PUBLIC NOTICE

US Army Corps of Engineers ®
New England District
696 Virginia Road
Concord, MA 01742-2751

Comment Period Begins: February 22, 2011
Comment Period Ends: March 25, 2011
File Number: NAE-2009-1425
In Reply Refer To: Paul Sneeringer
Phone: (978) 318-8491
E-mail: paul.j.sneeringer@usace.army.mil

The District Engineer has received a permit application from the applicant below to conduct work in waters of the United States as described below.

APPLICANT: Massachusetts Department of Transportation – Highway Division ("MassDOT")

ACTIVITY: MassDOT has submitted a Section 404 subject application to discharge dredged and/or fill material into approximately **70,644** square feet of waters of the United States, including jurisdictional wetlands associated with tributaries of Mill Brook, in order to construct safety improvement for a 1.8 mile section of Route 2 from the Route 126 intersection in Concord to the Bedford Road intersection in Lincoln, Massachusetts. The purpose for this project is to provide safe and efficient traffic operations at the Crosby's Corner intersection and to remove direct driveway and local road access off of the Route 2 mainline. As part of this project MassDOT proposes to construct a new grade separated interchange at Crosby's Corner and to install a series of service roads to provide alternative local road access to abutting properties. Section 404 discharges for this project include roadway and ramp embankment fills, drainage systems, and temporary construction access areas. As part of their subject application for the Route 2 Crosby's Corner Interchange Safety Improvement Project, MassDOT has detailed ways that they have designed this project to minimize impacts to waters of the United States. MassDOT is currently proposing a mixture of wetland restoration, wetland creation, and preservation strategies in order to mitigate for unavoidable impacts to waters of the United States, associated with this project.

A project overview map for the Route 2 Crosby's Corner Interchange is included with this public notice to assist your review of this project. Copies of the detailed plan drawings for this project, entitled "ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENT PROJECT," on a total of 37 sheets, and dated "11/17/10" and revised "02/08/2011", can be downloaded from the New England District's web-page at http://www.nae.usace.army.mil/reg/pubnot2.asp or requested from Paul Sneeringer at (978) 318-8491.

WATERWAY AND LOCATION OF THE PROPOSED WORK
This work is proposed in unnamed tributaries of Mill Brook within Concord and Lincoln, Massachusetts. The proposed location for the Route 2 Crosby's Corner Interchange Safety Improvement Project can be found on the USGS Concord quadrangle sheet near 42° 27' N, 71° 19' W.

AUTHORITY
Permits are required pursuant to:
_____Section 10 of the Rivers and Harbors Act of 1899
_XX_ Section 404 of the Clean Water Act
_____Section 103 of the Marine Protection, Research and Sanctuaries Act).

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which may reasonably accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are: conservation, economics, aesthetics, general environmental concerns, wetlands, cultural value, fish and wildlife values, flood hazards, flood plain value, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Where the activity involves the discharge of dredged or fill material into waters of the United States or the transportation of dredged material for the purpose of disposing it in ocean waters, the evaluation of the impact of the activity in the public interest will also include application of the guidelines promulgated by the Administrator, U.S Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act, and/or Section 103 of the Marine Protection Research and Sanctuaries Act of 1972 as amended.

SECTION 106 COORDINATION

Based on his initial review, the District Engineer has determined that the proposed work may impact properties listed in, or eligible for listing in, the National Register of Historic Places. Additional review and consultation to fulfil requirements under Section 106 of the National Historic Preservation Act of 1966, as amended, will be ongoing as part of the permit review process.

ENDANGERED SPECIES CONSULTATION

The New England District, Army Corps of Engineers has reviewed the list of species protected under the Endangered Species Act of 1973, as amended, which might occur at the project site. It is our preliminary determination that the proposed activity for which authorization is being sought is designed, situated or will be operated/used in such a manner that it is not likely to adversely affect any Federally listed endangered or threatened species or their designated critical habitat. By this Public Notice, we are requesting that the appropriate Federal Agency concur with our determination.

The States of Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island have approved Coastal Zone Management Programs. Where applicable the applicant states that any proposed activity will comply with and will be conducted in a manner that is consistent with the approved Coastal Zone Management Program. By this Public Notice, we are requesting the State concurrence or objection to the applicant's consistency statement.

The following authorizations have been applied for, or have been, or will be obtained:

( ) Permit, License or Assent from State.
(XX) Permit from Local Wetland Agency or Conservation Commission.
(XX) Water Quality Certification in accordance with Section 401 of the Clean Water Act.

In order to properly evaluate the proposal, we are seeking public comment. Anyone wishing to comment is encouraged to do so. **Comments should be submitted in writing by the above date.** If you have any questions, please contact **Paul Sneeringer** at (978) 318-8491, (800) 343-4789 or (800) 362-4367, if calling from within Massachusetts.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for a public hearing shall specifically state the reasons for holding a public hearing. The Corps holds public hearings for the purpose of obtaining public comments when that is the best means for understanding a wide variety of concerns from a diverse segment of the public.

The initial determinations made herein will be reviewed in light of facts submitted in response to this notice. All comments will be considered a matter of public record. Copies of letters of objection will be forwarded to the applicant who will normally be requested to contact objectors directly in an effort to reach an understanding.

THIS NOTICE IS NOT AN AUTHORIZATION TO DO ANY WORK.

Karen K. Adams
Chief, Permits and Enforcement Branch
Regulatory Division

If you would prefer not to continue receiving Public Notices, please contact Ms. Tina Chaisson at (978) 318-8058 or e-mail her at bettina.m.chaisson@usace.army.mil. You may also check here ( ) and return this portion of the Public Notice to: Bettina Chaisson, Regulatory Division, U.S. Army Corps of Engineers, 696 Virginia Road, Concord, MA 01742-2751.

NAME: _____
ADDRESS: _____

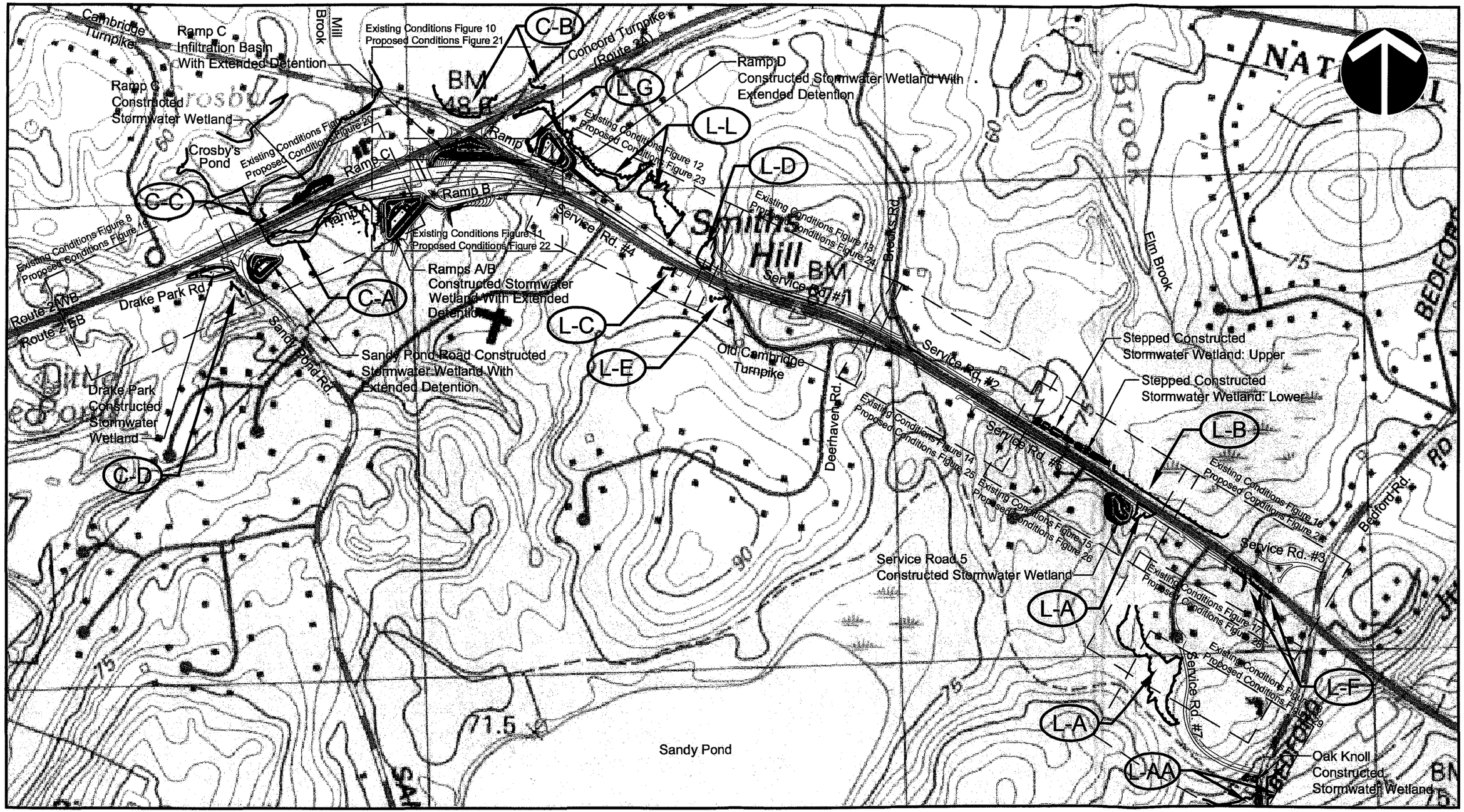


Figure 1
Project Overview Map
Route 2 - Crosby's Corner
Concord & Lincoln, Massachusetts

Scale: 1:7,500

Date: December 9, 2009

The Louis Berger Group, Inc.

Moving Massachusetts Forward. massDOT Highway

APPLICATION FOR DEPARTMENT OF ARMY PERMIT
EXISTING AND PROPOSED CONDITIONS

ROUTE 2
SAFETY IMPROVEMENT PROJECT
BRIDGE NO. C-19-24 (7C2)

IN THE TOWNS OF

LINCOLN - CONCORD
MIDDLESEX COUNTY

FEDERAL AID PROJECT NO. XX-XXX-XXX

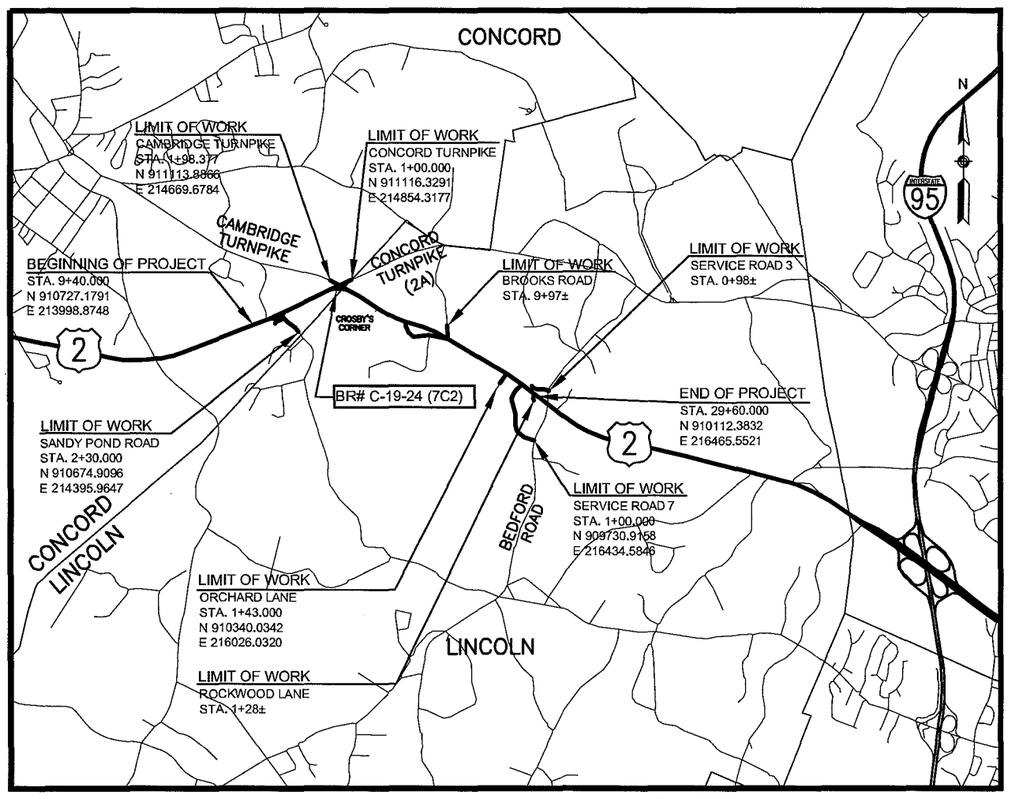
INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND & ABBREVIATIONS
3 - 4	KEY PLANS
5 - 7	CROSS SECTIONS
8 - 18	EXISTING CONDITIONS PLANS
19 - 29	CONSTRUCTION PLANS
30 - 33A	WETLAND REPLICATION PLANS
34	EROSION CONTROL DETAILS
35	WILDLIFE CULVERT DETAIL

CONVENTIONAL SIGNS

COUNTY, CITY, OR TOWN BOUNDARY
COUNTY, CITY, OR TOWN SIDE LINE
FENCE LINE
BASE LINE OR SURVEY LINE — 75 — N11°49'40"W — 116.950m
RIGHT OF WAY LINE
CULVERT
RETAINING WALL
GUARD RAIL
STONE WALL
TREE LINE
POLE

ELEVATIONS — PROPOSED SURFACE / PRESENT SURFACE — PRES. 98.22 / 102.67 PROP. — 75



SCALE 1:25,000

NOTE
LENGTH OF PROJECT: MAINLINE ℄ (ROUTE 2)= 2,935 METERS= 2.935 KILOMETERS

THE MASSACHUSETTS HIGHWAY DEPARTMENT 1995 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES (METRIC EDITION), THE SUPPLEMENTAL SPECIFICATIONS DATED FEBRUARY 25, 2010, THE AMENDMENTS TO THE STANDARD AND SUPPLEMENTAL SPECIFICATIONS, THE 2010 CONSTRUCTION STANDARD DETAILS, THE 2003 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" WITH LATEST REVISIONS, THE 2006 STANDARD DRAWINGS AND DETAILS FOR DEVELOPMENT OF TRAFFIC MANAGEMENT PLANS, THE 1990 "STANDARD DRAWINGS FOR SIGNS AND SUPPORTS," THE 1968 "STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING," AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

ALL WORK SHOWN WITHIN THE TOWN OF LINCOLN HAS BEEN SHOWN FOR INFORMATIONAL PURPOSES. THE WORK WITHIN LINCOLN WAS SUBMITTED TO THE LINCOLN CONSERVATION COMMISSION UNDER A SEPARATE DEP NOTICE OF INTENT (NOI) APPLICATION WHICH HAS BEEN REVIEWED BY THE TOWN AND PRESENTED AT PUBLIC HEARINGS, AND HAS RECEIVED THE DENIAL NECESSARY TO ALLOW MASSDOT TO PROCEED TOWARD THE VARIANCE REQUEST NECESSARY WITH DEP.

DESIGN DESIGNATION

	ROUTE 2
DESIGN SPEED (MAINLINE)	80 km/h (50 mph)
DESIGN SPEED (RAMPS AND SERVICE ROADS)	50 km/h (30mph)
ADT(2010)	48,800
ADT(2030)	59,500
K	7.5%
D	62%
T(PEAK HOUR)	2%
T(AVERAGE DAILY)	4%
DHV	4,460
DDHV	2,770
FUNCTIONAL CLASS	PRINCIPAL ARTERIAL

NAE-2009-1425

DATE	REV	DESCRIPTION
02/08/2011	4	PLANS REVISED PER 75% DESIGN, AS SUBMITTED TO MASSDOT 01/21/11
11/17/2010	3	PLAN REVISED FOR APPLICATION FOR DEPARTMENT OF ARMY PERMIT
11/12/2010	2	PLAN REVISED FOR VARIANCE SUBMISSION
09/03/2010	1	PLANS REVISED FOR SUBMISSION TO CONCORD CONSERVATION COMMISSION
01/06/2010	–	ORIGINAL ISSUE

USE ONLY PRINTS OF LATEST DATE

TITLE SHEET

HORIZONTAL SCALE IN METERS AS NOTED

MASSDOT Project Number: 602984
DATE: 02/08/2011
SHEET: 1 OF 35

APPLICATION BY: massDOT Highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY: THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT
PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

ROUTE 2 CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENT PROJECT
SUMMARY OF IMPACTS TO JURISDICTIONAL WATERS OF THE UNITED STATES

Revised impact areas per wetland 2/7/2011
by: MAB

	Wetland	Impact Type (Permanent or Temporary)	Impact (Unit²)
SHEET 20	C-A	Permanent (m)	1600
		Permanent (s.f.)	17,222
		Temporary (m)	979
		Temporary (s.f.)	10,538
SHEET 21	C-B	Permanent (m)	0
		Permanent (s.f.)	0
		Temporary (m)	87
		Temporary (s.f.)	936
SHEET 20	C-C	Permanent (m)	15
		Permanent (s.f.)	161
		Temporary (m)	141
		Temporary (s.f.)	1,518
	C-D	Permanent (m)	0
		Permanent (s.f.)	0
		Temporary (m)	0
		Temporary (s.f.)	0
	Total (Concord)	Permanent (m)	*1,615*
		Permanent (s.f.)	17,384
		Temporary (m)	*1,207*
		Temporary (s.f.)	12,992
SHEET 26	L-A	Permanent (m)	364
		Permanent (s.f.)	3,918
		Temporary (m)	129
		Temporary (s.f.)	1,389
SHEET 28	L-A (Access Road)	Permanent (m)	0
		Permanent (s.f.)	0
		Temporary (m)	33
		Temporary (s.f.)	355
	L-AA (Access Road)	Permanent (m)	0
		Permanent (s.f.)	0
		Temporary (m)	0
		Temporary (s.f.)	0
SHEETS 26	L-B	Permanent (m)	454
		Permanent (s.f.)	4,887
		Temporary (m)	862
		Temporary (s.f.)	9,278
SHEET 23	L-C	Permanent (m)	0
		Permanent (s.f.)	0
		Temporary (m)	9
		Temporary (s.f.)	97
SHEET 23/24	L-D	Permanent (m)	457
		Permanent (s.f.)	4,919
		Temporary (m)	189
		Temporary (s.f.)	2,034
SHEET 24	L-E	Permanent (m)	0
		Permanent (s.f.)	0
		Temporary (m)	3
		Temporary (s.f.)	32
SHEET 27	L-F	Permanent (m)	524
		Permanent (s.f.)	5,640
		Temporary (m)	70
		Temporary (s.f.)	753
	L-G	Permanent (m)	0
		Permanent (s.f.)	0
		Temporary (m)	0
		Temporary (s.f.)	0
SHEETS 21&23	L-L	Permanent (m)	0
		Permanent (s.f.)	0
		Temporary (m)	647
		Temporary (s.f.)	6,964
	Total (Lincoln)	Permanent (m)	*1,799*
		Permanent (s.f.)	19,364
		Temporary (m)	*1,942*
		Temporary (s.f.)	20,904
	Project Total	Permanent (m)	**3,414**
		Permanent (s.f.)	36,748
		Temporary (m)	**3,149**
		Temporary (s.f.)	33,896

NAE-2009-1425
ROUTE 2 - CROSBY'S CORNER INTERCHANGE
SAFETY IMPROVEMENT PROJECT
Summary of Impacts:
SHEET 2 A of 35
REVISED: 02/08/2011

LEGEND

EXISTING	PROPOSED	
2	10	BASELINE OF RECORD
		CONSTRUCTION BASELINE
℄		PROPERTY LINE
		STATE HIGHWAY LAYOUT LINE
		TOWN LAYOUT LINE
		CURB
		BRIDGE RAIL
		GUARDRAIL
		WOOD GUARDRAIL
		DITCH
		RECORDED WETLAND BOUNDARY
		WETLAND AREA
		DOUBLE FACED GUARDRAIL
		SINGLE POST SIGN
		DOUBLE POST SIGN
		SINGLE POST OVERHEAD SIGN PANEL
		DOUBLE POST OVERHEAD SIGN PANEL
		UTILITY POLE
		GUY POLE
		LIGHT POLE
GMH	GMH	GAS MANHOLE
EHH	EHH	ELECTRIC HANDHOLE
EMH	EMH	ELECTRIC MANHOLE
TMH	TMH	TELEPHONE MANHOLE
SMH	SMH	SEWER MANHOLE
HYD		HYDRANT
WG		WATER GATE VALVE
	GG	GAS GATE
DG		DRAINAGE MANHOLE
		CATCH BASIN
CBCI	CBCI	CATCH BASIN & CURB INLET
D	375mm	DRAINAGE PIPE– SIZE
S		SEWER LINE
W	W	WATER LINE
T		TELEPHONE LINE
OHW	OHW	OVERHEAD WIRE
XX" GAS	G	GAS LINE
		HEADWALL
		RETAINING WALL
		STONE WALL
		TREE LINE
	TYPE	TREE
(TYPE)	(TYPE)	FENCE
		HAYBALES/SILT FENCE
C–D		WETLAND ID

LEGEND (CONT.)

EXISTING	PROPOSED	
MHB		MASS. HIGHWAY BOUND
CO. BD.		COUNTY BOUND
TOWN OR CITY BD.		TOWN OR CITY BOUND
		SURVEY TRAVERSE POINT
		ROCK
		BUILDING
		LEDGE
		DIRECTION OF TRAFFIC FLOW
MB	MB	MAIL BOX
SB		STONE BOUND
		WHEELCHAIR RAMP
2		CURVE DATA REFERENCE

ABBREVIATIONS

A.D.	ALGEBRAIC DIFFERENCE
(ABAN)	ABANDON
ABUT.	ABUTMENT
(ADJ)	ADJUST
BB	BOTTOM OF BEAM
BD1	BRIDGE DRAIN
BF	BOTTOM OF FOOTING
BIT. CONC.	BITUMINOUS CONCRETE
℄	BASELINE
BOS	BOTTOM OF SLOPE
BVW	BORDERING VEGITATED WETLAND
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CBS	TOP OF CONCRETE BEAM SEAT
CC	CURVE CENTER
CEM. CONC.	CEMENT CONCRETE
CIP	CAST–IN–PLACE
℄	CENTER LINE
CLF	CHAIN LINK FENCE
CMP	CORRUGATED METAL PIPE
CONST.	CONSTRUCT
CONSTR.	CONSTRUCTION
CONT.	CONTINUED
D.I.	DUCTILE IRON
DI	DROP INLET
DBL	DOUBLE
DMH	DRAINAGE MANHOLE
EB	EASTBOUND
ELEV.	ELEVATION
EMH	ELECTRICAL MANHOLE
EOP	EDGE OF PAVEMENT
EXIST.	EXISTING
FDC	FULL DEPTH PAVEMENT CONSTR.
GND	GROUND ELEVATION
GW	GROUND WATER
HH	HAND HOLE
H.P.	HIGH POINT
HMA	HOT MIX ASPHALT
HOR.	HORIZONTAL
HWY	HIGHWAY
HYD	HYDRANT
INV	INVERT
K	LENGTH OF VERTICAL CURVE PER PERCENT CHANGE IN A.D.
L	LENGTH OF CURVE
LOC.	LOCATION
LOL	LAYOUT LINE
L.P.	LOW POINT
LT	LEFT
m	METER
MAX.	MAXIMUM
M/E	METRIC EDITION
MH	MANHOLE
MIN.	MINIMUM
ML	MAINLINE
mm	MILLIMETER
MW	MONITORING WELL
NB	NORTHBOUND
N.C.	NORMAL CROWN
N/F	NOW OR FORMERLY
NO.	NUMBER
NTS	NOT TO SCALE
OH	OVERHEAD
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PERM.	PERMANENT
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PROP.	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENT
PWW	PAVED WATERWAY
R	RADIUS OF CURVATURE
(R&D)	REMOVE & DISPOSE
(R&R)	REMOVE & RESET
(R&S)	REMOVE & STACK
RCP	REINFORCED CONCRETE PIPE
REL.	RELOCATE
(REM)	REMOVE
(RET)	RETAIN
RET WALL	REATINING WALL
ROW	RIGHT OF WAY
RT	RIGHT
RTE.	ROUTE
SB	SOUTHBOUND
S.D.	SIGHT DISTANCE
SDT.	STANDARD
SHLDR	SHOULDER
SHLO	STATE HIGHWAY LAYOUT
SMH	SANITARY MANHOLE
STA.	STATION
T	TANGENT
TCW	TOP CONCRETE RETAINING WALL
TEMP.	TEMPORARY
TOS	TOP OF SLOPE
TW	TOP OF WALL
TYP	TYPICAL
UP	UTILITY POLE
VER.	VERTICAL
WB	WESTBOUND
WCR	WHEEL CHAIR RAMP
WF	WETLAND FLAG
WG	WATER GATE
Δ	CENTRAL ANGLE OF HORIZONTAL CURVE

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01/06/2010	–	ORIGINAL ISSUE

USE ONLY PRINTS OF LATEST DATE

MASSDOT Project Number: 602984

DATE: 02/08/2011

SHEET: 2 OF 35

APPLICATION BY: massDOT Highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

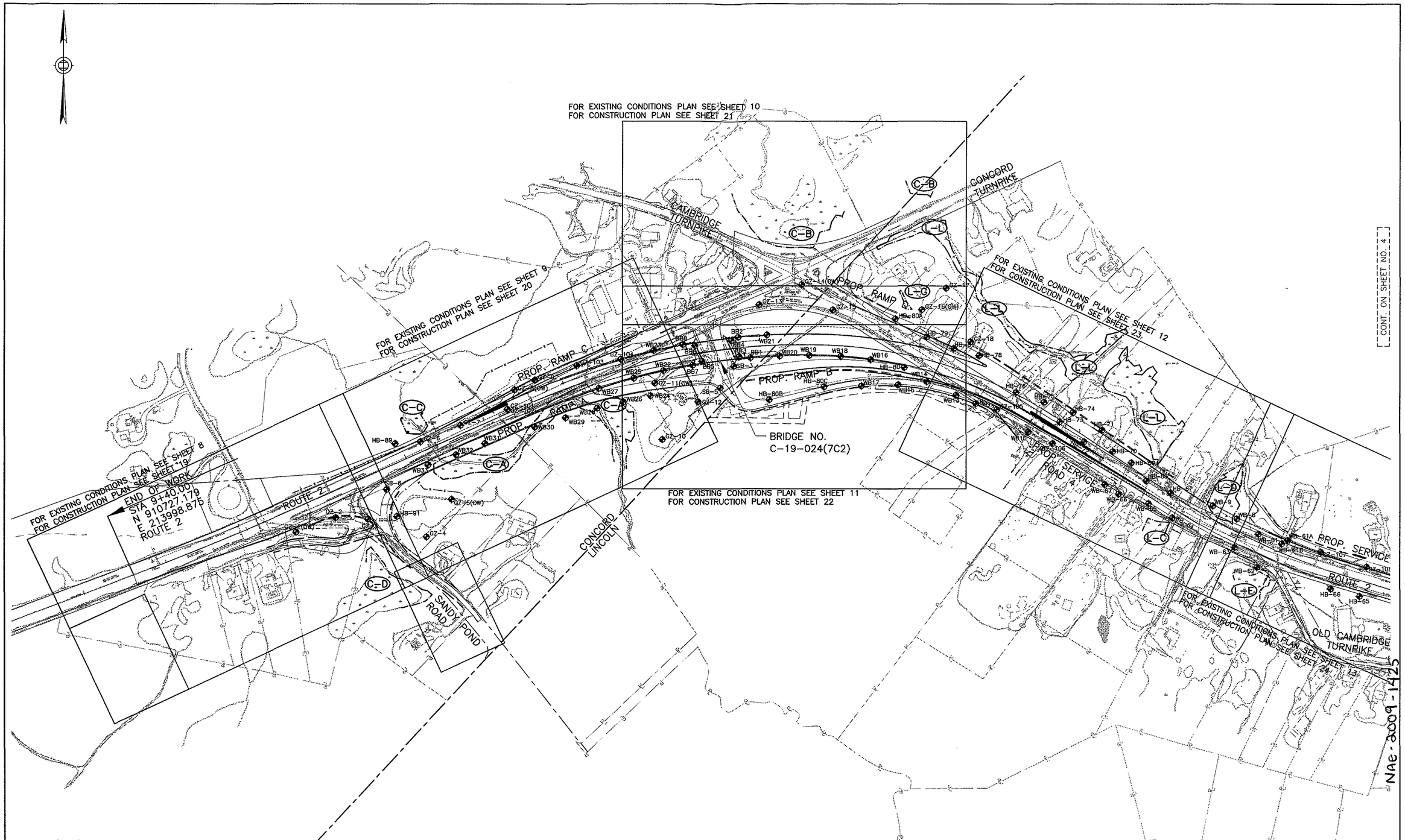
PREPARED BY: THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

LEGEND & ABBREVIATIONS

0 10 20
HORIZONTAL SCALE IN METERS



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MASSDOT Project Number: 602984

SHEET: 3 OF 35

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

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KEYPLAN

0 10 20
HORIZONTAL SCALE IN METERS

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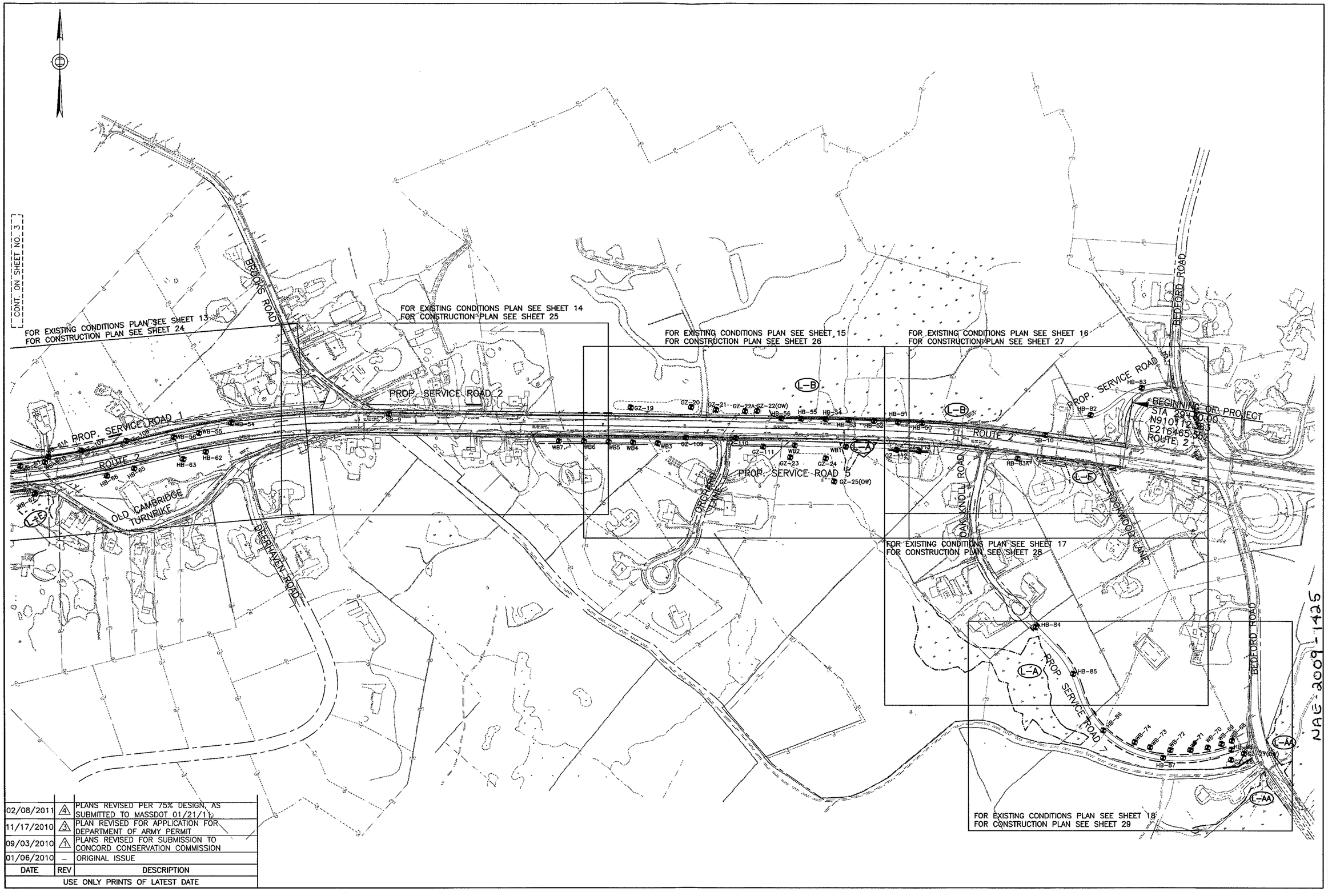

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DATE:	MASSDOT Project Number:
02/08/2011	602984

SHEET: 4 OF 35

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

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ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
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IN: COMMONWEALTH OF MASSACHUSETTS

KEYPLAN

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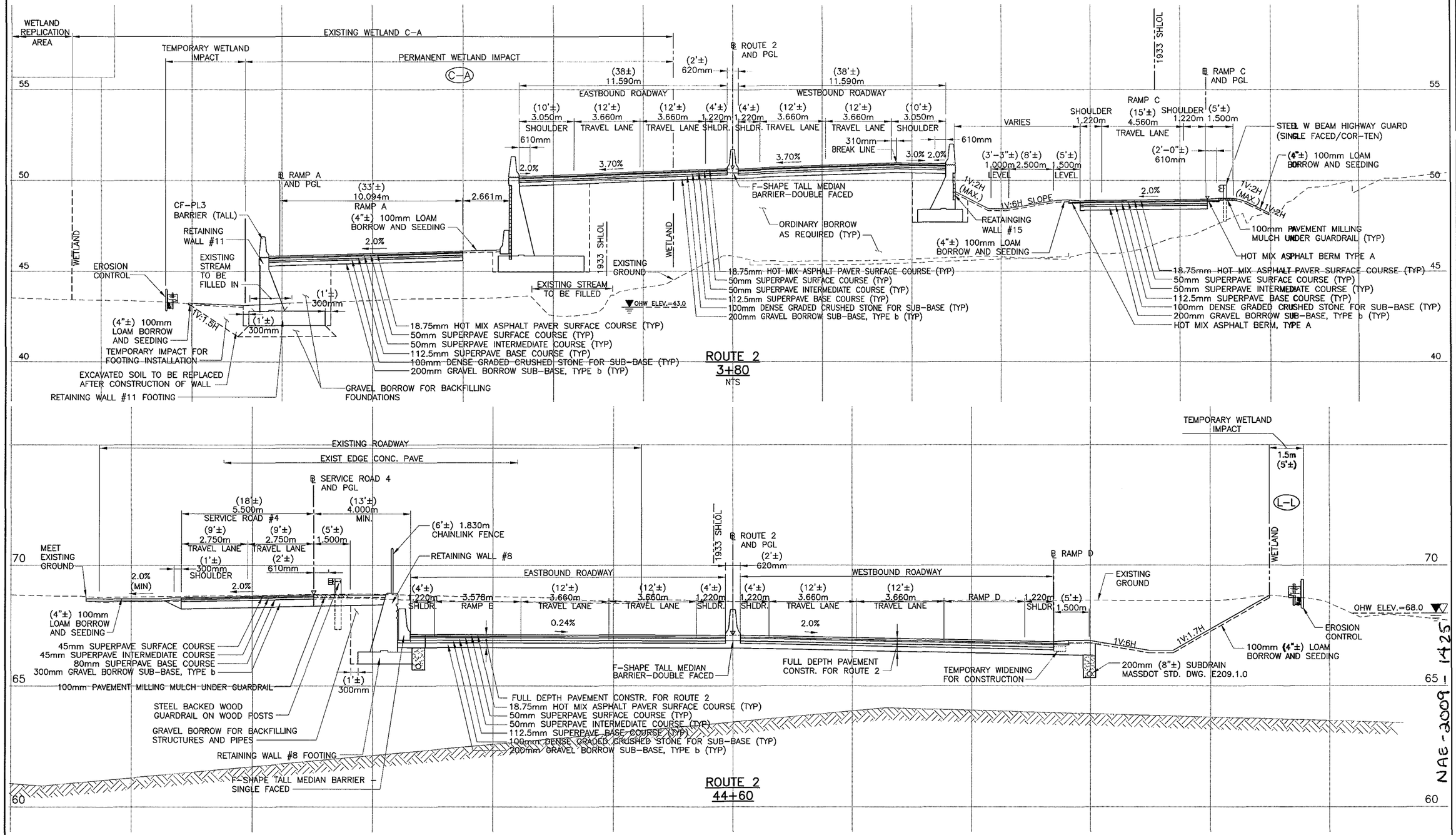
HORIZONTAL SCALE IN METERS



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LEGEND

(C–A) WETLAND ID

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CROSS SECTIONS SHEET 1 OF 3

HORIZONTAL SCALE IN METERS 0 .5 1 2 3 4 5

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

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ADJACENT TO: MILL BROOK, CONCORD
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

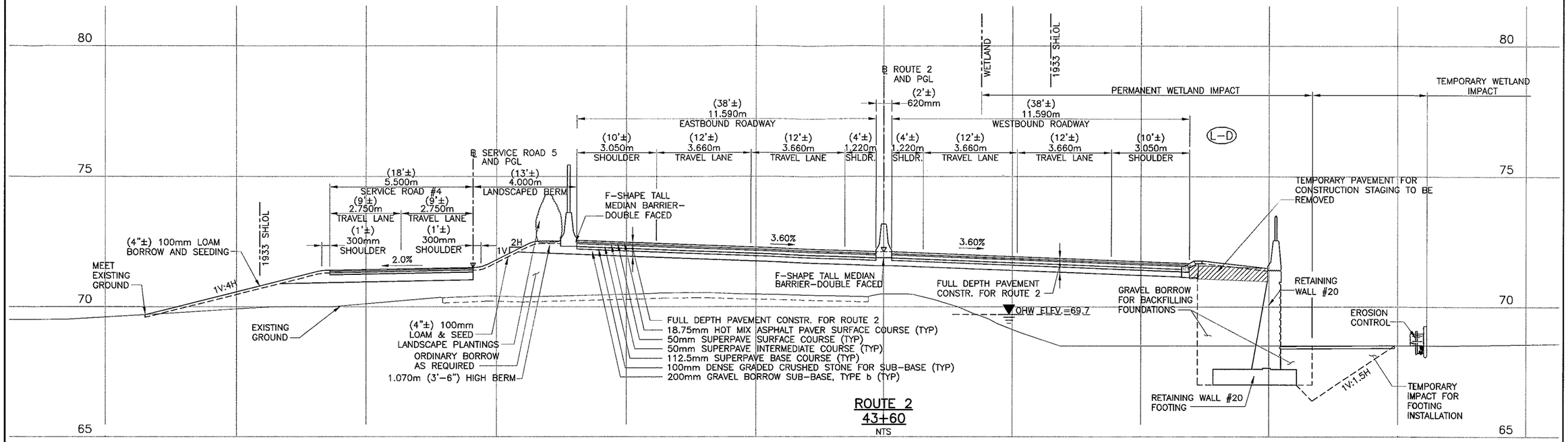
PREPARED BY: THE Louis Berger Group, INC. NEEDHAM, MASSACHUSETTS

APPLICATION BY: massDOT MASSACHUSETTS DEPARTMENT OF TRANSPORTATION 10 PARK PLAZA, BOSTON MA 02116

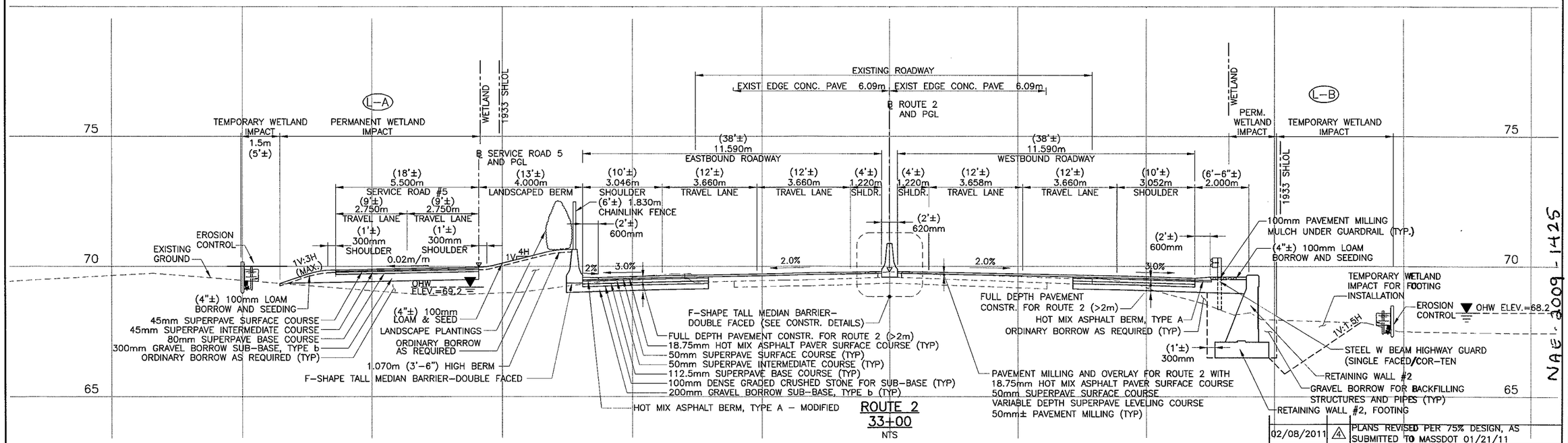
MASSDOT Project Number: 602984

DATE: 02/08/2011

SHEET: 5 OF 35



ROUTE 2
43+60
NTS



ROUTE 2
33+00
NTS

LEGEND

(L-D) WETLAND ID

DATE	REV	DESCRIPTION
02/08/2011	4	PLANS REVISED PER 75% DESIGN, AS SUBMITTED TO MASSDOT 01/21/11
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09/03/2010	1	PLANS REVISED FOR SUBMISSION TO CONCORD CONSERVATION COMMISSION
01/06/2010	–	ORIGINAL ISSUE

USE ONLY PRINTS OF LATEST DATE

CROSS SECTIONS
SHEET 2 OF 3

0 1 2 3 4 5
HORIZONTAL SCALE IN METERS

NAE-2009-1425

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

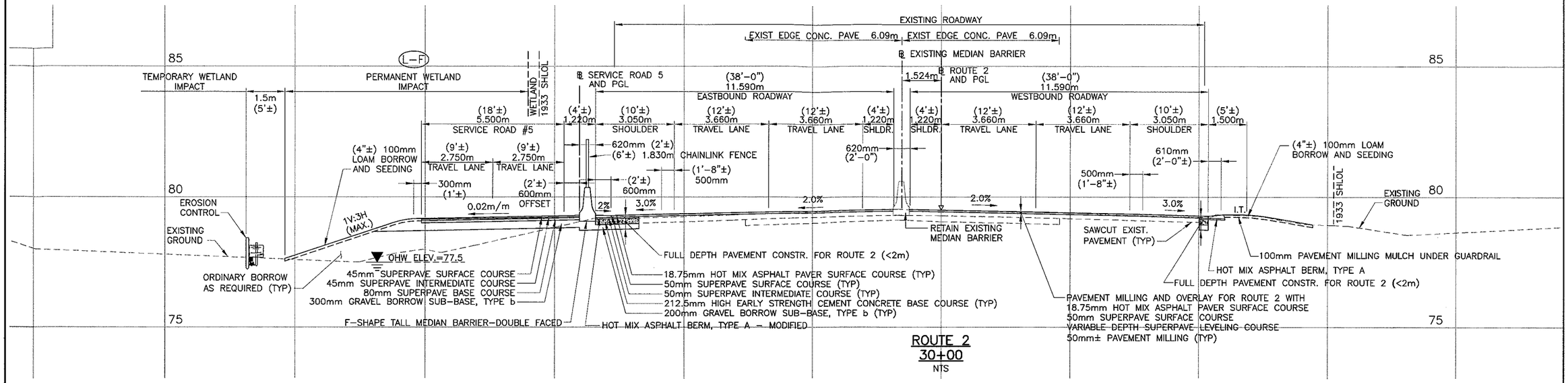
PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

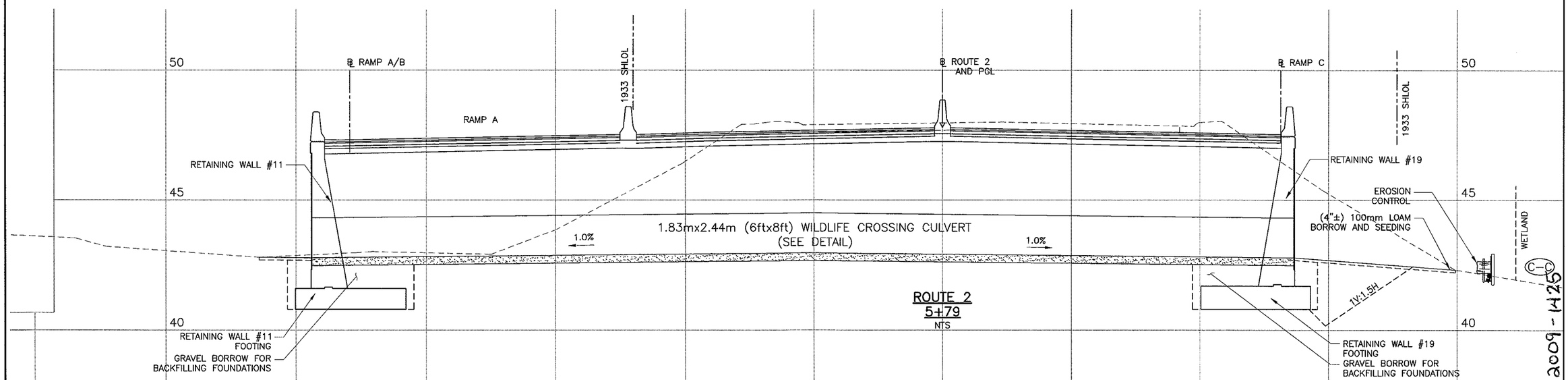
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

MASSDOT Project Number: 602984
DATE: 02/08/2011
SHEET: 6 OF 35





NAE-2009-1425

LEGEND

(L-F) WETLAND ID

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01/06/2010	–	ORIGINAL ISSUE

USE ONLY PRINTS OF LATEST DATE

CROSS SECTIONS
SHEET 3 OF 3

0 .5 1 2 3 4 5
HORIZONTAL SCALE IN METERS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

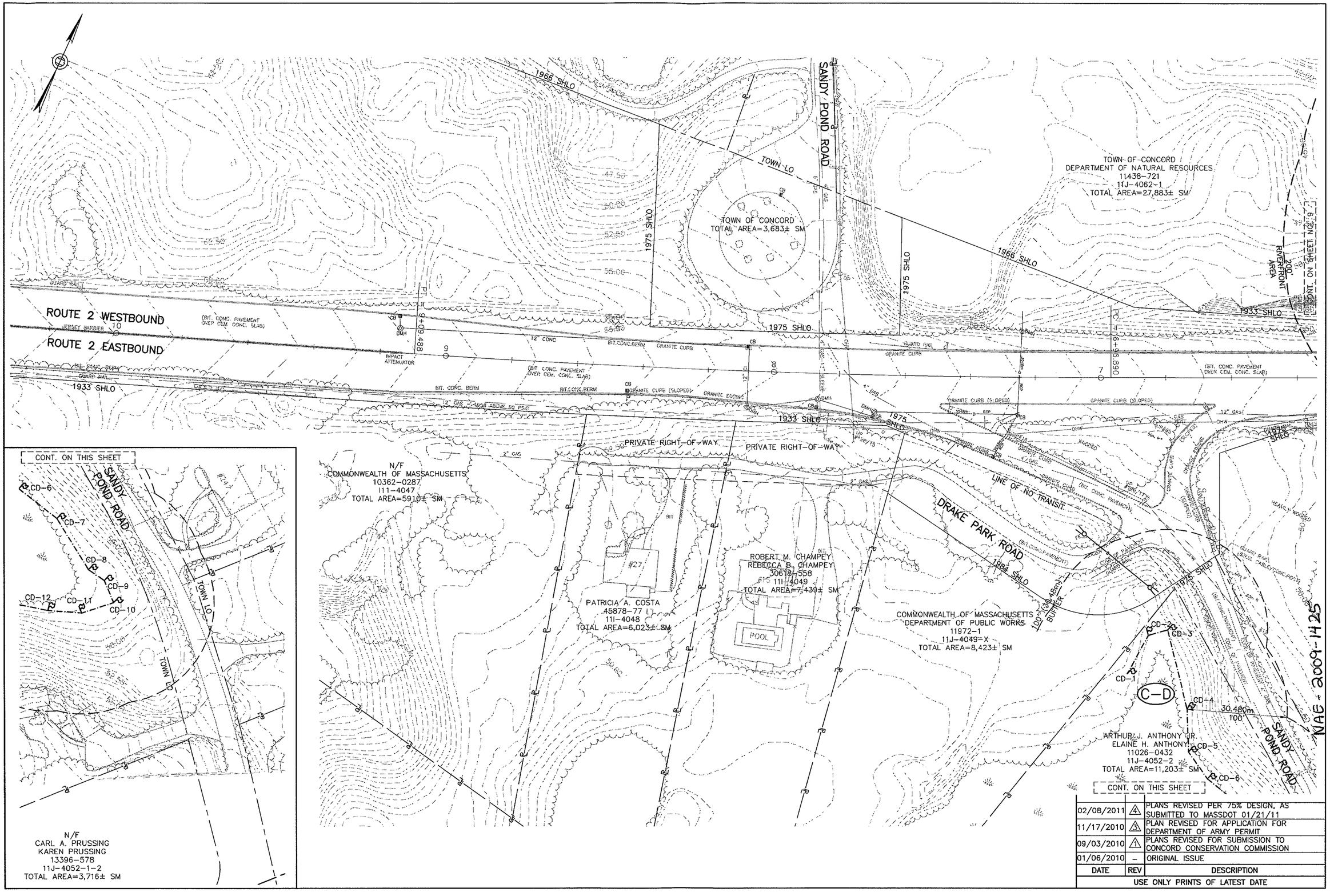
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

DATE: 02/08/2011
MASSDOT Project Number: 602984

SHEET: 7 OF 35



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01/06/2010	–	ORIGINAL ISSUE

USE ONLY PRINTS OF LATEST DATE

DATE: 02/08/2011

MASSDOT Project Number: 602984

SHEET: 8 OF 35

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

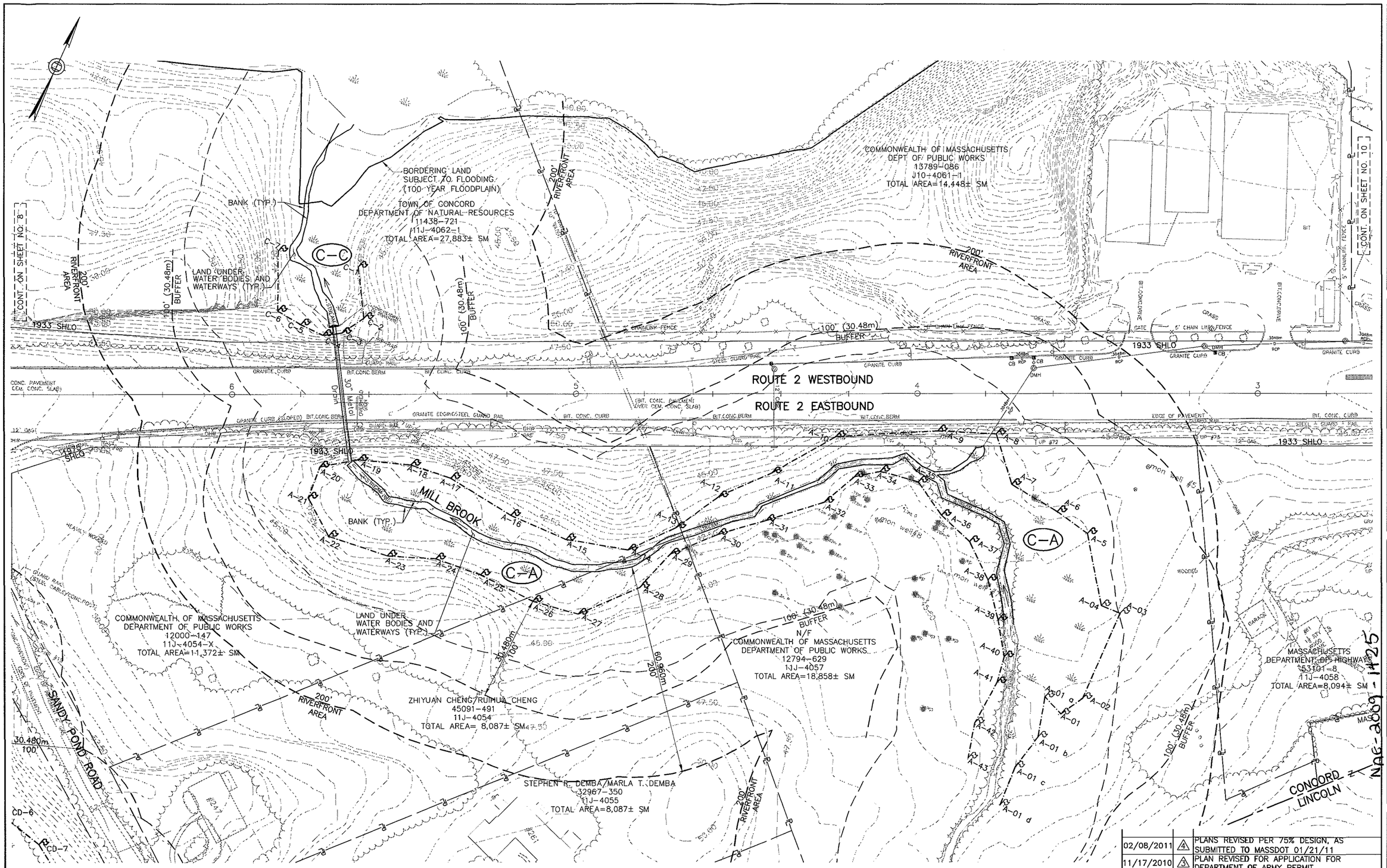
APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

EXISTING CONDITIONS
SHEET 1 OF 11

0 10 20
HORIZONTAL SCALE IN METERS



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USE ONLY PRINTS OF LATEST DATE

DATE:	MASSDOT Project Number:
02/08/2011	602984

SHEET: 9 OF 35

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

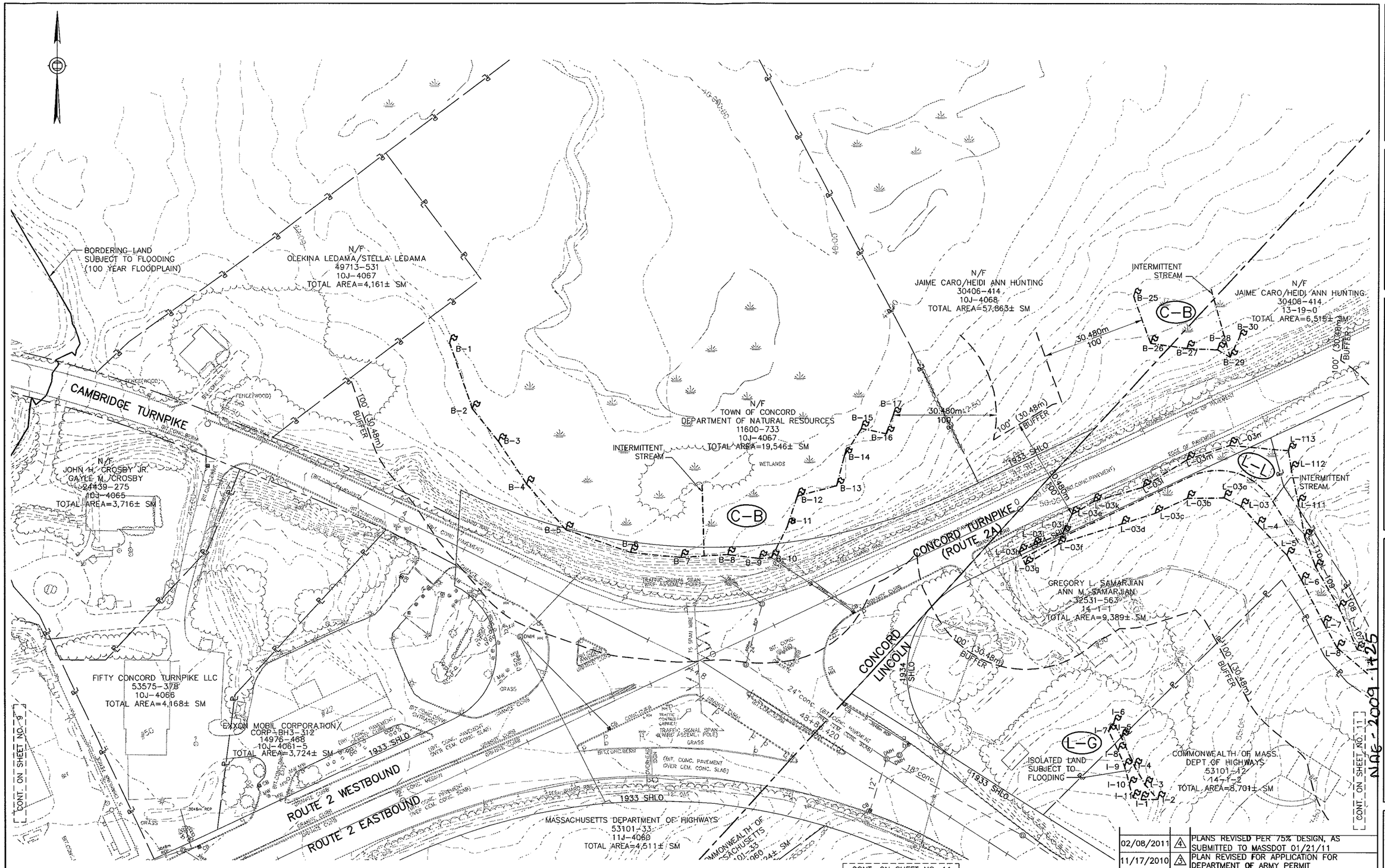
APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

EXISTING CONDITIONS SHEET 2 OF 11

0 10 20
HORIZONTAL SCALE IN METERS



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EXISTING CONDITIONS
SHEET 3 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

NAE-2009-1425

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

DATE: 02/08/2011
MASSDOT Project Number: 602984

SHEET: 10 OF 35

DATE	REV	DESCRIPTION
02/08/2011	4	PLANS REVISED PER 75% DESIGN, AS SUBMITTED TO MASSDOT 01/21/11
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USE ONLY PRINTS OF LATEST DATE

MASSDOT Project Number:	DATE:	SHEET:
602984	02/08/2011	11 OF 35

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

EXISTING CONDITIONS
SHEET 4 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

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USE ONLY PRINTS OF LATEST DATE

EXISTING CONDITIONS
SHEET 5 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

DATE: 02/08/2011
MASSDOT Project Number: 602984
SHEET: 12 OF 35

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

NAE-2009-1426

DANIEL C. BOYNTON
JANET K. BOYNTON
14298-293
14-8-0
TOTAL AREA=7,203± SM

RICHARD K. LYONS
16021-4
15-2-0
TOTAL AREA=7,972± SM

SANDRA DAMIRJIAN/DANIEL B. CELLUCCI
53159-73
15-2-1
TOTAL AREA=12,262± SM

SOW-HSIN CHEN TR
CHING-CHIH CHEN TR
51274-520
15-2-2
TOTAL AREA=19,020± SM

N/F
VINCENT J. VALENTINE
ANNA MARIE DINARDO
25806-081
15-4-1
TOTAL AREA=7,717± SM

JOHN G. ZORNIG
SUZANNE STOTERAU
31903-398
15-3-0
TOTAL AREA=7,527± SM

RIGHT-OF-WAY EASEMENT
SANDRA DAMIRJIAN/DANIEL B. CELLUCCI
53159-73

NANCY BARNES COOPER
JOHN R. COOPER
51706-397
15-14
TOTAL AREA=10,684± SM

ALBERT CAPONE
MARY CAPONE
19622-195
14-9
TOTAL AREA=9,996± SM

N/F
THERESA MEEHAN
1190-48
24-15
TOTAL AREA=7,810± SM
(REG. LAND L.C. CERT 100596)

JOSEPH FISCALE
ROSANNA FISCALE
1052-164
24-16
TOTAL AREA=7,568± SM
(REG. LAND L.C. CERT 100596)

ROUTE 2 WESTBOUND
ROUTE 2 EASTBOUND
BROOKS ROAD
DEERHAVEN ROAD
OLD CAMBRIDGE TURNPIKE
COUNTY LO
1933 SHLO
CONT. ON SHEET NO. 12
CONT. ON SHEET NO. 14
100' (30.48m) BUFFER
30.480m 100'
NAE-2009-1425

DATE	REV	DESCRIPTION
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01/06/2010	–	ORIGINAL ISSUE

USE ONLY PRINTS OF LATEST DATE

EXISTING CONDITIONS
SHEET 6 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

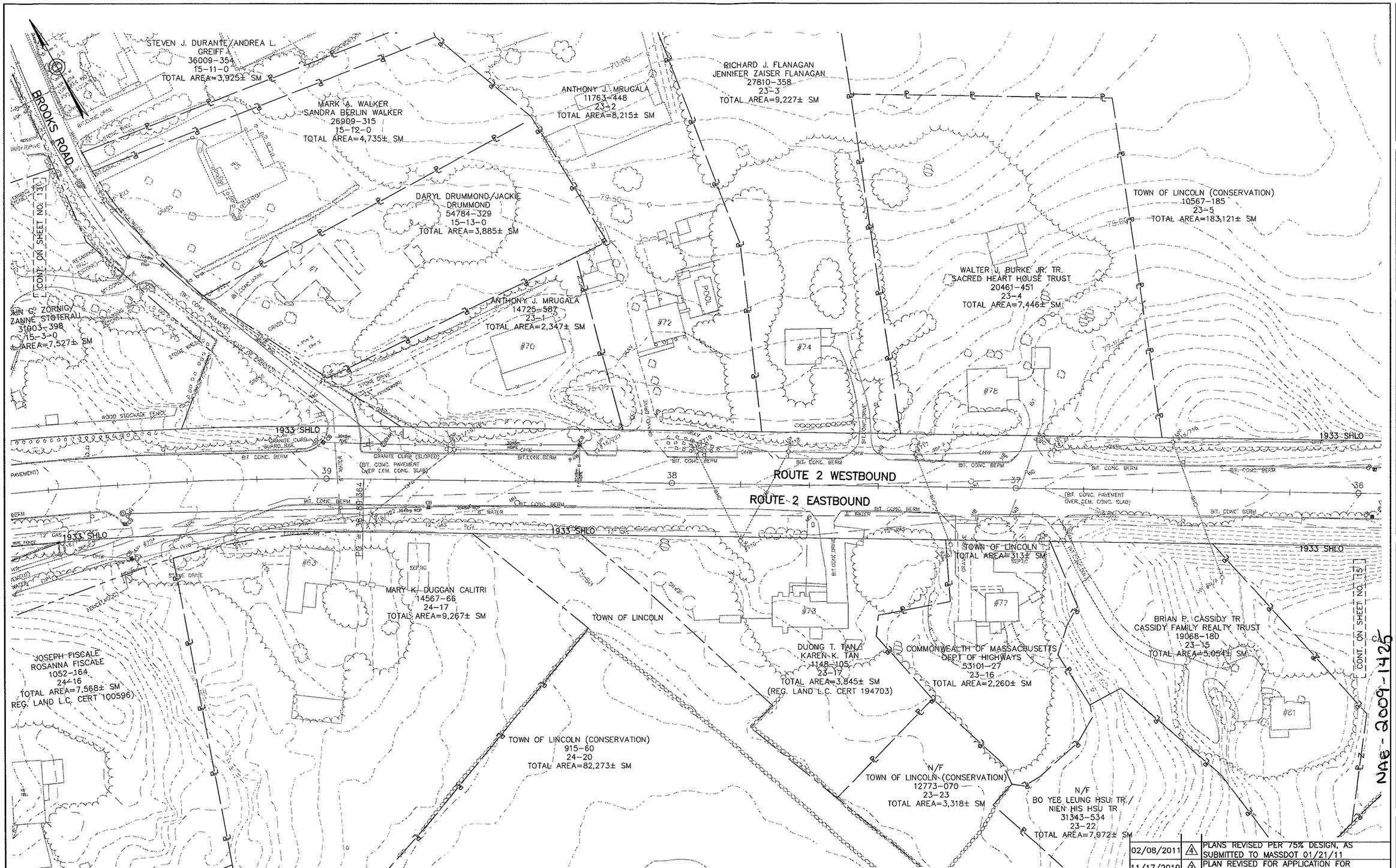
APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

DATE: 02/08/2011
MASSDOT Project Number: 602984
SHEET: 13 OF 35



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01/06/2010	–	ORIGINAL ISSUE

USE ONLY PRINTS OF LATEST DATE

DATE:	MASSDOT Project Number:
02/08/2011	602984

SHEET: 14 OF 35

APPLICATION BY:
massDOT Highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

EXISTING CONDITIONS
SHEET 7 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

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EXISTING CONDITIONS
SHEET 8 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
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PREPARED BY:
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NEEDHAM, MASSACHUSETTS

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

DATE: 02/08/2011
MASSDOT Project Number: 602984

SHEET: 15 OF 35

[CONT. ON SHEET NO. 17]

DATE	REV	DESCRIPTION
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01/06/2010	–	ORIGINAL ISSUE

USE ONLY PRINTS OF LATEST DATE

EXISTING CONDITIONS
SHEET 9 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

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APPLICATION BY:
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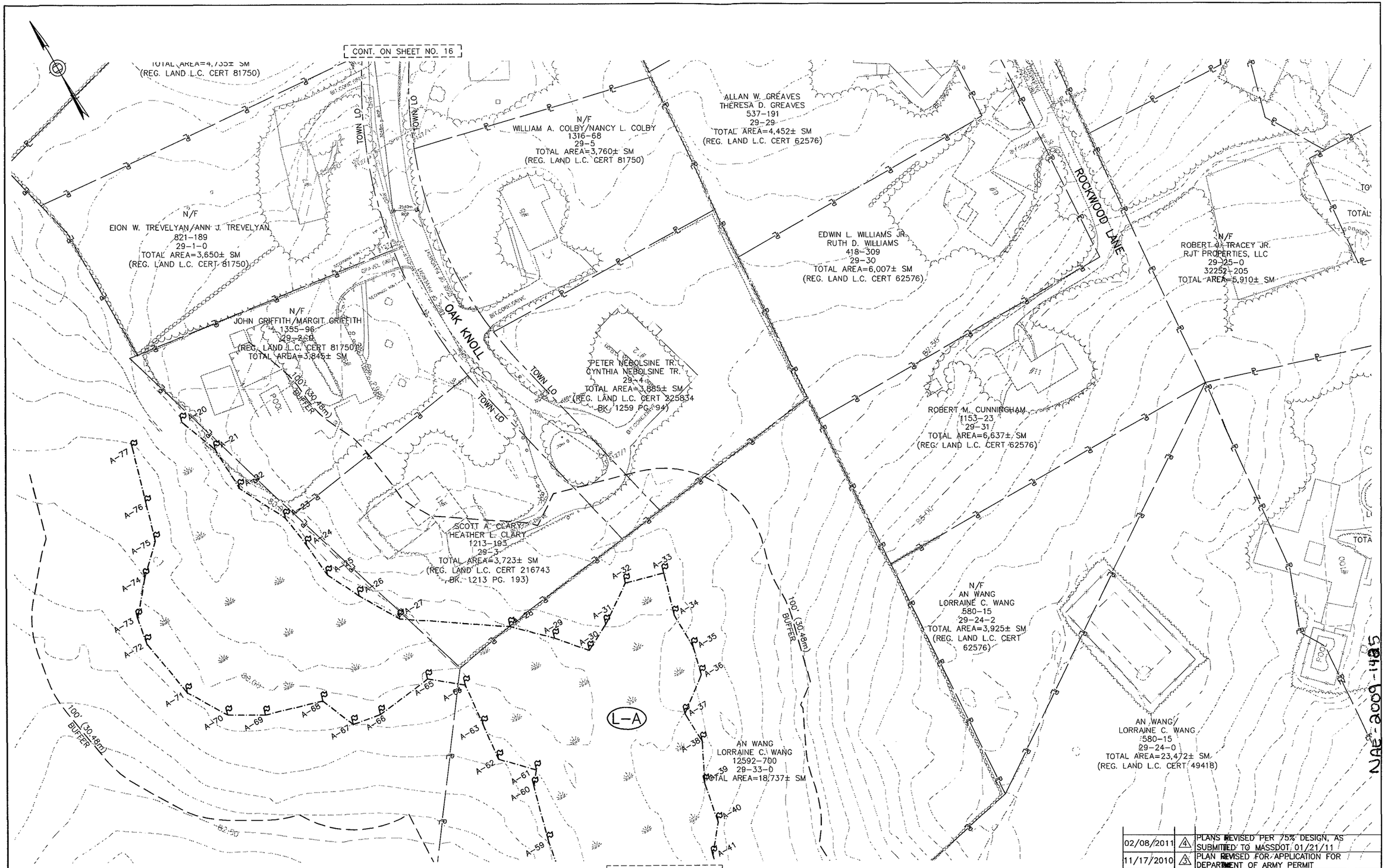
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

DATE:	MASSDOT Project Number:
02/08/2011	602984

SHEET: 16 OF 35



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EXISTING CONDITIONS
SHEET 10 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

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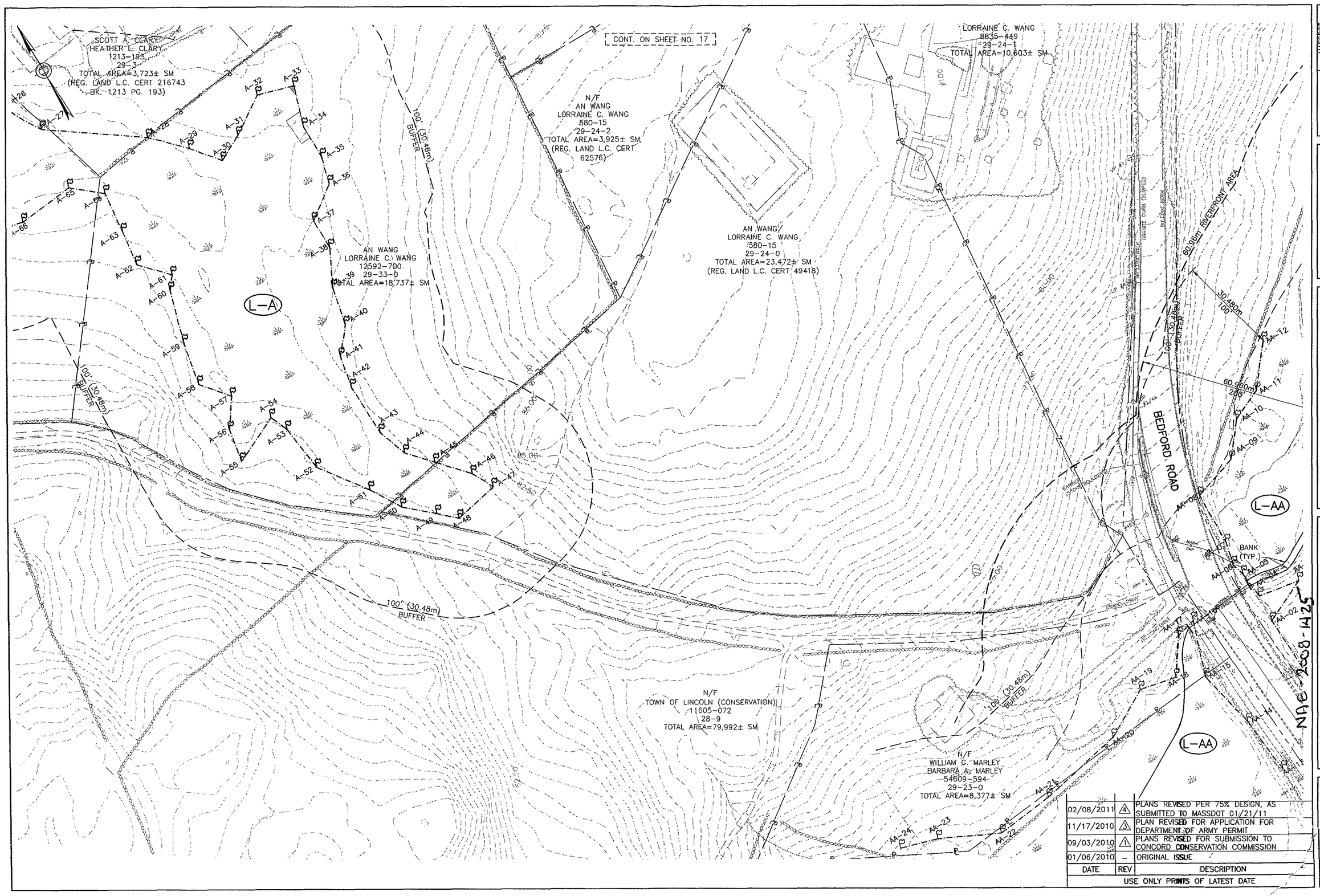
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

DATE:	MASSDOT Project Number:
02/08/2011	602984

SHEET 17 OF 35



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DATE: 02/08/2011

MASSDOT Project Number: 602984

SHEET: 18 OF 35

APPLICATION BY:
massDOT Highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
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PREPARED BY:
THE Louis Berger Group, INC.
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APPLICATION FOR DEPARTMENT OF ARMY PERMIT

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ADJACENT TO: MILL BROOK
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COUNTY: MIDDLESEX
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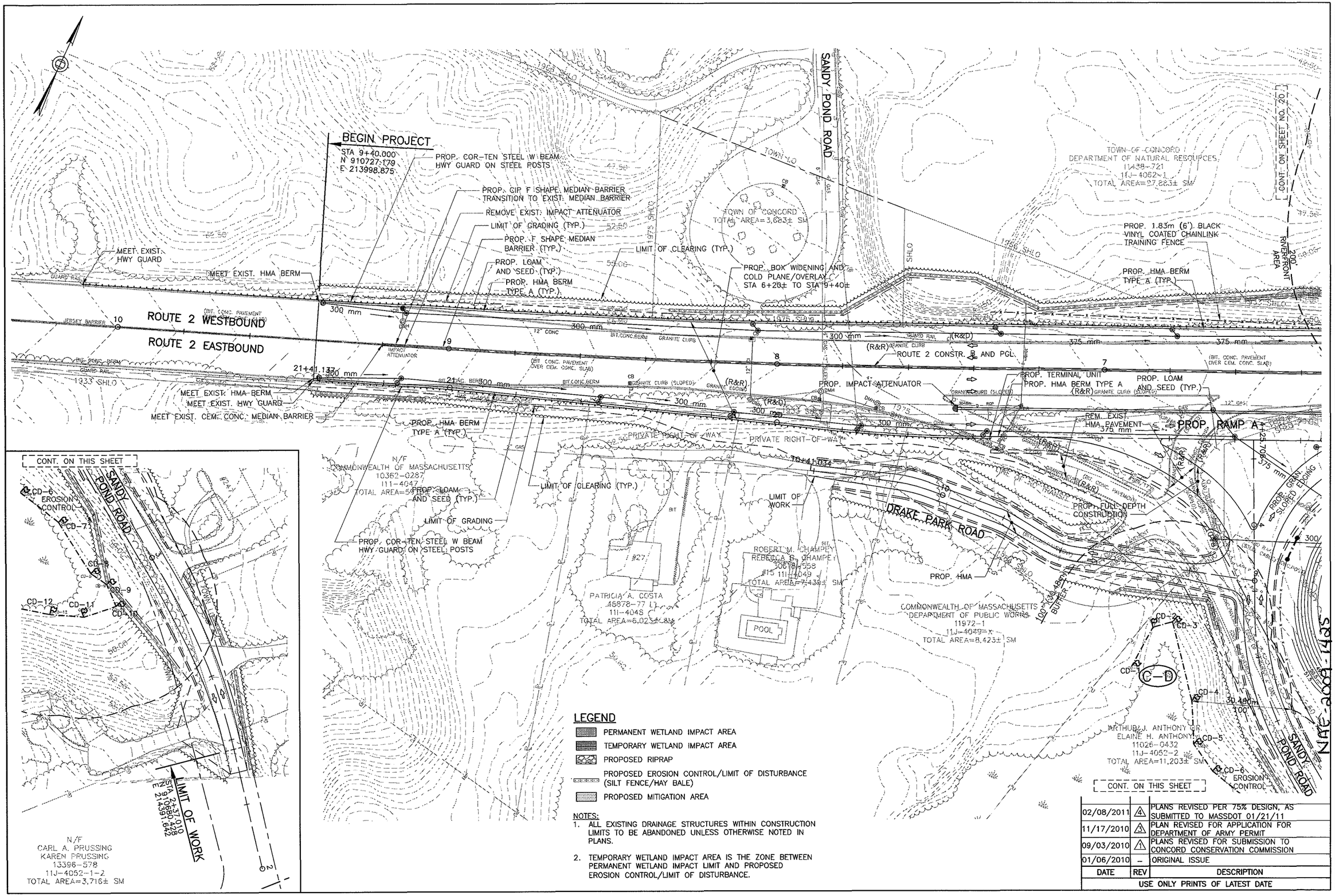
EXISTING CONDITIONS
SHEET 11 OF 11

0 10 20
HORIZONTAL SCALE IN METERS



LEGEND

- PERMANENT WETLAND IMPACT AREA
- TEMPORARY WETLAND IMPACT AREA
- PROPOSED RIPRAP
- PROPOSED EROSION CONTROL/LIMIT OF DISTURBANCE (SILT FENCE/HAY BALE)
- PROPOSED MITIGATION AREA

NOTES:

1. ALL EXISTING DRAINAGE STRUCTURES WITHIN CONSTRUCTION LIMITS TO BE ABANDONED UNLESS OTHERWISE NOTED IN PLANS.
2. TEMPORARY WETLAND IMPACT AREA IS THE ZONE BETWEEN PERMANENT WETLAND IMPACT LIMIT AND PROPOSED EROSION CONTROL/LIMIT OF DISTURBANCE.

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DATE: 02/08/2011

MASSDOT Project Number: 602984

SHEET: 19 OF 35

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

CONSTRUCTION PLAN
SHEET 1 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

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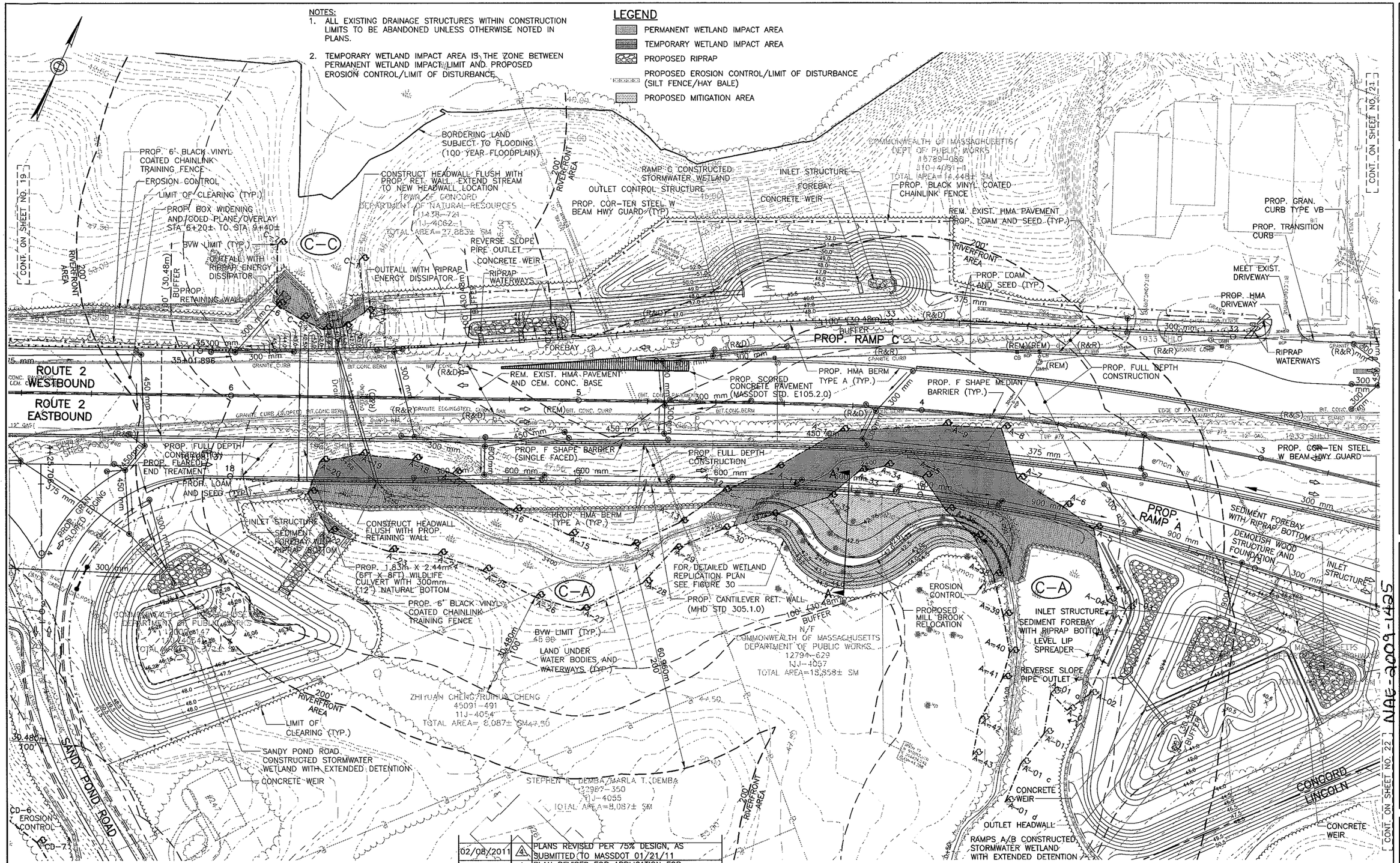
LEGEND
- PERMANENT WETLAND IMPACT AREA
- TEMPORARY WETLAND IMPACT AREA
- PROPOSED RIPRAP
- PROPOSED EROSION CONTROL/LIMIT OF DISTURBANCE (SILT FENCE/HAY BALE)
- PROPOSED MITIGATION AREA



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DATE: 02/08/2011
MASSDOT Project Number: 602984
SHEET: 20 OF 35

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

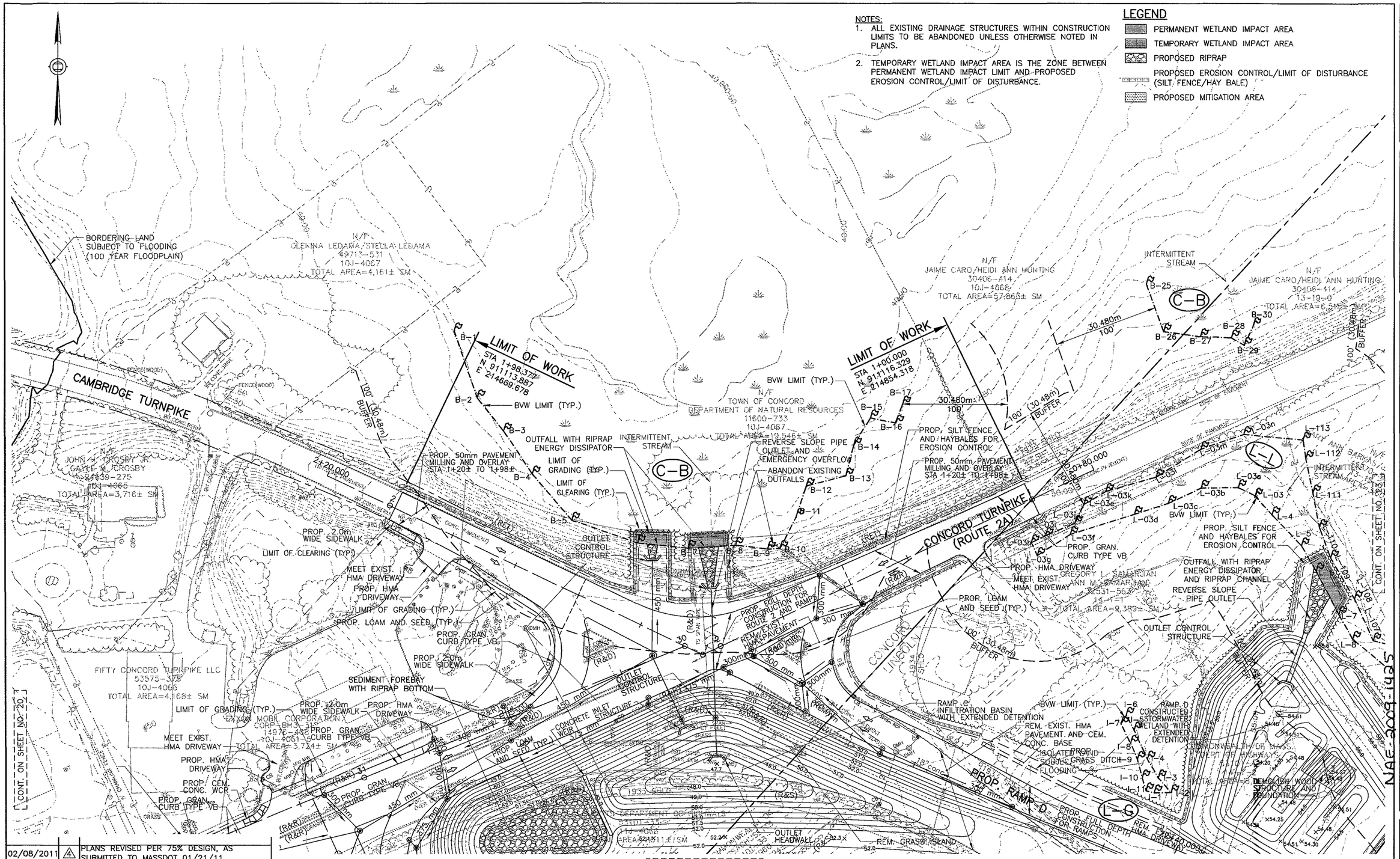
PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

CONSTRUCTION PLAN
SHEET 2 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

NOTES:
1. ALL EXISTING DRAINAGE STRUCTURES WITHIN CONSTRUCTION LIMITS TO BE ABANDONED UNLESS OTHERWISE NOTED IN PLANS.
2. TEMPORARY WETLAND IMPACT AREA IS THE ZONE BETWEEN PERMANENT WETLAND IMPACT LIMIT AND PROPOSED EROSION CONTROL/LIMIT OF DISTURBANCE.

LEGEND
- PERMANENT WETLAND IMPACT AREA
- TEMPORARY WETLAND IMPACT AREA
- PROPOSED RIPRAP
- PROPOSED EROSION CONTROL/LIMIT OF DISTURBANCE (SILT FENCE/HAY BALE)
- PROPOSED MITIGATION AREA



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01/06/2010	–	ORIGINAL ISSUE

USE ONLY PRINTS OF LATEST DATE

DATE: 02/08/2011
MASSDOT Project Number: 602984
SHEET: 21 OF 35

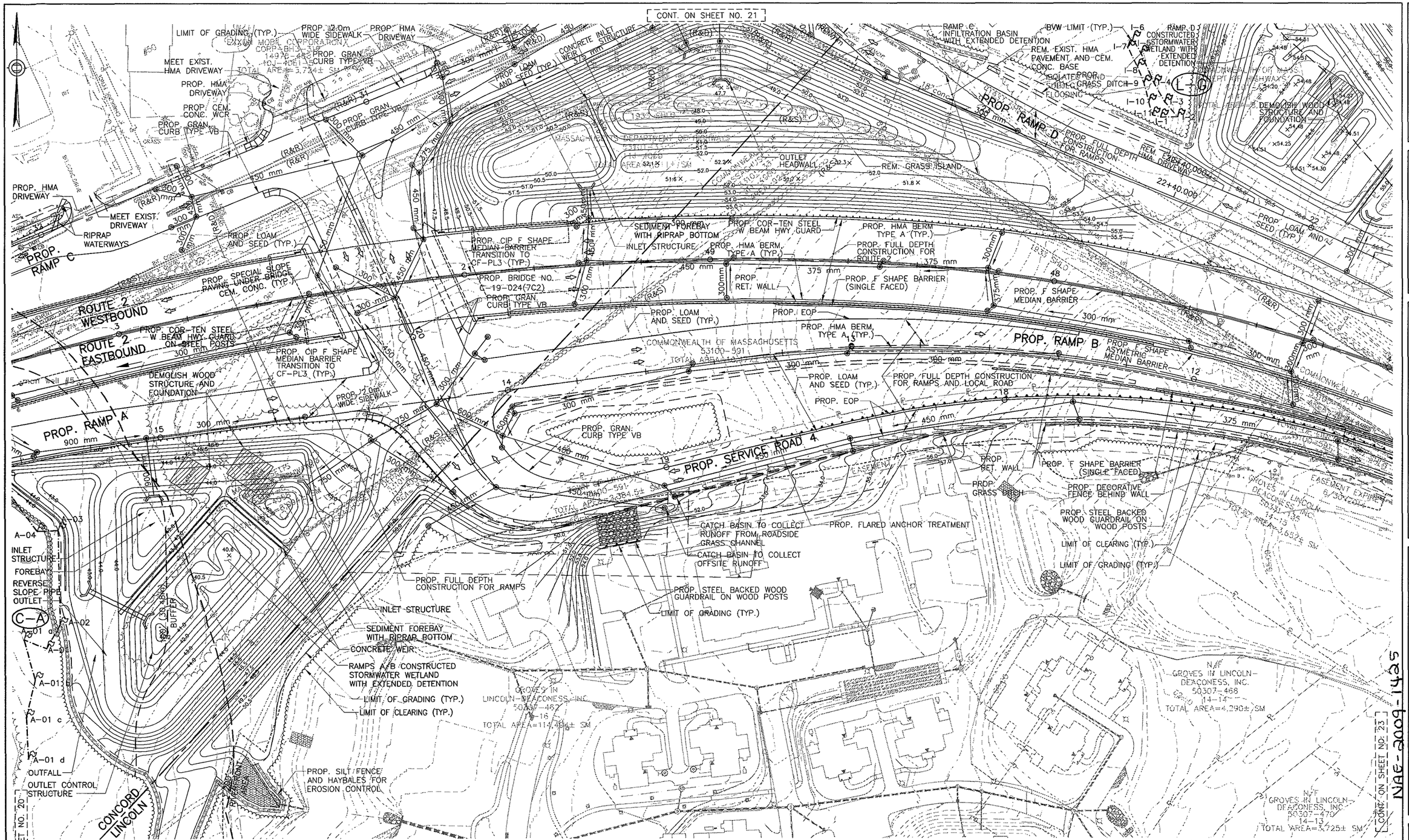
APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT
PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

CONSTRUCTION PLAN
SHEET 3 OF 11

0 10 20
HORIZONTAL SCALE IN METERS



NAE-2009-1425

LEGEND

- PERMANENT WETLAND IMPACT AREA
- TEMPORARY WETLAND IMPACT AREA
- PROPOSED RIPRAP
- PROPOSED EROSION CONTROL/LIMIT OF DISTURBANCE (SILT FENCE/HAY BALE)
- PROPOSED MITIGATION AREA

NOTES:

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MASSDOT Project Number: 602984

DATE: 02/08/2011

SHEET: 22 OF 35

APPLICATION BY: massDOT MASSACHUSETTS DEPARTMENT OF TRANSPORTATION 10 PARK PLAZA, BOSTON MA 02116

PREPARED BY: THE Louis Berger Group, INC. NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

CONSTRUCTION PLAN SHEET 4 OF 11

HORIZONTAL SCALE IN METERS 0 10 20

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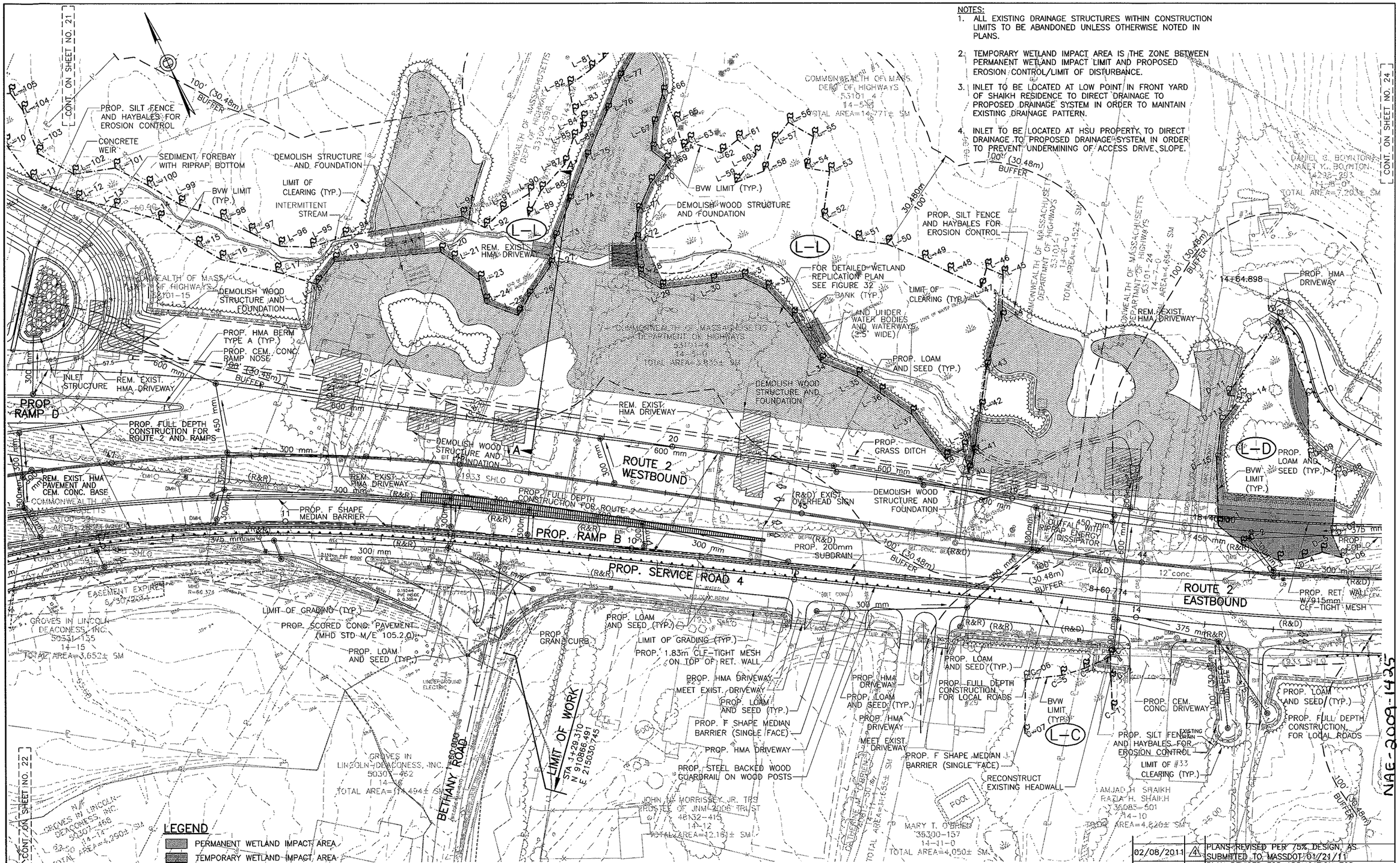
3. INLET TO BE LOCATED AT LOW POINT IN FRONT YARD OF SHAIKH RESIDENCE TO DIRECT DRAINAGE TO PROPOSED DRAINAGE SYSTEM IN ORDER TO MAINTAIN EXISTING DRAINAGE PATTERN.
4. INLET TO BE LOCATED AT HSU PROPERTY TO DIRECT DRAINAGE TO PROPOSED DRAINAGE SYSTEM IN ORDER TO PREVENT UNDERMINING OF ACCESS DRIVE SLOPE.



LEGEND

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- TEMPORARY WETLAND IMPACT AREA
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NAE-2009-1495

CONSTRUCTION PLAN
SHEET 5 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

APPLICATION BY:
massDOT Highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

DATE:	MASSDOT Project Number:
02/08/2011	602984

SHEET: 23 OF 35

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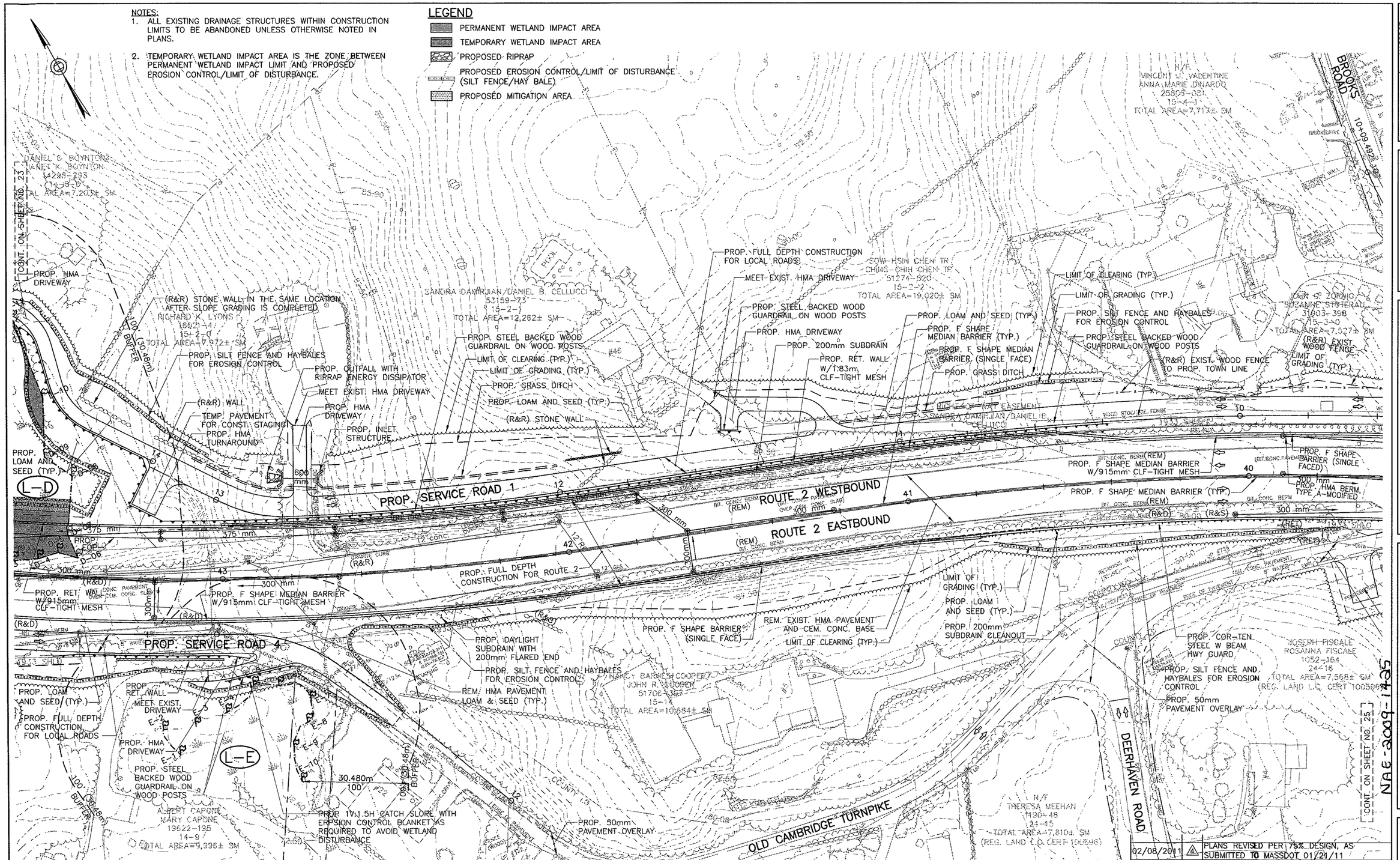

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DATE: 02/08/2011
MASSDOT Project Number: 602984
SHEET: 24 OF 35

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT
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COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

CONSTRUCTION PLAN
SHEET 6 OF 11

0 10 20
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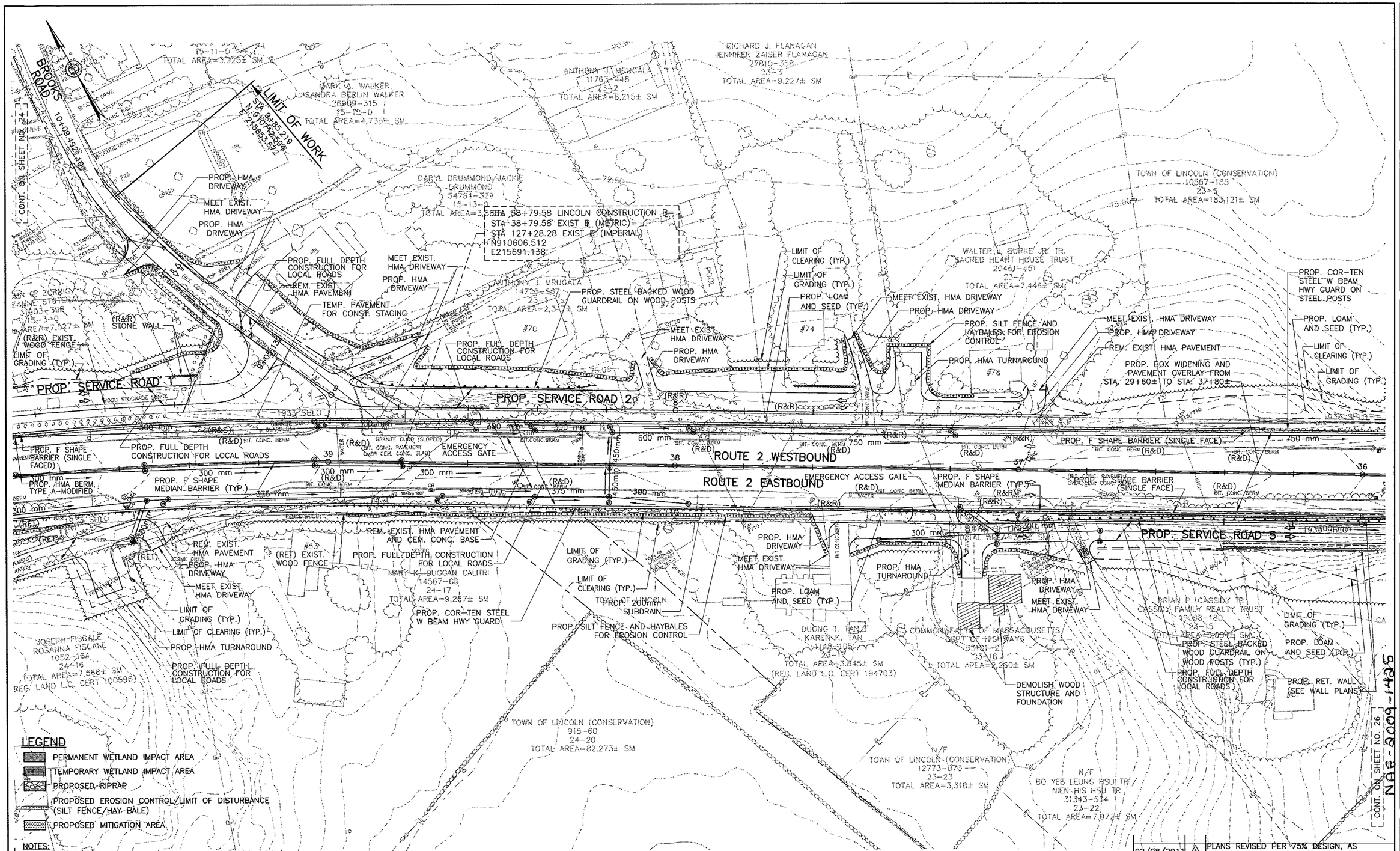

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DATE:	MASSDOT Project Number:
02/08/2011	602984

SHEET: 25 OF 35

APPLICATION BY:
massDOT Highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

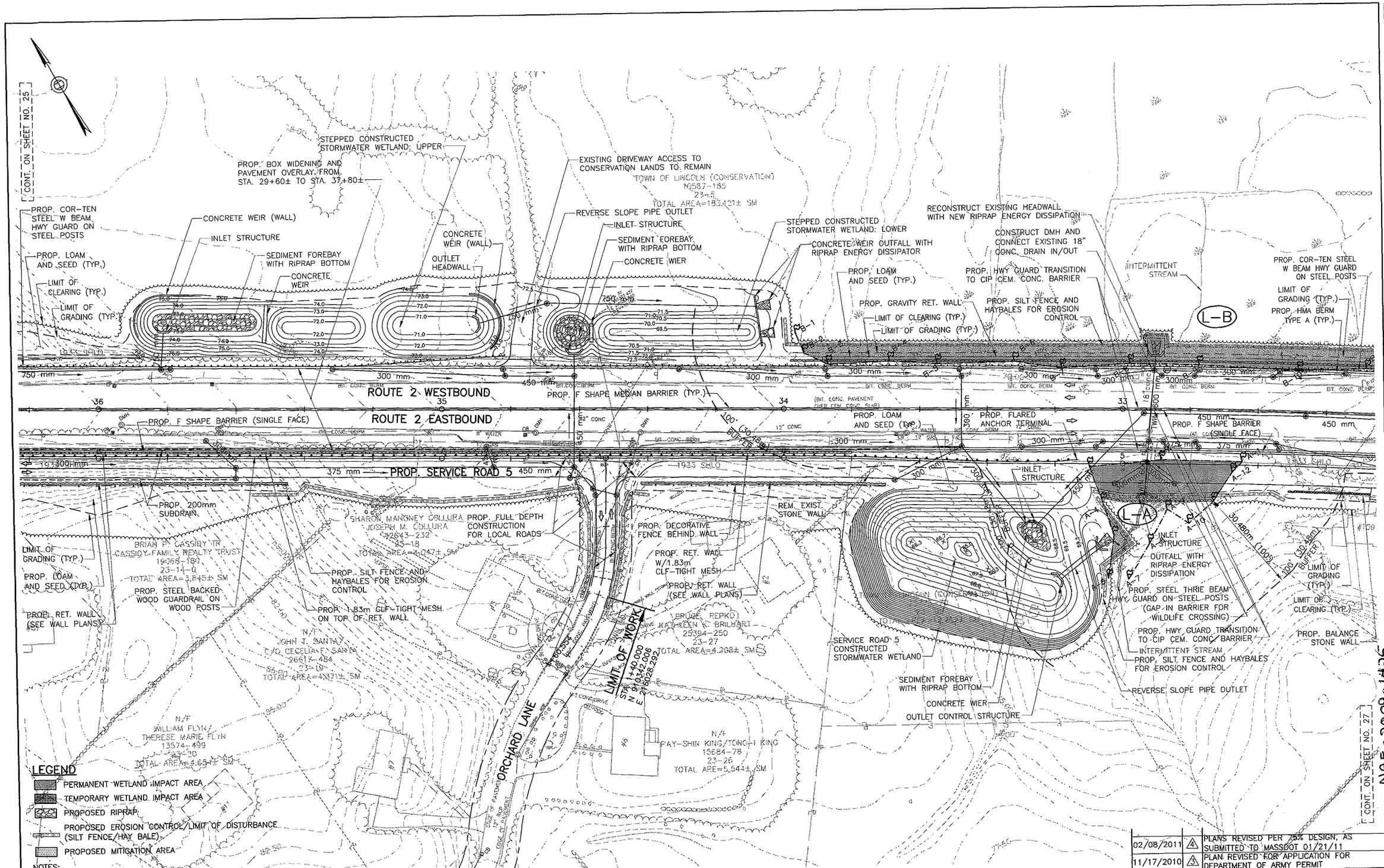
APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

CONSTRUCTION PLAN
SHEET 7 OF 11

0 10 20
HORIZONTAL SCALE IN METERS



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NAE-2009-1426

CONSTRUCTION PLAN
SHEET 8 OF 11

HORIZONTAL SCALE IN METERS: 0 10 20

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

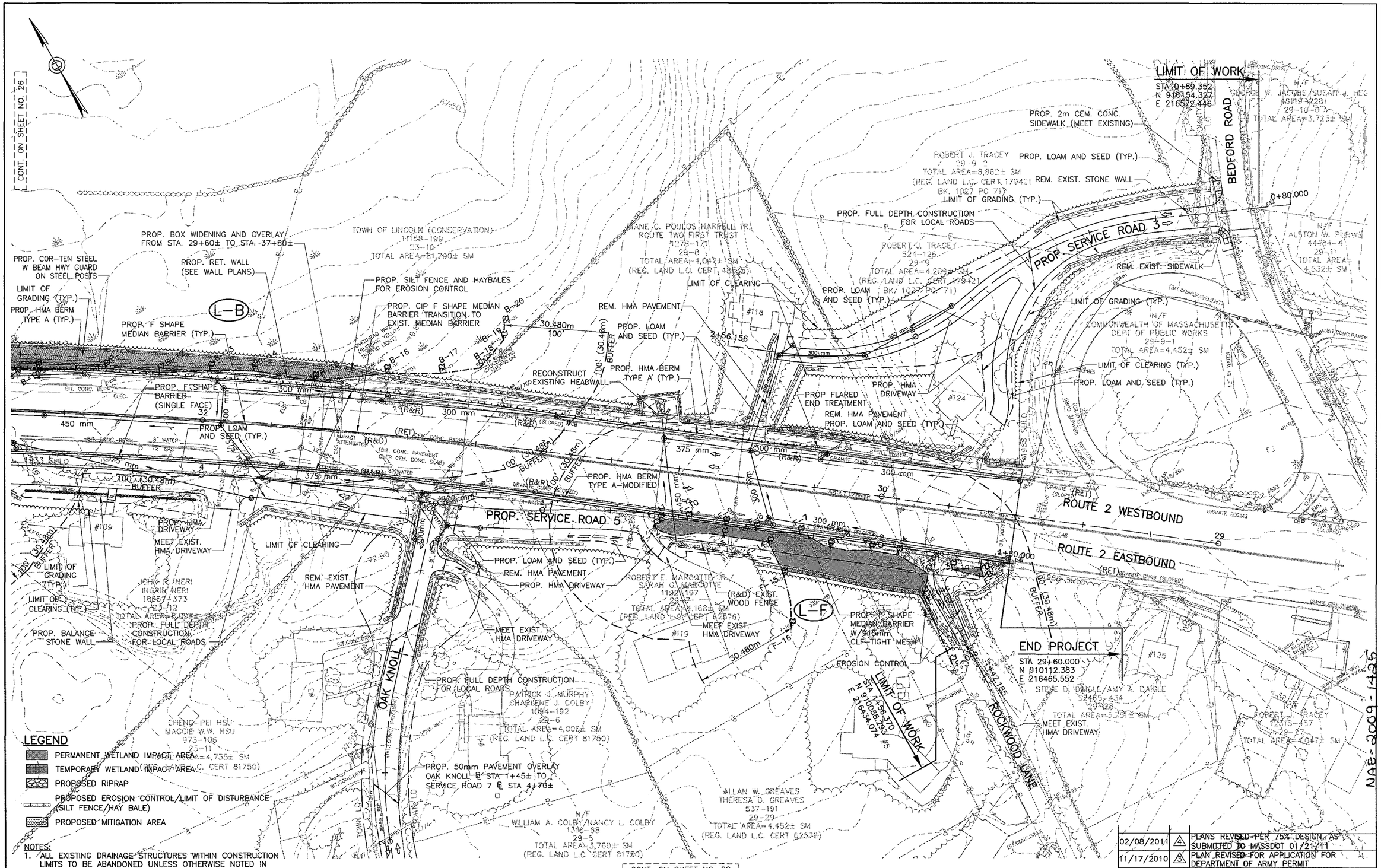
ADJACENT TO: MILLCOLN & BROOKLINE
TOWNS OF: CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION BY:
massDOT Highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

DATE:	MASSDOT Project Number:
02/08/2011	602984

SHEET: 26 OF 35



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CONSTRUCTION PLAN
SHEET 9 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

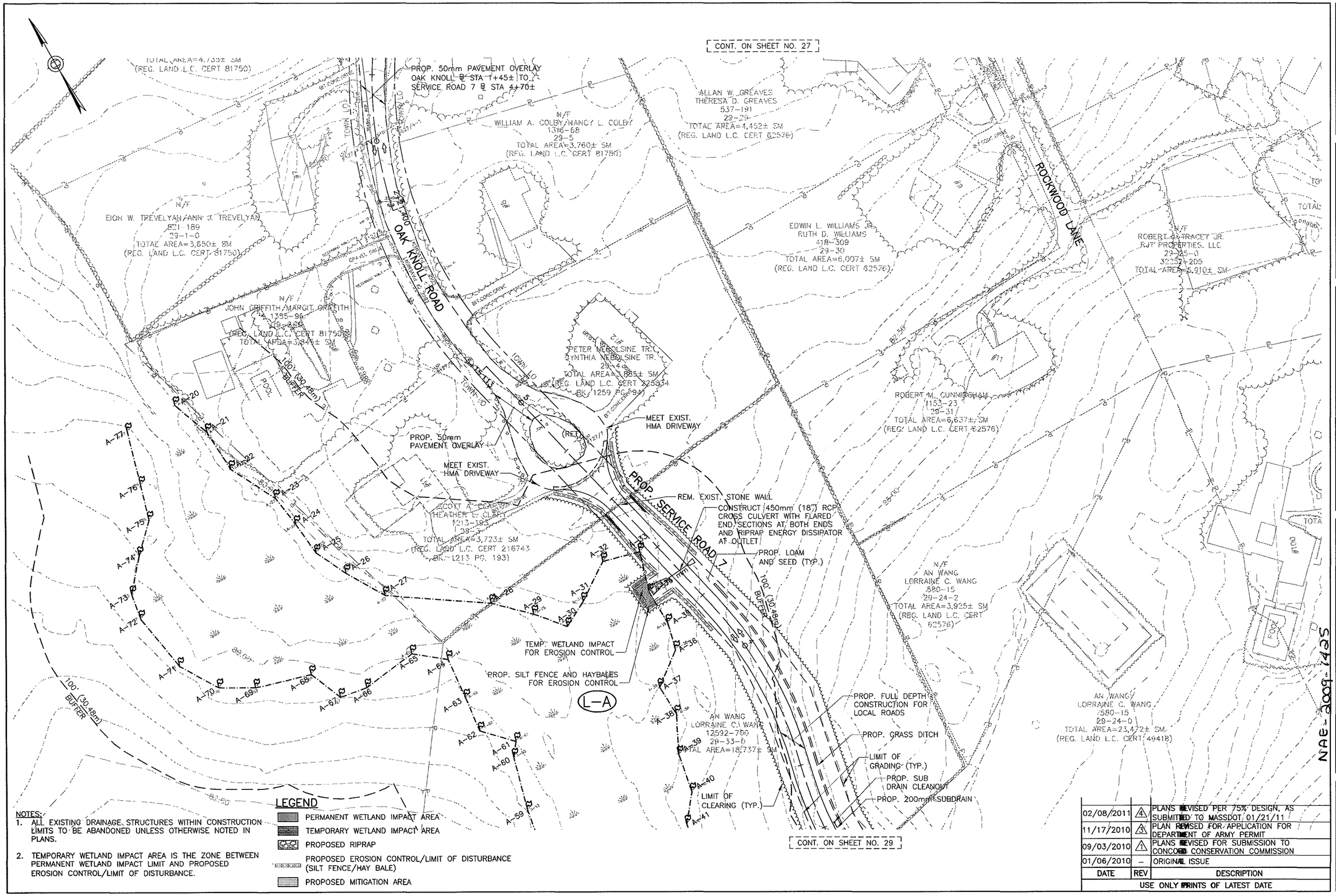
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION BY:
massDOT Highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

DATE:	MASSDOT Project Number:
02/08/2011	602984

SHEET: 27 OF 35



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DATE: 02/08/2011

MASSDOT Project Number: 602984

SHEET: 28 OF 35

APPLICATION BY:
massDOT Highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

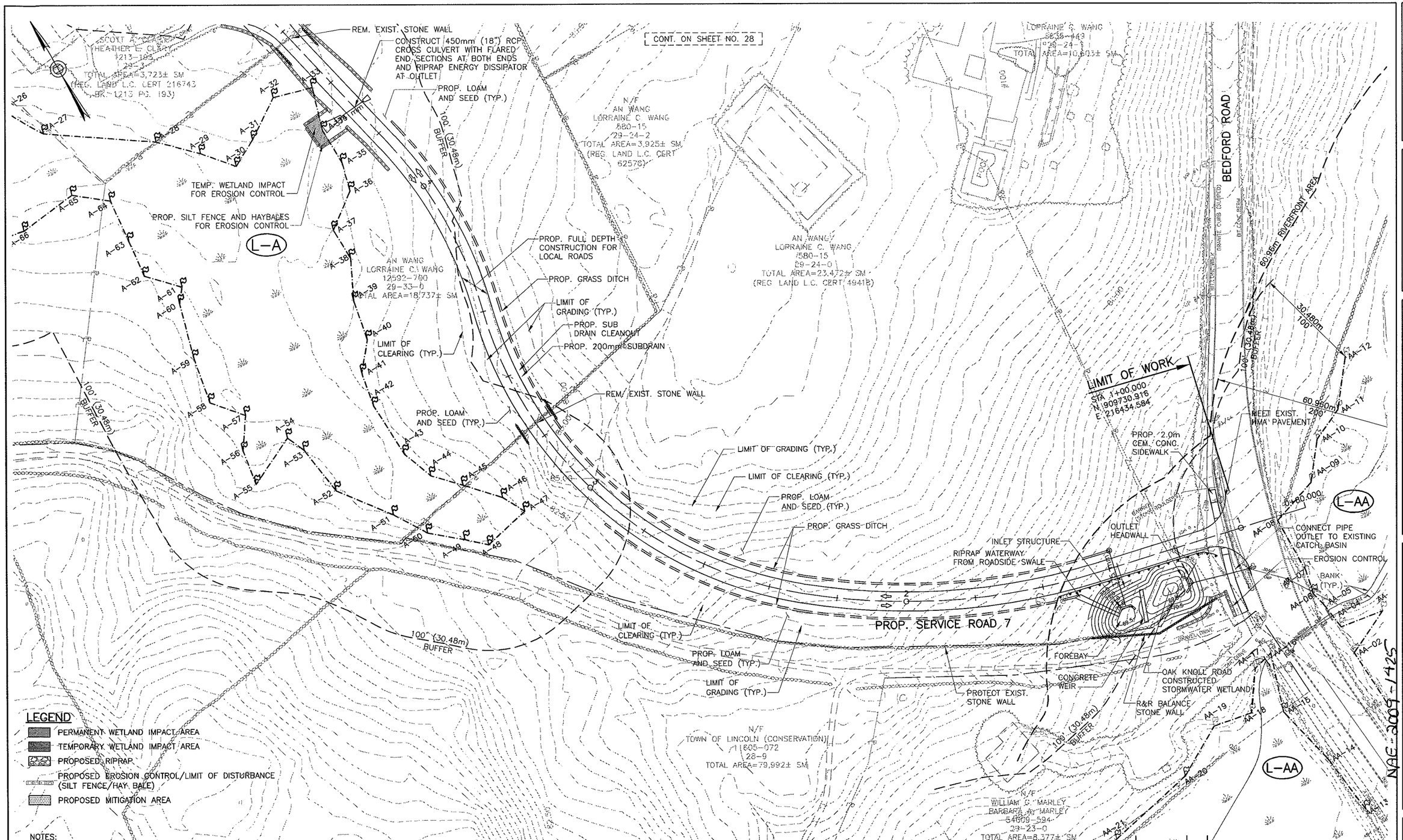
PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

CONSTRUCTION PLAN
SHEET 10 OF 11

0 10 20
HORIZONTAL SCALE IN METERS

NAE-2009-1495



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DATE:	MASSDOT Project Number:
02/08/2011	602984

SHEET: 29 OF 35

APPLICATION BY:
massDOT Massachusetts Department of Transportation
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT

PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT

ADJACENT TO: MILL BROOK
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CONSTRUCTION PLAN
SHEET 11 OF 11

0 10 20
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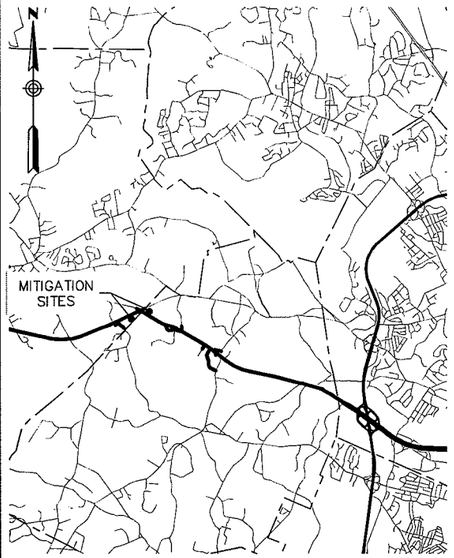
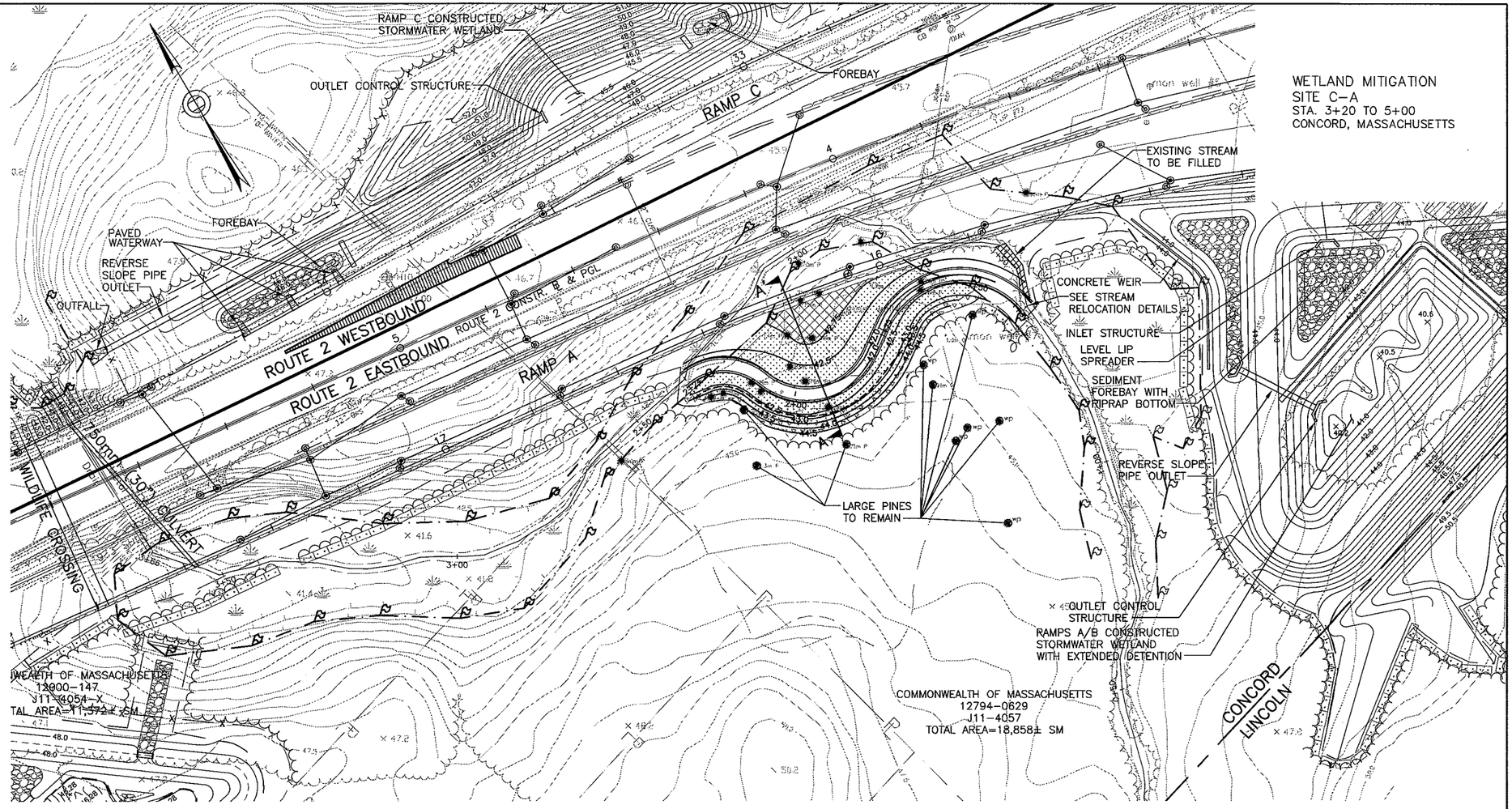


LOCUS
NOT TO SCALE



WETLAND MITIGATION
SITE C–A
STA. 3+20 TO 5+00
CONCORD, MASSACHUSETTS

NOTES:

1. WETLAND REPLICATION AREA = 822 SQ M (8,848 SQ. FT.).
2. PROPOSED CONTOURS REFLECT FINISHED GRADES AFTER SETTLEMENT OF TOPSOIL.
3. TOPSOIL PLACEMENT IS TO BE 0.3M (12 INCH) DEPTH AFTER SETTLING.
4. SOURCES OF ANY SALVAGED TOPSOIL USED WITHIN THE REPLICATION AREA SHALL BE INSPECTED BY A WETLAND SCIENTIST FOR THE PRESENCE OF INVASIVE SPECIES.
5. TOPSOIL SHALL CONSIST OF AT LEAST 8 % ORGANIC CARBON CONTENT (BY WEIGHT) OR 15% ORGANIC MATTER CONTENT.
6. SURFACE OF REPLICATION AREA SHALL BE GRADED TO INCLUDE MOUND–AND–POOL MICROTOPOGRAPHY AS SHOWN ON DETAILS. IN GENERAL, FINISH GRADES OF THE MOUNDS SHALL BE APPROXIMATELY 300mm (ONE FOOT) ABOVE THE DESIGN GRADE SHOWN ON THE PLANS AND POOLS SHALL BE THE APPROXIMATELY 300mm (ONE FOOT) BELOW THE DESIGN GRADE SHOWN ON THE PLANS.
7. COARSE WOODY DEBRIS CONSISTING OF LOGS AND STUMPS SHALL BE PLACED OVER A MINIMUM OF 4 % OF THE REPLICATION AREA PER DIRECTION OF THE WETLAND SCIENTIST.
8. NET PLANTING DENSITY HAS BEEN DESIGNED TO EQUAL OR EXCEED A SPACING OF 3.00m (10 FOOT) O.C. FOR SHRUBS AND 3.00M (10 FOOT) O.C. FOR SAPLINGS.
9. THE OUTLINES OF PLANTING ZONES SHOWN ON PLANS SHALL BE STAKED OUT ON THE GROUND BY THE CONTRACTOR AS DIRECTED BY THE WETLAND SCIENTIST.
10. THE EXACT LOCATIONS FOR PLANTINGS WILL BE DESIGNATED ON THE GROUND BY THE WETLAND SCIENTIST, MAKING SUCH CHANGES AS MAY BE REQUIRED TO ADJUST THE PLANTING TO LOCAL CONDITIONS.
11. PLANT AND SEED SURVIVAL IS GENERALLY OPTIMIZED BY SPRING PLANTING. EARLY FALL PLANTING IS ALSO ACCEPTABLE. CONTAINER GROWN OR BALLED AND BURLAPPED PLANTS SHALL BE PLANTED ONLY BETWEEN APRIL 1ST TO JUNE 15TH OR AUG. 15TH TO NOV. 1ST. BARE ROOT SHRUBS SHALL BE PLANTED FROM APRIL 1ST TO MAY 31ST.
12. WOODY PLANTS SHALL BE KEPT MOIST AND COOL WHILE ON SITE.
13. WETLAND SEED MIX SHALL BE HYDROSEEDED AT 20 KG/HECTARE OR 18 LBS./ACRE (PURE LIVE SEED) THROUGHOUT THE WETLAND REPLICATION AREA. ALL SEEDED AREAS WILL BE MULCHED WITH BLOWN STRAW. UPLAND SEED MIX SHALL BE HYDROSEEDED AT 40 KG/HECTARE OR 35 LBS./ACRE THROUGHOUT THE UPLAND REPLICATION AREA. ALL SEEDED AREAS WILL BE MULCHED WITH BLOWN STRAW.
14. ALL CONTAINERIZED AND BALLED AND BURLAPPED PLANTING SHALL BE MULCHED WITH 5 CM (2") LAYER OF BARK MULCH.
15. SEE PLANTING DETAILS FOR ADDITIONAL PLANTING AND SEEDING REQUIREMENTS.
16. FOR AREAS REQUIRING MOUND–AND–POOL MICROTOPOGRAPHY SEE WETLAND REPLICATION PLAN SHEET 2 OF 5 SHEET 274.
17. FOR EROSION CONTROL, SEE EROSION CONTROL DETAILS SHEET 284.

PLANTING LIST

ZONE	SPECIES	SIZE/TYPE[1]	QUANT.	AVERAGE SPACING AND DISTRIBUTION
SHRUB WETLAND				
700 SQ M 7,535 SQ FT	*ALNUS RUGOSA* / SPECKLED ALDER *SAMBUCUS CANADENSIS* / ELDERBERRY	450mm–600mm CG 450mm–600mm CG	75 75	PLANTED AT APPROXIMATELY 2 M (6') O.C. FOR ENTIRE AREA IN SAME SPECIES GROUPINGS OF 20 TO 40 PLANTS
	CEPHALANTHUS OCCIDENTALIS / BUTTONBUSH	450mm–600mm CG	75	BUTTONBUSH SHALL BE PLANTED IN LOWER ELEVATIONS AT APPROXIMATELY 2M (6') O.C.
FORESTED WETLAND				
122 SQ M 1,313 SQ FT	*ACER RUBRUM* / RED MAPLE *QUERCUS BICOLOR*/ SWAMP WHITE OAK	900mm–1.200m CG/BB 900mm–1.200m CG/BB	7 7	PLANTED AT APPROXIMATELY 3M (10') O.C. EVENLY DISTRIBUTED ACROSS ZONE
	CLETHRA ALNIFOLIA/ SWEET PEPPERBUSH *VIBURNUM RECOGNITUM*/ ARROWWOOD	450mm–600mm CG 450mm–600mm CG	12 12	PLANTED AT APPROXIMATELY 2M (6') O.C. FOR 60% OF THE AREA IN SPECIES GROUPINGS OF 20 TO 40 PLANTS INTERSPERSED ACROSS ZONE.
UPLAND BUFFER				
141 SQ M 1,518 SQ FT	*PINUS STROBUS* / WHITE PINE	900mm–1.200m CG/BB	15	PLANTED AT APPROXIMATELY 3M (10') O.C. EVENLY DISTRIBUTED ACROSS ZONE
	CORNUS STOLONIFERA/ RED–OSIER DOGWOOD	450mm–600mm CG	28	PLANTED AT APPROXIMATELY 2M (6') O.C. FOR 60% OF THE AREA IN SPECIES GROUPINGS OF 20 TO 40 PLANTS INTERSPERSED ACROSS ZONE.

[1] CG – CONTAINER GROWN (2 GAL), BB – BALLED AND BURLAPPED/OR 5 GAL IF CONTAINER GROWN. BR – BARE ROOT

1:500
0 10 20 30 METERS
0 33.3 66.6 100 FEET

LEGEND:

- EX. TREE LINE
- EX. PINE TREE
- EX. OAK TREE
- 29 EX. CONTOURS
- EX. WETLAND BOUNDARY
- 29.5 PROP. CONTOURS
- PROP. SILT FENCE AND HAYBALES
- PROP. WIDENING
- LIMIT OF CLEARING
- TEST PIT

NAE-2009-1425

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11/12/2010	2	PLAN REVISED FOR VARIANCE SUBMISSION
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MASSDOT Project Number: 602984
DATE: 02/08/2011
SHEET: 30 OF 35

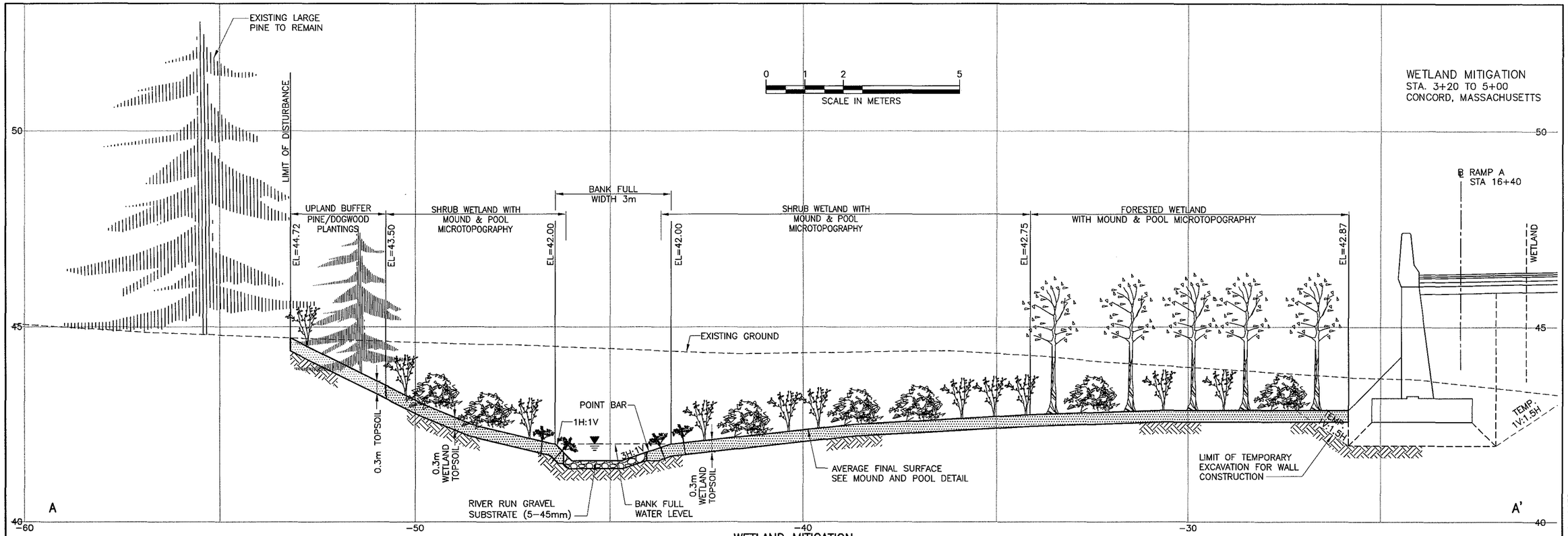
APPLICATION BY:
massDOT Massachusetts Department of Transportation Highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

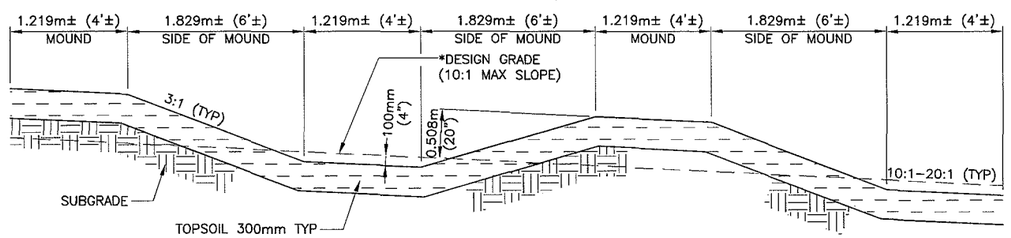
APPLICATION FOR DEPARTMENT OF ARMY PERMIT
PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

WETLAND REPLICATION PLAN
SHEET 1 OF 5

HORIZONTAL SCALE IN METERS AS NOTED



WETLAND MITIGATION
STA. 4+20 – ROUTE 2 ℄
CONCORD, MASSACHUSETTS



SECTION
TYPICAL MOUND–AND–POOL DETAIL
NOT TO SCALE

SEED MIXES

New England Erosion Control/Restoration Mix For Dry Sites (Upland Seed Mixture)

Percent of Mixture	Botanical Name	Common Name	Wetland Indicator Status
15	*Agrostis perennans*	Upland Bentgrass	FACU
5	*Agrostis scabra*	Rough Bentgrass/Ticklegrass	FAC
5	*Bouteloua gracilis*	Blue Grama	
20	*Elymus canadensis*	Canada Wild Rye	FACU+
15	*Festuca rubra*	Creeping Red Fescue	FACU
10	*Lolium multiflorum*	Annual Ryegrass (naturalized)	
10	*Lolium perenne*	Perrenial Ryegrass (naturalized)	
10	*Schizachyrium scoparium*	Little Bluestem	FACU
10	*Sorghastrum nutans*	Indian Grass	UPL

Application: 40kg/hectare [35 lbs./acre]

New England Wetmix (Wetland Seed Mix)

Percent of Mixture	Botanical Name	Common Name	Wetland Indicator Status
5	*Agrostis alba*	Redtop	FACW
2	*Asclepias incarnata*	Swamp Milkweed	OBL
10	*Carex crinita*	Fringed Sedge (Nodding)	OBL
10	*Carex lurida*	Lurid Sedge (Shallow)	OBL
25	*Carex vulpinoidea*	Fox Sedge	OBL
10	*Eupatorium maculatum*	Spotted Joe Pye Weed	FACW
10	*Eupatorium perfoliatum*	Boneset	FACW
3	*Juncus effusus*	Soft Rush	FACW+
10	*Scirpus cyperinus*	Wool Grass	FACW
5	*Scirpus validus*	Soft Stem Bulrush	OBL
10	*Verbena hastata*	Blue Vervain	FACW

Application: 20kg/hectare [18 lbs./acre]

NOTES:

1. FINAL WETLAND SURFACE TO BE COVERED WITH APPROXIMATELY 10% COARSE WOODY DEBRIS CONSISTING OF LOGS, LARGE BRANCHES AND STUMPS PER DIRECTION OF WETLAND SCIENTIST.
2. WETLAND TOPSOIL SHALL MEET ARMY CORPS GUIDELINES FOR MINIMUM ORGANIC CONTENT (SEE CONTRACT SPECIFICATIONS).
3. A DOUBLE ROW OF LIVE FASCINE BUNDLES COMBINED WITH LIVE STAKES PLACED APPROXIMATELY 1.0M (3 FEET) ON CENTER SHALL BE INSTALLED ALONG OUTSIDE STREAM CHANNEL BENDS (SEE STREAMBANK STABILIZATION DETAIL). A DOUBLE ROW OF LIVE STAKES ONLY SHALL BE PLACED APPROXIMATELY 1.0M (3 FEET) ON CENTER SHALL BE INSTALLED ALONG ALL OTHER STREAMBANKS.
4. BOTH LIVE FASCINE BUNDLES AND LIVE STAKES SHALL BE EITHER NATIVE WILLOW (SALIX SP.) OR NATIVE DOGWOOD (CORNUS SP.) APPROVED BY THE WETLAND SCIENTIST.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND OPERATION OF A TEMPORARY OVERHEAD IRRIGATION SYSTEM (SEE CONTRACT SPECIFICATIONS).

DATE	REV	DESCRIPTION
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11/17/2010	3	PLAN REVISED FOR APPLICATION FOR DEPARTMENT OF ARMY PERMIT
11/12/2010	2	PLAN REVISED FOR VARIANCE SUBMISSION
09/03/2010	1	PLANS REVISED FOR SUBMISSION TO CONCORD CONSERVATION COMMISSION
01/06/2010	–	ORIGINAL ISSUE

USE ONLY PRINTS OF LATEST DATE

The Louis Berger Group, Inc. — MONITORING WELL DATA

PROJECT: ROUTE 2 | CLIENT: MHD | DATE: 1998
LOCATION: CONCORD, MA | FILE NUMBER: CW 1429 | INSPECTOR: KB

MW #	TOWN	GR @ MW	01/15/98 OBSERVATION GW ELEV.	02/10/98 OBSERVATION GW ELEV.	03/18/98 OBSERVATION GW ELEV.	04/01/98 OBSERVATION GW ELEV.	04/16/98 OBSERVATION GW ELEV.	04/29/98 OBSERVATION GW ELEV.	05/14/98 OBSERVATION GW ELEV.
MW 4 (M) (FT)	CONCORD	44.90 147.31	42.66 139.96	41.75 136.97	42.97 140.98	42.74 140.22	42.27 138.68	42.53 139.53	43.53 142.81
MW 5 (M) (FT)	CONCORD	44.07 144.58	42.81 140.45	42.78 140.35	43.15 141.57	42.99 141.04	42.77 140.32	42.87 140.65	43.32 142.12
MW 6 (M) (FT)	CONCORD	47.02 154.26	NO WATER NO WATER	NO WATER NO WATER	NO WATER NO WATER	43.03 141.17	43.24 141.86	43.35 142.22	43.79 143.67
MW 7 (M) (FT)	CONCORD	43.70 143.37	43.21 141.76	43.19 141.70	43.26 141.93	43.22 141.80	43.18 141.66	43.2 141.73	43.33 142.16
MW 8 (M) (FT)	CONCORD	44.64 146.46	42.84 140.55	42.72 140.16	42.97 140.98	42.87 140.65	42.72 140.16	42.75 140.25	43.11 141.44

MW #	TOWN	GR @ MW	06/01/98 OBSERVATION GW ELEV.	06/15/98 OBSERVATION GW ELEV.	07/02/98 OBSERVATION GW ELEV.	07/17/98 OBSERVATION GW ELEV.	08/13/98 OBSERVATION GW ELEV.	09/16/98 OBSERVATION GW ELEV.	10/15/98 OBSERVATION GW ELEV.
MW 4 (M) (FT)	CONCORD	44.90 147.31	42.37 139.01	44.02 144.42	43.11 141.44	42.3 138.78	41.69 136.78	41.46 136.02	41.46 136.02
MW 5 (M) (FT)	CONCORD	44.07 144.58	42.74 140.22	43.79 143.67	43.23 141.83	42.5 139.43	42.11 138.15	41.64 136.61	41.63 136.58
MW 6 (M) (FT)	CONCORD	47.02 154.26	43.86 143.90	44.31 145.37	44.51 146.03	44.32 145.41	43.77 143.60	42.71 140.12	42.9 140.75
MW 7 (M) (FT)	CONCORD	43.70 143.37	43.36 142.26	43.48 142.65	43.29 142.03	43.04 141.21	43.06 141.27	43.06 141.27	43.25 141.89
MW 8 (M) (FT)	CONCORD	44.64 146.46	42.68 140.02	43.39 142.35	43.02 141.14	42.57 139.66	42.32 138.84	42.15 138.29	42.5 139.43

MASSDOT Project Number: 602984
DATE: 02/08/2011
SHEET: 31 OF 35

APPLICATION BY: massDOT Highway Division
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY: THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT
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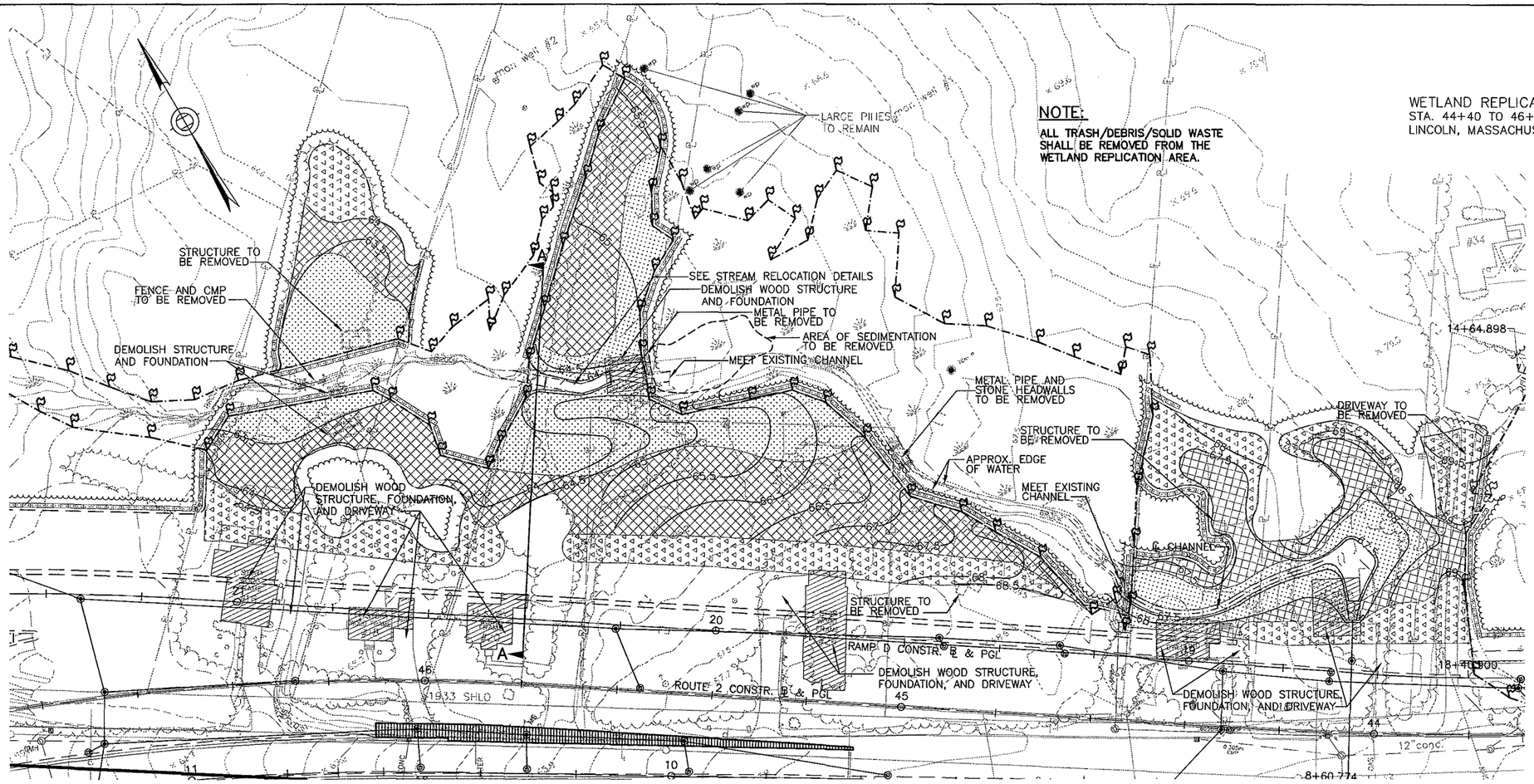
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

NAE-2009-1425

WETLAND REPLICATION PLAN SHEET 2 OF 5

HORIZONTAL SCALE IN METERS AS NOTED



NOTES

1. EARTHWORK ASSOCIATED WITH REPLICATION AREA = 8,282 SQ M (89,147 SQ. FT.).
2. PROPOSED CONTOURS REFLECT FINISHED GRADES AFTER SETTLEMENT OF TOPSOIL.
3. TOPSOIL PLACEMENT IS TO BE A 0.3M (12 INCH) DEPTH AFTER SETTLING.
4. SOURCES OF ANY SALVAGED TOPSOIL FROM USED WITHIN THE REPLICATION AREA SHALL BE INSPECTED BY A WETLAND SCIENTIST FOR THE PRESENCE OF INVASIVE SPECIES.
5. TOPSOIL SHALL CONSIST OF AT LEAST 8 % ORGANIC CARBON CONTENT (BY WEIGHT) OR 15% ORGANIC MATTER CONTENT.
6. SURFACE OF REPLICATION AREA SHALL BE GRADED TO INCLUDE MOUND-AND-POOL MICROTOPOGRAPHY AS SHOWN ON DETAILS. IN GENERAL, FINISH GRADES OF THE MOUNDS SHALL BE APPROXIMATELY ONE FT ABOVE THE DESIGN GRADE SHOWN ON THE PLANS AND POOLS SHALL BE THE APPROXIMATELY ONE FT BELOW THE DESIGN GRADE SHOWN ON THE PLANS.
7. COARSE WOODY DEBRIS CONSISTING OF LOGS AND STUMPS SHALL BE PLACED OVER A MINIMUM OF 4 % OF THE REPLICATION AREA PER DIRECTION OF THE WETLAND SCIENTIST.
8. NET PLANTING DENSITY HAS BEEN DESIGNED TO EQUAL OR EXCEED A SPACING OF 10 FT O.C. FOR SHRUBS AND 10 FT O.C. FOR SAPLINGS.
9. THE EXACT LOCATIONS FOR PLANTINGS WILL BE DESIGNATED ON THE GROUND BY THE WETLAND SCIENTIST, MAKING SUCH CHANGES AS MAY BE REQUIRED TO ADJUST THE PLANTING TO LOCAL CONDITIONS.
10. PLANT AND SEED SURVIVAL IS GENERALLY OPTIMIZED BY SPRING PLANTING. EARLY FALL PLANTING IS ALSO ACCEPTABLE. CONTAINER GROWN OR BALLED AND BURLAPPED PLANTS SHALL BE PLANTED ONLY BETWEEN APRIL 1ST TO JUNE 15TH OR AUG. 15TH TO NOV. 1ST. BARE ROOT SHRUBS SHALL BE PLANTED FROM APRIL 1ST TO MAY 31ST.
11. WOODY PLANTS SHALL BE KEPT MOIST AND COOL WHILE ON SITE.
12. WETLAND SEED MIX SHALL BE HYDROSEEDED AT 20 KG/HECTARE OR 18 LBS./ACRE (PURE LIVE SEED) THROUGHOUT THE WETLAND REPLICATION AREA. ALL SEEDED AREAS WILL BE MULCHED WITH BLOWN STRAW.

    UPLAND SEED MIX SHALL BE HYDROSEEDED AT 40 KG/HECTARE OR 35 LBS./ACRE THROUGHOUT THE UPLAND REPLICATION AREA. ALL SEEDED AREAS WILL BE MULCHED WITH BLOWN STRAW.
13. ALL CONTAINERIZED AND BALLED AND BURLAPPED PLANTING SHALL BE MULCHED WITH 5 CM (2") LAYER OF BARK MULCH.

PLANTING LIST

ZONE	SPECIES	SIZE/TYPE[1]	QUANT.	AVERAGE SPACING AND DISTRIBUTION
SHRUB WETLAND				
2,516 SQ M 27,082 SQ FT	*ALNUS RUGOSA* / SPECKLED ALDER	18"–24" CG	250	PLANTED AT APPROXIMATELY 2 M (6') O.C. FOR ENTIRE AREA IN SAME SPECIES GROUPINGS OF 15 TO 20 PLANTS.
	SAMBUCUS CANADENSIS / ELDERBERRY	18"–24" CG	250	
	CEPHALANTHUS OCCIDENTALIS / BUTTONBUSH	18"–24" CG	250	BUTTONBUSH SHALL BE PLANTED IN LOWER ELEVATIONS AT APPROXIMATELY 2M (6') O.C.
FORESTED WETLAND				
3,905 SQ M 42,033 SQ FT	*ACER RUBRUM* / RED MAPLE	3'– 4' CG/BB	210	PLANTED AT APPROXIMATELY 3M (10') O.C. GENERALLY ON MOUNDS OR HIGHER ELEVATIONS.
	QUERCUS BICOLOR / SWAMP WHITE OAK	3'– 4' CG/BB	210	
	CLETHRA ALNIFOLIA / SWEET PEPPERBUSH	18"–24" CG	265	PLANTED AT APPROXIMATELY 2M (6') O.C. IN SPECIES GROUPINGS OF 15 TO 20 PLANTS ON SIDES OF MOUNDS.
	VIBURNUM RECOGNITUM / ARROWWOOD	18"–24" CG	265	
	ILEX VERTICILLATA /WINTERBERRY	18"–24" CG	265	
STREAM RESTORATION				
107 LM 350 LF	*CORNUS STOLONIFERA* / RED-OSIER DOGWOOD	18"–24" BR	235	PLANTED AS SINGLE ROW ALONG THE STREAM BANK 1M (3') APART
	SALIX DISCOLOR /PUSSY WILLOW	18"–24" BR	235	
UPLAND BUFFER				
1,861 SQ M 20,032 SQ FT	*PINUS STROBUS* / WHITE PINE	3'– 4' CG/BB	225	PLANTED AT 3 M (10') O.C. EVENLY DISTRIBUTED ACROSS ZONE.
	CORNUS RACEMOSA / GRAY DOGWOOD	18"–24" CG	195	PLANTED AT APPROXIMATELY 2M (6') O.C. INTERSPERSED BETWEEN PLANTED PINES.
	VIBURNUM TRILOBUM / HIGHBUSH CRANBERRY	18"–24" CG	195	

[1] CG – CONTAINER GROWN (2 GAL), BB – BALLED AND BURLAPPED/OR 5 GAL IF CONTAINER GROWN. BR – BARE ROOT

LEGEND:

- EX. TREE LINE
- EX. PINE TREE
- 29 EX. CONTOURS
- EX. WETLAND BOUNDARY
- 29.5 PROP. CONTOURS
- CF PROP. COMBINATION FENCING
- PROP. WIDENING
- LIMIT OF DISTURBANCE
- MONITORING WELL
- PROPOSED EROSION CONTROL (HAY BALE)

NAE-2009-1425

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DATE: 02/08/2011
MASSDOT Project Number: 602984
SHEET: 32 OF 35

APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION FOR DEPARTMENT OF ARMY PERMIT
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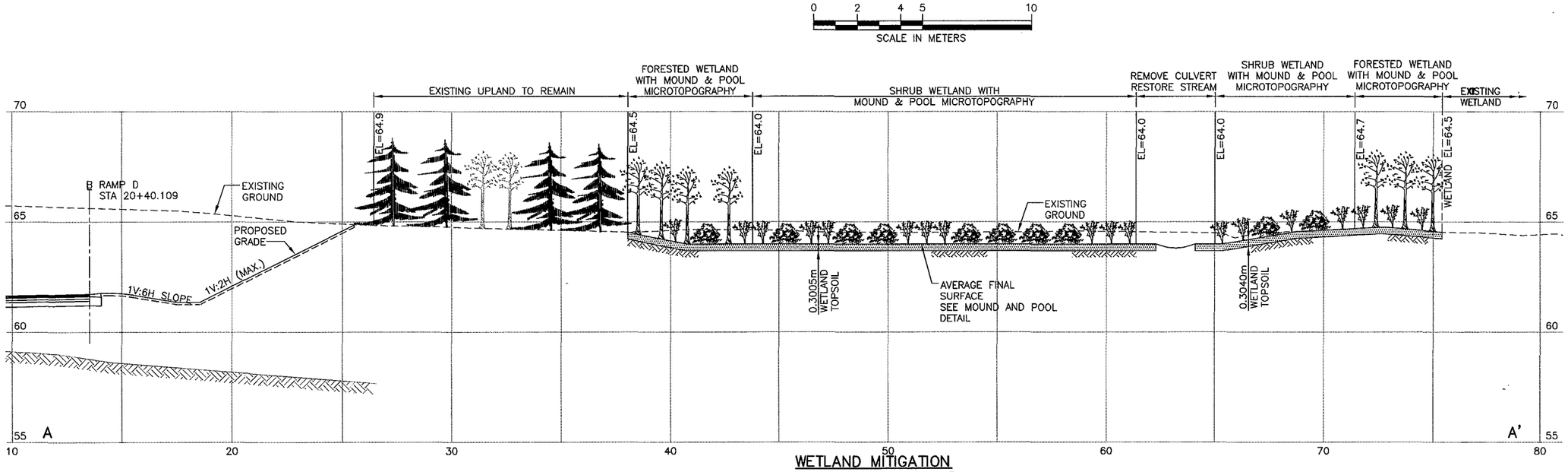
WETLAND REPLICATION PLAN
SHEET 3 OF 5

HORIZONTAL SCALE IN METERS AS NOTED



WETLAND MITIGATION
STA. 45+80 – ROUTE 2 ℄
LINCOLN, MASSACHUSETTS

The Louis Berger Group, Inc.			MONITORING WELL DATA							
PROJECT: ROUTE 2			CLIENT: MHD				DATE: 1998			
LOCATION: LINCOLN, MA			FILE NUMBER: CW 1429				INSPECTOR: KB			
MW #	TOWN	GR @ MW	01/15/98 OBSERVATION GW ELEV.	02/10/98 OBSERVATION GW ELEV.	03/18/98 OBSERVATION GW ELEV.	04/01/98 OBSERVATION GW ELEV.	04/16/98 OBSERVATION GW ELEV.	04/29/98 OBSERVATION GW ELEV.	05/14/98 OBSERVATION GW ELEV.
MW 1 (M) (FT)	LINCOLN	66.94 219.62	66.35 217.68	66.55 218.34	66.76 219.03	66.65 218.67	66.53 218.27	66.47 218.07	66.78 219.09
MW 2 (M) (FT)	LINCOLN	64.64 212.07	64.42 211.35	64.5 211.61	64.5 211.61	64.49 211.58	64.48 211.55	64.49 211.58	64.57 211.84
MW 3 (M) (FT)	LINCOLN	67.03 219.91	65.4 214.56	65.3 214.24	65.44 214.70	65.39 214.53	65.25 214.07	65.37 214.47	65.57 215.12
MW #	TOWN	GR @ MW	06/01/98 OBSERVATION GW ELEV.	06/15/98 OBSERVATION GW ELEV.	07/02/98 OBSERVATION GW ELEV.	07/17/98 OBSERVATION GW ELEV.	08/13/98 OBSERVATION GW ELEV.	09/16/98 OBSERVATION GW ELEV.	10/15/98 OBSERVATION GW ELEV.
MW 1 (M) (FT)	LINCOLN	66.94 219.62	66.61 218.53	66.73 218.93	66.63 218.60	66.3 217.52	65.91 216.24	65.67 215.45	65.67 215.45
MW 2 (M) (FT)	LINCOLN	64.64 212.07	64.55 211.78	64.58 211.87	64.57 211.84	64.22 210.69	64.25 210.79	63.5 208.33	64.06 210.17
MW 3 (M) (FT)	LINCOLN	67.03 219.91	65.1 213.58	65.86 216.07	65.42 214.63	64.97 213.15	64.83 212.69	64.55 211.78	64.9 212.92

SEED MIXES

New England Erosion Control/Restoration Mix For Dry Sites (Upland Seed Mixture)

Percent of Mixture	Botanical Name	Common Name	Wetland Indicator Status
15	*Agrostis perennans*	Upland Bentgrass	FACU
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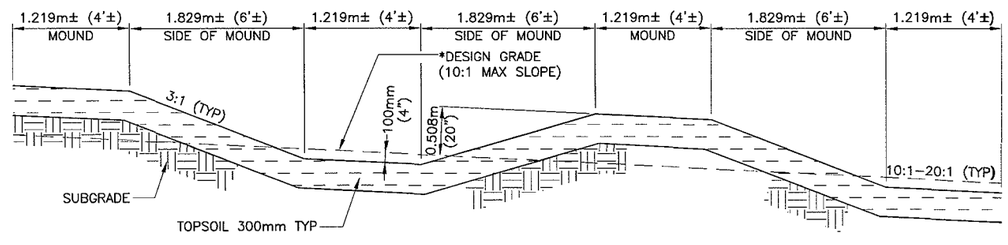
15	*Festuca rubra*	Creeping Red Fescue	FACU
10	*Lolium multiflorum*	Annual Ryegrass (naturalized)	
10	*Lolium perenne*	Perrenial Ryegrass (naturalized)	
10	*Schizachyrium scoparium*	Little Bluestem	FACU
10	*Sorghastrum nutans*	Indian Grass	UPL

Application: 40kg/hectare [35 lbs./acre]

New England Wetmix (Wetland Seed Mix)

Percent of Mixture	Botanical Name	Common Name	Wetland Indicator Status
5	*Agrostis alba*	Redtop	FACW
2	*Asclepias incarnata*	Swamp Milkweed	OBL
10	*Carex crinita*	Fringed Sedge (Nodding)	OBL
10	*Carex lurida*	Lurid Sedge (Shallow)	OBL
25	*Carex vulpinoidea*	Fox Sedge	OBL
10	*Eupatorium maculatum*	Spotted Joe Pye Weed	FACW
10	*Eupatorium perfoliatum*	Boneset	FACW
3	*Juncus effusus*	Soft Rush	FACW+
10	*Scirpus cyperinus*	Wool Grass	FACW
5	*Scirpus validus*	Soft Stem Bulrush	OBL
10	*Verbena hastata*	Blue Vervain	FACW

Application: 20kg/hectare [18 lbs./acre]



SECTION
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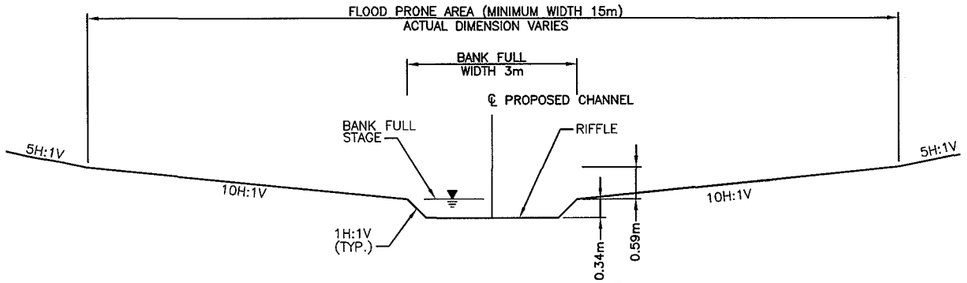
WETLAND REPLICATION PLAN
SHEET 4 OF 5

HORIZONTAL SCALE IN METERS AS NOTED

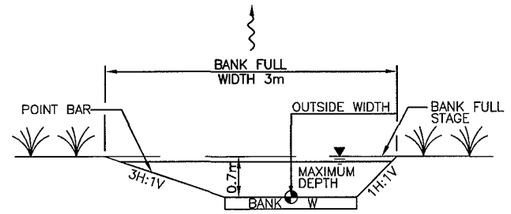
PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

APPLICATION BY:
massDOT Highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

DATE: 02/08/2011
MASSDOT Project Number: 602984
SHEET: 33 OF 35

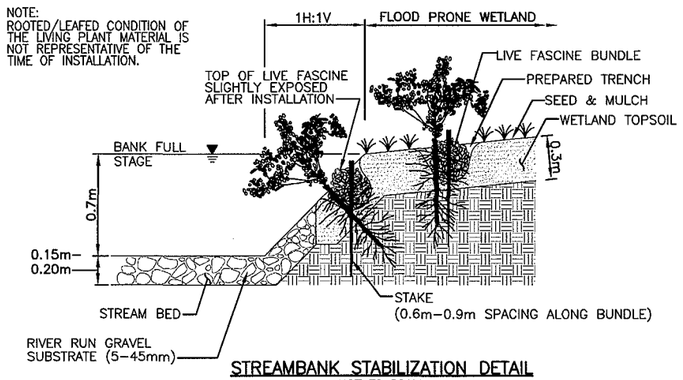


PROPOSED CHANNEL RIFFLE
TYPICAL SECTION
NOT TO SCALE

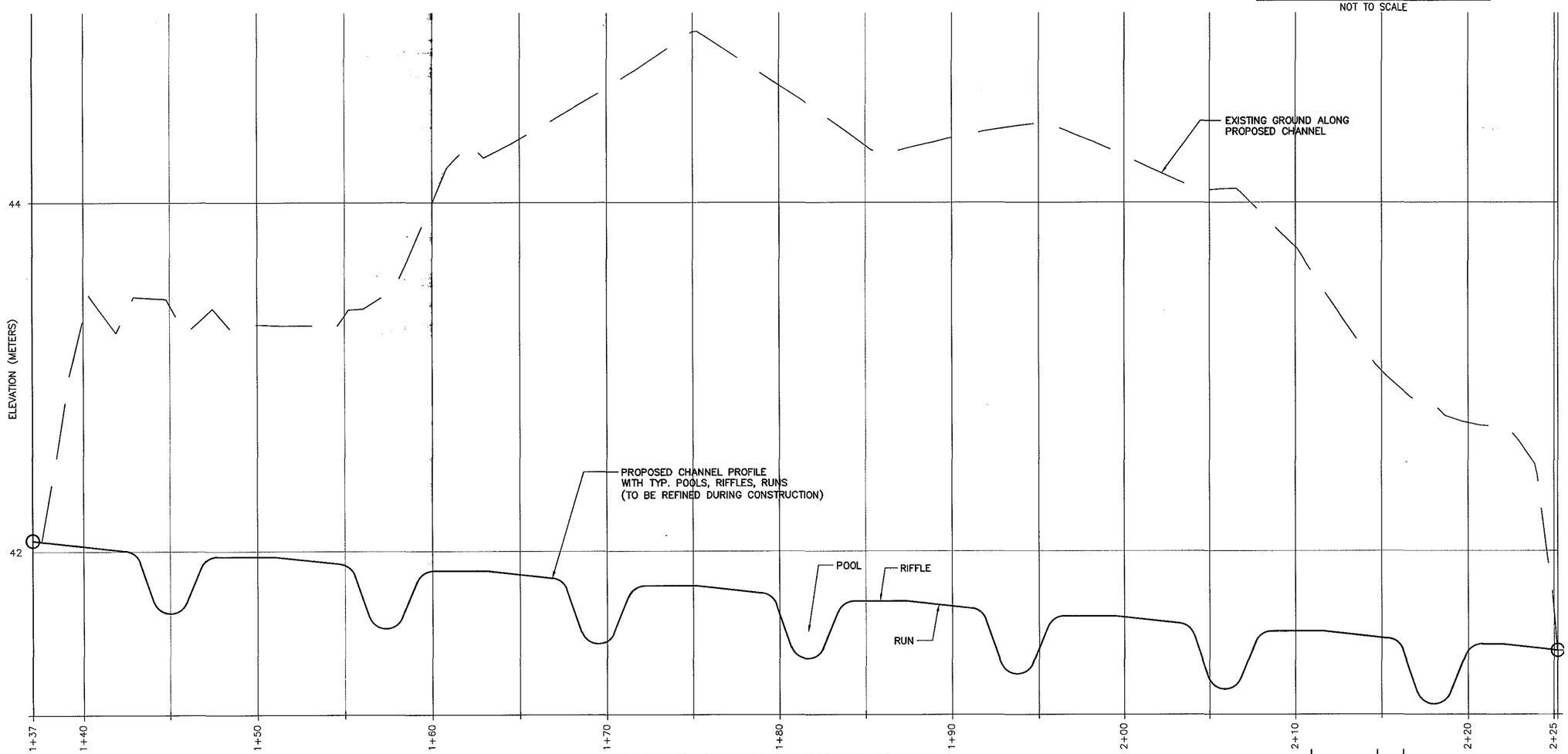


PROPOSED CHANNEL POOL
TYPICAL SECTION
NOT TO SCALE

NOTE:
ROOTED/LEAFED CONDITION OF THE LIVING PLANT MATERIAL IS NOT REPRESENTATIVE OF THE TIME OF INSTALLATION.



STREAMBANK STABILIZATION DETAIL
NOT TO SCALE



PROPOSED CHANNEL CENTERLINE PROFILE
SCALE: 1:125

NAE-2009-1425

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APPLICATION BY:
massDOT
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

PREPARED BY:
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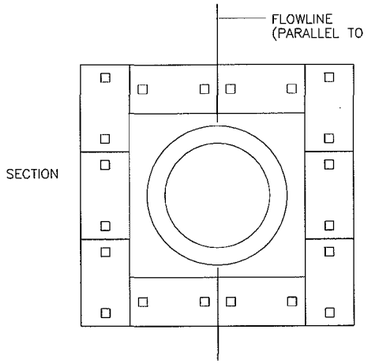
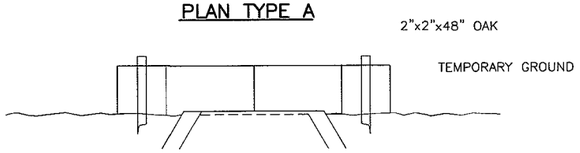


PLAN TYPE A

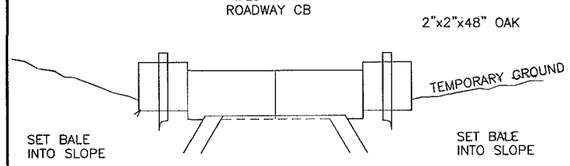
NOTES:

1. BALES TO BE PLACED MINIMUM 3" BELOW TEMP GRADE OR FINISHED GRADE AS DIRECTED.
2. TYPE A TO BE PLACED AROUND BASINS AND INLETS ON CLOSED SYSTEMS AND WHERE SHOWN ON THE PLANS.
3. TYPE B TO BE USED IN DITCHES.
4. TYPE D TO BE USED AT CULVERT ENTRANCES AND WHERE SHOWN ON THE PLANS.
5. TYPE C TO BE USED AT THE TOES OF SLOPES WHERE NECESSARY TO PROTECT ADJACENT STREAMS OR LANDS.



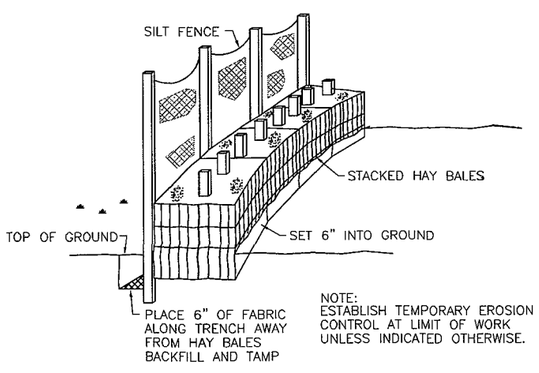
SECTION TYPE A

MEDIAN DI
ROADWAY CB



SECTION TYPE A

DITCH DI

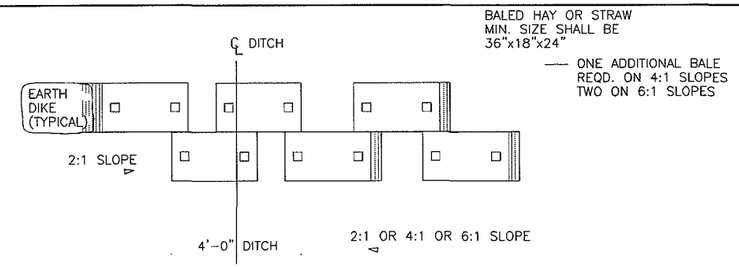


NOTE:
ESTABLISH TEMPORARY EROSION CONTROL AT LIMIT OF WORK UNLESS INDICATED OTHERWISE.

TYPICAL HAY BALE W/SILT FENCE

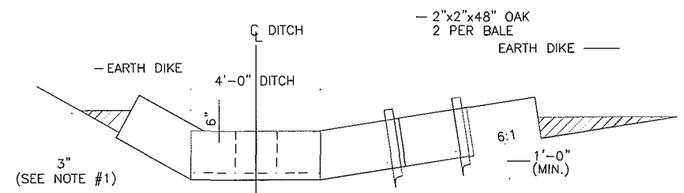
NOT TO SCALE

CONTRACTOR SHALL USE "METRIC MEASUREMENT UNITS" EQUIVALENT TO THE ENGLISH UNITS SHOWN ON THE PLAN.



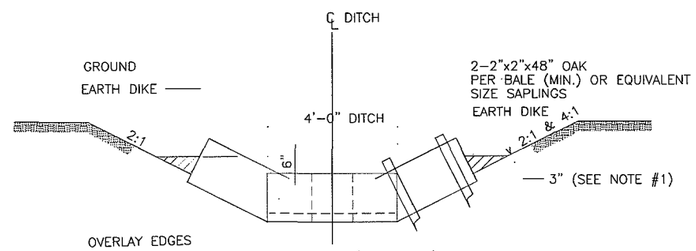
PLAN (TYPE B)

4:1, 2:1 SLOPE



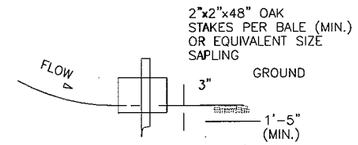
ELEVATION (TYPE B)

6:1 SLOPE

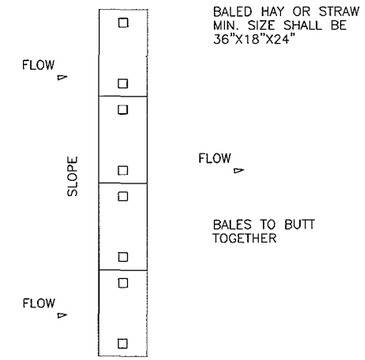


ELEVATION (TYPE B)

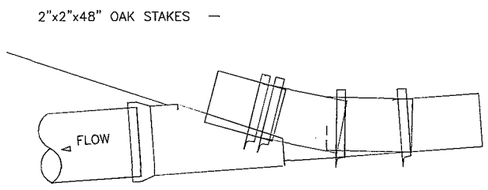
4:1, 2:1 SLOPE



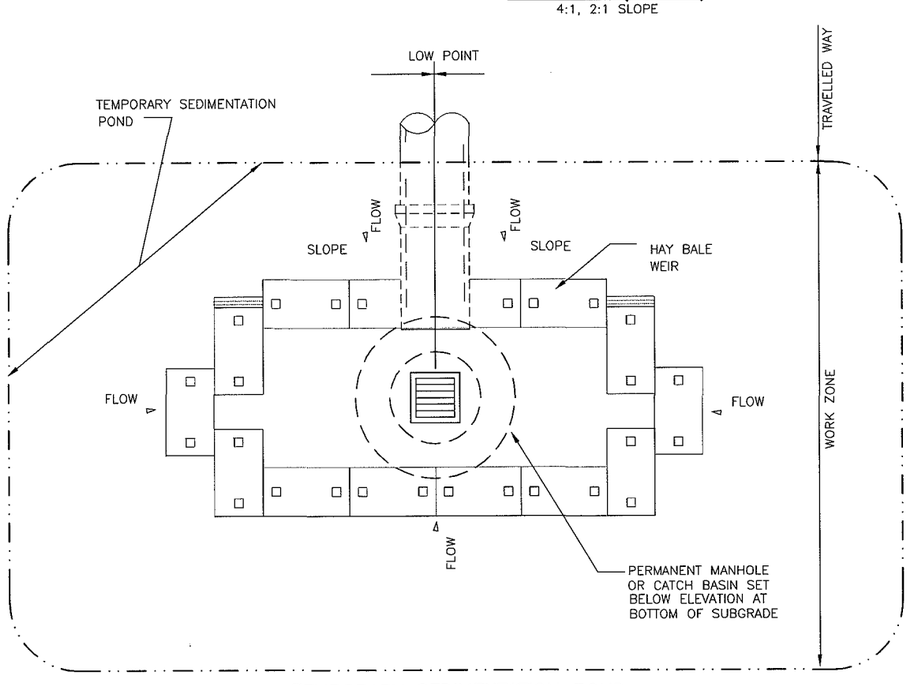
ELEVATION (TYPE C)



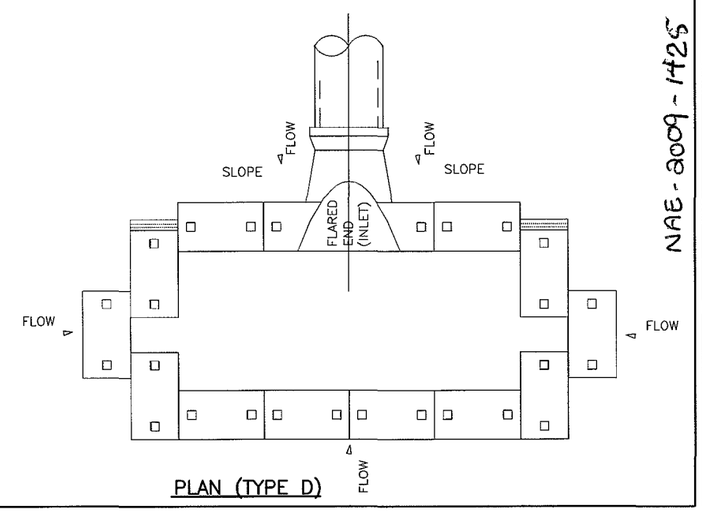
PLAN (TYPE C)



SECTION (TYPE D)



TEMPORARY SEDIMENTATION POND



PLAN (TYPE D)

NAE-2009-1425

MASSDOT Project Number: 602984

DATE: 02/08/2011

SHEET: 34 OF 35

APPLICATION BY:
massDOT highway
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
10 PARK PLAZA, BOSTON MA 02116

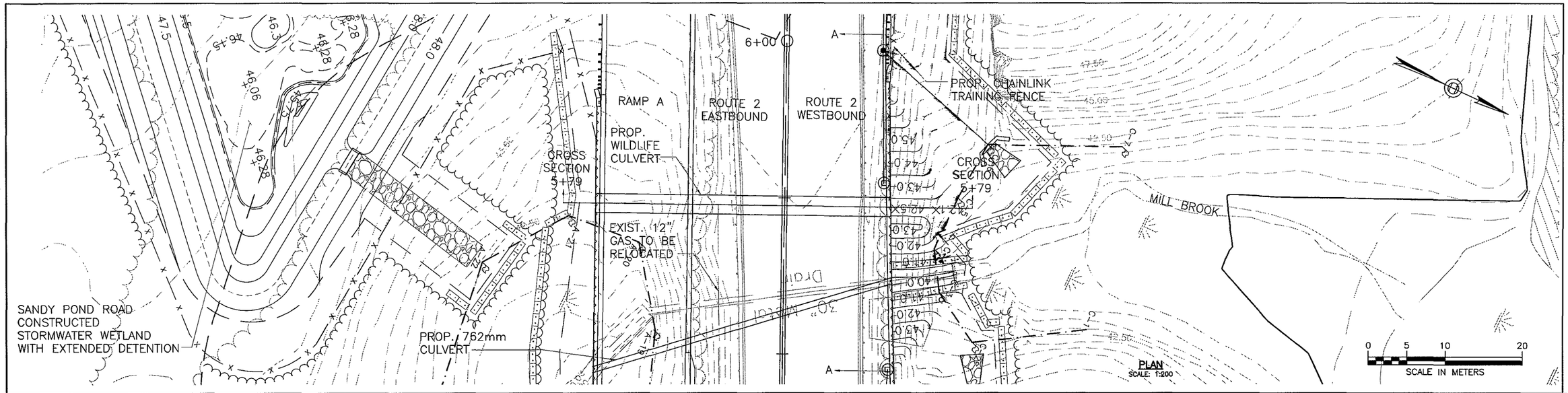
PREPARED BY:
THE Louis Berger Group, INC.
NEEDHAM, MASSACHUSETTS

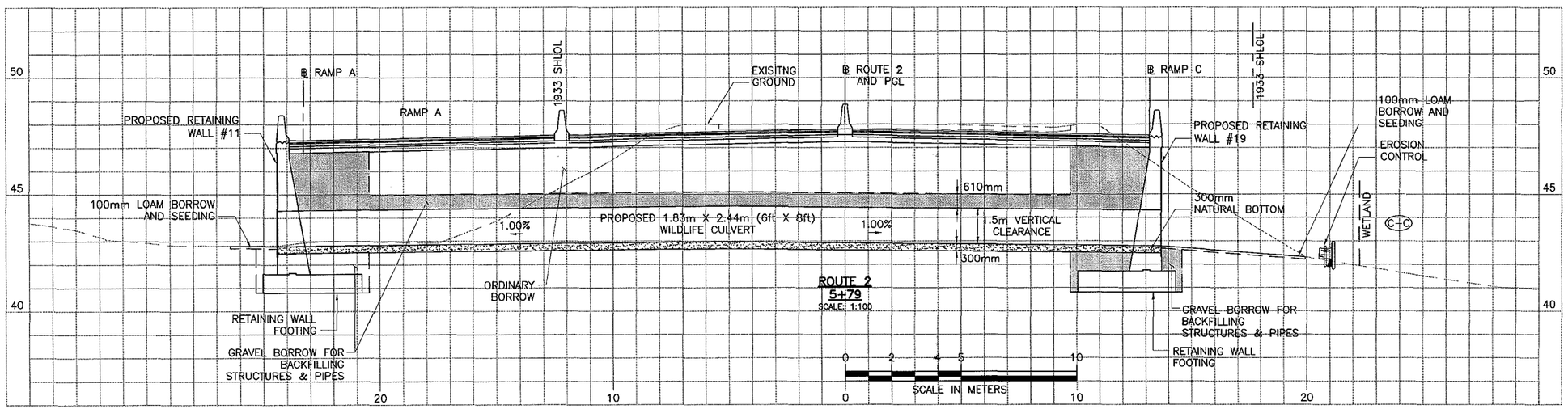
APPLICATION FOR DEPARTMENT OF ARMY PERMIT

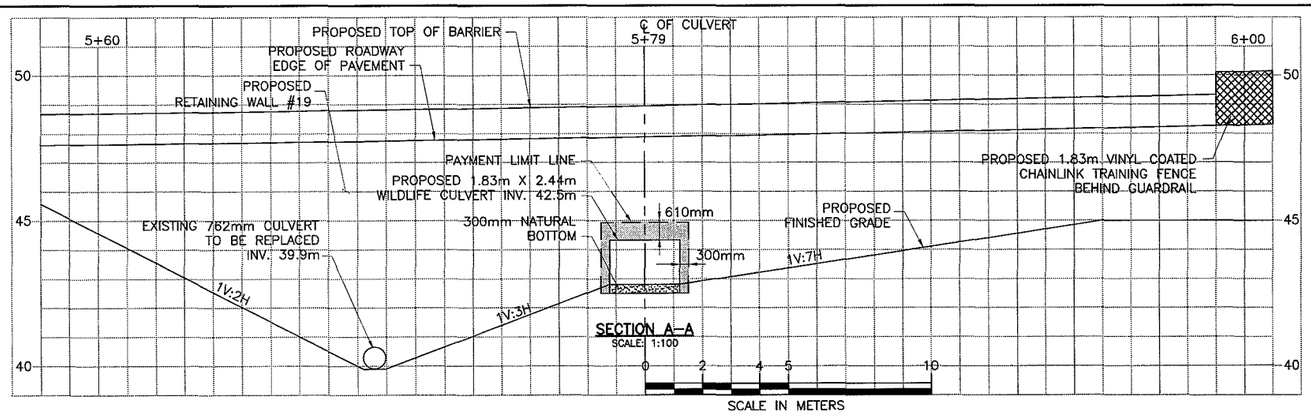
PURPOSE: ROUTE 2 – CROSBY'S CORNER INTERCHANGE SAFETY IMPROVEMENTS PROJECT
ADJACENT TO: MILL BROOK
TOWNS OF: LINCOLN & CONCORD
COUNTY: MIDDLESEX
IN: COMMONWEALTH OF MASSACHUSETTS

EROSION CONTROL DETAILS

HORIZONTAL SCALE IN METERS AS NOTED







DATE	REV	DESCRIPTION
02/08/2011	4	PLANS REVISED PER 75% DESIGN, AS SUBMITTED TO MASSDOT 01/21/11
11/17/2010	3	PLAN REVISED FOR APPLICATION FOR DEPARTMENT OF ARMY PERMIT
09/03/2010	1	PLANS REVISED FOR SUBMISSION TO CONCORD CONSERVATION COMMISSION
01/06/2010	–	ORIGINAL ISSUE

USE ONLY PRINTS OF LATEST DATE

NAE-2009-1425

WILDLIFE CULVERT DETAIL
SHEET 1 OF 1

0 10 20
HORIZONTAL SCALE IN METERS

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