

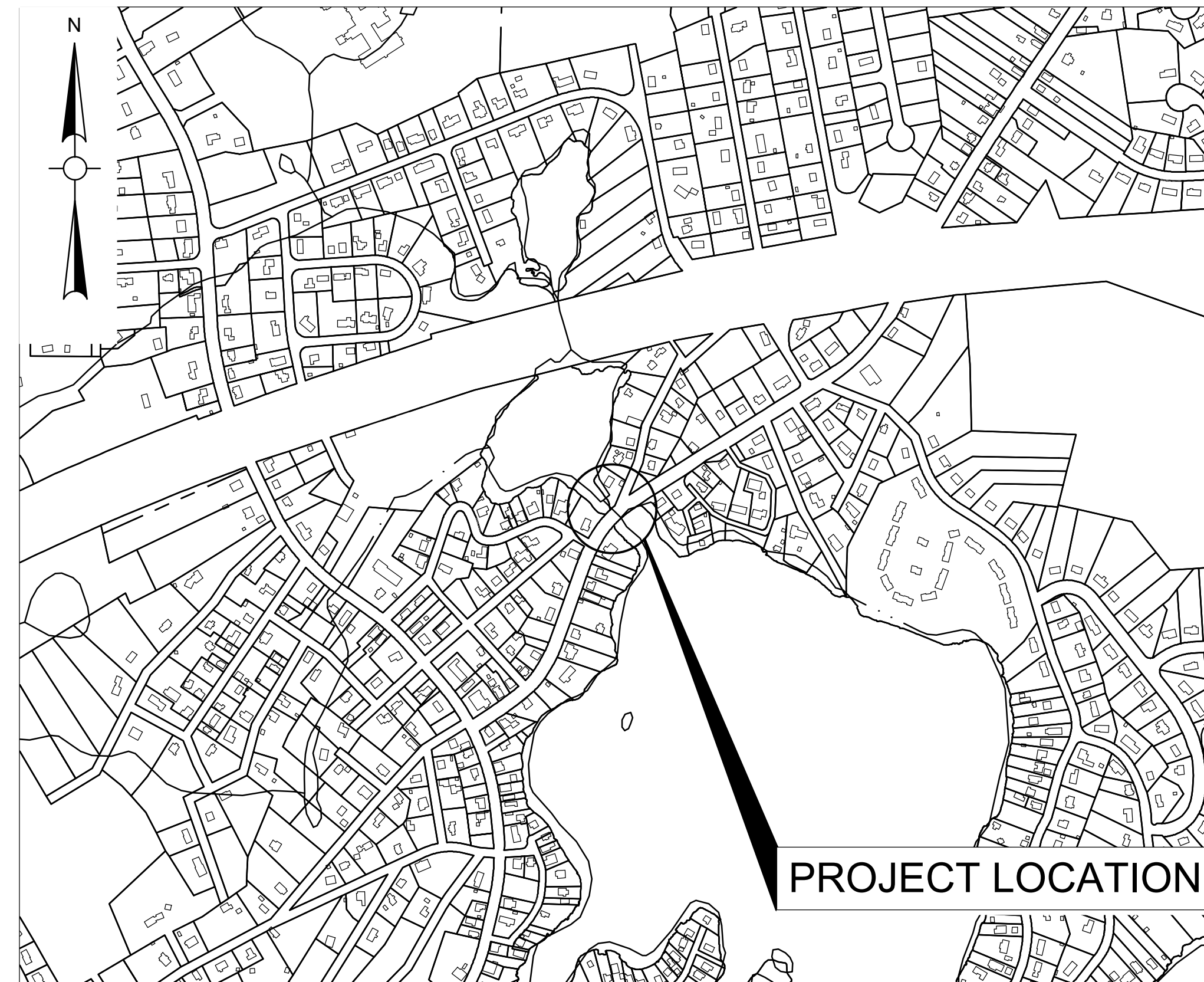
# TOWN OF MILLBURY, MASSACHUSETTS

## MILLBURY HIGHWAY DEPARTMENT

### WHEELLOCK AVENUE OVER DOROTHY POND (BRIDGE NO. M-22-022) BRIDGE REPLACEMENT

OCTOBER 9, 2024

ISSUED FOR BIDDING



**LOCATION PLAN**  
SCALE: 1"=500'

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Weston & Sampson Engineers, Inc.  
100 Foxborough Boulevard,  
Suite 250, Foxborough, MA 02035  
508.698.3034 800.SAMPSON  
www.westonandsampson.com



# GENERAL NOTES

- TOPOGRAPHICAL INFORMATION BASED ON AN ON THE GROUND SURVEY PERFORMED BY WESTON & SAMPSON PE, LS, LA, PC. IN JULY 2018 UPDATED FEBRUARY 18, 2019.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL DIG TEST PITS WITH THE LOCATIONS BEING APPROVED BY THE ENGINEER PRIOR TO COMMENCEMENT OF WORK TO EXACTLY LOCATE EXISTING UTILITIES.
- WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY OWNER. ANY ALTERATIONS SHALL BE INCIDENTAL TO THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY SUPPORT OF ALL UTILITIES TO REMAIN IN PLACE AND SHALL DESCRIBE IN WRITING, TO THE SATISFACTION OF THE ENGINEER, HIS METHOD OF TEMPORARY SUPPORT.
- AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- THE TERM "PROPOSED (PROP)" INDICATES WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET (R&R)".
- ALL EXISTING STATE, COUNTY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
- ALL EXCESS MATERIAL FROM ROADWAY RECONSTRUCTION OR THE EXCAVATION PROCESS SHALL BE REUSED ON SITE OR REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL AND PROPER MANNER.
- THE CONTRACTOR SHALL CALL DIGSAFE AT 1-888-344-7233 AT LEAST 72 HOURS, SATURDAYS, AND HOLIDAYS EXCLUDED, PRIOR TO EXCAVATING AT ANY LOCATION. A COPY OF THE DIGSAFE PROJECT REFERENCE NUMBER(S) SHALL BE GIVEN TO THE TOWN PRIOR TO EXCAVATION.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HIRE A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS FOR ALL LAYOUT WORK INCLUDING BASELINE LAYOUT. LAYOUT SHALL INCLUDE ALL PROPOSED WORK AS SHOWN IN THE CONTRACT DOCUMENTS, OR AS REQUIRED BY THE ENGINEER OR TOWN. ONCE LAID OUT, ALL PROPOSED WORK SHALL BE DEEMED ACCEPTABLE BY THE ENGINEER OR TOWN PRIOR TO ANY COMMENCEMENT OF WORK. ANY AND ALL WORK RELATED TO THE CONSTRUCTION LAYOUT SHALL BE INCIDENTAL TO THE PROJECT. THE CONTRACTORS SURVEYOR SHALL LOCATE CURRENT HORIZONTAL AND VERTICAL CONTROL POINTS AND CREATE ALTERNATE CONTROL POINTS OUTSIDE OF THE CONSTRUCTION ZONE. RESETTling OF CONTROL DUE TO CONSTRUCTION OPERATION WILL BE CONSIDERED INCIDENTAL TO THE PROJECT.
- JOINTS BETWEEN HOT MIX ASPHALT TRENCH PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDED.
- IF DEEMED NECESSARY DUE TO THE WORK, THE CONTRACTOR SHALL COORDINATE WITH THE MUNICIPAL HIGHWAY DEPARTMENT, FIRE DEPARTMENTS, AND THE ENGINEERS FOR APPROVAL OF SHUTTING DOWN ANY EXISTING WATER MAINS AND SHALL ALSO OBTAIN APPROVAL FOR DISRUPTING ANY EXISTING SEWER LINES.
- THE CONTRACTOR SHALL BE AWARE THAT ONLY TOWN PERSONNEL ARE ALLOWED TO OPERATE WATER GATES AND HYDRANTS. ANY REQUESTS TO OPERATE THE GATES SHALL BE COORDINATED THROUGH THE ENGINEER.
- THE EXISTING GAS MAIN LOCATIONS ARE SHOWN IN AN APPROXIMATE LOCATION. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE GAS COMPANY PRIOR TO COMMENCEMENT OF ANY WORK AND CONFIRMING SIZES, TYPES OF GAS LINES, AND EXACT LOCATIONS OR CHANGE OF PIPE TYPE. ALL COORDINATION AND ARRANGEMENTS WITH THE UTILITY COMPANIES SHALL BE INCIDENTAL TO THE PROJECT. ANY DELAY IN WORK DUE TO CONFLICTS WITH THE PROPOSED WORK AND ACTUAL LOCATION OF EXISTING GAS MAIN SHALL BE INCIDENTAL TO THE PROJECT.
- THE CONTRACTOR SHALL COORDINATE ANY WORK FOR THE PROJECT WITH ALL ADJACENT/CONCURRENT PROJECTS AND CONTRACTORS.
- THE CONTRACTOR SHALL INSTALL INLET SEDIMENT CONTROL BAGS IN ALL CATCH BASINS, WITHIN OR ADJACENT TO THE PROJECT LIMITS PRIOR TO COMMENCEMENT OF WORK, MAINTAIN, AND REMOVE AT THE END OF THE PROJECT. THE CONTRACTOR SHALL ALSO MAINTAIN SILT FENCE AND COMPOST FILTER TUBES AS SHOWN ON THE PLANS THROUGHOUT THE DURATION OF THE PROJECT AND REMOVE AT THE END.
- ANY GRASS AREAS DISTURBED BY THE WORK SHALL BE RESTORED WITH LOAM AND SEED.
- ANY LANDSCAPED AREAS DISTURBED BY THE WORK SHALL BE RESTORED TO EXISTING CONDITIONS WITH EXISTING OR NEW GROUND COVER MATERIALS AS DIRECTED BY THE ENGINEER. ANY PLANTS, SHRUBS, OR FLOWERS DISTURBED BY THE WORK SHALL BE RESET TO EXISTING CONDITIONS OR REPLACED WITH NEW PLANTS, SHRUBS, OR FLOWERS AS DIRECTED BY THE ENGINEER. ALL WORK TO RESTORE LANDSCAPE AREAS, NEW GROUND COVER MATERIALS, NEW PLANTS, NEW SHRUBS, OR NEW FLOWERS REQUIRED BY THE ENGINEER SHALL BE INCIDENTAL TO THE PROJECT.
- CONTRACTOR TO COORDINATE WITH UTILITY POLE OWNERS IN AREAS WHERE UNDERGROUND UTILITY WORK IS WITHIN CLOSE PROXIMITY AND POSSIBLE UTILITY POLE SHORING IS REQUIRED WHILE INSTALLING PROPOSED UTILITIES.
- RAISE AND ADJUST FRAMES AND GRATES, FRAMES AND COVERS AND GATE BOXES PRIOR TO PAVEMENT OVERLAY.
- HORIZONTAL DATUM IS NORTH AMERICAN DATUM (NAD) 1983 AND VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.

# ABBREVIATIONS

## UTILITIES

LP	LIGHT POLE
C.I.T.	CHANGE IN TYPE
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
FE	FLARED END
CIP	CAST IRON PIPE
RCP	REINFORCED CONCRETE PIPE
CMP	CORRUGATED METAL PIPE
DI	DUCTILE IRON PIPE
ACCM	ASPHALT COATED CORRUGATED METAL PIPE
WG	WATER GATE
HYD	HYDRANT
DS	DOWN SPOUT
INV.	INVERT ELEVATION
PVC	POLYVINYL CHLORIDE
UP	UTILITY POLE
CB	CATCH BASIN
MH	MANHOLE
DMH	DRAIN MANHOLE
HDPE	HIGH DENSITY POLYETHYLENE
CBCI	CATCH BASIN CURB INLET
RIM	RIM ELEVATION
INV	INVERT
GI	GUTTER INLET
SMH	SEWER MANHOLE
S	SLOPE
STL	STEEL
SWTU	STORM WATER TREATMENT UNIT

## GENERAL CONTINUED

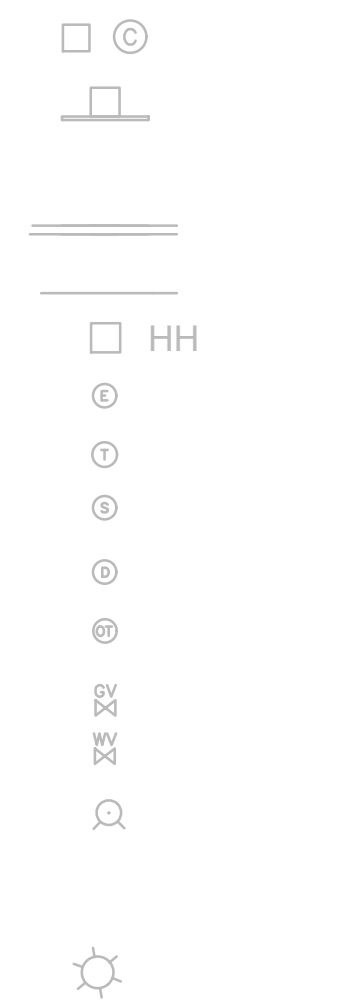
N.T.S.	NOT TO SCALE
B.M.	BENCH MARK
ABAN.	ABANDON
MB	MAIL BOX
GRAN. CURB (OR GC)	GRANITE CURB
EXIST. (OR EX.)	EXISTING
FDN.	FOUNDATION
FL (OR E)	FLOW LINE
PL	PROPERTY LINE
PI	POINT OF INTERSECTION
PVMT	PAVEMENT
P.W.W.	PAVED WATERWAY
RC	REINFORCED CONCRETE
REM.	REMOVE
REMOD.	REMODEL
RET.	RETAIN
R.O.W.	RIGHT- OF- WAY
R.R.	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
R&D	REMOVE AND DISCARD
SB	STONE BOUND
SCB	SPECIAL CATCH BASIN
W/	WITH
PCC	POINT OF COMPOUND CURVATURE
SW	SIDEWALK
HMA	HOT MIX ASPHALT
SGC	SLOPED GRANITE CURB
BC	HOT MIX ASPHALT CURB
RET. WALL	RETAINING WALL
CC	CONCRETE CURB
CONT.	CONTINUED
MPH	MILES PER HOUR
TYP., OR (TYP.)	TYPICAL
ROE	RIGHT OF ENTRY
N/F	NOW OR FORMERLY
PROP.	PROPOSED
ADJ.	ADJUST
CEM. CONC.	CEMENT CONCRETE
RE	BASELINE
CONST.	CONSTRUCTION
TEMP.	TEMPORARY
SPEC.	SPECIFICATIONS
REHAB.	REHABILITATION
PL	PROPERTY LINE
WRF	WOOD RAIL FENCE
CTE	CONNECT TO EXISTING
SWTU	STORM WATER TREATMENT UNIT
C.J.	CONSTRUCTION JOINT
REINF.	REINFORCEMENT
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY

## PAVEMENT MARKINGS SYMBOLS

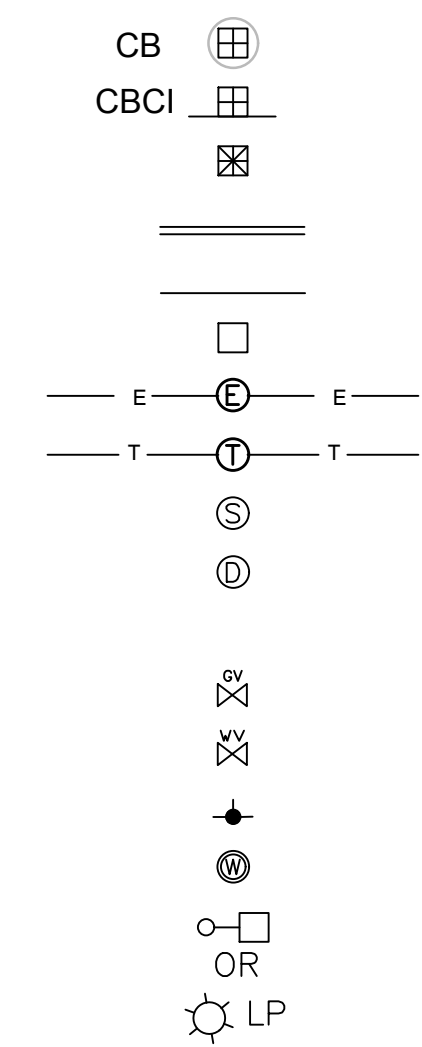
EXISTING	PROPOSED	DESCRIPTION
		CROSSWALK - 12" WHITE LINE
		DOUBLE YELLOW LINE - 6"
		SOLID WHITE LINE
		STOP LINE

# GENERAL SYMBOLS

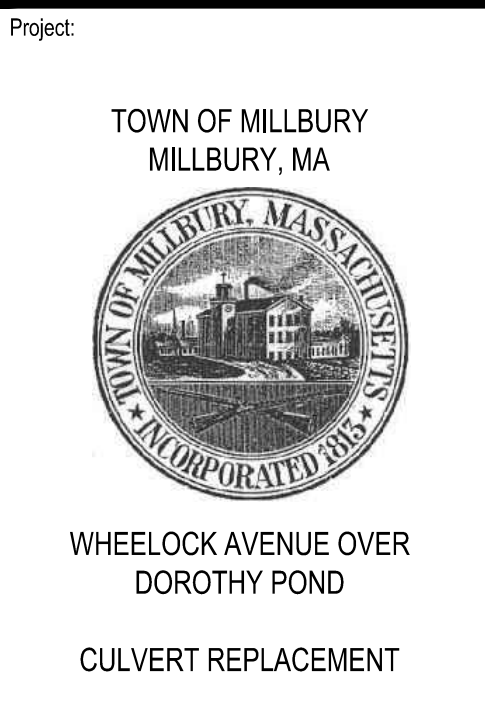
## EXISTING



## PROPOSED



	CATCH BASIN
	CATCH BASIN CURB INLET
	LEACHING GALLEY
	CURB (OR BERM)-TYPE NOTED
	EDGE OF ROAD
	HANDHOLE (NUMBER AS NOTED)
	ELECTRIC MANHOLE
	TELEPHONE MANHOLE
	SEWER MANHOLE
	DRAINAGE MANHOLE
	OTHER MANHOLE
	GAS GATE
	WATER GATE VALVE
	HYDRANT
	WELL
	LIGHTPOLE
	DRAIN PIPE
	SEWER MAIN
	SEWER MAIN BY P.C.
	ELECTRIC DUCT
	TELEPHONE/COMMUNICATIONS/FIRE ALARM
	GARAGE WASTE LINE
	GARAGE WASTE LINE BY P.C.
	VENTS BY P.C.
	GAS MAIN
	WATER MAIN
	OVERHEAD WIRES
	GUARD RAIL (SIZE AND TYPE NOTED)
	HIGHWAY / PROPERTY BOUND (TYPE NOTED)
	CITY OR TOWN OR COUNTY LAYOUT LINE
	CITY, TOWN OR COUNTY BOUNDARY
	BASE OR SURVEY LINE
	CENTERLINE OF CONSTRUCTION
	PROPERTY LINE
	WHEELCHAIR RAMP (WCR)
	TREE (SIZE AND TYPE NOTED)
	FENCE (SIZE AND TYPE NOTED)
	EASEMENT LINE/ FUTURE CITY PROPERTY LINE
	MASSDOT STANDARD SPECIFICATION REFERENCE NUMBER
	TEST PIT
	MONITORING WELL
	UTILITY POLE/OVERHEAD WIRES
	GUY POLE
	FLAG POLE
	SIGN
	TREE LINE
	BOLLARD
	SAWCUT
	EROSION CONTROL (SPECIFIED ON PLANS)
	OBSERVATION WELL
	LIMIT OF WORK
	WETLAND BUFFER



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Weston & Sampson Engineers, Inc.  
100 Foxborough Boulevard, Suite 250  
Foxborough, MA 02035  
978.532.1900 800.SAMPSON  
www.westonandsampson.com

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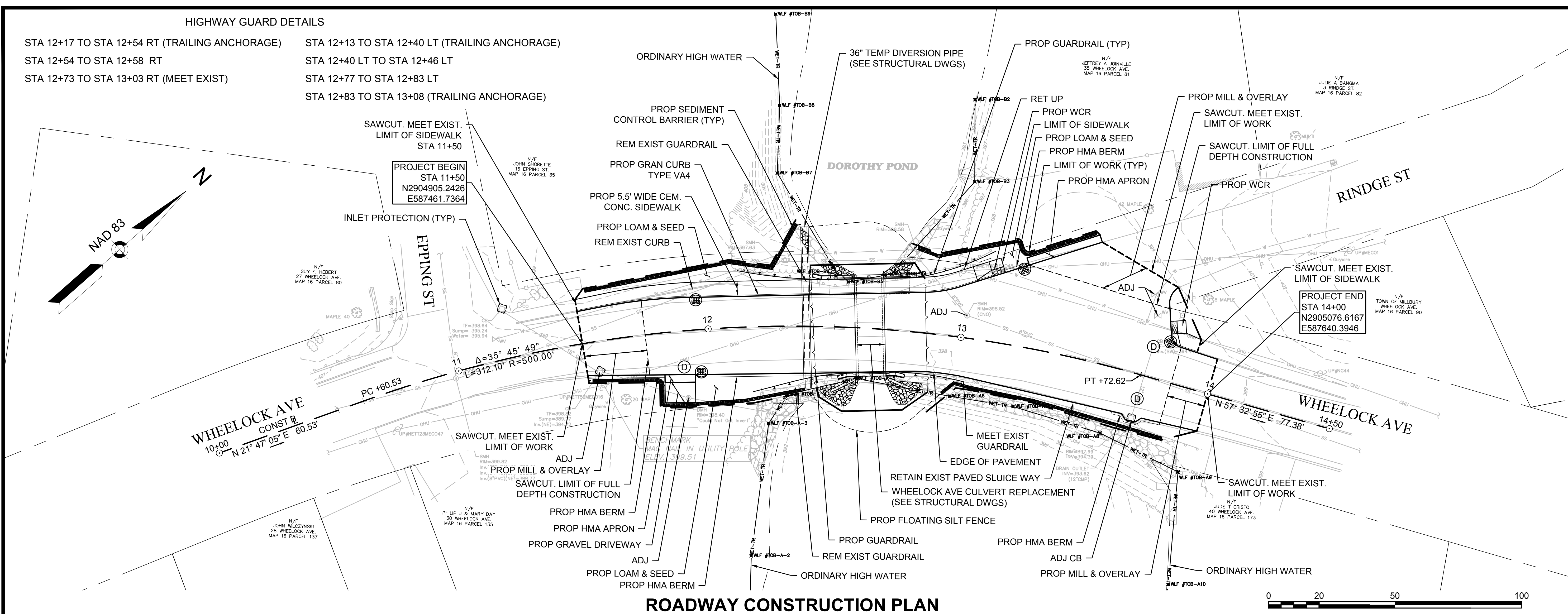
## GENERAL NOTES AND LEGEND

Sheet Number: **C-1**

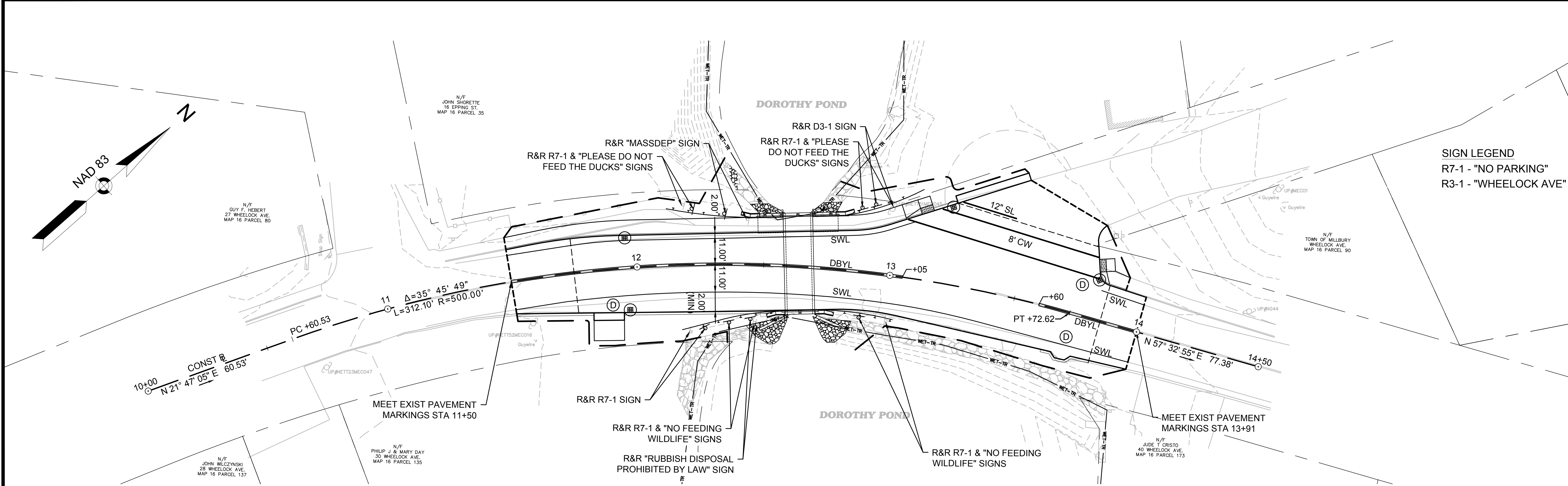
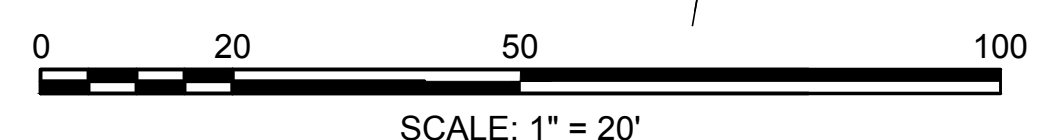


HIGHWAY GUARD DETAILS

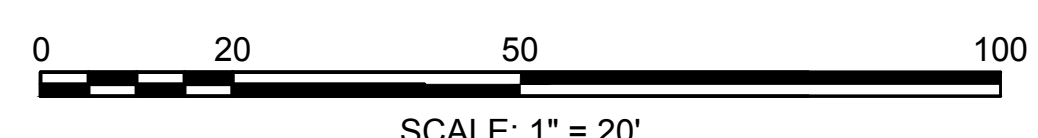
STA 12+17 TO STA 12+54 RT (TRAILING ANCHORAGE)    STA 12+13 TO STA 12+40 LT (TRAILING ANCHORAGE)  
 STA 12+54 TO STA 12+58 RT    STA 12+40 LT TO STA 12+46 LT  
 STA 12+73 TO STA 13+03 RT (MEET EXIST)    STA 12+77 TO STA 12+83 LT  
 STA 12+83 TO STA 13+08 (TRAILING ANCHORAGE)



ROADWAY CONSTRUCTION PLAN



SIGNS AND PAVEMENT MARKINGS PLAN



Project:  
 TOWN OF MILLBURY  
 MILLBURY, MA  
  
 WHEELLOCK AVENUE OVER  
 DOROTHY POND  
 CULVERT REPLACEMENT

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 Weston & Sampson Engineers, Inc.  
 100 Foxborough Boulevard, Suite 250  
 Foxborough, MA 02035  
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Consultants:


Revisions:

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 JEFFREY W.  
 SANTACRUCE  
 CIVIL  
 No. 50065  
 REGISTERED  
 PROFESSIONAL ENGINEER

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Drawing Title:  
**ROADWAY  
 CONSTRUCTION PLAN  
 & SIGN AND  
 PAVEMENT MARKINGS  
 PLAN**

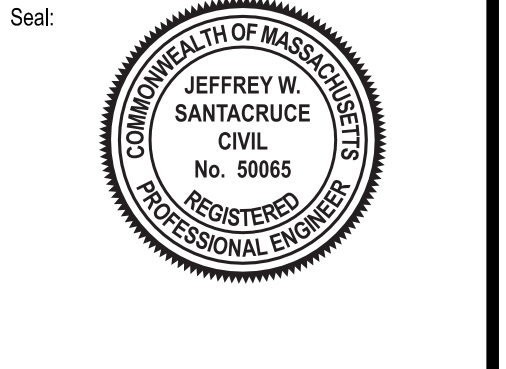
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**C-2**



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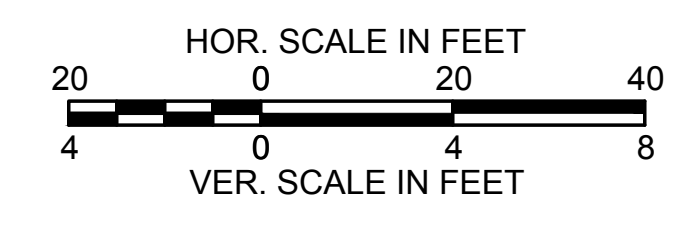
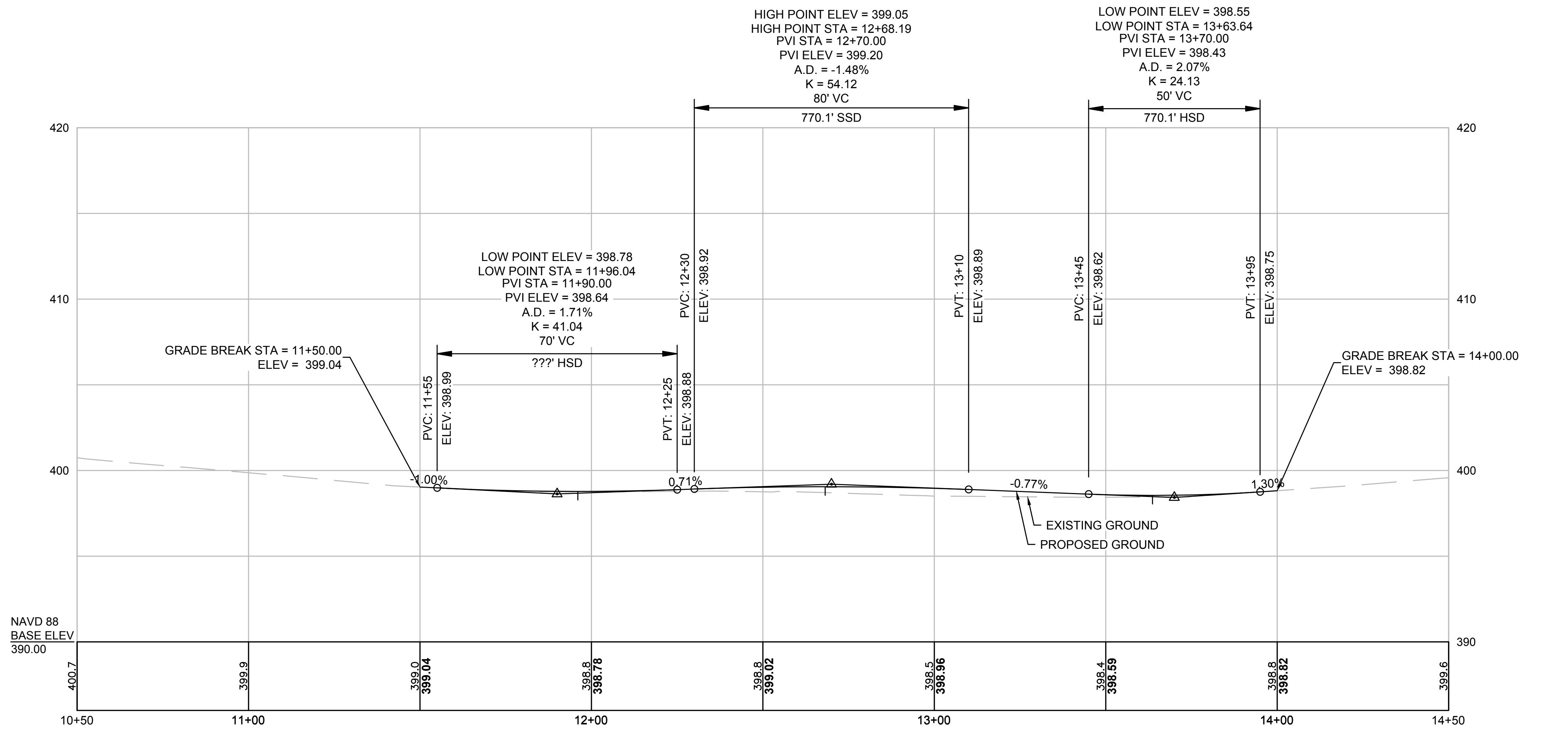
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**CONSTRUCTION**  
**PROFILE**

Sheet Number:  
**C-3**



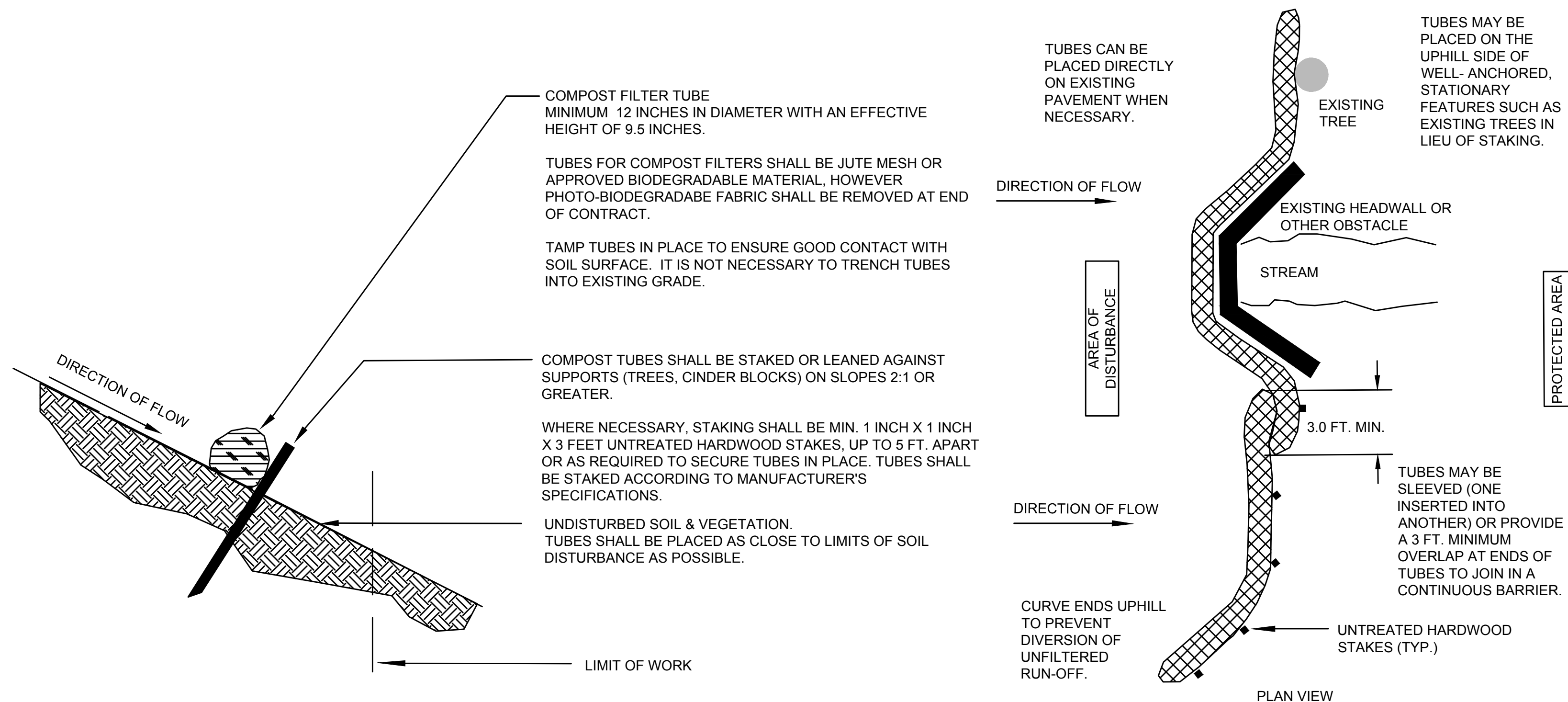




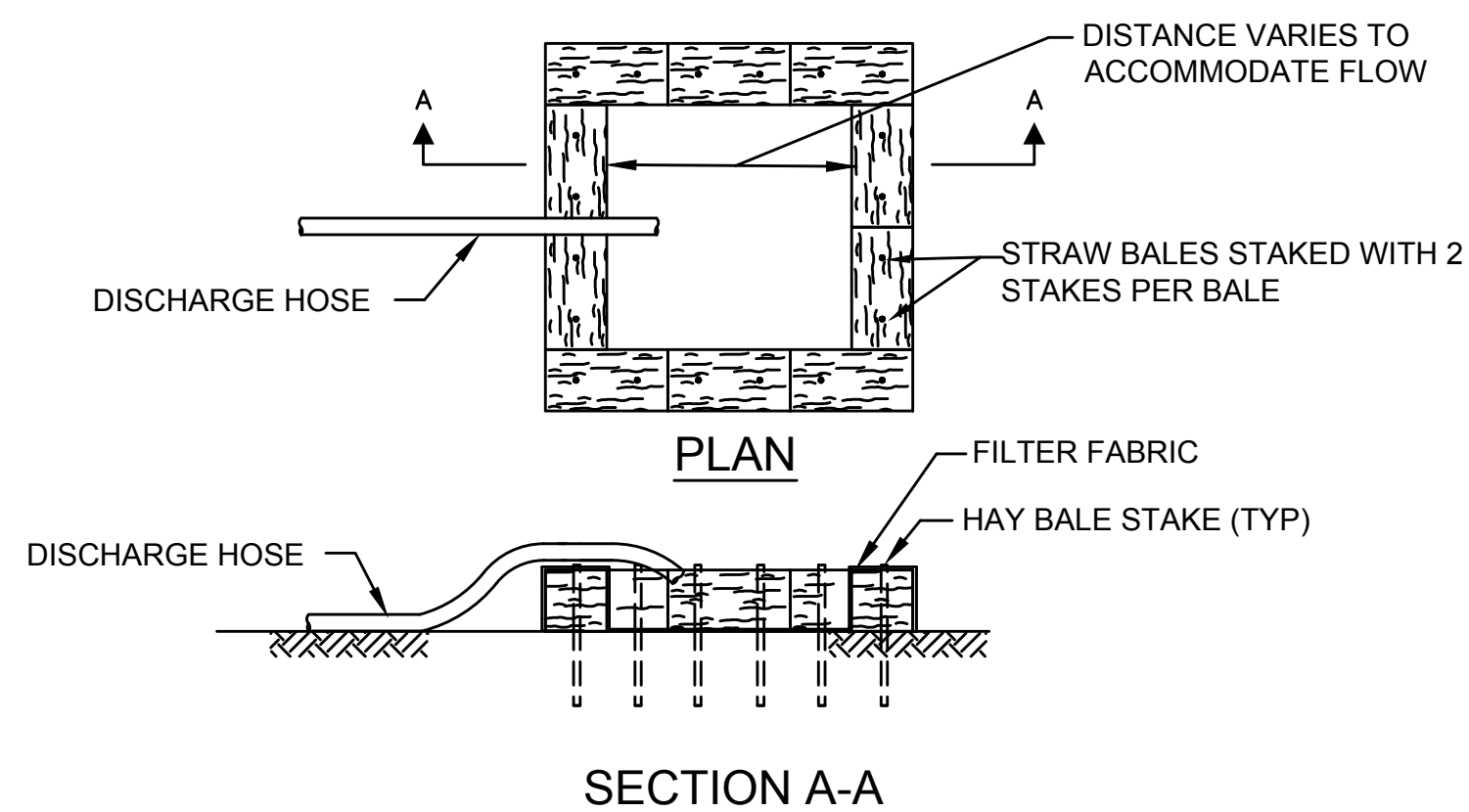


GENERAL NOTES:

1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES FOR SLOPES UP TO 50 FEET IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. TUBE LOCATION MAY BE SHIFTED TO ADJUST TO LANDSCAPE FEATURES, BUT SHALL PROTECT UNDISTURBED AREA AND VEGETATION TO MAXIMUM EXTENT POSSIBLE.
4. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
5. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER.
6. ADDITIONAL STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER.



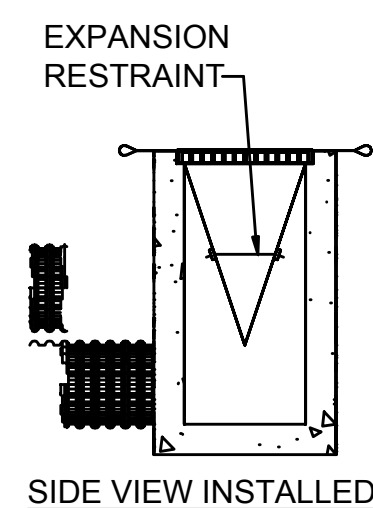
**SEDIMENT CONTROL BARRIER**  
N.T.S.



DEWATERING NOTES:

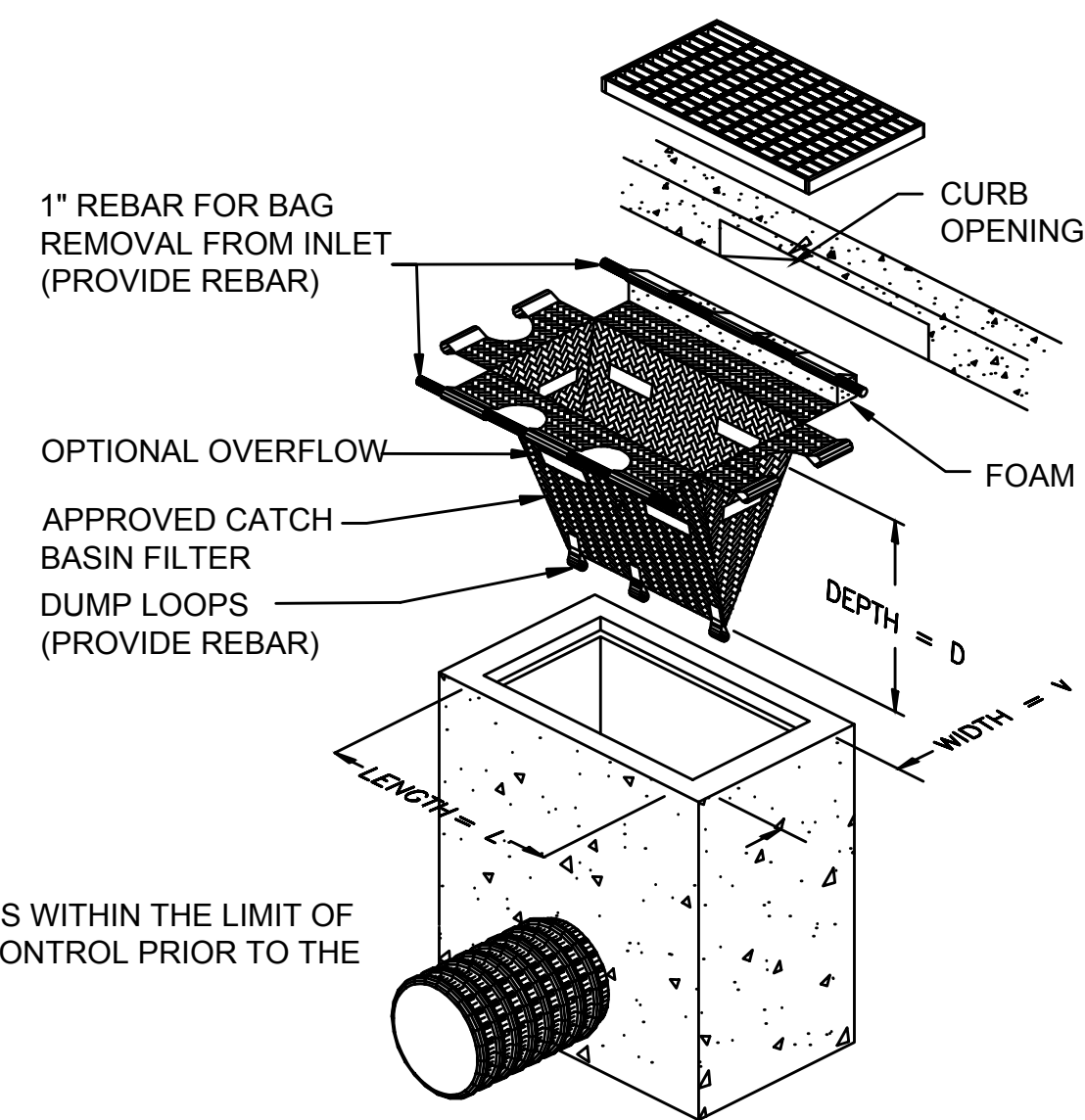
1. DEWATERING POOL LOCATION SHALL BE AS FAR AWAY AS POSSIBLE FROM RESOURCE AREA AS DIRECTED BY THE ENGINEER.
2. ALL EROSION CONTROL DEVICES, INCLUDING DEWATERING POOL SHALL BE IN PLACE PRIOR TO COMMENCEMENT OF ANY DEWATERING ACTIVITIES.
3. DEWATERING POOL SHALL BE MAINTAINED AND CLEANED ON A REGULAR BASIS. SEDIMENTS REMOVED FROM POOL SHALL BE DISPOSED ACCORDING TO DEP GUIDELINES AND ORDER OF CONDITIONS.
4. ANY DEWATERING OPERATIONS DEEMED NECESSARY BY THE CONTRACTOR OR REQUIRED BY THE ENGINEER SHALL BE INCIDENTAL TO THE PROJECT.
5. DEWATERING DISCHARGE AFTER TREATMENT SHALL BE LESS THAN 25 NEPHELOMETRIC TURBIDITY UNITS (NTU).

DEWATERING DISCHARGE DISPOSAL  
NOT TO SCALE




NOTE:  
ALL EXISTING CATCH BASINS WITHIN THE LIMIT OF WORK SHALL HAVE INLET CONTROL PRIOR TO THE START OF CONSTRUCTION.

INLET SEDIMENT CONTROL  
NOT TO SCALE



NOTES:

1. EROSION CONTROL MEASURES SHALL BE INCORPORATED IN THE SEQUENCE OF CONSTRUCTION TO PREVENT SEDIMENT LADEN WATER FROM LEAVING THE SITE.
2. AREAS SUBJECT TO EROSION SHALL BE MINIMIZED IN TERMS OF TIME AND AREA.
3. IN GENERAL, WORK REQUIRING EROSION CONTROL INCLUDES EXCAVATIONS, FILLS, DRAINAGE, SWALES AND DITCHES, ROUGH AND FINISH GRADING, AND STOCKPILING OF EARTH.
4. DO NOT DISTURB VEGETATION AND TOPSOIL BEYOND THE PROPOSED LIMIT OF EROSION CONTROL BARRIER.
5. TEMPORARY SILT CONTROLS SHALL BE PLACED AS SHOWN ON THE PLAN. PERMANENTLY STABILIZE EACH COMPLETED SEGMENT OF CONSTRUCTION.
6. THE CONTRACTOR SHALL REMOVE TEMPORARY SILT CONTROLS AND ALL ACCUMULATED SILT AND DEBRIS AFTER COMPLETION OF CONSTRUCTION OPERATIONS.
7. SILT CONTROLS SHALL BE IN PLACE AT ALL TIMES DURING CONSTRUCTION.
8. THE CONTRACTOR SHALL REMOVE AND LEGALLY DISPOSE OF ALL SILT AND DEBRIS FROM EACH DRAINAGE STRUCTURE UPON COMPLETION OF THE PROJECT.
9. OBJECTS AND/OR AREAS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
10. ALL DISTURBED AREAS SHALL BE RESTORED TO EXISTING GRADE. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE AS NEEDED.
11. SILT CONTROLS SHALL BE REMOVED UPON THE SATISFACTORY COMPLETION OF ALL WORK SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
12. SITE PERIMETER SHALL HAVE COMPOST FILTER TUBES INSTALLED AT THE LIMIT OF WORK.


Project:  
TOWN OF MILLBURY  
MILLBURY, MA  
  
WHEELLOCK AVENUE OVER  
DOROTHY POND  
CULVERT REPLACEMENT

**Weston & Sampson**  
Weston & Sampson Engineers, Inc.  
100 Foxborough Boulevard, Suite 250  
Foxborough, MA 02035  
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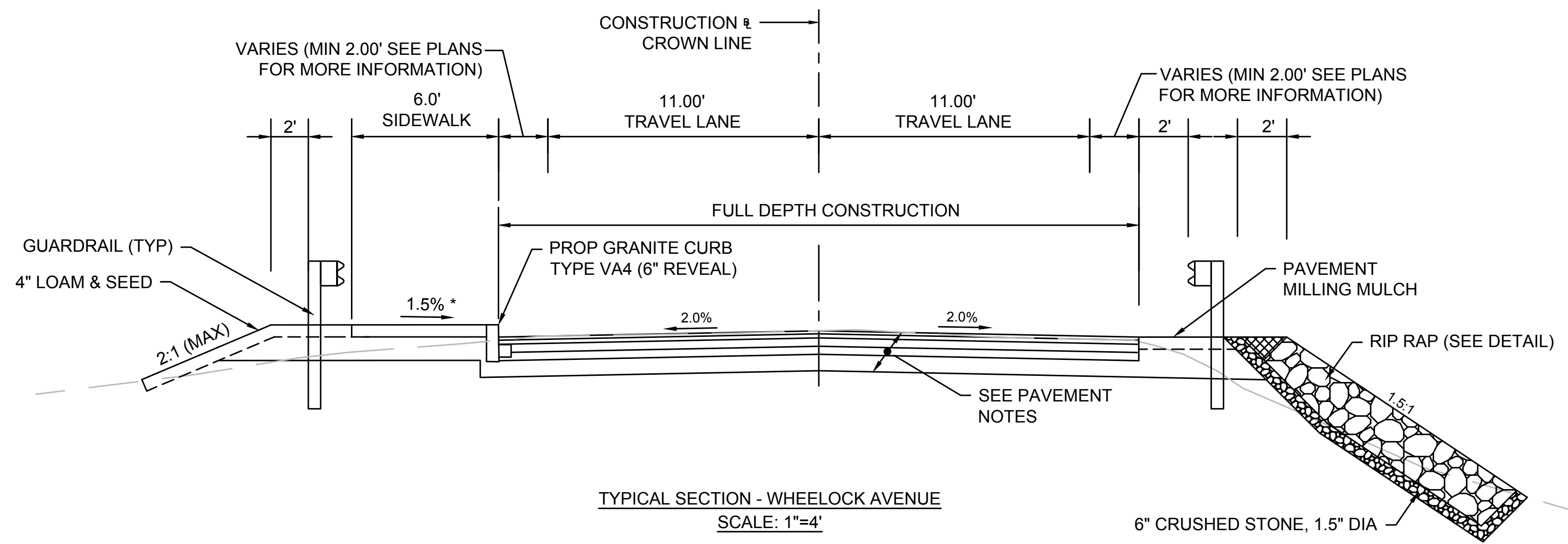
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Drawing Title:  
**CONSTRUCTION  
DETAILS (1 OF 3)**

Sheet Number:  
**C-5**





**PAVEMENT NOTES**

**PAVEMENT MILLING AND OVERLAY:**  
 1 1/2" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 (SSC-B-9.5) OVER ASPHALT EMULSION FOR TACK COAT OVERLAY  
 1 1/2" PAVEMENT MICRO MILLING

**FULL DEPTH RECONSTRUCTION:**  
 1 1/2" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 (SSC-B-9.5) OVER ASPHALT EMULSION FOR TACK COAT OVERLAY OVER  
 3 3/4" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER  
 4" DENSE GRADED CRUSHED STONE OVER  
 8" GRAVEL BORROW, TYPE B

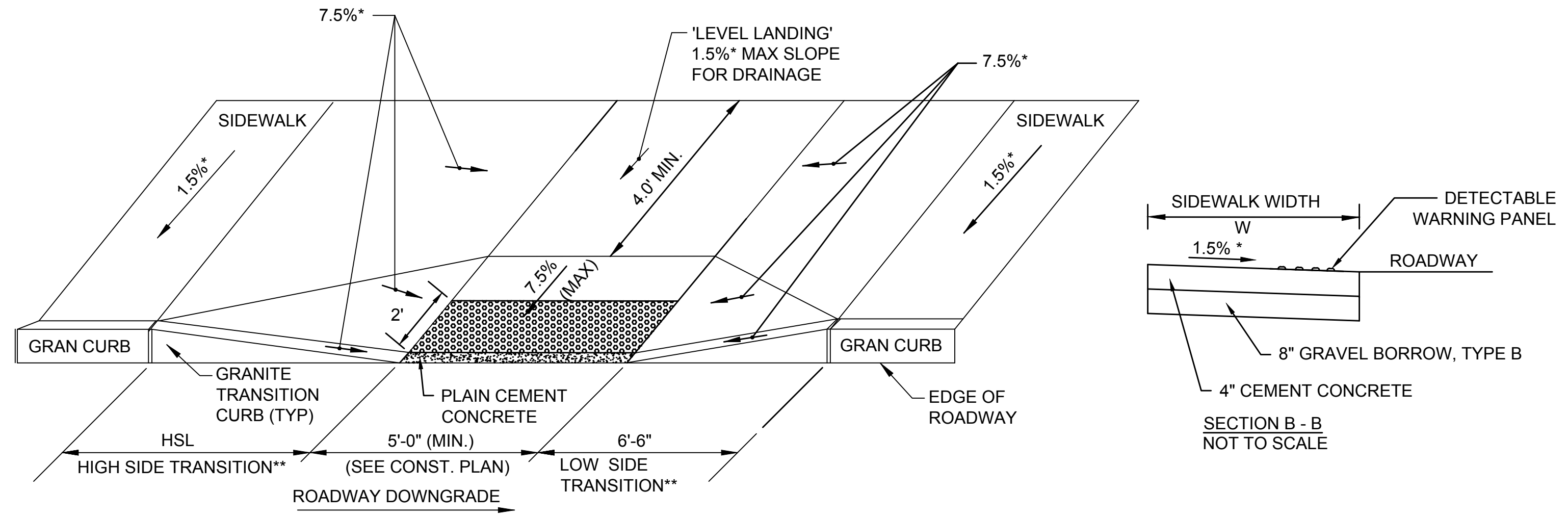
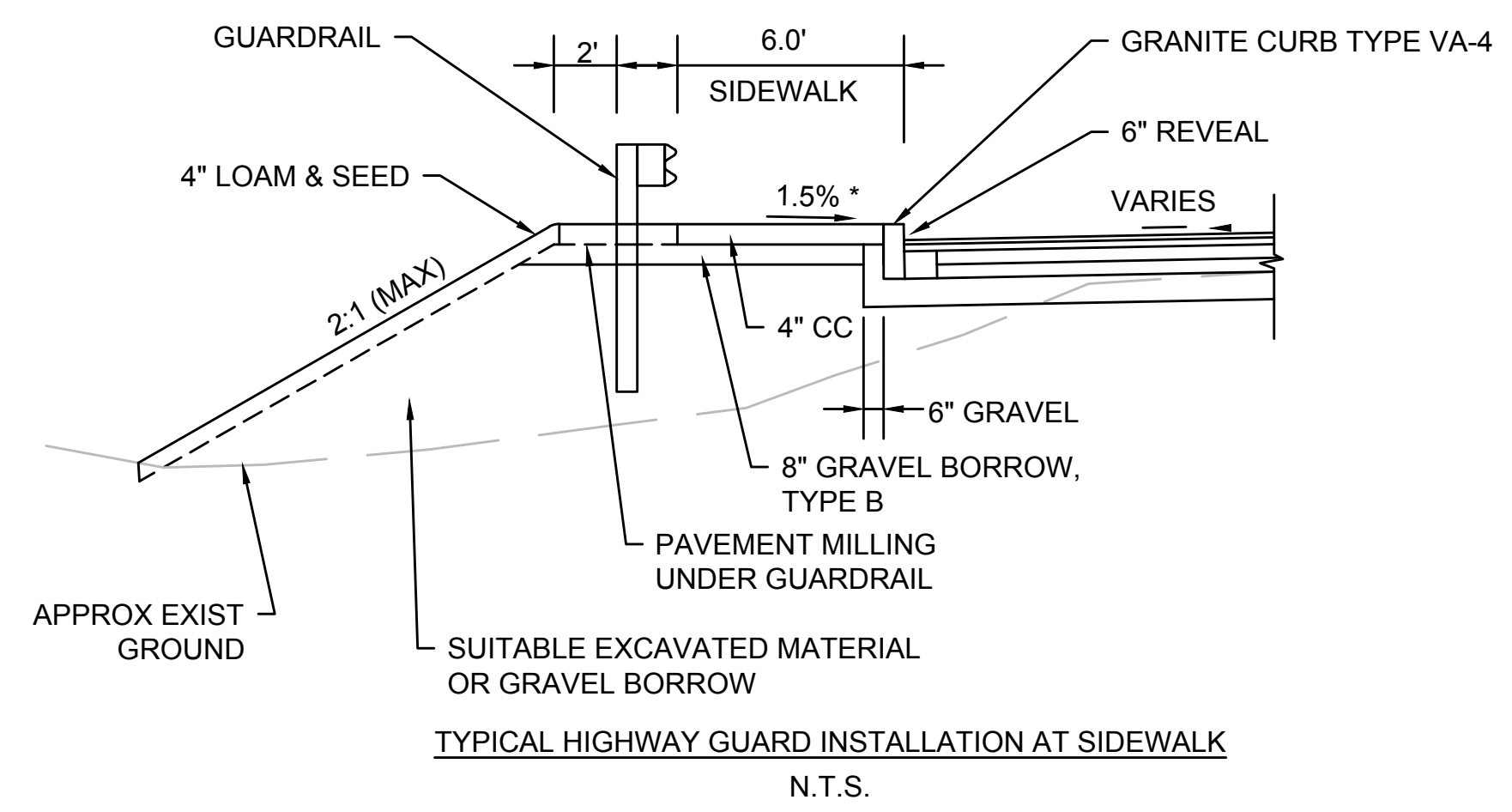
**HMA DRIVEWAY APRON:**  
 3" HOT MIX ASPHALT SIDEWALK OR DRIVEWAY (ITEM 702.) OVER  
 4" DENSE GRADED CRUSHED STONE OVER  
 8" GRAVEL BORROW, TYPE B

**CEMENT CONCRETE SIDEWALK:**  
 4" CEMENT CONCRETE OVER  
 8" GRAVEL BORROW, TYPE B

**GRAVEL DRIVEWAY:**  
 8" GRAVEL BORROW, TYPE B

TACK COAT SHALL BE APPLIED AT RATE OF 0.07 GALLON PER YARD OVER MILLED SURFACES AND 0.05 GALLON PER SQUARE YARD OVER SMOOTH PAVED SURFACES.

\*TOLERANCE FOR CONSTRUCTION ±0.5%



**LEGEND**

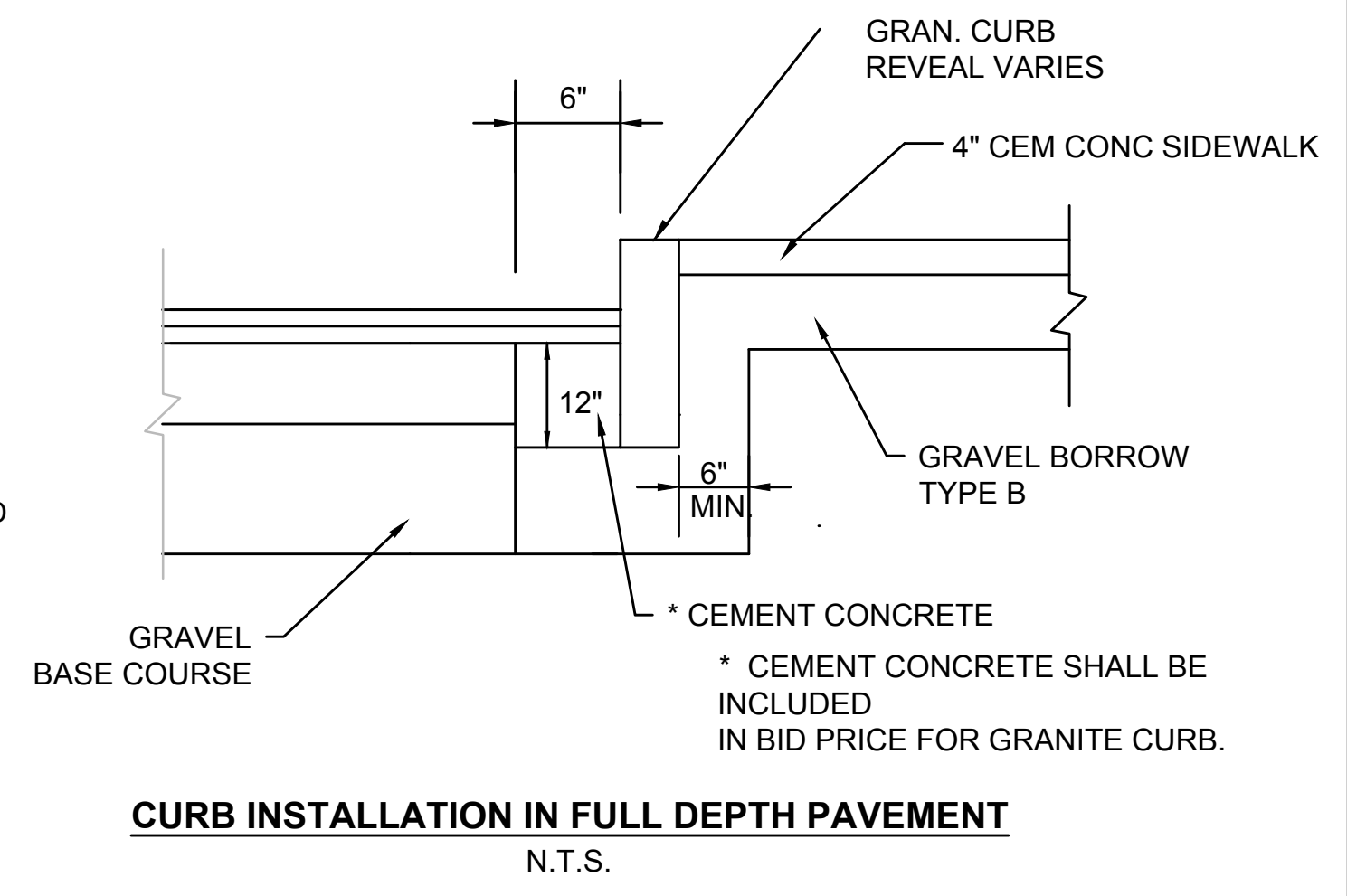
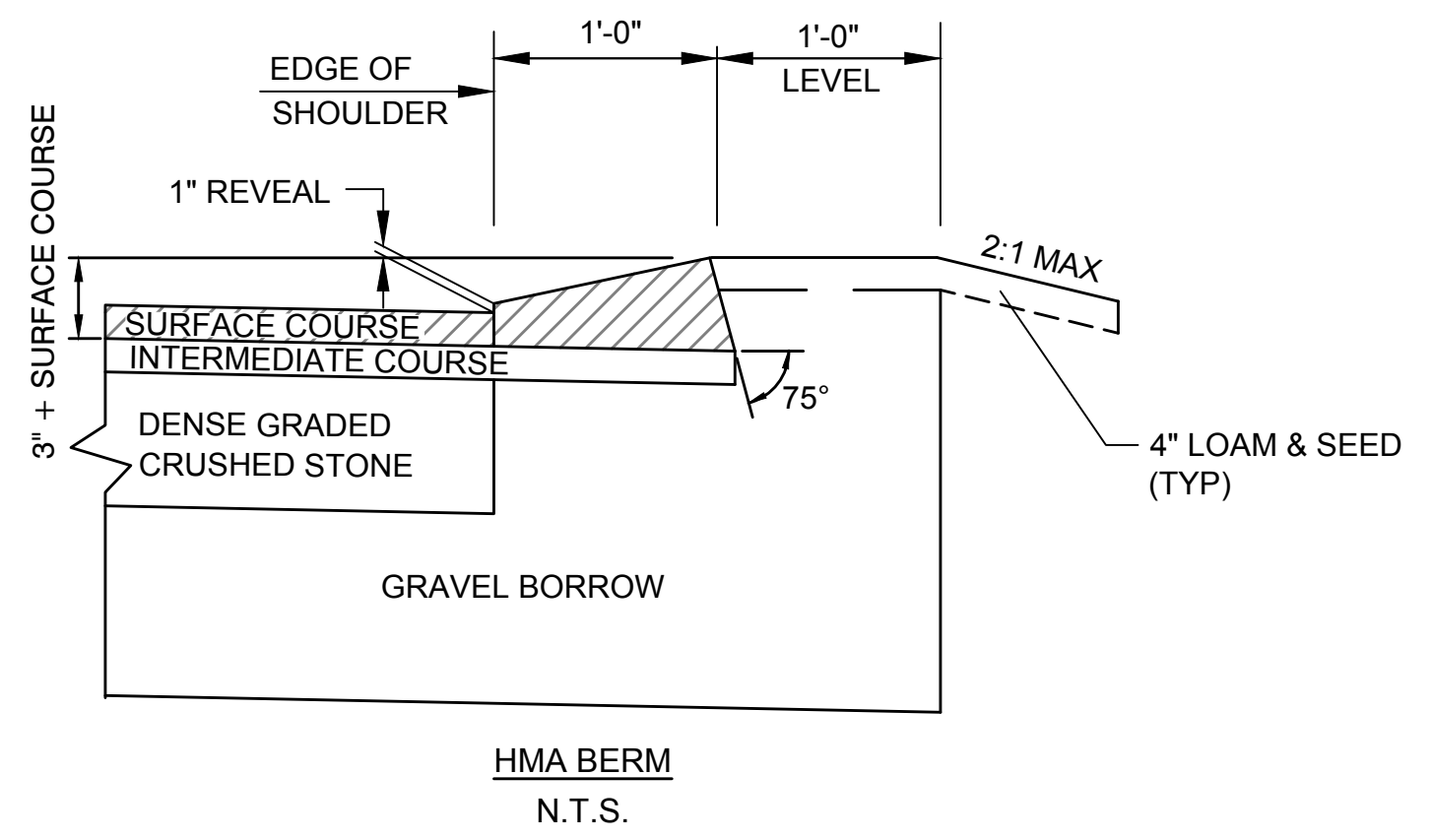
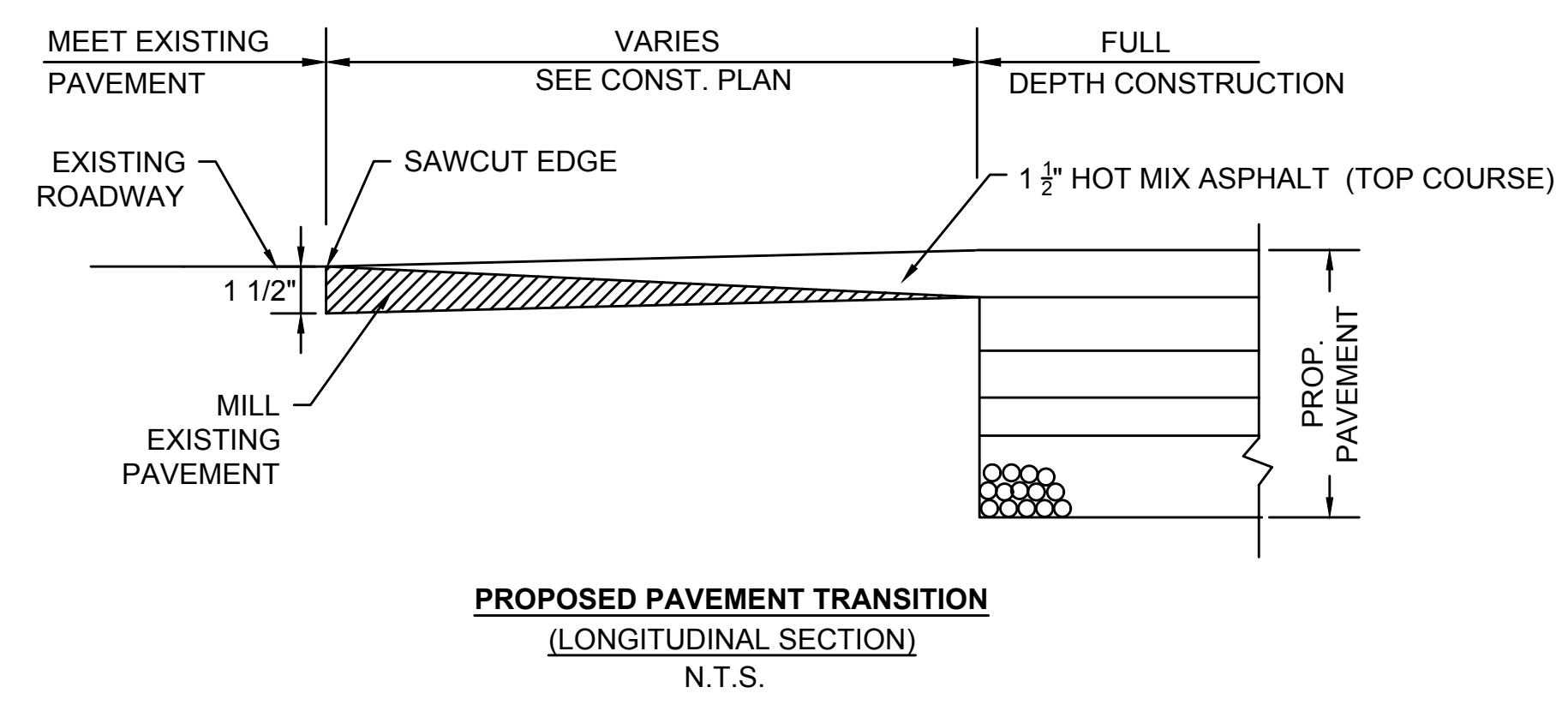
- HSL = HIGH SIDE TRANSITION LENGTH
- W = SIDEWALK WIDTH
- W1 = PERPENDICULAR RAMP LENGTH
- CC = CEMENT CONCRETE
- \* = TOLERANCE FOR CONSTRUCTION ±0.5%

**WHEELCHAIR RAMP NOTES:**

1. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION OF RAMP WITHIN TOLERANCES GIVEN UNLESS OTHERWISE NOTED. FAILURE TO MEET TOLERANCES, OR PRIOR NOTICE TO ENGINEER THAT TOLERANCES CANNOT BE MET, WILL REQUIRE RECONSTRUCTION TO PROPER TOLERANCES AT NO ADDITIONAL EXPENSE TO THE OWNER.
2. DETECTABLE WARNING PANEL SHALL BE INSTALLED ACCORDING TO MASSDOT CONST. STANDARDS DETAILS DWG NO. E 107.6.5

WHEELCHAIR RAMP HIGH SIDE TRANSITIONS	
ROADWAY PROFILE GRADE %	TRANSITION LENGTH **
0%	6'-6"
>0% TO 1%	7'-8"
>1% TO 2%	9'-0"
>2% TO 3%	11'-0"
>3% TO 4%	14'-0"
>4% TO 5%	15'-0" Max

**NOTE:**  
 \*\* BASED ON A DESIGN SLOPE OF 7.5% AND A REVEAL OF 6".



Project:  
 TOWN OF MILLBURY  
 MILLBURY, MA  
  
 WHEELLOCK AVENUE OVER DOROTHY POND  
 CULVERT REPLACEMENT

**Weston & Sampson**  
 Weston & Sampson Engineers, Inc.  
 100 Foxborough Boulevard, Suite 250  
 Foxborough, MA 02035  
 978.532.1900 800.SAMPSON  
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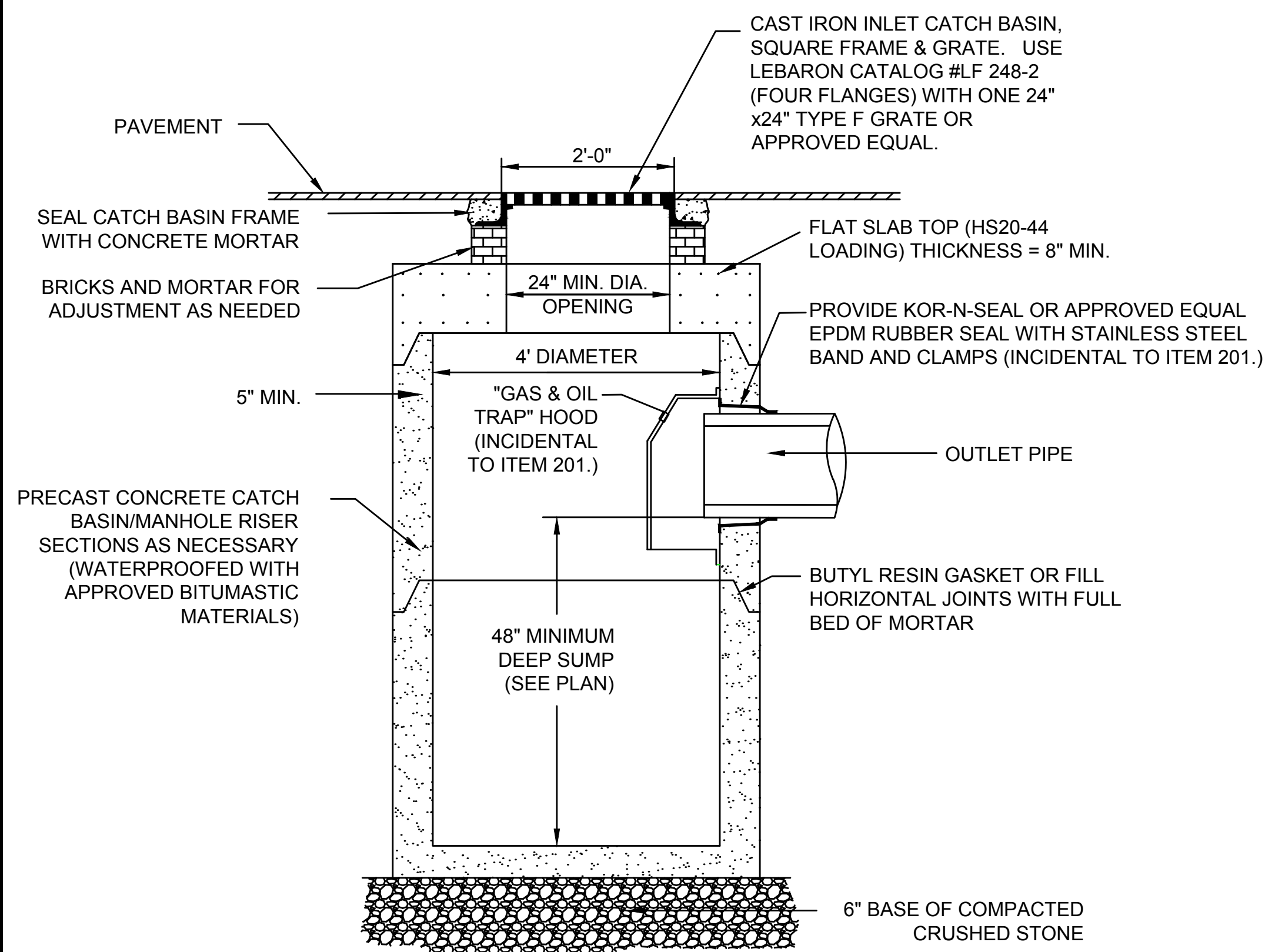
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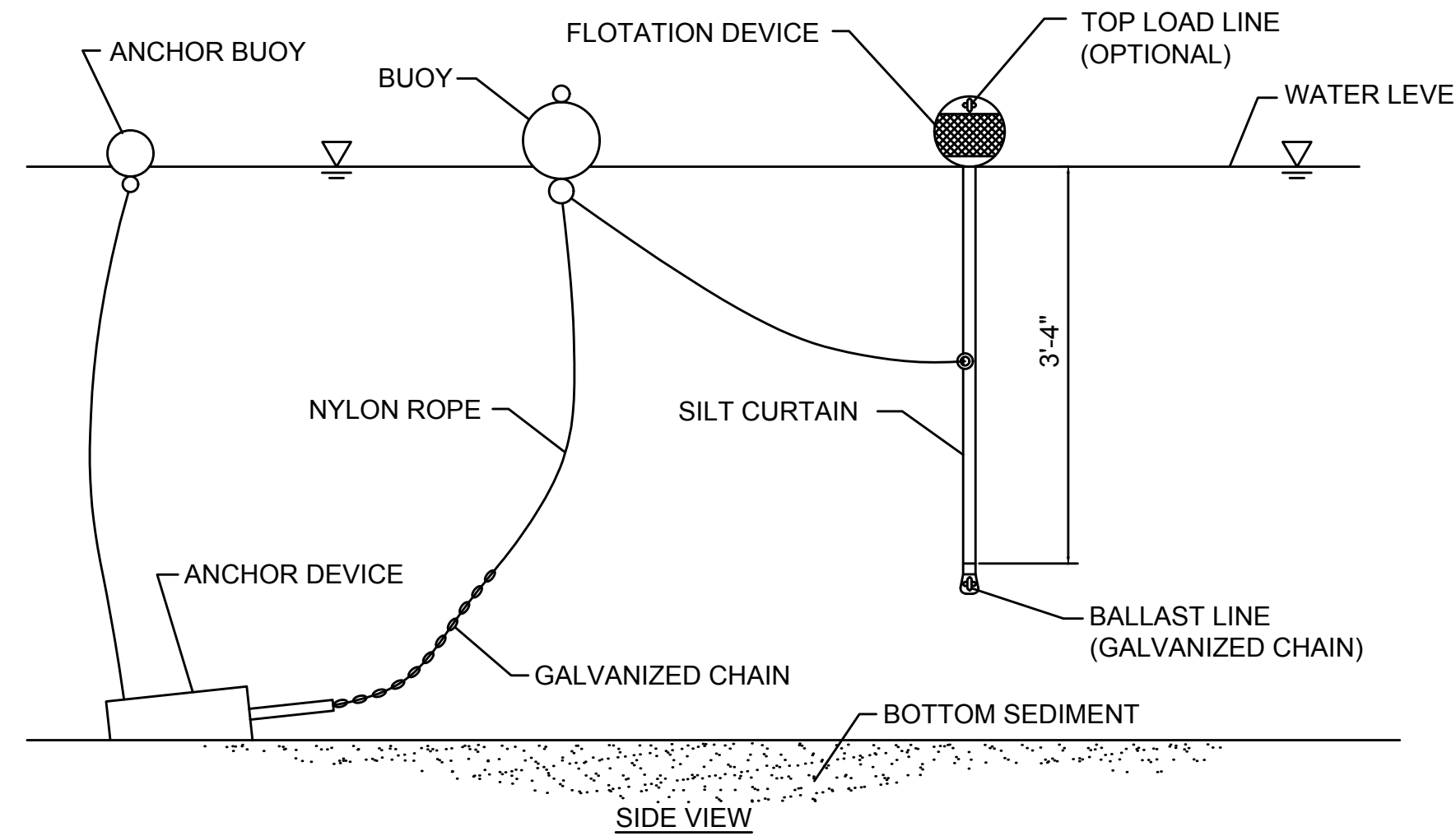
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**CONSTRUCTION DETAILS (2 OF 3)**

Sheet Number:  
**C-6**

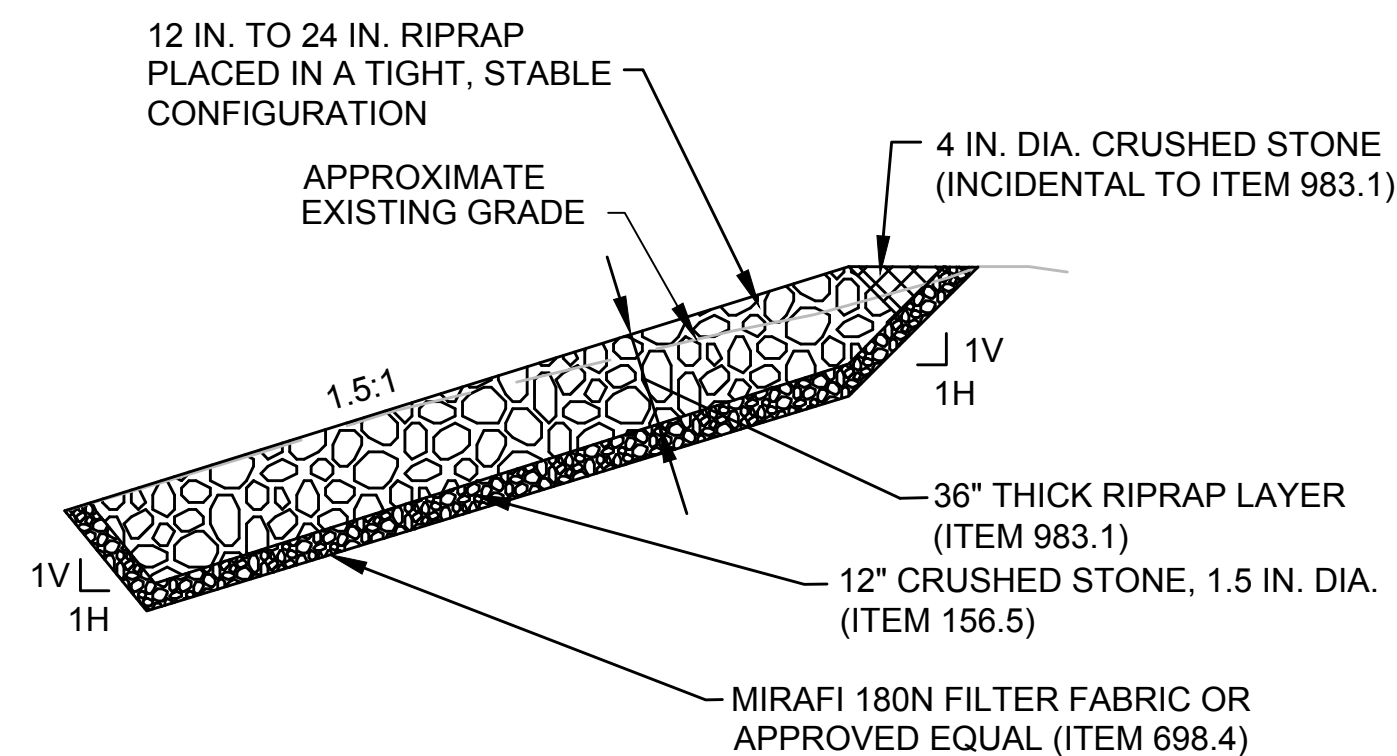
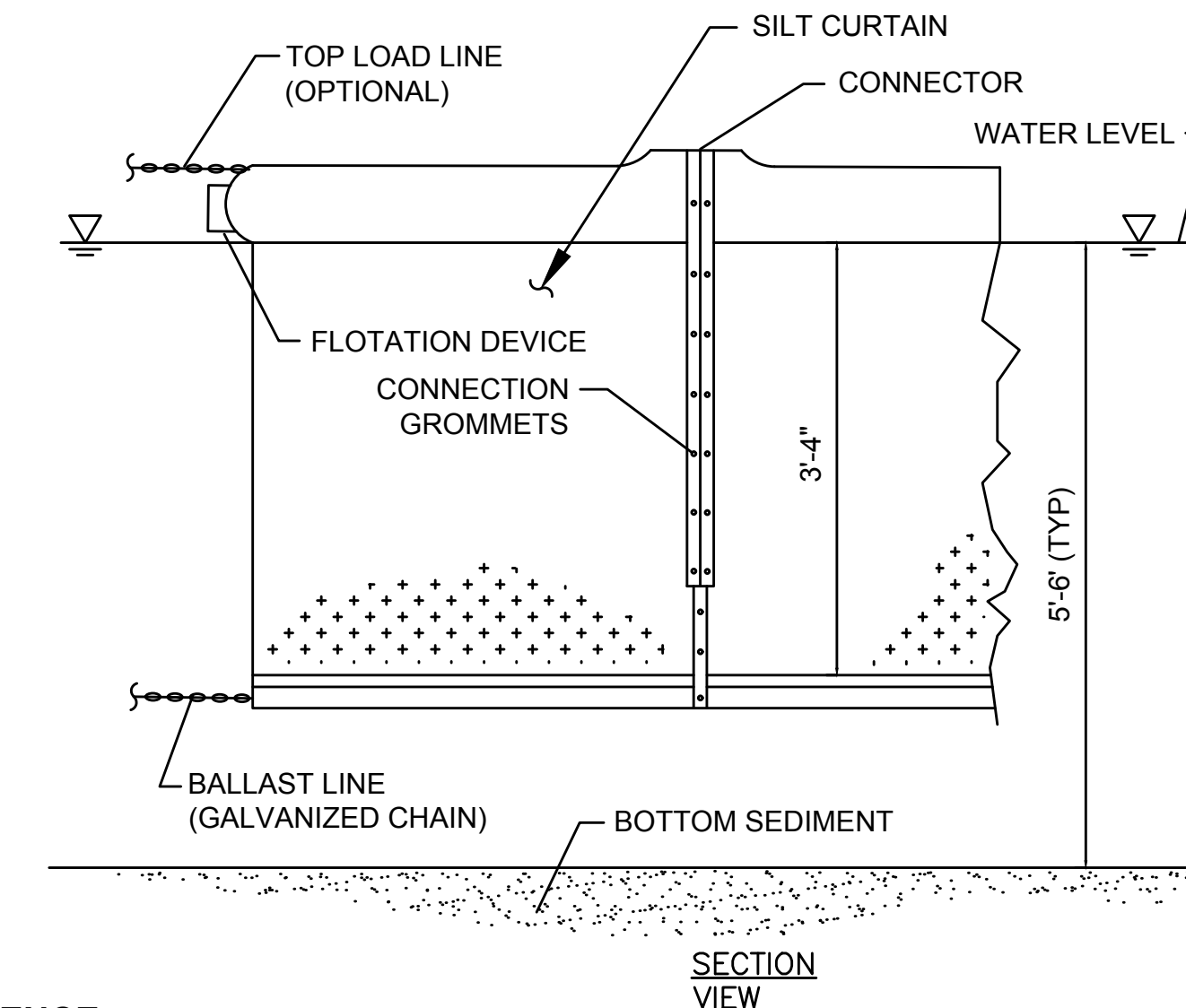




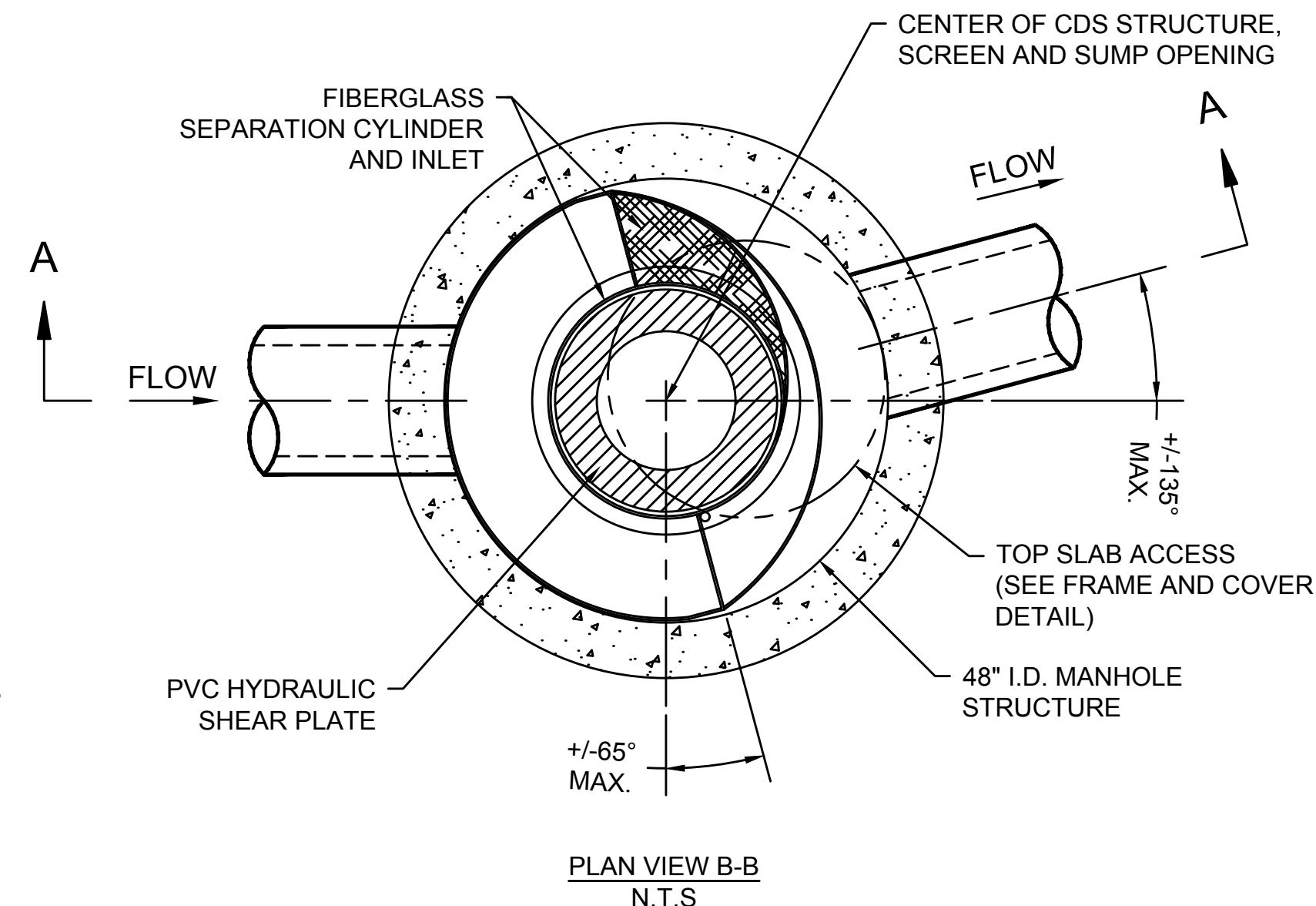
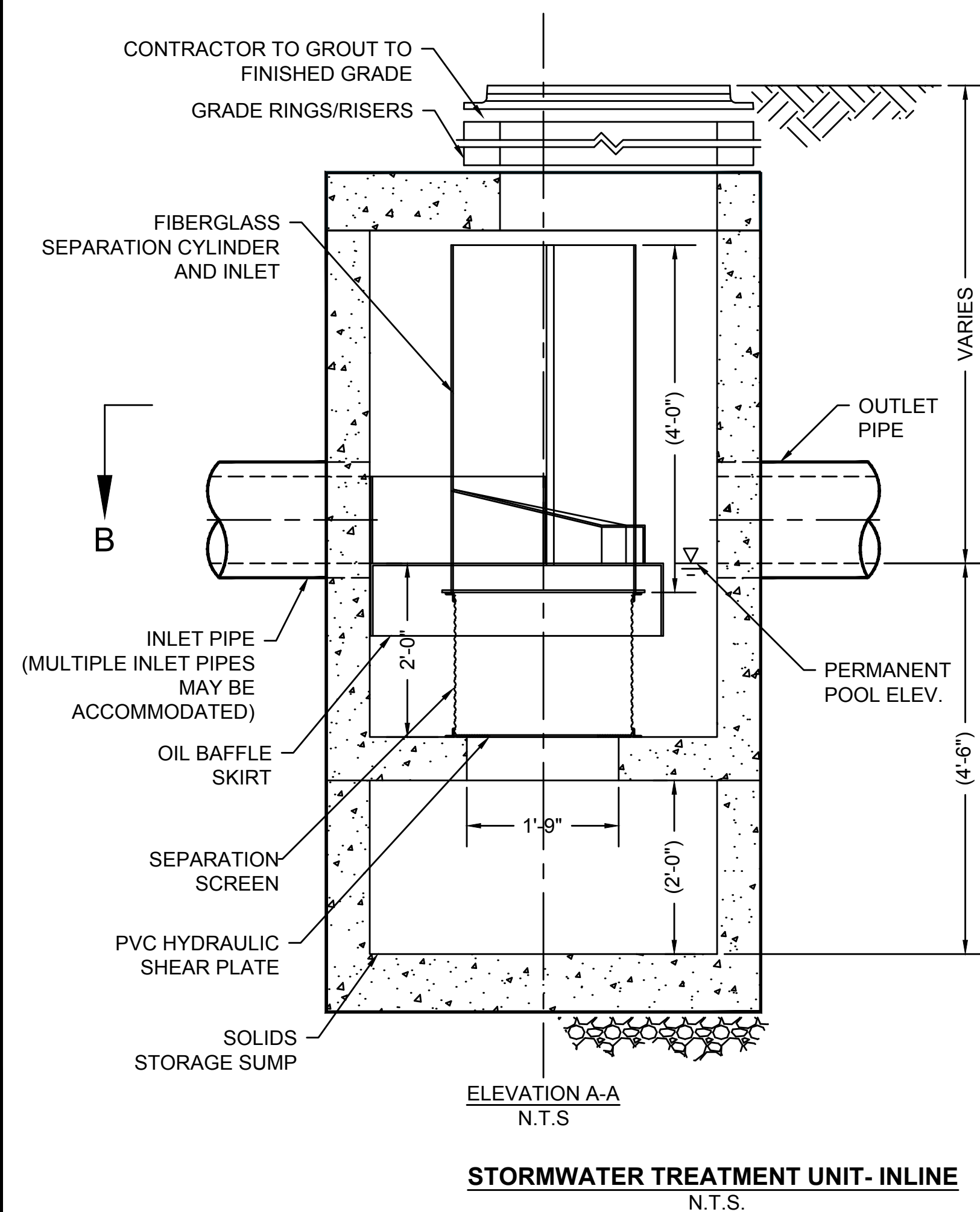
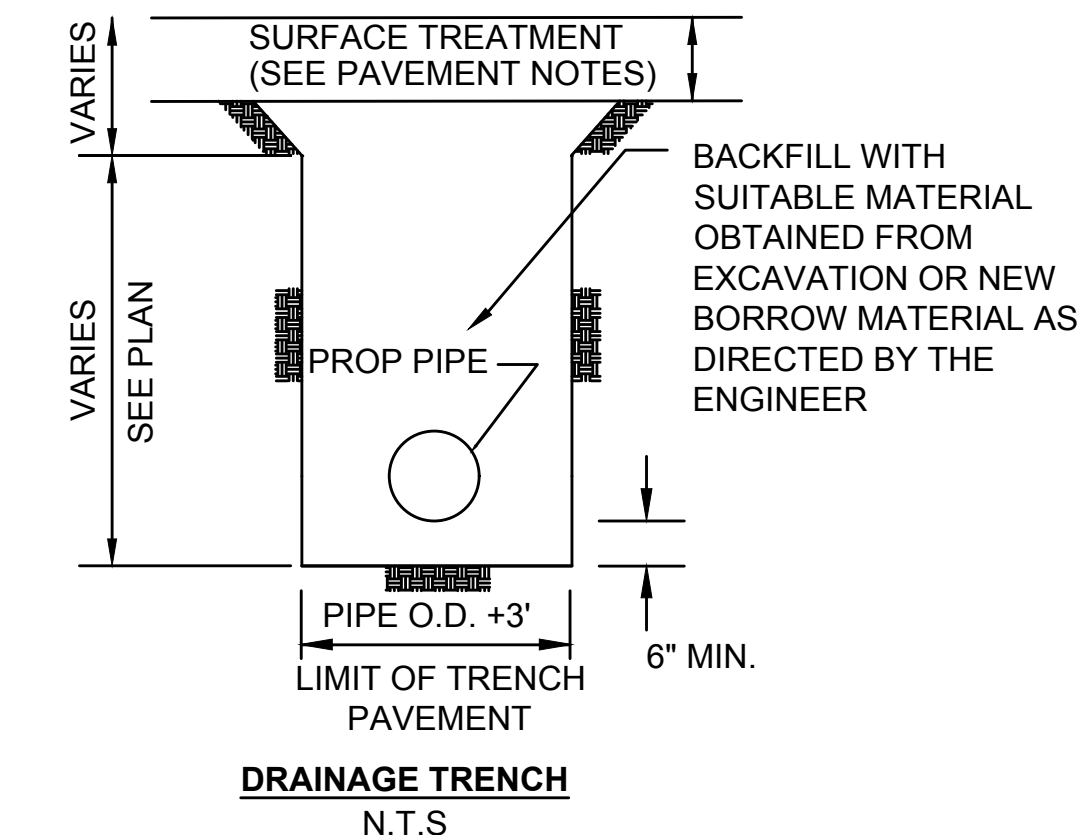
**STANDARD CATCH BASIN**  
N.T.S.



**FLOATING SILT FENCE**  
N.T.S.

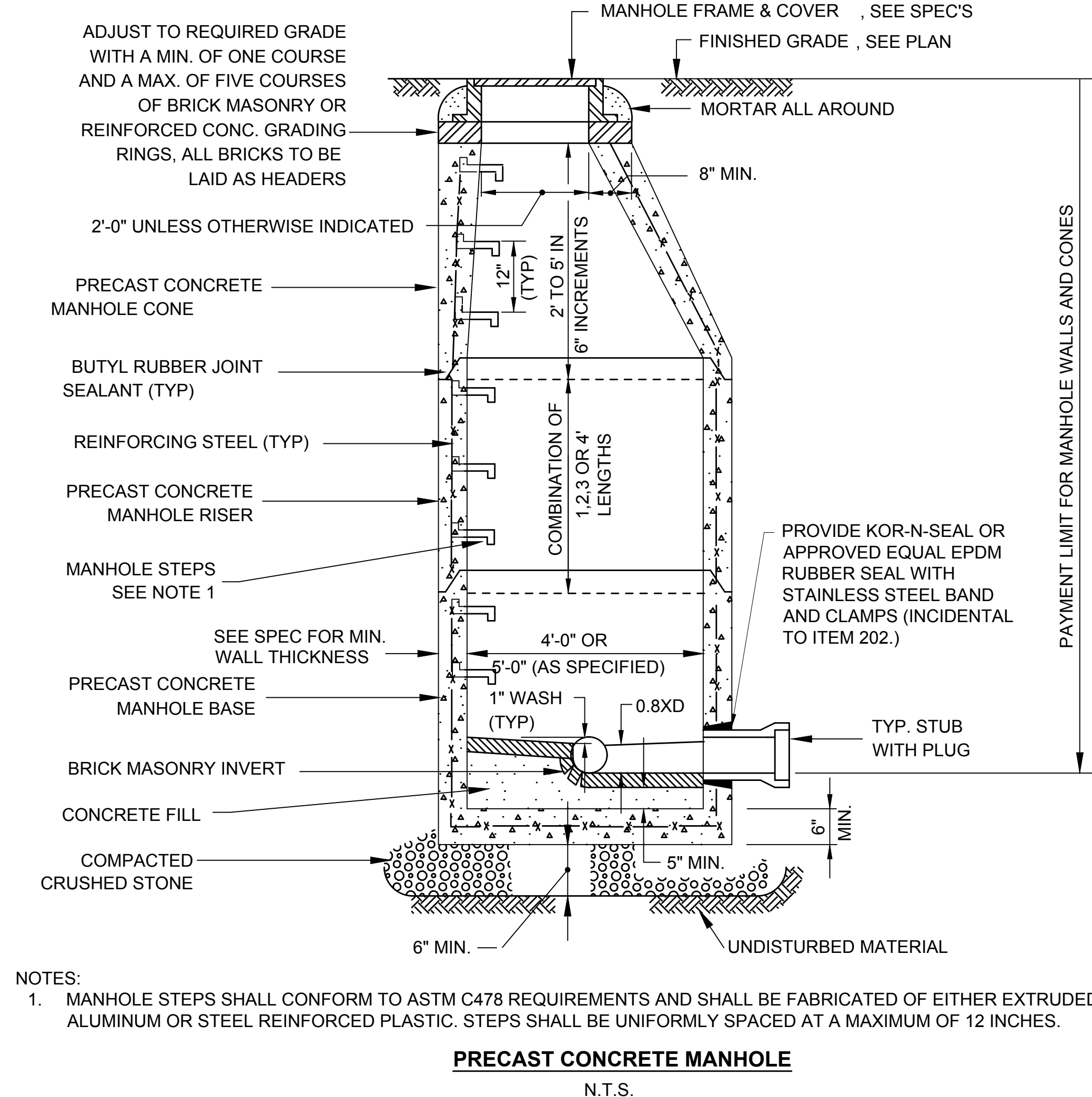


**SLOPE RIP RAP**  
N.T.S.



**NOTES:**

- DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONSTRUCTION PRODUCTS REPRESENTATIVE.
- STORMWATER TREATMENT UNIT SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STORMWATER TREATMENT UNIT SHALL BE IN ACCORDANCE WITH SPECIFICATIONS. SWTU-1 SHALL PROVIDE A MINIMUM TREATMENT RATE OF 0.1 CFS. SWTU-2 SHALL PROVIDE A MINIMUM TREATMENT RATE OF 0.06 CFS.
- STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING.
- PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
- MANHOLE MANUFACTURED TO ASTM C478 SPECIFICATION.



**NOTES:**

- MANHOLE STEPS SHALL CONFORM TO ASTM C478 REQUIREMENTS AND SHALL BE FABRICATED OF EITHER EXTRUDED ALUMINUM OR STEEL REINFORCED PLASTIC. STEPS SHALL BE UNIFORMLY SPACED AT A MAXIMUM OF 12 INCHES.

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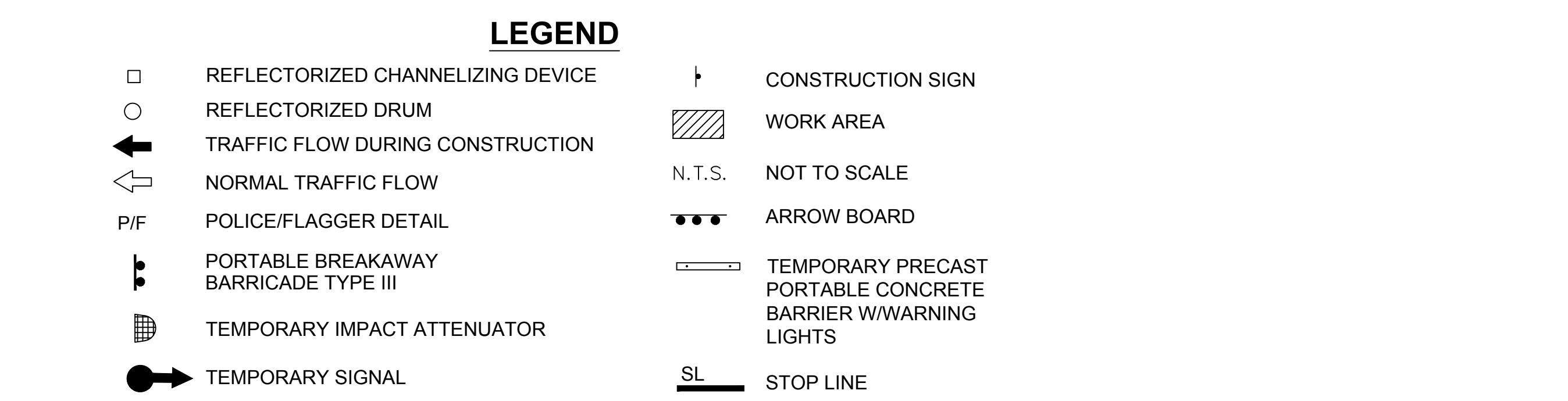
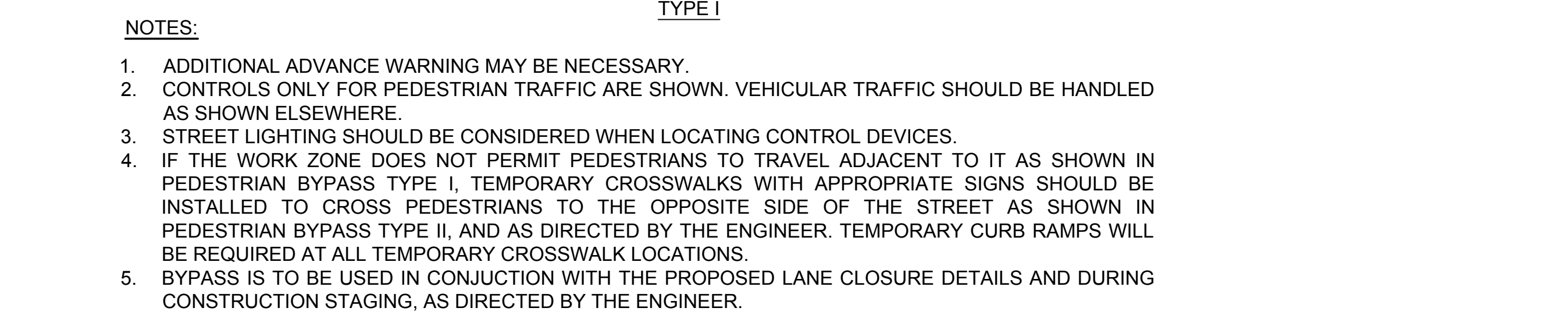
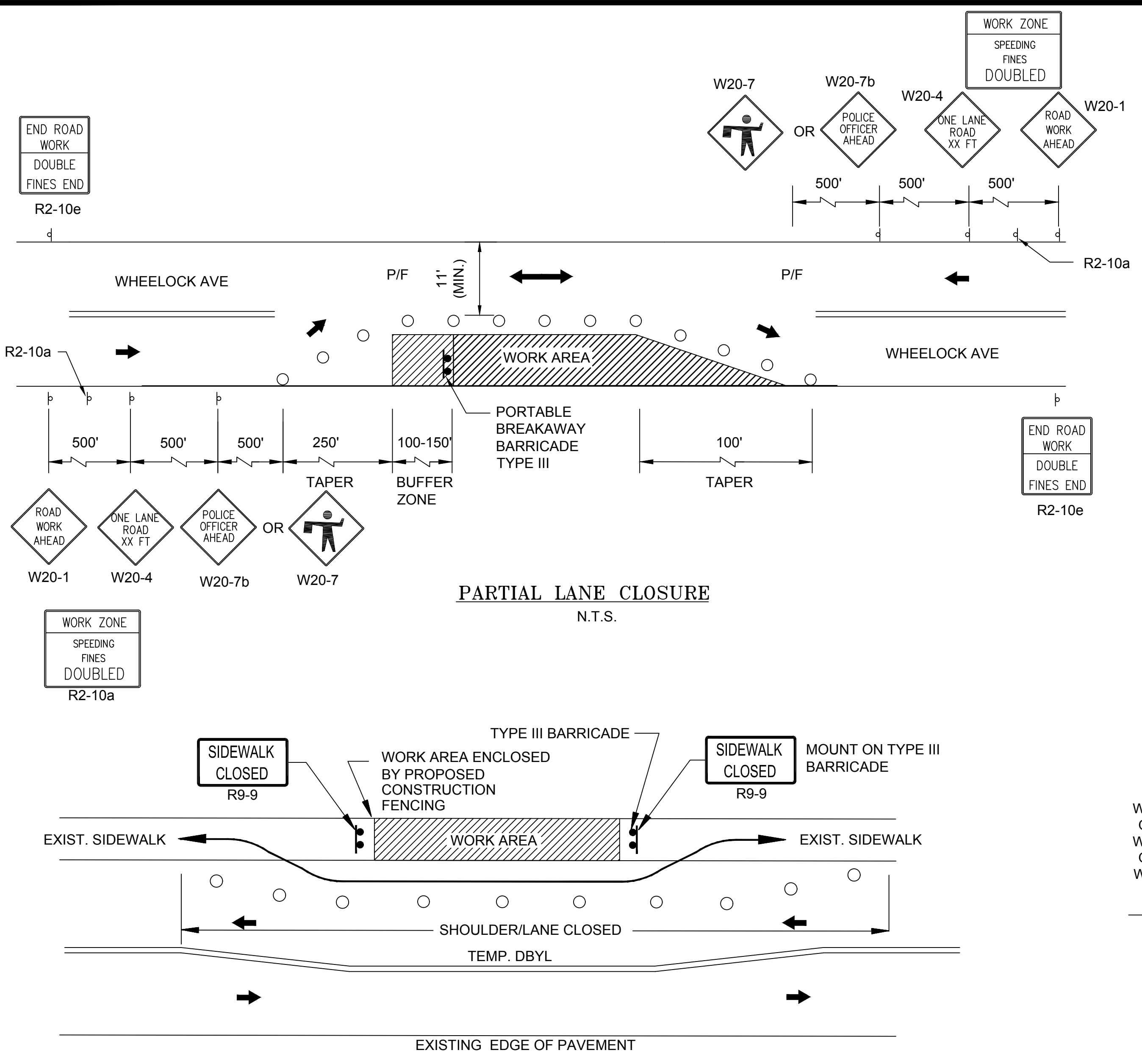


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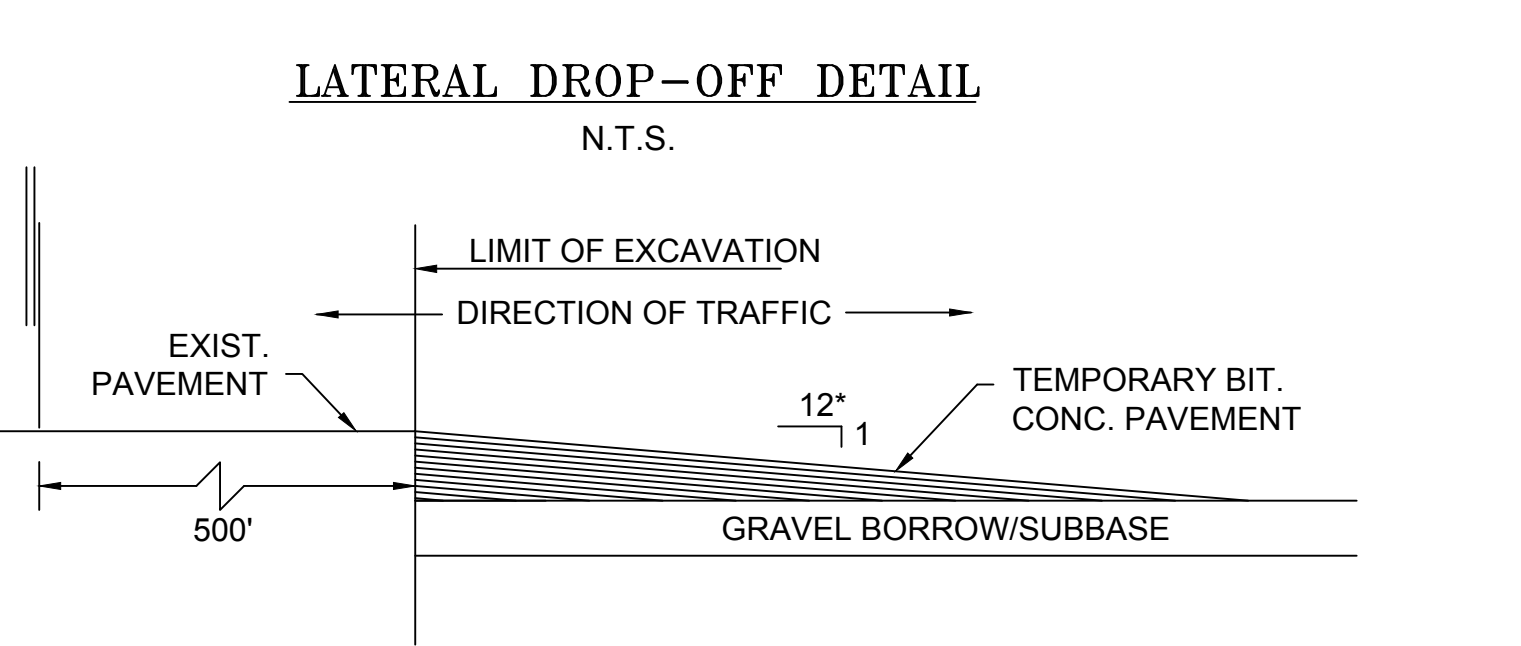
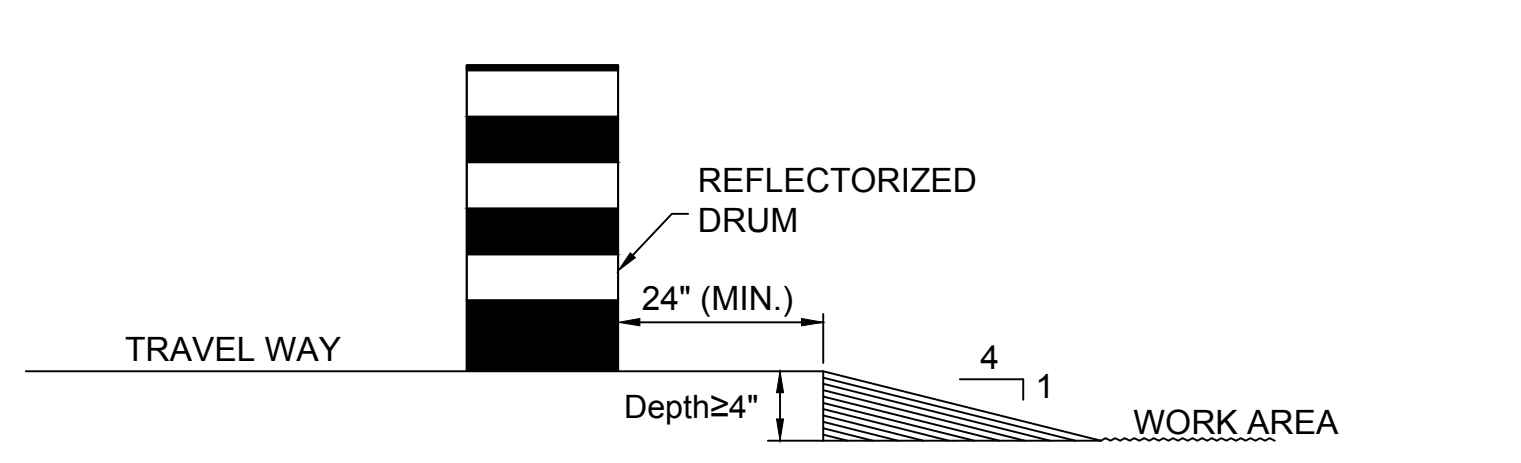
Drawing Title:  
**CONSTRUCTION DETAILS (3 OF 3)**  
Sheet Number:  
**C-7**





- NOTES:**
- ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
  - CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN. VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE.
  - STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
  - IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT AS SHOWN IN PEDESTRIAN BYPASS TYPE I, TEMPORARY CROSSWALKS WITH APPROPRIATE SIGNS SHOULD BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AS SHOWN IN PEDESTRIAN BYPASS TYPE II, AND AS DIRECTED BY THE ENGINEER. TEMPORARY CURB RAMPS WILL BE REQUIRED AT ALL TEMPORARY CROSSWALK LOCATIONS.
  - BYPASS IS TO BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.
- LEGEND**
- |   |  |
|---|--|
| □ REFLECTORIZED CHANNELIZING DEVICE     | ▬ CONSTRUCTION SIGN  |
| ○ REFLECTORIZED DRUM                    | ▨ WORK AREA  |
| ➔ TRAFFIC FLOW DURING CONSTRUCTION      | N.T.S. NOT TO SCALE  |
| ➔ NORMAL TRAFFIC FLOW                   | ➔➔➔ ARROW BOARD  |
| P/F POLICE/FLAGGER DETAIL               | ▬ TEMPORARY PRECAST PORTABLE CONCRETE BARRIER W/WARNING LIGHTS |
| ▬ PORTABLE BREAKAWAY BARRICADE TYPE III | ▬ STOP LINE  |
| ▬ TEMPORARY IMPACT ATTENUATOR           |  |
| ➔ TEMPORARY SIGNAL                      |  |

- NOTES:**
- PLACEMENT OF ALL CONSTRUCTION SIGNS, DRUMS, BARRICADES, TRAFFIC DEVICES AND THE SHAPE, SIZE & COLOR OF ALL TEMPORARY TRAFFIC SIGNS SHALL CONFORM WITH THE 2023 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND AMENDMENTS.
  - ADVANCE WARNING SIGN PLACEMENT AND TAPER LENGTH SHALL BE ADJUSTED ACCORDING TO STREET CONDITIONS AND DRIVEWAY OPENINGS.
  - ALL DRUMS SHALL BE APPROXIMATELY PLACED AND RELOCATED AS NECESSARY TO MAINTAIN ADEQUATE ABUTTER ACCESS AT ALL TIMES.
  - THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
  - NONESSENTIAL TRAFFIC CONTROL DEVICES SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS.
  - PEDESTRIANS SHALL BE PROVIDED WITH ACCESS AND SAFE PASSAGE THROUGH THE TEMPORARY TRAFFIC CONTROL ZONE AT ALL TIMES.
  - ADVISORY SPEED PLATES (W13-1) SHALL BE USED IF APPLICABLE AND AS DIRECTED BY THE ENGINEER.
  - R2-10a SIGN TO BE ERRECTED BETWEEN W20-1 AND W20-4 SIGN.
  - MAINTAIN ONE LANE (MIN. 11' WIDTH) AT ALL TIMES DURING CONSTRUCTION.



**FORMULAS FOR DETERMINING TAPER LENGTHS**

SPEED LIMIT (S) NOT TO SCALE	TAPER LENGTH (L) FEET
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR MORE	$L = WS$

WHERE: L = TAPER LENGTH IN FEET  
W = WIDTH OF OFFSET IN FEET  
S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH

**TEMPORARY TRAFFIC SIGN SUMMARY**

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	NOTES
	WIDTH	HEIGHT		
R2-10e	36"	48"	END ROAD WORK DOUBLE FINES END	
R2-10a	48"	36"	WORK ZONE SPEEDING FINES DOUBLED	PLACE SIGN BETWEEN FIRST AND SECOND ADVANCED WARNING SIGN OR AS DIRECTED BY THE ENGINEER
W20-1	36"	36"	ROAD WORK AHEAD	
W20-4	36"	36"	ONE LANE ROAD XX FT	
W20-7	36"	36"	PEDESTRIAN AHEAD	
W20-7b	36"	36"	POLICE OFFICER AHEAD	
W8-1	36"	36"	BUMP	

Project:  
**TOWN OF MILLBURY**  
MILLBURY, MA  
  
WHEELLOCK AVENUE OVER DOROTHY POND  
CULVERT REPLACEMENT

**Weston & Sampson**  
Weston & Sampson Engineers, Inc.  
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Foxborough, MA 02035  
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Consultants:

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Revisions:

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Seal:  
  
**JEFFREY W. SANTACRUZ**  
CIVIL  
No. 50965  
REGISTERED PROFESSIONAL ENGINEER

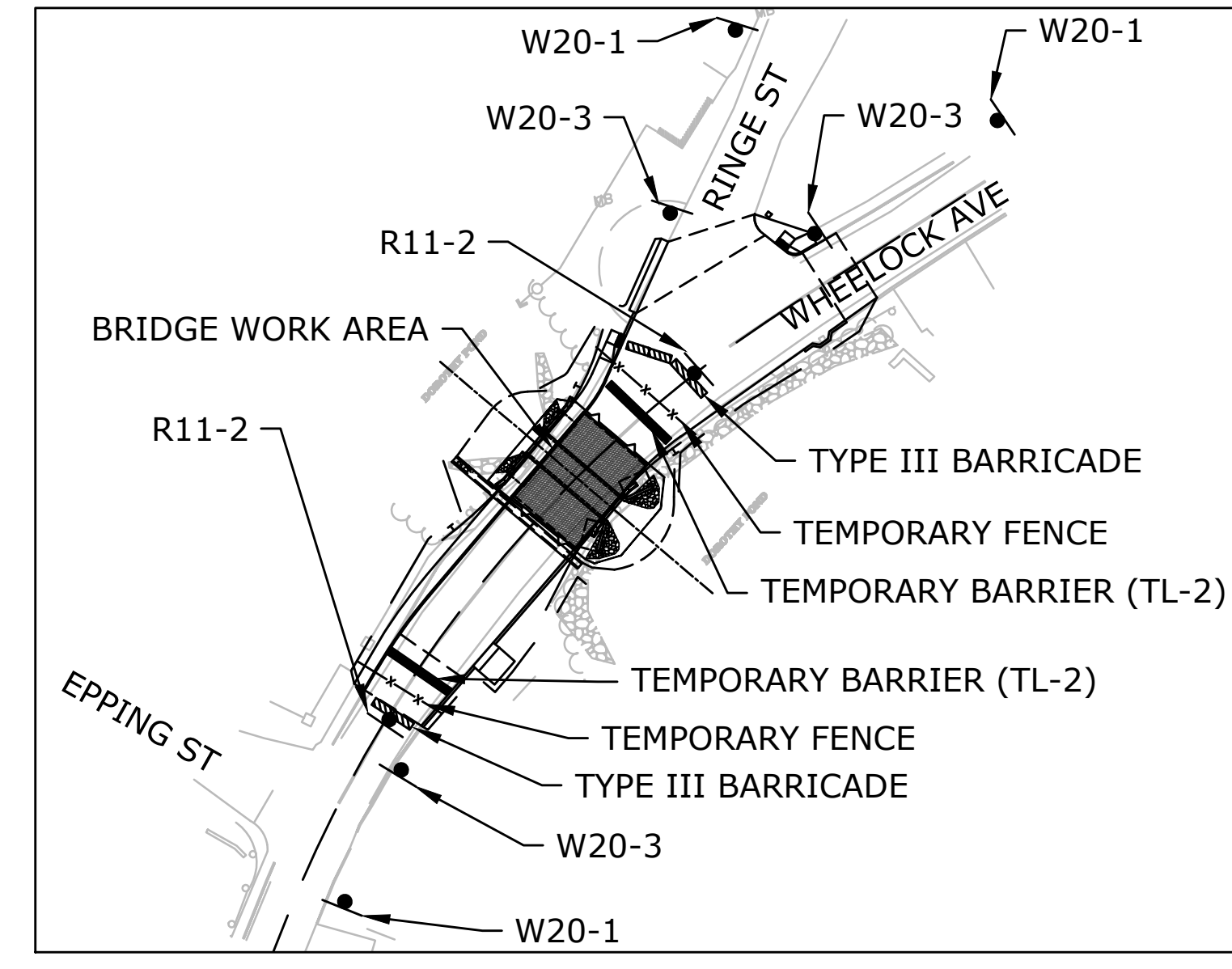
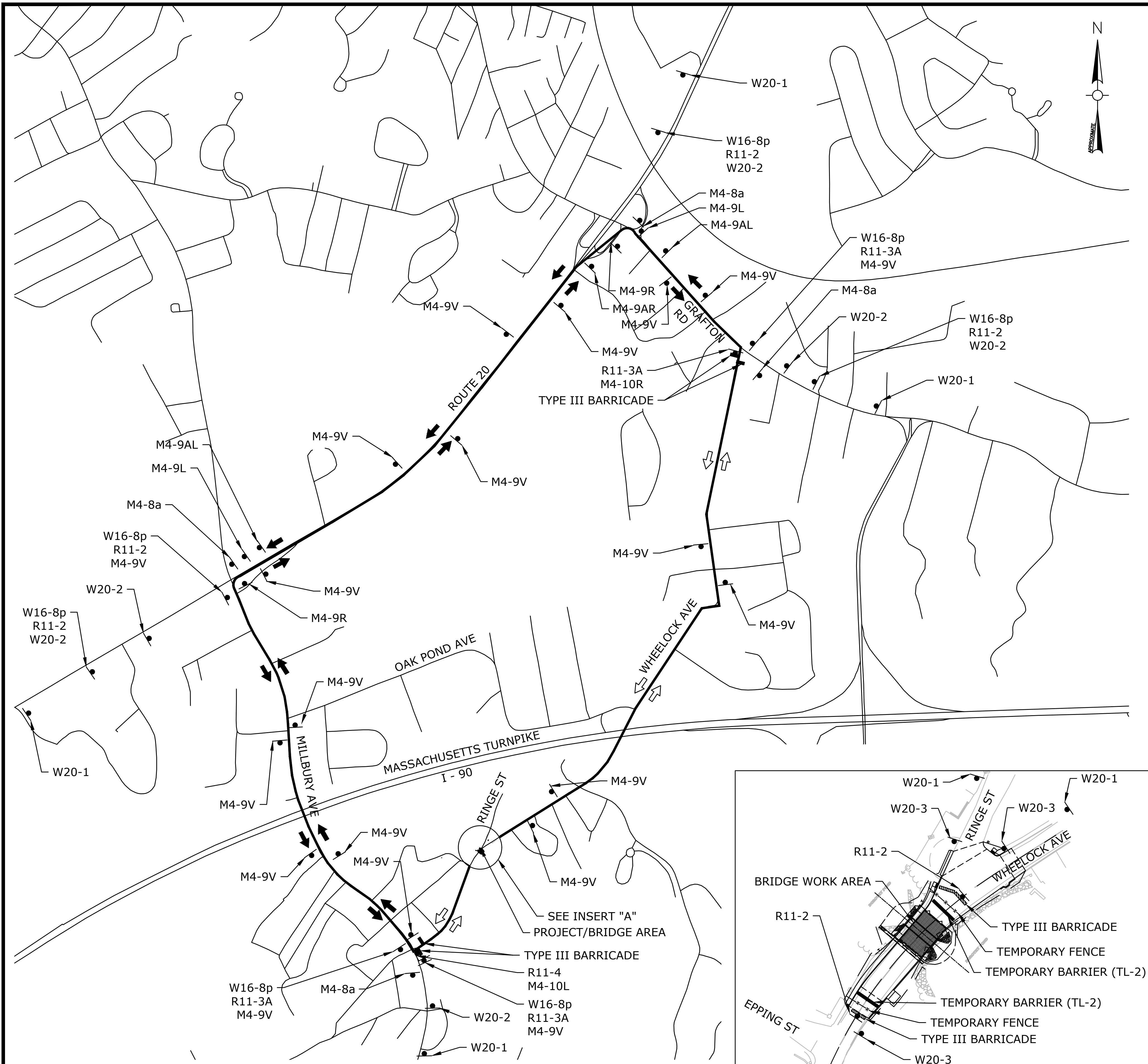
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Drawing Title:  
**TEMPORARY TRAFFIC CONTROL PLAN**  
Sheet Number:  
**C-8**





**LEGEND**

- TRAFFIC FLOW DURING CONSTRUCTION
- NORMAL TRAFFIC FLOW
- WORK AREA
- CONSTRUCTION SIGN
- TYPE III BARRICADE
- N.T.S. NOT TO SCALE

**DETOUR PLAN**

SCALE: 1"=250'  
0 250' 500' 750'

**INSERT "A"**

SCALE: 1"=60'  
0 60' 120' 180'

**TEMPORARY TRAFFIC SIGN SUMMARY**

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT
	WIDTH	HEIGHT	
R11-2	48"	30"	BRIDGE CLOSED
R11-3A	60"	30"	BRIDGE CLOSED AHEAD LOCAL TRAFFIC ONLY
R11-4	60"	30"	ROAD CLOSED LOCAL TRAFFIC ONLY
M4-8a	24"	18"	END DETOUR
M4-9AL	30"	24"	DETOUR ←
M4-9AR	30"	24"	DETOUR →
M4-9L	30"	24"	DETOUR ←
M4-9R	30"	24"	DETOUR →
M4-9V	30"	24"	DETOUR ↑
M4-10L	48"	18"	DETOUR ←
M4-10R	48"	18"	DETOUR →
W16-8p	VARIES	12"	WHEELLOCK AVE
W20-1	36"	36"	ROAD WORK AHEAD
W20-2	36"	36"	DETOUR XXX FT
W20-3	36"	36"	ROAD CLOSED XXX

Project:  
TOWN OF MILLBURY  
MILLBURY, MA  
  
WHEELLOCK AVENUE OVER  
DOROTHY POND  
CULVERT REPLACEMENT

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**DETOUR PLAN**

Sheet Number:  
**C-9**



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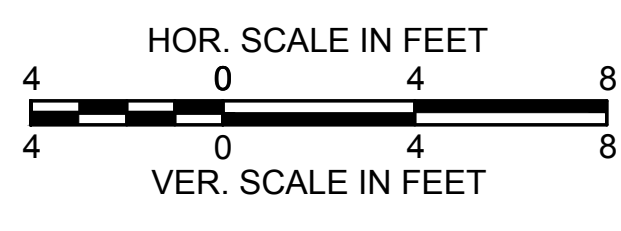
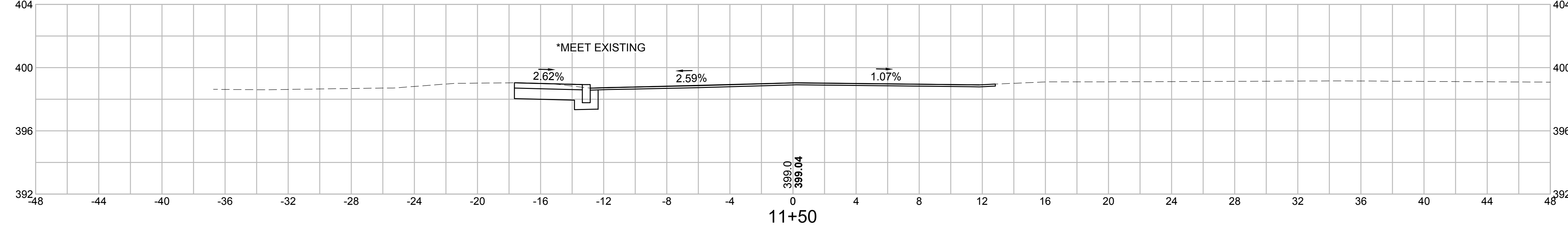
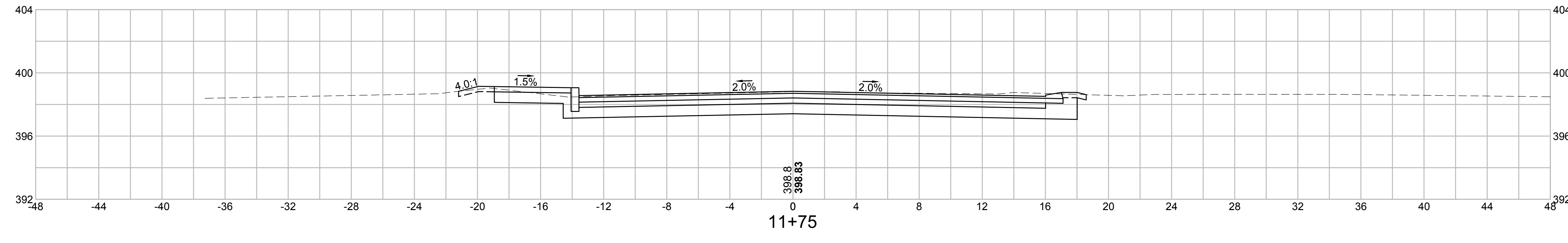
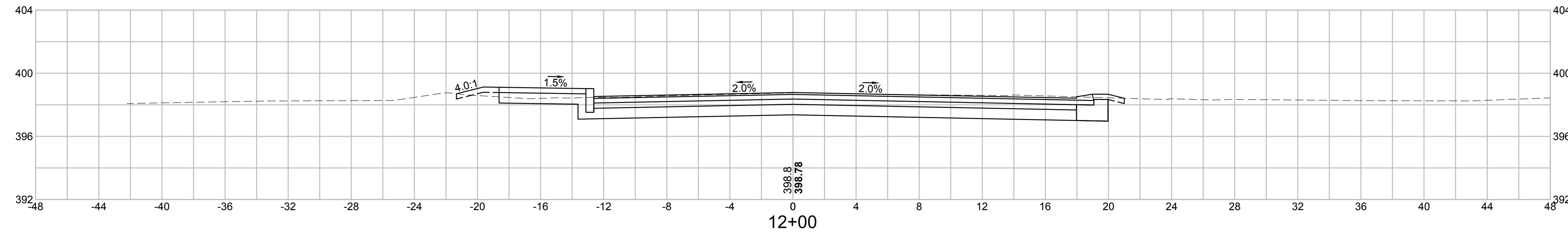
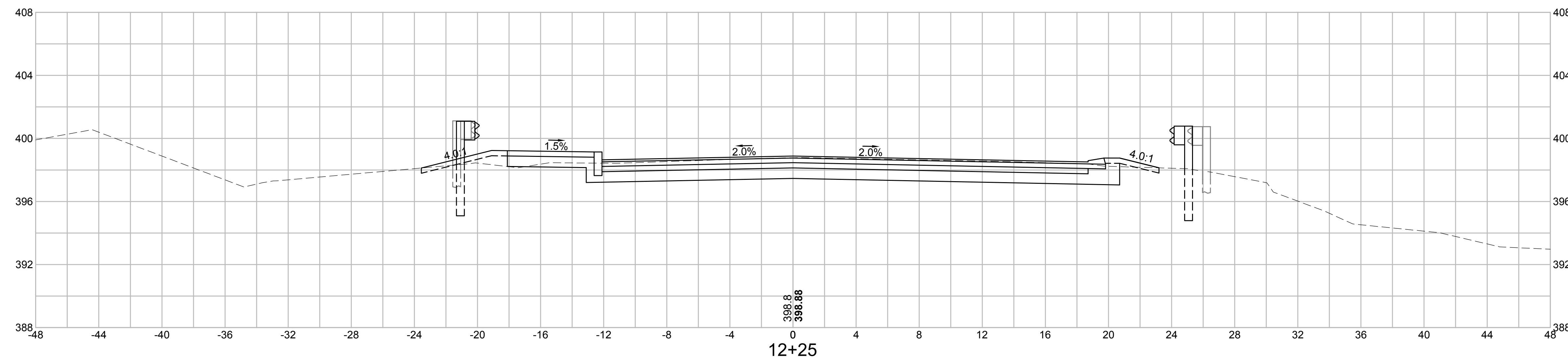
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**CROSS SECTIONS**  
**(1 OF 3)**

Sheet Number:  
**X-1**



BRIDGE NO. M-22-022 (CPC)

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 JWS







