WEST NORTH STREET RECONSTRUCTION UTILIZING PRECAST CONCRETE PANELS

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Senior Project Manager

Delaware Department of Transportation

AECOM

Topics

- Project Background
- Precast vs Traditional Concrete
- Cost/Time
- Maintenance of Traffic (MOT)
- Design
- Construction
- Lessons Learned
- Questions

Project Background

- West Dover Connector
  - 3.2 mile new roadway connecting the southwest side of Dover, DE to Camden & Wyoming, De
  - Designed by AECOM bridges by DelDOT
  - Contractor Mumford and Miller
  - Terminates at the intersection at the existing intersection of North St & S Saulsbury Road.
  - North Street was scheduled to be patched and overlaid.

Location Map

Project Background

- North Street
  - Was constructed in the 1960s
  - 8” Cast in Place Concrete over select.
  - Proctor and Gamble receives 30-45 trucks per day. Trucks run 24/7 never a time when deliveries are not arriving.
    - 7 different carriers
  - Kraft had similar number of deliveries also operating 24/7
  - Annual Average Daily Traffic – 16,037 vpd
    - 9 percent truck traffic
- North Street/S Saulsbury Road
  - Summer Weekday Morning Peak Hour – 1,878 vehicles
  - Summer Weekday Midday Peak Hour – 1,767 vehicles
  - Summer Weekday Afternoon Peak Hour – 2,028 vehicles
  - Summer Weekend Peak Hour – 1,261 vehicles

Precast vs Traditional

- Night time closures vs extended closures
- Vehicles allowed back on

Precast Panels

- Longer lead times
  - 2 months average
- 232 panels produce 4 panels per day total production time 58 working days
- Estimated 15 panels a night on average (total of 11 nights)
- 11” thickness on grading material on select.
- Grout reaches 2500 psi in two hours
- Bedding grout
  - Reaches 600 psi in 12 hours
- Diamond grinding
- Mike Quad there for first week of training provided certificates to the workers.

Cast in Place

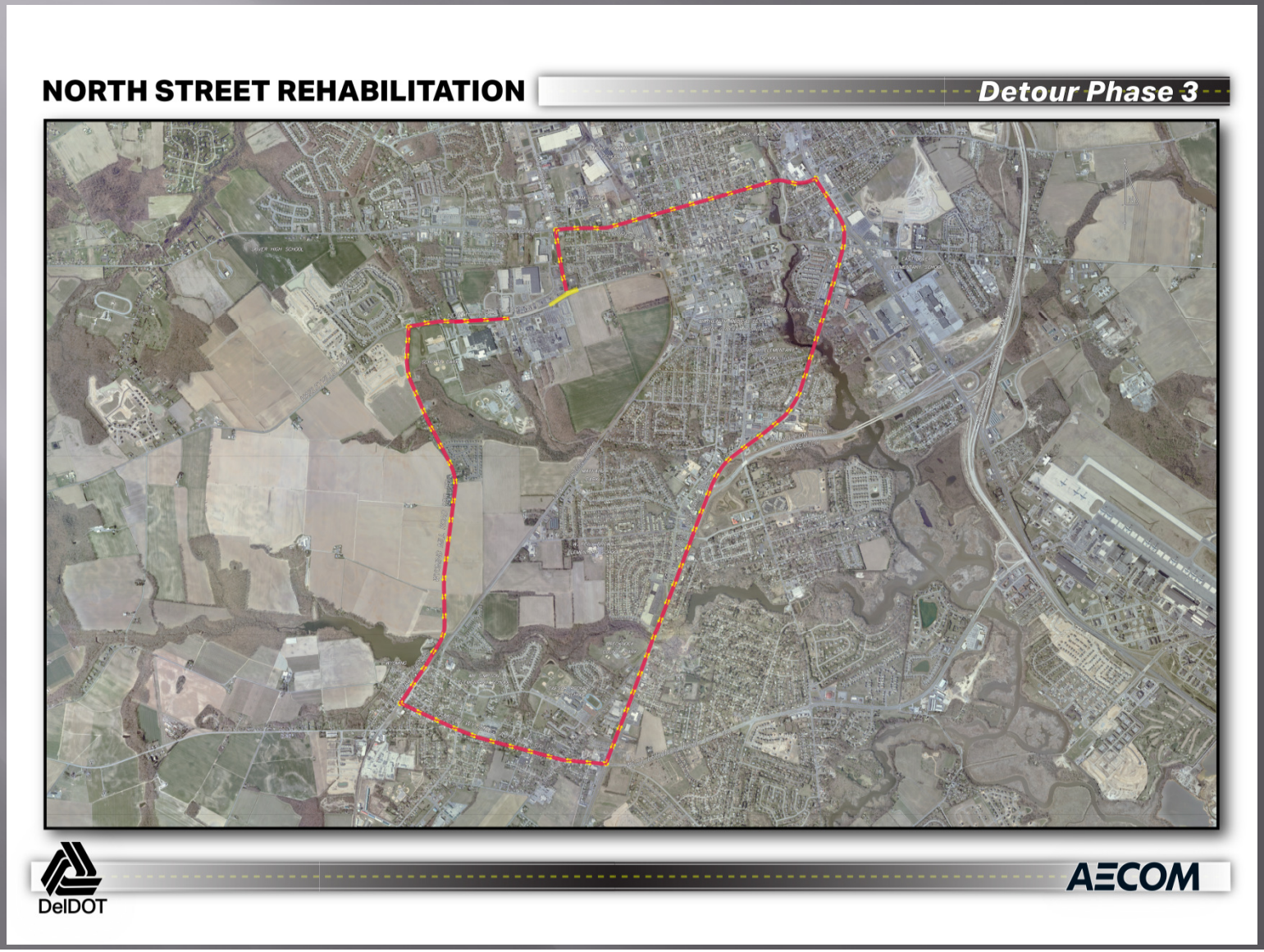
- 3- 8 hour shifts
- 24 hours a day
- 6 days a week/ 7th day makeup
- Transverse joints 15 feet
  - Joints need to be sealed within 5 days and temps need to be above 50 degrees and rising
  - Load transfer joints
  - Curing along 45 degree angle
- Final phase grind entire roadway
- Sealed the joints at the end of the project.

Project Cost

- Cost to remove and replace existing PCC Pavement with precast panels $399/SY.
- Cost to remove and replace existing PCC Pavement with Cast in Place $160/SY.
- Overall Project Cost per option
  - Reconstruction of W North Street - $5.9 million
    - Precast Panel Reconstruction - $1.9 million
    - Cast in Place Reconstruction - $3.1 million
  - Rehab Existing W North Street - $1.0 million
  - Original Proposed overlay of W North Street - $0.3 million

Detour

- 16 to 22 minute additional travel time



Phasing Plans

- Cast in Place - 75,000 SF
- Full Detour
- Construction Duration 9 Days

NORTH STREET REHABILITATION *Phase 1*

DelDOT

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Phasing Plans

- Cast in Place – 45,000 SF
- Full Detour
- Construction Duration - 8 days

NORTH STREET REHABILITATION *Phase 2*

DelDOT

AECOM

Phasing Plans

- Precast Panels – 61,992 SF
- Detour
  - Nightly Closures – 10 PM to 5 AM
  - Weekend 55 hour outages

Phasing Plans

- Precast Panels – 61,992 SF
- Detour
  - Nightly Closures – 10 PM to 5 AM
  - Weekend 55 hour outages

NORTH STREET REHABILITATION *Phase 3 - Stage 2*

DelDOT AECOM

Phasing Plans

- Cast in Place – 36 SF (18,000 SF per side)
- Full Detour – constructed one side at a time
- Construction Duration - 15 days

NORTH STREET REHABILITATION *Phase 3 - Stage 3*

DelDOT AECOM

Phasing Plans

- Cast in Place – 36 SF (18,000 SF per side)
- Full Detour – constructed one side at a time
- Construction Duration - 15 days

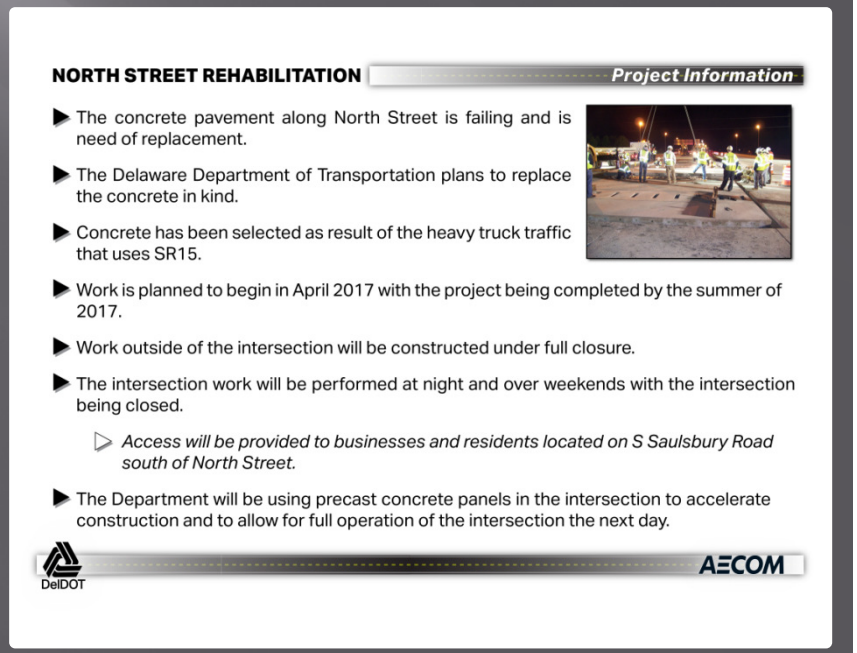
- Grinding & Striping of entire project limits
  - Night time closures – 14 days

NORTH STREET REHABILITATION *Phase 3 - Stage 4*

DelDOT AECOM

Public Outreach

- Held multiple meetings with the effected business
  - Proctor and Gamble
  - Kraft
  - NRG Energy
- Held meetings with the City of Dover
- Held a legislative briefing
- Held a public workshop.
- Construction sent weekly updates to the business providing status updates
- Coordinated the closure of the Kraft entrance to coincide with the Kraft plant shutdown.



NORTH STREET REHABILITATION *Project Information*

- The concrete pavement along North Street is failing and is need of replacement.
- The Delaware Department of Transportation plans to replace the concrete in kind.
- Concrete has been selected as result of the heavy truck traffic that uses SR15.
- Work is planned to begin in April 2017 with the project being completed by the summer of 2017.
- Work outside of the intersection will be constructed under full closure.
- The intersection work will be performed at night and over weekends with the intersection being closed.
  - *Access will be provided to businesses and residents located on S Saulsbury Road south of North Street.*
- The Department will be using precast concrete panels in the intersection to accelerate construction and to allow for full operation of the intersection the next day.

DelDOT AECOM

Design

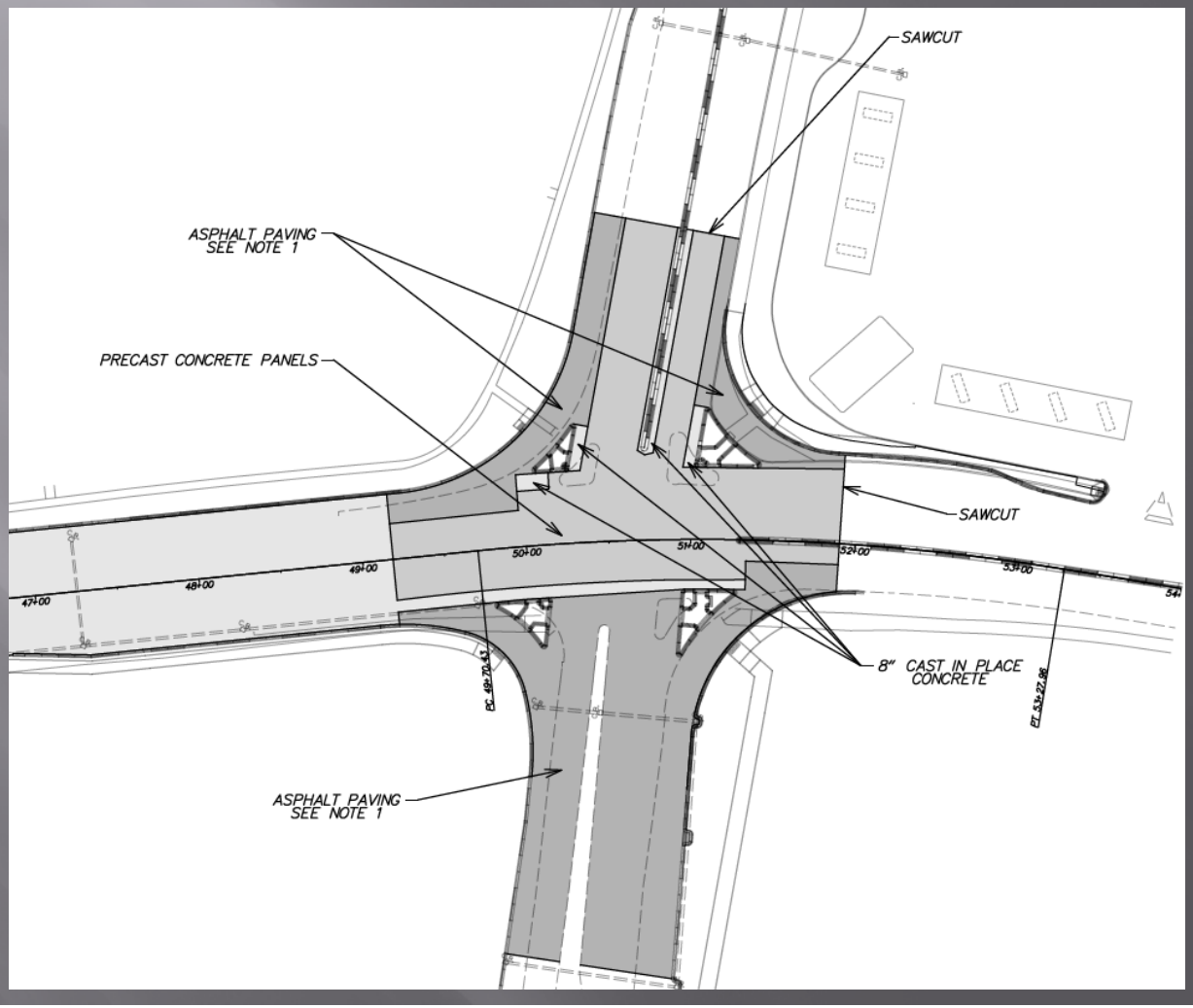
- Survey
  - Accuracy is paramount.
  - Manholes/valves/grates
  - Limited ability to make adjustments in the field.
- Coordination
- Model
- Turn Lanes

Panel plan

- Contours at 0.1 foot intervals.

Closure Pours

- Interface with existing curb
- Hot-mix thickened or run rebar transitionally
- Fort Miller did not provide thickened edges



Specification

- New specification created –
  - 501500 – Precast Concrete Pavement Panels

501500 - Precast Concrete Pavement

Description:

This work consists of furnishing and installing a full-depth precast concrete pavement system. This includes the survey, design, fabrication, transportation of panels and materials, saw cutting and removal of existing pavement, base adjustments, placement of bedding material, grouting as required, diamond grinding, joint sealing, placement of temporary pavement transitions and all necessary materials and equipment to complete the work as shown on the contract plans.

References:

- PCI Design Handbook, 7th Edition, with all Interims and Errata
- AASHTO M111: Standard Specifications for Zinc (Hot-Galvanized) Coatings on Iron and Steel Products
- AASHTO M235: Standard Specifications for Epoxy Resin Adhesive
- ASTM C578: Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
- ASTM C637: Standard Specification for Aggregates for Radiation-Shielding Concrete
- ASTM C938: Standard Practice for Proportioning Grout Mixtures for Preplaced-Aggregate Concrete
- ASTM C1107: Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
- ASTM C2665: Standard Specification for Poly Vinyl Chloride (PVC) Drain, Waste and Vent Pipe and Fittings
- ASTM D3963: Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Steel Reinforcing Bars
- ASTM D4101: Standard Specification for Polypropylene Injection and Extrusion Materials
- ASTM C109: Standard Test Method for Compressive Strength of Hydraulic-Cement
- ASTM C157: Standard Test Method for Length Change of Hardend Hydraulic-Cement Mortar and Concrete
- ASTM C266: Standard Test Method for Time of Setting of Hydraulic-Cement Paste by Gillmore Needles
- ASTM C666: Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
- ASTM C939: Standard Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method)
- ASTM C940: Standard Test Method for Expansion and Bleeding of Freshly Mixed Grouts for Preplaced-Aggregate Concrete in the Laboratory
- ASTM C942: Standard Test Method for Compressive Strength of Grouts for Preplaced-Aggregate Concrete in the Laboratory
- ASTM C1038: Standard Test Method for Expansion of Hydraulic Cement Mortar Bars Stored in Water
- ASTM C1090: Standard Test Method for Measuring Changes in Height of Cylindrical Specimens of Hydraulic Cement Grout

Submittals:

Specification

- Shop Drawing required
  - Length, width, dimensions (including surface planarity for each panel
  - Detail and locate reinforcement
  - Detail and locate grout channels, ports and vents, block-outs, key-ways, dowel bars, tie bars, and embedded material.
  - Detail and locate lifting inserts. Lifting calculations.
  - Edge and surface finish detail.
- Installation Plans
  - Approved 30 days prior to panel installation
  - Detail panel and joint drawings
  - Detail for saw cut and removal of existing pavement
  - Detail for subgrade improvements
  - Detail for placement of panel support material
  - Detail for placement of grout dams
  - Detail for lifting, moving, and lowering and adjusting panels
  - Procedure for Q/A
  - Detail for placement of dowel bars and longitudinal joint ties.

Specification

- Contractor Quality Control Plan
  - 30 day prior to installation of panels.
  - Team members and responsibilities.
- Materials:
  - Concrete – 28 compressive strength shall be 5,000psi
  - Reinforcing steel, dowel bars, and tie bars need to be epoxy coated
  - Lifting inserts and devices – minimum 3 inch top cover and 1 inch bottom cover.
- Grout
  - Compressive strength 1 hour – 500 psi
  - Compressive strength 7 days – 2,500 psi
  - Expansion – 0 to 3%
  - Eflux Time – 15 to 30 seconds
  - Shrinkage at 28 days - <0.04% dry
  - Flowability <=30 seconds - .5” flow cone

Specification

- Granular bedding material – crushed stone

Sieve Size Designation	Percent Passing by Weight
3/8 inch	100
No. 4	85-100
No. 10	55 – 75
No. 40	10 – 40
No. 200	0 – 10

- Quality Control (QC) and assurance
  - Precast panels shall be manufactured in a PCI or NPCA certified plant
  - QC is responsibility of the fabricator.
  - Department performed Quality Assurance
  - Department can reject panel for the following reasons:
    - Crack width greater than 0.004 inches (0.1mm)
    - Void or honeycombed area

Specification

- Fabrication Tolerances:

Panel Dimensions: Length & Width	± 1/4”
Panel Dimensions: Nominal Thickness	± 1/8”
Panel Dimensions: Squareness (diagonal difference @ top of panel)	± 3/16”
Horizontal Alignment	± 1/4”
Deviation from straightness of mating edge of panels Vertical Alignment – Camber, Horizontal Skew, and Vertical Batter	± 1/8”
Position of lifting anchors (horizontal location)	± 6.0”
Position of non-prestressed reinforcement (horizontal & vertical)	± 1/2”
Position of pre-tensioned strands & Tendon duct at shear key, if used (horizontal & vertical)	± 1/4”
Position of dowel bar inserts (horizontal & vertical)	± 1/4”
Dimensions of block outs & grout pockets	± 1/4”

- Panels shall be manufactured to thickness specified by the department and shall include additional thickness to provide for required blanket milling post placement.

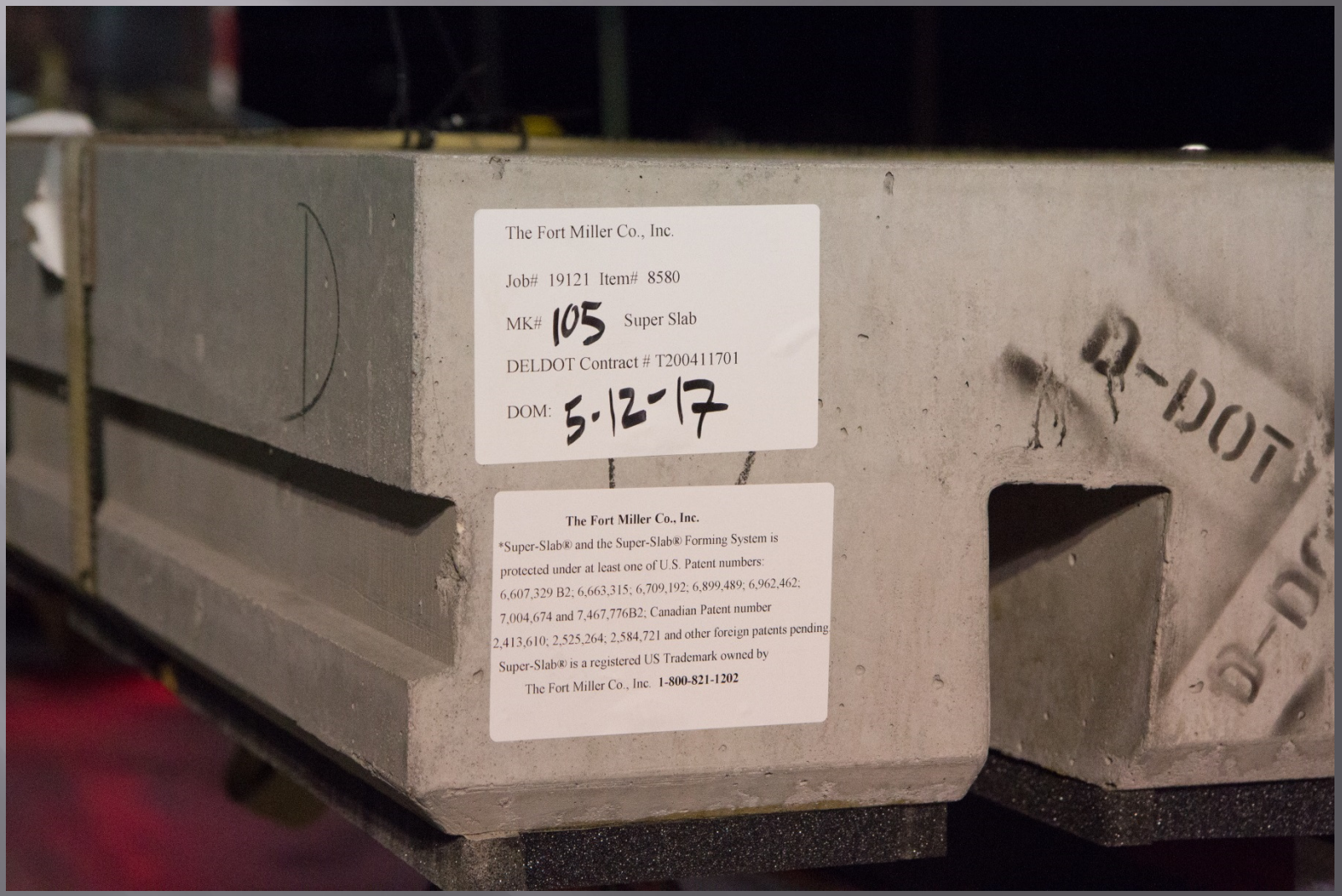
Specification

- Placement Tolerances:

Horizontal Alignment: Longitudinal centerline to surveyed centerline marked on the surface of the base and adjacent panels.	½" maximum
Transverse centerline to surveyed marks on adjacent panels	½" maximum
Vertical alignment: Top surface of precast panel with respect to top surface adjacent panels at any point	¼" maximum
Gap width at top surface between adjoining panels Note: Maintaining variable transverse joint width in excess of 1/2 inch will be cause for stoppage of panel installation operations until the contractor states in writing how he plans to correct this deficiency.	1/2" maximum transverse ½" maximum longitudinal

- Basis of Payment – per cubic yard
  - Includes: survey, design, fabrication and materials, transportation of the panels, removal of existing pavements including saw cutting, base adjustments, placement of bedding material, grouting, and diamond grinding.

Specification
(To stamp or not to stamp)



Construction (coated)

Shop Drawings

CONCRETE DATA:

1. CONCRETE MIX DESIGN MEETING THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS TO BE SUBMITTED UNDER SEPARATE COVER & APPROVED BY DELDOT.
2. CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 5,000 PSI AND A MINIMUM FLEXURAL STRENGTH OF 650 PSI.
3. NO SLAB SHALL BE STRIPPED FROM THE FORM PRIOR TO MEETING ONE OF THE FOLLOWING REQUIREMENTS:
   A. REACHING A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
   B. RECEIVING APPROVAL FROM THE FORT MILLER ENGINEERING DEPARTMENT.

PRODUCTION SCHEDULE:

SLABS SHALL BE FABRICATED ON A FIVE DAY SCHEDULE; A MAXIMUM OF (6) SIX SLABS PER DAY.

PANEL IDENTIFICATION:

EACH UNIT SHALL BE MARKED ON (2) TWO SIDES WITH THE FOLLOWING INFORMATION: 1

THE FORT MILLER CO. INC.
FM JOB # 19121 NKB
DELDOT CONRACT No.: T200411701
KENT COUNTY
DATE OF MANUFACTURE:

*SUPER-SLAB® IS PROTECTED UNDER AT LEAST ONE OF US PATENT NUMBERS; 6,607,320 B2, 6,663,315, 6,709,192, 6,899,489, 6,982,482, 7,004,674, AND 7,467,776 B2 AND CANADIAN PATENT NUMBER; 2,413,610 OTHER U.S. AND FOREIGN PATENTS PENDING. SUPER-SLAB® IS A REGISTERED US TRADEMARK OWNED BY THE FORT MILLER CO., INC.

MANUFACTURING SPECIFICATION: DELDOT

CURING:

CONCRETE SLABS SHALL BE CURED USING IN ACCORDANCE WITH ACI, PCI OR THE APPROVED PLANT QUALITY CONTROL PLAN. BEGIN CURING IMMEDIATELY FOLLOWING SURFACE FINISHING. CURING SHALL CONTINUE UNTIL LIFTING STRENGTH IS ATTAINED. AFTER CURING, ALL FORM RELEASE MATERIAL AND ANY FORM MATERIAL ADHERING TO CONCRETE SURFACES SHALL BE REMOVED BY POWER WASHING WITHOUT CAUSING DAMAGE TO THE SURFACE.

FOAM GASKET REPAIR PROCEDURE:

PRIOR TO INSTALLATION, ALL PANELS SHALL BE INSPECTED BY THE CONTRACTOR FOR MISSING OR DAMAGED GASKET MATERIAL. ANY GASKET MATERIAL THAT HAS BEEN DISPLACED OR WILL OTHERWISE COMPROMISE THE GROUTING OPERATION SHALL BE REPLACED BY THE CONTRACTOR IN THE FIELD.

TOLERANCES:

ALL UNITS SHALL BE CHECKED FOR COMPLIANCE WITH THE TOLERANCES LISTED BELOW, THE INSPECTOR SHALL DOCUMENT ANY UNIT WITH DIMENSIONS OUT OF TOLERANCE. ANY UNIT WHICH FAILS TO MEET THESE TOLERANCES SHALL BE SUBJECT TO REVIEW.

TOLERANCES ARE AS FOLLOWS:
- LENGTH & WIDTH: ± 1/4"
- DIAGONALS: ± 3/8"
- NOMINAL THICKNESS: ± 1/4"
- EDGE SQUARENESS: 1/8" IN 10" (IN RELATION TO TOP & BOTTOM SURFACES)
- LIFTING DEVICES: 6" ± IN ANY DIRECTION (24" MIN. TO ANY EDGE)
- REINFORCEMENT COVER: +3/8", -1/4"
- REINFORCEMENT POSITION: ±2" (NON-CUMULATIVE)
- DELTA ⊕ D CORNER OF SLAB: ±1/2"

SHIPPING:

1. NO UNIT SHALL BE SHIPPED UNTIL THE REQUIRED 28-DAY DESIGN STRENGTH HAS BEEN ATTAINED.
2. EACH UNIT SHALL BE CLEARLY MARKED WITH THE MARKINGS DESCRIBED ABOVE UNDER "PANEL IDENTIFICATION".
3. ALL MARKINGS SHALL BE INDELIBLE AND SHALL BE PLACED ON A SURFACE WHICH WILL NOT BE EXPOSED TO VIEW AFTER CONSTRUCTION IS COMPLETE.

SLAB REPAIRS:

THE CONTRACTOR SHALL REPAIR MANUFACTURING IMPERFECTIONS, HANDLING DAMAGE OR CONSTRUCTION DAMAGE TO PANELS IN ACCORDANCE WITH THE SPECIFICATION AND AS DIRECTED BY THE ENGINEER FOLLOWING CONSTRUCTION BEST PRACTICES DISCUSSED IN PRECAST/PRESTRESSED CONCRETE INSTITUTE PUBLICATION #PP-05-12, "STATE OF THE ART REPORT ON PRECAST CONCRETE PAVEMENTS", FIRST EDITION, SECTION 4.6-REPAIRS AND SURFACE REMEDIATION, AT NO ADDITIONAL COST TO THE AUTHORITY. 1

NOTE TO CONTRACTOR:

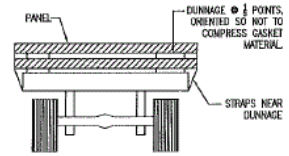
THIS SHOP DRAWING REPRESENTS OUR INTERPRETATION OF THE PLANS AND SPECIFICATIONS, AND OUR CONTRACT REQUIREMENTS FOR THIS PROJECT. PRIOR TO THE MANUFACTURE OF ANY ITEM FOR THIS PROJECT, ALL DIMENSIONS, METHODS OF CONSTRUCTION AND EXISTING CONDITIONS MUST BE CHECKED, CORRECTED AND/OR APPROVED BY OUR CUSTOMER. NO ITEM WILL BE SCHEDULED FOR PRODUCTION UNTIL WE HAVE BEEN NOTIFIED IN WRITING THAT OUR DRAWINGS HAVE BEEN APPROVED FOR FABRICATION. APPROVAL DELAYS WILL RESULT IN FABRICATION DELAYS. ANY ITEM THAT IS FABRICATED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS THAT DOES NOT FIT THE CUSTOMER'S REQUIREMENTS WILL BE REMADE AND SHIPPED TO THE PROJECT ONLY AT THE CUSTOMER'S EXPENSE, AND ONLY AFTER RECEIPT OF A PURCHASE ORDER TO COVER THE ADDED EXPENSE. WE ASSUME NO RESPONSIBILITY FOR THE ALTERING OF OUR PRODUCTS TO ACCOMMODATE OTHER TRADES UNLESS REQUIRED INFORMATION IS FURNISHED AND SHOWN ON OUR SHOP DRAWINGS AT THE TIME THEY ARE APPROVED FOR FABRICATION BY OUR CUSTOMER.

MATERIAL NOTES:

1. PANEL LIFTING INSERTS TO BE DAYTON SUPERIOR P-1 1 1/2"Ø x 7 1/8" 4-STRUT ELECTRO GALVANIZED COIL INSERTS OR EQUAL.
2. LIFTING TO BE ACCOMPLISHED USING 1 1/2"Ø DAYTON SUPERIOR T-26 DOUBLE SWIVEL LIFT PLATE WITH COIL BOLT.
3. ALL 1 1/2"Ø X 14" SMOOTH EPOXY COATED DOWEL BARS TO BE MANUFACTURED BY DAYTON SUPERIOR / AMERICAN HIGHWAY.

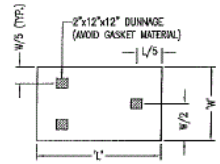
CONTRACTOR SUPPLIED ITEMS:

A. STRUCTURAL GROUT USED FOR TRANSVERSE & LONGITUDINAL CONNECTIONS.
B. BEDDING GROUT FOR UNDER SLAB.
C. STRUCTURAL GROUT FOR ALL LIFTING HOLES.
D. CABLES/SHACKLES/EQUAL OR UNEQUAL LENGTH SLINGS FOR UNLOADING & SETTING.
E. GROUT PUMP.
F. DEMO SAW TO SAW CUT JOINTS.
G. HIGHWAY JOINT SEALING MATERIAL, AS PER SPECIFICATION.
H. BOND BREAKING AGENT.
I. GREAT STUFF FOAM OR GROUT DAM MATERIAL.
J. GANG DRILL.
K. DOWEL BARS FOR DRILL AND ANCHOR LOCATIONS – SIZE/TYPE AS REQUIRED.
L. EPOXY ANCHORING MATERIAL.
M. EPOXY RETENTION RINGS, DAYTON SUPERIOR K13 OR EQUAL – SIZE AS REQUIRED.
N. ANY ITEM NOT SPECIFICALLY MENTIONED ON THE SHIP LOOSE LIST.

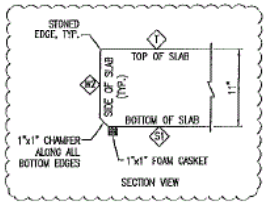


SHIPPING DETAIL
(2) TWO PANEL MAXIMUM HEIGHT 1

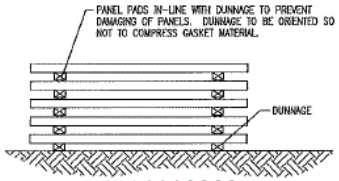
W = SMOOTH COATED WOOD FINISH
S1 = STEEL FORM FINISH
T = LONGITUDINAL MEDIUM BROOM FINISH



YARD STORAGE DETAIL
PLAN



SECTION VIEW 1



YARD STORAGE DETAIL
ELEVATION
STACK UNITS (5) FIVE HIGH (MAX.) 1

TOP VIEW

SLAB FINISH DETAIL

TABLE OF CONTENTS

SHT. No.	DWG. No.	TITLE	REV. No.
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4	D-4	SLAB CORNER POINTS – 1	1
5	D-5	SLAB CORNER POINTS – 2	1
6	D-6	SLAB CORNER POINTS – 3	1
7	D-7	SLAB CORNER POINTS – 4	1
8	D-8	SLAB CORNER POINTS – 5	1
9	D-9	SLAB CORNER POINTS – 6	1
10	D-10	PRECAST SLAB TYPES – 1	0
11	D-11	PRECAST SLAB TYPES – 2	1
12	D-12	PRECAST SLAB TYPES – 3	2
13	D-13	PRECAST SLAB TYPES – 4	1
14	D-14	PRECAST SLAB TYPES – 5	0
15	D-15	PRECAST SLAB TYPES – 6	1
15A	D-15A	PRECAST SLAB TYPES – 7	1
16	D-16	PRECAST SLAB FABRICATION DETAILS	1
17	D-17	GROUT DISTRIBUTION & REINFORCEMENT DETAILS	1
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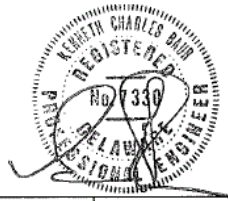
19	D-19	SLAB FABRICATION TABLE – 1	1
20	D-20	SLAB FABRICATION TABLE – 2	1
21	D-21	SLAB FABRICATION TABLE – 3	1

SHIP LOOSE (BY PRECASTER)

GENERAL		
FM ITEM #	QTY.	ITEM
31845	8 EA.*	1 1/2"Ø DOUBLE SWIVEL LIFT PLATE, CAPACITY 13,500 LB
22323	8 EA.*	1 1/2"Ø x 9" LONG COIL BOLTS, MAX. CAPACITY 10,800 LB
17863	30 FT.	1" x 1" FOAM GASKET MATERIAL
26427	1 QT.	FOAM GASKET GLUE
7026	----	TECHNICAL SUPPORT
45289	460 EA.	#6 DS D-108 X 7" EPOXY COATED HEADED DOWEL-IN
45495	1 EA.	GROUT PIPE
45496	4 EA.	STANDARD FUNNEL FOR BEDDING GROUT
GRADING EQUIPMENT		
FM ITEM #	QTY.	ITEM
25890	100 EA.	4" x 4" x 1/16" PLASTIC SHIMS
37119	1 EA.*	AUGER HOG ASSEMBLY
37121	1 EA.*	16' AUGER HOG CROSSBEAM
37122	2 EA.*	AUGER HOG TRUCK ASSEMBLY
40990	10 EA.*	AUGER HOG – 4" x 10'-0" RAILS
42811	2 EA.*	AUGER HOG – 4" x 10'-8" RAILS
40509	2 EA.*	CA RAIL 6'-9"
52446	40 EA.*	DEL RAIL 10'-7"
37126	12 EA.*	HOG RAIL PIVOT CONNECTORS
37144	1 LOT*	4" HOG RAIL FILLER PIECES
40602	10 EA.*	ADJUSTABLE SHIMS
39139	1 EA.*	LASER SLOPE METER
40594	1 EA.*	LASER LEVEL & TARGET
48344	1 EA.*	LASER DAY HOOD
49936	1 EA.*	WOOD SHIM KIT

ALL PRODUCTS MARKED WITH AN ASTERISK(*) SHALL BE RETURNED TO THE PRECASTER AT THE EXPENSE OF THE CONTRACTOR.



REVISED 4/07/17 DRAWING

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PRECASTER:
NORTHEAST PRECAST
92 REESE ROAD
MILLVILLE, NJ 08332
PH: 1-856-599-2507
www.northeastprecast.com

DelDOT

FED. ROAD REG. #	STATE	DELDOT CONTRACT NO.	SHEET NO.	TOTAL SHEETS
	DE	T200411701	1	22

FULL DEPTH CONCRETE PAVEMENT REPAIR, PRECAST
WEST DOVER CONNECTOR
INTERSECTION OF HAZLETTVILLE RD. / SOUTH SAULSBURY RD. / WEST NORTH ST.
CITY OF DOVER
KENT COUNTY

The Fort Miller Co., Inc.
P.O. BOX 98
SCHUYLERVILLE, NY 12871
PH: (518) 695-5000
FX: (518) 695-4030
www.fortmiller.com

NO.	DATE	BY	DESCRIPTION
1	4/07/17	JCS	REVISED PER DELDOT COMMENTS

REVISIONS

PRECAST PAVEMENT SLABS
WEST DOVER CONNECTOR

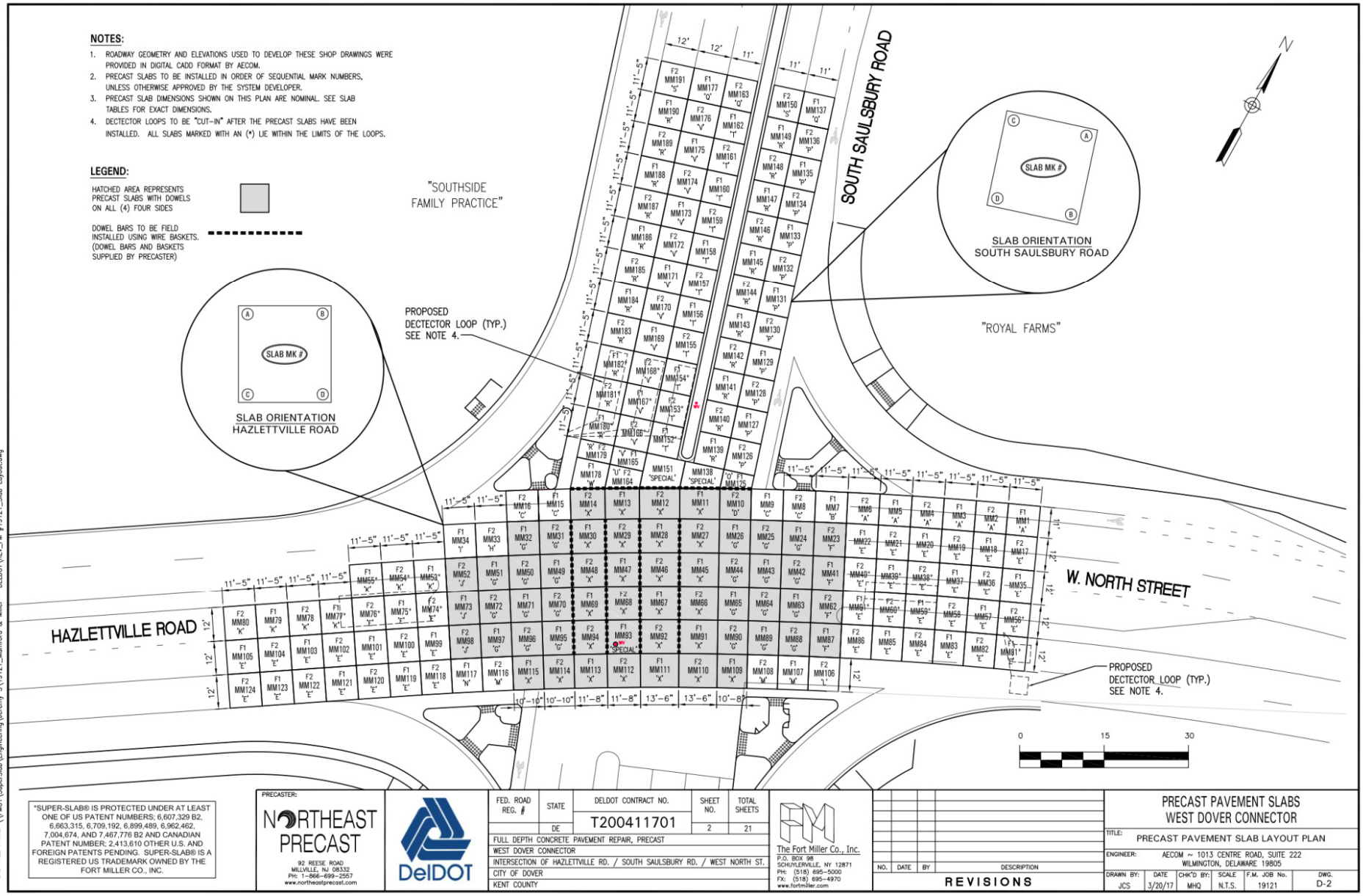
TITLE: PRODUCTION NOTE SHEET

ENGINEER: AECOM ~ 1013 CENTRE ROAD, SUITE 222
WILMINGTON, DELAWARE 19805

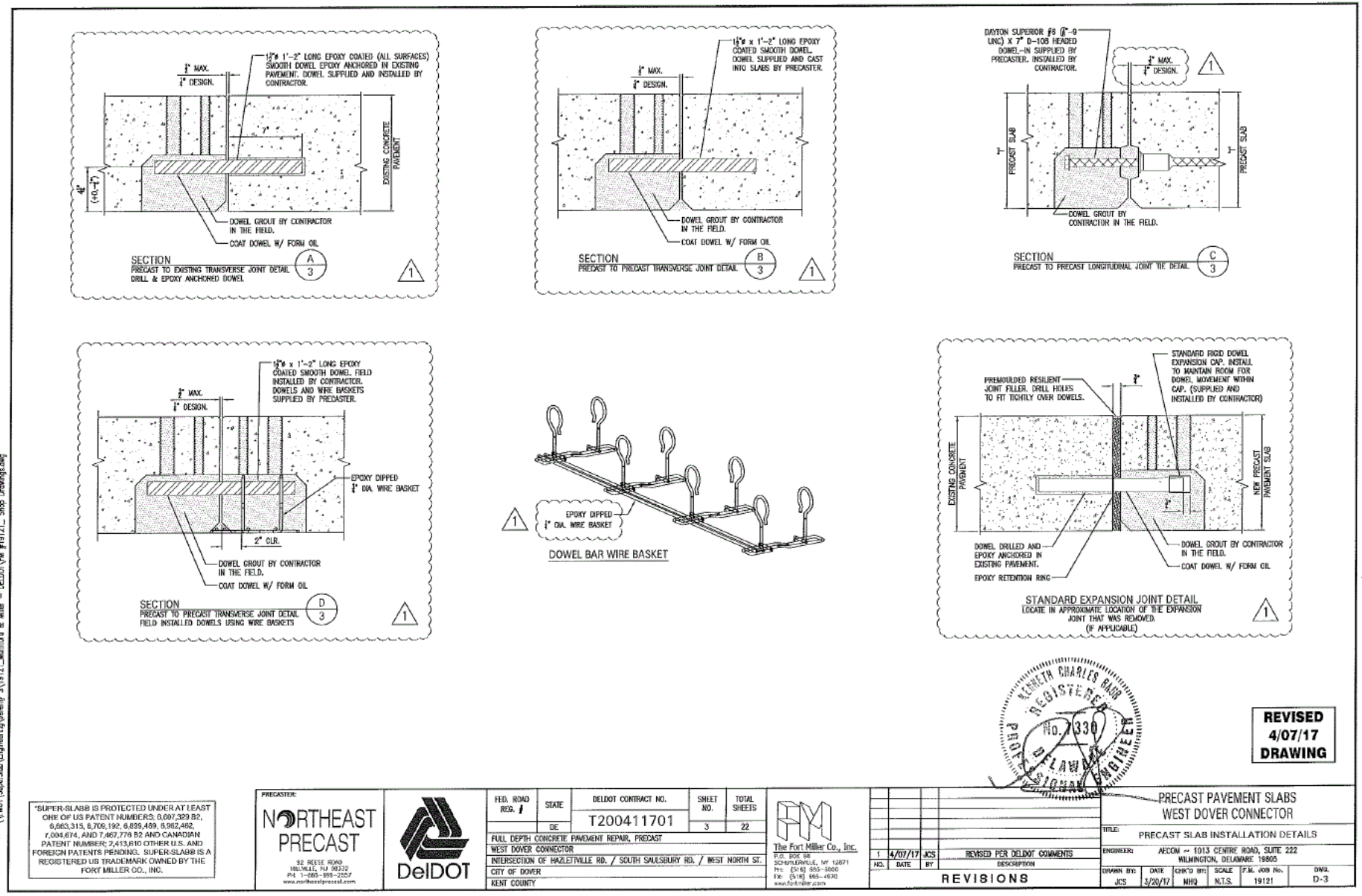
DRAWN BY:	DATE	CHK'D BY:	SCALE	F.M. JOB No.	DWG.
JCS	3/28/17	MHQ	N.T.S.	19121	D-1

DATE: March 20, 2017
FM PROJECT: 19121
PLOT DATE & TIME: 4/7/2017 4:05:14 PM
CAD FILE NAME: \\FMCI\SuperSlab\Engineering\Jeremy S\19121_Mumford & Miller - DELDOT\FM #19121_ Shop Drawings.dwg

Shop Drawings



Shop Drawings



Shop Drawings

SLAB CORNER	NORTHING	EASTING	ELEVATION	CROSS SLOPE	CROSS SLOPE IN 12'-0"
MM73A	420059.601	620684.134	45.467	0.020	0'-27/8"
MM73C	420049.462	620690.514	45.227		
MM73B	420065.489	620693.5783	45.522	0.020	0'-27/8"
MM73D	420055.298	620699.8743	45.282		
MM74A	420053.624	620674.721	45.411	0.020	0'-27/8"
MM74C	420043.538	620681.184	45.172		
MM74B	420059.590	620684.1167	45.467	0.020	0'-27/8"
MM74D	420049.451	620690.4962	45.227		
MM75A	420047.453	620665.166	45.355	0.020	0'-27/8"
MM75C	420037.401	620671.681	45.115		
MM75B	420053.613	620674.7038	45.411	0.020	0'-27/8"
MM75D	420043.527	620681.1665	45.172		
MM76A	420041.233	620655.568	45.297	0.020	0'-27/8"
MM76C	420031.180	620662.083	45.058		
MM76B	420047.442	620665.1485	45.355	0.020	0'-27/8"
MM76D	420037.390	620671.6637	45.115		
MM77A	420035.012	620645.970	45.240	0.020	0'-27/8"
MM77C	420024.960	620652.485	45.001		
MM77B	420041.221	620655.5505	45.297	0.020	0'-27/8"
MM77D	420031.169	620662.0657	45.058		
MM78A	420028.792	620636.372	45.183	0.020	0'-27/8"
MM78C	420018.739	620642.887	44.943		
MM78B	420035.001	620645.9525	45.240	0.020	0'-27/8"
MM78D	420024.948	620652.4677	45.001		
MM79A	420022.571	620626.774	45.126	0.020	0'-27/8"
MM79C	420012.518	620633.289	44.886		
MM79B	420028.780	620636.3546	45.183	0.020	0'-27/8"
MM79D	420018.728	620642.8697	44.943		
MM80A	420016.350	620617.176	45.069	0.020	0'-27/8"
MM80C	420006.298	620623.691	44.829		
MM80B	420022.560	620626.7566	45.126	0.020	0'-27/8"
MM80D	420012.507	620633.2718	44.886		
MM81A	420140.930	620862.382	46.203	0.020	0'-27/8"
MM81C	420129.976	620867.230	45.964		
MM81B	420145.355	620872.4889	46.258	0.020	0'-27/8"
MM81D	420134.362	620877.2479	46.019		
MM82A	420136.415	620852.295	46.148	0.020	0'-27/8"
MM82C	420125.501	620857.234	45.908		
MM82B	420140.922	620862.3625	46.203	0.020	0'-27/8"
MM82D	420129.967	620867.211	45.964		
MM83A	420131.819	620842.248	46.092	0.020	0'-27/8"
MM83C	420120.946	620847.276	45.853		
MM83B	420136.407	620852.2762	46.148	0.020	0'-27/8"
MM83D	420125.493	620857.2147	45.908		
MM84A	420127.138	620832.236	46.037	0.020	0'-27/8"
MM84C	420116.307	620837.354	45.798		
MM84B	420131.810	620842.2286	46.092	0.020	0'-27/8"
MM84D	420120.937	620847.2571	45.853		

SLAB CORNER	NORTHING	EASTING	ELEVATION	CROSS SLOPE	CROSS SLOPE IN 12'-0"
MM85A	420122.376	620822.263	45.982	0.020	0'-2 7/8"
MM85C	420111.588	620827.470	45.743		
MM85B	420127.130	620832.2172	46.037	0.020	0'-2 7/8"
MM85D	420116.299	620837.3349	45.798		
MM86A	420117.532	620812.330	45.926	0.020	0'-2 7/8"
MM86C	420106.787	620817.625	45.687		
MM86B	420122.367	620822.2447	45.982	0.020	0'-2 7/8"
MM86D	420111.579	620827.4512	45.743		
MM87A	420112.608	620802.438	45.871	0.020	0'-2 7/8"
MM87C	420101.906	620807.822	45.631		
MM87B	420117.523	620812.3115	45.926	0.020	0'-2 7/8"
MM87D	420106.778	620817.6064	45.687		
MM88A	420107.600	620792.585	45.815	0.020	0'-2 7/8"
MM88C	420096.944	620798.056	45.576		
MM88B	420112.598	620802.4198	45.871	0.020	0'-2 7/8"
MM88D	420101.897	620807.8032	45.631		
MM89A	420102.513	620782.774	45.760	0.020	0'-2 7/8"
MM89C	420091.901	620788.332	45.521		
MM89B	420107.591	620792.5662	45.815	0.020	0'-2 7/8"
MM89D	420096.934	620798.037	45.576		
MM90A	420097.452	620773.204	45.706	0.020	0'-2 7/8"
MM90C	420086.885	620778.848	45.467		
MM90B	420102.503	620782.7551	45.760	0.020	0'-2 7/8"
MM90D	420091.892	620788.3132	45.520		
MM91A	420090.887	620761.063	45.637	0.020	0'-2 7/8"
MM91C	420080.379	620766.814	45.397		
MM91B	420097.442	620773.186	45.706	0.020	0'-2 7/8"
MM91D	420086.875	620778.8293	45.467		
MM92A	420084.184	620748.964	45.567	0.020	0'-2 7/8"
MM92C	420073.736	620754.823	45.328		
MM92B	420090.877	620761.0446	45.637	0.020	0'-2 7/8"
MM92D	420080.369	620766.796	45.397		
MM93A	420078.327	620738.627	45.508	0.020	0'-2 7/8"
MM93C	420067.931	620744.578	45.268		
MM93B	420084.174	620748.9454	45.567	0.020	0'-2 7/8"
MM93D	420073.725	620754.8046	45.328		
MM94A	420072.367	620728.321	45.448	0.020	0'-2 7/8"
MM94C	420062.024	620734.364	45.209		
MM94B	420078.317	620738.6085	45.508	0.020	0'-2 7/8"
MM94D	420067.921	620744.5597	45.268		
MM95A	420066.753	620718.802	45.393	0.020	0'-2 7/8"
MM95C	420056.460	620724.929	45.153		
MM95B	420072.357	620728.303	45.448	0.020	0'-2 7/8"
MM95D	420062.014	620734.346	45.208		
MM96A	420061.061	620709.329	45.337	0.020	0'-2 7/8"
MM96C	420050.819	620715.541	45.098		
MM96B	420066.743	620718.7836	45.393	0.020	0'-2 7/8"
MM96D	420056.449	620724.9113	45.153		

SLAB CORNER	NORTHING	EASTING	ELEVATION	CROSS SLOPE	CROSS SLOPE IN 12'-0"
MM97A	420055.291	620699.903	45.282	0.020	0'-2 7/8"
MM97C	420045.100	620706.199	45.042		
MM97B	420061.050	620709.3109	45.337	0.020	0'-2 7/8"
MM97D	420050.808	620715.523	45.098		
MM98A	420049.444	620690.525	45.227	0.020	0'-2 7/8"
MM98C	420039.305	620696.905	44.987		
MM98B	420055.280	620699.8853	45.282	0.020	0'-2 7/8"
MM98D	420045.089	620706.1813	45.042		
MM99A	420043.520	620681.195	45.171	0.020	0'-2 7/8"
MM99C	420033.434	620687.658	44.932		
MM99B	420049.433	620690.5073	45.227	0.020	0'-2 7/8"
MM99D	420039.294	620696.8869	44.987		
MM100A	420037.383	620671.693	45.115	0.020	0'-2 7/8"
MM100C	420027.331	620678.208	44.875		
MM100B	420043.509	620681.1777	45.171	0.020	0'-2 7/8"
MM100D	420033.423	620687.6403	44.932		
MM101A	420031.163	620662.095	45.057	0.020	0'-2 7/8"
MM101C	420021.110	620668.610	44.818		
MM101B	420037.372	620671.675	45.115	0.020	0'-2 7/8"
MM101D	420027.320	620678.1902	44.875		
MM102A	420024.942	620652.497	45.000	0.020	0'-2 7/8"
MM102C	420014.890	620659.012	44.761		
MM102B	420031.151	620662.077	45.057	0.020	0'-2 7/8"
MM102D	420021.099	620668.5922	44.818		
MM103A	420018.722	620642.899	44.943	0.020	0'-2 7/8"
MM103C	420008.669	620649.414	44.703		
MM103B	420024.931	620652.4791	45.000	0.020	0'-2 7/8"
MM103D	420014.878	620658.9942	44.761		
MM104A	420012.501	620633.301	44.886	0.020	0'-2 7/8"
MM104C	420002.448	620639.816	44.646		
MM104B	420018.710	620642.8811	44.943	0.020	0'-2 7/8"
MM104D	420008.658	620649.3963	44.703		
MM105A	420006.280	620623.703	44.829	0.020	0'-2 7/8"
MM105C	419996.228	620630.218	44.589		
MM105B	420012.490	620633.2831	44.886	0.020	0'-2 7/8"
MM105D	420002.437	620639.7983	44.646		
MM106A	420101.888	620807.831	45.631	0.020	0'-2 7/8"
MM106C	420091.186	620813.215	45.391		
MM106B	420106.759	620817.6156	45.686	0.020	0'-2 7/8"
MM106D	420096.014	620822.9106	45.447		
MM107A	420096.925	620798.065	45.575	0.020	0'-2 7/8"
MM107C	420086.268	620803.536	45.336		
MM107B	420101.878	620807.8126	45.631	0.020	0'-2 7/8"
MM107D	420091.177	620813.196	45.391		
MM108A	420091.883	620788.341	45.520	0.020	0'-2 7/8"
MM108C	420081.271	620793.899	45.281		
MM108B	[illegible]	620798.0465	45.575	0.020	0'-2 7/8"
MM108D	[illegible]	620803.5173	45.336		

NOTE:
1. SLAB CORNER ELEVATIONS SHOWN ON THIS TABLE ARE TARGET INSTALLATION ELEVATIONS (FG +½") PRIOR TO DIAMOND GRINDING .

*SUPER-SLAB® IS PROTECTED UNDER AT LEAST ONE OF US PATENT NUMBERS; 6,607,329 B2, 6,663,315, 6,709,192, 6,899,489, 6,962,462, 7,004,674, AND 7,467,776 B2 AND CANADIAN PATENT NUMBER; 2,413,610 OTHER U.S. AND FOREIGN PATENTS PENDING. SUPER-SLAB® IS A REGISTERED US TRADEMARK OWNED BY THE FORT MILLER CO., INC.

PRECASTER:
NORTHEAST PRECAST
82 REESE ROAD
MILLVILLE, NJ 08332
PH: 1-866-669-2557
www.northeastprecast.com

DelDOT

FED. ROAD REG. #	STATE	DELDOT CONTRACT NO.	SHEET NO.	TOTAL SHEETS
	DE	T200411701	6	22

FULL DEPTH CONCRETE PAVEMENT REPAIR, PRECAST
WEST DOVER CONNECTOR
INTERSECTION OF HAZLETTVILLE RD. / SOUTH SAULSBURY RD. / WEST NORTH ST.
CITY OF DOVER
KENT COUNTY

The Fort Miller Co., Inc.
P.O. BOX 98
SCHUYLERVILLE, NY 12871
PH: (518) 695-5000
FX: (518) 695-4970
www.fortmiller.com

NO.	DATE	BY	DESCRIPTION
1	3/31/17	JCS	REVISED TABLES CORNER ELEVATIONS = FG +1/2"

REVISIONS

PRECAST PAVEMENT SLABS
WEST DOVER CONNECTOR

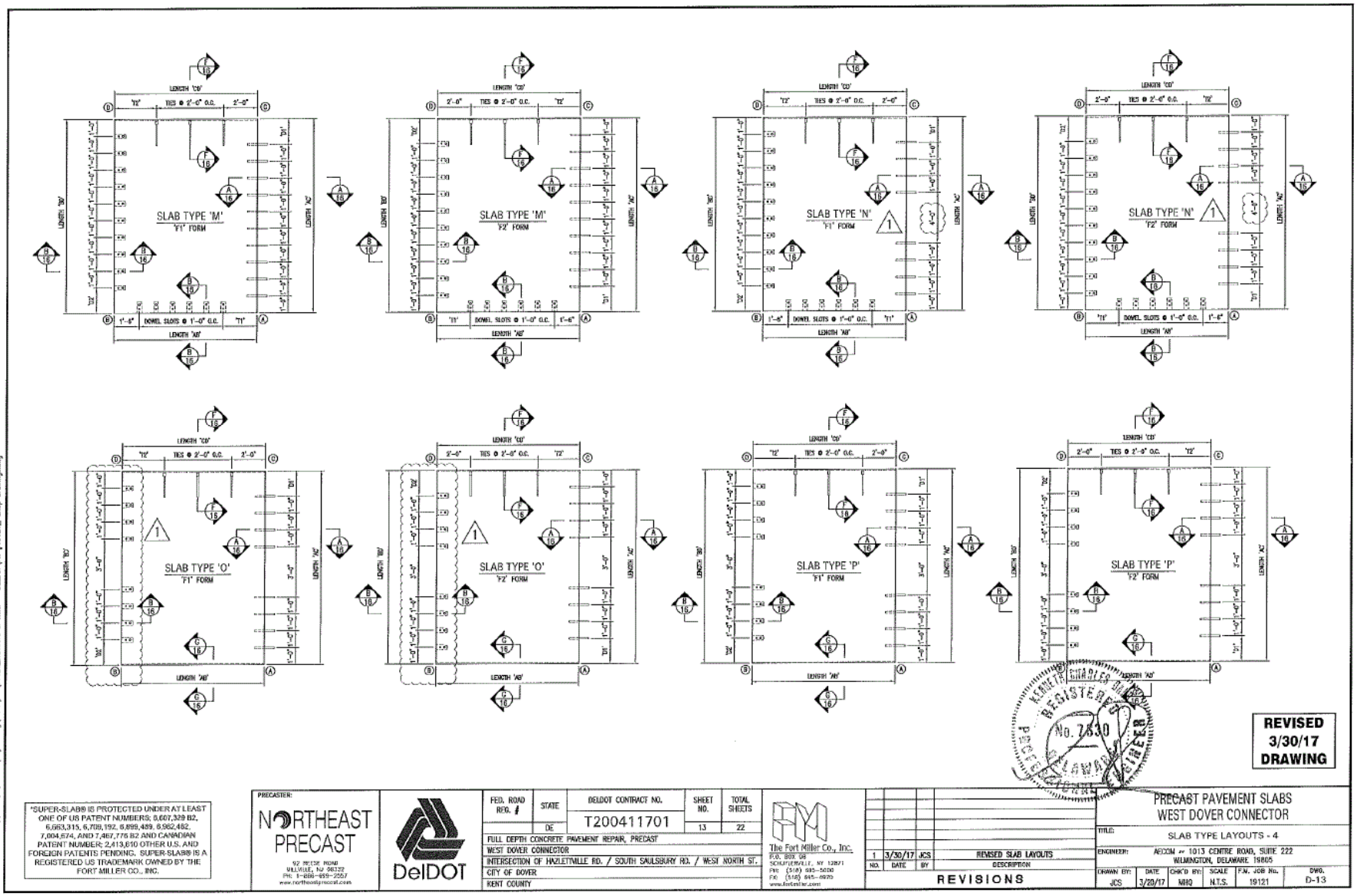
TITLE: SLAB CORNER POINTS - 3

ENGINEER: AECOM ~ 1013 CENTRE ROAD, SUITE 222 WILMINGTON, DELAWARE 19805

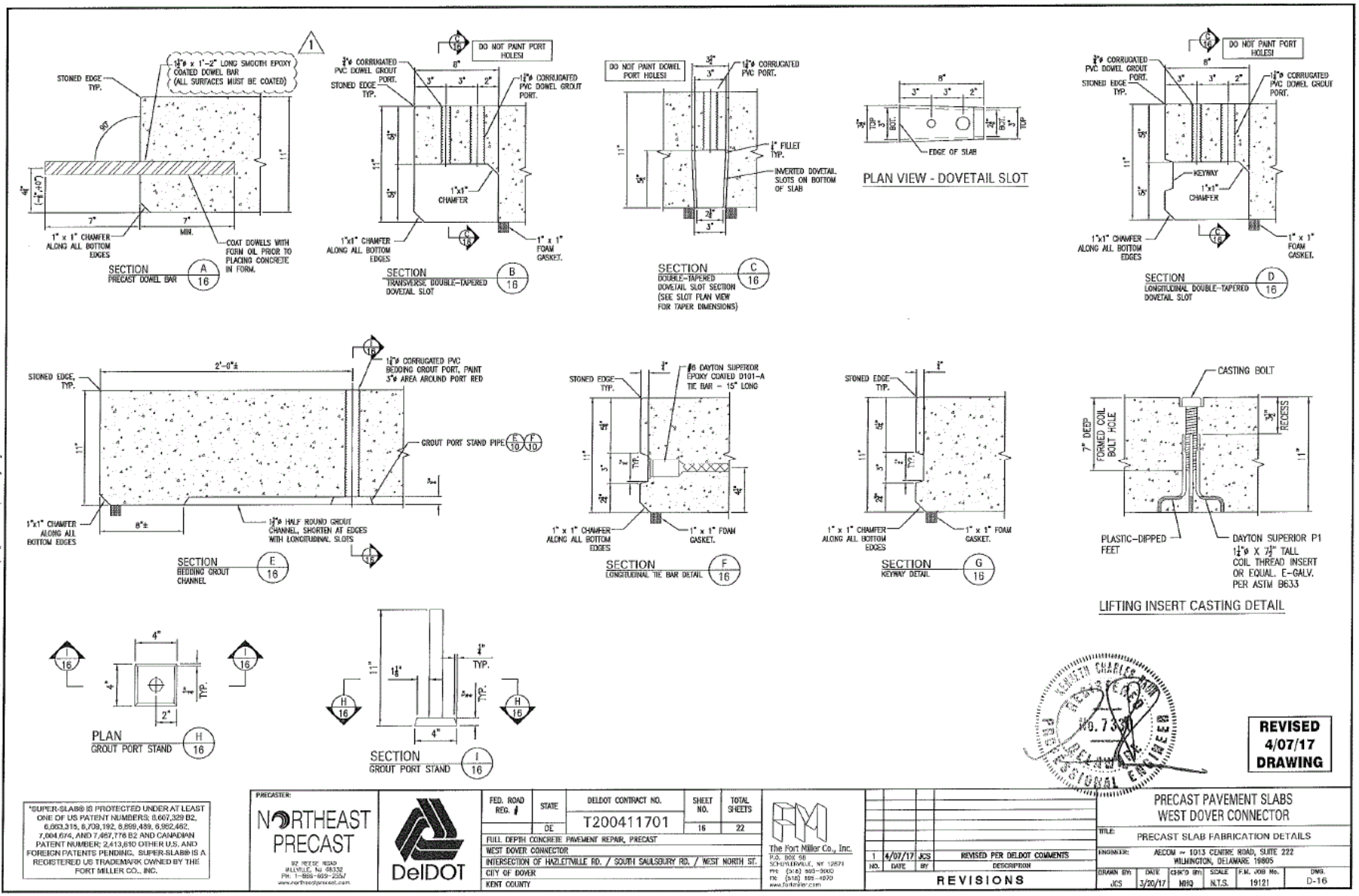
DRAWN BY:	DATE	CHK'D BY:	SCALE	F.M. JOB No.	DWG.
JCS	3/20/17	NHQ	N.T.S.	19121	D-6

DATE: March 20, 2017
FM PROJECT: 19121
PLOT DATE & TIME: 3/31/2017 8:02:06 AM
CAD FILE NAME: \\FMG1\SuperSlab\Engineering\Jeremy S\19121_Mumford & Miller – DELDOT\FM #19121_ Shop Drawings.dwg

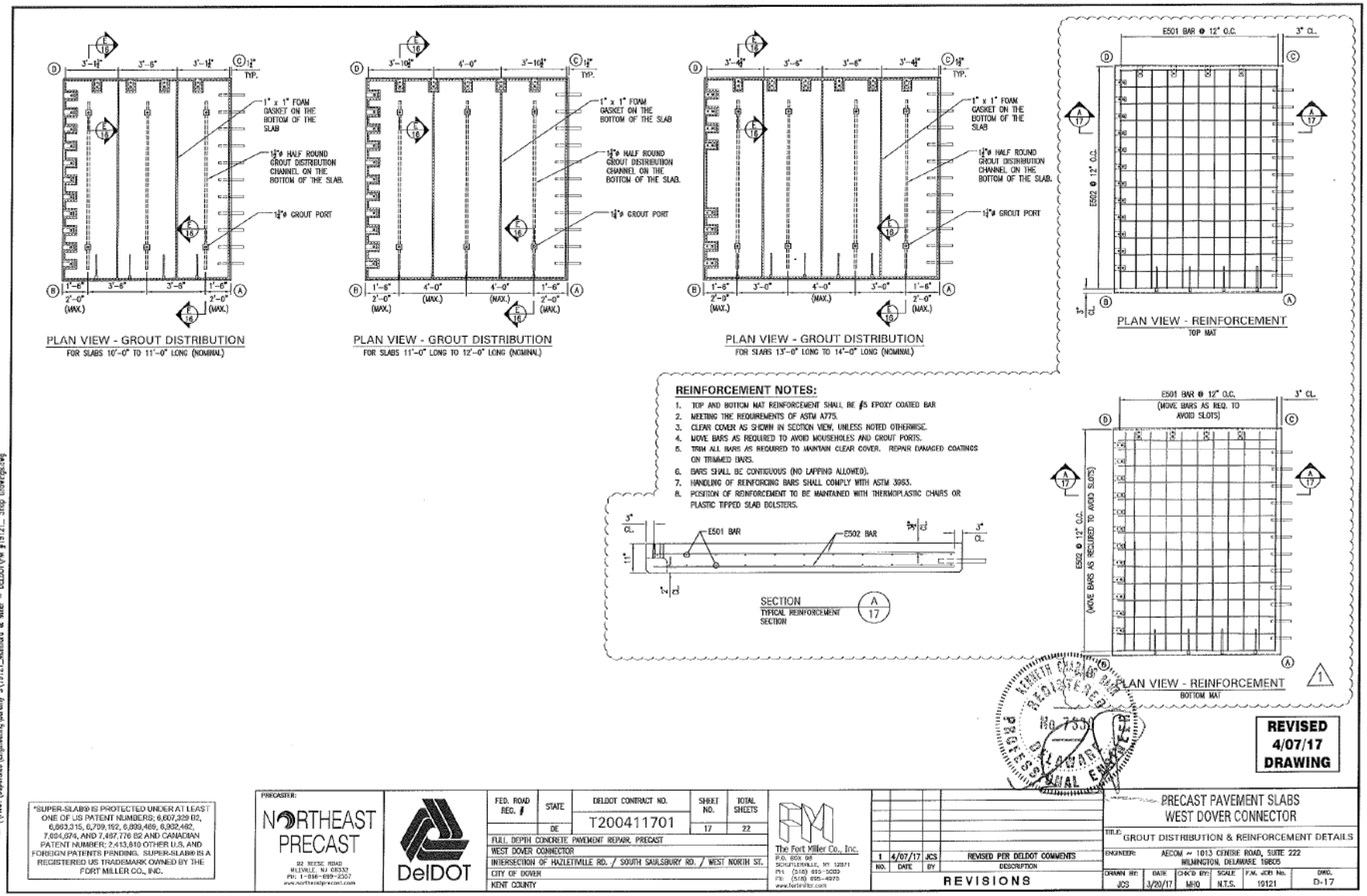
Shop Drawings



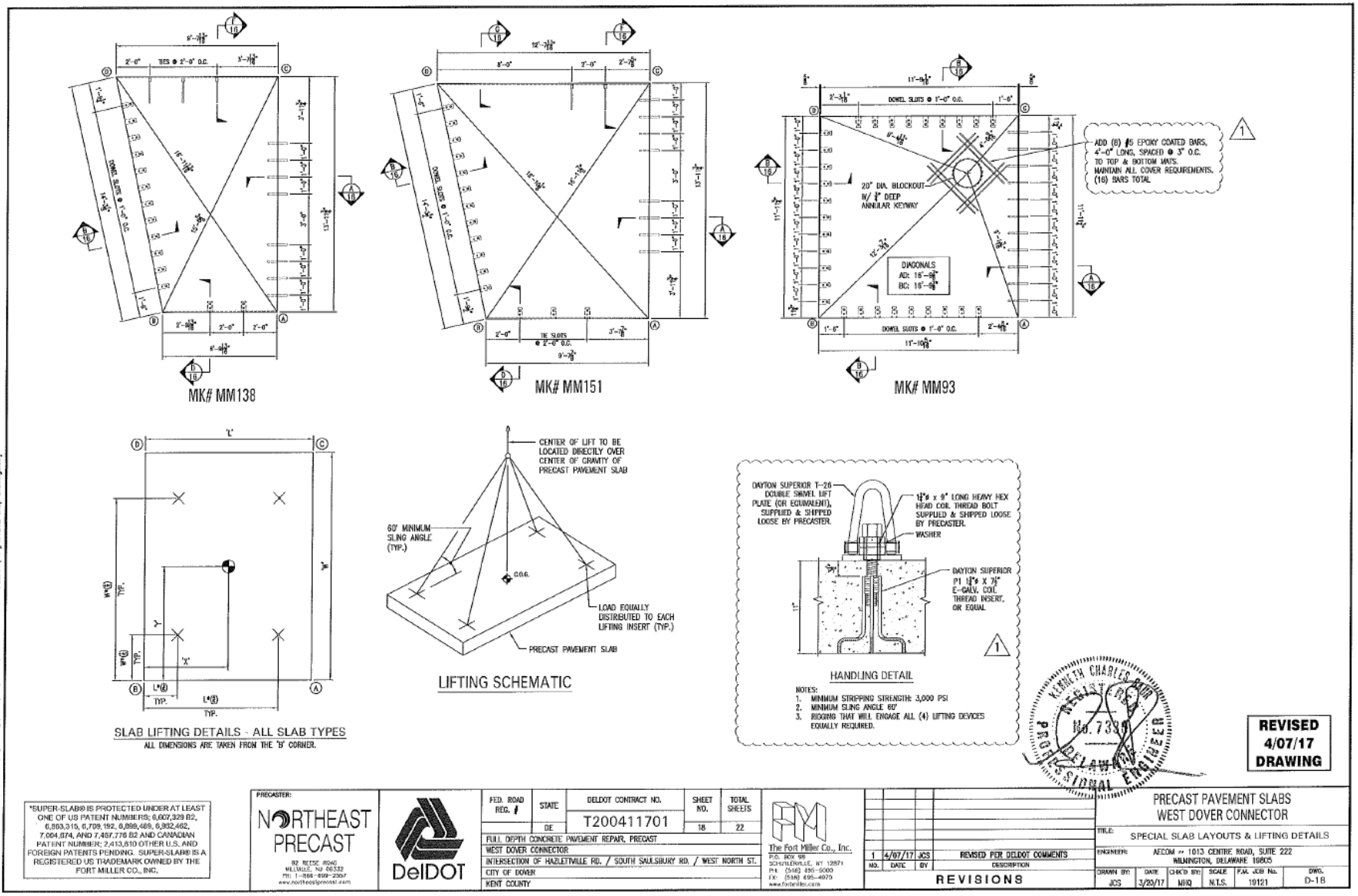
Shop Drawings



Shop Drawings



Shop Drawings

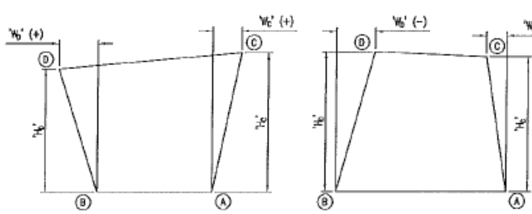


Shop Drawings

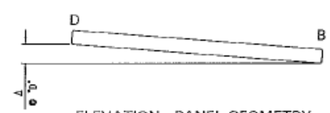
MARK #	QTY	SLAB TYPE	FORM TYPE	AREA (SY)	VOLUME (CYD)	WEIGHT (TON)	DELTA * @ D	SLAB WARP TYPE	LENGTH OF LINE SEGMENT AB	CD	AC	BD
MM66	1	X	F2	18.430	5.631	11.40	(+) 0"	PLANAR	13' 10 7/8"	13' 9 3/8"	11' 11 3/4"	11' 11 3/4"
MM67	1	X	F1	18.459	5.643	11.43	(+) 0"	PLANAR	13' 11 3/16"	13' 9 3/4"	11' 11 3/4"	11' 11 3/4"
MM68	1	X	F2	15.880	4.848	9.81	(+) 0"	PLANAR	11' 11 9/16"	11' 10 5/16"	11' 11 3/4"	11' 11 3/4"
MM69	1	X	F1	15.892	4.856	9.83	(+) 0"	PLANAR	11' 11 7/8"	11' 10 5/8"	11' 11 3/4"	11' 11 3/4"
MM70	1	G	F2	14.751	4.507	9.13	(+) 0"	PLANAR	11' 1 9/16"	11' 0 3/8"	11' 11 3/4"	11' 11 3/4"
MM71	1	G	F1	14.751	4.507	9.13	(+) 0"	PLANAR	11' 1 9/16"	11' 0 3/8"	11' 11 3/4"	11' 11 3/4"
MM72	1	G	F2	14.751	4.507	9.13	(+) 0"	PLANAR	11' 1 9/16"	11' 0 3/8"	11' 11 3/4"	11' 11 3/4"
MM73	1	J	F1	14.751	4.507	9.13	(+) 0"	PLANAR	11' 1 9/16"	11' 0 3/8"	11' 11 3/4"	11' 11 3/4"
MM74	1	E	F2	14.751	4.507	9.13	(+) 0"	PLANAR	11' 1 9/16"	11' 0 3/8"	11' 11 3/4"	11' 11 3/4"
MM75	1	E	F1	15.074	4.606	9.33	(+) 0"	PLANAR	11' 4 1/4"	11' 3 1/2"	11' 11 3/4"	11' 11 3/4"
MM76	1	E	F2	15.199	4.644	9.40	(+) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM77	1	K	F1	15.199	4.644	9.40	(+) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM78	1	K	F2	15.199	4.644	9.40	(-) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM79	1	K	F1	15.199	4.644	9.40	(-) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM80	1	K	F2	15.199	4.644	9.40	(-) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM81	1	E	F1	14.624	4.469	9.06	(+) 0"	PLANAR	11' 0 3/8"	10' 11 1/4"	11' 11 3/4"	11' 11 3/4"
MM82	1	E	F2	14.618	4.467	9.05	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM83	1	E	F1	14.615	4.466	9.04	(+) 0"	PLANAR	11' 0 5/16"	10' 11 1/8"	11' 11 3/4"	11' 11 3/4"
MM84	1	E	F2	14.619	4.467	9.05	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM85	1	E	F1	14.619	4.467	9.05	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM86	1	E	F2	14.619	4.467	9.05	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM87	1	F	F1	14.617	4.466	9.04	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM88	1	G	F2	14.622	4.468	9.05	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM89	1	G	F1	14.620	4.467	9.05	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM90	1	G	F2	14.320	4.376	8.86	(-) 0"	PLANAR	10' 9 5/8"	10' 8 1/2"	11' 11 3/4"	11' 11 3/4"
MM91	1	X	F1	18.266	5.581	11.30	(+) 0"	PLANAR	13' 9 3/8"	13' 7 15/16"	11' 11 3/4"	11' 11 3/4"
MM92	1	X	F2	18.305	5.593	11.33	(+) 0"	PLANAR	13' 9 3/4"	13' 8 1/4"	11' 11 3/4"	11' 11 3/4"
MM93	1	X	F1	15.719	4.803	9.73	(+) 0"	PLANAR	11' 10 5/16"	11' 9 1/16"	11' 11 3/4"	11' 11 3/4"
MM94	1	X	F2	15.750	4.813	9.75	(+) 0"	PLANAR	11' 10 5/8"	11' 9 5/16"	11' 11 3/4"	11' 11 3/4"
MM95	1	G	F1	14.620	4.467	9.05	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM96	1	G	F2	14.619	4.467	9.05	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM97	1	G	F1	14.619	4.467	9.05	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM98	1	J	F2	14.619	4.467	9.05	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM99	1	E	F1	14.620	4.467	9.05	(+) 0"	PLANAR	11' 0 3/8"	10' 11 3/16"	11' 11 3/4"	11' 11 3/4"
MM100	1	E	F2	14.900	4.581	9.28	(+) 0"	PLANAR	11' 3 1/2"	11' 2 3/4"	11' 11 3/4"	11' 11 3/4"
MM101	1	E	F1	15.199	4.644	9.40	(+) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM102	1	E	F2	15.199	4.644	9.40	(-) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM103	1	E	F1	15.199	4.644	9.40	(-) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM104	1	E	F2	15.199	4.644	9.40	(+) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM105	1	E	F1	15.199	4.644	9.40	(-) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM106	1	M	F2	14.485	4.426	8.96	(+) 0"	PLANAR	10' 11 3/16"	10' 10"	11' 11 3/4"	11' 11 3/4"
MM107	1	M	F1	14.491	4.428	8.97	(+) 0"	PLANAR	10' 11 3/16"	10' 10 1/16"	11' 11 3/4"	11' 11 3/4"
MM108	1	M	F2	14.489	4.427	8.97	(+) 0"	PLANAR	10' 11 3/16"	10' 10"	11' 11 3/4"	11' 11 3/4"
MM109	1	X	F1	14.191	4.336	8.78	(+) 0"	PLANAR	10' 8 1/2"	10' 7 5/16"	11' 11 3/4"	11' 11 3/4"
MM110	1	X	F2	18.102	5.531	11.20	(+) 0"	PLANAR	13' 7 7/8"	13' 6 7/16"	11' 11 3/4"	11' 11 3/4"
MM111	1	X	F1	18.140	5.543	11.22	(+) 0"	PLANAR	13' 8 1/4"	13' 6 3/4"	11' 11 3/4"	11' 11 3/4"
MM112	1	X	F2	15.576	4.760	9.64	(+) 0"	PLANAR	11' 9 1/16"	11' 7 3/4"	11' 11 3/4"	11' 11 3/4"
MM113	1	X	F1	15.609	4.770	9.66	(+) 0"	PLANAR	11' 9 5/16"	11' 8 1/16"	11' 11 3/4"	11' 11 3/4"
MM114	1	X	F2	14.489	4.427	8.97	(+) 0"	PLANAR	10' 11 3/16"	10' 10"	11' 11 3/4"	11' 11 3/4"
MM115	1	X	F1	14.488	4.427	8.96	(+) 0"	PLANAR	10' 11 3/16"	10' 10"	11' 11 3/4"	11' 11 3/4"
MM116	1	M	F2	14.488	4.427	8.96	(+) 0"	PLANAR	10' 11 3/16"	10' 10"	11' 11 3/4"	11' 11 3/4"
MM117	1	M	F1	14.488	4.427	8.96	(+) 0"	PLANAR	10' 11 3/16"	10' 10"	11' 11 3/4"	11' 11 3/4"
MM118	1	E	F2	14.488	4.427	8.96	(+) 0"	PLANAR	10' 11 3/16"	10' 10"	11' 11 3/4"	11' 11 3/4"
MM119	1	E	F1	14.907	4.555	9.22	(+) 0"	PLANAR	11' 2 3/4"	11' 2"	11' 11 3/4"	11' 11 3/4"
MM120	1	E	F2	15.199	4.644	9.40	(-) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM121	1	E	F1	15.199	4.644	9.40	(+) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM122	1	E	F2	15.199	4.644	9.40	(+) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM123	1	E	F1	15.199	4.644	9.40	(+) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM124	1	E	F2	15.199	4.644	9.40	(-) 0"	PLANAR	11' 5"	11' 5"	11' 11 3/4"	11' 11 3/4"
MM125	1	L	F1	7.096	2.144	4.34	(-) 0 1/16"	PLANAR	4' 8 5/16"	6' 9 3/4"	10' 11 3/4"	11' 2 3/16"
MM126	1	O	F2	13.927	4.256	8.62	(-) 0 1/2"	WARPED	11' 5"	11' 5"	10' 11 3/4"	10' 11 3/4"
MM127	1	O	F1	13.928	4.256	8.62	(-) 0 9/16"	WARPED	11' 5"	11' 5"	10' 11 3/4"	10' 11 3/4"
MM128	1	O	F2	13.928	4.256	8.62	(-) 0 1/2"	WARPED	11' 5"	11' 5"	10' 11 3/4"	10' 11 3/4"
MM129	1	Q	F1	13.929	4.258	8.62	(-) 0 1/2"	WARPED	11' 5"	11' 5"	10' 11 3/4"	10' 11 3/4"
MM130	1	P	F2	13.928	4.256	8.62	(-) 0 9/16"	WARPED	11' 5"	11' 5"	10' 11 3/4"	10' 11 3/4"

MARK #	ADDITIONAL VARIABLES Hc	Wc	Hd	Wd	DIAGONALS (3D) AD	BC	'AB' COMPONENTS No. COMP	'T1'	'CD' COMPONENTS No. COMP	'T2'	'AC' COMPONENTS No. COMP	'D1'	'BD' COMPONENTS No. COMP	'D2'
MM66	11' 11 3/4"	-0' 0 3/4"	11' 11 3/4"	-0' 0 3/4"	18' 3 11/16"	18' 3 11/16"	12	1' 4 7/8"	12	1' 3 3/8"	11	0' 11 3/4"	11	0' 11 3/4"
MM67	11' 11 3/4"	-0' 0 3/4"	11' 11 3/4"	-0' 0 3/4"	18' 3 15/16"	18' 4"	12	1' 5 3/16"	12	1' 3 3/4"	11	0' 11 3/4"	11	0' 11 3/4"
MM68	11' 11 3/4"	-0' 0 5/8"	11' 11 3/4"	-0' 0 5/8"	16' 10 3/4"	16' 10 3/4"	10	1' 5 9/16"	10	1' 4 5/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM69	11' 11 3/4"	-0' 0 5/8"	11' 11 3/4"	-0' 0 5/8"	16' 10 15/16"	16' 10 15/16"	10	1' 5 7/8"	10	1' 4 5/8"	11	0' 11 3/4"	11	0' 11 3/4"
MM70	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3 13/16"	16' 3 13/16"	9	1' 7 9/16"	9	1' 6 3/8"	11	0' 11 3/4"	11	0' 11 3/4"
MM71	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3 13/16"	16' 3 13/16"	9	1' 7 9/16"	9	1' 6 3/8"	11	0' 11 3/4"	11	0' 11 3/4"
MM72	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3 13/16"	16' 3 13/16"	9	1' 7 9/16"	9	1' 6 3/8"	11	0' 11 3/4"	11	0' 11 3/4"
MM73	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3 13/16"	16' 3 13/16"	9	1' 7 9/16"	9	1' 6 3/8"	8	0' 11 3/4"	11	0' 11 3/4"
MM74	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3 13/16"	16' 3 13/16"	4	3' 1 9/16"	4	3' 0 3/8"	8	0' 11 3/4"	8	0' 11 3/4"
MM75	11' 11 3/4"	-0' 0 1/4"	11' 11 3/4"	-0' 0 1/2"	16' 5 11/16"	16' 5 15/16"	4	3' 4 1/8"	4	3' 3 1/2"	8	0' 11 3/4"	8	0' 11 3/4"
MM76	11' 11 3/4"	0' 0"	11' 11 3/4"	-0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM77	11' 11 3/4"	0' 0"	11' 11 3/4"	-0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM78	11' 11 3/4"	0' 0"	11' 11 3/4"	-0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM79	11' 11 3/4"	0' 0"	11' 11 3/4"	-0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM80	11' 11 3/4"	0' 0"	11' 11 3/4"	-0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM81	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3 1/16"	16' 3 1/16"	4	3' 0 3/8"	4	2' 11 1/4"	8	0' 11 3/4"	8	0' 11 3/4"
MM82	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 5/8"	16' 3"	16' 3 1/16"	4	3' 0 3/8"	4	2' 11 3/16"	8	0' 11 3/4"	8	0' 11 3/4"
MM83	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 5/8"	16' 3"	16' 3"	4	3' 0 5/16"	4	2' 11 1/8"	8	0' 11 3/4"	8	0' 11 3/4"
MM84	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3"	16' 3 1/16"	4	3' 0 3/8"	4	2' 11 3/16"	8	0' 11 3/4"	8	0' 11 3/4"
MM85	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3"	16' 3 1/16"	4	3' 0 3/8"	4	2' 11 3/16"	8	0' 11 3/4"	8	0' 11 3/4"
MM86	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3"	16' 3 1/16"	4	3' 0 3/8"	4	2' 11 3/16"	8	0' 11 3/4"	8	0' 11 3/4"
MM87	11' 11 3/4"	-0' 0 5/8"	11' 11 3/4"	-0' 0 9/16"	16' 3"	16' 3"	9	3' 0 3/8"	9	1' 5 3/16"	11	0' 11 3/4"	8	0' 11 3/4"
MM88	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3 1/16"	16' 3 1/16"	9	1' 6 3/8"	9	1' 5 3/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM89	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3"	16' 3 1/16"	9	1' 6 3/8"	9	1' 5 3/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM90	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 1 3/16"	16' 1 1/4"	8	2' 3 5/8"	8	2' 2 1/2"	11	0' 11 3/4"	11	0' 11 3/4"
MM91	11' 11 3/4"	-0' 0 3/8"	11' 11 3/4"	-0' 0 3/8"	18' 2 9/16"	18' 2 9/16"	10	2' 3 3/8"	10	2' 1 15/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM92	11' 11 3/4"	-0' 0 3/4"	11' 11 3/4"	-0' 0 3/4"	18' 2 7/8"	18' 2 7/8"	10	2' 3 3/4"	10	2' 2 1/4"	11	0' 11 3/4"	11	0' 11 3/4"
MM93	11' 11 3/4"	-0' 0 5/8"	11' 11 3/4"	-0' 0 5/8"	16' 9 7/8"	16' 9 7/8"	3	P	E	C	1	A	L	
MM94	11' 11 3/4"	-0' 0 5/8"	11' 11 3/4"	-0' 0 5/8"	16' 10 1/16"	16' 10 1/16"	8	2' 4 5/8"	8	2' 3 5/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM95	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3"	16' 3 1/16"	9	1' 6 5/8"	9	1' 5 3/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM96	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3"	16' 3 1/16"	9	1' 6 3/8"	9	1' 5 3/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM97	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3"	16' 3 1/16"	9	1' 6 3/8"	9	1' 5 3/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM98	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3"	16' 3 1/16"	9	1' 6 3/8"	9	1' 5 3/16"	8	0' 11 3/4"	11	0' 11 3/4"
MM99	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 3"	16' 3 1/16"	4	3' 0 3/8"	4	2' 11 3/16"	8	0' 11 3/4"	8	0' 11 3/4"
MM100	11' 11 3/4"	-0' 0 1/4"	11' 11 3/4"	-0' 0 1/2"	16' 5 3/16"	16' 5 7/16"	4	3' 3 1/2"	4	3' 2 3/4"	8	0' 11 3/4"	8	0' 11 3/4"
MM101	11' 11 3/4"	-0' 0"	11' 11 3/4"	0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM102	11' 11 3/4"	0' 0"	11' 11 3/4"	-0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	6	0' 11 3/4"
MM103	11' 11 3/4"	0' 0"	11' 11 3/4"	-0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM104	11' 11 3/4"	0' 0"	11' 11 3/4"	-0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	6	0' 11 3/4"
MM105	11' 11 3/4"	-0' 0"	11' 11 3/4"	-0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	6	0' 11 3/4"
MM106	11' 11 3/4"	-0' 0 5/8"	11' 11 3/4"	-0' 0 9/16"	16' 2 3/16"	16' 2 1/4"	4	3' 11 3/16"	4	3' 10"	11	0' 11 3/4"	6	0' 11 3/4"
MM107	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 2 1/4"	16' 2 1/4"	4	3' 11 3/16"	4	3' 10 1/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM108	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 2 1/4"	16' 2 1/4"	4	3' 11 3/16"	4	3' 10"	11	0' 11 3/4"	11	0' 11 3/4"
MM109	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 0 7/16"	16' 0 7/16"	8	2' 2 1/2"	8	2' 1 5/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM110	11' 11 3/4"	-0' 0 3/4"	11' 11 3/4"	-0' 0 3/4"	18' 1 7/16"	18' 1 1/2"	11	2' 1 7/8"	11	2' 0 7/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM111	11' 11 3/4"	-0' 0 3/4"	11' 11 3/4"	-0' 0 3/4"	18' 1 3/4"	18' 1 3/4"	11	2' 2 1/4"	11	2' 0 3/4"	11	0' 11 3/4"	11	0' 11 3/4"
MM112	11' 11 3/4"	-0' 0 5/8"	11' 11 3/4"	-0' 0 5/8"	16' 8 15/16"	16' 9"	9	2' 3 1/16"	9	2' 1 3/4"	11	0' 11 3/4"	11	0' 11 3/4"
MM113	11' 11 3/4"	-0' 0 5/8"	11' 11 3/4"	-0' 0 5/8"	16' 9 1/8"	16' 9 3/16"	9	2' 3 5/16"	9	2' 2 1/16"	11	0' 11 3/4"	11	0' 11 3/4"
MM114	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 2 1/4"	16' 2 1/4"	9	1' 5 3/16"	9	1' 4"	11	0' 11 3/4"	11	0' 11 3/4"
MM115	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 2 1/4"	16' 2 1/4"	9	1' 5 3/16"	9	1' 4"	11	0' 11 3/4"	11	0' 11 3/4"
MM116	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 2 1/4"	16' 2 1/4"	8	1' 5 3/16"	4	3' 10"	11	0' 11 3/4"	11	0' 11 3/4"
MM117	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 2 1/4"	16' 2 1/4"	8	1' 5 3/16"	4	3' 10"	8	0' 11 3/4"	11	0' 11 3/4"
MM118	11' 11 3/4"	-0' 0 9/16"	11' 11 3/4"	-0' 0 9/16"	16' 2 1/4"	16' 2 1/4"	4	2' 11 3/16"	4	2' 10"	8	0' 11 3/4"	8	0' 11 3/4"
MM119	11' 11 3/4"	-0' 0 1/4"	11' 11 3/4"	-0' 0 1/2"	16' 4 11/16"	16' 4 15/16"	4	3' 2 3/4"	4	3' 2"	8	0' 11 3/4"	8	0' 11 3/4"
MM120	11' 11 3/4"	-0' 0"	11' 11 3/4"	0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM121	11' 11 3/4"	-0' 0"	11' 11 3/4"	-0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM122	11' 11 3/4"	-0' 0"	11' 11 3/4"	0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM123	11' 11 3/4"	-0' 0"	11' 11 3/4"	0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM124	11' 11 3/4"	-0' 0"	11' 11 3/4"	0' 0"	16' 6 9/16"	16' 6 5/8"	4	3' 5"	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM125	10' 11 3/4"	-0' 0"	10' 11 3/4"	2' 1 7/16"	12' 11 9/16"	11' 11 1/4"	1	3' 8 5/16"	2	3' 9 3/4"	8	0' 11 3/4"	10	1' 2 3/16"
MM126	10' 11 3/4"	0' 0"	10' 11 3/4"	-0' 0"	15' 10 1/16"	15' 10 1/16"	---	---	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM127	10' 11 3/4"	-0' 0"	10' 11 3/4"	-0' 0"	15' 10 1/16"	15' 10 1/16"	---	---	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM128	10' 11 3/4"	0' 0"	10' 11 3/4"	-0' 0"	15' 10 1/16"	15' 10 1/16"	---	---	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM129	10' 11 3/4"	-0' 0"	10' 11 3/4"	-0' 0"	15' 10 1/16"	15' 10 1/16"	---	---	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"
MM130	10' 11 3/4"	0' 0"	10' 11 3/4"	-0' 0"	15' 10 1/16"	15' 10 1/16"	---	---	4	3' 5"	8	0' 11 3/4"	8	0' 11 3/4"

MARK #	SLAB REINFORCEMENT BAR MARK E501 TOP QTY.	TOP 'L'	BOT QTY.	BOT 'L'	BAR MARK E502 TOP QTY.	TOP 'L'	BOT QTY.	BOT 'L'
MM66	15	11'-5 3/4"	14	11'-5 3/4"	13	13'-4 3/4"	13	13'-4 3/4"
MM67	15	11'-5 3/4"	14	11'-5 3/4"	13	13'-5 1/4"	13	13'-5 1/4"
MM68	13	11'-5 3/4"	12	11'-5 3/4"	13	11'-5 1/2"	13	11'-5 1/2"
MM69	13	11'-5 3/4"	12	11'-5 3/4"	13	11'-6"	13	11'-6"
MM70	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-7 1/2"	13	10'-7 1/2"
MM71	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-7 1/2"	13	10'-7 1/2"
MM72	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-7 1/2"	13	10'-7 1/2"
MM73	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-7 1/2"	13	10'-7 1/2"
MM74	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-7 1/2"	13	10'-7 1/2"
MM75	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-10 1/4"	13	10'-10 1/4"
MM76	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM77	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM78	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM79	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM80	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM81	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-6 1/2"	13	10'-6 1/2"
MM82	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-6 1/4"	13	10'-6 1/4"
MM83	12	11'-5 3/4"	11	10'-6 1/4"	13	11'-5 3/4"	13	10'-6 1/4"
MM84	12	11'-5 3/4"	11	10'-6 1/4"	13	11'-5 3/4"	13	10'-6 1/4"
MM85	12	11'-5 3/4"	11	10'-6 1/4"	13	11'-5 3/4"	13	10'-6 1/4"
MM86	12	11'-5 3/4"	11	10'-6 1/4"	13	11'-5 3/4"	13	10'-6 1/4"
MM87	12	11'-5 3/4"	11	10'-6 1/4"	13	11'-5 3/4"	13	10'-6 1/4"
MM88	12	11'-5 3/4"	11	10'-6 1/2"	13	11'-5 3/4"	13	10'-6 1/2"
MM89	12	11'-5 3/4"	11	10'-6 1/4"	13	10'-6 1/4"	13	10'-6 1/4"
MM90	12	11'-5 3/4"	11	10'-3 3/4"	13	10'-3 3/4"	13	10'-3 3/4"
MM91	15	11'-5 3/4"	14	13'-3 1/2"	13	13'-3 1/2"	13	13'-3 1/2"
MM92	15	11'-5 3/4"	14	13'-3 3/4"	13	13'-3 3/4"	13	13'-3 3/4"
MM93	13	11'-5 3/4"	12	11'-4 1/4"	13	11'-4 1/4"	13	11'-4 1/4"
MM94	13	11'-5 3/4"	12	11'-4 1/2"	13	11'-4 1/2"	13	11'-4 1/2"
MM95	12	11'-5 3/4"	11	10'-6 1/4"	13	10'-6 1/4"	13	10'-6 1/4"
MM96	12	11'-5 3/4"	11	10'-6 1/4"	13	10'-6 1/4"	13	10'-6 1/4"
MM97	12	11'-5 3/4"	11	10'-6 1/4"	13	10'-6 1/4"	13	10'-6 1/4"
MM98	12	11'-5 3/4"	11	10'-6 1/4"	13	10'-6 1/4"	13	10'-6 1/4"
MM99	12	11'-5 3/4"	11	10'-6 1/4"	13	10'-6 1/4"	13	10'-6 1/4"
MM100	12	11'-5 3/4"	12	10'-9 1/2"	13	10'-9 1/2"	13	10'-9 1/2"
MM101	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM102	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM103	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM104	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM105	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM106	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-5 1/4"	13	10'-5 1/4"
MM107	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-5 1/4"	13	10'-5 1/4"
MM108	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-5 1/4"	13	10'-5 1/4"
MM109	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-2 1/2"	13	10'-2 1/2"
MM110	15	11'-5 3/4"	14	11'-5 3/4"	13	13'-2"	13	13'-2"
MM111	15	11'-5 3/4"	14	11'-5 3/4"	13	13'-2 1/4"	13	13'-2 1/4"
MM112	13	11'-5 3/4"	12	11'-5 3/4"	13	11'-3"	13	11'-3"
MM113	13	11'-5 3/4"	12	11'-5 3/4"	13	11'-3 1/4"	13	11'-3 1/4"
MM114	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-5 1/4"	13	10'-5 1/4"
MM115	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-5 1/4"	13	10'-5 1/4"
MM116	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-5 1/4"	13	10'-5 1/4"
MM117	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-5 1/4"	13	10'-5 1/4"
MM118	12	11'-5 3/4"	11	11'-5 3/4"	13	10'-5 1/4"	13	10'-5 1/4"
MM119	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-8 3/4"	13	10'-8 3/4"
MM120	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM121	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM122	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM123	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM124	12	11'-5 3/4"	12	11'-5 3/4"	13	10'-11"	13	10'-11"
MM125	8	10'-5 3/4"	7	10'-5 3/4"	12	6'-3 3/4"	12	6'-3 3/4"
MM126	12	10'-5 3/4"	12	10'-5 3/4"	12	10'-11"	12	10'-11"
MM127	12	10'-5 3/4"	12	10'-5 3/4"	12	10'-11"	12	10'-11"
MM128	12	10'-5 3/4"	12	10'-5 3/4"	12	10'-11"	12	10'-11"
MM129	12	10'-5 3/4"	12	10'-5 3/4"	12	10'-11"	12	10'-11"
MM130	12	10'-5 3/4"	11	10'-5 3/4"	12	10'-11"	12	10'-11"



PLAN VIEW - PANEL GEOMETRY



ELEVATION - PANEL GEOMETRY

IF DELTA @ D IS NEGATIVE, D CORNER IS LOWER THAN ALL OTHER CORNERS OF THE SLAB.
IF DELTA @ D IS POSITIVE, D CORNER IS HIGHER THAN ALL OTHER CORNERS OF THE SLAB.

NOTE TO PRECASTER:
IF ANY DISCREPANCIES ARE DISCOVERED BETWEEN THE SLAB FABRICATION TABLE ON THIS SHEET AND THE SHOP CARDS SUPPLIED TO THE PRECASTER, CONTACT THE FORT MILLER CO., INC. BEFORE FABRICATION.

1

REVISED 4/07/17 DRAWING

DATE: March 20, 2017
FM PROJECT: 19121
PLOT DATE & TIME: 4/7/2017 4:07:54 PM
CAD FILE NAME: \\FMG1\SuperSlab\Engineering\Jeremy S\19121_Mumford & Miller - DELDOT\FM #19121_ Shop Drawings.dwg

*SUPER-SLAB® IS PROTECTED UNDER AT LEAST ONE OF US PATENT NUMBERS; 6,607,329 B2, 6,663,315, 6,709,192, 6,899,489, 6,962,462, 7,004,674, AND 7,467,776 B2 AND CANADIAN PATENT NUMBER; 2,413,610 OTHER U.S. AND FOREIGN PATENTS PENDING. SUPER-SLAB® IS A REGISTERED US TRADEMARK OWNED BY THE FORT MILLER CO., INC.

PRECASTER:
NORTHEAST PRECAST
92 REESE ROAD
MILLVILLE, NJ 08332
PH: 1-866-699-2557
www.northeastprecast.com

DelDOT

FED. ROAD REG. #	STATE	DELDOT CONTRACT NO.	SHEET NO.	TOTAL SHEETS
	DE	T200411701	20	22

FULL DEPTH CONCRETE PAVEMENT REPAIR, PRECAST
WEST DOVER CONNECTOR
INTERSECTION OF HAZLETTVILLE RD. / SOUTH SAULSBURY RD. / WEST NORTH ST.
CITY OF DOVER
KENT COUNTY

The Fort Miller Co., Inc.
P.O. BOX 98
SCHUYLERVILLE, NY 12871
PH: (518) 695-5000
FX: (518) 695-4970
www.fortmiller.com

NO.	DATE	BY	DESCRIPTION
1	4/07/17	JCS	ADDED "NOTE TO PRECASTER"

REVISIONS

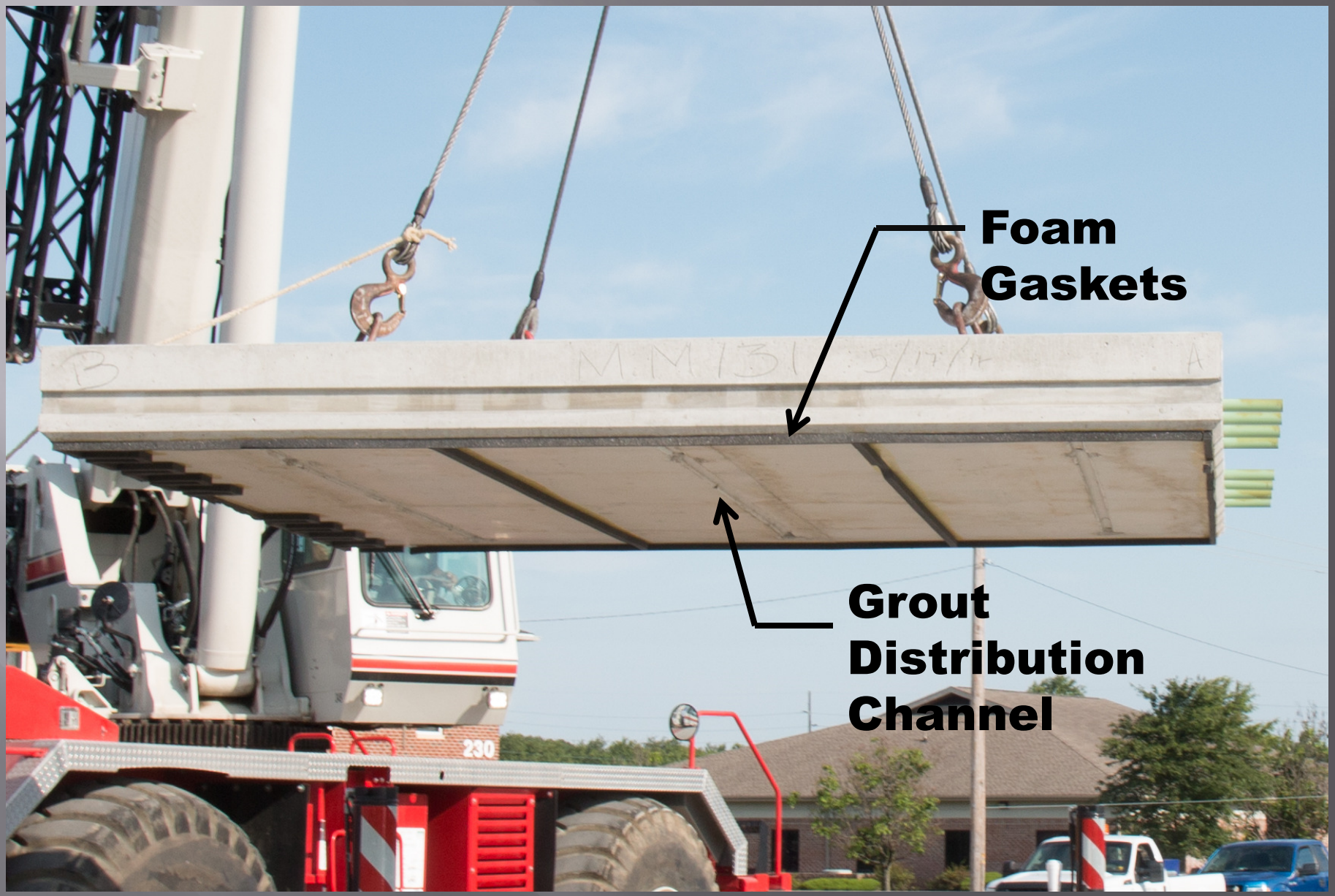
PRECAST PAVEMENT SLABS
WEST DOVER CONNECTOR

TITLE: PRECAST SLAB FABRICATION TABLE - 2

ENGINEER: AECOM ~ 1013 CENTRE ROAD, SUITE 222 WILMINGTON, DELAWARE 19805

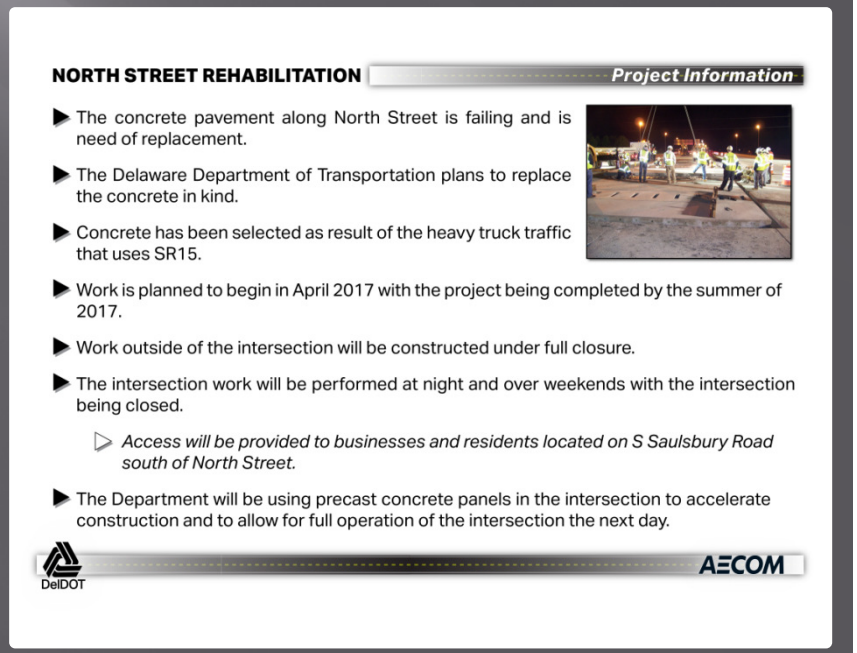
DRAWN BY:	DATE	CHK'D BY:	SCALE	F.M. JOB No.	DWG.
JCS	3/20/17	MHQ	N.T.S.	19121	D-20

Overview of Panel



Public Outreach

- Held multiple meetings with the effected business
  - Proctor and Gamble
  - Kraft
  - NRG Energy
- Held meetings with the City of Dover
- Held a legislative briefing
- Held a public workshop.
- Construction sent weekly updates to the business providing status updates
- Coordinated the closure of the Kraft entrance to coincide with the Kraft plant shutdown.



NORTH STREET REHABILITATION *Project Information*

- The concrete pavement along North Street is failing and is need of replacement.
- The Delaware Department of Transportation plans to replace the concrete in kind.
- Concrete has been selected as result of the heavy truck traffic that uses SR15.
- Work is planned to begin in April 2017 with the project being completed by the summer of 2017.
- Work outside of the intersection will be constructed under full closure.
- The intersection work will be performed at night and over weekends with the intersection being closed.
  - *Access will be provided to businesses and residents located on S Saulsbury Road south of North Street.*
- The Department will be using precast concrete panels in the intersection to accelerate construction and to allow for full operation of the intersection the next day.

DelDOT AECOM

Construction

Construction

Subsurface

Construction (Undercutting)

Construction

Construction

Construction

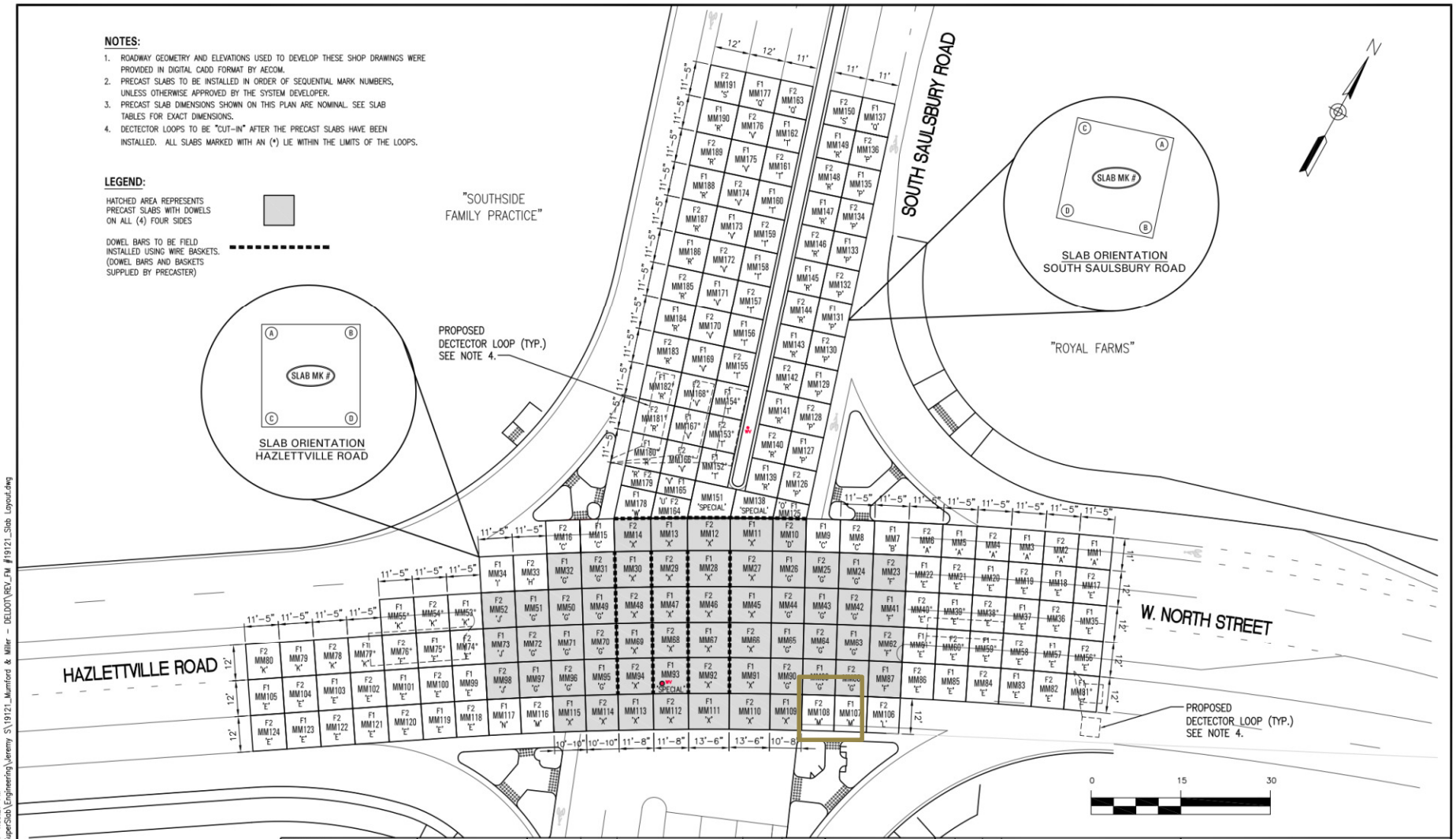
NOTES:

1. ROADWAY GEOMETRY AND ELEVATIONS USED TO DEVELOP THESE SHOP DRAWINGS WERE PROVIDED IN DIGITAL CADD FORMAT BY AECOM.
2. PRECAST SLABS TO BE INSTALLED IN ORDER OF SEQUENTIAL MARK NUMBERS, UNLESS OTHERWISE APPROVED BY THE SYSTEM DEVELOPER.
3. PRECAST SLAB DIMENSIONS SHOWN ON THIS PLAN ARE NOMINAL. SEE SLAB TABLES FOR EXACT DIMENSIONS.
4. DECTECTOR LOOPS TO BE "CUT-IN" AFTER THE PRECAST SLABS HAVE BEEN INSTALLED. ALL SLABS MARKED WITH AN (*) LIE WITHIN THE LIMITS OF THE LOOPS.

LEGEND:

HATCHED AREA REPRESENTS PRECAST SLABS WITH DOWELS ON ALL (4) FOUR SIDES

DOWEL BARS TO BE FIELD INSTALLED USING WIRE BASKETS. (DOWEL BARS AND BASKETS SUPPLIED BY PRECASTER)



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MILLVILLE, NJ 08332
PH: 1-866-699-2557
www.northeastprecast.com

DelDOT

FED. ROAD REG. #	STATE	DELDOT CONTRACT NO.	SHEET NO.	TOTAL SHEETS
	DE	T200411701	2	21

FULL DEPTH CONCRETE PAVEMENT REPAIR, PRECAST
WEST DOVER CONNECTOR
INTERSECTION OF HAZLETTVILLE RD. / SOUTH SAULSBURY RD. / WEST NORTH ST.
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P.O. BOX 98
SCHUYLERVILLE, NY 12871
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FX: (518) 695-4970
www.fortmiller.com

NO.	DATE	BY	DESCRIPTION

REVISIONS

PRECAST PAVEMENT SLABS
WEST DOVER CONNECTOR

TITLE: PRECAST PAVEMENT SLAB LAYOUT PLAN

ENGINEER: AECOM ~ 1013 CENTRE ROAD, SUITE 222
WILMINGTON, DELAWARE 19805

DRAWN BY:	DATE	CHK'D BY:	SCALE	F.M. JOB No.	DWG.
JCS	3/20/17	MHQ	N.T.S.	19121	D-2

DATE: March 20, 2017
FM PROJECT: 19121
PLOT DATE & TIME: 3/21/2017 4:55:27 PM
CAD FILE NAME: \\FM01\SuperSlab\Engineering\Jeremy S\19121_Mumford & Miller - DELDOT\REV_FM #19121_Slab Layout.dwg

Construction

Construction

Construction

Construction

Construction

Construction

Construction

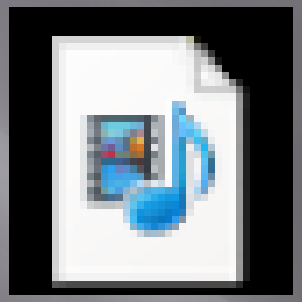
Construction

Construction

Construction

Construction (Slab Dowel Grout)

Construction Video



My new video project4.mov

Staging Area

Construction

- Production Rates

Lesson Learned

- Change in elevation
- Learning curve
- Placement of first panel and importance
- Proposed elevation vs existing
- Utilities

Corner alignments

Proposed elevations vs existing elevations

Proposed elevations vs existing elevations

Potential Challenges

- Overhead Utilities

POW-MIA Pkwy
KOSKI TRUCKING INC.

Kraft/Heinz
KOSKI TRUCKING INC.
U.S. XPRES
7028824

POW-MIA Pkwy
SOUTH
15

SOUTH
15
ORTHOPAEDICS

Thank you!

- FHWA
- DelDOT Management
- DelDOT Traffic
- DelDOT Public Relations
- DelDOT M&R
- Project Development South
- Inspection Staff
- AECOM
- Mumford and Miller
- Fort Miller

Contact information

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  DelDOT Construction
  Group 2 Area Engineer
  Mark.Buckalew@state.de.us
- Joseph Hofstee, P.E.
  AECOM
  Senior Project Manager
  Joe.Hofstee@aecom.com

Questions