402.03.”

## DIVISION 400

### SURFACE COURSES AND PAVEMENT

#### SECTION 406 – BITUMINOUS CONCRETE PAVEMENT

406.03B COMPOSITION OF MIXTURE – SUPERPAVE, subpart (c), is hereby modified by adding “, unless otherwise noted in this section.” to the end of the sentence which begins with “For Superpave bituminous concrete pavement mixes, *AASHTO R 35*...”.

406.03B COMPOSITION OF MIXTURE – SUPERPAVE, subpart (c), is hereby further modified by deleting the word “four” from the sentence which currently reads “The four principal parts of the Superpave Mix Design Method are:” and replacing it with the word “five”.

406.03B COMPOSITION OF MIXTURE – SUPERPAVE, subpart (c), is hereby further modified by deleting subpart (4) in its entirety and replacing it with the following:

- (4) Evaluate moisture sensitivity and rutting susceptibility using *AASHTO T 324*. Test specimens for Hamburg Wheel-Track (HWT) testing shall be 150 mm (6.0 inches) in diameter with a  $60 \pm 1$  mm ( $2.36 \pm 0.04$  inch) thickness and shall be short term conditioned in accordance with Section 7.2 of *AASHTO R 30*. HWT specimens shall be tested at  $45 \pm 1^\circ$  C ( $113 \pm 1.8^\circ$  F), with the machine pre-set to end the test once a maximum rut depth of 12.5 mm (0.50 inches) is reached. If the difference in the rut depth between the two pairs of specimens is 6 mm (0.24 inches) or more, and/or only one pair of specimens has a final rut depth of 12.5 mm (0.50 inches), the test results will be deemed invalid and not acceptable for mix design qualification. Slab specimens shall not be used.
- (5) Determine cracking susceptibility using *AASHTO TP 124*. Test specimens for the FIT shall be fabricated in a Superpave Gyratory Compactor and short term conditioned in accordance with Section 7.2 of *AASHTO R 30*. Specimens that are fabricated to a height of 50 mm (2.0 inches), in lieu of fabricating 160 mm (6.30 inch) or 115 mm (4.50 inch) specimens as part of the test specimen preparation procedures outlined in *AASHTO TP 124*, will be allowed.

406.03C REQUIREMENTS FOR BOTH MARSHALL AND SUPERPAVE BITUMINOUS MIXTURES is hereby modified by changing the name of subpart (e) from “Pay Factor Determination.” to “Air Voids Pay Factor ( $PF_{AV}$ ) Determination.”

406.03C REQUIREMENTS FOR BOTH MARSHALL AND SUPERPAVE BITUMINOUS MIXTURES, Table 406.03I, is hereby modified by deleting the phrase “*ASTM D 5821*” and replacing it with the phrase “*AASHTO T 335*” in the third column of the fifth row.

406.03C REQUIREMENTS FOR BOTH MARSHALL AND SUPERPAVE BITUMINOUS MIXTURES, Table 406.03I, Note 4, is hereby modified by deleting the word “more” and replacing it with the word “less”.

406.05 BITUMINOUS MIXING PLANT AND TESTING, subpart (a)(12), is hereby modified by deleting the fifth paragraph, which begins with “Private telephone service...” and ends with “...using an online speed test.”, in its entirety and replacing it with the following:

Dedicated private telephone and internet services shall be provided to the laboratory in accordance with Subsection 631.02(a)(4), except that approval by the Engineer is not required.

406.14 COMPACTION is hereby modified by adding “Leveling courses shall be compacted using a self-propelled pneumatic tired roller for intermediate rolling, unless otherwise permitted in writing by the Engineer.” as the second sentence.

406.18 ASPHALT PRICE ADJUSTMENT, subpart (b)(3), is hereby modified by being deleted in its entirety and replaced with the following:

- (3) QEA and ACEA for Emulsified Asphalt. The *QEA* is determined per the requirements of Subsection 404.11. The amount of Asphalt Price Adjustment will be based upon the asphalt content of the emulsified asphalt used, which is calculated by multiplying the *QEA* used by the asphalt content fraction for that emulsified asphalt type.

The Asphalt Content of Emulsified Asphalt (*ACEA*) factor will be determined in the following order:

- a. The *ACEA* factor will be the minimum residual asphalt content required by the applicable emulsified asphalt specification.
- b. If the minimum residual asphalt content is not specified, the *ACEA* factor will be determined from Table 406.18A.

TABLE 406.18A – ASPHALT CONTENT OF EMULSIFIED ASPHALTS

Emulsified Asphalt Type	<i>ACEA</i> Factor
CSS-1h	0.57
MS-1	0.55
RS-1	0.55
RS-1h	0.55
CRS-1h	0.55
CRS-1p	0.63
CSS-1h Fog	0.28

- c. If the emulsion type used in the work is not listed in Table 406.18A, the *ACEA* factor will be determined by averaging Agency test results.

406.18 ASPHALT PRICE ADJUSTMENT, subpart (c), is hereby modified by deleting the phrase “(from Table 406.18A)”.

406.19 METHOD OF MEASUREMENT is hereby modified by changing the name of subpart (c) from “Longitudinal Joint Pay Factor.” to “Longitudinal Joint Pay Adjustment.”

#### SECTION 407 – BONDED WEARING COURSE

407.03 COMPOSITION OF MIXTURE is hereby modified by deleting the portion of the Subsection beginning with “PG Binder percentage shall be based on a minimum film thickness of 10.0 microns...” and ending with Table 407.03B, and replacing the deleted text and table with the following:

The asphalt cement content shall be based on a minimum asphalt film thickness of 0.394 mils (10.0 microns). The minimum asphalt cement content shall be calculated according to the following formulas and the factors in Table 407.03B.

For English units:  $W = 0.0052 \times A_s \times T \times G_b$

For metric units:  $W = 0.001 \times A_s \times T \times G_b$

and, for consistent units:  $P_{bmin} = \frac{W}{1+W} \times 100$

where:

$W$  = Intermediate variable

$A_s$  = Total aggregate surface area\* (square feet per pound or square meters per kilogram of aggregate)

$T$  = Minimum asphalt film thickness (mils or microns)

$G_b$  = Specific gravity of asphalt cement

$P_{bmin}$  = Minimum asphalt cement content (percent by mass)

\* The total aggregate surface area is calculated by multiplying the percent passing each sieve (as a decimal, e.g. 30% = 0.30) in the JMF by the corresponding factor in Table 407.03B and summing the resultant values.

TABLE 407.03B – AGGREGATE SURFACE AREA FACTORS

Sieve Designation	Surface Area Factors					
	Type A		Type B		Type C	
	SF/lb	SM/kg	SF/lb	SM/kg	SF/lb	SM/kg
3/4 inch (19.0 mm)	--	--	--	--	2.0	0.41
1/2 inch (12.5 mm)	--	--	2.0	0.41	0	0
3/8 inch (9.50 mm)	2.0	0.41	0	0	0	0
No. 4 (4.75 mm)	2.0	0.41	2.0	0.41	2.0	0.41
No. 8 (2.36 mm)	4.0	0.82	4.0	0.82	4.0	0.82
No. 16 (1.18 mm)	8.00	1.64	8.00	1.64	8.00	1.64
No. 30 (0.600 mm)	14.0	2.87	14.0	2.87	14.0	2.87
No. 50 (0.300 mm)	30.0	6.14	30.0	6.14	30.0	6.14
No. 100 (0.150 mm)	60.00	12.29	60.00	12.29	60.00	12.29
No. 200 (0.075 mm)	160.0	32.77	160.0	32.77	160.0	32.77

407.04 QUALITY ACCEPTANCE is hereby modified by being deleted in its entirety and replaced with the following:

407.04 REQUIREMENTS FOR BONDED WEARING COURSE MIXTURES.

- (a) Control of Mixture. The plant shall be operated so that no intentional deviations are made from the job-mix formula. The production of the actual mixture shall not vary from the job-mix formula by more than tolerances specified in Table 407.03A.

The Contractor shall provide quality control adequate to produce work of acceptable quality. The Contractor shall perform quality control sampling, testing, and inspection during all phases of the work at a rate sufficient to ensure that the work conforms to the Contract requirements.

- (b) Control of Production. If any acceptance sample test conducted at the production facility is outside of the production tolerances or other design criteria as defined herein, immediate adjustments shall be made by the Contractor. Following the first failing acceptance sample test result, the mix will again be sampled and tested for compliance with these specifications. Production shall cease if a second consecutive failing acceptance sample test result occurs. In this event, additional adjustments shall be made and tested by the Contractor on a trial basis until the deficiency is corrected. With the permission of the Engineer, the plant may continue production, pending results of these tests, but if the Engineer deems that it is in the best interest of the project, the Engineer may at any time order plant production stopped.
- (c) Acceptance. Bonded Wearing Course acceptance samples obtained from the production facility or project site will be tested to ensure the requirements specified in Table 407.03A are being met. Any acceptance sample test result that is outside of the production tolerances specified in Table 407.03A will be considered non-conforming. Polymer-modified emulsified asphalt will be tested at the rate of once per day of production and in accordance with the requirements specified in *AASHTO M 316* and Table 407.02A.

407.05 WEATHER AND SEASONAL LIMITATIONS is hereby modified by deleting the phrase “October 15<sup>th</sup>” from the third paragraph and replacing it with the phrase “September 15<sup>th</sup>”.

407.08 CONSTRUCTION REQUIREMENTS, subpart (b), is hereby modified by deleting the sentence “A damp surface is acceptable if favorable weather conditions are expected during paving operations.”

#### SECTION 418 – ASPHALTIC APPROACH MATERIAL

SECTION 418 – ASPHALTIC APPROACH MATERIAL is hereby made a new section of the specifications as follows:

#### SECTION 418 – ASPHALTIC APPROACH MATERIAL

418.01 DESCRIPTION. This work shall consist of furnishing and installing asphaltic approach material at the transition between bituminous concrete pavement and Portland cement concrete, steel or other materials.

418.02 MATERIALS. Materials shall meet the requirements of the following Subsections:

Asphalt Plug Joint Binder .....707.17

418.03 INSTALLATION. Asphaltic approach material shall be installed at the location(s) and to the depth and configuration shown in the Plans and as directed by the Engineer.

418.04 METHOD OF MEASUREMENT. The quantity of Asphaltic Approach Material to be measured for payment will be the number of square feet used in the complete and accepted work.

418.05 BASIS OF PAYMENT. The accepted quantity of Asphaltic Approach Material will be paid for at the Contract unit price per square foot. Payment will be full compensation for detailing, furnishing, handling, transporting, and placing the material specified, including surface preparation, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Tack, prime, or seal coats of bituminous material required for the installation of asphaltic approach material will not be paid for separately, but will be considered incidental to the Contract unit price for Asphaltic Approach Material.

Removal of any existing asphaltic, bituminous or Portland cement concrete materials to allow for the installation of asphaltic approach material will not be paid for separately, but will be considered incidental to the Contract unit price for Asphaltic Approach Material.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
418.10 Asphaltic Approach Material.....	Square Foot

**DIVISION 500**  
**STRUCTURES**

**SECTION 501 – PERFORMANCE BASED STRUCTURAL CONCRETE**

501.02 MATERIALS is hereby modified by inserting the following entry into the material subsection list in numerical order:

Portland-Limestone Cement .....701.06

501.02 MATERIALS is hereby further modified by deleting the entry in the subsection list for “Epoxy Bonding Compound.....719.02” and replacing it with the following:

Epoxy Bonding Systems .....719.02

501.03 CLASSIFICATION AND PROPORTIONING is hereby modified by being deleted in its entirety and replaced with the following:

501.03 CLASSIFICATION AND PROPORTIONING. The following classes of concrete, shown in Table 501.03A, are included in these Specifications and shall be used as shown on the Plans.

**TABLE 501.03A – PERFORMANCE-BASED CONCRETE CLASSES AND PROPERTIES**

Class of Concrete <sup>1</sup>	28-Day Compressive Strength (psi) <sup>2</sup>	Target W/CM Ratio <sup>3</sup>	VSI	Slump/Spread Target and Range (in.)	Max. Slump (in.)	Air Content Limits <sup>4</sup>	Free Shrinkage <sup>5</sup>	Max. 56-Day Surface Resistivity <sup>6</sup>
PCD	4,000	TBD	--	TBD ± 1.5 <sup>7</sup>	9	5.5% – 8.5%	0.032%	Low
PCS	3,500	TBD	--	TBD ± 2.5 <sup>7</sup>	9	5.5% – 8.5%	0.042%	Low
SCC	4,000	TBD	≤ 1	TBD <sup>8</sup>	--	6.5% – 8.5%	--	Low

<sup>1</sup> PCD = Performance Concrete, Deck

PCS = Performance Concrete, Substructure

SCC = Self Consolidating Concrete

<sup>2</sup> The listed 28-day compressive strength is the minimum strength required to meet the design intent.

<sup>3</sup> The target W/CM ratio is to be determined by the contractor. During production the W/CM ratio shall be within + 0.05 of the target W/CM ratio. At no time may the W/CM ratio exceed 0.500, nor the total water content exceed 280 lbs/yd<sup>3</sup>. For Class SCC, the maximum W/CM ratio shall be determined by the Contractor.

<sup>4</sup> See Subsection 501.03(b)(2).

<sup>5</sup> The Contractor shall determine the free shrinkage in accordance with Subsection 501.03(c)(3).

<sup>6</sup> The Contractor shall determine the surface resistivity in accordance with Subsection 501.03(c)(4).

- <sup>7</sup> The Contractor shall determine a slump target that will allow enough workability to be placed and finished per Contract requirements. The slump shall be maintained within the specified range for the placement. The mix shall not exhibit segregation. If the mix does exhibit segregation or exceeds the maximum slump, the load shall be rejected and subsequent loads shall be tested by the Contractor until the mix meets the allowable limits.
- <sup>8</sup> The Contractor shall determine the spread target and limits in accordance with Subsection 501.03(b)(1). The spread shall be maintained within the determined spread limits for the placement. The mix shall not exhibit segregation. If the mix does exhibit segregation or exceeds the upper spread limit, the load shall be rejected and subsequent loads shall be tested by the Contractor until the mix meets the allowable limits. The Engineer may perform a J-ring test at the time of placement if blocking is a concern.

If a nominal maximum aggregate size is not specified, the Contractor shall determine the nominal maximum aggregate size using guidance from *ACI 211.1* to do so. In no case will the maximum aggregate size exceed 1/5 of the narrowest dimension between sides of the forms, 1/3 the depth of slabs, nor 3/4 of the minimum clear spacing between individual reinforcing bars, bundles of bars, or pre-tensioning strands unless approved by the Engineer.

The Contractor may use industry methods to develop gradations not specified in Section 704 in order to create better optimized gradations to satisfy the required concrete performance characteristics. If the Contractor is using a combined gradation, they shall provide the method or methods of how they will monitor gradation, the limits of the gradation ranges, and the frequency of monitoring.

Lightweight fine aggregate may be used up to 30% by volume replacement for normal weight sand. The gradation of the lightweight fine aggregate shall conform to the requirements of *AASHTO M 195*. The lightweight fine aggregate shall be conditioned for enough time to fully saturate the material.

The stockpile shall be constructed so that it contains uniform moisture content throughout the pile. The stockpile will be allowed to drain 12 to 15 hours immediately prior to use, unless an alternate procedure is approved by the Structural Concrete Engineer. The Contractor shall state the method, duration and procedure used to confirm that the material is at or above its saturated surface dry (SSD) value, by weight, throughout the pile.

The mix may contain a shrinkage compensating admixture conforming to the requirements of *AASHTO M 194*, *M 194* or *ASTM C 494/C 494 M*.

The use of chlorides or admixtures containing chlorides is prohibited. All admixtures will be considered incidental to the work and included in the Contract Unit Price of the concrete.

The concrete shall have air content by volume as specified. The entrained air shall be obtained using an approved admixture.

The concrete materials may be proportioned using the absolute volumes method in accordance with the specified requirements. The volumetric proportioning method such as that outlined in *ACI 211.1*, or other approved volumetric proportioning methods, shall be employed in the mix design.

A minimum of 30 Calendar Days prior to placement of the trial pour (or prior to the pre-placement meeting, if the trial pour is waived by the Engineer), the Contractor shall submit for approval the mix design for the class of concrete specified. The mix designs shall be submitted to the Structural Concrete Engineer at the Agency's Materials Section Central Laboratory. No class of concrete shall be placed on a project, including the trial pour, until the mix design is approved.

- (a) The mix design must contain the following information:
  - (1) Class of concrete.
  - (2) Type of mix, conventional or self-consolidating concrete (SCC).
  - (3) Specify if saturated surface dry or dry weights.
  - (4) Aggregates – Types, sources, specific gravities, and absorption values.
  - (5) Specified 28-day design compressive strength, psi.
  - (6) Cementitious content and the amount of each, pounds per cubic yard.
  - (7) Air content lower limit and upper limit, percent.
  - (8) Specified surface resistivity value.
  - (9) Slump range for conventional concrete, inches.
  - (10) Determined spread lower limit and upper limit for SCC.
  - (11) Water/cementitious materials (W/CM) ratio target value.
  - (12) Volumetric quantities of each material in the mix design.
  - (13) Design unit weight of the mix.
  - (14) Chemical Admixtures – Types, brand names, and dosages.

Concrete test mix or mixes shall be used to obtain the test results where applicable. All wet testing shall be done by personnel with current ACI Concrete Field Testing Technician Grade I certifications. All other tests shall be performed by an independent Laboratory that is accredited in the particular test method, or as allowed by the Engineer.

- (b) The following preliminary mix qualification tests shall be performed:
  - (1) The contractor shall determine the lower and upper spread limit for SCC concrete. The J-Ring Test and the Spread Test will be conducted at both the lower and upper spread limits.

The J-Ring Test will be conducted per the requirements of *ASTM C 1621/C 1621 M*, and the Spread Test will be conducted per the requirements of *ASTM C 1611/C 1611 M*.

The J-Ring test results shall be compared to the Spread Test results at both the upper and lower limits. The difference between the two tests at both the upper and lower limit shall not be greater than 2 inches. At both the upper and lower limits, the Visual Stability Index (VSI) shall not be greater than 1.

- (2) The contractor shall provide test results that establish the quality of the entrained air void structure and the freeze-thaw durability of the concrete. Sampling shall be performed in accordance with *AASHTO R 60* on a trial batch of concrete that is a minimum of 3 cubic yards, and which meets the following requirements:
  - a. For all concrete, the air content shall be no more than 1.5% above the lower limit established in Table 501.03A.
  - b. For conventional concrete, the slump shall not exceed 5 inches.
  - c. For SCC concrete, the spread shall not be more than 5 inches greater than the minimum spread determined as specified in Subsection 501.03(b)(1), nor shall the spread exceed the maximum spread determined as specified in Subsection 501.03(b)(1).

Conventional concrete shall be tested for slump (*AASHTO T 119 M/T 119*), air content (*AASHTO T 152*), concrete temperature (*ASTM C 1064/C 1064 M*), and characterization of the air-void system of freshly mixed concrete by the sequential pressure method (*AASHTO TP 118*). The Contractor shall make a minimum of 2 concrete cylinders per *AASHTO T 23*.

SCC concrete shall be tested for spread (*ASTM C 1611/C 1611 M*, Procedure B), air content (*AASHTO T 152*), concrete temperature (*ASTM C 1064/C 1064 M*), and characterization of the air-void system of freshly mixed concrete by the sequential pressure method (*AASHTO TP 118*). The Contractor shall make a minimum of 2 concrete cylinders per *AASHTO T 23*.

The cylinders shall be cured for a minimum of 5 Calendar Days prior to being tested according to the requirements of *ASTM C 457*. The wet test results shall be included with the *ASTM C 457* results.

The tests required in Subsection 501.03(b)(2) will be used by the Agency to evaluate the quality of the entrained air void structure of the concrete. These test results will be used for informational purposes only and will not be used to determine the acceptability of the mix design.

- (c) The additional mix qualification test results specified below shall accompany the mix design. Testing should be done on the same test batch where applicable.

- (1) The concrete used to determine the additional mix qualification properties shall meet the following requirements:
    - a. For all concrete, the air content shall be not be more than 1.5% above the lower limit.
    - b. For conventional concrete, the slump shall be between 5 inches and 9 inches, and the W/CM ratio shall be 0.05 above the target.
    - c. For SCC concrete, the spread shall be within 5 inches of the maximum spread limit, and the W/CM ratio shall be the maximum W/CM ratio, as determined by the contractor.
  - (2) The compressive strength of the concrete shall be measured based on the requirements of *AASHTO T 22* for 7, 14, and 28-Calendar Day standard cured cylinders.
  - (3) The free shrinkage rate of the concrete shall be tested per the requirements of *AASHTO T 160*. The test specimen shall be a prism of 4 inch square cross section. Procedure 11.1.2 of *AASHTO T 160* shall be followed for storage and measurements, and all specified test age results shall be submitted. Specimen testing may be terminated after 28 Calendar Days of drying. Testing shall be performed by an independent Laboratory accredited in the specific test method.
  - (4) The surface resistivity of the test mix shall be measured at 28 and 56 Calendar Days based on the requirements of *AASHTO T 358*. Results shall be categorized as Low, Very Low, or Negligible in accordance with *AASHTO T 358*, Table 1.
- (d) The Alkali-Silica Reactivity (ASR) of each type of aggregate shall be measured separately based on the requirements of *AASHTO T 303*. If one or more of the aggregates exceeds 0.10% expansion, then the aggregate shall be tested again according to the requirements of *ASTM C 1567*.
- The Contractor may elect to go directly to *ASTM C 1567* testing if they suspect that the aggregate may exceed the 0.10% expansion if tested by *AASHTO T 303*. Testing shall be performed by an independent Laboratory accredited in the specific test method.
- (e) After the mix design furnished by the Contractor has been reviewed and approved by the Structural Concrete Engineer, no new materials shall be incorporated. In no case shall concrete from more than one mix design be permitted to be used during the same pour without prior written approval of the Engineer.

Mix design approvals will be valid for a 12-month period. The approved mix design will be allowed a two consecutive year re-approval if no material proportioning or material sources have changed from the previous year's approved mix design and the mix design is submitted with updated aggregate properties and volumes adjusted accordingly. The aggregate properties shall be tested within 60 Calendar Days of the mix design submission. The properties to be tested include, but are not limited to, specific gravity, unit weight, and absorption. The mix design shall be accompanied by the previously completed and accepted test mix data and any applicable updated test information.

501.04 BATCHING is hereby modified by deleting paragraphs one, two and three in their entirety and replacing them with the following:

501.04 BATCHING. Measuring and batching of materials shall be done at an approved batch plant. Batch plants shall have an inspection completed prior to the first concrete placement on an Agency project if it has been longer than 12 calendar months from the last inspection. Request for inspection and required documentation must be received by the Materials Testing and Certification Section a minimum of 21 Calendar Days prior to the date of the requested inspection.

All deficiencies shall be corrected and verified a minimum of 5 Calendar Days prior to the first concrete placement for any Agency project. The batch plant shall meet the requirements of *AASHTO M 157*, except as modified in these Specifications, and shall always be maintained in good repair. The batch plant shall be subject to periodic inspections by Authorized Representatives of the Agency. The batch plant shall have approved methods of storing, measuring, and dispensing approved mineral admixtures.

All concrete batch plants offered for Agency approval shall be equipped for semi-automatic batching and proportioning of all cementitious material, aggregates, water, and for the automatic insertion of admixtures. The plants shall be equipped to automatically and accurately record, report, and print batch weight tickets in English units the quantity of all aggregates, cementitious material, and the water incorporated into each batch and shall identify and record the addition of the required admixtures. All materials added to the concrete batch after initial batching shall be added to the printed batch weight ticket prior to delivery.

501.04 BATCHING, subpart (b), is hereby modified by deleting "Dedicated private telephone and internet services shall be provided to the laboratory. The internet connection shall have a minimum download capacity of 3 Mbps (megabits per second) without utilizing compression algorithms and the bandwidth speed shall be verified using an online speed test." from the third paragraph and replacing it with the following:

Dedicated private telephone and internet services shall be provided to the laboratory in accordance with Subsection 631.02(a)(4), except that approval by the Engineer is not required.

501.05 MIXING AND DELIVERY, subparts (a)(2) and (a)(3), are hereby modified by being deleted in their entirety and replaced with the following:

- (2) Authorization by Field Inspection personnel must be obtained prior to the addition of water or admixtures at the project site. If water is added in excess of the specified maximum W/CM ratio, the concrete shall not be used.
- (3) Each load of concrete delivered at the job site shall be accompanied by a State of Vermont Batch Slip signed by the authorized Agency representative, if present, at the plant. If an Agency representative is not present at the time of batching, a batch weight ticket meeting the requirements of Subsection 501.04 shall accompany the delivery vehicle.

## SECTION 506 – STRUCTURAL STEEL

506.02 MATERIALS is hereby modified by deleting the entry in the subsection list for “Approved Structural Coating Systems.....708.03” and replacing it with the following:

Structural Steel Coating Systems.....708.03

506.02 MATERIALS is hereby modified by inserting the following entry into the subsection list in numerical order:

Grease Rustproofing Compound.....708.04

506.03 GENERAL FABRICATION REQUIREMENTS is hereby modified by deleting paragraphs three, four, five, six, seven, eight, and nine in their entirety and replacing them with the following:

Structural steel furnished under this section shall be fabricated in a plant having an AISC Certified Bridge Fabricator – Advanced (ABR), or Intermediate (IBR) Certification, and in a plant listed as a Category 1 Fabricator on the VTrans Pre-Qualified Fabricator list prior to Contract Execution. Structural steel components (such as bridge rail, bridge joints, bridge bearings, and overhead sign structures) which are fabricated under this section may be fabricated in a plant that does not have an ABR or IBR Certification, provided that the fabrication plant has either an AISC Certified Bridge Fabricator – Simple (SBR) Certification or an AISC Bridge Component QMS Certification, and is listed as a Category 2 Fabricator on the VTrans Pre-Qualified Fabricator list prior to Contract execution.

Minor steel components, including, but not limited to, downspouts, scuppers, and pedestrian hand railings may be fabricated in a plant that does not have an AISC Certification, provided that the fabrication plant is approved in writing by the Structural Steel Fabrication Engineer prior to Contract execution. All plants without certification shall have an organization, operation, and equipment capable of producing a product equal to a certified plant. These plants will be reviewed on a case-by-case basis.

Structural steel that is to be painted or metalized under this section shall be coated in a plant having an AISC Sophisticated Paint Endorsement – Enclosed or SSPC-QP 3 – Enclosed Shop certification and which is listed as a Category 3 Fabricator for the applicable coating on the VTrans Pre-Qualified Fabricator list prior to Contract execution. Structural steel that is to be galvanized or powder coated under this section shall also be listed as a Category 3 Fabricator for the applicable coating on the VTrans Pre-Qualified Fabricator list prior to Contract execution.

The VTrans Pre-Qualified Fabricator list can found on the Structures Website. It is the responsibility of the Fabricator to verify that they are on the Pre-Qualified Fabricator list prior to bidding on work. It shall be known that being listed on the Pre-Qualified Fabricator list does not waive any certification requirements that are required for performing the intended work. Any Fabricator who has been Pre-Qualified but does not perform any work for VTrans for a period of 5 years, will be automatically removed from the list without notice. It is the fabricator's responsibility to re-apply if desired to get back on the Pre-Qualified list.

When certified fabrication or coating plants are required, the plant shall maintain certified status throughout the duration of the work under the Contract.

VTrans reserves the right for the Structural Steel Fabrication Engineer to give written notification to any fabricator (regardless of certification level or status) restricting the types of items that they are approved to fabricate, up to and including restricting all structural steel fabrication for the Agency. Causes for such restrictions shall include concerns of quality, production, accountability, or any other cause that is deemed justifiable by the Agency.

The fabricator shall demonstrate full capability for fabricating materials meeting the requirements of the Contract. Failure to meet Contract requirements will result in rejection of the material being fabricated and the termination of the ability to fabricate material for the State.

Prior to performing any work under this section, the fabricator must have received approval for all fabrication drawings, welding procedures and any special Contract requirements and have notified the Agency's Structural Steel Fabrication Engineer in writing at least 10 working days in advance of fabrication. The Contractor shall bear full responsibility and costs for all materials ordered, raw materials stockpiled, or for work performed prior to approval of the fabrication drawings or written authorization from the Structures Engineer.

Excepted as noted in this subsection, all work shall be performed by the fabricator indicated on the approved fabrication drawings, unless otherwise authorized in writing by the Structural Steel Fabrication Engineer. For coatings, if the fabricator intends to use a Subcontractor, it shall be clearly outlined on the fabrication drawings to be submitted for review. At a minimum, the provided information shall include the Subcontractor's name and address; the name, phone number and e-mail address of the quality control (QC) contact; and an acknowledgement of the VTrans quality assurance (QA) inspection requirements which apply to the Subcontractor.

If the fabricator wishes to request the use of a Subcontractor for material processing (e.g. cutting, drilling, bending, rolling, punching, machining, etc.), they shall include this information on the shop drawings that are submitted for review or they shall submit a set of the previously approved shop drawings to the Agency for review, with the requested changes and required information clearly marked and indicated (e.g. by making all additional notes red). At a minimum, the submittal shall include the Subcontractor's name and address; the name, phone number and e-mail address of the quality control (QC) contact; an acknowledgement of the VTrans quality assurance (QA) inspection requirements which apply to the Subcontractor; and clear information on the extent and limits of work to be performed by the Subcontractor.

Requests will be evaluated on a case-by-case basis and may be rejected by the Agency for any reason. Use of a Subcontractor does not relieve the fabricator of any responsibilities or quality control requirements specified by the Contract.

All steel fabrication plants must satisfy the following minimum requirements:

506.03 GENERAL FABRICATION REQUIREMENTS, subpart (c), is hereby modified by deleting subpart (1) in its entirety and replacing it with the following:

- (1) Inspectors. Quality control inspectors shall be onsite full time during any hot work (e.g. burning, heating, welding, etc.), as well during as any operations that may affect the quality of the coating system.
  - a. Fabrication Inspectors. The fabricator's representative responsible for fabrication inspection, testing and quality matters shall be qualified and certified in accordance with the provisions of *AWS QC 1*.
  - b. Coating Inspectors. The fabricator's coatings quality control manager shall possess a minimum classification as a NACE Coating Inspector Level 2 – Certified, SSPC Bridge Coatings Inspector (BCI) Level 2, or SSPC Protective Coatings Inspector (PCI) Level 2. The coatings quality control inspector shall possess a minimum classification as a NACE Coating Inspector Level 1 – Certified, SSPC Bridge Coatings Inspector (BCI) Level 1, or SSPC Protective Coatings Inspector (PCI) Level 1.

506.03 GENERAL FABRICATION REQUIREMENTS, subpart (d)(3), is hereby modified by deleting the last sentence, which begins with "The Engineer reserves the right..." and replacing it with "The Structural Steel Fabrication Engineer reserves the right to reject inadequate office facilities and require suitable alternatives."

506.03 GENERAL FABRICATION REQUIREMENTS, subpart (e), is hereby modified by adding the word "Execution" as the last word of the subsection.

506.04 DRAWINGS AND PROCEDURES, subpart (c), is hereby modified by being deleted in its entirety and replaced it with the following:

- (c) Welding Procedures. Detailed welding procedures shall be prepared in accordance with the provisions of the applicable AWS/ANSI/AASHTO code revisions and submitted in accordance with the following:
- (1) All procedures shall be prequalified. Procedure qualification test records shall be submitted along with each procedure. Heat input values during welding shall be shown for each procedure (except for SMAW procedures). All weld procedure sheets shall identify the project name, number, structure, and procedure qualification record and/or fillet weld soundness test.
  - (2) Procedure qualification test records and welding procedure specifications shall be presented in a format similar to example forms as shown in *AWS D1.5* and *AWS D1.1* as applicable.
  - (3) Details of welded joints shall conform to the standard joint details per *AWS D1.5* (or *AWS D1.1* as applicable) unless otherwise approved by the Structural Steel Fabrication Engineer.

506.04 DRAWINGS AND PROCEDURES is hereby modified by adding the following new subpart:

- (e) Approval of Procedures. All weld procedures, heat corrective procedures, coatings procedures, and any other procedures that are required to be submitted for approval, and are being used in production, shall bear a VTrans approved or approved as noted stamp.

506.05 QUALITY ACCEPTANCE is hereby modified by adding the following as the second sentence of the first paragraph:

Acceptance of materials, test results or completed fabricated items by the QAI/VTrans Structural Steel Fabrication Engineer does not relieve the fabricator of any responsibility to meet Contract requirements and specifications.

506.05 QUALITY ACCEPTANCE, subpart (b), is hereby modified by deleting the sentence “The QAI will have the authority to reject any material or work that does not conform to the Contract requirements.” in its entirety.

506.06 QUALITY CONTROL, subpart (b), is hereby modified by being deleted in its entirety and replaced with the following:

- (b) Qualifications of Inspectors. Inspectors shall meet the requirements of Subsection 506.03(c).

506.08 BASE METAL REQUIREMENTS is hereby modified by deleting the fourth, fifth, and sixth paragraphs and replacing them with the following:

Main members are defined as compression members, tension members, and members subject to reversals of stress, including stringers, girders, cover plates, rigid frames, floor beams, gusset plates, and curved girder cross frames. Other members may be indicated in the Contract as main members.

Material for main members shall be ordered and prepared so that the direction of rolling is parallel to the stress in the member, in accordance with the requirements of *AASHTO LRFD Bridge Construction Specifications*, Article 11.4.3.1. Charpy V-Notch (CVN) testing shall be as required in Subsection 714.01.

Members identified as “fracture critical” shall be subject to additional base metal requirements as specified in Subsection 506.11.

506.10 WELDING, subpart (b), is hereby modified by deleting the phrase “, Section 5” from the first sentence of the first paragraph.

506.10 WELDING, subpart (c), is hereby modified by deleting the phrase “, Section 5” from the first sentence of the first paragraph and by deleting the phrase “, Section 6” from the second sentence of the first paragraph.

506.10 WELDING, subpart (d), is hereby modified by adding the word “VTrans” immediately before the phrase “prequalified welder list.” in the first paragraph, and by adding the word “VTrans” immediately before the phrase “*Field Welding Manual*” in the second paragraph.

506.10 WELDING, subpart (d), is hereby further modified by deleting “as defined in Subsection 714.01” from the first sentence of the fourth paragraph and replacing it with “as defined in Subsection 506.08”.

506.10 WELDING, subpart (d), is hereby further modified by adding “Welding to tension members or tension components of members will not be allowed.” as the second sentence of the fourth paragraph.

506.10 WELDING, subpart (e)(1), is hereby modified by deleting the third and fourth paragraphs in their entirety. The deleted text begins with “Process and procedure qualification record tests...” and ends with “... similar to those provided in *AWS D1.5*.”

506.12 ASSEMBLY, subpart (c), is hereby modified by deleting the word “Air” from the fourth sentence of the second paragraph and replacing it with the phrase “Dry air”.

506.12 ASSEMBLY, subpart (d), is hereby modified by adding “,” (a comma) immediately following the phrase “All sharp corners”.

506.12 ASSEMBLY, subpart (d), is hereby further modified by adding the word “minimum” immediately before the phrase “1/16 inch radius”.

506.14 SURFACE PREPARATION is hereby modified by being deleted in its entirety and replaced it with the following:

506.14 SURFACE PREPARATION. All materials shall be blast-cleaned to the specified grade as defined by the *SSPC Painting Manual* and supplemented by reference to *SSPC-VIS 1*. Further preparation shall conform to the following:

- (a) Surfaces to Remain Uncoated. Surfaces shall be blast-cleaned at least equivalent to Preparation Grade *SSPC-SP 10*. This work may be performed either before or after fabrication. The final surface appearance after fabrication shall be clean and free from any contaminants or blemishes so as to allow the metal to weather uniformly.
- (b) Surfaces to be Coated. Prior to application of any coating, all material to be coated shall be cleaned and prepared in accordance with the appropriate Contract Specifications.

506.16 MARKING, STORING, AND SHIPPING, subpart (c), is hereby modified by deleting the second paragraph in its entirety and replacing it with the following:

The fabricator shall not ship any material, either to the project or to another manufacturer or subcontractor, without the Agency's approval. The Agency's Quality Assurance Inspector will place a seal of approval on all material (or on the bill of lading) that has been accepted for shipment and will accept the loading, positioning, and anchorage of all material being shipped. If the Quality Assurance Inspector is not available, the Structural Steel Fabrication Engineer shall be contacted for approval to ship.

506.18 ERECTION, subpart (a), is hereby modified by deleting the phrase "*AASHTO/NSBA S10.1, Appendices E and F*" and replacing it with the phrase "*AASHTO/NSBA S10.1, Appendices B and C*".

506.18 ERECTION, subpart (b), is hereby modified by deleting subparts (2) and (3) in their entirety and replacing them with the following:

- (2) Drift pins shall be used to align and center the connections of main and secondary members. Only light drifting will be permitted. Any member subjected to drifting that results in distortion of the member or elongation of the holes will be rejected. Cylindrical erection pins, the same size as the hole, shall be used at least in the extreme corners of all main member connections.

Main members shall be match marked by the Fabricator and should fit together easily.

Main members shall not be reamed larger than the hole size indicated on the approved Fabrication Drawings without written authorization from the Project Manager. Secondary members may be subjected to limited field reaming with the written approval of the Engineer. Assembled parts that have been approved for field drilling or reaming shall be disassembled to remove any burrs, shavings, oils, or lubricants.

Pins used for hinged connections and bearings shall be inserted with care and aligned so the members take full and even bearing. Nuts shall be adequately tightened and locked in position either by upsetting the threads or tack welding the nut to the bolt.

- (3) Errors in shop fabrication that prevent proper assembly shall be reported immediately to the Engineer. The Engineer shall approve any corrective action prior to it occurring.

506.19 BOLTING AND CONNECTIONS, subpart (a), is hereby modified by adding the phrase “Structural Steel Fabrication” immediately before the word “Engineer” in the last sentence of subpart (a).

506.19 BOLTING AND CONNECTIONS, subpart (b), is hereby modified by deleting the sentence which reads “Faying surfaces of bolted connections shall meet the Class B slip coefficient value of not less than 0.50 as specified by AASHTO.” and replacing it with “Unless otherwise specified in the Contract Documents, faying surfaces of bolted connections shall have a Class B slip coefficient value of not less than 0.50 as specified by AASHTO.”

506.19 BOLTING AND CONNECTIONS, subpart (c)(3), is hereby modified by being deleted in its entirety and replaced with the following:

- (3) Oversized and irregular hole conditions caused from field drilling or reaming (reaming shall not be allowed unless approved in writing by the Engineer)

506.19 BOLTING AND CONNECTIONS, subpart (c), is hereby modified by adding the sentence “Unless otherwise indicated on the plans, *ASTM F 3125/F 3125 M* Grade A 325 hex head bolts shall be used.” immediately following the sentence “Bolts shall be tightened to develop a tension not less than 5% more than the minimum bolt tension specified in Table 506.19A.”

506.19 BOLTING AND CONNECTIONS is hereby modified by relabeling subpart (d), “Acceptance of Bolt Tensioning.” as “(e) Acceptance of Bolt Tensioning.”

506.19 BOLTING AND CONNECTIONS is hereby further modified by adding a new subpart “(d) Bolt Tensioning Methods.” The new subpart (d) will be composed of text that is currently located in subpart (c). The new subpart (d) will begin with the phrase “Bolts shall be tensioned by the Contractor in the presence of the Engineer...” and will contain all text and tables up to and including Note 4 of Table 506.19B.

All references to “Column 3 of Table 506.19B” within the text identified above shall be replaced with the phrase “Column 4 of Table 506.19B”.

506.19 BOLTING AND CONNECTIONS, subpart (d)(1), is hereby modified by adding the sentence “This method shall only be used when required by the Contract.” immediately following the sentence “This method shall be employed when installing button-headed or dome-headed high-strength bolts.”

506.19 BOLTING AND CONNECTIONS, subpart (d)(2), is hereby modified by adding “Additional hardened washers shall be provided if required by the DTI manufacturer for their specific product.” as the second sentence of the second paragraph.

506.19 BOLTING AND CONNECTIONS, subpart (e), is hereby modified by deleting the phrase “or stick out not more than three threads” from the last sentence of the ninth paragraph.

506.22 FIELD CLEANING is hereby modified by being deleted in its entirety and replaced with the following:

506.22 FIELD CLEANING. When assembly of the fabricated structural components is complete, any rust, scale, dirt, grease, or other foreign material shall be removed from the metal components. The cost of such necessary cleaning will not be paid for directly but will be considered incidental to the Section 506 items in the Contract.

506.23 UNCOATED STEEL is hereby modified by being deleted in its entirety and replaced with the following:

506.23 STEEL SURFACES AND COATINGS. All welding and anticipated hot work shall be completed prior to applying any coatings on a given item unless approved in writing by the Structural Steel Fabrication Engineer.

- (a) Uncoated Steel. Care must be taken to keep chemicals and oils from contacting the exposed surfaces of unpainted steel during storage, erection, and construction of the deck.
  - (1) Staining of Masonry. The Contractor shall protect all concrete and masonry from staining due to oxide formation on the steel.
  - (2) Cleaning of Steel. After all concrete has been placed, the outside surface of the fascia beams and bottom surface of their lower flanges shall be cleaned of all foreign material to a uniform appearance. The Engineer may require the exposed surfaces to be blast cleaned to Preparation Grade *SSPC-SP 10*. The use of acids for cleaning is prohibited.
- (b) Galvanized Steel. All steel surfaces to be galvanized shall be coated in accordance with Subsection 726.08 and the following:
  - (1) Certifications as described in *ASTM A 123*, Section 10 for the completed products shall be furnished to the QA Inspector (or the Structural Steel Fabrication Engineer, if there is no QA Inspector assigned to the project) prior to shipment from the galvanizer's plant. Certifications shall include a report of all test results and measurements.
  - (2) Repairs to coating shall conform to Subsection 726.08 and shall be brush applied unless approved otherwise by the Engineer.

- (c) Metalized Steel. All steel surfaces to be metalized per Contract Plans shall be metalized and seal coated in accordance with Subsection 726.09.
- (d) Painted Steel. When the Contract Plans specify shop painted structural steel, the work shall be performed in accordance with the requirements of this Subsection.
  - (1) Materials. The fabricator shall provide a three coat paint system meeting the requirements of Subsection 708.03.

Shop applied systems may have isolated areas where the coatings were damaged during shipping or erection and will have areas around faying surfaces that may need field applied primer, intermediate, and top coatings. Thus, any coating system that is used in the shop shall be acceptable for the field conditions that are expected to be encountered.

- (2) Submittals. The fabricator shall submit a complete package, in accordance with Subsection 105.03 for Construction Drawings, which includes the following information. The submittals shall be made sufficiently in advance of coating work to allow for review, resubmittals, and approval.

- a. Surface Preparation/Painting Plan. The surface preparation/painting plan shall include the specified methods of surface preparation and type(s) of equipment to be utilized for removal of rust, mill scale, or foreign matter. The plan shall identify the solvents proposed for solvent cleaning, together with the solvent Safety Data Sheets (SDS). If any detergents, additives, or inhibitors are incorporated into the water used for any coating work operations, the plan shall include the names of the materials and their SDS.

The plan shall also include the methods of coating application, including any required stripe coats, and all equipment to be utilized.

The plan shall also identify all applicable QC/QA Hold Points. Specific inspection items throughout these specifications are designated as Hold Points. These Hold Points are for the QA Inspector to perform inspections. QA inspections will be performed only after a proper QC inspection by the fabricator. Permission to proceed beyond a Hold Point without a QA inspection will be granted solely at the discretion of the Structural Steel Fabrication Engineer, and only on a case-by-case basis. If re-work is necessary, as determined by a QA inspection, it shall be accomplished and a new Hold Point for the re-work shall be observed as defined above.

- b. Abrasives. The fabricator shall submit the type of abrasives to be used for abrasive blast cleaning and their SDS. For expendable abrasives, the Contractor shall provide certification from the abrasive supplier that the abrasive meets the requirements of *SSPC-AB 1*. For steel grit abrasives, the certification shall indicate that the abrasive meets the requirements of *SSPC-AB 3*.
- c. Coating System Information. The fabricator shall submit the latest version of the product manufacturer's application and thinning instructions, SDS, and product data sheets for each and every coating, thinner, sealer, and grease rustproofing compound. Specific attention shall be drawn to storage temperatures and the temperatures of the material, surface, and ambient air at the time of application. Recommended minimum ambient weather conditions during curing shall also be included. A letter or written instructions from the coating manufacturer shall be provided indicating the length of time that each coat must be protected from cold or inclement weather (e.g. exposure to rain) during the drying/curing period.

When the Agency accepts the submittals, the fabricator will receive written notification. The fabricator shall not construe Agency acceptance of the submittals to imply approval of any particular method or sequence for conducting the work, or for addressing health and safety concerns. Acceptance of the submittals does not relieve the fabricator from the responsibility to conduct the work according to the requirements of Federal, State, or local regulations, this Specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be affected by the project. The fabricator remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

- (3) Quality Control (QC) Inspections. The fabricator shall perform first line, in progress QC inspections. The personnel performing any QC tests shall be trained in coatings inspection and the use of the testing instruments. Documentation of training shall be provided upon request. Painters shall perform wet film thickness measurements, with the Quality Control Inspector conducting random spot checks of the wet film. Reports for all quality control testing and observations shall be completed and provided to the QA Inspector on a daily basis.
  - a. Fabricator QC inspections shall include, but are not limited to, the following:
    - 1. Ambient conditions.
    - 2. Compressed air cleanliness.
    - 3. Surface preparation and surface profile (solvent cleaning, abrasive blast cleaning, etc.).

4. Coating application (materials verification, mixing, thinning, induction/sweat-in time, and wet/dry film thickness).
  5. Recoat times and cleanliness between coats.
  6. Coating continuity and coverage (freedom from runs, sags, overspray, dry spray, pinholes, shadow-through, skips, misses, etc.).
  7. Records of fabricator QC inspections shall document any applicable product batch numbers.
- b. The following equipment shall be provided by the fabricator as necessary to perform QC inspections:
1. Psychrometer or comparable equipment for the measurement of dew point and relative humidity, together with all necessary tables or psychrometric charts.
  2. Surface temperature Digital Spot Thermometer.
  3. *SSPC-VIS 1 - Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning* and *SSPC-VIS 3 - Visual Standard for Power and Hand-Tool Cleaned Steel*, as applicable.
  4. Commercially available putty knife of a minimum thickness of 40 mils and a width between 1 and 3 inches.
  5. Replica tape and spring micrometer.
  6. Wet film thickness gauge.
  7. Blotter paper for compressed air cleanliness checks.
  8. Type 2 electronic dry film thickness gauge per *SSPC-PA 2 Measurement of Dry Coating Thickness with Magnetic Gauges*.
  9. Calibration standards for dry film thickness gauge.
  10. Light meter for measuring light intensity during surface preparation, painting, and inspection activities.
  11. Printed copies of all applicable ASTM and SSPC Standards used for the work.
  12. *SSPC Manual of Good Painting Practice, Volume 1*.

The instruments shall be calibrated within 12 months of the date of Project usage or according to the equipment manufacturer's recommendations and the fabricator's QC Program if they require a shorter duration.

- (4) Quality Assurance (QA) Observations. The QA Inspector will conduct QA observations of any or all phases of the work. The presence or activity of QA Inspector observations in no way relieves the fabricator of the responsibility to provide all necessary daily QC inspections and to comply with all requirements of this specification.

The Structural Steel Fabrication Engineer has the right to reject any work that was performed without adequate provision for QA observations.

- (5) Inspection Access and Lighting. The fabricator shall provide artificial lighting in areas where natural light is inadequate, to allow proper cleaning, inspection, and painting. Illumination for inspection shall be at least 30 foot-candles.

- (6) Surface Preparation and Painting Equipment. All cleaning and painting equipment shall include gauges capable of accurately measuring fluid and air pressures and shall have valves capable of regulating the flow of air, water, or paint as recommended by the equipment manufacturer. The equipment shall be maintained in proper working order.

Hand tools, power tools, abrasive blast cleaning equipment, brushes, rollers, and spray equipment shall be of suitable size and capacity to perform the work required. All power tools shall be equipped with vacuums and High Efficiency Particulate Air (HEPA) filtration. Appropriate filters, traps, and dryers shall be provided for the compressed air used for abrasive blast cleaning and conventional spray application. Paint pots shall be equipped with air operated continuous agitation devices unless prohibited by the coating manufacturer. The air discharge from power tools and air motors shall be directed away from steel surfaces; if this is not possible a filtering device shall be appropriately placed.

- (7) Ambient Conditions. Surfaces to be painted after cleaning shall remain free of moisture and other contaminants. The fabricator shall control operations to ensure that dust, dirt, or moisture does not come in contact with surfaces cleaned or painted that day. The following ambient conditions shall be met:

- a. The surface and ambient temperatures shall be at least 5°F above the dew point during final surface preparation operations.

- b. The surface and ambient temperatures shall be a minimum of 40°F, at least 5°F above dew point, and the maximum relative humidity shall be less than or equal to 85% during the application and cure/dry time of each coat of the paint system. If the manufacturer's published literature is more restrictive it shall be followed for specific temperature, dew point, and humidity conditions during the application cure/dry of each coat. The cure/dry time shall be measured as the time following application when the ambient conditions are within the ranges above.

The fabricator shall monitor and document temperature, dew point, and relative humidity at the beginning of each Work Day and every 4 hours during surface preparation and coating application, in the specific areas where the work is being performed. The frequency of monitoring shall increase if weather conditions are changing. If the weather conditions are forecast to be borderline relative to the limits established by the manufacturer, monitoring shall continue at a minimum of 4 hour intervals throughout the curing/drying period. The Structural Steel Fabrication Engineer has the right to reject any work that was performed under unfavorable weather conditions. Rejected work shall be removed, re-cleaned, and repainted at the fabricator's expense.

- (8) Compressed Air Cleanliness. Prior to using compressed air for abrasive blast cleaning, blowing down the surfaces, and painting with conventional spray, the fabricator shall verify that the compressed air is free of moisture and oil contamination in accordance with the requirements of *ASTM D 4285*. The tests shall be conducted at least one time each shift for each compressor system in operation. If air contamination is evident, the fabricator shall change filters, clean traps, add moisture separators or filters, or make other adjustments as necessary to achieve clean, dry air. The fabricator shall also examine the work performed since the last acceptable test for evidence of defects or contamination caused by the compressed air. Affected work shall be repaired at the fabricator's expense.

- (9) Surface Preparation and Profile (Hold Point).

- a. Surface Preparation. All steel surfaces to be painted shall be prepared by dry abrasive blast cleaning to meet the requirements of *SSPC-SP 10*.
- b. Abrasives. Abrasive blast cleaning shall be performed using either expendable abrasives (other than silica sand), or recyclable steel grit abrasives. Expendable abrasives shall be used one time and disposed of. The fabricator shall verify that recycled abrasives are free of oil contamination by conducting oil content tests in accordance with *SSPC-AB 2* on a daily basis.

- c. Surface Profile. The abrasives used for blast cleaning shall have a gradation such that the abrasive will produce a uniform surface profile of 1.5 to 3.5 mils. If the profile requirements of the coating manufacturer are more restrictive, the fabricator shall advise the Structural Steel Fabrication Engineer and comply with the more restrictive requirements. For recycled abrasives, an appropriate operating mix shall be maintained in order to control the profile within these limits.

The surface profile produced by the fabricator's surface preparation procedures shall be determined by replica tape and spring micrometer at the beginning of the work, and each day that the surface preparation is performed. Areas having unacceptable measurements shall be further tested to determine the limits of the deficient area. The replica tape shall be attached to the daily report.

When unacceptable profiles are produced, work shall be suspended. The fabricator shall make the necessary adjustments to ensure that the correct surface profile is achieved on all surfaces. The fabricator shall not resume work until the new profile is verified by the QA observations and they confirm that the profile is acceptable.

- d. Surface Condition Prior To Painting. Prepared surfaces shall meet the specified degrees of cleaning immediately prior to painting, and shall be painted before rusting appears on the surface. If rust appears or bare steel remains unpainted for more than 8 hours, the affected area shall be prepared again at the expense of the fabricator.

All surface preparation cleaning residue on steel surfaces shall be removed prior to painting.

The quality of surface preparation and cleaning of surface dust and debris must be accepted by the QA Inspector prior to painting. The Structural Steel Fabrication Engineer has the right to reject any work that was performed without adequate provision for QA observations to accept the degree of cleaning. Rejected coating work shall be removed and replaced at the fabricator's expense.

- (10) General Paint Requirements. Paint storage, mixing, and application shall be accomplished according to these Specifications and as specified in the paint manufacturer's written instructions and product data sheets for the paint system used. In the event of a conflict between these specifications and the coating manufacturer's instructions and data sheets, the fabricator shall advise the Structural Steel Fabrication Engineer and comply with the most restrictive requirements.

- a. Paint Storage and Mixing. All paint shall be stored according to the manufacturer's published instructions, including handling, minimum and maximum temperatures, and warming as required prior to mixing. All coatings shall be supplied in sealed containers bearing the manufacturer's name, product designation, batch number, and mixing/thinning instructions. Leaking containers shall not be used. The paint shall be stored in a secure fireproof location.

Mixing shall be performed according to the manufacturer's instructions. Thinning shall be performed using thinner provided by the manufacturer, and only to the extent allowed by the manufacturer's written instructions. In no case shall thinning be permitted that would cause the coating to exceed the local Volatile Organic Compound (VOC) emission restrictions. For multiple component paints, only complete kits shall be mixed and used. Partial mixing is not allowed.

The ingredients in the containers of paint shall be thoroughly mixed by mechanical power mixers according to the manufacturer's instructions, in the original containers before use or mixing with other containers of paint. The paint shall be mixed in a manner that will break up all lumps, completely disperse pigment, and result in a uniform composition. Paint shall be carefully examined after mixing for uniformity and to verify that no unmixed pigment remains on the bottom of the container.

Excessive skinning or partial hardening due to improper or prolonged storage will be cause for rejection of the paint, even though it may have been previously inspected and accepted. Manufacturer recommended induction/sweat-in times and temperature of mixed coatings shall be observed.

Multiple component coatings shall be discarded after the expiration of the pot life. Single component paint shall not remain in spray pots, paint buckets, etc. overnight and shall be stored in a covered container and remixed before use.

- b. Paint Application. Unless prohibited by the coating manufacturer's written instructions, paint may be applied by spray methods, rollers, or brushes. If applied with conventional or airless spray methods, paint shall be applied in a uniform layer with overlapping at the edges of the spray pattern.

The painters shall monitor the wet film thickness of each coat during application. The wet film thickness shall be calculated based on the specified dry film thickness using the solids by volume of the material and the amount of thinner added.

When brushes or rollers are used to apply the coating, additional applications may be required to achieve the specified thickness per layer.

- c. Re-coating and Film Continuity (Hold Point for Each Coat). Paint shall be considered dry for re-coating according to the re-coat time/temperature/humidity criteria provided in the manufacturer's instructions and when an additional coat can be applied without the development of film irregularities such as lifting, wrinkling, or loss of adhesion of the under coat.
- d. Stripe Coats. Unless indicated otherwise in the Contract, the Contractor shall apply an additional stripe coat to edges, crevices, welds, and similar surface irregularities for the prime coat and intermediate coat. The stripe coat shall be applied by brush or roller, as per manufacturer's recommendations, such that the coating is thoroughly worked into or on the irregular surfaces, and shall extend onto the surrounding steel a minimum of 1 inch in all directions. The purpose of the stripe coat is to build additional thickness and to assure complete coverage of these areas.

The stripe coat shall not be applied as part of the application of the full coat. The stripe coat shall be applied and dried separately according to the manufacturer's recommended drying times. Also, the color of the stripe coat shall contrast with the colors used for the full coats immediately preceding and succeeding the stripe coat.

- e. Coating Sequence. For locations painted under this specification, coatings shall be applied as follows:
    - 1. Prime Coat. The full prime coat shall be applied first to protect the steel. Once the full prime coat has dried, the prime stripe coat shall be applied.
    - 2. Intermediate Coat. After the prime stripe coat has dried, an intermediate stripe coat shall be applied and allowed to dry, followed by the full intermediate coat.
    - 3. Top Coat. After the full intermediate coat has dried, the full top coat shall be applied.
  - f. Coating of Faying Surfaces. All faying surfaces (including surfaces in contact with the hardware) in bolted connections shall receive the prime coat only prior to final assembly unless specified otherwise in the Plans. The remaining coats of paint in the connection areas shall be applied after the final assembly and tension has been completed and accepted.
- (11) Coating Thickness. The dry film thicknesses of the full coats shall be as follows, as measured in accordance with *SSPC-PA 2*. If the manufacturer's upper or lower thickness limit is more restrictive, it shall be followed instead.
- 1. The prime coat of organic zinc-rich primer shall be between 3.5 and 5.0 mils dry film thickness.

2. The intermediate coat of epoxy or urethane shall be between 3.0 and 6.0 mils dry film thickness.
  3. The finish coat of aliphatic urethane shall be between 2.5 and 4.0 mils dry film thickness. Finish coat color shall be according to Contract Documents.
- (12) Amine Blush. Amine blush is a residue that can form on newly applied epoxy coating films under certain conditions. Amine blush often appears as a yellowish milky and/or a blotchy residue on the coating surface and is a deterrent to the adhesion of subsequently applied coating layers. If amine blush is detected, the Contractor shall provide the Engineer with written procedures from the coating manufacturer for complete removal prior to the application of additional coating layers.

Painting shall be done in a neat and workmanlike manner. Each coat of paint shall be applied as a continuous film of uniform thickness free of defects including, but not limited to, runs, sags, overspray, dry spray, pinholes, voids, skips, misses, and shadow-through. Defects such as runs and sags shall be brushed out immediately during application.

- (13) Repair of Damage to New Coating System. The Contractor shall repair all damage to the newly installed coating system, at no cost to the Agency. If the damage extends to the substrate, the damaged areas shall be prepared to meet *SSPC-SP 3*.

The surrounding coating at each repair location shall be feathered for a minimum distance of 1-1/2 inches to achieve a smooth transition between the prepared areas and the existing coating.

If the bare steel is exposed, all coats shall be applied to the prepared area. If only the intermediate and finish coats are damaged, the intermediate and finish coats shall be applied. If only the finish coat is damaged, the finish coat shall be applied.

All Hold Points and specifications are applicable to the repair of damaged areas and areas concealed by containment.

(e) Field Connections.

- (1) Waiver of Certifications. For applications of shop painting and field assembly, the Contractor may request that the Engineer waive the requirements for NACE certification and SSPC-QP 1 certification for the necessary field painting of the bolted connection areas. Requests will be reviewed on a case-by-case basis and will only be considered on projects with limited amounts of required field painting such as diaphragm and cross frame connections. If the Engineer grants the request, all other requirements for certifications, inspections, quality control, supplying inspection equipment, hold points, etc. will remain in effect.

- (2) Surface Cleaning for Hardware. The requirements of this part shall apply when the Contract requires installation of bolts that are to be painted. This work shall occur after bolt tensioning has been completed. All exposed oils, lubricants, and wax on the bolts, nuts, washers, and surrounding surfaces to be painted shall be completely removed by solvent cleaning. This also includes any foreign material that has come out of the DTIs during the tensioning process. Light hand wire brushing or scrubbing with bristle brushes is allowed. Use of power tools is not allowed.

For galvanized hardware, the Contractor shall remove the colored lubricant from the nuts. The galvanizer may be able to provide information to the Contractor on the most effective solvent cleaner to remove the colored lubricant (common examples include methyl-ethyl-ketone (MEK), foaming glass cleaners containing ammonia, and foaming alkaline-type household cleaners). It is not necessary to remove 100% of the dye, and it is acceptable for some staining to remain after cleaning. A white cloth wipe test with no color transfer can be used to confirm that all lubricant and non-absorbed dye has been removed, leaving only the residual stain on the surface. The final cleanliness shall be acceptable to the Engineer.

- (f) Grease Coating. When the Contract Plans specify that any steel surfaces are to be grease coated, all work shall be performed in accordance with Subsection 708.04.

Grease rustproofing compound shall be uniformly applied in a single coat by brush or spray at an approximate rate of 20 ft<sup>2</sup>/gal to the steel as specified. This shall occur after all concrete form work has been removed, and after the final coat of paint, including repairs, has fully cured. A fully cured condition has occurred when a thumbnail driven into the coating surface does not leave an impression and when a thumb firmly pushed against the surface and twisted does not disturb the coating.

Surfaces adjacent to areas being grease coated shall be protected against over-spray. Non-metallic and stainless steel surfaces shall not be coated.

506.24 METHOD OF MEASUREMENT, subpart (a), is hereby modified by deleting subparts (4), (5), (6), (7), and (8) and replacing them with the following:

- (4) All welding shall be considered as incidental work to the fabrication, and no measurement will be made for the weight of weld metal used.
- (5) The weight of permanent shop and field bolts, nuts, direct tension indicators, and washers incorporated into the structure and temporary erection bolts, nuts, and washers shall be incidental to the Structural Steel item and no measurement will be made for weight of the bolts, nuts, direct tension indicators, and washers.

506.25 BASIS OF PAYMENT is hereby modified by being deleted in its entirety and replaced with the following:

506.25 BASIS OF PAYMENT. The accepted quantity of Structural Steel will be paid for at the Contract Unit Price per pound for the items specified in the Contract. Payment will be full compensation for furnishing, detailing, handling, transporting, and placing the materials specified, including nondestructive testing of welds; for preparing the surface of new steel to be painted, galvanized, metalized, or to remain unpainted; for necessary field cleaning; and for painting, metalizing, sealing, galvanizing, or grease coating of surfaces, unless otherwise paid for. Payment will also be full compensation for furnishing and implementing the erection plan, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment for Structural Steel on a lump sum basis will be full compensation for performing all work specified and for furnishing all labor, materials, tools, equipment, erection plans, and incidentals necessary to complete the work.

The Engineer may authorize progress payments in the following manner:

- (a) A maximum of 15% of the estimated quantity may be paid when the Fabrication Drawings are approved for fabrication.
- (b) A maximum of 75% of the estimated quantity may be paid when the steel has been entirely completed and accepted per the approved Fabrication Drawings, stored in a location and manor accepted by the Structural Steel Fabrication Engineer, and all applicable material certifications have been approved.
- (c) A maximum of 90% of the estimated quantity may be paid when the steel has been erected, falsework removed, and painting of connections, and “touch-up” completed where required.
- (d) After completion and acceptance of all work under this Section, including extended weights being received and checked, 100% of the quantity will be paid.

All nondestructive testing and required quality control activities will be considered incidental to fabrication, and no separate payment will be made.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
506.50 Structural Steel, Rolled Beam.....	Pound
506.55 Structural Steel, Plate Girder .....	Pound
506.56 Structural Steel, Curved Plate Girder.....	Pound
506.57 Structural Steel, Truss.....	Pound
506.60 Structural Steel.....	Pound
506.75 Structural Steel.....	Lump Sum

### SECTION 510 – PRESTRESSED CONCRETE

510.02 MATERIALS is hereby modified by inserting the following entry into the material subsection list in numerical order:

Portland-Limestone Cement .....701.06

510.02 MATERIALS is hereby further modified by deleting the entry in the subsection list for “Overhead and Vertical Concrete Repair Material.....780.02” and replacing it with the following:

Concrete Repair Material, Type I .....780.01(a)

510.06 INSPECTION is hereby modified by deleting the second paragraph, which begins with “The inspector shall be provided...” and ends with “...the production area as practicable.”, in its entirety and replacing it with the following:

The Inspector shall be provided with a minimum office space of 100 square feet with the least dimension of 6 feet. A desk surface with minimum of two drawers, as well as dedicated private telephone and internet services, shall be provided to the laboratory. The phone and internet service shall be provided in accordance with Subsection 631.02(a)(4), except that approval by the Engineer is not required. Any variances shall be approved by the Structural Concrete Engineer. This office space shall be located on the premises as close to the production area as practicable.

510.12 GROUT, subpart (b), is hereby modified by deleting the phrase “requirements of Subsection 707.03(c)(1) and Subsection 707.03(c)(3).” from the fifth paragraph and replacing it with the phrase “requirements of Subsection 707.03(a)(1) and Subsection 707.03(a)(3).”

### SECTION 516 – EXPANSION DEVICES

516.02 MATERIALS is hereby modified by deleting the entry for “Asphalt Plug Bridge Joint.....707.15” from the subsection list and replacing it with the following:

Asphaltic Plug Joints for Bridges .....707.15

516.02 MATERIALS is hereby further modified by deleting the entry in the subsection list for “Epoxy Bonding Compound.....719.02” and replacing it with the following:

Epoxy Bonding Systems.....719.02

516.02 MATERIALS is hereby modified by deleting the entry for “Metalizing .....726.09” from the material list.

516.04 FABRICATION is hereby modified by deleting the phrase “or metalized” from the third paragraph.

516.05 INSTALLATION is hereby modified by deleting the last two sentences of the third paragraph, which begin with “Prior to the placement...” and end with “... with the manufacturer’s recommendations.” and replacing them with the following:

Prior to the placement of the concrete, all steel surfaces that will be embedded in concrete shall be coated with an epoxy bonding system. Application of the epoxy bonding system shall be done in accordance with the manufacturer’s recommendations.

516.08 BASIS OF PAYMENT is hereby modified by deleting the phrase “epoxy bonding compound” from the second sentence of the first paragraph and replacing it with “epoxy bonding system.”

### SECTION 519 – SHEET MEMBRANE WATERPROOFING

519.02 MATERIALS is hereby modified by being deleted in its entirety and replaced with the following:

519.02 MATERIALS. Materials shall meet the requirements of the following Subsections:

Waterproofing Membrane System, Type I .....726.11(a)

Waterproofing Membrane System, Type II .....726.11(b)

Spray applied membranes shall be a Waterproofing Membrane System, Type I, and torch applied membranes shall be a Waterproofing Membrane System, Type II.

#### SECTION 524 – JOINT SEALER

524.02 MATERIALS is hereby modified by deleting the entry for “Asphalt Plug Bridge Joint.....707.15” from the material list and replacing it with the following:

Asphaltic Plug Joints for Bridges .....707.15

#### SECTION 525 – BRIDGE RAILINGS

525.04 FABRICATION, subpart (a), is hereby modified by deleting the second sentence, which reads “Railing shall be fabricated in a plant approved by the Structures Engineer.” in its entirety.

#### SECTION 529 – REMOVAL OF STRUCTURES AND BRIDGE PAVEMENT

529.03 REMOVAL OF BRIDGE PAVEMENTS is hereby modified by being deleted in its entirety and replaced with the following:

529.03 REMOVAL OF BRIDGE PAVEMENTS. The removal of pavement on bridges shall include the removal of bituminous concrete material, and, when a new waterproofing membrane is included in the Contract or as directed by the Engineer, the removal of sealants or membranes. When not otherwise specified, sealants or membranes shall remain in place.

If removal is by milling, work shall be done in accordance with the requirements of Section 210. Removal methods shall be subject to the approval of the Engineer and shall be such as to prevent any damage to the remaining surface.

Any necessary deck repair will be paid for as shown on the Plans, except damage caused by Contractor’s negligence shall be repaired at the Contractor’s expense.

529.05 METHOD OF MEASUREMENT is hereby modified by adding “, sealants, and membranes” immediately after the phrase “bituminous pavements” in the first sentence of the first paragraph.

#### SECTION 531 – BRIDGE BEARING DEVICES

531.04 FABRICATION, subpart (a), is hereby modified by deleting the first paragraph, which begins with “Material furnished under this Section...” and ends with “... must satisfy the requirements of Subsection 506.03.” in its entirety and replacing it with the following:

General. Material furnished under this section shall conform to all applicable provisions of Section 506.

531.04 FABRICATION, subpart (a), is hereby further modified by deleting the third paragraph, which reads “All corners and edges of steel plates shall be ground to a 1/16 inch radius.” in its entirety.

## SECTION 540 – PRECAST CONCRETE

540.02 MATERIALS is hereby modified by inserting the following entry into the material subsection list in numerical order:

Portland-Limestone Cement .....701.06

540.02 MATERIALS is hereby further modified by deleting the entry for “Sheet Membrane Waterproofing, Preformed Sheet.....726.11” from the subsection list and replacing it with the following:

Waterproofing Membrane System, Type III.....726.11(c)

540.02 MATERIALS is hereby further modified by deleting the entry in the subsection list for “Overhead and Vertical Concrete Repair Material.....780.02” and replacing it with the following:

Concrete Repair Material, Type I .....780.01(a)

540.02 MATERIALS is hereby modified by inserting the following entry into the material subsection list in numerical order:

Concrete Repair Material, Type II .....780.01(b)

540.06 INSPECTION is hereby modified by deleting the second paragraph, which begins with “The inspector shall be provided...” and ends with “...the production area as practicable.”, in its entirety and replacing it with the following:

The Inspector shall be provided with a minimum office space of 100 square feet with the least dimension of 6 feet. A desk surface with minimum of two drawers, as well as dedicated private telephone and internet services, shall be provided to the laboratory. The phone and internet service shall be provided in accordance with Subsection 631.02(a)(4), except that approval by the Engineer is not required. Any variances shall be approved by the Structural Concrete Engineer. This office space shall be located on the premises as close to the production area as practicable.

540.10 INSTALLATION, subpart (c), is hereby modified by deleting the phrase “requirements of Subsection 726.11.” from the fifth paragraph and replacing it with the phrase “requirements of Subsection 726.11(c).”

540.11 GROUT, subpart (b), is hereby modified by deleting the phrase “requirements of Subsection 707.03(c)(1) and Subsection 707.03(c)(3).” from the fifth paragraph and replacing it with the phrase “requirements of Subsection 707.03(a)(1) and Subsection 707.03(a)(3).”

540.12 POST-TENSIONING is hereby modified by deleting the phrase “requirements of Subsection 510.12(b).” from the second paragraph and replacing it with the phrase “requirements of Subsection 540.11(b).”

540.14 BASIS OF PAYMENT, subpart (b), is hereby modified by deleting the word “prestressed” and replacing it with the word “precast”.

#### SECTION 541 – STRUCTURAL CONCRETE

541.02 MATERIALS is hereby modified by inserting the following entry into the material subsection list in numerical order:

Portland-Limestone Cement .....701.06

541.04 BATCHING, subpart (b), is hereby modified by deleting “Dedicated private telephone and internet services shall be provided to the laboratory. The internet connection shall have a minimum download capacity of 3 Mbps without utilizing compression algorithms and the bandwidth speed shall be verified using an online speed test.” from the third paragraph and replacing it with the following:

Dedicated private telephone and internet services shall be provided to the laboratory in accordance with Subsection 631.02(a)(4), except that approval by the Engineer is not required.

541.07 WEATHER AND TEMPERATURE LIMITATIONS – PROTECTION OF CONCRETE, subpart (b)(7), is hereby modified by deleting the fourth paragraph, which begins with “A thermometer shall be employed...” and ends with “... concrete and enclosure temperatures at varying locations.” in its entirety and replacing it with the following:

A thermometer shall be employed that can display the current ambient temperature with a maximum gradation of 1°F. The Inspector will use the thermometer to take periodic temperature measurements of the enclosure at varying locations.

The Contractor shall provide a hand-held infrared thermometer capable of taking no-contact measurements that is accurate within plus or minus 2% of the reading. The thermometer’s accuracy shall be certified once every 12 months, with the certificate provided with each thermometer.

#### SECTION 543 – CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE

543.04 SUBMITTALS is hereby modified by deleting the first paragraph, which begins with “As soon as practical after award...” and ends with “...submitted as separate submittals”, in its entirety and replacing it with the following:

As soon as practical after award of the Contract, all required information shall be prepared and submitted. Fabrication Drawings and erection plans shall be submitted as separate submittals.

#### SECTION 544 – PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE

544.02 MATERIALS is hereby modified by being deleted in its entirety and replaced with the following:

544.02 MATERIALS. Materials shall meet the material requirements specified in Subsection 501.02, Subsection 506.02, Subsection 507.02, Subsection 508.02, and the following subsections:

Concrete Repair Material, Type I .....	780.01(a)
Concrete Repair Material, Type II .....	780.01(b)
Concrete Repair Material, Type III.....	780.01(c)

#### SECTION 580 – STRUCTURAL CONCRETE REPAIR

580.02 MATERIALS is hereby modified by being deleted in its entirety and replaced with the following:

580.02 MATERIALS. Materials shall meet the requirements of the following subsections:

Concrete Repair Material, Type I .....	780.01(a)
Concrete Repair Material, Type II .....	780.01(b)
Concrete Repair Material, Type III.....	780.01(c)
Concrete Repair Material, Type IV .....	780.01(d)

Coarse Aggregate for Concrete shall meet the requirements of Table 704.02A.

High Performance Concrete shall meet the applicable requirements of Subsection 501.02 through Subsection 501.19 and Concrete (Class AA, Class A, and Class B) shall meet the applicable requirements of Subsection 541.02 through Subsection 541.19. Where further references in this specification are made to concrete, they shall mean that class or corresponding class of concrete described in the governing concrete specifications.

580.06 PLACING CONCRETE, subpart (a), is hereby modified by deleting the phrase “When Epoxy Bonding Compound” from the first sentence of the first paragraph and replacing it with “When an epoxy bonding system”.

580.06 PLACING CONCRETE, subpart (b), is hereby modified by adding the following as a new second paragraph:

Rapid Setting Concrete Repair Material shall be in accordance with Subsection 780.01(a). Overhead and Vertical Concrete Repair Material shall be in accordance with Subsection 780.01(b). Rapid Setting Concrete Repair Material with Coarse Aggregate shall be in accordance with Subsection 780.01(c). Polymer Concrete Repair Material shall be in accordance with Subsection 780.01(d).

## **DIVISION 600**

### **INCIDENTAL CONSTRUCTION**

#### SECTION 605 – UNDERDRAINS

605.02 MATERIALS is hereby modified by adding the following entry into the subsection list in numerical order:

Geotextile for Underdrain Trench Lining .....720.05

605.02 MATERIALS is hereby further modified by deleting the sentence “Geotextile shall meet the requirements of Table 720.01A for Geotextile for Underdrain Trench Lining.”

605.02 MATERIALS is hereby further modified by deleting subparts (a), (b), (c), and (d) in their entirety and replacing them with the following:

- (a) Corrugated steel
- (b) Corrugated aluminum alloy
- (c) Corrugated polyethylene
- (d) PVC plastic

#### SECTION 617 – MAILBOXES

SECTION 646 – MAILBOXES is hereby modified by being deleted in its entirety and replaced with the following:

#### SECTION 617 – MAILBOXES

617.01 DESCRIPTION. This work shall consist of the removal and relocation of existing mailbox installations to permanent locations, or the removal of existing mailbox installations and replacement with new installations in permanent locations. The work shall include the replacement of any non-conforming mailboxes, supports, or attachment hardware.

617.02 MATERIALS. Materials shall meet the requirements of the following subsections:

Timber Preservative, Type IV .....726.01  
Wood Posts .....750.01(c)

Brackets and platforms shall be made of galvanized steel sheets. Holes shall be neatly punched or drilled.

Fasteners shall be galvanized in accordance with Subsection 726.08 and meet the requirements of *ASTM A 307*.

New mailboxes must meet the approval of the U.S. Postal Service.

617.03 GENERAL. Mailbox installations designated to be removed and reset shall be carefully removed and reinstalled as shown on the Plans. Any minor components (such as hardware, brackets, or lettering) of the existing installation that are missing, damaged, or become damaged during construction shall be replaced with new materials. Materials not reused shall remain the property of the owner.

Mailbox installations designated to be replaced shall be carefully removed. The removed materials shall remain the property of the owner. New mailbox installations shall be constructed and installed as shown on the Plans.

It is the Contractor's responsibility to ensure that each completed relocation has the approval of the mail carrier.

617.04 RELOCATION. Posts may be set in holes or they may be driven if the posts or any attached anti-twist devices are not damaged. The installed posts shall be plumb and placed to the depth shown on the Plans. The space around the posts set in holes shall be backfilled with suitable granular material in 6 inch layers. The backfill material shall be thoroughly tamped.

Mailboxes shall be attached to the posts using either the existing mountings and hardware, or the mountings and hardware shown on the Plans. All fasteners shall be drawn sufficiently tight to ensure that the mailboxes do not pivot or otherwise move.

Existing nameplates shall be attached to any new mailboxes. Names and rural box numbers lettered on existing mailboxes shall be copied onto new mailboxes using good commercial-quality stick-on letters acceptable to the Engineer.

617.05 METHOD OF MEASUREMENT. The quantity of Remove and Reset Mailbox to be measured for payment will be the number of each type (Single or Multiple Support) relocated in the complete and accepted work, as determined by the Engineer.

The quantity of Remove and Replace Mailbox to be measured for payment will be the number of each type (Single or Multiple Support) replaced in the complete and accepted work, as determined by the Engineer.

617.06 BASIS OF PAYMENT. The accepted quantity of Remove and Reset Mailbox of the type specified will be paid for at the Contract unit price for each. Payment will be full compensation for removing the existing mailbox installation, reinstalling the mailbox installation in its permanent location, replacing minor broken or missing components (such as hardware, brackets, or lettering, but excluding posts and the mailbox itself), excavating as necessary, backfill, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

If any major components (such as posts or the mailbox itself) of mailbox installations designated to be reset are missing, damaged, or become damaged during construction, the entire installation will be paid for as Remove and Replace Mailbox.

The accepted quantity of Remove and Replace Mailbox of the type specified will be paid for at the Contract unit price for each. Payment will be full compensation for removing the existing mailbox installation, furnishing all new materials, including mailboxes, supports, brackets, hardware, and lettering, installing the mailbox installation in its permanent location, excavating as necessary, backfill, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Any temporary relocation of mailboxes due to project construction will not be paid under this section. The costs of this temporary work will be considered incidental to other Contract items.

<u>Pay Item</u>	<u>Pay Unit</u>
617.10 Remove and Reset Mailbox, Single Support .....	Each
617.12 Remove and Reset Mailbox, Multiple Support.....	Each
617.15 Remove and Replace Mailbox, Single Support .....	Each
617.17 Remove and Replace Mailbox, Multiple Support.....	Each

#### SECTION 621 – TRAFFIC BARRIERS

621.02 MATERIALS is hereby modified by deleting the entry for “Emulsified Asphalt .....702.04” from the subsection list.

621.07 TEMPORARY TRAFFIC BARRIER is hereby modified by deleting the third, fourth, and fifth sentences of the first paragraph. The deleted text begins with “The type of temporary traffic barrier shall be...” and ends with “...determined as described in the *MASH* publication.”

621.07 TEMPORARY TRAFFIC BARRIER is hereby further modified by adding the following as a new second paragraph.

Temporary Traffic Barrier, and corresponding connections, manufactured prior to January 1, 2020 shall meet Test Level 3 criteria in accordance with *NCHRP Report 350* or *MASH*. Temporary Traffic Barrier, and corresponding connections, manufactured on or after January 1, 2020 shall meet Test Level 3 criteria in accordance with *MASH*. The Contractor shall provide the name of the Temporary Traffic Barrier and current FHWA eligibility letter for the Temporary Traffic Barrier to the Engineer prior to installation. If Temporary Traffic Barrier meeting *NCHRP Report 350* is used, the Contractor shall submit an affidavit certifying that it was manufactured prior to January 1, 2020.

### SECTION 625 – SLEEVES FOR UTILITIES

625.02 MATERIALS is hereby modified by deleting the entry for “Asphalt Plug Bridge Joint.....707.15” from the subsection list and replacing it with the following:

Asphaltic Plug Joints for Bridges .....707.15

625.02 MATERIALS is hereby further modified by deleting the entry for “Well Casing.....741.01” from the subsection list.

### SECTION 630 – UNIFORMED TRAFFIC OFFICERS AND FLAGGERS

630.01 DESCRIPTION is hereby modified by deleting the last sentence, which begins with “Flaggers and UTOs shall conform to...” and replacing it with “Flaggers and UTOs shall conform to the requirements of the Contract Documents and the current edition of the *MUTCD* and its latest revisions.”

630.02 GENERAL, subpart (b), is hereby modified by being deleted in its entirety and replaced with the following:

- (b) Safety Apparel. Traffic control personnel shall wear safety apparel in accordance with the most current edition of the *MUTCD* and its latest revisions. Traffic control personnel deemed to have unsuitable safety apparel by the Engineer shall be considered ineffective and shall be removed.

When operating during nighttime hours, between sunset and sunrise, traffic control personnel shall wear safety apparel meeting or exceeding performance Class 3 requirements of *ANSI/ISEA 107*, including Class E pants or gaiters.

630.04 FLAGGERS is hereby modified by deleting subpart (a) in its entirety and replacing it with the following:

- (a) Requirements. The Contractor shall verify that Flaggers meet the following requirements. Flaggers shall have successfully completed a 4-hour training course taught by a certified instructor within the last 24 months and shall carry proof of training at all times when on the Project. Certified instructors shall have successfully completed one of the following courses:
- (1) Associated General Contractors of VT Traffic Control Technician/Flagger Trainer Course
  - (2) American Traffic Safety Services Association Flagger Instructor Training Course
  - (3) National Safety Council Flagger Instructor Course

SECTION 631 – FIELD OFFICE

631.02 FIELD OFFICES, subpart (a)(4), is hereby modified by deleting the first paragraph, which begins with “Field Offices shall have...” and ends with “...the Field Office for both services.”, in its entirety and replacing it with the following:

Field Offices shall have independent telephone and internet services such that both can be used simultaneously without impacting functionality. The Contractor shall provide the Engineer with a list of all internet services available at the proposed Field Office location and the Engineer will select the service to be provided. In all cases, internet service shall have a minimum download speed of 4 Mbps and a minimum upload speed of 1 Mbps. The specified internet speeds shall be achieved without using compression algorithms. Jacks for connection to internet and telephone services shall be located at each end of the Field Office for both services.

631.06 TESTING EQUIPMENT, BITUMINOUS is hereby modified by adding the following as the fourth and fifth entries in the list of equipment, immediately following “1 Shovel, round-pointed with D-handle”:

- 1 Metal shovel, square-head, 5.5 inch minimum width, with long handle
- 1 Metal spatula, of an appropriate size to clean shovels

631.06 TESTING EQUIPMENT, BITUMINOUS is hereby further modified by adding the following two paragraphs, immediately following “1 Relative humidity pen”:

The Contractor shall provide a non-petroleum asphalt release agent for cleaning the bituminous testing equipment.

The Contractor shall provide 7.5 inch x 7.5 inch x 7.5 inch sampling containers meeting the requirements of *AASHTO R 97*. The number of containers provided shall be sufficient for the quantity of bituminous concrete material installed and the sampling frequency identified in the *Materials Sampling Manual*.

631.08 TESTING EQUIPMENT, GROUT is hereby modified by deleting “1 Set of specimen molds meeting the requirements of *AASHTO T 106 M/T 106*” and replacing it with the following:

Specimen molds meeting the requirements of *AASHTO T 106 M/T 106*. The number of molds shall be sufficient to perform both the acceptance testing required for the contract item and any necessary control of work testing. Each specimen mold shall be capable of producing 3 individual cubes.

631.09 METHOD OF MEASUREMENT is hereby modified by deleting the sentence “Upon entering the cost of the submitted bill into the next biweekly estimate, the Engineer will forward the original paid bill to the Construction Office to be retained with the Project records and will place a copy of the paid bill into the field office records.” in its entirety.

SECTION 641 – TRAFFIC CONTROL

641.02 GENERAL CONSTRUCTION REQUIREMENTS is hereby modified by deleting paragraphs four, five, six and seven in their entirety and replacing them with the following:

- (a) Traffic Control. When the Contract includes the Traffic Control Pay Item, the Plans will contain an Agency-designed traffic control plan. The Contractor may implement the Agency-designed plan or submit an alternate traffic control plan for the Project. When the Contractor will implement an Agency-designed traffic control plan, written certification shall be submitted to the Engineer indicating that traffic control will be performed in accordance with the Agency design. An alternate plan may be for the entire traffic control plan of the Project or for revisions to various phases of the Agency's design in the Plans, including the specific location of the lanes where the traffic will be maintained. Any alternate plan submitted shall conform to the latest edition of the *MUTCD*.

For an alternate traffic control plan, Construction Drawings shall be submitted in accordance with Section 105. The submitted alternative plan shall include complete construction details, including all aspects of traffic control, to the same extent provided in the Agency design. The Contractor shall allow the Agency 30 Calendar Days to Review the proposed plan for Conformance before it is to be implemented.

- (b) Traffic Control, All-Inclusive. When the Contract includes the Traffic Control, All-Inclusive Pay Item, the Contractor shall design and submit a site-specific traffic control plan in accordance with Section 105. The submitted site-specific plan shall include, for each phase of construction requiring a significant change in temporary traffic control, a narrative description of the proposed temporary traffic control for each phase, including pedestrian accommodations where appropriate, and the major work activities to be completed in each phase.

The submitted site-specific plan shall also include a layout for each phase of construction showing existing lane configurations, existing traffic control devices (signs, signals, and pavement markings), driveways, ramps, and highway intersections, and the location of all proposed temporary traffic control devices, Flaggers, and UTOs. All pertinent dimensions, such as taper lengths, sign spacing, temporary lane widths, and distances from existing traffic control devices shall be labeled.

641.03 TRAFFIC CONTROL DEVICES is hereby modified by adding the following as the thirteenth paragraph, immediately following the phrase "each consisting of a maximum of three lines of eight characters.":

Each PCMS unit shall be tamper-resistant. The control cabinet shall be locked when not in use. Each PCMS shall also have a security system that will only allow access if a code or password is entered. The default code or password shall be changed upon deployment of the PCMS by the Contractor. PCMS boards featuring remote access shall also be password protected.

641.07 BASIS OF PAYMENT is hereby modified by being deleted in its entirety and replaced with the following:

641.07 BASIS OF PAYMENT.

- (a) Traffic Control and Traffic Control, All-Inclusive. The accepted quantity of Traffic Control and Traffic Control, All-Inclusive will be paid for at the Contract lump sum price. Payment will be full compensation for designing, preparing, implementing, inspecting, maintaining, and removing the applicable traffic control plan and specified traffic control devices, and for furnishing all labor (including traffic patrol vehicle operators, if used by the Contractor), tools, materials, equipment, and incidentals necessary to complete the work.

Partial payments for Traffic Control and Traffic Control, All-Inclusive will be made as follows:

- (1) The first 15% of the Contract lump sum price will be paid upon receipt of written certification from the Contractor that traffic control will be performed in accordance with the Agency-designed traffic control plan, or upon approval of the Contractor's traffic control plan.
- (2) The remaining 85% of quantity payments will be paid on a prorated basis for the estimated duration of the Contract work remaining.

- (b) Portable Changeable Message Sign and Portable Arrow Board. The accepted quantities of Portable Changeable Message Sign and Portable Arrow Board will be paid for at the Contract Unit Price for each. There will be no payment for any spare units, as they shall be considered incidental to the unit(s) being utilized and paid for through the Contract.

Partial payment for Portable Changeable Message Sign and Portable Arrow Board will be made as follows:

- (1) The first 50% of quantity payments will be made upon the erection of complete Portable Changeable Message Sign(s) and Portable Arrow Board(s) as specified in Subsection 641.06.
- (2) The remaining 50% of quantity payments will be paid on a prorated basis for the estimated duration of the Contract work remaining.

The accepted quantities of Portable Changeable Message Sign Rental and Portable Arrow Board Rental will be paid for at the Contract Unit Price per day. The minimum quantity for payment shall be five days.

Payment for the accepted quantities of Portable Changeable Message Sign, Portable Arrow Board, Portable Changeable Message Sign Rental, and Portable Arrow Board Rental shall be full compensation for furnishing, operating, maintaining, transporting, and installing the unit specified, for removing the unit when it is no longer needed, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

When both Pay Items are in the Contract, a Portable Changeable Message Sign used as a Portable Arrow Board will be paid for at the Contract price for a Portable Arrow Board.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
641.10 Traffic Control .....	Lump Sum
641.11 Traffic Control, All-Inclusive .....	Lump Sum
641.15 Portable Changeable Message Sign .....	Each
641.16 Portable Arrow Board .....	Each
641.17 Portable Changeable Message Sign Rental.....	Day
641.18 Portable Arrow Board Rental.....	Day

#### SECTION 646 – RETROREFLECTIVE PAVEMENT MARKINGS

SECTION 646 – RETROREFLECTIVE PAVEMENT MARKINGS is hereby modified by being deleted in its entirety and replaced with the following:

#### SECTION 646 – RETROREFLECTIVE PAVEMENT MARKINGS

646.01 DESCRIPTION. This work shall consist of furnishing and placing retroreflective markings, including temporary markings, and necessary signing on roadway pavement and other surfaces.

646.02 MATERIALS. Materials shall meet the requirements of the following Subsections:

Polyurea Pavement Markings .....	708.08(a)
Epoxy Paint .....	708.08(b)
Waterborne Paint .....	708.08(c)
Thermoplastic Pavement Markings, Type A.....	708.10(a)
Thermoplastic Pavement Markings, Type B.....	708.10(b)
Line Striping Targets .....	708.12(a)
Pavement Marking Mask .....	708.12(b)
Optics, Type I.....	754.01(a)
Optics, Type II .....	754.01(b)
Optics, Type III.....	754.01(c)

Pavement Marking Tape, Type A .....	754.03(a)
Pavement Marking Tape, Type B .....	754.03(b)
Pavement Marking Tape, Type C .....	754.03(c)

Pavement marking materials furnished shall be the ones shown on the Plans or listed in these Specifications as being acceptable for the Project. The Contractor may submit alternate materials for approval in accordance with Subsection 646.15.

#### 646.03 CLASSIFICATION.

- (a) Optics. Glass beads or composite material incorporated into Waterborne Paint and Liquid Durable Pavement Markings that provide different levels of reflectivity.
- (b) Waterborne Paint. Liquid waterborne based paint binder used in permanent and temporary applications.
- (c) Liquid Durable Pavement Markings. Liquid based binder markings that include Epoxy Paint, Polyurea Paint, and Extruded Thermoplastic.
- (d) Preformed Durable Pavement Markings. Preformed durable pavement markings include Preformed Thermoplastic and Pavement Marking Tape, Type A and Pavement Marking Tape, Type B.
- (e) Temporary Pavement Markings. Temporary pavement markings include Pavement Marking Tape, Type C, Pavement Marking Mask, Line Striping Targets, and Paint.

#### 646.04 GENERAL APPLICATION OF MARKINGS.

- (a) Placement of Markings. Roadway surfaces shall be clean and dry at the time of application of pavement markings. The Engineer will inspect the pavement to determine if conditions are suitable for the placement of markings. The Engineer will check the pavement for cleanliness, moisture content, and temperature; and will check ambient air conditions. The Engineer will make the final determination as to the suitability of Project conditions for the application of pavement markings. Where required, the Contractor shall clean the surface to be marked to the satisfaction of the Engineer to provide for an acceptable bond between the marking and the pavement or surface.

Weather conditions must be adequate to allow the placement and curing of the pavement marking material without violating the manufacturer's requirements.

All markings shall be applied in a neat and professional manner. The lines shall be sharp and clear with no feathered edging or fogging, and precautions shall be taken to prevent tracking by tires of the marking equipment. Adequate quantities of the material shall be applied to assure constant thickness of marking material. Glass beads shall be delivered at a velocity that is at least 60% of ground speed for the application device. Markings shall be applied parallel to the roadway centerline or as shown on the Plans with no unsightly deviations.

After application, markings shall be protected from crossing vehicles for a time at least equivalent to the drying time of the marking material used, according to manufacturer's recommendations. Markings shall be protected from the moment of application until they are sufficiently dry to bear traffic without damage to the marking, tracking, or adhering to vehicle tires.

Any pavement marking materials spilled or tracked on the roadway surfaces shall be removed by the Contractor to the satisfaction of the Engineer and at no additional cost to the Agency. The method of removal shall be acceptable to the Engineer and not injurious to the roadway or other surfaces.

All temporary pavement markings, including line striping targets when used, shall be applied so that at the end of each working day, all centerlines, edge-line, island markings, gore markings, lane lines, special markings, etc. are in place on all paved surfaces where traffic will be maintained. During paving and milling, work shall be scheduled so that the pavement markings are complete immediately after the paving and milling operations cease for the day.

When line striping targets (LSTs) are not shown on the Plans but are used as a short-term substitute for other temporary pavement markings, they shall be placed as directed by the Engineer and will be paid for as the equivalent quantity of temporary pavement marking for which the LSTs are substituted. However, if the Engineer determines it is necessary to replace those temporary LSTs with either more LSTs or the actual temporary pavement markings designated for that particular location, no further payment for the temporary pavement markings at that particular location will be made.

At all times, the Contractor shall have on hand on the Project all necessary materials, equipment, and labor to place any and all necessary interim pavement markings, including temporary line striping targets, required by the Plans or as directed by the Engineer. The markings shall be paid for under the appropriate Contract items.

All permanent markings shall be placed within 14 calendar days of paving the wearing surface. Temporary pavement markings shall be removed concurrent with the placement of permanent pavement markings.

Failure on the part of the Contractor to comply with the provisions of this part of the specifications may be grounds for suspension of biweekly estimate payments for the Contract in accordance with Subsection 105.01(b), until the required work is performed to the satisfaction of the Engineer.

(b) Weather Limitations.

- (1) At the time of application of painted markings, the temperature of the surface to be painted shall be a minimum of 50°F and the ambient air temperature shall be 50°F and rising. Ambient hygrometric conditions required for drying within a 20-minute period shall exist or painting shall be suspended.

At the time of application of durable pavement markings, the pavement surface and ambient air temperatures shall be as per the manufacturer's published specified application temperatures, and the dew point shall be 5°F or more below the ambient air temperature. If the manufacturer's published recommendations are unavailable, the pavement surface and ambient air temperatures shall both be a minimum of 50°F. Durable pavement markings shall be installed in the same calendar year that the wearing course of pavement is placed.

- (2) If weather conditions do not permit the application of durable markings prior to November 15<sup>th</sup>, paint will be applied in accordance with this section and Section 754.
  - (3) When it is in the public interest, the Engineer may authorize the application of pavement markings under conditions that vary from these limitations or the manufacturer's published recommendations.
- (c) Layout and Control. Once the wearing course has been placed, the Engineer will establish the layout for the permanent centerline traffic markings, including passing zones, breaks for town highways and side roads, and any other items required for the centerline markings. The Contractor shall be responsible for laying out all non-centerline markings. The pattern of painted, durable, or temporary markings shall be as follows, unless otherwise shown in the Contract or directed by the Engineer.
- (1) Centerline Markings. Centerline markings shall be positioned at the geometric center of the roads or as shown in the Plans. Solid (barrier) lines and dashed lines shall start and end at points shown on the Plans or as directed by the Engineer. A dashed line shall consist of 10 foot  $\pm$  6 inch line segments, and 30 foot  $\pm$  6 inch spaces. The spacing between a double barrier line and between a barrier line and a dashed line shall be the same width as the lines. The width of centerlines shall be as shown on the Plans,  $\pm$  1/4 inch.
  - (2) Edge Line Markings. Edge line markings shall be applied along both edges of the road, as shown on the Plans or as directed by the Engineer. Edge lines shall be discontinued through intersections of paved public side roads, unless otherwise shown on the Plans. The width of edge lines shall be as shown on the Plans,  $\pm$  1/4 inch.
  - (3) Dotted Line. Dotted lines shall be positioned as shown on the Plans or as directed by the Engineer. A dotted line shall consist of 3 foot  $\pm$  2 inch line segments, and 9 foot  $\pm$  2 inch spaces, unless otherwise specified in the Contract documents. The width of dotted lines shall be as shown on the Plans,  $\pm$  1/4 inch.
  - (4) Control. The Contractor shall provide the necessary horizontal and longitudinal control to keep all longitudinal lines within 2 inches of their designated locations.

In addition, on tangents, the Contractor shall not allow longitudinal lines to vary from either side of a straight line by more than 1 inch in 100 feet.

- (5) Gaps and Overlaps. When applying durable diagonal pavement markings that are to be enclosed within durable long line borders, the Contractor shall apply the diagonals in such a manner as to allow a maximum of a single overlap and no gaps between the diagonals and the long lines.
- (d) Application Equipment. The pavement marking equipment shall meet the approval of the Engineer and shall be maintained in working condition at all times. The pavement marking equipment shall be of standard commercial manufacture of the type capable of satisfactorily applying the designated material at required application temperatures and rates, and in accordance with the manufacturer's recommended application practices.

For long line markings, each machine shall be capable of applying two separate stripes, either solid or dashed, at the same time. Each applicator shall be equipped with satisfactory cutoffs that will apply broken, dashed, or dotted lines automatically.

Each applicator shall have a mechanical bead dispenser that will operate simultaneously with the applicator and distribute the beads in a uniform pattern at the rate specified over the entire surface area of the marking. The bead placement device shall maximize bead embedment in the marking material. Each applicator shall also be equipped with line guides suitable to the Engineer.

Equipment for application shall be mobile and maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc. Equipment shall include adequate process controls to regulate the application of marking materials and maintain required temperatures, pressures, and delivery speed of components in the pavement marking.

The pavement marking equipment shall be operated in accordance with recommendations of the equipment manufacturer, unless otherwise directed by the Engineer. Operating speeds shall be such as to provide uniformity and the specified wet or dry film thicknesses.

The application equipment shall be so constructed as to ensure continuous uniformity in the dimensions of stripes. The applicator shall provide a means for cleanly cutting off stripe ends squarely and shall provide a method of applying dashed and dotted lines. The equipment shall be capable of applying varying widths of traffic markings.

Pavement marking vehicles shall operate in the lane for traffic moving in the same direction; they shall not encroach into the lane for opposing traffic flow. Exceptions to this requirement shall be approved in writing by the Engineer.

Equipment to be used for determining temperature, moisture, and material thickness including, but not limited to, a thermometer and a micrometer are specified in Subsection 631.06.

- (e) Documentation Requirements. The Contractor shall provide to the Agency a written daily installation report of the application for all projects 2 miles or greater in length. The report shall include the following:

- (1) Date of installation report.
- (2) Date and beginning and ending time of application.
- (3) Striping Contractor.
- (4) The highway number, highway name and town name with the beginning and ending reference points.
- (5) Approved mix design number.
- (6) Designation of the marking being applied (LEL – Left Edge Line, REL – Right Edge Line, CL – Centerline, LL – Lane Line).
- (7) Width of marking applied.
- (8) Vendor and product (binder and optics).
- (9) Lot numbers of products used.
- (10) Specific weight of binder lots used in pounds per gallon.
- (11) Weight in pounds and/or volume in gallons of binder used by color.
- (12) Weight in pounds of reflective glass beads/elements used.
- (13) Number of optic drops.
- (14) Optic types per each drop.
- (15) Pavement surface temperature (°F).
- (16) Air temperature (°F).
- (17) Dew point (°F).
- (18) Humidity (percent).
- (19) Dates of retroreflectivity testing.
- (20) Reflectometer model.
- (21) Reflectometer factory calibration date.
- (22) Retroreflectivity testing values.
- (23) Retroreflectivity testing locations.

646.05 PAVEMENT MARKING MIX DESIGN. The Contractor shall submit a pavement marking mix design for liquid durable pavement markings. Any change to the mix design will need to be resubmitted and reviewed for conformance in accordance with the requirements of Section 105. The mix design shall include:

(a) Application.

- (1) Pavement type (e.g. Superpave Type IVS, Bonded Wearing Course Type C)
- (2) Whether the markings are to be surface applied or recessed

(b) Binder.

- (1) Liquid durable type
- (2) Product name
- (3) Thickness in mils
- (4) Color

(c) Optics.

- (1) Optic types
- (2) Product names
- (3) Optic drops
  - a. Number of optic drops
  - b. Drop rates
  - c. Composition of optic drops

(d) Minimum Retroreflectivity Values.

The Contractor shall submit a Letter of Intent a minimum of 14 calendar days prior to the start of production identifying the approved mix designs intended to be used for that particular Contract. Letters of Intent shall be submitted electronically. The Letter of Intent shall include the Contract name and number, pay item numbers, and mix design number. Usage of the mix design on Agency projects will not be authorized without the Letter of Intent being approved by the Engineer.

646.06 WATERBORNE PAINT PAVEMENT MARKINGS.

- (a) Application Requirements. Waterborne paint application shall be in accordance with the manufacturer's recommendations. The material shall be applied in a smooth uniform coat, free from excessively thick or thin film placement.

Liquid tanks on paint application equipment shall be equipped with mechanical agitators. Beads shall be conditioned to provide a smooth uniform rate of release. All materials shall be maintained in the condition recommended by the marking manufacturer prior to and at the time of marking.

- (1) Mil Thickness. The markings shall be applied at a rate to create a uniform wet film in-place minimum thickness as follows, unless otherwise specified in the Contract:
- a. 20 mils for pavement constructed under the same Contract as the markings.
  - b. 15 mils for all other pavement surfaces.
- (2) Retroreflectivity. Optics, Type I shall be uniformly applied across the width of the line at a rate of 8.0 pounds per gallon of paint. The Contractor shall provide the Engineer with the optic drop on rates of all optic materials and daily binder application rates.

646.07 EPOXY PAINT.

- (a) Application Requirements. Epoxy paint application shall be in accordance with the manufacturer's recommendations. Mixing of the epoxy reagents shall be complete prior to the placement of the marking. Failure of the epoxy to set to a hard condition shall be grounds for rejection.

- (1) Mil Thickness. The markings shall be applied at a rate to create a uniform wet film in-place minimum thickness as follows, unless otherwise specified in the Contract:
- a. 25 mils for bonded wearing course constructed under the same Contract as the markings.
  - b. 18 mils for all other pavement surfaces.
- (2) Retroreflectivity.
- a. Surface Applied Application. Initial dry retroreflectivity minimums for surface applied epoxy shall be 300 millicandelas per square meter per lux (mcd/m<sup>2</sup>/lx) for yellow markings and 400 mcd/m<sup>2</sup>/lx for white markings. For surface applied markings, optics shall be applied in either one or two drops. Optics, Type I and/or Optics, Type II reflective media shall be applied at a minimum rate of 12 pounds per gallon.

- b. Recessed Application. Initial dry retroreflectivity minimums for recessed epoxy shall be 400 mcd/m<sup>2</sup>/lx for yellow markings and 600 mcd/m<sup>2</sup>/lx for white markings per *ASTM E 1710*. The wet average initial retroreflectivity of the markings shall be 300 mcd/m<sup>2</sup>/lx for yellow and 375 mcd/m<sup>2</sup>/lx for white per *ASTM E 2177*.

For recessed markings, optics shall be applied in two drops. The first drop shall include Optics, Type III and be applied at a minimum rate of 5 pounds per 100 square feet. The second drop shall be Optics, Type II and be applied at a minimum rate of 8 pounds per gallon.

#### 646.08 POLYUREA.

- (a) Application Requirements. Polyurea paint application shall be in accordance with the manufacturer's recommendations. Mixing of the polyurea reagents shall be complete prior to the placement of the marking. Failure of the polyurea to set to a hard condition shall be grounds for rejection.

- (1) Mil Thickness. Polyurea paint shall be applied at a rate to create a uniform wet film in-place minimum thickness as follows, unless otherwise specified in the Contract:

- a. 25 mils for bonded wearing course constructed under the same Contract as the markings.
- b. 18 mils for all other pavement surfaces.

- (2) Retroreflectivity.

- a. Surface Applied Application. Initial dry retroreflectivity minimums for surface-applied polyurea shall be 300 mcd/m<sup>2</sup>/lx for yellow markings and 400 mcd/m<sup>2</sup>/lx for white markings.

For surface applied markings, optics shall be applied in either one or two drops. Optics, Type I and/or Optics, Type II reflective media shall be applied at a minimum rate of 10 pounds per gallon.

- b. Recessed Application. Initial dry retroreflectivity minimums for recessed polyurea shall be 400 mcd/m<sup>2</sup>/lx for yellow markings and 600 mcd/m<sup>2</sup>/lx for white markings per *ASTM E 1710*. The wet average initial retroreflectivity of the markings shall be 300 mcd/m<sup>2</sup>/lx for yellow and 375 mcd/m<sup>2</sup>/lx for white per *ASTM E 2177*.

For recessed markings, optics shall be applied in two drops. The first drop shall include Optics, Type III and be applied at a minimum rate of 5 pounds per 100 square feet. The second drop shall be Optics, Type II and be applied at a minimum rate of 8 pounds per gallon.

646.09 EXTRUDED THERMOPLASTIC. Extruded thermoplastic markings shall be Thermoplastic Pavement Markings, Type A meeting the requirements of Subsection 708.10. The thermoplastic pavement marking compound shall be extruded onto the pavement surface in a molten state. The temperature of the material shall not exceed the manufacturer's recommended heating temperature or rate of temperature increase. The surface shall be properly prepared for receipt of the marking material, including surface roughness, cleanliness, and moisture levels. The surface shall be primed when the manufacturer's recommendations require priming.

Following an application of glass beads to the marking surface, and upon cooling to normal pavement temperatures, the resultant marking shall be an adherent retroreflective stripe of the specified thickness and width that is capable of resisting deformation by traffic.

- (a) Thermoplastic Application Equipment. Thermoplastic application equipment shall be approved by the Engineer prior to the start of work.

Thermoplastic material shall be applied to the pavement surface by the extrusion method, wherein the bottom of the extrusion shoe is the pavement and the top and other three sides are contained by, or are part of, suitable equipment for maintaining the temperature and controlling the flow of material. The fourth side contains the extrusion opening.

The ribbon extrusion method will not be permitted for the application of extruded thermoplastic material.

The equipment used for the placement of extruded thermoplastic pavement markings shall be of two general types:

- (1) Mobile Applicator Equipment. The mobile applicator shall be defined as truck-mounted equipment designed to apply thermoplastic by the extrusion method. The unit shall be equipped to apply the thermoplastic material at temperatures exceeding 400°F, and at the widths and thicknesses specified herein. The mobile unit shall be capable of operating continuously and/or installing a minimum of 3.8 miles of longitudinal markings in an eight-hour day.

The mobile unit shall be equipped with extrusion shoes and shall be capable of simultaneously marking edge lines and/or two centerline stripes. The extrusion shoes shall be closed, heat-jacketed or suitably insulated units, and shall hold the molten thermoplastic at a temperature between 400°F and 435°F.

The mobile unit shall be capable of extruding a line from 4 inches to 8 inches wide. Material temperature gauges shall be affixed, adjacent to or incorporated in the extrusion shoe, in such a manner as to be visible and capable of monitoring the composition temperature throughout the marking operation.

The mobile unit shall be equipped with an electronic and programmable line pattern control system, or mechanical system, to be capable of applying dashed, dotted, or solid lines in any sequence and through any extrusion shoe in any cycle length.

- (2) Portable Applicator Equipment. The portable applicator shall be defined as hand-operated equipment specifically designed for placing thermoplastic installations such as crosswalks, stop bars, legends, arrows, and short lengths of lane lines, edge lines, and centerlines. The portable applicator shall be capable of applying thermoplastic markings by the extrusion method.

It is intended that the portable applicator will be loaded with hot thermoplastic composition from the melting kettles or that the material will be melted by an integral “melting stack” when so equipped. The portable applicator shall be equipped with all the necessary components, including a material storage reservoir, bead dispenser, extrusion shoe and heating accessories.

The portable applicator shall be capable of holding the molten thermoplastic at a temperature of between 400°F and 435°F, and of extruding a line from 4 inches to 8 inches wide in 2-inch increments.

Material temperature gauges shall be affixed, adjacent to or incorporated in the extrusion shoe, in such a manner as to be visible and capable of monitoring the composition temperature throughout the marking operation. If a machine, as manufactured, cannot be equipped with gauges at the extrusion shoe, the Engineer may approve an alternate method of monitoring the composition temperature at the point of deposition.

- (b) Application Requirements. Bituminous concrete primer shall be applied to pavements older than two years at the application rates and procedures recommended by the thermoplastic material manufacturer. Primer shall be applied under such conditions, at such rates and thicknesses, and of a type as is recommended by the thermoplastic material manufacturer.

- (1) Mil Thickness. All extruded markings shall be applied at the specified width and at a uniform hot film in-place minimum thickness of 105 mils.

- (2) Retroreflectivity.

- a. Surface Applied Application. Initial dry retroreflectivity minimums for surface-applied extruded thermoplastic shall be 300 mcd/m<sup>2</sup>/lx for yellow markings and 400 mcd/m<sup>2</sup>/lx for white markings.

For surface applied markings, optics shall be applied in either one or two drops. Optics, Type I and/or Optics, Type II reflective media shall be applied at a minimum rate of 8 pounds per square foot.

- b. Recessed Application. Initial dry retroreflectivity minimums for extruded thermoplastic shall be 400 mcd/m<sup>2</sup>/lx for yellow markings and 600 mcd/m<sup>2</sup>/lx for white markings per *ASTM E 1710*. The wet average initial retroreflectivity of the markings shall be 300 mcd/m<sup>2</sup>/lx for yellow and 375 mcd/m<sup>2</sup>/lx for white per *ASTM E 2177*.

For recessed markings, optics shall be applied in two drops. The first drop shall include Optics, Type III and be applied at a minimum rate of 5 pounds per 100 square feet. The second drop shall be Optics, Type II and be applied at a minimum rate of 8 pounds per gallon.

- c. Intermix. Optics, Type I meeting the requirements of *AASHTO M 247*, Type I, shall be incorporated into the intermix of the thermoplastic composition at a rate of between 30% and 40% by weight of the combined material.

646.10 PREFORMED THERMOPLASTIC. Preformed thermoplastic markings shall be Thermoplastic Pavement Markings, Type B meeting the requirements of Subsection 708.10.

646.11 PAVEMENT MARKING TAPE.

- (a) Pavement Marking Tape, Type A. Pavement Marking Tape, Type A, when used as a final durable marking, shall be applied in a recess as defined in Subsection 646.13, and shall be applied in accordance with the manufacturer's requirements.
- (b) Pavement Marking Tape, Type B. Pavement Marking Tape, Type B, when used as a final durable marking, shall be applied in a recess as defined in Subsection 646.13, and shall be applied in accordance with the manufacturer's requirements.

646.12 TEMPORARY PAVEMENT MARKINGS. Temporary pavement markings are classified as temporary pavement marking tape (removable), pavement marking mask, line striping targets (LSTs), and waterborne paint. All temporary pavement markings shall be maintained at all times at no additional cost.

Temporary markings on the wearing course of pavement shall be Temporary Pavement Marking Tape or Line Striping Targets. Paint will not be permitted for use as a temporary marking on the wearing course of pavement. Unless otherwise indicated in the Contract, the Contractor may choose any temporary pavement marking types on all pavement surfaces except for the wearing course.

- (a) Pavement Marking Tape, Type C. This tape for pavement markings is classified as temporary and is removable and shall be installed in accordance with the manufacturer's requirements.
- (b) Pavement Marking Mask. Black or other compatible pavement color pavement marking mask is classified as removable. It shall be installed in accordance with the manufacturer's requirements.

- (c) Line Striping Targets. Line striping targets are intended to be substitutes for pavement markings for not longer than 14 Calendar Days. Line striping targets shall be maintained and replaced as needed or as directed by the Engineer, until replaced by another temporary pavement marking or permanent pavement marking. Line striping targets shall be used only in conjunction with “Unsafe to Pass” signs.

Line striping targets of the color shown on the Plans or directed by the Engineer shall be installed as described below or as directed by the Engineer.

For solid longitudinal pavement markings, line striping targets shall be placed at 10-foot intervals. For double centerline markings, line striping targets shall be paired. For dashed pavement markings, line striping targets shall be placed in groups of three spaced at 5 feet, with the groups separated by 30-foot spaces, or as determined by the Engineer.

Line striping targets shall not be used to delineate passing zones on two-lane non-divided highways.

Line striping targets shall be installed in accordance with the manufacturer’s requirements. Line striping targets shall not be nailed to the surface.

Line striping targets in conjunction with “Unsafe to Pass” signs shall be used on wearing courses of pavement prior to applying durable markings. Permanent markings shall be placed within 14 Calendar Days of the date the segment of wearing course pavement is placed.

“Unsafe to Pass” signs shall be erected prior to traffic traveling through the work zone. The signs shall be erected on each side of the road 1000 feet into the Project limits, and subsequent signs placed at 2 mile intervals.

- (d) Waterborne Paint. Temporary waterborne paint applied on the base or intermediate courses of pavement shall have a minimum thickness of 8 mils. Optics, Type I shall be applied at a rate of 3 pounds per gallon of paint.

All paint used for temporary markings shall be held to the same alignment and horizontal control standards as specified in Subsection 646.04.

#### 646.13 OTHER RELATED MARKINGS.

- (a) Pavement Marking Recess. Recessed pavement markings shall be installed as specified for permanent markings. The recess shall be a uniform depth across the width of the marking. The recess shall be controlled such that the depth meets the requirements of Table 646.13A.

TABLE 646.13A – PAVEMENT MARKING RECESS DEPTH

Marking Material	Recess Depth (mils)
Thermoplastic	140 – 160
Polyurea	90 –110
Epoxy	90 –110
Permanent tape	As recommended by the manufacturer

The bottom of the recess shall have a smooth, flat finished surface. The use of gang-stacked diamond cutting blades or polycrystalline diamond (PCD) is required for asphalt pavement surfaces. The spacers between blade or PCD cuts shall be such that there will be less than a 10 mil rise in the finished groove between the blades.

Recesses shall be clean, dry, and free of laitance, oil, dirt, grease, paint, or any other foreign contaminants prior to application of the pavement markings. The Contractor shall re-clean grooves, as necessary, prior to application of any primer or permanent markings. Depth plates shall be provided by the Contractor to assure that desired groove depth is achieved.

- (b) Painted Curbs and Islands. Where a painted curb or painted island is called for, the existing curb or island shall be blast cleaned or wire brushed to remove scale, dirt, grass, etc. to the satisfaction of the Engineer, prior to painting. This cleaning work will not be paid for directly, but will be considered incidental to the Contract Item Painted Curb or Painted Island.

Paint shall be applied at a rate of 100 to 115 square feet per gallon with glass beads applied at a rate of 6 pounds per gallon. All paint shall be applied within the manufacturer's allowable application temperatures.

Waterborne paint shall be applied by a method in which the liquid material is applied to the curb or island surface and the glass beads are immediately applied to the material and firmly embedded therein, and which shall provide a retroreflective marking, with a night visibility satisfactory to the Engineer. The material shall have a minimum wet film thickness of 15 mils, unless otherwise specified, and be applied in a smooth, uniform coat, free from thin areas or excessively thick films.

Optics, Type I shall be applied uniformly over the entire painted surface area at the specified rate.

646.14 SUBSTITUTION OF MARKING MATERIALS. If the durable markings cannot be placed under suitable environmental conditions, paint shall be applied as specified in Subsection 646.06 at no cost to the Agency. Where it can be determined that through no fault of the Contractor the durable markings cannot be applied under suitable environmental conditions, paint may be applied for durable marking of the types indicated on the Plans where appropriate and as directed by the Engineer.

Regardless of the circumstance under which paint is applied after an unsuitable environmental condition determination, durable markings of the types indicated on the Plans shall be applied as soon as suitable environmental conditions permit during the following spring. These durable markings shall be measured and paid for in accordance with Subsection 646.17 and Subsection 646.18.

646.15 ALTERNATE MARKING MATERIALS. If the Contractor wishes to use pavement markings or markers that are not specified in this Section, the Contractor shall submit samples, technical data, installation instructions and, if applicable, removal instructions to the Engineer for approval at least 30 Calendar Days before the date the markings or markers are to be placed.

The Engineer, after consultation with the Materials Manager, will approve or disapprove the use of the submitted products within the 30 Calendar Day period. The Contractor should be prepared to place approved markings on the proper date, even if the submittal is disapproved.

646.16 REMOVAL OF EXISTING PAVEMENT MARKINGS. Existing markings shall be obliterated in such a manner and by such means that a minimum of pavement scars are left and all the existing markings are removed, e.g. by grinding a square or rectangle on the pavement to remove a letter or arrow, or grinding a large rectangle to remove a word so that the outline of the letter, symbol, or word is not ground into the pavement and therefore still legible even though the marking has been removed. Painting over existing markings is not an acceptable method of removal.

The work shall be completed to the satisfaction of the Engineer. Masking of lines in intermediate duration activities shall be completed according to the Plans or as directed by the Engineer.

646.17 METHOD OF MEASUREMENT. The quantity of pavement marking edge lines and centerlines of the types and sizes specified to be measured for payment will be the number of linear feet applied in the complete and accepted work, as measured along the centerline of the pavement stripe. The number of linear feet of open spaces in a dashed or dotted line will not be measured for payment. Temporary pavement markings shall be installed on the pavement and removed in accordance with Subsection 646.04.

The quantity of Waterborne Paint Pavement Markings of the types and sizes specified per Subsection 646.14 through no fault of the Contractor and applied on the Project to be measured for payment will be the quantity determined per the measure for the Durable Pavement Marking specified, multiplied by a factor of 1.5 to determine the accepted quantity for payment.

The quantity of Stop Bar of the type specified to be measured for payment will be the number of linear feet applied in the complete and accepted work, as measured along the centerline of the pavement stripe. The quantity of Letter or Symbol of the type specified to be measured for payment will be the number of each unit applied in the complete and accepted work.

A unit will consist of one letter or one symbol. For example, the six-letter word "SCHOOL" would be measured as six units and a handicapped symbol would be measured as one unit. For arrow symbols, each arrow symbol and associated stem shall be paid as one unit.

The quantity of Crosswalk Marking of the type specified to be measured for payment will be the number of linear feet applied from curb-to-curb in the complete and accepted work, as measured along the center of the crosswalk.

The quantity of Railroad Crossing Symbol of the type specified to be measured for payment will be the number of each unit applied in the complete and accepted work. A unit will consist of three “stop bars,” two “Rs,” and one “X” for one traffic lane in one direction of travel.

The quantity of Line Striping Targets to be measured for payment will be the number of individual targets installed on the pavement and removed in accordance with Subsection 646.04.

The quantity of Painted Curb to be measured for payment will be the number of linear feet applied in the complete and accepted work, as measured along the centerline of the pavement stripe.

The quantity of Painted Island to be measured for payment will be the number of square feet of the top of an island painted in the complete and accepted work.

The quantity of Removal of Existing Pavement Markings to be measured for payment will be the number of square feet of markings removed or total area in square feet of symbol or letter removed in the complete and accepted work, as determined by the Engineer.

The quantity of Pavement Marking Mask to be measured for payment will be the number of square feet of existing marking masked in the complete and accepted work.

646.18 BASIS OF PAYMENT. The accepted quantity of Pavement Marking edge lines and centerlines of the types and sizes specified will be paid for at the Contract Unit Prices per linear foot.

The accepted quantity of Waterborne Paint Pavement Markings of the types and sizes specified per Subsection 646.06 and measured for payment will be paid for at the corresponding Contract Unit Prices for Temporary Pavement Markings.

The accepted quantity of Stop Bar of the type specified will be paid for at the Contract Unit Price per linear foot.

The accepted quantity of Letter or Symbol of the type specified will be paid for at the Contract Unit Price per each unit.

The accepted quantity of Crosswalk Marking of the type specified will be paid for at the Contract Unit Price per linear foot.

The accepted quantity of Railroad Crossing Symbol of the type specified will be paid for at the Contract Unit Price per each unit.

The accepted quantity of Painted Curb will be paid for at the Contract Unit Price per linear foot.

The accepted quantity of Painted Island will be paid for at the Contract Unit Price per square foot.

Payment will be full compensation for furnishing, transporting, handling, assembling, and placing the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

The Contract Unit Price for recessed pavement marking items will also include all labor, equipment, tools, and incidentals necessary for the placement of the recess and any necessary cleaning, drying, or conditioning of the recess prior to placement of the marking.

The Contract Unit Price for liquid pavement marking items shall include all costs associated with Optics, Type I; Optics, Type II; and Optics, Type III. Reflective media will not be paid for directly, but will be considered incidental to the pavement marking items in the Contract.

The Contract Unit Price for temporary pavement markings, including tape, paint, and line striping targets, as specified in Subsection 646.12 shall include all costs for maintaining marking capability for interim pavement markings, and all costs for removal.

The accepted quantity of Line Striping Targets will be paid for at the Contract Unit Price for each. Payment will be full compensation for furnishing; transporting; handling; installing and removing the LSTs; installing and removing “Unsafe to Pass” signs, posts, and sleeves; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Line Striping Targets replaced at the direction of the Engineer within the first 14 Calendar Days shall be paid for at the Contract Unit Price for each. If Line Striping Targets remain in place on the roadway for longer than 14 Calendar Days, no payment will be made for the Contract Item Line Striping Targets.

The accepted quantity of Removal of Existing Pavement Markings will be paid for at the Contract Unit Price per square foot. Payment will be full compensation for removing the markings and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

The accepted quantity of Pavement Marking Mask will be paid for at the Contract Unit Price per square foot. Payment will be full compensation for obliterating existing markings with a masking material, for removing the masking material when it is no longer required as directed by the Engineer, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

The Contractor is responsible for supplying necessary materials and equipment recommended by the manufacturer to determine the surface moisture condition of the pavement. The costs for supplying this material and equipment are paid for under the appropriate Contract Item specified in Section 631.

Payment will be made under:

Waterborne Paint Pavement Markings:

<u>Pay Item</u>	<u>Pay Unit</u>
646.200 to 646.209 4 Inch White Line .....	Linear Foot
646.2100 to 646.2119 4 Inch Yellow Line .....	Linear Foot
646.2140 to 646.2149 6 Inch White Line .....	Linear Foot
646.2150 to 646.2159 6 Inch Yellow Line .....	Linear Foot
646.220 to 646.229 8 Inch White Line .....	Linear Foot
646.230 to 646.239 8 Inch Yellow Line .....	Linear Foot
646.240 to 646.249 12 Inch White Line .....	Linear Foot
646.250 to 646.259 12 Inch Yellow Line .....	Linear Foot
646.260 to 646.269 24 Inch Stop Bar .....	Linear Foot
646.300 to 646.309 Letter or Symbol .....	Each
646.310 to 646.319 Crosswalk Marking .....	Linear Foot
646.320 to 646.329 Railroad Crossing Symbol .....	Each

Durable Pavement Markings:

<u>Pay Item</u>	<u>Pay Unit</u>
646.400 to 646.409 Durable 4 Inch White Line .....	Linear Foot
646.410 to 646.419 Durable 4 Inch Yellow Line .....	Linear Foot
646.420 to 646.429 Durable 6 Inch White Line .....	Linear Foot
646.430 to 646.439 Durable 6 Inch Yellow Line .....	Linear Foot
646.440 to 646.449 Durable 8 Inch White Line .....	Linear Foot
646.450 to 646.459 Durable 8 Inch Yellow Line .....	Linear Foot
646.460 to 646.469 Durable 12 Inch White Line .....	Linear Foot
646.470 to 646.479 Durable 12 Inch Yellow Line .....	Linear Foot
646.480 to 646.489 Durable 24 Inch Stop Bar .....	Linear Foot
646.490 to 646.499 Durable Letter or Symbol .....	Each
646.500 to 646.509 Durable Crosswalk Marking .....	Linear Foot
646.510 to 646.519 Durable Railroad Crossing Symbol .....	Each

Temporary Pavement Markings:

<u>Pay Item</u>	<u>Pay Unit</u>
646.600 to 646.605 Temporary 4 Inch White Line .....	Linear Foot
646.610 to 646.615 Temporary 4 Inch Yellow Line .....	Linear Foot
646.620 to 646.625 Temporary 6 Inch White Line .....	Linear Foot
646.630 to 646.635 Temporary 6 Inch Yellow Line .....	Linear Foot
646.640 to 646.645 Temporary 8 Inch White Line .....	Linear Foot

646.650 to 646.655	Temporary 8 Inch Yellow Line.....	Linear Foot
646.660 to 646.665	Temporary 12 Inch White Line .....	Linear Foot
646.670 to 646.675	Temporary 12 Inch Yellow Line .....	Linear Foot
646.680 to 646.685	Temporary 24 Inch Stop Bar.....	Linear Foot
646.690 to 646.695	Temporary Letter or Symbol.....	Each
646.700 to 646.705	Temporary Crosswalk Marking .....	Linear Foot
646.710 to 646.715	Temporary Railroad Crossing Symbol.....	Each
646.76	Line Striping Targets.....	Each

Other Related Markings:

<u>Pay Item</u>	<u>Pay Unit</u>
646.81 Painted Curb .....	Linear Foot
646.82 Painted Island .....	Square Foot

Marking Removal:

<u>Pay Item</u>	<u>Pay Unit</u>
646.85 Removal of Existing Pavement Markings .....	Square Foot
646.86 Pavement Marking Mask .....	Square Foot

SECTION 649 – GEOTEXTILE FABRIC

649.02 MATERIALS is hereby modified by being deleted in its entirety and replaced with the following:

649.02 MATERIALS. Materials shall meet the requirements of the following Subsections:

Geotextile for Roadbed Separator.....	720.02
Geotextile Under Railroad Ballast.....	720.03
Geotextile Under Stone Fill .....	720.04
Geotextile for Underdrain Trench Lining.....	720.05
Geotextile for Filter Curtain.....	720.06

Geotextiles shall conform to the following:

- (a) Where sewn seams are used, the Contractor shall furnish the manufacturer's wide strip tensile test results as part of the certification. The results must verify that the seam meets or exceeds the specified average minimum roll values for the grab tensile strength of the geotextiles, or wide strip tensile strength for reinforcement applications.

- (b) Field seams, where used, shall be in accordance with the manufacturer's recommendations.

SECTION 653 – EROSION PREVENTION AND SEDIMENT CONTROL

653.02 MATERIALS is hereby modified by inserting the following entries into the subsection list in numerical order:

Geotextile Under Stone Fill .....720.04  
Geotextile for Silt Fence .....720.07

653.02 MATERIALS is hereby further modified by deleting the phrase “Geotextile Under Stone Fill shall be in accordance with Section 720 and Table 720.01A. Geotextile for Silt Fence shall be in accordance with Section 720 and Table 720.01A.”

653.03 EPSC PLAN, subpart (a), is hereby modified by inserting the following as the third sentence of the first paragraph:

When an EPSC Plan is not included in the Contract, the Contractor shall meet the requirements of the *VTrans Erosion Prevention and Sediment Control Plan Contractor Checklist (Non-Jurisdictional Projects)*.

653.08 RUNOFF CONTROL MEASURES is hereby modified by deleting the first paragraph of Subsection 653.08(a)(1) in its entirety and replacing it with the following:

Check Dam, Type I. Check Dam, Type I shall be placed in channels and on Geotextile Under Stone Fill meeting the requirements of Subsection 720.04.

653.08 RUNOFF CONTROL MEASURES is hereby further modified by deleting Subsection 653.08(b)(1) and Subsection 653.08(b)(2) in their entirety and replacing them with the following:

- (1) Silt Fence, Type I. Silt Fence, Type I shall be constructed of posts and Geotextile for Silt Fence meeting the requirements of Subsection 720.07.
- (2) Silt Fence, Type II. Silt Fence, Type II shall be constructed of posts, Geotextile for Silt Fence meeting the requirements of Subsection 720.07, and woven wire reinforcement.

653.09 TREATMENT MEASURES is hereby modified by deleting the second paragraph of Subsection 653.09(a), beginning with “Stabilized Construction Entrances shall be constructed of stone...”, in its entirety and replacing it with the following:

Stabilized Construction Entrances shall be constructed of stone meeting the requirements of Subsection 704.17 and shall be placed on top of Geotextile Under Stone Fill meeting the requirements of Subsection 720.04.

653.09 TREATMENT MEASURES is hereby further modified by deleting the third paragraph of Subsection 653.09(b)(1), beginning with “Stake and fabric devices...”, in its entirety and replacing it with the following:

Stake and fabric devices shall be constructed of Geotextile for Silt Fence meeting the requirements of Subsection 720.07 and stakes approved by the Engineer.

653.09 TREATMENT MEASURES is hereby further modified by deleting the second paragraph of Subsection 653.09(b)(3), beginning with “Inlet Protection Device, Type III shall be constructed of Aggregate...”, in its entirety and replacing it with the following:

Inlet Protection Device, Type III shall be constructed of Aggregate for Erosion Prevention and Sediment Control and shall be placed on top of Geotextile Under Stone Fill meeting the requirements of Subsection 720.04.

653.17 BASIS OF PAYMENT is hereby modified by deleting the last sentence of the second paragraph and replacing it with the following:

Payment will not be made unless a report for the monitoring is submitted to the Engineer within 7 calendar days of the date of the inspection. Payment will not be made until the report has been accepted by the Engineer.

## SECTION 675 – TRAFFIC SIGNS

675.02 MATERIALS is hereby modified by deleting the entry for “Paint for Traffic Signs.....708.06” from the material list.

675.07 TRAFFIC SIGNS, subpart (b), is hereby modified by deleting subpart (2) in its entirety and replacing it with the following:

- (2) Flat Sheet Aluminum. Fabrication of the flat aluminum sheets, including cutting to size, shall be completed prior to degreasing, etching, or treating, and application of the retroreflective sheeting. Flat sheet aluminum may be sheared, blanked, sawed, or milled. No flame cutting will be permitted. Field drilling or punching of holes will be allowed as needed.

675.07 TRAFFIC SIGNS is hereby further modified by adding the following as the second and third sentences of subpart (d), immediately after the sentence beginning “Signs shall be mounted as tightly to the posts, frame, or...”:

For permanent installations of Type A signs to frames or posts, a nylon-insert locking nut and two washers shall be used. For all sign types, if bolts are used for mounting, the installed bolt shall be at least flush with the nut.

SECTION 677 – OVERHEAD TRAFFIC SIGN SUPPORTS

677.03 GENERAL is hereby modified by adding the sentence “Field verification testing for Direct Tension Indicators is not required.” immediately following the sentence “High-Strength Bolts, Nuts, and Washers shall be tensioned in accordance with Subsection 506.19.”

SECTION 678 – TRAFFIC CONTROL SIGNALS

678.09 ERECTION OF POSTS AND POLES is hereby modified by adding the sentence “Field verification testing for Direct Tension Indicators is not required.” immediately following the sentence “High-Strength Bolts, Nuts, and Washers shall be tensioned in accordance with Subsection 506.19.”

SECTION 679 – STREET LIGHTING

679.02 MATERIALS is hereby modified by deleting the entry for “Bracket Arms.....753.04” from the subsection list.

679.02 MATERIALS is hereby further modified by inserting the following entries into the subsection list in numerical order:

Bracket Arms, Aluminum.....753.04(a)  
Bracket Arms, Steel .....753.04(b)

679.05 BRACKET ARMS is hereby modified by deleting the first sentence of the Subsection and replacing it with the following:

Bracket arms shall be free of defects and burrs. Bracket arms shall be able to withstand a vertical load of 100 pounds and a horizontal load of 50 pounds without fracture or permanent deformation and shall be installed as shown in the Contract Documents.

Bracket arms installed on aluminum posts shall be in accordance with Subsection 753.04(a). Bracket arms installed on steel or wood posts shall be in accordance with Subsection 753.04(b).

SECTION 680 – TRAVEL INFORMATION SIGNS

680.02 MATERIALS is hereby modified by deleting the entry in the subsection list for “Aggregate for Bituminous Surface Treatment.....704.11” and replacing it with the following:

Drainage Aggregate .....704.16

680.02 MATERIALS is hereby further modified by deleting the entry for “Paint for Traffic Signs.....708.06” from the subsection list.

680.06 INFORMATION PLAZAS is hereby modified by deleting the word “peastone” from the last sentence of the second paragraph and replacing it with the phrase “drainage aggregate”.

SECTION 690 – FUEL PRICE ADJUSTMENT

SECTION 690 – THIS SECTION RESERVED is hereby modified by being deleted in its entirety and replaced with the following:

SECTION 690 – FUEL PRICE ADJUSTMENT

690.01 DESCRIPTION. This Specification contains price adjustment provisions for fuel used by the Contractor during construction. For the purposes of this Specification, it is assumed that all fuel used is diesel fuel. This price adjustment clause will provide for either additional compensation to the Contractor, or a payment to the Agency, based upon changes in the retail price of fuel between the time of bidding and the time when the work was performed.

690.02 GENERAL REQUIREMENTS AND CONDITIONS. Fuel Price Adjustment (FPA) will be performed in accordance with the following requirements and conditions:

- (a) Fuel price adjustment will only be performed as specified herein for Pay Items listed in Table 690.02A or identified in the Project Special Provisions. No other adjustments will be allowed.

TABLE 690.02A – FUEL USAGE FACTORS AND THRESHOLD QUANTITIES

Work Category	Eligible Pay Item Numbers	Fuel Usage Factor (F <sub>FU</sub> )	Threshold Quantity
Earth Excavation	203.15, 203.17, 203.20, 203.25, 203.27, 204.20, 204.25, 208.30	0.319 gal/CY	40,000 CY
Aggregates Paid for by the Cubic Yard	203.35, 204.30, 301.15, 301.25, 301.26, 301.35, 401.10	0.558 gal/CY	25,000 CY
Aggregates Paid for by the Ton	301.28, 402.12, 629.54	0.413 gal/ton	30,000 tons
Cold Mixed Recycled Bituminous Pavement	415.20	0.140 gal/SY	95,000 SY
Bituminous Concrete Pavement	406.25, 406.27, 406.35, 406.36	2.827 gal/ton	5,000 tons
Bonded Wearing Course	407.15	0.115 gal/SY	115,000 SY

- (b) It shall be understood by the Contractor that a price adjustment increase may cause the Agency to decrease the quantities of the Pay Items subject to adjustment under these provisions. Provisions providing for decreased quantities and item cancellation in this paragraph are separate and take precedence, notwithstanding any other provisions of the Contract.
- (c) No price adjustment will be computed for work performed after the Contract completion date, as modified by Change Order, if applicable.
- (d) Fuel price adjustment will only be computed for a Pay Item if all of the following criteria are met:
- (1) The Pay Item is included in the original awarded Contract. Items added by Change Order will not be subject to FPA.
  - (2) The Pay Item is listed in Table 690.02A, or is identified as being subject to FPA in the Project Special Provisions.
  - (3) The original awarded Contract bid quantity for the Pay Item (being the total bid quantity across all Projects in the Contract) equals or exceeds the threshold quantity specified in Table 690.02A. Pay Items which have a Contract bid quantity that is less than the threshold quantity will not be subject to FPA, even if the quantity of the item is later increased by Change Order.

- (e) Any increase in the total Contract amount due to FPA will not be justification for an extension of time under Subsection 108.11.
- (f) In such cases that estimated quantities are used to determine estimated FPA throughout the duration of the Contract, reconciliation of those estimated adjustments will be made upon the determination of actual final quantities and final adjustments to the total final quantity made by prorating those estimated adjustments over the applicable fuel price adjustment periods previously paid. Reconciliation of any FPA will only be performed in those instances where the actual final quantity differs by more than five percent from the total estimated quantity. Payments owed to either the Contractor or VTrans will not be subject to any applicable interest claims.

#### 690.03 PRICE ADJUSTMENT PROCEDURES.

- (a) Prior to advertising for bids, an Index Price (IP) per gallon of diesel fuel will be established by the Agency using the retail price reported by the Energy Information Administration (EIA) for the New England Region. The index price will be set monthly using the first EIA posting falling either on or after the first Calendar Day of that month. This price is specified elsewhere in the Contract and will be the basis from which fuel price adjustments are computed.
- (b) For the duration of the Contract, the Posted Price (PP) for diesel fuel will be established monthly by the Agency. The posted prices will be established in the same manner as the index price and may be found on the Agency website.
- (c) The index price, posted prices, fuel usage factors and the quantity of the item will be used to determine the amount of adjustment required. The posted price used to calculate the adjustment will be the price for the month in which the work was performed.

690.04 METHOD OF MEASUREMENT. Payment for Price Adjustment, Fuel will be based upon the quantity of fuel incorporated in the work, as determined by the fuel usage factors given in Table 690.02A, and will be computed as follows:

- (a) Calculate the ratio of the posted price to the index price using the following equation.

$$R = \frac{PP_F}{IP_F}$$

where:

$R$  = Ratio of the posted price to the index price

$PP_F$  = Posted price of fuel for the month the work was performed (dollars/gallon)

$IP_F$  = Index price of fuel (dollars/gallon)

- (b) Calculate the quantity of fuel price adjustment using the appropriate equation below.

For  $R \leq 0.95$

$$PA_F = F_{FU} \times Q \times [PP_F - (0.95 \times IP_F)]$$

For  $0.95 < R < 1.05$

$$PA_F = 0$$

For  $R \geq 1.05$

$$PA_F = F_{FU} \times Q \times [PP_F - (1.05 \times IP_F)]$$

where:

$R$  = Ratio of the posted price to the index price

$PA_F$  = Price Adjustment, Fuel (lump units)

$F_{FU}$  = Fuel usage factor (gallon/unit)

$Q$  = Quantity of the item placed in the month (varying units)

$PP_F$  = Posted price of fuel for the month the work was performed (dollars/gallon)

$IP_F$  = Index price of fuel (dollars/gallon)

If multiple items are eligible for price adjustment, the price adjustment for each individual item will be calculated and the resulting values summed to generate one price adjustment for the month.

690.05 BASIS OF PAYMENT. The Contract bid prices for the applicable Pay Items will be paid under the Contract. Payment for Price Adjustment, Fuel will be debited or credited against the Contract price (lump unit) for Price Adjustment, Fuel.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
690.50 Price Adjustment, Fuel (N.A.B.I.) .....	Lump Unit

## **DIVISION 700**

### **MATERIALS**

#### SECTION 701– HYDRAULIC CEMENT

SECTION 701 – HYDRAULIC CEMENT is hereby modified by being deleted in its entirety and replaced with the following:

#### SECTION 701 – HYDRAULIC CEMENT

701.01 GENERAL REQUIREMENTS. Hydraulic cement shall meet the following general requirements.

The Contractor shall provide suitable means for storing and protecting the cement against dampness. Cement which, for any reason, has become partially set or which contains lumps or is caked shall be rejected.

Storage of Hydraulic Cement shall be by the brand, type, and mill. Cements of different brands and types or from different mills shall not be mixed.

701.02 PORTLAND CEMENT. Portland Cement shall conform to the requirements of *AASHTO M 85*, Type II and *ASTM C 150/C 150 M*, Type II, unless otherwise shown on the Plans or directed by the Engineer.

701.04 HIGH EARLY-STRENGTH PORTLAND CEMENT. High Early-Strength Portland Cement shall conform to the requirements of *AASHTO M 85*, Type III and *ASTM C 150/C 150 M*, Type III.

701.05 PORTLAND-POZZOLAN CEMENT. Portland-Pozzolan Cement shall conform to the requirements of *AASHTO M 240 M/M 240* and *ASTM C 595/C 595 M*, Type IP, except that the pozzolan constituent shall not be less than 20% of the total mass (weight) of the Portland-pozzolan cement.

701.06 PORTLAND-LIMESTONE CEMENT. Portland-Limestone Cement shall conform to the requirements of *AASHTO M 240/M240 M* and *ASTM C 595/C 595 M*, Type IL.

701.07 PORTLAND BLAST-FURNACE SLAG CEMENT. Portland Blast-Furnace Slag Cement shall conform to the requirements of *AASHTO M 240 M/M 240* and *ASTM C 595/C 595 M*, Type IS, except that for concrete mixes complying with Table 541.03A, the slag constituent shall not be less than 25% of the total mass (weight) of the Portland Blast-Furnace Slag Cement.

701.08 TERNARY BLENDED CEMENT. Ternary Blended Cement shall conform to the requirements of *AASHTO M 240 M/M 240* and *ASTM C 595/C 595 M*, Type IT.

SECTION 702 – BITUMINOUS MATERIALS

702.06 APPLICATION TEMPERATURE RANGES is hereby modified by deleting Table 702.06A in its entirety and replacing it with the following:

TABLE 702.06A – EMULSIFIED ASPHALT APPLICATION TEMPERATURE RANGES

Emulsified Asphalt Type	Temperature Range (°F)		Temperature Range (°C)	
	Spray	Mix	Spray	Mix
	Min. – Max.	Min. – Max.	Min. – Max.	Min. – Max.
RS-1	70 – 170	--	21 – 77	--
RS-2, CRS-1	120 – 160	--	49 – 71	--
CRS-2	140 – 175	--	60 – 79	--
RS-1h, CRS-1h	70 – 170	--	21 – 77	--
SS-1h, CSS-1h	75 – 130	50 – 130	24 – 54	10 – 54
MS-2h, CMS-2h	--	75 – 140	--	24 – 60

702.07 ANTI-STRIP ADDITIVES is hereby modified by being deleted in its entirety and replaced with the following:

702.07 ANTI-STRIP ADDITIVES. Anti-strip additives shall be capable of improving the bonding properties of the performance-graded asphalt binder to the aggregates in the presence of moisture and shall also be capable of reducing film stripping.

- (a) General. The anti-strip additive used in performance-graded asphalt cement shall be heat stable for all temperature ranges prescribed for such performance-graded asphalt cement. The anti-strip additive shall not alter the material properties nor change the grade of the performance-graded asphalt cement. The anti-strip additive shall be capable of thorough dispersion in the asphalt cement and be capable of remaining in the asphalt cement, in storage, and at temperatures specified for the mix, without losing its effectiveness. The percentage of anti-strip additive included in the mixture shall be as recommended by the anti-strip additive manufacturer.
- (b) Performance Requirements. Bituminous concrete mixtures containing anti-strip additive shall demonstrate no loss of adhesion of the performance-graded asphalt cement to the aggregate when tested in accordance with *ASTM D 3625*.

SECTION 704 – AGGREGATES

704.01 FINE AGGREGATE FOR CONCRETE, subpart (b), is hereby modified by being deleted in its entirety and replaced with the following:

- (b) Organic Impurities. Fine aggregate for concrete shall have an Organic Plate Number of two or less as determined in accordance with *AASHTO T 21*.

704.10 AGGREGATE FOR BITUMINOUS CONCRETE PAVEMENT, subpart (a), is hereby modified by inserting “If granite or quartzite aggregates are used, the requirements specified in Subsection 704.15 shall apply.” as the second sentence of the first paragraph.

704.10 AGGREGATE FOR BITUMINOUS CONCRETE PAVEMENT, subpart (a), is hereby further modified by deleting the reference to “*ASTM C 295/C 295 M (Modified)*” from the end of the sentence that begins with “Manufactured sand may be substituted for...” and replacing it with “*AASHTO T 304*”.

704.10 AGGREGATE FOR BITUMINOUS CONCRETE PAVEMENT, subpart (a)(3), is hereby modified by deleting the reference to “*ASTM D 5821*” from the end of the sentence that begins with “When crushed gravel is used as coarse aggregate in Marshall bituminous...” and replacing it with “*AASHTO T 335*”.

704.10 AGGREGATE FOR BITUMINOUS CONCRETE PAVEMENT, subpart (a)(3)a., is hereby modified by deleting “Measurement is made using test method *ASTM D 5821, Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate.*” and replacing it with “Measurement is made using test method *AASHTO T 335.*”

704.10 AGGREGATE FOR BITUMINOUS CONCRETE PAVEMENT, Table 704.10D, is hereby modified by deleting the fifth row, which contains information on percent of wear, in its entirety.

704.11 AGGREGATE FOR BITUMINOUS SURFACE TREATMENT is hereby modified by being deleted in its entirety and replaced with the following:

704.11 THIS SUBSECTION RESERVED.

704.15 QUARTZITE OR GRANITE AGGREGATE USED IN PAVEMENTS is hereby modified by being deleted in its entirety and replaced with the following:

704.15 QUARTZITE OR GRANITE AGGREGATE USED IN PAVEMENTS. The Agency has identified the potential for loss of adhesion between performance-graded asphalt cement and granite and quartzite aggregates used in the production of bituminous concrete pavement.

- (a) General. Loss of adhesion between performance-graded asphalt cement and aggregate is commonly referred to as “stripping.” Anti-strip additives meeting the requirements of Subsection 702.07 may be used to reduce the potential for loss of adhesion between performance-graded binder and aggregate.

- (b) Testing Procedures. Bituminous concrete mixtures containing monomineralic (a rock consisting essentially of one mineral) quartzite or granite aggregates shall demonstrate no loss of adhesion of the performance-graded asphalt cement to the aggregate when tested in accordance with *ASTM D 3625*. *ASTM D 3625* test results shall be submitted with any bituminous concrete mix design that utilizes monomineralic quartzite or granite aggregate sources in accordance with the latest bituminous concrete mix design submittal policy.
- (c) Production Testing Procedures. To identify any change in stripping potential between the asphalt cement and the monomineralic quartzite or granite aggregate, any bituminous concrete mixture containing monomineralic quartzite or granite aggregate shall be tested in accordance with *ASTM D 3625* by the Contactor each week it is being produced. These weekly tests will be observed by Agency staff to verify that the mix does not exhibit stripping.

704.20 PROCESSED GLASS AGGREGATE is hereby made a new subsection of the specifications as follows:

704.20 PROCESSED GLASS AGGREGATE. Materials used to produce processed glass aggregate (PGA) shall consist of recycled glass food or beverage containers. PGA materials listed on the Agency's *Approved Products List* shall meet the following requirements:

- (a) Grading. PGA shall be a crushed and screened material meeting the grading requirements of Section 5.2 and 5.5 of *AASHTO M 318*.
- (b) Deleterious Content. Small amounts (less than 5% total) of china dishes, ceramics, plate (window or mirror) glass, or other glass products will be allowed in PGA. The PGA material shall not contain more than trace amounts of screw tops, plastic cap rings, or other contaminants. Amounts of contaminants greater than 1% by weight shall be grounds for rejection of the entire PGA batch.
- (c) Hazardous Materials. Glass cullet shall be free of TV or other cathode ray tubes, fluorescent lightbulbs, and shall not meet the definition of hazardous waste as defined by the *Resource Conservation and Recovery Act (RCRA)*, State, or local jurisdiction. Glass containers containing, or having contained, toxic or hazardous materials will not be allowed, and, when present, shall be grounds for rejecting the entire stockpile of PGA or PGA blends.
- (d) Process Control. PGA materials shall be subjected to process control testing. Process control tests shall be performed at a minimum frequency of one test per 2,500 cubic yards of material produced by a stable process and shall demonstrate conformance with the requirements of Subsection 704.20(a), Subsection 704.20(b), and Subsection 704.20(c). A copy of each test result shall be made available to the Engineer upon request.

704.21 RECYCLED CONCRETE AGGREGATE is hereby made a new subsection of the specifications as follows:

704.21 RECYCLED CONCRETE AGGREGATE. Recycled concrete aggregate (RCA) shall consist of recycled concrete that has been crushed. RCA materials listed on the Agency's *Approved Products List* shall meet the requirements of *AASHTO M 319* and the following exceptions:

- (a) Grading. RCA shall be crushed to aggregate dimensions of 6 inches or less.
- (b) Deleterious Content. Small amounts of brick, block or mortar may be present in the RCA at a level not to exceed a total of 5% by weight. The RCA material shall not contain more than trace amounts of wire, steel or plastic that were associated with the original placement of the concrete, bituminous material, or unreacted cementitious materials. No additional wire, steel or plastic may be added to the RCA. No discernable amounts of oils, fats, soaps, surfactants, or organic contaminants shall be present in the RCA.
- (c) Hazardous Materials. The recycled concrete aggregate shall not meet the definition of hazardous waste as defined by the *Resource Conservation and Recovery Act (RCRA)*, State, or local jurisdiction. Concrete structures used to contain hazardous materials will not be allowed, and, when present, shall be grounds for rejection of the entire stockpile of RCA or RCA blends.
- (d) Process Control. RCA materials shall be subjected to process control testing. Process control tests shall be performed at a minimum frequency of one test per 2,500 cubic yards of material produced by a stable process and shall demonstrate conformance with the requirements of Subsection 704.21(a), Subsection 704.21(b), and Subsection 704.21(c). A copy of each test result shall be made available to the Engineer upon request.

#### SECTION 706 – STONE FOR MASONRY, RIPRAP, AND OTHER PURPOSES

706.06 ROCK FILL FOR GABIONS is hereby modified by being deleted in its entirety and replaced with the following:

706.06 THIS SUBSECTION RESERVED.

#### SECTION 707 – JOINT MATERIALS

707.01 MORTAR, TYPE I, subpart (a), is hereby modified by adding “or Subsection 701.06.” to the end of the first sentence.

707.14 PREFORMED JOINT FILLER, Table 707.14A, is hereby modified by deleting the reference to “*AASHTO T 42*” from the third column.

707.15 ASPHALTIC PLUG JOINTS FOR BRIDGES is hereby modified being deleted in its entirety and replaced with the following:

707.15 ASPHALTIC PLUG JOINTS FOR BRIDGES. Asphaltic Plug Joints for Bridges shall be single and/or multiple layer systems consisting of asphaltic binder, aggregate, closed cell foam expansion joint filler, and steel bridging plate, as applicable. Asphaltic Plug Joints shall be in accordance with *ASTM D 6297* and shall be one of the products listed on the Agency's *Approved Products List*.

707.17 ASPHALTIC PLUG JOINT BINDER is hereby made a new subsection of the specifications as follows:

707.17 ASPHALTIC PLUG JOINT BINDER. Asphaltic Plug Joint Binder shall be a thermoplastic polymeric-modified asphalt in accordance with *ASTM D 6297* and shall be one of the products listed on the Agency's *Approved Products List*.

#### SECTION 708 – PAINTS, STAINS, AND TRAFFIC MARKING MATERIALS

708.03 APPROVED STRUCTURAL COATING SYSTEMS is hereby modified by being deleted in its entirety and replaced with the following:

708.03 STRUCTURAL STEEL COATING SYSTEMS. Acceptable structural steel coating systems shall be one of the systems listed on the Agency's *Approved Products List*, listed on the *NEPCOAT Qualified Products List B*, and shall meet the following requirements:

- (a) System. The structural steel coating system shall be a three-coat system with a prime, intermediate, and top coat. Components of different systems shall not be intermixed.
- (b) Color. Individual coats shall have contrasting colors. The finish color of the top coat shall be green, black, or brown as specified in the Contract Documents, and shall conform to *SAE AMS-STD 595* for the respective chip number as specified in Table 708.03A.

TABLE 708.03A – COLORS FOR STRUCTURAL COATING SYSTEMS

Color	Chip Number
Green	14062
Black	27038
Brown	20059

Damage to structural steel coating systems shall be repaired with a compatible structural steel coating system as specified herein.

708.06 PAINT FOR TRAFFIC SIGNS is hereby modified by being deleted in its entirety and replaced with the following:

708.06 THIS SUBSECTION RESERVED.

708.08 PAINT FOR PAVEMENT MARKINGS is hereby modified by adding the following two rows to Table 708.08C, immediately after the row for “Close cup flash point”.

Viscosity	<i>ASTM D 562</i>	78 Krebs min./ 95 Krebs max.	78 Krebs min./ 95 Krebs max.
Dry Time	<i>ASTM D 711</i>	10 minutes max	10 minutes max.

708.09 OPTICS is hereby modified by being deleted in its entirety and replaced with the following:

708.09 THIS SUBSECTION RESERVED.

SUBSECTION 708.11 PAVEMENT MARKING TAPE is hereby modified by being deleted in its entirety and replaced with the following:

708.11 THIS SUBSECTION RESERVED

708.12 TEMPORARY DELINEATION SYSTEMS is hereby modified by being deleted in its entirety and replaced with the following:

708.12 TEMPORARY DELINEATION SYSTEMS.

- (a) Line Striping Targets. Acceptable Line Striping Targets shall be one of the Line Striping Targets on the Agency’s *Approved Products List*.
- (b) Pavement Marking Mask. Acceptable Pavement Marking Mask shall be one of the Masking Marking Tapes on the Agency’s *Approved Products List*.

#### SECTION 710 – CULVERTS, STORM DRAINS, AND SEWER PIPES, NONMETAL

710.03 CORRUGATED POLYETHYLENE PIPE is hereby modified by being deleted in its entirety and replaced with the following:

710.03 CORRUGATED POLYETHYLENE PIPE. CPEP shall be evaluated in accordance with the NTPEP HDPE pipe work plan and in compliance with the NTPEP audit program for thermoplastic pipe. CPEP shall be one of the products listed on the Agency’s *Approved Products List* for the respective material specification.

- (a) Corrugated Polyethylene Pipe, Unlined.

- (1) Small Diameter. CPEP, Unlined, with a nominal diameter of 3 inches to 10 inches, inclusive, shall be in accordance with *AASHTO M 252*, Type C.
  - (2) Large Diameter. CPEP, Unlined, with a nominal diameter of 12 inches to 60 inches, inclusive, shall be in accordance with *AASHTO M 294*, Type C.
- (b) Corrugated Polyethylene Pipe, Smooth Lined.
- (1) Small Diameter. CPEP, Smooth Lined, with a nominal diameter of 3 inches to 10 inches, inclusive, shall be in accordance with *AASHTO M 252*, Type S.
  - (2) Large Diameter. CPEP, Smooth Lined, with a nominal diameter of 12 inches to 60 inches, inclusive, shall be in accordance with *AASHTO M 294*, Type S.
- (c) Corrugated Polyethylene Pipe, Perforated. CPEP, Perforated shall be in accordance with *AASHTO M 252*, Type CP or Type SP.

Large diameter CPEP may be virgin, recycled materials, or a blend of both in accordance with *AASHTO M 294*.

710.07 CORRUGATED POLYPROPYLENE PIPE is hereby modified by being deleted in its entirety and replaced with the following:

710.07 CORRUGATED POLYPROPYLENE PIPE. CPPP shall be evaluated in accordance with the NTPEP polypropylene pipe work plan and in compliance with the NTPEP audit program for thermoplastic pipe. CPPP shall be one of the products listed on the Agency's *Approved Products List* for the respective material specification.

- (a) Corrugated Polypropylene Pipe, Unlined. CPPP, Unlined shall be in accordance with *AASHTO M 330*, Type C.
- (b) Corrugated Polypropylene Pipe, Smooth Lined. CPPP, Smooth Lined shall be in accordance with *AASHTO M 330*, Type S.

#### SECTION 711 – CULVERTS, STORM DRAINS, AND SEWER PIPES, METAL

711.02 CORRUGATED ALUMINUM ALLOY PIPE, PIPE ARCHES, AND UNDERDRAINS, subpart (a)(2)c., is hereby modified by deleting the phrase “requirements of Subsection 711.01(a)(2)c.” and replacing it with the phrase “requirements of Subsection 711.01(a)(1)c.”

## SECTION 712 – CRIBBING MATERIALS

712.04 GABION BASKETS is hereby modified by being deleted in its entirety and replaced with the following:

712.04 THIS SUBSECTION RESERVED.

## SECTION 713 – REINFORCING STEEL, STRAND, AND WELDED WIRE REINFORCEMENT

713.04 COLD DRAWN STEEL WIRE is hereby modified by deleting the reference to “*AASHTO M 32 M/M 32*” and replacing it with “*AASHTO M 336 M/M 336*”.

713.05 WELDED WIRE REINFORCEMENT is hereby modified by deleting the phrase “*AASHTO M 55 M/M 55* or *AASHTO M 221 M/M 221*” and replacing it with “*AASHTO M 336 M/M 336*”.

## SECTION 714 – STRUCTURAL STEEL

714.01 GENERAL REQUIREMENTS is hereby modified by deleting the second sentence of the first paragraph, which begins with “All main load carrying members...” and ends with “...fracture critical steel, for Zone 2.” and replacing it with “All main load carrying members and components of rolled or welded sections subject to tensile stress or the reversal of stresses, as well as any other members or components identified in the Contract as requiring CVN testing, shall meet the longitudinal Charpy V-Notch impact requirements specified in *AASHTO M 270 M/M 270*, Supplementary Requirement tables for non-fracture critical steel and fracture critical steel, for Zone 2.”

714.01 GENERAL REQUIREMENTS is hereby further modified by deleting the second paragraph in its entirety. The deleted text begins with “Main members are...” and ends with “...as main load carrying members.”

714.05 HIGH-STRENGTH BOLTS, NUTS, AND WASHERS is hereby modified by deleting the first sentence in its entirety and replacing it with the following:

High-strength bolts shall conform to the requirements of *ASTM F 3125/F 3125 M*, Grade A 325, including rotational capacity testing, for each lot of fasteners.

714.05 HIGH-STRENGTH BOLTS, NUTS, AND WASHERS is hereby further modified by deleting the word “painted” from the first sentence of the second paragraph and replacing it with the word “coated”.

714.06 HEAT-TREATED STEEL STRUCTURAL BOLTS is hereby modified by deleting the first sentence of the first paragraph in its entirety and replacing it with the following:

Heat-treated steel structural bolts shall conform to the requirements of *ASTM F 3125/F 3125 M*, Grade A 490, including rotational capacity testing, for each lot of fasteners.

714.06 HEAT-TREATED STEEL STRUCTURAL BOLTS is hereby further modified by deleting the second sentence of the second paragraph in its entirety and replacing it with the following:

The combination of bolt, nut, and washer shall be coated in accordance with *ASTM F 3125/F 3125 M*.

714.10 WELDED STUD SHEAR CONNECTORS is hereby modified by deleting the phrase “*ANSI/AWS D1.5*, and *ASTM A 29/A 29 M*.” and replacing it with the phrase “and *AASHTO/AWS D1.5*.”

#### SECTION 719 – EPOXY RESIN MATERIALS

SECTION 719 – EPOXY RESIN MATERIALS is hereby modified by being deleted in its entirety and replaced with the following:

#### SECTION 719 – EPOXY RESIN MATERIALS

719.02 EPOXY BONDING SYSTEMS. Epoxy Bonding Systems shall be a Grade and Class adhesive conforming to the requirements of *AASHTO M 235/M 235 M*. Systems shall be evaluated in accordance with the NTPEP Epoxy and Resin Based Adhesive Bonding Systems workplan, be one of the products listed on the Agency’s *Approved Products List*, and meet the following requirements:

- (a) Epoxy Bonding System, Type IV. Type IV systems shall conform to the requirements of *AASHTO M 235/M 235 M* for Type IV adhesives. Type IV systems shall be for use in load-bearing applications for bonding hardened concrete to hardened concrete and other materials and as a binder for epoxy mortars and concretes.
- (b) Epoxy Bonding System, Type V. Type V systems shall conform to the requirements of *AASHTO M 235/M 235 M* for Type V adhesives and shall bond freshly mixed concrete to steel. Type V systems shall be for use in load-bearing applications for bonding freshly mixed concrete to hardened concrete and freshly mixed concrete to steel.
- (c) Epoxy Bonding System, Type VI. Type VI systems shall conform to the requirements of *AASHTO M 235/M 235 M* for type VI adhesives. Type VI systems shall be for bonding and sealing segmental precast elements, as in segment-by-segment erection and for span-by-span erection when temporary post tensioning is applied.

Elongation at break will not be required.

## SECTION 720 – GEOTEXTILES

SECTION 720 – GEOTEXTILES is hereby modified by being deleted in its entirety and replaced with the following:

## SECTION 720 – GEOTEXTILES

720.01 GENERAL. Geotextiles shall be evaluated in accordance with the NTPEP geotextiles work plan and in compliance with the NTPEP audit program for geotextiles. Geotextiles shall be one of the products listed on the Agency's *Approved Products List* for the respective material specification.

720.02 GEOTEXTILE FOR ROADBED SEPARATOR. Geotextile for Roadbed Separator shall conform to *AASHTO M 288*, Table 1, Class 1 for Geotextile Strength Property Requirements, and shall conform to *AASHTO M 288*, Table 3 for Separation Geotextile Property Requirements.

720.03 GEOTEXTILE UNDER RAILROAD BALLAST. Minimum Average Roll Values (MARV) for Geotextile Under Railroad Ballast shall be as required in Table 720.03A.

TABLE 720.03A – MARV FOR GEOTEXTILE UNDER RAILROAD BALLAST

Geotextile Property	Test Method	MARV
Elongation Criteria at Failure <sup>1</sup>	<i>ASTM D 4632/ D4632 M</i>	≥ 50%
Grab Strength (lbs)	<i>ASTM D 4632/ D4632 M</i>	225
Tear Strength (lbs)	<i>ASTM D 4533/ D 4533 M</i>	115
Puncture Strength (lbs)	<i>ASTM D 6241</i>	850
Permittivity (s <sup>-1</sup> )	<i>ASTM D 4491/ D 4491 M</i>	0.70
Apparent Opening Size (mm)	<i>ASTM D 4751</i>	0.212 max. (No. 70 Sieve)
UV Resistance (% Strength Retained)	<i>ASTM D 4355/ D 4355 M</i>	70% at 500 hours of exposure
Structure	--	Nonwoven only

<sup>1</sup> Elongation corresponds to Maximum Grab Tensile Strength as measured in accordance with the requirements of *ASTM D 4632/D 4632 M*.

720.04 GEOTEXTILE UNDER STONE FILL. Geotextile Under Stone Fill shall conform to *AASHTO M 288*, Table 1, Class 1 for Geotextile Strength Property Requirements, and shall conform to *AASHTO M 288*, Table 5 for Stabilization Geotextile Property Requirements. Geotextile structure shall not be slit film.

720.05 GEOTEXTILE FOR UNDERDRAIN TRENCH LINING. Geotextile for Underdrain Trench Lining shall conform to *AASHTO M 288*, Table 1, Class 3 for Geotextile Strength Property Requirements, with a minimum elongation of 20%. Geotextile for Underdrain Trench Lining shall conform to *AASHTO M 288*, Table 2 (> 50% of in situ soil passing the No. 200 (0.075 mm) sieve) for Subsurface Drainage Geotextile Requirements. Geotextile structure shall be nonwoven and shall not be slit film.

720.06 GEOTEXTILE FOR FILTER CURTAIN. Minimum Average Roll Values (MARV) for Geotextile for Filter Curtain shall be as required in Table 720.06A.

TABLE 720.06A – MARV FOR GEOTEXTILE FOR FILTER CURTAIN

Geotextile Property	Test Method	MARV
Elongation Criteria at Failure <sup>1</sup>	<i>ASTM D 4632/ D4632 M</i>	20% max.
Grab Strength (lbs)	<i>ASTM D 4632/ D4632 M</i>	200
Tear Strength (lbs)	<i>ASTM D 4533/ D 4533 M</i>	50
Puncture Strength (lbs)	<i>ASTM D 6241</i>	430
Permittivity (s <sup>-1</sup> )	<i>ASTM D 4491/ D 4491 M</i>	0.28
Apparent Opening Size (mm)	<i>ASTM D 4751</i>	0.212 max. (No. 70 Sieve)
UV Resistance (% Strength Retained)	<i>ASTM D 4355/ D 4355 M</i>	70% at 500 hours of exposure
Structure	--	Woven only

<sup>1</sup> Elongation corresponds to Maximum Grab Tensile Strength as measured in accordance with the requirements of *ASTM D 4632/D 4632 M*.

720.07 GEOTEXTILE FOR SILT FENCE. Geotextile for Silt Fence shall conform to *AASHTO M 288*, Table 8 for Temporary Silt Fence Property Requirements. Geotextile structure shall be woven.

## SECTION 725 – CONCRETE CURING MATERIALS AND ADMIXTURES

725.01 CONCRETE CURING MATERIALS, subpart (d), is hereby modified by being deleted in its entirety and replaced with the following:

- (d) Liquid Membrane-Forming Compounds. Liquid membrane-forming compounds shall be one of the products listed on the Agency's *Approved Products List* and shall meet the following requirements:

- (1) Liquid membrane-forming compounds shall be evaluated in accordance with the NTPEP concrete curing compounds work plan.
- (2) Liquid membrane-forming compounds shall conform to the requirements of *ASTM C 309*, Type 1-D or Type 2, Class B.
- (3) Liquid membrane-forming compounds shall not be allowed to freeze.

725.02 MINERAL ADMIXTURES, subpart (b), is hereby modified by being deleted in its entirety and replaced with the following:

- (a) General Requirements. Non-bulk quantities of chemical admixtures shall be delivered in the manufacturer's original containers marked with the manufacturer's name and product name. Bulk quantities shall be accompanied by a delivery slip indicating both the manufacturer's name and the product name. Chemical admixtures shall be one of the products listed on the Agency's *Approved Products List* for the respective material specification, shall be evaluated in accordance with the NTPEP concrete admixtures work plan, and shall meet the requirements of the respective material specification below.

725.03 CHEMICAL ADMIXTURES, subpart (b), is hereby modified by being deleted in its entirety and replaced with the following:

- (b) Silica Fume. Silica fume shall conform to the requirements of *AASHTO M 307* and be one of the products listed on the Agency's *Approved Products List*. Silica fume shall be delivered in containers clearly labeled with the manufacturer's name, mass (weight) of the silica fume, if densified or undensified, and if wet or dry.

## SECTION 726 – PROTECTIVE COATINGS AND WATERPROOFING MATERIALS

726.08 GALVANIZING is hereby modified by deleting the second sentence, which begins with "Galvanizing that has been damaged...", in its entirety.

726.08 GALVANIZING is hereby further modified by adding the following as a new second paragraph:

Zinc coating that has been damaged shall be repaired in accordance with the requirements of *ASTM A 780/A 780 M*, Annex A2. The paint used in the repair shall be organic rich, containing a minimum of 92% zinc by mass (weight) in the dry film. The paint shall be applied per the manufacturer's recommendations to a thickness equivalent to the surrounding zinc coating.

726.09 METALIZING is hereby modified by being deleted in its entirety and replaced with the following:

726.09 METALIZING. Surfaces to be metalized shall be prepared and coated in accordance with the requirements of *AASHTO/NSBA S8.2/SSPC-PA 18, Specification for Application of Thermal Spray Coating Systems to Steel Bridges*, and the following:

- (a) The coating shall be zinc with a minimum purity of 99.9%.
- (b) All surfaces to be thermal sprayed shall be blast-cleaned to white metal immediately prior to metalizing. The final surface appearance shall be equivalent to Preparation Grade *SSPC-SP 5* supplemented by *SSPC-VIS 1*. All surfaces shall also have a uniform surface profile of 3.5 to 5.5 mils. If the profile requirements of the coating manufacturer are more restrictive, the Fabricator shall advise the Structural Steel Fabrication Engineer and comply with the more restrictive requirements.

The surface profile produced by the Fabricator's surface preparation procedures shall be determined by replica tape and spring micrometer (*ASTM D 4417*, Method C), for each nozzle used at the beginning of the work, and each shift that the surface preparation is performed. The replica tape shall be attached to the daily inspection records. Areas having unacceptable measurements shall be further tested to determine the limits of the deficient area and subsequently corrected to meet specification requirements. Additional profile measurements required by *SSPC-PA 18* shall be performed according to the requirements of *ASTM D 4417*, Method B or Method C.

- (c) Thermal Spray Coating (TSC) shall be applied within six hours of completing blast cleaning. If this time is exceeded, or rust appears on the surface, the steel surface shall be properly prepared again. TSC shall be applied in the thickness range of 8 to 12 mils to all exterior surfaces. Internal surface (e.g. pot bearings) shall have a coating with a minimum thickness of 2 mils.
- (d) Exterior surfaces (except faying surfaces) shall be sealed with an approved sealant conforming to the sealant manufacturer's recommendations for the TSC applied. The sealant name, manufacturer, and product data sheets shall be included with the submittal for the metalizing procedure. Unless otherwise specified in the Contract, a top coat will not be applied over the seal coat, and therefore the seal coat shall be UV-resistant. The dry film thickness of the sealant shall be 1 to 2 mils. The sealant shall be applied within 8 hours of completing the TSC application.
- (e) In addition to the requirements above, the following shall also apply:
  - (1) QA witnessing of Job Reference Standard(s) is required, when applicable
  - (2) Companion coupons shall be used in lieu of destructive testing on the work piece, except when a test failure occurs. If more than one thermal spray equipment setup is to be used in production, the frequency requirements apply to each one.
  - (3) Bend tests shall be performed for each thermal spray unit. The tests shall meet the requirements of *AWS C2.23*.

- (f) Inaccessible areas, as well as metalizing that has been damaged in the field, shall be repaired in accordance with the requirements of Subsection 726.08. The repair coating shall be brush applied.

726.11 WATERPROOFING MEMBRANE SYSTEMS is hereby modified by being deleted in its entirety and replaced with the following:

726.11 WATERPROOFING MEMBRANE SYSTEMS. Waterproofing Membrane Systems shall be one of the products listed on the Agency's *Approved Products List* and shall meet the following requirements for the respective material specification.

- (a) Waterproofing Membrane System, Type I. Waterproofing Membrane System, Type I shall be a Type I cold applied elastomeric system in accordance with *ASTM D 6153*.
- (b) Waterproofing Membrane System, Type II. Waterproofing Membrane System, Type II shall be a Type II hot applied elastomeric system in accordance with *ASTM D 6153*.
- (c) Waterproofing Membrane System, Type III. Waterproofing Membrane System, Type III shall be preformed sheet system for below-grade applications and shall meet the following requirements:
- (1) Permeability. Permeability shall meet the requirements of *ASTM D6153*, Table 1.
- (2) Adhesion. The system shall adhere to vertical surfaces.

#### SECTION 731 – BEARING PADS FOR STRUCTURES

731.03 ELASTOMERIC MATERIAL is hereby modified by deleting the word “*Design*” from the first sentence and replacing it with the word “*Construction*”.

#### SECTION 732 – RAILING MATERIALS

732.01 METAL HAND RAILING is hereby modified by adding “or *ASTM A 500/A 500 M*, Grade B.” to the end of the first sentence.

732.03 GALVANIZED BOX BEAM BRIDGE RAILING is hereby modified by being deleted in its entirety and replaced with the following:

732.03 GALVANIZED BOX BEAM BRIDGE RAILING.

- (a) Structural Steel Tubing. Tubing for posts, rails, and rail splices shall conform to the requirements of *ASTM A 500/A 500 M*, Grade B, except as modified below:

- (1) The manufacturer shall test both welded and formed tubular material for the physical properties specified. Results of all tests shall be submitted with material certifications.
- (2) Welds shall be sound, free from defects, and have no repairs. Transverse mill welds will not be permitted.
- (3) Longitudinally-welded tubing shall have a tensile strength of 58,000 psi when tested in accordance with the requirements of *ASTM E 8/E 8 M*.
- (4) A traceable identification number shall be placed on each piece of material in a form that can be read after the galvanizing process. Quantities of the same item made from the same heat numbers are allowed to be packaged together with a single identification.
- (5) Posts and rails shall be CVN tested in accordance with *AASHTO T 243*, Frequency H testing. Full size 3/8 inch × 3/8 inch specimens shall be used whenever thickness permits. Sub-size specimens may be used when material thickness is less than 3/8 inch. The average energy absorbed by a sub-sized specimen shall be prorated for the actual thickness of the specimen. The average energy absorbed by a full-size specimen shall be not less than 15 foot-pounds force at 0°F.

(b) Structural Carbon Steel (Non-Tubular).

- (1) Structural carbon steel for posts, baseplates, and rail splices shall meet the requirements of *ASTM A 572/A 572 M*, Grade 50 or *AASHTO M 270 M/M 270*, Grade 345 (Grade 50). Posts and baseplates shall be CVN tested in accordance with *AASHTO T 243*, Frequency H testing. Full size 3/8 inch × 3/8 inch specimens shall be used whenever thickness permits. Sub-size specimens may be used when material thickness is less than 3/8 inch. The average energy absorbed by a sub-sized specimen shall be prorated for the actual thickness of the specimen. The average energy absorbed by a full-size specimen shall be not less than 15 foot-pounds force at 40°F.
- (2) Structural carbon steel for anchor plates shall conform to the requirements of *AASHTO M 270 M/M 270*, Grade 250 (Grade 36) or *ASTM A 36/A 36 M*.
- (3) Structural carbon steel for angles shall conform to the requirements of *AASHTO M 270 M/M 270*, Grade 345 (Grade 50) or *ASTM A 572/A 572 M*, Grade 50.

(c) Bolts, Nuts, and Washers. Bolts, nuts, and washers for railing and rail-to-post connections shall conform to the requirements of Subsection 714.04. Lock washers shall be high-carbon heat-treated spring steel conforming to the requirements of *ASME D18.2*.

(d) Anchor Bolts, Nuts, and Washers. Anchor bolts, nuts, and washers shall conform to the requirements of Subsection 714.07.

732.04 STEEL BEAM BRIDGE RAILING is hereby modified by being deleted in its entirety and replaced with the following:

732.04 STEEL BEAM BRIDGE RAILING.

- (a) Beam Guardrail. Beam guardrail for bridge railing shall conform to the requirements of Subsection 728.02. The beam guardrail shall be Class B type.
- (b) Steel Tubing. Tubular steel backing material for steel beam bridge railing shall conform to the requirements of *ASTM A 500/A 500 M*, Grade B. Splice material shall conform to Subsection 732.04(c).
- (c) Steel Posts and Components. Posts, baseplates, offset blocks, brackets, washers, and other steel components shall be structural carbon steel conforming to the requirements of the following Standards: *AASHTO M 270 M/M 270*, Grade 345W (Grade 50W), or *ASTM A 588/A 588 M*, or *ASTM A 572/A 572 M*, Grade 345 (Grade 50), or *AASHTO M 270 M/M 270*, Grade 345 (Grade 50). Posts, baseplates, and post mounting brackets or components shall be CVN tested for impact properties in accordance with AASHTO T 243, Frequency H testing. Full size 3/8 inch × 3/8 inch specimens shall be used whenever thickness permits. Sub-size specimens may be used when material thickness is less than 3/8 inch. The average energy absorbed by a sub-sized specimen shall be prorated for the actual thickness of the specimen. The average energy absorbed by a full-size specimen shall be not less than 15 foot-pounds force at 40°F.
- (d) Steel Pipe. Steel pipe for anchor bolt sleeves shall conform to the requirements of Subsection 740.05.
- (e) Anchor Bolts, Nuts, and Washers. Anchor bolts, nuts, and washers shall conform to the requirements of Subsection 714.07.

SECTION 751 – DELINEATORS

751.01 DELINEATOR POSTS, subpart (b), is hereby modified by being deleted in its entirety and replaced with the following:

- (b) Flexible Delineators. Flexible delineators shall be one of the products listed on the Agency's *Approved Products List* and meet the following requirements:
  - (1) Shall be in accordance with the *MUTCD* for Tubular Markers for use on high-speed highways or nighttime use.
  - (2) Shall be *MASH* compliant with self-certification from the manufacturer.
  - (3) Shall be surface mounted.

### SECTION 753 – HIGHWAY ILLUMINATION

753.04 BRACKET ARMS is hereby modified by being deleted in its entirety and replaced with the following:

#### 753.04 BRACKET ARMS.

- (a) Bracket Arms, Aluminum. Single member bracket arms and the main member of truss-type arms shall be fabricated from seamless aluminum tube conforming to the requirements of *ASTM B 221/B 221 M*, Alloy 6063-T6 or Alloy 6061-T6. Other members of truss-type arms shall conform to the requirements of *ASTM B 221/B 221 M*, Alloy 6063-T6. All screws, nuts, bolts and other hardware for mounting bracket arms to the light pole shall be stainless steel, unless otherwise specified.
- (b) Bracket Arms, Steel. Components of single member and truss-type bracket arms shall be fabricated from standard steel pipe meeting the requirements of *ASTM A 53/A 53 M* or *ASTM A 501/A 501 M*.

753.05 LUMINAIRES is hereby modified by being deleted in its entirety and replaced with the following:

753.05 LUMINAIRES. All luminaires shall be 120 V and shall be one of the products listed on the Agency's *Approved Products List*.

### SECTION 754 – PAVEMENT MARKING MATERIALS

SECTION 754 – PAVEMENT MARKING MATERIALS is hereby made a new section of the specifications as follows:

#### SECTION 754 – PAVEMENT MARKING MATERIALS

754.01 OPTICS. Optics shall be beads or elements incorporated into pavement markings so as to produce reflectorized pavement markings. Optics shall be one of the products listed on the Agency's *Approved Product List* for the respective material specification and shall meet the following requirements.

- (a) Optics, Type I. Optics, Type I shall be standard optics consisting of glass beads free from carbon residue. Optics, Type I shall conform to the requirements of *AASHTO M 247*, Type 1, except as modified below.
  - (1) Roundness. Roundness shall be a minimum of 80% true spheres, as determined in accordance with *ASTM D 1155*.
  - (2) Moisture Resistance. Optics shall be moisture resistant in accordance with *AASHTO M 247*.

- (3) Chemical Resistance. Optics shall be resistant to hydrochloric acid, water, calcium chloride, and sodium sulfide in accordance with Section 4.3.6 to Section 4.3.9 of *Federal Specification TT-B-1325D*.
- (b) Optics, Type II. Optics, Type II shall be premium optics consisting of virgin glass beads or a mixture of virgin glass beads and direct melt glass beads, with a maximum of 50% direct melt glass beads. All glass beads shall be free from carbon residue. Optics, Type II shall conform to the requirements of *AASHTO M 247* except as modified below.
  - (1) Gradation. Optics shall have a maximum size of 1.45 mm and minimum size of 0.18 mm as determined in accordance with *ASTM D 1214*.
  - (2) Roundness. Roundness shall be a minimum of 80% true spheres, as determined in accordance with *ASTM D 1155*.
  - (3) Refractive Index.
    - a. Refractive index shall be 1.5 to 1.7, inclusive, as determined in accordance with *AASHTO T 346*, or;
    - b. Refractive index shall be above 1.7 with all beads above the No. 18 (1.00 mm) sieve having an average hardness of C70.5 as determined in accordance with the Rockwell C scale method, with a minimum sampling of 100 glass beads.
  - (4) Moisture Resistance. Optics shall be moisture resistant in accordance with *AASHTO M 247*.
  - (5) Chemical Resistance. Optics shall be resistant to hydrochloric acid, water, calcium chloride, and sodium sulfide in accordance with Section 4.3.6 to Section 4.3.9 of *Federal Specification TT-B-1325D*.
- (c) Optics, Type III. Optics, Type III shall be wet reflective optics consisting of a composite material. Pavement markings containing Optics, Type III shall demonstrate retroreflective properties in accordance with Section 646, for the respective pavement marking material type.

754.02 THIS SUBSECTION RESERVED.

754.03 PAVEMENT MARKING TAPE. Pavement marking tape is a white or yellow preformed retroreflective tape. Pavement marking tape shall be evaluated in accordance with the applicable NTPEP pavement marking materials work plan, with a minimum of one year of data for permanent tape and a full data set for temporary tape, listed on the Agency's *Approved Product List* for the respective material specification, and meet the following requirements.

- (a) Pavement Marking Tape, Type A. Pavement Marking Tape, Type A shall be a high performance and extended service life pavement marking tape in accordance with *ASTM D 4505*. The tape shall have continuous wetting properties and meet the following requirements.
- (1) Skid Resistance. Skid resistance shall be Skid Resistance Level A in accordance with *ASTM D 4505*.
  - (2) Adhesive. Adhesive shall be Class I, II, or III in accordance with *ASTM D 4505*.
  - (3) Durability. Initial durability shall be 10 and three-year durability shall be a minimum of 7 as determined in accordance with *ASTM D 913*.
  - (4) Retroreflectivity.
    - a. Dry. Initial dry retroreflectivity shall be Reflectivity Level I in accordance with *ASTM D4505*. Three-year retroreflectivity shall be a minimum of 150 mcd/m<sup>2</sup>/lx for white and 100 mcd/m<sup>2</sup>/lx for yellow as determined in accordance with *ASTM E 1710*.
    - b. Wet. Initial wet retroreflectivity shall be a minimum of 250 mcd/m<sup>2</sup>/lx for white and 200 mcd/m<sup>2</sup>/lx for yellow. Three-year wetness retroreflectivity shall be a minimum of 150 mcd/m<sup>2</sup>/lx for white and 75 mcd/m<sup>2</sup>/lx for yellow as determined in accordance with *ASTM E 2177*.
    - c. Wet Continuous. Wet continuous retroreflectivity shall be a minimum of 150 mcd/m<sup>2</sup>/lx for white and 100 mcd/m<sup>2</sup>/lx for yellow in accordance with *ASTM E 2832*.
- (b) Pavement Marking Tape, Type B. Pavement Marking Tape, Type B shall be a standard performance pavement marking tape in accordance with *ASTM D 4505*.
- (1) Skid Resistance. Skid resistance shall be Skid Resistance Level A in accordance with *ASTM D 4505*.
  - (2) Adhesive. Adhesive shall be Class I, II, or III in accordance with *ASTM D 4505*.
  - (3) Durability. Initial durability shall be 10 and three-year durability shall be a minimum of 7 as determined in accordance with *ASTM D 913*.
  - (4) Retroreflectivity. Initial dry retroreflectivity shall be Level II in accordance with *ASTM D 4505*.
- (c) Pavement Marking Tape, Type C. Pavement Marking Tape, Type C shall be a temporary pavement marking tape in accordance with *ASTM D 4592* and the following requirements.

- (1) Retroreflectivity. Initial wet retroreflectivity shall be a minimum of 250 mcd/m<sup>2</sup>/lx for white and 200 mcd/m<sup>2</sup>/lx for yellow.

## SECTION 755 – LANDSCAPING MATERIALS

755.12 PLANT MATERIALS, subparts (a) and (b), are hereby modified by being deleted in their entirety and replaced with the following:

- (a) Quality of Plant Material. All plants shall be first-class representatives of their normal species or varieties, unless otherwise specified.

All plant materials shall be nursery grown stock that have been transplanted or root-trimmed two or more times, according to the kind and size of plants. They shall have average or normal, well-developed branches, together with vigorous root systems. Plant materials shall be free of insects, disease, sun scald, injuries, abrasions of the bark, knots, dead or dry wood, broken terminal growth, or other objectionable disfigurements. Thin, weak plants shall not be acceptable. Plant materials shall display the appearance of normal health and vigor in strict accordance with these specifications.

Each shipment shall be accompanied by a description of all the included plant materials or an itemized bill of lading.

The plant supplier shall certify that all plant materials were grown in a hardiness zone that is the same or colder than the project site's hardiness zone as established by the current *U.S. Department of Agriculture Plant Hardiness Zone Map*. The certification shall be identified in such a manner as to be directly traceable to the individual shipment. Plants that are not certified to have been grown under the designated hardiness zone conditions will not be accepted.

- (b) Plant Names. All scientific and common plant names of the items specified shall be names accepted by the *Integrated Taxonomic Information System*. All plant materials delivered shall be true to name and legibly tagged with the names and sizes of materials.

Should it be necessary to substitute a plant or plants of a different variety than the plant material specified, it will be necessary for the Contractor to secure written approval from the Engineer for the proposed substitution prior to digging the plants. An approved substitute plant shall be of a value at least equal to the specified plant for which the substitution is being made and then only when sufficient evidence is shown that the plant specified cannot be obtained.

755.12 PLANT MATERIALS is hereby modified by changing the name of subpart (e) from "Balled and Burlapped Plants (B&B)." to "Balled and Burlapped (B&B) Plants."

755.12 PLANT MATERIALS, subpart (e), is hereby modified by deleting “,” (a comma) after the word “possible” in the first sentence of the first paragraph.

755.12 PLANT MATERIALS, subpart (e), is hereby further modified by inserting the word “square” after the word “per” in the first sentence of the second paragraph.

755.12 PLANT MATERIALS, subpart (f), is hereby modified by being deleted in its entirety.

## SECTION 780 – CONCRETE REPAIR MATERIALS

SECTION 780 – CONCRETE REPAIR MATERIALS is hereby modified by being deleted in its entirety and replaced with the following:

### SECTION 780 – REPAIR MATERIALS

780.01 CONCRETE REPAIR MATERIALS. Concrete Repair Material shall be a prepackaged material and shall be one of the products listed on the Agency’s *Approved Products List*.

- (a) Concrete Repair Material, Type I. Concrete Repair Material, Type I shall be evaluated in accordance with the NTPEP Rapid Set Concrete Patching Materials work plan, be a neat (having less than 5% aggregate retained on the 3/8 inch (9.50 mm) sieve) overhead and vertical repair material, and meet the following requirements:
- (1) Compressive Strength. The neat material shall have a minimum 7-day compressive strength of 2,000 psi and a minimum 28-day compressive strength of 4,000 psi as determined in accordance with *AASHTO T 106 M/T 106*.
  - (2) Bond Strength by Direct Tension. The material shall have a minimum bond strength of 150 psi as determined in accordance with *ASTM C 1583/C 1583 M* at 28 days, or sooner.
  - (3) Freeze-Thaw Durability. The material shall have a minimum durability factor of 80, after 300 cycles, as determined in accordance with *AASHTO T 161*, Procedure A.
  - (4) Length Change. The material shall meet the performance requirements of *ASTM C 928/ C 928 M* as determined in accordance with *AASHTO T 160*.
  - (5) Chloride Ion Penetration. The material shall exhibit a chloride ion penetrability of “low”, or less, as determined in accordance with *AASHTO T 277* or *AASHTO T 358*.
- (b) Concrete Repair Material, Type II. Concrete Repair Material, Type II shall be evaluated in accordance with the NTPEP Rapid Set Concrete Patching Materials work plan, be a horizontal rapid setting repair material, and meet the requirements of Subsection 780.01(a) except as modified below:
- (1) Compressive Strength. The neat material shall have a minimum 3-hour compressive strength of 1,200 psi and a minimum 7-day compressive strength of 5,000 psi as determined in accordance with *AASHTO T 106 M/T 106*.

- (c) Concrete Repair Material, Type III. Concrete Repair Material, Type III shall be evaluated in accordance with the NTPEP Rapid Set Concrete Patching Materials work plan, be a horizontal rapid setting repair material, and meet the requirements of Subsection 780.01(a) except as modified below:
- (1) Compressive Strength. The neat material shall have a minimum 3-hour compressive strength of 1,200 psi, a minimum 1-day compressive strength of 2,900 psi, and a minimum 7-day compressive strength of 5,000 psi as determined in accordance with *AASHTO T 22*.
  - (2) Aggregate. The material shall contain greater than 5% coarse aggregate (aggregate contained on the 3/8 inch (9.50 mm) sieve). Coarse aggregate may be contained in the prepackage material (extended), or material of the type and quantity specified by the manufacturer may be added to the prepackaged material (extendable).
- (d) Concrete Repair Material, Type IV. Concrete Repair Material, Type IV shall be an overhead, vertical, or horizontal polymer repair material meeting the following requirements:
- (1) Compressive Strength. The neat material shall have a minimum 3-hour compressive strength of 1,200 psi and a minimum 7-day compressive strength of 5,000 psi as determined in accordance with *ASTM C 579*.
  - (2) Bond Strength by Direct Tension. The material shall have a minimum bond strength of 150 psi as determined in accordance with *ASTM C 1583/C 1583 M* at 28 days, or sooner.
  - (3) Linear Shrinkage. The material shall have a maximum linear shrinkage of 0.15% as determined in accordance with *ASTM C 531*.
  - (4) Chloride Ion Penetration. The material shall exhibit a chloride ion penetrability of “Low”, or less, as determined in accordance with *AASHTO T 277*.

### ALPHABETICAL INDEX OF PAY ITEMS

The index entry “406.38          Hand-Placed Bituminous Concrete Pavement, Drives.....  
Square Yard” is hereby modified by deleting the word “Pavement” and replacing it with the word  
“Material”.

The index is hereby modified by adding an entry for “418.10          Asphaltic Approach  
Material..... Square Foot”.

The index entry for “646.75          Raised Pavement Markers, Type II..... Each” is hereby  
modified by being deleted in its entirety.

The index is hereby modified by adding an entry for “690.50          Price Adjustment, Fuel  
(N.A.B.I.)..... Lump Unit”.

**APPENDIX J**

**COMPLIANCE BOND**

KNOW ALL MEN BY THESE PRESENTS: that

---

(Name of Contractor)

---

(Address of Contractor)

a \_\_\_\_\_, hereinafter called Principal,  
(Corporation, Partnership or Individual)

and \_\_\_\_\_  
(Name of Surety)

---

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

---

(Name of Owner)

---

(Address of Owner)

hereinafter called Owner, in the penal sum of \_\_\_\_\_ Dollars, \$(\_\_\_\_\_) in  
lawful money of the United States, for the payment of which sum well and truly to be  
made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these  
presents.

## APPENDIX J

The condition of this obligation is such that whereas, the Principal entered into a certain contract with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, a copy of which is hereto attached and made a part hereof for the construction of:

---

---

---

Now, therefore, if the principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if they shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

Provided, further, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the Specifications.

Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

APPENDIX J

IN WITNESS WHEREOF, this instrument is executed in \_\_\_\_ counterparts, (No.)  
each one of which shall be deemed an original, this the \_\_\_\_ day of  
\_\_\_\_\_, 20\_\_.

ATTEST:

\_\_\_\_\_  
Principal  
\_\_\_\_\_  
(Principal Secretary)

(SEAL)  
By: \_\_\_\_\_(s)  
Address: \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Witness as to Principal  
\_\_\_\_\_  
Address

\_\_\_\_\_  
Surety

ATTEST:  
By: \_\_\_\_\_  
Attorney-in-Fact

\_\_\_\_\_  
Witness as to Surety  
\_\_\_\_\_  
Address

## APPENDIX J

---

Address

**NOTE:** Date of Bond must not be prior to date of Contract.

If Contractor is Partnership, all partners should execute Bond.

**IMPORTANT:** Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570) as amended and be authorized to transact business in the State where the Project is located.

## APPENDIX K

### LABOR & MATERIAL BOND

KNOW ALL MEN BY THESE PRESENTS: that

---

(Name of Contractor)

---

(Address of Contractor)

a \_\_\_\_\_, hereinafter called Principal,  
(Corporation, Partnership or Individual)

and

---

(Name of Surety)

---

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

---

(Name of Owner)

---

(Address of Owner)

Hereinafter called Owner, in the penal sum of \_\_\_\_\_ Dollars, \$(\_\_\_\_\_) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

**APPENDIX K**

The Condition of this obligation is such that whereas, the Principal entered into a certain contract with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, a copy of which is hereto attached and made a part hereof for the construction of:

---

---

---

---

Now, Therefore, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the Work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such Work and all insurance premiums on said Work, and for all labor performed in such Work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in force and effect.

Provided, further, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the Specifications.

Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

**APPENDIX K**

In Witness Whereof, this instrument is executed in \_\_\_\_ count (No.)  
each one of which shall be deemed an original, this the \_\_\_\_ day of  
\_\_\_\_\_, 20\_\_.

ATTEST:

\_\_\_\_\_  
Principal

\_\_\_\_\_  
(Principal Secretary)

By: \_\_\_\_\_(s)

(SEAL)

Address: \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Witness as to Principal

\_\_\_\_\_  
Address

\_\_\_\_\_  
Surety

ATTEST:

By: \_\_\_\_\_  
Attorney-in-Fact

\_\_\_\_\_  
Witness as to Surety

\_\_\_\_\_  
Address

\_\_\_\_\_  
Address

\_\_\_\_\_

## **APPENDIX K**

**NOTE:** Date of Bond must not be prior to date of Contract.

If Contractor is Partnership, all partners should execute Bond.

**IMPORTANT:** Surety companies executing Bond must appear on the Treasury Department's most current list (Circular 570) as amended and be authorized to transact business in the State where the Project is located.

## APPENDIX L

### **CHANGE ORDER**

Date: \_\_\_\_\_

Change Order No: \_\_\_\_\_

Name of Project: \_\_\_\_\_

Municipality: \_\_\_\_\_

Contractor: \_\_\_\_\_

The following changes are hereby made to the Contract:

Justifications:

Change to Contract Price: \$ \_\_\_\_\_

Original Contract Price: \$ \_\_\_\_\_

Current Contract Price adjusted by previous Change Order: \$ \_\_\_\_\_

The Contract Price due to this Change Order will be (increased) decreased by: \$ \_\_\_\_\_

New Adjusted Contract Price: \$ \_\_\_\_\_

Change to Contract Time: \_\_\_\_\_

The Contract Time will be (increased) decreased by \_\_\_\_\_ Calendar days

The date for completion of all work will be \_\_\_\_\_

### **APPROVALS**

Contractor: \_\_\_\_\_

Construction Inspector: \_\_\_\_\_

Municipality: \_\_\_\_\_

VTrans Project Manager: \_\_\_\_\_

### ***Assurance Appendix A***

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “contractor”) agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, disability, income-level, or LEP in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations as set forth in Appendix E, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor’s obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, national origin, sex, age, disability, income-level, or LEP.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the FHWA to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the FHWA, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor’s noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:
  - a. withholding payments to the contractor under the contract until the contractor complies; and/or
  - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement

## APPENDIX M

as the Recipient or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

## APPENDIX M

### ***Assurance Appendix E***

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “contractor”) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin), as implemented by 49 C.F.R. § 21.1 *et seq.* and 49 C.F.R. § 303;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (102 Stat. 28.), (“....*which restore[d] the broad scope of coverage and to clarify the application of title IX of the Education Amendments of 1972, section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and title VI of the Civil Rights Act of 1964.*”);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 -- 12189) as implemented by Department of Justice regulations at 28 C.F.R. parts 35 and 36, and Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration’s Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*), as implemented by 49 C.F.R. § 25.1 *et seq.*

# APPENDIX N

VERMONT AGENCY OF TRANSPORTATION  
CERTIFICATE VERIFYING WORKERS' COMPENSATION COVERAGE  
(PRIME CONTRACTOR)

***REQUIRED FOR CONTRACTS OVER \$250,000, PER ACT 54 OF 2009 & ACT 50 OF 2011***

VTrans Project: \_\_\_\_\_

Prime Contractor: \_\_\_\_\_

Vermont statutes and standard State contract provisions require contractors and subcontractors to obtain and maintain workers' compensation insurance while performing work for the State.

Evidence of coverage, including but not limited to this Certificate, must be provided prior to commencement of work.

1. The undersigned organization certifies that it either:

A. Has workers' compensation insurance ☐

Insurance Company: \_\_\_\_\_

Policy Expiration Date: \_\_\_\_\_

-OR-

B. Is approved by the Vermont Department of Labor to operate as a self-insured for workers' compensation ☐

2. The undersigned organization certifies that it has verified that its workers' compensation coverage contains a rider or non-cancellation clause reading in substance (per 2018 Standard Specifications for Construction §103.04(e)) as follows:

*Anything herein to the contrary notwithstanding, no cancellation, termination, or alteration of this policy by the company or the assured shall become effective unless and until notice of cancellation, termination, or alteration has been given by registered mail to the Chief Engineer of the Vermont Agency of Transportation, 1 National Life Drive, Montpelier, Vermont 05633-5001, at least 30 Calendar Days before the effective cancellation, termination, or alteration date, unless all work required to be performed under the terms of the Contract is satisfactorily completed as evidenced by the formal, final acceptance of the Project by the Agency.*

\_\_\_\_\_  
Signature (must be by a person authorized to sign for contractor)      Date

\_\_\_\_\_  
Print name of person signing      Title

# ***APPENDIX L –***

Work Zone Safety and Mobility

Guidance Document

August 2007

# WORK ZONE SAFETY & MOBILITY GUIDANCE DOCUMENT

August 2007



Prepared by:

Vermont Agency of Transportation



The following document was drafted in response to updates made to the work zone regulations at 23 CFR 630 Subpart J, published by the Federal Highway Administration. This document applies to all federal aid projects that have a pre-final contract administration/step submittal date after January 1, 2008.

### **Work Zone Safety and Mobility Vision**

Current and future work zone safety and mobility issues mean that transportation practitioners need to minimize and manage the work zone impacts of transportation projects. In order to meet safety and mobility needs during highway maintenance and construction, and to meet the expectations of the traveling public, it is important to systematically analyze and assess the work zone impacts of projects and take appropriate action to manage these impacts.

The following has been adopted as the Vermont Agency of Transportation's (VTrans) work zone safety and mobility vision statement: *To provide optimum safety for workers and the traveling public while maintaining acceptable levels of mobility in an efficient environment for the contractors to complete the project work in accordance with their contracts.*

### **Work Zone Safety and Mobility Goals and Strategies**

Goal: To provide a safe work zone for motorists, pedestrians, bicyclists (the traveling public) and construction personnel.

Strategy: Development of site-specific traffic control plans, while ensuring compliance with the Manual on Uniform Traffic Control Devices (MUTCD) and state design standards and specifications.

Goal: To minimize construction-related delays.

Strategy: Construction-related delays will be monitored. A change to the traffic management plan will be considered for construction-related delays greater than ten minutes.

Goal: To gain further knowledge of work zone procedures applicable to the State of Vermont.

Strategy: Summarize the work zone field evaluations to identify the effectiveness of implemented safety measures and to improve future Transportation Management Plans (TMP).

Goal: To ensure that the appropriate personnel have the necessary knowledge, skills, and abilities to design and/or implement a TMP.

Strategy: Management will be responsible for ensuring that their personnel has been provided appropriate training in accordance with their defined roles. Training to include but not limited to: flagger certification, NHI courses, AGC training, and the Vermont Local Roads Program courses.

### **Project Classification**

The purpose of the Work Zone Safety and Mobility Guidance document is to allow VTrans to better anticipate the impacts associated with individual projects. Examples of impacts include internal project coordination, project scheduling and overall cost. Every federally funded project will require a TMP. The classification of the project will determine the complexity of the TMP. All transportation projects must be classified into one of three types of projects: significant, moderate, or minor projects. To accurately classify a project, several design characteristics must be analyzed to provide **guidance** in determining the appropriate project classification. The following characteristics should be evaluated when determining any project classification. These characteristics include but are not limited to:

- Project Location (Urban/Rural Setting)
- Primary Network (Interstate, Interchanges, Major State Roads, Major Intersections, NHS, Truck Network)
- Construction Duration (Months, Years)
- Access Management Category (Driveway Density, Business/Industry Density)
- Traffic Volumes (Average Annual Daily Traffic, Peak Hour Traffic, Existing Crash Rates, Car-Truck-Pedestrian-Bicycle Volumes)
- Proximity To Other Construction Projects
- Available Detour Routes

A project classification should be identified by the appropriate Project Manager<sup>1</sup>, and confirmed by their respective Program Manager as early as the scoping process. This classification should be analyzed periodically throughout the design process to ensure that any design changes or site characteristic changes will not require a classification modification. Project classification is used to help identify the impacts associated with different types of transportation projects. This classification is used to determine what TMP should be applied to the project. The following definitions closely follow FHWA's Work Zone Self Assessment, [http://www.ops.fhwa.dot.gov/wz/docs/wz-sa-docs/sa\\_guide\\_s4.htm](http://www.ops.fhwa.dot.gov/wz/docs/wz-sa-docs/sa_guide_s4.htm).

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<sup>1</sup> Please note that the position titles used in this document are typical Program Development Division titles. Applicable Operations Division titles as well as alternate VTrans Division titles may be substituted as necessary.

Significant Projects: Significant projects have a high level of public interest and will likely impact a large number of travelers. This impact must be analyzed individually and also in combination with concurrent active projects. It will have moderate to high user-cost impacts and the duration is usually moderate to long. These characteristics create work zone impacts that fall outside of the typical work zone safety and mobility thresholds. Examples of this work type may include: major corridor reconstruction, high impact intersection reconstruction, full closures on high volume facilities, major bridge reconstruction or repair, repaving projects that require long term lane closures, etc (e.g. Shelburne-South Burlington US 7 Reconstruction Project). It is important to note that significant projects are unique in that they have considerable impacts to the project area as well as the surrounding community.

Moderate Projects: Moderate projects have the potential to affect the level of public interest and may impact a modest number of commuters. These projects would include typical roadway, bridge, and paving projects.

Minor Projects: Minor projects have a minimal impact to the traveling public and a short duration. Typical projects within this category include sign installation, bridge inspection, pavement marking, and various maintenance activities.

### **Transportation Management Plans (TMPs)**

TMPs are strategies/methodologies that will be implemented to ensure safe and mobile work zones within transportation projects. The project classification will determine the detail level required for the TMP. There are three major components of a TMP;

Temporary Traffic Control Plan (TTC): A TTC plan describes temporary traffic control measures to be used for facilitating road users through a work zone or an incident area. The TTC plan plays a vital role in providing continuity of reasonably safe and efficient road user flow and highway worker safety when a work zone, incident, or other event temporarily disrupts normal road user flow. The TTC plan shall be consistent with the provisions of the MUTCD and AASHTO Roadside Design Guide.

Transportation Operations Component (TO): The TO component shall include the identification of strategies to mitigate impacts of the work zone on the operation of the transportation system within the work zone impact area. The work zone impact area consists of the immediate work zone as well as affects to the surrounding roadways and communities. Examples of practices that may be used to satisfy the TO component may be found at [http://www.ops.fhwa.dot.gov/wz/rule\\_guide/sec6.htm#sec63](http://www.ops.fhwa.dot.gov/wz/rule_guide/sec6.htm#sec63).

Public Information Component (PI): The PI component shall include communication strategies that seek to inform the general public of work zone impacts and the changing condition of the project. The general public may

include road users, area residences and businesses, and other public entities. Examples of communications strategies that may be used to satisfy the PI component may be found at [http://www.ops.fhwa.dot.gov/wz/rule\\_guide/sec6.htm#sec63](http://www.ops.fhwa.dot.gov/wz/rule_guide/sec6.htm#sec63).

**Significant Projects:** The TMP for significant projects shall consist of a TTC, a TO, and a PI.

**Moderate/Minor Projects:** The TMP for moderate and minor projects shall consist of a TTC. A TO and a PI are not required, but may be applicable to certain projects as determined by the Project Manager.

### **Design Strategies**

The development of a TMP is an iterative process that may vary significantly between projects. Work on a TMP should begin early in the project development process. There are numerous resources available to the designer to assist in the development of this plan: several of these are listed in the reference section of this document. The following outlines the key components of the TMP development process.

**Preliminary Data Collection:** As early as scoping, the project design team collects, analyzes, and documents all applicable project data.

**Determine Project Classification:** A project classification is determined based on the initial data that was collected. The project classification defines what components are required in the TMP.

**Develop TMP:** Work zone management strategies should be identified based on the project characteristics and used to develop all necessary aspects of the TMP. Applicable resources should be contacted during this step to obtain their input. This may include utilization of previous work zone feedback provided by the Construction Section. Plans and contract documents shall be based on standard specifications and include necessary pay items.

**Update/Revise TMP:** As a project progresses through all of the design stages the TMP should be re-evaluated to ensure that any project changes do not affect the TMP. It is possible that the project classification could change during the project design stages.

**Finalize TMP:** Ensure that the contract plans, special provisions, and estimate include all of the applicable elements of the TMP and allow the flexibility to develop or modify a TMP.

## **Roles and Responsibilities**

- Step 1: A preliminary analysis will be performed by the ***Design Team*** to determine project classification. This preliminary analysis will be documented in the project's design file.
- Step 2: The ***Project Manager*** will have the responsibility of monitoring the project and proposed classification and informing the respective ***Program Manager***.
- Step 3: The ***Design Team*** will develop a transportation management plan. The ***Project Manager*** will monitor the classification status. If there are significant changes, the project classification may be modified.
- Step 4: The ***Construction Resident Engineer*** will be responsible for identifying and documenting deficiencies in the TMP that compromise the effectiveness of the work zone and coordinating any improvements with the Contractor/State safety representative. Examples of data that may be included in the work zone documentation includes; crashes or other traffic incidents, traffic delay, traffic conflicts, and public comments. The ***Project Manager*** may assist in addressing any proposed modifications to the TMP during the construction process.
- Step 5: The ***Regional Construction Engineer*** will complete a work zone summary of TMP effectiveness based on the work zone documentation and any applicable work zone reviews performed by Traffic Operations.
- Step 6: The ***Work Zone Safety and Mobility Committee*** will consist of representatives from multiple sections within VTrans. This committee will review the work zone summary and will be responsible for updating the Work Zone Safety and Mobility Guidance document based on feedback from the year's construction projects. This committee will be responsible for sharing all applicable information throughout the Agency as well as with additional working groups and committees.

## **Application/Feedback**

The Construction Engineer will submit a summary of TMP effectiveness and recommendations for improvements at the end of the construction season based on the work zone documentation provided by the Regional Engineers. The Work Zone Safety and Mobility Committee will meet annually to discuss these summaries. These summaries will serve to identify common TMP practices that are not working effectively, and will also assist in identifying TMP practices that are successful. The Work Zone Safety and Mobility Guidance document and supporting documentation will be revised to reflect the field evaluation summaries.

## **References**

A Policy on Geometric Design of Highways and Streets. American Association of State Highway and Transportation Officials, Current Edition.

Developing and Implementing Transportation Management Plans for Work Zones. U.S. Department of Transportation Federal Highway Administration, December 2005.

Engineering Operations Manual. Vermont Agency of Transportation, Current Edition.

Highway Capacity Manual. Transportation Research Board of the National Academies, Current Edition.

Implementing the Rule on Work Zone Safety and Mobility. U.S. Department of Transportation Federal Highway Administration, September 2005.

Manual on Uniform Traffic Control Devices for Streets and Highways. U.S. Department of Transportation Federal Highway Administration, Current Edition.

Road Design Manual. Vermont Agency of Transportation, Current Edition.

Roadside Design Guide. American Association of State Highway and Transportation Officials, Current Edition.

Standard Specifications for Construction. Vermont Agency of Transportation, Current Edition.

Structures Manual. Vermont Agency of Transportation, Current Edition.

The State of Vermont Agency of Transportation Safety Manual. Vermont Agency of Transportation, Current Edition.

Traffic Design Manual. Vermont Agency of Transportation, Current Edition.

“Vermont Agency of Transportation Standard Drawings.” Vermont Agency of Transportation, Current Edition.

Work Zone Impacts Assessment: An Approach to Assess and Manage Work Zone Safety and Mobility Impacts of Road Projects. U.S. Department of Transportation Federal Highway Administration, May 2006.

Work Zone Public Information and Outreach Strategies. U.S. Department of Transportation Federal Highway Administration, November 2005.

"General Decision Number: VT20210057 01/01/2021

Superseded General Decision Number: VT20200057

State: Vermont

Construction Type: Highway

County: Windham County in Vermont.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/01/2021

SUVT2017-018 08/06/2019

Rates

Fringes

CARPENTER, Includes Form Work....\$ 20.00	4.06
CEMENT MASON/CONCRETE FINISHER...\$ 25.34	0.00
ELECTRICIAN.....\$ 28.28	1.90
HIGHWAY/PARKING LOT STRIPING:	
Painter.....\$ 20.80	4.62
INSTALLER - SIGN.....\$ 18.50	5.52
IRONWORKER, REINFORCING.....\$ 21.00	4.92
IRONWORKER, STRUCTURAL.....\$ 28.97	8.72
LABORER: Common or General, Including Asphalt Raking, Shoveling, Spreading and Concrete Work.....\$ 17.23	2.58
OPERATOR:	
Backhoe/Excavator/Trackhoe.....\$ 22.86	4.03
OPERATOR: Bobcat/Skid Steer/Skid Loader.....\$ 21.15	12.05
OPERATOR: Broom/Sweeper.....\$ 19.94	6.29
OPERATOR: Bulldozer.....\$ 20.71	0.92
OPERATOR: Crane.....\$ 22.62	3.78
OPERATOR: Drill.....\$ 20.23	4.50
OPERATOR: Grader/Blade.....\$ 20.91	5.79
OPERATOR: Loader.....\$ 24.13	5.23
OPERATOR: Mechanic.....\$ 20.45	4.54
OPERATOR: Milling Machine.....\$ 28.76	16.77
OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....\$ 21.32	7.24
OPERATOR: Pounder.....\$ 21.18	0.00
OPERATOR: Roller.....\$ 25.79	2.42
OPERATOR: Screed.....\$ 20.63	7.83

TRAFFIC CONTROL: Flagger.....	\$ 13.89	3.35
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TRAFFIC CONTROL:

Laborer-Cones/

Barricades/Barrels -

Setter/Mover/Sweeper.....	\$ 17.42	7.11
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TRUCK DRIVER, Includes all

axles including Dump Trucks.....	\$ 17.13	3.94
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TRUCK DRIVER: Distributor

Truck.....	\$ 22.32	0.00
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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular

rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union

average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.

Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

"

## No Historic Properties Affected

**VTrans Project Name:** Brookline (Salt Shed Construction)

**VTrans Project Number:** STP MM18(7)

**Date:** 10/29/2020

**Location:** Town Garage Lot, Grassy Brook Road, Brookline, Windham County, Vermont.  
**Lat/Long:** 43.037152,-72.594499

**Description:** This project involves the removal and replacement of an existing town garage salt shed with a larger and more improved structure. The new shed will be constructed in the same general location as the extant shed but will have a much larger footprint on the existing gravel lot.

In defining the project Area of Potential Effect (APE) and determining appropriate identification efforts, VTrans considered the potential direct, indirect, and cumulative effects of the project, including the possible effects to known or potential historic and/or archaeologically sensitive properties and their aspects of integrity both within and beyond the project limits based on the scope, scale, nature, setting, topography, and other environmental factors associated with the project, such as views from and towards the project area and the potential for long-term effects.

Description of APE for Direct Effects:

The direct effects related to the upgrade of this existing town garage salt shed are confined to the exact limits of the town garage lot. These limits were loosely defined by the VTrans project manager and can be found in **Figure 2**. Please refer to **Figure 3** for a visual representation of the direct APE as outlined in **red**.

Description of APE for Indirect or Cumulative Effects:

The indirect effects related to this basic town salt garage upgrade are defined as a broad limit that takes into consideration project impacts such as noise, vibration, traffic congestion, visual impediments and other effects. A visual representation of the direct effects can be found in **Figure 3** as highlighted in **yellow**.

***APE Concurrence Letter Dated 8/24/2020***

The Vermont Agency of Transportation (VTrans) has reviewed this project according to the standards and procedures detailed in the *Programmatic Agreement Among the Federal Highway Administration, the Vermont State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the Vermont Agency of Transportation Regarding the Federal-Aid Highway Program in Vermont* executed in 2019 (2019 PA). Completion of this form in accordance with the 2019 PA demonstrates that FHWA has satisfied its Section 106 responsibilities for this project.

**Archaeology:**

- ☐ Project does not involve any ground disturbance.
- ☒ There are no known or expected archaeological sites in the Area of Potential Effect. See attached supporting documentation or further explanation and justification on reverse.
- ☐ There are known or expected archaeological sites in the Area of Potential Effect, but the project will have no effect, positive or negative, on them. See attached supporting documentation or further explanation and justification on reverse.

*Brennan Gauthier*

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Archaeology

**Above Ground Historic Resources:**

- ☐ There are no buildings or structures in the APE.
- ☒ There are no historic buildings, structures, or landscapes in the Area of Potential Effect. See further explanation and justification below.
- ☐ There are historic buildings, structures, or landscapes in the Area of Potential Effect, but the project will have no effect, positive or negative, on them. See further explanation and justification below.

*Kyle E. Oberauer*

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Historic Preservation

**Archaeology Explanation:** Although the footprint of the salt shed will expand, this project will remain securely within the footprint of the previously disturbed gravel lot. There are no concerns for impacts to areas deemed archaeologically sensitive.

**Above Ground Explanation:** The extant salt shed that will be replaced is a utilitarian structure common in construction, design, and materials (*Figure 4*). Consequently, it does not possess the historic significance necessary for inclusion in the National Register of Historic Places. A wood framed garage with a shallow pitched gable roof and vertical board siding stands directly adjacent to the extant shed. Less than 50 years old, the town garage building will not be affected by this project and similarly, does not possess the exceptional historic significance necessary for inclusion in the National Register. There are no other properties within the APE.

**Attachments:**



Photos



Map



Report(s)

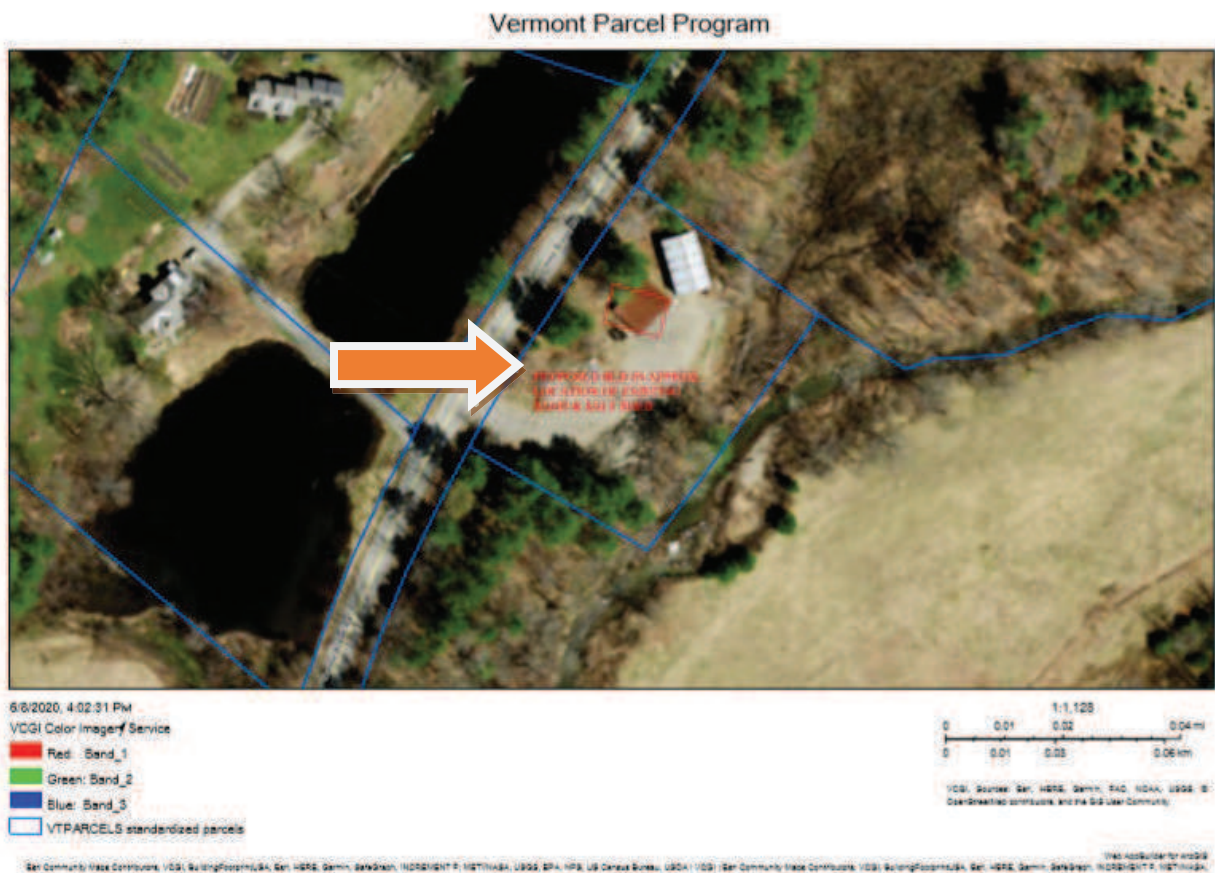


Other:

## Images and Illustrations



**Figure 1: Brookline Location.**



**Figure 2: Town Garage Location.**



**Figure 3: APE.**



**Figure 4. Extant Brookline Salt Shed with Adjacent Town Garage**



## RIGHT OF WAY CERTIFICATE

TO: Trey Polk, Right of Way Acquisitions and Utilities Manager  
FROM: Chris Hunt  
DATE: 02/22/2021  
SUBJECT: Brookline STP MM18(7)

This is to certify that:

1. No acquisitions of land or rights were necessary since this is a municipally managed project and all construction will be within the right of way controlled by the municipality. Therefore, the right of way is clear.
2. There are no Right of Way Special Agreements on these projects.

Comments:

APPROVED:

E-SIGNED by Trey Polk  
on 2021-02-23 14:42:48 GMT

Trey Polk, Right of Way Acquisitions and Utilities Manager

### Distribution

Andrea Wright, Right of Way and Environmental Program Manager  
Marvin D. Kingsbury, Programming Engineer, Planning  
Craig Keller, Chief of Permits Section  
Anthony Davis, Finance & Administration  
Meredith Asselin, Finance & Administration  
Patrick Kirby, FHWA  
ROW Admin for OnBase



**State of Vermont**  
**Agency of Transportation**  
**Environmental Section**  
Barre City Place, 4th Floor,  
219 North Main Street  
Barre City, VT 05641  
<http://vtrans.vermont.gov/>

Mr. Matthew R. Hake, P.E.  
Division Administrator  
Federal Highway Administration  
87 State Street, Montpelier, Vermont 05602

November 2, 2020

Attn: FHWA, Environmental Program Manager, via NEPA SharePoint Site  
Re: **Brookline STP MM18(7)-new sand/salt shed with related site work**

Dear Mr. Hake:

Project Brookline STP MM18(7) is located on Grassy Brook Rd. at the existing town highway garage site, 0.1 miles north of Parker Rd. and 0.85 miles north of the Brookline town offices.

Work to be performed under this contract includes construction of a new, larger sand/salt shed to replace the existing salt shed transportation maintenance facility, with related site work and incidental items as required.

The Vermont Agency of Transportation (VTrans) has considered the potential environmental consequences of the project in accordance with the National Environmental Policy Act (NEPA). VTrans has determined that this project meets all of the criteria specified in the Programmatic Agreement entitled "Processing of Projects Eligible for Categorical Exclusion," executed 03/14/19. The project qualifies for Categorical Exclusion pursuant to 23 CFR 771.117(---c--)(--22---) "Environmental Impact and Related Procedures - Categorical Exclusions" as the project consists of construction of a new transportation maintenance facility (salt/sand shed).

This project will not induce significant impacts to planned growth or land use for the area; will not require the relocation of significant numbers of people; will not have a significant impact on any natural, cultural, recreational, historic or other resource; will not involve significant air, noise, or water quality impacts; will not have significant impacts on travel patterns; and will not otherwise, either individually or cumulatively, have any significant environmental impacts.

Please contact Lee Goldstein, Environmental Specialist @ 802-595-1808 if you require additional information.

Respectfully,

Lee Goldstein  
VTrans Environmental Specialist

Attachments

cc: Chris Hunt, Project Manager; Project File

### PROGRAMMATIC CATEGORICAL EXCLUSION CRITERIA

VTrans has determined that this project will **NOT**:

- A. X Require a temporary detour outside existing right-of-way, or a temporary wetland or stream crossing which will require non-routine mitigation, or a ramp closure, unless the following conditions are met :
  - (1) provisions are made for access by local traffic and the facility is posted accordingly,
  - (2) businesses dependent upon through traffic will not be unduly affected,
  - (3) the temporary detour or ramp closure will not interfere with local special events,
  - (4) the temporary detour, ramp closure, wetland or stream crossing will not substantially increase the environmental consequences of the action (project).
- B. X Involve construction in wetlands totaling more than 5,000 square feet of permanent impacts, requiring the Army Corp of Engineers to coordinate with resource agencies per the General Permit.
- C. X Require a Risk Analysis for an increase in 100-year flood water surface elevations, per EO 11988.
- D. X Involve construction within, or alter drainage patterns so as to adversely affect, a Sole Source Aquifer.
- E. X Require coordination with the US Fish and Wildlife Service for the preparation of a Biological Assessment for Threatened and Endangered Species, per 16 CFR Section 7.
- F. X Require acquisition of additional right-of-way (including permanent or temporary construction easements) involving: more than three acres of land per mile of roadway, or a total of 10 acres or more for a non-linear improvement (such as a bridge or an intersection), or any relocation of residences or businesses.
- G. X Require FHWA approval for changes in access control.
- H. X Involve acquisition of, or impacts upon Prime or Unique Farmland, unless a USDA Farmland Conversion Impact Rating Part VI Site Assessment has been completed and indicates Total Site Assessment Points less than 160 (doesn't apply to designated urban areas).
- I. X Cause an Adverse Effect to an archaeological or historic resource listed in, or eligible for inclusion in, the National Register of Historic Places.
- J. X Require use (permanent or temporary) of a Section 4(f) resource, unless that use meets the criteria for a de minimis or Programmatic 4(f); or involve the use of a Section 6(f) resource when compensation is required (property acquired or improved using Land and Water Conservation Funds).
- K. X Involve hazardous or residual waste liabilities subject to CERCLA and/or RCRA requirements.
- L. X Require a bridge permit from the US Coast Guard, per 23CFR 650 Subpart H.
- M. X Qualify as a Type I project and require analysis of noise abatement measures, per 23 CFR 772 and the FHWA approved VTrans Noise Policy.
- N. X Require greater than 50% Emergency Relief (ER) funding.  
(NOTE: If coordination with the FHWA was required to reach this determination attach concurrence memo)

## Categorical Exclusion Environmental Analysis Sheet

Town Brookline Project No. STP MM18(7) Route Grassy Brook Rd.

Project Setting: Urban \_\_\_\_\_ Village \_\_\_\_\_ Rural X  
 Traffic varies Year 2019 Typical \_\_\_\_\_ varies \_\_\_\_\_  
 AASHTO Functional Classification local road

CRITERIA OF 23 CFR771.117 (C) APPLICABLE? X YES \_\_\_\_\_ NO \_\_\_\_\_

NOTE: PROJECTS THAT MEET THE CRITERIA OF 23 CFR771.17 (C) NEED ONLY ADDRESS THOSE ISSUES MARKED WITH AN ASTERISK (\*).  
 THIS DOES NOT PRECLUDE THE NEED TO OBTAIN APPLICABLE STATE & FEDERAL CONCURRENCES & PERMITS.

### 1. Air Quality

Since the state of Vermont is in attainment for all the National Ambient Air Quality Standards (NAAQS) criteria pollutants (CO, Pb, NO<sub>2</sub>, O<sub>3</sub>, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>), the proposed project is exempt from conformity per 40 CFR 93.126 or 40 CFR 93.128 and is also exempt from regional conformity (regional emissions analysis requirements) per 40 CFR 93.127. Such projects may proceed toward implementation even in the absence of a conforming transportation plan and TIP. When completed, the project is not expected to result in any meaningful changes in traffic volumes, vehicle mix, or any other factor that would cause an increase in emissions impacts or contribute to violations of the NAAQS.

Urban intersection improvement Yes \_\_\_\_\_ No \_\_\_\_\_

Project Level-of-Service (LOS) degrading to D, E, or F Yes \_\_\_\_\_ No \_\_\_\_\_

[If "Yes" to both, then attach the Carbon Monoxide (CO) Hot-spot Analysis]

### 2. Noise

Type I Project (VTrans Noise Policy) Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, number of receptors impacted \_\_\_\_\_

Mitigation Requirements \_\_\_\_\_

### 3. Water Quality

#### Lakes or Ponds

VANR Lakes & Ponds permit Yes \_\_\_\_\_ No \_\_\_\_\_ Acquired \_\_\_\_\_

#### Rivers or Streams

VANR Title 19 Consultation Yes \_\_\_\_\_ No \_\_\_\_\_ Completed \_\_\_\_\_

Wild/ Scenic River Consultation Yes \_\_\_\_\_ No \_\_\_\_\_ Completed \_\_\_\_\_

#### Wetlands

\* Wetland Impact area Temporary 0 Permanent 0

\* Buffer Impact area Temporary 0 Permanent 0

\* VANR Wetland Permit Yes \_\_\_\_\_ No X Acquired \_\_\_\_\_

401 Water Quality Certification Yes \_\_\_\_\_ No \_\_\_\_\_ Acquired \_\_\_\_\_

Stormwater Discharge Permit Yes \_\_\_\_\_ No \_\_\_\_\_ Acquired \_\_\_\_\_

Floodplains Encroachment Yes \_\_\_\_\_ No \_\_\_\_\_

#### Flood Hazard Area/

River Corridor Permit Yes \_\_\_\_\_ No \_\_\_\_\_ Acquired \_\_\_\_\_

Describe Hydraulic Changes \_\_\_\_\_

Ground Water/Surface Water/Well Impacts Yes \_\_\_\_\_ No \_\_\_\_\_

Describe/ VANR Comments \_\_\_\_\_

4. **U.S. Army Corps of Engineers**  
 Section 10 and/or Section 404 Permit Required Yes \_\_\_\_\_ No \_\_\_\_\_ Acquired \_\_\_\_\_  
 Permit Type \_\_\_\_\_  
 COE Comments \_\_\_\_\_
5. **U.S. Coast Guard**  
 Navigable Waters Yes \_\_\_\_\_ No \_\_\_\_\_ Involved Waterway \_\_\_\_\_  
 Rivers & Harbors Act Section 9 and/or  
 Bridge Act of 1946 Permit(s) Required Yes \_\_\_\_\_ No \_\_\_\_\_ Acquired \_\_\_\_\_  
 Section 144(c) "Exemption" Yes \_\_\_\_\_ No \_\_\_\_\_ Acquired \_\_\_\_\_  
 USCG Comments \_\_\_\_\_
- \* 6. **Threatened and Endangered Species and Habitat**  
 Present in Project Area Yes X No \_\_\_\_\_  
 ANR Non-Game and Natural Heritage Program comments none at this time  
 USF&WS comments none at this time  
 See VTrans Biologist Natural Resource Clearance dated 10/14/2020
7. **Agricultural Land [Farmland Policy Protection Act]**  
 Project located in Federal-aid Urban Area Yes \_\_\_\_\_ No \_\_\_\_\_  
 Prime/secondary/locally important soils present Yes \_\_\_\_\_ No \_\_\_\_\_  
 Describe Impacts/Comments \_\_\_\_\_  
 Current land use (land in agricultural use) \_\_\_\_\_  
 Form 1006 Parts 1, III, VI, VII, completed (FHWA) Yes \_\_\_\_\_ No \_\_\_\_\_  
 Form 1006 Parts II, IV, V completed (NRCS) Yes \_\_\_\_\_ No \_\_\_\_\_  
 Vermont Department of Agriculture comments \_\_\_\_\_
- \*8. **Hazardous/ Residual Waste Liabilities**  
 Present in project area Yes \_\_\_\_\_ No X  
 Determination from VANR Atlas Yes X No \_\_\_\_\_  
 Determination from field visit Yes \_\_\_\_\_ No X  
 Borings completed Yes \_\_\_\_\_ No X  
 Petroleum related wastes Yes \_\_\_\_\_ No X  
 CERCLA involvement Yes \_\_\_\_\_ No X  
 Remediation required Yes \_\_\_\_\_ No X  
 Describe There aren't any hazardous or residual waste liabilities mapped within the project area per the ANR Natural Resources Atlas online mapping 09/22/2020. See ANR Natural Resource Atlas Map.
- \* 9. **Historical or Archaeological Resources (Section 106)**  
 Historic Resources: Present in APE Yes \_\_\_\_\_ No X Exempt \_\_\_\_\_  
 Archeological Resources: Present in APE Yes \_\_\_\_\_ No X Exempt \_\_\_\_\_  
 Section 106 Determination "No Historic Properties Affected" issued 10/29/2020  
 See Section 106 Memorandum for additional information.  
 Programmatic/ Memorandum of Agreement needed Yes \_\_\_\_\_ No X Executed \_\_\_\_\_  
 SHPO coordination completed N/A per 2019 PA  
 Advisory Council coordination completed n/a
- \* 10. **Section 4(f) Resources**  
 Section 4(f) Resource(s) present in project area Yes \_\_\_\_\_ No X  
 Nature of Section 4(f)  
 Parks/Rec. Areas \_\_\_\_\_ Wildlife and Waterfowl Refuge \_\_\_\_\_ Historic Property \_\_\_\_\_

Temporary impact to a 4(f) resource Yes \_\_\_\_\_ No X  
Permanent use of 4(f) resource Yes \_\_\_\_\_ No X  
Section 4(f) Approval (check one)  
Negative Declaration \_\_\_\_\_ de minimis 4(f) \_\_\_\_\_ Programmatic 4(f) \_\_\_\_\_ Circulated 4(f) \_\_\_\_\_  
Section 4(f) Comments There aren't any 4(f) resources within the project limits.

\*11. **6(f) Resources**

Section 6(f) involvement (LWCF Funding) Yes \_\_\_\_\_ No X  
National Park Service Conversion Approval n/a  
Section 6(f) Comments There aren't any 6(f) resources within the project limits.

\* 12. **Right of Way**

New ROW Acquisition fee simple Yes \_\_\_\_\_ No X  
permanent easement Yes \_\_\_\_\_ No X  
temporary easement Yes \_\_\_\_\_ No X  
Description of taking n/a  
Improved properties acquired Yes \_\_\_\_\_ No X  
Displacements Rental Units 0 Private Homes 0 Businesses 0  
Relocation services to be provided n/a  
Properties available for relocation n/a

13. **Public Participation Opportunity**

Pre-Design Site Meeting Yes \_\_\_\_\_ No \_\_\_\_\_ Date \_\_\_\_\_  
Public Information Meeting Yes \_\_\_\_\_ No \_\_\_\_\_ Date \_\_\_\_\_  
Public Hearing Required (502) Yes \_\_\_\_\_ No \_\_\_\_\_ Date \_\_\_\_\_  
Comments by Local Officials/RPC's \_\_\_\_\_

14. **Social and Economic Concerns**

Project consistent with Local and Regional Land Use Plans Yes \_\_\_\_\_ No \_\_\_\_\_  
Describe if not, what is inconsistent? \_\_\_\_\_  
Act 250 Permit or Amendment Yes \_\_\_\_\_ No \_\_\_\_\_ Acquired \_\_\_\_\_  
Neighborhood and Community Concerns Yes \_\_\_\_\_ No \_\_\_\_\_  
\_\_\_\_\_ Churches \_\_\_\_\_ Elderly  
\_\_\_\_\_ Schools \_\_\_\_\_ Handicapped  
\_\_\_\_\_ Low Income Housing \_\_\_\_\_ Environmental Justice Exec. Order 12898  
\_\_\_\_\_ Emergency Services \_\_\_\_\_ Other  
Describe \_\_\_\_\_  
Effect on local business Yes \_\_\_\_\_ No \_\_\_\_\_ (Describe) \_\_\_\_\_  
Temp. effect on business Yes \_\_\_\_\_ No \_\_\_\_\_ (Describe) \_\_\_\_\_  
Loss of parking Yes \_\_\_\_\_ No \_\_\_\_\_ (Describe) \_\_\_\_\_  
Pedestrian Facilities Sidewalk Widths Existing \_\_\_\_\_ Proposed \_\_\_\_\_  
Bicycle Facilities Paved Shoulder Widths Existing \_\_\_\_\_ Proposed \_\_\_\_\_  
If not minimum standard (sidewalk 5ft, paved shoulder 4ft), explain \_\_\_\_\_

15. **Aesthetic Considerations**

Scenic Byway/VT Scenic Highway Yes \_\_\_\_\_ No \_\_\_\_\_  
Describe \_\_\_\_\_  
Comments \_\_\_\_\_

16. **Effects of Temporary Detour/Bridge**

Detour required Yes \_\_\_\_\_ No \_\_\_\_\_ Additional Length \_\_\_\_\_ (Attach Plans)

Temporary bridge required Yes \_\_\_\_\_ No \_\_\_\_\_  
Impacts of Detour/Bridge \_\_\_\_\_  
Local Government coordination Yes \_\_\_\_\_ No \_\_\_\_\_ Comments \_\_\_\_\_

Field Inspection Comments \_\_\_\_\_ See supporting documentation.

### Summary of Commitments and Mitigation

Describe

#### Emerald Ash Borer.

As of 2018, emerald ash borer (EAB), *Agrilus planipennis*, has been confirmed within Vermont's borders. To provide an assurance of compliance with state and federal EAB laws the contractor shall adhere to the following:

Known EAB infestation areas are changing rapidly. Therefore the Contractor shall consult the online version of the EAB Infested Area Map (Located here: [www.vtinvasives.org/land/emerald-ash-borer-vermont](http://www.vtinvasives.org/land/emerald-ash-borer-vermont)) on the same day cutting is to occur. If the project is located with an EAB infested area, ALL tree material, regardless of species, within the project area shall be handled in accordance with a document developed by the Vermont Department of Forests, Parks and Recreation and the Vermont Agency of Agriculture titled "Recommendations to SLOW THE SPREAD of Emerald Ash Borer When Moving Ash from the Infested Area", <https://vtinvasives.org/sites/default/files/images/SlowSpreadWoodVT.pdf>. Tree material shall not be moved out of state.

Alternatively, the Contractor may choose to hire a qualified professional (Arborist certified by the International Society of Arboriculture or Licensed Forester), at their own expense, to identify the presence of ash trees. Those identified ash trees would be subject to the above referenced recommendations, however other tree species would not.

The Contractor is also hereby made aware of the same potential restrictions as they relate to proposed Waste, Borrow and Staging areas under Section 105.25 Control of Waste, Borrow, and Staging Areas.

Prepared by: \_\_\_\_\_ Reviewed by: Julie Ann Held 11/02/2020  
Signature Date Signature Date

Document Template Last Revised 03/14/19



March 9, 2022

Utility and Railroad Clearance for: Town of Brookline Sand and Salt Shed, STP MM18(7)

To Project File,

To comply with the requirements of 23 C.F.R. 635.309b, all applicable utility and railroad coordination has been completed for the subject project.

All necessary arrangements have been made for the utility work to be undertaken and completed as required for proper coordination with physical construction schedules, with necessary agreements consummated with the appropriate parties concerned.

Utility adjustments **are not** required by proposed construction plans for the subject project.

No railroad is impacted by this project.

Sincerely,

Ronald K. Bell, PE

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Signature

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Civil Engineer

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Title

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March 9, 2022

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Date

cc: MAB Project Supervisor

## DESIGN CERTIFICATION

Municipal Project Manager's Name / Address

Christopher Hunt

Vermont Agency of Transportation

Montpelier

Project: Town of Brookline Sand and Salt Shed STP MM18(7)

Dear Municipal Project Manager,

The noted projects plans, calculations and notes have been reviewed by our personnel and are substantially free from errors and omissions and are in conformance with the appropriate standards, codes and specifications for design and public safety.

Sincerely,



Signature of Engineer of Record (PE Required)

Civil Engineer

Title

February 18, 2022

Date

cc: VTrans Project Supervisor