

THE STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY
UNITS



CONSTRUCTION PLANS FOR: STATEWIDE HOPPER RACKS

CONTRACT NUMBER: T201280102
COUNTY: VARIES AGREEMENT NUMBER 1307

CONSTRUCTION SPECIFICATIONS

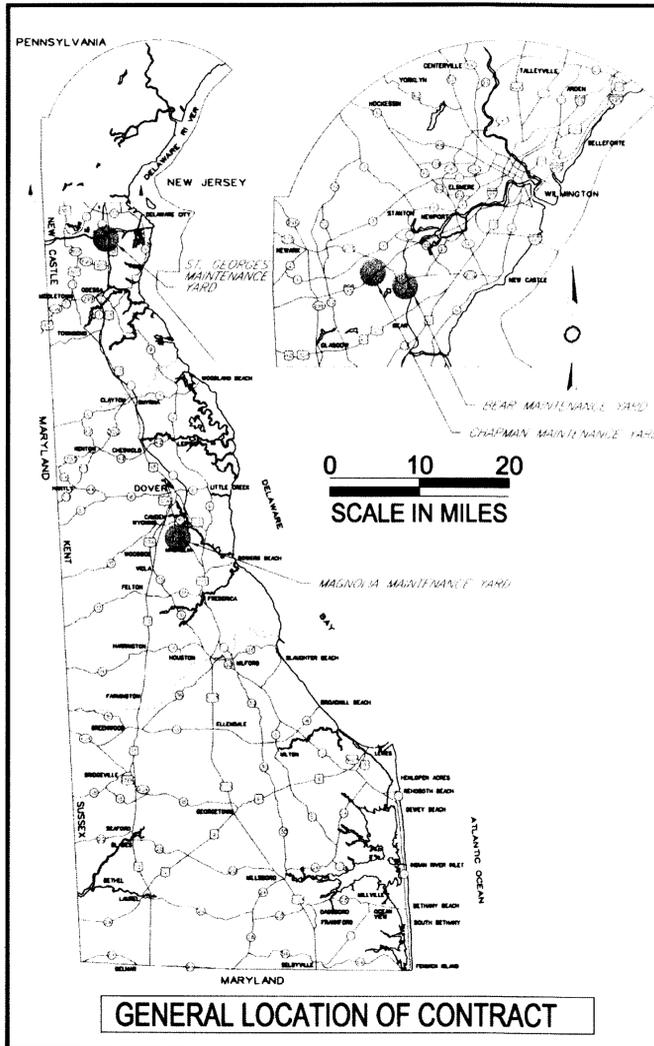
CONSTRUCTION ON THIS SITE SHALL BE IN CONFORMANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, DATED AUGUST 2001, WITH SPECIFICATION SECTIONS INDICATED BELOW:

DIVISION 03 - CONCRETE
033053 MISCELLANEOUS CAST-IN-PLACE CONCRETE - REFERENCE TO SECTION 602

DIVISION 31 - EARTHWORK
311000 SITE CLEARING - REFERENCE TO SECTIONS 201 & 262
312000 EARTH MOVING - REFERENCE TO SECTIONS 202, 207, 208, 209, 210, 250, 251, 252 & 268
312500 SOIL EROSION AND SEDIMENT CONTROL - REFERENCE TO SECTIONS 110, 251, 252, 266, & 268

DIVISION 32 - EXTERIOR IMPROVEMENTS
321216 ASPHALT PAVING - REFERENCE TO SECTIONS 302 & 401
321313 CONCRETE PAVING - REFERENCE TO SECTIONS 301, 701 & 705
334100 STORM UTILITY DRAINAGE PIPING - REFERENCE TO SECTIONS 208 & 708

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GENERAL LOCATION OF CONTRACT

DESIGN DESIGNATION

FUNCTIONAL CLASS: _____	D.H.V. PROJECTED: _____	YEAR: _____
TYPE OF CONSTRUCTION: _____	DESIGN SPEED: _____ M.P.H.	
A.A.D.T. CURRENT: _____	YEAR: _____	TRUCKS: _____ %
A.A.D.T. PROJECTED: _____	YEAR: _____	DIRECTION OF DISTRIBUTION: _____ %

INDEX OF SHEETS

DRAWING No.	SHEET No.	TABLE OF CONTENTS
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TOTAL SHEETS: 7

APPROVED DESIGN EXCEPTIONS

DESIGN PARAMETER	REQUIRED	PROVIDED	DATE
N/A			

ADDENDA & REVISIONS

DESCRIPTION	NAME & DATE

ASSOCIATED CONTRACTS

CONTRACT NO.	CONTRACT NAME

RECOMMENDED

[Signature] 11/18/11
MAINTENANCE IMPROVEMENT ENGINEER DATE

[Signature] 11/18/11
ASSISTANT DIRECTOR STATEWIDE SUPPORT SERVICES DATE

[Signature] 11/18/11
DIRECTOR MAINTENANCE AND OPERATIONS DATE

RECOMMENDED AS TO PROCESS

[Signature]
CHIEF ENGINEER

DATE 1/4/12

RECOMMENDED

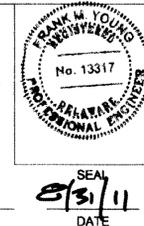
~~STORMWATER ENGINEER~~

DATE _____ SEAL _____

PREPARED BY
ARCHITECT
BECKER MORGAN GROUP, INC.
309 S. GOVERNORS AVE.
DOVER, DE 19904
302.734.7950



PREPARED BY
STRUCTURAL ENGINEER
BAKER, INGRAM & ASSOC., INC.
1050 S. STATE ST.
DOVER, DE 19901
302.734.7400



CONSTRUCTION PLANS

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHITS.
T201280102	X	X	2	7

STATEWIDE HOPPER RACKS & CANAL DISTRICT FUEL CANOPY

GENERAL NOTES

- THE NOTES ON THESE DRAWINGS ARE NOT INTENDED TO REPLACE SPECIFICATIONS. SEE SPECIFICATIONS FOR REQUIREMENTS IN ADDITION TO GENERAL NOTES. FOR INCONSISTENCIES BETWEEN THESE DRAWINGS AND THE SPECIFICATIONS, THE STRICTER REQUIREMENT SHALL APPLY, AND THE ENGINEER SHALL BE NOTIFIED PRIOR TO PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
- STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH JOB SPECIFICATIONS AND ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND SITE DRAWINGS. CONSULT THESE DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, CHASES, INSERTS, REGLETS, SLEEVES, DEPRESSIONS, AND OTHER DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS. ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.
- THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE AFTER THE BUILDING IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENTS DURING ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIEDOWNS. PROVIDE ALL SHORING AND BRACING REQUIRED TO STABILIZE AND PROTECT EXISTING AND ADJACENT STRUCTURES AND SYSTEMS DURING COURSE OF DEMOLITION AND CONSTRUCTION. SUCH MATERIAL SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER COMPLETION OF THE PROJECT.
- SECTIONS AND DETAILS SHOWN ON ANY STRUCTURAL DRAWINGS SHALL BE CONSIDERED TYPICAL FOR SIMILAR CONDITIONS.
- ALL APPLICABLE FEDERAL, STATE AND MUNICIPAL REGULATIONS SHALL BE FOLLOWED, INCLUDING THE FEDERAL DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ACT.
- ANY AND ALL MODIFICATIONS TO THE STRUCTURAL ELEMENTS INDICATED ON THESE DRAWINGS MUST BE APPROVED IN ADVANCE BY BAKER, INGRAM & ASSOCIATES.

DESIGN LOADS

- BUILDING CODE: INTERNATIONAL BUILDING CODE (2006 EDITION).
- DESIGN LIVE LOADS:

ROOF	30 PSF MIN. + DRIFT
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- SNOW LOADING IS BASED ON THE FOLLOWING. DRIFTING OR SLIDING SNOW LOADS HAVE BEEN CONSIDERED WHERE APPROPRIATE.

GROUND SNOW LEVEL	20 PSF
FLAT-ROOF SNOW LOAD	14 PSF
SNOW EXPOSURE FACTOR	1.0
SNOW THERMAL FACTOR	1.0
SNOW LOAD IMPORTANCE FACTOR	1.0
- WIND LOADING IS BASED ON THE FOLLOWING:

BASIC WIND SPEED	120 MPH
EXPOSURE CATEGORY	B
IMPORTANCE FACTOR	1.0
BUILDING CATEGORY	SIMPLE DIAPHRAGM, LOW-RISE, ENCLOSED RIGID STRUCTURE
INTERNAL PRESSURE COEFF.	±0.18
- DESIGN EARTHQUAKE LOADS ARE BASED ON IBC 2003.

SITE CLASS	D
SEISMIC IMPORTANCE FACTOR	1.0
SEISMIC USE GROUP	I
SPECTRAL RESPONSE ACCEL. (S _s)	0.150g
SPECTRAL RESPONSE ACCEL. (S ₁)	0.055g
SPECTRAL RESPONSE COEFF. (S _{DS})	0.160g
SPECTRAL RESPONSE COEFF. (S _{D1})	0.088g
RESPONSE MODIFICATION FACTOR (R)	6.0
SEISMIC DESIGN CATEGORY	B

FOUNDATION

- PRESUMPTIVE BEARING CAPACITY: 1500 PSF
- CONTRACTOR, AT HIS EXPENSE, SHALL RETAIN THE SERVICES OF A GEOTECHNICAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED, TO VERIFY THE SUITABILITY OF THE SUBGRADE FOR THE PROPOSED FOUNDATION SYSTEM & BUILDING.
- FOUNDATION DESIGN IS BASED ON SHALLOW SPREAD FOOTINGS BEARING ON SUITABLE NATURAL SOILS AND/OR NEW COMPACTED STRUCTURAL FILL.
- ALL ORGANIC MATERIALS, EXCESSIVELY SOFT OR LOOSE SOILS, TREES, ASPHALT, CONCRETE, DEBRIS AND OTHER DELETERIOUS MATERIALS SHOULD BE REMOVED WITHIN AND AT LEAST 5 FEET BEYOND THE BUILDING LIMIT. THE EXISTING ORGANIC SOIL SHOULD BE STRIPPED AND CAN BE STOCKPILED FOR REUSE IN LANDSCAPE AREAS. PROOF ROLL ALL SUBGRADES, UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER. UNSUITABLE AREAS SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. NO FILL FOR BUILDING SUPPORT SHALL BE PLACED UNTIL SUBGRADES AND FILL MATERIAL HAVE BEEN OBSERVED AND APPROVED BY THE GEOTECHNICAL ENGINEER.
- AREAS REQUIRING UNDERCUT AND FILL MATERIAL DUE TO THE PRESENCE OF UNSUITABLE MATERIAL SHALL BE BACKFILLED TO THE DESIGN FOOTING SUBGRADE WITH NEW COMPACTED STRUCTURAL FILL.

GRANULAR SOILS INCLUDING GW, GP, GM, SW, SP AND SM CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). FURTHERMORE, THE MATERIAL TO BE UTILIZED AS STRUCTURAL FILL SHOULD HAVE A PLASTICITY INDEX (PI) LESS THAN 20.

A MATERIAL UTILIZED FOR STRUCTURAL FILL MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER. IF THERE IS NOT SUFFICIENT FILL MATERIAL ON SITE, CONTRACTOR SHALL TRANSPORT APPROVED BORROW MATERIAL FROM AN OFF SITE SOURCE.
- COMPACTED STRUCTURAL FILL BENEATH ALL FOUNDATIONS AND SHALL BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS AND BE COMPACTED TO 95 PERCENT OF MAXIMUM DRY DENSITY PER ASTM D-1557, MODIFIED PROCTOR TEST.
- THE EXCAVATION FOR PLACEMENT OF COMPACTED STRUCTURAL FILL SHOULD EXTEND BEYOND THE EDGE OF FOOTINGS A MINIMUM DISTANCE EQUAL TO THE DEPTH OF FILL.
- EXTEND BOTTOM OF EXTERIOR FOOTINGS AT LEAST 3'-0" BELOW THE EXTERIOR FINISH GRADE FOR PROTECTION AGAINST FROST.
- ALL SUBGRADES AND UNDERCUTS SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER. SOILS EXPOSED AT THE BASES OF ALL APPROVED FOUNDATION EXCAVATIONS SHOULD BE PROTECTED AGAINST ANY DETRIMENTAL CHANGE IN CONDITION, SUCH AS DISTURBANCE FROM RAIN OR FROST. SURFACE RUNOFF SHOULD BE DRAINED AWAY FROM THE EXCAVATIONS AND NOT BE ALLOWED TO POND. FOUNDATION EXCAVATIONS SHOULD BE PROTECTED FROM RAINFALL OR FREEZING CONDITIONS. SLOPE FOOTING EXCAVATIONS AS REQUIRED FOR STABILITY AND SAFETY OR PROVIDE SHEETING OR SHORING IN ACCORDANCE WITH OSHA REQUIREMENTS. IN THE EVENT THAT THE CONTRACTOR DETERMINES THAT SHEETING AND SHORING IS REQUIRED FOR EXCAVATION, THE CONTRACTOR SHALL RETAIN THE SERVICES OF A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER FOR DESIGN AND DOCUMENTATION OF ALL SHEETING AND SHORING REQUIRED FOR THE WORK.
- TESTING: CONTRACTOR TO PROVIDE SOIL TESTING SERVICES.

CONCRETE

- ALL CONCRETE WORK SHALL CONFORM TO ACI 318 (LATEST EDITION).
- CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE:

FOOTINGS:	3000 PSI
PIERS:	4000 PSI

ALL CONC. TO BE NORMAL WEIGHT UNLESS NOTED OTHERWISE.

ALL EXTERIOR CONCRETE SHALL BE AIR-ENTRAINED (6 ±1)% PER ASTM C260.

MAXIMUM WATER/CEMENT RATIO =
0.50 FOR 3000 PSI CONC.
0.45 FOR 4000 PSI CONC.
- CONCRETE REINFORCING SHALL CONFORM TO THE FOLLOWING DESIGNATIONS: DEFORMED BARS ASTM A615, GRADE 60
- LAP DEFORMED BARS 40 DIA., UNO. HOOKS SHALL BE STANDARD HOOKS, UNO.
- CONCRETE PROTECTION FOR REINFORCEMENT (UNLESS NOTED OTHERWISE):
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:
NO. 6 THROUGH NO. 18 BARS: 2 IN.
NO. 5 BAR AND SMALLER: 1½ IN.
- WELDING OF REINFORCEMENT IS NOT PERMITTED UNLESS SPECIFICALLY INDICATED ON DRAWINGS. WELDING, WELDING ELECTRODES AND FLUXES SHALL CONFORM TO AWS D1.4-92, "STRUCTURAL WELDING CODE - REINFORCED STEEL". ELECTRODES SHALL HAVE A MINIMUM TENSILE STRENGTH OF 70 KSI. ASTM A706 BARS SHALL BE USED IN ALL WELDED APPLICATIONS.
- COMPLETE SHOP DRAWINGS AND SCHEDULES OF ALL REINFORCING STEEL SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW. REFER TO SPECIFICATIONS.
- CONCRETE SHALL NOT BE PLACED IN WATER OR ON FROZEN GROUND.
- ANCHOR BOLTS SHALL CONFORM TO ASTM A36 UNLESS NOTED OTHERWISE. GALVANIZE ALL ANCHOR BOLTS.
- TESTING: CONTRACTOR TO PROVIDE CONCRETE TESTING SERVICES.

STRUCTURAL STEEL

- STRUCTURAL STEEL FABRICATION, ERECTION, AND CONNECTION DESIGN SHALL CONFORM TO AISC "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" LATEST EDITION.
- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING DESIGNATIONS:
STRUCTURAL STEEL WF SHAPES: ASTM A992
STEEL BARS, ANGLES & PLATES: ASTM A36, U.N.O.
SQUARE OR RECTANGULAR TUBING: ASTM A500, GRADE B
- FIELD CONNECTIONS SHALL BE BOLTED USING ¾" DIAMETER ASTM A325N HIGH STRENGTH BOLTS (UNO).
- FULL DEPTH CONNECTIONS ARE TO BE USED ON ALL GIRDER AND BEAM CONNECTIONS TO COLUMNS. BOLTS TO BE AT 3" O.C. VERTICAL.
- PROVIDE A MINIMUM ¾" THICK FULL DEPTH THRU-PLATE FOR ALL PIPE AND TUBE COLUMN CONNECTIONS.
- DESIGN CONNECTIONS FOR THE MINIMUM SHEAR CAPACITIES NOTED IN THE AISC BEAM TABLES, OR FOR THE REACTIONS SHOWN ON THE DRAWINGS, WHICHEVER IS GREATER.
- ALL WELDING SHALL CONFORM TO AWS D1.1-LATEST EDITION. ELECTRODES SHALL BE E70XX.
- ALL ALUMINUM AND STEEL MEMBERS TO BE TREATED OR PROPERLY SEPARATED TO PREVENT GALVANIC AND CORROSIVE EFFECTS.
- SUBMIT ALL STEEL SHOP DRAWINGS FOR APPROVAL PRIOR TO ANY FABRICATION.
- STEEL FABRICATOR IS SOLELY RESPONSIBLE FOR SURVEYING AND VERIFICATION OF EXISTING CONDITIONS INCLUDING, BUT NOT LIMITED TO THE LOCATION, ELEVATION, AND DIMENSIONS OF EXISTING WALLS AND FRAMING.
- THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR APPROVAL OF THE DESIGN PROFESSIONAL.
- FABRICATE BEAMS WITH THE NATURAL CAMBER UP.
- ALL STEEL HOT DIPPED GALVANIZED AS INDICATED ON THE DRAWINGS.

WOOD TRUSSES

- COMPLY WITH TRUSS PLATE INSTITUTE (TPI) "DESIGN SPECIFICATIONS FOR METAL PLATE CONNECTED WOOD TRUSSES" (LATEST EDITION).
- ROOF TRUSS LAYOUT SHOWN IS CONCEPTUAL AND MUST BE VERIFIED BY THE TRUSS MANUFACTURER AND SHOWN ON SHOP DRAWINGS FOR APPROVAL. ANY REVISIONS TO THE TRUSS LAYOUT MAY AFFECT OTHER FRAMING AND THEREFORE MUST BE APPROVED BY BAKER, INGRAM & ASSOCIATES.
- CONNECTOR PLATES: ASTM A446, GRADE A, GALVANIZE PER ASTM A525 660.
- ALL TRUSSES SHALL BE ERECTED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND AS RECOMMENDED BY "HIB-91: HANDLING, INSTALLING AND BRACING METAL PLATE CONNECTED WOOD TRUSSES" BY TPI.
- CONTRACTOR TO SUBMIT SEALED SHOP DRAWINGS FOR ALL TRUSS TYPES FOR ENGINEER'S APPROVAL PRIOR TO MANUFACTURING.
- EACH END OF EACH TRUSS SHALL BE ATTACHED TO SUPPORTING MEMBER WITH (4) 12d TOE NAILS PLUS A GALVANIZED STEEL HURRICANE ANCHORS (SIMPSON TS-18 OR EQUIVALENT). USE TWO AT EACH END OF ALL GIRDER TRUSSES.
- ROOF TRUSS MINIMUM DESIGN REQ'MTS:

TOP CHORD LIVE LOAD	30 PSF	FLOOR TRUSS MINIMUM DESIGN REQ'MTS:	
TOP CHORD DEAD LOAD	10 PSF	TOP CHORD LIVE LOAD	40 PSF
BOTTOM CHORD LIVE LOAD	0 PSF	TOP CHORD DEAD LOAD	10 PSF
BOTTOM CHORD DEAD LOAD	10 PSF	BOTTOM CHORD LIVE LOAD	0 PSF
MAX. TOTAL LOAD DEFLECTION:	L/240	BOTTOM CHORD DEAD LOAD	10 PSF
MAX. LIVE LOAD DEFLECTION:	L/360	MAX. TOTAL LOAD DEFLECTION:	L/360
		MAX. LIVE LOAD DEFLECTION:	L/480
- GENERAL CONTRACTOR TO COORDINATE MECHANICAL EQUIPMENT LOADS AND LOCATIONS WITH THE TRUSS MANUFACTURER AS REQUIRED.

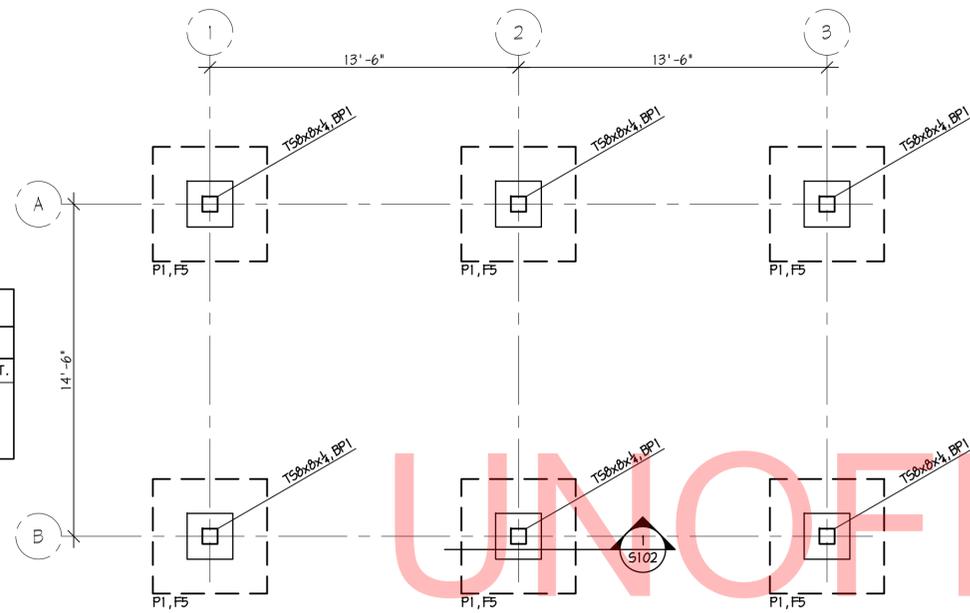


CONSTRUCTION PLANS		
DRAWING TITLE		
HOPPER RACKS STRUCTURAL NOTES		
DATE	SCALE	DRAWING NO.
August 31, 2011	AS NOTED	2 OF 7

STATEWIDE HOPPER RACKS & CANAL DISTRICT FUEL CANOPY

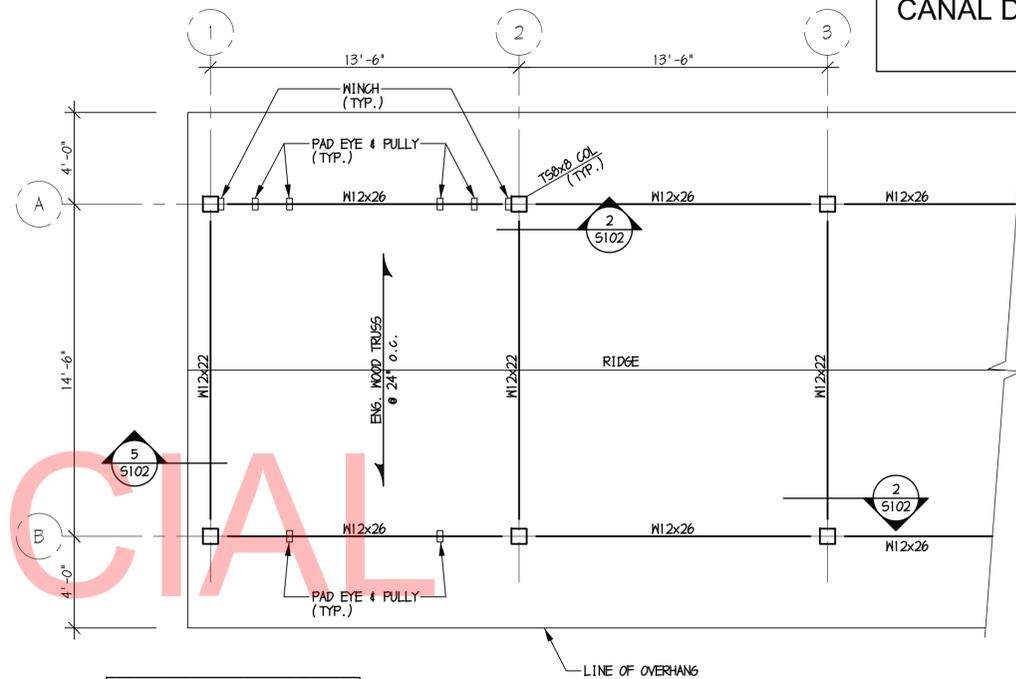
FOOTING SCHEDULE			
MARK	SIZE	THICK.	REINFORCING
F5	5'-0" x 5'-0"	1'-0"	7 #4 E.H. TOP & BOT.

NOTE:
PRESUMPTIVE ALLOWABLE SOIL BEARING PRESSURE = 1500 PSF, TO BE VERIFIED IN FIELD BY A GEOTECHNICAL ENGINEER PRIOR TO CASTING FOOTING CONCRETE.



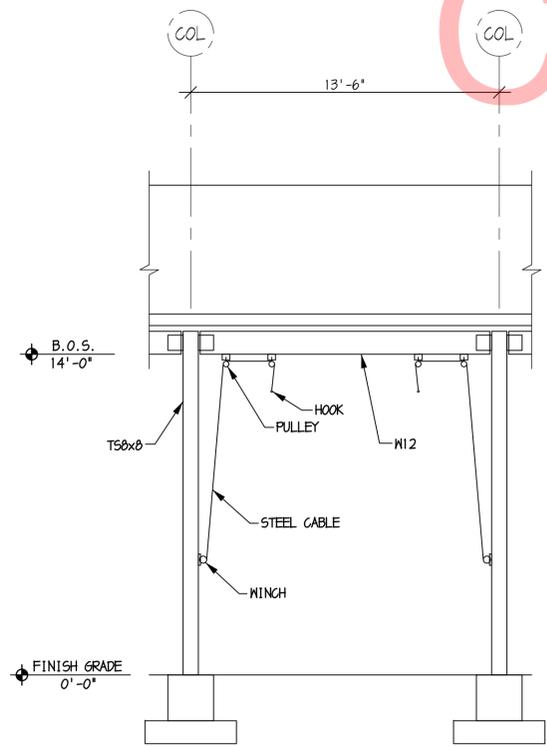
P1 S101 FOUNDATION PLAN
1/4" = 1'-0"

- NOTES:
- HIGH POINT OF FINISH GRADE REF. ELEV.: 0'-0".
 - TOP OF PIER ELEVATION: +0'-1" ABOVE FINISH.
 - TOP OF FOOTING ELEVATION: -2'-0" BELOW FINISH GRADE AT FOOTING.
 - REF. SECTION 3 & 4/S102 FOR PIER & BASE P. DETAILS.

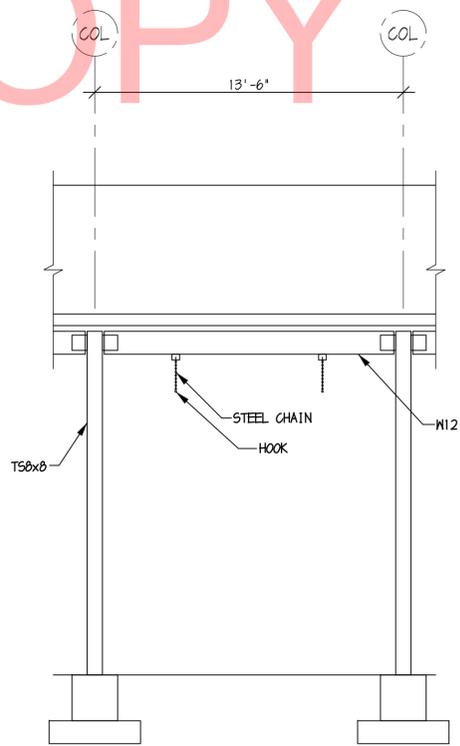


P2 S101 TYPICAL ROOF FRAMING PLAN
1/4" = 1'-0"

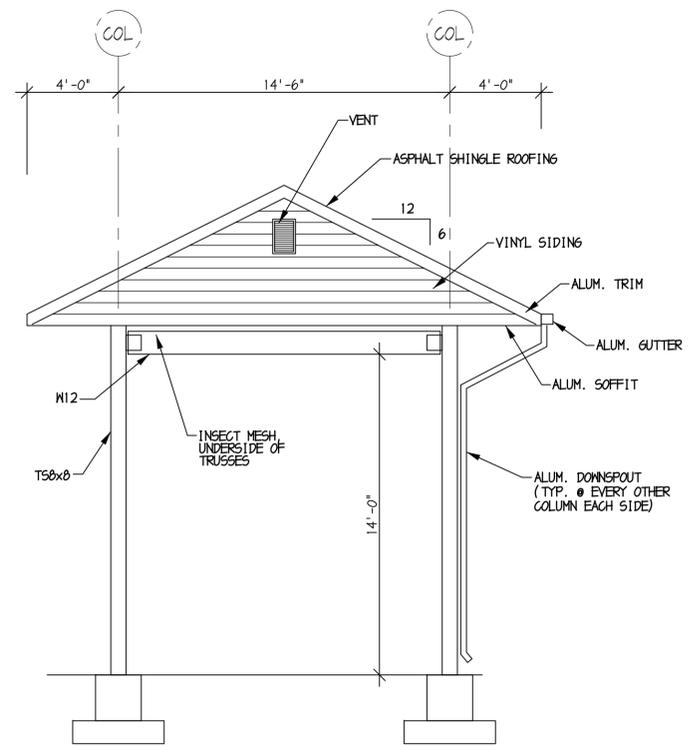
- NOTES:
- ALL STEEL TO BE HOT-DIPPED GALVANIZED.
 - TOP OF STEEL ELEVATION: +15'-0" ABOVE HIGH POINT OF FINISH GRADE.
 - REF. A, B & C/S102 FOR PERMANENT TRUSS BRACING DETAILS.
 - ALL HANGING COMPONENTS TO HAVE MINIMUM ALLOWABLE CAPACITY OF 3000 LBS. THIS INCLUDES: WINCHES, CHAIN, CABLES, PULLEYS AND ALL ASSOCIATED ACCESSORIES.
 - PROVIDE MIN. 30' CABLE FOR ALL WINCHES.
 - PROVIDE MIN. 6' CHAIN AT ALL CHAIN HANGERS.



E1 S101 PARTIAL REAR ELEVATION
1/4" = 1'-0"



E2 S101 PARTIAL FRONT ELEVATION
1/4" = 1'-0"



E3 S101 END ELEVATION
1/4" = 1'-0"

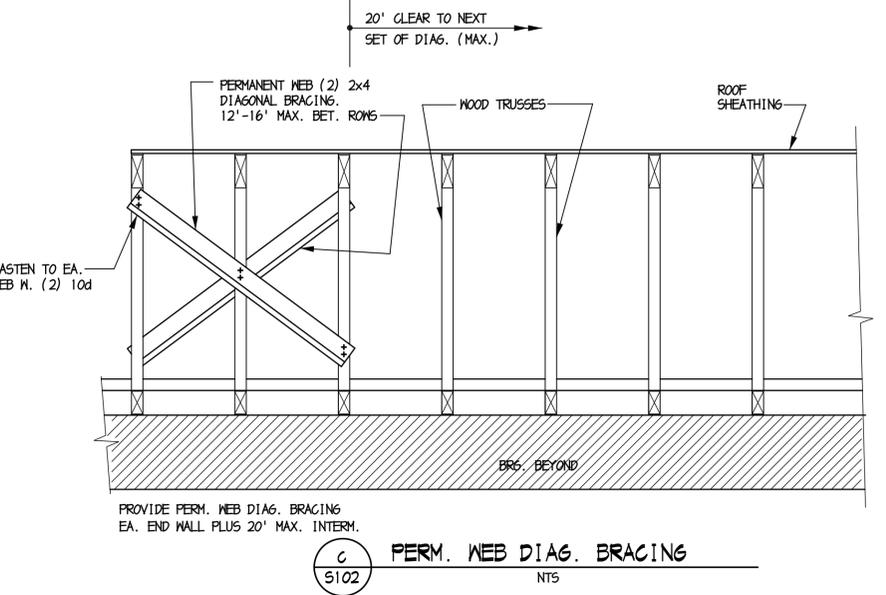
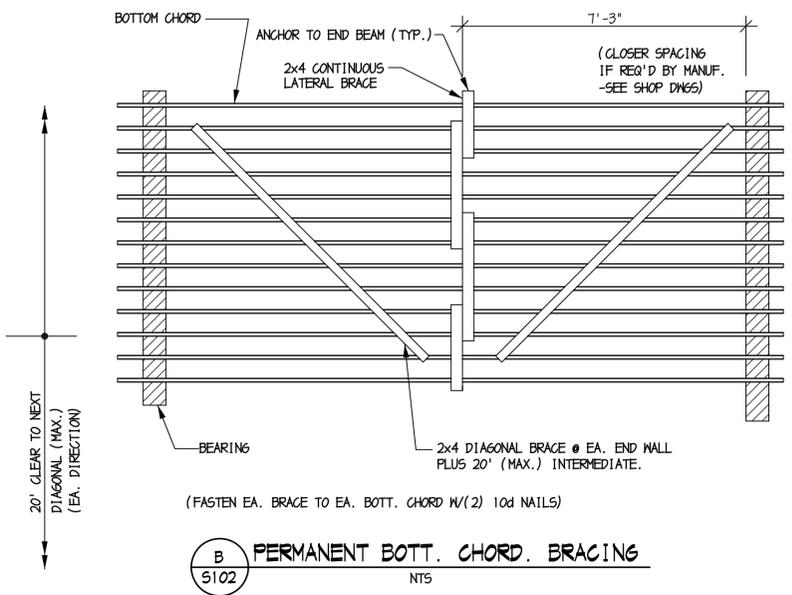
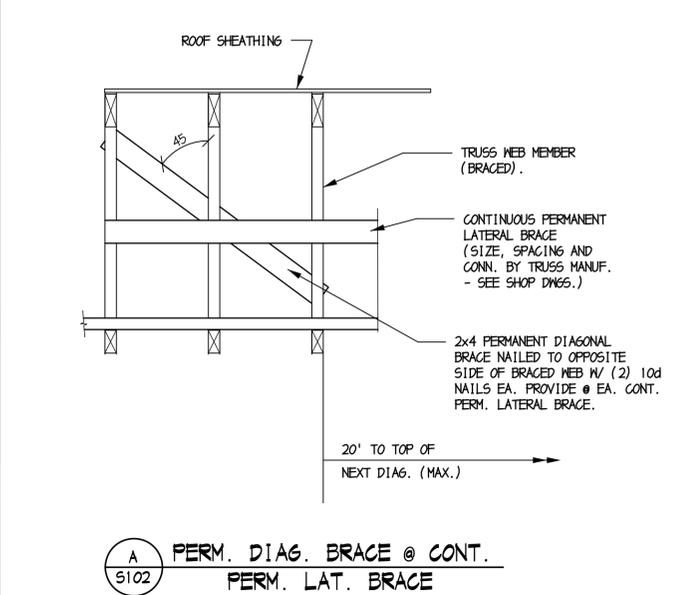
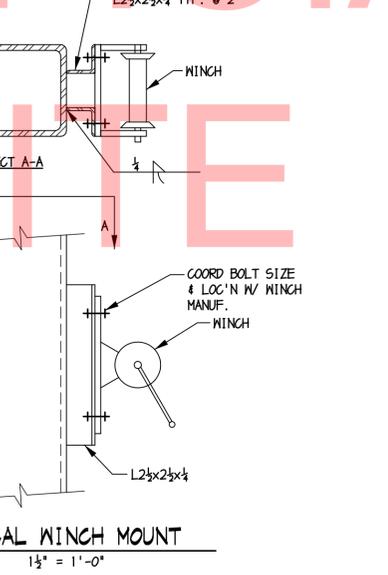
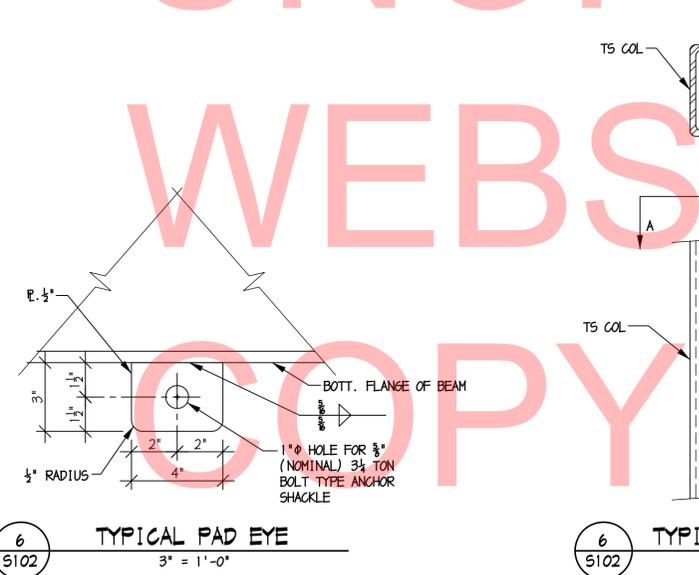
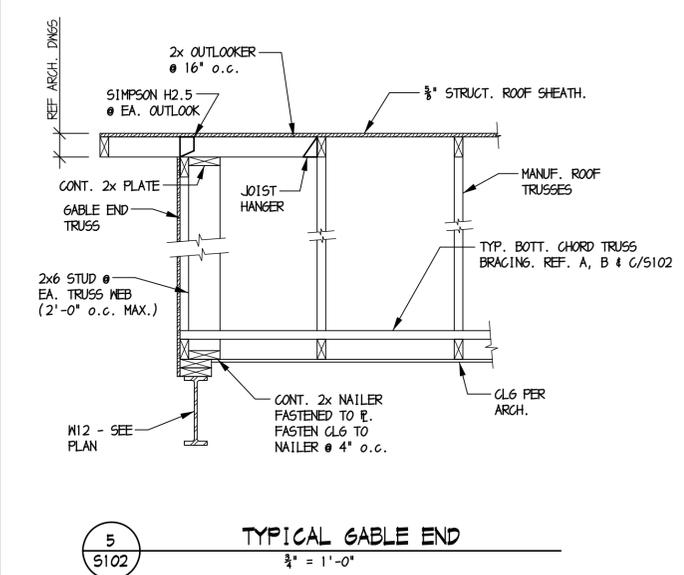
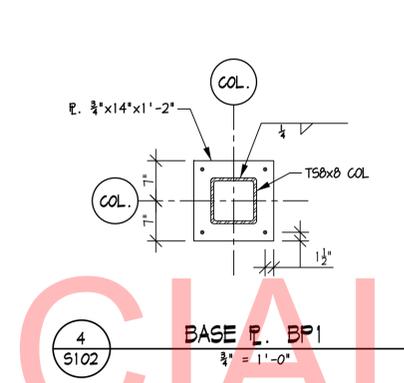
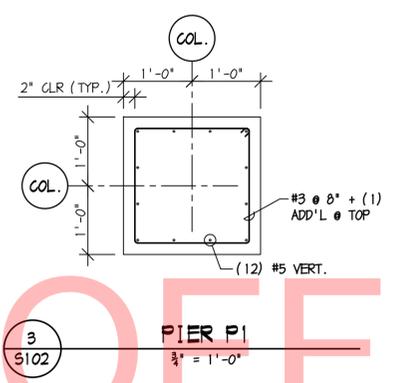
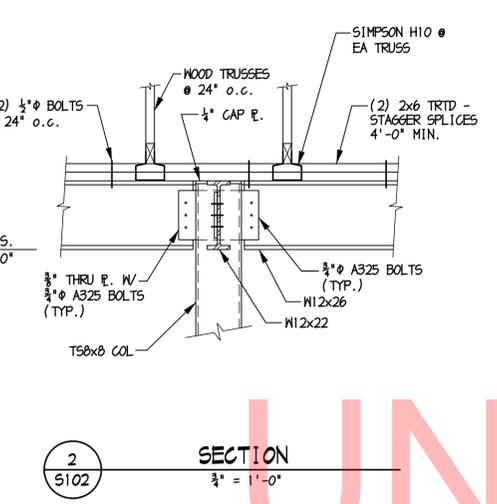
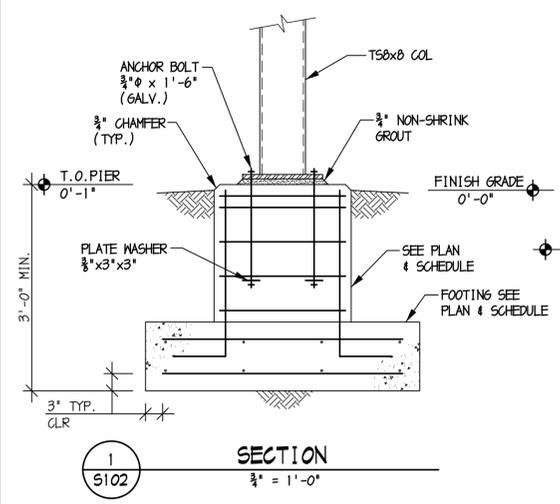
CONSTRUCTION PLANS

DRAWING TITLE
HOPPER RACKS STRUCTURAL FRAMING PLANS & ELEVATIONS

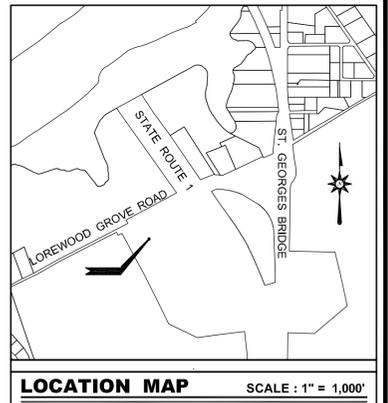
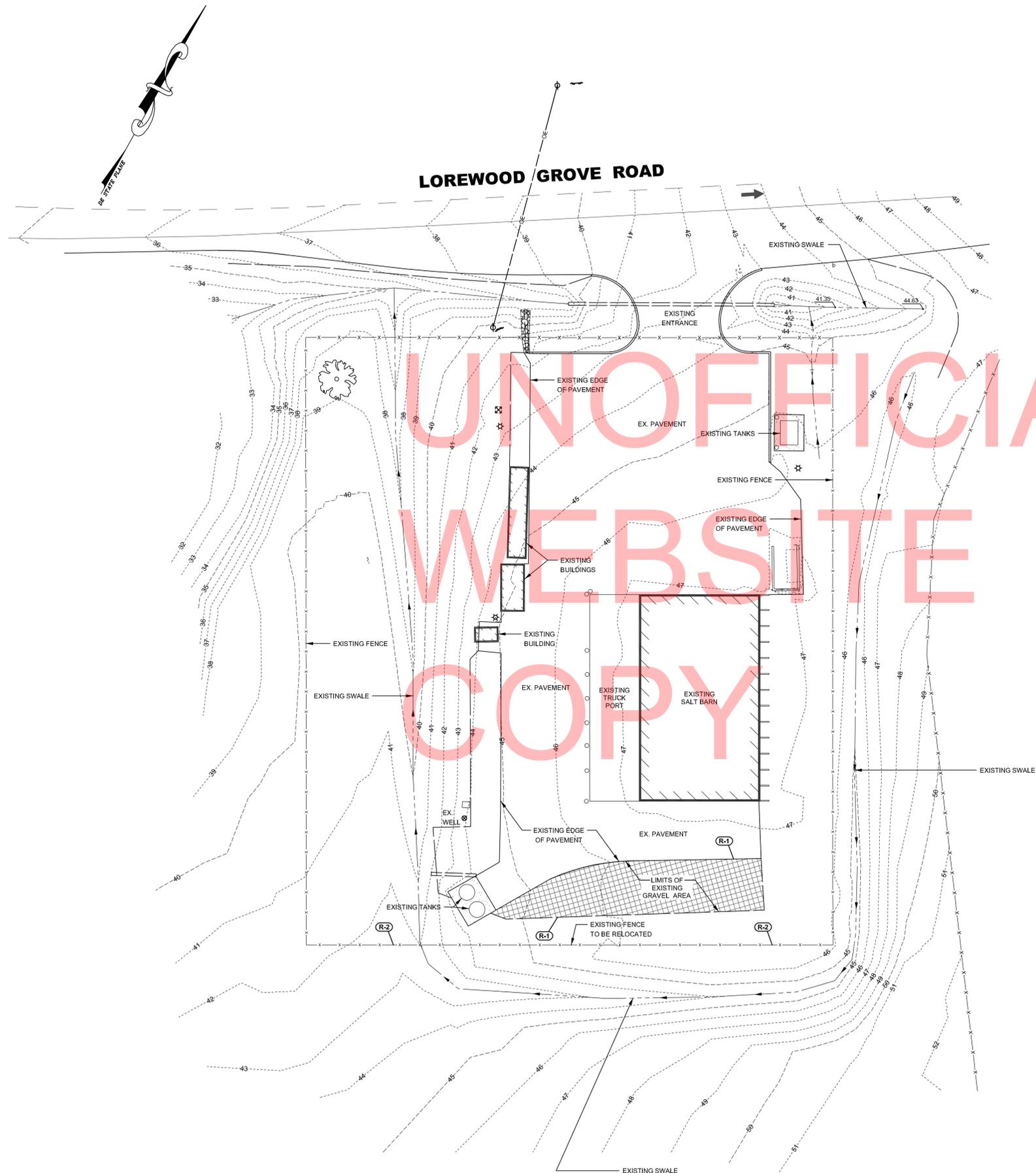
DATE	SCALE	DRAWING NO.
August 31, 2011	AS NOTED	3 OF 7

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STATEWIDE HOPPER RACKS & CANAL DISTRICT FUEL CANOPY



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BECKER MORGAN GROUP
 ARCHITECTURE
 ENGINEERING

Dover
 309 S. Governors Ave.
 Dover, DE 19904
 Ph. 302.734.7950
 Fax 302.734.7965

Salisbury
 312 West Main St. Suite 300
 Salisbury, MD 21801
 Ph. 410.546.9100
 Fax 410.546.5824

Wilmington
 3205 Randall Parkway, Suite 211
 Wilmington, North Carolina 28403
 Ph. 910.341.7600
 Fax 910.341.7506

www.beckermorgan.com

PROJECT TITLE
ST. GEORGES MAINTENANCE FACILITY IMPROVEMENTS
 LOREWOOD GROVE ROAD
 NEW CASTLE COUNTY
 DELAWARE

SHEET TITLE
EXISTING CONDITIONS AND DEMOLITION PLAN

0 15 30 60
SCALE: 1" = 30'

DEMOLITION CONSTRUCTION NOTES

R-1 REMOVE EXISTING GRAVEL AREA WITHIN THE AREA OF THE PROPOSED IMPROVEMENTS AS SHOWN.
R-2 REMOVE / RELOCATE APPROXIMATELY 264 L.F. OF EXISTING CHAINLINK FENCE.

GENERAL DEMOLITION NOTES

- CONTRACTOR TO TAKE ADDITIONAL CARE DURING DEMOLITION ACTIVITIES NOT TO DISTURB OR UNDERMINE ANY EXISTING UTILITIES ABOVE AND BELOW GROUND. CONTRACTOR IS ALSO TO TAKE CARE TO INSURE THE PROPER PROTECTION OF ALL UTILITIES FROM DAMAGE OR SEDIMENTS.
- CONTRACTOR TO TAKE PROPER CARE IN REMOVING EXISTING DEBRIS AND MATERIALS, AND TO INSURE DISPOSAL OF OFFSITE IN ACCORDANCE WITH ALL APPLICABLE LAWS AND STANDARDS.
- CONTRACTOR TO COORDINATE THE REMOVAL, RELOCATION AND DISCONNECTION OF UTILITIES NECESSARY FOR CONSTRUCTION WITH APPROPRIATE UTILITY COMPANY.
- THE EXISTING UTILITIES SHOWN WERE TAKEN FROM THE BEST AVAILABLE RECORDS. THE CONTRACTOR SHALL CONTACT MISS UTILITY OF DELMARVA (1-800-282-8555) TO VERIFY THEIR EXACT LOCATION PRIOR TO THE START OF ANY CONSTRUCTION. ANY DAMAGE INCURRED TO ANY UTILITIES SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE. IF THE CONTRACTOR RELIES ON THE UTILITY LOCATIONS SHOWN HEREON, HE DOES SO AT HIS OWN RISK AND WILL NOT BE ENTITLED TO ADDITIONAL COMPENSATION DUE TO TIME DELAYS FROM SAID RELIANCE.

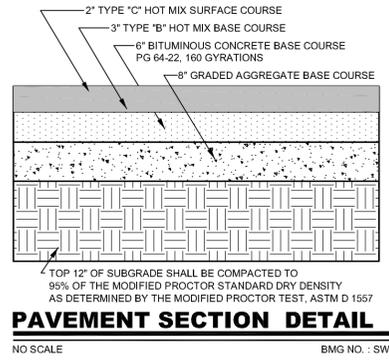
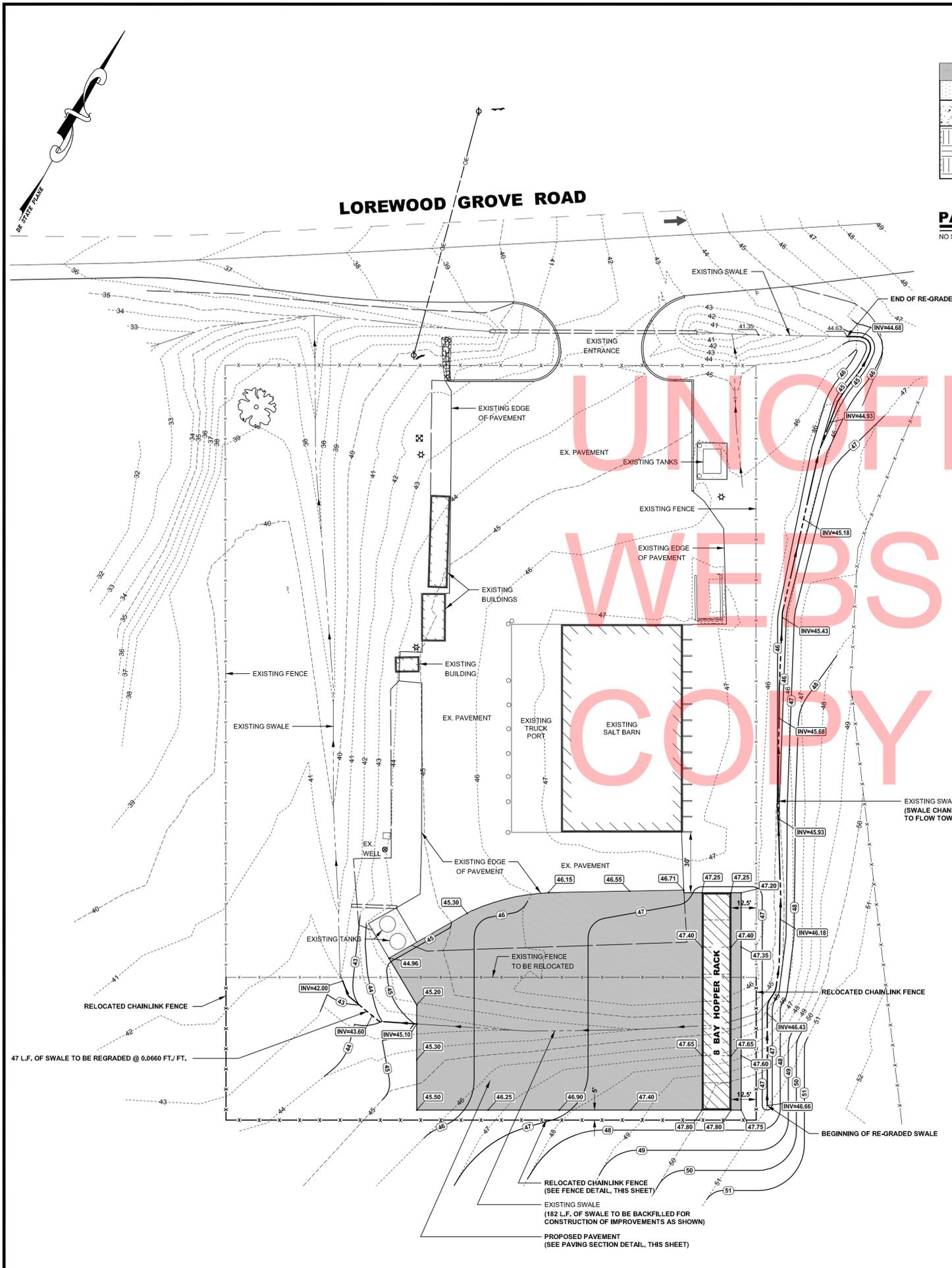
ISSUE BLOCK

2.	08-31-11	REVISED PER DELDOTS COMMENTS
1.	06-28-11	REVISED LOCATION OF HOPPER RACKS PER DELDOT

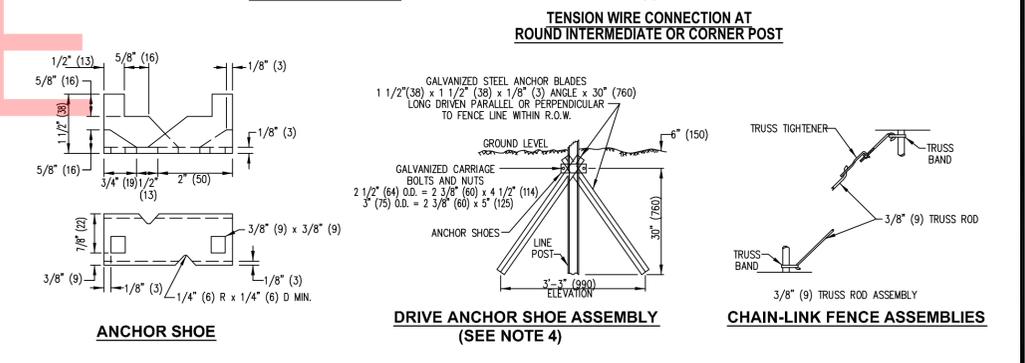
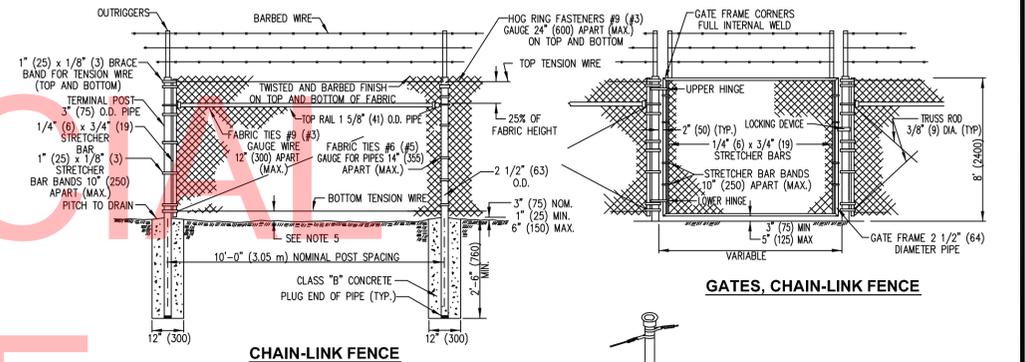
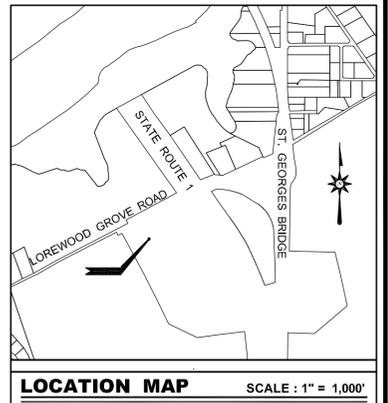
MARK	DATE	DESCRIPTION

LAYER STATE: C:\P2005009-20-ST-GEORGES-SITE.dwg

PROJECT NO.: 2005009.20
DATE: 08-26-10
SCALE: 1" = 30'
 DRAWN BY: R.P.H. | PROJ. MGR.: G.E.J.
 SHEET
C-101
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ITEM	LEGEND	
	EXISTING	PROPOSED
CONCRETE CURB & GUTTER		N/A
CONCRETE SIDEWALK, SLAB/PAVING		N/A
IMPERVIOUS SURFACED ROAD, DRIVE OR LOT		
CHAINLINK FENCE		
STRUCTURE (CONCRETE, WOOD, METAL, ETC.)		
DRAINAGE DITCH OR SWALE		
CONTOUR		
ELEVATION SPOT SHOT		
LIGHT POLE		N/A
STORM DRAIN LINE (CMP OR RCP)		N/A
GRAVEL AREA TO BE REMOVED		N/A
UTILITY POLE W/ OVERHEAD SERVICE (TELEPHONE OR ELECTRIC OR BOTH)		N/A



GENERAL NOTES

- POSTS

	TERMINAL, CORNER AND GATE POSTS	LINE POSTS	TOP OR BRACE RAIL
AASHTO TYPE	1 OR 2	1 OR 2	1 OR 2
AASHTO GRADE	1 OR 2	1 OR 2	1 OR 2
MINIMUM LENGTH OF POST:	10'-8" (3250)	10'-8" (3250)	N/A
ACTUAL OUTSIDE DIAMETER	2 1/2" (73)	2 3/8" (60)	1.660" (42)
WALL THICKNESS	GRADE 1 = .203" (5.2) GRADE 2 = .160" (4)	GRADE 1 = .154" (3.9) GRADE 2 = .120" (3)	GRADE 1 = .140" (3.5) GRADE 2 = .111" (2.8)
- THE DEPTH OF CONCRETE FOOTERS IN SOLID ROCK MAY BE REDUCED TO 12" (300) BELOW THE TOP OF ROCK AND THE DIAMETER OF THE HOLE IN ROCK MAY BE REDUCED TO 6" (150).
- BRACE BANDS AND STRETCHER BAR BANDS SHALL BE FURNISHED WITH 5" (8) DIA. CARRIAGE BOLTS AND ELASTIC STOP NUTS.
- DRIVE ANCHOR SHOE ASSEMBLY ONLY TO BE USED IN WET AREAS AND WITH PRIOR APPROVAL OF THE ENGINEER.
- THE BOTTOM OF THE FENCE SHALL BE 2" (50) MAX ABOVE HARD GROUND OR PAVEMENT, WHERE THERE IS SOFT GROUND, THE BOTTOM OF THE FENCE SHALL EXTEND INTO THE GROUND IN ORDER TO BE FIRM DUE TO SHIFTING SOIL OR SAND.
- NUTS AND BOLTS SHALL BE TACK WELDED OR BURRED TO PREVENT REMOVAL.
- IF THERE ARE ANY OPENINGS IN THE FENCE LARGER THAN 96 SQ. IN. (620 sq. cm) DUE TO UTILITIES OR GRADED TERRAIN, THE OPENINGS SHALL BE SECURED WITH A METAL GRILL THAT IS LOCKED OR PERMANENTLY WELDED.
- VEGETATION AND PERMANENT STRUCTURES (SUCH AS BUILDINGS, LIGHT POLES, AND UTILITY POLES) SHALL BE AT LEAST 14' (4.2 m) FROM THE FENCE. ANY EXCEPTIONS SHALL REQUIRE THE CONSTRUCTION OF TOP GUARDS.

CHAIN LINK FENCE DETAILS
NO SCALE
DELDOT STD. No. M-7 (2006)

BECKER MORGAN GROUP
ARCHITECTURE ENGINEERING
Dover
309 S. Governors Ave.
Dover, DE 19904
Ph. 302.734.7950
Fax 302.734.7965
Salisbury
312 West Main St. Suite 300
Salisbury, MD 21801
Ph. 410.546.9100
Fax 410.546.5824
Wilmington
3205 Randall Parkway, Suite 211
Wilmington, North Carolina 28403
Ph. 910.341.7600
Fax 910.341.7506
www.beckermorgan.com

PROJECT TITLE
ST. GEORGES MAINTENANCE FACILITY IMPROVEMENTS
LOREWOOD GROVE ROAD
NEW CASTLE COUNTY
DELAWARE

SHEET TITLE
SITE PLAN / GRADING PLAN

0 15 30 60
SCALE: 1" = 30'

MARK	DATE	DESCRIPTION
2.	08-31-11	REVISED PER DELDOT'S COMMENTS
1.	06-28-11	REVISED LOCATION OF HOPPER RACKS PER DELDOT

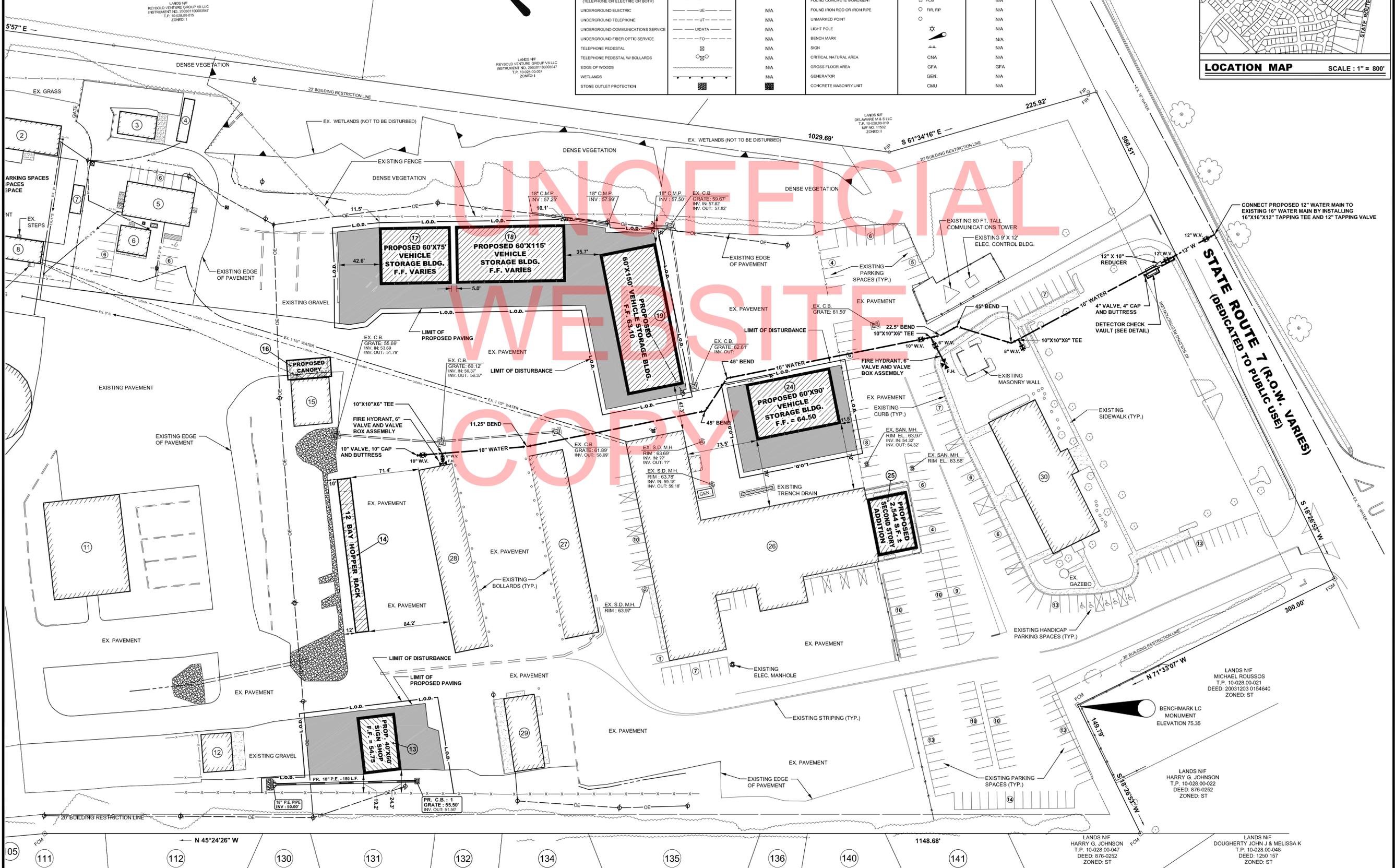
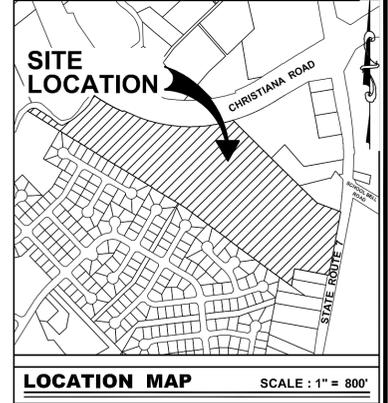
PROJECT NO.: 2005009.20
DATE: 08-26-10
SCALE: 1" = 30'
DRAWN BY: R.P.H. | PROJ. MGR.: G.E.J.
SHEET
C-102
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EROSION SEDIMENT CONTROL LEGEND	
LIMIT OF DISTURBANCE	LOD
LOD	LOD



LEGEND					
ITEM	EXISTING	PROPOSED	ITEM	EXISTING	PROPOSED
SANITARY GRAVITY SEWER LINE, SEE & FLOW DIRECTION	EX. 8" S	N/A	CONCRETE CURB & GUTTER		N/A
SANITARY SEWER MANHOLE (S.M.H.)		N/A	CONCRETE SIDEWALK, SLAB / PAVING		N/A
SANITARY SEWER CLEANOUT	EX. 6" W	N/A	CONCRETE BARRIER/WALL		N/A
WATER MAIN & SIZE	EX. 6" W	6" W	IMPERVIOUS SURFACE ROAD, DRIVE OR LOT		N/A
FIRE HYDRANT	EX. F.H.	F.H.	INDIVIDUAL TREE OR BUSH	EVERGREEN	N/A
WATER VALVE (W.V.) OR METER (W.M.)	W.M.	W.V.	FENCE		N/A
STORM DRAIN MANHOLE (S.D.M.H.)		N/A	STRUCTURE (CONCRETE, WOOD, METAL, ETC.)		N/A
STORM DRAIN LINE (CMP OR RCP)		N/A	CONTOUR		N/A
CATCH BASIN		N/A	CENTERLINE DITCH / SWALE / STREAM		N/A
UTILITY POLE W/ OVERHEAD SERVICE (TELEPHONE OR ELECTRIC OR BOTH)	OE	N/A	PROPERTY OR RIGHT-OF-WAY LINE		N/A
UNDERGROUND ELECTRIC	UE	N/A	FOUND CONCRETE MONUMENT	FCM	N/A
UNDERGROUND TELEPHONE	UT	N/A	FOUND IRON ROD OR IRON PIPE	FIR, FIP	N/A
UNDERGROUND COMMUNICATIONS SERVICE	UDATA	N/A	UNMARKED POINT		N/A
UNDERGROUND FIBER OPTIC SERVICE	FO	N/A	LIGHT POLE		N/A
TELEPHONE PEDESTAL		N/A	BENCH MARK		N/A
TELEPHONE PEDESTAL W/ BOLLARDS		N/A	SIGN		N/A
EDGE OF WOODS		N/A	CRITICAL NATURAL AREA	CNA	N/A
WETLANDS		N/A	GROSS FLOOR AREA	GFA	GFA
STONE OUTLET PROTECTION		N/A	GENERATOR	GEN.	N/A
			CONCRETE MASONRY UNIT	CMU	N/A

SCHOOLBELL ROAD



BECKER MORGAN GROUP

ARCHITECTURE
ENGINEERING

Dover
309 S. Governors Ave.
Dover, DE 19904
Ph. 302.734.7950
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Salisbury
312 West Main St. Suite 300
Salisbury, MD 21801
Ph. 410.546.9100
Fax 410.546.5824

Wilmington
3205 Randall Parkway, Suite 211
Wilmington, North Carolina 28403
Ph. 910.341.7600
Fax 910.341.7506

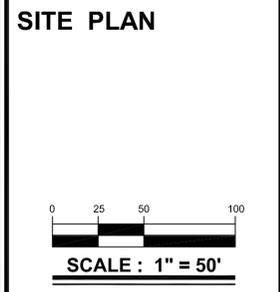
www.beckermorgan.com

PROJECT TITLE

DELDOT BEAR MAINTENANCE YARD / STORAGE BUILDINGS

250 BEAR CHRISTIANA ROAD
BEAR, DELAWARE
NEW CASTLE HUNDRED
NEW CASTLE COUNTY, DE

SHEET TITLE



APPLICATION No. 2011-0114-S
ISSUE BLOCK

MARK	DATE	DESCRIPTION
4	06-07-11	REVISED PER FIRE MARSHAL COMMENT VIA EMAIL, DATED 05-27-11
3	06-03-11	REVISED PER NCC COMMENTS, DATED 05-04-11
2	05-19-11	REVISED PER FIRE MARSHAL COMMENTS, DATED 03-11-11
1	04-18-11	REVISED PER NCC COMMENTS, DATED 03-24-11

PROJECT NO.: 2005009.20
DATE: 03-08-11
SCALE: 1" = 50'
DRAWN BY: R.P.H. PROJ. MGR.: G.E.J.

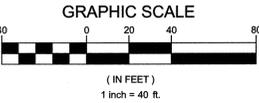
SHEET
C-201
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LAYOUT, SIGNAGE, AND STRIPING PLAN

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS
30-801-01	KENT		C301	

DELAWARE DEPARTMENT OF TRANSPORTATION
MAGNOLIA MAINTENANCE YARD
REVISIONS

04/11/11 - COUNTY SUBMISSION



CONSTRUCTION NOTES

- N-1 NEW BITUMINOUS CONCRETE PAVING. SEE DETAIL 1, SHEET C6.0.
- N-2 NEW 5-FOOT WIDE CONCRETE WALK. SEE DETAIL 4, SHEET C6.0.
- N-3 NEW CONCRETE CURB. SEE DETAIL 6, SHEET C6.0.
- N-4 NEW CONCRETE EQUIPMENT PAD FOR RELOCATED BRINE/WATER TANKS. CHAMFER EXPOSED CORNERS 8" x 8". SEE DETAIL 1, SHEET S3.2.
- N-5 NEW PAINT PARKING SPACE STRIPING. SEE DETAIL 8, SHEET C6.0.
- N-6 NEW CONCRETE PEDESTRIAN RAMP WITH DETECTABLE WARNING STRIP. SEE DETAIL 7, SHEET C6.0.
- N-7 NEW HANDICAPPED PAVEMENT MARKING. SEE DETAIL 3, SHEET C6.0.
- N-8 NEW HANDICAPPED PARKING SIGN. SEE DETAIL 9, SHEET C6.0.
- N-9 NEW CONCRETE WHEEL STOP. SEE DETAIL 10, SHEET C6.0.
- N-10 NEW CONCRETE APRON. CHAMFER EXPOSED CORNERS 8" x 8". SEE DETAIL 5, SHEET S2.1.
- N-11 NEW CONCRETE EQUIPMENT PAD FOR TRUCK WASH. CHAMFER EXPOSED CORNERS 8" x 8". SEE DETAIL 1, SHEET S3.2.
- N-12 NEW BITUMINOUS PAVING REPAIR. SEE DETAIL 2, SHEET C6.0.
- N-13 NEW CONCRETE EQUIPMENT PAD FOR GENERATOR. CHAMFER EXPOSED CORNERS 8" x 8". SEE DETAIL 1, SHEET S3.2.
- N-14 NEW CONCRETE-FILLED 6-INCH STEEL BOLLARD. SEE DETAIL 3, SHEET C5.1.
- N-15 NEW 5' x 8' CONCRETE DOOR PAD. SEE DETAIL 6, SHEET S2.1.
- N-16 NEW 14" OF GRADED AGGREGATE BASE COURSE.
- N-17 NEW 6" OF GRADED AGGREGATE BASE COURSE.

NOTES:

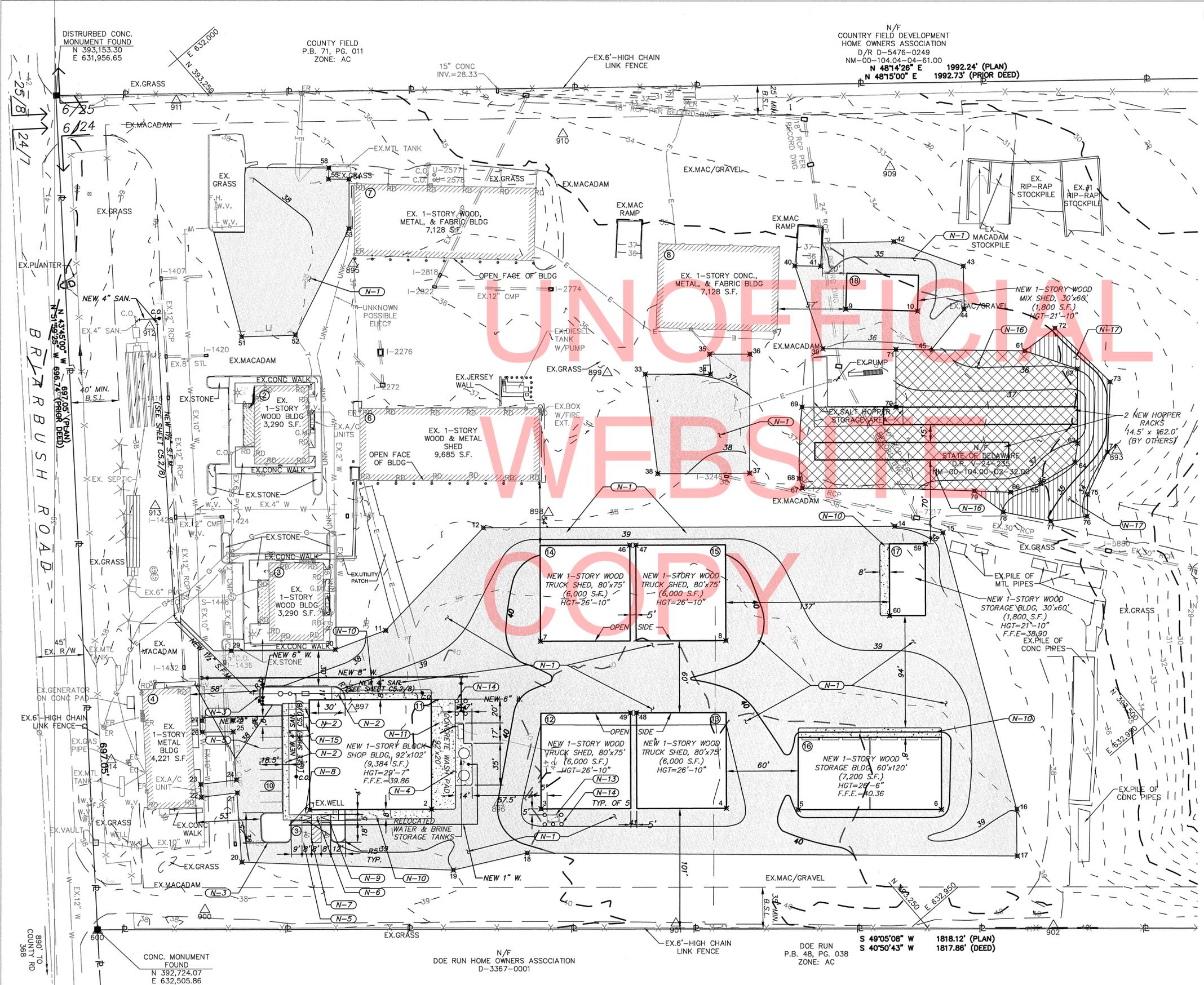
1. SEE SHEET NO. C1.0 FOR LEGEND AND C2.0 FOR PROJECT NOTES.
2. LIGHTING SHALL BE WALL PACKS ON PROPOSED BUILDING.

GEOMETRY POINT TABLE

PT #	DESCRIPTION	NORTHING	EASTING
1	BUILDING CORNER	392923.83	632546.22
2	BUILDING CORNER	393001.17	632612.66
3	BUILDING CORNER	393070.57	632672.28
4	BUILDING CORNER	393188.15	632773.28
5	BUILDING CORNER	393232.75	632813.44
6	BUILDING CORNER	393233.04	632891.73
7	BUILDING CORNER	393162.04	632565.81
8	BUILDING CORNER	393279.61	632666.81
9	BUILDING CORNER	393536.33	632523.38
10	BUILDING CORNER	393580.58	632563.91
11	SAWCUT	393070.10	632474.40
12	SAWCUT	393188.07	632462.93
14	SAWCUT	393448.99	632687.07
15	SAWCUT	393475.82	632717.37
16	SAWCUT	393371.28	632932.73
17	SAWCUT	393345.69	632962.88
18	SAWCUT	393037.60	632692.86
19	SAWCUT	392981.55	632663.25
20	SAWCUT	392852.27	632542.23
21	SAWCUT	392887.33	632495.80
22	SAWCUT	392862.22	632478.83
23	SAWCUT	392868.93	632470.38
24	SAWCUT	392893.80	632487.22
25	SAWCUT	392918.25	632454.84
26	SAWCUT	392898.47	632438.20
27	SAWCUT	392904.60	632430.88
28	SAWCUT	392924.36	632447.44
29	SAWCUT	392961.28	632402.48
30	SAWCUT	393027.77	632458.88
33	SAWCUT	393374.10	632454.67
34	SAWCUT	393415.41	632490.33
35	SAWCUT	393425.68	632477.28
36	SAWCUT	393451.22	632499.30
37	SAWCUT	393386.11	632574.19
38	SAWCUT	393327.73	632524.21
39	SAWCUT	393500.24	632535.72
40	SAWCUT	393527.92	632468.07
41	SAWCUT	393543.88	632482.54

GEOMETRY POINT TABLE

PT #	DESCRIPTION	NORTHING	EASTING
42	SAWCUT	393603.62	632507.03
43	SAWCUT	393634.05	632560.48
44	SAWCUT	393611.05	632588.12
45	SAWCUT	393568.17	632595.78
46	BUILDING CORNER	393271.06	632554.00
47	BUILDING CORNER	393274.85	632557.25
48	BUILDING CORNER	393183.39	632663.73
49	BUILDING CORNER	393179.59	632660.47
51	SAWCUT	393139.22	632210.39
52	SAWCUT	393174.14	632238.77
53	SAWCUT	393266.05	632200.92
54	SAWCUT	393293.00	632169.85
55	SAWCUT	393280.17	632158.57
58	SAWCUT	393286.41	632151.75
59	BUILDING CORNER	393458.56	632714.78
60	BUILDING CORNER	393396.77	632740.68
61	AGGREGATE LIMIT	393626.70	632647.53
62	AGGREGATE LIMIT	393650.10	632687.80
63	AGGREGATE LIMIT	393609.43	632734.90
64	AGGREGATE LIMIT	393597.47	632745.29
65	AGGREGATE LIMIT	393564.41	632739.91
66	AGGREGATE LIMIT	393540.51	632729.01
67	AGGREGATE LIMIT	393411.25	632612.51
68	AGGREGATE LIMIT	393414.61	632604.67
69	AGGREGATE LIMIT	393455.24	632561.17
70	AGGREGATE LIMIT	393514.63	632612.57
71	AGGREGATE LIMIT	393546.03	632576.20
72	AGGREGATE LIMIT	393657.95	632649.88
73	AGGREGATE LIMIT	393663.79	632713.77
74	AGGREGATE LIMIT	393623.69	632756.69
75	AGGREGATE LIMIT	393588.06	632772.59
76	AGGREGATE LIMIT	393575.76	632786.00
77	AGGREGATE LIMIT	393550.16	632769.18
78	AGGREGATE LIMIT	393525.06	632737.38
79	AGGREGATE LIMIT	393518.30	632708.33



User: jbrown P:\2008\08012101\Drawings\07-SITE\ALTERNATE LAYOUT 01-31-12\Layout.dwg
 PREL. TRACING
 DESIGN
 CHKD.
 LAST REVISION: 05/18/11
 Jan 31, 2012 - 10:45am