

TRANSPORTATION IMPROVEMENT PROJECT

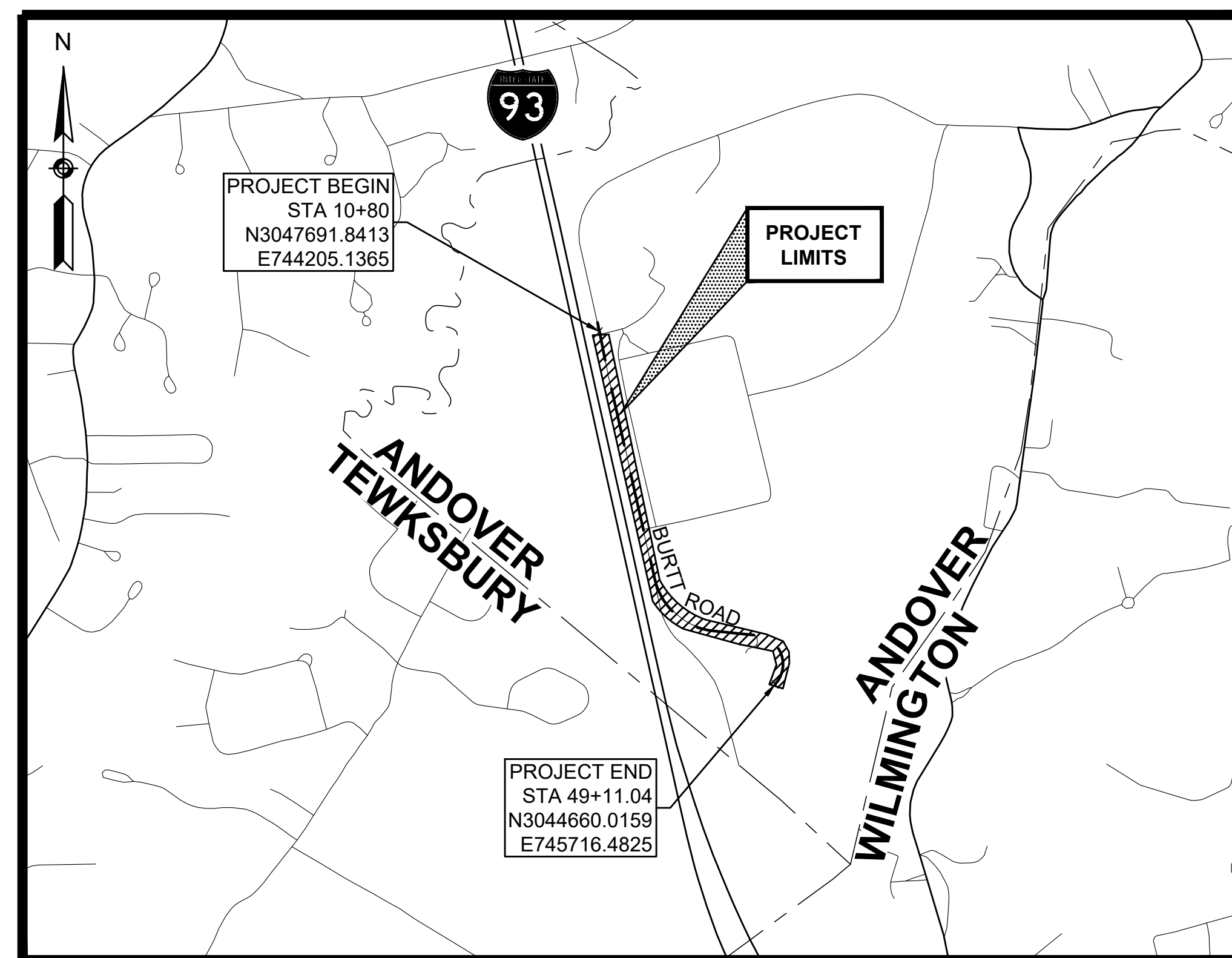
ANDOVER
BURTT ROAD
TITLE SHEET & INDEX
SHEET 1 OF 42

PLAN AND PROFILE OF
BURTT ROAD
IN THE TOWN OF
ANDOVER
ESSEX COUNTY

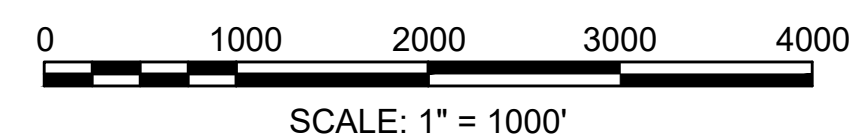
THESE PLANS ARE SUPPLEMENTED BY THE MASSDOT 2017 CONSTRUCTION STANDARD DETAILS, THE MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE MASSDOT WORKZONE SAFETY TEMPORARY TRAFFIC CONTROL, THE 1996 CONSTRUCTION AND TRAFFIC STANDARD DETAILS (AS RELATES TO THE PAVEMENT MARKING DETAILS ONLY), THE MASSDOT 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE MASSDOT 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) WITH MASSACHUSETTS AMENDMENTS AND THE STANDARD MUNICIPAL TRAFFIC CODE, THE MASSDOT 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK AND THE TOWN OF ANDOVER SUBDIVISION RULES AND REGULATIONS.

50% SUBMITTAL

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BURTT ROAD
DESIGN SPEED 30 MPH
FUNCTIONAL CLASSIFICATION LOCAL



TOTAL LENGTH OF PROJECT = 3,831 FEET = 0.726 MILES

DATE	DESCRIPTION	REV #
9/15/2022	CONSERVATION RTC #3	3
9/8/2022	CONSERVATION RTC #2	2
8/24/2022	CONSERVATION RTC	1
4/28/2022	50% SUBMITTAL	-



282 Merrimack Street 2nd Floor Lawrence, MA 01843 978-794-1792	311 Main Street 2nd Floor Worcester, MA 01608 508-868-5104	169 Ocean Blvd, Unit 3 PO Box 249 Hampton, NH 03842 603-601-8154
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DESIGNED BY DPS	CHECKED BY LSA	DATE 04/28/2022
DRAWN BY DPS	APPROVED BY PFE	PROJECT NO. T1126

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		WATER SHUTOFF/CURB STOP
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT CONTROL BARRIER
		TREE LINE
		EDGE OF PAVEMENT
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF MICROMILLING AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		BIKE LANE LEGEND - WHITE
		STOP LINE
		CROSSWALK
		SOLID WHITE LINE
		SOLID YELLOW LINE
		BROKEN WHITE LINE
		BROKEN YELLOW LINE
		DOTTED WHITE LINE
		DOTTED YELLOW LINE
		DOTTED WHITE LINE EXTENSION
		DOTTED YELLOW LINE EXTENSION
		DOUBLE WHITE LINE
		DOUBLE YELLOW LINE

ABBREVIATIONS

GENERAL		ANDOVER BURT ROAD LEGEND AND ABBREVIATIONS SHEET 2 OF 42	
AADT	ANNUAL AVERAGE DAILY TRAFFIC	ABBREVIATIONS (cont.)	
ABAN	ABANDON	GENERAL	
ADJ	ADJUST	PERM	PERMANENT
APPROX.	APPROXIMATE	P.G.L.	PROFILE GRADE LINE
A.C.	ASPHALT CONCRETE	PI	POINT OF INTERSECTION
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE	POC	POINT ON CURVE
BIT.	BITUMINOUS	POT	POINT ON TANGENT
BC	BOTTOM OF CURB	PRC	POINT OF REVERSE CURVATURE
BD.	BOUND	PROJ	PROJECT
BL	BASELINE	PROP	PROPOSED
BLDG	BUILDING	PSB	PLANTABLE SOIL BORROW
BM	BENCHMARK	PT	POINT OF TANGENCY
BO	BY OTHERS	PUE	PUBLIC UTILITY EASEMENT
BOS	BOTTOM OF SLOPE	PVC	POINT OF VERTICAL CURVATURE
BR.	BRIDGE	PVI	POINT OF VERTICAL INTERSECTION
BVW	BORDERING VEGETATED WETLAND	PVT	POINT OF VERTICAL TANGENCY
CB	CATCH BASIN	PVMT	PAVEMENT
CBCI	CATCH BASIN WITH CURB INLET	R	RADIUS OF CURVATURE
CC	CEMENT CONCRETE	R&D	REMOVE AND DISPOSE
CCB	CAPE COD BERM	RCP	REINFORCED CONCRETE PIPE
CCM	CEMENT CONCRETE MASONRY	RD	ROAD
CEM	CEMENT	RDWY	ROADWAY
CI	CURB INLET	REM	REMOVE
CIP	CAST IRON PIPE	RET	RETAIN
CLF	CHAIN LINK FENCE	RET WALL	RETAINING WALL
CL	CENTERLINE	ROW	RIGHT OF WAY
CLDI	CEMENTED LINE DUCTILE IRON	RR	RAILROAD
CMP	CORRUGATED METAL PIPE	R&R	REMOVE AND RESET
CSP	CORRUGATED STEEL PIPE	R&S	REMOVE AND STACK
CO.	COUNTY	RT	RIGHT
CONC	CONCRETE	SB	STONE BOUND
CONT	CONTINUOUS	SHLD	SHOULDER
CONST	CONSTRUCTION	SMH	SEWER MANHOLE
CR GR	CROWN GRADE	ST	STREET
CVP	CERTIFIED VERNAL POOL	STA	STATION
DHV	DESIGN HOURLY VOLUME	SSD	STOPPING SIGHT DISTANCE
DI	DROP INLET	SHLO	STATE HIGHWAY LAYOUT LINE
DIA	DIAMETER	SW	SIDEWALK
DIP	DUCTILE IRON PIPE	T	TANGENT DISTANCE OF CURVE/TRUCK %
DSCB	DEEP SUMP CATCH BASIN	TAN	TANGENT
DW	STEADY DON'T WALK - PORTLAND ORANGE	TEMP	TEMPORARY
DWY	DRIVEWAY	TC	TOP OF CURB
ELEV (or EL.)	ELEVATION	TOS	TOP OF SLOPE
EMB	EMBANKMENT	TS	TRAFFIC SIGNAL
EOP	EDGE OF PAVEMENT	TYP	TYPICAL
EXIST (or EX)	EXISTING	UP	UTILITY POLE
EXC	EXCAVATION	VAR	VARIES
F&C	FRAME AND COVER	VERT	VERTICAL
F&G	FRAME AND GRATE	VC	VERTICAL CURVE
FDN	FOUNDATION	VGC	VERTICAL GRANITE CURB
FDP	FULL DEPTH PAVEMENT	WG	WATER GATE
FES	FLARED END SECTION	WIP	WROUGHT IRON PIPE
FLDSTN	FIELDSTONE	WM	WATER METER/WATER MAIN
GAR	GARAGE	X-SECT	CROSS SECTION
GC	GRANITE CURB	TRAFFIC SIGNAL ABBREVIATIONS	
GD	GROUND	CAB.	CABINET
GG	GAS GATE	CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
GI	GUTTER INLET	DW	STEADY DON'T WALK
GIP	GALVANIZED IRON PIPE	FDW	FLASHING DON'T WALK
GRAN	GRANITE	FR	FLASHING CIRCULAR RED
GRAV	GRAVEL	FRL	FLASHING RED LEFT ARROW
GRD	GUARD	FRR	FLASHING RED RIGHT ARROW
GV	GATE VALVE	FY	FLASHING CIRCULAR YELLOW
HDW	HEADWALL	FYL	FLASHING YELLOW LEFT ARROW
HMA	HOT MIX ASPHALT	FYR	FLASHING YELLOW RIGHT ARROW
HOR	HORIZONTAL	G	STEADY CIRCULAR GREEN
HYD	HYDRANT	GL	STEADY GREEN LEFT ARROW
INV	INVERT	GR	STEADY GREEN RIGHT ARROW
IVW	ISOLATED VEGETATED WETLANDS	GSL	STEADY GREEN SLASH LEFT ARROW
JCT	JUNCTION	GSR	STEADY GREEN SLASH RIGHT ARROW
L	LENGTH OF CURVE	GV	STEADY GREEN VERTICAL ARROW
LB	LEACH BASIN	OL	OVERLAP
LOG	LIMIT OF GRADING	PED	PEDESTRIAN
LP	LIGHT POLE	PTZ	PAN, TILT, ZOOM
L&S	LOAM & SEED	R	STEADY CIRCULAR RED
LT	LEFT	RL	STEADY RED LEFT ARROW
MAX	MAXIMUM	RR	STEADY RED RIGHT ARROW
MB	MAILBOX	TR SIG	TRAFFIC SIGNAL
MH	MANHOLE	TSC	TRAFFIC SIGNAL CONDUIT
MHB	MASSACHUSETTS HIGHWAY BOUND	W	STEADY WALKING PERSON
MIN	MINIMUM	Y	STEADY CIRCULAR YELLOW
NIC	NOT IN CONTRACT	YL	STEADY YELLOW LEFT ARROW
NO.	NUMBER		
OCS	OUTLET CONTROL STRUCTURE		
PC	POINT OF CURVATURE		
PCC	POINT OF COMPOUND CURVATURE		
PCR	PEDESTRIAN CURB RAMP		

GENERAL NOTES:

- EXISTING CONDITIONS INFORMATION COMPILED FROM SURVEY BY HANCOCK ASSOCIATES, PERFORMED IN MARCH & APRIL 2021 AND SUPPLEMENTED IN JANUARY 2022.
HORIZONTAL DATUM = NAD83 (MASSACHUSETTS STATE PLANE COORDINATES)
VERTICAL DATUM = NAVD88
- ALL EXISTING STATE, COUNTY, AND TOWN LOCATION LINES HAVE BEEN ESTABLISHED FROM AN ACTUAL ON-THE-GROUND SURVEY. ALL PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
- 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 CONTACT DIGSAFE (1-888-DIGSAFE) A MINIMUM OF 72 HOURS PRIOR TO ANY CONSTRUCTION TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND 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.
- ALL MUNICIPALLY OWNED UTILITY STRUCTURES (CATCH BASINS, DRAIN MANHOLES, WATER GATES, ETC.) SHALL BE ADJUSTED BY THE CONTRACTOR TO FINISHED GRADE UNLESS DIRECTED OTHERWISE.
- ALL PRIVATELY OWNED UTILITY STRUCTURES (GAS GATES, ELECTRIC /TELEPHONE MANHOLES, ETC.) SHALL BE ADJUSTED TO FINISHED GRADE BY THE PRIVATE UTILITY COMPANY, UNLESS DIRECTED OTHERWISE. THE CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES FOR THE ALTERATION AND ADJUSTMENT, AS NECESSARY.
- PROPOSED LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 1.0% (MINIMUM) UNLESS OTHERWISE NOTED.
- 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.
- ALL DISTURBED AREAS OUTSIDE THE CURBLINE SHALL BE STABILIZED WITH 4" LOAM AND SEED, UNLESS OTHERWISE NOTED.
- THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R), AS APPROVED BY THE ENGINEER.
- THE TERM "MEET EXIST" MEANS TO MEET BOTH THE EXISTING ALIGNMENT AND ELEVATION.
- ALL EXISTING TREES WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS. ALL PROVIDED DIMENSIONS REFER TO THE DIAMETER AT BREAST HEIGHT.
- CONTRACTOR TO TAKE CARE TO ENSURE PROPOSED GUARDRAIL POSTS DO NOT CONFLICT WITH UNDERGROUND UTILITIES (I.E. PROPOSED DRAINAGE STRUCTURES AND PIPES).
- THE PROPOSED WATER MAIN SHALL COMPLY WITH THE TOWN OF ANDOVER SUBDIVISION RULES AND REGULATIONS AND SHALL MAINTAIN BETWEEN 5' (MIN) AND 8' (MAX) COVER. COVER SHALL BE MEASURED FROM THE FINISHED GROUND TO THE TOP OF THE PIPE.
- THE PROPOSED WATER MAIN SHALL MAINTAIN A MINIMUM OF 6" CLEARANCE BETWEEN EXISTING OR PROPOSED UTILITIES.
- CORPORATION STOPS SHALL BE INSTALLED AT HIGH POINTS IN THE PROPOSED WATER MAIN.
- PROPOSED HYDRANTS SHALL BE PAINTED TO THE SPECIFICATIONS OF THE TOWN OF ANDOVER DPW. CONTRACTOR SHALL COORDINATE AS REQUIRED.
- CLEARING AND GRUBBING SHALL EXTEND FIVE FEET BEYOND THE LIMIT OF GRADING; EXCEPT FOR WHEN THE FIVE FOOT EXTENSION ENCLOSES PRIVATE PROPERTY OR INTO WETLANDS.
- CONTRACTOR WILL BE REQUIRED TO COORDINATE WITH CONSTRUCTION CONTRACTS ADJACENT TO BURTT ROAD INCLUDING, BUT NOT LIMITED TO, THE SITE DEVELOPMENT AT THE END OF BURTT ROAD.

SUGGESTED CONSTRUCTION SEQUENCE

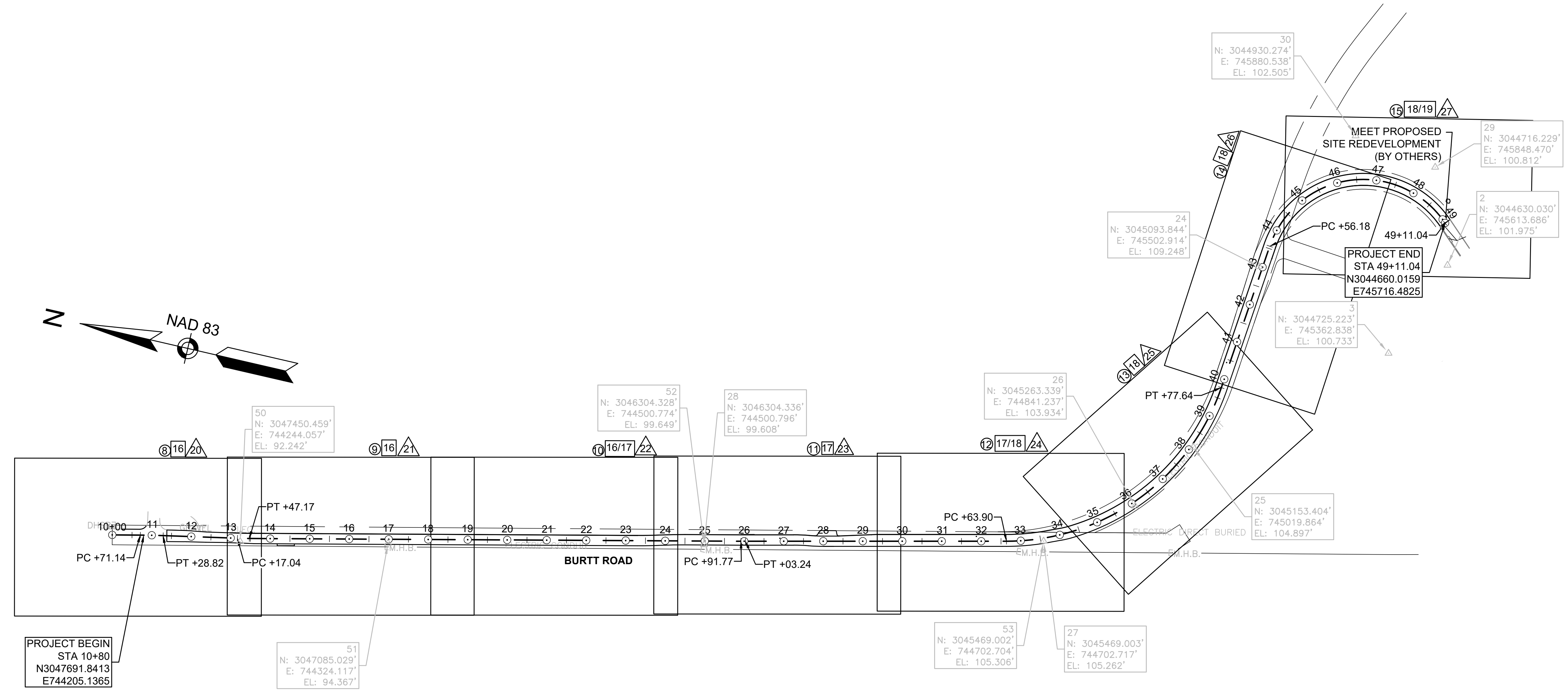
- OBTAIN/RECORD ORDER OF CONDITIONS FROM THE ANDOVER CONSERVATION COMMISSION (ACC).
- CONDUCT PER-CONSTRUCTION MEETING WITH ACC AGENT, THE ENGINEER AND THE TOWN.
- INSTALL EROSION CONTROL BARRIERS CONSISTING OF 12" COMPOST FILTER TUBES AND SILT FENCE ALONG THE PROPOSED LIMIT OF GRADING AND SILT SACKS WHERE REQUIRED. ALL EROSION CONTROL BARRIERS SHALL BE APPROVED BY AN ACC AGENT.
- PERFORM GENERAL SITE PREP INCLUDING, BUT NOT LIMITED TO, CLEARING AND GRUBBING FOR NEW ROADWAY WIDENING AND INSTALLATION OF ALL REQUIRED TEMPORARY CONSTRUCTION SIGNAGE.
- PERFORM EXCAVATION FOR DRAINAGE INFRASTRUCTURE, UTILITY LINES, FULL DEPTH PAVEMENT AND RETAINING WALLS.
- INSTALL PROPOSED DRAINAGE STRUCTURES, PROPOSED UTILITY LINES AND CURBING.
- PERFORM FULL DEPTH PAVEMENT WHERE SHOWN ON THE PLANS.
- REPAIR / INSTALL REMOVED OR DAMAGE SECTIONS OF LANDSCAPED AREAS WITH LOAM AND SEED OR OTHER APPROVED PLANTINGS.
- INSTALL PERMANENT TRAFFIC SIGNS AND PAVEMENT MARKINGS.
- PERFORM FINAL INSPECTION AND ADDRESS PUNCH LIST ITEMS.
- REQUEST FINAL ACCEPTANCE BY THE TOWN.
- REQUEST AND OBTAIN CERTIFICATE OF COMPLIANCE FROM ACC (THIS MAY BE UP TO THREE YEARS FOLLOWING CONSTRUCTION).
- REMOVE EROSION CONTROL BARRIERS AND SILT SACKS UPON STABILIZING LANDSCAPED AREAS.

EROSION AND SEDIMENT CONTROL NOTES:

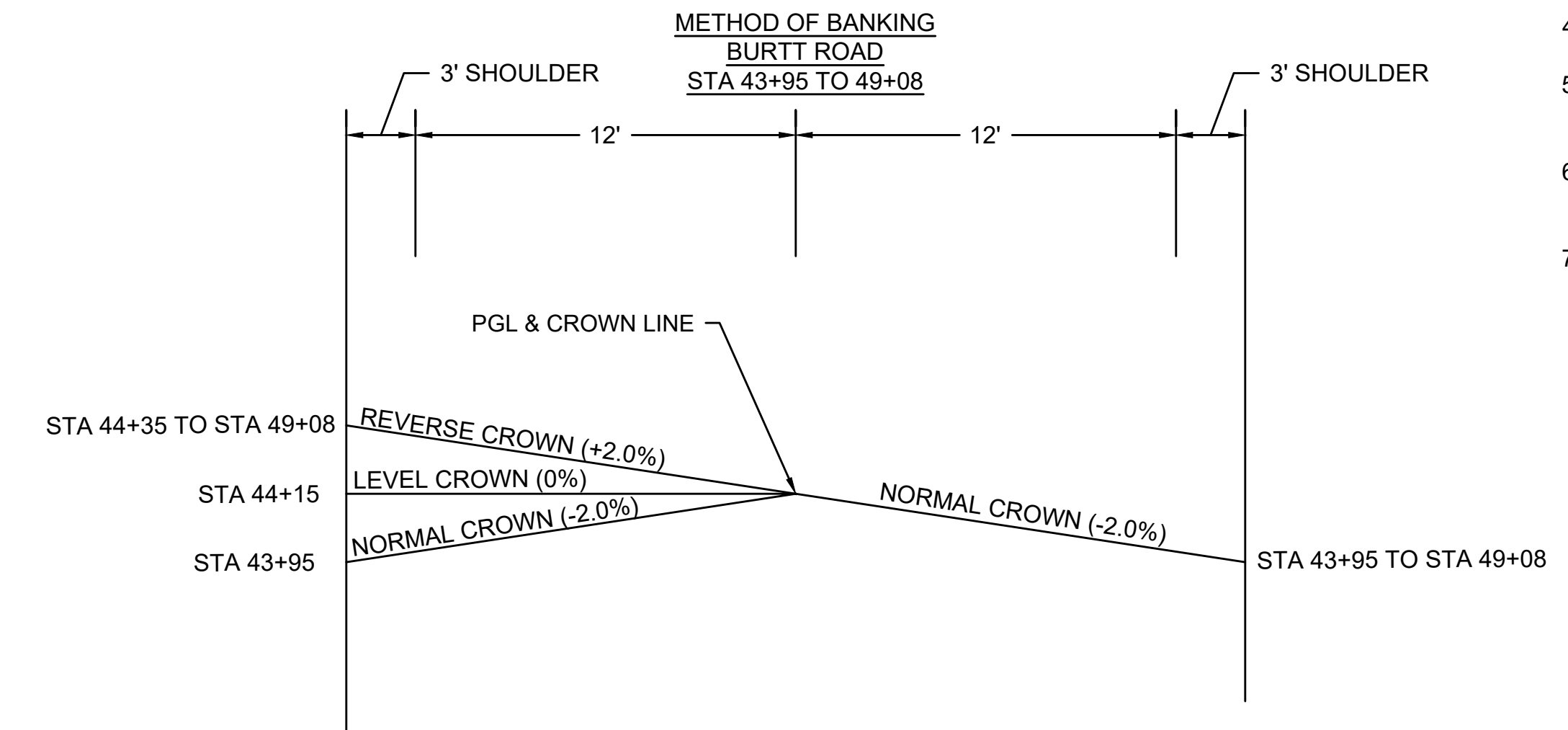
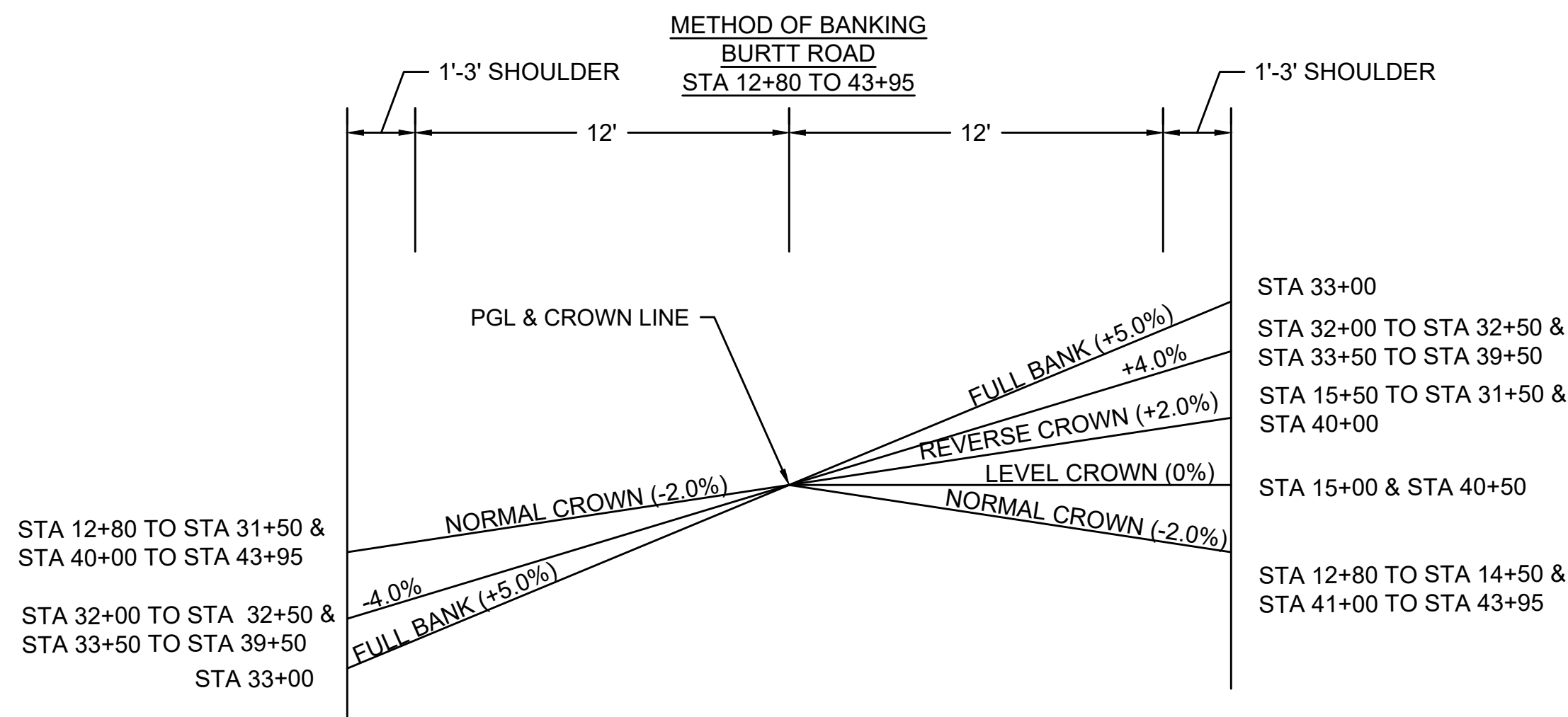
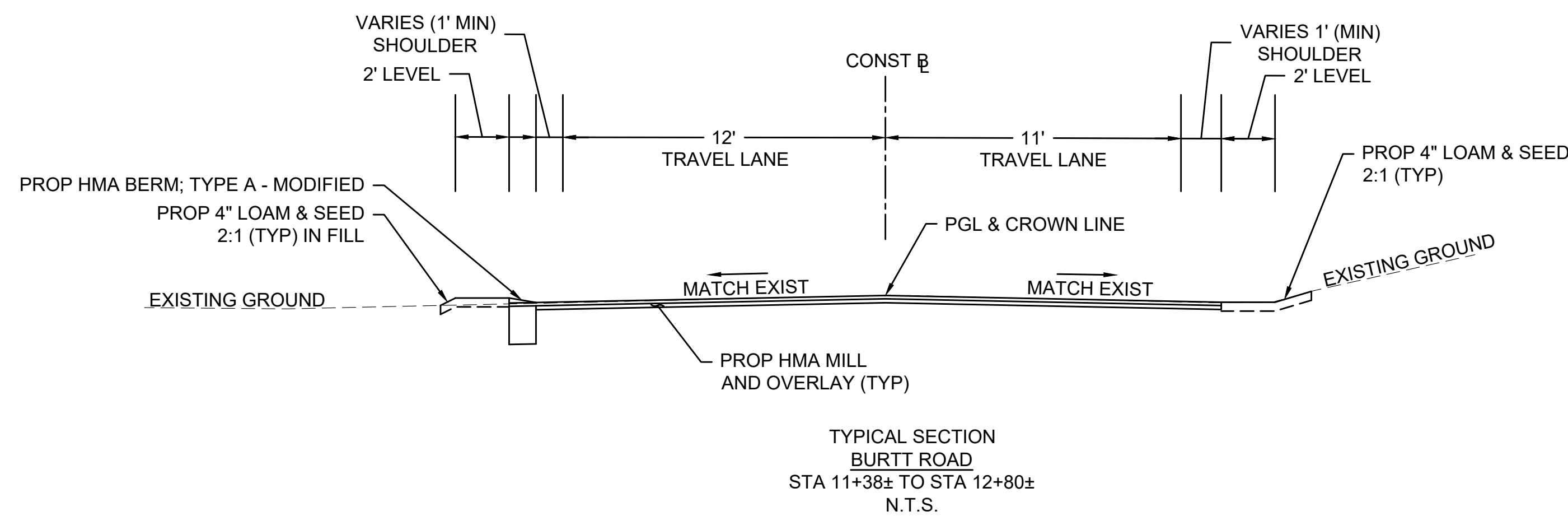
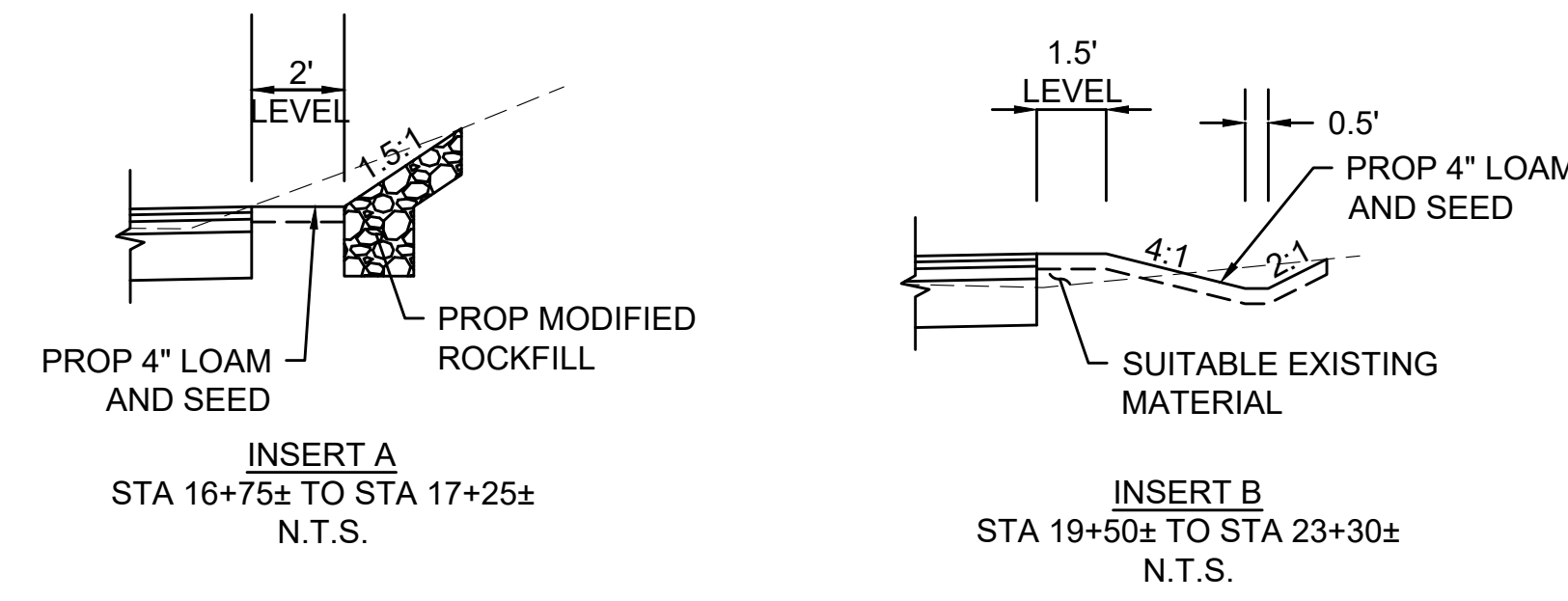
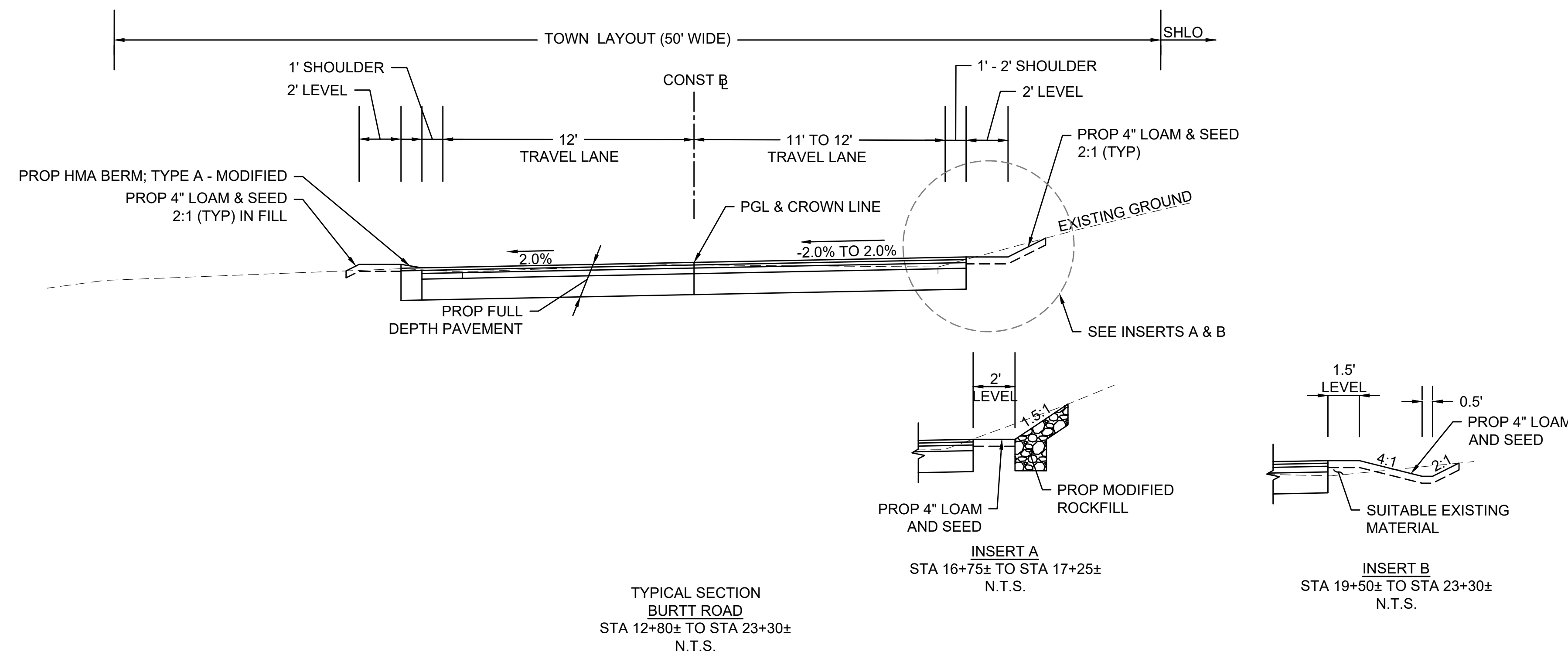
- DEVELOPMENT SHALL BE ORIENTED ON SITE SO THAT CUTTING AND STRIPPING OF VEGETATION AND GRADING ARE MINIMIZED.
- PRIOR TO ANY LAND DISTURBANCE ACTIVITIES COMMENCING, THE CONTRACTOR SHALL MARK LIMITS OF NO LAND DISTURBANCE ON THE SITE WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE, TO IDENTIFY THE PROTECTED AREAS.
- APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO SOIL DISTURBANCE. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. WETLAND AREAS AND SURFACE WATERS SHALL BE PROTECTED FROM SEDIMENT.
- RUNOFF SHALL BE CONTROLLED AND CONVEYED INTO STORM DRAINS AND OTHER OUTLETS SO IT WILL NOT ERODE THE LAND OR CAUSE OFF-SITE DAMAGE; SEDIMENT IN RUNOFF SHALL BE TRAPPED BY USING STAKED HAY BALES, SILT FENCING, OR SEDIMENTATION TRAPS, OR OTHER APPROVED EROSION CONTROL DEVICES. INLET PROTECTION (I.E. SILT SACKS) SHALL BE UTILIZED WITHIN ALL EXISTING & PROPOSED CATCH BASINS THROUGHOUT THE PROPOSED PROJECT AREA, WITHIN 100' OF THE LIMIT OF WORK AND AS REQUIRED BY THE ENGINEER.
- SEDIMENT BASINS SHALL BE CONSTRUCTED WHERE NECESSARY TO DETAIN RUNOFF AND TO TRAP SEDIMENT DURING CONSTRUCTION.
- EROSION CONTROL PRACTICES ARE TO BE INSPECTED WEEKLY OR AS NEEDED TO MAINTAIN EFFECTIVENESS ON SITE. SEDIMENT SHALL BE REMOVED ONCE THE VOLUME REACHES 1/4 TO 1/2 OF THE HEIGHT OF THE SILT FENCE OR HAY BALE.
- OFFSITE RUNOFF SHALL BE DIVERTED FROM HIGHLY ERODIBLE SOILS AND STEEP SLOPES TO STABLE AREAS.
- EROSION AND SEDIMENT CONTROLS SHALL BE COORDINATED WITH THE SEQUENCE OF GRADING, DEVELOPMENT AND CONSTRUCTION OPERATIONS; CONTROL MEASURES SHALL BE IN EFFECT PRIOR TO COMMENCEMENT OF EACH INCREMENT/PHASE OF THE PROCESS.
- DISTURBED AREAS REMAINING IDLE FOR MORE THAN 14 DAYS SHALL BE STABILIZED; WHERE STABILIZED MEANS A MINIMUM OF 85% VEGETATIVE COVER HAS BEEN ESTABLISHED, A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR EROSION BLANKETS HAVE BEEN INSTALLED.
- SOIL AND OTHER MATERIALS SHALL NOT BE STOCKPILED OR REDISTRIBUTED, EITHER TEMPORARILY OR PERMANENTLY, IN LOCATIONS OR IN SUCH A MANNER AS WOULD CAUSE SUFFOCATION OF TREE ROOT SYSTEMS.
- TOPSOIL SHALL BE STRIPPED FROM DISTURBED AREAS, STOCKPILED IN APPROVED AREAS AND STABILIZED WITH TEMPORARY VEGETATIVE COVER IF IT IS TO BE LEFT FOR MORE THAN THIRTY (30) CALENDAR DAYS; PERIMETER SEDIMENT CONTROLS SHALL BE INSTALLED AROUND EACH AREA OF STOCKPILED TOPSOIL.
- TEMPORARY SOIL STOCKPILES SHALL FREQUENTLY SHIFT FOLLOWING THE PATH OF ROADWAY CONSTRUCTION. ALL SOIL STOCKPILES SHALL BE KEPT WITHIN THE PROPOSED ROADWAY FOOTPRINT & SURROUNDED BY ADDITIONAL EROSION CONTROLS (I.E. SILT SOCKS) AS NEEDED. SOIL STOCKPILES SHALL BE STABILIZED OR COVERED AT THE END OF EACH WORKDAY.
- GRADING SHALL BE PER THE PLANS; CUT AND FILL SLOPES, ROADWAYS, AND DRIVEWAY ENTRANCES MUST BE STABILIZED WITHIN 72 HOURS OF FINISHED GRADE, WHERE STABILIZED MEANS THAT MINIMUM OF 85% OF VEGETATIVE COVER HAS BEEN ESTABLISHED; A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR EROSION BLANKETS HAVE BEEN INSTALLED; TREE REMOVAL SHALL BE PER THE PLANS AND AS REQUIRED BY THE ENGINEER.
- FOR ACTIVE CONSTRUCTION AREAS SUCH AS BORROW OR STOCKPILE AREAS, ROADWAY IMPROVEMENTS AND AREAS WITHIN 50 FEET OF KNOWN RESOURCE AREAS, A PERIMETER SEDIMENT CONTROL SYSTEM SHALL BE INSTALLED AND MAINTAINED TO CONTAIN SOIL.
- A TRACKING PAD SHALL BE CONSTRUCTED AT ALL ENTRANCE/EXIT POINTS OF THE CONSTRUCTION SITE TO REDUCE THE AMOUNT OF SOIL CARRIED ONTO ROADWAYS AND OFF THE CONSTRUCTION SITE. ROUTINE STREET SWEEPING OR VACUUMING SHALL BE PERFORMED TO REMOVE SOIL CARRIED ONTO ROADWAYS.
- DUST SHALL BE CONTROLLED THROUGHOUT THE CONSTRUCTION SITE.
- ON THE CUT SIDE OF THE ROADS, DITCHES, WHERE SHOWN ON THE PLANS, SHALL BE STABILIZED IMMEDIATELY WITH ROCK RIP-RAP OR OTHER NON-ERODIBLE LINERS, OR WHERE APPROPRIATE, VEGETATIVE MEASURES SUCH AS SOD.
- TEMPORARY SEEDING, MULCHING OR OTHER SUITABLE STABILIZATION METHODS, SHALL BE USED TO PROTECT EXPOSED SOIL AREAS DURING CONSTRUCTIONS; AS FEASIBLE, NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED; DURING THE MONTHS OF OCTOBER THROUGH MARCH, WHEN SEEDING MAY BE IMPRACTICAL, AN ANCHORED MULCH OR SOD SHALL BE APPLIED IF APPROVED BY THE PLANNING BOARD OR BY ITS DESIGNEE PRIOR TO THE START OF CONSTRUCTION; DIVERSIONS AND/OR PREPARED OUTLETS MAY BE REQUIRED IN CRITICAL AREAS DURING CONSTRUCTION.
- PERMANENT VEGETATION AND EROSION CONTROL STRUCTURES, AS NECESSARY, SHALL BE INSTALLED NO LATER THAN THE FIRST FULL SPRING SEASON IMMEDIATELY AFTER THE COMPLETION OF CONSTRUCTION. THE PERMANENT VEGETATION AND EROSION CONTROL STRUCTURES SHALL COMPLY WITH THE EROSION AND SEDIMENTATION VEGETATIVE PRACTICES RECOMMENDED BY THE U.S. SOIL CONSERVATION SERVICE.
- NATIVE SPECIES SHALL BE USED FOR RE-VEGETATION.
- ALL SLOPES STEEPER THAN 3:1 (H:V, 33.3%), AS WELL AS PERIMETER DIKES, SEDIMENT BASINS OR TRAPS, AND EMBANKMENTS SHALL, UPON COMPLETION, SHALL BE IMMEDIATELY STABILIZED WITH SOD, SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES. AREAS OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM SHALL NOT BE DISTURBED.
- MONITORING AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE COURSE OF CONSTRUCTION SHALL BE REQUIRED. EROSION CONTROL MEASURES FOR WINTER CONSTRUCTION SHALL BE IN EFFECT FROM OCTOBER 15 THROUGH MAY 15.
- TEMPORARY SEDIMENT TRAPPING DEVICES SHALL NOT BE REMOVED UNTIL PERMANENT STABILIZATION IS ESTABLISHED IN ALL CONTRIBUTORY DRAINAGE AREAS. SIMILARLY, STABILIZATION SHALL BE ESTABLISHED PRIOR TO CONVERTING SEDIMENT TRAPS/BASINS INTO PERMANENT (POST-CONSTRUCTION) STORMWATER MANAGEMENT FACILITIES. ALL FACILITIES USED AS TEMPORARY MEASURES SHALL BE CLEANED PRIOR TO BEING PUT INTO FINAL OPERATIONS.
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15 OR WHICH ARE DISTURBED AFTER OCTOBER 15 SHALL BE STABILIZED BY SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE, OR STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
- AFTER OCTOBER 15, INCOMPLETE PAVEMENT AREAS WHERE ACTIVE CONSTRUCTION HAS STOPPED FOR THE WINTER SHALL BE PROTECTED WITH A MINIMUM 3" LAYER OF SUITABLE EXCAVATED MATERIAL.
- THE ENGINEER SHALL RESERVE THE RIGHT TO REQUIRE ADDITIONAL EROSION CONTROL MEASURES DURING CONSTRUCTION IF NECESSARY.
- ALL DITCHES, SWALES, BASINS, AND OTHER STORMWATER CONTROL PRACTICES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

LEGEND

- ⊗ CONSTRUCTION PLANS
- ⊠ PROFILES
- ⊡ TRAFFIC SIGN AND PAVEMENT MARKING PLANS



**ANDOVER
BURTT ROAD
TYPICAL SECTIONS & PAVEMENT NOTES - 1 OF 3
SHEET 5 OF 42**



PAVEMENT NOTES

PROPOSED HMA MILL & OVERLAY

SURFACE: 1½" SUPERPAVE SURFACE COURSE 12.5 (SSC - 12.5) OVER
1¾" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC - 12.5) OVER
VARIABLE DEPTH SUPERPAVE LEVELING COURSE (MAX. 2" LIFTS) - 12.5 (SLC - 12.5)
(AS REQUIRED TO MEET PROPOSED LINES AND GRADES)
¾" (MIN) PAVEMENT STANDARD MILLING (SEE NOTE 6)

PROPOSED FULL DEPTH PAVEMENT

SURFACE: 1½" SUPERPAVE SURFACE COURSE 12.5 (SSC - 12.5) OVER
1¾" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC - 12.5) OVER

BASE: ¾" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC - 19.0) OVER

SUBBASE: 12" GRAVEL BORROW, TYPE b

PROPOSED PERMANENT PAVEMENT TRENCH PATCH

SURFACE: 1½" SUPERPAVE SURFACE COURSE 12.5 (SSC - 12.5) OVER
1¾" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC - 12.5) OVER
VARIABLE DEPTH SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0)
(COMPACTED IN 2¼" (MIN) AND 3" (MAX) LIFTS) TO MATCH EXISTING PAVEMENT (SEE NOTE 7)

PROPOSED TEMPORARY PAVEMENT TRENCH PATCH

SURFACE: 2½" HMA FOR TEMPORARY ASPHALT PATCHING

BASE: EXISTING MATERIAL SUITABLE FOR RE-USE (SEE VARIOUS TRENCH DETAILS)

PROPOSED HMA DRIVEWAY (TO MATCH EXISTING) - COMMERCIAL

SURFACE: 1½" SUPERPAVE SURFACE COURSE 12.5 - (SSC - 12.5) OVER
2½" SUPERPAVE SURFACE COURSE 12.5 - (SSC - 12.5) OVER

BASE: 8" GRAVEL BORROW; TYPE b (SEE NOTE 5)

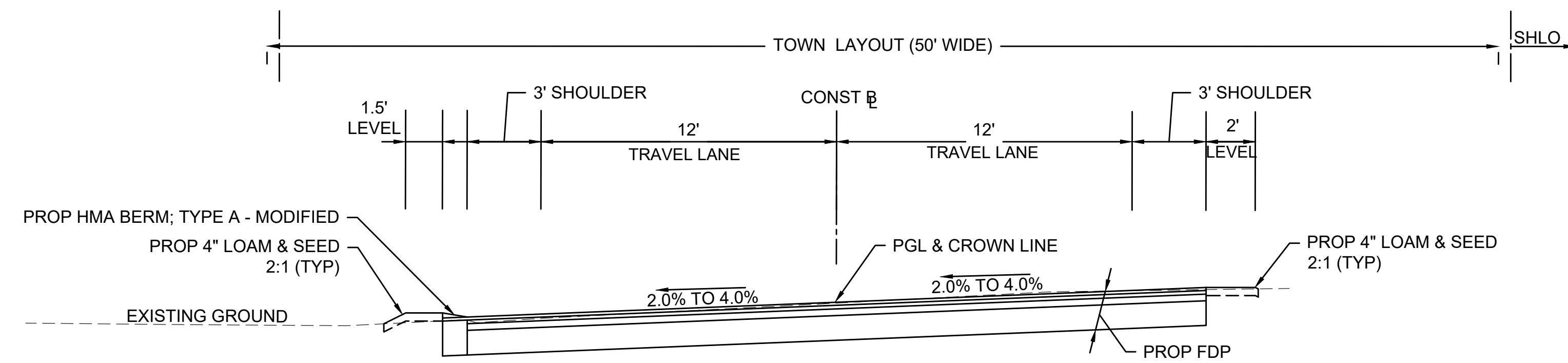
PROPOSED GRAVEL DRIVEWAY

SURFACE: 8" DENSE GRADED CRUSHED STONE (COMPACTED IN 4" (MAX) LIFTS) OVER

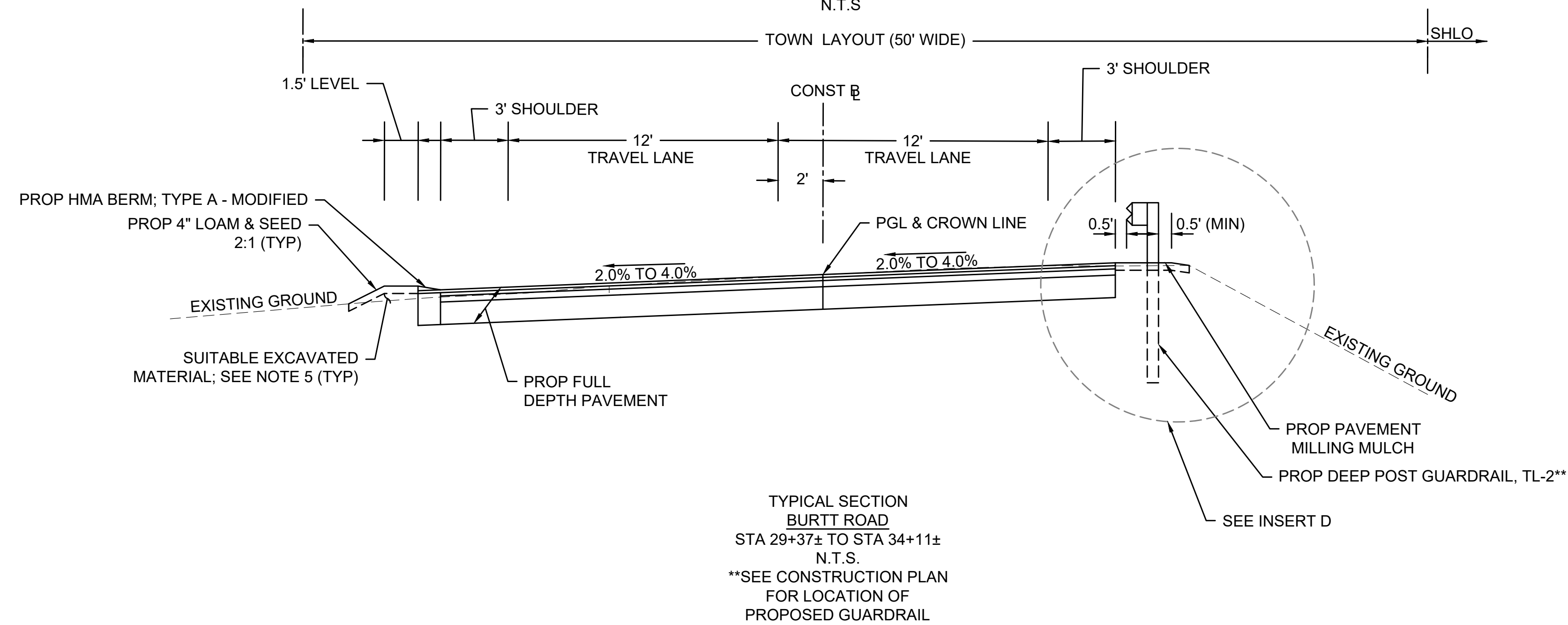
BASE: EXISTING SUITABLE MATERIAL

GENERAL PAVEMENT NOTES:

1. ASPHALT EMULSION FOR TACK COAT SHALL BE APPLIED BETWEEN ALL ASPHALT SURFACES AND SAWCUT JOINTS BEFORE PAVING. HMA JOINT SEALANT SHALL BE APPLIED TO ALL COLD JOINTS (LONGITUDINAL AND TRANSVERSE) BEFORE PAVING SURFACE COURSE. ASPHALT EMULSION FOR TACK COAT SHALL BE RS-1H AND SHALL BE APPLIED AT A RATE CONSISTENT WITH MASSDOT STANDARD SPECIFICATION 460.43G2 ALL SURFACES SHALL BE CLEAN OF ALL ORGANICS, DEBRIS, AND SAND PRIOR TO PAVING.
2. ALL HMA SHALL BE IN ACCORDANCE WITH SECTION 460.
3. ASPHALT EMULSION FOR TACK COAT SHALL BE RS-1H TO RESIST TRACKING OF TACK BY HAUL VEHICLES.
4. HMA FOR WALKS AND DRIVEWAYS SHALL BE IN ACCORDANCE WITH SECTION 700.
5. ALL GRAVEL BORROW MEETING SPECIFICATION AND APPROVED BY THE ENGINEER SHALL BE RETAINED IN PLACE, COMPACTED, AND LEVELED AS REQUIRED.
6. VARIABLE DEPTH MILLING AS REQUIRED TO MEET PROPOSED LINES AND GRADES WITH RESURFACING OVERLAY.
7. TOTAL DEPTH OF PROPOSED PAVEMENT IN PERMANENT TRENCH PATCH SHALL BE 6.5" OR SHALL MATCH THE EXISTING PAVEMENT DEPTH, WHICHEVER IS DEEPER.

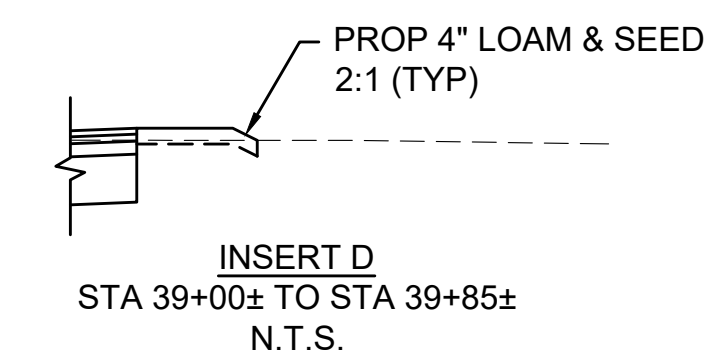


TYPICAL SECTION
BURTT ROAD
STA 34+25± TO STA 39+85
N.T.S.

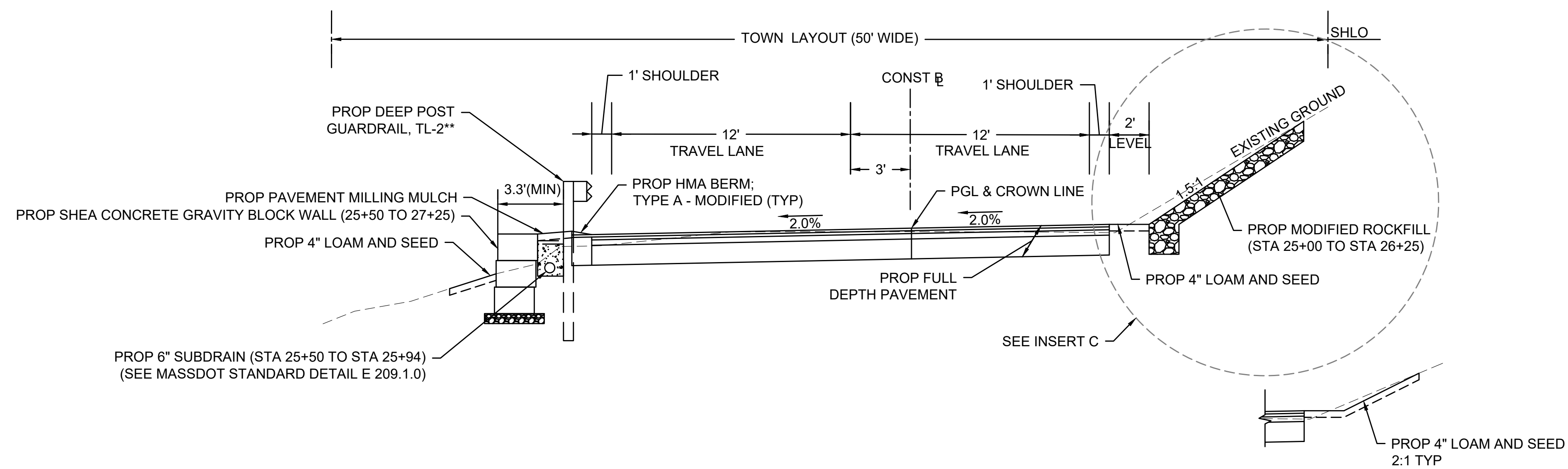


TYPICAL SECTION
BURTT ROAD
STA 29+37± TO STA 34+11±
N.T.S.

**SEE CONSTRUCTION PLAN
FOR LOCATION OF
PROPOSED GUARDRAIL



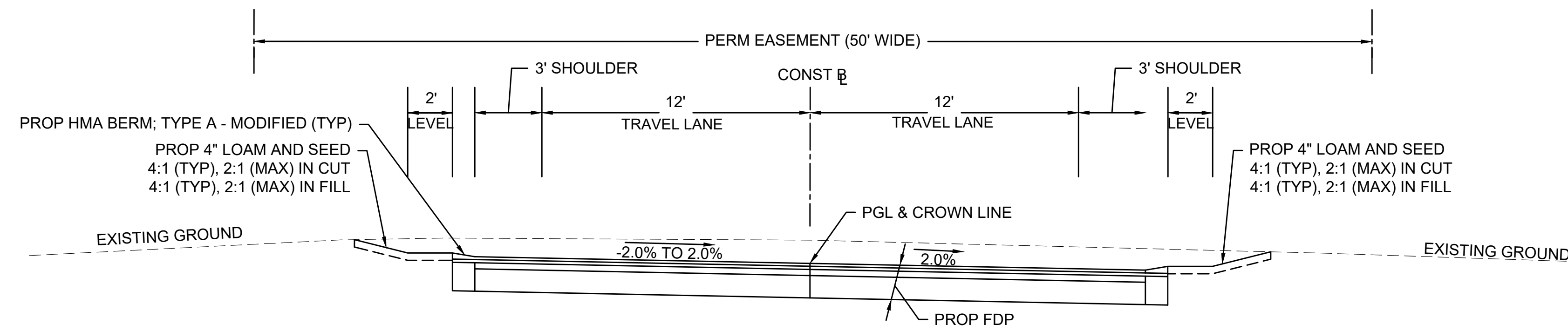
INSERT D
STA 39+00± TO STA 39+85±
N.T.S.



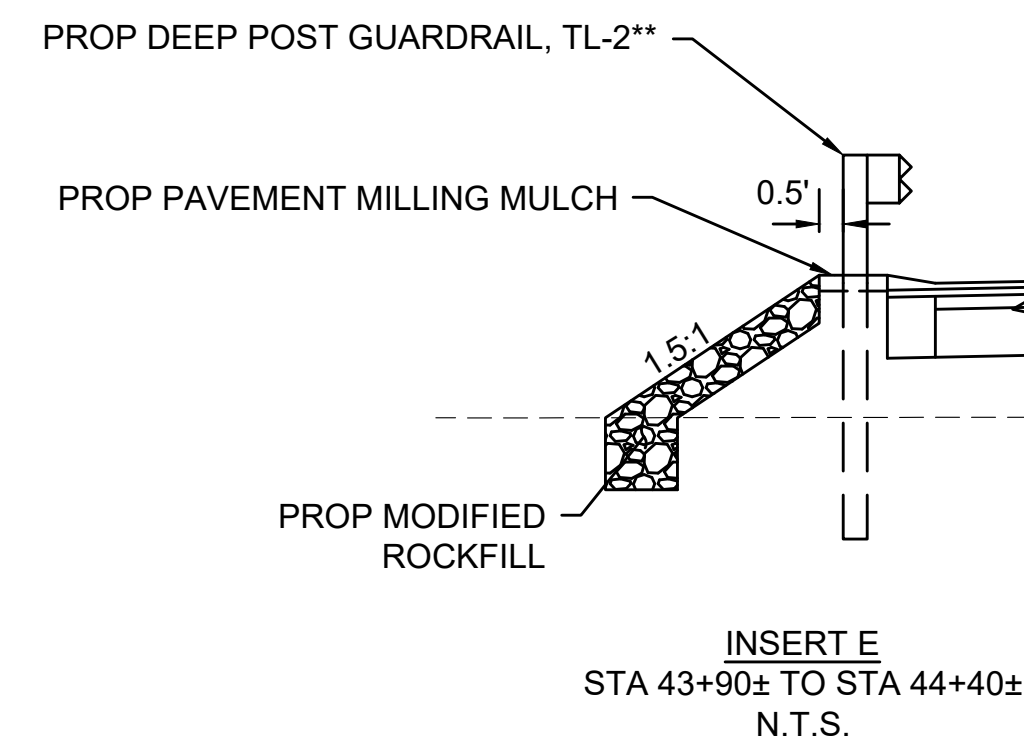
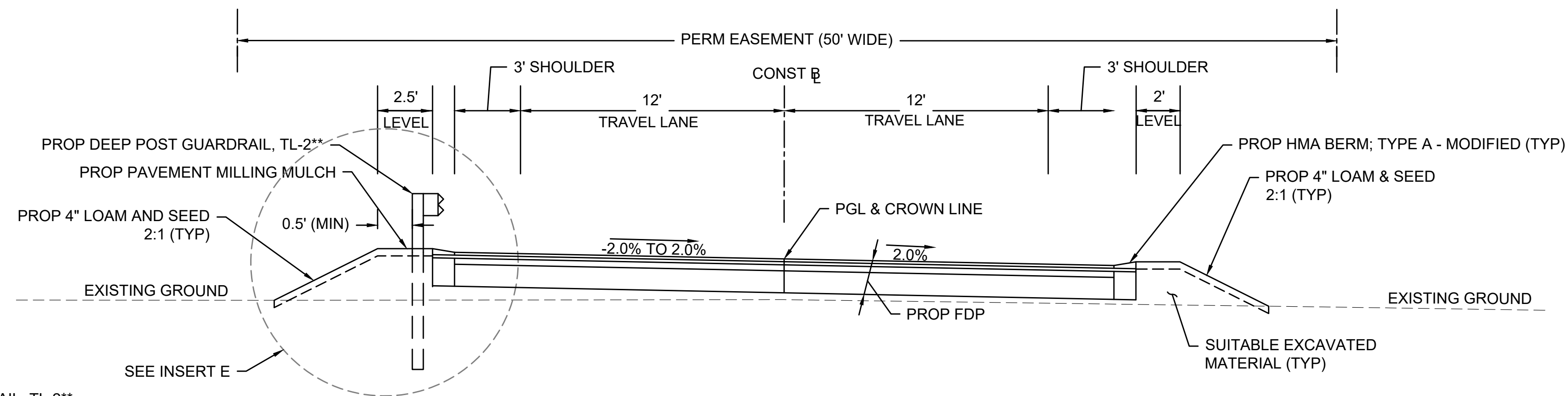
TYPICAL SECTION
BURTT ROAD
STA 24+50± TO STA 27+25±
N.T.S.

**SEE CONSTRUCTION PLAN
FOR LOCATION OF
PROPOSED GUARDRAIL

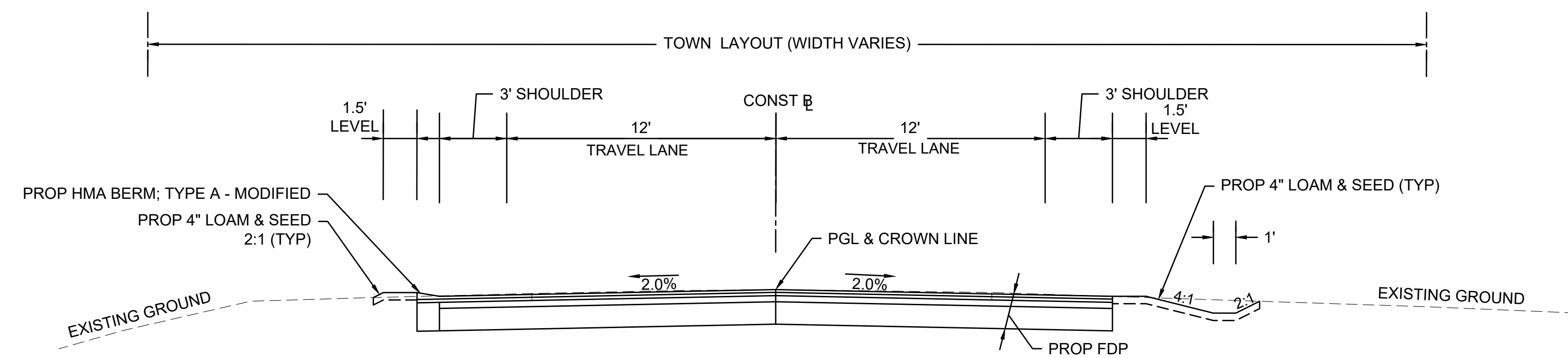
INSERT C
STA 24+50± TO STA 25+00±
STA 26+25± TO STA 27+25±
N.T.S.



TYPICAL SECTION
BURTT ROAD
STA 45+00± TO STA 49+08±
N.T.S.



TYPICAL SECTION
BURTT ROAD
STA 43+50± TO STA 44+75±
N.T.S.
**SEE CONSTRUCTION PLAN FOR LOCATION OF
PROPOSED GUARDRAIL



TYPICAL SECTION
BURTT ROAD
STA 40+61± TO STA 43+50±
N.T.S.

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

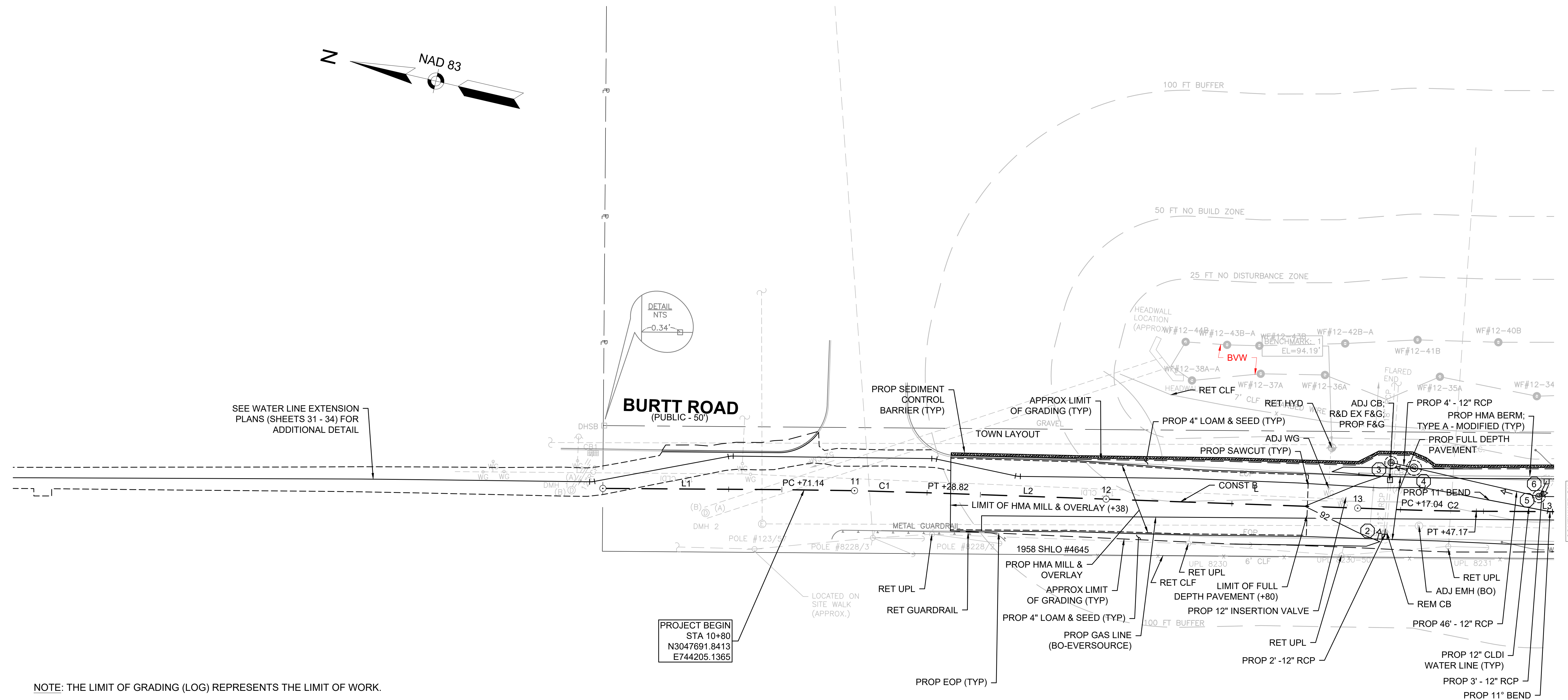
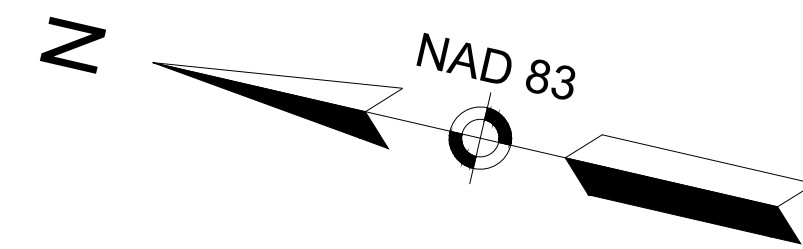
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WATER SUPPLY ALTERATIONS

SEE BELOW

DRAINAGE DETAILS

SEE BELOW



SEE WATER LINE EXTENSION
PLANS (SHEETS 31 - 34) FOR
ADDITIONAL DETAIL

BURTT ROAD
(PUBLIC - 50')

PROJECT BEGIN
STA 10+80
N3047691.8413
E744205.1365

NOTE: THE LIMIT OF GRADING (LOG) REPRESENTS THE LIMIT OF WORK.

BURTT RD ALIGNMENT CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	10+00.00	3047769.9175	744187.6977		S12°36'17"E 71.14'	10+71.14	3047700.4935	744203.2219
C1	10+71.14	3047700.4935	744203.2219	R=2000.00' Δ=1°39'09" L=57.68' T=28.84'		11+28.82	3047644.0269	744214.9963
L2	11+28.82	3047644.0269	744214.9963		S10°57'08"E 188.21'	13+17.04	3047459.2412	744250.7553
C2	13+17.04	3047459.2412	744250.7553	R=1000.00' Δ=1°43'36" L=30.14' T=15.07'		13+47.17	3047429.7448	744256.9259
L3	13+47.17	3047429.7448	744256.9259		S12°40'44"E 1244.60'	25+91.77	3046215.4973	744530.1000

PROPOSED DRAINAGE STRUCTURE DATA

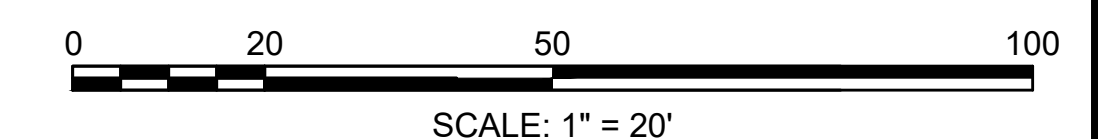
NO.	TYPE	STATION	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
②	PROP CB	13+11.07, 11.0' RT	92.04		87.70	SLAB TOP
③	PROP DMH	13+12.64, 18.6' LT	91.61	86.70 (4) 86.6 ± (EXIST)	86.5 ± (EXIST)	CONSTRUCT OVER EXIST 12" RCP
④	PROP WATER QUALITY UNIT	13+21.87, 16.8' LT	91.79	86.85 (5)	86.75 (3)	CS-4 CASCADE SEPARATOR
⑤	PROP DMH	13+72.00, 6.0' LT	92.53	87.53 (6) 87.53 (8)	87.43 (4)	
⑥	PROP CB	13+75.00, 12.0' LT	92.41		87.56 (5)	4' SUMP W/ HOOD

NOTE: THERE IS NO PROPOSED STRUCTURE NUMBER 1

EXISTING INVERTS TABLE

DMH 1 RIM=88.93 I (A) = 83.4 I (B) = 83.8 TOP OF WATER = 83.6	CB 1 RIM 88.63' INV. INACCESSIBLE TOP OF HOOD = 84.6' SUMP = 81.1'	HEADWALL 1 TOP = 90.05' INV. = 84.7' (54')
DMH 2 RIM = 89.66' I (A) = 81.2' I (B) = 81.2' SUMP = 81.2'	CB 2 RIM = 91.99' INV. OUT = 87.6' TOP OF WATER = 87.2' SUMP = 83.9'	
	CB 3 RIM = 91.85' INV. IN = 87.1' INV. OUT = 86.7' TOP OF WATER = 86.6' SUMP = 84.9'	

FOR CONSTRUCTION PROFILES: SEE SHEET NO. 16



CONTINUED ON
SHEET NO. 9

HIGHWAY GUARD DETAILS

TRAFFIC SIGNAL CONDUIT

WATER SUPPLY ALTERATIONS

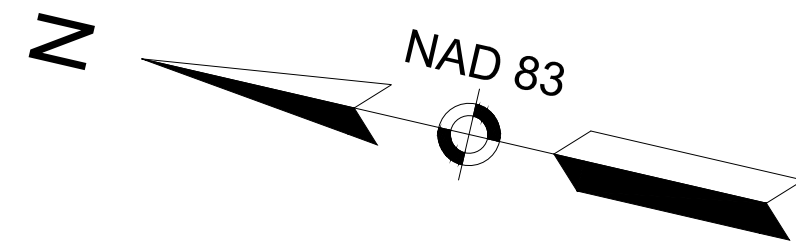
DRAINAGE DETAILS

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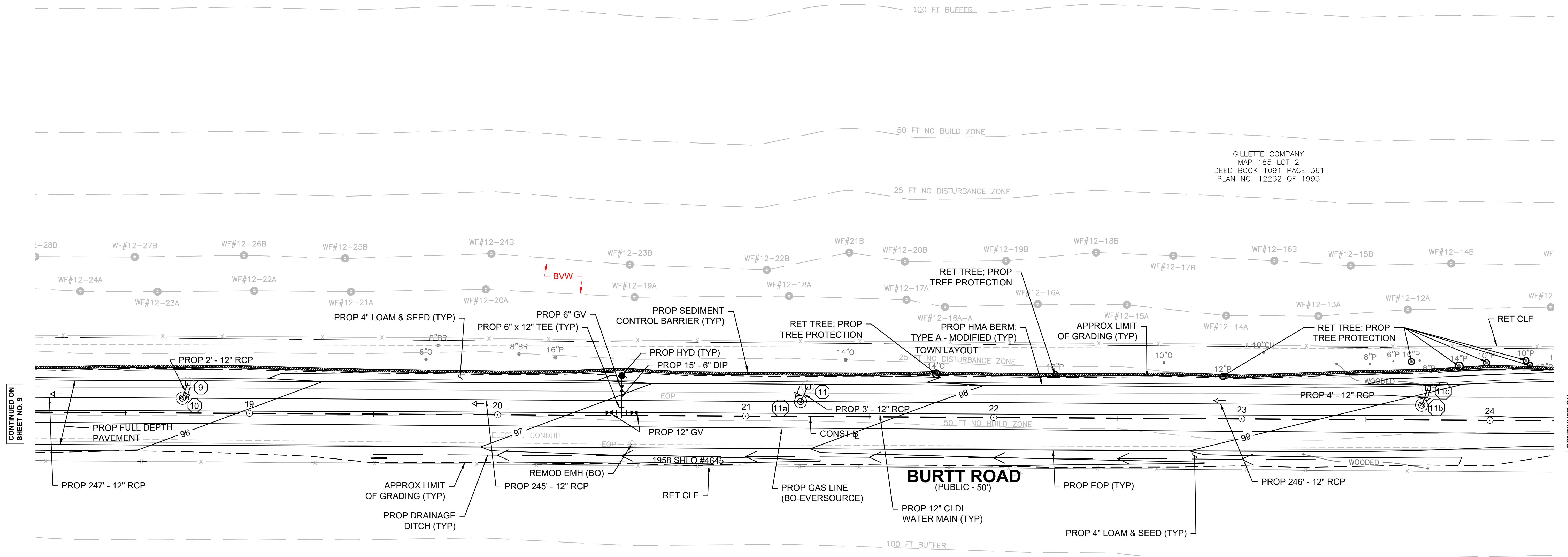
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SEE BELOW

SEE BELOW



GILLETTE COMPANY
MAP 185 LOT 2
DEED BOOK 1091 PAGE 361
PLAN NO. 12232 OF 1993



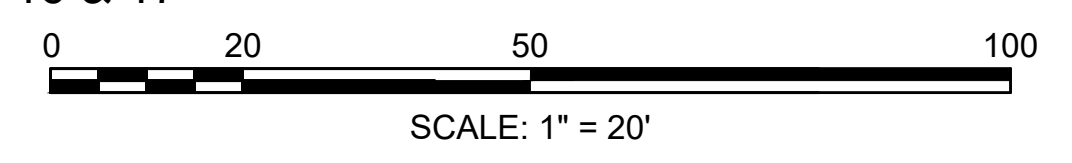
CONTINUED ON
SHEET NO. 9

CONTINUED ON
SHEET NO. 11

BURTT RD ALIGNMENT CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L3	13+47.17	3047429.7448	744256.9259		S12°40'44"E 1244.60'	25+91.77	3046215.4973	744530.1000

PROPOSED DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
9	PROP CB	18+75.00, 12.0' LT	95.59		90.73 (10)	4' SUMP W/ HOOD
10	PROP DMH	18+72.88, 6.0' LT	95.71	90.71 (9) 90.71 (11a)	90.61 (8)	
11	PROP CB	21+25.00, 12.0' LT	97.47		92.97 (11a)	4' SUMP W/ HOOD
11a	PROP DMH	21+22.11, 6.0' LT	97.59	92.94 (11) 92.69 (11b)	92.59 (10)	
11b	PROP DMH	23+70.35, 0' LT/RT	99.09	94.09 (11c)	93.99 (11a)	
11c	PROP CB	23+72.54, 6.0' LT	98.94		94.13 (11b)	4' SUMP W/ HOOD

FOR CONSTRUCTION PROFILES: SEE SHEETS NO. 16 & 17



HIGHWAY GUARD DETAILS

STA 24+83 LT TO STA 24+93 LT TRAILING ANCHORAGE
 STA 24+93 LT TO STA 27+55 LT GUARDRAIL, TL-2 (DEEP STEEL POSTS)
 STA 27+55 LT TO STA 27+80 LT TANGENT END TREATMENT, TL-2
 STA 29+90 RT TO STA 30+15 RT TANGENT END TREATMENT, TL-2

TRAFFIC SIGNAL CONDUIT

NONE


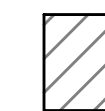
WATER SUPPLY ALTERATIONS

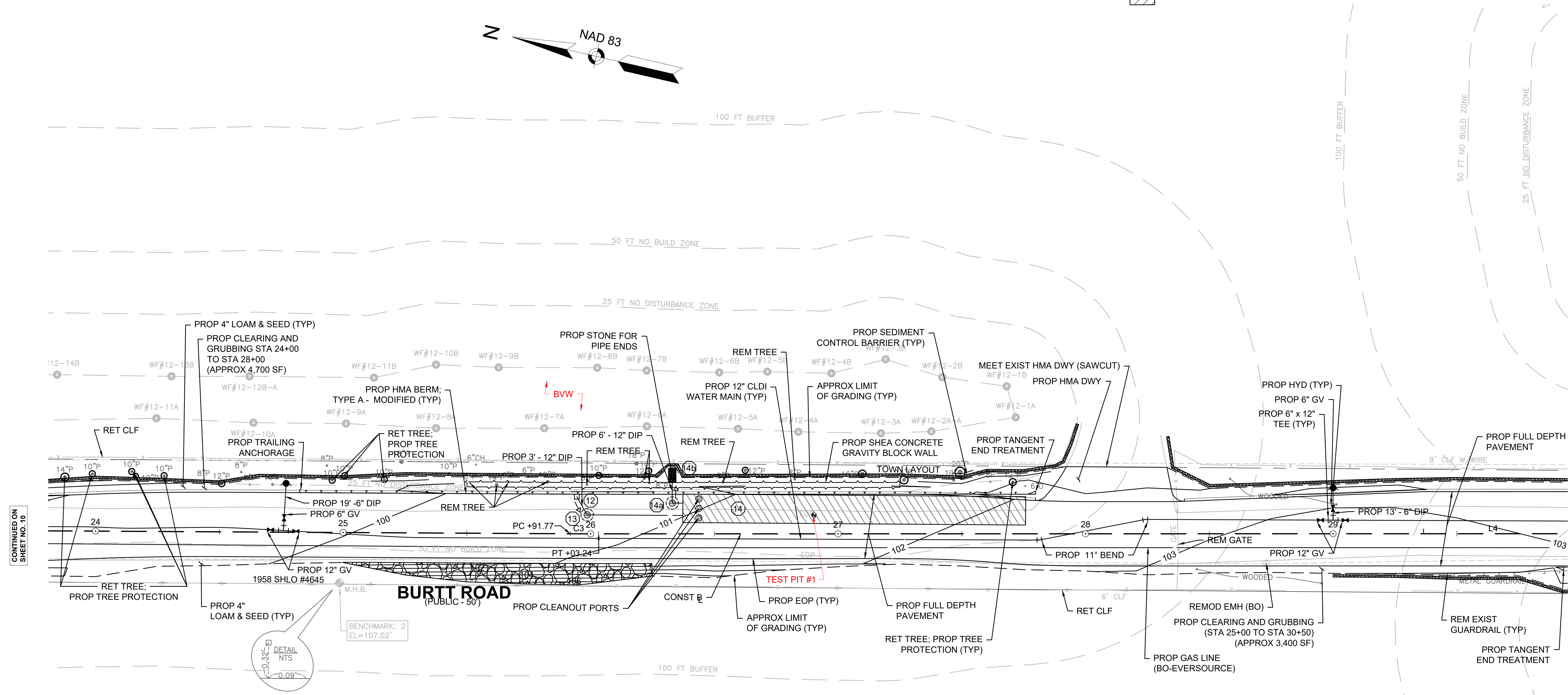
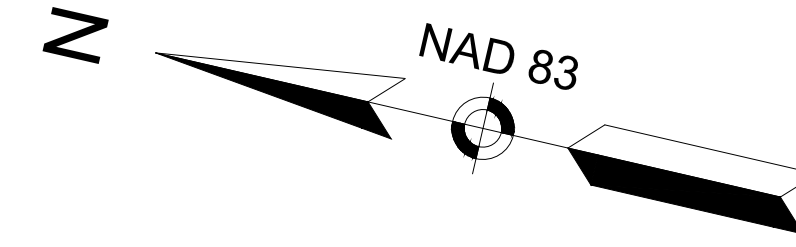
SEE BELOW

DRAINAGE DETAILS

SEE BELOW

LEGEND:

PROP MODIFIED ROCKFILL: 
 STORM WATER UNDERGROUND STORAGE CHAMBER: 



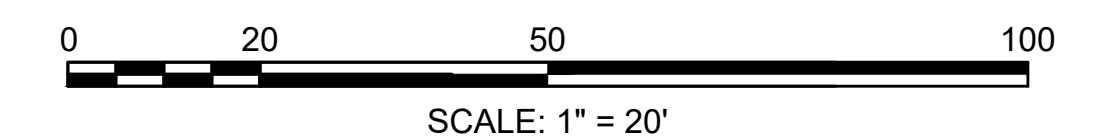
CONTINUED ON SHEET NO. 10

CONTINUED ON SHEET NO. 12

BURTT RD ALIGNMENT CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C3	25+91.77	3046215.4973	744530.1000	R=2000.00 Δ=0°19'43" L=11.47' T=5.74'		26+03.24	3046204.3096	744532.6506
L4	26+03.24	3046204.3096	744532.6506		S13°00'28"E 660.65'	32+63.90	3045560.6074	744681.3520

PROPOSED DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
12	PROP CB	25+94.41, 15.0' LT	100.45		97.12 (13)	SLAB TOP
13	PROP WATER QUALITY UNIT	25+98.62, 7.7' LT	100.65	97.09 (12)	96.99 (14)	CS-3 CASCADE SEPARATOR
14	SUBSURFACE INFILTRATION CHAMBER			BOTTOM OF STONE = 96.25		STORMTECH SC-310; 3 ROWS 19 CHAMBERS
14a	OUTLET CONTROL STRUCTURE	26+33.02, 12.4' LT	100.85	96.25 (14)	97.90 (WEIR) 97.25 (14b)	
14b	FLARED END SECTION	26+33.02, 26.7' LT			97.20 (14a)	SEE MASSDOT STANDARD DETAIL E 206.8.0

FOR CONSTRUCTION PROFILES: SEE SHEET NO. 17



HIGHWAY GUARD DETAILS

STA 29+90 RT TO STA 30+15 RT, TANGENT END TREATMENT, TL-2
 STA 30+15 RT TO STA 33+28 RT, GUARDRAIL, TL-2 (DEEP STEEL POSTS)
 STA 33+28 RT TO STA 33+35 RT, TRAILING ANCHORAGE

TRAFFIC SIGNAL CONDUIT

NONE


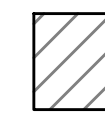
WATER SUPPLY ALTERATIONS

SEE BELOW

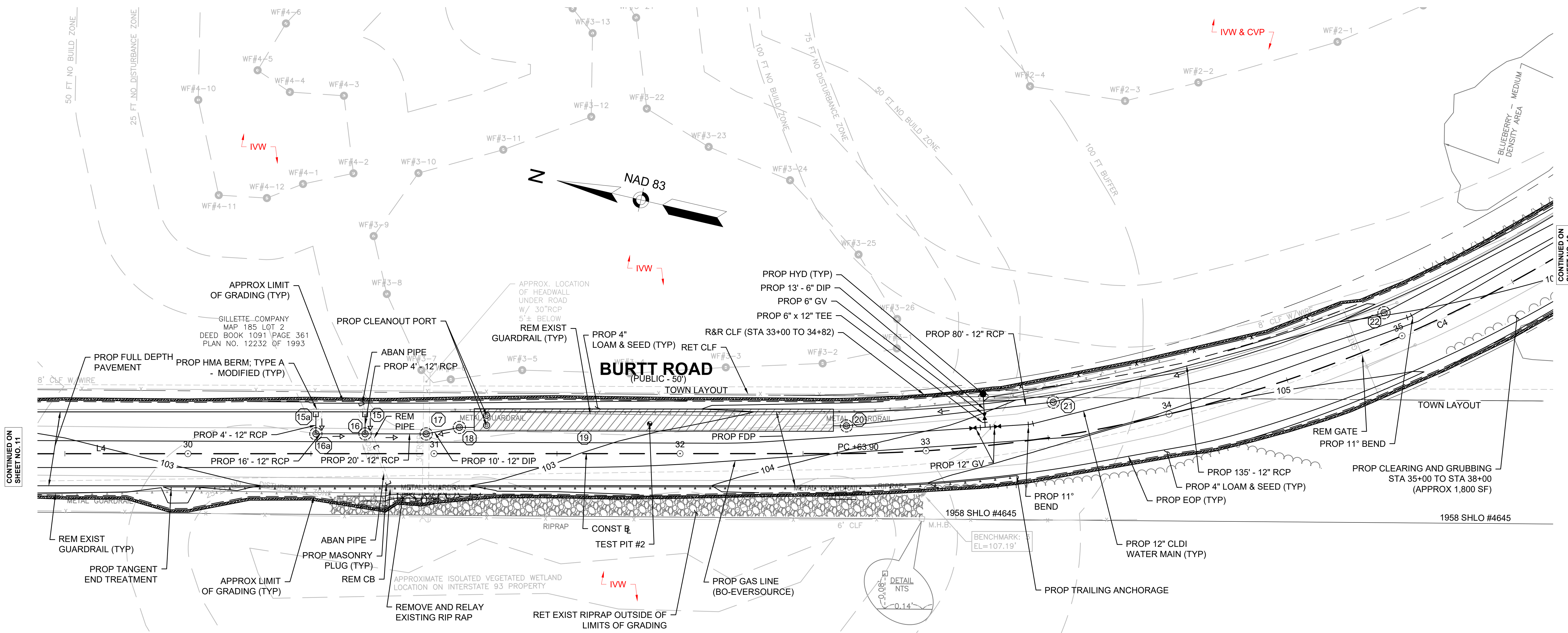
DRAINAGE DETAILS

SEE BELOW

LEGEND:

- PROP MODIFIED ROCKFILL: 
- STORM WATER UNDERGROUND STORAGE CHAMBER: 

NOTE: CONTRACTOR TO CONFIRM INVERT OF EXISTING 30" RCP PRIOR TO FURNISHING PROP MANHOLE #17.



CONTINUED ON SHEET NO. 11

CONTINUED ON SHEET NO. 13

PROPOSED DRAINAGE STRUCTURE DATA

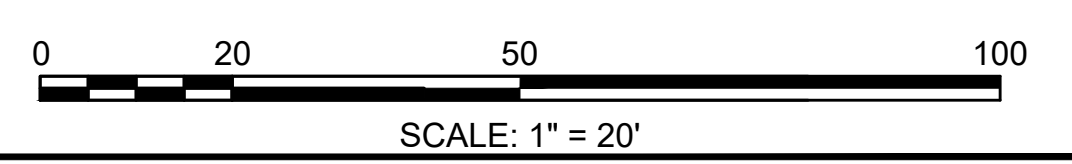
NO.	TYPE	STATION	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
15	PROP CB	30+72.00, 16.0' LT	102.31		98.24 (16)	4' SUMP W/ HOOD; SLAB TOP
15a	PROP CB	30+52.00, 16.0' LT	102.33		98.42 (16a)	4' SUMP W/ HOOD; SLAB TOP
16	WATER QUALITY UNIT	30+72.00, 8.1' LT	102.49	98.20 (15) 98.20 (16a)	98.10 (17)	CS-3 CASCADE SEPARATOR
16a	PROP DMH	30+52.00, 8.1' LT	102.51	98.38 (15a)	98.28 (16)	SLAB TOP
17	PROP DMH	30+96.84, 8.0' LT	102.52	98.00 (16) 97.51 (18) 97.5 ± (EX)	97.5 ± (30" EX)	DOGHOUSE; 6' DIAMETER; SEE DRAINAGE NOTE 1
18	OUTLET CONTROL STRUCTURE	31+10.31, 10.7' LT	102.51	97.55 (19)	99.75 (WEIR) 98.88 (30" x 2" ORIF) 98.05 (12" x 3" ORIF) 97.55 (4"x2" ORIF) 97.55 (17)	
19	UNDERGROUND STORAGE CHAMBER			BOTTOM OF STONE: 97.55		STORMTECH SC-310; 2 ROWS, 20 CHAMBERS
20	WATER QUALITY UNIT	32+67.71, 11.3' LT	103.59	97.65 (21)	97.55 (19)	CS-3 CASCADE SEPARATOR
21	PROP DMH	33+54.24, 14.0' LT	104.28	98.15 (22)	98.05 (20)	
22	PROP DMH	34+97.00, 11.5' LT	103.95	98.90 (24)	98.85 (21)	

EXISTING INVERTS TABLE
 CB 4
 RIM = 102.14'
 INV. OUT = 98.1'
 TOP OF WATER = 96.1'
 SUMP = 94.1'

BURTT RD ALIGNMENT CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L4	26+03.24	3046204.3096	744532.6506		S13°00'28"E 660.65'	32+63.90	3045560.6074	744681.3520
C4	32+63.90	3045560.6074	744681.3520	R = 575.00' Δ = 71°07'15" L = 713.74' T = 411.06'		39+77.64	3045118.0460	745182.7761

FOR CONSTRUCTION PROFILES: SEE SHEETS NO. 17 & 18



HIGHWAY GUARD DETAILS

STA 43+29 LT TO STA 43+38 LT TRAILING ANCHORAGE
 STA 43+38 LT TO STA 45+03 LT GUARDRAIL, TL-2 (DEEP STEEL POSTS)
 STA 45+03 LT TO STA 45+28 LT TANGENT END TREATMENT, TL -2

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE BELOW

DRAINAGE DETAILS

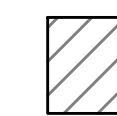
SEE BELOW

LEGEND:

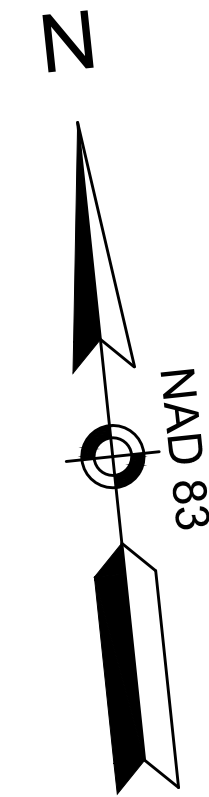
PROP MODIFIED ROCKFILL:



STORM WATER UNDERGROUND STORAGE CHAMBER:



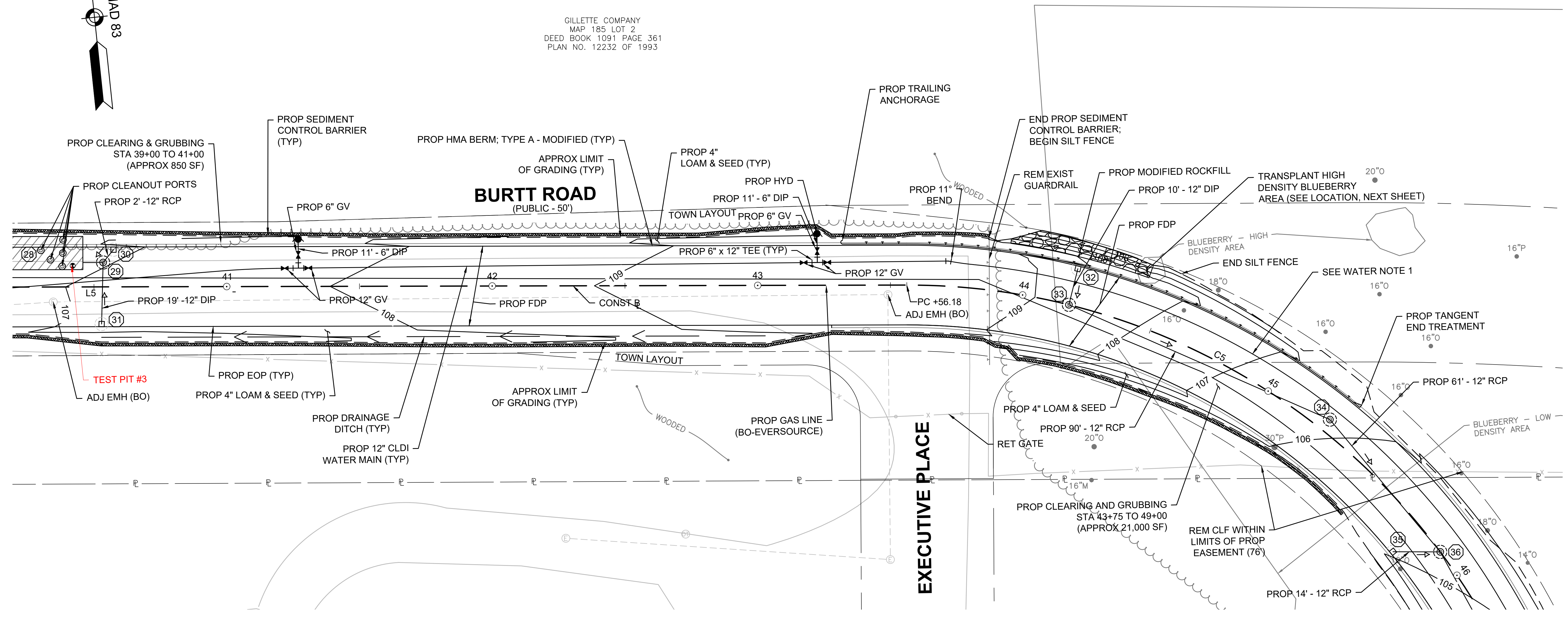
ANDOVER
 BURTT ROAD
 CONSTRUCTION PLANS - 7 OF 8
 SHEET 14 OF 42



GILLETTE COMPANY
 MAP 185 LOT 2
 DEED BOOK 1091 PAGE 361
 PLAN NO. 12232 OF 1993

CONTINUED ON SHEET NO. 13

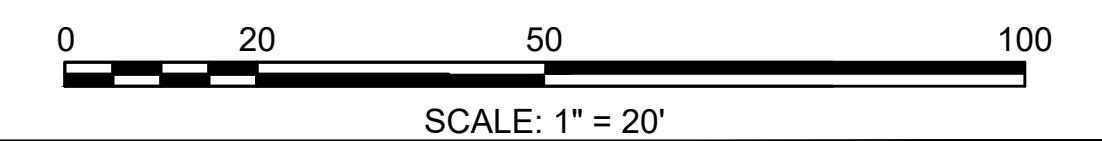
CONTINUED ON SHEET NO. 15



PROPOSED DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
(28)	UNDERGROUND STORAGE CHAMBER			BOTTOM OF STONE = 102.00		STORMTECH SC-160LP 5 ROWS, 13 CHAMBERS
(29)	PROP WATER QUALITY UNIT	40+53.46, 9.2' LT	106.96	103.65 (31) 102.12 (30)	102.02 (28)	CS-3 CASCADE SEPARATOR
(30)	PROP CB	40+57.40, 14.0' LT	106.88		102.22 (29)	4' SUMP W/ HOOD
(31)	PROP CB	40+52.85, 14.0' RT	107.07		103.74 (29)	4' SUMP W/ HOOD; SLAB TOP
(32)	PROP GI	44+17.83, 14.0' LT	108.87		106.37 (33)	
(33)	PROP CB W/ MH COVER	44+17.83, 0' LT/RT	108.71	105.38 (32)	103.62 (34)	4' SUMP W/ HOOD; SLAB TOP
(34)	PROP DMH	45+24.90, 4.9' LT	106.19	101.19 (33)	101.09 (36)	
(35)	PROP CB	45+77.83, 14.0' RT	105.03		100.78 (36)	4' SUMP W/ HOOD; SLAB TOP
(36)	PROP DMH	45+89.15, 0' LT/RT	105.21	100.71 (34) 100.71 (35)	100.61 (37)	

BURTT RD ALIGNMENT CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L5	39+77.64	3045118.0460	745182.7761		S84°07'43"E 378.54'	43+56.18	3045079.3223	745559.3290
C5	43+56.18	3045079.3223	745559.3290	R=250.00 Δ=127°09'56" L=554.86' T=503.24'		49+11.04	3044660.0159	745716.4825

FOR CONSTRUCTION PROFILES: SEE SHEET NO. 18



HIGHWAY GUARD DETAILS

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE BELOW

DRAINAGE DETAILS

SEE BELOW

LEGEND:

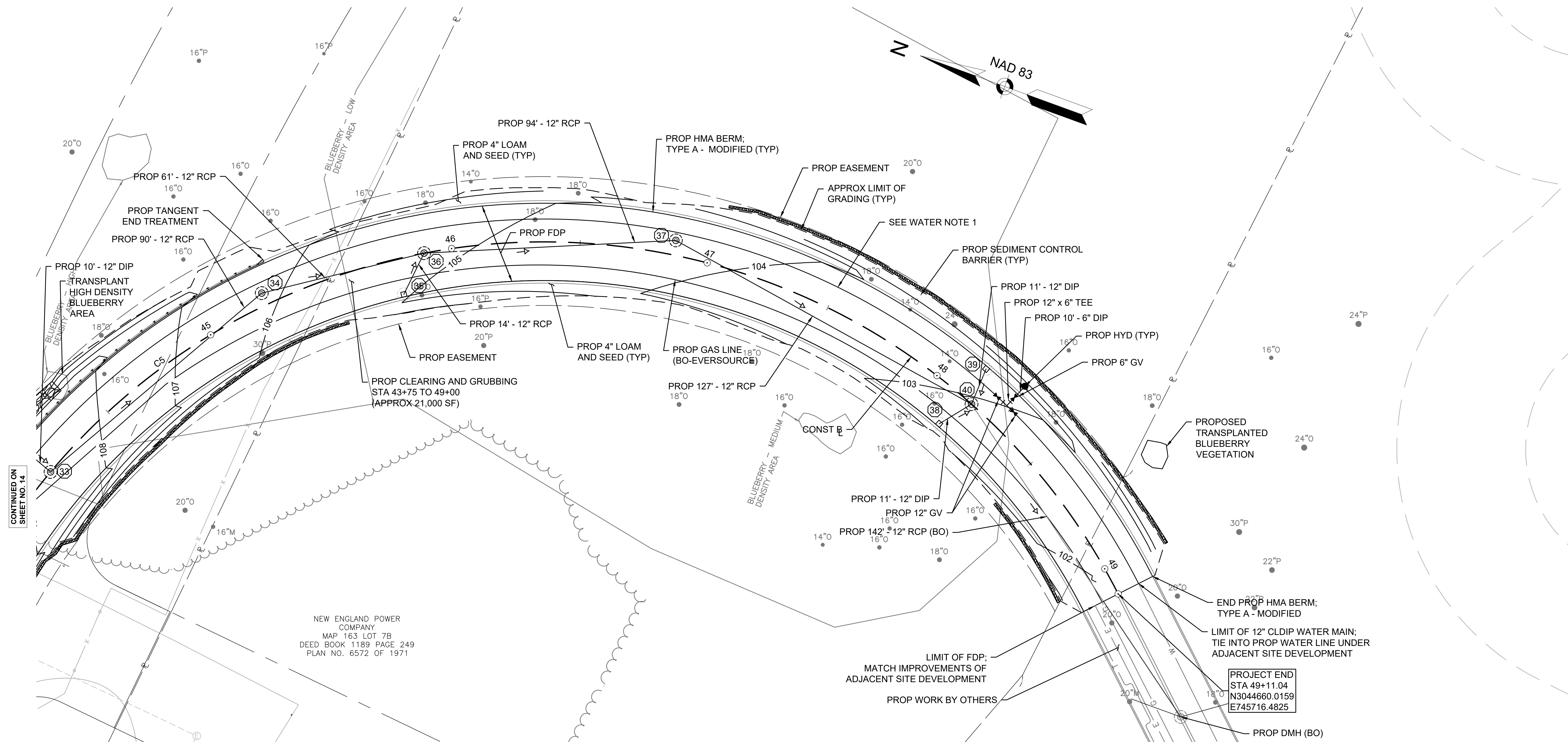
PROP MODIFIED ROCKFILL:



STA 43+29 LT TO STA 43+38 LT TRAILING ANCHORAGE
STA 43+38 LT TO STA 45+03 LT GUARDRAIL, TL-2 (DEEP STEEL POSTS)
STA 45+03 LT TO STA 45+28 LT TANGENT END TREATMENT, TL-2

WATER NOTE:

- PROPOSED 12" CLDI WATER MAIN IS SHOWN AS ONE CURVE (R=260') BEYOND STA. 43+70. WATER MAIN IN THIS AREA SHALL BE 20' PIPE INCREMENTS WITH 4" PIPE DEFLECTION AT EACH JOINT.



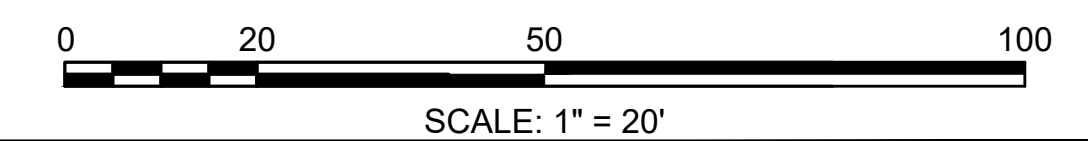
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SHEET NO. 14

NEW ENGLAND POWER
COMPANY
MAP 163 LOT 7B
DEED BOOK 1189 PAGE 249
PLAN NO. 6572 OF 1971

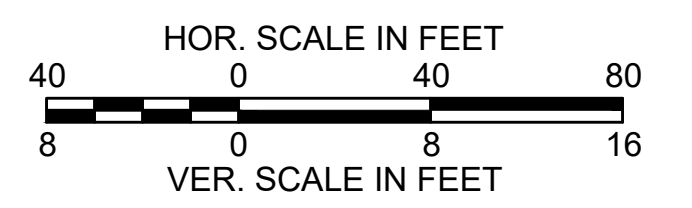
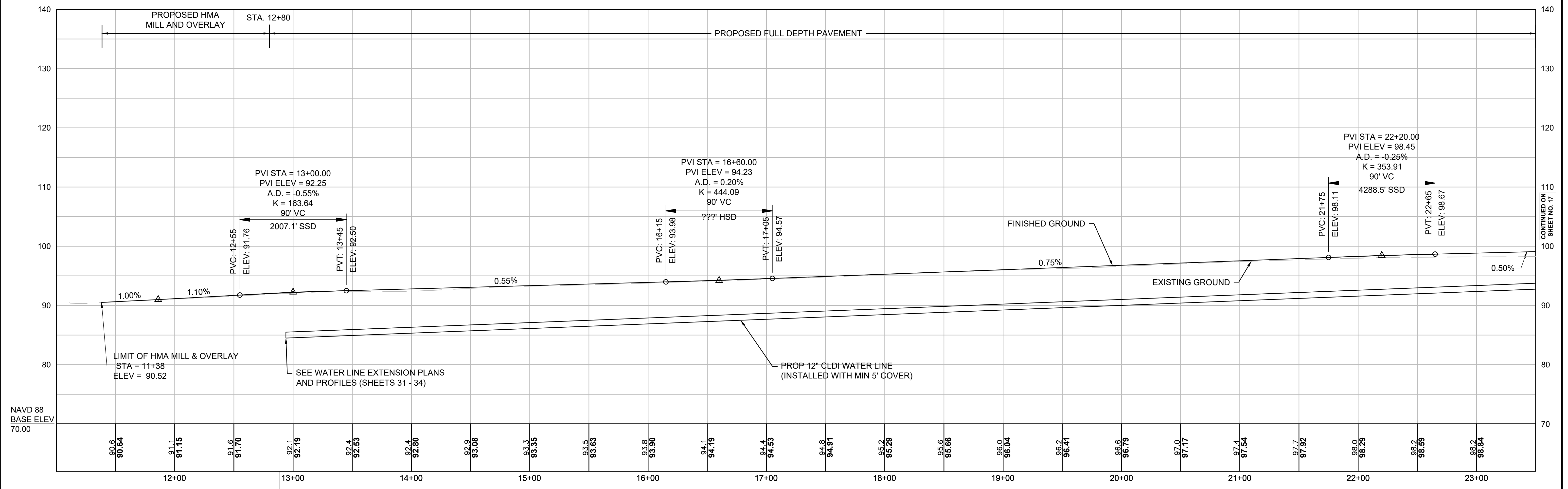
PROPOSED DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
33	PROP CB W/ MH COVER	44+17.83, 0' LT/RT	108.71	105.38 (32)	103.62 (34)	4' SUMP W/ HOOD; SLAB TOP
34	PROP DMH	45+24.90, 4.9' LT	106.19	101.19 (33)	101.09 (36)	
35	PROP CB	45+77.83, 14.0' RT	105.03		100.78 (36)	4' SUMP W/ HOOD; SLAB TOP
36	PROP DMH	45+89.15, 0' LT/RT	105.21	100.71 (34) 100.71 (35)	100.61 (37)	
37	PROP DMH	46+86.34, 5.7' LT	104.36	99.96 (36)	99.86 (40)	
38	PROP CB	48+12.83, 14.0' RT	102.68		99.35 (40)	4' SUMP W/ HOOD; SLAB TOP
39	PROP CB	48+12.83, 14.0' LT	102.90		99.60 (40)	4' SUMP W/ HOOD; SLAB TOP
40	PROP DMH	48+17.41, 0' LT/RT	102.93	99.25 (37) 99.25 (38) 99.25 (39)	99.15 (KO)	6' DIAMETER; PROVIDE KNOCKOUT FOR PROP PIPE (BO)

BURTT RD ALIGNMENT CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L5	39+77.64	3045118.0460	745182.7761		S84°07'43"E 378.54'	43+56.18	3045079.3223	745559.3290
C5	43+56.18	3045079.3223	745559.3290	R = 250.00' Δ = 127°09'56" L = 554.86' T = 503.24'		49+11.04	3044660.0159	745716.4825

FOR CONSTRUCTION PROFILES: SEE SHEETS NO. 18-19



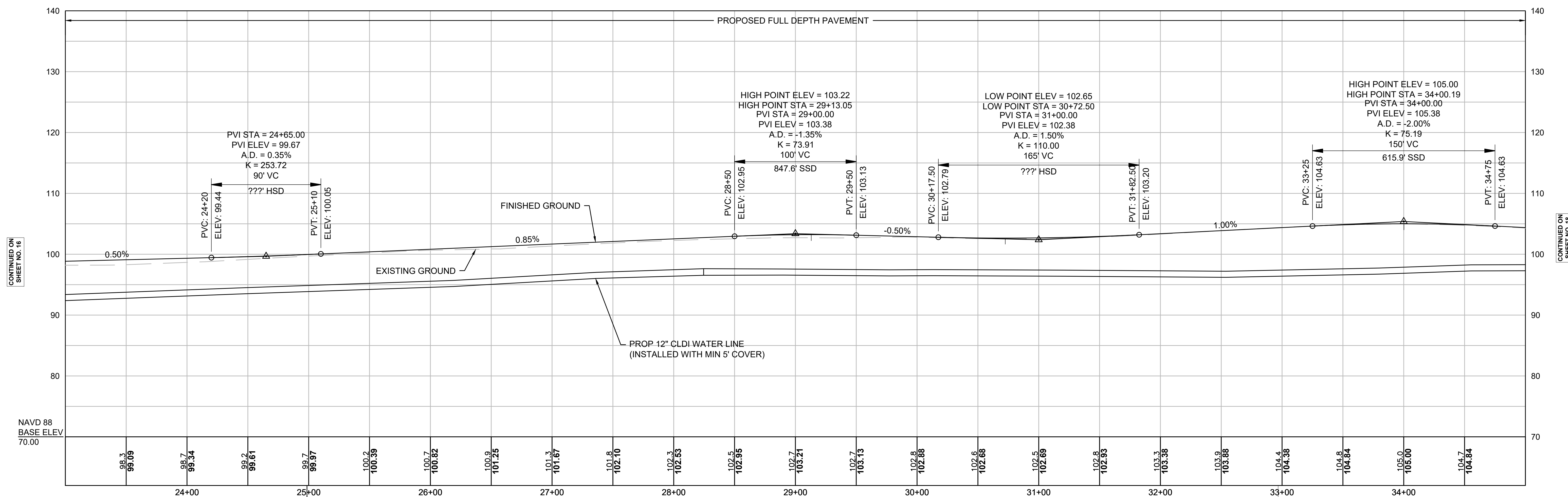
BURTT ROAD



FOR CONSTRUCTION PLANS: SEE SHEETS NO. 8-10

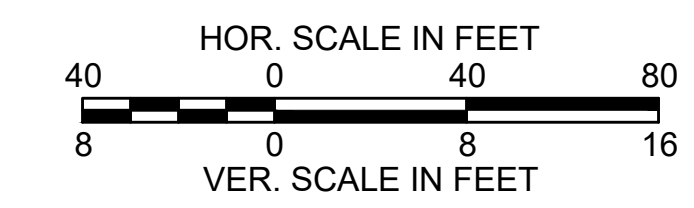
CONTINUED ON SHEET NO. 17

BURTT ROAD



Benchmark: 2
Elevation = 107.02
Sta. 24+98.59, 20.9 RT

Benchmark: 3
Elevation = 107.19
Sta. 32+96.83, 17.8 RT

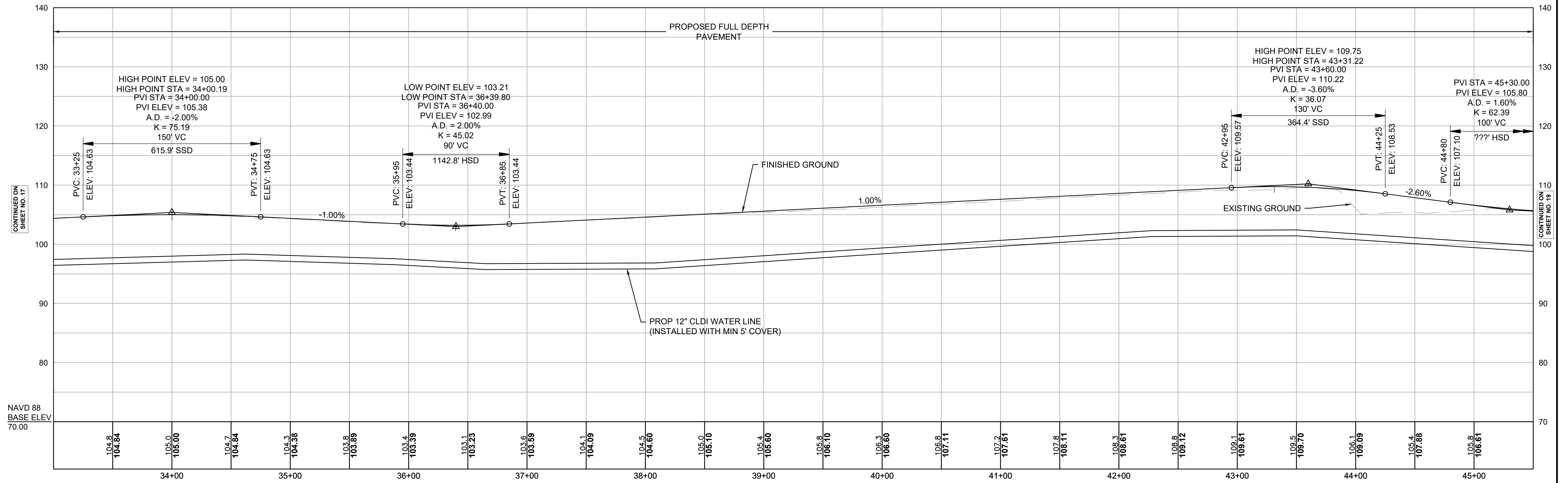


FOR CONSTRUCTION PLANS: SEE SHEETS NO. 10-12

CONTINUED ON
SHEET NO. 16

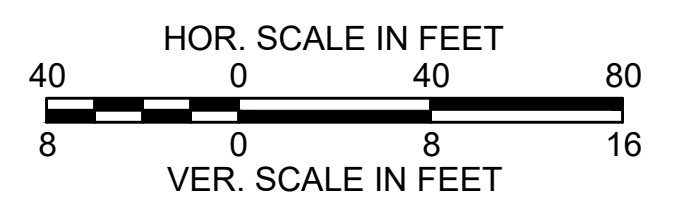
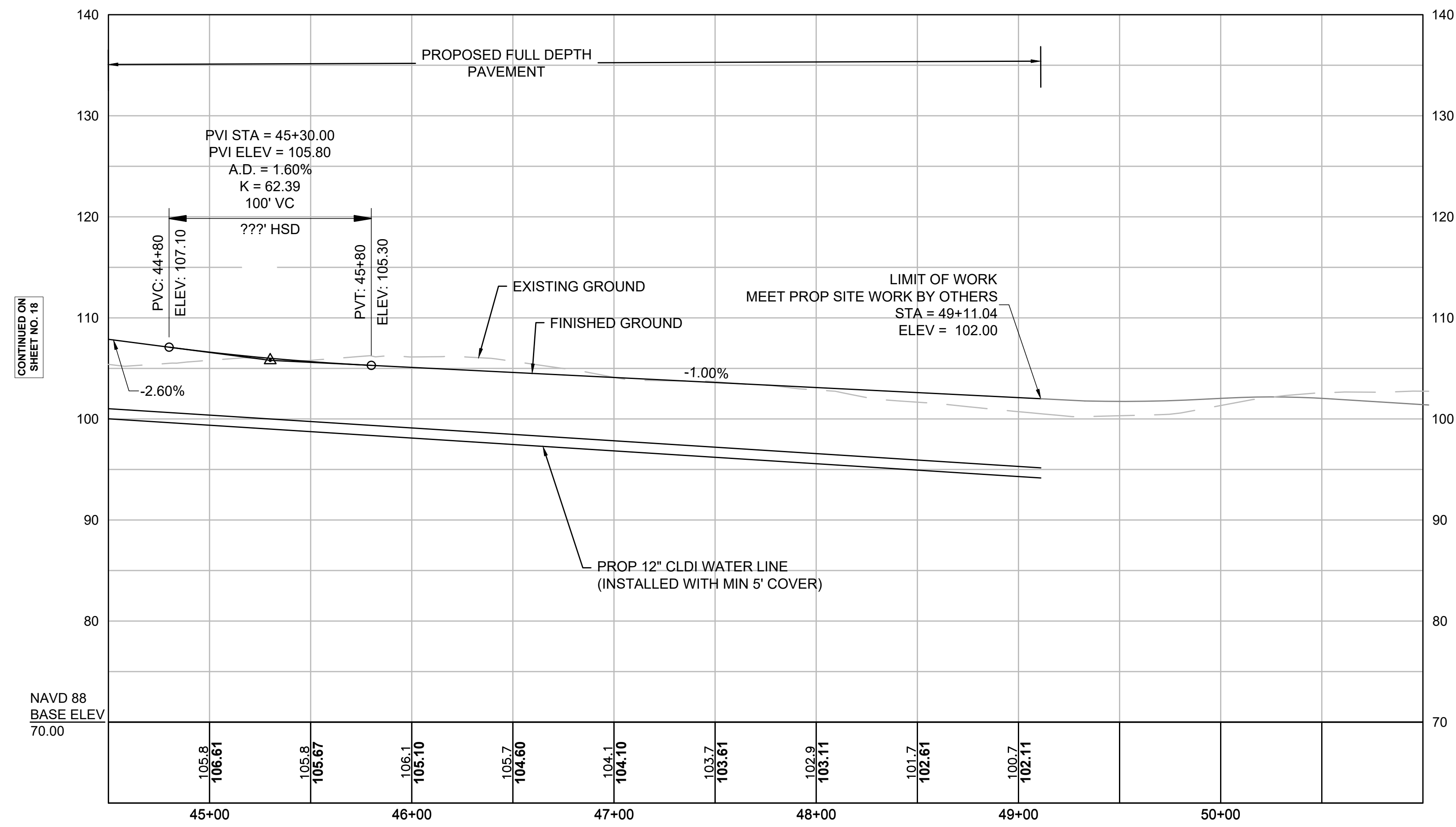
CONTINUED ON
SHEET NO. 18

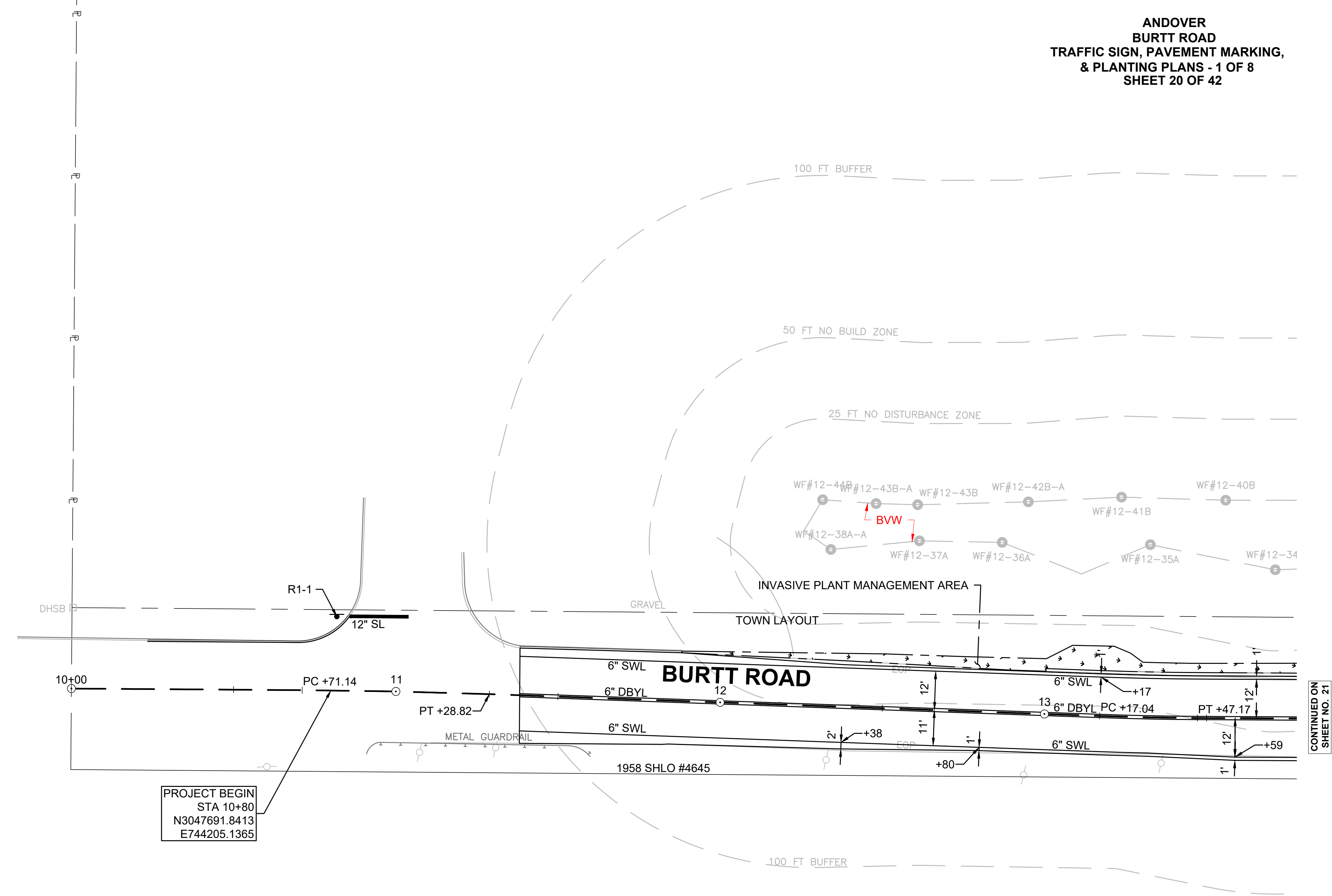
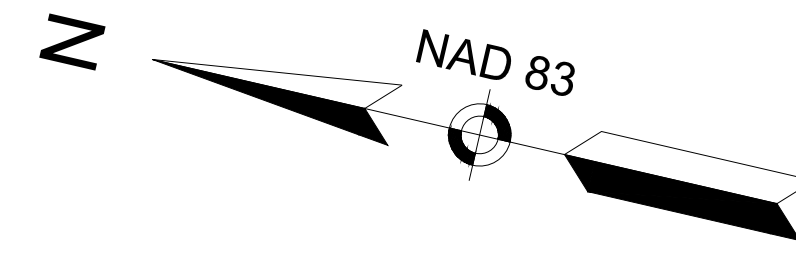
BURTT ROAD



FOR CONSTRUCTION PLANS: SEE SHEETS NO. 12-15

BURTT ROAD



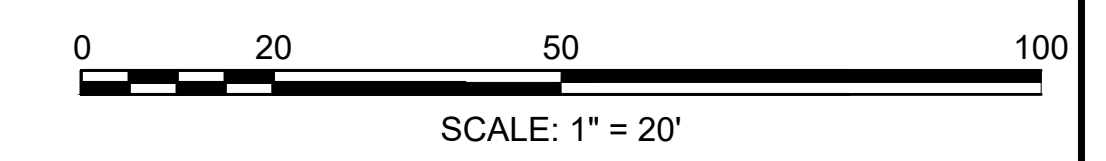


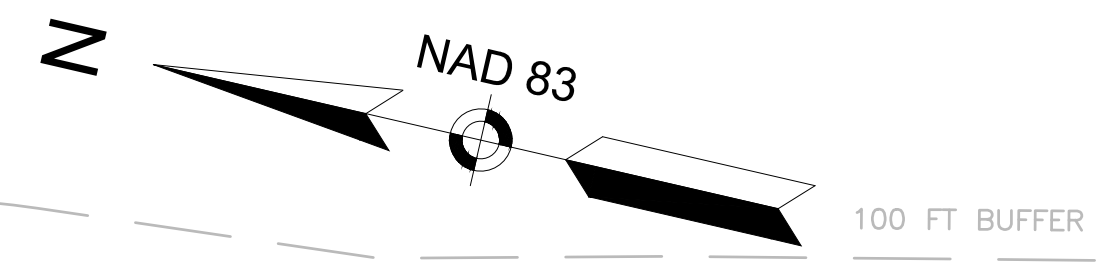
PROJECT BEGIN
STA 10+80
N3047691.8413
E744205.1365

CONTINUED ON
SHEET NO. 21

NOTES:

1. ALL PAVEMENT MARKINGS WITHIN THE PROJECT LIMITS SHALL BE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
2. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR THE ELEVATION OF THE NEAR EDGE OF THE TRAVEL WAY, SHALL BE 7 FEET.
3. FOR SIGN SUMMARY SEE SHEET 28.
4. FOR INVASIVE PLANT SPECIES HANDLING MEANS AND METHODS AND FOR NATIVE PLANT PLANTING METHODS, SEE INVASIVE SPECIES CONTROL PLAN.





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MAP 185 LOT 2
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50 FT NO BUILD ZONE

25 FT NO DISTURBANCE ZONE

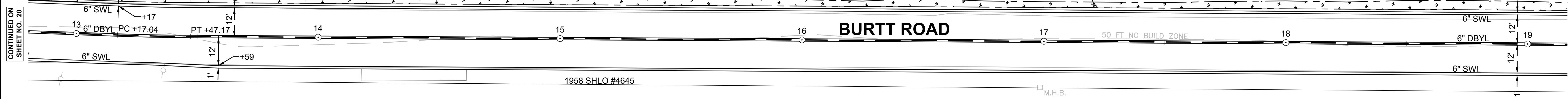


INVASIVE PLANT MANAGEMENT AREA

TOWN LAYOUT

INVASIVE PLANT MANAGEMENT AREA

25 FT NO DISTURBANCE ZONE



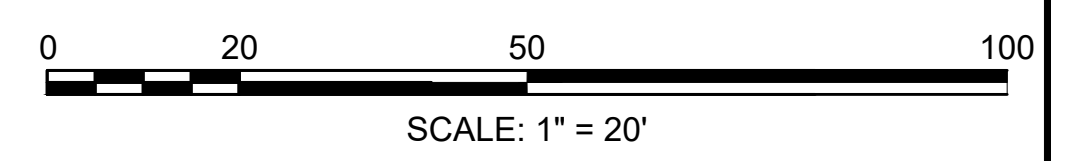
100 FT BUFFER

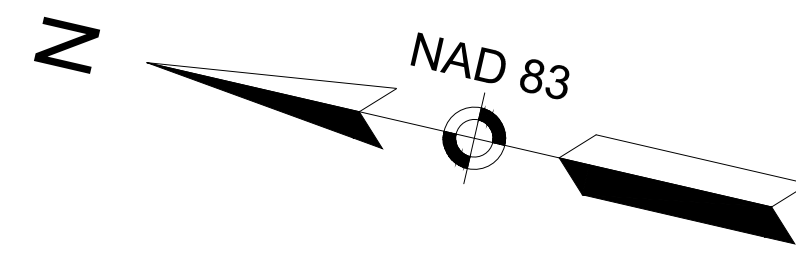
CONTINUED ON
SHEET NO. 20

CONTINUED ON
SHEET NO. 22

NOTES:

1. ALL PAVEMENT MARKINGS WITHIN THE PROJECT LIMITS SHALL BE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
2. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR THE ELEVATION OF THE NEAR EDGE OF THE TRAVEL WAY, SHALL BE 7 FEET.
3. FOR SIGN SUMMARY SEE SHEET 28.
4. FOR INVASIVE PLANT SPECIES HANDLING MEANS AND METHODS AND FOR NATIVE PLANT PLANTING METHODS, SEE INVASIVE SPECIES CONTROL PLAN.



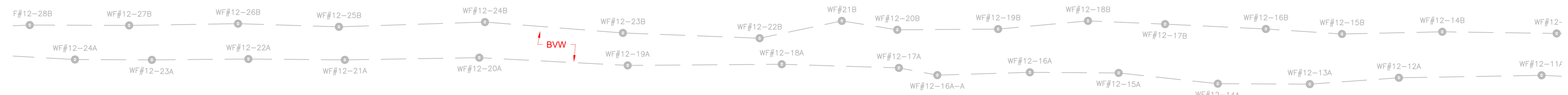


100 FT BUFFER

50 FT NO BUILD ZONE

25 FT NO DISTURBANCE ZONE

GILLETTE COMPANY
MAP 185 LOT 2
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TOWN LAYOUT

INVASIVE PLANT MANAGEMENT AREA

25 FT NO DISTURBANCE ZONE

BURTT ROAD

50 FT NO BUILD ZONE

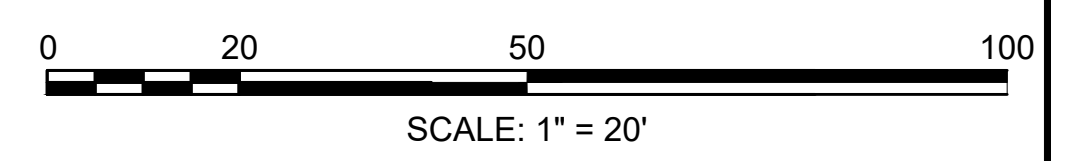
1958 SHLO #4645

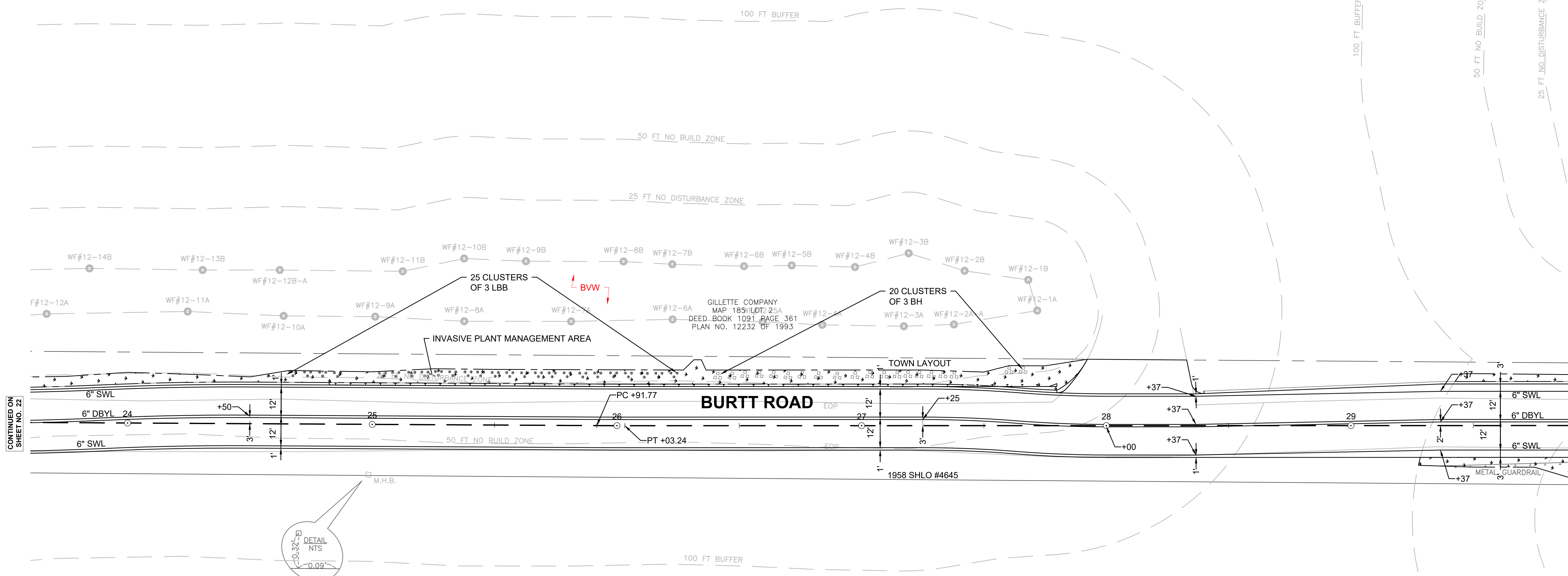
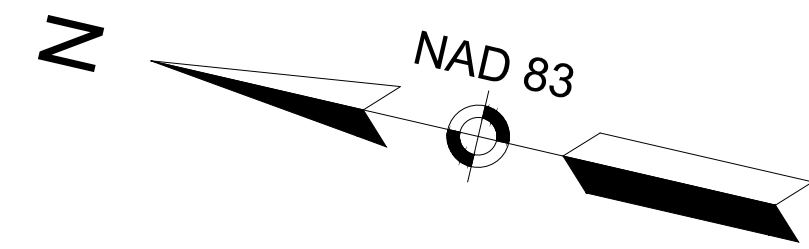
CONTINUED ON
SHEET NO. 21

CONTINUED ON
SHEET NO. 23

NOTES:

1. ALL PAVEMENT MARKINGS WITHIN THE PROJECT LIMITS SHALL BE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
2. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR THE ELEVATION OF THE NEAR EDGE OF THE TRAVEL WAY, SHALL BE 7 FEET.
3. FOR SIGN SUMMARY SEE SHEET 28.
4. FOR INVASIVE PLANT SPECIES HANDLING MEANS AND METHODS AND FOR NATIVE PLANT PLANTING METHODS, SEE INVASIVE SPECIES CONTROL PLAN.





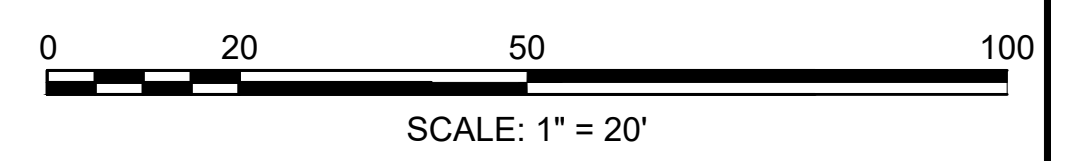
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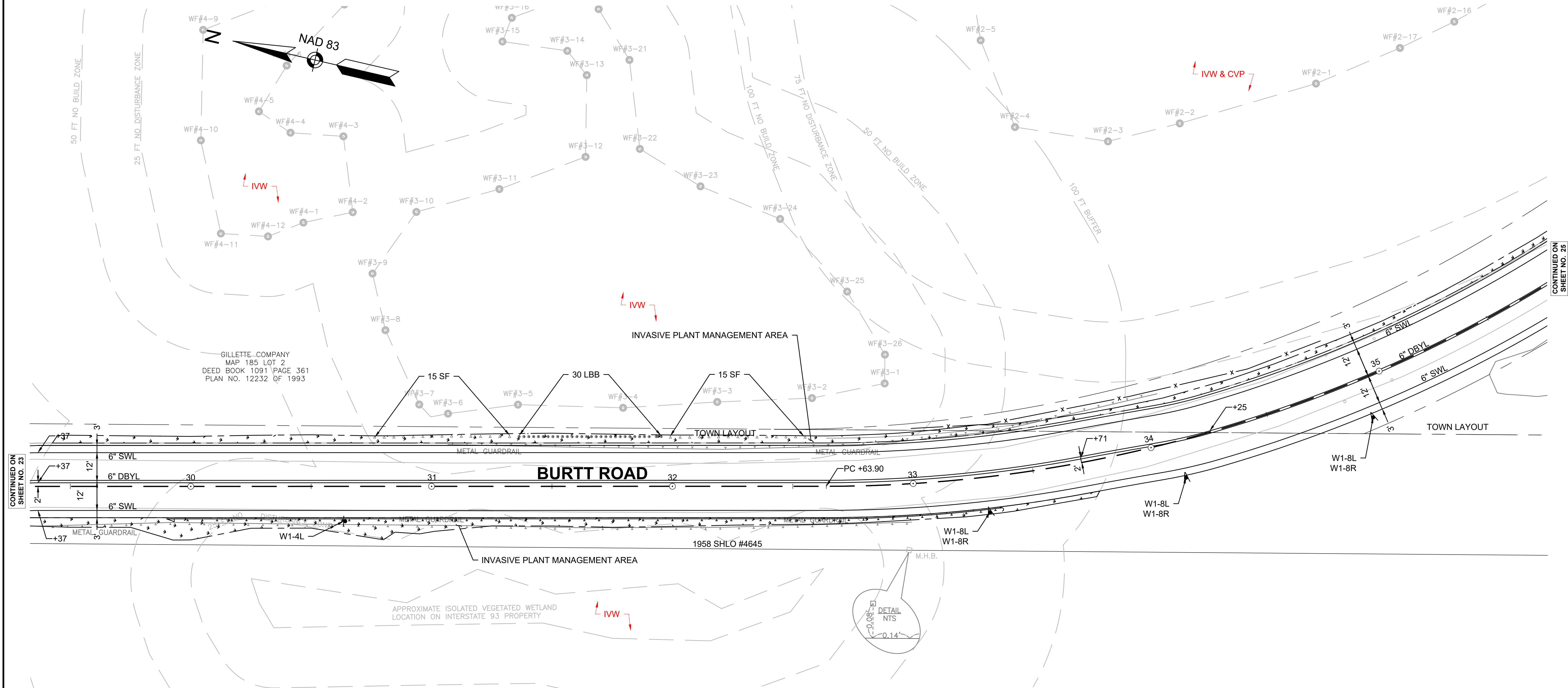
CONTINUED ON
SHEET NO. 24

NOTES:

1. ALL PAVEMENT MARKINGS WITHIN THE PROJECT LIMITS SHALL BE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
2. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR THE ELEVATION OF THE NEAR EDGE OF THE TRAVEL WAY, SHALL BE 7 FEET.
3. FOR SIGN SUMMARY SEE SHEET 28.
4. FOR INVASIVE PLANT SPECIES HANDLING MEANS AND METHODS AND FOR NATIVE PLANT PLANTING METHODS, SEE INVASIVE SPECIES CONTROL PLAN.

PLANTING TABLE						
TYPE	SYMBOL	COMMON NAME	SCIENTIFIC NAME	SIZE	QUANTITY	NOTES
SHRUB		LOWBUSH BLUEBERRY(LBB)	VACCINIUM ANGUSTIFOLIUM	1 GAL. POTTED	75	PLANT IN CLUSTERS OF 3 PLANTS, SPACED 2' ON CENTERS
SHRUB		BLACK HUCKLEBERRY(BH)	GAYLUSSACIA BACCATA	1 GAL. POTTED	60	PLANT IN CLUSTERS OF 3 PLANTS, SPACED 2' ON CENTERS
SEED		MESIC TO TRY NATIVE POLLINATOR MIX		SEED	20 LBS/ACRE	SPREAD SEED AT SPECIFIED RATE IN OPEN AREAS AFTER INVASIVE REMOVAL





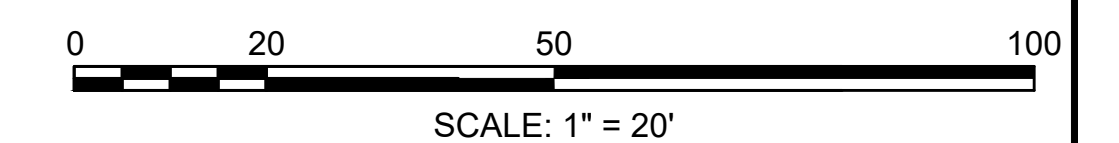
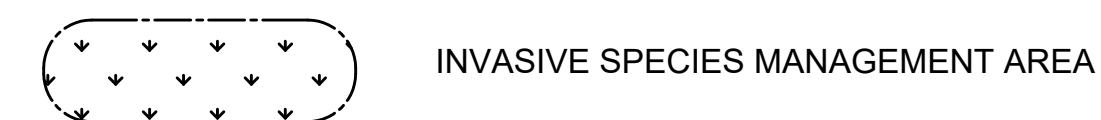
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SHEET NO. 23

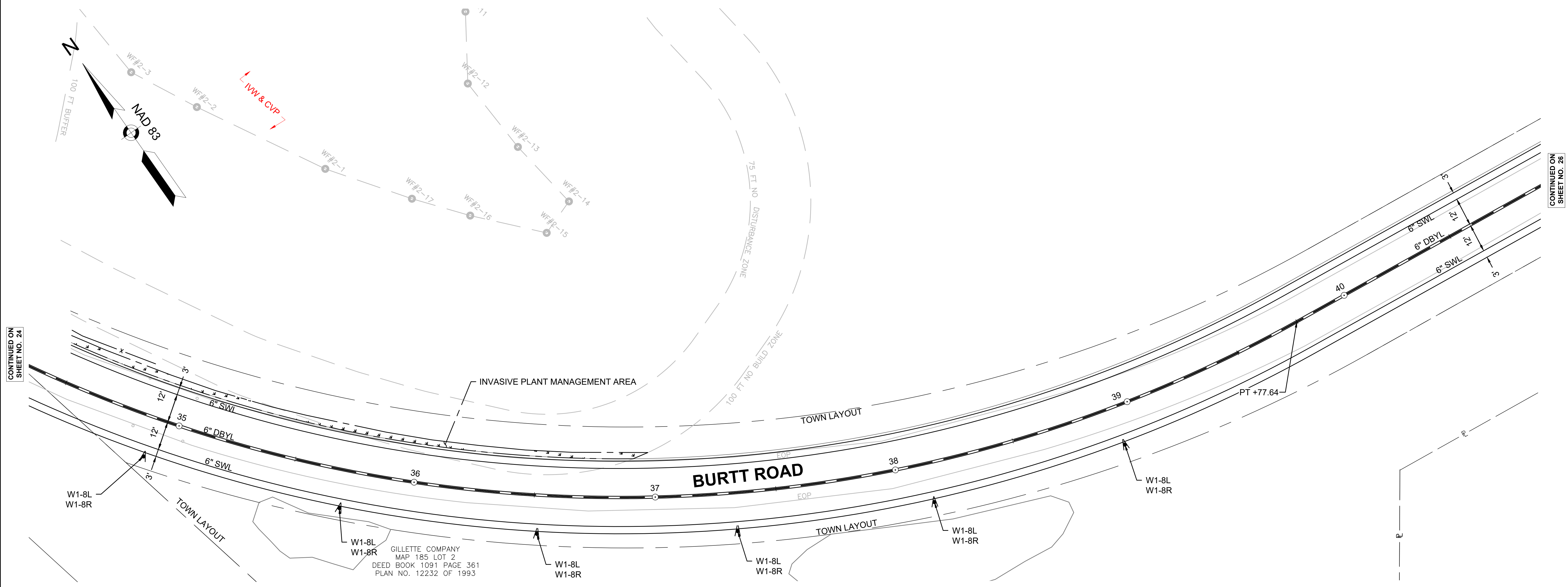
CONTINUED ON
SHEET NO. 25

NOTES:

1. ALL PAVEMENT MARKINGS WITHIN THE PROJECT LIMITS SHALL BE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
2. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR THE ELEVATION OF THE NEAR EDGE OF THE TRAVEL WAY, SHALL BE 7 FEET.
3. FOR SIGN SUMMARY SEE SHEET 28.
4. FOR INVASIVE PLANT SPECIES HANDLING MEANS AND METHODS AND FOR NATIVE PLANT PLANTING METHODS, SEE INVASIVE SPECIES CONTROL PLAN.

PLANTING TABLE						
TYPE	SYMBOL	COMMON NAME	SCIENTIFIC NAME	SIZE	QUANTITY	NOTES
SHRUB		LOWBUSH BLUEBERRY(LBB)	VACCINIUM ANGUSTIFOLIUM	1 GAL. POTTED	30	PLANT IN SINGLE LINE, SPACED 2' ON CENTERS
SHRUB		SWEET FERN(SF)	COMPTONIA PEREGRINA	1 GAL. POTTED	30	PLANT IN SINGLE LINE, SPACED 2' ON CENTERS
SEED		MESIC TO DRY NATIVE POLLINATOR MIX		SEED	20 LBS./ACRE	SPREAD SEED AT SPECIFIED RATE IN OPEN AREAS AFTER INVASIVE REMOVAL





CONTINUED ON
SHEET NO. 24

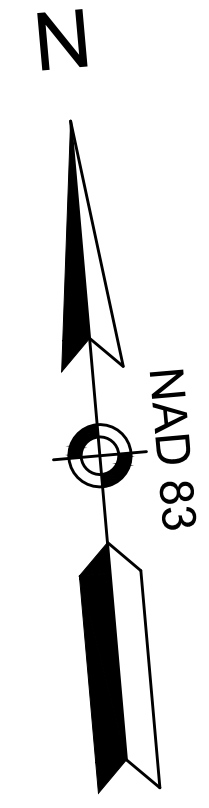
CONTINUED ON
SHEET NO. 26

NOTES:

1. ALL PAVEMENT MARKINGS WITHIN THE PROJECT LIMITS SHALL BE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
2. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR THE ELEVATION OF THE NEAR EDGE OF THE TRAVEL WAY, SHALL BE 7 FEET.
3. FOR SIGN SUMMARY SEE SHEET 28.
4. FOR INVASIVE PLANT SPECIES HANDLING MEANS AND METHODS AND FOR NATIVE PLANT PLANTING METHODS, SEE INVASIVE SPECIES CONTROL PLAN.

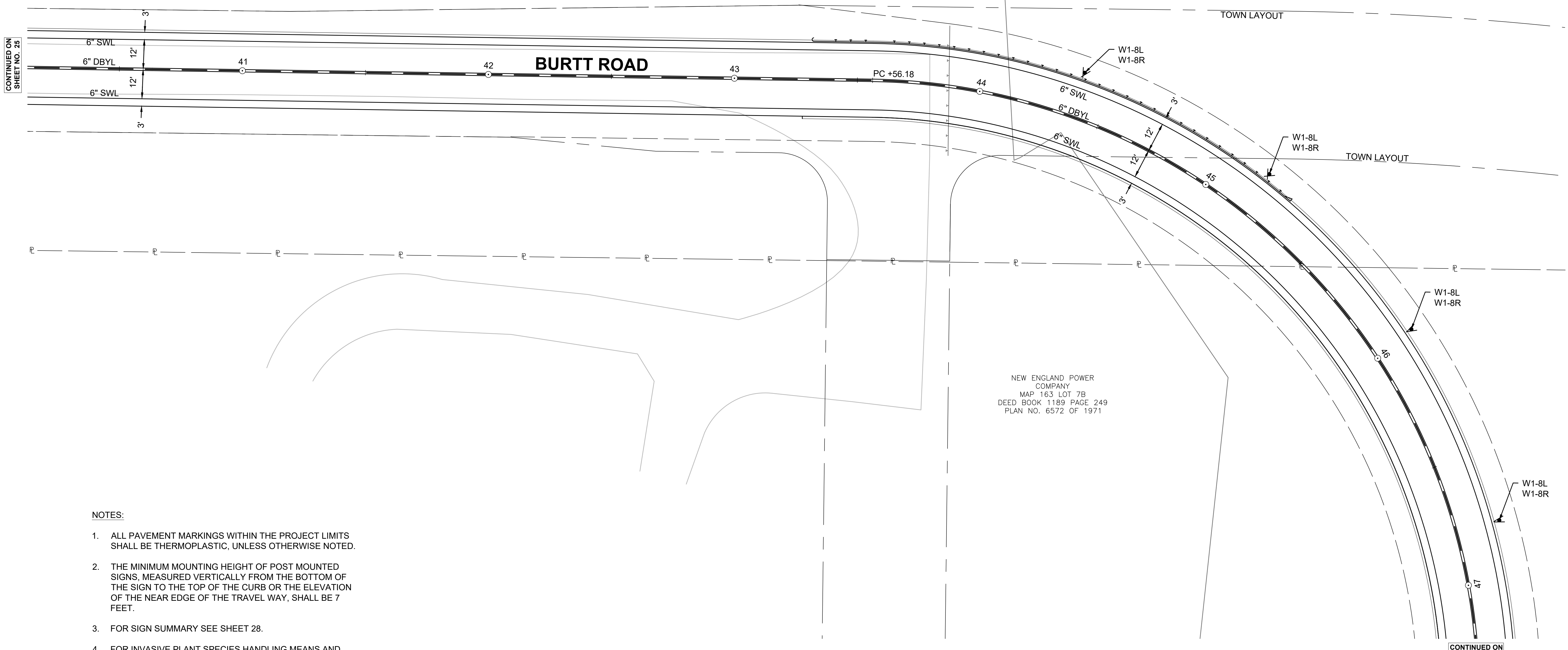


GILLETTE COMPANY
MAP 185 LOT 2
DEED BOOK 1091 PAGE 361
PLAN NO. 12232 OF 1993



GILLETTE COMPANY
MAP 185 LOT 2
DEED BOOK 1091 PAGE 361
PLAN NO. 12232 OF 1993

NEW ENGLAND POWER
COMPANY
MAP 163 LOT 7B
DEED BOOK 1189 PAGE 249
PLAN NO. 6572 OF 1971

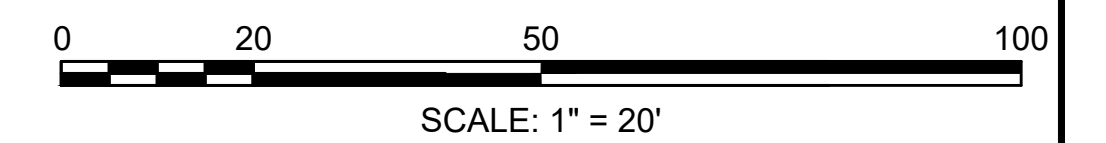


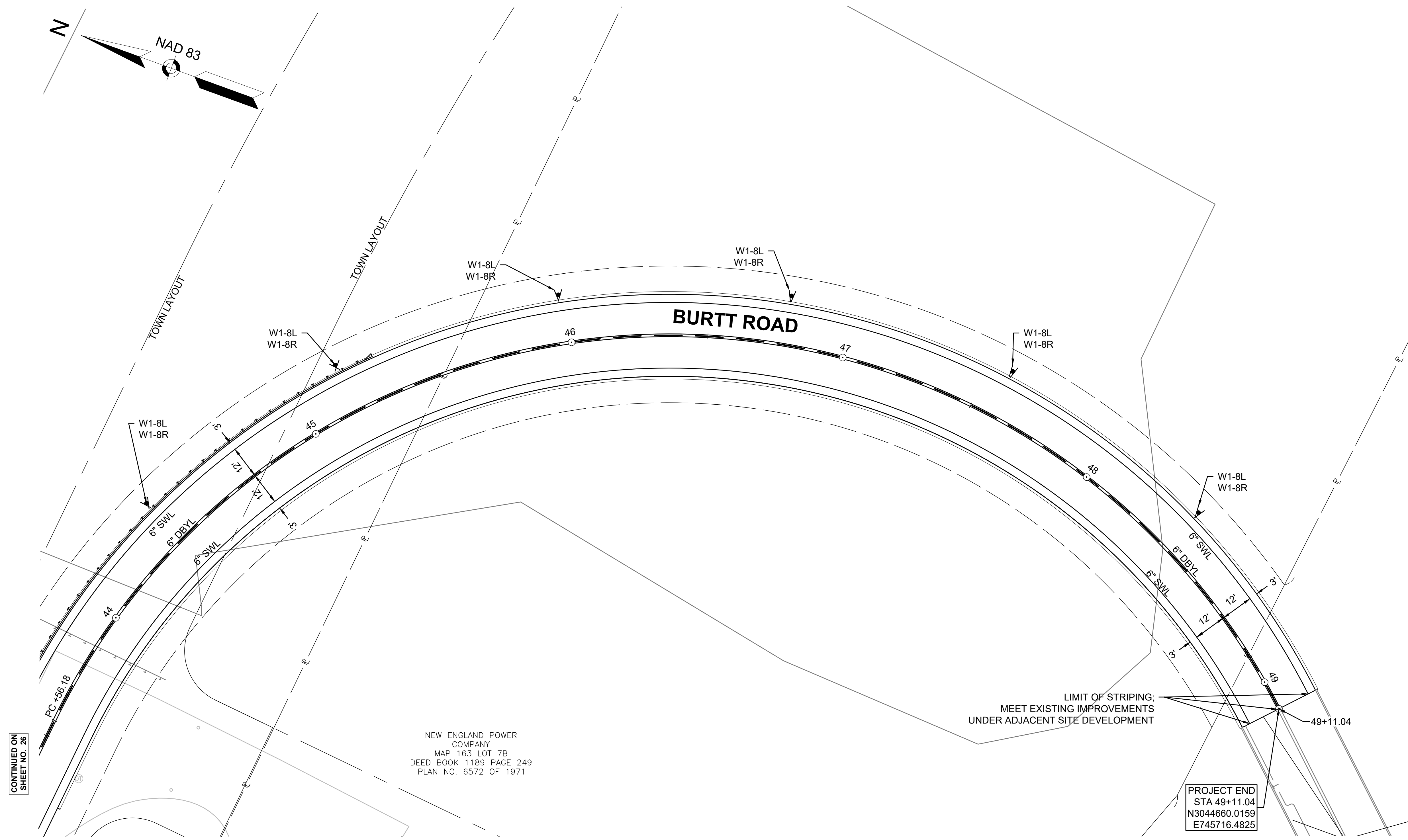
CONTINUED ON
SHEET NO. 25

CONTINUED ON
SHEET NO. 27

NOTES:

1. ALL PAVEMENT MARKINGS WITHIN THE PROJECT LIMITS SHALL BE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
2. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR THE ELEVATION OF THE NEAR EDGE OF THE TRAVEL WAY, SHALL BE 7 FEET.
3. FOR SIGN SUMMARY SEE SHEET 28.
4. FOR INVASIVE PLANT SPECIES HANDLING MEANS AND METHODS AND FOR NATIVE PLANT PLANTING METHODS, SEE INVASIVE SPECIES CONTROL PLAN.





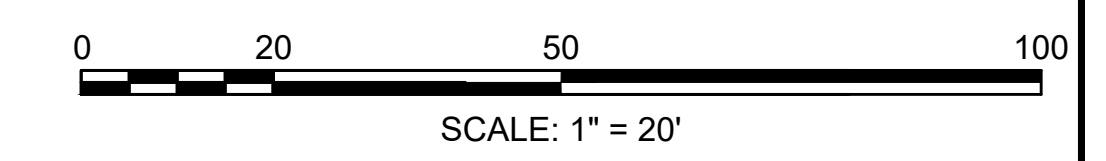
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SHEET NO. 26



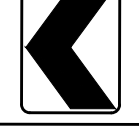

NEW ENGLAND POWER
COMPANY
MAP 163 LOT 7B
DEED BOOK 1189 PAGE 249
PLAN NO. 6572 OF 1971

PROJECT END
STA 49+11.04
N3044660.0159
E745716.4825

NOTES:

1. ALL PAVEMENT MARKINGS WITHIN THE PROJECT LIMITS SHALL BE THERMOPLASTIC, UNLESS OTHERWISE NOTED.
2. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR THE ELEVATION OF THE NEAR EDGE OF THE TRAVEL WAY, SHALL BE 7 FEET.
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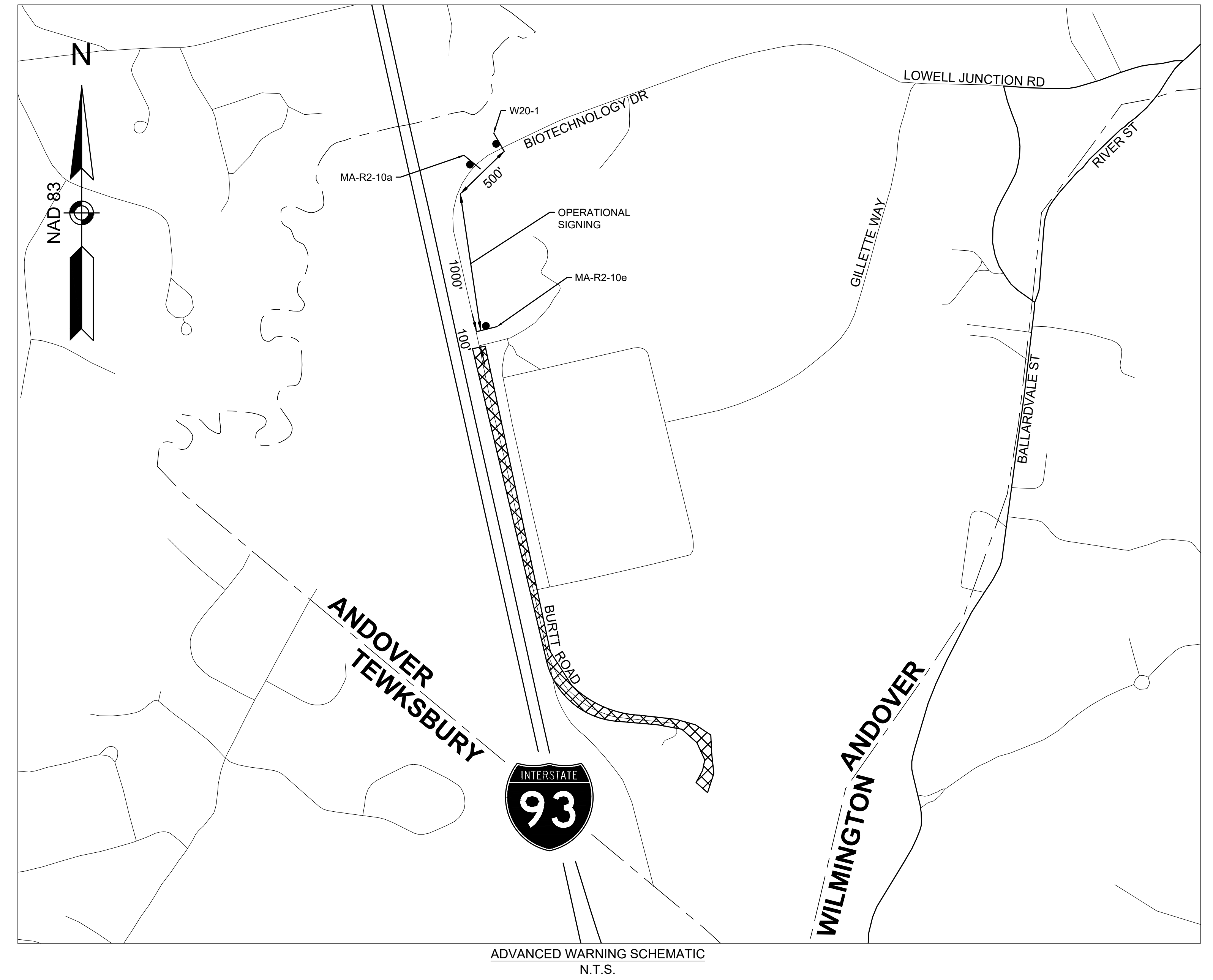


TRAFFIC SIGN SUMMARY													
IDENTIFICATION NUMBER	SIZE OF SIGN (in)		LEGEND	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			SIZE AND NUMBER OF POSTS REQUIRED	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR		BACK-GROUND	LEGEND	BORDER			
R1-1	30	30			①		1	RED	WHITE	WHITE	P5 1	6.25	6.25
W1-4L	30	30					1	YELLOW	BLACK	BLACK	P5 1	6.25	6.25
W1-8L	18	24					14	YELLOW	BLACK	N/A	P5 8	3.00	42.00
W1-8R	18	24					14	YELLOW	BLACK	N/A	0 MOUNT W/ W1-8L	3.00	42.00

NOTES:

- ① SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS FOR TEXT AND LEGEND DIMENSIONS.
2. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR THE ELEVATION OF THE NEAR EDGE OF THE TRAVEL WAY, SHALL BE 7 FEET.

TRAFFIC SIGN SUMMARY												
IDENTIFICATION NUMBER	SIZE OF SIGN (in)		LEGEND	TEXT DIMENSIONS (in)			COLOR			NUMBER OF SIGNS REQUIRED	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR	BACK-GROUND	LEGEND	BORDER			
MA-R2-10a	48	36		MASSDOT STANDARD SIGN			FL. ORANGE	BLACK	BLACK	2	12.00	24.00
MA-R2-10e	36	48		↓			FL. ORANGE	BLACK	BLACK	2	12.00	24.00
W1-4L	36	36		SEE 2009 MUTCD FOR DIMENSIONS			FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W1-4R	36	36					FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W5-1	36	36					FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W8-1	36	36					FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W8-3	36	36					FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W8-15	36	36					FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W13-1p	24	24					FL. ORANGE	BLACK	BLACK	2	4.00	8.00
W20-1	36	36					FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W20-4	36	36					FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W20-7	36	36		↓			FL. ORANGE	BLACK	BLACK	2	9.00	18.00
MA-W20-7b	36	36		MASSDOT STANDARD SIGN			FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W21-5a	36	36		SEE 2009 MUTCD FOR DIMENSIONS			FL. ORANGE	BLACK	BLACK	1	9.00	9.00



NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN THE "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6. CONTRACTORS 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 CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
7. THE FIRST TEN PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH SEQUENTIAL FLASHING LIGHTS.
8. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
9. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
10. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
11. MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
12. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
13. NO LANE CLOSURES SHALL BE PERMITTED DURING PEAK HOUR TRAFFIC. PEAK HOUR IS CONSIDERED TO BE FROM 7-9AM AND 4-6PM ON WEEKDAYS.

LEGEND:

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- ▨ WORK ZONE
- 🚚 WORK VEHICLE
- ➔ DIRECTION OF TRAFFIC
- 🚛 TRUCK MOUNTED ATTENUATOR
- P/F POLICE/FLAGGER DETAIL
- 🚦 IMPACT ATTENUATOR
- ➔ TRAFFIC OR PEDESTRIAN SIGNAL
- ▩ TYPE III BARRICADE
- ▭ MEDIAN BARRIER
- ➔ SIGN
- 📄 CHANGEABLE MESSAGE SIGN
- 🚧 MEDIAN BARRIER WITH WARNING LIGHTS
- ➔ ARROW BOARD

SUGGESTED WORK ZONE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS (FEET)		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS	350	350	350
MOST OTHER ROADWAYS	500	500	500
FREEWAYS AND EXPRESSWAYS	1,000	1,500	2,640

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

TYPE OF TAPER	TAPER LENGTH (L)*
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.33L
ONE-LANE, TWO-WAY TRAFFIC TAPER	50 FT MIN. 100 FT MAX.
DOWNSTREAM TAPER	50 FT MIN. 100 FT MAX. PER LANE

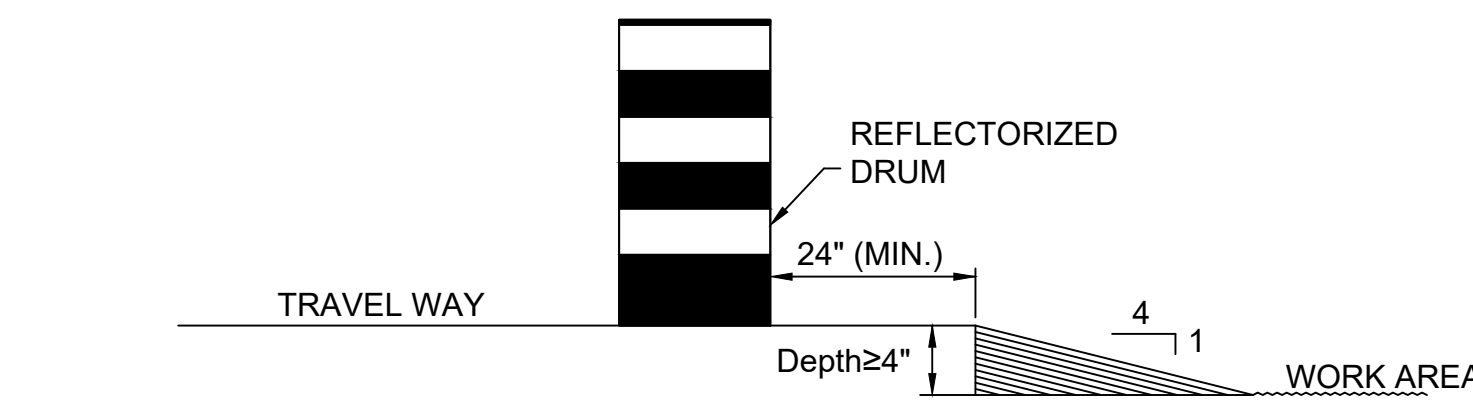
FORMULAS FOR DETERMINING TAPER LENGTHS

SPEED LIMIT (S)	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

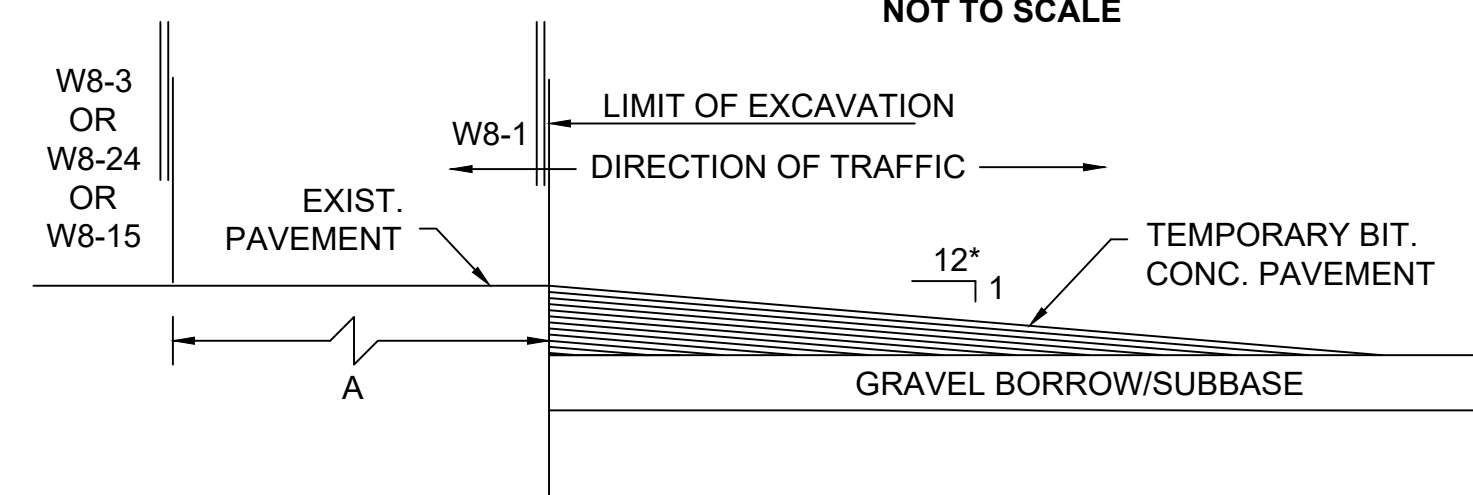
W = WIDTH OF OFFSET IN FEET

S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH



LATERAL DROP-OFF DETAIL

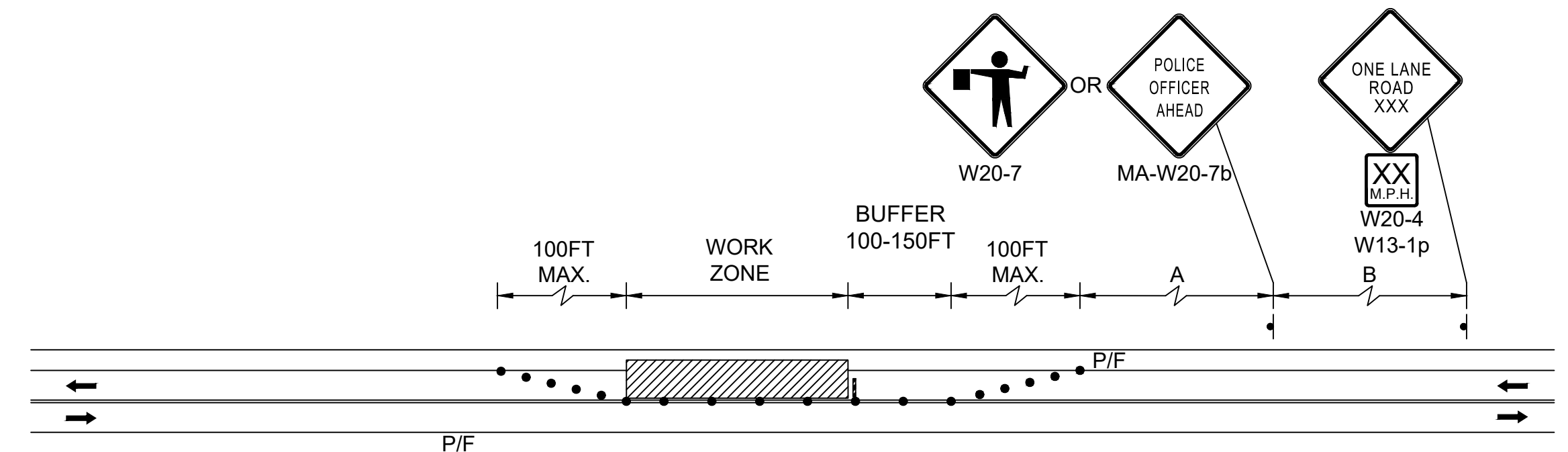
NOT TO SCALE



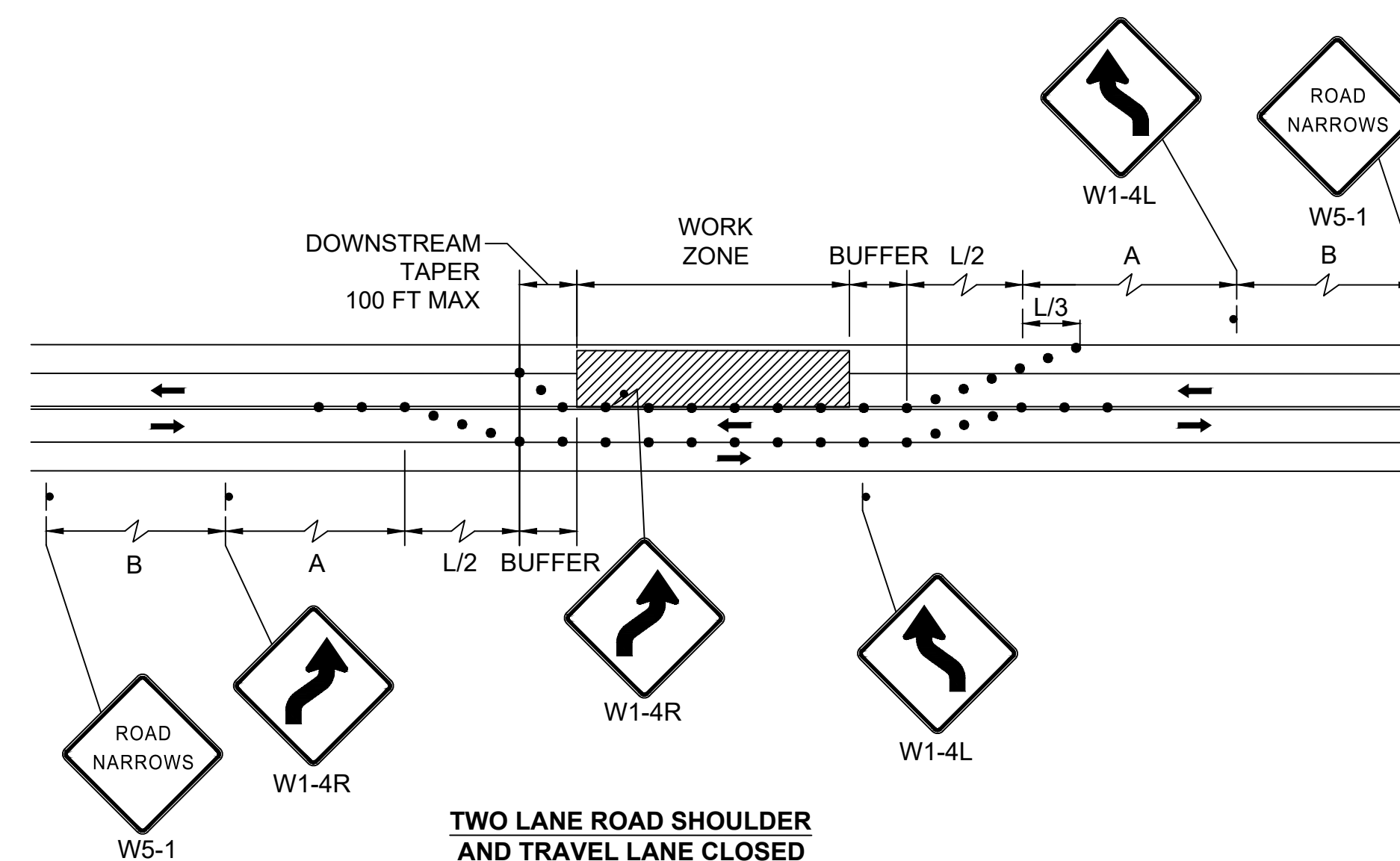
LONGITUDINAL DROP-OFF DETAIL

NOT TO SCALE

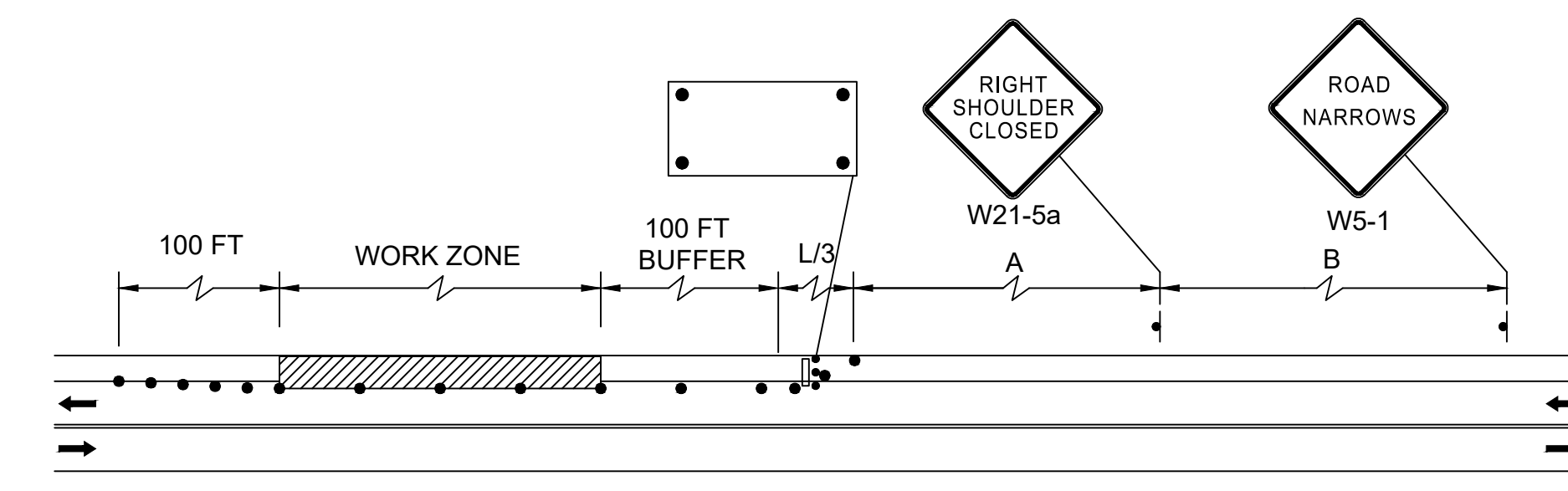
* - INCREASE SLOPE RATIO FOR HIGHER SPEEDS



TWO LANE ROAD ONE LANE ALTERNATING TRAFFIC



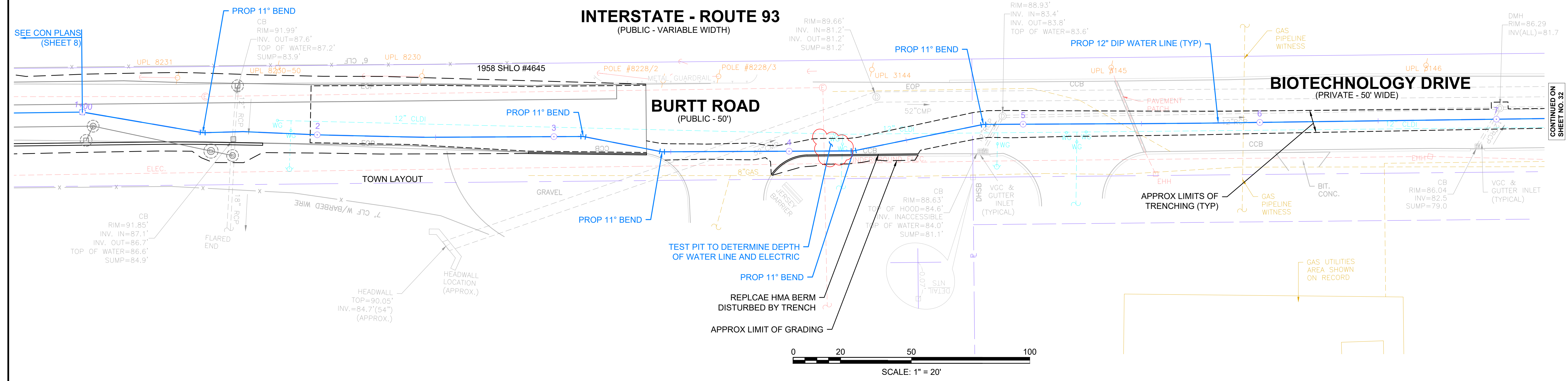
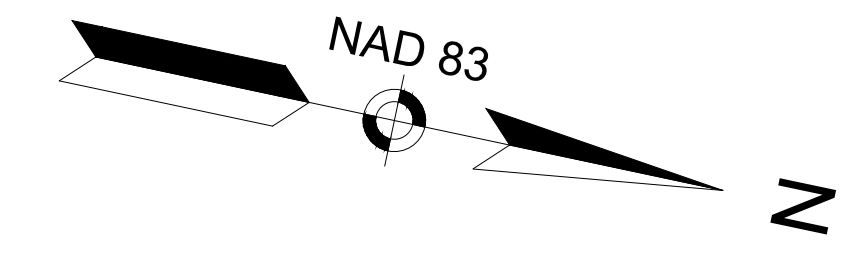
TWO LANE ROAD SHOULDER AND TRAVEL LANE CLOSED



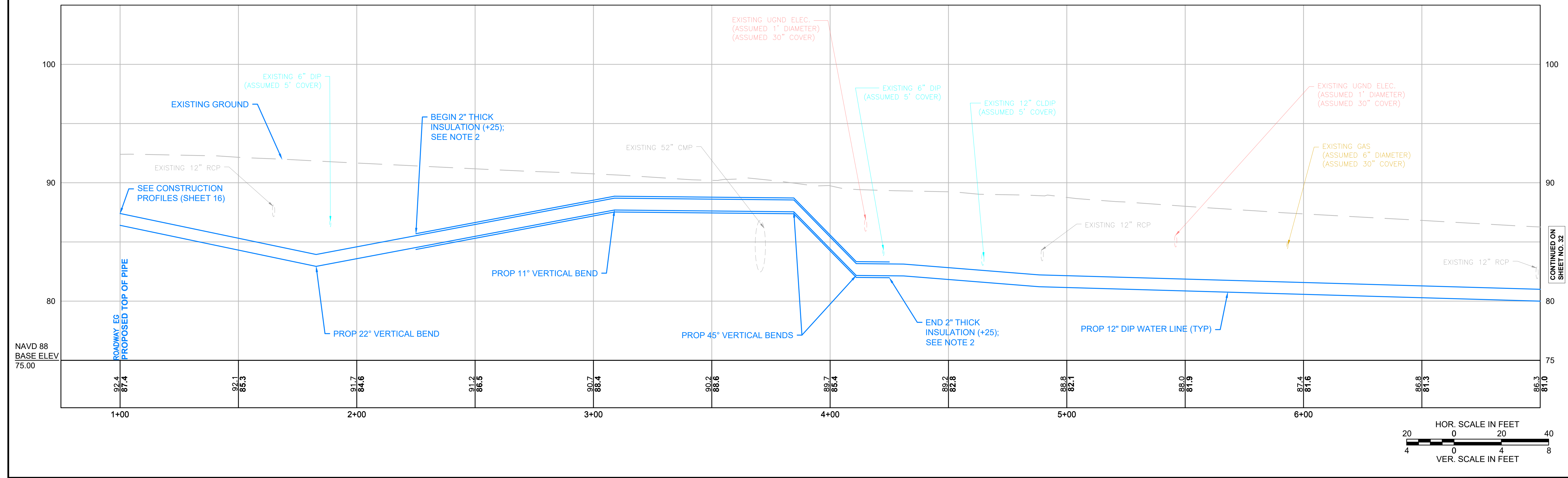
TWO LANE ROAD SHOULDER CLOSED

WATER LINE NOTES:

1. PROPOSED WATER MAIN SHALL BE 12" CEMENT LINED DUCTILE IRON PIPE (CLDIP) UNLESS OTHERWISE NOTED.
2. PROPOSED WATER MAIN SHALL MAINTAIN BETWEEN 5' (MIN) AND 8' (MAX) OF COVER UNLESS OTHERWISE INDICATED ON THESE PLANS. IN AREAS OF LESS THAN 5' OF COVER, PROPOSED WATER MAIN SHALL BE INSULATED.
3. PROPOSED WATER MAIN SHALL MAINTAIN A MINIMUM OF 6" CLEARANCE BETWEEN EXISTING OR PROPOSED UTILITIES.
4. CORPORATION STOPS SHALL BE INSTALLED AT THE HIGH POINTS OF THE PROPOSED WATER MAIN.

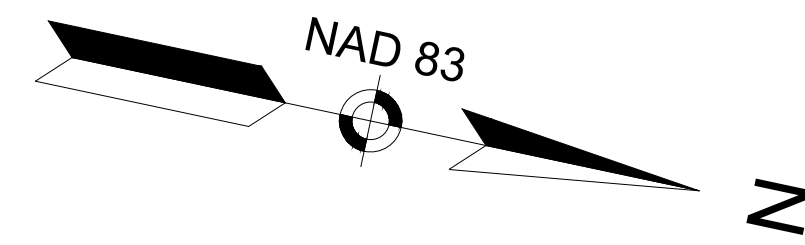


PROP 12" DIP WATER LINE

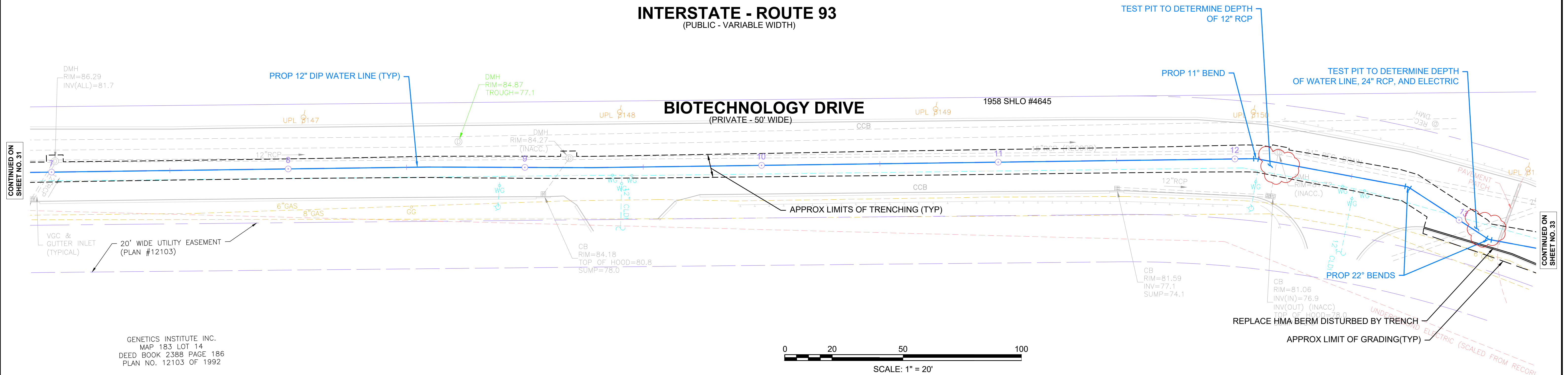


CONTINUED ON
SHEET NO. 32

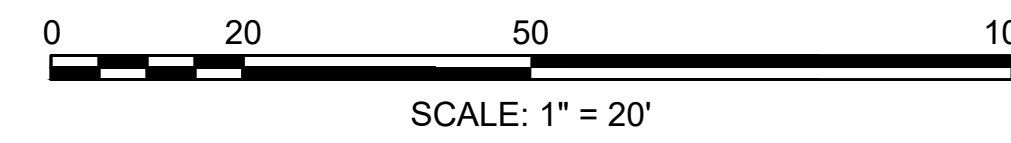
CONTINUED ON
SHEET NO. 32



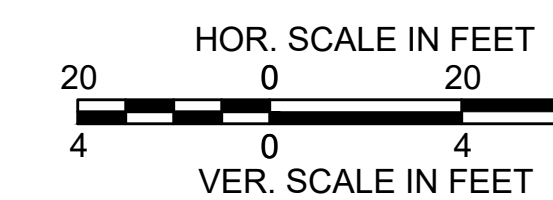
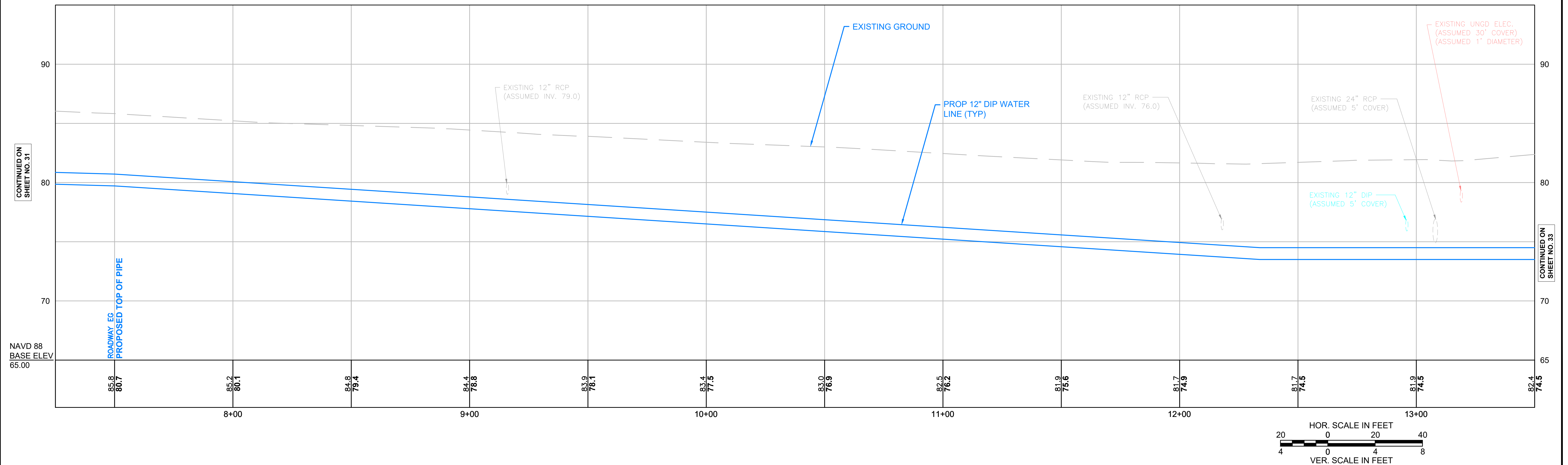
INTERSTATE - ROUTE 93
(PUBLIC - VARIABLE WIDTH)

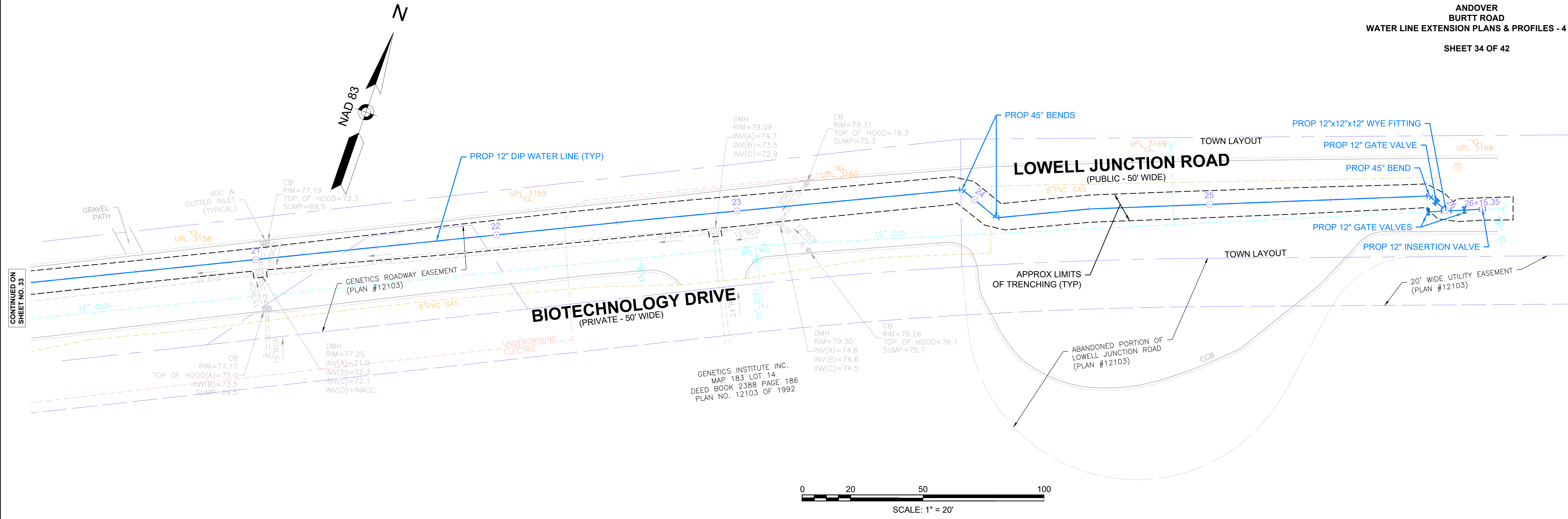


GENETICS INSTITUTE INC.
MAP 183 LOT 14
DEED BOOK 2388 PAGE 186
PLAN NO. 12103 OF 1992

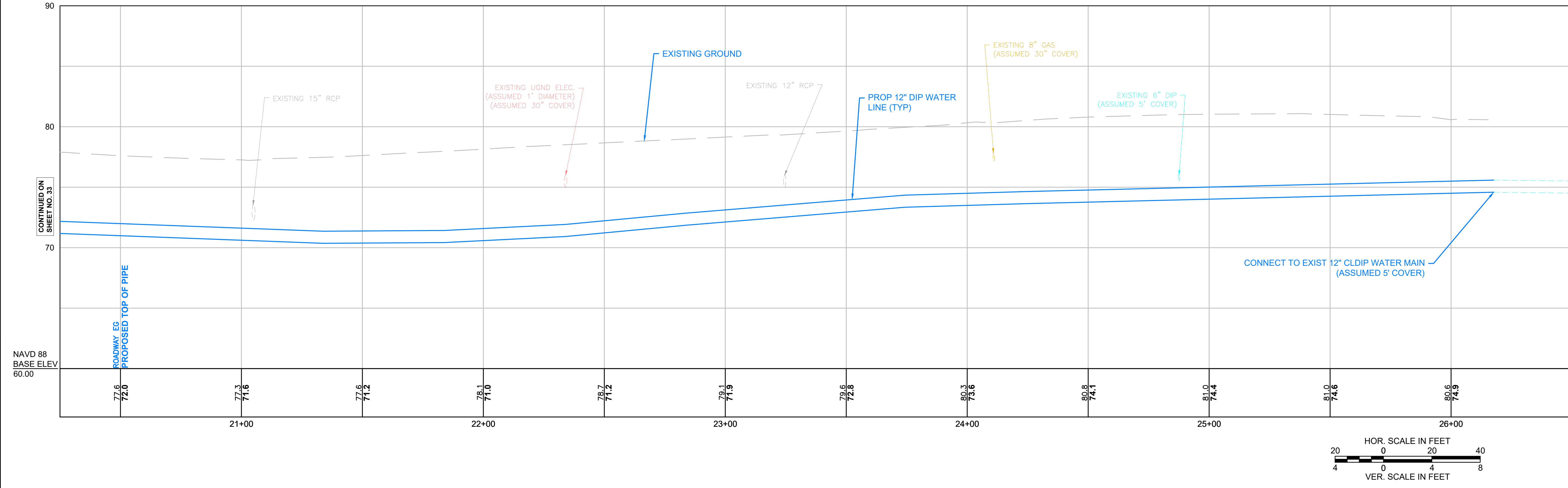


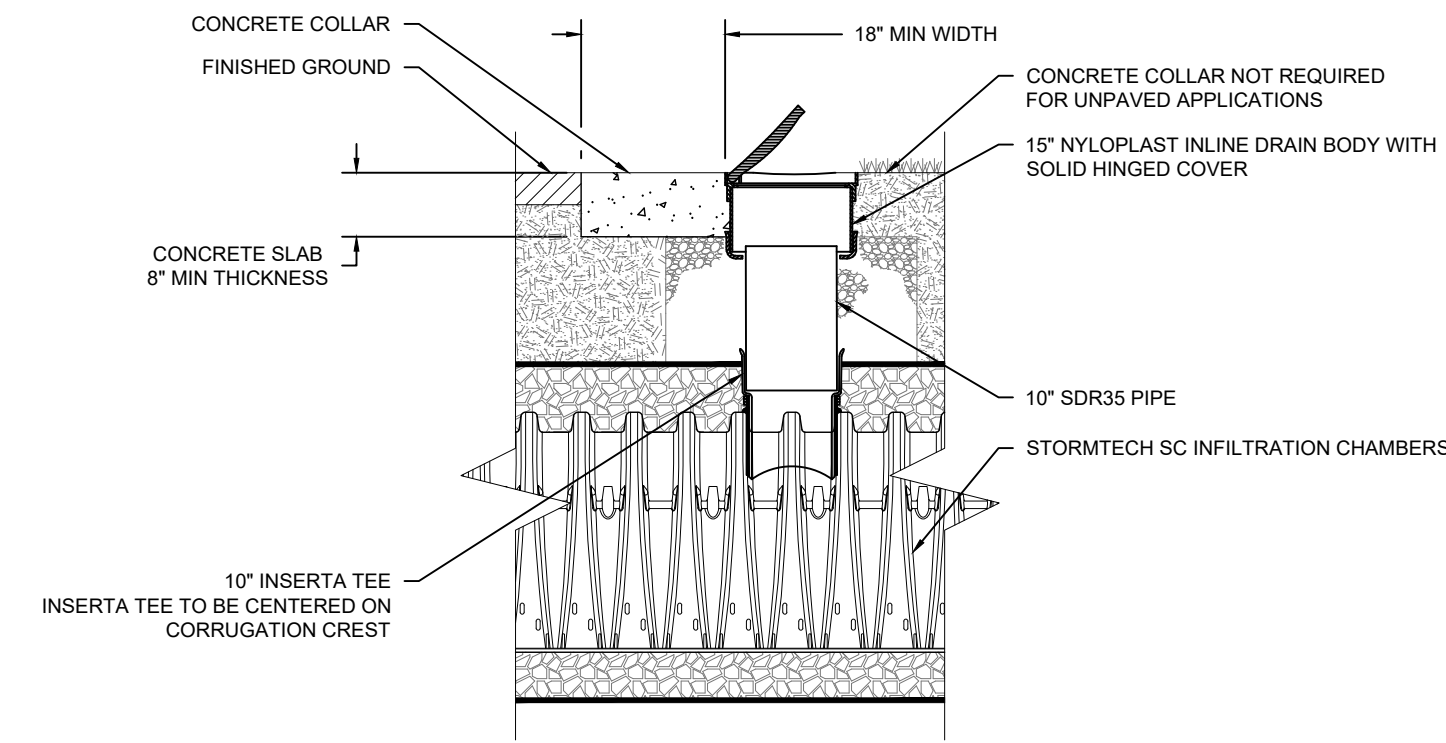
PROP 12" DIP WATER LINE



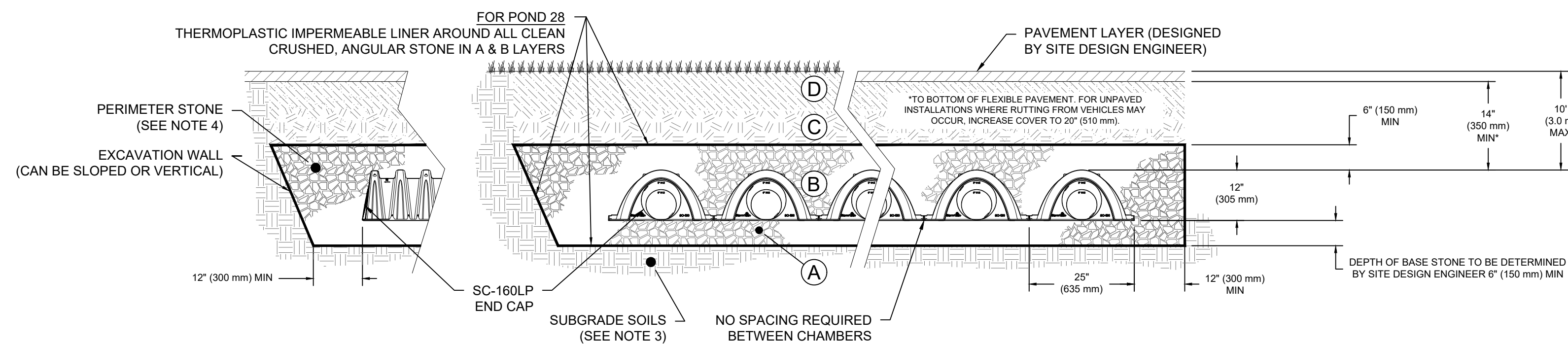


PROP 12" DIP WATER LINE



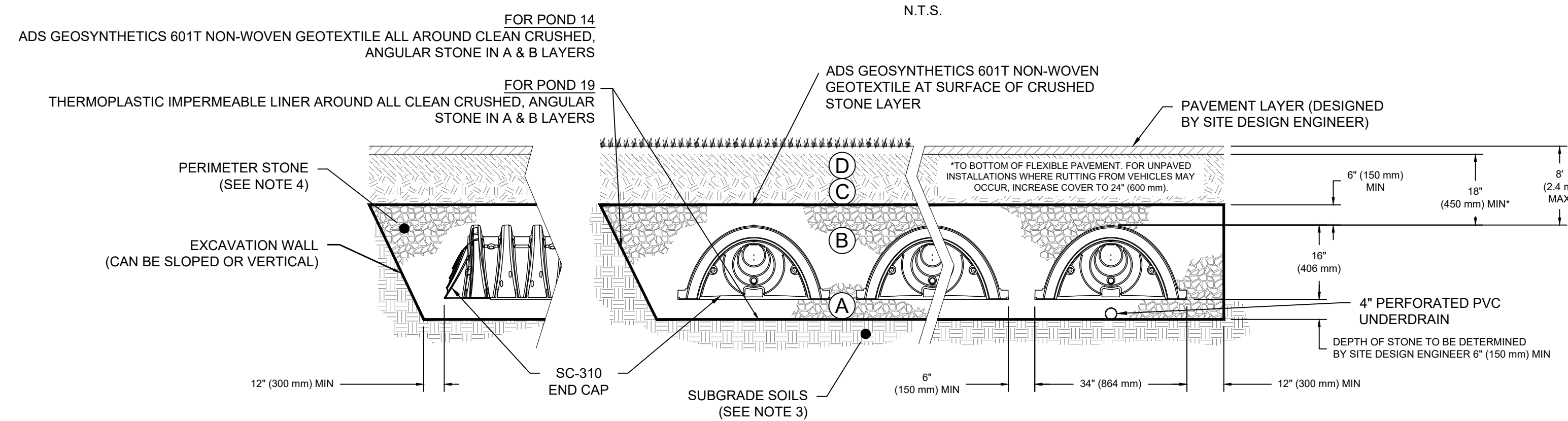


CLEANOUT PORT
N.T.S.



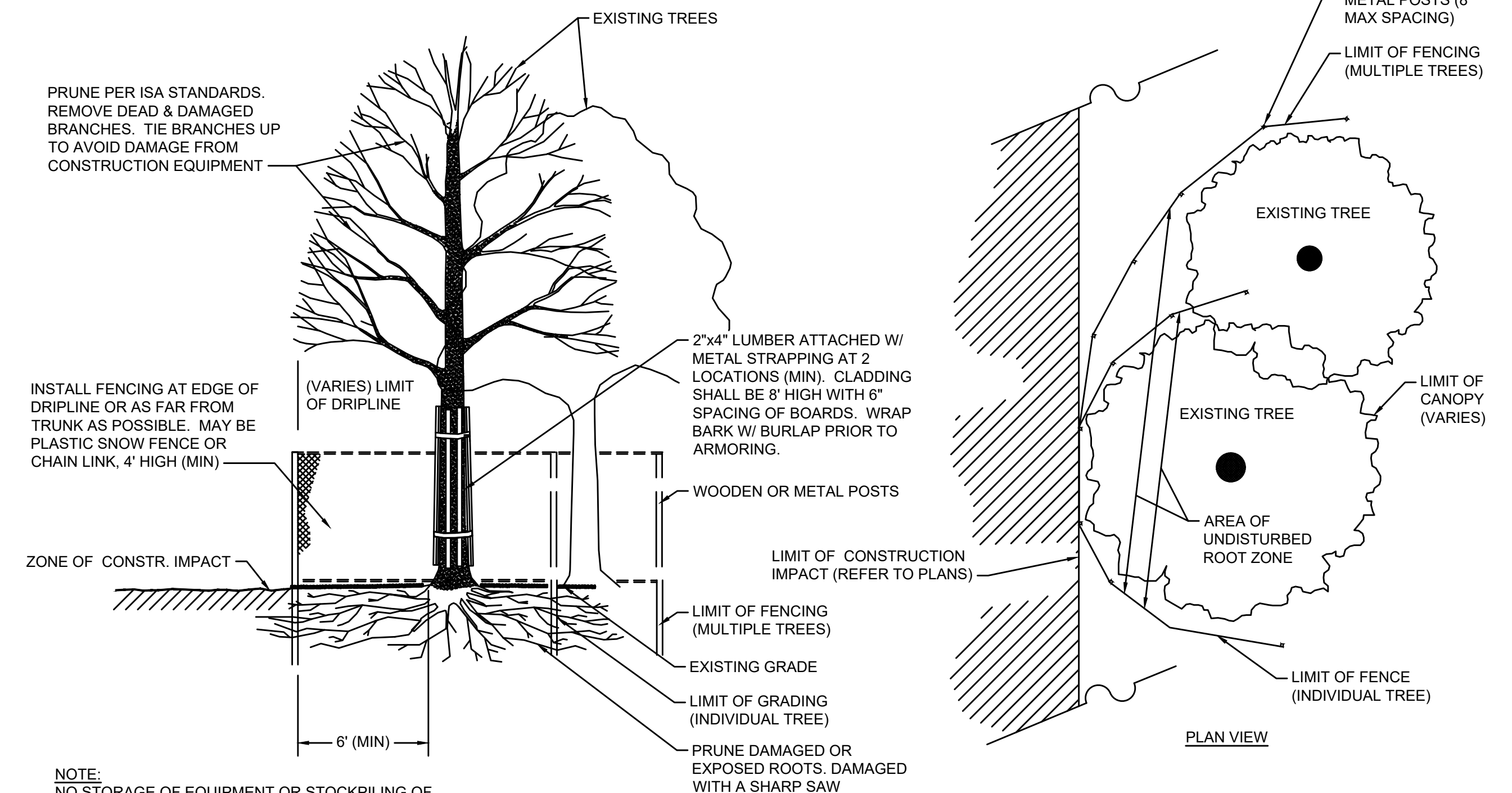
NOTE: CLEANOUT PORTS SHALL BE INSTALLED FOR EACH ROW OF CHAMBERS; SEE DETAIL.

STORMTECH SC-160 LP SUBSURFACE INFILTRATION BASIN



NOTE: CLEANOUT PORTS SHALL BE INSTALLED FOR EACH ROW OF CHAMBERS; SEE DETAIL.

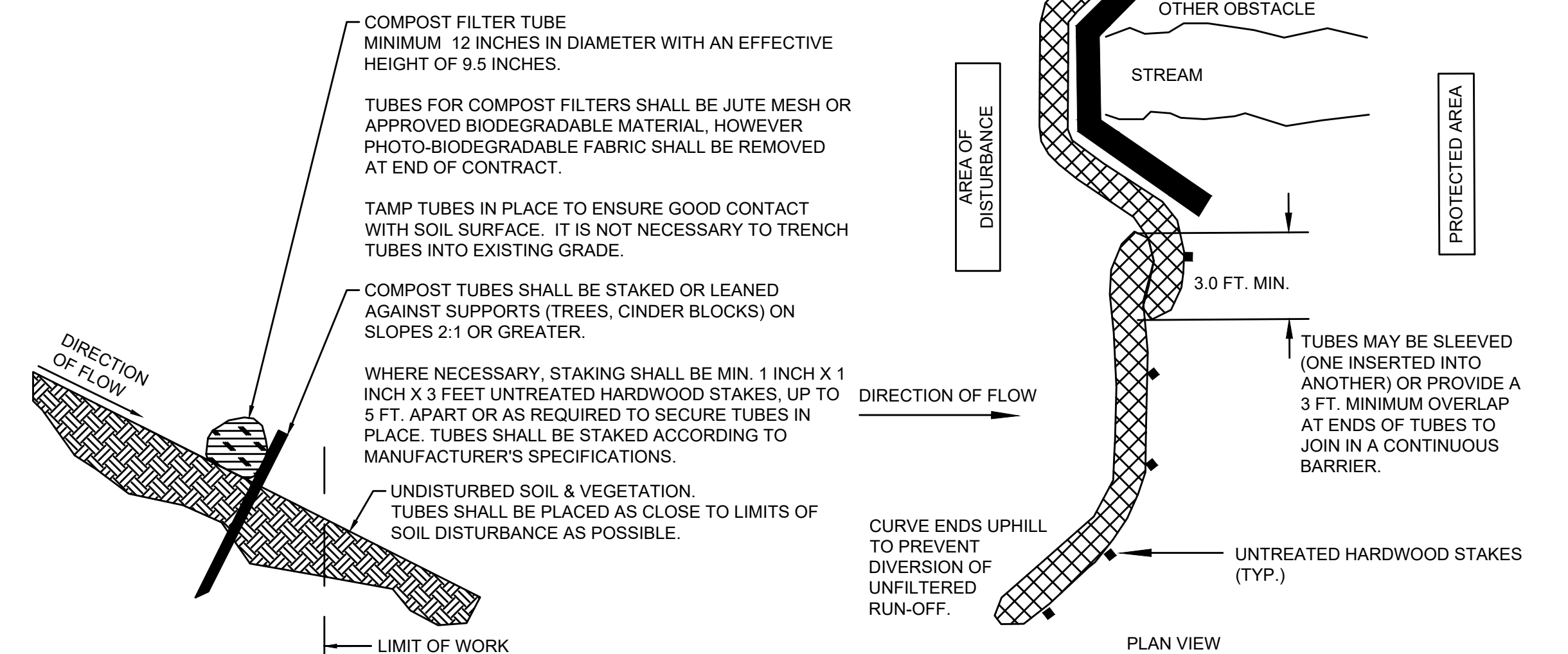
STORMTECH SC-310 SUBSURFACE INFILTRATION BASIN



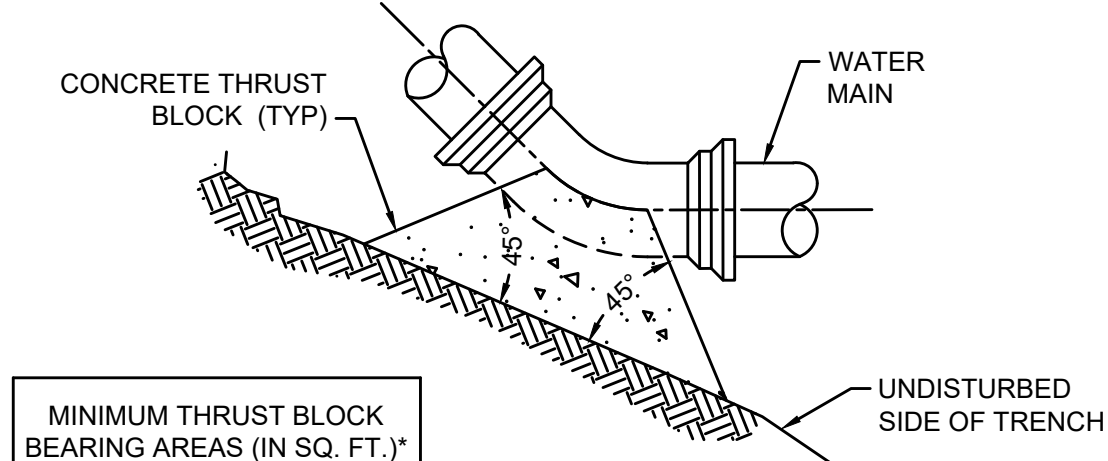
TREE PROTECTION
N.T.S.

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.

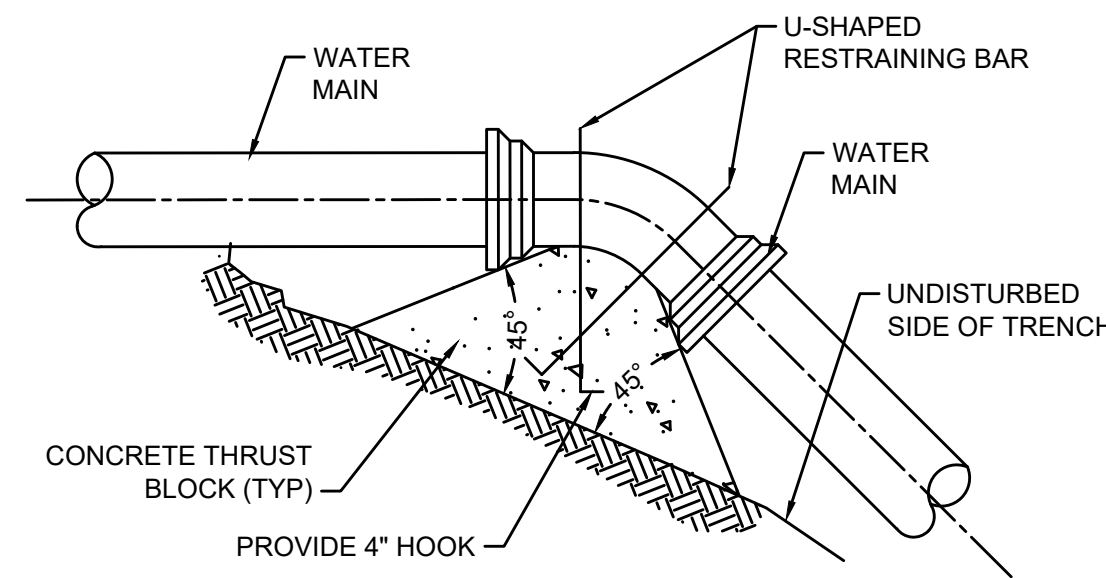


COMPOST FILTER TUBE
N.T.S.



MINIMUM THRUST BLOCK BEARING AREAS (IN SQ. FT.)*	
PIPE Ø	45° BEND
4", 6"	3.6
8"	6.5
12"	8.4

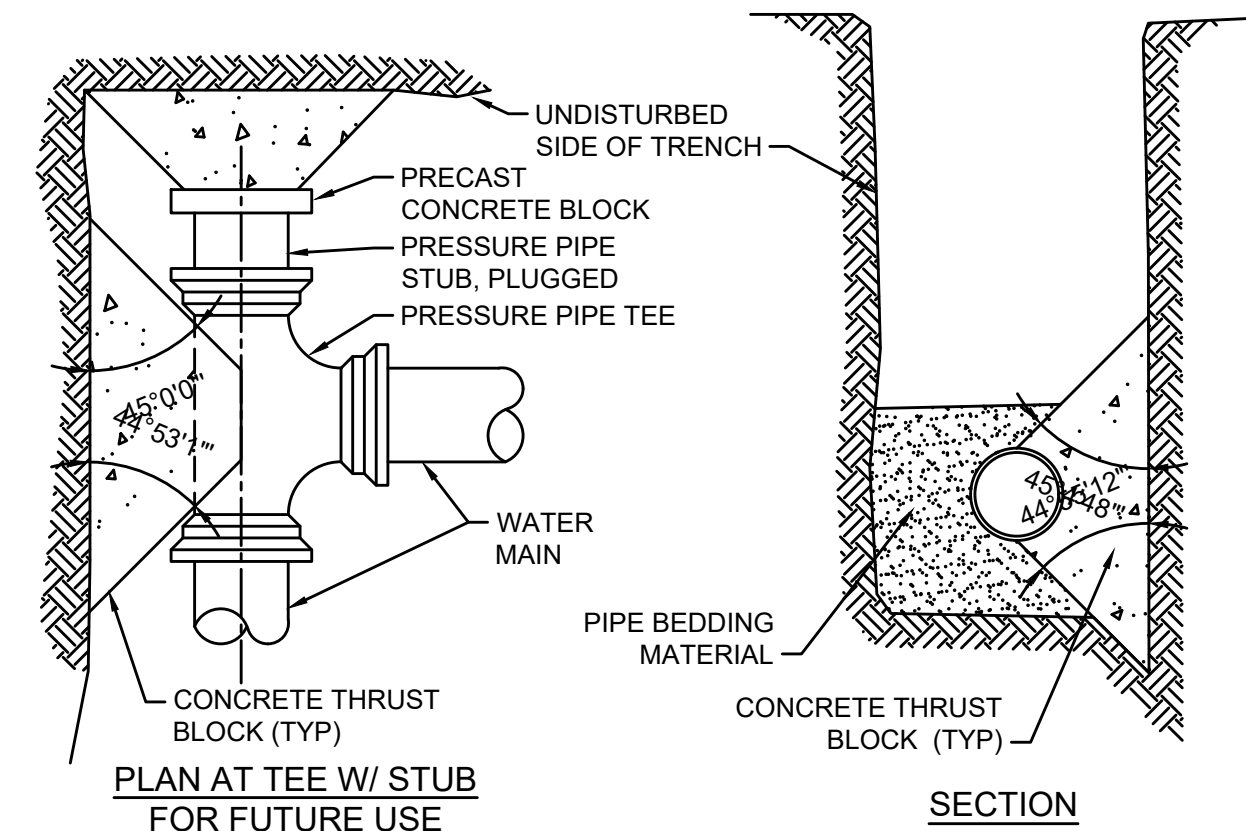
PLAN AT UPWARD VERTICAL BEND



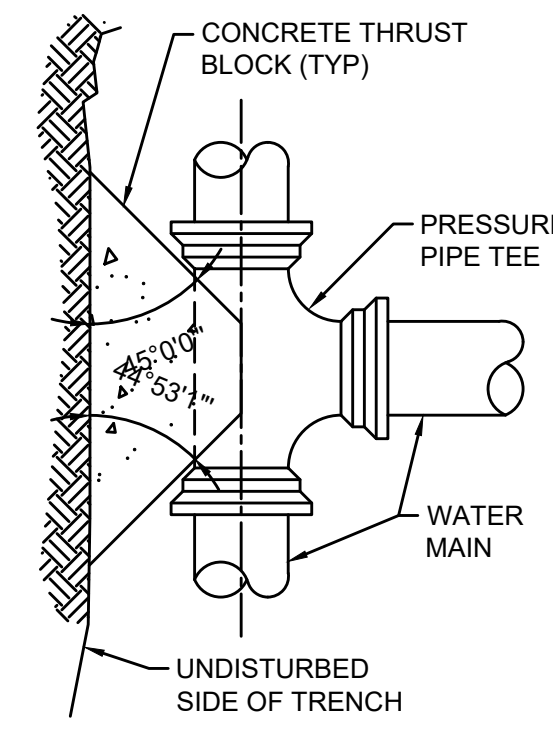
MINIMUM THRUST BLOCK BEARING AREAS (IN SQ. FT.)*	
PIPE Ø	45° BEND
4", 6"	9
8"	1.6
12"	3.3

RESTRAINING BAR DIMENSIONS		
PIPE Ø	BAR SIZE	EMBEDMENT LENGTH
4", 6"	#4	15"
8"	#4	15"
12"	#6	2'-0"

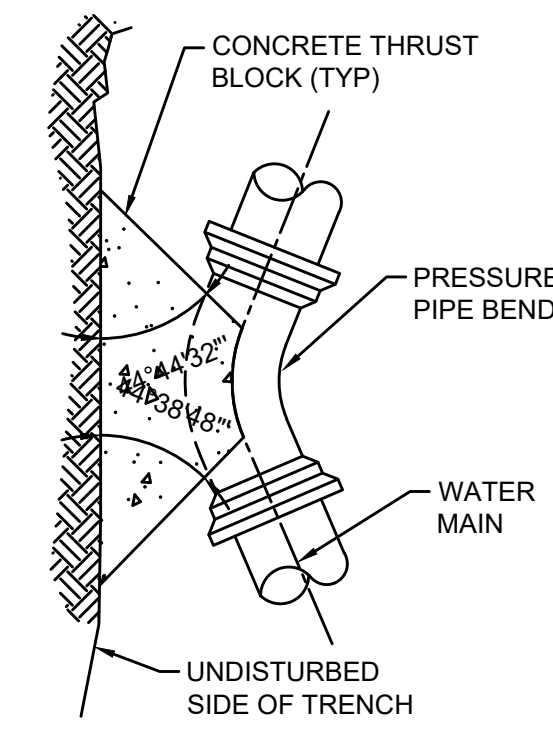
PLAN AT DOWNWARD VERTICAL BEND



PLAN AT TEE W/ STUB FOR FUTURE USE



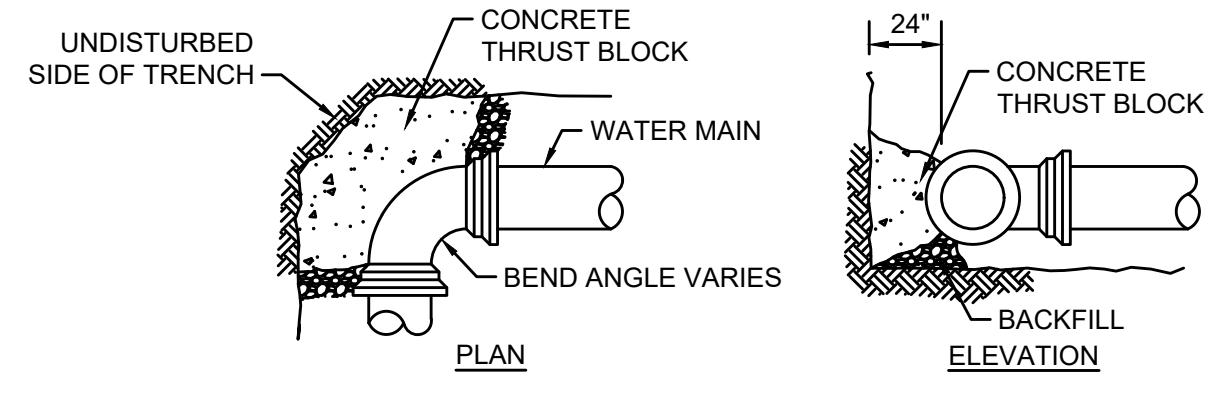
PLAN AT TEE



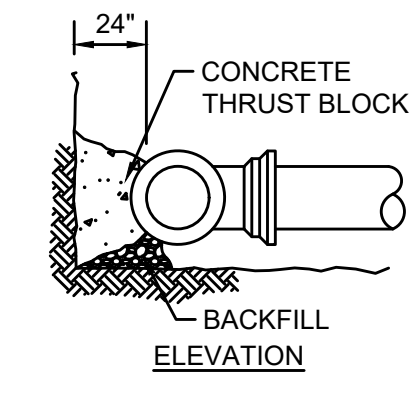
PLAN AT BEND

NOTES:

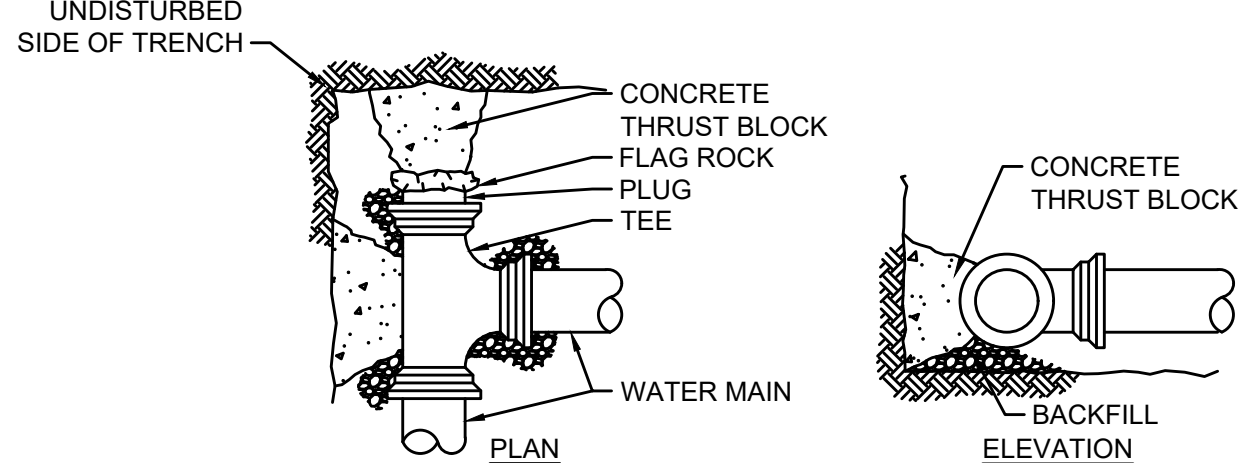
1. ALL WATER MAIN FITTINGS, BENDS, TEES, PLUGS ETC. SHALL BE RESTRAINED W/ THRUST BLOCKS EXCEPT WHERE NOTED.
2. ALL THRUST BLOCKS & COLLARS SHALL BE INSTALLED SO THAT THEY BEAR AGAINST UNDISTURBED EARTH.
3. MINIMUM COMPRESSIVE STRENGTH OF THRUST BLOCK CONCRETE SHALL BE 3,000 P.S.I.
4. KEEP CONCRETE CLEAR OF MECHANICAL JOINTS.
5. MINIMUM BEARING AREAS ARE BASED ON 250 P.S.I. INTERNAL PIPE PRESSURE & 1.5 TON/S.F. ALLOWABLE SOIL BEARING CAPACITY.
6. MINIMUM PIPE RESTRAINT LENGTH IS BASED ON DUCTILE IRON PIPE WITH A 150 P.S.I. INTERNAL PIPE PRESSURE WITH 5.0' OF BURY IN UNIFIED SOIL CLASSIFICATION SM.



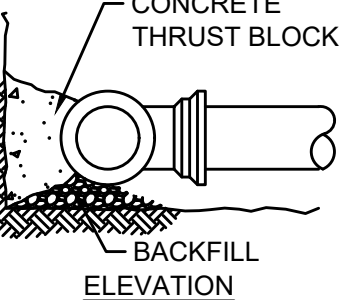
PLAN



BACKFILL ELEVATION



PLAN



BACKFILL ELEVATION

MINIMUM THRUST BLOCK BEARING AREAS (IN SQ. FT.)*				
PIPE Ø	90° BEND	45° BEND	22.5° BEND	TEES, PLUGS, CAPS & HYDRANTS
4", 6", 8"	6.0	2.9	2.3	4.5
10"	9.6	5.2	2.3	6.7
12"	13.3	6.7	3.7	9.6

* BASED ON 250 P.S.I. & 1.5 TON/S.F. ALLOWABLE SOIL BEARING CAPACITY

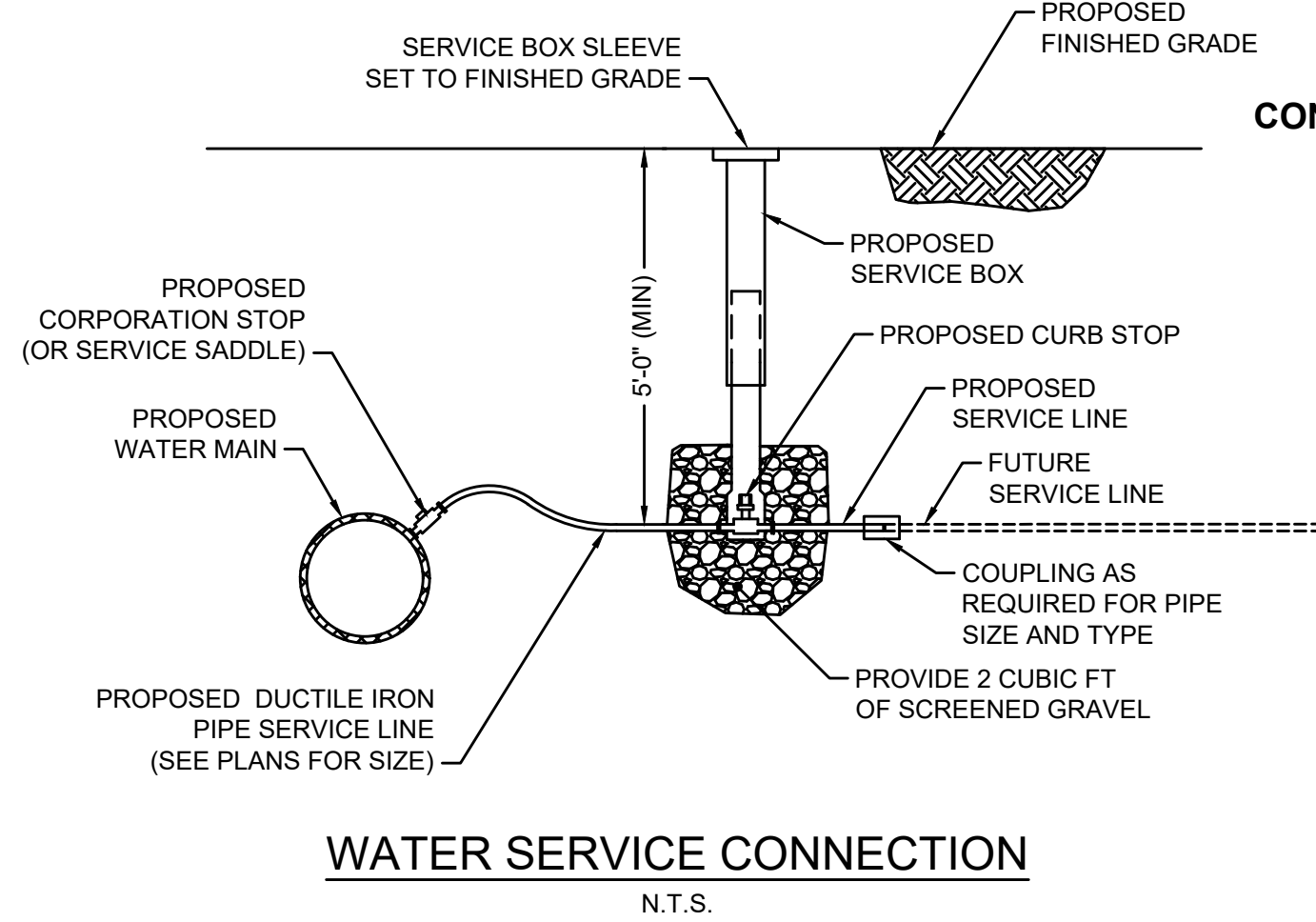
MINIMUM PIPE RESTRAINT LENGTH (IN FEET)*					
PIPE Ø	90° BEND	45° BEND	22.5° BEND	TEES	PLUG/CAP
8"	21.0	9.0	4.0	29.0	38.0
10"	26.0	11.0	5.0	38.0	46.0
12"	33.0	14.0	6.0	48.0	69.0

* BASED ON DUCTILE IRON PIPE WITH A 150 P.S.I. TEST PRESSURE WITH 5.0 FEET OF BURY IN UNIFIED SOIL CLASSIFICATION SM.

**NOTE: LONGER LENGTHS REQUIRED FOR PIPES WITH PLASTIC SLEEVES

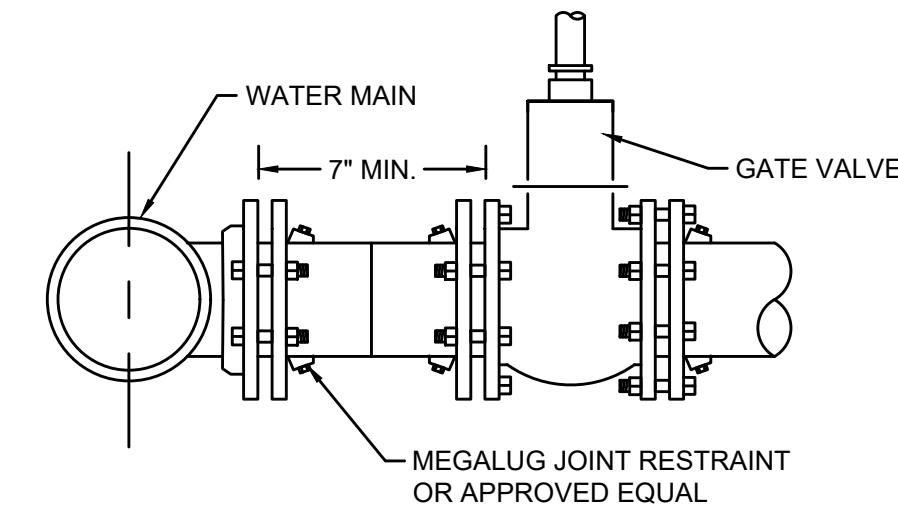
THRUST BLOCK - HORIZONTAL BENDS & PIPE RESTRAINT DETAILS

N.T.S.



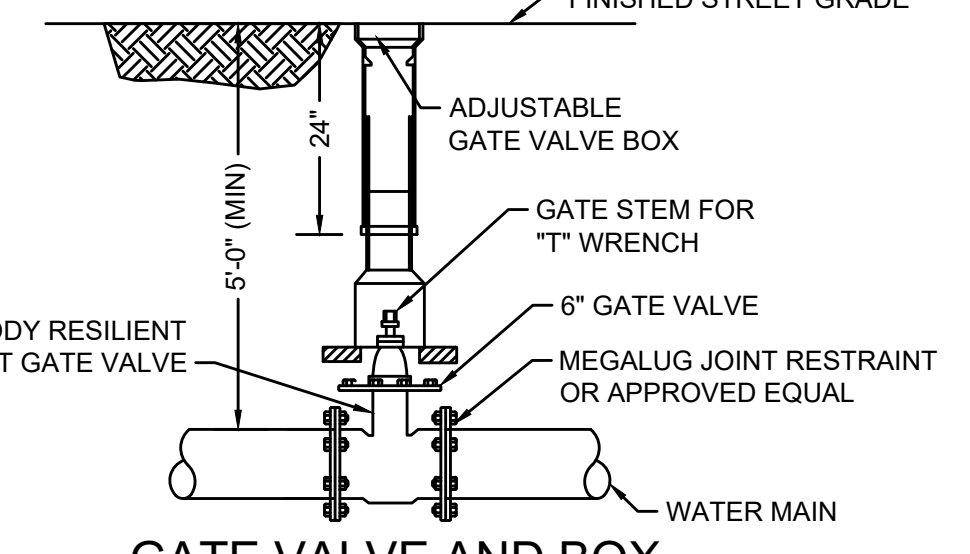
WATER SERVICE CONNECTION

N.T.S.



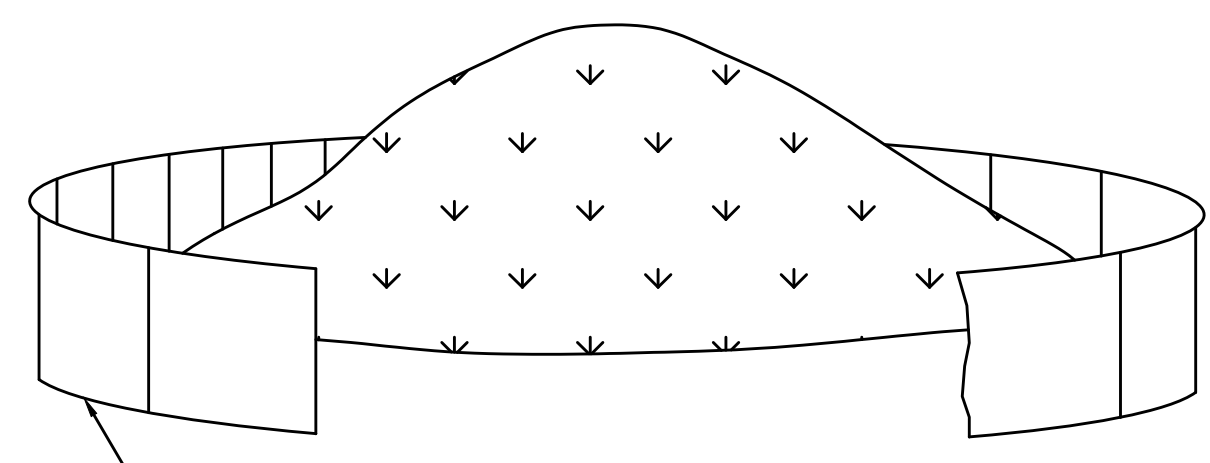
MECHANICAL JOINT RESTRAINT

N.T.S.



GATE VALVE AND BOX

N.T.S.

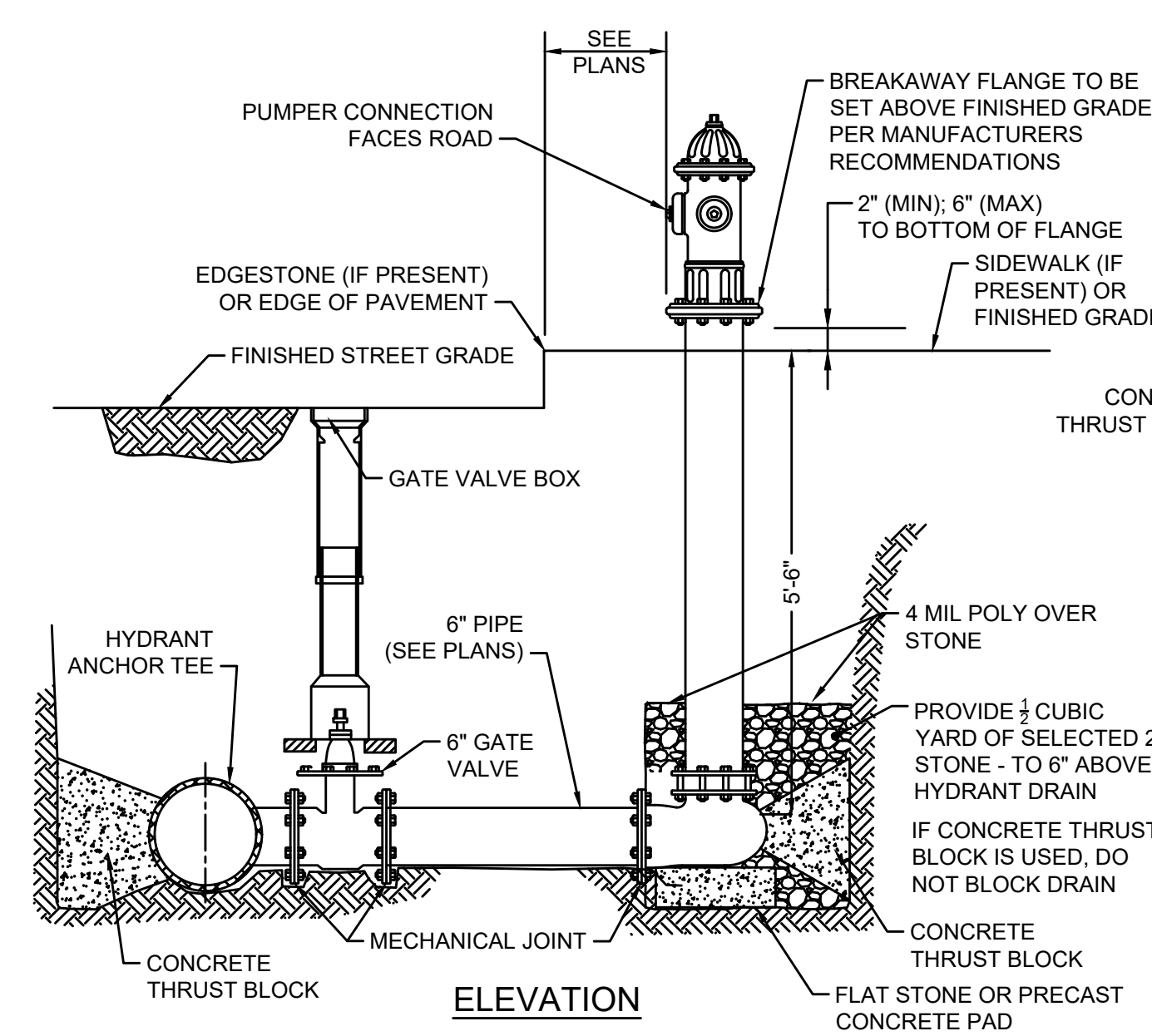


SOIL STOCKPILE

N.T.S.

THRUST BLOCK DETAILS - VERTICAL BENDS

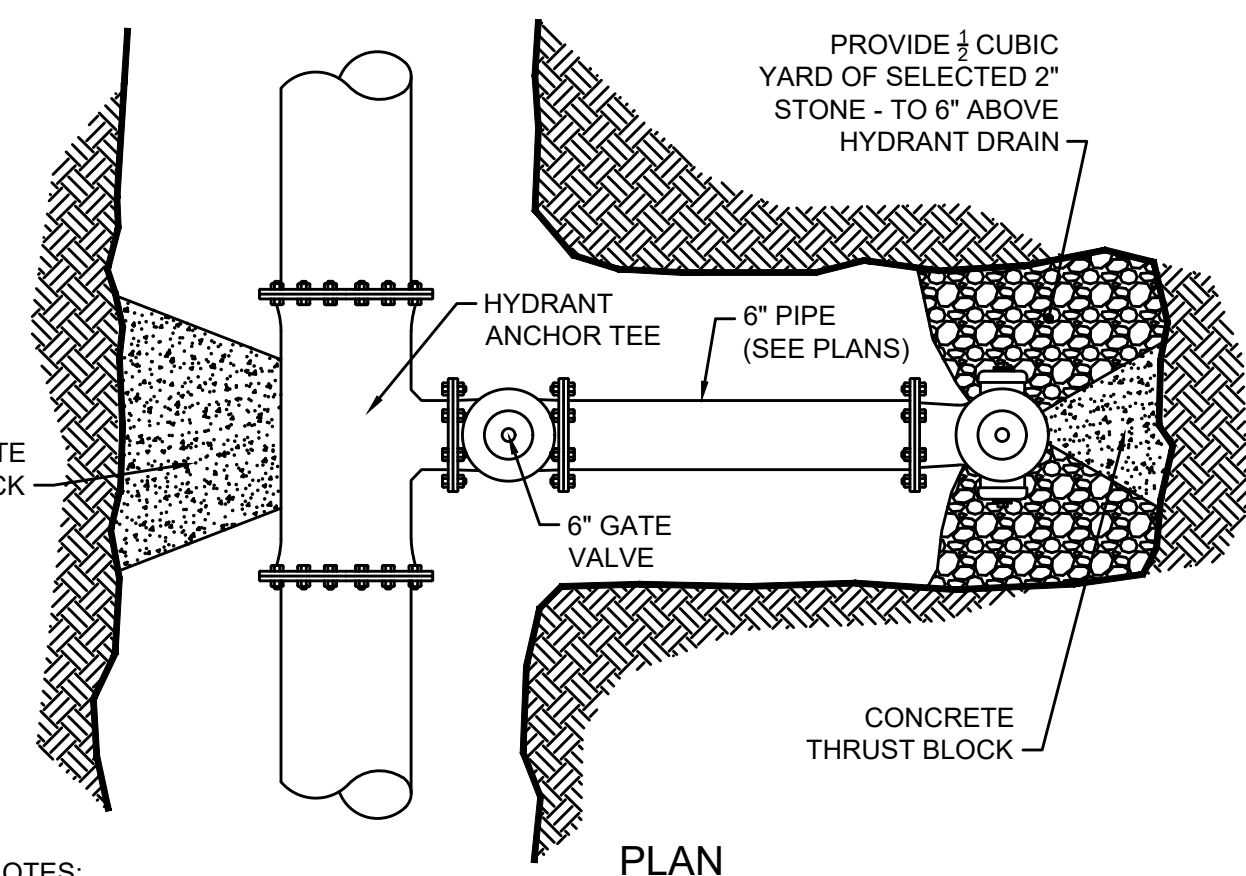
N.T.S.



ELEVATION

HYDRANT ASSEMBLY

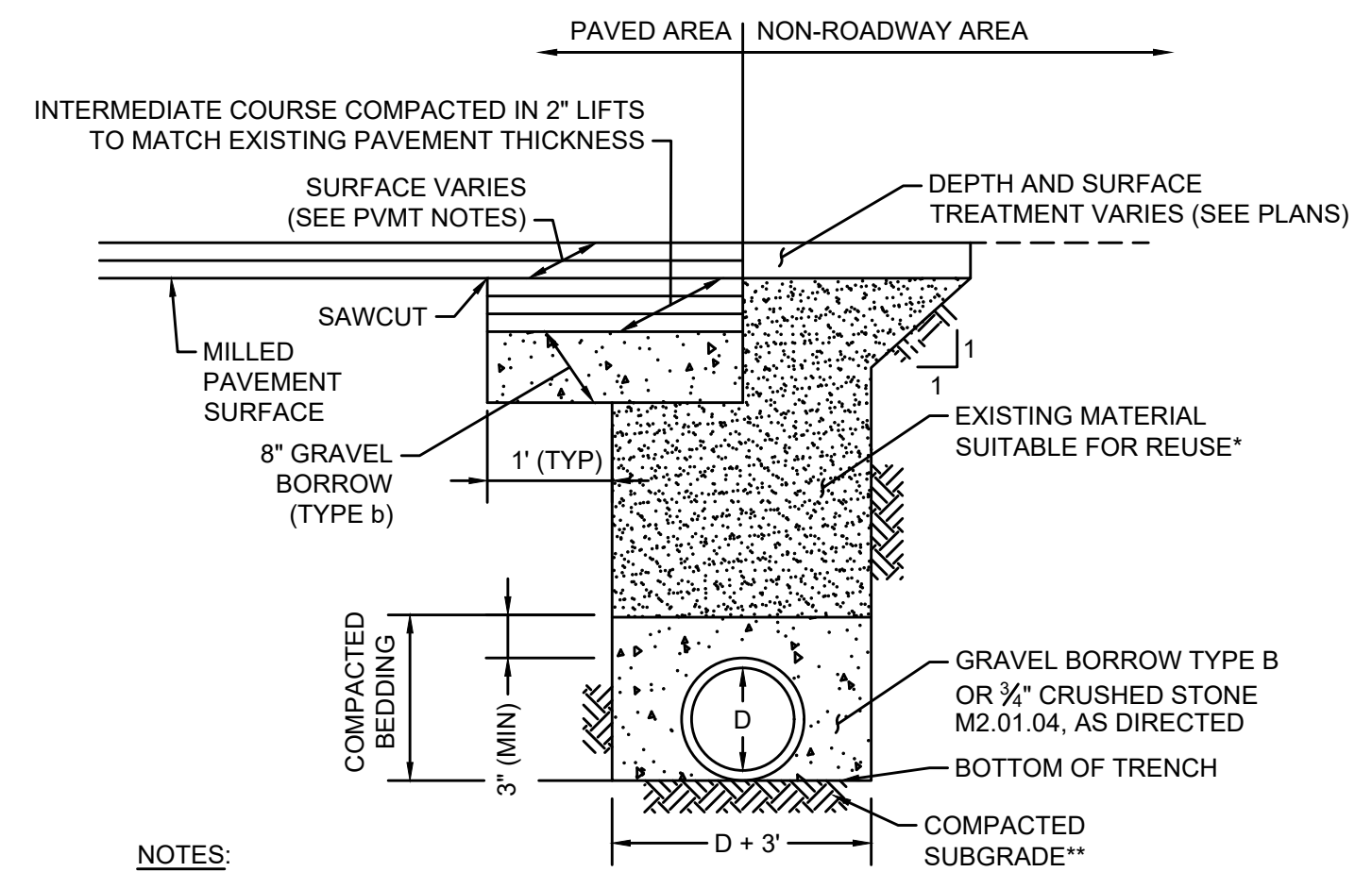
N.T.S.



PLAN

NOTES:

1. ALL CONCRETE TO BE CAST-IN-PLACE (MIN 3000 PSI)
2. CONCRETE THRUST BLOCK TO BE USED ONLY WHERE IT WILL BEAR ON UNDISTURBED EARTH.
3. CONTRACTOR SHALL SHIELD HYDRANT BASE DRAIN HOLES, MECHANICAL JOINT GLANDS, AND BOLTS DURING PLACEMENT OF CONCRETE THRUST BLOCKS. DRAIN HOLES, GLANDS, AND BOLTS SHALL BE VERIFIED AS OPEN AND FREE OF OBSTRUCTIONS PRIOR TO BACKFILLING.

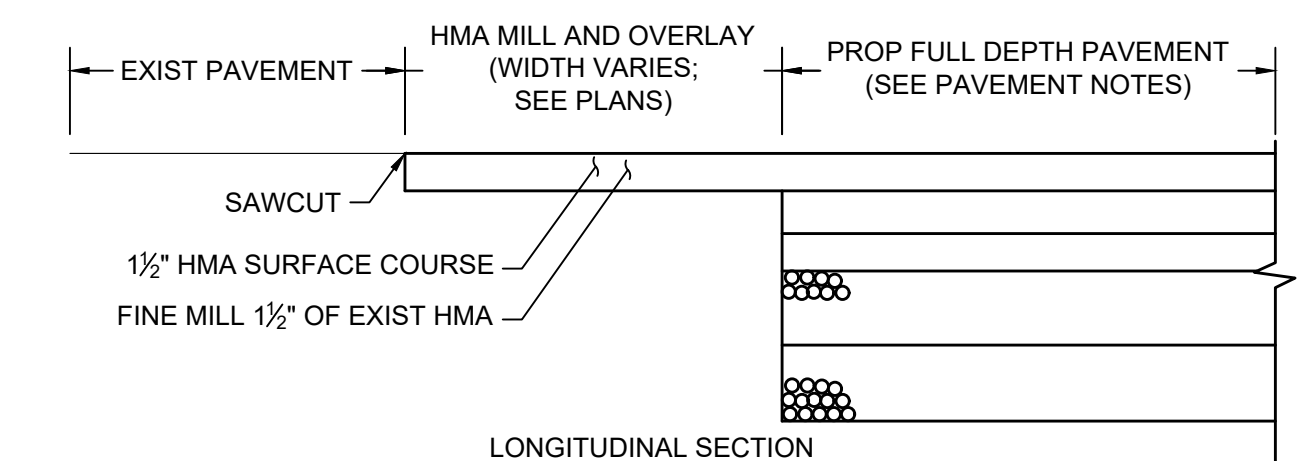


NOTES:

- * MATERIAL USED FOR BACKFILLING TO A POINT 2 FEET OVER THE PIPE SHALL CONTAIN NO STONES LARGER THAN 3 INCHES IN GREATEST DIMENSION, EXCEPT MATERIAL USED TO BACKFILL CORRUGATED PLASTIC PIPE SHALL CONSIST OF GRAVEL BORROW MEETING THE REQUIREMENTS OF M1.03.04. GRAVEL BORROW, TYPE d, TO A DEPTH OF 2 FEET OVER THE TOP OF THE PIPE.
- **SOFT OR UNSUITABLE MATERIAL EXISTING BELOW THE REQUIRED BEDDING GRADE SHALL BE REMOVED AS DIRECTED AND REPLACED WITH SAND, GRAVEL, CRUSHED STONE OR OTHER SUITABLE MATERIAL AND THOROUGHLY COMPACTED.

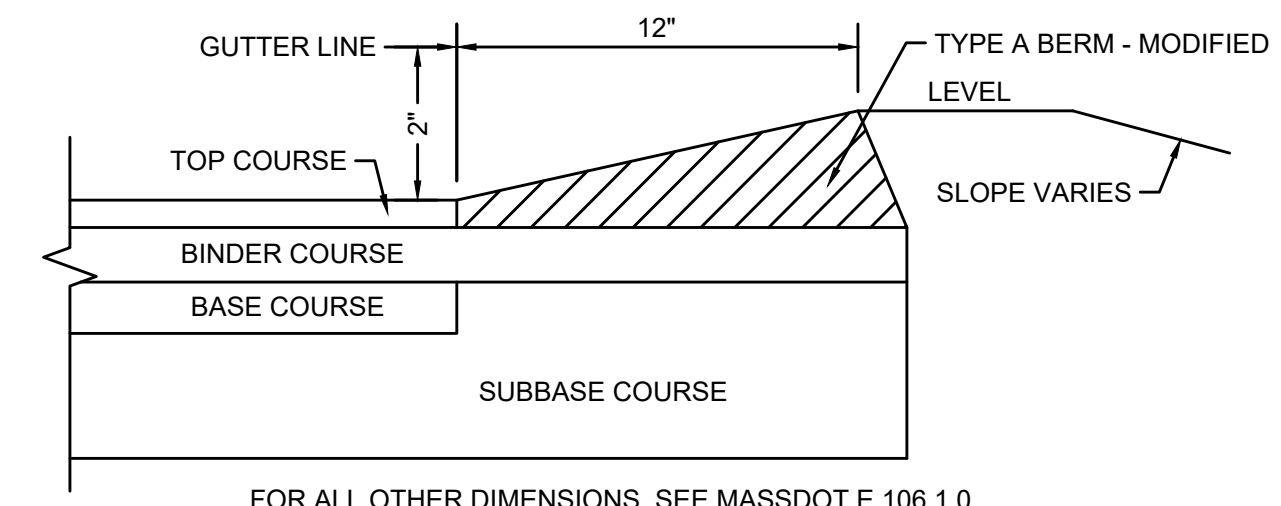
UTILITY TRENCH

N.T.S.



FULL DEPTH PAVEMENT TRANSITION

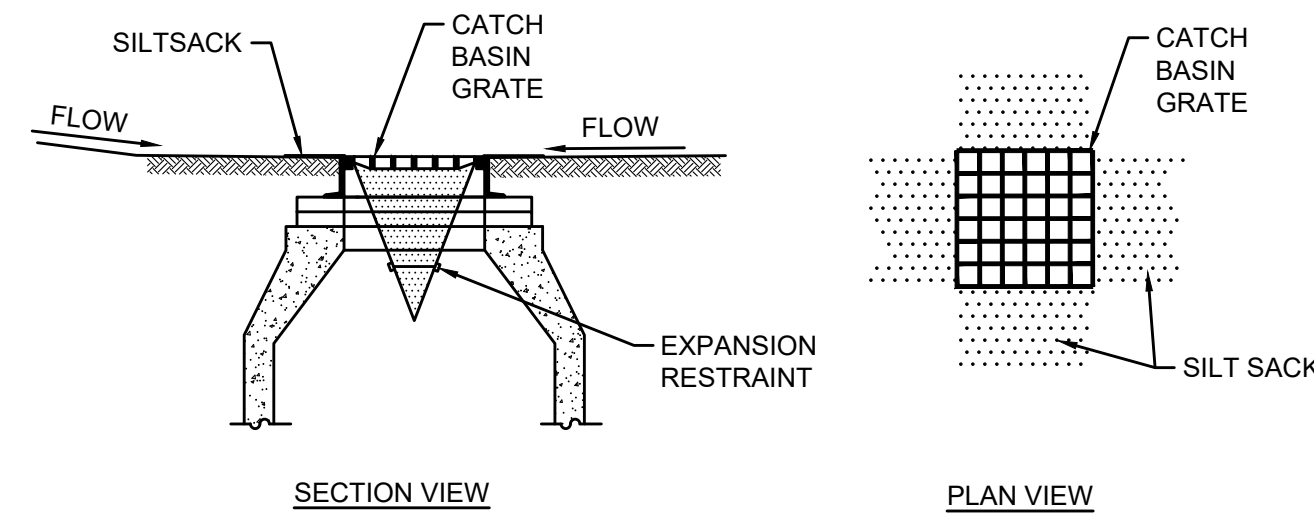
N.T.S.



HOT MIX ASPHALT BERM, TYPE A - MODIFIED

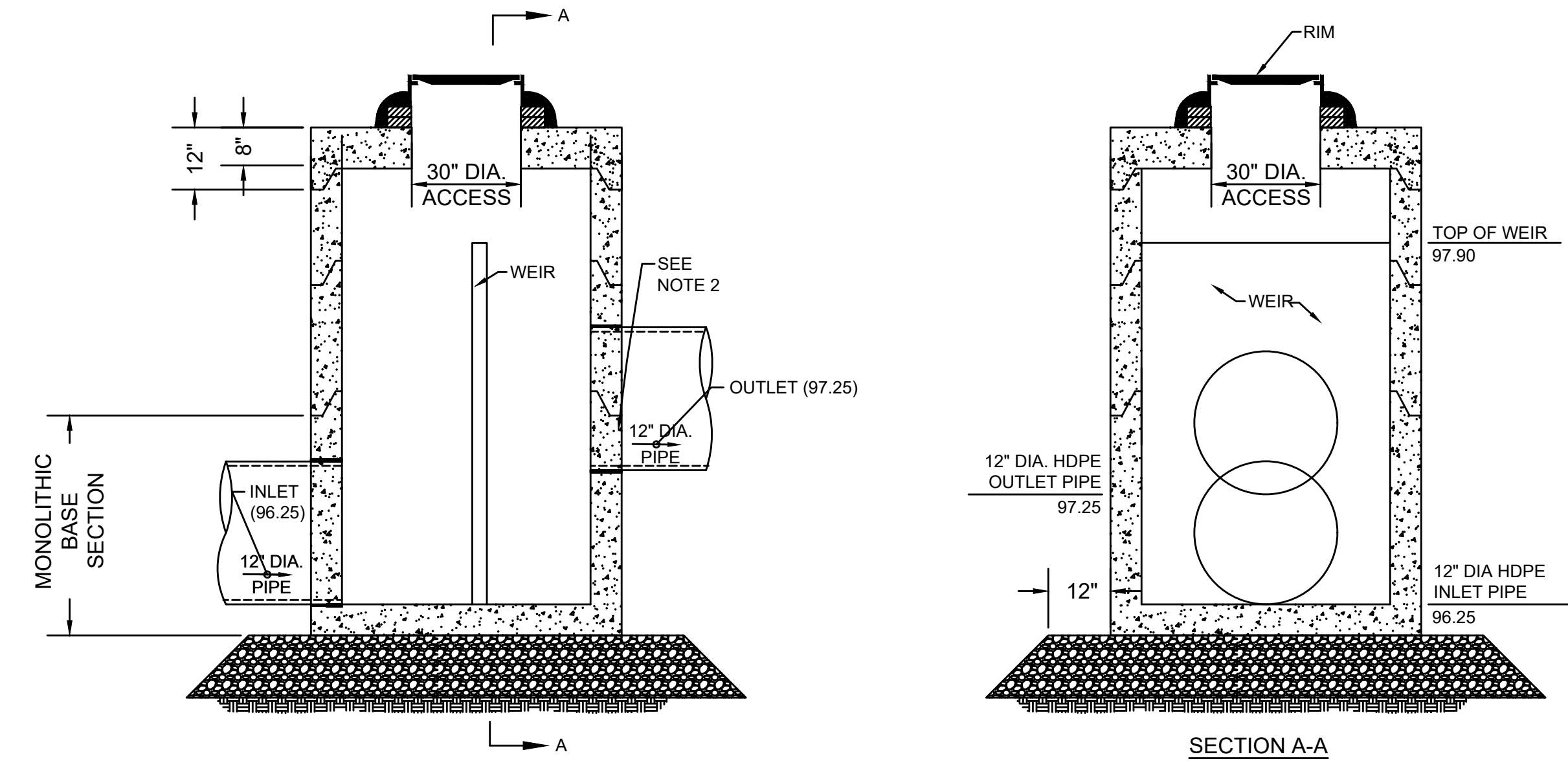
N.T.S.

FOR ALL OTHER DIMENSIONS, SEE MASSDOT E 106.1.0

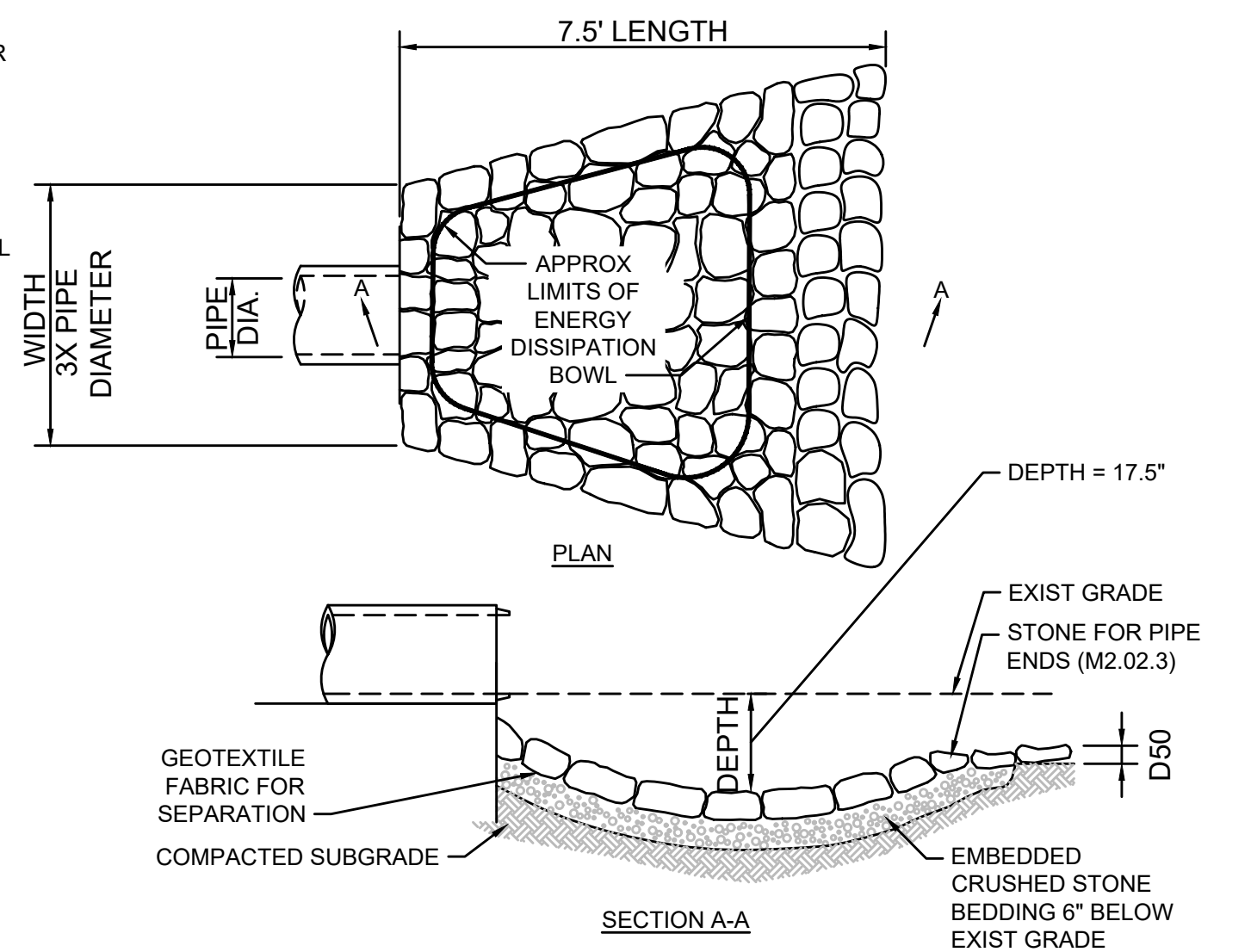


- NOTES:**
1. INSTALL SILT SACKS IN RETAINED EXISTING CATCH BASINS BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
 2. GRATE TO BE PLACED OVER SILT SACK.
 3. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.

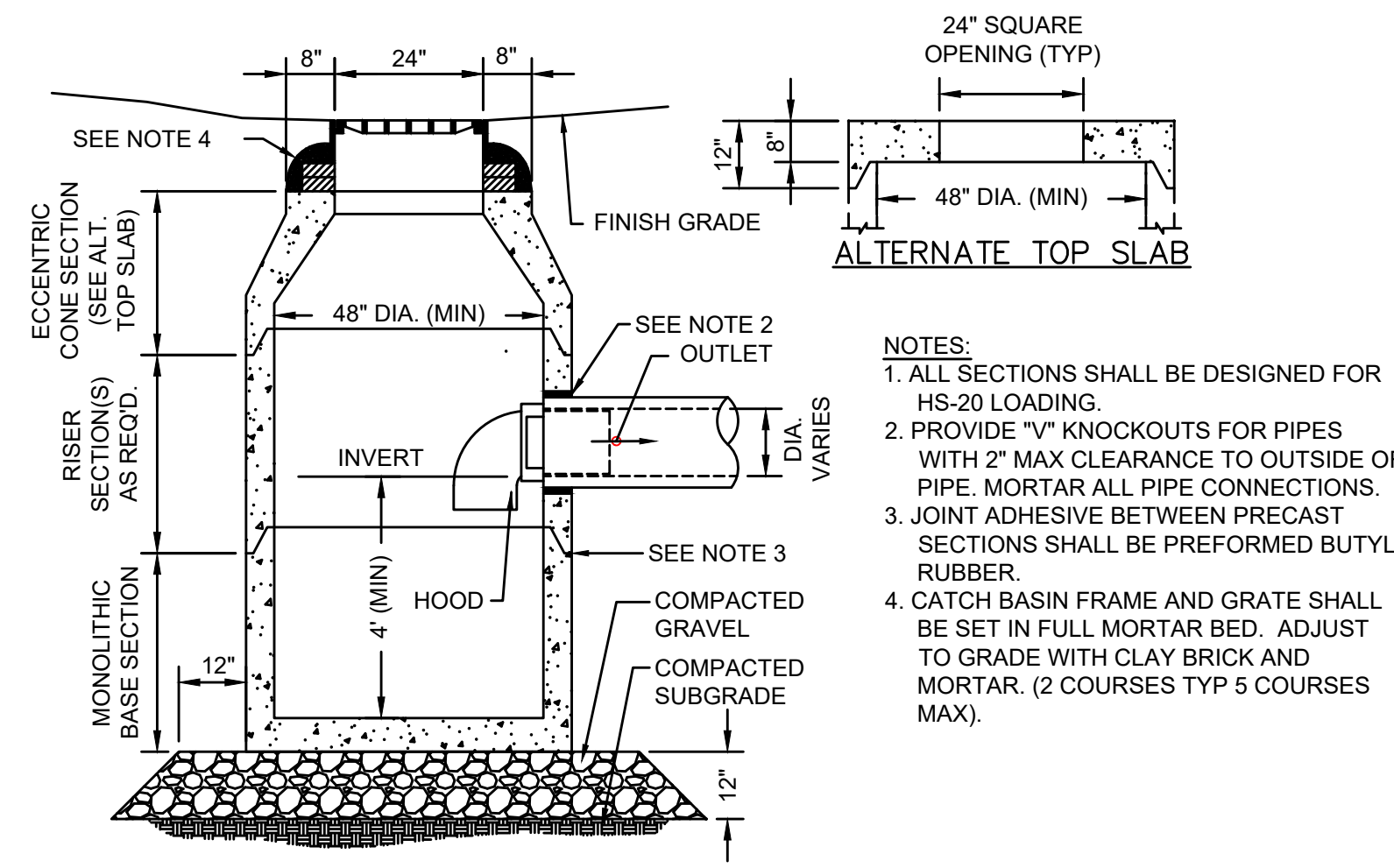
INLET PROTECTION SILT SACK IN CATCH BASIN
N.T.S.



- NOTES:**
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
 2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
 3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.

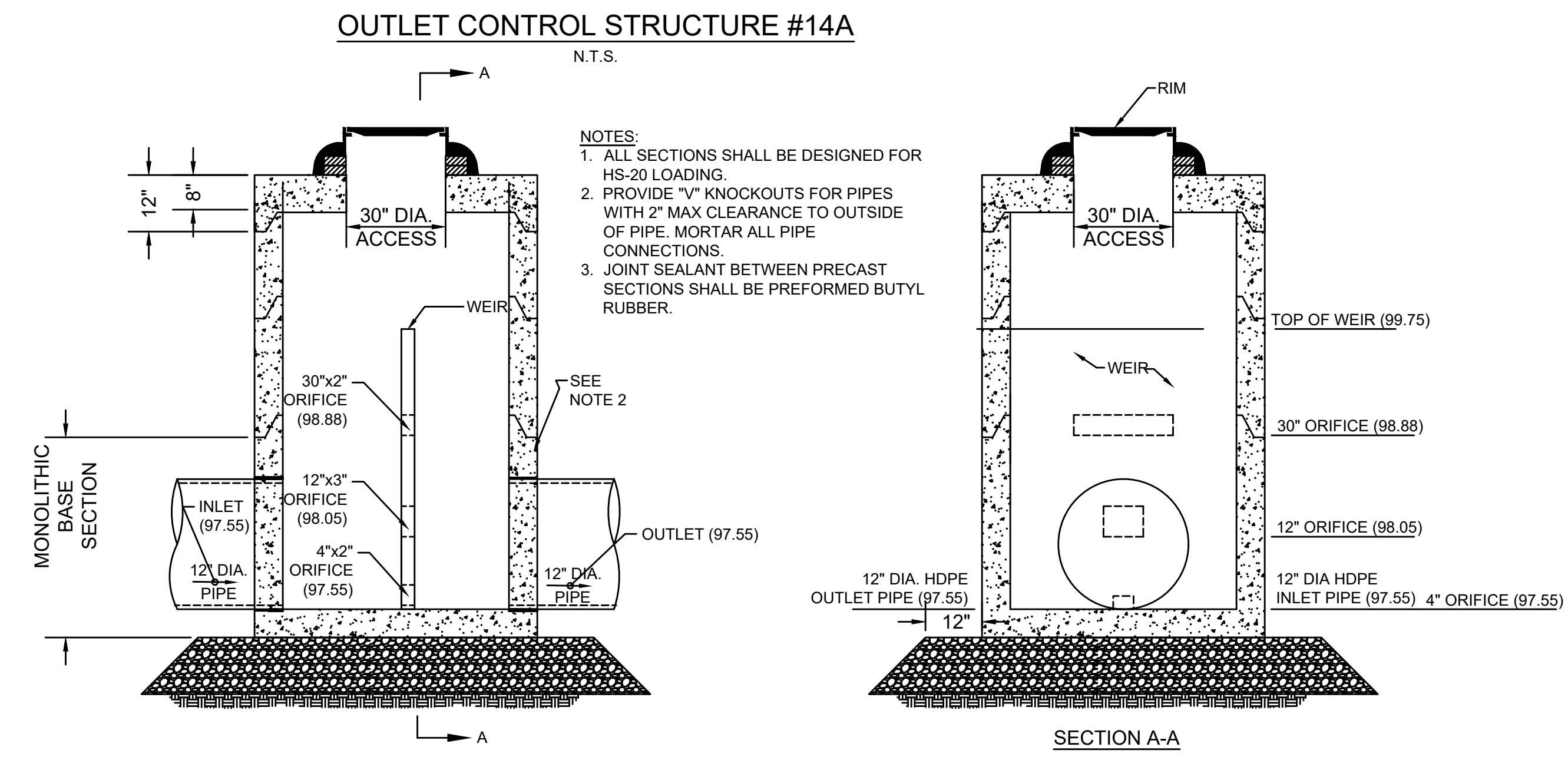


STONE FOR PIPE ENDS
N.T.S.

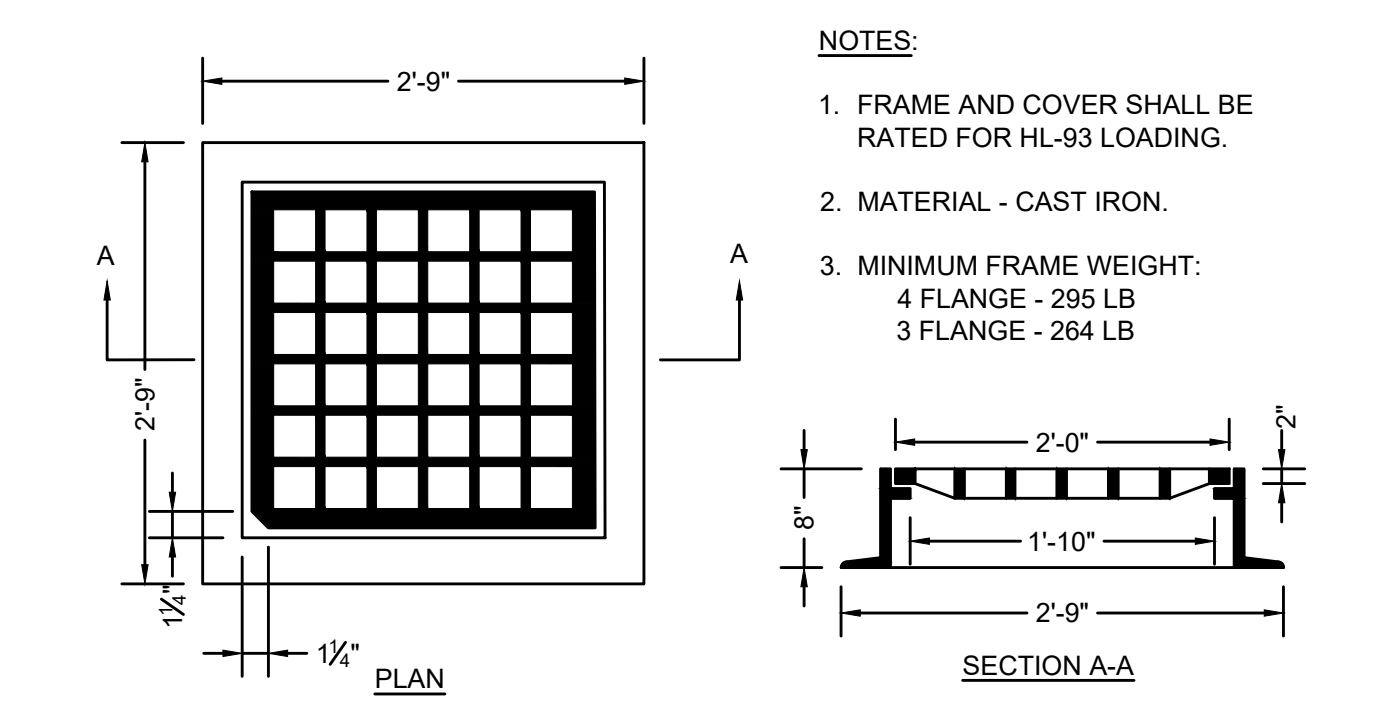


- NOTES:**
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
 2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
 3. JOINT ADHESIVE BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
 4. CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 COURSES TYP 5 COURSES MAX).

DEEP SUMP CATCH BASIN WITH HOOD
N.T.S.

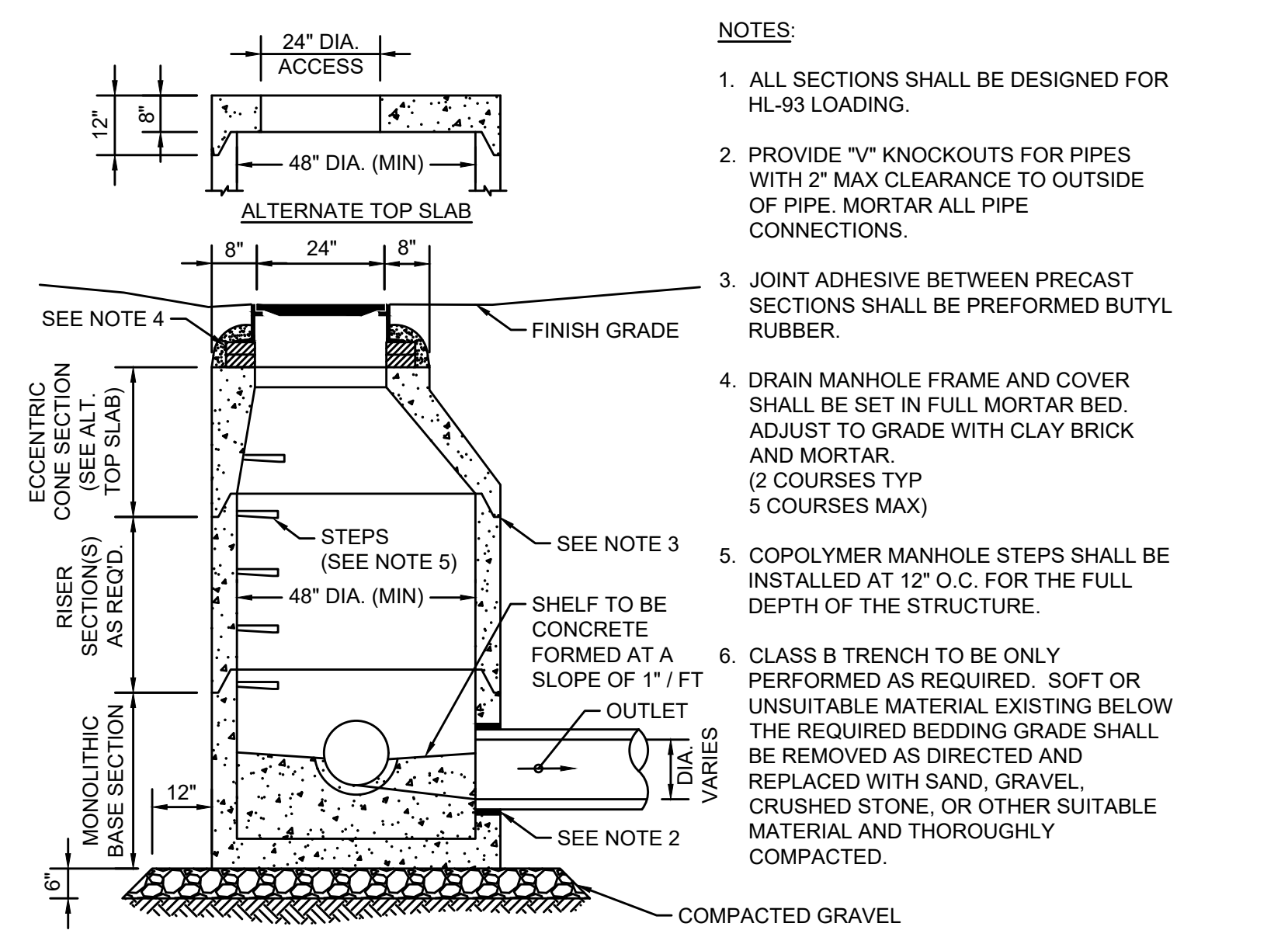


- NOTES:**
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
 2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
 3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.



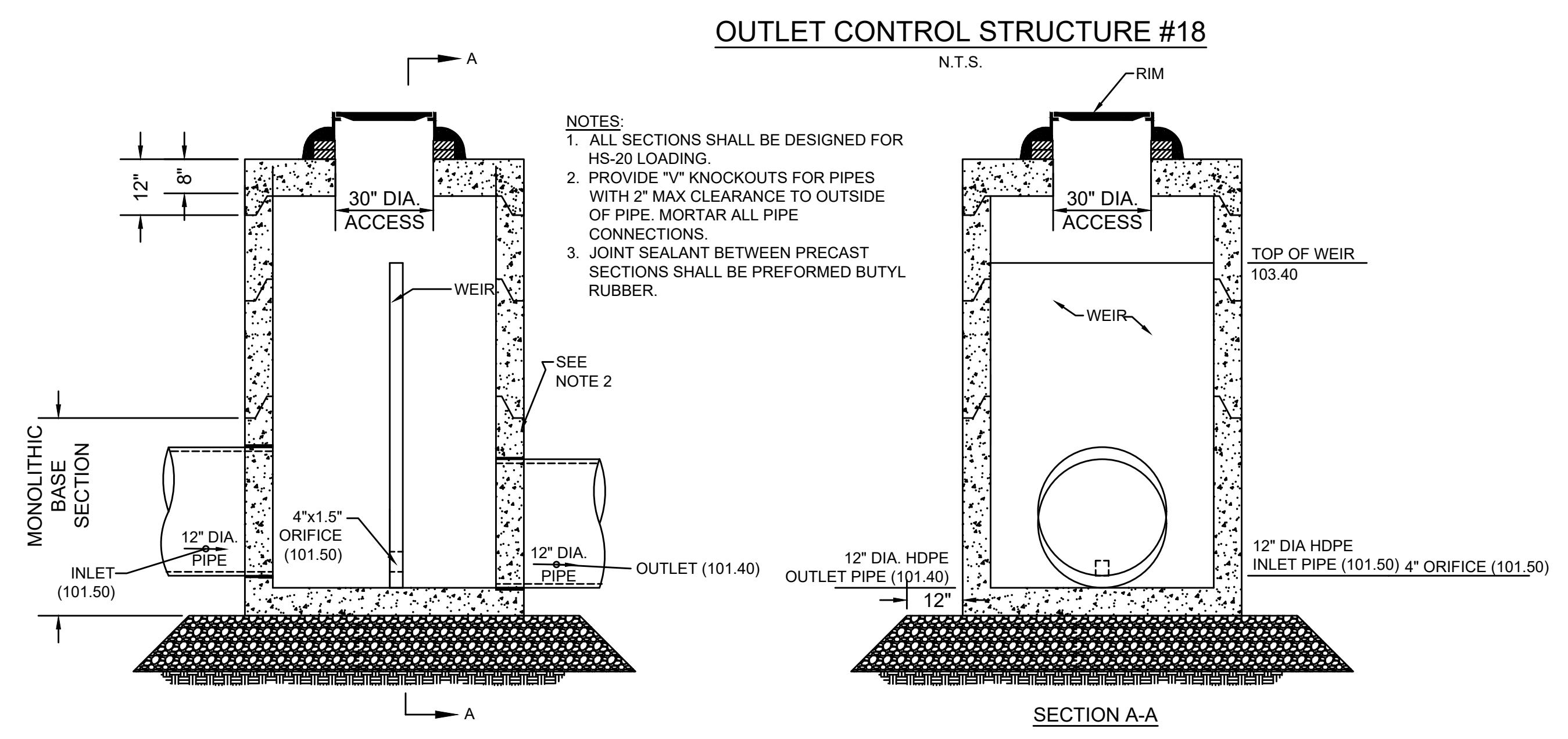
- NOTES:**
1. FRAME AND COVER SHALL BE RATED FOR HL-93 LOADING.
 2. MATERIAL - CAST IRON.
 3. MINIMUM FRAME WEIGHT:
4 FLANGE - 295 LB
3 FLANGE - 264 LB

CATCH BASIN FRAME & GRATE (MUNICIPAL STANDARD)
N.T.S.



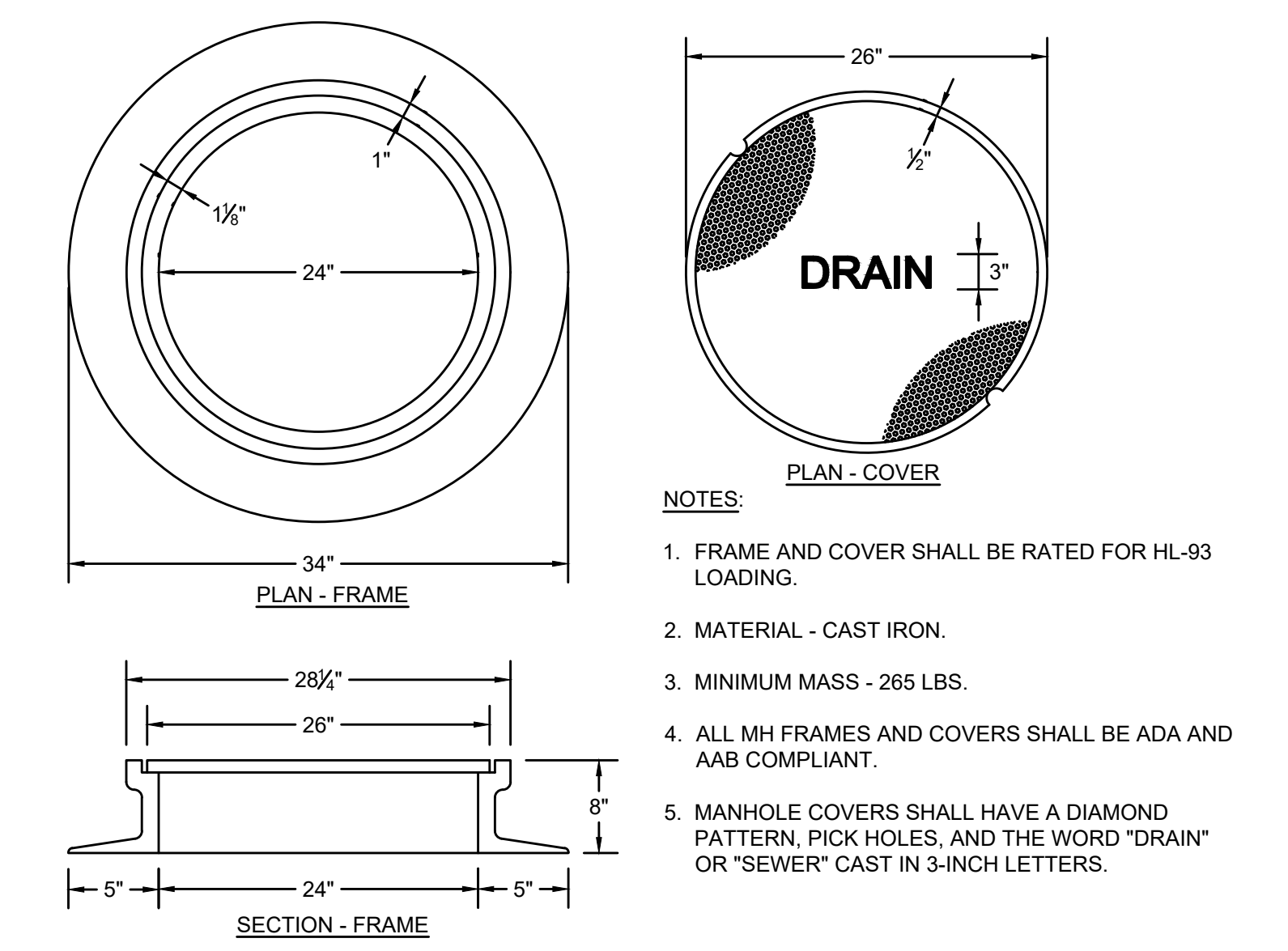
- NOTES:**
1. ALL SECTIONS SHALL BE DESIGNED FOR HL-93 LOADING.
 2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
 3. JOINT ADHESIVE BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
 4. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 COURSES TYP 5 COURSES MAX)
 5. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
 6. CLASS B TRENCH TO BE ONLY PERFORMED AS REQUIRED. SOFT OR UNSUITABLE MATERIAL EXISTING BELOW THE REQUIRED BEDDING GRADE SHALL BE REMOVED AS DIRECTED AND REPLACED WITH SAND, GRAVEL, CRUSHED STONE, OR OTHER SUITABLE MATERIAL AND THOROUGHLY COMPACTED.

DRAIN MANHOLE
N.T.S.



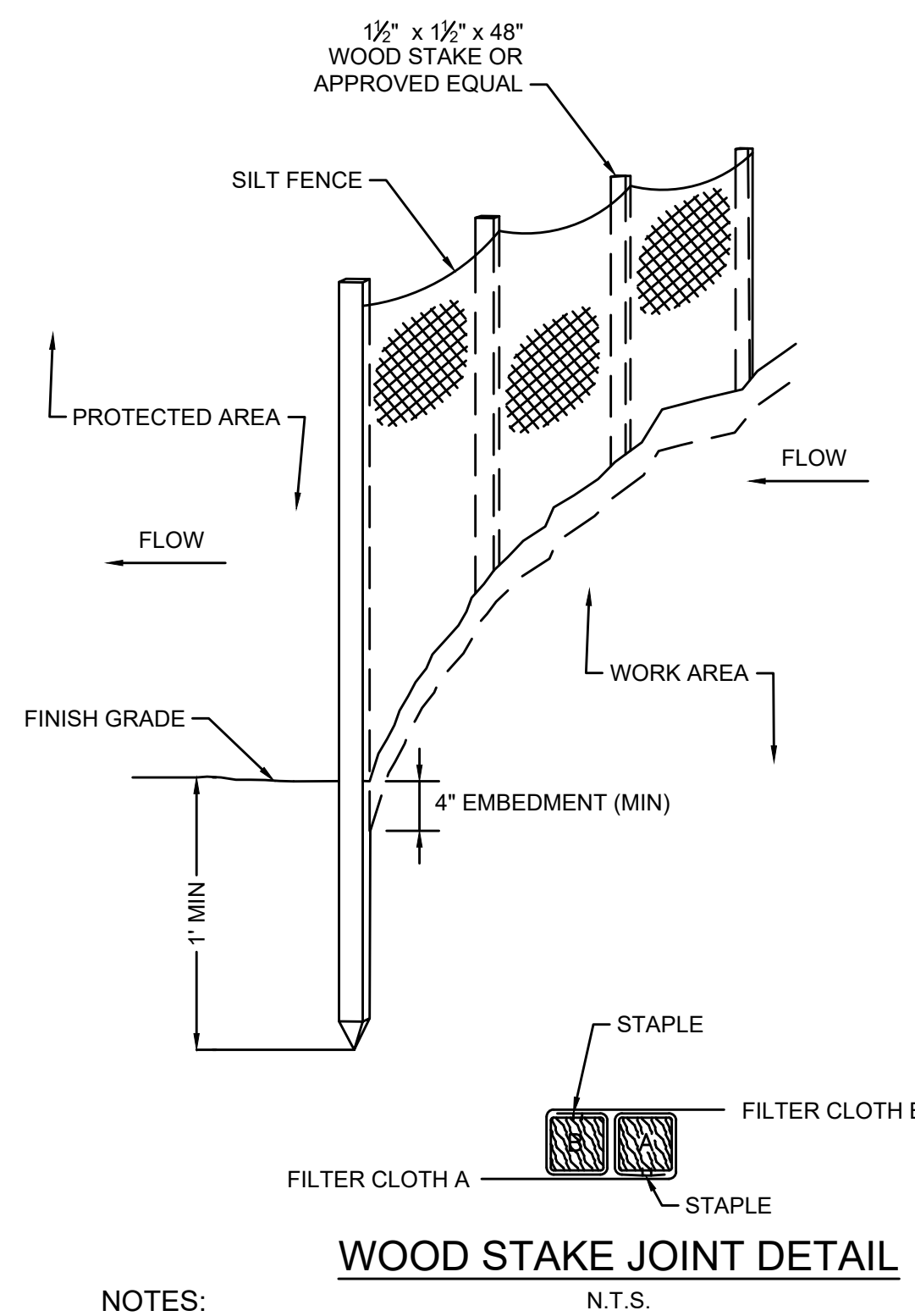
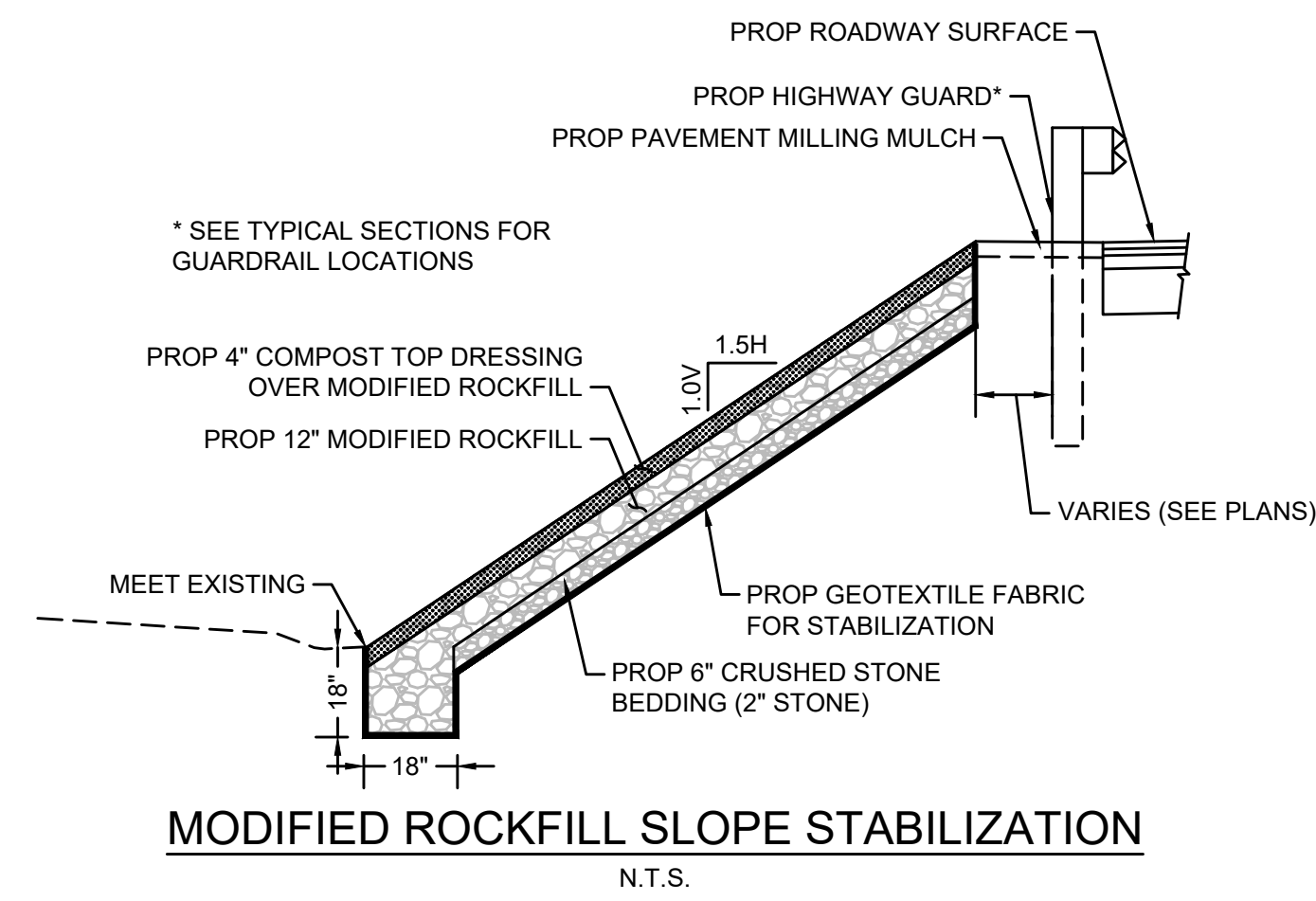
- NOTES:**
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
 2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
 3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.

OUTLET CONTROL STRUCTURE #27
N.T.S.



- NOTES:**
1. FRAME AND COVER SHALL BE RATED FOR HL-93 LOADING.
 2. MATERIAL - CAST IRON.
 3. MINIMUM MASS - 265 LBS.
 4. ALL MH FRAMES AND COVERS SHALL BE ADA AND AAB COMPLIANT.
 5. MANHOLE COVERS SHALL HAVE A DIAMOND PATTERN, PICK HOLES, AND THE WORD "DRAIN" OR "SEWER" CAST IN 3-INCH LETTERS.

MANHOLE FRAME & COVER (MUNICIPAL STANDARD)
N.T.S.



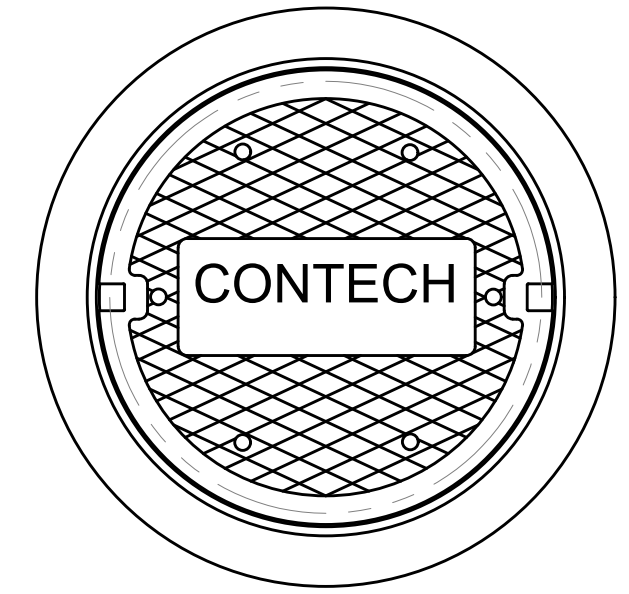
NOTES:

1. FILTER CLOTH SHALL BE FASTENED SECURELY TO POSTS WITH STAPLES. POSTS SHALL BE SPACED 8'-10' ON CENTER.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
3. ENTRENCH SILT FENCE BY 4 INCHES.
4. INSPECTIONS SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED, OR WHEN SEDIMENT ACCUMULATES TO HALF THE HEIGHT OF FENCING.

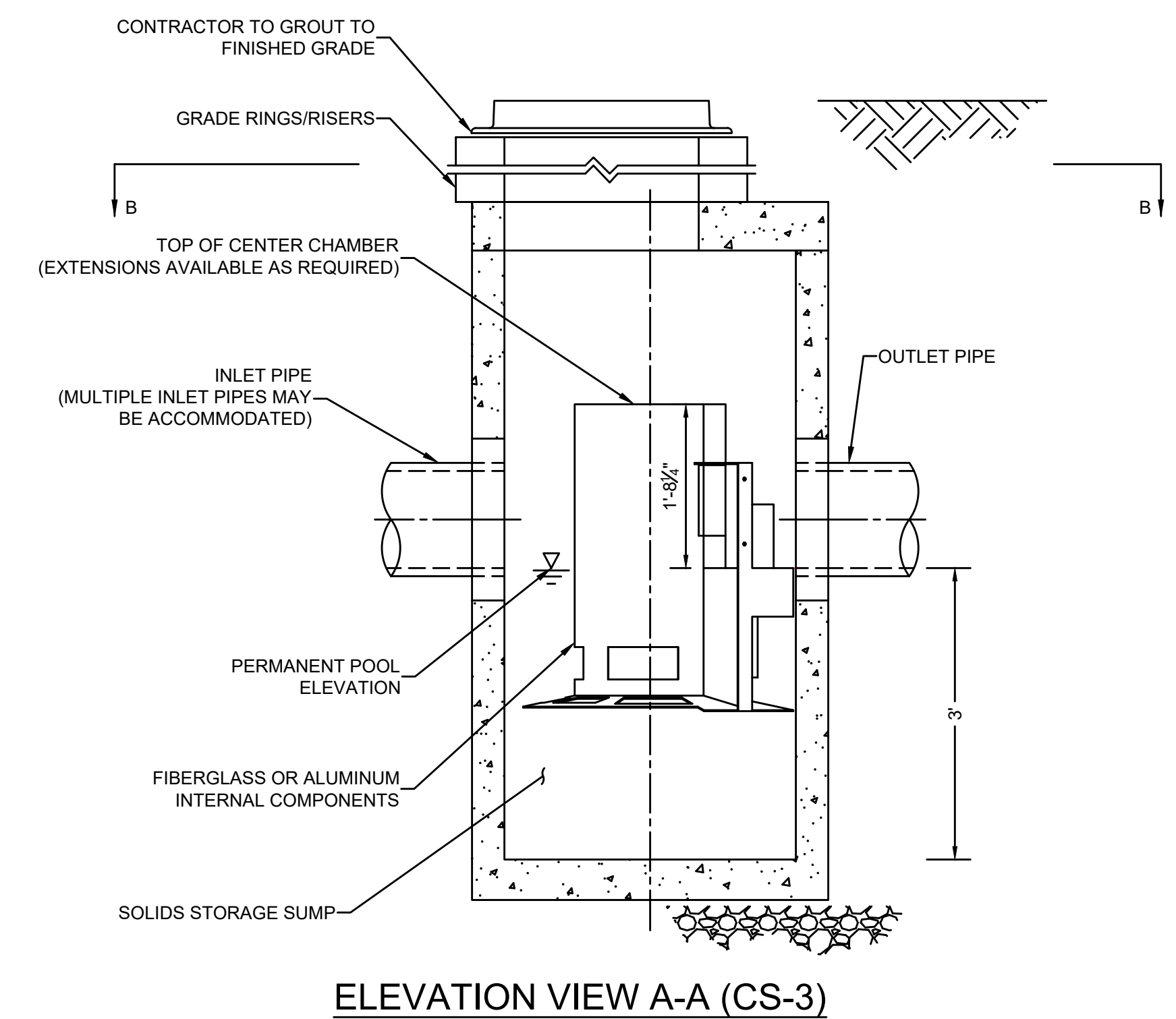
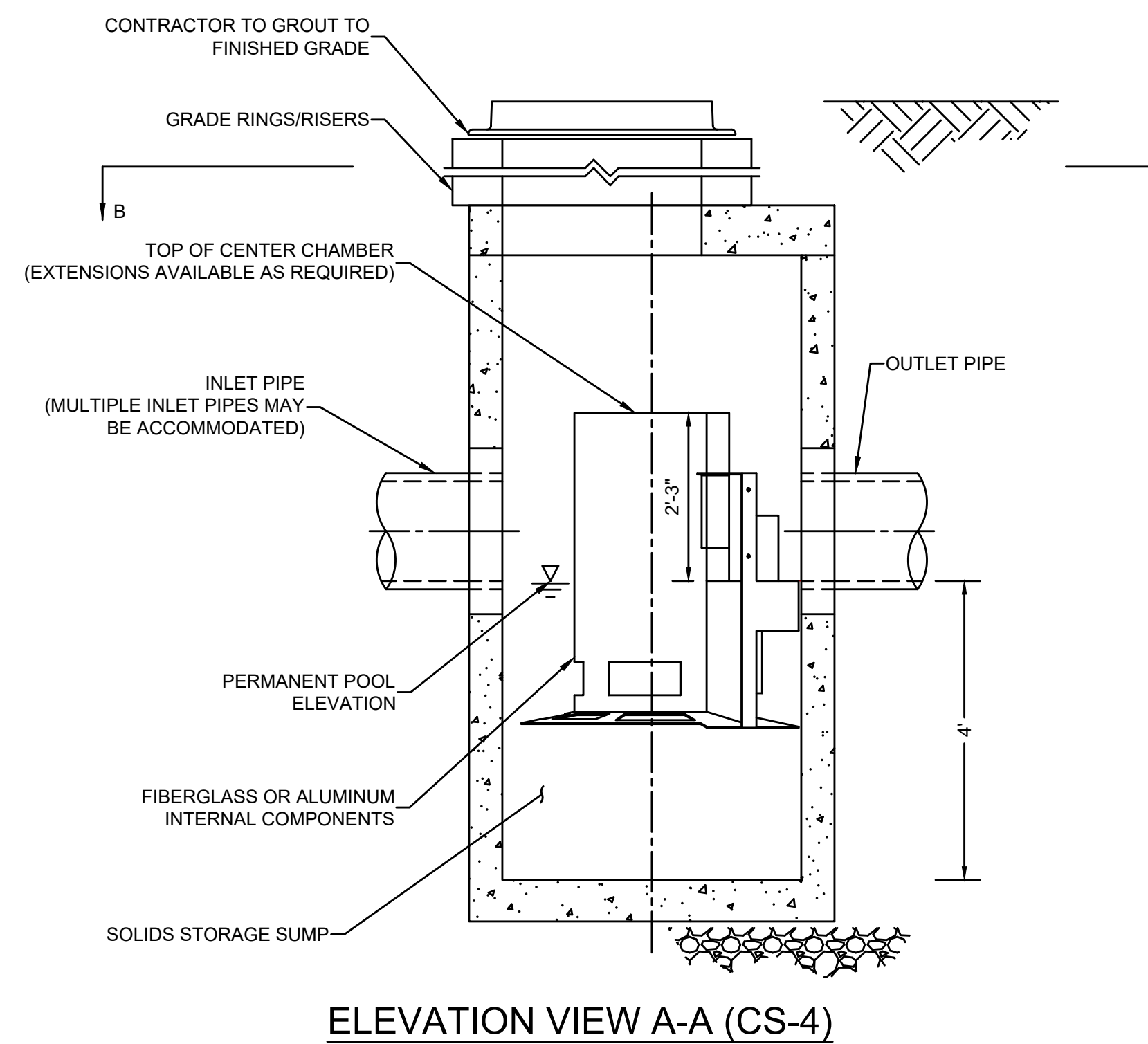
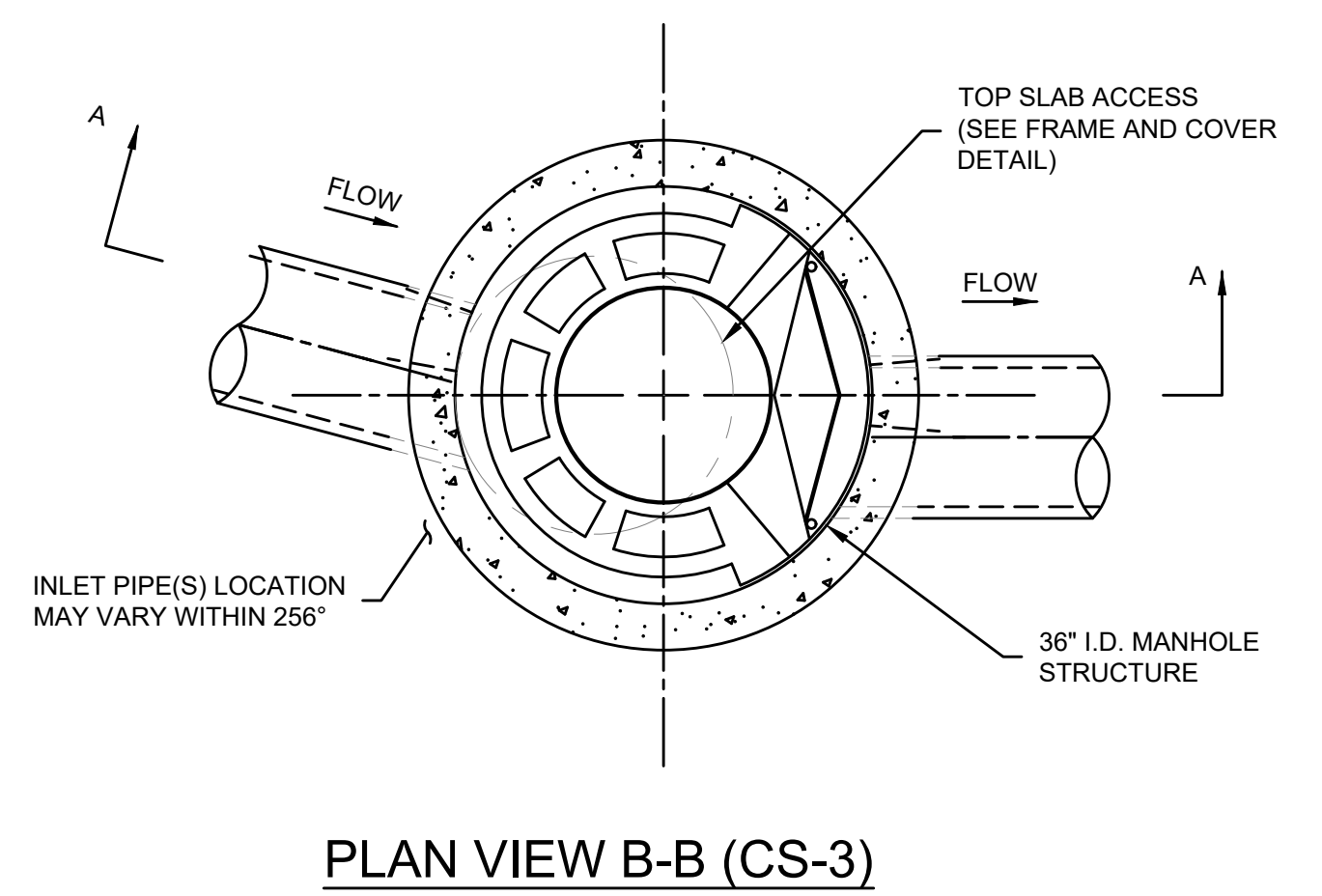
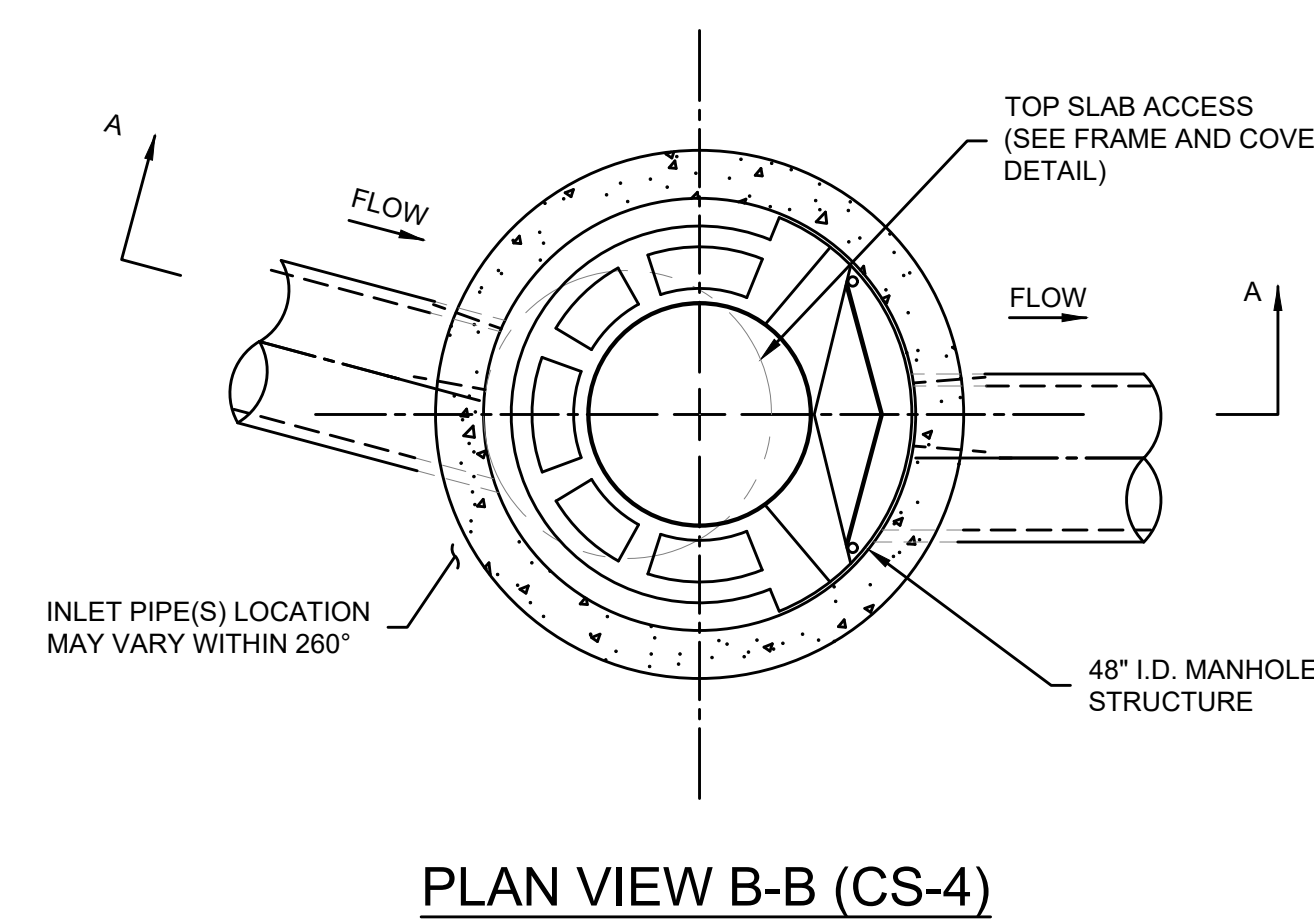
SILT FENCE
N.T.S.

NOTES:

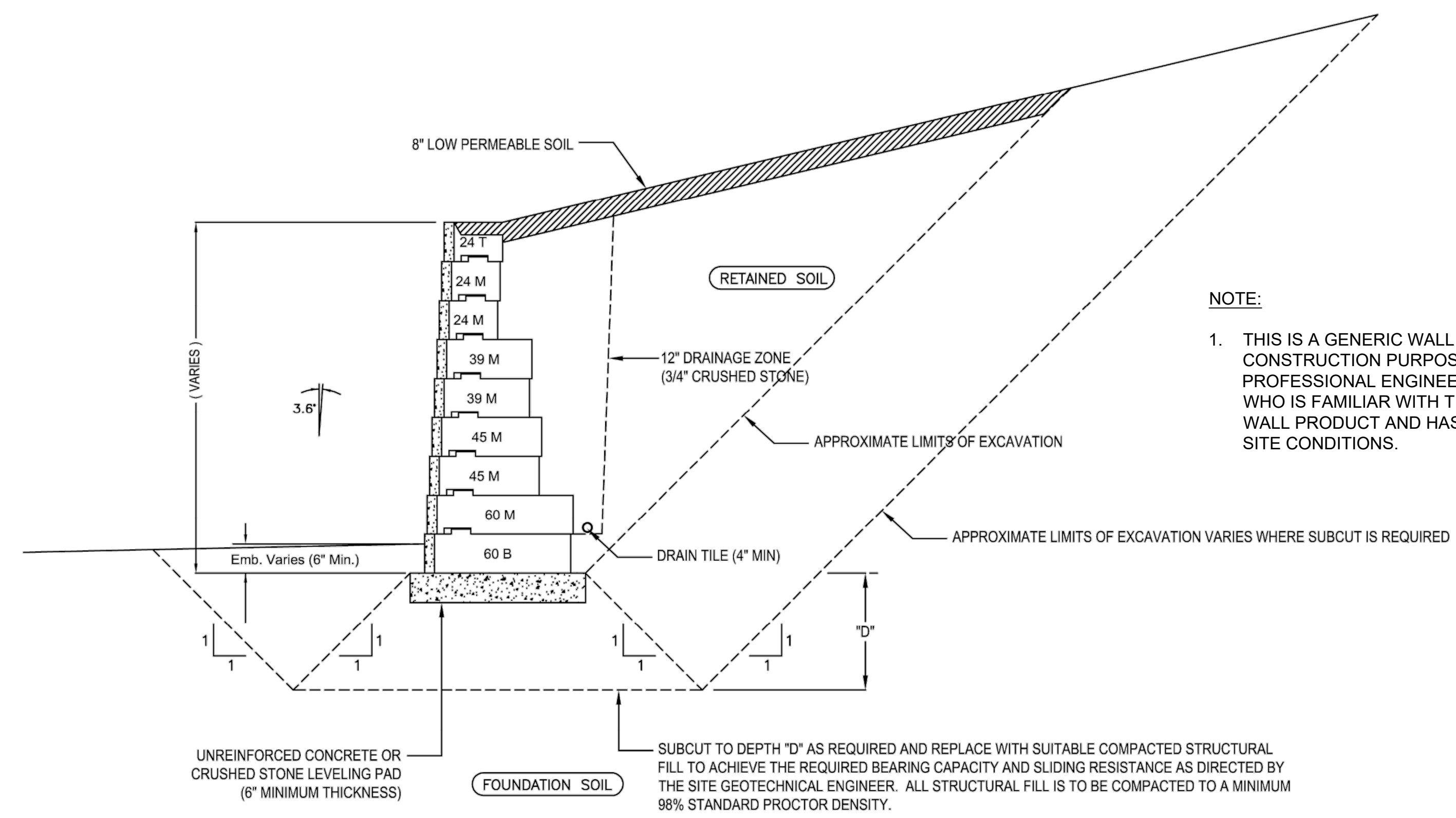
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, CONTACT CONTECH ENGINEERED SOLUTIONS LLC.
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF THE PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING COVER OF 0'-2' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. CONTRACTOR TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.



CONTECH FRAME AND COVER



CASCADE SEPARATORS
N.T.S.



NOTE:
1. THIS IS A GENERIC WALL CROSS SECTION. FINAL DESIGN FOR CONSTRUCTION PURPOSES SHALL BE DONE BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF MASSACHUSETTS WHO IS FAMILIAR WITH THE SHEA CONCRETE GRAVITY BLOCK WALL PRODUCT AND HAS TAKEN INTO ACCOUNT THE SPECIFIC SITE CONDITIONS.

SHEA CONCRETE GRAVITY BLOCK WALL DETAIL
N.T.S.

