

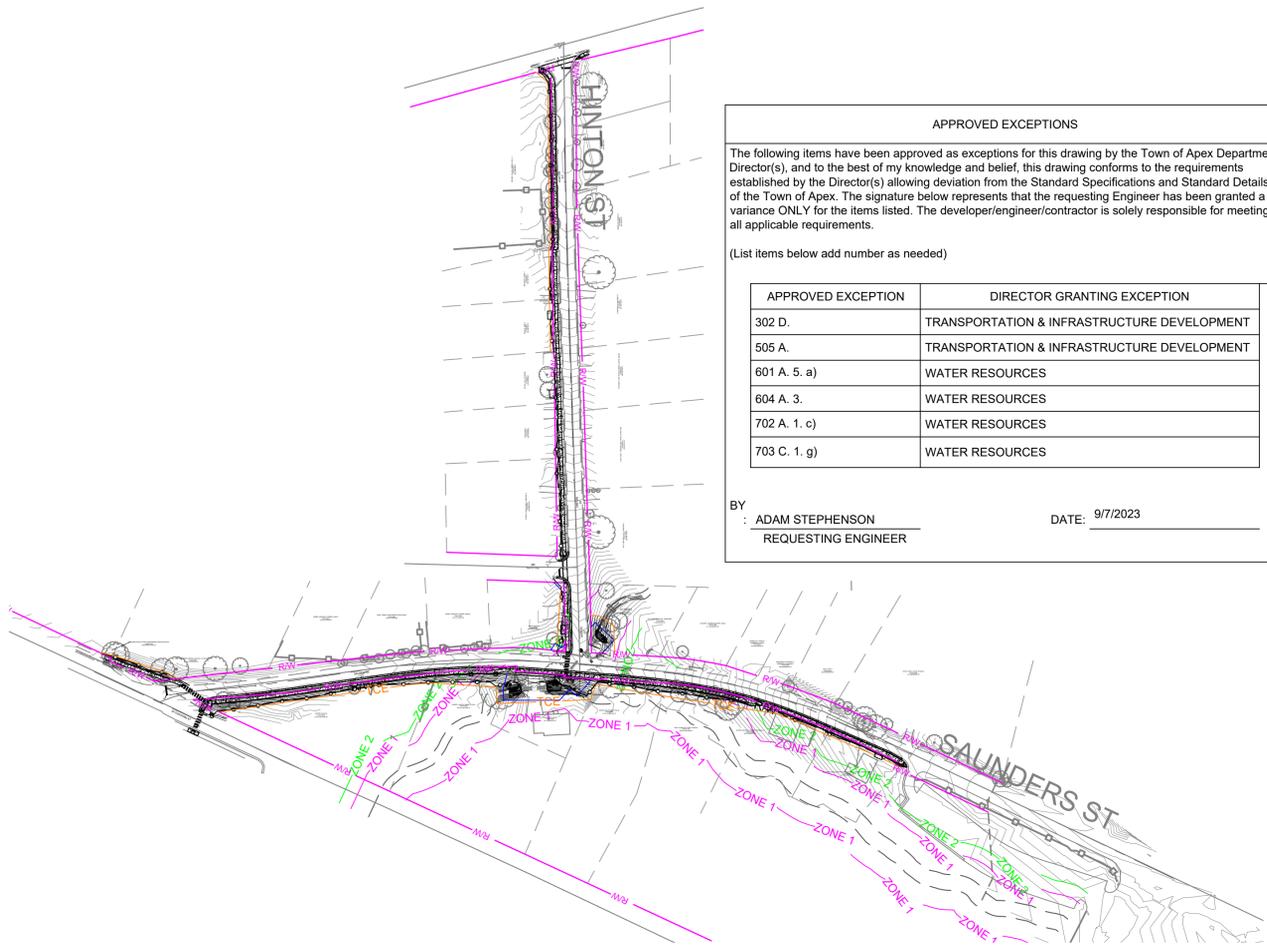
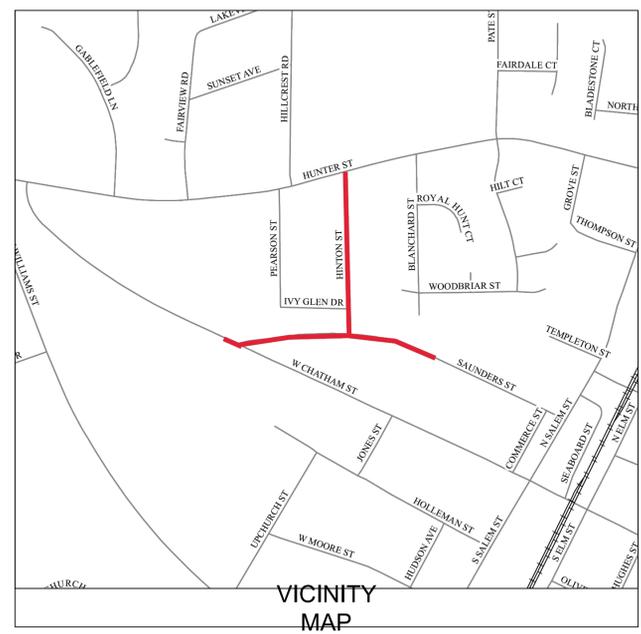
# TOWN OF APEX TRANSPORTATION & INFRASTRUCTURE DEVELOPMENT

STATE	PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
NC	BL-0095	1	
STATE PROJECT NO.	F.A. PROJECT NO.	DESCRIPTION	

## SAUNDERS & HINTON SIDEWALK

LOCATION: SAUNDERS ST FROM W CHATHAM ST TO 205 SAUNDERS ST

TYPE OF WORK: GRADING, DRAINAGE, CURB AND GUTTER, ASPHALT PAVING, SIDEWALK



APPROVED EXCEPTIONS	
The following items have been approved as exceptions for this drawing by the Town of Apex Department Director(s), and to the best of my knowledge and belief, this drawing conforms to the requirements established by the Director(s) allowing deviation from the Standard Specifications and Standard Details of the Town of Apex. The signature below represents that the requesting Engineer has been granted a variance ONLY for the items listed. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.	
(List items below add number as needed)	
APPROVED EXCEPTION	DIRECTOR GRANTING EXCEPTION
302 D.	TRANSPORTATION & INFRASTRUCTURE DEVELOPMENT
505 A.	TRANSPORTATION & INFRASTRUCTURE DEVELOPMENT
601 A. 5. a)	WATER RESOURCES
604 A. 3.	WATER RESOURCES
702 A. 1. c)	WATER RESOURCES
703 C. 1. g)	WATER RESOURCES
BY: ADAM STEPHENSON REQUESTING ENGINEER	
DATE: 9/7/2023	

Site Data Table	
Project Centroid	35°43'59.2"N 78°51'18.8"W
Watershed Protection District	Secondary
Grading	Staged
Max. Disturbed Tract Area	21,238 SF

Standard Specifications & Standard Details	
Version:	April 12, 2022

Public Infrastructure (new)	
Sidewalk	2,063 LF
Curb & gutter	1,282 LF
Storm drainage	477 LF
Sewer	156 LF
Water	20 LF

LINEAR PROJECT STORMWATER MANAGEMENT NOTE  
THIS PROJECT MEETS THE SPIRIT AND INTENT OF SECTION E-5 OF THE NORTH CAROLINA DIVISION OF ENVIRONMENTAL QUALITY (DEQ) BMP MANUAL FOR LINEAR TRANSPORTATION PROJECTS. THE TOWN OF APEX IS THE OWNER AND DEVELOPER OF THIS SIDEWALK WHICH IS NOT PART OF A LARGER COMMON PLAN OF DEVELOPMENT. THE SIDEWALK IS BEING CONSTRUCTED FOR THE PURPOSES OF PROVIDING A LINEAR PEDESTRIAN CORRIDOR FOR PUBLIC BENEFIT AS PART OF THE TOWN OF APEX TRANSPORTATION PLAN.

Prepared in the office of:  
TOWN OF APEX  
PUBLIC WORKS & TRANSPORTATION DEPARTMENT  
ENGINEERING DIVISION  
73 HUNTER STREET  
APEX, NC 27502  
919-249-3417

PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION



P.E.  
Project Engineer



**SHEET INDEX**

<b>SHEET#</b>	<b>SHEET</b>
1	TITLE SHEET
1A	SHEET INDEX
2A	TYPICAL SECTIONS
2B	DETAILS
3	DRAINAGE SUMMARY
4 THRU 8	PLAN SHEETS
4A THRU 7A	RIGHT OF WAY/EASEMENTS
PMP-1	PAVEMENT MARKINGS
SIGN-1	SIGNAGE
UC-1	UTILITY CONSTRUCTION
UO-1 THRU UO-3	UTILITIES BY OTHERS
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLAN
X-1 THRU X-4	CROSS SECTIONS

**Town of Apex Construction Sequence**

1. Through the Infrastructure Inspections Manager at (919) 249-3386, schedule a pre-construction meeting with inspectors and other Town staff.
  2. Fill out **Tree/Protection Fencing Installation Permit Application** (obtain from Planning Department).
  3. Have a surveyor flag property lines, easements, buffers, tree protection areas, and flag the protection limits.
  4. Contact an Apex Planning Department Zoning Compliance Officer at (919) 249-3426 to request approval for tree protection fencing locations.
  5. Install approved tree protection fencing, signs, and/or any other protection measures that may be required. Call Planning at 249-3426 for a final inspection of protection measures. Planning will forward approval to Water Resources, Erosion Control field staff.
  6. Submit the applicable S&E performance guarantee to the Development Services Manager at 249-3394 in Development Services. An invoice can be requested from Water Resources at (919) 362-8166. The erosion control **Letter of Plan Approval** will not be issued until the guarantee has been submitted. The guarantee will be returned once all Stormwater Control Measures (SCMs) have been converted and accepted by the Town, all temporary erosion control measures have been removed and the site is 100% permanently stabilized.
  7. Request a **Letter of Plan Approval** for sedimentation and erosion control measures from Water Resources staff at (919) 362-8166.
  8. Complete and submit an electronic **Notice of Intent** (e-NOI) form with NCDEMLR requesting a **Certificate of Coverage** (COC) under the NCG01 Construction Stormwater General Permit. Visit the following website: <https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-mineral-land-permits/stormwater-permits/construction-sw>.
  9. Complete a Grading Permit Application and receive a Grading Permit from the Building Inspections & Permitting Department as required by the North Carolina Building Code Appendix J for Grading. **Both the Grading Permit and Certificate of Coverage from NCDEMLR must be submitted to the Environmental Field Services Supervisor prior to the commencement of any land disturbance activity.**
  10. Install gravel construction entrance, temporary diversions, silt fencing, sediment basins, bypass channels, and/or other measures as shown on the approved plans. Clear only as necessary to install these devices.
  11. When completed, call Water Resources staff at (919) 362-8166 for an on-site inspection and to request a **Certificate of Compliance**. Water Resources will also forward a copy to the Building Inspections & Permitting Department.
  12. Post Grading Permit prominently on site at all times.
  13. Begin clearing, grubbing, and rough grade of the site in accordance with the approved grading plan.
- Stockpile a sufficient amount of topsoil to cover 3 inches over landscaped areas at the end of the project.
15. Install storm sewer, if applicable, and protect inlets with inlet protection devices, sediment devices, and/or other approved measures as shown on plans. Maintain S&E measures as needed.
  16. After completion of any phase of grading or when land-disturbing activities have temporarily ceased, establish groundcover on swales and ditches and graded slopes steeper than 3:1 within 7 calendar days; slopes that are 3:1 or flatter must establish groundcover within 14 calendar days.
  17. Stabilize site as areas are brought up to finished grade with vegetation or paving.
  18. Prior to plat approval, all disturbed areas both public and private, must be properly stabilized. All temporary erosion control measures must be installed, be functioning properly and be maintained for the entire area contained within the plat.
  19. Flush and clean all stormwater system pipes. Clean and remove sediment from temporary sediment holding devices. Follow the SCM Construction Sequence found on the Grading and/or SCM Detail sheet on the Construction Plan set.
  20. Remove all temporary diversions, silt fencing, sediment basins, etc. and provide adequate cover or pave any resulting bare areas. All permanent erosion control devices should be installed at this point.

**\*\*\* CAUTION \*\*\***

N.C. ONE CALL: UTILITY LOCATOR SERVICE

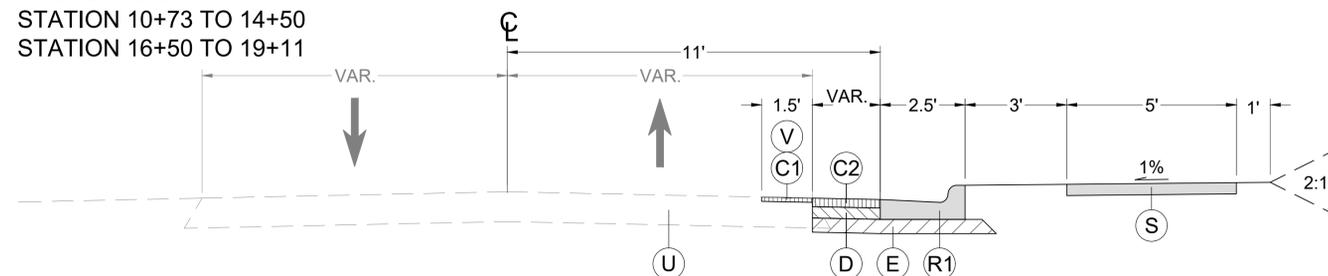
3 DAYS BEFORE DIGGING CALL  
TOLL FREE 1-800-632-4949

A ONE CALL SYSTEM FOR COMMUNITY AND JOB SAFETY.

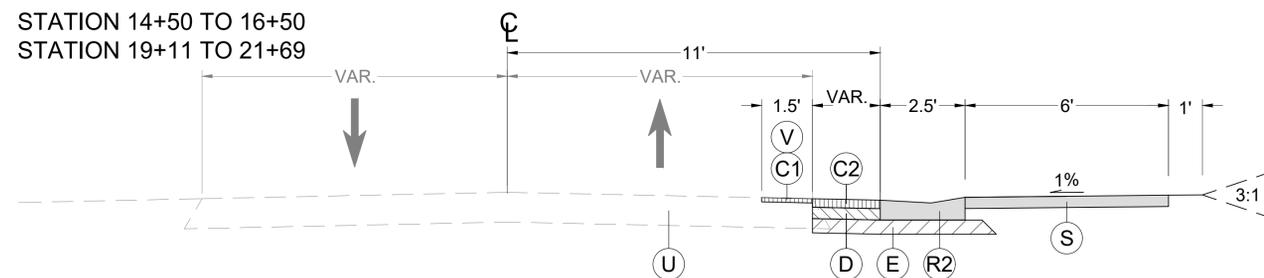
\*\*\* CAUTION \*\*\*

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

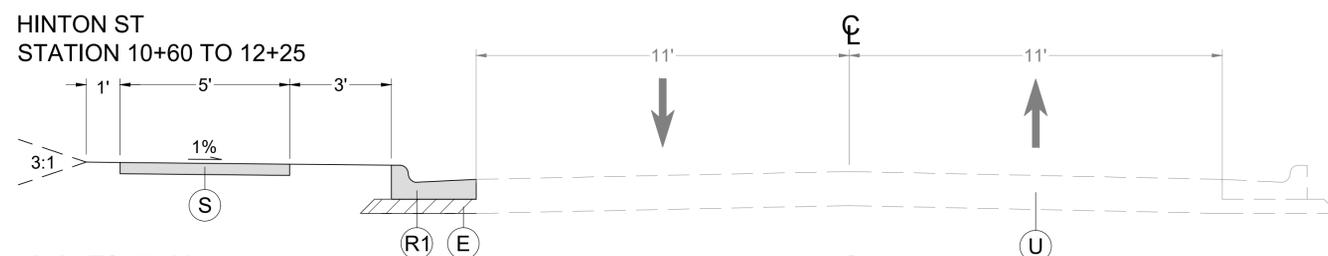
SAUNDERS ST  
STATION 10+73 TO 14+50  
STATION 16+50 TO 19+11



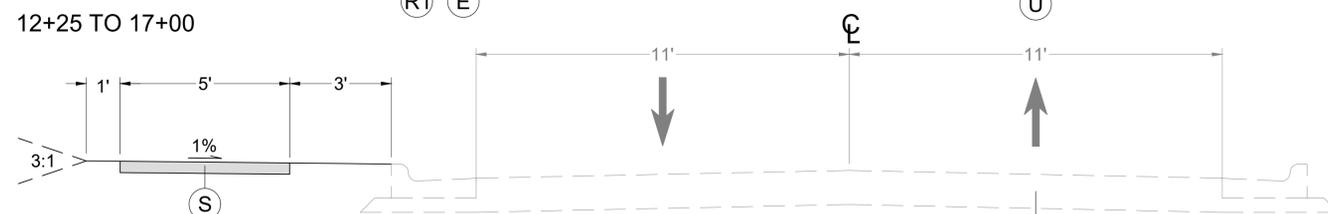
STATION 14+50 TO 16+50  
STATION 19+11 TO 21+69



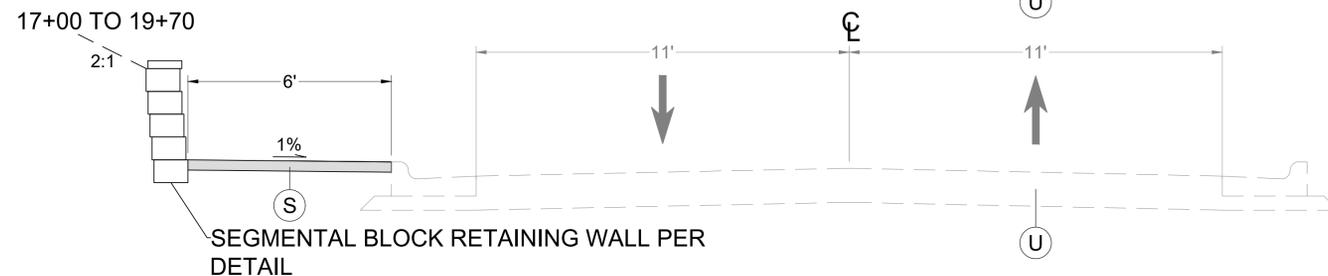
HINTON ST  
STATION 10+60 TO 12+25



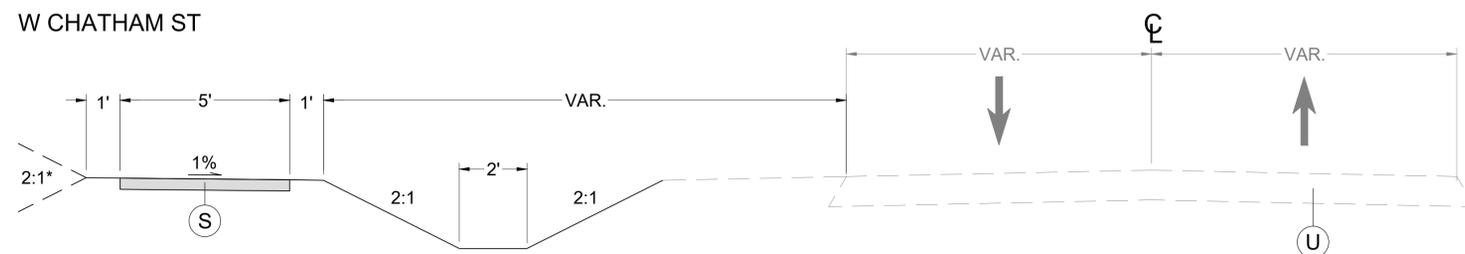
12+25 TO 17+00



17+00 TO 19+70



W CHATHAM ST



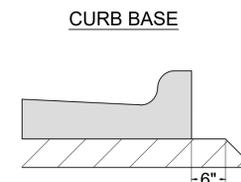
# TOWN OF APEX

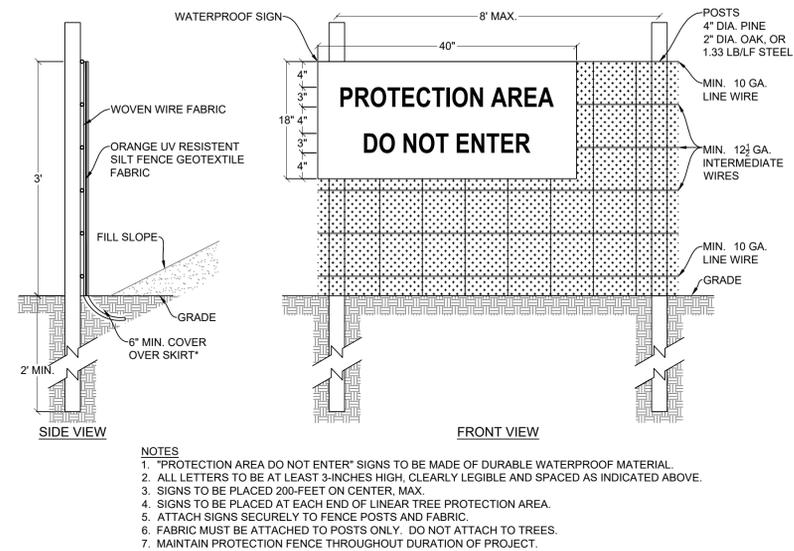
TRANSPORTATION & INFRASTRUCTURE  
DEVELOPMENT  
105-B UPCHURCH ST  
APEX, NC 27502  
919-249-3417

PROJECT REFERENCE NO. BL-0095	SHEET NO. 2A
	<b>PRELIMINARY</b> <b>DO NOT</b> <b>USE FOR</b> <b>CONSTRUCTION</b>

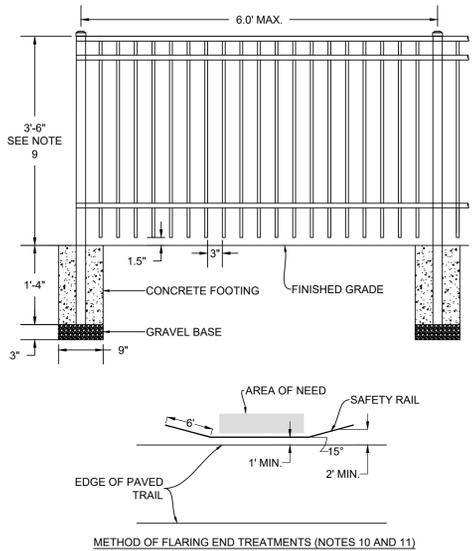
\* ALL 2:1 SLOPES SHALL BE PLANTED WITH BLUE RUG JUNIPER (JUNIPERUS HORIZONTALIS "WILTONII") SPACED 3-5 FEET.

PAVEMENT SCHEDULE	
C1	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, 1½ INCH DEPTH, TO BE PLACED AT AVERAGE RATE OF 165 LB/SY
C2	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, 3 INCH DEPTH, TO BE PLACED IN 2 LIFTS AT AN AVERAGE RATE OF 165 LB/SY PER LIFT
D	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, 4 INCH DEPTH, TO BE PLACED AT AVERAGE RATE OF 456 LBS/SY
E	ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 5 INCH DEPTH, TO BE PLACED AT AVERAGE RATE OF 570 LBS/SY
R1	30 INCH CONCRETE CURB AND GUTTER (NCDOT SD846.01)
R2	30 INCH CONCRETE VALLEY GUTTER (TOA SD300.03)
S	CONCRETE SIDEWALK, 4 INCH DEPTH, 6 INCH DEPTH AT DRIVEWAYS
U	EXISTING PAVEMENT
V	MILLING, 1½ INCH DEPTH





- NOTES:**
1. "PROTECTION AREA DO NOT ENTER" SIGNS TO BE MADE OF DURABLE WATERPROOF MATERIAL.
  2. ALL LETTERS TO BE AT LEAST 3-INCHES HIGH, CLEARLY LEGIBLE AND SPACED AS INDICATED ABOVE.
  3. SIGNS TO BE PLACED 200-FEET ON CENTER, MAX.
  4. SIGNS TO BE PLACED AT EACH END OF LINEAR TREE PROTECTION AREA.
  5. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
  6. FABRIC MUST BE ATTACHED TO POSTS ONLY. DO NOT ATTACH TO TREES.
  7. MAINTAIN PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.



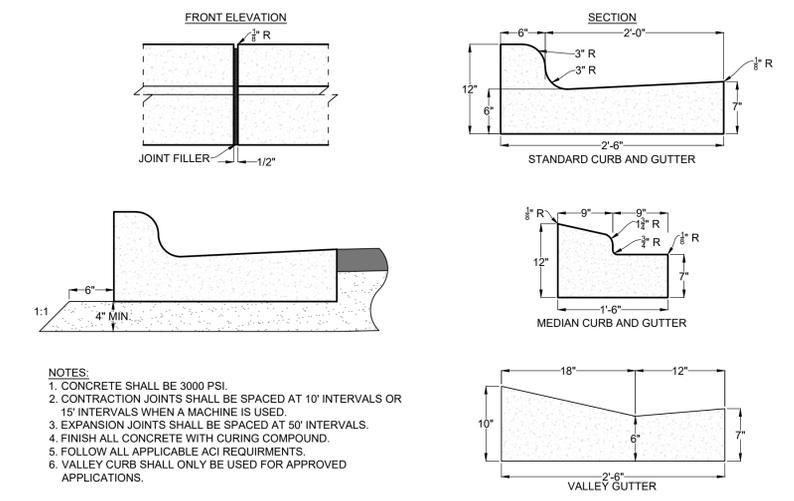
- NOTES:**
1. POSTS SHALL BE MINIMUM 2" SQUARE x 0.060" WALL ALUMINUM WITH INTERIOR REINFORCING WEB.
  2. PICKETS SHALL BE MINIMUM 0.75" SQUARE x 0.045" WALL ALUMINUM.
  3. RAILS SHALL BE MINIMUM 1" SQUARE x 0.060" WALL ALUMINUM.
  4. ALUMINUM SHALL CONFORM TO ASTM B221. ALUMINUM EXTRUSIONS FOR POSTS AND RAILS SHALL BE ALLOY AND TEMPER DESIGNATION 6005-T52. ALUMINUM EXTRUSIONS FOR PICKETS SHALL BE ALLOY AND TEMPER DESIGNATION 6063-T52.
  5. ALL ALUMINUM SHALL HAVE ELECTROSTATICALLY APPLIED TGIC POLYESTER POWDER COAT FINISH, BLACK COLOR, 2 MILS MINIMUM THICKNESS.
  6. ALL CONCRETE SHALL BE 3600 P.S.I. COMPRESSIVE STRENGTH.
  7. A PEDESTRIAN HAND RAIL MAY BE INSTALLED AT A HEIGHT OF 34 INCHES, OR A BICYCLE RUB RAIL AT A HEIGHT OF 36 INCHES ON THE SAFETY RAIL.
  8. ON BRIDGES AND RETAINING WALLS ANCHOR BOLTS THAT MEET MANUFACTURER SPECIFICATIONS SHALL BE USED TO SECURE SAFETY RAIL.
  9. ON BRIDGES A 4-FOOT TALL SAFETY RAIL MAY BE REQUIRED TO PREVENT CYCLISTS FROM FALLING OVER.
  10. PROVIDE 2-FOOT LATERAL CLEARANCE FROM PAVED TRAIL, WHERE LESSER CLEARANCE IS NEEDED, PROVIDE FLARED END TREATMENTS.
  11. WHERE HAND RAIL IS RETROFITTED, INSTALL SAFETY RAIL 1 FOOT FROM EDGE OF PAVED TRAIL WITH FLARED END TREATMENTS BEYOND THE AREA OF NEED.

**TEMPORARY SILT & TREE PROTECTION FENCE**

TOWN OF APEX STANDARDS  
EFFECTIVE: JANUARY 12, 2021

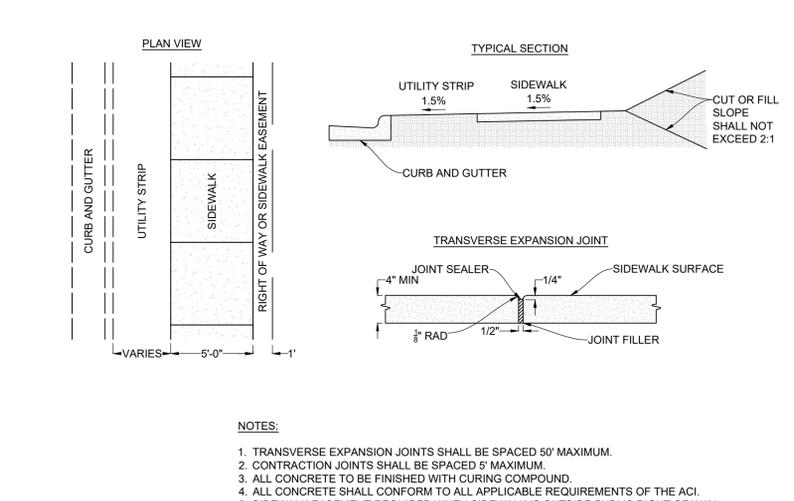
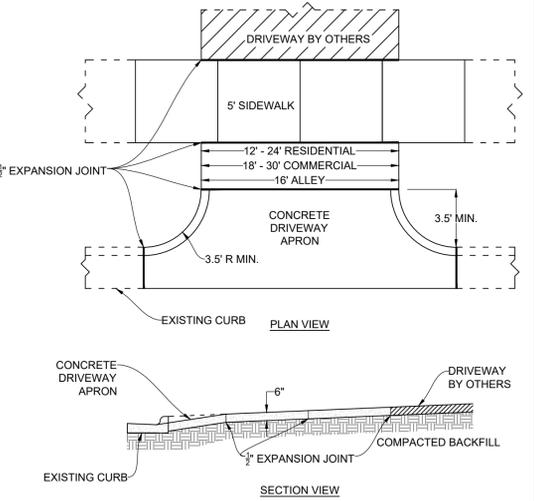
**SAFETY RAIL**

STD. NO. 200.03  
SHEET 1 OF 1



- NOTES:**
1. CONCRETE SHALL BE 3000 PSI.
  2. CONTRACTION JOINTS SHALL BE SPACED AT 10' INTERVALS OR 15' INTERVALS WHEN A MACHINE IS USED.
  3. EXPANSION JOINTS SHALL BE SPACED AT 50' INTERVALS.
  4. FINISH ALL CONCRETE WITH CURING COMPOUND.
  5. FOLLOW ALL APPLICABLE ACI REQUIREMENTS.
  6. VALLEY CURB SHALL ONLY BE USED FOR APPROVED APPLICATIONS.

- NOTES:**
1. RESIDENTIAL DRIVEWAYS TO BE 12' TO 24' WIDTH EXCEPT WHEN CONNECTING TO AN ALLEY WIDTH MAY BE INCREASED TO ALLOW AN ADDITIONAL 9' WIDE PARKING PAD IF DISTANCE FROM THE ALLEY TO THE STRUCTURE IS LESS THAN 18'.
  2. COMMERCIAL & INDUSTRIAL DRIVEWAYS TO BE 18' TO 30' WIDTH.
  3. ALLEY CONNECTIONS TO BE 16' WIDTH.
  4. ALL CONCRETE SHALL BE 3000 PSI.
  5. IF CURB CUT IS WITHIN 5' FROM A JOINT, THEN THE CUT SHALL BE MADE AT THAT JOINT.
  6. ALL DRIVEWAYS SHALL BE INSTALLED WITH A SIDEWALK SECTION AND UTILITY STRIP AS SHOWN. SIDEWALK SECTIONS SHALL HAVE 1/4" PER FOOT FALL TOWARDS THE STREET.
  7. LOCATE DRIVEWAYS A MINIMUM OF 3 FEET FROM SEWER SERVICE LINES.



- NOTES:**
1. TRANSVERSE EXPANSION JOINTS SHALL BE SPACED 50' MAXIMUM.
  2. CONTRACTION JOINTS SHALL BE SPACED 5' MAXIMUM.
  3. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.
  4. ALL CONCRETE SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF THE ACI.
  5. SIDEWALK EASEMENT REQUIRED WHEN SIDEWALK IS OUTSIDE PUBLIC RIGHT OF WAY.

TOWN OF APEX STANDARDS  
EFFECTIVE: FEBRUARY 28, 2023

**CONCRETE CURB AND GUTTER**

STD. NO. 300.03  
SHEET 1 OF 1

TOWN OF APEX STANDARDS  
EFFECTIVE: APRIL 9, 2024

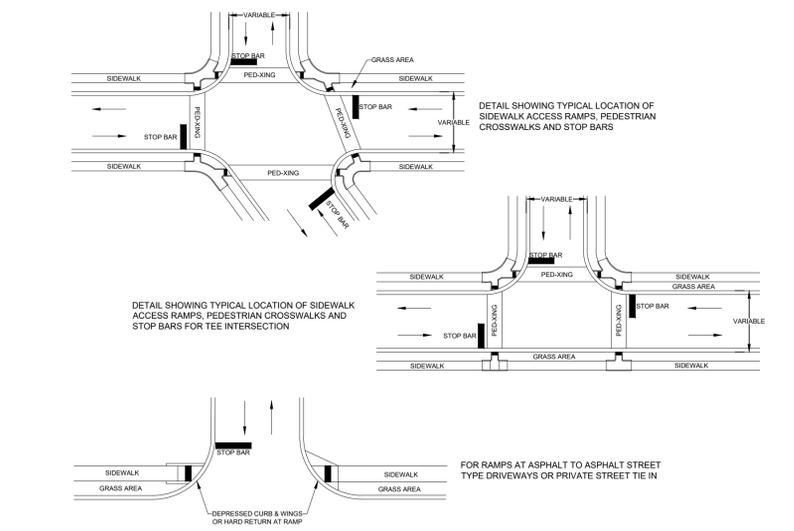
**DRIVEWAY APRON (CURB & GUTTER)**

STD. NO. 300.07  
SHEET 1 OF 2

TOWN OF APEX STANDARDS  
EFFECTIVE: JUNE 13, 2023

**CONCRETE SIDEWALK**

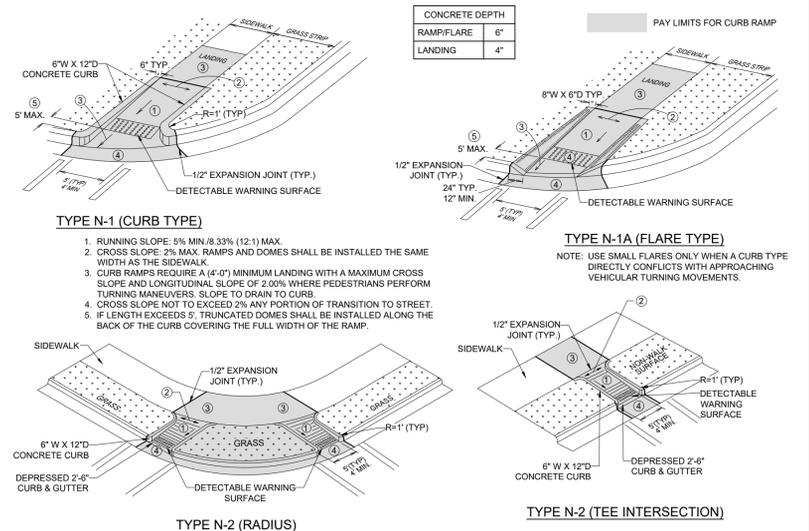
STD. NO. 300.08  
SHEET 1 OF 1



TOWN OF APEX STANDARDS  
EFFECTIVE: FEBRUARY 28, 2023

**CURB RAMP (LOCATION)**

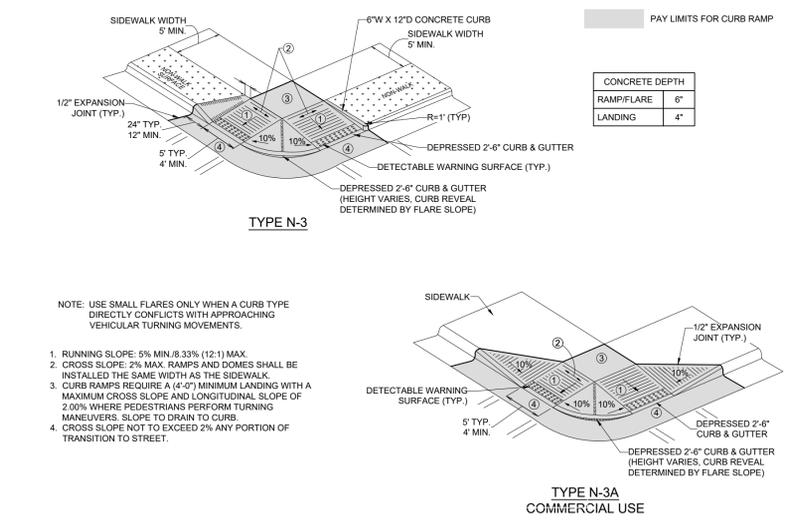
STD. NO. 300.09  
SHEET 1 OF 14



TOWN OF APEX STANDARDS  
EFFECTIVE: FEBRUARY 28, 2023

**CURB RAMP (NEW DEVELOPMENT)**

STD. NO. 300.09  
SHEET 2 OF 14



TOWN OF APEX STANDARDS  
EFFECTIVE: FEBRUARY 28, 2023

**CURB RAMP (NEW DEVELOPMENT)**

STD. NO. 300.09  
SHEET 3 OF 11

**TOWN OF APEX**  
TRANSPORTATION & INFRASTRUCTURE  
DEVELOPMENT  
105-B UPCHURCH ST  
APEX, NC 27502  
919-249-3417

PROJECT REFERENCE NO. BL-0095  
SHEET NO. 2B-1

**PRELIMINARY**  
**DO NOT**  
**USE FOR**  
**CONSTRUCTION**

**TYPICAL REGULATORY SIGNS**

SIGN SIZES	APPROACH TYPE	
	SINGLE LANE	MULTI-LANE
R1-1 (STOP)	30" x 30"	36" x 36"
R1-2 (YIELD)	36" x 36" x 36"	48" x 48" x 48"
R5-1 (DO NOT ENTER)	30" x 30"	36" x 36"
R2-1 (SPEED LIMIT)	24" x 30"	30" x 36"

\* FOR OTHER TYPES OF REGULATORY SIGNS CONSULT THE MUTCD

**CROSSWALK SIGNS**

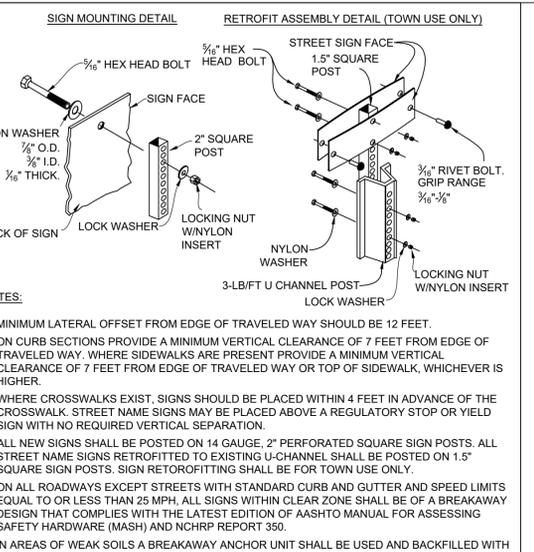
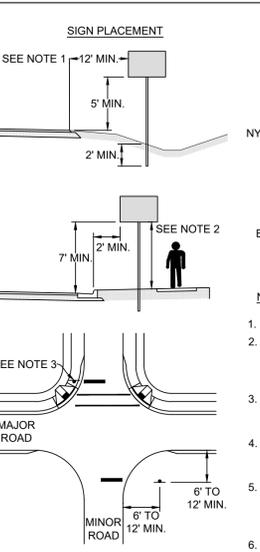
SIGN SIZES	APPROACH TYPE	
	SINGLE LANE	MULTI-LANE
W11-2 (PEDESTRIAN)	30" x 30"	36" x 36"
S1-1 (SCHOOL)	36" x 36"	36" x 36"
W16-7P (ARROW PLAQUE)	21" x 15"	21" x 15"
R1-5 (YIELD HERE TO PEDS)	36" x 36"	36" x 36"
R1-6R/1-6a (IN-STREET CROSSING)	12" x 36"	12" x 36"

**POST-MOUNTED STREET NAME SIGN (D3-1)**

SIGN TYPE	A	B	C	D	E	F
	STANDARD	9"	6"	1.5"	4"	0.75"
MULTI-LANE (> 40 MPH)	12"	8"	2"	6"	0.75"	0.5"

**NOTES:**

- SHEETING MATERIAL FOR ALL SIGNS SHALL BE HIGH INTENSITY PRISMATIC (HIP) TYPE IV MULTI-LAYER SHEETING.
- ALL STREET NAME SIGNS INSTALLED IN RESIDENTIAL AREAS SHALL COMPLY WITH STANDARD DIMENSIONS. STREET NAME SIGNS SHALL BE GREEN WITH WHITE LEGEND AND BORDER. LETTERING SHALL BE COMPOSED OF UPPER AND LOWER-CASE LETTERS. LOWER-CASE LETTERS SHALL BE 75% THE HEIGHT OF UPPER-CASE LETTERS. STREET SUFFIXES SHALL BE UPPER-CASE LETTERS. FONT TYPE SHALL BE HIGHWAY GOTHIC SERIES C. 36-INCH BLADES SHALL BE STANDARD FOR STREET NAMES, WITH 15 CHARACTERS OR LESS.
- STREET NAME SIGNS SHALL BE FABRICATED USING WHITE (HIP) SHEETING AS A BASE LAYER WITH GREEN (HIP) SHEETING OVERLAPPED. THE LEGEND SHALL BE DIGITALLY CUT OR PRINTED FROM THE OVERLAY LAYER.
- PEDESTRIAN WARNING SIGNS AND SCHOOL CROSSING SIGNS SHALL HAVE A FLUORESCENT YELLOW-GREEN BACKGROUND WITH BLACK LEGEND AND BORDERS.
- IF IN-STREET CROSSING SIGNS ARE USED IN SCHOOL AREAS, R1-6a SIGN SHALL BE USED INSTEAD OF R1-6 SIGN.
- REFER TO MUTCD FOR ALL OTHER GUIDANCE.



**TOWN OF APEX STANDARDS**

**STREET SIGNS GENERAL**

STD. NO. **300.26**

EFFECTIVE: PENDING

SHEET 1 OF 4

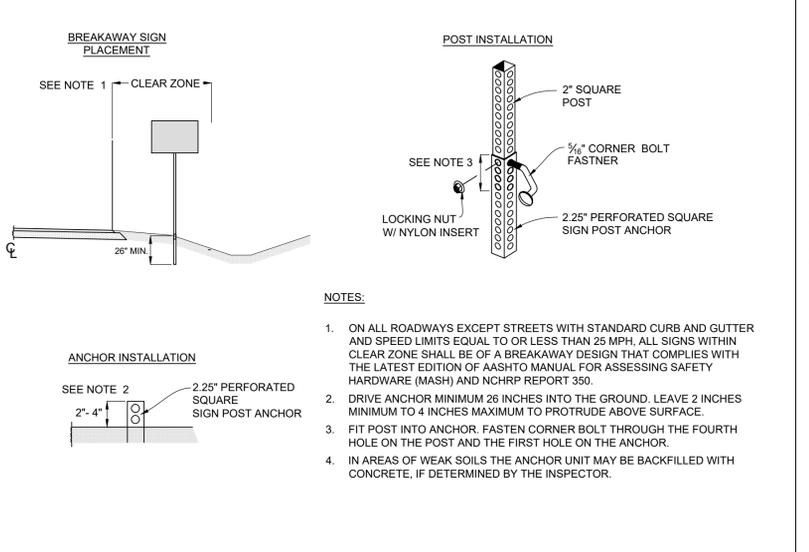
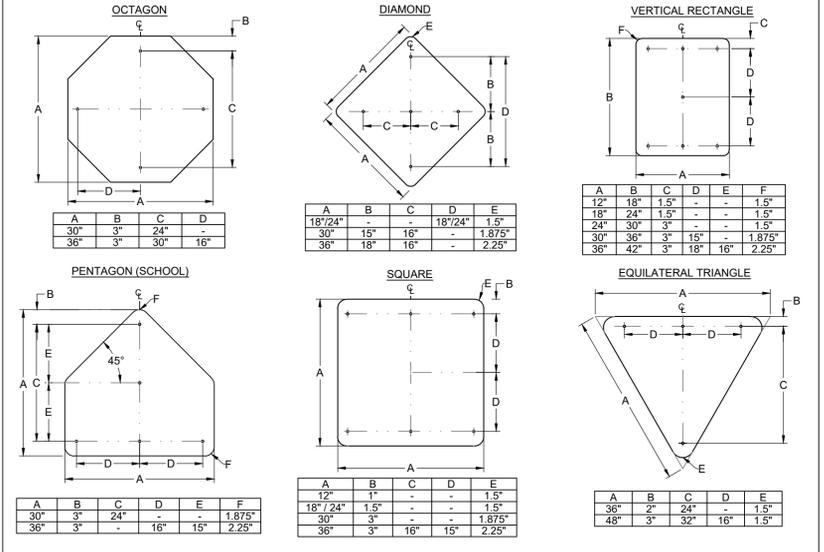
**TOWN OF APEX STANDARDS**

**STREET SIGNS PLACEMENT & INSTALLATION**

STD. NO. **300.26**

EFFECTIVE: APRIL 9, 2024

SHEET 2 OF 4



**TOWN OF APEX STANDARDS**

**STREET SIGNS 3/8" BOLT HOLES**

STD. NO. **300.26**

EFFECTIVE: NOVEMBER 19, 2019

SHEET 3 OF 4

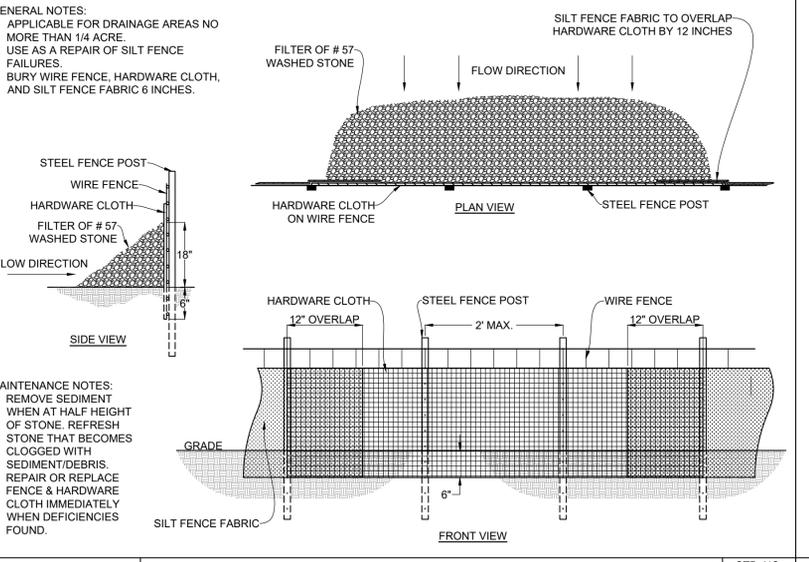
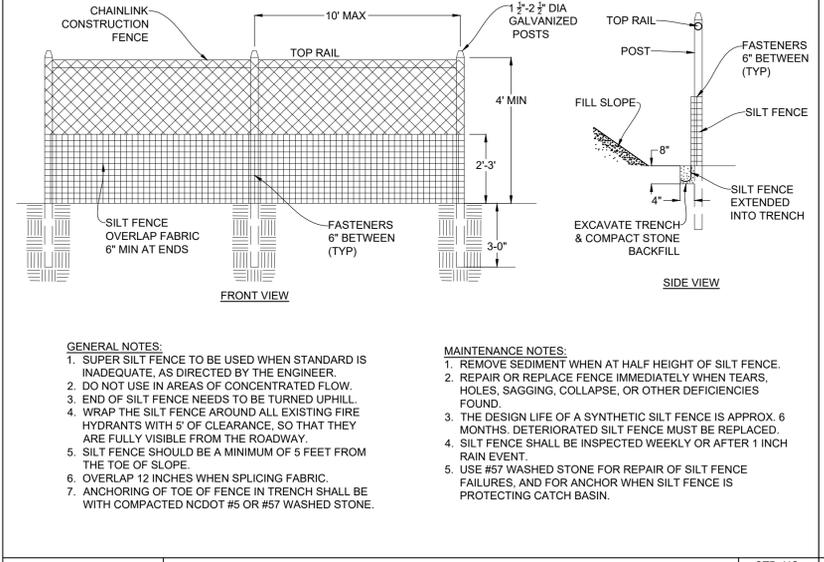
**TOWN OF APEX STANDARDS**

**STREET SIGNS BREAKAWAY SIGN INSTALLATION**

STD. NO. **300.26**

EFFECTIVE: APRIL 9, 2024

SHEET 4 OF 4



**TOWN OF APEX**

TRANSPORTATION & INFRASTRUCTURE

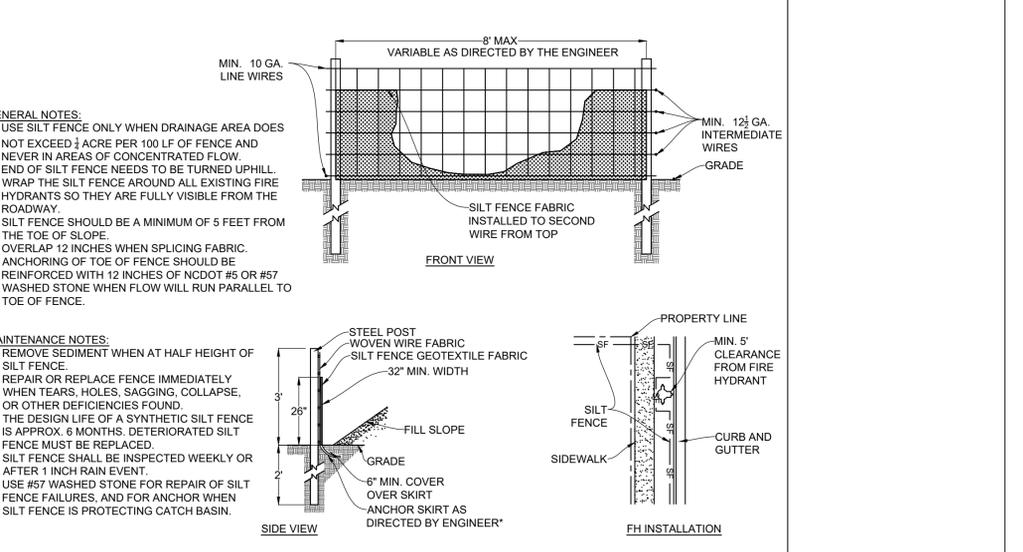
105-B UPCHURCH ST  
APEX, NC 27502  
919-249-3417

PROJECT REFERENCE NO. BL-0095

SHEET NO. 2B-2

PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION

APEX NORTH CAROLINA 1873



**TOWN OF APEX STANDARDS**

**TEMPORARY SILT FENCE (SUPER SILT FENCE)**

STD. NO. **400.01**

EFFECTIVE: JUNE 11, 2024

SHEET 2 OF 2

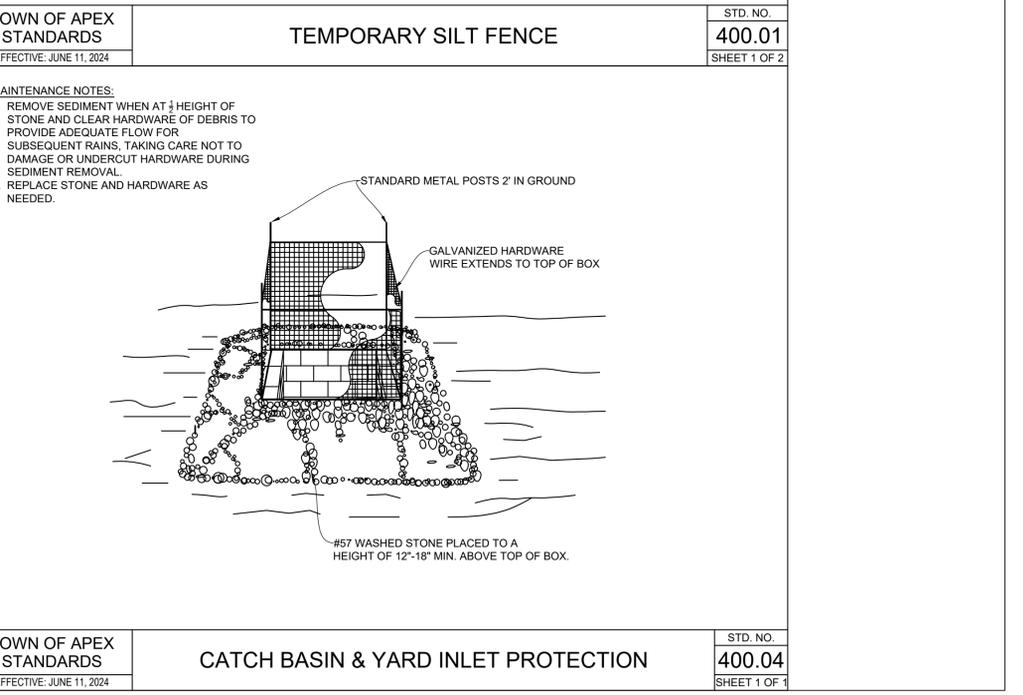
**TOWN OF APEX STANDARDS**

**TEMPORARY SILT FENCE OUTLET**

STD. NO. **400.02**

EFFECTIVE: JUNE 11, 2024

SHEET 1 OF 1

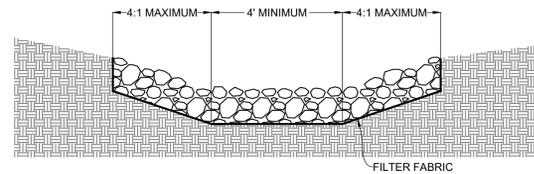


**GENERAL NOTES:**

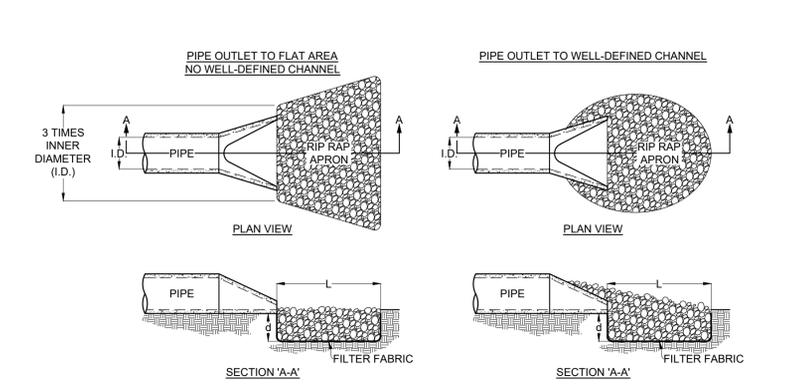
1. TO BE USED WHERE EXCESSIVE STORMWATER VELOCITIES PROHIBIT VEGETATIVE LININGS AND WHEREVER STORMWATER OUTFALLS OVERLAP SEWER EASEMENTS.
2. STONE SIZE, TRENCH DEPTH, AND OVERALL WIDTH PER DESIGN.
3. FILTER FABRIC MUST BE INSTALLED BETWEEN RIPRAP AND SOIL FOUNDATION.
4. RIP RAP SHALL BE EMBEDDED IN THE CHANNEL CUT, NOT SIMPLY PLACED ON TOP OF EXISTING GROUND.

**MAINTENANCE NOTES:**

1. INSPECT RIP RAP CHANNEL WEEKLY AND AFTER RUNOFF-PRODUCING EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIP RAP HAS OCCURRED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.
2. IF EROSION IS EVIDENT PAST END OF RIPRAP CHANNEL DUE TO RUNOFF DISCHARGING FROM CHANNEL, INCREASE DIMENSIONS OF RIP RAP PAD PROVIDED SPACE IS AVAILABLE WITH THE APPROVED LIMITS OF DISTURBANCE.
3. MAINTAIN ALL VEGETATION ADJACENT TO CHANNEL IN A HEALTHY, VIGOROUS CONDITION TO PROTECT CHANNEL FROM EROSION AND SCOUR DURING OUT-OF-BANK FLOW.

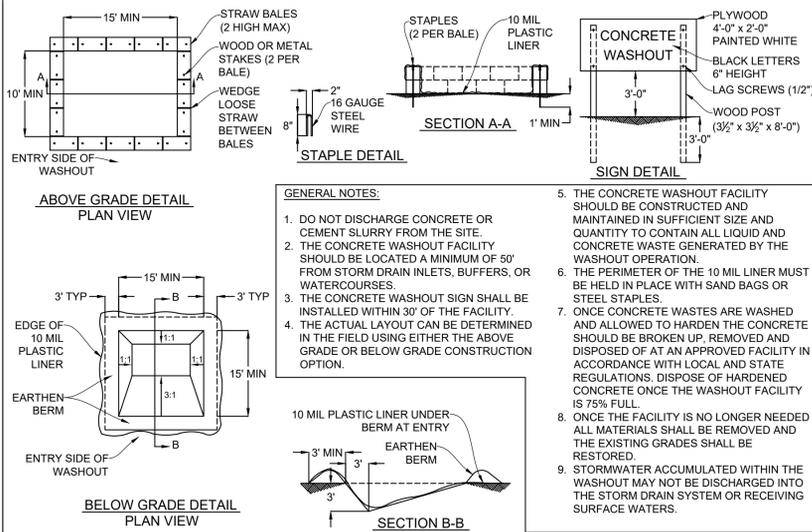


TOWN OF APEX STANDARDS	<b>RIP RAP LINED CHANNELS</b>	STD. NO. <b>400.15</b>
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1

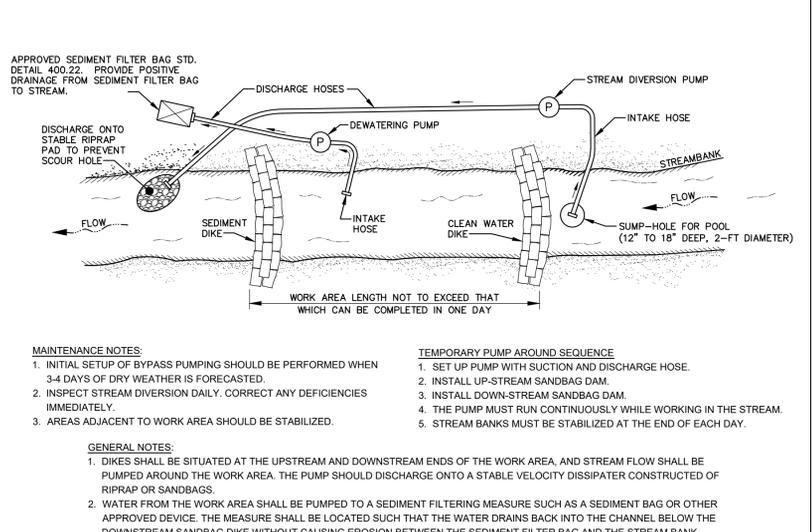


- GENERAL NOTES:**
1. L = THE LENGTH OF THE RIPRAP APRON
  2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 12 INCHES
  3. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIP RAP AND SOIL FOUNDATION.
  4. IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO 6 INCHES ABOVE THE MAXIMUM TAILWATER DEPTH OR THE TOP OF THE BANK, WHICHEVER IS LESS.
- MAINTENANCE NOTES:**
1. INSPECT OUTLET WEEKLY AND AFTER RUNOFF-PRODUCING EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS OCCURRED. OR IF STONES HAVE BEEN DISLODGED IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

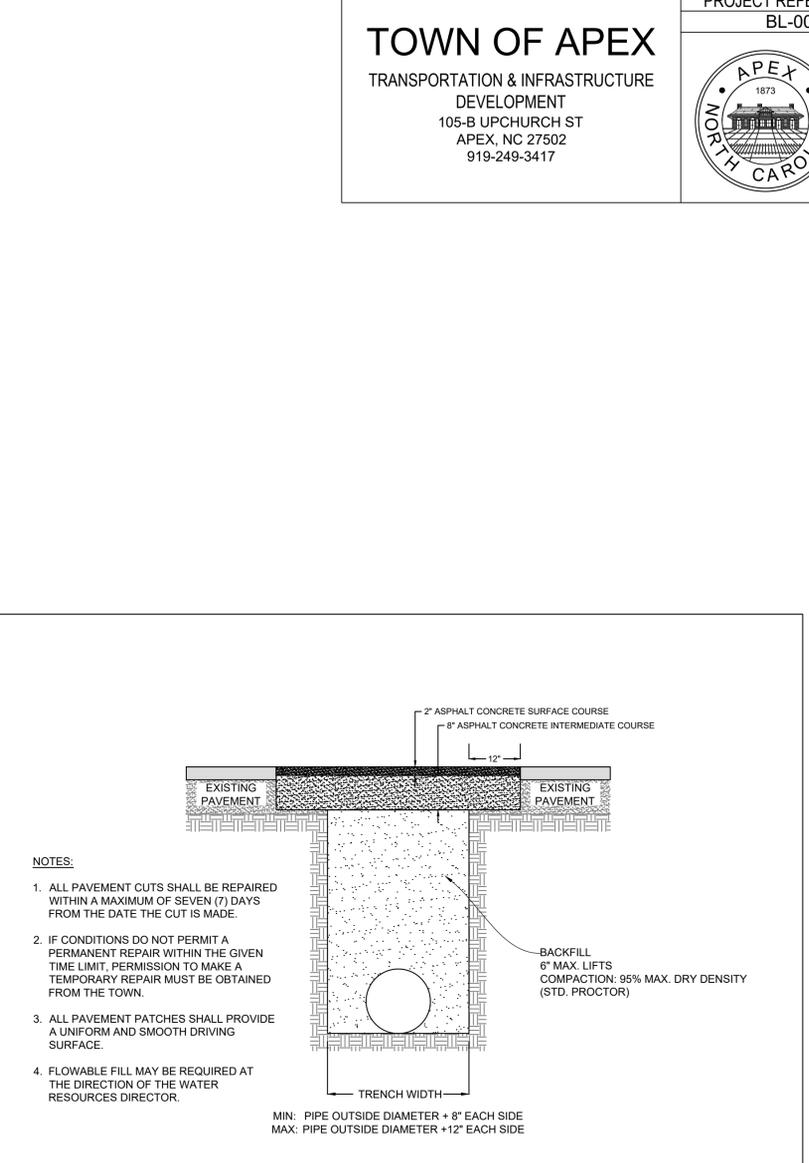
TOWN OF APEX STANDARDS	<b>PIPE OUTLET</b>	STD. NO. <b>400.18</b>
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1



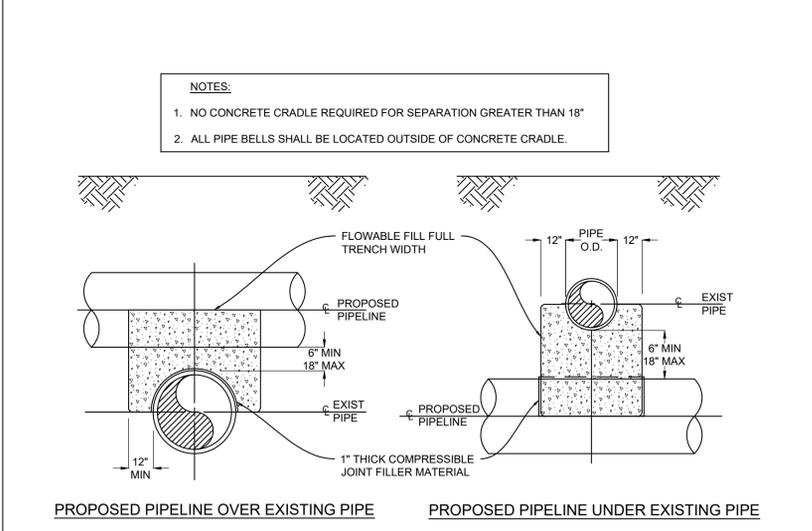
TOWN OF APEX STANDARDS	<b>TEMPORARY CONCRETE WASHOUT</b>	STD. NO. <b>400.20</b>
EFFECTIVE: MAY 5, 2020		SHEET 1 OF 1



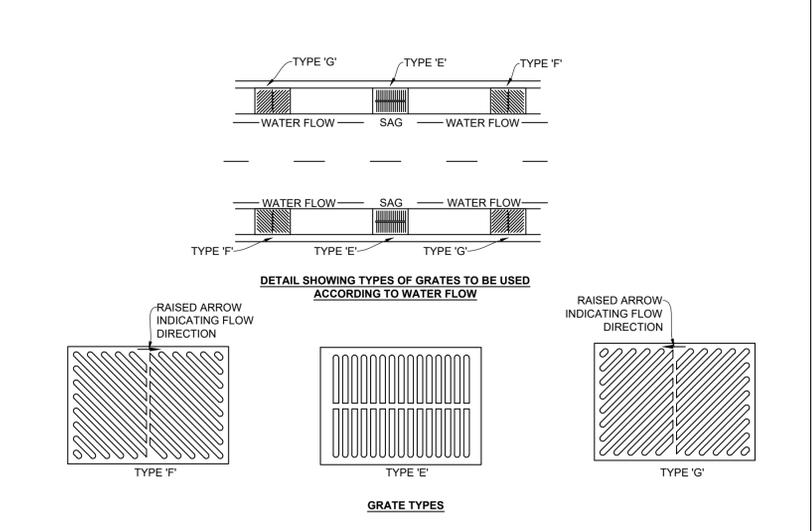
TOWN OF APEX STANDARDS	<b>TEMPORARY PUMP AROUND</b>	STD. NO. <b>400.23</b>
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1



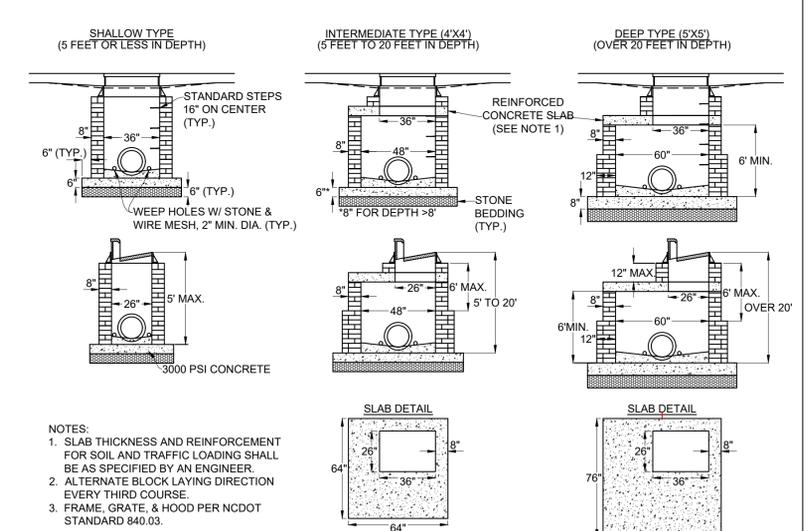
TOWN OF APEX STANDARDS	<b>TRENCH &amp; PAVEMENT REPAIR SECTION FOR ASPHALT</b>	STD. NO. <b>450.04</b>
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



TOWN OF APEX STANDARDS	<b>CONCRETE CRADLE</b>	STD. NO. <b>450.09</b>
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



TOWN OF APEX STANDARDS	<b>GRATE PLACEMENT DETAIL FOR CATCH BASIN</b>	STD. NO. <b>500.03</b>
EFFECTIVE: DECEMBER 3, 2002		SHEET 1 OF 1

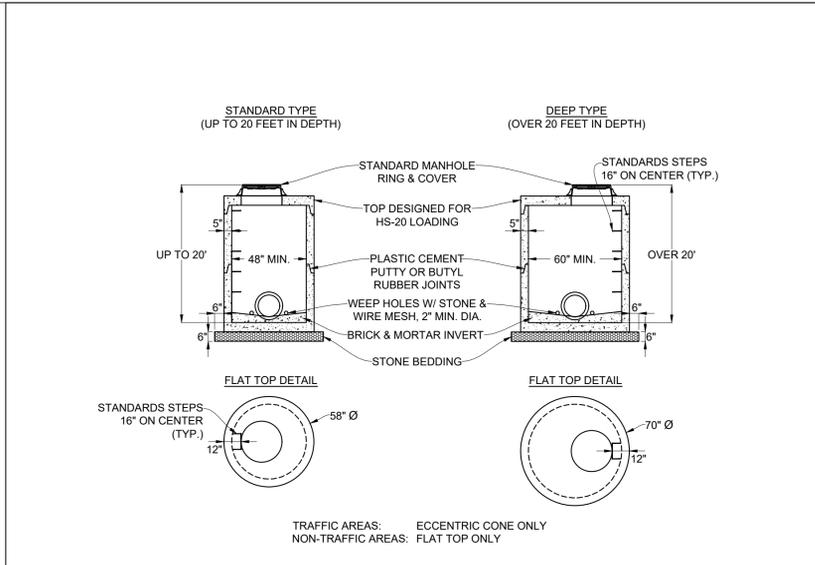


TOWN OF APEX STANDARDS	<b>BLOCK CATCH BASIN DETAIL</b>	STD. NO. <b>500.04</b>
EFFECTIVE: DECEMBER 18, 2012		SHEET 1 OF 1

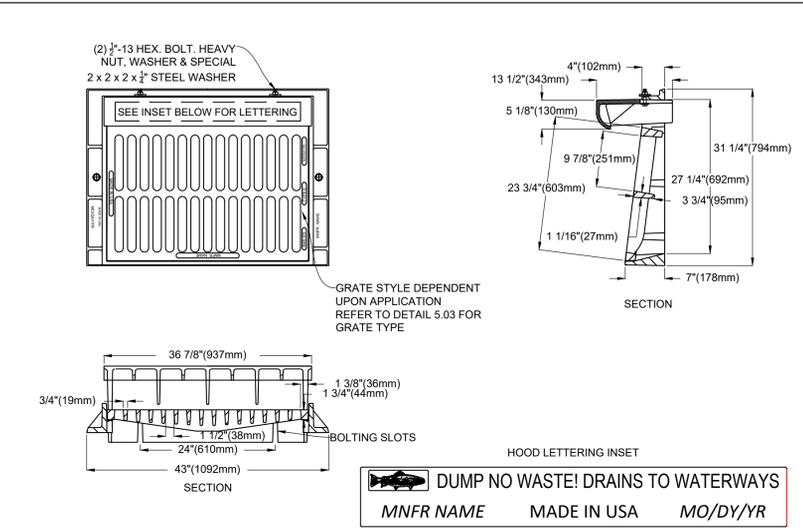
**TOWN OF APEX**  
TRANSPORTATION & INFRASTRUCTURE  
DEVELOPMENT  
105-B UPCHURCH ST  
APEX, NC 27502  
919-249-3417

PROJECT REFERENCE NO. BL-0095 SHEET NO. 2B-3

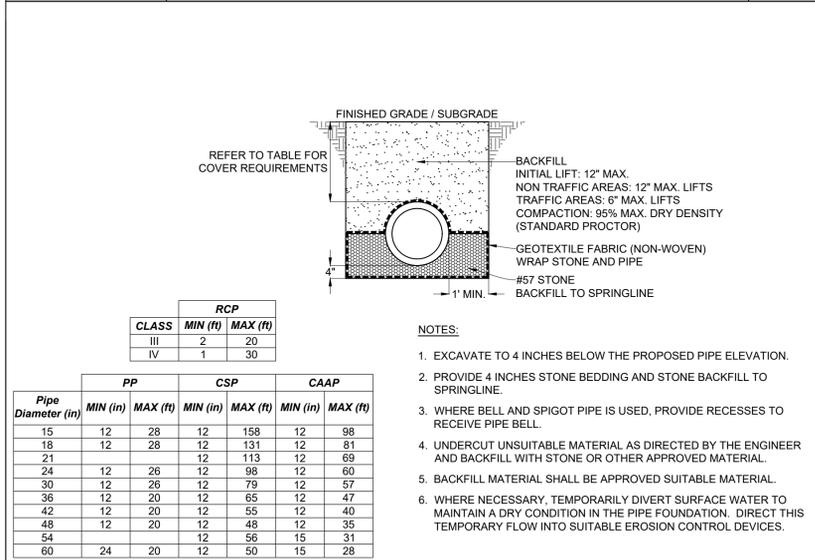
PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION



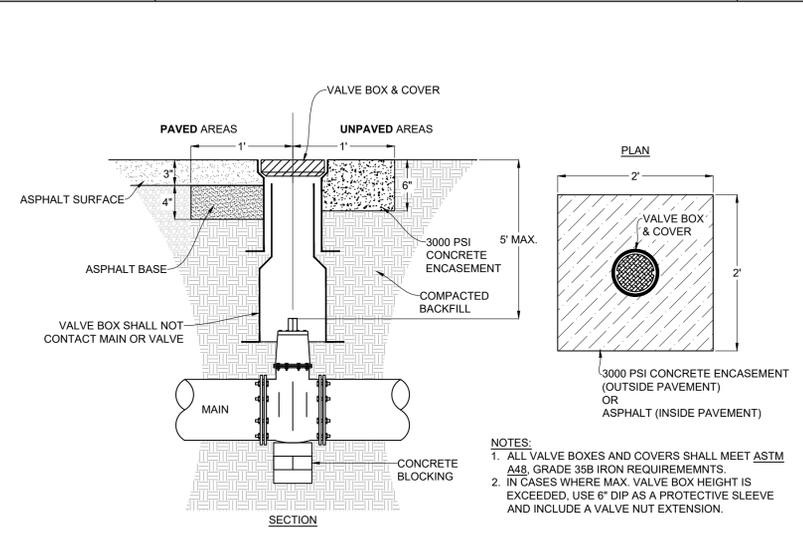
TOWN OF APEX STANDARDS PRECAST MANHOLE JUNCTION BOX STD. NO. 500.06 SHEET 1 OF 1 EFFECTIVE: DECEMBER 18, 2012



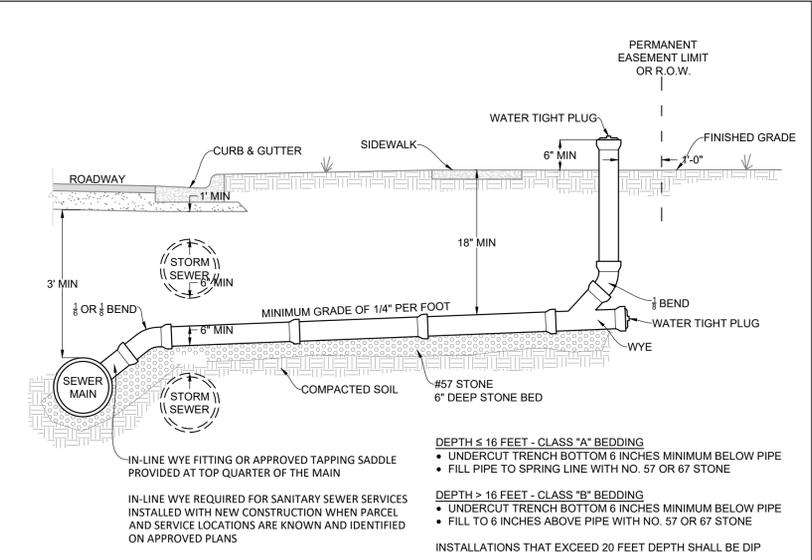
TOWN OF APEX STANDARDS FRAME DETAIL FOR CATCH BASIN STD. NO. 500.08 SHEET 1 OF 1 EFFECTIVE: DECEMBER 3, 2002



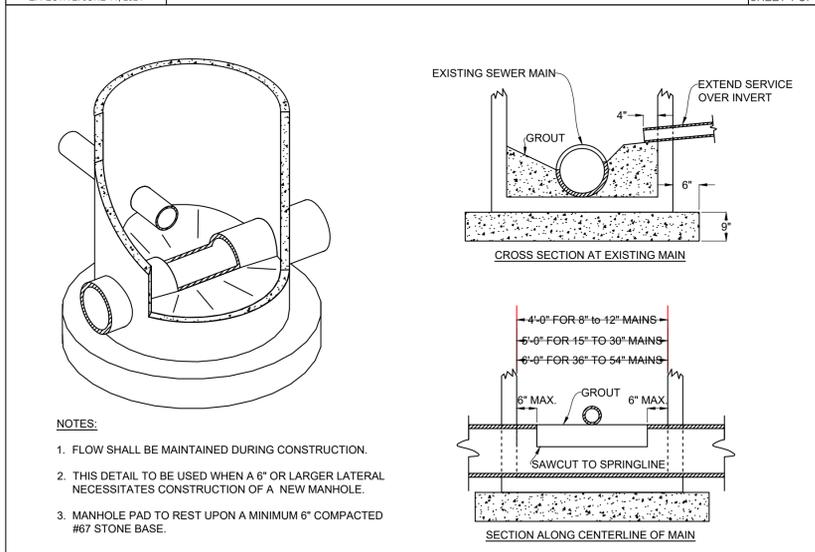
TOWN OF APEX STANDARDS STORM DRAIN PIPE BEDDING & BACKFILLING STD. NO. 500.09 SHEET 1 OF 1 EFFECTIVE: JUNE 11, 2024



TOWN OF APEX STANDARDS VALVE BOX INSTALLATION STD. NO. 600.08 SHEET 1 OF 1 EFFECTIVE: JUNE 18, 2019



TOWN OF APEX STANDARDS SANITARY SEWER TAP & SERVICE STD. NO. 700.02 SHEET 1 OF 1 EFFECTIVE: APRIL 12, 2022



TOWN OF APEX STANDARDS DOGHOUSE MANHOLE INSTALLATION OVER EXISTING SEWER MAIN STD. NO. 700.12 SHEET 1 OF 1 EFFECTIVE: DECEMBER 3, 2002

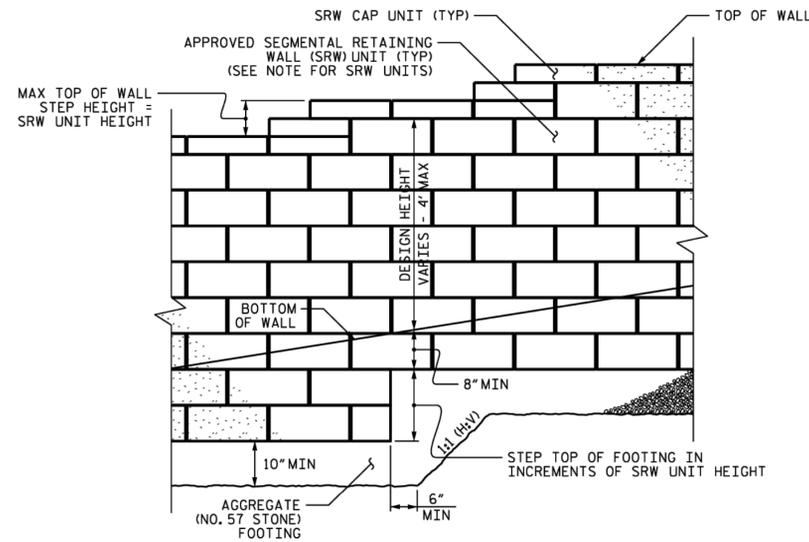


**PRELIMINARY**  
 DO NOT  
 USE FOR  
 CONSTRUCTION

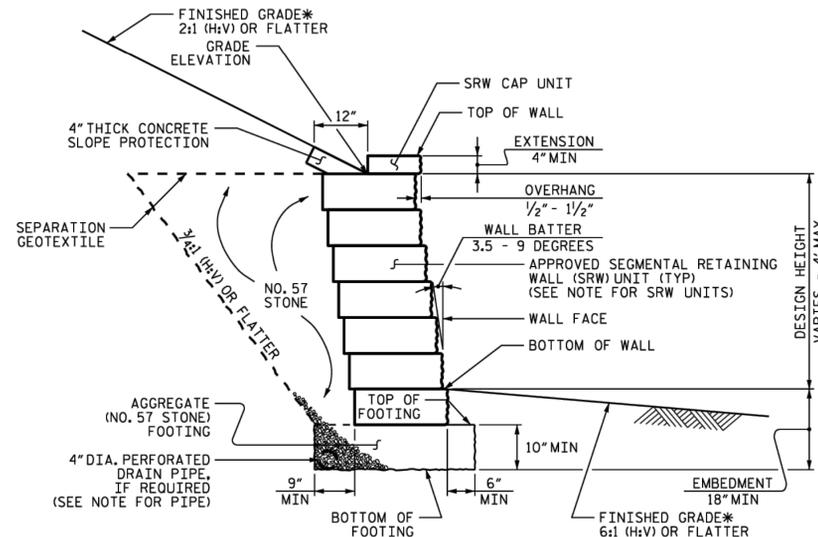


ENGINEER

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED



**STANDARD SEGMENTAL GRAVITY WALL - PARTIAL ELEVATION**



**STANDARD SEGMENTAL GRAVITY WALL WITH SLOPE**

\*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

**NOTES:**

FOR STANDARD SEGMENTAL GRAVITY RETAINING WALLS, SEE SEGMENTAL GRAVITY RETAINING WALLS PROVISION.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

DO NOT ATTACH FENCES OR HANDRAILS TO STANDARD SEGMENTAL GRAVITY WALLS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS FOR INTERSTATE HIGHWAY OR RAILROAD PROJECTS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS WHEN SURCHARGE LOADS WILL BE WITHIN 5'-6" OF THE BACK OF SRW CAP UNITS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW WALLS.

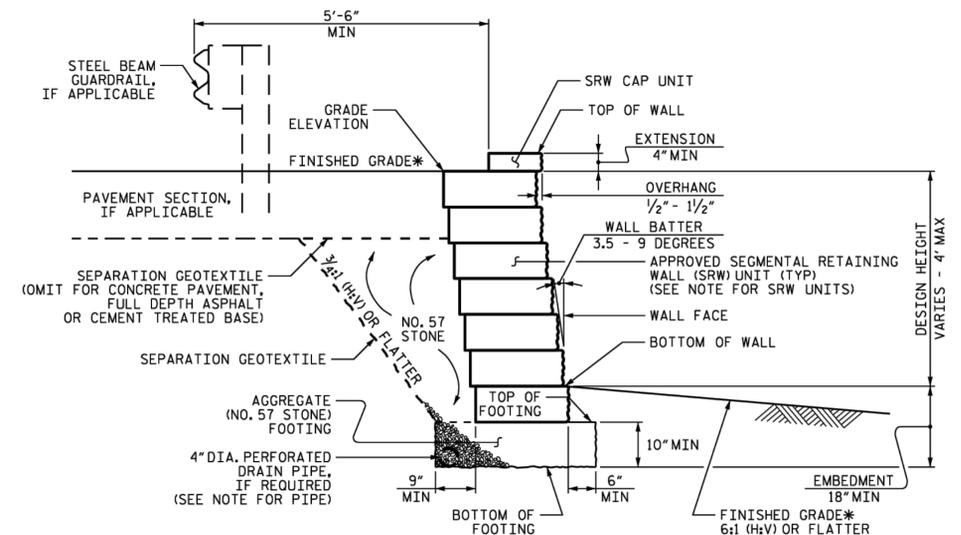
SEGMENTAL RETAINING WALL (SRW) UNITS ARE APPROVED FOR EITHER 2' OR 4' MAXIMUM DESIGN HEIGHTS. FOR DETAILS AND DIMENSIONS OF APPROVED SRW UNITS AND MAXIMUM DESIGN HEIGHTS, SEE [connect.ncdot.gov/resources/Geological/Pages/Products.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Products.aspx)

DO NOT MIX APPROVED SRW UNITS FROM DIFFERENT VENDORS ON THE SAME STANDARD SEGMENTAL GRAVITY WALL. USE THE SAME SIZE APPROVED SRW UNITS FOR EACH WALL SECTION.

BEFORE BEGINNING STANDARD SEGMENTAL GRAVITY WALL CONSTRUCTION, SURVEY WALL LOCATIONS AND SUBMIT WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. FOR WALL ENVELOPES, INCLUDE BOTTOM OF WALL, EXISTING GROUND AND GRADE ELEVATIONS AND OTHER ELEVATIONS AS NEEDED AT INTERVALS OF 25' OR LESS ALONG WALLS. DO NOT START WALL CONSTRUCTION UNTIL WALL ENVELOPES ARE ACCEPTED.

A DRAIN PIPE IS REQUIRED IF GROUNDWATER IS ABOVE BOTTOM OF FOOTINGS.

DO NOT PLACE NO. 57 STONE FOR FOOTINGS UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.



**STANDARD SEGMENTAL GRAVITY WALL WITHOUT SLOPE**

\*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: \_\_\_\_\_ COUNTY \_\_\_\_\_  
 STATION: \_\_\_\_\_  
 SHEET OF \_\_\_\_\_



**NORTH CAROLINA**  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
  
**GEOTECHNICAL**  
 ENGINEERING UNIT

STANDARD DETAIL NO. 453.02

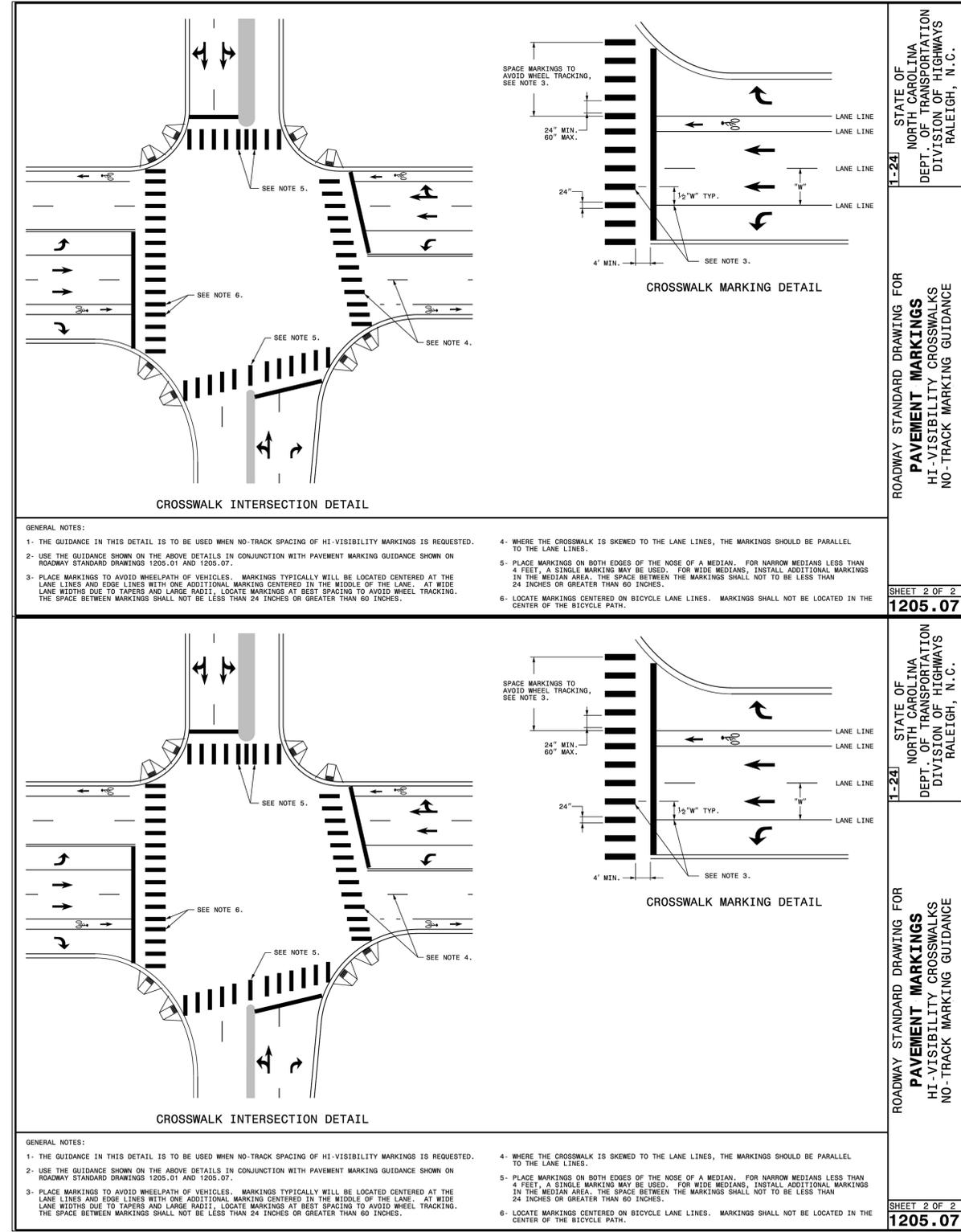
**STANDARD**  
 SEGMENTAL GRAVITY  
 RETAINING WALL

SHEET NO.

DATE: 3-17-15



PRELIMINARY  
 DO NOT  
 USE FOR  
 CONSTRUCTION



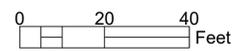


PRELIMINARY  
 DO NOT  
 USE FOR  
 CONSTRUCTION

Structure ID	Rim Elev (ft)
CB7	442.29
CB8	443.12
CB9	443.47
CB10	443.55
CB11	444.18
CB12	450.31
CB13	452.54
CB14	453.67
ENDWALL6	454.75
CB15	454.21
ENDWALL5	442.94
CB2	444.42
CB3	443.99
CB3-2	443.89
ENDWALL4	439.40

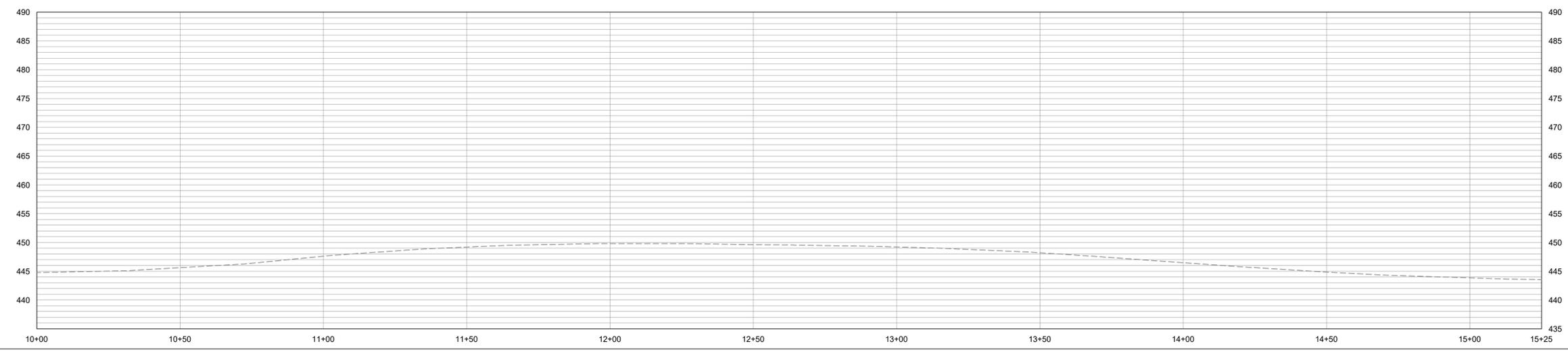
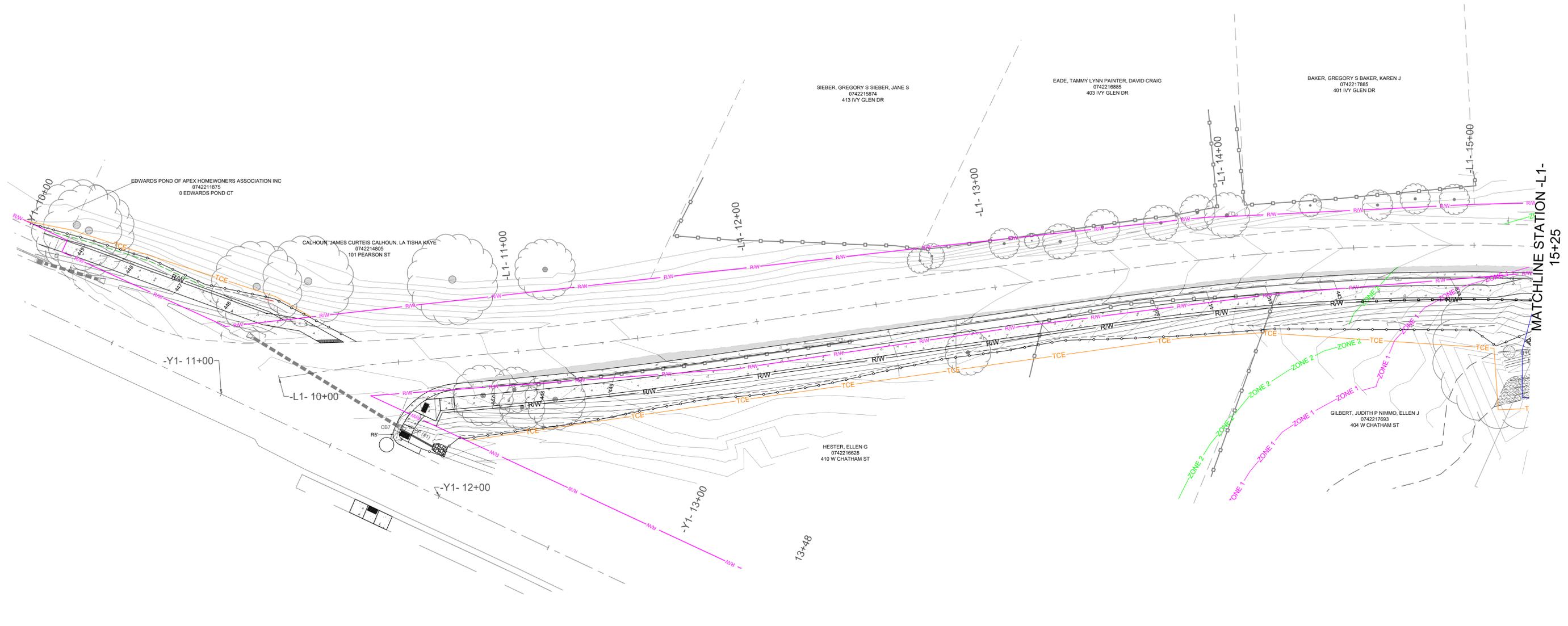
Physical Data								Line ID
Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
438.89	2.55	439.30	15	Cir	0.013	1.00	442.29	(#1)
437.57	0.77	437.80	30	Cir	0.013	1.24	443.12	(#11)
438.00	1.25	438.70	30	Cir	0.013	1.46	443.47	(#10)
438.90	0.86	439.10	30	Cir	0.013	1.47	443.55	(#9)
439.20	3.10	439.80	24	Cir	0.013	1.03	444.18	(#7)
440.00	7.18	446.30	24	Cir	0.013	1.06	450.31	(#6)
446.50	4.55	447.60	24	Cir	0.013	1.11	452.54	(#5)
447.80	5.28	449.25	24	Cir	0.013	1.96	453.67	(#4)
450.75	16.18	452.00	24	Cir	0.013	1.00	454.75	(#3)
450.75	2.71	451.20	15	Cir	0.013	1.00	454.21	(#2)
440.90	0.81	441.00	15	Cir	0.013	1.00	442.94	(#8)
436.53	0.43	436.68	15	Cir	0.013	1.25	444.42	(#14)
437.00	1.09	437.27	15	Cir	0.013	1.48	443.99	(#13)
442.30	3.33	442.40	15	Cir	0.013	1.00	443.89	(#12-1)
437.27	1.29	437.46	15	Cir	0.013	1.00	439.40	(#12)
434.20	1.53	435.58	33X49	Ell	0.012	1.00	0.00	(#6-2)
433.70	1.53	435.08	33X49	Ell	0.012	1.00	0.00	(#6)
431.87	1.72	432.55	72	Cir	0.012	1.00	0.00	(#5)

\* ALL 2:1 SLOPES SHALL BE PLANTED WITH BLUE RUG JUNIPER (JUNIPERUS HORIZONTALIS "WILTONII") SPACED 3-5 FEET.



**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 DEVELOPMENT  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417

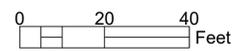
PROJECT REFERENCE NO. BL-0095	SHEET NO. 4
	<b>PRELIMINARY</b> <b>DO NOT</b> <b>USE FOR</b> <b>CONSTRUCTION</b>



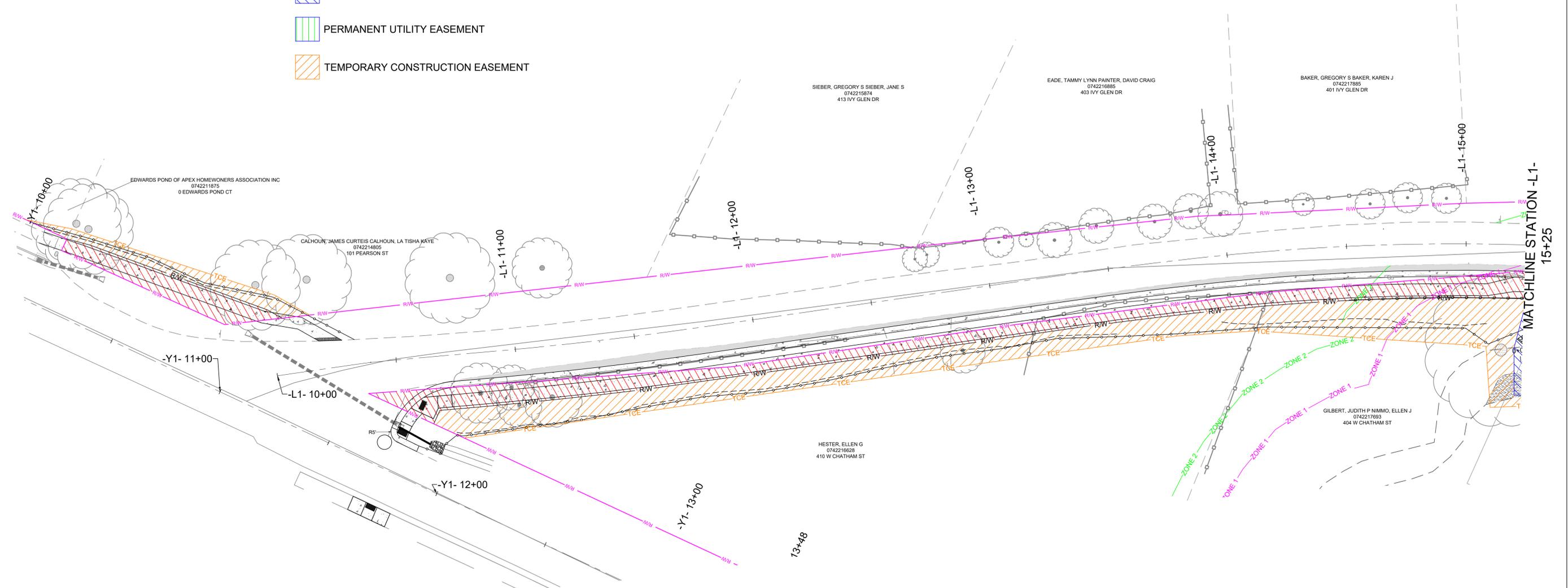
**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 DEVELOPMENT  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417



**PRELIMINARY**  
 DO NOT  
 USE FOR  
 CONSTRUCTION



- RIGHT OF WAY
- PERMANENT DRAINAGE EASEMENT
- PERMANENT UTILITY EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT



MATCHLINE STATION -L2-

11+50

MATCHLINE STATION -L1-  
15+25

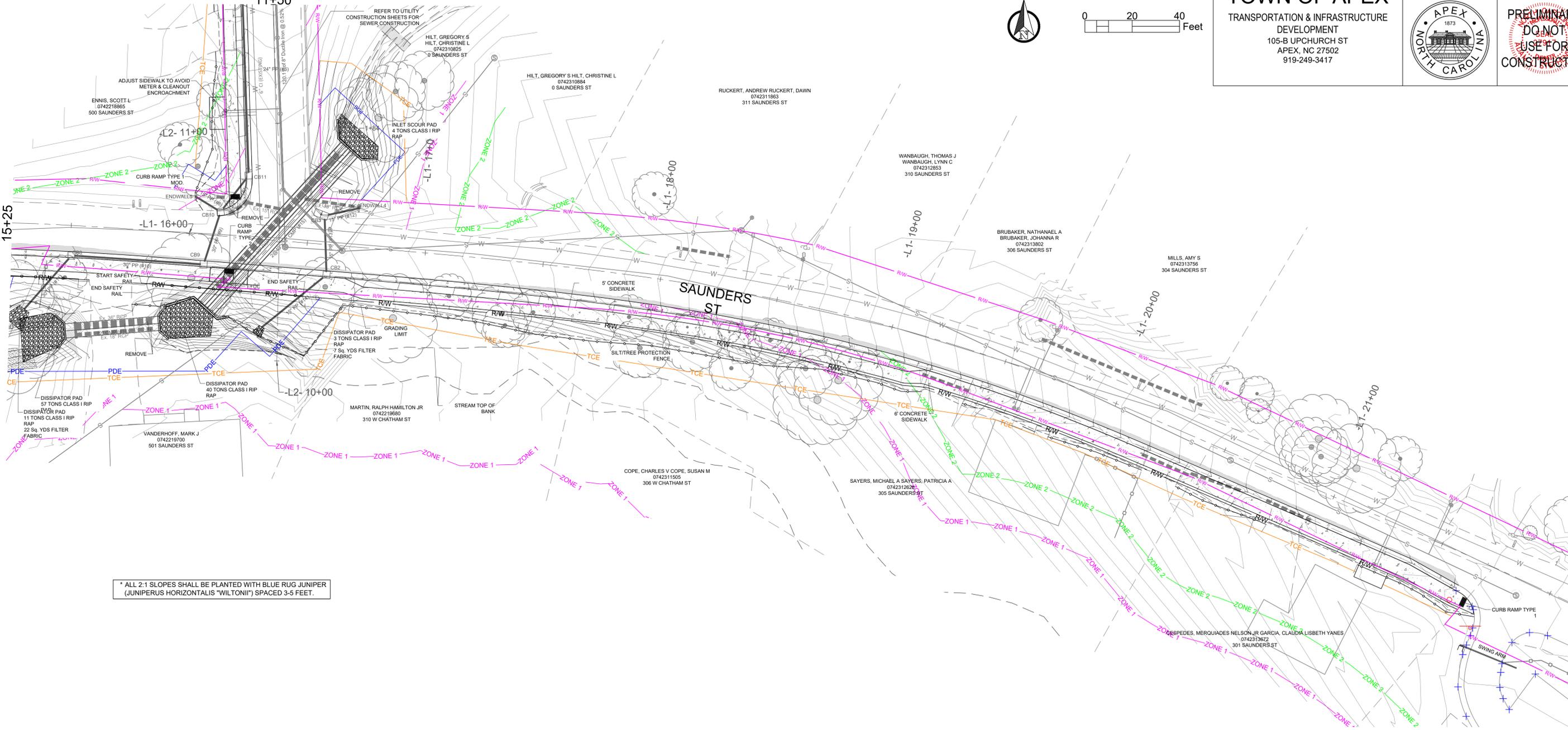
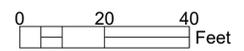
# TOWN OF APEX

TRANSPORTATION & INFRASTRUCTURE  
105-B UPCHURCH ST  
APEX, NC 27502  
919-249-3417

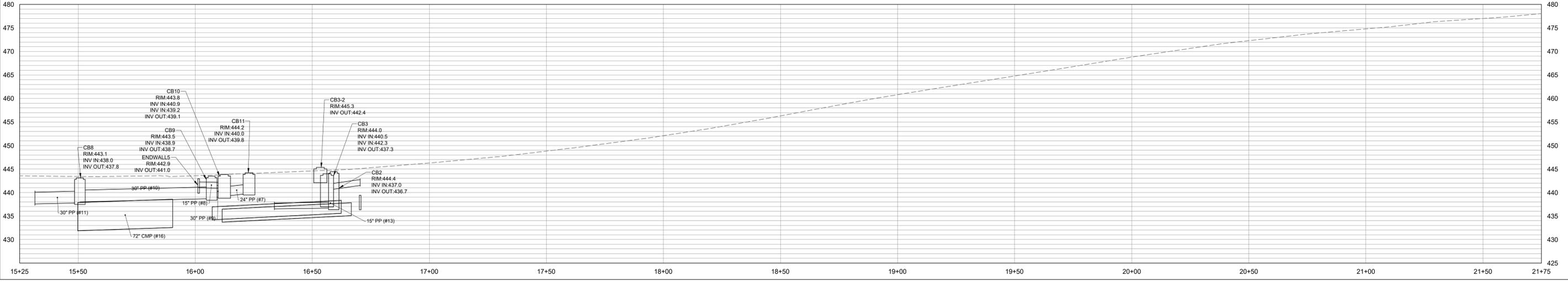
PROJECT REFERENCE NO. BL-0095 SHEET NO. 5



PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION



\* ALL 2:1 SLOPES SHALL BE PLANTED WITH BLUE RUG JUNIPER (JUNIPERUS HORIZONTALIS 'WILTONIF') SPACED 3-5 FEET.

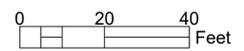


MATCHLINE STATION -L2-

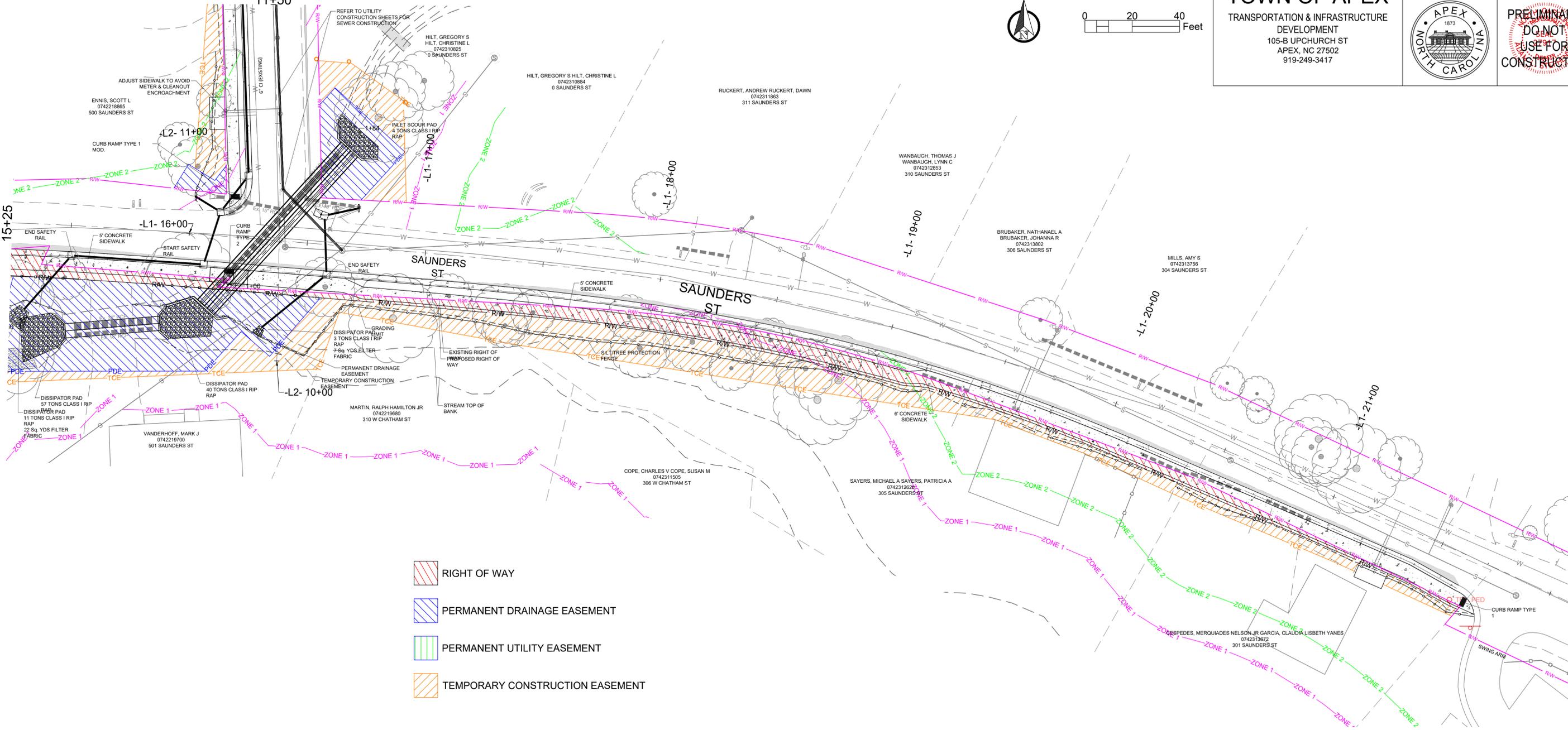
11+50

**TOWN OF APEX**  
TRANSPORTATION & INFRASTRUCTURE  
105-B UPCHURCH ST  
APEX, NC 27502  
919-249-3417

PROJECT REFERENCE NO. BL-0095	SHEET NO. 5A
	



MATCHLINE STATION -L1-  
15+25

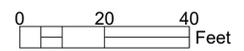


-  RIGHT OF WAY
-  PERMANENT DRAINAGE EASEMENT
-  PERMANENT UTILITY EASEMENT
-  TEMPORARY CONSTRUCTION EASEMENT

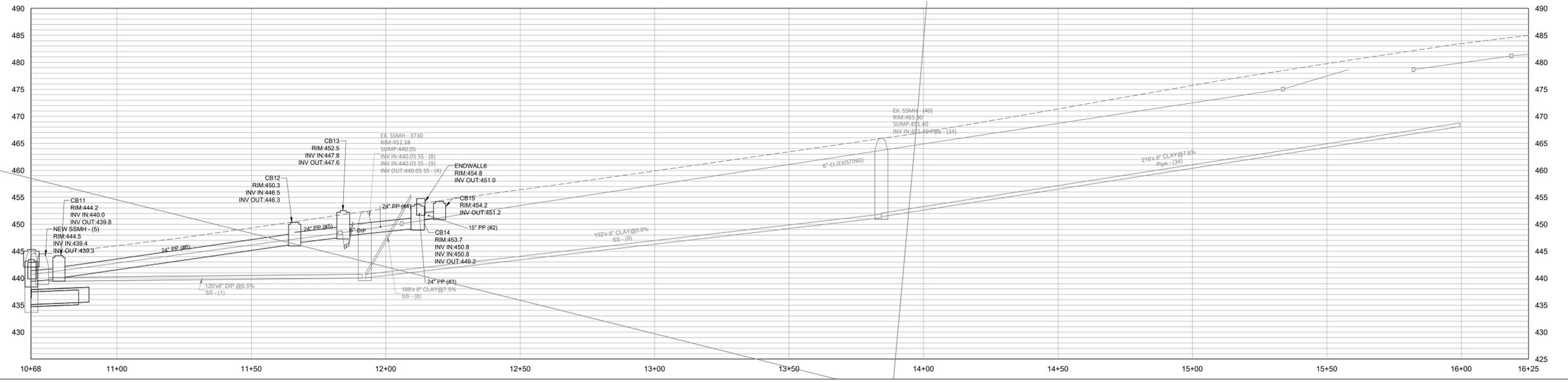
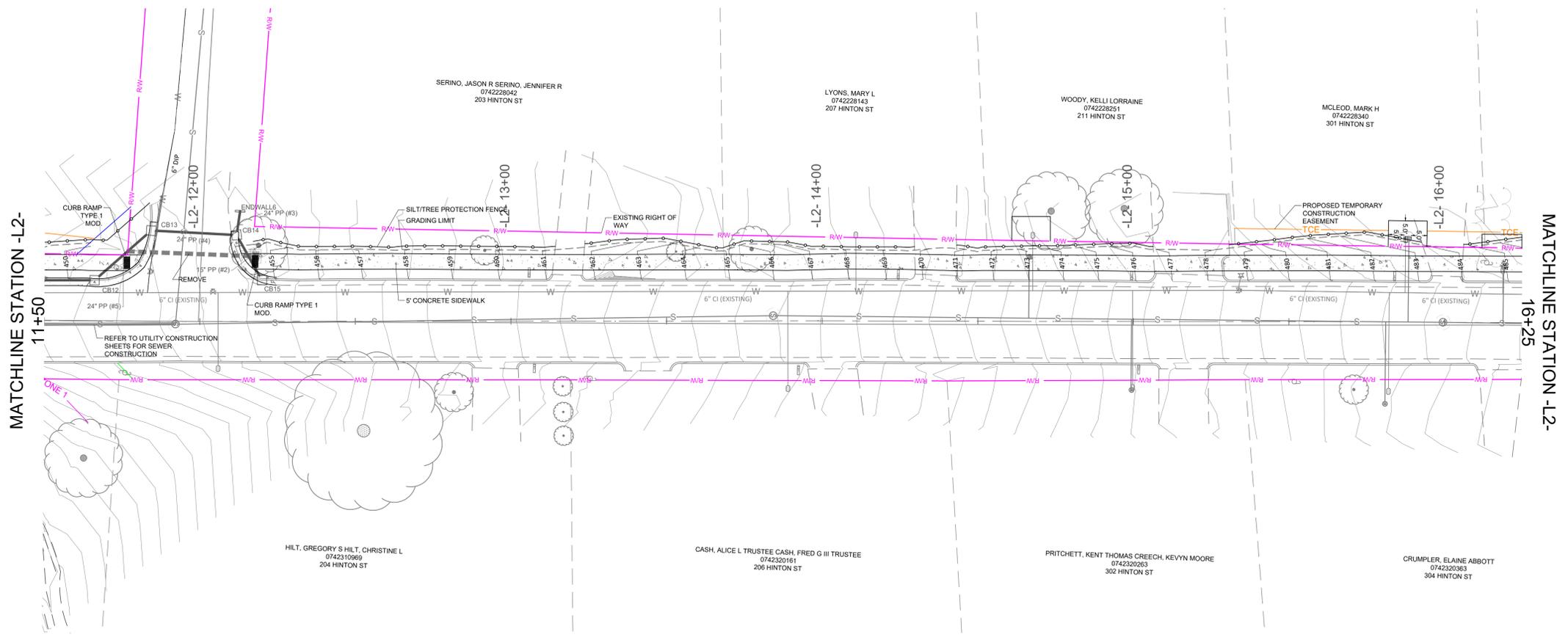
**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 DEVELOPMENT  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417



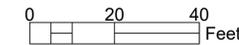
PRELIMINARY  
 DO NOT  
 USE FOR  
 CONSTRUCTION



\* ALL 2:1 SLOPES SHALL BE PLANTED WITH BLUE RUG JUNIPER (JUNIPERUS HORIZONTALIS "WILTONII") SPACED 3-5 FEET.

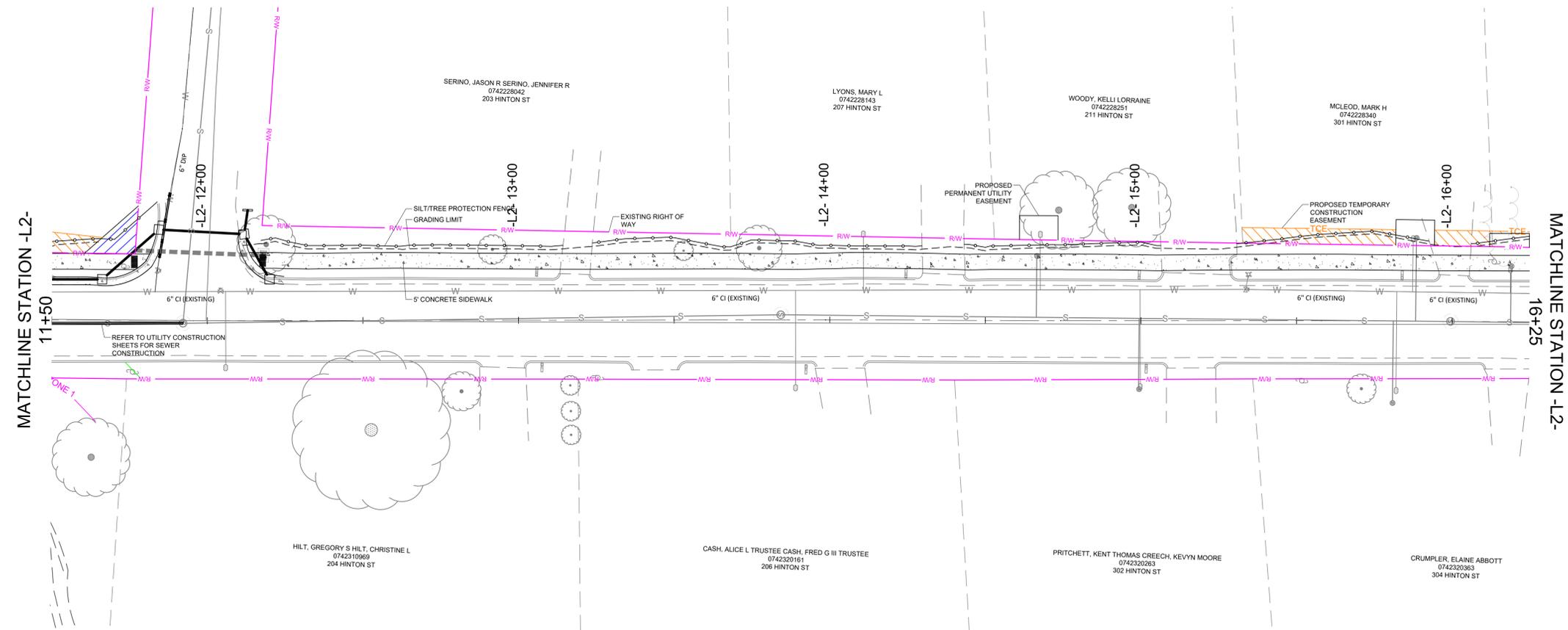


-  RIGHT OF WAY
-  PERMANENT DRAINAGE EASEMENT
-  PERMANENT UTILITY EASEMENT
-  TEMPORARY CONSTRUCTION EASEMENT

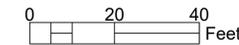


**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 DEVELOPMENT  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417

PROJECT REFERENCE NO. BL-0095	SHEET NO. 6A
	

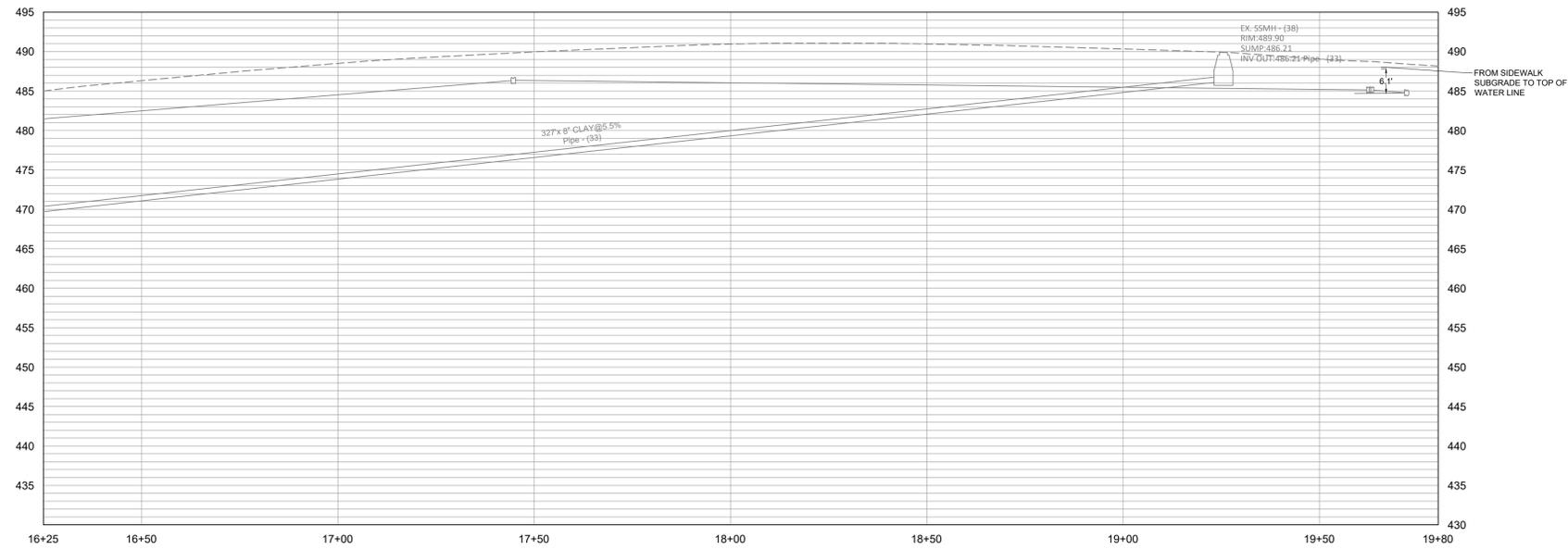
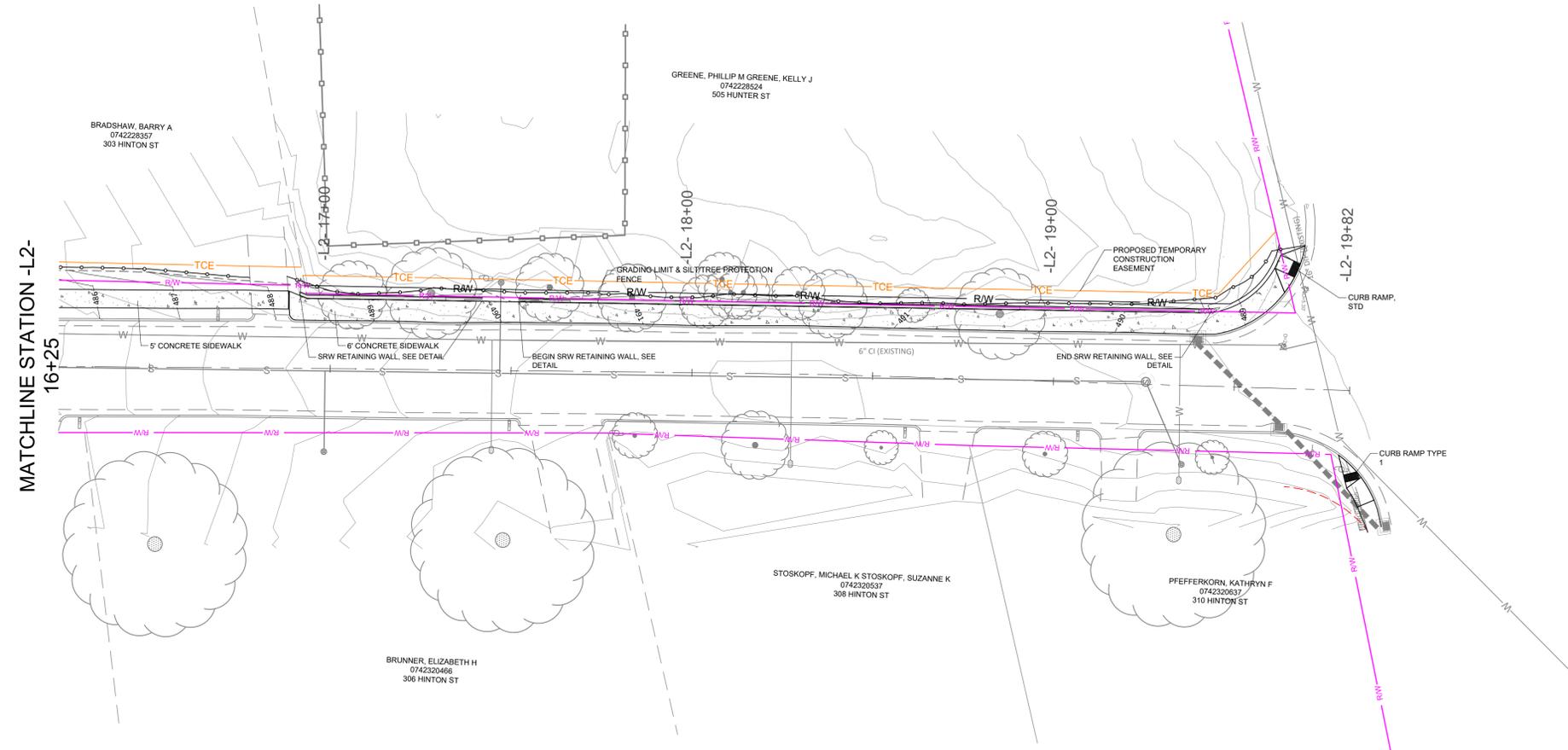


\* ALL 2:1 SLOPES SHALL BE PLANTED WITH BLUE RUG JUNIPER (JUNIPERUS HORIZONTALIS "WILTONII") SPACED 3-5 FEET.

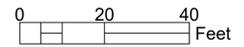


**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 DEVELOPMENT  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417

PROJECT REFERENCE NO. BL-0095	SHEET NO. 7
	

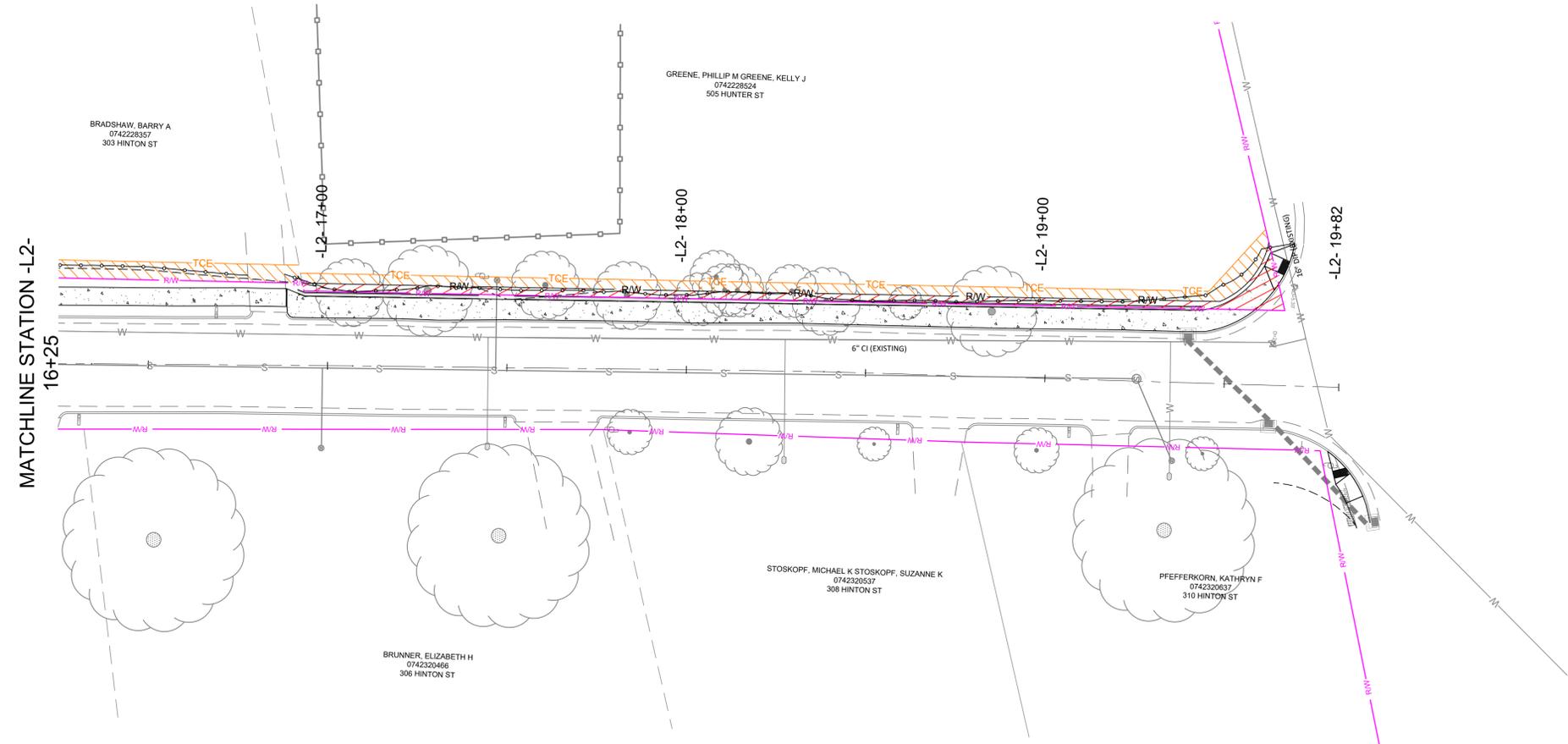


-  RIGHT OF WAY
-  PERMANENT DRAINAGE EASEMENT
-  PERMANENT UTILITY EASEMENT
-  TEMPORARY CONSTRUCTION EASEMENT



**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 DEVELOPMENT  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417

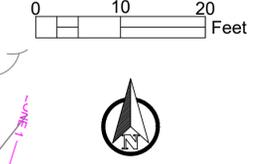
PROJECT REFERENCE NO. BL-0095	SHEET NO. 7A
	



**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 DEVELOPMENT  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417

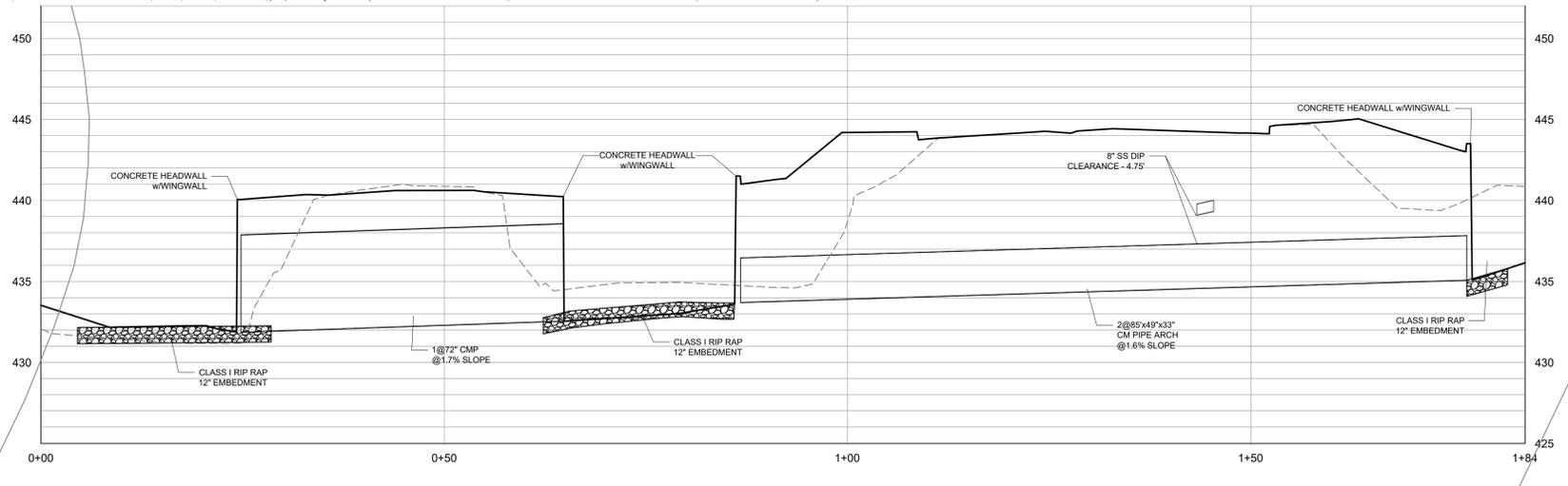
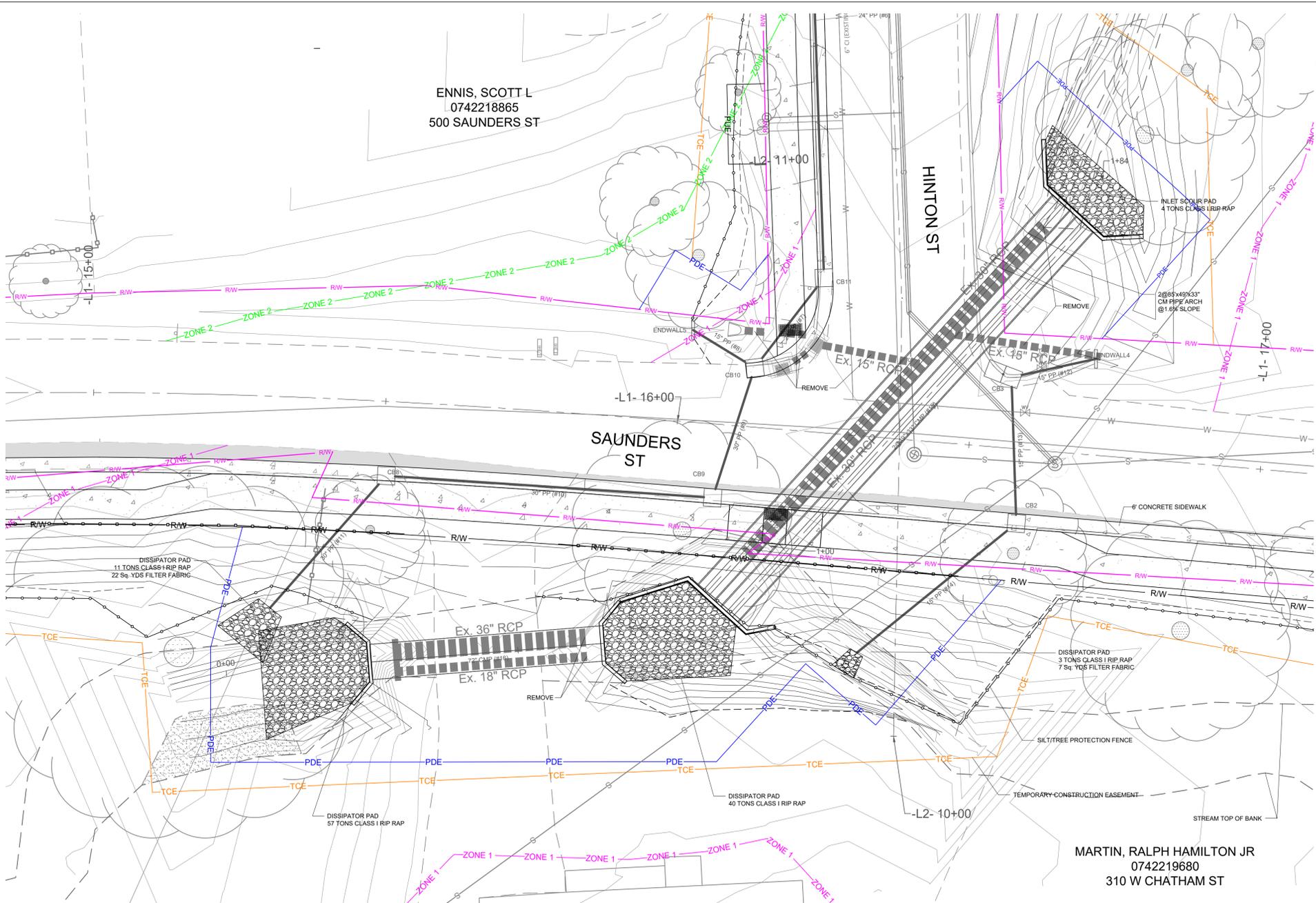


**PRELIMINARY**  
 DO NOT  
 USE FOR  
 CONSTRUCTION



ENNIS, SCOTT L  
 0742218865  
 500 SAUNDERS ST

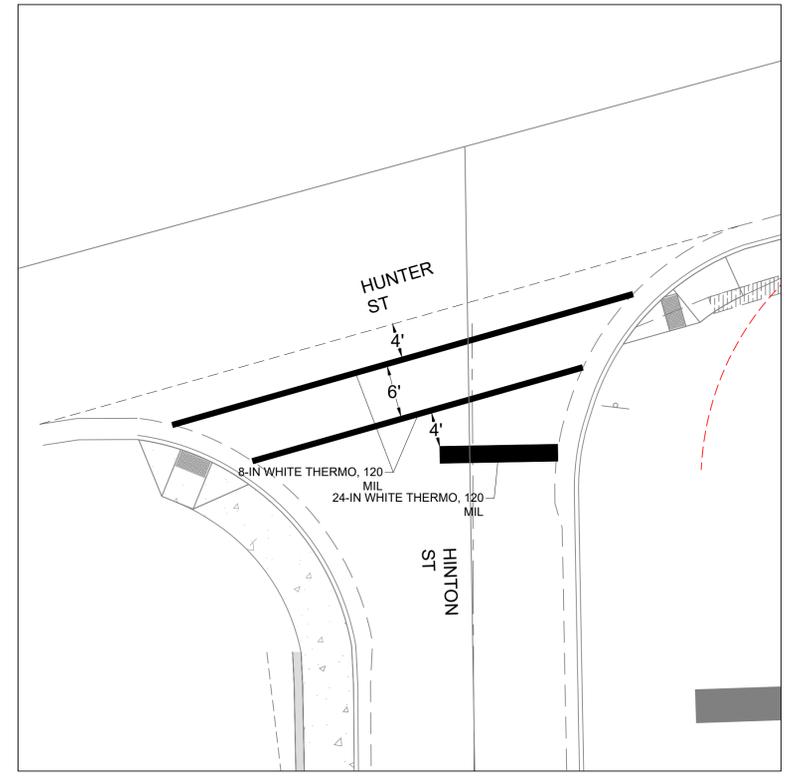
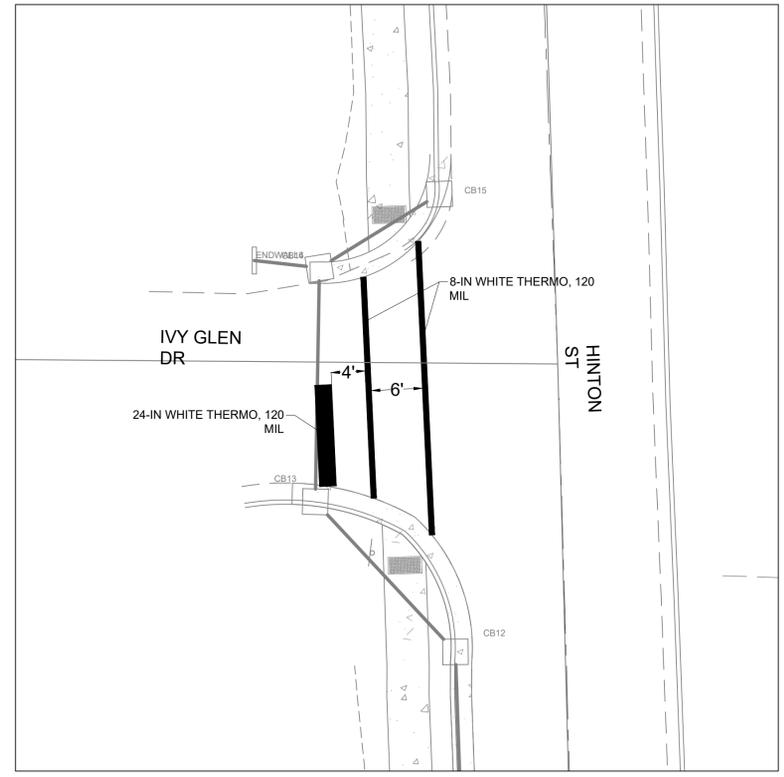
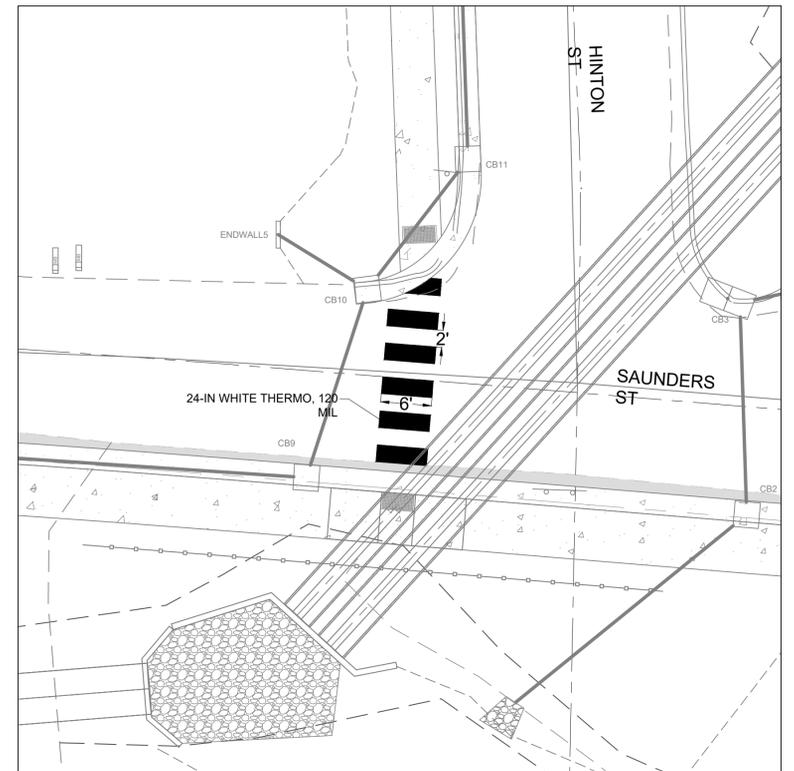
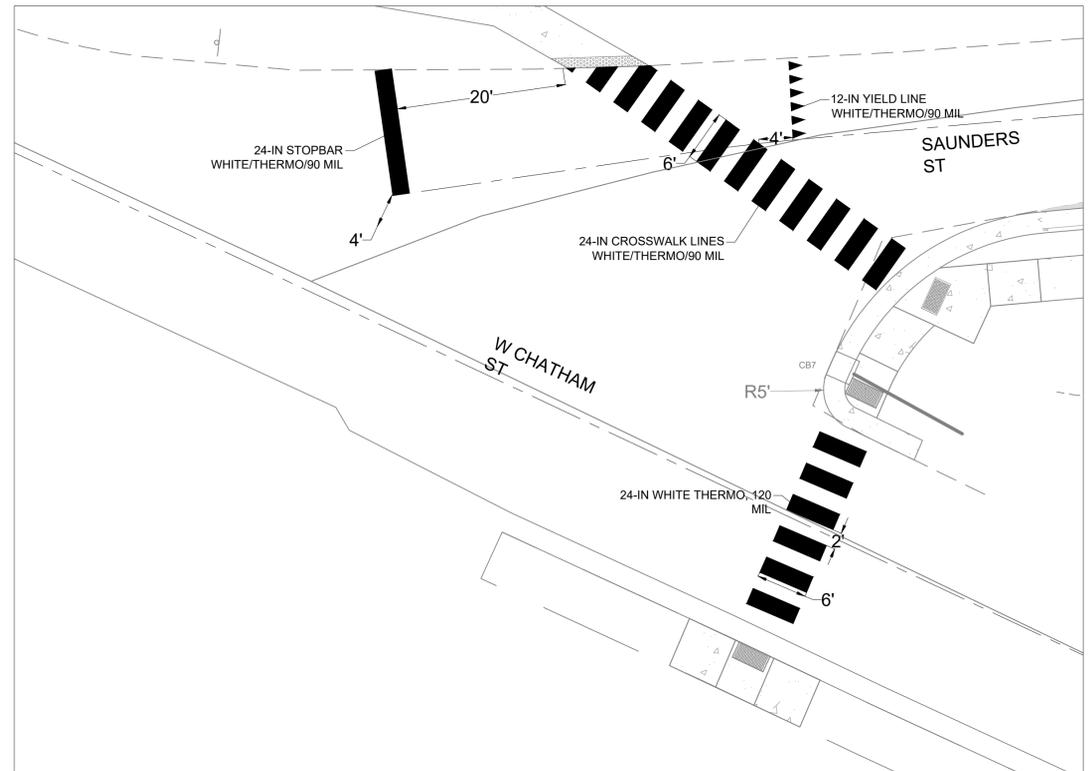
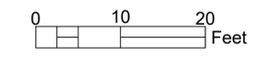
MARTIN, RALPH HAMILTON JR  
 0742219680  
 310 W CHATHAM ST



**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 DEVELOPMENT  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417



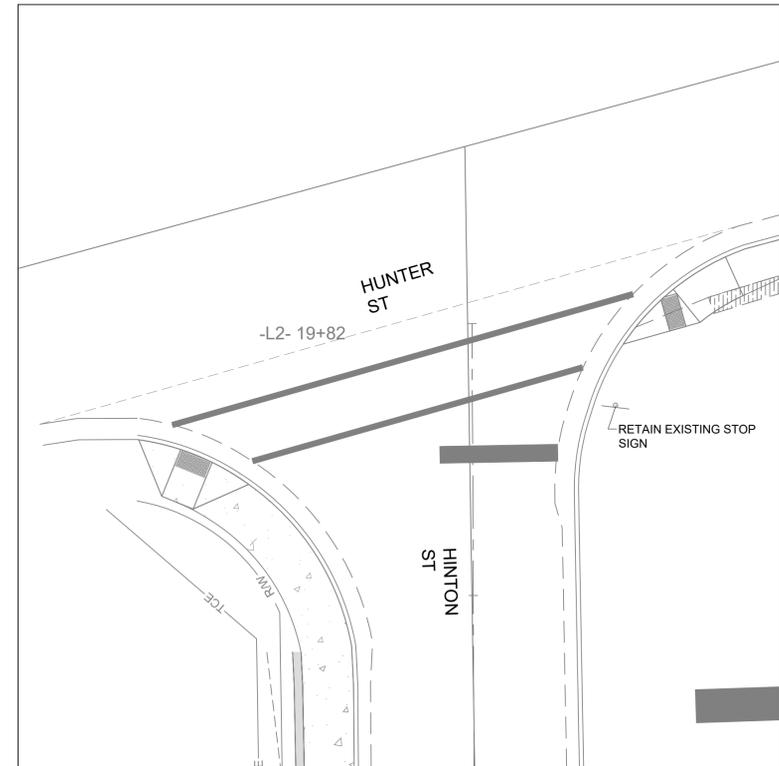
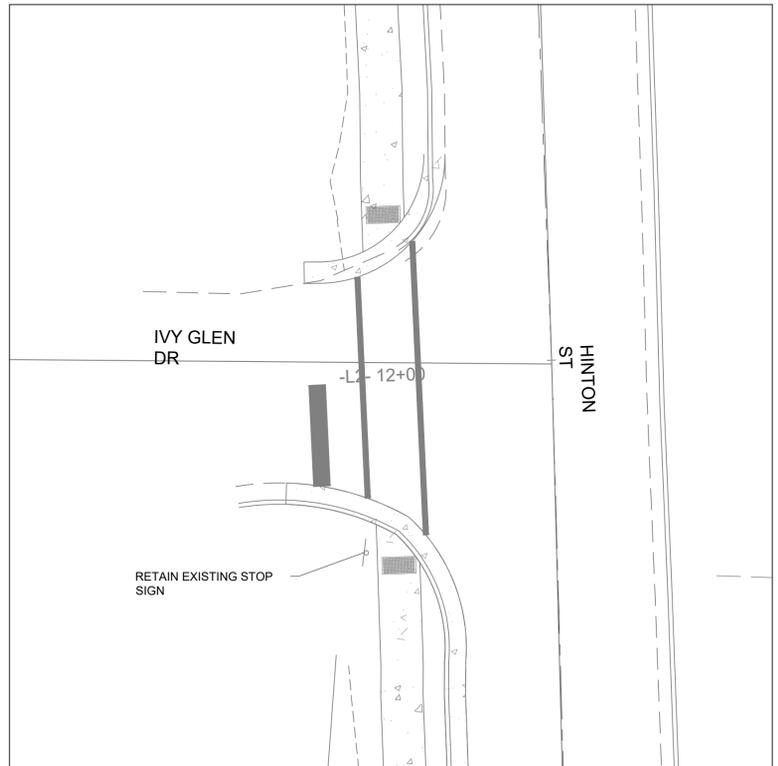
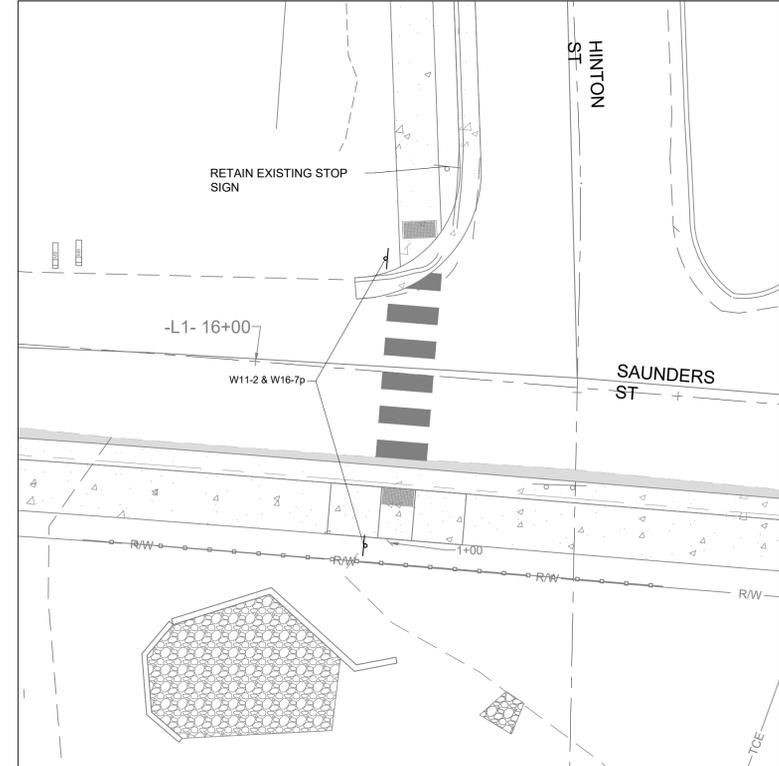
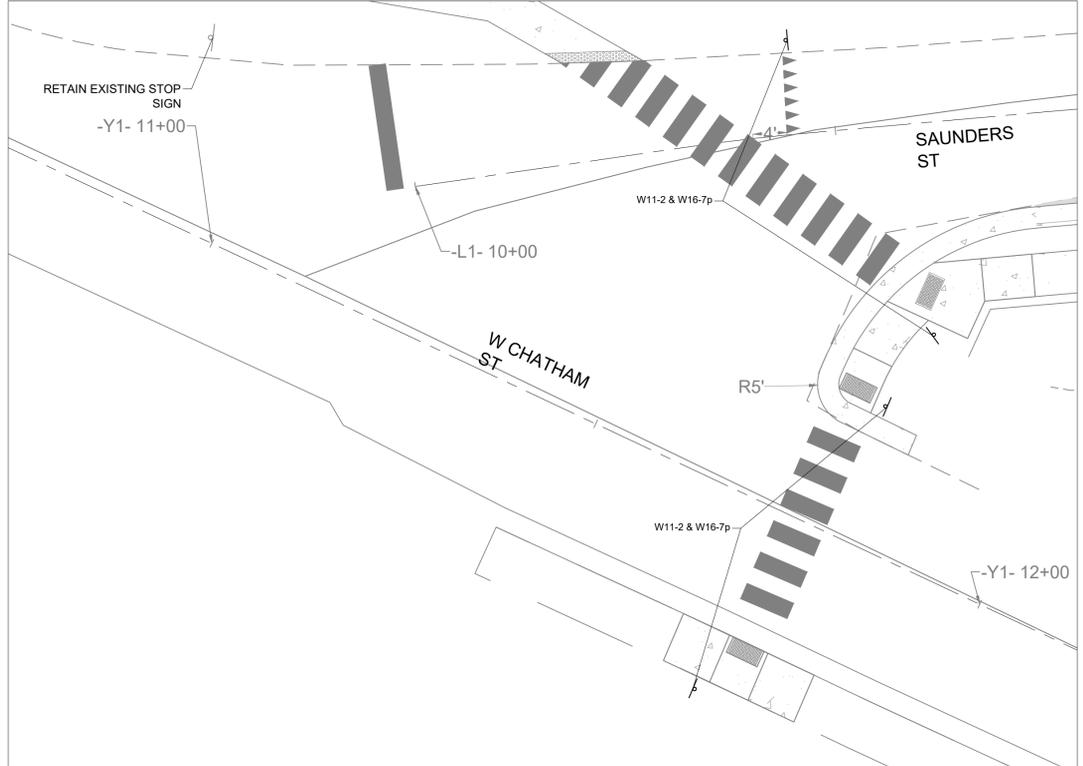
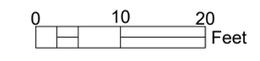
**PRELIMINARY**  
 DO NOT  
 USE FOR  
 CONSTRUCTION



**TOWN OF APEX**  
TRANSPORTATION & INFRASTRUCTURE  
DEVELOPMENT  
105-B UPCHURCH ST  
APEX, NC 27502  
919-249-3417



PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION



**GENERAL NOTES**

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRABLE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

**TIME RESTRICTIONS:**

- A. DO NOT CLOSE OR NARROW TRAVEL LANES ON W CHATHAM ST AND HUNTER ST AS FOLLOWS:  
MONDAY THRU FRIDAY  
6:00 AM TO 9:00 AM  
&  
4:00 PM TO 7:00 PM
- B. DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:  
HOLIDAY
  - 1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
  - 2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31ST TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 THE FOLLOWING TUESDAY.
  - 3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
  - 4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
  - 5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY.
  - 6. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
  - 7. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
  - 8. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY AND 7:00 P.M. MONDAY.
  - 9. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
- C. DO NOT STOP TRAFFIC AS FOLLOWS:  
MONDAY THRU SUNDAY  
6:00 AM TO 10:00 PM
- D. REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- E. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- F. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- G. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- H. DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- I. DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON SOUTH SALEM STREET.
- J. PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING.

**PAVEMENT EDGE DROP OFF REQUIREMENTS**

- K. BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:  
BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.  
  
BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.  
  
BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- L. DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (WB-11) 500 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

**TRAFFIC PATTERN ALTERATIONS**

- M. NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

**SIGNING REQUIREMENTS**

- N. INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- O. PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.  
AND  
PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.
- P. ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- Q. INSTALL BLACK ON ORANGE "DIP" SIGNS (WS-2) AND/OR "BUMP" SIGNS (W8-1) 500 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

**TRAFFIC BARRIER**

- R. INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.  
DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.  
  
ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/ RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.  
  
INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.  
  
INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.
- S. PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101 .05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 or HIGHER	30 FT

**TRAFFIC CONTROL DEVICES**

- T. WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- U. PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- V. PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES (DRUMS) PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

**PAVEMENT MARKINGS AND MARKERS**

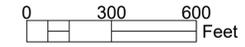
- W. INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS: N/A
- X. TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- Y. REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

**TOWN OF APEX**

TRANSPORTATION & INFRASTRUCTURE  
DEVELOPMENT  
105-B UPCHURCH ST  
APEX, NC 27502  
919-249-3417

PROJECT REFERENCE NO. BL-0095 SHEET NO. TMP-1





# TOWN OF APEX

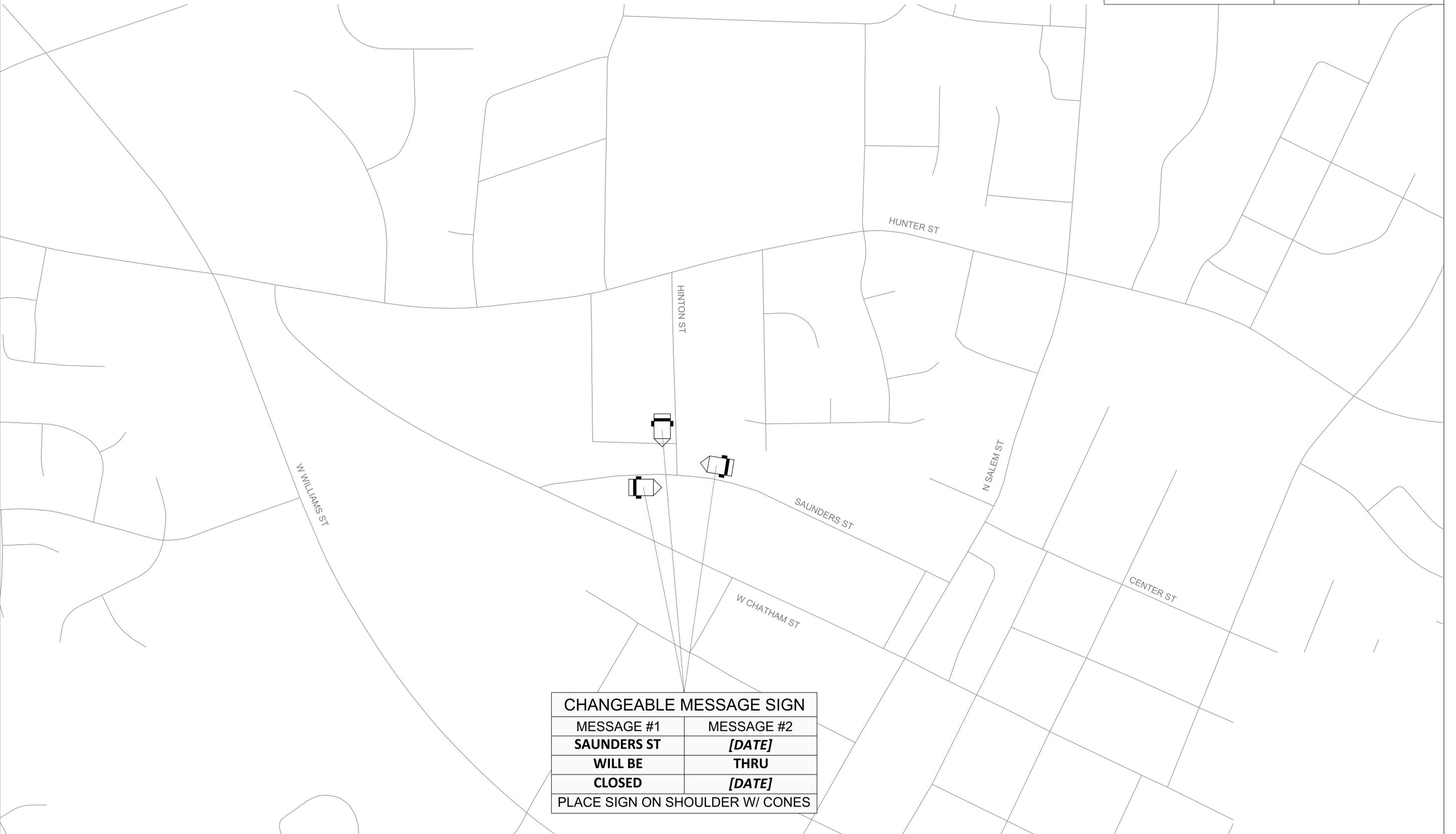
TRANSPORTATION & INFRASTRUCTURE  
DEVELOPMENT  
105-B UPCHURCH ST  
APEX, NC 27502  
919-249-3417

PROJECT REFERENCE NO.  
BL-0095

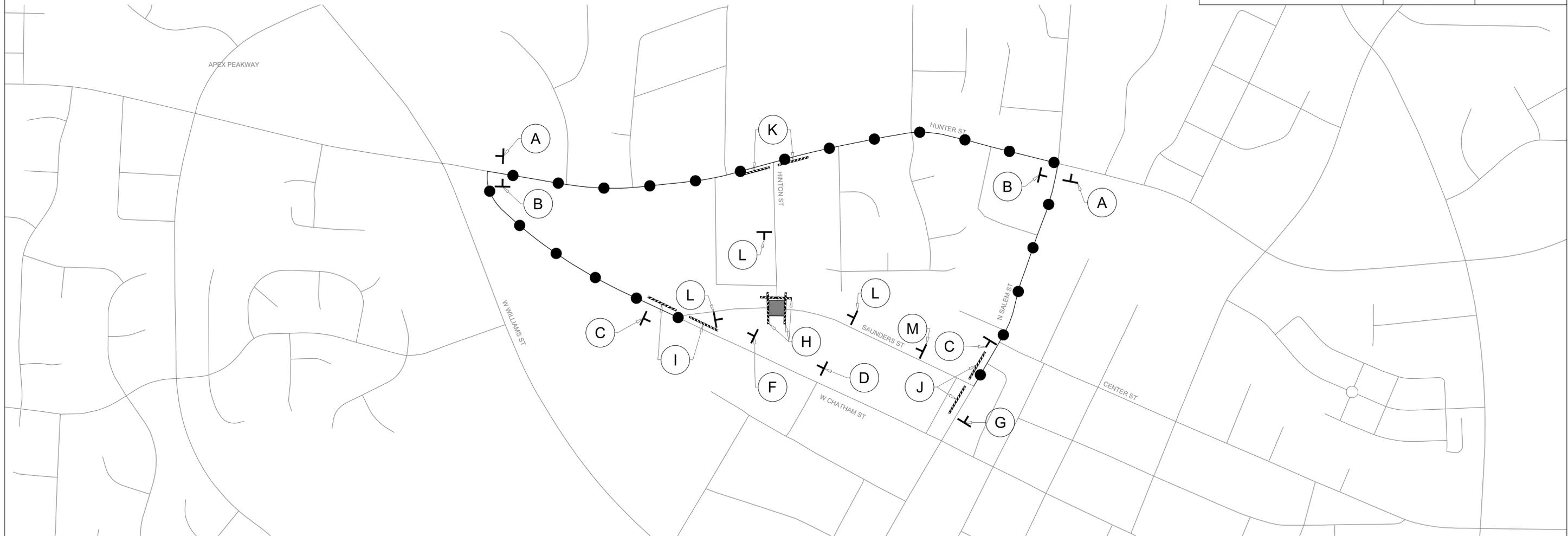
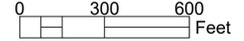
SHEET NO.  
TMP-2



**PRELIMINARY**  
**DO NOT**  
**USE FOR**  
**CONSTRUCTION**



CHANGEABLE MESSAGE SIGN	
MESSAGE #1	MESSAGE #2
<b>SAUNDERS ST</b>	<b>[DATE]</b>
<b>WILL BE</b>	<b>THRU</b>
<b>CLOSED</b>	<b>[DATE]</b>
PLACE SIGN ON SHOULDER W/ CONES	



**PHASING**

**PHASE 1**

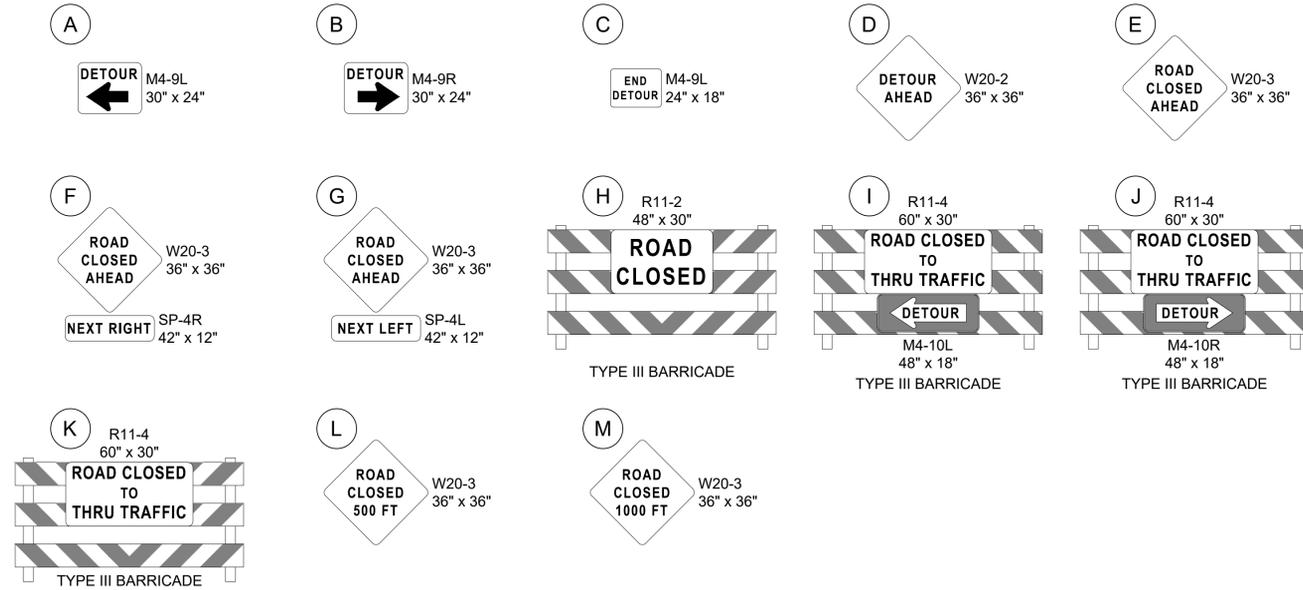
1. INSTALL CHANGEABLE MESSAGE SIGNS A MINIMUM OF 1 WEEK PRIOR TO INSTALLING DETOUR.

**PHASE 2**

1. INSTALL DETOUR SIGNAGE.
2. INSTALL ROAD CLOSURE. REFER TO NCDOT STANDARD DRAWING 1101.03, SHEET 1 OF 9 FOR SIGN LOCATIONS AND DISTANCES.
3. COMPLETE SEWER CONSTRUCTION PER SHEET UC-1.
4. COMPLETE CULVERT CONSTRUCTION PER SHEET 8.

**PHASE 3**

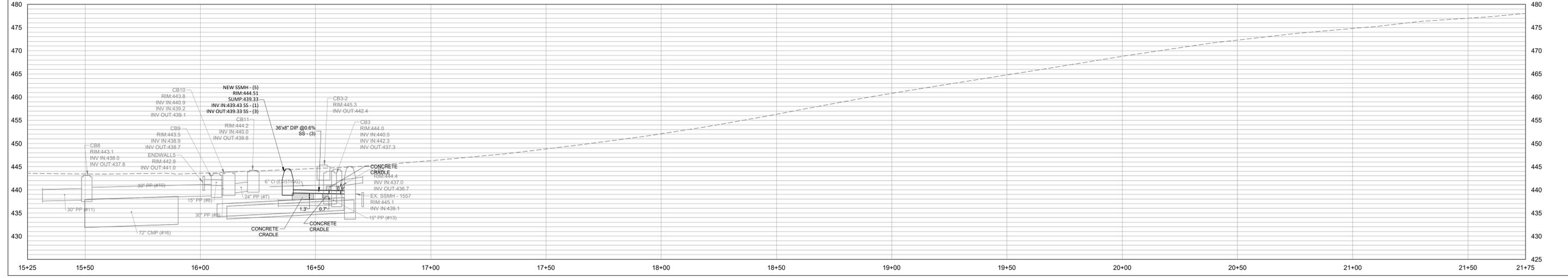
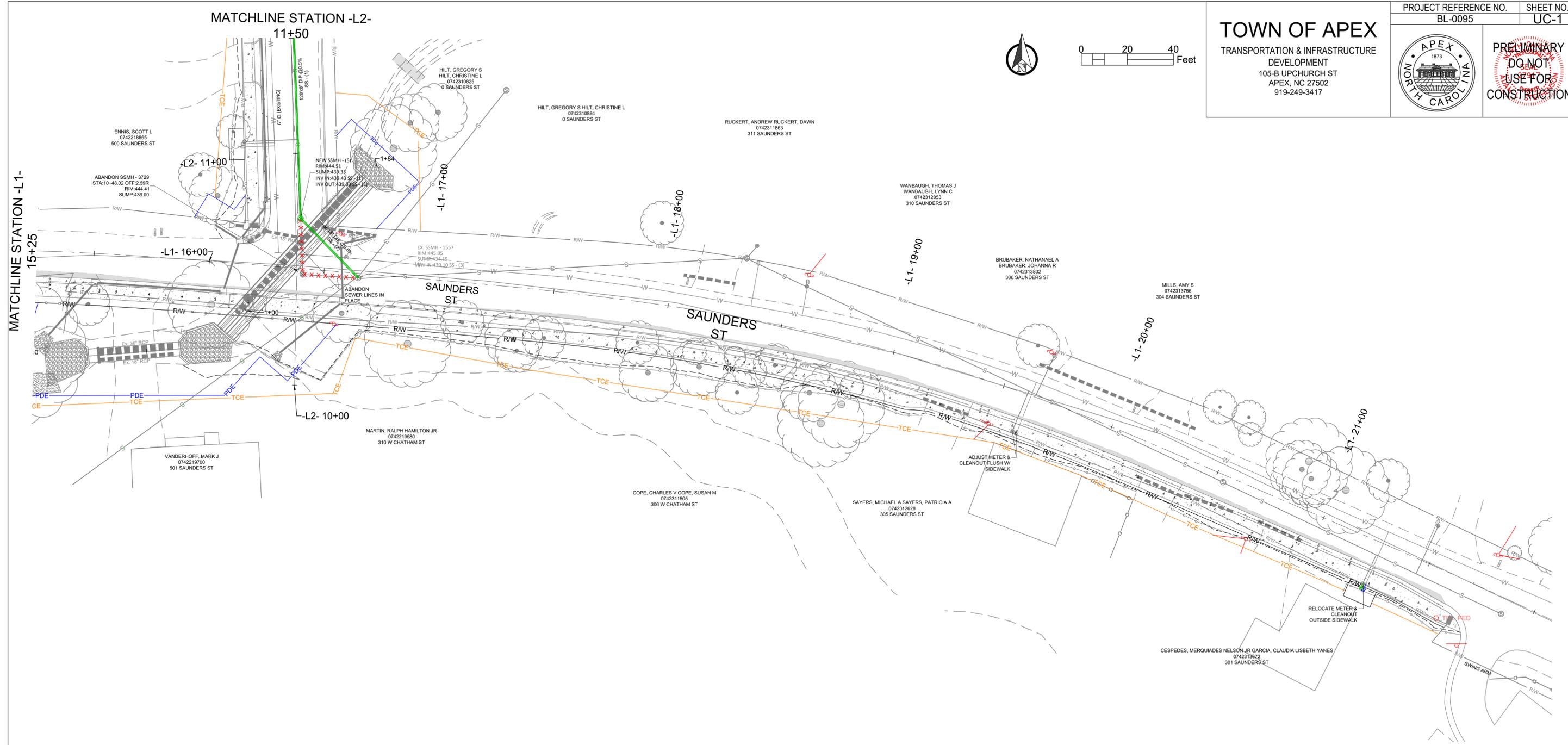
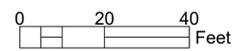
1. REMOVE ROAD CLOSURE AND DETOUR SIGNAGE.
2. COMPLETE REMAINDER OF CONSTRUCTION.



**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 DEVELOPMENT  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417

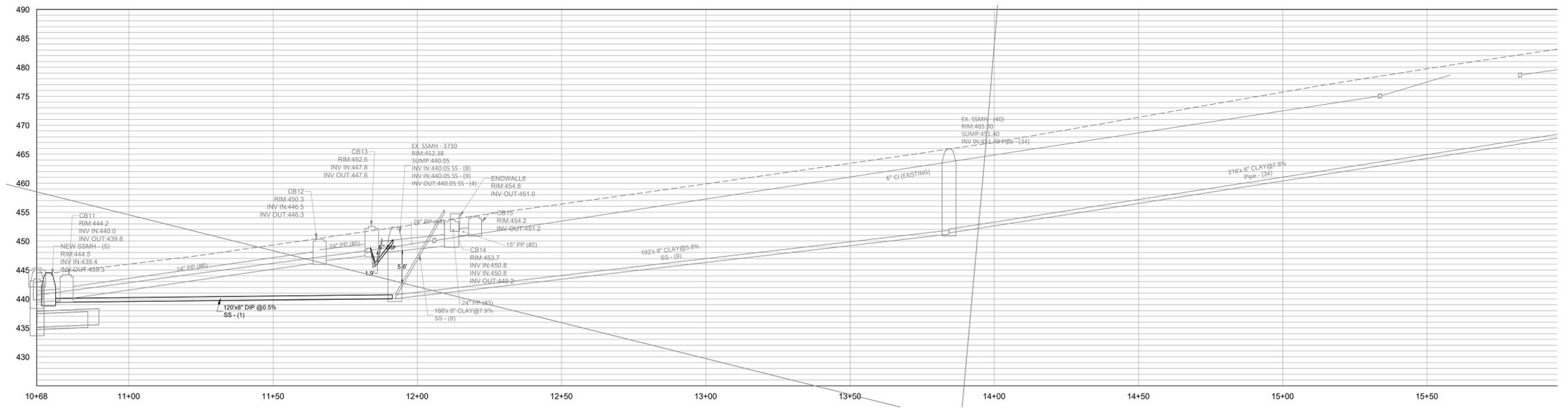
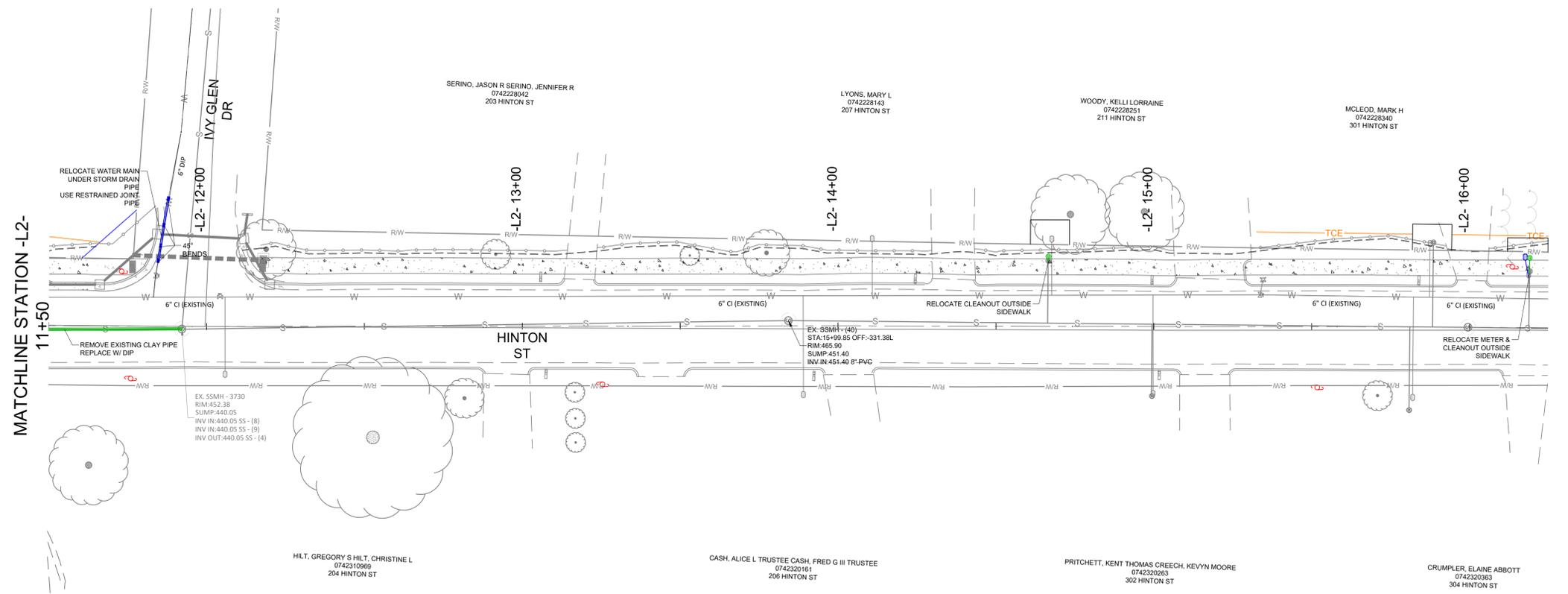
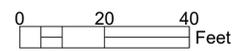


**PRELIMINARY**  
 DO NOT  
 USE FOR  
 CONSTRUCTION



**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417

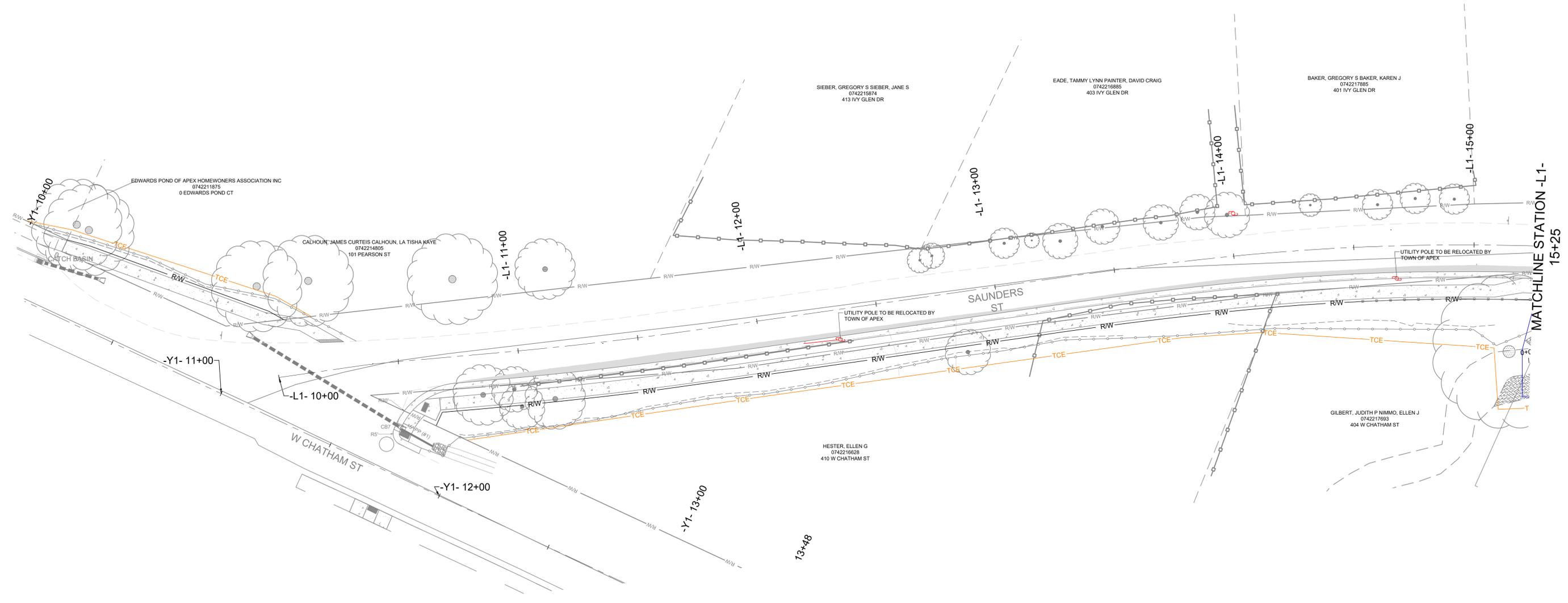
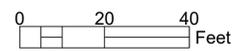
PROJECT REFERENCE NO. BL-0095	SHEET NO. UC-2
	



**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 DEVELOPMENT  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417



**PRELIMINARY**  
 DO NOT  
 USE FOR  
 CONSTRUCTION



MATCHLINE STATION -L1-15+25

MATCHLINE STATION -L2-

11+50

MATCHLINE STATION -L1-  
15+25

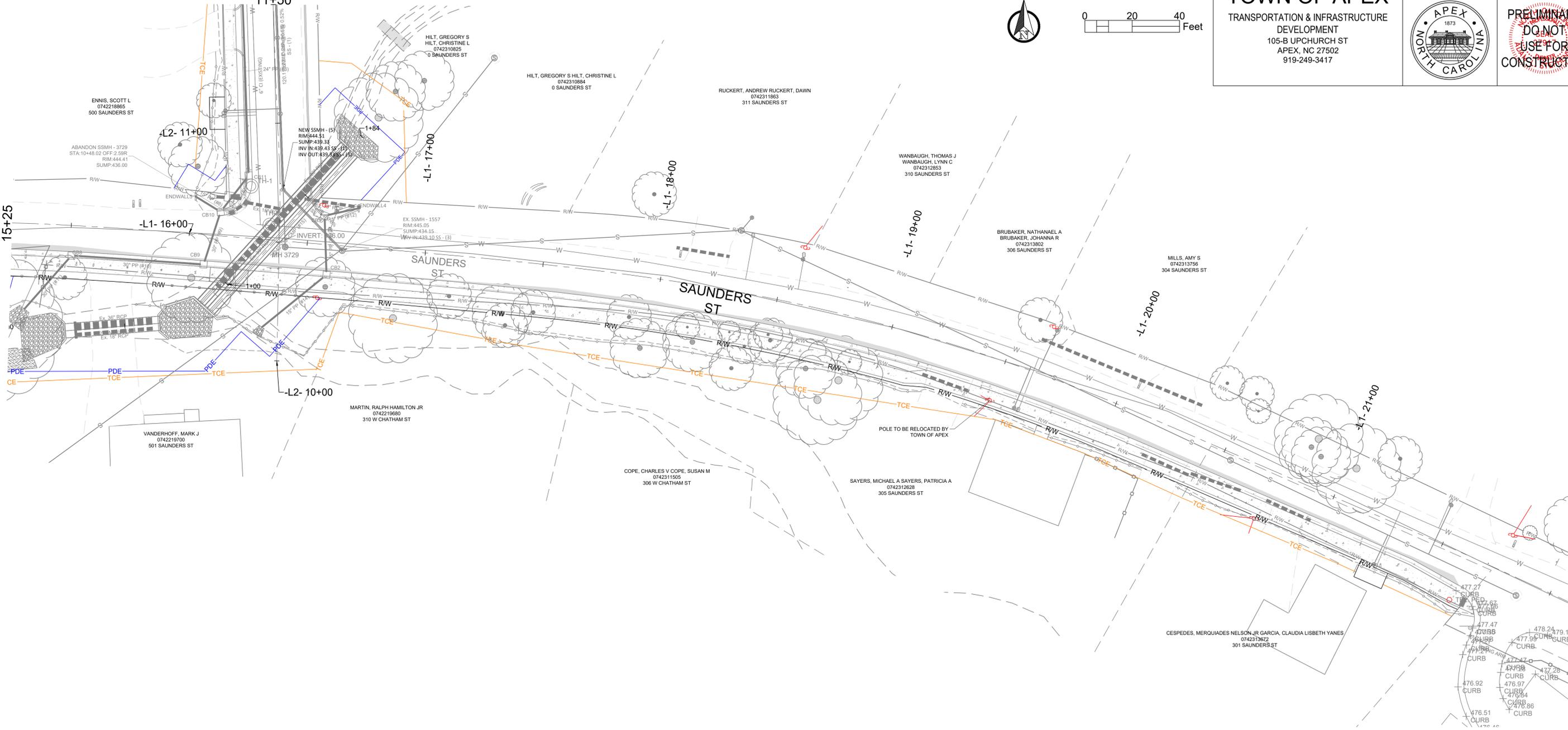
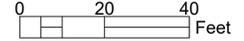
# TOWN OF APEX

TRANSPORTATION & INFRASTRUCTURE  
105-B UPCHURCH ST  
APEX, NC 27502  
919-249-3417

PROJECT REFERENCE NO. BL-0095  
SHEET NO. UO-2



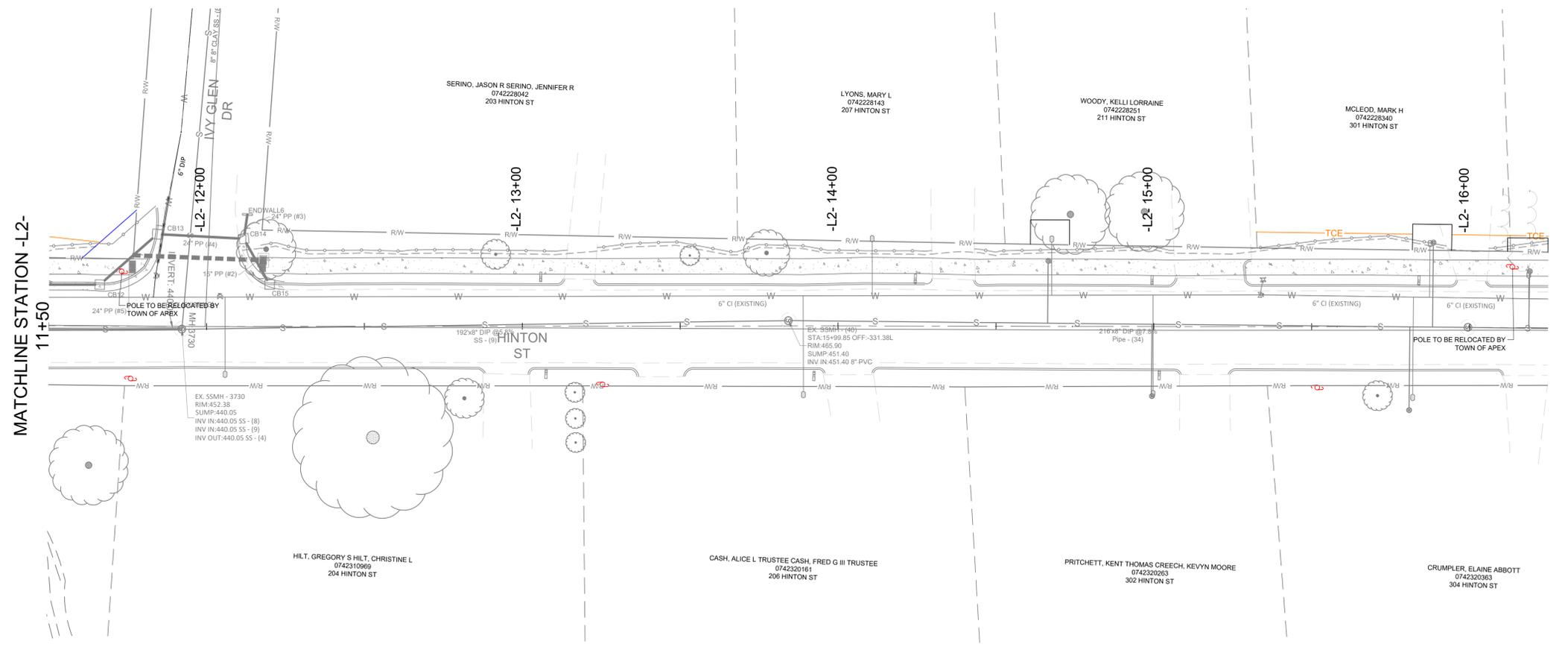
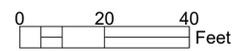
**PRELIMINARY**  
**DO NOT**  
**USE FOR**  
**CONSTRUCTION**



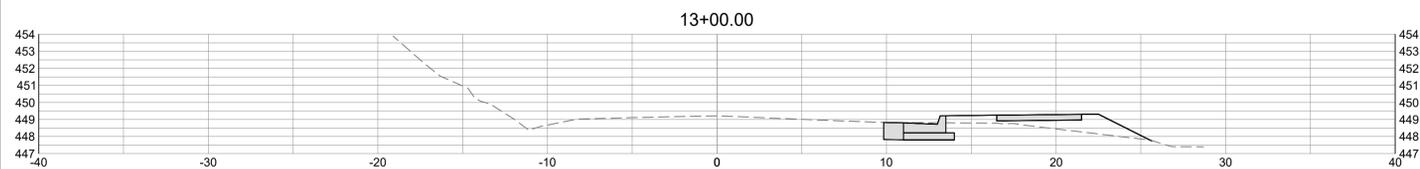
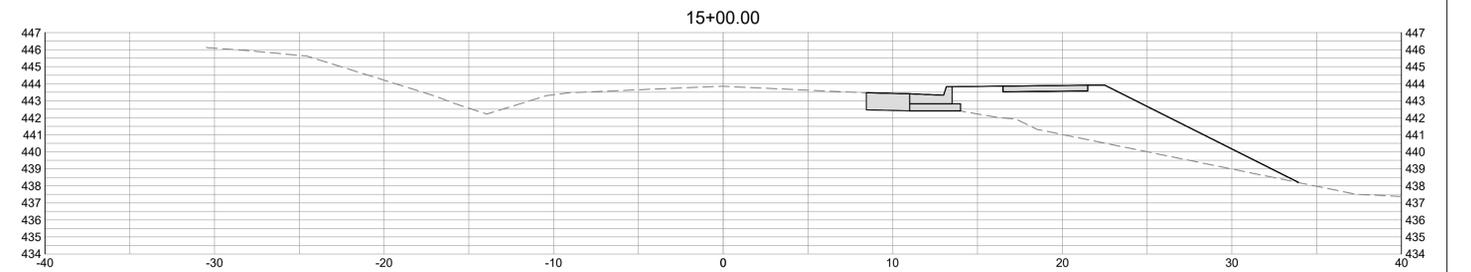
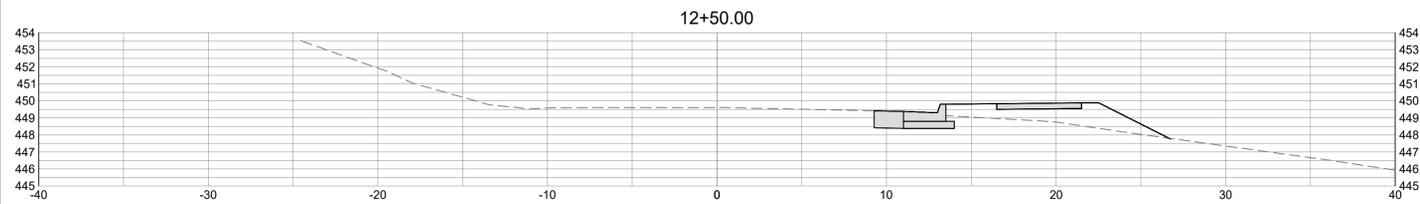
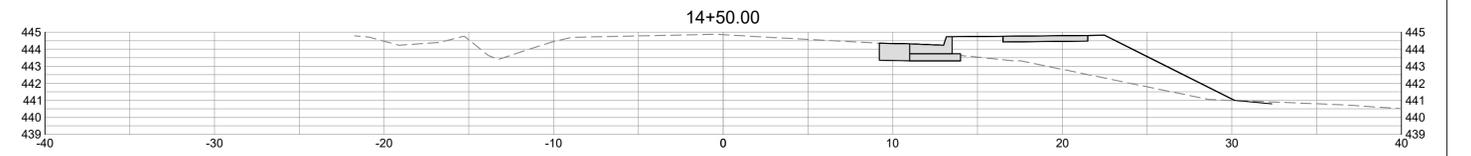
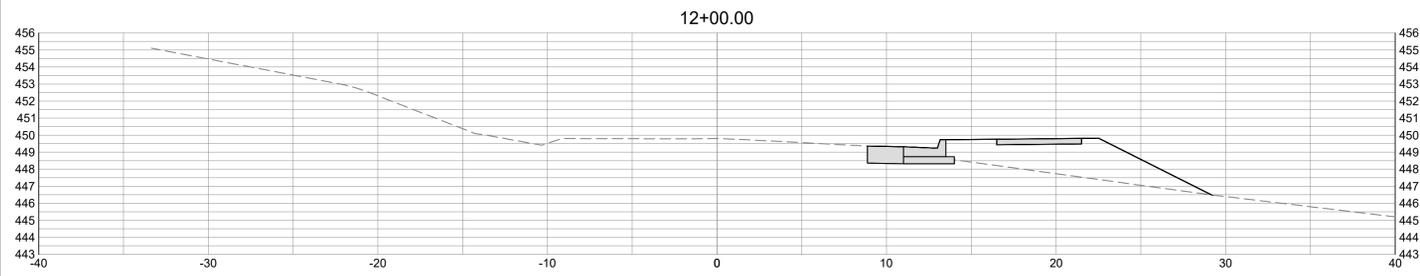
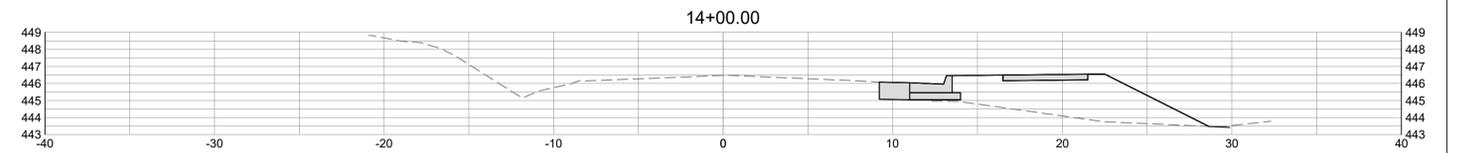
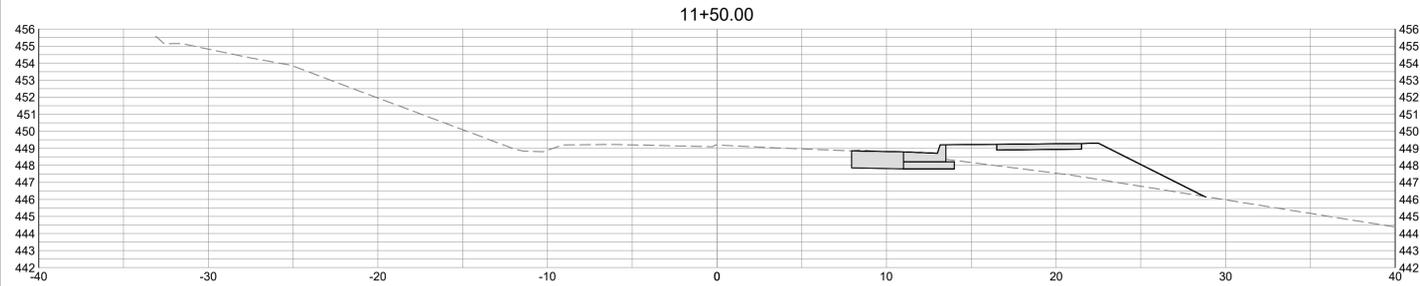
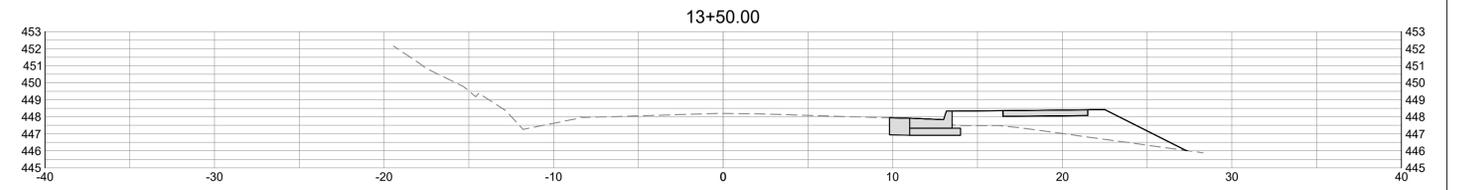
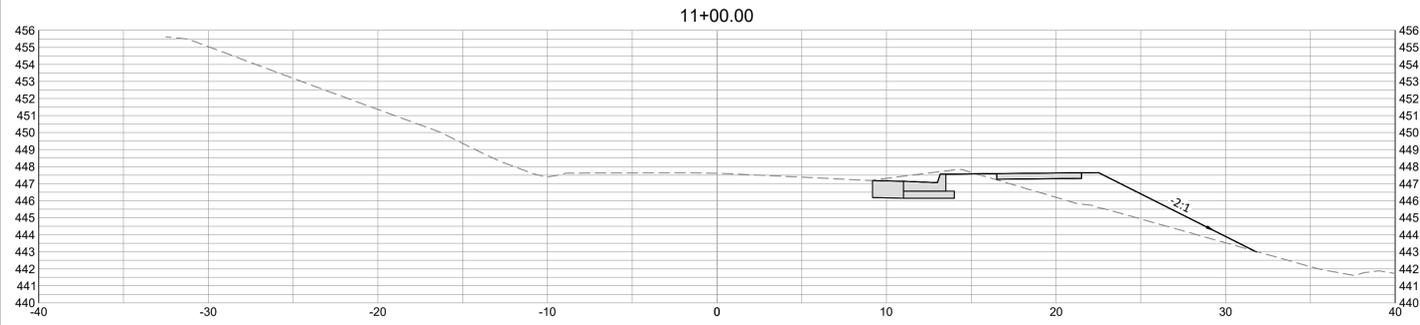
**TOWN OF APEX**  
 TRANSPORTATION & INFRASTRUCTURE  
 DEVELOPMENT  
 105-B UPCHURCH ST  
 APEX, NC 27502  
 919-249-3417



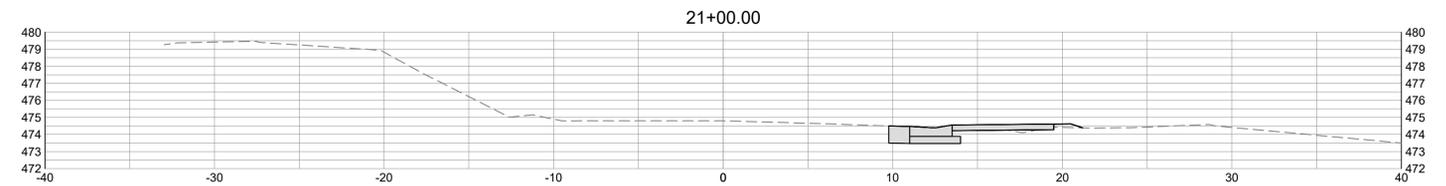
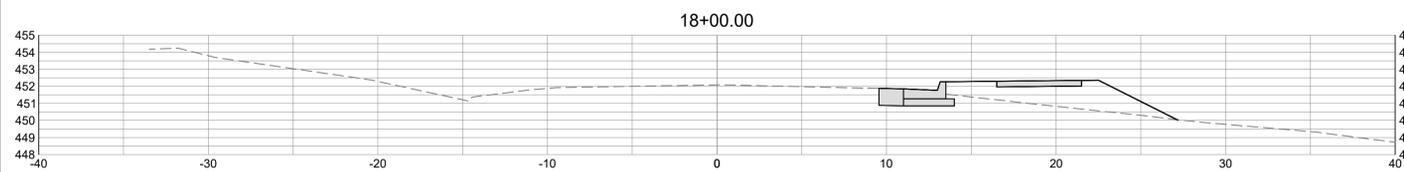
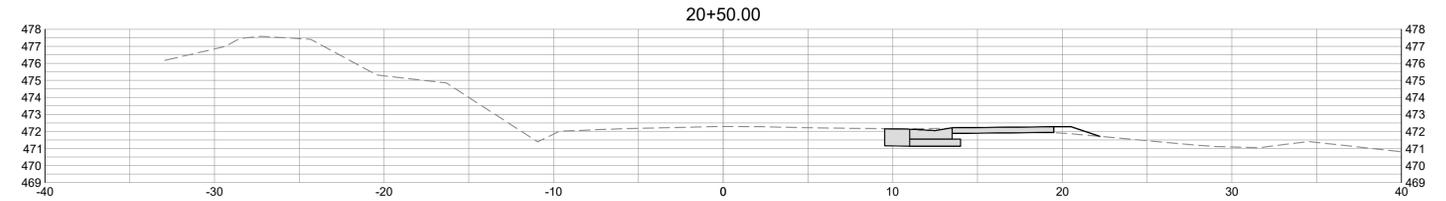
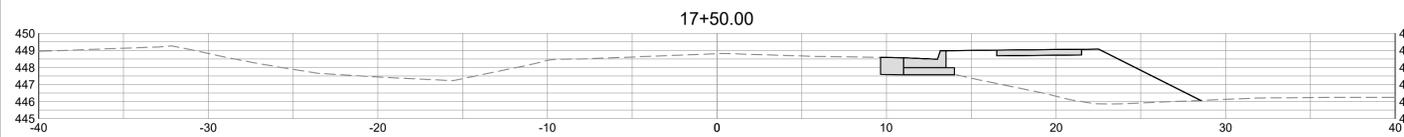
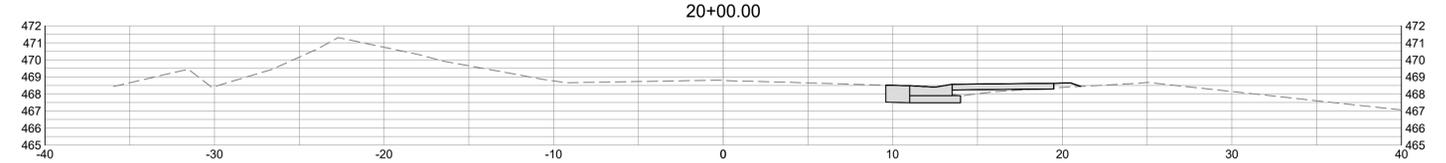
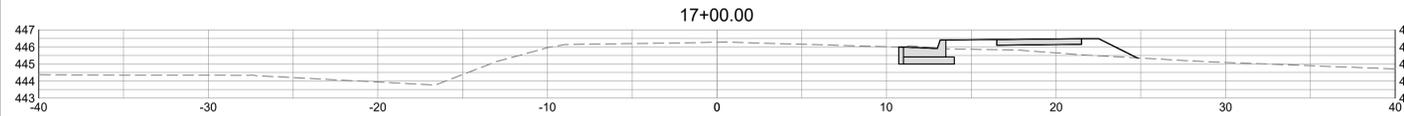
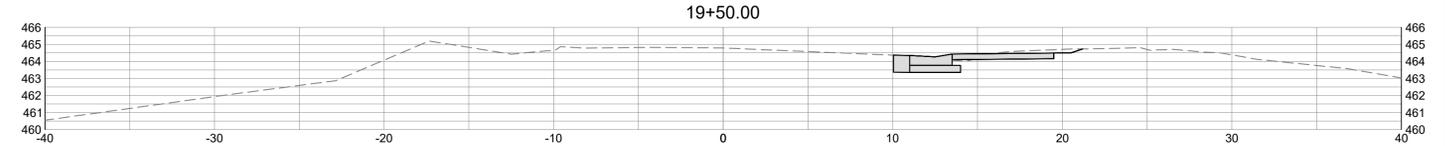
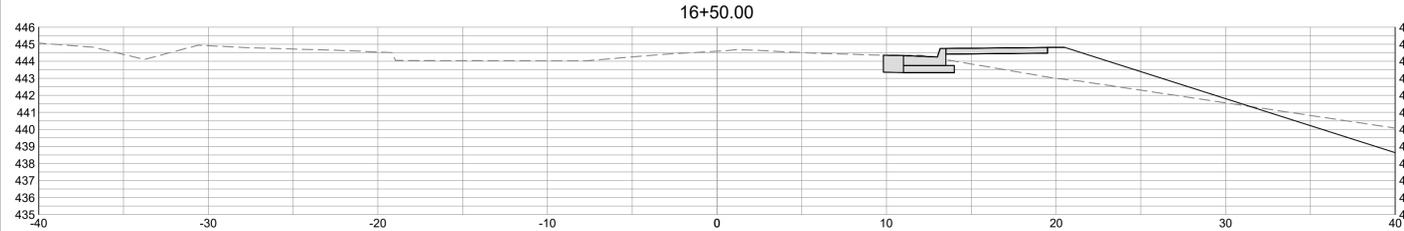
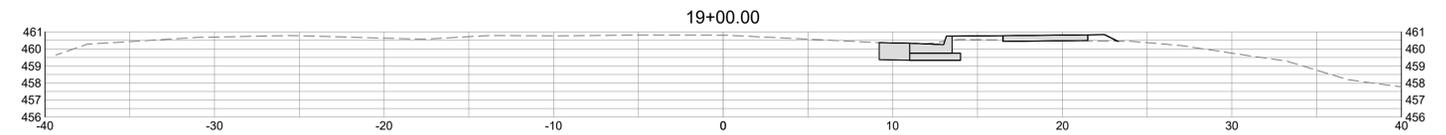
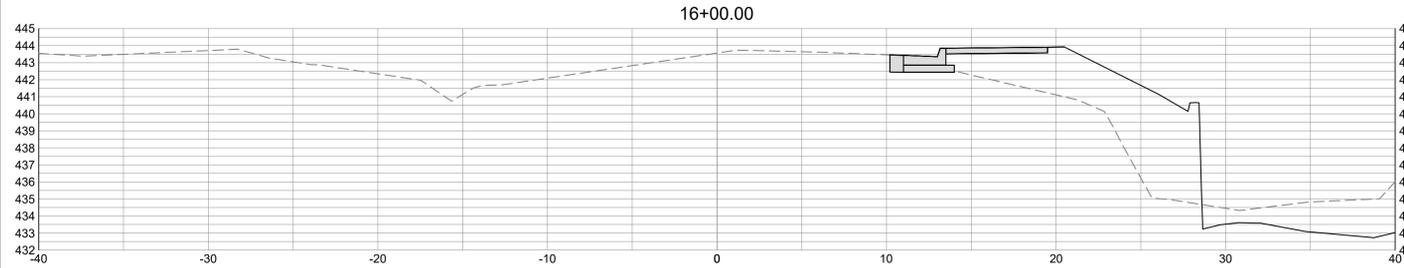
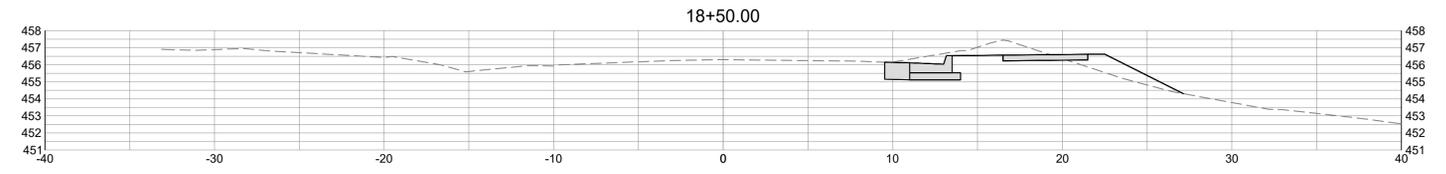
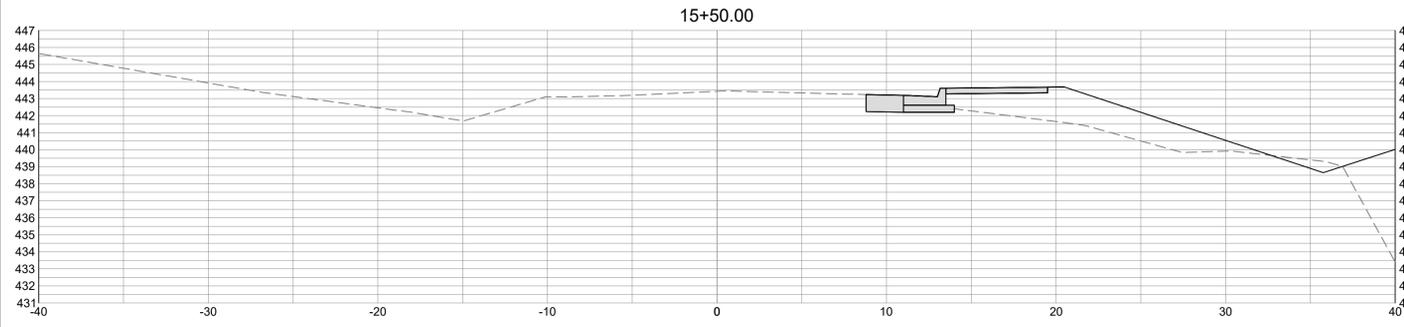
**PRELIMINARY**  
 DO NOT  
 USE FOR  
 CONSTRUCTION



-L1- 11+00 TO 15+50 (SAUNDERS ST)



-L1- 16+00 TO 21+50 (SAUNDERS ST)



-L2- 10+50 TO 18+50 (HINTON ST)

